TRANSPORTATION IMPACT STUDY
VOLUME 1 OF 1

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PROJECT BOLT

MIDDLESEX TOWNSHIP, PA
CARLISLE DEVELOPMENT PARTNERS LLC

PROJECT NO. 1258-01

LIVIC civil

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INTRODUCTION

LIVIC Civil has completed a Transportation Impact Study (TIS) for **Project Bolt**, a proposed hyperscale data center campus in Middlesex Township, Cumberland County, PA. The project site consists of approximately 715 acres of farmland along Country Club Rd. located to the north of US 11 (Harrisburg Pike) and west of Bernheisel Bridge Rd, as shown in **Figure 1 – Location Map**. The site is bounded to the north and west by the Conodoguinet Creek.

Project Bolt will be developed in **three phases**; each phase will include six two-story data center buildings. At full buildout, the site will total a gross development of approximately **4.2 million square feet.** Each phase will operate independently with its own access, security, utilities, and supporting infrastructure. If a sole tenant is to occupy the whole site a Central Administration Building and/or Maintenance Buildings may be constructed. No additional trips will be generated with the construction of these types of support buildings, as they would simply consolidate fewer staff into one location rather than support space within the data centers. Construction is to begin in late 2026. The first phase is projected to be operational by the end of 2027, with full buildout expected within 5 to 7 years.

From a traffic perspective, Project Bolt is expected to generate approximately 2,900 daily vehicle trips at full buildout, which is significantly lower than the traffic that would have been generated by the previously considered residential projects consisting of the Cumberland Knoll and PennTerra Developments. The TIS evaluates the traffic at full buildout condition not a phased approached as required by Middlesex Township. 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



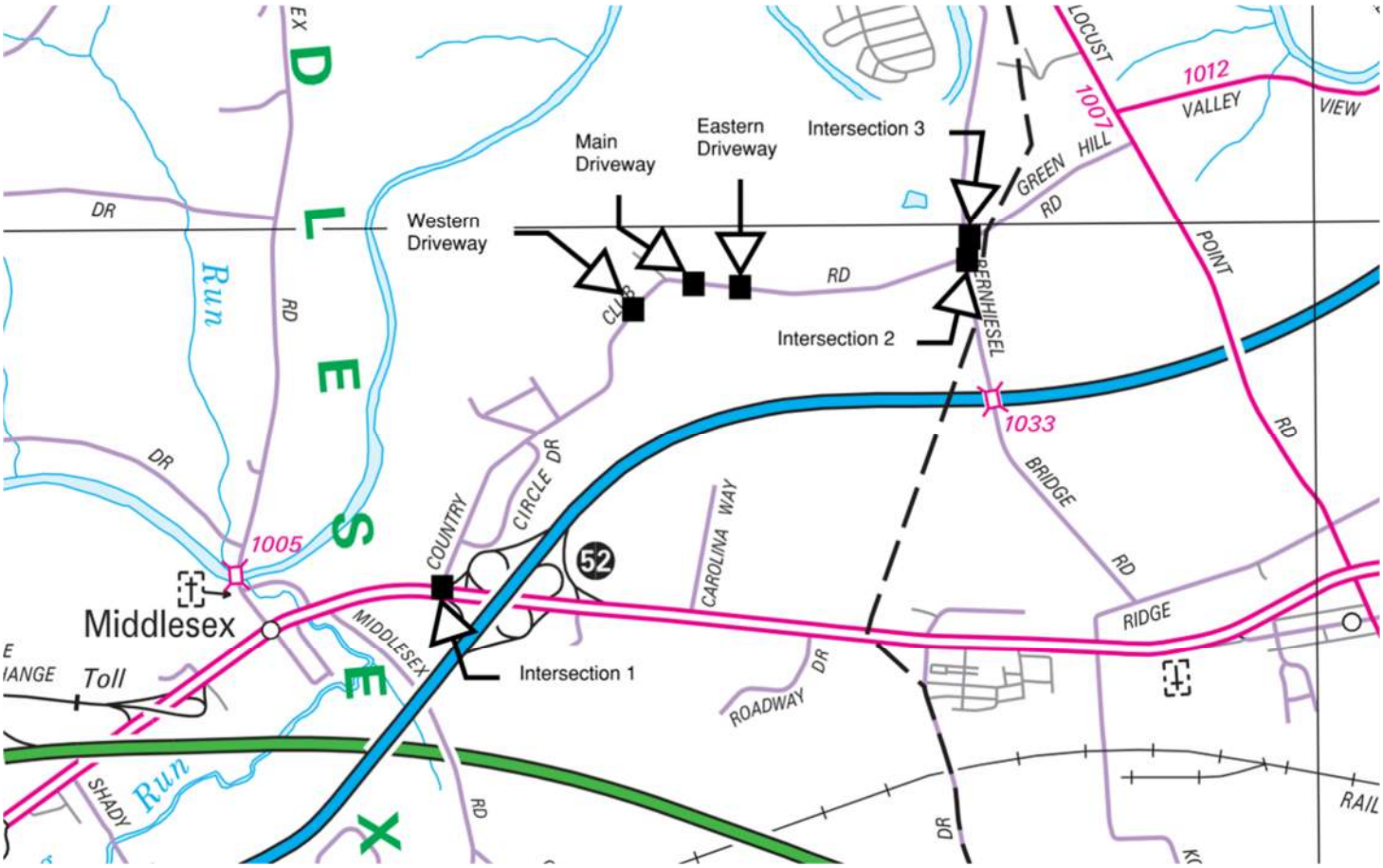
Figure 2 – Project Masterplan (Full Masterplan can be found in Appendix H)

There are three proposed driveways that will connect onto Country Club Road (T-585); a Township roadway. Although none of the public roadways in close proximity of the project are state routes, and as a matter of standard engineering practice, this report has been completed in accordance with the PennDOT *Policies and Procedures for Transportation Impact Studies*, dated September 2022. The project scope and study area were preliminarily reviewed with the Middlesex Township Engineer. All project correspondence pertaining to this study can be found in **Appendix I**.

Proposed Site Access Locations

The project site will be served by three (3) full access driveways. The truck traffic entering and exiting the site will be determined through the gravity model provided in the appendices. See **Appendix K**

- Country Club Rd & Western Driveway
- Country Club Rd & Main Driveway
- Country Club Rd & Eastern 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 Middlesex Township, Cumberland County, PA. Based on the analyses presented, the following conclusions have been reached:

2. The study area intersections included in this report are as follows:
    - SR 11 (Harrisburg Pike) & Country Club Rd
    - Country Club Rd & Bernheisel Bridge Rd
    - Bernheisel Bridge Rd & Green Hill Rd
    - Country Club Rd & Western Driveway
    - Country Club Rd & Main Driveway
    - Country Club Rd & Eastern Driveway

3. The project site is located to the north and west of Country Club Rd (T-585(. The proposed development will consist of a 4,200,000 square foot (SF) Data Center and the proposed opening year build date is set for 2027.

4. The project site will be served by three (3) full access driveways which intersect Country Club Rd. The traffic entering and exiting the site will be determined through the gravity model provided in the appendices. See **Appendix K**

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

6. Upon full build-out, the proposed site is estimated to generate 318 new vehicle trips during the Weekday AM peak hour, 208 new vehicle trips during the Weekday PM peak hour, and 208 new vehicle trips during the Saturday Midday peak hour.

7. Capacity analyses were completed to determine the Level of Service (LOS) at the study area intersections during the 2025 Existing, 2027 Opening Year (No-Build), 2027 Opening Year (Build), 2037 Design Year (No Build), and 2037 Design Year (Build) conditions. These capacity analyses were completed in accordance with PennDOT *Policies and Procedures for Transportation Impact Studies* guidelines.

8. 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, and **Table E3** for the Saturday Midday peak hour.

9. The 95th percentile queue lengths for the study area intersections are provided in **Table E4** for the Weekday AM peak hour, Weekday PM peak hour and Saturday Midday peak hour.

RECOMMENDATIONS & CONCLUSIONS

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

SR 11 (Harrisburg Pike) & Country Club Rd:
- There are no proposed improvements.

Country Club Rd & Bernheisel Bridge Rd:
- There are no proposed improvements.

Bernheisel Bridge Rd & Green Hill Rd:
- There are no proposed improvements.

Country Club Rd & 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.

Country Club Rd & Main Driveway:
- Design the driveway according to PennDOT standards for a Medium 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.

Country Club Rd & 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 2025	Opening Year (No Build) 2027	Opening Year (Build) 2027	Design Year (No Build) 2037	Design Year (Build) 2037
US 11 (Harrisburg Pike) & Country Club Rd	EB	EBL	E(77.6)	E(77.6)	E(68.4)	E(76.4)	E(69.2)
		EBT	A(5.7)	A(5.9)	A(7.1)	A(6.6)	A(7.8)
		EBR	A(5.8)	A(5.8)	A(7.0)	A(6.5)	A(7.8)
	WB	WBL	E(76.4)	E(76.4)	E(76.4)	E(76.4)	E(76.4)
		WBT	A(5.4)	A(5.4)	B(10.6)	A(6.0)	B(11.6)
		WBR	A(5.3)	A(5.4)	B(10.6)	A(6.0)	B(11.6)
	NB	NBL	D(45.3)	D(45.2)	D(42.7)	D(44.6)	D(42.2)
		NBT	D(45.3)	D(45.2)	D(42.7)	D(44.6)	D(42.2)
		NBR	D(45.9)	D(45.8)	D(43.1)	D(45.1)	D(42.6)
	SB	SBL	D(51.7)	D(51.6)	D(50.5)	D(51.3)	D(50.2)
		SBT	D(51.7)	D(51.6)	D(50.5)	D(51.3)	D(50.2)
		SBR	D(51.7)	D(51.6)	D(50.5)	D(51.3)	D(50.2)
	ILOS		**A(9.1)**	**A(9.2)**	**B(14.9)**	**A(9.8)**	**B(15.4)**
Country Club Rd & Bernheisel Bridge Rd	EB	EBL	A(9.5)	A(9.6)	B(11.5)	A(9.7)	B(11.7)
		EBR	A(9.5)	A(9.6)	B(11.5)	A(9.7)	B(11.7)
	NB	NBL	A(9.1)	A(9.1)	A(9.8)	A(9.1)	A(9.8)
		NBT	A(9.1)	A(9.1)	A(9.8)	A(9.1)	A(9.8)
	SB	SBT	A(0)	A(0)	A(0)	A(0)	A(0)
		SBR	A(0)	A(0)	A(0)	A(0)	A(0)
	ILOS		**A(2.38)**	**A(2.36)**	**A(3.24)**	**A(2.39)**	**A(3.25)**
Bernheisel Bridge Rd & Green Hill Rd	WB	WBL	A(9.8)	A(9.8)	B(14.2)	A(9.9)	B(14.7)
		WBR	A(9.8)	A(9.8)	B(14.2)	A(9.9)	B(14.7)
	NB	NBT	A(0)	A(0)	A(0)	A(0)	A(0)
		NBR	A(0)	A(0)	A(0)	A(0)	A(0)
	SB	SBL	A(9.0)	A(9.0)	A(9.2)	A(9.1)	A(9.2)
		SBT	A(9.0)	A(9.0)	A(9.2)	A(9.1)	A(9.2)
	ILOS		**A(7.66)**	**A(7.67)**	**A(8.57)**	**A(7.74)**	**A(8.62)**
Country Club Rd & Western Driveway	EB	EBL	A(0)	A(0)	A(8.6)	A(0)	A(8.6)
		EBR	A(0)	A(0)	A(8.6)	A(0)	A(8.6)
	NB	NBL	A(0)	A(0)	A(8.7)	A(0)	A(8.7)
		NBT	A(0)	A(0)	A(8.7)	A(0)	A(8.7)
	SB	SBT	A(0)	A(0)	A(0)	A(0)	A(0)
		SBR	A(0)	A(0)	A(0)	A(0)	A(0)
	ILOS		**A(0)**	**A(0)**	**A(7.6)**	**A(0)**	**A(7.58)**
Country Club Rd & Main Driveway	EB	EBL	A(0)	A(0)	A(9.5)	A(0)	A(9.5)
		EBT	A(0)	A(0)	A(9.5)	A(0)	A(9.5)
	WB	WBT	A(0)	A(0)	A(0)	A(0)	A(0)
		WBR	A(0)	A(0)	A(0)	A(0)	A(0)
	SB	SBL	A(0)	A(0)	B(10.4)	A(0)	B(10.5)
		SBR	A(0)	A(0)	B(10.4)	A(0)	B(10.5)
	ILOS		**A(0)**	**A(0)**	**A(5.99)**	**A(0)**	**A(6.01)**
Country Club Rd & Eastern Driveway	EB	EBL	A(0)	A(0)	A(9.1)	A(0)	A(9.1)
		EBT	A(0)	A(0)	A(9.1)	A(0)	A(9.1)
	WB	WBT	A(0)	A(0)	A(0)	A(0)	A(0)
		WBR	A(0)	A(0)	A(0)	A(0)	A(0)
	SB	SBL	A(0)	A(0)	A(9.9)	A(0)	A(9.9)
		SBR	A(0)	A(0)	A(9.9)	A(0)	A(9.9)
	ILOS		**A(0)**	**A(0)**	**A(3.55)**	**A(0)**	**A(3.6)**

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

Intersection	Approach Direction	Movement/ Approach	Weekday (PM) Peak Hour				
			Existing Condition 2025	Opening Year (No Build) 2027	Opening Year (Build) 2027	Design Year (No Build) 2037	Design Year (Build) 2037
US 11 (Harrisburg Pike) & Country Club Rd	EB	EBL	E(64.4)	E(64.2)	E(62.0)	E(63.6)	E(61.6)
		EBT	A(8.0)	A(8.1)	B(12.2)	A(9.3)	B(14.0)
		EBR	A(7.9)	A(8.0)	B(12.1)	A(9.2)	B(13.8)
	WB	WBL	E(77.5)	E(77.5)	E(77.5)	E(76.3)	E(76.3)
		WBT	A(6.6)	A(6.7)	B(10.7)	A(7.4)	B(11.7)
		WBR	A(6.5)	A(6.7)	B(10.6)	A(7.4)	B(11.6)
	NB	NBL	D(47.0)	D(47.0)	D(41.3)	D(46.7)	D(41.0)
		NBT	D(47.0)	D(47.0)	D(41.3)	D(46.7)	D(41.0)
		NBR	D(47.5)	D(47.5)	D(41.1)	D(47.2)	D(40.8)
	SB	SBL	D(50.6)	D(50.6)	D(48.6)	D(50.5)	D(48.4)
		SBT	D(50.6)	D(50.6)	D(48.6)	D(50.5)	D(48.4)
		SBR	D(50.6)	D(50.6)	D(48.6)	D(50.5)	D(48.4)
	ILOS		**B(11.0)**	**B(11.1)**	**B(16.1)**	**B(12.0)**	**B(17.3)**
Country Club Rd & Bernheisel Bridge Rd	EB	EBL	A(9.6)	A(9.6)	B(10.5)	A(9.7)	B(10.7)
		EBR	A(9.6)	A(9.6)	B(10.5)	A(9.7)	B(10.7)
	NB	NBL	A(8.8)	A(8.8)	A(8.9)	A(8.8)	A(8.9)
		NBT	A(8.8)	A(8.8)	A(8.9)	A(8.8)	A(8.9)
	SB	SBT	A(0)	A(0)	A(0)	A(0)	A(0)
		SBR	A(0)	A(0)	A(0)	A(0)	A(0)
	ILOS		**A(5.78)**	**(5.76)**	**A(7.09)**	**A(5.79)**	**A(7.13)**
Bernheisel Bridge Rd & Green Hill Rd	WB	WBL	A(9.8)	A(9.8)	B(10.7)	B(10.0)	B(10.9)
		WBR	A(9.8)	A(9.8)	B(10.7)	B(10.0)	B(10.9)
	NB	NBT	A(0)	A(0)	A(0)	A(0)	A(0)
		NBR	A(0)	A(0)	A(0)	A(0)	A(0)
	SB	SBL	A(9.2)	A(9.2)	A(9.6)	A(9.3)	A(9.7)
		SBT	A(9.2)	A(9.2)	A(9.6)	A(9.3)	A(9.7)
	ILOS		**A(5.71)**	**A(5.71)**	**A(5.03)**	**A(5.8)**	**A(5.17)**
Country Club Rd & Western Driveway	EB	EBL	A(0)	A(0)	A(9.0)	A(0)	A(9.0)
		EBR	A(0)	A(0)	A(9.0)	A(0)	A(9.0)
	NB	NBL	A(0)	A(0)	A(8.8)	A(0)	A(8.8)
		NBT	A(0)	A(0)	A(8.8)	A(0)	A(8.8)
	SB	SBT	A(0)	A(0)	A(0)	A(0)	A(0)
		SBR	A(0)	A(0)	A(0)	A(0)	A(0)
	ILOS		**A(0)**	**A(0)**	**A(5.26)**	**A(0)**	**A(5.26)**
Country Club Rd & Main Driveway	EB	EBL	A(0)	A(0)	A(8.7)	A(0)	A(8.7)
		EBT	A(0)	A(0)	A(8.7)	A(0)	A(8.7)
	WB	WBT	A(0)	A(0)	A(0)	A(0)	A(0)
		WBR	A(0)	A(0)	A(0)	A(0)	A(0)
	SB	SBL	A(0)	A(0)	A(9.1)	A(0)	A(9.2)
		SBR	A(0)	A(0)	A(9.1)	A(0)	A(9.2)
	ILOS		**A(0)**	**A(0)**	**A(7.36)**	**A(0)**	**A(7.36)**
Country Club Rd & Eastern Driveway	EB	EBL	A(0)	A(0)	A(8.7)	A(0)	A(8.7)
		EBT	A(0)	A(0)	A(8.7)	A(0)	A(8.7)
	WB	WBT	A(0)	A(0)	A(0)	A(0)	A(0)
		WBR	A(0)	A(0)	A(0)	A(0)	A(0)
	SB	SBL	A(0)	A(0)	A(9.4)	A(0)	A(9.4)
		SBR	A(0)	A(0)	A(9.4)	A(0)	A(9.4)
	ILOS		**A(0)**	**A(0)**	**A(6.95)**	**A(0)**	**A(6.91)**

TABLE E3
LEVEL OF SERVICE DELAY (SECONDS) SUMMARY
SAT MIDDAY PEAK HOUR

Intersection	Approach Direction	Movement/ Approach	Weekend (SAT) Peak Hour				
			Existing Condition 2025	Opening Year (No Build) 2027	Opening Year (Build) 2027	Design Year (No Build) 2037	Design Year (Build) 2037
US 11 (Harrisburg Pike) & Country Club Rd	EB	EBL	E(68.0)	E(68.0)	E(64.5)	E(67.3)	E(64.1)
		EBT	A(4.0)	A(4.0)	A(6.5)	A(4.4)	A(7.0)
		EBR	A(3.9)	A(4.0)	A(6.5)	A(4.3)	A(6.9)
	WB	WBL	F(92.4)	F(92.4)	F(92.4)	F(90.3)	F(90.3)
		WBT	A(4.6)	A(4.7)	A(8.0)	A(5.1)	A(8.6)
		WBR	A(4.6)	A(4.6)	A(8.0)	A(5.1)	A(8.6)
	NB	NBL	D(48.5)	D(48.5)	D(42.0)	D(48.1)	D(41.7)
		NBT	D(48.5)	D(48.5)	D(42.0)	D(48.1)	D(41.7)
		NBR	D(49.1)	D(49.1)	D(42.0)	D(48.7)	D(41.7)
	SB	SBL	D(51.9)	D(51.9)	D(49.6)	D(51.7)	D(49.4)
		SBT	D(51.9)	D(51.9)	D(49.6)	D(51.7)	D(49.4)
		SBR	D(51.9)	D(51.9)	D(49.6)	D(51.7)	D(49.4)
	ILOS		**A(9.0)**	**A(9.0)**	**B(13.7)**	**A(9.3)**	**B(14.0)**
Country Club Rd & Bernheisel Bridge Rd	EB	EBL	A(9.1)	A(9.1)	B(10.0)	A(9.2)	B(10.1)
		EBR	A(9.1)	A(9.1)	B(10.0)	A(9.2)	B(10.1)
	NB	NBL	A(8.8)	A(8.8)	A(8.9)	A(8.8)	A(8.9)
		NBT	A(8.8)	A(8.8)	A(8.9)	A(8.8)	A(8.9)
	SB	SBT	A(0)	A(0)	A(0)	A(0)	A(0)
		SBR	A(0)	A(0)	A(0)	A(0)	A(0)
	ILOS		**A(4.84)**	**A(4.84)**	**A(6.62)**	**A(4.87)**	**A(6.62)**
Bernheisel Bridge Rd & Green Hill Rd	WB	WBL	A(9.0)	A(9.1)	A(9.6)	A(9.1)	A(9.7)
		WBR	A(9.0)	A(9.1)	A(9.6)	A(9.1)	A(9.7)
	NB	NBT	A(0)	A(0)	A(0)	A(0)	A(0)
		NBR	A(0)	A(0)	A(0)	A(0)	A(0)
	SB	SBL	A(8.9)	A(8.9)	A(9.2)	A(8.9)	A(9.2)
		SBT	A(8.9)	A(8.9)	A(9.2)	A(8.9)	A(9.2)
	ILOS		**A(5.82)**	**A(5.84)**	**A(4.68)**	**A(5.83)**	**A(4.52)**
Country Club Rd & Western Driveway	EB	EBL	A(0)	A(0)	A(8.9)	A(0)	A(8.9)
		EBR	A(0)	A(0)	A(8.9)	A(0)	A(8.9)
	NB	NBL	A(0)	A(0)	A(8.7)	A(0)	A(8.7)
		NBT	A(0)	A(0)	A(8.7)	A(0)	A(8.7)
	SB	SBT	A(0)	A(0)	A(0)	A(0)	A(0)
		SBR	A(0)	A(0)	A(0)	A(0)	A(0)
	ILOS		**A(0)**	**A(0)**	**A(5.62)**	**A(0)**	**A(5.64)**
Country Club Rd & Main Driveway	EB	EBL	A(0)	A(0)	A(8.6)	A(0)	A(8.6)
		EBT	A(0)	A(0)	A(8.6)	A(0)	A(8.6)
	WB	WBT	A(0)	A(0)	A(0)	A(0)	A(0)
		WBR	A(0)	A(0)	A(0)	A(0)	A(0)
	SB	SBL	A(0)	A(0)	A(9.0)	A(0)	A(9.1)
		SBR	A(0)	A(0)	A(9.0)	A(0)	A(9.1)
	ILOS		**A(0)**	**A(0)**	**A(7.77)**	**A(0)**	**A(7.8)**
Country Club Rd & Eastern Driveway	EB	EBL	A(0)	A(0)	A(8.6)	A(0)	A(8.6)
		EBT	A(0)	A(0)	A(8.6)	A(0)	A(8.6)
	WB	WBT	A(0)	A(0)	A(0)	A(0)	A(0)
		WBR	A(0)	A(0)	A(0)	A(0)	A(0)
	SB	SBL	A(0)	A(0)	A(9.3)	A(0)	A(9.3)
		SBR	A(0)	A(0)	A(9.3)	A(0)	A(9.3)
	ILOS		**A(0)**	**A(0)**	**A(7.36)**	**A(0)**	**A(7.34)**

TABLE E4
95TH PERCENTILE QUEUE (FEET) ANALYSIS

			QUEUE LENGTH (FEET)																	
			Existing Condition 2025			Opening Year No Build 2027			Opening Year Build 2027			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	SAT	AM	PM	SAT	AM	PM	SAT	AM	PM	SAT	AM	PM	SAT			
US 11 (Harrisburg Pike) & Country Club Rd	EB	EBL	52	75	58	56	93	56	175	97	68	58	74	55	202	191	76	270	270	YES
		EBT	253	286	185	243	331	165	216	399	220	269	362	228	264	410	218	280	280	NO
		EBR	155	222	116	148	222	92	193	341	146	168	285	157	221	321	133	280	280	NO
	WB	WBL	0	90	96	0	97	70	0	71	97	14	111	105	24	70	65	152	152	YES
		WBT	273	336	239	234	316	225	277	369	280	273	343	256	347	367	280	520	520	YES
		WBR	173	210	171	152	221	154	220	303	210	186	270	178	276	291	163	520	520	YES
	NB	NBL	0	32	45	0	39	30	0	35	45	8	51	38	22	42	35	100	100	YES
		NBT	0	32	45	0	39	30	0	35	45	8	51	38	22	42	35	100	100	YES
		NBR	49	47	39	40	47	38	34	42	34	33	48	35	41	43	33	50	50	YES
	SB	SBL	106	86	56	102	89	51	130	153	138	112	125	72	152	188	151	245	245	YES
		SBT	106	86	56	102	89	51	130	153	138	112	125	72	152	188	151	245	245	YES
		SBR	106	86	56	102	89	51	130	153	138	112	125	72	152	188	151	245	245	YES
Country Club Rd & Bernheisel Bridge Rd	EB	EBL	34	39	40	44	39	39	53	46	58	35	41	38	46	61	62	700	700	YES
		EBR	34	39	40	44	39	39	53	46	58	35	41	38	46	61	62	700	700	YES
	NB	NBL	9	9	0	9	9	0	29	0	0	0	0	0	38	9	9	665	665	YES
		NBT	9	9	0	9	9	0	29	0	0	0	0	0	38	9	9	665	665	YES
	SB	SBT	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	220	220	YES
		SBR	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	220	220	YES
Bernheisel Bridge Rd & Green Hill Rd	WB	WBL	35	45	37	34	37	37	58	57	43	37	37	38	67	53	40	105	105	YES
		WBR	35	45	37	34	37	37	58	57	43	37	37	38	67	53	40	105	105	YES
	NB	NBT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	220	220	YES
		NBR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	220	220	YES
	SB	SBL	30	20	14	17	39	18	31	33	31	29	26	17	36	22	29	1000+	1000+	YES
		SBT	30	20	14	17	39	18	31	33	31	29	26	17	36	22	29	1000+	1000+	YES
Country Club Rd & Western Driveway	EB	EBL	0	0	0	0	0	0	32	49	53	0	0	0	33	49	48	N/A	N/A	YES
		EBR	0	0	0	0	0	0	32	49	53	0	0	0	33	49	48	N/A	N/A	YES
	NB	NBL	0	0	0	0	0	0	9	0	0	0	0	0	9	0	0	1000+	1000+	YES
		NBT	0	0	0	0	0	0	9	0	0	0	0	0	9	0	0	1000+	1000+	YES
	SB	SBT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	700	700	YES
		SBR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	700	700	YES
Country Club Rd & Main Driveway	EB	EBL	0	0	0	0	0	0	27	0	9	0	0	0	50	0	0	700	700	YES
		EBT	0	0	0	0	0	0	27	0	9	0	0	0	50	0	0	700	700	YES
	WB	WBT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	775	775	YES
		WBR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	775	775	YES
	SB	SBL	0	0	0	0	0	0	46	59	65	0	0	0	44	65	56	N/A	N/A	YES
		SBR	0	0	0	0	0	0	46	59	65	0	0	0	44	65	56	N/A	N/A	YES
Country Club Rd & Eastern Driveway	EB	EBL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	775	775	YES
		EBT	0	0	0	0	0	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	0	0	0	0	0	150	150	YES
		WBR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	150	150	YES
	SB	SBL	0	0	0	0	0	0	32	42	52	0	0	0	36	43	46	N/A	N/A	YES
		SBR	0	0	0	0	0	0	32	42	52	0	0	0	36	43	46	N/A	N/A	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
US Route 11 (Harrisburg Pike)	48' (four Lanes)	Center and Edge Lines	~3-4' Shoulders	35	Other Principal Arterial	Rural	Regional Arterial
Country Club Rd	22' (two lanes)	Center and Edge Lines	~1'	35	Collector	Rural	Neighborhood Collector
Bernheisel Bridge Rd	22' (two lanes)	Center and Edge Lines	~1'	30	Local	Rural	Local
Green Hill Rd	22' (two lanes)	Center Line	~1'	35	Local	Rural	Local
Western Driveway	TBD' (two lanes)	TBD	TBD	15	Local	Rural	Local
Main Driveway	TBD' (two lanes)	TBD	TBD	15	Local	Rural	Local
Eastern Driveway	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.

- US Route 11 (Harrisburg Pike)

Neighborhood Collector, roadways with a desired operating speed between 25 mph and 35 mph, daily traffic volumes of X<6,000 vehicles per day and intersection spacing between 300-660 ft.

- Country Club Rd

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.

- Bernheisel Bridge Rd
- Green Hill Rd
- Western Driveway
- Main Driveway
- Eastern Driveway

MULTIMODAL FACILITIES

Transit

Rabbittransit currently has a bus route that runs East-West along US 11 (Harrisburg Pike)and goes through intersection one (1), US 11 (Harrisburg Pike) & Country Club Rd. This route is known as Route C.

Rail Centers

Based upon field observations of the study area intersections and roadways, there are no existing rail centers contained within the study area.

Pedestrian/Bike Facilities

Based upon field observations of the study area intersections and roadways, there are no existing pedestrian/bike facilities.

EXISTING TRAFFIC CONDITIONS

Miovision Turning Movement (MTM) counts were conducted at the study intersections on Weekday, February 5, 2025, and February 8, 2025. The counts conducted at the study intersections on Weekday, February 5, 2025, 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 8, 2025, summarized in 15-minute periods were used for this analysis to determine the Saturday Midday (10:00 AM-2:00 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]
SR 11 (Harrisburg Pike) & Country Club Rd	2/5/25	Weekday AM	7:00 AM to 8:00 AM
	2/5/25	Weekday PM	2:45 PM to 3:45 PM
	2/8/25	Saturday Midday	12:30 PM to 1:30 PM
Country Club Rd & Bernheisel Bridge Rd	2/5/25	Weekday AM	6:30 AM to 7:30 AM
	2/5/25	Weekday PM	3:30 PM to 4:30 PM
	2/8/25	Saturday Midday	12:30 PM to 1:30 PM
Bernheisel Bridge Rd & Green Hill Rd	2/5/25	Weekday AM	6:30 AM to 7:30 AM
	2/5/25	Weekday PM	3:30 PM to 4:30 PM
	2/8/25	Saturday Midday	12:30 PM to 1:30 PM
Country Club Rd & Western Driveway	2/5/25	Weekday AM	7:00 AM to 8:00 AM
	2/5/25	Weekday PM	4:00 PM to 5:00 PM
	2/8/25	Saturday Midday	11:30 AM to 12:30 PM
Country Club Rd & Main Driveway	2/5/25	Weekday AM	7:00 AM to 8:00 AM
	2/5/25	Weekday PM	4:00 PM to 5:00 PM
	2/8/25	Saturday Midday	11:30 AM to 12:30 PM
Country Club Rd & Eastern Driveway	2/5/25	Weekday AM	7:00 AM to 8:00 AM
	2/5/25	Weekday PM	4:00 PM to 5:00 PM
	2/8/25	Saturday Midday	11:30 AM to 12:30 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
Country Club Rd	2/5/2025	766

[1]An ATR count was conducted on Country Club Rd
*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 2024 to July 2025 obtained from the PennDOT Bureau of Planning and Research. (BPR). The BPR recommends using a background growth factor of 0.67% per year in Cumberland County for Rural Non-Interstate roadways. This corresponds to an overall growth factor of 1.34% (0.67% per year, compounded for 2 years) for the 2027 opening year.

Nearby Planned Developments

During the pre-study process no nearby planned developments were to be included in this study.

SCHEDULED ROADWAY IMPROVEMENTS

Upon reviewing the PennDOT Transportation Improvement Program (TIP), there are not any proposed roadway improvement projects within the study area.

TRIP GENERATION

Trip generation data for the proposed Data Center was obtained from a local trip generation study following the guidance of the Institute of Transportation Engineers (ITE) *Trip Generation Manual*, Eleventh Edition, 2021. 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
- Saturday Midday Peak Hour

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

TABLE 4
TRIP GENERATION DATA

Land Use	Time Period	Rate/Equation	Variable (SF)	Entering	Exiting
Local Trip Generation	Average Weekday	Average (2857)	4,200,000 SF	49%	51%
	Weekday, Peak Hour of Adjacent Street Traffic (7-9 AM)	Average (318)	4,200,000 SF	80%	20%
	Weekday, Peak Hour of Adjacent Street Traffic (4-6 PM)	Average (208)	4,200,000 SF	15%	85%
	Saturday, Peak Hour of Generator	Average (208)	4,200,000 SF	15%	85%

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	4,200,000 SF	2857	254/31/31	64/177/177
PPL Sub Station		20	5/5/5	5/5/5
			AM/PM/SAT	AM/PM/SAT
Total Trips:			259/36/36	69/182/182

Based upon the trip generation summary shown in **Table 5**, the proposed development will generate approximately 328 new trips during the Weekday AM peak hour, 218 new trips during the Weekday PM peak hour, and 218 new trips during the Saturday Midday peak hour.

TRIP DISTRIBUTION AND ASSIGNMENT

Projected new trips generated by the proposed development were distributed throughout the study area intersections based upon a population gravity model with a 10-minute drive time. These percentages can be found in **Table 6**.

TABLE 6
NEW TRIP DISTRIBUTION PERCENTAGES

Period	Direction (From)	Assignment	Distribution Percentage
AM/PM/SAT PEAKS	East	SR 11 (Harrisburg Pike)	10%
		Green Hill Rd	26%
	West	SR 11 (Harrisburg Pike)	35%
	North	Bernheisel Bridge Rd	19%
	South	Bernheisel Bridge Rd	10%
		Business Driveway	0%
		Total	100%

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

- 45% of new trips will come from the southern side of the proposed site.
- 55% of the new trips will come from the northern side of the site.

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

GRAVITY MODEL PROCEDURE

LIVIC Civil uses ArcGIS Pro and the Network Analyst toolset to conduct Gravity Modeling utilizing a 10-minute drive time ring. A point feature is created at the project site, and County Road and Census Block data is downloaded from the United States Census Bureau's data directory. The Gravity Model calculations and maps are also included in **Appendix K.**

Methodology

The Network Analyst toolset runs on a Network Dataset, which is based on the County Roads. Using the Dataset, the LIVIC GIS Analyst creates drive time rings and travel routes that follow current driving conditions.

Data Preparation

The Census Blocks are converted to point features. A point is created in the center of each census block to represent the starting location of people traveling to the proposed site and nearby gas stations.

The County Roads dataset includes the length of each road segment and the speed limit. With this information, the travel time is calculated for each road segment.

Network Dataset

The Network Dataset accesses the travel times and segment lengths from the County Roads layer to build a road network. For LIVIC's Gravity Modeling, the Dataset establishes a Travel Mode of Minutes to calculate the total amount of time to travel along the road network.

Drive Time Rings

The Network Analyst toolset includes a Service Area tool that creates polygon rings around a facility. This tool generates multiple polygons at specified intervals based on the Travel Mode determined in the Network Dataset.

Starting at the proposed site and nearby gas stations, the tool follows the road network, sums the drive times of each road segment, and creates one-minute interval drive time rings for a ten-minute drive away from each facility. It is assumed that anyone living within the ring can travel to the facility in that amount of time. The rings are symbolized by the drive time.

Travel Routes

The Network Analyst toolset includes a Closest Facility tool that creates routes from a facility along the road network. This tool generates a collection of routes from the facility to an "incident" location with the least impedance specified by the Travel Mode.

Starting at the proposed site and each nearby gas station, the tool follows the road network, sums the drive times of each road segment, and creates a route with the least drive time to each Census Block point. Note, the census points are in the middle of the block, and not on the road network. The Closest Facility tool ends the route on the road segment closest to the census point. Any route that does not reach site within 10 minutes is removed from the analysis.

Travel Approach

Routes are selected and symbolized by their approach on a major road segment determined by LIVIC's GIS Analyst and Traffic Project Designer. Once the approaches are determined, the travel routes are spatially joined with the drive time rings and Census Blocks to calculate the population traveling to the proposed site by each approach in each drive time ring.

Distribution Calculations

The following equation is used to determine percent distribution for each approach to the site:

$$\frac{\sum_{First\ Travel\ Time\ Ring}^{Last\ Travel\ Time\ Ring} \frac{Population}{Travel\ Time^2}}{Approach\ 1 \sum_{First\ Travel\ Time\ Ring}^{Last\ Travel\ Time\ Ring} \frac{Population}{Travel\ Time^2} + Approach\ 2 \sum_{First\ Travel\ Time\ Ring}^{Last\ Travel\ Time\ Ring} \frac{Population}{Travel\ Time^2} + Approach\ 3 \sum_{First\ Travel\ Time\ Ring}^{Last\ Travel\ Time\ Ring} \frac{Population}{Travel\ Time^2} + \cdots}$$

Gravity Model Summary of Results

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 three (3) 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 COUNTRY CLUB ROAD

	Direction	Speed (mph)	Sight Distance (feet)			
			Grade[1] (%)	AASHTO	DES	**EXIST**
Exiting Movements	To the left	15	5	390	233	**669**
	To the right	15	-6	376	275	**569**
Entering Left Turn	Approaching same direction	35	-6	390	275	**458**
	Approach opposite direction	35	5	376	233	**662**

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

	Direction	Speed (mph)	Sight Distance (feet)			
			Grade[1] (%)	AASHTO	DES	**EXIST**
Exiting Movements	To the left	15	-2	390	256	**1000+**
	To the right	15	2	376	242	**523**
Entering Left Turn	Approaching same direction	35	2	390	242	**480**
	Approach opposite direction	35	-2	376	256	**1000+**

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

	Direction	Speed (mph)	Sight Distance (feet)			
			Grade[1] (%)	AASHTO	DES	**EXIST**
Exiting Movements	To the left	15	-5	390	269	**566**
	To the right	15	6	376	231	**1000+**
Entering Left Turn	Approaching same direction	35	6	390	231	**1000+**
	Approach opposite direction	35	-5	376	269	**635**

DES=PennDOT Desirable Sight Distance
EXIST=Measured Sight Distance
[1]=Roadway Grade Approaching Driveway
AASHTO = AASHTO Local Road 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	Full-Access	431	216	Low Volume
Main Driveway	Full-Access	1924	962	Medium Volume
Eastern Driveway	Full-Access	522	261	Low Volume

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)		Description
	Signalized	Unsignalized	
A	≤ 10.0	≤ 10.0	Very low delay, good progression; most vehicles do not stop at intersection;
B	10.1 to 20.0	10.1 to 15.0	Generally good signal progression and/or short cycle length;
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.
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.
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.
F	> 80.0	> 50.0	Unacceptable delay, frequently an indication of over saturation

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), *6th Edition*, utilizing *Synchro 11,* a Trafficware software package. Pennsylvania default values were applied. The following conditions were analyzed:

- 2025 Existing Conditions;
- 2027 Base (No-build) Conditions – Opening year without development;
- 2027 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 2027 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 2027 Opening Year (No-Build) and 2027 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, and 12**. 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
AM LEVEL OF SERVICE DELAY (SECONDS) SUMMARY

AM ILOS Variance Comparison							
Intersection	2025 Existing	2027 No Build	2027 Build	2037 No Build	2037 Build	10 Second Variance	Meets LOS Requirement ?
US 11 (Harrisburg Pike) & Country Club Rd	A(9.1)	A(9.2)	B(14.9)	A(9.8)	B(15.4)	<10	Yes
Country Club Rd & Bernheisel Bridge Rd	A(2.38)	A(2.36)	A(3.24)	A(2.39)	A(3.25)	<10	Yes
Bernheisel Bridge Rd & Green Hill Rd	A(7.66)	A(7.67)	A(8.57)	A(7.74)	A(8.62)	<10	Yes
Country Club Rd & Western Driveway	A(0)	A(0)	A(7.6)	A(0)	A(7.58)	<10	Yes
Country Club Rd & Main Driveway	A(0)	A(0)	A(5.99)	A(0)	A(6.01)	<10	Yes
Country Club Rd & Eastern Driveway	A(0)	A(0)	A(3.55)	A(0)	A(3.6)	<10	Yes

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

TABLE 11
PM LEVEL OF SERVICE DELAY (SECONDS) SUMMARY

PM ILOS Variance Comparison							
Intersection	2025 Existing	2027 No Build	2027 Build	2037 No Build	2037 Build	10 Second Variance	Meets LOS Requirement?
US 11 (Harrisburg Pike) & Country Club Rd	B(11.0)	B(11.1)	B(16.1)	B(12.0)	B(17.3)	<10	Yes
Country Club Rd & Bernheisel Bridge Rd	A(5.78)	A(5.76)	A(7.09)	A(5.79)	A(7.13)	<10	Yes
Bernheisel Bridge Rd & Green Hill Rd	A(5.71)	A(5.71)	A(5.03)	A(5.8)	A(5.17)	<10	Yes
Country Club Rd & Western Driveway	A(0)	A(0)	A(5.26)	A(0)	A(5.26)	<10	Yes
Country Club Rd & Main Driveway	A(0)	A(0)	A(7.36)	A(0)	A(7.36)	<10	Yes
Country Club Rd & Eastern Driveway	A(0)	A(0)	A(6.95)	A(0)	A(6.91)	<10	Yes

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

TABLE 12
SAT MIDDAY LEVEL OF SERVICE DELAY (SECONDS) SUMMARY

SAT ILOS Variance Comparison							
Intersection	2025 Existing	2027 No Build	2027 Build	2037 No Build	2037 Build	10 Second Variance	Meets LOS Requirement?
US 11 (Harrisburg Pike) & Country Club Rd	A(9.0)	A(9.0)	B(13.7)	A(9.3)	B(14.0)	<10	Yes
Country Club Rd & Bernheisel Bridge Rd	A(4.84)	A(4.84)	A(6.62)	A(4.87)	A(6.62)	<10	Yes
Bernheisel Bridge Rd & Green Hill Rd	A(5.82)	A(5.84)	A(4.68)	A(5.83)	A(4.52)	<10	Yes
Country Club Rd & Western Driveway	A(0)	A(0)	A(5.62)	A(0)	A(5.64)	<10	Yes
Country Club Rd & Main Driveway	A(0)	A(0)	A(7.77)	A(0)	A(7.8)	<10	Yes
Country Club Rd & Eastern Driveway	A(0)	A(0)	A(7.36)	A(0)	A(7.34)	<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:

- SR 11 (Harrisburg Pike) & Country Club Rd:
  - Left-turn lane warrants **are satisfied** during the;
    - Existing | AM, PM, SAT Eastbound. PM, SAT Westbound
    - 2027 (No-Build) | AM, PM, SAT Eastbound. PM, SAT Westbound
    - 2027 (Build) | AM, PM, SAT Eastbound. PM, SAT Westbound
    - 2037 (No-Build) | AM, PM, SAT Eastbound. PM, SAT Westbound
    - 2037 (Build) | AM, PM, SAT Eastbound. PM, SAT Westbound
  - Right-turn lane warrants **are not satisfied**.

- Country Club Rd & Bernheisel Bridge Rd:
  - Left-turn lane warrants **are not satisfied**.
  - Right-turn lane warrants **are not satisfied**.

- Bernheisel Bridge Rd & Green Hill Rd:
  - Left-turn lane warrants **are not satisfied**.
  - Right-turn lane warrants **are not satisfied**.

- Country Club Rd & Western Driveway:
  - Left-turn lane warrants **are not satisfied**.
  - Right-turn lane warrants **are not satisfied**.

- Country Club Rd & Main Driveway:
  - Left-turn lane warrants **are not satisfied**.
  - Right-turn lane warrants **are not satisfied**.

- Country Club Rd & Eastern Driveway:
  - Left-turn lane warrants **are not satisfied**.
  - Right-turn lane warrants **are not satisfied**.

As shown in **Table 13**, the existing turn lane lengths are not adequate under the 2037 Build conditions for multiple turn lanes. See Recommendations and Conclusions.

TABLE 13
TURN LANE WARRANT SUMMARY

			TURN LANE WARRANTS																	
			Existing Condition 2025			Opening Year No Build 2027			Opening Year Build 2027			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	SAT	AM	PM	SAT	AM	PM	SAT	AM	PM	SAT	AM	PM	SAT			
US 11 (Harrisburg Pike) & Country Club Rd	EB	EBL	75	75	75	75	75	75	175	100	75	75	75	75	175	100	75	270	270	YES
		EBR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	YES
	WB	WBL	0	75	75	0	75	75	0	75	75	0	75	75	0	75	75	152	152	YES
		WBR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	YES
	NB	NBL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	YES
		NBR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	50	YES
	SB	SBL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	YES
		SBR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	YES
Country Club Rd & Bernheisel Bridge Rd	EB	EBL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	YES
		EBR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	YES
	NB	NBL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	YES
	SB	SBR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	YES
Bernheisel Bridge Rd & Green Hill Rd	WB	WBL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	YES
		WBR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	YES
	NB	NBR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	YES
	SB	SBL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	YES
Country Club Rd & Western Driveway	EB	EBL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	YES
		EBR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	YES
	NB	NBL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	YES
	SB	SBR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	YES
Country Club Rd & Main Driveway	EB	EBL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	YES
	WB	WBR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	YES
	SB	SBL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	YES
		SBR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	YES
Country Club Rd & Eastern Driveway	EB	EBL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	YES
	WB	WBR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	YES
	SB	SBL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	YES
		SBR	0	0	0	0	0	0	0	0	0	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 analyzed at all the unsignalized intersections for the 2037 Build Scenario. The traffic signal warrants can be found in **Appendix K**. The results are summarized below:

- Country Club Rd & Bernheisel Bridge Rd:
  - 8 Hour Signal Warrant – Not Met
  - 4 Hour Signal Warrant – Not Met
  - Peak Hour Signal Warrant – Not Met
  - PA ADT Signal Warrant – Not Met

- Bernheisel Bridge Rd & Green Hill Rd:
  - 8 Hour Signal Warrant – Not Met
  - 4 Hour Signal Warrant – Not Met
  - Peak Hour Signal Warrant – Not Met
  - PA ADT Signal Warrant – Not Met

- Country Club Rd & Western Driveway:
  - 8 Hour Signal Warrant – Not Met
  - 4 Hour Signal Warrant – Not Met
  - Peak Hour Signal Warrant – Not Met
  - PA ADT Signal Warrant – Not Met

- Country Club Rd & Main Driveway:
  - 8 Hour Signal Warrant – Not Met
  - 4 Hour Signal Warrant – Not Met
  - Peak Hour Signal Warrant – Not Met
  - PA ADT Signal Warrant – Not Met

- Country Club Rd & Eastern Driveway:
  - 8 Hour Signal Warrant – Not Met
  - 4 Hour Signal Warrant – Not Met
  - Peak Hour Signal Warrant – Not Met
  - PA ADT Signal Warrant – Not Met

RECOMMENDATIONS & CONCLUSIONS

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

SR 11 (Harrisburg Pike) & Country Club Rd:
- There are no proposed improvements.

Country Club Rd & Bernheisel Bridge Rd:
- There are no proposed improvements.

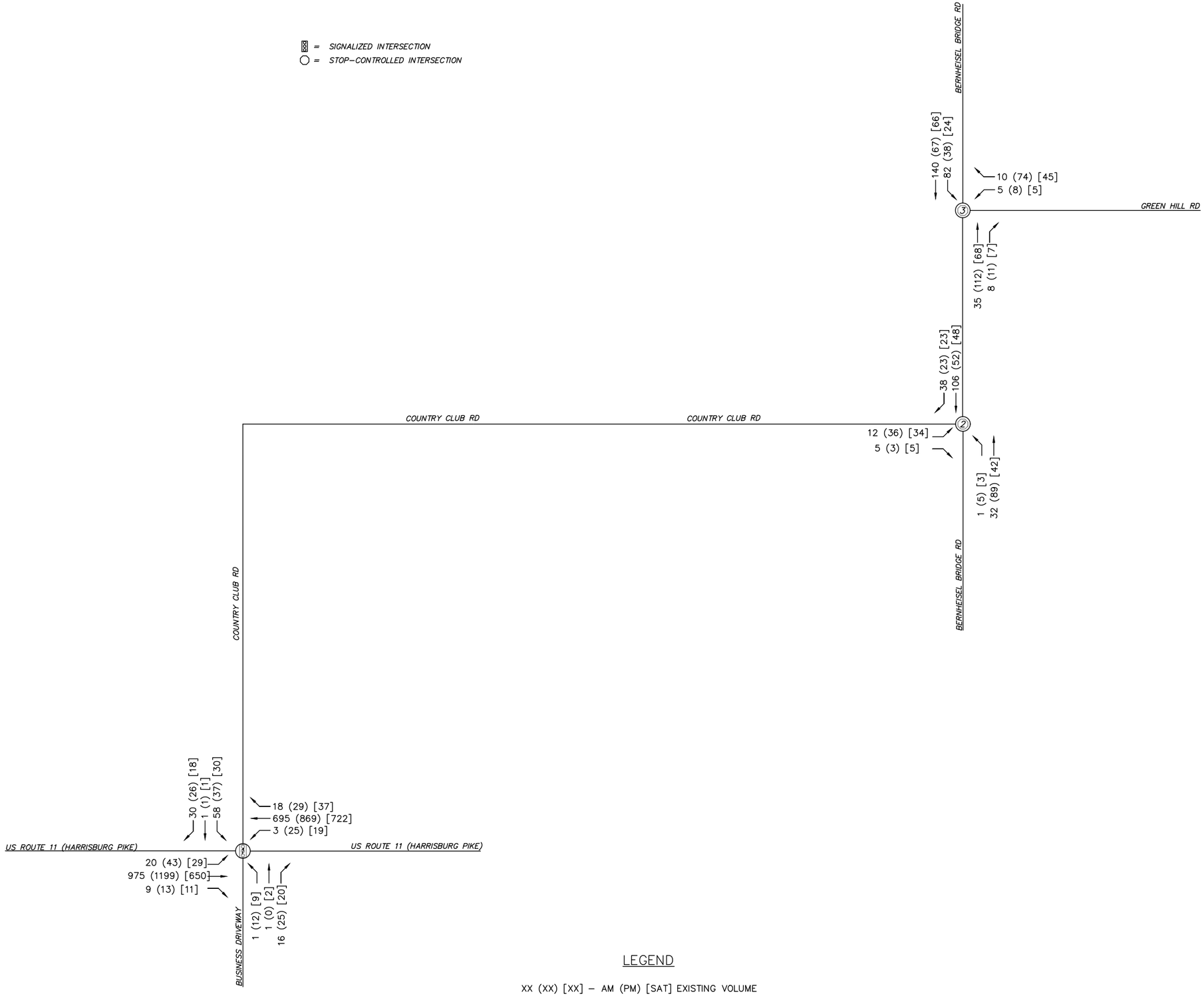
Bernheisel Bridge Rd & Green Hill Rd:
- There are no proposed improvements.

Country Club Rd & 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.

Country Club Rd & Main Driveway:
- Design the driveway according to PennDOT standards for a Medium 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.

Country Club Rd & 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



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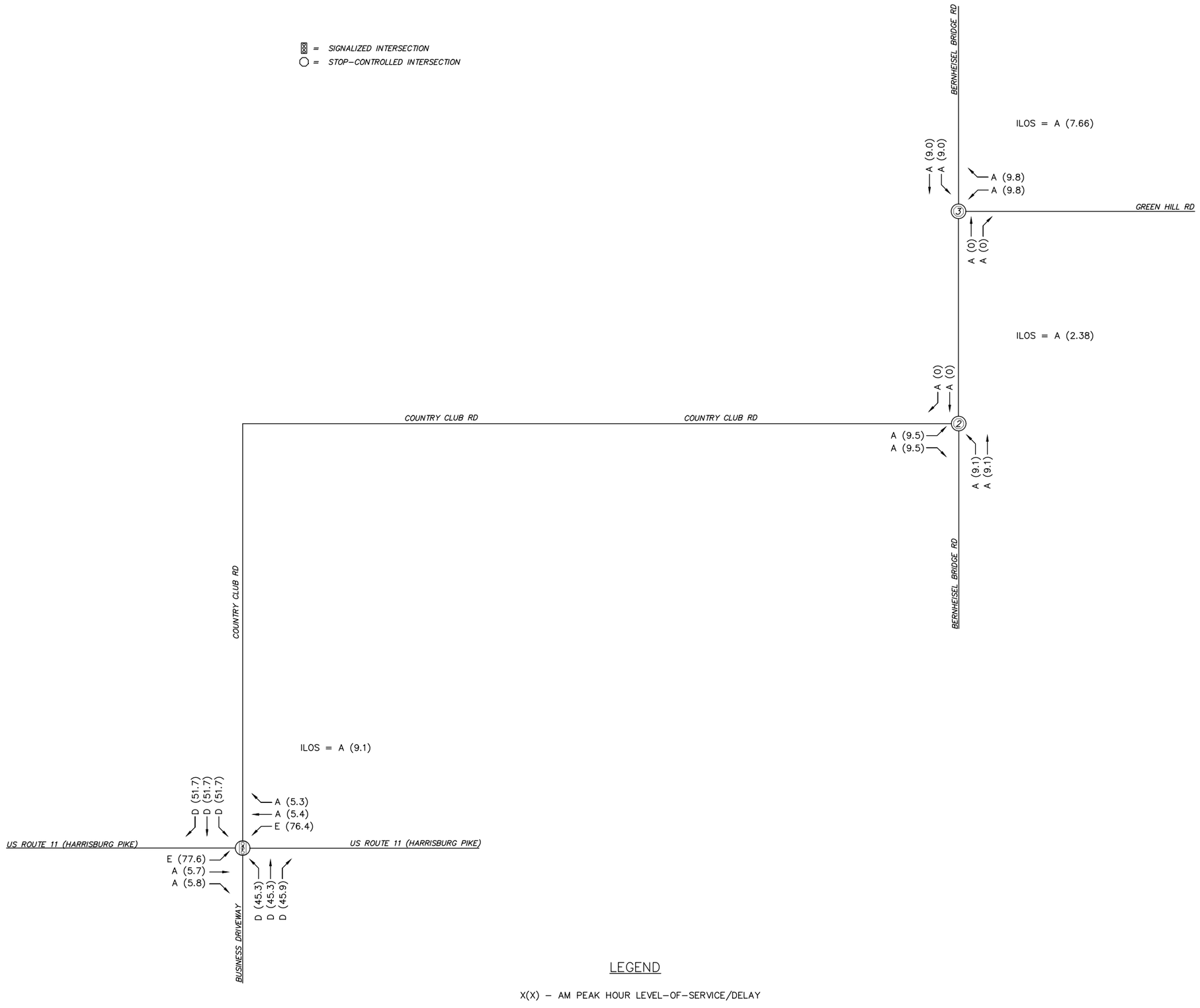
SHEET TITLE

2025 EXISTING YEAR VOLUME FIGURE

SHEET NO.

APPENDIX A-1

Appendix B - Existing Level-Of Service Figures



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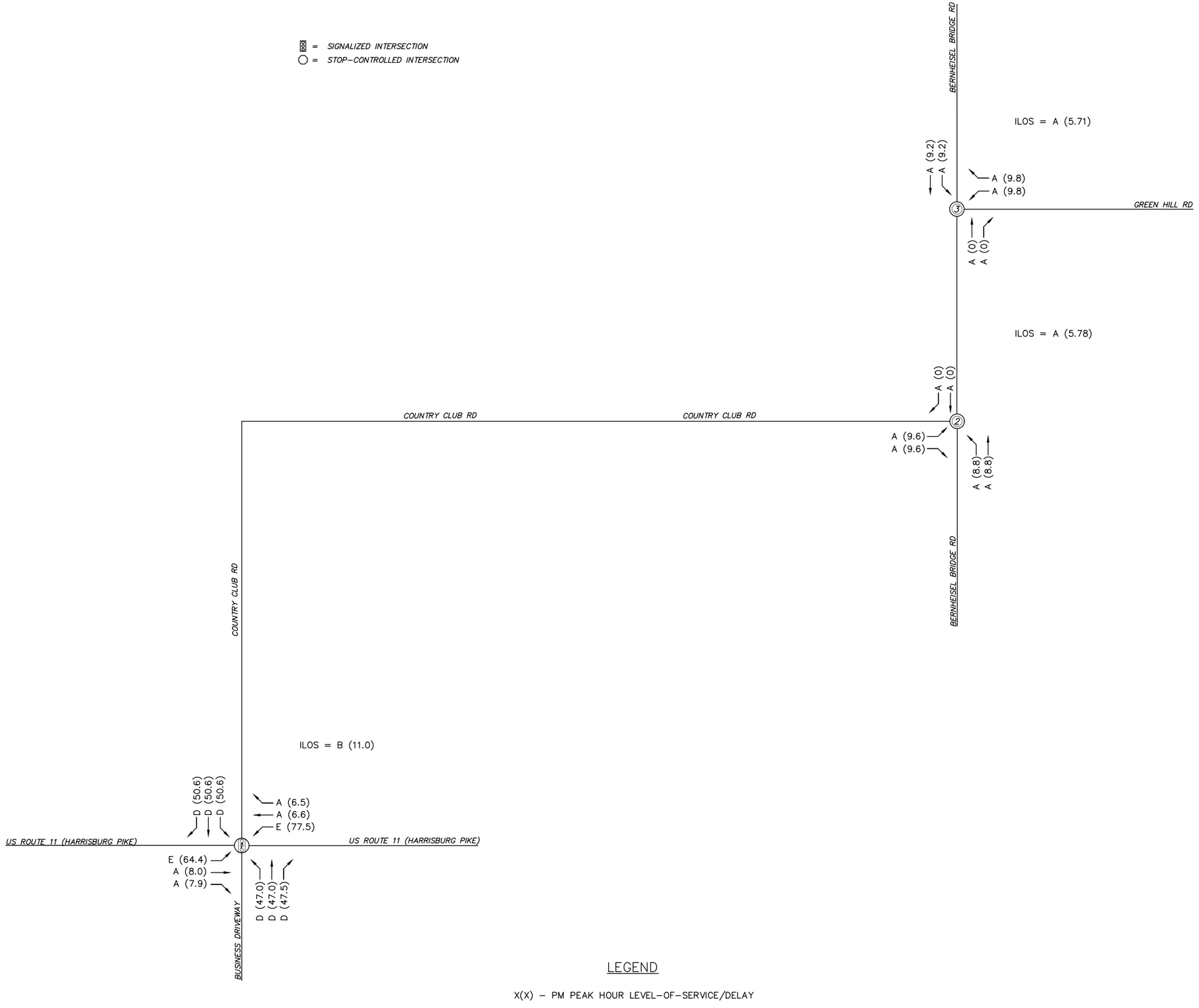
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SHEET TITLE

2025 EXISTING YEAR AM LOS FIGURE

SHEET NO.

APPENDIX B-1



LEGEND

X(X) – PM PEAK HOUR LEVEL-OF-SERVICE/DELAY

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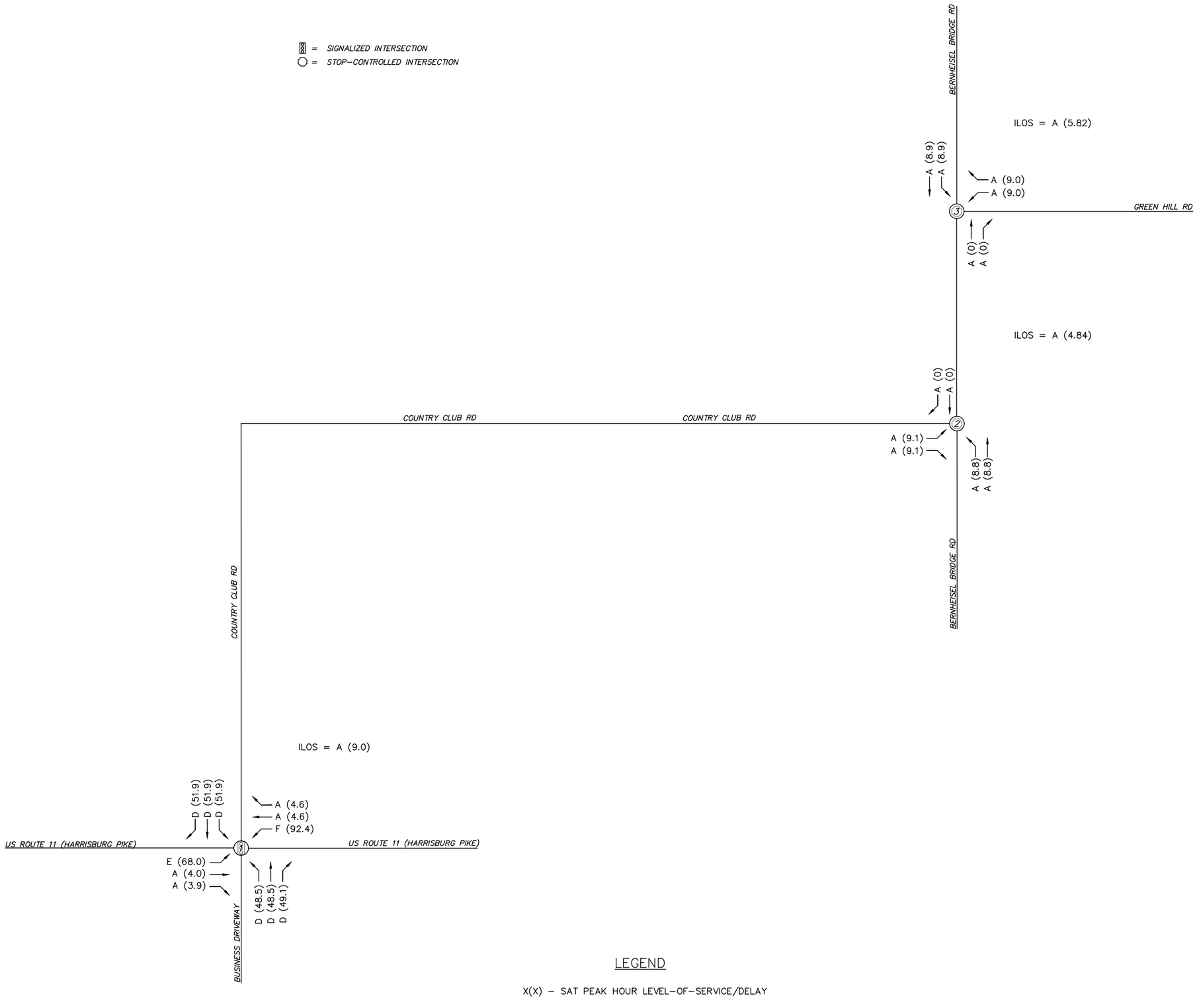
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SHEET TITLE

2025 EXISTING YEAR PM LOS FIGURE

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APPENDIX B-2



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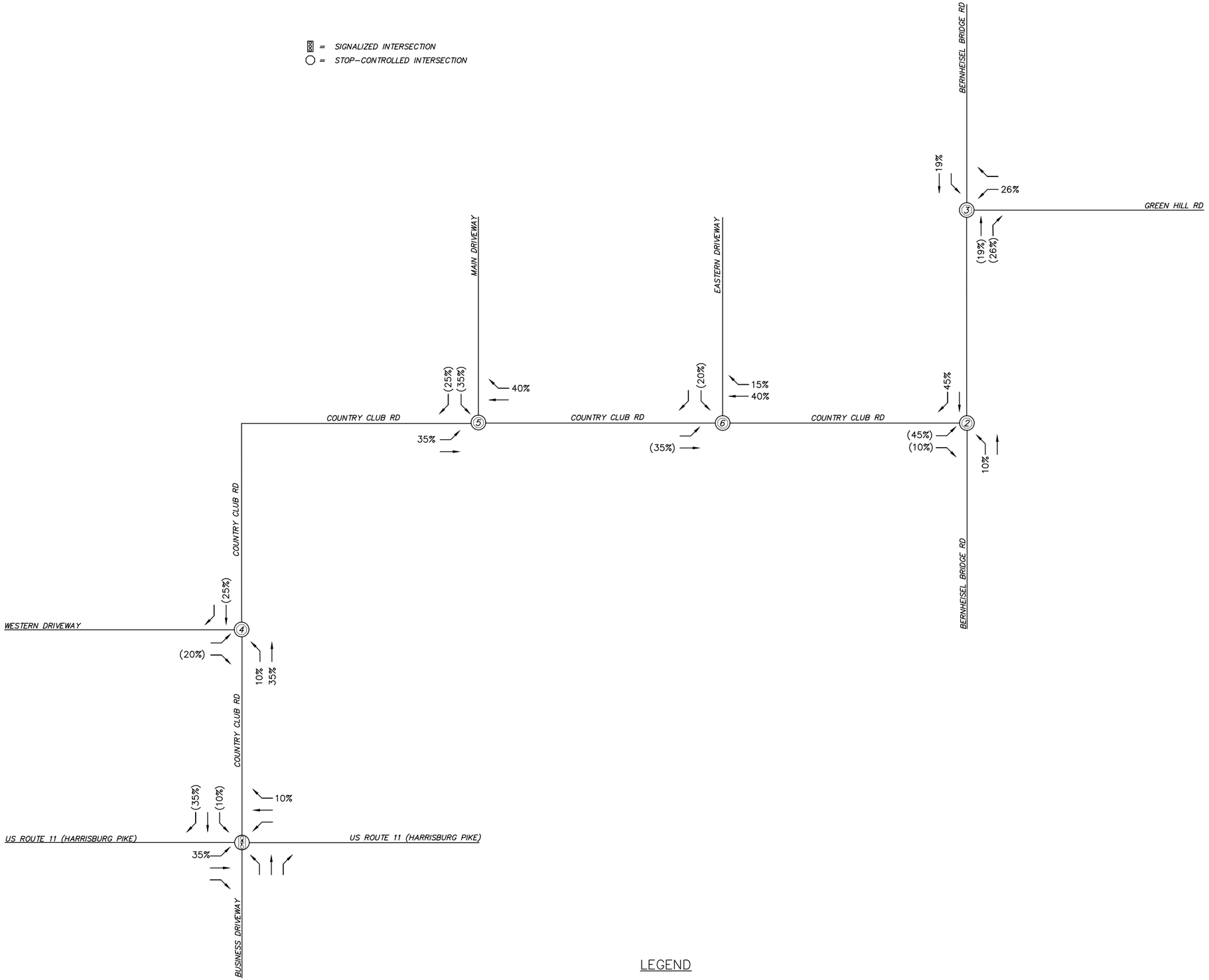
SHEET TITLE

2025
EXISTING YEAR
SAT LOS FIGURE

SHEET NO.

APPENDIX B-3

Appendix C - Trip Assignment Figures



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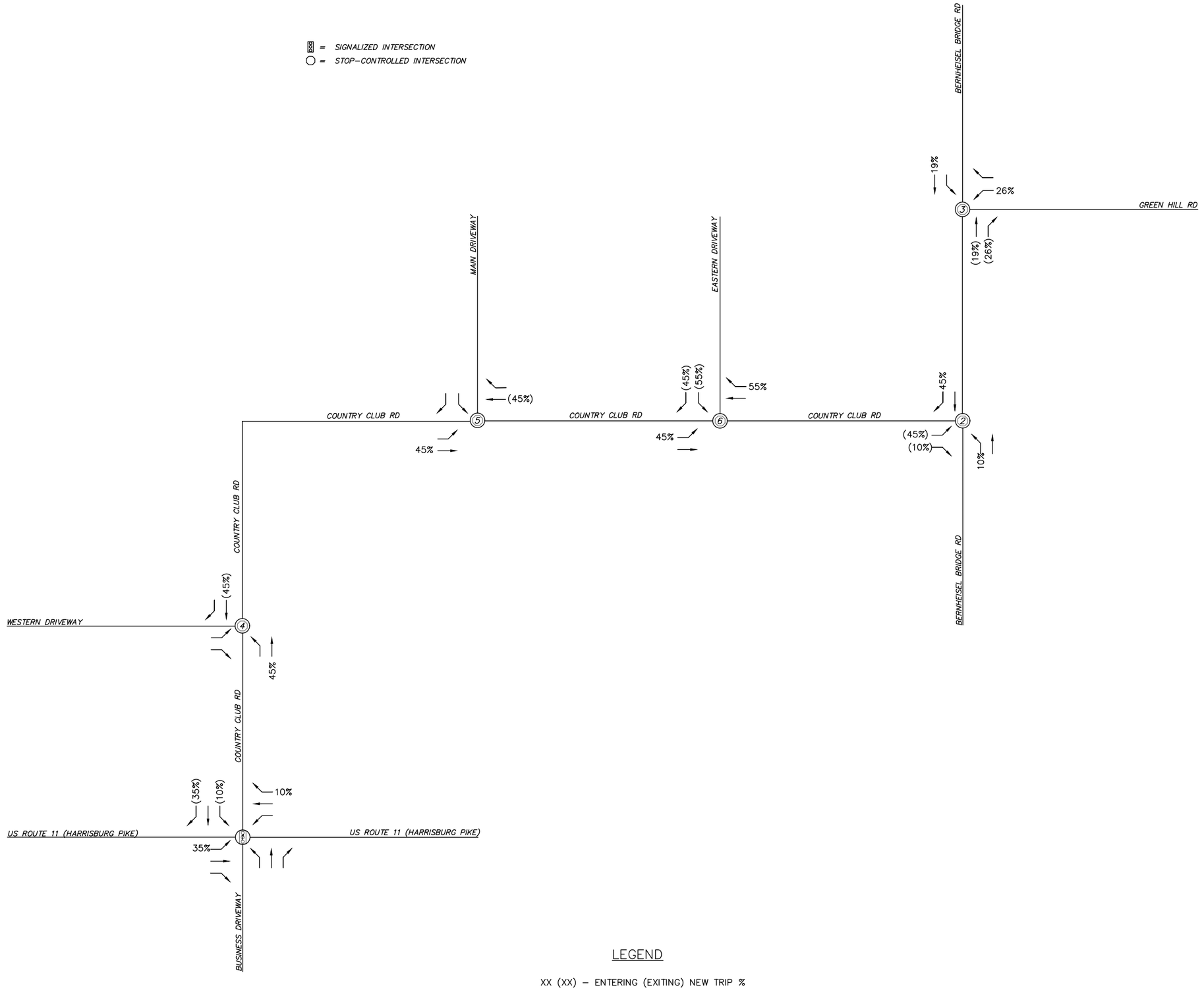
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SHEET TITLE

DATA CENTER: NEW TRIP ASSIGNMENT % FIGURE

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APPENDIX C-1



LEGEND

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

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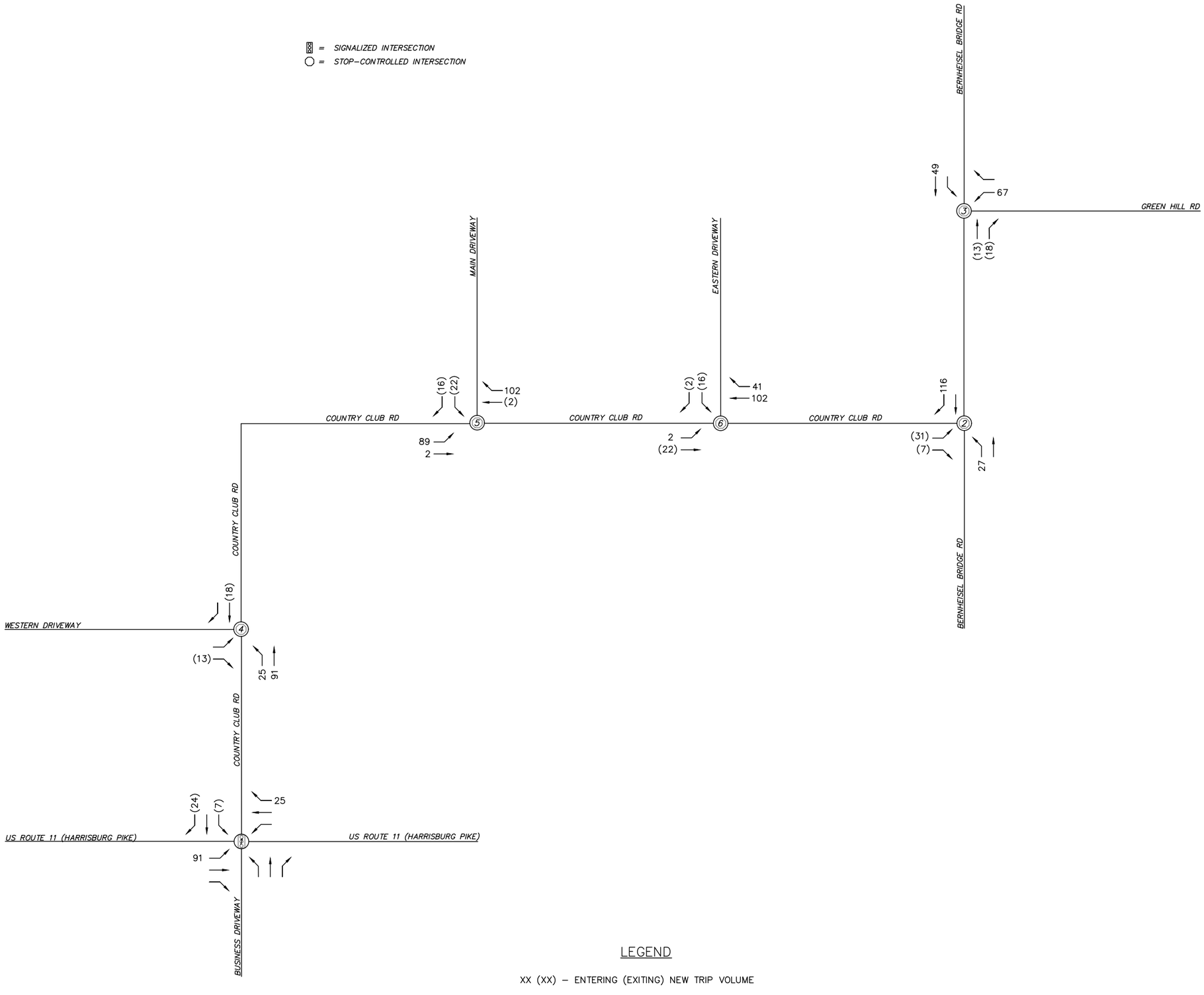
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SHEET TITLE

POWER STATION: NEW TRIP ASSIGNMENT % FIGURE

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APPENDIX C-2



LEGEND

XX (XX) – ENTERING (EXITING) NEW TRIP VOLUME

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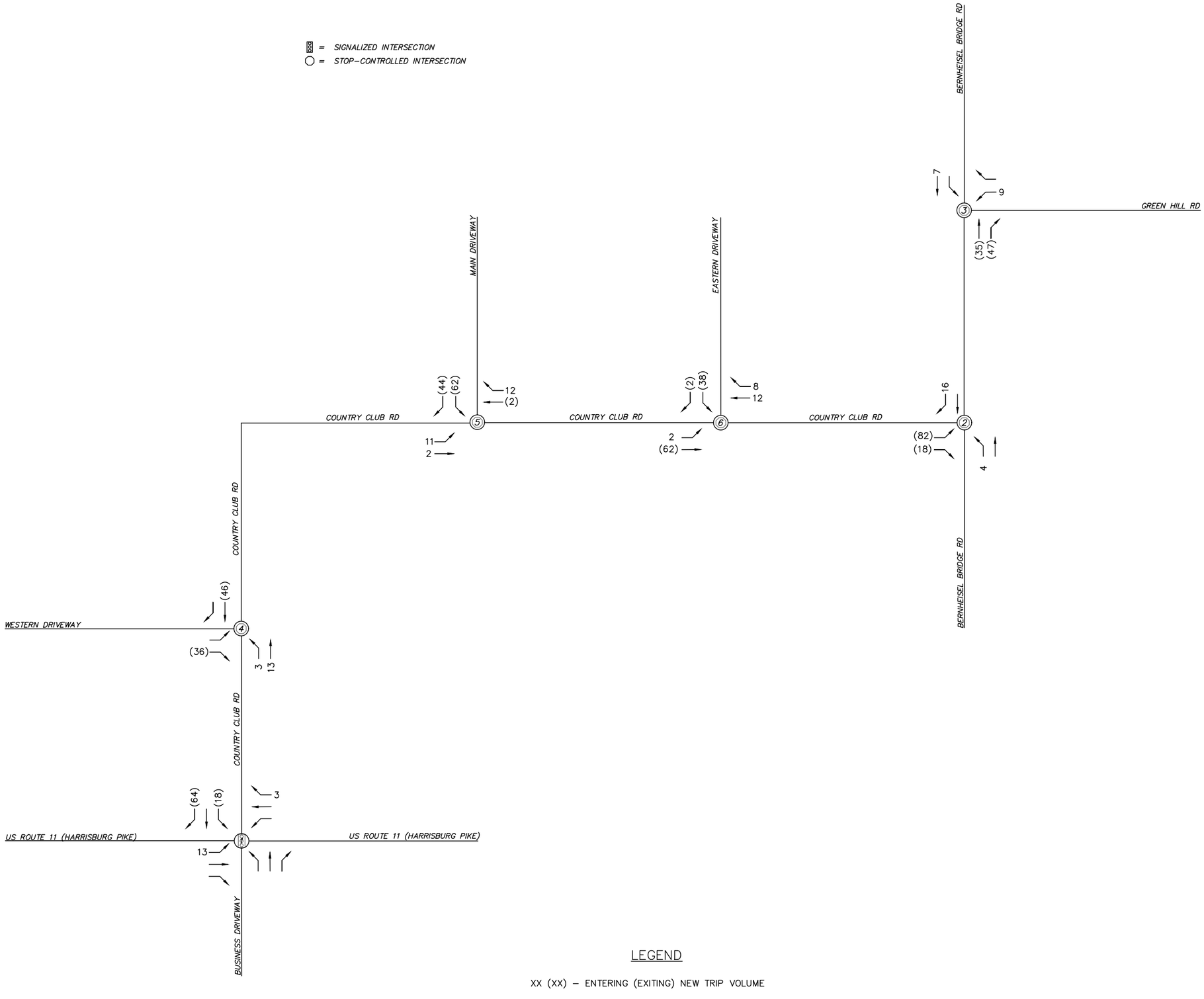
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SHEET TITLE

AM NEW TRIP ASSIGNMENT VOLUME FIGURE

SHEET NO.

APPENDIX C-3



LEGEND

XX (XX) – ENTERING (EXITING) NEW TRIP VOLUME

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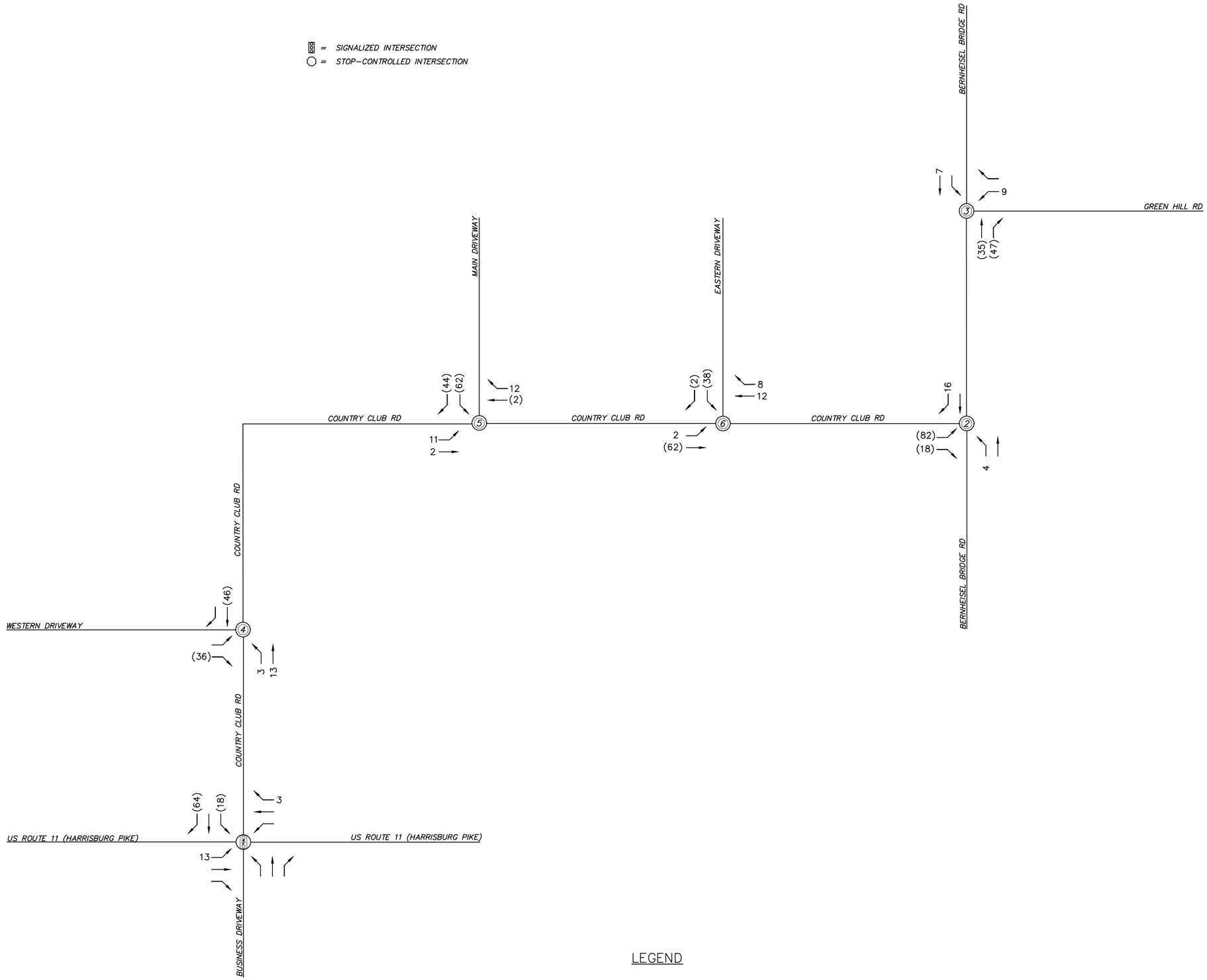
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SHEET TITLE

PM NEW TRIP ASSIGNMENT VOLUME FIGURE

SHEET NO.

APPENDIX C-4



LEGEND

XX (XX) – ENTERING (EXITING) NEW TRIP VOLUME

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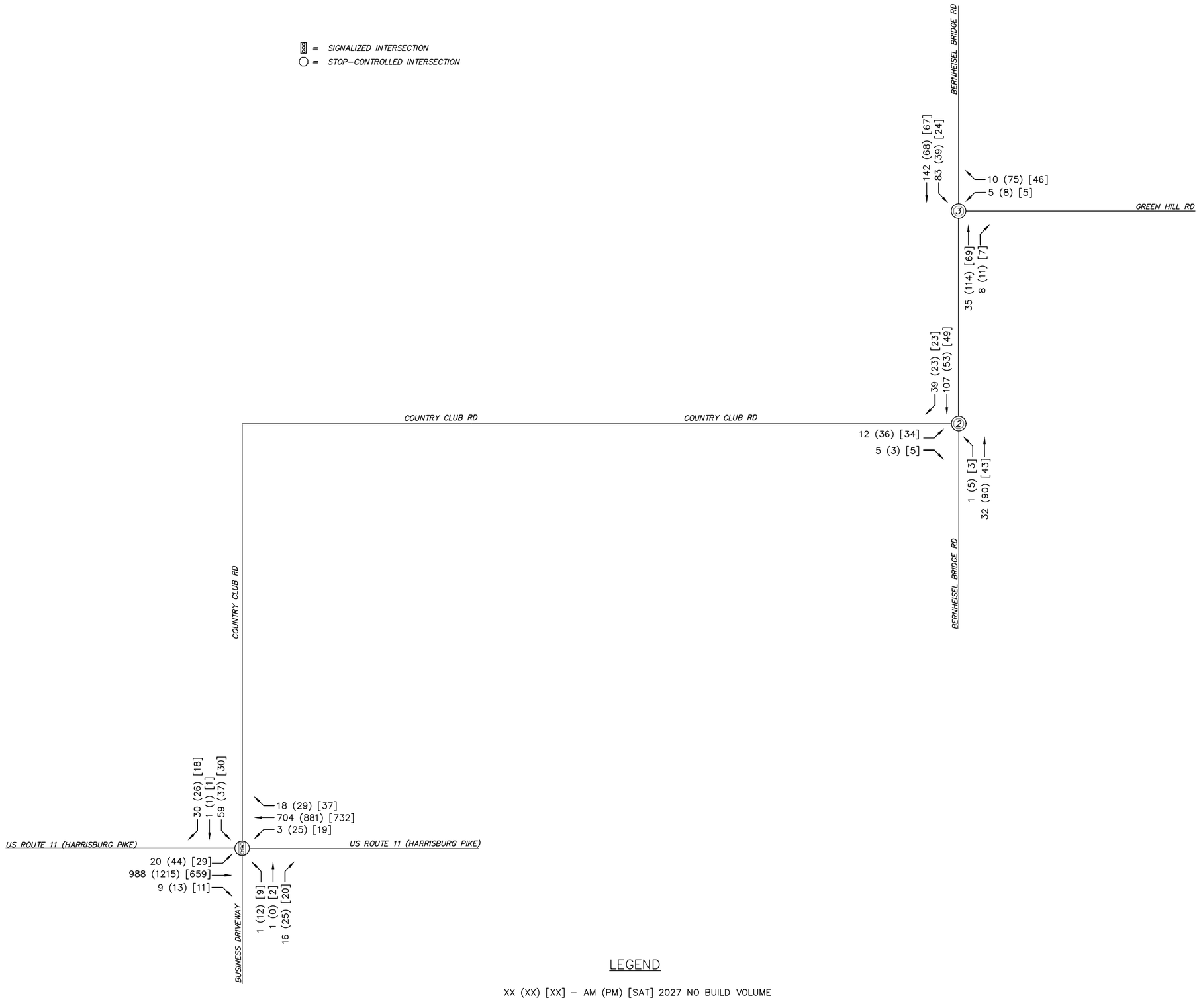
SHEET TITLE

SAT NEW TRIP ASSIGNMENT VOLUME FIGURE

SHEET NO.

APPENDIX C-5

Appendix D - Opening Year Traffic Volumes Figures



LEGEND

XX (XX) [XX] – AM (PM) [SAT] 2027 NO BUILD VOLUME

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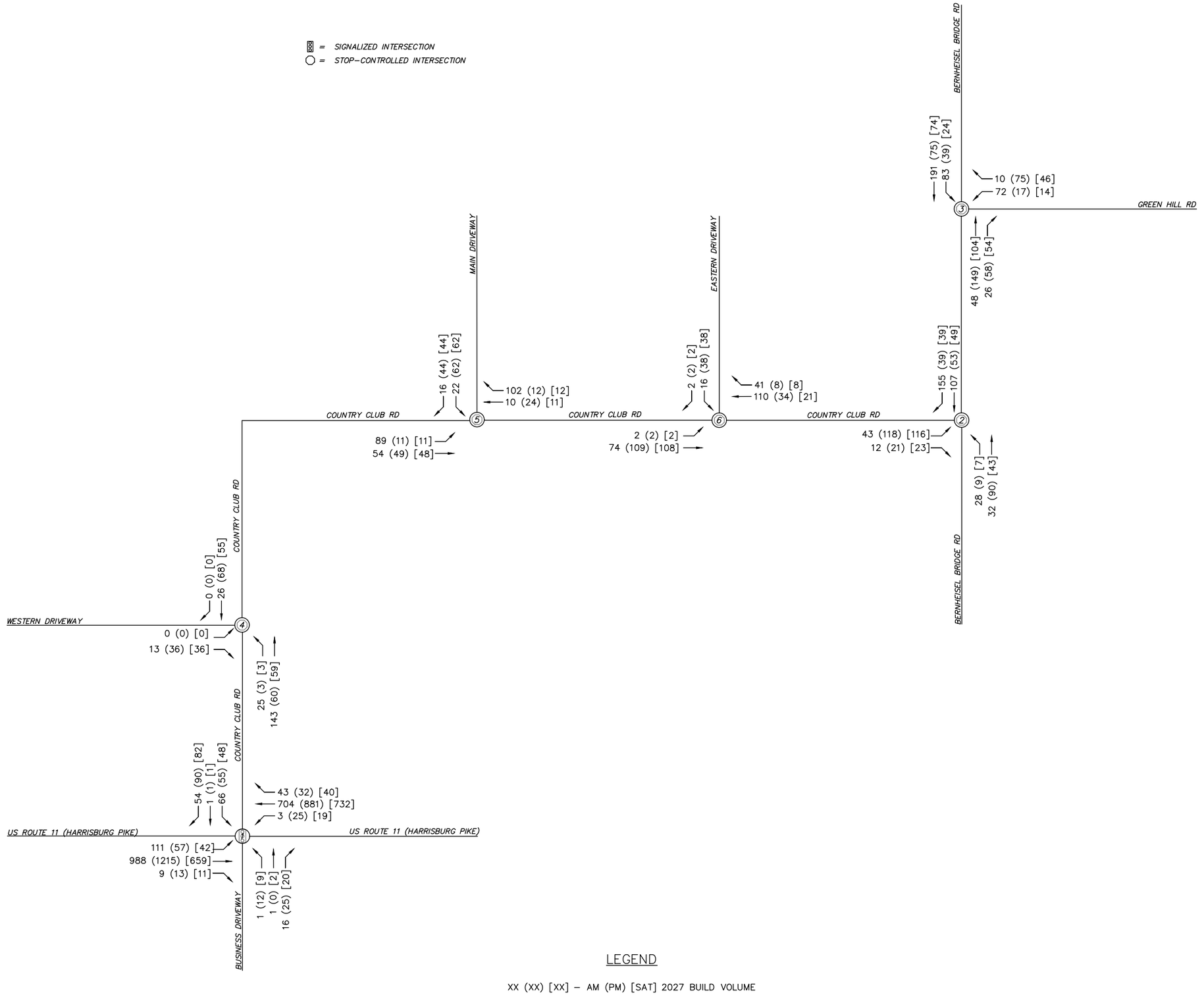
CLIENT

KMWW PARTNERSHIP

SHEET TITLE

2027 OPENING YEAR (NO-BUILD) VOLUME FIGURE

SHEET NO. APPENDIX D-1



LEGEND

XX (XX) [XX] – AM (PM) [SAT] 2027 BUILD VOLUME

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CLIENT

KMWW PARTNERSHIP

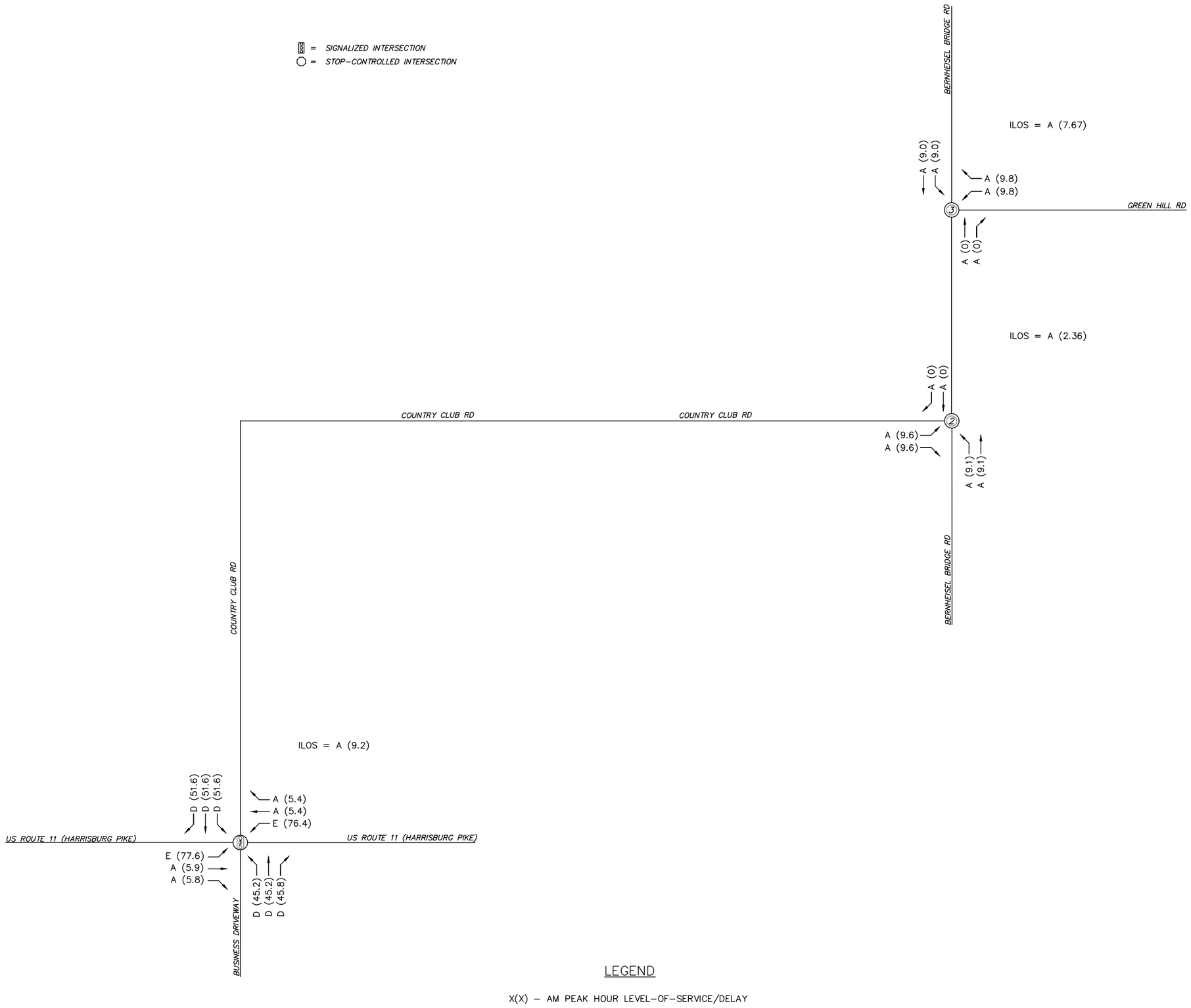
SHEET TITLE

2027 OPENING YEAR (BUILD) VOLUME FIGURE

SHEET NO.

APPENDIX D-2

Appendix E - Opening Year Level-Of-Service Figures



LEGEND

X(X) – AM PEAK HOUR LEVEL-OF-SERVICE/DELAY

REV	DATE	COMMENTS

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DRAWN BY: JBS	CHECKED BY: HRZ

PROJECT

AGRI PARK 81 DATA CENTER

MIDDLESEX TOWNSHIP
CUMBERLAND COUNTY
PENNSYLVANIA

CLIENT

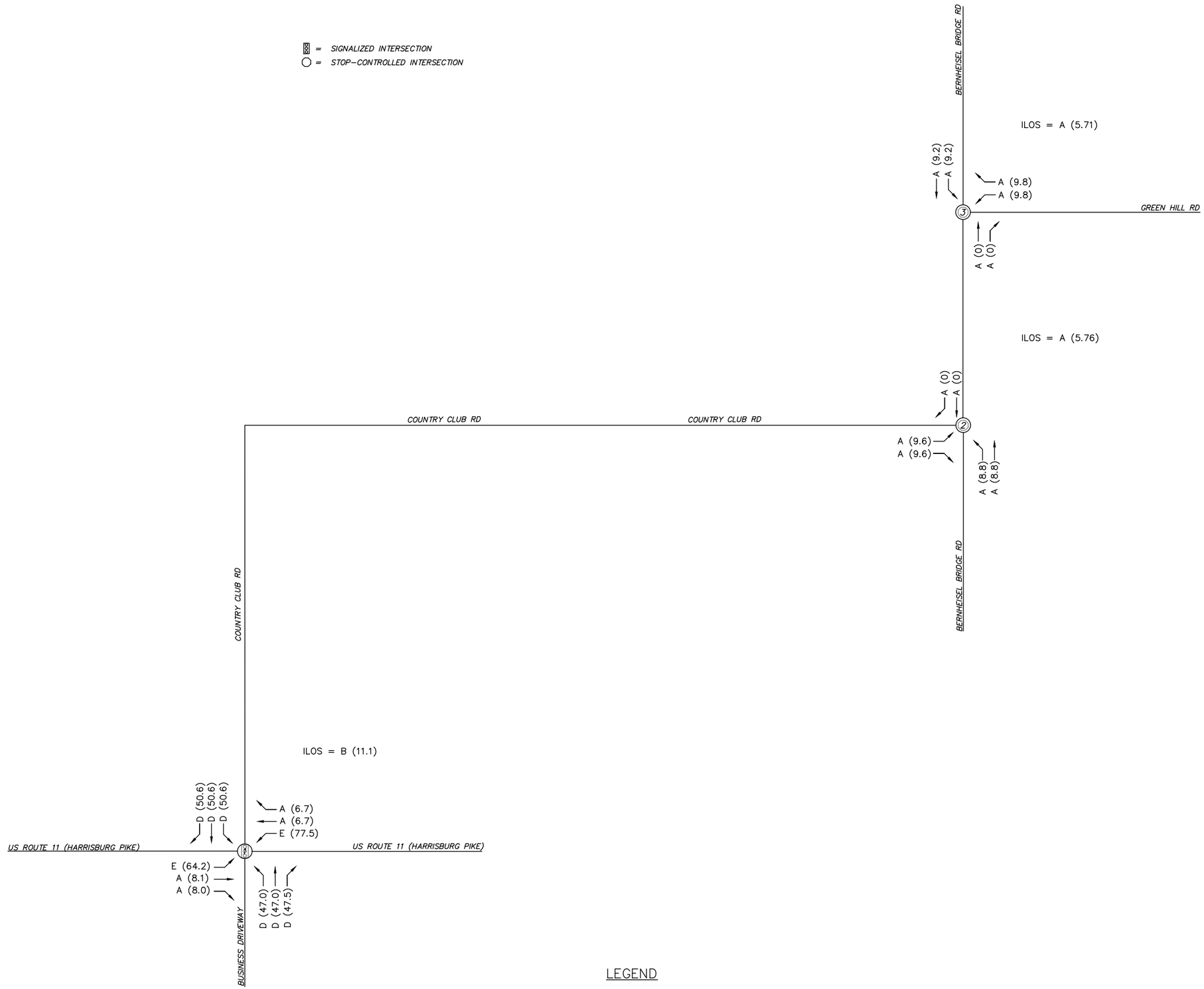
KMWW PARTNERSHIP

SHEET TITLE

2027 OPENING YEAR (NO-BUILD) AM LOS FIGURE

SHEET NO.

APPENDIX E-1



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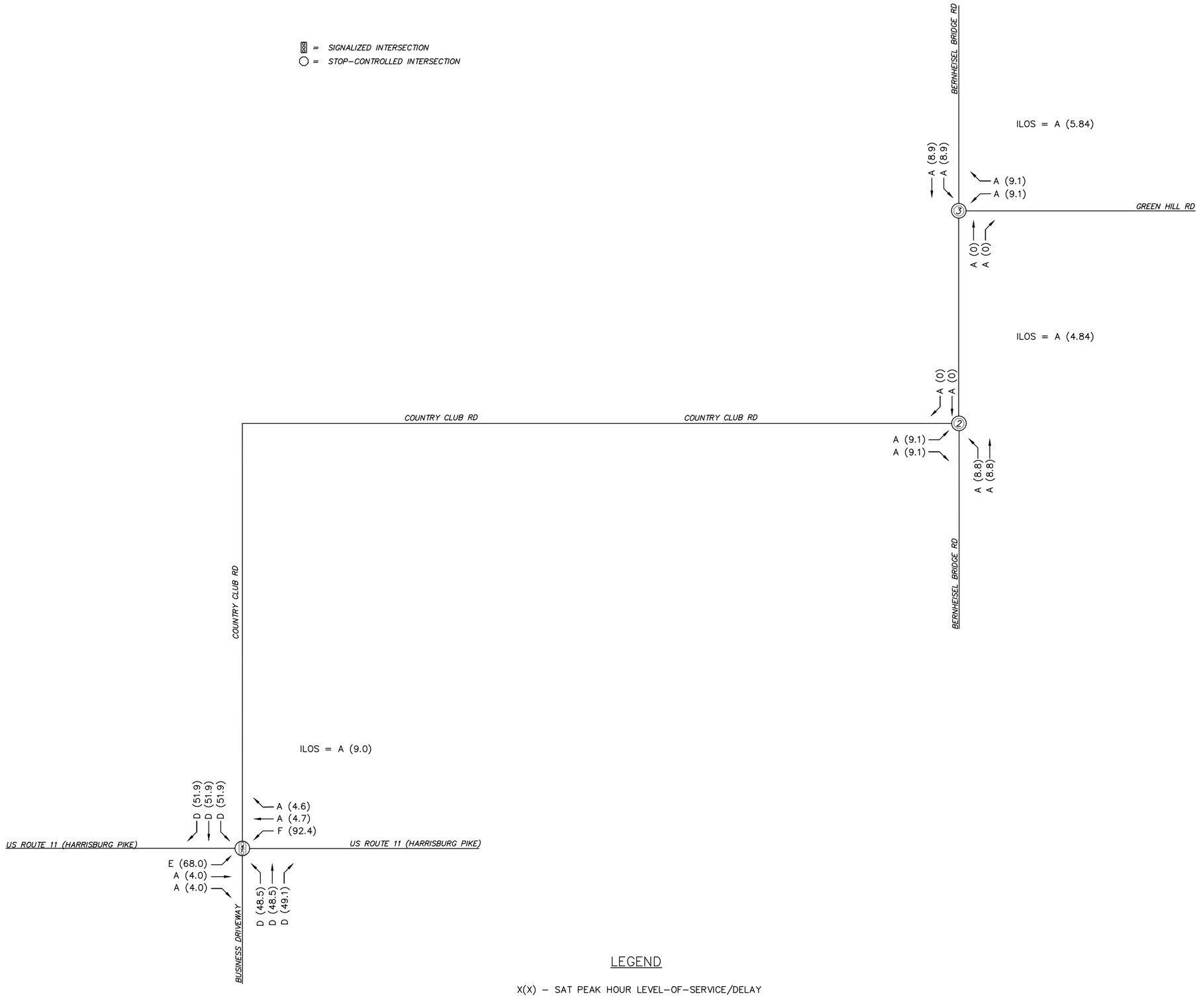
KMWW PARTNERSHIP

SHEET TITLE

2027 OPENING YEAR (NO-BUILD) PM LOS FIGURE

SHEET NO.

APPENDIX E-2



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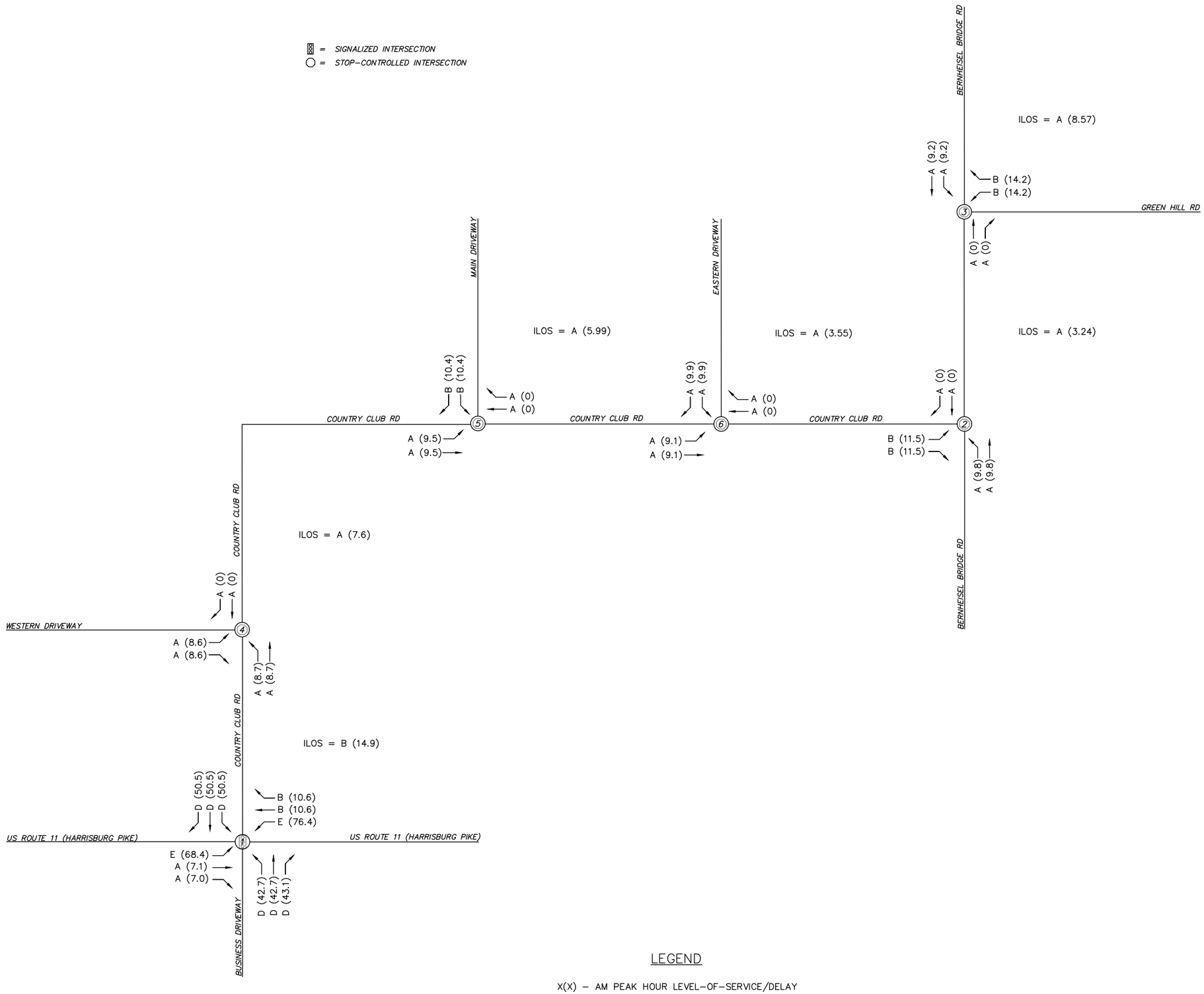
KMWW PARTNERSHIP

SHEET TITLE

2027 OPENING YEAR (NO-BUILD) SAT LOS FIGURE

SHEET NO.

APPENDIX E-3



LEGEND

X(X) – AM PEAK HOUR LEVEL-OF-SERVICE/DELAY

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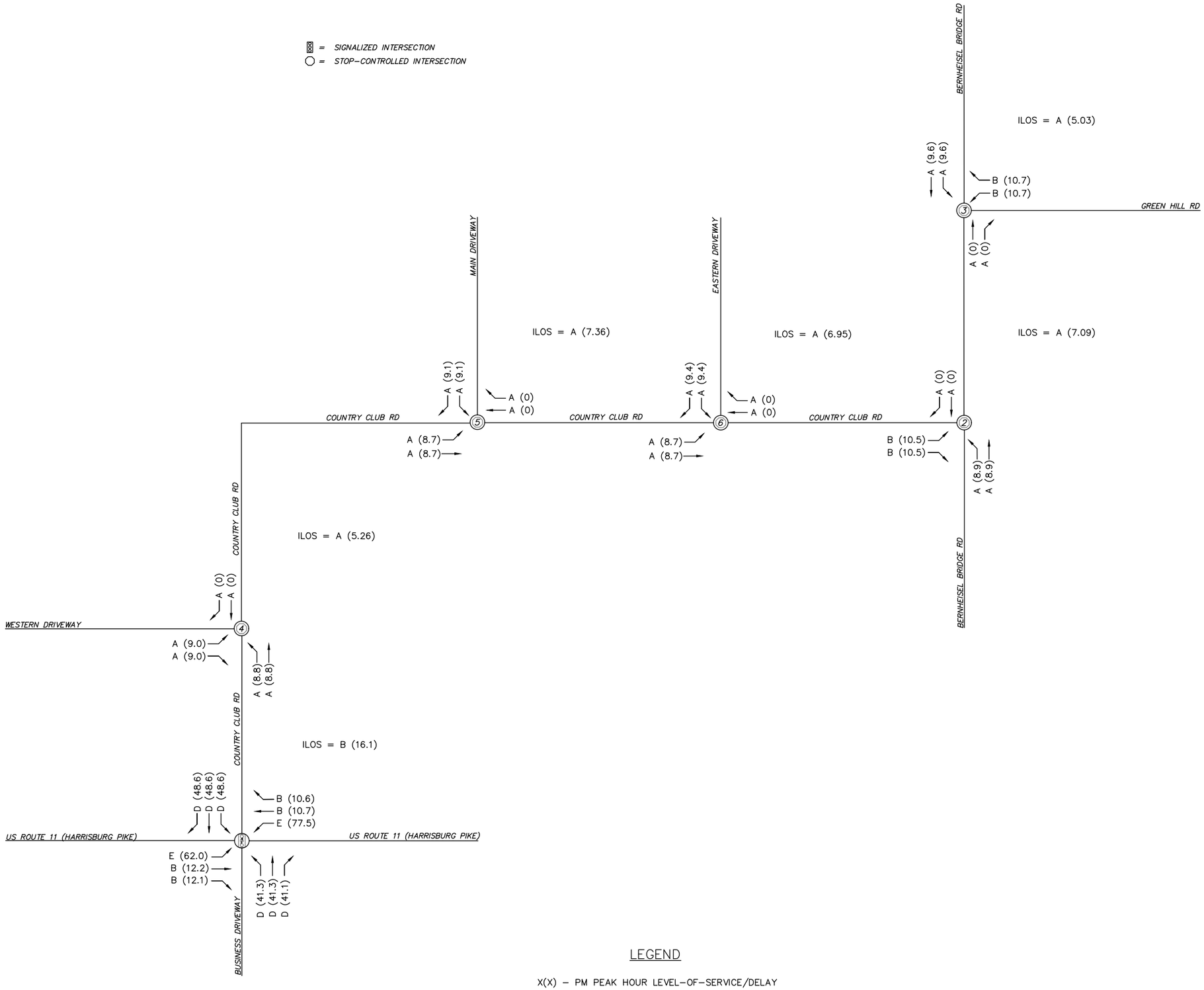
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SHEET TITLE

2027 OPENING YEAR (BUILD) AM LOS FIGURE

SHEET NO.

APPENDIX E-4



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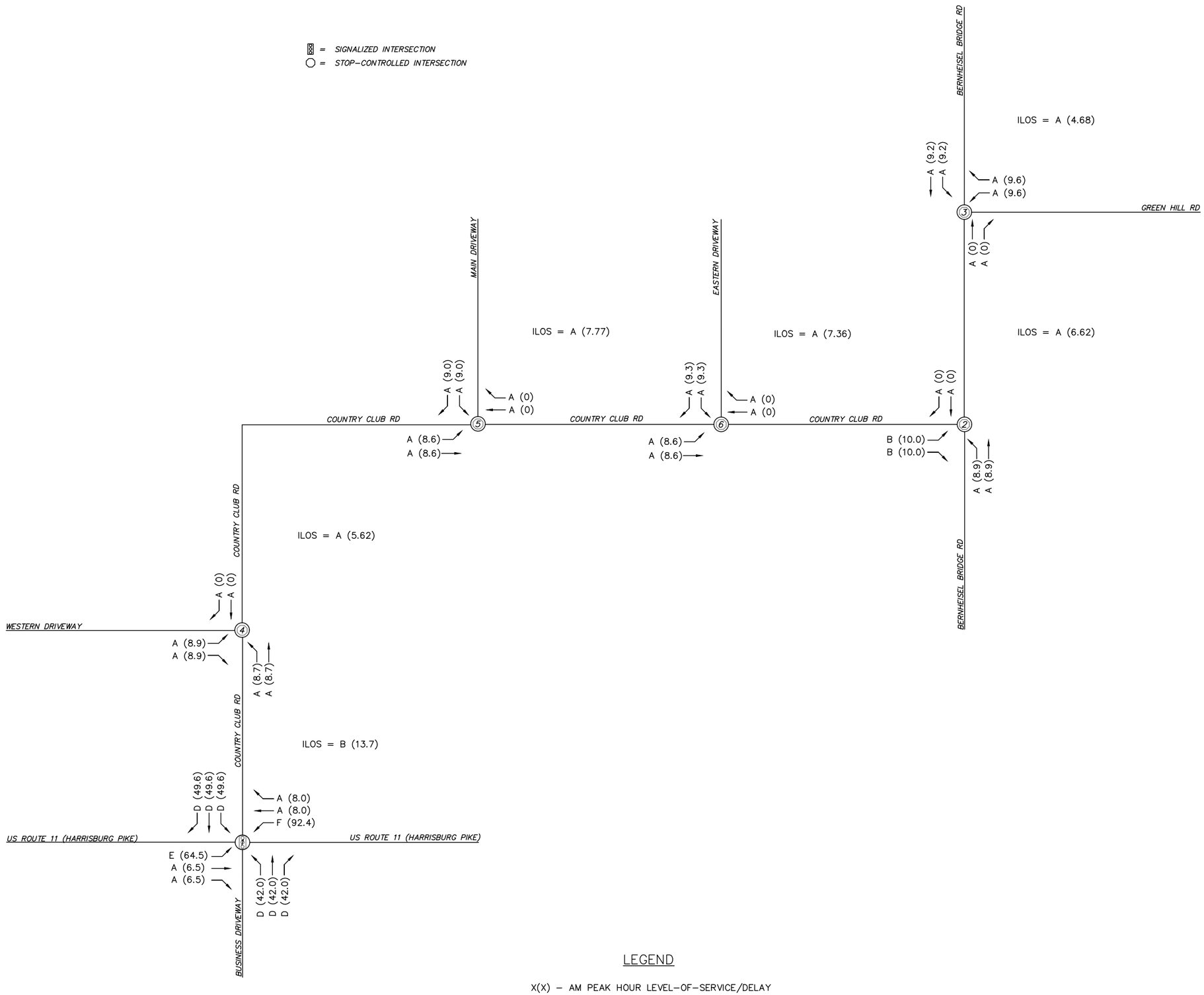
KMWW PARTNERSHIP

SHEET TITLE

2027 OPENING YEAR (BUILD) PM LOS FIGURE

SHEET NO.

APPENDIX E-5



REV | DATE | COMMENTS

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PENNSYLVANIA

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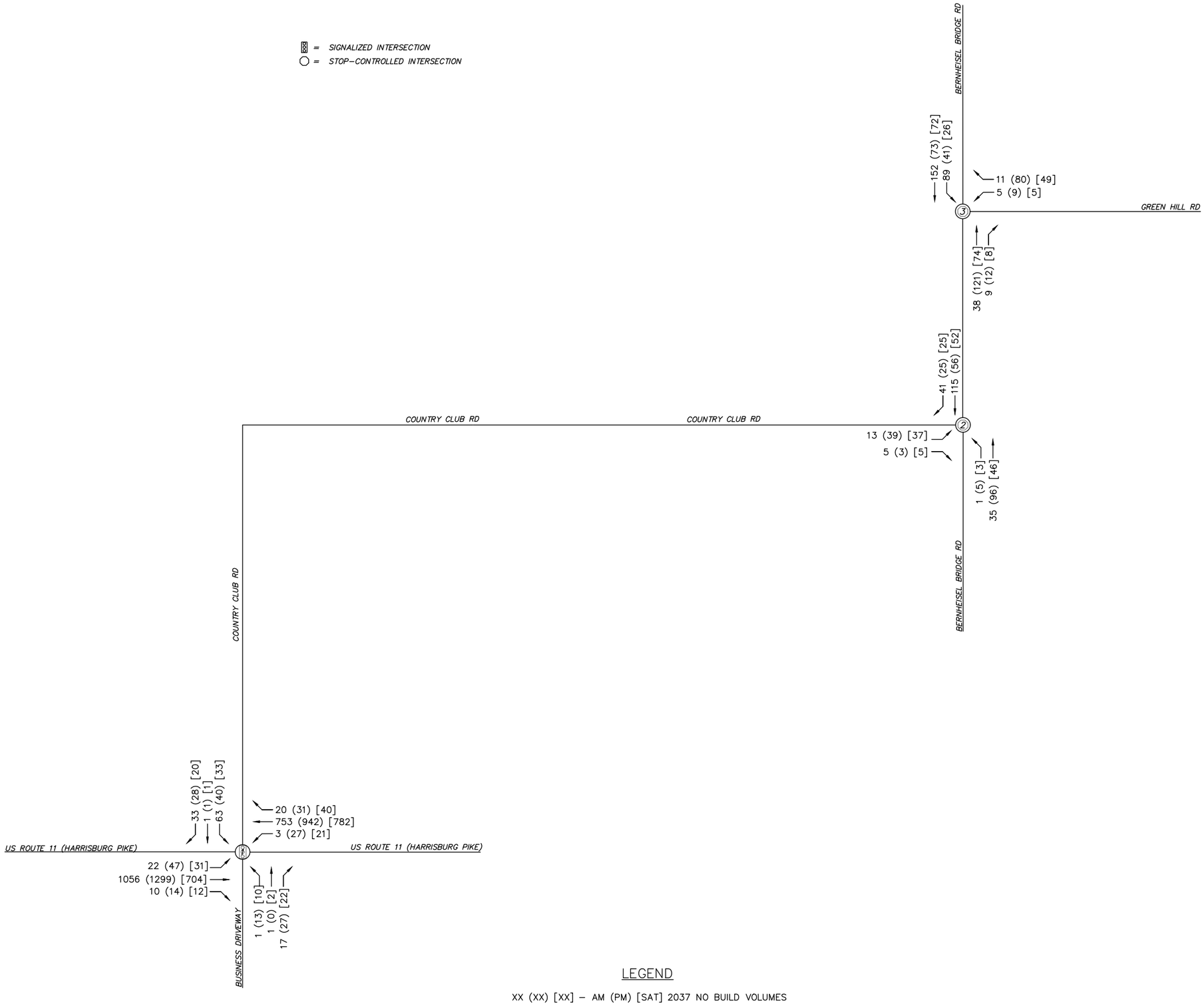
KMWW PARTNERSHIP

SHEET TITLE

2027 OPENING YEAR (BUILD) SAT LOS FIGURE

SHEET NO. APPENDIX E-6

Appendix F - Design Year Traffic Volume Figures



REV	DATE	COMMENTS

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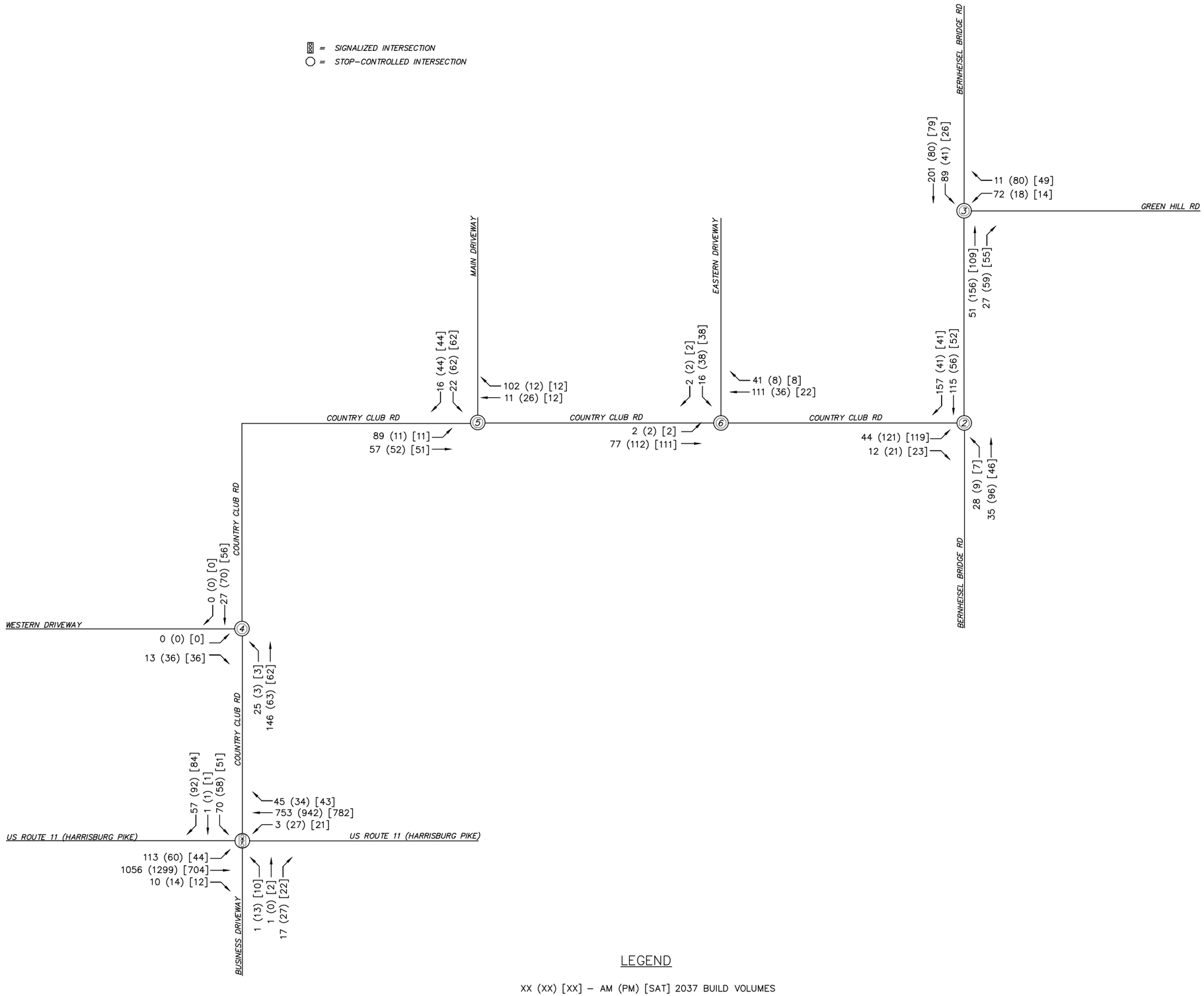
KMWW PARTNERSHIP

SHEET TITLE

2037 DESIGN YEAR (NO-BUILD) VOLUME FIGURE

SHEET NO.

APPENDIX F-1



LEGEND

XX (XX) [XX] – AM (PM) [SAT] 2037 BUILD VOLUMES

REV	DATE	COMMENTS

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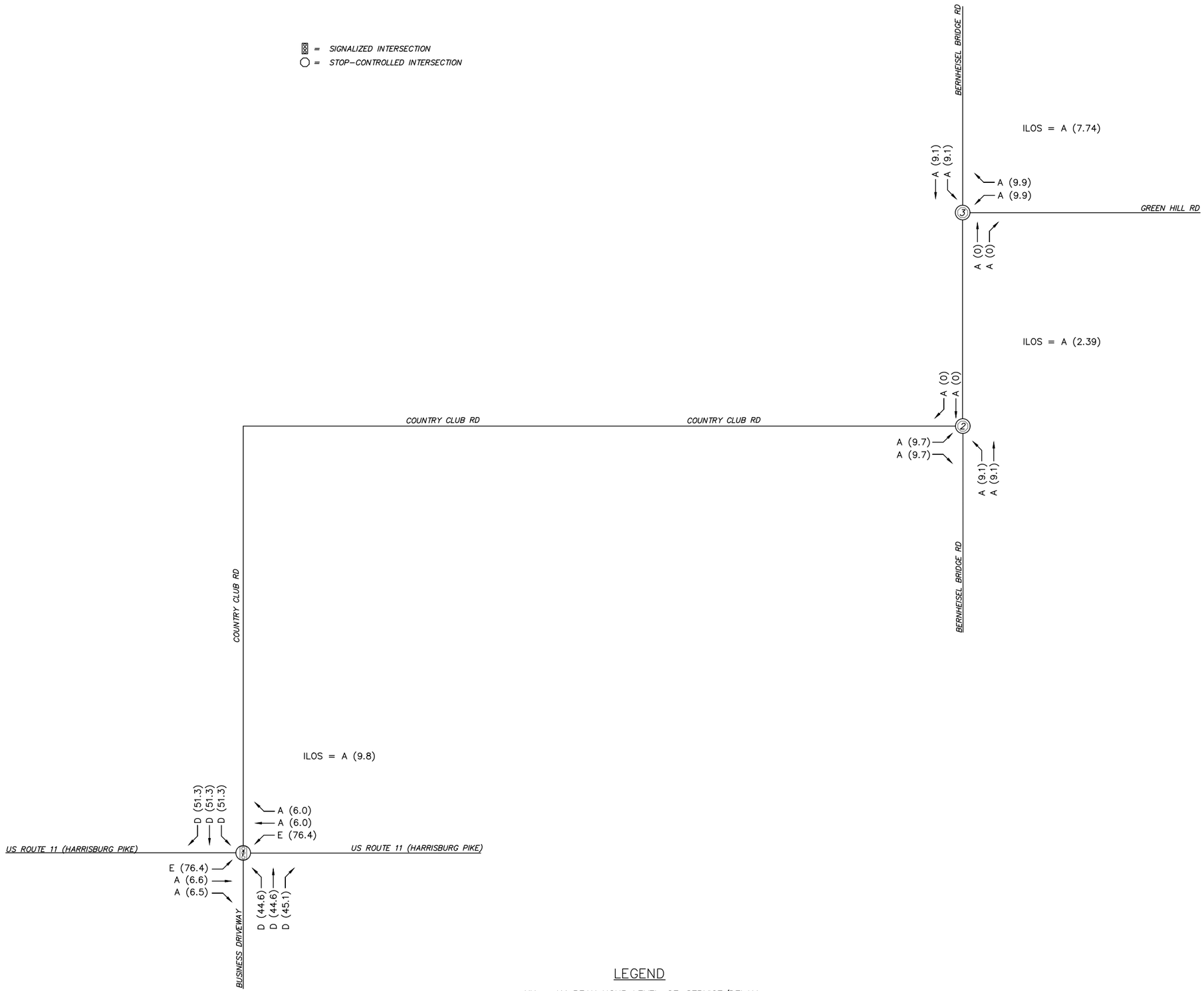
SHEET TITLE

2037 DESIGN YEAR (BUILD) VOLUME FIGURE

SHEET NO.

APPENDIX F-2

Appendix G - Design Year Level-Of-Service Figures



LEGEND

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

REV	DATE	COMMENTS

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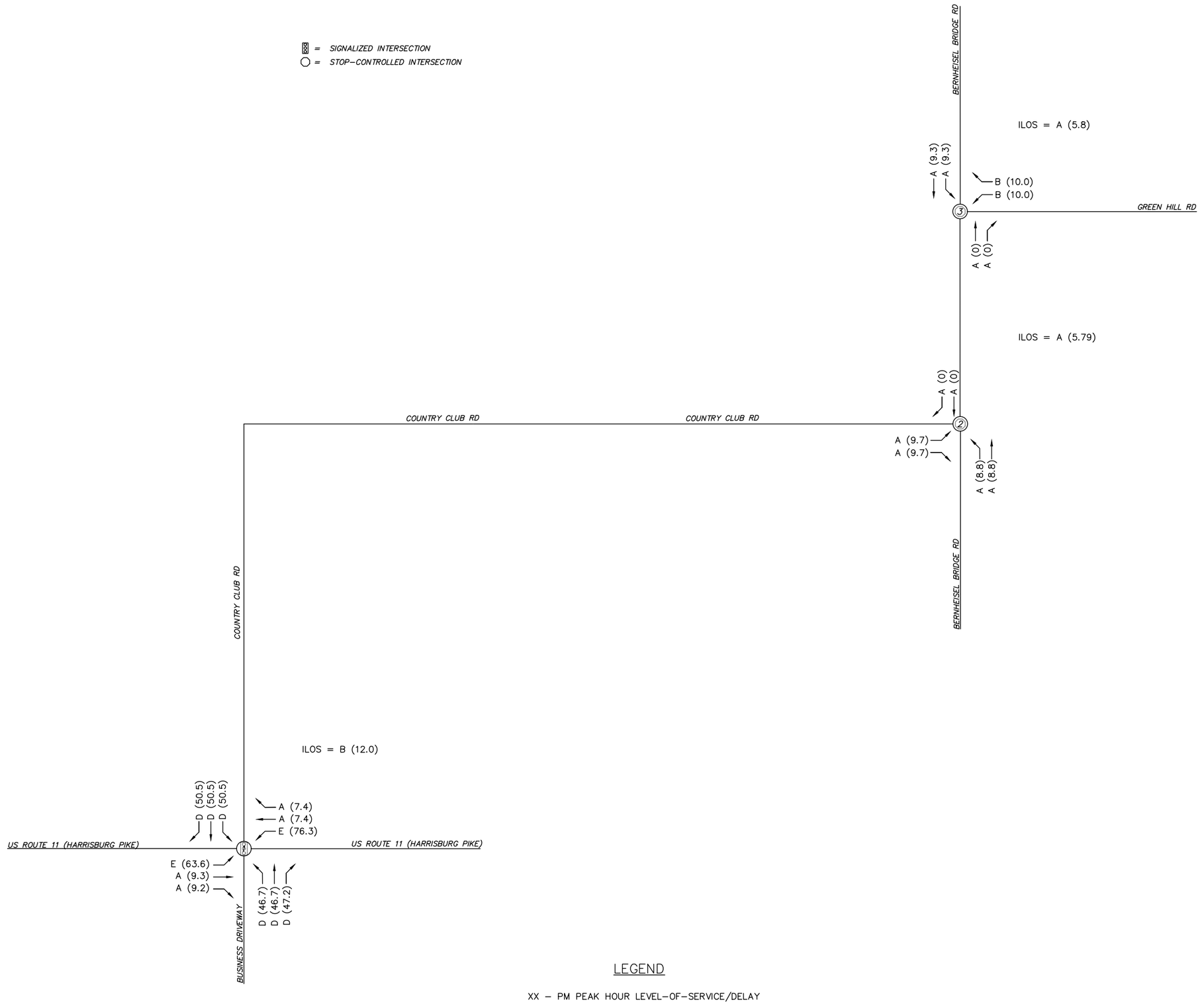
KMWW PARTNERSHIP

SHEET TITLE

2037 DESIGN YEAR (NO-BUILD) AM LOS FIGURE

SHEET NO.

APPENDIX G-1



LEGEND

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

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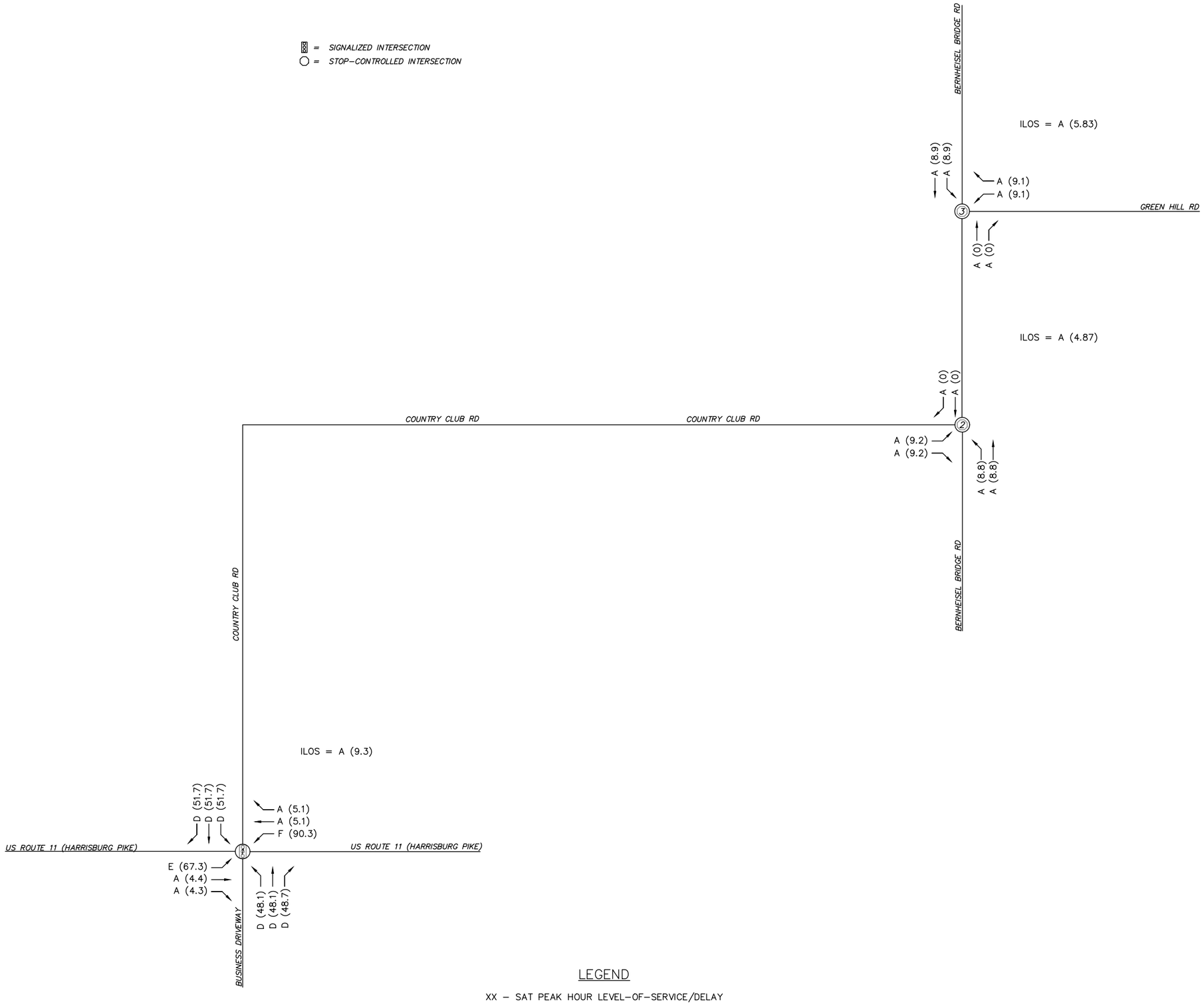
KMWW PARTNERSHIP

SHEET TITLE

2037 DESIGN YEAR (NO-BUILD) PM LOS FIGURE

SHEET NO.

APPENDIX G-2



LEGEND

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

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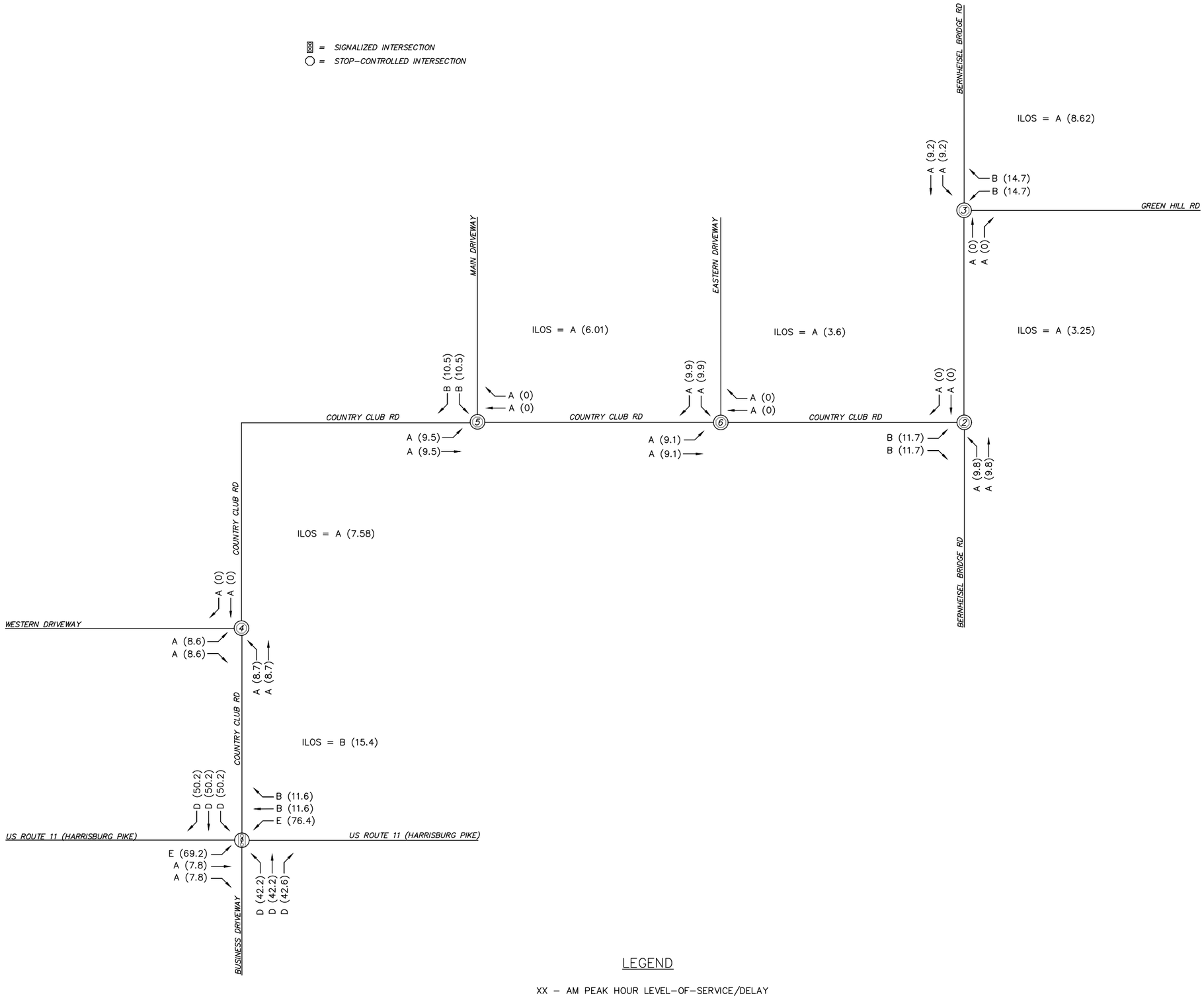
CLIENT

KMWW PARTNERSHIP

SHEET TITLE

2037 DESIGN YEAR (NO-BUILD) SAT LOS FIGURE

SHEET NO. APPENDIX G-3



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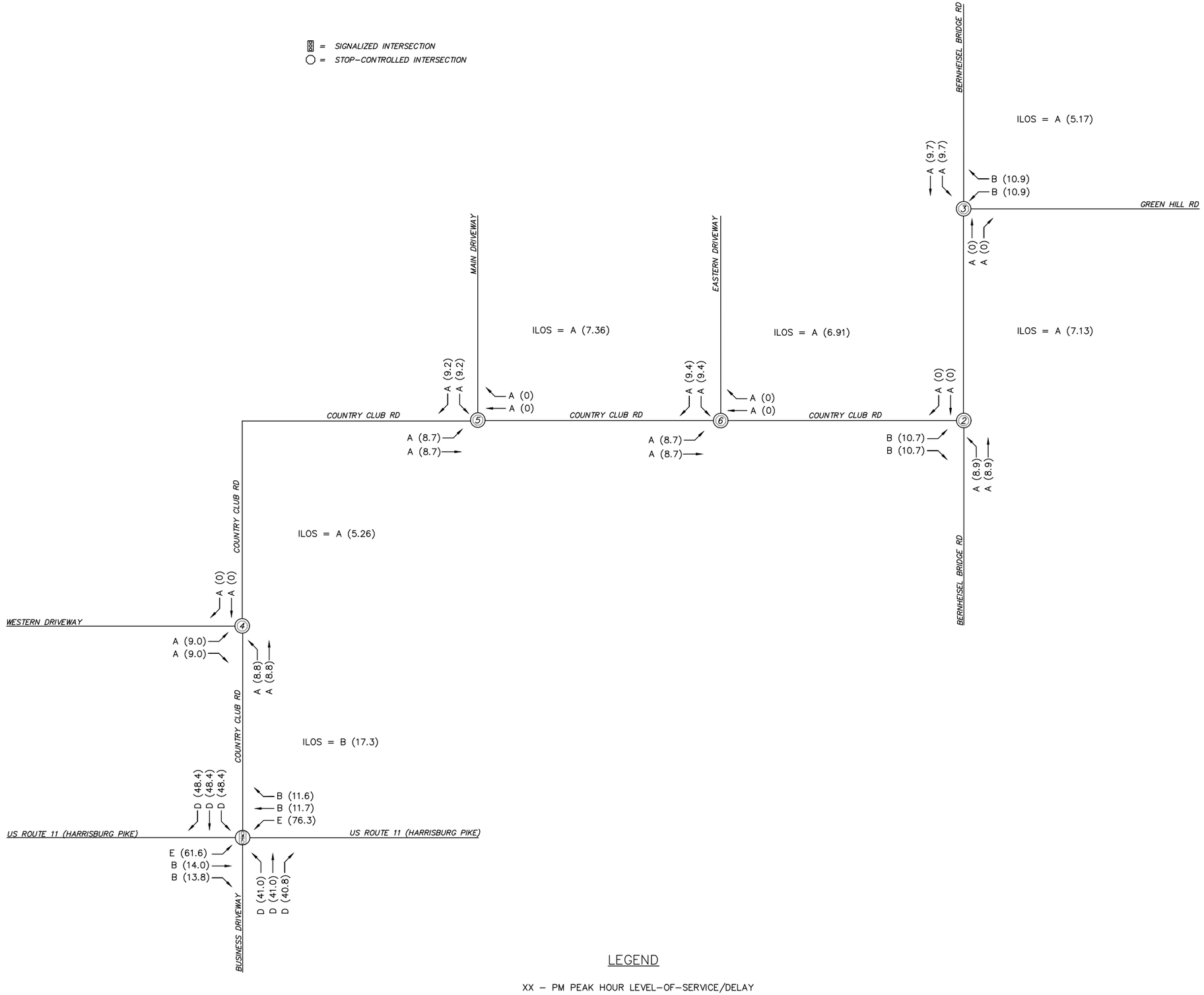
KMWW PARTNERSHIP

SHEET TITLE

2037 DESIGN YEAR (BUILD) AM LOS FIGURE

SHEET NO.

APPENDIX G-4



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PENNSYLVANIA

CLIENT

KMWW PARTNERSHIP

SHEET TITLE

2037 DESIGN YEAR (BUILD) PM LOS FIGURE

SHEET NO.

APPENDIX G-5

NOTES:

- WETLANDS SHOWN ARE DERIVED FROM WETLAND DELINEATION DONE BY AMBROOK CONSULTING.
- FLOODPLAINS SHOWN ARE DERIVED FROM FEMA MAP #42041C0088F, LAST REVISED 08/07/2023.
- SUBJECT PARCEL PROPERTY LINES AND EASEMENTS ARE SHOWN FROM ALTA SURVEY DATED _____ WITH BOUNDARY AND TOPO SURVEY COMPLETED IN MARCH/APRIL 2024.
- ADJACENT PROPERTIES AND APPROXIMATE EASEMENTS DERIVED FROM CUMBERLAND COUNTY GIS AND BEST AVAILABLE INFORMATION.

LEGEND

- BUILDING LINE
- CENTER LINE OF ROAD
- GIS EASEMENT LINE
- EASEMENT LINE
- EXISTING TRANSMISSION LINE EASEMENT
- PROPOSED 230 KV TRANSMISSION LINE EASEMENT
- PROPOSED 138 KV TRANSMISSION LINE EASEMENT
- EDGE OF PAVEMENT
- FENCE LINE
- PROPOSED PROPERTY LINE
- EXISTING PROPERTY LINE
- GIS PROPERTY LINE
- PUBLIC ROADWAY
- EXISTING RIGHT-OF-WAY LINE
- PROPOSED RIGHT-OF-WAY LINE
- APPROXIMATE TOWNSHIP LINE
- OVERHEAD UTILITIES & POLE
- EXISTING OVERHEAD TRANSMISSION LINE
- OVERHEAD TRANSMISSION LINE
- GIS OVERHEAD TRANSMISSION LINE
- APPALACHIAN TRAIL
- WATER MAIN/VALVE
- FLOODWAY
- TOWNSHIP RIPARIAN BUFFER
- 100 YEAR FLOODPLAIN
- 500 YEAR FLOODPLAIN
- NATURE WALKING TRAIL
- CONODOGUINET CREEK (GIS)
- ACOE JURISDICTIONAL WETLANDS
- PROPOSED PRIVATE ACCESS DRIVE
- PROPOSED PUBLIC ACCESS DRIVE

SYMBOLS

- TRANSMISSION TOWER
- DAY WATER TANKS
- WATER STORAGE
- SECURITY ENTRANCE (TYP)

RIPARIAN BUFFER
NATURE TRAIL
CENTRAL ADMIN BUILDING
30,000 SF BUILDING
CONODOGUINET CREEK
CAMPUS 1
CAMPUS 2
CAMPUS 3
SUBSTATION 1
GRAN
SUBSTATION 2
QRTZ
PPL SUBSTATION
BERN
SUBSTATION 3
SLAT
2 EXISTING POWER LINES
500 kv (WEST)
230kv (EAST)
PPL WORK AREA
CENTRAL LOGISTICS BUILDING/
LAYDOWN 20,000 SF BUILDING
DUCT BANK CORRIDOR
PUBLIC/DEVELOPMENT OWNED CENTRAL
WATER/SEWER PROCESSING FACILITY
APPALACHIAN TRAIL
APPROXIMATE TOWNSHIP LINE
MIDDLESEX
TOWNSHIP
SILVER SPRING
TOWNSHIP
N MIDDLESEX ROAD
COUNTRY CLUB RD
BERNHEISEL BRIDGE ROAD
GREEN HILL RD
N LOCUST POINT ROAD
LOCUST WAY
OAK LN DR
EVERGREEN LN
INTERSTATE 81

HORIZONTAL SCALE: 1 INCH = 500 FEET

0 250' 500' 1,000' 1,500'

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— 2ND FLOOR —
WORMLEYSBURG, PA 17043
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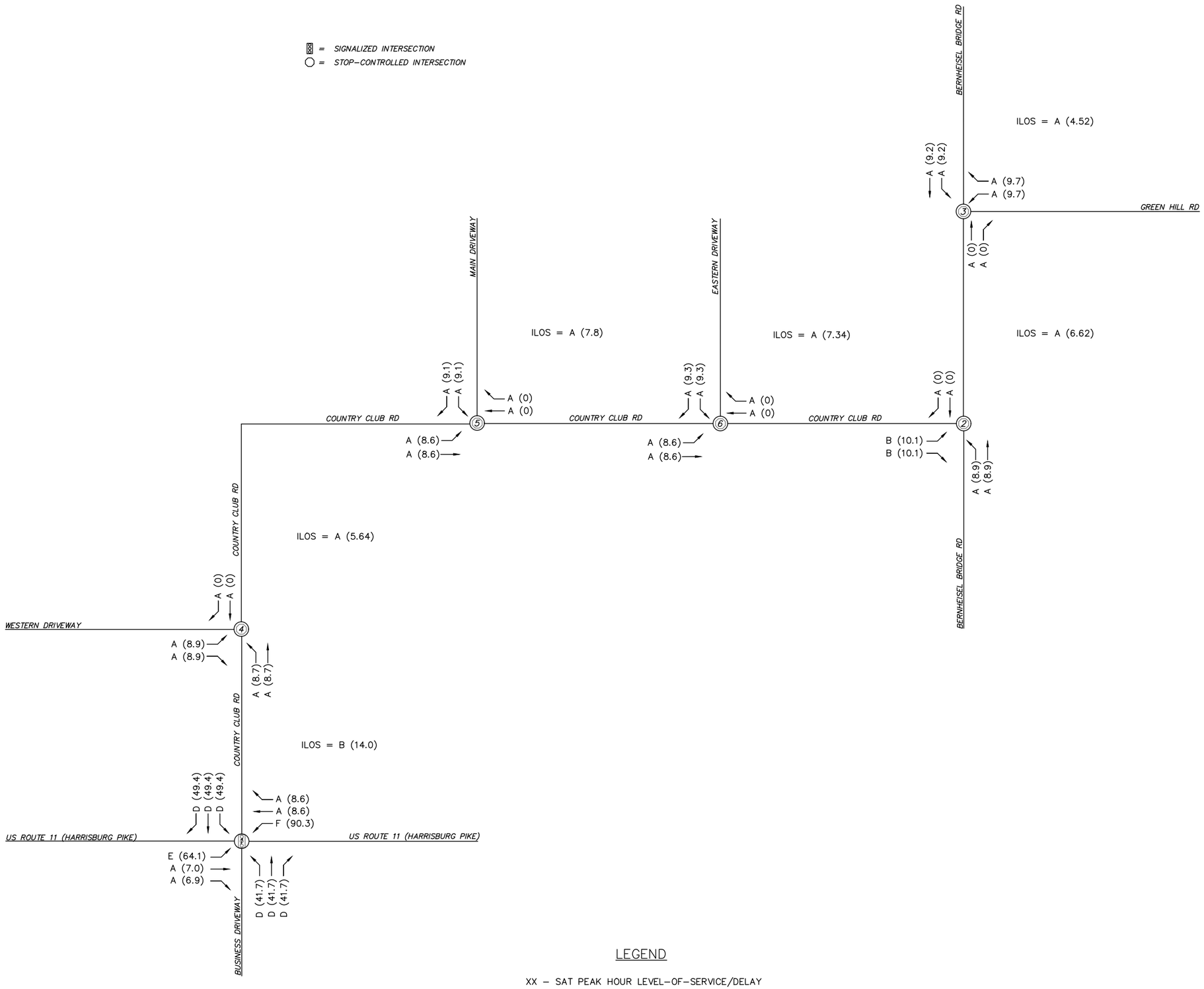
PREPARED WITH

LOCATION

MIDDLESEX TOWNSHIP | CUMBERLAND COUNTY | PENNSYLVANIA

JUNE 2, 2025

PLAN: C-01



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KMWW PARTNERSHIP

SHEET TITLE

2037 DESIGN YEAR (BUILD) SAT LOS FIGURE

SHEET NO.

APPENDIX G-6

Appendix H - Site Layout Plan

Appendix I - Scoping Meeting Application & Project Correspondence

LOCATION OF PROPOSED DEVELOPMENT

County – Cumberland

Municipality – Middlesex Township

Driveways – 2 driveways located on Country Club Road

Driveway Locations – Driveway 1 will be 500 feet south of the intersection of Country Club Road and Dogwood Lane. Driveway 2 will be 1100 feet east of the intersection of Country Club Road and Dogwood Lane.

DEVELOPMENT SCHEDULE AND STAGING

Multistage Development – Yes, the project will be constructed in 2 phases.

Anticipated Opening Date – 6/21/2027

Full Buildout Date – 6/21/2031

TRIP GENERATION

Trip Generation was calculated using ITE Local Trip Generation Study procedures. This study used 6 count locations across the state of Virginia.

Phase 1	X = 1,400,000 / 1000 SQ FT	IN	OUT	IN	OUT	Total
ADT Trip Rate	T = 0.6802x	49%	51%	466	486	952
AM Trip Rate	T = 0.0757x	80%	20%	85	21	106
PM Trip Rate	T = 0.0495x	15%	85%	10	59	69
SAT Peak Hour Rate	T = 0x	50%	50%	0	0	0

Full Buildout	X = 4,200,000 / 1000 SQ FT	IN	OUT	IN	OUT	Total
ADT Trip Rate	T = 0.6802x	49%	51%	1400	1457	2857
AM Trip Rate	T = 0.0757x	80%	20%	254	64	318
PM Trip Rate	T = 0.0495x	15%	85%	31	177	208
SAT Peak Hour Rate	T = 0x	50%	50%	0	0	0

TRANSPORTATION STUDY

TIS Required – Yes, the project will need a Transportation Impact Study based upon municipal requirements.

STUDY AREA

Intersections To Be Studied – Country Club Road and US 11, Country Club Road and Driveway 1, Country Club Road and Driveway 2, Country Club Road and Bernheisel Bridge Road, Bernheisel Bridge Road and Green Hill Road.

Land Use Context – Rural

STUDY AREA TYPE

Study Area Type – Rural

TIS ANALYSIS PERIODS AND TIMES

Analysis Scenarios – Existing Condition, Phase 1 2027 Build, Phase 1 2027 No Build, Phase 2 2031 Build, Phase 2 2031 No Build, Design Year 2036 Build, Design Year 2036 No Build.

TRAFFIC ADJUSTMENT FACTORS

Seasonal Adjustment – N/A

Annual Base Traffic Growth - .68% From PennDOTs growth factor chart

Pass By Trips – N/A

Peak Hour- Intersection Peak Hours will be used for analysis

OTHER PROJECTS WITHIN STUDY AREA

To be confirmed with the Township

TRIP DISTRIBUTION AND ASSIGNMENT

New trips will be assigned using a gravity model that utilizes a ten-minute drive time ring around the site using census data. This will then be used to determine the trips to the site.

APPROVAL OF DATA COLLECTION

Traffic Counts were conducted on 2/5/2024 and 2/8/2024

Intersection 1 Country Club Road and US 11
Weekday (6am to 10am), Weekday (2pm to 6pm), and Sat (10am to 2pm)
Intersection 2 Country Club Road and Bernheisel Bridge Road
Weekday (6am to 10am), Weekday (2pm to 6pm), and Sat (10am to 2pm)
Intersection 3 Bernheisel Bridge Road and Green Hill Road
Weekday (6am to 10am), Weekday (2pm to 6pm), and Sat (10am to 2pm)

CAPACITY/LOS ANALYSIS

No.	Location	Period	Type
1	US 11 and Country Club Road	AM Peak, PM Peak, SAT Peak	HCM 6th Edition from Synchro 11
2	Country Club Road & Bernheisel Bridge Road	AM Peak, PM Peak, SAT Peak	HCM 6th Edition from Synchro 11
3	Green Hill Road & Bernheisel Road	AM Peak, PM Peak, SAT Peak	HCM 6th Edition from Synchro 11
4	Country Club Road and Driveway 1	AM Peak, PM Peak, SAT Peak	HCM 6th Edition from Synchro 11
5	Country Club Road and Driveway 2	AM Peak, PM Peak, SAT Peak	HCM 6th Edition from Synchro 11

ROADWAY IMPROVEMENTS

N/A

OTHER NEEDED ANALYSIS

a) Sight Distance Analysis: Available sight distances will be measured at the proposed driveway locations according to PennDOT Publication 282 Highway Occupancy Permit Guidelines and compared to the PennDOT desirable sight distances outlined in the Pennsylvania Code Title 67 Chapter 441.8(h), Access to and Occupancy of Highways by Driveways and Local Roads and the PennDOT safe stopping sight distance requirement and form M-950s.

(b) Analysis of the Need for Turning Lanes (Identify locations/methodology): At the two driveway locations; Methodology PennDOT Publication 46, Traffic Engineering Manual.

(c) Turning Lane Lengths (Identify methodology to be used): At the two driveway locations; Methodology PennDOT Publication 46, Traffic Engineering Manual, HCM 95th Percentile Queue from Syncrho 11.

(d) Queuing Analysis (Identify locations/methodology): All study intersections; Methodology 95th percentile queue from Synchro 11. Simtraffic queuing analysis will be performed. Five runs will be performed for each condition, each with 4-15-minute intervals and an analysis interval of 60 minutes. PHF adjust will be applied on the first interval and Anti PHF Adjust on the remaining 3 intervals.

(e) Signal Warrant Analysis: Signal Warrant Analysis: Signal Warrant Analysis will be performed at the two driveway locations.



Site A – 11120 Thomasson Barn Rd, Manassas, VA 352,000.00 Square Feet



Site B – 9000 Freedom Center Blvd, Manassas, VA 409,252.00 Square Feet



Site C – 25390 Sutton Bay Plaza, Chantilly, VA 508,026.00 Square Feet



Site D – 21745 Sir Timonthy Dr, Ashburn, VA 650,511.00 Square Feet



Site E – 8170 Bethlehem Rd, Manassas, VA 719,742.00 Square Feet



Site F– 21350 Pacific Blvd, Sterling, VA 1,178,308.00 Square Feet

Car ADT SQ FT							
Site	Independent Variable (SQ FT/1,000)	Number of Trips	Trip Rate	Site Trip Rate - Weighted Average Rate		Weight	(Value Squared x Weight)
				Value	Value Squared		
Site A - 11120 Thomasson Barn Rd, Manassas, VA	352.030	371	1.0539	-0.3737	0.1396	0.0922	0.0129
Site B - 9000 Freedom Center Blvd, Manassas, VA	409.252	445	1.0873	-0.4071	0.1658	0.1072	0.0178
Site C - 25390 Sutton Bay Plaza, Chantilly, VA	508.026	349	0.6870	-0.0068	0.0000	0.1331	0.0000
Site D - 21745 Sir Timothy Dr, Ashburn, VA	650.511	399	0.6134	0.0669	0.0045	0.1704	0.0008
Site E - 8170 Bethlehem Rd, Manassas, VA	719.742	478	0.6641	0.0161	0.0003	0.1885	0.0000
Site F - 21350 Pacific Blvd, Sterling, VA	1178.308	555	0.4710	0.2092	0.0438	0.3086	0.0135
Total	3817.869	2597	0.6802		Variance		0.0450
					6/5 Factor		0.8163
					Weighted Sample Variance		0.0540
	Car ADT Weighted Trip Rate		0.6802		Weighted Standard Deviation		0.2323

Car AM SQ FT							
Site	Independent Variable (SQ FT/1,000)	Number of Trips	Trip Rate	Site Trip Rate - Weighted Average Rate		Weight	(Value Squared x Weight)
				Value	Value Squared		
Site A - 11120 Thomasson Barn Rd, Manassas, VA	352.03	33	0.0937	-0.0180	0.0003	0.0922	0.0000
Site B - 9000 Freedom Center Blvd, Manassas, VA	409.252	49	0.1197	-0.0440	0.0019	0.1072	0.0002
Site C - 25390 Sutton Bay Plaza, Chantilly, VA	508.026	36	0.0709	0.0048	0.0000	0.1331	0.0000
Site D - 21745 Sir Timothy Dr, Ashburn, VA	650.511	54	0.0830	-0.0073	0.0001	0.1704	0.0000
Site E - 8170 Bethlehem Rd, Manassas, VA	719.742	62	0.0861	-0.0104	0.0001	0.1885	0.0000
Site F - 21350 Pacific Blvd, Sterling, VA	1178.308	55	0.0467	0.0290	0.0008	0.3086	0.0003
Total	3817.869	289	0.0757		Variance		0.0005
					6/5 Factor		0.0908
					Weighted Sample Variance		0.0006
	Car AM Weighted Trip Rate		0.0757		Weighted Standard Deviation		0.0252

Car PM SQ FT							
Site	Independent Variable (SQ FT/1,000)	Number of Trips	Trip Rate	Site Trip Rate - Weighted Average Rate		Weight	(Value Squared x Weight)
				Value	Value Squared		
Site A - 11120 Thomasson Barn Rd, Manassas, VA	352.03	29	0.0824	-0.0329	0.0011	0.0922	0.0001
Site B - 9000 Freedom Center Blvd, Manassas, VA	409.252	23	0.0562	-0.0067	0.0000	0.1072	0.0000
Site C - 25390 Sutton Bay Plaza, Chantilly, VA	508.026	33	0.0650	-0.0155	0.0002	0.1331	0.0000
Site D - 21745 Sir Timothy Dr, Ashburn, VA	650.511	15	0.0231	0.0264	0.0007	0.1704	0.0001
Site E - 8170 Bethlehem Rd, Manassas, VA	719.742	49	0.0681	-0.0186	0.0003	0.1885	0.0001
Site F - 21350 Pacific Blvd, Sterling, VA	1178.308	40	0.0339	0.0156	0.0002	0.3086	0.0001
Total	3817.869	189	0.0495		Variance		0.0004
					6/5 Factor		0.0594
					Weighted Sample Variance		0.0005
	Car PM Weighted Trip Rate		0.0495		Weighted Standard Deviation		0.0218

Car SAT SQ FT Peak Hour							
Site	Independent Variable (SQ FT/1,000)	Number of Trips	Trip Rate	Site Trip Rate - Weighted Average Rate		Weight	(Value Squared x Weight)
				Value	Value Squared		
Site A - 11120 Thomasson Barn Rd, Manassas, VA	352.03	0	0.0000	0.0000	0.0000	0.0922	0.0000
Site B - 9000 Freedom Center Blvd, Manassas, VA	409.252	0	0.0000	0.0000	0.0000	0.1072	0.0000
Site C - 25390 Sutton Bay Plaza, Chantilly, VA	508.026	0	0.0000	0.0000	0.0000	0.1331	0.0000
Site D - 21745 Sir Timothy Dr, Ashburn, VA	650.511	0	0.0000	0.0000	0.0000	0.1704	0.0000
Site E - 8170 Bethlehem Rd, Manassas, VA	719.742	0	0.0000	0.0000	0.0000	0.1885	0.0000
Site F - 21350 Pacific Blvd, Sterling, VA	1178.308	0	0.0000	0.0000	0.0000	0.3086	0.0000
Total	3817.869	0	0.0000		Variance		0.0000
					6/5 Factor		0.0000
					Weighted Sample Variance		0.0000
	Car SAT Weighted Trip Rate		0.0000		Weighted Standard Deviation		0.0000

Car SAT SQ FT Mid Peak Hour							
Site	Independent Variable (SQ FT/1,000)	Number of Trips	Trip Rate	Site Trip Rate - Weighted Average Rate		Weight	(Value Squared x Weight)
				Value	Value Squared		
Site A - 11120 Thomasson Barn Rd, Manassas, VA	352.03	0	0.0000	0.0000	0.0000	0.0922	0.0000
Site B - 9000 Freedom Center Blvd, Manassas, VA	409.252	0	0.0000	0.0000	0.0000	0.1072	0.0000
Site C - 25390 Sutton Bay Plaza, Chantilly, VA	508.026	0	0.0000	0.0000	0.0000	0.1331	0.0000
Site D - 21745 Sir Timothy Dr, Ashburn, VA	650.511	0	0.0000	0.0000	0.0000	0.1704	0.0000
Site E - 8170 Bethlehem Rd, Manassas, VA	719.742	0	0.0000	0.0000	0.0000	0.1885	0.0000
Site F - 21350 Pacific Blvd, Sterling, VA	1178.308	0	0.0000	0.0000	0.0000	0.3086	0.0000
Total	3817.869	0	0.0000		Variance		0.0000
					6/5 Factor		0.0000
					Weighted Sample Variance		0.0000
	Car SAT Weighted Trip Rate		0.0000		Weighted Standard Deviation		0.0000

	X = 4,200,000 / 1000 SQ FT	IN	OUT	IN	OUT	Total
ADT Trip Rate	T = 0.6802x	49%	51%	1400	1457	2857
AM Trip Rate	T = 0.0757x	80%	20%	254	64	318
PM Trip Rate	T = 0.0495x	15%	85%	31	177	208
SAT Peak Hour Rate	T = 0x	50%	50%	0	0	0

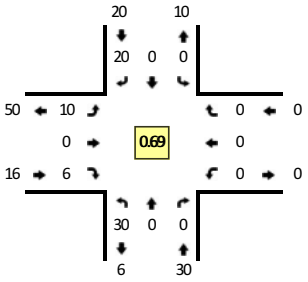
Type of peak hour being reported: Intersection Peak

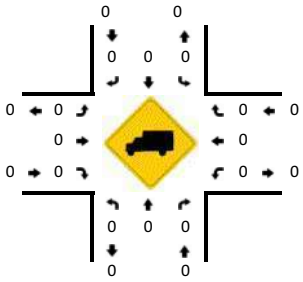
Method for determining peak hour: Total Entering Volume

LOCATION: Bethlehem Rd -- Data Center Dwy A
CITY/STATE: Prince William, VA

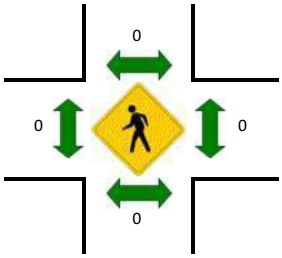
QC JOB #: 16030501
DATE: Wed, Jan 11 2023

Peak-Hour: 6:30 AM -- 7:30 AM
Peak 15-Min: 7:00 AM -- 7:15 AM

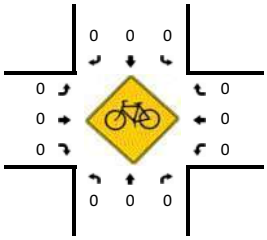


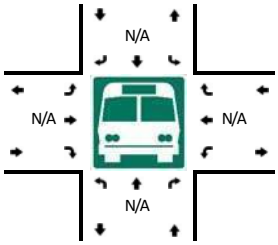


Quality Counts
DATA THAT DRIVES COMMUNITIES

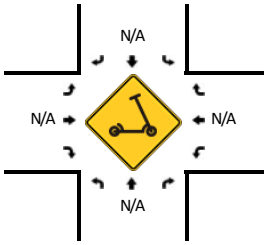












15-Min Count Period Beginning At	Bethlehem Rd (Northbound)				Bethlehem Rd (Southbound)				Data Center Dwy A (Eastbound)				Data Center Dwy A (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:00 AM	10	0	0	0	0	0	2	0	2	0	4	0	0	0	0	0	18	
6:15 AM	5	0	0	0	0	0	3	0	0	0	2	0	0	0	0	0	10	
6:30 AM	8	0	0	0	0	0	7	0	1	0	0	0	0	0	0	0	16	
6:45 AM	9	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	15	59
7:00 AM	7	0	0	0	0	0	5	0	8	0	4	0	0	0	0	0	24	65
7:15 AM	6	0	0	0	0	0	2	0	1	0	2	0	0	0	0	0	11	66
7:30 AM	6	0	0	0	0	0	2	0	3	0	2	0	0	0	0	0	13	63
7:45 AM	4	0	0	0	0	0	1	0	3	0	1	0	0	0	0	0	9	57
8:00 AM	0	0	0	0	0	0	3	0	0	0	3	0	0	0	0	0	6	39
8:15 AM	3	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	7	35
8:30 AM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	23
8:45 AM	3	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	6	20

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	28	0	0	0	0	0	20	0	32	0	16	0	0	0	0	0	96
Heavy Trucks	0	0	0		0	0	0		0	0	0		0	0	0		0
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

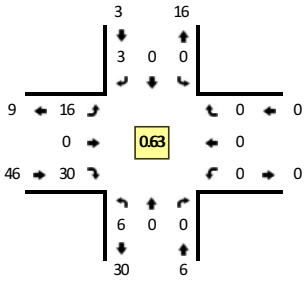
Report generated on 1/26/2023 1:06 PM

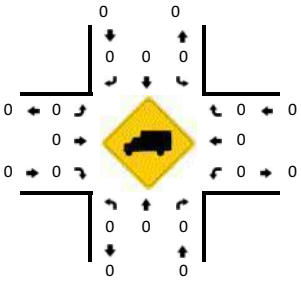
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

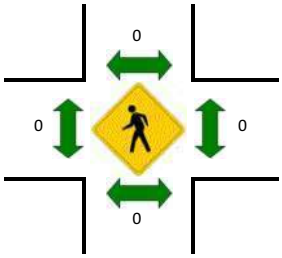
LOCATION: Bethlehem Rd -- Data Center Dwy A | **QC JOB #:** 16030502
CITY/STATE: Prince William, VA | **DATE:** Wed, Jan 11 2023

Peak-Hour: 5:15 PM -- 6:15 PM
Peak 15-Min: 6:00 PM -- 6:15 PM

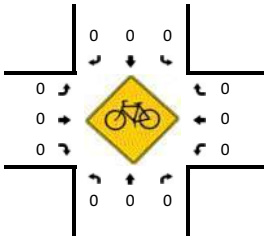


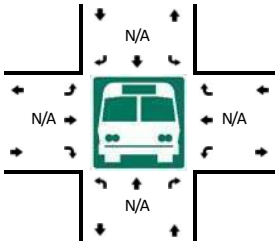


Quality Counts
DATA THAT DRIVES COMMUNITIES

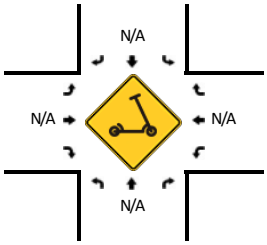












15-Min Count Period Beginning At	Bethlehem Rd (Northbound)				Bethlehem Rd (Southbound)				Data Center Dwy A (Eastbound)				Data Center Dwy A (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	1	0	0	0	0	0	0	0	4	0	4	0	0	0	0	0	9	
4:15 PM	0	0	0	0	0	0	2	0	1	0	3	0	0	0	0	0	6	
4:30 PM	2	0	0	0	0	0	2	0	3	0	3	0	0	0	0	0	10	
4:45 PM	0	0	0	0	0	0	0	0	2	0	3	0	0	0	0	0	5	30
5:00 PM	2	0	0	0	0	0	0	0	9	0	6	0	0	0	0	0	17	38
5:15 PM	3	0	0	0	0	0	1	0	2	0	1	0	0	0	0	0	7	39
5:30 PM	1	0	0	0	0	0	1	0	6	0	9	0	0	0	0	0	17	46
5:45 PM	0	0	0	0	0	0	1	0	3	0	5	0	0	0	0	0	9	50
6:00 PM	2	0	0	0	0	0	0	0	5	0	15	0	0	0	0	0	22	55
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	48
6:30 PM	0	0	0	0	0	0	0	0	1	0	2	0	0	0	0	0	3	34
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	25

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	8	0	0	0	0	0	0	0	20	0	60	0	0	0	0	0	88
Heavy Trucks	0	0	0		0	0	0		0	0	0		0	0	0		0
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 1/26/2023 1:06 PM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

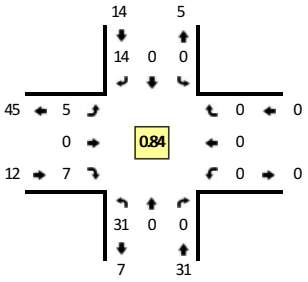
Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

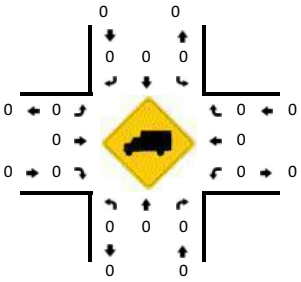
LOCATION: Bethlehem Rd -- Data Center Dwy A
CITY/STATE: Prince William, VA

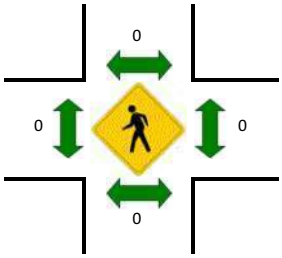
QC JOB #: 16030503
DATE: Thu, Jan 12 2023

Peak-Hour: 6:30 AM -- 7:30 AM
Peak 15-Min: 6:30 AM -- 6:45 AM

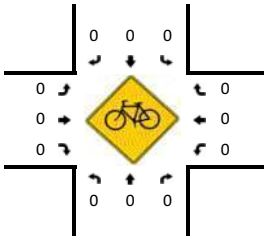


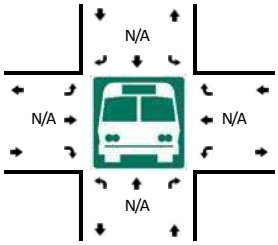
Quality Counts
DATA THAT DRIVES COMMUNITIES



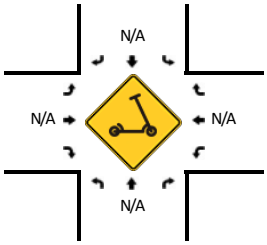












15-Min Count Period Beginning At	Bethlehem Rd (Northbound)				Bethlehem Rd (Southbound)				Data Center Dwy A (Eastbound)				Data Center Dwy A (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
12:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
12:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
12:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 AM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
1:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
2:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45 AM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
3:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	2
3:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
3:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
3:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4:00 AM	0	0	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	0	0
4:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 AM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
5:00 AM	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	2	3
5:15 AM	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	6
5:30 AM	6	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	10	16
5:45 AM	11	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	14	29
6:00 AM	1	0	0	0	0	0	2	0	4	0	6	0	0	0	0	0	13	40
6:15 AM	2	0	0	0	0	0	1	0	1	0	1	0	0	0	0	0	5	42
6:30 AM	8	0	0	0	0	0	7	0	1	0	1	0	0	0	0	0	17	49
6:45 AM	11	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	15	50
7:00 AM	7	0	0	0	0	0	2	0	3	0	2	0	0	0	0	0	14	51
7:15 AM	5	0	0	0	0	0	3	0	1	0	2	0	0	0	0	0	11	57
7:30 AM	4	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	5	45
7:45 AM	4	0	0	0	0	0	1	0	1	0	1	0	0	0	0	0	7	37
8:00 AM	2	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	5	28
8:15 AM	3	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	5	22
8:30 AM	2	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	3	20
8:45 AM	4	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	5	18
9:00 AM	1	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	3	16
9:15 AM	0	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	4	15

15-Min Count Period Beginning At	Bethlehem Rd (Northbound)				Bethlehem Rd (Southbound)				Data Center Dwy A (Eastbound)				Data Center Dwy A (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
9:30 AM	3	0	0	0	0	0	5	0	0	0	2	0	0	0	0	0	10	22
9:45 AM	1	0	0	0	0	0	0	0	1	0	2	0	0	0	0	0	4	21
10:00 AM	3	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	7	25
10:15 AM	3	0	0	0	0	0	3	0	1	0	1	0	0	0	0	0	8	29
10:30 AM	5	0	0	0	0	0	2	0	3	0	1	0	0	0	0	0	11	30
10:45 AM	0	0	0	0	0	0	3	0	1	0	3	0	0	0	0	0	7	33
11:00 AM	1	0	0	0	0	0	2	0	0	0	4	0	0	0	0	0	7	33
11:15 AM	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	27
11:30 AM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2	18
11:45 AM	0	0	0	0	0	0	2	0	5	0	4	0	0	0	0	0	11	22
12:00 PM	3	0	0	0	0	0	1	0	4	0	4	0	0	0	0	0	12	27
12:15 PM	5	0	0	0	0	0	1	0	1	0	5	0	0	0	0	0	12	37
12:30 PM	0	0	0	0	0	0	1	0	6	0	1	0	0	0	0	0	8	43
12:45 PM	0	0	0	0	0	0	2	0	3	0	3	0	0	0	0	0	8	40
1:00 PM	3	0	0	0	0	0	1	0	5	0	0	0	0	0	0	0	9	37
1:15 PM	4	0	0	0	0	0	4	0	2	0	0	0	0	0	0	0	10	35
1:30 PM	3	0	0	0	0	0	2	0	3	0	1	0	0	0	0	0	9	36
1:45 PM	11	0	0	0	0	0	1	0	4	0	2	0	0	0	0	0	18	46
2:00 PM	4	0	0	0	0	0	2	0	7	0	4	0	0	0	0	0	17	54
2:15 PM	3	0	0	0	0	0	0	0	5	0	4	0	0	0	0	0	12	56
2:30 PM	2	0	0	0	0	0	0	0	5	0	3	0	0	0	0	0	10	57
2:45 PM	1	0	0	0	0	0	1	0	2	0	4	0	0	0	0	0	8	47
3:00 PM	0	0	0	0	0	0	0	0	1	0	5	0	0	0	0	0	6	36
3:15 PM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	3	27
3:30 PM	0	0	0	0	0	0	1	0	2	0	4	0	0	0	0	0	7	24
3:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	17
4:00 PM	0	0	0	0	0	0	1	0	1	0	2	0	0	0	0	0	4	15
4:15 PM	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	4	16
4:30 PM	0	0	0	0	0	0	2	0	1	0	1	0	0	0	0	0	4	13
4:45 PM	0	0	0	0	0	0	0	0	2	0	1	0	0	0	0	0	3	15
5:00 PM	2	0	0	0	0	0	0	0	8	0	5	0	0	0	0	0	15	26
5:15 PM	2	0	0	0	0	0	0	0	3	0	1	0	0	0	0	0	6	28
5:30 PM	0	0	0	0	0	0	2	0	3	0	7	0	0	0	0	0	12	36
5:45 PM	1	0	0	0	0	0	0	0	3	0	3	0	0	0	0	0	7	40
6:00 PM	0	0	0	0	0	0	1	0	5	0	11	0	0	0	0	0	17	42
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	36
6:30 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2	26
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19
7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
7:15 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	3
7:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	2
7:45 PM	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	2	4
8:00 PM	1	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	5	9
8:15 PM	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	2	10
8:30 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	10
8:45 PM	0	0	0	0	0	0	1	0	3	0	1	0	0	0	0	0	5	13
9:00 PM	1	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	3	11
9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9
9:30 PM	1	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	3	11
9:45 PM	3	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	4	10
10:00 PM	1	0	0	0	0	0	1	0	1	0	4	0	0	0	0	0	7	14
10:15 PM	0	0	0	0	0	0	1	0	0	0	2	0	0	0	0	0	3	17
10:30 PM	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	2	16
10:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12
11:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
11:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	3
11:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
11:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	32	0	0	0	0	0	28	0	4	0	4	0	0	0	0	0	68
Heavy Trucks	0	0	0		0	0	0		0	0	0		0	0	0		0
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 1/26/2023 1:06 PM

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

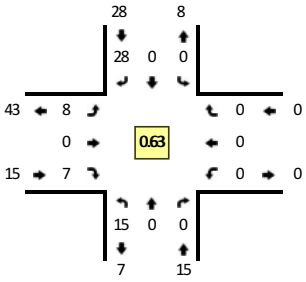
Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

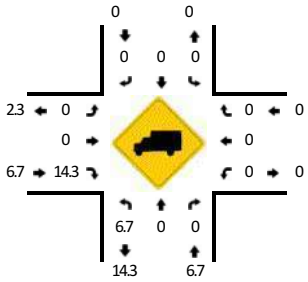
LOCATION: Freedom Center Blvd -- Data Center Dwy B
CITY/STATE: Innovation, VA

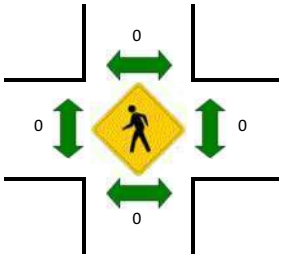
QC JOB #: 16030504
DATE: Wed, Jan 11 2023

Peak-Hour: 6:00 AM -- 7:00 AM
Peak 15-Min: 6:00 AM -- 6:15 AM

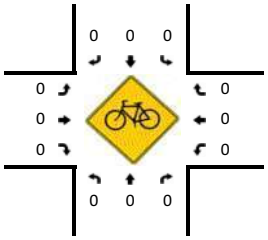


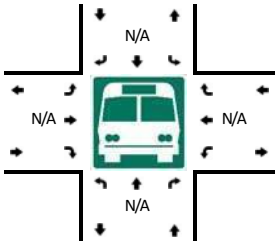




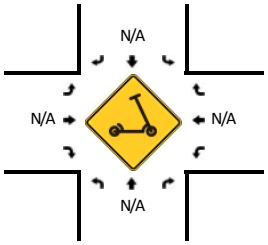












15-Min Count Period Beginning At	Freedom Center Blvd (Northbound)				Freedom Center Blvd (Southbound)				Data Center Dwy B (Eastbound)				Data Center Dwy B (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:00 AM	4	0	0	0	0	0	13	0	4	0	2	0	0	0	0	0	23	
6:15 AM	5	0	0	0	0	0	6	0	3	0	2	0	0	0	0	0	16	
6:30 AM	3	0	0	0	0	0	3	0	1	0	1	0	0	0	0	0	8	
6:45 AM	3	0	0	0	0	0	6	0	0	0	2	0	0	0	0	0	11	58
7:00 AM	2	0	0	0	0	0	3	0	1	0	2	0	0	0	0	0	8	43
7:15 AM	4	0	0	0	0	0	2	0	0	0	1	0	0	0	0	0	7	34
7:30 AM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2	28
7:45 AM	2	0	0	0	0	0	6	0	1	0	1	0	0	0	0	0	10	27
8:00 AM	3	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	5	24
8:15 AM	1	0	0	0	0	0	4	0	2	0	0	0	0	0	0	0	7	24
8:30 AM	1	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	3	25
8:45 AM	1	0	0	0	0	0	2	0	1	0	2	0	0	0	0	0	6	21

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	16	0	0	0	0	0	52	0	16	0	8	0	0	0	0	0	92
Heavy Trucks	0	0	0		0	0	0		0	0	0		0	0	0		0
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 1/26/2023 1:06 PM

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

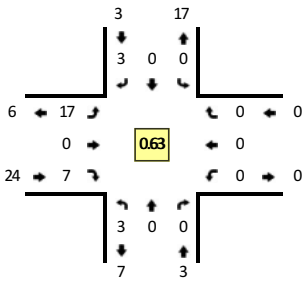
Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

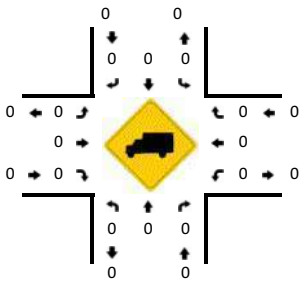
LOCATION: Freedom Center Blvd -- Data Center Dwy B
CITY/STATE: Innovation, VA

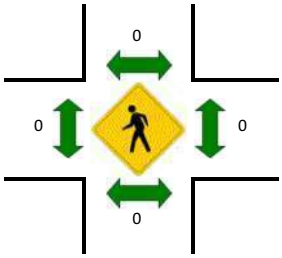
QC JOB #: 16030505
DATE: Wed, Jan 11 2023

Peak-Hour: 5:15 PM -- 6:15 PM
Peak 15-Min: 6:00 PM -- 6:15 PM

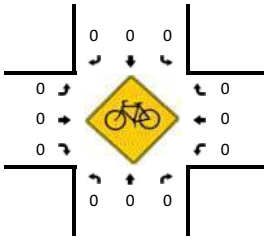


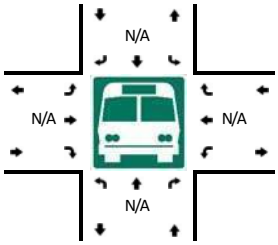
Quality Counts
DATA THAT DRIVES COMMUNITIES



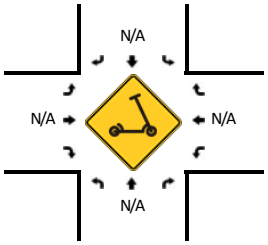












15-Min Count Period Beginning At	Freedom Center Blvd (Northbound)				Freedom Center Blvd (Southbound)				Data Center Dwy B (Eastbound)				Data Center Dwy B (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	
4:15 PM	0	0	0	0	0	0	1	0	3	0	2	0	0	0	0	0	6	
4:30 PM	1	0	0	0	0	0	0	0	1	0	3	0	0	0	0	0	5	
4:45 PM	0	0	0	0	0	0	0	0	3	0	1	0	0	0	0	0	4	16
5:00 PM	0	0	0	0	0	0	0	0	3	0	3	0	0	0	0	0	6	21
5:15 PM	1	0	0	0	0	0	1	0	1	0	2	0	0	0	0	0	5	20
5:30 PM	1	0	0	0	0	0	0	0	8	0	2	0	0	0	0	0	11	26
5:45 PM	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	2	24
6:00 PM	1	0	0	0	0	0	1	0	7	0	3	0	0	0	0	0	12	30
6:15 PM	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	2	27
6:30 PM	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	2	18
6:45 PM	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	2	18

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	4	0	0	0	0	0	4	0	28	0	12	0	0	0	0	0	48
Heavy Trucks	0	0	0		0	0	0		0	0	0		0	0	0		0
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 1/26/2023 1:06 PM

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

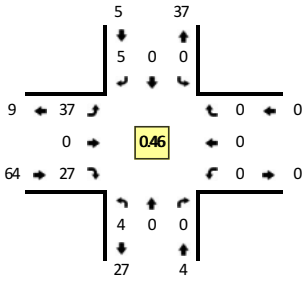
Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

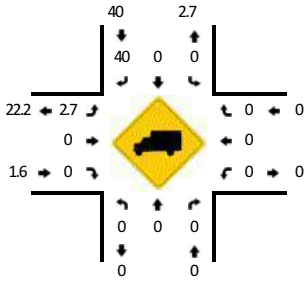
LOCATION: Freedom Center Blvd -- Data Center Dwy B
CITY/STATE: Innovation, VA

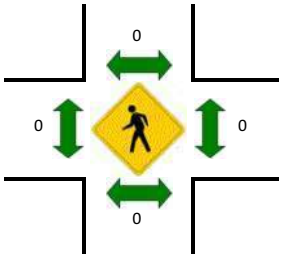
QC JOB #: 16030506
DATE: Thu, Jan 12 2023

Peak-Hour: 1:45 PM -- 2:45 PM
Peak 15-Min: 1:45 PM -- 2:00 PM

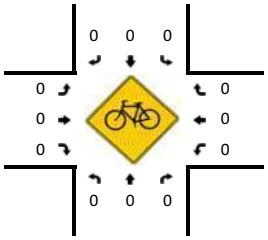


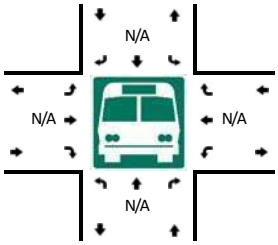




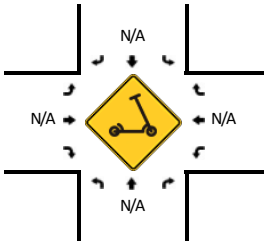












15-Min Count Period Beginning At	Freedom Center Blvd (Northbound)				Freedom Center Blvd (Southbound)				Data Center Dwy B (Eastbound)				Data Center Dwy B (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
12:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	
12:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
12:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1:00 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	2
1:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
2:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 AM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
3:15 AM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	2
3:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
3:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
4:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4:15 AM	0	0	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	0	0
4:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 AM	5	0	0	0	0	0	2	0	0	0	1	0	0	0	0	0	8	8
5:30 AM	2	0	0	0	0	0	9	0	0	0	2	0	0	0	0	0	13	21
5:45 AM	6	0	0	0	0	0	16	0	1	0	0	0	0	0	0	0	23	44
6:00 AM	4	0	0	0	0	0	10	0	5	0	3	0	0	0	0	0	22	66
6:15 AM	0	0	0	0	0	0	3	0	0	0	1	0	0	0	0	0	4	62
6:30 AM	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	3	52
6:45 AM	2	0	0	0	0	0	7	0	1	0	1	0	0	0	0	0	11	40
7:00 AM	2	0	0	0	0	0	4	0	1	0	1	0	0	0	0	0	8	26
7:15 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	23
7:30 AM	1	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	3	23
7:45 AM	3	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	7	19
8:00 AM	1	0	0	0	0	0	2	0	1	0	0	0	0	0	0	0	4	15
8:15 AM	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	3	17
8:30 AM	0	0	0	0	0	0	4	0	2	0	0	0	0	0	0	0	6	20
8:45 AM	6	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	9	22
9:00 AM	6	0	0	0	0	0	1	0	2	0	9	0	0	0	0	0	18	36
9:15 AM	3	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	6	39
9:30 AM	1	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	3	36

15-Min Count Period Beginning At	Freedom Center Blvd (Northbound)				Freedom Center Blvd (Southbound)				Data Center Dwy B (Eastbound)				Data Center Dwy B (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
9:45 AM	2	0	0	0	0	0	2	0	3	0	3	0	0	0	0	0	10	37
10:00 AM	2	0	0	0	0	0	2	0	2	0	4	0	0	0	0	0	10	29
10:15 AM	3	0	0	0	0	0	3	0	5	0	0	0	0	0	0	0	11	34
10:30 AM	3	0	0	0	0	0	5	0	0	0	2	0	0	0	0	0	10	41
10:45 AM	4	0	0	0	0	0	1	0	2	0	2	0	0	0	0	0	9	40
11:00 AM	0	0	0	0	0	0	2	0	3	0	1	0	0	0	0	0	6	36
11:15 AM	2	0	0	0	0	0	2	0	1	0	3	0	0	0	0	0	8	33
11:30 AM	3	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	8	31
11:45 AM	0	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	4	26
12:00 PM	0	0	0	0	0	0	3	0	6	0	1	0	0	0	0	0	10	30
12:15 PM	1	0	0	0	0	0	1	0	1	0	1	0	0	0	0	0	4	26
12:30 PM	2	0	0	0	0	0	4	0	1	0	1	0	0	0	0	0	8	26
12:45 PM	2	0	0	0	0	0	2	0	2	0	2	0	0	0	0	0	8	30
1:00 PM	2	0	0	0	0	0	2	0	3	0	0	0	0	0	0	0	7	27
1:15 PM	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	2	25
1:30 PM	1	0	0	0	0	0	3	0	0	0	1	0	0	0	0	0	5	22
1:45 PM	1	0	0	0	0	0	1	0	21	0	17	0	0	0	0	0	40	54
2:00 PM	2	0	0	0	0	0	1	0	7	0	5	0	0	0	0	0	15	62
2:15 PM	1	0	0	0	0	0	3	0	6	0	2	0	0	0	0	0	12	72
2:30 PM	0	0	0	0	0	0	0	0	3	0	3	0	0	0	0	0	6	73
2:45 PM	1	0	0	0	0	0	0	0	2	0	1	0	0	0	0	0	4	37
3:00 PM	0	0	0	0	0	0	2	0	2	0	1	0	0	0	0	0	5	27
3:15 PM	2	0	0	0	0	0	0	0	4	0	1	0	0	0	0	0	7	22
3:30 PM	0	0	0	0	0	0	2	0	1	0	3	0	0	0	0	0	6	22
3:45 PM	0	0	0	0	0	0	2	0	3	0	2	0	0	0	0	0	7	25
4:00 PM	1	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	4	24
4:15 PM	0	0	0	0	0	0	1	0	1	0	1	0	0	0	0	0	3	20
4:30 PM	0	0	0	0	0	0	0	0	3	0	4	0	0	0	0	0	7	21
4:45 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2	16
5:00 PM	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	4	16
5:15 PM	1	0	0	0	0	0	1	0	0	0	2	0	0	0	0	0	4	17
5:30 PM	0	0	0	0	0	0	0	0	2	0	1	0	0	0	0	0	3	13
5:45 PM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	3	14
6:00 PM	0	0	0	0	0	0	0	0	3	0	2	0	0	0	0	0	5	15
6:15 PM	0	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	4	15
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12
6:45 PM	1	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	3	12
7:00 PM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	8
7:15 PM	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2	6
7:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	7
7:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
8:00 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	4
8:15 PM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	3
8:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
8:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
9:00 PM	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	4	5
9:15 PM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	5
9:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
9:45 PM	2	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	5	10
10:00 PM	0	0	0	0	0	0	1	0	1	0	2	0	0	0	0	0	4	10
10:15 PM	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	4	13
10:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	14
10:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9
11:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
11:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
11:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	4	0	0	0	0	0	4	0	84	0	68	0	0	0	0	0	160
Heavy Trucks	0	0	0		0	0	0		0	0	0		0	0	0		0
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 1/26/2023 1:06 PM

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

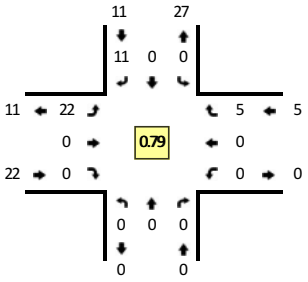
Type of peak hour being reported: Intersection Peak

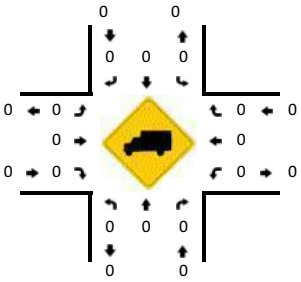
Method for determining peak hour: Total Entering Volume

LOCATION: Data Center Dwy C -- Thomasson Barn Rd
CITY/STATE: Innovation, VA

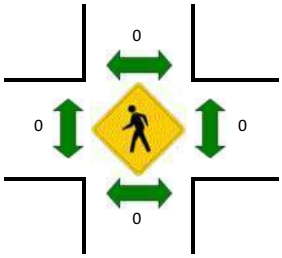
QC JOB #: 16030507
DATE: Wed, Jan 11 2023

Peak-Hour: 6:00 AM -- 7:00 AM
Peak 15-Min: 6:00 AM -- 6:15 AM

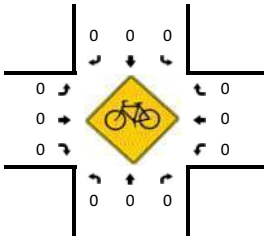


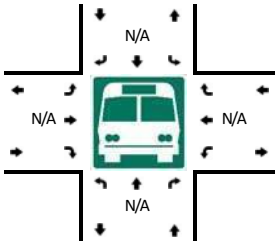


Quality Counts
DATA THAT DRIVES COMMUNITIES

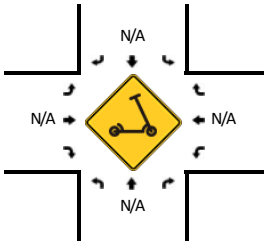












15-Min Count Period Beginning At	Data Center Dwy C (Northbound)				Data Center Dwy C (Southbound)				Thomasson Barn Rd (Eastbound)				Thomasson Barn Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:00 AM	0	0	0	0	0	0	5	0	6	0	0	0	0	0	1	0	12	
6:15 AM	0	0	0	0	0	0	2	0	3	0	0	0	0	0	1	0	6	
6:30 AM	0	0	0	0	0	0	0	0	7	0	0	0	0	0	2	0	9	
6:45 AM	0	0	0	0	0	0	4	0	6	0	0	0	0	0	1	0	11	38
7:00 AM	0	0	0	0	0	0	1	0	6	0	0	0	0	0	1	0	8	34
7:15 AM	0	0	0	0	0	0	3	0	4	0	0	0	0	0	3	0	10	38
7:30 AM	0	0	0	0	2	0	0	0	2	0	0	0	0	0	3	0	7	36
7:45 AM	0	0	0	0	1	0	0	0	4	0	0	0	0	0	1	0	6	31
8:00 AM	0	0	0	0	1	0	0	0	5	0	0	0	0	0	3	0	9	32
8:15 AM	0	0	0	0	0	0	3	0	4	0	0	0	0	0	0	0	7	29
8:30 AM	0	0	0	0	1	0	1	0	3	0	0	0	0	0	2	0	7	29
8:45 AM	0	0	0	0	0	0	3	0	3	0	0	0	0	0	0	0	6	29

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	0	0	20	0	24	0	0	0	0	0	4	0	48
Heavy Trucks	0	0	0		0	0	0		0	0	0		0	0	0		0
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 1/26/2023 1:06 PM

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

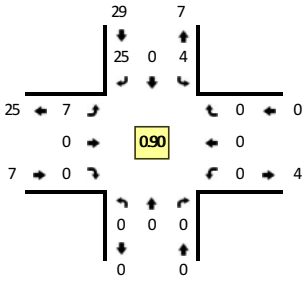
Type of peak hour being reported: Intersection Peak

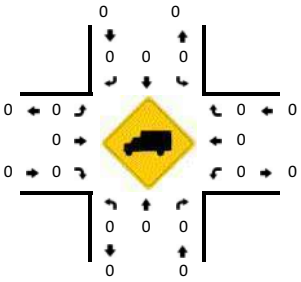
Method for determining peak hour: Total Entering Volume

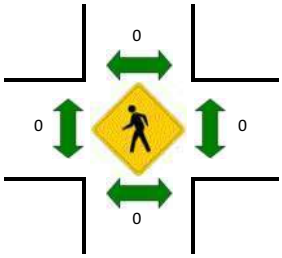
LOCATION: Data Center Dwy C -- Thomasson Barn Rd
CITY/STATE: Innovation, VA

QC JOB #: 16030508
DATE: Wed, Jan 11 2023

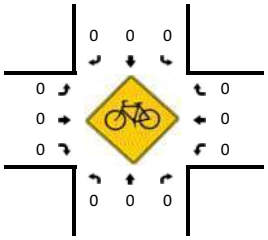
Peak-Hour: 5:15 PM -- 6:15 PM
Peak 15-Min: 5:15 PM -- 5:30 PM

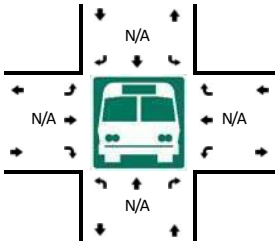




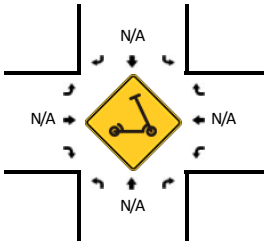












15-Min Count Period Beginning At	Data Center Dwy C (Northbound)				Data Center Dwy C (Southbound)				Thomasson Barn Rd (Eastbound)				Thomasson Barn Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	0	0	3	0	2	0	0	0	0	0	0	0	5	
4:15 PM	0	0	0	0	0	0	4	0	1	0	0	0	0	0	0	0	5	
4:30 PM	0	0	0	0	1	0	1	0	1	0	0	0	0	0	0	0	3	
4:45 PM	0	0	0	0	1	0	1	0	1	0	0	0	0	0	0	0	3	16
5:00 PM	0	0	0	0	0	0	5	0	1	0	0	0	0	0	0	0	6	17
5:15 PM	0	0	0	0	0	0	6	0	4	0	0	0	0	0	0	0	10	22
5:30 PM	0	0	0	0	0	0	7	0	1	0	0	0	0	0	0	0	8	27
5:45 PM	0	0	0	0	3	0	5	0	0	0	0	0	0	0	0	0	8	32
6:00 PM	0	0	0	0	1	0	7	0	2	0	0	0	0	0	0	0	10	36
6:15 PM	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	3	29
6:30 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	22
6:45 PM	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	2	16

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	0	0	24	0	16	0	0	0	0	0	0	0	40
Heavy Trucks	0	0	0		0	0	0		0	0	0		0	0	0		0
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 1/26/2023 1:06 PM

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

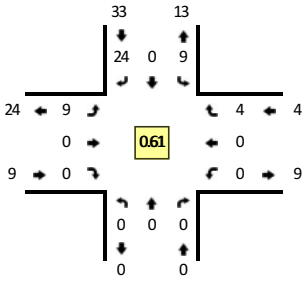
Type of peak hour being reported: Intersection Peak

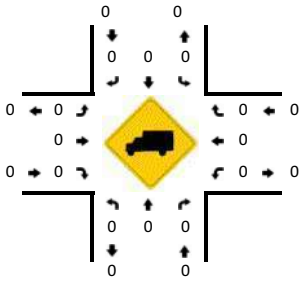
Method for determining peak hour: Total Entering Volume

LOCATION: Data Center Dwy C -- Thomasson Barn Rd
CITY/STATE: Innovation, VA

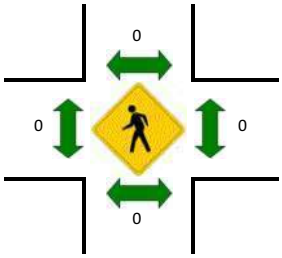
QC JOB #: 16030509
DATE: Thu, Jan 12 2023

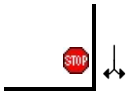
Peak-Hour: 1:45 PM -- 2:45 PM
Peak 15-Min: 2:00 PM -- 2:15 PM

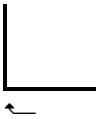


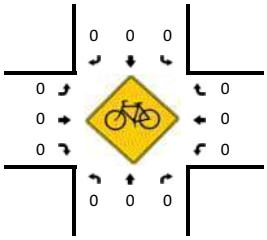


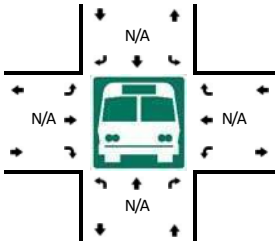
Quality Counts
DATA THAT DRIVES COMMUNITIES

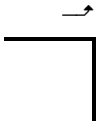




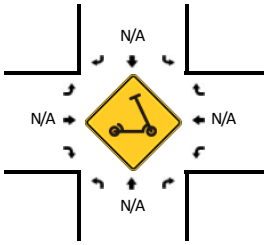












15-Min Count Period Beginning At	Data Center Dwy C (Northbound)				Data Center Dwy C (Southbound)				Thomasson Barn Rd (Eastbound)				Thomasson Barn Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
12:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
12:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
12:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	1
1:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1:30 AM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	2
1:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
2:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
2:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
2:30 AM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	2	2
2:45 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	3
3:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
3:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
3:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
3:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	1
4:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4:30 AM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	2
4:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
5:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:15 AM	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	5	6
5:30 AM	0	0	0	0	0	0	0	0	6	0	0	0	0	0	2	0	8	13
5:45 AM	0	0	0	0	1	0	1	0	8	0	0	0	0	0	4	0	14	27
6:00 AM	0	0	0	0	0	0	5	0	1	0	0	0	0	0	0	0	6	33
6:15 AM	0	0	0	0	0	0	1	0	3	0	0	0	0	0	1	0	5	33
6:30 AM	0	0	0	0	0	0	0	0	4	0	0	0	0	0	2	0	6	31
6:45 AM	0	0	0	0	0	0	1	0	6	0	0	0	0	0	2	0	9	26
7:00 AM	0	0	0	0	0	0	2	0	1	0	0	0	0	0	3	0	6	26
7:15 AM	0	0	0	0	0	0	0	0	3	0	0	0	0	0	4	0	7	28
7:30 AM	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	3	25
7:45 AM	0	0	0	0	0	0	0	0	3	0	0	0	0	0	4	0	7	23
8:00 AM	0	0	0	0	0	0	2	0	5	0	0	0	0	0	2	0	9	26
8:15 AM	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	3	22
8:30 AM	0	0	0	0	0	0	3	0	1	0	0	0	0	0	0	0	4	23
8:45 AM	0	0	0	0	0	0	1	0	4	0	0	0	0	0	0	0	5	21
9:00 AM	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	3	15
9:15 AM	0	0	0	0	2	0	0	0	1	0	0	0	0	0	0	0	3	15
9:30 AM	0	0	0	0	1	0	4	0	2	0	0	0	0	0	0	0	7	18

15-Min Count Period Beginning At	Data Center Dwy C (Northbound)				Data Center Dwy C (Southbound)				Thomasson Barn Rd (Eastbound)				Thomasson Barn Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
9:45 AM	0	0	0	0	1	0	2	0	0	0	0	0	0	0	1	0	4	17
10:00 AM	0	0	0	0	1	0	0	0	2	0	0	0	0	0	1	0	4	18
10:15 AM	0	0	0	0	0	0	1	0	2	0	0	0	0	0	2	0	5	20
10:30 AM	0	0	0	0	0	0	1	0	2	0	0	0	0	0	0	0	3	16
10:45 AM	0	0	0	0	0	0	1	0	4	0	0	0	0	0	0	0	5	17
11:00 AM	0	0	0	0	0	0	3	0	3	0	0	0	0	0	4	0	10	23
11:15 AM	0	0	0	0	3	0	4	0	2	0	0	0	0	0	0	0	9	27
11:30 AM	0	0	0	0	0	0	1	0	3	0	0	0	0	0	0	0	4	28
11:45 AM	0	0	0	0	0	0	2	0	1	0	0	0	0	0	0	0	3	26
12:00 PM	0	0	0	0	1	0	3	0	3	0	0	0	0	0	0	0	7	23
12:15 PM	0	0	0	0	0	0	6	0	1	0	0	0	0	0	1	0	8	22
12:30 PM	0	0	0	0	1	0	2	0	4	0	0	0	0	0	1	0	8	26
12:45 PM	0	0	0	0	2	0	3	0	3	0	0	0	0	0	1	0	9	32
1:00 PM	0	0	0	0	2	0	2	0	5	0	0	0	0	0	1	0	10	35
1:15 PM	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	2	29
1:30 PM	0	0	0	0	0	0	2	0	1	0	0	0	0	0	3	0	6	27
1:45 PM	0	0	0	0	1	0	3	0	5	0	0	0	0	0	2	0	11	29
2:00 PM	0	0	0	0	6	0	12	0	0	0	0	0	0	0	1	0	19	38
2:15 PM	0	0	0	0	1	0	3	0	1	0	0	0	0	0	0	0	5	41
2:30 PM	0	0	0	0	1	0	6	0	3	0	0	0	0	0	1	0	11	46
2:45 PM	0	0	0	0	1	0	4	0	1	0	0	0	0	0	1	0	7	42
3:00 PM	0	0	0	0	1	0	8	0	0	0	0	0	0	0	0	0	9	32
3:15 PM	0	0	0	0	2	0	4	0	1	0	0	0	0	0	0	0	7	34
3:30 PM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2	25
3:45 PM	0	0	0	0	0	0	2	0	2	0	0	0	0	0	1	0	5	23
4:00 PM	0	0	0	0	0	0	5	0	1	0	0	0	0	0	0	0	6	20
4:15 PM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2	15
4:30 PM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2	15
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10
5:00 PM	0	0	0	0	0	0	5	0	2	0	0	0	0	0	0	0	7	11
5:15 PM	0	0	0	0	0	0	5	0	1	0	0	0	0	0	0	0	6	15
5:30 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	14
5:45 PM	0	0	0	0	1	0	5	0	3	0	0	0	0	0	0	0	9	23
6:00 PM	0	0	0	0	1	0	3	0	1	0	0	0	0	0	0	0	5	21
6:15 PM	0	0	0	0	0	0	1	0	2	0	0	0	0	0	0	0	3	18
6:30 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	18
6:45 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	10
7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
7:15 PM	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	2	4
7:30 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	2	5
7:45 PM	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2	6
8:00 PM	0	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	4	10
8:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
8:30 PM	0	0	0	0	0	0	1	0	2	0	0	0	0	0	0	0	3	9
8:45 PM	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	3	10
9:00 PM	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	2	8
9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
9:30 PM	0	0	0	0	2	0	4	0	2	0	0	0	0	0	0	0	8	13
9:45 PM	0	0	0	0	0	0	2	0	4	0	0	0	0	0	0	0	6	16
10:00 PM	0	0	0	0	1	0	4	0	0	0	0	0	0	0	0	0	5	19
10:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19
10:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11
10:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
11:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	1

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	24	0	48	0	0	0	0	0	0	0	4	0	76
Heavy Trucks	0	0	0		0	0	0		0	0	0		0	0	0		0
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

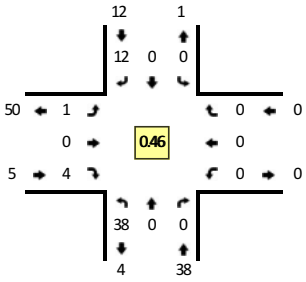
Report generated on 1/26/2023 1:06 PM

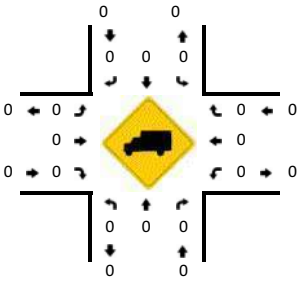
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

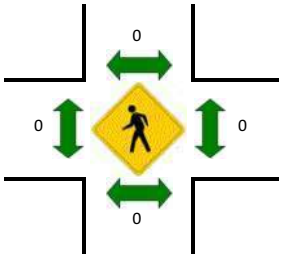
LOCATION: Waxpool Rd -- Sir Timothy Dr (Data Center Dwy D) | **QC JOB #:** 16030510
CITY/STATE: Ashburn, VA | **DATE:** Wed, Jan 11 2023

Peak-Hour: 6:00 AM -- 7:00 AM
Peak 15-Min: 6:45 AM -- 7:00 AM

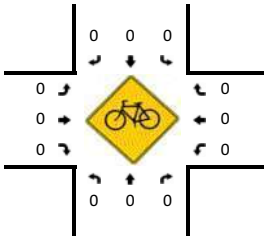


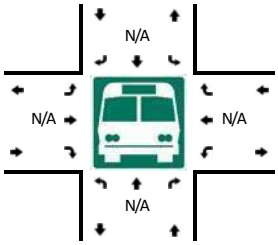


Quality Counts
DATA THAT DRIVES COMMUNITIES

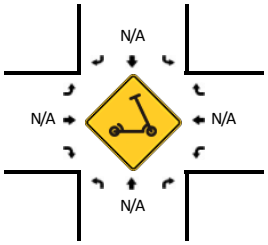












15-Min Count Period Beginning At	Waxpool Rd (Northbound)				Waxpool Rd (Southbound)				Sir Timothy Dr (Data Center Dwy D) (Eastbound)				Sir Timothy Dr (Data Center Dwy D) (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:00 AM	9	0	0	0	0	0	1	0	1	0	1	0	0	0	0	0	12	
6:15 AM	3	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	5	
6:30 AM	6	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	8	
6:45 AM	20	0	0	0	0	0	7	0	0	0	3	0	0	0	0	0	30	55
7:00 AM	9	0	0	0	0	0	2	0	1	0	0	0	0	0	0	0	12	55
7:15 AM	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	3	53
7:30 AM	1	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	3	48
7:45 AM	1	0	0	0	0	0	1	0	0	0	4	0	0	0	0	0	6	24
8:00 AM	6	0	0	0	0	0	1	0	2	0	0	0	0	0	0	0	9	21
8:15 AM	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	3	21
8:30 AM	1	0	0	0	0	0	0	0	2	0	1	0	0	0	0	0	4	22
8:45 AM	2	0	0	0	0	0	4	0	1	0	1	0	0	0	0	0	8	24

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	80	0	0	0	0	0	28	0	0	0	12	0	0	0	0	0	120
Heavy Trucks	0	0	0		0	0	0		0	0	0		0	0	0		0
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

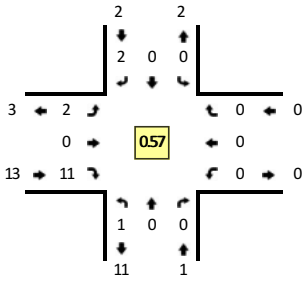
Comments:

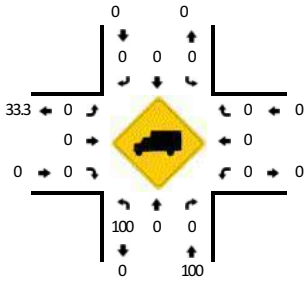
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Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

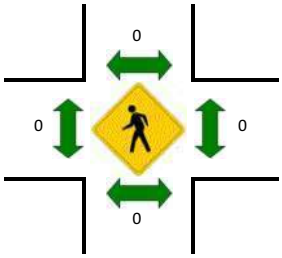
LOCATION: Waxpool Rd -- Sir Timothy Dr (Data Center Dwy D) | **QC JOB #:** 16030511
CITY/STATE: Ashburn, VA | **DATE:** Wed, Jan 11 2023

Peak-Hour: 4:00 PM -- 5:00 PM
Peak 15-Min: 4:45 PM -- 5:00 PM

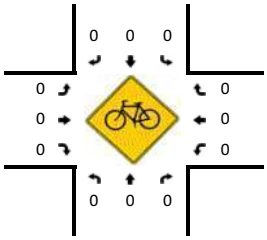


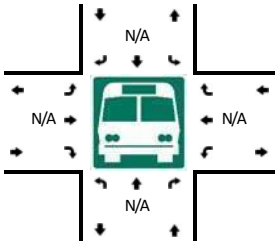


Quality Counts
DATA THAT DRIVES COMMUNITIES

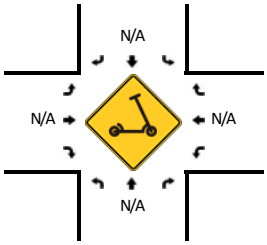












15-Min Count Period Beginning At	Waxpool Rd (Northbound)				Waxpool Rd (Southbound)				Sir Timothy Dr (Data Center Dwy D) (Eastbound)				Sir Timothy Dr (Data Center Dwy D) (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	0	0	0	0	1	0	3	0	0	0	0	0	4	
4:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	
4:30 PM	0	0	0	0	0	0	1	0	1	0	2	0	0	0	0	0	4	
4:45 PM	1	0	0	0	0	0	1	0	0	0	5	0	0	0	0	0	7	16
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12
5:15 PM	1	0	0	0	0	0	0	0	1	0	2	0	0	0	0	0	4	15
5:30 PM	0	0	0	0	0	0	1	0	2	0	0	0	0	0	0	0	3	14
5:45 PM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	3	10
6:00 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	11
6:15 PM	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	2	9
6:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	7
6:45 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2	6

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

Comments:

Report generated on 1/26/2023 1:06 PM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

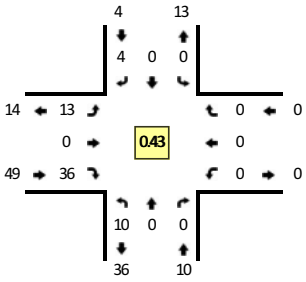
Type of peak hour being reported: Intersection Peak

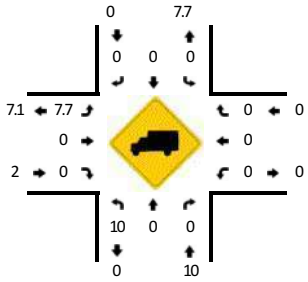
Method for determining peak hour: Total Entering Volume

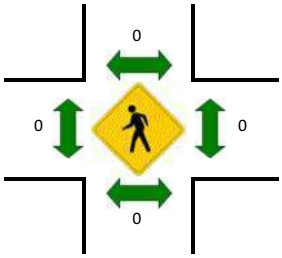
LOCATION: Waxpool Rd -- Sir Timothy Dr (Data Center Dwy D)
CITY/STATE: Ashburn, VA

QC JOB #: 16030512
DATE: Thu, Jan 12 2023

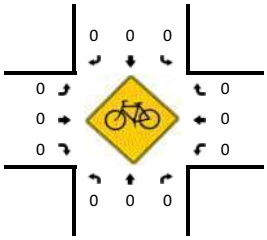
Peak-Hour: 2:45 PM -- 3:45 PM
Peak 15-Min: 3:30 PM -- 3:45 PM

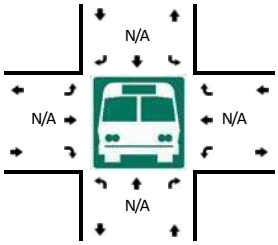




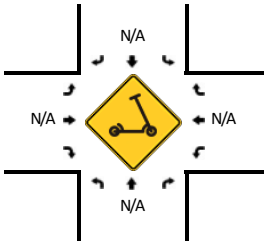












15-Min Count Period Beginning At	Waxpool Rd (Northbound)				Waxpool Rd (Southbound)				Sir Timothy Dr (Data Center Dwy D) (Eastbound)				Sir Timothy Dr (Data Center Dwy D) (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
12:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
12:30 AM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	
12:45 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	2
1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
1:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
1:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 AM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
4:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4:45 AM	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	2	3
5:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
5:15 AM	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	4
5:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
5:45 AM	6	0	0	0	0	0	2	0	1	0	0	0	0	0	0	0	9	11
6:00 AM	9	0	0	0	0	0	2	0	1	0	3	0	0	0	0	0	15	26
6:15 AM	3	0	0	0	0	0	3	0	1	0	0	0	0	0	0	0	7	31
6:30 AM	6	0	0	0	0	0	1	0	0	0	2	0	0	0	0	0	9	40
6:45 AM	16	0	0	0	0	0	5	0	0	0	1	0	0	0	0	0	22	53
7:00 AM	6	0	0	0	0	0	3	0	1	0	0	0	0	0	0	0	10	48
7:15 AM	4	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	6	47
7:30 AM	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	40
7:45 AM	3	0	0	0	0	0	3	0	3	0	2	0	0	0	0	0	11	29
8:00 AM	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	3	22
8:15 AM	2	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	3	19
8:30 AM	2	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	3	20
8:45 AM	1	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	3	12
9:00 AM	1	0	0	0	0	0	4	0	0	0	2	0	0	0	0	0	7	16

15-Min Count Period Beginning At	Waxpool Rd (Northbound)				Waxpool Rd (Southbound)				Sir Timothy Dr (Data Center Dwy D) (Eastbound)				Sir Timothy Dr (Data Center Dwy D) (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
9:15 AM	3	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	5	18
9:30 AM	0	0	0	0	0	0	3	0	1	0	1	0	0	0	0	0	5	20
9:45 AM	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	4	21
10:00 AM	0	0	0	0	0	0	2	0	3	0	0	0	0	0	0	0	5	19
10:15 AM	1	0	0	0	0	0	1	0	0	0	3	0	0	0	0	0	5	19
10:30 AM	1	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	3	17
10:45 AM	3	0	0	0	0	0	2	0	3	0	0	0	0	0	0	0	8	21
11:00 AM	1	0	0	0	0	0	2	0	3	0	6	0	0	0	0	0	12	28
11:15 AM	3	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	5	28
11:30 AM	2	0	0	0	0	0	2	0	4	0	2	0	0	0	0	0	10	35
11:45 AM	2	0	0	0	0	0	1	0	2	0	4	0	0	0	0	0	9	36
12:00 PM	2	0	0	0	0	0	6	0	7	0	3	0	0	0	0	0	18	42
12:15 PM	3	0	0	0	0	0	4	0	0	0	2	0	0	0	0	0	9	46
12:30 PM	1	0	0	0	0	0	5	0	1	0	1	0	0	0	0	0	8	44
12:45 PM	2	0	0	0	0	0	1	0	2	0	1	0	0	0	0	0	6	41
1:00 PM	0	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	4	27
1:15 PM	1	0	0	0	0	0	2	0	0	0	4	0	0	0	0	0	7	25
1:30 PM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2	19
1:45 PM	3	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	5	18
2:00 PM	3	0	0	0	0	0	4	0	2	0	8	0	0	0	0	0	17	31
2:15 PM	3	0	0	0	0	0	0	0	1	0	6	0	0	0	0	0	10	34
2:30 PM	0	0	0	0	0	0	0	0	2	0	1	0	0	0	0	0	3	35
2:45 PM	1	0	0	0	0	0	2	0	1	0	1	0	0	0	0	0	5	35
3:00 PM	2	0	0	0	0	0	1	0	3	0	3	0	0	0	0	0	9	27
3:15 PM	4	0	0	0	0	0	0	0	2	0	6	0	0	0	0	0	12	29
3:30 PM	3	0	0	0	0	0	1	0	7	0	26	0	0	0	0	0	37	63
3:45 PM	0	0	0	0	0	0	1	0	1	0	3	0	0	0	0	0	5	63
4:00 PM	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	5	59
4:15 PM	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	4	51
4:30 PM	1	0	0	0	0	0	0	0	1	0	2	0	0	0	0	0	4	18
4:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	14
5:00 PM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	3	12
5:15 PM	1	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	3	11
5:30 PM	0	0	0	0	0	0	0	0	3	0	5	0	0	0	0	0	8	15
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14
6:00 PM	0	0	0	0	0	0	1	0	2	0	0	0	0	0	0	0	3	14
6:15 PM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	12
6:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	5
6:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	6
7:00 PM	0	0	0	0	0	0	0	0	1	0	2	0	0	0	0	0	3	6
7:15 PM	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	7
7:30 PM	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	2	8
7:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
8:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	3
8:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 PM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
10:00 PM	1	0	0	0	0	0	1	0	0	0	3	0	0	0	0	0	5	6
10:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
10:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
10:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
11:00 PM	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	2
11:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
11:30 PM	1	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	3	5
11:45 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	6

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	12	0	0	0	0	0	4	0	28	0	104	0	0	0	0	0	148
Heavy Trucks	0	0	0		0	0	0		4	0	0		0	0	0		4
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

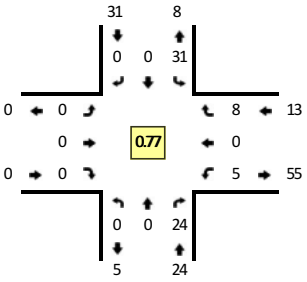
Report generated on 1/26/2023 1:06 PM

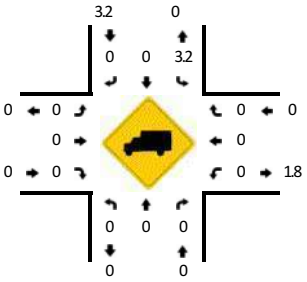
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

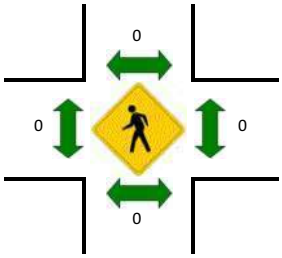
LOCATION: Pacific Blvd -- Data Center Dwy E | **QC JOB #:** 16030513
CITY/STATE: Ashburn, VA | **DATE:** Wed, Jan 11 2023

Peak-Hour: 6:30 AM -- 7:30 AM
Peak 15-Min: 6:45 AM -- 7:00 AM

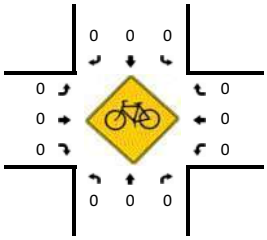


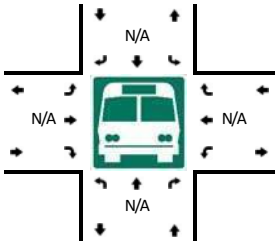


Quality Counts
DATA THAT DRIVES COMMUNITIES

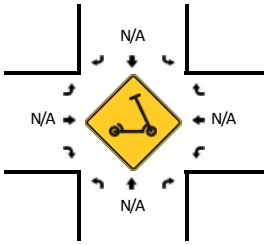












15-Min Count Period Beginning At	Pacific Blvd (Northbound)				Pacific Blvd (Southbound)				Data Center Dwy E (Eastbound)				Data Center Dwy E (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:00 AM	0	0	2	0	5	0	0	0	0	0	0	0	1	0	4	0	12	
6:15 AM	0	0	3	0	6	0	0	0	0	0	0	0	1	0	3	0	13	
6:30 AM	0	0	5	0	9	0	0	0	0	0	0	0	2	0	1	0	17	
6:45 AM	0	0	8	0	12	0	0	0	0	0	0	0	1	0	1	0	22	64
7:00 AM	0	0	5	0	5	0	0	0	0	0	0	0	0	0	3	0	13	65
7:15 AM	0	0	6	0	5	0	0	0	0	0	0	0	2	0	3	0	16	68
7:30 AM	0	0	2	0	5	0	0	0	0	0	0	0	0	0	0	0	7	58
7:45 AM	0	0	4	0	4	0	0	0	0	0	0	0	0	0	2	0	10	46
8:00 AM	0	0	9	0	3	0	0	0	0	0	0	0	0	0	5	0	17	50
8:15 AM	0	0	2	0	3	0	0	0	0	0	0	0	1	0	2	0	8	42
8:30 AM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	3	0	5	40
8:45 AM	0	0	0	0	4	0	0	0	0	0	0	0	0	0	2	0	6	36

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	32	0	48	0	0	0	0	0	0	0	4	0	4	0	88
Heavy Trucks	0	0	0		4	0	0		0	0	0		0	0	0		4
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

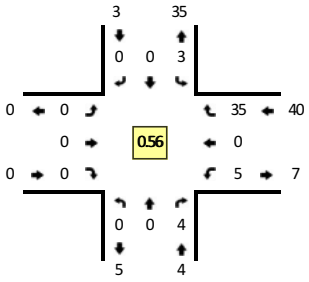
Comments:

Report generated on 1/26/2023 1:06 PM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

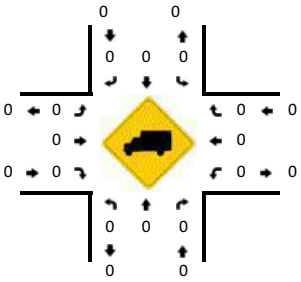
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

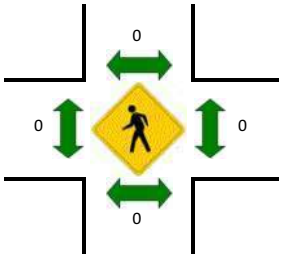
LOCATION: Pacific Blvd -- Data Center Dwy E | **QC JOB #:** 16030514
CITY/STATE: Ashburn, VA | **DATE:** Wed, Jan 11 2023

Peak-Hour: 4:45 PM -- 5:45 PM
Peak 15-Min: 5:30 PM -- 5:45 PM

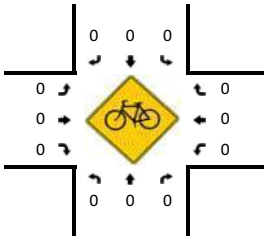


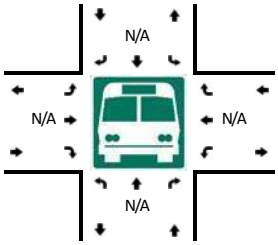




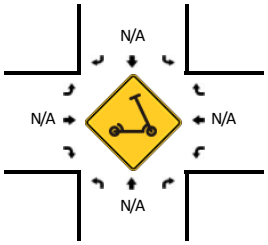












15-Min Count Period Beginning At	Pacific Blvd (Northbound)				Pacific Blvd (Southbound)				Data Center Dwy E (Eastbound)				Data Center Dwy E (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	4	0	6	
4:15 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	3	0	5	
4:30 PM	0	0	0	0	1	0	0	0	0	0	0	0	1	0	4	0	6	
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	6	23
5:00 PM	0	0	0	0	1	0	0	0	0	0	0	0	2	0	11	0	14	31
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	5	0	6	32
5:30 PM	0	0	4	0	2	0	0	0	0	0	0	0	2	0	13	0	21	47
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	5	0	6	47
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	8	0	9	42
6:15 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2	0	3	39
6:30 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	2	20
6:45 PM	0	0	1	0	2	0	0	0	0	0	0	0	0	0	3	0	6	20

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	16	0	8	0	0	0	0	0	0	0	8	0	52	0	84
Heavy Trucks	0	0	0		0	0	0		0	0	0		0	0	0		0
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 1/26/2023 1:06 PM

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

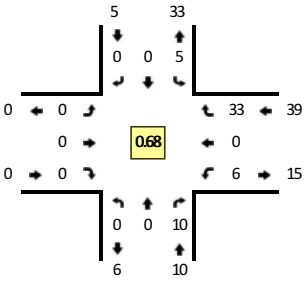
Type of peak hour being reported: Intersection Peak

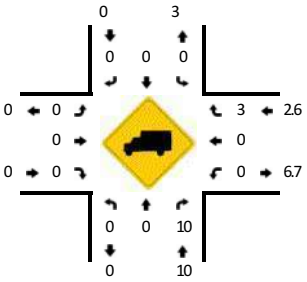
Method for determining peak hour: Total Entering Volume

LOCATION: Pacific Blvd -- Data Center Dwy E
CITY/STATE: Ashburn, VA

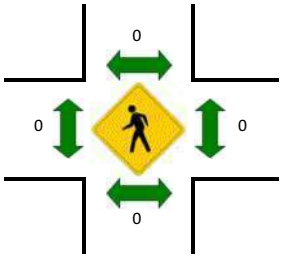
QC JOB #: 16030515
DATE: Thu, Jan 12 2023

Peak-Hour: 1:45 PM -- 2:45 PM
Peak 15-Min: 2:00 PM -- 2:15 PM

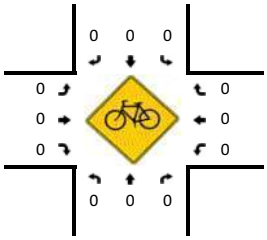


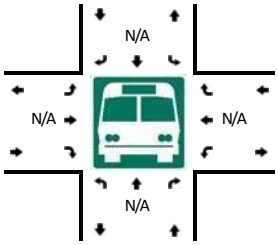


Quality Counts
DATA THAT DRIVES COMMUNITIES

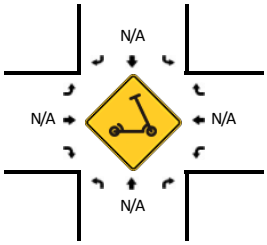












15-Min Count Period Beginning At	Pacific Blvd (Northbound)				Pacific Blvd (Southbound)				Data Center Dwy E (Eastbound)				Data Center Dwy E (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
12:00 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	3	0	4	
12:15 AM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	2	
12:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
12:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
1:00 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3
1:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1:30 AM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	2	3
1:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	4
2:00 AM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	4
2:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	5
2:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	4
2:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
3:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	3
3:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
3:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
3:45 AM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	2
4:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2
4:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
4:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
4:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:00 AM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1
5:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:30 AM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	2	3
5:45 AM	0	0	10	0	5	0	0	0	0	0	0	0	1	0	0	0	16	19
6:00 AM	0	0	3	0	2	0	0	0	0	0	0	0	1	0	5	0	11	29
6:15 AM	0	0	6	0	2	0	0	0	0	0	0	0	1	0	3	0	12	41
6:30 AM	0	0	2	0	4	0	0	0	0	0	0	0	1	0	2	0	9	48
6:45 AM	0	0	7	0	1	0	0	0	0	0	0	0	0	0	0	0	8	40
7:00 AM	0	0	7	0	7	0	0	0	0	0	0	0	0	0	2	0	16	45
7:15 AM	0	0	3	0	4	0	0	0	0	0	0	0	0	0	2	0	9	42
7:30 AM	0	0	0	0	4	0	0	0	0	0	0	0	0	0	1	0	5	38
7:45 AM	0	0	5	0	5	0	0	0	0	0	0	0	0	0	3	0	13	43
8:00 AM	0	0	7	0	2	0	0	0	0	0	0	0	1	0	2	0	12	39
8:15 AM	0	0	4	0	1	0	0	0	0	0	0	0	2	0	1	0	8	38
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	2	35
8:45 AM	0	0	2	0	7	0	0	0	0	0	0	0	1	0	0	0	10	32
9:00 AM	0	0	3	0	6	0	0	0	0	0	0	0	2	0	1	0	12	32
9:15 AM	0	0	5	0	1	0	0	0	0	0	0	0	0	0	3	0	9	33
9:30 AM	0	0	2	0	6	0	0	0	0	0	0	0	1	0	6	0	15	46

15-Min Count Period Beginning At	Pacific Blvd (Northbound)				Pacific Blvd (Southbound)				Data Center Dwy E (Eastbound)				Data Center Dwy E (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
9:45 AM	0	0	2	0	1	0	0	0	0	0	0	0	0	0	2	0	5	41
10:00 AM	0	0	2	0	2	0	0	0	0	0	0	0	2	0	2	0	8	37
10:15 AM	0	0	1	0	2	0	0	0	0	0	0	0	0	0	2	0	5	33
10:30 AM	0	0	1	0	6	0	0	0	0	0	0	0	1	0	1	0	9	27
10:45 AM	0	0	1	0	2	0	0	0	0	0	0	0	2	0	4	0	9	31
11:00 AM	0	0	1	0	4	0	0	0	0	0	0	0	1	0	8	0	14	37
11:15 AM	0	0	5	0	4	0	0	0	0	0	0	0	1	0	3	0	13	45
11:30 AM	0	0	4	0	4	0	0	0	0	0	0	0	0	0	1	0	9	45
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	4	40
12:00 PM	0	0	3	0	2	0	0	0	0	0	0	0	1	0	4	0	10	36
12:15 PM	0	0	2	0	4	0	0	0	0	0	0	0	3	0	7	0	16	39
12:30 PM	0	0	2	0	3	0	0	0	0	0	0	0	1	0	2	0	8	38
12:45 PM	0	0	7	0	1	0	0	0	0	0	0	0	4	0	5	0	17	51
1:00 PM	0	0	4	0	3	0	0	0	0	0	0	0	2	0	3	0	12	53
1:15 PM	0	0	1	0	2	0	0	0	0	0	0	0	3	0	3	0	9	46
1:30 PM	0	0	2	0	2	0	0	0	0	0	0	0	1	0	0	0	5	43
1:45 PM	0	0	4	0	2	0	0	0	0	0	0	0	1	0	10	0	17	43
2:00 PM	0	0	4	0	3	0	0	0	0	0	0	0	1	0	12	0	20	51
2:15 PM	0	0	2	0	0	0	0	0	0	0	0	0	2	0	6	0	10	52
2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	2	0	5	0	7	54
2:45 PM	0	0	1	0	3	0	0	0	0	0	0	0	0	0	5	0	9	46
3:00 PM	0	0	1	0	1	0	0	0	0	0	0	0	1	0	9	0	12	38
3:15 PM	0	0	2	0	0	0	0	0	0	0	0	0	1	0	4	0	7	35
3:30 PM	0	0	3	0	0	0	0	0	0	0	0	0	3	0	3	0	9	37
3:45 PM	0	0	3	0	2	0	0	0	0	0	0	0	0	0	2	0	7	35
4:00 PM	0	0	1	0	0	0	0	0	0	0	0	0	1	0	5	0	7	30
4:15 PM	0	0	0	0	1	0	0	0	0	0	0	0	2	0	3	0	6	29
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	5	0	6	26
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	3	0	4	23
5:00 PM	0	0	1	0	3	0	0	0	0	0	0	0	2	0	6	0	12	28
5:15 PM	0	0	1	0	1	0	0	0	0	0	0	0	4	0	2	0	8	30
5:30 PM	0	0	0	0	3	0	0	0	0	0	0	0	2	0	4	0	9	33
5:45 PM	0	0	0	0	1	0	0	0	0	0	0	0	1	0	1	0	3	32
6:00 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	4	0	5	25
6:15 PM	0	0	0	0	1	0	0	0	0	0	0	0	1	0	1	0	3	20
6:30 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	12
6:45 PM	0	0	4	0	1	0	0	0	0	0	0	0	2	0	4	0	11	20
7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	8	0	9	24
7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	22
7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2	0	3	24
7:45 PM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	3	0	5	18
8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	10
8:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9
8:30 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	2	8
8:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
9:15 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3
9:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
9:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2
10:00 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2	0	3	5
10:15 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	2	6
10:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	4	0	5	11
10:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10
11:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3	10
11:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	10
11:30 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	2	0	3	8
11:45 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	2	10

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	16	0	12	0	0	0	0	0	0	0	4	0	48	0	80
Heavy Trucks	0	0	0		0	0	0		0	0	0		0	0	4		4
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

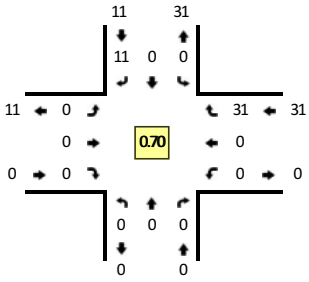
Report generated on 1/26/2023 1:06 PM

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

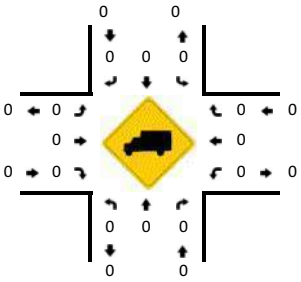
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

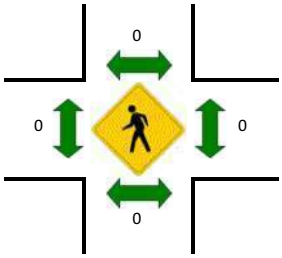
LOCATION: Sutton Bay Plz (Data Center Dwy F) -- US 50 | **QC JOB #:** 16030516
CITY/STATE: Loudoun, VA | **DATE:** Wed, Jan 11 2023

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

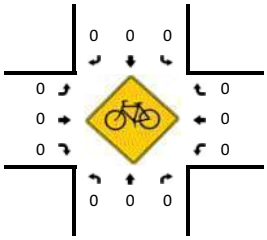


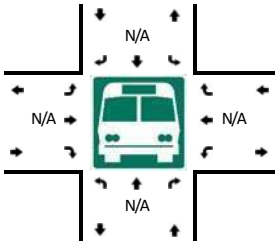
Quality Counts
DATA THAT DRIVES COMMUNITIES



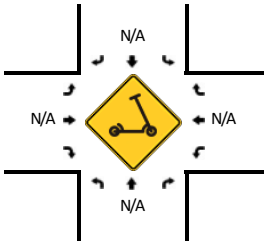












15-Min Count Period Beginning At	Sutton Bay Plz (Data Center Dwy F) (Northbound)				Sutton Bay Plz (Data Center Dwy F) (Southbound)				US 50 (Eastbound)				US 50 (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:00 AM	0	0	0	0	0	0	4	0	0	0	0	0	0	0	3	0	7	
6:15 AM	0	0	0	0	0	0	3	0	0	0	0	0	0	0	3	0	6	
6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	4	
6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0	8	25
7:00 AM	0	0	0	0	0	0	5	0	0	0	0	0	0	0	8	0	13	31
7:15 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	3	0	4	29
7:30 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	6	0	7	32
7:45 AM	0	0	0	0	0	0	4	0	0	0	0	0	0	0	11	0	15	39
8:00 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	8	0	9	35
8:15 AM	0	0	0	0	0	0	5	0	0	0	0	0	0	0	6	0	11	42
8:30 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	6	0	7	42
8:45 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	4	0	5	32

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	0	0	16	0	0	0	0	0	0	0	44	0	60
Heavy Trucks	0	0	0		0	0	0		0	0	0		0	0	0		0
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 1/26/2023 1:07 PM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

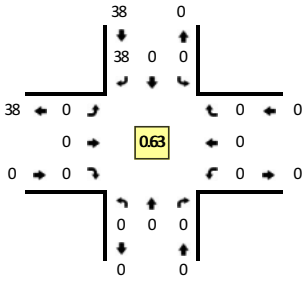
Type of peak hour being reported: Intersection Peak

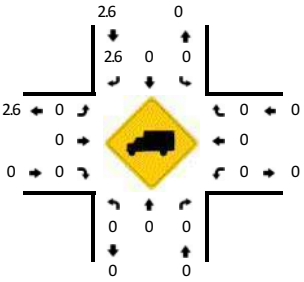
Method for determining peak hour: Total Entering Volume

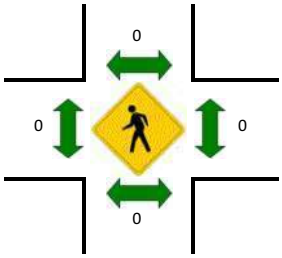
LOCATION: Sutton Bay Plz (Data Center Dwy F) -- US 50
CITY/STATE: Loudoun, VA

QC JOB #: 16030517
DATE: Wed, Jan 11 2023

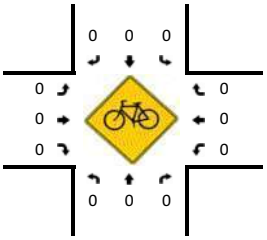
Peak-Hour: 4:15 PM -- 5:15 PM
Peak 15-Min: 5:00 PM -- 5:15 PM

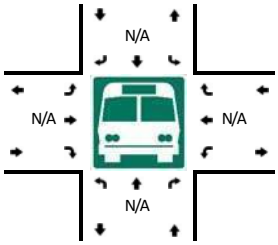




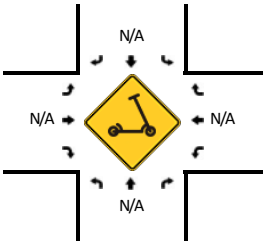












15-Min Count Period Beginning At	Sutton Bay Plz (Data Center Dwy F) (Northbound)				Sutton Bay Plz (Data Center Dwy F) (Southbound)				US 50 (Eastbound)				US 50 (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	0	0	6	0	0	0	0	0	0	0	1	0	7	
4:15 PM	0	0	0	0	0	0	9	0	0	0	0	0	0	0	0	0	9	
4:30 PM	0	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0	7	
4:45 PM	0	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0	7	30
5:00 PM	0	0	0	0	0	0	15	0	0	0	0	0	0	0	0	0	15	38
5:15 PM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2	0	4	33
5:30 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	27
5:45 PM	0	0	0	0	0	0	4	0	0	0	0	0	0	0	1	0	5	25
6:00 PM	0	0	0	0	0	0	4	0	0	0	0	0	0	0	1	0	5	15
6:15 PM	0	0	0	0	0	0	3	0	0	0	0	0	0	0	1	0	4	15
6:30 PM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	1	0	3	17
6:45 PM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	1	0	3	15

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	0	0	60	0	0	0	0	0	0	0	0	0	60
Heavy Trucks	0	0	0		0	0	0		0	0	0		0	0	0		0
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 1/26/2023 1:07 PM

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

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: Sutton Bay Plz (Data Center Dwy F) -- US 50

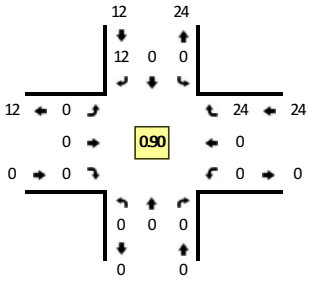
QC JOB #: 16030518

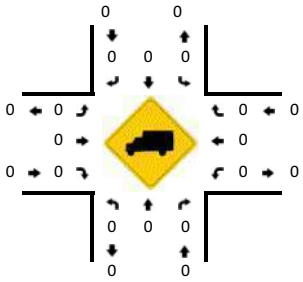
CITY/STATE: Loudoun, VA

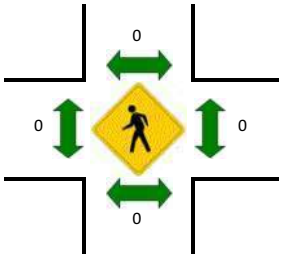
DATE: Thu, Jan 12 2023

Peak-Hour: 12:15 PM -- 1:15 PM

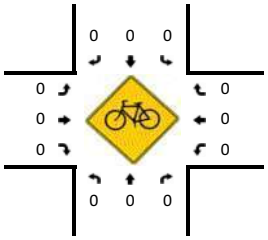
Peak 15-Min: 12:45 PM -- 1:00 PM

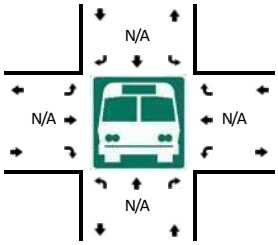




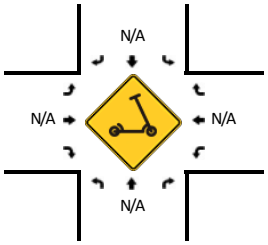












15-Min Count Period Beginning At	Sutton Bay Plz (Data Center Dwy F) (Northbound)				Sutton Bay Plz (Data Center Dwy F) (Southbound)				US 50 (Eastbound)				US 50 (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
12:15 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	
12:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	
12:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
1:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 AM	0	0	0	0	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	1	0	1	1
4:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2
4:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	3
5:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	5
5:15 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	3	0	4	8
5:30 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	3	0	4	11
5:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	4	14
6:00 AM	0	0	0	0	0	0	5	0	0	0	0	0	0	0	7	0	12	24
6:15 AM	0	0	0	0	0	0	4	0	0	0	0	0	0	0	1	0	5	25
6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	6	27
6:45 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	8	0	9	32
7:00 AM	0	0	0	0	0	0	8	0	0	0	0	0	0	0	3	0	11	31
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	7	33
7:30 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	4	0	5	32
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	6	29
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	5	23
8:15 AM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	3	0	5	21
8:30 AM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	10	0	12	28
8:45 AM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	5	0	7	29
9:00 AM	0	0	0	0	0	0	3	0	0	0	0	0	0	0	1	0	4	28

15-Min Count Period Beginning At	Sutton Bay Plz (Data Center Dwy F) (Northbound)				Sutton Bay Plz (Data Center Dwy F) (Southbound)				US 50 (Eastbound)				US 50 (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
9:15 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	2	25
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	5	18
9:45 AM	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	3	14
10:00 AM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	3	0	5	15
10:15 AM	0	0	0	0	0	0	3	0	0	0	0	0	0	0	2	0	5	18
10:30 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	6	0	7	20
10:45 AM	0	0	0	0	0	0	4	0	0	0	0	0	0	0	4	0	8	25
11:00 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	4	0	5	25
11:15 AM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2	0	4	24
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	18
11:45 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	2	12
12:00 PM	0	0	0	0	0	0	6	0	0	0	0	0	0	0	3	0	9	16
12:15 PM	0	0	0	0	0	0	6	0	0	0	0	0	0	0	2	0	8	20
12:30 PM	0	0	0	0	0	0	4	0	0	0	0	0	0	0	4	0	8	27
12:45 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	9	0	10	35
1:00 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	9	0	10	36
1:15 PM	0	0	0	0	0	0	5	0	0	0	0	0	0	0	2	0	7	35
1:30 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	8	0	9	36
1:45 PM	0	0	0	0	0	0	4	0	0	0	0	0	0	0	2	0	6	32
2:00 PM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	1	0	3	25
2:15 PM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	1	0	3	21
2:30 PM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2	14
2:45 PM	0	0	0	0	0	0	5	0	0	0	0	0	0	0	2	0	7	15
3:00 PM	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	5	17
3:15 PM	0	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0	7	21
3:30 PM	0	0	0	0	0	0	5	0	0	0	0	0	0	0	2	0	7	26
3:45 PM	0	0	0	0	0	0	4	0	0	0	0	0	0	0	1	0	5	24
4:00 PM	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	6	25
4:15 PM	0	0	0	0	0	0	9	0	0	0	0	0	0	0	0	0	9	27
4:30 PM	0	0	0	0	0	0	11	0	0	0	0	0	0	0	0	0	11	31
4:45 PM	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	3	29
5:00 PM	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	5	28
5:15 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	2	21
5:30 PM	0	0	0	0	0	0	3	0	0	0	0	0	0	0	3	0	6	16
5:45 PM	0	0	0	0	0	0	3	0	0	0	0	0	0	0	2	0	5	18
6:00 PM	0	0	0	0	0	0	12	0	0	0	0	0	0	0	1	0	13	26
6:15 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	25
6:30 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	20
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15
7:00 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	3
7:15 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	3
7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
7:45 PM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2	0	4	6
8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
8:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	5
8:30 PM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	1	0	3	8
8:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
9:00 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	5
9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	5
9:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	3
9:45 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	2	0	3	6
10:00 PM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2	7
10:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	7
10:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
10:45 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	4
11:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
11:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
11:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
11:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	0	0	4	0	0	0	0	0	0	0	36	0	40
Heavy Trucks	0	0	0		0	0	0		0	0	0		0	0	0		0
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 1/26/2023 1:07 PM

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

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

1. US 11 & Country Club Road - TMC

Wed Feb 5, 2025
Full Length (6 AM-10 AM, 2 PM-6 PM, 10 AM-2 PM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1267772, Location: 40.234725, -77.131335, Site Code: 1

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

Leg	US 11							US 11							Country Club Road							Days Inn/Sunoco Driveway							
Direction	Northbound							Southbound							Eastbound							Westbound							
Time	L	T	R	U	RR	**App**	Ped*	L	T	R	U	RR	**App**	Ped*	L	T	R	U	RR	**App**	Ped*	L	T	R	U	RR	**App**	Ped*	**Int**
2025-02-05 6:00AM	2	115	4	1	0	**122**	0	0	70	0	0	1	**71**	0	6	0	1	0	1	**8**	0	0	0	1	0	6	**7**	0	**208**
6:15AM	2	160	2	0	0	**164**	0	0	110	2	0	1	**113**	0	10	0	0	0	0	**10**	0	2	0	2	0	0	**4**	0	**291**
6:30AM	3	170	0	0	0	**173**	0	0	113	7	0	0	**120**	0	15	0	3	0	0	**18**	0	0	0	5	0	1	**6**	1	**317**
6:45AM	4	172	1	0	0	**177**	0	0	157	3	0	0	**160**	0	7	0	5	0	4	**16**	0	1	0	0	0	0	**1**	0	**354**
Hourly Total	11	617	7	1	0	**636**	0	0	450	12	0	2	**464**	0	38	0	9	0	5	**52**	0	3	0	8	0	7	**18**	1	**1170**
7:00AM	4	229	1	0	0	**234**	0	0	154	4	0	0	**158**	0	15	0	5	0	4	**24**	0	0	0	2	0	1	**3**	0	**419**
7:15AM	6	271	2	0	0	**279**	0	1	144	4	0	0	**149**	0	14	0	1	0	1	**16**	0	1	0	1	0	1	**3**	1	**447**
7:30AM	5	256	5	0	0	**266**	0	0	167	3	0	0	**170**	0	14	1	8	0	6	**29**	0	0	0	1	0	3	**4**	1	**469**
7:45AM	5	219	1	0	0	**225**	0	2	230	6	0	1	**239**	0	15	0	4	0	1	**20**	0	0	1	5	0	2	**8**	0	**492**
Hourly Total	20	975	9	0	0	**1004**	0	3	695	17	0	1	**716**	0	58	1	18	0	12	**89**	0	1	1	9	0	7	**18**	2	**1827**
8:00AM	2	197	1	0	0	**200**	0	3	194	1	0	0	**198**	0	8	1	1	0	3	**13**	0	0	0	1	0	4	**5**	0	**416**
8:15AM	0	232	3	0	0	**235**	0	4	161	8	0	0	**173**	0	11	0	4	0	5	**20**	0	4	0	3	0	1	**8**	0	**436**
8:30AM	5	180	0	0	1	**186**	0	0	163	7	0	0	**170**	0	13	1	6	0	3	**23**	0	1	0	3	0	4	**8**	0	**387**
8:45AM	1	166	1	1	0	**169**	0	1	175	7	0	1	**184**	0	6	0	2	0	2	**10**	0	0	0	2	0	1	**3**	0	**366**
Hourly Total	8	775	5	1	1	**790**	0	8	693	23	0	1	**725**	0	38	2	13	0	13	**66**	0	5	0	9	0	10	**24**	0	**1605**
9:00AM	2	234	1	0	0	**237**	0	1	167	3	1	0	**172**	0	11	1	2	0	0	**14**	0	1	0	1	0	0	**2**	0	**425**
9:15AM	1	203	1	0	0	**205**	0	2	133	6	0	0	**141**	0	4	0	1	0	0	**5**	0	2	0	0	0	3	**5**	0	**356**
9:30AM	4	163	1	0	0	**168**	0	0	134	2	1	0	**137**	0	4	0	1	0	3	**8**	0	1	0	2	0	1	**4**	0	**317**
9:45AM	4	195	0	0	0	**199**	0	5	160	3	0	1	**169**	0	9	0	2	0	2	**13**	0	4	0	2	0	0	**6**	0	**387**
Hourly Total	11	795	3	0	0	**809**	0	8	594	14	2	1	**619**	0	28	1	6	0	5	**40**	0	8	0	5	0	4	**17**	0	**1485**
2:00PM	4	234	2	0	0	**240**	0	3	137	3	0	0	**143**	0	9	1	6	0	0	**16**	0	1	0	2	0	2	**5**	0	**404**
2:15PM	6	291	6	0	0	**303**	0	3	194	4	0	0	**201**	0	8	1	4	0	0	**13**	0	5	0	4	0	3	**12**	0	**529**
2:30PM	10	315	3	0	0	**328**	0	1	178	2	1	0	**182**	0	8	0	3	0	1	**12**	0	2	1	5	0	1	**9**	0	**531**
2:45PM	8	308	2	0	0	**318**	0	8	200	5	0	0	**213**	0	8	1	3	0	0	**12**	0	4	0	8	0	1	**13**	0	**556**
Hourly Total	28	1148	13	0	0	**1189**	0	15	709	14	1	0	**739**	0	33	3	16	0	1	**53**	0	12	1	19	0	7	**39**	0	**2020**
3:00PM	9	304	4	0	0	**317**	0	5	227	7	0	0	**239**	0	6	0	3	0	5	**14**	0	2	0	4	0	1	**7**	0	**577**
3:15PM	10	287	4	0	0	**301**	0	5	214	6	0	1	**226**	0	10	0	4	0	2	**16**	0	1	0	1	0	3	**5**	2	**548**
3:30PM	16	300	3	1	0	**320**	1	7	228	10	1	0	**246**	1	13	0	9	0	0	**22**	0	5	0	4	0	3	**12**	1	**600**
3:45PM	10	231	2	0	0	**243**	1	0	244	6	0	0	**250**	0	7	1	1	0	3	**12**	1	2	0	3	0	2	**7**	0	**512**
Hourly Total	45	1122	13	1	0	**1181**	2	17	913	29	1	1	**961**	1	36	1	17	0	10	**64**	1	10	0	12	0	9	**31**	3	**2237**
4:00PM	14	262	5	0	0	**281**	0	1	248	5	0	0	**254**	0	6	1	7	0	1	**15**	0	0	1	2	0	3	**6**	0	**556**
4:15PM	18	246	2	0	1	**267**	0	5	236	11	0	0	**252**	0	4	0	4	0	2	**10**	0	0	1	2	0	2	**5**	0	**534**
4:30PM	6	250	1	0	0	**257**	0	3	271	8	0	2	**284**	0	10	0	4	0	2	**16**	1	2	0	3	0	3	**8**	0	**565**
4:45PM	12	240	2	0	0	**254**	0	2	268	10	0	0	**280**	0	9	1	4	0	0	**14**	0	0	1	2	0	3	**6**	0	**554**
Hourly Total	50	998	10	0	1	**1059**	0	11	1023	34	0	2	**1070**	0	29	2	19	0	5	**55**	1	2	3	9	0	11	**25**	0	**2209**
5:00PM	9	262	2	0	1	**274**	0	10	272	12	0	0	**294**	0	11	0	8	0	0	**19**	0	1	0	0	0	3	**4**	0	**591**
5:15PM	12	230	1	0	0	**243**	0	2	251	11	0	0	**264**	0	12	1	2	0	3	**18**	0	4	1	0	0	2	**7**	0	**532**
5:30PM	9	208	3	0	0	**220**	0	3	223	7	1	2	**236**	0	8	0	3	0	3	**14**	0	2	1	1	0	3	**7**	0	**477**

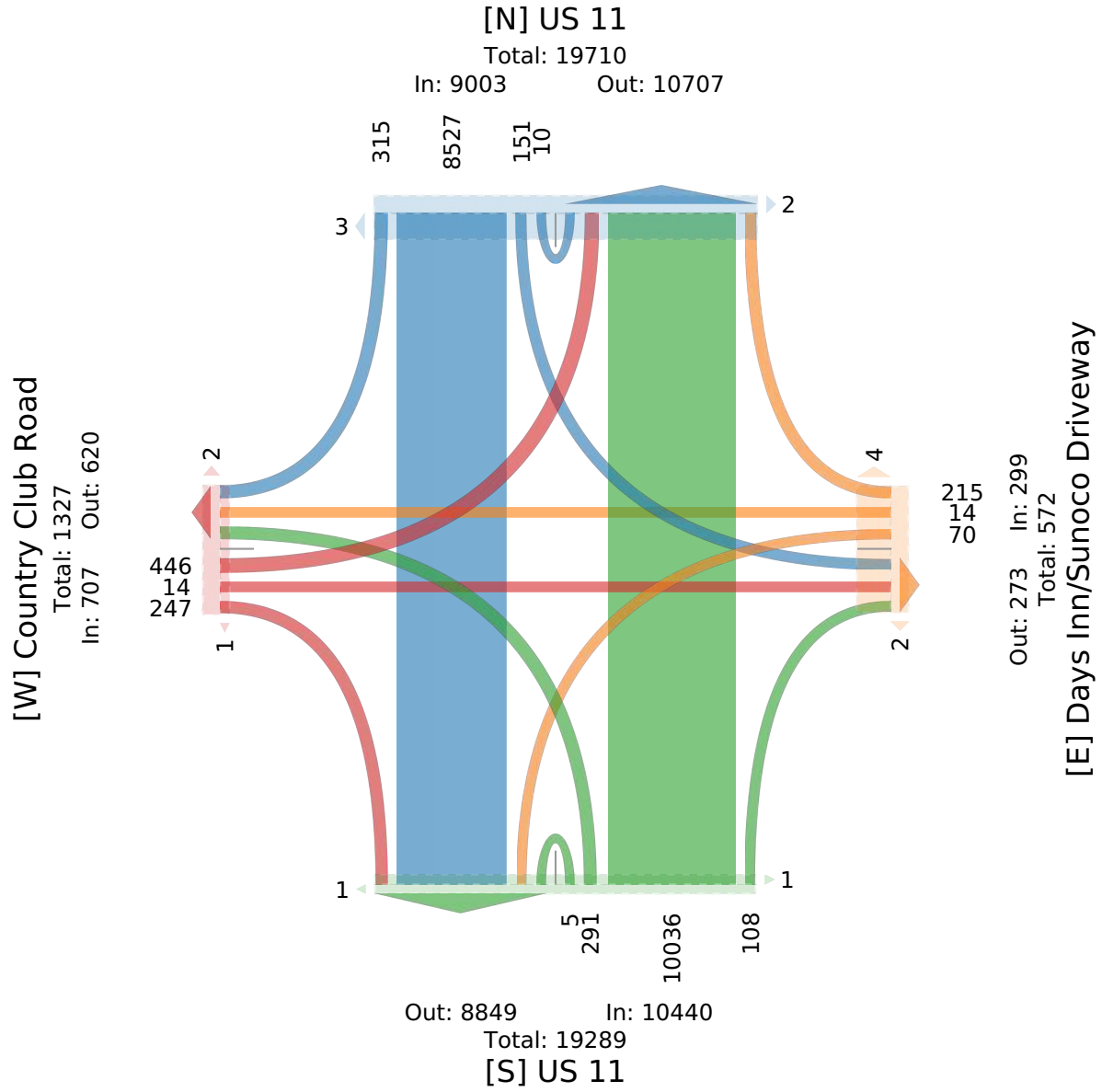
Leg	US 11							US 11							Country Club Road							Days Inn/Sunoco Driveway							
Direction	Northbound							Southbound							Eastbound							Westbound							
Time	L	T	R	U	RR	**App**	Ped*	L	T	R	U	RR	**App**	Ped*	L	T	R	U	RR	**App**	Ped*	L	T	R	U	RR	**App**	Ped*	**Int**
5:45PM	7	174	3	0	0	**184**	0	8	167	10	0	0	**185**	0	6	0	1	0	2	**9**	0	2	1	0	0	1	**4**	0	**382**
Hourly Total	37	874	9	0	1	**921**	0	23	913	40	1	2	**979**	0	37	1	14	0	8	**60**	0	9	3	1	0	9	**22**	0	**1982**
2025-02-08 10:00AM	4	228	2	1	1	**236**	0	3	112	1	0	1	**117**	0	13	0	3	0	6	**22**	0	0	0	0	0	5	**5**	0	**380**
10:15AM	6	172	5	0	0	**183**	0	5	138	6	0	0	**149**	0	13	0	1	0	1	**15**	0	1	1	2	0	6	**10**	0	**357**
10:30AM	5	177	1	0	0	**183**	0	4	153	9	1	0	**167**	0	14	0	6	0	0	**20**	0	1	0	1	0	5	**7**	0	**377**
10:45AM	5	181	5	0	0	**191**	0	0	150	4	1	0	**155**	0	10	0	1	0	2	**13**	0	2	0	1	0	4	**7**	0	**366**
Hourly Total	20	758	13	1	1	**793**	0	12	553	20	2	1	**588**	0	50	0	11	0	9	**70**	0	4	1	4	0	20	**29**	0	**1480**
11:00AM	4	199	2	1	0	**206**	0	0	135	5	0	1	**141**	2	6	0	2	0	1	**9**	0	1	1	0	0	3	**5**	0	**361**
11:15AM	3	160	1	0	0	**164**	0	4	158	5	0	0	**167**	0	13	1	4	0	4	**22**	1	0	0	0	0	3	**3**	0	**356**
11:30AM	5	176	2	0	0	**183**	0	5	133	8	0	0	**146**	0	11	0	4	0	2	**17**	0	0	2	5	0	1	**8**	0	**354**
11:45AM	2	154	0	0	0	**156**	0	2	179	9	0	1	**191**	0	10	0	4	0	0	**14**	0	3	0	1	0	1	**5**	0	**366**
Hourly Total	14	689	5	1	0	**709**	0	11	605	27	0	2	**645**	2	40	1	14	0	7	**62**	1	4	3	6	0	8	**21**	0	**1437**
12:00PM	6	172	2	0	0	**180**	0	4	178	7	0	0	**189**	0	7	0	1	0	2	**10**	0	1	0	1	0	3	**5**	0	**384**
12:15PM	6	166	3	0	0	**175**	0	5	157	15	0	0	**177**	0	4	0	0	0	5	**9**	0	0	0	1	0	3	**4**	0	**365**
12:30PM	5	172	4	0	0	**181**	0	2	210	13	1	1	**227**	0	7	0	3	0	0	**10**	0	3	1	1	0	3	**8**	0	**426**
12:45PM	6	140	3	0	0	**149**	0	10	171	10	0	0	**191**	1	8	1	3	0	3	**15**	0	1	0	0	0	3	**4**	0	**359**
Hourly Total	23	650	12	0	0	**685**	0	21	716	45	1	1	**784**	1	26	1	7	0	10	**44**	0	5	1	3	0	12	**21**	0	**1534**
1:00PM	11	165	2	0	0	**178**	0	5	156	6	0	0	**167**	0	7	0	5	0	0	**12**	0	3	1	5	0	2	**11**	0	**368**
1:15PM	7	173	2	0	0	**182**	0	2	185	6	0	1	**194**	0	8	0	4	0	0	**12**	0	2	0	5	0	1	**8**	0	**396**
1:30PM	1	145	0	0	0	**146**	0	3	166	6	1	0	**176**	1	10	1	2	0	2	**15**	0	0	0	7	0	1	**8**	0	**345**
1:45PM	5	152	1	0	0	**158**	0	12	156	6	1	1	**176**	0	8	0	4	0	1	**13**	0	2	0	5	0	0	**7**	0	**354**
Hourly Total	24	635	5	0	0	**664**	0	22	663	24	2	2	**713**	1	33	1	15	0	3	**52**	0	7	1	22	0	4	**34**	0	**1463**
Total	291	10036	104	5	4	**10440**	2	151	8527	299	10	16	**9003**	5	446	14	159	0	88	**707**	3	70	14	107	0	108	**299**	6	**20449**
% Approach	2.8%	96.1%	1.0%	0%	0%	**-**	-	1.7%	94.7%	3.3%	0.1%	0.2%	**-**	-	63.1%	2.0%	22.5%	0%	12.4%	**-**	-	23.4%	4.7%	35.8%	0%	36.1%	**-**	-	**-**
% Total	1.4%	49.1%	0.5%	0%	0%	**51.1%**	-	0.7%	41.7%	1.5%	0%	0.1%	**44.0%**	-	2.2%	0.1%	0.8%	0%	0.4%	**3.5%**	-	0.3%	0.1%	0.5%	0%	0.5%	**1.5%**	-	**-**
Lights and Motorcycles	284	7515	94	5	4	**7902**	-	128	6370	290	10	16	**6814**	-	432	14	154	0	85	**685**	-	59	14	89	0	103	**265**	-	15666
% Lights and Motorcycles	97.6%	74.9%	90.4%	100%	100%	**75.7%**	-	84.8%	74.7%	97.0%	100%	100%	**75.7%**	-	96.9%	100%	96.9%	0%	96.6%	**96.9%**	-	84.3%	100%	83.2%	0%	95.4%	**88.6%**	-	76.6%
Heavy	7	2521	10	0	0	**2538**	-	23	2157	9	0	0	**2189**	-	14	0	5	0	3	**22**	-	11	0	18	0	5	**34**	-	4783
% Heavy	2.4%	25.1%	9.6%	0%	0%	**24.3%**	-	15.2%	25.3%	3.0%	0%	0%	**24.3%**	-	3.1%	0%	3.1%	0%	3.4%	**3.1%**	-	15.7%	0%	16.8%	0%	4.6%	**11.4%**	-	23.4%
Pedestrians	-	-	-	-	-	-	2	-	-	-	-	-	-	5	-	-	-	-	-	-	3	-	-	-	-	-	-	5	
% Pedestrians	-	-	-	-	-	-	100%	-	-	-	-	-	-	100%	-	-	-	-	-	-	100%	-	-	-	-	-	-	83.3%	-
Bicycles on Crosswalk	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	1	
% Bicycles on Crosswalk	-	-	-	-	-	-	0%	-	-	-	-	-	-	0%	-	-	-	-	-	-	0%	-	-	-	-	-	-	16.7%	-

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

1. US 11 & Country Club Road - TMC

Wed Feb 5, 2025
Full Length (6 AM-10 AM, 2 PM-6 PM, 10 AM-2 PM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1267772, Location: 40.234725, -77.131335, Site Code: 1

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



1. US 11 & Country Club Road - TMC

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

Wed Feb 5, 2025
AM Peak (Feb 05 2025 7AM - 8 AM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1267772, Location: 40.234725, -77.131335, Site Code: 1

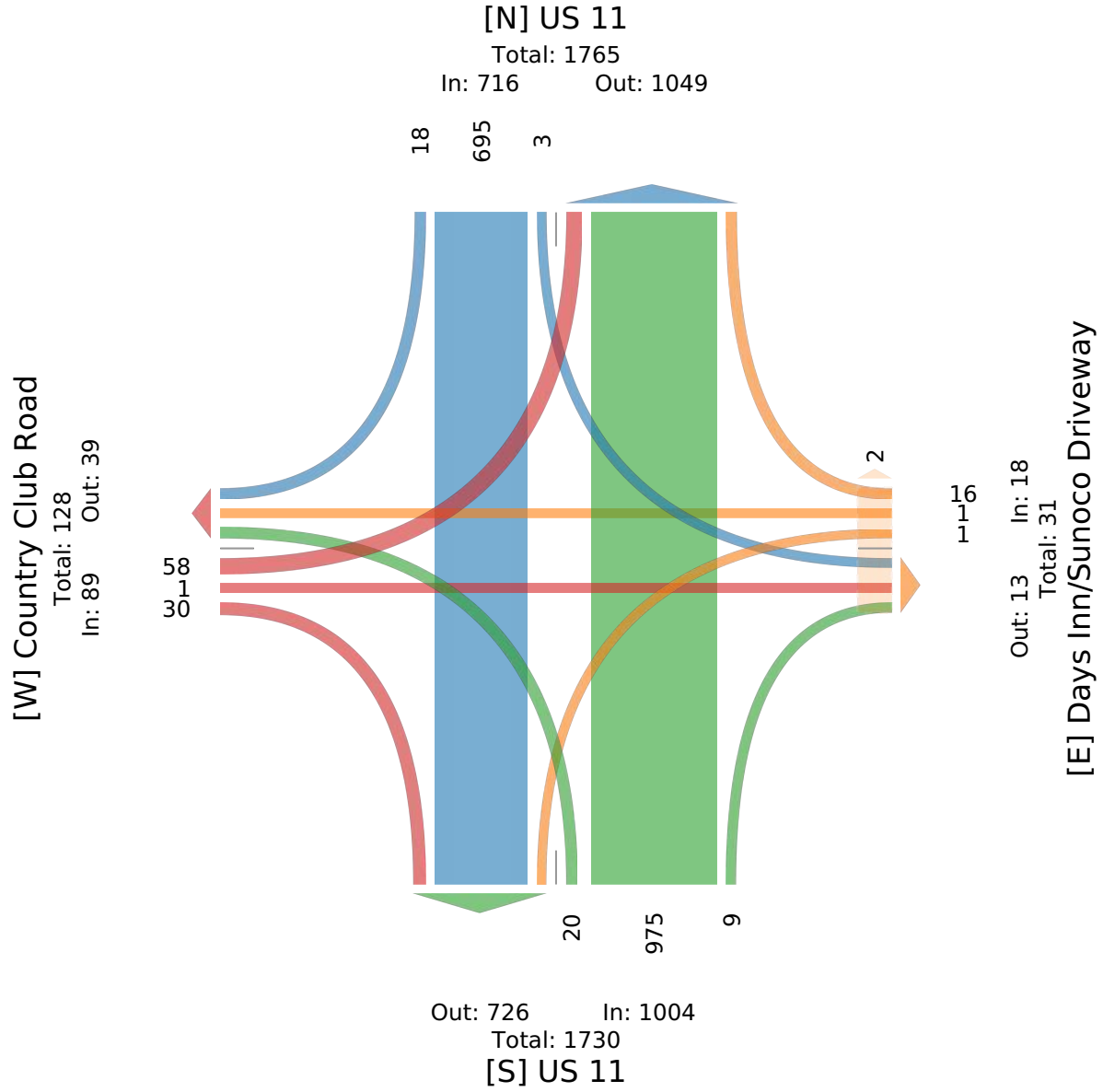
Leg	US 11							US 11							Country Club Road							Days Inn/Sunoco Driveway							
Direction	Northbound							Southbound							Eastbound							Westbound							
Time	L	T	R	U	RR	**App**	Ped*	L	T	R	U	RR	**App**	Ped*	L	T	R	U	RR	**App**	Ped*	L	T	R	U	RR	**App**	Ped*	**Int**
2025-02-05 7:00AM	4	229	1	0	0	**234**	0	0	154	4	0	0	**158**	0	15	0	5	0	4	**24**	0	0	0	2	0	1	**3**	0	**419**
7:15AM	6	271	2	0	0	**279**	0	1	144	4	0	0	**149**	0	14	0	1	0	1	**16**	0	1	0	1	0	1	**3**	1	**447**
7:30AM	5	256	5	0	0	**266**	0	0	167	3	0	0	**170**	0	14	1	8	0	6	**29**	0	0	0	1	0	3	**4**	1	**469**
7:45AM	5	219	1	0	0	**225**	0	2	230	6	0	1	**239**	0	15	0	4	0	1	**20**	0	0	1	5	0	2	**8**	0	**492**
Total	20	975	9	0	0	**1004**	0	3	695	17	0	1	**716**	0	58	1	18	0	12	**89**	0	1	1	9	0	7	**18**	2	**1827**
% Approach	2.0%	97.1%	0.9%	0%	0%	**-**	-	0.4%	97.1%	2.4%	0%	0.1%	**-**	-	65.2%	1.1%	20.2%	0%	13.5%	**-**	-	5.6%	5.6%	50.0%	0%	38.9%	**-**	-	**-**
% Total	1.1%	53.4%	0.5%	0%	0%	**55.0%**	-	0.2%	38.0%	0.9%	0%	0.1%	**39.2%**	-	3.2%	0.1%	1.0%	0%	0.7%	**4.9%**	-	0.1%	0.1%	0.5%	0%	0.4%	**1.0%**	-	**-**
PHF	0.833	0.899	0.450	-	-	**0.900**	-	0.375	0.755	0.708	-	0.250	**0.749**	-	0.967	0.250	0.563	-	0.500	**0.767**	-	0.250	0.250	0.450	-	0.583	**0.563**	-	0.928
Lights and Motorcycles	17	746	8	0	0	**771**	-	2	521	16	0	1	**540**	-	56	1	18	0	12	**87**	-	1	1	7	0	7	**16**	-	1414
% Lights and Motorcycles	85.0%	76.5%	88.9%	0%	0%	**76.8%**	-	66.7%	75.0%	94.1%	0%	100%	**75.4%**	-	96.6%	100%	100%	0%	100%	**97.8%**	-	100%	100%	77.8%	0%	100%	**88.9%**	-	77.4%
Heavy	3	229	1	0	0	**233**	-	1	174	1	0	0	**176**	-	2	0	0	0	0	**2**	-	0	0	2	0	0	**2**	-	413
% Heavy	15.0%	23.5%	11.1%	0%	0%	**23.2%**	-	33.3%	25.0%	5.9%	0%	0%	**24.6%**	-	3.4%	0%	0%	0%	0%	**2.2%**	-	0%	0%	22.2%	0%	0%	**11.1%**	-	22.6%
Pedestrians	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	2	
% 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

1. US 11 & Country Club Road - TMC

Wed Feb 5, 2025
AM Peak (Feb 05 2025 7AM - 8 AM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1267772, Location: 40.234725, -77.131335, Site Code: 1

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



1. US 11 & Country Club Road - TMC

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

Wed Feb 5, 2025
PM Peak (Feb 05 2025 2:45PM - 3:45 PM) - Overall Peak Hour
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1267772, Location: 40.234725, -77.131335, Site Code: 1

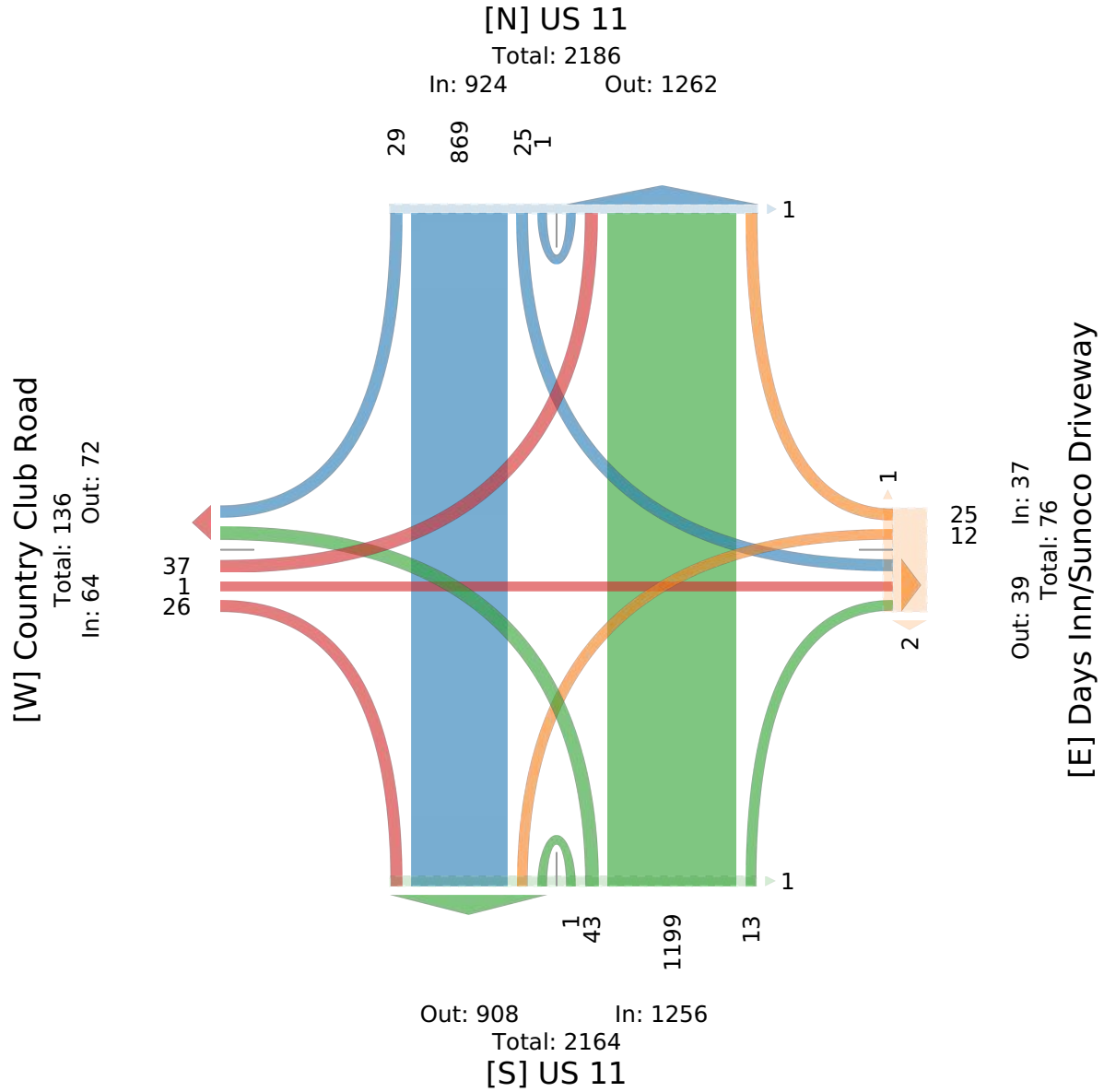
Leg	US 11							US 11							Country Club Road							Days Inn/Sunoco Driveway							
Direction	Northbound							Southbound							Eastbound							Westbound							
Time	L	T	R	U	RR	**App**	Ped*	L	T	R	U	RR	**App**	Ped*	L	T	R	U	RR	**App**	Ped*	L	T	R	U	RR	**App**	Ped*	**Int**
2025-02-05 2:45PM	8	308	2	0	0	**318**	0	8	200	5	0	0	**213**	0	8	1	3	0	0	**12**	0	4	0	8	0	1	**13**	0	**556**
3:00PM	9	304	4	0	0	**317**	0	5	227	7	0	0	**239**	0	6	0	3	0	5	**14**	0	2	0	4	0	1	**7**	0	**577**
3:15PM	10	287	4	0	0	**301**	0	5	214	6	0	1	**226**	0	10	0	4	0	2	**16**	0	1	0	1	0	3	**5**	2	**548**
3:30PM	16	300	3	1	0	**320**	1	7	228	10	1	0	**246**	1	13	0	9	0	0	**22**	0	5	0	4	0	3	**12**	1	**600**
Total	43	1199	13	1	0	**1256**	1	25	869	28	1	1	**924**	1	37	1	19	0	7	**64**	0	12	0	17	0	8	**37**	3	**2281**
% Approach	3.4%	95.5%	1.0%	0.1%	0%	**-**	-	2.7%	94.0%	3.0%	0.1%	0.1%	**-**	-	57.8%	1.6%	29.7%	0%	10.9%	**-**	-	32.4%	0%	45.9%	0%	21.6%	**-**	-	**-**
% Total	1.9%	52.6%	0.6%	0%	0%	**55.1%**	-	1.1%	38.1%	1.2%	0%	0%	**40.5%**	-	1.6%	0%	0.8%	0%	0.3%	**2.8%**	-	0.5%	0%	0.7%	0%	0.4%	**1.6%**	-	**-**
PHF	0.672	0.973	0.813	0.250	-	**0.981**	-	0.781	0.953	0.700	0.250	0.250	**0.939**	-	0.712	0.250	0.528	-	0.350	**0.727**	-	0.600	-	0.531	-	0.667	**0.712**	-	0.950
Lights and Motorcycles	43	867	12	1	0	**923**	-	21	644	26	1	1	**693**	-	34	1	18	0	6	**59**	-	12	0	15	0	8	**35**	-	1710
% Lights and Motorcycles	100%	72.3%	92.3%	100%	0%	**73.5%**	-	84.0%	74.1%	92.9%	100%	100%	**75.0%**	-	91.9%	100%	94.7%	0%	85.7%	**92.2%**	-	100%	0%	88.2%	0%	100%	**94.6%**	-	75.0%
Heavy	0	332	1	0	0	**333**	-	4	225	2	0	0	**231**	-	3	0	1	0	1	**5**	-	0	0	2	0	0	**2**	-	571
% Heavy	0%	27.7%	7.7%	0%	0%	**26.5%**	-	16.0%	25.9%	7.1%	0%	0%	**25.0%**	-	8.1%	0%	5.3%	0%	14.3%	**7.8%**	-	0%	0%	11.8%	0%	0%	**5.4%**	-	25.0%
Pedestrians	-	-	-	-	-	-	1	-	-	-	-	-	-	1	-	-	-	-	-	-	0	-	-	-	-	-	-	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, RR: Right on red, T: Thru, U: U-Turn

1. US 11 & Country Club Road - TMC

Wed Feb 5, 2025
PM Peak (Feb 05 2025 2:45PM - 3:45 PM) - Overall Peak Hour
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1267772, Location: 40.234725, -77.131335, Site Code: 1

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



1. US 11 & Country Club Road - TMC

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

Sat Feb 8, 2025
AM Peak (WKND) (Feb 08 2025 10AM - 11 AM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1267772, Location: 40.234725, -77.131335, Site Code: 1

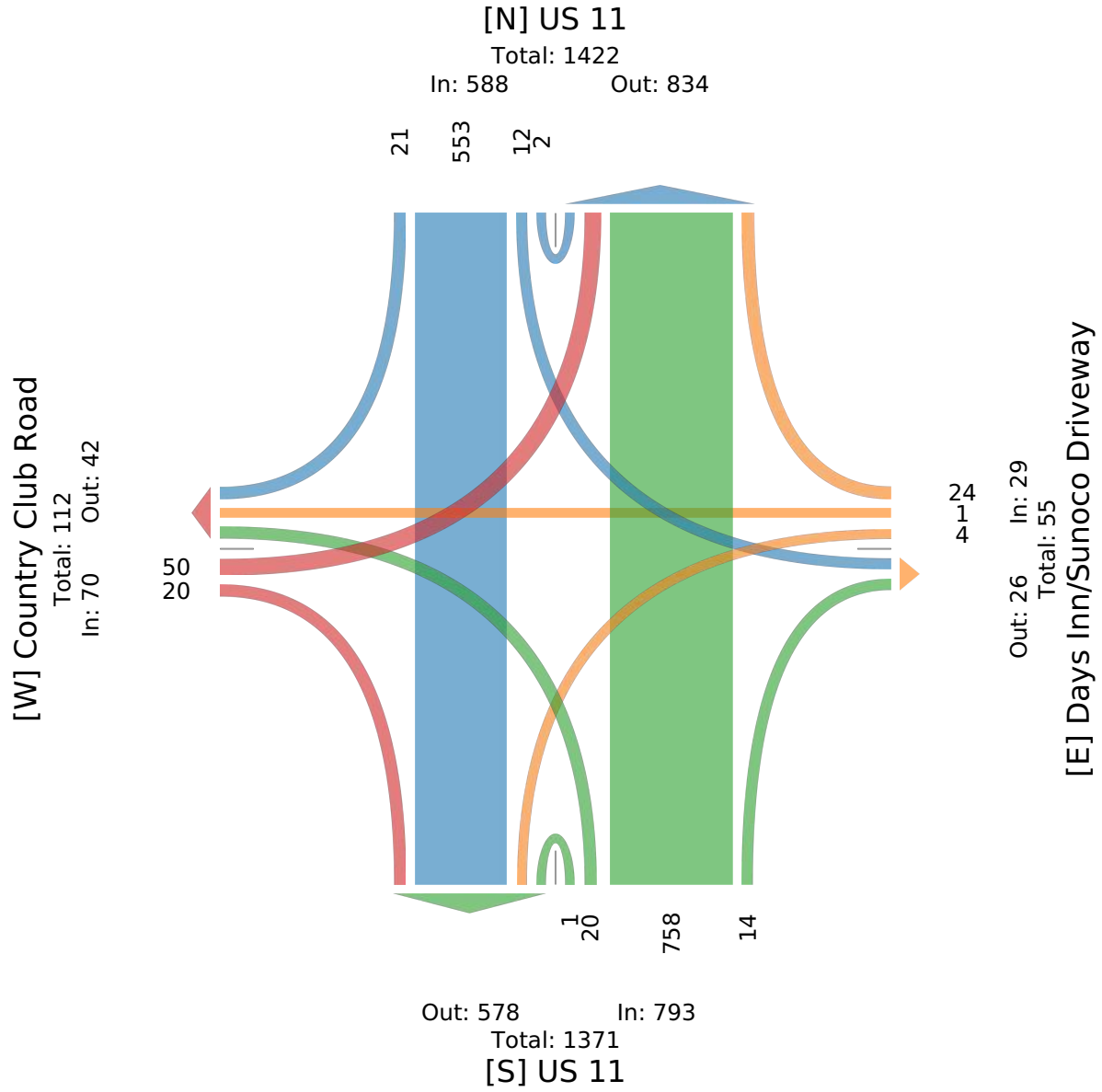
Leg	US 11							US 11							Country Club Road							Days Inn/Sunoco Driveway							
Direction	Northbound							Southbound							Eastbound							Westbound							
Time	L	T	R	U	RR	**App**	Ped*	L	T	R	U	RR	**App**	Ped*	L	T	R	U	RR	**App**	Ped*	L	T	R	U	RR	**App**	Ped*	**Int**
2025-02-08 10:00AM	4	228	2	1	1	**236**	0	3	112	1	0	1	**117**	0	13	0	3	0	6	**22**	0	0	0	0	0	5	**5**	0	**380**
10:15AM	6	172	5	0	0	**183**	0	5	138	6	0	0	**149**	0	13	0	1	0	1	**15**	0	1	1	2	0	6	**10**	0	**357**
10:30AM	5	177	1	0	0	**183**	0	4	153	9	1	0	**167**	0	14	0	6	0	0	**20**	0	1	0	1	0	5	**7**	0	**377**
10:45AM	5	181	5	0	0	**191**	0	0	150	4	1	0	**155**	0	10	0	1	0	2	**13**	0	2	0	1	0	4	**7**	0	**366**
Total	20	758	13	1	1	**793**	0	12	553	20	2	1	**588**	0	50	0	11	0	9	**70**	0	4	1	4	0	20	**29**	0	**1480**
% Approach	2.5%	95.6%	1.6%	0.1%	0.1%	**-**	-	2.0%	94.0%	3.4%	0.3%	0.2%	**-**	-	71.4%	0%	15.7%	0%	12.9%	**-**	-	13.8%	3.4%	13.8%	0%	69.0%	**-**	-	-
% Total	1.4%	51.2%	0.9%	0.1%	0.1%	**53.6%**	-	0.8%	37.4%	1.4%	0.1%	0.1%	**39.7%**	-	3.4%	0%	0.7%	0%	0.6%	**4.7%**	-	0.3%	0.1%	0.3%	0%	1.4%	**2.0%**	-	-
PHF	0.833	0.831	0.650	0.250	0.250	**0.840**	-	0.600	0.904	0.556	0.500	0.250	**0.880**	-	0.893	-	0.458	-	0.375	**0.795**	-	0.500	0.250	0.500	-	0.833	**0.725**	-	0.974
Lights and Motorcycles	20	610	12	1	1	**644**	-	9	439	19	2	1	**470**	-	48	0	11	0	9	**68**	-	3	1	4	0	20	**28**	-	1210
% Lights and Motorcycles	100%	80.5%	92.3%	100%	100%	**81.2%**	-	75.0%	79.4%	95.0%	100%	100%	**79.9%**	-	96.0%	0%	100%	0%	100%	**97.1%**	-	75.0%	100%	100%	0%	100%	**96.6%**	-	81.8%
Heavy	0	148	1	0	0	**149**	-	3	114	1	0	0	**118**	-	2	0	0	0	0	**2**	-	1	0	0	0	0	**1**	-	270
% Heavy	0%	19.5%	7.7%	0%	0%	**18.8%**	-	25.0%	20.6%	5.0%	0%	0%	**20.1%**	-	4.0%	0%	0%	0%	0%	**2.9%**	-	25.0%	0%	0%	0%	0%	**3.4%**	-	18.2%
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, RR: Right on red, T: Thru, U: U-Turn

1. US 11 & Country Club Road - TMC

Sat Feb 8, 2025
AM Peak (WKND) (Feb 08 2025 10AM - 11 AM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1267772, Location: 40.234725, -77.131335, Site Code: 1

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



1. US 11 & Country Club Road - TMC

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

Sat Feb 8, 2025
Midday Peak (WKND) (Feb 08 2025 12:30PM - 1:30 PM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1267772, Location: 40.234725, -77.131335, Site Code: 1

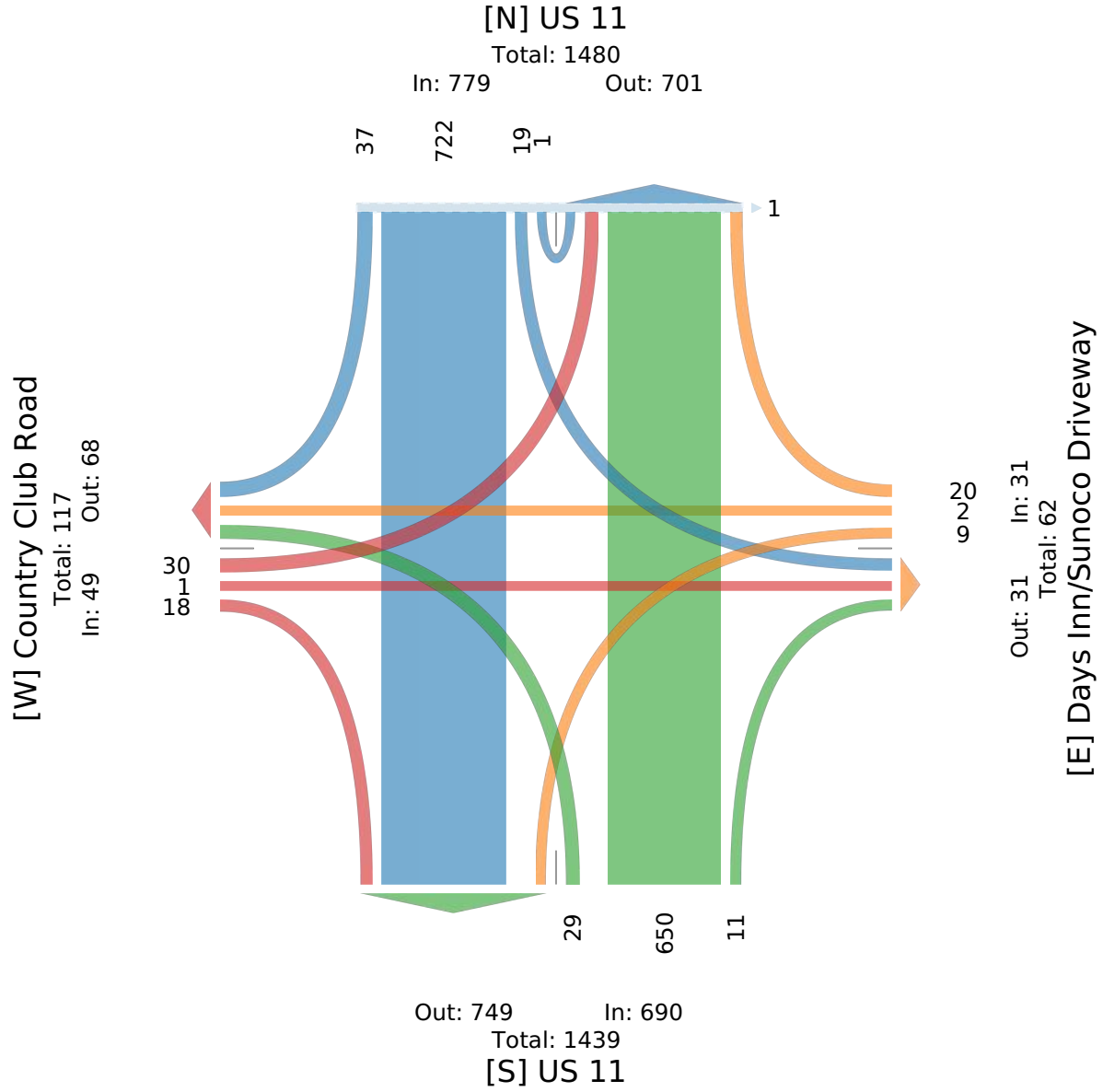
Leg	US 11							US 11							Country Club Road							Days Inn/Sunoco Driveway							
Direction	Northbound							Southbound							Eastbound							Westbound							
Time	L	T	R	U	RR	**App**	Ped*	L	T	R	U	RR	**App**	Ped*	L	T	R	U	RR	**App**	Ped*	L	T	R	U	RR	**App**	Ped*	**Int**
2025-02-08 12:30PM	5	172	4	0	0	**181**	0	2	210	13	1	1	**227**	0	7	0	3	0	0	**10**	0	3	1	1	0	3	**8**	0	**426**
12:45PM	6	140	3	0	0	**149**	0	10	171	10	0	0	**191**	1	8	1	3	0	3	**15**	0	1	0	0	0	3	**4**	0	**359**
1:00PM	11	165	2	0	0	**178**	0	5	156	6	0	0	**167**	0	7	0	5	0	0	**12**	0	3	1	5	0	2	**11**	0	**368**
1:15PM	7	173	2	0	0	**182**	0	2	185	6	0	1	**194**	0	8	0	4	0	0	**12**	0	2	0	5	0	1	**8**	0	**396**
Total	29	650	11	0	0	**690**	0	19	722	35	1	2	**779**	1	30	1	15	0	3	**49**	0	9	2	11	0	9	**31**	0	**1549**
% Approach	4.2%	94.2%	1.6%	0%	0%	**-**	-	2.4%	92.7%	4.5%	0.1%	0.3%	**-**	-	61.2%	2.0%	30.6%	0%	6.1%	**-**	-	29.0%	6.5%	35.5%	0%	29.0%	**-**	-	-
% Total	1.9%	42.0%	0.7%	0%	0%	**44.5%**	-	1.2%	46.6%	2.3%	0.1%	0.1%	**50.3%**	-	1.9%	0.1%	1.0%	0%	0.2%	**3.2%**	-	0.6%	0.1%	0.7%	0%	0.6%	**2.0%**	-	-
PHF	0.659	0.939	0.688	-	-	**0.948**	-	0.475	0.860	0.673	0.250	0.500	**0.858**	-	0.938	0.250	0.750	-	0.250	**0.817**	-	0.750	0.500	0.550	-	0.750	**0.705**	-	0.909
Lights and Motorcycles	29	529	11	0	0	**569**	-	13	592	35	1	2	**643**	-	30	1	15	0	3	**49**	-	7	2	11	0	9	**29**	-	1290
% Lights and Motorcycles	100%	81.4%	100%	0%	0%	**82.5%**	-	68.4%	82.0%	100%	100%	100%	**82.5%**	-	100%	100%	100%	0%	100%	**100%**	-	77.8%	100%	100%	0%	100%	**93.5%**	-	83.3%
Heavy	0	121	0	0	0	**121**	-	6	130	0	0	0	**136**	-	0	0	0	0	0	**0**	-	2	0	0	0	0	**2**	-	259
% Heavy	0%	18.6%	0%	0%	0%	**17.5%**	-	31.6%	18.0%	0%	0%	0%	**17.5%**	-	0%	0%	0%	0%	0%	**0%**	-	22.2%	0%	0%	0%	0%	**6.5%**	-	16.7%
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, RR: Right on red, T: Thru, U: U-Turn

1. US 11 & Country Club Road - TMC

Sat Feb 8, 2025
Midday Peak (WKND) (Feb 08 2025 12:30PM - 1:30 PM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1267772, Location: 40.234725, -77.131335, Site Code: 1

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



1. US 11 & Country Club Road - TMC

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

Sat Feb 8, 2025
PM Peak (WKND) (Feb 08 2025 1PM - 2 PM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1267772, Location: 40.234725, -77.131335, Site Code: 1

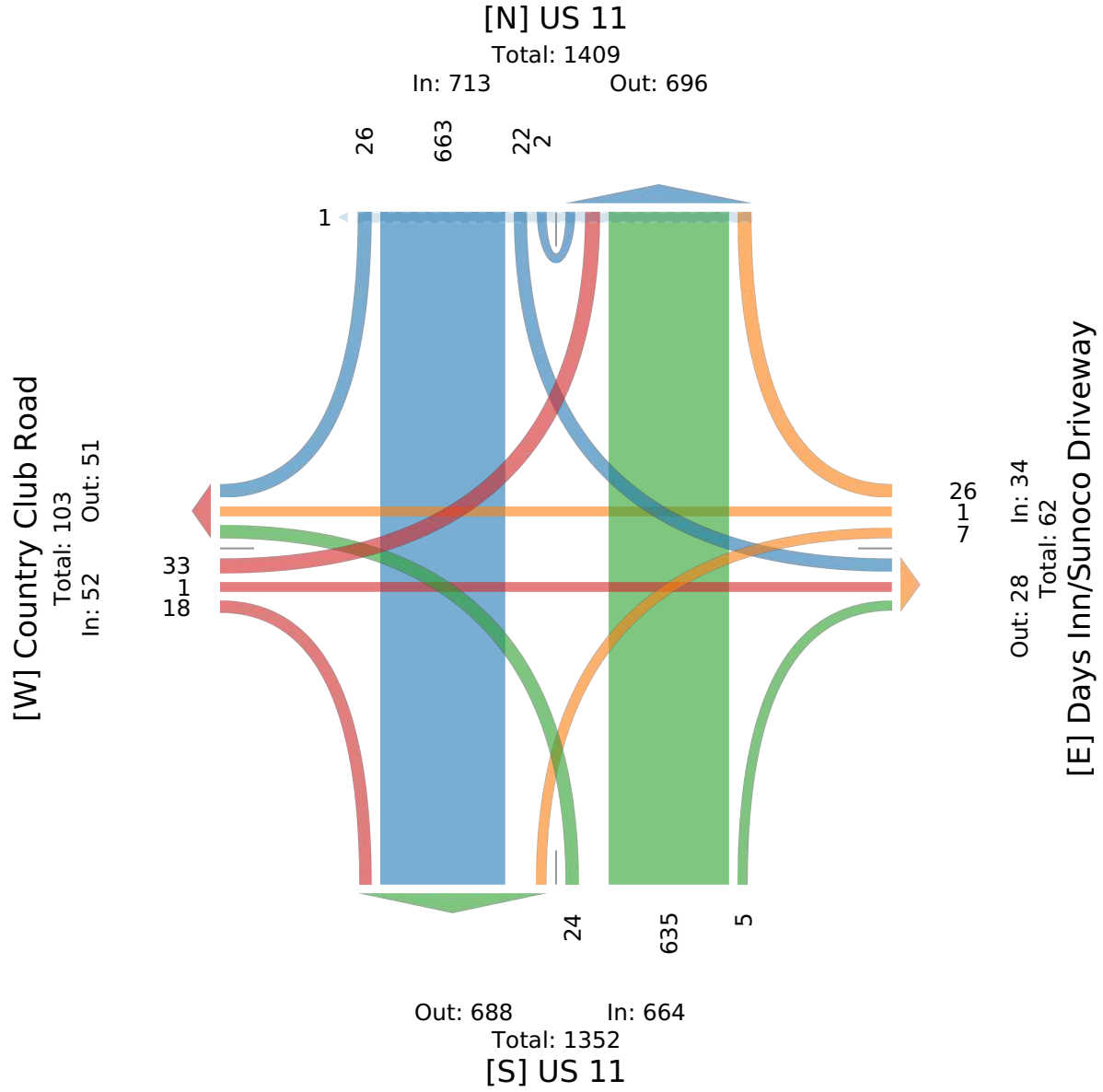
Leg	US 11							US 11							Country Club Road							Days Inn/Sunoco Driveway							
Direction	Northbound							Southbound							Eastbound							Westbound							
Time	L	T	R	U	RR	**App**	Ped*	L	T	R	U	RR	**App**	Ped*	L	T	R	U	RR	**App**	Ped*	L	T	R	U	RR	**App**	Ped*	**Int**
2025-02-08 1:00PM	11	165	2	0	0	**178**	0	5	156	6	0	0	**167**	0	7	0	5	0	0	**12**	0	3	1	5	0	2	**11**	0	**368**
1:15PM	7	173	2	0	0	**182**	0	2	185	6	0	1	**194**	0	8	0	4	0	0	**12**	0	2	0	5	0	1	**8**	0	**396**
1:30PM	1	145	0	0	0	**146**	0	3	166	6	1	0	**176**	1	10	1	2	0	2	**15**	0	0	0	7	0	1	**8**	0	**345**
1:45PM	5	152	1	0	0	**158**	0	12	156	6	1	1	**176**	0	8	0	4	0	1	**13**	0	2	0	5	0	0	**7**	0	**354**
Total	24	635	5	0	0	**664**	0	22	663	24	2	2	**713**	1	33	1	15	0	3	**52**	0	7	1	22	0	4	**34**	0	**1463**
% Approach	3.6%	95.6%	0.8%	0%	0%	**-**	-	3.1%	93.0%	3.4%	0.3%	0.3%	**-**	-	63.5%	1.9%	28.8%	0%	5.8%	**-**	-	20.6%	2.9%	64.7%	0%	11.8%	**-**	-	-
% Total	1.6%	43.4%	0.3%	0%	0%	**45.4%**	-	1.5%	45.3%	1.6%	0.1%	0.1%	**48.7%**	-	2.3%	0.1%	1.0%	0%	0.2%	**3.6%**	-	0.5%	0.1%	1.5%	0%	0.3%	**2.3%**	-	-
PHF	0.545	0.918	0.625	-	-	**0.912**	-	0.458	0.896	1.000	0.500	0.500	**0.919**	-	0.825	0.250	0.750	-	0.375	**0.867**	-	0.583	0.250	0.786	-	0.500	**0.773**	-	0.924
Lights and Motorcycles	24	509	4	0	0	**537**	-	21	553	24	2	2	**602**	-	33	1	15	0	3	**52**	-	6	1	17	0	4	**28**	-	1219
% Lights and Motorcycles	100%	80.2%	80.0%	0%	0%	**80.9%**	-	95.5%	83.4%	100%	100%	100%	**84.4%**	-	100%	100%	100%	0%	100%	**100%**	-	85.7%	100%	77.3%	0%	100%	**82.4%**	-	83.3%
Heavy	0	126	1	0	0	**127**	-	1	110	0	0	0	**111**	-	0	0	0	0	0	**0**	-	1	0	5	0	0	**6**	-	244
% Heavy	0%	19.8%	20.0%	0%	0%	**19.1%**	-	4.5%	16.6%	0%	0%	0%	**15.6%**	-	0%	0%	0%	0%	0%	**0%**	-	14.3%	0%	22.7%	0%	0%	**17.6%**	-	16.7%
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, RR: Right on red, T: Thru, U: U-Turn

1. US 11 & Country Club Road - TMC

Sat Feb 8, 2025
PM Peak (WKND) (Feb 08 2025 1PM - 2 PM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1267772, Location: 40.234725, -77.131335, Site Code: 1

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



Project: US 11 & Country Club
Municipality: Middlesex Township, Cumberland County, PA
Setup: Sean F
Location: 40.234725, -77.131335

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

Count Name: 1. US 11 & Country Club Road
Site Code: 1
Start Date: 02/05/2025

Turning Movement Data

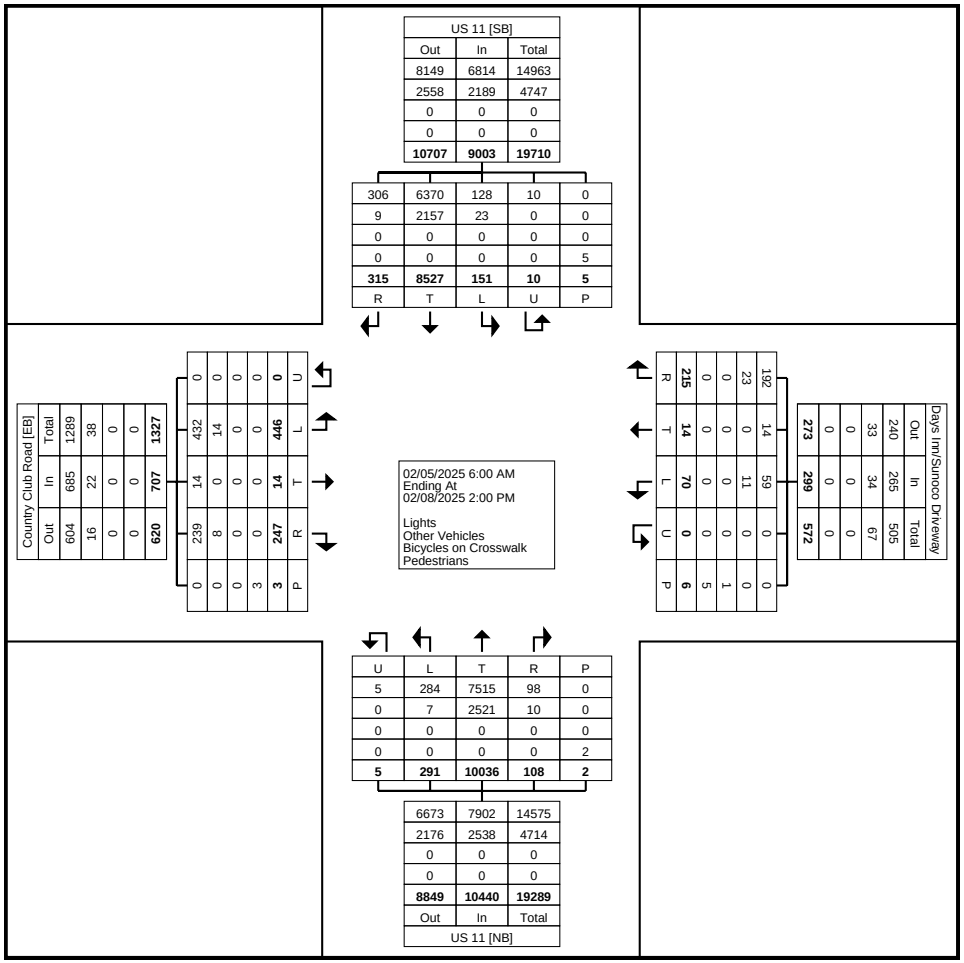
Start Time	Country Club Road Eastbound							Days Inn/Sunoco Driveway Westbound							US 11 Northbound							US 11 Southbound							Int. Total
	U-Turn	Left	Thru	Right	Right on Red	Peds	App. Total	U-Turn	Left	Thru	Right	Right on Red	Peds	App. Total	U-Turn	Left	Thru	Right	Right on Red	Peds	App. Total	U-Turn	Left	Thru	Right	Right on Red	Peds	App. Total	
6:00 AM	0	6	0	1	1	0	8	0	0	0	1	6	0	7	1	2	115	4	0	0	122	0	0	70	0	1	0	71	208
6:15 AM	0	10	0	0	0	0	10	0	2	0	2	0	0	4	0	2	160	2	0	0	164	0	0	110	2	1	0	113	291
6:30 AM	0	15	0	3	0	0	18	0	0	0	5	1	1	6	0	3	170	0	0	0	173	0	0	113	7	0	0	120	317
6:45 AM	0	7	0	5	4	0	16	0	1	0	0	0	0	1	0	4	172	1	0	0	177	0	0	157	3	0	0	160	354
Hourly Total	0	38	0	9	5	0	52	0	3	0	8	7	1	18	1	11	617	7	0	0	636	0	0	450	12	2	0	464	1170
7:00 AM	0	15	0	5	4	0	24	0	0	0	2	1	0	3	0	4	229	1	0	0	234	0	0	154	4	0	0	158	419
7:15 AM	0	14	0	1	1	0	16	0	1	0	1	1	1	3	0	6	271	2	0	0	279	0	1	144	4	0	0	149	447
7:30 AM	0	14	1	8	6	0	29	0	0	0	1	3	1	4	0	5	256	5	0	0	266	0	0	167	3	0	0	170	469
7:45 AM	0	15	0	4	1	0	20	0	0	1	5	2	0	8	0	5	219	1	0	0	225	0	2	230	6	1	0	239	492
Hourly Total	0	58	1	18	12	0	89	0	1	1	9	7	2	18	0	20	975	9	0	0	1004	0	3	695	17	1	0	716	1827
8:00 AM	0	8	1	1	3	0	13	0	0	0	1	4	0	5	0	2	197	1	0	0	200	0	3	194	1	0	0	198	416
8:15 AM	0	11	0	4	5	0	20	0	4	0	3	1	0	8	0	0	232	3	0	0	235	0	4	161	8	0	0	173	436
8:30 AM	0	13	1	6	3	0	23	0	1	0	3	4	0	8	0	5	180	0	1	0	186	0	0	163	7	0	0	170	387
8:45 AM	0	6	0	2	2	0	10	0	0	0	2	1	0	3	1	1	166	1	0	0	169	0	1	175	7	1	0	184	366
Hourly Total	0	38	2	13	13	0	66	0	5	0	9	10	0	24	1	8	775	5	1	0	790	0	8	693	23	1	0	725	1605
9:00 AM	0	11	1	2	0	0	14	0	1	0	1	0	0	2	0	2	234	1	0	0	237	1	1	167	3	0	0	172	425
9:15 AM	0	4	0	1	0	0	5	0	2	0	0	3	0	5	0	1	203	1	0	0	205	0	2	133	6	0	0	141	356
9:30 AM	0	4	0	1	3	0	8	0	1	0	2	1	0	4	0	4	163	1	0	0	168	1	0	134	2	0	0	137	317
9:45 AM	0	9	0	2	2	0	13	0	4	0	2	0	0	6	0	4	195	0	0	0	199	0	5	160	3	1	0	169	387
Hourly Total	0	28	1	6	5	0	40	0	8	0	5	4	0	17	0	11	795	3	0	0	809	2	8	594	14	1	0	619	1485
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2:00 PM	0	9	1	6	0	0	16	0	1	0	2	2	0	5	0	4	234	2	0	0	240	0	3	137	3	0	0	143	404
2:15 PM	0	8	1	4	0	0	13	0	5	0	4	3	0	12	0	6	291	6	0	0	303	0	3	194	4	0	0	201	529
2:30 PM	0	8	0	3	1	0	12	0	2	1	5	1	0	9	0	10	315	3	0	0	328	1	1	178	2	0	0	182	531
2:45 PM	0	8	1	3	0	0	12	0	4	0	8	1	0	13	0	8	308	2	0	0	318	0	8	200	5	0	0	213	556
Hourly Total	0	33	3	16	1	0	53	0	12	1	19	7	0	39	0	28	1148	13	0	0	1189	1	15	709	14	0	0	739	2020
3:00 PM	0	6	0	3	5	0	14	0	2	0	4	1	0	7	0	9	304	4	0	0	317	0	5	227	7	0	0	239	577
3:15 PM	0	10	0	4	2	0	16	0	1	0	1	3	2	5	0	10	287	4	0	0	301	0	5	214	6	1	0	226	548
3:30 PM	0	13	0	9	0	0	22	0	5	0	4	3	1	12	1	16	300	3	0	1	320	1	7	228	10	0	1	246	600
3:45 PM	0	7	1	1	3	1	12	0	2	0	3	2	0	7	0	10	231	2	0	1	243	0	0	244	6	0	0	250	512
Hourly Total	0	36	1	17	10	1	64	0	10	0	12	9	3	31	1	45	1122	13	0	2	1181	1	17	913	29	1	1	961	2237
4:00 PM	0	6	1	7	1	0	15	0	0	1	2	3	0	6	0	14	262	5	0	0	281	0	1	248	5	0	0	254	556
4:15 PM	0	4	0	4	2	0	10	0	0	1	2	2	0	5	0	18	246	2	1	0	267	0	5	236	11	0	0	252	534
4:30 PM	0	10	0	4	2	1	16	0	2	0	3	3	0	8	0	6	250	1	0	0	257	0	3	271	8	2	0	284	565
4:45 PM	0	9	1	4	0	0	14	0	0	1	2	3	0	6	0	12	240	2	0	0	254	0	2	268	10	0	0	280	554

Hourly Total	0	29	2	19	5	1	55	0	2	3	9	11	0	25	0	50	998	10	1	0	1059	0	11	1023	34	2	0	1070	2209
5:00 PM	0	11	0	8	0	0	19	0	1	0	0	3	0	4	0	9	262	2	1	0	274	0	10	272	12	0	0	294	591
5:15 PM	0	12	1	2	3	0	18	0	4	1	0	2	0	7	0	12	230	1	0	0	243	0	2	251	11	0	0	264	532
5:30 PM	0	8	0	3	3	0	14	0	2	1	1	3	0	7	0	9	208	3	0	0	220	1	3	223	7	2	0	236	477
5:45 PM	0	6	0	1	2	0	9	0	2	1	0	1	0	4	0	7	174	3	0	0	184	0	8	167	10	0	0	185	382
Hourly Total	0	37	1	14	8	0	60	0	9	3	1	9	0	22	0	37	874	9	1	0	921	1	23	913	40	2	0	979	1982
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10:00 AM	0	13	0	3	6	0	22	0	0	0	0	5	0	5	1	4	228	2	1	0	236	0	3	112	1	1	0	117	380
10:15 AM	0	13	0	1	1	0	15	0	1	1	2	6	0	10	0	6	172	5	0	0	183	0	5	138	6	0	0	149	357
10:30 AM	0	14	0	6	0	0	20	0	1	0	1	5	0	7	0	5	177	1	0	0	183	1	4	153	9	0	0	167	377
10:45 AM	0	10	0	1	2	0	13	0	2	0	1	4	0	7	0	5	181	5	0	0	191	1	0	150	4	0	0	155	366
Hourly Total	0	50	0	11	9	0	70	0	4	1	4	20	0	29	1	20	758	13	1	0	793	2	12	553	20	1	0	588	1480
11:00 AM	0	6	0	2	1	0	9	0	1	1	0	3	0	5	1	4	199	2	0	0	206	0	0	135	5	1	2	141	361
11:15 AM	0	13	1	4	4	1	22	0	0	0	0	3	0	3	0	3	160	1	0	0	164	0	4	158	5	0	0	167	356
11:30 AM	0	11	0	4	2	0	17	0	0	2	5	1	0	8	0	5	176	2	0	0	183	0	5	133	8	0	0	146	354
11:45 AM	0	10	0	4	0	0	14	0	3	0	1	1	0	5	0	2	154	0	0	0	156	0	2	179	9	1	0	191	366
Hourly Total	0	40	1	14	7	1	62	0	4	3	6	8	0	21	1	14	689	5	0	0	709	0	11	605	27	2	2	645	1437
12:00 PM	0	7	0	1	2	0	10	0	1	0	1	3	0	5	0	6	172	2	0	0	180	0	4	178	7	0	0	189	384
12:15 PM	0	4	0	0	5	0	9	0	0	0	1	3	0	4	0	6	166	3	0	0	175	0	5	157	15	0	0	177	365
12:30 PM	0	7	0	3	0	0	10	0	3	1	1	3	0	8	0	5	172	4	0	0	181	1	2	210	13	1	0	227	426
12:45 PM	0	8	1	3	3	0	15	0	1	0	0	3	0	4	0	6	140	3	0	0	149	0	10	171	10	0	1	191	359
Hourly Total	0	26	1	7	10	0	44	0	5	1	3	12	0	21	0	23	650	12	0	0	685	1	21	716	45	1	1	784	1534
1:00 PM	0	7	0	5	0	0	12	0	3	1	5	2	0	11	0	11	165	2	0	0	178	0	5	156	6	0	0	167	368
1:15 PM	0	8	0	4	0	0	12	0	2	0	5	1	0	8	0	7	173	2	0	0	182	0	2	185	6	1	0	194	396
1:30 PM	0	10	1	2	2	0	15	0	0	0	7	1	0	8	0	1	145	0	0	0	146	1	3	166	6	0	1	176	345
1:45 PM	0	8	0	4	1	0	13	0	2	0	5	0	0	7	0	5	152	1	0	0	158	1	12	156	6	1	0	176	354
Hourly Total	0	33	1	15	3	0	52	0	7	1	22	4	0	34	0	24	635	5	0	0	664	2	22	663	24	2	1	713	1463
Grand Total	0	446	14	159	88	3	707	0	70	14	107	108	6	299	5	291	10036	104	4	2	10440	10	151	8527	299	16	5	9003	20449
Approach %	0.0	63.1	2.0	22.5	12.4	-	-	0.0	23.4	4.7	35.8	36.1	-	-	0.0	2.8	96.1	1.0	0.0	-	-	0.1	1.7	94.7	3.3	0.2	-	-	-
Total %	0.0	2.2	0.1	0.8	0.4	-	3.5	0.0	0.3	0.1	0.5	0.5	-	1.5	0.0	1.4	49.1	0.5	0.0	-	51.1	0.0	0.7	41.7	1.5	0.1	-	44.0	-
Lights	0	432	14	154	85	-	685	0	59	14	89	103	-	265	5	284	7515	94	4	-	7902	10	128	6370	290	16	-	6814	15666
% Lights	-	96.9	100.0	96.9	96.6	-	96.9	-	84.3	100.0	83.2	95.4	-	88.6	100.0	97.6	74.9	90.4	100.0	-	75.7	100.0	84.8	74.7	97.0	100.0	-	75.7	76.6
Other Vehicles	0	14	0	5	3	-	22	0	11	0	18	5	-	34	0	7	2521	10	0	-	2538	0	23	2157	9	0	-	2189	4783
% Other Vehicles	-	3.1	0.0	3.1	3.4	-	3.1	-	15.7	0.0	16.8	4.6	-	11.4	0.0	2.4	25.1	9.6	0.0	-	24.3	0.0	15.2	25.3	3.0	0.0	-	24.3	23.4
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	-	1	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	0.0	-	-	-	-	-	-	16.7	-	-	-	-	-	-	0.0	-	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	-	3	-	-	-	-	-	-	5	-	-	-	-	-	-	2	-	-	-	-	-	-	5	-	-
% Pedestrians	-	-	-	-	-	100.0	-	-	-	-	-	-	83.3	-	-	-	-	-	-	100.0	-	-	-	-	-	-	100.0	-	-

Project: US 11 & Country Club
Municipality: Middlesex Township, Cumberland County, PA
Setup: Sean F
Location: 40.234725, -77.131335

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

Count Name: 1. US 11 & Country Club Road
Site Code: 1
Start Date: 02/05/2025



Turning Movement Data Plot

Project: US 11 & Country Club
Municipality: Middlesex Township, Cumberland County, PA
Setup: Sean F
Location: 40.234725, -77.131335

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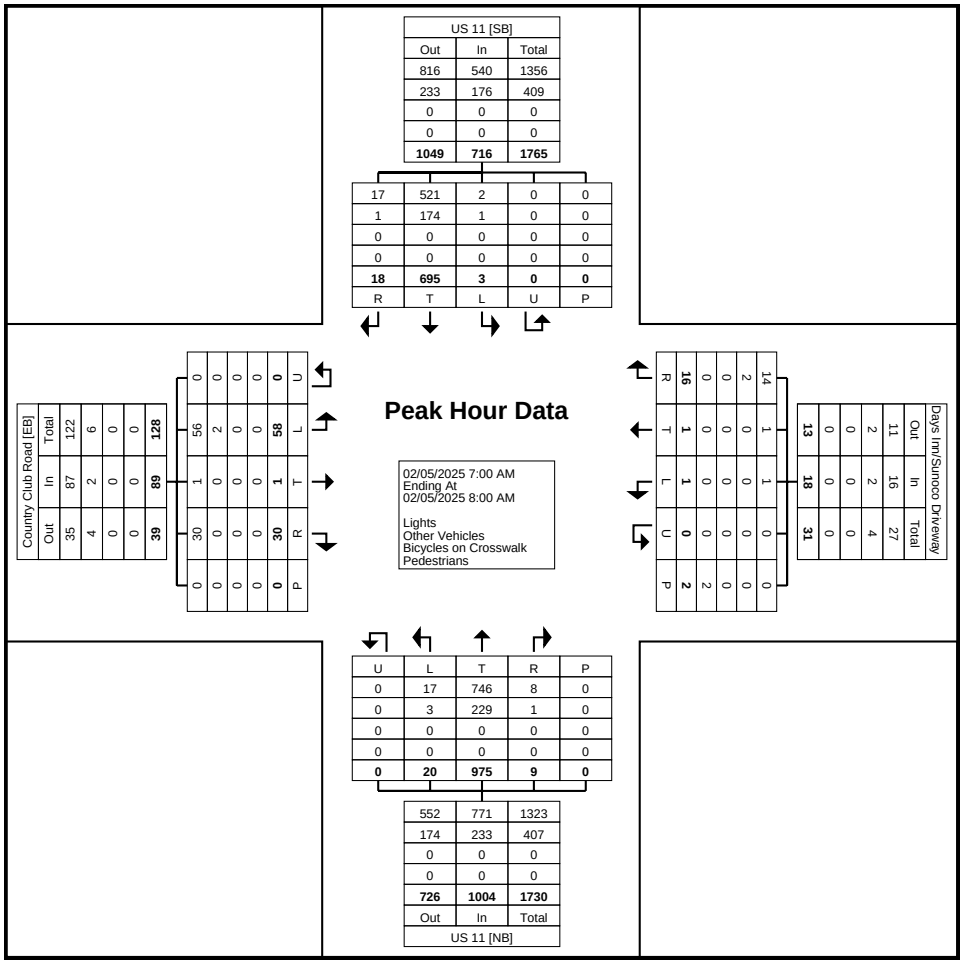
Turning Movement Peak Hour Data (7:00 AM)

Start Time	Country Club Road Eastbound							Days Inn/Sunoco Driveway Westbound							US 11 Northbound							US 11 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	Right on Red	Peds	App. Total	U-Turn	Left	Thru	Right	Right on Red	Peds	App. Total	
7:00 AM	0	15	0	5	4	0	24	0	0	0	2	1	0	3	0	4	229	1	0	0	234	0	0	154	4	0	0	158	419
7:15 AM	0	14	0	1	1	0	16	0	1	0	1	1	1	3	0	6	271	2	0	0	279	0	1	144	4	0	0	149	447
7:30 AM	0	14	1	8	6	0	29	0	0	0	1	3	1	4	0	5	256	5	0	0	266	0	0	167	3	0	0	170	469
7:45 AM	0	15	0	4	1	0	20	0	0	1	5	2	0	8	0	5	219	1	0	0	225	0	2	230	6	1	0	239	492
Total	0	58	1	18	12	0	89	0	1	1	9	7	2	18	0	20	975	9	0	0	1004	0	3	695	17	1	0	716	1827
Approach %	0.0	65.2	1.1	20.2	13.5	-	-	0.0	5.6	5.6	50.0	38.9	-	-	0.0	2.0	97.1	0.9	0.0	-	-	0.0	0.4	97.1	2.4	0.1	-	-	-
Total %	0.0	3.2	0.1	1.0	0.7	-	4.9	0.0	0.1	0.1	0.5	0.4	-	1.0	0.0	1.1	53.4	0.5	0.0	-	55.0	0.0	0.2	38.0	0.9	0.1	-	39.2	-
PHF	0.000	0.967	0.250	0.563	0.500	-	0.767	0.000	0.250	0.250	0.450	0.583	-	0.563	0.000	0.833	0.899	0.450	0.000	-	0.900	0.000	0.375	0.755	0.708	0.250	-	0.749	0.928
Lights	0	56	1	18	12	-	87	0	1	1	7	7	-	16	0	17	746	8	0	-	771	0	2	521	16	1	-	540	1414
% Lights	-	96.6	100.0	100.0	100.0	-	97.8	-	100.0	100.0	77.8	100.0	-	88.9	-	85.0	76.5	88.9	-	-	76.8	-	66.7	75.0	94.1	100.0	-	75.4	77.4
Other Vehicles	0	2	0	0	0	-	2	0	0	0	2	0	-	2	0	3	229	1	0	-	233	0	1	174	1	0	-	176	413
% Other Vehicles	-	3.4	0.0	0.0	0.0	-	2.2	-	0.0	0.0	22.2	0.0	-	11.1	-	15.0	23.5	11.1	-	-	23.2	-	33.3	25.0	5.9	0.0	-	24.6	22.6
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	-	2	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Project: US 11 & Country Club
Municipality: Middlesex Township, Cumberland County, PA
Setup: Sean F
Location: 40.234725, -77.131335

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

Count Name: 1. US 11 & Country Club Road
Site Code: 1
Start Date: 02/05/2025



Turning Movement Peak Hour Data Plot (7:00 AM)

Project: US 11 & Country Club
Municipality: Middlesex Township, Cumberland County, PA
Setup: Sean F
Location: 40.234725, -77.131335

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

Count Name: 1. US 11 & Country Club Road
Site Code: 1
Start Date: 02/05/2025

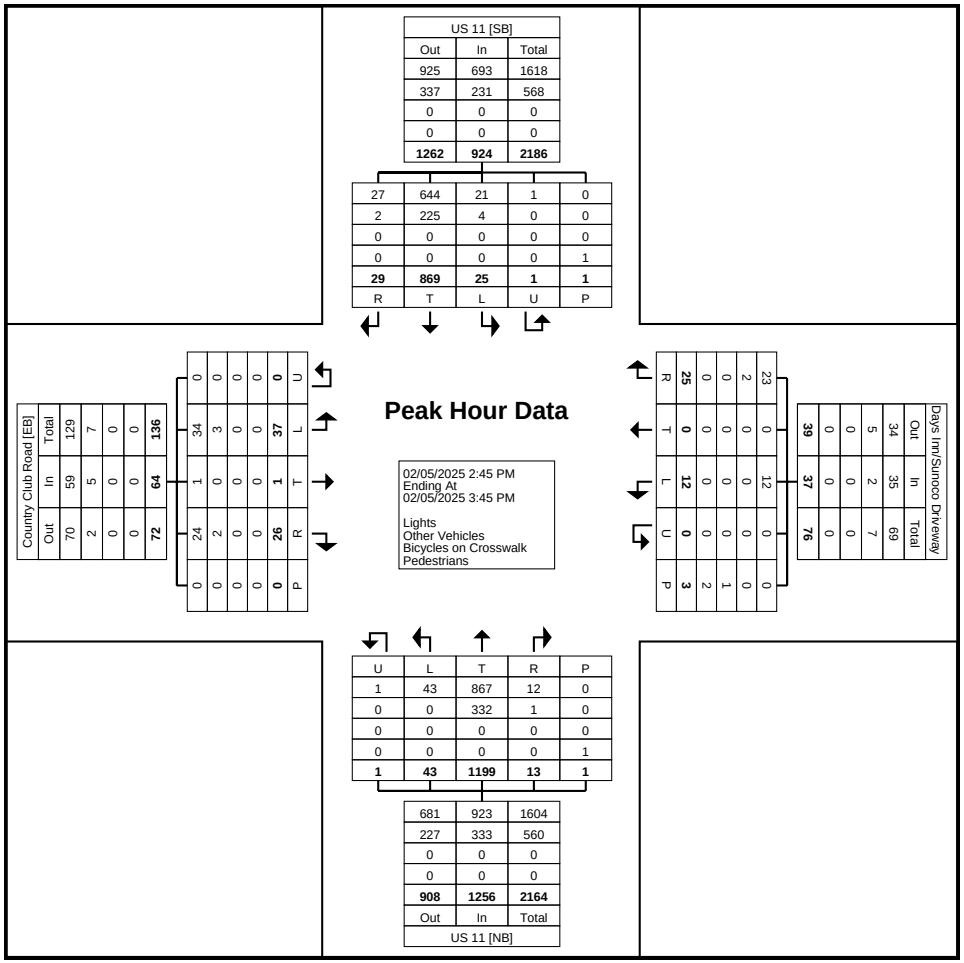
Turning Movement Peak Hour Data (2:45 PM)

Start Time	Country Club Road Eastbound							Days Inn/Sunoco Driveway Westbound							US 11 Northbound							US 11 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	Right on Red	Peds	App. Total	U-Turn	Left	Thru	Right	Right on Red	Peds	App. Total	Int. Total
2:45 PM	0	8	1	3	0	0	12	0	4	0	8	1	0	13	0	8	308	2	0	0	318	0	8	200	5	0	0	213	556
3:00 PM	0	6	0	3	5	0	14	0	2	0	4	1	0	7	0	9	304	4	0	0	317	0	5	227	7	0	0	239	577
3:15 PM	0	10	0	4	2	0	16	0	1	0	1	3	2	5	0	10	287	4	0	0	301	0	5	214	6	1	0	226	548
3:30 PM	0	13	0	9	0	0	22	0	5	0	4	3	1	12	1	16	300	3	0	1	320	1	7	228	10	0	1	246	600
Total	0	37	1	19	7	0	64	0	12	0	17	8	3	37	1	43	1199	13	0	1	1256	1	25	869	28	1	1	924	2281
Approach %	0.0	57.8	1.6	29.7	10.9	-	-	0.0	32.4	0.0	45.9	21.6	-	-	0.1	3.4	95.5	1.0	0.0	-	-	0.1	2.7	94.0	3.0	0.1	-	-	-
Total %	0.0	1.6	0.0	0.8	0.3	-	2.8	0.0	0.5	0.0	0.7	0.4	-	1.6	0.0	1.9	52.6	0.6	0.0	-	55.1	0.0	1.1	38.1	1.2	0.0	-	40.5	-
PHF	0.000	0.712	0.250	0.528	0.350	-	0.727	0.000	0.600	0.000	0.531	0.667	-	0.712	0.250	0.672	0.973	0.813	0.000	-	0.981	0.250	0.781	0.953	0.700	0.250	-	0.939	0.950
Lights	0	34	1	18	6	-	59	0	12	0	15	8	-	35	1	43	867	12	0	-	923	1	21	644	26	1	-	693	1710
% Lights	-	91.9	100.0	94.7	85.7	-	92.2	-	100.0	-	88.2	100.0	-	94.6	100.0	100.0	72.3	92.3	-	-	73.5	100.0	84.0	74.1	92.9	100.0	-	75.0	75.0
Other Vehicles	0	3	0	1	1	-	5	0	0	0	2	0	-	2	0	0	332	1	0	-	333	0	4	225	2	0	-	231	571
% Other Vehicles	-	8.1	0.0	5.3	14.3	-	7.8	-	0.0	-	11.8	0.0	-	5.4	0.0	0.0	27.7	7.7	-	-	26.5	0.0	16.0	25.9	7.1	0.0	-	25.0	25.0
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	-	1	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	33.3	-	-	-	-	-	-	0.0	-	-	-	-	-	-	0.0	-	-	-
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	-	2	-	-	-	-	-	-	1	-	-	-	-	-	-	1	-	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	66.7	-	-	-	-	-	-	100.0	-	-	-	-	-	-	100.0	-	-	-

Project: US 11 & Country Club
Municipality: Middlesex Township, Cumberland County, PA
Setup: Sean F
Location: 40.234725, -77.131335

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

Count Name: 1. US 11 & Country Club Road
Site Code: 1
Start Date: 02/05/2025



Turning Movement Peak Hour Data Plot (2:45 PM)

Project: US 11 & Country Club
Municipality: Middlesex Township, Cumberland County, PA
Setup: Sean F
Location: 40.234725, -77.131335

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

Count Name: 1. US 11 & Country Club Road
Site Code: 1
Start Date: 02/05/2025

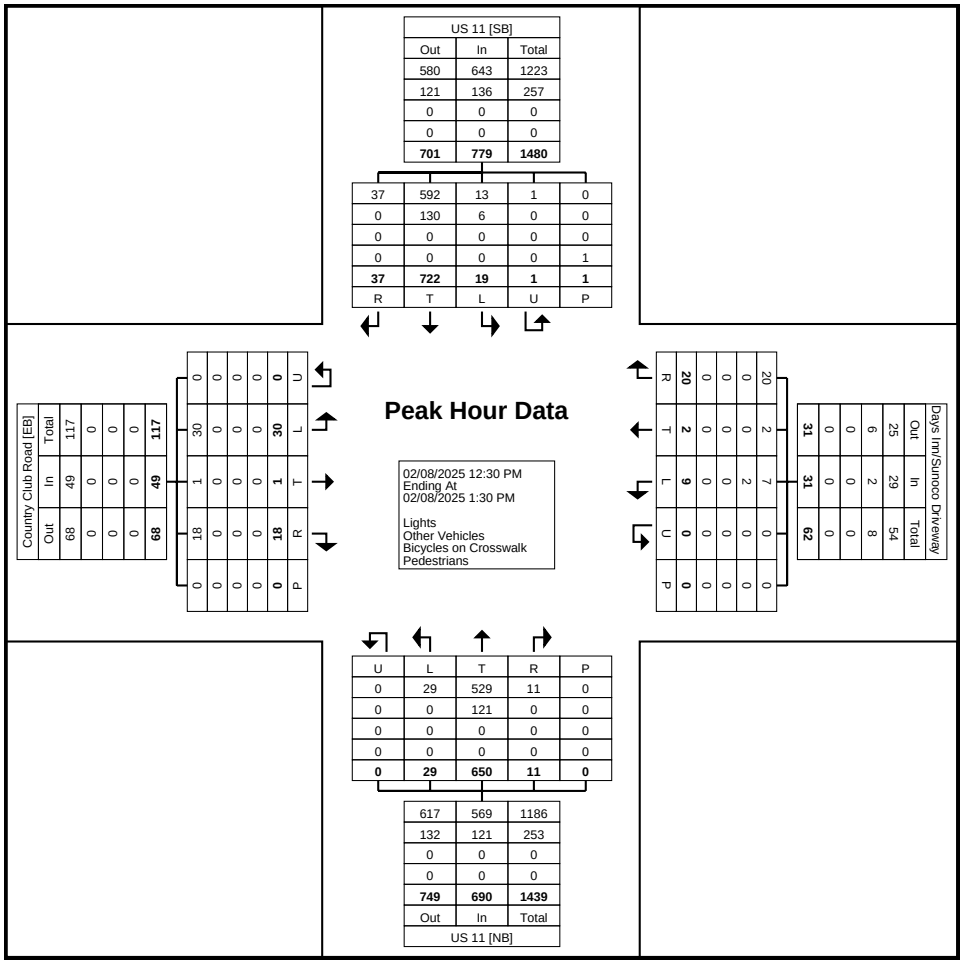
Turning Movement Peak Hour Data (12:30 PM)

Start Time	Country Club Road Eastbound							Days Inn/Sunoco Driveway Westbound							US 11 Northbound							US 11 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	Right on Red	Peds	App. Total	U-Turn	Left	Thru	Right	Right on Red	Peds	App. Total	
12:30 PM	0	7	0	3	0	0	10	0	3	1	1	3	0	8	0	5	172	4	0	0	181	1	2	210	13	1	0	227	426
12:45 PM	0	8	1	3	3	0	15	0	1	0	0	3	0	4	0	6	140	3	0	0	149	0	10	171	10	0	1	191	359
1:00 PM	0	7	0	5	0	0	12	0	3	1	5	2	0	11	0	11	165	2	0	0	178	0	5	156	6	0	0	167	368
1:15 PM	0	8	0	4	0	0	12	0	2	0	5	1	0	8	0	7	173	2	0	0	182	0	2	185	6	1	0	194	396
Total	0	30	1	15	3	0	49	0	9	2	11	9	0	31	0	29	650	11	0	0	690	1	19	722	35	2	1	779	1549
Approach %	0.0	61.2	2.0	30.6	6.1	-	-	0.0	29.0	6.5	35.5	29.0	-	-	0.0	4.2	94.2	1.6	0.0	-	-	0.1	2.4	92.7	4.5	0.3	-	-	-
Total %	0.0	1.9	0.1	1.0	0.2	-	3.2	0.0	0.6	0.1	0.7	0.6	-	2.0	0.0	1.9	42.0	0.7	0.0	-	44.5	0.1	1.2	46.6	2.3	0.1	-	50.3	-
PHF	0.000	0.938	0.250	0.750	0.250	-	0.817	0.000	0.750	0.500	0.550	0.750	-	0.705	0.000	0.659	0.939	0.688	0.000	-	0.948	0.250	0.475	0.860	0.673	0.500	-	0.858	0.909
Lights	0	30	1	15	3	-	49	0	7	2	11	9	-	29	0	29	529	11	0	-	569	1	13	592	35	2	-	643	1290
% Lights	-	100.0	100.0	100.0	100.0	-	100.0	-	77.8	100.0	100.0	100.0	-	93.5	-	100.0	81.4	100.0	-	-	82.5	100.0	68.4	82.0	100.0	100.0	-	82.5	83.3
Other Vehicles	0	0	0	0	0	-	0	0	2	0	0	0	-	2	0	0	121	0	0	-	121	0	6	130	0	0	-	136	259
% Other Vehicles	-	0.0	0.0	0.0	0.0	-	0.0	-	22.2	0.0	0.0	0.0	-	6.5	-	0.0	18.6	0.0	-	-	17.5	0.0	31.6	18.0	0.0	0.0	-	17.5	16.7
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	-	-	-
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	1	-	-	-
% 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: US 11 & Country Club
Municipality: Middlesex Township, Cumberland County, PA
Setup: Sean F
Location: 40.234725, -77.131335

Count Name: 1. US 11 & Country Club Road
Site Code: 1
Start Date: 02/05/2025



Turning Movement Peak Hour Data Plot (12:30 PM)

2. Country Club Road & Bernheisel Bridge Road - TMC

Wed Feb 5, 2025
Full Length (6 AM-10 AM, 2 PM-6 PM, 10 AM-2 PM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1267776, Location: 40.248683, -77.102161, Site Code: 2

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

Leg	Bernheisel Bridge Road					Bernheisel Bridge Road					Country Club Road					
Direction	Northbound					Southbound					Eastbound					
Time	L	T	U	**App**	Ped*	T	R	U	**App**	Ped*	L	R	U	**App**	Ped*	**Int**
2025-02-05 6:00AM	0	1	0	**1**	0	16	5	0	**21**	0	1	1	0	**2**	0	**24**
6:15AM	1	1	0	**2**	0	24	5	0	**29**	0	3	0	0	**3**	0	**34**
6:30AM	0	5	0	**5**	0	36	12	0	**48**	0	3	0	0	**3**	0	**56**
6:45AM	0	5	0	**5**	0	32	9	0	**41**	0	2	0	0	**2**	0	**48**
Hourly Total	1	12	0	**13**	0	108	31	0	**139**	0	9	1	0	**10**	0	**162**
7:00AM	0	14	0	**14**	0	14	7	0	**21**	0	4	3	0	**7**	0	**42**
7:15AM	1	8	0	**9**	0	24	10	0	**34**	0	3	2	0	**5**	0	**48**
7:30AM	0	6	0	**6**	0	23	14	0	**37**	0	6	0	0	**6**	0	**49**
7:45AM	0	12	0	**12**	0	15	8	0	**23**	0	6	0	0	**6**	0	**41**
Hourly Total	1	40	0	**41**	0	76	39	0	**115**	0	19	5	0	**24**	0	**180**
8:00AM	0	3	0	**3**	0	13	6	0	**19**	0	2	1	0	**3**	0	**25**
8:15AM	0	5	0	**5**	0	10	9	0	**19**	0	1	2	0	**3**	0	**27**
8:30AM	0	2	0	**2**	0	9	16	0	**25**	0	5	1	0	**6**	0	**33**
8:45AM	2	5	0	**7**	0	12	8	0	**20**	0	5	0	0	**5**	0	**32**
Hourly Total	2	15	0	**17**	0	44	39	0	**83**	0	13	4	0	**17**	0	**117**
9:00AM	0	8	0	**8**	0	14	7	0	**21**	0	2	1	0	**3**	0	**32**
9:15AM	1	12	0	**13**	0	7	5	0	**12**	0	2	1	0	**3**	0	**28**
9:30AM	1	11	0	**12**	0	6	3	0	**9**	0	3	1	0	**4**	0	**25**
9:45AM	1	7	0	**8**	0	11	4	0	**15**	0	3	1	0	**4**	0	**27**
Hourly Total	3	38	0	**41**	0	38	19	0	**57**	0	10	4	0	**14**	0	**112**
2:00PM	1	14	0	**15**	1	6	11	0	**17**	0	4	2	0	**6**	0	**38**
2:15PM	0	7	0	**7**	0	10	6	0	**16**	0	4	0	0	**4**	0	**27**
2:30PM	2	4	0	**6**	0	11	6	0	**17**	0	6	0	0	**6**	0	**29**
2:45PM	0	14	0	**14**	0	16	4	0	**20**	0	4	0	0	**4**	0	**38**
Hourly Total	3	39	0	**42**	1	43	27	0	**70**	0	18	2	0	**20**	0	**132**
3:00PM	1	31	0	**32**	0	2	4	0	**6**	0	8	1	0	**9**	0	**47**
3:15PM	1	15	0	**16**	0	11	11	0	**22**	0	10	1	0	**11**	0	**49**
3:30PM	1	21	0	**22**	0	10	11	0	**21**	0	8	0	0	**8**	0	**51**
3:45PM	0	25	0	**25**	0	11	0	0	**11**	0	8	1	0	**9**	0	**45**
Hourly Total	3	92	0	**95**	0	34	26	0	**60**	0	34	3	0	**37**	0	**192**
4:00PM	1	22	0	**23**	0	18	7	0	**25**	0	8	1	0	**9**	0	**57**
4:15PM	3	21	0	**24**	0	13	5	0	**18**	0	12	1	0	**13**	0	**55**
4:30PM	4	17	0	**21**	0	6	6	0	**12**	0	8	0	0	**8**	0	**41**
4:45PM	0	12	0	**12**	0	6	6	0	**12**	0	12	1	0	**13**	0	**37**
Hourly Total	8	72	0	**80**	0	43	24	0	**67**	0	40	3	0	**43**	0	**190**
5:00PM	0	21	0	**21**	0	8	9	0	**17**	0	9	0	0	**9**	0	**47**
5:15PM	1	10	0	**11**	0	8	7	0	**15**	0	7	0	0	**7**	0	**33**
5:30PM	0	20	0	**20**	0	9	5	0	**14**	0	8	1	0	**9**	0	**43**

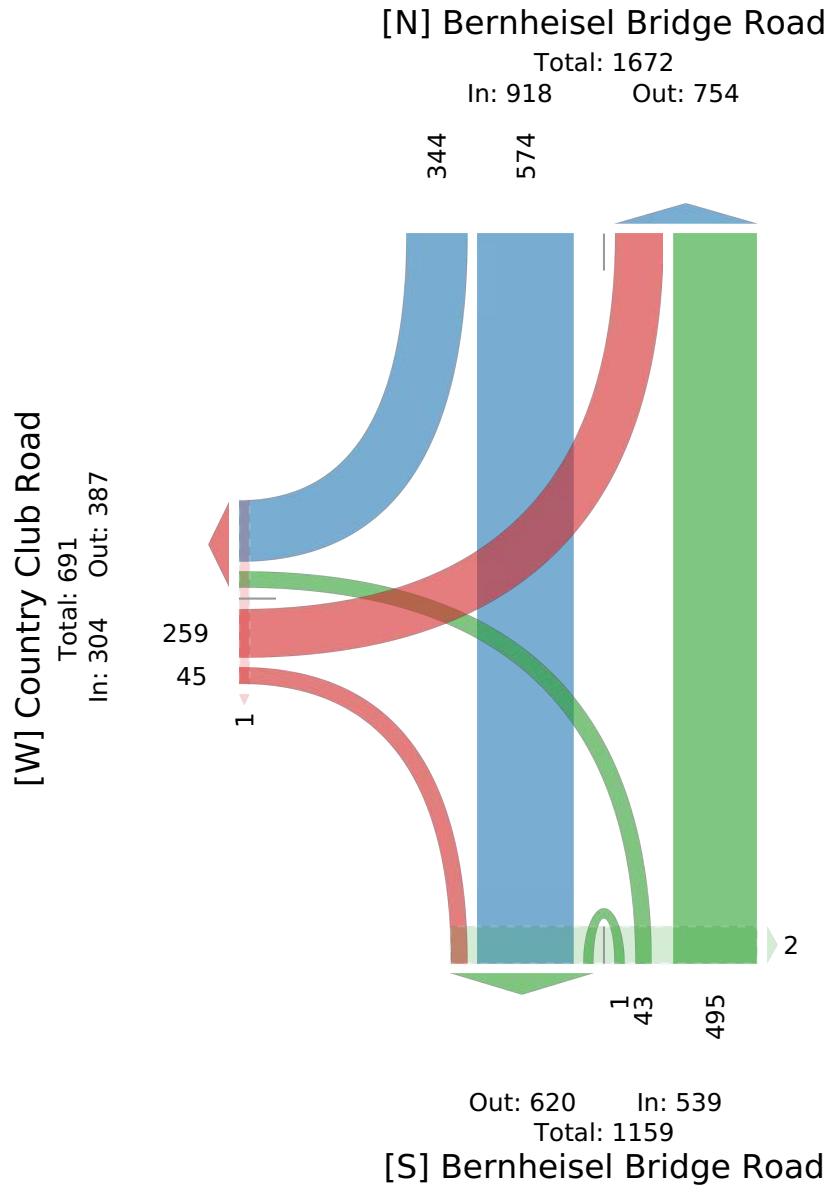
Leg	Bernheisel Bridge Road					Bernheisel Bridge Road					Country Club Road					
Direction	Northbound					Southbound					Eastbound					
Time	L	T	U	**App**	Ped*	T	R	U	**App**	Ped*	L	R	U	**App**	Ped*	**Int**
5:45PM	1	6	0	**7**	0	6	12	0	**18**	0	8	2	0	**10**	0	**35**
Hourly Total	2	57	0	**59**	0	31	33	0	**64**	0	32	3	0	**35**	0	**158**
2025-02-08 10:00AM	1	5	0	**6**	0	12	12	0	**24**	0	3	0	0	**3**	0	**33**
10:15AM	0	11	0	**11**	0	10	8	0	**18**	0	2	0	0	**2**	0	**31**
10:30AM	1	4	0	**5**	0	7	11	0	**18**	0	6	1	0	**7**	0	**30**
10:45AM	0	1	1	**2**	0	10	6	0	**16**	0	4	1	0	**5**	0	**23**
Hourly Total	2	21	1	**24**	0	39	37	0	**76**	0	15	2	0	**17**	0	**117**
11:00AM	1	8	0	**9**	0	8	5	0	**13**	0	6	1	0	**7**	0	**29**
11:15AM	2	8	0	**10**	0	8	7	0	**15**	0	2	1	0	**3**	0	**28**
11:30AM	3	8	0	**11**	0	10	7	0	**17**	0	3	2	0	**5**	0	**33**
11:45AM	0	10	0	**10**	0	10	6	0	**16**	0	4	2	0	**6**	0	**32**
Hourly Total	6	34	0	**40**	0	36	25	0	**61**	0	15	6	0	**21**	0	**122**
12:00PM	4	12	0	**16**	0	7	5	0	**12**	0	8	1	0	**9**	0	**37**
12:15PM	2	8	0	**10**	0	11	3	0	**14**	0	6	4	0	**10**	0	**34**
12:30PM	3	13	0	**16**	0	9	5	0	**14**	0	11	1	0	**12**	0	**42**
12:45PM	0	8	0	**8**	0	11	5	0	**16**	0	4	1	0	**5**	0	**29**
Hourly Total	9	41	0	**50**	0	38	18	0	**56**	0	29	7	0	**36**	0	**142**
1:00PM	0	12	0	**12**	0	12	6	0	**18**	0	9	0	0	**9**	0	**39**
1:15PM	0	9	0	**9**	0	16	7	0	**23**	0	10	3	0	**13**	0	**45**
1:30PM	3	8	0	**11**	1	8	8	0	**16**	0	2	1	0	**3**	1	**30**
1:45PM	0	5	0	**5**	0	8	5	0	**13**	0	4	1	0	**5**	0	**23**
Hourly Total	3	34	0	**37**	1	44	26	0	**70**	0	25	5	0	**30**	1	**137**
2:00PM	0	0	0	**0**	0	0	0	0	**0**	0	0	0	0	**0**	0	**0**
Hourly Total	0	0	0	**0**	0	0	0	0	**0**	0	0	0	0	**0**	0	**0**
Total	43	495	1	**539**	2	574	344	0	**918**	0	259	45	0	**304**	1	**1761**
% Approach	8.0%	91.8%	0.2%	**-**	-	62.5%	37.5%	0%	**-**	-	85.2%	14.8%	0%	**-**	-	**-**
% Total	2.4%	28.1%	0.1%	**30.6%**	-	32.6%	19.5%	0%	**52.1%**	-	14.7%	2.6%	0%	**17.3%**	-	-
Lights and Motorcycles	42	484	1	**527**	-	565	338	0	**903**	-	256	44	0	**300**	-	1730
% Lights and Motorcycles	97.7%	97.8%	100%	**97.8%**	-	98.4%	98.3%	0%	**98.4%**	-	98.8%	97.8%	0%	**98.7%**	-	98.2%
Heavy	1	11	0	**12**	-	9	6	0	**15**	-	3	1	0	**4**	-	31
% Heavy	2.3%	2.2%	0%	**2.2%**	-	1.6%	1.7%	0%	**1.6%**	-	1.2%	2.2%	0%	**1.3%**	-	1.8%
Pedestrians	-	-	-	-	2	-	-	-	-	0	-	-	-	-	1	
% 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

2. Country Club Road & Bernheisel Bridge Road - TMC

Wed Feb 5, 2025
Full Length (6 AM-10 AM, 2 PM-6 PM, 10 AM-2 PM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1267776, Location: 40.248683, -77.102161, Site Code: 2

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



2. Country Club Road & Bernheisel Bridge Road - TMC

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

Wed Feb 5, 2025
AM Peak (Feb 05 2025 6:30AM - 7:30 AM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1267776, Location: 40.248683, -77.102161, Site Code: 2

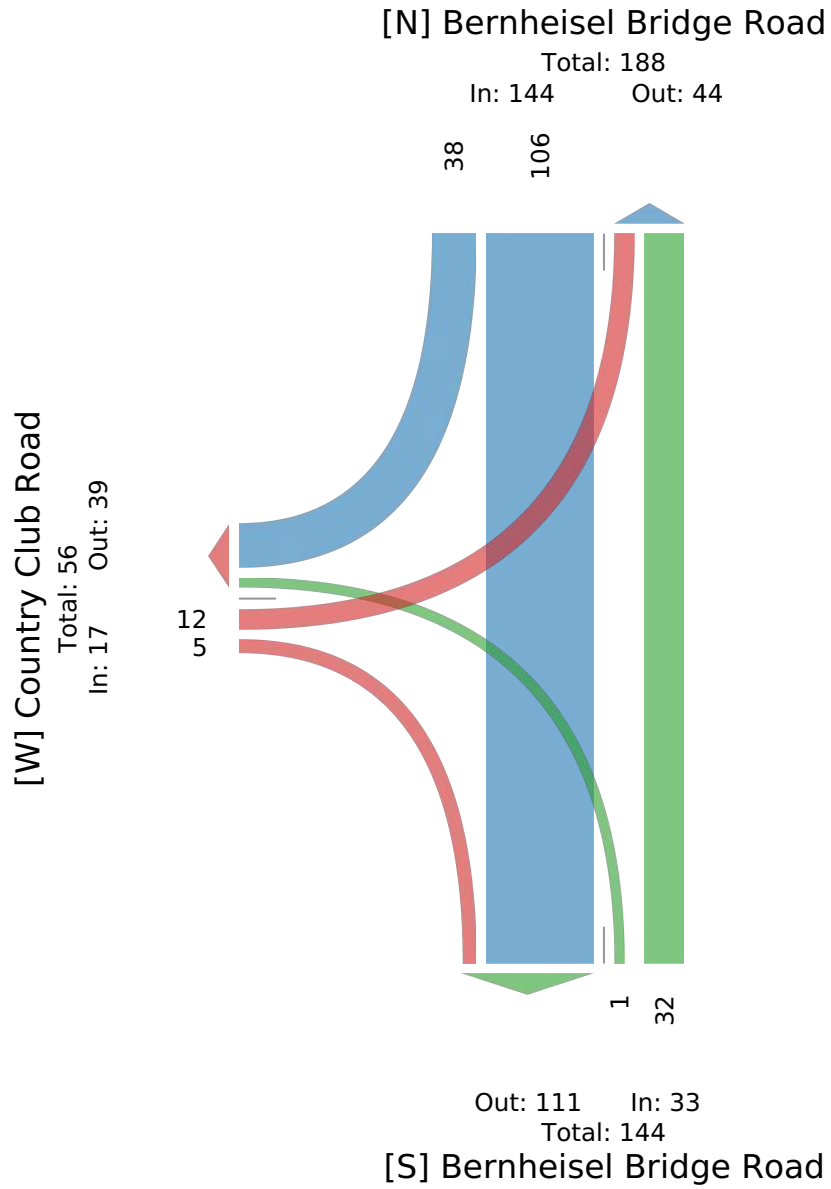
Leg Direction	Bernheisel Bridge Road Northbound					Bernheisel Bridge Road Southbound					Country Club Road Eastbound					
Time	L	T	U	**App**	Ped*	T	R	U	**App**	Ped*	L	R	U	**App**	Ped*	**Int**
2025-02-05 6:30AM	0	5	0	**5**	0	36	12	0	**48**	0	3	0	0	**3**	0	**56**
6:45AM	0	5	0	**5**	0	32	9	0	**41**	0	2	0	0	**2**	0	**48**
7:00AM	0	14	0	**14**	0	14	7	0	**21**	0	4	3	0	**7**	0	**42**
7:15AM	1	8	0	**9**	0	24	10	0	**34**	0	3	2	0	**5**	0	**48**
Total	1	32	0	**33**	0	106	38	0	**144**	0	12	5	0	**17**	0	**194**
% Approach	3.0%	97.0%	0%	**-**	-	73.6%	26.4%	0%	**-**	-	70.6%	29.4%	0%	**-**	-	**-**
% Total	0.5%	16.5%	0%	**17.0%**	-	54.6%	19.6%	0%	**74.2%**	-	6.2%	2.6%	0%	**8.8%**	-	**-**
PHF	0.250	0.571	**-**	**0.589**	-	0.736	0.792	**-**	**0.750**	-	0.750	0.417	**-**	**0.607**	-	0.866
Lights and Motorcycles	1	30	0	**31**	-	104	38	0	**142**	-	12	4	0	**16**	-	189
% Lights and Motorcycles	100%	93.8%	0%	**93.9%**	-	98.1%	100%	0%	**98.6%**	-	100%	80.0%	0%	**94.1%**	-	97.4%
Heavy	0	2	0	**2**	-	2	0	0	**2**	-	0	1	0	**1**	-	5
% Heavy	0%	6.3%	0%	**6.1%**	-	1.9%	0%	0%	**1.4%**	-	0%	20.0%	0%	**5.9%**	-	2.6%
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

2. Country Club Road & Bernheisel Bridge Road - TMC

Wed Feb 5, 2025
AM Peak (Feb 05 2025 6:30AM - 7:30 AM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1267776, Location: 40.248683, -77.102161, Site Code: 2

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



2. Country Club Road & Bernheisel Bridge Road - TMC

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

Wed Feb 5, 2025
PM Peak (Feb 05 2025 3:30PM - 4:30 PM) - Overall Peak Hour
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1267776, Location: 40.248683, -77.102161, Site Code: 2

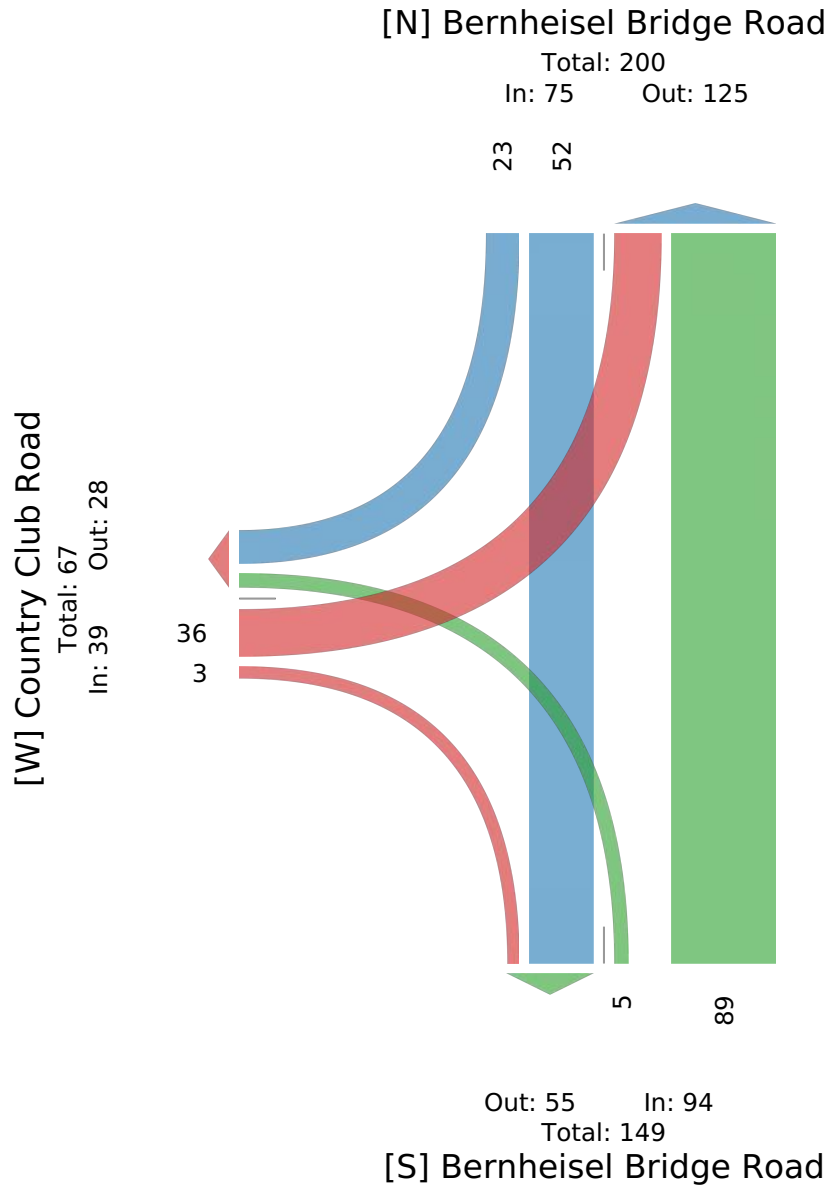
Leg	Bernheisel Bridge Road					Bernheisel Bridge Road					Country Club Road					
Direction	Northbound					Southbound					Eastbound					
Time	L	T	U	**App**	Ped*	T	R	U	**App**	Ped*	L	R	U	**App**	Ped*	**Int**
2025-02-05 3:30PM	1	21	0	**22**	0	10	11	0	**21**	0	8	0	0	**8**	0	**51**
3:45PM	0	25	0	**25**	0	11	0	0	**11**	0	8	1	0	**9**	0	**45**
4:00PM	1	22	0	**23**	0	18	7	0	**25**	0	8	1	0	**9**	0	**57**
4:15PM	3	21	0	**24**	0	13	5	0	**18**	0	12	1	0	**13**	0	**55**
Total	5	89	0	**94**	0	52	23	0	**75**	0	36	3	0	**39**	0	**208**
% Approach	5.3%	94.7%	0%	**-**	-	69.3%	30.7%	0%	**-**	-	92.3%	7.7%	0%	**-**	-	-
% Total	2.4%	42.8%	0%	**45.2%**	-	25.0%	11.1%	0%	**36.1%**	-	17.3%	1.4%	0%	**18.8%**	-	-
PHF	0.417	0.890	-	**0.940**	-	0.722	0.523	-	**0.750**	-	0.750	0.750	-	**0.750**	-	0.912
Lights and Motorcycles	5	87	0	**92**	-	52	20	0	**72**	-	36	3	0	**39**	-	203
% Lights and Motorcycles	100%	97.8%	0%	**97.9%**	-	100%	87.0%	0%	**96.0%**	-	100%	100%	0%	**100%**	-	97.6%
Heavy	0	2	0	**2**	-	0	3	0	**3**	-	0	0	0	**0**	-	5
% Heavy	0%	2.2%	0%	**2.1%**	-	0%	13.0%	0%	**4.0%**	-	0%	0%	0%	**0%**	-	2.4%
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

2. Country Club Road & Bernheisel Bridge Road - TMC

Wed Feb 5, 2025
PM Peak (Feb 05 2025 3:30PM - 4:30 PM) - Overall Peak Hour
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1267776, Location: 40.248683, -77.102161, Site Code: 2

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



2. Country Club Road & Bernheisel Bridge Road - TMC

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

Sat Feb 8, 2025
AM Peak (WKND) (Feb 08 2025 10AM - 11 AM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1267776, Location: 40.248683, -77.102161, Site Code: 2

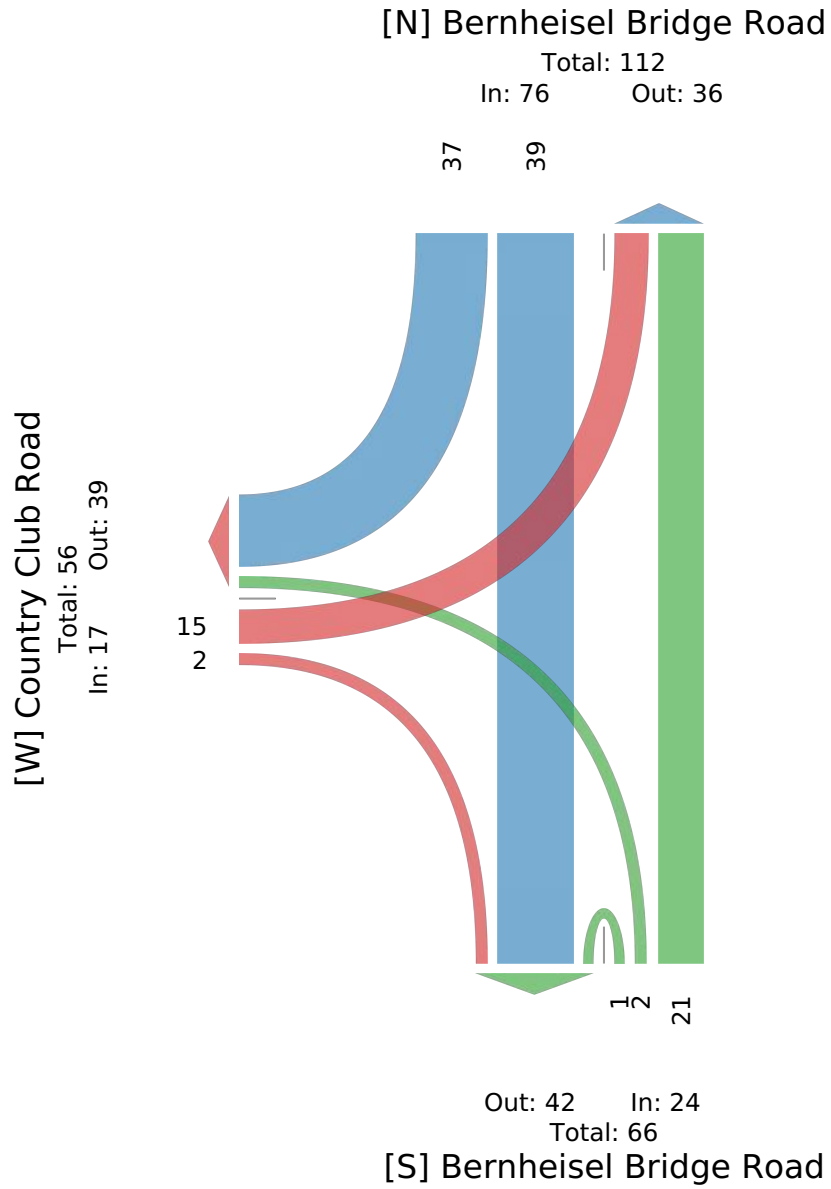
Leg	Bernheisel Bridge Road					Bernheisel Bridge Road					Country Club Road					
Direction	Northbound					Southbound					Eastbound					
Time	L	T	U	**App**	Ped*	T	R	U	**App**	Ped*	L	R	U	**App**	Ped*	**Int**
2025-02-08 10:00AM	1	5	0	**6**	0	12	12	0	**24**	0	3	0	0	**3**	0	**33**
10:15AM	0	11	0	**11**	0	10	8	0	**18**	0	2	0	0	**2**	0	**31**
10:30AM	1	4	0	**5**	0	7	11	0	**18**	0	6	1	0	**7**	0	**30**
10:45AM	0	1	1	**2**	0	10	6	0	**16**	0	4	1	0	**5**	0	**23**
Total	2	21	1	**24**	0	39	37	0	**76**	0	15	2	0	**17**	0	**117**
% Approach	8.3%	87.5%	4.2%	**-**	-	51.3%	48.7%	0%	**-**	-	88.2%	11.8%	0%	**-**	-	**-**
% Total	1.7%	17.9%	0.9%	**20.5%**	-	33.3%	31.6%	0%	**65.0%**	-	12.8%	1.7%	0%	**14.5%**	-	**-**
PHF	0.500	0.477	0.250	**0.545**	-	0.813	0.771	-	**0.792**	-	0.625	0.500	-	**0.607**	-	0.886
Lights and Motorcycles	2	21	1	**24**	-	39	36	0	**75**	-	15	2	0	**17**	-	116
% Lights and Motorcycles	100%	100%	100%	**100%**	-	100%	97.3%	0%	**98.7%**	-	100%	100%	0%	**100%**	-	99.1%
Heavy	0	0	0	**0**	-	0	1	0	**1**	-	0	0	0	**0**	-	1
% Heavy	0%	0%	0%	**0%**	-	0%	2.7%	0%	**1.3%**	-	0%	0%	0%	**0%**	-	0.9%
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

2. Country Club Road & Bernheisel Bridge Road - TMC

Sat Feb 8, 2025
AM Peak (WKND) (Feb 08 2025 10AM - 11 AM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1267776, Location: 40.248683, -77.102161, Site Code: 2

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



2. Country Club Road & Bernheisel Bridge Road - TMC

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

Sat Feb 8, 2025
Midday Peak (WKND) (Feb 08 2025 12:30PM - 1:30 PM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1267776, Location: 40.248683, -77.102161, Site Code: 2

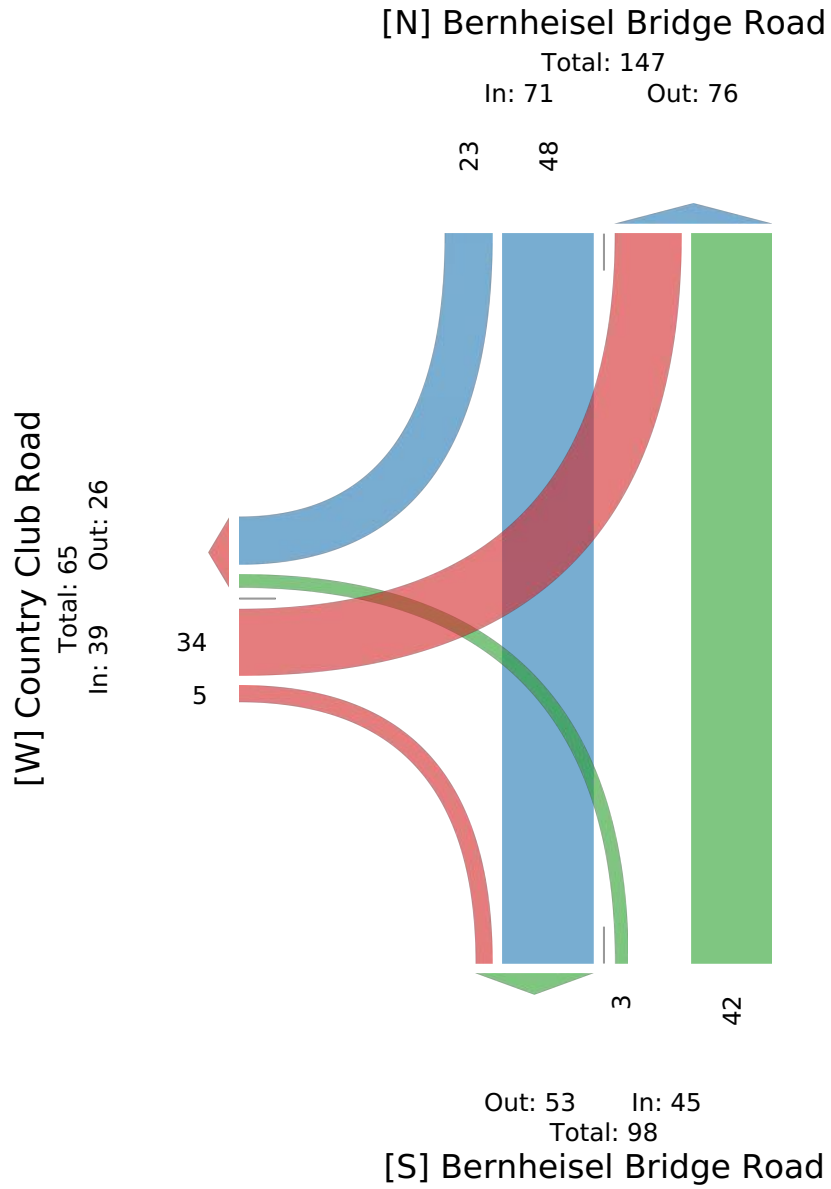
Leg	Bernheisel Bridge Road					Bernheisel Bridge Road					Country Club Road					
Direction	Northbound					Southbound					Eastbound					
Time	L	T	U	**App**	Ped*	T	R	U	**App**	Ped*	L	R	U	**App**	Ped*	**Int**
2025-02-08 12:30PM	3	13	0	**16**	0	9	5	0	**14**	0	11	1	0	**12**	0	**42**
12:45PM	0	8	0	**8**	0	11	5	0	**16**	0	4	1	0	**5**	0	**29**
1:00PM	0	12	0	**12**	0	12	6	0	**18**	0	9	0	0	**9**	0	**39**
1:15PM	0	9	0	**9**	0	16	7	0	**23**	0	10	3	0	**13**	0	**45**
Total	3	42	0	**45**	0	48	23	0	**71**	0	34	5	0	**39**	0	**155**
% Approach	6.7%	93.3%	0%	**-**	-	67.6%	32.4%	0%	**-**	-	87.2%	12.8%	0%	**-**	-	-
% Total	1.9%	27.1%	0%	**29.0%**	-	31.0%	14.8%	0%	**45.8%**	-	21.9%	3.2%	0%	**25.2%**	-	-
PHF	0.250	0.808	-	**0.703**	-	0.750	0.821	-	**0.772**	-	0.773	0.417	-	**0.750**	-	0.861
Lights and Motorcycles	3	42	0	**45**	-	46	23	0	**69**	-	34	5	0	**39**	-	153
% Lights and Motorcycles	100%	100%	0%	**100%**	-	95.8%	100%	0%	**97.2%**	-	100%	100%	0%	**100%**	-	98.7%
Heavy	0	0	0	**0**	-	2	0	0	**2**	-	0	0	0	**0**	-	2
% Heavy	0%	0%	0%	**0%**	-	4.2%	0%	0%	**2.8%**	-	0%	0%	0%	**0%**	-	1.3%
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

2. Country Club Road & Bernheisel Bridge Road - TMC

Sat Feb 8, 2025
Midday Peak (WKND) (Feb 08 2025 12:30PM - 1:30 PM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1267776, Location: 40.248683, -77.102161, Site Code: 2

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



2. Country Club Road & Bernheisel Bridge Road - TMC

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

Sat Feb 8, 2025
PM Peak (WKND) (Feb 08 2025 1PM - 2 PM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1267776, Location: 40.248683, -77.102161, Site Code: 2

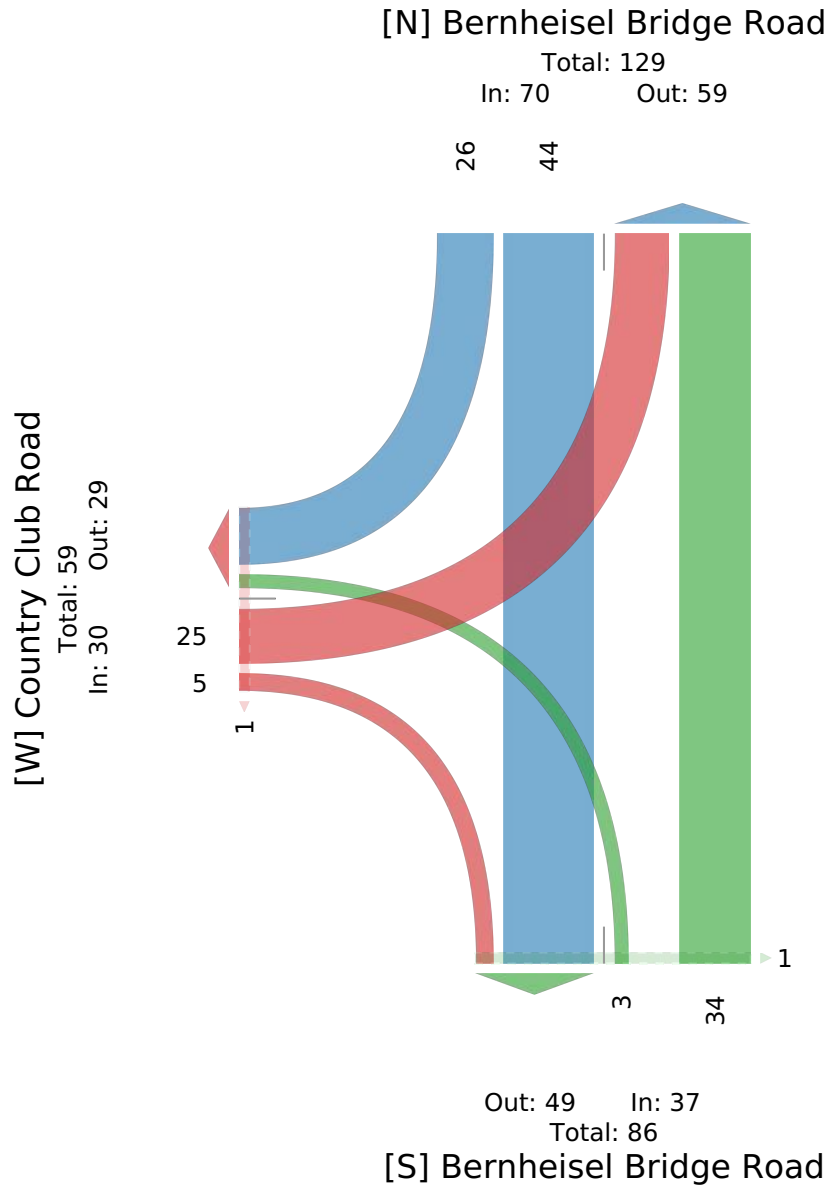
Leg Direction	Bernheisel Bridge Road Northbound					Bernheisel Bridge Road Southbound					Country Club Road Eastbound					
Time	L	T	U	**App**	Ped*	T	R	U	**App**	Ped*	L	R	U	**App**	Ped*	**Int**
2025-02-08 1:00PM	0	12	0	**12**	0	12	6	0	**18**	0	9	0	0	**9**	0	**39**
1:15PM	0	9	0	**9**	0	16	7	0	**23**	0	10	3	0	**13**	0	**45**
1:30PM	3	8	0	**11**	1	8	8	0	**16**	0	2	1	0	**3**	1	**30**
1:45PM	0	5	0	**5**	0	8	5	0	**13**	0	4	1	0	**5**	0	**23**
Total	3	34	0	**37**	1	44	26	0	**70**	0	25	5	0	**30**	1	**137**
% Approach	8.1%	91.9%	0%	**-**	-	62.9%	37.1%	0%	**-**	-	83.3%	16.7%	0%	**-**	-	-
% Total	2.2%	24.8%	0%	**27.0%**	-	32.1%	19.0%	0%	**51.1%**	-	18.2%	3.6%	0%	**21.9%**	-	-
PHF	0.250	0.708	-	**0.771**	-	0.688	0.813	-	**0.761**	-	0.625	0.417	-	**0.577**	-	0.761
Lights and Motorcycles	3	34	0	**37**	-	43	26	0	**69**	-	25	5	0	**30**	-	136
% Lights and Motorcycles	100%	100%	0%	**100%**	-	97.7%	100%	0%	**98.6%**	-	100%	100%	0%	**100%**	-	99.3%
Heavy	0	0	0	**0**	-	1	0	0	**1**	-	0	0	0	**0**	-	1
% Heavy	0%	0%	0%	**0%**	-	2.3%	0%	0%	**1.4%**	-	0%	0%	0%	**0%**	-	0.7%
Pedestrians	-	-	-	-	1	-	-	-	-	0	-	-	-	-	1	
% 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

2. Country Club Road & Bernheisel Bridge Road - TMC

Sat Feb 8, 2025
PM Peak (WKND) (Feb 08 2025 1PM - 2 PM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1267776, Location: 40.248683, -77.102161, Site Code: 2

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



Project: US 11 & Country Club
Municipality: Middlesex Township, Cumberland County, PA
Setup: Sean F
Location: 40.248683, -77.102161

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

Count Name: 2. Country Club Road & Bernheisel Bridge Road
Site Code: 2
Start Date: 02/05/2025

Turning Movement Data

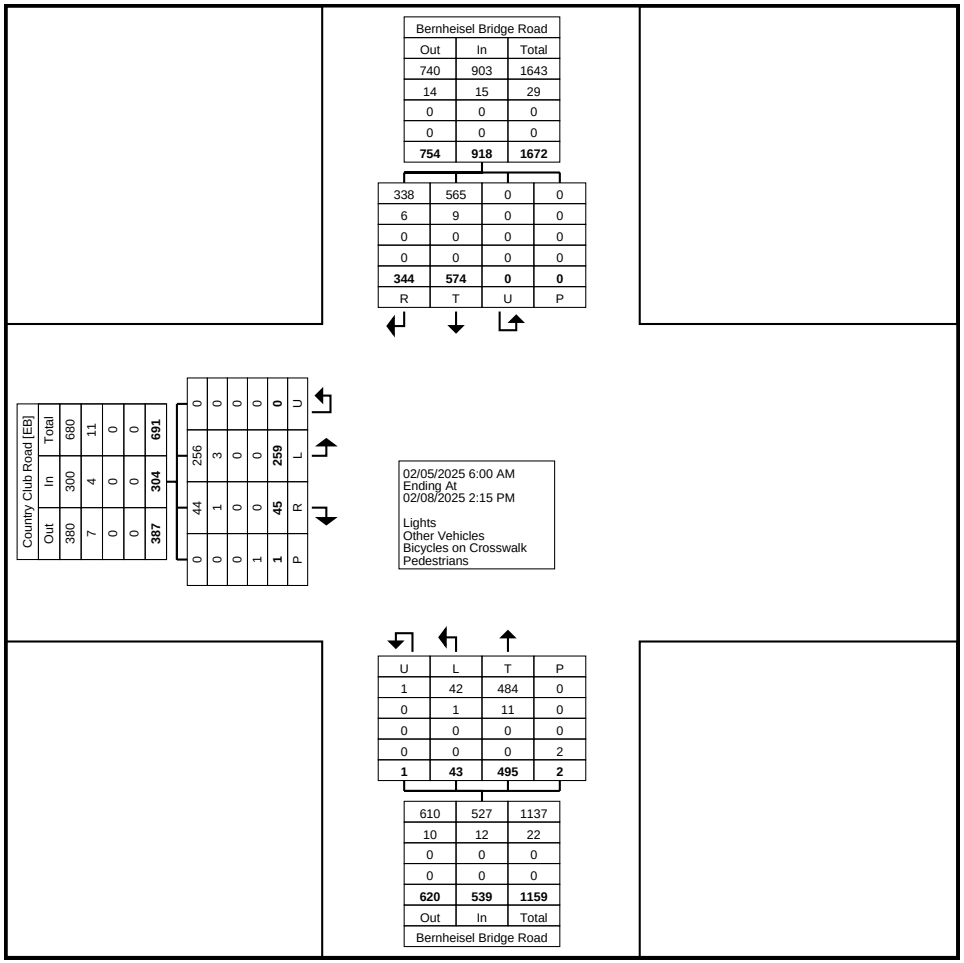
Start Time	Country Club Road Eastbound					Bernheisel Bridge Road Northbound					Bernheisel Bridge Road Southbound					Int. Total
	U-Turn	Left	Right	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	U-Turn	Thru	Right	Peds	App. Total	
6:00 AM	0	1	1	0	2	0	0	1	0	1	0	16	5	0	21	24
6:15 AM	0	3	0	0	3	0	1	1	0	2	0	24	5	0	29	34
6:30 AM	0	3	0	0	3	0	0	5	0	5	0	36	12	0	48	56
6:45 AM	0	2	0	0	2	0	0	5	0	5	0	32	9	0	41	48
Hourly Total	0	9	1	0	10	0	1	12	0	13	0	108	31	0	139	162
7:00 AM	0	4	3	0	7	0	0	14	0	14	0	14	7	0	21	42
7:15 AM	0	3	2	0	5	0	1	8	0	9	0	24	10	0	34	48
7:30 AM	0	6	0	0	6	0	0	6	0	6	0	23	14	0	37	49
7:45 AM	0	6	0	0	6	0	0	12	0	12	0	15	8	0	23	41
Hourly Total	0	19	5	0	24	0	1	40	0	41	0	76	39	0	115	180
8:00 AM	0	2	1	0	3	0	0	3	0	3	0	13	6	0	19	25
8:15 AM	0	1	2	0	3	0	0	5	0	5	0	10	9	0	19	27
8:30 AM	0	5	1	0	6	0	0	2	0	2	0	9	16	0	25	33
8:45 AM	0	5	0	0	5	0	2	5	0	7	0	12	8	0	20	32
Hourly Total	0	13	4	0	17	0	2	15	0	17	0	44	39	0	83	117
9:00 AM	0	2	1	0	3	0	0	8	0	8	0	14	7	0	21	32
9:15 AM	0	2	1	0	3	0	1	12	0	13	0	7	5	0	12	28
9:30 AM	0	3	1	0	4	0	1	11	0	12	0	6	3	0	9	25
9:45 AM	0	3	1	0	4	0	1	7	0	8	0	11	4	0	15	27
Hourly Total	0	10	4	0	14	0	3	38	0	41	0	38	19	0	57	112
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2:00 PM	0	4	2	0	6	0	1	14	1	15	0	6	11	0	17	38
2:15 PM	0	4	0	0	4	0	0	7	0	7	0	10	6	0	16	27
2:30 PM	0	6	0	0	6	0	2	4	0	6	0	11	6	0	17	29
2:45 PM	0	4	0	0	4	0	0	14	0	14	0	16	4	0	20	38
Hourly Total	0	18	2	0	20	0	3	39	1	42	0	43	27	0	70	132
3:00 PM	0	8	1	0	9	0	1	31	0	32	0	2	4	0	6	47
3:15 PM	0	10	1	0	11	0	1	15	0	16	0	11	11	0	22	49
3:30 PM	0	8	0	0	8	0	1	21	0	22	0	10	11	0	21	51
3:45 PM	0	8	1	0	9	0	0	25	0	25	0	11	0	0	11	45
Hourly Total	0	34	3	0	37	0	3	92	0	95	0	34	26	0	60	192
4:00 PM	0	8	1	0	9	0	1	22	0	23	0	18	7	0	25	57
4:15 PM	0	12	1	0	13	0	3	21	0	24	0	13	5	0	18	55
4:30 PM	0	8	0	0	8	0	4	17	0	21	0	6	6	0	12	41
4:45 PM	0	12	1	0	13	0	0	12	0	12	0	6	6	0	12	37
Hourly Total	0	40	3	0	43	0	8	72	0	80	0	43	24	0	67	190

5:00 PM	0	9	0	0	9	0	0	21	0	21	0	8	9	0	17	47
5:15 PM	0	7	0	0	7	0	1	10	0	11	0	8	7	0	15	33
5:30 PM	0	8	1	0	9	0	0	20	0	20	0	9	5	0	14	43
5:45 PM	0	8	2	0	10	0	1	6	0	7	0	6	12	0	18	35
Hourly Total	0	32	3	0	35	0	2	57	0	59	0	31	33	0	64	158
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10:00 AM	0	3	0	0	3	0	1	5	0	6	0	12	12	0	24	33
10:15 AM	0	2	0	0	2	0	0	11	0	11	0	10	8	0	18	31
10:30 AM	0	6	1	0	7	0	1	4	0	5	0	7	11	0	18	30
10:45 AM	0	4	1	0	5	1	0	1	0	2	0	10	6	0	16	23
Hourly Total	0	15	2	0	17	1	2	21	0	24	0	39	37	0	76	117
11:00 AM	0	6	1	0	7	0	1	8	0	9	0	8	5	0	13	29
11:15 AM	0	2	1	0	3	0	2	8	0	10	0	8	7	0	15	28
11:30 AM	0	3	2	0	5	0	3	8	0	11	0	10	7	0	17	33
11:45 AM	0	4	2	0	6	0	0	10	0	10	0	10	6	0	16	32
Hourly Total	0	15	6	0	21	0	6	34	0	40	0	36	25	0	61	122
12:00 PM	0	8	1	0	9	0	4	12	0	16	0	7	5	0	12	37
12:15 PM	0	6	4	0	10	0	2	8	0	10	0	11	3	0	14	34
12:30 PM	0	11	1	0	12	0	3	13	0	16	0	9	5	0	14	42
12:45 PM	0	4	1	0	5	0	0	8	0	8	0	11	5	0	16	29
Hourly Total	0	29	7	0	36	0	9	41	0	50	0	38	18	0	56	142
1:00 PM	0	9	0	0	9	0	0	12	0	12	0	12	6	0	18	39
1:15 PM	0	10	3	0	13	0	0	9	0	9	0	16	7	0	23	45
1:30 PM	0	2	1	1	3	0	3	8	1	11	0	8	8	0	16	30
1:45 PM	0	4	1	0	5	0	0	5	0	5	0	8	5	0	13	23
Hourly Total	0	25	5	1	30	0	3	34	1	37	0	44	26	0	70	137
2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	259	45	1	304	1	43	495	2	539	0	574	344	0	918	1761
Approach %	0.0	85.2	14.8	-	-	0.2	8.0	91.8	-	-	0.0	62.5	37.5	-	-	-
Total %	0.0	14.7	2.6	-	17.3	0.1	2.4	28.1	-	30.6	0.0	32.6	19.5	-	52.1	-
Lights	0	256	44	-	300	1	42	484	-	527	0	565	338	-	903	1730
% Lights	-	98.8	97.8	-	98.7	100.0	97.7	97.8	-	97.8	-	98.4	98.3	-	98.4	98.2
Other Vehicles	0	3	1	-	4	0	1	11	-	12	0	9	6	-	15	31
% Other Vehicles	-	1.2	2.2	-	1.3	0.0	2.3	2.2	-	2.2	-	1.6	1.7	-	1.6	1.8
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	0.0	-	-	-	-	0.0	-	-	-	-	-	-	-
Pedestrians	-	-	-	1	-	-	-	-	2	-	-	-	-	0	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	100.0	-	-	-	-	-	-	-

Project: US 11 & Country Club
Municipality: Middlesex Township, Cumberland County, PA
Setup: Sean F
Location: 40.248683, -77.102161

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

Count Name: 2. Country Club Road & Bernheisel Bridge Road
Site Code: 2
Start Date: 02/05/2025



Turning Movement Data Plot

Project: US 11 & Country Club
Municipality: Middlesex Township, Cumberland County, PA
Setup: Sean F
Location: 40.248683, -77.102161

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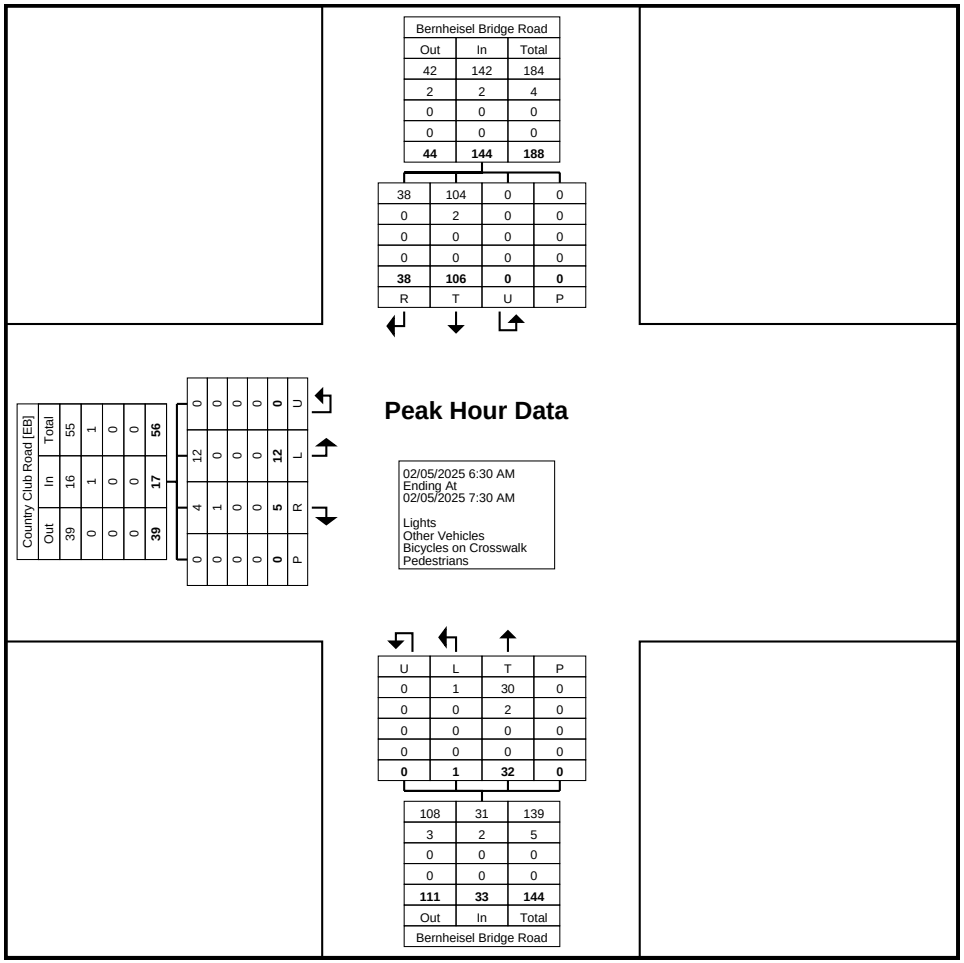
Turning Movement Peak Hour Data (6:30 AM)

Start Time	Country Club Road Eastbound					Bernheisel Bridge Road Northbound					Bernheisel Bridge Road Southbound					
	U-Turn	Left	Right	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	U-Turn	Thru	Right	Peds	App. Total	Int. Total
6:30 AM	0	3	0	0	3	0	0	5	0	5	0	36	12	0	48	56
6:45 AM	0	2	0	0	2	0	0	5	0	5	0	32	9	0	41	48
7:00 AM	0	4	3	0	7	0	0	14	0	14	0	14	7	0	21	42
7:15 AM	0	3	2	0	5	0	1	8	0	9	0	24	10	0	34	48
Total	0	12	5	0	17	0	1	32	0	33	0	106	38	0	144	194
Approach %	0.0	70.6	29.4	-	-	0.0	3.0	97.0	-	-	0.0	73.6	26.4	-	-	-
Total %	0.0	6.2	2.6	-	8.8	0.0	0.5	16.5	-	17.0	0.0	54.6	19.6	-	74.2	-
PHF	0.000	0.750	0.417	-	0.607	0.000	0.250	0.571	-	0.589	0.000	0.736	0.792	-	0.750	0.866
Lights	0	12	4	-	16	0	1	30	-	31	0	104	38	-	142	189
% Lights	-	100.0	80.0	-	94.1	-	100.0	93.8	-	93.9	-	98.1	100.0	-	98.6	97.4
Other Vehicles	0	0	1	-	1	0	0	2	-	2	0	2	0	-	2	5
% Other Vehicles	-	0.0	20.0	-	5.9	-	0.0	6.3	-	6.1	-	1.9	0.0	-	1.4	2.6
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Project: US 11 & Country Club
Municipality: Middlesex Township, Cumberland County, PA
Setup: Sean F
Location: 40.248683, -77.102161

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609-706-6100

Count Name: 2. Country Club Road & Bernheisel Bridge Road
Site Code: 2
Start Date: 02/05/2025



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

Project: US 11 & Country Club
Municipality: Middlesex Township, Cumberland County, PA
Setup: Sean F
Location: 40.248683, -77.102161

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609-706-6100

Count Name: 2. Country Club Road & Bernheisel Bridge Road
Site Code: 2
Start Date: 02/05/2025

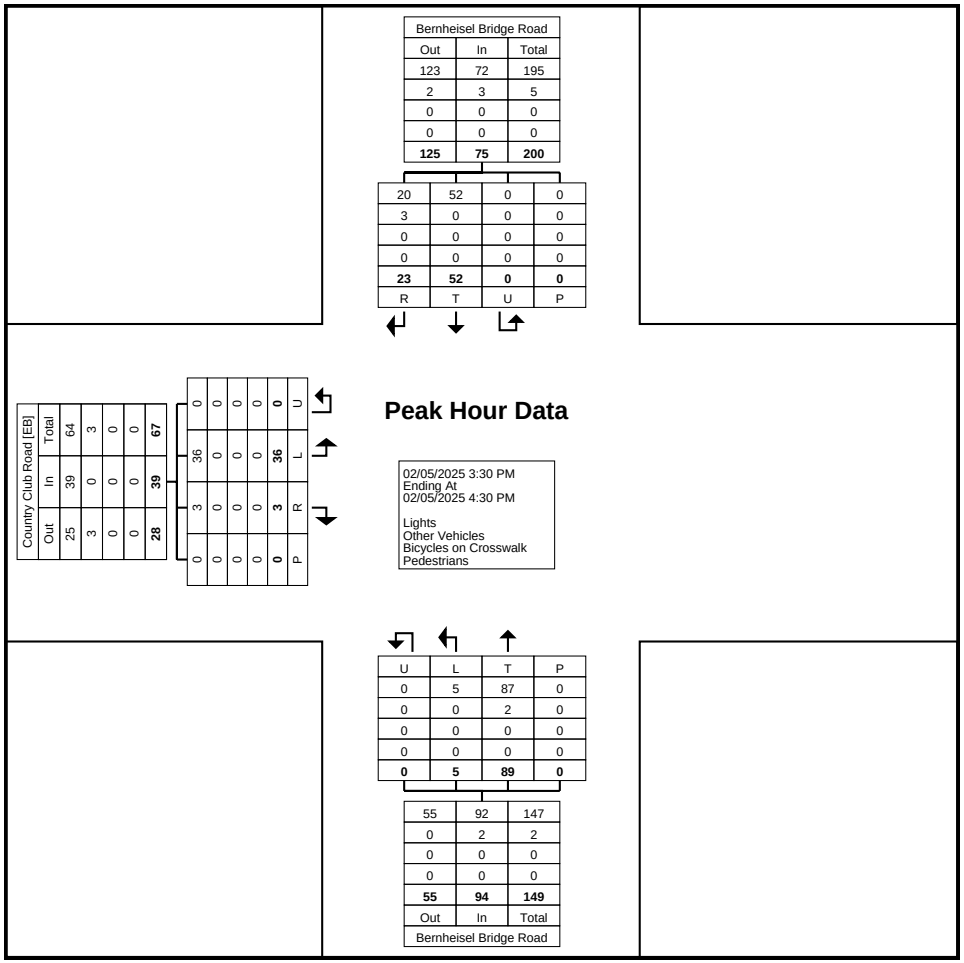
Turning Movement Peak Hour Data (3:30 PM)

Start Time	Country Club Road Eastbound					Bernheisel Bridge Road Northbound					Bernheisel Bridge Road Southbound					
	U-Turn	Left	Right	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	U-Turn	Thru	Right	Peds	App. Total	Int. Total
3:30 PM	0	8	0	0	8	0	1	21	0	22	0	10	11	0	21	51
3:45 PM	0	8	1	0	9	0	0	25	0	25	0	11	0	0	11	45
4:00 PM	0	8	1	0	9	0	1	22	0	23	0	18	7	0	25	57
4:15 PM	0	12	1	0	13	0	3	21	0	24	0	13	5	0	18	55
Total	0	36	3	0	39	0	5	89	0	94	0	52	23	0	75	208
Approach %	0.0	92.3	7.7	-	-	0.0	5.3	94.7	-	-	0.0	69.3	30.7	-	-	-
Total %	0.0	17.3	1.4	-	18.8	0.0	2.4	42.8	-	45.2	0.0	25.0	11.1	-	36.1	-
PHF	0.000	0.750	0.750	-	0.750	0.000	0.417	0.890	-	0.940	0.000	0.722	0.523	-	0.750	0.912
Lights	0	36	3	-	39	0	5	87	-	92	0	52	20	-	72	203
% Lights	-	100.0	100.0	-	100.0	-	100.0	97.8	-	97.9	-	100.0	87.0	-	96.0	97.6
Other Vehicles	0	0	0	-	0	0	0	2	-	2	0	0	3	-	3	5
% Other Vehicles	-	0.0	0.0	-	0.0	-	0.0	2.2	-	2.1	-	0.0	13.0	-	4.0	2.4
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Project: US 11 & Country Club
Municipality: Middlesex Township, Cumberland County, PA
Setup: Sean F
Location: 40.248683, -77.102161

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609-706-6100

Count Name: 2. Country Club Road & Bernheisel Bridge Road
Site Code: 2
Start Date: 02/05/2025



Turning Movement Peak Hour Data Plot (3:30 PM)

Project: US 11 & Country Club
Municipality: Middlesex Township, Cumberland County, PA
Setup: Sean F
Location: 40.248683, -77.102161

Imperial Traffic & Data Collection
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Cherry Hill, New Jersey, United States 08034
609-706-6100

Count Name: 2. Country Club Road & Bernheisel Bridge Road
Site Code: 2
Start Date: 02/05/2025

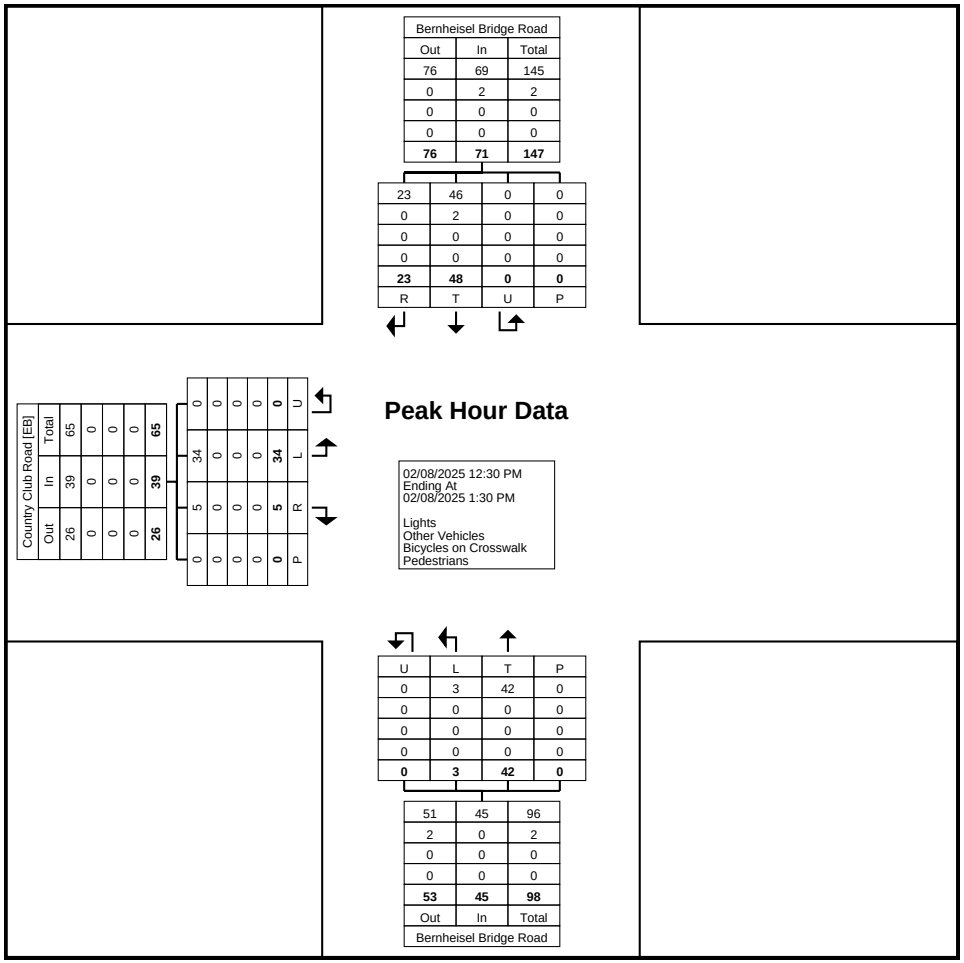
Turning Movement Peak Hour Data (12:30 PM)

Start Time	Country Club Road Eastbound					Bernheisel Bridge Road Northbound					Bernheisel Bridge Road Southbound					
	U-Turn	Left	Right	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	U-Turn	Thru	Right	Peds	App. Total	Int. Total
12:30 PM	0	11	1	0	12	0	3	13	0	16	0	9	5	0	14	42
12:45 PM	0	4	1	0	5	0	0	8	0	8	0	11	5	0	16	29
1:00 PM	0	9	0	0	9	0	0	12	0	12	0	12	6	0	18	39
1:15 PM	0	10	3	0	13	0	0	9	0	9	0	16	7	0	23	45
Total	0	34	5	0	39	0	3	42	0	45	0	48	23	0	71	155
Approach %	0.0	87.2	12.8	-	-	0.0	6.7	93.3	-	-	0.0	67.6	32.4	-	-	-
Total %	0.0	21.9	3.2	-	25.2	0.0	1.9	27.1	-	29.0	0.0	31.0	14.8	-	45.8	-
PHF	0.000	0.773	0.417	-	0.750	0.000	0.250	0.808	-	0.703	0.000	0.750	0.821	-	0.772	0.861
Lights	0	34	5	-	39	0	3	42	-	45	0	46	23	-	69	153
% Lights	-	100.0	100.0	-	100.0	-	100.0	100.0	-	100.0	-	95.8	100.0	-	97.2	98.7
Other Vehicles	0	0	0	-	0	0	0	0	-	0	0	2	0	-	2	2
% Other Vehicles	-	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	-	4.2	0.0	-	2.8	1.3
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Project: US 11 & Country Club
Municipality: Middlesex Township, Cumberland County, PA
Setup: Sean F
Location: 40.248683, -77.102161

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

Count Name: 2. Country Club Road & Bernheisel Bridge Road
Site Code: 2
Start Date: 02/05/2025



Turning Movement Peak Hour Data Plot (12:30 PM)

3. Green Hill Road & Bernheisel Bridge Road - TMC

Wed Feb 5, 2025
Full Length (6 AM-10 AM, 2 PM-6 PM, 10 AM-2 PM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1267778, Location: 40.249357, -77.102155, Site Code: 3

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

Leg	Bernheisel Bridge Road					Bernheisel Bridge Road					Green Hill Road					
Direction	Northbound					Southbound					Westbound					
Time	T	R	U	**App**	Ped*	L	T	U	**App**	Ped*	L	R	U	**App**	Ped*	**Int**
2025-02-05 6:00AM	2	0	0	**2**	0	8	21	0	**29**	0	0	3	0	**3**	0	**34**
6:15AM	3	0	0	**3**	0	12	31	0	**43**	0	0	1	0	**1**	0	**47**
6:30AM	4	3	0	**7**	0	19	49	0	**68**	0	0	3	0	**3**	0	**78**
6:45AM	5	2	0	**7**	0	19	38	0	**57**	0	2	1	0	**3**	0	**67**
Hourly Total	14	5	0	**19**	0	58	139	0	**197**	0	2	8	0	**10**	0	**226**
7:00AM	17	1	0	**18**	0	15	20	0	**35**	0	1	2	0	**3**	0	**56**
7:15AM	9	2	0	**11**	0	29	33	0	**62**	0	2	4	0	**6**	0	**79**
7:30AM	10	2	0	**12**	0	14	35	0	**49**	0	2	9	0	**11**	0	**72**
7:45AM	17	1	0	**18**	0	17	22	0	**39**	0	1	10	0	**11**	0	**68**
Hourly Total	53	6	0	**59**	0	75	110	0	**185**	0	6	25	0	**31**	0	**275**
8:00AM	4	0	0	**4**	0	9	17	0	**26**	0	3	1	0	**4**	0	**34**
8:15AM	7	0	0	**7**	0	15	17	0	**32**	0	1	1	0	**2**	0	**41**
8:30AM	6	1	0	**7**	0	10	21	0	**31**	0	4	1	0	**5**	0	**43**
8:45AM	7	3	0	**10**	0	15	15	0	**30**	0	5	2	0	**7**	0	**47**
Hourly Total	24	4	0	**28**	0	49	70	0	**119**	0	13	5	0	**18**	0	**165**
9:00AM	8	3	0	**11**	0	4	19	0	**23**	0	1	7	0	**8**	0	**42**
9:15AM	12	2	0	**14**	0	6	10	0	**16**	0	2	6	0	**8**	0	**38**
9:30AM	12	1	0	**13**	0	11	8	0	**19**	0	1	3	0	**4**	0	**36**
9:45AM	10	1	0	**11**	0	3	13	1	**17**	0	2	2	0	**4**	0	**32**
Hourly Total	42	7	0	**49**	0	24	50	1	**75**	0	6	18	0	**24**	0	**148**
2:00PM	18	1	0	**19**	0	7	16	0	**23**	0	0	11	0	**11**	0	**53**
2:15PM	8	3	0	**11**	0	6	15	0	**21**	0	1	7	0	**8**	0	**40**
2:30PM	8	2	0	**10**	0	2	16	0	**18**	0	1	6	1	**8**	0	**36**
2:45PM	15	3	0	**18**	0	4	20	0	**24**	0	0	8	0	**8**	0	**50**
Hourly Total	49	9	0	**58**	0	19	67	0	**86**	0	2	32	1	**35**	0	**179**
3:00PM	35	4	0	**39**	0	7	5	0	**12**	0	2	16	0	**18**	0	**69**
3:15PM	23	2	0	**25**	0	4	15	0	**19**	0	7	22	0	**29**	0	**73**
3:30PM	23	4	0	**27**	0	9	18	0	**27**	0	3	22	0	**25**	0	**79**
3:45PM	31	2	0	**33**	0	7	11	0	**18**	0	0	9	0	**9**	0	**60**
Hourly Total	112	12	0	**124**	0	27	49	0	**76**	0	12	69	0	**81**	0	**281**
4:00PM	28	2	0	**30**	0	16	22	0	**38**	0	3	22	0	**25**	0	**93**
4:15PM	30	3	0	**33**	0	6	16	0	**22**	0	2	21	0	**23**	0	**78**
4:30PM	22	3	0	**25**	0	5	11	0	**16**	0	1	34	0	**35**	0	**76**
4:45PM	23	1	0	**24**	0	9	10	1	**20**	0	2	15	0	**17**	0	**61**
Hourly Total	103	9	0	**112**	0	36	59	1	**96**	0	8	92	0	**100**	0	**308**
5:00PM	25	6	0	**31**	0	13	12	0	**25**	0	4	25	0	**29**	0	**85**
5:15PM	16	1	0	**17**	0	9	13	0	**22**	0	2	23	0	**25**	0	**64**
5:30PM	25	2	0	**27**	0	13	11	0	**24**	0	3	18	0	**21**	0	**72**

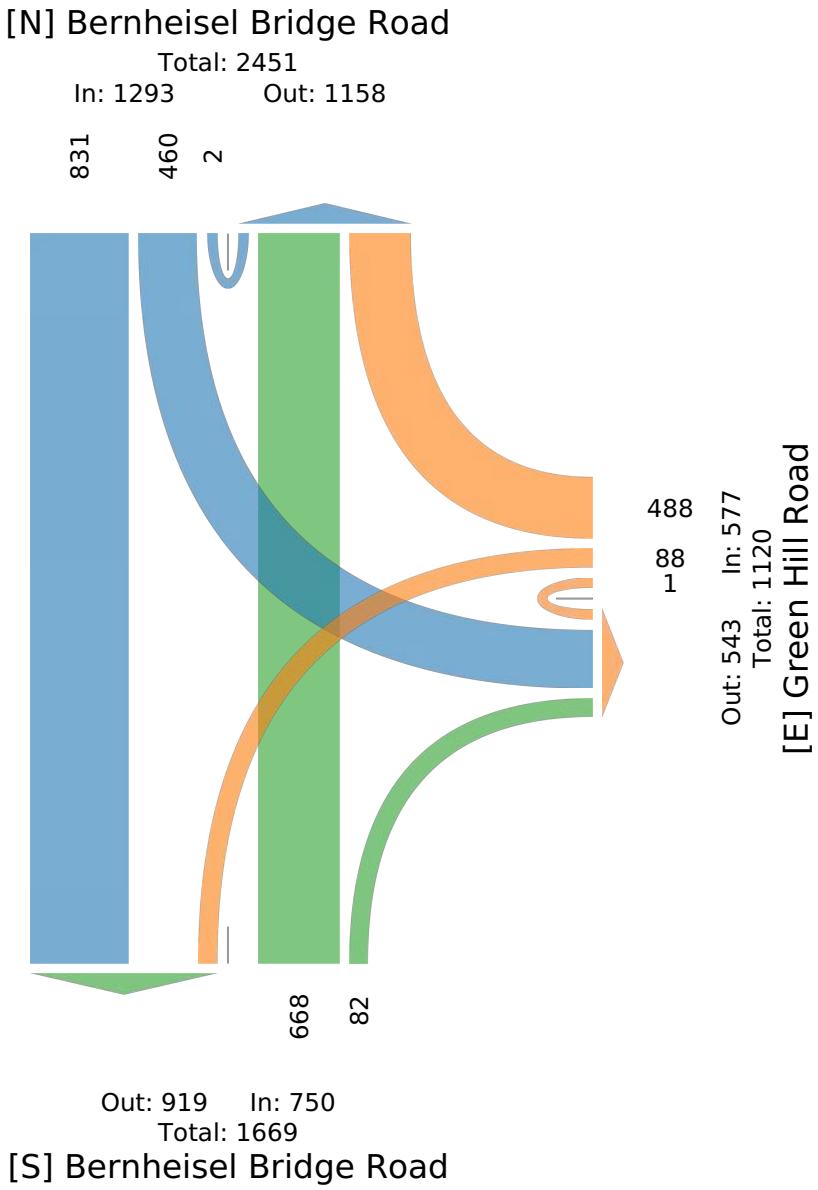
Leg Direction	Bernheisel Bridge Road Northbound					Bernheisel Bridge Road Southbound					Green Hill Road Westbound					
Time	T	R	U	**App**	Ped*	L	T	U	**App**	Ped*	L	R	U	**App**	Ped*	**Int**
5:45PM	13	1	0	**14**	0	7	14	0	**21**	0	3	11	0	**14**	0	**49**
Hourly Total	79	10	0	**89**	0	42	50	0	**92**	0	12	77	0	**89**	0	**270**
6:00PM	0	0	0	**0**	0	0	0	0	**0**	0	0	0	0	**0**	0	**0**
Hourly Total	0	0	0	**0**	0	0	0	0	**0**	0	0	0	0	**0**	0	**0**
2025-02-08 10:00AM	5	3	0	**8**	0	8	22	0	**30**	0	2	9	0	**11**	0	**49**
10:15AM	13	0	0	**13**	0	8	18	0	**26**	0	0	7	0	**7**	0	**46**
10:30AM	10	0	0	**10**	0	12	16	0	**28**	0	2	13	0	**15**	0	**53**
10:45AM	5	0	0	**5**	0	10	15	0	**25**	0	1	12	0	**13**	0	**43**
Hourly Total	33	3	0	**36**	0	38	71	0	**109**	0	5	41	0	**46**	0	**191**
11:00AM	12	2	0	**14**	0	13	10	0	**23**	0	3	10	0	**13**	0	**50**
11:15AM	10	0	0	**10**	0	14	15	0	**29**	0	0	11	0	**11**	0	**50**
11:30AM	10	1	0	**11**	0	6	18	0	**24**	0	1	6	0	**7**	0	**42**
11:45AM	13	1	0	**14**	0	6	13	0	**19**	0	2	9	0	**11**	0	**44**
Hourly Total	45	4	0	**49**	0	39	56	0	**95**	0	6	36	0	**42**	0	**186**
12:00PM	16	3	0	**19**	0	7	9	0	**16**	0	3	8	0	**11**	0	**46**
12:15PM	13	1	0	**14**	0	9	13	0	**22**	0	1	12	0	**13**	0	**49**
12:30PM	19	4	0	**23**	0	8	13	0	**21**	0	1	13	0	**14**	0	**58**
12:45PM	10	2	0	**12**	0	7	15	0	**22**	0	1	13	0	**14**	0	**48**
Hourly Total	58	10	0	**68**	0	31	50	0	**81**	0	6	46	0	**52**	0	**201**
1:00PM	20	1	0	**21**	0	7	17	0	**24**	0	1	11	0	**12**	0	**57**
1:15PM	19	0	0	**19**	0	2	21	0	**23**	0	2	8	0	**10**	0	**52**
1:30PM	10	0	0	**10**	0	7	12	0	**19**	0	4	6	0	**10**	0	**39**
1:45PM	7	2	0	**9**	0	6	10	0	**16**	0	3	14	0	**17**	0	**42**
Hourly Total	56	3	0	**59**	0	22	60	0	**82**	0	10	39	0	**49**	0	**190**
Total	668	82	0	**750**	0	460	831	2	**1293**	0	88	488	1	**577**	0	**2620**
% Approach	89.1%	10.9%	0%	**-**	-	35.6%	64.3%	0.2%	**-**	-	15.3%	84.6%	0.2%	**-**	-	-
% Total	25.5%	3.1%	0%	**28.6%**	-	17.6%	31.7%	0.1%	**49.4%**	-	3.4%	18.6%	0%	**22.0%**	-	-
Lights and Motorcycles	657	79	0	**736**	-	454	819	1	**1274**	-	83	481	0	**564**	-	2574
% Lights and Motorcycles	98.4%	96.3%	0%	**98.1%**	-	98.7%	98.6%	50.0%	**98.5%**	-	94.3%	98.6%	0%	**97.7%**	-	98.2%
Heavy	11	3	0	**14**	-	6	12	1	**19**	-	5	7	1	**13**	-	46
% Heavy	1.6%	3.7%	0%	**1.9%**	-	1.3%	1.4%	50.0%	**1.5%**	-	5.7%	1.4%	100%	**2.3%**	-	1.8%
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

3. Green Hill Road & Bernheisel Bridge Road - TMC

Wed Feb 5, 2025
Full Length (6 AM-10 AM, 2 PM-6 PM, 10 AM-2 PM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1267778, Location: 40.249357, -77.102155, Site Code: 3

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



3. Green Hill Road & Bernheisel Bridge Road - TMC

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

Wed Feb 5, 2025
AM Peak (Feb 05 2025 6:30AM - 7:30 AM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1267778, Location: 40.249357, -77.102155, Site Code: 3

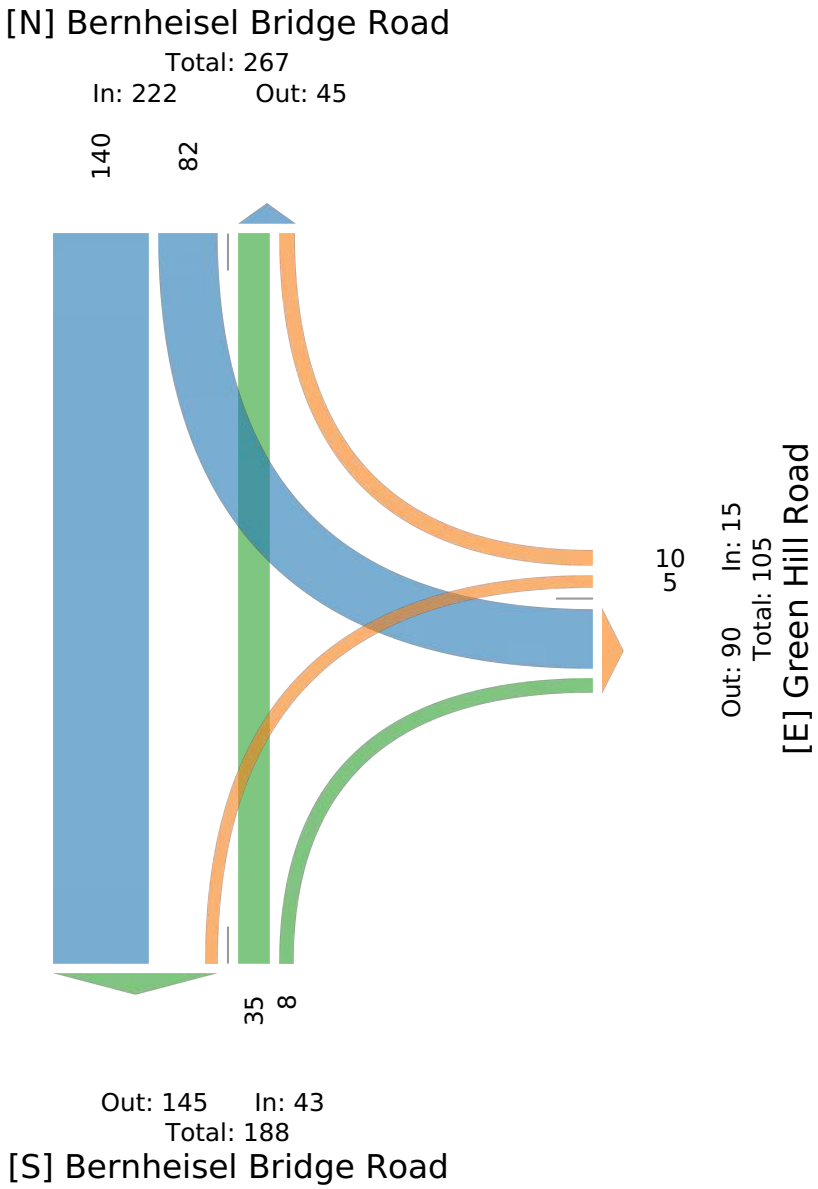
Leg	Bernheisel Bridge Road					Bernheisel Bridge Road					Green Hill Road					
Direction	Northbound					Southbound					Westbound					
Time	T	R	U	**App**	Ped*	L	T	U	**App**	Ped*	L	R	U	**App**	Ped*	**Int**
2025-02-05 6:30AM	4	3	0	**7**	0	19	49	0	**68**	0	0	3	0	**3**	0	**78**
6:45AM	5	2	0	**7**	0	19	38	0	**57**	0	2	1	0	**3**	0	**67**
7:00AM	17	1	0	**18**	0	15	20	0	**35**	0	1	2	0	**3**	0	**56**
7:15AM	9	2	0	**11**	0	29	33	0	**62**	0	2	4	0	**6**	0	**79**
Total	35	8	0	**43**	0	82	140	0	**222**	0	5	10	0	**15**	0	**280**
% Approach	81.4%	18.6%	0%	**-**	-	36.9%	63.1%	0%	**-**	-	33.3%	66.7%	0%	**-**	-	**-**
% Total	12.5%	2.9%	0%	**15.4%**	-	29.3%	50.0%	0%	**79.3%**	-	1.8%	3.6%	0%	**5.4%**	-	**-**
PHF	0.515	0.667	-	**0.597**	-	0.707	0.714	-	**0.816**	-	0.625	0.625	-	**0.625**	-	0.886
Lights and Motorcycles	35	7	0	**42**	-	80	139	0	**219**	-	4	10	0	**14**	-	275
% Lights and Motorcycles	100%	87.5%	0%	**97.7%**	-	97.6%	99.3%	0%	**98.6%**	-	80.0%	100%	0%	**93.3%**	-	98.2%
Heavy	0	1	0	**1**	-	2	1	0	**3**	-	1	0	0	**1**	-	5
% Heavy	0%	12.5%	0%	**2.3%**	-	2.4%	0.7%	0%	**1.4%**	-	20.0%	0%	0%	**6.7%**	-	1.8%
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

3. Green Hill Road & Bernheisel Bridge Road - TMC

Wed Feb 5, 2025
AM Peak (Feb 05 2025 6:30AM - 7:30 AM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1267778, Location: 40.249357, -77.102155, Site Code: 3

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



3. Green Hill Road & Bernheisel Bridge Road - TMC

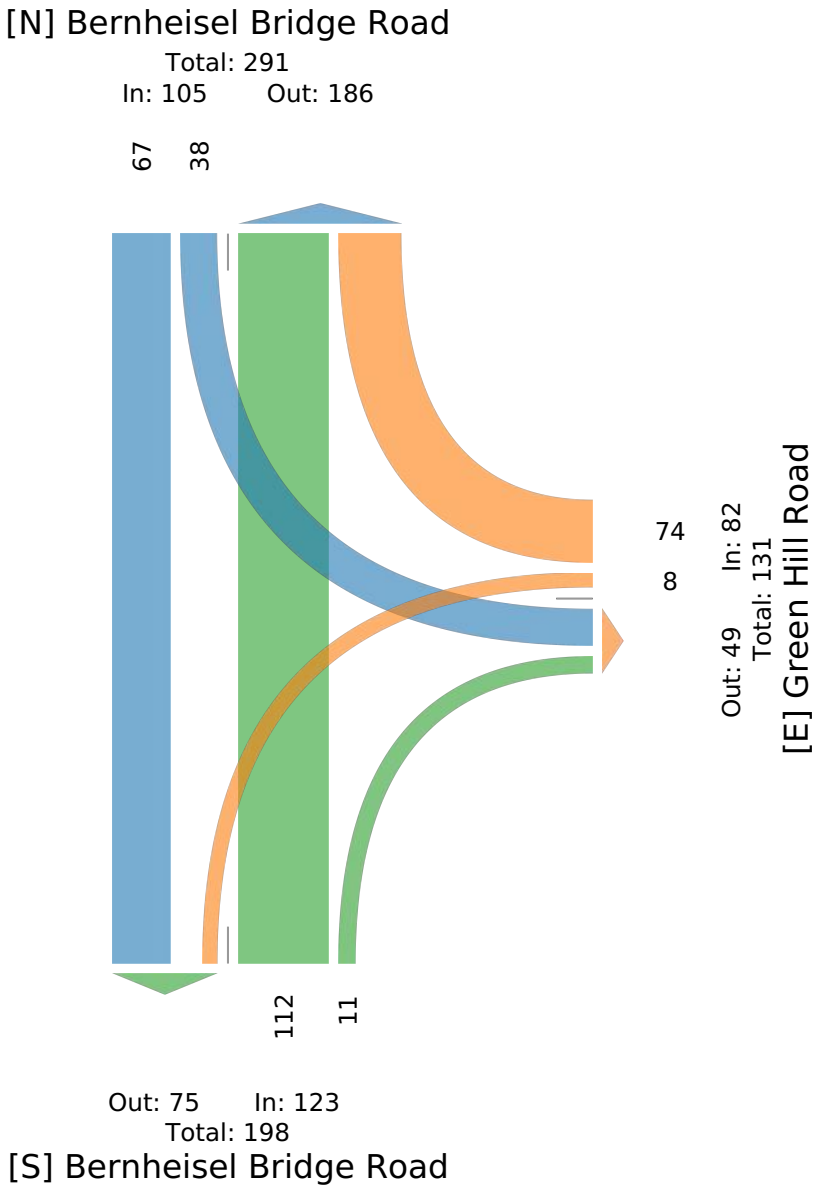
Provided by: Imperial Traffic & Data Collection
PO Box 4637, Cherry Hill, NJ, 08003, US

Wed Feb 5, 2025
PM Peak (Feb 05 2025 3:30PM - 4:30 PM) - Overall Peak Hour
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1267778, Location: 40.249357, -77.102155, Site Code: 3

Leg	Bernheisel Bridge Road					Bernheisel Bridge Road					Green Hill Road					
Direction	Northbound					Southbound					Westbound					
Time	T	R	U	**App**	Ped*	L	T	U	**App**	Ped*	L	R	U	**App**	Ped*	**Int**
2025-02-05 3:30PM	23	4	0	**27**	0	9	18	0	**27**	0	3	22	0	**25**	0	**79**
3:45PM	31	2	0	**33**	0	7	11	0	**18**	0	0	9	0	**9**	0	**60**
4:00PM	28	2	0	**30**	0	16	22	0	**38**	0	3	22	0	**25**	0	**93**
4:15PM	30	3	0	**33**	0	6	16	0	**22**	0	2	21	0	**23**	0	**78**
Total	112	11	0	**123**	0	38	67	0	**105**	0	8	74	0	**82**	0	**310**
% Approach	91.1%	8.9%	0%	**-**	-	36.2%	63.8%	0%	**-**	-	9.8%	90.2%	0%	**-**	-	-
% Total	36.1%	3.5%	0%	**39.7%**	-	12.3%	21.6%	0%	**33.9%**	-	2.6%	23.9%	0%	**26.5%**	-	-
PHF	0.903	0.688	-	**0.932**	-	0.594	0.761	-	**0.691**	-	0.667	0.841	-	**0.820**	-	0.833
Lights and Motorcycles	110	11	0	**121**	-	38	65	0	**103**	-	7	74	0	**81**	-	305
% Lights and Motorcycles	98.2%	100%	0%	**98.4%**	-	100%	97.0%	0%	**98.1%**	-	87.5%	100%	0%	**98.8%**	-	98.4%
Heavy	2	0	0	**2**	-	0	2	0	**2**	-	1	0	0	**1**	-	5
% Heavy	1.8%	0%	0%	**1.6%**	-	0%	3.0%	0%	**1.9%**	-	12.5%	0%	0%	**1.2%**	-	1.6%
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

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



3. Green Hill Road & Bernheisel Bridge Road - TMC

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

Sat Feb 8, 2025
AM Peak (WKND) (Feb 08 2025 10AM - 11 AM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1267778, Location: 40.249357, -77.102155, Site Code: 3

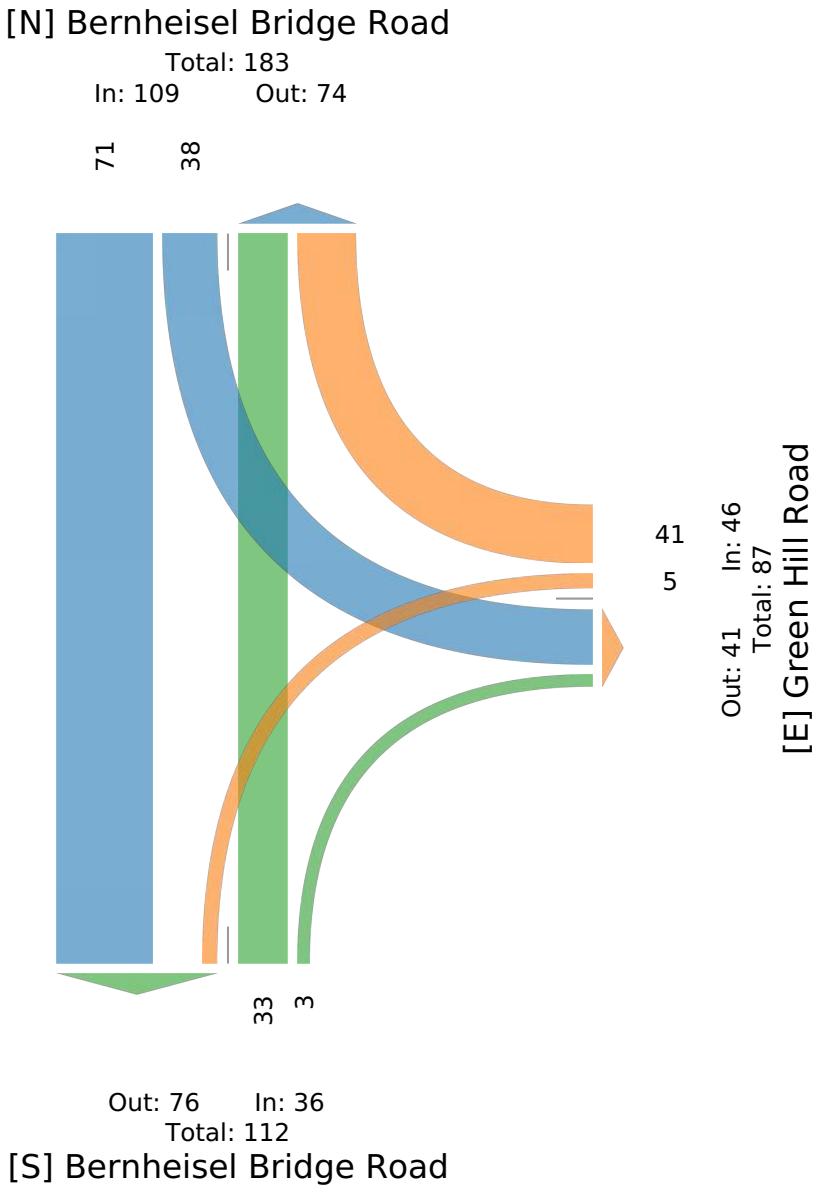
Leg	Bernheisel Bridge Road					Bernheisel Bridge Road					Green Hill Road					
Direction	Northbound					Southbound					Westbound					
Time	T	R	U	**App**	Ped*	L	T	U	**App**	Ped*	L	R	U	**App**	Ped*	**Int**
2025-02-08 10:00AM	5	3	0	**8**	0	8	22	0	**30**	0	2	9	0	**11**	0	**49**
10:15AM	13	0	0	**13**	0	8	18	0	**26**	0	0	7	0	**7**	0	**46**
10:30AM	10	0	0	**10**	0	12	16	0	**28**	0	2	13	0	**15**	0	**53**
10:45AM	5	0	0	**5**	0	10	15	0	**25**	0	1	12	0	**13**	0	**43**
Total	33	3	0	**36**	0	38	71	0	**109**	0	5	41	0	**46**	0	**191**
% Approach	91.7%	8.3%	0%	**-**	-	34.9%	65.1%	0%	**-**	-	10.9%	89.1%	0%	**-**	-	-
% Total	17.3%	1.6%	0%	**18.8%**	-	19.9%	37.2%	0%	**57.1%**	-	2.6%	21.5%	0%	**24.1%**	-	-
PHF	0.635	0.250	-	**0.692**	-	0.792	0.807	-	**0.908**	-	0.625	0.788	-	**0.767**	-	0.901
Lights and Motorcycles	33	3	0	**36**	-	38	70	0	**108**	-	5	40	0	**45**	-	189
% Lights and Motorcycles	100%	100%	0%	**100%**	-	100%	98.6%	0%	**99.1%**	-	100%	97.6%	0%	**97.8%**	-	99.0%
Heavy	0	0	0	**0**	-	0	1	0	**1**	-	0	1	0	**1**	-	2
% Heavy	0%	0%	0%	**0%**	-	0%	1.4%	0%	**0.9%**	-	0%	2.4%	0%	**2.2%**	-	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

3. Green Hill Road & Bernheisel Bridge Road - TMC

Sat Feb 8, 2025
AM Peak (WKND) (Feb 08 2025 10AM - 11 AM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1267778, Location: 40.249357, -77.102155, Site Code: 3

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



3. Green Hill Road & Bernheisel Bridge Road - TMC

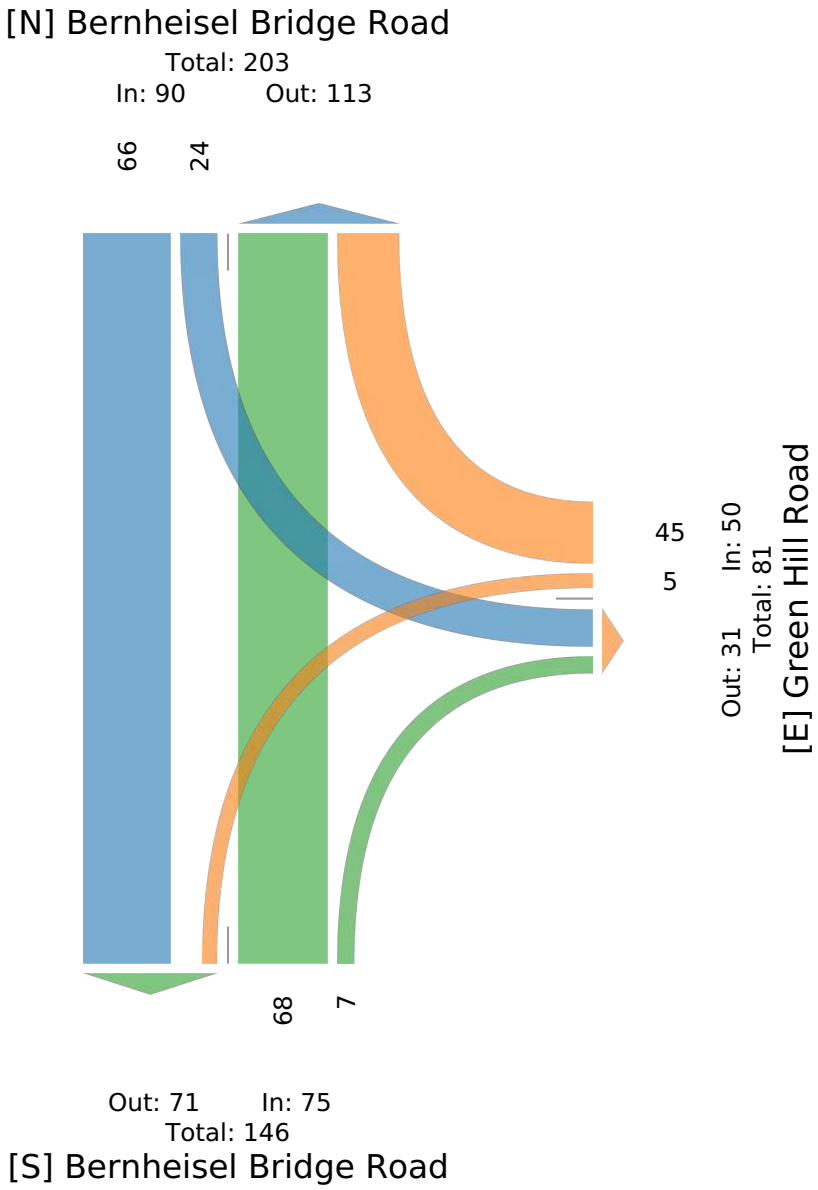
Provided by: Imperial Traffic & Data Collection
PO Box 4637, Cherry Hill, NJ, 08003, US

Sat Feb 8, 2025
Midday Peak (WKND) (Feb 08 2025 12:30PM - 1:30 PM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1267778, Location: 40.249357, -77.102155, Site Code: 3

Leg	Bernheisel Bridge Road					Bernheisel Bridge Road					Green Hill Road					
Direction	Northbound					Southbound					Westbound					
Time	T	R	U	**App**	Ped*	L	T	U	**App**	Ped*	L	R	U	**App**	Ped*	**Int**
2025-02-08 12:30PM	19	4	0	**23**	0	8	13	0	**21**	0	1	13	0	**14**	0	**58**
12:45PM	10	2	0	**12**	0	7	15	0	**22**	0	1	13	0	**14**	0	**48**
1:00PM	20	1	0	**21**	0	7	17	0	**24**	0	1	11	0	**12**	0	**57**
1:15PM	19	0	0	**19**	0	2	21	0	**23**	0	2	8	0	**10**	0	**52**
Total	68	7	0	**75**	0	24	66	0	**90**	0	5	45	0	**50**	0	**215**
% Approach	90.7%	9.3%	0%	**-**	-	26.7%	73.3%	0%	**-**	-	10.0%	90.0%	0%	**-**	-	-
% Total	31.6%	3.3%	0%	**34.9%**	-	11.2%	30.7%	0%	**41.9%**	-	2.3%	20.9%	0%	**23.3%**	-	-
PHF	0.850	0.438	-	**0.815**	-	0.750	0.786	-	**0.938**	-	0.625	0.865	-	**0.893**	-	0.927
Lights and Motorcycles	68	7	0	**75**	-	24	64	0	**88**	-	5	45	0	**50**	-	213
% Lights and Motorcycles	100%	100%	0%	**100%**	-	100%	97.0%	0%	**97.8%**	-	100%	100%	0%	**100%**	-	99.1%
Heavy	0	0	0	**0**	-	0	2	0	**2**	-	0	0	0	**0**	-	2
% Heavy	0%	0%	0%	**0%**	-	0%	3.0%	0%	**2.2%**	-	0%	0%	0%	**0%**	-	0.9%
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

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



3. Green Hill Road & Bernheisel Bridge Road - TMC

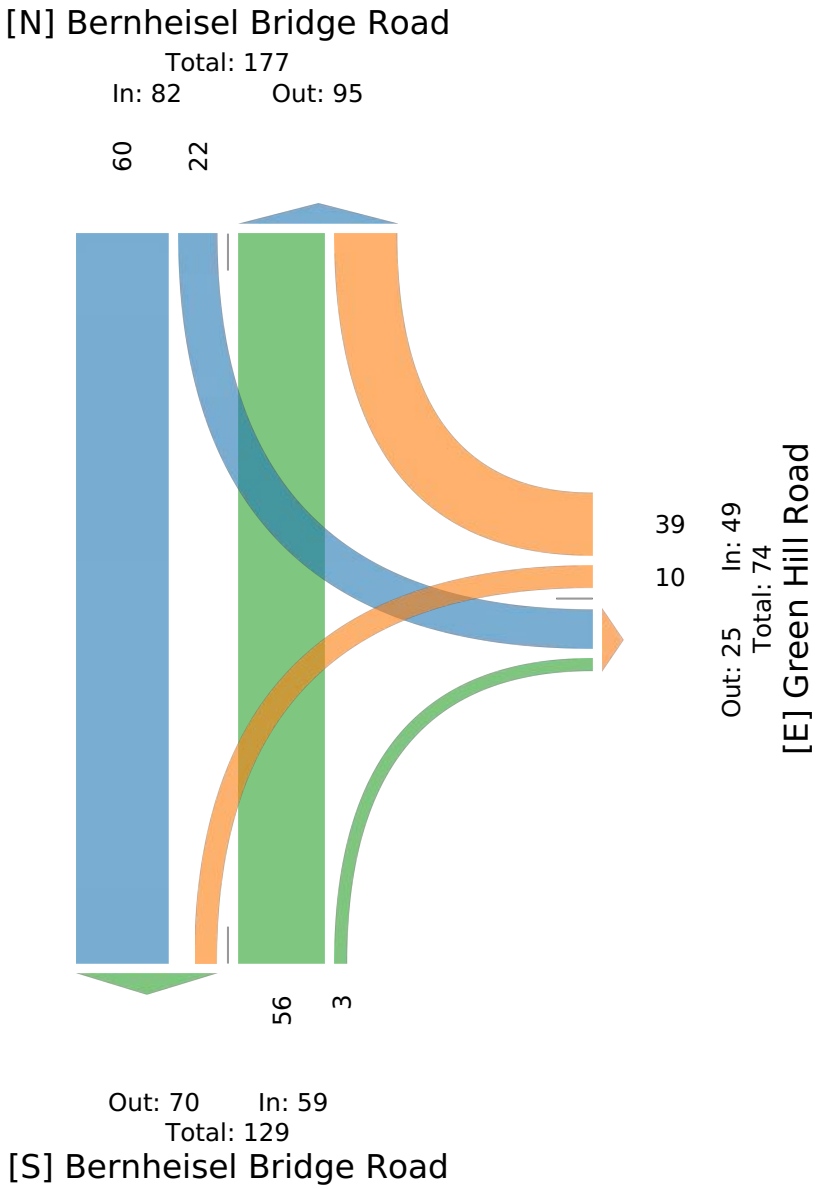
Provided by: Imperial Traffic & Data Collection
PO Box 4637, Cherry Hill, NJ, 08003, US

Sat Feb 8, 2025
PM Peak (WKND) (Feb 08 2025 1PM - 2 PM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1267778, Location: 40.249357, -77.102155, Site Code: 3

Leg	Bernheisel Bridge Road					Bernheisel Bridge Road					Green Hill Road					
Direction	Northbound					Southbound					Westbound					
Time	T	R	U	**App**	Ped*	L	T	U	**App**	Ped*	L	R	U	**App**	Ped*	**Int**
2025-02-08 1:00PM	20	1	0	**21**	0	7	17	0	**24**	0	1	11	0	**12**	0	**57**
1:15PM	19	0	0	**19**	0	2	21	0	**23**	0	2	8	0	**10**	0	**52**
1:30PM	10	0	0	**10**	0	7	12	0	**19**	0	4	6	0	**10**	0	**39**
1:45PM	7	2	0	**9**	0	6	10	0	**16**	0	3	14	0	**17**	0	**42**
Total	56	3	0	**59**	0	22	60	0	**82**	0	10	39	0	**49**	0	**190**
% Approach	94.9%	5.1%	0%	**-**	-	26.8%	73.2%	0%	**-**	-	20.4%	79.6%	0%	**-**	-	-
% Total	29.5%	1.6%	0%	**31.1%**	-	11.6%	31.6%	0%	**43.2%**	-	5.3%	20.5%	0%	**25.8%**	-	-
PHF	0.700	0.375	-	**0.702**	-	0.786	0.714	-	**0.854**	-	0.625	0.696	-	**0.721**	-	0.833
Lights and Motorcycles	56	3	0	**59**	-	22	59	0	**81**	-	10	38	0	**48**	-	188
% Lights and Motorcycles	100%	100%	0%	**100%**	-	100%	98.3%	0%	**98.8%**	-	100%	97.4%	0%	**98.0%**	-	98.9%
Heavy	0	0	0	**0**	-	0	1	0	**1**	-	0	1	0	**1**	-	2
% Heavy	0%	0%	0%	**0%**	-	0%	1.7%	0%	**1.2%**	-	0%	2.6%	0%	**2.0%**	-	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

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



Project: US 11 & Country Club
Municipality: Middlesex Township, Cumberland County, PA
Setup: Sean F
Location: 40.249357, -77.102155

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

Count Name: 3. Green Hill Road & Bernheisel Bridge Road
Site Code: 3
Start Date: 02/05/2025

Turning Movement Data

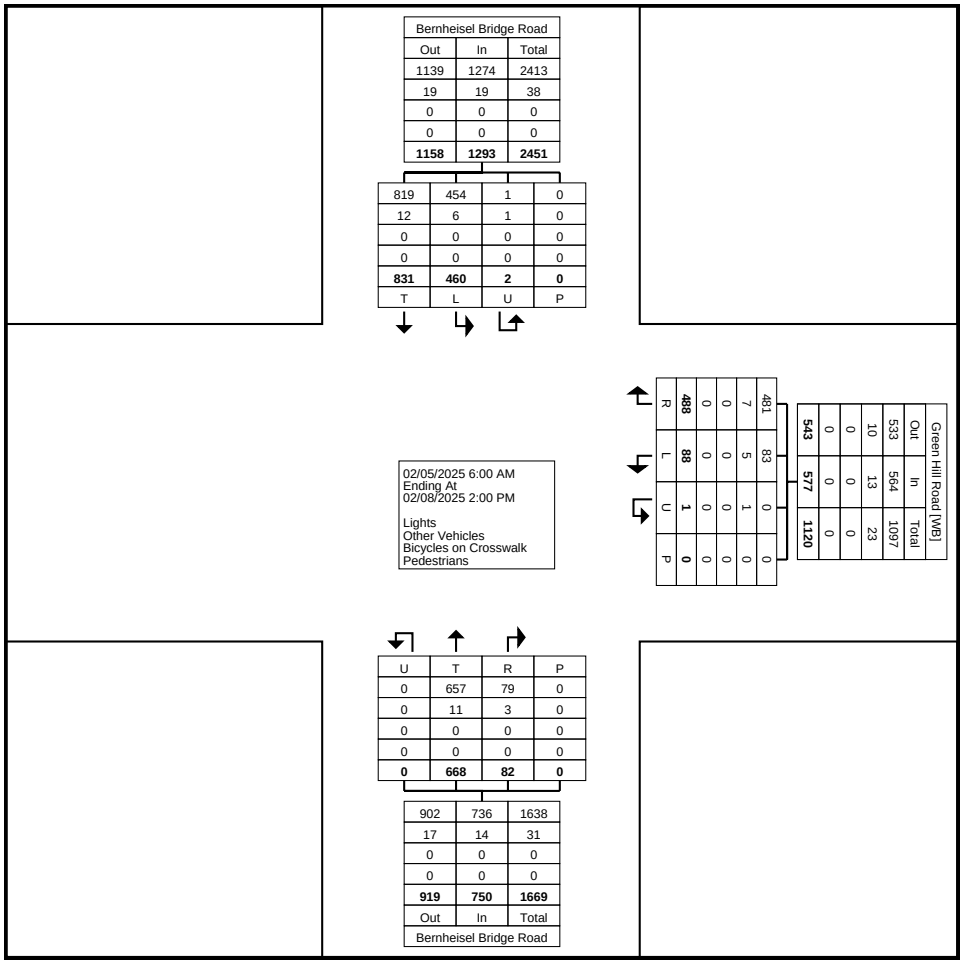
Start Time	Green Hill Road Westbound					Bernheisel Bridge Road Northbound					Bernheisel Bridge Road Southbound					Int. Total
	U-Turn	Left	Right	Peds	App. Total	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	
6:00 AM	0	0	3	0	3	0	2	0	0	2	0	8	21	0	29	34
6:15 AM	0	0	1	0	1	0	3	0	0	3	0	12	31	0	43	47
6:30 AM	0	0	3	0	3	0	4	3	0	7	0	19	49	0	68	78
6:45 AM	0	2	1	0	3	0	5	2	0	7	0	19	38	0	57	67
Hourly Total	0	2	8	0	10	0	14	5	0	19	0	58	139	0	197	226
7:00 AM	0	1	2	0	3	0	17	1	0	18	0	15	20	0	35	56
7:15 AM	0	2	4	0	6	0	9	2	0	11	0	29	33	0	62	79
7:30 AM	0	2	9	0	11	0	10	2	0	12	0	14	35	0	49	72
7:45 AM	0	1	10	0	11	0	17	1	0	18	0	17	22	0	39	68
Hourly Total	0	6	25	0	31	0	53	6	0	59	0	75	110	0	185	275
8:00 AM	0	3	1	0	4	0	4	0	0	4	0	9	17	0	26	34
8:15 AM	0	1	1	0	2	0	7	0	0	7	0	15	17	0	32	41
8:30 AM	0	4	1	0	5	0	6	1	0	7	0	10	21	0	31	43
8:45 AM	0	5	2	0	7	0	7	3	0	10	0	15	15	0	30	47
Hourly Total	0	13	5	0	18	0	24	4	0	28	0	49	70	0	119	165
9:00 AM	0	1	7	0	8	0	8	3	0	11	0	4	19	0	23	42
9:15 AM	0	2	6	0	8	0	12	2	0	14	0	6	10	0	16	38
9:30 AM	0	1	3	0	4	0	12	1	0	13	0	11	8	0	19	36
9:45 AM	0	2	2	0	4	0	10	1	0	11	1	3	13	0	17	32
Hourly Total	0	6	18	0	24	0	42	7	0	49	1	24	50	0	75	148
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2:00 PM	0	0	11	0	11	0	18	1	0	19	0	7	16	0	23	53
2:15 PM	0	1	7	0	8	0	8	3	0	11	0	6	15	0	21	40
2:30 PM	1	1	6	0	8	0	8	2	0	10	0	2	16	0	18	36
2:45 PM	0	0	8	0	8	0	15	3	0	18	0	4	20	0	24	50
Hourly Total	1	2	32	0	35	0	49	9	0	58	0	19	67	0	86	179
3:00 PM	0	2	16	0	18	0	35	4	0	39	0	7	5	0	12	69
3:15 PM	0	7	22	0	29	0	23	2	0	25	0	4	15	0	19	73
3:30 PM	0	3	22	0	25	0	23	4	0	27	0	9	18	0	27	79
3:45 PM	0	0	9	0	9	0	31	2	0	33	0	7	11	0	18	60
Hourly Total	0	12	69	0	81	0	112	12	0	124	0	27	49	0	76	281
4:00 PM	0	3	22	0	25	0	28	2	0	30	0	16	22	0	38	93
4:15 PM	0	2	21	0	23	0	30	3	0	33	0	6	16	0	22	78
4:30 PM	0	1	34	0	35	0	22	3	0	25	0	5	11	0	16	76
4:45 PM	0	2	15	0	17	0	23	1	0	24	1	9	10	0	20	61
Hourly Total	0	8	92	0	100	0	103	9	0	112	1	36	59	0	96	308

5:00 PM	0	4	25	0	29	0	25	6	0	31	0	13	12	0	25	85
5:15 PM	0	2	23	0	25	0	16	1	0	17	0	9	13	0	22	64
5:30 PM	0	3	18	0	21	0	25	2	0	27	0	13	11	0	24	72
5:45 PM	0	3	11	0	14	0	13	1	0	14	0	7	14	0	21	49
Hourly Total	0	12	77	0	89	0	79	10	0	89	0	42	50	0	92	270
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 AM	0	2	9	0	11	0	5	3	0	8	0	8	22	0	30	49
10:15 AM	0	0	7	0	7	0	13	0	0	13	0	8	18	0	26	46
10:30 AM	0	2	13	0	15	0	10	0	0	10	0	12	16	0	28	53
10:45 AM	0	1	12	0	13	0	5	0	0	5	0	10	15	0	25	43
Hourly Total	0	5	41	0	46	0	33	3	0	36	0	38	71	0	109	191
11:00 AM	0	3	10	0	13	0	12	2	0	14	0	13	10	0	23	50
11:15 AM	0	0	11	0	11	0	10	0	0	10	0	14	15	0	29	50
11:30 AM	0	1	6	0	7	0	10	1	0	11	0	6	18	0	24	42
11:45 AM	0	2	9	0	11	0	13	1	0	14	0	6	13	0	19	44
Hourly Total	0	6	36	0	42	0	45	4	0	49	0	39	56	0	95	186
12:00 PM	0	3	8	0	11	0	16	3	0	19	0	7	9	0	16	46
12:15 PM	0	1	12	0	13	0	13	1	0	14	0	9	13	0	22	49
12:30 PM	0	1	13	0	14	0	19	4	0	23	0	8	13	0	21	58
12:45 PM	0	1	13	0	14	0	10	2	0	12	0	7	15	0	22	48
Hourly Total	0	6	46	0	52	0	58	10	0	68	0	31	50	0	81	201
1:00 PM	0	1	11	0	12	0	20	1	0	21	0	7	17	0	24	57
1:15 PM	0	2	8	0	10	0	19	0	0	19	0	2	21	0	23	52
1:30 PM	0	4	6	0	10	0	10	0	0	10	0	7	12	0	19	39
1:45 PM	0	3	14	0	17	0	7	2	0	9	0	6	10	0	16	42
Hourly Total	0	10	39	0	49	0	56	3	0	59	0	22	60	0	82	190
Grand Total	1	88	488	0	577	0	668	82	0	750	2	460	831	0	1293	2620
Approach %	0.2	15.3	84.6	-	-	0.0	89.1	10.9	-	-	0.2	35.6	64.3	-	-	-
Total %	0.0	3.4	18.6	-	22.0	0.0	25.5	3.1	-	28.6	0.1	17.6	31.7	-	49.4	-
Lights	0	83	481	-	564	0	657	79	-	736	1	454	819	-	1274	2574
% Lights	0.0	94.3	98.6	-	97.7	-	98.4	96.3	-	98.1	50.0	98.7	98.6	-	98.5	98.2
Other Vehicles	1	5	7	-	13	0	11	3	-	14	1	6	12	-	19	46
% Other Vehicles	100.0	5.7	1.4	-	2.3	-	1.6	3.7	-	1.9	50.0	1.3	1.4	-	1.5	1.8
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Project: US 11 & Country Club
Municipality: Middlesex Township, Cumberland County, PA
Setup: Sean F
Location: 40.249357, -77.102155

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

Count Name: 3. Green Hill Road & Bernheisel Bridge Road
Site Code: 3
Start Date: 02/05/2025



Turning Movement Data Plot

Project: US 11 & Country Club
Municipality: Middlesex Township, Cumberland County, PA
Setup: Sean F
Location: 40.249357, -77.102155

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

Count Name: 3. Green Hill Road & Bernheisel Bridge Road
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Start Date: 02/05/2025

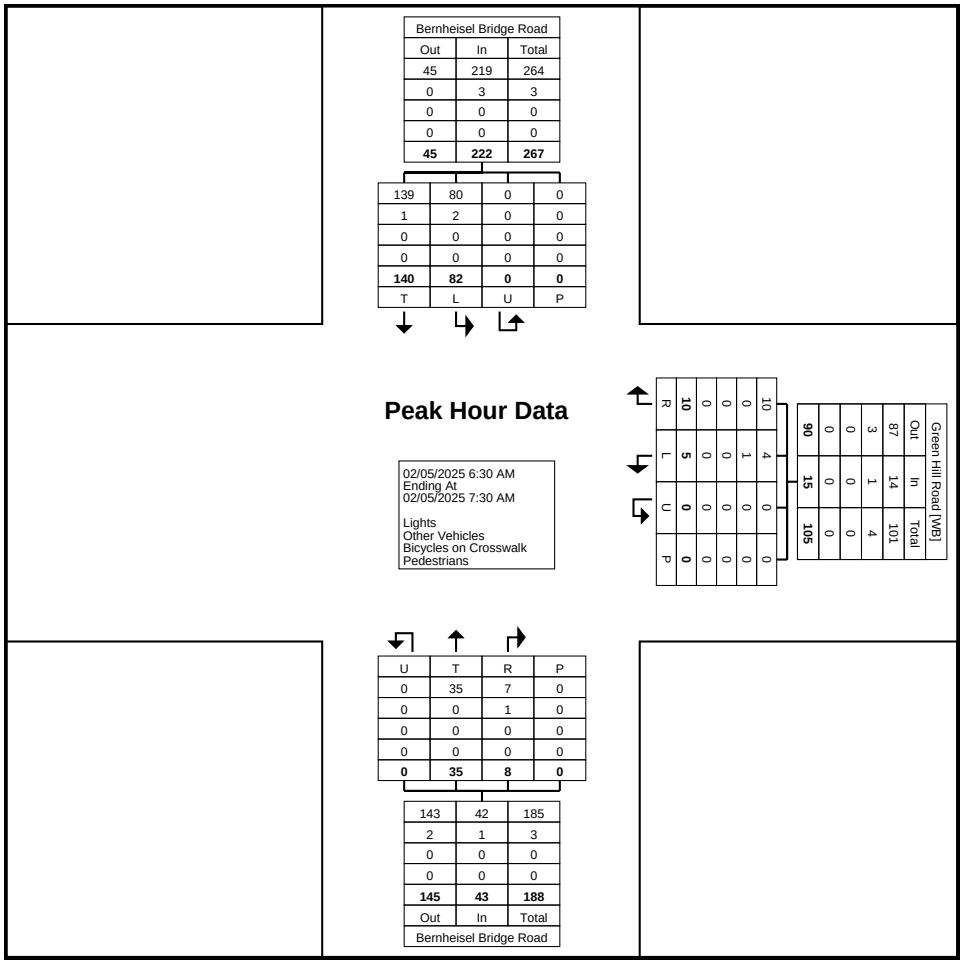
Turning Movement Peak Hour Data (6:30 AM)

Start Time	Green Hill Road Westbound					Bernheisel Bridge Road Northbound					Bernheisel Bridge Road Southbound					
	U-Turn	Left	Right	Peds	App. Total	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	Int. Total
6:30 AM	0	0	3	0	3	0	4	3	0	7	0	19	49	0	68	78
6:45 AM	0	2	1	0	3	0	5	2	0	7	0	19	38	0	57	67
7:00 AM	0	1	2	0	3	0	17	1	0	18	0	15	20	0	35	56
7:15 AM	0	2	4	0	6	0	9	2	0	11	0	29	33	0	62	79
Total	0	5	10	0	15	0	35	8	0	43	0	82	140	0	222	280
Approach %	0.0	33.3	66.7	-	-	0.0	81.4	18.6	-	-	0.0	36.9	63.1	-	-	-
Total %	0.0	1.8	3.6	-	5.4	0.0	12.5	2.9	-	15.4	0.0	29.3	50.0	-	79.3	-
PHF	0.000	0.625	0.625	-	0.625	0.000	0.515	0.667	-	0.597	0.000	0.707	0.714	-	0.816	0.886
Lights	0	4	10	-	14	0	35	7	-	42	0	80	139	-	219	275
% Lights	-	80.0	100.0	-	93.3	-	100.0	87.5	-	97.7	-	97.6	99.3	-	98.6	98.2
Other Vehicles	0	1	0	-	1	0	0	1	-	1	0	2	1	-	3	5
% Other Vehicles	-	20.0	0.0	-	6.7	-	0.0	12.5	-	2.3	-	2.4	0.7	-	1.4	1.8
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Project: US 11 & Country Club
Municipality: Middlesex Township, Cumberland County, PA
Setup: Sean F
Location: 40.249357, -77.102155

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

Count Name: 3. Green Hill Road & Bernheisel Bridge Road
Site Code: 3
Start Date: 02/05/2025



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

Project: US 11 & Country Club
Municipality: Middlesex Township, Cumberland County, PA
Setup: Sean F
Location: 40.249357, -77.102155

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

Count Name: 3. Green Hill Road & Bernheisel Bridge Road
Site Code: 3
Start Date: 02/05/2025

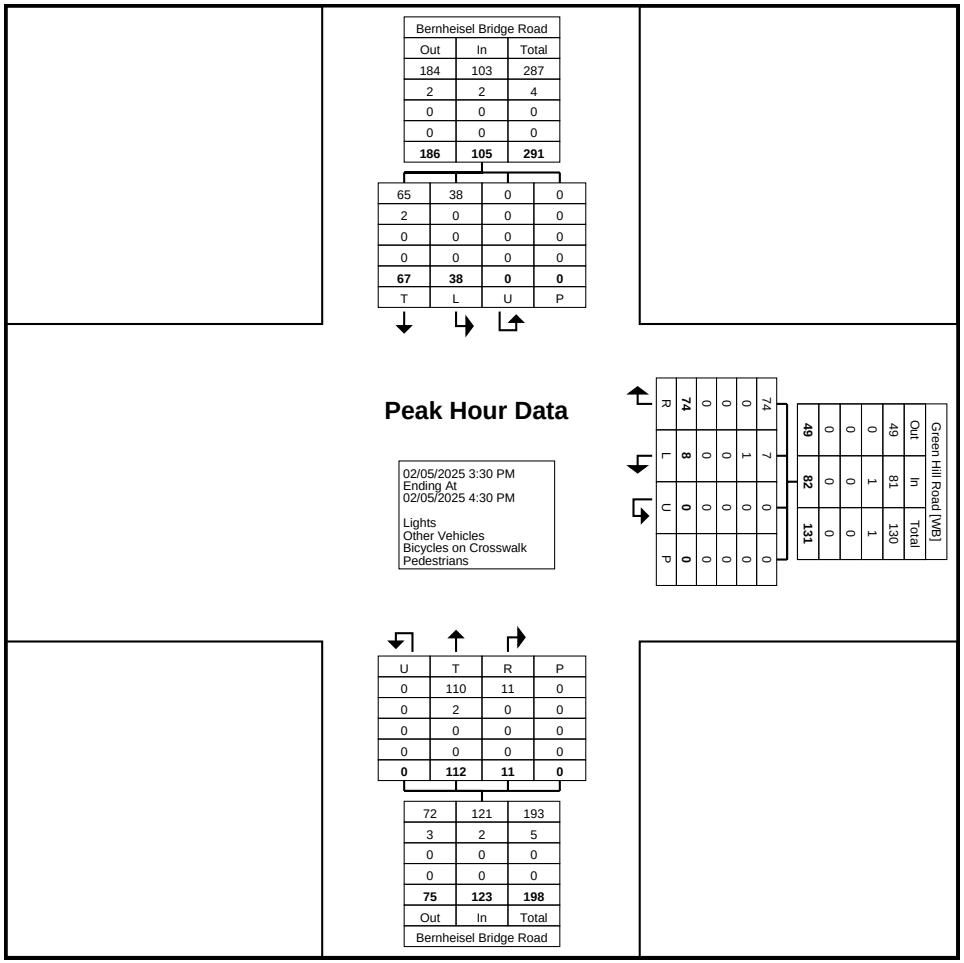
Turning Movement Peak Hour Data (3:30 PM)

Start Time	Green Hill Road Westbound					Bernheisel Bridge Road Northbound					Bernheisel Bridge Road Southbound					
	U-Turn	Left	Right	Peds	App. Total	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	Int. Total
3:30 PM	0	3	22	0	25	0	23	4	0	27	0	9	18	0	27	79
3:45 PM	0	0	9	0	9	0	31	2	0	33	0	7	11	0	18	60
4:00 PM	0	3	22	0	25	0	28	2	0	30	0	16	22	0	38	93
4:15 PM	0	2	21	0	23	0	30	3	0	33	0	6	16	0	22	78
Total	0	8	74	0	82	0	112	11	0	123	0	38	67	0	105	310
Approach %	0.0	9.8	90.2	-	-	0.0	91.1	8.9	-	-	0.0	36.2	63.8	-	-	-
Total %	0.0	2.6	23.9	-	26.5	0.0	36.1	3.5	-	39.7	0.0	12.3	21.6	-	33.9	-
PHF	0.000	0.667	0.841	-	0.820	0.000	0.903	0.688	-	0.932	0.000	0.594	0.761	-	0.691	0.833
Lights	0	7	74	-	81	0	110	11	-	121	0	38	65	-	103	305
% Lights	-	87.5	100.0	-	98.8	-	98.2	100.0	-	98.4	-	100.0	97.0	-	98.1	98.4
Other Vehicles	0	1	0	-	1	0	2	0	-	2	0	0	2	-	2	5
% Other Vehicles	-	12.5	0.0	-	1.2	-	1.8	0.0	-	1.6	-	0.0	3.0	-	1.9	1.6
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Project: US 11 & Country Club
Municipality: Middlesex Township, Cumberland County, PA
Setup: Sean F
Location: 40.249357, -77.102155

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

Count Name: 3. Green Hill Road & Bernheisel Bridge Road
Site Code: 3
Start Date: 02/05/2025



Turning Movement Peak Hour Data Plot (3:30 PM)

Project: US 11 & Country Club
Municipality: Middlesex Township, Cumberland County, PA
Setup: Sean F
Location: 40.249357, -77.102155

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

Count Name: 3. Green Hill Road & Bernheisel Bridge Road
Site Code: 3
Start Date: 02/05/2025

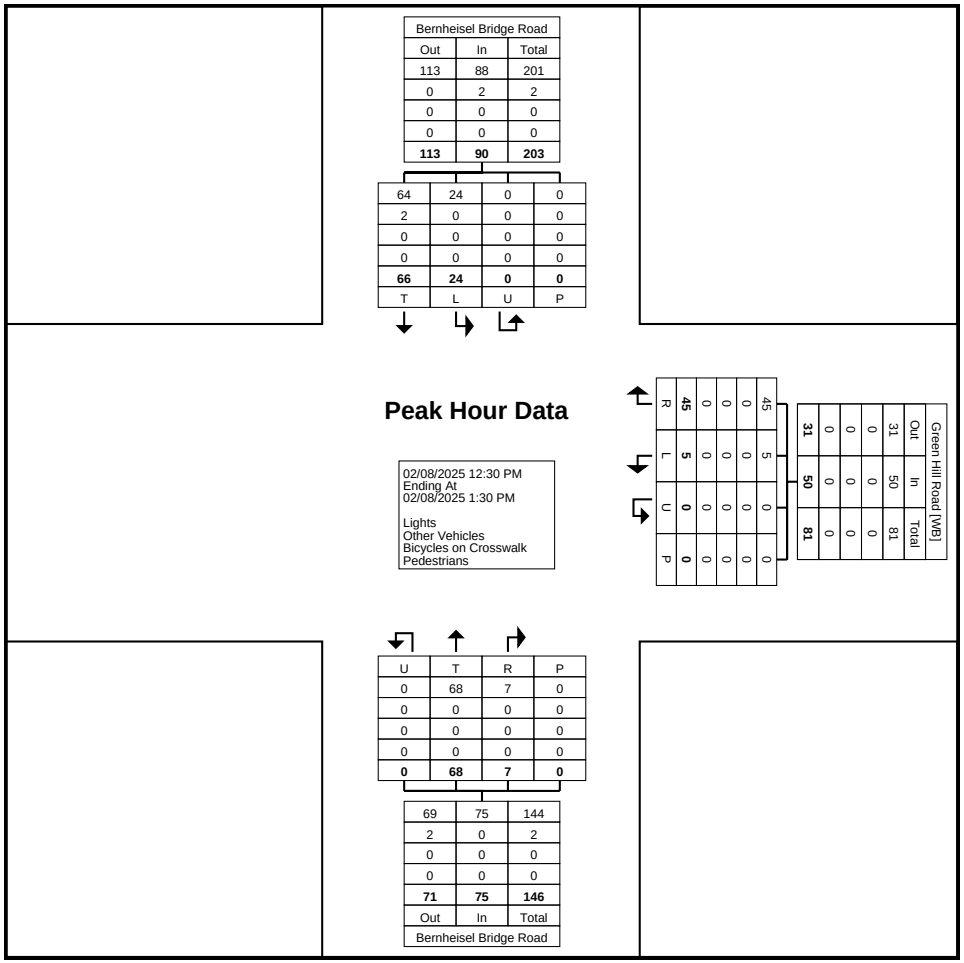
Turning Movement Peak Hour Data (12:30 PM)

Start Time	Green Hill Road Westbound					Bernheisel Bridge Road Northbound					Bernheisel Bridge Road Southbound					
	U-Turn	Left	Right	Peds	App. Total	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	Int. Total
12:30 PM	0	1	13	0	14	0	19	4	0	23	0	8	13	0	21	58
12:45 PM	0	1	13	0	14	0	10	2	0	12	0	7	15	0	22	48
1:00 PM	0	1	11	0	12	0	20	1	0	21	0	7	17	0	24	57
1:15 PM	0	2	8	0	10	0	19	0	0	19	0	2	21	0	23	52
Total	0	5	45	0	50	0	68	7	0	75	0	24	66	0	90	215
Approach %	0.0	10.0	90.0	-	-	0.0	90.7	9.3	-	-	0.0	26.7	73.3	-	-	-
Total %	0.0	2.3	20.9	-	23.3	0.0	31.6	3.3	-	34.9	0.0	11.2	30.7	-	41.9	-
PHF	0.000	0.625	0.865	-	0.893	0.000	0.850	0.438	-	0.815	0.000	0.750	0.786	-	0.938	0.927
Lights	0	5	45	-	50	0	68	7	-	75	0	24	64	-	88	213
% Lights	-	100.0	100.0	-	100.0	-	100.0	100.0	-	100.0	-	100.0	97.0	-	97.8	99.1
Other Vehicles	0	0	0	-	0	0	0	0	-	0	0	0	2	-	2	2
% Other Vehicles	-	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	-	0.0	3.0	-	2.2	0.9
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Project: US 11 & Country Club
Municipality: Middlesex Township, Cumberland County, PA
Setup: Sean F
Location: 40.249357, -77.102155

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

Count Name: 3. Green Hill Road & Bernheisel Bridge Road
Site Code: 3
Start Date: 02/05/2025



Turning Movement Peak Hour Data Plot (12:30 PM)

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

File Name: ATR1. Country Club Rd, west of Bernheisel Bridge Rd

Country Club Road
west of Bernheisel Bridge Road
Middlesex Township, Cumberland County, PA
Setup: SF

Start Date: 2/4/2025
End Date: 2/9/2025
Date Printed: 2/10/2025

2/4/2025		WB, Country Club Rd		EB, Country Club Rd		Combined		2/5/25	WB, Country Club Rd		EB, Country Club Rd		Combined	
Time	Tue	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	Wed	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.
12:00		*	*	*	*	0	0		2	12	0	2	2	14
12:15		*	*	*	*	0	0		2	9	0	4	2	13
12:30		*	*	*	*	0	0		0	9	0	3	0	12
12:45		*	*	*	*	0	0		1	6	0	2	1	8
01:00		*	7	*	2	0	9		1	10	0	0	1	10
01:15		*	11	*	6	0	17		2	13	0	4	2	17
01:30		*	5	*	3	0	8		0	7	0	0	0	7
01:45		*	7	*	3	0	10		0	13	0	2	0	15
02:00		*	11	*	2	0	13		1	13	0	2	1	15
02:15		*	16	*	4	0	20		0	5	0	1	0	6
02:30		*	7	*	8	0	15		0	8	0	2	0	10
02:45		*	12	*	8	0	20		0	7	0	3	0	10
03:00		*	11	*	8	0	19		3	10	0	3	3	13
03:15		*	13	*	8	0	21		0	13	0	10	0	23
03:30		*	12	*	5	0	17		2	8	0	6	2	14
03:45		*	15	*	5	0	20		0	6	0	5	0	11
04:00		*	13	*	11	0	24		1	12	0	7	1	19
04:15		*	11	*	11	0	22		0	14	0	6	0	20
04:30		*	11	*	7	0	18		0	10	0	3	0	13
04:45		*	12	*	4	0	16		1	10	0	6	1	16
05:00		*	15	*	12	0	27		3	11	0	4	3	15
05:15		*	16	*	8	0	24		2	12	0	2	2	14
05:30		*	10	*	2	0	12		7	13	0	3	7	16
05:45		*	9	*	2	0	11		5	14	0	6	5	20
06:00		*	10	*	4	0	14		6	6	1	3	7	9
06:15		*	8	*	3	0	11		7	9	1	2	8	11
06:30		*	7	*	2	0	9		11	8	2	4	13	12
06:45		*	4	*	5	0	9		12	7	0	4	12	11
07:00		*	2	*	3	0	5		9	7	2	0	11	7
07:15		*	7	*	2	0	9		14	5	4	4	18	9
07:30		*	7	*	7	0	14		15	13	1	0	16	13
07:45		*	3	*	2	0	5		13	11	1	2	14	13
08:00		*	7	*	2	0	9		7	7	0	0	7	7
08:15		*	10	*	3	0	13		10	7	0	3	10	10
08:30		*	6	*	6	0	12		16	2	1	1	17	3
08:45		*	3	*	1	0	4		9	9	0	0	9	9
09:00		*	3	*	1	0	4		11	5	0	2	11	7
09:15		*	5	*	0	0	5		5	4	2	1	7	5
09:30		*	6	*	1	0	7		7	4	3	1	10	5
09:45		*	3	*	0	0	3		4	3	2	0	6	3
10:00		*	3	*	0	0	3		7	3	1	0	8	3
10:15		*	3	*	0	0	3		5	2	1	0	6	2
10:30		*	2	*	0	0	2		4	2	2	0	6	2
10:45		*	2	*	1	0	3		7	8	0	0	7	8
11:00		*	4	*	1	0	5		6	5	2	0	8	5
11:15		*	4	*	2	0	6		6	4	2	1	8	5
11:30		*	1	*	1	0	2		4	1	4	0	8	1
11:45		*	1	*	0	0	1		10	2	1	2	11	4
Total		0	335	0	166	0	501		238	379	33	116	271	495
Day Total		335		166		501			617		149		766	
% Total		0.0%	66.9%	0.0%	33.1%				31.1%	49.5%	4.3%	15.1%		
Peak			04:30		03:45		04:30		07:00	05:00	11:00	03:15	07:00	04:00
Volume		0	54	0	34	0	85		51	50	9	28	59	68
Int. Time			05:15		04:00		05:00		07:30	05:45	11:30	03:15	07:15	04:15
Int. Vol.		0	16	0	11	0	27		15	14	4	10	18	20
Peak Factor		0.000	0.844	0.000	0.773	0.000	0.787		0.850	0.893	0.563	0.700	0.819	0.850

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

File Name: ATR1. Country Club Rd, west of Bernheisel Bridge Rd

Country Club Road
west of Bernheisel Bridge Road
Middlesex Township, Cumberland County, PA
Setup: SF

Start Date: 2/4/2025
End Date: 2/9/2025
Date Printed: 2/10/2025

2/6/2025		WB, Country Club Rd		EB, Country Club Rd		Combined		2/7/25	WB, Country Club Rd		EB, Country Club 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		0	6	0	0	0	6		2	9	0	4	2	13
12:15		4	5	0	1	4	6		2	6	0	4	2	10
12:30		3	6	0	0	3	6		0	12	0	5	0	17
12:45		4	8	0	0	4	8		0	12	0	4	0	16
01:00		2	3	0	0	2	3		1	12	0	3	1	15
01:15		0	6	0	0	0	6		0	11	0	4	0	15
01:30		1	8	0	0	1	8		1	9	0	1	1	10
01:45		0	7	0	1	0	8		1	14	0	5	1	19
02:00		0	7	0	2	0	9		1	8	0	3	1	11
02:15		1	8	0	2	1	10		0	9	0	4	0	13
02:30		2	13	0	3	2	16		0	9	0	2	0	11
02:45		1	9	0	3	1	12		2	13	0	4	2	17
03:00		3	8	0	2	3	10		1	13	0	3	1	16
03:15		5	8	0	5	5	13		2	12	0	6	2	18
03:30		1	5	0	3	1	8		1	15	0	5	1	20
03:45		1	7	0	6	1	13		0	12	0	6	0	18
04:00		1	10	0	3	1	13		1	15	0	9	1	24
04:15		1	7	0	2	1	9		1	15	0	5	1	20
04:30		2	6	1	1	3	7		2	20	0	3	2	23
04:45		3	3	0	4	3	7		0	13	0	5	0	18
05:00		2	13	0	5	2	18		2	16	1	10	3	26
05:15		2	10	0	8	2	18		3	19	1	6	4	25
05:30		0	9	0	1	0	10		4	13	1	4	5	17
05:45		4	12	1	3	5	15		4	18	0	2	4	20
06:00		5	7	1	1	6	8		6	11	1	2	7	13
06:15		0	12	0	0	0	12		4	13	1	4	5	17
06:30		4	3	0	1	4	4		17	8	4	2	21	10
06:45		5	4	1	0	6	4		7	11	3	6	10	17
07:00		5	4	1	2	6	6		11	14	4	3	15	17
07:15		3	7	0	0	3	7		14	7	5	2	19	9
07:30		4	3	2	0	6	3		11	5	2	3	13	8
07:45		4	3	1	1	5	4		14	7	3	4	17	11
08:00		0	3	0	1	0	4		6	5	5	1	11	6
08:15		2	1	1	1	3	2		6	5	2	3	8	8
08:30		2	3	2	0	4	3		12	6	0	2	12	8
08:45		1	2	1	1	2	3		10	5	3	2	13	7
09:00		4	1	1	0	5	1		13	6	1	4	14	10
09:15		4	2	0	0	4	2		10	4	2	1	12	5
09:30		5	2	2	1	7	3		10	9	3	1	13	10
09:45		2	2	2	1	4	3		8	8	3	1	11	9
10:00		2	4	3	0	5	4		8	3	1	2	9	5
10:15		3	7	0	0	3	7		11	7	2	2	13	9
10:30		5	3	0	1	5	4		11	7	2	0	13	7
10:45		3	3	0	2	3	5		9	5	5	0	14	5
11:00		6	2	0	0	6	2		6	8	0	0	6	8
11:15		5	4	0	1	5	5		7	6	6	1	13	7
11:30		9	1	1	0	10	1		11	2	2	0	13	2
11:45		7	4	3	0	10	4		8	3	1	1	9	4
Total		133	271	24	69	157	340		261	470	64	154	325	624
Day Total		404		93		497			731		218		949	
% Total		26.8%	54.5%	4.8%	13.9%				27.5%	49.5%	6.7%	16.2%		
Peak		11:00	05:00	09:15	04:30	11:00	05:00		07:00	04:30	06:30	03:15	06:30	04:30
Volume		27	44	7	18	31	61		50	68	16	26	65	92
Int. Time		11:30	05:00	10:00	05:15	11:30	05:00		07:15	04:30	07:15	04:00	06:30	05:00
Int. Vol.		9	13	3	8	10	18		14	20	5	9	21	26
Peak Factor		0.750	0.846	0.583	0.563	0.775	0.847		0.893	0.850	0.800	0.722	0.774	0.885

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

File Name: ATR1. Country Club Rd, west of Bernheisel Bridge Rd

Country Club Road
west of Bernheisel Bridge Road
Middlesex Township, Cumberland County, PA
Setup: SF

Start Date: 2/4/2025
End Date: 2/9/2025
Date Printed: 2/10/2025

2/8/2025		WB, Country Club Rd		EB, Country Club Rd		Combined		2/9/25	WB, Country Club Rd		EB, Country Club 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		2	8	0	4	2	12		0	*	1	*	1	0
12:15		0	14	0	2	0	16		0	*	1	*	1	0
12:30		3	13	0	1	3	14		0	*	0	*	0	0
12:45		1	9	0	0	1	9		1	*	0	*	1	0
01:00		2	11	0	0	2	11		1	*	0	*	1	0
01:15		0	15	0	2	0	17		1	*	0	*	1	0
01:30		0	8	0	1	0	9		0	*	0	*	0	0
01:45		0	7	0	1	0	8		1	*	1	*	2	0
02:00		0	12	0	0	0	12		3	*	2	*	5	0
02:15		2	7	0	0	2	7		1	*	1	*	2	0
02:30		1	11	0	0	1	11		0	*	0	*	0	0
02:45		0	7	0	1	0	8		0	*	0	*	0	0
03:00		0	25	0	1	0	26		1	*	0	*	1	0
03:15		1	10	0	0	1	10		0	*	0	*	0	0
03:30		0	12	0	1	0	13		2	*	1	*	3	0
03:45		1	7	0	0	1	7		1	*	0	*	1	0
04:00		1	9	0	0	1	9		0	*	0	*	0	0
04:15		0	11	0	0	0	11		0	*	0	*	0	0
04:30		2	12	0	1	2	13		0	*	0	*	0	0
04:45		0	7	0	0	0	7		1	*	0	*	1	0
05:00		3	9	0	1	3	10		2	*	0	*	2	0
05:15		2	6	0	0	2	6		0	*	0	*	0	0
05:30		5	6	0	0	5	6		0	*	0	*	0	0
05:45		1	8	1	0	2	8		1	*	0	*	1	0
06:00		5	9	0	0	5	9		3	*	0	*	3	0
06:15		1	9	0	1	1	10		1	*	0	*	1	0
06:30		4	7	1	2	5	9		4	*	0	*	4	0
06:45		4	6	0	1	4	7		3	*	0	*	3	0
07:00		3	9	0	1	3	10		2	*	0	*	2	0
07:15		6	2	0	0	6	2		3	*	0	*	3	0
07:30		7	1	0	1	7	2		3	*	0	*	3	0
07:45		4	2	0	1	4	3		7	*	0	*	7	0
08:00		6	0	1	3	7	3		1	*	0	*	1	0
08:15		6	1	0	1	6	2		1	*	1	*	2	0
08:30		5	1	1	1	6	2		7	*	0	*	7	0
08:45		9	1	1	0	10	1		6	*	1	*	7	0
09:00		4	0	0	0	4	0		6	*	0	*	6	0
09:15		7	1	0	1	7	2		*	*	*	*	0	0
09:30		7	2	0	0	7	2		*	*	*	*	0	0
09:45		11	0	2	1	13	1		*	*	*	*	0	0
10:00		13	0	1	0	14	0		*	*	*	*	0	0
10:15		9	0	1	0	10	0		*	*	*	*	0	0
10:30		16	0	1	0	17	0		*	*	*	*	0	0
10:45		6	2	0	0	6	2		*	*	*	*	0	0
11:00		12	2	2	0	14	2		*	*	*	*	0	0
11:15		7	0	1	0	8	0		*	*	*	*	0	0
11:30		13	2	2	0	15	2		*	*	*	*	0	0
11:45		10	0	1	0	11	0		*	*	*	*	0	0
Total		202	301	16	30	218	331		63	0	9	0	72	0
Day Total		503		46		549			63		9		72	
% Total		36.8%	54.8%	2.9%	5.5%				87.5%	0.0%	12.5%	0.0%		
Peak		09:45	02:45	11:00	12:00	09:45	02:45		08:15		01:30		08:15	
Volume		49	54	6	7	54	57		20	0	4	0	22	0
Int. Time		10:30	03:00	11:00	12:00	10:30	03:00		08:30		02:00		08:30	
Int. Vol.		16	25	2	4	17	26		7	0	2	0	7	0
Peak Factor		0.766	0.540	0.750	0.438	0.794	0.548		0.714	0.000	0.500	0.000	0.786	0.000
ADT		ADT: 690		AADT: 690										

Appendix K - Traffic Calculations

PROJECT	1258-01 Project Bolt		
SHEET		OF	
CALC BY	JBS	DATE	2/7/2025
CHKD BY		DATE	
SUBJECT	Project Info		

Cells requiring project-specific editing

Analysis Scenarios

Existing Year	2025	Analysis Year 1
Opening Year	2027	Analysis Year 2
Design Year	2037	Analysis Year 3
Opening Year	x	Analysis Year 4
Design Year	y	Analysis Year 5

Annual Growth Rate*: 0.67%

*Per "Growth Factors for August 2024 to July 2025" for a Rural Non-Interstate roadway in Middlesex Township, CUMBERLAND County.

PennDOT District:	District 8
County:	CUMBERLAND
Municipality:	Middlesex Township
Roadway Type:	Rural Non-Interstate

Peak Hours

1)	AM
2)	MID
3)	PM
4)	SAT
5)	z

(11 Characters Max)

Are there diverted links?

- ○ Yes, there are diverted links
- ● No, there are not diverted links

Are there Committed Developments?

- ○ Yes, there are committed developments
- ● No, there are not committed developments

Growth Factors for August 2024 to July 2025				
County	**Urban Interstate**	**Rural Interstate**	**Urban Non-Interstate**	**Rural Non-Interstate**
ADAMS	*	*	0.41	0.58
ALLEGHENY	0.91	*	0.00	0.42
ARMSTRONG	0.75	*	0.00	0.36
BEAVER	0.57	2.04	0.00	0.28
BEDFORD	*	2.20	0.00	0.37
BERKS	1.28	2.53	0.22	0.56
BLAIR	0.79	2.34	0.00	0.38
BRADFORD	1.00	*	0.00	0.46
BUCKS	1.28	2.63	0.12	0.56
BUTLER	1.59	2.90	0.19	0.70
CAMBRIA	0.28	*	0.00	0.17
CAMERON	*	*	0.00	0.11
CARBON	1.36	2.68	0.20	0.59
CENTRE	1.69	2.76	0.61	0.72
CHESTER	1.68	2.91	0.44	0.75
CLARION	0.73	2.24	0.00	0.36
CLEARFIELD	0.54	1.93	0.00	0.29
CLINTON	1.05	2.36	0.00	0.47
COLUMBIA	1.05	2.33	0.02	0.47
CRAWFORD	0.67	2.12	0.00	0.34
CUMBERLAND	1.55	2.80	0.50	0.67
DAUPHIN	1.45	*	0.25	0.64
DELAWARE	1.19	*	0.00	0.00
ELK	*	*	0.00	0.29
ERIE	0.89	2.30	0.00	0.41
FAYETTE	0.79	*	0.00	0.37
FOREST	*	*	*	0.96
FRANKLIN	1.64	2.81	0.65	0.71
FULTON	*	2.33	*	0.48
GREENE	0.68	2.29	0.00	0.34
HUNTINGDON	*	2.50	0.00	0.48
INDIANA	0.89	*	0.00	0.42
JEFFERSON	*	2.33	0.00	0.45
JUNIATA	*	*	*	0.52
LACKAWANNA	0.91	2.35	0.00	0.42
LANCASTER	1.58	2.84	0.50	0.68
LAWRENCE	0.62	2.17	0.00	0.31
LEBANON	*	2.56	0.38	0.60
LEHIGH	1.68	3.10	0.45	0.73
LUZERNE	0.97	2.41	0.00	0.45
LYCOMING	0.92	2.36	0.00	0.42
MCKEAN	0.55	*	0.00	0.29
MERCER	0.87	2.52	0.00	0.42
MIFFLIN	1.10	*	0.00	0.49
MONROE	1.70	2.89	0.71	0.74
MONTGOMERY	1.21	*	0.17	0.53
MONTOUR	1.24	2.69	0.00	0.56
NORTHAMPTON	1.73	3.18	0.39	0.77
NORTHUMBERLAND	0.95	2.28	0.00	0.42
PERRY	*	*	0.17	0.52
PHILADELPHIA	1.11	*	*	*
PIKE	1.63	2.71	0.78	0.71
POTTER	*	*	*	0.34
SCHUYLKILL	0.96	2.46	0.00	0.44
SNYDER	1.18	*	0.14	0.52
SOMERSET	0.53	2.06	0.00	0.32
SULLIVAN	*	*	*	0.35
SUSQUEHANNA	1.03	2.43	0.00	0.46
TIOGA	*	*	0.00	0.41
UNION	1.46	2.69	0.36	0.62
VENANGO	*	1.91	0.00	0.25
WARREN	*	*	0.00	0.34
WASHINGTON	1.15	2.74	0.00	0.53
WAYNE	*	2.54	0.25	0.57
WESTMORELAND	0.82	2.17	0.00	0.38
WYOMING	*	*	0.00	0.43
YORK	1.49	2.90	0.37	0.68

LIVIC civil

*Values copied from Miovision Turning Movement spreadsheets for each intersection.
Data is copied from the "Int Total" column on the "Total Volume Class Breakdown" tab.

JOB	1258-01 Project Bolt		
SHEET		OF	
CALC BY	JBS	DATE	2/7/2025
CHKD BY	0	DATE	1/0/1900
SUBJECT	System Peak Hours - AM		

US Route 11 (Harrisburg Pike) & County Club Rd

	US Route 11 (Harrisburg Pike) Eastbound				US Route 11 (Harrisburg Pike) Westbound				Days Inn Driveway Northbound				County Club Rd Southbound				Total	Hour Total
AM Hours	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
2025-02-05 6:00 AM	1	2	115	4	0	0	70	1	0	0	0	7	0	6	0	2	208	1170
2025-02-05 6:15 AM	0	2	160	2	0	0	110	3	0	2	0	2	0	10	0	0	291	1381
2025-02-05 6:30 AM	0	3	170	0	0	0	113	7	0	0	0	6	0	15	0	3	317	1537
2025-02-05 6:45 AM	0	4	172	1	0	0	157	3	0	1	0	0	0	7	0	9	354	1689
2025-02-05 7:00 AM	0	4	229	1	0	0	154	4	0	0	0	3	0	15	0	9	419	1827
2025-02-05 7:15 AM	0	6	271	2	0	1	144	4	0	1	0	2	0	14	0	2	447	1824
2025-02-05 7:30 AM	0	5	256	5	0	0	167	3	0	0	0	4	0	14	1	14	469	1813
2025-02-05 7:45 AM	0	5	219	1	0	2	230	7	0	0	1	7	0	15	0	5	492	1731
2025-02-05 8:00 AM	0	2	197	1	0	3	194	1	0	0	0	5	0	8	1	4	416	1605
2025-02-05 8:15 AM	0	0	232	3	0	4	161	8	0	4	0	4	0	11	0	9	436	1614
2025-02-05 8:30 AM	0	5	180	1	0	0	163	7	0	1	0	7	0	13	1	9	387	1534
2025-02-05 8:45 AM	1	1	166	1	0	1	175	8	0	0	0	3	0	6	0	4	366	1464
2025-02-05 9:00 AM	0	2	234	1	1	1	167	3	0	1	0	1	0	11	1	2	425	1485
2025-02-05 9:15 AM	0	1	203	1	0	2	133	6	0	2	0	3	0	4	0	1	356	1060
2025-02-05 9:30 AM	0	4	163	1	1	0	134	2	0	1	0	3	0	4	0	4	317	704
2025-02-05 9:45 AM	0	4	195	0	0	5	160	4	0	4	0	2	0	9	0	4	387	387
AM Peak Hour =	**07:00 AM - 08:00 AM**																	
AM System Peak Hour =	**0.93**																**MAX=**	**1827**

LIVIC civil

*Values copied from Miovision Turning Movement spreadsheets for each intersection.
Data is copied from the "Int Total" column on the "Total Volume Class Breakdown" tab.

JOB	1258-01 Project Bolt		
SHEET		OF	
CALC BY	JBS	DATE	2/7/2025
CHKD BY	0	DATE	1/0/1900
SUBJECT	System Peak Hours - AM		

		Country Club Rd & Bernheisel Bridge Rd																	
		Country Club Rd Eastbound				0 Westbound				Bernheisel Bridge Rd Northbound				Bernheisel Bridge Rd Southbound				Total	Hour Total
AM Hours		U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
2025-02-05	6:00 AM	0	1	0	1	0	0	0	0	0	0	1	0	0	0	16	5	24	162
2025-02-05	6:15 AM	0	3	0	0	0	0	0	0	0	1	1	0	0	0	24	5	34	180
2025-02-05	6:30 AM	0	3	0	0	0	0	0	0	0	0	5	0	0	0	36	12	56	194
2025-02-05	6:45 AM	0	2	0	0	0	0	0	0	0	0	5	0	0	0	32	9	48	187
2025-02-05	7:00 AM	0	4	0	3	0	0	0	0	0	0	14	0	0	0	14	7	42	180
2025-02-05	7:15 AM	0	3	0	2	0	0	0	0	0	1	8	0	0	0	24	10	48	163
2025-02-05	7:30 AM	0	6	0	0	0	0	0	0	0	0	6	0	0	0	23	14	49	142
2025-02-05	7:45 AM	0	6	0	0	0	0	0	0	0	0	12	0	0	0	15	8	41	126
2025-02-05	8:00 AM	0	2	0	1	0	0	0	0	0	0	3	0	0	0	13	6	25	117
2025-02-05	8:15 AM	0	1	0	2	0	0	0	0	0	0	5	0	0	0	10	9	27	124
2025-02-05	8:30 AM	0	5	0	1	0	0	0	0	0	0	2	0	0	0	9	16	33	125
2025-02-05	8:45 AM	0	5	0	0	0	0	0	0	0	2	5	0	0	0	12	8	32	117
2025-02-05	9:00 AM	0	2	0	1	0	0	0	0	0	0	8	0	0	0	14	7	32	112
2025-02-05	9:15 AM	0	2	0	1	0	0	0	0	0	1	12	0	0	0	7	5	28	80
2025-02-05	9:30 AM	0	3	0	1	0	0	0	0	0	1	11	0	0	0	6	3	25	52
2025-02-05	9:45 AM	0	3	0	1	0	0	0	0	0	1	7	0	0	0	11	4	27	27
AM Peak Hour =		**06:30 AM - 07:30 AM**																	
AM System Peak Hour =		**0.87**																**MAX=**	**194**

LIVIC civil

*Values copied from Miovision Turning Movement spreadsheets for each intersection.
Data is copied from the "Int Total" column on the "Total Volume Class Breakdown" tab.

JOB	1258-01 Project Bolt		
SHEET		OF	
CALC BY	JBS	DATE	2/7/2025
CHKD BY	0	DATE	1/0/1900
SUBJECT	System Peak Hours - AM		

		Bernheisel Bridge Rd & Green Hill Rd																	
		0 Eastbound				Green Hill Rd Westbound				Bernheisel Bridge Rd Northbound				Bernheisel Bridge Rd Southbound				Total	Hour Total
AM Hours		U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
2025-02-05	6:00 AM	0	0	0	0	0	0	0	3	0	0	2	0	0	8	21	0	34	226
2025-02-05	6:15 AM	0	0	0	0	0	0	0	1	0	0	3	0	0	12	31	0	47	248
2025-02-05	6:30 AM	0	0	0	0	0	0	0	3	0	0	4	3	0	19	49	0	78	280
2025-02-05	6:45 AM	0	0	0	0	0	2	0	1	0	0	5	2	0	19	38	0	67	274
2025-02-05	7:00 AM	0	0	0	0	0	1	0	2	0	0	17	1	0	15	20	0	56	275
2025-02-05	7:15 AM	0	0	0	0	0	2	0	4	0	0	9	2	0	29	33	0	79	253
2025-02-05	7:30 AM	0	0	0	0	0	2	0	9	0	0	10	2	0	14	35	0	72	215
2025-02-05	7:45 AM	0	0	0	0	0	1	0	10	0	0	17	1	0	17	22	0	68	186
2025-02-05	8:00 AM	0	0	0	0	0	3	0	1	0	0	4	0	0	9	17	0	34	165
2025-02-05	8:15 AM	0	0	0	0	0	1	0	1	0	0	7	0	0	15	17	0	41	173
2025-02-05	8:30 AM	0	0	0	0	0	4	0	1	0	0	6	1	0	10	21	0	43	170
2025-02-05	8:45 AM	0	0	0	0	0	5	0	2	0	0	7	3	0	15	15	0	47	163
2025-02-05	9:00 AM	0	0	0	0	0	1	0	7	0	0	8	3	0	4	19	0	42	148
2025-02-05	9:15 AM	0	0	0	0	0	2	0	6	0	0	12	2	0	6	10	0	38	106
2025-02-05	9:30 AM	0	0	0	0	0	1	0	3	0	0	12	1	0	11	8	0	36	68
2025-02-05	9:45 AM	0	0	0	0	0	2	0	2	0	0	10	1	1	3	13	0	32	32
AM Peak Hour =		**06:30 AM - 07:30 AM**																	
AM System Peak Hour =		**0.89**																**MAX=**	**280**

LIVIC civil

*Values copied from Miovision Turning Movement spreadsheets for each intersection.
Data is copied from the "Int Total" column on the "Total Volume Class Breakdown" tab.

JOB	1258-01 Project Bolt		
SHEET		OF	
CALC BY	JBS	DATE	2/7/2025
CHKD BY	0	DATE	1/0/1900
SUBJECT	System Peak Hours - AM		

County Club Rd & Western Driveway

	Western Driveway Eastbound				0 Westbound				County Club Rd Northbound				County Club Rd Southbound				Total	Hour Total
AM Hours	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
2025-02-05 6:00 AM	0	0	0	0	0	0	0	0	0	0	6	0	0	0	1	0	7	40
2025-02-05 6:15 AM	0	0	0	0	0	0	0	0	0	0	7	0	0	0	1	0	8	44
2025-02-05 6:30 AM	0	0	0	0	0	0	0	0	0	0	11	0	0	0	2	0	13	54
2025-02-05 6:45 AM	0	0	0	0	0	0	0	0	0	0	12	0	0	0	0	0	12	57
2025-02-05 7:00 AM	0	0	0	0	0	0	0	0	0	0	9	0	0	0	2	0	11	59
2025-02-05 7:15 AM	0	0	0	0	0	0	0	0	0	0	14	0	0	0	4	0	18	55
2025-02-05 7:30 AM	0	0	0	0	0	0	0	0	0	0	15	0	0	0	1	0	16	47
2025-02-05 7:45 AM	0	0	0	0	0	0	0	0	0	0	13	0	0	0	1	0	14	48
2025-02-05 8:00 AM	0	0	0	0	0	0	0	0	0	0	7	0	0	0	0	0	7	43
2025-02-05 8:15 AM	0	0	0	0	0	0	0	0	0	0	10	0	0	0	0	0	10	47
2025-02-05 8:30 AM	0	0	0	0	0	0	0	0	0	0	16	0	0	0	1	0	17	44
2025-02-05 8:45 AM	0	0	0	0	0	0	0	0	0	0	9	0	0	0	0	0	9	37
2025-02-05 9:00 AM	0	0	0	0	0	0	0	0	0	0	11	0	0	0	0	0	11	34
2025-02-05 9:15 AM	0	0	0	0	0	0	0	0	0	0	5	0	0	0	2	0	7	23
2025-02-05 9:30 AM	0	0	0	0	0	0	0	0	0	0	7	0	0	0	3	0	10	16
2025-02-05 9:45 AM	0	0	0	0	0	0	0	0	0	0	4	0	0	0	2	0	6	6
AM Peak Hour =	**07:00 AM - 08:00 AM**																	
AM System Peak Hour =	**0.82**																**MAX=**	**59**

JOB	1258-01 Project Bolt
SHEET	OF
CALC BY	JBS DATE 2/7/2025
CHKD BY	0 DATE 1/0/1900
SUBJECT	System Peak Hours - AM

*Values copied from Miovision Turning Movement spreadsheets for each intersection.
Data is copied from the "Int Total" column on the "Total Volume Class Breakdown" tab.

		County Club Rd & Main Driveway																	
		County Club Rd Eastbound				County Club Rd Westbound				0 Northbound				Main Driveway Southbound				Total	Hour Total
AM Hours		U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
2025-02-05	6:00 AM	0	0	6	0	0	0	1	0	0	0	0	0	0	0	0	0	7	40
2025-02-05	6:15 AM	0	0	7	0	0	0	1	0	0	0	0	0	0	0	0	0	8	44
2025-02-05	6:30 AM	0	0	11	0	0	0	2	0	0	0	0	0	0	0	0	0	13	54
2025-02-05	6:45 AM	0	0	12	0	0	0	0	0	0	0	0	0	0	0	0	0	12	57
2025-02-05	7:00 AM	0	0	9	0	0	0	2	0	0	0	0	0	0	0	0	0	11	59
2025-02-05	7:15 AM	0	0	14	0	0	0	4	0	0	0	0	0	0	0	0	0	18	55
2025-02-05	7:30 AM	0	0	15	0	0	0	1	0	0	0	0	0	0	0	0	0	16	47
2025-02-05	7:45 AM	0	0	13	0	0	0	1	0	0	0	0	0	0	0	0	0	14	48
2025-02-05	8:00 AM	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	7	43
2025-02-05	8:15 AM	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	10	47
2025-02-05	8:30 AM	0	0	16	0	0	0	1	0	0	0	0	0	0	0	0	0	17	44
2025-02-05	8:45 AM	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	9	37
2025-02-05	9:00 AM	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	11	34
2025-02-05	9:15 AM	0	0	5	0	0	0	2	0	0	0	0	0	0	0	0	0	7	23
2025-02-05	9:30 AM	0	0	7	0	0	0	3	0	0	0	0	0	0	0	0	0	10	16
2025-02-05	9:45 AM	0	0	4	0	0	0	2	0	0	0	0	0	0	0	0	0	6	6
AM Peak Hour =		**07:00 AM - 08:00 AM**																	
AM System Peak Hour =		**0.82**																**MAX=**	**59**

LIVIC civil

*Values copied from Miovision Turning Movement spreadsheets for each intersection.
Data is copied from the "Int Total" column on the "Total Volume Class Breakdown" tab.

JOB	1258-01 Project Bolt		
SHEET		OF	
CALC BY	JBS	DATE	2/7/2025
CHKD BY	0	DATE	1/0/1900
SUBJECT	System Peak Hours - AM		

County Club Rd & Eastern Driveway

AM Hours		County Club Rd Eastbound				County Club Rd Westbound				0 Northbound				Eastern Driveway Southbound				Total	Hour Total
		U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
2025-02-05	6:00 AM	0	0	6	0	0	0	1	0	0	0	0	0	0	0	0	0	7	40
2025-02-05	6:15 AM	0	0	7	0	0	0	1	0	0	0	0	0	0	0	0	0	8	44
2025-02-05	6:30 AM	0	0	11	0	0	0	2	0	0	0	0	0	0	0	0	0	13	54
2025-02-05	6:45 AM	0	0	12	0	0	0	0	0	0	0	0	0	0	0	0	0	12	57
2025-02-05	7:00 AM	0	0	9	0	0	0	2	0	0	0	0	0	0	0	0	0	11	59
2025-02-05	7:15 AM	0	0	14	0	0	0	4	0	0	0	0	0	0	0	0	0	18	55
2025-02-05	7:30 AM	0	0	15	0	0	0	1	0	0	0	0	0	0	0	0	0	16	47
2025-02-05	7:45 AM	0	0	13	0	0	0	1	0	0	0	0	0	0	0	0	0	14	48
2025-02-05	8:00 AM	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	7	43
2025-02-05	8:15 AM	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	10	47
2025-02-05	8:30 AM	0	0	16	0	0	0	1	0	0	0	0	0	0	0	0	0	17	44
2025-02-05	8:45 AM	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	9	37
2025-02-05	9:00 AM	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	11	34
2025-02-05	9:15 AM	0	0	5	0	0	0	2	0	0	0	0	0	0	0	0	0	7	23
2025-02-05	9:30 AM	0	0	7	0	0	0	3	0	0	0	0	0	0	0	0	0	10	16
2025-02-05	9:45 AM	0	0	4	0	0	0	2	0	0	0	0	0	0	0	0	0	6	6
AM Peak Hour =		**07:00 AM - 08:00 AM**																	
AM System Peak Hour =		**0.82**																**MAX=**	**59**

JOB	1258-01 Project Bolt		
SHEET		OF	
CALC BY	JBS	DATE	2/7/2025
CHKD BY	0	DATE	1/0/1900
SUBJECT	System Peak Hours - PM		

*Values copied from Miovision Turning Movement spreadsheets for each intersection.
Data is copied from the "Int Total" column on the "Total Volume Class Breakdown" tab.

		US Route 11 (Harrisburg Pike) & County Club Rd																	
		US Route 11 (Harrisburg Pike) Eastbound				US Route 11 (Harrisburg Pike) Westbound				Days Inn Driveway Northbound				County Club Rd Southbound				Total	Hour Total
PM Hours		U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
2025-02-05	2:00 PM	0	4	234	2	0	3	137	3	0	1	0	4	0	9	1	6	404	2020
2025-02-05	2:15 PM	0	6	291	6	0	3	194	4	0	5	0	7	0	8	1	4	529	2193
2025-02-05	2:30 PM	0	10	315	3	1	1	178	2	0	2	1	6	0	8	0	4	531	2212
2025-02-05	2:45 PM	0	8	308	2	0	8	200	5	0	4	0	9	0	8	1	3	556	2281
2025-02-05	3:00 PM	0	9	304	4	0	5	227	7	0	2	0	5	0	6	0	8	577	2237
2025-02-05	3:15 PM	0	10	287	4	0	5	214	7	0	1	0	4	0	10	0	6	548	2216
2025-02-05	3:30 PM	1	16	300	3	1	7	228	10	0	5	0	7	0	13	0	9	600	2202
2025-02-05	3:45 PM	0	10	231	2	0	0	244	6	0	2	0	5	0	7	1	4	512	2167
2025-02-05	4:00 PM	0	14	262	5	0	1	248	5	0	0	1	5	0	6	1	8	556	2209
2025-02-05	4:15 PM	0	18	246	3	0	5	236	11	0	0	1	4	0	4	0	6	534	2244
2025-02-05	4:30 PM	0	6	250	1	0	3	271	10	0	2	0	6	0	10	0	6	565	2242
2025-02-05	4:45 PM	0	12	240	2	0	2	268	10	0	0	1	5	0	9	1	4	554	2154
2025-02-05	5:00 PM	0	9	262	3	0	10	272	12	0	1	0	3	0	11	0	8	591	1982
2025-02-05	5:15 PM	0	12	230	1	0	2	251	11	0	4	1	2	0	12	1	5	532	1391
2025-02-05	5:30 PM	0	9	208	3	1	3	223	9	0	2	1	4	0	8	0	6	477	859
2025-02-05	5:45 PM	0	7	174	3	0	8	167	10	0	2	1	1	0	6	0	3	382	382
PM Peak Hour =		**02:45 PM - 03:45 PM**																	
PM System Peak Hour =		**0.95**																**MAX=**	**2281**

JOB	1258-01 Project Bolt		
SHEET		OF	
CALC BY	JBS	DATE	2/7/2025
CHKD BY	0	DATE	1/0/1900
SUBJECT	System Peak Hours - PM		

*Values copied from Miovision Turning Movement spreadsheets for each intersection.
Data is copied from the "Int Total" column on the "Total Volume Class Breakdown" tab.

	Country Club Rd & Bernheisel Bridge Rd																	
	Country Club Rd Eastbound				0 Westbound				Bernheisel Bridge Rd Northbound				Bernheisel Bridge Rd Southbound				Total	Hour Total
PM Hours	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
2025-02-05 2:00 PM	0	4	0	2	0	0	0	0	0	1	14	0	0	0	6	11	38	132
2025-02-05 2:15 PM	0	4	0	0	0	0	0	0	0	0	7	0	0	0	10	6	27	141
2025-02-05 2:30 PM	0	6	0	0	0	0	0	0	0	2	4	0	0	0	11	6	29	163
2025-02-05 2:45 PM	0	4	0	0	0	0	0	0	0	0	14	0	0	0	16	4	38	185
2025-02-05 3:00 PM	0	8	0	1	0	0	0	0	0	1	31	0	0	0	2	4	47	192
2025-02-05 3:15 PM	0	10	0	1	0	0	0	0	0	1	15	0	0	0	11	11	49	202
2025-02-05 3:30 PM	0	8	0	0	0	0	0	0	0	1	21	0	0	0	10	11	51	208
2025-02-05 3:45 PM	0	8	0	1	0	0	0	0	0	0	25	0	0	0	11	0	45	198
2025-02-05 4:00 PM	0	8	0	1	0	0	0	0	0	1	22	0	0	0	18	7	57	190
2025-02-05 4:15 PM	0	12	0	1	0	0	0	0	0	3	21	0	0	0	13	5	55	180
2025-02-05 4:30 PM	0	8	0	0	0	0	0	0	0	4	17	0	0	0	6	6	41	158
2025-02-05 4:45 PM	0	12	0	1	0	0	0	0	0	0	12	0	0	0	6	6	37	160
2025-02-05 5:00 PM	0	9	0	0	0	0	0	0	0	0	21	0	0	0	8	9	47	158
2025-02-05 5:15 PM	0	7	0	0	0	0	0	0	0	1	10	0	0	0	8	7	33	111
2025-02-05 5:30 PM	0	8	0	1	0	0	0	0	0	0	20	0	0	0	9	5	43	78
2025-02-05 5:45 PM	0	8	0	2	0	0	0	0	0	1	6	0	0	0	6	12	35	35
PM Peak Hour =	**03:30 PM - 04:30 PM**																	
PM System Peak Hour =	**0.91**																**MAX=**	**208**

JOB	1258-01 Project Bolt		
SHEET		OF	
CALC BY	JBS	DATE	2/7/2025
CHKD BY	0	DATE	1/0/1900
SUBJECT	System Peak Hours - PM		

*Values copied from Miovision Turning Movement spreadsheets for each intersection.
Data is copied from the "Int Total" column on the "Total Volume Class Breakdown" tab.

	Bernheisel Bridge Rd & Green Hill Rd																	
	0 Eastbound				Green Hill Rd Westbound				Bernheisel Bridge Rd Northbound				Bernheisel Bridge Rd Southbound				Total	Hour Total
PM Hours	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
2025-02-05 2:00 PM	0	0	0	0	0	0	0	11	0	0	18	1	0	7	16	0	53	179
2025-02-05 2:15 PM	0	0	0	0	0	1	0	7	0	0	8	3	0	6	15	0	40	195
2025-02-05 2:30 PM	0	0	0	0	1	1	0	6	0	0	8	2	0	2	16	0	36	228
2025-02-05 2:45 PM	0	0	0	0	0	0	0	8	0	0	15	3	0	4	20	0	50	271
2025-02-05 3:00 PM	0	0	0	0	0	2	0	16	0	0	35	4	0	7	5	0	69	281
2025-02-05 3:15 PM	0	0	0	0	0	7	0	22	0	0	23	2	0	4	15	0	73	305
2025-02-05 3:30 PM	0	0	0	0	0	3	0	22	0	0	23	4	0	9	18	0	79	310
2025-02-05 3:45 PM	0	0	0	0	0	0	0	9	0	0	31	2	0	7	11	0	60	307
2025-02-05 4:00 PM	0	0	0	0	0	3	0	22	0	0	28	2	0	16	22	0	93	308
2025-02-05 4:15 PM	0	0	0	0	0	2	0	21	0	0	30	3	0	6	16	0	78	300
2025-02-05 4:30 PM	0	0	0	0	0	1	0	34	0	0	22	3	0	5	11	0	76	286
2025-02-05 4:45 PM	0	0	0	0	0	2	0	15	0	0	23	1	1	9	10	0	61	282
2025-02-05 5:00 PM	0	0	0	0	0	4	0	25	0	0	25	6	0	13	12	0	85	270
2025-02-05 5:15 PM	0	0	0	0	0	2	0	23	0	0	16	1	0	9	13	0	64	185
2025-02-05 5:30 PM	0	0	0	0	0	3	0	18	0	0	25	2	0	13	11	0	72	121
2025-02-05 5:45 PM	0	0	0	0	0	3	0	11	0	0	13	1	0	7	14	0	49	49
PM Peak Hour =	**03:30 PM - 04:30 PM**																	
PM System Peak Hour =	**0.83**																**MAX=**	**310**

JOB	1258-01 Project Bolt		
SHEET		OF	
CALC BY	JBS	DATE	2/7/2025
CHKD BY	0	DATE	1/0/1900
SUBJECT	System Peak Hours - PM		

*Values copied from Miovision Turning Movement spreadsheets for each intersection.
Data is copied from the "Int Total" column on the "Total Volume Class Breakdown" tab.

	County Club Rd & Western Driveway																	
	Western Driveway Eastbound				0 Westbound				County Club Rd Northbound				County Club Rd Southbound				Total	Hour Total
PM Hours	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
2025-02-05 2:00 PM	0	0	0	0	0	0	0	0	0	0	13	0	0	0	2	0	15	41
2025-02-05 2:15 PM	0	0	0	0	0	0	0	0	0	0	5	0	0	0	1	0	6	39
2025-02-05 2:30 PM	0	0	0	0	0	0	0	0	0	0	8	0	0	0	2	0	10	56
2025-02-05 2:45 PM	0	0	0	0	0	0	0	0	0	0	7	0	0	0	3	0	10	60
2025-02-05 3:00 PM	0	0	0	0	0	0	0	0	0	0	10	0	0	0	3	0	13	61
2025-02-05 3:15 PM	0	0	0	0	0	0	0	0	0	0	13	0	0	0	10	0	23	67
2025-02-05 3:30 PM	0	0	0	0	0	0	0	0	0	0	8	0	0	0	6	0	14	64
2025-02-05 3:45 PM	0	0	0	0	0	0	0	0	0	0	6	0	0	0	5	0	11	63
2025-02-05 4:00 PM	0	0	0	0	0	0	0	0	0	0	12	0	0	0	7	0	19	68
2025-02-05 4:15 PM	0	0	0	0	0	0	0	0	0	0	14	0	0	0	6	0	20	64
2025-02-05 4:30 PM	0	0	0	0	0	0	0	0	0	0	10	0	0	0	3	0	13	58
2025-02-05 4:45 PM	0	0	0	0	0	0	0	0	0	0	10	0	0	0	6	0	16	61
2025-02-05 5:00 PM	0	0	0	0	0	0	0	0	0	0	11	0	0	0	4	0	15	65
2025-02-05 5:15 PM	0	0	0	0	0	0	0	0	0	0	12	0	0	0	2	0	14	50
2025-02-05 5:30 PM	0	0	0	0	0	0	0	0	0	0	13	0	0	0	3	0	16	36
2025-02-05 5:45 PM	0	0	0	0	0	0	0	0	0	0	14	0	0	0	6	0	20	20
PM Peak Hour =	**04:00 PM - 05:00 PM**																	
PM System Peak Hour =	**0.85**																**MAX=**	**68**

JOB	1258-01 Project Bolt		
SHEET		OF	
CALC BY	JBS	DATE	2/7/2025
CHKD BY	0	DATE	1/0/1900
SUBJECT	System Peak Hours - PM		

*Values copied from Miovision Turning Movement spreadsheets for each intersection.
Data is copied from the "Int Total" column on the "Total Volume Class Breakdown" tab.

	County Club Rd & Main Driveway																	
	County Club Rd Eastbound				County Club Rd Westbound				0 Northbound				Main Driveway Southbound				Total	Hour Total
PM Hours	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
2025-02-05 2:00 PM	0	0	13	0	0	0	2	0	0	0	0	0	0	0	0	0	15	41
2025-02-05 2:15 PM	0	0	5	0	0	0	1	0	0	0	0	0	0	0	0	0	6	39
2025-02-05 2:30 PM	0	0	8	0	0	0	2	0	0	0	0	0	0	0	0	0	10	56
2025-02-05 2:45 PM	0	0	7	0	0	0	3	0	0	0	0	0	0	0	0	0	10	60
2025-02-05 3:00 PM	0	0	10	0	0	0	3	0	0	0	0	0	0	0	0	0	13	61
2025-02-05 3:15 PM	0	0	13	0	0	0	10	0	0	0	0	0	0	0	0	0	23	67
2025-02-05 3:30 PM	0	0	8	0	0	0	6	0	0	0	0	0	0	0	0	0	14	64
2025-02-05 3:45 PM	0	0	6	0	0	0	5	0	0	0	0	0	0	0	0	0	11	63
2025-02-05 4:00 PM	0	0	12	0	0	0	7	0	0	0	0	0	0	0	0	0	19	68
2025-02-05 4:15 PM	0	0	14	0	0	0	6	0	0	0	0	0	0	0	0	0	20	64
2025-02-05 4:30 PM	0	0	10	0	0	0	3	0	0	0	0	0	0	0	0	0	13	58
2025-02-05 4:45 PM	0	0	10	0	0	0	6	0	0	0	0	0	0	0	0	0	16	61
2025-02-05 5:00 PM	0	0	11	0	0	0	4	0	0	0	0	0	0	0	0	0	15	65
2025-02-05 5:15 PM	0	0	12	0	0	0	2	0	0	0	0	0	0	0	0	0	14	50
2025-02-05 5:30 PM	0	0	13	0	0	0	3	0	0	0	0	0	0	0	0	0	16	36
2025-02-05 5:45 PM	0	0	14	0	0	0	6	0	0	0	0	0	0	0	0	0	20	20
PM Peak Hour =	**04:00 PM - 05:00 PM**																	
PM System Peak Hour =	**0.85**																**MAX=**	**68**

LIVIC civil

*Values copied from Miovision Turning Movement spreadsheets for each intersection.
Data is copied from the "Int Total" column on the "Total Volume Class Breakdown" tab.

JOB	1258-01 Project Bolt		
SHEET		OF	
CALC BY	JBS	DATE	2/7/2025
CHKD BY	0	DATE	1/0/1900
SUBJECT	System Peak Hours - PM		

	County Club Rd & Eastern Driveway																	
	County Club Rd Eastbound				County Club Rd Westbound				0 Northbound				Eastern Driveway Southbound				Total	Hour Total
PM Hours	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
2025-02-05 2:00 PM	0	0	13	0	0	0	2	0	0	0	0	0	0	0	0	0	15	41
2025-02-05 2:15 PM	0	0	5	0	0	0	1	0	0	0	0	0	0	0	0	0	6	39
2025-02-05 2:30 PM	0	0	8	0	0	0	2	0	0	0	0	0	0	0	0	0	10	56
2025-02-05 2:45 PM	0	0	7	0	0	0	3	0	0	0	0	0	0	0	0	0	10	60
2025-02-05 3:00 PM	0	0	10	0	0	0	3	0	0	0	0	0	0	0	0	0	13	61
2025-02-05 3:15 PM	0	0	13	0	0	0	10	0	0	0	0	0	0	0	0	0	23	67
2025-02-05 3:30 PM	0	0	8	0	0	0	6	0	0	0	0	0	0	0	0	0	14	64
2025-02-05 3:45 PM	0	0	6	0	0	0	5	0	0	0	0	0	0	0	0	0	11	63
2025-02-05 4:00 PM	0	0	12	0	0	0	7	0	0	0	0	0	0	0	0	0	19	68
2025-02-05 4:15 PM	0	0	14	0	0	0	6	0	0	0	0	0	0	0	0	0	20	64
2025-02-05 4:30 PM	0	0	10	0	0	0	3	0	0	0	0	0	0	0	0	0	13	58
2025-02-05 4:45 PM	0	0	10	0	0	0	6	0	0	0	0	0	0	0	0	0	16	61
2025-02-05 5:00 PM	0	0	11	0	0	0	4	0	0	0	0	0	0	0	0	0	15	65
2025-02-05 5:15 PM	0	0	12	0	0	0	2	0	0	0	0	0	0	0	0	0	14	50
2025-02-05 5:30 PM	0	0	13	0	0	0	3	0	0	0	0	0	0	0	0	0	16	36
2025-02-05 5:45 PM	0	0	14	0	0	0	6	0	0	0	0	0	0	0	0	0	20	20
PM Peak Hour =	**04:00 PM - 05:00 PM**																	
PM System Peak Hour =	**0.85**																**MAX=**	**68**

LIVIC civil

alues copied from Miovision Turning Movement spreadsheets for each intersection.
ta is copied from the "Int Total" column on the "Total Volume Class Breakdown" tab.

JOB	1258-01 Project Bolt		
SHEET		OF	
CALC BY	JBS	DATE	2/7/2025
CHKD BY	0	DATE	1/0/1900
SUBJECT	System Peak Hours - SAT		

		US Route 11 (Harrisburg Pike) & County Club Rd																	
		US Route 11 (Harrisburg Pike) Eastbound				US Route 11 (Harrisburg Pike) Westbound				Days Inn Driveway Northbound				County Club Rd Southbound				Total	Hour Total
SAT Hours		U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
2025-02-08	10:00 AM	1	4	228	3	0	3	112	2	0	0	0	5	0	13	0	9	380	1480
2025-02-08	10:15 AM	0	6	172	5	0	5	138	6	0	1	1	8	0	13	0	2	357	1461
2025-02-08	10:30 AM	0	5	177	1	1	4	153	9	0	1	0	6	0	14	0	6	377	1460
2025-02-08	10:45 AM	0	5	181	5	1	0	150	4	0	2	0	5	0	10	0	3	366	1437
2025-02-08	11:00 AM	1	4	199	2	0	0	135	6	0	1	1	3	0	6	0	3	361	1437
2025-02-08	11:15 AM	0	3	160	1	0	4	158	5	0	0	0	3	0	13	1	8	356	1460
2025-02-08	11:30 AM	0	5	176	2	0	5	133	8	0	0	2	6	0	11	0	6	354	1469
2025-02-08	11:45 AM	0	2	154	0	0	2	179	10	0	3	0	2	0	10	0	4	366	1541
2025-02-08	12:00 PM	0	6	172	2	0	4	178	7	0	1	0	4	0	7	0	3	384	1534
2025-02-08	12:15 PM	0	6	166	3	0	5	157	15	0	0	0	4	0	4	0	5	365	1518
2025-02-08	12:30 PM	0	5	172	4	1	2	210	14	0	3	1	4	0	7	0	3	426	1549
2025-02-08	12:45 PM	0	6	140	3	0	10	171	10	0	1	0	3	0	8	1	6	359	1468
2025-02-08	1:00 PM	0	11	165	2	0	5	156	6	0	3	1	7	0	7	0	5	368	1463
2025-02-08	1:15 PM	0	7	173	2	0	2	185	7	0	2	0	6	0	8	0	4	396	1095
2025-02-08	1:30 PM	0	1	145	0	1	3	166	6	0	0	0	8	0	10	1	4	345	699
2025-02-08	1:45 PM	0	5	152	1	1	12	156	7	0	2	0	5	0	8	0	5	354	354
SAT Peak Hour =		**12:30 PM - 01:30 PM**																	
SAT System Peak Hour =		**0.91**																**MAX=**	**1549**

alues copied from Miovision Turning Movement spreadsheets for each intersection.
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JOB	1258-01 Project Bolt		
SHEET		OF	
CALC BY	JBS	DATE	2/7/2025
CHKD BY	0	DATE	1/0/1900
SUBJECT	System Peak Hours - SAT		

		Country Club Rd & Bernheisel Bridge Rd																	
		Country Club Rd Eastbound				0 Westbound				Bernheisel Bridge Rd Northbound				Bernheisel Bridge Rd Southbound				Total	Hour Total
SAT Hours		U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
2025-02-08	10:00 AM	0	3	0	0	0	0	0	0	0	1	5	0	0	0	12	12	33	117
2025-02-08	10:15 AM	0	2	0	0	0	0	0	0	0	0	11	0	0	0	10	8	31	113
2025-02-08	10:30 AM	0	6	0	1	0	0	0	0	0	1	4	0	0	0	7	11	30	110
2025-02-08	10:45 AM	0	4	0	1	0	0	0	0	1	0	1	0	0	0	10	6	23	113
2025-02-08	11:00 AM	0	6	0	1	0	0	0	0	0	1	8	0	0	0	8	5	29	122
2025-02-08	11:15 AM	0	2	0	1	0	0	0	0	0	2	8	0	0	0	8	7	28	130
2025-02-08	11:30 AM	0	3	0	2	0	0	0	0	0	3	8	0	0	0	10	7	33	136
2025-02-08	11:45 AM	0	4	0	2	0	0	0	0	0	0	10	0	0	0	10	6	32	145
2025-02-08	12:00 PM	0	8	0	1	0	0	0	0	0	4	12	0	0	0	7	5	37	142
2025-02-08	12:15 PM	0	6	0	4	0	0	0	0	0	2	8	0	0	0	11	3	34	144
2025-02-08	12:30 PM	0	11	0	1	0	0	0	0	0	3	13	0	0	0	9	5	42	155
2025-02-08	12:45 PM	0	4	0	1	0	0	0	0	0	0	8	0	0	0	11	5	29	143
2025-02-08	1:00 PM	0	9	0	0	0	0	0	0	0	0	12	0	0	0	12	6	39	137
2025-02-08	1:15 PM	0	10	0	3	0	0	0	0	0	0	9	0	0	0	16	7	45	98
2025-02-08	1:30 PM	0	2	0	1	0	0	0	0	0	3	8	0	0	0	8	8	30	53
2025-02-08	1:45 PM	0	4	0	1	0	0	0	0	0	0	5	0	0	0	8	5	23	23
SAT Peak Hour =		**12:30 PM - 01:30 PM**																	
SAT System Peak Hour =		**0.86**																**MAX=**	**155**

LIVIC civil

alues copied from Miovision Turning Movement spreadsheets for each intersection.
ta is copied from the "Total Volume Class Breakdown" tab.

JOB	1258-01 Project Bolt		
SHEET		OF	
CALC BY	JBS	DATE	2/7/2025
CHKD BY	0	DATE	1/0/1900
SUBJECT	System Peak Hours - SAT		

		Bernheisel Bridge Rd & Green Hill Rd																	
		0 Eastbound				Green Hill Rd Westbound				Bernheisel Bridge Rd Northbound				Bernheisel Bridge Rd Southbound				Total	Hour Total
SAT Hours		U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
2025-02-08	10:00 AM	0	0	0	0	0	2	0	9	0	0	5	3	0	8	22	0	49	191
2025-02-08	10:15 AM	0	0	0	0	0	0	0	7	0	0	13	0	0	8	18	0	46	192
2025-02-08	10:30 AM	0	0	0	0	0	2	0	13	0	0	10	0	0	12	16	0	53	196
2025-02-08	10:45 AM	0	0	0	0	0	1	0	12	0	0	5	0	0	10	15	0	43	185
2025-02-08	11:00 AM	0	0	0	0	0	3	0	10	0	0	12	2	0	13	10	0	50	186
2025-02-08	11:15 AM	0	0	0	0	0	0	0	11	0	0	10	0	0	14	15	0	50	182
2025-02-08	11:30 AM	0	0	0	0	0	1	0	6	0	0	10	1	0	6	18	0	42	181
2025-02-08	11:45 AM	0	0	0	0	0	2	0	9	0	0	13	1	0	6	13	0	44	197
2025-02-08	12:00 PM	0	0	0	0	0	3	0	8	0	0	16	3	0	7	9	0	46	201
2025-02-08	12:15 PM	0	0	0	0	0	1	0	12	0	0	13	1	0	9	13	0	49	212
2025-02-08	12:30 PM	0	0	0	0	0	1	0	13	0	0	19	4	0	8	13	0	58	215
2025-02-08	12:45 PM	0	0	0	0	0	1	0	13	0	0	10	2	0	7	15	0	48	196
2025-02-08	1:00 PM	0	0	0	0	0	1	0	11	0	0	20	1	0	7	17	0	57	190
2025-02-08	1:15 PM	0	0	0	0	0	2	0	8	0	0	19	0	0	2	21	0	52	133
2025-02-08	1:30 PM	0	0	0	0	0	4	0	6	0	0	10	0	0	7	12	0	39	81
2025-02-08	1:45 PM	0	0	0	0	0	3	0	14	0	0	7	2	0	6	10	0	42	42
SAT Peak Hour =		**12:30 PM - 01:30 PM**																	
SAT System Peak Hour =		**0.93**																**MAX=**	**215**

JOB	1258-01 Project Bolt
SHEET	OF
CALC BY	JBS DATE 2/7/2025
CHKD BY	0 DATE 1/0/1900
SUBJECT	System Peak Hours - SAT

alues copied from Miovision Turning Movement spreadsheets for each intersection.
ta is copied from the "Int Total" column on the "Total Volume Class Breakdown" tab.

		County Club Rd & Western Driveway																	
		Western Driveway Eastbound				0 Westbound				County Club Rd Northbound				County Club Rd Southbound				Total	Hour Total
SAT Hours		U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
2025-02-08	10:00 AM	0	0	0	0	0	0	0	0	0	0	13	0	0	0	1	0	14	47
2025-02-08	10:15 AM	0	0	0	0	0	0	0	0	0	0	9	0	0	0	1	0	10	47
2025-02-08	10:30 AM	0	0	0	0	0	0	0	0	0	0	16	0	0	0	1	0	17	45
2025-02-08	10:45 AM	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	6	43
2025-02-08	11:00 AM	0	0	0	0	0	0	0	0	0	0	12	0	0	0	2	0	14	48
2025-02-08	11:15 AM	0	0	0	0	0	0	0	0	0	0	7	0	0	0	1	0	8	46
2025-02-08	11:30 AM	0	0	0	0	0	0	0	0	0	0	13	0	0	0	2	0	15	54
2025-02-08	11:45 AM	0	0	0	0	0	0	0	0	0	0	10	0	0	0	1	0	11	53
2025-02-08	12:00 PM	0	0	0	0	0	0	0	0	0	0	8	0	0	0	4	0	12	51
2025-02-08	12:15 PM	0	0	0	0	0	0	0	0	0	0	14	0	0	0	2	0	16	50
2025-02-08	12:30 PM	0	0	0	0	0	0	0	0	0	0	13	0	0	0	1	0	14	51
2025-02-08	12:45 PM	0	0	0	0	0	0	0	0	0	0	9	0	0	0	0	0	9	46
2025-02-08	1:00 PM	0	0	0	0	0	0	0	0	0	0	11	0	0	0	0	0	11	45
2025-02-08	1:15 PM	0	0	0	0	0	0	0	0	0	0	15	0	0	0	2	0	17	34
2025-02-08	1:30 PM	0	0	0	0	0	0	0	0	0	0	8	0	0	0	1	0	9	17
2025-02-08	1:45 PM	0	0	0	0	0	0	0	0	0	0	7	0	0	0	1	0	8	8
SAT Peak Hour =		**11:30 AM - 12:30 PM**																	
SAT System Peak Hour =		**0.84**																**MAX=**	**54**

LIVIC civil

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ta is copied from the "Int Total" column on the "Total Volume Class Breakdown" tab.

JOB	1258-01 Project Bolt		
SHEET		OF	
CALC BY	JBS	DATE	2/7/2025
CHKD BY	0	DATE	1/0/1900
SUBJECT	System Peak Hours - SAT		

		County Club Rd & Main Driveway																	
		County Club Rd Eastbound				County Club Rd Westbound				0 Northbound				Main Driveway Southbound				Total	Hour Total
SAT Hours		U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
2025-02-08	10:00 AM	0	0	13	0	0	0	1	0	0	0	0	0	0	0	0	0	14	47
2025-02-08	10:15 AM	0	0	9	0	0	0	1	0	0	0	0	0	0	0	0	0	10	47
2025-02-08	10:30 AM	0	0	16	0	0	0	1	0	0	0	0	0	0	0	0	0	17	45
2025-02-08	10:45 AM	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	6	43
2025-02-08	11:00 AM	0	0	12	0	0	0	2	0	0	0	0	0	0	0	0	0	14	48
2025-02-08	11:15 AM	0	0	7	0	0	0	1	0	0	0	0	0	0	0	0	0	8	46
2025-02-08	11:30 AM	0	0	13	0	0	0	2	0	0	0	0	0	0	0	0	0	15	54
2025-02-08	11:45 AM	0	0	10	0	0	0	1	0	0	0	0	0	0	0	0	0	11	53
2025-02-08	12:00 PM	0	0	8	0	0	0	4	0	0	0	0	0	0	0	0	0	12	51
2025-02-08	12:15 PM	0	0	14	0	0	0	2	0	0	0	0	0	0	0	0	0	16	50
2025-02-08	12:30 PM	0	0	13	0	0	0	1	0	0	0	0	0	0	0	0	0	14	51
2025-02-08	12:45 PM	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	9	46
2025-02-08	1:00 PM	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	11	45
2025-02-08	1:15 PM	0	0	15	0	0	0	2	0	0	0	0	0	0	0	0	0	17	34
2025-02-08	1:30 PM	0	0	8	0	0	0	1	0	0	0	0	0	0	0	0	0	9	17
2025-02-08	1:45 PM	0	0	7	0	0	0	1	0	0	0	0	0	0	0	0	0	8	8
SAT Peak Hour =		**11:30 AM - 12:30 PM**																	
SAT System Peak Hour =		**0.84**																**MAX=**	**54**

JOB	1258-01 Project Bolt
SHEET	OF
CALC BY	JBS DATE 2/7/2025
CHKD BY	0 DATE 1/0/1900
SUBJECT	System Peak Hours - SAT

alues copied from Miovision Turning Movement spreadsheets for each intersection.
ta is copied from the "Int Total" column on the "Total Volume Class Breakdown" tab.

		County Club Rd & Eastern Driveway																	
		County Club Rd Eastbound				County Club Rd Westbound				0 Northbound				Eastern Driveway Southbound				Total	Hour Total
SAT Hours		U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
2025-02-08	10:00 AM	0	0	13	0	0	0	1	0	0	0	0	0	0	0	0	0	14	47
2025-02-08	10:15 AM	0	0	9	0	0	0	1	0	0	0	0	0	0	0	0	0	10	47
2025-02-08	10:30 AM	0	0	16	0	0	0	1	0	0	0	0	0	0	0	0	0	17	45
2025-02-08	10:45 AM	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	6	43
2025-02-08	11:00 AM	0	0	12	0	0	0	2	0	0	0	0	0	0	0	0	0	14	48
2025-02-08	11:15 AM	0	0	7	0	0	0	1	0	0	0	0	0	0	0	0	0	8	46
2025-02-08	11:30 AM	0	0	13	0	0	0	2	0	0	0	0	0	0	0	0	0	15	54
2025-02-08	11:45 AM	0	0	10	0	0	0	1	0	0	0	0	0	0	0	0	0	11	53
2025-02-08	12:00 PM	0	0	8	0	0	0	4	0	0	0	0	0	0	0	0	0	12	51
2025-02-08	12:15 PM	0	0	14	0	0	0	2	0	0	0	0	0	0	0	0	0	16	50
2025-02-08	12:30 PM	0	0	13	0	0	0	1	0	0	0	0	0	0	0	0	0	14	51
2025-02-08	12:45 PM	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	9	46
2025-02-08	1:00 PM	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	11	45
2025-02-08	1:15 PM	0	0	15	0	0	0	2	0	0	0	0	0	0	0	0	0	17	34
2025-02-08	1:30 PM	0	0	8	0	0	0	1	0	0	0	0	0	0	0	0	0	9	17
2025-02-08	1:45 PM	0	0	7	0	0	0	1	0	0	0	0	0	0	0	0	0	8	8
SAT Peak Hour =		**11:30 AM - 12:30 PM**																	
SAT System Peak Hour =		**0.84**																**MAX=**	**54**

LIVIC civil

JOB	1258-01 Project Bolt		
SHEET		OF	
CALC BY	JBS	DATE	2/7/2025
CHKD BY	0	DATE	1/0/1900
SUBJECT	Heavy Vehicle - AM		

US Route 11 (Harrisburg Pike) & County Club Rd

Leg	US Route 11 (Harrisburg Pike)					US Route 11 (Harrisburg Pike)					Days Inn Driveway					County Club 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**
2/5/2025 7:00 AM	4	229	1	0	**234**	0	154	4	0	**158**	0	0	3	0	**3**	15	0	9	0	**24**	**419**
2/5/2025 7:15 AM	6	271	2	0	**279**	1	144	4	0	**149**	1	0	2	0	**3**	14	0	2	0	**16**	**447**
2/5/2025 7:30 AM	5	256	5	0	**266**	0	167	3	0	**170**	0	0	4	0	**4**	14	1	14	0	**29**	**469**
2/5/2025 7:45 AM	5	219	1	0	**225**	2	230	7	0	**239**	0	1	7	0	**8**	15	0	5	0	**20**	**492**
Grand Total	20	975	9	0	**1,004**	3	695	18	0	**716**	1	1	16	0	**18**	58	1	30	0	**89**	**1,827**
% Approach	1.99%	97.11%	0.90%	0.00%		0.42%	97.07%	2.51%	0.00%		5.56%	5.56%	88.89%	0.00%		65.17%	1.12%	33.71%	0.00%		
% Total	1.09%	53.37%	0.49%	0.00%	**54.95%**	0.16%	38.04%	0.99%	0.00%	**39.19%**	0.05%	0.05%	0.88%	0.00%	**0.99%**	3.17%	0.05%	1.64%	0.00%	**4.87%**	
PHF	0.833	0.899	0.450	0.000	**0.900**	0.375	0.755	0.643	0.000	**0.749**	0.250	0.250	0.571	0.000	**0.563**	0.967	0.250	0.536	0.000	**0.767**	**0.928**
07:00 AM - 08:00 AM																					
Leg	US Route 11 (Harrisburg Pike)					US Route 11 (Harrisburg Pike)					Days Inn Driveway					County Club 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**
2/5/2025 7:00 AM	3	168	1	0	**172**	0	117	4	0	**121**	0	0	3	0	**3**	14	0	9	0	**23**	**319**
2/5/2025 7:15 AM	4	211	2	0	**217**	0	95	4	0	**99**	1	0	2	0	**3**	13	0	2	0	**15**	**334**
2/5/2025 7:30 AM	5	201	4	0	**210**	0	120	3	0	**123**	0	0	4	0	**4**	14	1	14	0	**29**	**366**
2/5/2025 7:45 AM	5	166	1	0	**172**	2	189	6	0	**197**	0	1	5	0	**6**	15	0	5	0	**20**	**395**
Lights	17	746	8	0	**771**	2	521	17	0	**540**	1	1	14	0	**16**	56	1	30	0	**87**	**1,414**
% Lights	85.00%	76.51%	88.89%	0.00%	**76.79%**	66.67%	74.96%	94.44%	0.00%	**75.42%**	100.00%	100.00%	87.50%	0.00%	**88.89%**	96.55%	100.00%	100.00%	0.00%	**97.75%**	
Heavy	3	229	1	0	**233**	1	174	1	0	**176**	0	0	2	0	**2**	2	0	0	0	**2**	**413**
% Heavy	15.00%	23.49%	11.11%	0.00%	**23.21%**	33.33%	25.04%	5.56%	0.00%	**24.58%**	0.00%	0.00%	12.50%	0.00%	**11.11%**	3.45%	0.00%	0.00%	0.00%	**2.25%**	

JOB	1258-01 Project Bolt		
SHEET		OF	
CALC BY	JBS	DATE	2/7/2025
CHKD BY	0	DATE	1/0/1900
SUBJECT	Heavy Vehicle - AM		

Country Club Rd & Bernheisel Bridge Rd

Leg	Country Club Rd					0					Bernheisel Bridge Rd					Bernheisel Bridge 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**
2/5/2025 6:30 AM	3	0	0	0	**3**	0	0	0	0	**0**	0	5	0	0	**5**	0	36	12	0	**48**	**56**
2/5/2025 6:45 AM	2	0	0	0	**2**	0	0	0	0	**0**	0	5	0	0	**5**	0	32	9	0	**41**	**48**
2/5/2025 7:00 AM	4	0	3	0	**7**	0	0	0	0	**0**	0	14	0	0	**14**	0	14	7	0	**21**	**42**
2/5/2025 7:15 AM	3	0	2	0	**5**	0	0	0	0	**0**	1	8	0	0	**9**	0	24	10	0	**34**	**48**
Grand Total	12	0	5	0	**17**	0	0	0	0	**0**	1	32	0	0	**33**	0	106	38	0	**144**	**194**
% Approach	70.59%	0.00%	29.41%	0.00%		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!		3.03%	96.97%	0.00%	0.00%		0.00%	73.61%	26.39%	0.00%		
% Total	6.19%	0.00%	2.58%	0.00%	**8.76%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.52%	16.49%	0.00%	0.00%	**17.01%**	0.00%	54.64%	19.59%	0.00%	**74.23%**	
PHF	0.750	0.000	0.417	0.000	**0.607**	0.000	0.000	0.000	0.000	**0.000**	0.250	0.571	0.000	0.000	**0.589**	0.000	0.736	0.792	0.000	**0.750**	**0.866**
06:30 AM - 07:30 AM																					

Leg	Country Club Rd					0					Bernheisel Bridge Rd					Bernheisel Bridge 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**
2/5/2025 6:30 AM	3	0	0	0	**3**	0	0	0	0	**0**	0	5	0	0	**5**	0	35	12	0	**47**	**55**
2/5/2025 6:45 AM	2	0	0	0	**2**	0	0	0	0	**0**	0	4	0	0	**4**	0	32	9	0	**41**	**47**
2/5/2025 7:00 AM	4	0	3	0	**7**	0	0	0	0	**0**	0	14	0	0	**14**	0	14	7	0	**21**	**42**
2/5/2025 7:15 AM	3	0	1	0	**4**	0	0	0	0	**0**	1	7	0	0	**8**	0	23	10	0	**33**	**45**
Lights	12	0	4	0	**16**	0	0	0	0	**0**	1	30	0	0	**31**	0	104	38	0	**142**	**189**
% Lights	100.00%	0.00%	80.00%	0.00%	**94.12%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	100.00%	93.75%	0.00%	0.00%	**93.94%**	0.00%	98.11%	100.00%	0.00%	**98.61%**	
Heavy	0	0	1	0	**1**	0	0	0	0	**0**	0	2	0	0	**2**	0	2	0	0	**2**	**5**
% Heavy	0.00%	0.00%	20.00%	0.00%	**5.88%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	6.25%	0.00%	0.00%	**6.06%**	0.00%	1.89%	0.00%	0.00%	**1.39%**	

JOB	1258-01 Project Bolt		
SHEET		OF	
CALC BY	JBS	DATE	2/7/2025
CHKD BY	0	DATE	1/0/1900
SUBJECT	Heavy Vehicle - AM		

Bernheisel Bridge Rd & Green Hill Rd

Leg	0					Green Hill Rd					Bernheisel Bridge Rd					Bernheisel Bridge 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**
2/5/2025 6:30 AM	0	0	0	0	**0**	0	0	3	0	**3**	0	4	3	0	**7**	19	49	0	0	**68**	**78**
2/5/2025 6:45 AM	0	0	0	0	**0**	2	0	1	0	**3**	0	5	2	0	**7**	19	38	0	0	**57**	**67**
2/5/2025 7:00 AM	0	0	0	0	**0**	1	0	2	0	**3**	0	17	1	0	**18**	15	20	0	0	**35**	**56**
2/5/2025 7:15 AM	0	0	0	0	**0**	2	0	4	0	**6**	0	9	2	0	**11**	29	33	0	0	**62**	**79**
Grand Total	0	0	0	0	**0**	5	0	10	0	**15**	0	35	8	0	**43**	82	140	0	0	**222**	**280**
% Approach	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!		33.33%	0.00%	66.67%	0.00%		0.00%	81.40%	18.60%	0.00%		36.94%	63.06%	0.00%	0.00%		
% Total	0.00%	0.00%	0.00%	0.00%	**0.00%**	1.79%	0.00%	3.57%	0.00%	**5.36%**	0.00%	12.50%	2.86%	0.00%	**15.36%**	29.29%	50.00%	0.00%	0.00%	**79.29%**	
PHF	0.000	0.000	0.000	0.000	**0.000**	0.625	0.000	0.625	0.000	**0.625**	0.000	0.515	0.667	0.000	**0.597**	0.707	0.714	0.000	0.000	**0.816**	**0.886**
06:30 AM - 07:30 AM																					

Leg	0					Green Hill Rd					Bernheisel Bridge Rd					Bernheisel Bridge 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**
2/5/2025 6:30 AM	0	0	0	0	**0**	0	0	3	0	**3**	0	4	3	0	**7**	19	48	0	0	**67**	**77**
2/5/2025 6:45 AM	0	0	0	0	**0**	2	0	1	0	**3**	0	5	2	0	**7**	18	38	0	0	**56**	**66**
2/5/2025 7:00 AM	0	0	0	0	**0**	1	0	2	0	**3**	0	17	1	0	**18**	15	20	0	0	**35**	**56**
2/5/2025 7:15 AM	0	0	0	0	**0**	1	0	4	0	**5**	0	9	1	0	**10**	28	33	0	0	**61**	**76**
Lights	0	0	0	0	**0**	4	0	10	0	**14**	0	35	7	0	**42**	80	139	0	0	**219**	**275**
% Lights	0.00%	0.00%	0.00%	0.00%	**0.00%**	80.00%	0.00%	100.00%	0.00%	**93.33%**	0.00%	100.00%	87.50%	0.00%	**97.67%**	97.56%	99.29%	0.00%	0.00%	**98.65%**	
Heavy	0	0	0	0	**0**	1	0	0	0	**1**	0	0	1	0	**1**	2	1	0	0	**3**	**5**
% Heavy	0.00%	0.00%	0.00%	0.00%	**0.00%**	20.00%	0.00%	0.00%	0.00%	**6.67%**	0.00%	0.00%	12.50%	0.00%	**2.33%**	2.44%	0.71%	0.00%	0.00%	**1.35%**	

JOB	1258-01 Project Bolt		
SHEET		OF	
CALC BY	JBS	DATE	2/7/2025
CHKD BY	0	DATE	1/0/1900
SUBJECT	Heavy Vehicle - AM		

County Club Rd & Western Driveway

Leg	Western Driveway					0					County Club Rd					County Club 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**
2/5/2025 7:00 AM	0	0	0	0	**0**	0	0	0	0	**0**	0	9	0	0	**9**	0	2	0	0	**2**	**11**
2/5/2025 7:15 AM	0	0	0	0	**0**	0	0	0	0	**0**	0	14	0	0	**14**	0	4	0	0	**4**	**18**
2/5/2025 7:30 AM	0	0	0	0	**0**	0	0	0	0	**0**	0	15	0	0	**15**	0	1	0	0	**1**	**16**
2/5/2025 7:45 AM	0	0	0	0	**0**	0	0	0	0	**0**	0	13	0	0	**13**	0	1	0	0	**1**	**14**
Grand Total	0	0	0	0	**0**	0	0	0	0	**0**	0	51	0	0	**51**	0	8	0	0	**8**	**59**
% Approach	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!		0.00%	100.00%	0.00%	0.00%		0.00%	100.00%	0.00%	0.00%		
% Total	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	86.44%	0.00%	0.00%	**86.44%**	0.00%	13.56%	0.00%	0.00%	13.56%	
PHF	0.000	0.000	0.000	0.000	**0.000**	0.000	0.000	0.000	0.000	**0.000**	0.000	0.850	0.000	0.000	**0.850**	0.000	0.500	0.000	0.000	**0.500**	**0.819**
07:00 AM - 08:00 AM																					
Leg	Western Driveway					0					County Club Rd					County Club 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**
2/5/2025 7:00 AM	0	0	0	0	**0**	0	0	0	0	**0**	0	9	0	0	**9**	0	1	0	0	**1**	**10**
2/5/2025 7:15 AM	0	0	0	0	**0**	0	0	0	0	**0**	0	12	0	0	**12**	0	3	0	0	**3**	**15**
2/5/2025 7:30 AM	0	0	0	0	**0**	0	0	0	0	**0**	0	12	0	0	**12**	0	1	0	0	**1**	**13**
2/5/2025 7:45 AM	0	0	0	0	**0**	0	0	0	0	**0**	0	12	0	0	**12**	0	1	0	0	**1**	**13**
Lights	0	0	0	0	**0**	0	0	0	0	**0**	0	45	0	0	**45**	0	6	0	0	**6**	**51**
% Lights	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	88.24%	0.00%	0.00%	**88.24%**	0.00%	75.00%	0.00%	0.00%	**75.00%**	
Heavy	0	0	0	0	**0**	0	0	0	0	**0**	0	6	0	0	**6**	0	2	0	0	**2**	**8**
% Heavy	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	11.76%	0.00%	0.00%	**11.76%**	0.00%	25.00%	0.00%	0.00%	**25.00%**	

JOB	1258-01 Project Bolt		
SHEET		OF	
CALC BY	JBS	DATE	2/7/2025
CHKD BY	0	DATE	1/0/1900
SUBJECT	Heavy Vehicle - AM		

County Club Rd & Main Driveway

Leg	County Club Rd					County Club Rd					0					Main Driveway					
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
2/5/2025 7:00 AM	0	9	0	0	**9**	0	2	0	0	**2**	0	0	0	0	**0**	0	0	0	0	**0**	**11**
2/5/2025 7:15 AM	0	14	0	0	**14**	0	4	0	0	**4**	0	0	0	0	**0**	0	0	0	0	**0**	**18**
2/5/2025 7:30 AM	0	15	0	0	**15**	0	1	0	0	**1**	0	0	0	0	**0**	0	0	0	0	**0**	**16**
2/5/2025 7:45 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	51	0	0	**51**	0	8	0	0	**8**	0	0	0	0	**0**	0	0	0	0	**0**	**59**
% 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%	86.44%	0.00%	0.00%	**86.44%**	0.00%	13.56%	0.00%	0.00%	**13.56%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	
PHF	0.000	0.850	0.000	0.000	**0.850**	0.000	0.500	0.000	0.000	**0.500**	0.000	0.000	0.000	0.000	**0.000**	0.000	0.000	0.000	0.000	**0.000**	**0.819**
07:00 AM - 08:00 AM																					
Leg	County Club Rd					County Club Rd					0					Main Driveway					
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
2/5/2025 7:00 AM	0	9	0	0	**9**	0	1	0	0	**1**	0	0	0	0	**0**	0	0	0	0	**0**	**10**
2/5/2025 7:15 AM	0	12	0	0	**12**	0	3	0	0	**3**	0	0	0	0	**0**	0	0	0	0	**0**	**15**
2/5/2025 7:30 AM	0	12	0	0	**12**	0	1	0	0	**1**	0	0	0	0	**0**	0	0	0	0	**0**	**13**
2/5/2025 7:45 AM	0	12	0	0	**12**	0	1	0	0	**1**	0	0	0	0	**0**	0	0	0	0	**0**	**13**
Lights	0	45	0	0	**45**	0	6	0	0	**6**	0	0	0	0	**0**	0	0	0	0	**0**	**51**
% Lights	0.00%	88.24%	0.00%	0.00%	**88.24%**	0.00%	75.00%	0.00%	0.00%	**75.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	
Heavy	0	6	0	0	**6**	0	2	0	0	**2**	0	0	0	0	**0**	0	0	0	0	**0**	**8**
% Heavy	0.00%	11.76%	0.00%	0.00%	**11.76%**	0.00%	25.00%	0.00%	0.00%	**25.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	

JOB	1258-01 Project Bolt		
SHEET		OF	
CALC BY	JBS	DATE	2/7/2025
CHKD BY	0	DATE	1/0/1900
SUBJECT	Heavy Vehicle - AM		

County Club Rd & Eastern Driveway

Leg	County Club Rd					County Club Rd					0					Eastern Driveway					
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**
2/5/2025 7:00 AM	0	9	0	0	**9**	0	2	0	0	**2**	0	0	0	0	**0**	0	0	0	0	**0**	**11**
2/5/2025 7:15 AM	0	14	0	0	**14**	0	4	0	0	**4**	0	0	0	0	**0**	0	0	0	0	**0**	**18**
2/5/2025 7:30 AM	0	15	0	0	**15**	0	1	0	0	**1**	0	0	0	0	**0**	0	0	0	0	**0**	**16**
2/5/2025 7:45 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	51	0	0	**51**	0	8	0	0	**8**	0	0	0	0	**0**	0	0	0	0	**0**	**59**
% 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%	86.44%	0.00%	0.00%	**86.44%**	0.00%	13.56%	0.00%	0.00%	**13.56%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	
PHF	0.000	0.850	0.000	0.000	**0.850**	0.000	0.500	0.000	0.000	**0.500**	0.000	0.000	0.000	0.000	**0.000**	0.000	0.000	0.000	0.000	**0.000**	**0.819**
07:00 AM - 08:00 AM																					
Leg	County Club Rd					County Club Rd					0					Eastern Driveway					
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**
2/5/2025 7:00 AM	0	9	0	0	**9**	0	1	0	0	**1**	0	0	0	0	**0**	0	0	0	0	**0**	**10**
2/5/2025 7:15 AM	0	12	0	0	**12**	0	3	0	0	**3**	0	0	0	0	**0**	0	0	0	0	**0**	**15**
2/5/2025 7:30 AM	0	12	0	0	**12**	0	1	0	0	**1**	0	0	0	0	**0**	0	0	0	0	**0**	**13**
2/5/2025 7:45 AM	0	12	0	0	**12**	0	1	0	0	**1**	0	0	0	0	**0**	0	0	0	0	**0**	**13**
Lights	0	45	0	0	**45**	0	6	0	0	**6**	0	0	0	0	**0**	0	0	0	0	**0**	**51**
% Lights	0.00%	88.24%	0.00%	0.00%	**88.24%**	0.00%	75.00%	0.00%	0.00%	**75.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	
Heavy	0	6	0	0	**6**	0	2	0	0	**2**	0	0	0	0	**0**	0	0	0	0	**0**	**8**
% Heavy	0.00%	11.76%	0.00%	0.00%	**11.76%**	0.00%	25.00%	0.00%	0.00%	**25.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	

JOB	1258-01 Project Bolt		
SHEET		OF	
CALC BY	JBS	DATE	2/7/2025
CHKD BY	0	DATE	1/0/1900
SUBJECT	Heavy Vehicle - PM		

US Route 11 (Harrisburg Pike) & County Club Rd																					
Leg	US Route 11 (Harrisburg Pike)					US Route 11 (Harrisburg Pike)					Days Inn Driveway					County Club 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
2/5/2025 2:45 PM	8	308	2	0	**318**	8	200	5	0	**213**	4	0	9	0	**13**	8	1	3	0	**12**	**556**
2/5/2025 3:00 PM	9	304	4	0	**317**	5	227	7	0	**239**	2	0	5	0	**7**	6	0	8	0	**14**	**577**
2/5/2025 3:15 PM	10	287	4	0	**301**	5	214	7	0	**226**	1	0	4	0	**5**	10	0	6	0	**16**	**548**
2/5/2025 3:30 PM	16	300	3	1	**320**	7	228	10	1	**246**	5	0	7	0	**12**	13	0	9	0	**22**	**600**
Grand Total	43	1199	13	1	**1256**	25	869	29	1	**924**	12	0	25	0	**37**	37	1	26	0	**64**	**2281**
% Approach	3.42%	95.46%	1.04%	0.08%		2.71%	94.05%	3.14%	0.11%		32.43%	0.00%	67.57%	0.00%		57.81%	1.56%	40.63%	0.00%		
% Total	1.89%	52.56%	0.57%	0.04%	**55.06%**	1.10%	38.10%	1.27%	0.04%	**40.51%**	0.53%	0.00%	1.10%	0.00%	**1.62%**	1.62%	0.04%	1.14%	0.00%	**2.81%**	
PHF	0.672	0.973	0.813	0.250	**0.981**	0.781	0.953	0.725	0.250	**0.939**	0.600	0.000	0.694	0.000	**0.712**	0.712	0.250	0.722	0.000	**0.727**	**0.950**
02:45 PM - 03:45 PM																					
Leg	US Route 11 (Harrisburg Pike)					US Route 11 (Harrisburg Pike)					Days Inn Driveway					County Club 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
2/5/2025 2:45 PM	8	233	2	0	**243**	7	147	5	0	**159**	4	0	8	0	**12**	7	1	3	0	**11**	**425**
2/5/2025 3:00 PM	9	216	4	0	**229**	4	164	5	0	**173**	2	0	4	0	**6**	5	0	7	0	**12**	**420**
2/5/2025 3:15 PM	10	208	3	0	**221**	4	163	7	0	**174**	1	0	4	0	**5**	10	0	5	0	**15**	**415**
2/5/2025 3:30 PM	16	210	3	1	**230**	6	170	10	1	**187**	5	0	7	0	**12**	12	0	9	0	**21**	**450**
Lights	43	867	12	1	**923**	21	644	27	1	**693**	12	0	23	0	**35**	34	1	24	0	**59**	**1710**
% Lights	100.00%	72.31%	92.31%	100.00%	**73.49%**	84.00%	74.11%	93.10%	100.00%	**75.00%**	100.00%	0.00%	92.00%	0.00%	**94.59%**	91.89%	100.00%	92.31%	0.00%	**92.19%**	
Heavy	0	332	1	0	**333**	4	225	2	0	**231**	0	0	2	0	**2**	3	0	2	0	**5**	**571**
% Heavy	0.00%	27.69%	7.69%	0.00%	**26.51%**	16.00%	25.89%	6.90%	0.00%	**25.00%**	0.00%	0.00%	8.00%	0.00%	**5.41%**	8.11%	0.00%	7.69%	0.00%	**7.81%**	

JOB	1258-01 Project Bolt		
SHEET		OF	
CALC BY	JBS	DATE	2/7/2025
CHKD BY	0	DATE	1/0/1900
SUBJECT	Heavy Vehicle - PM		

Country Club Rd & Bernheisel Bridge Rd

Leg	Country Club Rd					0					Bernheisel Bridge Rd					Bernheisel Bridge 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
2/5/2025 3:30 PM	8	0	0	0	**8**	0	0	0	0	**0**	1	21	0	0	**22**	0	10	11	0	**21**	**51**
2/5/2025 3:45 PM	8	0	1	0	**9**	0	0	0	0	**0**	0	25	0	0	**25**	0	11	0	0	**11**	**45**
2/5/2025 4:00 PM	8	0	1	0	**9**	0	0	0	0	**0**	1	22	0	0	**23**	0	18	7	0	**25**	**57**
2/5/2025 4:15 PM	12	0	1	0	**13**	0	0	0	0	**0**	3	21	0	0	**24**	0	13	5	0	**18**	**55**
Grand Total	36	0	3	0	**39**	0	0	0	0	**0**	5	89	0	0	**94**	0	52	23	0	**75**	**208**
% Approach	1	0	0	0		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!		0	1	0	0		0	1	0	0		
% Total	0	0	0	0	**0**	0	0	0	0	**0**	0	0	0	0	**0**	0	0	0	0	**0**	
PHF	0.750	0.000	0.750	0.000	**0.750**	0.000	0.000	0.000	0.000	**0.000**	0.417	0.890	0.000	0.000	**0.940**	0.000	0.722	0.523	0.000	**0.750**	**0.912**
03:30 PM - 04:30 PM																					

Leg	Country Club Rd					0					Bernheisel Bridge Rd					Bernheisel Bridge 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
2/5/2025 3:30 PM	8	0	0	0	**8**	0	0	0	0	**0**	1	21	0	0	**22**	0	10	9	0	**19**	**49**
2/5/2025 3:45 PM	8	0	1	0	**9**	0	0	0	0	**0**	0	25	0	0	**25**	0	11	0	0	**11**	**45**
2/5/2025 4:00 PM	8	0	1	0	**9**	0	0	0	0	**0**	1	21	0	0	**22**	0	18	7	0	**25**	**56**
2/5/2025 4:15 PM	12	0	1	0	**13**	0	0	0	0	**0**	3	20	0	0	**23**	0	13	4	0	**17**	**53**
Lights	36	0	3	0	**39**	0	0	0	0	**0**	5	87	0	0	**92**	0	52	20	0	**72**	**203**
% Lights	100.00%	0.00%	100.00%	0.00%	**100.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	100.00%	97.75%	0.00%	0.00%	**97.87%**	0.00%	100.00%	86.96%	0.00%	**96.00%**	
Heavy	0	0	0	0	**0**	0	0	0	0	**0**	0	2	0	0	**2**	0	0	3	0	**3**	**5**
% Heavy	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	2.25%	0.00%	0.00%	**2.13%**	0.00%	0.00%	13.04%	0.00%	**4.00%**	

JOB	1258-01 Project Bolt		
SHEET		OF	
CALC BY	JBS	DATE	2/7/2025
CHKD BY	0	DATE	1/0/1900
SUBJECT	Heavy Vehicle - PM		

Bernheisel Bridge Rd & Green Hill Rd																					
Leg	0					Green Hill Rd					Bernheisel Bridge Rd					Bernheisel Bridge 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
2/5/2025 3:30 PM	0	0	0	0	**0**	3	0	22	0	**25**	0	23	4	0	**27**	9	18	0	0	**27**	**79**
2/5/2025 3:45 PM	0	0	0	0	**0**	0	0	9	0	**9**	0	31	2	0	**33**	7	11	0	0	**18**	**60**
2/5/2025 4:00 PM	0	0	0	0	**0**	3	0	22	0	**25**	0	28	2	0	**30**	16	22	0	0	**38**	**93**
2/5/2025 4:15 PM	0	0	0	0	**0**	2	0	21	0	**23**	0	30	3	0	**33**	6	16	0	0	**22**	**78**
Grand Total	0	0	0	0	**0**	8	0	74	0	**82**	0	112	11	0	**123**	38	67	0	0	**105**	**310**
% Approach	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!		9.76%	0.00%	90.24%	0.00%		0.00%	91.06%	8.94%	0.00%		36.19%	63.81%	0.00%	0.00%		
% Total	0.00%	0.00%	0.00%	0.00%	**0.00%**	2.58%	0.00%	23.87%	0.00%	**26.45%**	0.00%	36.13%	3.55%	0.00%	**39.68%**	12.26%	21.61%	0.00%	0.00%	**33.87%**	
PHF	0.000	0.000	0.000	0.000	**0.000**	0.667	0.000	0.841	0.000	**0.820**	0.000	0.903	0.688	0.000	**0.932**	0.594	0.761	0.000	0.000	**0.691**	**0.833**
03:30 PM - 04:30 PM																					
Leg	0					Green Hill Rd					Bernheisel Bridge Rd					Bernheisel Bridge 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
2/5/2025 3:30 PM	0	0	0	0	**0**	2	0	22	0	**24**	0	23	4	0	**27**	9	17	0	0	**26**	**77**
2/5/2025 3:45 PM	0	0	0	0	**0**	0	0	9	0	**9**	0	31	2	0	**33**	7	11	0	0	**18**	**60**
2/5/2025 4:00 PM	0	0	0	0	**0**	3	0	22	0	**25**	0	27	2	0	**29**	16	22	0	0	**38**	**92**
2/5/2025 4:15 PM	0	0	0	0	**0**	2	0	21	0	**23**	0	29	3	0	**32**	6	15	0	0	**21**	**76**
Lights	0	0	0	0	**0**	7	0	74	0	**81**	0	110	11	0	**121**	38	65	0	0	**103**	**305**
% Lights	0.00%	0.00%	0.00%	0.00%	**0.00%**	87.50%	0.00%	100.00%	0.00%	**98.78%**	0.00%	98.21%	100.00%	0.00%	**98.37%**	100.00%	97.01%	0.00%	0.00%	**98.10%**	
Heavy	0	0	0	0	**0**	1	0	0	0	**1**	0	2	0	0	**2**	0	2	0	0	**2**	**5**
% Heavy	0.00%	0.00%	0.00%	0.00%	**0.00%**	12.50%	0.00%	0.00%	0.00%	**1.22%**	0.00%	1.79%	0.00%	0.00%	**1.63%**	0.00%	2.99%	0.00%	0.00%	**1.90%**	

JOB	1258-01 Project Bolt		
SHEET		OF	
CALC BY	JBS	DATE	2/7/2025
CHKD BY	0	DATE	1/0/1900
SUBJECT	Heavy Vehicle - PM		

County Club Rd & Western Driveway

Leg	Western Driveway					0					County Club Rd					County Club 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
2/5/2025 4:00 PM	0	0	0	0	**0**	0	0	0	0	**0**	0	12	0	0	**12**	0	7	0	0	**7**	**19**
2/5/2025 4:15 PM	0	0	0	0	**0**	0	0	0	0	**0**	0	14	0	0	**14**	0	6	0	0	**6**	**20**
2/5/2025 4:30 PM	0	0	0	0	**0**	0	0	0	0	**0**	0	10	0	0	**10**	0	3	0	0	**3**	**13**
2/5/2025 4:45 PM	0	0	0	0	**0**	0	0	0	0	**0**	0	10	0	0	**10**	0	6	0	0	**6**	**16**
Grand Total	0	0	0	0	**0**	0	0	0	0	**0**	0	46	0	0	**46**	0	22	0	0	**22**	**68**
% Approach	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!		0.00%	100.00%	0.00%	0.00%		0.00%	100.00%	0.00%	0.00%		
% Total	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	67.65%	0.00%	0.00%	**67.65%**	0.00%	32.35%	0.00%	0.00%	32.35%	
PHF	0.000	0.000	0.000	0.000	**0.000**	0.000	0.000	0.000	0.000	**0.000**	0.000	0.821	0.000	0.000	**0.821**	0.000	0.786	0.000	0.000	**0.786**	**0.850**
04:00 PM - 05:00 PM																					
Leg	Western Driveway					0					County Club Rd					County Club 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
2/5/2025 4:00 PM	0	0	0	0	**0**	0	0	0	0	**0**	0	9	0	0	**9**	0	7	0	0	**7**	**16**
2/5/2025 4:15 PM	0	0	0	0	**0**	0	0	0	0	**0**	0	13	0	0	**13**	0	6	0	0	**6**	**19**
2/5/2025 4:30 PM	0	0	0	0	**0**	0	0	0	0	**0**	0	9	0	0	**9**	0	3	0	0	**3**	**12**
2/5/2025 4:45 PM	0	0	0	0	**0**	0	0	0	0	**0**	0	10	0	0	**10**	0	6	0	0	**6**	**16**
Lights	0	0	0	0	**0**	0	0	0	0	**0**	0	41	0	0	**41**	0	22	0	0	**22**	**63**
% Lights	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	89.13%	0.00%	0.00%	**89.13%**	0.00%	100.00%	0.00%	0.00%	**100.00%**	
Heavy	0	0	0	0	**0**	0	0	0	0	**0**	0	5	0	0	**5**	0	0	0	0	**0**	**5**
% Heavy	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	10.87%	0.00%	0.00%	**10.87%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	

JOB	1258-01 Project Bolt		
SHEET		OF	
CALC BY	JBS	DATE	2/7/2025
CHKD BY	0	DATE	1/0/1900
SUBJECT	Heavy Vehicle - PM		

County Club Rd & Main Driveway

Leg	County Club Rd					County Club Rd					0					Main Driveway					
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
2/5/2025 4:00 PM	0	12	0	0	**12**	0	7	0	0	**7**	0	0	0	0	**0**	0	0	0	0	**0**	**19**
2/5/2025 4:15 PM	0	14	0	0	**14**	0	6	0	0	**6**	0	0	0	0	**0**	0	0	0	0	**0**	**20**
2/5/2025 4:30 PM	0	10	0	0	**10**	0	3	0	0	**3**	0	0	0	0	**0**	0	0	0	0	**0**	**13**
2/5/2025 4:45 PM	0	10	0	0	**10**	0	6	0	0	**6**	0	0	0	0	**0**	0	0	0	0	**0**	**16**
Grand Total	0	46	0	0	**46**	0	22	0	0	**22**	0	0	0	0	**0**	0	0	0	0	**0**	**68**
% 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%	67.65%	0.00%	0.00%	**67.65%**	0.00%	32.35%	0.00%	0.00%	**32.35%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	
PHF	0.000	0.821	0.000	0.000	**0.821**	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**	**0.850**
04:00 PM - 05:00 PM																					
Leg	County Club Rd					County Club Rd					0					Main Driveway					
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
2/5/2025 4:00 PM	0	9	0	0	**9**	0	7	0	0	**7**	0	0	0	0	**0**	0	0	0	0	**0**	**16**
2/5/2025 4:15 PM	0	13	0	0	**13**	0	6	0	0	**6**	0	0	0	0	**0**	0	0	0	0	**0**	**19**
2/5/2025 4:30 PM	0	9	0	0	**9**	0	3	0	0	**3**	0	0	0	0	**0**	0	0	0	0	**0**	**12**
2/5/2025 4:45 PM	0	10	0	0	**10**	0	6	0	0	**6**	0	0	0	0	**0**	0	0	0	0	**0**	**16**
Lights	0	41	0	0	**41**	0	22	0	0	**22**	0	0	0	0	**0**	0	0	0	0	**0**	**63**
% Lights	0.00%	89.13%	0.00%	0.00%	**89.13%**	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	5	0	0	**5**	0	0	0	0	**0**	0	0	0	0	**0**	0	0	0	0	**0**	**5**
% Heavy	0.00%	10.87%	0.00%	0.00%	**10.87%**	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%**	

LIVIC civil

JOB	1258-01 Project Bolt		
SHEET		OF	
CALC BY	JBS	DATE	2/7/2025
CHKD BY	0	DATE	1/0/1900
SUBJECT	Heavy Vehicle - PM		

County Club Rd & Eastern Driveway

Leg	County Club Rd					County Club Rd					0					Eastern Driveway					
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**
2/5/2025 4:00 PM	0	12	0	0	**12**	0	7	0	0	**7**	0	0	0	0	**0**	0	0	0	0	**0**	**19**
2/5/2025 4:15 PM	0	14	0	0	**14**	0	6	0	0	**6**	0	0	0	0	**0**	0	0	0	0	**0**	**20**
2/5/2025 4:30 PM	0	10	0	0	**10**	0	3	0	0	**3**	0	0	0	0	**0**	0	0	0	0	**0**	**13**
2/5/2025 4:45 PM	0	10	0	0	**10**	0	6	0	0	**6**	0	0	0	0	**0**	0	0	0	0	**0**	**16**
Grand Total	0	46	0	0	**46**	0	22	0	0	**22**	0	0	0	0	**0**	0	0	0	0	**0**	**68**
% 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%	67.65%	0.00%	0.00%	**67.65%**	0.00%	32.35%	0.00%	0.00%	**32.35%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	
PHF	0.000	0.821	0.000	0.000	**0.821**	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**	**0.850**
04:00 PM - 05:00 PM																					
Leg	County Club Rd					County Club Rd					0					Eastern Driveway					
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**
2/5/2025 4:00 PM	0	9	0	0	**9**	0	7	0	0	**7**	0	0	0	0	**0**	0	0	0	0	**0**	**16**
2/5/2025 4:15 PM	0	13	0	0	**13**	0	6	0	0	**6**	0	0	0	0	**0**	0	0	0	0	**0**	**19**
2/5/2025 4:30 PM	0	9	0	0	**9**	0	3	0	0	**3**	0	0	0	0	**0**	0	0	0	0	**0**	**12**
2/5/2025 4:45 PM	0	10	0	0	**10**	0	6	0	0	**6**	0	0	0	0	**0**	0	0	0	0	**0**	**16**
Lights	0	41	0	0	**41**	0	22	0	0	**22**	0	0	0	0	**0**	0	0	0	0	**0**	**63**
% Lights	0.00%	89.13%	0.00%	0.00%	**89.13%**	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	5	0	0	**5**	0	0	0	0	**0**	0	0	0	0	**0**	0	0	0	0	**0**	**5**
% Heavy	0.00%	10.87%	0.00%	0.00%	**10.87%**	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	1258-01 Project Bolt		
SHEET		OF	
CALC BY	JBS	DATE	2/7/2025
CHKD BY	0	DATE	1/0/1900
SUBJECT	Heavy Vehicle - SAT		

US Route 11 (Harrisburg Pike) & County Club Rd

Leg	US Route 11 (Harrisburg Pike)					US Route 11 (Harrisburg Pike)					Days Inn Driveway					County Club 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**
2/8/2025 12:30 PM	5	172	4	0	**181**	2	210	14	1	**227**	3	1	4	0	**8**	7	0	3	0	**10**	**426**
2/8/2025 12:45 PM	6	140	3	0	**149**	10	171	10	0	**191**	1	0	3	0	**4**	8	1	6	0	**15**	**359**
2/8/2025 1:00 PM	11	165	2	0	**178**	5	156	6	0	**167**	3	1	7	0	**11**	7	0	5	0	**12**	**368**
2/8/2025 1:15 PM	7	173	2	0	**182**	2	185	7	0	**194**	2	0	6	0	**8**	8	0	4	0	**12**	**396**
Grand Total	29	650	11	0	**690**	19	722	37	1	**779**	9	2	20	0	**31**	30	1	18	0	**49**	**1549**
% Approach	4.20%	94.20%	1.59%	0.00%		2.44%	92.68%	4.75%	0.13%		29.03%	6.45%	64.52%	0.00%		61.22%	2.04%	36.73%	0.00%		
% Total	1.87%	41.96%	0.71%	0.00%	**44.54%**	1.23%	46.61%	2.39%	0.06%	**50.29%**	0.58%	0.13%	1.29%	0.00%	**2.00%**	1.94%	0.06%	1.16%	0.00%	**3.16%**	
PHF	0.659	0.939	0.688	0.000	**0.948**	0.475	0.860	0.661	0.250	**0.858**	0.750	0.500	0.714	0.000	**0.705**	0.938	0.250	0.750	0.000	**0.817**	**0.909**
12:30 PM - 01:30 PM																					
Leg	US Route 11 (Harrisburg Pike)					US Route 11 (Harrisburg Pike)					Days Inn Driveway					County Club 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**
2/8/2025 12:30 PM	5	139	4	0	**148**	2	178	14	1	**195**	2	1	4	0	**7**	7	0	3	0	**10**	**360**
2/8/2025 12:45 PM	6	118	3	0	**127**	5	141	10	0	**156**	1	0	3	0	**4**	8	1	6	0	**15**	**302**
2/8/2025 1:00 PM	11	125	2	0	**138**	4	125	6	0	**135**	3	1	7	0	**11**	7	0	5	0	**12**	**296**
2/8/2025 1:15 PM	7	147	2	0	**156**	2	148	7	0	**157**	1	0	6	0	**7**	8	0	4	0	**12**	**332**
Lights	29	529	11	0	**569**	13	592	37	1	**643**	7	2	20	0	**29**	30	1	18	0	**49**	**1290**
% Lights	100.00%	81.38%	100.00%	0.00%	**82.46%**	68.42%	81.99%	100.00%	100.00%	**82.54%**	77.78%	100.00%	100.00%	0.00%	**93.55%**	100.00%	100.00%	100.00%	0.00%	**100.00%**	
Heavy	0	121	0	0	**121**	6	130	0	0	**136**	2	0	0	0	**2**	0	0	0	0	**0**	**259**
% Heavy	0.00%	18.62%	0.00%	0.00%	**17.54%**	31.58%	18.01%	0.00%	0.00%	**17.46%**	22.22%	0.00%	0.00%	0.00%	**6.45%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	

JOB	1258-01 Project Bolt		
SHEET		OF	
CALC BY	JBS	DATE	2/7/2025
CHKD BY	0	DATE	1/0/1900
SUBJECT	Heavy Vehicle - SAT		

Country Club Rd & Bernheisel Bridge Rd

Leg	Country Club Rd					0					Bernheisel Bridge Rd					Bernheisel Bridge 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**
2/8/2025 12:30 PM	11	0	1	0	**12**	0	0	0	0	**0**	3	13	0	0	**16**	0	9	5	0	**14**	**42**
2/8/2025 12:45 PM	4	0	1	0	**5**	0	0	0	0	**0**	0	8	0	0	**8**	0	11	5	0	**16**	**29**
2/8/2025 1:00 PM	9	0	0	0	**9**	0	0	0	0	**0**	0	12	0	0	**12**	0	12	6	0	**18**	**39**
2/8/2025 1:15 PM	10	0	3	0	**13**	0	0	0	0	**0**	0	9	0	0	**9**	0	16	7	0	**23**	**45**
Grand Total	34	0	5	0	**39**	0	0	0	0	**0**	3	42	0	0	**45**	0	48	23	0	**71**	**155**
% Approach	87.18%	0.00%	12.82%	0.00%		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!		6.67%	93.33%	0.00%	0.00%		0.00%	67.61%	32.39%	0.00%		
% Total	21.94%	0.00%	3.23%	0.00%	**25.16%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	1.94%	27.10%	0.00%	0.00%	**29.03%**	0.00%	30.97%	14.84%	0.00%	**45.81%**	
PHF	0.773	0.000	0.417	0.000	**0.750**	0.000	0.000	0.000	0.000	**0.000**	0.250	0.808	0.000	0.000	**0.703**	0.000	0.750	0.821	0.000	**0.772**	**0.861**
12:30 PM - 01:30 PM																					

Leg	Country Club Rd					0					Bernheisel Bridge Rd					Bernheisel Bridge 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**
2/8/2025 12:30 PM	11	0	1	0	**12**	0	0	0	0	**0**	3	13	0	0	**16**	0	9	5	0	**14**	**42**
2/8/2025 12:45 PM	4	0	1	0	**5**	0	0	0	0	**0**	0	8	0	0	**8**	0	10	5	0	**15**	**28**
2/8/2025 1:00 PM	9	0	0	0	**9**	0	0	0	0	**0**	0	12	0	0	**12**	0	12	6	0	**18**	**39**
2/8/2025 1:15 PM	10	0	3	0	**13**	0	0	0	0	**0**	0	9	0	0	**9**	0	15	7	0	**22**	**44**
Lights	34	0	5	0	**39**	0	0	0	0	**0**	3	42	0	0	**45**	0	46	23	0	**69**	**153**
% Lights	100.00%	0.00%	100.00%	0.00%	**100.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	100.00%	100.00%	0.00%	0.00%	**100.00%**	0.00%	95.83%	100.00%	0.00%	**97.18%**	
Heavy	0	0	0	0	**0**	0	0	0	0	**0**	0	0	0	0	**0**	0	2	0	0	**2**	**2**
% 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%	4.17%	0.00%	0.00%	**2.82%**	

JOB	1258-01 Project Bolt		
SHEET		OF	
CALC BY	JBS	DATE	2/7/2025
CHKD BY	0	DATE	1/0/1900
SUBJECT	Heavy Vehicle - SAT		

Bernheisel Bridge Rd & Green Hill Rd

Leg	0					Green Hill Rd					Bernheisel Bridge Rd					Bernheisel Bridge 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**
2/8/2025 12:00 AM	0	0	0	0	**0**	1	0	13	0	**14**	0	19	4	0	**23**	8	13	0	0	**21**	**58**
2/8/2025 12:00 AM	0	0	0	0	**0**	1	0	13	0	**14**	0	10	2	0	**12**	7	15	0	0	**22**	**48**
2/8/2025 1:00 PM	0	0	0	0	**0**	1	0	11	0	**12**	0	20	1	0	**21**	7	17	0	0	**24**	**57**
2/8/2025 1:15 PM	0	0	0	0	**0**	2	0	8	0	**10**	0	19	0	0	**19**	2	21	0	0	**23**	**52**
2/8/2025 1:30 PM	0				**0**	0				**0**	0				**0**	0				**0**	**0**
2/8/2025 1:45 PM	0				**0**	0				**0**	0				**0**	0				**0**	**0**
Grand Total	0	0	0	0	**0**	5	0	45	0	**50**	0	68	7	0	**75**	24	66	0	0	**90**	**215**
% Approach	0.00%	0.00%	0.00%	0.00%		10.00%	0.00%	90.00%	0.00%		0.00%	90.67%	9.33%	0.00%		26.67%	73.33%	0.00%	0.00%		
% Total	0.00%	0.00%	0.00%	0.00%	**0.00%**	2.33%	0.00%	20.93%	0.00%	**23.26%**	0.00%	31.63%	3.26%	0.00%	**34.88%**	11.16%	30.70%	0.00%	0.00%	**41.86%**	
PHF	0.000	0.000	0.000	0.000	**0.000**	0.625	0.000	0.865	0.000	**0.893**	0.000	0.850	0.438	0.000	**0.815**	0.750	0.786	0.000	0.000	**0.938**	**0.927**
12:30 PM - 01:30 PM																					
Leg	0					Green Hill Rd					Bernheisel Bridge Rd					Bernheisel Bridge 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**
2/8/2025 12:30 PM	0	0	0	0	**0**	1	0	13	0	**14**	0	19	4	0	**23**	8	13	0	0	**21**	**58**
2/8/2025 12:45 PM	0	0	0	0	**0**	1	0	13	0	**14**	0	10	2	0	**12**	7	14	0	0	**21**	**47**
2/8/2025 1:00 PM	0	0	0	0	**0**	1	0	11	0	**12**	0	20	1	0	**21**	7	17	0	0	**24**	**57**
2/8/2025 1:15 PM	0	0	0	0	**0**	2	0	8	0	**10**	0	19	0	0	**19**	2	20	0	0	**22**	**51**
Lights	0	0	0	0	**0**	5	0	45	0	**50**	0	68	7	0	**75**	24	64	0	0	**88**	**213**
% Lights	0.00%	0.00%	0.00%	0.00%	**0.00%**	100.00%	0.00%	100.00%	0.00%	**100.00%**	0.00%	100.00%	100.00%	0.00%	**100.00%**	100.00%	96.97%	0.00%	0.00%	**97.78%**	
Heavy	0	0	0	0	**0**	0	0	0	0	**0**	0	0	0	0	**0**	0	2	0	0	**2**	**2**
% 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%	3.03%	0.00%	0.00%	**2.22%**	

JOB	1258-01 Project Bolt		
SHEET		OF	
CALC BY	JBS	DATE	2/7/2025
CHKD BY	0	DATE	1/0/1900
SUBJECT	Heavy Vehicle - SAT		

County Club Rd & Western Driveway

Leg	Western Driveway					0					County Club Rd					County Club 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
2/8/2025 11:30 AM	0	0	0	0	**0**	0	0	0	0	**0**	0	13	0	0	**13**	0	2	0	0	**2**	**15**
2/8/2025 11:45 AM	0	0	0	0	**0**	0	0	0	0	**0**	0	10	0	0	**10**	0	1	0	0	**1**	**11**
2/8/2025 12:00 PM	0	0	0	0	**0**	0	0	0	0	**0**	0	8	0	0	**8**	0	4	0	0	**4**	**12**
2/8/2025 12:15 PM	0	0	0	0	**0**	0	0	0	0	**0**	0	14	0	0	**14**	0	2	0	0	**2**	**16**
Grand Total	0	0	0	0	**0**	0	0	0	0	**0**	0	45	0	0	**45**	0	9	0	0	**9**	**54**
% Approach	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!		0.00%	100.00%	0.00%	0.00%		0.00%	100.00%	0.00%	0.00%		
% Total	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	83.33%	0.00%	0.00%	**83.33%**	0.00%	16.67%	0.00%	0.00%	**16.67%**	
PHF	0.000	0.000	0.000	0.000	**0.000**	0.000	0.000	0.000	0.000	**0.000**	0.000	0.804	0.000	0.000	**0.804**	0.000	0.563	0.000	0.000	**0.563**	**0.844**
11:30 AM - 12:30 PM																					

Leg	Western Driveway					0					County Club Rd					County Club 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
2/8/2025 11:30 AM	0	0	0	0	**0**	0	0	0	0	**0**	0	12	0	0	**12**	0	2	0	0	**2**	**14**
2/8/2025 11:45 AM	0	0	0	0	**0**	0	0	0	0	**0**	0	10	0	0	**10**	0	1	0	0	**1**	**11**
2/8/2025 12:00 PM	0	0	0	0	**0**	0	0	0	0	**0**	0	8	0	0	**8**	0	4	0	0	**4**	**12**
2/8/2025 12:15 PM	0	0	0	0	**0**	0	0	0	0	**0**	0	13	0	0	**13**	0	2	0	0	**2**	**15**
Lights	0	0	0	0	**0**	0	0	0	0	**0**	0	43	0	0	**43**	0	9	0	0	**9**	**52**
% Lights	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	95.56%	0.00%	0.00%	**95.56%**	0.00%	100.00%	0.00%	0.00%	**100.00%**	
Heavy	0	0	0	0	**0**	0	0	0	0	**0**	0	2	0	0	**2**	0	0	0	0	**0**	**2**
% Heavy	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	4.44%	0.00%	0.00%	**4.44%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	

JOB	1258-01 Project Bolt		
SHEET		OF	
CALC BY	JBS	DATE	2/7/2025
CHKD BY	0	DATE	1/0/1900
SUBJECT	Heavy Vehicle - SAT		

County Club Rd & Main Driveway

Leg	County Club Rd					County Club Rd					0					Main Driveway					
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**
2/8/2025 11:30 AM	0	13	0	0	**13**	0	2	0	0	**2**	0	0	0	0	**0**	0	0	0	0	**0**	**15**
2/8/2025 11:45 AM	0	10	0	0	**10**	0	1	0	0	**1**	0	0	0	0	**0**	0	0	0	0	**0**	**11**
2/8/2025 12:00 PM	0	8	0	0	**8**	0	4	0	0	**4**	0	0	0	0	**0**	0	0	0	0	**0**	**12**
2/8/2025 12:15 PM	0	14	0	0	**14**	0	2	0	0	**2**	0	0	0	0	**0**	0	0	0	0	**0**	**16**
Grand Total	0	45	0	0	**45**	0	9	0	0	**9**	0	0	0	0	**0**	0	0	0	0	**0**	**54**
% 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%	83.33%	0.00%	0.00%	**83.33%**	0.00%	16.67%	0.00%	0.00%	**16.67%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	
PHF	0.000	0.804	0.000	0.000	**0.804**	0.000	0.563	0.000	0.000	**0.563**	0.000	0.000	0.000	0.000	**0.000**	0.000	0.000	0.000	0.000	**0.000**	**0.844**
11:30 AM - 12:30 PM																					

Leg	County Club Rd					County Club Rd					0					Main Driveway					
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**
2/8/2025 11:30 AM	0	12	0	0	**12**	0	2	0	0	**2**	0	0	0	0	**0**	0	0	0	0	**0**	**14**
2/8/2025 11:45 AM	0	10	0	0	**10**	0	1	0	0	**1**	0	0	0	0	**0**	0	0	0	0	**0**	**11**
2/8/2025 12:00 PM	0	8	0	0	**8**	0	4	0	0	**4**	0	0	0	0	**0**	0	0	0	0	**0**	**12**
2/8/2025 12:15 PM	0	13	0	0	**13**	0	2	0	0	**2**	0	0	0	0	**0**	0	0	0	0	**0**	**15**
Lights	0	43	0	0	**43**	0	9	0	0	**9**	0	0	0	0	**0**	0	0	0	0	**0**	**52**
% Lights	0.00%	95.56%	0.00%	0.00%	**95.56%**	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	2	0	0	**2**	0	0	0	0	**0**	0	0	0	0	**0**	0	0	0	0	**0**	**2**
% Heavy	0.00%	4.44%	0.00%	0.00%	**4.44%**	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	1258-01 Project Bolt		
SHEET		OF	
CALC BY	JBS	DATE	2/7/2025
CHKD BY	0	DATE	1/0/1900
SUBJECT	Heavy Vehicle - SAT		

County Club Rd & Eastern Driveway

Leg	County Club Rd					County Club Rd					0					Eastern Driveway					
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**
2/8/2025 11:30 AM	0	13	0	0	**13**	0	2	0	0	**2**	0	0	0	0	**0**	0	0	0	0	**0**	**15**
2/8/2025 11:45 AM	0	10	0	0	**10**	0	1	0	0	**1**	0	0	0	0	**0**	0	0	0	0	**0**	**11**
2/8/2025 12:00 PM	0	8	0	0	**8**	0	4	0	0	**4**	0	0	0	0	**0**	0	0	0	0	**0**	**12**
2/8/2025 12:15 PM	0	14	0	0	**14**	0	2	0	0	**2**	0	0	0	0	**0**	0	0	0	0	**0**	**16**
Grand Total	0	45	0	0	**45**	0	9	0	0	**9**	0	0	0	0	**0**	0	0	0	0	**0**	**54**
% 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%	83.33%	0.00%	0.00%	**83.33%**	0.00%	16.67%	0.00%	0.00%	**16.67%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	
PHF	0.000	0.804	0.000	0.000	**0.804**	0.000	0.563	0.000	0.000	**0.563**	0.000	0.000	0.000	0.000	**0.000**	0.000	0.000	0.000	0.000	**0.000**	**0.844**
11:30 AM - 12:30 PM																					

Leg	County Club Rd					County Club Rd					0					Eastern Driveway					
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**
2/8/2025 11:30 AM	0	12	0	0	**12**	0	2	0	0	**2**	0	0	0	0	**0**	0	0	0	0	**0**	**14**
2/8/2025 11:45 AM	0	10	0	0	**10**	0	1	0	0	**1**	0	0	0	0	**0**	0	0	0	0	**0**	**11**
2/8/2025 12:00 PM	0	8	0	0	**8**	0	4	0	0	**4**	0	0	0	0	**0**	0	0	0	0	**0**	**12**
2/8/2025 12:15 PM	0	13	0	0	**13**	0	2	0	0	**2**	0	0	0	0	**0**	0	0	0	0	**0**	**15**
Lights	0	43	0	0	**43**	0	9	0	0	**9**	0	0	0	0	**0**	0	0	0	0	**0**	**52**
% Lights	0.00%	95.56%	0.00%	0.00%	**95.56%**	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	2	0	0	**2**	0	0	0	0	**0**	0	0	0	0	**0**	0	0	0	0	**0**	**2**
% Heavy	0.00%	4.44%	0.00%	0.00%	**4.44%**	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%**	

			Existing Lane Settings						*Volume Development*						*Proposed Lane Settings*			
Intersection ID	**Intersection Name**	**Movement**	**Lane Width**	**Storage Length**	**Grade (%)**	**Speed (MPH)**	**PHF**	**HV (%)**	**2025 Existing Year**	**2027 Opening Year (No Build)**	**2037 Design Year (No Build)**	**Total Trip Distribution**	**2027 Opening Year (Build)**	**2037 Design Year (Build)**	**Lane Width**	**Storage Length**	**PHF**	**HV (%)**
1	US Route 11 (Harrisburg Pike) & County Club Rd	EB U			-1%	35	0.93	0.0%	0	0	0		0	0			0.93	0.0%
		EB L	12'	270'				15.0%	20	20	22	91	111	113				15.0%
		EB T	12'					23.0%	975	988	1056		988	1056				23.0%
		EB R	12'					11.0%	9	9	10		9	10				11.0%
		WB U			2%	35		0.0%	0	0	0		0	0				0.0%
		WB L	12'	152'				33.0%	3	3	3		3	3				33.0%
		WB T	12'					25.0%	695	704	753		704	753				25.0%
		WB R	12'					6.0%	18	18	20	25	43	45				6.0%
		NB U			-2%	25		0.0%	0	0	0		0	0				0.0%
		NB L	14'					0.0%	1	1	1		1	1				0.0%
		NB T	14'					0.0%	1	1	1		1	1				0.0%
		NB R	14'	50'				13.0%	16	16	17		16	17				13.0%
		SB U			4%	25		0.0%	0	0	0		0	0				0.0%
		SB L	11'					3.0%	58	59	63	7	66	70				3.0%
		SB T	11'					0.0%	1	1	1		1	1				0.0%
		SB R	11'					0.0%	30	30	33	24	54	57				2.0%
2	Country Club Rd & Bernheisel Bridge Rd	EB U			8%	35	0.87	0.0%	0	0	0		0	0			0.87	0.0%
		EB L	11'					0.0%	12	12	13	31	43	44				2.0%
		EB T	11'					0.0%	0	0	0		0	0				0.0%
		EB R	11'					20.0%	5	5	5	7	12	12				20.0%
		WB U						0.0%	0	0	0		0	0				0.0%
		WB L						0.0%	0	0	0		0	0				0.0%
		WB T						0.0%	0	0	0		0	0				0.0%
		WB R						0.0%	0	0	0		0	0				0.0%
		NB U			4%	30		0.0%	0	0	0		0	0				0.0%
		NB L	11'					0.0%	1	1	1	27	28	28				2.0%
		NB T	11'					6.0%	32	32	35		32	35				6.0%
		NB R	11'					0.0%	0	0	0		0	0				0.0%
		SB U			-4%	30		0.0%	0	0	0		0	0				0.0%
		SB L	11'					0.0%	0	0	0		0	0				0.0%
		SB T	11'					2.0%	106	107	115		107	115				2.0%
		SB R	11'					0.0%	38	39	41	116	155	157				2.0%

JOB	1258-01 Project Bolt		
SHEET		OF	
CALC BY	JBS	DATE	2/7/2025
CHKD BY	0	DATE	1/0/1900
SUBJECT	AM Volume Calculations		

JOB	1258-01 Project Bolt
SHEET	OF
CALC BY	JBS DATE 2/7/2025
CHKD BY	0 DATE 1/0/1900
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 (%)**	**2025 Existing Year**	**2027 Opening Year (No Build)**	**2037 Design Year (No Build)**	**Total Trip Distribution**	**2027 Opening Year (Build)**	**2037 Design Year (Build)**	**Lane Width**	**Storage Length**	**PHF**	**HV (%)**
3	Bernheisel Bridge Rd & Green Hill Rd	EB U					0.89	0.0%	0	0	0		0	0			0.89	0.0%
		EB L						0.0%	0	0	0		0	0				0.0%
		EB T						0.0%	0	0	0		0	0				0.0%
		EB R						0.0%	0	0	0		0	0				0.0%
		WB U			0%	35		0.0%	0	0	0		0	0				0.0%
		WB L	11'					20.0%	5	5	5	67	72	72				20.0%
		WB T	11'					0.0%	0	0	0		0	0				0.0%
		WB R	11'					0.0%	10	10	11		10	11				0.0%
		NB U			2%	30		0.0%	0	0	0		0	0				0.0%
		NB L	11'					0.0%	0	0	0		0	0				0.0%
		NB T	11'					0.0%	35	35	38	13	48	51				2.0%
		NB R	11'					13.0%	8	8	9	18	26	27				13.0%
		SB U			2%	30		0.0%	0	0	0		0	0				0.0%
		SB L	11'					2.0%	82	83	89		83	89				2.0%
		SB T	11'					1.0%	140	142	152	49	191	201				2.0%
		SB R	11'					0.0%	0	0	0		0	0				0.0%
4	County Club Rd & Western Driveway	EB U			1%	15	0.82	0.0%	0	0	0		0	0			0.82	0.0%
		EB L						0.0%	0	0	0		0	0				0.0%
		EB T						0.0%	0	0	0		0	0				0.0%
		EB R						0.0%	0	0	0	13	13	13				2.0%
		WB U						0.0%	0	0	0		0	0				0.0%
		WB L						0.0%	0	0	0		0	0				0.0%
		WB T						0.0%	0	0	0		0	0				0.0%
		WB R						0.0%	0	0	0		0	0				0.0%
		NB U			-6%	35		0.0%	0	0	0		0	0				0.0%
		NB L	11'					0.0%	0	0	0	25	25	25				2.0%
		NB T	11'					12.0%	51	52	55	91	143	146				12.0%
		NB R	11'					0.0%	0	0	0		0	0				0.0%
		SB U			5%	35		0.0%	0	0	0		0	0				0.0%
		SB L	11'					0.0%	0	0	0		0	0				0.0%
		SB T	11'					25.0%	8	8	9	18	26	27				25.0%
		SB R	11'					0.0%	0	0	0		0	0				0.0%

JOB	1258-01 Project Bolt
SHEET	OF
CALC BY	JBS DATE 2/7/2025
CHKD BY	0 DATE 1/0/1900
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 (%)**	**2025 Existing Year**	**2027 Opening Year (No Build)**	**2037 Design Year (No Build)**	**Total Trip Distribution**	**2027 Opening Year (Build)**	**2037 Design Year (Build)**	**Lane Width**	**Storage Length**	**PHF**	**HV (%)**
5	County Club Rd & Main Driveway	EB U			2%	35	0.82	0.0%	0	0	0		0	0			0.82	0.0%
		EB L	11'					0.0%	0	0	0	89	89	89				2.0%
		EB T	11'					12.0%	51	52	55	2	54	57				12.0%
		EB R	11'					0.0%	0	0	0		0	0				0.0%
		WB U			-2%	35		0.0%	0	0	0		0	0				0.0%
		WB L	11'					0.0%	0	0	0		0	0				0.0%
		WB T	11'					25.0%	8	8	9	2	10	11				25.0%
		WB R	11'					0.0%	0	0	0	102	102	102				2.0%
		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			-1%	15		0.0%	0	0	0		0	0				0.0%
		SB L						0.0%	0	0	0	22	22	22				2.0%
		SB T						0.0%	0	0	0		0	0				0.0%
		SB R						0.0%	0	0	0	16	16	16				2.0%
6	County Club Rd & Eastern Driveway	EB U			6%	35	0.82	0.0%	0	0	0		0	0			0.82	0.0%
		EB L	11'					0.0%	0	0	0	2	2	2				2.0%
		EB T	11'					12.0%	51	52	55	22	74	77				12.0%
		EB R	11'					0.0%	0	0	0		0	0				0.0%
		WB U			-5%	35		0.0%	0	0	0		0	0				0.0%
		WB L	11'					0.0%	0	0	0		0	0				0.0%
		WB T	11'					25.0%	8	8	9	102	110	111				25.0%
		WB R	11'					0.0%	0	0	0	41	41	41				2.0%
		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			4%	15		0.0%	0	0	0		0	0				0.0%
		SB L						0.0%	0	0	0	16	16	16				2.0%
		SB T						0.0%	0	0	0		0	0				0.0%
		SB R						0.0%	0	0	0	2	2	2				2.0%

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JOB	1258-01 Project Bolt		
SHEET		OF	
CALC BY	JBS	DATE	2/7/2025
CHKD BY	0	DATE	1/0/1900
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 (%)**	**2025 Existing Year**	**2027 Opening Year (No Build)**	**2037 Design Year (No Build)**	**Total Trip Distribution**	**2027 Opening Year (Build)**	**2037 Design Year (Build)**	**Lane Width**	**Storage Length**	**PHF**	**HV (%)**
1	US Route 11 (Harrisburg Pike) & County Club Rd	EB U	'	'	-1.0%	35	0.95	0.0%	1	1	1		1	1	'	'	0.95	0.0%
		EB L	12'	270'				0.0%	43	44	47	13	57	60	'	'		2.0%
		EB T	12'	'				28.0%	1199	1215	1299		1215	1299	'	'		28.0%
		EB R	12'	'				8.0%	13	13	14		13	14	'	'		8.0%
		WB U	'	'	2.0%	35		0.0%	1	1	1		1	1	'	'		0.0%
		WB L	12'	152'				16.0%	25	25	27		25	27	'	'		16.0%
		WB T	12'	'				26.0%	869	881	942		881	942	'	'		26.0%
		WB R	12'	'				7.0%	29	29	31	3	32	34	'	'		7.0%
		NB U	'	'	-2.0%	25		0.0%	0	0	0		0	0	'	'		0.0%
		NB L	14'	'				0.0%	12	12	13		12	13	'	'		0.0%
		NB T	14'	'				0.0%	0	0	0		0	0	'	'		0.0%
		NB R	14'	50'				8.0%	25	25	27		25	27	'	'		8.0%
		SB U	'	'	4.0%	25		0.0%	0	0	0		0	0	'	'		0.0%
		SB L	11'	'				8.0%	37	37	40	18	55	58	'	'		8.0%
		SB T	11'	'				0.0%	1	1	1		1	1	'	'		0.0%
		SB R	11'	'				8.0%	26	26	28	64	90	92	'	'		8.0%
2	Country Club Rd & Bernheisel Bridge Rd	EB U	'	'	8.0%	35	0.91	0.0%	0	0	0		0	0	'	'	0.91	0.0%
		EB L	11'	'				0.0%	36	36	39	82	118	121	'	'		2.0%
		EB T	11'	'				0.0%	0	0	0		0	0	'	'		0.0%
		EB R	11'	'				0.0%	3	3	3	18	21	21	'	'		2.0%
		WB U	'	'	0.0%	0		0.0%	0	0	0		0	0	'	'		0.0%
		WB L	'	'				0.0%	0	0	0		0	0	'	'		0.0%
		WB T	'	'				0.0%	0	0	0		0	0	'	'		0.0%
		WB R	'	'				0.0%	0	0	0		0	0	'	'		0.0%
		NB U	'	'	4.0%	30		0.0%	0	0	0		0	0	'	'		0.0%
		NB L	11'	'				0.0%	5	5	5	4	9	9	'	'		2.0%
		NB T	11'	'				2.0%	89	90	96		90	96	'	'		2.0%
		NB R	11'	'				0.0%	0	0	0		0	0	'	'		0.0%
		SB U	'	'	-4.0%	30		0.0%	0	0	0		0	0	'	'		0.0%
		SB L	11'	'				0.0%	0	0	0		0	0	'	'		0.0%
		SB T	11'	'				0.0%	52	53	56		53	56	'	'		0.0%
		SB R	11'	'				13.0%	23	23	25	16	39	41	'	'		13.0%

JOB	1258-01 Project Bolt
SHEET	OF
CALC BY	JBS DATE 2/7/2025
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			Existing Lane Settings						*Volume Development*						*Proposed Lane Settings*			
Intersection ID	**Intersection Name**	**Movement**	**Lane Width**	**Storage Length**	**Grade (%)**	**Speed (MPH)**	**PHF**	**HV (%)**	**2025 Existing Year**	**2027 Opening Year (No Build)**	**2037 Design Year (No Build)**	**Total Trip Distribution**	**2027 Opening Year (Build)**	**2037 Design Year (Build)**	**Lane Width**	**Storage Length**	**PHF**	**HV (%)**
3	Bernheisel Bridge Rd & Green Hill Rd	EB U	'	'	0.0%	0	0.83	0.0%	0	0	0		0	0	'	'	0.83	0.0%
		EB L	'	'				0.0%	0	0	0		0	0	'	'		0.0%
		EB T	'	'				0.0%	0	0	0		0	0	'	'		0.0%
		EB R	'	'				0.0%	0	0	0		0	0	'	'		0.0%
		WB U	'	'	0.0%	35		0.0%	0	0	0		0	0	'	'		0.0%
		WB L	11'	'				13.0%	8	8	9	9	17	18	'	'		13.0%
		WB T	11'	'				0.0%	0	0	0		0	0	'	'		0.0%
		WB R	11'	'				0.0%	74	75	80		75	80	'	'		0.0%
		NB U	'	'	2.0%	30		0.0%	0	0	0		0	0	'	'		0.0%
		NB L	11'	'				0.0%	0	0	0		0	0	'	'		0.0%
		NB T	11'	'				2.0%	112	114	121	35	149	156	'	'		2.0%
		NB R	11'	'				0.0%	11	11	12	47	58	59	'	'		2.0%
		SB U	'	'	2.0%	30		0.0%	0	0	0		0	0	'	'		0.0%
		SB L	11'	'				0.0%	38	39	41		39	41	'	'		0.0%
		SB T	11'	'				3.0%	67	68	73	7	75	80	'	'		3.0%
		SB R	11'	'				0.0%	0	0	0		0	0	'	'		0.0%
4	County Club Rd & Western Driveway	EB U	'	'	1.0%	15	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	'	'				0.0%	0	0	0		0	0	'	'		0.0%
		EB R	'	'				0.0%	0	0	0	36	36	36	'	'		2.0%
		WB U	'	'	0.0%	0		0.0%	0	0	0		0	0	'	'		0.0%
		WB L	'	'				0.0%	0	0	0		0	0	'			0.0%
		WB T	'	'				0.0%	0	0	0		0	0	'	'		0.0%
		WB R	'	'				0.0%	0	0	0		0	0	'	'		0.0%
		NB U	'	'	-6.0%	35		0.0%	0	0	0		0	0	'	'		0.0%
		NB L	11'	'				0.0%	0	0	0	3	3	3	'	'		2.0%
		NB T	11'	'				11.0%	46	47	50	13	60	63	'	'		11.0%
		NB R	11'	'				0.0%	0	0	0		0	0	'	'		0.0%
		SB U	'	'	5.0%	35		0.0%	0	0	0		0	0	'	'		0.0%
		SB L	11'	'				0.0%	0	0	0		0	0	'	'		0.0%
		SB T	11'	'				0.0%	22	22	24	46	68	70	'	'		2.0%
		SB R	11'	'				0.0%	0	0	0		0	0	'	'		0.0%

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SHEET		OF	
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			Existing Lane Settings						*Volume Development*						*Proposed Lane Settings*			
Intersection ID	**Intersection Name**	**Movement**	**Lane Width**	**Storage Length**	**Grade (%)**	**Speed (MPH)**	**PHF**	**HV (%)**	**2025 Existing Year**	**2027 Opening Year (No Build)**	**2037 Design Year (No Build)**	**Total Trip Distribution**	**2027 Opening Year (Build)**	**2037 Design Year (Build)**	**Lane Width**	**Storage Length**	**PHF**	**HV (%)**
5	County Club Rd & Main Driveway	EB U	'	'	2.0%	35	0.85	0.0%	0	0	0		0	0	'	'	0.85	0.0%
		EB L	11'	'				0.0%	0	0	0	11	11	11	'	'		2.0%
		EB T	11'	'				11.0%	46	47	50	2	49	52	'	'		11.0%
		EB R	11'	'				0.0%	0	0	0		0	0	'	'		0.0%
		WB U	'	'	-2.0%	35		0.0%	0	0	0		0	0	'	'		0.0%
		WB L	11'	'				0.0%	0	0	0		0	0	'	'		0.0%
		WB T	11'	'				0.0%	22	22	24	2	24	26	'	'		2.0%
		WB R	11'	'				0.0%	0	0	0	12	12	12	'	'		2.0%
		NB U	'	'	0.0%	0		0.0%	0	0	0		0	0	'	'		0.0%
		NB L	'	'				0.0%	0	0	0		0	0	'	'		2.0%
		NB T	'	'				0.0%	0	0	0		0	0	'	'		2.0%
		NB R	'	'				0.0%	0	0	0		0	0	'	'		0.0%
		SB U	'	'	-1.0%	15		0.0%	0	0	0		0	0	'	'		0.0%
		SB L	'	'				0.0%	0	0	0	62	62	62	'	'		0.0%
		SB T	'	'				0.0%	0	0	0		0	0	'	'		0.0%
		SB R	'	'				0.0%	0	0	0	44	44	44	'	'		0.0%
6	County Club Rd & Eastern Driveway	EB U	'	'	6.0%	35	0.85	0.0%	0	0	0		0	0	'	'	0.85	0.0%
		EB L	11'	'				0.0%	0	0	0	2	2	2	'	'		2.0%
		EB T	11'	'				11.0%	46	47	50	62	109	112	'	'		11.0%
		EB R	11'	'				0.0%	0	0	0		0	0	'	'		0.0%
		WB U	'	'	-5.0%	35		0.0%	0	0	0		0	0	'	'		0.0%
		WB L	11'	'				0.0%	0	0	0		0	0	'	'		0.0%
		WB T	11'	'				0.0%	22	22	24	12	34	36	'	'		2.0%
		WB R	11'	'				0.0%	0	0	0	8	8	8	'	'		2.0%
		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	'	'	4.0%	15		0.0%	0	0	0		0	0	'	'		0.0%
		SB L	'	'				0.0%	0	0	0	38	38	38	'	'		2.0%
		SB T	'	'				0.0%	0	0	0		0	0	'	'		0.0%
		SB R	'	'				0.0%	0	0	0	2	2	2	'	'		2.0%

JOB	1258-01 Project Bolt		
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			Existing Lane Settings						*Volume Development*						*Proposed Lane Settings*			
Intersection ID	**Intersection Name**	**Movement**	**Lane Width**	**Storage Length**	**Grade (%)**	**Speed (MPH)**	**PHF**	**HV (%)**	**2025 Existing Year**	**2027 Opening Year (No Build)**	**2037 Design Year (No Build)**	**Total Trip Distribution**	**2027 Opening Year (Build)**	**2037 Design Year (Build)**	**Lane Width**	**Storage Length**	**PHF**	**HV (%)**
1	US Route 11 (Harrisburg Pike) & County Club Rd	EB U	'	'	-1.0%	35	0.91	0.0%	0	0	0		0	0	'	'	0.91	0.0%
		EB L	12'	270'				0.0%	29	29	31	13	42	44	'	'		2.0%
		EB T	12'	'				19.0%	650	659	704		659	704	'	'		19.0%
		EB R	12'	'				0.0%	11	11	12		11	12	'	'		0.0%
		WB U	'	'	2.0%	35		0.0%	1	1	1		1	1	'	'		0.0%
		WB L	12'	152'				32.0%	19	19	21		19	21	'	'		32.0%
		WB T	12'	'				18.0%	722	732	782		732	782	'	'		18.0%
		WB R	12'	'				0.0%	37	37	40	3	40	43	'	'		2.0%
		NB U	'	'	-2.0%	25		0.0%	0	0	0		0	0	'	'		0.0%
		NB L	14'	'				22.0%	9	9	10		9	10	'	'		22.0%
		NB T	14'	'				0.0%	2	2	2		2	2	'	'		0.0%
		NB R	14'	50'				0.0%	20	20	22		20	22	'	'		0.0%
		SB U	'	'	4.0%	25		0.0%	0	0	0		0	0	'	'		0.0%
		SB L	11'	'				0.0%	30	30	33	18	48	51	'	'		2.0%
		SB T	11'	'				0.0%	1	1	1		1	1	'	'		0.0%
		SB R	11'	'				0.0%	18	18	20	64	82	84	'	'		2.0%
2	Country Club Rd & Bernheisel Bridge Rd	EB U	'	'	8.0%	35	0.86	0.0%	0	0	0		0	0	'	'	0.86	0.0%
		EB L	11'	'				0.0%	34	34	37	82	116	119	'	'		2.0%
		EB T	11'	'				0.0%	0	0	0		0	0	'	'		0.0%
		EB R	11'	'				0.0%	5	5	5	18	23	23	'	'		2.0%
		WB U	'	'	0.0%	0		0.0%	0	0	0		0	0	'	'		0.0%
		WB L	'	'				0.0%	0	0	0		0	0	'	'		0.0%
		WB T	'	'				0.0%	0	0	0		0	0	'	'		0.0%
		WB R	'	'				0.0%	0	0	0		0	0	'	'		0.0%
		NB U	'	'	4.0%	30		0.0%	0	0	0		0	0	'	'		0.0%
		NB L	11'	'				0.0%	3	3	3	4	7	7	'	'		2.0%
		NB T	11'	'				0.0%	42	43	46		43	46	'	'		0.0%
		NB R	11'	'				0.0%	0	0	0		0	0	'	'		0.0%
		SB U	'	'	-4.0%	30		0.0%	0	0	0		0	0	'	'		0.0%
		SB L	11'	'				0.0%	0	0	0		0	0	'	'		0.0%
		SB T	11'	'				4.0%	48	49	52		49	52	'	'		4.0%
		SB R	11'	'				0.0%	23	23	25	16	39	41	'	'		2.0%

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			Existing Lane Settings						*Volume Development*						*Proposed Lane Settings*			
Intersection ID	**Intersection Name**	**Movement**	**Lane Width**	**Storage Length**	**Grade (%)**	**Speed (MPH)**	**PHF**	**HV (%)**	**2025 Existing Year**	**2027 Opening Year (No Build)**	**2037 Design Year (No Build)**	**Total Trip Distribution**	**2027 Opening Year (Build)**	**2037 Design Year (Build)**	**Lane Width**	**Storage Length**	**PHF**	**HV (%)**
3	Bernheisel Bridge Rd & Green Hill Rd	EB U	'	'	0.0%	0	0.93	0.0%	0	0	0		0	0	'	'	0.93	0.0%
		EB L	'	'				0.0%	0	0	0		0	0	'	'		0.0%
		EB T	'	'				0.0%	0	0	0		0	0	'	'		0.0%
		EB R	'	'				0.0%	0	0	0		0	0	'	'		0.0%
		WB U	'	'	0.0%	35		0.0%	0	0	0		0	0	'	'		0.0%
		WB L	11'	'				0.0%	5	5	5	9	14	14	'	'		2.0%
		WB T	11'	'				0.0%	0	0	0		0	0	'	'		0.0%
		WB R	11'	'				0.0%	45	46	49		46	49	'	'		0.0%
		NB U	'	'	2.0%	30		0.0%	0	0	0		0	0	'	'		0.0%
		NB L	11'	'				0.0%	0	0	0		0	0	'	'		0.0%
		NB T	11'	'				0.0%	68	69	74	35	104	109	'	'		2.0%
		NB R	11'	'				0.0%	7	7	8	47	54	55	'	'		2.0%
		SB U	'	'	2.0%	30		0.0%	0	0	0		0	0	'	'		0.0%
		SB L	11'	'				0.0%	24	24	26		24	26	'	'		0.0%
		SB T	11'	'				3.0%	66	67	72	7	74	79	'	'		3.0%
		SB R	11'	'				0.0%	0	0	0		0	0	'	'		0.0%
4	County Club Rd & Western Driveway	EB U	'	'	1.0%	15	0.84	0.0%	0	0	0		0	0	'	'	0.84	0.0%
		EB L	'	'				0.0%	0	0	0		0	0	'	'		0.0%
		EB T	'	'				0.0%	0	0	0		0	0	'	'		0.0%
		EB R	'	'				0.0%	0	0	0	36	36	36	'	'		2.0%
		WB U	'	'	0.0%	0		0.0%	0	0	0		0	0	'	'		0.0%
		WB L	'	'				0.0%	0	0	0		0	0	'	'		0.0%
		WB T	'	'				0.0%	0	0	0		0	0	'	'		0.0%
		WB R	'	'				0.0%	0	0	0		0	0	'	'		0.0%
		NB U	'	'	-6.0%	35		0.0%	0	0	0		0	0	'	'		0.0%
		NB L	11'	'				0.0%	0	0	0	3	3	3	'	'		2.0%
		NB T	11'	'				4.0%	45	46	49	13	59	62	'	'		4.0%
		NB R	11'	'				0.0%	0	0	0		0	0	'	'		0.0%
		SB U	'	'	5.0%	35		0.0%	0	0	0		0	0	'	'		0.0%
		SB L	11'	'				0.0%	0	0	0		0	0	'	'		0.0%
		SB T	11'	'				0.0%	9	9	10	46	55	56	'	'		2.0%
		SB R	11'	'				0.0%	0	0	0		0	0	'	'		0.0%

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			Existing Lane Settings						*Volume Development*						*Proposed Lane Settings*			
Intersection ID	**Intersection Name**	**Movement**	**Lane Width**	**Storage Length**	**Grade (%)**	**Speed (MPH)**	**PHF**	**HV (%)**	**2025 Existing Year**	**2027 Opening Year (No Build)**	**2037 Design Year (No Build)**	**Total Trip Distribution**	**2027 Opening Year (Build)**	**2037 Design Year (Build)**	**Lane Width**	**Storage Length**	**PHF**	**HV (%)**
5	County Club Rd & Main Driveway	EB U	'	'	2.0%	35	0.84	0.0%	0	0	0		0	0	'	'	0.84	0.0%
		EB L	11'	'				0.0%	0	0	0	11	11	11	'	'		0.0%
		EB T	11'	'				4.0%	45	46	49	2	48	51	'	'		4.0%
		EB R	11'	'				0.0%	0	0	0		0	0	'	'		2.0%
		WB U	'	'	-2.0%	35		0.0%	0	0	0		0	0	'	'		0.0%
		WB L	11'	'				0.0%	0	0	0		0	0	'	'		0.0%
		WB T	11'	'				0.0%	9	9	10	2	11	12	'	'		2.0%
		WB R	11'	'				0.0%	0	0	0	12	12	12	'	'		2.0%
		NB U	'	'	0.0%	0		0.0%	0	0	0		0	0	'	'		0.0%
		NB L	'	'				0.0%	0	0	0		0	0	'	'		2.0%
		NB T	'	'				0.0%	0	0	0		0	0	'	'		2.0%
		NB R	'	'				0.0%	0	0	0		0	0	'	'		0.0%
		SB U	'	'	-1.0%	15		0.0%	0	0	0		0	0	'	'		0.0%
		SB L	'	'				0.0%	0	0	0	62	62	62	'	'		0.0%
		SB T	'	'				0.0%	0	0	0		0	0	'	'		0.0%
		SB R	'	'				0.0%	0	0	0	44	44	44	'	'		0.0%
6	County Club Rd & Eastern Driveway	EB U	'	'	6.0%	35	0.84	0.0%	0	0	0		0	0	'	'	0.84	0.0%
		EB L	11'	'				0.0%	0	0	0	2	2	2	'	'		2.0%
		EB T	11'	'				4.0%	45	46	49	62	108	111	'	'		4.0%
		EB R	11'	'				0.0%	0	0	0		0	0	'	'		0.0%
		WB U	'	'	-5.0%	35		0.0%	0	0	0		0	0	'	'		0.0%
		WB L	11'	'				0.0%	0	0	0		0	0	'	'		0.0%
		WB T	11'	'				0.0%	9	9	10	12	21	22	'	'		2.0%
		WB R	11'	'				0.0%	0	0	0	8	8	8	'	'		2.0%
		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	'	'	4.0%	15		0.0%	0	0	0		0	0	'	'		0.0%
		SB L	'	'				0.0%	0	0	0	38	38	38	'	'		2.0%
		SB T	'	'				0.0%	0	0	0		0	0	'	'		0.0%
		SB R	'	'				0.0%	0	0	0	2	2	2	'	'		2.0%

JOB	1258-01 Project Bolt			
SHEET		OF		
CALC BY	JBS	DATE	2/7/2025	
CHKD BY	0	DATE	1/0/1900	
SUBJECT	Trip Generation			

Trip Generation

	Land Use Code/ Description		New			Pass-by			Diverted Link			Total Trips
			Trips	%	% Total	Trips	Split %	% Total	Trips	Split %	% Total	
AM Peak Hour	Data Center	Enter	254	80%	100%							318
		Exit	64	20%								
		Subtotal	**318**	**100%**								
	Power Station	Enter	5	50%	100%							10
		Exit	5	50%								
		Subtotal	**10**	**100%**								
		Enter										
		Exit										
		Subtotal										
		Enter										
		Exit										
		Subtotal										
		Enter										
		Exit										
		Subtotal										
		Enter	259			0		**259**				**328**
		Exit	69			0		**69**				
		Totals	**328**			**0**		**328**	**0**			

JOB	1258-01 Project Bolt			
SHEET		OF		
CALC BY	JBS	DATE	2/7/2025	
CHKD BY	0	DATE	1/0/1900	
SUBJECT	Trip Generation			

Trip Generation

	Land Use Code/ Description		New			Pass-by			Diverted Link			Total Trips
			Trips	%	% Total	Trips	Split %	% Total	Trips	Split %	% Total	
PM Peak Hour	Data Center	Enter	31	15%	100%							208
		Exit	177	85%								
		Subtotal	208	**100%**								
	Power Station	Enter	5	50%	100%							10
		Exit	5	50%								
		Subtotal	**10**	**100%**								
		Enter										
		Exit										
		Subtotal										
		Enter										
		Exit										
		Subtotal										
		Enter										
		Exit										
		Subtotal										
		Enter	36			0		**36**				**218**
		Exit	182			0		**182**				
		Totals	**218**			**0**		**218**	**0**			

JOB	1258-01 Project Bolt			
SHEET		OF		
CALC BY	JBS	DATE	2/7/2025	
CHKD BY	0	DATE	1/0/1900	
SUBJECT	Trip Generation			

Trip Generation

	Land Use Code/ Description		New			Pass-by			Diverted Link			Total Trips
			Trips	%	% Total	Trips	Split %	% Total	Trips	Split %	% Total	
SAT Peak Hour	Data Center	Enter	31	15%	100%							208
		Exit	177	85%								
		Subtotal	208	**100%**								
	Power Station	Enter	5	50%	100%							10
		Exit	5	50%								
		Subtotal	**10**	**100%**								
		Enter										
		Exit										
		Subtotal										
		Enter										
		Exit										
		Subtotal										
		Enter										
		Exit										
		Subtotal										
		Enter	36			0		**36**				**218**
		Exit	182			0		**182**				
		Totals	**218**			**0**		**218**	**0**			

JOB	1258-01 Project Bolt
SHEET	OF
CALC BY	JBS DATE 2/7/2025
CHKD BY	0 DATE 1/0/1900
SUBJECT	AM Trip Distribution

			Data Center						Power Station						Total New Trips	Total Pass by Trips	Total Diverted Link Trips
Intersection ID	Intersection Name	Movement	Trip Dist % by		Total New Trips	Pass-by % by		Total Pass-by	Trip Dist % by		Total New Trips	Pass-by % by		Total Pass-by			
			Enter %	Exit %		Enter %	Exit %		Enter %	Exit %		Enter %	Exit %				
1	US Route 11 (Harrisburg Pike) & County Club Rd	EB U															
		EB L	35%		89				35%		2				91		
		EB T															
		EB R															
		WB U															
		WB L															
		WB T															
		WB R	10%		25				10%		0				25		
		NB U															
		NB L															
		NB T															
		NB R															
		SB U															
		SB L		10%	7					10%	0				7		
		SB T															
		SB R		35%	22					35%	2				24		
2	Country Club Rd & Bernheisel Bridge Rd	EB U															
		EB L		45%	29					45%	2				31		
		EB T															
		EB R		10%	6					10%	1				7		
		WB U															
		WB L															
		WB T															
		WB R															
		NB U															
		NB L	10%		26				10%		1				27		
		NB T															
		NB R															
		SB U															
		SB L															
		SB T															
		SB R	45%		114				45%		2				116		

JOB	1258-01 Project Bolt
SHEET	OF
CALC BY	JBS DATE 2/7/2025
CHKD BY	0 DATE 1/0/1900
SUBJECT	AM Trip Distribution

			Data Center						Power Station						Total New Trips	Total Pass by Trips	Total Diverted Link Trips
Intersection ID	Intersection Name	Movement	Trip Dist % by		Total New Trips	Pass-by % by		Total Pass-by	Trip Dist % by		Total New Trips	Pass-by % by		Total Pass-by			
			Enter %	Exit %		Enter %	Exit %		Enter %	Exit %		Enter %	Exit %				
3	Bernheisel Bridge Rd & Green Hill Rd	EB U															
		EB L															
		EB T															
		EB R															
		WB U															
		WB L	26%		66				26%		1				67		
		WB T															
		WB R															
		NB U															
		NB L															
		NB T		19%	12					19%	1				13		
		NB R		26%	17					26%	1				18		
		SB U															
		SB L															
		SB T	19%		48				19%		1				49		
		SB R															
4	County Club Rd & Western Driveway	EB U															
		EB L															
		EB T															
		EB R		20%	13										13		
		WB U															
		WB L															
		WB T															
		WB R															
		NB U															
		NB L	10%		25										25		
		NB T	35%		89				45%		2				91		
		NB R															
		SB U															
		SB L															
		SB T		25%	16					45%	2				18		
		SB R															

JOB	1258-01 Project Bolt
SHEET	OF
CALC BY	JBS DATE 2/7/2025
CHKD BY	0 DATE 1/0/1900
SUBJECT	AM Trip Distribution

			Data Center						Power Station						Total New Trips	Total Pass by Trips	Total Diverted Link Trips
Intersection ID	Intersection Name	Movement	Trip Dist % by Enter %	Trip Dist % by Exit %	Total New Trips	Pass-by % by Enter %	Pass-by % by Exit %	Total Pass-by	Trip Dist % by Enter %	Trip Dist % by Exit %	Total New Trips	Pass-by % by Enter %	Pass-by % by Exit %	Total Pass-by			
5	County Club Rd & Main Driveway	EB U															
		EB L	35%		89										89		
		EB T							45%		2				2		
		EB R															
		WB U															
		WB L															
		WB T								45%	2				2		
		WB R	40%		102										102		
		NB U															
		NB L															
		NB T															
		NB R															
		SB U															
		SB L		35%	22										22		
		SB T															
		SB R		25%	16										16		
6	County Club Rd & Eastern Driveway	EB U															
		EB L							45%		2				2		
		EB T		35%	22										22		
		EB R															
		WB U															
		WB L															
		WB T	40%		102										102		
		WB R	15%		38				55%		3				41		
		NB U															
		NB L															
		NB T															
		NB R															
		SB U															
		SB L		20%	13					55%	3				16		
		SB T															
		SB R								45%	2				2		

JOB	1258-01 Project Bolt
SHEET	OF
CALC BY	JBS DATE ######
CHKD BY	0 DATE ######
SUBJECT	PM Trip Distribution

			Data Center						Power Station						Total New Trips	Total Pass by Trips	Total Diverted Link Trips
Intersection ID	Intersection Name	Movement	Trip Dist % by		Total New Trips	Pass-by % by		Total Pass-by	Trip Dist % by		Total New Trips	Pass-by % by		Total Pass-by			
			Enter %	Exit %		Enter %	Exit %		Enter %	Exit %		Enter %	Exit %				
1	US Route 11 (Harrisburg Pike) & County Club Rd	EB U															
		EB L	35%		11				35%		2				13		
		EB T															
		EB R															
		WB U															
		WB L															
		WB T															
		WB R	10%		3				10%		0				3		
		NB U															
		NB L															
		NB T															
		NB R															
		SB U															
		SB L		10%	18					10%	0				18		
		SB T															
		SB R		35%	62					35%	2				64		
2	Country Club Rd & Bernheisel Bridge Rd	EB U															
		EB L		45%	80					45%	2				82		
		EB T															
		EB R		10%	17					10%	1				18		
		WB U															
		WB L															
		WB T															
		WB R															
		NB U															
		NB L	10%		3				10%		1				4		
		NB T															
		NB R															
		SB U															
		SB L															
		SB T															
		SB R	45%		14				45%		2				16		

JOB	1258-01 Project Bolt
SHEET	OF
CALC BY	JBS DATE ######
CHKD BY	0 DATE ######
SUBJECT	PM Trip Distribution

			Data Center						Power Station						Total New Trips	Total Pass by Trips	Total Diverted Link Trips
Intersection ID	Intersection Name	Movement	Trip Dist % by		Total New Trips	Pass-by % by		Total Pass-by	Trip Dist % by		Total New Trips	Pass-by % by		Total Pass-by			
			Enter %	Exit %		Enter %	Exit %		Enter %	Exit %		Enter %	Exit %				
3	Bernheisel Bridge Rd & Green Hill Rd	EB U															
		EB L															
		EB T															
		EB R															
		WB U															
		WB L	26%		8				26%		1				9		
		WB T															
		WB R															
		NB U															
		NB L															
		NB T		19%	34					19%	1				35		
		NB R		26%	46					26%	1				47		
		SB U															
		SB L															
		SB T	19%		6				19%		1				7		
		SB R															
4	County Club Rd & Western Driveway	EB U															
		EB L															
		EB T															
		EB R		20%	36										36		
		WB U															
		WB L															
		WB T															
		WB R															
		NB U															
		NB L	10%		3										3		
		NB T	35%		11				45%		2				13		
		NB R															
		SB U															
		SB L															
		SB T		25%	44					45%	2				46		
		SB R															

JOB	1258-01 Project Bolt
SHEET	OF
CALC BY	JBS DATE ######
CHKD BY	0 DATE ######
SUBJECT	PM Trip Distribution

			Data Center						Power Station						Total New Trips	Total Pass by Trips	Total Diverted Link Trips
Intersection ID	Intersection Name	Movement	Trip Dist % by		Total New Trips	Pass-by % by		Total Pass-by	Trip Dist % by		Total New Trips	Pass-by % by		Total Pass-by			
			Enter %	Exit %		Enter %	Exit %		Enter %	Exit %		Enter %	Exit %				
5	County Club Rd & Main Driveway	EB U															
		EB L	35%		11										11		
		EB T							45%		2				2		
		EB R															
		WB U															
		WB L															
		WB T								45%	2				2		
		WB R	40%		12										12		
		NB U															
		NB L															
		NB T															
		NB R															
		SB U															
		SB L		35%	62										62		
		SB T															
		SB R		25%	44										44		
6	County Club Rd & Eastern Driveway	EB U															
		EB L							45%		2				2		
		EB T		35%	62										62		
		EB R															
		WB U															
		WB L															
		WB T	40%		12										12		
		WB R	15%		5				55%		3				8		
		NB U															
		NB L															
		NB T															
		NB R															
		SB U															
		SB L		20%	35					55%	3				38		
		SB T															
		SB R								45%	2				2		

JOB	1258-01 Project Bolt
SHEET	OF
CALC BY	JBS — DATE 2/7/2025
CHKD BY	0 — DATE 1/0/1900
SUBJECT	SAT Trip Distribution

			Data Center						Power Station						Total New Trips	Total Pass by Trips	Total Diverted Link Trips
Intersection ID	Intersection Name	Movement	Trip Dist % by		Total New Trips	Pass-by % by		Total Pass-by	Trip Dist % by		Total New Trips	Pass-by % by		Total Pass-by			
			Enter %	Exit %		Enter %	Exit %		Enter %	Exit %		Enter %	Exit %				
1	US Route 11 (Harrisburg Pike) & County Club Rd	EB U															
		EB L	35%		11				35%		2				13		
		EB T															
		EB R															
		WB U															
		WB L															
		WB T															
		WB R	10%		3				10%		0				3		
		NB U															
		NB L															
		NB T															
		NB R															
		SB U															
		SB L		10%	18					10%	0				18		
		SB T															
		SB R		35%	62					35%	2				64		
2	Country Club Rd & Bernheisel Bridge Rd	EB U															
		EB L		45%	80					45%	2				82		
		EB T															
		EB R		10%	17					10%	1				18		
		WB U															
		WB L															
		WB T															
		WB R															
		NB U															
		NB L	10%		3				10%		1				4		
		NB T															
		NB R															
		SB U															
		SB L															
		SB T															
		SB R	45%		14				45%		2				16		

JOB	1258-01 Project Bolt
SHEET	OF
CALC BY	JBS — DATE 2/7/2025
CHKD BY	0 — DATE 1/0/1900
SUBJECT	SAT Trip Distribution

			Data Center						Power Station						Total New Trips	Total Pass by Trips	Total Diverted Link Trips
Intersection ID	Intersection Name	Movement	Trip Dist % by		Total New Trips	Pass-by % by		Total Pass-by	Trip Dist % by		Total New Trips	Pass-by % by		Total Pass-by			
			Enter %	Exit %		Enter %	Exit %		Enter %	Exit %		Enter %	Exit %				
3	Bernheisel Bridge Rd & Green Hill Rd	EB U															
		EB L															
		EB T															
		EB R															
		WB U															
		WB L	26%		8				26%		1				9		
		WB T															
		WB R															
		NB U															
		NB L															
		NB T		19%	34					19%	1				35		
		NB R		26%	46					26%	1				47		
		SB U															
		SB L															
		SB T	19%		6				19%		1				7		
		SB R															
4	County Club Rd & Western Driveway	EB U															
		EB L															
		EB T															
		EB R		20%	36										36		
		WB U															
		WB L															
		WB T															
		WB R															
		NB U															
		NB L	10%		3										3		
		NB T	35%		11				45%		2				13		
		NB R															
		SB U															
		SB L															
		SB T		25%	44					45%	2				46		
		SB R															

JOB	1258-01 Project Bolt
SHEET	OF
CALC BY	JBS — DATE 2/7/2025
CHKD BY	0 — DATE 1/0/1900
SUBJECT	SAT Trip Distribution

			Data Center						Power Station						Total New Trips	Total Pass by Trips	Total Diverted Link Trips
Intersection ID	Intersection Name	Movement	Trip Dist % by		Total New Trips	Pass-by % by		Total Pass-by	Trip Dist % by		Total New Trips	Pass-by % by		Total Pass-by			
			Enter %	Exit %		Enter %	Exit %		Enter %	Exit %		Enter %	Exit %				
5	County Club Rd & Main Driveway	EB U															
		EB L	35%		11										11		
		EB T							45%		2				2		
		EB R															
		WB U															
		WB L															
		WB T								45%	2				2		
		WB R	40%		12										12		
		NB U															
		NB L															
		NB T															
		NB R															
		SB U															
		SB L		35%	62										62		
		SB T															
		SB R		25%	44										44		
6	County Club Rd & Eastern Driveway	EB U															
		EB L							45%		2				2		
		EB T		35%	62										62		
		EB R															
		WB U															
		WB L															
		WB T	40%		12										12		
		WB R	15%		5				55%		3				8		
		NB U															
		NB L															
		NB T															
		NB R															
		SB U															
		SB L		20%	35					55%	3				38		
		SB T															
		SB R								45%	2				2		

Car ADT SQ FT							
Site	Independent Variable (SQ FT/1,000)	Number of Trips	Trip Rate	Site Trip Rate - Weighted Average Rate		Weight	(Value Squared x Weight)
				Value	Value Squared		
Site A - 11120 Thomasson Barn Rd, Manassas, VA	352.030	371	1.0539	-0.3737	0.1396	0.0922	0.0129
Site B - 9000 Freedom Center Blvd, Manassas, VA	409.252	445	1.0873	-0.4071	0.1658	0.1072	0.0178
Site C - 25390 Sutton Bay Plaza, Chantilly, VA	508.026	349	0.6870	-0.0068	0.0000	0.1331	0.0000
Site D - 21745 Sir Timothy Dr, Ashburn, VA	650.511	399	0.6134	0.0669	0.0045	0.1704	0.0008
Site E - 8170 Bethlehem Rd, Manassas, VA	719.742	478	0.6641	0.0161	0.0003	0.1885	0.0000
Site F - 21350 Pacific Blvd, Sterling, VA	1178.308	555	0.4710	0.2092	0.0438	0.3086	0.0135
Total	3817.869	2597	0.6802		Variance		0.0450
					6/5 Factor		0.8163
					Weighted Sample Variance		0.0540
	Car ADT Weighted Trip Rate		0.6802		Weighted Standard Deviation		0.2323

Car AM SQ FT							
Site	Independent Variable (SQ FT/1,000)	Number of Trips	Trip Rate	Site Trip Rate - Weighted Average Rate		Weight	(Value Squared x Weight)
				Value	Value Squared		
Site A - 11120 Thomasson Barn Rd, Manassas, VA	352.03	33	0.0937	-0.0180	0.0003	0.0922	0.0000
Site B - 9000 Freedom Center Blvd, Manassas, VA	409.252	49	0.1197	-0.0440	0.0019	0.1072	0.0002
Site C - 25390 Sutton Bay Plaza, Chantilly, VA	508.026	36	0.0709	0.0048	0.0000	0.1331	0.0000
Site D - 21745 Sir Timothy Dr, Ashburn, VA	650.511	54	0.0830	-0.0073	0.0001	0.1704	0.0000
Site E - 8170 Bethlehem Rd, Manassas, VA	719.742	62	0.0861	-0.0104	0.0001	0.1885	0.0000
Site F - 21350 Pacific Blvd, Sterling, VA	1178.308	55	0.0467	0.0290	0.0008	0.3086	0.0003
Total	3817.869	289	0.0757		Variance		0.0005
					6/5 Factor		0.0908
					Weighted Sample Variance		0.0006
	Car AM Weighted Trip Rate		0.0757		Weighted Standard Deviation		0.0252

Car PM SQ FT							
Site	Independent Variable (SQ FT/1,000)	Number of Trips	Trip Rate	Site Trip Rate - Weighted Average Rate		Weight	(Value Squared x Weight)
				Value	Value Squared		
Site A - 11120 Thomasson Barn Rd, Manassas, VA	352.03	29	0.0824	-0.0329	0.0011	0.0922	0.0001
Site B - 9000 Freedom Center Blvd, Manassas, VA	409.252	23	0.0562	-0.0067	0.0000	0.1072	0.0000
Site C - 25390 Sutton Bay Plaza, Chantilly, VA	508.026	33	0.0650	-0.0155	0.0002	0.1331	0.0000
Site D - 21745 Sir Timothy Dr, Ashburn, VA	650.511	15	0.0231	0.0264	0.0007	0.1704	0.0001
Site E - 8170 Bethlehem Rd, Manassas, VA	719.742	49	0.0681	-0.0186	0.0003	0.1885	0.0001
Site F - 21350 Pacific Blvd, Sterling, VA	1178.308	40	0.0339	0.0156	0.0002	0.3086	0.0001
Total	3817.869	189	0.0495		Variance		0.0004
					6/5 Factor		0.0594
					Weighted Sample Variance		0.0005
	Car PM Weighted Trip Rate		0.0495		Weighted Standard Deviation		0.0218

Car SAT SQ FT Peak Hour							
Site	Independent Variable (SQ FT/1,000)	Number of Trips	Trip Rate	Site Trip Rate - Weighted Average Rate		Weight	(Value Squared x Weight)
				Value	Value Squared		
Site A - 11120 Thomasson Barn Rd, Manassas, VA	352.03	0	0.0000	0.0000	0.0000	0.0922	0.0000
Site B - 9000 Freedom Center Blvd, Manassas, VA	409.252	0	0.0000	0.0000	0.0000	0.1072	0.0000
Site C - 25390 Sutton Bay Plaza, Chantilly, VA	508.026	0	0.0000	0.0000	0.0000	0.1331	0.0000
Site D - 21745 Sir Timothy Dr, Ashburn, VA	650.511	0	0.0000	0.0000	0.0000	0.1704	0.0000
Site E - 8170 Bethlehem Rd, Manassas, VA	719.742	0	0.0000	0.0000	0.0000	0.1885	0.0000
Site F - 21350 Pacific Blvd, Sterling, VA	1178.308	0	0.0000	0.0000	0.0000	0.3086	0.0000
Total	3817.869	0	0.0000		Variance		0.0000
					6/5 Factor		0.0000
					Weighted Sample Variance		0.0000
	Car SAT Weighted Trip Rate		0.0000		Weighted Standard Deviation		0.0000

ADT IN/OUT	IN	OUT	Total
Site A - 11120 Thomasson Barn Rd, Manassas, VA	187	184	371
Site B - 9000 Freedom Center Blvd, Manassas, VA	217	228	445
Site C - 25390 Sutton Bay Plaza, Chantilly, VA	174	175	349
Site D - 21745 Sir Timothy Dr, Ashburn, VA	196	203	399
Site E - 8170 Bethlehem Rd, Manassas, VA	236	242	478
Site F - 21350 Pacific Blvd, Sterling, VA	272	283	555
Total	1282	1315	2597

(IN Sum/Total)	(OUT Sum/Total)
IN %	OUT %
49	51

	X = 4,200,000 / 1000 SQ FT	IN	OUT	IN	OUT	Total
ADT Trip Rate	T = 0.6802x	49%	51%	1400	1457	2857
AM Trip Rate	T = 0.0757x	80%	20%	254	64	318
PM Trip Rate	T = 0.0495x	15%	85%	31	177	208
SAT Peak Hour Rate	T = 0.0495x	15%	85%	31	177	208

JOB	Project Bolt 1258-01		
SHEET		OF	
CALC BY	JBS	DATE	3/13/2025
CHKD BY		DATE	
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)
1	US Route (Harrisburg Road) 11 & Country Club Road	Eastbound	Left	3.0	+	1.0	=	**4.0**	2.5	3	-0.5
			Thru/Right	4.0	+	2.5	=	**6.5**	2.5	3.5	-1
		Westbound	Left	3.0	+	1.0	=	**4.0**	2.5	3	-0.5
			Thru/Right	4.0	+	2.5	=	**6.5**	2.5	3.5	-1
		Northbound	Left/Thru	3.3	+	2.3	=	**5.6**	2.5	3.5	-1
		Southbound	Left/Thru/Right	3.3	+	2.3	=	**5.6**	2.5	3.5	-1

JOB	1258-01 Project Bolt		
SHEET		OF	
CALC BY	JBS	DATE	2/7/2025
CHKD BY		DATE	
SUBJECT	Base Critical & Follow-Up Headway		

Intersection: Country Club Rd & Bernheisel Bridge Rd
Analysis Year: 2037 Proposed Conditions
Analysis Condition: ☑ Weekday AM ☐ Weekday MID ☑ Weekday PM ☑ SAT Midday
Area Type: Rural

HCM 6th Edition Equation 20-30 ($t_{c,x} = t_{c,base} + t_{c,HV}P_{HV} + t_{c,g}G - t_{3,LT}$)
HCM 6th Edition Equation 20-31 ($t_{f,x} = t_{f,base} + t_{f,HV}P_{HV}$)

AM

Country Club Rd & Bernheisel Bridge 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	LT from Minor	2	8.1	1	0.02	0.2	2	0.7	**7.8**	3.0	0.9	**3.0**
Eastbound	RT from Minor	2	6.4	1	0.20	0.1	2	0	**6.8**	3.4	0.9	**3.6**
Northbound	LT from Major	2	4.9	1	0.02	0	4	0	**4.9**	3.5	0.9	**3.5**

PM

Country Club Rd & Bernheisel Bridge 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	LT from Minor	2	8.1	1	0.02	0.2	2	0.7	**7.8**	3.0	0.9	**3.0**
Eastbound	RT from Minor	2	6.4	1	0.02	0.1	2	0	**6.6**	3.4	0.9	**3.4**
Northbound	LT from Major	2	4.9	1	0.02	0.0	4	0	**4.9**	3.5	0.9	**3.5**
		0										
		0										
		0										
		0										
		0										

SAT

Country Club Rd & Bernheisel Bridge 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	LT from Minor	2	8.1	1	0.02	0.2	2	0.7	**7.8**	3.0	0.9	**3.0**
Eastbound	RT from Minor	2	6.4	1	0.02	0.1	2	0	**6.6**	3.4	0.9	**3.4**
Northbound	LT from Major	2	4.9	1	0.02	0.0	4	0	**4.9**	3.5	0.9	**3.5**
		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 Page 20-18, where,
$T_{c,x}$ = Critical Movement for movement x
$T_{c,base}$ = Base Critical Headway from PennDOT Publication 46 Exhibit 10-11
$T_{c,HV}$ = Adjustment Factor for Heavy Vehicles from HCM Page 20-18
P_{HV} = Proportion Heavy Vehicles from HCM Page 20-18
$T_{c,G}$ = Adjustment Factor for Grade from HCM Page 20-18
G = Percent Grade Expressed as an Integer from HCM Page 20-18
$T_{3,LT}$ = Adjustment Factor for Intersection Geometry from HCM Page 20-18

$T_{f,x} = T_{f,base}+t_{f,HV}P_{HV}$ from HCM Page 20-19, where,
$T_{f,x}$ = Follow-Up Headway for Movement x
$T_{f,base}$ = Base Follow-Up Headway from PennDOT Publication 46 Exhibit 10-12
$T_{f,HV}$ = Adjustment Factor for Heavy Vehicles from HCM Page 20-19
P_{HV} = Proportion Heavy Vehicles from HCM Page 20-19

JOB	1258-01 Project Bolt		
SHEET		OF	
CALC BY	JBS	DATE	2/7/2025
CHKD BY		DATE	
SUBJECT	Base Critical & Follow-Up Headway		

Intersection: Country Club Rd & Bernheisel Bridge Rd
Analysis Year: 2025 Existing Conditions
Analysis Condition: ☑ Weekday AM ☐ Weekday MID ☑ Weekday PM ☑ SAT Midday
Area Type: Rural

HCM 6th Edition Equation 20-30 ($t_{c,x} = t_{c,base} + t_{c,HV}P_{HV} + t_{c,g}G - t_{3,LT}$)
HCM 6th Edition Equation 20-31 ($t_{f,x} = t_{f,base} + t_{f,HV}P_{HV}$)

AM

Country Club Rd & Bernheisel Bridge 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: North-South												
Approach	**Movement**											
Eastbound	LT from Minor	2	8.1	1	0.00	0.2	8	0.7	**9.0**	3.0	0.9	**3.0**
Eastbound	RT from Minor	2	6.4	1	0.20	0.1	8	0	**7.4**	3.4	0.9	**3.6**
Northbound	LT from Major	2	4.9	1	0.00	0	4	0	**4.9**	3.5	0.9	**3.5**

PM

Country Club Rd & Bernheisel Bridge 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: North-South												
Approach	**Movement**											
Eastbound	LT from Minor	2	8.1	1	0.00	0.2	8	0.7	**9.0**	3.0	0.9	**3.0**
Eastbound	RT from Minor	2	6.4	1	0.00	0.1	8	0	**7.2**	3.4	0.9	**3.4**
Northbound	LT from Major	2	4.9	1	0.00	0.0	4	0	**4.9**	3.5	0.9	**3.5**
		0										
		0										
		0										
		0										
		0										

SAT

Country Club Rd & Bernheisel Bridge 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: North-South												
Approach	**Movement**											
Eastbound	LT from Minor	2	8.1	1	0.00	0.2	8	0.7	**9.0**	3.0	0.9	**3.0**
Eastbound	RT from Minor	2	6.4	1	0.00	0.1	8	0	**7.2**	3.4	0.9	**3.4**
Northbound	LT from Major	2	4.9	1	0.00	0.0	4	0	**4.9**	3.5	0.9	**3.5**
		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 Page 20-18, where,
$T_{c,x}$ = Critical Movement for movement x
$T_{c,base}$ = Base Critical Headway from PennDOT Publication 46 Exhibit 10-11
$T_{c,HV}$ = Adjustment Factor for Heavy Vehicles from HCM Page 20-18
P_{HV} = Proportion Heavy Vehicles from HCM Page 20-18
$T_{c,G}$ = Adjustment Factor for Grade from HCM Page 20-18
G = Percent Grade Expressed as an Integer from HCM Page 20-18
$T_{3,LT}$ = Adjustment Factor for Intersection Geometry from HCM Page 20-18

$T_{f,x} = T_{f,base}+t_{f,HV}P_{HV}$ from HCM Page 20-19, where,
$T_{f,x}$ = Follow-Up Headway for Movement x
$T_{f,base}$ = Base Follow-Up Headway from PennDOT Publication 46 Exhibit 10-12
$T_{f,HV}$ = Adjustment Factor for Heavy Vehicles from HCM Page 20-19
P_{HV} = Proportion Heavy Vehicles from HCM Page 20-19

JOB	1258-01 Project Bolt		
SHEET		OF	
CALC BY	JBS	DATE	2/7/2025
CHKD BY		DATE	
SUBJECT	Base Critical & Follow-Up Headway		

Intersection: Bernheisel Bridge Rd & Green Hill Rd
Analysis Year: 2037 Proposed Conditions
Analysis Condition: ☑ Weekday AM ☐ Weekday MID ☑ Weekday PM ☑ SAT Midday
Area Type: Rural

HCM 6th Edition Equation 20-30 ($t_{c,x} = t_{c,base} + t_{c,HV}P_{HV} + t_{c,g}G - t_{3,LT}$)
HCM 6th Edition Equation 20-31 ($t_{f,x} = t_{f,base} + t_{f,HV}P_{HV}$)

AM

Bernheisel Bridge Rd & Green Hill 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 Minor	2	8.1	1	0.20	0.2	0	0.7	**7.6**	3.0	0.9	**3.2**
Westbound	RT from Minor	2	6.4	1	0.00	0.1	0	0	**6.4**	3.4	0.9	**3.4**
Southbound	LT from Major	2	4.9	1	0.02	0	2	0	**4.9**	3.5	0.9	**3.5**

PM

Bernheisel Bridge Rd & Green Hill 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 Minor	2	8.1	1	0.13	0.2	0	0.7	**7.5**	3.0	0.9	**3.1**
Westbound	RT from Minor	2	6.4	1	0.00	0.1	0	0	**6.4**	3.4	0.9	**3.4**
Southbound	LT from Major	2	4.9	1	0.00	0.0	2	0	**4.9**	3.5	0.9	**3.5**
		0										
		0										
		0										
		0										
		0										

SAT

Bernheisel Bridge Rd & Green Hill 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 Minor	2	8.1	1	0.02	0.2	0	0.7	**7.4**	3.0	0.9	**3.0**
Westbound	RT from Minor	2	6.4	1	0.00	0.1	0	0	**6.4**	3.4	0.9	**3.4**
Southbound	LT from Major	2	4.9	1	0.00	0.0	2	0	**4.9**	3.5	0.9	**3.5**
		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 Page 20-18, where,
$T_{c,x}$ = Critical Movement for movement x
$T_{c,base}$ = Base Critical Headway from PennDOT Publication 46 Exhibit 10-11
$T_{c,HV}$ = Adjustment Factor for Heavy Vehicles from HCM Page 20-18
P_{HV} = Proportion Heavy Vehicles from HCM Page 20-18
$T_{c,G}$ = Adjustment Factor for Grade from HCM Page 20-18
G = Percent Grade Expressed as an Integer from HCM Page 20-18
$T_{3,LT}$ = Adjustment Factor for Intersection Geometry from HCM Page 20-18

$T_{f,x} = T_{f,base}+t_{f,HV}P_{HV}$ from HCM Page 20-19, where,
$T_{f,x}$ = Follow-Up Headway for Movement x
$T_{f,base}$ = Base Follow-Up Headway from PennDOT Publication 46 Exhibit 10-12
$T_{f,HV}$ = Adjustment Factor for Heavy Vehicles from HCM Page 20-19
P_{HV} = Proportion Heavy Vehicles from HCM Page 20-19

JOB	1258-01 Project Bolt		
SHEET		OF	
CALC BY	JBS	DATE	2/7/2025
CHKD BY		DATE	
SUBJECT	Base Critical & Follow-Up Headway		

Intersection: Bernheisel Bridge Rd & Green Hill Rd
Analysis Year: 2025 Existing Conditions
Analysis Condition: ☑ Weekday AM ☐ Weekday MID ☑ Weekday PM ☑ SAT Midday
Area Type: Rural

HCM 6th Edition Equation 20-30 ($t_{c,x} = t_{c,base} + t_{c,HV}P_{HV} + t_{c,g}G - t_{3,LT}$)
HCM 6th Edition Equation 20-31 ($t_{f,x} = t_{f,base} + t_{f,HV}P_{HV}$)

AM

Bernheisel Bridge Rd & Green Hill 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: North-South												
Approach	**Movement**											
Westbound	LT from Minor	2	8.1	1	0.20	0.2	0	0.7	**7.6**	3.0	0.9	**3.2**
Westbound	RT from Minor	2	6.4	1	0.00	0.1	0	0	**6.4**	3.4	0.9	**3.4**
Southbound	LT from Major	2	4.9	1	0.02	0	2	0	**4.9**	3.5	0.9	**3.5**

PM

Bernheisel Bridge Rd & Green Hill 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: North-South												
Approach	**Movement**											
Westbound	LT from Minor	2	8.1	1	0.13	0.2	0	0.7	**7.5**	3.0	0.9	**3.1**
Westbound	RT from Minor	2	6.4	1	0.00	0.1	0	0	**6.4**	3.4	0.9	**3.4**
Southbound	LT from Major	2	4.9	1	0.00	0.0	2	0	**4.9**	3.5	0.9	**3.5**
		0										
		0										
		0										
		0										
		0										

SAT

Bernheisel Bridge Rd & Green Hill 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: North-South												
Approach	**Movement**											
Westbound	LT from Minor	2	8.1	1	0.00	0.2	0	0.7	**7.4**	3.0	0.9	**3.0**
Westbound	RT from Minor	2	6.4	1	0.00	0.1	0	0	**6.4**	3.4	0.9	**3.4**
Southbound	LT from Major	2	4.9	1	0.00	0.0	2	0	**4.9**	3.5	0.9	**3.5**
		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 Page 20-18, where,
$T_{c,x}$ = Critical Movement for movement x
$T_{c,base}$ = Base Critical Headway from PennDOT Publication 46 Exhibit 10-11
$T_{c,HV}$ = Adjustment Factor for Heavy Vehicles from HCM Page 20-18
P_{HV} = Proportion Heavy Vehicles from HCM Page 20-18
$T_{c,G}$ = Adjustment Factor for Grade from HCM Page 20-18
G = Percent Grade Expressed as an Integer from HCM Page 20-18
$T_{3,LT}$ = Adjustment Factor for Intersection Geometry from HCM Page 20-18

$T_{f,x} = T_{f,base}+t_{f,HV}P_{HV}$ from HCM Page 20-19, where,
$T_{f,x}$ = Follow-Up Headway for Movement x
$T_{f,base}$ = Base Follow-Up Headway from PennDOT Publication 46 Exhibit 10-12
$T_{f,HV}$ = Adjustment Factor for Heavy Vehicles from HCM Page 20-19
P_{HV} = Proportion Heavy Vehicles from HCM Page 20-19

JOB	1258-01 Project Bolt		
SHEET		OF	
CALC BY	JBS	DATE	2/7/2025
CHKD BY		DATE	
SUBJECT	Base Critical & Follow-Up Headway		

Intersection: County Club Rd & Western Driveway
Analysis Year: 2037 Proposed Conditions
Analysis Condition: ☑ Weekday AM ☐ Weekday MID ☑ Weekday PM ☑ SAT Midday
Area Type: Rural

HCM 6th Edition Equation 20-30 ($t_{c,x} = t_{c,base} + t_{c,HV}P_{HV} + t_{c,g}G - t_{3,LT}$)
HCM 6th Edition Equation 20-31 ($t_{f,x} = t_{f,base} + t_{f,HV}P_{HV}$)

AM

County Club Rd & Western Driveway		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	LT from Minor	2	8.1	1	0.00	0.2	1	0.7	**7.6**	3.0	0.9	**3.0**
Eastbound	RT from Minor	2	6.4	1	0.02	0.1	1	0	**6.5**	3.4	0.9	**3.4**
Northbound	LT from Major	2	4.9	1	0.02	0	-6	0	**4.9**	3.5	0.9	**3.5**

PM

County Club Rd & Western Driveway		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	LT from Minor	2	8.1	1	0.00	0.2	1	0.7	**7.6**	3.0	0.9	**3.0**
Eastbound	RT from Minor	2	6.4	1	0.02	0.1	1	0	**6.5**	3.4	0.9	**3.4**
Northbound	LT from Major	2	4.9	1	0.02	0.0	-6	0	**4.9**	3.5	0.9	**3.5**
		0										
		0										
		0										
		0										
		0										

SAT

County Club Rd & Western Driveway		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	LT from Minor	2	8.1	1	0.00	0.2	1	0.7	**7.6**	3.0	0.9	**3.0**
Eastbound	RT from Minor	2	6.4	1	0.02	0.1	1	0	**6.5**	3.4	0.9	**3.4**
Northbound	LT from Major	2	4.9	1	0.02	0.0	-6	0	**4.9**	3.5	0.9	**3.5**
		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 Page 20-18, where,
$T_{c,x}$ = Critical Movement for movement x
$T_{c,base}$ = Base Critical Headway from PennDOT Publication 46 Exhibit 10-11
$T_{c,HV}$ = Adjustment Factor for Heavy Vehicles from HCM Page 20-18
P_{HV} = Proportion Heavy Vehicles from HCM Page 20-18
$T_{c,G}$ = Adjustment Factor for Grade from HCM Page 20-18
G = Percent Grade Expressed as an Integer from HCM Page 20-18
$T_{3,LT}$ = Adjustment Factor for Intersection Geometry from HCM Page 20-18

$T_{f,x} = T_{f,base}+t_{f,HV}P_{HV}$ from HCM Page 20-19, where,
$T_{f,x}$ = Follow-Up Headway for Movement x
$T_{f,base}$ = Base Follow-Up Headway from PennDOT Publication 46 Exhibit 10-12
$T_{f,HV}$ = Adjustment Factor for Heavy Vehicles from HCM Page 20-19
P_{HV} = Proportion Heavy Vehicles from HCM Page 20-19

JOB	1258-01 Project Bolt		
SHEET		OF	
CALC BY	JBS	DATE	2/7/2025
CHKD BY		DATE	
SUBJECT	Base Critical & Follow-Up Headway		

Intersection: County Club Rd & Main Driveway
Analysis Year: 2037 Proposed Conditions
Analysis Condition: ☑ Weekday AM ☐ Weekday MID ☑ Weekday PM ☑ SAT Midday
Area Type: Rural

HCM 6th Edition Equation 20-30 ($t_{c,x} = t_{c,base} + t_{c,HV}P_{HV} + t_{c,g}G - t_{3,LT}$)
HCM 6th Edition Equation 20-31 ($t_{f,x} = t_{f,base} + t_{f,HV}P_{HV}$)

AM

County Club Rd & Main Driveway		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	LT from Major	2	4.9	1	0.02	0.0	2	0	**4.9**	3.5	0.9	**3.5**
Southbound	LT from Minor	2	8.1	1	0.02	0.2	-1	0.7	**7.2**	3.0	0.9	**3.0**
Southbound	RT from Minor	2	6.4	1	0.02	0.1	-1	0	**6.3**	3.4	0.9	**3.4**

PM

County Club Rd & Main Driveway		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	LT from Major	2	4.9	1	0.02	0.0	2	0	**4.9**	3.5	0.9	**3.5**
Southbound	LT from Minor	2	8.1	1	0.00	0.2	-1	0.7	**7.2**	3.0	0.9	**3.0**
Southbound	RT from Minor	2	6.4	1	0.00	0.1	-1	0	**6.3**	3.4	0.9	**3.4**
		0										
		0										
		0										
		0										
		0										

SAT

County Club Rd & Main Driveway		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	LT from Major	2	4.9	1	0.00	0.0	2	0	**4.9**	3.5	0.9	**3.5**
Southbound	LT from Minor	2	8.1	1	0.00	0.2	-1	0.7	**7.2**	3.0	0.9	**3.0**
Southbound	RT from Minor	2	6.4	1	0.00	0.1	-1	0	**6.3**	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 Page 20-18, where,
$T_{c,x}$ = Critical Movement for movement x
$T_{c,base}$ = Base Critical Headway from PennDOT Publication 46 Exhibit 10-11
$T_{c,HV}$ = Adjustment Factor for Heavy Vehicles from HCM Page 20-18
P_{HV} = Proportion Heavy Vehicles from HCM Page 20-18
$T_{c,G}$ = Adjustment Factor for Grade from HCM Page 20-18
G = Percent Grade Expressed as an Integer from HCM Page 20-18
$T_{3,LT}$ = Adjustment Factor for Intersection Geometry from HCM Page 20-18

$T_{f,x} = T_{f,base}+t_{f,HV}P_{HV}$ from HCM Page 20-19, where,
$T_{f,x}$ = Follow-Up Headway for Movement x
$T_{f,base}$ = Base Follow-Up Headway from PennDOT Publication 46 Exhibit 10-12
$T_{f,HV}$ = Adjustment Factor for Heavy Vehicles from HCM Page 20-19
P_{HV} = Proportion Heavy Vehicles from HCM Page 20-19

JOB	1258-01 Project Bolt		
SHEET		OF	
CALC BY	JBS	DATE	2/7/2025
CHKD BY		DATE	
SUBJECT	Base Critical & Follow-Up Headway		

Intersection: County Club Rd & Eastern Driveway
Analysis Year: 2037 Proposed Conditions
Analysis Condition: ☑ Weekday AM ☐ Weekday MID ☑ Weekday PM ☑ SAT Midday
Area Type: Rural

HCM 6th Edition Equation 20-30 ($t_{c,x} = t_{c,base} + t_{c,HV}P_{HV} + t_{c,g}G - t_{3,LT}$)
HCM 6th Edition Equation 20-31 ($t_{f,x} = t_{f,base} + t_{f,HV}P_{HV}$)

AM

County Club Rd & Eastern Driveway		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	LT from Major	2	4.9	1	0.02	0.0	6	0	**4.9**	3.5	0.9	**3.5**
Southbound	LT from Minor	2	8.1	1	0.02	0.2	4	0.7	**8.2**	3.0	0.9	**3.0**
Southbound	RT from Minor	2	6.4	1	0.02	0.1	4	0	**6.8**	3.4	0.9	**3.4**

PM

County Club Rd & Eastern Driveway		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	LT from Major	2	4.9	1	0.02	0.0	6	0	**4.9**	3.5	0.9	**3.5**
Southbound	LT from Minor	2	8.1	1	0.02	0.2	4	0.7	**8.2**	3.0	0.9	**3.0**
Southbound	RT from Minor	2	6.4	1	0.02	0.1	4	0	**6.8**	3.4	0.9	**3.4**
		0										
		0										
		0										
		0										
		0										

SAT

County Club Rd & Eastern Driveway		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	LT from Major	2	4.9	1	0.02	0.0	6	0	**4.9**	3.5	0.9	**3.5**
Southbound	LT from Minor	2	8.1	1	0.02	0.2	4	0.7	**8.2**	3.0	0.9	**3.0**
Southbound	RT from Minor	2	6.4	1	0.02	0.1	4	0	**6.8**	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 Page 20-18, where,
$T_{c,x}$ = Critical Movement for movement x
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P_{HV} = Proportion Heavy Vehicles from HCM Page 20-18
$T_{c,G}$ = Adjustment Factor for Grade from HCM Page 20-18
G = Percent Grade Expressed as an Integer from HCM Page 20-18
$T_{3,LT}$ = Adjustment Factor for Intersection Geometry from HCM Page 20-18

$T_{f,x} = T_{f,base}+t_{f,HV}P_{HV}$ from HCM Page 20-19, where,
$T_{f,x}$ = Follow-Up Headway for Movement x
$T_{f,base}$ = Base Follow-Up Headway from PennDOT Publication 46 Exhibit 10-12
$T_{f,HV}$ = Adjustment Factor for Heavy Vehicles from HCM Page 20-19
P_{HV} = Proportion Heavy Vehicles from HCM Page 20-19

Traffic Signal Warrant Analysis Workbook

3/13/2025

STUDY AND ANALYSIS INFORMATION

Municipality:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Analysis Information

Data Collection Date:	2/5/2025
Day of the Week:	Wednesday

Is the intersection in a built-up area of an isolated community of <10,000 population? No

Major Street Information

Major Street Name and Route Number:	Bernheisel Bridge Rd
Major Street Approach #1 Direction:	N-Bound
Major Street Approach #2 Direction:	S-Bound

Number of Lanes for Moving Traffic on Each Major Street Approach:	1	**LANE(S)**
Speed Limit or 85th Percentile Speed on the Major Street:	30	**MPH**

Minor Street Information

Minor Street Name and Route Number:	Country Club Rd
Minor Street Approach #1 Direction:	E-Bound
Minor Street Approach #2 Direction:	W-Bound

Number of Lanes for Moving Traffic on Each Minor Street Approach:	1	**LANE(S)**

TRAFFIC SIGNAL WARRANT ANALYSIS FINDINGS

	Applicable?	Warrant Met?
Warrant 1, Eight-Hour Vehicular Volume	**Yes**	**No**
Warrant 2, Four-Hour Vehicular Volume	**Yes**	**No**
Warrant 3, Peak Hour	**Yes**	**No**
Warrant 4, Pedestrian Volume	**No**	**N/A**
Warrant 5, School Crossing	**No**	**N/A**
Warrant 6, Coordinated Signal System	**No**	**N/A**
Warrant 7, Crash Experience	**No**	**N/A**
Warrant 8, Roadway Network	**No**	**N/A**
Warrant 9, Intersection Near a Grade Crossing	**No**	**N/A**
Warrant PA-1, ADT Volume Warrant	**Yes**	**No**
Warrant PA-2, Midblock and Trail Crossings	**No**	**N/A**

ENTER VOLUME DATA PER 15 MINUTE INTERVAL, PER APPROACH

Time Interval		Major Street Approach #1 (N-Bound)	Major Street Approach #2 (S-Bound)	Major Street Combined	Minor Street Approach #1 (E-Bound)	Minor Street Approach #2 (W-Bound)
Begin At	End Of	Volume	Volume	Total Volume	Volume	Volume
12:00 AM	12:14 AM	0	0	0	0	0
12:15 AM	12:29 AM	0	0	0	0	0
12:30 AM	12:44 AM	0	1	1	0	0
12:45 AM	12:59 AM	0	1	1	1	0
1:00 AM	1:14 AM	0	0	0	0	0
1:15 AM	1:29 AM	0	1	1	0	0
1:30 AM	1:44 AM	0	1	1	0	0
1:45 AM	1:59 AM	1	1	2	1	0
2:00 AM	2:14 AM	0	0	0	0	0
2:15 AM	2:29 AM	0	0	0	0	0
2:30 AM	2:44 AM	0	1	1	0	0
2:45 AM	2:59 AM	0	1	1	1	0
3:00 AM	3:14 AM	0	0	0	0	0
3:15 AM	3:29 AM	0	1	1	0	0
3:30 AM	3:44 AM	0	1	1	0	0
3:45 AM	3:59 AM	1	1	2	1	0
4:00 AM	4:14 AM	0	0	0	0	0
4:15 AM	4:29 AM	0	0	0	0	0
4:30 AM	4:44 AM	0	0	0	0	0
4:45 AM	4:59 AM	1	1	2	1	0
5:00 AM	5:14 AM	0	2	2	1	0
5:15 AM	5:29 AM	1	3	4	1	0
5:30 AM	5:44 AM	1	3	4	1	0
5:45 AM	5:59 AM	1	3	4	1	0
6:00 AM	6:14 AM	1	26	27	3	0
6:15 AM	6:29 AM	3	34	37	4	0
6:30 AM	6:44 AM	6	55	61	4	0
6:45 AM	6:59 AM	6	47	53	3	0
7:00 AM	7:14 AM	36	111	147	37	0
7:15 AM	7:29 AM	30	124	154	34	0
7:30 AM	7:44 AM	27	127	154	35	0
7:45 AM	7:59 AM	33	112	145	35	0
8:00 AM	8:14 AM	4	24	28	4	0
8:15 AM	8:29 AM	6	24	30	4	0
8:30 AM	8:44 AM	2	29	31	8	0
8:45 AM	8:59 AM	8	24	32	5	0
9:00 AM	9:14 AM	10	26	36	4	0
9:15 AM	9:29 AM	15	15	30	4	0
9:30 AM	9:44 AM	13	12	25	5	0
9:45 AM	9:59 AM	9	18	27	4	0
10:00 AM	10:14 AM	1	3	4	1	0
10:15 AM	10:29 AM	1	2	3	1	0
10:30 AM	10:44 AM	0	2	2	1	0
10:45 AM	10:59 AM	0	2	2	0	0
11:00 AM	11:14 AM	1	3	4	1	0
11:15 AM	11:29 AM	1	2	3	1	0
11:30 AM	11:44 AM	0	2	2	1	0
11:45 AM	11:59 AM	0	2	2	0	0

ENTER VOLUME DATA PER 15 MINUTE INTERVAL, PER APPROACH

Time Interval		Major Street Approach #1 (N-Bound)	Major Street Approach #2 (S-Bound)	Major Street Combined	Minor Street Approach #1 (E-Bound)	Minor Street Approach #2 (W-Bound)
Begin At	End Of	Volume	Volume	Total Volume	Volume	Volume
12:00 PM	12:14 PM	0	2	2	12	0
12:15 PM	12:29 PM	0	2	2	12	0
12:30 PM	12:44 PM	1	2	3	12	0
12:45 PM	12:59 PM	1	2	3	13	0
1:00 PM	1:14 PM	0	1	1	11	0
1:15 PM	1:29 PM	0	2	2	11	0
1:30 PM	1:44 PM	1	2	3	12	0
1:45 PM	1:59 PM	1	2	3	12	0
2:00 PM	2:14 PM	16	20	36	19	0
2:15 PM	2:29 PM	8	19	27	17	0
2:30 PM	2:44 PM	8	20	28	20	0
2:45 PM	2:59 PM	16	24	40	17	0
3:00 PM	3:14 PM	35	9	44	23	0
3:15 PM	3:29 PM	17	26	43	26	0
3:30 PM	3:44 PM	25	25	50	23	0
3:45 PM	3:59 PM	28	15	43	24	0
4:00 PM	4:14 PM	28	39	67	85	0
4:15 PM	4:29 PM	29	32	61	89	0
4:30 PM	4:44 PM	26	25	51	84	0
4:45 PM	4:59 PM	16	25	41	89	0
5:00 PM	5:14 PM	24	21	45	24	0
5:15 PM	5:29 PM	13	18	31	22	0
5:30 PM	5:44 PM	22	17	39	24	0
5:45 PM	5:59 PM	8	22	30	25	0
6:00 PM	6:14 PM	1	1	2	7	0
6:15 PM	6:29 PM	0	1	1	6	0
6:30 PM	6:44 PM	0	1	1	6	0
6:45 PM	6:59 PM	0	1	1	6	0
7:00 PM	7:14 PM	1	1	2	5	0
7:15 PM	7:29 PM	0	1	1	4	0
7:30 PM	7:44 PM	0	1	1	4	0
7:45 PM	7:59 PM	0	0	0	4	0
8:00 PM	8:14 PM	0	1	1	3	0
8:15 PM	8:29 PM	0	1	1	3	0
8:30 PM	8:44 PM	0	0	0	3	0
8:45 PM	8:59 PM	0	0	0	2	0
9:00 PM	9:14 PM	0	1	1	2	0
9:15 PM	9:29 PM	0	0	0	2	0
9:30 PM	9:44 PM	0	0	0	2	0
9:45 PM	9:59 PM	0	0	0	2	0
10:00 PM	10:14 PM	0	1	1	2	0
10:15 PM	10:29 PM	0	0	0	2	0
10:30 PM	10:44 PM	0	0	0	2	0
10:45 PM	10:59 PM	0	0	0	2	0
11:00 PM	11:14 PM	0	1	1	2	0
11:15 PM	11:29 PM	0	0	0	2	0
11:30 PM	11:44 PM	0	0	0	2	0
11:45 PM	11:59 PM	0	0	0	2	0
	Approach Totals:	544	1232	1776	991	0

MUTCD WARRANT 1, EIGHT-HOUR VEHICULAR VOLUME

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

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

Combination of Conditions A and B Necessary?*: No

**Only applicable for Warrant 1 if after an adequate trial of other alternatives that could cause less delay and inconvenience to traffic has failed to solve the traffic problems. See Section 4C.02 of the 2009 MUTCD for application.*

Condition A - Minimum Vehicular Volume

Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)				Vehicles per hour on higher-volume minor street approach (one direction only)			
Major Street	Minor Street	100%	80%	70%	56%	100%	80%	70%	56%
1	1	500	400	350	280	150	120	105	84
2 or More	1	600	480	420	336	150	120	105	84
2 or More	2 or More	600	480	420	336	200	160	140	112
1	2 or More	500	400	350	280	200	160	140	112

Condition B - Interruption of Continuous Traffic

Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)				Vehicles per hour on higher-volume minor street approach (one direction only)			
Major Street	Minor Street	100%	80%	70%	56%	100%	80%	70%	56%
1	1	750	600	525	420	75	60	53	42
2 or More	1	900	720	630	504	75	60	53	42
2 or More	2 or More	900	720	630	504	100	80	70	56
1	2 or More	750	600	525	420	100	80	70	56

Condition A Evaluation

Number of Unique Hours Met: 0 **Condition A Satisfied?** No

Condition B Evaluation

Number of Unique Hours Met: 0 **Condition B Satisfied?** No

Combination of Condition A and Condition B Evaluation

Number of Unique Hours Met for Condition A: N/A

Number of Unique Hours Met for Condition B: N/A

Combination of Condition A and Condition B Satisfied? N/A

MUTCD WARRANT 2, FOUR-HOUR VEHICULAR VOLUME

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

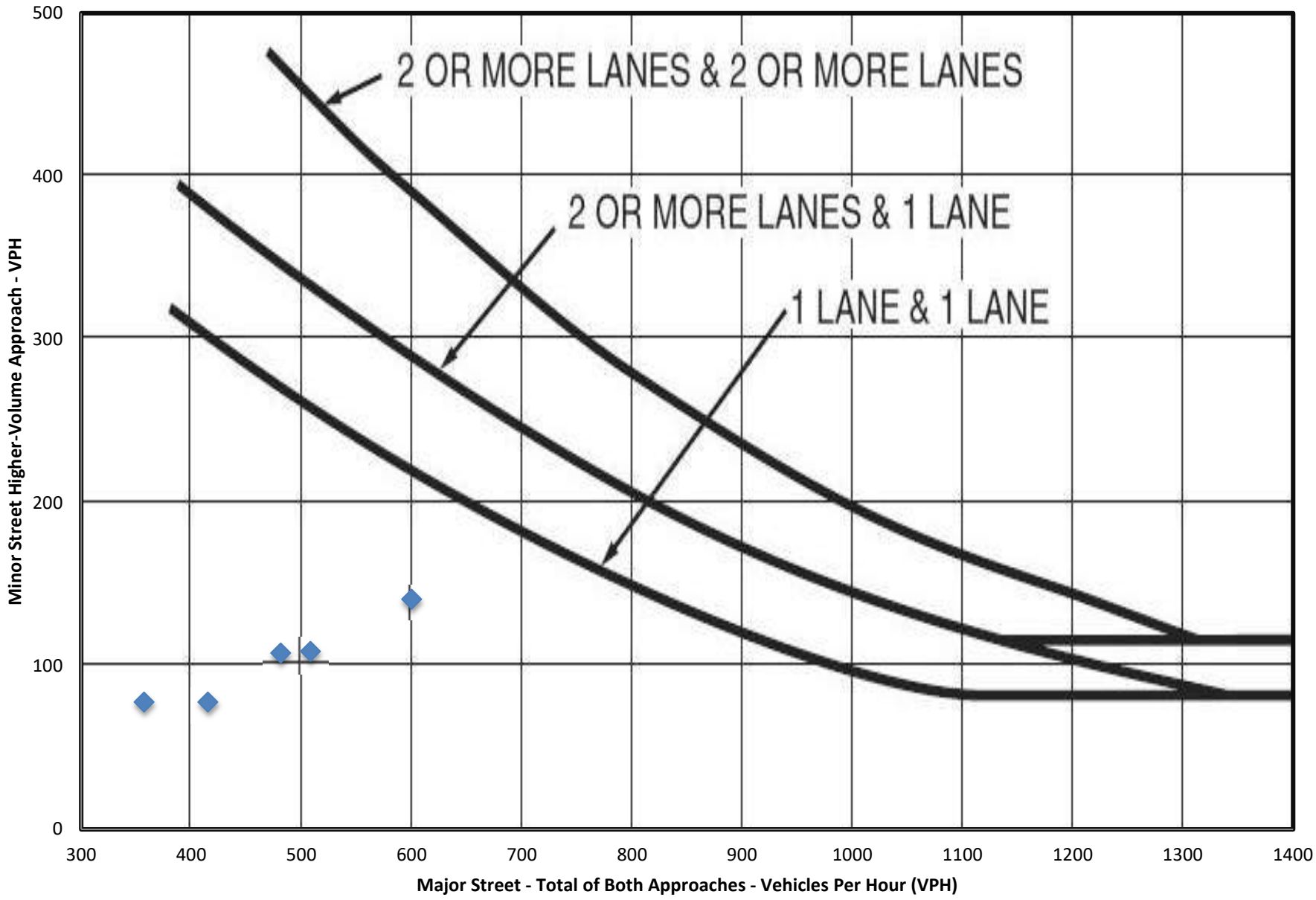
Total Number of Unique Hours Met On Figure 4C-1
0

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

Hourly Vehicular Volume			
Hour Interval Beginning At	Major Street Combined Vehicles Per Hour (VPH)	Highest Minor Street Approach Vehicles Per Hour (VPH)	Hour Met?
12:00 AM	2	1	
12:15 AM	2	1	
12:30 AM	3	1	
12:45 AM	3	1	
1:00 AM	4	1	
1:15 AM	4	1	
1:30 AM	3	1	
1:45 AM	3	1	
2:00 AM	2	1	
2:15 AM	2	1	
2:30 AM	3	1	
2:45 AM	3	1	
3:00 AM	4	1	
3:15 AM	4	1	
3:30 AM	3	1	
3:45 AM	2	1	
4:00 AM	2	1	
4:15 AM	4	2	
4:30 AM	8	3	
4:45 AM	12	4	
5:00 AM	14	4	
5:15 AM	39	6	
5:30 AM	72	9	
5:45 AM	129	12	
6:00 AM	178	14	
6:15 AM	298	48	
6:30 AM	415	78	
6:45 AM	508	109	
7:00 AM	600	141	
7:15 AM	481	108	
7:30 AM	357	78	
7:45 AM	234	51	
8:00 AM	121	21	
8:15 AM	129	21	
8:30 AM	129	21	
8:45 AM	123	18	
9:00 AM	118	17	
9:15 AM	86	14	
9:30 AM	59	11	
9:45 AM	36	7	
10:00 AM	11	3	
10:15 AM	11	3	
10:30 AM	11	3	
10:45 AM	11	3	
11:00 AM	11	3	
11:15 AM	9	14	
11:30 AM	8	25	
11:45 AM	9	36	

Hourly Vehicular Volume			
Hour Interval Beginning At	Major Street Combined Vehicles Per Hour (VPH)	Highest Minor Street Approach Vehicles Per Hour (VPH)	Hour Met?
12:00 PM	10	49	
12:15 PM	9	48	
12:30 PM	9	47	
12:45 PM	9	47	
1:00 PM	9	46	
1:15 PM	44	54	
1:30 PM	69	60	
1:45 PM	94	68	
2:00 PM	131	73	
2:15 PM	139	77	
2:30 PM	155	86	
2:45 PM	177	89	
3:00 PM	180	96	
3:15 PM	203	158	
3:30 PM	221	221	
3:45 PM	222	282	
4:00 PM	220	347	
4:15 PM	198	286	
4:30 PM	168	219	
4:45 PM	156	159	
5:00 PM	145	95	
5:15 PM	102	78	
5:30 PM	72	62	
5:45 PM	34	44	
6:00 PM	5	25	
6:15 PM	5	23	
6:30 PM	5	21	
6:45 PM	5	19	
7:00 PM	4	17	
7:15 PM	3	15	
7:30 PM	3	14	
7:45 PM	2	13	
8:00 PM	2	11	
8:15 PM	2	10	
8:30 PM	1	9	
8:45 PM	1	8	
9:00 PM	1	8	
9:15 PM	1	8	
9:30 PM	1	8	
9:45 PM	1	8	
10:00 PM	1	8	
10:15 PM	1	8	
10:30 PM	1	8	
10:45 PM	1	8	
11:00 PM	1	8	

MUTCD Figure 4C-1. Warrant 2, Four-Hour Vehicular Volume



MUTCD WARRANT 3, PEAK HOUR

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

Built-up Isolated Community With Less Than 10,000 Population or Above 40 MPH on Major Street?	No
Is this signal warrant being applied for an unusual case, such as office complexes, manufacturing plants, industrial complexes, or high-occupancy vehicle facilities that attract or discharge large numbers of vehicles over a short time?	N/A

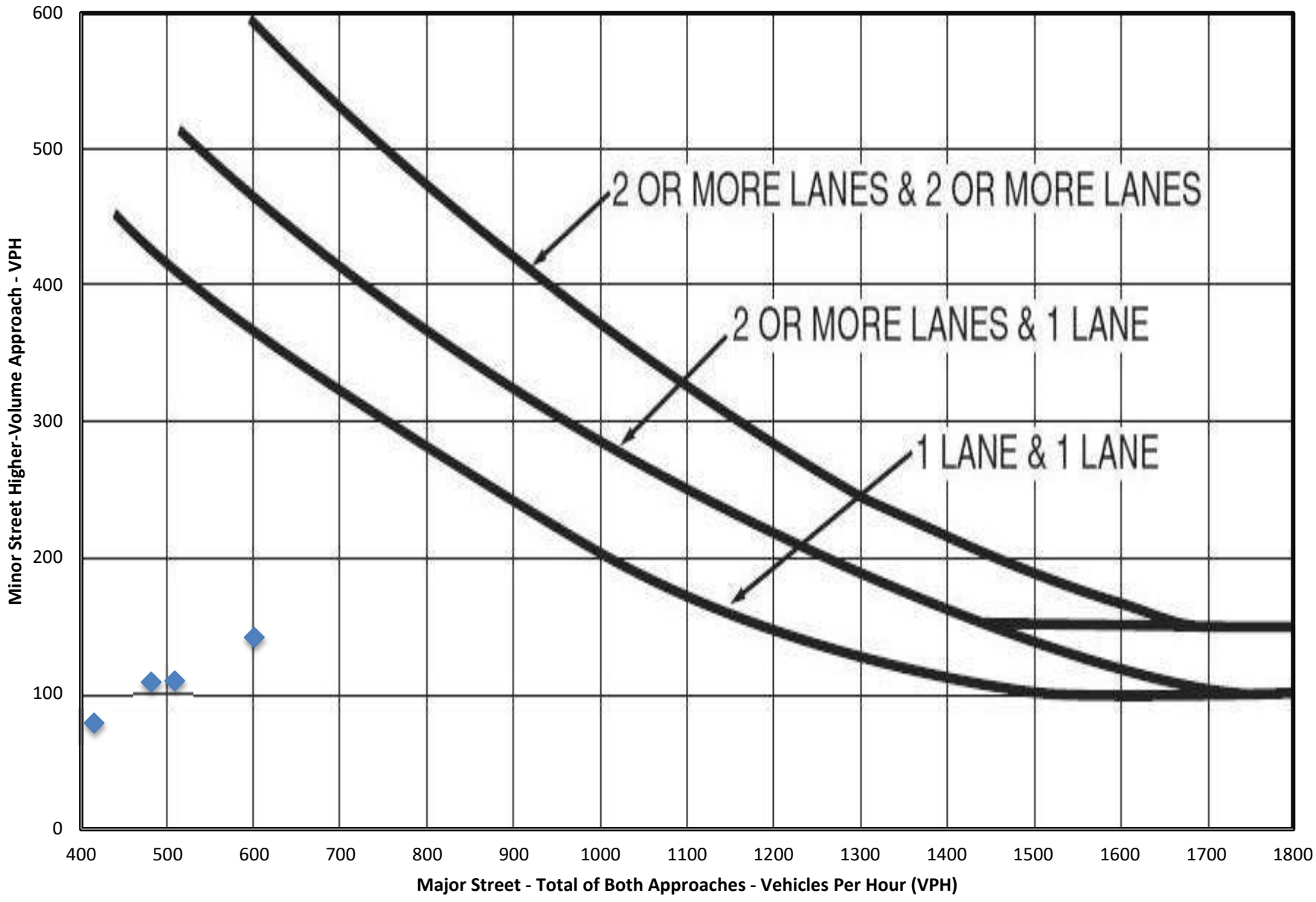
Indicate whether all three of the following conditions for the same 1 hour (any four consecutive 15-minute periods) of an average day are present*	
Does the total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equal or exceed 4 vehicle-hours for a one-lane approach or 5 vehicle-hours for a two-lane approach?	N/A
Does the volume on the same minor-street approach (one direction only) equal or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes?	Yes
Does the total entering volume serviced during the hour equal or exceed 650 vehicles per hour for intersection with three approaches or 800 vehicles per hour for intersections with four or more approaches?	Yes
**If applicable, attach all supporting calculations and documentation.*	

Total Number of Unique Hours Met On Figure 4C-3
0

Hourly Vehicular Volume			
Hour Interval Beginning At	Major Street Combined Vehicles Per Hour (VPH)	Highest Minor Street Approach Vehicles Per Hour (VPH)	Hour Met?
12:00 AM	2	1	
12:15 AM	2	1	
12:30 AM	3	1	
12:45 AM	3	1	
1:00 AM	4	1	
1:15 AM	4	1	
1:30 AM	3	1	
1:45 AM	3	1	
2:00 AM	2	1	
2:15 AM	2	1	
2:30 AM	3	1	
2:45 AM	3	1	
3:00 AM	4	1	
3:15 AM	4	1	
3:30 AM	3	1	
3:45 AM	2	1	
4:00 AM	2	1	
4:15 AM	4	2	
4:30 AM	8	3	
4:45 AM	12	4	
5:00 AM	14	4	
5:15 AM	39	6	
5:30 AM	72	9	
5:45 AM	129	12	
6:00 AM	178	14	
6:15 AM	298	48	
6:30 AM	415	78	
6:45 AM	508	109	
7:00 AM	600	141	
7:15 AM	481	108	
7:30 AM	357	78	
7:45 AM	234	51	
8:00 AM	121	21	
8:15 AM	129	21	

Hourly Vehicular Volume			
Hour Interval Beginning At	Major Street Combined Vehicles Per Hour (VPH)	Highest Minor Street Approach Vehicles Per Hour (VPH)	Hour Met?
8:30 AM	129	21	
8:45 AM	123	18	
9:00 AM	118	17	
9:15 AM	86	14	
9:30 AM	59	11	
9:45 AM	36	7	
10:00 AM	11	3	
10:15 AM	11	3	
10:30 AM	11	3	
10:45 AM	11	3	
11:00 AM	11	3	
11:15 AM	9	14	
11:30 AM	8	25	
11:45 AM	9	36	
12:00 PM	10	49	
12:15 PM	9	48	
12:30 PM	9	47	
12:45 PM	9	47	
1:00 PM	9	46	
1:15 PM	44	54	
1:30 PM	69	60	
1:45 PM	94	68	
2:00 PM	131	73	
2:15 PM	139	77	
2:30 PM	155	86	
2:45 PM	177	89	
3:00 PM	180	96	
3:15 PM	203	158	
3:30 PM	221	221	
3:45 PM	222	282	
4:00 PM	220	347	
4:15 PM	198	286	
4:30 PM	168	219	
4:45 PM	156	159	
5:00 PM	145	95	
5:15 PM	102	78	
5:30 PM	72	62	
5:45 PM	34	44	
6:00 PM	5	25	
6:15 PM	5	23	
6:30 PM	5	21	
6:45 PM	5	19	
7:00 PM	4	17	
7:15 PM	3	15	
7:30 PM	3	14	
7:45 PM	2	13	
8:00 PM	2	11	
8:15 PM	2	10	
8:30 PM	1	9	
8:45 PM	1	8	
9:00 PM	1	8	
9:15 PM	1	8	
9:30 PM	1	8	
9:45 PM	1	8	
10:00 PM	1	8	
10:15 PM	1	8	
10:30 PM	1	8	
10:45 PM	1	8	
11:00 PM	1	8	

MUTCD Figure 4C-3. Warrant 3, Peak Hour



WARRANT PA-1, ADT VOLUME WARRANT

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

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

Estimated ADT of Major Street (Both Approaches)*: 1776 vpd

**If applicable, attach all supporting calculations and documentation.*

Estimated ADT of Higher-Volume Minor Street (One Direction Only)*: 991 vpd

**If applicable, attach all supporting calculations and documentation.*

Condition A - ADT Volume Warrant

Number of lanes for moving traffic on each approach		Estimated ADT*			
		Major Street (Both Approaches)		Higher-Volume Minor Street Approach (One Direction Only)	
Major Street	**Minor Street**	**100%**	**70%**	**100%**	**70%**
1	**1**	10,000	7,000	3,000	2,100
2 or More	**1**	12,000	8,400	3,000	2,100
2 or More	**2 or More**	12,000	8,400	4,000	2,800
1	**2 or More**	10,000	7,000	4,000	2,800

Condition B - ADT Volume Warrant

Number of lanes for moving traffic on each approach		Estimated ADT*			
		Major Street (Both Approaches)		Higher-Volume Minor Street Approach (One Direction Only)	
Major Street	**Minor Street**	**100%**	**70%**	**100%**	**70%**
1	**1**	15,000	10,500	1,500	1,050
2 or More	**1**	18,000	12,600	1,500	1,050
2 or More	**2 or More**	18,000	12,600	2,000	1,400
1	**2 or More**	15,000	10,500	2,000	1,400

Condition A Met?	**No**
Condition B Met?	**No**

Traffic Signal Warrant Analysis Workbook

STUDY AND ANALYSIS INFORMATION

Municipality:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Analysis Information

Data Collection Date:	2/5/2025
Day of the Week:	Wednesday

Is the intersection in a built-up area of an isolated community of <10,000 population? No

Major Street Information

Major Street Name and Route Number:	Bernheisel Bridge Rd
Major Street Approach #1 Direction:	N-Bound
Major Street Approach #2 Direction:	S-Bound

Number of Lanes for Moving Traffic on Each Major Street Approach:	1	**LANE(S)**
Speed Limit or 85th Percentile Speed on the Major Street:	30	**MPH**

Minor Street Information

Minor Street Name and Route Number:	Green Hill Rd
Minor Street Approach #1 Direction:	W-Bound
Minor Street Approach #2 Direction:	E-Bound

Number of Lanes for Moving Traffic on Each Minor Street Approach:	1	**LANE(S)**

TRAFFIC SIGNAL WARRANT ANALYSIS FINDINGS

	Applicable?	Warrant Met?
Warrant 1, Eight-Hour Vehicular Volume	**Yes**	**No**
Warrant 2, Four-Hour Vehicular Volume	**Yes**	**No**
Warrant 3, Peak Hour	**Yes**	**No**
Warrant 4, Pedestrian Volume	**No**	**N/A**
Warrant 5, School Crossing	**No**	**N/A**
Warrant 6, Coordinated Signal System	**No**	**N/A**
Warrant 7, Crash Experience	**No**	**N/A**
Warrant 8, Roadway Network	**No**	**N/A**
Warrant 9, Intersection Near a Grade Crossing	**No**	**N/A**
Warrant PA-1, ADT Volume Warrant	**Yes**	**No**
Warrant PA-2, Midblock and Trail Crossings	**No**	**N/A**

ENTER VOLUME DATA PER 15 MINUTE INTERVAL, PER APPROACH

Time Interval		Major Street Approach #1 (N-Bound)	Major Street Approach #2 (S-Bound)	Major Street Combined	Minor Street Approach #1 (W-Bound)	Minor Street Approach #2 (E-Bound)
Begin At	End Of	Volume	Volume	Total Volume	Volume	Volume
12:00 AM	12:14 AM	0	0	0	0	
12:15 AM	12:29 AM	0	0	0	0	
12:30 AM	12:44 AM	0	0	0	0	
12:45 AM	12:59 AM	0	1	1	1	
1:00 AM	1:14 AM	0	0	0	0	
1:15 AM	1:29 AM	0	0	0	0	
1:30 AM	1:44 AM	0	0	0	1	
1:45 AM	1:59 AM	1	1	2	1	
2:00 AM	2:14 AM	0	0	0	0	
2:15 AM	2:29 AM	0	0	0	0	
2:30 AM	2:44 AM	0	0	0	0	
2:45 AM	2:59 AM	1	1	2	1	
3:00 AM	3:14 AM	0	0	0	0	
3:15 AM	3:29 AM	0	0	0	0	
3:30 AM	3:44 AM	0	0	0	1	
3:45 AM	3:59 AM	1	1	2	1	
4:00 AM	4:14 AM	0	0	0	0	
4:15 AM	4:29 AM	0	0	0	0	
4:30 AM	4:44 AM	0	1	1	1	
4:45 AM	4:59 AM	1	1	2	1	
5:00 AM	5:14 AM	0	1	1	1	
5:15 AM	5:29 AM	1	1	2	1	
5:30 AM	5:44 AM	1	1	2	2	
5:45 AM	5:59 AM	1	2	3	2	
6:00 AM	6:14 AM	2	32	34	4	
6:15 AM	6:29 AM	4	48	52	3	
6:30 AM	6:44 AM	9	75	84	5	
6:45 AM	6:59 AM	9	64	73	5	
7:00 AM	7:14 AM	44	75	119	54	
7:15 AM	7:29 AM	35	104	139	57	
7:30 AM	7:44 AM	36	90	126	62	
7:45 AM	7:59 AM	43	78	121	62	
8:00 AM	8:14 AM	5	29	34	6	
8:15 AM	8:29 AM	9	36	45	4	
8:30 AM	8:44 AM	9	35	44	6	
8:45 AM	8:59 AM	11	34	45	9	
9:00 AM	9:14 AM	13	26	39	11	
9:15 AM	9:29 AM	16	18	34	10	
9:30 AM	9:44 AM	14	22	36	5	
9:45 AM	9:59 AM	12	19	31	5	
10:00 AM	10:14 AM	1	1	2	2	
10:15 AM	10:29 AM	1	1	2	1	
10:30 AM	10:44 AM	0	1	1	1	
10:45 AM	10:59 AM	0	1	1	1	
11:00 AM	11:14 AM	1	1	2	2	
11:15 AM	11:29 AM	1	1	2	1	
11:30 AM	11:44 AM	0	1	1	1	
11:45 AM	11:59 AM	0	1	1	1	

ENTER VOLUME DATA PER 15 MINUTE INTERVAL, PER APPROACH

Time Interval		Major Street Approach #1 (N-Bound)	Major Street Approach #2 (S-Bound)	Major Street Combined	Minor Street Approach #1 (W-Bound)	Minor Street Approach #2 (E-Bound)
Begin At	End Of	Volume	Volume	Total Volume	Volume	Volume
12:00 PM	12:14 PM	10	0	10	1	
12:15 PM	12:29 PM	10	1	11	1	
12:30 PM	12:44 PM	10	1	11	1	
12:45 PM	12:59 PM	10	1	11	1	
1:00 PM	1:14 PM	9	0	9	1	
1:15 PM	1:29 PM	9	1	10	1	
1:30 PM	1:44 PM	10	1	11	1	
1:45 PM	1:59 PM	10	1	11	1	
2:00 PM	2:14 PM	31	26	57	13	
2:15 PM	2:29 PM	22	24	46	10	
2:30 PM	2:44 PM	22	21	43	10	
2:45 PM	2:59 PM	31	27	58	11	
3:00 PM	3:14 PM	53	14	67	21	
3:15 PM	3:29 PM	38	22	60	32	
3:30 PM	3:44 PM	40	30	70	28	
3:45 PM	3:59 PM	48	21	69	12	
4:00 PM	4:14 PM	95	47	142	34	
4:15 PM	4:29 PM	98	29	127	32	
4:30 PM	4:44 PM	88	22	110	45	
4:45 PM	4:59 PM	87	27	114	24	
5:00 PM	5:14 PM	46	28	74	33	
5:15 PM	5:29 PM	30	25	55	28	
5:30 PM	5:44 PM	40	27	67	24	
5:45 PM	5:59 PM	26	24	50	16	
6:00 PM	6:14 PM	5	1	6	1	
6:15 PM	6:29 PM	5	1	6	1	
6:30 PM	6:44 PM	5	0	5	0	
6:45 PM	6:59 PM	5	0	5	0	
7:00 PM	7:14 PM	4	1	5	1	
7:15 PM	7:29 PM	4	0	4	1	
7:30 PM	7:44 PM	3	0	3	0	
7:45 PM	7:59 PM	3	0	3	0	
8:00 PM	8:14 PM	3	1	4	1	
8:15 PM	8:29 PM	2	0	2	0	
8:30 PM	8:44 PM	2	0	2	0	
8:45 PM	8:59 PM	2	0	2	0	
9:00 PM	9:14 PM	2	1	3	1	
9:15 PM	9:29 PM	2	0	2	0	
9:30 PM	9:44 PM	1	0	1	0	
9:45 PM	9:59 PM	1	0	1	0	
10:00 PM	10:14 PM	2	1	3	1	
10:15 PM	10:29 PM	2	0	2	0	
10:30 PM	10:44 PM	1	0	1	0	
10:45 PM	10:59 PM	1	0	1	0	
11:00 PM	11:14 PM	2	1	3	1	
11:15 PM	11:29 PM	2	0	2	0	
11:30 PM	11:44 PM	1	0	1	0	
11:45 PM	11:59 PM	1	0	1	0	
	Approach Totals:	1216	1231	2447	721	0

MUTCD WARRANT 1, EIGHT-HOUR VEHICULAR VOLUME

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

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

Combination of Conditions A and B Necessary?*: No

**Only applicable for Warrant 1 if after an adequate trial of other alternatives that could cause less delay and inconvenience to traffic has failed to solve the traffic problems. See Section 4C.02 of the 2009 MUTCD for application.*

Condition A - Minimum Vehicular Volume

Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)				Vehicles per hour on higher-volume minor street approach (one direction only)			
Major Street	Minor Street	100%	80%	70%	56%	100%	80%	70%	56%
1	1	500	400	350	280	150	120	105	84
2 or More	1	600	480	420	336	150	120	105	84
2 or More	2 or More	600	480	420	336	200	160	140	112
1	2 or More	500	400	350	280	200	160	140	112

Condition B - Interruption of Continuous Traffic

Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)				Vehicles per hour on higher-volume minor street approach (one direction only)			
Major Street	Minor Street	100%	80%	70%	56%	100%	80%	70%	56%
1	1	750	600	525	420	75	60	53	42
2 or More	1	900	720	630	504	75	60	53	42
2 or More	2 or More	900	720	630	504	100	80	70	56
1	2 or More	750	600	525	420	100	80	70	56

Condition A Evaluation

Number of Unique Hours Met: 1 **Condition A Satisfied?** No

Condition B Evaluation

Number of Unique Hours Met: 0 **Condition B Satisfied?** No

Combination of Condition A and Condition B Evaluation

Number of Unique Hours Met for Condition A: N/A

Number of Unique Hours Met for Condition B: N/A

Combination of Condition A and Condition B Satisfied? N/A

MUTCD WARRANT 2, FOUR-HOUR VEHICULAR VOLUME

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

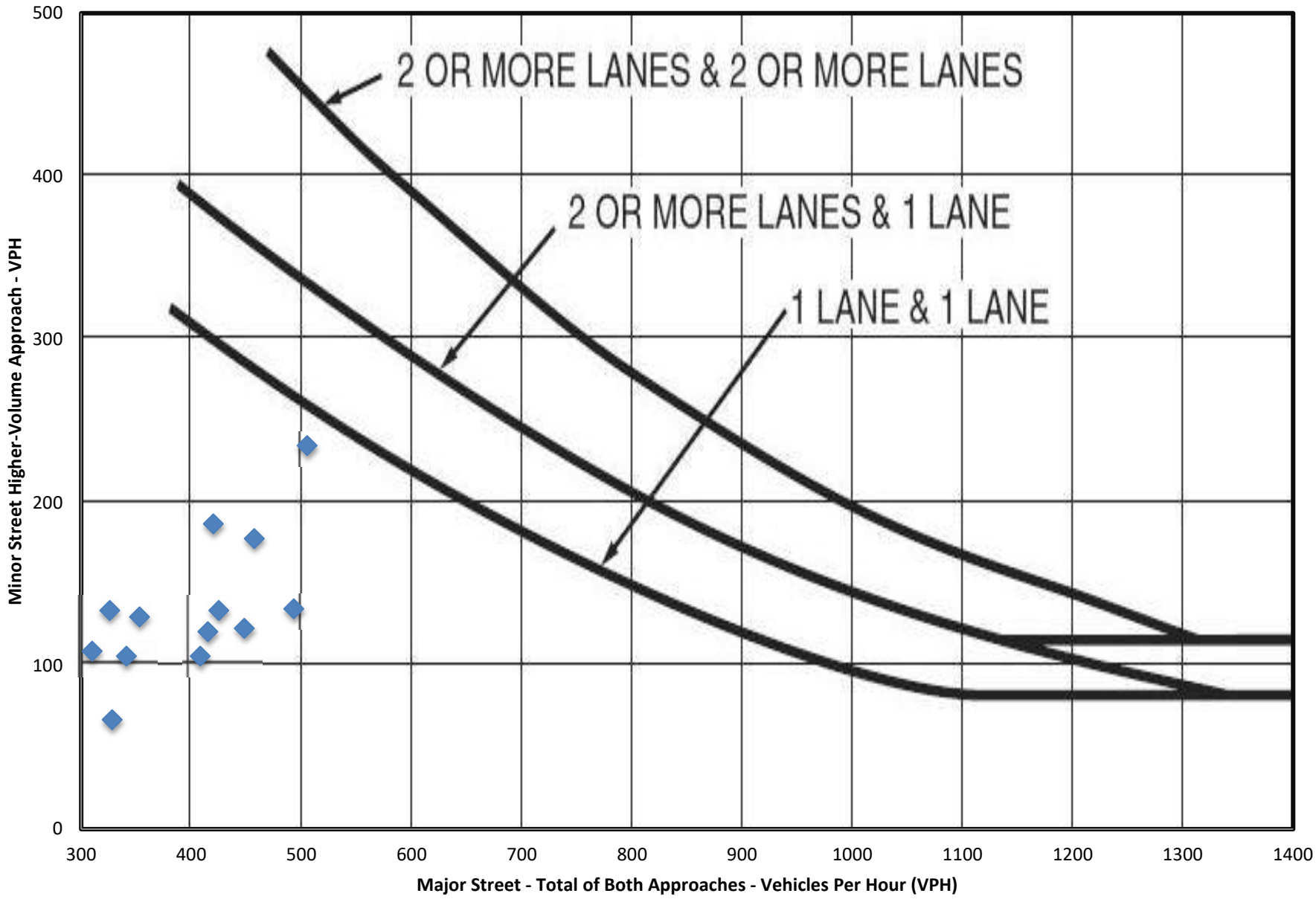
Total Number of Unique Hours Met On Figure 4C-1
0

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

Hourly Vehicular Volume			
Hour Interval Beginning At	Major Street Combined Vehicles Per Hour (VPH)	Highest Minor Street Approach Vehicles Per Hour (VPH)	Hour Met?
12:00 AM	1	1	
12:15 AM	1	1	
12:30 AM	1	1	
12:45 AM	1	2	
1:00 AM	2	2	
1:15 AM	2	2	
1:30 AM	2	2	
1:45 AM	2	1	
2:00 AM	2	1	
2:15 AM	2	1	
2:30 AM	2	1	
2:45 AM	2	2	
3:00 AM	2	2	
3:15 AM	2	2	
3:30 AM	2	2	
3:45 AM	3	2	
4:00 AM	3	2	
4:15 AM	4	3	
4:30 AM	6	4	
4:45 AM	7	5	
5:00 AM	8	6	
5:15 AM	41	9	
5:30 AM	91	11	
5:45 AM	173	14	
6:00 AM	243	17	
6:15 AM	328	67	
6:30 AM	415	121	
6:45 AM	457	178	
7:00 AM	505	235	
7:15 AM	420	187	
7:30 AM	326	134	
7:45 AM	244	78	
8:00 AM	168	25	
8:15 AM	173	30	
8:30 AM	162	36	
8:45 AM	154	35	
9:00 AM	140	31	
9:15 AM	103	22	
9:30 AM	71	13	
9:45 AM	36	9	
10:00 AM	6	5	
10:15 AM	6	5	
10:30 AM	6	5	
10:45 AM	6	5	
11:00 AM	6	5	
11:15 AM	14	4	
11:30 AM	23	4	
11:45 AM	33	4	

Hourly Vehicular Volume			
Hour Interval Beginning At	Major Street Combined Vehicles Per Hour (VPH)	Highest Minor Street Approach Vehicles Per Hour (VPH)	Hour Met?
12:00 PM	43	4	
12:15 PM	42	4	
12:30 PM	41	4	
12:45 PM	41	4	
1:00 PM	41	4	
1:15 PM	89	16	
1:30 PM	125	25	
1:45 PM	157	34	
2:00 PM	204	44	
2:15 PM	214	52	
2:30 PM	228	74	
2:45 PM	255	92	
3:00 PM	266	93	
3:15 PM	341	106	
3:30 PM	408	106	
3:45 PM	448	123	
4:00 PM	493	135	
4:15 PM	425	134	
4:30 PM	353	130	
4:45 PM	310	109	
5:00 PM	246	101	
5:15 PM	178	69	
5:30 PM	129	42	
5:45 PM	67	18	
6:00 PM	22	2	
6:15 PM	21	2	
6:30 PM	19	2	
6:45 PM	17	2	
7:00 PM	15	2	
7:15 PM	14	2	
7:30 PM	12	1	
7:45 PM	11	1	
8:00 PM	10	1	
8:15 PM	9	1	
8:30 PM	9	1	
8:45 PM	8	1	
9:00 PM	7	1	
9:15 PM	7	1	
9:30 PM	7	1	
9:45 PM	7	1	
10:00 PM	7	1	
10:15 PM	7	1	
10:30 PM	7	1	
10:45 PM	7	1	
11:00 PM	7	1	

MUTCD Figure 4C-1. Warrant 2, Four-Hour Vehicular Volume



MUTCD WARRANT 3, PEAK HOUR

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

Built-up Isolated Community With Less Than 10,000 Population or Above 40 MPH on Major Street?	No
Is this signal warrant being applied for an unusual case, such as office complexes, manufacturing plants, industrial complexes, or high-occupancy vehicle facilities that attract or discharge large numbers of vehicles over a short time?	N/A

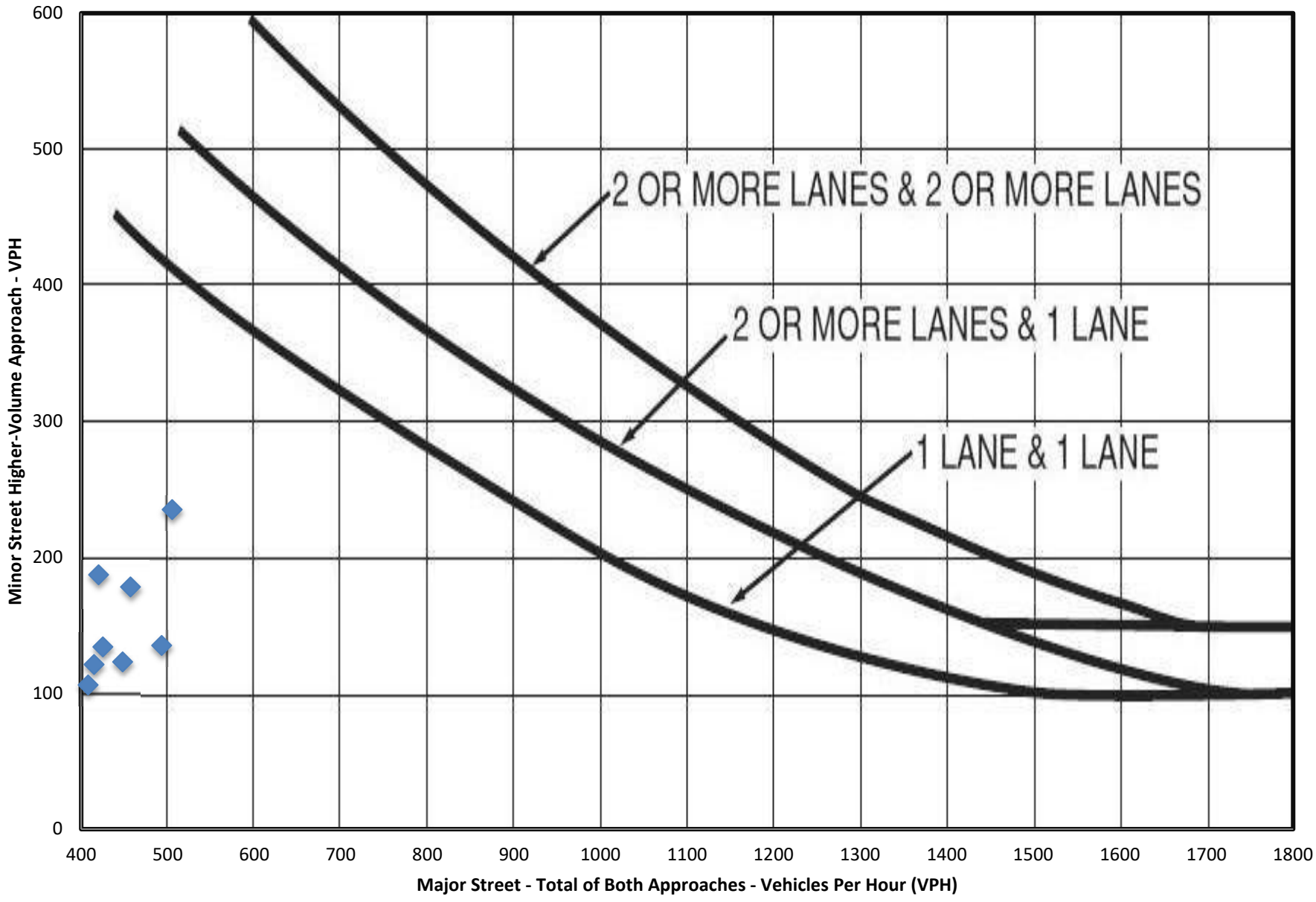
Indicate whether all three of the following conditions for the same 1 hour (any four consecutive 15-minute periods) of an average day are present*	
Does the total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equal or exceed 4 vehicle-hours for a one-lane approach or 5 vehicle-hours for a two-lane approach?	N/A
Does the volume on the same minor-street approach (one direction only) equal or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes?	Yes
Does the total entering volume serviced during the hour equal or exceed 650 vehicles per hour for intersection with three approaches or 800 vehicles per hour for intersections with four or more approaches?	Yes
**If applicable, attach all supporting calculations and documentation.*	

Total Number of Unique Hours Met On Figure 4C-3
0

Hourly Vehicular Volume			
Hour Interval Beginning At	Major Street Combined Vehicles Per Hour (VPH)	Highest Minor Street Approach Vehicles Per Hour (VPH)	Hour Met?
12:00 AM	1	1	
12:15 AM	1	1	
12:30 AM	1	1	
12:45 AM	1	2	
1:00 AM	2	2	
1:15 AM	2	2	
1:30 AM	2	2	
1:45 AM	2	1	
2:00 AM	2	1	
2:15 AM	2	1	
2:30 AM	2	1	
2:45 AM	2	2	
3:00 AM	2	2	
3:15 AM	2	2	
3:30 AM	2	2	
3:45 AM	3	2	
4:00 AM	3	2	
4:15 AM	4	3	
4:30 AM	6	4	
4:45 AM	7	5	
5:00 AM	8	6	
5:15 AM	41	9	
5:30 AM	91	11	
5:45 AM	173	14	
6:00 AM	243	17	
6:15 AM	328	67	
6:30 AM	415	121	
6:45 AM	457	178	
7:00 AM	505	235	
7:15 AM	420	187	
7:30 AM	326	134	
7:45 AM	244	78	
8:00 AM	168	25	
8:15 AM	173	30	

Hourly Vehicular Volume			
Hour Interval Beginning At	Major Street Combined Vehicles Per Hour (VPH)	Highest Minor Street Approach Vehicles Per Hour (VPH)	Hour Met?
8:30 AM	162	36	
8:45 AM	154	35	
9:00 AM	140	31	
9:15 AM	103	22	
9:30 AM	71	13	
9:45 AM	36	9	
10:00 AM	6	5	
10:15 AM	6	5	
10:30 AM	6	5	
10:45 AM	6	5	
11:00 AM	6	5	
11:15 AM	14	4	
11:30 AM	23	4	
11:45 AM	33	4	
12:00 PM	43	4	
12:15 PM	42	4	
12:30 PM	41	4	
12:45 PM	41	4	
1:00 PM	41	4	
1:15 PM	89	16	
1:30 PM	125	25	
1:45 PM	157	34	
2:00 PM	204	44	
2:15 PM	214	52	
2:30 PM	228	74	
2:45 PM	255	92	
3:00 PM	266	93	
3:15 PM	341	106	
3:30 PM	408	106	
3:45 PM	448	123	
4:00 PM	493	135	
4:15 PM	425	134	
4:30 PM	353	130	
4:45 PM	310	109	
5:00 PM	246	101	
5:15 PM	178	69	
5:30 PM	129	42	
5:45 PM	67	18	
6:00 PM	22	2	
6:15 PM	21	2	
6:30 PM	19	2	
6:45 PM	17	2	
7:00 PM	15	2	
7:15 PM	14	2	
7:30 PM	12	1	
7:45 PM	11	1	
8:00 PM	10	1	
8:15 PM	9	1	
8:30 PM	9	1	
8:45 PM	8	1	
9:00 PM	7	1	
9:15 PM	7	1	
9:30 PM	7	1	
9:45 PM	7	1	
10:00 PM	7	1	
10:15 PM	7	1	
10:30 PM	7	1	
10:45 PM	7	1	
11:00 PM	7	1	

MUTCD Figure 4C-3. Warrant 3, Peak Hour



WARRANT PA-1, ADT VOLUME WARRANT

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

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

Estimated ADT of Major Street (Both Approaches)*: 2447 vpd

**If applicable, attach all supporting calculations and documentation.*

Estimated ADT of Higher-Volume Minor Street (One Direction Only)*: 721 vpd

**If applicable, attach all supporting calculations and documentation.*

Condition A - ADT Volume Warrant

Number of lanes for moving traffic on each approach		Estimated ADT*			
		Major Street (Both Approaches)		Higher-Volume Minor Street Approach (One Direction Only)	
Major Street	**Minor Street**	**100%**	**70%**	**100%**	**70%**
1	**1**	10,000	7,000	3,000	2,100
2 or More	**1**	12,000	8,400	3,000	2,100
2 or More	**2 or More**	12,000	8,400	4,000	2,800
1	**2 or More**	10,000	7,000	4,000	2,800

Condition B - ADT Volume Warrant

Number of lanes for moving traffic on each approach		Estimated ADT*			
		Major Street (Both Approaches)		Higher-Volume Minor Street Approach (One Direction Only)	
Major Street	**Minor Street**	**100%**	**70%**	**100%**	**70%**
1	**1**	15,000	10,500	1,500	1,050
2 or More	**1**	18,000	12,600	1,500	1,050
2 or More	**2 or More**	18,000	12,600	2,000	1,400
1	**2 or More**	15,000	10,500	2,000	1,400

Condition A Met?	**No**
Condition B Met?	**No**

Traffic Signal Warrant Analysis Workbook

STUDY AND ANALYSIS INFORMATION

Municipality:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Analysis Information

Data Collection Date:	2/5/2025
Day of the Week:	Wednesday

Is the intersection in a built-up area of an isolated community of <10,000 population? No

Major Street Information

Major Street Name and Route Number:	County Club Rd
Major Street Approach #1 Direction:	N-Bound
Major Street Approach #2 Direction:	S-Bound

Number of Lanes for Moving Traffic on Each Major Street Approach:	1	**LANE(S)**
Speed Limit or 85th Percentile Speed on the Major Street:	35	**MPH**

Minor Street Information

Minor Street Name and Route Number:	Western Driveway
Minor Street Approach #1 Direction:	E-Bound
Minor Street Approach #2 Direction:	W-Bound

Number of Lanes for Moving Traffic on Each Minor Street Approach:	1	**LANE(S)**

TRAFFIC SIGNAL WARRANT ANALYSIS FINDINGS

	Applicable?	Warrant Met?
Warrant 1, Eight-Hour Vehicular Volume	**Yes**	**No**
Warrant 2, Four-Hour Vehicular Volume	**Yes**	**No**
Warrant 3, Peak Hour	**Yes**	**No**
Warrant 4, Pedestrian Volume	**No**	**N/A**
Warrant 5, School Crossing	**No**	**N/A**
Warrant 6, Coordinated Signal System	**No**	**N/A**
Warrant 7, Crash Experience	**No**	**N/A**
Warrant 8, Roadway Network	**No**	**N/A**
Warrant 9, Intersection Near a Grade Crossing	**No**	**N/A**
Warrant PA-1, ADT Volume Warrant	**Yes**	**No**
Warrant PA-2, Midblock and Trail Crossings	**No**	**N/A**

ENTER VOLUME DATA PER 15 MINUTE INTERVAL, PER APPROACH

Time Interval		Major Street Approach #1 (N-Bound)	Major Street Approach #2 (S-Bound)	Major Street Combined	Minor Street Approach #1 (E-Bound)	Minor Street Approach #2 (W-Bound)
Begin At	End Of	Volume	Volume	Total Volume	Volume	Volume
12:00 AM	12:14 AM	0	2	2	0	0
12:15 AM	12:29 AM	0	2	2	0	
12:30 AM	12:44 AM	1	0	1	0	
12:45 AM	12:59 AM	1	2	3	1	
1:00 AM	1:14 AM	1	1	2	0	
1:15 AM	1:29 AM	1	2	3	0	
1:30 AM	1:44 AM	1	0	1	0	
1:45 AM	1:59 AM	1	1	2	1	
2:00 AM	2:14 AM	0	1	1	0	
2:15 AM	2:29 AM	1	0	1	0	
2:30 AM	2:44 AM	1	0	1	0	
2:45 AM	2:59 AM	1	1	2	1	
3:00 AM	3:14 AM	1	3	4	0	
3:15 AM	3:29 AM	1	0	1	0	
3:30 AM	3:44 AM	1	2	3	0	
3:45 AM	3:59 AM	1	1	2	1	
4:00 AM	4:14 AM	1	1	2	0	
4:15 AM	4:29 AM	1	0	1	0	
4:30 AM	4:44 AM	1	0	1	0	
4:45 AM	4:59 AM	1	2	3	1	
5:00 AM	5:14 AM	2	3	5	0	
5:15 AM	5:29 AM	3	2	5	0	
5:30 AM	5:44 AM	3	9	12	1	
5:45 AM	5:59 AM	3	6	9	1	
6:00 AM	6:14 AM	4	7	11	0	
6:15 AM	6:29 AM	4	8	12	0	
6:30 AM	6:44 AM	5	13	18	1	
6:45 AM	6:59 AM	4	14	18	1	
7:00 AM	7:14 AM	90	24	114	10	
7:15 AM	7:29 AM	91	29	120	10	
7:30 AM	7:44 AM	88	30	118	10	
7:45 AM	7:59 AM	88	27	115	10	
8:00 AM	8:14 AM	3	9	12	1	
8:15 AM	8:29 AM	3	12	15	1	
8:30 AM	8:44 AM	3	17	20	0	
8:45 AM	8:59 AM	2	10	12	0	
9:00 AM	9:14 AM	3	13	16	1	
9:15 AM	9:29 AM	5	6	11	1	
9:30 AM	9:44 AM	5	8	13	0	
9:45 AM	9:59 AM	4	4	8	0	
10:00 AM	10:14 AM	4	9	13	1	
10:15 AM	10:29 AM	3	6	9	0	
10:30 AM	10:44 AM	4	4	8	0	
10:45 AM	10:59 AM	2	8	10	0	
11:00 AM	11:14 AM	5	8	13	1	
11:15 AM	11:29 AM	4	8	12	0	
11:30 AM	11:44 AM	6	4	10	0	
11:45 AM	11:59 AM	3	11	14	0	

ENTER VOLUME DATA PER 15 MINUTE INTERVAL, PER APPROACH

Time Interval		Major Street Approach #1 (N-Bound)	Major Street Approach #2 (S-Bound)	Major Street Combined	Minor Street Approach #1 (E-Bound)	Minor Street Approach #2 (W-Bound)
Begin At	End Of	Volume	Volume	Total Volume	Volume	Volume
12:00 PM	12:14 PM	4	18	22	4	
12:15 PM	12:29 PM	6	16	22	4	
12:30 PM	12:44 PM	5	16	21	5	
12:45 PM	12:59 PM	4	13	17	5	
1:00 PM	1:14 PM	2	16	18	4	
1:15 PM	1:29 PM	6	19	25	4	
1:30 PM	1:44 PM	2	14	16	4	
1:45 PM	1:59 PM	4	20	24	5	
2:00 PM	2:14 PM	4	20	24	4	
2:15 PM	2:29 PM	3	11	14	5	
2:30 PM	2:44 PM	4	15	19	5	
2:45 PM	2:59 PM	6	14	20	5	
3:00 PM	3:14 PM	5	17	22	5	
3:15 PM	3:29 PM	13	20	33	5	
3:30 PM	3:44 PM	9	16	25	5	
3:45 PM	3:59 PM	8	14	22	5	
4:00 PM	4:14 PM	20	48	68	27	
4:15 PM	4:29 PM	19	50	69	27	
4:30 PM	4:44 PM	15	45	60	27	
4:45 PM	4:59 PM	19	45	64	27	
5:00 PM	5:14 PM	7	19	26	6	
5:15 PM	5:29 PM	5	20	25	5	
5:30 PM	5:44 PM	5	20	25	5	
5:45 PM	5:59 PM	9	21	30	5	
6:00 PM	6:14 PM	4	10	14	3	
6:15 PM	6:29 PM	3	13	16	2	
6:30 PM	6:44 PM	5	12	17	2	
6:45 PM	6:59 PM	5	11	16	2	
7:00 PM	7:14 PM	1	10	11	2	
7:15 PM	7:29 PM	5	7	12	2	
7:30 PM	7:44 PM	1	16	17	2	
7:45 PM	7:59 PM	2	14	16	1	
8:00 PM	8:14 PM	1	10	11	1	
8:15 PM	8:29 PM	4	9	13	1	
8:30 PM	8:44 PM	1	3	4	1	
8:45 PM	8:59 PM	0	11	11	1	
9:00 PM	9:14 PM	3	6	9	1	
9:15 PM	9:29 PM	2	5	7	1	
9:30 PM	9:44 PM	1	5	6	1	
9:45 PM	9:59 PM	0	4	4	0	
10:00 PM	10:14 PM	1	4	5	1	
10:15 PM	10:29 PM	1	3	4	1	
10:30 PM	10:44 PM	0	3	3	1	
10:45 PM	10:59 PM	0	10	10	0	
11:00 PM	11:14 PM	1	6	7	1	
11:15 PM	11:29 PM	2	5	7	1	
11:30 PM	11:44 PM	0	2	2	1	
11:45 PM	11:59 PM	2	3	5	0	
	Approach Totals:	690	1039	1729	287	0

MUTCD WARRANT 1, EIGHT-HOUR VEHICULAR VOLUME

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

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

Combination of Conditions A and B Necessary?*: No

**Only applicable for Warrant 1 if after an adequate trial of other alternatives that could cause less delay and inconvenience to traffic has failed to solve the traffic problems. See Section 4C.02 of the 2009 MUTCD for application.*

Condition A - Minimum Vehicular Volume

Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)				Vehicles per hour on higher-volume minor street approach (one direction only)			
Major Street	Minor Street	100%	80%	70%	56%	100%	80%	70%	56%
1	1	500	400	350	280	150	120	105	84
2 or More	1	600	480	420	336	150	120	105	84
2 or More	2 or More	600	480	420	336	200	160	140	112
1	2 or More	500	400	350	280	200	160	140	112

Condition B - Interruption of Continuous Traffic

Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)				Vehicles per hour on higher-volume minor street approach (one direction only)			
Major Street	Minor Street	100%	80%	70%	56%	100%	80%	70%	56%
1	1	750	600	525	420	75	60	53	42
2 or More	1	900	720	630	504	75	60	53	42
2 or More	2 or More	900	720	630	504	100	80	70	56
1	2 or More	750	600	525	420	100	80	70	56

Condition A Evaluation

Number of Unique Hours Met: 0 **Condition A Satisfied?** No

Condition B Evaluation

Number of Unique Hours Met: 0 **Condition B Satisfied?** No

Combination of Condition A and Condition B Evaluation

Number of Unique Hours Met for Condition A: N/A

Number of Unique Hours Met for Condition B: N/A

Combination of Condition A and Condition B Satisfied? N/A

MUTCD WARRANT 2, FOUR-HOUR VEHICULAR VOLUME

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

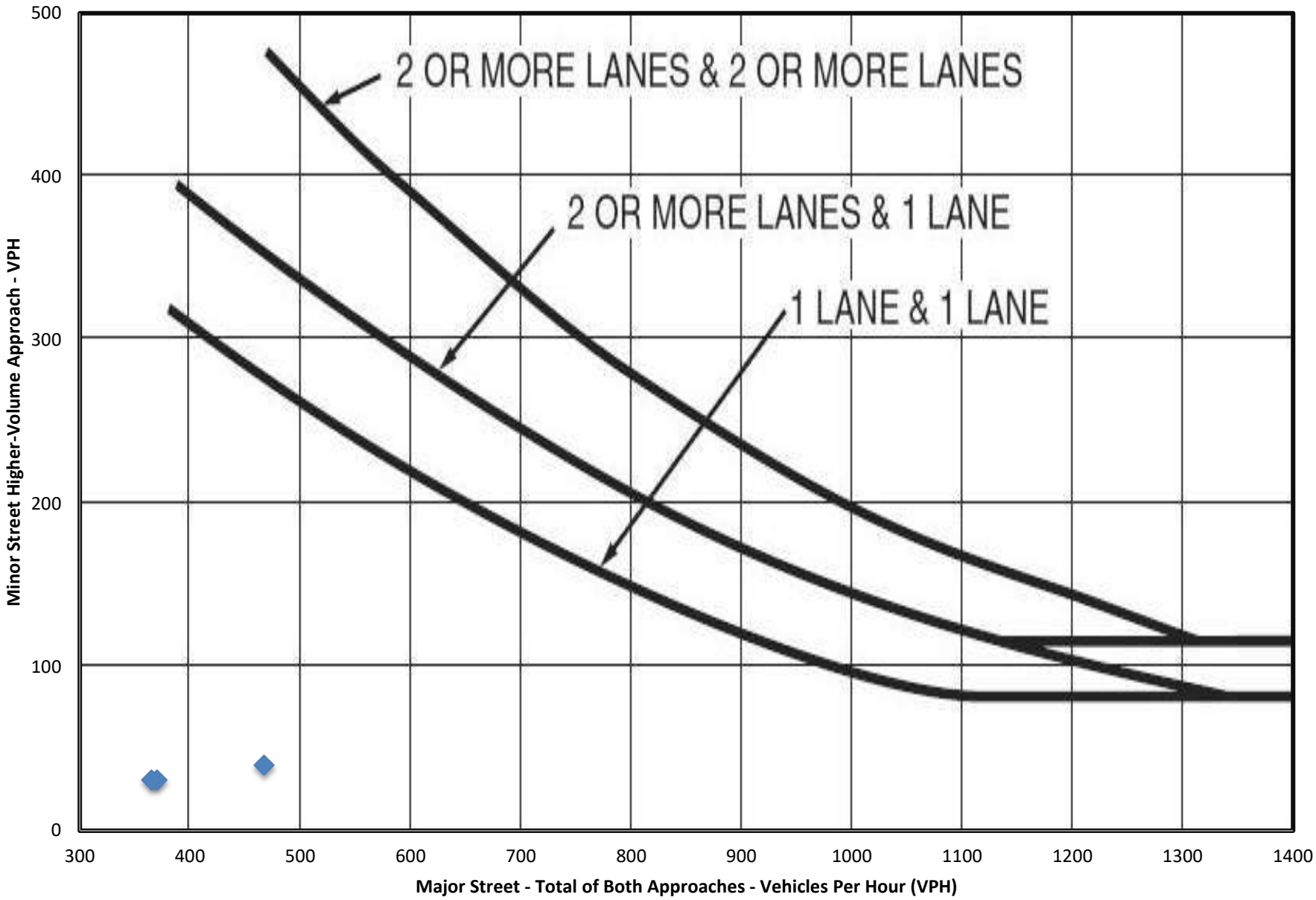
Total Number of Unique Hours Met On Figure 4C-1
0

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

Hourly Vehicular Volume			
Hour Interval Beginning At	Major Street Combined Vehicles Per Hour (VPH)	Highest Minor Street Approach Vehicles Per Hour (VPH)	Hour Met?
12:00 AM	8	1	
12:15 AM	8	1	
12:30 AM	9	1	
12:45 AM	9	1	
1:00 AM	8	1	
1:15 AM	7	1	
1:30 AM	5	1	
1:45 AM	5	1	
2:00 AM	5	1	
2:15 AM	8	1	
2:30 AM	8	1	
2:45 AM	10	1	
3:00 AM	10	1	
3:15 AM	8	1	
3:30 AM	8	1	
3:45 AM	6	1	
4:00 AM	7	1	
4:15 AM	10	1	
4:30 AM	14	1	
4:45 AM	25	2	
5:00 AM	31	2	
5:15 AM	37	2	
5:30 AM	44	2	
5:45 AM	50	2	
6:00 AM	59	2	
6:15 AM	162	12	
6:30 AM	270	22	
6:45 AM	370	31	
7:00 AM	467	40	
7:15 AM	365	31	
7:30 AM	260	22	
7:45 AM	162	12	
8:00 AM	59	2	
8:15 AM	63	2	
8:30 AM	59	2	
8:45 AM	52	2	
9:00 AM	48	2	
9:15 AM	45	2	
9:30 AM	43	1	
9:45 AM	38	1	
10:00 AM	40	1	
10:15 AM	40	1	
10:30 AM	43	1	
10:45 AM	45	1	
11:00 AM	49	1	
11:15 AM	58	4	
11:30 AM	68	8	
11:45 AM	79	13	

Hourly Vehicular Volume			
Hour Interval Beginning At	Major Street Combined Vehicles Per Hour (VPH)	Highest Minor Street Approach Vehicles Per Hour (VPH)	Hour Met?
12:00 PM	82	18	
12:15 PM	78	18	
12:30 PM	81	18	
12:45 PM	76	17	
1:00 PM	83	17	
1:15 PM	89	17	
1:30 PM	78	18	
1:45 PM	81	19	
2:00 PM	77	19	
2:15 PM	75	20	
2:30 PM	94	20	
2:45 PM	100	20	
3:00 PM	102	20	
3:15 PM	148	42	
3:30 PM	184	64	
3:45 PM	219	86	
4:00 PM	261	108	
4:15 PM	219	87	
4:30 PM	175	65	
4:45 PM	140	43	
5:00 PM	106	21	
5:15 PM	94	18	
5:30 PM	85	15	
5:45 PM	77	12	
6:00 PM	63	9	
6:15 PM	60	8	
6:30 PM	56	8	
6:45 PM	56	8	
7:00 PM	56	7	
7:15 PM	56	6	
7:30 PM	57	5	
7:45 PM	44	4	
8:00 PM	39	4	
8:15 PM	37	4	
8:30 PM	31	4	
8:45 PM	33	4	
9:00 PM	26	3	
9:15 PM	22	3	
9:30 PM	19	3	
9:45 PM	16	3	
10:00 PM	22	3	
10:15 PM	24	3	
10:30 PM	27	3	
10:45 PM	26	3	
11:00 PM	21	3	

MUTCD Figure 4C-1. Warrant 2, Four-Hour Vehicular Volume



MUTCD WARRANT 3, PEAK HOUR

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

Built-up Isolated Community With Less Than 10,000 Population or Above 40 MPH on Major Street?	No
Is this signal warrant being applied for an unusual case, such as office complexes, manufacturing plants, industrial complexes, or high-occupancy vehicle facilities that attract or discharge large numbers of vehicles over a short time?	N/A

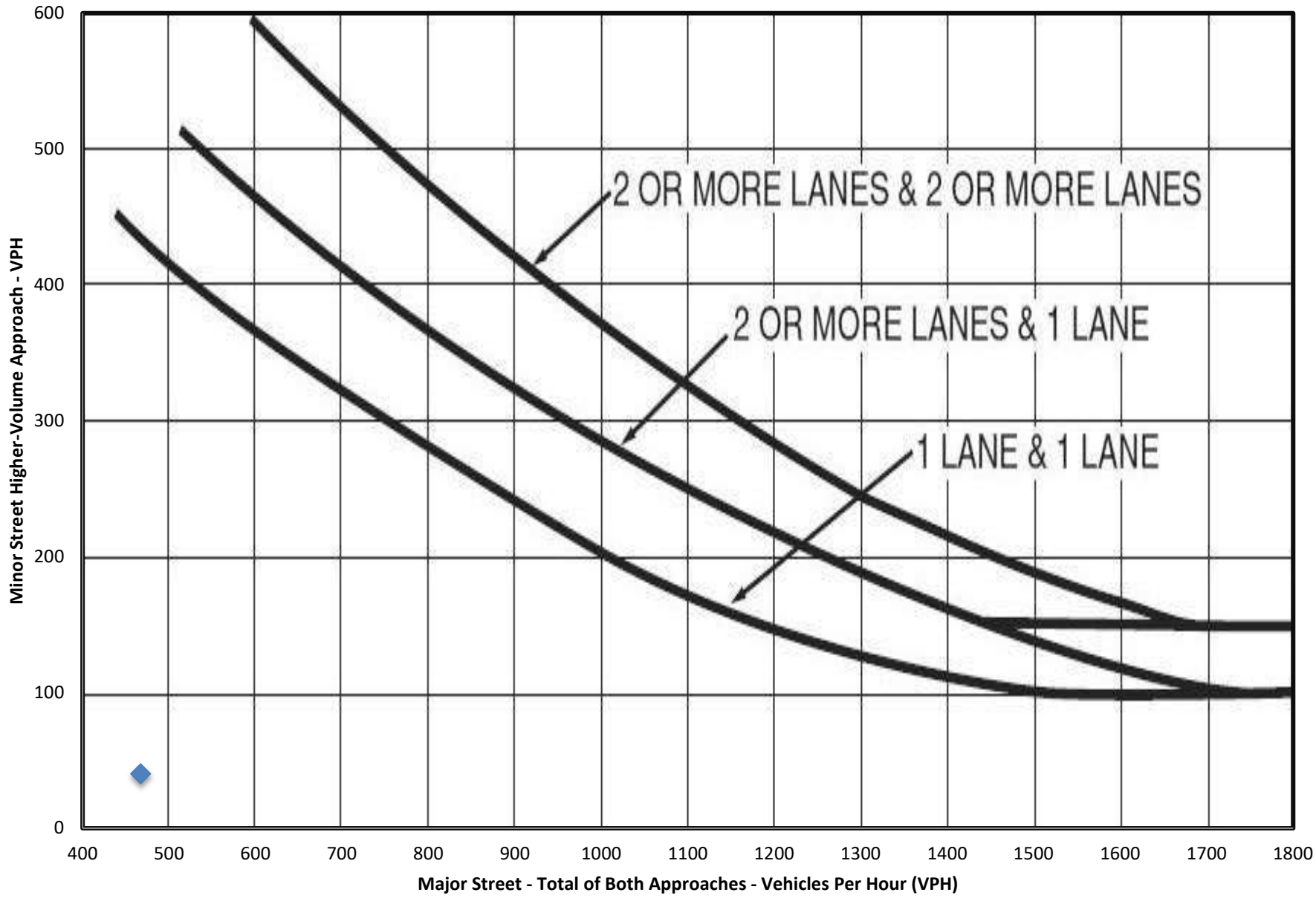
Indicate whether all three of the following conditions for the same 1 hour (any four consecutive 15-minute periods) of an average day are present*	
Does the total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equal or exceed 4 vehicle-hours for a one-lane approach or 5 vehicle-hours for a two-lane approach?	N/A
Does the volume on the same minor-street approach (one direction only) equal or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes?	N/A
Does the total entering volume serviced during the hour equal or exceed 650 vehicles per hour for intersection with three approaches or 800 vehicles per hour for intersections with four or more approaches?	N/A
**If applicable, attach all supporting calculations and documentation.*	

Total Number of Unique Hours Met On Figure 4C-3
0

Hourly Vehicular Volume			
Hour Interval Beginning At	Major Street Combined Vehicles Per Hour (VPH)	Highest Minor Street Approach Vehicles Per Hour (VPH)	Hour Met?
12:00 AM	8	1	
12:15 AM	8	1	
12:30 AM	9	1	
12:45 AM	9	1	
1:00 AM	8	1	
1:15 AM	7	1	
1:30 AM	5	1	
1:45 AM	5	1	
2:00 AM	5	1	
2:15 AM	8	1	
2:30 AM	8	1	
2:45 AM	10	1	
3:00 AM	10	1	
3:15 AM	8	1	
3:30 AM	8	1	
3:45 AM	6	1	
4:00 AM	7	1	
4:15 AM	10	1	
4:30 AM	14	1	
4:45 AM	25	2	
5:00 AM	31	2	
5:15 AM	37	2	
5:30 AM	44	2	
5:45 AM	50	2	
6:00 AM	59	2	
6:15 AM	162	12	
6:30 AM	270	22	
6:45 AM	370	31	
7:00 AM	467	40	
7:15 AM	365	31	
7:30 AM	260	22	
7:45 AM	162	12	
8:00 AM	59	2	
8:15 AM	63	2	

Hourly Vehicular Volume			
Hour Interval Beginning At	Major Street Combined Vehicles Per Hour (VPH)	Highest Minor Street Approach Vehicles Per Hour (VPH)	Hour Met?
8:30 AM	59	2	
8:45 AM	52	2	
9:00 AM	48	2	
9:15 AM	45	2	
9:30 AM	43	1	
9:45 AM	38	1	
10:00 AM	40	1	
10:15 AM	40	1	
10:30 AM	43	1	
10:45 AM	45	1	
11:00 AM	49	1	
11:15 AM	58	4	
11:30 AM	68	8	
11:45 AM	79	13	
12:00 PM	82	18	
12:15 PM	78	18	
12:30 PM	81	18	
12:45 PM	76	17	
1:00 PM	83	17	
1:15 PM	89	17	
1:30 PM	78	18	
1:45 PM	81	19	
2:00 PM	77	19	
2:15 PM	75	20	
2:30 PM	94	20	
2:45 PM	100	20	
3:00 PM	102	20	
3:15 PM	148	42	
3:30 PM	184	64	
3:45 PM	219	86	
4:00 PM	261	108	
4:15 PM	219	87	
4:30 PM	175	65	
4:45 PM	140	43	
5:00 PM	106	21	
5:15 PM	94	18	
5:30 PM	85	15	
5:45 PM	77	12	
6:00 PM	63	9	
6:15 PM	60	8	
6:30 PM	56	8	
6:45 PM	56	8	
7:00 PM	56	7	
7:15 PM	56	6	
7:30 PM	57	5	
7:45 PM	44	4	
8:00 PM	39	4	
8:15 PM	37	4	
8:30 PM	31	4	
8:45 PM	33	4	
9:00 PM	26	3	
9:15 PM	22	3	
9:30 PM	19	3	
9:45 PM	16	3	
10:00 PM	22	3	
10:15 PM	24	3	
10:30 PM	27	3	
10:45 PM	26	3	
11:00 PM	21	3	

MUTCD Figure 4C-3. Warrant 3, Peak Hour



WARRANT PA-1, ADT VOLUME WARRANT

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

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

Estimated ADT of Major Street (Both Approaches)*: 1729 vpd

**If applicable, attach all supporting calculations and documentation.*

Estimated ADT of Higher-Volume Minor Street (One Direction Only)*: 287 vpd

**If applicable, attach all supporting calculations and documentation.*

Condition A - ADT Volume Warrant

Number of lanes for moving traffic on each approach		Estimated ADT*			
		Major Street (Both Approaches)		Higher-Volume Minor Street Approach (One Direction Only)	
Major Street	**Minor Street**	**100%**	**70%**	**100%**	**70%**
1	**1**	10,000	7,000	3,000	2,100
2 or More	**1**	12,000	8,400	3,000	2,100
2 or More	**2 or More**	12,000	8,400	4,000	2,800
1	**2 or More**	10,000	7,000	4,000	2,800

Condition B - ADT Volume Warrant

Number of lanes for moving traffic on each approach		Estimated ADT*			
		Major Street (Both Approaches)		Higher-Volume Minor Street Approach (One Direction Only)	
Major Street	**Minor Street**	**100%**	**70%**	**100%**	**70%**
1	**1**	15,000	10,500	1,500	1,050
2 or More	**1**	18,000	12,600	1,500	1,050
2 or More	**2 or More**	18,000	12,600	2,000	1,400
1	**2 or More**	15,000	10,500	2,000	1,400

Condition A Met?	**No**
Condition B Met?	**No**

Traffic Signal Warrant Analysis Workbook

3/13/2025

STUDY AND ANALYSIS INFORMATION

Municipality:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Analysis Information

Data Collection Date:	2/5/2025
Day of the Week:	Wednesday

Is the intersection in a built-up area of an isolated community of <10,000 population? No

Major Street Information

Major Street Name and Route Number:	County Club Rd
Major Street Approach #1 Direction:	E-Bound
Major Street Approach #2 Direction:	W-Bound

Number of Lanes for Moving Traffic on Each Major Street Approach:	1	**LANE(S)**
Speed Limit or 85th Percentile Speed on the Major Street:	35	**MPH**

Minor Street Information

Minor Street Name and Route Number:	Main Driveway
Minor Street Approach #1 Direction:	S-Bound
Minor Street Approach #2 Direction:	N-Bound

Number of Lanes for Moving Traffic on Each Minor Street Approach:	1	**LANE(S)**

TRAFFIC SIGNAL WARRANT ANALYSIS FINDINGS

	Applicable?	Warrant Met?
Warrant 1, Eight-Hour Vehicular Volume	**Yes**	**No**
Warrant 2, Four-Hour Vehicular Volume	**Yes**	**No**
Warrant 3, Peak Hour	**Yes**	**No**
Warrant 4, Pedestrian Volume	**No**	**N/A**
Warrant 5, School Crossing	**No**	**N/A**
Warrant 6, Coordinated Signal System	**No**	**N/A**
Warrant 7, Crash Experience	**No**	**N/A**
Warrant 8, Roadway Network	**No**	**N/A**
Warrant 9, Intersection Near a Grade Crossing	**No**	**N/A**
Warrant PA-1, ADT Volume Warrant	**Yes**	**No**
Warrant PA-2, Midblock and Trail Crossings	**No**	**N/A**

ENTER VOLUME DATA PER 15 MINUTE INTERVAL, PER APPROACH

Time Interval		Major Street Approach #1 (E-Bound)	Major Street Approach #2 (W-Bound)	Major Street Combined	Minor Street Approach #1 (S-Bound)	Minor Street Approach #2 (N-Bound)
Begin At	End Of	Volume	Volume	Total Volume	Volume	Volume
12:00 AM	12:14 AM	0	2	2	0	
12:15 AM	12:29 AM	0	2	2	0	
12:30 AM	12:44 AM	1	1	2	0	
12:45 AM	12:59 AM	1	2	3	1	
1:00 AM	1:14 AM	0	1	1	0	
1:15 AM	1:29 AM	1	3	4	0	
1:30 AM	1:44 AM	1	1	2	1	
1:45 AM	1:59 AM	1	1	2	1	
2:00 AM	2:14 AM	0	1	1	0	
2:15 AM	2:29 AM	0	0	0	0	
2:30 AM	2:44 AM	1	1	2	0	
2:45 AM	2:59 AM	1	1	2	1	
3:00 AM	3:14 AM	0	3	3	0	
3:15 AM	3:29 AM	1	1	2	0	
3:30 AM	3:44 AM	1	3	4	1	
3:45 AM	3:59 AM	1	1	2	1	
4:00 AM	4:14 AM	1	2	3	0	
4:15 AM	4:29 AM	1	1	2	0	
4:30 AM	4:44 AM	1	1	2	1	
4:45 AM	4:59 AM	1	2	3	1	
5:00 AM	5:14 AM	2	5	7	1	
5:15 AM	5:29 AM	2	4	6	1	
5:30 AM	5:44 AM	2	11	13	1	
5:45 AM	5:59 AM	3	8	11	1	
6:00 AM	6:14 AM	3	9	12	1	
6:15 AM	6:29 AM	3	11	14	1	
6:30 AM	6:44 AM	5	15	20	1	
6:45 AM	6:59 AM	3	16	19	1	
7:00 AM	7:14 AM	71	89	160	29	
7:15 AM	7:29 AM	73	93	166	29	
7:30 AM	7:44 AM	69	94	163	29	
7:45 AM	7:59 AM	69	92	161	28	
8:00 AM	8:14 AM	2	11	13	1	
8:15 AM	8:29 AM	2	13	15	1	
8:30 AM	8:44 AM	3	19	22	1	
8:45 AM	8:59 AM	2	12	14	1	
9:00 AM	9:14 AM	2	15	17	1	
9:15 AM	9:29 AM	4	7	11	1	
9:30 AM	9:44 AM	5	10	15	1	
9:45 AM	9:59 AM	4	6	10	1	
10:00 AM	10:14 AM	3	10	13	1	
10:15 AM	10:29 AM	3	7	10	1	
10:30 AM	10:44 AM	4	6	10	1	
10:45 AM	10:59 AM	1	10	11	0	
11:00 AM	11:14 AM	4	9	13	1	
11:15 AM	11:29 AM	4	9	13	1	
11:30 AM	11:44 AM	6	6	12	1	
11:45 AM	11:59 AM	2	13	15	0	

ENTER VOLUME DATA PER 15 MINUTE INTERVAL, PER APPROACH

Time Interval		Major Street Approach #1 (E-Bound)	Major Street Approach #2 (W-Bound)	Major Street Combined	Minor Street Approach #1 (S-Bound)	Minor Street Approach #2 (N-Bound)
Begin At	End Of	Volume	Volume	Total Volume	Volume	Volume
12:00 PM	12:14 PM	3	14	17	13	
12:15 PM	12:29 PM	6	12	18	13	
12:30 PM	12:44 PM	5	12	17	13	
12:45 PM	12:59 PM	4	9	13	13	
1:00 PM	1:14 PM	1	12	13	12	
1:15 PM	1:29 PM	5	16	21	12	
1:30 PM	1:44 PM	2	10	12	12	
1:45 PM	1:59 PM	4	16	20	13	
2:00 PM	2:14 PM	3	16	19	13	
2:15 PM	2:29 PM	3	7	10	13	
2:30 PM	2:44 PM	4	11	15	14	
2:45 PM	2:59 PM	5	10	15	14	
3:00 PM	3:14 PM	5	13	18	14	
3:15 PM	3:29 PM	13	16	29	15	
3:30 PM	3:44 PM	9	11	20	15	
3:45 PM	3:59 PM	7	9	16	15	
4:00 PM	4:14 PM	18	24	42	80	
4:15 PM	4:29 PM	17	26	43	80	
4:30 PM	4:44 PM	13	21	34	79	
4:45 PM	4:59 PM	16	21	37	79	
5:00 PM	5:14 PM	6	14	20	15	
5:15 PM	5:29 PM	4	15	19	15	
5:30 PM	5:44 PM	5	16	21	15	
5:45 PM	5:59 PM	9	17	26	15	
6:00 PM	6:14 PM	4	8	12	7	
6:15 PM	6:29 PM	3	11	14	7	
6:30 PM	6:44 PM	5	10	15	7	
6:45 PM	6:59 PM	5	9	14	6	
7:00 PM	7:14 PM	1	9	10	5	
7:15 PM	7:29 PM	5	6	11	5	
7:30 PM	7:44 PM	1	15	16	4	
7:45 PM	7:59 PM	2	12	14	4	
8:00 PM	8:14 PM	1	9	10	3	
8:15 PM	8:29 PM	4	9	13	3	
8:30 PM	8:44 PM	1	2	3	3	
8:45 PM	8:59 PM	0	10	10	3	
9:00 PM	9:14 PM	3	6	9	3	
9:15 PM	9:29 PM	2	5	7	2	
9:30 PM	9:44 PM	1	4	5	2	
9:45 PM	9:59 PM	0	3	3	2	
10:00 PM	10:14 PM	1	4	5	3	
10:15 PM	10:29 PM	1	3	4	2	
10:30 PM	10:44 PM	0	2	2	2	
10:45 PM	10:59 PM	0	9	9	2	
11:00 PM	11:14 PM	1	6	7	3	
11:15 PM	11:29 PM	2	5	7	2	
11:30 PM	11:44 PM	0	1	1	2	
11:45 PM	11:59 PM	2	2	4	2	
	Approach Totals:	582	1148	1730	821	0

MUTCD WARRANT 1, EIGHT-HOUR VEHICULAR VOLUME

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

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

Combination of Conditions A and B Necessary?*: No

**Only applicable for Warrant 1 if after an adequate trial of other alternatives that could cause less delay and inconvenience to traffic has failed to solve the traffic problems. See Section 4C.02 of the 2009 MUTCD for application.*

Condition A - Minimum Vehicular Volume

Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)				Vehicles per hour on higher-volume minor street approach (one direction only)			
Major Street	Minor Street	100%	80%	70%	56%	100%	80%	70%	56%
1	1	500	400	350	280	150	120	105	84
2 or More	1	600	480	420	336	150	120	105	84
2 or More	2 or More	600	480	420	336	200	160	140	112
1	2 or More	500	400	350	280	200	160	140	112

Condition B - Interruption of Continuous Traffic

Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)				Vehicles per hour on higher-volume minor street approach (one direction only)			
Major Street	Minor Street	100%	80%	70%	56%	100%	80%	70%	56%
1	1	750	600	525	420	75	60	53	42
2 or More	1	900	720	630	504	75	60	53	42
2 or More	2 or More	900	720	630	504	100	80	70	56
1	2 or More	750	600	525	420	100	80	70	56

Condition A Evaluation

Number of Unique Hours Met: 0 **Condition A Satisfied?** No

Condition B Evaluation

Number of Unique Hours Met: 0 **Condition B Satisfied?** No

Combination of Condition A and Condition B Evaluation

Number of Unique Hours Met for Condition A: N/A

Number of Unique Hours Met for Condition B: N/A

Combination of Condition A and Condition B Satisfied? N/A

MUTCD WARRANT 2, FOUR-HOUR VEHICULAR VOLUME

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

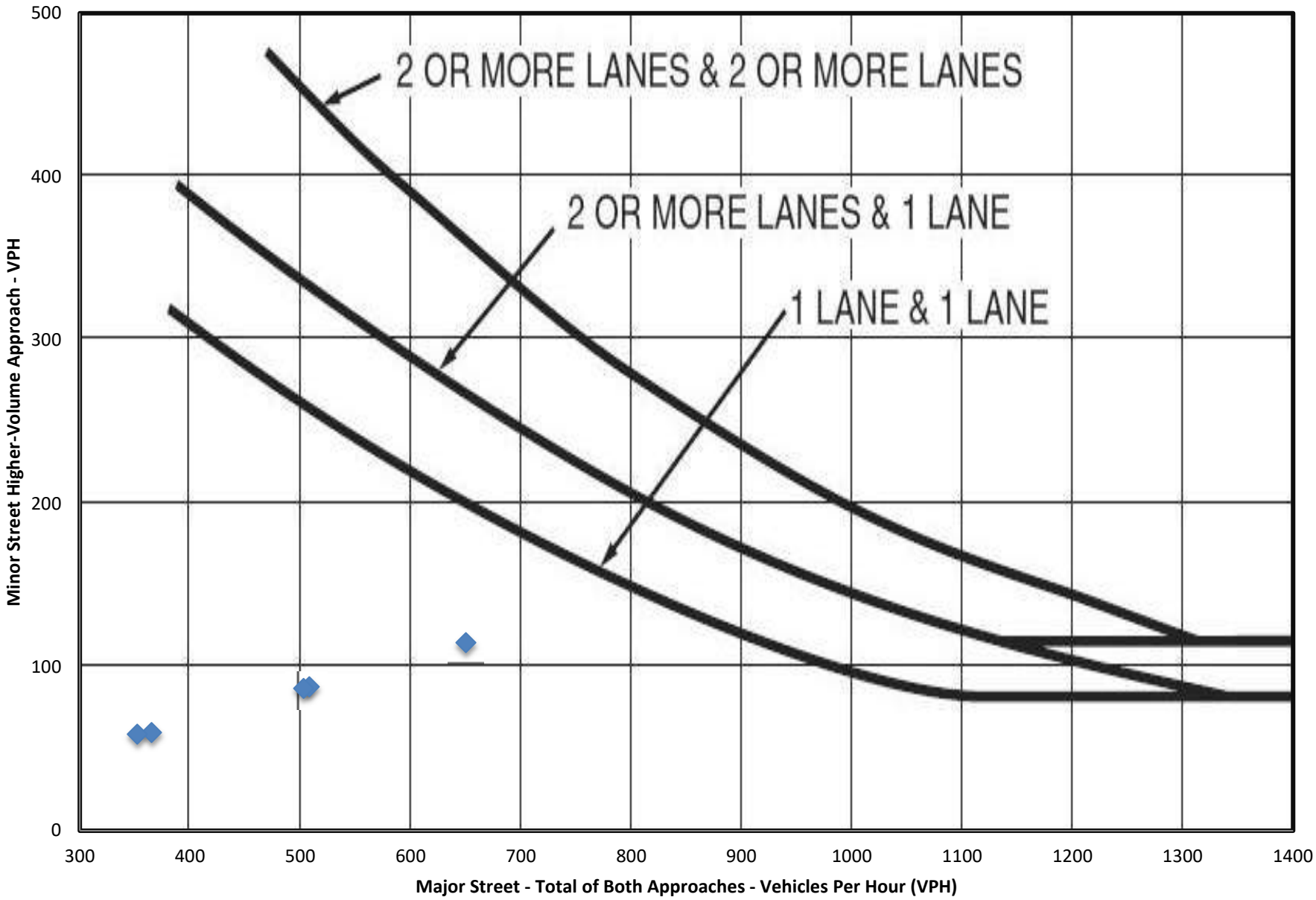
Total Number of Unique Hours Met On Figure 4C-1
0

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

Hourly Vehicular Volume			
Hour Interval Beginning At	Major Street Combined Vehicles Per Hour (VPH)	Highest Minor Street Approach Vehicles Per Hour (VPH)	Hour Met?
12:00 AM	9	1	
12:15 AM	8	1	
12:30 AM	10	1	
12:45 AM	10	2	
1:00 AM	9	2	
1:15 AM	9	2	
1:30 AM	5	2	
1:45 AM	5	1	
2:00 AM	5	1	
2:15 AM	7	1	
2:30 AM	9	1	
2:45 AM	11	2	
3:00 AM	11	2	
3:15 AM	11	2	
3:30 AM	11	2	
3:45 AM	9	2	
4:00 AM	10	2	
4:15 AM	14	3	
4:30 AM	18	4	
4:45 AM	29	4	
5:00 AM	37	4	
5:15 AM	42	4	
5:30 AM	50	4	
5:45 AM	57	4	
6:00 AM	65	4	
6:15 AM	213	32	
6:30 AM	365	60	
6:45 AM	508	88	
7:00 AM	650	115	
7:15 AM	503	87	
7:30 AM	352	59	
7:45 AM	211	31	
8:00 AM	64	4	
8:15 AM	68	4	
8:30 AM	64	4	
8:45 AM	57	4	
9:00 AM	53	4	
9:15 AM	49	4	
9:30 AM	48	4	
9:45 AM	43	4	
10:00 AM	44	3	
10:15 AM	44	3	
10:30 AM	47	3	
10:45 AM	49	3	
11:00 AM	53	3	
11:15 AM	57	15	
11:30 AM	62	27	
11:45 AM	67	39	

Hourly Vehicular Volume			
Hour Interval Beginning At	Major Street Combined Vehicles Per Hour (VPH)	Highest Minor Street Approach Vehicles Per Hour (VPH)	Hour Met?
12:00 PM	65	52	
12:15 PM	61	51	
12:30 PM	64	50	
12:45 PM	59	49	
1:00 PM	66	49	
1:15 PM	72	50	
1:30 PM	61	51	
1:45 PM	64	53	
2:00 PM	59	54	
2:15 PM	58	55	
2:30 PM	77	57	
2:45 PM	82	58	
3:00 PM	83	59	
3:15 PM	107	125	
3:30 PM	121	190	
3:45 PM	135	254	
4:00 PM	156	318	
4:15 PM	134	253	
4:30 PM	110	188	
4:45 PM	97	124	
5:00 PM	86	60	
5:15 PM	78	52	
5:30 PM	73	44	
5:45 PM	67	36	
6:00 PM	55	27	
6:15 PM	53	25	
6:30 PM	50	23	
6:45 PM	51	20	
7:00 PM	51	18	
7:15 PM	51	16	
7:30 PM	53	14	
7:45 PM	40	13	
8:00 PM	36	12	
8:15 PM	35	12	
8:30 PM	29	11	
8:45 PM	31	10	
9:00 PM	24	9	
9:15 PM	20	9	
9:30 PM	17	9	
9:45 PM	14	9	
10:00 PM	20	9	
10:15 PM	22	9	
10:30 PM	25	9	
10:45 PM	24	9	
11:00 PM	19	9	

MUTCD Figure 4C-1. Warrant 2, Four-Hour Vehicular Volume



MUTCD WARRANT 3, PEAK HOUR

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

Built-up Isolated Community With Less Than 10,000 Population or Above 40 MPH on Major Street?	No
Is this signal warrant being applied for an unusual case, such as office complexes, manufacturing plants, industrial complexes, or high-occupancy vehicle facilities that attract or discharge large numbers of vehicles over a short time?	N/A

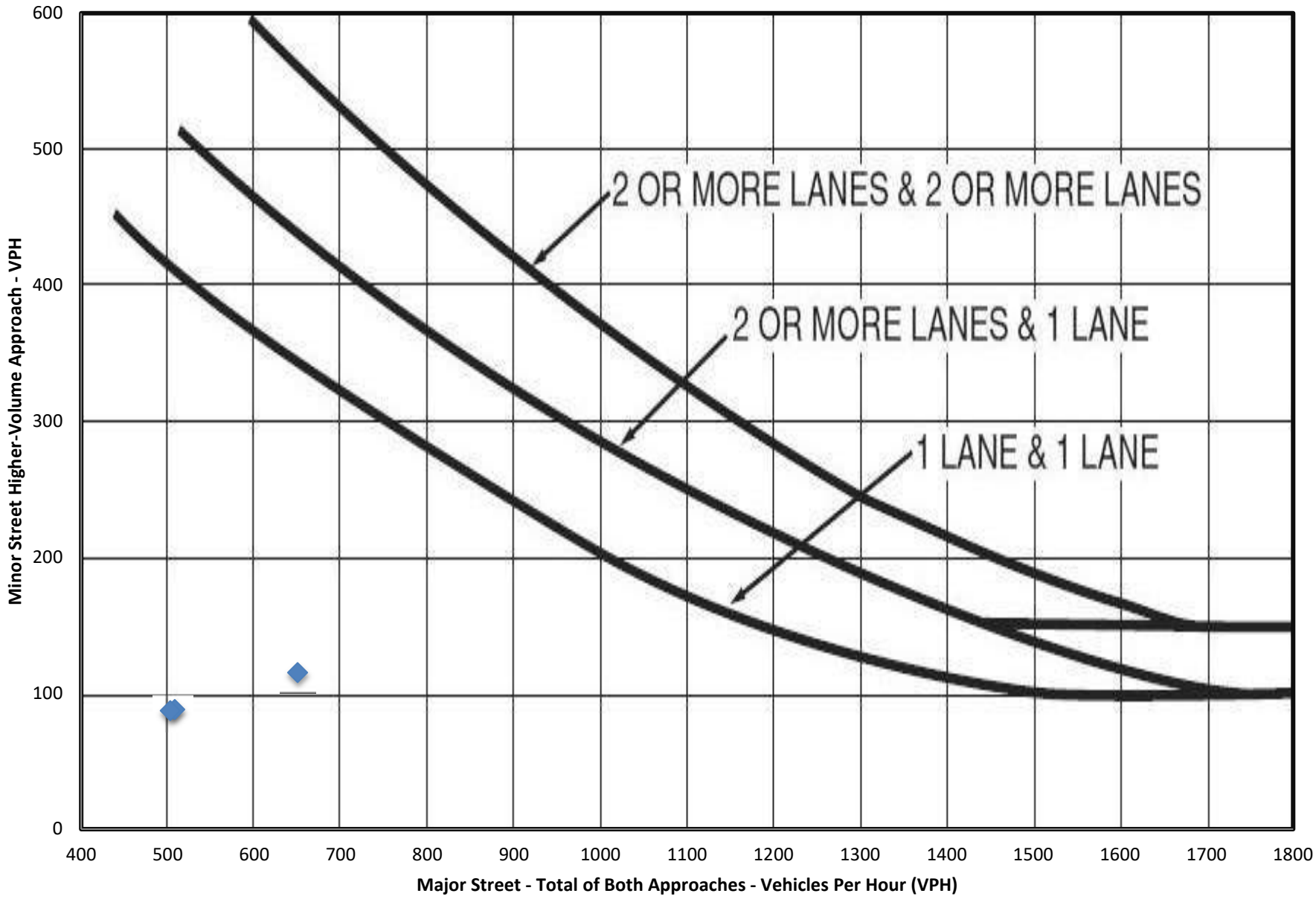
Indicate whether all three of the following conditions for the same 1 hour (any four consecutive 15-minute periods) of an average day are present*	
Does the total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equal or exceed 4 vehicle-hours for a one-lane approach or 5 vehicle-hours for a two-lane approach?	N/A
Does the volume on the same minor-street approach (one direction only) equal or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes?	Yes
Does the total entering volume serviced during the hour equal or exceed 650 vehicles per hour for intersection with three approaches or 800 vehicles per hour for intersections with four or more approaches?	Yes
**If applicable, attach all supporting calculations and documentation.*	

Total Number of Unique Hours Met On Figure 4C-3
0

Hourly Vehicular Volume			
Hour Interval Beginning At	Major Street Combined Vehicles Per Hour (VPH)	Highest Minor Street Approach Vehicles Per Hour (VPH)	Hour Met?
12:00 AM	9	1	
12:15 AM	8	1	
12:30 AM	10	1	
12:45 AM	10	2	
1:00 AM	9	2	
1:15 AM	9	2	
1:30 AM	5	2	
1:45 AM	5	1	
2:00 AM	5	1	
2:15 AM	7	1	
2:30 AM	9	1	
2:45 AM	11	2	
3:00 AM	11	2	
3:15 AM	11	2	
3:30 AM	11	2	
3:45 AM	9	2	
4:00 AM	10	2	
4:15 AM	14	3	
4:30 AM	18	4	
4:45 AM	29	4	
5:00 AM	37	4	
5:15 AM	42	4	
5:30 AM	50	4	
5:45 AM	57	4	
6:00 AM	65	4	
6:15 AM	213	32	
6:30 AM	365	60	
6:45 AM	508	88	
7:00 AM	650	115	
7:15 AM	503	87	
7:30 AM	352	59	
7:45 AM	211	31	
8:00 AM	64	4	
8:15 AM	68	4	

Hourly Vehicular Volume			
Hour Interval Beginning At	Major Street Combined Vehicles Per Hour (VPH)	Highest Minor Street Approach Vehicles Per Hour (VPH)	Hour Met?
8:30 AM	64	4	
8:45 AM	57	4	
9:00 AM	53	4	
9:15 AM	49	4	
9:30 AM	48	4	
9:45 AM	43	4	
10:00 AM	44	3	
10:15 AM	44	3	
10:30 AM	47	3	
10:45 AM	49	3	
11:00 AM	53	3	
11:15 AM	57	15	
11:30 AM	62	27	
11:45 AM	67	39	
12:00 PM	65	52	
12:15 PM	61	51	
12:30 PM	64	50	
12:45 PM	59	49	
1:00 PM	66	49	
1:15 PM	72	50	
1:30 PM	61	51	
1:45 PM	64	53	
2:00 PM	59	54	
2:15 PM	58	55	
2:30 PM	77	57	
2:45 PM	82	58	
3:00 PM	83	59	
3:15 PM	107	125	
3:30 PM	121	190	
3:45 PM	135	254	
4:00 PM	156	318	
4:15 PM	134	253	
4:30 PM	110	188	
4:45 PM	97	124	
5:00 PM	86	60	
5:15 PM	78	52	
5:30 PM	73	44	
5:45 PM	67	36	
6:00 PM	55	27	
6:15 PM	53	25	
6:30 PM	50	23	
6:45 PM	51	20	
7:00 PM	51	18	
7:15 PM	51	16	
7:30 PM	53	14	
7:45 PM	40	13	
8:00 PM	36	12	
8:15 PM	35	12	
8:30 PM	29	11	
8:45 PM	31	10	
9:00 PM	24	9	
9:15 PM	20	9	
9:30 PM	17	9	
9:45 PM	14	9	
10:00 PM	20	9	
10:15 PM	22	9	
10:30 PM	25	9	
10:45 PM	24	9	
11:00 PM	19	9	

MUTCD Figure 4C-3. Warrant 3, Peak Hour



WARRANT PA-1, ADT VOLUME WARRANT

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

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

Estimated ADT of Major Street (Both Approaches)*: 1730 vpd

**If applicable, attach all supporting calculations and documentation.*

Estimated ADT of Higher-Volume Minor Street (One Direction Only)*: 821 vpd

**If applicable, attach all supporting calculations and documentation.*

Condition A - ADT Volume Warrant

Number of lanes for moving traffic on each approach		Estimated ADT*			
		Major Street (Both Approaches)		Higher-Volume Minor Street Approach (One Direction Only)	
Major Street	**Minor Street**	**100%**	**70%**	**100%**	**70%**
1	**1**	10,000	7,000	3,000	2,100
2 or More	**1**	12,000	8,400	3,000	2,100
2 or More	**2 or More**	12,000	8,400	4,000	2,800
1	**2 or More**	10,000	7,000	4,000	2,800

Condition B - ADT Volume Warrant

Number of lanes for moving traffic on each approach		Estimated ADT*			
		Major Street (Both Approaches)		Higher-Volume Minor Street Approach (One Direction Only)	
Major Street	**Minor Street**	**100%**	**70%**	**100%**	**70%**
1	**1**	15,000	10,500	1,500	1,050
2 or More	**1**	18,000	12,600	1,500	1,050
2 or More	**2 or More**	18,000	12,600	2,000	1,400
1	**2 or More**	15,000	10,500	2,000	1,400

Condition A Met?	**No**
Condition B Met?	**No**

Traffic Signal Warrant Analysis Workbook

STUDY AND ANALYSIS INFORMATION

Municipality:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Analysis Information

Data Collection Date:	2/5/2025
Day of the Week:	Wednesday

Is the intersection in a built-up area of an isolated community of <10,000 population? No

Major Street Information

Major Street Name and Route Number:	County Club Rd
Major Street Approach #1 Direction:	E-Bound
Major Street Approach #2 Direction:	W-Bound

Number of Lanes for Moving Traffic on Each Major Street Approach:	1	**LANE(S)**
Speed Limit or 85th Percentile Speed on the Major Street:	35	**MPH**

Minor Street Information

Minor Street Name and Route Number:	Eastern Driveway
Minor Street Approach #1 Direction:	S-Bound
Minor Street Approach #2 Direction:	N-Bound

Number of Lanes for Moving Traffic on Each Minor Street Approach:	1	**LANE(S)**

TRAFFIC SIGNAL WARRANT ANALYSIS FINDINGS

	Applicable?	Warrant Met?
Warrant 1, Eight-Hour Vehicular Volume	**Yes**	**No**
Warrant 2, Four-Hour Vehicular Volume	**Yes**	**No**
Warrant 3, Peak Hour	**Yes**	**No**
Warrant 4, Pedestrian Volume	**No**	**N/A**
Warrant 5, School Crossing	**No**	**N/A**
Warrant 6, Coordinated Signal System	**No**	**N/A**
Warrant 7, Crash Experience	**No**	**N/A**
Warrant 8, Roadway Network	**No**	**N/A**
Warrant 9, Intersection Near a Grade Crossing	**No**	**N/A**
Warrant PA-1, ADT Volume Warrant	**Yes**	**No**
Warrant PA-2, Midblock and Trail Crossings	**No**	**N/A**

ENTER VOLUME DATA PER 15 MINUTE INTERVAL, PER APPROACH

Time Interval		Major Street Approach #1 (E-Bound)	Major Street Approach #2 (W-Bound)	Major Street Combined	Minor Street Approach #1 (S-Bound)	Minor Street Approach #2 (N-Bound)
Begin At	End Of	Volume	Volume	Total Volume	Volume	Volume
12:00 AM	12:14 AM	0	2	2	0	0
12:15 AM	12:29 AM	0	3	3	0	0
12:30 AM	12:44 AM	0	1	1	0	0
12:45 AM	12:59 AM	1	2	3	1	0
1:00 AM	1:14 AM	0	2	2	0	0
1:15 AM	1:29 AM	0	3	3	0	0
1:30 AM	1:44 AM	0	1	1	0	0
1:45 AM	1:59 AM	1	1	2	1	0
2:00 AM	2:14 AM	0	1	1	0	0
2:15 AM	2:29 AM	0	1	1	0	0
2:30 AM	2:44 AM	0	1	1	0	0
2:45 AM	2:59 AM	1	1	2	1	0
3:00 AM	3:14 AM	0	4	4	0	0
3:15 AM	3:29 AM	0	1	1	0	0
3:30 AM	3:44 AM	0	3	3	0	0
3:45 AM	3:59 AM	1	1	2	1	0
4:00 AM	4:14 AM	0	2	2	0	0
4:15 AM	4:29 AM	0	1	1	0	0
4:30 AM	4:44 AM	0	1	1	0	0
4:45 AM	4:59 AM	1	3	4	1	0
5:00 AM	5:14 AM	0	6	6	0	0
5:15 AM	5:29 AM	1	5	6	0	0
5:30 AM	5:44 AM	1	12	13	1	0
5:45 AM	5:59 AM	1	9	10	1	0
6:00 AM	6:14 AM	0	10	10	0	0
6:15 AM	6:29 AM	1	12	13	0	0
6:30 AM	6:44 AM	1	16	17	1	0
6:45 AM	6:59 AM	1	17	18	1	0
7:00 AM	7:14 AM	19	118	137	14	0
7:15 AM	7:29 AM	18	123	141	14	0
7:30 AM	7:44 AM	18	123	141	14	0
7:45 AM	7:59 AM	18	121	139	13	0
8:00 AM	8:14 AM	1	12	13	1	0
8:15 AM	8:29 AM	1	14	15	1	0
8:30 AM	8:44 AM	1	20	21	0	0
8:45 AM	8:59 AM	0	13	13	0	0
9:00 AM	9:14 AM	1	15	16	1	0
9:15 AM	9:29 AM	1	8	9	1	0
9:30 AM	9:44 AM	0	11	11	0	0
9:45 AM	9:59 AM	0	7	7	0	0
10:00 AM	10:14 AM	1	11	12	1	0
10:15 AM	10:29 AM	1	8	9	1	0
10:30 AM	10:44 AM	0	7	7	0	0
10:45 AM	10:59 AM	0	10	10	0	0
11:00 AM	11:14 AM	1	10	11	1	0
11:15 AM	11:29 AM	1	10	11	1	0
11:30 AM	11:44 AM	0	7	7	0	0
11:45 AM	11:59 AM	0	13	13	0	0

ENTER VOLUME DATA PER 15 MINUTE INTERVAL, PER APPROACH

Time Interval		Major Street Approach #1 (E-Bound)	Major Street Approach #2 (W-Bound)	Major Street Combined	Minor Street Approach #1 (S-Bound)	Minor Street Approach #2 (N-Bound)
Begin At	End Of	Volume	Volume	Total Volume	Volume	Volume
12:00 PM	12:14 PM	8	15	23	5	0
12:15 PM	12:29 PM	8	12	20	5	0
12:30 PM	12:44 PM	8	13	21	5	0
12:45 PM	12:59 PM	8	10	18	5	0
1:00 PM	1:14 PM	7	13	20	4	0
1:15 PM	1:29 PM	7	16	23	5	0
1:30 PM	1:44 PM	8	11	19	5	0
1:45 PM	1:59 PM	8	17	25	5	0
2:00 PM	2:14 PM	8	16	24	5	0
2:15 PM	2:29 PM	8	8	16	5	0
2:30 PM	2:44 PM	8	12	20	5	0
2:45 PM	2:59 PM	9	11	20	6	0
3:00 PM	3:14 PM	9	14	23	5	0
3:15 PM	3:29 PM	9	17	26	6	0
3:30 PM	3:44 PM	9	12	21	6	0
3:45 PM	3:59 PM	9	10	19	6	0
4:00 PM	4:14 PM	48	28	76	30	0
4:15 PM	4:29 PM	48	30	78	30	0
4:30 PM	4:44 PM	48	26	74	30	0
4:45 PM	4:59 PM	48	26	74	30	0
5:00 PM	5:14 PM	10	15	25	6	0
5:15 PM	5:29 PM	9	16	25	6	0
5:30 PM	5:44 PM	9	17	26	6	0
5:45 PM	5:59 PM	9	18	27	5	0
6:00 PM	6:14 PM	4	9	13	3	0
6:15 PM	6:29 PM	4	11	15	3	0
6:30 PM	6:44 PM	4	10	14	2	0
6:45 PM	6:59 PM	4	9	13	2	0
7:00 PM	7:14 PM	3	9	12	2	0
7:15 PM	7:29 PM	3	6	9	2	0
7:30 PM	7:44 PM	3	15	18	2	0
7:45 PM	7:59 PM	2	13	15	1	0
8:00 PM	8:14 PM	2	9	11	2	0
8:15 PM	8:29 PM	2	9	11	1	0
8:30 PM	8:44 PM	2	3	5	1	0
8:45 PM	8:59 PM	1	10	11	1	0
9:00 PM	9:14 PM	2	6	8	1	0
9:15 PM	9:29 PM	1	5	6	1	0
9:30 PM	9:44 PM	1	4	5	1	0
9:45 PM	9:59 PM	1	3	4	1	0
10:00 PM	10:14 PM	2	4	6	1	0
10:15 PM	10:29 PM	1	3	4	1	0
10:30 PM	10:44 PM	1	2	3	1	0
10:45 PM	10:59 PM	1	9	10	1	0
11:00 PM	11:14 PM	2	6	8	1	0
11:15 PM	11:29 PM	1	5	6	1	0
11:30 PM	11:44 PM	1	1	2	1	0
11:45 PM	11:59 PM	1	2	3	1	0
	Approach Totals:	502	1329	1831	332	0

MUTCD WARRANT 1, EIGHT-HOUR VEHICULAR VOLUME

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

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

Combination of Conditions A and B Necessary?*: No

**Only applicable for Warrant 1 if after an adequate trial of other alternatives that could cause less delay and inconvenience to traffic has failed to solve the traffic problems. See Section 4C.02 of the 2009 MUTCD for application.*

Condition A - Minimum Vehicular Volume

Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)				Vehicles per hour on higher-volume minor street approach (one direction only)			
Major Street	Minor Street	100%	80%	70%	56%	100%	80%	70%	56%
1	1	500	400	350	280	150	120	105	84
2 or More	1	600	480	420	336	150	120	105	84
2 or More	2 or More	600	480	420	336	200	160	140	112
1	2 or More	500	400	350	280	200	160	140	112

Condition B - Interruption of Continuous Traffic

Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)				Vehicles per hour on higher-volume minor street approach (one direction only)			
Major Street	Minor Street	100%	80%	70%	56%	100%	80%	70%	56%
1	1	750	600	525	420	75	60	53	42
2 or More	1	900	720	630	504	75	60	53	42
2 or More	2 or More	900	720	630	504	100	80	70	56
1	2 or More	750	600	525	420	100	80	70	56

Condition A Evaluation

Number of Unique Hours Met: 0 **Condition A Satisfied?** No

Condition B Evaluation

Number of Unique Hours Met: 0 **Condition B Satisfied?** No

Combination of Condition A and Condition B Evaluation

Number of Unique Hours Met for Condition A: N/A

Number of Unique Hours Met for Condition B: N/A

Combination of Condition A and Condition B Satisfied? N/A

MUTCD WARRANT 2, FOUR-HOUR VEHICULAR VOLUME

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

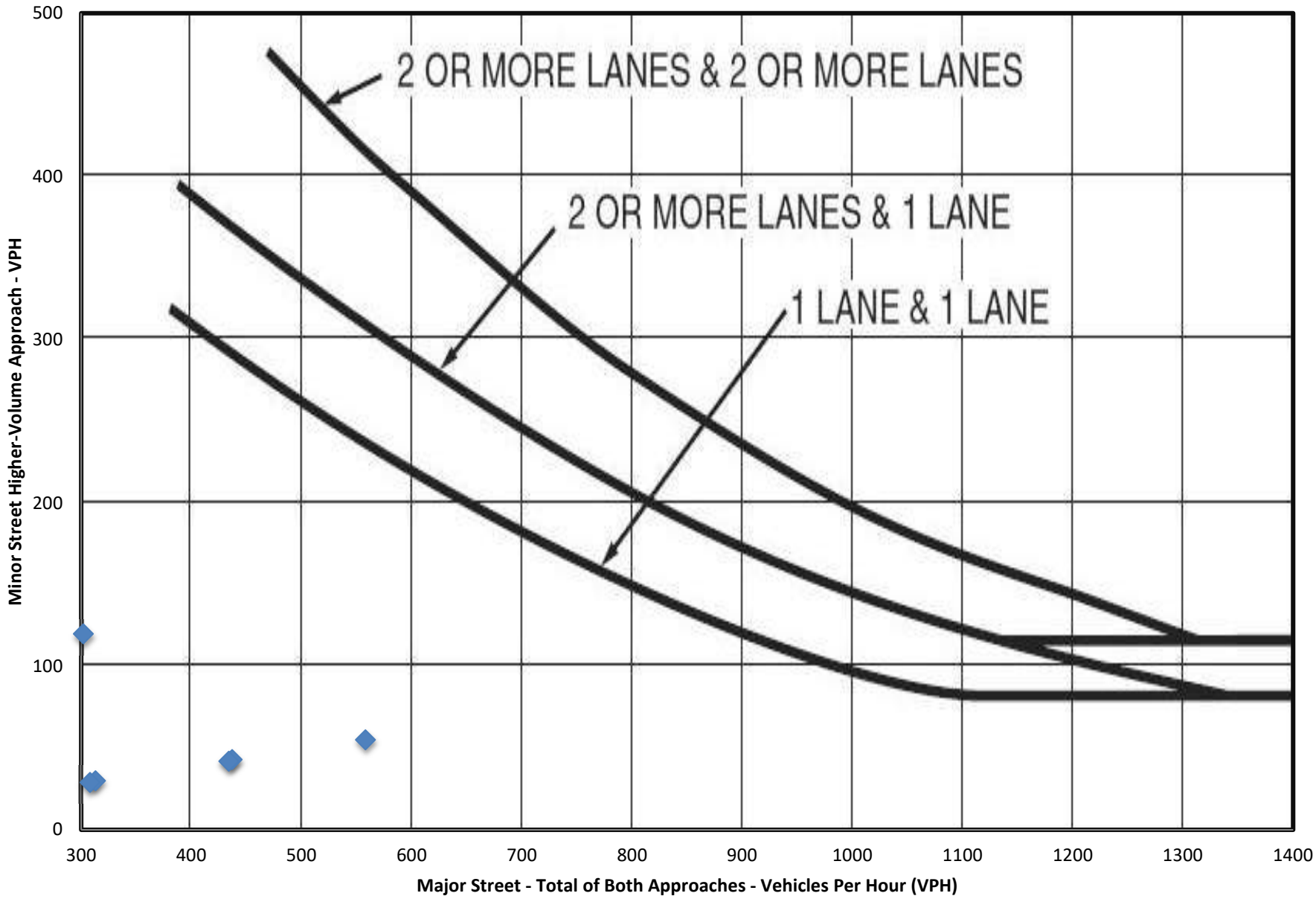
Total Number of Unique Hours Met On Figure 4C-1
0

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

Hourly Vehicular Volume			
Hour Interval Beginning At	Major Street Combined Vehicles Per Hour (VPH)	Highest Minor Street Approach Vehicles Per Hour (VPH)	Hour Met?
12:00 AM	9	1	
12:15 AM	9	1	
12:30 AM	9	1	
12:45 AM	9	1	
1:00 AM	8	1	
1:15 AM	7	1	
1:30 AM	5	1	
1:45 AM	5	1	
2:00 AM	5	1	
2:15 AM	8	1	
2:30 AM	8	1	
2:45 AM	10	1	
3:00 AM	10	1	
3:15 AM	8	1	
3:30 AM	8	1	
3:45 AM	6	1	
4:00 AM	8	1	
4:15 AM	12	1	
4:30 AM	17	1	
4:45 AM	29	2	
5:00 AM	35	2	
5:15 AM	39	2	
5:30 AM	46	2	
5:45 AM	50	2	
6:00 AM	58	2	
6:15 AM	185	16	
6:30 AM	313	30	
6:45 AM	437	43	
7:00 AM	558	55	
7:15 AM	434	42	
7:30 AM	308	29	
7:45 AM	188	15	
8:00 AM	62	2	
8:15 AM	65	2	
8:30 AM	59	2	
8:45 AM	49	2	
9:00 AM	43	2	
9:15 AM	39	2	
9:30 AM	39	2	
9:45 AM	35	2	
10:00 AM	38	2	
10:15 AM	37	2	
10:30 AM	39	2	
10:45 AM	39	2	
11:00 AM	42	2	
11:15 AM	54	6	
11:30 AM	63	10	
11:45 AM	77	15	

Hourly Vehicular Volume			
Hour Interval Beginning At	Major Street Combined Vehicles Per Hour (VPH)	Highest Minor Street Approach Vehicles Per Hour (VPH)	Hour Met?
12:00 PM	82	20	
12:15 PM	79	19	
12:30 PM	82	19	
12:45 PM	80	19	
1:00 PM	87	19	
1:15 PM	91	20	
1:30 PM	84	20	
1:45 PM	85	20	
2:00 PM	80	21	
2:15 PM	79	21	
2:30 PM	89	22	
2:45 PM	90	23	
3:00 PM	89	23	
3:15 PM	142	48	
3:30 PM	194	72	
3:45 PM	247	96	
4:00 PM	302	120	
4:15 PM	251	96	
4:30 PM	198	72	
4:45 PM	150	48	
5:00 PM	103	23	
5:15 PM	91	20	
5:30 PM	81	17	
5:45 PM	69	13	
6:00 PM	55	10	
6:15 PM	54	9	
6:30 PM	48	8	
6:45 PM	52	8	
7:00 PM	54	7	
7:15 PM	53	7	
7:30 PM	55	6	
7:45 PM	42	5	
8:00 PM	38	5	
8:15 PM	35	4	
8:30 PM	30	4	
8:45 PM	30	4	
9:00 PM	23	4	
9:15 PM	21	4	
9:30 PM	19	4	
9:45 PM	17	4	
10:00 PM	23	4	
10:15 PM	25	4	
10:30 PM	27	4	
10:45 PM	26	4	
11:00 PM	19	4	

MUTCD Figure 4C-1. Warrant 2, Four-Hour Vehicular Volume



MUTCD WARRANT 3, PEAK HOUR

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

Built-up Isolated Community With Less Than 10,000 Population or Above 40 MPH on Major Street?	No
Is this signal warrant being applied for an unusual case, such as office complexes, manufacturing plants, industrial complexes, or high-occupancy vehicle facilities that attract or discharge large numbers of vehicles over a short time?	N/A

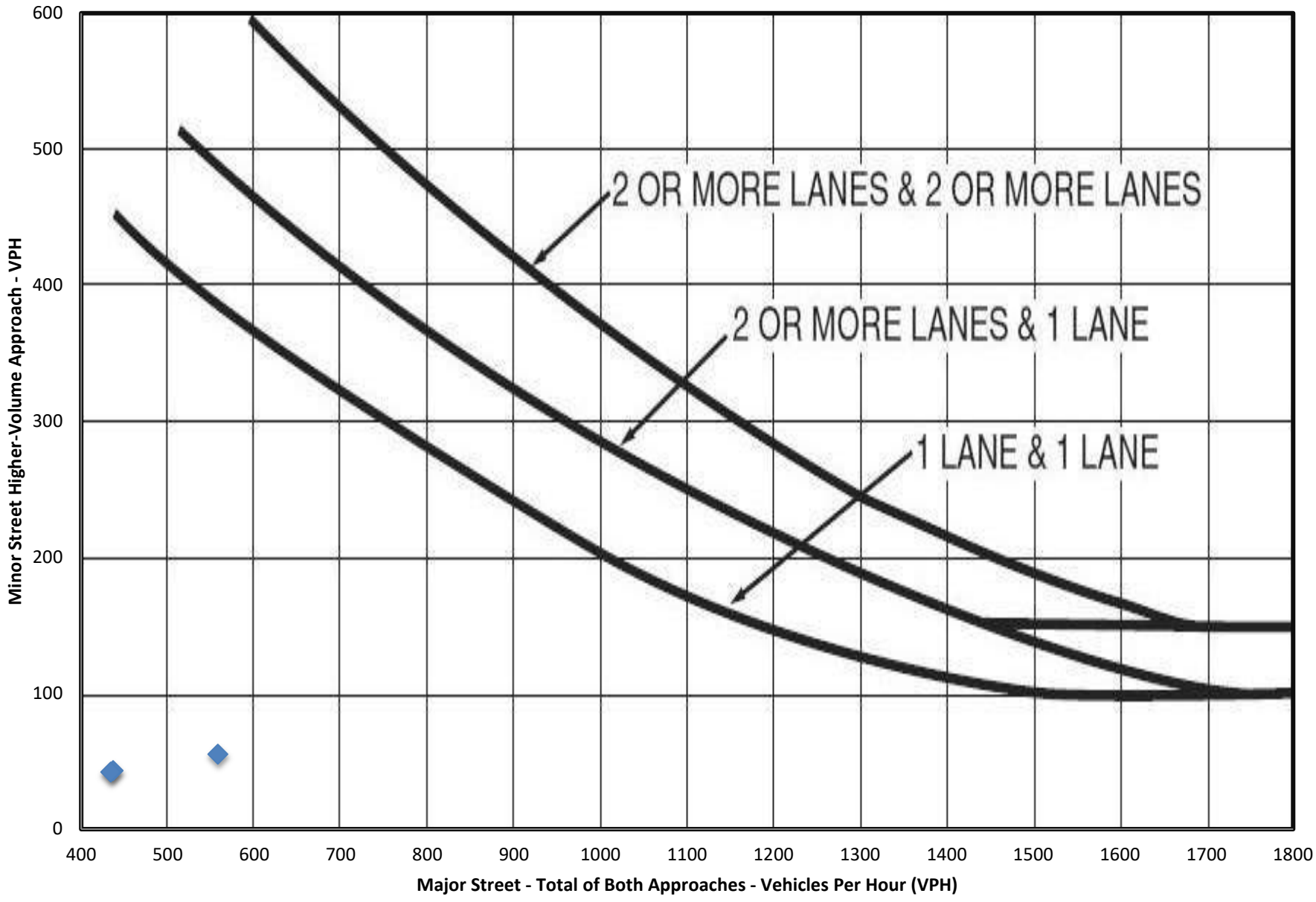
Indicate whether all three of the following conditions for the same 1 hour (any four consecutive 15-minute periods) of an average day are present*	
Does the total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equal or exceed 4 vehicle-hours for a one-lane approach or 5 vehicle-hours for a two-lane approach?	N/A
Does the volume on the same minor-street approach (one direction only) equal or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes?	N/A
Does the total entering volume serviced during the hour equal or exceed 650 vehicles per hour for intersection with three approaches or 800 vehicles per hour for intersections with four or more approaches?	N/A
**If applicable, attach all supporting calculations and documentation.*	

Total Number of Unique Hours Met On Figure 4C-3
0

Hourly Vehicular Volume			
Hour Interval Beginning At	Major Street Combined Vehicles Per Hour (VPH)	Highest Minor Street Approach Vehicles Per Hour (VPH)	Hour Met?
12:00 AM	9	1	
12:15 AM	9	1	
12:30 AM	9	1	
12:45 AM	9	1	
1:00 AM	8	1	
1:15 AM	7	1	
1:30 AM	5	1	
1:45 AM	5	1	
2:00 AM	5	1	
2:15 AM	8	1	
2:30 AM	8	1	
2:45 AM	10	1	
3:00 AM	10	1	
3:15 AM	8	1	
3:30 AM	8	1	
3:45 AM	6	1	
4:00 AM	8	1	
4:15 AM	12	1	
4:30 AM	17	1	
4:45 AM	29	2	
5:00 AM	35	2	
5:15 AM	39	2	
5:30 AM	46	2	
5:45 AM	50	2	
6:00 AM	58	2	
6:15 AM	185	16	
6:30 AM	313	30	
6:45 AM	437	43	
7:00 AM	558	55	
7:15 AM	434	42	
7:30 AM	308	29	
7:45 AM	188	15	
8:00 AM	62	2	
8:15 AM	65	2	

Hourly Vehicular Volume			
Hour Interval Beginning At	Major Street Combined Vehicles Per Hour (VPH)	Highest Minor Street Approach Vehicles Per Hour (VPH)	Hour Met?
8:30 AM	59	2	
8:45 AM	49	2	
9:00 AM	43	2	
9:15 AM	39	2	
9:30 AM	39	2	
9:45 AM	35	2	
10:00 AM	38	2	
10:15 AM	37	2	
10:30 AM	39	2	
10:45 AM	39	2	
11:00 AM	42	2	
11:15 AM	54	6	
11:30 AM	63	10	
11:45 AM	77	15	
12:00 PM	82	20	
12:15 PM	79	19	
12:30 PM	82	19	
12:45 PM	80	19	
1:00 PM	87	19	
1:15 PM	91	20	
1:30 PM	84	20	
1:45 PM	85	20	
2:00 PM	80	21	
2:15 PM	79	21	
2:30 PM	89	22	
2:45 PM	90	23	
3:00 PM	89	23	
3:15 PM	142	48	
3:30 PM	194	72	
3:45 PM	247	96	
4:00 PM	302	120	
4:15 PM	251	96	
4:30 PM	198	72	
4:45 PM	150	48	
5:00 PM	103	23	
5:15 PM	91	20	
5:30 PM	81	17	
5:45 PM	69	13	
6:00 PM	55	10	
6:15 PM	54	9	
6:30 PM	48	8	
6:45 PM	52	8	
7:00 PM	54	7	
7:15 PM	53	7	
7:30 PM	55	6	
7:45 PM	42	5	
8:00 PM	38	5	
8:15 PM	35	4	
8:30 PM	30	4	
8:45 PM	30	4	
9:00 PM	23	4	
9:15 PM	21	4	
9:30 PM	19	4	
9:45 PM	17	4	
10:00 PM	23	4	
10:15 PM	25	4	
10:30 PM	27	4	
10:45 PM	26	4	
11:00 PM	19	4	

MUTCD Figure 4C-3. Warrant 3, Peak Hour



WARRANT PA-1, ADT VOLUME WARRANT

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

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

Estimated ADT of Major Street (Both Approaches)*: 1831 vpd

**If applicable, attach all supporting calculations and documentation.*

Estimated ADT of Higher-Volume Minor Street (One Direction Only)*: 332 vpd

**If applicable, attach all supporting calculations and documentation.*

Condition A - ADT Volume Warrant

Number of lanes for moving traffic on each approach		Estimated ADT*			
		Major Street (Both Approaches)		Higher-Volume Minor Street Approach (One Direction Only)	
Major Street	**Minor Street**	**100%**	**70%**	**100%**	**70%**
1	**1**	10,000	7,000	3,000	2,100
2 or More	**1**	12,000	8,400	3,000	2,100
2 or More	**2 or More**	12,000	8,400	4,000	2,800
1	**2 or More**	10,000	7,000	4,000	2,800

Condition B - ADT Volume Warrant

Number of lanes for moving traffic on each approach		Estimated ADT*			
		Major Street (Both Approaches)		Higher-Volume Minor Street Approach (One Direction Only)	
Major Street	**Minor Street**	**100%**	**70%**	**100%**	**70%**
1	**1**	15,000	10,500	1,500	1,050
2 or More	**1**	18,000	12,600	1,500	1,050
2 or More	**2 or More**	18,000	12,600	2,000	1,400
1	**2 or More**	15,000	10,500	2,000	1,400

Condition A Met?	**No**
Condition B Met?	**No**

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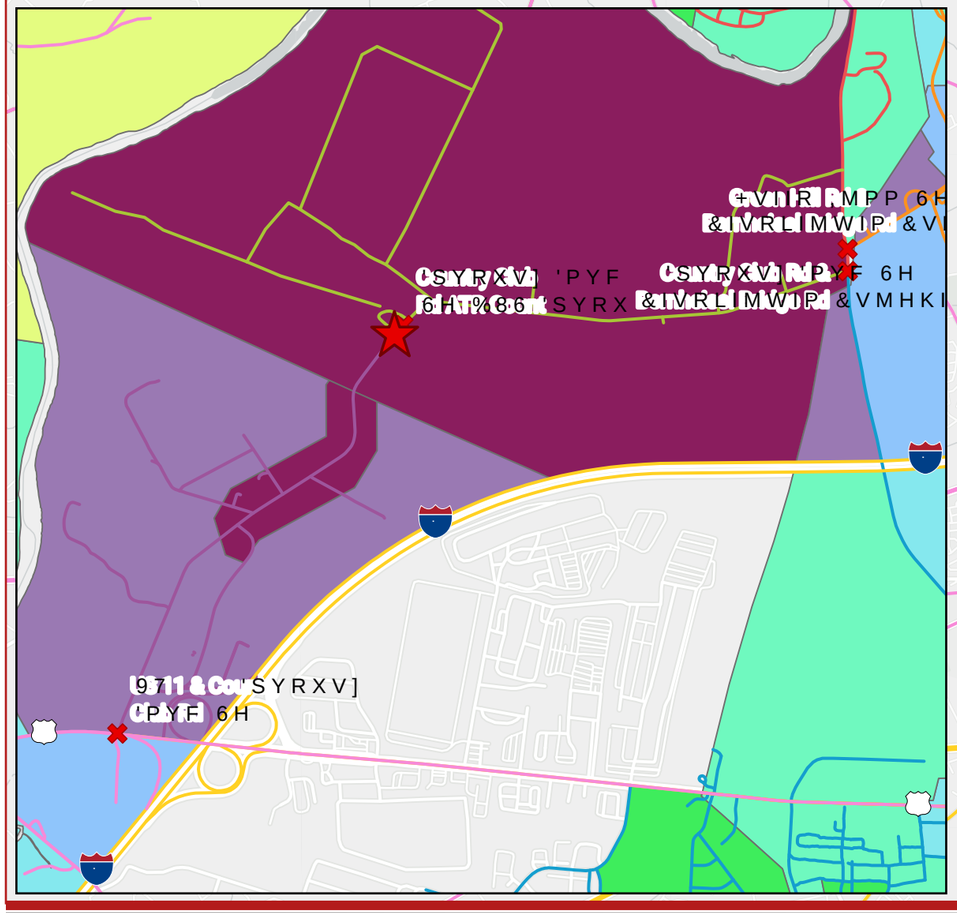
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GRAVITY MODEL CALCULATIONS

Bernheisel Bridge Rd from the North							
Interior Travel Time Ring	Exterior Travel Time Ring	Population Between Interior and Exterior Rings (All Municipalities)	Travel Time From Site (Minutes)	Travel Time^2 (Travel Time from Site^2)	Population/ Travel Time^2 (Population/ Travel Time^2)		
9	10	376	10	100	3.76		
8	9	247	9	81	3.05		
7	8	298	8	64	4.66		
6	7	140	7	49	2.86		
5	6	239	6	36	6.64		
4	5	695	5	25	27.80		
3	4	320	4	16	20.00		
2	3	0	3	9	0.00		
1	2	0	2	4	0.00		
0	1	0	1	1	0.00		
		2315			68.76	19.0%	

Bernheisel Bridge Rd from the South							
Interior Travel Time Ring	Exterior Travel Time Ring	Population Between Interior and Exterior Rings (All Municipalities)	Travel Time From Site (Minutes)	Travel Time^2 (Travel Time from Site^2)	Population/ Travel Time^2 (Population/ Travel Time^2)		
9	10	0	10	100	0.00		
8	9	0	9	81	0.00		
7	8	55	8	64	0.86		
6	7	27	7	49	0.55		
5	6	291	6	36	8.08		
4	5	411	5	25	16.44		
3	4	159	4	16	9.94		
2	3	0	3	9	0.00		
1	2	12	2	4	3.00		
0	1	0	1	1	0.00		
		955			38.87	**10.0%**	

Green Hill Rd from the East							
Interior Travel Time Ring	Exterior Travel Time Ring	Population Between Interior and Exterior Rings (All Municipalities)	Travel Time From Site (Minutes)	Travel Time^2 (Travel Time from Site^2)	Population/ Travel Time^2 (Population/ Travel Time^2)		
9	10	901	10	100	9.01		
8	9	853	9	81	10.53		
7	8	645	8	64	10.08		
6	7	1400	7	49	28.57		
5	6	986	6	36	27.39		
4	5	160	5	25	6.40		
3	4	30	4	16	1.88		
2	3	13	3	9	1.44		
1	2	6	2	4	1.50		
0	1	0	1	1	0.00		
		4994			96.80	**26.0%**	

US 11 from the East

Interior Travel Time Ring	Exterior Travel Time Ring	Population Between Interior and Exterior Rings (All Municipalities)	Travel Time From Site (Minutes)	Travel Time^2 (Travel Time from Site^2)	Population/ Travel Time^2 (Population/ Travel Time^2)		
9	10	2503	10	100	25.03		
8	9	627	9	81	7.74		
7	8	330	8	64	5.16		
6	7	25	7	49	0.51		
5	6	0	6	36	0.00		
4	5	0	5	25	0.00		
3	4	0	4	16	0.00		
2	3	0	3	9	0.00		
1	2	0	2	4	0.00		
0	1	0	1	1	0.00		
		3485			38.44	**10.0%**	

US 11 from the West							
Interior Travel Time Ring	Exterior Travel Time Ring	Population Between Interior and Exterior Rings (All Municipalities)	Travel Time From Site (Minutes)	Travel Time^2 (Travel Time from Site^2)	Population/ Travel Time^2 (Population/ Travel Time^2)		
9	10	3860	10	100	38.60		
8	9	1778	9	81	21.95		
7	8	1621	8	64	25.33		
6	7	868	7	49	17.71		
5	6	485	6	36	13.47		
4	5	108	5	25	4.32		
3	4	85	4	16	5.31		
2	3	37	3	9	4.11		
1	2	0	2	4	0.00		
0	1	0	1	1	0.00		
		8842			130.81	**35.0%**	

Total							
9	10	7640	10	100	76.40		
8	9	3505	9	81	43.27		
7	8	2949	8	64	46.08		
6	7	2460	7	49	50.20		
5	6	2001	6	36	55.58		
4	5	1374	5	25	54.96		
3	4	594	4	16	37.13		
2	3	50	3	9	5.56		
1	2	18	2	4	4.50		
0	1	0	1	1	0.00		
		20591			373.68	**100.0%**	

Appendix L - Study Area Photographs



Intersection 1: US 11 (Harrisburg Pike) and Country Club Road
Looking North


Intersection 2: Bernheisel Bridge Road and Country Club Road Looking North
Google Earth
©2025 Google


Intersection 3: Bernheisel Bridge Road and Green Hill Road
Looking South
Google Earth
©2025 Google

Appendix M - Sight Distance

M-950S
(03-04)
PENNDOT

DRIVEWAY SIGHT DISTANCE MEASUREMENTS
(FOR LOCAL ROADS, USE PENNDOT PUB 70)

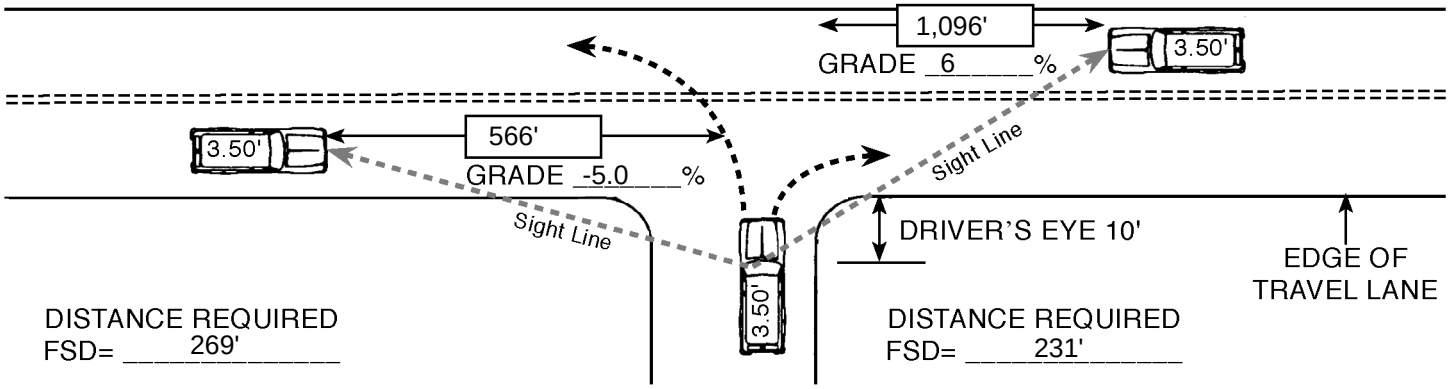
APPLICANT_____ APPLICATION NO._____

S.R. T-585 SEG._____ OFFSET_____ LEGAL SPEED LIMIT 35

MEASURED BY LIVIC CIVIL DATE 03/07/2025

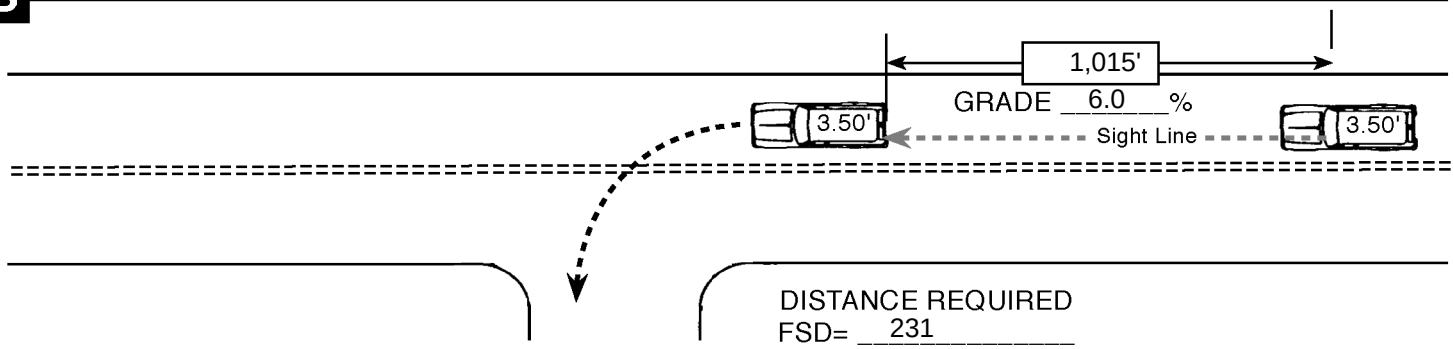
FOR DEPARTMENT USE ONLY: Safe-Running Speed _____ 85th Percentile Speed _____

A



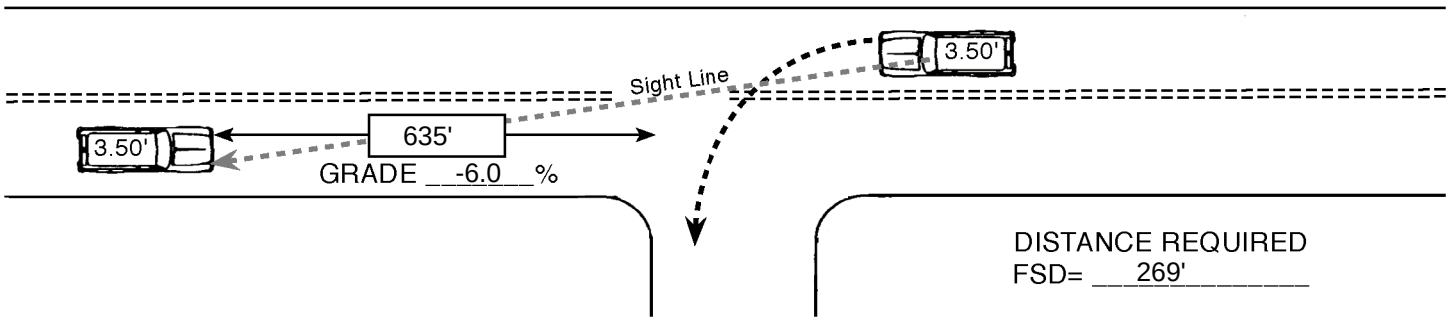
THE MAXIMUM LENGTH OF ROADWAY ALONG WHICH A DRIVER AT A DRIVEWAY LOCATION CAN CONTINUOUSLY SEE ANOTHER VEHICLE APPROACHING ON THE ROADWAY.

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

DRIVEWAY SIGHT DISTANCE MEASUREMENTS
(FOR LOCAL ROADS, USE PENNDOT PUB 70)

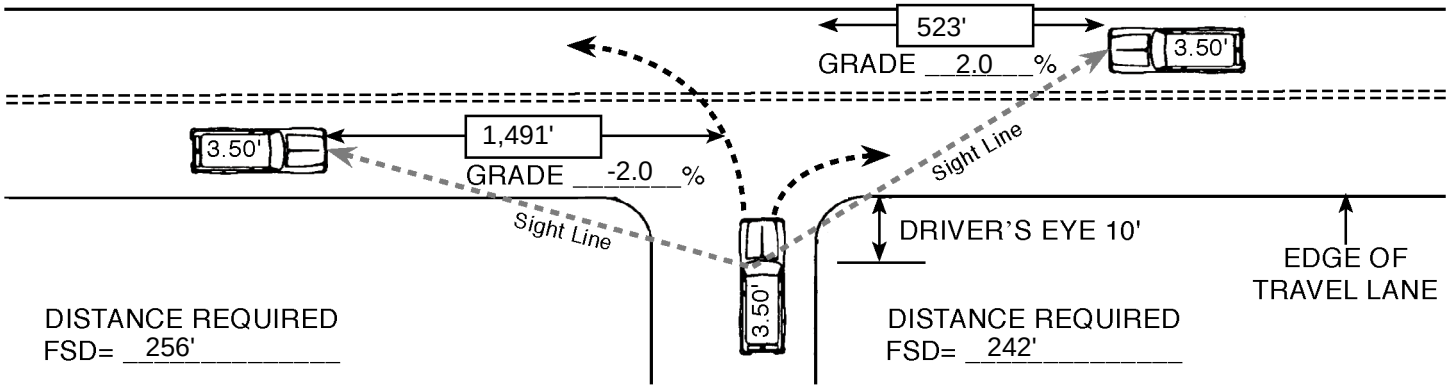
APPLICANT_____ APPLICATION NO._____

S.R. T-585 SEG._____ OFFSET_____ LEGAL SPEED LIMIT 35

MEASURED BY LIVIC CIVIL DATE 03/07/2025

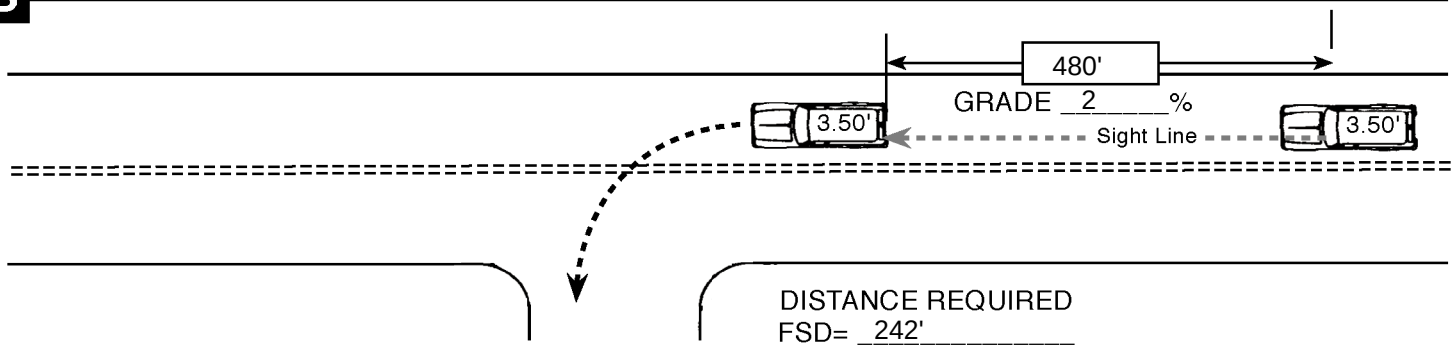
FOR DEPARTMENT USE ONLY: Safe-Running Speed _____ 85th Percentile Speed _____

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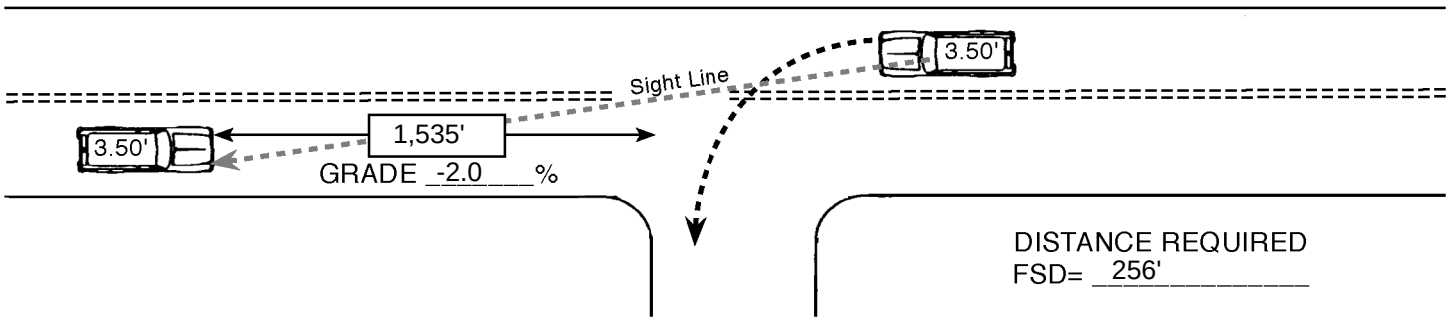
THE MAXIMUM LENGTH OF ROADWAY ALONG WHICH A DRIVER AT A DRIVEWAY LOCATION CAN CONTINUOUSLY SEE ANOTHER VEHICLE APPROACHING ON THE ROADWAY.

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
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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
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M-950S
(03-04)
PENNDOT

DRIVEWAY SIGHT DISTANCE MEASUREMENTS

(FOR LOCAL ROADS, USE PENNDOT PUB 70)

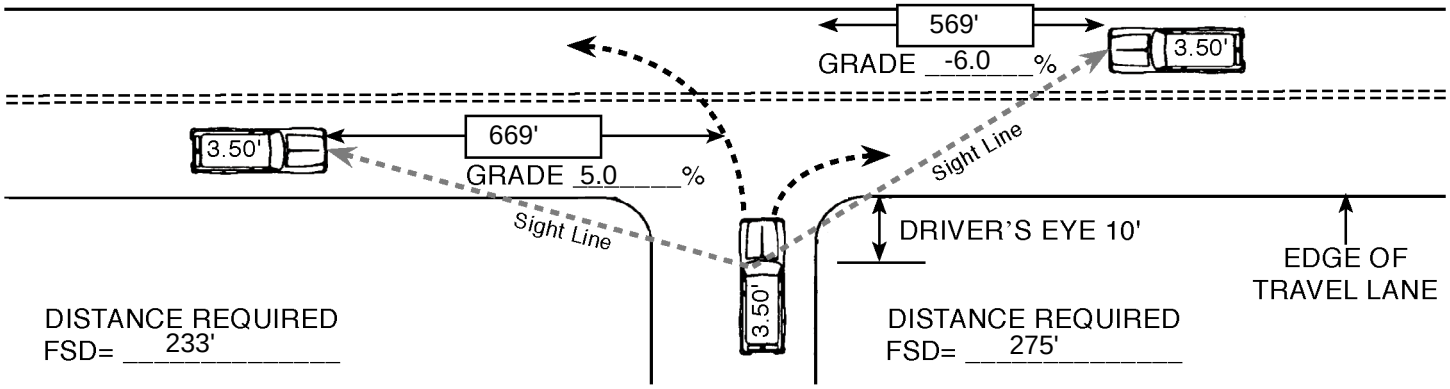
APPLICANT_____ APPLICATION NO._____

S.R.__T-585__SEG._____OFFSET_____ LEGAL SPEED LIMIT__35__

MEASURED BY__LIVIC CIVIL__ DATE __03/07/2025__

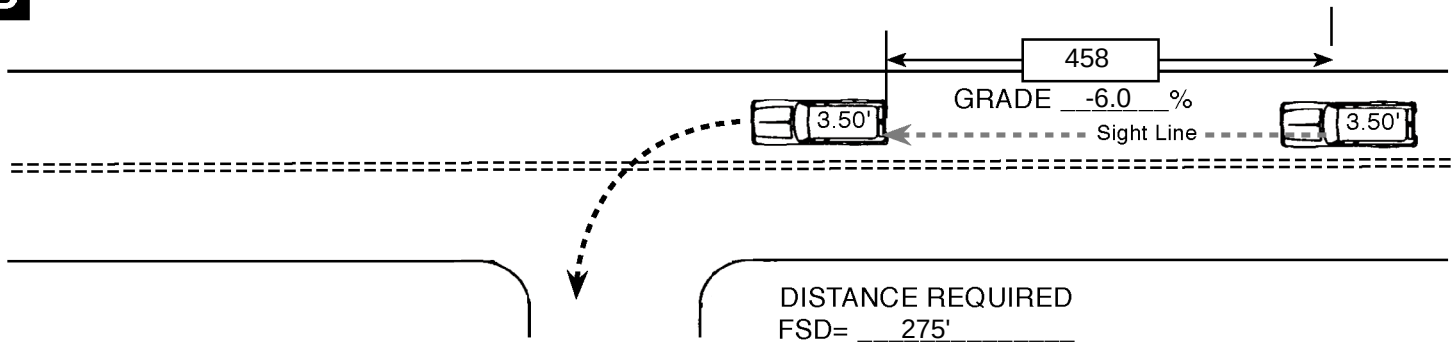
FOR DEPARTMENT USE ONLY: Safe-Running Speed _____ 85th Percentile Speed _____

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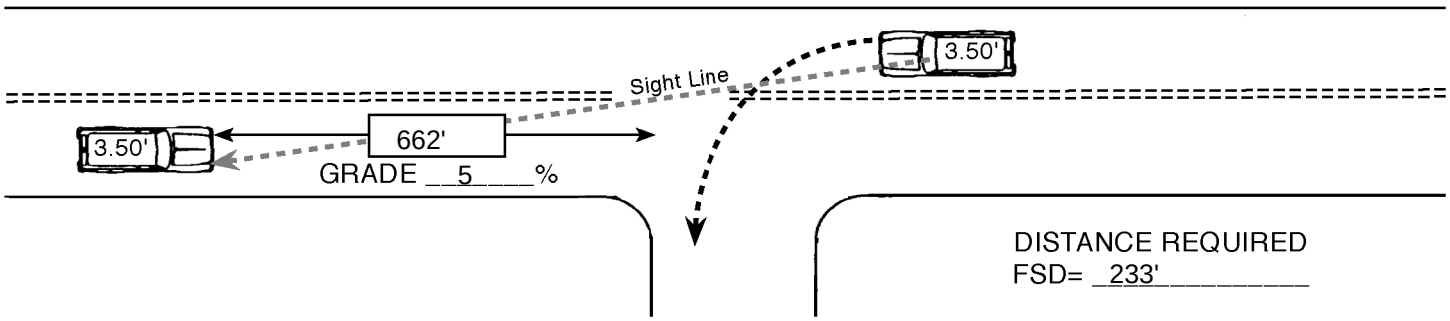
THE MAXIMUM LENGTH OF ROADWAY ALONG WHICH A DRIVER AT A DRIVEWAY LOCATION CAN CONTINUOUSLY SEE ANOTHER VEHICLE APPROACHING ON THE ROADWAY.

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C

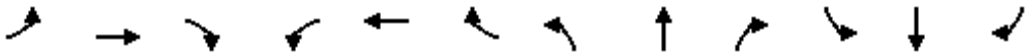


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FORMULA SIGHT DISTANCE TABLE

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
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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
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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

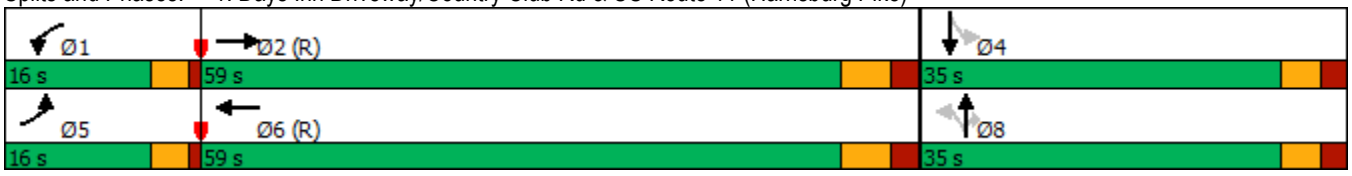


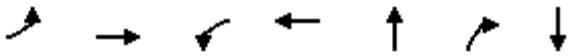
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	975	9	3	695	18	1	1	16	58	1	30
Future Volume (vph)	20	975	9	3	695	18	1	1	16	58	1	30
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12	14	14	14	11	11	11
Grade (%)		-1%			2%			-2%			4%	
Storage Length (ft)	270		0	152		0	0		50	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00				1.00							
Frt		0.999			0.996				0.850		0.955	
Flt Protected	0.950			0.950				0.976			0.968	
Satd. Flow (prot)	1494	2794	0	1273	2706	0	0	1893	1459	0	1546	0
Flt Permitted	0.950			0.950				0.891			0.802	
Satd. Flow (perm)	1492	2794	0	1273	2706	0	0	1728	1459	0	1281	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			3				74		23	
Link Speed (mph)		35			35			25			35	
Link Distance (ft)		326			335			267			374	
Travel Time (s)		6.4			6.5			7.3			7.3	
Confl. Peds. (#/hr)	2					2						
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	15%	23%	11%	33%	25%	6%	0%	0%	13%	3%	0%	0%
Adj. Flow (vph)	22	1048	10	3	747	19	1	1	17	62	1	32
Shared Lane Traffic (%)												
Lane Group Flow (vph)	22	1058	0	3	766	0	0	2	17	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)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.09	1.09	1.09	0.97	0.97	0.97	1.15	1.15	1.15
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1	1	1	1	
Detector Template							Left			Left		
Leading Detector (ft)	35	256		35	256		20	35	35	20	35	
Trailing Detector (ft)	-5	250		-5	250		0	-5	-5	0	-5	
Detector 1 Position(ft)	-5	250		-5	250		0	-5	-5	0	-5	
Detector 1 Size(ft)	40	6		40	6		20	40	40	20	40	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	3.0	6.0		3.0	6.0		0.0	3.0	3.0	0.0	3.0	
Detector 1 Queue (s)	0.0	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	0.0	
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8		8	4		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2		1	6		8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	3.0	10.0		3.0	10.0		5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	7.0	16.5		7.0	16.5		10.6	10.6	10.6	10.6	10.6	
Total Split (s)	16.0	59.0		16.0	59.0		35.0	35.0	35.0	35.0	35.0	
Total Split (%)	14.5%	53.6%		14.5%	53.6%		31.8%	31.8%	31.8%	31.8%	31.8%	
Maximum Green (s)	12.0	52.5		12.0	52.5		29.4	29.4	29.4	29.4	29.4	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.3	3.3	3.3	3.3	3.3	
All-Red Time (s)	1.0	2.5		1.0	2.5		2.3	2.3	2.3	2.3	2.3	
Lost Time Adjust (s)	-0.5	-1.0		-0.5	-1.0			-1.0	-1.0		-1.0	
Total Lost Time (s)	3.5	5.5		3.5	5.5			4.6	4.6		4.6	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	6.0		3.0	6.0		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)	0.0	30.0		0.0	30.0		0.0	0.0	0.0	0.0	0.0	
Time To Reduce (s)	0.0	15.0		0.0	15.0		0.0	0.0	0.0	0.0	0.0	
Recall Mode	None	C-Min		None	C-Min		None	None	None	None	None	
Walk Time (s)		7.0			7.0		7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)		18.0			18.0		26.0	26.0	26.0	26.0	26.0	
Pedestrian Calls (#/hr)		0			0		0	0	0	0	0	
Act Effct Green (s)	7.8	85.2		6.5	82.2			12.6	12.6		12.6	
Actuated g/C Ratio	0.07	0.77		0.06	0.75			0.11	0.11		0.11	
v/c Ratio	0.21	0.49		0.04	0.38			0.01	0.07		0.57	
Control Delay	52.1	6.6		49.7	7.1			39.5	0.6		47.2	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay	52.1	6.6		49.7	7.1			39.5	0.6		47.2	
LOS	D	A		D	A			D	A		D	
Approach Delay		7.6			7.2			4.7			47.2	
Approach LOS		A			A			A			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 74 (67%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 50			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.57			
Intersection Signal Delay: 9.3		Intersection LOS: A	
Intersection Capacity Utilization 50.6%		ICU Level of Service A	
Analysis Period (min) 15			

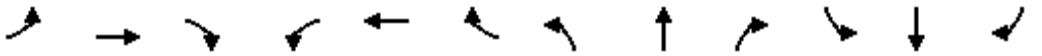
Splits and Phases: 1: Days Inn Driveway/Country Club Rd & US Route 11 (Harrisburg Pike)





Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	22	1058	3	766	2	17	95
v/c Ratio	0.21	0.49	0.04	0.38	0.01	0.07	0.57
Control Delay	52.1	6.6	49.7	7.1	39.5	0.6	47.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.1	6.6	49.7	7.1	39.5	0.6	47.2
Queue Length 50th (ft)	15	104	2	65	1	0	48
Queue Length 95th (ft)	40	268	12	184	8	0	98
Internal Link Dist (ft)		246		255	187		294
Turn Bay Length (ft)	270		152			50	
Base Capacity (vph)	169	2163	144	2022	477	456	370
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.49	0.02	0.38	0.00	0.04	0.26

Intersection Summary



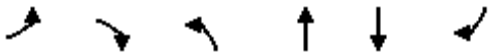
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	975	9	3	695	18	1	1	16	58	1	30
Future Volume (veh/h)	20	975	9	3	695	18	1	1	16	58	1	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		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	1624	1510	1681	1314	1427	1693	1950	1950	1757	1669	1711	1711
Adj Flow Rate, veh/h	22	1048	10	3	747	19	1	1	17	62	1	32
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	15	23	11	33	25	6	0	0	13	3	0	0
Cap, veh/h	32	2254	22	9	2054	52	114	103	142	132	8	43
Arrive On Green	0.02	0.77	0.76	0.01	0.76	0.75	0.09	0.10	0.10	0.09	0.10	0.09
Sat Flow, veh/h	1547	2912	28	1252	2701	69	685	1080	1489	813	84	455
Grp Volume(v), veh/h	22	516	542	3	375	391	2	0	17	95	0	0
Grp Sat Flow(s),veh/h/ln	1547	1435	1505	1252	1355	1414	1765	0	1489	1352	0	0
Q Serve(g_s), s	1.6	14.0	14.0	0.3	10.1	10.1	0.0	0.0	1.1	6.9	0.0	0.0
Cycle Q Clear(g_c), s	1.6	14.0	14.0	0.3	10.1	10.1	0.1	0.0	1.1	7.6	0.0	0.0
Prop In Lane	1.00		0.02	1.00		0.05	0.50		1.00	0.65		0.34
Lane Grp Cap(c), veh/h	32	1110	1165	9	1031	1075	202	0	142	171	0	0
V/C Ratio(X)	0.70	0.46	0.47	0.35	0.36	0.36	0.01	0.00	0.12	0.56	0.00	0.00
Avail Cap(c_a), veh/h	176	1110	1165	142	1031	1075	500	0	412	412	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	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	53.5	4.4	4.4	54.4	4.4	4.4	45.3	0.0	45.5	48.8	0.0	0.0
Incr Delay (d2), s/veh	24.0	1.4	1.3	22.0	1.0	1.0	0.0	0.0	0.4	2.8	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	0.8	3.5	3.7	0.1	2.5	2.6	0.1	0.0	0.4	2.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	77.6	5.8	5.7	76.4	5.4	5.3	45.3	0.0	45.9	51.7	0.0	0.0
LnGrp LOS	E	A	A	E	A	A	D	A	D	D	A	A
Approach Vol, veh/h		1080			769			19			95	
Approach Delay, s/veh		7.2			5.6			45.8			51.7	
Approach LOS		A			A			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.3	90.6		15.1	5.7	89.2		15.1				
Change Period (Y+Rc), s	4.0	6.5		5.6	4.0	6.5		5.6				
Max Green Setting (Gmax), s	12.0	52.5		29.4	12.0	52.5		29.4				
Max Q Clear Time (g_c+I1), s	2.3	16.0		9.6	3.6	12.1		3.1				
Green Ext Time (p_c), s	0.0	29.1		0.2	0.0	23.7		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		9.1	
HCM 6th LOS		A	

Notes

User approved pedestrian interval to be less than phase max green.



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	12	5	1	32	106	38
Future Volume (vph)	12	5	1	32	106	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11
Grade (%)	8%			4%	-4%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.959				0.964	
Flt Protected	0.966			0.999		
Satd. Flow (prot)	1541	0	0	1699	1780	0
Flt Permitted	0.966			0.999		
Satd. Flow (perm)	1541	0	0	1699	1780	0
Link Speed (mph)	35			30	30	
Link Distance (ft)	387			334	240	
Travel Time (s)	7.5			7.6	5.5	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	0%	20%	0%	6%	2%	0%
Adj. Flow (vph)	14	6	1	37	122	44
Shared Lane Traffic (%)						
Lane Group Flow (vph)	20	0	0	38	166	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	11			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.10	1.10	1.07	1.07	1.02	1.02
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	17.9%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	12	5	1	32	106	38
Future Vol, veh/h	12	5	1	32	106	38
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	8	-	-	4	-4	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	0	20	0	6	2	0
Mvmt Flow	14	6	1	37	122	44

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	183	144	166	0	-	0
Stage 1	144	-	-	-	-	-
Stage 2	39	-	-	-	-	-
Critical Hdwy	9	7.4	4.9	-	-	-
Critical Hdwy Stg 1	7	-	-	-	-	-
Critical Hdwy Stg 2	7	-	-	-	-	-
Follow-up Hdwy	3	3.6	3.5	-	-	-
Pot Cap-1 Maneuver	819	799	889	-	-	-
Stage 1	962	-	-	-	-	-
Stage 2	1131	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	818	799	889	-	-	-
Mov Cap-2 Maneuver	818	-	-	-	-	-
Stage 1	961	-	-	-	-	-
Stage 2	1131	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.5	0.3	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	889	-	812	-	-
HCM Lane V/C Ratio	0.001	-	0.024	-	-
HCM Control Delay (s)	9.1	0	9.5	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	5	10	35	8	82	140
Future Volume (vph)	5	10	35	8	82	140
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11
Grade (%)	0%		2%			2%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.913		0.975			
Flt Protected	0.983					0.982
Satd. Flow (prot)	1540	0	1731	0	0	1761
Flt Permitted	0.983					0.982
Satd. Flow (perm)	1540	0	1731	0	0	1761
Link Speed (mph)	35		30			30
Link Distance (ft)	417		240			323
Travel Time (s)	8.1		5.5			7.3
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	20%	0%	0%	13%	2%	1%
Adj. Flow (vph)	6	11	39	9	92	157
Shared Lane Traffic (%)						
Lane Group Flow (vph)	17	0	48	0	0	249
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	11		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.04	1.04	1.06	1.06	1.06	1.06
Turning Speed (mph)	15	9		9	15	
Sign Control	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	3.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	5	10	35	8	82	140
Future Vol, veh/h	5	10	35	8	82	140
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	2	-	-	2
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	20	0	0	13	2	1
Mvmt Flow	6	11	39	9	92	157

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	385	44	0	0	48	0
Stage 1	44	-	-	-	-	-
Stage 2	341	-	-	-	-	-
Critical Hdwy	7.6	6.4	-	-	4.9	-
Critical Hdwy Stg 1	5.6	-	-	-	-	-
Critical Hdwy Stg 2	5.6	-	-	-	-	-
Follow-up Hdwy	3.2	3.4	-	-	3.5	-
Pot Cap-1 Maneuver	589	1000	-	-	986	-
Stage 1	1071	-	-	-	-	-
Stage 2	767	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	529	1000	-	-	986	-
Mov Cap-2 Maneuver	529	-	-	-	-	-
Stage 1	1071	-	-	-	-	-
Stage 2	689	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.8	0	3.3
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	771	986	-
HCM Lane V/C Ratio	-	-	0.022	0.093	-
HCM Control Delay (s)	-	-	9.8	9	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0.3	-

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	2686
Vehs Exited	2676
Starting Vehs	0
Ending Vehs	10
Travel Distance (mi)	349
Travel Time (hr)	17.0
Total Delay (hr)	5.4
Total Stops	627
Fuel Used (gal)	14.3

Interval #0 Information Seeding

Start Time	7:00
End Time	7:15
Total Time (min)	15

Volumes adjusted by PHF.

Vehs Entered	524
Vehs Exited	510
Starting Vehs	0
Ending Vehs	14
Travel Distance (mi)	67
Travel Time (hr)	3.4
Total Delay (hr)	1.2
Total Stops	129
Fuel Used (gal)	2.8

Interval #1 Information

Start Time	7:15
End Time	7:30
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	528
Vehs Exited	524
Starting Vehs	14
Ending Vehs	18
Travel Distance (mi)	69
Travel Time (hr)	3.7
Total Delay (hr)	1.3
Total Stops	165
Fuel Used (gal)	3.0

Interval #2 Information

Start Time	7:30
End Time	7:45
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	560
Vehs Exited	563
Starting Vehs	18
Ending Vehs	15
Travel Distance (mi)	73
Travel Time (hr)	3.6
Total Delay (hr)	1.1
Total Stops	128
Fuel Used (gal)	3.0

Interval #3 Information

Start Time	7:45
End Time	8:00
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	521
Vehs Exited	527
Starting Vehs	15
Ending Vehs	9
Travel Distance (mi)	68
Travel Time (hr)	3.0
Total Delay (hr)	0.8
Total Stops	97
Fuel Used (gal)	2.6

Interval #4 Information Recording

Start Time	8:00
End Time	8:15
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	553
Vehs Exited	552
Starting Vehs	9
Ending Vehs	10
Travel Distance (mi)	72
Travel Time (hr)	3.3
Total Delay (hr)	0.9
Total Stops	108
Fuel Used (gal)	2.8

Intersection: 1: Days Inn Driveway/Country Club Rd & US Route 11 (Harrisburg Pike)

Movement	EB	EB	EB	WB	WB	NB	SB
Directions Served	L	T	TR	T	TR	R	LTR
Maximum Queue (ft)	72	310	247	327	238	86	128
Average Queue (ft)	19	114	60	130	65	17	55
95th Queue (ft)	52	253	155	273	173	49	106
Link Distance (ft)		295	295	292	292		315
Upstream Blk Time (%)		0		1			
Queuing Penalty (veh)		0		0			
Storage Bay Dist (ft)	270					50	
Storage Blk Time (%)		0		5		0	
Queuing Penalty (veh)		0		0		0	

Intersection: 2: Bernheisel Bridge Rd & Country Club Rd

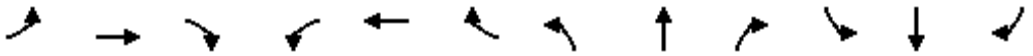
Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	48	30
Average Queue (ft)	11	1
95th Queue (ft)	34	9
Link Distance (ft)	350	304
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Bernheisel Bridge Rd & Green Hill Rd

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	45	75
Average Queue (ft)	14	5
95th Queue (ft)	35	30
Link Distance (ft)	376	290
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 0



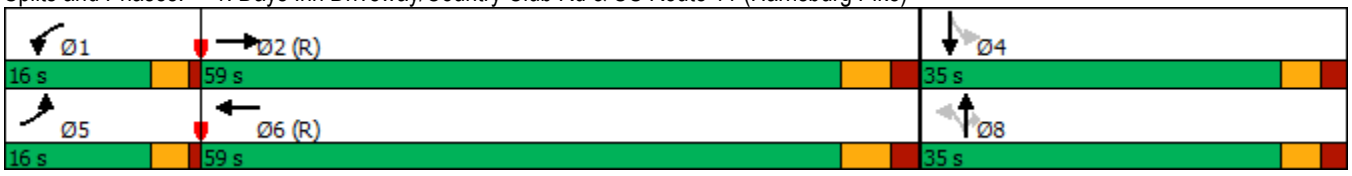
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	43	1199	13	25	869	29	12	0	25	37	1	26
Future Volume (vph)	43	1199	13	25	869	29	12	0	25	37	1	26
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12	14	14	14	11	11	11
Grade (%)		-1%			2%			-2%			4%	
Storage Length (ft)	270		0	152		0	0		50	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		1.00	1.00				0.99		1.00	
Frt		0.998			0.995				0.850		0.946	
Flt Protected	0.950			0.950				0.950			0.972	
Satd. Flow (prot)	1719	2684	0	1459	2685	0	0	1842	1526	0	1453	0
Flt Permitted	0.950			0.950				0.735			0.813	
Satd. Flow (perm)	1718	2684	0	1458	2685	0	0	1425	1505	0	1214	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			4				74		27	
Link Speed (mph)		35			35			25			35	
Link Distance (ft)		326			335			267			374	
Travel Time (s)		6.4			6.5			7.3			7.3	
Confl. Peds. (#/hr)	1		2	2		1			2	2		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	28%	8%	16%	26%	7%	0%	0%	8%	8%	0%	8%
Adj. Flow (vph)	45	1262	14	26	915	31	13	0	26	39	1	27
Shared Lane Traffic (%)												
Lane Group Flow (vph)	45	1276	0	26	946	0	0	13	26	0	67	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)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.09	1.09	1.09	0.97	0.97	0.97	1.15	1.15	1.15
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1	1	1	1	
Detector Template							Left			Left		
Leading Detector (ft)	35	256		35	256		20	35	35	20	35	
Trailing Detector (ft)	-5	250		-5	250		0	-5	-5	0	-5	
Detector 1 Position(ft)	-5	250		-5	250		0	-5	-5	0	-5	
Detector 1 Size(ft)	40	6		40	6		20	40	40	20	40	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	3.0	6.0		3.0	6.0		0.0	3.0	3.0	0.0	3.0	
Detector 1 Queue (s)	0.0	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	0.0	
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8		8	4		

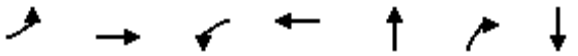
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2		1	6		8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	3.0	10.0		3.0	10.0		5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	7.0	16.5		7.0	16.5		10.6	10.6	10.6	10.6	10.6	
Total Split (s)	16.0	59.0		16.0	59.0		35.0	35.0	35.0	35.0	35.0	
Total Split (%)	14.5%	53.6%		14.5%	53.6%		31.8%	31.8%	31.8%	31.8%	31.8%	
Maximum Green (s)	12.0	52.5		12.0	52.5		29.4	29.4	29.4	29.4	29.4	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.3	3.3	3.3	3.3	3.3	
All-Red Time (s)	1.0	2.5		1.0	2.5		2.3	2.3	2.3	2.3	2.3	
Lost Time Adjust (s)	-0.5	-1.0		-0.5	-1.0			-1.0	-1.0		-1.0	
Total Lost Time (s)	3.5	5.5		3.5	5.5			4.6	4.6		4.6	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	6.0		3.0	6.0		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)	0.0	30.0		0.0	30.0		0.0	0.0	0.0	0.0	0.0	
Time To Reduce (s)	0.0	15.0		0.0	15.0		0.0	0.0	0.0	0.0	0.0	
Recall Mode	None	C-Min		None	C-Min		None	None	None	None	None	
Walk Time (s)		7.0			7.0		7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)		18.0			18.0		26.0	26.0	26.0	26.0	26.0	
Pedestrian Calls (#/hr)		0			0		0	0	0	0	0	
Act Effct Green (s)	8.9	85.2		8.2	82.4			10.4	10.4		10.4	
Actuated g/C Ratio	0.08	0.77		0.07	0.75			0.09	0.09		0.09	
v/c Ratio	0.32	0.61		0.24	0.47			0.10	0.12		0.49	
Control Delay	53.1	10.0		52.7	8.6			44.9	1.2		41.6	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay	53.1	10.0		52.7	8.6			44.9	1.2		41.6	
LOS	D	B		D	A			D	A		D	
Approach Delay		11.5			9.8			15.8			41.6	
Approach LOS		B			A			B			D	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 74 (67%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.61
Intersection Signal Delay: 11.7 Intersection LOS: B
Intersection Capacity Utilization 57.5% ICU Level of Service B
Analysis Period (min) 15

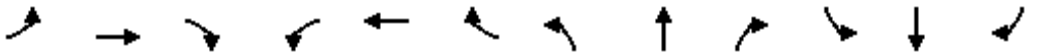
Splits and Phases: 1: Days Inn Driveway/Country Club Rd & US Route 11 (Harrisburg Pike)





Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	45	1276	26	946	13	26	67
v/c Ratio	0.32	0.61	0.24	0.47	0.10	0.12	0.49
Control Delay	53.1	10.0	52.7	8.6	44.9	1.2	41.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.1	10.0	52.7	8.6	44.9	1.2	41.6
Queue Length 50th (ft)	31	227	18	141	9	0	27
Queue Length 95th (ft)	66	387	46	240	27	0	70
Internal Link Dist (ft)		246		255	187		294
Turn Bay Length (ft)	270		152			50	
Base Capacity (vph)	195	2079	165	2012	393	469	355
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.61	0.16	0.47	0.03	0.06	0.19

Intersection Summary



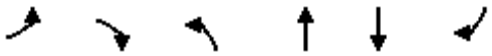
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	43	1199	13	25	869	29	12	0	25	37	1	26
Future Volume (veh/h)	43	1199	13	25	869	29	12	0	25	37	1	26
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.99		0.99	0.99		0.99
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	1837	1439	1724	1553	1413	1679	1950	1950	1831	1598	1711	1598
Adj Flow Rate, veh/h	45	1262	14	26	915	31	13	0	26	39	1	27
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	28	8	16	26	7	0	0	8	8	0	8
Cap, veh/h	65	2125	24	36	1997	68	195	0	131	108	13	47
Arrive On Green	0.04	0.77	0.76	0.02	0.75	0.74	0.08	0.00	0.09	0.08	0.09	0.08
Sat Flow, veh/h	1750	2770	31	1479	2649	90	1526	0	1541	663	153	551
Grp Volume(v), veh/h	45	623	653	26	464	482	13	0	26	67	0	0
Grp Sat Flow(s),veh/h/ln	1750	1367	1434	1479	1342	1396	1526	0	1541	1367	0	0
Q Serve(g_s), s	2.8	21.4	21.5	1.9	14.3	14.3	0.0	0.0	1.7	3.9	0.0	0.0
Cycle Q Clear(g_c), s	2.8	21.4	21.5	1.9	14.3	14.3	0.8	0.0	1.7	5.1	0.0	0.0
Prop In Lane	1.00		0.02	1.00		0.06	1.00		1.00	0.58		0.40
Lane Grp Cap(c), veh/h	65	1049	1100	36	1012	1053	182	0	131	156	0	0
V/C Ratio(X)	0.69	0.59	0.59	0.73	0.46	0.46	0.07	0.00	0.20	0.43	0.00	0.00
Avail Cap(c_a), veh/h	199	1049	1100	168	1012	1053	456	0	426	410	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	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	52.3	5.5	5.5	53.3	5.1	5.1	46.9	0.0	46.8	48.8	0.0	0.0
Incr Delay (d2), s/veh	12.1	2.5	2.4	24.2	1.5	1.4	0.2	0.0	0.7	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	1.4	5.3	5.6	0.9	3.5	3.7	0.3	0.0	0.7	1.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.4	8.0	7.9	77.5	6.6	6.5	47.0	0.0	47.5	50.6	0.0	0.0
LnGrp LOS	E	A	A	E	A	A	D	A	D	D	A	A
Approach Vol, veh/h		1321			972			39			67	
Approach Delay, s/veh		9.8			8.5			47.4			50.6	
Approach LOS		A			A			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.2	89.9		14.0	7.6	88.4		14.0				
Change Period (Y+Rc), s	4.0	6.5		5.6	4.0	6.5		5.6				
Max Green Setting (Gmax), s	12.0	52.5		29.4	12.0	52.5		29.4				
Max Q Clear Time (g_c+I1), s	3.9	23.5		7.1	4.8	16.3		3.7				
Green Ext Time (p_c), s	0.0	26.4		0.2	0.0	26.6		0.1				

Intersection Summary		
HCM 6th Ctrl Delay		11.0
HCM 6th LOS		B

Notes

User approved pedestrian interval to be less than phase max green.



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	36	3	5	89	52	23
Future Volume (vph)	36	3	5	89	52	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11
Grade (%)	8%			4%	-4%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.991				0.959	
Flt Protected	0.956			0.998		
Satd. Flow (prot)	1670	0	0	1763	1728	0
Flt Permitted	0.956			0.998		
Satd. Flow (perm)	1670	0	0	1763	1728	0
Link Speed (mph)	35			30	30	
Link Distance (ft)	387			334	240	
Travel Time (s)	7.5			7.6	5.5	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	0%	2%	0%	13%
Adj. Flow (vph)	40	3	5	98	57	25
Shared Lane Traffic (%)						
Lane Group Flow (vph)	43	0	0	103	82	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	11			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.10	1.10	1.07	1.07	1.02	1.02
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	18.8%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	36	3	5	89	52	23
Future Vol, veh/h	36	3	5	89	52	23
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	8	-	-	4	-4	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	0	0	0	2	0	13
Mvmt Flow	40	3	5	98	57	25

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	178	70	82	0	-	0
Stage 1	70	-	-	-	-	-
Stage 2	108	-	-	-	-	-
Critical Hdwy	9	7.2	4.9	-	-	-
Critical Hdwy Stg 1	7	-	-	-	-	-
Critical Hdwy Stg 2	7	-	-	-	-	-
Follow-up Hdwy	3	3.4	3.5	-	-	-
Pot Cap-1 Maneuver	827	951	957	-	-	-
Stage 1	1078	-	-	-	-	-
Stage 2	1017	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	822	951	957	-	-	-
Mov Cap-2 Maneuver	822	-	-	-	-	-
Stage 1	1072	-	-	-	-	-
Stage 2	1017	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.6	0.5	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	957	-	831	-	-
HCM Lane V/C Ratio	0.006	-	0.052	-	-
HCM Control Delay (s)	8.8	0	9.6	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	8	74	112	11	38	67
Future Volume (vph)	8	74	112	11	38	67
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11
Grade (%)	0%		2%			2%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.879		0.988			
Flt Protected	0.995					0.982
Satd. Flow (prot)	1586	0	1764	0	0	1752
Flt Permitted	0.995					0.982
Satd. Flow (perm)	1586	0	1764	0	0	1752
Link Speed (mph)	35		30			30
Link Distance (ft)	417		240			323
Travel Time (s)	8.1		5.5			7.3
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles (%)	13%	0%	2%	0%	0%	3%
Adj. Flow (vph)	10	89	135	13	46	81
Shared Lane Traffic (%)						
Lane Group Flow (vph)	99	0	148	0	0	127
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	11		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.04	1.04	1.06	1.06	1.06	1.06
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	27.2%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	3.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	8	74	112	11	38	67
Future Vol, veh/h	8	74	112	11	38	67
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	2	-	-	2
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	13	0	2	0	0	3
Mvmt Flow	10	89	135	13	46	81

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	315	142	0	0	148	0
Stage 1	142	-	-	-	-	-
Stage 2	173	-	-	-	-	-
Critical Hdwy	7.5	6.4	-	-	4.9	-
Critical Hdwy Stg 1	5.53	-	-	-	-	-
Critical Hdwy Stg 2	5.53	-	-	-	-	-
Follow-up Hdwy	3.1	3.4	-	-	3.5	-
Pot Cap-1 Maneuver	688	879	-	-	903	-
Stage 1	992	-	-	-	-	-
Stage 2	958	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	652	879	-	-	903	-
Mov Cap-2 Maneuver	652	-	-	-	-	-
Stage 1	992	-	-	-	-	-
Stage 2	907	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.8	0	3.3
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	850	903	-
HCM Lane V/C Ratio	-	-	0.116	0.051	-
HCM Control Delay (s)	-	-	9.8	9.2	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.4	0.2	-

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	3256
Vehs Exited	3249
Starting Vehs	0
Ending Vehs	7
Travel Distance (mi)	419
Travel Time (hr)	22.6
Total Delay (hr)	8.5
Total Stops	997
Fuel Used (gal)	18.0

Interval #0 Information Seeding

Start Time	7:00
End Time	7:15
Total Time (min)	15

Volumes adjusted by PHF.

Vehs Entered	691
Vehs Exited	679
Starting Vehs	0
Ending Vehs	12
Travel Distance (mi)	89
Travel Time (hr)	4.9
Total Delay (hr)	1.9
Total Stops	208
Fuel Used (gal)	3.8

Interval #1 Information

Start Time	7:15
End Time	7:30
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	640
Vehs Exited	630
Starting Vehs	12
Ending Vehs	22
Travel Distance (mi)	81
Travel Time (hr)	4.2
Total Delay (hr)	1.5
Total Stops	186
Fuel Used (gal)	3.4

Interval #2 Information

Start Time	7:30
End Time	7:45
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	635
Vehs Exited	643
Starting Vehs	22
Ending Vehs	14
Travel Distance (mi)	83
Travel Time (hr)	4.4
Total Delay (hr)	1.6
Total Stops	189
Fuel Used (gal)	3.6

Interval #3 Information

Start Time	7:45
End Time	8:00
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	656
Vehs Exited	657
Starting Vehs	14
Ending Vehs	13
Travel Distance (mi)	84
Travel Time (hr)	4.5
Total Delay (hr)	1.7
Total Stops	212
Fuel Used (gal)	3.6

Interval #4 Information Recording

Start Time	8:00
End Time	8:15
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	634
Vehs Exited	640
Starting Vehs	13
Ending Vehs	7
Travel Distance (mi)	82
Travel Time (hr)	4.6
Total Delay (hr)	1.9
Total Stops	202
Fuel Used (gal)	3.6

Intersection: 1: Days Inn Driveway/Country Club Rd & US Route 11 (Harrisburg Pike)

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB
Directions Served	L	T	TR	L	T	TR	LT	R	LTR
Maximum Queue (ft)	106	347	308	176	331	242	30	65	109
Average Queue (ft)	35	150	94	23	171	91	10	18	41
95th Queue (ft)	75	286	222	90	336	210	32	47	86
Link Distance (ft)		295	295		292	292	219		315
Upstream Blk Time (%)		1	0		2				
Queuing Penalty (veh)		0	0		0				
Storage Bay Dist (ft)	270			152				50	
Storage Blk Time (%)		1			8			0	
Queuing Penalty (veh)		1			2			0	

Intersection: 2: Bernheisel Bridge Rd & Country Club Rd

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	28	29
Average Queue (ft)	20	1
95th Queue (ft)	39	9
Link Distance (ft)	350	304
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Bernheisel Bridge Rd & Green Hill Rd

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	50	31
Average Queue (ft)	24	4
95th Queue (ft)	45	20
Link Distance (ft)	376	290
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

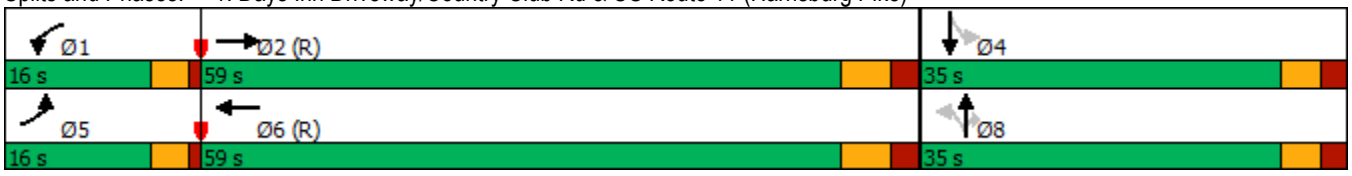
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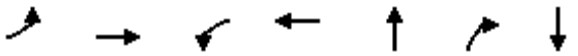
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	29	650	11	19	722	37	9	2	20	30	1	18
Future Volume (vph)	29	650	11	19	722	37	9	2	20	30	1	18
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12	14	14	14	11	11	11
Grade (%)		-1%			2%			-2%			4%	
Storage Length (ft)	270		0	152		0	0		50	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor									0.99		1.00	
Frt		0.998			0.993				0.850		0.950	
Flt Protected	0.950			0.950				0.960			0.970	
Satd. Flow (prot)	1719	2890	0	1282	2871	0	0	1573	1648	0	1571	0
Flt Permitted	0.950			0.950				0.807			0.806	
Satd. Flow (perm)	1719	2890	0	1282	2871	0	0	1322	1627	0	1305	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			7				74		20	
Link Speed (mph)		35			35			25			35	
Link Distance (ft)		326			335			267			374	
Travel Time (s)		6.4			6.5			7.3			7.3	
Confl. Peds. (#/hr)									1	1		
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%	19%	0%	32%	18%	0%	22%	0%	0%	0%	0%	0%
Adj. Flow (vph)	32	714	12	21	793	41	10	2	22	33	1	20
Shared Lane Traffic (%)												
Lane Group Flow (vph)	32	726	0	21	834	0	0	12	22	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)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.09	1.09	1.09	0.97	0.97	0.97	1.15	1.15	1.15
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1	1	1	1	
Detector Template							Left			Left		
Leading Detector (ft)	35	256		35	256		20	35	35	20	35	
Trailing Detector (ft)	-5	250		-5	250		0	-5	-5	0	-5	
Detector 1 Position(ft)	-5	250		-5	250		0	-5	-5	0	-5	
Detector 1 Size(ft)	40	6		40	6		20	40	40	20	40	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	3.0	6.0		3.0	6.0		0.0	3.0	3.0	0.0	3.0	
Detector 1 Queue (s)	0.0	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	0.0	
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8		8	4		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2		1	6		8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	3.0	10.0		3.0	10.0		5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	7.0	16.5		7.0	16.5		10.6	10.6	10.6	10.6	10.6	
Total Split (s)	16.0	59.0		16.0	59.0		35.0	35.0	35.0	35.0	35.0	
Total Split (%)	14.5%	53.6%		14.5%	53.6%		31.8%	31.8%	31.8%	31.8%	31.8%	
Maximum Green (s)	12.0	52.5		12.0	52.5		29.4	29.4	29.4	29.4	29.4	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.3	3.3	3.3	3.3	3.3	
All-Red Time (s)	1.0	2.5		1.0	2.5		2.3	2.3	2.3	2.3	2.3	
Lost Time Adjust (s)	-0.5	-1.0		-0.5	-1.0			-1.0	-1.0		-1.0	
Total Lost Time (s)	3.5	5.5		3.5	5.5			4.6	4.6		4.6	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	6.0		3.0	6.0		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)	0.0	30.0		0.0	30.0		0.0	0.0	0.0	0.0	0.0	
Time To Reduce (s)	0.0	15.0		0.0	15.0		0.0	0.0	0.0	0.0	0.0	
Recall Mode	None	C-Min		None	C-Min		None	None	None	None	None	
Walk Time (s)		7.0			7.0		7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)		18.0			18.0		26.0	26.0	26.0	26.0	26.0	
Pedestrian Calls (#/hr)		0			0		0	0	0	0	0	
Act Effct Green (s)	8.2	88.4		8.0	86.0			9.6	9.6		9.6	
Actuated g/C Ratio	0.07	0.80		0.07	0.78			0.09	0.09		0.09	
v/c Ratio	0.25	0.31		0.23	0.37			0.10	0.11		0.41	
Control Delay	52.2	5.1		53.1	6.2			46.5	1.0		41.8	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay	52.2	5.1		53.1	6.2			46.5	1.0		41.8	
LOS	D	A		D	A			D	A		D	
Approach Delay		7.1			7.3			17.0			41.8	
Approach LOS		A			A			B			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 16 (15%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 40			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.41			
Intersection Signal Delay: 8.5		Intersection LOS: A	
Intersection Capacity Utilization 43.5%		ICU Level of Service A	
Analysis Period (min) 15			

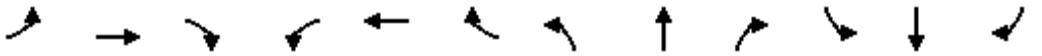
Splits and Phases: 1: Days Inn Driveway/Country Club Rd & US Route 11 (Harrisburg Pike)





Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	32	726	21	834	12	22	54
v/c Ratio	0.25	0.31	0.23	0.37	0.10	0.11	0.41
Control Delay	52.2	5.1	53.1	6.2	46.5	1.0	41.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.2	5.1	53.1	6.2	46.5	1.0	41.8
Queue Length 50th (ft)	22	46	14	105	8	0	23
Queue Length 95th (ft)	52	146	39	175	27	0	62
Internal Link Dist (ft)		246		255	187		294
Turn Bay Length (ft)	270		152			50	
Base Capacity (vph)	195	2321	145	2247	365	503	375
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.31	0.14	0.37	0.03	0.04	0.14

Intersection Summary



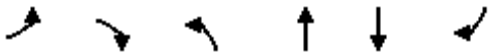
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	650	11	19	722	37	9	2	20	30	1	18
Future Volume (veh/h)	29	650	11	19	722	37	9	2	20	30	1	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	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	1837	1567	1837	1328	1525	1778	1624	1950	1950	1711	1711	1711
Adj Flow Rate, veh/h	32	714	12	21	793	41	10	2	22	33	1	20
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	19	0	32	18	0	22	0	0	0	0	0
Cap, veh/h	48	2355	40	27	2186	113	154	27	114	102	10	35
Arrive On Green	0.03	0.79	0.78	0.02	0.78	0.77	0.06	0.07	0.07	0.06	0.07	0.06
Sat Flow, veh/h	1750	2996	50	1265	2803	145	1353	388	1645	716	142	505
Grp Volume(v), veh/h	32	355	371	21	410	424	12	0	22	54	0	0
Grp Sat Flow(s),veh/h/ln	1750	1489	1558	1265	1449	1499	1742	0	1645	1363	0	0
Q Serve(g_s), s	2.0	7.4	7.4	1.8	9.6	9.6	0.0	0.0	1.4	3.4	0.0	0.0
Cycle Q Clear(g_c), s	2.0	7.4	7.4	1.8	9.6	9.6	0.7	0.0	1.4	4.2	0.0	0.0
Prop In Lane	1.00		0.03	1.00		0.10	0.83		1.00	0.61		0.37
Lane Grp Cap(c), veh/h	48	1170	1225	27	1130	1169	165	0	114	135	0	0
V/C Ratio(X)	0.67	0.30	0.30	0.79	0.36	0.36	0.07	0.00	0.19	0.40	0.00	0.00
Avail Cap(c_a), veh/h	199	1170	1225	144	1130	1169	478	0	455	410	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	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	53.0	3.3	3.3	53.6	3.7	3.7	48.3	0.0	48.3	50.0	0.0	0.0
Incr Delay (d2), s/veh	15.0	0.7	0.6	38.8	0.9	0.9	0.2	0.0	0.8	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	1.1	1.8	1.9	0.9	2.4	2.4	0.3	0.0	0.6	1.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.0	4.0	3.9	92.4	4.6	4.6	48.5	0.0	49.1	51.9	0.0	0.0
LnGrp LOS	E	A	A	F	A	A	D	A	D	D	A	A
Approach Vol, veh/h		758			855			34			54	
Approach Delay, s/veh		6.7			6.8			48.9			51.9	
Approach LOS		A			A			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.8	92.0		12.2	6.5	91.3		12.2				
Change Period (Y+Rc), s	4.0	6.5		5.6	4.0	6.5		5.6				
Max Green Setting (Gmax), s	12.0	52.5		29.4	12.0	52.5		29.4				
Max Q Clear Time (g_c+I1), s	3.8	9.4		6.2	4.0	11.6		3.4				
Green Ext Time (p_c), s	0.0	23.2		0.1	0.0	25.9		0.1				

Intersection Summary		
HCM 6th Ctrl Delay	9.0	
HCM 6th LOS	A	

Notes

User approved pedestrian interval to be less than phase max green.



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	34	5	3	42	48	23
Future Volume (vph)	34	5	3	42	48	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11
Grade (%)	8%			4%	-4%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.982				0.956	
Flt Protected	0.958			0.997		
Satd. Flow (prot)	1659	0	0	1795	1744	0
Flt Permitted	0.958			0.997		
Satd. Flow (perm)	1659	0	0	1795	1744	0
Link Speed (mph)	35			30	30	
Link Distance (ft)	387			334	240	
Travel Time (s)	7.5			7.6	5.5	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	0%	0%	0%	0%	4%	0%
Adj. Flow (vph)	40	6	3	49	56	27
Shared Lane Traffic (%)						
Lane Group Flow (vph)	46	0	0	52	83	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	11			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.10	1.10	1.07	1.07	1.02	1.02
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	14.7%	ICU Level of Service	A
Analysis Period (min)	15		

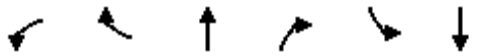
Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	34	5	3	42	48	23
Future Vol, veh/h	34	5	3	42	48	23
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	8	-	-	4	-4	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	0	0	0	0	4	0
Mvmt Flow	40	6	3	49	56	27

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	125	70	83	0	-	0
Stage 1	70	-	-	-	-	-
Stage 2	55	-	-	-	-	-
Critical Hdwy	9	7.2	4.9	-	-	-
Critical Hdwy Stg 1	7	-	-	-	-	-
Critical Hdwy Stg 2	7	-	-	-	-	-
Follow-up Hdwy	3	3.4	3.5	-	-	-
Pot Cap-1 Maneuver	924	951	956	-	-	-
Stage 1	1078	-	-	-	-	-
Stage 2	1103	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	921	951	956	-	-	-
Mov Cap-2 Maneuver	921	-	-	-	-	-
Stage 1	1075	-	-	-	-	-
Stage 2	1103	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.1	0.6	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	956	-	925	-	-
HCM Lane V/C Ratio	0.004	-	0.049	-	-
HCM Control Delay (s)	8.8	0	9.1	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	5	45	68	7	24	66
Future Volume (vph)	5	45	68	7	24	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11
Grade (%)	0%		2%			2%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.878		0.987			
Flt Protected	0.995					0.987
Satd. Flow (prot)	1605	0	1795	0	0	1780
Flt Permitted	0.995					0.987
Satd. Flow (perm)	1605	0	1795	0	0	1780
Link Speed (mph)	35		30			30
Link Distance (ft)	417		240			323
Travel Time (s)	8.1		5.5			7.3
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	0%	0%	0%	3%	0%
Adj. Flow (vph)	5	48	73	8	26	71
Shared Lane Traffic (%)						
Lane Group Flow (vph)	53	0	81	0	0	97
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	11		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.04	1.04	1.06	1.06	1.06	1.06
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	21.5%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	3.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	5	45	68	7	24	66
Future Vol, veh/h	5	45	68	7	24	66
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	2	-	-	2
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	0	3	0
Mvmt Flow	5	48	73	8	26	71

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	200	77	0	0	81	0
Stage 1	77	-	-	-	-	-
Stage 2	123	-	-	-	-	-
Critical Hdwy	7.4	6.4	-	-	4.9	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3	3.4	-	-	3.5	-
Pot Cap-1 Maneuver	864	957	-	-	958	-
Stage 1	1104	-	-	-	-	-
Stage 2	1050	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	840	957	-	-	958	-
Mov Cap-2 Maneuver	840	-	-	-	-	-
Stage 1	1104	-	-	-	-	-
Stage 2	1021	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9	0	2.4
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	944	958	-
HCM Lane V/C Ratio	-	-	0.057	0.027	-
HCM Control Delay (s)	-	-	9	8.9	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0.1	-

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	2203
Vehs Exited	2188
Starting Vehs	0
Ending Vehs	15
Travel Distance (mi)	285
Travel Time (hr)	14.5
Total Delay (hr)	4.8
Total Stops	599
Fuel Used (gal)	11.7

Interval #0 Information Seeding

Start Time	7:00
End Time	7:15
Total Time (min)	15

Volumes adjusted by PHF.

Vehs Entered	509
Vehs Exited	494
Starting Vehs	0
Ending Vehs	15
Travel Distance (mi)	65
Travel Time (hr)	3.5
Total Delay (hr)	1.3
Total Stops	159
Fuel Used (gal)	2.8

Interval #1 Information

Start Time	7:15
End Time	7:30
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	427
Vehs Exited	429
Starting Vehs	15
Ending Vehs	13
Travel Distance (mi)	56
Travel Time (hr)	2.8
Total Delay (hr)	0.9
Total Stops	106
Fuel Used (gal)	2.3

Interval #2 Information

Start Time	7:30
End Time	7:45
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	427
Vehs Exited	426
Starting Vehs	13
Ending Vehs	14
Travel Distance (mi)	55
Travel Time (hr)	2.5
Total Delay (hr)	0.6
Total Stops	91
Fuel Used (gal)	2.1

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	425
Starting Vehs	14
Ending Vehs	14
Travel Distance (mi)	55
Travel Time (hr)	3.1
Total Delay (hr)	1.2
Total Stops	147
Fuel Used (gal)	2.5

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	414
Starting Vehs	14
Ending Vehs	15
Travel Distance (mi)	54
Travel Time (hr)	2.6
Total Delay (hr)	0.8
Total Stops	96
Fuel Used (gal)	2.1

Intersection: 1: Days Inn Driveway/Country Club Rd & US Route 11 (Harrisburg Pike)

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB
Directions Served	L	T	TR	L	T	TR	LT	R	LTR
Maximum Queue (ft)	68	224	143	176	307	194	93	28	86
Average Queue (ft)	27	80	40	32	105	66	12	17	24
95th Queue (ft)	58	185	116	96	239	171	45	39	56
Link Distance (ft)		295	295		292	292	219		315
Upstream Blk Time (%)					0				
Queuing Penalty (veh)					0				
Storage Bay Dist (ft)	270			152				50	
Storage Blk Time (%)				0	3		1		
Queuing Penalty (veh)				0	1		0		

Intersection: 2: Bernheisel Bridge Rd & Country Club Rd

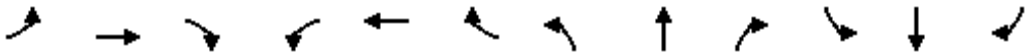
Movement	EB
Directions Served	LR
Maximum Queue (ft)	28
Average Queue (ft)	21
95th Queue (ft)	40
Link Distance (ft)	350
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 3: Bernheisel Bridge Rd & Green Hill Rd

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	28	31
Average Queue (ft)	20	2
95th Queue (ft)	37	14
Link Distance (ft)	376	290
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 1



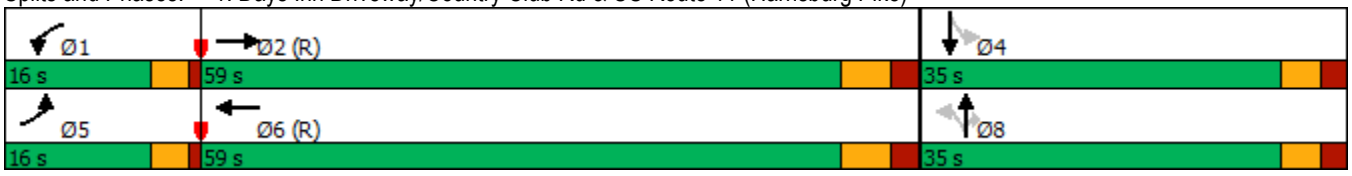
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	988	9	3	704	18	1	1	16	59	1	30
Future Volume (vph)	20	988	9	3	704	18	1	1	16	59	1	30
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12	14	14	14	11	11	11
Grade (%)		-1%			2%			-2%			4%	
Storage Length (ft)	270		0	152		0	0		50	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00											
Frt		0.999			0.996				0.850		0.955	
Flt Protected	0.950			0.950				0.976			0.968	
Satd. Flow (prot)	1494	2794	0	1273	2708	0	0	1893	1459	0	1546	0
Flt Permitted	0.950			0.950				0.891			0.801	
Satd. Flow (perm)	1492	2794	0	1273	2708	0	0	1728	1459	0	1279	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			3				74		23	
Link Speed (mph)		35			35			25			35	
Link Distance (ft)		326			335			267			374	
Travel Time (s)		6.4			6.5			7.3			7.3	
Confl. Peds. (#/hr)	2											
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	15%	23%	11%	33%	25%	6%	0%	0%	13%	3%	0%	0%
Adj. Flow (vph)	22	1062	10	3	757	19	1	1	17	63	1	32
Shared Lane Traffic (%)												
Lane Group Flow (vph)	22	1072	0	3	776	0	0	2	17	0	96	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)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.09	1.09	1.09	0.97	0.97	0.97	1.15	1.15	1.15
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1	1	1	1	
Detector Template							Left			Left		
Leading Detector (ft)	35	256		35	256		20	35	35	20	35	
Trailing Detector (ft)	-5	250		-5	250		0	-5	-5	0	-5	
Detector 1 Position(ft)	-5	250		-5	250		0	-5	-5	0	-5	
Detector 1 Size(ft)	40	6		40	6		20	40	40	20	40	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	3.0	6.0		3.0	6.0		0.0	3.0	3.0	0.0	3.0	
Detector 1 Queue (s)	0.0	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	0.0	
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8		8	4		

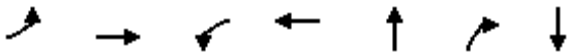
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2		1	6		8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	3.0	10.0		3.0	10.0		5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	7.0	16.5		7.0	16.5		10.6	10.6	10.6	10.6	10.6	
Total Split (s)	16.0	59.0		16.0	59.0		35.0	35.0	35.0	35.0	35.0	
Total Split (%)	14.5%	53.6%		14.5%	53.6%		31.8%	31.8%	31.8%	31.8%	31.8%	
Maximum Green (s)	12.0	52.5		12.0	52.5		29.4	29.4	29.4	29.4	29.4	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.3	3.3	3.3	3.3	3.3	
All-Red Time (s)	1.0	2.5		1.0	2.5		2.3	2.3	2.3	2.3	2.3	
Lost Time Adjust (s)	-0.5	-1.0		-0.5	-1.0			-1.0	-1.0		-1.0	
Total Lost Time (s)	3.5	5.5		3.5	5.5			4.6	4.6		4.6	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		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)	0.0	30.0		0.0	30.0		0.0	0.0	0.0	0.0	0.0	
Time To Reduce (s)	0.0	15.0		0.0	15.0		0.0	0.0	0.0	0.0	0.0	
Recall Mode	None	C-Min		None	C-Min		None	None	None	None	None	
Walk Time (s)		7.0			7.0		7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)		18.0			18.0		26.0	26.0	26.0	26.0	26.0	
Pedestrian Calls (#/hr)		0			0		0	0	0	0	0	
Act Effct Green (s)	7.8	85.1		6.5	82.1			12.7	12.7		12.7	
Actuated g/C Ratio	0.07	0.77		0.06	0.75			0.12	0.12		0.12	
v/c Ratio	0.21	0.50		0.04	0.38			0.01	0.07		0.57	
Control Delay	52.1	6.8		49.7	7.2			39.5	0.6		47.3	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay	52.1	6.8		49.7	7.2			39.5	0.6		47.3	
LOS	D	A		D	A			D	A		D	
Approach Delay		7.7			7.3			4.7			47.3	
Approach LOS		A			A			A			D	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 16 (15%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.57
Intersection Signal Delay: 9.4 Intersection LOS: A
Intersection Capacity Utilization 51.0% ICU Level of Service A
Analysis Period (min) 15

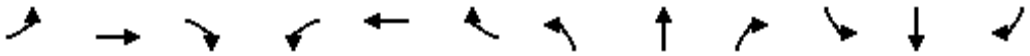
Splits and Phases: 1: Days Inn Driveway/Country Club Rd & US Route 11 (Harrisburg Pike)





Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	22	1072	3	776	2	17	96
v/c Ratio	0.21	0.50	0.04	0.38	0.01	0.07	0.57
Control Delay	52.1	6.8	49.7	7.2	39.5	0.6	47.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.1	6.8	49.7	7.2	39.5	0.6	47.3
Queue Length 50th (ft)	15	106	2	66	1	0	49
Queue Length 95th (ft)	40	275	12	188	8	0	99
Internal Link Dist (ft)		246		255	187		294
Turn Bay Length (ft)	270		152			50	
Base Capacity (vph)	169	2160	144	2021	477	456	370
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.50	0.02	0.38	0.00	0.04	0.26

Intersection Summary



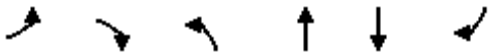
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	988	9	3	704	18	1	1	16	59	1	30
Future Volume (veh/h)	20	988	9	3	704	18	1	1	16	59	1	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		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	1624	1510	1681	1314	1427	1693	1950	1950	1757	1669	1711	1711
Adj Flow Rate, veh/h	22	1062	10	3	757	19	1	1	17	63	1	32
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	15	23	11	33	25	6	0	0	13	3	0	0
Cap, veh/h	32	2252	21	9	2052	52	115	104	143	133	8	43
Arrive On Green	0.02	0.77	0.76	0.01	0.76	0.75	0.09	0.10	0.10	0.09	0.10	0.09
Sat Flow, veh/h	1547	2912	27	1252	2702	68	685	1077	1489	818	82	450
Grp Volume(v), veh/h	22	523	549	3	380	396	2	0	17	96	0	0
Grp Sat Flow(s),veh/h/ln	1547	1435	1505	1252	1355	1414	1762	0	1489	1351	0	0
Q Serve(g_s), s	1.6	14.3	14.3	0.3	10.3	10.3	0.0	0.0	1.1	7.0	0.0	0.0
Cycle Q Clear(g_c), s	1.6	14.3	14.3	0.3	10.3	10.3	0.1	0.0	1.1	7.7	0.0	0.0
Prop In Lane	1.00		0.02	1.00		0.05	0.50		1.00	0.66		0.33
Lane Grp Cap(c), veh/h	32	1109	1164	9	1030	1074	203	0	143	172	0	0
V/C Ratio(X)	0.70	0.47	0.47	0.35	0.37	0.37	0.01	0.00	0.12	0.56	0.00	0.00
Avail Cap(c_a), veh/h	176	1109	1164	142	1030	1074	500	0	412	412	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	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	53.5	4.5	4.5	54.4	4.4	4.4	45.2	0.0	45.4	48.8	0.0	0.0
Incr Delay (d2), s/veh	24.0	1.4	1.4	22.0	1.0	1.0	0.0	0.0	0.4	2.8	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	0.8	3.6	3.8	0.1	2.5	2.6	0.1	0.0	0.4	2.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	77.6	5.9	5.8	76.4	5.4	5.4	45.2	0.0	45.8	51.6	0.0	0.0
LnGrp LOS	E	A	A	E	A	A	D	A	D	D	A	A
Approach Vol, veh/h		1094			779			19			96	
Approach Delay, s/veh		7.3			5.7			45.7			51.6	
Approach LOS		A			A			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.3	90.5		15.2	5.7	89.1		15.2				
Change Period (Y+Rc), s	4.0	6.5		5.6	4.0	6.5		5.6				
Max Green Setting (Gmax), s	12.0	52.5		29.4	12.0	52.5		29.4				
Max Q Clear Time (g_c+I1), s	2.3	16.3		9.7	3.6	12.3		3.1				
Green Ext Time (p_c), s	0.0	20.2		0.2	0.0	14.2		0.0				

Intersection Summary		
HCM 6th Ctrl Delay	9.2	
HCM 6th LOS	A	

Notes

User approved pedestrian interval to be less than phase max green.



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	12	5	1	32	107	39
Future Volume (vph)	12	5	1	32	107	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11
Grade (%)	8%			4%	-4%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.959				0.964	
Flt Protected	0.966			0.999		
Satd. Flow (prot)	1541	0	0	1699	1780	0
Flt Permitted	0.966			0.999		
Satd. Flow (perm)	1541	0	0	1699	1780	0
Link Speed (mph)	35			30	30	
Link Distance (ft)	387			334	240	
Travel Time (s)	7.5			7.6	5.5	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	0%	20%	0%	6%	2%	0%
Adj. Flow (vph)	14	6	1	37	123	45
Shared Lane Traffic (%)						
Lane Group Flow (vph)	20	0	0	38	168	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	11			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.10	1.10	1.07	1.07	1.02	1.02
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	18.0%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	12	5	1	32	107	39
Future Vol, veh/h	12	5	1	32	107	39
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	8	-	-	4	-4	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	0	20	0	6	2	0
Mvmt Flow	14	6	1	37	123	45

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	185	146	168	0	-	0
Stage 1	146	-	-	-	-	-
Stage 2	39	-	-	-	-	-
Critical Hdwy	9	7.4	4.9	-	-	-
Critical Hdwy Stg 1	7	-	-	-	-	-
Critical Hdwy Stg 2	7	-	-	-	-	-
Follow-up Hdwy	3	3.6	3.5	-	-	-
Pot Cap-1 Maneuver	815	796	887	-	-	-
Stage 1	959	-	-	-	-	-
Stage 2	1131	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	814	796	887	-	-	-
Mov Cap-2 Maneuver	814	-	-	-	-	-
Stage 1	958	-	-	-	-	-
Stage 2	1131	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.6	0.3	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	887	-	809	-	-
HCM Lane V/C Ratio	0.001	-	0.024	-	-
HCM Control Delay (s)	9.1	0	9.6	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	5	10	35	8	83	142
Future Volume (vph)	5	10	35	8	83	142
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11
Grade (%)	0%		2%			2%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.913		0.975			
Flt Protected	0.983					0.982
Satd. Flow (prot)	1540	0	1731	0	0	1761
Flt Permitted	0.983					0.982
Satd. Flow (perm)	1540	0	1731	0	0	1761
Link Speed (mph)	35		30			30
Link Distance (ft)	417		240			323
Travel Time (s)	8.1		5.5			7.3
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	20%	0%	0%	13%	2%	1%
Adj. Flow (vph)	6	11	39	9	93	160
Shared Lane Traffic (%)						
Lane Group Flow (vph)	17	0	48	0	0	253
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	11		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.04	1.04	1.06	1.06	1.06	1.06
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 28.7%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	3.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	5	10	35	8	83	142
Future Vol, veh/h	5	10	35	8	83	142
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	2	-	-	2
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	20	0	0	13	2	1
Mvmt Flow	6	11	39	9	93	160

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	390	44	0	0	48	0
Stage 1	44	-	-	-	-	-
Stage 2	346	-	-	-	-	-
Critical Hdwy	7.6	6.4	-	-	4.9	-
Critical Hdwy Stg 1	5.6	-	-	-	-	-
Critical Hdwy Stg 2	5.6	-	-	-	-	-
Follow-up Hdwy	3.2	3.4	-	-	3.5	-
Pot Cap-1 Maneuver	584	1000	-	-	986	-
Stage 1	1071	-	-	-	-	-
Stage 2	763	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	524	1000	-	-	986	-
Mov Cap-2 Maneuver	524	-	-	-	-	-
Stage 1	1071	-	-	-	-	-
Stage 2	684	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.8	0	3.3
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	768	986	-
HCM Lane V/C Ratio	-	-	0.022	0.095	-
HCM Control Delay (s)	-	-	9.8	9	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0.3	-

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	2671
Vehs Exited	2665
Starting Vehs	0
Ending Vehs	6
Travel Distance (mi)	346
Travel Time (hr)	16.9
Total Delay (hr)	5.4
Total Stops	620
Fuel Used (gal)	14.0

Interval #0 Information Seeding

Start Time	7:00
End Time	7:15
Total Time (min)	15

Volumes adjusted by PHF.

Vehs Entered	543
Vehs Exited	529
Starting Vehs	0
Ending Vehs	14
Travel Distance (mi)	70
Travel Time (hr)	3.6
Total Delay (hr)	1.2
Total Stops	147
Fuel Used (gal)	3.0

Interval #1 Information

Start Time	7:15
End Time	7:30
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	515
Vehs Exited	517
Starting Vehs	14
Ending Vehs	12
Travel Distance (mi)	66
Travel Time (hr)	3.7
Total Delay (hr)	1.5
Total Stops	153
Fuel Used (gal)	2.9

Interval #2 Information

Start Time	7:30
End Time	7:45
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	530
Vehs Exited	518
Starting Vehs	12
Ending Vehs	24
Travel Distance (mi)	68
Travel Time (hr)	3.4
Total Delay (hr)	1.2
Total Stops	144
Fuel Used (gal)	2.8

Interval #3 Information

Start Time	7:45
End Time	8:00
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	527
Vehs Exited	540
Starting Vehs	24
Ending Vehs	11
Travel Distance (mi)	70
Travel Time (hr)	3.0
Total Delay (hr)	0.7
Total Stops	80
Fuel Used (gal)	2.7

Interval #4 Information Recording

Start Time	8:00
End Time	8:15
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	556
Vehs Exited	561
Starting Vehs	11
Ending Vehs	6
Travel Distance (mi)	73
Travel Time (hr)	3.2
Total Delay (hr)	0.8
Total Stops	96
Fuel Used (gal)	2.7

Intersection: 1: Days Inn Driveway/Country Club Rd & US Route 11 (Harrisburg Pike)

Movement	EB	EB	EB	WB	WB	NB	SB
Directions Served	L	T	TR	T	TR	R	LTR
Maximum Queue (ft)	92	321	172	326	213	48	129
Average Queue (ft)	20	115	64	110	49	13	52
95th Queue (ft)	56	243	148	234	152	40	102
Link Distance (ft)		295	295	292	292		315
Upstream Blk Time (%)		0		0			
Queuing Penalty (veh)		0		0			
Storage Bay Dist (ft)	270					50	
Storage Blk Time (%)		1		4		1	
Queuing Penalty (veh)		0		0		0	

Intersection: 2: Bernheisel Bridge Rd & Country Club Rd

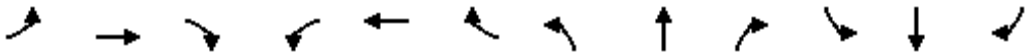
Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	98	30
Average Queue (ft)	13	1
95th Queue (ft)	44	9
Link Distance (ft)	350	304
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Bernheisel Bridge Rd & Green Hill Rd

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	27	32
Average Queue (ft)	14	3
95th Queue (ft)	34	17
Link Distance (ft)	376	290
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 0



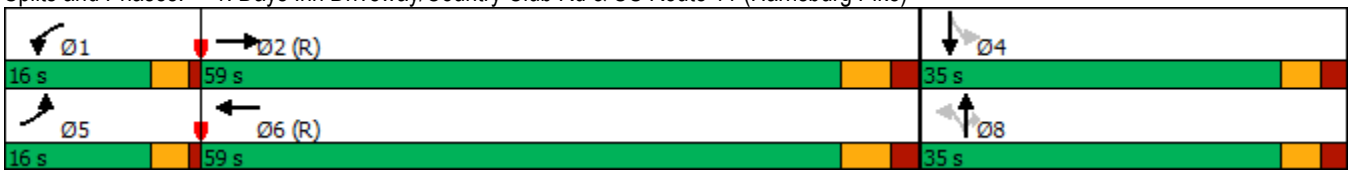
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	44	1215	13	25	881	29	12	0	25	37	1	26
Future Volume (vph)	44	1215	13	25	881	29	12	0	25	37	1	26
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12	14	14	14	11	11	11
Grade (%)		-1%			2%			-2%			4%	
Storage Length (ft)	270		0	152		0	0		50	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		1.00	1.00				0.99		1.00	
Frt		0.998			0.995				0.850		0.946	
Flt Protected	0.950			0.950				0.950			0.972	
Satd. Flow (prot)	1719	2684	0	1459	2685	0	0	1842	1526	0	1453	0
Flt Permitted	0.950			0.950				0.735			0.813	
Satd. Flow (perm)	1718	2684	0	1458	2685	0	0	1425	1505	0	1214	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			4				74		27	
Link Speed (mph)		35			35			25			35	
Link Distance (ft)		326			335			267			374	
Travel Time (s)		6.4			6.5			7.3			7.3	
Confl. Peds. (#/hr)	1		2	2		1			2	2		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	28%	8%	16%	26%	7%	0%	0%	8%	8%	0%	8%
Adj. Flow (vph)	46	1279	14	26	927	31	13	0	26	39	1	27
Shared Lane Traffic (%)												
Lane Group Flow (vph)	46	1293	0	26	958	0	0	13	26	0	67	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)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.09	1.09	1.09	0.97	0.97	0.97	1.15	1.15	1.15
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1	1	1	1	
Detector Template							Left			Left		
Leading Detector (ft)	35	256		35	256		20	35	35	20	35	
Trailing Detector (ft)	-5	250		-5	250		0	-5	-5	0	-5	
Detector 1 Position(ft)	-5	250		-5	250		0	-5	-5	0	-5	
Detector 1 Size(ft)	40	6		40	6		20	40	40	20	40	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	3.0	6.0		3.0	6.0		0.0	3.0	3.0	0.0	3.0	
Detector 1 Queue (s)	0.0	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	0.0	
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8		8	4		

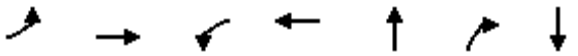
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2		1	6		8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	3.0	10.0		3.0	10.0		5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	7.0	16.5		7.0	16.5		10.6	10.6	10.6	10.6	10.6	
Total Split (s)	16.0	59.0		16.0	59.0		35.0	35.0	35.0	35.0	35.0	
Total Split (%)	14.5%	53.6%		14.5%	53.6%		31.8%	31.8%	31.8%	31.8%	31.8%	
Maximum Green (s)	12.0	52.5		12.0	52.5		29.4	29.4	29.4	29.4	29.4	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.3	3.3	3.3	3.3	3.3	
All-Red Time (s)	1.0	2.5		1.0	2.5		2.3	2.3	2.3	2.3	2.3	
Lost Time Adjust (s)	-0.5	-1.0		-0.5	-1.0			-1.0	-1.0		-1.0	
Total Lost Time (s)	3.5	5.5		3.5	5.5			4.6	4.6		4.6	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		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)	0.0	30.0		0.0	30.0		0.0	0.0	0.0	0.0	0.0	
Time To Reduce (s)	0.0	15.0		0.0	15.0		0.0	0.0	0.0	0.0	0.0	
Recall Mode	None	C-Min		None	C-Min		None	None	None	None	None	
Walk Time (s)		7.0			7.0		7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)		18.0			18.0		26.0	26.0	26.0	26.0	26.0	
Pedestrian Calls (#/hr)		0			0		0	0	0	0	0	
Act Effct Green (s)	9.0	85.2		8.2	82.3			10.4	10.4		10.4	
Actuated g/C Ratio	0.08	0.77		0.07	0.75			0.09	0.09		0.09	
v/c Ratio	0.33	0.62		0.24	0.48			0.10	0.12		0.49	
Control Delay	53.1	10.2		52.7	8.8			44.9	1.2		41.6	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay	53.1	10.2		52.7	8.8			44.9	1.2		41.6	
LOS	D	B		D	A			D	A		D	
Approach Delay		11.7			9.9			15.8			41.6	
Approach LOS		B			A			B			D	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 16 (15%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.62
Intersection Signal Delay: 11.9 Intersection LOS: B
Intersection Capacity Utilization 58.0% ICU Level of Service B
Analysis Period (min) 15

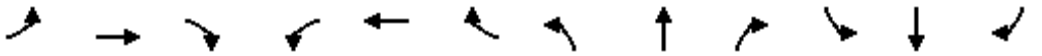
Splits and Phases: 1: Days Inn Driveway/Country Club Rd & US Route 11 (Harrisburg Pike)





Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	46	1293	26	958	13	26	67
v/c Ratio	0.33	0.62	0.24	0.48	0.10	0.12	0.49
Control Delay	53.1	10.2	52.7	8.8	44.9	1.2	41.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.1	10.2	52.7	8.8	44.9	1.2	41.6
Queue Length 50th (ft)	31	233	18	143	9	0	27
Queue Length 95th (ft)	67	397	46	244	27	0	70
Internal Link Dist (ft)		246		255	187		294
Turn Bay Length (ft)	270		152			50	
Base Capacity (vph)	195	2079	165	2010	393	469	355
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.62	0.16	0.48	0.03	0.06	0.19

Intersection Summary



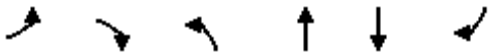
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	44	1215	13	25	881	29	12	0	25	37	1	26
Future Volume (veh/h)	44	1215	13	25	881	29	12	0	25	37	1	26
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.99		0.99	0.99		0.99
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	1837	1439	1724	1553	1413	1679	1950	1950	1831	1598	1711	1598
Adj Flow Rate, veh/h	46	1279	14	26	927	31	13	0	26	39	1	27
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	28	8	16	26	7	0	0	8	8	0	8
Cap, veh/h	67	2125	23	36	1996	67	195	0	131	108	13	47
Arrive On Green	0.04	0.77	0.76	0.02	0.75	0.74	0.08	0.00	0.09	0.08	0.09	0.08
Sat Flow, veh/h	1750	2770	30	1479	2650	89	1526	0	1541	663	153	551
Grp Volume(v), veh/h	46	631	662	26	469	489	13	0	26	67	0	0
Grp Sat Flow(s),veh/h/ln	1750	1367	1434	1479	1342	1397	1526	0	1541	1367	0	0
Q Serve(g_s), s	2.9	22.0	22.0	1.9	14.6	14.6	0.0	0.0	1.7	3.9	0.0	0.0
Cycle Q Clear(g_c), s	2.9	22.0	22.0	1.9	14.6	14.6	0.8	0.0	1.7	5.1	0.0	0.0
Prop In Lane	1.00		0.02	1.00		0.06	1.00		1.00	0.58		0.40
Lane Grp Cap(c), veh/h	67	1049	1100	36	1011	1052	182	0	131	156	0	0
V/C Ratio(X)	0.69	0.60	0.60	0.73	0.46	0.46	0.07	0.00	0.20	0.43	0.00	0.00
Avail Cap(c_a), veh/h	199	1049	1100	168	1011	1052	456	0	426	410	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	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	52.3	5.5	5.6	53.3	5.2	5.2	46.9	0.0	46.8	48.8	0.0	0.0
Incr Delay (d2), s/veh	11.9	2.6	2.4	24.2	1.5	1.5	0.2	0.0	0.7	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	1.5	5.5	5.7	0.9	3.6	3.8	0.3	0.0	0.7	1.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.2	8.1	8.0	77.5	6.7	6.7	47.0	0.0	47.5	50.6	0.0	0.0
LnGrp LOS	E	A	A	E	A	A	D	A	D	D	A	A
Approach Vol, veh/h		1339			984			39			67	
Approach Delay, s/veh		10.0			8.5			47.4			50.6	
Approach LOS		A			A			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.2	89.9		14.0	7.7	88.3		14.0				
Change Period (Y+Rc), s	4.0	6.5		5.6	4.0	6.5		5.6				
Max Green Setting (Gmax), s	12.0	52.5		29.4	12.0	52.5		29.4				
Max Q Clear Time (g_c+I1), s	3.9	24.0		7.1	4.9	16.6		3.7				
Green Ext Time (p_c), s	0.0	20.9		0.2	0.0	17.6		0.1				

Intersection Summary		
HCM 6th Ctrl Delay		11.1
HCM 6th LOS		B

Notes

User approved pedestrian interval to be less than phase max green.



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	36	3	5	90	53	23
Future Volume (vph)	36	3	5	90	53	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11
Grade (%)	8%			4%	-4%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.991				0.959	
Flt Protected	0.956			0.998		
Satd. Flow (prot)	1670	0	0	1763	1729	0
Flt Permitted	0.956			0.998		
Satd. Flow (perm)	1670	0	0	1763	1729	0
Link Speed (mph)	35			30	30	
Link Distance (ft)	387			334	240	
Travel Time (s)	7.5			7.6	5.5	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	0%	2%	0%	13%
Adj. Flow (vph)	40	3	5	99	58	25
Shared Lane Traffic (%)						
Lane Group Flow (vph)	43	0	0	104	83	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	11			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.10	1.10	1.07	1.07	1.02	1.02
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	18.8%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	36	3	5	90	53	23
Future Vol, veh/h	36	3	5	90	53	23
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	8	-	-	4	-4	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	0	0	0	2	0	13
Mvmt Flow	40	3	5	99	58	25

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	180	71	83	0	-	0
Stage 1	71	-	-	-	-	-
Stage 2	109	-	-	-	-	-
Critical Hdwy	9	7.2	4.9	-	-	-
Critical Hdwy Stg 1	7	-	-	-	-	-
Critical Hdwy Stg 2	7	-	-	-	-	-
Follow-up Hdwy	3	3.4	3.5	-	-	-
Pot Cap-1 Maneuver	824	950	956	-	-	-
Stage 1	1076	-	-	-	-	-
Stage 2	1016	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	819	950	956	-	-	-
Mov Cap-2 Maneuver	819	-	-	-	-	-
Stage 1	1070	-	-	-	-	-
Stage 2	1016	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.6	0.5	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	956	-	828	-	-
HCM Lane V/C Ratio	0.006	-	0.052	-	-
HCM Control Delay (s)	8.8	0	9.6	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	8	75	114	11	39	68
Future Volume (vph)	8	75	114	11	39	68
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11
Grade (%)	0%		2%			2%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.878		0.988			
Flt Protected	0.995					0.982
Satd. Flow (prot)	1584	0	1764	0	0	1752
Flt Permitted	0.995					0.982
Satd. Flow (perm)	1584	0	1764	0	0	1752
Link Speed (mph)	35		30			30
Link Distance (ft)	417		240			323
Travel Time (s)	8.1		5.5			7.3
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles (%)	13%	0%	2%	0%	0%	3%
Adj. Flow (vph)	10	90	137	13	47	82
Shared Lane Traffic (%)						
Lane Group Flow (vph)	100	0	150	0	0	129
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	11		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.04	1.04	1.06	1.06	1.06	1.06
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	27.5%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	3.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	8	75	114	11	39	68
Future Vol, veh/h	8	75	114	11	39	68
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	2	-	-	2
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	13	0	2	0	0	3
Mvmt Flow	10	90	137	13	47	82

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	320	144	0	0	150	0
Stage 1	144	-	-	-	-	-
Stage 2	176	-	-	-	-	-
Critical Hdwy	7.5	6.4	-	-	4.9	-
Critical Hdwy Stg 1	5.53	-	-	-	-	-
Critical Hdwy Stg 2	5.53	-	-	-	-	-
Follow-up Hdwy	3.1	3.4	-	-	3.5	-
Pot Cap-1 Maneuver	682	877	-	-	901	-
Stage 1	990	-	-	-	-	-
Stage 2	955	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	644	877	-	-	901	-
Mov Cap-2 Maneuver	644	-	-	-	-	-
Stage 1	990	-	-	-	-	-
Stage 2	902	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.8	0	3.4
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	847	901	-
HCM Lane V/C Ratio	-	-	0.118	0.052	-
HCM Control Delay (s)	-	-	9.8	9.2	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.4	0.2	-

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	3323
Vehs Exited	3288
Starting Vehs	0
Ending Vehs	35
Travel Distance (mi)	426
Travel Time (hr)	23.5
Total Delay (hr)	9.2
Total Stops	1035
Fuel Used (gal)	18.5

Interval #0 Information Seeding

Start Time	7:00
End Time	7:15
Total Time (min)	15

Volumes adjusted by PHF.

Vehs Entered	705
Vehs Exited	672
Starting Vehs	0
Ending Vehs	33
Travel Distance (mi)	89
Travel Time (hr)	4.9
Total Delay (hr)	1.9
Total Stops	206
Fuel Used (gal)	3.8

Interval #1 Information

Start Time	7:15
End Time	7:30
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	643
Vehs Exited	664
Starting Vehs	33
Ending Vehs	12
Travel Distance (mi)	84
Travel Time (hr)	4.6
Total Delay (hr)	1.8
Total Stops	194
Fuel Used (gal)	3.7

Interval #2 Information

Start Time	7:30
End Time	7:45
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	636
Vehs Exited	637
Starting Vehs	12
Ending Vehs	11
Travel Distance (mi)	82
Travel Time (hr)	4.4
Total Delay (hr)	1.6
Total Stops	183
Fuel Used (gal)	3.5

Interval #3 Information

Start Time	7:45
End Time	8:00
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	676
Vehs Exited	669
Starting Vehs	11
Ending Vehs	18
Travel Distance (mi)	87
Travel Time (hr)	4.6
Total Delay (hr)	1.7
Total Stops	206
Fuel Used (gal)	3.7

Interval #4 Information Recording

Start Time	8:00
End Time	8:15
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	663
Vehs Exited	646
Starting Vehs	18
Ending Vehs	35
Travel Distance (mi)	84
Travel Time (hr)	5.1
Total Delay (hr)	2.2
Total Stops	246
Fuel Used (gal)	3.8

Intersection: 1: Days Inn Driveway/Country Club Rd & US Route 11 (Harrisburg Pike)

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB
Directions Served	L	T	TR	L	T	TR	LT	R	LTR
Maximum Queue (ft)	294	358	329	176	337	269	51	53	127
Average Queue (ft)	44	174	105	32	169	100	11	19	40
95th Queue (ft)	93	331	222	97	316	221	39	47	89
Link Distance (ft)		295	295		292	292	219		315
Upstream Blk Time (%)	0	2	0		1				
Queuing Penalty (veh)	0	0	0		0				
Storage Bay Dist (ft)	270			152				50	
Storage Blk Time (%)		3			9		2	1	
Queuing Penalty (veh)		1			2		0	0	

Intersection: 2: Bernheisel Bridge Rd & Country Club Rd

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	28	29
Average Queue (ft)	19	1
95th Queue (ft)	39	9
Link Distance (ft)	350	304
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Bernheisel Bridge Rd & Green Hill Rd

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	49	74
Average Queue (ft)	24	9
95th Queue (ft)	37	39
Link Distance (ft)	376	290
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 4

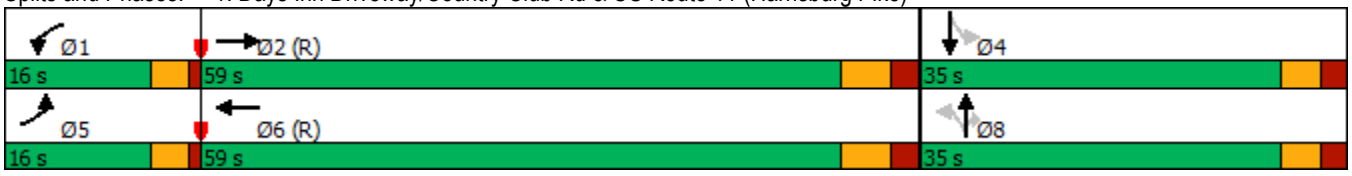
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	29	659	11	19	732	37	9	2	20	30	1	18
Future Volume (vph)	29	659	11	19	732	37	9	2	20	30	1	18
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12	14	14	14	11	11	11
Grade (%)		-1%			2%			-2%			4%	
Storage Length (ft)	270		0	152		0	0		50	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor									0.99		1.00	
Frt		0.998			0.993				0.850		0.950	
Flt Protected	0.950			0.950				0.960			0.970	
Satd. Flow (prot)	1719	2890	0	1282	2870	0	0	1573	1648	0	1571	0
Flt Permitted	0.950			0.950				0.807			0.806	
Satd. Flow (perm)	1719	2890	0	1282	2870	0	0	1322	1627	0	1305	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			6				74		20	
Link Speed (mph)		35			35			25			35	
Link Distance (ft)		326			335			267			374	
Travel Time (s)		6.4			6.5			7.3			7.3	
Confl. Peds. (#/hr)									1	1		
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%	19%	0%	32%	18%	0%	22%	0%	0%	0%	0%	0%
Adj. Flow (vph)	32	724	12	21	804	41	10	2	22	33	1	20
Shared Lane Traffic (%)												
Lane Group Flow (vph)	32	736	0	21	845	0	0	12	22	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)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.09	1.09	1.09	0.97	0.97	0.97	1.15	1.15	1.15
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1	1	1	1	
Detector Template							Left			Left		
Leading Detector (ft)	35	256		35	256		20	35	35	20	35	
Trailing Detector (ft)	-5	250		-5	250		0	-5	-5	0	-5	
Detector 1 Position(ft)	-5	250		-5	250		0	-5	-5	0	-5	
Detector 1 Size(ft)	40	6		40	6		20	40	40	20	40	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	3.0	6.0		3.0	6.0		0.0	3.0	3.0	0.0	3.0	
Detector 1 Queue (s)	0.0	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	0.0	
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8		8	4		

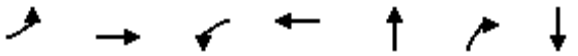
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2		1	6		8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	3.0	10.0		3.0	10.0		5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	7.0	16.5		7.0	16.5		10.6	10.6	10.6	10.6	10.6	
Total Split (s)	16.0	59.0		16.0	59.0		35.0	35.0	35.0	35.0	35.0	
Total Split (%)	14.5%	53.6%		14.5%	53.6%		31.8%	31.8%	31.8%	31.8%	31.8%	
Maximum Green (s)	12.0	52.5		12.0	52.5		29.4	29.4	29.4	29.4	29.4	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.3	3.3	3.3	3.3	3.3	
All-Red Time (s)	1.0	2.5		1.0	2.5		2.3	2.3	2.3	2.3	2.3	
Lost Time Adjust (s)	-0.5	-1.0		-0.5	-1.0			-1.0	-1.0		-1.0	
Total Lost Time (s)	3.5	5.5		3.5	5.5			4.6	4.6		4.6	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		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)	0.0	30.0		0.0	30.0		0.0	0.0	0.0	0.0	0.0	
Time To Reduce (s)	0.0	15.0		0.0	15.0		0.0	0.0	0.0	0.0	0.0	
Recall Mode	None	C-Min		None	C-Min		None	None	None	None	None	
Walk Time (s)		7.0			7.0		7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)		18.0			18.0		26.0	26.0	26.0	26.0	26.0	
Pedestrian Calls (#/hr)		0			0		0	0	0	0	0	
Act Effct Green (s)	8.2	88.4		8.0	86.0			9.6	9.6		9.6	
Actuated g/C Ratio	0.07	0.80		0.07	0.78			0.09	0.09		0.09	
v/c Ratio	0.25	0.32		0.23	0.38			0.10	0.11		0.41	
Control Delay	52.2	5.1		53.1	6.2			46.5	1.0		41.8	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay	52.2	5.1		53.1	6.2			46.5	1.0		41.8	
LOS	D	A		D	A			D	A		D	
Approach Delay		7.1			7.4			17.0			41.8	
Approach LOS		A			A			B			D	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 16 (15%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 40
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.41
Intersection Signal Delay: 8.5 Intersection LOS: A
Intersection Capacity Utilization 43.5% ICU Level of Service A
Analysis Period (min) 15

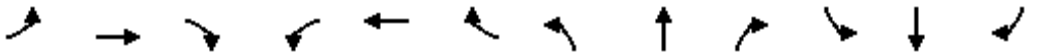
Splits and Phases: 1: Days Inn Driveway/Country Club Rd & US Route 11 (Harrisburg Pike)





Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	32	736	21	845	12	22	54
v/c Ratio	0.25	0.32	0.23	0.38	0.10	0.11	0.41
Control Delay	52.2	5.1	53.1	6.2	46.5	1.0	41.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.2	5.1	53.1	6.2	46.5	1.0	41.8
Queue Length 50th (ft)	22	47	14	107	8	0	23
Queue Length 95th (ft)	52	149	39	178	27	0	62
Internal Link Dist (ft)		246		255	187		294
Turn Bay Length (ft)	270		152			50	
Base Capacity (vph)	195	2321	145	2246	365	503	375
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.32	0.14	0.38	0.03	0.04	0.14

Intersection Summary



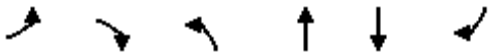
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	659	11	19	732	37	9	2	20	30	1	18
Future Volume (veh/h)	29	659	11	19	732	37	9	2	20	30	1	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	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	1837	1567	1837	1328	1525	1778	1624	1950	1950	1711	1711	1711
Adj Flow Rate, veh/h	32	724	12	21	804	41	10	2	22	33	1	20
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	19	0	32	18	0	22	0	0	0	0	0
Cap, veh/h	48	2356	39	27	2187	112	154	27	114	102	10	35
Arrive On Green	0.03	0.79	0.78	0.02	0.78	0.77	0.06	0.07	0.07	0.06	0.07	0.06
Sat Flow, veh/h	1750	2997	50	1265	2805	143	1353	388	1645	716	142	505
Grp Volume(v), veh/h	32	360	376	21	415	430	12	0	22	54	0	0
Grp Sat Flow(s),veh/h/ln	1750	1489	1558	1265	1449	1499	1742	0	1645	1363	0	0
Q Serve(g_s), s	2.0	7.5	7.5	1.8	9.7	9.8	0.0	0.0	1.4	3.4	0.0	0.0
Cycle Q Clear(g_c), s	2.0	7.5	7.5	1.8	9.7	9.8	0.7	0.0	1.4	4.2	0.0	0.0
Prop In Lane	1.00		0.03	1.00		0.10	0.83		1.00	0.61		0.37
Lane Grp Cap(c), veh/h	48	1170	1225	27	1130	1169	165	0	114	135	0	0
V/C Ratio(X)	0.67	0.31	0.31	0.79	0.37	0.37	0.07	0.00	0.19	0.40	0.00	0.00
Avail Cap(c_a), veh/h	199	1170	1225	144	1130	1169	478	0	455	410	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	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	53.0	3.3	3.3	53.6	3.7	3.8	48.3	0.0	48.3	50.0	0.0	0.0
Incr Delay (d2), s/veh	15.0	0.7	0.7	38.8	0.9	0.9	0.2	0.0	0.8	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	1.1	1.8	1.9	0.9	2.4	2.5	0.3	0.0	0.6	1.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.0	4.0	4.0	92.4	4.7	4.6	48.5	0.0	49.1	51.9	0.0	0.0
LnGrp LOS	E	A	A	F	A	A	D	A	D	D	A	A
Approach Vol, veh/h		768			866			34			54	
Approach Delay, s/veh		6.7			6.8			48.9			51.9	
Approach LOS		A			A			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.8	92.0		12.2	6.5	91.3		12.2				
Change Period (Y+Rc), s	4.0	6.5		5.6	4.0	6.5		5.6				
Max Green Setting (Gmax), s	12.0	52.5		29.4	12.0	52.5		29.4				
Max Q Clear Time (g_c+I1), s	3.8	9.5		6.2	4.0	11.8		3.4				
Green Ext Time (p_c), s	0.0	13.5		0.1	0.0	15.9		0.1				

Intersection Summary		
HCM 6th Ctrl Delay	9.0	
HCM 6th LOS	A	

Notes

User approved pedestrian interval to be less than phase max green.



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	34	5	3	43	49	23
Future Volume (vph)	34	5	3	43	49	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11
Grade (%)	8%			4%	-4%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.982				0.957	
Flt Protected	0.958			0.997		
Satd. Flow (prot)	1659	0	0	1795	1745	0
Flt Permitted	0.958			0.997		
Satd. Flow (perm)	1659	0	0	1795	1745	0
Link Speed (mph)	35			30	30	
Link Distance (ft)	387			334	240	
Travel Time (s)	7.5			7.6	5.5	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	0%	0%	0%	0%	4%	0%
Adj. Flow (vph)	40	6	3	50	57	27
Shared Lane Traffic (%)						
Lane Group Flow (vph)	46	0	0	53	84	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	11			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.10	1.10	1.07	1.07	1.02	1.02
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	14.7%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	34	5	3	43	49	23
Future Vol, veh/h	34	5	3	43	49	23
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	8	-	-	4	-4	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	0	0	0	0	4	0
Mvmt Flow	40	6	3	50	57	27

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	127	71	84	0	-	0
Stage 1	71	-	-	-	-	-
Stage 2	56	-	-	-	-	-
Critical Hdwy	9	7.2	4.9	-	-	-
Critical Hdwy Stg 1	7	-	-	-	-	-
Critical Hdwy Stg 2	7	-	-	-	-	-
Follow-up Hdwy	3	3.4	3.5	-	-	-
Pot Cap-1 Maneuver	921	950	955	-	-	-
Stage 1	1076	-	-	-	-	-
Stage 2	1102	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	918	950	955	-	-	-
Mov Cap-2 Maneuver	918	-	-	-	-	-
Stage 1	1073	-	-	-	-	-
Stage 2	1102	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.1	0.6	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	955	-	922	-	-
HCM Lane V/C Ratio	0.004	-	0.049	-	-
HCM Control Delay (s)	8.8	0	9.1	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	5	46	69	7	24	67
Future Volume (vph)	5	46	69	7	24	67
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11
Grade (%)	0%		2%			2%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.877		0.987			
Flt Protected	0.995					0.987
Satd. Flow (prot)	1603	0	1795	0	0	1780
Flt Permitted	0.995					0.987
Satd. Flow (perm)	1603	0	1795	0	0	1780
Link Speed (mph)	35		30			30
Link Distance (ft)	417		240			323
Travel Time (s)	8.1		5.5			7.3
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	0%	0%	0%	3%	0%
Adj. Flow (vph)	5	49	74	8	26	72
Shared Lane Traffic (%)						
Lane Group Flow (vph)	54	0	82	0	0	98
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	11		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.04	1.04	1.06	1.06	1.06	1.06
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	21.5%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	3.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	5	46	69	7	24	67
Future Vol, veh/h	5	46	69	7	24	67
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	2	-	-	2
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	0	3	0
Mvmt Flow	5	49	74	8	26	72

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	202	78	0	0	82	0
Stage 1	78	-	-	-	-	-
Stage 2	124	-	-	-	-	-
Critical Hdwy	7.4	6.4	-	-	4.9	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3	3.4	-	-	3.5	-
Pot Cap-1 Maneuver	861	956	-	-	957	-
Stage 1	1103	-	-	-	-	-
Stage 2	1049	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	837	956	-	-	957	-
Mov Cap-2 Maneuver	837	-	-	-	-	-
Stage 1	1103	-	-	-	-	-
Stage 2	1020	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.1	0	2.3
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	943	957	-
HCM Lane V/C Ratio	-	-	0.058	0.027	-
HCM Control Delay (s)	-	-	9.1	8.9	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0.1	-

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	2224
Vehs Exited	2215
Starting Vehs	0
Ending Vehs	9
Travel Distance (mi)	288
Travel Time (hr)	14.4
Total Delay (hr)	4.6
Total Stops	600
Fuel Used (gal)	11.7

Interval #0 Information Seeding

Start Time	7:00
End Time	7:15
Total Time (min)	15

Volumes adjusted by PHF.

Vehs Entered	519
Vehs Exited	503
Starting Vehs	0
Ending Vehs	16
Travel Distance (mi)	66
Travel Time (hr)	3.6
Total Delay (hr)	1.4
Total Stops	166
Fuel Used (gal)	2.9

Interval #1 Information

Start Time	7:15
End Time	7:30
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	424
Vehs Exited	423
Starting Vehs	16
Ending Vehs	17
Travel Distance (mi)	55
Travel Time (hr)	2.6
Total Delay (hr)	0.7
Total Stops	97
Fuel Used (gal)	2.1

Interval #2 Information

Start Time	7:30
End Time	7:45
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	430
Vehs Exited	430
Starting Vehs	17
Ending Vehs	17
Travel Distance (mi)	56
Travel Time (hr)	2.5
Total Delay (hr)	0.6
Total Stops	86
Fuel Used (gal)	2.1

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	444
Starting Vehs	17
Ending Vehs	16
Travel Distance (mi)	57
Travel Time (hr)	3.1
Total Delay (hr)	1.2
Total Stops	135
Fuel Used (gal)	2.5

Interval #4 Information Recording

Start Time	8:00
End Time	8:15
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	408
Vehs Exited	415
Starting Vehs	16
Ending Vehs	9
Travel Distance (mi)	54
Travel Time (hr)	2.6
Total Delay (hr)	0.8
Total Stops	116
Fuel Used (gal)	2.1

Intersection: 1: Days Inn Driveway/Country Club Rd & US Route 11 (Harrisburg Pike)

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB
Directions Served	L	T	TR	L	T	TR	LT	R	LTR
Maximum Queue (ft)	88	204	162	93	302	219	30	28	66
Average Queue (ft)	23	77	33	24	109	57	9	16	23
95th Queue (ft)	56	165	92	70	225	154	30	38	51
Link Distance (ft)		295	295		292	292	219		315
Upstream Blk Time (%)					0				
Queuing Penalty (veh)					0				
Storage Bay Dist (ft)	270			152				50	
Storage Blk Time (%)					2				
Queuing Penalty (veh)					0				

Intersection: 2: Bernheisel Bridge Rd & Country Club Rd

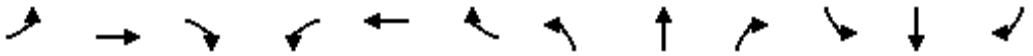
Movement	EB
Directions Served	LR
Maximum Queue (ft)	28
Average Queue (ft)	22
95th Queue (ft)	39
Link Distance (ft)	350
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 3: Bernheisel Bridge Rd & Green Hill Rd

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	28	31
Average Queue (ft)	19	3
95th Queue (ft)	37	18
Link Distance (ft)	376	290
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 0

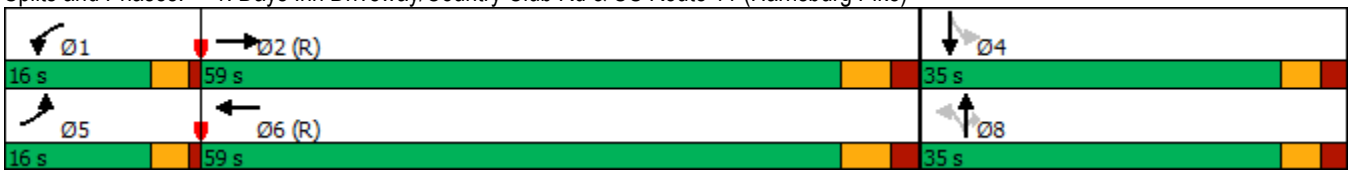


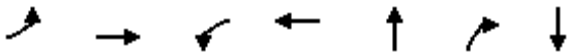
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	111	988	9	3	704	43	1	1	16	66	1	54
Future Volume (vph)	111	988	9	3	704	43	1	1	16	66	1	54
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12	14	14	14	11	11	11
Grade (%)		-1%			2%			-2%			4%	
Storage Length (ft)	270		0	152		0	0		50	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00				1.00							
Frt		0.999			0.991				0.850		0.940	
Flt Protected	0.950			0.950				0.976			0.973	
Satd. Flow (prot)	1494	2794	0	1273	2704	0	0	1893	1459	0	1521	0
Flt Permitted	0.950			0.950				0.894			0.829	
Satd. Flow (perm)	1492	2794	0	1273	2704	0	0	1734	1459	0	1296	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			8				74		36	
Link Speed (mph)		35			35			25			35	
Link Distance (ft)		326			335			267			374	
Travel Time (s)		6.4			6.5			7.3			7.3	
Confl. Peds. (#/hr)	2					2						
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	15%	23%	11%	33%	25%	6%	0%	0%	13%	3%	0%	2%
Adj. Flow (vph)	119	1062	10	3	757	46	1	1	17	71	1	58
Shared Lane Traffic (%)												
Lane Group Flow (vph)	119	1072	0	3	803	0	0	2	17	0	130	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)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.09	1.09	1.09	0.97	0.97	0.97	1.15	1.15	1.15
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1	1	1	1	
Detector Template							Left			Left		
Leading Detector (ft)	35	256		35	256		20	35	35	20	35	
Trailing Detector (ft)	-5	250		-5	250		0	-5	-5	0	-5	
Detector 1 Position(ft)	-5	250		-5	250		0	-5	-5	0	-5	
Detector 1 Size(ft)	40	6		40	6		20	40	40	20	40	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	3.0	6.0		3.0	6.0		0.0	3.0	3.0	0.0	3.0	
Detector 1 Queue (s)	0.0	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	0.0	
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8		8	4		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2		1	6		8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	3.0	10.0		3.0	10.0		5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	7.0	16.5		7.0	16.5		10.6	10.6	10.6	10.6	10.6	
Total Split (s)	16.0	59.0		16.0	59.0		35.0	35.0	35.0	35.0	35.0	
Total Split (%)	14.5%	53.6%		14.5%	53.6%		31.8%	31.8%	31.8%	31.8%	31.8%	
Maximum Green (s)	12.0	52.5		12.0	52.5		29.4	29.4	29.4	29.4	29.4	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.3	3.3	3.3	3.3	3.3	
All-Red Time (s)	1.0	2.5		1.0	2.5		2.3	2.3	2.3	2.3	2.3	
Lost Time Adjust (s)	-0.5	-1.0		-0.5	-1.0			-1.0	-1.0		-1.0	
Total Lost Time (s)	3.5	5.5		3.5	5.5			4.6	4.6		4.6	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		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)	0.0	30.0		0.0	30.0		0.0	0.0	0.0	0.0	0.0	
Time To Reduce (s)	0.0	15.0		0.0	15.0		0.0	0.0	0.0	0.0	0.0	
Recall Mode	None	C-Min		None	C-Min		None	None	None	None	None	
Walk Time (s)		7.0			7.0		7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)		18.0			18.0		26.0	26.0	26.0	26.0	26.0	
Pedestrian Calls (#/hr)		0			0		0	0	0	0	0	
Act Effct Green (s)	15.0	83.2		6.5	66.9			14.5	14.5		14.5	
Actuated g/C Ratio	0.14	0.76		0.06	0.61			0.13	0.13		0.13	
v/c Ratio	0.59	0.51		0.04	0.49			0.01	0.07		0.64	
Control Delay	55.7	7.8		49.7	14.8			37.5	0.5		46.2	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay	55.7	7.8		49.7	14.8			37.5	0.5		46.2	
LOS	E	A		D	B			D	A		D	
Approach Delay		12.5			14.9			4.4			46.2	
Approach LOS		B			B			A			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 16 (15%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.64			
Intersection Signal Delay: 15.4		Intersection LOS: B	
Intersection Capacity Utilization 58.3%		ICU Level of Service B	
Analysis Period (min) 15			

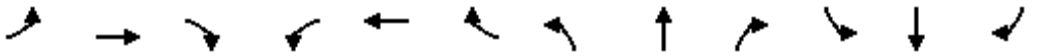
Splits and Phases: 1: Days Inn Driveway/Country Club Rd & US Route 11 (Harrisburg Pike)





Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	119	1072	3	803	2	17	130
v/c Ratio	0.59	0.51	0.04	0.49	0.01	0.07	0.64
Control Delay	55.7	7.8	49.7	14.8	37.5	0.5	46.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.7	7.8	49.7	14.8	37.5	0.5	46.2
Queue Length 50th (ft)	80	117	2	153	1	0	63
Queue Length 95th (ft)	135	299	12	267	8	0	119
Internal Link Dist (ft)		246		255	187		294
Turn Bay Length (ft)	270		152			50	
Base Capacity (vph)	211	2114	144	1648	479	456	384
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.56	0.51	0.02	0.49	0.00	0.04	0.34

Intersection Summary



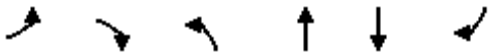
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	111	988	9	3	704	43	1	1	16	66	1	54
Future Volume (veh/h)	111	988	9	3	704	43	1	1	16	66	1	54
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		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	1624	1510	1681	1314	1427	1693	1950	1950	1757	1669	1711	1683
Adj Flow Rate, veh/h	119	1062	10	3	757	46	1	1	17	71	1	58
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	15	23	11	33	25	6	0	0	13	3	0	2
Cap, veh/h	149	2177	21	9	1709	104	129	118	181	133	10	74
Arrive On Green	0.10	0.75	0.74	0.01	0.66	0.65	0.11	0.12	0.12	0.11	0.12	0.11
Sat Flow, veh/h	1547	2912	27	1252	2596	158	656	966	1489	675	84	611
Grp Volume(v), veh/h	119	523	549	3	395	408	2	0	17	130	0	0
Grp Sat Flow(s),veh/h/ln	1547	1435	1505	1252	1355	1398	1622	0	1489	1371	0	0
Q Serve(g_s), s	8.3	15.9	15.9	0.3	15.5	15.5	0.0	0.0	1.1	9.1	0.0	0.0
Cycle Q Clear(g_c), s	8.3	15.9	15.9	0.3	15.5	15.5	0.1	0.0	1.1	10.2	0.0	0.0
Prop In Lane	1.00		0.02	1.00		0.11	0.50		1.00	0.55		0.45
Lane Grp Cap(c), veh/h	149	1073	1125	9	893	921	232	0	181	205	0	0
V/C Ratio(X)	0.80	0.49	0.49	0.35	0.44	0.44	0.01	0.00	0.09	0.63	0.00	0.00
Avail Cap(c_a), veh/h	176	1073	1125	142	893	921	484	0	412	414	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	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	48.7	5.5	5.5	54.4	9.1	9.1	42.7	0.0	42.9	47.3	0.0	0.0
Incr Delay (d2), s/veh	19.7	1.6	1.5	22.0	1.6	1.5	0.0	0.0	0.2	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	4.0	4.3	4.5	0.1	4.5	4.6	0.1	0.0	0.4	3.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.4	7.1	7.0	76.4	10.6	10.6	42.7	0.0	43.1	50.5	0.0	0.0
LnGrp LOS	E	A	A	E	B	B	D	A	D	D	A	A
Approach Vol, veh/h		1191			806			19			130	
Approach Delay, s/veh		13.2			10.9			43.1			50.5	
Approach LOS		B			B			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.3	87.7		18.0	14.1	77.9		18.0				
Change Period (Y+Rc), s	4.0	6.5		5.6	4.0	6.5		5.6				
Max Green Setting (Gmax), s	12.0	52.5		29.4	12.0	52.5		29.4				
Max Q Clear Time (g_c+I1), s	2.3	18.9		12.2	10.3	17.5		3.1				
Green Ext Time (p_c), s	0.0	19.3		0.3	0.0	14.1		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		14.9	
HCM 6th LOS		B	

Notes

User approved pedestrian interval to be less than phase max green.



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	43	12	28	32	107	155
Future Volume (vph)	43	12	28	32	107	155
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11
Grade (%)	8%			4%	-4%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.970				0.920	
Flt Protected	0.963			0.977		
Satd. Flow (prot)	1554	0	0	1689	1690	0
Flt Permitted	0.963			0.977		
Satd. Flow (perm)	1554	0	0	1689	1690	0
Link Speed (mph)	35			30	30	
Link Distance (ft)	387			334	240	
Travel Time (s)	7.5			7.6	5.5	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	2%	20%	2%	6%	2%	2%
Adj. Flow (vph)	49	14	32	37	123	178
Shared Lane Traffic (%)						
Lane Group Flow (vph)	63	0	0	69	301	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	11			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.10	1.10	1.07	1.07	1.02	1.02
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	31.8%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	43	12	28	32	107	155
Future Vol, veh/h	43	12	28	32	107	155
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	8	-	-	4	-4	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	20	2	6	2	2
Mvmt Flow	49	14	32	37	123	178

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	313	212	301	0	-	0
Stage 1	212	-	-	-	-	-
Stage 2	101	-	-	-	-	-
Critical Hdwy	9	7.4	4.9	-	-	-
Critical Hdwy Stg 1	7.02	-	-	-	-	-
Critical Hdwy Stg 2	7.02	-	-	-	-	-
Follow-up Hdwy	3	3.6	3.5	-	-	-
Pot Cap-1 Maneuver	623	718	788	-	-	-
Stage 1	866	-	-	-	-	-
Stage 2	1028	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	597	718	788	-	-	-
Mov Cap-2 Maneuver	597	-	-	-	-	-
Stage 1	830	-	-	-	-	-
Stage 2	1028	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.5	4.6	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	788	-	620	-	-
HCM Lane V/C Ratio	0.041	-	0.102	-	-
HCM Control Delay (s)	9.8	0	11.5	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.3	-	-



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	72	10	48	26	83	191
Future Volume (vph)	72	10	48	26	83	191
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11
Grade (%)	0%		2%			2%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.984		0.953			
Flt Protected	0.958					0.985
Satd. Flow (prot)	1472	0	1637	0	0	1756
Flt Permitted	0.958					0.985
Satd. Flow (perm)	1472	0	1637	0	0	1756
Link Speed (mph)	35		30			30
Link Distance (ft)	417		240			323
Travel Time (s)	8.1		5.5			7.3
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	20%	0%	2%	13%	2%	2%
Adj. Flow (vph)	81	11	54	29	93	215
Shared Lane Traffic (%)						
Lane Group Flow (vph)	92	0	83	0	0	308
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	11		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.04	1.04	1.06	1.06	1.06	1.06
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	32.6%	ICU Level of Service	A
Analysis Period (min)	15		

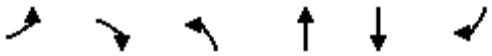
Intersection	
Int Delay, s/veh	4.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	72	10	48	26	83	191
Future Vol, veh/h	72	10	48	26	83	191
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	2	-	-	2
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	20	0	2	13	2	2
Mvmt Flow	81	11	54	29	93	215

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	470	69	0	0	83	0
Stage 1	69	-	-	-	-	-
Stage 2	401	-	-	-	-	-
Critical Hdwy	7.6	6.4	-	-	4.9	-
Critical Hdwy Stg 1	5.6	-	-	-	-	-
Critical Hdwy Stg 2	5.6	-	-	-	-	-
Follow-up Hdwy	3.2	3.4	-	-	3.5	-
Pot Cap-1 Maneuver	510	967	-	-	956	-
Stage 1	1042	-	-	-	-	-
Stage 2	717	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	454	967	-	-	956	-
Mov Cap-2 Maneuver	454	-	-	-	-	-
Stage 1	1042	-	-	-	-	-
Stage 2	638	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.2	0	2.8
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	485	956	-
HCM Lane V/C Ratio	-	-	0.19	0.098	-
HCM Control Delay (s)	-	-	14.2	9.2	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.7	0.3	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	13	25	143	26	0
Future Volume (vph)	0	13	25	143	26	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11
Grade (%)	1%			-6%	5%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865					
Flt Protected				0.993		
Satd. Flow (prot)	1550	0	0	1700	1433	0
Flt Permitted				0.993		
Satd. Flow (perm)	1550	0	0	1700	1433	0
Link Speed (mph)	15			35	35	
Link Distance (ft)	345			514	796	
Travel Time (s)	15.7			10.0	15.5	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	0%	2%	2%	12%	25%	0%
Adj. Flow (vph)	0	16	30	174	32	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	16	0	0	204	32	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	11			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.05	1.05	1.01	1.01	1.08	1.08
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	25.6%	ICU Level of Service	A
Analysis Period (min)	15		

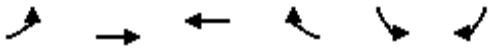
Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	13	25	143	26	0
Future Vol, veh/h	0	13	25	143	26	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	1	-	-	-6	5	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	0	2	2	12	25	0
Mvmt Flow	0	16	30	174	32	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	266	32	32	0	-	0
Stage 1	32	-	-	-	-	-
Stage 2	234	-	-	-	-	-
Critical Hdwy	7.6	6.5	4.9	-	-	-
Critical Hdwy Stg 1	5.6	-	-	-	-	-
Critical Hdwy Stg 2	5.6	-	-	-	-	-
Follow-up Hdwy	3	3.4	3.5	-	-	-
Pot Cap-1 Maneuver	763	1015	1000	-	-	-
Stage 1	1157	-	-	-	-	-
Stage 2	918	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	738	1015	1000	-	-	-
Mov Cap-2 Maneuver	738	-	-	-	-	-
Stage 1	1119	-	-	-	-	-
Stage 2	918	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.6	1.3	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1000	-	1015	-	-
HCM Lane V/C Ratio	0.03	-	0.016	-	-
HCM Control Delay (s)	8.7	0	8.6	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0	-	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	89	54	10	102	22	16
Future Volume (vph)	89	54	10	102	22	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11
Grade (%)		2%	-2%		-1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.877		0.943	
Flt Protected		0.970			0.972	
Satd. Flow (prot)	0	1668	1564	0	1659	0
Flt Permitted		0.970			0.972	
Satd. Flow (perm)	0	1668	1564	0	1659	0
Link Speed (mph)		35	35		15	
Link Distance (ft)		796	782		174	
Travel Time (s)		15.5	15.2		7.9	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	2%	12%	25%	2%	2%	2%
Adj. Flow (vph)	109	66	12	124	27	20
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	175	136	0	47	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		11	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.06	1.06	1.03	1.03	1.04	1.04
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 24.4%		ICU Level of Service A	
Analysis Period (min) 15			

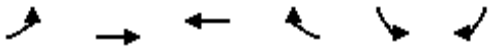
Intersection	
Int Delay, s/veh	4.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	89	54	10	102	22	16
Future Vol, veh/h	89	54	10	102	22	16
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	-2	-	-1	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	2	12	25	2	2	2
Mvmt Flow	109	66	12	124	27	20

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	136	0	-	0	358	74
Stage 1	-	-	-	-	74	-
Stage 2	-	-	-	-	284	-
Critical Hdwy	4.9	-	-	-	7.2	6.3
Critical Hdwy Stg 1	-	-	-	-	5.22	-
Critical Hdwy Stg 2	-	-	-	-	5.22	-
Follow-up Hdwy	3.5	-	-	-	3	3.4
Pot Cap-1 Maneuver	913	-	-	-	678	963
Stage 1	-	-	-	-	1111	-
Stage 2	-	-	-	-	893	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	913	-	-	-	594	963
Mov Cap-2 Maneuver	-	-	-	-	594	-
Stage 1	-	-	-	-	973	-
Stage 2	-	-	-	-	893	-

Approach	EB	WB	SB
HCM Control Delay, s	5.9	0	10.4
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	913	-	-	-	708
HCM Lane V/C Ratio	0.119	-	-	-	0.065
HCM Control Delay (s)	9.5	0	-	-	10.4
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.4	-	-	-	0.2



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	2	74	110	41	16	2
Future Volume (vph)	2	74	110	41	16	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11
Grade (%)		6%	-5%		4%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.963		0.988	
Flt Protected		0.999			0.957	
Satd. Flow (prot)	0	1592	1527	0	1668	0
Flt Permitted		0.999			0.957	
Satd. Flow (perm)	0	1592	1527	0	1668	0
Link Speed (mph)		35	35		15	
Link Distance (ft)		782	824		173	
Travel Time (s)		15.2	16.1		7.9	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	2%	12%	25%	2%	2%	2%
Adj. Flow (vph)	2	90	134	50	20	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	92	184	0	22	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		11	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.01	1.01	1.07	1.07
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	18.3%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	2	74	110	41	16	2
Future Vol, veh/h	2	74	110	41	16	2
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, %	-	6	-5	-	4	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	2	12	25	2	2	2
Mvmt Flow	2	90	134	50	20	2

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	184	0	-	0	253	159
Stage 1	-	-	-	-	159	-
Stage 2	-	-	-	-	94	-
Critical Hdwy	4.9	-	-	-	8.2	6.8
Critical Hdwy Stg 1	-	-	-	-	6.22	-
Critical Hdwy Stg 2	-	-	-	-	6.22	-
Follow-up Hdwy	3.5	-	-	-	3	3.4
Pot Cap-1 Maneuver	874	-	-	-	748	844
Stage 1	-	-	-	-	973	-
Stage 2	-	-	-	-	1061	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	874	-	-	-	747	844
Mov Cap-2 Maneuver	-	-	-	-	747	-
Stage 1	-	-	-	-	971	-
Stage 2	-	-	-	-	1061	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	9.9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	874	-	-	-	757
HCM Lane V/C Ratio	0.003	-	-	-	0.029
HCM Control Delay (s)	9.1	0	-	-	9.9
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

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	3696
Vehs Exited	3669
Starting Vehs	0
Ending Vehs	27
Travel Distance (mi)	571
Travel Time (hr)	29.2
Total Delay (hr)	9.2
Total Stops	1082
Fuel Used (gal)	23.9

Interval #0 Information Seeding

Start Time	7:00
End Time	7:15
Total Time (min)	15

Volumes adjusted by PHF.

Vehs Entered	848
Vehs Exited	817
Starting Vehs	0
Ending Vehs	31
Travel Distance (mi)	130
Travel Time (hr)	6.5
Total Delay (hr)	1.9
Total Stops	219
Fuel Used (gal)	5.4

Interval #1 Information

Start Time	7:15
End Time	7:30
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	712
Vehs Exited	724
Starting Vehs	31
Ending Vehs	19
Travel Distance (mi)	109
Travel Time (hr)	6.0
Total Delay (hr)	2.1
Total Stops	231
Fuel Used (gal)	4.8

Interval #2 Information

Start Time	7:30
End Time	7:45
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	701
Vehs Exited	697
Starting Vehs	19
Ending Vehs	23
Travel Distance (mi)	108
Travel Time (hr)	5.3
Total Delay (hr)	1.6
Total Stops	195
Fuel Used (gal)	4.4

Interval #3 Information

Start Time	7:45
End Time	8:00
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	711
Vehs Exited	714
Starting Vehs	23
Ending Vehs	20
Travel Distance (mi)	109
Travel Time (hr)	5.6
Total Delay (hr)	1.8
Total Stops	204
Fuel Used (gal)	4.6

Interval #4 Information Recording

Start Time	8:00
End Time	8:15
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	724
Vehs Exited	717
Starting Vehs	20
Ending Vehs	27
Travel Distance (mi)	115
Travel Time (hr)	5.9
Total Delay (hr)	1.8
Total Stops	233
Fuel Used (gal)	4.8

Intersection: 1: Days Inn Driveway/Country Club Rd & US Route 11 (Harrisburg Pike)

Movement	EB	EB	EB	WB	WB	NB	SB
Directions Served	L	T	TR	T	TR	R	LTR
Maximum Queue (ft)	264	310	310	300	259	50	154
Average Queue (ft)	93	85	69	176	106	10	62
95th Queue (ft)	175	216	193	277	220	34	130
Link Distance (ft)		295	295	292	292		315
Upstream Blk Time (%)		0	0	0			
Queuing Penalty (veh)		0	0	0			
Storage Bay Dist (ft)	270					50	
Storage Blk Time (%)	0	0		9		0	
Queuing Penalty (veh)	1	0		0		0	

Intersection: 2: Bernheisel Bridge Rd & Country Club Rd

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	71	53
Average Queue (ft)	28	7
95th Queue (ft)	53	29
Link Distance (ft)	350	304
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Bernheisel Bridge Rd & Green Hill Rd

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	72	50
Average Queue (ft)	31	8
95th Queue (ft)	58	31
Link Distance (ft)	376	290
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: Country Club Rd & Western Driveway

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	31	29
Average Queue (ft)	9	1
95th Queue (ft)	32	9
Link Distance (ft)	316	492
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 5: Country Club Rd & Main Driveway

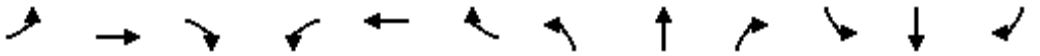
Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	53	54
Average Queue (ft)	7	26
95th Queue (ft)	27	46
Link Distance (ft)	737	142
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 6: Country Club Rd & Eastern Driveway

Movement	SB
Directions Served	LR
Maximum Queue (ft)	29
Average Queue (ft)	10
95th Queue (ft)	32
Link Distance (ft)	143
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 1

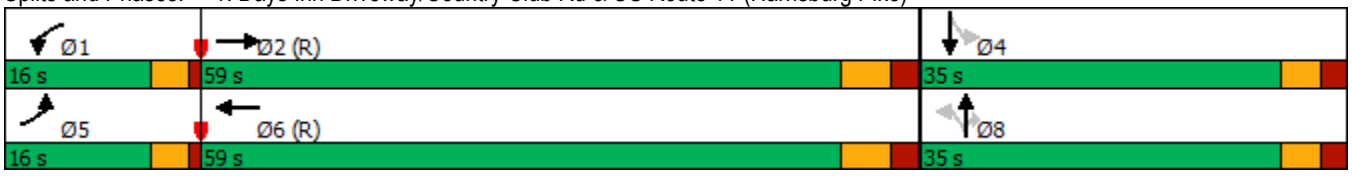


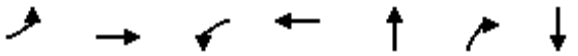
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	57	1215	13	25	881	32	12	0	25	55	1	90
Future Volume (vph)	57	1215	13	25	881	32	12	0	25	55	1	90
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12	14	14	14	11	11	11
Grade (%)		-1%			2%			-2%			4%	
Storage Length (ft)	270		0	152		0	0		50	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		1.00	1.00				0.99		1.00	
Frt		0.998			0.995				0.850		0.917	
Flt Protected	0.950			0.950				0.950			0.982	
Satd. Flow (prot)	1685	2684	0	1459	2686	0	0	1842	1526	0	1422	0
Flt Permitted	0.950			0.950				0.502			0.871	
Satd. Flow (perm)	1684	2684	0	1458	2686	0	0	973	1505	0	1261	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			5				74		73	
Link Speed (mph)		35			35			25			35	
Link Distance (ft)		326			335			267			374	
Travel Time (s)		6.4			6.5			7.3			7.3	
Confl. Peds. (#/hr)	1		2	2		1			2	2		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	28%	8%	16%	26%	7%	0%	0%	8%	8%	0%	8%
Adj. Flow (vph)	60	1279	14	26	927	34	13	0	26	58	1	95
Shared Lane Traffic (%)												
Lane Group Flow (vph)	60	1293	0	26	961	0	0	13	26	0	154	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)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.09	1.09	1.09	0.97	0.97	0.97	1.15	1.15	1.15
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1	1	1	1	
Detector Template							Left			Left		
Leading Detector (ft)	35	256		35	256		20	35	35	20	35	
Trailing Detector (ft)	-5	250		-5	250		0	-5	-5	0	-5	
Detector 1 Position(ft)	-5	250		-5	250		0	-5	-5	0	-5	
Detector 1 Size(ft)	40	6		40	6		20	40	40	20	40	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	3.0	6.0		3.0	6.0		0.0	3.0	3.0	0.0	3.0	
Detector 1 Queue (s)	0.0	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	0.0	
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8		8	4		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2		1	6		8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	3.0	10.0		3.0	10.0		5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	7.0	16.5		7.0	16.5		10.6	10.6	10.6	10.6	10.6	
Total Split (s)	16.0	59.0		16.0	59.0		35.0	35.0	35.0	35.0	35.0	
Total Split (%)	14.5%	53.6%		14.5%	53.6%		31.8%	31.8%	31.8%	31.8%	31.8%	
Maximum Green (s)	12.0	52.5		12.0	52.5		29.4	29.4	29.4	29.4	29.4	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.3	3.3	3.3	3.3	3.3	
All-Red Time (s)	1.0	2.5		1.0	2.5		2.3	2.3	2.3	2.3	2.3	
Lost Time Adjust (s)	-0.5	-1.0		-0.5	-1.0			-1.0	-1.0		-1.0	
Total Lost Time (s)	3.5	5.5		3.5	5.5			4.6	4.6		4.6	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		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)	0.0	30.0		0.0	30.0		0.0	0.0	0.0	0.0	0.0	
Time To Reduce (s)	0.0	15.0		0.0	15.0		0.0	0.0	0.0	0.0	0.0	
Recall Mode	None	C-Min		None	C-Min		None	None	None	None	None	
Walk Time (s)		7.0			7.0		7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)		18.0			18.0		26.0	26.0	26.0	26.0	26.0	
Pedestrian Calls (#/hr)		0			0		0	0	0	0	0	
Act Effct Green (s)	9.9	78.2		8.2	74.5			14.0	14.0		14.0	
Actuated g/C Ratio	0.09	0.71		0.07	0.68			0.13	0.13		0.13	
v/c Ratio	0.40	0.68		0.24	0.53			0.11	0.10		0.69	
Control Delay	54.2	13.9		52.7	12.3			40.7	0.8		39.2	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay	54.2	13.9		52.7	12.3			40.7	0.8		39.2	
LOS	D	B		D	B			D	A		D	
Approach Delay		15.7			13.3			14.1			39.2	
Approach LOS		B			B			B			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 16 (15%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.69			
Intersection Signal Delay: 16.2		Intersection LOS: B	
Intersection Capacity Utilization 66.7%		ICU Level of Service C	
Analysis Period (min) 15			

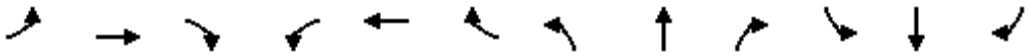
Splits and Phases: 1: Days Inn Driveway/Country Club Rd & US Route 11 (Harrisburg Pike)





Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	60	1293	26	961	13	26	154
v/c Ratio	0.40	0.68	0.24	0.53	0.11	0.10	0.69
Control Delay	54.2	13.9	52.7	12.3	40.7	0.8	39.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.2	13.9	52.7	12.3	40.7	0.8	39.2
Queue Length 50th (ft)	41	267	18	170	8	0	54
Queue Length 95th (ft)	81	476	46	304	25	0	117
Internal Link Dist (ft)		246		255	187		294
Turn Bay Length (ft)	270		152			50	
Base Capacity (vph)	194	1909	165	1820	268	469	401
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.68	0.16	0.53	0.05	0.06	0.38

Intersection Summary



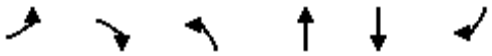
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	57	1215	13	25	881	32	12	0	25	55	1	90
Future Volume (veh/h)	57	1215	13	25	881	32	12	0	25	55	1	90
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	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	1809	1439	1724	1553	1413	1679	1950	1950	1831	1598	1711	1598
Adj Flow Rate, veh/h	60	1279	14	26	927	34	13	0	26	58	1	95
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	28	8	16	26	7	0	0	8	8	0	8
Cap, veh/h	84	1958	21	36	1800	66	215	0	225	108	15	125
Arrive On Green	0.05	0.71	0.70	0.02	0.68	0.67	0.14	0.00	0.15	0.14	0.15	0.14
Sat Flow, veh/h	1723	2770	30	1479	2640	97	1025	0	1545	434	101	861
Grp Volume(v), veh/h	60	631	662	26	471	490	13	0	26	154	0	0
Grp Sat Flow(s),veh/h/ln	1723	1367	1434	1479	1342	1395	1025	0	1545	1396	0	0
Q Serve(g_s), s	3.8	27.7	27.7	1.9	18.9	19.0	0.0	0.0	1.6	9.3	0.0	0.0
Cycle Q Clear(g_c), s	3.8	27.7	27.7	1.9	18.9	19.0	1.3	0.0	1.6	11.7	0.0	0.0
Prop In Lane	1.00		0.02	1.00		0.07	1.00		1.00	0.38		0.62
Lane Grp Cap(c), veh/h	84	966	1013	36	915	951	205	0	225	236	0	0
V/C Ratio(X)	0.71	0.65	0.65	0.73	0.51	0.51	0.06	0.00	0.12	0.65	0.00	0.00
Avail Cap(c_a), veh/h	196	966	1013	168	915	951	382	0	427	415	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	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	51.5	8.8	8.8	53.3	8.6	8.6	41.2	0.0	40.8	45.5	0.0	0.0
Incr Delay (d2), s/veh	10.4	3.4	3.3	24.2	2.1	2.0	0.1	0.0	0.2	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	1.9	7.8	8.1	0.9	5.3	5.5	0.3	0.0	0.6	4.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.0	12.2	12.1	77.5	10.7	10.6	41.3	0.0	41.1	48.6	0.0	0.0
LnGrp LOS	E	B	B	E	B	B	D	A	D	D	A	A
Approach Vol, veh/h		1353			987			39			154	
Approach Delay, s/veh		14.4			12.4			41.1			48.6	
Approach LOS		B			B			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.2	83.2		20.6	8.9	80.5		20.6				
Change Period (Y+Rc), s	4.0	6.5		5.6	4.0	6.5		5.6				
Max Green Setting (Gmax), s	12.0	52.5		29.4	12.0	52.5		29.4				
Max Q Clear Time (g_c+I1), s	3.9	29.7		13.7	5.8	21.0		3.6				
Green Ext Time (p_c), s	0.0	17.5		0.4	0.1	16.5		0.1				

Intersection Summary		
HCM 6th Ctrl Delay		16.1
HCM 6th LOS		B

Notes

User approved pedestrian interval to be less than phase max green.



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	118	21	9	90	53	39
Future Volume (vph)	118	21	9	90	53	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11
Grade (%)	8%			4%	-4%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.980				0.943	
Flt Protected	0.959			0.995		
Satd. Flow (prot)	1625	0	0	1756	1674	0
Flt Permitted	0.959			0.995		
Satd. Flow (perm)	1625	0	0	1756	1674	0
Link Speed (mph)	35			30	30	
Link Distance (ft)	387			334	240	
Travel Time (s)	7.5			7.6	5.5	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	2%	2%	2%	2%	0%	13%
Adj. Flow (vph)	130	23	10	99	58	43
Shared Lane Traffic (%)						
Lane Group Flow (vph)	153	0	0	109	101	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	11			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.10	1.10	1.07	1.07	1.02	1.02
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	26.4%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	4.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	118	21	9	90	53	39
Future Vol, veh/h	118	21	9	90	53	39
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	8	-	-	4	-4	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	0	13
Mvmt Flow	130	23	10	99	58	43

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	199	80	101	0	-	0
Stage 1	80	-	-	-	-	-
Stage 2	119	-	-	-	-	-
Critical Hdwy	9	7.2	4.9	-	-	-
Critical Hdwy Stg 1	7.02	-	-	-	-	-
Critical Hdwy Stg 2	7.02	-	-	-	-	-
Follow-up Hdwy	3	3.4	3.5	-	-	-
Pot Cap-1 Maneuver	792	937	941	-	-	-
Stage 1	1061	-	-	-	-	-
Stage 2	999	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	783	937	941	-	-	-
Mov Cap-2 Maneuver	783	-	-	-	-	-
Stage 1	1049	-	-	-	-	-
Stage 2	999	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.5	0.8	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	941	-	803	-	-
HCM Lane V/C Ratio	0.011	-	0.19	-	-
HCM Control Delay (s)	8.9	0	10.5	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.7	-	-



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	17	75	149	58	39	75
Future Volume (vph)	17	75	149	58	39	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11
Grade (%)	0%		2%			2%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.890		0.962			
Flt Protected	0.991					0.983
Satd. Flow (prot)	1583	0	1715	0	0	1753
Flt Permitted	0.991					0.983
Satd. Flow (perm)	1583	0	1715	0	0	1753
Link Speed (mph)	35		30			30
Link Distance (ft)	417		240			323
Travel Time (s)	8.1		5.5			7.3
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles (%)	13%	0%	2%	2%	0%	3%
Adj. Flow (vph)	20	90	180	70	47	90
Shared Lane Traffic (%)						
Lane Group Flow (vph)	110	0	250	0	0	137
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	11		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.04	1.04	1.06	1.06	1.06	1.06
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 33.0%		ICU Level of Service A	
Analysis Period (min) 15			

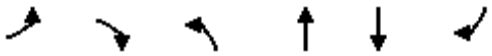
Intersection	
Int Delay, s/veh	3.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	17	75	149	58	39	75
Future Vol, veh/h	17	75	149	58	39	75
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	2	-	-	2
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	13	0	2	2	0	3
Mvmt Flow	20	90	180	70	47	90

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	399	215	0	0	250	0
Stage 1	215	-	-	-	-	-
Stage 2	184	-	-	-	-	-
Critical Hdwy	7.5	6.4	-	-	4.9	-
Critical Hdwy Stg 1	5.53	-	-	-	-	-
Critical Hdwy Stg 2	5.53	-	-	-	-	-
Follow-up Hdwy	3.1	3.4	-	-	3.5	-
Pot Cap-1 Maneuver	598	798	-	-	824	-
Stage 1	914	-	-	-	-	-
Stage 2	947	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	562	798	-	-	824	-
Mov Cap-2 Maneuver	562	-	-	-	-	-
Stage 1	914	-	-	-	-	-
Stage 2	890	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.7	0	3.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	741	824	-
HCM Lane V/C Ratio	-	-	0.15	0.057	-
HCM Control Delay (s)	-	-	10.7	9.6	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.5	0.2	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	36	3	60	68	0
Future Volume (vph)	0	36	3	60	68	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11
Grade (%)	1%			-6%	5%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865					
Flt Protected				0.997		
Satd. Flow (prot)	1550	0	0	1707	1756	0
Flt Permitted				0.997		
Satd. Flow (perm)	1550	0	0	1707	1756	0
Link Speed (mph)	15			35	35	
Link Distance (ft)	345			514	796	
Travel Time (s)	15.7			10.0	15.5	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles (%)	0%	2%	2%	11%	2%	0%
Adj. Flow (vph)	0	42	4	71	80	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	42	0	0	75	80	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	11			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.05	1.05	1.01	1.01	1.08	1.08
Turning Speed (mph)	60	60	60			60
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	15.6%	ICU Level of Service	A
Analysis Period (min)	15		

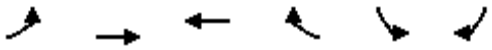
Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	36	3	60	68	0
Future Vol, veh/h	0	36	3	60	68	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	1	-	-	-6	5	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	0	2	2	11	2	0
Mvmt Flow	0	42	4	71	80	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	159	80	80	0	-	0
Stage 1	80	-	-	-	-	-
Stage 2	79	-	-	-	-	-
Critical Hdwy	7.6	6.5	4.9	-	-	-
Critical Hdwy Stg 1	5.6	-	-	-	-	-
Critical Hdwy Stg 2	5.6	-	-	-	-	-
Follow-up Hdwy	3	3.4	3.5	-	-	-
Pot Cap-1 Maneuver	916	951	959	-	-	-
Stage 1	1095	-	-	-	-	-
Stage 2	1097	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	912	951	959	-	-	-
Mov Cap-2 Maneuver	912	-	-	-	-	-
Stage 1	1091	-	-	-	-	-
Stage 2	1097	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9	0.4	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	959	-	951	-	-
HCM Lane V/C Ratio	0.004	-	0.045	-	-
HCM Control Delay (s)	8.8	0	9	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	11	49	24	12	62	44
Future Volume (vph)	11	49	24	12	62	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11
Grade (%)		2%	-2%		-1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.955		0.944	
Flt Protected		0.991			0.972	
Satd. Flow (prot)	0	1648	1737	0	1660	0
Flt Permitted		0.991			0.972	
Satd. Flow (perm)	0	1648	1737	0	1660	0
Link Speed (mph)		35	35		15	
Link Distance (ft)		796	782		174	
Travel Time (s)		15.5	15.2		7.9	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles (%)	2%	11%	2%	2%	2%	2%
Adj. Flow (vph)	13	58	28	14	73	52
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	71	42	0	125	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		11	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.06	1.06	1.03	1.03	1.04	1.04
Turning Speed (mph)	60			60	60	60
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 22.6%		ICU Level of Service A	
Analysis Period (min) 15			

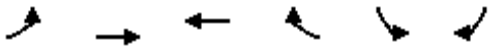
Intersection	
Int Delay, s/veh	5.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	11	49	24	12	62	44
Future Vol, veh/h	11	49	24	12	62	44
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	-2	-	-1	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	11	2	2	2	2
Mvmt Flow	13	58	28	14	73	52

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	42	0	-	0	119	35
Stage 1	-	-	-	-	35	-
Stage 2	-	-	-	-	84	-
Critical Hdwy	4.9	-	-	-	7.2	6.3
Critical Hdwy Stg 1	-	-	-	-	5.22	-
Critical Hdwy Stg 2	-	-	-	-	5.22	-
Follow-up Hdwy	3.5	-	-	-	3	3.4
Pot Cap-1 Maneuver	991	-	-	-	994	1012
Stage 1	-	-	-	-	1157	-
Stage 2	-	-	-	-	1100	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	991	-	-	-	980	1012
Mov Cap-2 Maneuver	-	-	-	-	980	-
Stage 1	-	-	-	-	1141	-
Stage 2	-	-	-	-	1100	-

Approach	EB	WB	SB
HCM Control Delay, s	1.6	0	9.1
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	991	-	-	-	993
HCM Lane V/C Ratio	0.013	-	-	-	0.126
HCM Control Delay (s)	8.7	0	-	-	9.1
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.4



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	2	109	34	8	38	2
Future Volume (vph)	2	109	34	8	38	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11
Grade (%)		6%	-5%		4%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.975		0.994	
Flt Protected		0.999			0.954	
Satd. Flow (prot)	0	1605	1800	0	1673	0
Flt Permitted		0.999			0.954	
Satd. Flow (perm)	0	1605	1800	0	1673	0
Link Speed (mph)		35	35		15	
Link Distance (ft)		782	824		173	
Travel Time (s)		15.2	16.1		7.9	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles (%)	2%	11%	2%	2%	2%	2%
Adj. Flow (vph)	2	128	40	9	45	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	130	49	0	47	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		11	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.01	1.01	1.07	1.07
Turning Speed (mph)	60			60	60	60
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	17.3%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	2	109	34	8	38	2
Future Vol, veh/h	2	109	34	8	38	2
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, %	-	6	-5	-	4	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	11	2	2	2	2
Mvmt Flow	2	128	40	9	45	2

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	49	0	-	0	177	45
Stage 1	-	-	-	-	45	-
Stage 2	-	-	-	-	132	-
Critical Hdwy	4.9	-	-	-	8.2	6.8
Critical Hdwy Stg 1	-	-	-	-	6.22	-
Critical Hdwy Stg 2	-	-	-	-	6.22	-
Follow-up Hdwy	3.5	-	-	-	3	3.4
Pot Cap-1 Maneuver	985	-	-	-	862	993
Stage 1	-	-	-	-	1131	-
Stage 2	-	-	-	-	1009	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	985	-	-	-	860	993
Mov Cap-2 Maneuver	-	-	-	-	860	-
Stage 1	-	-	-	-	1129	-
Stage 2	-	-	-	-	1009	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	9.4
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	985	-	-	-	866
HCM Lane V/C Ratio	0.002	-	-	-	0.054
HCM Control Delay (s)	8.7	0	-	-	9.4
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.2

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	3875
Vehs Exited	3852
Starting Vehs	0
Ending Vehs	23
Travel Distance (mi)	566
Travel Time (hr)	32.3
Total Delay (hr)	12.9
Total Stops	1539
Fuel Used (gal)	25.3

Interval #0 Information Seeding

Start Time	7:00
End Time	7:15
Total Time (min)	15

Volumes adjusted by PHF.

Vehs Entered	888
Vehs Exited	863
Starting Vehs	0
Ending Vehs	25
Travel Distance (mi)	129
Travel Time (hr)	7.4
Total Delay (hr)	3.0
Total Stops	335
Fuel Used (gal)	5.7

Interval #1 Information

Start Time	7:15
End Time	7:30
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	752
Vehs Exited	746
Starting Vehs	25
Ending Vehs	31
Travel Distance (mi)	110
Travel Time (hr)	6.4
Total Delay (hr)	2.6
Total Stops	318
Fuel Used (gal)	5.0

Interval #2 Information

Start Time	7:30
End Time	7:45
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	752
Vehs Exited	760
Starting Vehs	31
Ending Vehs	23
Travel Distance (mi)	107
Travel Time (hr)	6.6
Total Delay (hr)	2.9
Total Stops	322
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	748
Vehs Exited	737
Starting Vehs	23
Ending Vehs	34
Travel Distance (mi)	108
Travel Time (hr)	5.8
Total Delay (hr)	2.1
Total Stops	280
Fuel Used (gal)	4.7

Interval #4 Information Recording

Start Time	8:00
End Time	8:15
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	735
Vehs Exited	746
Starting Vehs	34
Ending Vehs	23
Travel Distance (mi)	112
Travel Time (hr)	6.2
Total Delay (hr)	2.3
Total Stops	284
Fuel Used (gal)	4.8

Intersection: 1: Days Inn Driveway/Country Club Rd & US Route 11 (Harrisburg Pike)

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB
Directions Served	L	T	TR	L	T	TR	LT	R	LTR
Maximum Queue (ft)	113	348	334	106	326	331	51	50	215
Average Queue (ft)	44	200	153	29	196	128	11	15	73
95th Queue (ft)	97	399	341	71	369	303	35	42	153
Link Distance (ft)		295	295		292	292	219		315
Upstream Blk Time (%)		6	3		4	1			
Queuing Penalty (veh)		0	0		0	0			
Storage Bay Dist (ft)	270			152				50	
Storage Blk Time (%)		7			12		1	1	
Queuing Penalty (veh)		4			3		0	0	

Intersection: 2: Bernheisel Bridge Rd & Country Club Rd

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	54	31
Average Queue (ft)	32	0
95th Queue (ft)	46	0
Link Distance (ft)	350	304
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Bernheisel Bridge Rd & Green Hill Rd

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	75	31
Average Queue (ft)	30	10
95th Queue (ft)	57	33
Link Distance (ft)	376	290
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: Country Club Rd & Western Driveway

Movement	EB
Directions Served	LR
Maximum Queue (ft)	55
Average Queue (ft)	27
95th Queue (ft)	49
Link Distance (ft)	316
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 5: Country Club Rd & Main Driveway

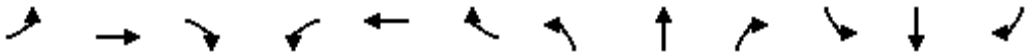
Movement	SB
Directions Served	LR
Maximum Queue (ft)	80
Average Queue (ft)	33
95th Queue (ft)	59
Link Distance (ft)	142
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 6: Country Club Rd & Eastern Driveway

Movement	SB
Directions Served	LR
Maximum Queue (ft)	48
Average Queue (ft)	25
95th Queue (ft)	42
Link Distance (ft)	143
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 7

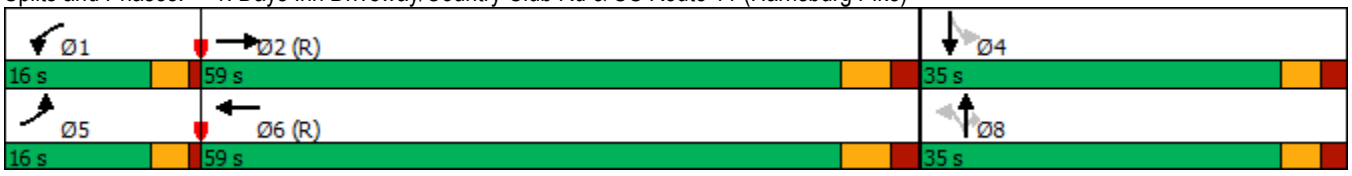


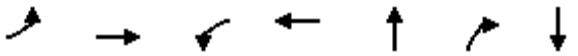
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	42	659	11	19	732	40	9	2	20	48	1	82
Future Volume (vph)	42	659	11	19	732	40	9	2	20	48	1	82
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12	14	14	14	11	11	11
Grade (%)		-1%			2%			-2%			4%	
Storage Length (ft)	270		0	152		0	0		50	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor									0.99		1.00	
Frt		0.998			0.992				0.850		0.916	
Flt Protected	0.950			0.950				0.960			0.982	
Satd. Flow (prot)	1685	2890	0	1282	2867	0	0	1573	1648	0	1504	0
Flt Permitted	0.950			0.950				0.699			0.874	
Satd. Flow (perm)	1685	2890	0	1282	2867	0	0	1145	1627	0	1338	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			7				74		75	
Link Speed (mph)		35			35			25			35	
Link Distance (ft)		326			335			267			374	
Travel Time (s)		6.4			6.5			7.3			7.3	
Confl. Peds. (#/hr)									1	1		
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 (%)	2%	19%	0%	32%	18%	2%	22%	0%	0%	2%	0%	2%
Adj. Flow (vph)	46	724	12	21	804	44	10	2	22	53	1	90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	46	736	0	21	848	0	0	12	22	0	144	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)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.09	1.09	1.09	0.97	0.97	0.97	1.15	1.15	1.15
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1	1	1	1	
Detector Template							Left			Left		
Leading Detector (ft)	35	256		35	256		20	35	35	20	35	
Trailing Detector (ft)	-5	250		-5	250		0	-5	-5	0	-5	
Detector 1 Position(ft)	-5	250		-5	250		0	-5	-5	0	-5	
Detector 1 Size(ft)	40	6		40	6		20	40	40	20	40	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	3.0	6.0		3.0	6.0		0.0	3.0	3.0	0.0	3.0	
Detector 1 Queue (s)	0.0	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	0.0	
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8		8	4		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2		1	6		8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	3.0	10.0		3.0	10.0		5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	7.0	16.5		7.0	16.5		10.6	10.6	10.6	10.6	10.6	
Total Split (s)	16.0	59.0		16.0	59.0		35.0	35.0	35.0	35.0	35.0	
Total Split (%)	14.5%	53.6%		14.5%	53.6%		31.8%	31.8%	31.8%	31.8%	31.8%	
Maximum Green (s)	12.0	52.5		12.0	52.5		29.4	29.4	29.4	29.4	29.4	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.3	3.3	3.3	3.3	3.3	
All-Red Time (s)	1.0	2.5		1.0	2.5		2.3	2.3	2.3	2.3	2.3	
Lost Time Adjust (s)	-0.5	-1.0		-0.5	-1.0			-1.0	-1.0		-1.0	
Total Lost Time (s)	3.5	5.5		3.5	5.5			4.6	4.6		4.6	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		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)	0.0	30.0		0.0	30.0		0.0	0.0	0.0	0.0	0.0	
Time To Reduce (s)	0.0	15.0		0.0	15.0		0.0	0.0	0.0	0.0	0.0	
Recall Mode	None	C-Min		None	C-Min		None	None	None	None	None	
Walk Time (s)		7.0			7.0		7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)		18.0			18.0		26.0	26.0	26.0	26.0	26.0	
Pedestrian Calls (#/hr)		0			0		0	0	0	0	0	
Act Effct Green (s)	9.0	81.9		8.0	76.6			12.7	12.7		12.7	
Actuated g/C Ratio	0.08	0.74		0.07	0.70			0.12	0.12		0.12	
v/c Ratio	0.33	0.34		0.23	0.42			0.09	0.09		0.65	
Control Delay	53.4	7.0		53.1	9.4			41.7	0.7		36.4	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay	53.4	7.0		53.1	9.4			41.7	0.7		36.4	
LOS	D	A		D	A			D	A		D	
Approach Delay		9.7			10.5			15.2			36.4	
Approach LOS		A			B			B			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 16 (15%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 45			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.65			
Intersection Signal Delay: 12.3		Intersection LOS: B	
Intersection Capacity Utilization 52.6%		ICU Level of Service A	
Analysis Period (min) 15			

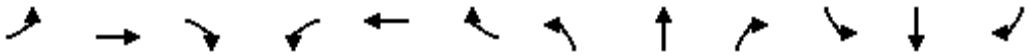
Splits and Phases: 1: Days Inn Driveway/Country Club Rd & US Route 11 (Harrisburg Pike)





Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	46	736	21	848	12	22	144
v/c Ratio	0.33	0.34	0.23	0.42	0.09	0.09	0.65
Control Delay	53.4	7.0	53.1	9.4	41.7	0.7	36.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.4	7.0	53.1	9.4	41.7	0.7	36.4
Queue Length 50th (ft)	31	58	14	125	8	0	46
Queue Length 95th (ft)	67	178	39	223	25	0	107
Internal Link Dist (ft)		246		255	187		294
Turn Bay Length (ft)	270		152			50	
Base Capacity (vph)	191	2152	145	1999	316	503	424
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.34	0.14	0.42	0.04	0.04	0.34

Intersection Summary



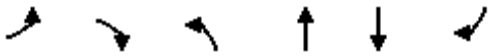
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	42	659	11	19	732	40	9	2	20	48	1	82
Future Volume (veh/h)	42	659	11	19	732	40	9	2	20	48	1	82
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	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	1809	1567	1837	1328	1525	1750	1624	1950	1950	1683	1711	1683
Adj Flow Rate, veh/h	46	724	12	21	804	44	10	2	22	53	1	90
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, %	2	19	0	32	18	2	22	0	0	2	0	2
Cap, veh/h	66	2161	36	27	1965	108	184	32	221	101	14	118
Arrive On Green	0.04	0.72	0.71	0.02	0.70	0.69	0.13	0.13	0.13	0.13	0.13	0.13
Sat Flow, veh/h	1723	2997	50	1265	2793	153	920	241	1648	422	104	876
Grp Volume(v), veh/h	46	360	376	21	417	431	12	0	22	144	0	0
Grp Sat Flow(s),veh/h/ln	1723	1489	1558	1265	1449	1497	1160	0	1648	1402	0	0
Q Serve(g_s), s	2.9	9.8	9.8	1.8	13.2	13.2	0.0	0.0	1.3	8.7	0.0	0.0
Cycle Q Clear(g_c), s	2.9	9.8	9.8	1.8	13.2	13.2	0.8	0.0	1.3	11.0	0.0	0.0
Prop In Lane	1.00		0.03	1.00		0.10	0.83		1.00	0.37		0.62
Lane Grp Cap(c), veh/h	66	1073	1123	27	1019	1054	205	0	221	220	0	0
V/C Ratio(X)	0.69	0.33	0.34	0.79	0.41	0.41	0.06	0.00	0.10	0.65	0.00	0.00
Avail Cap(c_a), veh/h	196	1073	1123	144	1019	1054	409	0	456	416	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	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	52.2	5.6	5.7	53.6	6.8	6.8	41.9	0.0	41.8	46.3	0.0	0.0
Incr Delay (d2), s/veh	12.3	0.8	0.8	38.8	1.2	1.2	0.1	0.0	0.2	3.3	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	1.5	2.8	2.9	0.9	3.8	4.0	0.3	0.0	0.5	4.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.5	6.5	6.5	92.4	8.0	8.0	42.0	0.0	42.0	49.6	0.0	0.0
LnGrp LOS	E	A	A	F	A	A	D	A	D	D	A	A
Approach Vol, veh/h		782			869			34			144	
Approach Delay, s/veh		9.9			10.0			42.0			49.6	
Approach LOS		A			B			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.8	84.8		19.4	7.7	82.9		19.4				
Change Period (Y+Rc), s	4.0	6.5		5.6	4.0	6.5		5.6				
Max Green Setting (Gmax), s	12.0	52.5		29.4	12.0	52.5		29.4				
Max Q Clear Time (g_c+I1), s	3.8	11.8		13.0	4.9	15.2		3.3				
Green Ext Time (p_c), s	0.0	13.3		0.4	0.0	15.4		0.1				

Intersection Summary		
HCM 6th Ctrl Delay		13.7
HCM 6th LOS		B

Notes

User approved pedestrian interval to be less than phase max green.



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	116	23	7	43	49	39
Future Volume (vph)	116	23	7	43	49	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11
Grade (%)	8%			4%	-4%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.977				0.940	
Flt Protected	0.960			0.993		
Satd. Flow (prot)	1621	0	0	1782	1708	0
Flt Permitted	0.960			0.993		
Satd. Flow (perm)	1621	0	0	1782	1708	0
Link Speed (mph)	35			30	30	
Link Distance (ft)	387			334	240	
Travel Time (s)	7.5			7.6	5.5	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	2%	2%	2%	0%	4%	2%
Adj. Flow (vph)	135	27	8	50	57	45
Shared Lane Traffic (%)						
Lane Group Flow (vph)	162	0	0	58	102	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	11			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.10	1.10	1.07	1.07	1.02	1.02
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	22.7%	ICU Level of Service	A
Analysis Period (min)	15		

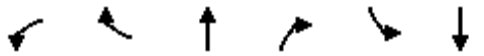
Intersection	
Int Delay, s/veh	5.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	116	23	7	43	49	39
Future Vol, veh/h	116	23	7	43	49	39
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	8	-	-	4	-4	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	0	4	2
Mvmt Flow	135	27	8	50	57	45

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	146	80	102	0	-	0
Stage 1	80	-	-	-	-	-
Stage 2	66	-	-	-	-	-
Critical Hdwy	9	7.2	4.9	-	-	-
Critical Hdwy Stg 1	7.02	-	-	-	-	-
Critical Hdwy Stg 2	7.02	-	-	-	-	-
Follow-up Hdwy	3	3.4	3.5	-	-	-
Pot Cap-1 Maneuver	885	937	940	-	-	-
Stage 1	1061	-	-	-	-	-
Stage 2	1084	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	877	937	940	-	-	-
Mov Cap-2 Maneuver	877	-	-	-	-	-
Stage 1	1051	-	-	-	-	-
Stage 2	1084	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10	1.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	940	-	886	-	-
HCM Lane V/C Ratio	0.009	-	0.182	-	-
HCM Control Delay (s)	8.9	0	10	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.7	-	-



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	14	46	104	54	24	74
Future Volume (vph)	14	46	104	54	24	74
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11
Grade (%)	0%		2%			2%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.897		0.954			
Flt Protected	0.988					0.988
Satd. Flow (prot)	1620	0	1701	0	0	1783
Flt Permitted	0.988					0.988
Satd. Flow (perm)	1620	0	1701	0	0	1783
Link Speed (mph)	35		30			30
Link Distance (ft)	417		240			323
Travel Time (s)	8.1		5.5			7.3
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	2%	0%	2%	2%	3%	0%
Adj. Flow (vph)	15	49	112	58	26	80
Shared Lane Traffic (%)						
Lane Group Flow (vph)	64	0	170	0	0	106
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	11		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.04	1.04	1.06	1.06	1.06	1.06
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	27.6%	ICU Level of Service	A
Analysis Period (min)	15		

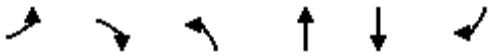
Intersection	
Int Delay, s/veh	2.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	14	46	104	54	24	74
Future Vol, veh/h	14	46	104	54	24	74
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	2	-	-	2
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	0	2	2	3	0
Mvmt Flow	15	49	112	58	26	80

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	273	141	0	0	170	0
Stage 1	141	-	-	-	-	-
Stage 2	132	-	-	-	-	-
Critical Hdwy	7.4	6.4	-	-	4.9	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3	3.4	-	-	3.5	-
Pot Cap-1 Maneuver	765	880	-	-	885	-
Stage 1	1029	-	-	-	-	-
Stage 2	1039	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	741	880	-	-	885	-
Mov Cap-2 Maneuver	741	-	-	-	-	-
Stage 1	1029	-	-	-	-	-
Stage 2	1007	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.6	0	2.3
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	843	885	-
HCM Lane V/C Ratio	-	-	0.077	0.029	-
HCM Control Delay (s)	-	-	9.6	9.2	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0.1	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	36	3	59	55	0
Future Volume (vph)	0	36	3	59	55	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11
Grade (%)	1%			-6%	5%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865					
Flt Protected				0.997		
Satd. Flow (prot)	1550	0	0	1815	1756	0
Flt Permitted				0.997		
Satd. Flow (perm)	1550	0	0	1815	1756	0
Link Speed (mph)	15			35	35	
Link Distance (ft)	345			514	796	
Travel Time (s)	15.7			10.0	15.5	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles (%)	0%	2%	2%	4%	2%	0%
Adj. Flow (vph)	0	43	4	70	65	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	43	0	0	74	65	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	11			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.05	1.05	1.01	1.01	1.08	1.08
Turning Speed (mph)	60	60	60			60
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	15.5%	ICU Level of Service	A
Analysis Period (min)	15		

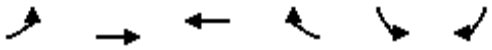
Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	36	3	59	55	0
Future Vol, veh/h	0	36	3	59	55	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	1	-	-	-6	5	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	0	2	2	4	2	0
Mvmt Flow	0	43	4	70	65	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	143	65	65	0	-	0
Stage 1	65	-	-	-	-	-
Stage 2	78	-	-	-	-	-
Critical Hdwy	7.6	6.5	4.9	-	-	-
Critical Hdwy Stg 1	5.6	-	-	-	-	-
Critical Hdwy Stg 2	5.6	-	-	-	-	-
Follow-up Hdwy	3	3.4	3.5	-	-	-
Pot Cap-1 Maneuver	941	971	972	-	-	-
Stage 1	1114	-	-	-	-	-
Stage 2	1098	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	937	971	972	-	-	-
Mov Cap-2 Maneuver	937	-	-	-	-	-
Stage 1	1110	-	-	-	-	-
Stage 2	1098	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.9	0.4	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	972	-	971	-	-
HCM Lane V/C Ratio	0.004	-	0.044	-	-
HCM Control Delay (s)	8.7	0	8.9	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	11	48	11	12	62	44
Future Volume (vph)	11	48	11	12	62	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11
Grade (%)		2%	-2%		-1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.930		0.944	
Flt Protected		0.991			0.971	
Satd. Flow (prot)	0	1760	1691	0	1659	0
Flt Permitted		0.991			0.971	
Satd. Flow (perm)	0	1760	1691	0	1659	0
Link Speed (mph)		35	35		15	
Link Distance (ft)		796	782		174	
Travel Time (s)		15.5	15.2		7.9	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles (%)	4%	2%	2%	2%	2%	2%
Adj. Flow (vph)	13	57	13	14	74	52
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	70	27	0	126	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		11	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.06	1.06	1.03	1.03	1.04	1.04
Turning Speed (mph)	60			60	60	60
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 22.6%		ICU Level of Service A	
Analysis Period (min) 15			

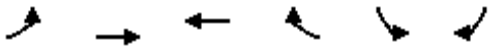
Intersection	
Int Delay, s/veh	5.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	11	48	11	12	62	44
Future Vol, veh/h	11	48	11	12	62	44
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	-2	-	-1	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	4	2	2	2	2	2
Mvmt Flow	13	57	13	14	74	52

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	27	0	-	0	103	20
Stage 1	-	-	-	-	20	-
Stage 2	-	-	-	-	83	-
Critical Hdwy	4.9	-	-	-	7.2	6.3
Critical Hdwy Stg 1	-	-	-	-	5.22	-
Critical Hdwy Stg 2	-	-	-	-	5.22	-
Follow-up Hdwy	3.5	-	-	-	3	3.4
Pot Cap-1 Maneuver	1005	-	-	-	1019	1032
Stage 1	-	-	-	-	1175	-
Stage 2	-	-	-	-	1101	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1005	-	-	-	1006	1032
Mov Cap-2 Maneuver	-	-	-	-	1006	-
Stage 1	-	-	-	-	1160	-
Stage 2	-	-	-	-	1101	-

Approach	EB	WB	SB
HCM Control Delay, s	1.6	0	9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1005	-	-	-	1017
HCM Lane V/C Ratio	0.013	-	-	-	0.124
HCM Control Delay (s)	8.6	0	-	-	9
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.4



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	2	108	21	8	38	2
Future Volume (vph)	2	108	21	8	38	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11
Grade (%)		6%	-5%		4%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.961		0.994	
Flt Protected		0.999			0.954	
Satd. Flow (prot)	0	1712	1774	0	1673	0
Flt Permitted		0.999			0.954	
Satd. Flow (perm)	0	1712	1774	0	1673	0
Link Speed (mph)		35	35		15	
Link Distance (ft)		782	824		173	
Travel Time (s)		15.2	16.1		7.9	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles (%)	2%	4%	2%	2%	2%	2%
Adj. Flow (vph)	2	129	25	10	45	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	131	35	0	47	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		11	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.01	1.01	1.07	1.07
Turning Speed (mph)	60			60	60	60
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	17.3%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	2	108	21	8	38	2
Future Vol, veh/h	2	108	21	8	38	2
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, %	-	6	-5	-	4	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	2	4	2	2	2	2
Mvmt Flow	2	129	25	10	45	2

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	35	0	-	0	163	30
Stage 1	-	-	-	-	30	-
Stage 2	-	-	-	-	133	-
Critical Hdwy	4.9	-	-	-	8.2	6.8
Critical Hdwy Stg 1	-	-	-	-	6.22	-
Critical Hdwy Stg 2	-	-	-	-	6.22	-
Follow-up Hdwy	3.5	-	-	-	3	3.4
Pot Cap-1 Maneuver	998	-	-	-	885	1015
Stage 1	-	-	-	-	1154	-
Stage 2	-	-	-	-	1007	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	998	-	-	-	883	1015
Mov Cap-2 Maneuver	-	-	-	-	883	-
Stage 1	-	-	-	-	1152	-
Stage 2	-	-	-	-	1007	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	9.3
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	998	-	-	-	889
HCM Lane V/C Ratio	0.002	-	-	-	0.054
HCM Control Delay (s)	8.6	0	-	-	9.3
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.2

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	2825
Vehs Exited	2814
Starting Vehs	0
Ending Vehs	11
Travel Distance (mi)	430
Travel Time (hr)	23.7
Total Delay (hr)	8.6
Total Stops	1243
Fuel Used (gal)	18.9

Interval #0 Information Seeding

Start Time	7:00
End Time	7:15
Total Time (min)	15

Volumes adjusted by PHF.

Vehs Entered	625
Vehs Exited	601
Starting Vehs	0
Ending Vehs	24
Travel Distance (mi)	97
Travel Time (hr)	5.4
Total Delay (hr)	2.0
Total Stops	268
Fuel Used (gal)	4.3

Interval #1 Information

Start Time	7:15
End Time	7:30
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	565
Vehs Exited	578
Starting Vehs	24
Ending Vehs	11
Travel Distance (mi)	86
Travel Time (hr)	5.2
Total Delay (hr)	2.1
Total Stops	270
Fuel Used (gal)	4.0

Interval #2 Information

Start Time	7:30
End Time	7:45
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	559
Vehs Exited	551
Starting Vehs	11
Ending Vehs	19
Travel Distance (mi)	83
Travel Time (hr)	4.4
Total Delay (hr)	1.5
Total Stops	236
Fuel Used (gal)	3.6

Interval #3 Information

Start Time	7:45
End Time	8:00
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	537
Vehs Exited	538
Starting Vehs	19
Ending Vehs	18
Travel Distance (mi)	81
Travel Time (hr)	4.3
Total Delay (hr)	1.5
Total Stops	236
Fuel Used (gal)	3.5

Interval #4 Information Recording

Start Time	8:00
End Time	8:15
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	539
Vehs Exited	546
Starting Vehs	18
Ending Vehs	11
Travel Distance (mi)	84
Travel Time (hr)	4.5
Total Delay (hr)	1.5
Total Stops	233
Fuel Used (gal)	3.6

Intersection: 1: Days Inn Driveway/Country Club Rd & US Route 11 (Harrisburg Pike)

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB
Directions Served	L	T	TR	L	T	TR	LT	R	LTR
Maximum Queue (ft)	86	266	206	119	307	331	100	29	178
Average Queue (ft)	28	121	59	34	147	97	11	11	70
95th Queue (ft)	68	220	146	97	280	210	45	34	138
Link Distance (ft)		295	295		292	292	219		315
Upstream Blk Time (%)					1	0			
Queuing Penalty (veh)					0	0			
Storage Bay Dist (ft)	270			152				50	
Storage Blk Time (%)		0			8		1		
Queuing Penalty (veh)		0			1		0		

Intersection: 2: Bernheisel Bridge Rd & Country Club Rd

Movement	EB
Directions Served	LR
Maximum Queue (ft)	63
Average Queue (ft)	36
95th Queue (ft)	58
Link Distance (ft)	350
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 3: Bernheisel Bridge Rd & Green Hill Rd

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	71	53
Average Queue (ft)	25	7
95th Queue (ft)	43	31
Link Distance (ft)	376	290
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: Country Club Rd & Western Driveway

Movement	EB
Directions Served	LR
Maximum Queue (ft)	56
Average Queue (ft)	25
95th Queue (ft)	53
Link Distance (ft)	316
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 5: Country Club Rd & Main Driveway

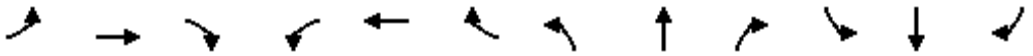
Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	29	102
Average Queue (ft)	1	37
95th Queue (ft)	9	65
Link Distance (ft)	737	142
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 6: Country Club Rd & Eastern Driveway

Movement	SB
Directions Served	LR
Maximum Queue (ft)	66
Average Queue (ft)	26
95th Queue (ft)	52
Link Distance (ft)	143
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 2



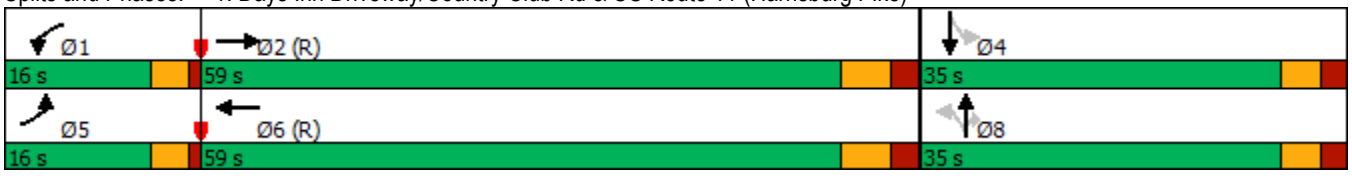
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	1056	10	3	753	20	1	1	17	63	1	33
Future Volume (vph)	22	1056	10	3	753	20	1	1	17	63	1	33
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12	14	14	14	11	11	11
Grade (%)		-1%			2%			-2%			4%	
Storage Length (ft)	270		0	152		0	0		50	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00				1.00							
Frt		0.999			0.996				0.850		0.955	
Flt Protected	0.950			0.950				0.976			0.968	
Satd. Flow (prot)	1494	2794	0	1273	2707	0	0	1893	1459	0	1546	0
Flt Permitted	0.950			0.950				0.894			0.802	
Satd. Flow (perm)	1492	2794	0	1273	2707	0	0	1734	1459	0	1281	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			3				74		23	
Link Speed (mph)		35			35			25			35	
Link Distance (ft)		326			335			267			374	
Travel Time (s)		6.4			6.5			7.3			7.3	
Confl. Peds. (#/hr)	2					2						
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	15%	23%	11%	33%	25%	6%	0%	0%	13%	3%	0%	0%
Adj. Flow (vph)	24	1135	11	3	810	22	1	1	18	68	1	35
Shared Lane Traffic (%)												
Lane Group Flow (vph)	24	1146	0	3	832	0	0	2	18	0	104	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)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.09	1.09	1.09	0.97	0.97	0.97	1.15	1.15	1.15
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1	1	1	1	
Detector Template							Left			Left		
Leading Detector (ft)	35	256		35	256		20	35	35	20	35	
Trailing Detector (ft)	-5	250		-5	250		0	-5	-5	0	-5	
Detector 1 Position(ft)	-5	250		-5	250		0	-5	-5	0	-5	
Detector 1 Size(ft)	40	6		40	6		20	40	40	20	40	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	3.0	6.0		3.0	6.0		0.0	3.0	3.0	0.0	3.0	
Detector 1 Queue (s)	0.0	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	0.0	
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8		8	4		

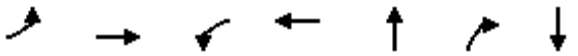
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2		1	6		8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	3.0	10.0		3.0	10.0		5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	7.0	16.5		7.0	16.5		10.6	10.6	10.6	10.6	10.6	
Total Split (s)	16.0	59.0		16.0	59.0		35.0	35.0	35.0	35.0	35.0	
Total Split (%)	14.5%	53.6%		14.5%	53.6%		31.8%	31.8%	31.8%	31.8%	31.8%	
Maximum Green (s)	12.0	52.5		12.0	52.5		29.4	29.4	29.4	29.4	29.4	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.3	3.3	3.3	3.3	3.3	
All-Red Time (s)	1.0	2.5		1.0	2.5		2.3	2.3	2.3	2.3	2.3	
Lost Time Adjust (s)	-0.5	-1.0		-0.5	-1.0			-1.0	-1.0		-1.0	
Total Lost Time (s)	3.5	5.5		3.5	5.5			4.6	4.6		4.6	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		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)	0.0	30.0		0.0	30.0		0.0	0.0	0.0	0.0	0.0	
Time To Reduce (s)	0.0	15.0		0.0	15.0		0.0	0.0	0.0	0.0	0.0	
Recall Mode	None	C-Min		None	C-Min		None	None	None	None	None	
Walk Time (s)		7.0			7.0		7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)		18.0			18.0		26.0	26.0	26.0	26.0	26.0	
Pedestrian Calls (#/hr)		0			0		0	0	0	0	0	
Act Effct Green (s)	7.9	84.4		6.5	79.1			13.4	13.4		13.4	
Actuated g/C Ratio	0.07	0.77		0.06	0.72			0.12	0.12		0.12	
v/c Ratio	0.22	0.54		0.04	0.43			0.01	0.07		0.59	
Control Delay	52.4	7.5		49.7	8.7			39.0	0.6		48.2	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay	52.4	7.5		49.7	8.7			39.0	0.6		48.2	
LOS	D	A		D	A			D	A		D	
Approach Delay		8.5			8.9			4.4			48.2	
Approach LOS		A			A			A			D	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 16 (15%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.59
Intersection Signal Delay: 10.5 Intersection LOS: B
Intersection Capacity Utilization 53.4% ICU Level of Service A
Analysis Period (min) 15

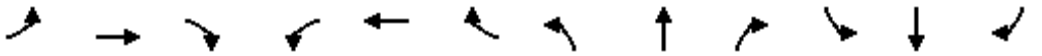
Splits and Phases: 1: Days Inn Driveway/Country Club Rd & US Route 11 (Harrisburg Pike)





Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	24	1146	3	832	2	18	104
v/c Ratio	0.22	0.54	0.04	0.43	0.01	0.07	0.59
Control Delay	52.4	7.5	49.7	8.7	39.0	0.6	48.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.4	7.5	49.7	8.7	39.0	0.6	48.2
Queue Length 50th (ft)	16	124	2	125	1	0	54
Queue Length 95th (ft)	43	316	12	214	8	0	106
Internal Link Dist (ft)		246		255	187		294
Turn Bay Length (ft)	270		152			50	
Base Capacity (vph)	169	2142	144	1946	479	456	370
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.54	0.02	0.43	0.00	0.04	0.28

Intersection Summary



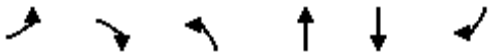
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	1056	10	3	753	20	1	1	17	63	1	33
Future Volume (veh/h)	22	1056	10	3	753	20	1	1	17	63	1	33
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	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	1624	1510	1681	1314	1427	1693	1950	1950	1757	1669	1711	1711
Adj Flow Rate, veh/h	24	1135	11	3	810	22	1	1	18	68	1	35
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	15	23	11	33	25	6	0	0	13	3	0	0
Cap, veh/h	34	2232	22	9	2025	55	120	108	153	138	8	47
Arrive On Green	0.02	0.77	0.76	0.01	0.75	0.74	0.09	0.10	0.10	0.09	0.10	0.09
Sat Flow, veh/h	1547	2912	28	1252	2696	73	685	1052	1489	817	79	454
Grp Volume(v), veh/h	24	559	587	3	407	425	2	0	18	104	0	0
Grp Sat Flow(s),veh/h/ln	1547	1435	1505	1252	1355	1413	1737	0	1489	1349	0	0
Q Serve(g_s), s	1.7	16.4	16.4	0.3	11.7	11.8	0.0	0.0	1.2	7.7	0.0	0.0
Cycle Q Clear(g_c), s	1.7	16.4	16.4	0.3	11.7	11.8	0.1	0.0	1.2	8.3	0.0	0.0
Prop In Lane	1.00		0.02	1.00		0.05	0.50		1.00	0.65		0.34
Lane Grp Cap(c), veh/h	34	1100	1154	9	1018	1062	212	0	153	181	0	0
V/C Ratio(X)	0.70	0.51	0.51	0.35	0.40	0.40	0.01	0.00	0.12	0.58	0.00	0.00
Avail Cap(c_a), veh/h	176	1100	1154	142	1018	1062	498	0	412	412	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	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	53.4	4.9	4.9	54.4	4.9	4.9	44.5	0.0	44.8	48.4	0.0	0.0
Incr Delay (d2), s/veh	23.0	1.7	1.6	22.0	1.2	1.1	0.0	0.0	0.3	2.9	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	0.9	4.2	4.4	0.1	2.9	3.1	0.1	0.0	0.5	2.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	76.4	6.6	6.5	76.4	6.0	6.0	44.6	0.0	45.1	51.3	0.0	0.0
LnGrp LOS	E	A	A	E	A	A	D	A	D	D	A	A
Approach Vol, veh/h		1170			835			20			104	
Approach Delay, s/veh		8.0			6.3			45.1			51.3	
Approach LOS		A			A			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.3	89.8		15.9	5.9	88.2		15.9				
Change Period (Y+Rc), s	4.0	6.5		5.6	4.0	6.5		5.6				
Max Green Setting (Gmax), s	12.0	52.5		29.4	12.0	52.5		29.4				
Max Q Clear Time (g_c+I1), s	2.3	18.4		10.3	3.7	13.8		3.2				
Green Ext Time (p_c), s	0.0	21.0		0.3	0.0	15.3		0.0				

Intersection Summary		
HCM 6th Ctrl Delay	9.8	
HCM 6th LOS	A	

Notes

User approved pedestrian interval to be less than phase max green.



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	13	5	1	35	115	41
Future Volume (vph)	13	5	1	35	115	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11
Grade (%)	8%			4%	-4%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.961				0.965	
Flt Protected	0.966			0.999		
Satd. Flow (prot)	1548	0	0	1699	1782	0
Flt Permitted	0.966			0.999		
Satd. Flow (perm)	1548	0	0	1699	1782	0
Link Speed (mph)	35			30	30	
Link Distance (ft)	387			334	240	
Travel Time (s)	7.5			7.6	5.5	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	0%	20%	0%	6%	2%	0%
Adj. Flow (vph)	15	6	1	40	132	47
Shared Lane Traffic (%)						
Lane Group Flow (vph)	21	0	0	41	179	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	11			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.10	1.10	1.07	1.07	1.02	1.02
Turning Speed (mph)	15	9	15			9
Sign Control	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	0.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	13	5	1	35	115	41
Future Vol, veh/h	13	5	1	35	115	41
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	8	-	-	4	-4	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	0	20	0	6	2	0
Mvmt Flow	15	6	1	40	132	47

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	198	156	179	0	-	0
Stage 1	156	-	-	-	-	-
Stage 2	42	-	-	-	-	-
Critical Hdwy	9	7.4	4.9	-	-	-
Critical Hdwy Stg 1	7	-	-	-	-	-
Critical Hdwy Stg 2	7	-	-	-	-	-
Follow-up Hdwy	3	3.6	3.5	-	-	-
Pot Cap-1 Maneuver	793	784	878	-	-	-
Stage 1	945	-	-	-	-	-
Stage 2	1125	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	792	784	878	-	-	-
Mov Cap-2 Maneuver	792	-	-	-	-	-
Stage 1	944	-	-	-	-	-
Stage 2	1125	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.7	0.3	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	878	-	790	-	-
HCM Lane V/C Ratio	0.001	-	0.026	-	-
HCM Control Delay (s)	9.1	0	9.7	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	5	11	38	9	89	152
Future Volume (vph)	5	11	38	9	89	152
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11
Grade (%)	0%		2%			2%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.910		0.975			
Flt Protected	0.984					0.982
Satd. Flow (prot)	1542	0	1730	0	0	1761
Flt Permitted	0.984					0.982
Satd. Flow (perm)	1542	0	1730	0	0	1761
Link Speed (mph)	35		30			30
Link Distance (ft)	417		240			323
Travel Time (s)	8.1		5.5			7.3
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	20%	0%	0%	13%	2%	1%
Adj. Flow (vph)	6	12	43	10	100	171
Shared Lane Traffic (%)						
Lane Group Flow (vph)	18	0	53	0	0	271
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	11		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.04	1.04	1.06	1.06	1.06	1.06
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 29.6%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	3.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	5	11	38	9	89	152
Future Vol, veh/h	5	11	38	9	89	152
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	2	-	-	2
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	20	0	0	13	2	1
Mvmt Flow	6	12	43	10	100	171

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	419	48	0	0	53	0
Stage 1	48	-	-	-	-	-
Stage 2	371	-	-	-	-	-
Critical Hdwy	7.6	6.4	-	-	4.9	-
Critical Hdwy Stg 1	5.6	-	-	-	-	-
Critical Hdwy Stg 2	5.6	-	-	-	-	-
Follow-up Hdwy	3.2	3.4	-	-	3.5	-
Pot Cap-1 Maneuver	556	994	-	-	982	-
Stage 1	1066	-	-	-	-	-
Stage 2	742	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	493	994	-	-	982	-
Mov Cap-2 Maneuver	493	-	-	-	-	-
Stage 1	1066	-	-	-	-	-
Stage 2	658	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.9	0	3.4
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	754	982	-
HCM Lane V/C Ratio	-	-	0.024	0.102	-
HCM Control Delay (s)	-	-	9.9	9.1	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0.3	-

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	2854
Vehs Exited	2846
Starting Vehs	0
Ending Vehs	8
Travel Distance (mi)	370
Travel Time (hr)	18.9
Total Delay (hr)	6.6
Total Stops	722
Fuel Used (gal)	15.6

Interval #0 Information Seeding

Start Time	7:00
End Time	7:15
Total Time (min)	15

Volumes adjusted by PHF.

Vehs Entered	568
Vehs Exited	554
Starting Vehs	0
Ending Vehs	14
Travel Distance (mi)	73
Travel Time (hr)	3.7
Total Delay (hr)	1.3
Total Stops	144
Fuel Used (gal)	3.0

Interval #1 Information

Start Time	7:15
End Time	7:30
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	568
Vehs Exited	575
Starting Vehs	14
Ending Vehs	7
Travel Distance (mi)	75
Travel Time (hr)	4.0
Total Delay (hr)	1.5
Total Stops	171
Fuel Used (gal)	3.3

Interval #2 Information

Start Time	7:30
End Time	7:45
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	571
Vehs Exited	548
Starting Vehs	7
Ending Vehs	30
Travel Distance (mi)	72
Travel Time (hr)	3.7
Total Delay (hr)	1.3
Total Stops	145
Fuel Used (gal)	3.0

Interval #3 Information

Start Time	7:45
End Time	8:00
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	573
Vehs Exited	583
Starting Vehs	30
Ending Vehs	20
Travel Distance (mi)	75
Travel Time (hr)	4.0
Total Delay (hr)	1.5
Total Stops	152
Fuel Used (gal)	3.3

Interval #4 Information Recording

Start Time	8:00
End Time	8:15
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	574
Vehs Exited	586
Starting Vehs	20
Ending Vehs	8
Travel Distance (mi)	76
Travel Time (hr)	3.5
Total Delay (hr)	1.0
Total Stops	110
Fuel Used (gal)	3.0

Intersection: 1: Days Inn Driveway/Country Club Rd & US Route 11 (Harrisburg Pike)

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB
Directions Served	L	T	TR	L	T	TR	LT	R	LTR
Maximum Queue (ft)	92	329	208	30	324	211	27	48	146
Average Queue (ft)	20	131	73	2	131	75	1	9	62
95th Queue (ft)	58	269	168	14	273	186	8	33	112
Link Distance (ft)		295	295		292	292	219		315
Upstream Blk Time (%)		1			1				
Queuing Penalty (veh)		0			0				
Storage Bay Dist (ft)	270			152				50	
Storage Blk Time (%)		1			5			0	
Queuing Penalty (veh)		0			0			0	

Intersection: 2: Bernheisel Bridge Rd & Country Club Rd

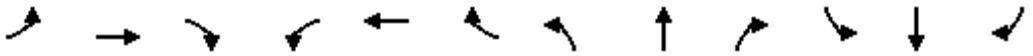
Movement	EB
Directions Served	LR
Maximum Queue (ft)	48
Average Queue (ft)	11
95th Queue (ft)	35
Link Distance (ft)	350
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 3: Bernheisel Bridge Rd & Green Hill Rd

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	48	56
Average Queue (ft)	15	6
95th Queue (ft)	37	29
Link Distance (ft)	376	290
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 0



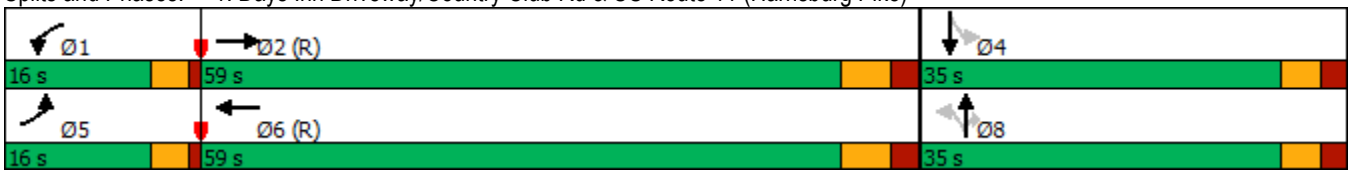
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	47	1299	14	27	942	31	13	0	27	40	1	28
Future Volume (vph)	47	1299	14	27	942	31	13	0	27	40	1	28
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12	14	14	14	11	11	11
Grade (%)		-1%			2%			-2%			4%	
Storage Length (ft)	270		0	152		0	0		50	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		1.00	1.00				0.99		1.00	
Frt		0.998			0.995				0.850		0.946	
Flt Protected	0.950			0.950				0.950			0.972	
Satd. Flow (prot)	1719	2684	0	1459	2685	0	0	1842	1526	0	1453	0
Flt Permitted	0.950			0.950				0.720			0.812	
Satd. Flow (perm)	1718	2684	0	1458	2685	0	0	1396	1505	0	1213	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			4				74		29	
Link Speed (mph)		35			35			25			35	
Link Distance (ft)		326			335			267			374	
Travel Time (s)		6.4			6.5			7.3			7.3	
Confl. Peds. (#/hr)	1		2	2		1			2	2		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	28%	8%	16%	26%	7%	0%	0%	8%	8%	0%	8%
Adj. Flow (vph)	49	1367	15	28	992	33	14	0	28	42	1	29
Shared Lane Traffic (%)												
Lane Group Flow (vph)	49	1382	0	28	1025	0	0	14	28	0	72	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)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.09	1.09	1.09	0.97	0.97	0.97	1.15	1.15	1.15
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1	1	1	1	
Detector Template							Left			Left		
Leading Detector (ft)	35	256		35	256		20	35	35	20	35	
Trailing Detector (ft)	-5	250		-5	250		0	-5	-5	0	-5	
Detector 1 Position(ft)	-5	250		-5	250		0	-5	-5	0	-5	
Detector 1 Size(ft)	40	6		40	6		20	40	40	20	40	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	3.0	6.0		3.0	6.0		0.0	3.0	3.0	0.0	3.0	
Detector 1 Queue (s)	0.0	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	0.0	
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8		8	4		

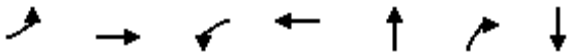
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2		1	6		8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	3.0	10.0		3.0	10.0		5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	7.0	16.5		7.0	16.5		10.6	10.6	10.6	10.6	10.6	
Total Split (s)	16.0	59.0		16.0	59.0		35.0	35.0	35.0	35.0	35.0	
Total Split (%)	14.5%	53.6%		14.5%	53.6%		31.8%	31.8%	31.8%	31.8%	31.8%	
Maximum Green (s)	12.0	52.5		12.0	52.5		29.4	29.4	29.4	29.4	29.4	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.3	3.3	3.3	3.3	3.3	
All-Red Time (s)	1.0	2.5		1.0	2.5		2.3	2.3	2.3	2.3	2.3	
Lost Time Adjust (s)	-0.5	-1.0		-0.5	-1.0			-1.0	-1.0		-1.0	
Total Lost Time (s)	3.5	5.5		3.5	5.5			4.6	4.6		4.6	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		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)	0.0	30.0		0.0	30.0		0.0	0.0	0.0	0.0	0.0	
Time To Reduce (s)	0.0	15.0		0.0	15.0		0.0	0.0	0.0	0.0	0.0	
Recall Mode	None	C-Min		None	C-Min		None	None	None	None	None	
Walk Time (s)		7.0			7.0		7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)		18.0			18.0		26.0	26.0	26.0	26.0	26.0	
Pedestrian Calls (#/hr)		0			0		0	0	0	0	0	
Act Effct Green (s)	9.1	84.8		8.3	81.9			10.6	10.6		10.6	
Actuated g/C Ratio	0.08	0.77		0.08	0.74			0.10	0.10		0.10	
v/c Ratio	0.35	0.67		0.26	0.51			0.10	0.13		0.50	
Control Delay	53.4	11.5		52.9	9.5			44.8	1.3		41.7	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay	53.4	11.5		52.9	9.5			44.8	1.3		41.7	
LOS	D	B		D	A			D	A		D	
Approach Delay		13.0			10.7			15.8			41.7	
Approach LOS		B			B			B			D	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 16 (15%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.67
Intersection Signal Delay: 12.9 Intersection LOS: B
Intersection Capacity Utilization 60.5% ICU Level of Service B
Analysis Period (min) 15

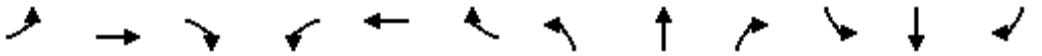
Splits and Phases: 1: Days Inn Driveway/Country Club Rd & US Route 11 (Harrisburg Pike)





Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	49	1382	28	1025	14	28	72
v/c Ratio	0.35	0.67	0.26	0.51	0.10	0.13	0.50
Control Delay	53.4	11.5	52.9	9.5	44.8	1.3	41.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.4	11.5	52.9	9.5	44.8	1.3	41.7
Queue Length 50th (ft)	33	271	19	163	9	0	29
Queue Length 95th (ft)	70	466	48	278	28	0	73
Internal Link Dist (ft)		246		255	187		294
Turn Bay Length (ft)	270		152			50	
Base Capacity (vph)	195	2070	165	1999	385	469	356
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.67	0.17	0.51	0.04	0.06	0.20

Intersection Summary



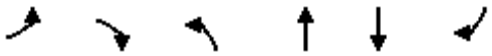
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	47	1299	14	27	942	31	13	0	27	40	1	28
Future Volume (veh/h)	47	1299	14	27	942	31	13	0	27	40	1	28
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	0.99		0.99
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	1837	1439	1724	1553	1413	1679	1950	1950	1831	1598	1711	1598
Adj Flow Rate, veh/h	49	1367	15	28	992	33	14	0	28	42	1	29
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	28	8	16	26	7	0	0	8	8	0	8
Cap, veh/h	71	2109	23	38	1979	66	199	0	137	111	13	49
Arrive On Green	0.04	0.76	0.75	0.03	0.75	0.74	0.08	0.00	0.09	0.08	0.09	0.08
Sat Flow, veh/h	1750	2770	30	1479	2650	88	1492	0	1541	668	147	550
Grp Volume(v), veh/h	49	674	708	28	502	523	14	0	28	72	0	0
Grp Sat Flow(s),veh/h/ln	1750	1367	1434	1479	1342	1397	1492	0	1541	1365	0	0
Q Serve(g_s), s	3.0	25.6	25.6	2.1	16.7	16.7	0.0	0.0	1.9	4.3	0.0	0.0
Cycle Q Clear(g_c), s	3.0	25.6	25.6	2.1	16.7	16.7	0.9	0.0	1.9	5.5	0.0	0.0
Prop In Lane	1.00		0.02	1.00		0.06	1.00		1.00	0.58		0.40
Lane Grp Cap(c), veh/h	71	1041	1091	38	1002	1043	185	0	137	161	0	0
V/C Ratio(X)	0.69	0.65	0.65	0.73	0.50	0.50	0.08	0.00	0.20	0.45	0.00	0.00
Avail Cap(c_a), veh/h	199	1041	1091	168	1002	1043	453	0	426	410	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	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	52.1	6.2	6.2	53.2	5.6	5.7	46.5	0.0	46.5	48.5	0.0	0.0
Incr Delay (d2), s/veh	11.5	3.1	3.0	23.1	1.8	1.7	0.2	0.0	0.7	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	1.5	6.5	6.8	1.0	4.2	4.4	0.4	0.0	0.7	2.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.6	9.3	9.2	76.3	7.4	7.4	46.7	0.0	47.2	50.5	0.0	0.0
LnGrp LOS	E	A	A	E	A	A	D	A	D	D	A	A
Approach Vol, veh/h		1431			1053			42			72	
Approach Delay, s/veh		11.1			9.2			47.0			50.5	
Approach LOS		B			A			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.3	89.2		14.4	7.9	87.6		14.4				
Change Period (Y+Rc), s	4.0	6.5		5.6	4.0	6.5		5.6				
Max Green Setting (Gmax), s	12.0	52.5		29.4	12.0	52.5		29.4				
Max Q Clear Time (g_c+I1), s	4.1	27.6		7.5	5.0	18.7		3.9				
Green Ext Time (p_c), s	0.0	19.8		0.2	0.0	18.5		0.1				

Intersection Summary		
HCM 6th Ctrl Delay		12.0
HCM 6th LOS		B

Notes

User approved pedestrian interval to be less than phase max green.



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	39	3	5	96	56	25
Future Volume (vph)	39	3	5	96	56	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11
Grade (%)	8%			4%	-4%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.991				0.959	
Flt Protected	0.955			0.998		
Satd. Flow (prot)	1669	0	0	1763	1728	0
Flt Permitted	0.955			0.998		
Satd. Flow (perm)	1669	0	0	1763	1728	0
Link Speed (mph)	35			30	30	
Link Distance (ft)	387			334	240	
Travel Time (s)	7.5			7.6	5.5	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	0%	0%	2%	0%	13%
Adj. Flow (vph)	43	3	5	105	62	27
Shared Lane Traffic (%)						
Lane Group Flow (vph)	46	0	0	110	89	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	11			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.10	1.10	1.07	1.07	1.02	1.02
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	19.1%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	39	3	5	96	56	25
Future Vol, veh/h	39	3	5	96	56	25
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	8	-	-	4	-4	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	0	0	0	2	0	13
Mvmt Flow	43	3	5	105	62	27

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	191	76	89	0	-	0
Stage 1	76	-	-	-	-	-
Stage 2	115	-	-	-	-	-
Critical Hdwy	9	7.2	4.9	-	-	-
Critical Hdwy Stg 1	7	-	-	-	-	-
Critical Hdwy Stg 2	7	-	-	-	-	-
Follow-up Hdwy	3	3.4	3.5	-	-	-
Pot Cap-1 Maneuver	805	943	951	-	-	-
Stage 1	1068	-	-	-	-	-
Stage 2	1006	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	800	943	951	-	-	-
Mov Cap-2 Maneuver	800	-	-	-	-	-
Stage 1	1062	-	-	-	-	-
Stage 2	1006	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.7	0.4	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	951	-	809	-	-
HCM Lane V/C Ratio	0.006	-	0.057	-	-
HCM Control Delay (s)	8.8	0	9.7	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	9	80	121	12	41	73
Future Volume (vph)	9	80	121	12	41	73
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11
Grade (%)	0%		2%			2%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.879		0.988			
Flt Protected	0.995					0.982
Satd. Flow (prot)	1585	0	1764	0	0	1752
Flt Permitted	0.995					0.982
Satd. Flow (perm)	1585	0	1764	0	0	1752
Link Speed (mph)	35		30			30
Link Distance (ft)	417		240			323
Travel Time (s)	8.1		5.5			7.3
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles (%)	13%	0%	2%	0%	0%	3%
Adj. Flow (vph)	11	96	146	14	49	88
Shared Lane Traffic (%)						
Lane Group Flow (vph)	107	0	160	0	0	137
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	11		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.04	1.04	1.06	1.06	1.06	1.06
Turning Speed (mph)	15	9		9	15	
Sign Control	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	3.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	9	80	121	12	41	73
Future Vol, veh/h	9	80	121	12	41	73
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	2	-	-	2
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	13	0	2	0	0	3
Mvmt Flow	11	96	146	14	49	88

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	339	153	0	0	160	0
Stage 1	153	-	-	-	-	-
Stage 2	186	-	-	-	-	-
Critical Hdwy	7.5	6.4	-	-	4.9	-
Critical Hdwy Stg 1	5.53	-	-	-	-	-
Critical Hdwy Stg 2	5.53	-	-	-	-	-
Follow-up Hdwy	3.1	3.4	-	-	3.5	-
Pot Cap-1 Maneuver	661	866	-	-	893	-
Stage 1	980	-	-	-	-	-
Stage 2	944	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	623	866	-	-	893	-
Mov Cap-2 Maneuver	623	-	-	-	-	-
Stage 1	980	-	-	-	-	-
Stage 2	889	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10	0	3.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	833	893	-
HCM Lane V/C Ratio	-	-	0.129	0.055	-
HCM Control Delay (s)	-	-	10	9.3	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.4	0.2	-

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	3556
Vehs Exited	3520
Starting Vehs	0
Ending Vehs	36
Travel Distance (mi)	455
Travel Time (hr)	26.1
Total Delay (hr)	10.8
Total Stops	1195
Fuel Used (gal)	20.5

Interval #0 Information Seeding

Start Time	7:00
End Time	7:15
Total Time (min)	15

Volumes adjusted by PHF.

Vehs Entered	734
Vehs Exited	720
Starting Vehs	0
Ending Vehs	14
Travel Distance (mi)	94
Travel Time (hr)	5.1
Total Delay (hr)	1.9
Total Stops	224
Fuel Used (gal)	4.3

Interval #1 Information

Start Time	7:15
End Time	7:30
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	682
Vehs Exited	683
Starting Vehs	14
Ending Vehs	13
Travel Distance (mi)	87
Travel Time (hr)	5.5
Total Delay (hr)	2.6
Total Stops	216
Fuel Used (gal)	4.0

Interval #2 Information

Start Time	7:30
End Time	7:45
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	708
Vehs Exited	705
Starting Vehs	13
Ending Vehs	16
Travel Distance (mi)	91
Travel Time (hr)	4.7
Total Delay (hr)	1.6
Total Stops	199
Fuel Used (gal)	3.8

Interval #3 Information

Start Time	7:45
End Time	8:00
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	709
Vehs Exited	712
Starting Vehs	16
Ending Vehs	13
Travel Distance (mi)	91
Travel Time (hr)	5.3
Total Delay (hr)	2.3
Total Stops	279
Fuel Used (gal)	4.3

Interval #4 Information Recording

Start Time	8:00
End Time	8:15
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	723
Vehs Exited	700
Starting Vehs	13
Ending Vehs	36
Travel Distance (mi)	91
Travel Time (hr)	5.5
Total Delay (hr)	2.4
Total Stops	277
Fuel Used (gal)	4.1

Intersection: 1: Days Inn Driveway/Country Club Rd & US Route 11 (Harrisburg Pike)

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB
Directions Served	L	T	TR	L	T	TR	LT	R	LTR
Maximum Queue (ft)	87	347	310	176	344	308	93	53	227
Average Queue (ft)	33	215	129	35	202	123	15	18	54
95th Queue (ft)	74	362	285	111	343	270	51	48	125
Link Distance (ft)		295	295		292	292	219		315
Upstream Blk Time (%)		3	1		2	0			
Queuing Penalty (veh)		0	0		0	0			
Storage Bay Dist (ft)	270			152				50	
Storage Blk Time (%)		3			10		5	1	
Queuing Penalty (veh)		2			3		1	0	

Intersection: 2: Bernheisel Bridge Rd & Country Club Rd

Movement	EB
Directions Served	LR
Maximum Queue (ft)	51
Average Queue (ft)	23
95th Queue (ft)	41
Link Distance (ft)	350
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 3: Bernheisel Bridge Rd & Green Hill Rd

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	49	51
Average Queue (ft)	26	5
95th Queue (ft)	37	26
Link Distance (ft)	376	290
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 6

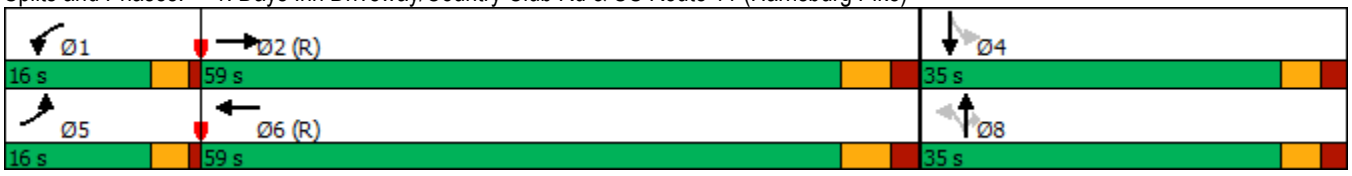
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	31	704	12	21	782	40	10	2	22	33	1	20
Future Volume (vph)	31	704	12	21	782	40	10	2	22	33	1	20
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12	14	14	14	11	11	11
Grade (%)		-1%			2%			-2%			4%	
Storage Length (ft)	270		0	152		0	0		50	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor									0.99		1.00	
Frt		0.998			0.993				0.850		0.950	
Flt Protected	0.950			0.950				0.959			0.970	
Satd. Flow (prot)	1719	2890	0	1282	2871	0	0	1568	1648	0	1571	0
Flt Permitted	0.950			0.950				0.793			0.806	
Satd. Flow (perm)	1719	2890	0	1282	2871	0	0	1296	1627	0	1305	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			7				74		22	
Link Speed (mph)		35			35			25			35	
Link Distance (ft)		326			335			267			374	
Travel Time (s)		6.4			6.5			7.3			7.3	
Confl. Peds. (#/hr)									1	1		
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%	19%	0%	32%	18%	0%	22%	0%	0%	0%	0%	0%
Adj. Flow (vph)	34	774	13	23	859	44	11	2	24	36	1	22
Shared Lane Traffic (%)												
Lane Group Flow (vph)	34	787	0	23	903	0	0	13	24	0	59	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)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.09	1.09	1.09	0.97	0.97	0.97	1.15	1.15	1.15
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1	1	1	1	
Detector Template							Left			Left		
Leading Detector (ft)	35	256		35	256		20	35	35	20	35	
Trailing Detector (ft)	-5	250		-5	250		0	-5	-5	0	-5	
Detector 1 Position(ft)	-5	250		-5	250		0	-5	-5	0	-5	
Detector 1 Size(ft)	40	6		40	6		20	40	40	20	40	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	3.0	6.0		3.0	6.0		0.0	3.0	3.0	0.0	3.0	
Detector 1 Queue (s)	0.0	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	0.0	
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8		8	4		

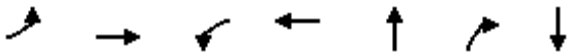
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2		1	6		8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	3.0	10.0		3.0	10.0		5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	7.0	16.5		7.0	16.5		10.6	10.6	10.6	10.6	10.6	
Total Split (s)	16.0	59.0		16.0	59.0		35.0	35.0	35.0	35.0	35.0	
Total Split (%)	14.5%	53.6%		14.5%	53.6%		31.8%	31.8%	31.8%	31.8%	31.8%	
Maximum Green (s)	12.0	52.5		12.0	52.5		29.4	29.4	29.4	29.4	29.4	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.3	3.3	3.3	3.3	3.3	
All-Red Time (s)	1.0	2.5		1.0	2.5		2.3	2.3	2.3	2.3	2.3	
Lost Time Adjust (s)	-0.5	-1.0		-0.5	-1.0			-1.0	-1.0		-1.0	
Total Lost Time (s)	3.5	5.5		3.5	5.5			4.6	4.6		4.6	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		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)	0.0	30.0		0.0	30.0		0.0	0.0	0.0	0.0	0.0	
Time To Reduce (s)	0.0	15.0		0.0	15.0		0.0	0.0	0.0	0.0	0.0	
Recall Mode	None	C-Min		None	C-Min		None	None	None	None	None	
Walk Time (s)		7.0			7.0		7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)		18.0			18.0		26.0	26.0	26.0	26.0	26.0	
Pedestrian Calls (#/hr)		0			0		0	0	0	0	0	
Act Effct Green (s)	8.3	88.0		8.2	85.7			9.8	9.8		9.8	
Actuated g/C Ratio	0.08	0.80		0.07	0.78			0.09	0.09		0.09	
v/c Ratio	0.26	0.34		0.24	0.40			0.11	0.11		0.43	
Control Delay	52.3	5.5		53.3	6.7			46.4	1.1		41.7	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay	52.3	5.5		53.3	6.7			46.4	1.1		41.7	
LOS	D	A		D	A			D	A		D	
Approach Delay		7.4			7.8			17.0			41.7	
Approach LOS		A			A			B			D	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 16 (15%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 45
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.43
Intersection Signal Delay: 8.9 Intersection LOS: A
Intersection Capacity Utilization 45.6% ICU Level of Service A
Analysis Period (min) 15

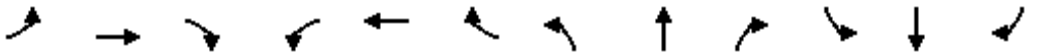
Splits and Phases: 1: Days Inn Driveway/Country Club Rd & US Route 11 (Harrisburg Pike)





Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	34	787	23	903	13	24	59
v/c Ratio	0.26	0.34	0.24	0.40	0.11	0.11	0.43
Control Delay	52.3	5.5	53.3	6.7	46.4	1.1	41.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.3	5.5	53.3	6.7	46.4	1.1	41.7
Queue Length 50th (ft)	23	53	16	121	9	0	25
Queue Length 95th (ft)	54	166	41	199	27	0	65
Internal Link Dist (ft)		246		255	187		294
Turn Bay Length (ft)	270		152			50	
Base Capacity (vph)	195	2313	145	2237	358	503	376
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.34	0.16	0.40	0.04	0.05	0.16

Intersection Summary



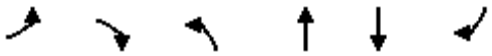
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	704	12	21	782	40	10	2	22	33	1	20
Future Volume (veh/h)	31	704	12	21	782	40	10	2	22	33	1	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	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	1837	1567	1837	1328	1525	1778	1624	1950	1950	1711	1711	1711
Adj Flow Rate, veh/h	34	774	13	23	859	44	11	2	24	36	1	22
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	19	0	32	18	0	22	0	0	0	0	0
Cap, veh/h	51	2337	39	29	2170	111	160	25	121	105	10	37
Arrive On Green	0.03	0.78	0.77	0.02	0.77	0.76	0.06	0.07	0.07	0.06	0.07	0.06
Sat Flow, veh/h	1750	2996	50	1265	2804	144	1355	346	1645	715	139	508
Grp Volume(v), veh/h	34	385	402	23	444	459	13	0	24	59	0	0
Grp Sat Flow(s),veh/h/ln	1750	1489	1558	1265	1449	1499	1701	0	1645	1362	0	0
Q Serve(g_s), s	2.1	8.4	8.4	2.0	11.0	11.0	0.0	0.0	1.5	3.8	0.0	0.0
Cycle Q Clear(g_c), s	2.1	8.4	8.4	2.0	11.0	11.0	0.7	0.0	1.5	4.6	0.0	0.0
Prop In Lane	1.00		0.03	1.00		0.10	0.85		1.00	0.61		0.37
Lane Grp Cap(c), veh/h	51	1161	1215	29	1121	1160	170	0	121	140	0	0
V/C Ratio(X)	0.67	0.33	0.33	0.79	0.40	0.40	0.08	0.00	0.20	0.42	0.00	0.00
Avail Cap(c_a), veh/h	199	1161	1215	144	1121	1160	475	0	455	410	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	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	52.9	3.6	3.6	53.5	4.0	4.1	47.9	0.0	47.9	49.8	0.0	0.0
Incr Delay (d2), s/veh	14.4	0.8	0.7	36.8	1.0	1.0	0.2	0.0	0.8	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	1.1	2.1	2.2	0.9	2.8	2.8	0.4	0.0	0.7	1.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.3	4.4	4.3	90.3	5.1	5.1	48.1	0.0	48.7	51.7	0.0	0.0
LnGrp LOS	E	A	A	F	A	A	D	A	D	D	A	A
Approach Vol, veh/h		821			926			37			59	
Approach Delay, s/veh		6.9			7.2			48.5			51.7	
Approach LOS		A			A			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.0	91.3		12.7	6.7	90.6		12.7				
Change Period (Y+Rc), s	4.0	6.5		5.6	4.0	6.5		5.6				
Max Green Setting (Gmax), s	12.0	52.5		29.4	12.0	52.5		29.4				
Max Q Clear Time (g_c+I1), s	4.0	10.4		6.6	4.1	13.0		3.5				
Green Ext Time (p_c), s	0.0	14.6		0.1	0.0	17.1		0.1				

Intersection Summary		
HCM 6th Ctrl Delay		9.3
HCM 6th LOS		A

Notes

User approved pedestrian interval to be less than phase max green.



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	37	5	3	46	52	25
Future Volume (vph)	37	5	3	46	52	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11
Grade (%)	8%			4%	-4%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.983				0.956	
Flt Protected	0.958			0.997		
Satd. Flow (prot)	1660	0	0	1795	1744	0
Flt Permitted	0.958			0.997		
Satd. Flow (perm)	1660	0	0	1795	1744	0
Link Speed (mph)	35			30	30	
Link Distance (ft)	387			334	240	
Travel Time (s)	7.5			7.6	5.5	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	0%	0%	0%	0%	4%	0%
Adj. Flow (vph)	43	6	3	53	60	29
Shared Lane Traffic (%)						
Lane Group Flow (vph)	49	0	0	56	89	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	11			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.10	1.10	1.07	1.07	1.02	1.02
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	14.9%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	37	5	3	46	52	25
Future Vol, veh/h	37	5	3	46	52	25
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	8	-	-	4	-4	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	0	0	0	0	4	0
Mvmt Flow	43	6	3	53	60	29

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	134	75	89	0	-	0
Stage 1	75	-	-	-	-	-
Stage 2	59	-	-	-	-	-
Critical Hdwy	9	7.2	4.9	-	-	-
Critical Hdwy Stg 1	7	-	-	-	-	-
Critical Hdwy Stg 2	7	-	-	-	-	-
Follow-up Hdwy	3	3.4	3.5	-	-	-
Pot Cap-1 Maneuver	907	944	951	-	-	-
Stage 1	1070	-	-	-	-	-
Stage 2	1096	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	904	944	951	-	-	-
Mov Cap-2 Maneuver	904	-	-	-	-	-
Stage 1	1067	-	-	-	-	-
Stage 2	1096	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.2	0.5	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	951	-	909	-	-
HCM Lane V/C Ratio	0.004	-	0.054	-	-
HCM Control Delay (s)	8.8	0	9.2	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	5	49	74	8	26	72
Future Volume (vph)	5	49	74	8	26	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11
Grade (%)	0%		2%			2%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.877		0.986			
Flt Protected	0.996					0.987
Satd. Flow (prot)	1604	0	1793	0	0	1780
Flt Permitted	0.996					0.987
Satd. Flow (perm)	1604	0	1793	0	0	1780
Link Speed (mph)	35		30			30
Link Distance (ft)	417		240			323
Travel Time (s)	8.1		5.5			7.3
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	0%	0%	0%	3%	0%
Adj. Flow (vph)	5	53	80	9	28	77
Shared Lane Traffic (%)						
Lane Group Flow (vph)	58	0	89	0	0	105
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	11		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.04	1.04	1.06	1.06	1.06	1.06
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	21.9%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	3.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	5	49	74	8	26	72
Future Vol, veh/h	5	49	74	8	26	72
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	2	-	-	2
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	0	3	0
Mvmt Flow	5	53	80	9	28	77

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	218	85	0	0	89	0
Stage 1	85	-	-	-	-	-
Stage 2	133	-	-	-	-	-
Critical Hdwy	7.4	6.4	-	-	4.9	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3	3.4	-	-	3.5	-
Pot Cap-1 Maneuver	838	947	-	-	951	-
Stage 1	1094	-	-	-	-	-
Stage 2	1038	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	812	947	-	-	951	-
Mov Cap-2 Maneuver	812	-	-	-	-	-
Stage 1	1094	-	-	-	-	-
Stage 2	1006	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.1	0	2.4
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	933	951	-
HCM Lane V/C Ratio	-	-	0.062	0.029	-
HCM Control Delay (s)	-	-	9.1	8.9	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0.1	-

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	2413
Vehs Exited	2390
Starting Vehs	0
Ending Vehs	23
Travel Distance (mi)	311
Travel Time (hr)	16.5
Total Delay (hr)	6.0
Total Stops	697
Fuel Used (gal)	13.0

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	525
Starting Vehs	0
Ending Vehs	14
Travel Distance (mi)	69
Travel Time (hr)	4.1
Total Delay (hr)	1.8
Total Stops	202
Fuel Used (gal)	3.2

Interval #1 Information

Start Time	7:15
End Time	7:30
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	486
Vehs Exited	484
Starting Vehs	14
Ending Vehs	16
Travel Distance (mi)	63
Travel Time (hr)	2.9
Total Delay (hr)	0.8
Total Stops	96
Fuel Used (gal)	2.4

Interval #2 Information

Start Time	7:30
End Time	7:45
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	467
Vehs Exited	468
Starting Vehs	16
Ending Vehs	15
Travel Distance (mi)	60
Travel Time (hr)	3.0
Total Delay (hr)	0.9
Total Stops	115
Fuel Used (gal)	2.4

Interval #3 Information

Start Time	7:45
End Time	8:00
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	464
Vehs Exited	461
Starting Vehs	15
Ending Vehs	18
Travel Distance (mi)	59
Travel Time (hr)	3.4
Total Delay (hr)	1.4
Total Stops	155
Fuel Used (gal)	2.6

Interval #4 Information Recording

Start Time	8:00
End Time	8:15
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	457
Vehs Exited	452
Starting Vehs	18
Ending Vehs	23
Travel Distance (mi)	59
Travel Time (hr)	3.1
Total Delay (hr)	1.1
Total Stops	129
Fuel Used (gal)	2.4

Intersection: 1: Days Inn Driveway/Country Club Rd & US Route 11 (Harrisburg Pike)

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB
Directions Served	L	T	TR	L	T	TR	LT	R	LTR
Maximum Queue (ft)	67	286	219	176	307	275	49	28	109
Average Queue (ft)	24	96	55	36	122	70	11	12	31
95th Queue (ft)	55	228	157	105	256	178	38	35	72
Link Distance (ft)		295	295		292	292	219		315
Upstream Blk Time (%)		0			1	0			
Queuing Penalty (veh)		0			0	0			
Storage Bay Dist (ft)	270			152				50	
Storage Blk Time (%)		0		0	3		3		
Queuing Penalty (veh)		0		0	1		1		

Intersection: 2: Bernheisel Bridge Rd & Country Club Rd

Movement	EB
Directions Served	LR
Maximum Queue (ft)	28
Average Queue (ft)	24
95th Queue (ft)	38
Link Distance (ft)	350
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 3: Bernheisel Bridge Rd & Green Hill Rd

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	49	31
Average Queue (ft)	23	3
95th Queue (ft)	38	17
Link Distance (ft)	376	290
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 2

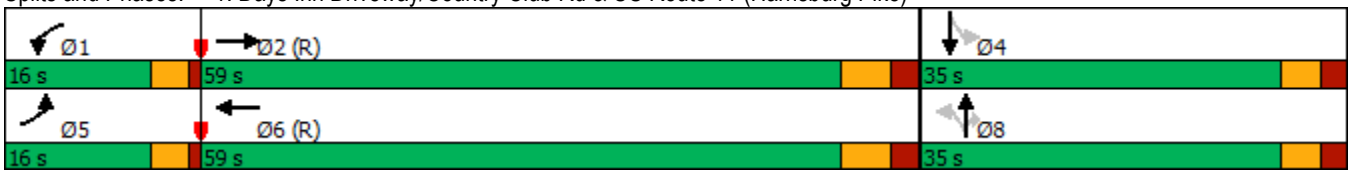
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	113	1056	10	3	753	45	1	1	17	70	1	57
Future Volume (vph)	113	1056	10	3	753	45	1	1	17	70	1	57
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12	14	14	14	11	11	11
Grade (%)		-1%			2%			-2%			4%	
Storage Length (ft)	270		0	152		0	0		50	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00				1.00							
Frt		0.999			0.992				0.850		0.940	
Flt Protected	0.950			0.950				0.976			0.973	
Satd. Flow (prot)	1494	2794	0	1273	2706	0	0	1893	1459	0	1521	0
Flt Permitted	0.950			0.950				0.896			0.829	
Satd. Flow (perm)	1492	2794	0	1273	2706	0	0	1738	1459	0	1296	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			8				74		36	
Link Speed (mph)		35			35			25			35	
Link Distance (ft)		326			335			267			374	
Travel Time (s)		6.4			6.5			7.3			7.3	
Confl. Peds. (#/hr)	2					2						
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	15%	23%	11%	33%	25%	6%	0%	0%	13%	3%	0%	2%
Adj. Flow (vph)	122	1135	11	3	810	48	1	1	18	75	1	61
Shared Lane Traffic (%)												
Lane Group Flow (vph)	122	1146	0	3	858	0	0	2	18	0	137	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)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.09	1.09	1.09	0.97	0.97	0.97	1.15	1.15	1.15
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1	1	1	1	
Detector Template							Left			Left		
Leading Detector (ft)	35	256		35	256		20	35	35	20	35	
Trailing Detector (ft)	-5	250		-5	250		0	-5	-5	0	-5	
Detector 1 Position(ft)	-5	250		-5	250		0	-5	-5	0	-5	
Detector 1 Size(ft)	40	6		40	6		20	40	40	20	40	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	3.0	6.0		3.0	6.0		0.0	3.0	3.0	0.0	3.0	
Detector 1 Queue (s)	0.0	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	0.0	
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8		8	4		

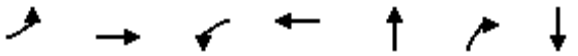
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2		1	6		8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	3.0	10.0		3.0	10.0		5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	7.0	16.5		7.0	16.5		10.6	10.6	10.6	10.6	10.6	
Total Split (s)	16.0	59.0		16.0	59.0		35.0	35.0	35.0	35.0	35.0	
Total Split (%)	14.5%	53.6%		14.5%	53.6%		31.8%	31.8%	31.8%	31.8%	31.8%	
Maximum Green (s)	12.0	52.5		12.0	52.5		29.4	29.4	29.4	29.4	29.4	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.3	3.3	3.3	3.3	3.3	
All-Red Time (s)	1.0	2.5		1.0	2.5		2.3	2.3	2.3	2.3	2.3	
Lost Time Adjust (s)	-0.5	-1.0		-0.5	-1.0			-1.0	-1.0		-1.0	
Total Lost Time (s)	3.5	5.5		3.5	5.5			4.6	4.6		4.6	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		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)	0.0	30.0		0.0	30.0		0.0	0.0	0.0	0.0	0.0	
Time To Reduce (s)	0.0	15.0		0.0	15.0		0.0	0.0	0.0	0.0	0.0	
Recall Mode	None	C-Min		None	C-Min		None	None	None	None	None	
Walk Time (s)		7.0			7.0		7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)		18.0			18.0		26.0	26.0	26.0	26.0	26.0	
Pedestrian Calls (#/hr)		0			0		0	0	0	0	0	
Act Effct Green (s)	15.2	82.6		6.5	66.1			15.1	15.1		15.1	
Actuated g/C Ratio	0.14	0.75		0.06	0.60			0.14	0.14		0.14	
v/c Ratio	0.59	0.55		0.04	0.53			0.01	0.07		0.66	
Control Delay	55.5	8.6		49.7	15.9			37.0	0.5		46.9	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay	55.5	8.6		49.7	15.9			37.0	0.5		46.9	
LOS	E	A		D	B			D	A		D	
Approach Delay		13.1			16.1			4.1			46.9	
Approach LOS		B			B			A			D	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 16 (15%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.66
Intersection Signal Delay: 16.1 Intersection LOS: B
Intersection Capacity Utilization 60.7% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 1: Days Inn Driveway/Country Club Rd & US Route 11 (Harrisburg Pike)





Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	122	1146	3	858	2	18	137
v/c Ratio	0.59	0.55	0.04	0.53	0.01	0.07	0.66
Control Delay	55.5	8.6	49.7	15.9	37.0	0.5	46.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.5	8.6	49.7	15.9	37.0	0.5	46.9
Queue Length 50th (ft)	82	136	2	173	1	0	68
Queue Length 95th (ft)	136	341	12	299	8	0	125
Internal Link Dist (ft)		246		255	187		294
Turn Bay Length (ft)	270		152			50	
Base Capacity (vph)	214	2098	144	1628	480	456	384
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.57	0.55	0.02	0.53	0.00	0.04	0.36

Intersection Summary

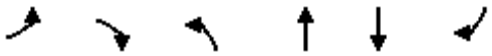
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	113	1056	10	3	753	45	1	1	17	70	1	57
Future Volume (veh/h)	113	1056	10	3	753	45	1	1	17	70	1	57
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	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	1624	1510	1681	1314	1427	1693	1950	1950	1757	1669	1711	1683
Adj Flow Rate, veh/h	122	1135	11	3	810	48	1	1	18	75	1	61
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	15	23	11	33	25	6	0	0	13	3	0	2
Cap, veh/h	152	2161	21	9	1693	100	132	121	190	137	10	78
Arrive On Green	0.10	0.74	0.73	0.01	0.65	0.64	0.12	0.13	0.13	0.12	0.13	0.12
Sat Flow, veh/h	1547	2912	28	1252	2600	154	654	951	1489	679	80	609
Grp Volume(v), veh/h	122	559	587	3	422	436	2	0	18	137	0	0
Grp Sat Flow(s),veh/h/ln	1547	1435	1505	1252	1355	1399	1605	0	1489	1369	0	0
Q Serve(g_s), s	8.5	18.1	18.1	0.3	17.4	17.4	0.0	0.0	1.2	9.7	0.0	0.0
Cycle Q Clear(g_c), s	8.5	18.1	18.1	0.3	17.4	17.4	0.1	0.0	1.2	10.8	0.0	0.0
Prop In Lane	1.00		0.02	1.00		0.11	0.50		1.00	0.55		0.45
Lane Grp Cap(c), veh/h	152	1065	1117	9	882	911	239	0	190	212	0	0
V/C Ratio(X)	0.80	0.53	0.53	0.35	0.48	0.48	0.01	0.00	0.09	0.64	0.00	0.00
Avail Cap(c_a), veh/h	176	1065	1117	142	882	911	481	0	412	414	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	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	48.6	6.0	6.0	54.4	9.7	9.8	42.2	0.0	42.4	47.0	0.0	0.0
Incr Delay (d2), s/veh	20.6	1.9	1.8	22.0	1.9	1.8	0.0	0.0	0.2	3.3	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	4.1	4.9	5.1	0.1	5.1	5.3	0.0	0.0	0.4	3.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	69.2	7.8	7.8	76.4	11.6	11.6	42.2	0.0	42.6	50.2	0.0	0.0
LnGrp LOS	E	A	A	E	B	B	D	A	D	D	A	A
Approach Vol, veh/h		1268			861			20			137	
Approach Delay, s/veh		13.7			11.8			42.6			50.2	
Approach LOS		B			B			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.3	87.1		18.6	14.3	77.1		18.6				
Change Period (Y+Rc), s	4.0	6.5		5.6	4.0	6.5		5.6				
Max Green Setting (Gmax), s	12.0	52.5		29.4	12.0	52.5		29.4				
Max Q Clear Time (g_c+I1), s	2.3	20.1		12.8	10.5	19.4		3.2				
Green Ext Time (p_c), s	0.0	20.3		0.4	0.0	14.8		0.0				

Intersection Summary		
HCM 6th Ctrl Delay		15.4
HCM 6th LOS		B

Notes

User approved pedestrian interval to be less than phase max green.



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	44	12	28	35	115	157
Future Volume (vph)	44	12	28	35	115	157
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11
Grade (%)	8%			4%	-4%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.971				0.922	
Flt Protected	0.962			0.978		
Satd. Flow (prot)	1556	0	0	1689	1693	0
Flt Permitted	0.962			0.978		
Satd. Flow (perm)	1556	0	0	1689	1693	0
Link Speed (mph)	35			30	30	
Link Distance (ft)	387			334	240	
Travel Time (s)	7.5			7.6	5.5	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	2%	20%	2%	6%	2%	2%
Adj. Flow (vph)	51	14	32	40	132	180
Shared Lane Traffic (%)						
Lane Group Flow (vph)	65	0	0	72	312	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	11			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.10	1.10	1.07	1.07	1.02	1.02
Turning Speed (mph)	15	9	15			9
Sign Control	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	2.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	44	12	28	35	115	157
Future Vol, veh/h	44	12	28	35	115	157
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	8	-	-	4	-4	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	20	2	6	2	2
Mvmt Flow	51	14	32	40	132	180

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	326	222	312	0	-	0
Stage 1	222	-	-	-	-	-
Stage 2	104	-	-	-	-	-
Critical Hdwy	9	7.4	4.9	-	-	-
Critical Hdwy Stg 1	7.02	-	-	-	-	-
Critical Hdwy Stg 2	7.02	-	-	-	-	-
Follow-up Hdwy	3	3.6	3.5	-	-	-
Pot Cap-1 Maneuver	607	707	780	-	-	-
Stage 1	853	-	-	-	-	-
Stage 2	1023	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	582	707	780	-	-	-
Mov Cap-2 Maneuver	582	-	-	-	-	-
Stage 1	817	-	-	-	-	-
Stage 2	1023	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.7	4.4	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	780	-	605	-	-
HCM Lane V/C Ratio	0.041	-	0.106	-	-
HCM Control Delay (s)	9.8	0	11.7	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.4	-	-



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	72	11	51	27	89	201
Future Volume (vph)	72	11	51	27	89	201
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11
Grade (%)	0%		2%			2%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.983		0.953			
Flt Protected	0.958					0.985
Satd. Flow (prot)	1473	0	1638	0	0	1756
Flt Permitted	0.958					0.985
Satd. Flow (perm)	1473	0	1638	0	0	1756
Link Speed (mph)	35		30			30
Link Distance (ft)	417		240			323
Travel Time (s)	8.1		5.5			7.3
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	20%	0%	2%	13%	2%	2%
Adj. Flow (vph)	81	12	57	30	100	226
Shared Lane Traffic (%)						
Lane Group Flow (vph)	93	0	87	0	0	326
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	11		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.04	1.04	1.06	1.06	1.06	1.06
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 33.5%		ICU Level of Service A	
Analysis Period (min) 15			

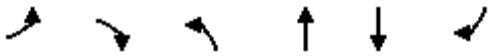
Intersection	
Int Delay, s/veh	4.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	72	11	51	27	89	201
Future Vol, veh/h	72	11	51	27	89	201
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	2	-	-	2
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	20	0	2	13	2	2
Mvmt Flow	81	12	57	30	100	226

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	498	72	0	0	87	0
Stage 1	72	-	-	-	-	-
Stage 2	426	-	-	-	-	-
Critical Hdwy	7.6	6.4	-	-	4.9	-
Critical Hdwy Stg 1	5.6	-	-	-	-	-
Critical Hdwy Stg 2	5.6	-	-	-	-	-
Follow-up Hdwy	3.2	3.4	-	-	3.5	-
Pot Cap-1 Maneuver	487	964	-	-	953	-
Stage 1	1038	-	-	-	-	-
Stage 2	697	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	429	964	-	-	953	-
Mov Cap-2 Maneuver	429	-	-	-	-	-
Stage 1	1038	-	-	-	-	-
Stage 2	613	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.7	0	2.8
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	463	953	-
HCM Lane V/C Ratio	-	-	0.201	0.105	-
HCM Control Delay (s)	-	-	14.7	9.2	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.7	0.4	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	13	25	146	27	0
Future Volume (vph)	0	13	25	146	27	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11
Grade (%)	1%			-6%	5%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865					
Flt Protected				0.993		
Satd. Flow (prot)	1550	0	0	1699	1433	0
Flt Permitted				0.993		
Satd. Flow (perm)	1550	0	0	1699	1433	0
Link Speed (mph)	15			35	35	
Link Distance (ft)	345			514	796	
Travel Time (s)	15.7			10.0	15.5	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	0%	2%	2%	12%	25%	0%
Adj. Flow (vph)	0	16	30	178	33	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	16	0	0	208	33	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	11			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.05	1.05	1.01	1.01	1.08	1.08
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	25.7%	ICU Level of Service	A
Analysis Period (min)	15		

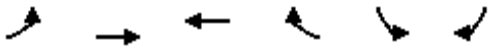
Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	13	25	146	27	0
Future Vol, veh/h	0	13	25	146	27	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	1	-	-	-6	5	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	0	2	2	12	25	0
Mvmt Flow	0	16	30	178	33	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	271	33	33	0	-	0
Stage 1	33	-	-	-	-	-
Stage 2	238	-	-	-	-	-
Critical Hdwy	7.6	6.5	4.9	-	-	-
Critical Hdwy Stg 1	5.6	-	-	-	-	-
Critical Hdwy Stg 2	5.6	-	-	-	-	-
Follow-up Hdwy	3	3.4	3.5	-	-	-
Pot Cap-1 Maneuver	757	1013	999	-	-	-
Stage 1	1156	-	-	-	-	-
Stage 2	914	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	732	1013	999	-	-	-
Mov Cap-2 Maneuver	732	-	-	-	-	-
Stage 1	1118	-	-	-	-	-
Stage 2	914	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.6	1.3	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	999	-	1013	-	-
HCM Lane V/C Ratio	0.031	-	0.016	-	-
HCM Control Delay (s)	8.7	0	8.6	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0	-	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	89	57	11	102	22	16
Future Volume (vph)	89	57	11	102	22	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11
Grade (%)		2%	-2%		-1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.878		0.943	
Flt Protected		0.970			0.972	
Satd. Flow (prot)	0	1665	1563	0	1659	0
Flt Permitted		0.970			0.972	
Satd. Flow (perm)	0	1665	1563	0	1659	0
Link Speed (mph)		35	35		15	
Link Distance (ft)		796	782		174	
Travel Time (s)		15.5	15.2		7.9	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	2%	12%	25%	2%	2%	2%
Adj. Flow (vph)	109	70	13	124	27	20
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	179	137	0	47	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		11	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.06	1.06	1.03	1.03	1.04	1.04
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 24.6%		ICU Level of Service A	
Analysis Period (min) 15			

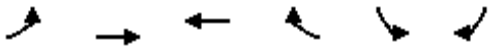
Intersection	
Int Delay, s/veh	4.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	89	57	11	102	22	16
Future Vol, veh/h	89	57	11	102	22	16
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	-2	-	-1	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	2	12	25	2	2	2
Mvmt Flow	109	70	13	124	27	20

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	137	0	-	0	363	75
Stage 1	-	-	-	-	75	-
Stage 2	-	-	-	-	288	-
Critical Hdwy	4.9	-	-	-	7.2	6.3
Critical Hdwy Stg 1	-	-	-	-	5.22	-
Critical Hdwy Stg 2	-	-	-	-	5.22	-
Follow-up Hdwy	3.5	-	-	-	3	3.4
Pot Cap-1 Maneuver	912	-	-	-	673	962
Stage 1	-	-	-	-	1110	-
Stage 2	-	-	-	-	889	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	912	-	-	-	590	962
Mov Cap-2 Maneuver	-	-	-	-	590	-
Stage 1	-	-	-	-	972	-
Stage 2	-	-	-	-	889	-

Approach	EB	WB	SB
HCM Control Delay, s	5.8	0	10.5
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	912	-	-	-	705
HCM Lane V/C Ratio	0.119	-	-	-	0.066
HCM Control Delay (s)	9.5	0	-	-	10.5
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.4	-	-	-	0.2



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	2	77	111	41	16	2
Future Volume (vph)	2	77	111	41	16	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11
Grade (%)		6%	-5%		4%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.964		0.988	
Flt Protected		0.999			0.957	
Satd. Flow (prot)	0	1592	1528	0	1668	0
Flt Permitted		0.999			0.957	
Satd. Flow (perm)	0	1592	1528	0	1668	0
Link Speed (mph)		35	35		15	
Link Distance (ft)		782	824		173	
Travel Time (s)		15.2	16.1		7.9	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	2%	12%	25%	2%	2%	2%
Adj. Flow (vph)	2	94	135	50	20	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	96	185	0	22	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		11	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.01	1.01	1.07	1.07
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 18.3%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	2	77	111	41	16	2
Future Vol, veh/h	2	77	111	41	16	2
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, %	-	6	-5	-	4	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	2	12	25	2	2	2
Mvmt Flow	2	94	135	50	20	2

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	185	0	-	0	258	160
Stage 1	-	-	-	-	160	-
Stage 2	-	-	-	-	98	-
Critical Hdwy	4.9	-	-	-	8.2	6.8
Critical Hdwy Stg 1	-	-	-	-	6.22	-
Critical Hdwy Stg 2	-	-	-	-	6.22	-
Follow-up Hdwy	3.5	-	-	-	3	3.4
Pot Cap-1 Maneuver	874	-	-	-	741	843
Stage 1	-	-	-	-	972	-
Stage 2	-	-	-	-	1055	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	874	-	-	-	740	843
Mov Cap-2 Maneuver	-	-	-	-	740	-
Stage 1	-	-	-	-	970	-
Stage 2	-	-	-	-	1055	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	9.9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	874	-	-	-	750
HCM Lane V/C Ratio	0.003	-	-	-	0.029
HCM Control Delay (s)	9.1	0	-	-	9.9
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

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	3964
Vehs Exited	3931
Starting Vehs	0
Ending Vehs	33
Travel Distance (mi)	603
Travel Time (hr)	32.6
Total Delay (hr)	11.5
Total Stops	1279
Fuel Used (gal)	26.0

Interval #0 Information Seeding

Start Time	7:00
End Time	7:15
Total Time (min)	15

Volumes adjusted by PHF.

Vehs Entered	900
Vehs Exited	870
Starting Vehs	0
Ending Vehs	30
Travel Distance (mi)	136
Travel Time (hr)	7.3
Total Delay (hr)	2.6
Total Stops	278
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	756
Vehs Exited	767
Starting Vehs	30
Ending Vehs	19
Travel Distance (mi)	115
Travel Time (hr)	6.3
Total Delay (hr)	2.2
Total Stops	250
Fuel Used (gal)	5.1

Interval #2 Information

Start Time	7:30
End Time	7:45
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	755
Vehs Exited	756
Starting Vehs	19
Ending Vehs	18
Travel Distance (mi)	118
Travel Time (hr)	6.4
Total Delay (hr)	2.3
Total Stops	234
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	759
Vehs Exited	746
Starting Vehs	18
Ending Vehs	31
Travel Distance (mi)	117
Travel Time (hr)	6.0
Total Delay (hr)	2.0
Total Stops	236
Fuel Used (gal)	4.9

Interval #4 Information Recording

Start Time	8:00
End Time	8:15
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	794
Vehs Exited	792
Starting Vehs	31
Ending Vehs	33
Travel Distance (mi)	117
Travel Time (hr)	6.5
Total Delay (hr)	2.4
Total Stops	281
Fuel Used (gal)	5.2

Intersection: 1: Days Inn Driveway/Country Club Rd & US Route 11 (Harrisburg Pike)

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB
Directions Served	L	T	TR	L	T	TR	LT	R	LTR
Maximum Queue (ft)	293	327	268	68	355	325	56	56	170
Average Queue (ft)	99	125	98	3	202	126	4	14	77
95th Queue (ft)	202	264	221	24	347	276	22	41	152
Link Distance (ft)		295	295		292	292	219		315
Upstream Blk Time (%)	0	0			2	0			
Queuing Penalty (veh)	0	0			0	0			
Storage Bay Dist (ft)	270			152				50	
Storage Blk Time (%)		1			13		0	1	
Queuing Penalty (veh)		1			0		0	0	

Intersection: 2: Bernheisel Bridge Rd & Country Club Rd

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	71	52
Average Queue (ft)	21	11
95th Queue (ft)	46	38
Link Distance (ft)	350	304
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Bernheisel Bridge Rd & Green Hill Rd

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	89	73
Average Queue (ft)	38	8
95th Queue (ft)	67	36
Link Distance (ft)	376	290
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: Country Club Rd & Western Driveway

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	31	31
Average Queue (ft)	9	1
95th Queue (ft)	33	9
Link Distance (ft)	316	492
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 5: Country Club Rd & Main Driveway

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	78	52
Average Queue (ft)	16	20
95th Queue (ft)	50	44
Link Distance (ft)	737	142
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 6: Country Club Rd & Eastern Driveway

Movement	SB
Directions Served	LR
Maximum Queue (ft)	29
Average Queue (ft)	13
95th Queue (ft)	36
Link Distance (ft)	143
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

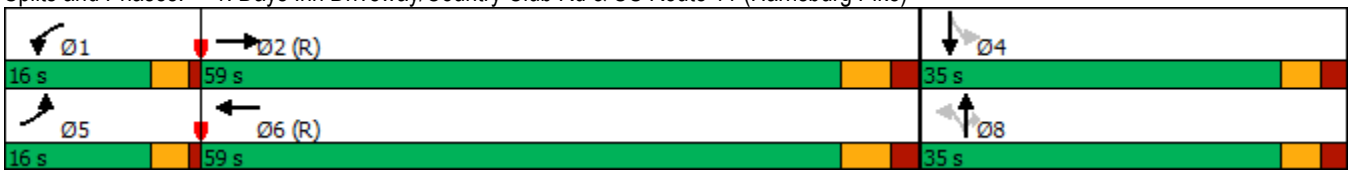
Network wide Queuing Penalty: 1

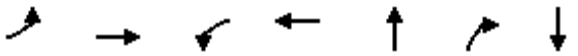
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	1299	14	27	942	34	13	0	27	58	1	92
Future Volume (vph)	60	1299	14	27	942	34	13	0	27	58	1	92
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12	14	14	14	11	11	11
Grade (%)		-1%			2%			-2%			4%	
Storage Length (ft)	270		0	152		0	0		50	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		1.00	1.00				0.99		1.00	
Frt		0.998			0.995				0.850		0.918	
Flt Protected	0.950			0.950				0.950			0.981	
Satd. Flow (prot)	1685	2684	0	1459	2686	0	0	1842	1526	0	1423	0
Flt Permitted	0.950			0.950				0.504			0.868	
Satd. Flow (perm)	1684	2684	0	1458	2686	0	0	977	1505	0	1258	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			5				74		71	
Link Speed (mph)		35			35			25			35	
Link Distance (ft)		326			335			267			374	
Travel Time (s)		6.4			6.5			7.3			7.3	
Confl. Peds. (#/hr)	1		2	2		1			2	2		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	28%	8%	16%	26%	7%	0%	0%	8%	8%	0%	8%
Adj. Flow (vph)	63	1367	15	28	992	36	14	0	28	61	1	97
Shared Lane Traffic (%)												
Lane Group Flow (vph)	63	1382	0	28	1028	0	0	14	28	0	159	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)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.09	1.09	1.09	0.97	0.97	0.97	1.15	1.15	1.15
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1	1	1	1	
Detector Template							Left			Left		
Leading Detector (ft)	35	256		35	256		20	35	35	20	35	
Trailing Detector (ft)	-5	250		-5	250		0	-5	-5	0	-5	
Detector 1 Position(ft)	-5	250		-5	250		0	-5	-5	0	-5	
Detector 1 Size(ft)	40	6		40	6		20	40	40	20	40	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	3.0	6.0		3.0	6.0		0.0	3.0	3.0	0.0	3.0	
Detector 1 Queue (s)	0.0	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	0.0	
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8		8	4		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2		1	6		8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	3.0	10.0		3.0	10.0		5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	7.0	16.5		7.0	16.5		10.6	10.6	10.6	10.6	10.6	
Total Split (s)	16.0	59.0		16.0	59.0		35.0	35.0	35.0	35.0	35.0	
Total Split (%)	14.5%	53.6%		14.5%	53.6%		31.8%	31.8%	31.8%	31.8%	31.8%	
Maximum Green (s)	12.0	52.5		12.0	52.5		29.4	29.4	29.4	29.4	29.4	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.3	3.3	3.3	3.3	3.3	
All-Red Time (s)	1.0	2.5		1.0	2.5		2.3	2.3	2.3	2.3	2.3	
Lost Time Adjust (s)	-0.5	-1.0		-0.5	-1.0			-1.0	-1.0		-1.0	
Total Lost Time (s)	3.5	5.5		3.5	5.5			4.6	4.6		4.6	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		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)	0.0	30.0		0.0	30.0		0.0	0.0	0.0	0.0	0.0	
Time To Reduce (s)	0.0	15.0		0.0	15.0		0.0	0.0	0.0	0.0	0.0	
Recall Mode	None	C-Min		None	C-Min		None	None	None	None	None	
Walk Time (s)		7.0			7.0		7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)		18.0			18.0		26.0	26.0	26.0	26.0	26.0	
Pedestrian Calls (#/hr)		0			0		0	0	0	0	0	
Act Effct Green (s)	10.1	77.6		8.3	73.8			14.5	14.5		14.5	
Actuated g/C Ratio	0.09	0.71		0.08	0.67			0.13	0.13		0.13	
v/c Ratio	0.41	0.73		0.26	0.57			0.11	0.11		0.70	
Control Delay	54.3	16.0		52.9	13.5			40.2	0.8		40.4	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay	54.3	16.0		52.9	13.5			40.2	0.8		40.4	
LOS	D	B		D	B			D	A		D	
Approach Delay		17.7			14.5			14.0			40.4	
Approach LOS		B			B			B			D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 16 (15%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.73			
Intersection Signal Delay: 17.7		Intersection LOS: B	
Intersection Capacity Utilization 69.5%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 1: Days Inn Driveway/Country Club Rd & US Route 11 (Harrisburg Pike)

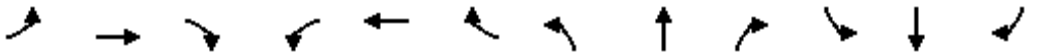




Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	63	1382	28	1028	14	28	159
v/c Ratio	0.41	0.73	0.26	0.57	0.11	0.11	0.70
Control Delay	54.3	16.0	52.9	13.5	40.2	0.8	40.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.3	16.0	52.9	13.5	40.2	0.8	40.4
Queue Length 50th (ft)	43	313	19	194	9	0	59
Queue Length 95th (ft)	84	#615	48	345	26	0	123
Internal Link Dist (ft)		246		255	187		294
Turn Bay Length (ft)	270		152			50	
Base Capacity (vph)	195	1893	165	1803	270	469	399
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.32	0.73	0.17	0.57	0.05	0.06	0.40

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



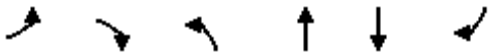
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	1299	14	27	942	34	13	0	27	58	1	92
Future Volume (veh/h)	60	1299	14	27	942	34	13	0	27	58	1	92
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	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	1809	1439	1724	1553	1413	1679	1950	1950	1831	1598	1711	1598
Adj Flow Rate, veh/h	63	1367	15	28	992	36	14	0	28	61	1	97
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	28	8	16	26	7	0	0	8	8	0	8
Cap, veh/h	88	1943	21	38	1785	65	217	0	231	112	15	127
Arrive On Green	0.05	0.70	0.69	0.03	0.68	0.67	0.14	0.00	0.15	0.14	0.15	0.14
Sat Flow, veh/h	1723	2770	30	1479	2641	96	1018	0	1546	446	97	850
Grp Volume(v), veh/h	63	674	708	28	504	524	14	0	28	159	0	0
Grp Sat Flow(s),veh/h/ln	1723	1367	1434	1479	1342	1395	1018	0	1546	1393	0	0
Q Serve(g_s), s	4.0	32.0	32.0	2.1	21.4	21.5	0.0	0.0	1.7	9.8	0.0	0.0
Cycle Q Clear(g_c), s	4.0	32.0	32.0	2.1	21.4	21.5	1.4	0.0	1.7	12.1	0.0	0.0
Prop In Lane	1.00		0.02	1.00		0.07	1.00		1.00	0.38		0.61
Lane Grp Cap(c), veh/h	88	959	1005	38	907	943	208	0	231	241	0	0
V/C Ratio(X)	0.71	0.70	0.70	0.73	0.56	0.56	0.07	0.00	0.12	0.66	0.00	0.00
Avail Cap(c_a), veh/h	196	959	1005	168	907	943	380	0	427	414	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	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	51.4	9.7	9.7	53.2	9.3	9.3	40.9	0.0	40.5	45.3	0.0	0.0
Incr Delay (d2), s/veh	10.2	4.3	4.1	23.1	2.5	2.4	0.1	0.0	0.2	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	1.9	9.2	9.6	1.0	6.1	6.3	0.3	0.0	0.7	4.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	61.6	14.0	13.8	76.3	11.7	11.6	41.0	0.0	40.8	48.4	0.0	0.0
LnGrp LOS	E	B	B	E	B	B	D	A	D	D	A	A
Approach Vol, veh/h		1445			1056			42			159	
Approach Delay, s/veh		16.0			13.4			40.9			48.4	
Approach LOS		B			B			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.3	82.6		21.0	9.1	79.9		21.0				
Change Period (Y+Rc), s	4.0	6.5		5.6	4.0	6.5		5.6				
Max Green Setting (Gmax), s	12.0	52.5		29.4	12.0	52.5		29.4				
Max Q Clear Time (g_c+I1), s	4.1	34.0		14.1	6.0	23.5		3.7				
Green Ext Time (p_c), s	0.0	15.3		0.4	0.1	16.9		0.1				

Intersection Summary		
HCM 6th Ctrl Delay		17.3
HCM 6th LOS		B

Notes

User approved pedestrian interval to be less than phase max green.



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	121	21	9	96	56	41
Future Volume (vph)	121	21	9	96	56	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11
Grade (%)	8%			4%	-4%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.980				0.943	
Flt Protected	0.959			0.996		
Satd. Flow (prot)	1625	0	0	1758	1675	0
Flt Permitted	0.959			0.996		
Satd. Flow (perm)	1625	0	0	1758	1675	0
Link Speed (mph)	35			30	30	
Link Distance (ft)	387			334	240	
Travel Time (s)	7.5			7.6	5.5	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	2%	2%	2%	2%	0%	13%
Adj. Flow (vph)	133	23	10	105	62	45
Shared Lane Traffic (%)						
Lane Group Flow (vph)	156	0	0	115	107	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	11			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.10	1.10	1.07	1.07	1.02	1.02
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 26.9%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	4.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	121	21	9	96	56	41
Future Vol, veh/h	121	21	9	96	56	41
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	8	-	-	4	-4	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	0	13
Mvmt Flow	133	23	10	105	62	45

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	210	85	107	0	-	0
Stage 1	85	-	-	-	-	-
Stage 2	125	-	-	-	-	-
Critical Hdwy	9	7.2	4.9	-	-	-
Critical Hdwy Stg 1	7.02	-	-	-	-	-
Critical Hdwy Stg 2	7.02	-	-	-	-	-
Follow-up Hdwy	3	3.4	3.5	-	-	-
Pot Cap-1 Maneuver	774	930	936	-	-	-
Stage 1	1053	-	-	-	-	-
Stage 2	990	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	765	930	936	-	-	-
Mov Cap-2 Maneuver	765	-	-	-	-	-
Stage 1	1041	-	-	-	-	-
Stage 2	990	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.7	0.8	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	936	-	786	-	-
HCM Lane V/C Ratio	0.011	-	0.199	-	-
HCM Control Delay (s)	8.9	0	10.7	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.7	-	-



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	18	80	156	59	41	80
Future Volume (vph)	18	80	156	59	41	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11
Grade (%)	0%		2%			2%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.890		0.963			
Flt Protected	0.991					0.983
Satd. Flow (prot)	1582	0	1717	0	0	1753
Flt Permitted	0.991					0.983
Satd. Flow (perm)	1582	0	1717	0	0	1753
Link Speed (mph)	35		30			30
Link Distance (ft)	417		240			323
Travel Time (s)	8.1		5.5			7.3
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles (%)	13%	0%	2%	2%	0%	3%
Adj. Flow (vph)	22	96	188	71	49	96
Shared Lane Traffic (%)						
Lane Group Flow (vph)	118	0	259	0	0	145
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	11		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.04	1.04	1.06	1.06	1.06	1.06
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 34.2%		ICU Level of Service A	
Analysis Period (min) 15			

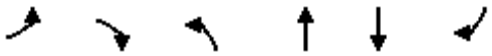
Intersection	
Int Delay, s/veh	3.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	18	80	156	59	41	80
Future Vol, veh/h	18	80	156	59	41	80
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	2	-	-	2
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	13	0	2	2	0	3
Mvmt Flow	22	96	188	71	49	96

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	418	224	0	0	259	0
Stage 1	224	-	-	-	-	-
Stage 2	194	-	-	-	-	-
Critical Hdwy	7.5	6.4	-	-	4.9	-
Critical Hdwy Stg 1	5.53	-	-	-	-	-
Critical Hdwy Stg 2	5.53	-	-	-	-	-
Follow-up Hdwy	3.1	3.4	-	-	3.5	-
Pot Cap-1 Maneuver	579	789	-	-	818	-
Stage 1	905	-	-	-	-	-
Stage 2	936	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	543	789	-	-	818	-
Mov Cap-2 Maneuver	543	-	-	-	-	-
Stage 1	905	-	-	-	-	-
Stage 2	877	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.9	0	3.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	728	818	-
HCM Lane V/C Ratio	-	-	0.162	0.06	-
HCM Control Delay (s)	-	-	10.9	9.7	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.6	0.2	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	36	3	63	70	0
Future Volume (vph)	0	36	3	63	70	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11
Grade (%)	1%			-6%	5%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865					
Flt Protected				0.997		
Satd. Flow (prot)	1550	0	0	1706	1756	0
Flt Permitted				0.997		
Satd. Flow (perm)	1550	0	0	1706	1756	0
Link Speed (mph)	15			35	35	
Link Distance (ft)	345			514	796	
Travel Time (s)	15.7			10.0	15.5	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles (%)	0%	2%	2%	11%	2%	0%
Adj. Flow (vph)	0	42	4	74	82	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	42	0	0	78	82	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	11			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.05	1.05	1.01	1.01	1.08	1.08
Turning Speed (mph)	60	60	60			60
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	15.8%	ICU Level of Service	A
Analysis Period (min)	15		

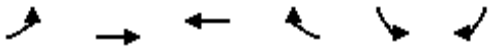
Intersection	
Int Delay, s/veh	2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	36	3	63	70	0
Future Vol, veh/h	0	36	3	63	70	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	1	-	-	-6	5	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	0	2	2	11	2	0
Mvmt Flow	0	42	4	74	82	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	164	82	82	0	-	0
Stage 1	82	-	-	-	-	-
Stage 2	82	-	-	-	-	-
Critical Hdwy	7.6	6.5	4.9	-	-	-
Critical Hdwy Stg 1	5.6	-	-	-	-	-
Critical Hdwy Stg 2	5.6	-	-	-	-	-
Follow-up Hdwy	3	3.4	3.5	-	-	-
Pot Cap-1 Maneuver	908	949	957	-	-	-
Stage 1	1093	-	-	-	-	-
Stage 2	1093	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	904	949	957	-	-	-
Mov Cap-2 Maneuver	904	-	-	-	-	-
Stage 1	1089	-	-	-	-	-
Stage 2	1093	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9	0.4	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	957	-	949	-	-
HCM Lane V/C Ratio	0.004	-	0.045	-	-
HCM Control Delay (s)	8.8	0	9	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	11	52	26	12	62	44
Future Volume (vph)	11	52	26	12	62	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11
Grade (%)		2%	-2%		-1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.958		0.944	
Flt Protected		0.991			0.972	
Satd. Flow (prot)	0	1647	1742	0	1660	0
Flt Permitted		0.991			0.972	
Satd. Flow (perm)	0	1647	1742	0	1660	0
Link Speed (mph)		35	35		15	
Link Distance (ft)		796	782		174	
Travel Time (s)		15.5	15.2		7.9	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles (%)	2%	11%	2%	2%	2%	2%
Adj. Flow (vph)	13	61	31	14	73	52
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	74	45	0	125	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		11	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.06	1.06	1.03	1.03	1.04	1.04
Turning Speed (mph)	60			60	60	60
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 22.8%		ICU Level of Service A	
Analysis Period (min) 15			

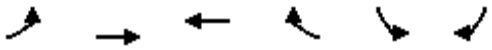
Intersection	
Int Delay, s/veh	5.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	11	52	26	12	62	44
Future Vol, veh/h	11	52	26	12	62	44
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	-2	-	-1	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	11	2	2	2	2
Mvmt Flow	13	61	31	14	73	52

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	45	0	-	0	125	38
Stage 1	-	-	-	-	38	-
Stage 2	-	-	-	-	87	-
Critical Hdwy	4.9	-	-	-	7.2	6.3
Critical Hdwy Stg 1	-	-	-	-	5.22	-
Critical Hdwy Stg 2	-	-	-	-	5.22	-
Follow-up Hdwy	3.5	-	-	-	3	3.4
Pot Cap-1 Maneuver	989	-	-	-	984	1009
Stage 1	-	-	-	-	1154	-
Stage 2	-	-	-	-	1097	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	989	-	-	-	970	1009
Mov Cap-2 Maneuver	-	-	-	-	970	-
Stage 1	-	-	-	-	1138	-
Stage 2	-	-	-	-	1097	-

Approach	EB	WB	SB
HCM Control Delay, s	1.5	0	9.2
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	989	-	-	-	986
HCM Lane V/C Ratio	0.013	-	-	-	0.126
HCM Control Delay (s)	8.7	0	-	-	9.2
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.4



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	2	112	36	8	38	2
Future Volume (vph)	2	112	36	8	38	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11
Grade (%)		6%	-5%		4%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.976		0.994	
Flt Protected		0.999			0.954	
Satd. Flow (prot)	0	1605	1801	0	1673	0
Flt Permitted		0.999			0.954	
Satd. Flow (perm)	0	1605	1801	0	1673	0
Link Speed (mph)		35	35		15	
Link Distance (ft)		782	824		173	
Travel Time (s)		15.2	16.1		7.9	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles (%)	2%	11%	2%	2%	2%	2%
Adj. Flow (vph)	2	132	42	9	45	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	134	51	0	47	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		11	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.01	1.01	1.07	1.07
Turning Speed (mph)	60			60	60	60
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	17.5%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	2	112	36	8	38	2
Future Vol, veh/h	2	112	36	8	38	2
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, %	-	6	-5	-	4	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	11	2	2	2	2
Mvmt Flow	2	132	42	9	45	2

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	51	0	-	0	183	47
Stage 1	-	-	-	-	47	-
Stage 2	-	-	-	-	136	-
Critical Hdwy	4.9	-	-	-	8.2	6.8
Critical Hdwy Stg 1	-	-	-	-	6.22	-
Critical Hdwy Stg 2	-	-	-	-	6.22	-
Follow-up Hdwy	3.5	-	-	-	3	3.4
Pot Cap-1 Maneuver	984	-	-	-	853	991
Stage 1	-	-	-	-	1128	-
Stage 2	-	-	-	-	1003	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	984	-	-	-	851	991
Mov Cap-2 Maneuver	-	-	-	-	851	-
Stage 1	-	-	-	-	1126	-
Stage 2	-	-	-	-	1003	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	9.4
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	984	-	-	-	857
HCM Lane V/C Ratio	0.002	-	-	-	0.055
HCM Control Delay (s)	8.7	0	-	-	9.4
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.2

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	4060
Vehs Exited	4027
Starting Vehs	0
Ending Vehs	33
Travel Distance (mi)	598
Travel Time (hr)	35.6
Total Delay (hr)	15.1
Total Stops	1688
Fuel Used (gal)	27.3

Interval #0 Information Seeding

Start Time	7:00
End Time	7:15
Total Time (min)	15

Volumes adjusted by PHF.

Vehs Entered	858
Vehs Exited	829
Starting Vehs	0
Ending Vehs	29
Travel Distance (mi)	131
Travel Time (hr)	8.1
Total Delay (hr)	3.6
Total Stops	358
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	799
Vehs Exited	813
Starting Vehs	29
Ending Vehs	15
Travel Distance (mi)	118
Travel Time (hr)	7.5
Total Delay (hr)	3.5
Total Stops	380
Fuel Used (gal)	5.7

Interval #2 Information

Start Time	7:30
End Time	7:45
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	794
Vehs Exited	789
Starting Vehs	15
Ending Vehs	20
Travel Distance (mi)	115
Travel Time (hr)	6.8
Total Delay (hr)	2.9
Total Stops	311
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	762
Vehs Exited	754
Starting Vehs	20
Ending Vehs	28
Travel Distance (mi)	111
Travel Time (hr)	6.3
Total Delay (hr)	2.5
Total Stops	313
Fuel Used (gal)	5.0

Interval #4 Information Recording

Start Time	8:00
End Time	8:15
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	847
Vehs Exited	842
Starting Vehs	28
Ending Vehs	33
Travel Distance (mi)	123
Travel Time (hr)	6.9
Total Delay (hr)	2.6
Total Stops	326
Fuel Used (gal)	5.4

Intersection: 1: Days Inn Driveway/Country Club Rd & US Route 11 (Harrisburg Pike)

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB
Directions Served	L	T	TR	L	T	TR	LT	R	LTR
Maximum Queue (ft)	294	347	347	115	344	338	55	50	241
Average Queue (ft)	71	226	158	20	208	139	14	16	94
95th Queue (ft)	191	410	321	70	367	291	42	43	188
Link Distance (ft)		295	295		292	292	219		315
Upstream Blk Time (%)	0	7	3		5	1			
Queuing Penalty (veh)	0	0	0		0	0			
Storage Bay Dist (ft)	270			152				50	
Storage Blk Time (%)	0	8			15		3	1	
Queuing Penalty (veh)	0	5			4		1	0	

Intersection: 2: Bernheisel Bridge Rd & Country Club Rd

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	76	30	22
Average Queue (ft)	35	1	1
95th Queue (ft)	61	9	7
Link Distance (ft)	350	304	179
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: Bernheisel Bridge Rd & Green Hill Rd

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	73	31
Average Queue (ft)	29	4
95th Queue (ft)	53	22
Link Distance (ft)	376	290
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: Country Club Rd & Western Driveway

Movement	EB
Directions Served	LR
Maximum Queue (ft)	55
Average Queue (ft)	24
95th Queue (ft)	49
Link Distance (ft)	316
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 5: Country Club Rd & Main Driveway

Movement	SB
Directions Served	LR
Maximum Queue (ft)	80
Average Queue (ft)	39
95th Queue (ft)	65
Link Distance (ft)	142
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 6: Country Club Rd & Eastern Driveway

Movement	SB
Directions Served	LR
Maximum Queue (ft)	48
Average Queue (ft)	22
95th Queue (ft)	43
Link Distance (ft)	143
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 10

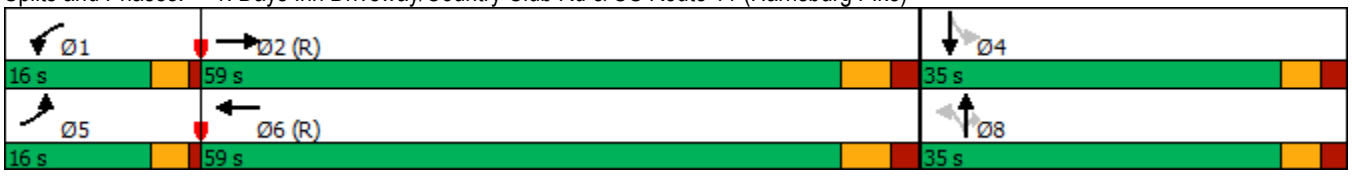
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	44	704	12	21	782	43	10	2	22	51	1	84
Future Volume (vph)	44	704	12	21	782	43	10	2	22	51	1	84
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12	14	14	14	11	11	11
Grade (%)		-1%			2%			-2%			4%	
Storage Length (ft)	270		0	152		0	0		50	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor									0.99		1.00	
Frt		0.998			0.992				0.850		0.917	
Flt Protected	0.950			0.950				0.959			0.982	
Satd. Flow (prot)	1685	2890	0	1282	2867	0	0	1568	1648	0	1506	0
Flt Permitted	0.950			0.950				0.695			0.871	
Satd. Flow (perm)	1685	2890	0	1282	2867	0	0	1136	1627	0	1335	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			7				74		73	
Link Speed (mph)		35			35			25			35	
Link Distance (ft)		326			335			267			374	
Travel Time (s)		6.4			6.5			7.3			7.3	
Confl. Peds. (#/hr)									1	1		
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 (%)	2%	19%	0%	32%	18%	2%	22%	0%	0%	2%	0%	2%
Adj. Flow (vph)	48	774	13	23	859	47	11	2	24	56	1	92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	48	787	0	23	906	0	0	13	24	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)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.09	1.09	1.09	0.97	0.97	0.97	1.15	1.15	1.15
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1	1	1	1	
Detector Template							Left			Left		
Leading Detector (ft)	35	256		35	256		20	35	35	20	35	
Trailing Detector (ft)	-5	250		-5	250		0	-5	-5	0	-5	
Detector 1 Position(ft)	-5	250		-5	250		0	-5	-5	0	-5	
Detector 1 Size(ft)	40	6		40	6		20	40	40	20	40	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	3.0	6.0		3.0	6.0		0.0	3.0	3.0	0.0	3.0	
Detector 1 Queue (s)	0.0	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	0.0	
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8		8	4		

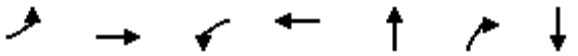
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	5	2		1	6		8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	3.0	10.0		3.0	10.0		5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	7.0	16.5		7.0	16.5		10.6	10.6	10.6	10.6	10.6	
Total Split (s)	16.0	59.0		16.0	59.0		35.0	35.0	35.0	35.0	35.0	
Total Split (%)	14.5%	53.6%		14.5%	53.6%		31.8%	31.8%	31.8%	31.8%	31.8%	
Maximum Green (s)	12.0	52.5		12.0	52.5		29.4	29.4	29.4	29.4	29.4	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.3	3.3	3.3	3.3	3.3	
All-Red Time (s)	1.0	2.5		1.0	2.5		2.3	2.3	2.3	2.3	2.3	
Lost Time Adjust (s)	-0.5	-1.0		-0.5	-1.0			-1.0	-1.0		-1.0	
Total Lost Time (s)	3.5	5.5		3.5	5.5			4.6	4.6		4.6	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		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)	0.0	30.0		0.0	30.0		0.0	0.0	0.0	0.0	0.0	
Time To Reduce (s)	0.0	15.0		0.0	15.0		0.0	0.0	0.0	0.0	0.0	
Recall Mode	None	C-Min		None	C-Min		None	None	None	None	None	
Walk Time (s)		7.0			7.0		7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)		18.0			18.0		26.0	26.0	26.0	26.0	26.0	
Pedestrian Calls (#/hr)		0			0		0	0	0	0	0	
Act Effct Green (s)	9.1	81.3		8.2	76.0			13.2	13.2		13.2	
Actuated g/C Ratio	0.08	0.74		0.07	0.69			0.12	0.12		0.12	
v/c Ratio	0.34	0.37		0.24	0.46			0.10	0.09		0.67	
Control Delay	53.5	7.5		53.3	10.2			41.2	0.7		37.8	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay	53.5	7.5		53.3	10.2			41.2	0.7		37.8	
LOS	D	A		D	B			D	A		D	
Approach Delay		10.1			11.3			14.9			37.8	
Approach LOS		B			B			B			D	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 16 (15%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.67
Intersection Signal Delay: 12.9 Intersection LOS: B
Intersection Capacity Utilization 54.5% ICU Level of Service A
Analysis Period (min) 15

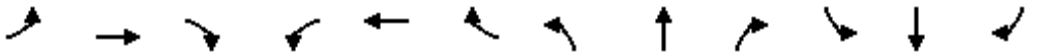
Splits and Phases: 1: Days Inn Driveway/Country Club Rd & US Route 11 (Harrisburg Pike)





Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	48	787	23	906	13	24	149
v/c Ratio	0.34	0.37	0.24	0.46	0.10	0.09	0.67
Control Delay	53.5	7.5	53.3	10.2	41.2	0.7	37.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.5	7.5	53.3	10.2	41.2	0.7	37.8
Queue Length 50th (ft)	33	66	16	142	8	0	51
Queue Length 95th (ft)	69	200	41	250	25	0	113
Internal Link Dist (ft)		246		255	187		294
Turn Bay Length (ft)	270		152			50	
Base Capacity (vph)	191	2137	145	1982	313	503	421
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.37	0.16	0.46	0.04	0.05	0.35

Intersection Summary



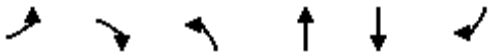
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	44	704	12	21	782	43	10	2	22	51	1	84
Future Volume (veh/h)	44	704	12	21	782	43	10	2	22	51	1	84
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	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	1809	1567	1837	1328	1525	1750	1624	1950	1950	1683	1711	1683
Adj Flow Rate, veh/h	48	774	13	23	859	47	11	2	24	56	1	92
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, %	2	19	0	32	18	2	22	0	0	2	0	2
Cap, veh/h	69	2143	36	29	1950	107	188	30	228	105	14	119
Arrive On Green	0.04	0.72	0.71	0.02	0.70	0.69	0.13	0.14	0.14	0.13	0.14	0.13
Sat Flow, veh/h	1723	2996	50	1265	2793	153	923	218	1649	434	101	864
Grp Volume(v), veh/h	48	385	402	23	445	461	13	0	24	149	0	0
Grp Sat Flow(s),veh/h/ln	1723	1489	1558	1265	1449	1497	1140	0	1649	1399	0	0
Q Serve(g_s), s	3.0	10.9	10.9	2.0	14.7	14.8	0.0	0.0	1.4	9.1	0.0	0.0
Cycle Q Clear(g_c), s	3.0	10.9	10.9	2.0	14.7	14.8	0.9	0.0	1.4	11.4	0.0	0.0
Prop In Lane	1.00		0.03	1.00		0.10	0.85		1.00	0.38		0.62
Lane Grp Cap(c), veh/h	69	1065	1114	29	1012	1046	208	0	228	226	0	0
V/C Ratio(X)	0.70	0.36	0.36	0.79	0.44	0.44	0.06	0.00	0.11	0.66	0.00	0.00
Avail Cap(c_a), veh/h	196	1065	1114	144	1012	1046	404	0	456	415	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	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	52.1	6.0	6.0	53.5	7.2	7.3	41.5	0.0	41.5	46.1	0.0	0.0
Incr Delay (d2), s/veh	11.9	1.0	0.9	36.8	1.4	1.3	0.1	0.0	0.2	3.3	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	1.5	3.2	3.3	0.9	4.3	4.5	0.3	0.0	0.6	4.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.1	7.0	6.9	90.3	8.6	8.6	41.7	0.0	41.7	49.4	0.0	0.0
LnGrp LOS	E	A	A	F	A	A	D	A	D	D	A	A
Approach Vol, veh/h		835			929			37			149	
Approach Delay, s/veh		10.2			10.6			41.7			49.4	
Approach LOS		B			B			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.0	84.2		19.8	7.9	82.3		19.8				
Change Period (Y+Rc), s	4.0	6.5		5.6	4.0	6.5		5.6				
Max Green Setting (Gmax), s	12.0	52.5		29.4	12.0	52.5		29.4				
Max Q Clear Time (g_c+I1), s	4.0	12.9		13.4	5.0	16.8		3.4				
Green Ext Time (p_c), s	0.0	14.3		0.4	0.0	16.4		0.1				

Intersection Summary			
HCM 6th Ctrl Delay		14.0	
HCM 6th LOS		B	

Notes

User approved pedestrian interval to be less than phase max green.



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	119	23	7	46	52	41
Future Volume (vph)	119	23	7	46	52	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11
Grade (%)	8%			4%	-4%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.978				0.940	
Flt Protected	0.960			0.993		
Satd. Flow (prot)	1623	0	0	1783	1708	0
Flt Permitted	0.960			0.993		
Satd. Flow (perm)	1623	0	0	1783	1708	0
Link Speed (mph)	35			30	30	
Link Distance (ft)	387			334	240	
Travel Time (s)	7.5			7.6	5.5	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	2%	2%	2%	0%	4%	2%
Adj. Flow (vph)	138	27	8	53	60	48
Shared Lane Traffic (%)						
Lane Group Flow (vph)	165	0	0	61	108	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	11			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.10	1.10	1.07	1.07	1.02	1.02
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	23.0%	ICU Level of Service	A
Analysis Period (min)	15		

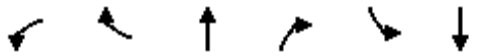
Intersection	
Int Delay, s/veh	5.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	119	23	7	46	52	41
Future Vol, veh/h	119	23	7	46	52	41
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	8	-	-	4	-4	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	0	4	2
Mvmt Flow	138	27	8	53	60	48

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	153	84	108	0	-	0
Stage 1	84	-	-	-	-	-
Stage 2	69	-	-	-	-	-
Critical Hdwy	9	7.2	4.9	-	-	-
Critical Hdwy Stg 1	7.02	-	-	-	-	-
Critical Hdwy Stg 2	7.02	-	-	-	-	-
Follow-up Hdwy	3	3.4	3.5	-	-	-
Pot Cap-1 Maneuver	872	931	935	-	-	-
Stage 1	1055	-	-	-	-	-
Stage 2	1079	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	864	931	935	-	-	-
Mov Cap-2 Maneuver	864	-	-	-	-	-
Stage 1	1046	-	-	-	-	-
Stage 2	1079	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.1	1.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	935	-	874	-	-
HCM Lane V/C Ratio	0.009	-	0.189	-	-
HCM Control Delay (s)	8.9	0	10.1	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.7	-	-



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	14	49	109	55	26	79
Future Volume (vph)	14	49	109	55	26	79
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11
Grade (%)	0%		2%			2%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.895		0.955			
Flt Protected	0.989					0.988
Satd. Flow (prot)	1619	0	1702	0	0	1783
Flt Permitted	0.989					0.988
Satd. Flow (perm)	1619	0	1702	0	0	1783
Link Speed (mph)	35		30			30
Link Distance (ft)	417		240			323
Travel Time (s)	8.1		5.5			7.3
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	2%	0%	2%	2%	3%	0%
Adj. Flow (vph)	15	53	117	59	28	85
Shared Lane Traffic (%)						
Lane Group Flow (vph)	68	0	176	0	0	113
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	11		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.04	1.04	1.06	1.06	1.06	1.06
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 28.5%		ICU Level of Service A	
Analysis Period (min) 15			

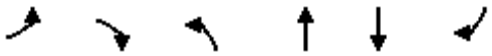
Intersection	
Int Delay, s/veh	2.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	14	49	109	55	26	79
Future Vol, veh/h	14	49	109	55	26	79
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	2	-	-	2
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	0	2	2	3	0
Mvmt Flow	15	53	117	59	28	85

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	288	147	0	0	176	0
Stage 1	147	-	-	-	-	-
Stage 2	141	-	-	-	-	-
Critical Hdwy	7.4	6.4	-	-	4.9	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3	3.4	-	-	3.5	-
Pot Cap-1 Maneuver	747	873	-	-	881	-
Stage 1	1022	-	-	-	-	-
Stage 2	1029	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	722	873	-	-	881	-
Mov Cap-2 Maneuver	722	-	-	-	-	-
Stage 1	1022	-	-	-	-	-
Stage 2	995	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.7	0	2.3
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	834	881	-
HCM Lane V/C Ratio	-	-	0.081	0.032	-
HCM Control Delay (s)	-	-	9.7	9.2	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.3	0.1	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	36	3	62	56	0
Future Volume (vph)	0	36	3	62	56	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11
Grade (%)	1%			-6%	5%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865					
Flt Protected				0.997		
Satd. Flow (prot)	1550	0	0	1815	1756	0
Flt Permitted				0.997		
Satd. Flow (perm)	1550	0	0	1815	1756	0
Link Speed (mph)	15			35	35	
Link Distance (ft)	345			514	796	
Travel Time (s)	15.7			10.0	15.5	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles (%)	0%	2%	2%	4%	2%	0%
Adj. Flow (vph)	0	43	4	74	67	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	43	0	0	78	67	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	11			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.05	1.05	1.01	1.01	1.08	1.08
Turning Speed (mph)	60	60	60			60
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	15.7%	ICU Level of Service	A
Analysis Period (min)	15		

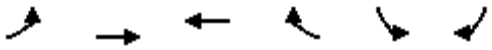
Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	36	3	62	56	0
Future Vol, veh/h	0	36	3	62	56	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	1	-	-	-6	5	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	0	2	2	4	2	0
Mvmt Flow	0	43	4	74	67	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	149	67	67	0	-	0
Stage 1	67	-	-	-	-	-
Stage 2	82	-	-	-	-	-
Critical Hdwy	7.6	6.5	4.9	-	-	-
Critical Hdwy Stg 1	5.6	-	-	-	-	-
Critical Hdwy Stg 2	5.6	-	-	-	-	-
Follow-up Hdwy	3	3.4	3.5	-	-	-
Pot Cap-1 Maneuver	932	968	970	-	-	-
Stage 1	1112	-	-	-	-	-
Stage 2	1093	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	928	968	970	-	-	-
Mov Cap-2 Maneuver	928	-	-	-	-	-
Stage 1	1108	-	-	-	-	-
Stage 2	1093	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.9	0.4	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	970	-	968	-	-
HCM Lane V/C Ratio	0.004	-	0.044	-	-
HCM Control Delay (s)	8.7	0	8.9	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	11	51	12	12	62	44
Future Volume (vph)	11	51	12	12	62	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11
Grade (%)		2%	-2%		-1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.932		0.944	
Flt Protected		0.991			0.971	
Satd. Flow (prot)	0	1761	1695	0	1659	0
Flt Permitted		0.991			0.971	
Satd. Flow (perm)	0	1761	1695	0	1659	0
Link Speed (mph)		35	35		15	
Link Distance (ft)		796	782		174	
Travel Time (s)		15.5	15.2		7.9	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles (%)	4%	2%	2%	2%	2%	2%
Adj. Flow (vph)	13	61	14	14	74	52
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	74	28	0	126	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		11	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.06	1.06	1.03	1.03	1.04	1.04
Turning Speed (mph)	60			60	60	60
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 22.8%		ICU Level of Service A	
Analysis Period (min) 15			

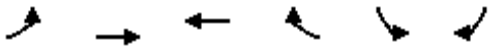
Intersection	
Int Delay, s/veh	5.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	11	51	12	12	62	44
Future Vol, veh/h	11	51	12	12	62	44
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	-2	-	-1	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	4	2	2	2	2	2
Mvmt Flow	13	61	14	14	74	52

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	28	0	-	0	108	21
Stage 1	-	-	-	-	21	-
Stage 2	-	-	-	-	87	-
Critical Hdwy	4.9	-	-	-	7.2	6.3
Critical Hdwy Stg 1	-	-	-	-	5.22	-
Critical Hdwy Stg 2	-	-	-	-	5.22	-
Follow-up Hdwy	3.5	-	-	-	3	3.4
Pot Cap-1 Maneuver	1004	-	-	-	1011	1031
Stage 1	-	-	-	-	1174	-
Stage 2	-	-	-	-	1097	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1004	-	-	-	998	1031
Mov Cap-2 Maneuver	-	-	-	-	998	-
Stage 1	-	-	-	-	1159	-
Stage 2	-	-	-	-	1097	-

Approach	EB	WB	SB
HCM Control Delay, s	1.5	0	9.1
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1004	-	-	-	1011
HCM Lane V/C Ratio	0.013	-	-	-	0.125
HCM Control Delay (s)	8.6	0	-	-	9.1
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.4



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	2	111	22	8	38	2
Future Volume (vph)	2	111	22	8	38	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11
Grade (%)		6%	-5%		4%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.962		0.994	
Flt Protected		0.999			0.954	
Satd. Flow (prot)	0	1712	1776	0	1673	0
Flt Permitted		0.999			0.954	
Satd. Flow (perm)	0	1712	1776	0	1673	0
Link Speed (mph)		35	35		15	
Link Distance (ft)		782	824		173	
Travel Time (s)		15.2	16.1		7.9	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles (%)	2%	4%	2%	2%	2%	2%
Adj. Flow (vph)	2	132	26	10	45	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	134	36	0	47	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		11	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.09	1.09	1.01	1.01	1.07	1.07
Turning Speed (mph)	60			60	60	60
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	17.4%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	2	111	22	8	38	2
Future Vol, veh/h	2	111	22	8	38	2
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, %	-	6	-5	-	4	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	2	4	2	2	2	2
Mvmt Flow	2	132	26	10	45	2

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	36	0	-	0	167	31
Stage 1	-	-	-	-	31	-
Stage 2	-	-	-	-	136	-
Critical Hdwy	4.9	-	-	-	8.2	6.8
Critical Hdwy Stg 1	-	-	-	-	6.22	-
Critical Hdwy Stg 2	-	-	-	-	6.22	-
Follow-up Hdwy	3.5	-	-	-	3	3.4
Pot Cap-1 Maneuver	997	-	-	-	879	1013
Stage 1	-	-	-	-	1152	-
Stage 2	-	-	-	-	1003	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	997	-	-	-	877	1013
Mov Cap-2 Maneuver	-	-	-	-	877	-
Stage 1	-	-	-	-	1150	-
Stage 2	-	-	-	-	1003	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	9.3
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	997	-	-	-	883
HCM Lane V/C Ratio	0.002	-	-	-	0.054
HCM Control Delay (s)	8.6	0	-	-	9.3
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.2

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	3003
Vehs Exited	2971
Starting Vehs	0
Ending Vehs	32
Travel Distance (mi)	460
Travel Time (hr)	24.8
Total Delay (hr)	8.7
Total Stops	1302
Fuel Used (gal)	19.8

Interval #0 Information Seeding

Start Time	7:00
End Time	7:15
Total Time (min)	15

Volumes adjusted by PHF.

Vehs Entered	704
Vehs Exited	660
Starting Vehs	0
Ending Vehs	44
Travel Distance (mi)	108
Travel Time (hr)	6.4
Total Delay (hr)	2.6
Total Stops	344
Fuel Used (gal)	4.8

Interval #1 Information

Start Time	7:15
End Time	7:30
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	564
Vehs Exited	595
Starting Vehs	44
Ending Vehs	13
Travel Distance (mi)	90
Travel Time (hr)	4.5
Total Delay (hr)	1.4
Total Stops	208
Fuel Used (gal)	3.7

Interval #2 Information

Start Time	7:30
End Time	7:45
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	560
Vehs Exited	559
Starting Vehs	13
Ending Vehs	14
Travel Distance (mi)	85
Travel Time (hr)	4.6
Total Delay (hr)	1.6
Total Stops	254
Fuel Used (gal)	3.7

Interval #3 Information

Start Time	7:45
End Time	8:00
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	571
Vehs Exited	562
Starting Vehs	14
Ending Vehs	23
Travel Distance (mi)	86
Travel Time (hr)	4.4
Total Delay (hr)	1.4
Total Stops	229
Fuel Used (gal)	3.6

Interval #4 Information Recording

Start Time	8:00
End Time	8:15
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	604
Vehs Exited	595
Starting Vehs	23
Ending Vehs	32
Travel Distance (mi)	91
Travel Time (hr)	5.0
Total Delay (hr)	1.8
Total Stops	267
Fuel Used (gal)	4.0

Intersection: 1: Days Inn Driveway/Country Club Rd & US Route 11 (Harrisburg Pike)

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB
Directions Served	L	T	TR	L	T	TR	LT	R	LTR
Maximum Queue (ft)	109	242	171	88	326	203	47	29	190
Average Queue (ft)	35	115	49	25	152	73	11	11	75
95th Queue (ft)	76	218	133	65	280	163	35	33	151
Link Distance (ft)		295	295		292	292	219		315
Upstream Blk Time (%)					1				
Queuing Penalty (veh)					0				
Storage Bay Dist (ft)	270			152				50	
Storage Blk Time (%)					8		1		
Queuing Penalty (veh)					2		0		

Intersection: 2: Bernheisel Bridge Rd & Country Club Rd

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	101	29
Average Queue (ft)	37	1
95th Queue (ft)	62	9
Link Distance (ft)	350	304
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Bernheisel Bridge Rd & Green Hill Rd

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	48	50
Average Queue (ft)	21	7
95th Queue (ft)	40	29
Link Distance (ft)	376	290
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: Country Club Rd & Western Driveway

Movement	EB
Directions Served	LR
Maximum Queue (ft)	50
Average Queue (ft)	24
95th Queue (ft)	48
Link Distance (ft)	316
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 5: Country Club Rd & Main Driveway

Movement	SB
Directions Served	LR
Maximum Queue (ft)	56
Average Queue (ft)	35
95th Queue (ft)	56
Link Distance (ft)	142
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 6: Country Club Rd & Eastern Driveway

Movement	SB
Directions Served	LR
Maximum Queue (ft)	51
Average Queue (ft)	22
95th Queue (ft)	46
Link Distance (ft)	143
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 2

Appendix O - Auxiliary Turn Lane Warrants

Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Eastbound Left Turn

Analysis Period:	2025 Existing Year	**Number of Approach Lanes:**	2
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
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	15.0%	25
	Through	-	975	23.0%	1312
	Right	No	9	11.0%	N/A
Opposing	Left	No	3	33.0%	N/A
	Through	-	695	25.0%	956
	Right	Yes	18	6.0%	20

Advancing Volume:	1337
Opposing Volume:	976
Left Turn Volume:	25
% Left Turns in Advancing Volume:	1.87%

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?: Yes

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:	25
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: 1.0

PennDOT Publication 46, Exhibit 11-6

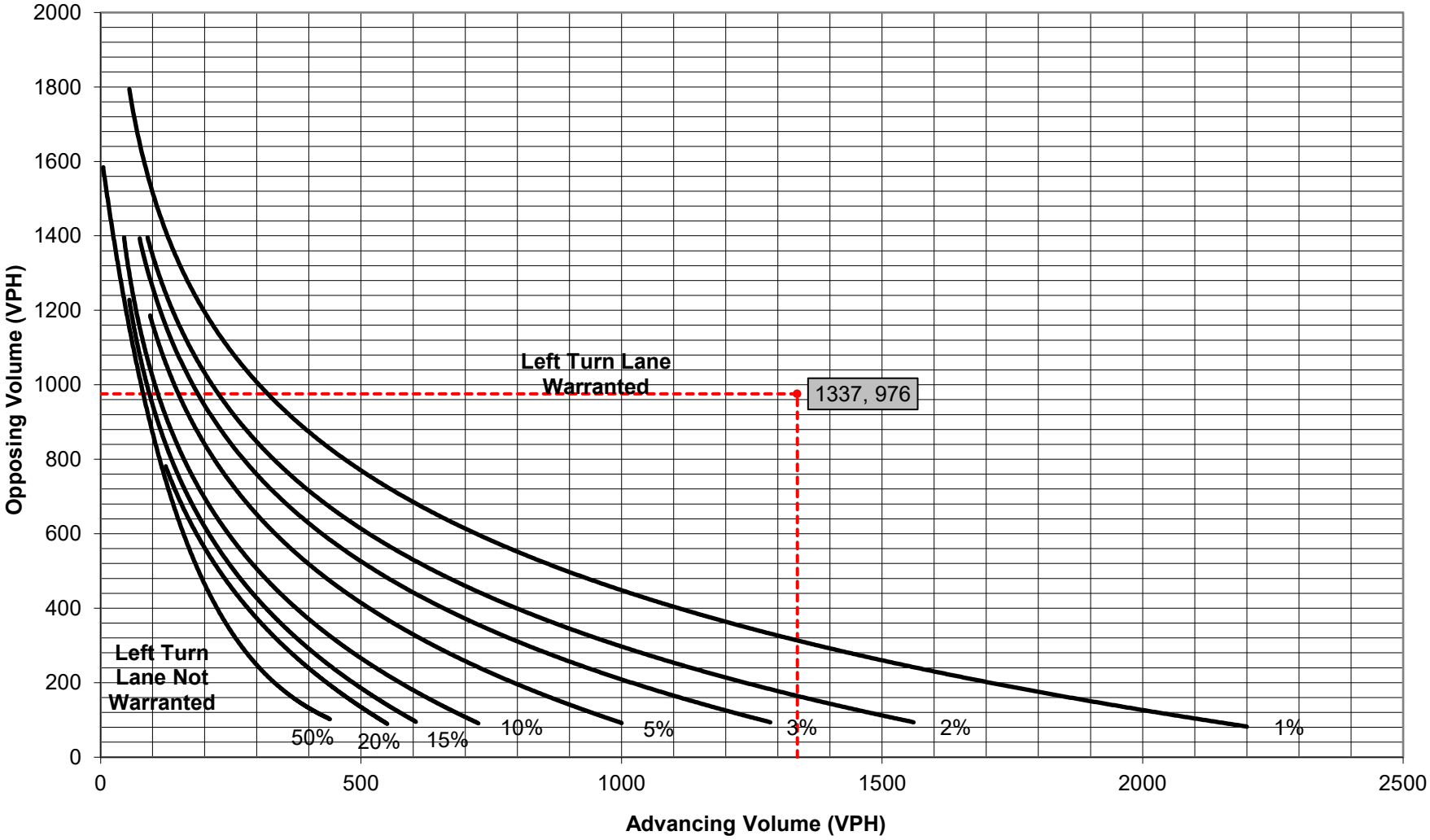
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	75	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	75	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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Eastbound Right Turn

Analysis Period:	2025 Existing Year	**Number of Approach Lanes:**	2
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
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	20	15.0%	N/A
	Through	-	975	23.0%	1312
	Right	-	9	11.0%	11

Advancing Volume:	1323
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 11

Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	11
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

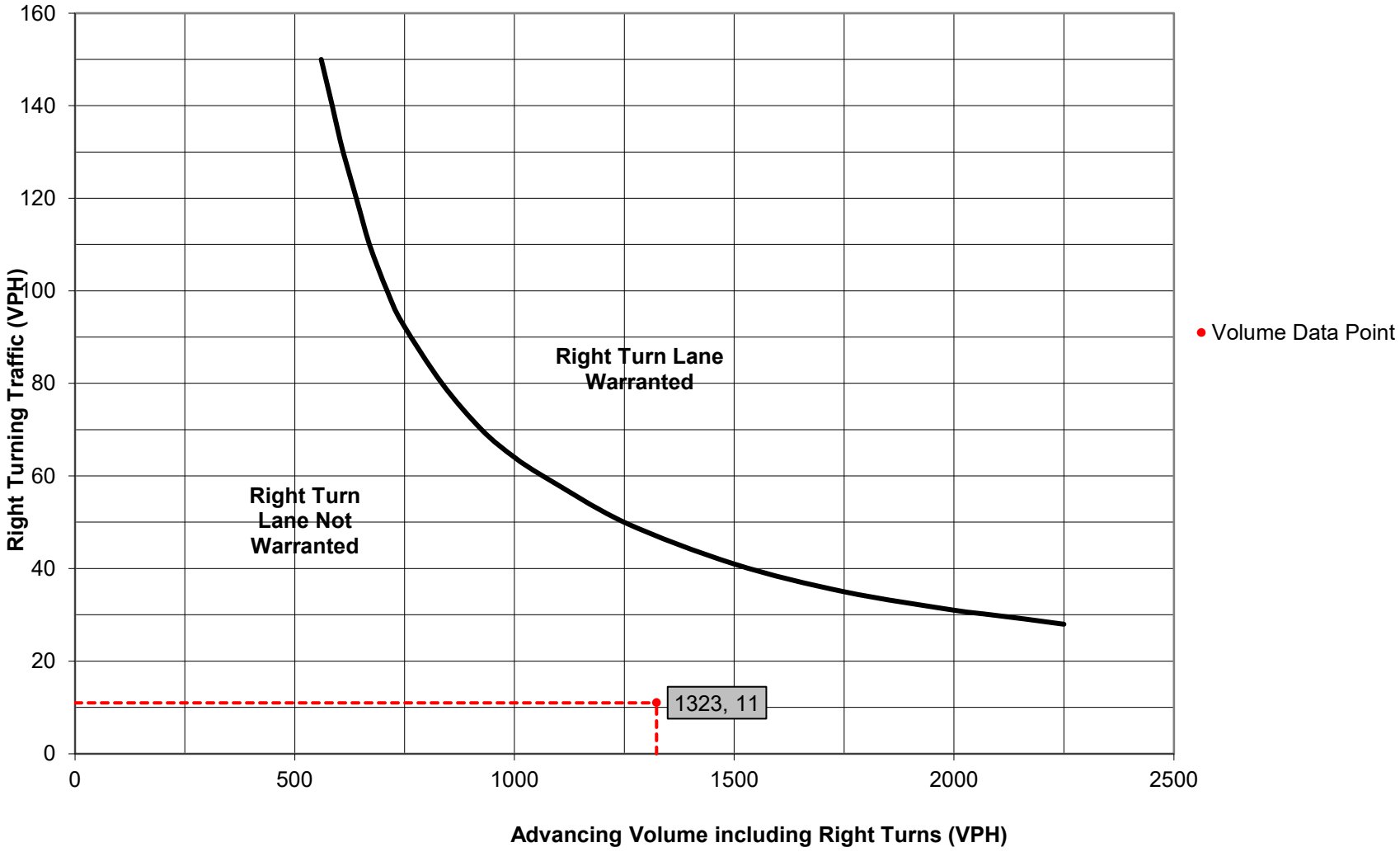
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Northbound Left Turn

Analysis Period:	2025 Existing Year	**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	1	0.0%	1
	Through	-	1	0.0%	1
	Right	No	16	13.0%	N/A
Opposing	Left	Yes	58	3.0%	61
	Through	-	1	0.0%	1
	Right	Yes	30	0.0%	30

Advancing Volume:	2
Opposing Volume:	92
Left Turn Volume:	1
% Left Turns in Advancing Volume:	50.00%

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?: **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:	1
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

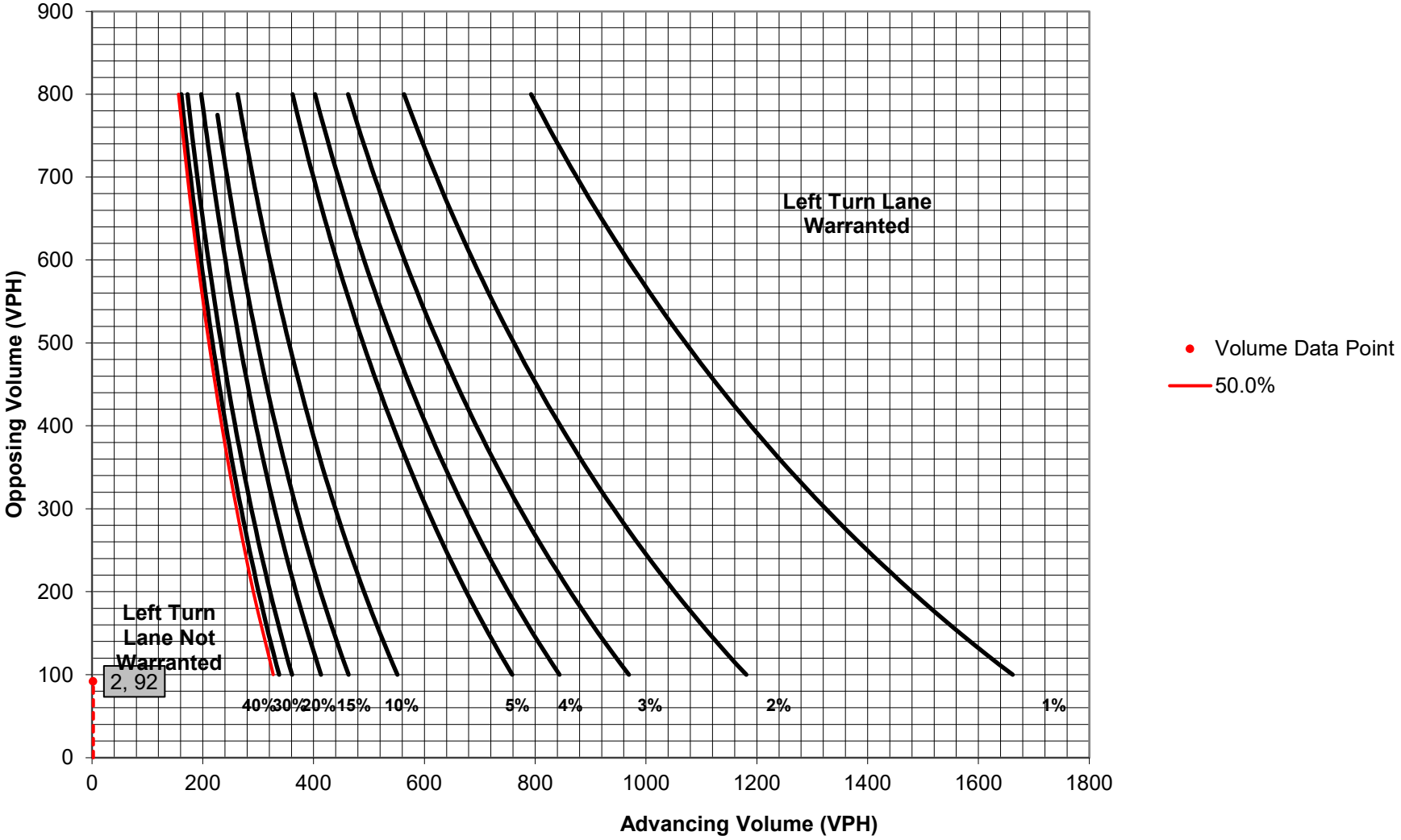
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Northbound Right Turn

Analysis Period:	2025 Existing Year	**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	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	No	1	0.0%	N/A
	Through	-	1	0.0%	1
	Right	-	16	13.0%	20

Advancing Volume:	21
Right Turn Volume:	20

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:	20
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

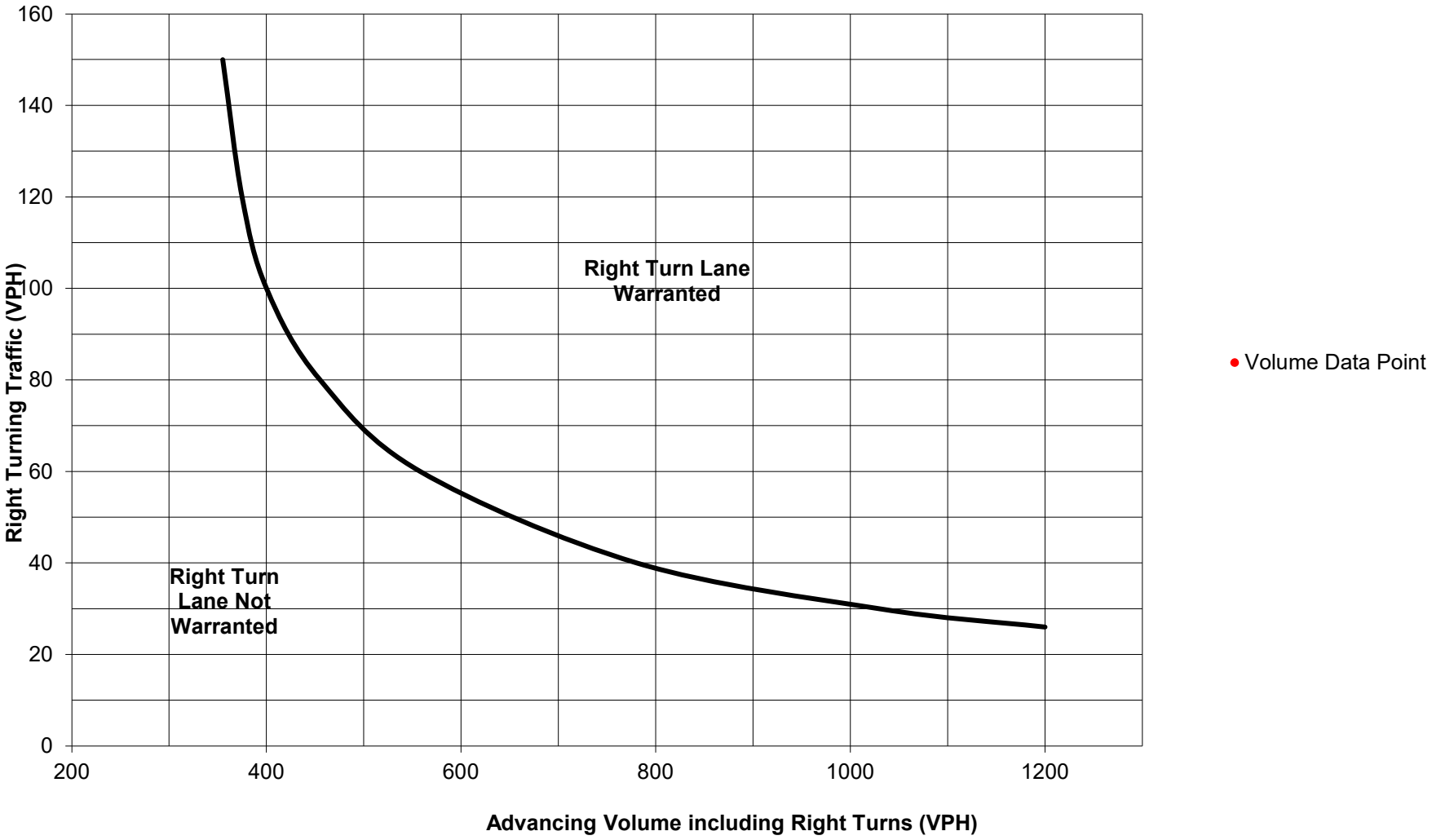
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Southbound Left Turn

Analysis Period:	2025 Existing Year	**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	58	3.0%	61
	Through	-	1	0.0%	1
	Right	Yes	30	0.0%	30
Opposing	Left	Yes	1	0.0%	1
	Through	-	1	0.0%	1
	Right	Yes	16	13.0%	20

Advancing Volume:	92
Opposing Volume:	22
Left Turn Volume:	61
% Left Turns in Advancing Volume:	66.30%

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:	Signalized
Design Hour Volume of Turning Lane:	61
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

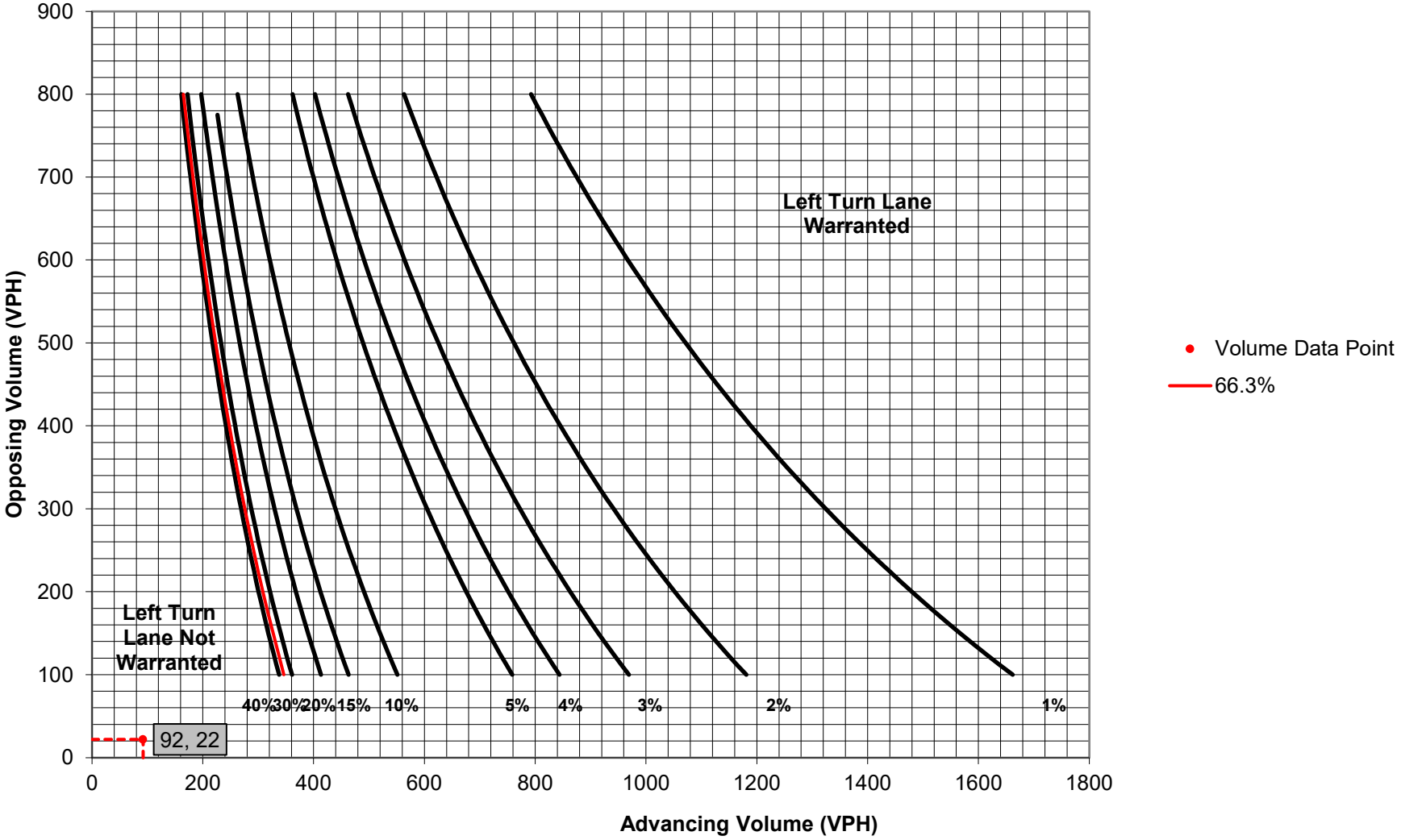
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Southbound Right Turn

Analysis Period:	2025 Existing Year	**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	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	58	3.0%	61
	Through	-	1	0.0%	1
	Right	-	30	0.0%	30

Advancing Volume: 92
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):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

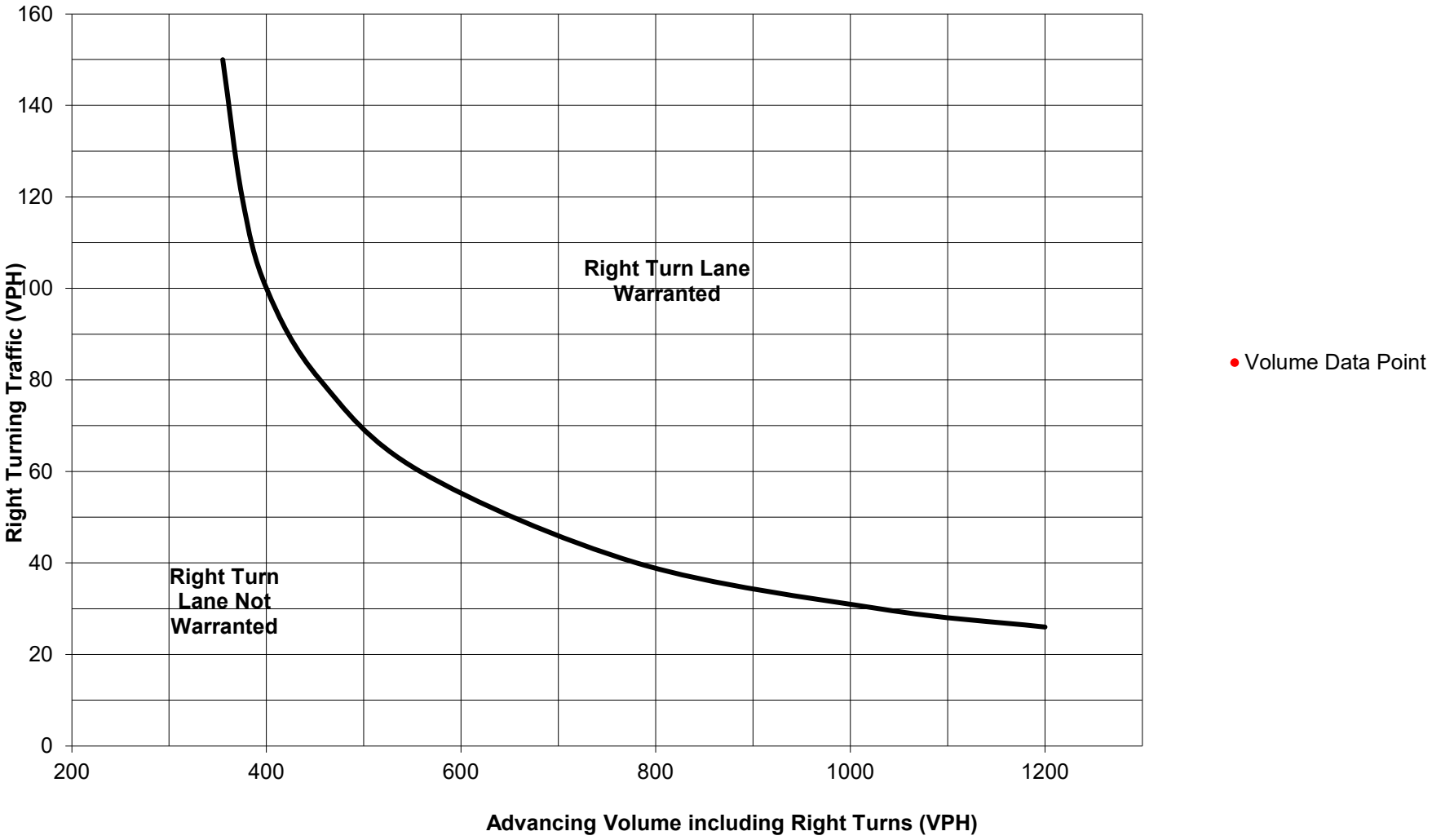
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Westbound Left Turn

Analysis Period:	2025 Existing Year	**Number of Approach Lanes:**	2
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
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	33.0%	5
	Through	-	695	25.0%	956
	Right	No	18	6.0%	N/A
Opposing	Left	No	20	15.0%	N/A
	Through	-	975	23.0%	1312
	Right	Yes	9	11.0%	11

Advancing Volume:	961
Opposing Volume:	1323
Left Turn Volume:	5
% Left Turns in Advancing Volume:	0.52%

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:	5
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

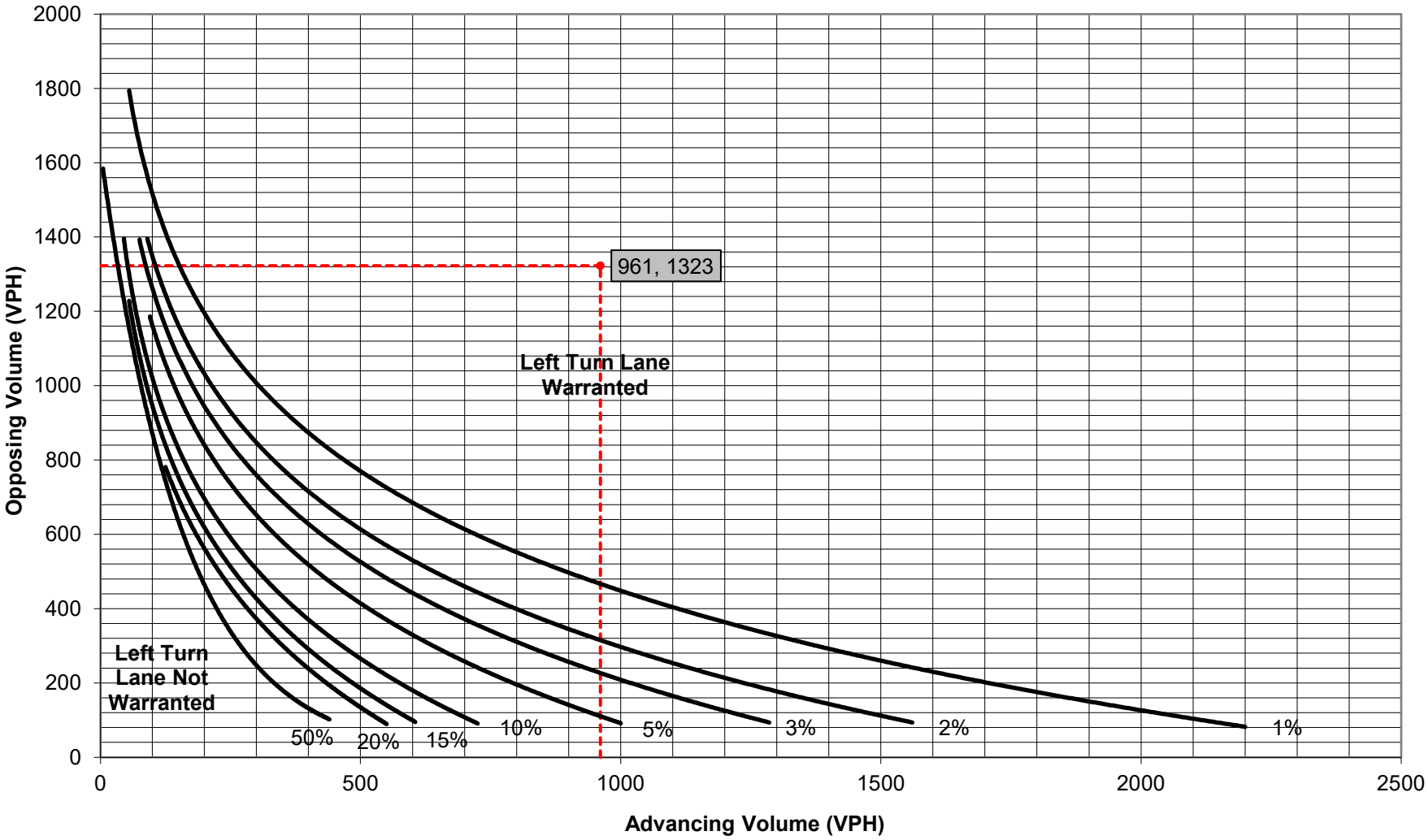
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Westbound Right Turn

Analysis Period:	2025 Existing Year	**Number of Approach Lanes:**	2
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
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	3	33.0%	N/A
	Through	-	695	25.0%	956
	Right	-	18	6.0%	20

Advancing Volume:	976
Right Turn Volume:	20

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:	20
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

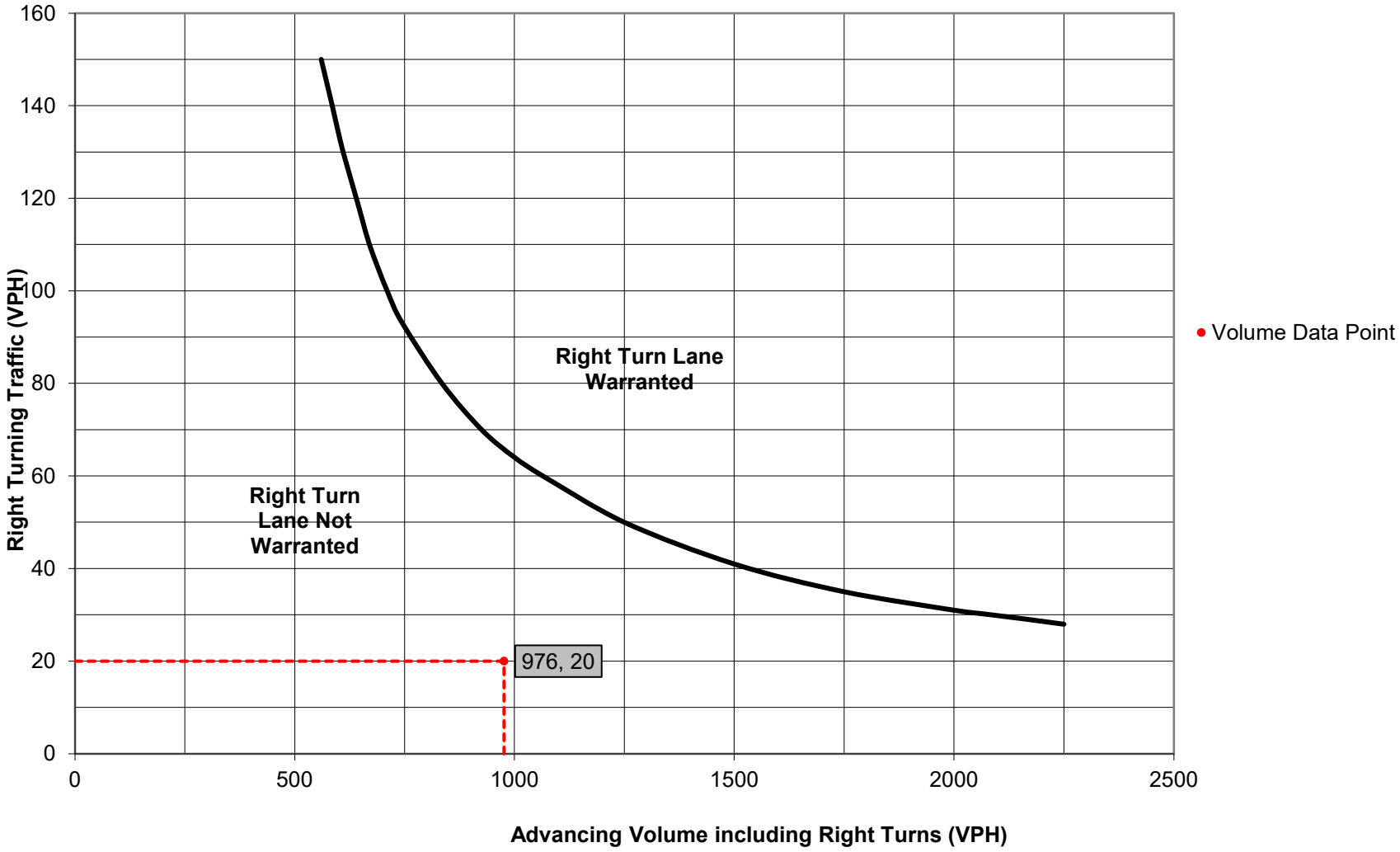
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Eastbound Left Turn

Analysis Period:	2025 Existing Year	**Number of Approach Lanes:**	2
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
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	43	0.0%	43
	Through	-	1199	28.0%	1703
	Right	No	13	8.0%	N/A
Opposing	Left	No	25	16.0%	N/A
	Through	-	869	26.0%	1208
	Right	Yes	29	7.0%	33

Advancing Volume:	1746
Opposing Volume:	1241
Left Turn Volume:	43
% Left Turns in Advancing Volume:	2.46%

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?: Yes

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:	43
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: 1.0

PennDOT Publication 46, Exhibit 11-6

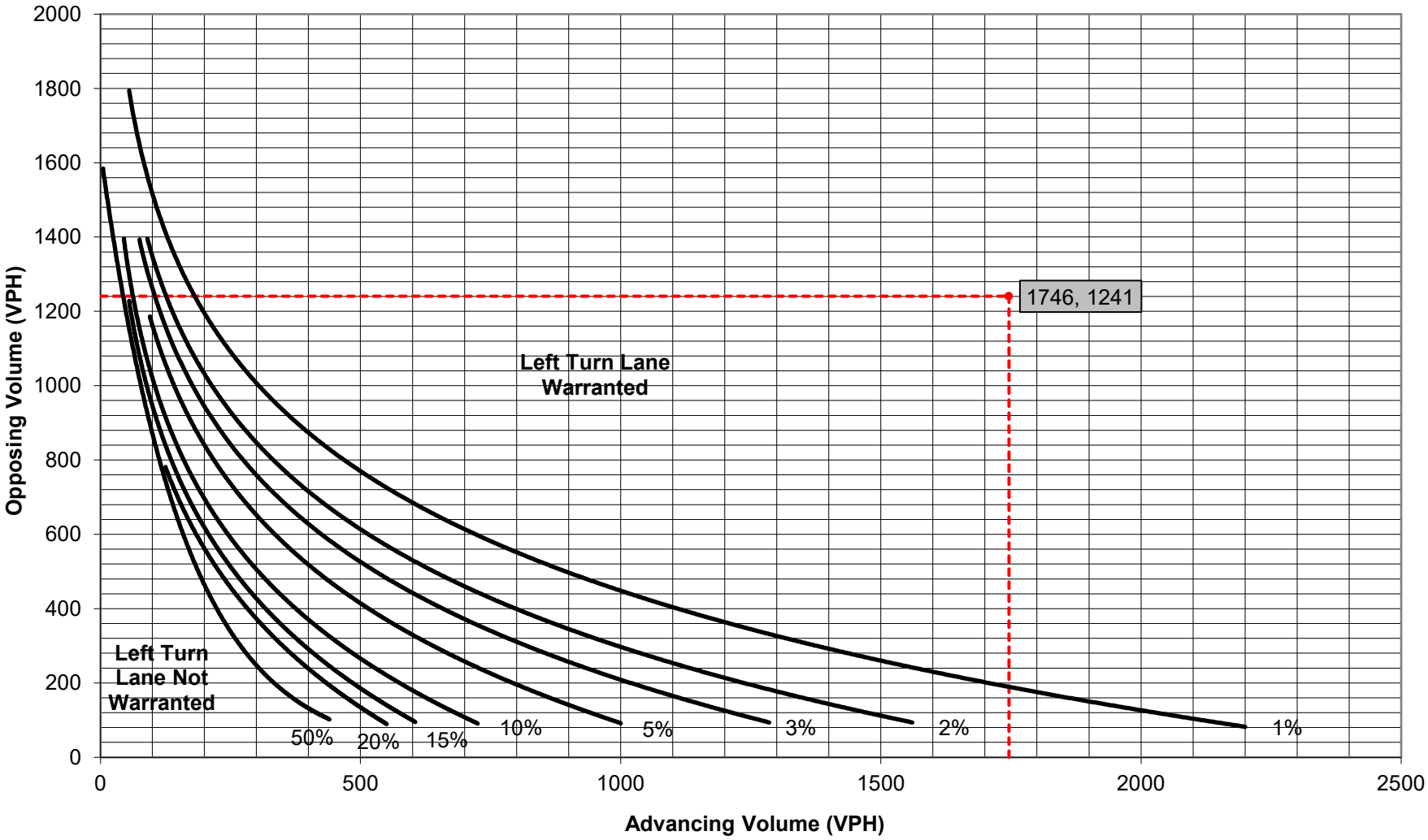
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	75	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	75	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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Eastbound Right Turn

Analysis Period:	2025 Existing Year	**Number of Approach Lanes:**	2
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
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	43	0.0%	N/A
	Through	-	1199	28.0%	1703
	Right	-	13	8.0%	15

Advancing Volume:	1718
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 11

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):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

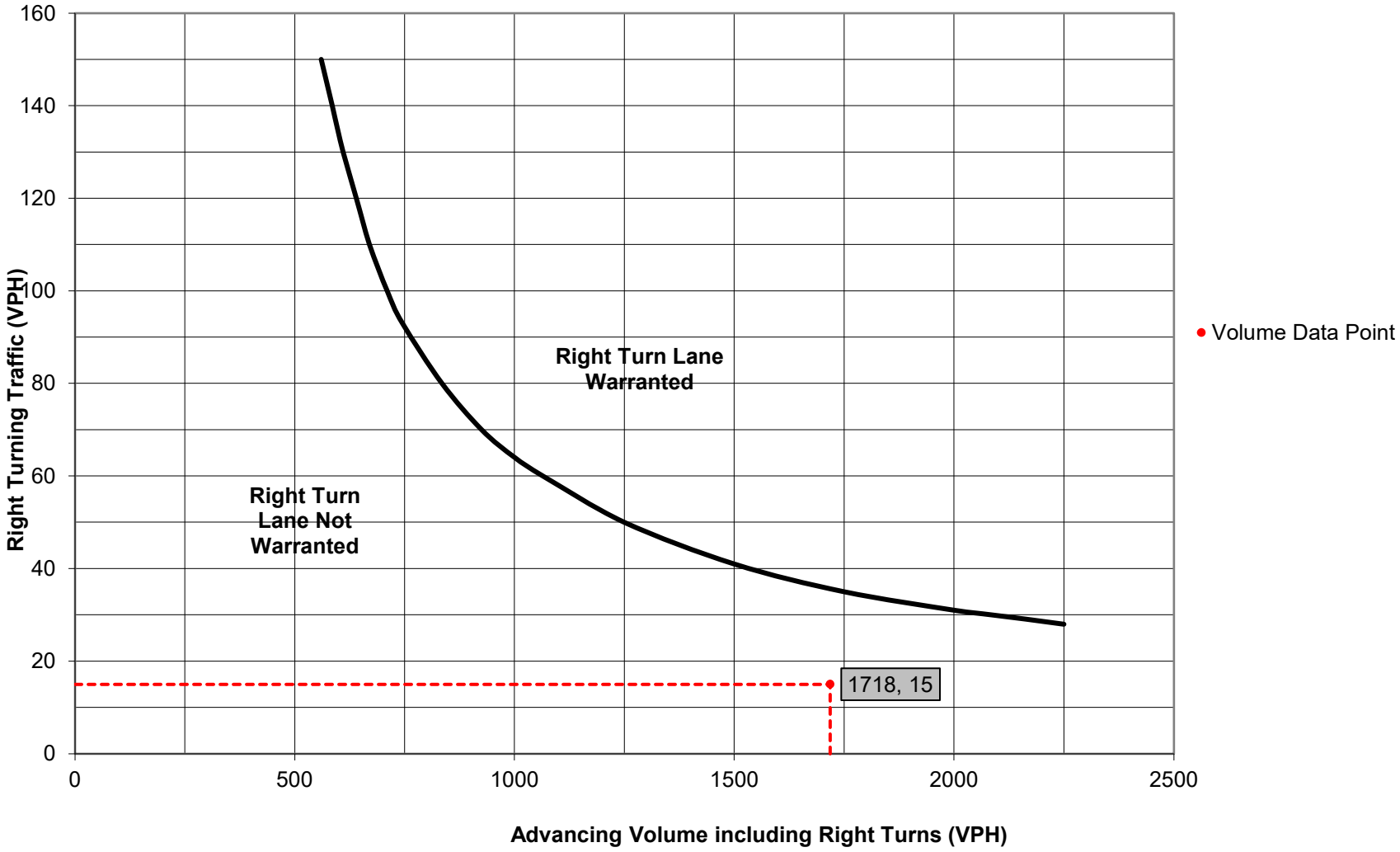
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Northbound Left Turn

Analysis Period:	2025 Existing Year	**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	12	0.0%	12
	Through	-	0	0.0%	0
	Right	No	25	8.0%	N/A
Opposing	Left	Yes	37	8.0%	42
	Through	-	1	0.0%	1
	Right	Yes	26	8.0%	30

Advancing Volume:	12
Opposing Volume:	73
Left Turn Volume:	12
% 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:	12
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

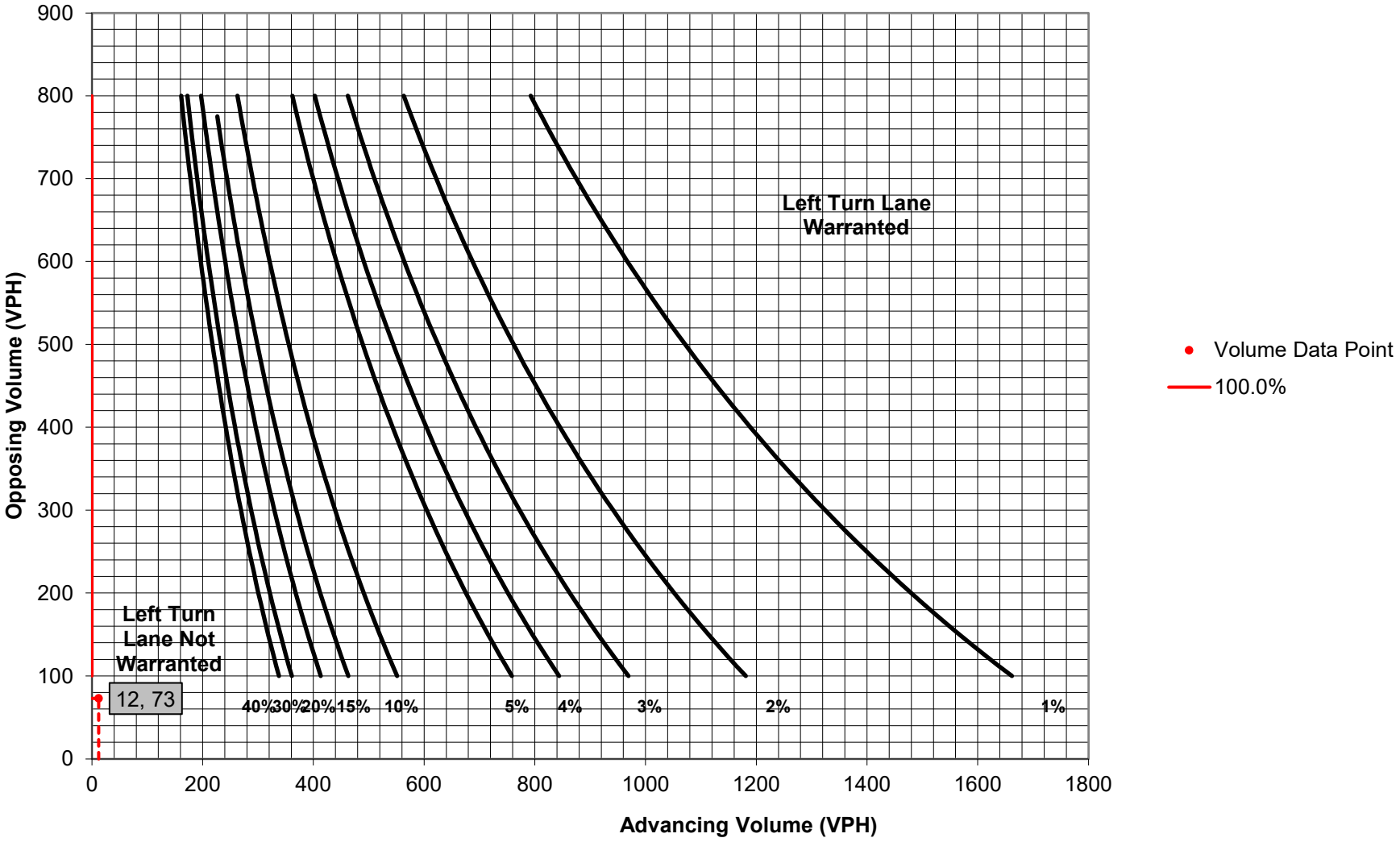
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Northbound Right Turn

Analysis Period:	2025 Existing Year	**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	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	No	12	0.0%	N/A
	Through	-	0	0.0%	0
	Right	-	25	8.0%	28

Advancing Volume:	28
Right Turn Volume:	28

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:	28
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

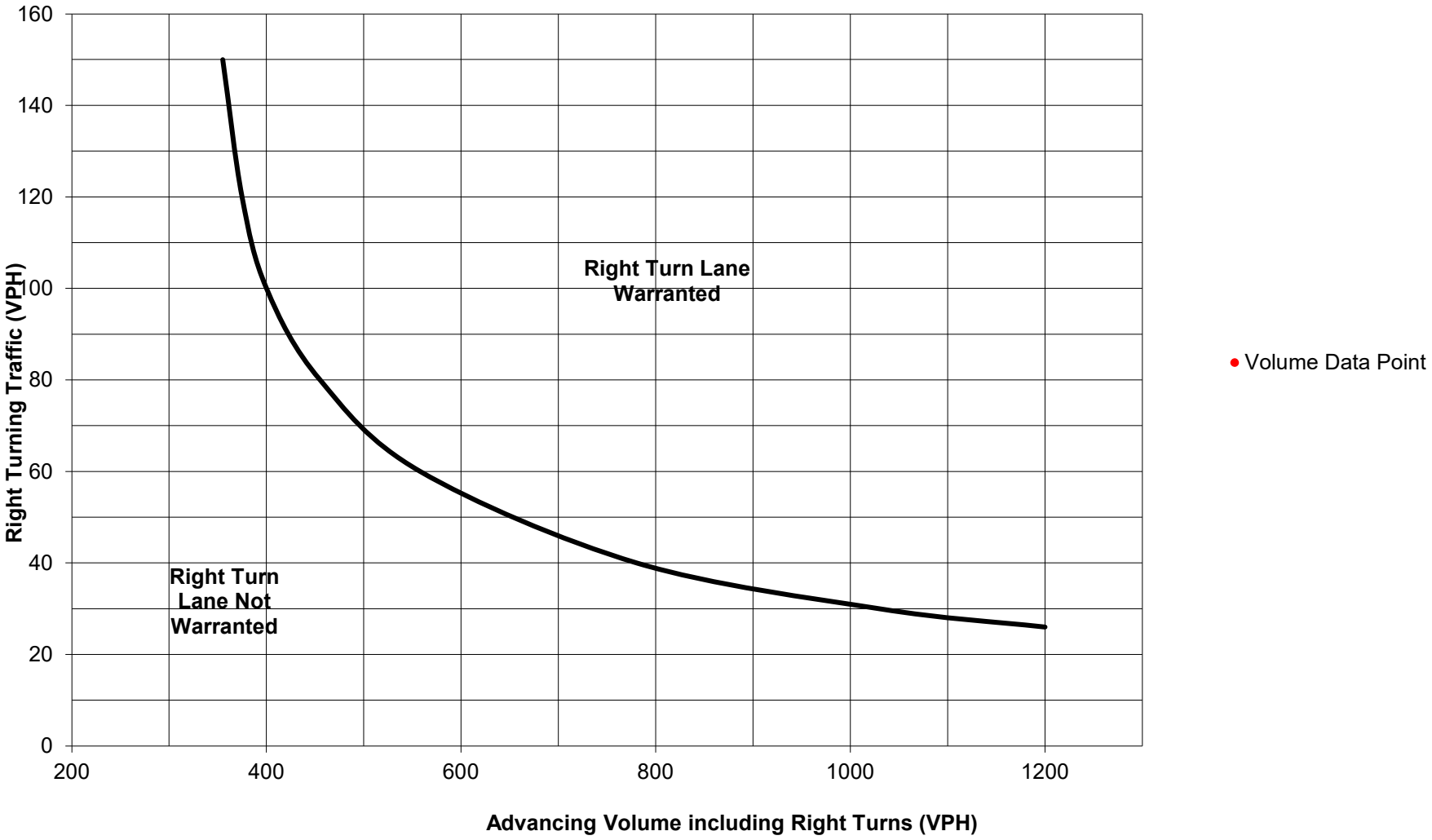
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Southbound Left Turn

Analysis Period:	2025 Existing Year	**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	37	8.0%	42
	Through	-	1	0.0%	1
	Right	Yes	26	8.0%	30
Opposing	Left	Yes	12	0.0%	12
	Through	-	0	0.0%	0
	Right	Yes	25	8.0%	28

Advancing Volume:	73
Opposing Volume:	40
Left Turn Volume:	42
% Left Turns in Advancing Volume:	57.53%

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:	42
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

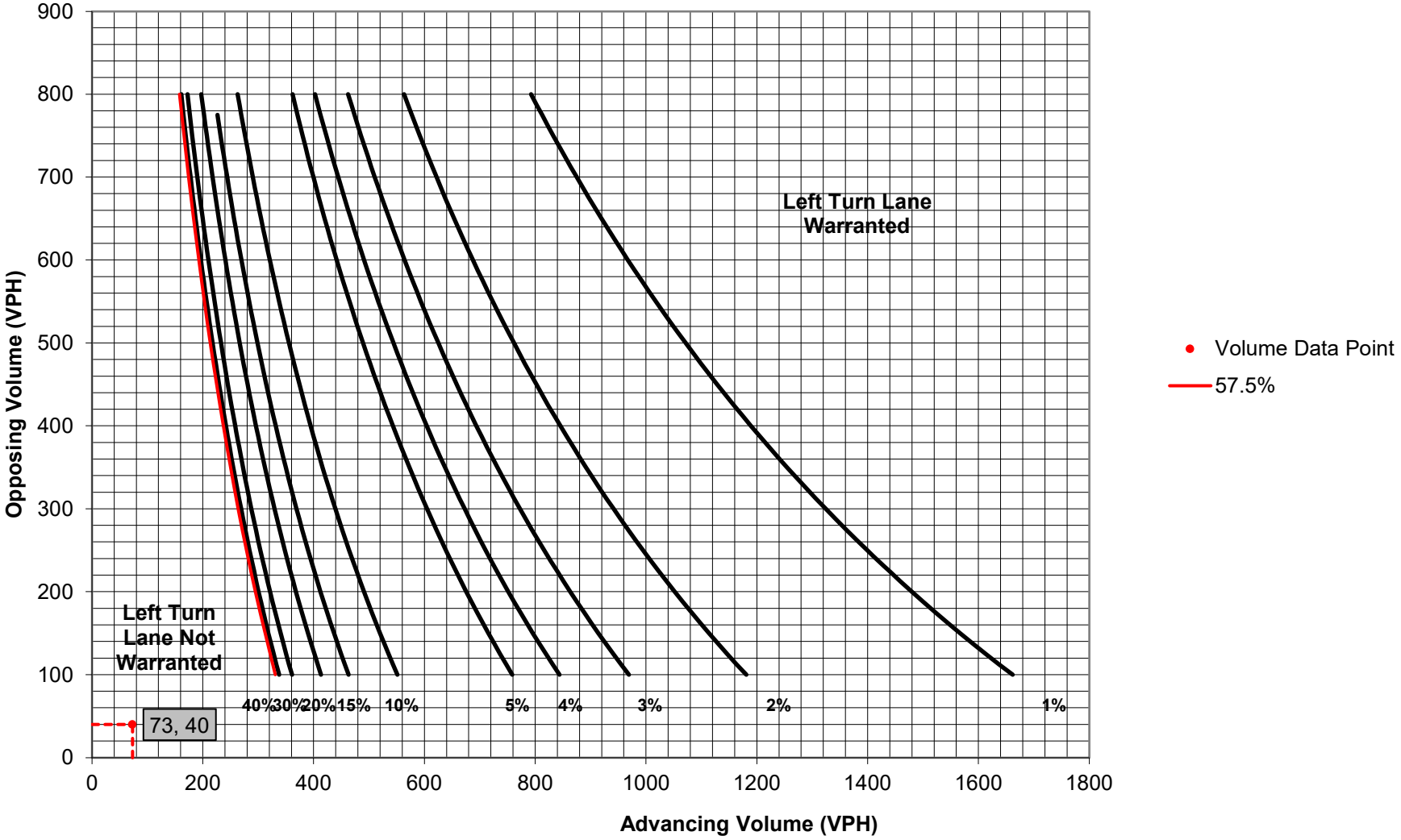
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Southbound Right Turn

Analysis Period:	2025 Existing Year	**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	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	37	8.0%	42
	Through	-	1	0.0%	1
	Right	-	26	8.0%	30

Advancing Volume:	73
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):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

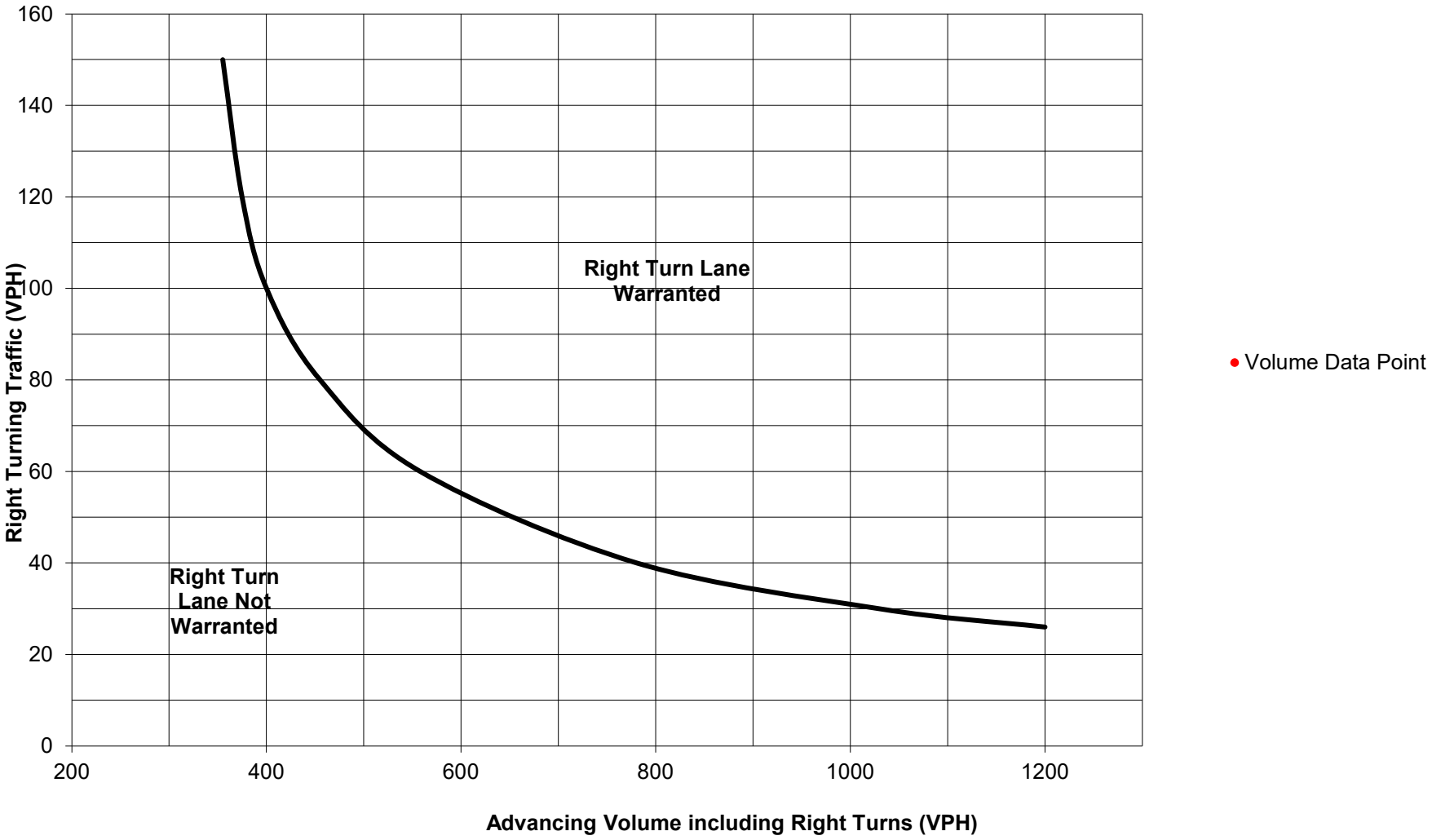
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Westbound Left Turn

Analysis Period:	2025 Existing Year	**Number of Approach Lanes:**	2
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
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	16.0%	31
	Through	-	869	26.0%	1208
	Right	No	29	7.0%	N/A
Opposing	Left	No	43	0.0%	N/A
	Through	-	1199	28.0%	1703
	Right	Yes	13	8.0%	15

Advancing Volume:	1239
Opposing Volume:	1718
Left Turn Volume:	31
% Left Turns in Advancing Volume:	2.50%

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?: **Yes**

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:	31
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: 1.0

PennDOT Publication 46, Exhibit 11-6

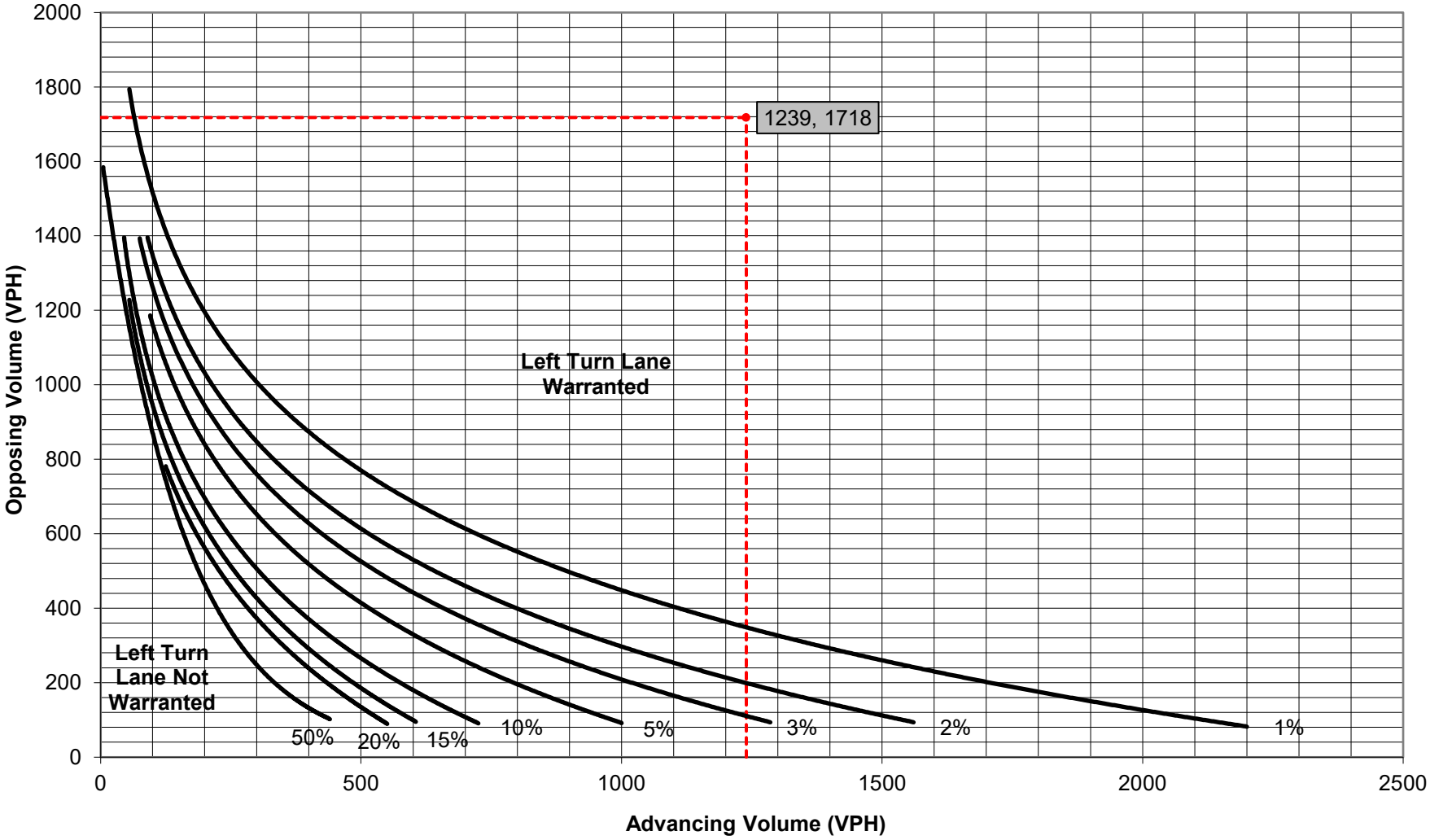
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	**75**	**Feet**
Condition B:	**N/A**	**Feet**
Condition C:	**N/A**	**Feet**
Required Left Turn Lane Storage Length:	**75**	**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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Westbound Right Turn

Analysis Period:	2025 Existing Year	**Number of Approach Lanes:**	2
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
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	25	16.0%	N/A
	Through	-	869	26.0%	1208
	Right	-	29	7.0%	33

Advancing Volume:	1241
Right Turn Volume:	33

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:	33
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

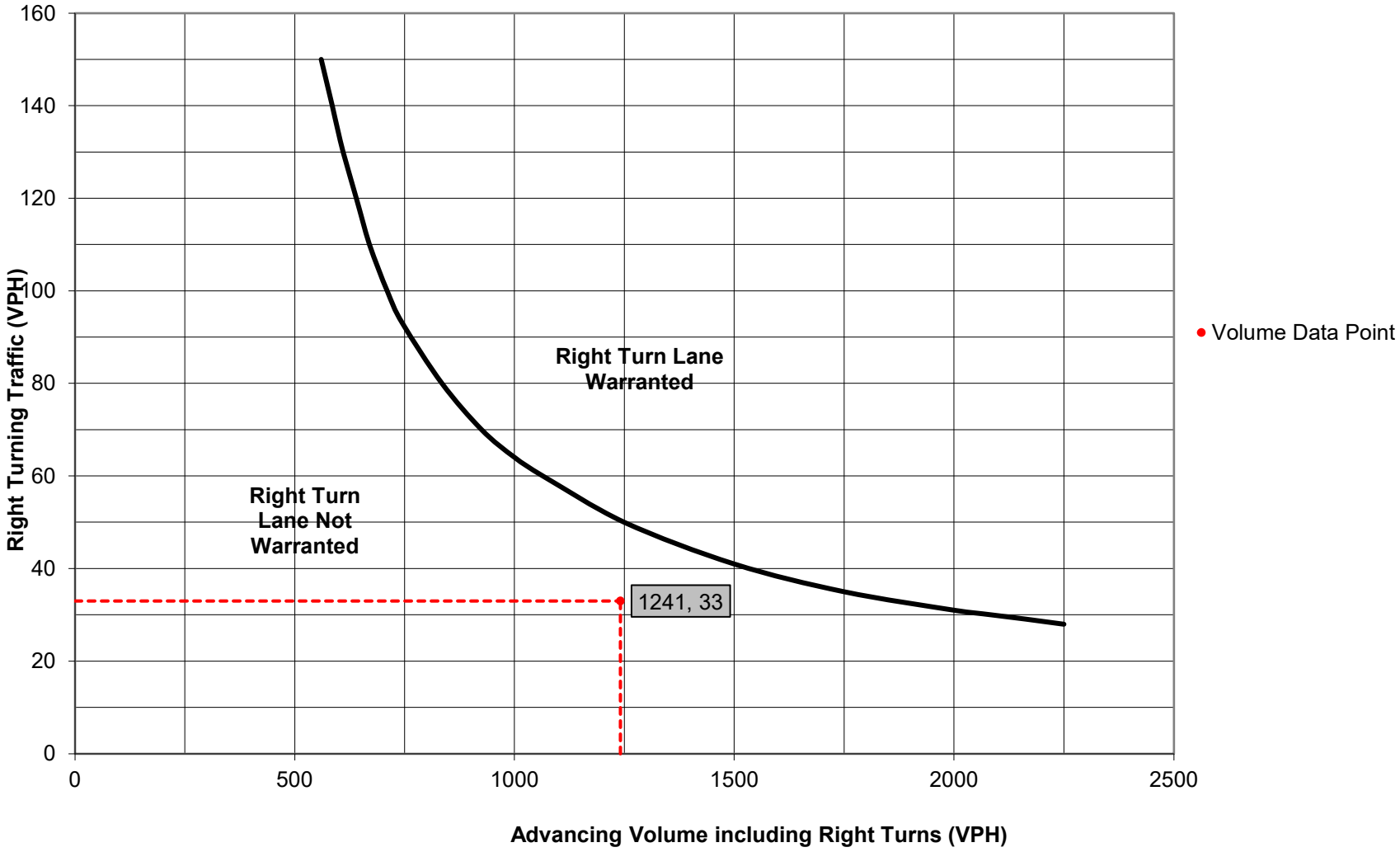
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Eastbound Left Turn

Analysis Period:	2025 Existing Year	**Number of Approach Lanes:**	2
Design Hour:	SAT Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
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	-	650	19.0%	836
	Right	No	11	0.0%	N/A
Opposing	Left	No	19	32.0%	N/A
	Through	-	722	18.0%	917
	Right	Yes	37	0.0%	37

Advancing Volume:	865
Opposing Volume:	954
Left Turn Volume:	29
% Left Turns in Advancing Volume:	3.35%

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 8

Warrant Met?: Yes

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:	29
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: 1.0

PennDOT Publication 46, Exhibit 11-6

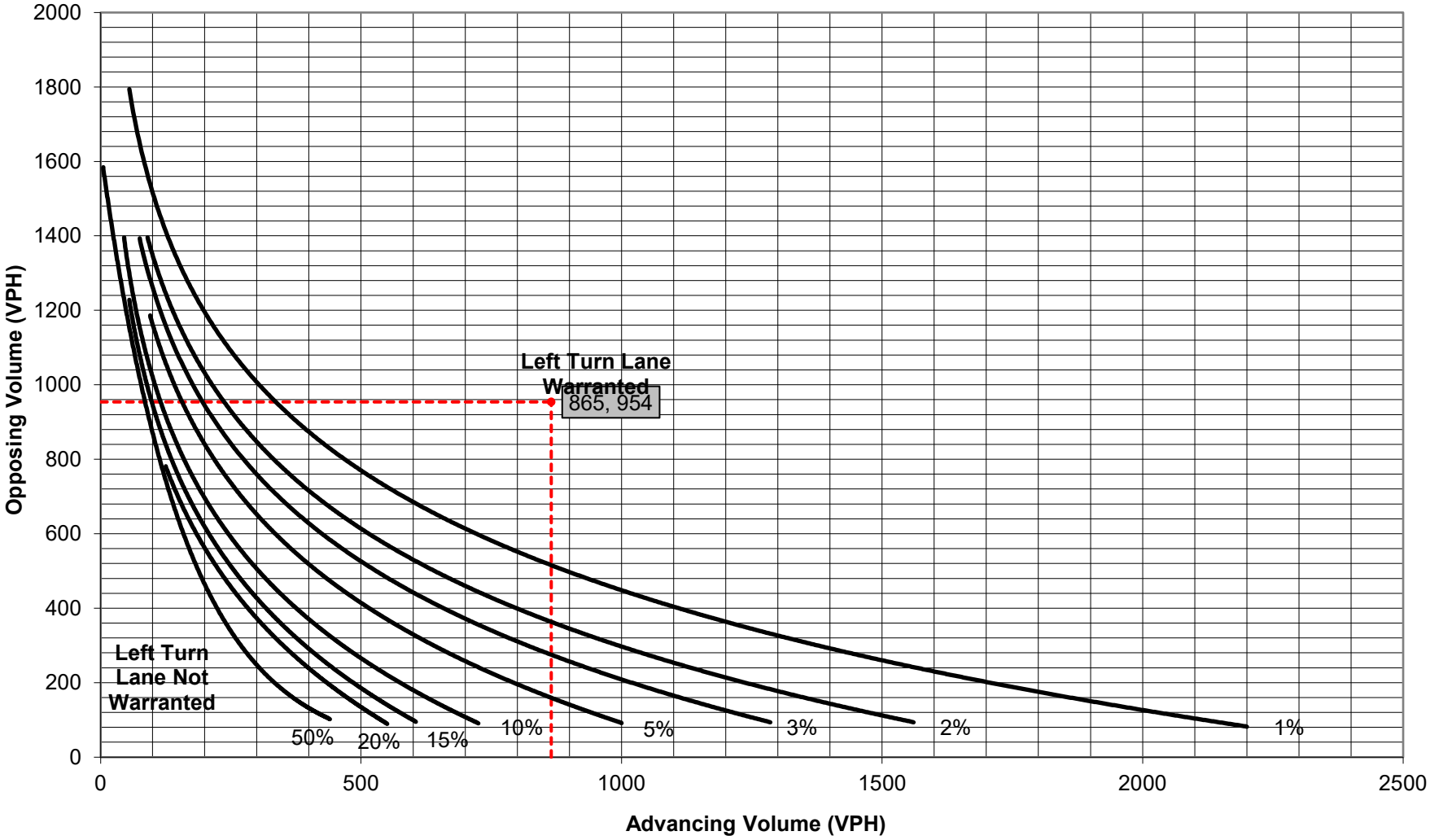
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	75	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	75	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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Eastbound Right Turn

Analysis Period:	2025 Existing Year	**Number of Approach Lanes:**	2
Design Hour:	SAT Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
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	29	0.0%	N/A
	Through	-	650	19.0%	836
	Right	-	11	0.0%	11

Advancing Volume:	847
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 11

Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	11
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

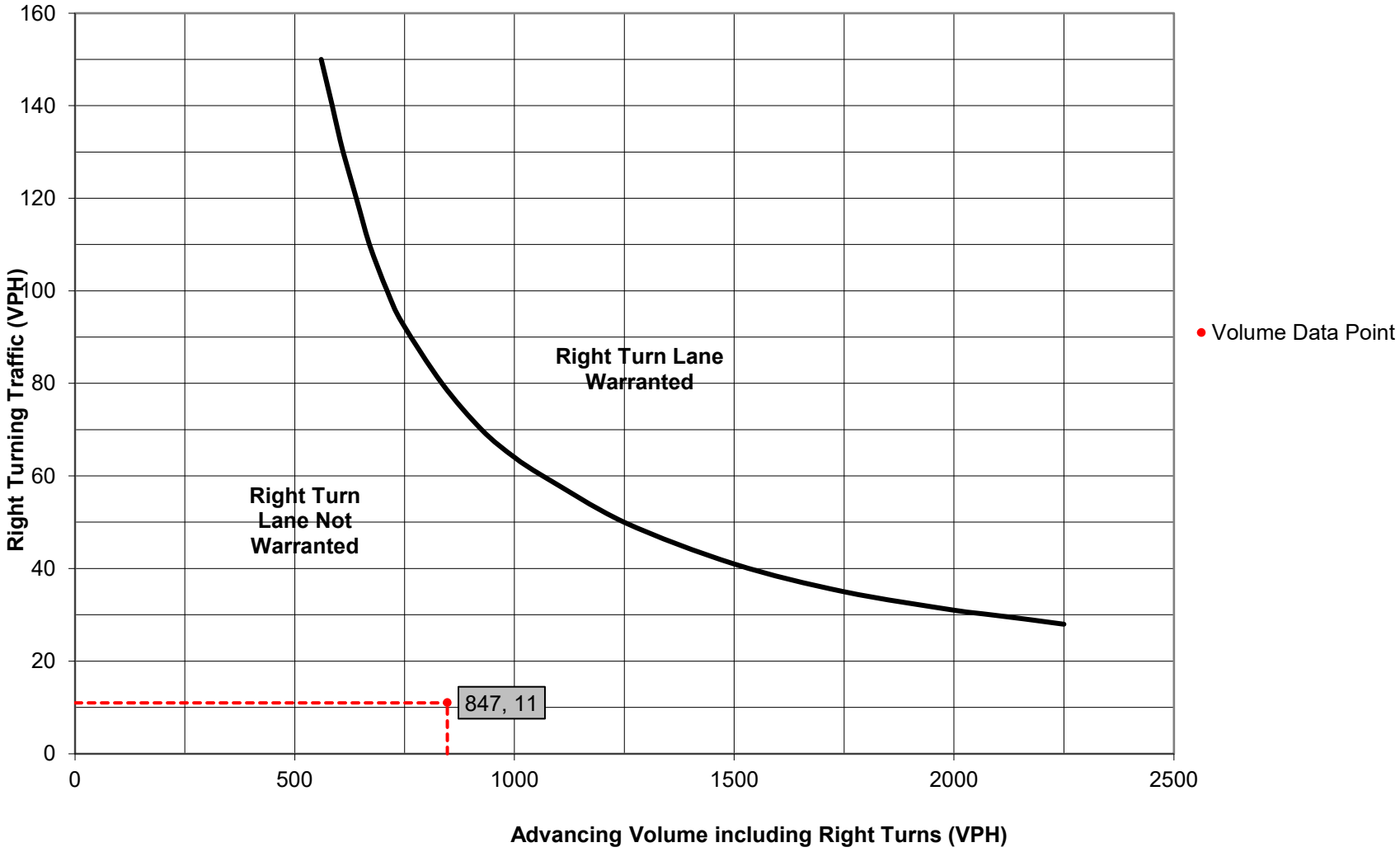
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Northbound Left Turn

Analysis Period:	2025 Existing Year	**Number of Approach Lanes:**	1
Design Hour:	SAT 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	9	22.0%	12
	Through	-	2	0.0%	2
	Right	No	20	0.0%	N/A
Opposing	Left	Yes	30	0.0%	30
	Through	-	1	0.0%	1
	Right	Yes	18	0.0%	18

Advancing Volume:	14
Opposing Volume:	49
Left Turn Volume:	12
% Left Turns in Advancing Volume:	85.71%

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:	12
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

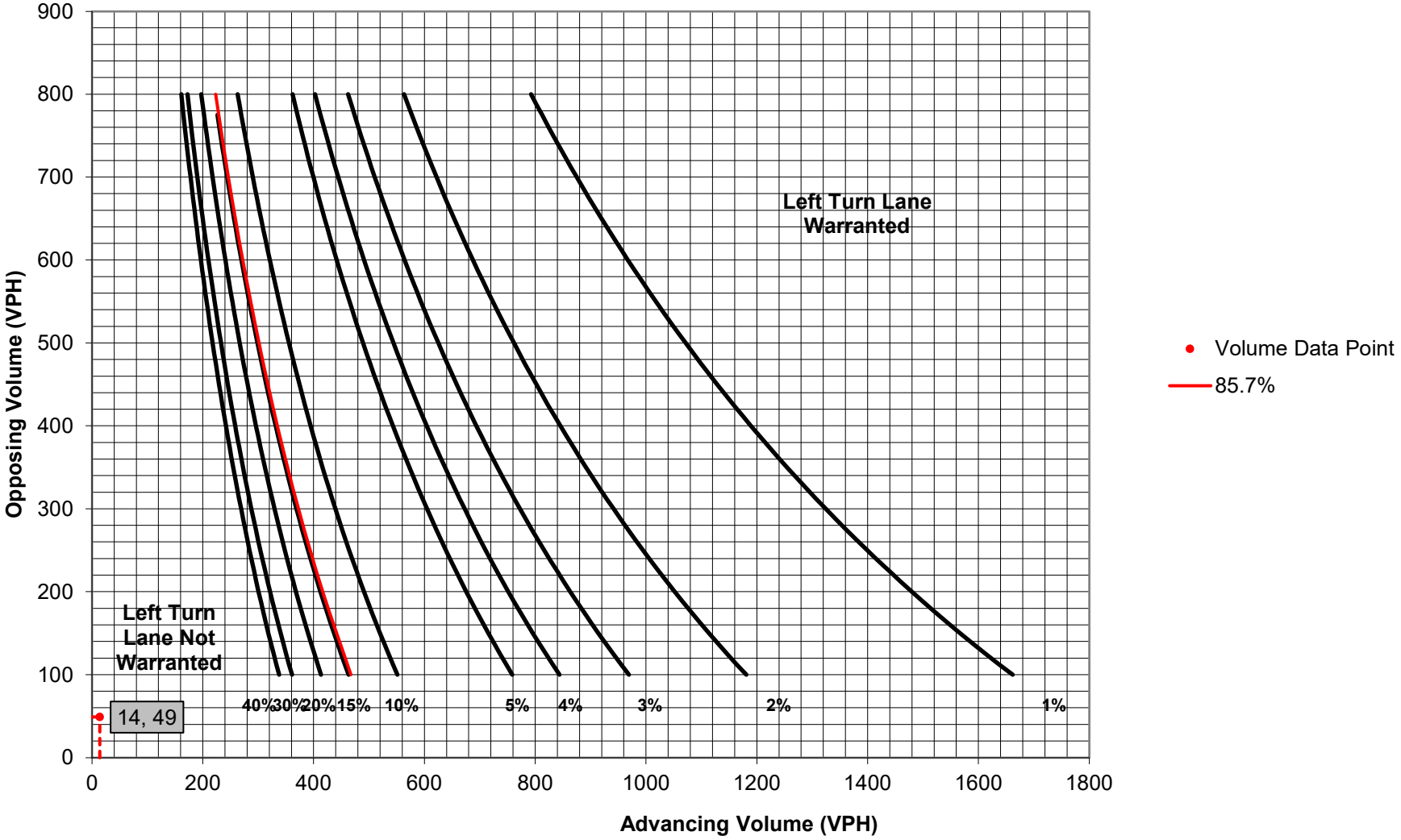
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Northbound Right Turn

Analysis Period:	2025 Existing Year	**Number of Approach Lanes:**	1
Design Hour:	SAT 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	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	No	9	22.0%	N/A
	Through	-	2	0.0%	2
	Right	-	20	0.0%	20

Advancing Volume:	22
Right Turn Volume:	20

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:	20
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

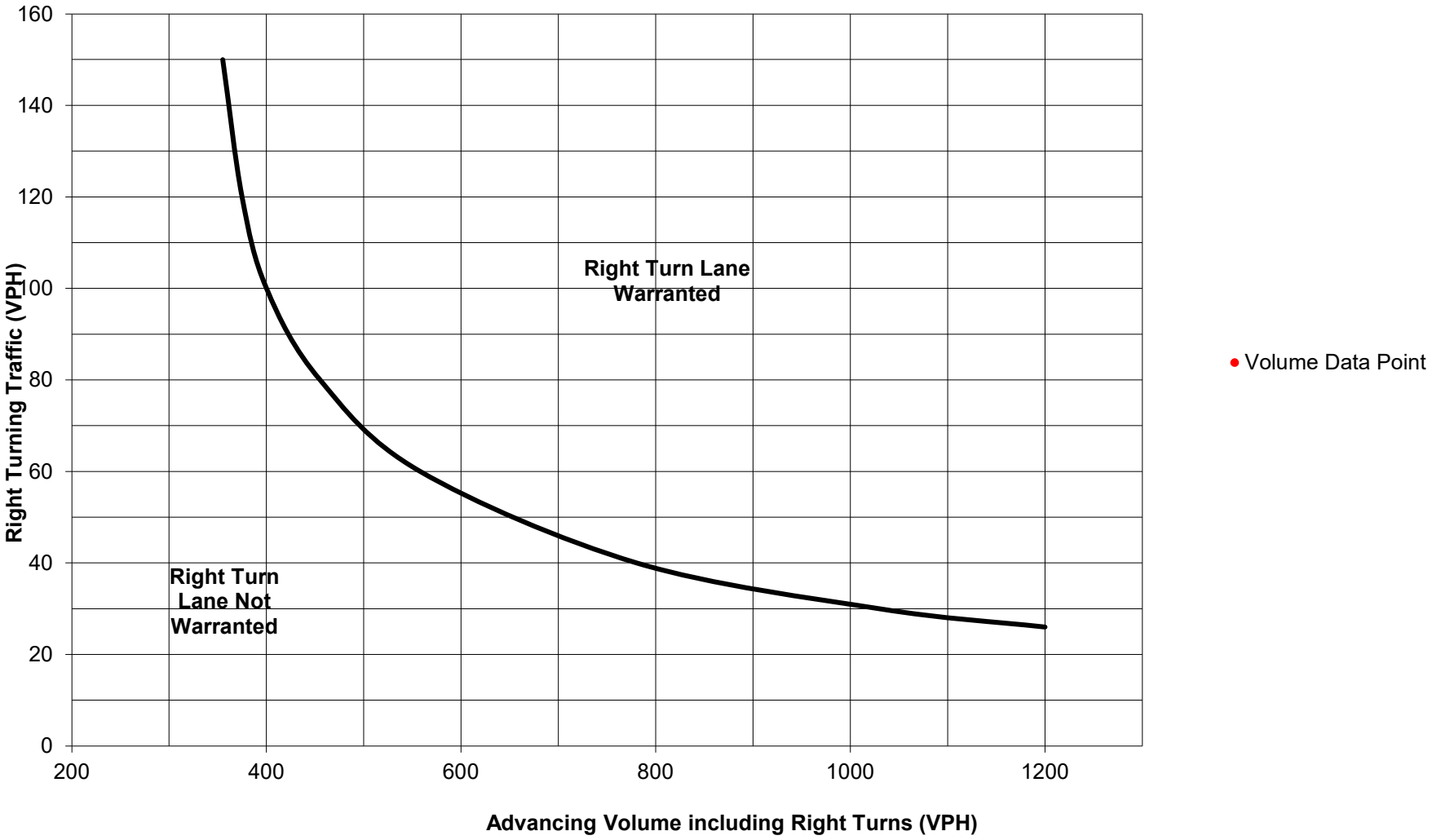
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Southbound Left Turn

Analysis Period:	2025 Existing Year	**Number of Approach Lanes:**	1
Design Hour:	SAT 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	30	0.0%	30
	Through	-	1	0.0%	1
	Right	Yes	18	0.0%	18
Opposing	Left	Yes	9	22.0%	12
	Through	-	2	0.0%	2
	Right	Yes	20	0.0%	20

Advancing Volume:	49
Opposing Volume:	34
Left Turn Volume:	30
% Left Turns in Advancing Volume:	61.22%

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:	Signalized
Design Hour Volume of Turning Lane:	30
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

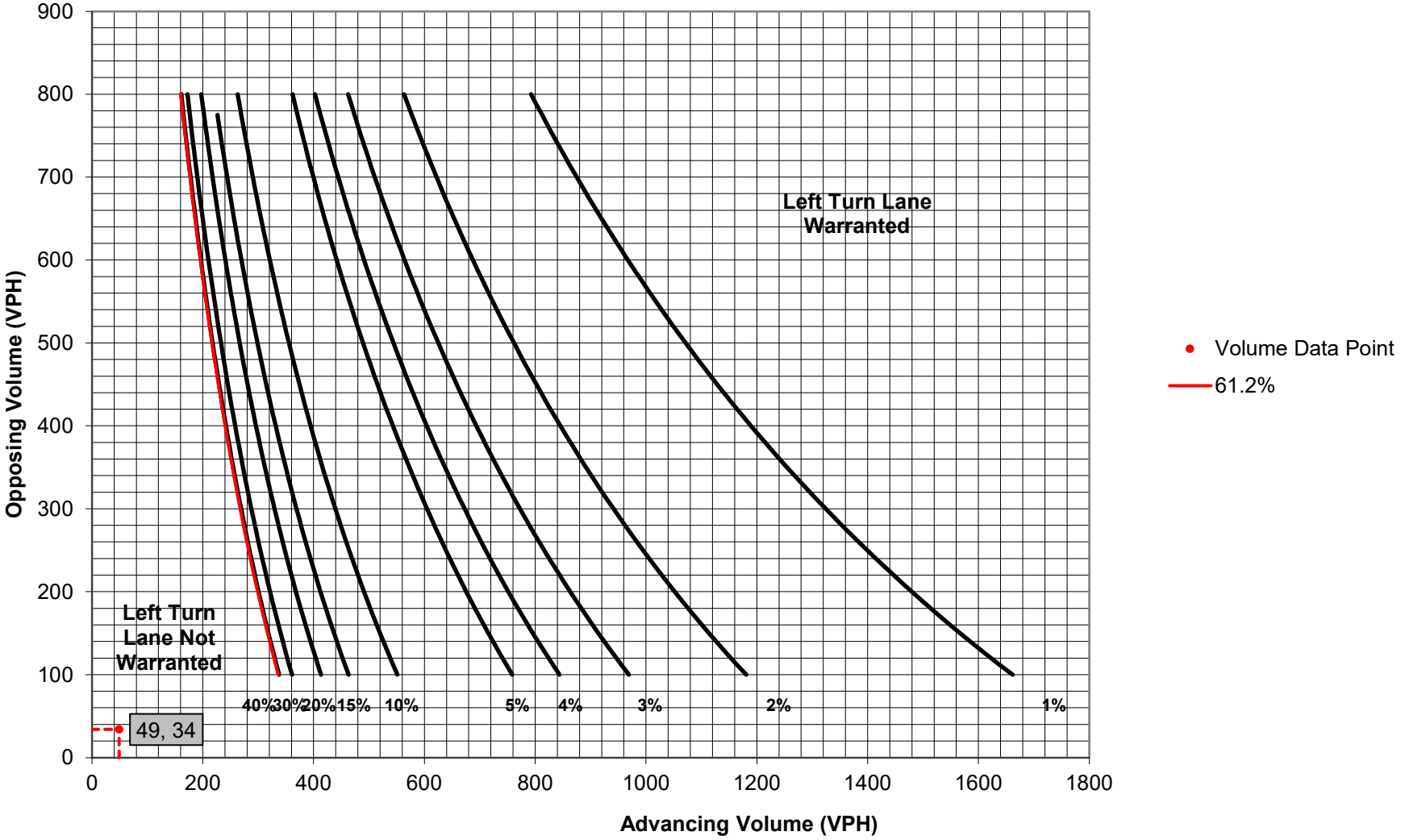
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Southbound Right Turn

Analysis Period:	2025 Existing Year	**Number of Approach Lanes:**	1
Design Hour:	SAT 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	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	0.0%	30
	Through	-	1	0.0%	1
	Right	-	18	0.0%	18

Advancing Volume: 49
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:	Signalized
Design Hour Volume of Turning Lane:	18
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

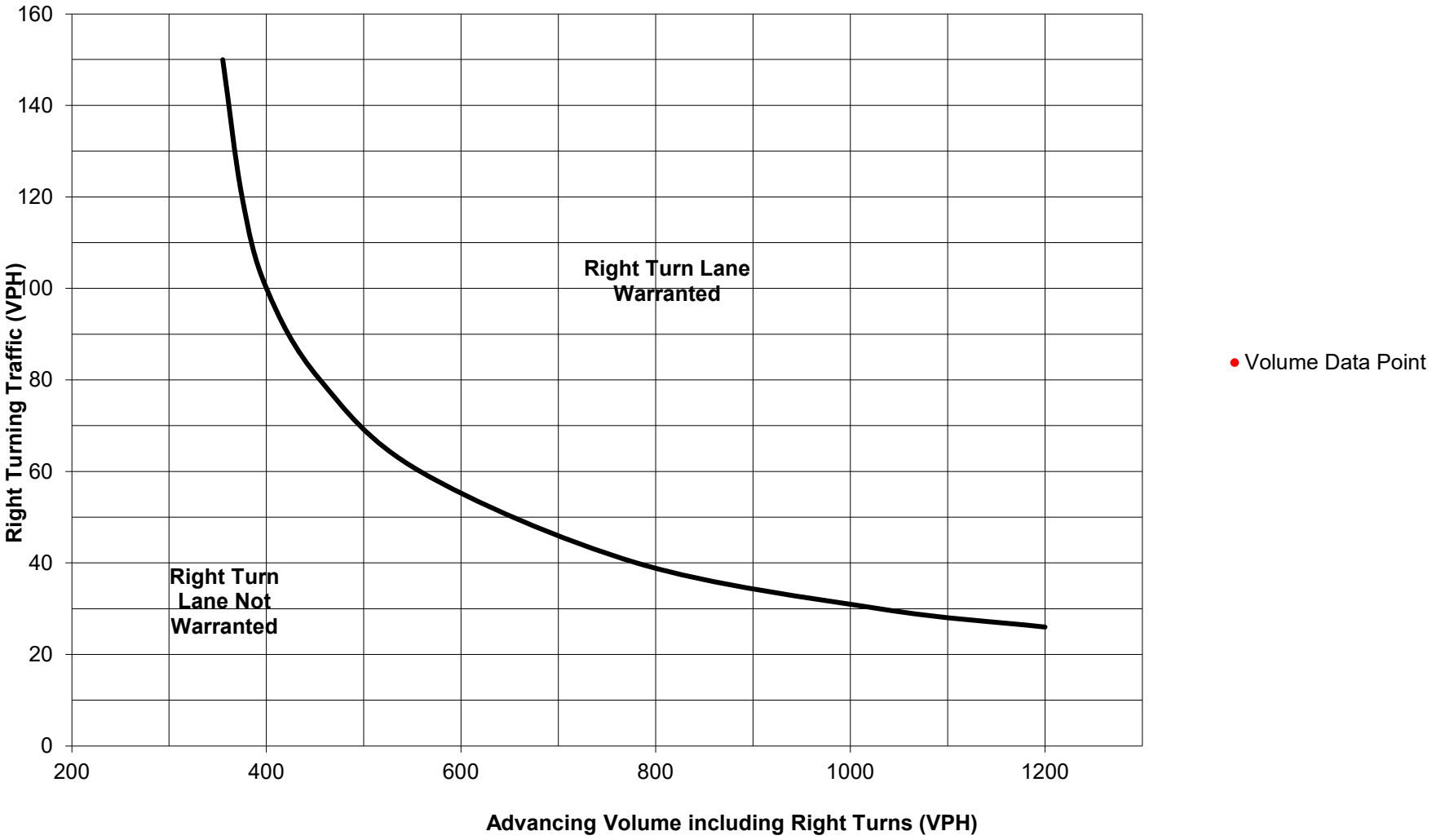
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Westbound Left Turn

Analysis Period:	2025 Existing Year	**Number of Approach Lanes:**	2
Design Hour:	SAT Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
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	32.0%	29
	Through	-	722	18.0%	917
	Right	No	37	0.0%	N/A
Opposing	Left	No	29	0.0%	N/A
	Through	-	650	19.0%	836
	Right	Yes	11	0.0%	11

Advancing Volume:	946
Opposing Volume:	847
Left Turn Volume:	29
% Left Turns in Advancing Volume:	3.07%

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?: Yes

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:	29
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: 1.0

PennDOT Publication 46, Exhibit 11-6

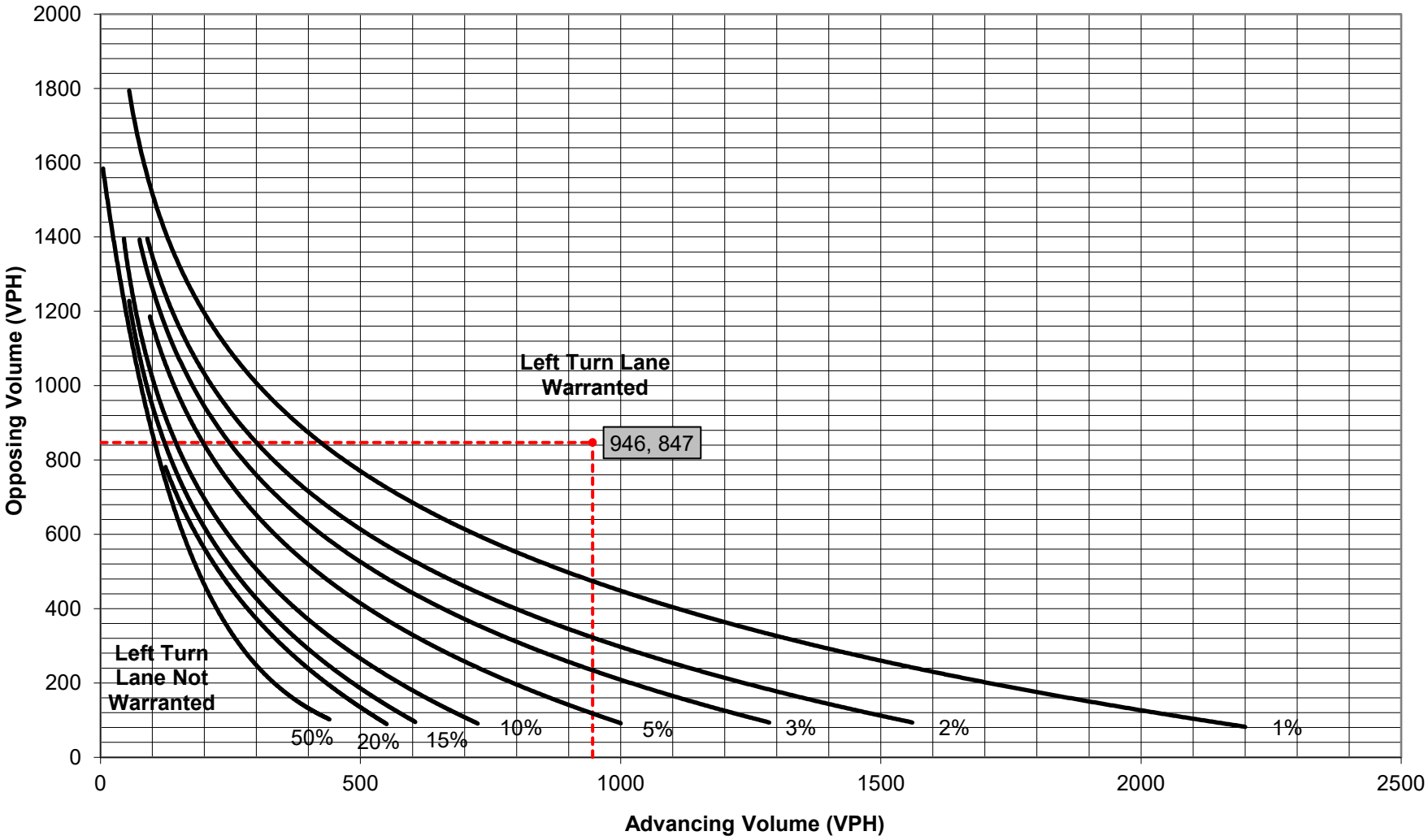
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	75	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	75	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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Westbound Right Turn

Analysis Period:	2025 Existing Year	**Number of Approach Lanes:**	2
Design Hour:	SAT Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
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	19	32.0%	N/A
	Through	-	722	18.0%	917
	Right	-	37	0.0%	37

Advancing Volume:	954
Right Turn Volume:	37

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:	37
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

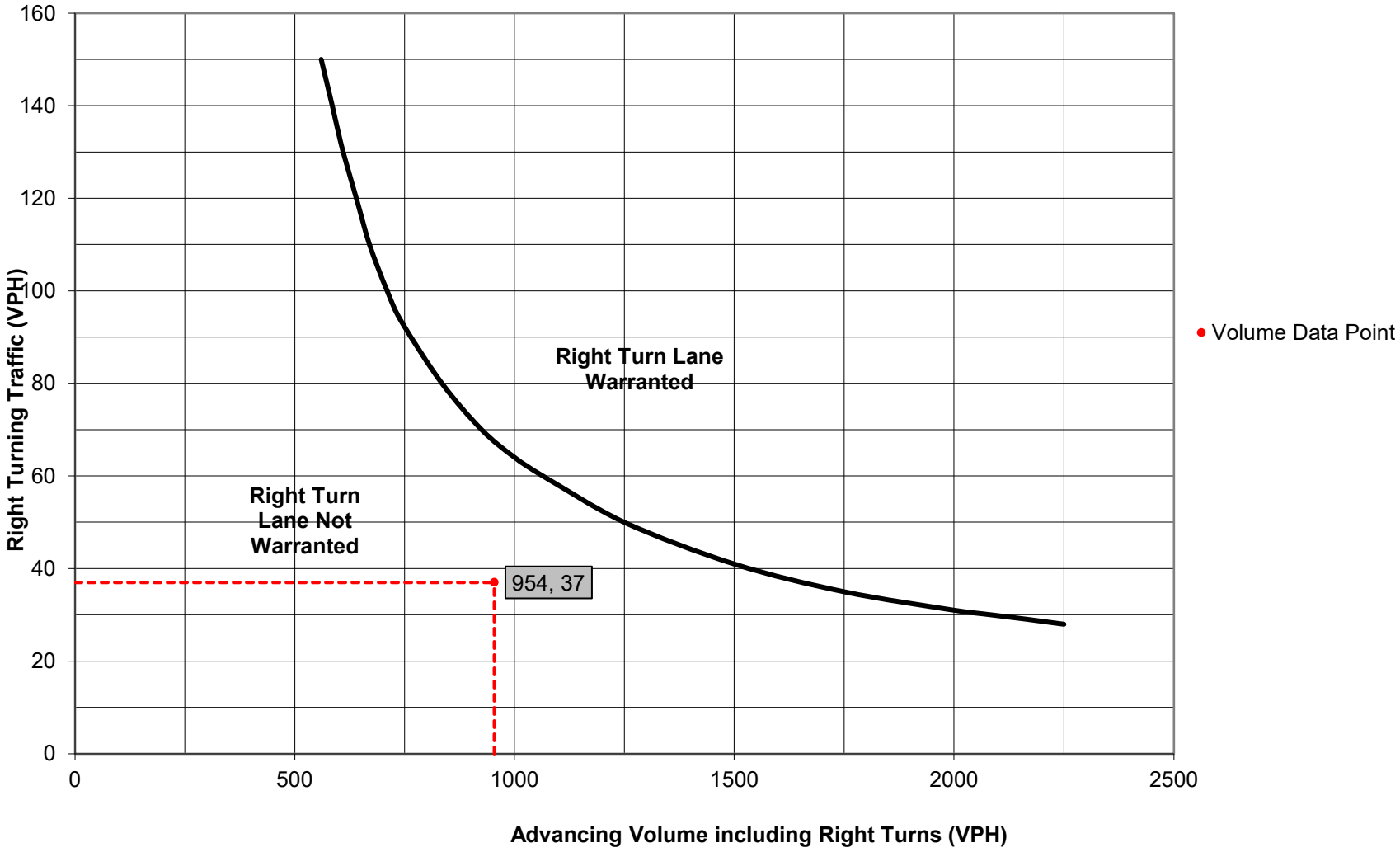
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Country Club Rd & Bernheisel Bridge Rd
Eastbound Left Turn

Analysis Period:	2025 Existing Year	**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	12	0.0%	12
	Through	-	0	0.0%	0
	Right	Yes	5	20.0%	7
Opposing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	0
	Right	No	0	0.0%	N/A

Advancing Volume:	19
Opposing Volume:	0
Left Turn Volume:	12
% Left Turns in Advancing Volume:	63.16%

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?: #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:	12
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

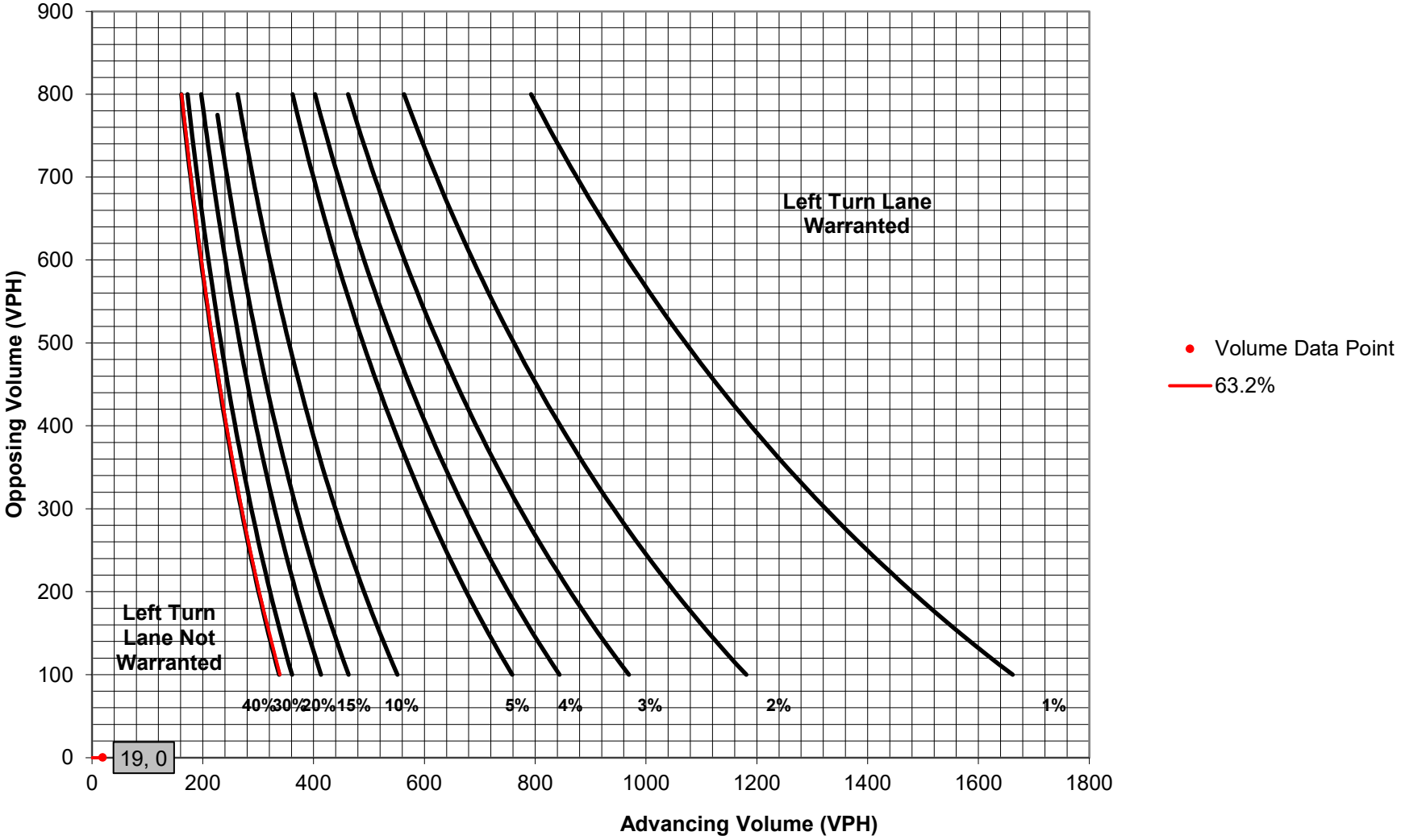
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Country Club Rd & Bernheisel Bridge Rd / Eastbound Right Turn

Analysis Period:	2025 Existing Year	**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	12	0.0%	12
	Through	-	0	0.0%	0
	Right	-	5	20.0%	7

Advancing Volume:	19
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

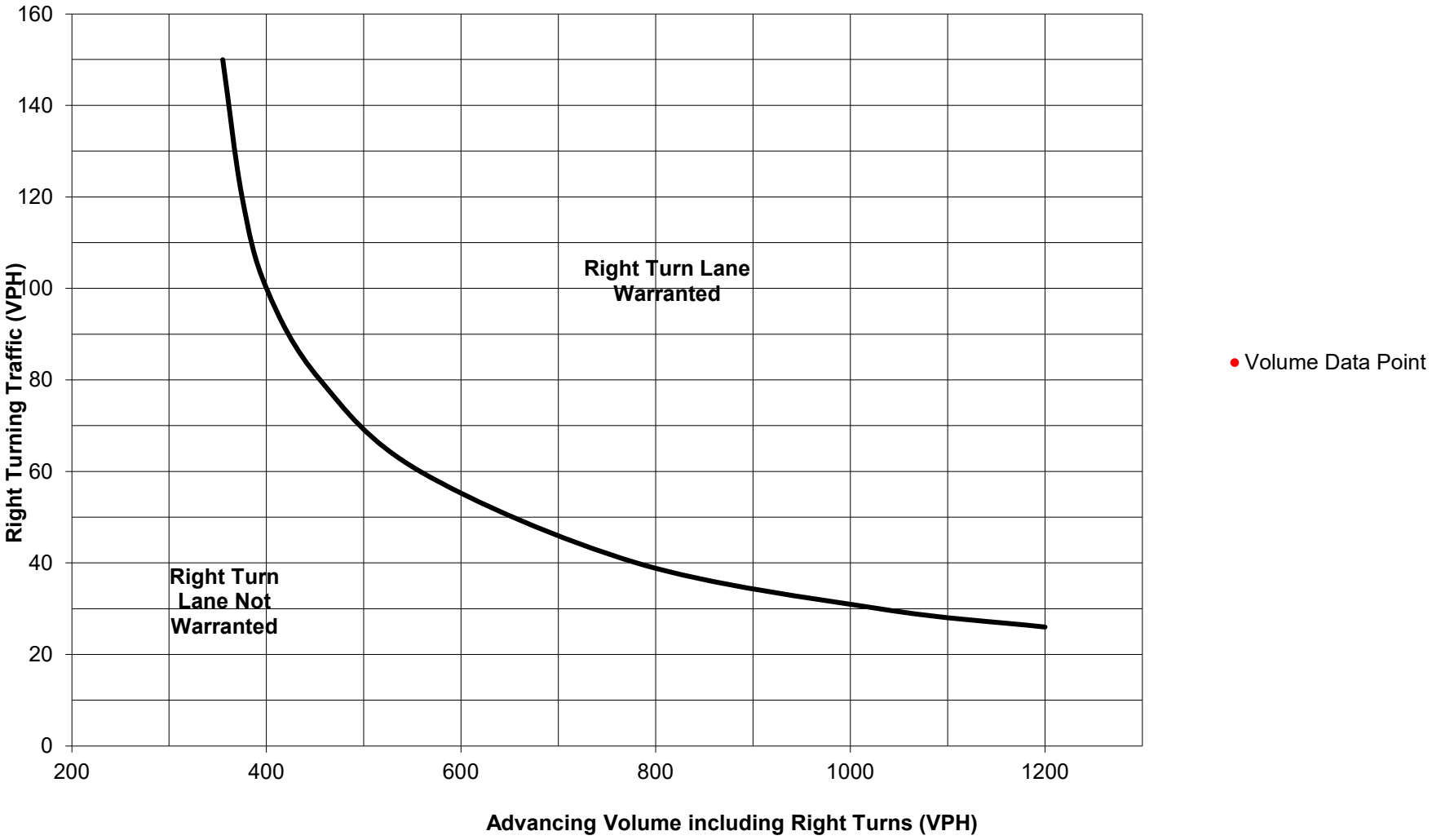
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Country Club Rd & Bernheisel Bridge Rd
Northbound Left Turn

Analysis Period:	2025 Existing Year	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
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	1	0.0%	1
	Through	-	32	6.0%	35
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	106	2.0%	110
	Right	Yes	38	0.0%	38

Advancing Volume:	36
Opposing Volume:	148
Left Turn Volume:	1
% Left Turns in Advancing Volume:	2.78%

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 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

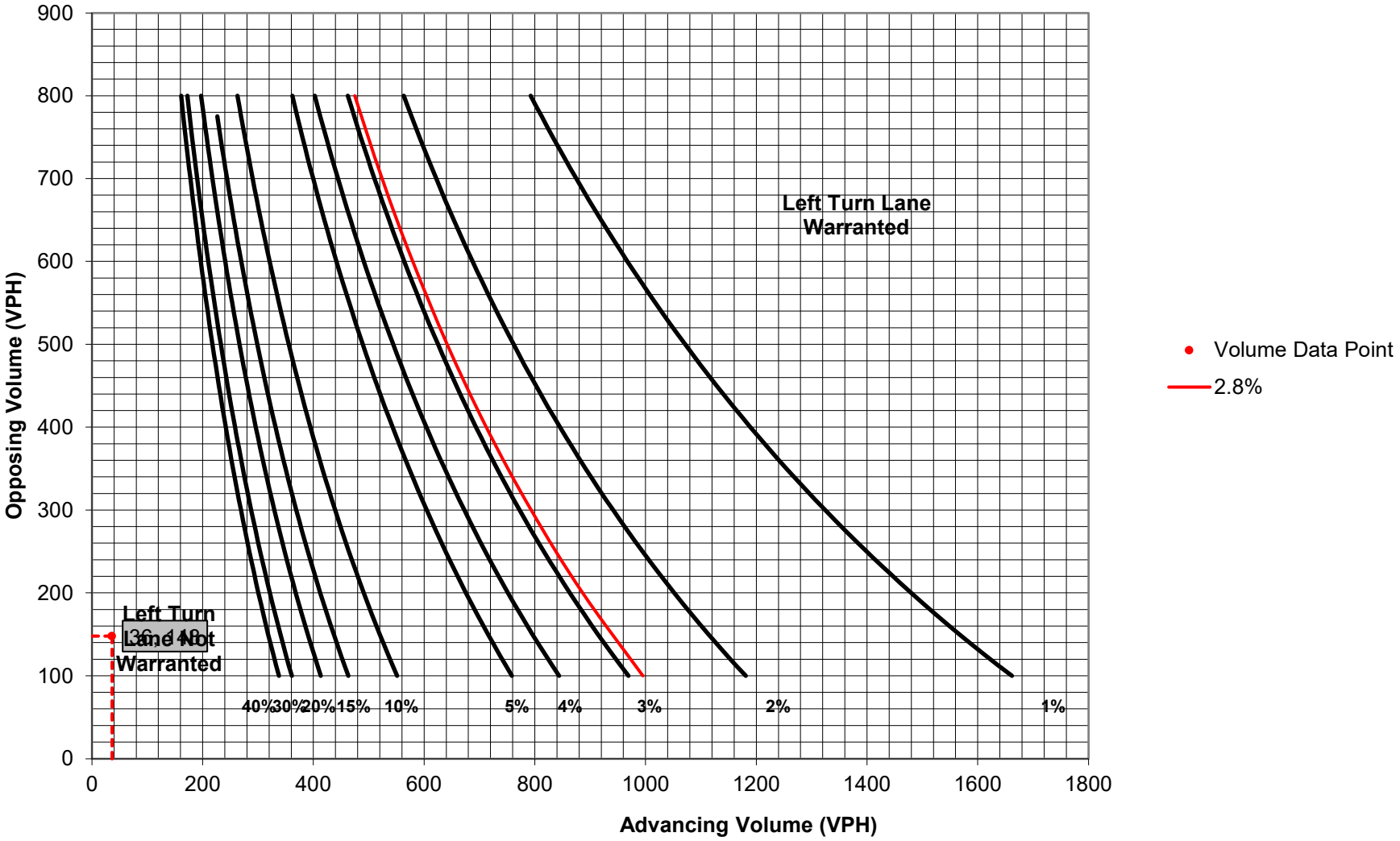
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Country Club Rd & Bernheisel Bridge Rd / Southbound Right Turn

Analysis Period:	2025 Existing Year	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
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	0	0.0%	N/A
	Through	-	106	2.0%	110
	Right	-	38	0.0%	38

Advancing Volume:	148
Right Turn Volume:	38

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:	38
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

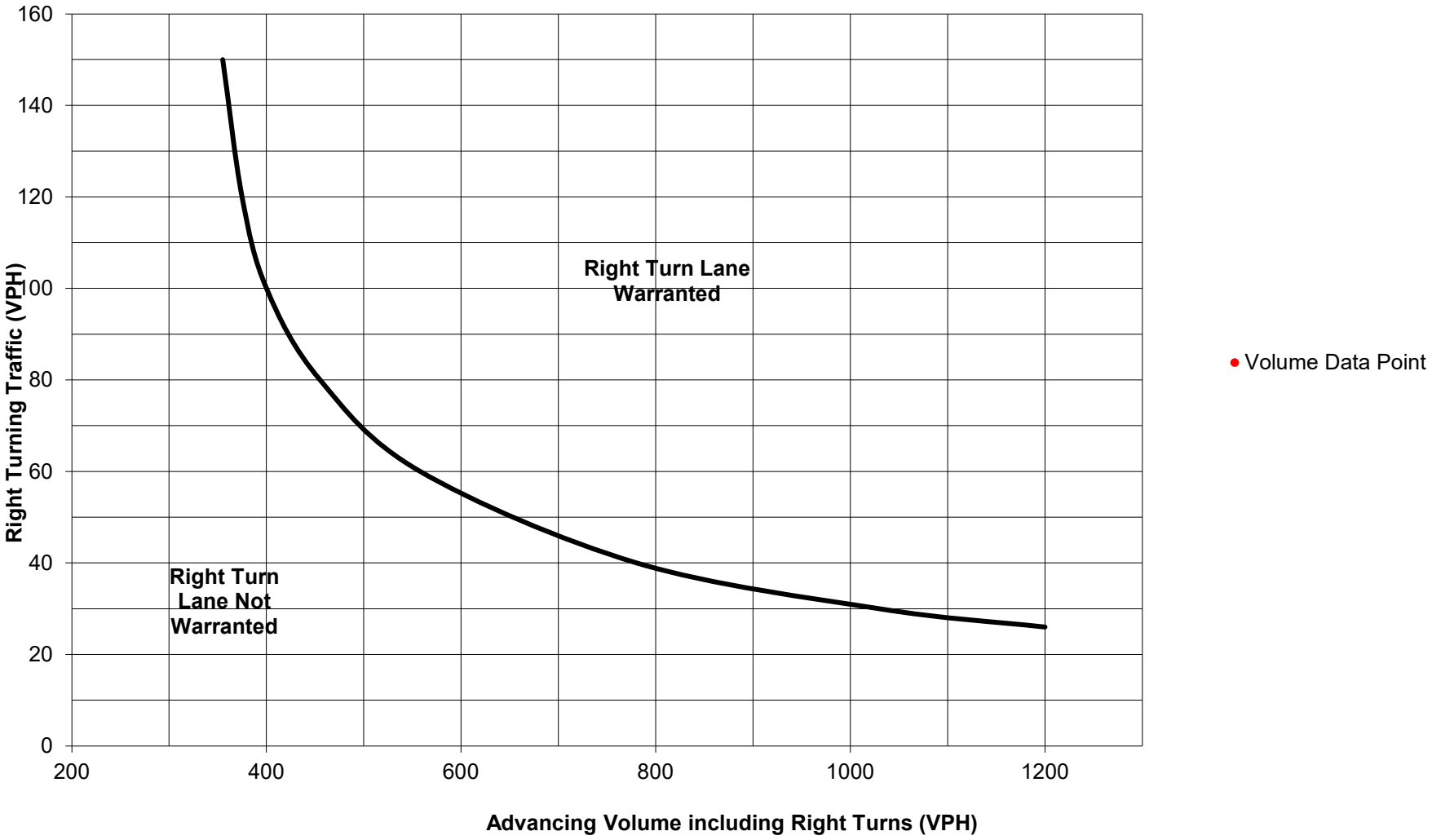
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Country Club Rd & Bernheisel Bridge Rd
Eastbound Left Turn

Analysis Period:	2025 Existing Year	**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	36	0.0%	36
	Through	-	0	0.0%	0
	Right	Yes	3	0.0%	3
Opposing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	0
	Right	No	0	0.0%	N/A

Advancing Volume:	39
Opposing Volume:	0
Left Turn Volume:	36
% Left Turns in Advancing Volume:	92.31%

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?: #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:	36
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

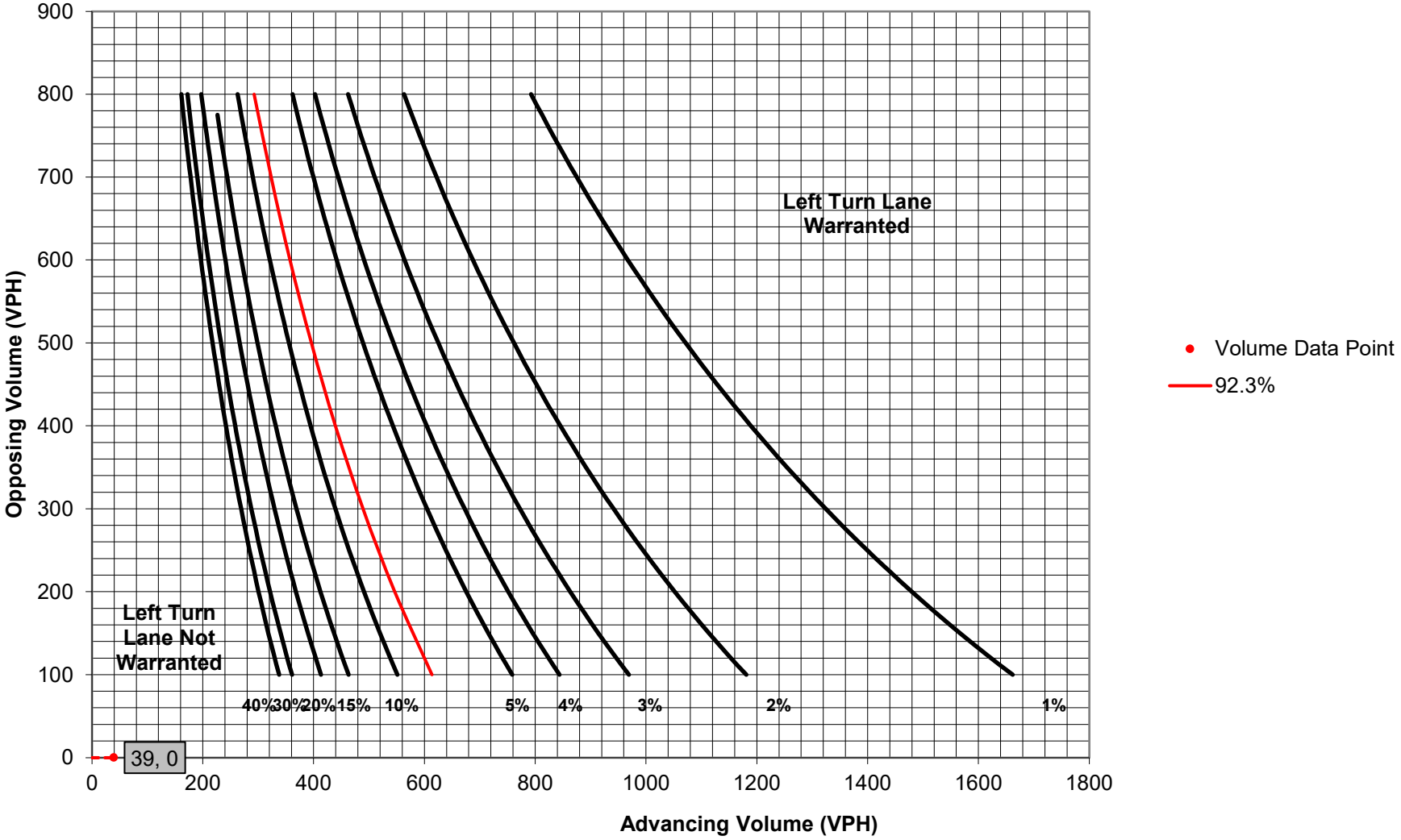
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Country Club Rd & Bernheisel Bridge Rd / Eastbound Right Turn

Analysis Period:	2025 Existing Year	**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	36	0.0%	36
	Through	-	0	0.0%	0
	Right	-	3	0.0%	3

Advancing Volume: 39
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

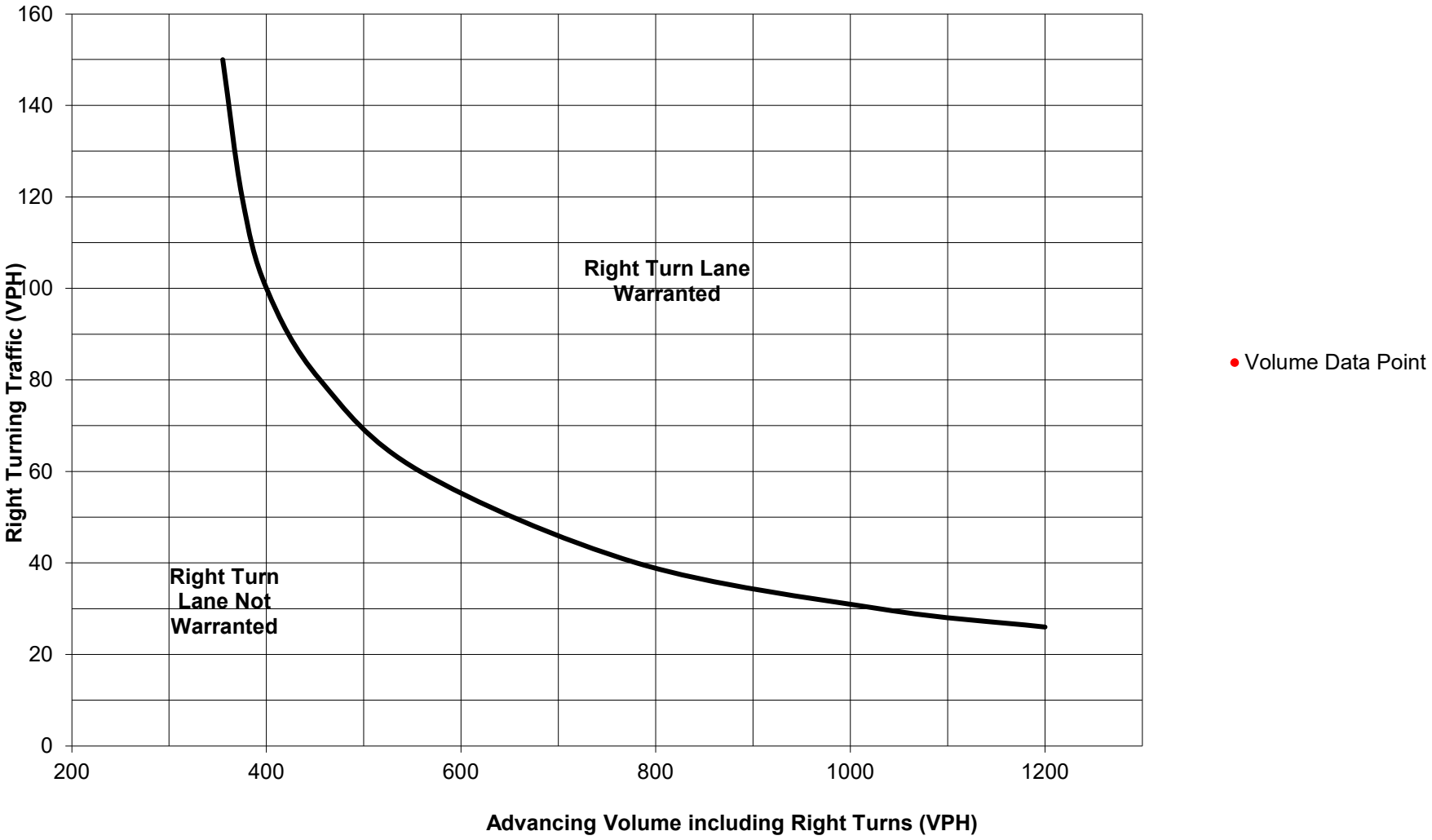
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Country Club Rd & Bernheisel Bridge Rd
Northbound Left Turn

Analysis Period:	2025 Existing Year	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
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	5	0.0%	5
	Through	-	89	2.0%	92
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	52	0.0%	52
	Right	Yes	23	13.0%	28

Advancing Volume:	97
Opposing Volume:	80
Left Turn Volume:	5
% Left Turns in Advancing Volume:	5.15%

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:	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

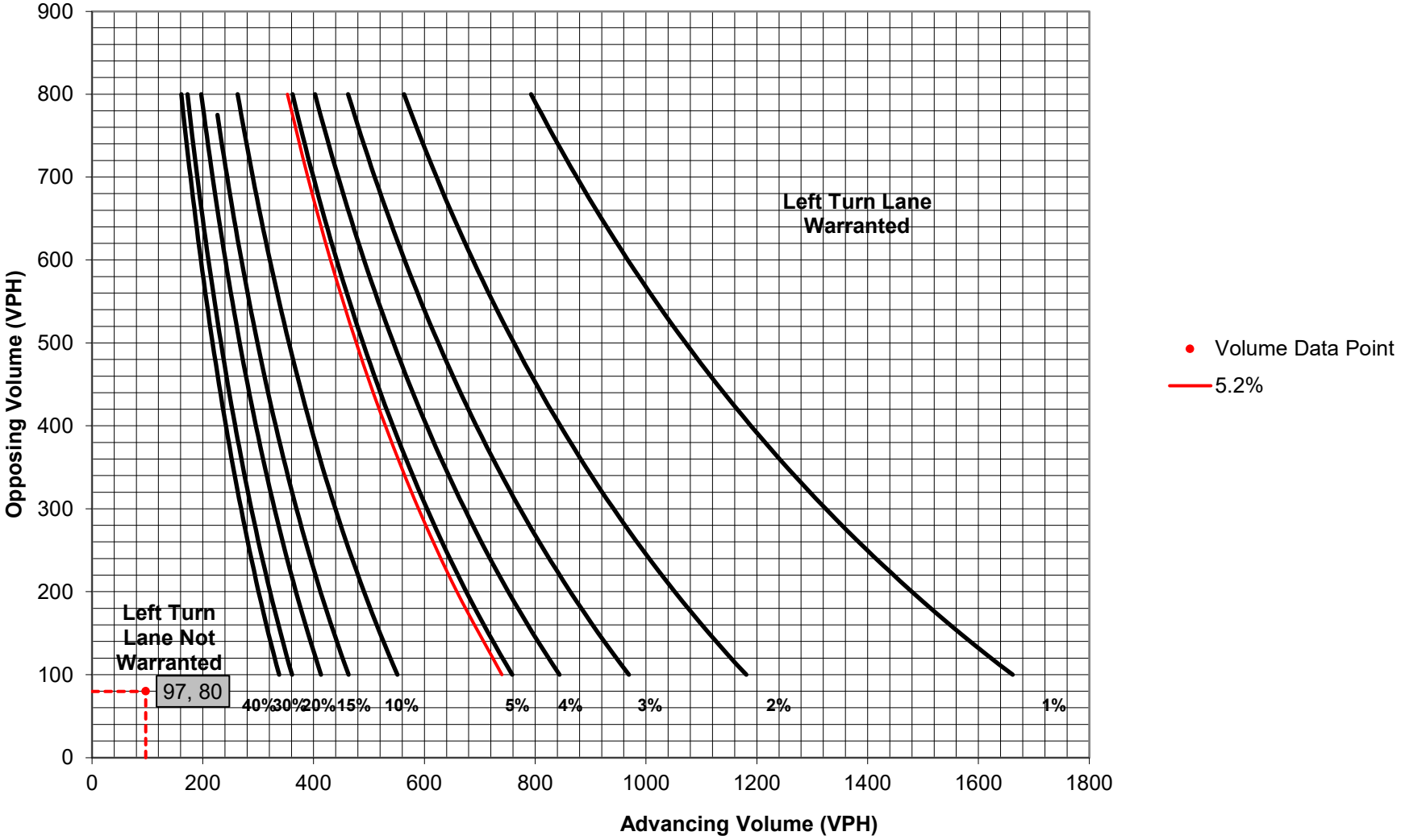
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Country Club Rd & Bernheisel Bridge Rd / Southbound Right Turn

Analysis Period:	2025 Existing Year	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
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	0	0.0%	N/A
	Through	-	52	0.0%	52
	Right	-	23	13.0%	28

Advancing Volume:	80
Right Turn Volume:	28

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:	28
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

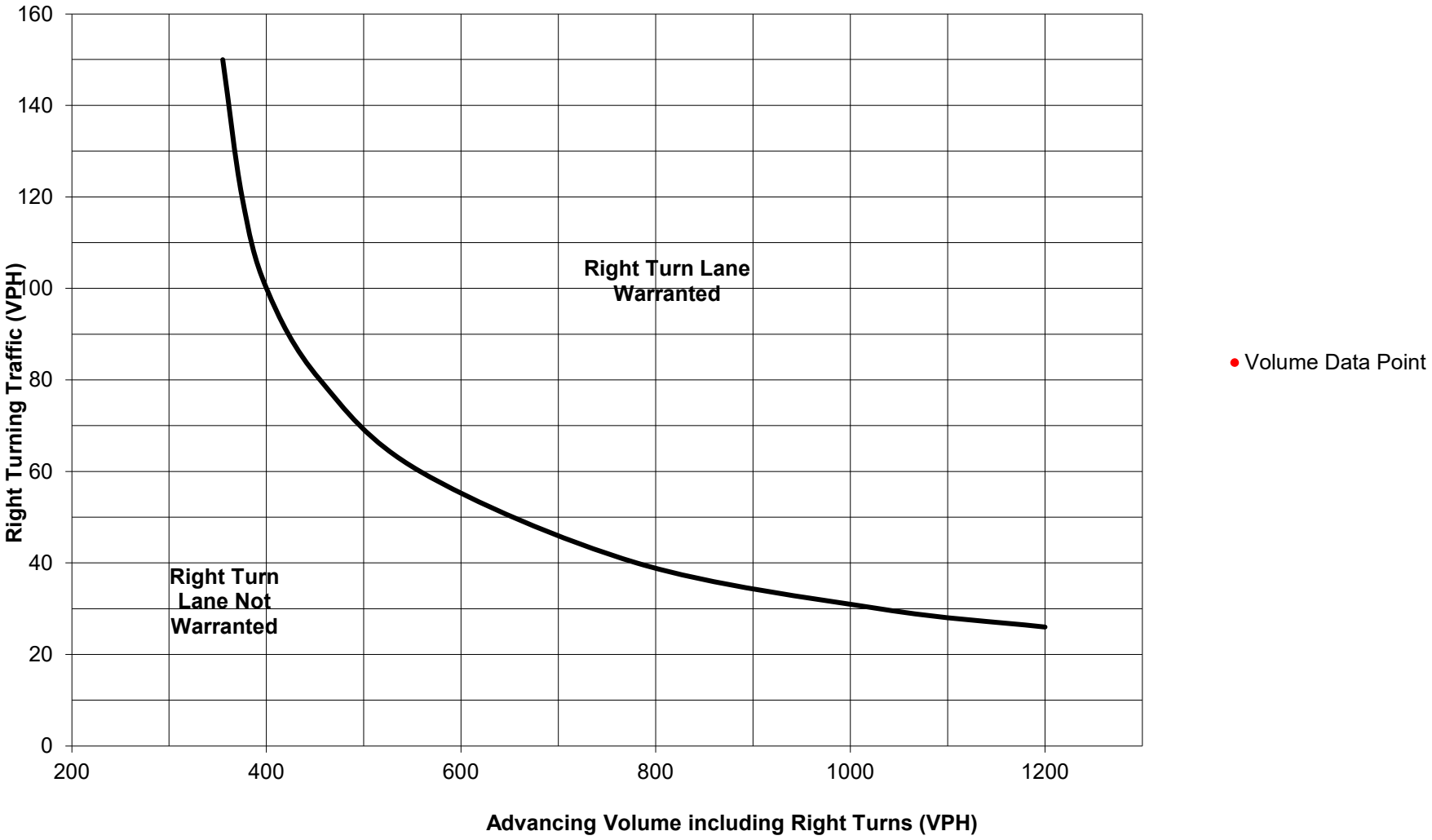
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Country Club Rd & Bernheisel Bridge Rd
Eastbound Left Turn

Analysis Period:	2025 Existing Year	**Number of Approach Lanes:**	1
Design Hour:	SAT 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	34	0.0%	34
	Through	-	0	0.0%	0
	Right	Yes	5	0.0%	5
Opposing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	0
	Right	No	0	0.0%	N/A

Advancing Volume:	39
Opposing Volume:	0
Left Turn Volume:	34
% Left Turns in Advancing Volume:	87.18%

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:	34
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

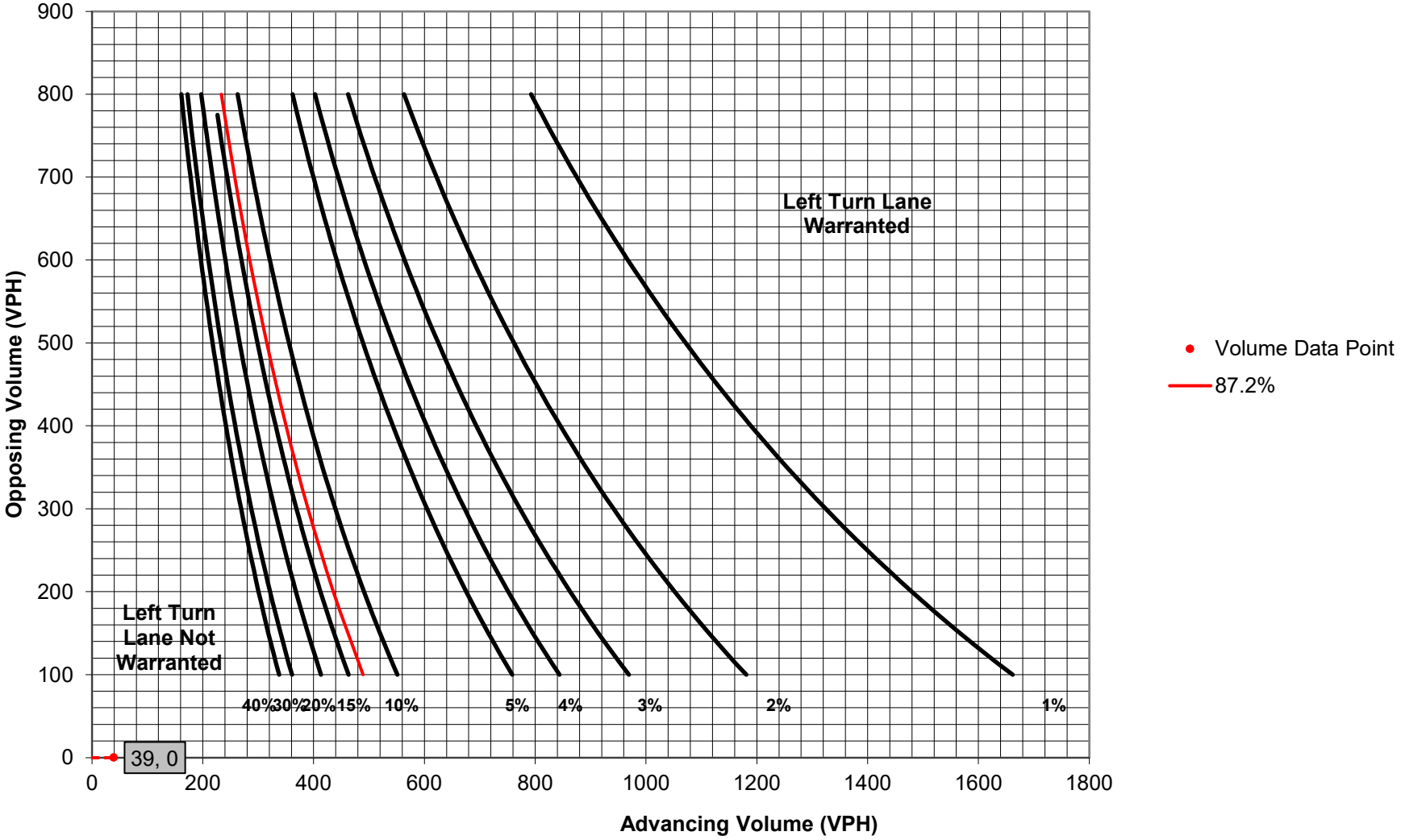
Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Country Club Rd & Bernheisel Bridge Rd / Eastbound Right Turn

Analysis Period:	2025 Existing Year	**Number of Approach Lanes:**	1
Design Hour:	SAT 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	34	0.0%	34
	Through	-	0	0.0%	0
	Right	-	5	0.0%	5

Advancing Volume:	39
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 9

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

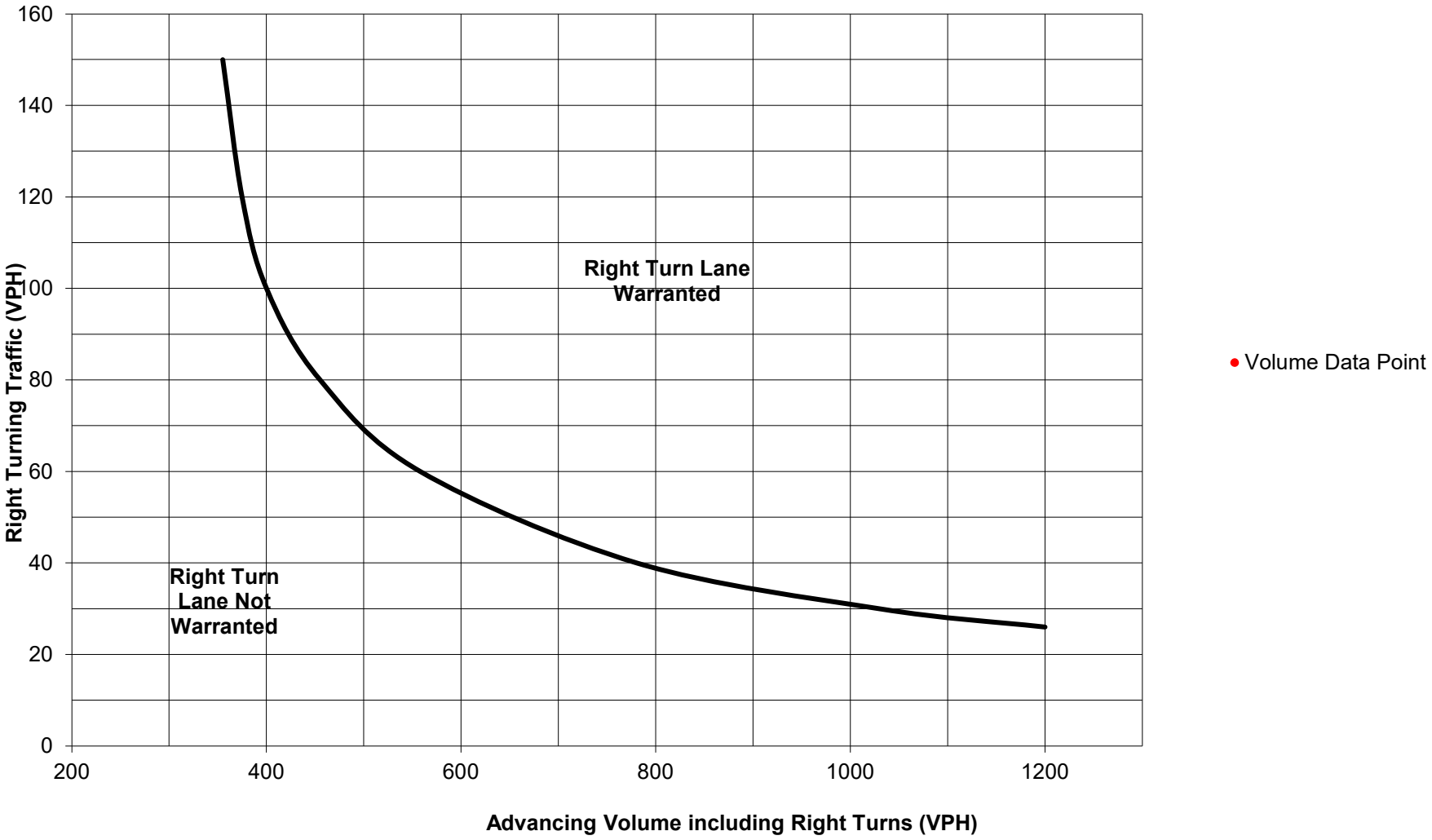
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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 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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Country Club Rd & Bernheisel Bridge Rd / Northbound Left Turn

Analysis Period:	2025 Existing Year	**Number of Approach Lanes:**	1
Design Hour:	SAT Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
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	3	0.0%	3
	Through	-	42	0.0%	42
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	48	4.0%	51
	Right	Yes	23	0.0%	23

Advancing Volume:	45
Opposing Volume:	74
Left Turn Volume:	3
% Left Turns in Advancing Volume:	6.67%

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:	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

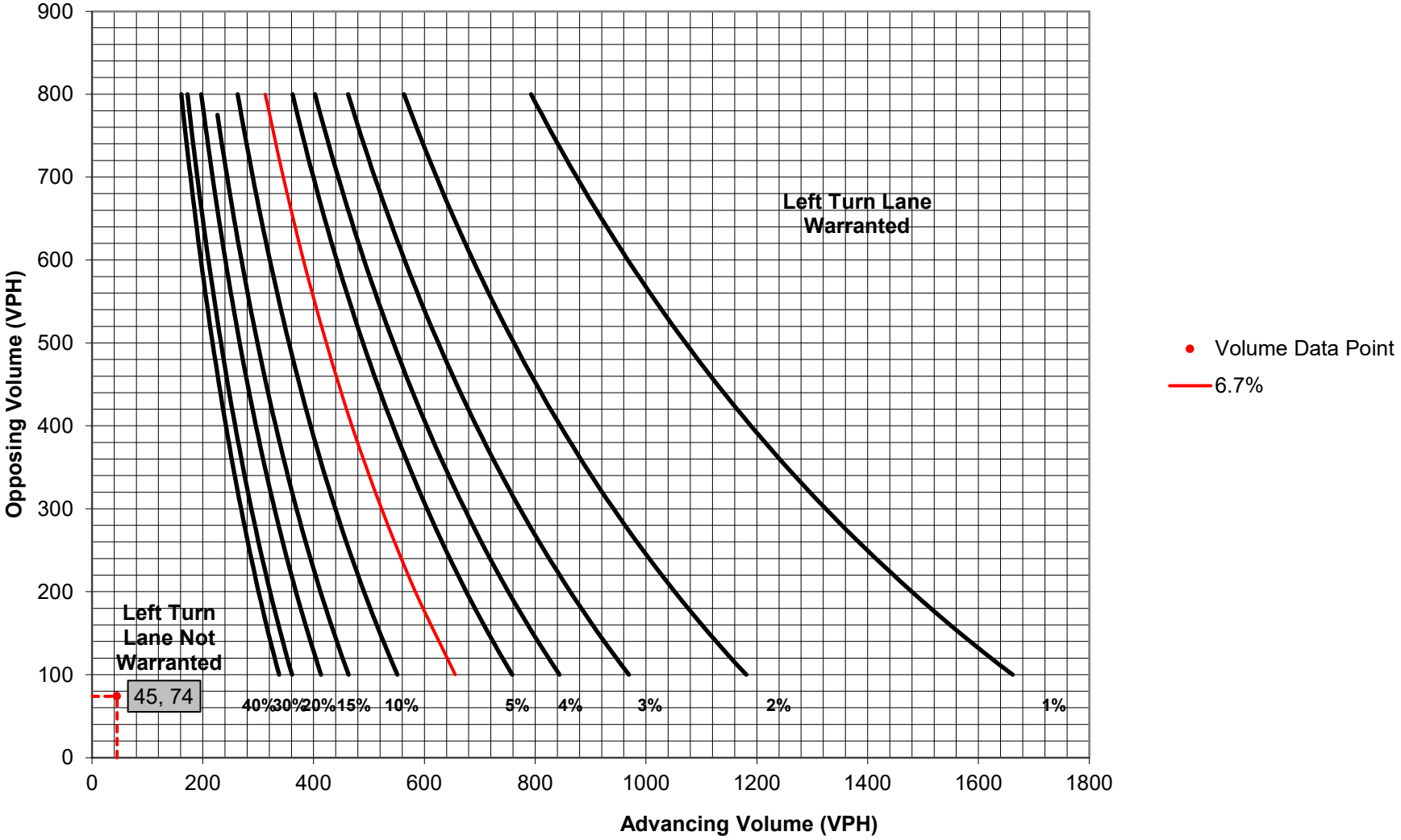
Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Country Club Rd & Bernheisel Bridge Rd / Southbound Right Turn

Analysis Period:	2025 Existing Year	**Number of Approach Lanes:**	1
Design Hour:	SAT Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
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	0	0.0%	N/A
	Through	-	48	4.0%	51
	Right	-	23	0.0%	23

Advancing Volume:	74
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

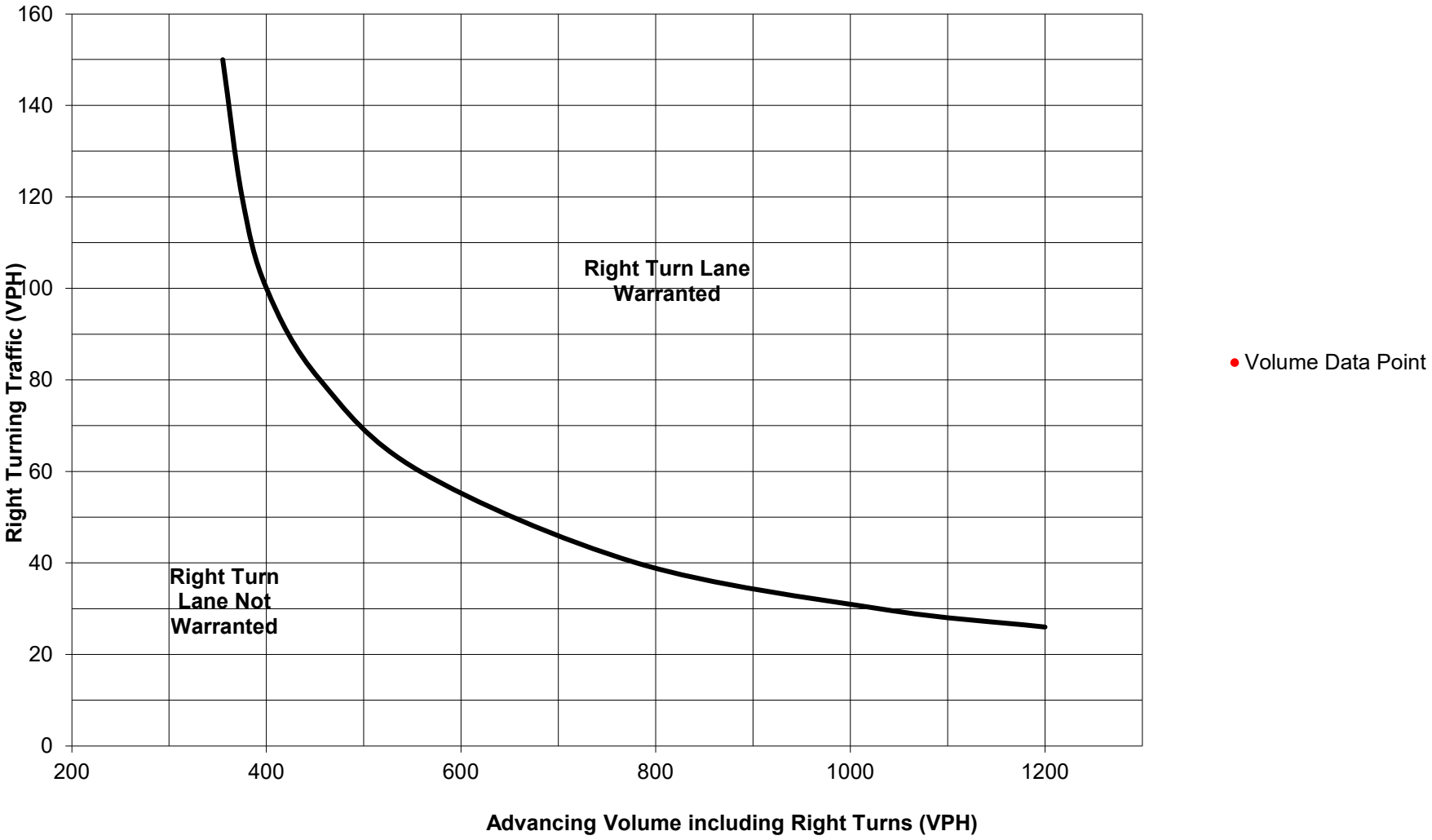
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Bernheisel Bridge Rd & Green Hill Rd / Northbound Right Turn

Analysis Period:	2025 Existing Year	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
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	0	0.0%	N/A
	Through	-	35	0.0%	35
	Right	-	8	13.0%	10

Advancing Volume:	45
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

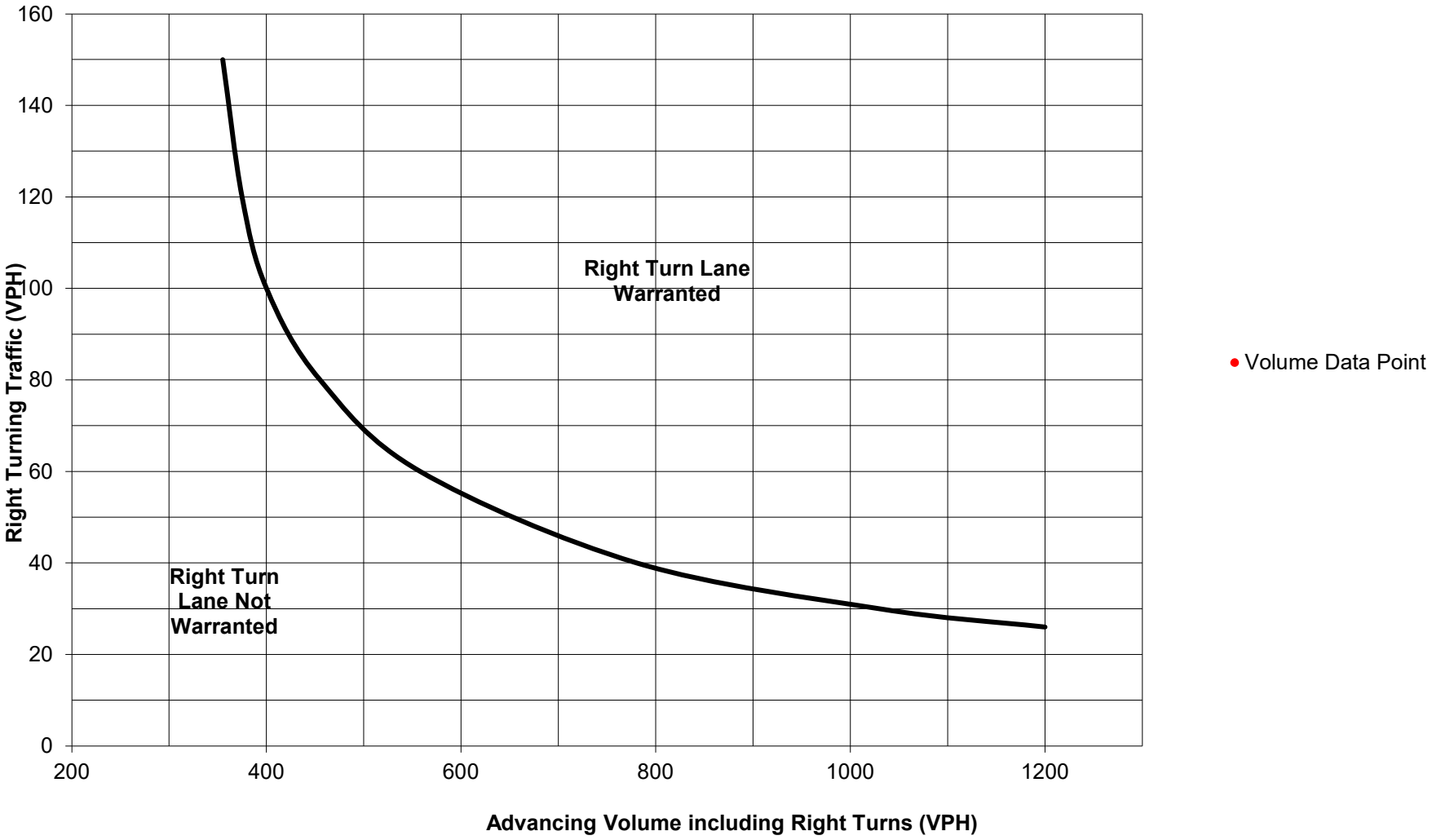
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Bernheisel Bridge Rd & Green Hill Rd
Southbound Left Turn

Analysis Period:	2025 Existing Year	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
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	82	2.0%	85
	Through	-	140	1.0%	143
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	35	0.0%	35
	Right	Yes	8	13.0%	10

Advancing Volume:	228
Opposing Volume:	45
Left Turn Volume:	85
% Left Turns in Advancing Volume:	37.28%

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:	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

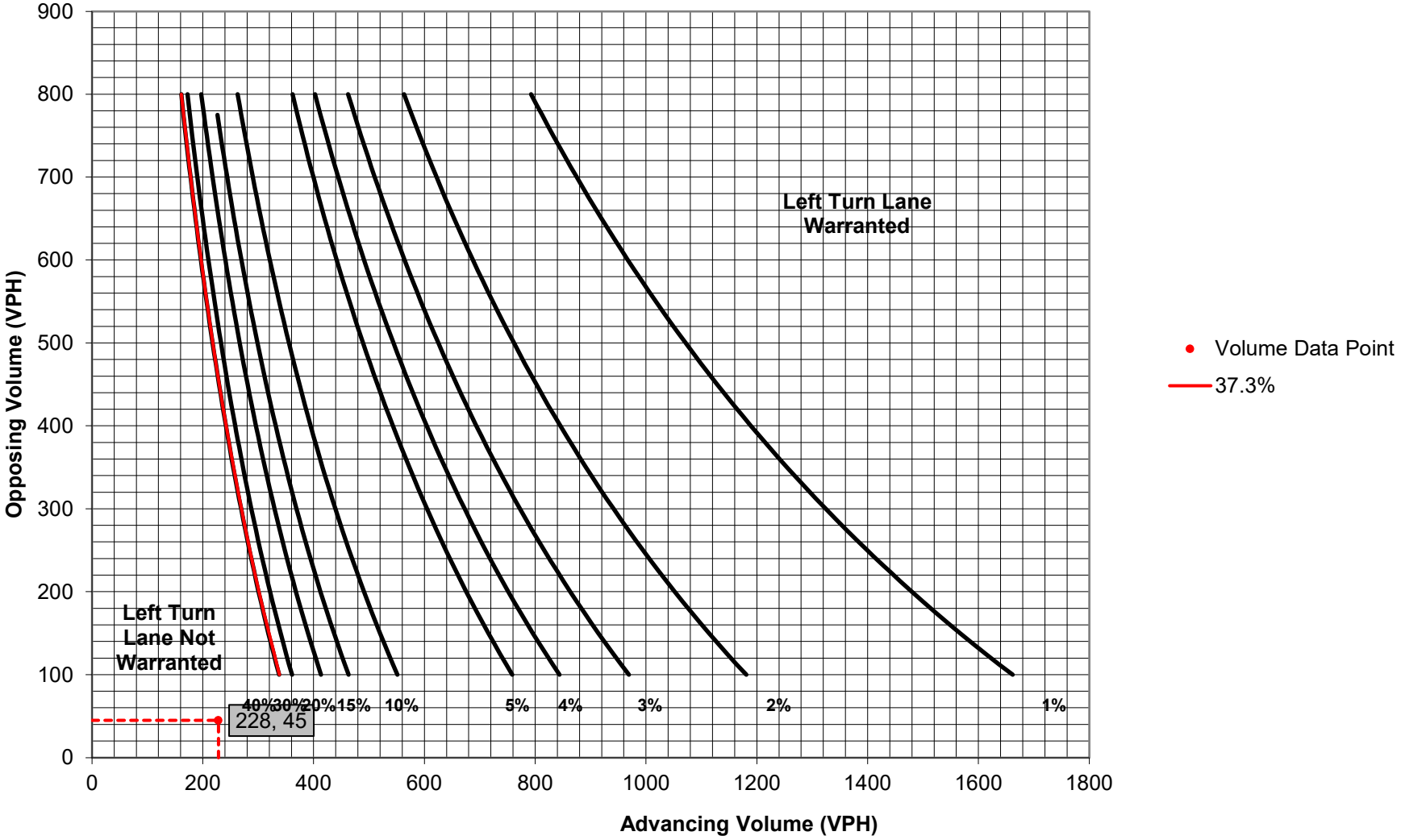
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Bernheisel Bridge Rd & Green Hill Rd
Westbound Left Turn

Analysis Period:	2025 Existing Year	**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	20.0%	7
	Through	-	0	0.0%	0
	Right	Yes	10	0.0%	10
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: 7
% Left Turns in Advancing Volume: 41.18%

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:	7
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

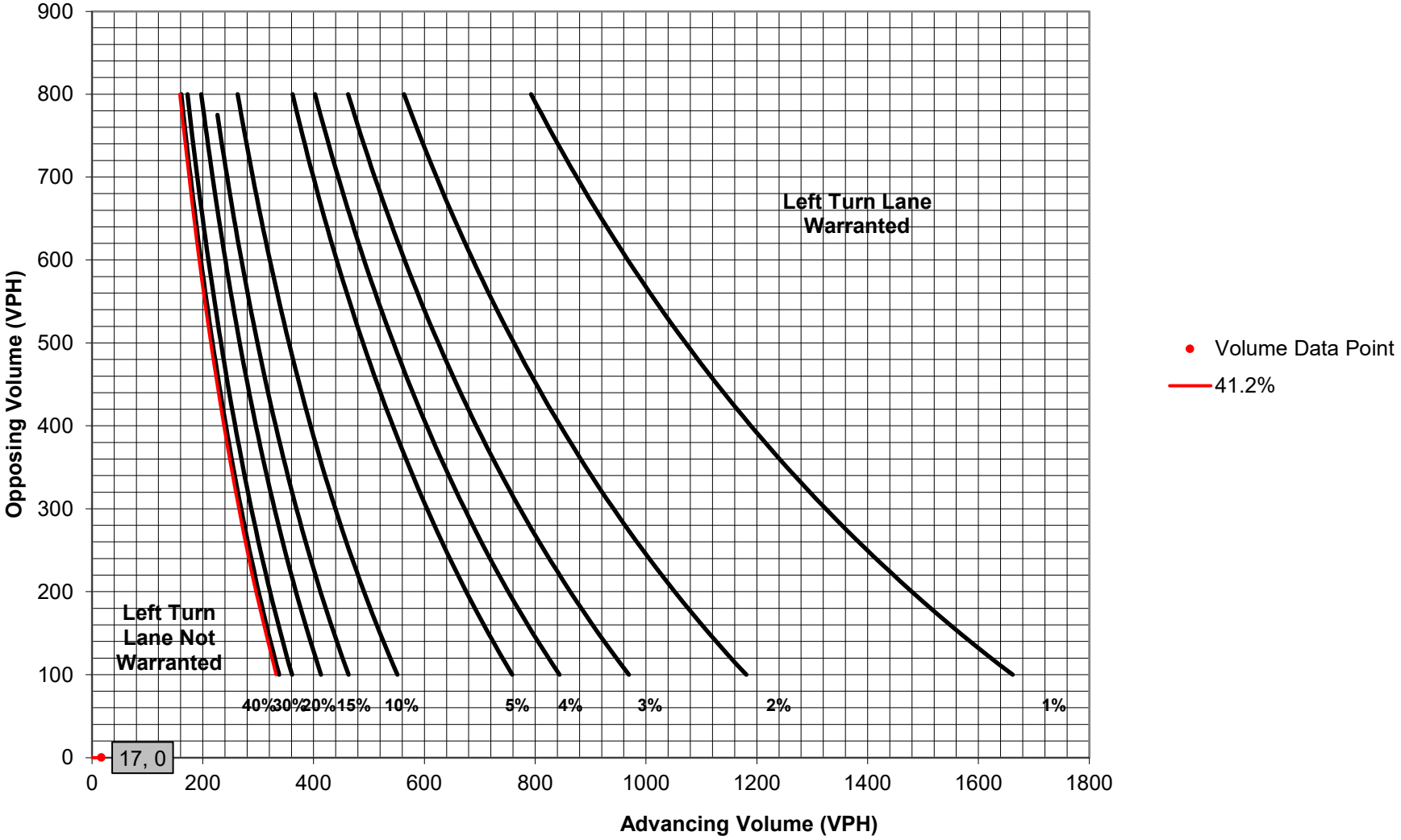
Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Bernheisel Bridge Rd & Green Hill Rd
Westbound Right Turn

Analysis Period:	2025 Existing Year	**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	5	20.0%	7
	Through	-	0	0.0%	0
	Right	-	10	0.0%	10

Advancing Volume:	17
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

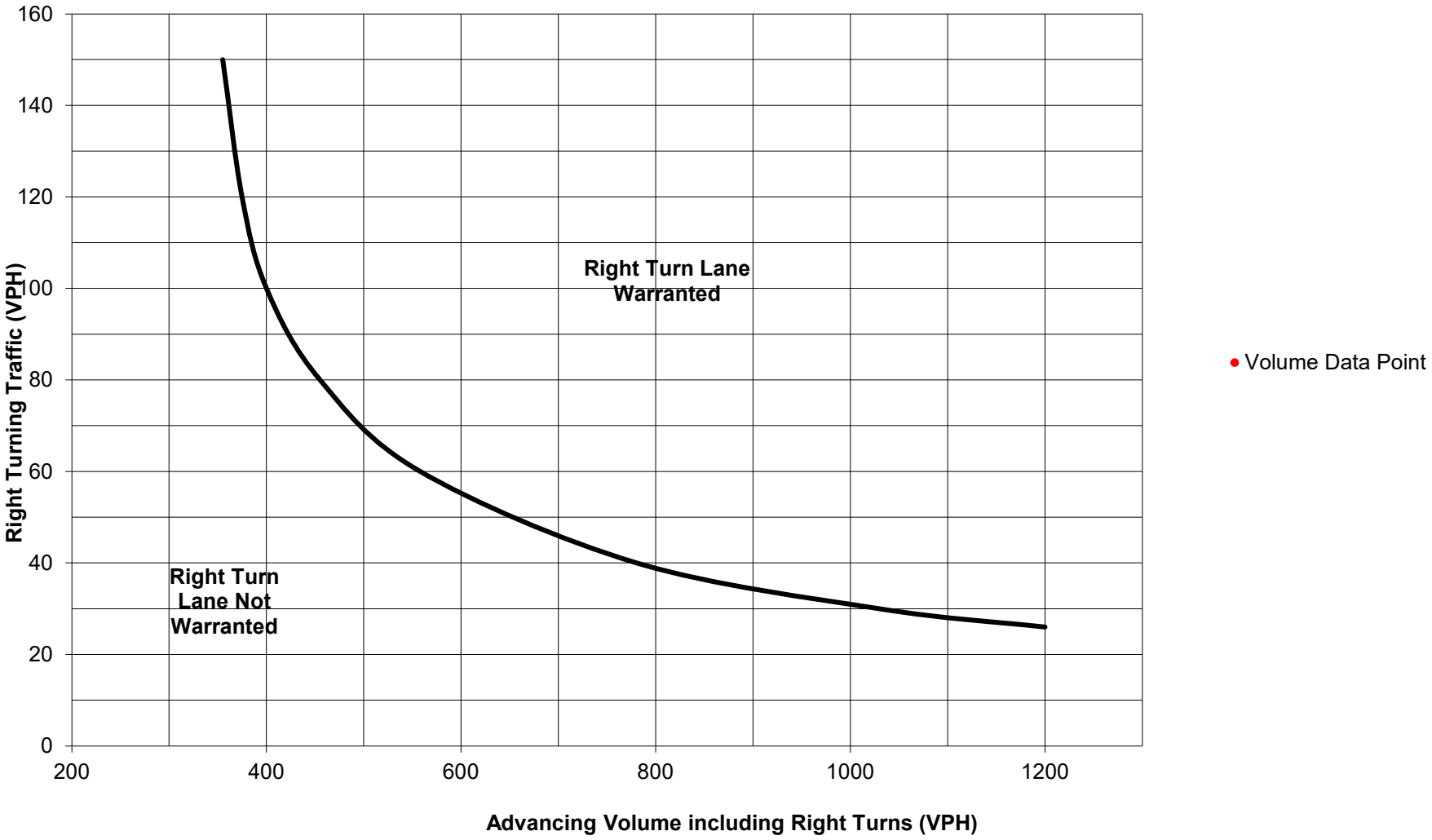
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Bernheisel Bridge Rd & Green Hill Rd
Northbound Right Turn

Analysis Period:	2025 Existing Year	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
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	0	0.0%	N/A
	Through	-	112	2.0%	116
	Right	-	11	0.0%	11

Advancing Volume:	127
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

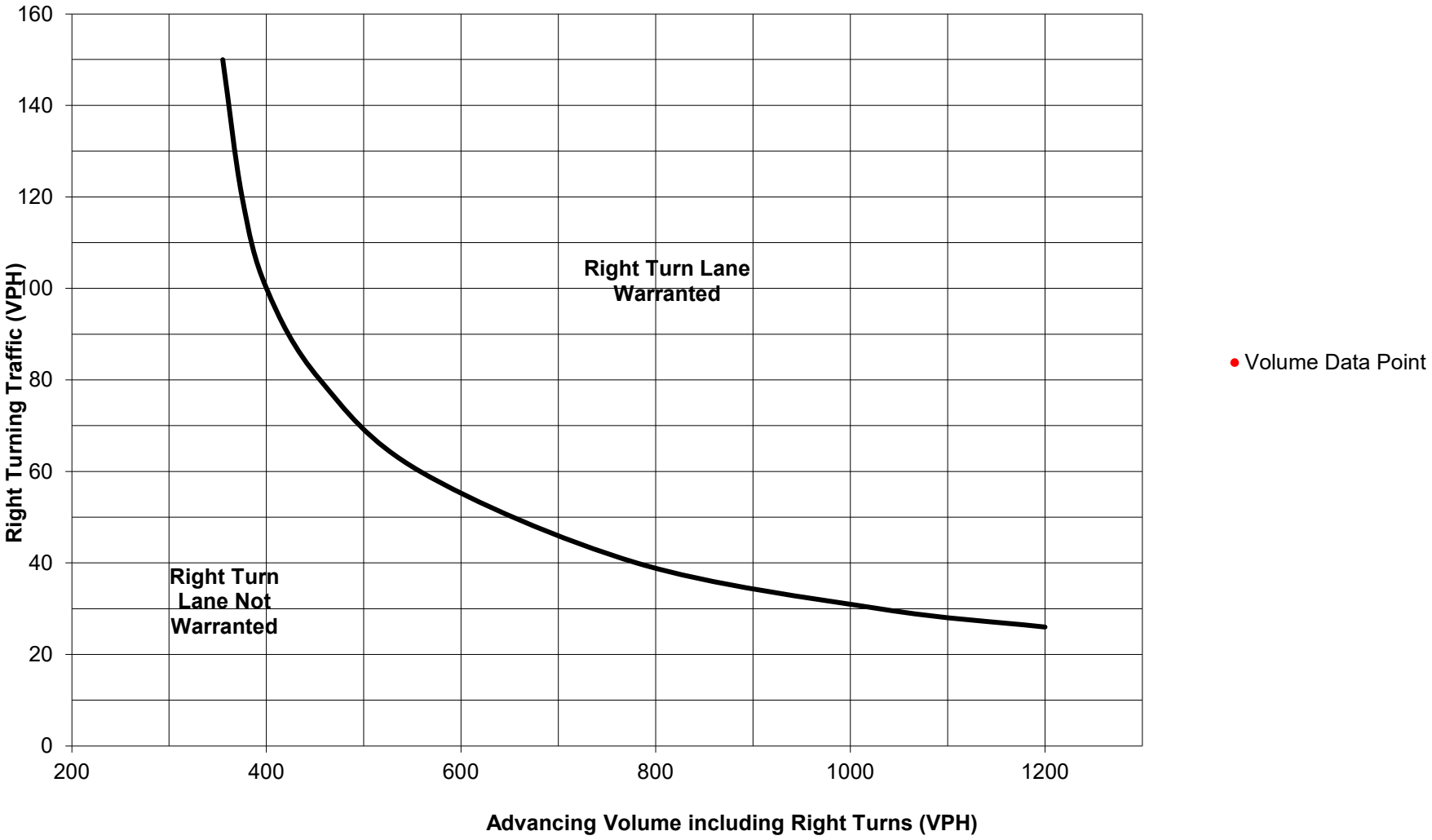
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Bernheisel Bridge Rd & Green Hill Rd
Southbound Left Turn

Analysis Period:	2025 Existing Year	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
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	38	0.0%	38
	Through	-	67	3.0%	71
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	112	2.0%	116
	Right	Yes	11	0.0%	11

Advancing Volume:	109
Opposing Volume:	127
Left Turn Volume:	38
% Left Turns in Advancing Volume:	34.86%

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 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:	38
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

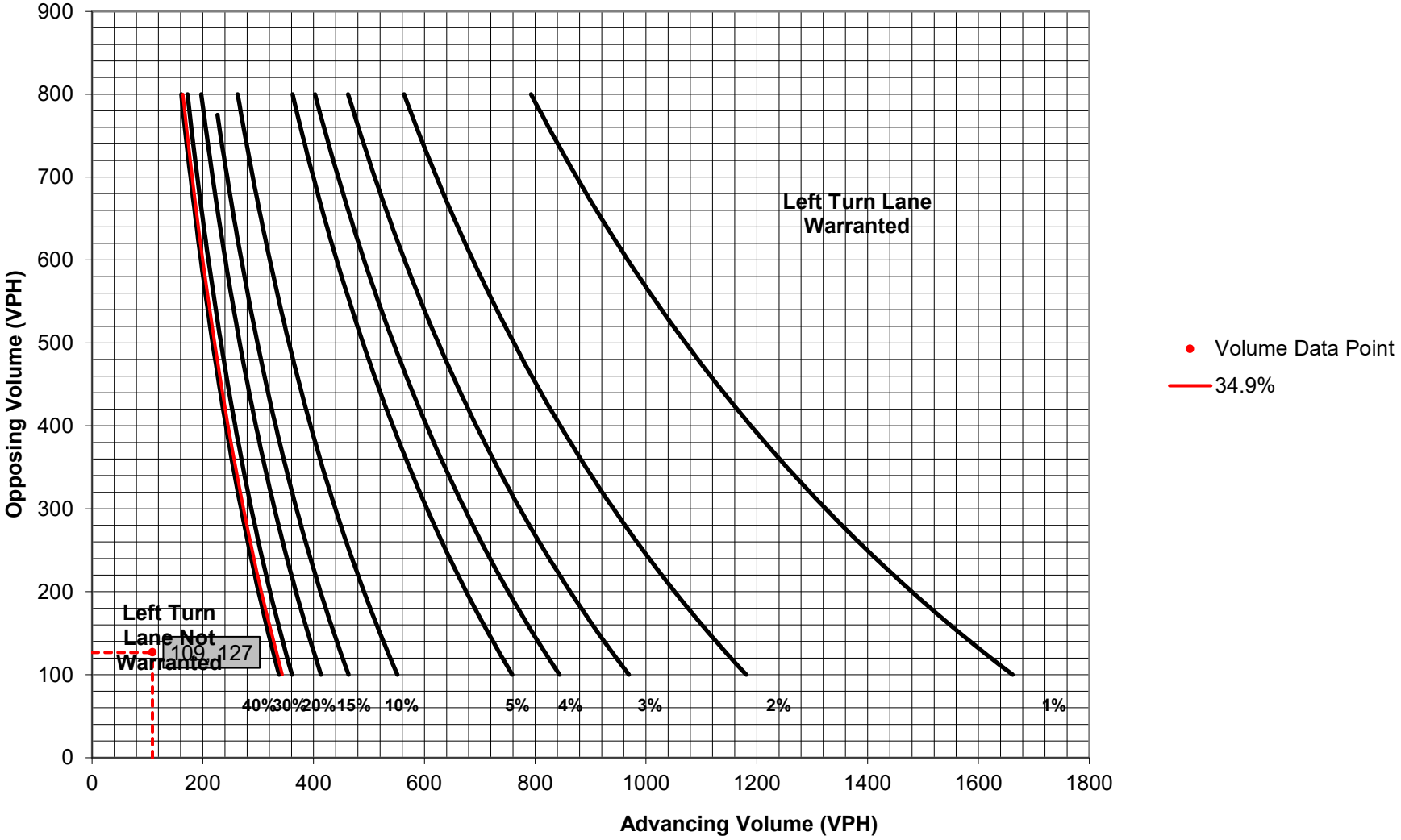
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Bernheisel Bridge Rd & Green Hill Rd
Westbound Left Turn

Analysis Period:	2025 Existing Year	**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	8	13.0%	10
	Through	-	0	0.0%	0
	Right	Yes	74	0.0%	74
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: 10
% Left Turns in Advancing Volume: 11.90%

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:	Unsignalized
Design Hour Volume of Turning Lane:	10
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

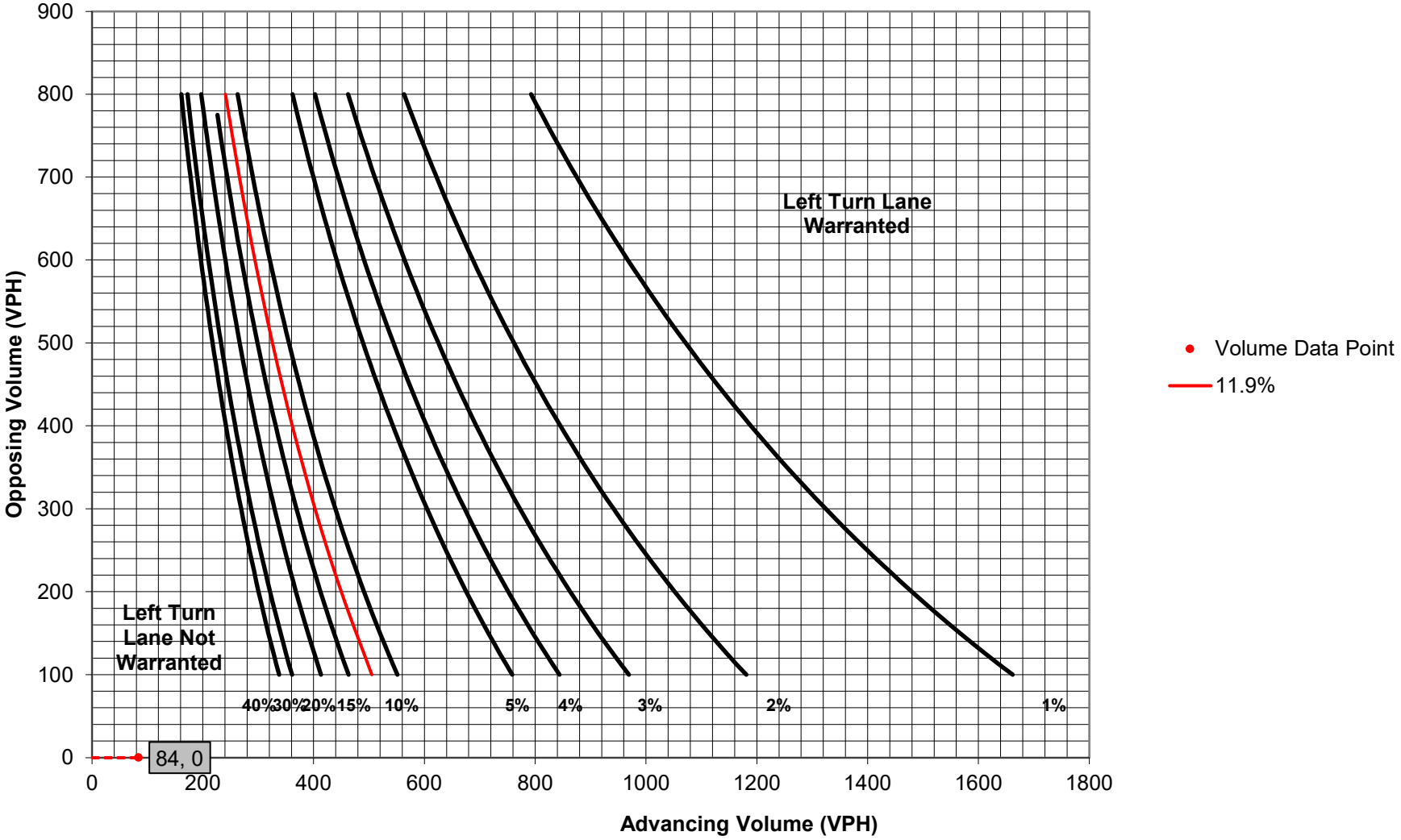
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Bernheisel Bridge Rd & Green Hill Rd
Westbound Right Turn

Analysis Period:	2025 Existing Year	**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	8	13.0%	10
	Through	-	0	0.0%	0
	Right	-	74	0.0%	74

Advancing Volume:	84
Right Turn Volume:	74

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:	74
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

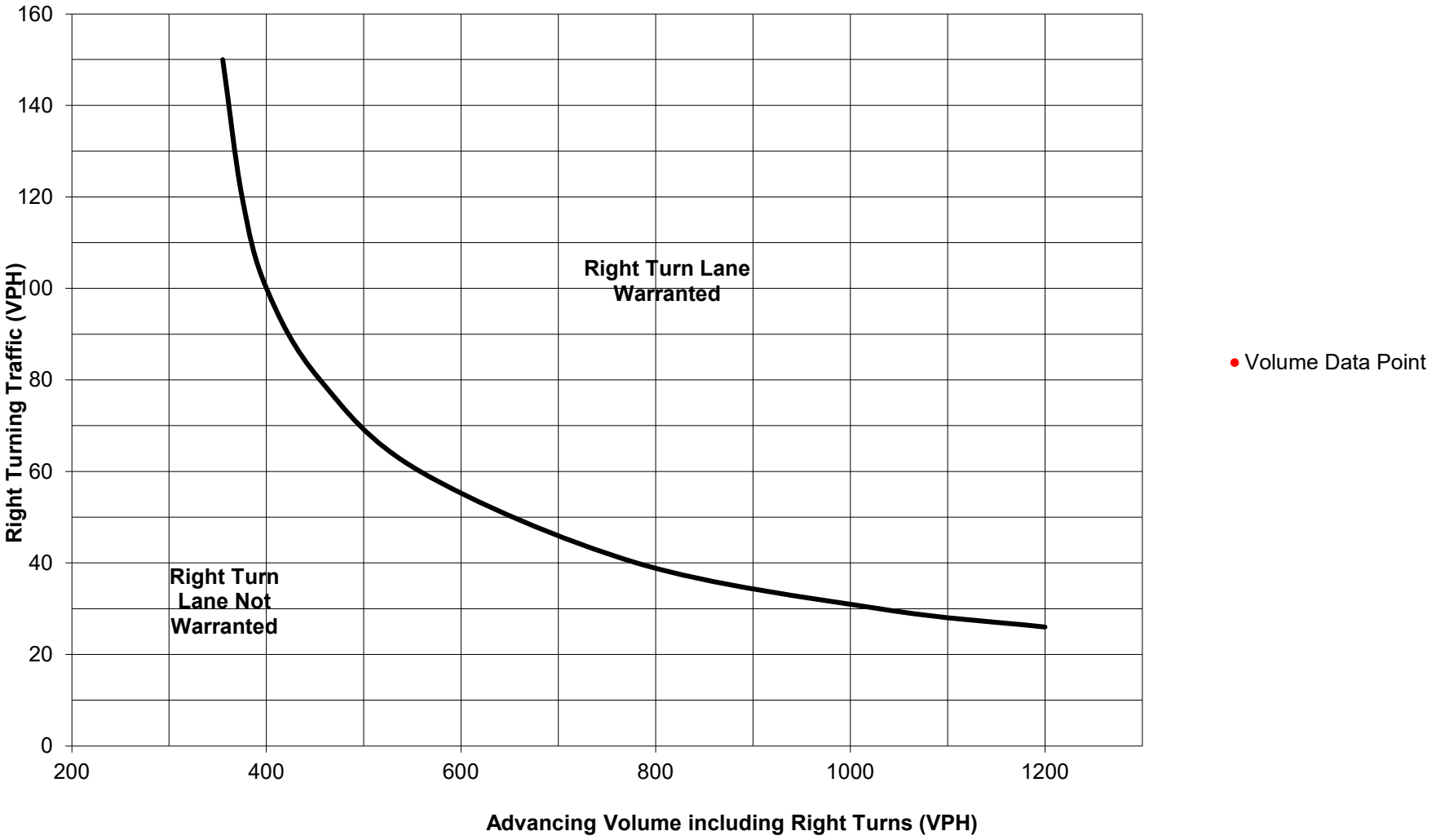
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Bernheisel Bridge Rd & Green Hill Rd / Northbound Right Turn

Analysis Period:	2025 Existing Year	**Number of Approach Lanes:**	1
Design Hour:	SAT Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
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	0	0.0%	N/A
	Through	-	68	0.0%	68
	Right	-	7	0.0%	7

Advancing Volume: 75
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

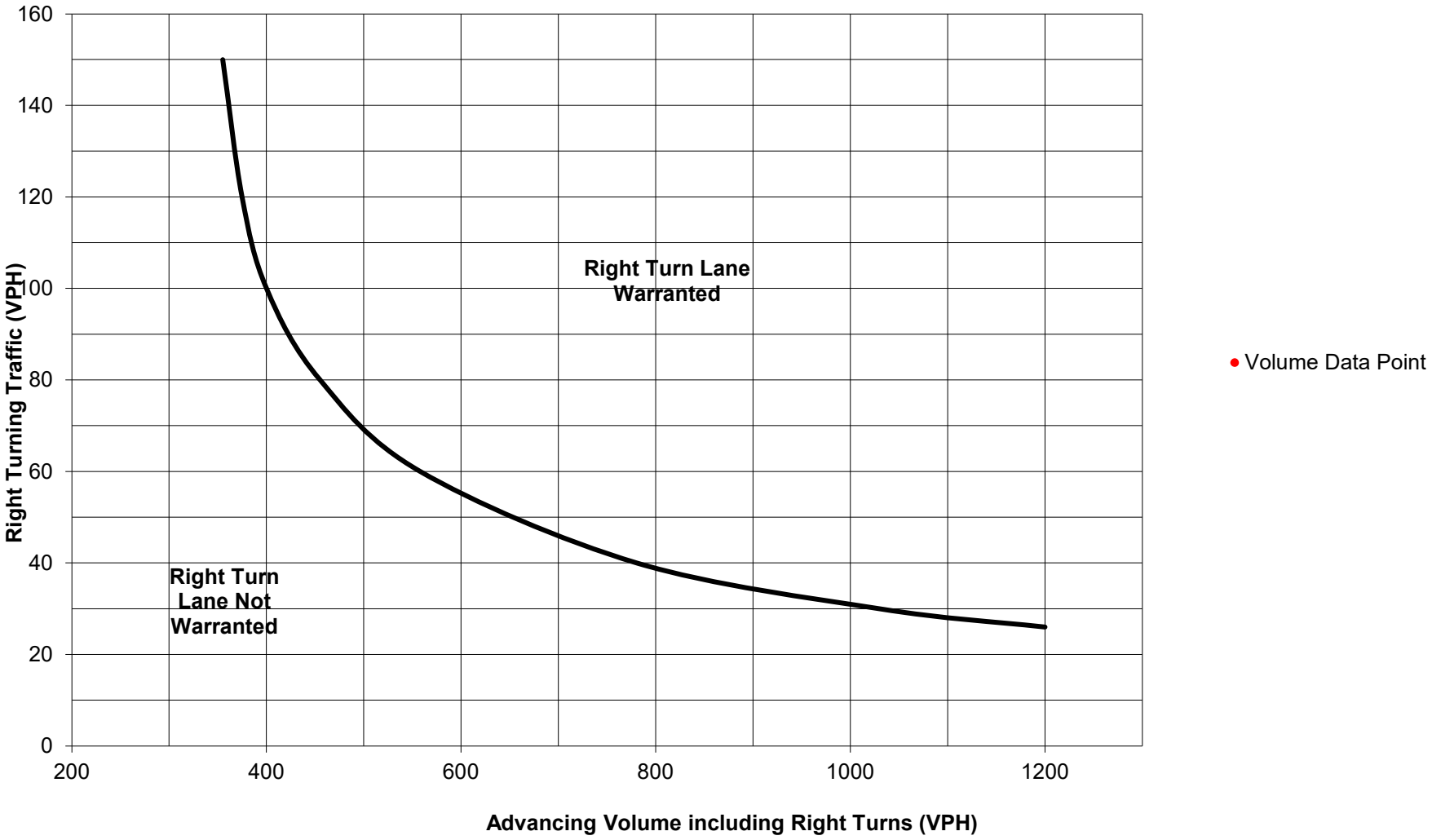
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Bernheisel Bridge Rd & Green Hill Rd
Southbound Left Turn

Analysis Period:	2025 Existing Year	**Number of Approach Lanes:**	1
Design Hour:	SAT Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
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	24	0.0%	24
	Through	-	66	3.0%	69
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	68	0.0%	68
	Right	Yes	7	0.0%	7

Advancing Volume:	93
Opposing Volume:	75
Left Turn Volume:	24
% Left Turns in Advancing Volume:	25.81%

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:	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

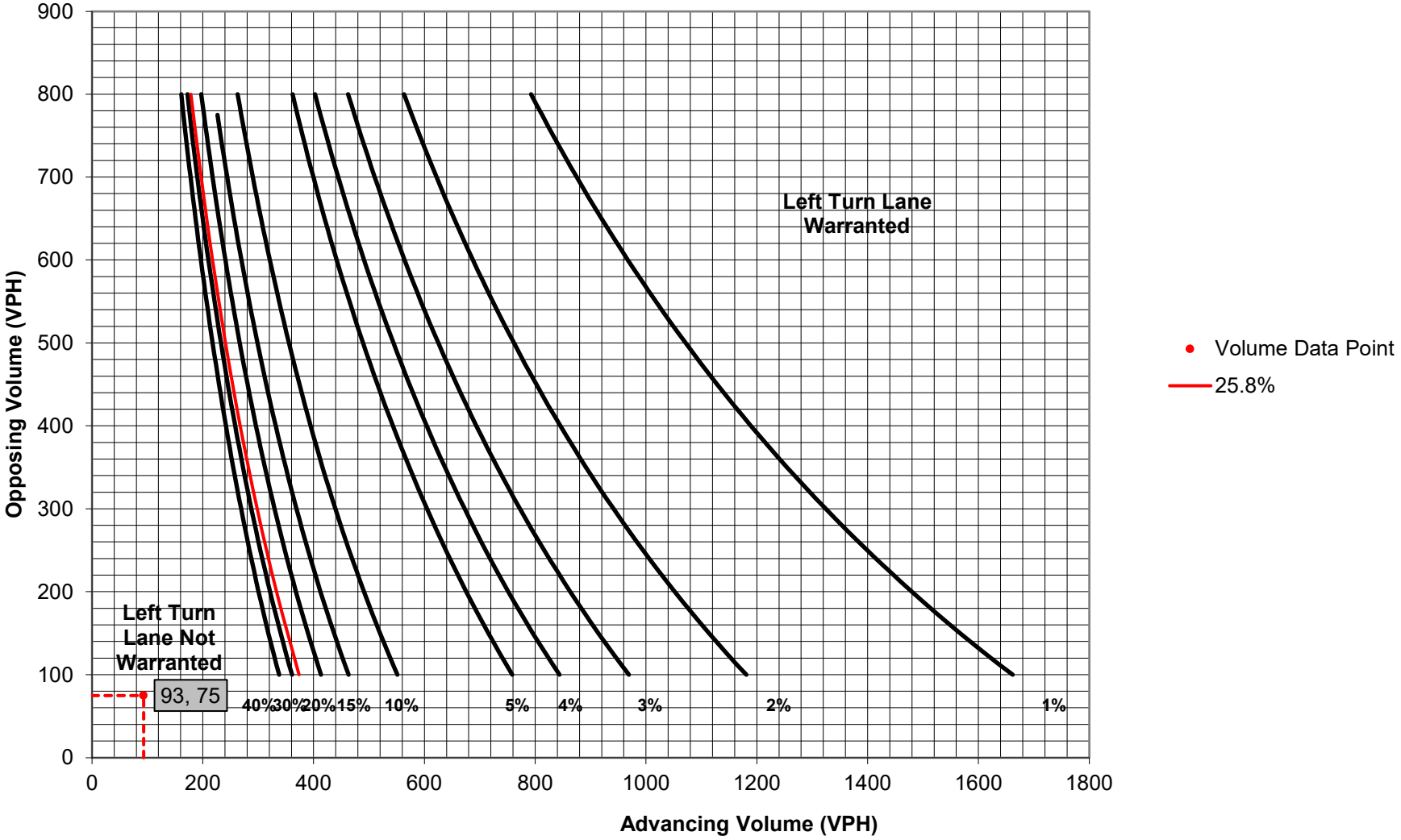
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Bernheisel Bridge Rd & Green Hill Rd
Westbound Left Turn

Analysis Period:	2025 Existing Year	**Number of Approach Lanes:**	1
Design Hour:	SAT 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	-	0	0.0%	0
	Right	Yes	45	0.0%	45
Opposing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	0
	Right	No	0	0.0%	N/A

Advancing Volume:	50
Opposing Volume:	0
Left Turn Volume:	5
% Left Turns in Advancing Volume:	10.00%

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:	5
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

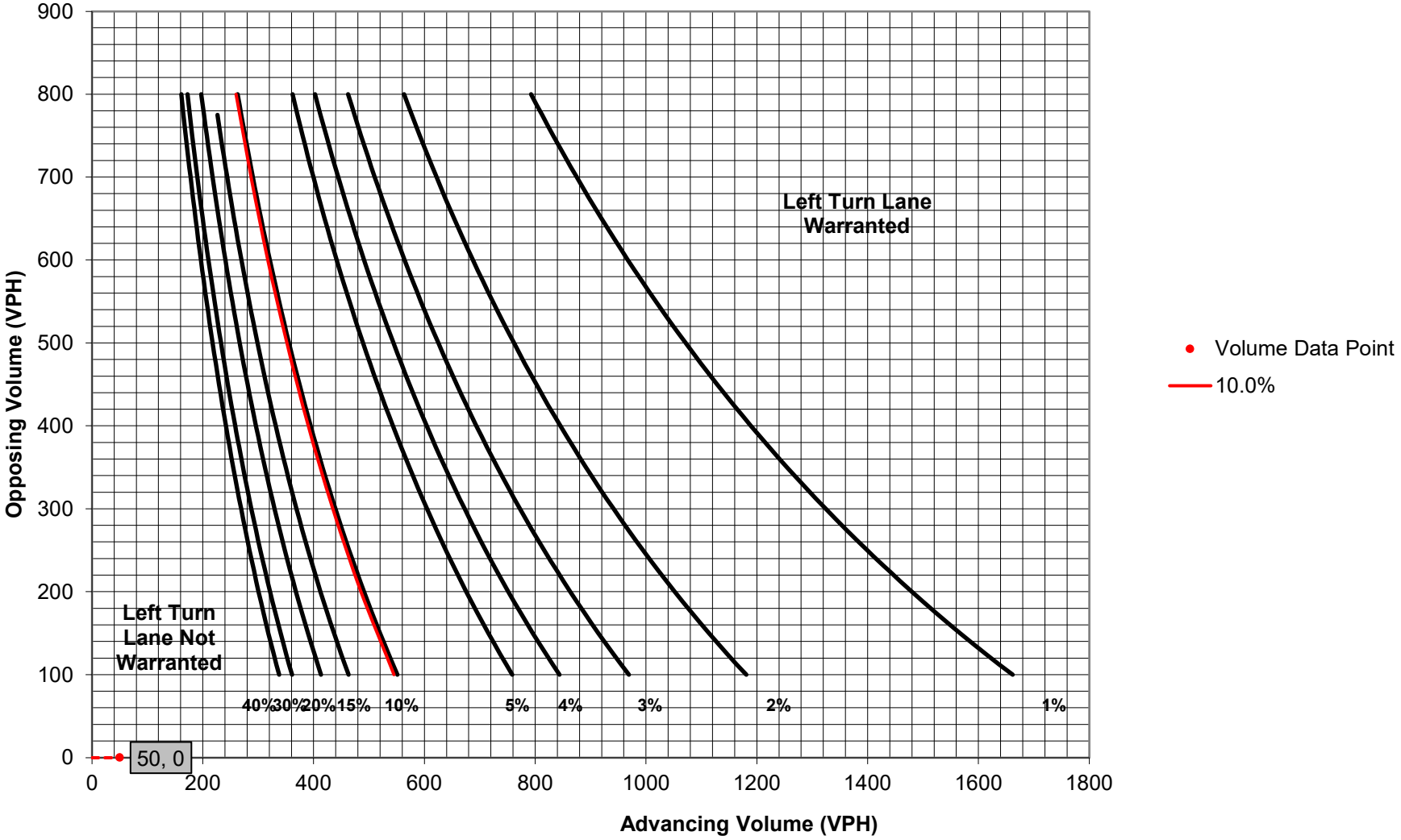
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Bernheisel Bridge Rd & Green Hill Rd
Westbound Right Turn

Analysis Period:	2025 Existing Year	**Number of Approach Lanes:**	1
Design Hour:	SAT 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	5	0.0%	5
	Through	-	0	0.0%	0
	Right	-	45	0.0%	45

Advancing Volume: 50
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

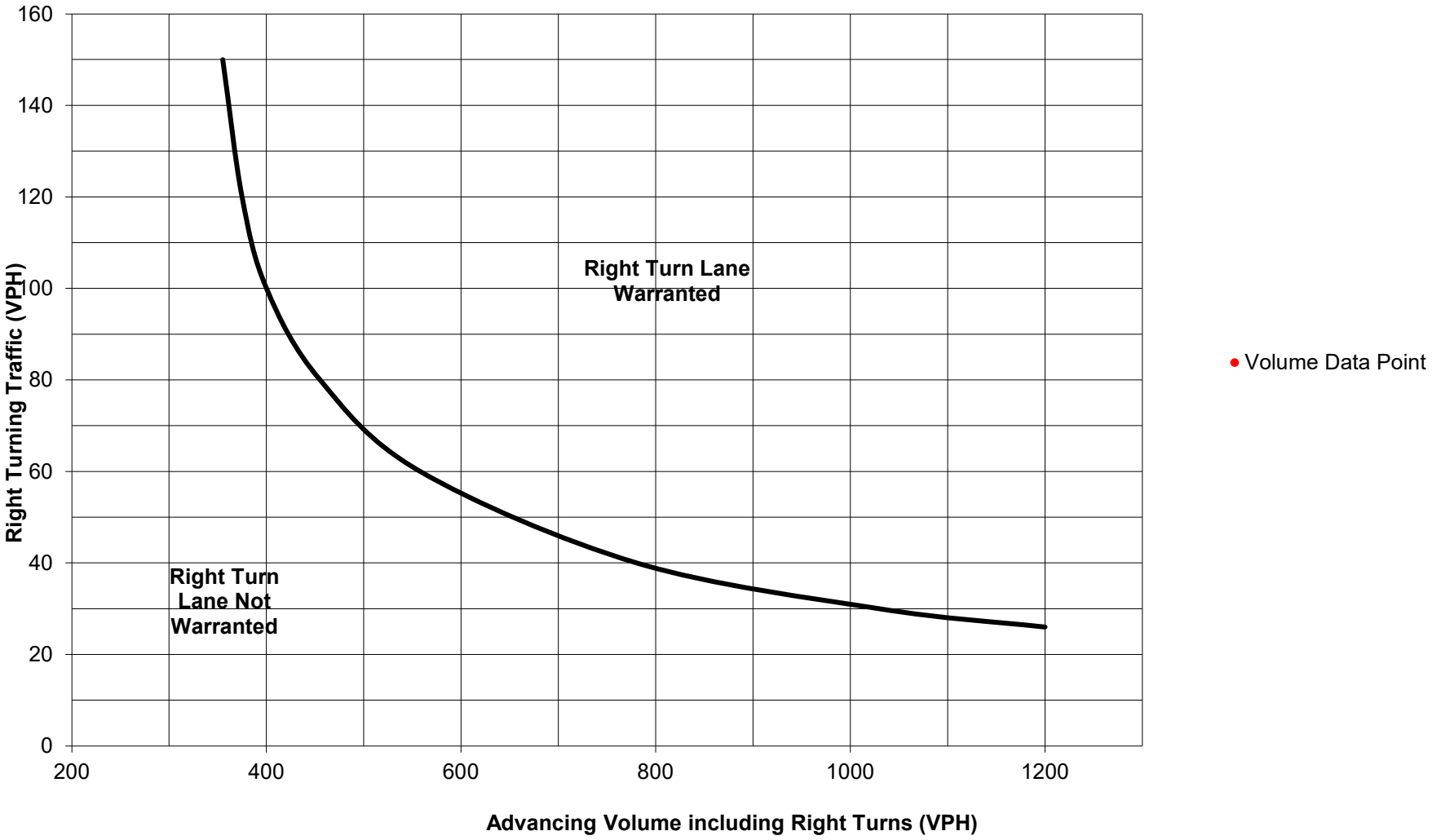
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Eastbound Left Turn

Analysis Period:	2027 Opening Year (No Build)	**Number of Approach Lanes:**	2
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
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	15.0%	25
	Through	-	988	23.0%	1329
	Right	No	9	11.0%	N/A
Opposing	Left	No	3	33.0%	N/A
	Through	-	704	25.0%	968
	Right	Yes	18	6.0%	20

Advancing Volume:	1354
Opposing Volume:	988
Left Turn Volume:	25
% Left Turns in Advancing Volume:	1.85%

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?: Yes

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:	25
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: 1.0

PennDOT Publication 46, Exhibit 11-6

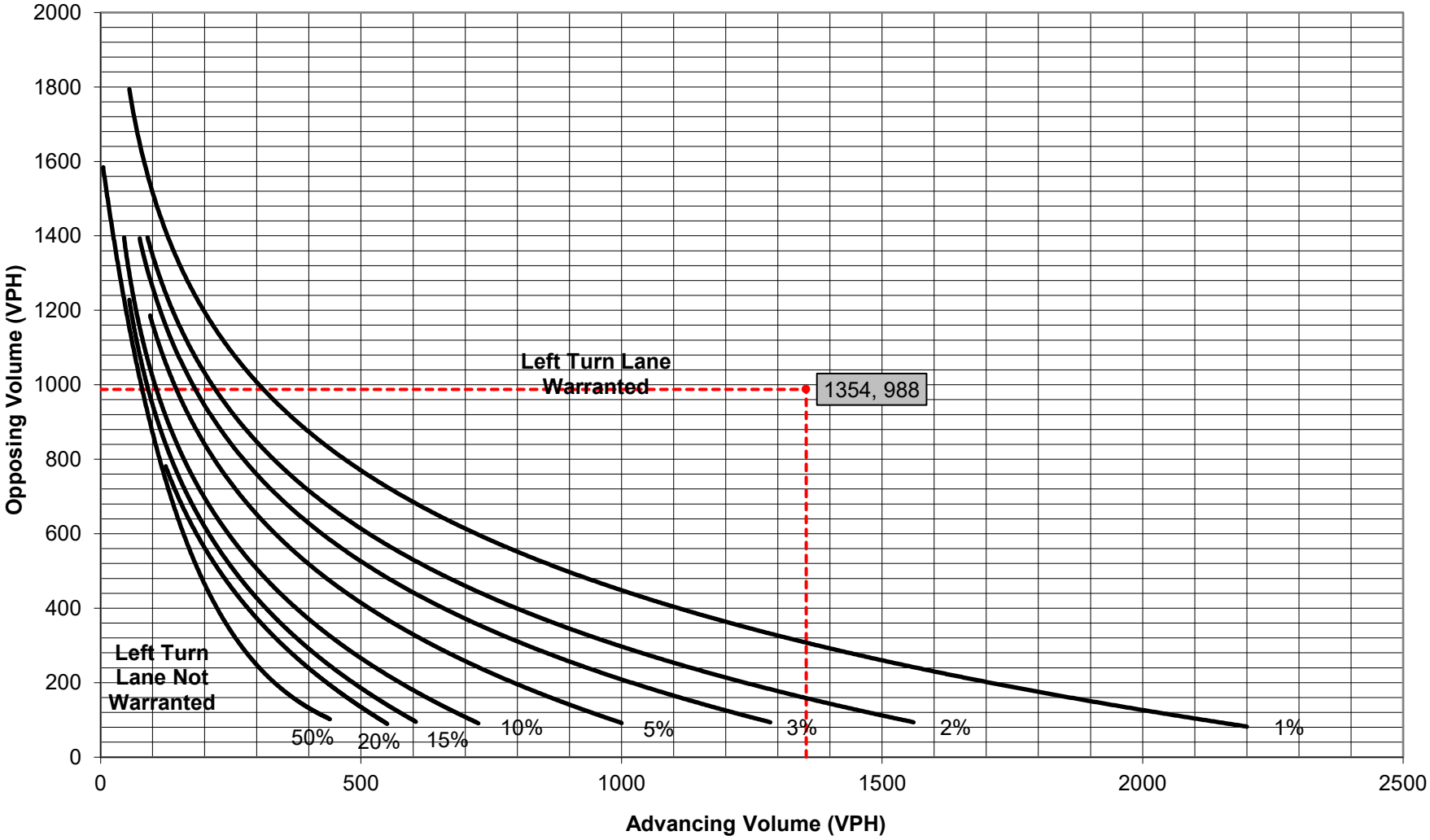
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	75	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	75	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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Eastbound Right Turn

Analysis Period:	2027 Opening Year (No Build)	**Number of Approach Lanes:**	2
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
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	20	15.0%	N/A
	Through	-	988	23.0%	1329
	Right	-	9	11.0%	11

Advancing Volume:	1340
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 11

Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	11
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

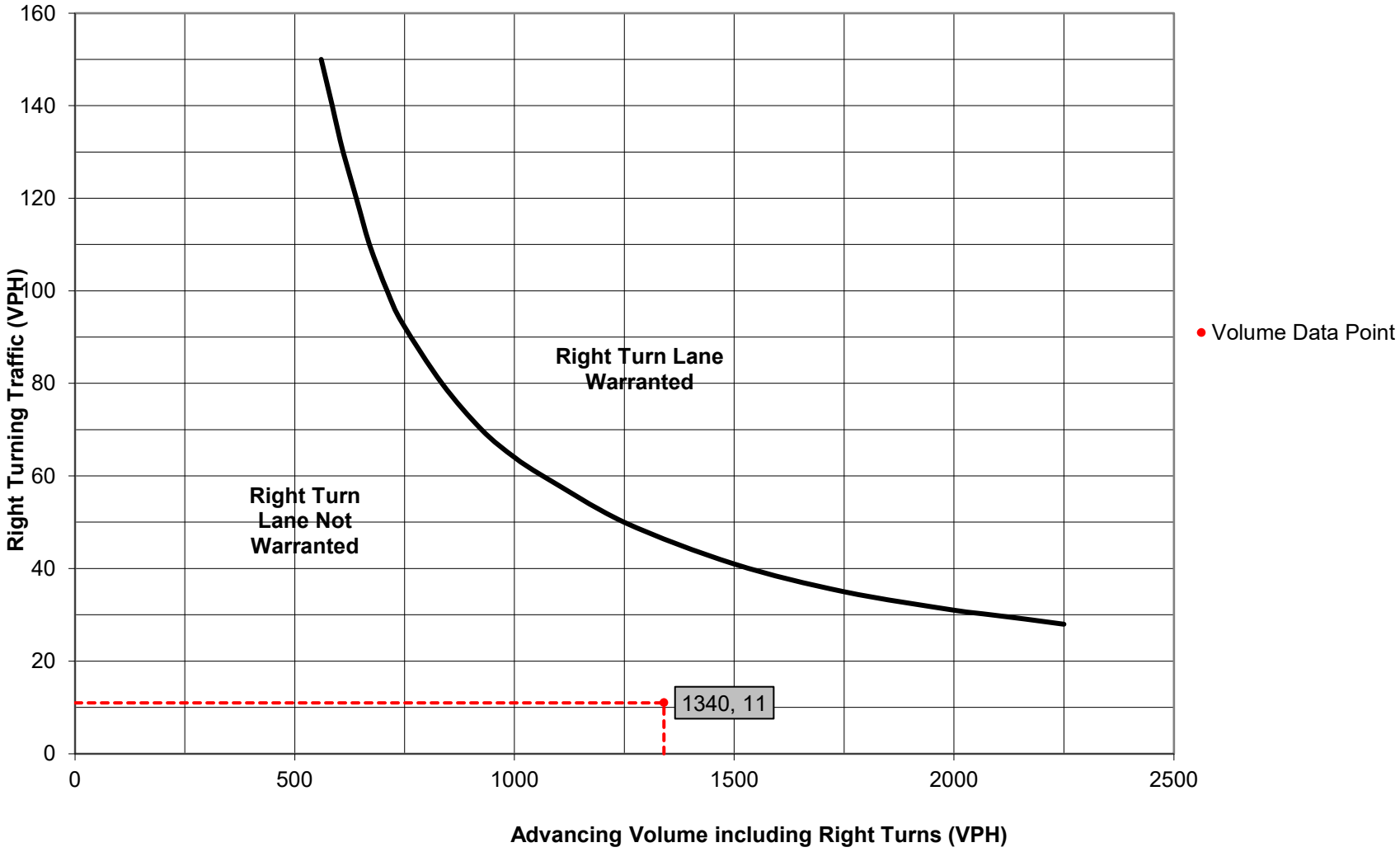
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Northbound Left Turn

Analysis Period:	2027 Opening Year (No Build)	**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	1	0.0%	1
	Through	-	1	0.0%	1
	Right	No	16	13.0%	N/A
Opposing	Left	Yes	59	3.0%	62
	Through	-	1	0.0%	1
	Right	Yes	30	0.0%	30

Advancing Volume:	2
Opposing Volume:	93
Left Turn Volume:	1
% Left Turns in Advancing Volume:	50.00%

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?: **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:	1
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

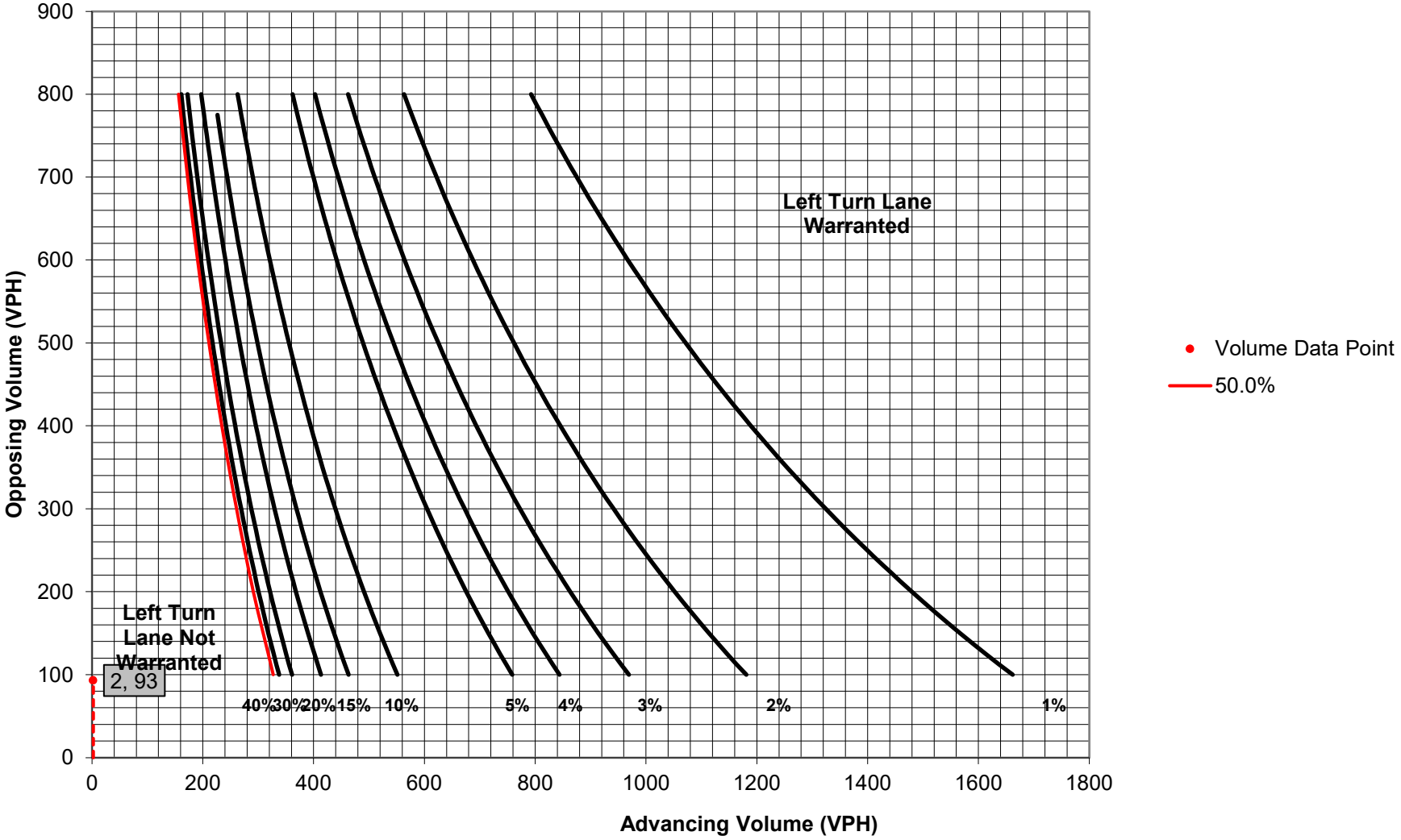
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Northbound Right Turn

Analysis Period:	2027 Opening Year (No Build)	**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	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	No	1	0.0%	N/A
	Through	-	1	0.0%	1
	Right	-	16	13.0%	20

Advancing Volume:	21
Right Turn Volume:	20

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:	20
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

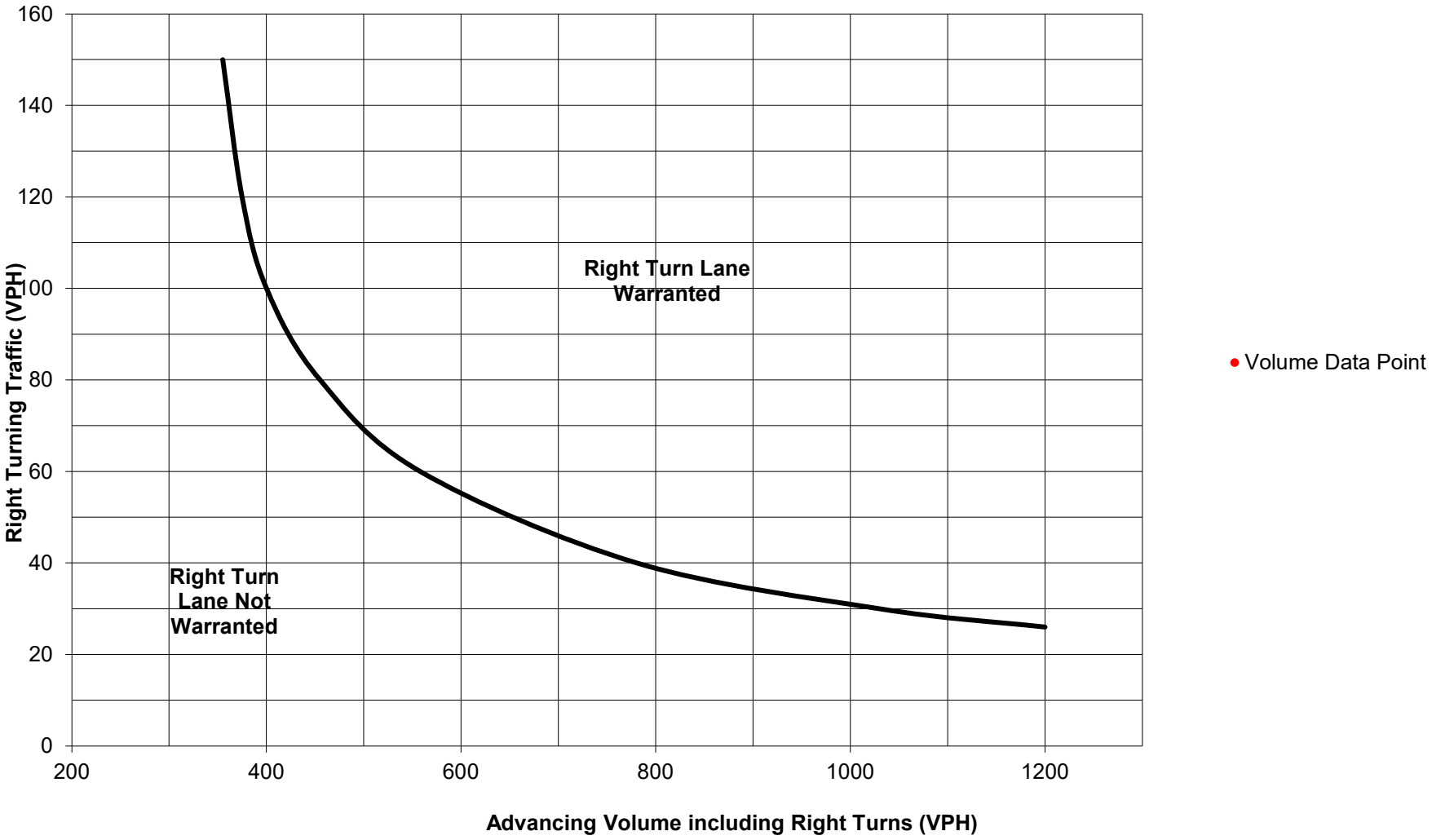
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Southbound Left Turn

Analysis Period:	2027 Opening Year (No Build)	**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	59	3.0%	62
	Through	-	1	0.0%	1
	Right	Yes	30	0.0%	30
Opposing	Left	Yes	1	0.0%	1
	Through	-	1	0.0%	1
	Right	Yes	16	13.0%	20

Advancing Volume:	93
Opposing Volume:	22
Left Turn Volume:	62
% 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:	Signalized
Design Hour Volume of Turning Lane:	62
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

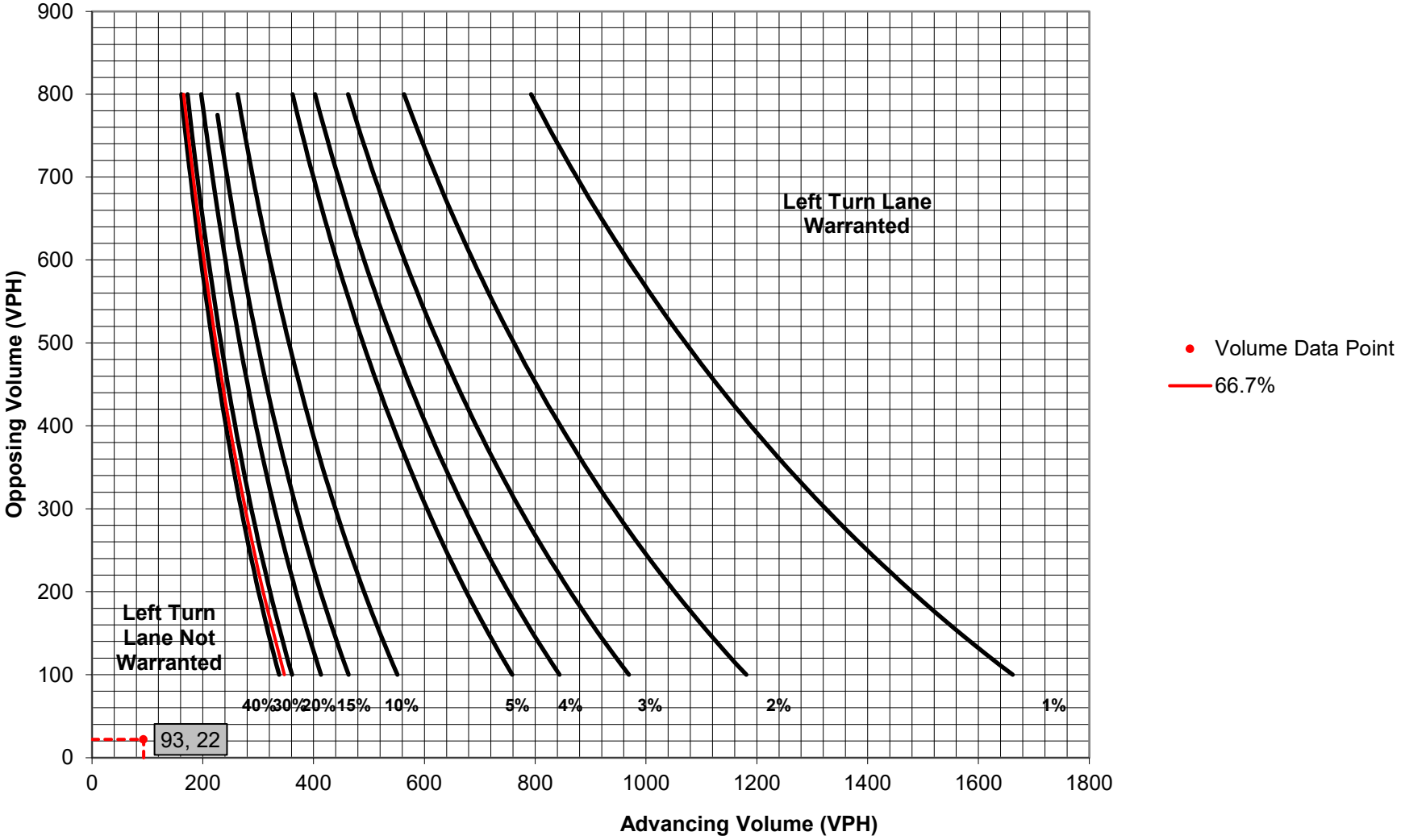
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Southbound Right Turn

Analysis Period:	2027 Opening Year (No Build)	**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	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	59	3.0%	62
	Through	-	1	0.0%	1
	Right	-	30	0.0%	30

Advancing Volume:	93
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):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

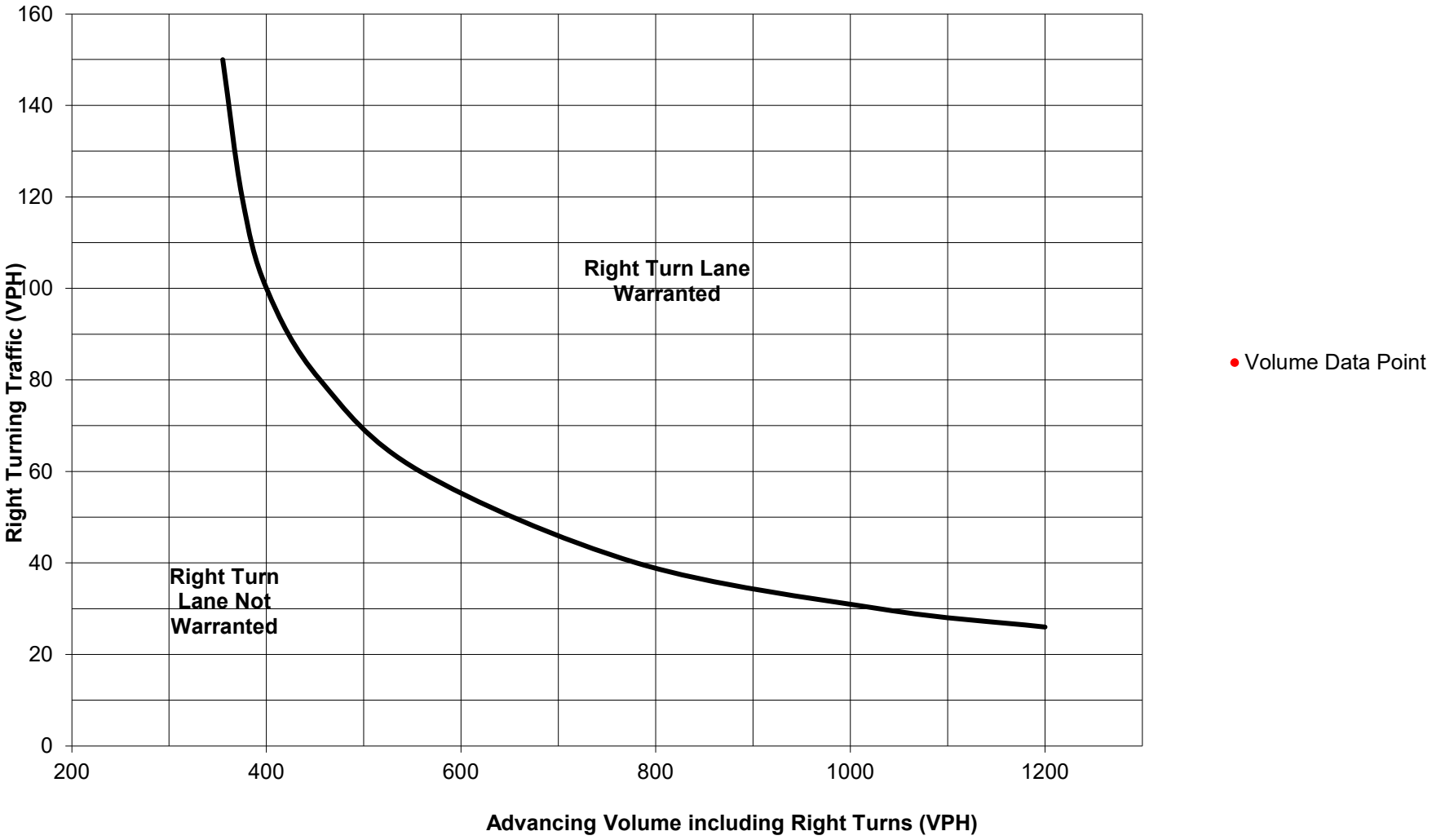
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Westbound Left Turn

Analysis Period:	2027 Opening Year (No Build)	**Number of Approach Lanes:**	2
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
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	33.0%	5
	Through	-	704	25.0%	968
	Right	No	18	6.0%	N/A
Opposing	Left	No	20	15.0%	N/A
	Through	-	988	23.0%	1329
	Right	Yes	9	11.0%	11

Advancing Volume:	973
Opposing Volume:	1340
Left Turn Volume:	5
% Left Turns in Advancing Volume:	0.51%

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:	5
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

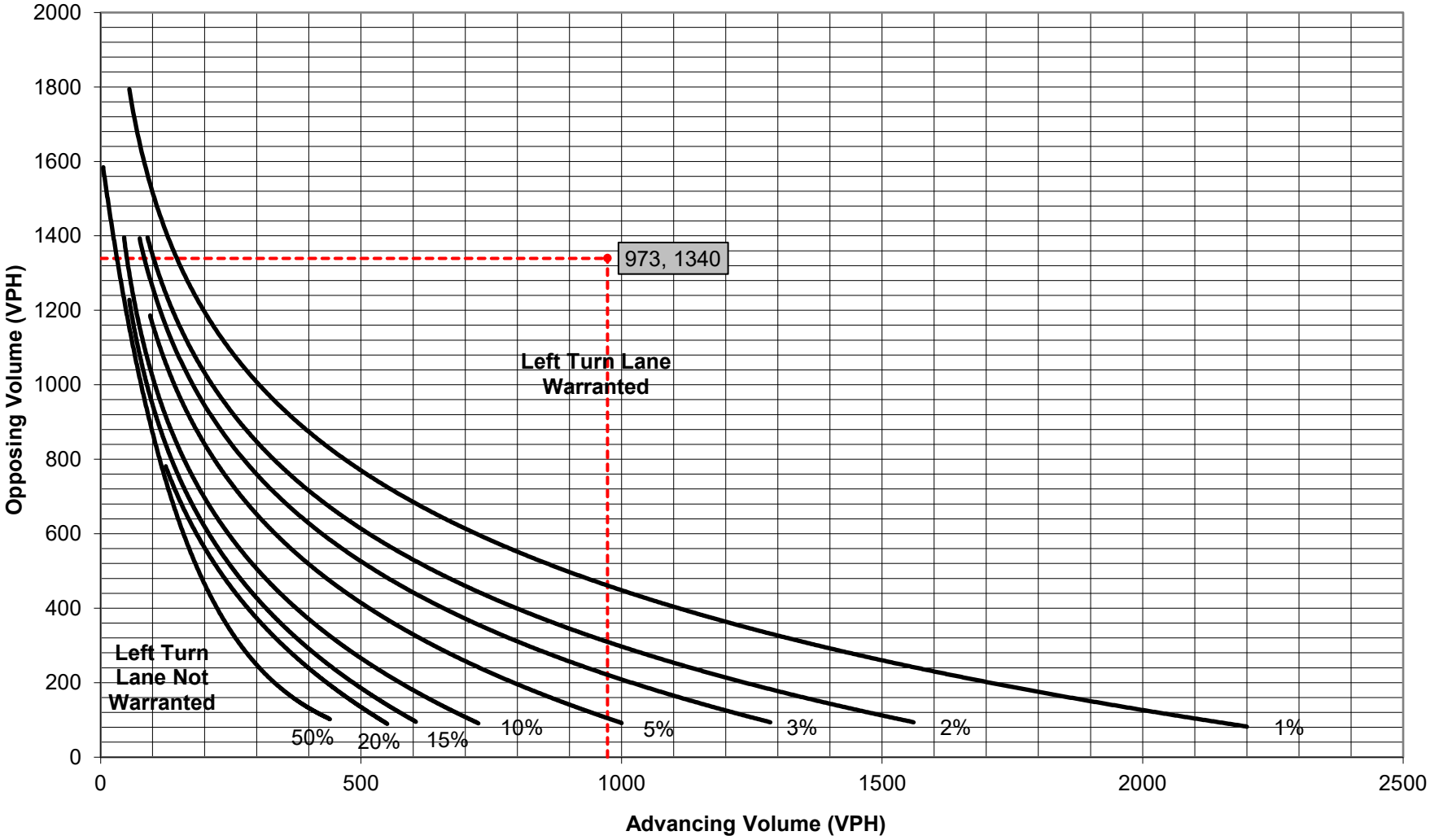
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Westbound Right Turn

Analysis Period:	2027 Opening Year (No Build)	**Number of Approach Lanes:**	2
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
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	3	33.0%	N/A
	Through	-	704	25.0%	968
	Right	-	18	6.0%	20

Advancing Volume:	988
Right Turn Volume:	20

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:	20
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

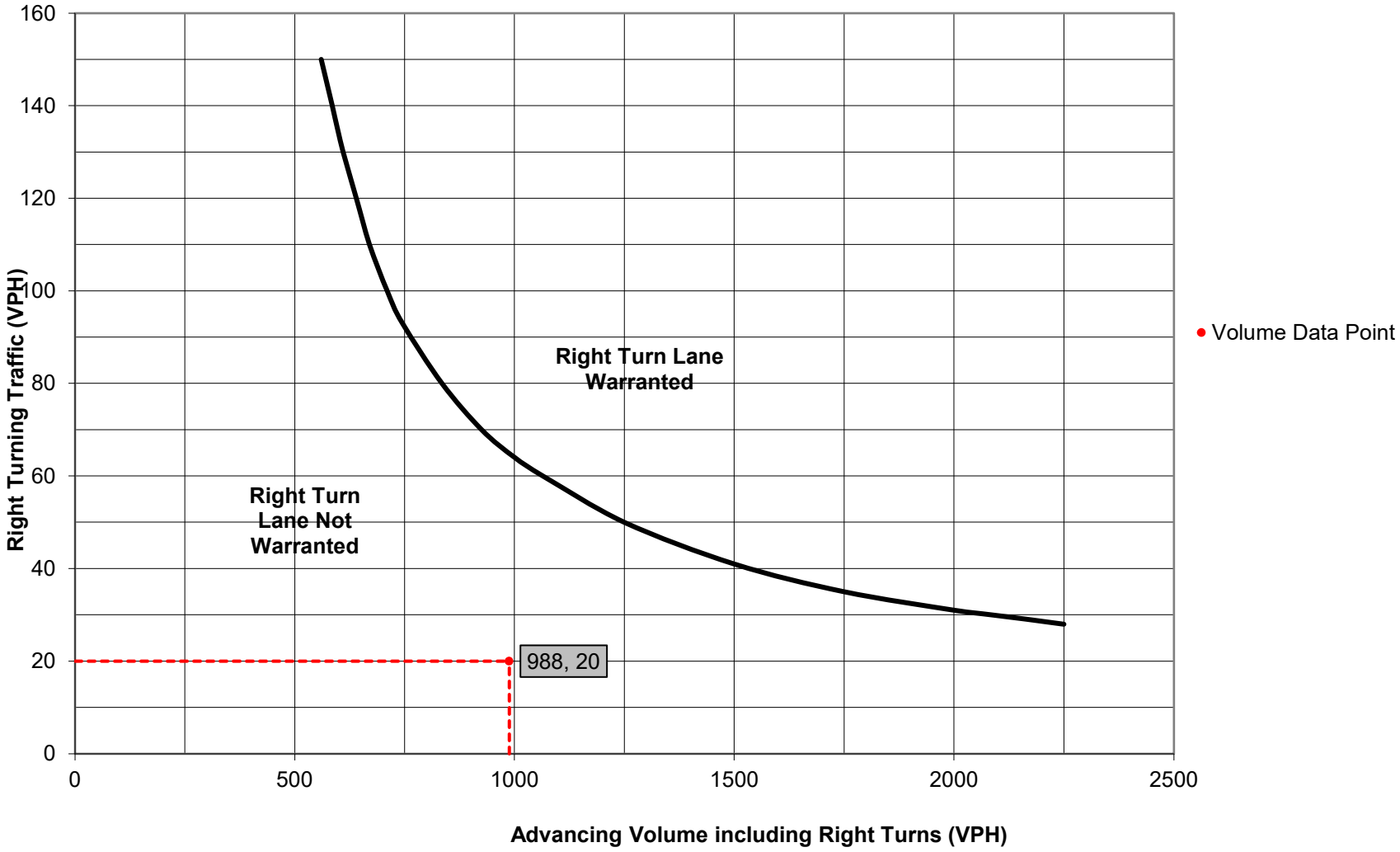
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Eastbound Left Turn

Analysis Period:	2027 Opening Year (No Build)	**Number of Approach Lanes:**	2
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
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	44	0.0%	44
	Through	-	1215	28.0%	1726
	Right	No	13	8.0%	N/A
Opposing	Left	No	25	16.0%	N/A
	Through	-	881	26.0%	1225
	Right	Yes	29	7.0%	33

Advancing Volume:	1770
Opposing Volume:	1258
Left Turn Volume:	44
% Left Turns in Advancing Volume:	2.49%

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?: Yes

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:	44
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: 1.0

PennDOT Publication 46, Exhibit 11-6

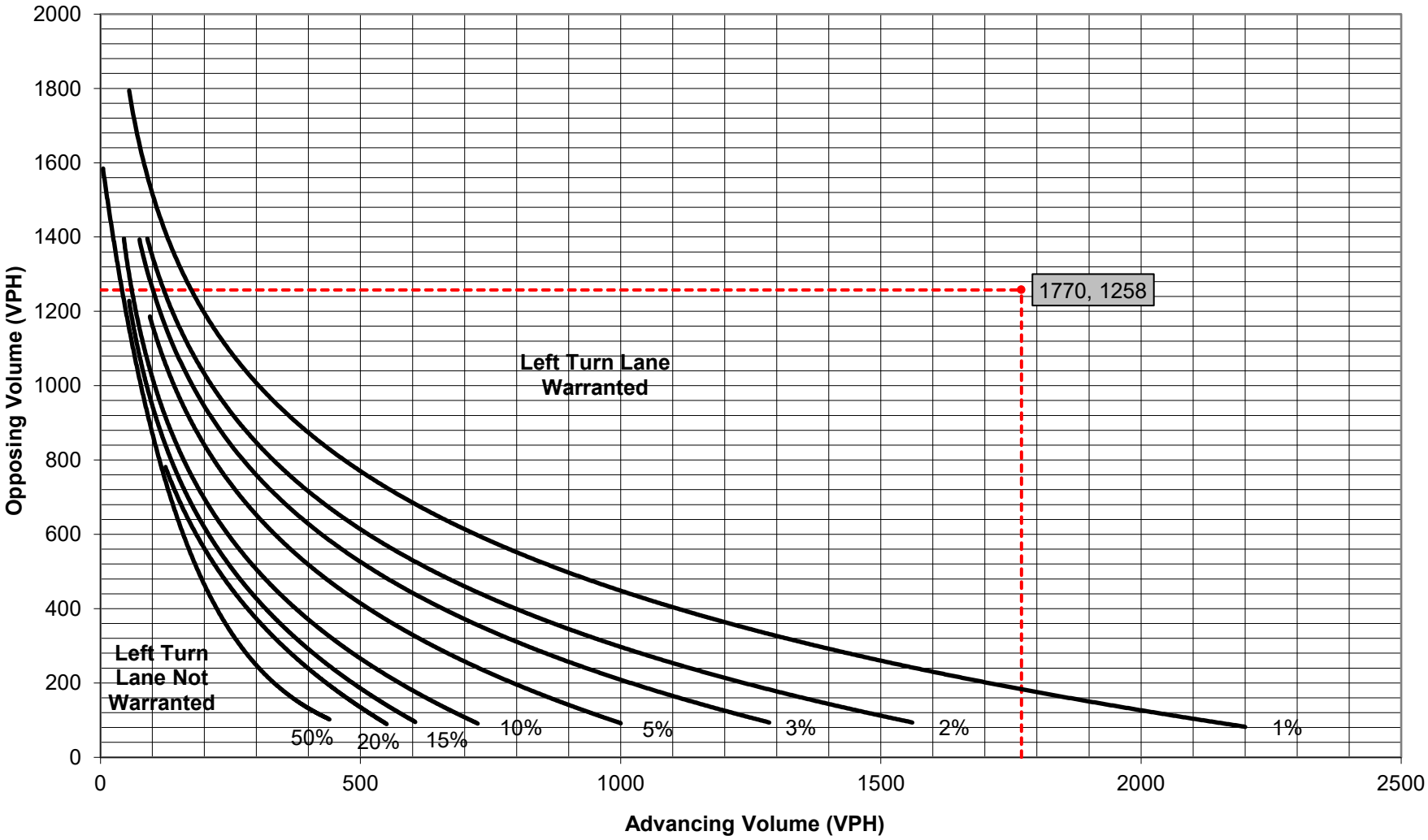
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	75	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	75	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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Eastbound Right Turn

Analysis Period:	2027 Opening Year (No Build)	**Number of Approach Lanes:**	2
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
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	44	0.0%	N/A
	Through	-	1215	28.0%	1726
	Right	-	13	8.0%	15

Advancing Volume:	1741
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 11

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):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

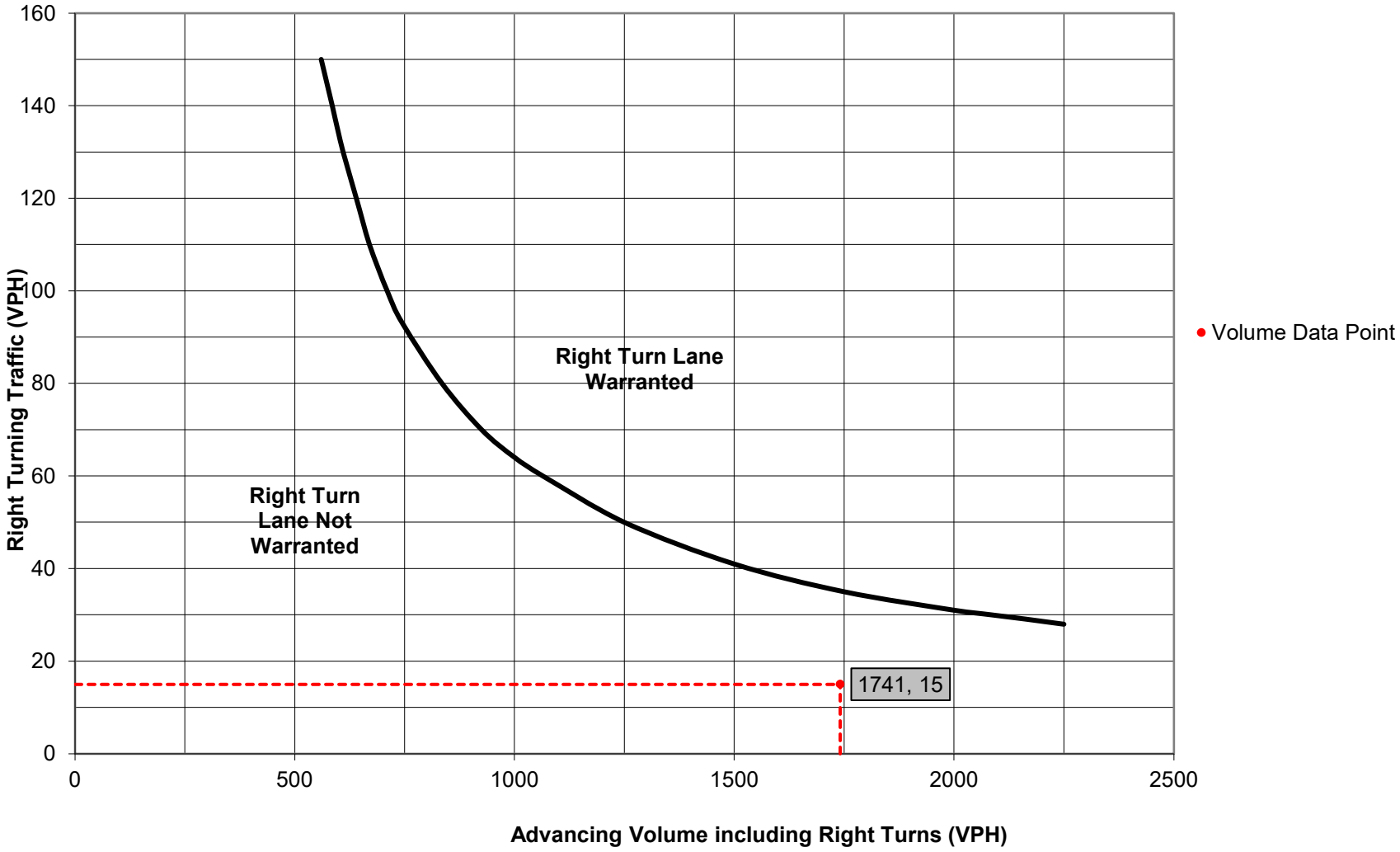
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Northbound Left Turn

Analysis Period:	2027 Opening Year (No Build)	**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	12	0.0%	12
	Through	-	0	0.0%	0
	Right	No	25	8.0%	N/A
Opposing	Left	Yes	37	8.0%	42
	Through	-	1	0.0%	1
	Right	Yes	26	8.0%	30

Advancing Volume:	12
Opposing Volume:	73
Left Turn Volume:	12
% 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:	12
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

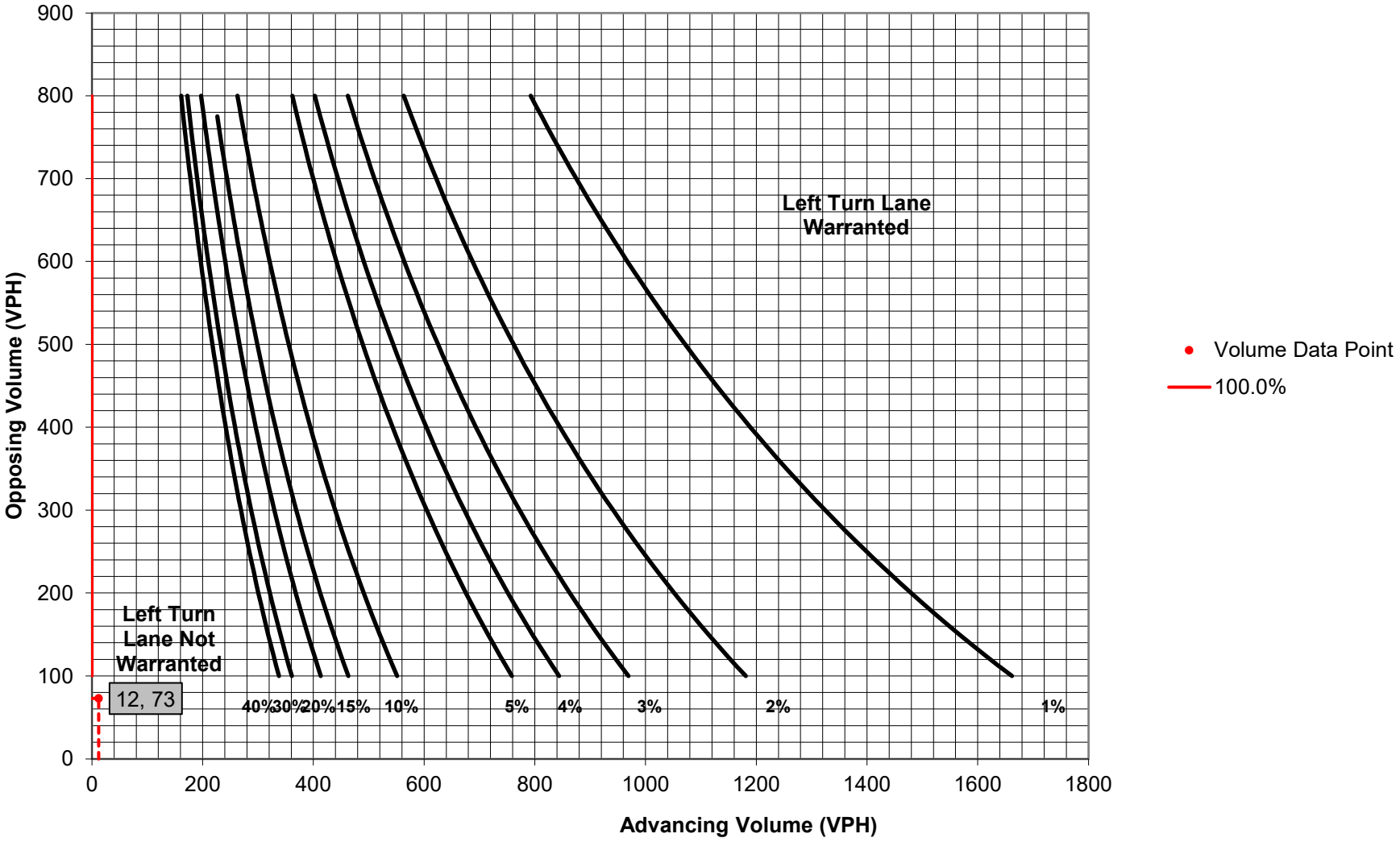
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd / Northbound Right Turn

Analysis Period:	2027 Opening Year (No Build)	**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	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	No	12	0.0%	N/A
	Through	-	0	0.0%	0
	Right	-	25	8.0%	28

Advancing Volume:	28
Right Turn Volume:	28

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:	28
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

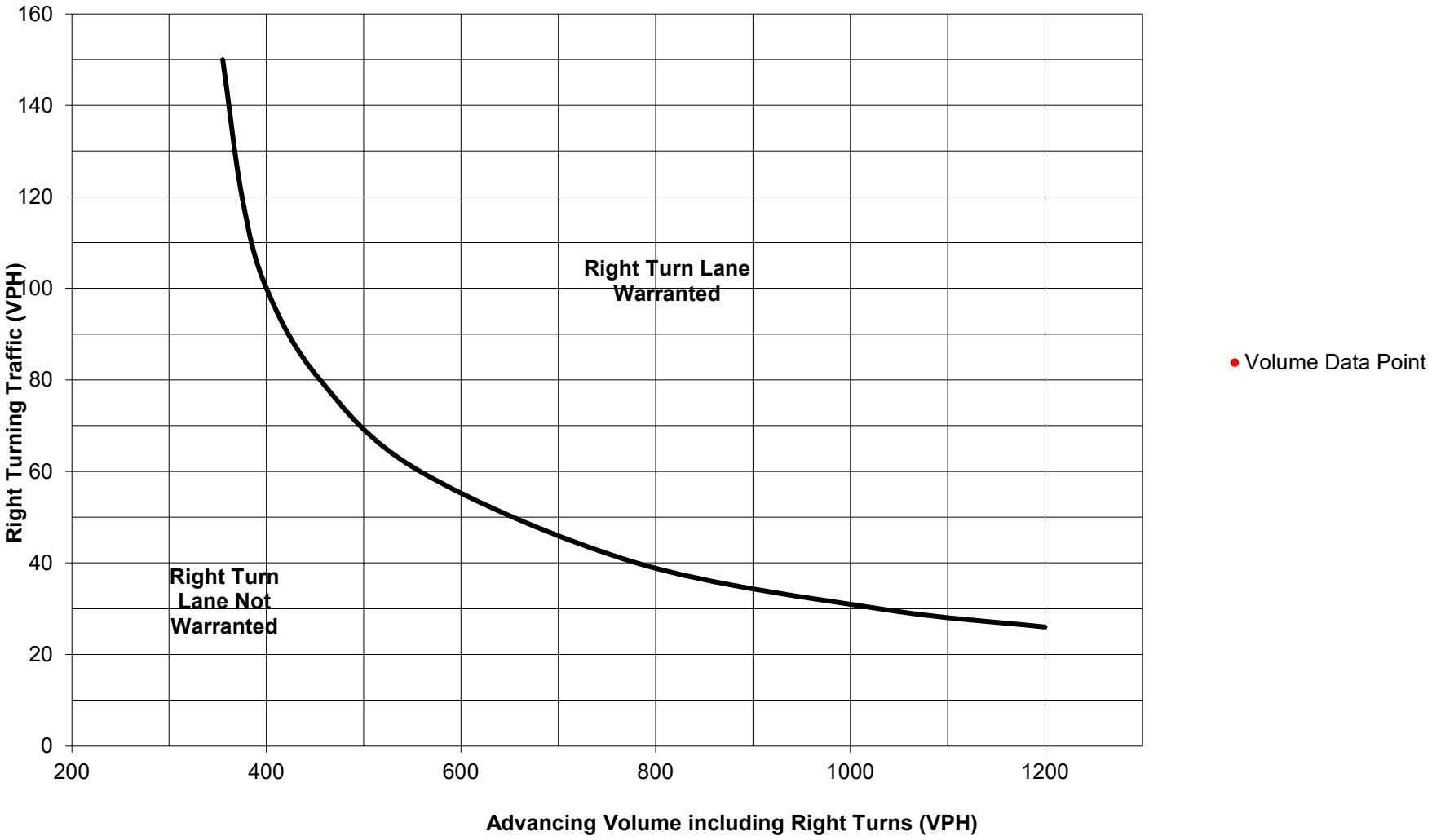
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Southbound Left Turn

Analysis Period:	2027 Opening Year (No Build)	**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	37	8.0%	42
	Through	-	1	0.0%	1
	Right	Yes	26	8.0%	30
Opposing	Left	Yes	12	0.0%	12
	Through	-	0	0.0%	0
	Right	Yes	25	8.0%	28

Advancing Volume: 73
Opposing Volume: 40
Left Turn Volume: 42
% Left Turns in Advancing Volume: 57.53%

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:	42
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

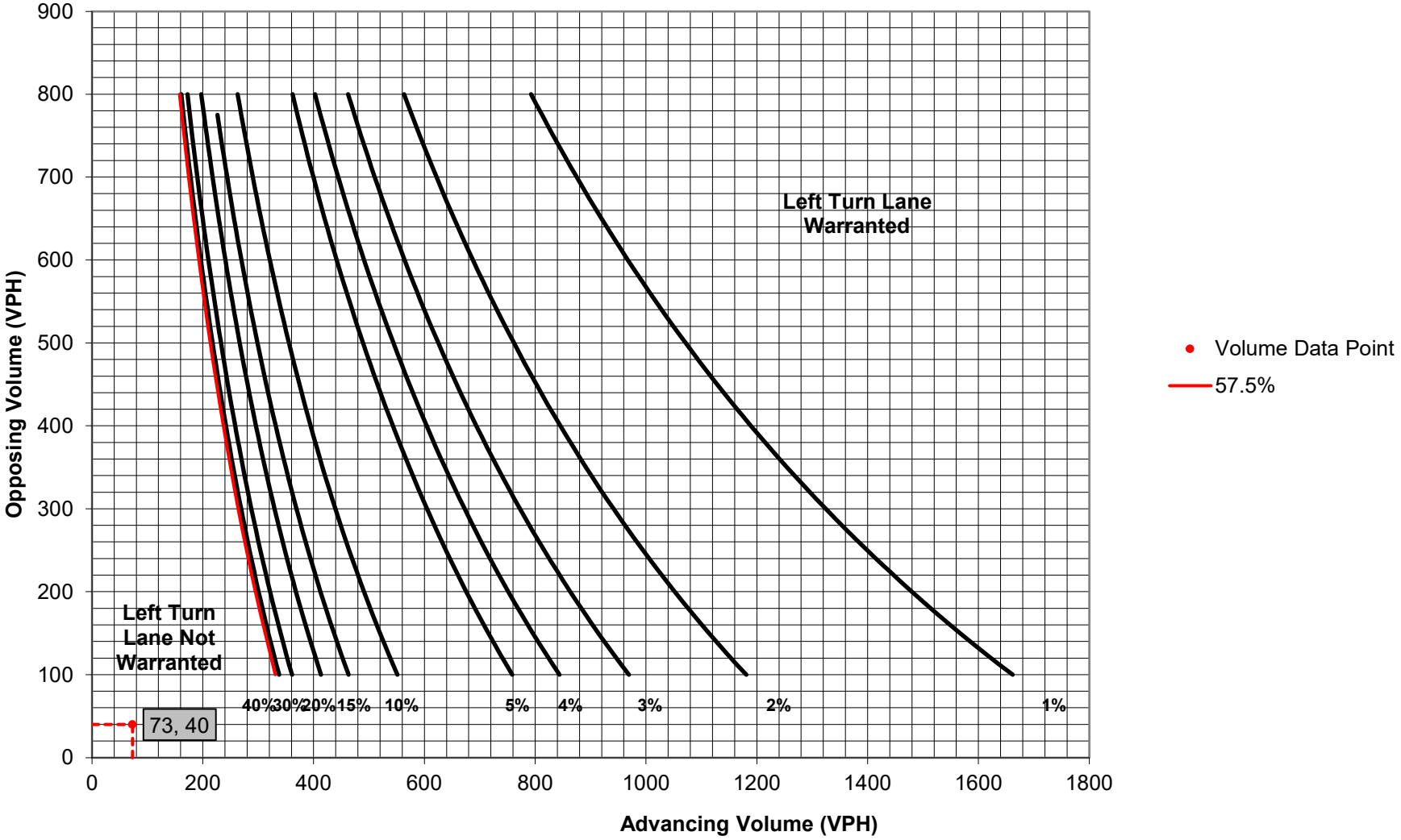
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Southbound Right Turn

Analysis Period:	2027 Opening Year (No Build)	**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	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	37	8.0%	42
	Through	-	1	0.0%	1
	Right	-	26	8.0%	30

Advancing Volume:	73
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):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

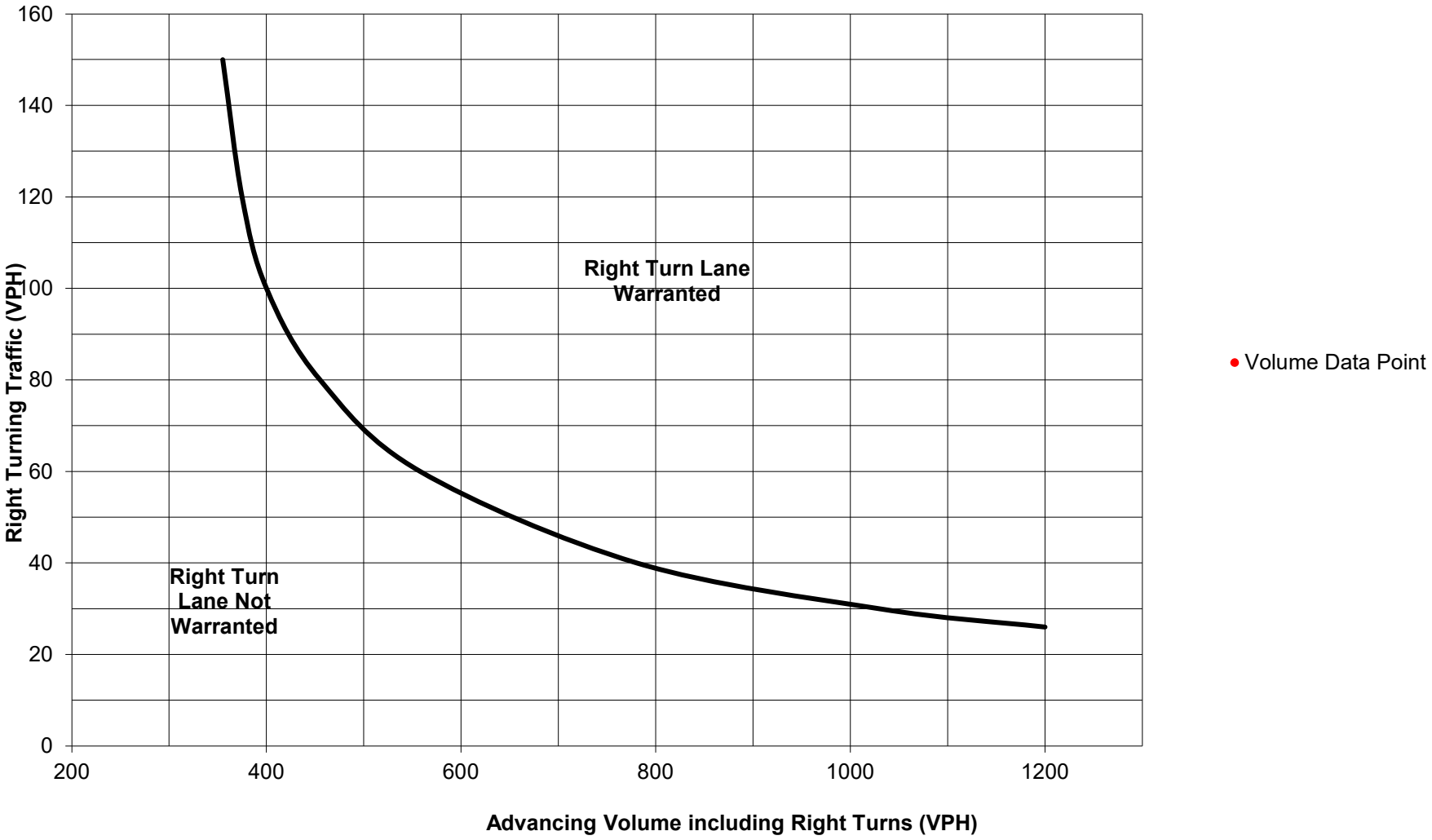
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Westbound Left Turn

Analysis Period:	2027 Opening Year (No Build)	**Number of Approach Lanes:**	2
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
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	16.0%	31
	Through	-	881	26.0%	1225
	Right	No	29	7.0%	N/A
Opposing	Left	No	44	0.0%	N/A
	Through	-	1215	28.0%	1726
	Right	Yes	13	8.0%	15

Advancing Volume:	1256
Opposing Volume:	1741
Left Turn Volume:	31
% Left Turns in Advancing Volume:	2.47%

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 8**

Warrant Met?: **Yes**

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:	31
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: 1.0

PennDOT Publication 46, Exhibit 11-6

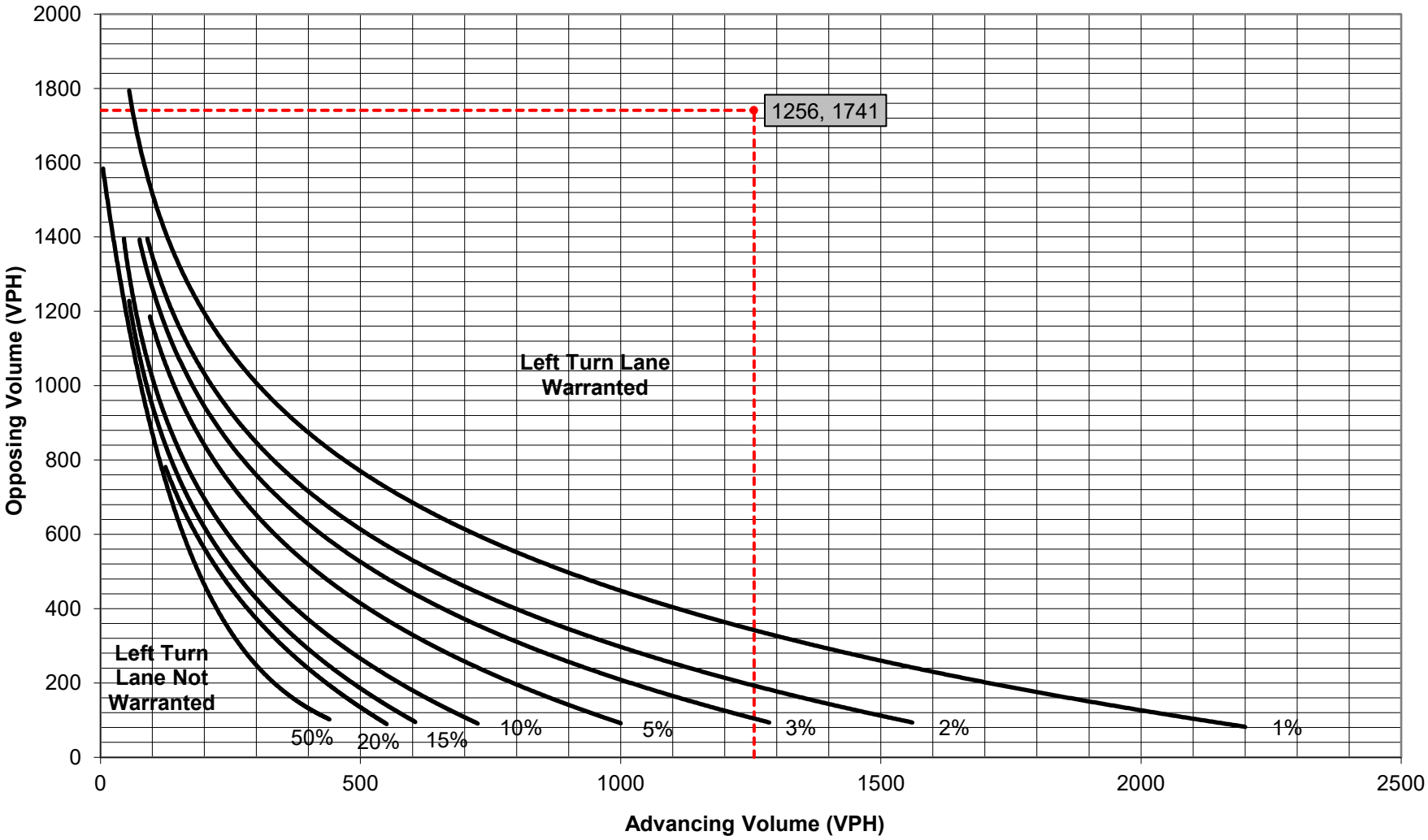
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	**75**	**Feet**
Condition B:	**N/A**	**Feet**
Condition C:	**N/A**	**Feet**
Required Left Turn Lane Storage Length:	**75**	**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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Westbound Right Turn

Analysis Period:	2027 Opening Year (No Build)	**Number of Approach Lanes:**	2
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
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	25	16.0%	N/A
	Through	-	881	26.0%	1225
	Right	-	29	7.0%	33

Advancing Volume:	1258
Right Turn Volume:	33

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:	33
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

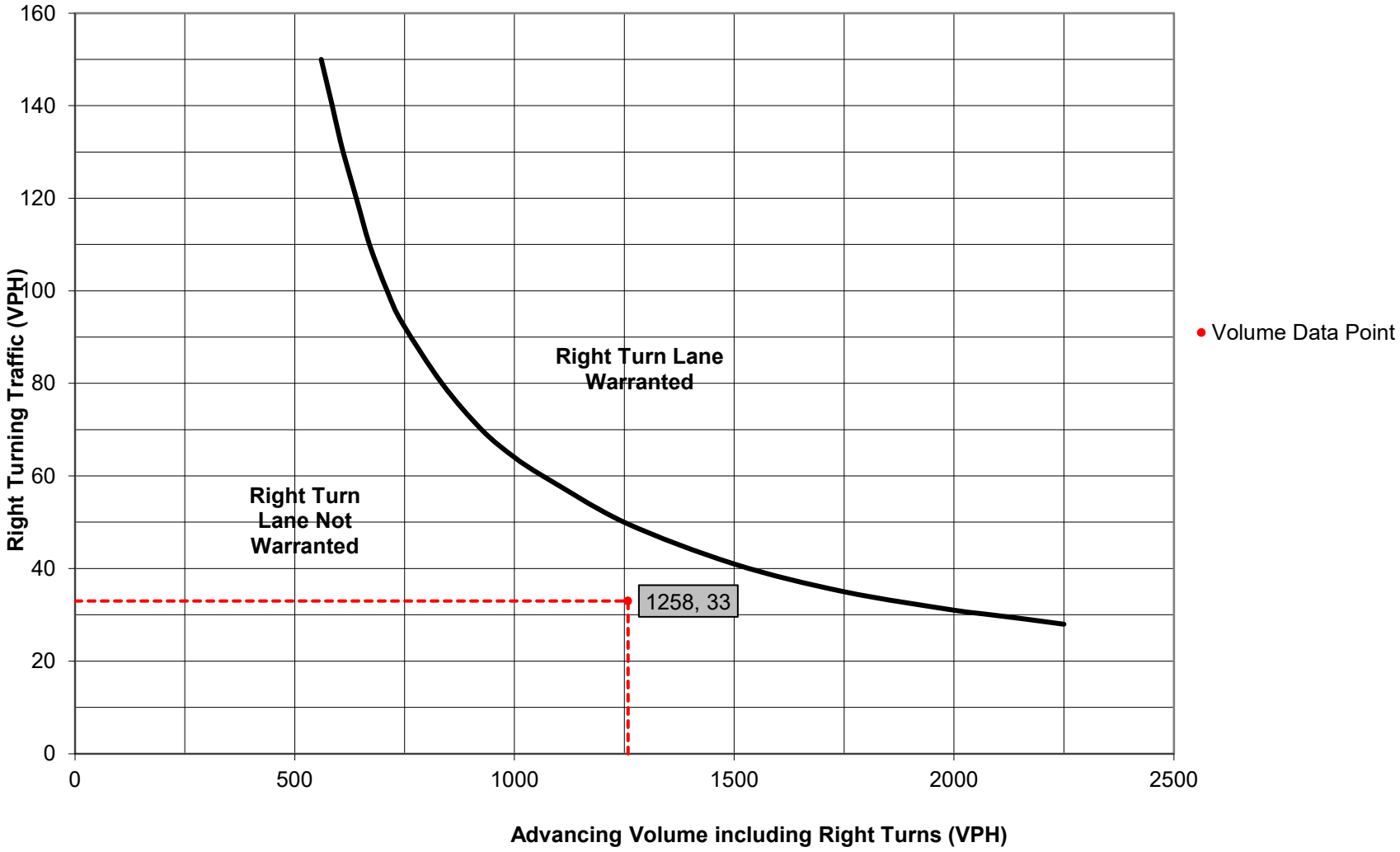
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Eastbound Left Turn

Analysis Period:	2027 Opening Year (No Build)	**Number of Approach Lanes:**	2
Design Hour:	SAT Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
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	-	659	19.0%	847
	Right	No	11	0.0%	N/A
Opposing	Left	No	19	32.0%	N/A
	Through	-	732	18.0%	930
	Right	Yes	37	0.0%	37

Advancing Volume:	876
Opposing Volume:	967
Left Turn Volume:	29
% Left Turns in Advancing Volume:	3.31%

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?: Yes

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:	29
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: 1.0

PennDOT Publication 46, Exhibit 11-6

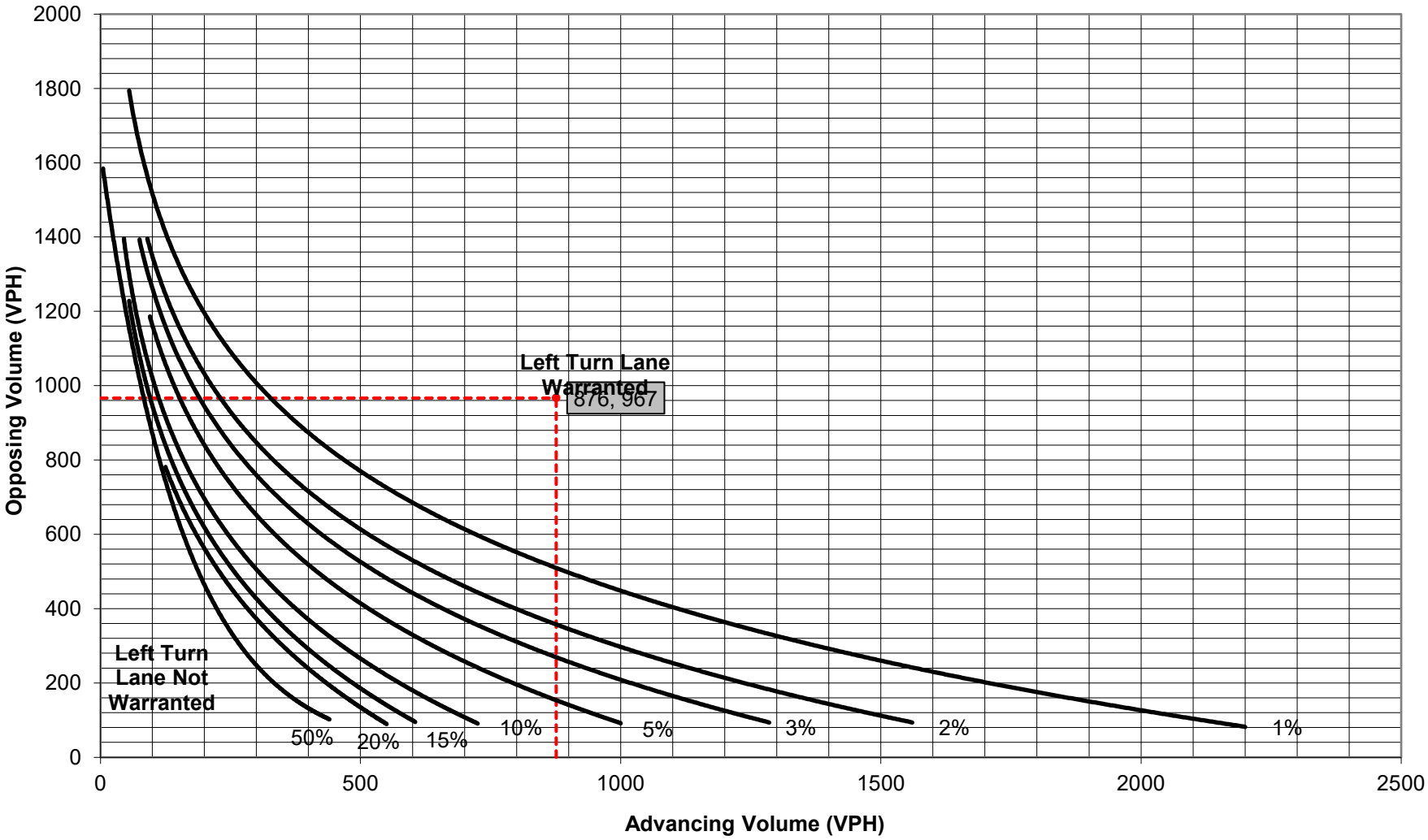
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	75	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	75	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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Eastbound Right Turn

Analysis Period:	2027 Opening Year (No Build)	**Number of Approach Lanes:**	2
Design Hour:	SAT Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
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	29	0.0%	N/A
	Through	-	659	19.0%	847
	Right	-	11	0.0%	11

Advancing Volume:	858
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 11

Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	11
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

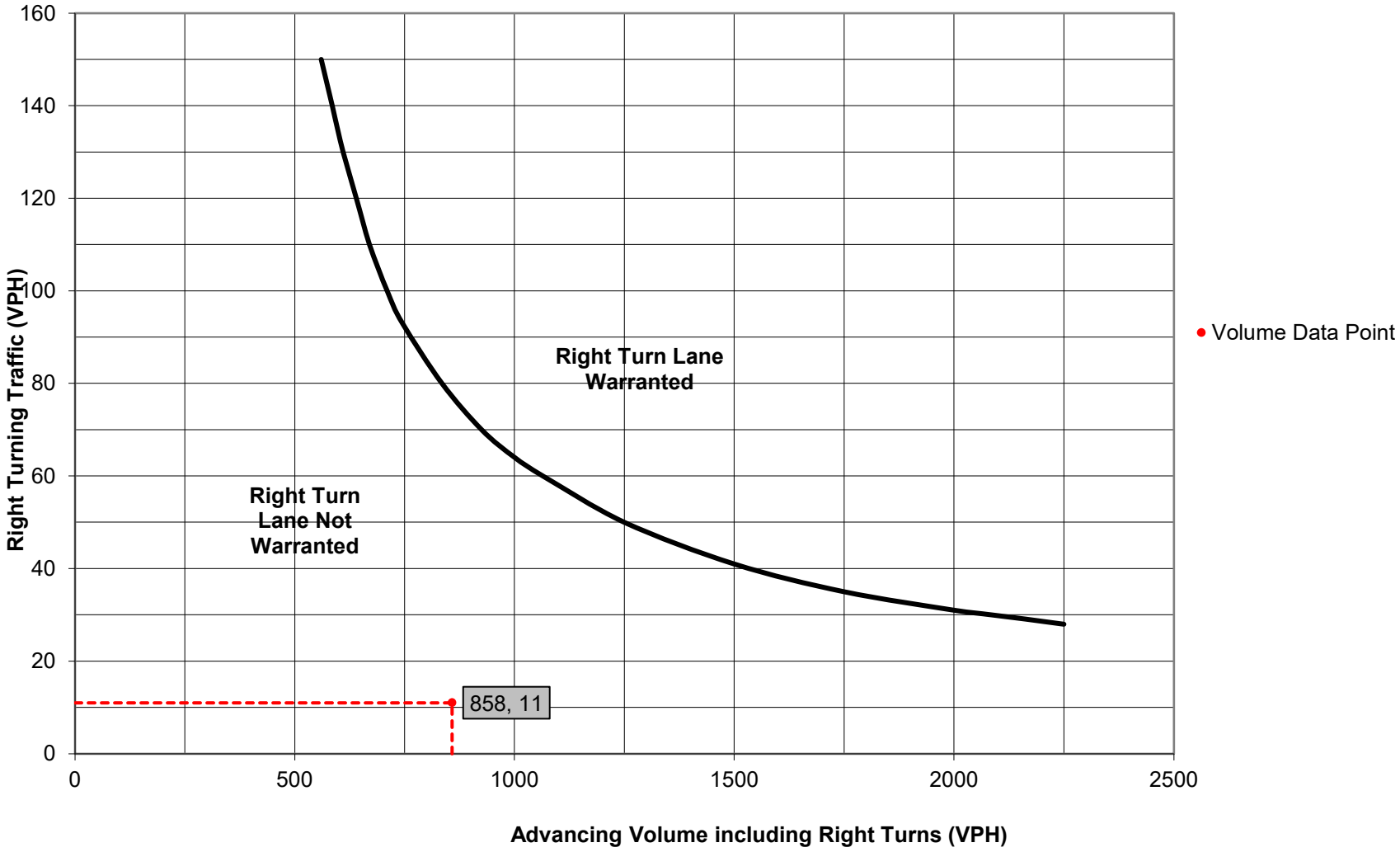
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Northbound Left Turn

Analysis Period:	2027 Opening Year (No Build)	**Number of Approach Lanes:**	1
Design Hour:	SAT 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	9	22.0%	12
	Through	-	2	0.0%	2
	Right	No	20	0.0%	N/A
Opposing	Left	Yes	30	0.0%	30
	Through	-	1	0.0%	1
	Right	Yes	18	0.0%	18

Advancing Volume: 14
Opposing Volume: 49
Left Turn Volume: 12
% Left Turns in Advancing Volume: 85.71%

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:	12
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

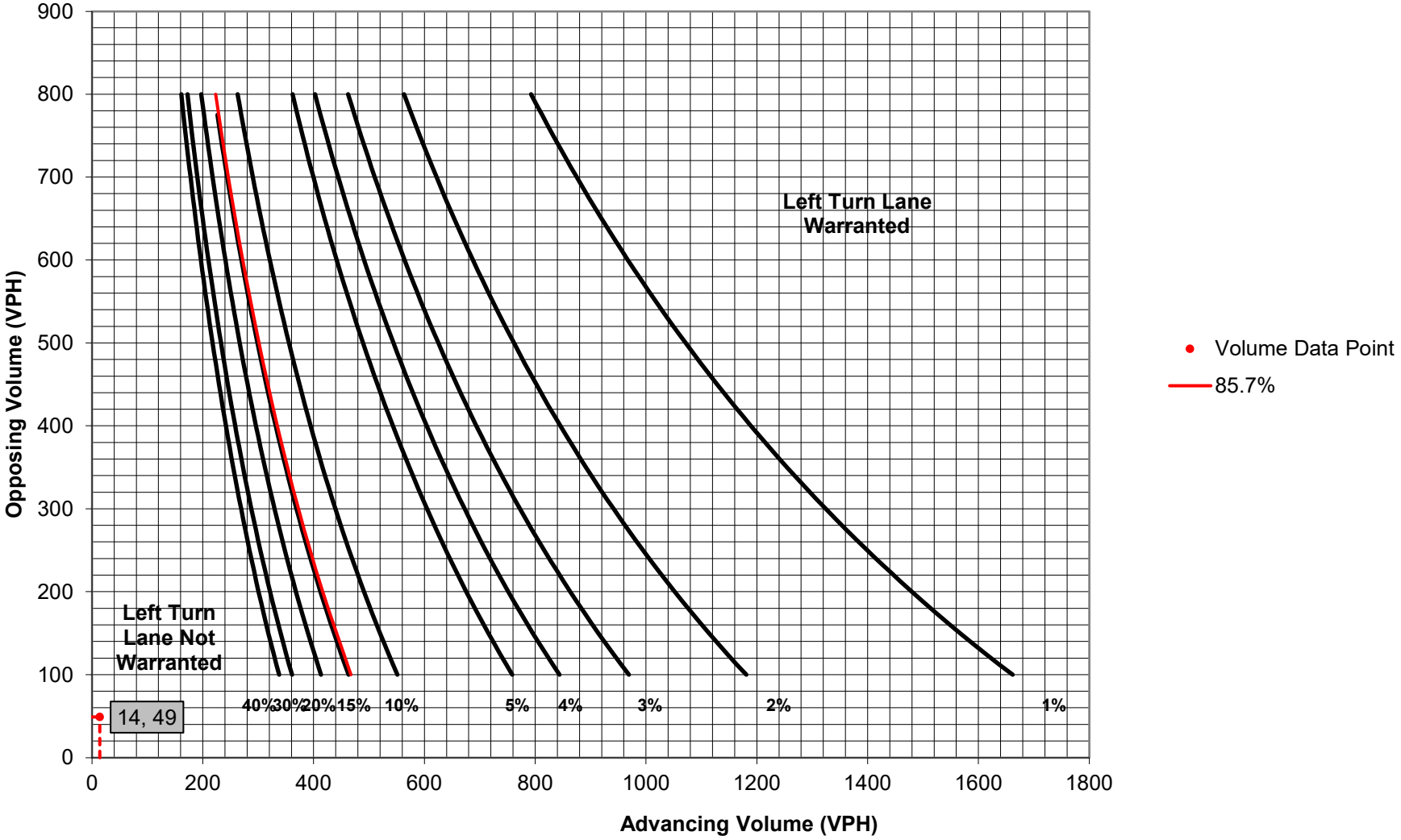
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Northbound Right Turn

Analysis Period:	2027 Opening Year (No Build)	**Number of Approach Lanes:**	1
Design Hour:	SAT 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	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	No	9	22.0%	N/A
	Through	-	2	0.0%	2
	Right	-	20	0.0%	20

Advancing Volume:	22
Right Turn Volume:	20

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:	20
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

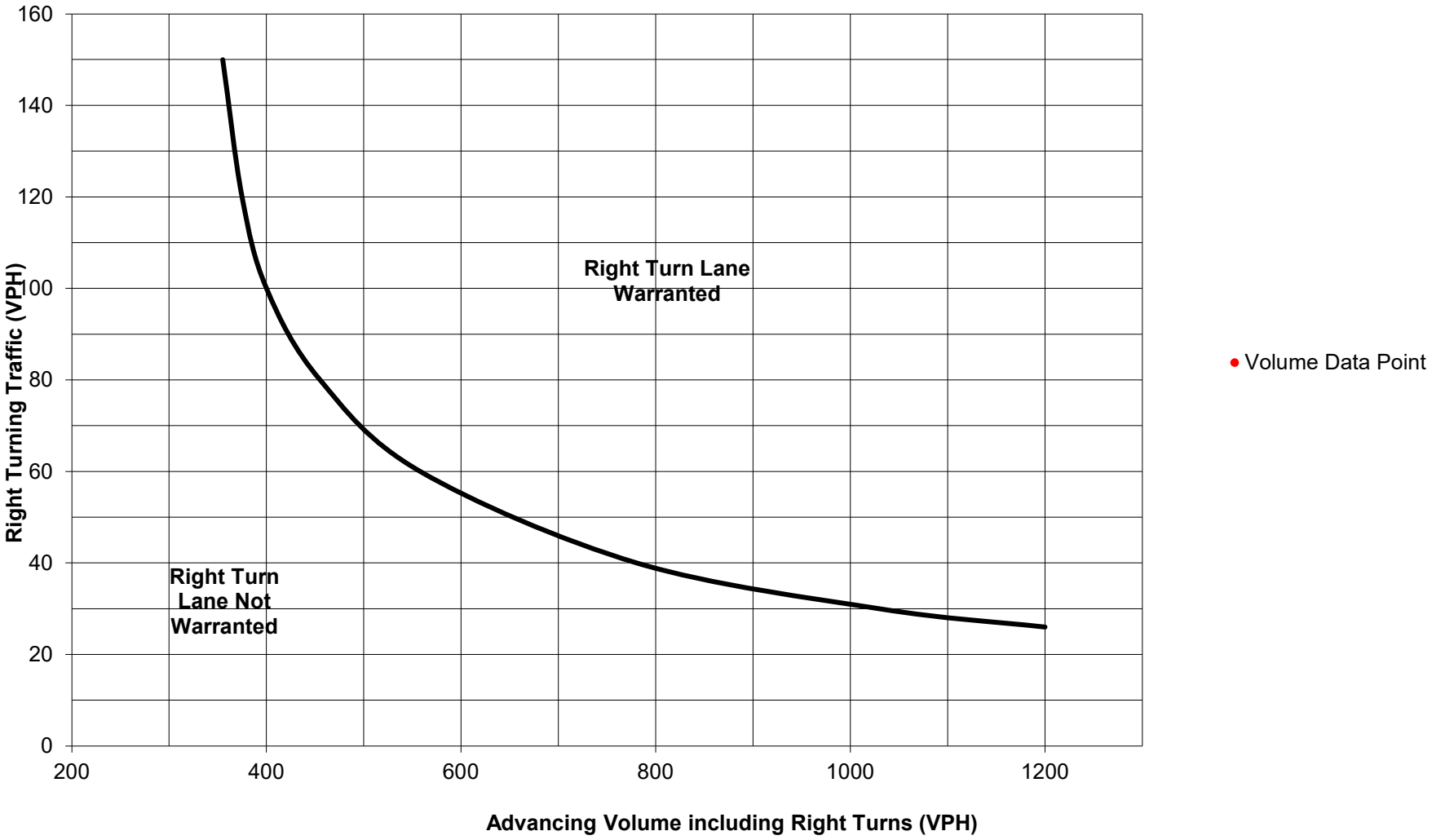
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Southbound Left Turn

Analysis Period:	2027 Opening Year (No Build)	**Number of Approach Lanes:**	1
Design Hour:	SAT 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	30	0.0%	30
	Through	-	1	0.0%	1
	Right	Yes	18	0.0%	18
Opposing	Left	Yes	9	22.0%	12
	Through	-	2	0.0%	2
	Right	Yes	20	0.0%	20

Advancing Volume:	49
Opposing Volume:	34
Left Turn Volume:	30
% Left Turns in Advancing Volume:	61.22%

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:	Signalized
Design Hour Volume of Turning Lane:	30
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

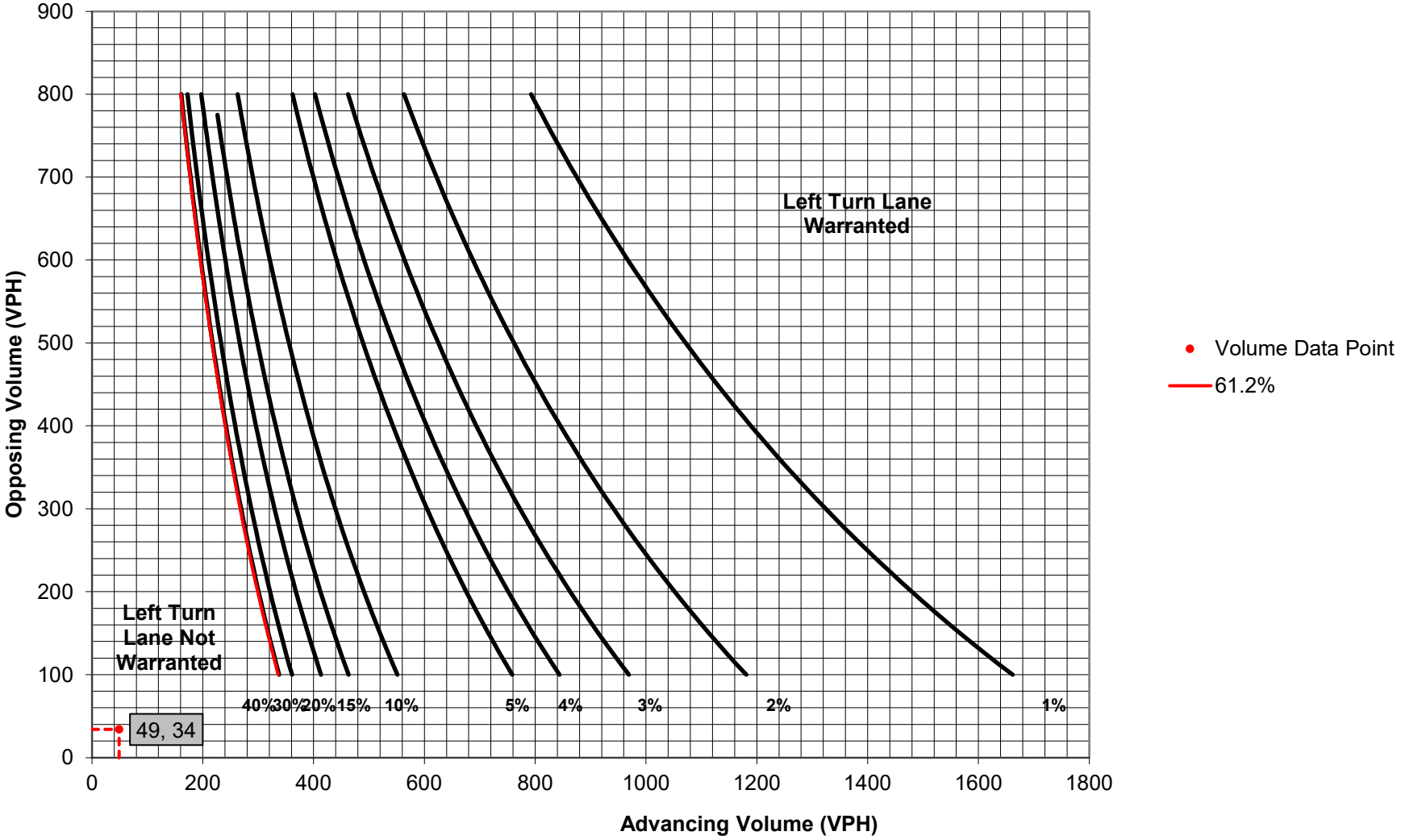
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Southbound Right Turn

Analysis Period:	2027 Opening Year (No Build)	**Number of Approach Lanes:**	1
Design Hour:	SAT 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	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	0.0%	30
	Through	-	1	0.0%	1
	Right	-	18	0.0%	18

Advancing Volume:	49
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:	Signalized
Design Hour Volume of Turning Lane:	18
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

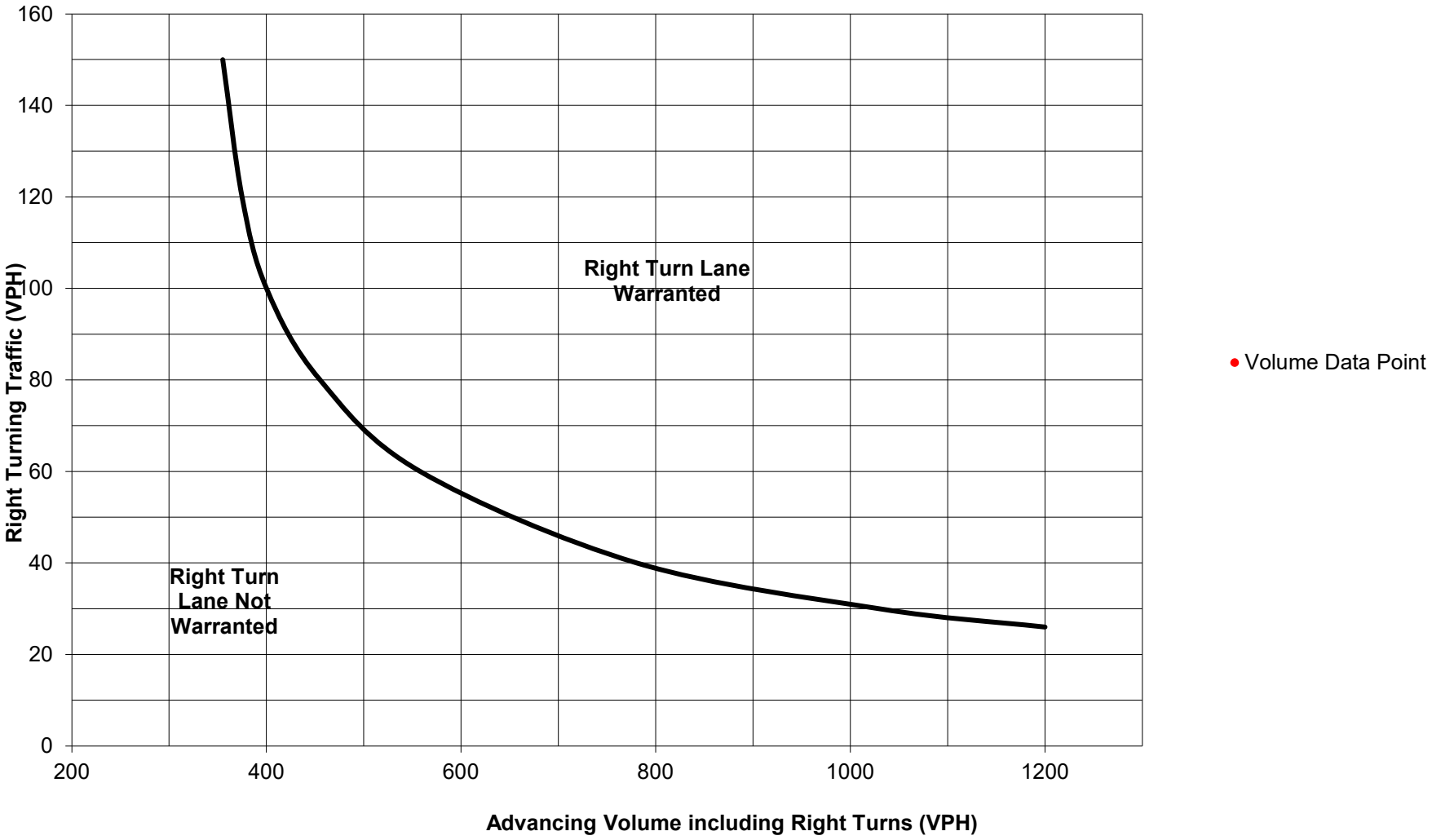
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Westbound Left Turn

Analysis Period:	2027 Opening Year (No Build)	**Number of Approach Lanes:**	2
Design Hour:	SAT Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
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	32.0%	29
	Through	-	732	18.0%	930
	Right	No	37	0.0%	N/A
Opposing	Left	No	29	0.0%	N/A
	Through	-	659	19.0%	847
	Right	Yes	11	0.0%	11

Advancing Volume:	959
Opposing Volume:	858
Left Turn Volume:	29
% Left Turns in Advancing Volume:	3.02%

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?: Yes

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:	29
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: 1.0

PennDOT Publication 46, Exhibit 11-6

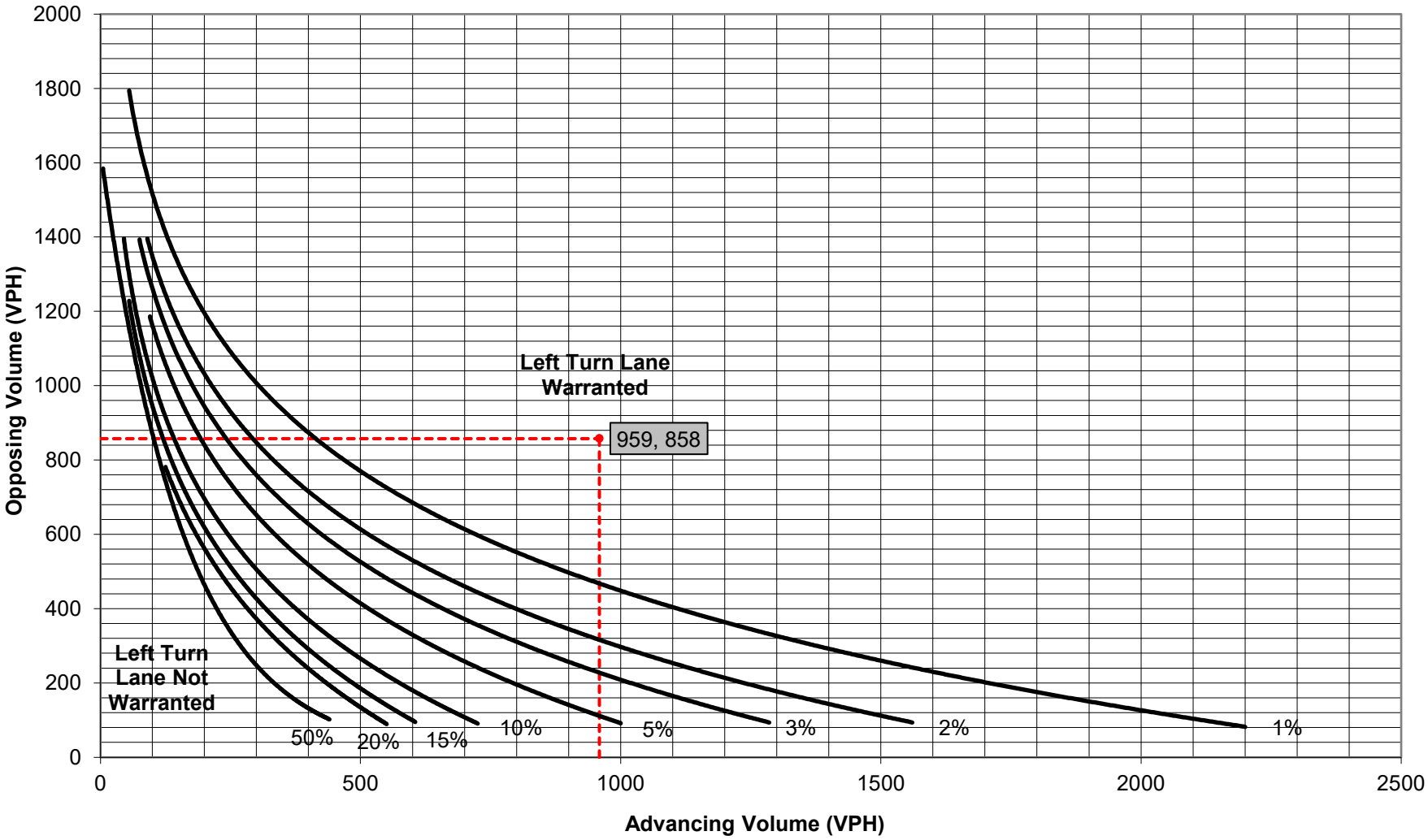
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	75	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	75	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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Westbound Right Turn

Analysis Period:	2027 Opening Year (No Build)	**Number of Approach Lanes:**	2
Design Hour:	SAT Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
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	19	32.0%	N/A
	Through	-	732	18.0%	930
	Right	-	37	0.0%	37

Advancing Volume:	967
Right Turn Volume:	37

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:	37
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

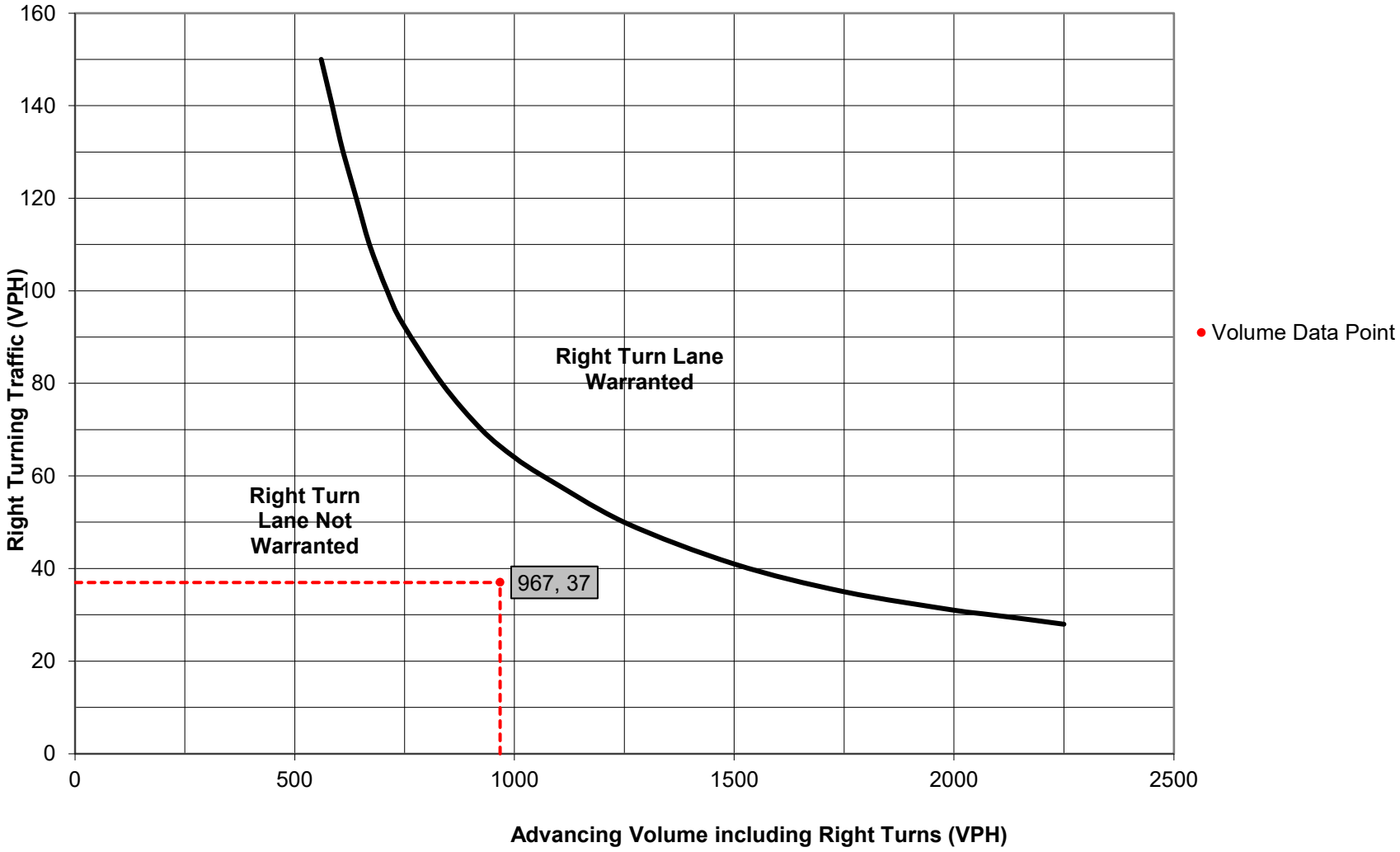
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Country Club Rd & Bernheisel Bridge Rd / Eastbound Left Turn

Analysis Period:	2027 Opening Year (No Build)	**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	12	0.0%	12
	Through	-	0	0.0%	0
	Right	Yes	5	20.0%	7
Opposing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	0
	Right	No	0	0.0%	N/A

Advancing Volume:	19
Opposing Volume:	0
Left Turn Volume:	12
% Left Turns in Advancing Volume:	63.16%

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?: #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:	12
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

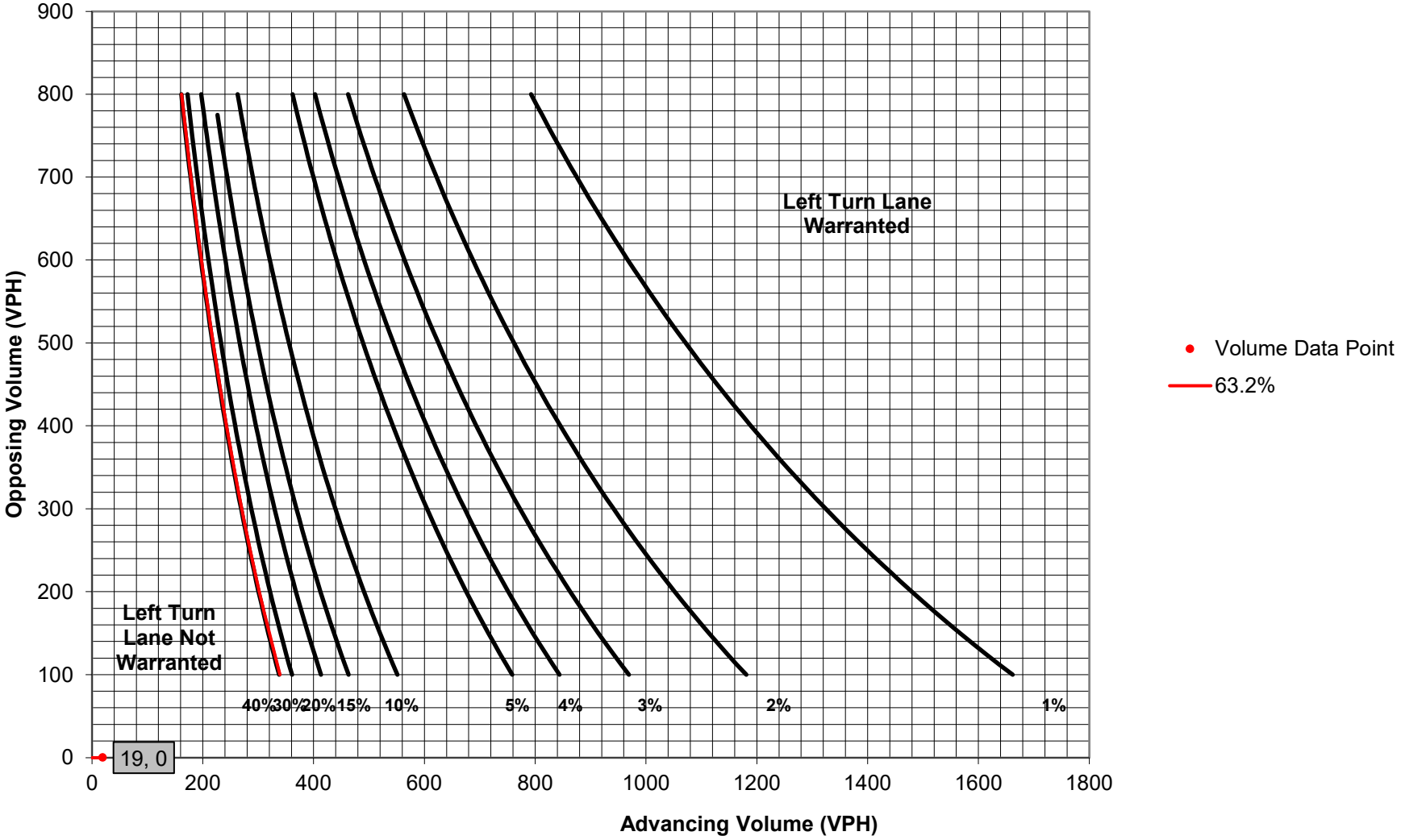
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Country Club Rd & Bernheisel Bridge Rd / Eastbound Right Turn

Analysis Period:	2027 Opening Year (No Build)	**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	12	0.0%	12
	Through	-	0	0.0%	0
	Right	-	5	20.0%	7

Advancing Volume:	19
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

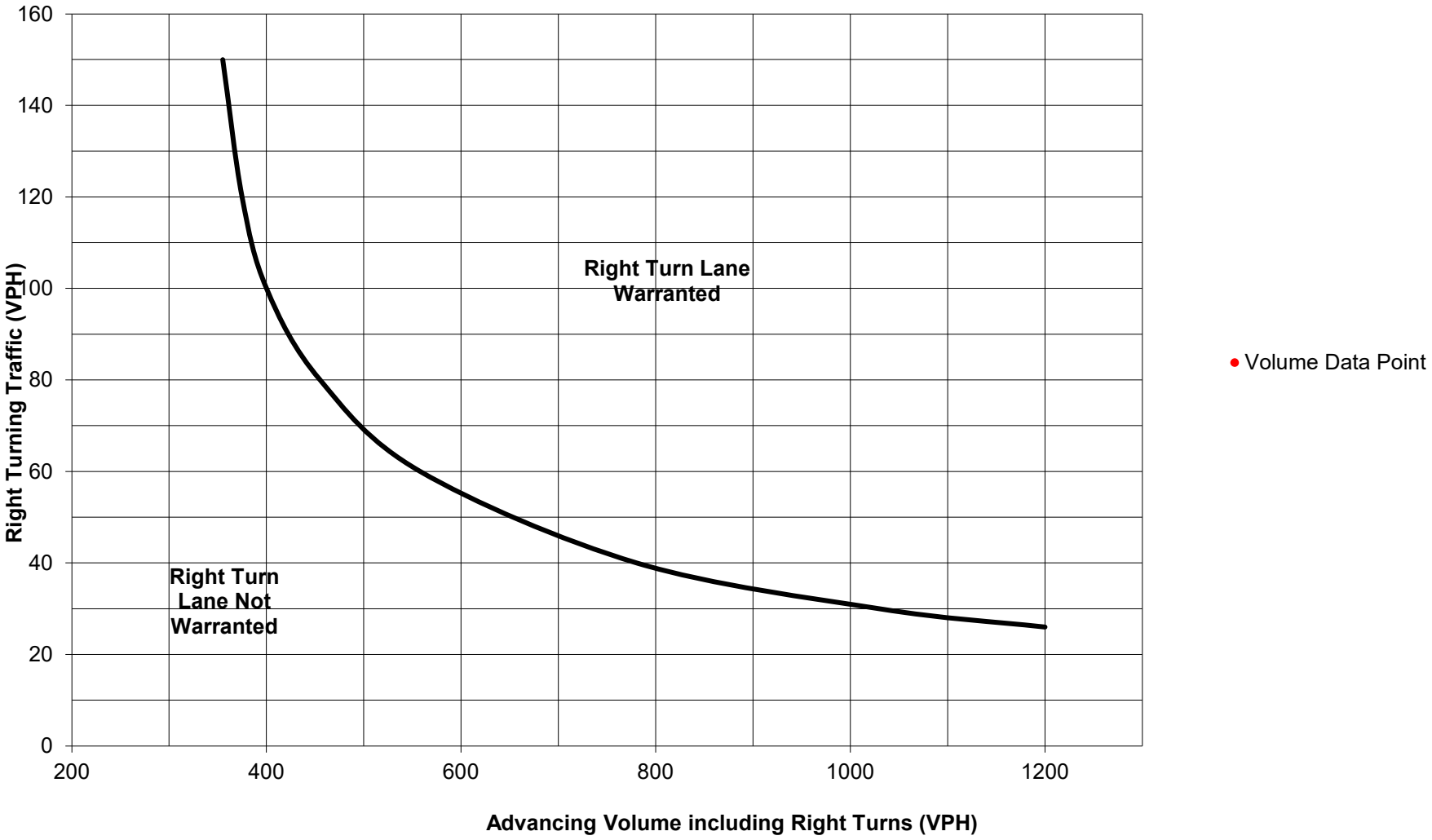
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Country Club Rd & Bernheisel Bridge Rd / Northbound Left Turn

Analysis Period:	2027 Opening Year (No Build)	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
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	1	0.0%	1
	Through	-	32	6.0%	35
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	107	2.0%	111
	Right	Yes	39	0.0%	39

Advancing Volume:	36
Opposing Volume:	150
Left Turn Volume:	1
% Left Turns in Advancing Volume:	2.78%

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 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

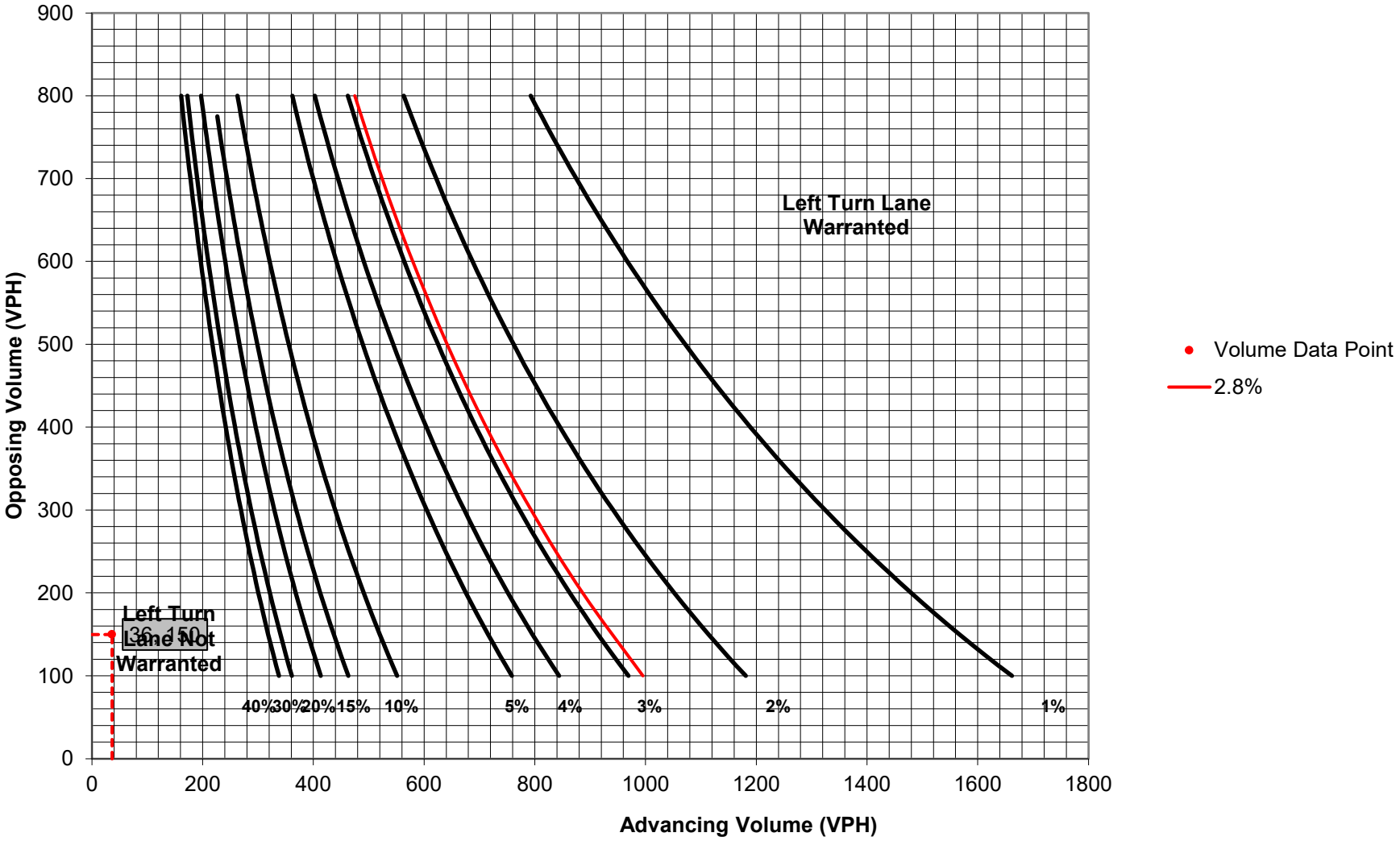
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Country Club Rd & Bernheisel Bridge Rd / Southbound Right Turn

Analysis Period:	2027 Opening Year (No Build)	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
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	0	0.0%	N/A
	Through	-	107	2.0%	111
	Right	-	39	0.0%	39

Advancing Volume:	150
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:	Unsignalized
Design Hour Volume of Turning Lane:	39
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

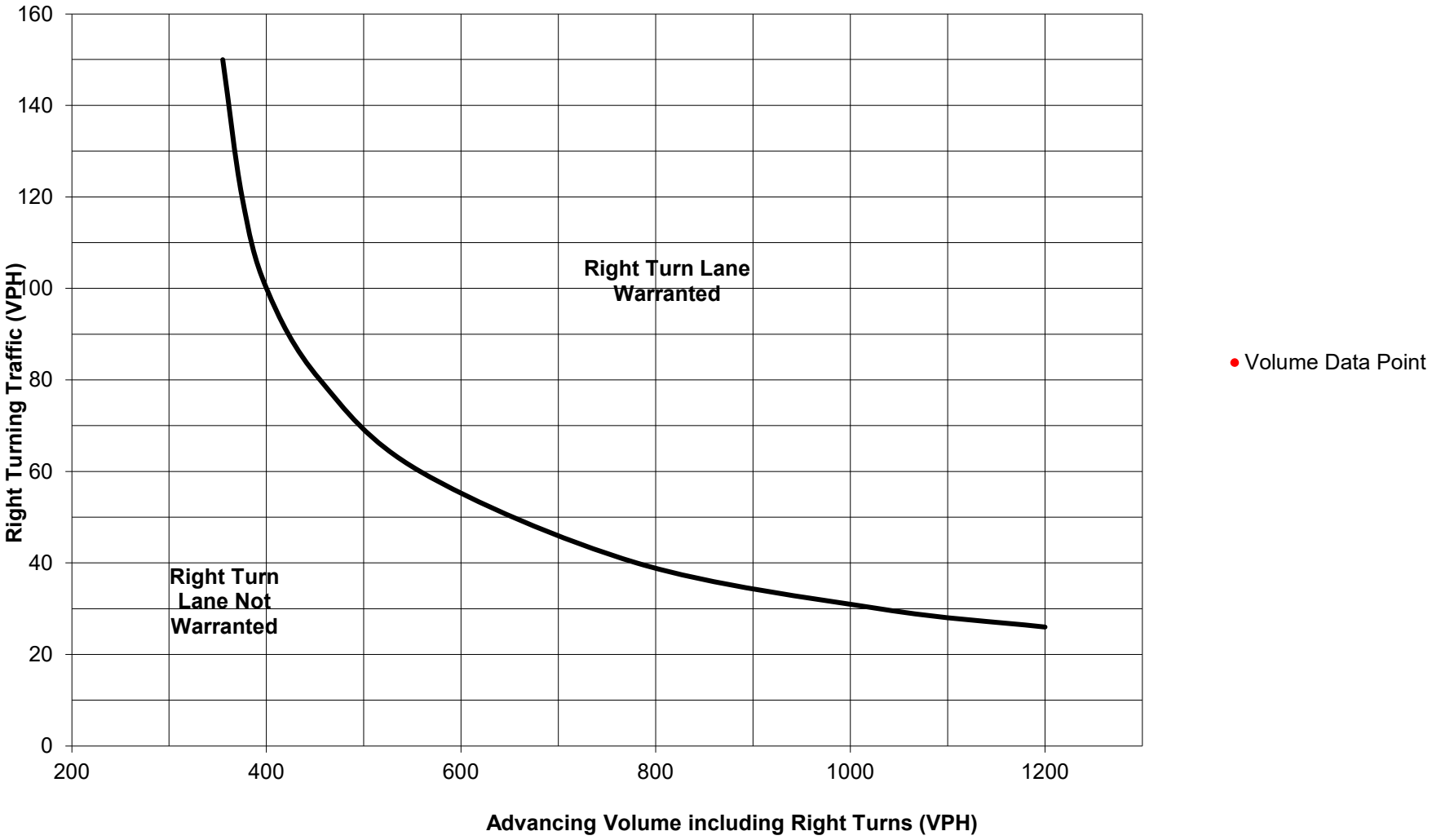
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Country Club Rd & Bernheisel Bridge Rd
Eastbound Left Turn

Analysis Period:	2027 Opening Year (No Build)	**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	36	0.0%	36
	Through	-	0	0.0%	0
	Right	Yes	3	0.0%	3
Opposing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	0
	Right	No	0	0.0%	N/A

Advancing Volume:	39
Opposing Volume:	0
Left Turn Volume:	36
% Left Turns in Advancing Volume:	92.31%

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?: #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:	36
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

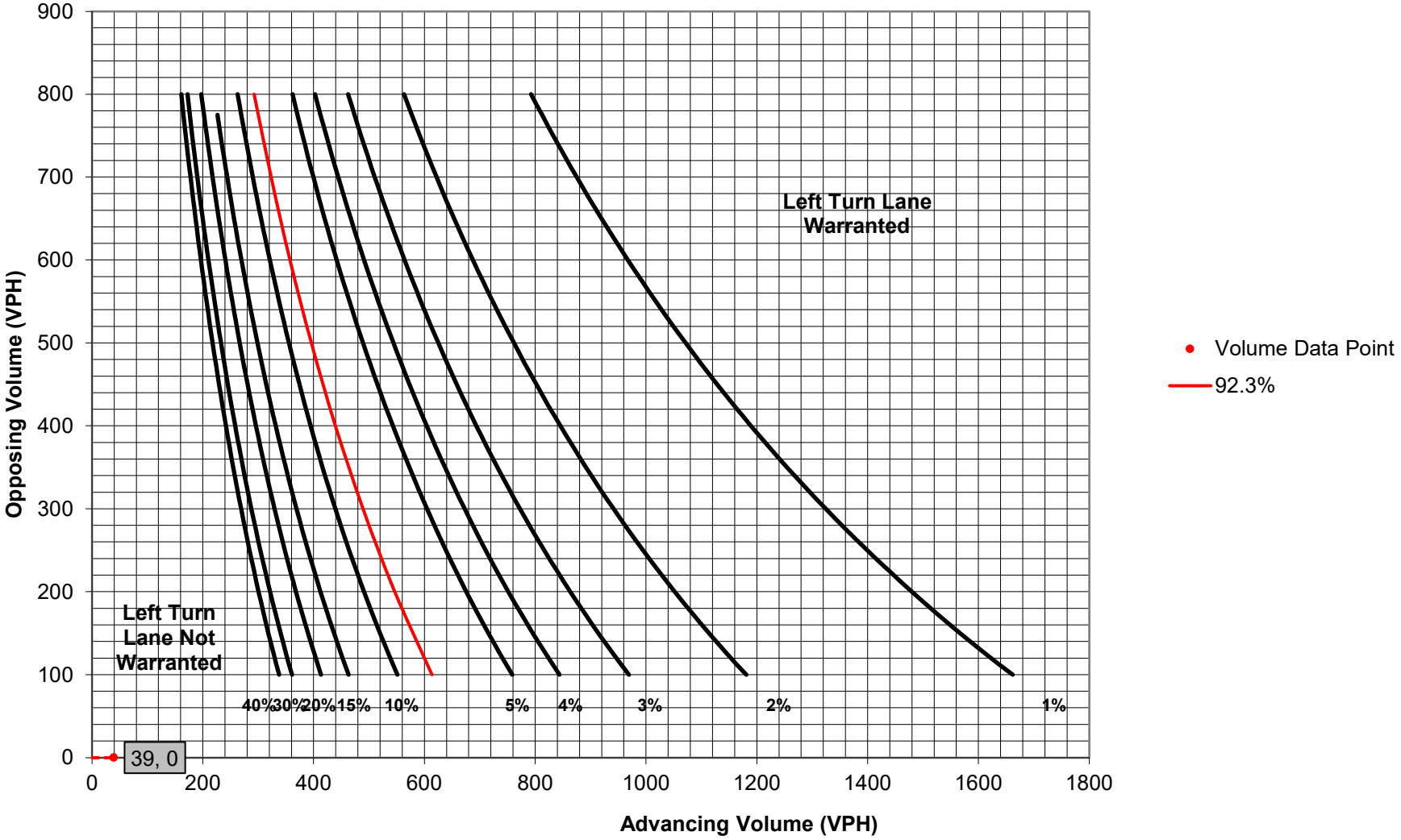
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Country Club Rd & Bernheisel Bridge Rd / Eastbound Right Turn

Analysis Period:	2027 Opening Year (No Build)	**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	36	0.0%	36
	Through	-	0	0.0%	0
	Right	-	3	0.0%	3

Advancing Volume: 39
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

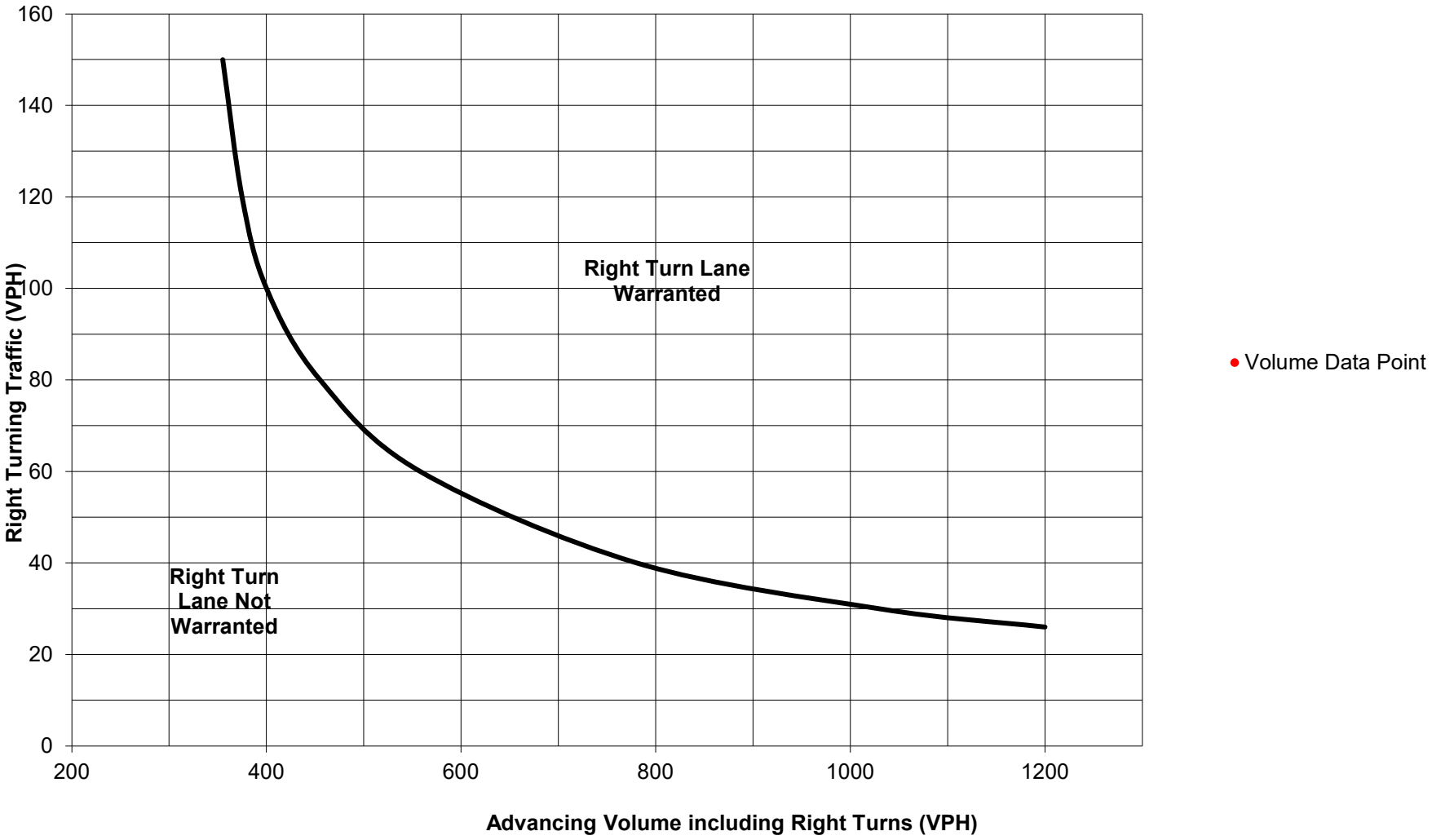
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Country Club Rd & Bernheisel Bridge Rd / Northbound Left Turn

Analysis Period:	2027 Opening Year (No Build)	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
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	5	0.0%	5
	Through	-	90	2.0%	93
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	53	0.0%	53
	Right	Yes	23	13.0%	28

Advancing Volume: 98
Opposing Volume: 81
Left Turn Volume: 5
% Left Turns in Advancing Volume: 5.10%

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:	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

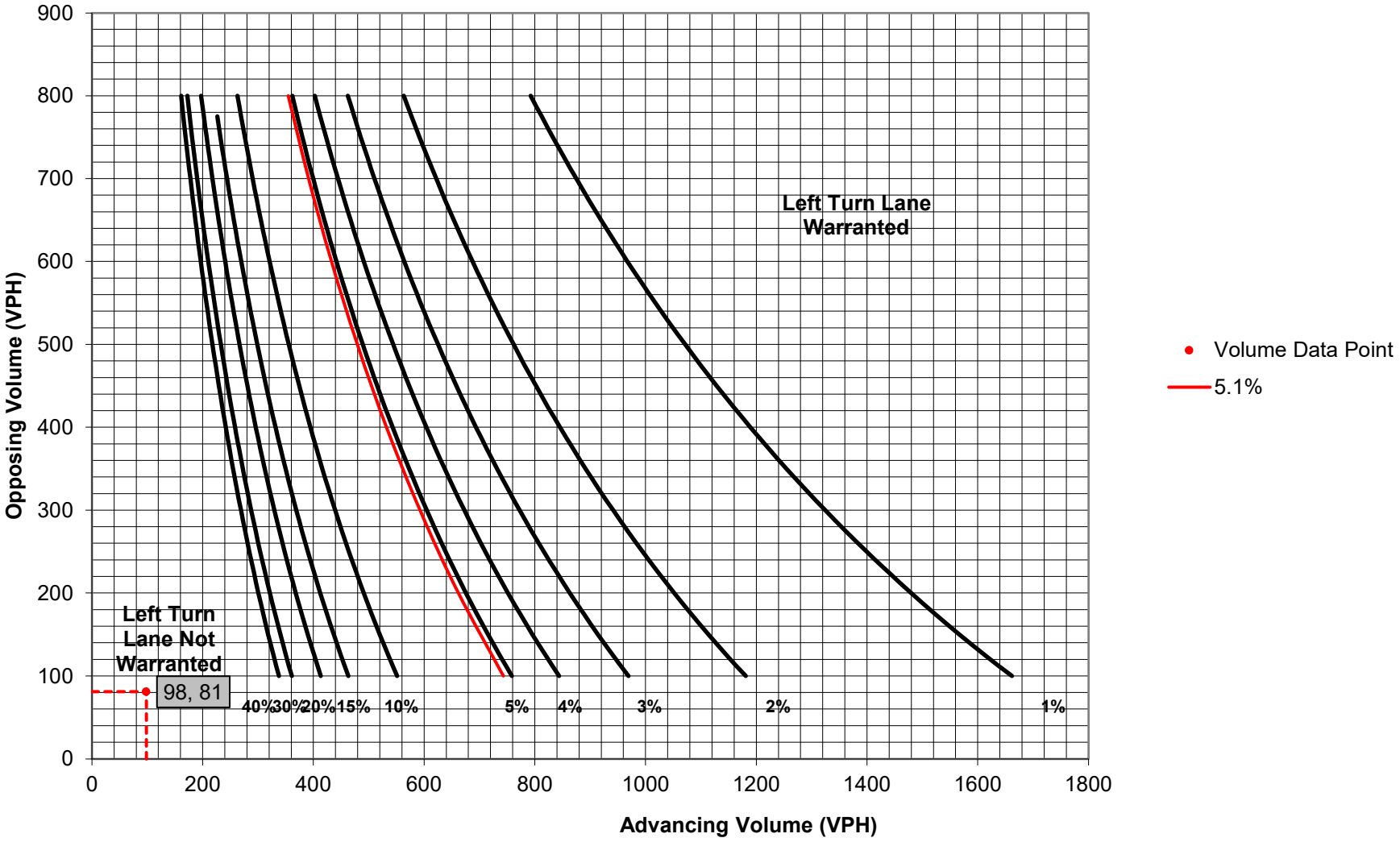
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Country Club Rd & Bernheisel Bridge Rd / Southbound Right Turn

Analysis Period:	2027 Opening Year (No Build)	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
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	0	0.0%	N/A
	Through	-	53	0.0%	53
	Right	-	23	13.0%	28

Advancing Volume:	81
Right Turn Volume:	28

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:	28
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

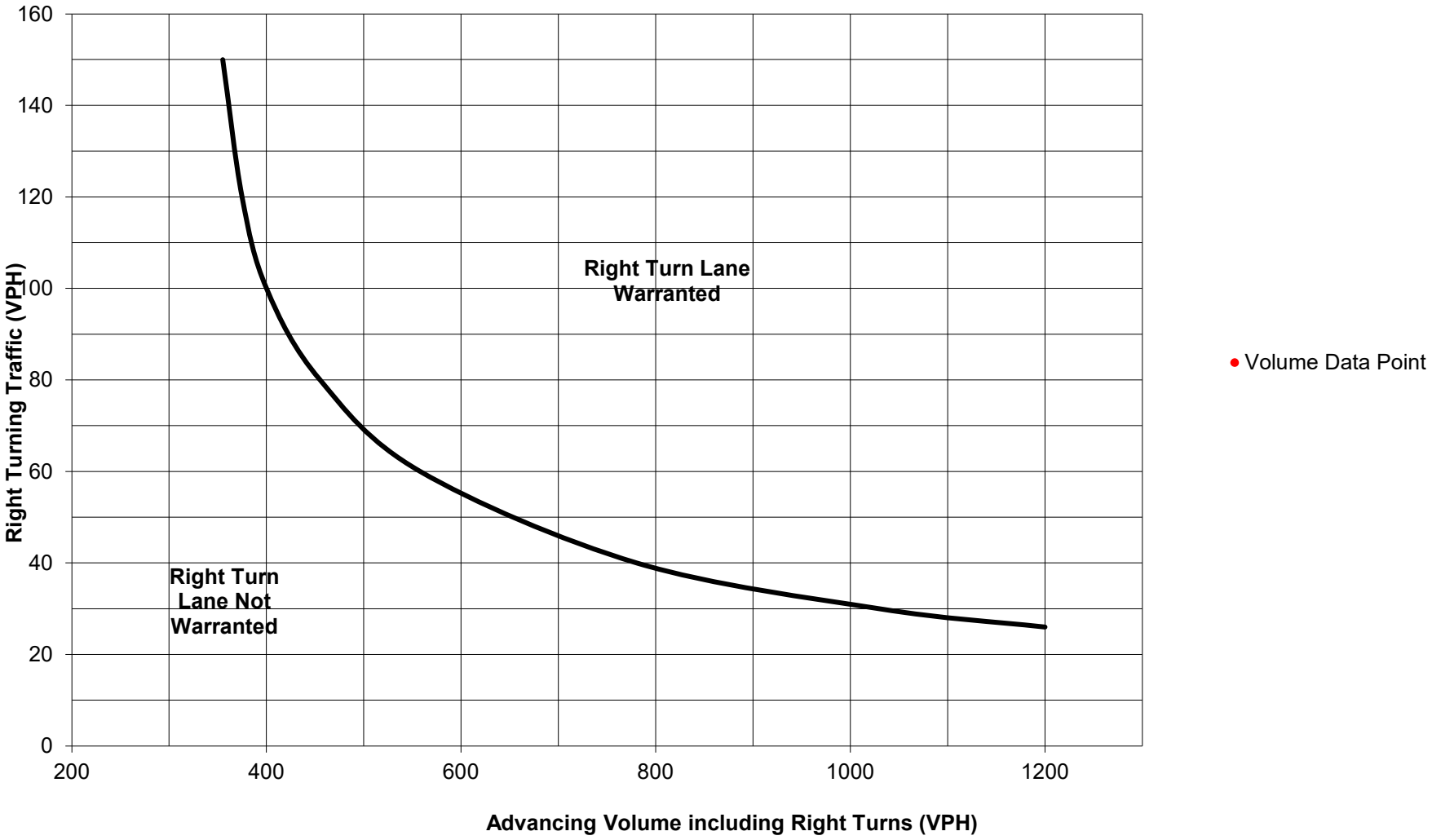
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Country Club Rd & Bernheisel Bridge Rd
Eastbound Left Turn

Analysis Period:	2027 Opening Year (No Build)	**Number of Approach Lanes:**	1
Design Hour:	SAT 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	34	0.0%	34
	Through	-	0	0.0%	0
	Right	Yes	5	0.0%	5
Opposing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	0
	Right	No	0	0.0%	N/A

Advancing Volume:	39
Opposing Volume:	0
Left Turn Volume:	34
% Left Turns in Advancing Volume:	87.18%

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:	34
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

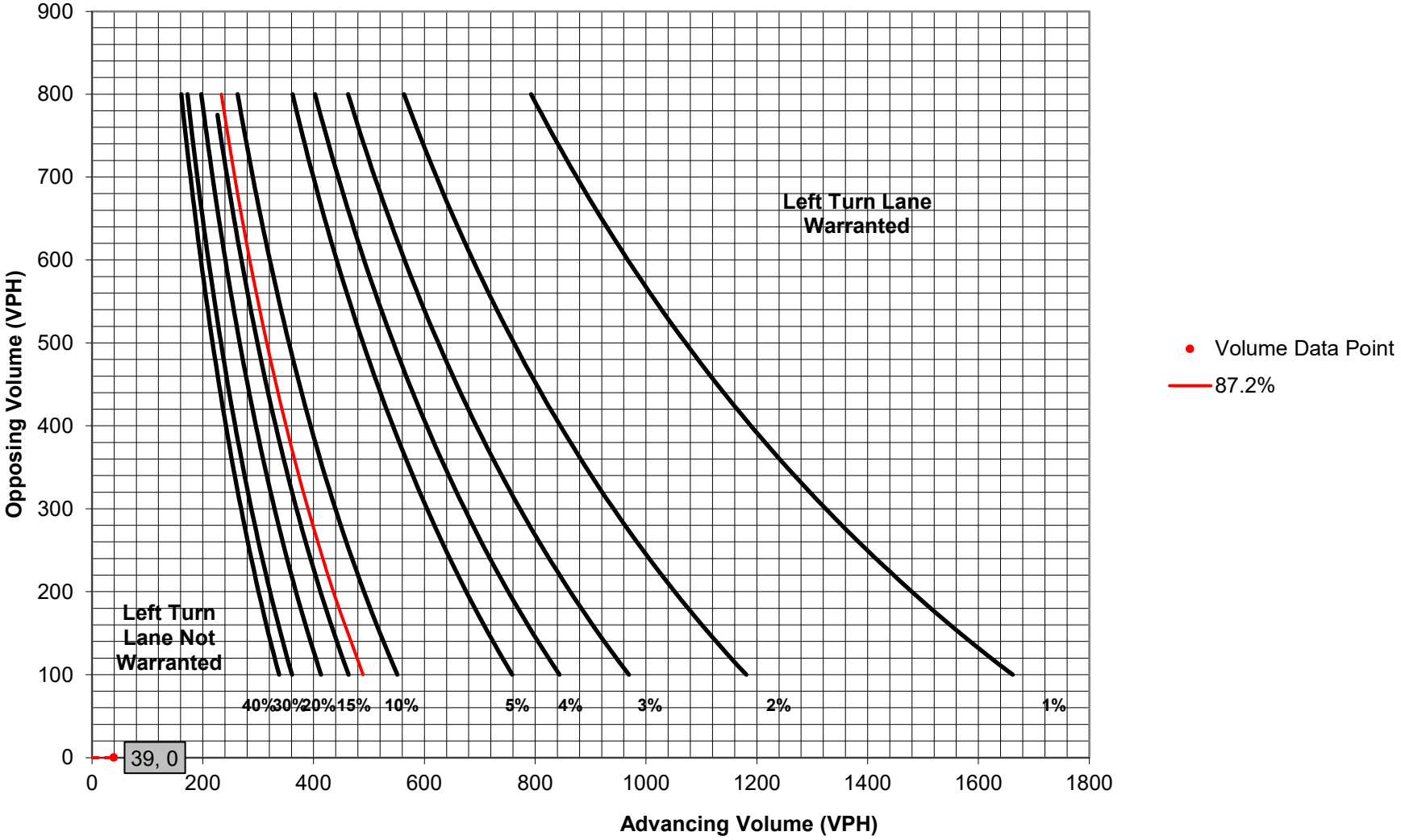
Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Country Club Rd & Bernheisel Bridge Rd / Eastbound Right Turn

Analysis Period:	2027 Opening Year (No Build)	**Number of Approach Lanes:**	1
Design Hour:	SAT 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	34	0.0%	34
	Through	-	0	0.0%	0
	Right	-	5	0.0%	5

Advancing Volume:	39
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 9

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

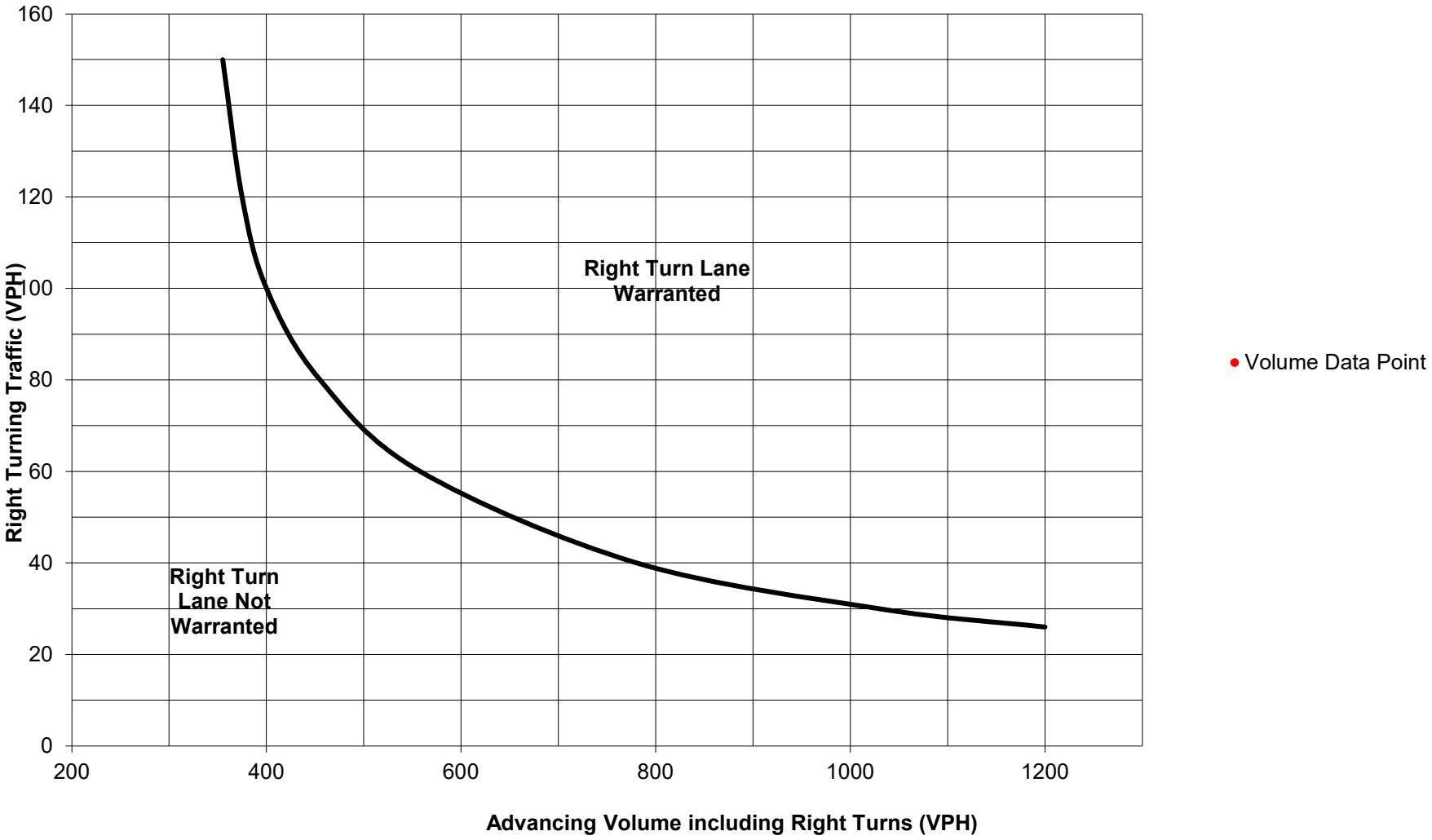
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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 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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Country Club Rd & Bernheisel Bridge Rd
Northbound Left Turn

Analysis Period:	2027 Opening Year (No Build)	**Number of Approach Lanes:**	1
Design Hour:	SAT Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
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	3	0.0%	3
	Through	-	43	0.0%	43
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	49	4.0%	52
	Right	Yes	23	0.0%	23

Advancing Volume:	46
Opposing Volume:	75
Left Turn Volume:	3
% Left Turns in Advancing Volume:	6.52%

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:	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

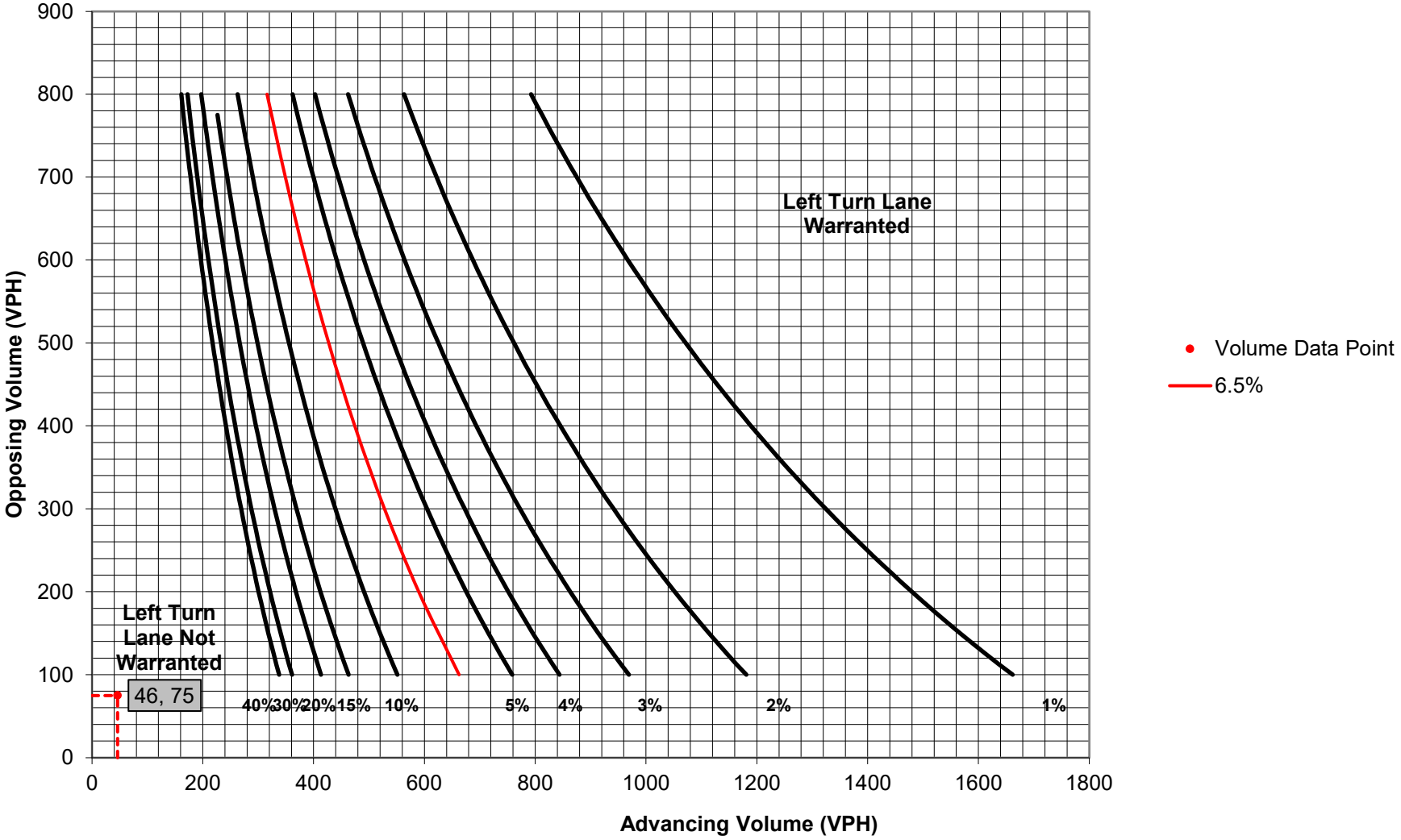
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Country Club Rd & Bernheisel Bridge Rd / Southbound Right Turn

Analysis Period:	2027 Opening Year (No Build)	**Number of Approach Lanes:**	1
Design Hour:	SAT Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
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	0	0.0%	N/A
	Through	-	49	4.0%	52
	Right	-	23	0.0%	23

Advancing Volume:	75
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

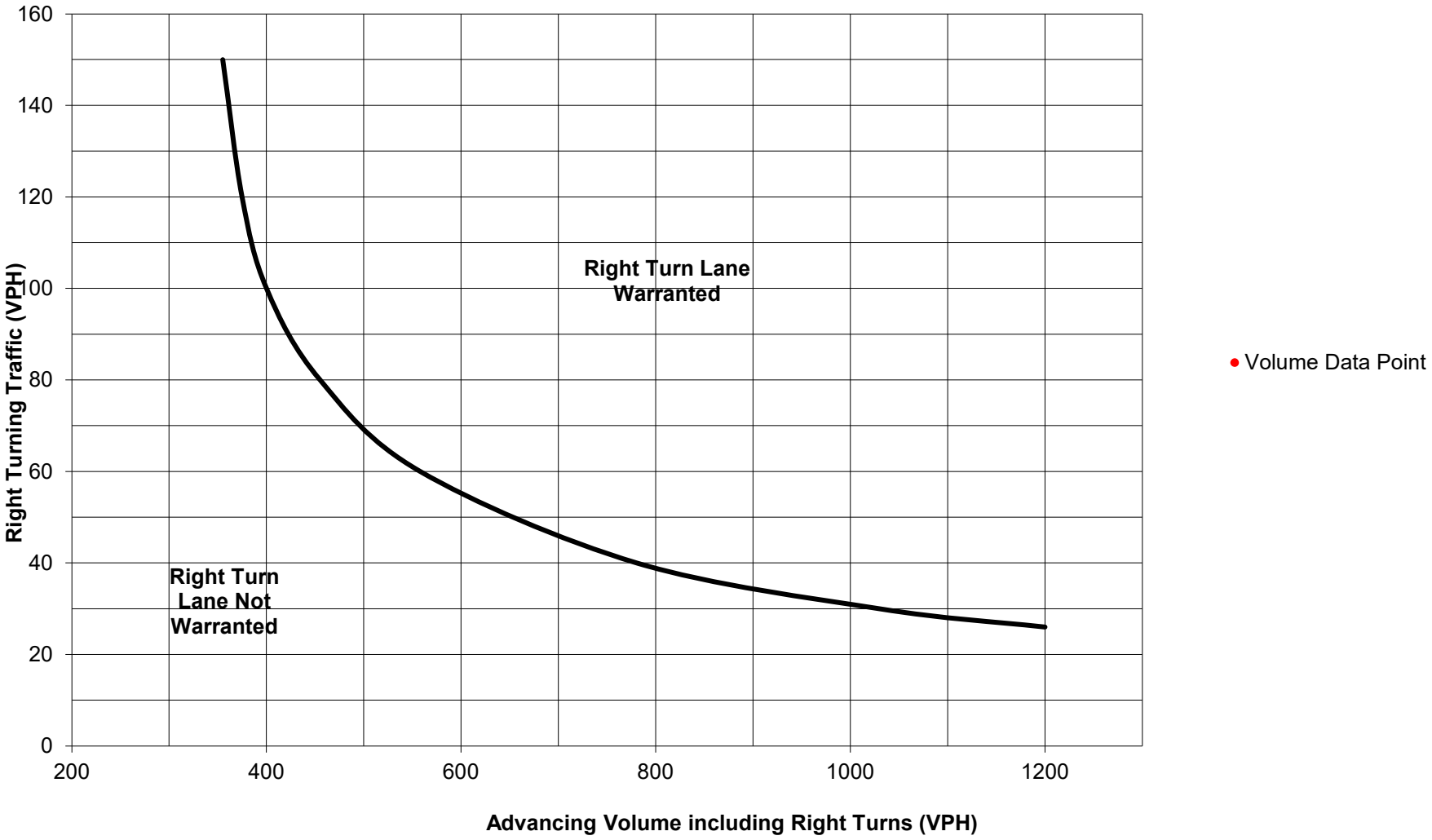
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Bernheisel Bridge Rd & Green Hill Rd
Northbound Right Turn

Analysis Period:	2027 Opening Year (No Build)	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
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	0	0.0%	N/A
	Through	-	35	0.0%	35
	Right	-	8	13.0%	10

Advancing Volume:	45
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

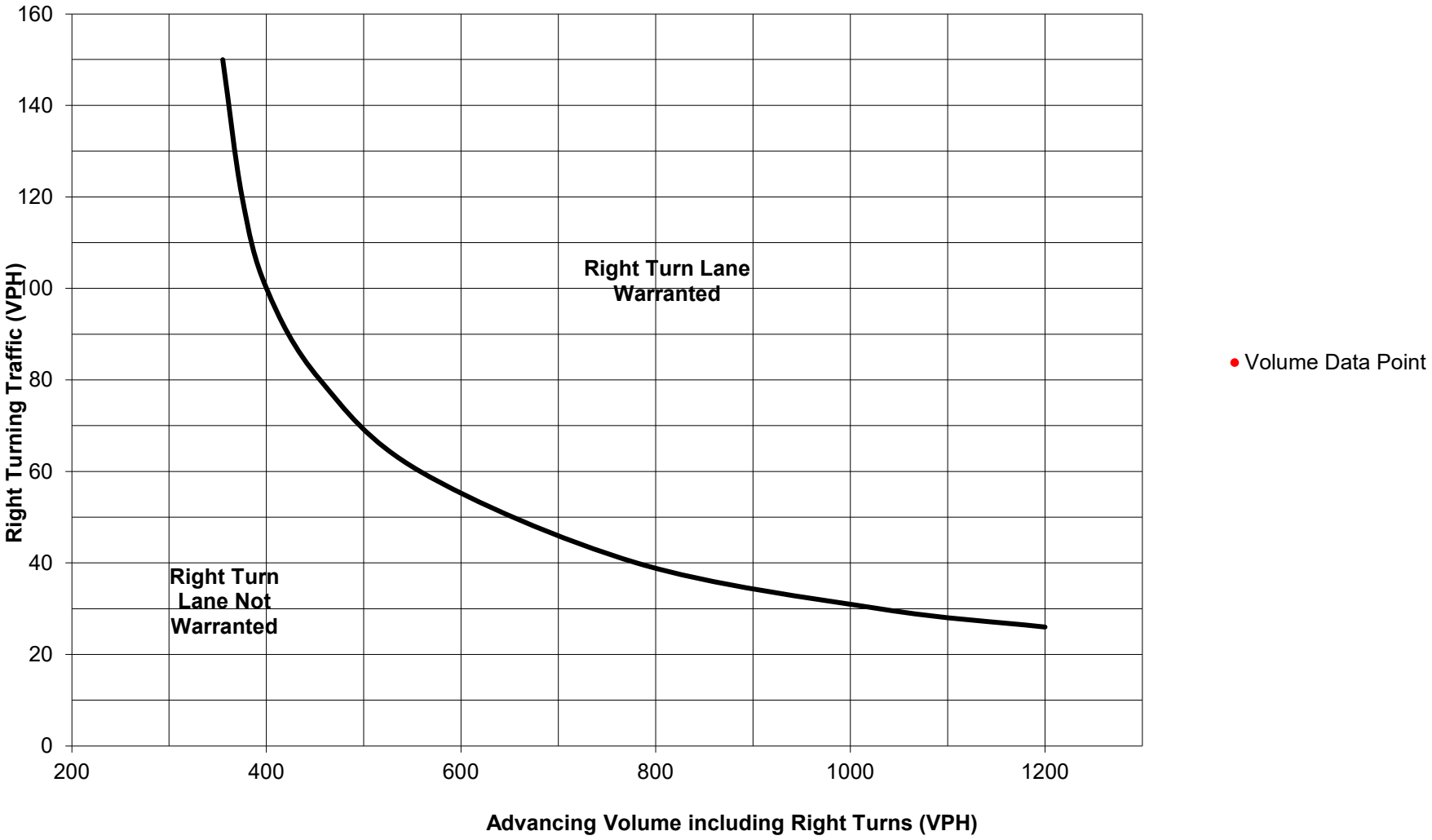
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Bernheisel Bridge Rd & Green Hill Rd
Southbound Left Turn

Analysis Period:	2027 Opening Year (No Build)	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
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	83	2.0%	86
	Through	-	142	1.0%	145
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	35	0.0%	35
	Right	Yes	8	13.0%	10

Advancing Volume: 231
Opposing Volume: 45
Left Turn Volume: 86
% Left Turns in Advancing Volume: 37.23%

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:	Unsignalized
Design Hour Volume of Turning Lane:	86
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

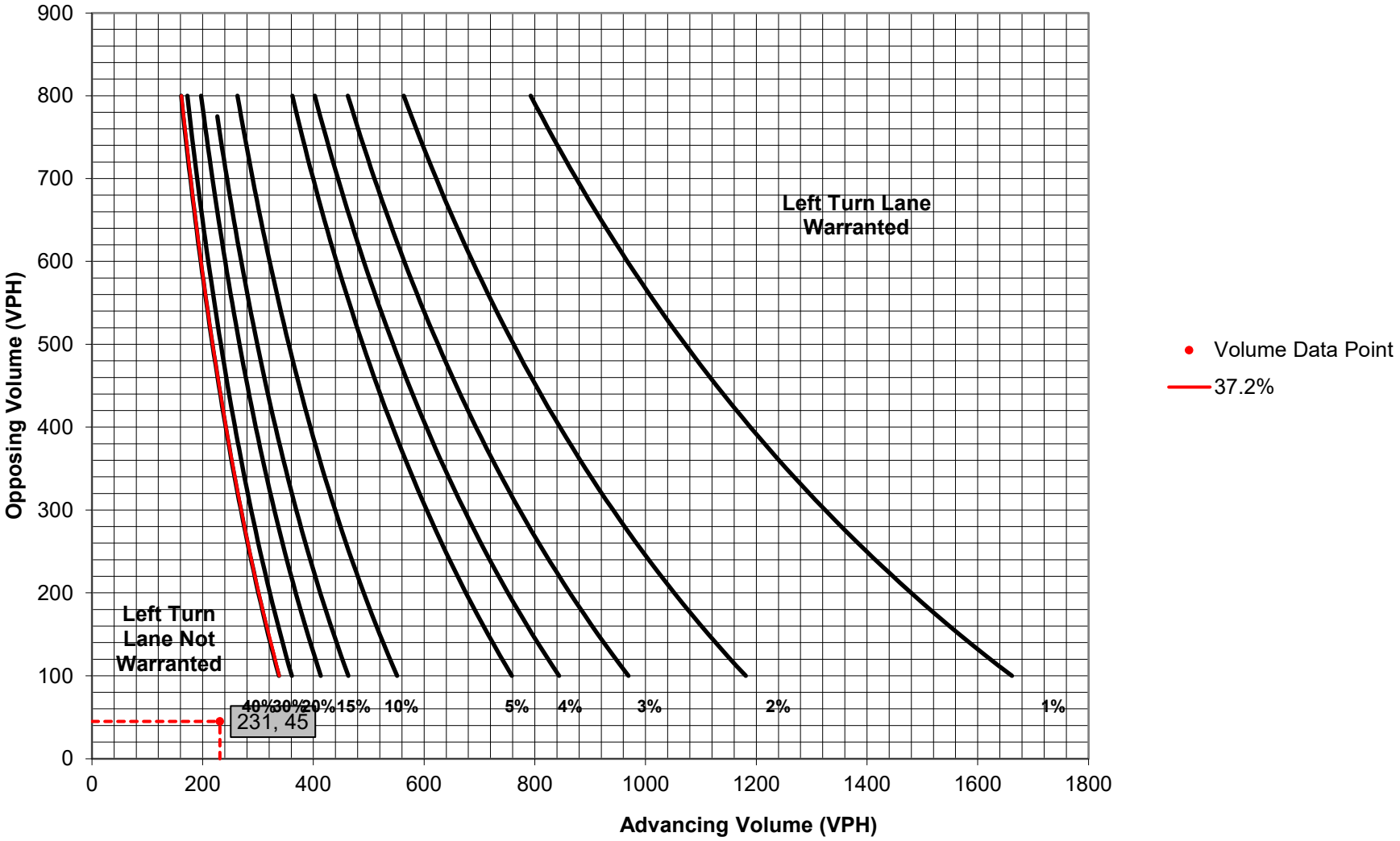
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Bernheisel Bridge Rd & Green Hill Rd
Westbound Left Turn

Analysis Period:	2027 Opening Year (No Build)	**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	20.0%	7
	Through	-	0	0.0%	0
	Right	Yes	10	0.0%	10
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:	7
% Left Turns in Advancing Volume:	41.18%

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:	7
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

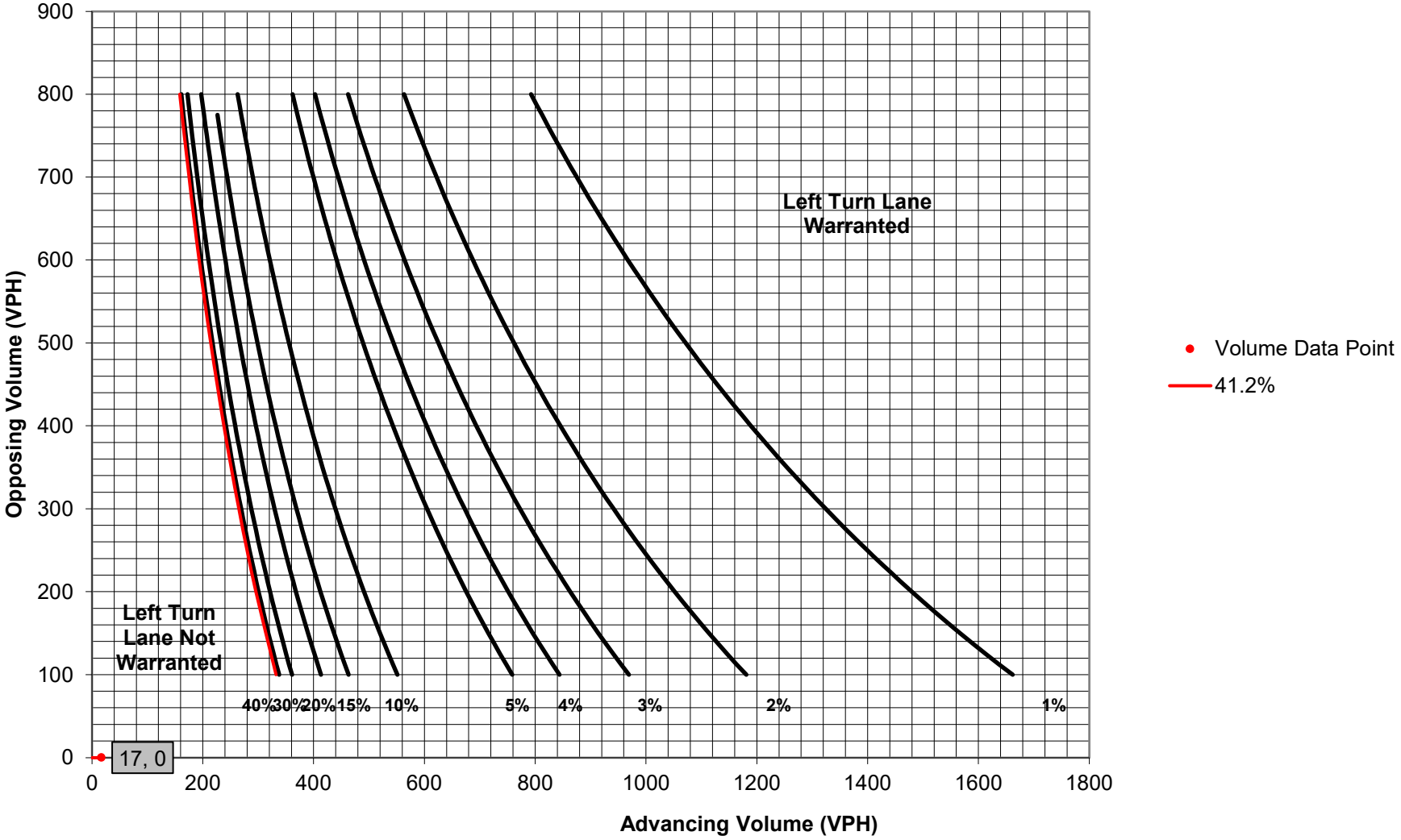
Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Bernheisel Bridge Rd & Green Hill Rd
Westbound Right Turn

Analysis Period:	2027 Opening Year (No Build)	**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	5	20.0%	7
	Through	-	0	0.0%	0
	Right	-	10	0.0%	10

Advancing Volume:	17
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

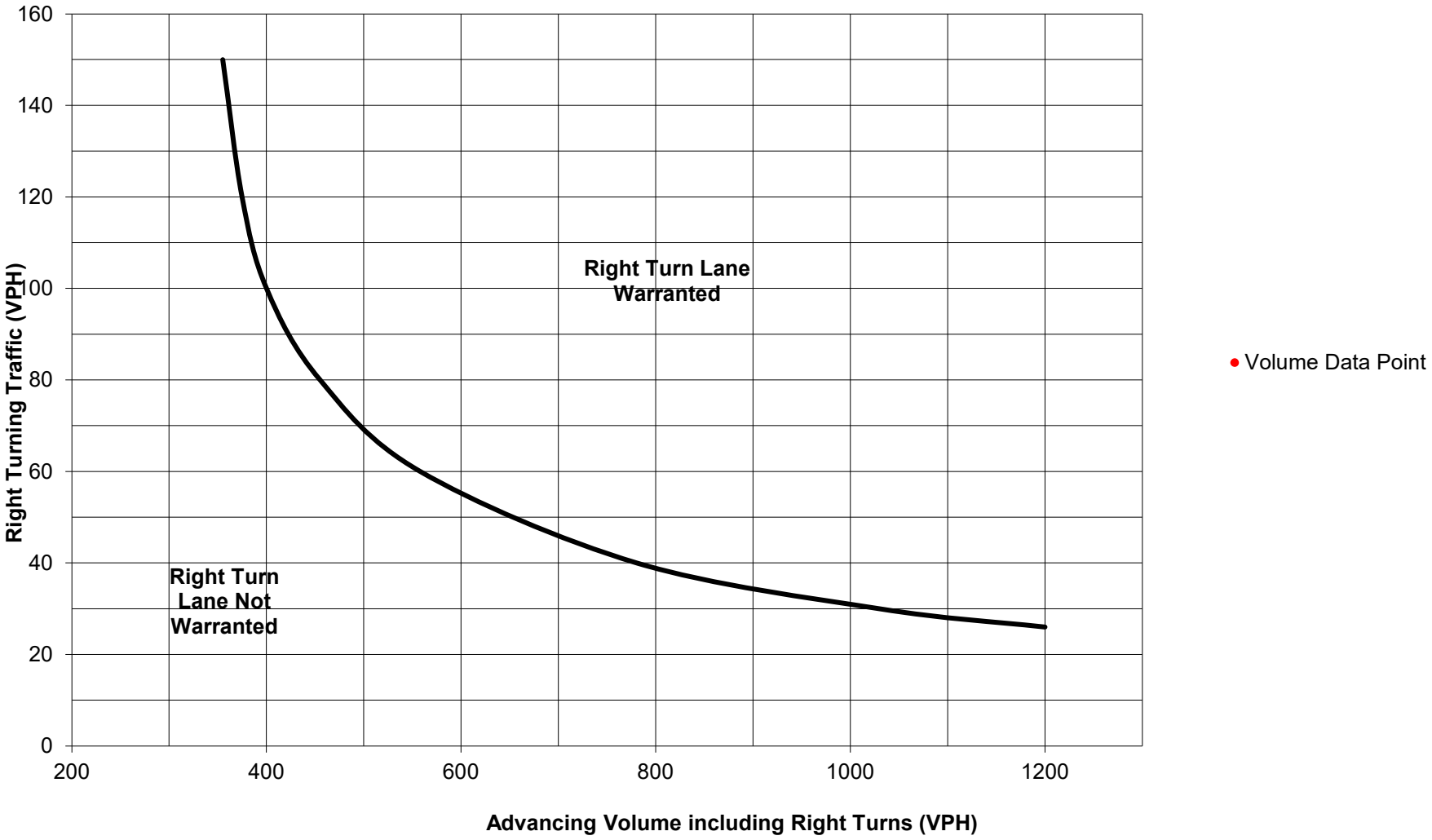
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Bernheisel Bridge Rd & Green Hill Rd
Northbound Right Turn

Analysis Period:	2027 Opening Year (No Build)	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
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	0	0.0%	N/A
	Through	-	114	2.0%	118
	Right	-	11	0.0%	11

Advancing Volume:	129
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

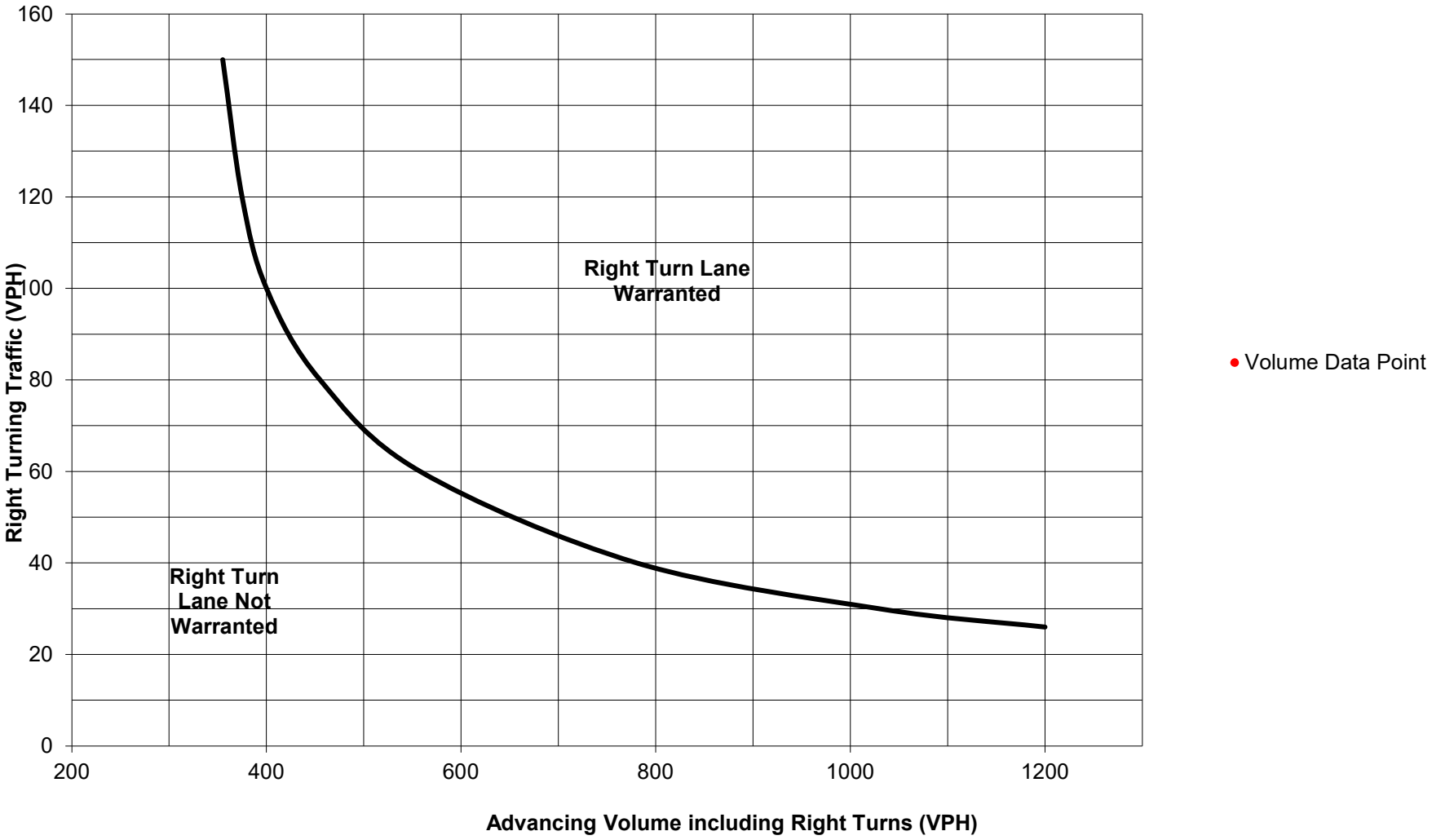
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Bernheisel Bridge Rd & Green Hill Rd
Southbound Left Turn

Analysis Period:	2027 Opening Year (No Build)	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
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	39	0.0%	39
	Through	-	68	3.0%	72
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	114	2.0%	118
	Right	Yes	11	0.0%	11

Advancing Volume:	111
Opposing Volume:	129
Left Turn Volume:	39
% Left Turns in Advancing Volume:	35.14%

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 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:	39
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

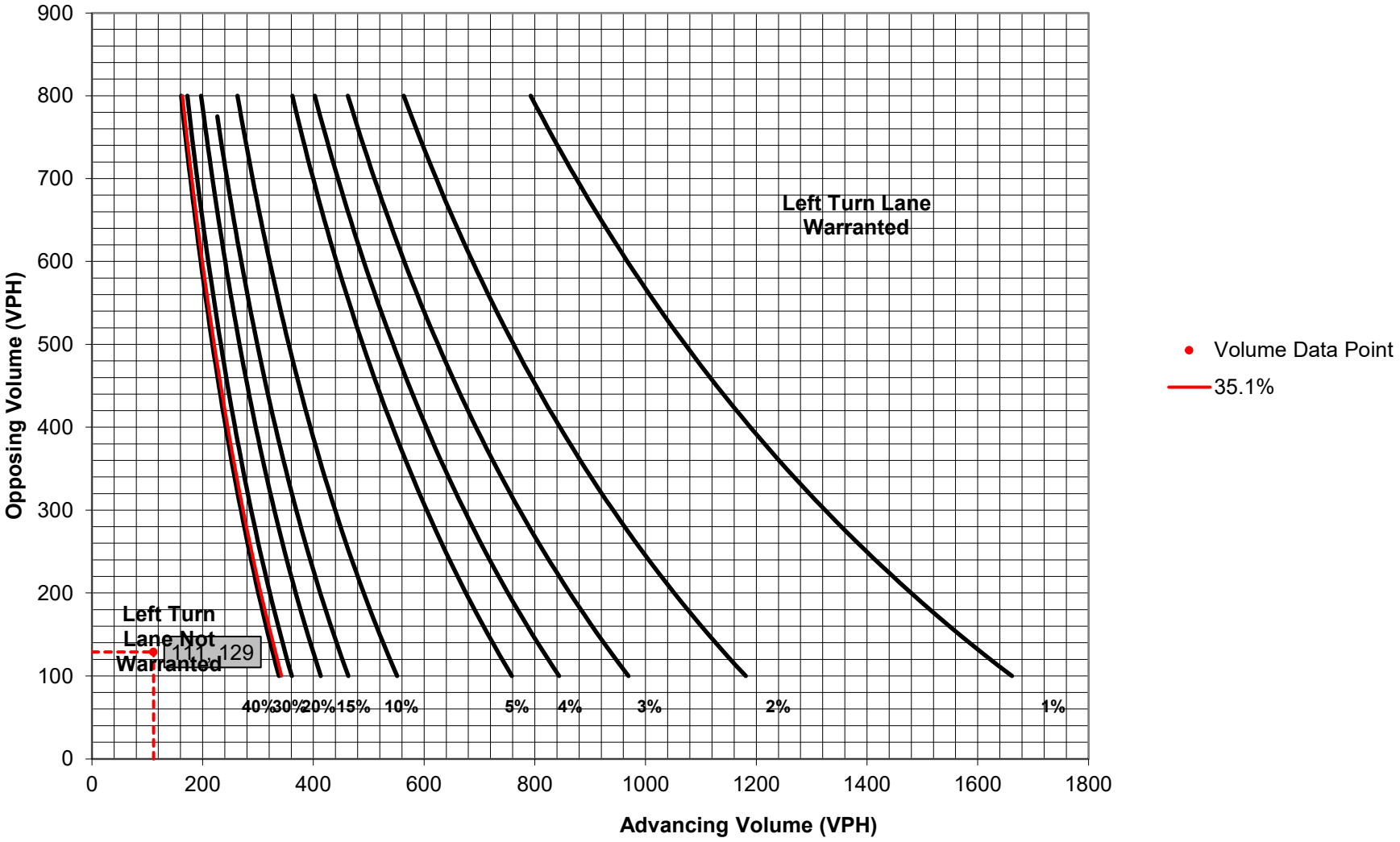
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Bernheisel Bridge Rd & Green Hill Rd
Westbound Left Turn

Analysis Period:	2027 Opening Year (No Build)	**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	8	13.0%	10
	Through	-	0	0.0%	0
	Right	Yes	75	0.0%	75
Opposing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	0
	Right	No	0	0.0%	N/A

Advancing Volume:	85
Opposing Volume:	0
Left Turn Volume:	10
% Left Turns in Advancing Volume:	11.76%

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?: #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:	10
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

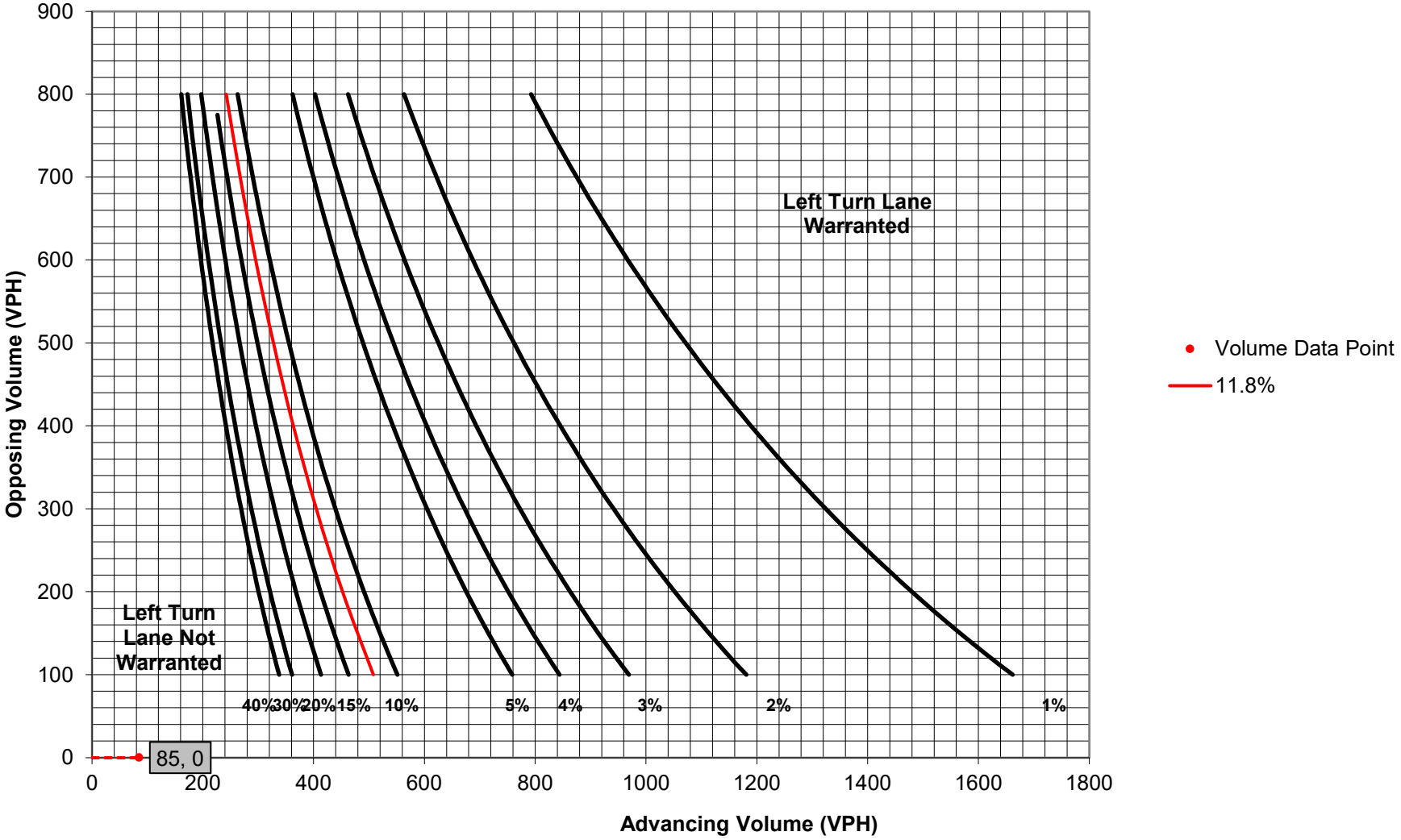
Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Bernheisel Bridge Rd & Green Hill Rd
Westbound Right Turn

Analysis Period:	2027 Opening Year (No Build)	**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	8	13.0%	10
	Through	-	0	0.0%	0
	Right	-	75	0.0%	75

Advancing Volume:	85
Right Turn Volume:	75

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:	75
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

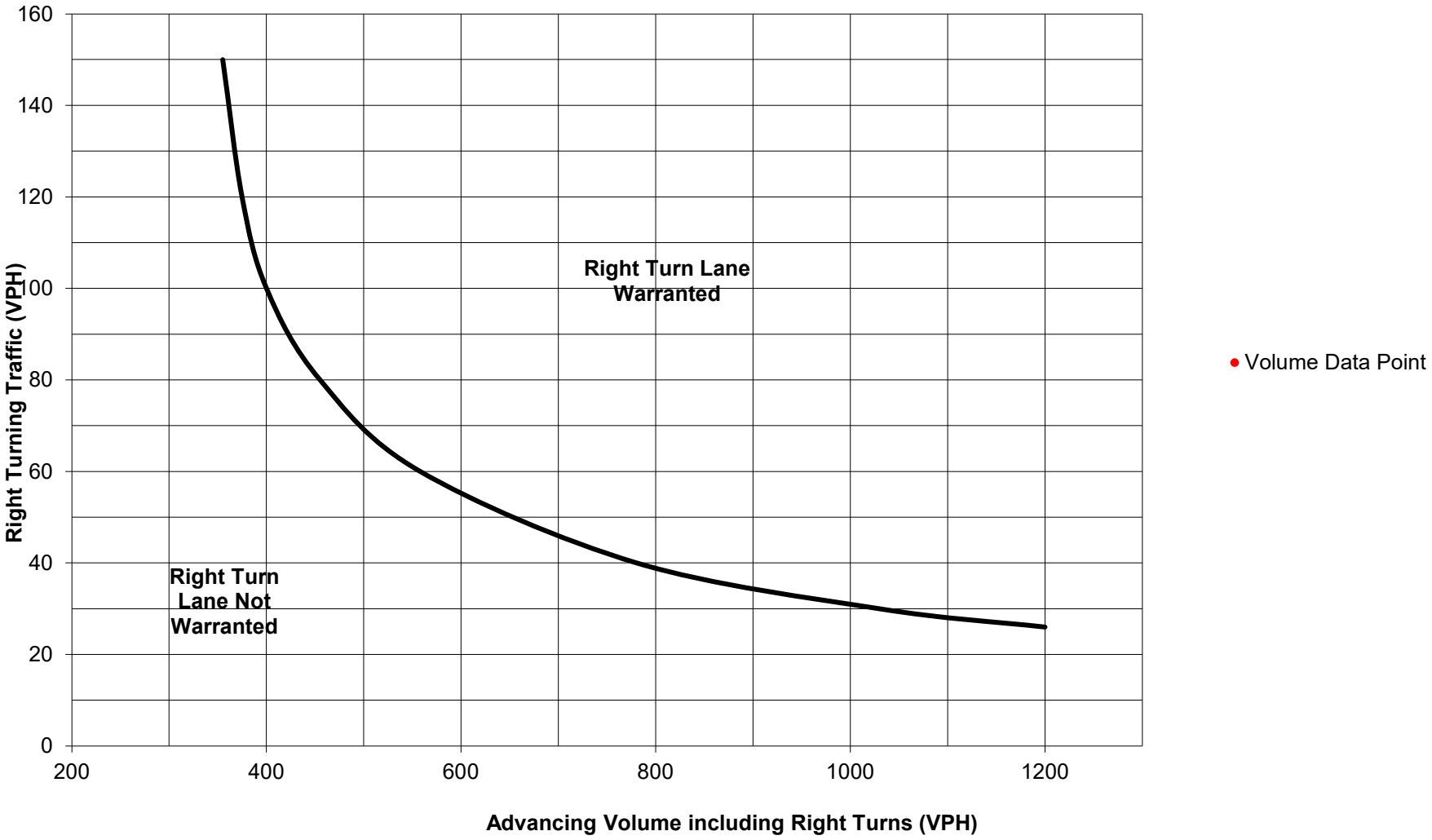
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Bernheisel Bridge Rd & Green Hill Rd
Northbound Right Turn

Analysis Period:	2027 Opening Year (No Build)	**Number of Approach Lanes:**	1
Design Hour:	SAT Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
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	0	0.0%	N/A
	Through	-	69	0.0%	69
	Right	-	7	0.0%	7

Advancing Volume:	76
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

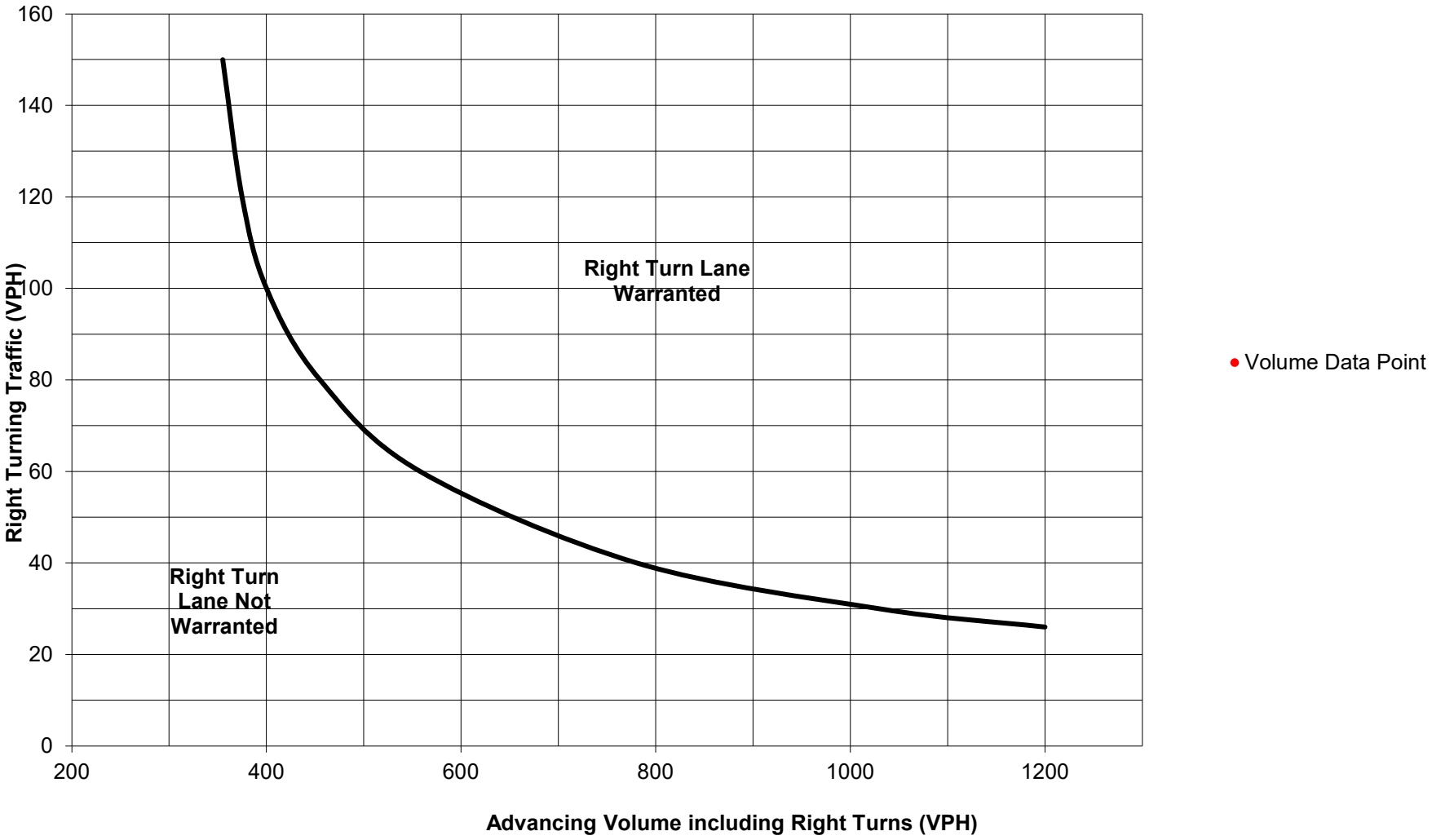
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Bernheisel Bridge Rd & Green Hill Rd
Southbound Left Turn

Analysis Period:	2027 Opening Year (No Build)	**Number of Approach Lanes:**	1
Design Hour:	SAT Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
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	24	0.0%	24
	Through	-	67	3.0%	71
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	69	0.0%	69
	Right	Yes	7	0.0%	7

Advancing Volume:	95
Opposing Volume:	76
Left Turn Volume:	24
% Left Turns in Advancing Volume:	25.26%

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:	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

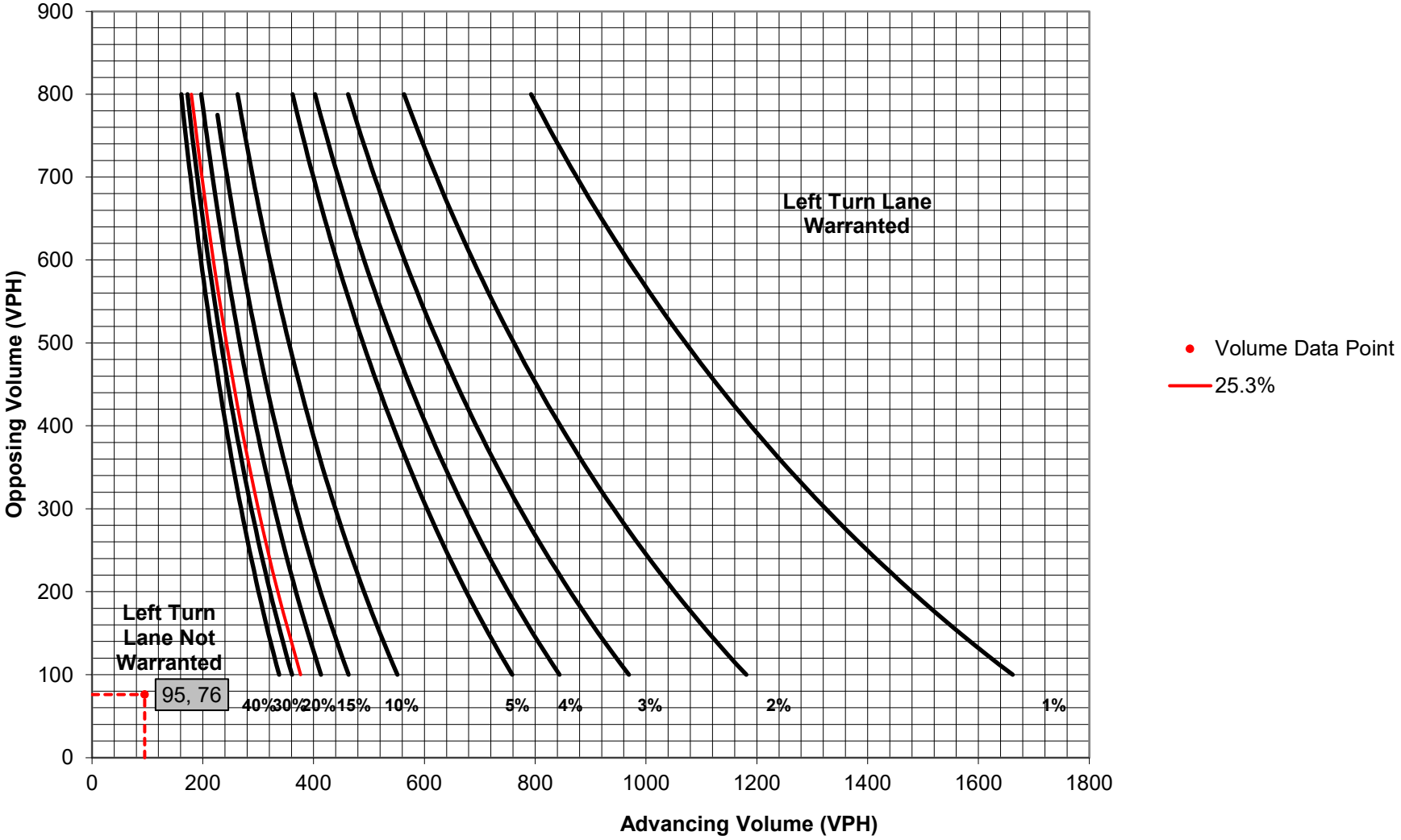
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Bernheisel Bridge Rd & Green Hill Rd
Westbound Left Turn

Analysis Period:	2027 Opening Year (No Build)	**Number of Approach Lanes:**	1
Design Hour:	SAT 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	-	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:	51
Opposing Volume:	0
Left Turn Volume:	5
% Left Turns in Advancing Volume:	9.80%

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:	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

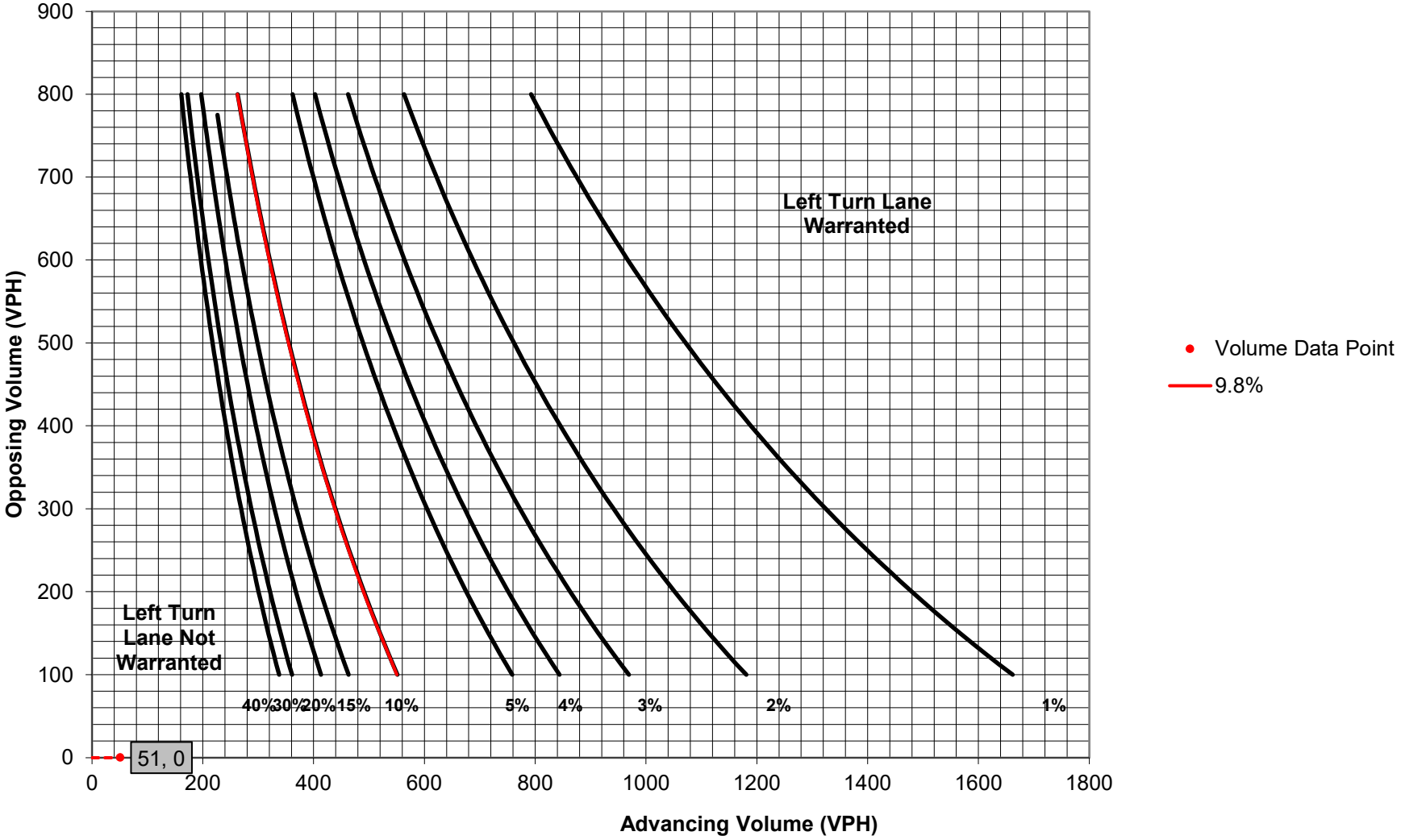
Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Bernheisel Bridge Rd & Green Hill Rd
Westbound Right Turn

Analysis Period:	2027 Opening Year (No Build)	**Number of Approach Lanes:**	1
Design Hour:	SAT 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	5	0.0%	5
	Through	-	0	0.0%	0
	Right	-	46	0.0%	46

Advancing Volume:	51
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

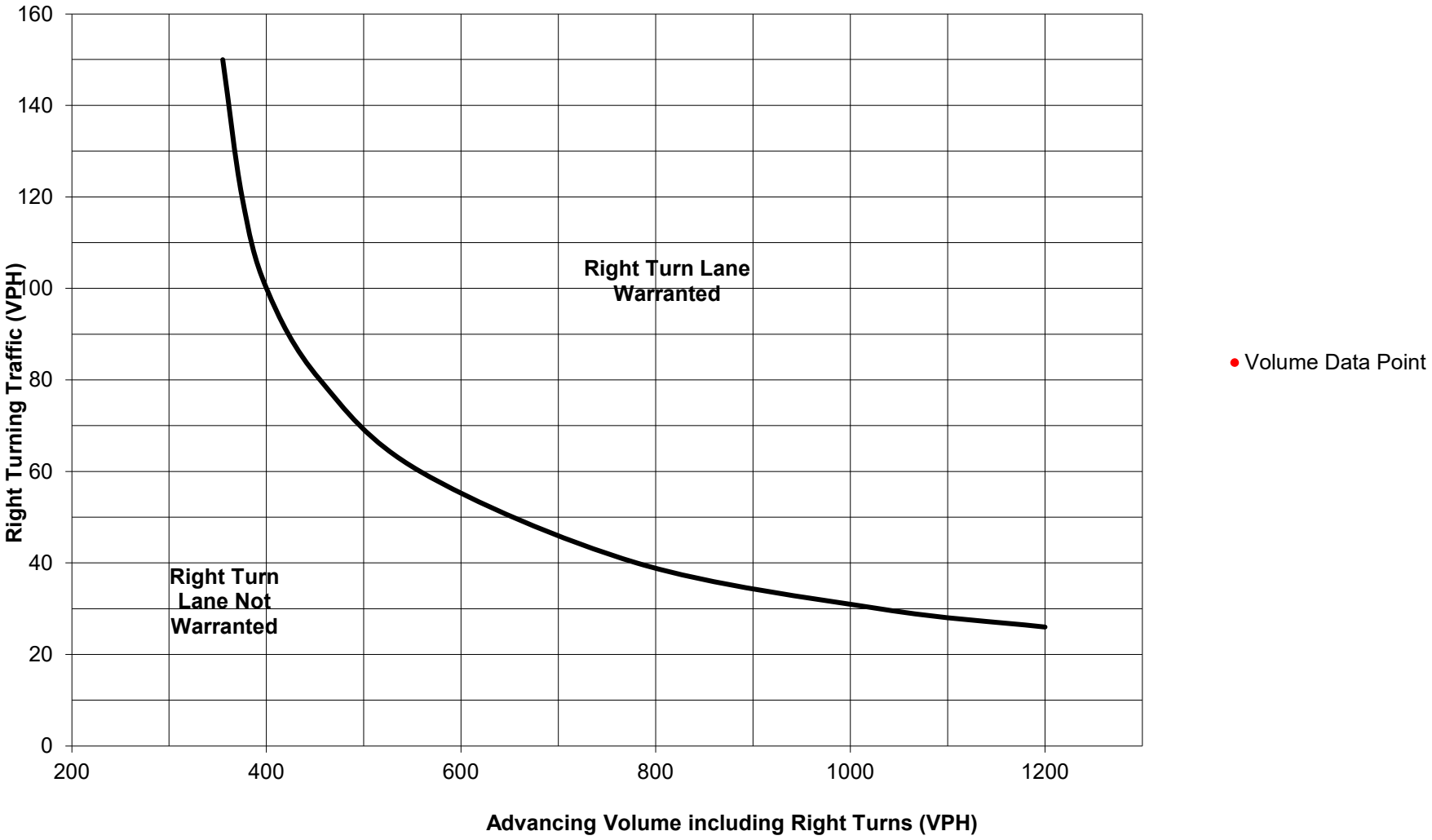
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Eastbound Left Turn

Analysis Period:	2027 Opening Year (Build)	**Number of Approach Lanes:**	2
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
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	111	15.0%	136
	Through	-	988	23.0%	1329
	Right	No	9	11.0%	N/A
Opposing	Left	No	3	33.0%	N/A
	Through	-	704	25.0%	968
	Right	Yes	43	6.0%	47

Advancing Volume:	1465
Opposing Volume:	1015
Left Turn Volume:	136
% Left Turns in Advancing Volume:	9.28%

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?: Yes

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):	33

Average # of Vehicles/Cycle: 4.0

PennDOT Publication 46, Exhibit 11-6

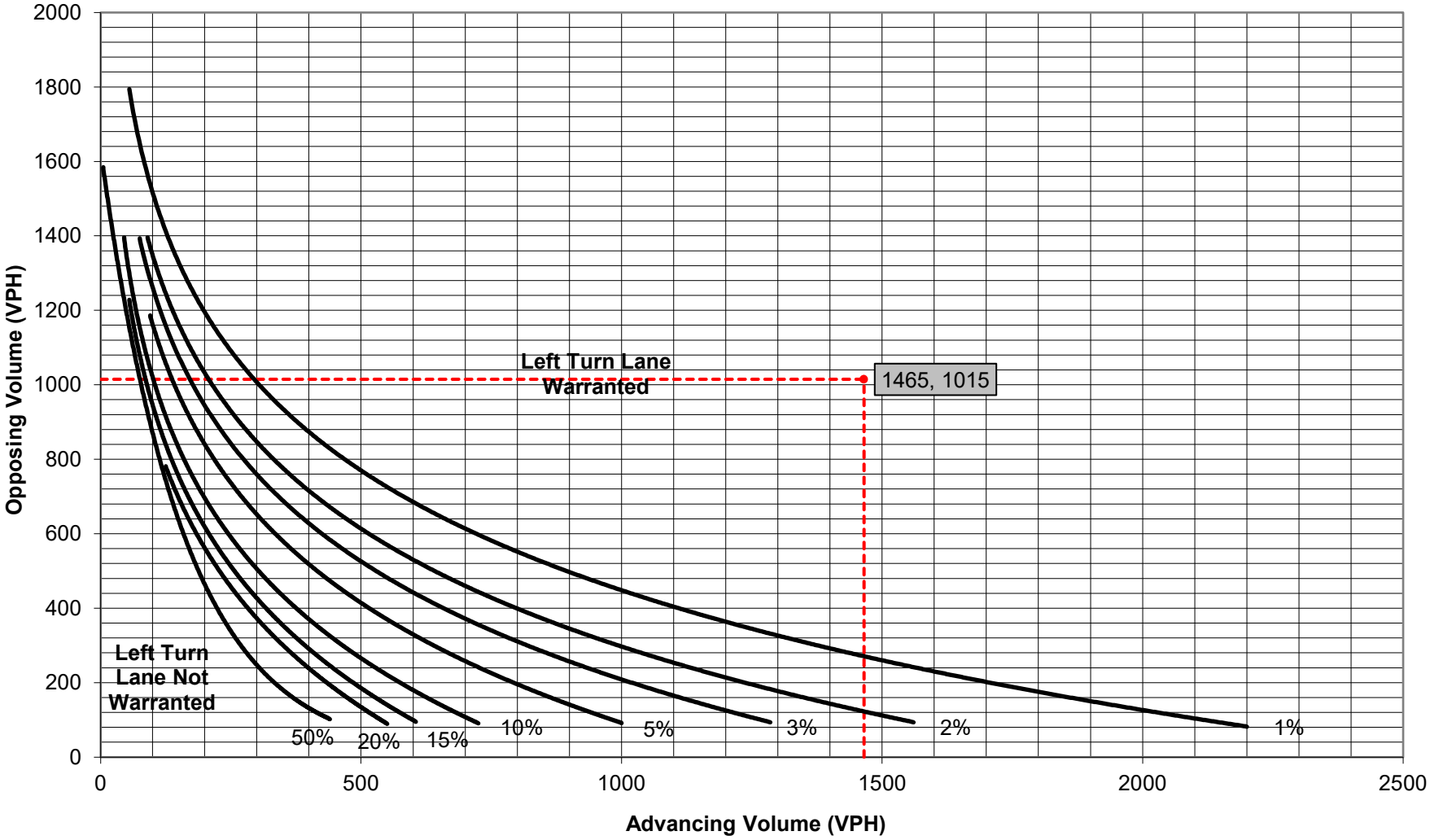
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	175	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	175	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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Eastbound Right Turn

Analysis Period:	2027 Opening Year (Build)	**Number of Approach Lanes:**	2
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
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	111	15.0%	N/A
	Through	-	988	23.0%	1329
	Right	-	9	11.0%	11

Advancing Volume:	1340
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 11

Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	11
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

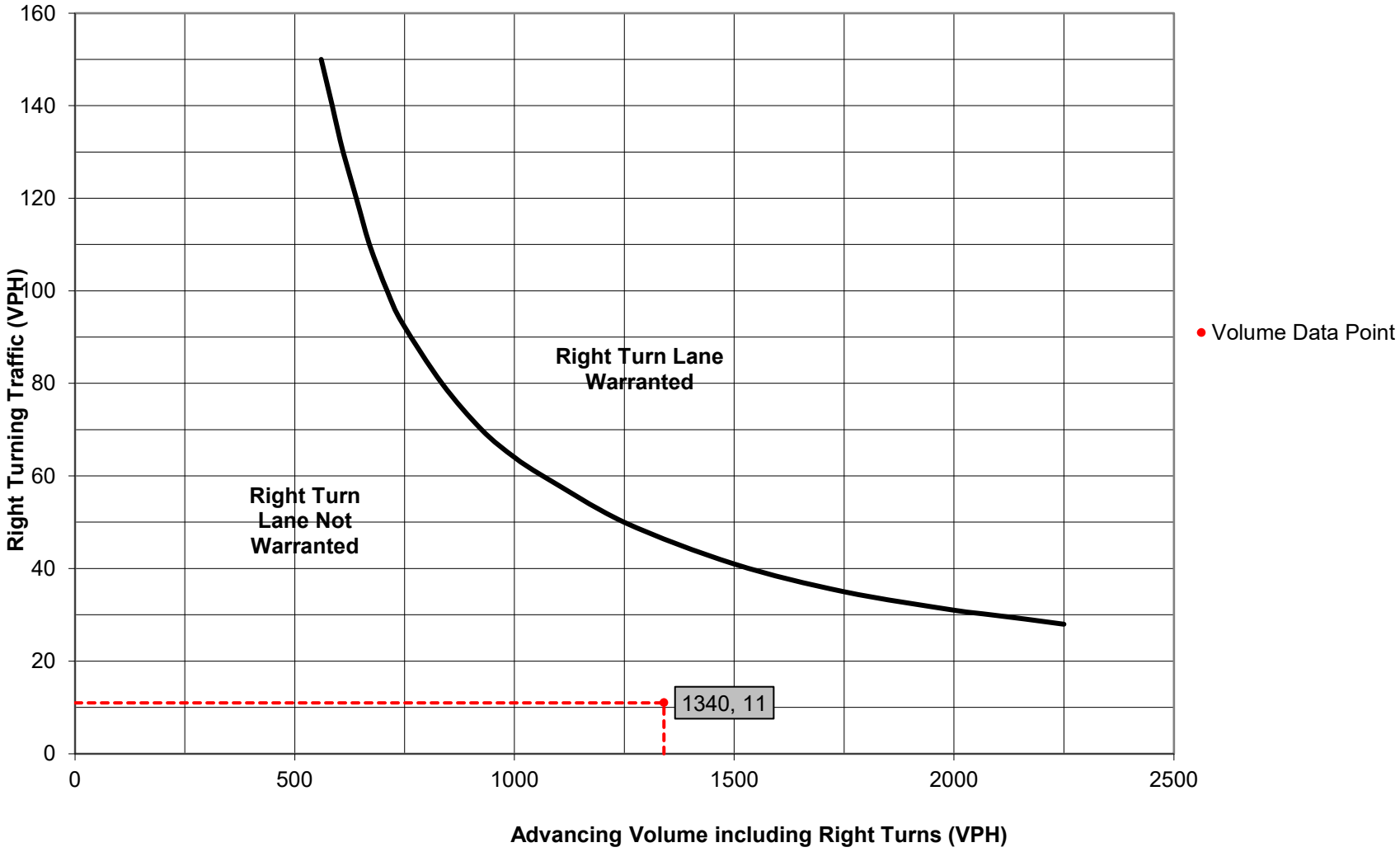
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Northbound Left Turn

Analysis Period:	2027 Opening Year (Build)	**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	1	0.0%	1
	Through	-	1	0.0%	1
	Right	No	16	13.0%	N/A
Opposing	Left	Yes	66	3.0%	69
	Through	-	1	0.0%	1
	Right	Yes	54	2.0%	56

Advancing Volume:	2
Opposing Volume:	126
Left Turn Volume:	1
% Left Turns in Advancing Volume:	50.00%

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?: **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:	1
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

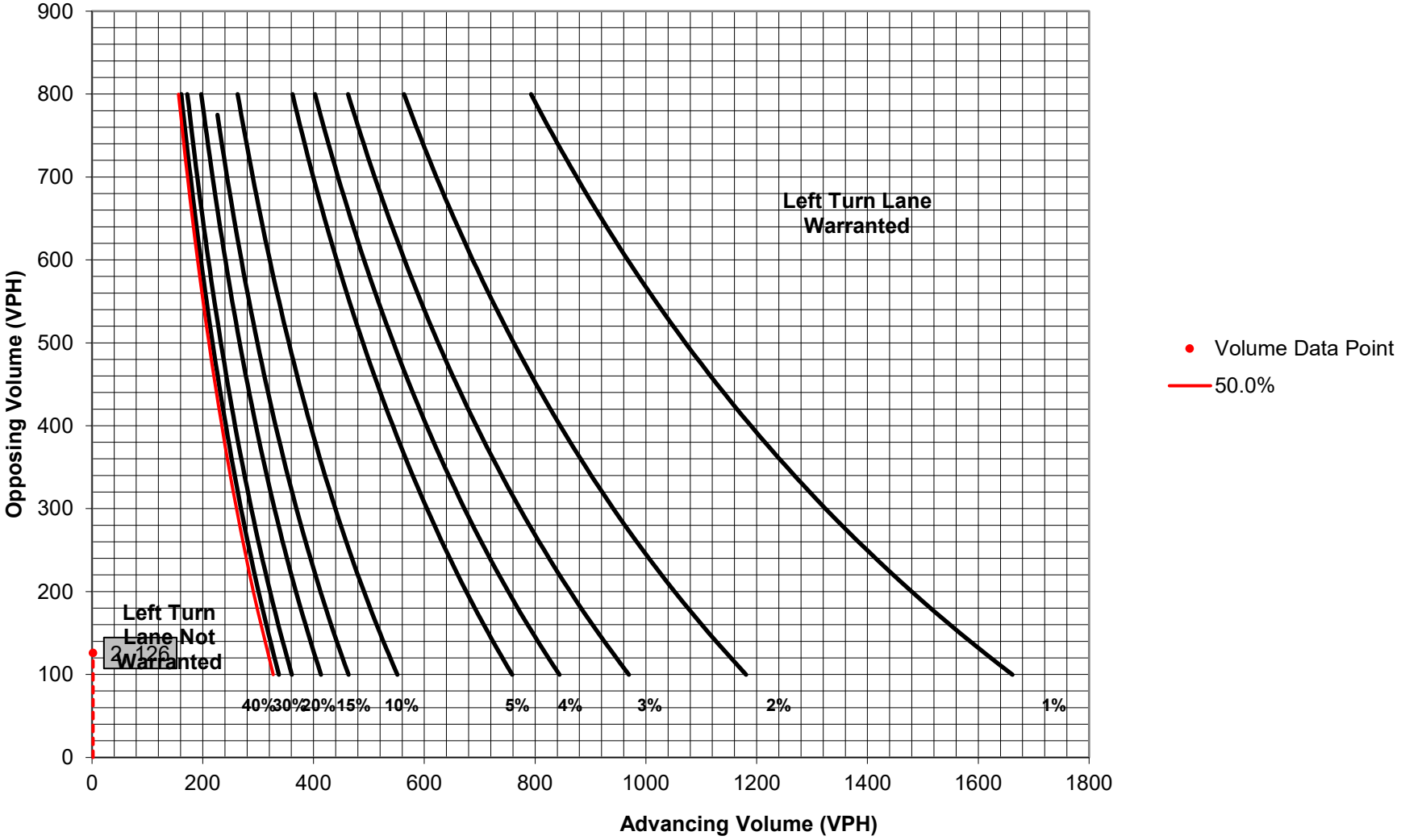
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Northbound Right Turn

Analysis Period:	2027 Opening Year (Build)	**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	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	No	1	0.0%	N/A
	Through	-	1	0.0%	1
	Right	-	16	13.0%	20

Advancing Volume:	21
Right Turn Volume:	20

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:	20
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

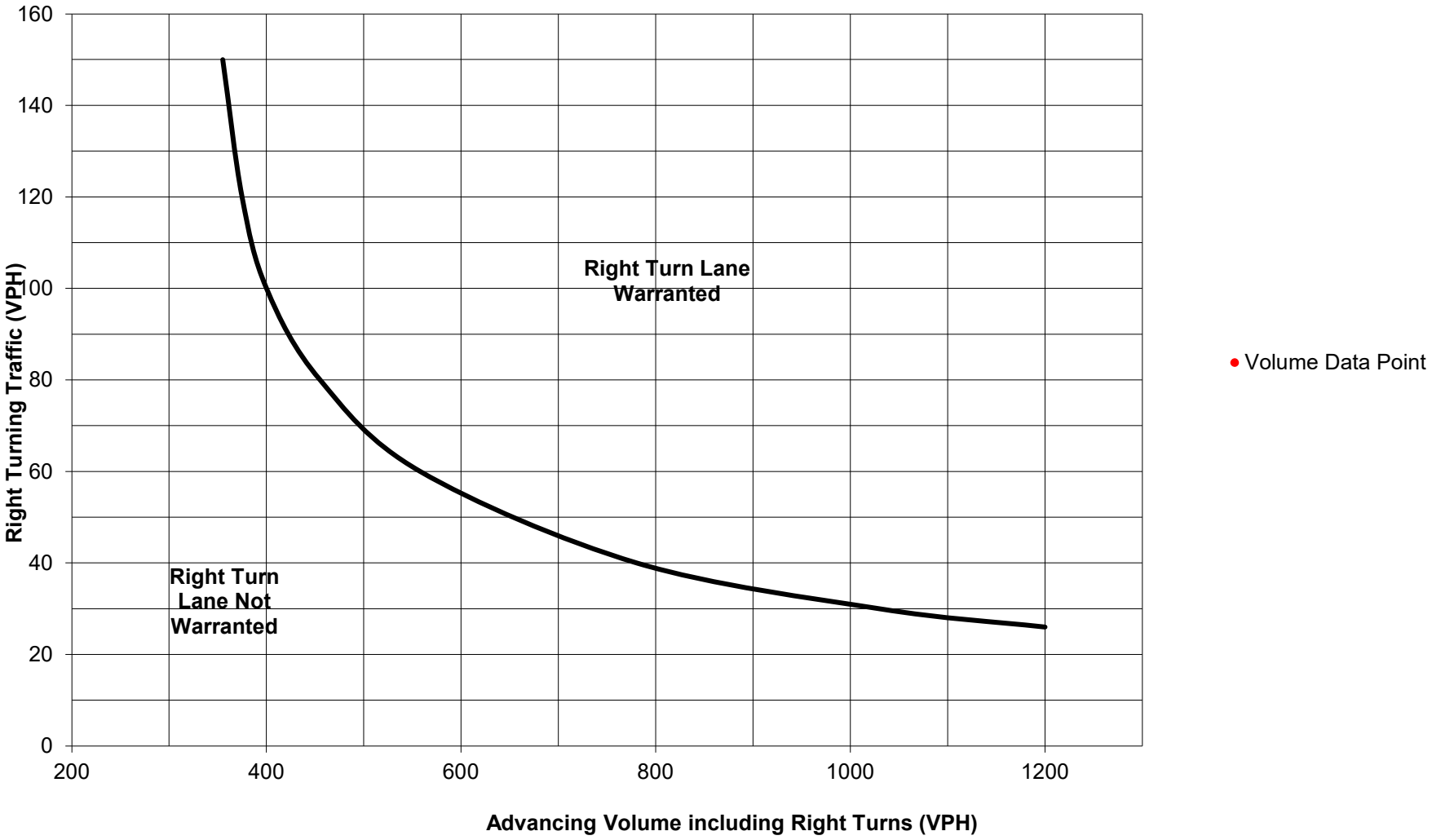
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Southbound Left Turn

Analysis Period:	2027 Opening Year (Build)	**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	66	3.0%	69
	Through	-	1	0.0%	1
	Right	Yes	54	2.0%	56
Opposing	Left	Yes	1	0.0%	1
	Through	-	1	0.0%	1
	Right	Yes	16	13.0%	20

Advancing Volume:	126
Opposing Volume:	22
Left Turn Volume:	69
% Left Turns in Advancing Volume:	54.76%

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:	69
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

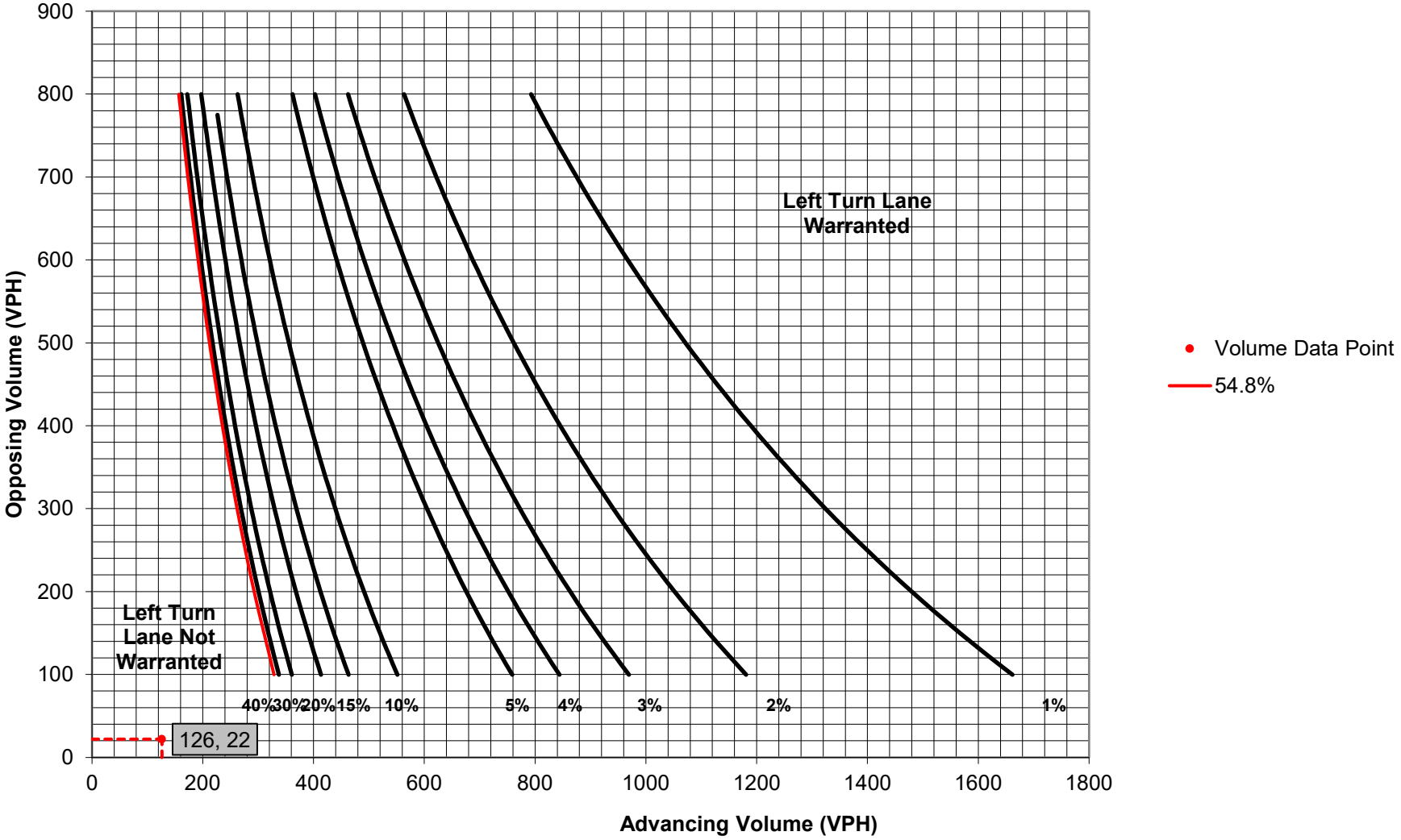
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Southbound Right Turn

Analysis Period:	2027 Opening Year (Build)	**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	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	66	3.0%	69
	Through	-	1	0.0%	1
	Right	-	54	2.0%	56

Advancing Volume:	126
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):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

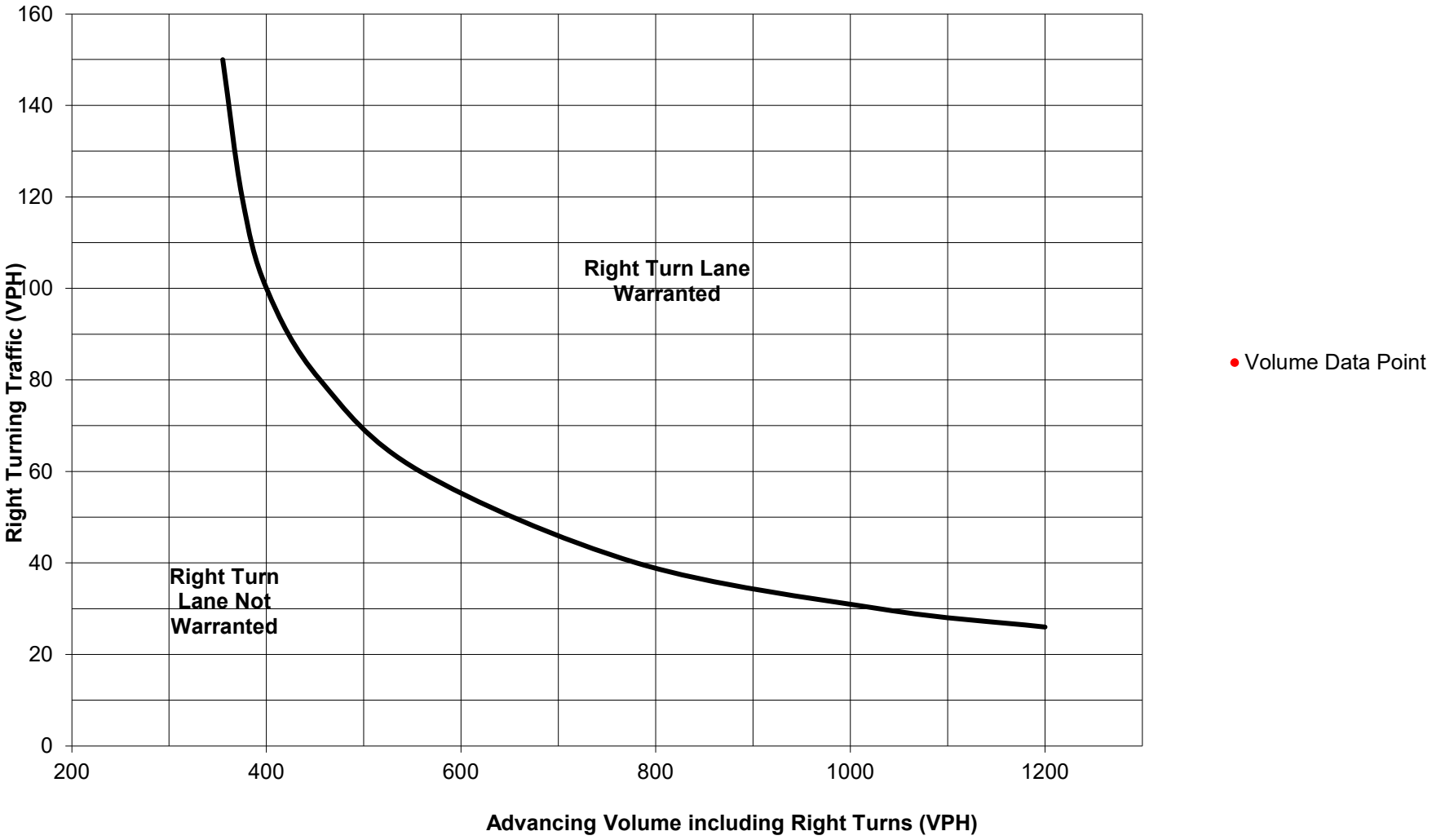
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Westbound Left Turn

Analysis Period:	2027 Opening Year (Build)	**Number of Approach Lanes:**	2
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
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	33.0%	5
	Through	-	704	25.0%	968
	Right	No	43	6.0%	N/A
Opposing	Left	No	111	15.0%	N/A
	Through	-	988	23.0%	1329
	Right	Yes	9	11.0%	11

Advancing Volume:	973
Opposing Volume:	1340
Left Turn Volume:	5
% Left Turns in Advancing Volume:	0.51%

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:	5
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

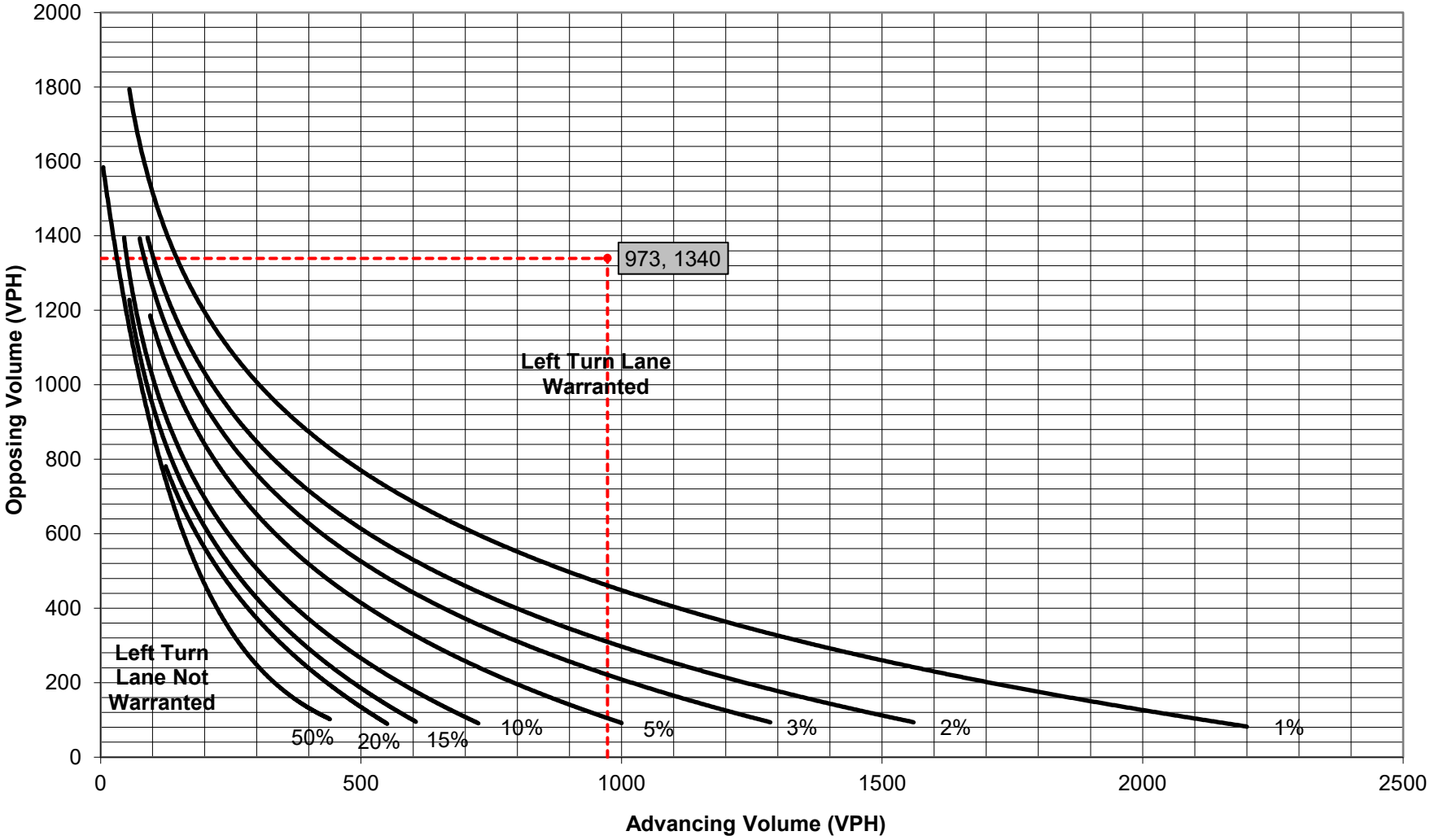
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Westbound Right Turn

Analysis Period:	2027 Opening Year (Build)	**Number of Approach Lanes:**	2
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
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	3	33.0%	N/A
	Through	-	704	25.0%	968
	Right	-	43	6.0%	47

Advancing Volume:	1015
Right Turn Volume:	47

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:	47
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

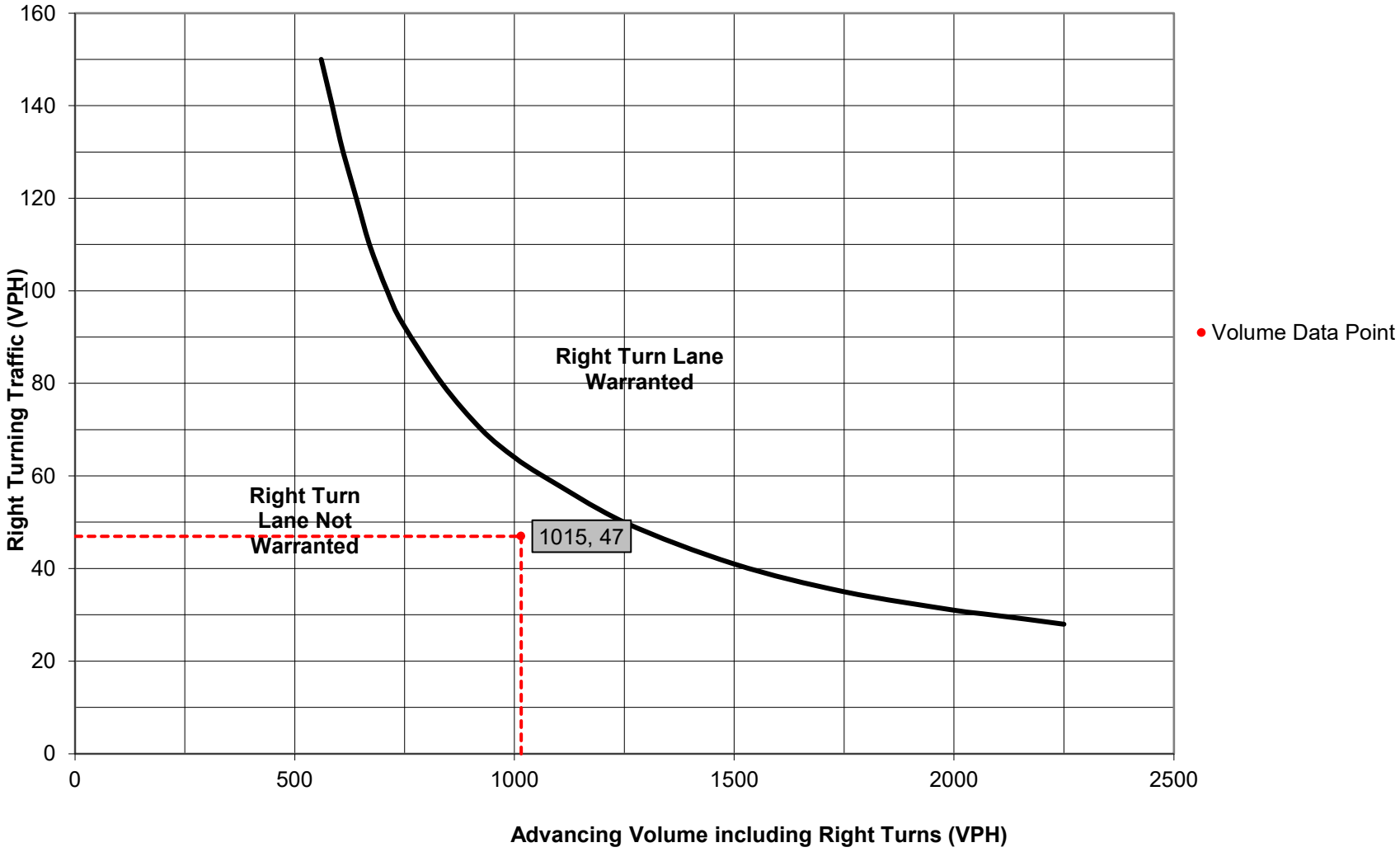
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Eastbound Left Turn

Analysis Period:	2027 Opening Year (Build)	**Number of Approach Lanes:**	2
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
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	57	2.0%	59
	Through	-	1215	28.0%	1726
	Right	No	13	8.0%	N/A
Opposing	Left	No	25	16.0%	N/A
	Through	-	881	26.0%	1225
	Right	Yes	32	7.0%	36

Advancing Volume:	1785
Opposing Volume:	1261
Left Turn Volume:	59
% Left Turns in Advancing Volume:	3.31%

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?: Yes

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:	59
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: 2.0

PennDOT Publication 46, Exhibit 11-6

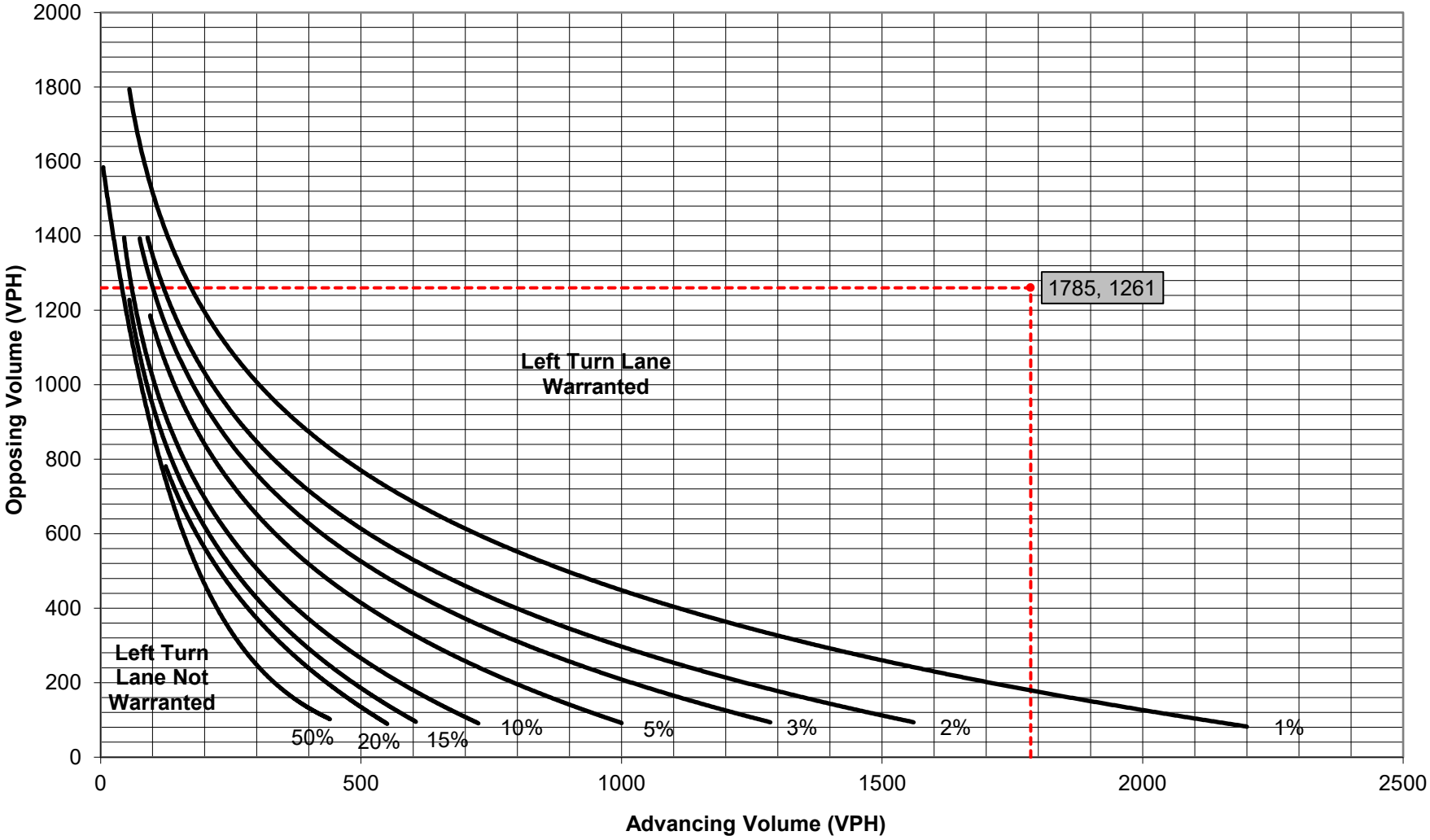
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	100	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	100	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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Eastbound Right Turn

Analysis Period:	2027 Opening Year (Build)	**Number of Approach Lanes:**	2
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
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	57	2.0%	N/A
	Through	-	1215	28.0%	1726
	Right	-	13	8.0%	15

Advancing Volume:	1741
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 11

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):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

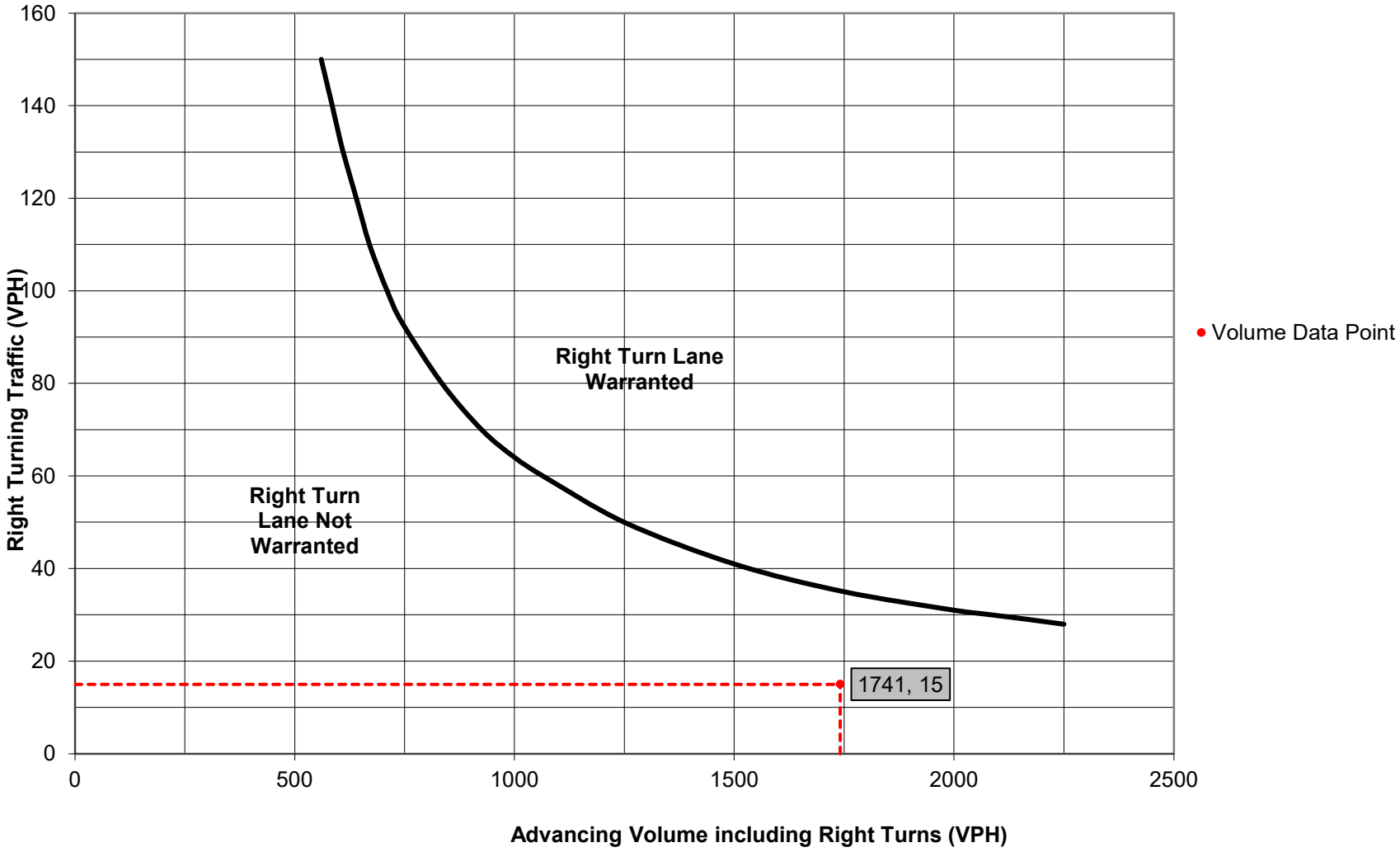
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Northbound Left Turn

Analysis Period:	2027 Opening Year (Build)	**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	12	0.0%	12
	Through	-	0	0.0%	0
	Right	No	25	8.0%	N/A
Opposing	Left	Yes	55	8.0%	62
	Through	-	1	0.0%	1
	Right	Yes	90	8.0%	101

Advancing Volume:	12
Opposing Volume:	164
Left Turn Volume:	12
% 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:	12
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

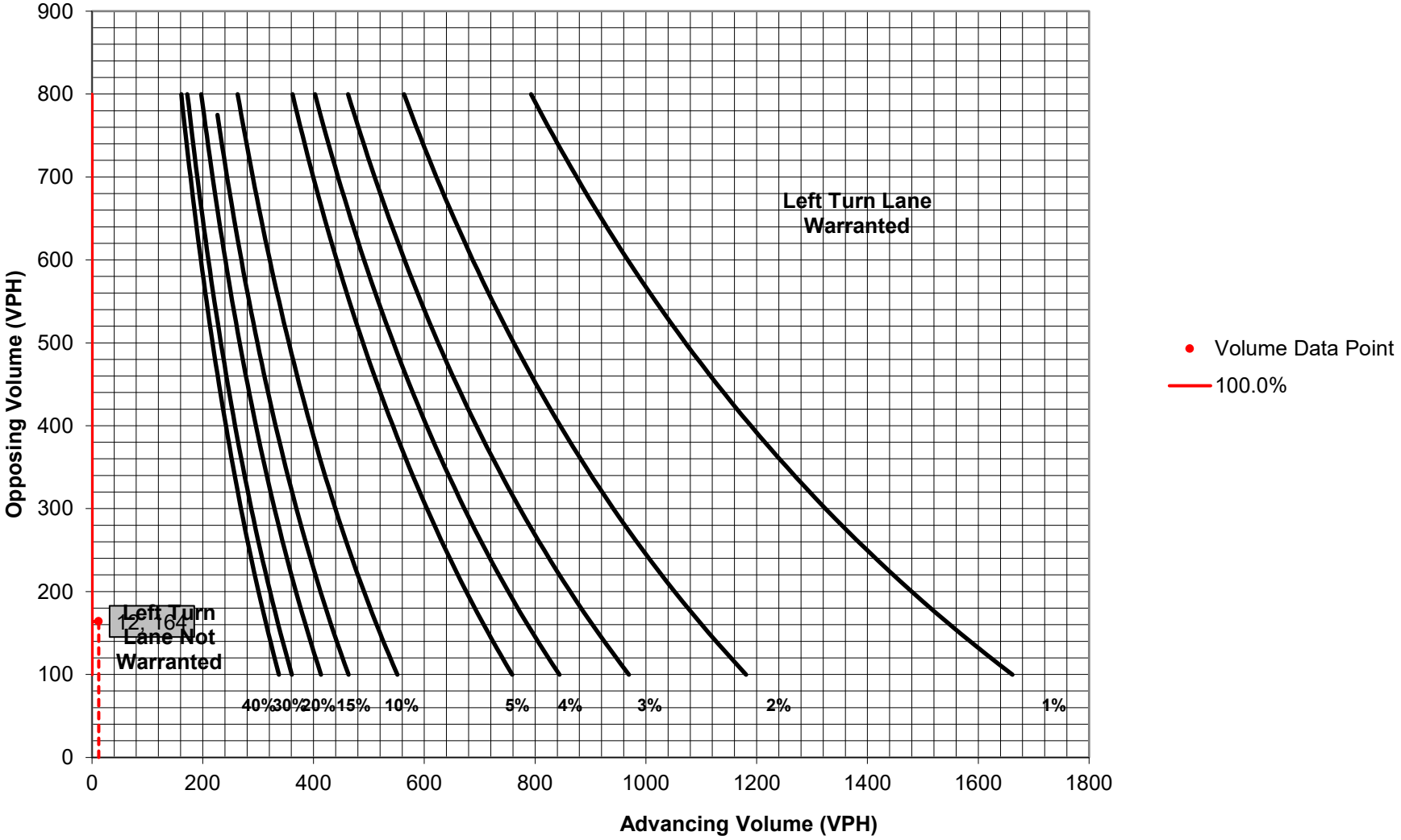
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Northbound Right Turn

Analysis Period:	2027 Opening Year (Build)	**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	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	No	12	0.0%	N/A
	Through	-	0	0.0%	0
	Right	-	25	8.0%	28

Advancing Volume:	28
Right Turn Volume:	28

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:	28
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

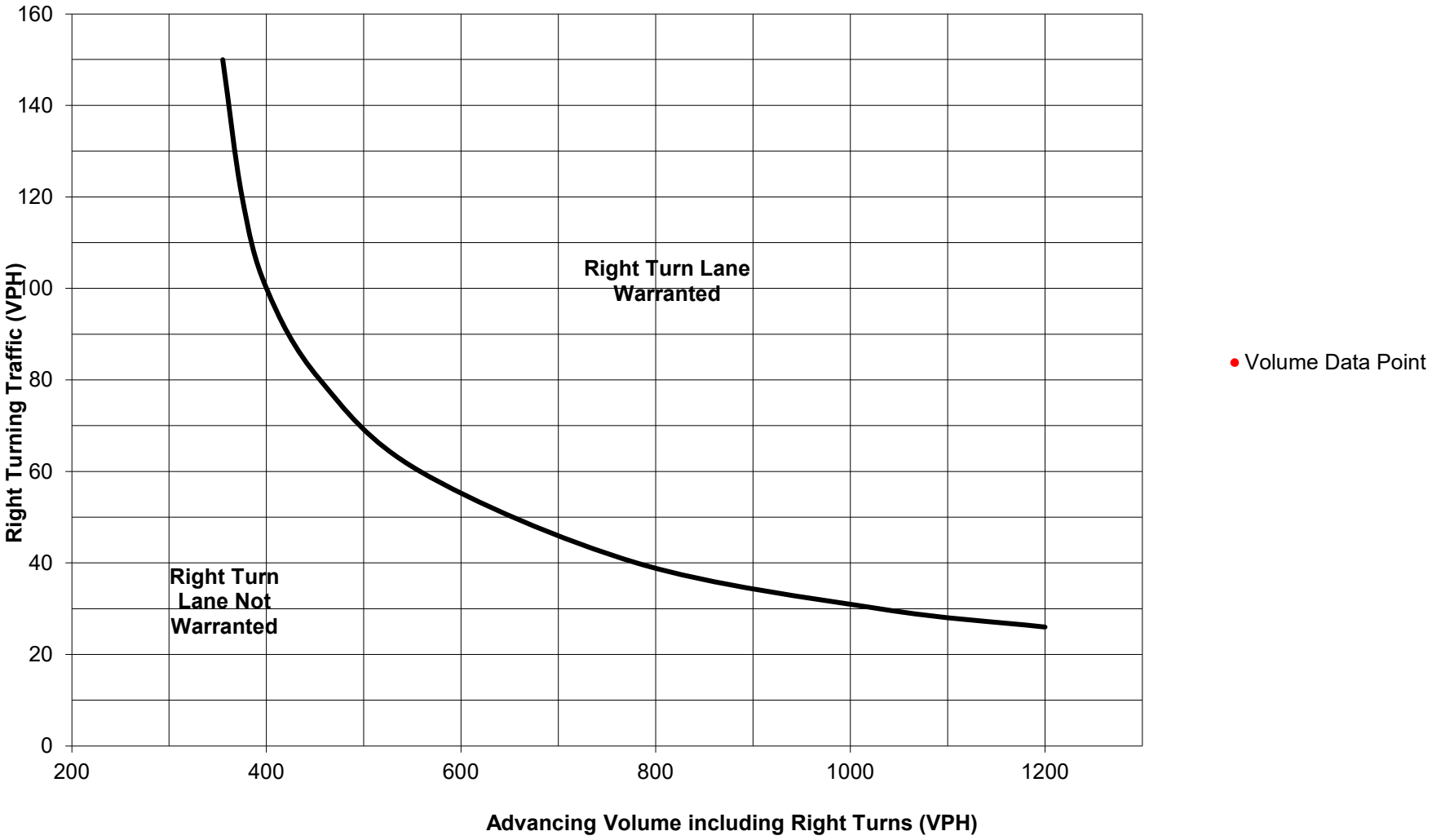
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Southbound Left Turn

Analysis Period:	2027 Opening Year (Build)	**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	55	8.0%	62
	Through	-	1	0.0%	1
	Right	Yes	90	8.0%	101
Opposing	Left	Yes	12	0.0%	12
	Through	-	0	0.0%	0
	Right	Yes	25	8.0%	28

Advancing Volume:	164
Opposing Volume:	40
Left Turn Volume:	62
% Left Turns in Advancing Volume:	37.80%

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:	62
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

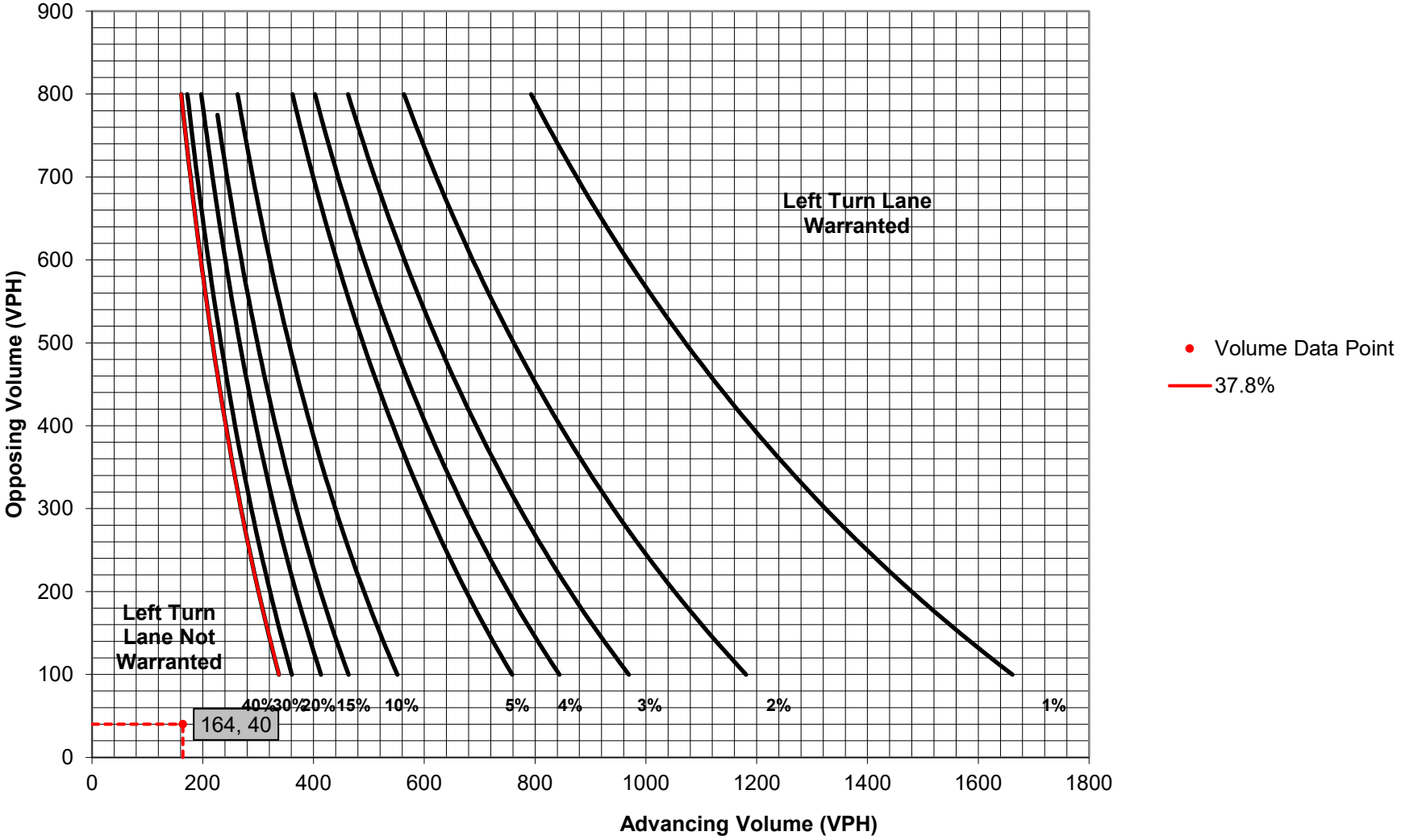
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Southbound Right Turn

Analysis Period:	2027 Opening Year (Build)	**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	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	55	8.0%	62
	Through	-	1	0.0%	1
	Right	-	90	8.0%	101

Advancing Volume:	164
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):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

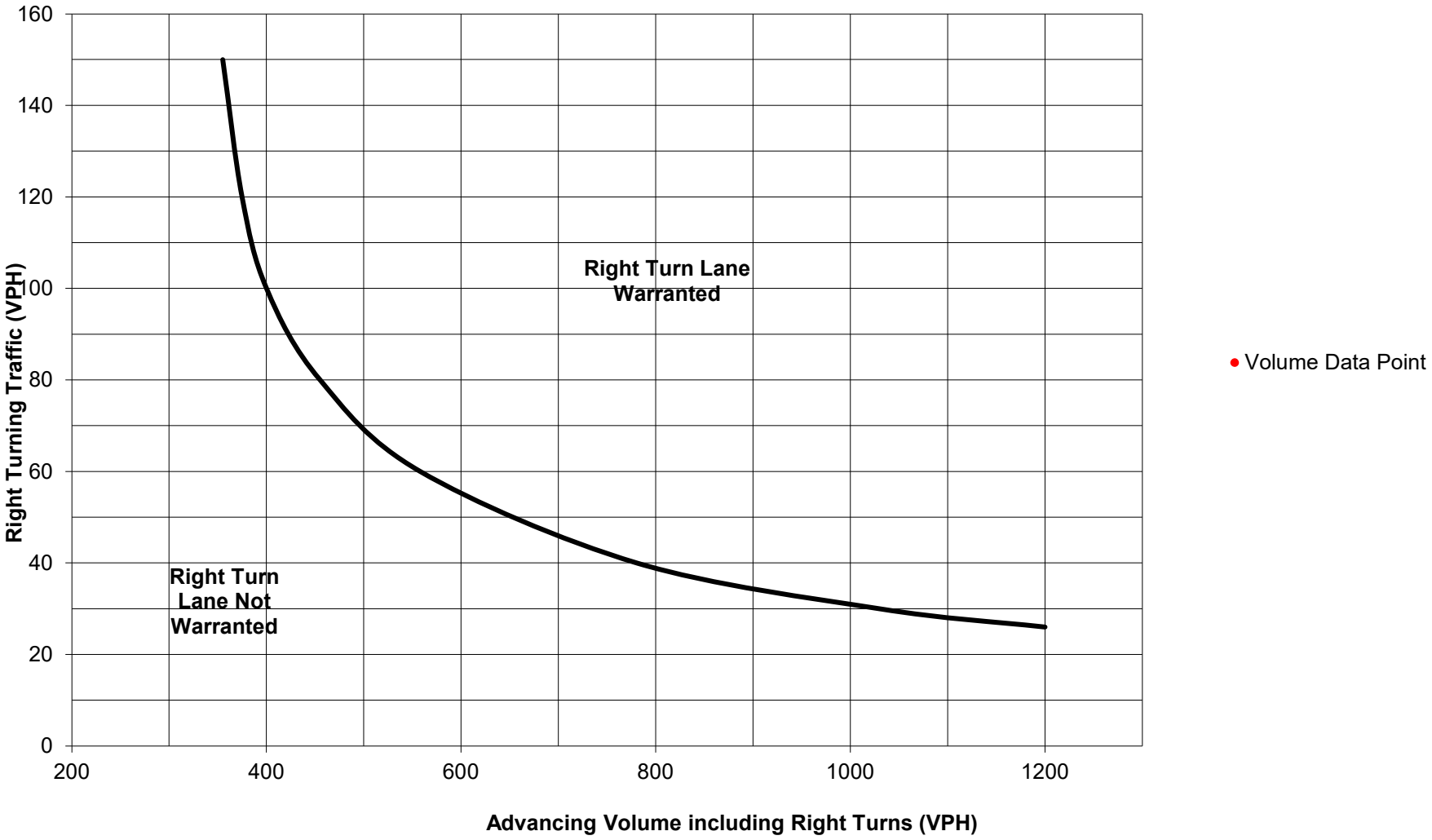
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Westbound Left Turn

Analysis Period:	2027 Opening Year (Build)	**Number of Approach Lanes:**	2
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
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	16.0%	31
	Through	-	881	26.0%	1225
	Right	No	32	7.0%	N/A
Opposing	Left	No	57	2.0%	N/A
	Through	-	1215	28.0%	1726
	Right	Yes	13	8.0%	15

Advancing Volume:	1256
Opposing Volume:	1741
Left Turn Volume:	31
% Left Turns in Advancing Volume:	2.47%

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 8**

Warrant Met?: **Yes**

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:	31
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: 1.0

PennDOT Publication 46, Exhibit 11-6

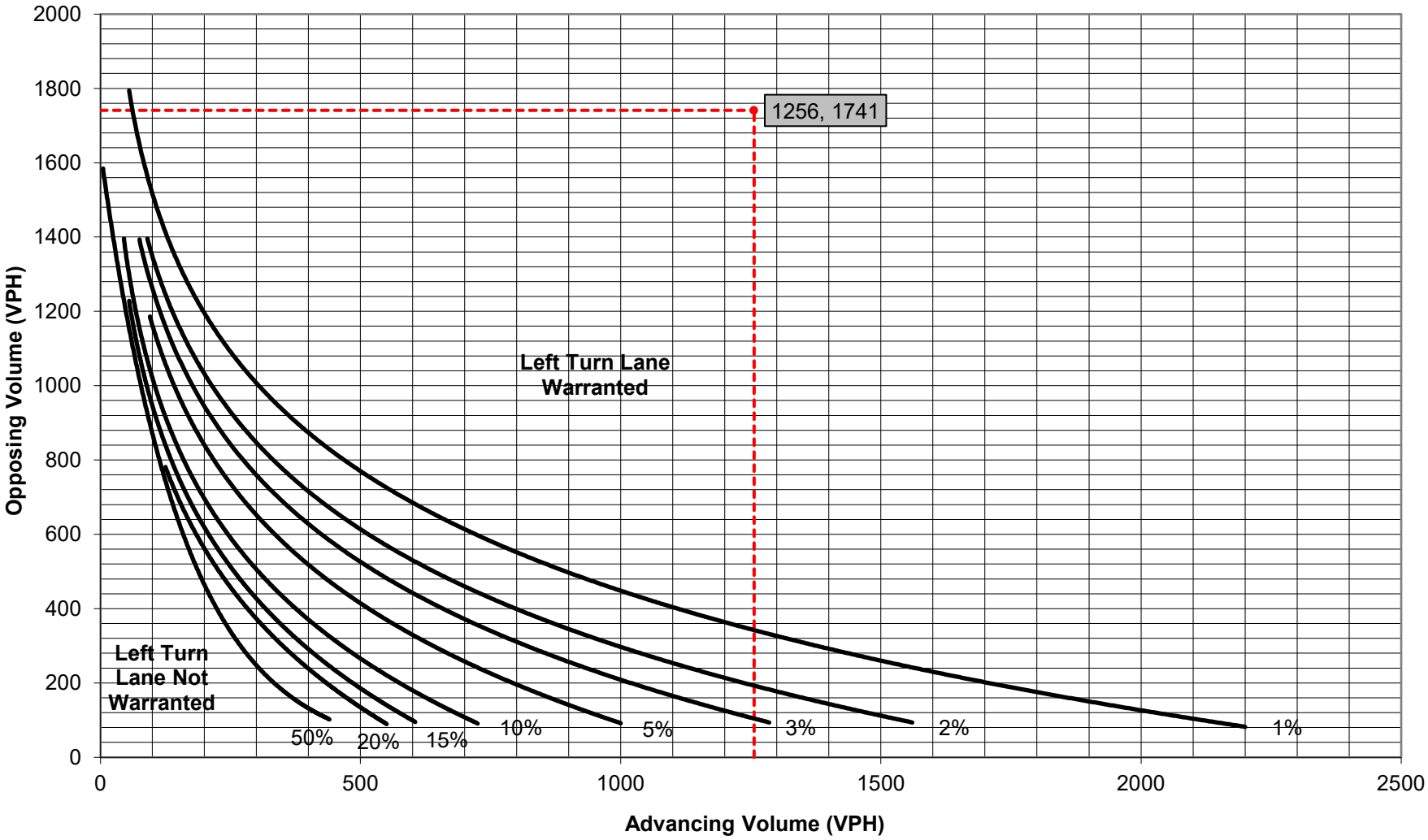
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	**75**	**Feet**
Condition B:	**N/A**	**Feet**
Condition C:	**N/A**	**Feet**
Required Left Turn Lane Storage Length:	**75**	**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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Westbound Right Turn

Analysis Period:	2027 Opening Year (Build)	**Number of Approach Lanes:**	2
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
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	25	16.0%	N/A
	Through	-	881	26.0%	1225
	Right	-	32	7.0%	36

Advancing Volume:	1261
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 11

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):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

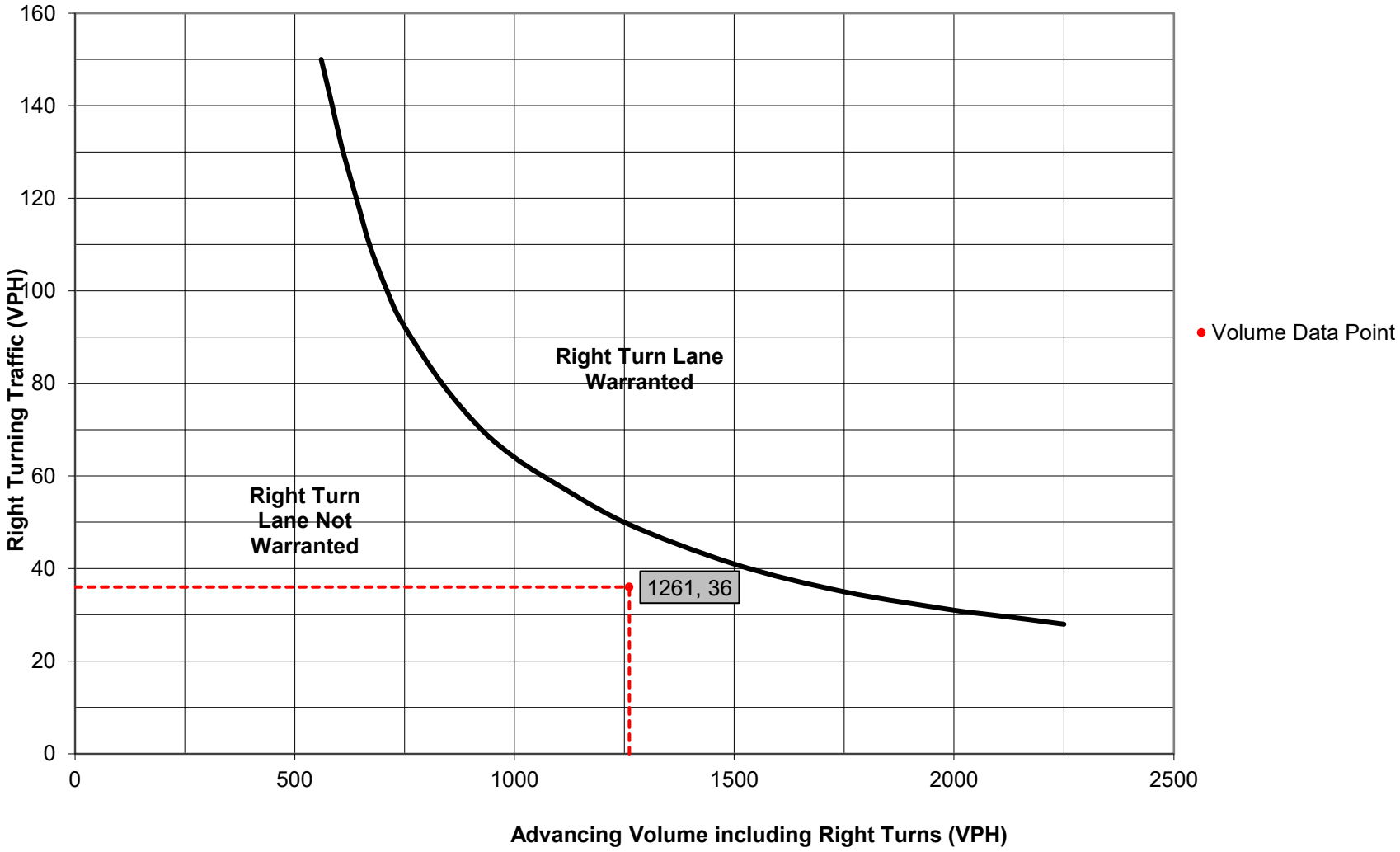
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Eastbound Left Turn

Analysis Period:	2027 Opening Year (Build)	**Number of Approach Lanes:**	2
Design Hour:	SAT Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
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	42	2.0%	44
	Through	-	659	19.0%	847
	Right	No	11	0.0%	N/A
Opposing	Left	No	19	32.0%	N/A
	Through	-	732	18.0%	930
	Right	Yes	40	2.0%	42

Advancing Volume:	891
Opposing Volume:	972
Left Turn Volume:	44
% Left Turns in Advancing Volume:	4.94%

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 8

Warrant Met?: Yes

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:	44
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: 1.0

PennDOT Publication 46, Exhibit 11-6

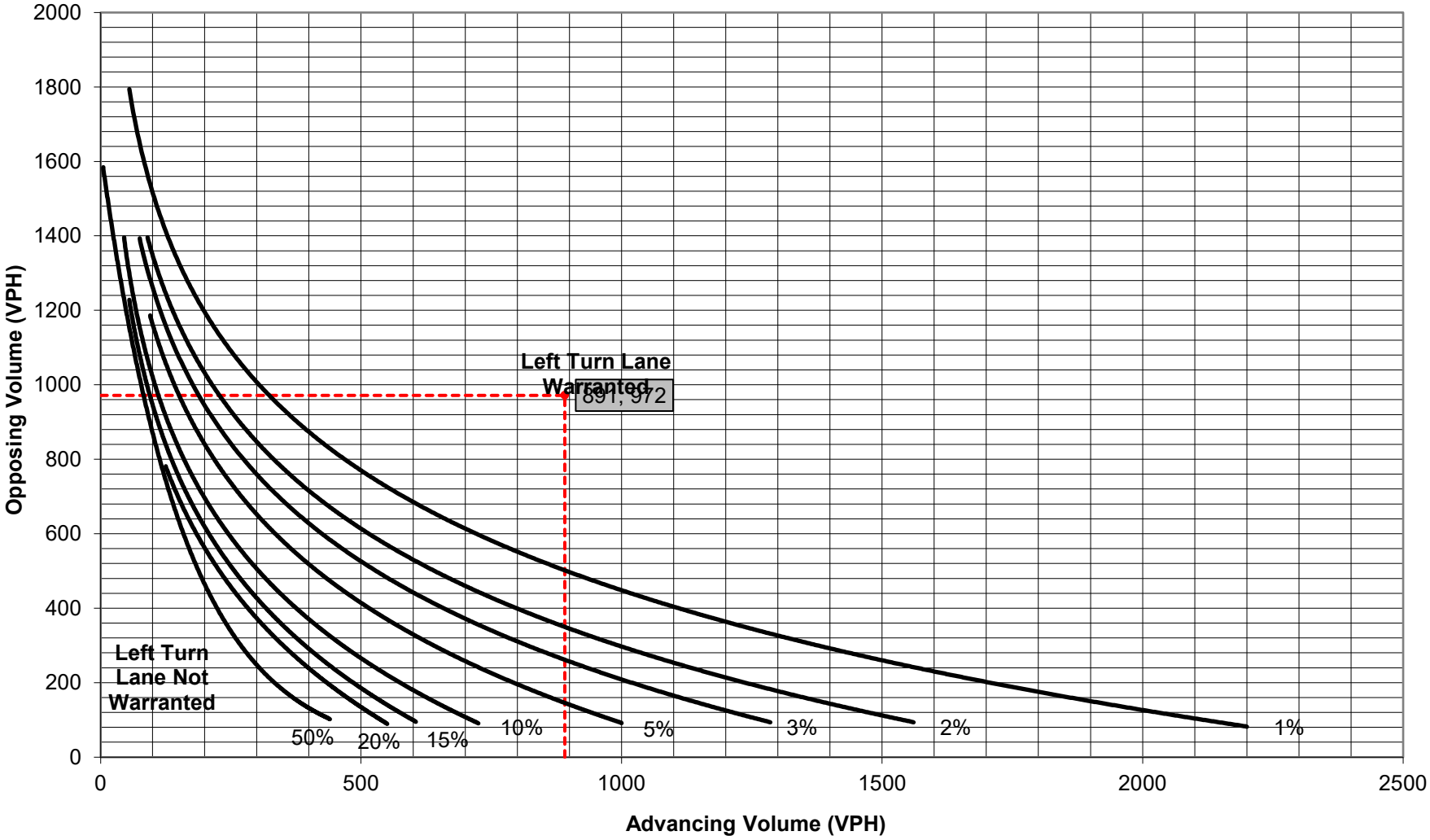
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	75	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	75	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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Eastbound Right Turn

Analysis Period:	2027 Opening Year (Build)	**Number of Approach Lanes:**	2
Design Hour:	SAT Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
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	42	2.0%	N/A
	Through	-	659	19.0%	847
	Right	-	11	0.0%	11

Advancing Volume:	858
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 11

Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	11
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

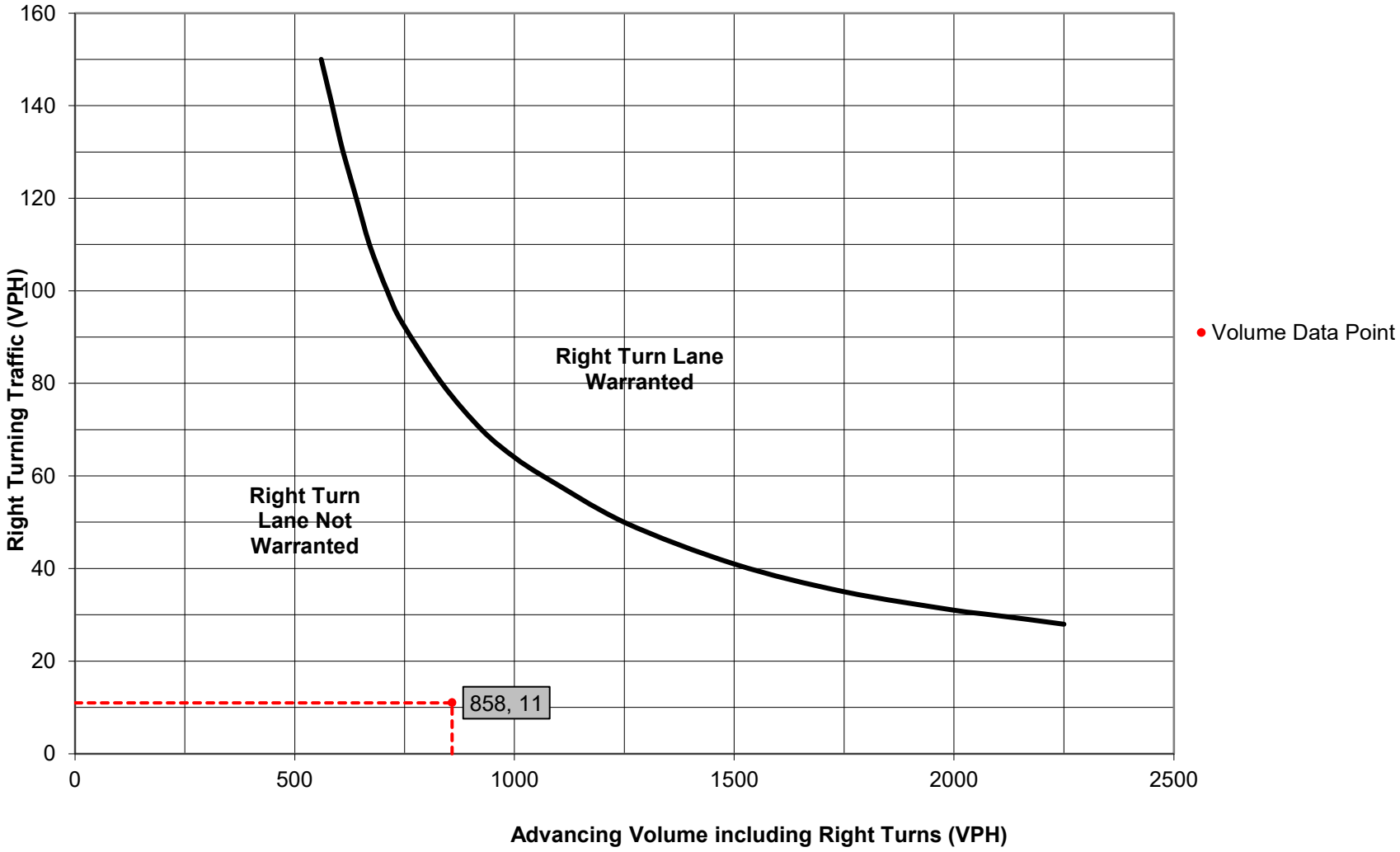
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Northbound Left Turn

Analysis Period:	2027 Opening Year (Build)	**Number of Approach Lanes:**	1
Design Hour:	SAT 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	9	22.0%	12
	Through	-	2	0.0%	2
	Right	No	20	0.0%	N/A
Opposing	Left	Yes	48	2.0%	50
	Through	-	1	0.0%	1
	Right	Yes	82	2.0%	85

Advancing Volume:	14
Opposing Volume:	136
Left Turn Volume:	12
% Left Turns in Advancing Volume:	85.71%

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:	12
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

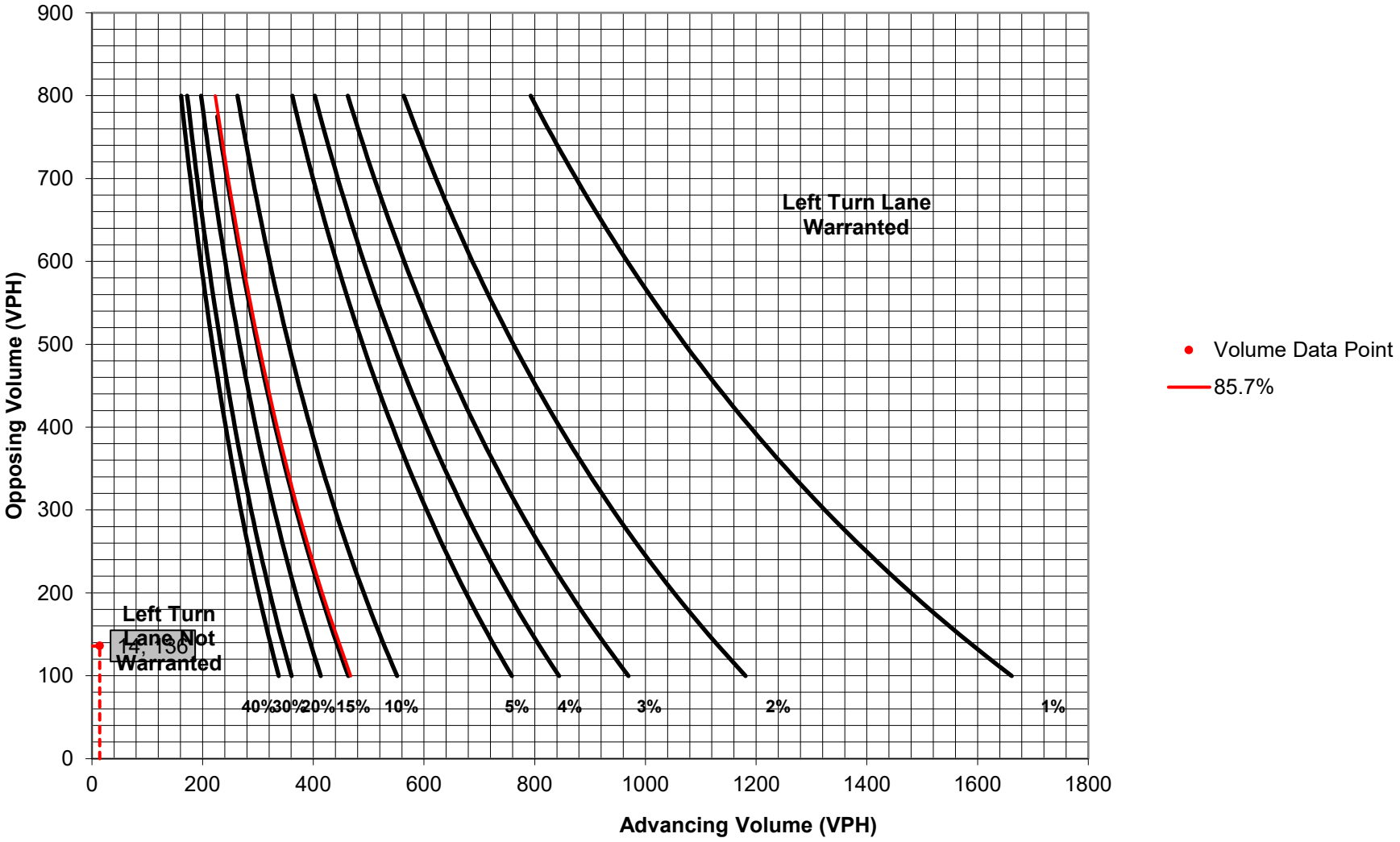
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Northbound Right Turn

Analysis Period:	2027 Opening Year (Build)	**Number of Approach Lanes:**	1
Design Hour:	SAT 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	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	No	9	22.0%	N/A
	Through	-	2	0.0%	2
	Right	-	20	0.0%	20

Advancing Volume:	22
Right Turn Volume:	20

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:	20		
Cycles Per Hour (Assumed):	Known		
Cycles Per Hour (If Known):	33	**Average # of Vehicles/Cycle:**	N/A

PennDOT Publication 46, Exhibit 11-6

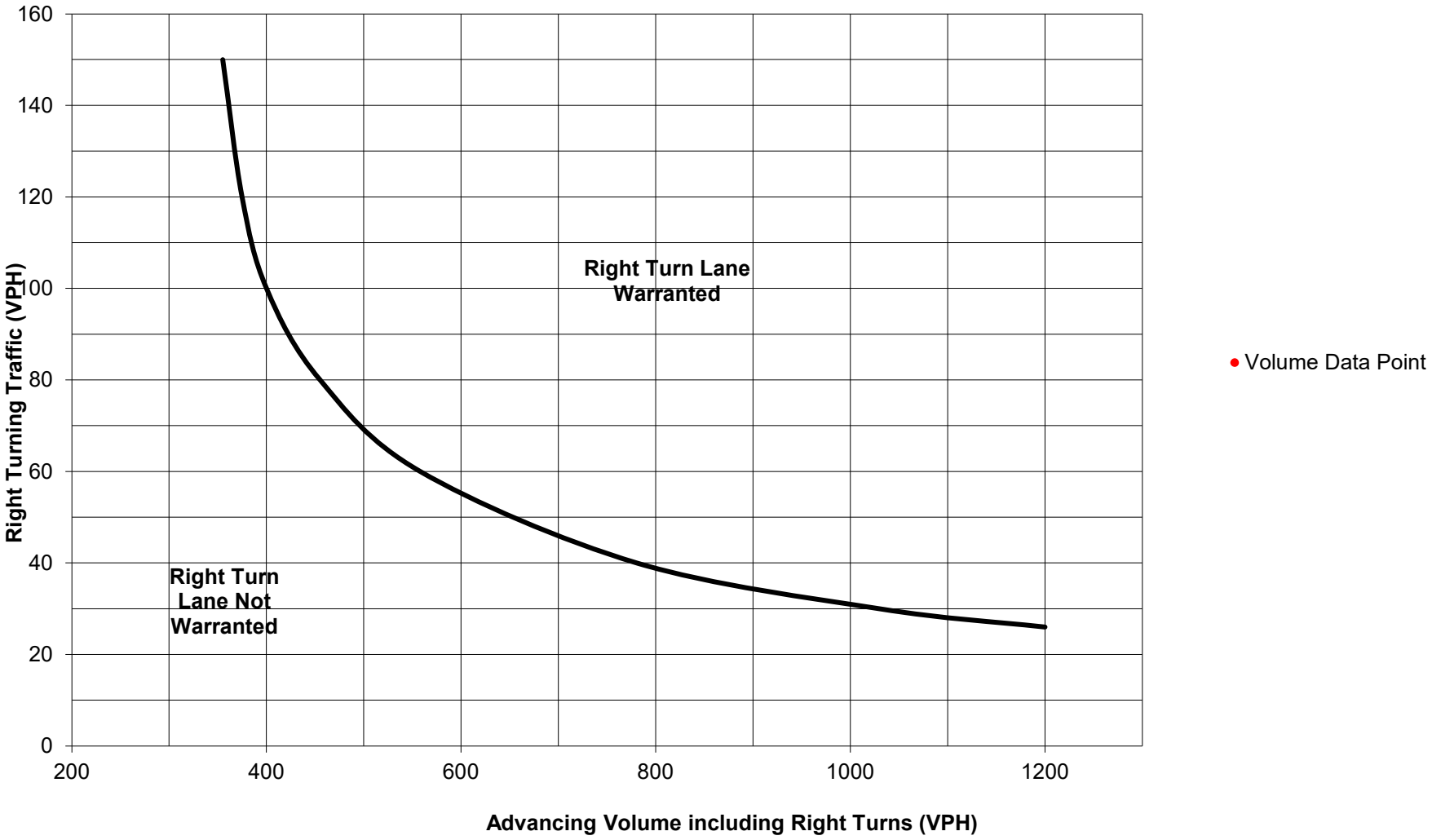
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Southbound Left Turn

Analysis Period:	2027 Opening Year (Build)	**Number of Approach Lanes:**	1
Design Hour:	SAT 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	48	2.0%	50
	Through	-	1	0.0%	1
	Right	Yes	82	2.0%	85
Opposing	Left	Yes	9	22.0%	12
	Through	-	2	0.0%	2
	Right	Yes	20	0.0%	20

Advancing Volume:	136
Opposing Volume:	34
Left Turn Volume:	50
% Left Turns in Advancing Volume:	36.76%

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:	50
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

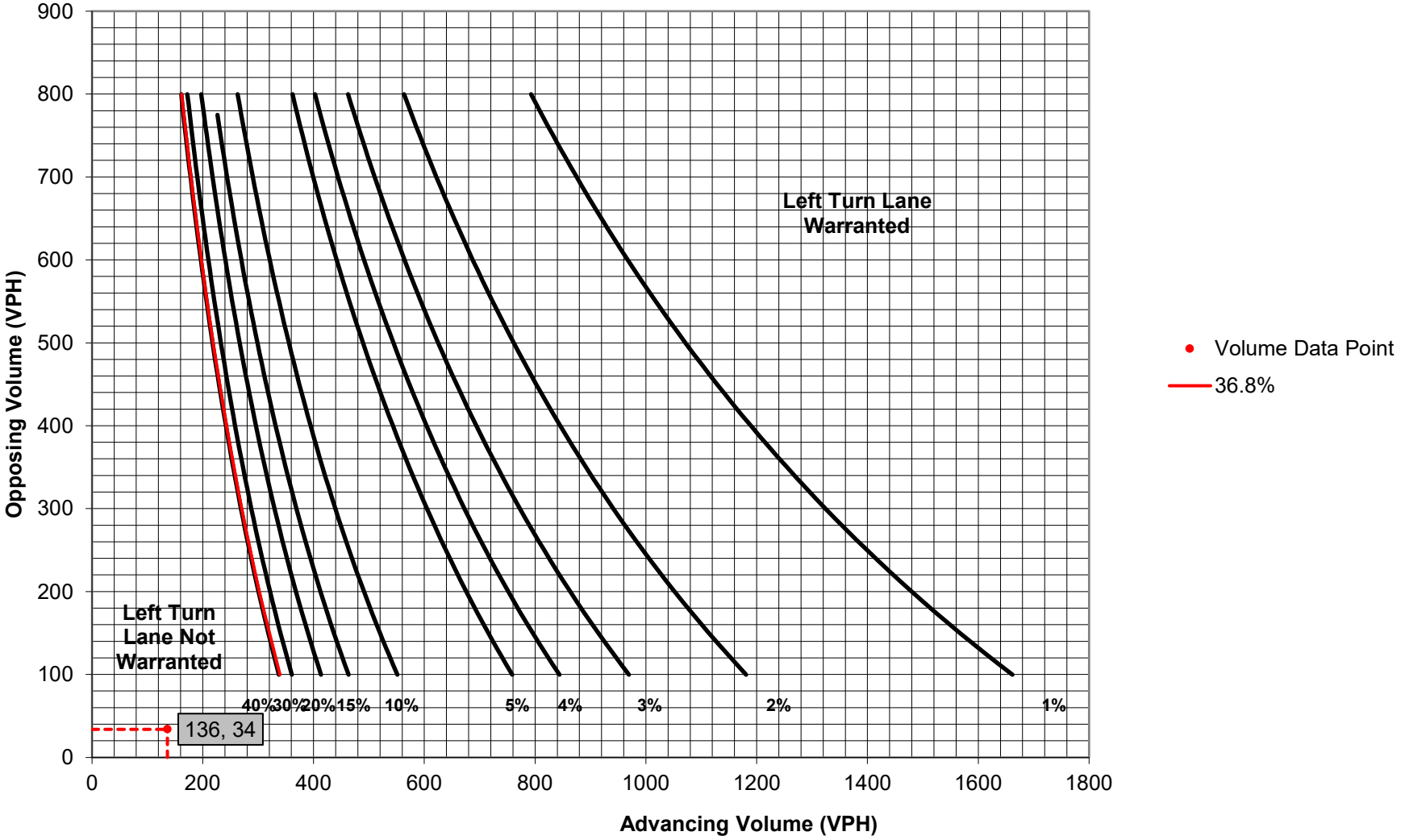
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Southbound Right Turn

Analysis Period:	2027 Opening Year (Build)	**Number of Approach Lanes:**	1
Design Hour:	SAT 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	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	48	2.0%	50
	Through	-	1	0.0%	1
	Right	-	82	2.0%	85

Advancing Volume: 136
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:	Signalized
Design Hour Volume of Turning Lane:	85
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

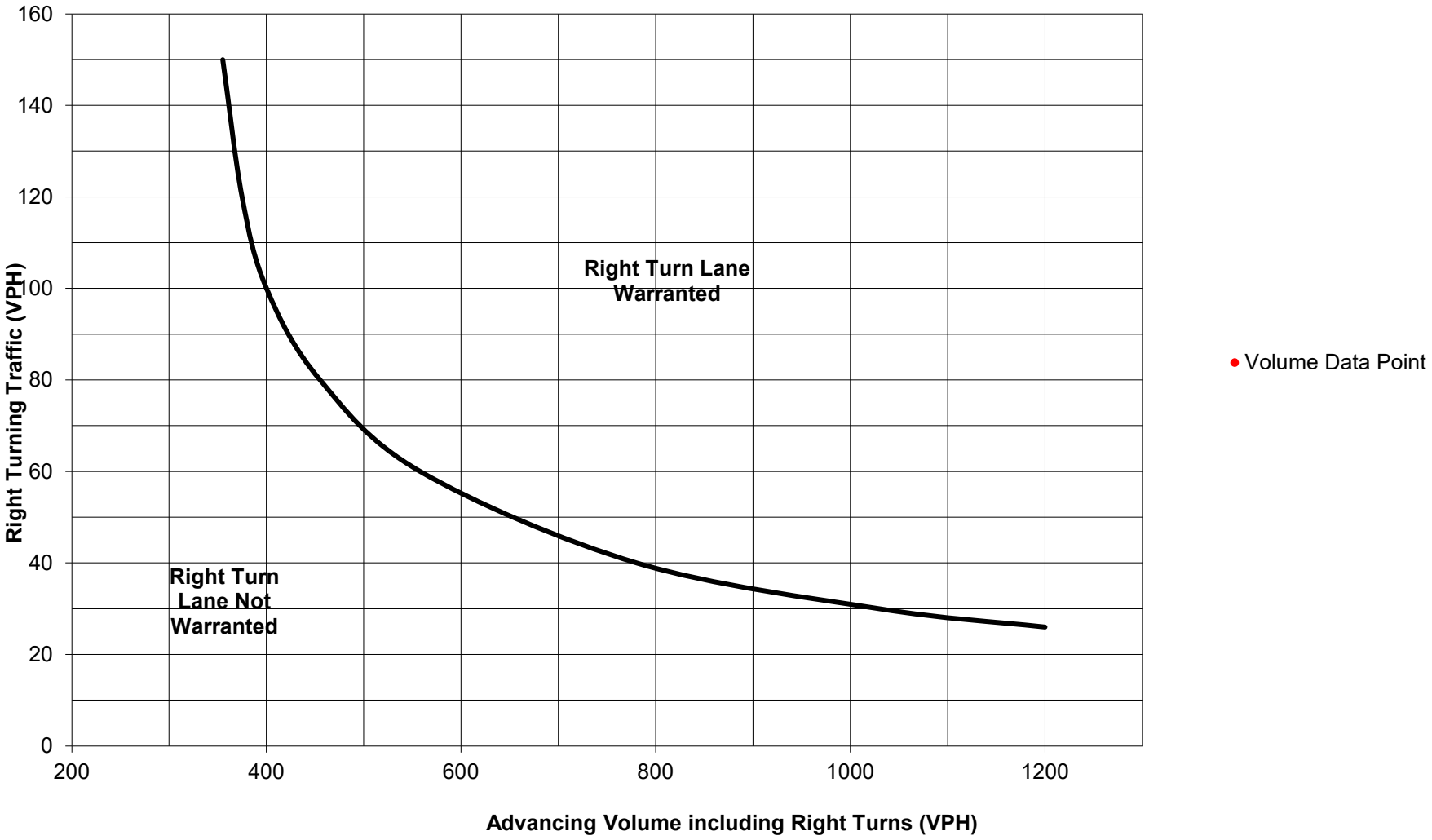
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Westbound Left Turn

Analysis Period:	2027 Opening Year (Build)	**Number of Approach Lanes:**	2
Design Hour:	SAT Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
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	32.0%	29
	Through	-	732	18.0%	930
	Right	No	40	2.0%	N/A
Opposing	Left	No	42	2.0%	N/A
	Through	-	659	19.0%	847
	Right	Yes	11	0.0%	11

Advancing Volume:	959
Opposing Volume:	858
Left Turn Volume:	29
% Left Turns in Advancing Volume:	3.02%

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?: Yes

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:	29
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: 1.0

PennDOT Publication 46, Exhibit 11-6

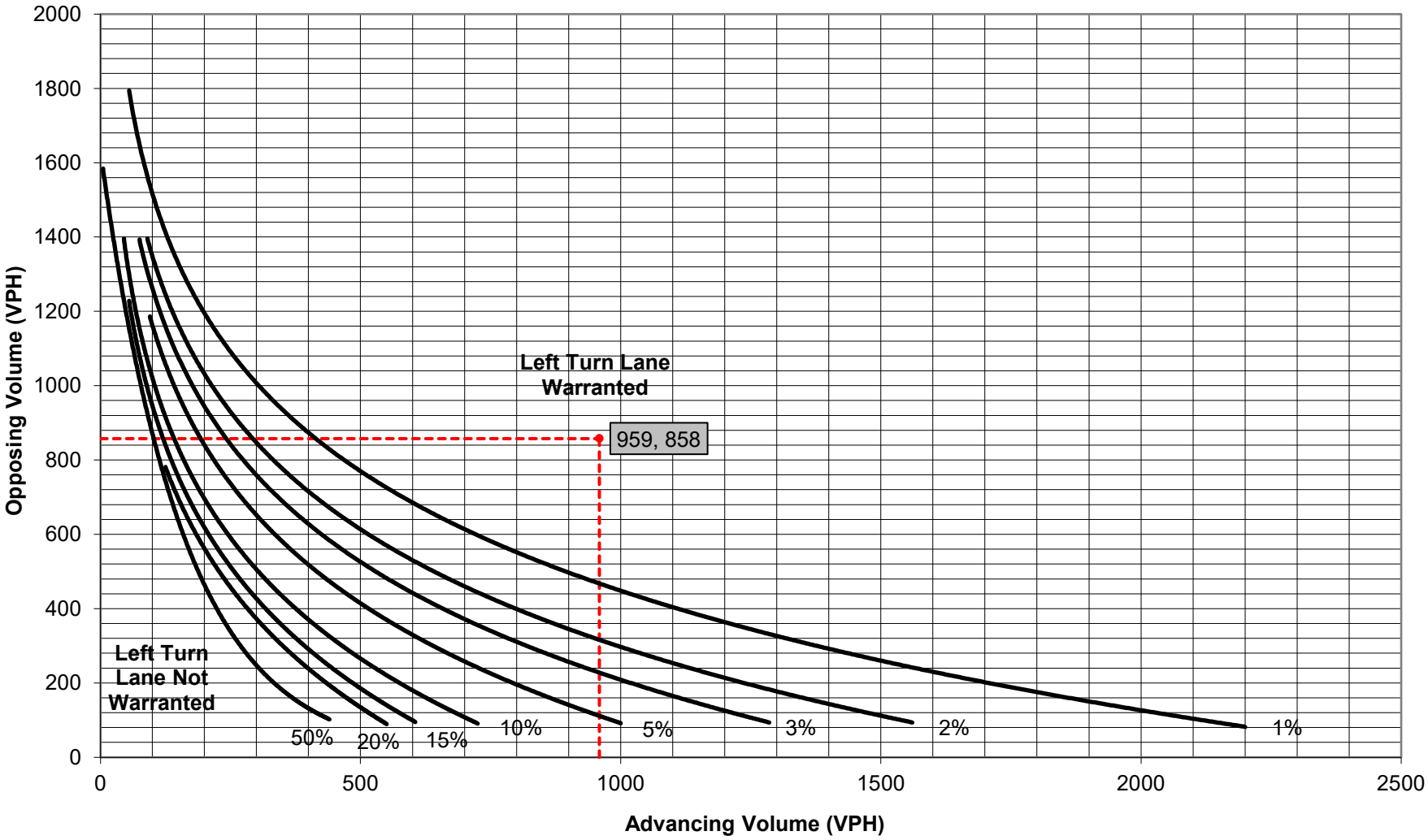
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	75	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	75	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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Westbound Right Turn

Analysis Period:	2027 Opening Year (Build)	**Number of Approach Lanes:**	2
Design Hour:	SAT Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
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	19	32.0%	N/A
	Through	-	732	18.0%	930
	Right	-	40	2.0%	42

Advancing Volume:	972
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 11

Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	42
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

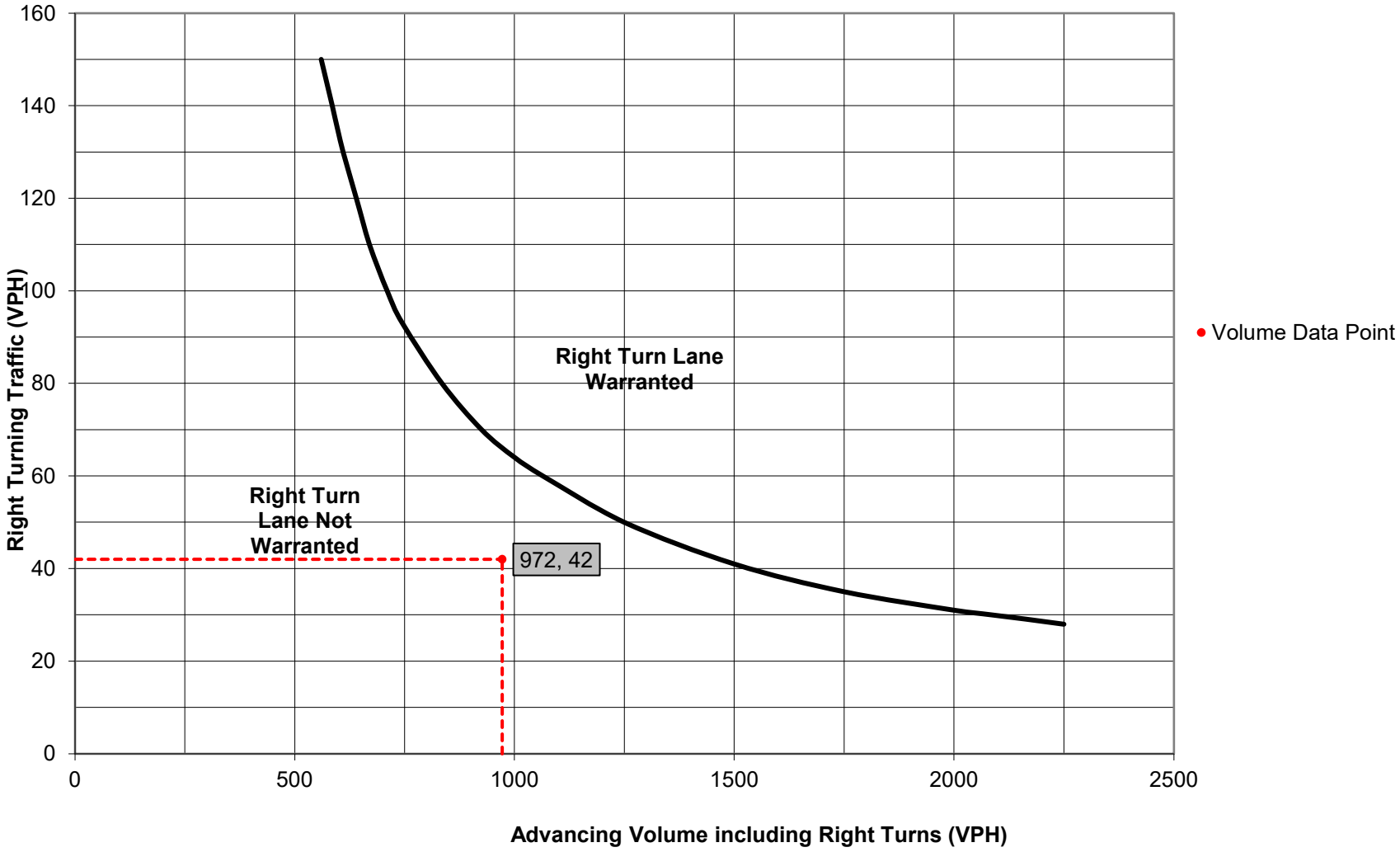
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Country Club Rd & Bernheisel Bridge Rd
Eastbound Left Turn

Analysis Period:	2027 Opening Year (Build)	**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	43	2.0%	45
	Through	-	0	0.0%	0
	Right	Yes	12	20.0%	16
Opposing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	0
	Right	No	0	0.0%	N/A

Advancing Volume: 61
Opposing Volume: 0
Left Turn Volume: 45
% Left Turns in Advancing Volume: 73.77%

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:	45
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

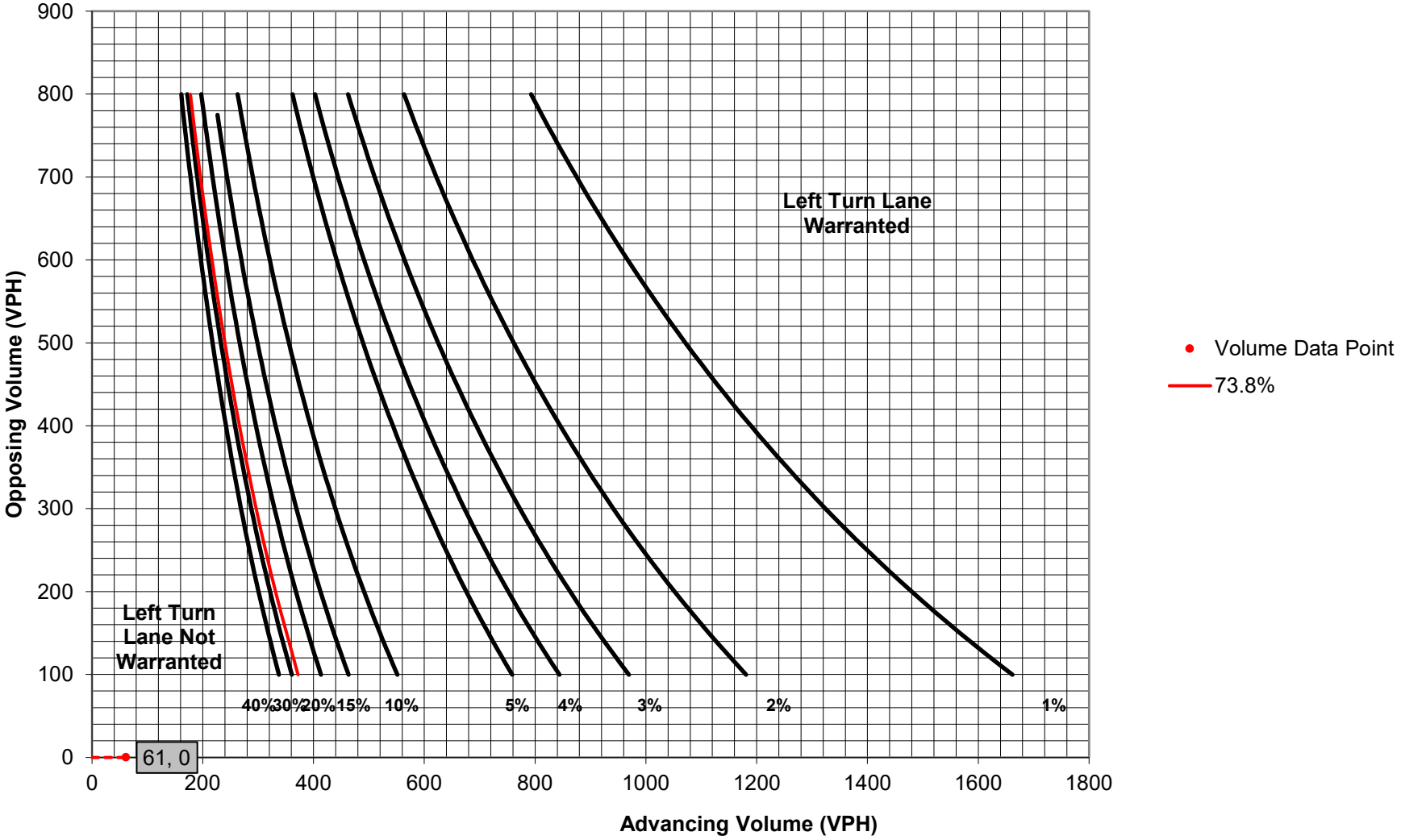
Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Country Club Rd & Bernheisel Bridge Rd / Eastbound Right Turn

Analysis Period:	2027 Opening Year (Build)	**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	43	2.0%	45
	Through	-	0	0.0%	0
	Right	-	12	20.0%	16

Advancing Volume: 61
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

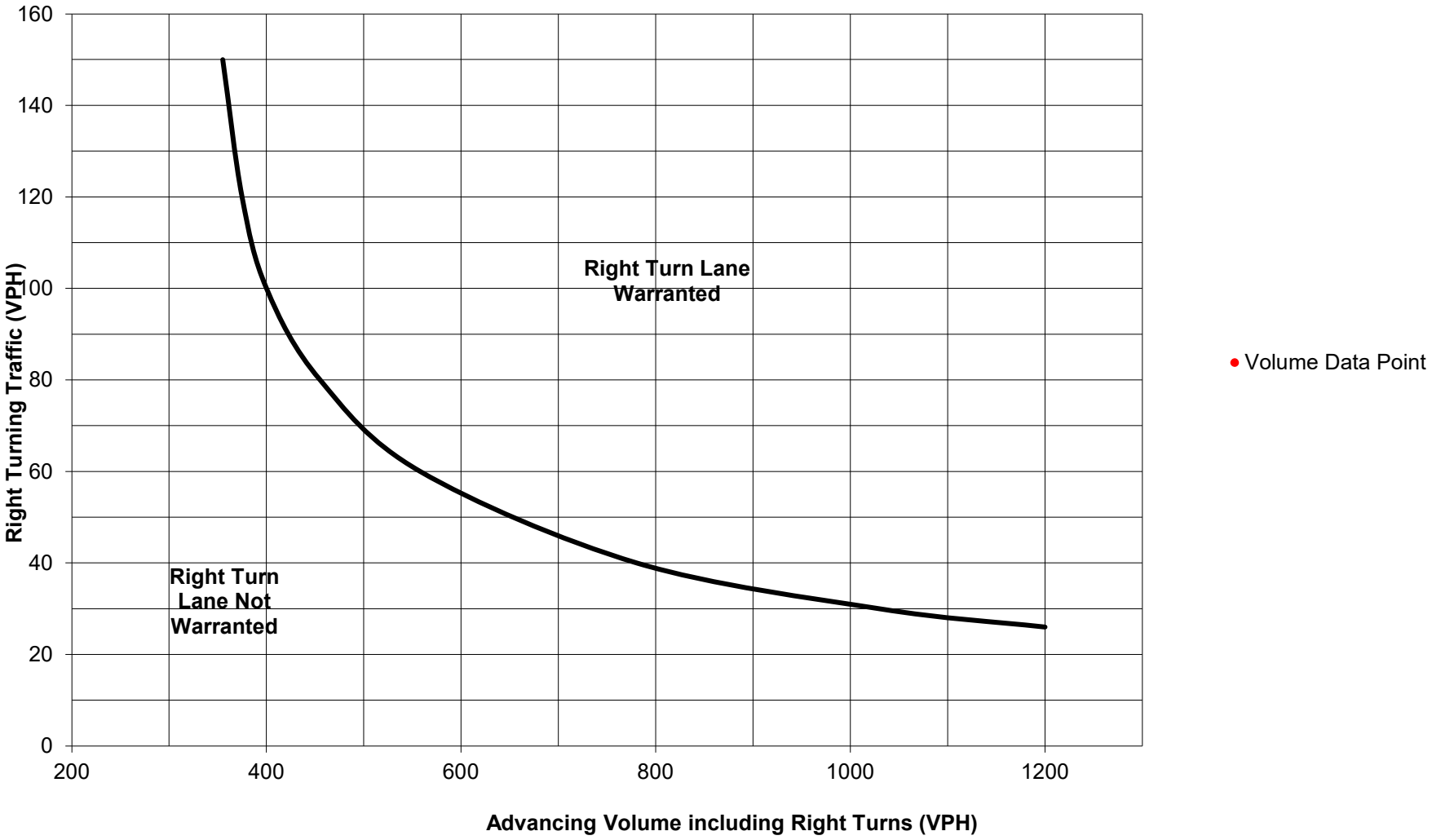
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Country Club Rd & Bernheisel Bridge Rd
Northbound Left Turn

Analysis Period:	2027 Opening Year (Build)	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
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	2.0%	29
	Through	-	32	6.0%	35
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	107	2.0%	111
	Right	Yes	155	2.0%	160

Advancing Volume:	64
Opposing Volume:	271
Left Turn Volume:	29
% Left Turns in Advancing Volume:	45.31%

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 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

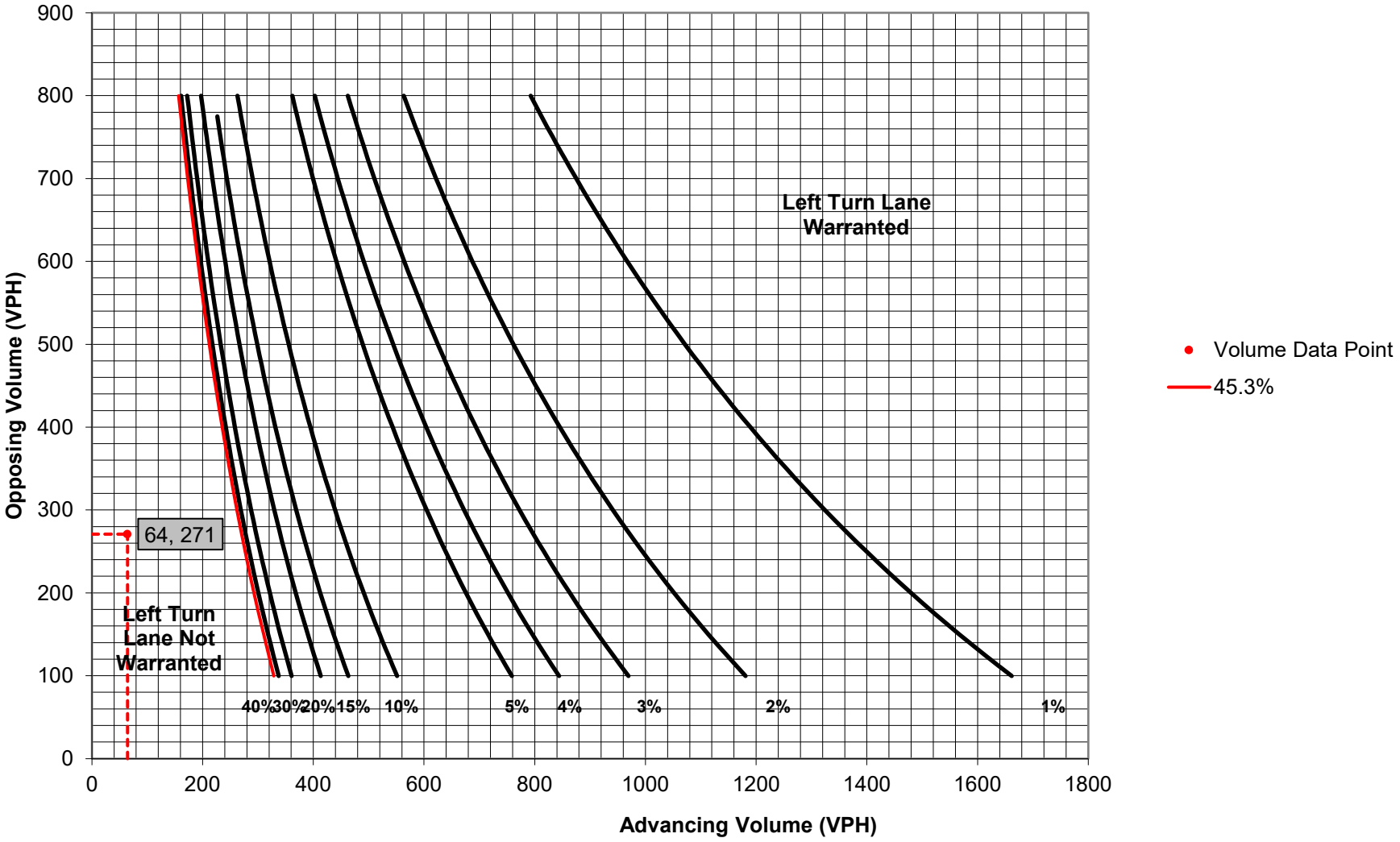
Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Country Club Rd & Bernheisel Bridge Rd / Southbound Right Turn

Analysis Period:	2027 Opening Year (Build)	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
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	0	0.0%	N/A
	Through	-	107	2.0%	111
	Right	-	155	2.0%	160

Advancing Volume: 271
Right Turn Volume: 160

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:	160
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

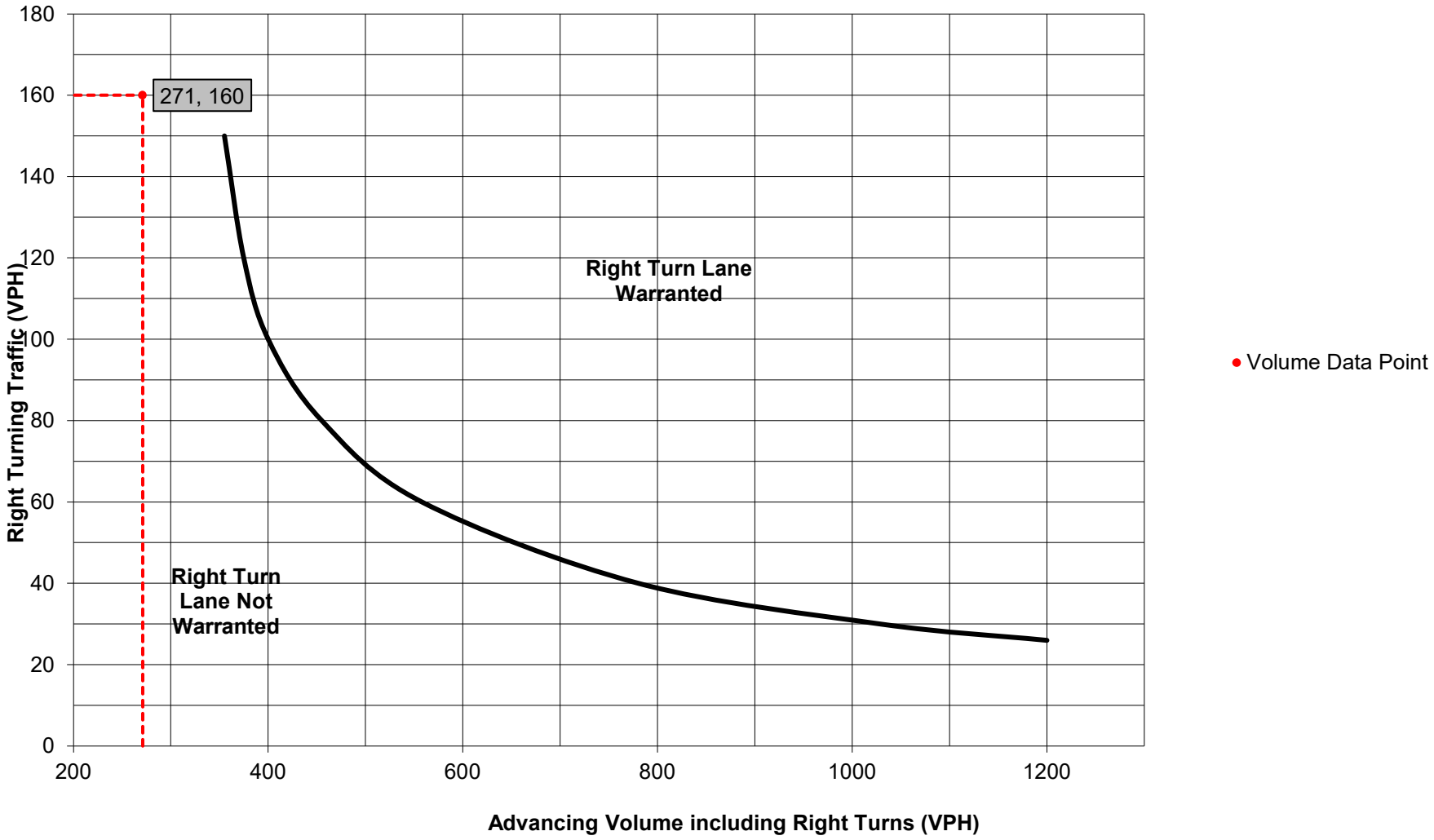
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Country Club Rd & Bernheisel Bridge Rd / Eastbound Left Turn

Analysis Period:	2027 Opening Year (Build)	**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	118	2.0%	122
	Through	-	0	0.0%	0
	Right	Yes	21	2.0%	22
Opposing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	0
	Right	No	0	0.0%	N/A

Advancing Volume:	144
Opposing Volume:	0
Left Turn Volume:	122
% Left Turns in Advancing Volume:	84.72%

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:	122
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

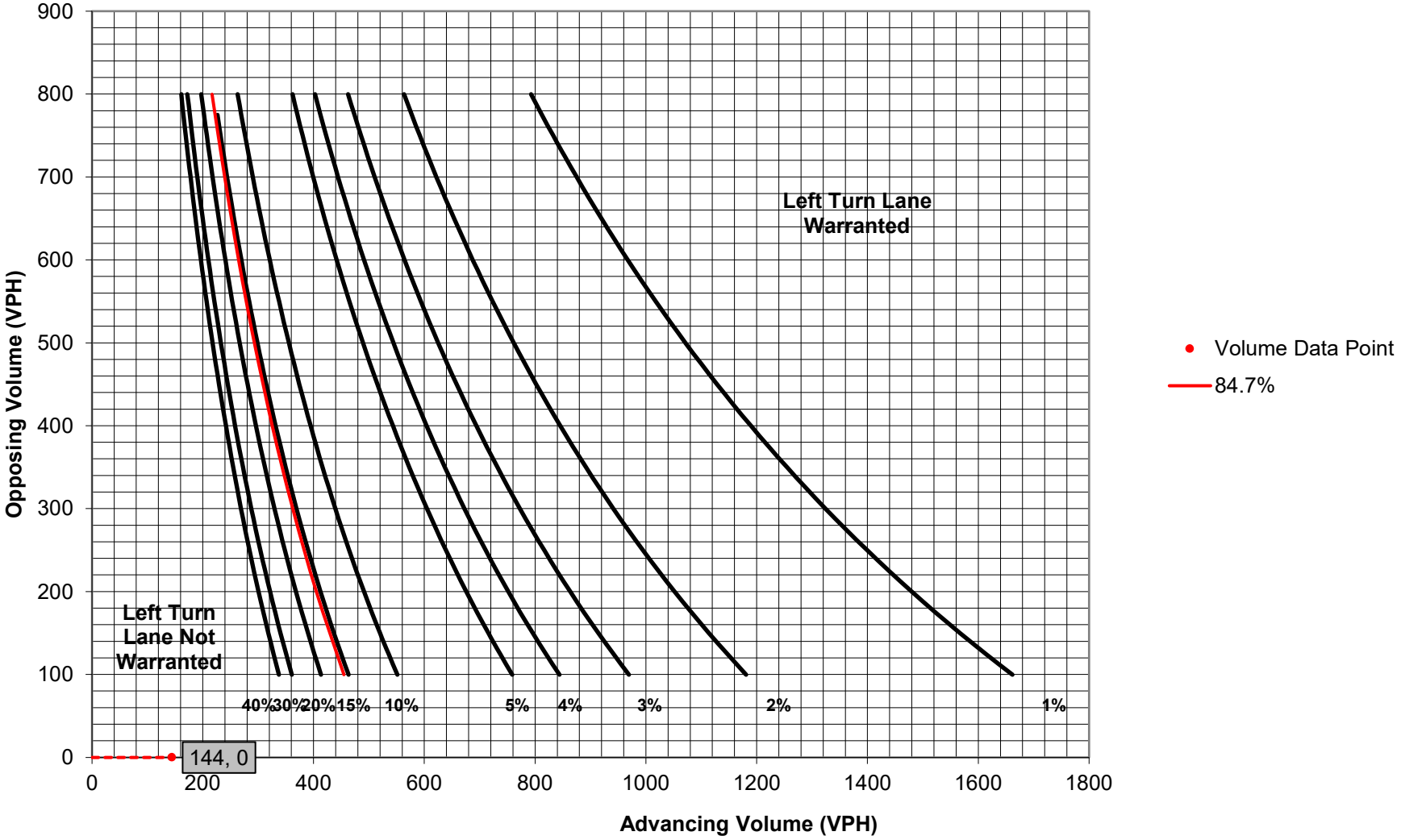
Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Country Club Rd & Bernheisel Bridge Rd / Eastbound Right Turn

Analysis Period:	2027 Opening Year (Build)	**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	118	2.0%	122
	Through	-	0	0.0%	0
	Right	-	21	2.0%	22

Advancing Volume:	144
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

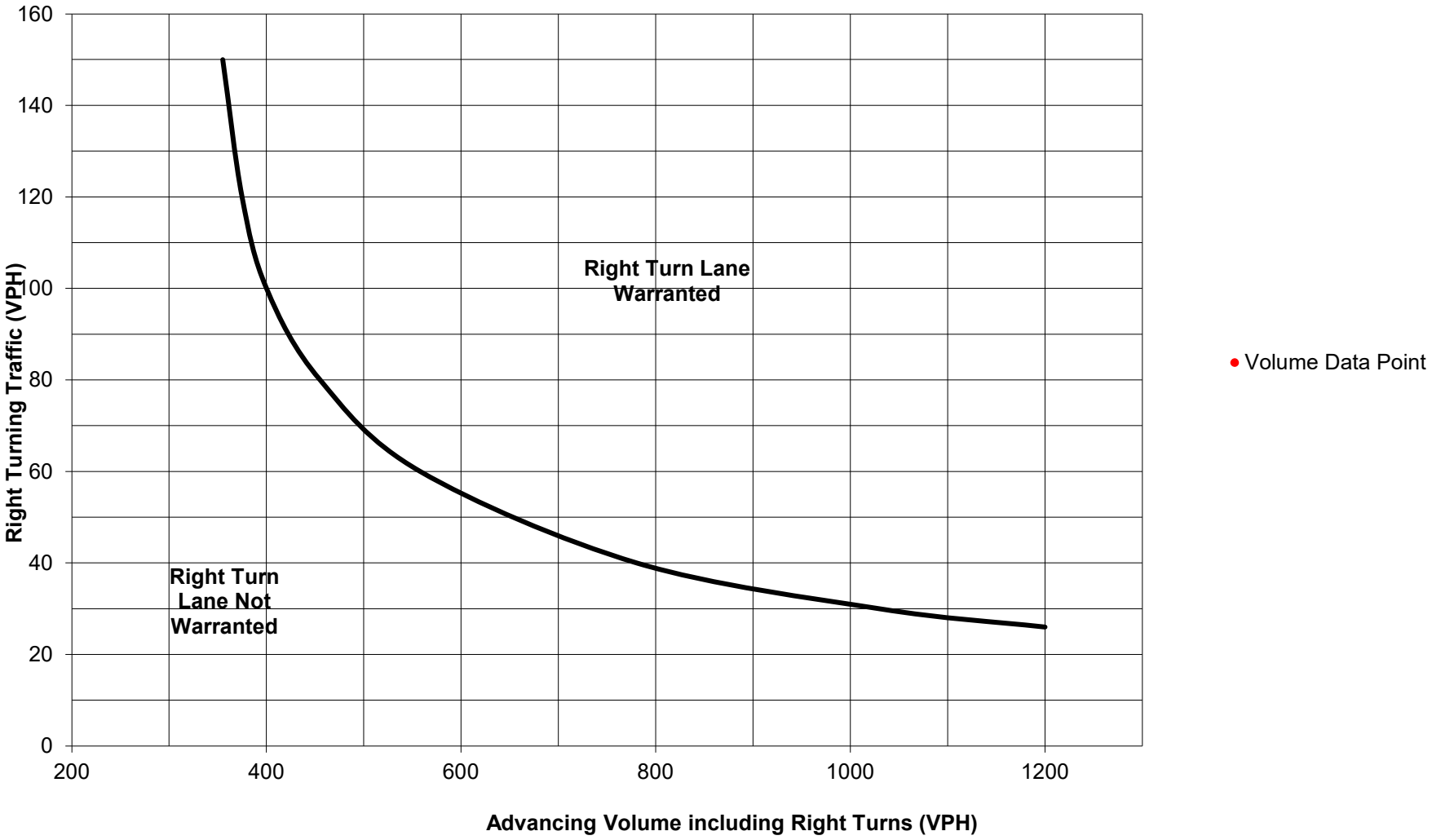
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Country Club Rd & Bernheisel Bridge Rd
Northbound Left Turn

Analysis Period:	2027 Opening Year (Build)	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
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	9	2.0%	10
	Through	-	90	2.0%	93
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	53	0.0%	53
	Right	Yes	39	13.0%	47

Advancing Volume:	103
Opposing Volume:	100
Left Turn Volume:	10
% Left Turns in Advancing Volume:	9.71%

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:	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

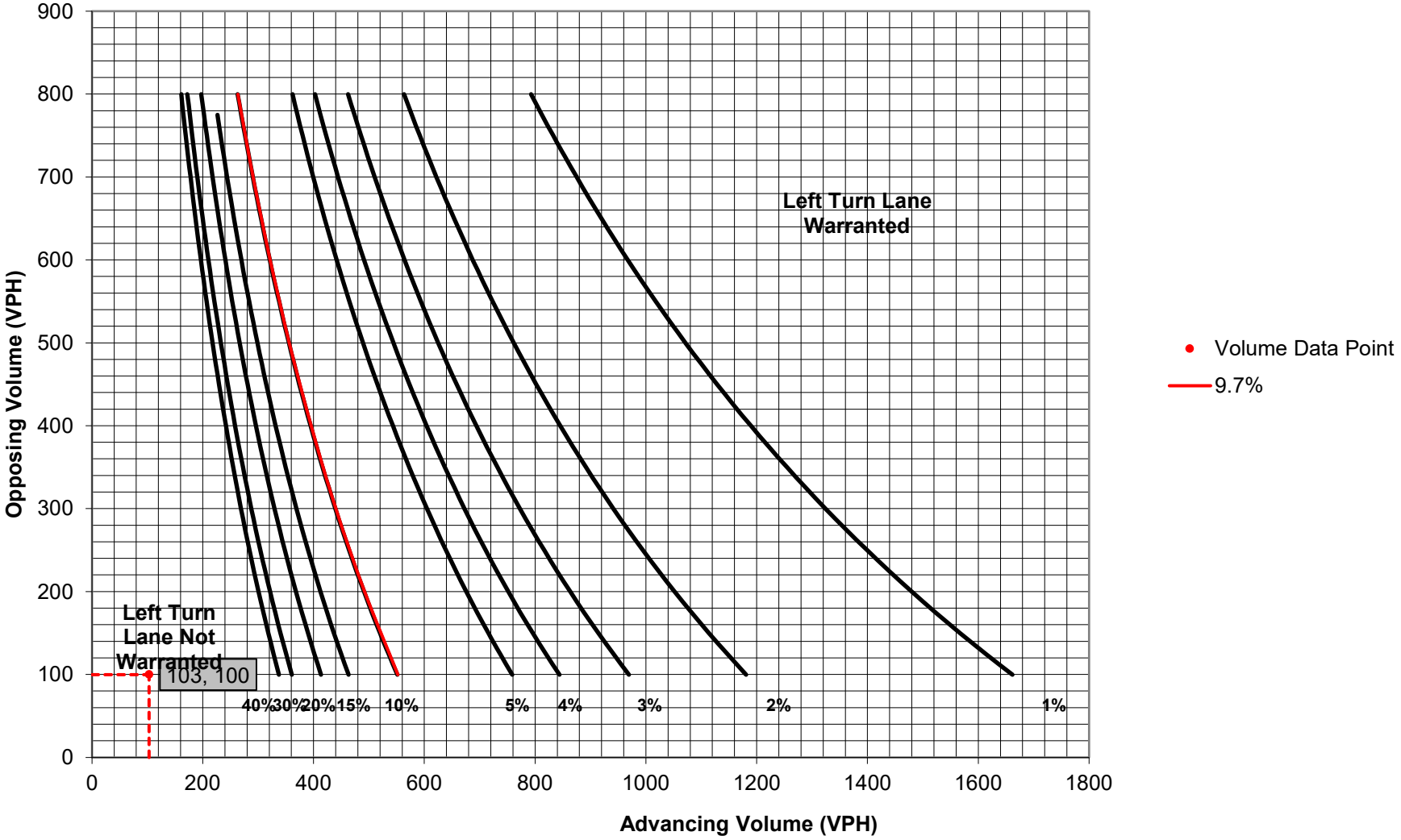
Left Turn Lane Storage Length, Condition A:	**N/A**	**Feet**
Condition B:	**N/A**	**Feet**
Condition C:	**N/A**	**Feet**
Required Left Turn Lane Storage Length:	**N/A**	**Feet**

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Country Club Rd & Bernheisel Bridge Rd / Southbound Right Turn

Analysis Period:	2027 Opening Year (Build)	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
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	0	0.0%	N/A
	Through	-	53	0.0%	53
	Right	-	39	13.0%	47

Advancing Volume:	100
Right Turn Volume:	47

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:	47
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

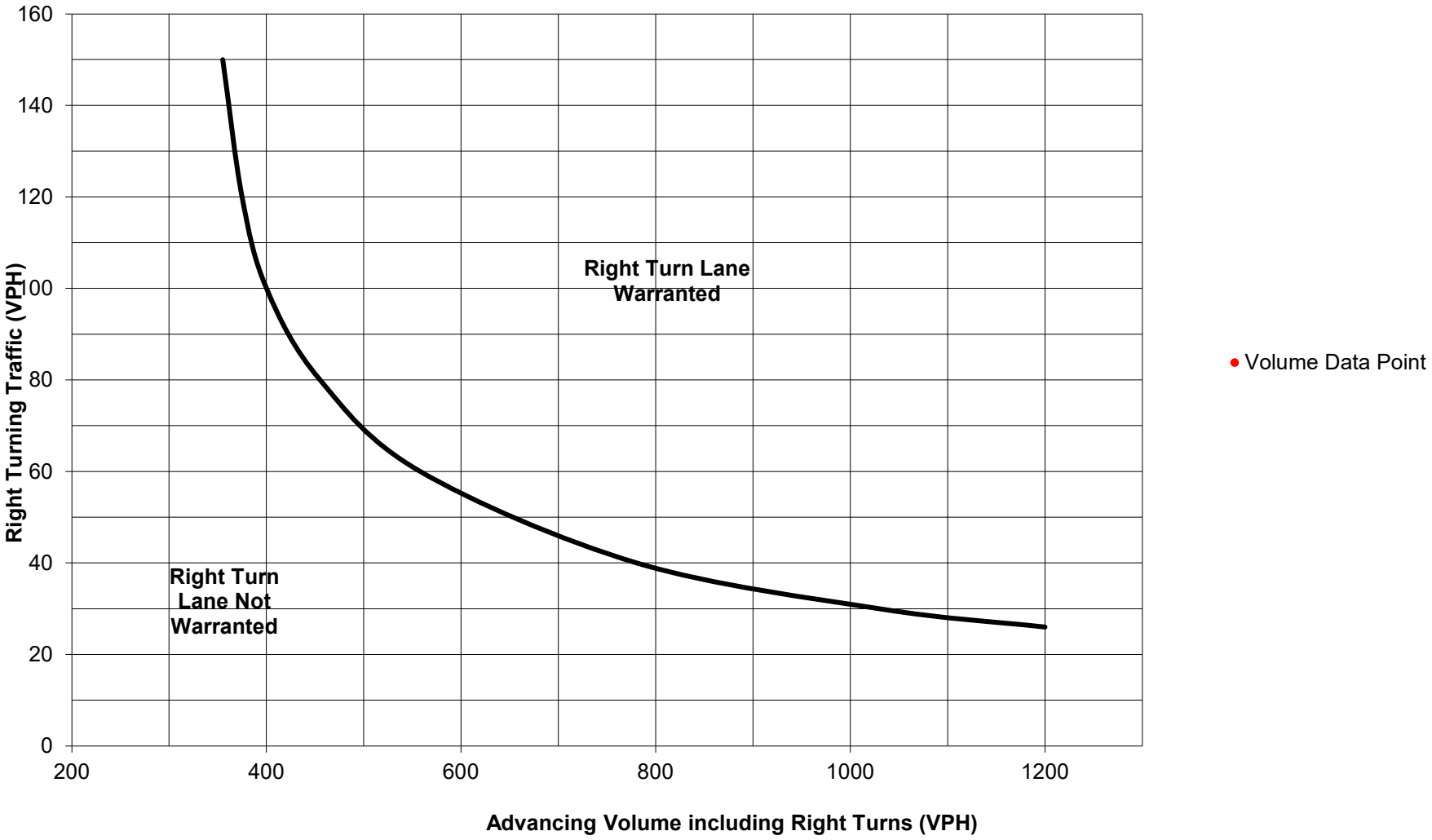
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Country Club Rd & Bernheisel Bridge Rd
Eastbound Left Turn

Analysis Period:	2027 Opening Year (Build)	**Number of Approach Lanes:**	1
Design Hour:	SAT 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	116	2.0%	120
	Through	-	0	0.0%	0
	Right	Yes	23	2.0%	24
Opposing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	0
	Right	No	0	0.0%	N/A

Advancing Volume:	144
Opposing Volume:	0
Left Turn Volume:	120
% Left Turns in Advancing Volume:	83.33%

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:	120
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

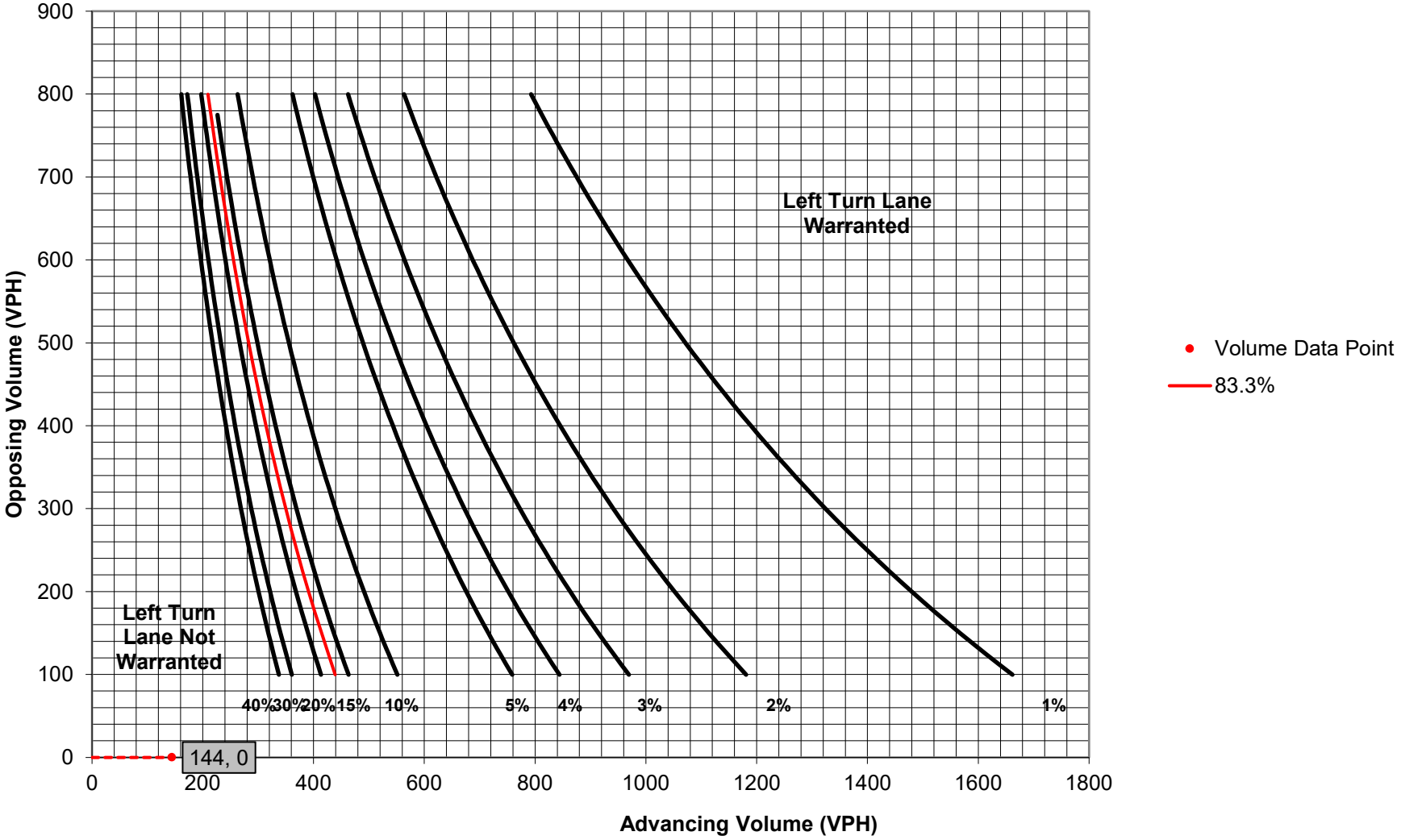
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Country Club Rd & Bernheisel Bridge Rd / Eastbound Right Turn

Analysis Period:	2027 Opening Year (Build)	**Number of Approach Lanes:**	1
Design Hour:	SAT 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	116	2.0%	120
	Through	-	0	0.0%	0
	Right	-	23	2.0%	24

Advancing Volume:	144
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

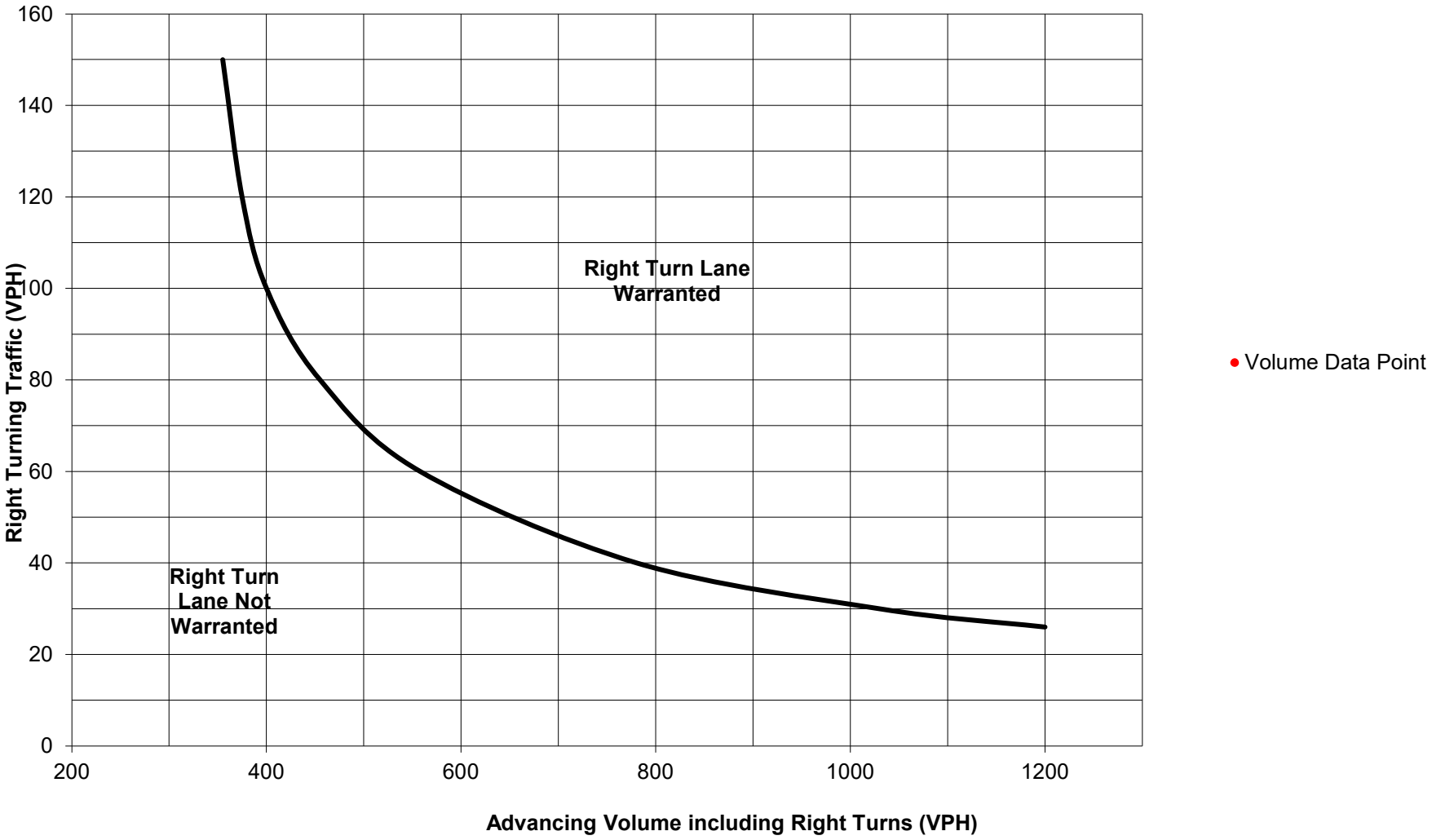
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Country Club Rd & Bernheisel Bridge Rd
Northbound Left Turn

Analysis Period:	2027 Opening Year (Build)	**Number of Approach Lanes:**	1
Design Hour:	SAT Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
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	7	2.0%	8
	Through	-	43	0.0%	43
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	49	4.0%	52
	Right	Yes	39	2.0%	41

Advancing Volume:	51
Opposing Volume:	93
Left Turn Volume:	8
% Left Turns in Advancing Volume:	15.69%

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:	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

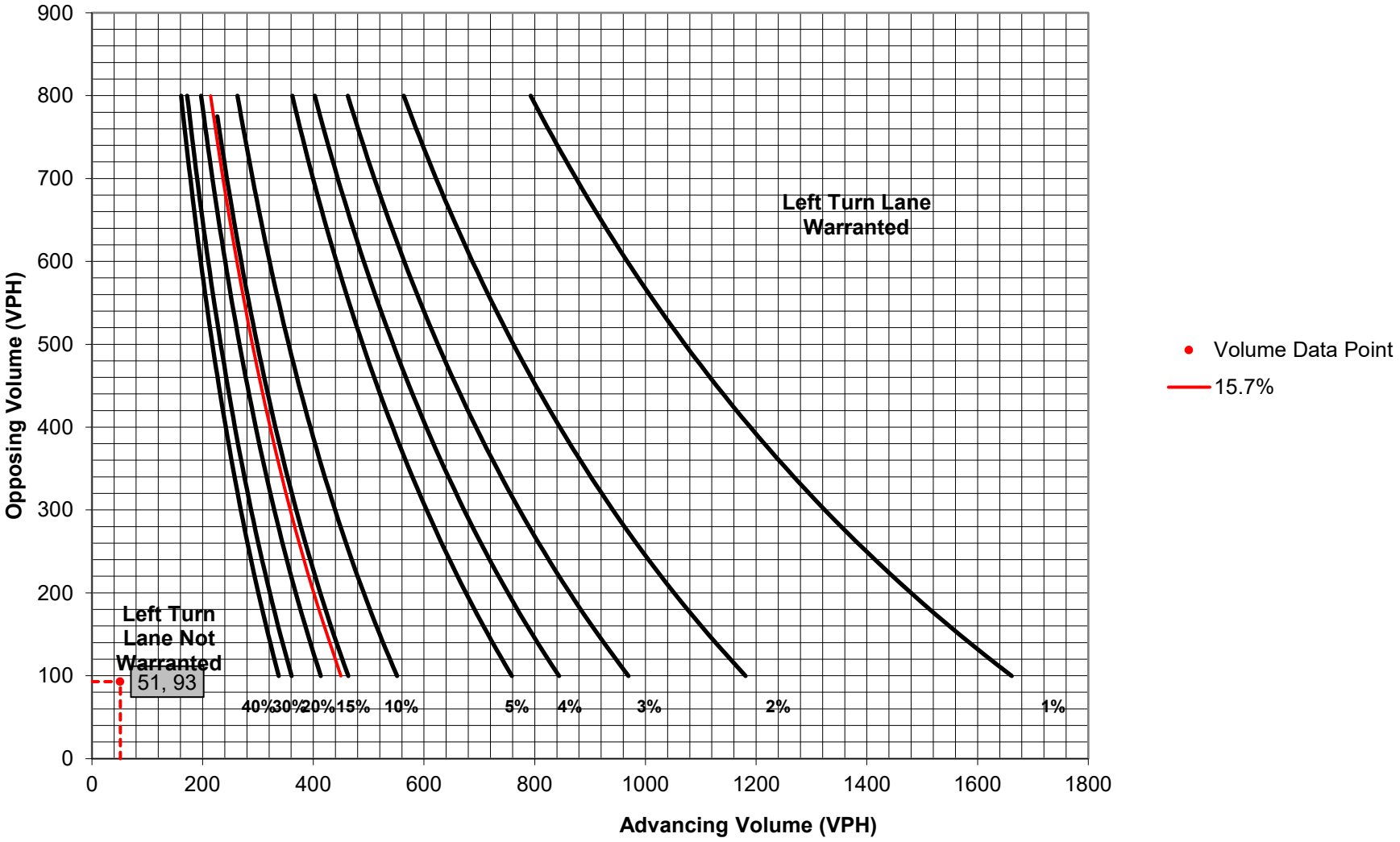
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Country Club Rd & Bernheisel Bridge Rd / Southbound Right Turn

Analysis Period:	2027 Opening Year (Build)	**Number of Approach Lanes:**	1
Design Hour:	SAT Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
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	0	0.0%	N/A
	Through	-	49	4.0%	52
	Right	-	39	2.0%	41

Advancing Volume:	93
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

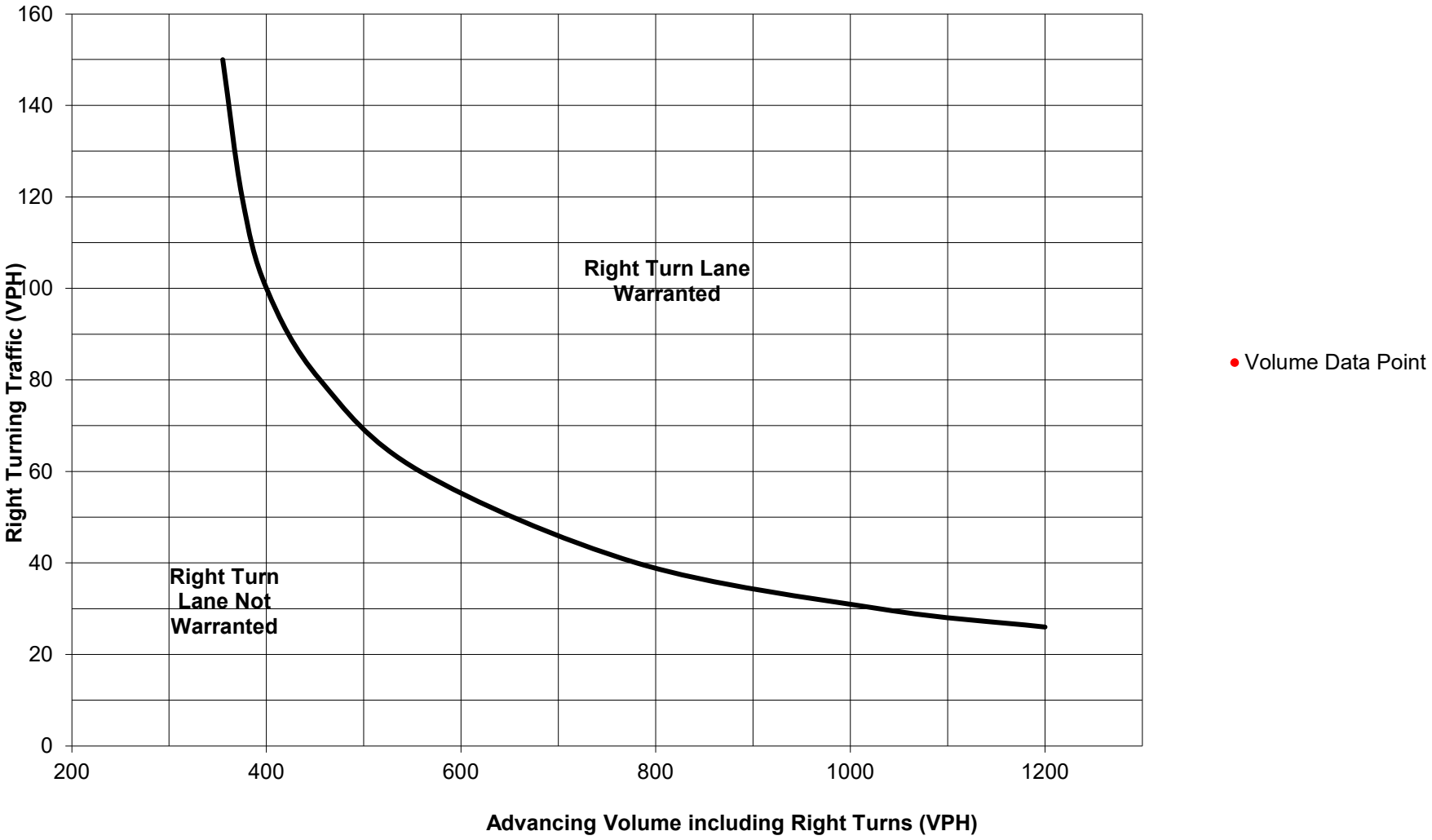
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Bernheisel Bridge Rd & Green Hill Rd
Northbound Right Turn

Analysis Period:	2027 Opening Year (Build)	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
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	0	0.0%	N/A
	Through	-	48	2.0%	50
	Right	-	26	13.0%	32

Advancing Volume: 82
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:	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

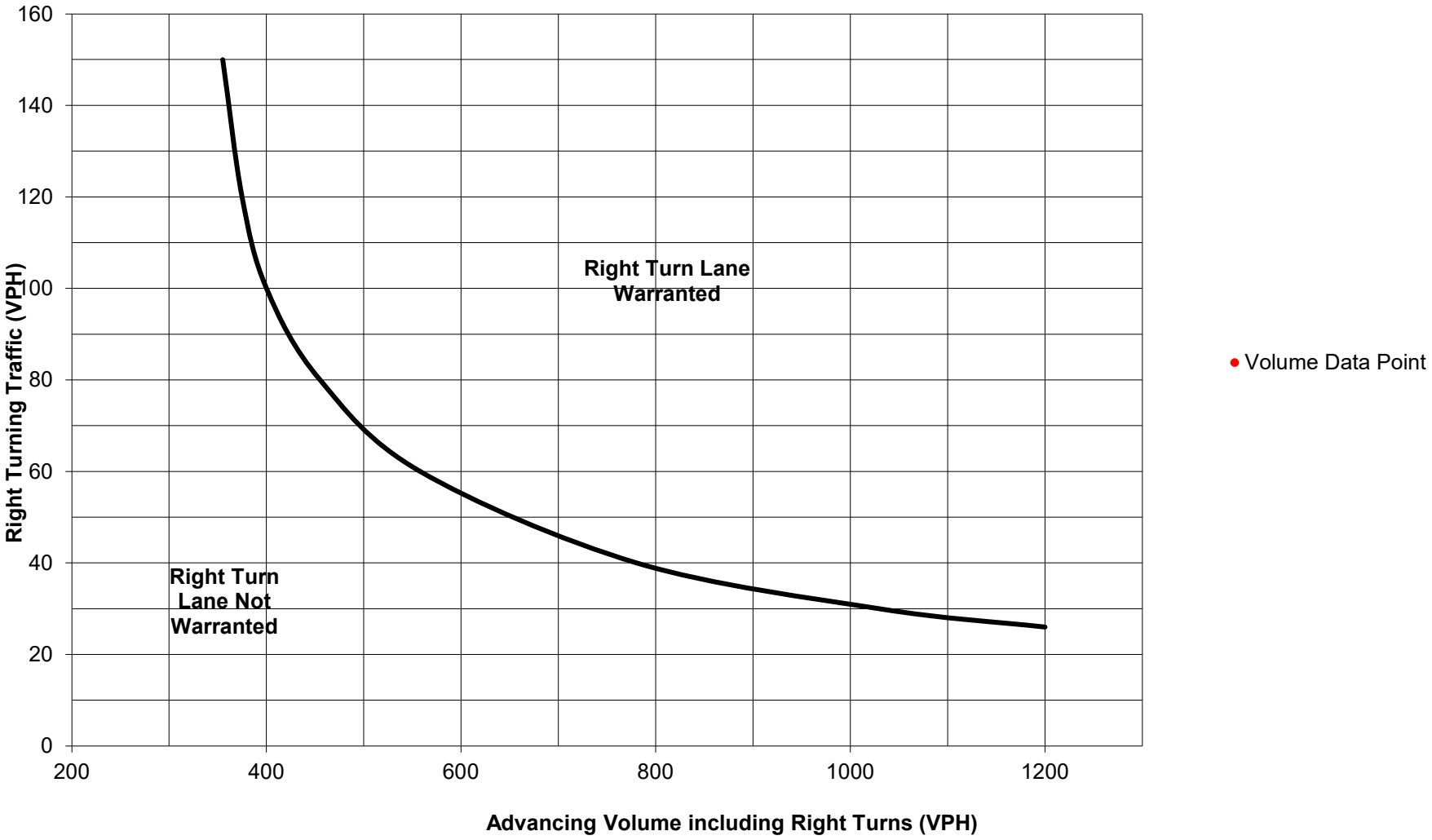
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Bernheisel Bridge Rd & Green Hill Rd
Southbound Left Turn

Analysis Period:	2027 Opening Year (Build)	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
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	83	2.0%	86
	Through	-	191	2.0%	197
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	48	2.0%	50
	Right	Yes	26	13.0%	32

Advancing Volume:	283
Opposing Volume:	82
Left Turn Volume:	86
% Left Turns in Advancing Volume:	30.39%

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:	Unsignalized
Design Hour Volume of Turning Lane:	86
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

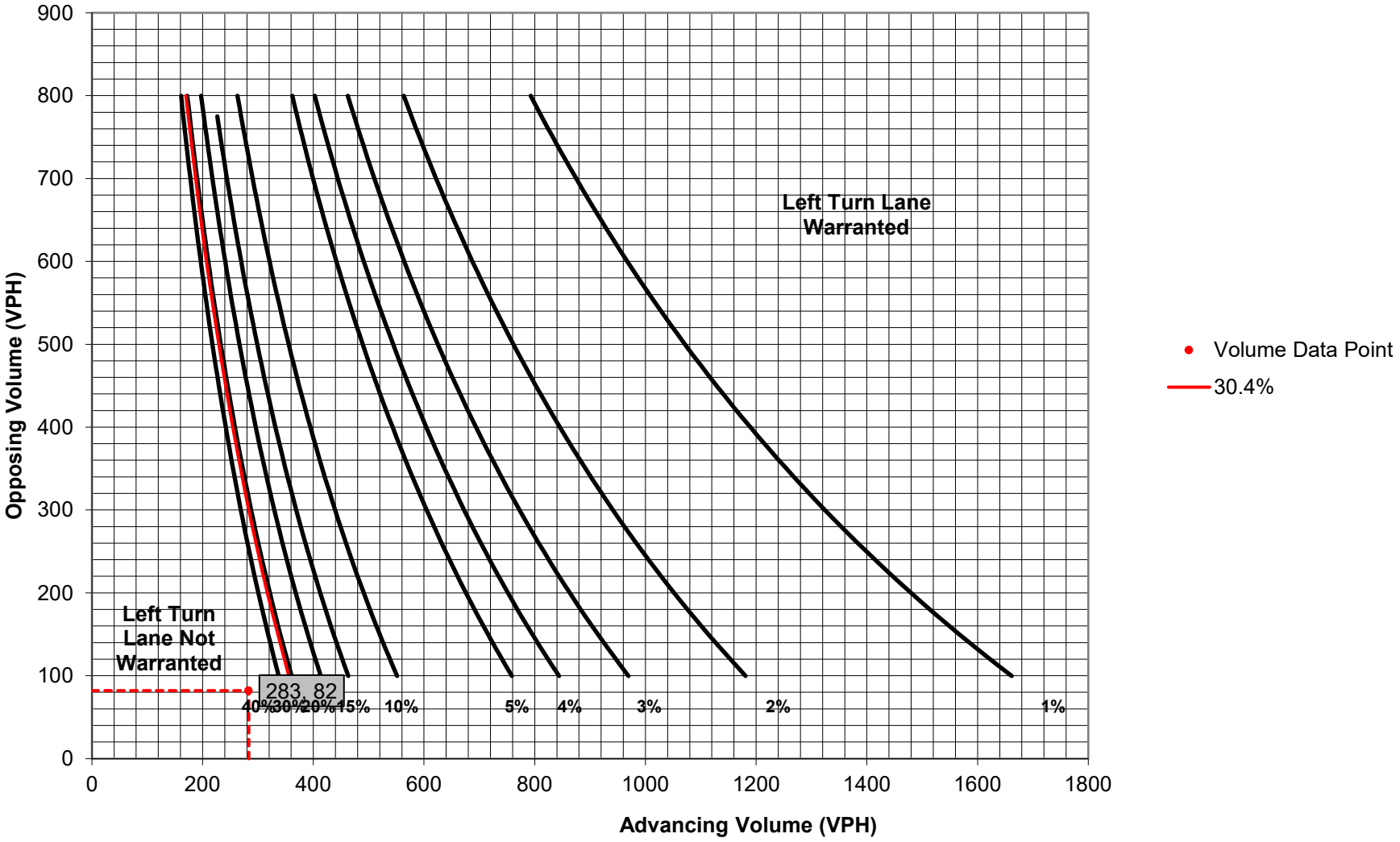
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Bernheisel Bridge Rd & Green Hill Rd
Westbound Left Turn

Analysis Period:	2027 Opening Year (Build)	**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	72	20.0%	94
	Through	-	0	0.0%	0
	Right	Yes	10	0.0%	10
Opposing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	0
	Right	No	0	0.0%	N/A

Advancing Volume: 104
Opposing Volume: 0
Left Turn Volume: 94
% Left Turns in Advancing Volume: 90.38%

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:	94
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

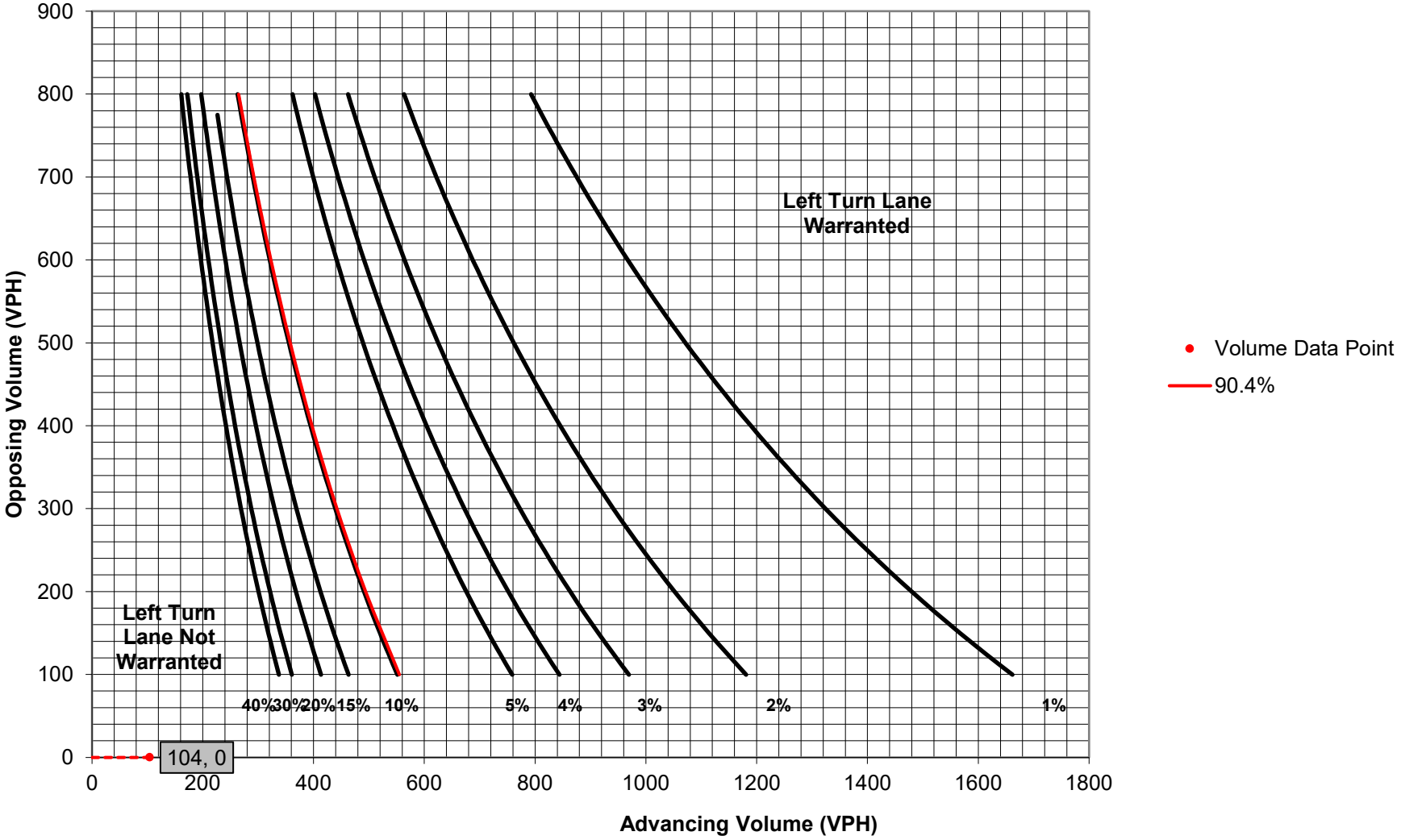
Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Bernheisel Bridge Rd & Green Hill Rd
Westbound Right Turn

Analysis Period:	2027 Opening Year (Build)	**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	72	20.0%	94
	Through	-	0	0.0%	0
	Right	-	10	0.0%	10

Advancing Volume:	104
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

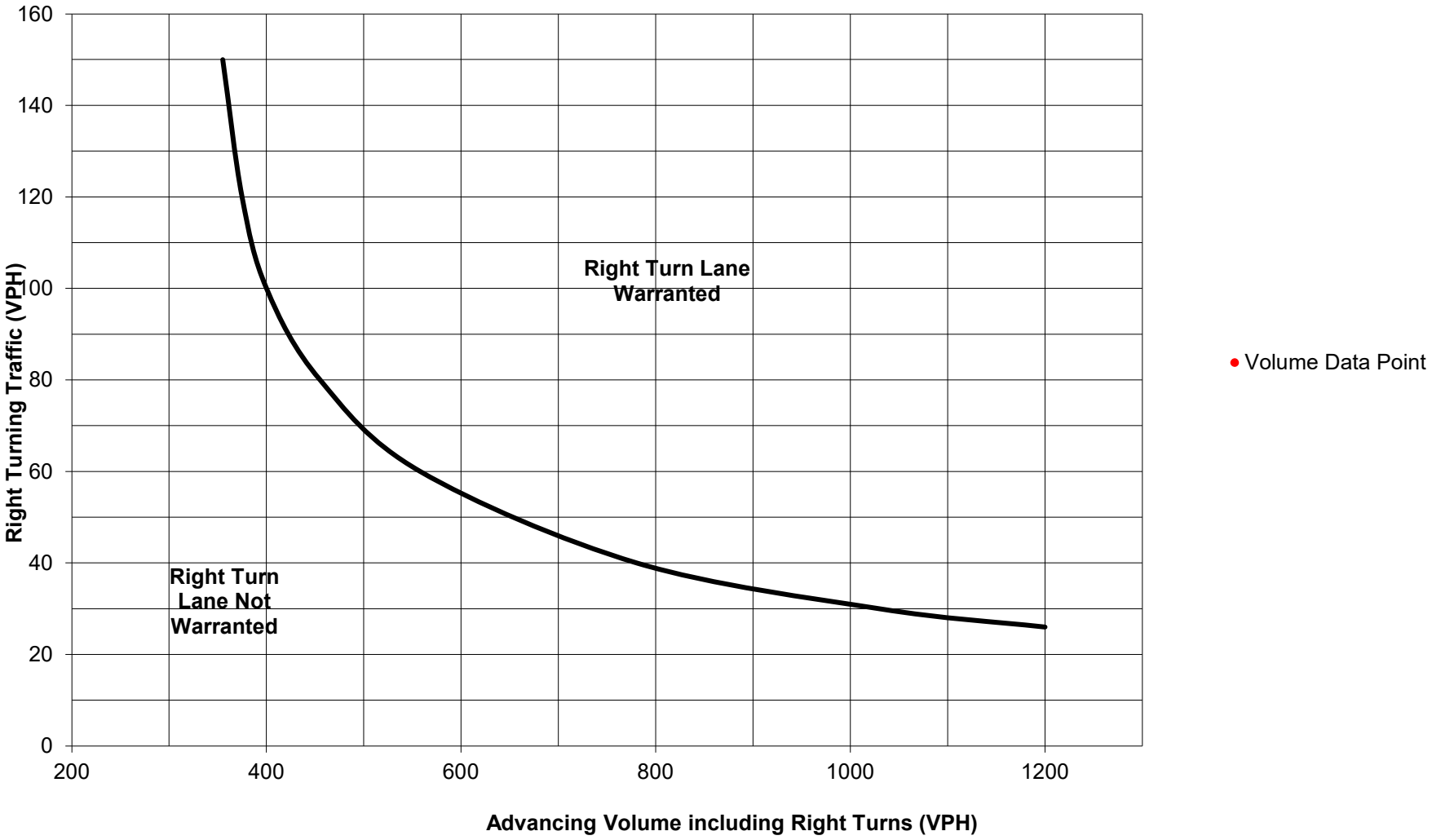
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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

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PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Bernheisel Bridge Rd & Green Hill Rd
Northbound Right Turn

Analysis Period:	2027 Opening Year (Build)	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
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	0	0.0%	N/A
	Through	-	149	2.0%	154
	Right	-	58	2.0%	60

Advancing Volume: 214
Right Turn Volume: 60

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:	60
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

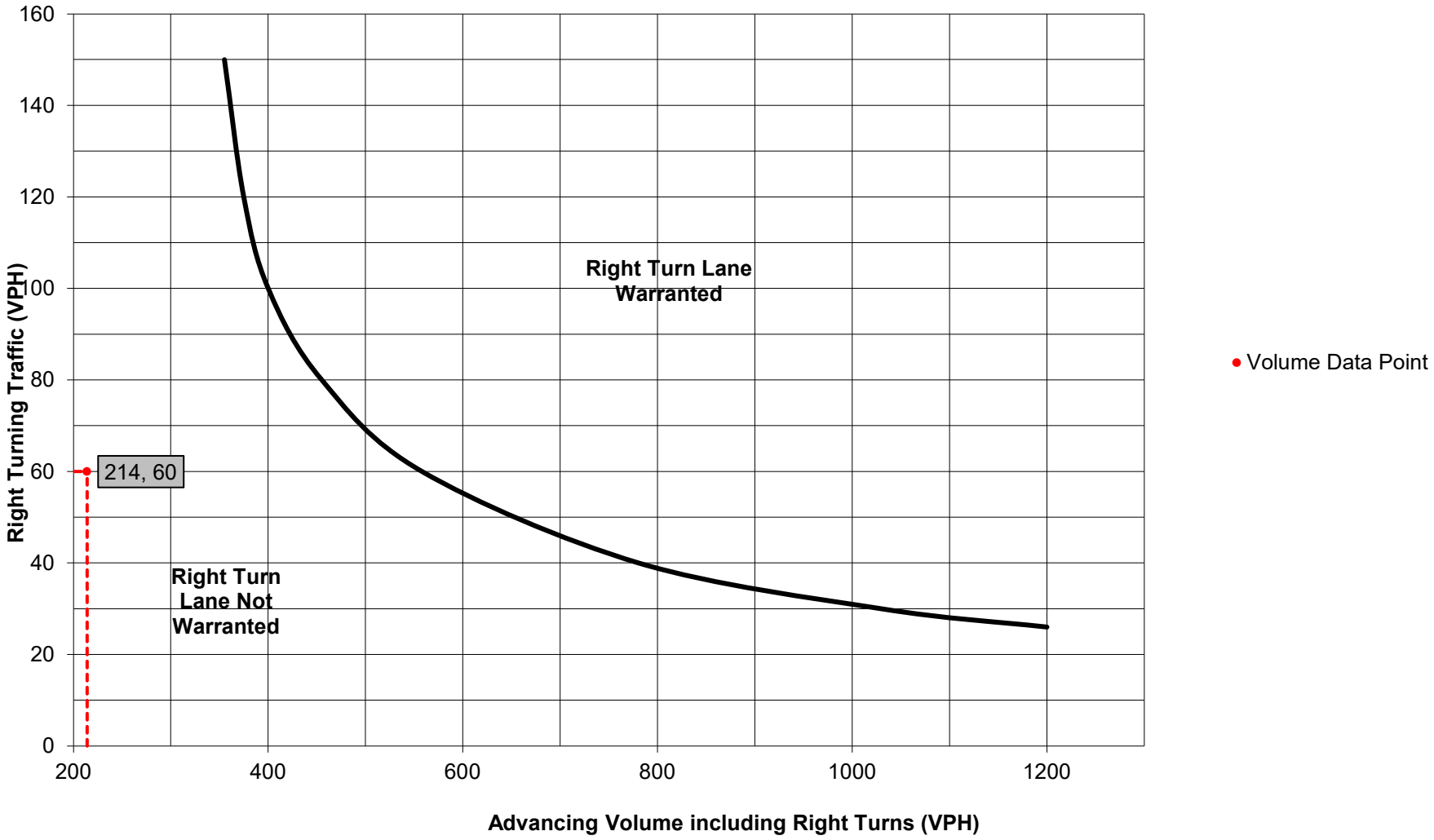
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Bernheisel Bridge Rd & Green Hill Rd
Southbound Left Turn

Analysis Period:	2027 Opening Year (Build)	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
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	39	0.0%	39
	Through	-	75	3.0%	79
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	149	2.0%	154
	Right	Yes	58	2.0%	60

Advancing Volume:	118
Opposing Volume:	214
Left Turn Volume:	39
% Left Turns in Advancing Volume:	33.05%

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:	Unsignalized
Design Hour Volume of Turning Lane:	39
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

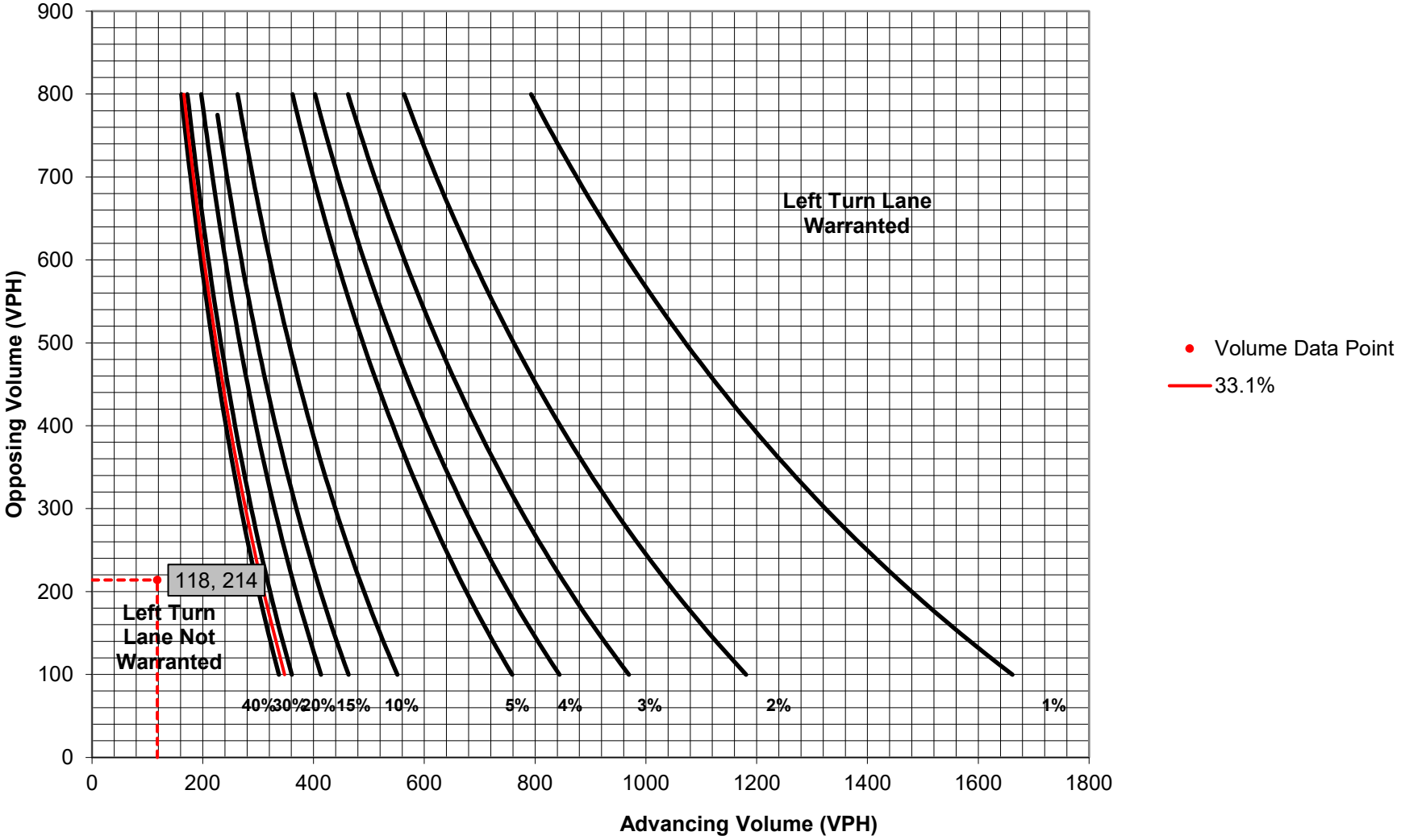
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Bernheisel Bridge Rd & Green Hill Rd
Westbound Left Turn

Analysis Period:	2027 Opening Year (Build)	**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	13.0%	21
	Through	-	0	0.0%	0
	Right	Yes	75	0.0%	75
Opposing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	0
	Right	No	0	0.0%	N/A

Advancing Volume:	96
Opposing Volume:	0
Left Turn Volume:	21
% Left Turns in Advancing Volume:	21.88%

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:	21
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

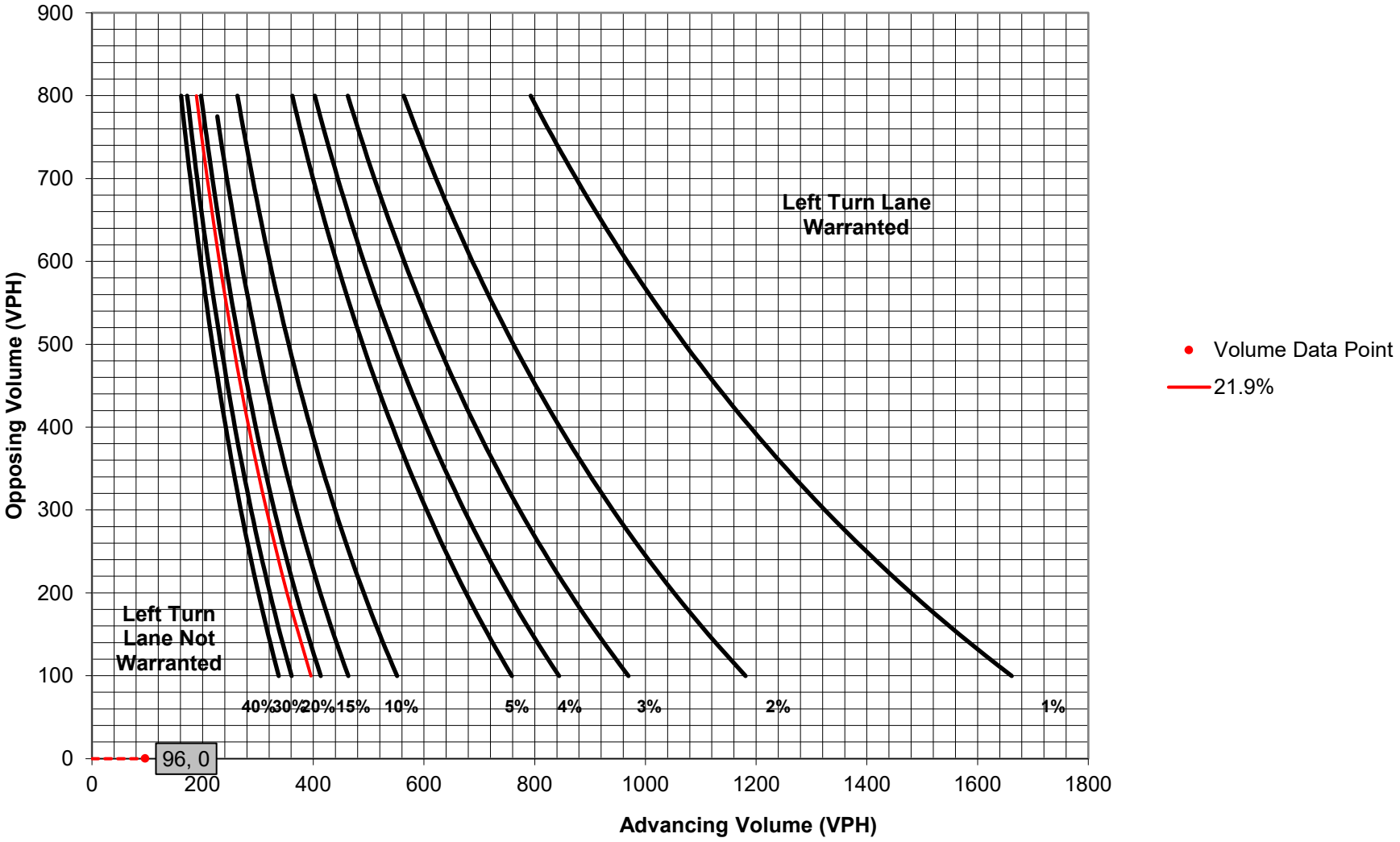
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Bernheisel Bridge Rd & Green Hill Rd
Westbound Right Turn

Analysis Period:	2027 Opening Year (Build)	**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	17	13.0%	21
	Through	-	0	0.0%	0
	Right	-	75	0.0%	75

Advancing Volume:	96
Right Turn Volume:	75

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:	75
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

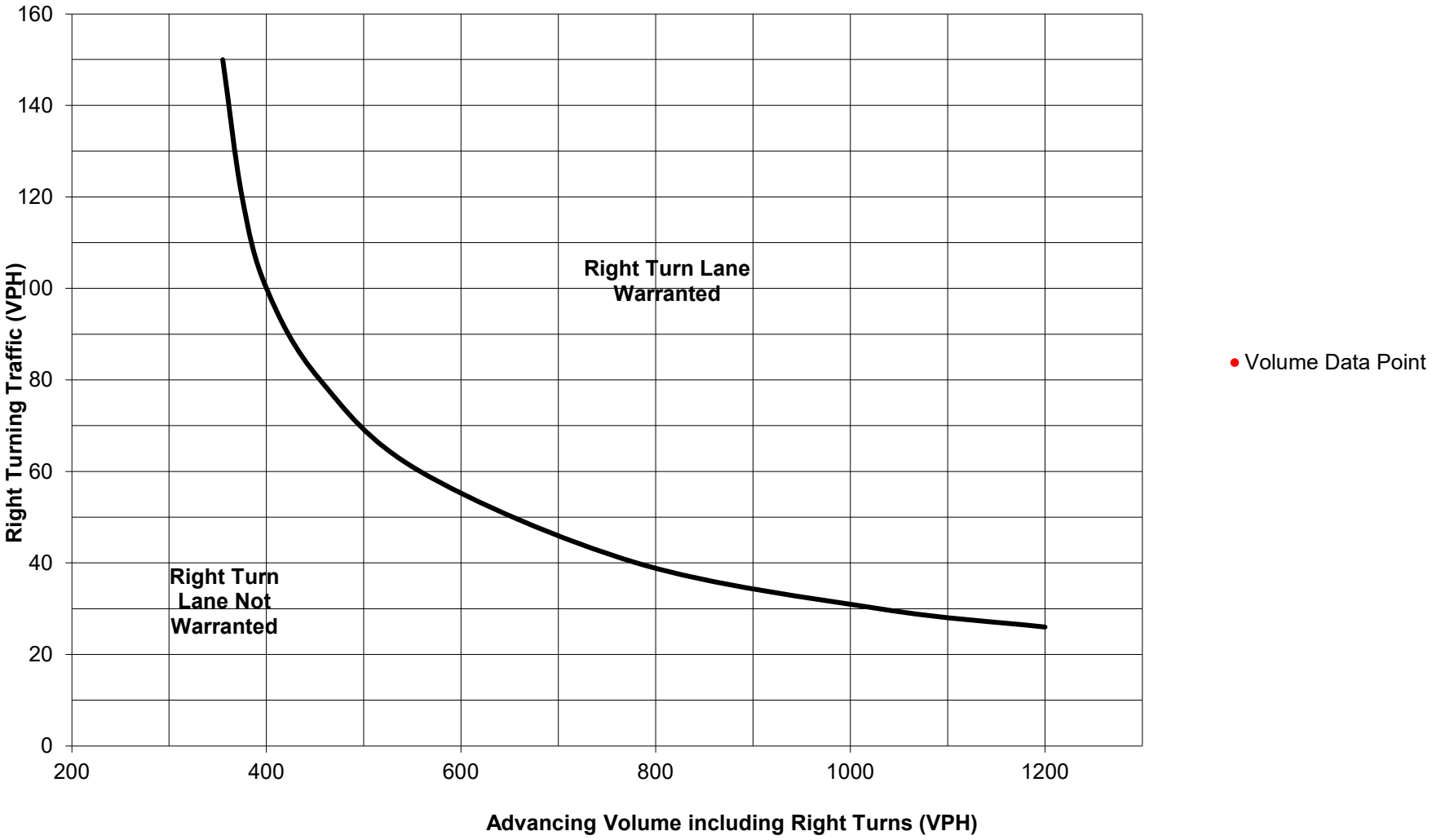
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Bernheisel Bridge Rd & Green Hill Rd / Northbound Right Turn

Analysis Period:	2027 Opening Year (Build)	**Number of Approach Lanes:**	1
Design Hour:	SAT Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
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	0	0.0%	N/A
	Through	-	104	2.0%	108
	Right	-	54	2.0%	56

Advancing Volume:	164
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

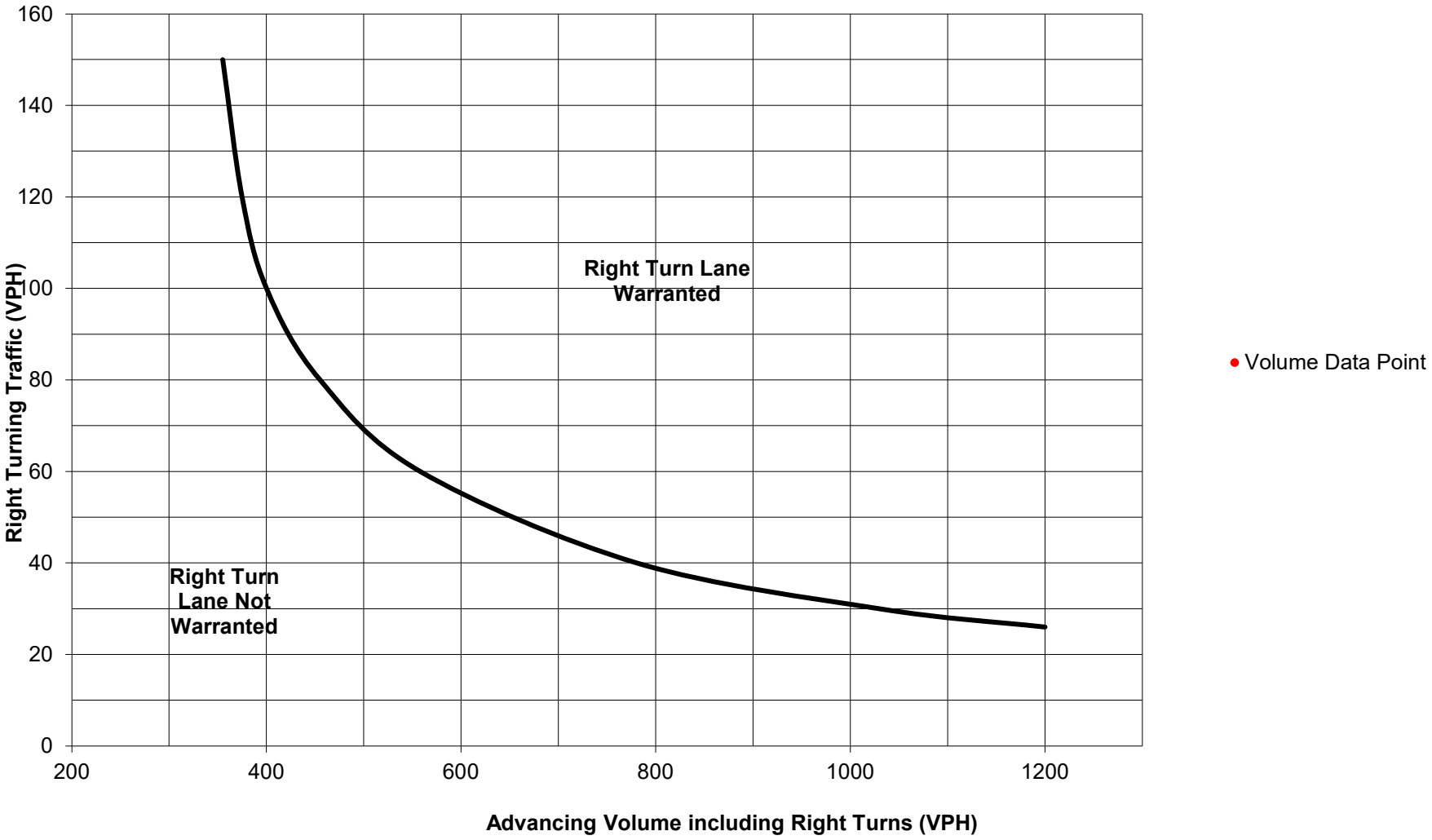
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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)



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PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Bernheisel Bridge Rd & Green Hill Rd
Southbound Left Turn

Analysis Period:	2027 Opening Year (Build)	**Number of Approach Lanes:**	1
Design Hour:	SAT Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
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	24	0.0%	24
	Through	-	74	3.0%	78
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	104	2.0%	108
	Right	Yes	54	2.0%	56

Advancing Volume:	102
Opposing Volume:	164
Left Turn Volume:	24
% Left Turns in Advancing Volume:	23.53%

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:	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

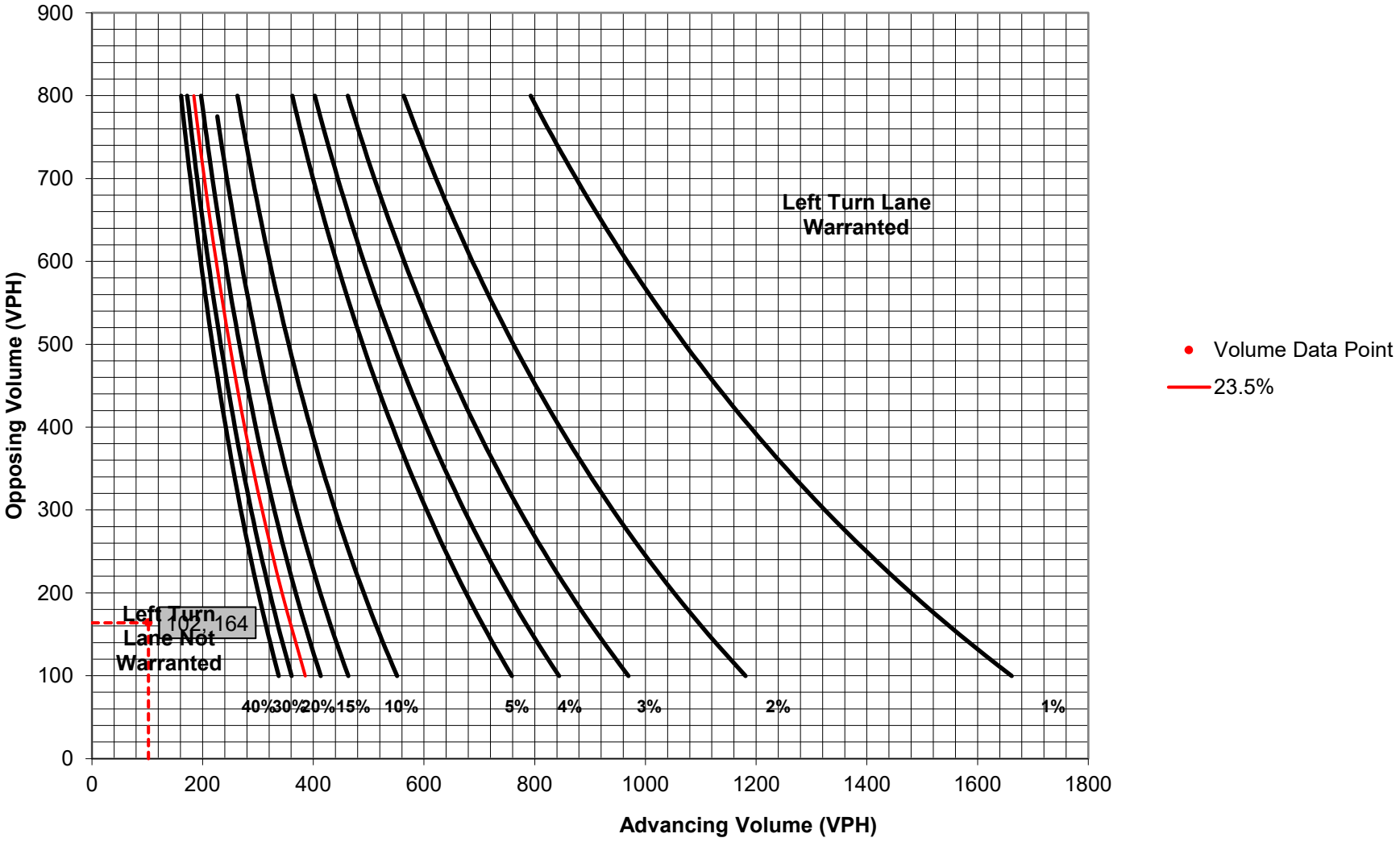
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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)



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Municipality:	Middlesex Township	**Analysis Date:**	2/7/2025
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PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Bernheisel Bridge Rd & Green Hill Rd
Westbound Left Turn

Analysis Period:	2027 Opening Year (Build)	**Number of Approach Lanes:**	1
Design Hour:	SAT 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	14	2.0%	15
	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:	61
Opposing Volume:	0
Left Turn Volume:	15
% Left Turns in Advancing Volume:	24.59%

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?: #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:	15
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

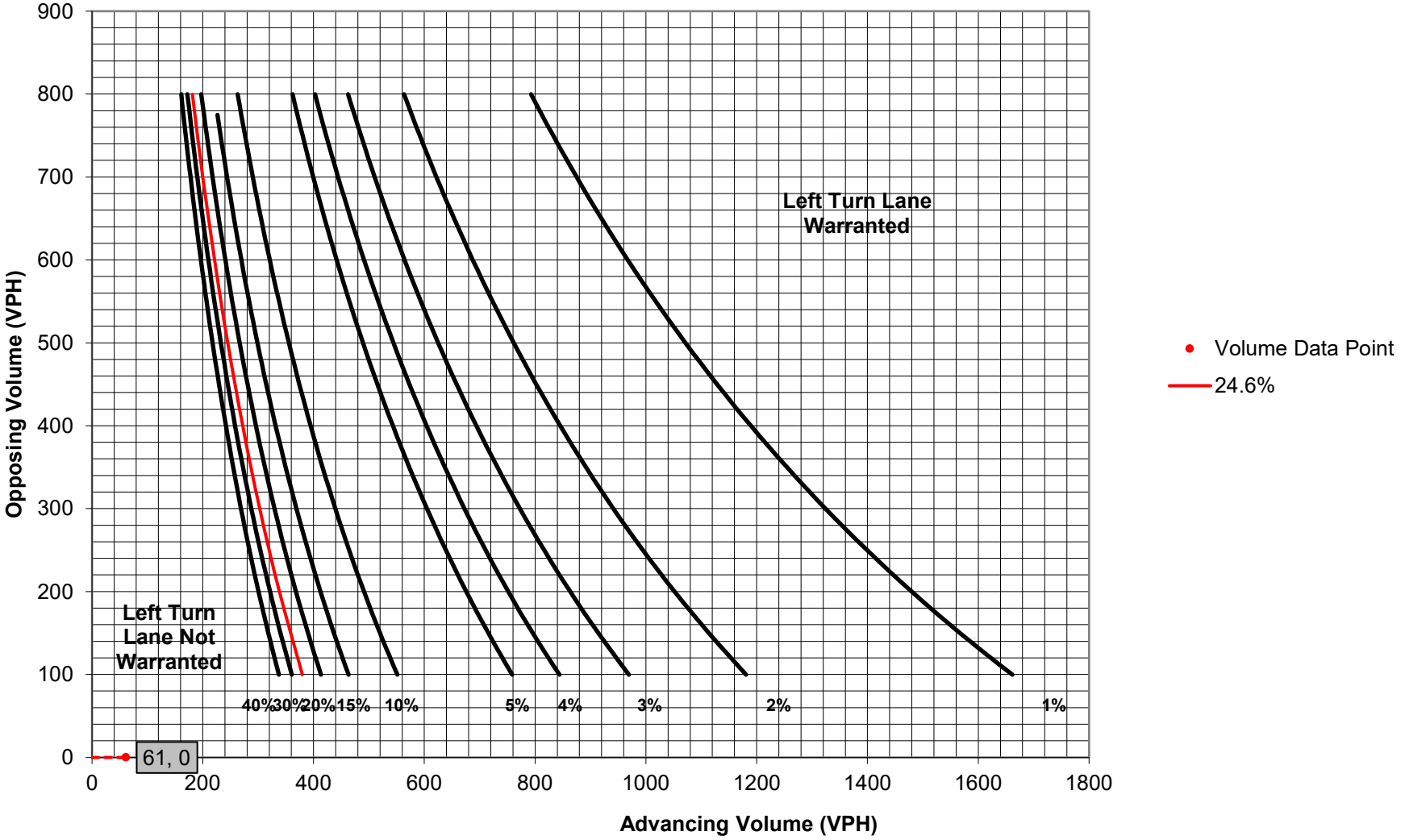
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Bernheisel Bridge Rd & Green Hill Rd
Westbound Right Turn

Analysis Period:	2027 Opening Year (Build)	**Number of Approach Lanes:**	1
Design Hour:	SAT 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	14	2.0%	15
	Through	-	0	0.0%	0
	Right	-	46	0.0%	46

Advancing Volume:	61
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

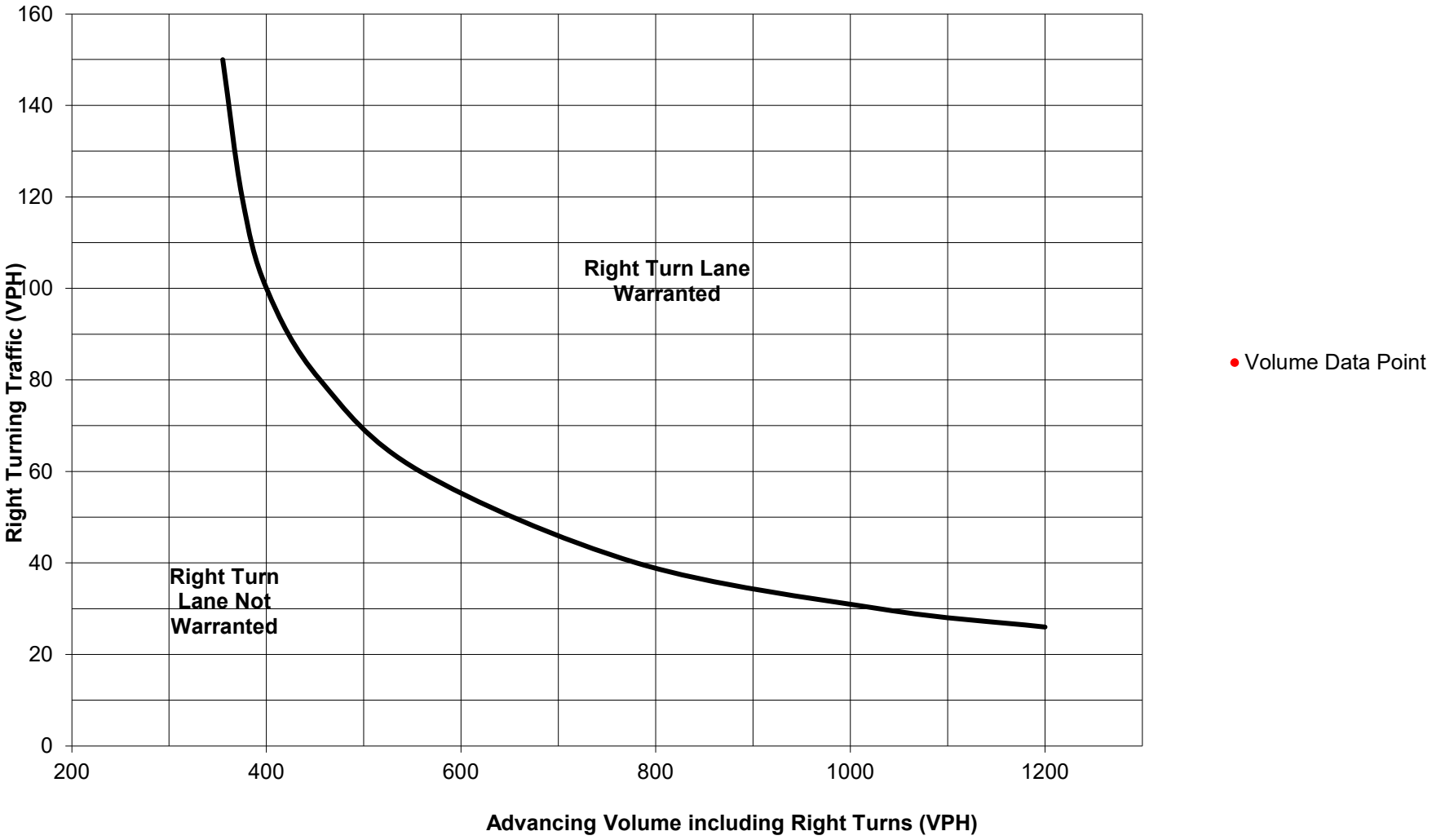
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: County Club Rd & Western Driveway
Eastbound Left Turn

Analysis Period:	2027 Opening Year (Build)	**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	0	0.0%	0
	Through	-	0	0.0%	0
	Right	Yes	13	2.0%	14
Opposing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	0
	Right	No	0	0.0%	N/A

Advancing Volume:	14
Opposing Volume:	0
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

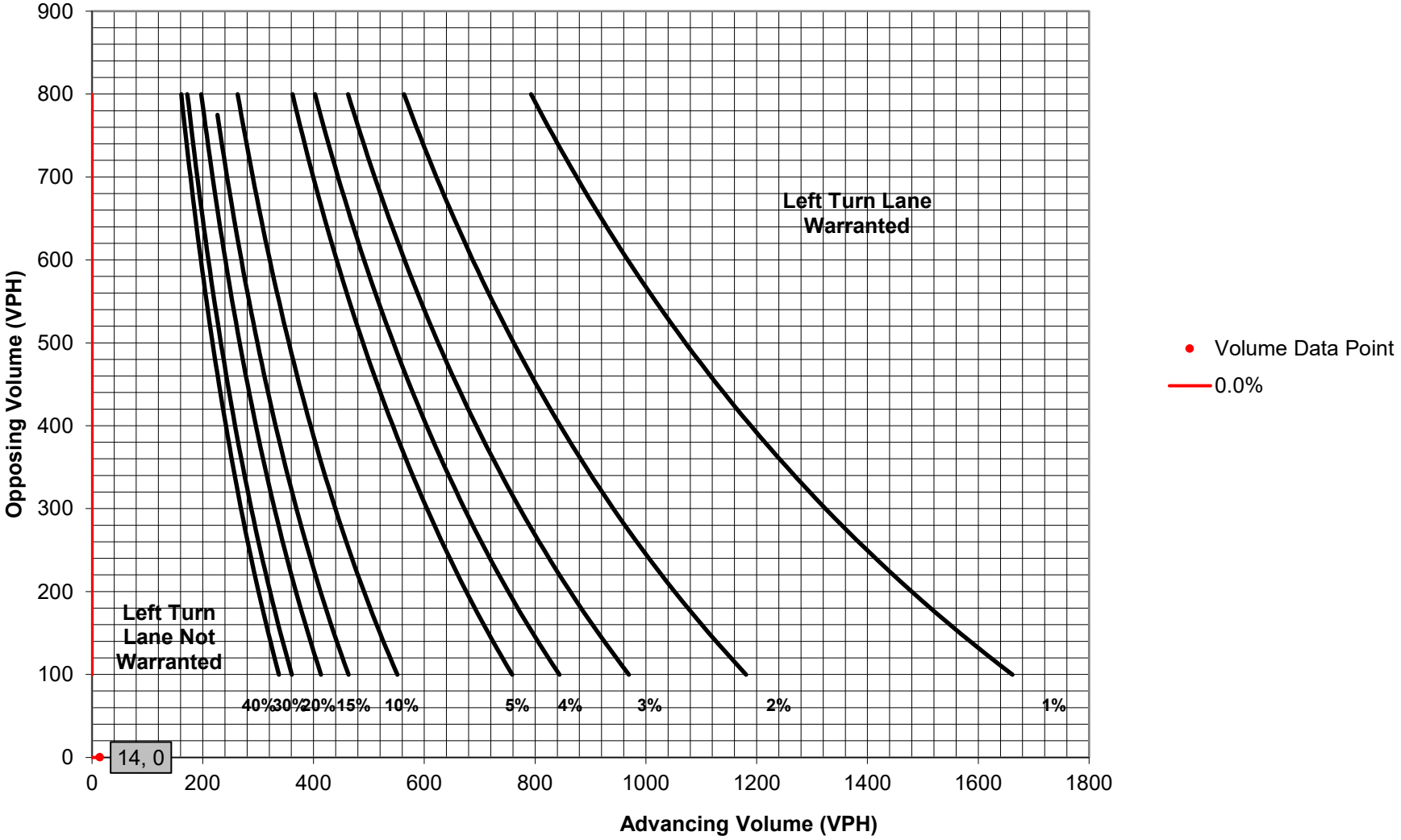
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: County Club Rd & Western Driveway / Eastbound Right Turn

Analysis Period:	2027 Opening Year (Build)	**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	0	0.0%	0
	Through	-	0	0.0%	0
	Right	-	13	2.0%	14

Advancing Volume:	14
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

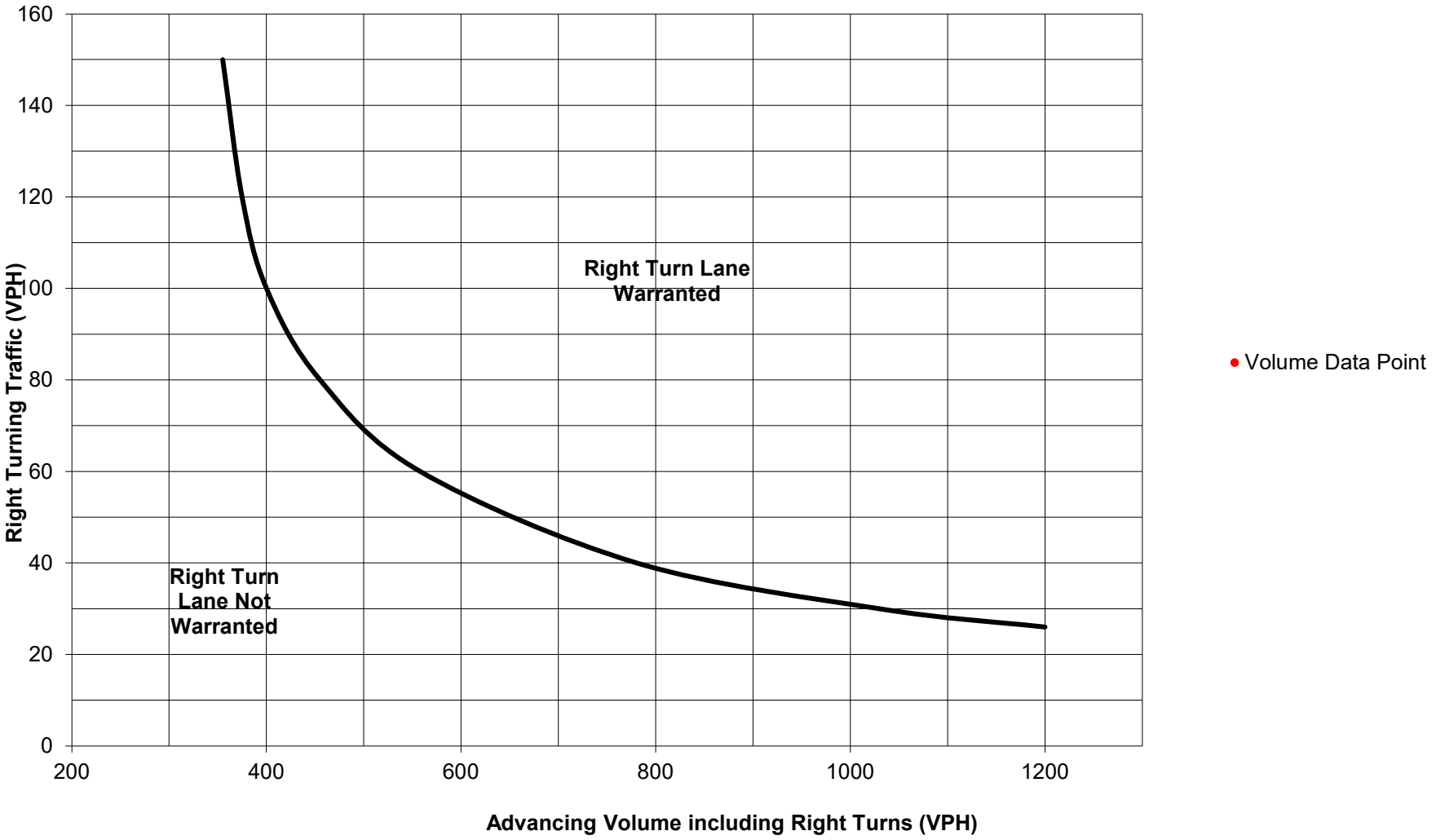
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: County Club Rd & Western Driveway / Northbound Left Turn

Analysis Period:	2027 Opening Year (Build)	**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	2.0%	26
	Through	-	143	12.0%	169
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	26	25.0%	36
	Right	Yes	0	0.0%	0

Advancing Volume:	195
Opposing Volume:	36
Left Turn Volume:	26
% Left Turns in Advancing Volume:	13.33%

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:	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

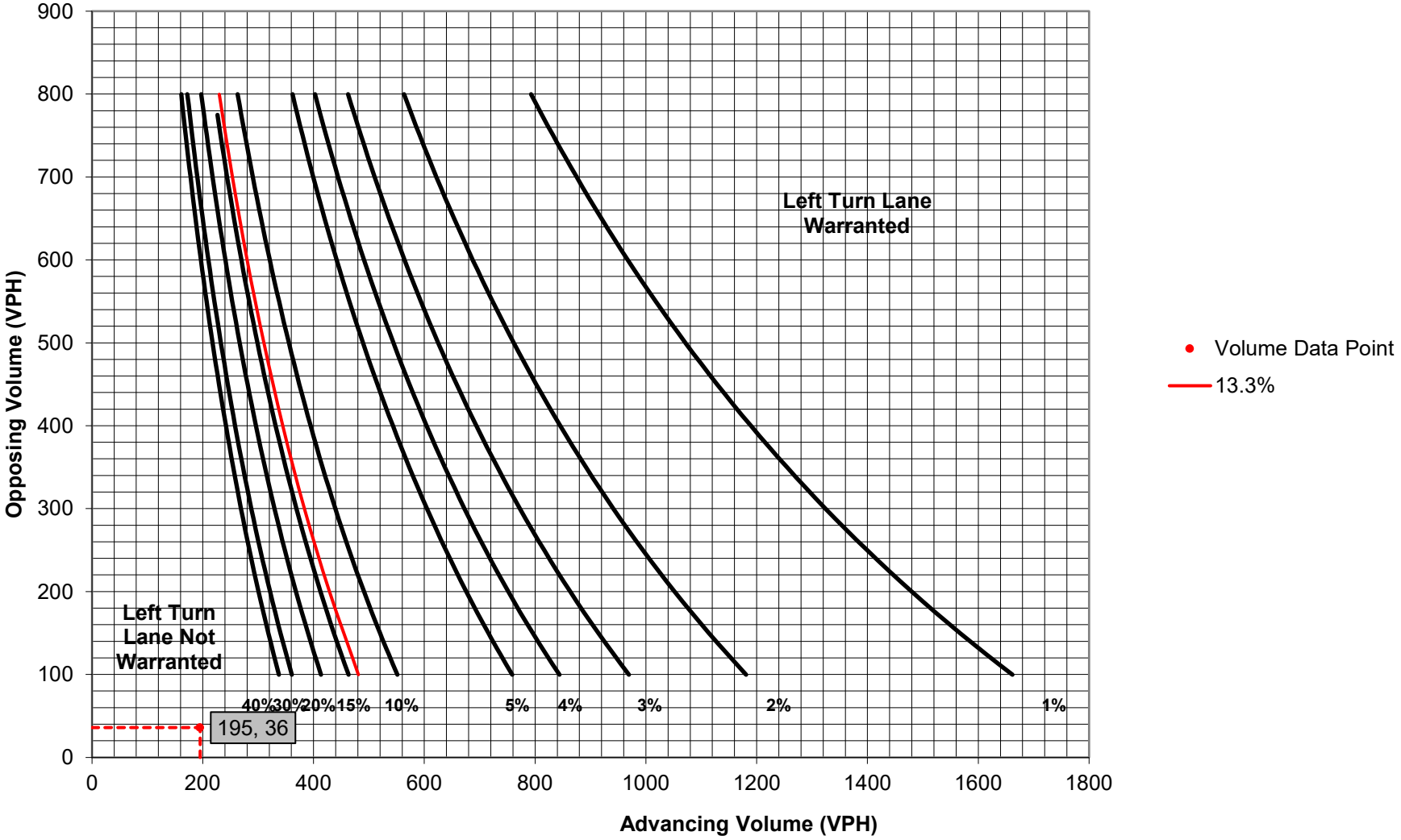
Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: County Club Rd & Western Driveway / Southbound Right Turn

Analysis Period:	2027 Opening Year (Build)	**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	25.0%	36
	Right	-	0	0.0%	0

Advancing Volume:	36
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

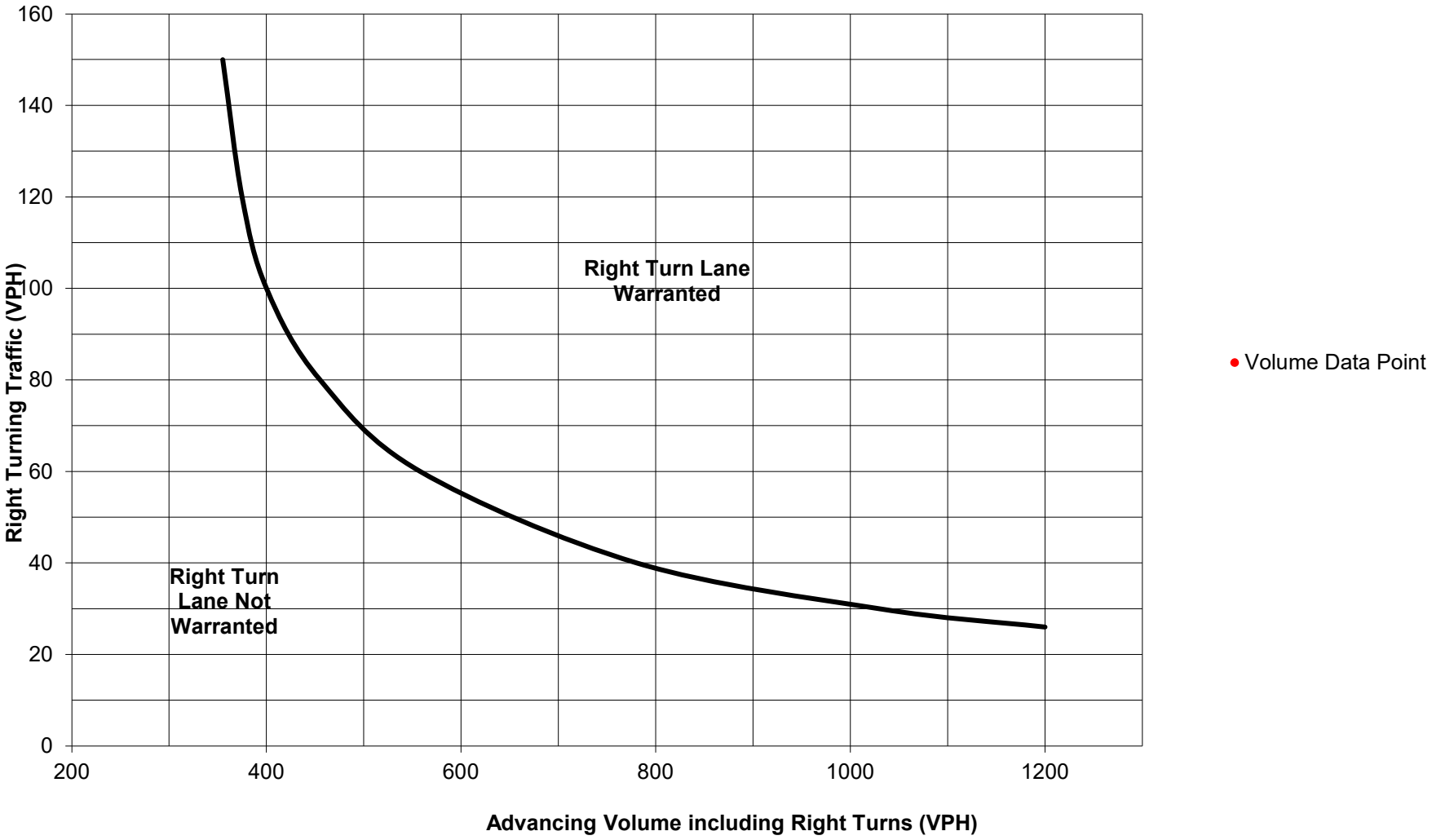
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: County Club Rd & Western Driveway
Eastbound Left Turn

Analysis Period:	2027 Opening Year (Build)	**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	0	0.0%	0
	Through	-	0	0.0%	0
	Right	Yes	36	2.0%	38
Opposing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	0
	Right	No	0	0.0%	N/A

Advancing Volume:	38
Opposing Volume:	0
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

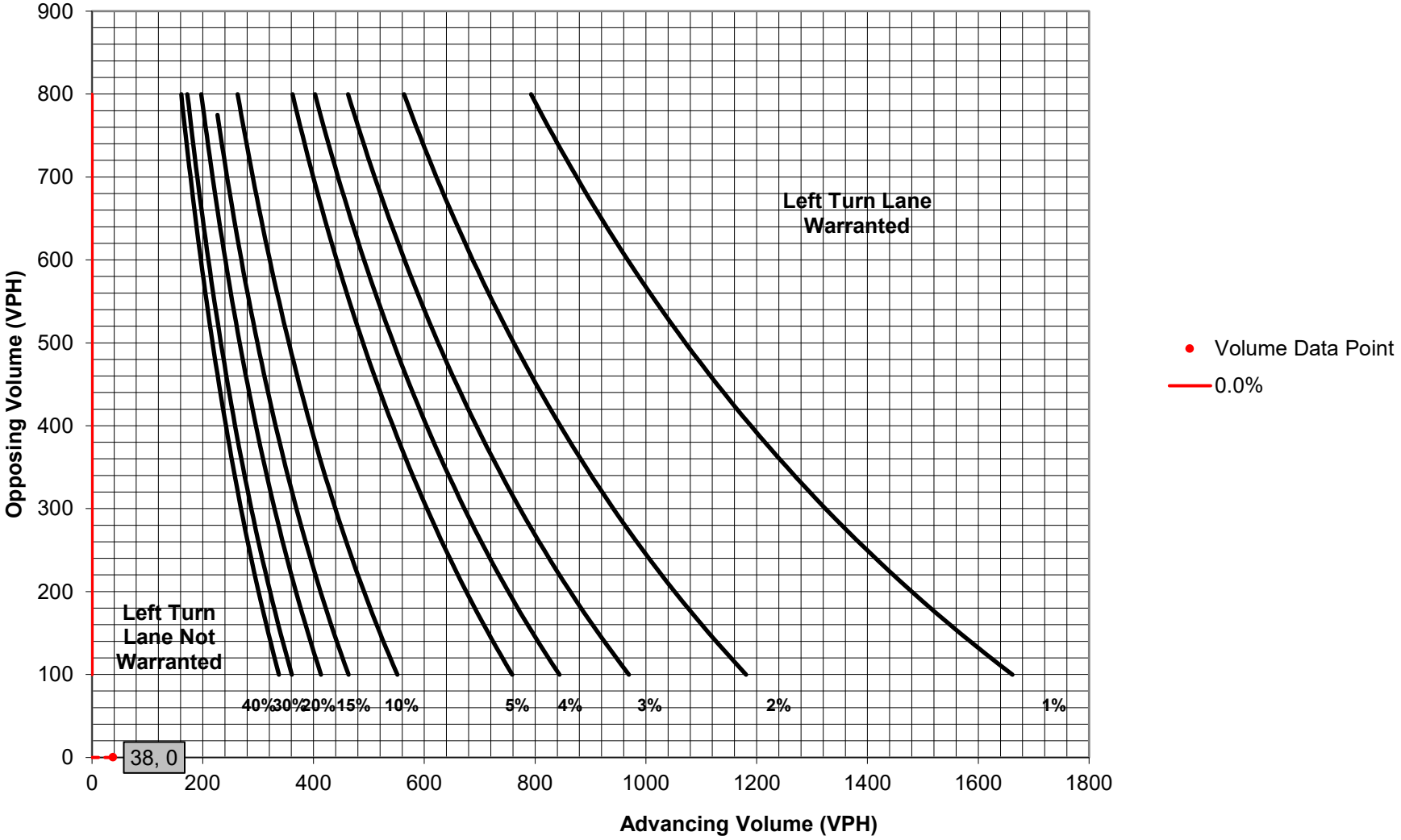
Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: County Club Rd & Western Driveway / Eastbound Right Turn

Analysis Period:	2027 Opening Year (Build)	**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	0	0.0%	0
	Through	-	0	0.0%	0
	Right	-	36	2.0%	38

Advancing Volume:	38
Right Turn Volume:	38

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:	38
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

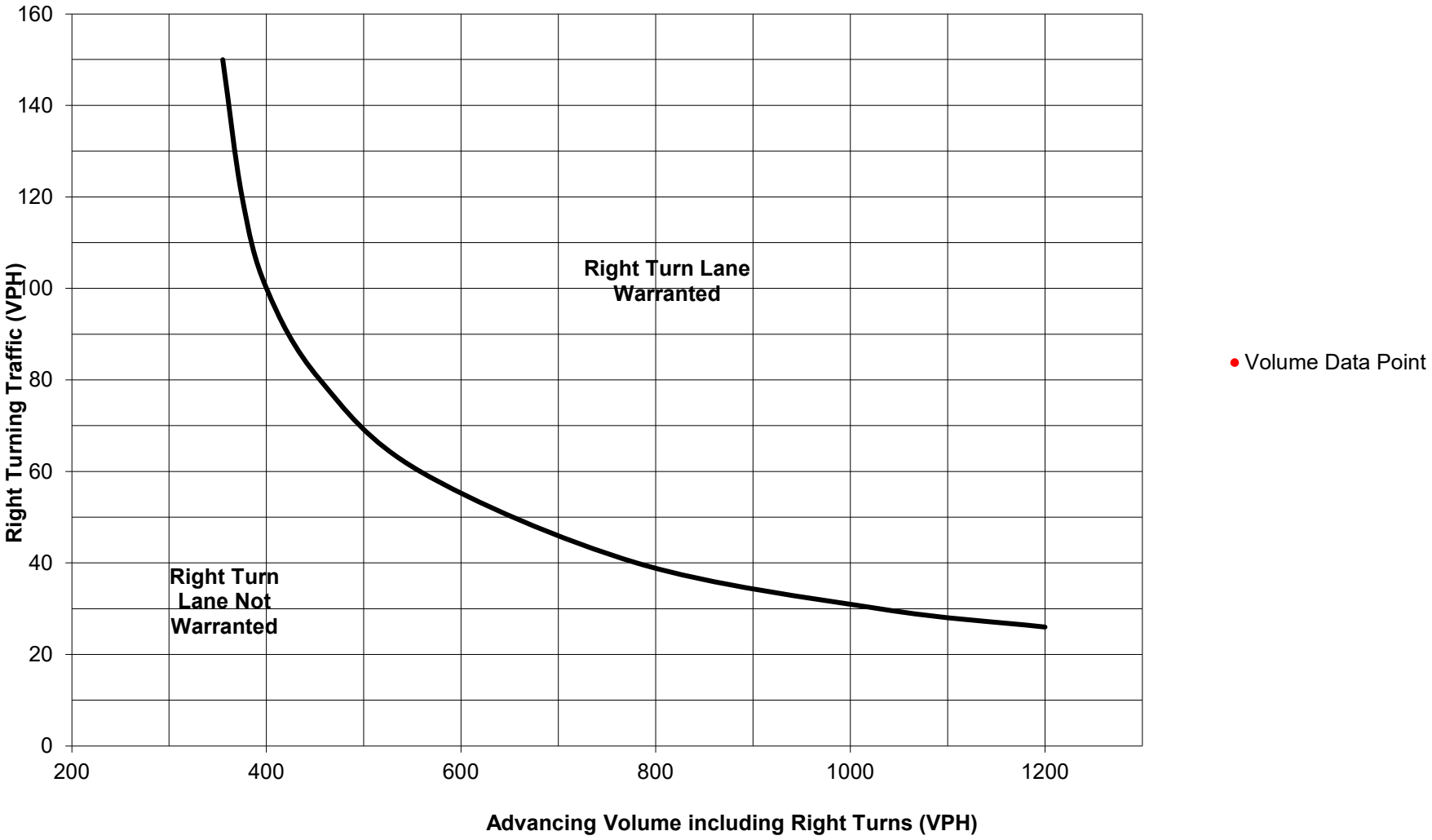
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: County Club Rd & Western Driveway / Northbound Left Turn

Analysis Period:	2027 Opening Year (Build)	**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	2.0%	4
	Through	-	60	11.0%	70
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	68	2.0%	71
	Right	Yes	0	0.0%	0

Advancing Volume:	74
Opposing Volume:	71
Left Turn Volume:	4
% Left Turns in Advancing Volume:	5.41%

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:	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

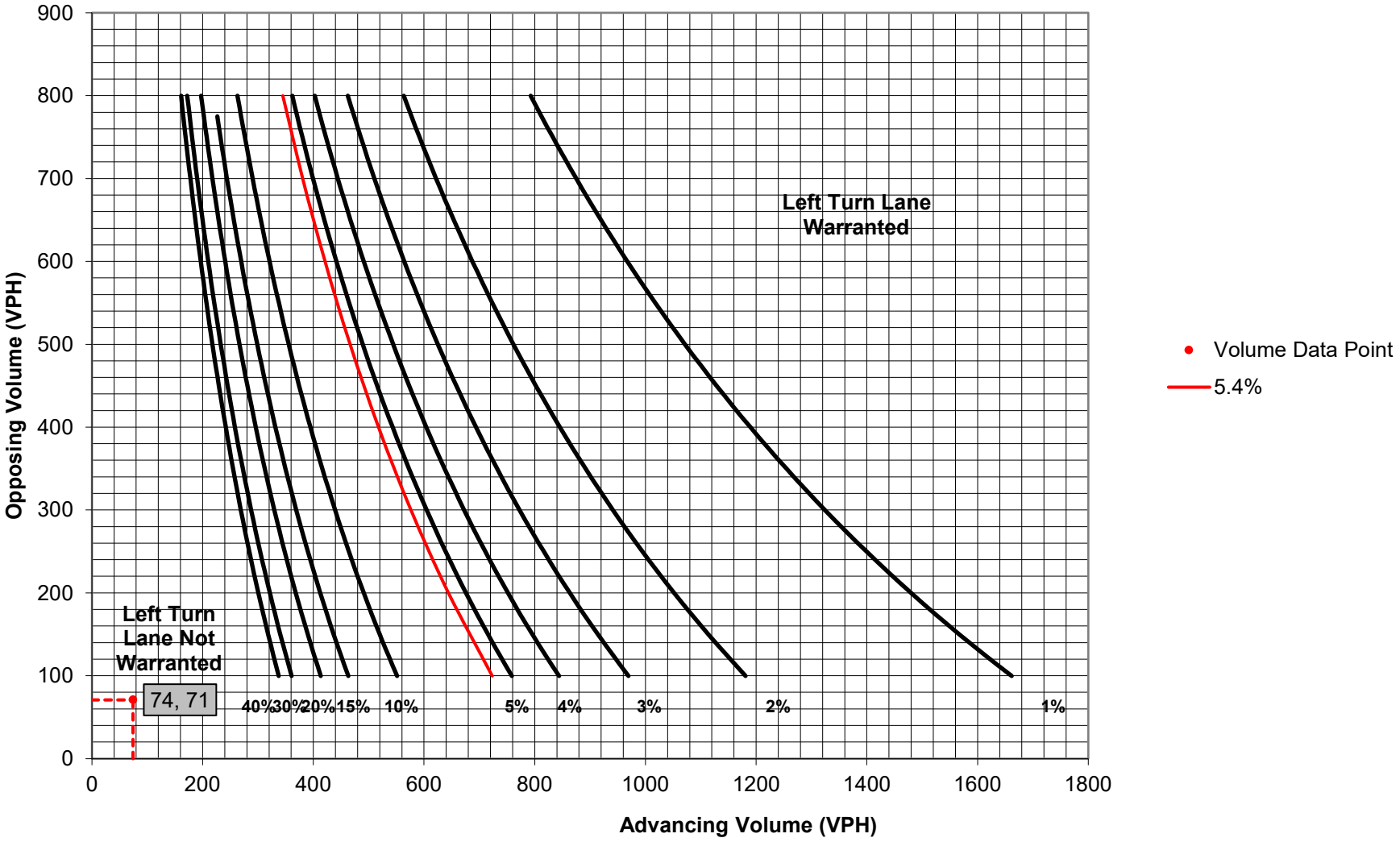
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: County Club Rd & Western Driveway / Southbound Right Turn

Analysis Period:	2027 Opening Year (Build)	**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	-	68	2.0%	71
	Right	-	0	0.0%	0

Advancing Volume:	71
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

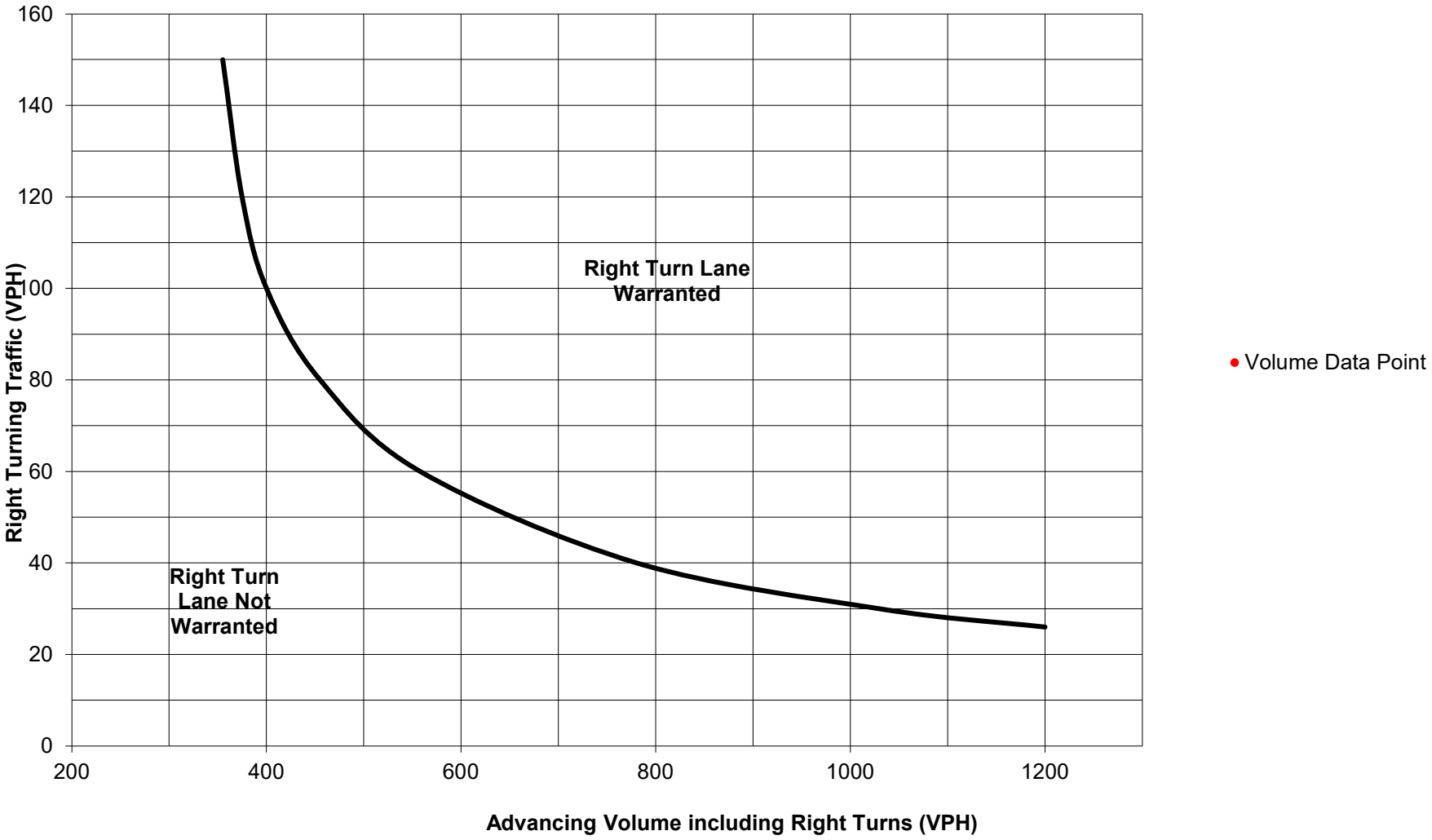
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: County Club Rd & Western Driveway
Eastbound Left Turn

Analysis Period:	2027 Opening Year (Build)	**Number of Approach Lanes:**	1
Design Hour:	SAT 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	0	0.0%	0
	Through	-	0	0.0%	0
	Right	Yes	36	2.0%	38
Opposing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	0
	Right	No	0	0.0%	N/A

Advancing Volume:	38
Opposing Volume:	0
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

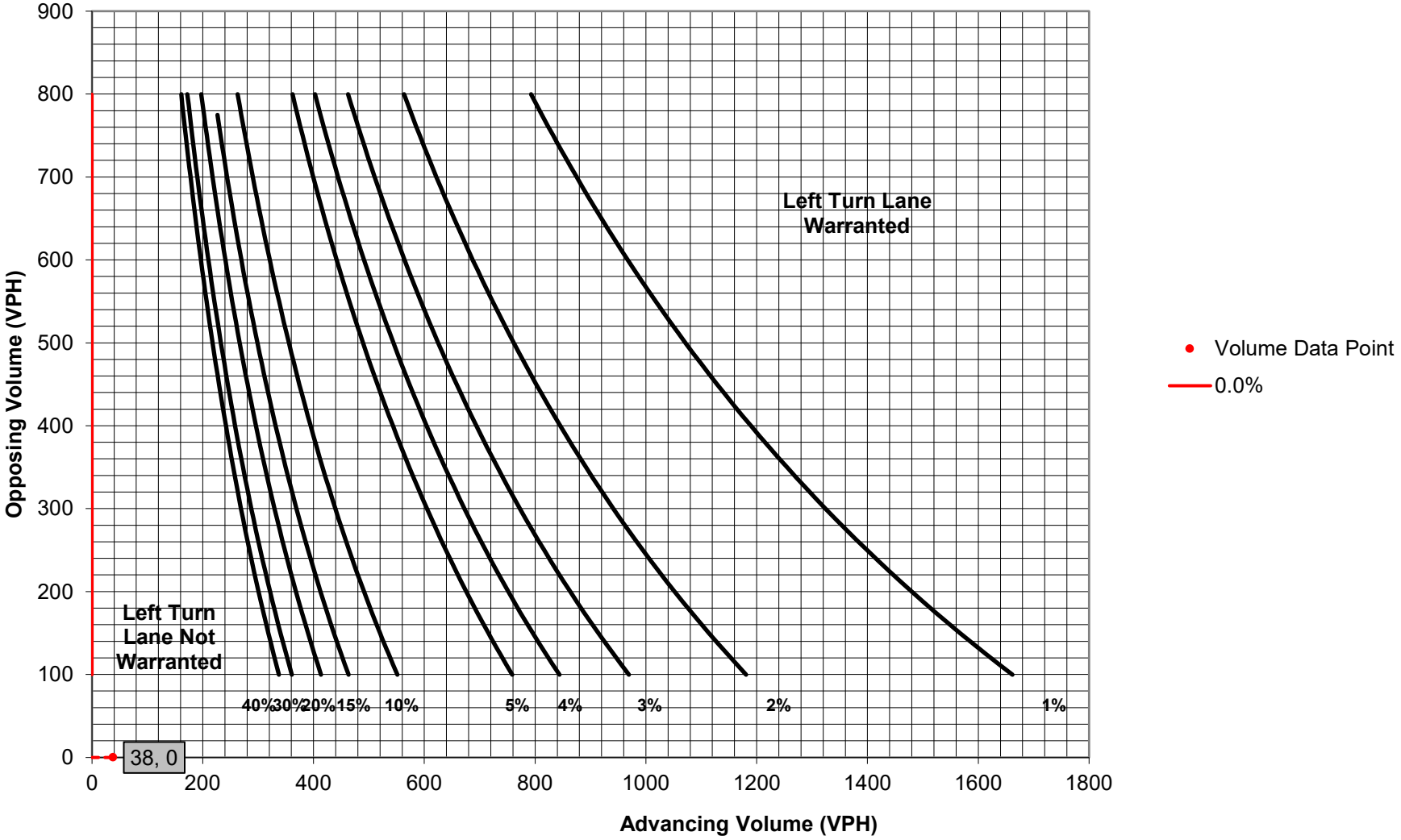
Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: County Club Rd & Western Driveway
Eastbound Right Turn

Analysis Period:	2027 Opening Year (Build)	**Number of Approach Lanes:**	1
Design Hour:	SAT 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	0	0.0%	0
	Through	-	0	0.0%	0
	Right	-	36	2.0%	38

Advancing Volume:	38
Right Turn Volume:	38

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:	38
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

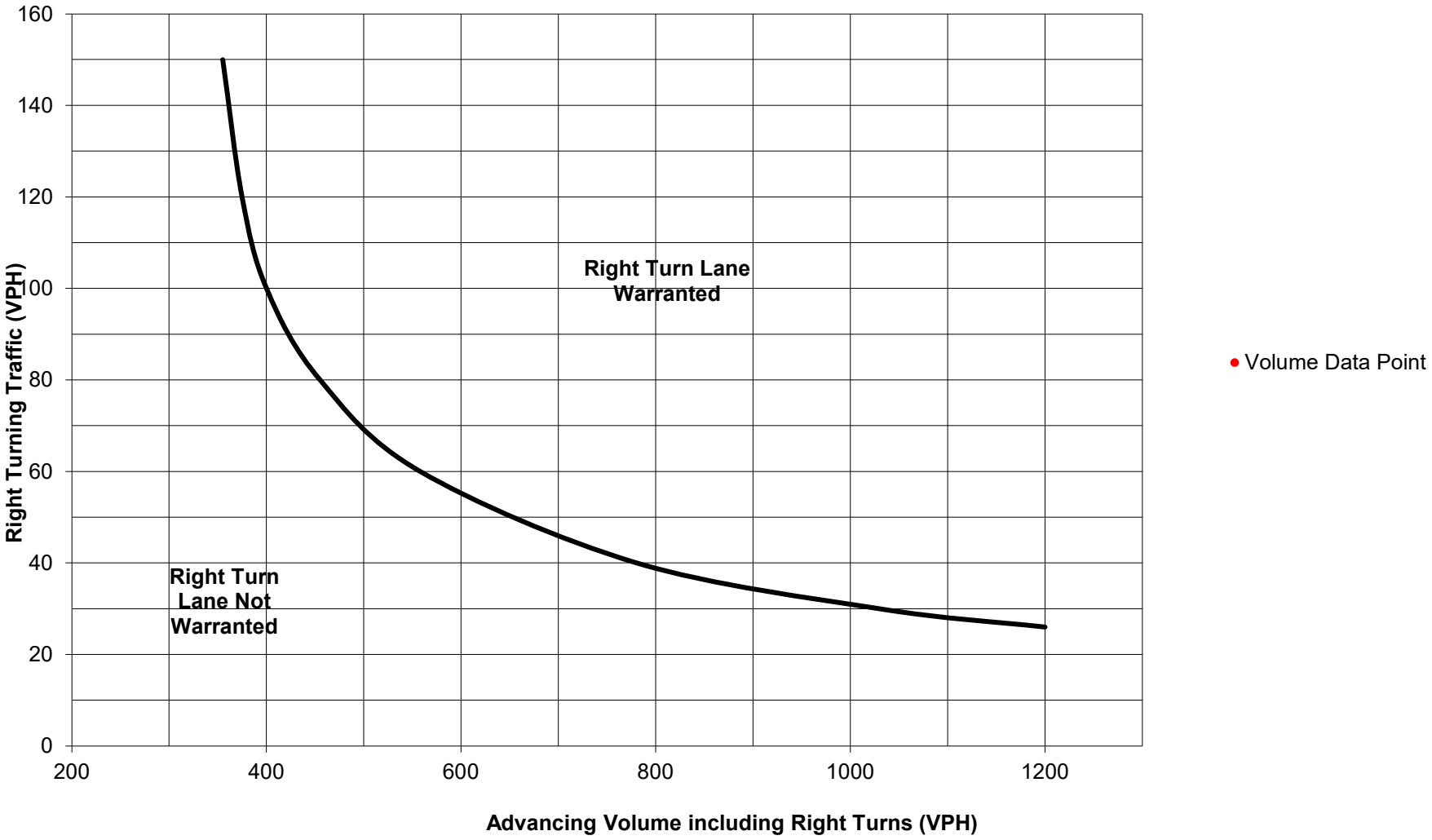
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: County Club Rd & Western Driveway / Northbound Left Turn

Analysis Period:	2027 Opening Year (Build)	**Number of Approach Lanes:**	1
Design Hour:	SAT 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	2.0%	4
	Through	-	59	4.0%	63
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	55	2.0%	57
	Right	Yes	0	0.0%	0

Advancing Volume:	67
Opposing Volume:	57
Left Turn Volume:	4
% Left Turns in Advancing Volume:	5.97%

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:	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

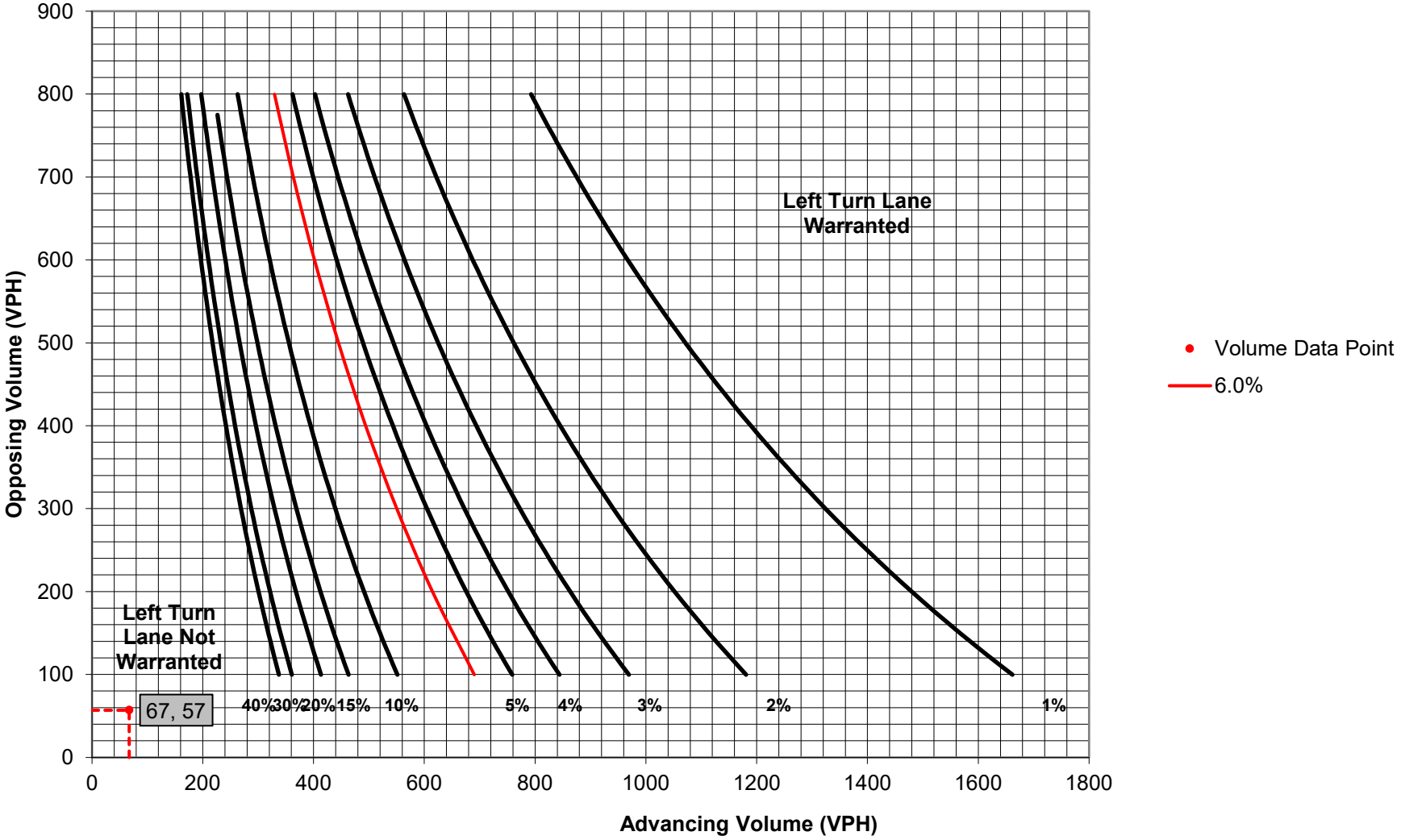
Left Turn Lane Storage Length, Condition A:	**N/A**	**Feet**
Condition B:	**N/A**	**Feet**
Condition C:	**N/A**	**Feet**
Required Left Turn Lane Storage Length:	**N/A**	**Feet**

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: County Club Rd & Western Driveway / Southbound Right Turn

Analysis Period:	2027 Opening Year (Build)	**Number of Approach Lanes:**	1
Design Hour:	SAT 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	-	55	2.0%	57
	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

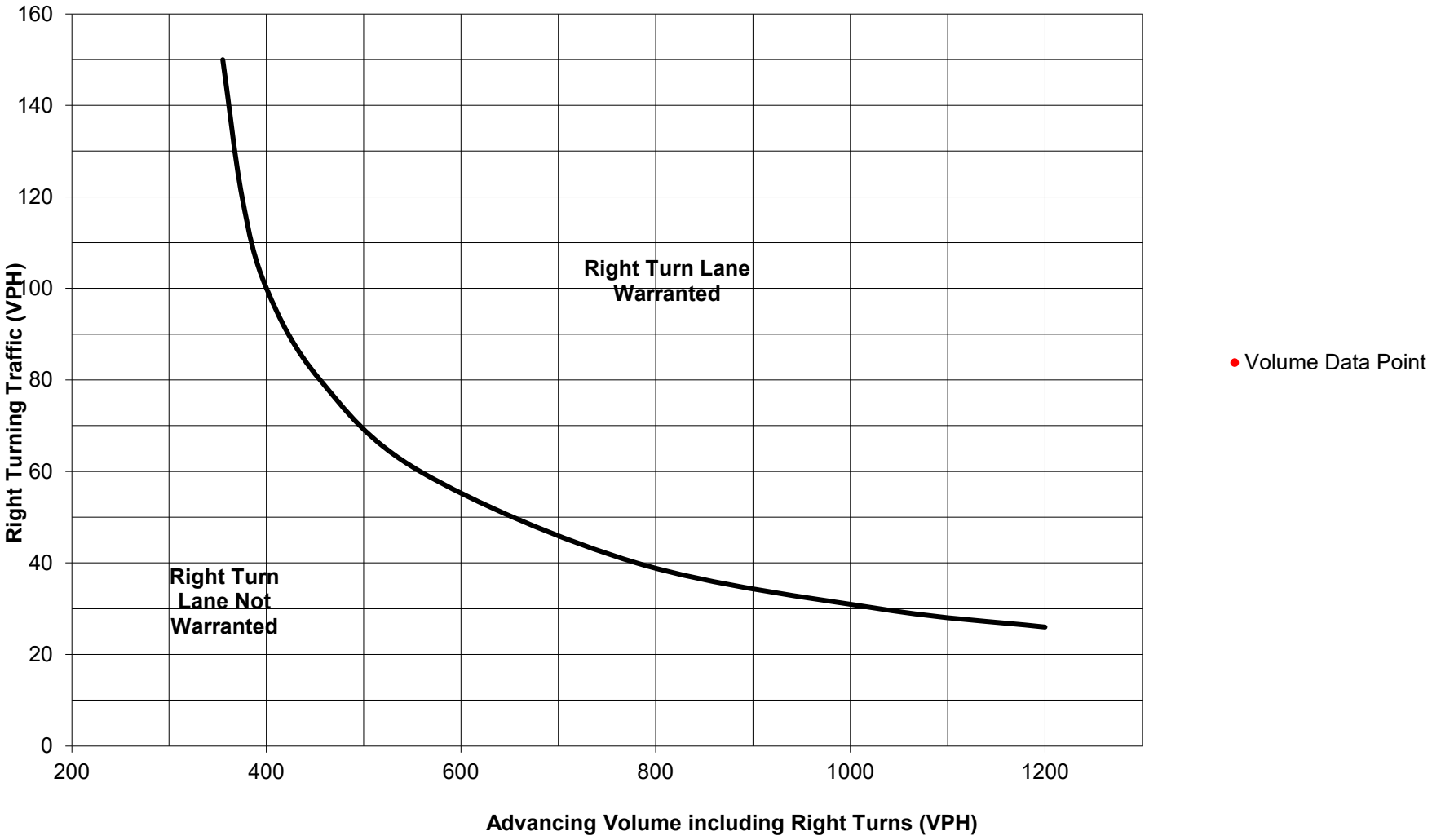
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: County Club Rd & Main Driveway / Eastbound Left Turn

Analysis Period:	2027 Opening Year (Build)	**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	89	2.0%	92
	Through	-	54	12.0%	64
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	10	25.0%	14
	Right	Yes	102	2.0%	106

Advancing Volume:	156
Opposing Volume:	120
Left Turn Volume:	92
% Left Turns in Advancing Volume:	58.97%

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:	Unsignalized
Design Hour Volume of Turning Lane:	92
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

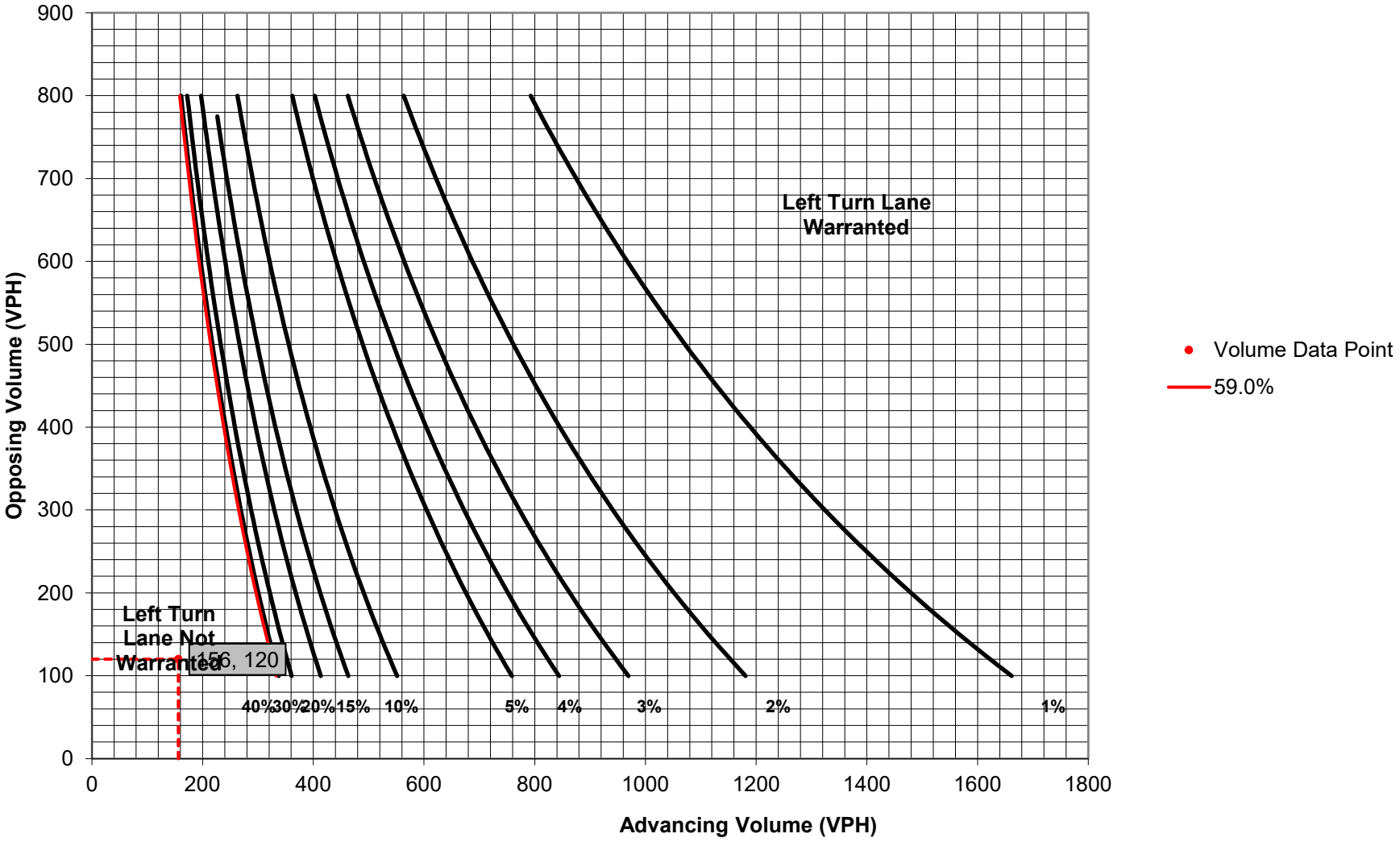
Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: County Club Rd & Main Driveway / Southbound Left Turn

Analysis Period:	2027 Opening Year (Build)	**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	22	2.0%	23
	Through	-	0	0.0%	0
	Right	Yes	16	2.0%	17
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:	23
% Left Turns in Advancing Volume:	57.50%

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:	23
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

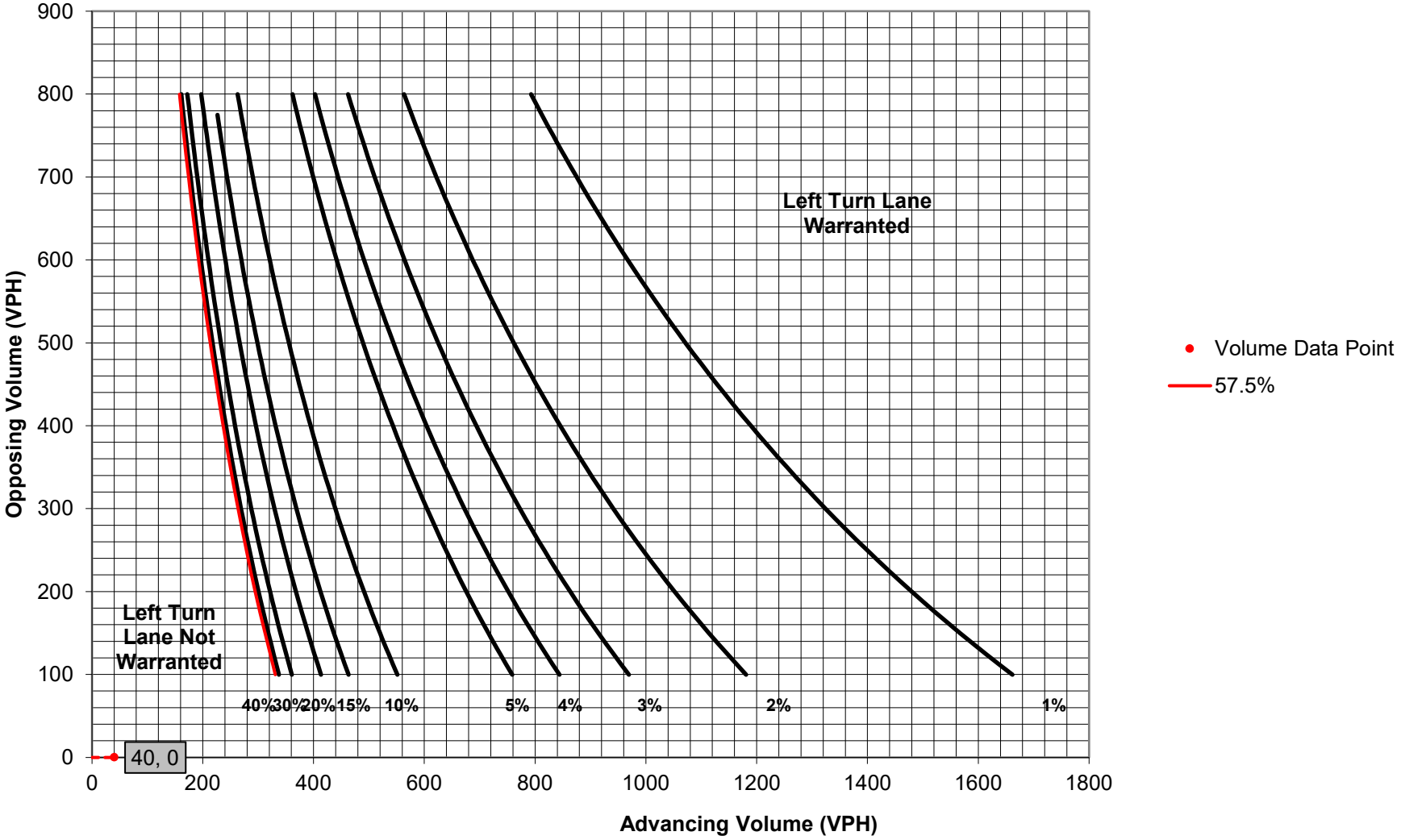
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: County Club Rd & Main Driveway / Southbound Right Turn

Analysis Period:	2027 Opening Year (Build)	**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	22	2.0%	23
	Through	-	0	0.0%	0
	Right	-	16	2.0%	17

Advancing Volume:	40
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

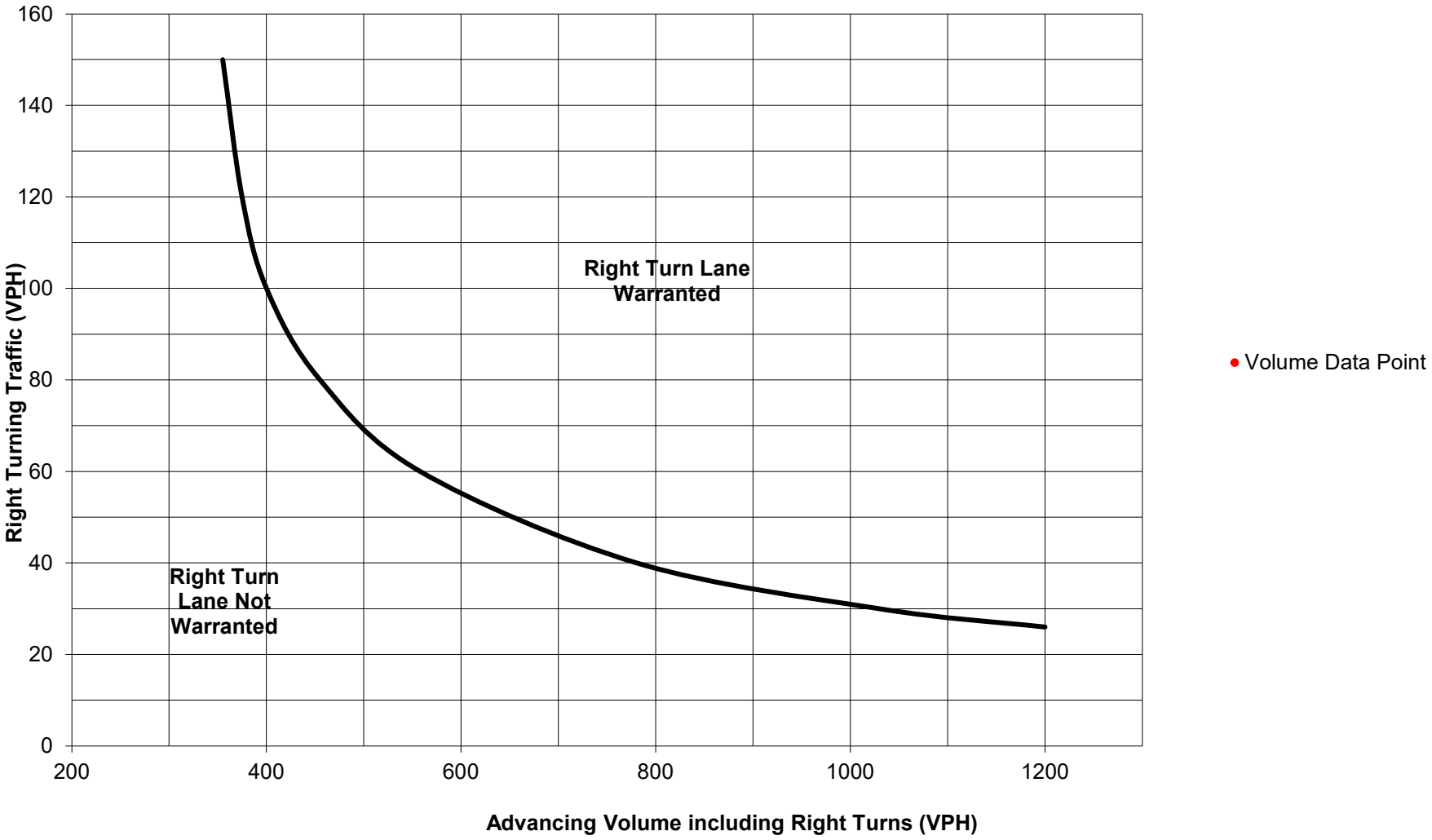
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: County Club Rd & Main Driveway / Westbound Right Turn

Analysis Period:	2027 Opening Year (Build)	**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	-	10	25.0%	14
	Right	-	102	2.0%	106

Advancing Volume: 120
Right Turn Volume: 106

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:	106
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

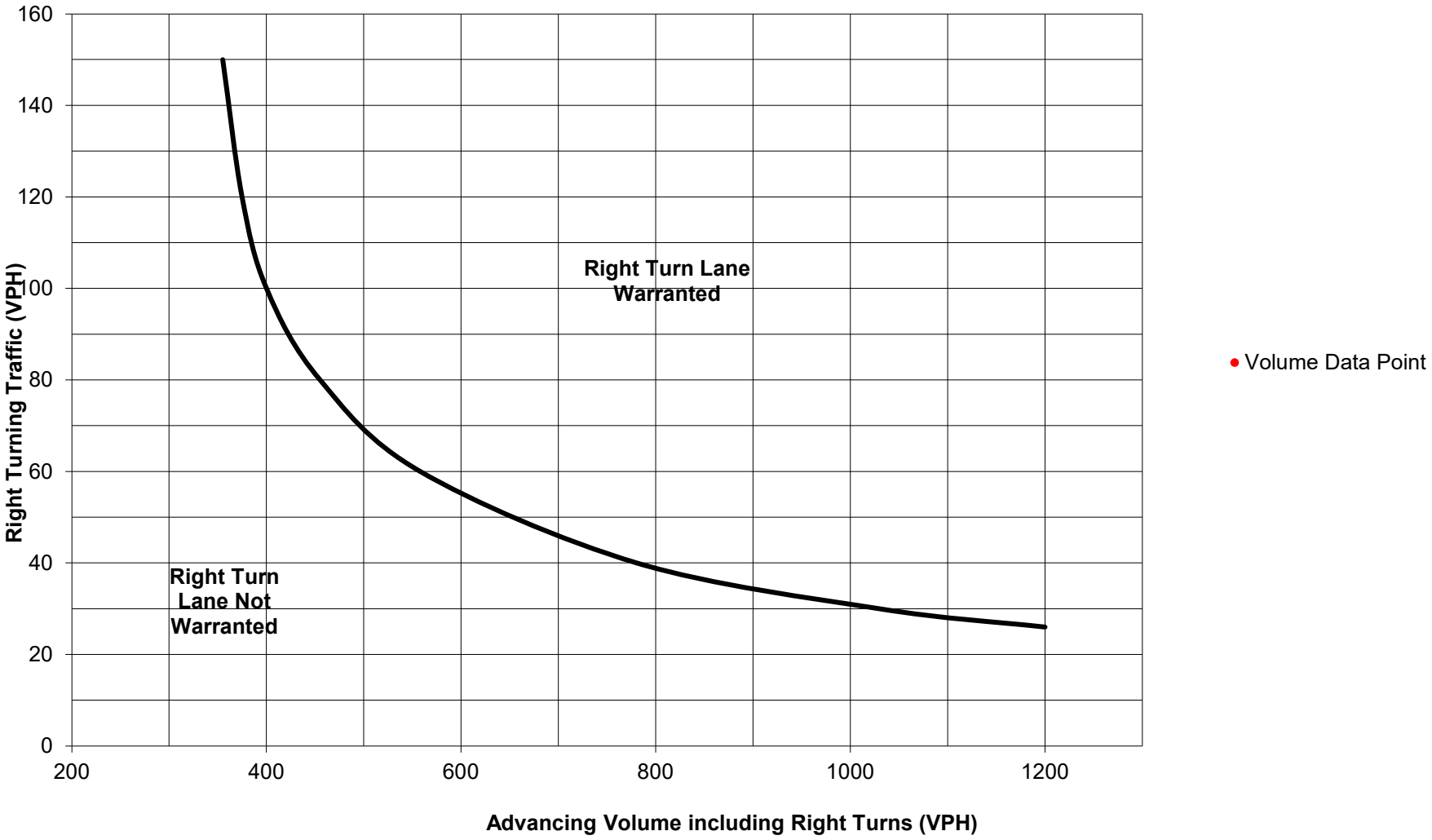
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: County Club Rd & Main Driveway / Eastbound Left Turn

Analysis Period:	2027 Opening Year (Build)	**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	2.0%	12
	Through	-	49	11.0%	58
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	24	2.0%	25
	Right	Yes	12	2.0%	13

Advancing Volume:	70
Opposing Volume:	38
Left Turn Volume:	12
% Left Turns in Advancing Volume:	17.14%

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 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

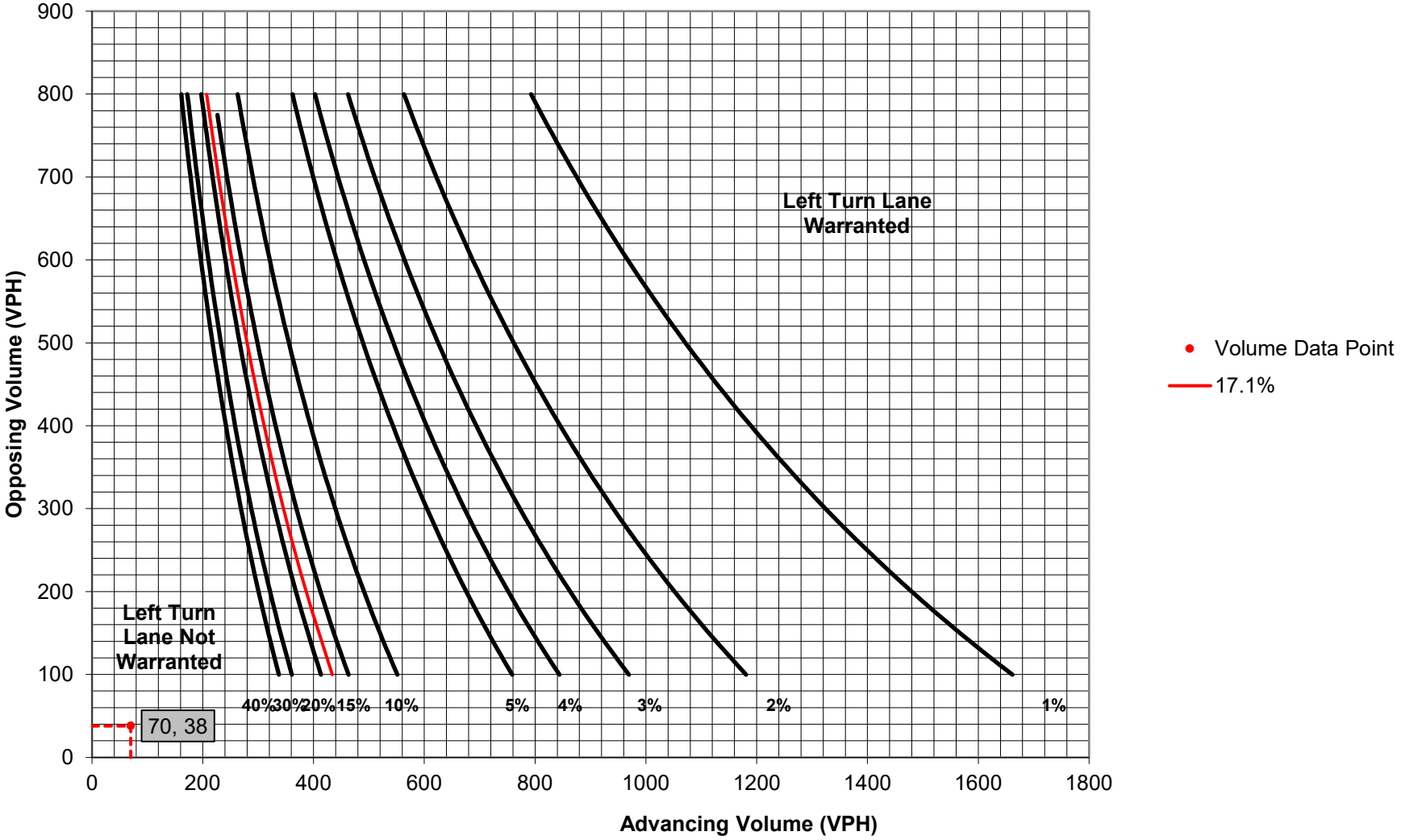
Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: County Club Rd & Main Driveway / Southbound Left Turn

Analysis Period:	2027 Opening Year (Build)	**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	62	0.0%	62
	Through	-	0	0.0%	0
	Right	Yes	44	0.0%	44
Opposing	Left	No	0	2.0%	N/A
	Through	-	0	2.0%	0
	Right	No	0	0.0%	N/A

Advancing Volume:	106
Opposing Volume:	0
Left Turn Volume:	62
% Left Turns in Advancing Volume:	58.49%

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:	62
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

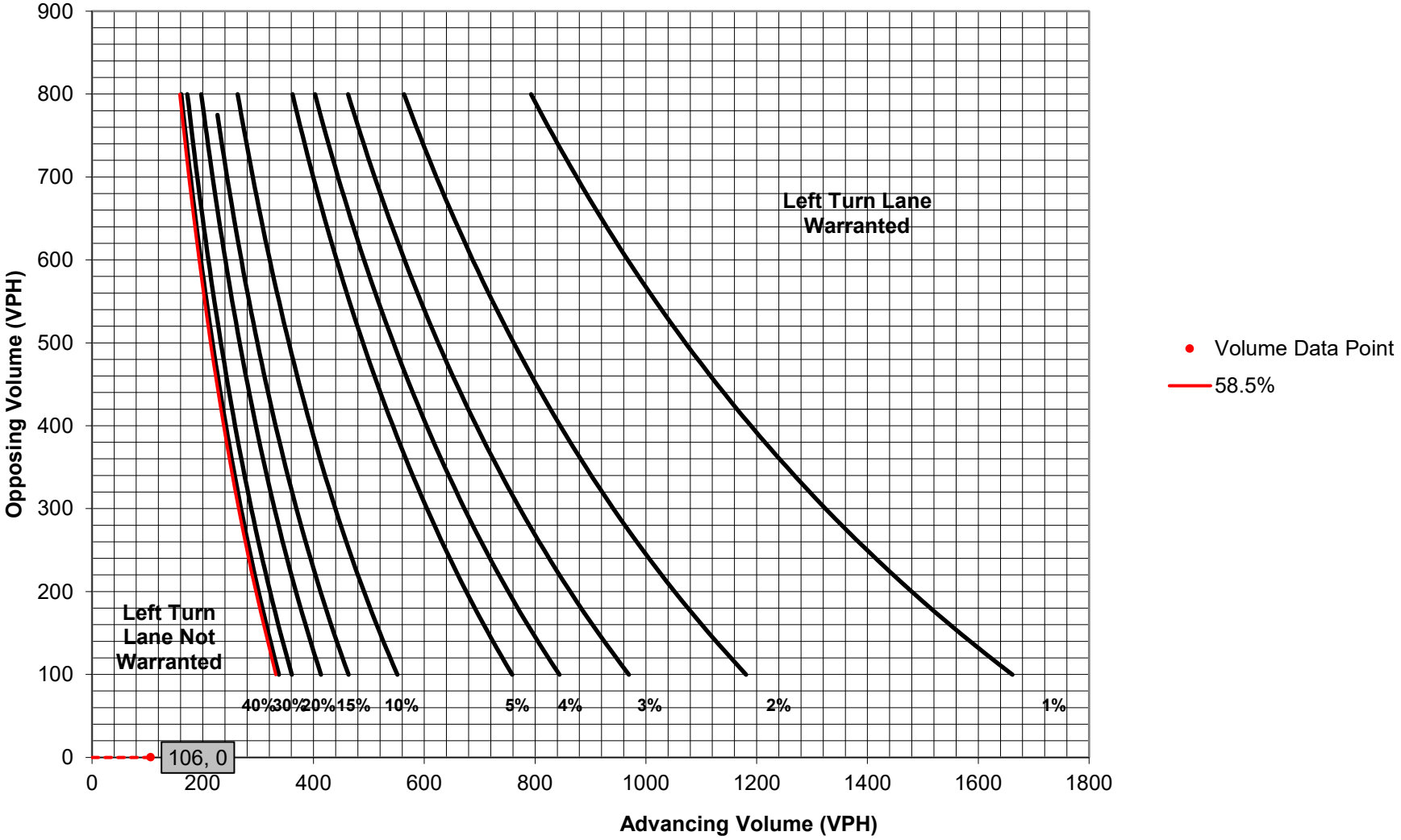
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: County Club Rd & Main Driveway / Southbound Right Turn

Analysis Period:	2027 Opening Year (Build)	**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	62	0.0%	62
	Through	-	0	0.0%	0
	Right	-	44	0.0%	44

Advancing Volume:	106
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

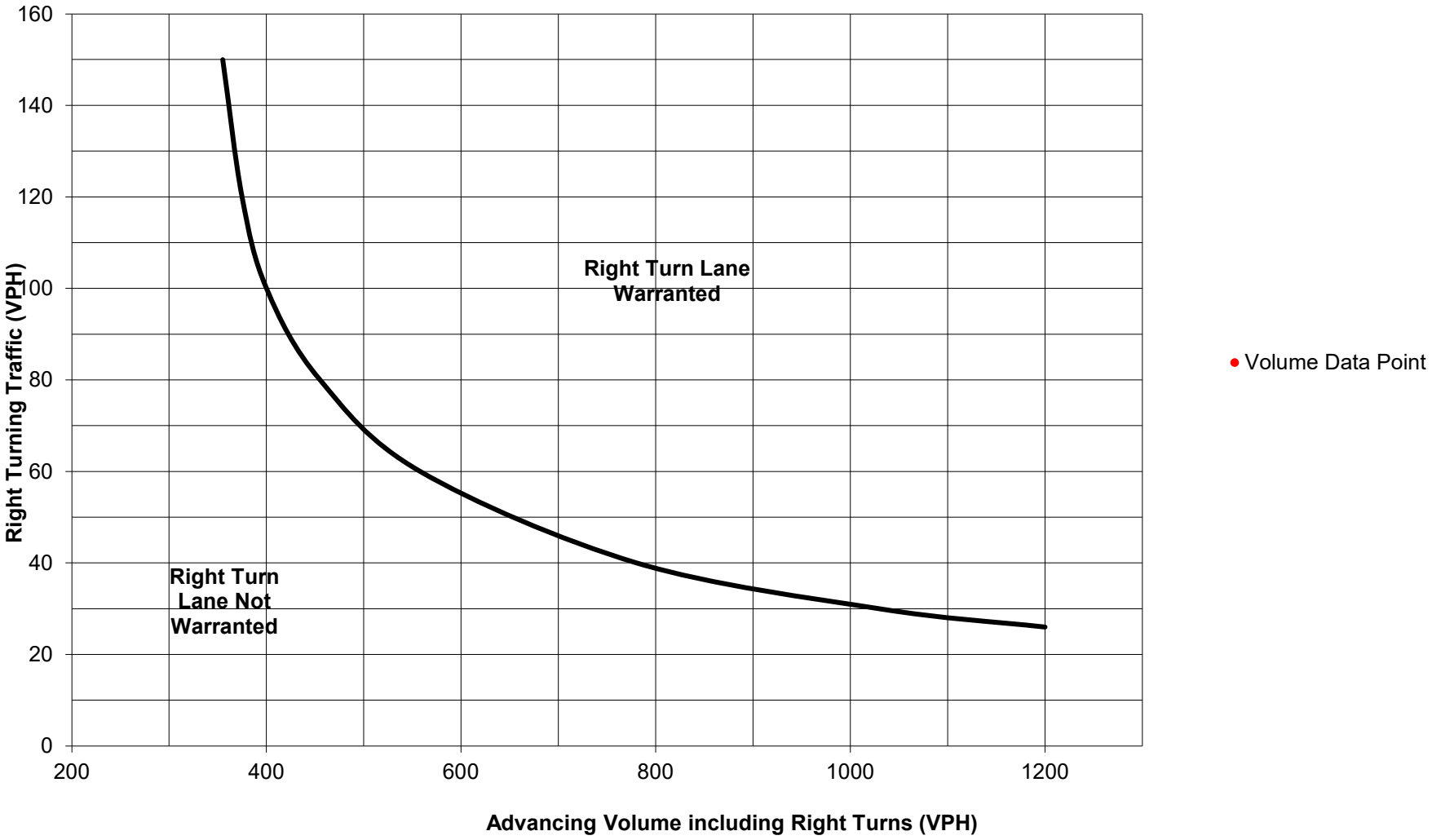
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: County Club Rd & Main Driveway / Westbound Right Turn

Analysis Period:	2027 Opening Year (Build)	**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	2.0%	25
	Right	-	12	2.0%	13

Advancing Volume:	38
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

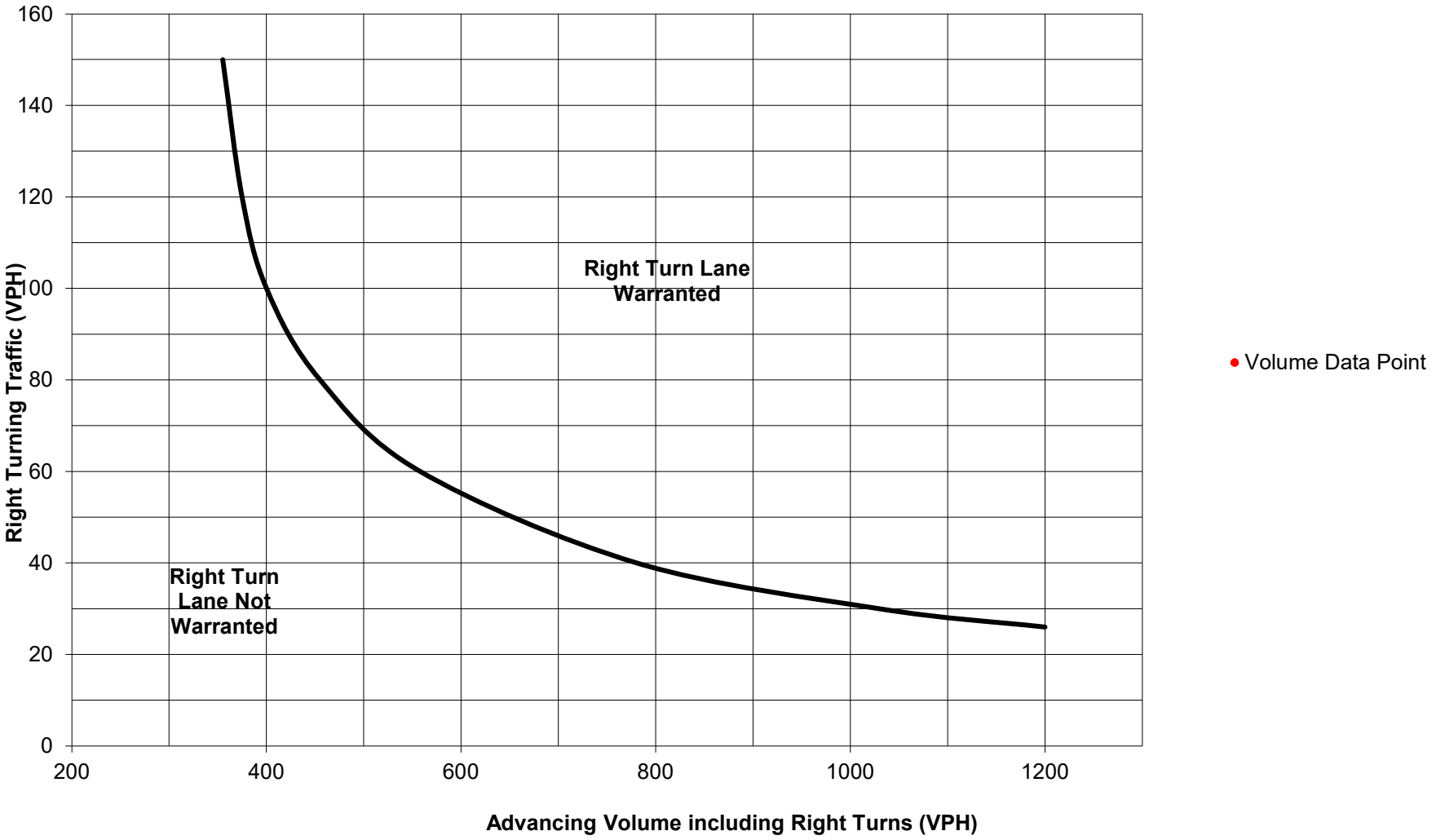
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: County Club Rd & Main Driveway / Eastbound Left Turn

Analysis Period:	2027 Opening Year (Build)	**Number of Approach Lanes:**	1
Design Hour:	SAT 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	-	48	4.0%	51
	Right	No	0	2.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	11	2.0%	12
	Right	Yes	12	2.0%	13

Advancing Volume:	62
Opposing Volume:	25
Left Turn Volume:	11
% Left Turns in Advancing Volume:	17.74%

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 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

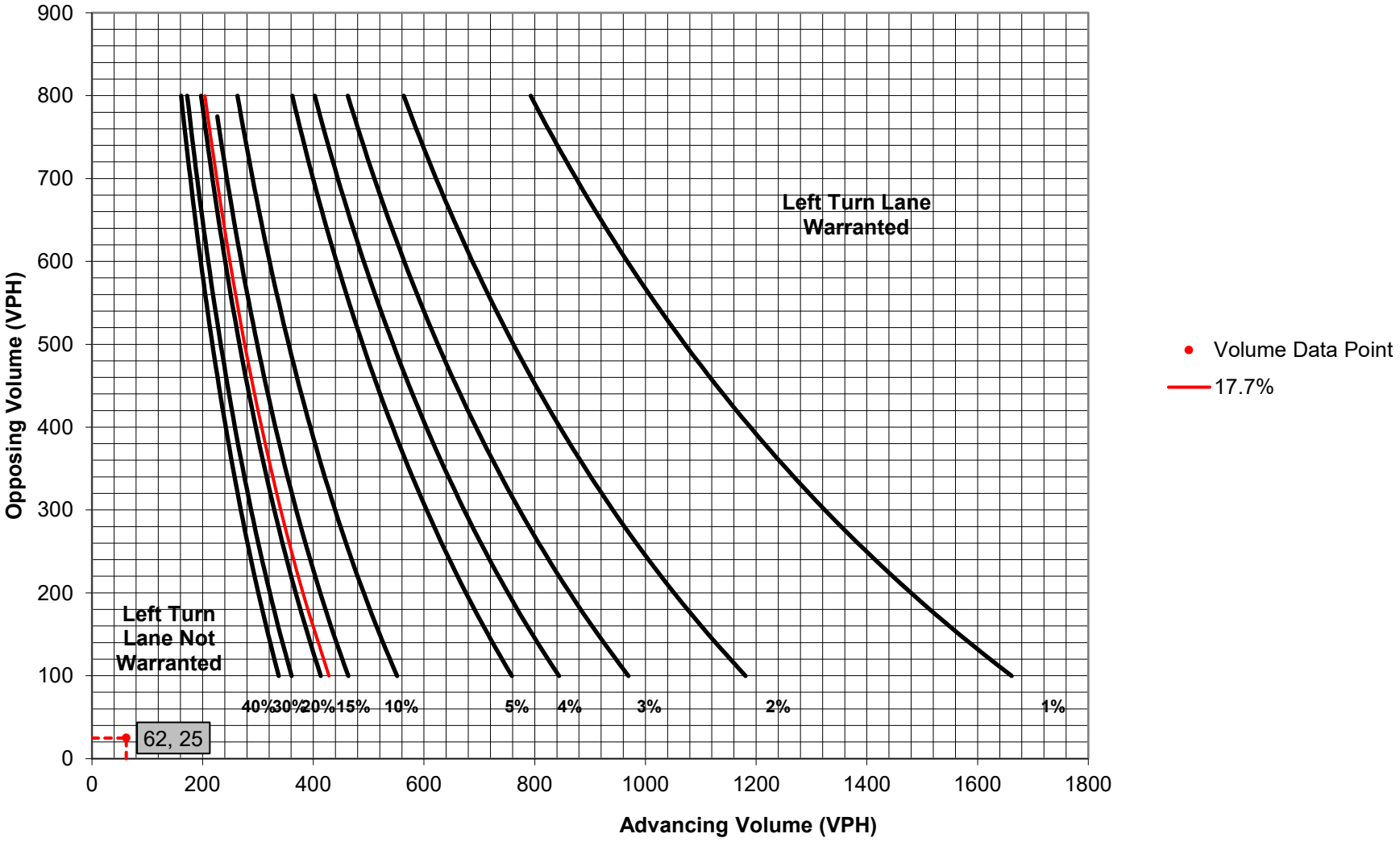
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: County Club Rd & Main Driveway / Southbound Left Turn

Analysis Period:	2027 Opening Year (Build)	**Number of Approach Lanes:**	1
Design Hour:	SAT 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	62	0.0%	62
	Through	-	0	0.0%	0
	Right	Yes	44	0.0%	44
Opposing	Left	No	0	2.0%	N/A
	Through	-	0	2.0%	0
	Right	No	0	0.0%	N/A

Advancing Volume:	106
Opposing Volume:	0
Left Turn Volume:	62
% Left Turns in Advancing Volume:	58.49%

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:	62
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

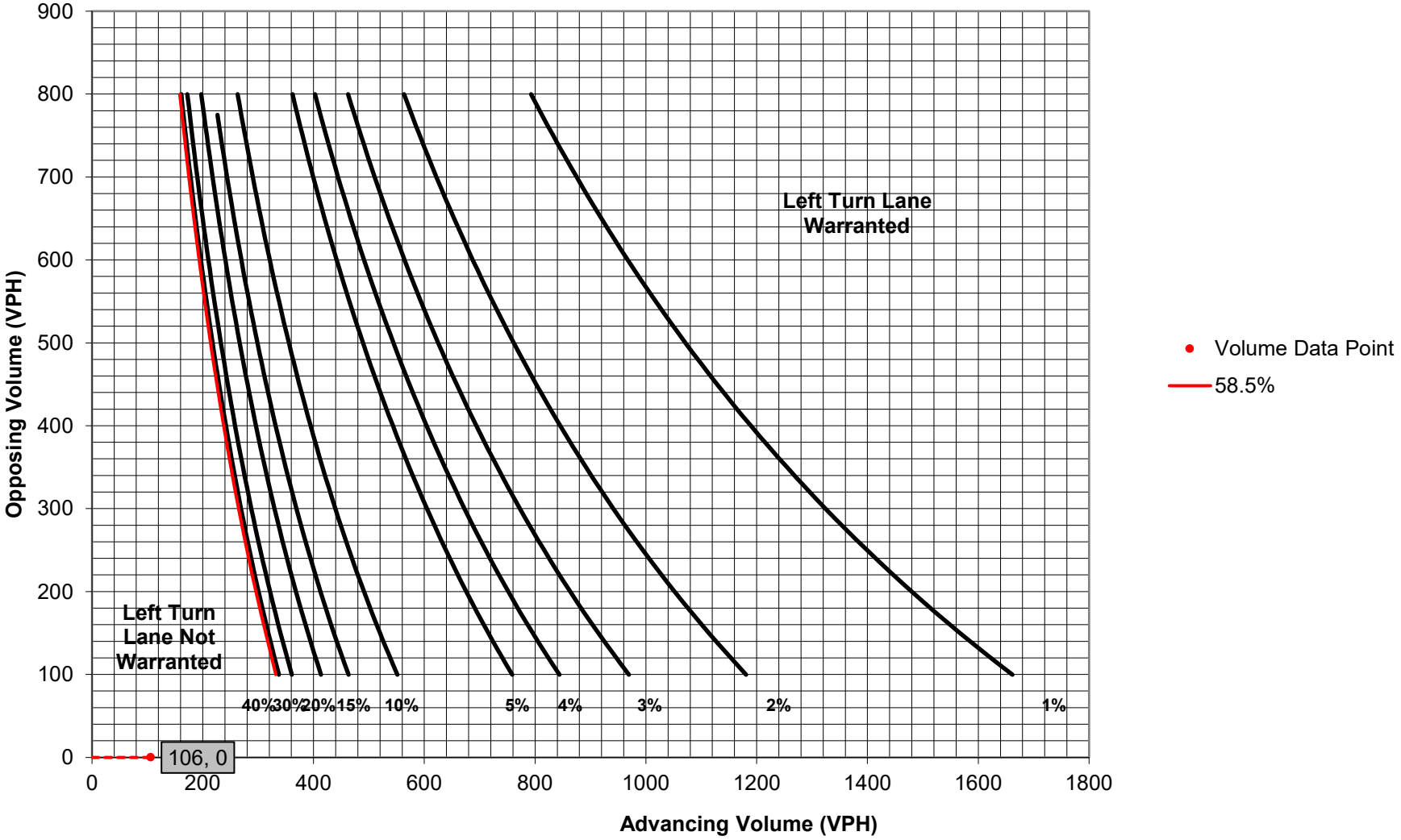
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: County Club Rd & Main Driveway / Southbound Right Turn

Analysis Period:	2027 Opening Year (Build)	**Number of Approach Lanes:**	1
Design Hour:	SAT 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	62	0.0%	62
	Through	-	0	0.0%	0
	Right	-	44	0.0%	44

Advancing Volume:	106
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

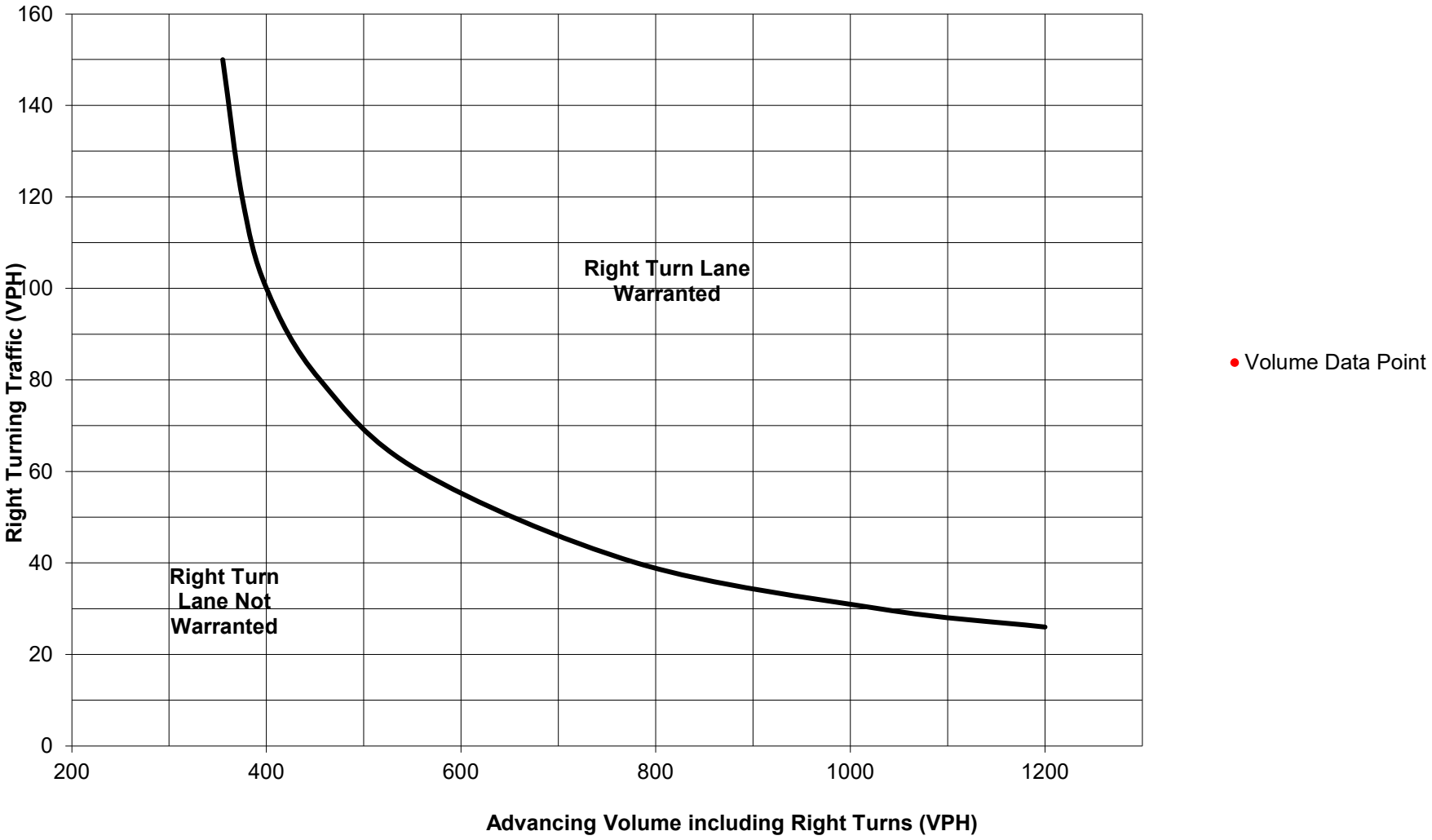
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: County Club Rd & Main Driveway / Westbound Right Turn

Analysis Period:	2027 Opening Year (Build)	**Number of Approach Lanes:**	1
Design Hour:	SAT 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	-	11	2.0%	12
	Right	-	12	2.0%	13

Advancing Volume:	25
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

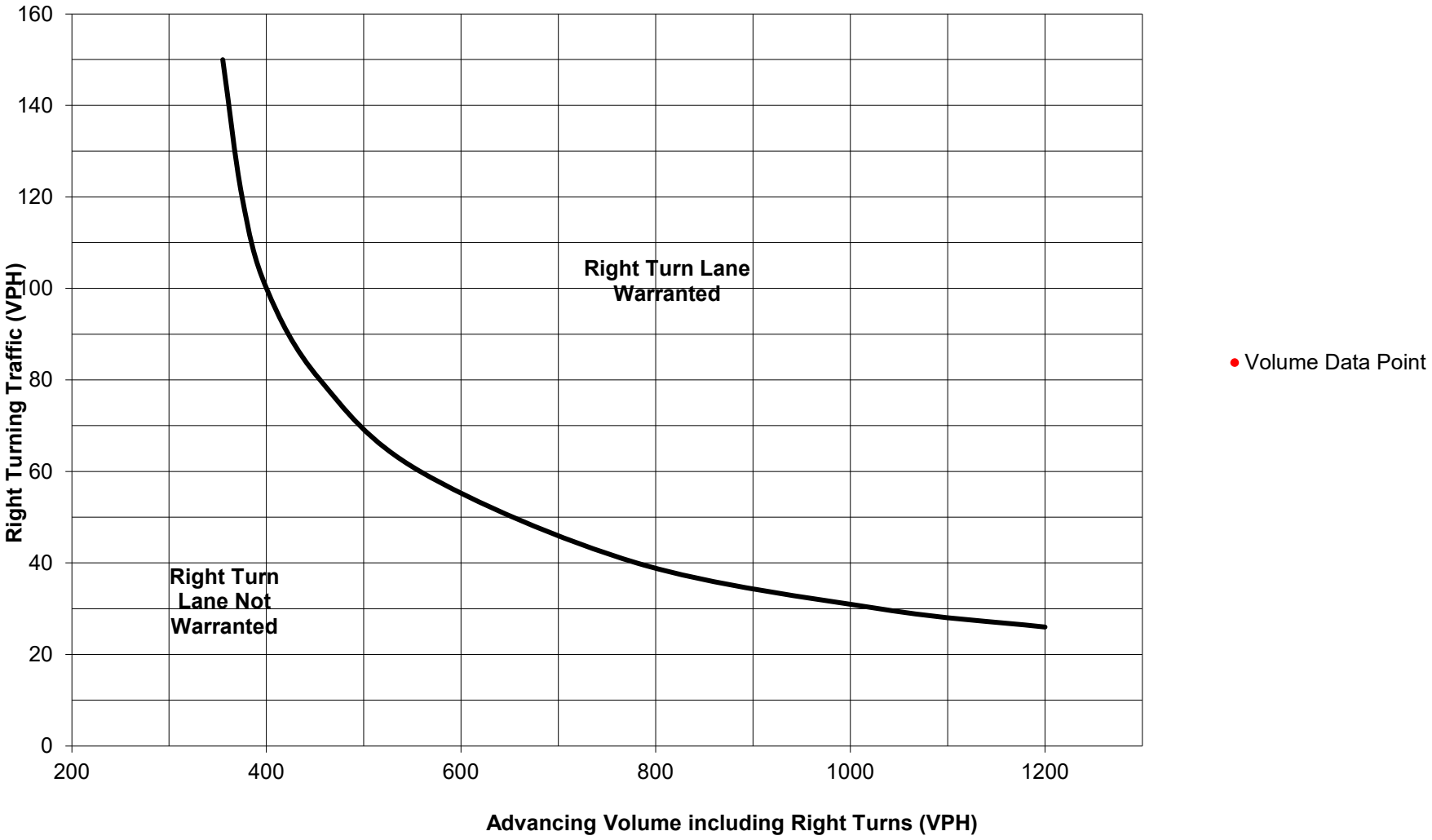
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: County Club Rd & Eastern Driveway / Eastbound Left Turn

Analysis Period:	2027 Opening Year (Build)	**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	2.0%	3
	Through	-	74	12.0%	88
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	110	25.0%	152
	Right	Yes	41	2.0%	43

Advancing Volume: 91
Opposing Volume: 195
Left Turn Volume: 3
% Left Turns in Advancing Volume: 3.30%

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:	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

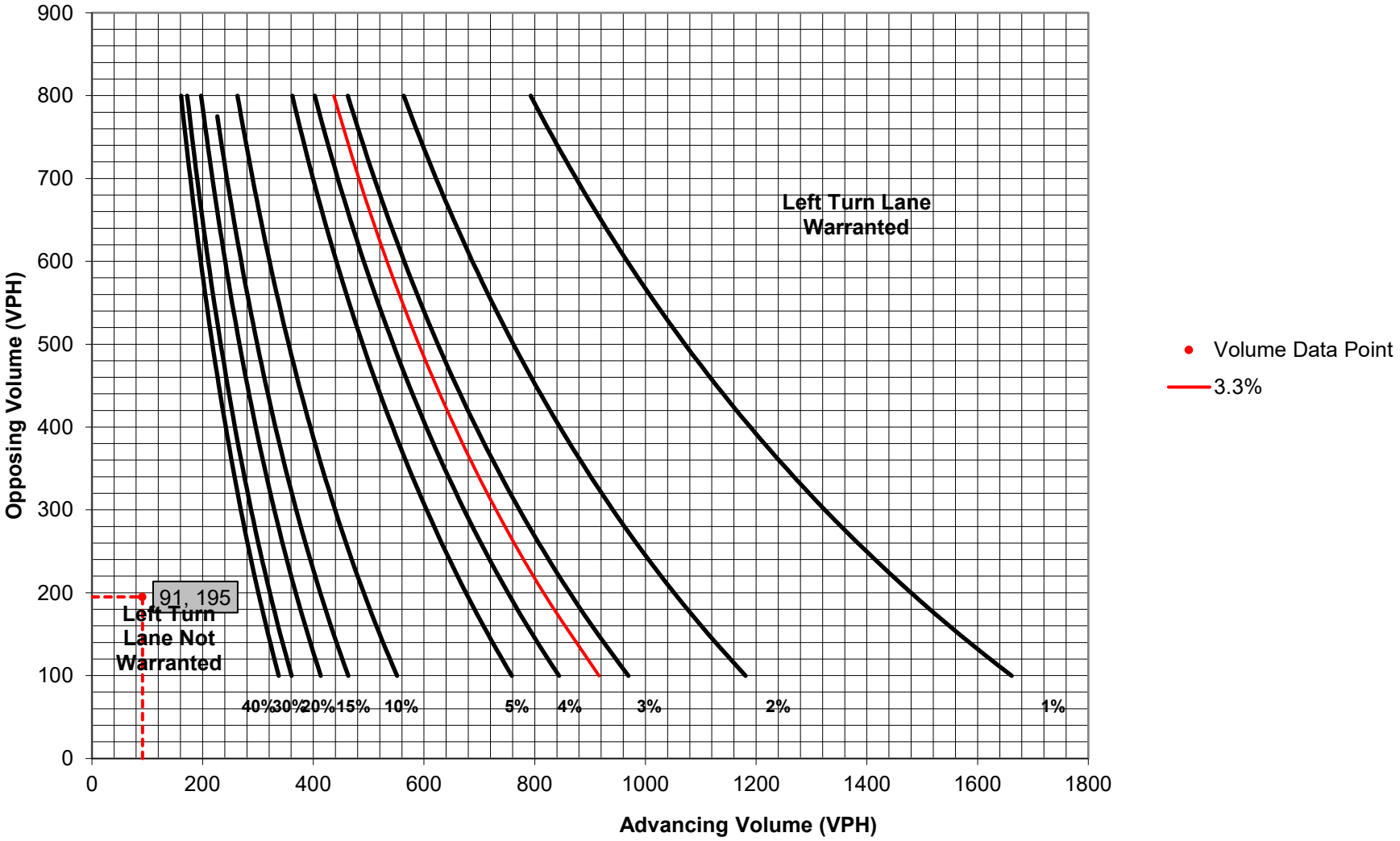
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: County Club Rd & Eastern Driveway / Southbound Left Turn

Analysis Period:	2027 Opening Year (Build)	**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	16	2.0%	17
	Through	-	0	0.0%	0
	Right	Yes	2	2.0%	3
Opposing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	0
	Right	No	0	0.0%	N/A

Advancing Volume:	20
Opposing Volume:	0
Left Turn Volume:	17
% Left Turns in Advancing Volume:	85.00%

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

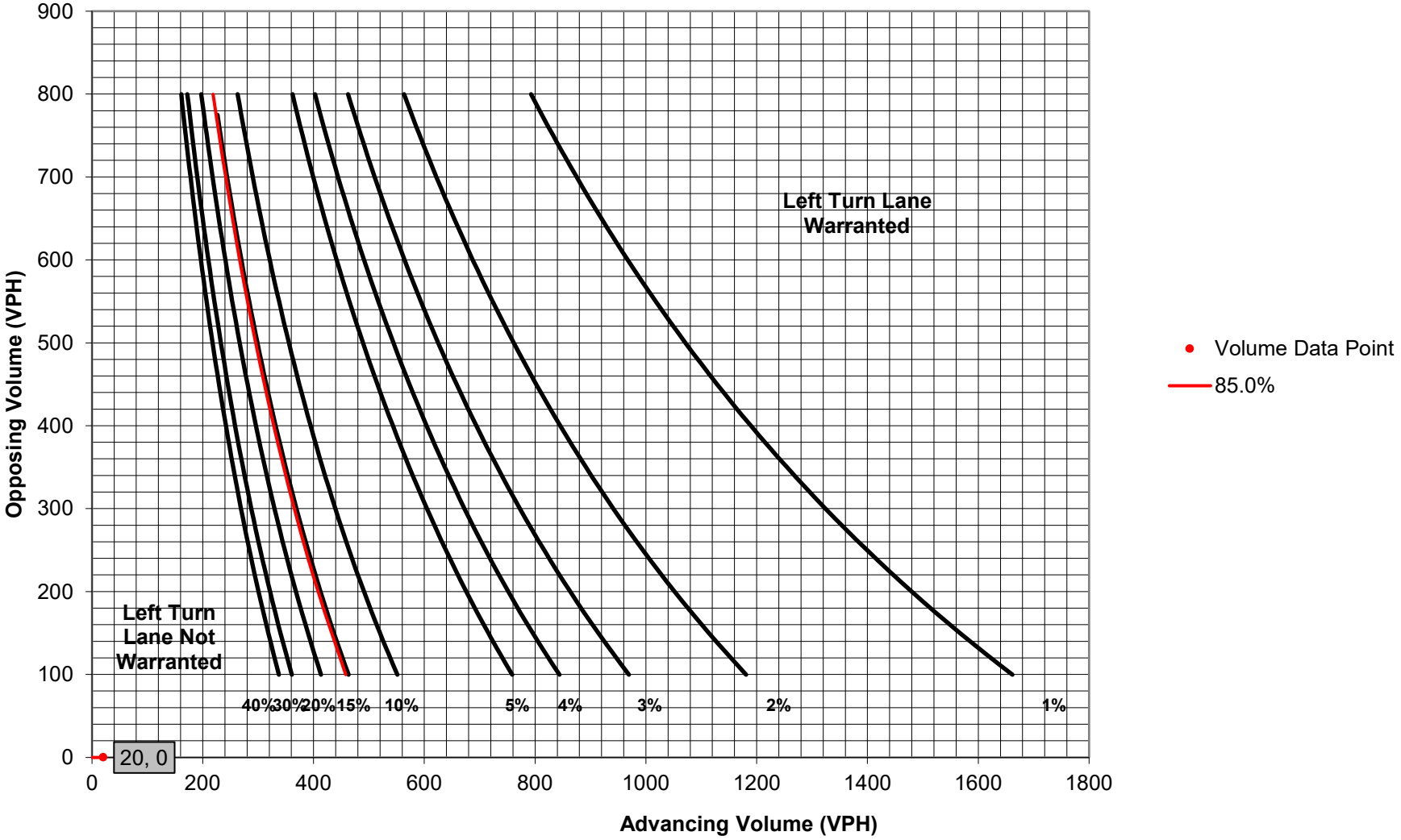
Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: County Club Rd & Eastern Driveway / Southbound Right Turn

Analysis Period:	2027 Opening Year (Build)	**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	16	2.0%	17
	Through	-	0	0.0%	0
	Right	-	2	2.0%	3

Advancing Volume:	20
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

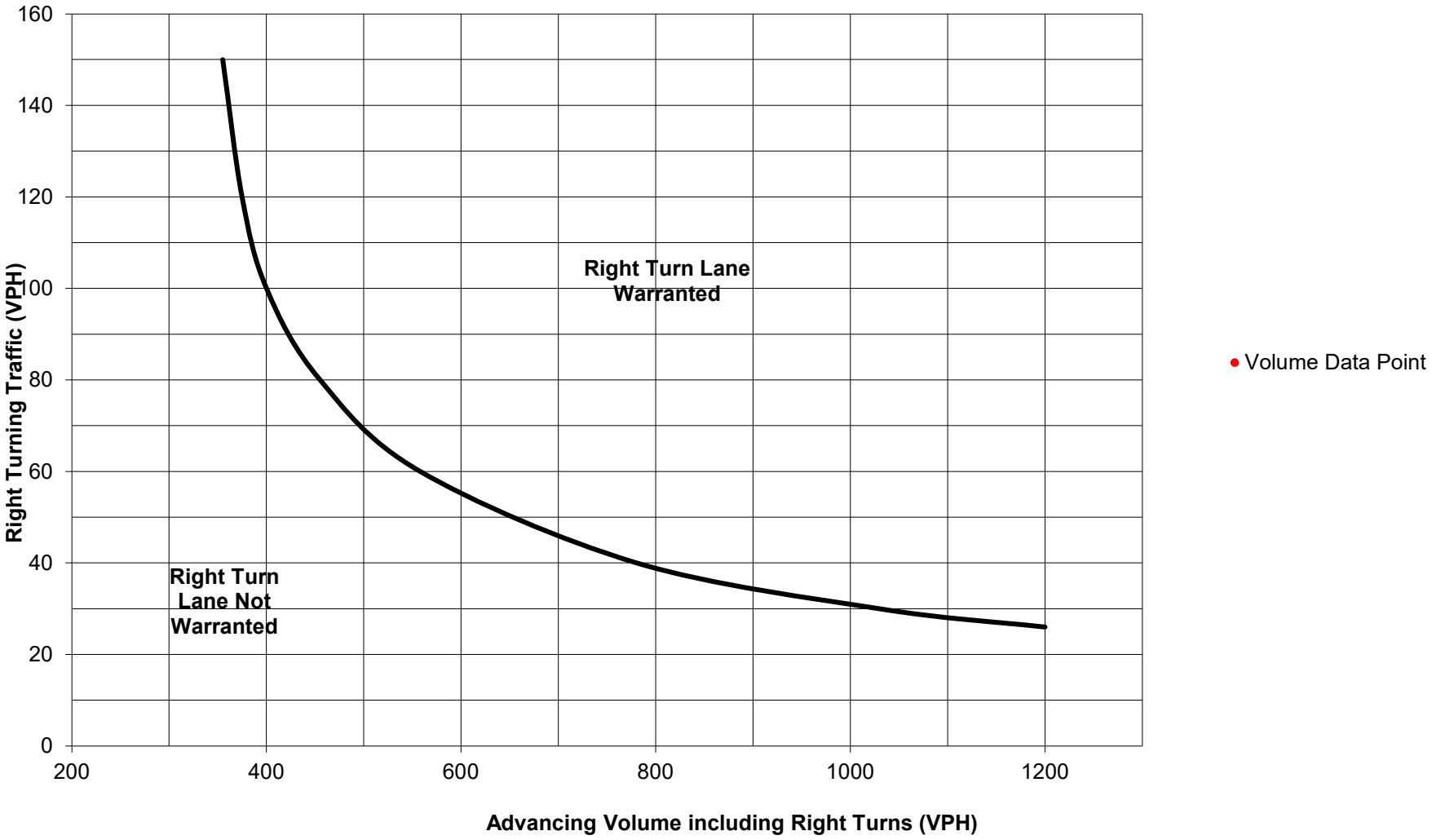
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: County Club Rd & Eastern Driveway
Westbound Right Turn

Analysis Period:	2027 Opening Year (Build)	**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	-	110	25.0%	152
	Right	-	41	2.0%	43

Advancing Volume: 195
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

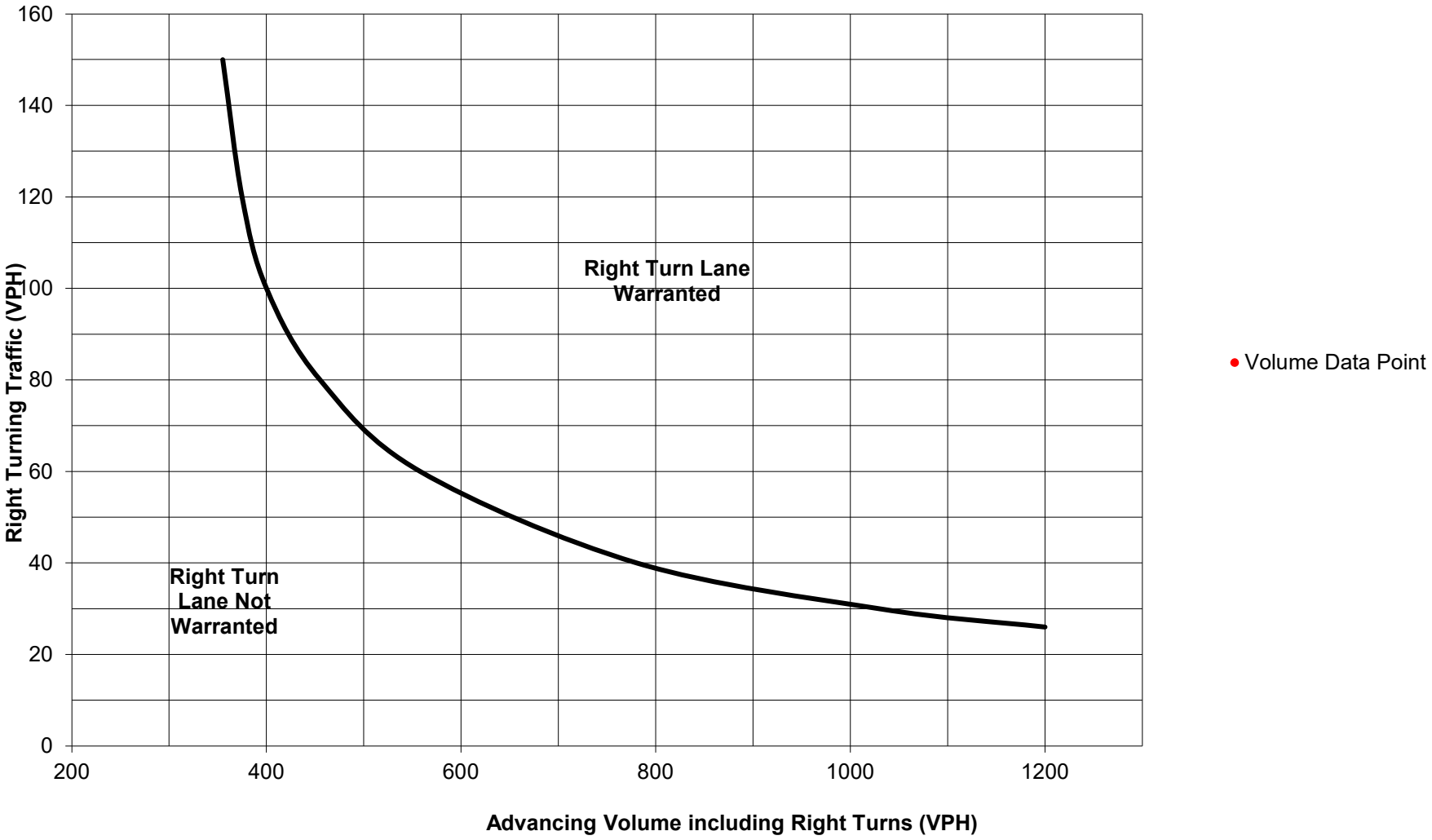
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: County Club Rd & Eastern Driveway / Eastbound Left Turn

Analysis Period:	2027 Opening Year (Build)	**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	2	2.0%	3
	Through	-	109	11.0%	127
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	34	2.0%	36
	Right	Yes	8	2.0%	9

Advancing Volume:	130
Opposing Volume:	45
Left Turn Volume:	3
% Left Turns in Advancing Volume:	2.31%

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 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

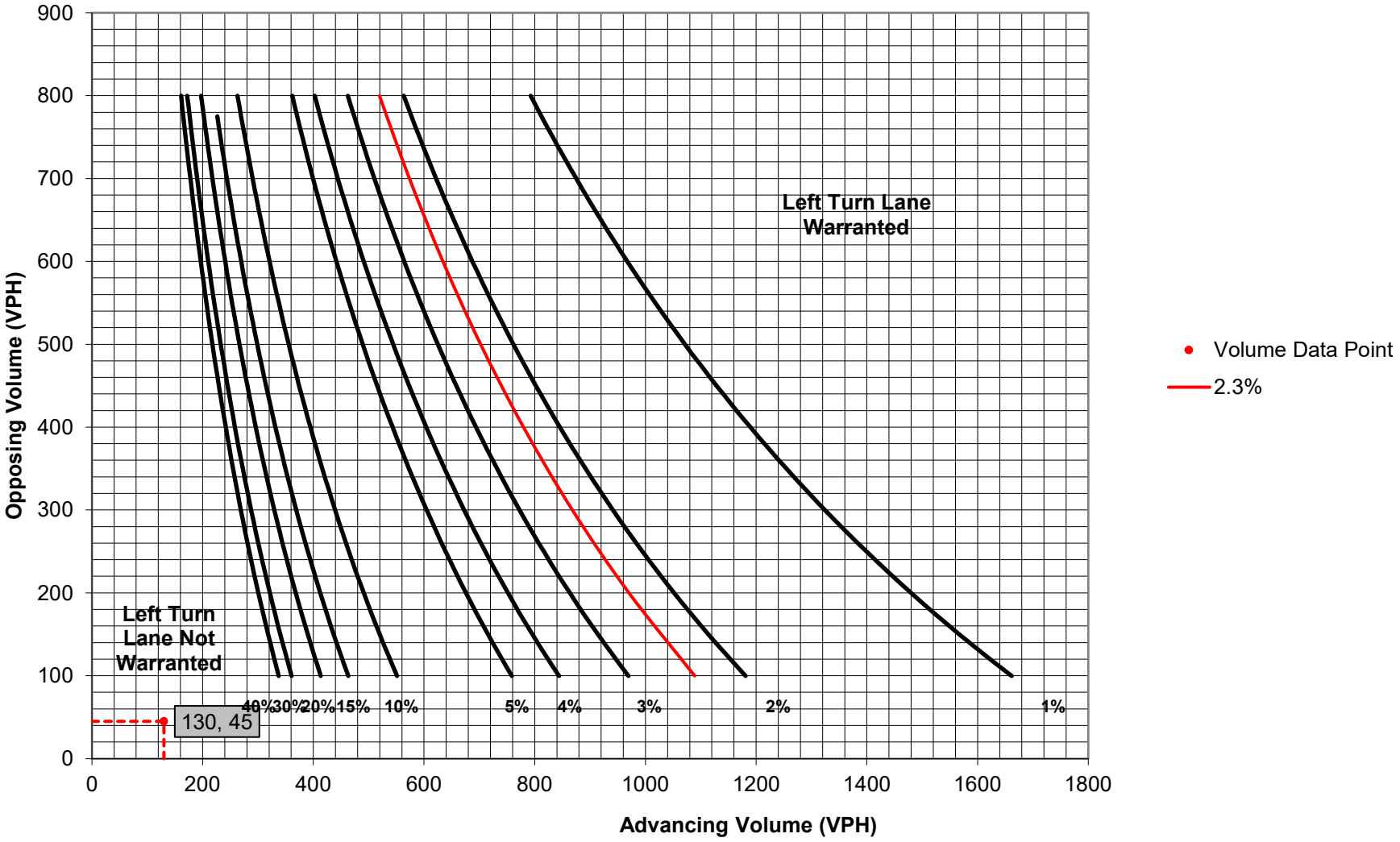
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: County Club Rd & Eastern Driveway / Southbound Left Turn

Analysis Period:	2027 Opening Year (Build)	**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	38	2.0%	40
	Through	-	0	0.0%	0
	Right	Yes	2	2.0%	3
Opposing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	0
	Right	No	0	0.0%	N/A

Advancing Volume:	43
Opposing Volume:	0
Left Turn Volume:	40
% Left Turns in Advancing Volume:	93.02%

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?: #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:	40
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

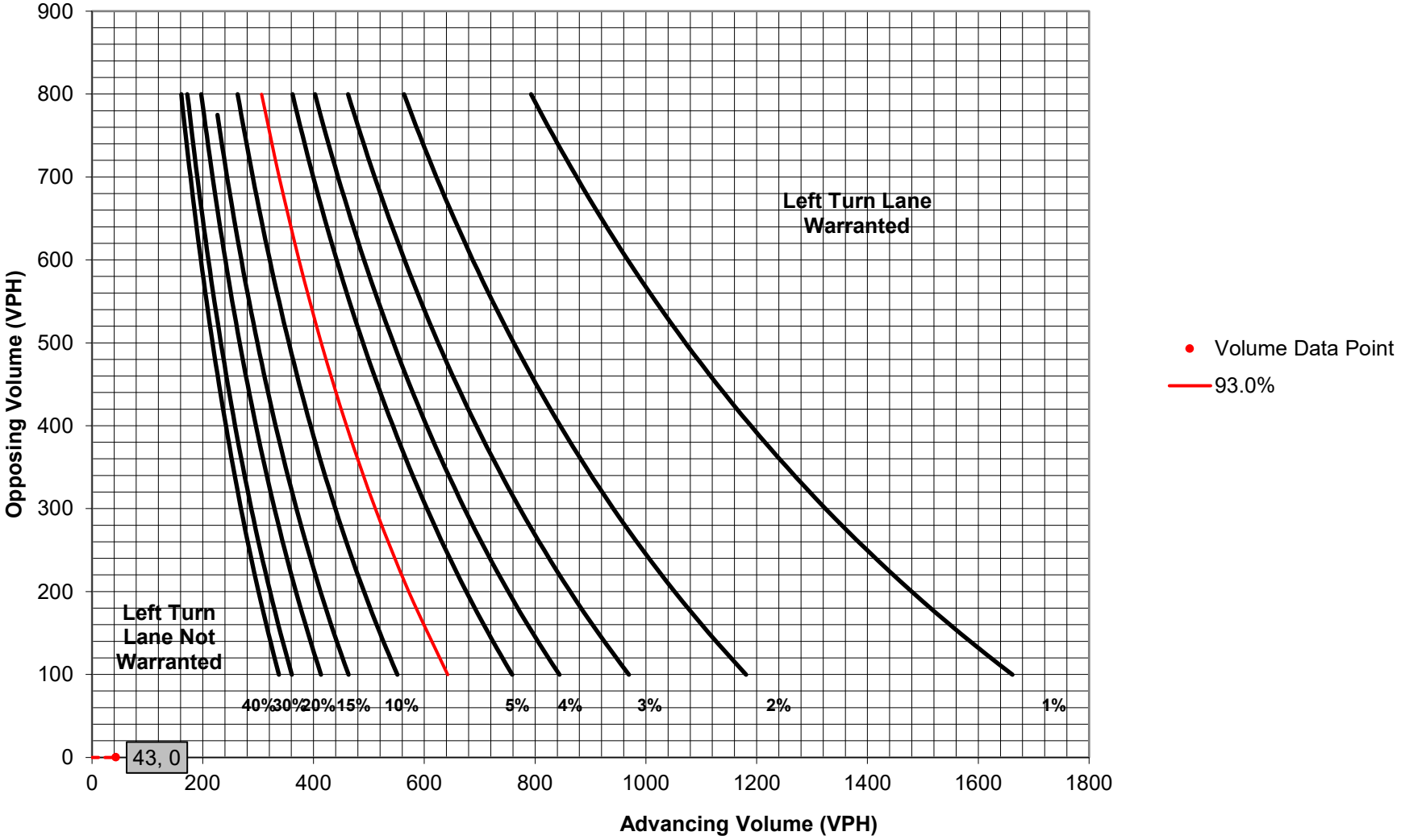
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: County Club Rd & Eastern Driveway / Southbound Right Turn

Analysis Period:	2027 Opening Year (Build)	**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	38	2.0%	40
	Through	-	0	0.0%	0
	Right	-	2	2.0%	3

Advancing Volume:	43
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

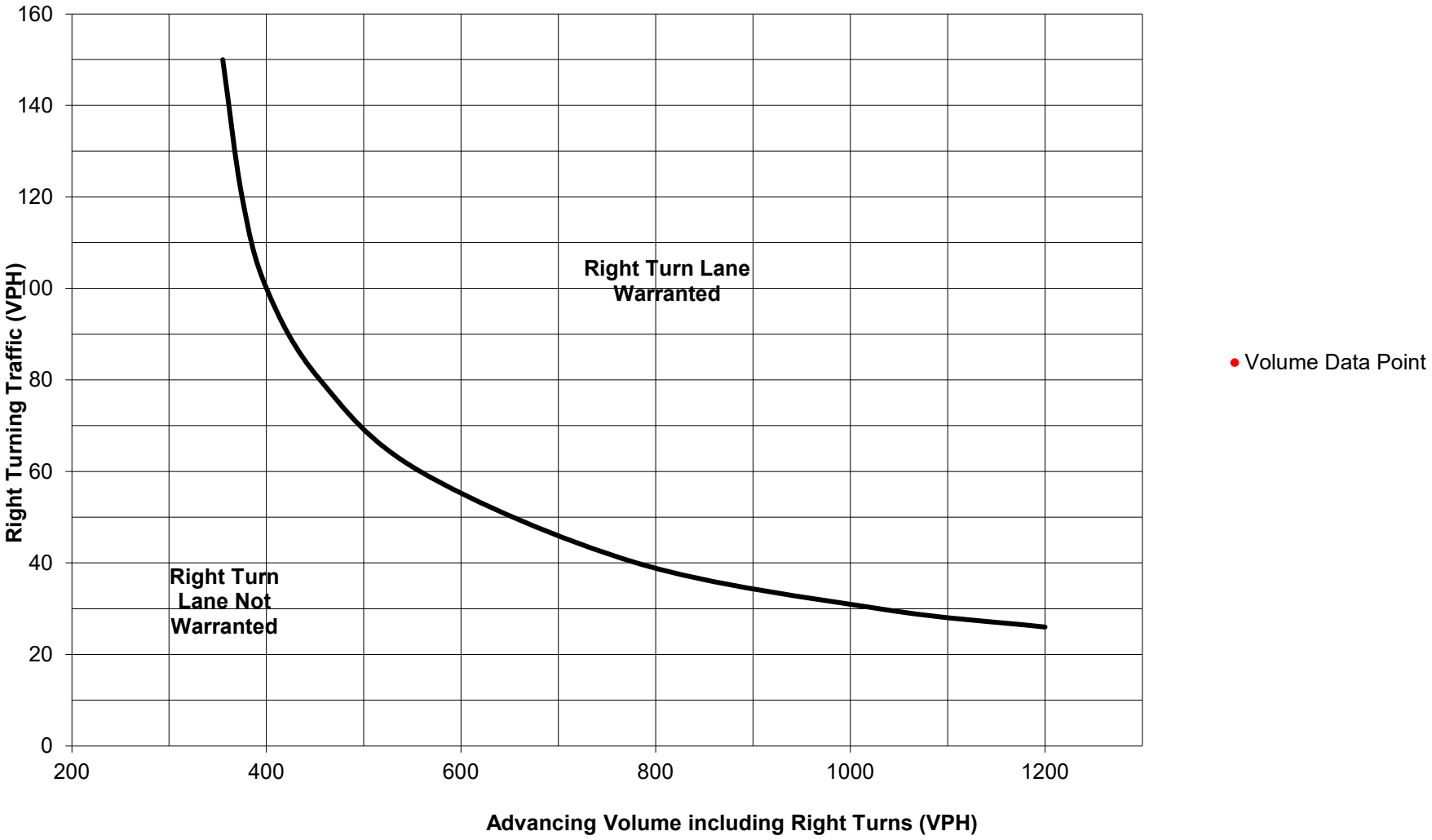
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: County Club Rd & Eastern Driveway
Westbound Right Turn

Analysis Period:	2027 Opening Year (Build)	**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	-	34	2.0%	36
	Right	-	8	2.0%	9

Advancing Volume:	45
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

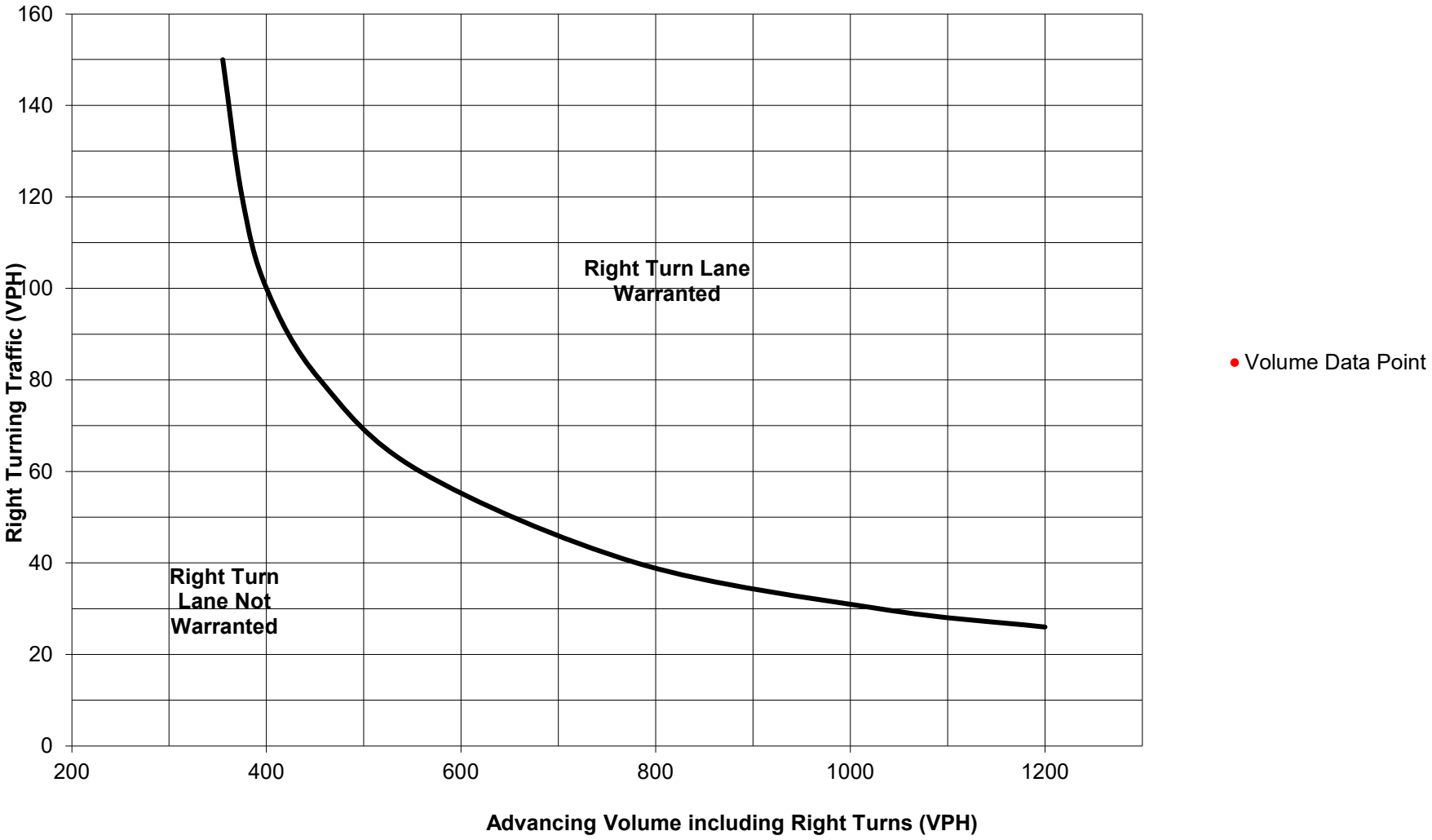
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: County Club Rd & Eastern Driveway / Eastbound Left Turn

Analysis Period:	2027 Opening Year (Build)	**Number of Approach Lanes:**	1
Design Hour:	SAT 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	2.0%	3
	Through	-	108	4.0%	115
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	21	2.0%	22
	Right	Yes	8	2.0%	9

Advancing Volume:	118
Opposing Volume:	31
Left Turn Volume:	3
% Left Turns in Advancing Volume:	2.54%

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 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

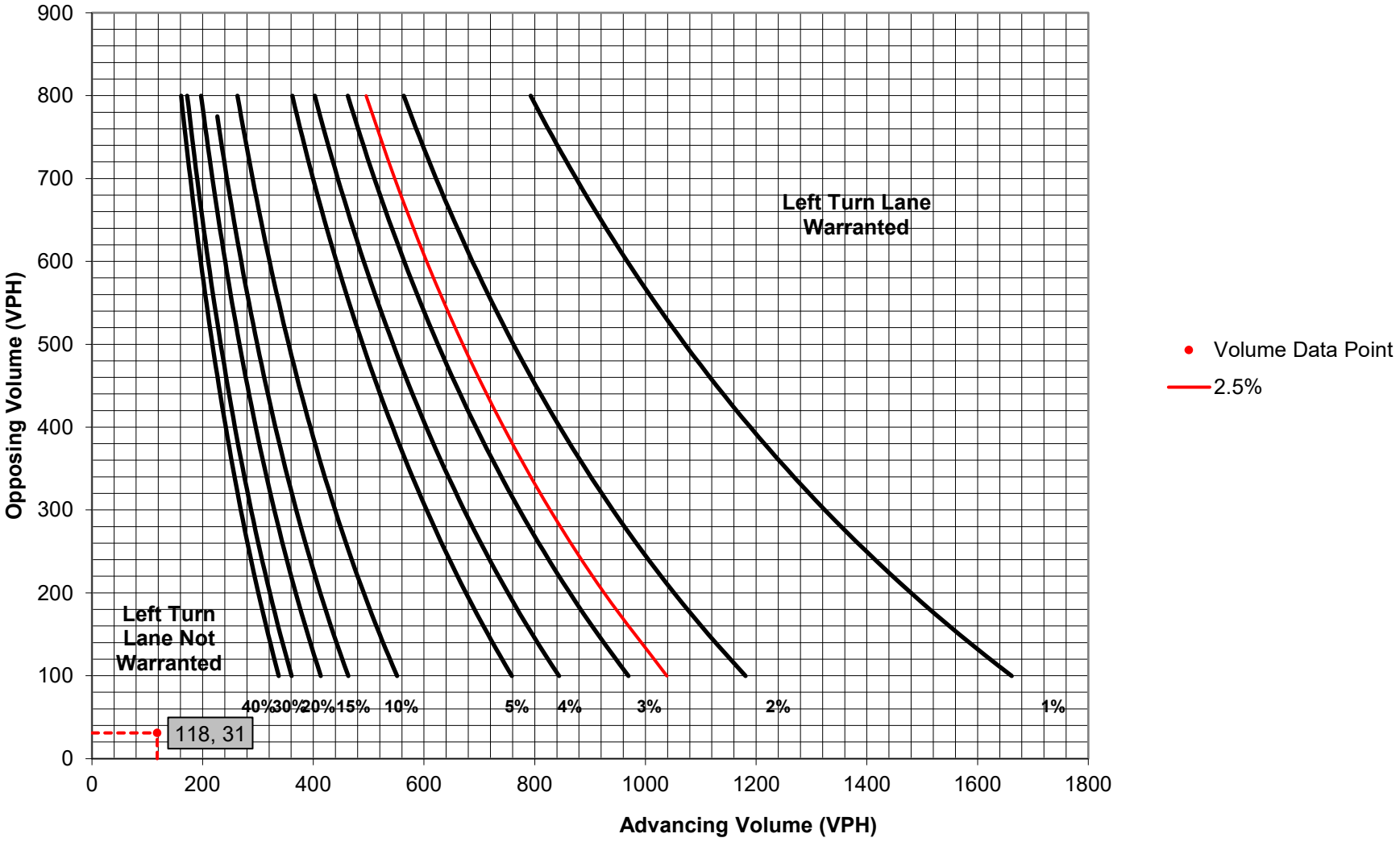
Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: County Club Rd & Eastern Driveway / Southbound Left Turn

Analysis Period:	2027 Opening Year (Build)	**Number of Approach Lanes:**	1
Design Hour:	SAT 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	38	2.0%	40
	Through	-	0	0.0%	0
	Right	Yes	2	2.0%	3
Opposing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	0
	Right	No	0	0.0%	N/A

Advancing Volume:	43
Opposing Volume:	0
Left Turn Volume:	40
% Left Turns in Advancing Volume:	93.02%

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?: #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:	40
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

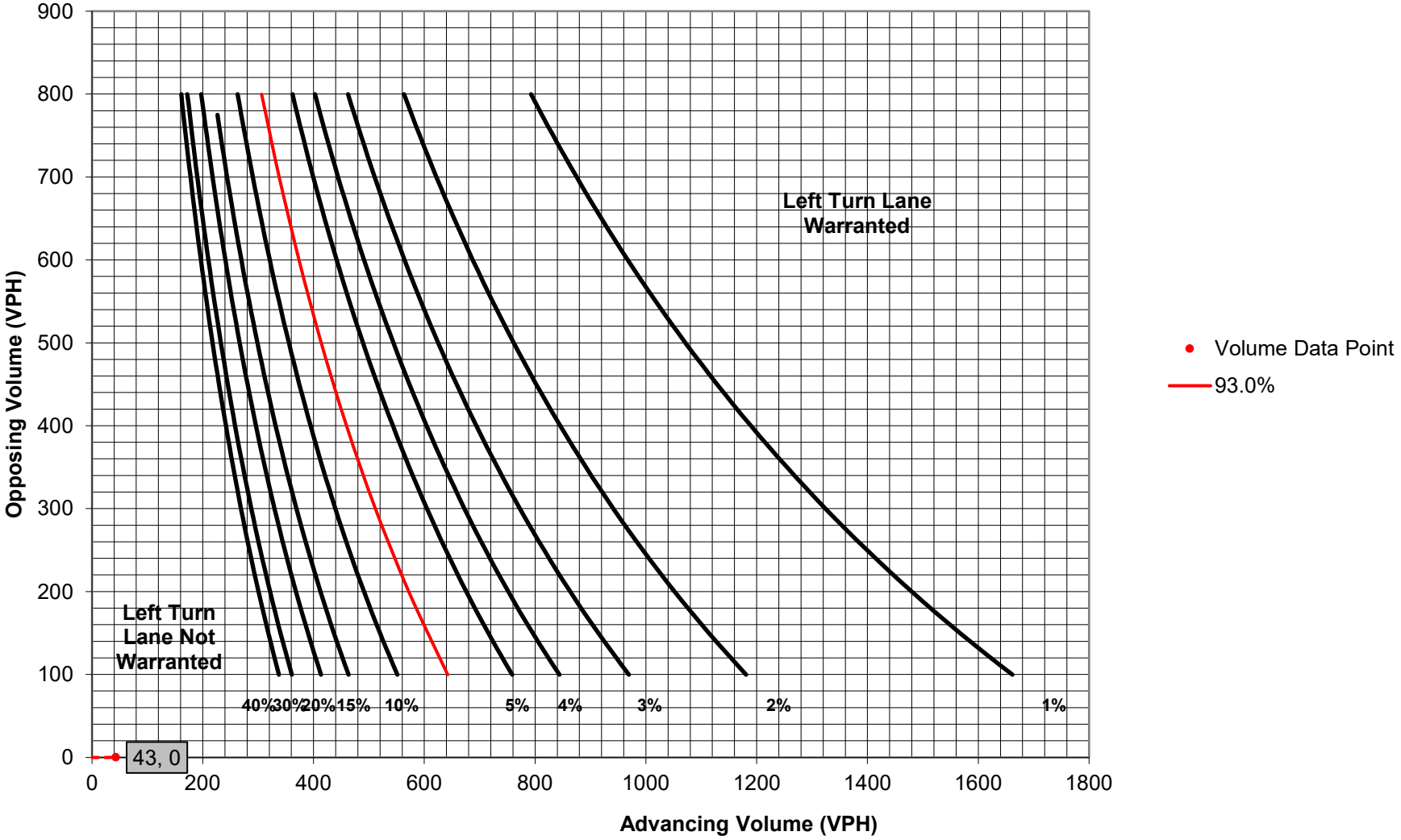
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: County Club Rd & Eastern Driveway / Southbound Right Turn

Analysis Period:	2027 Opening Year (Build)	**Number of Approach Lanes:**	1
Design Hour:	SAT 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	38	2.0%	40
	Through	-	0	0.0%	0
	Right	-	2	2.0%	3

Advancing Volume:	43
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

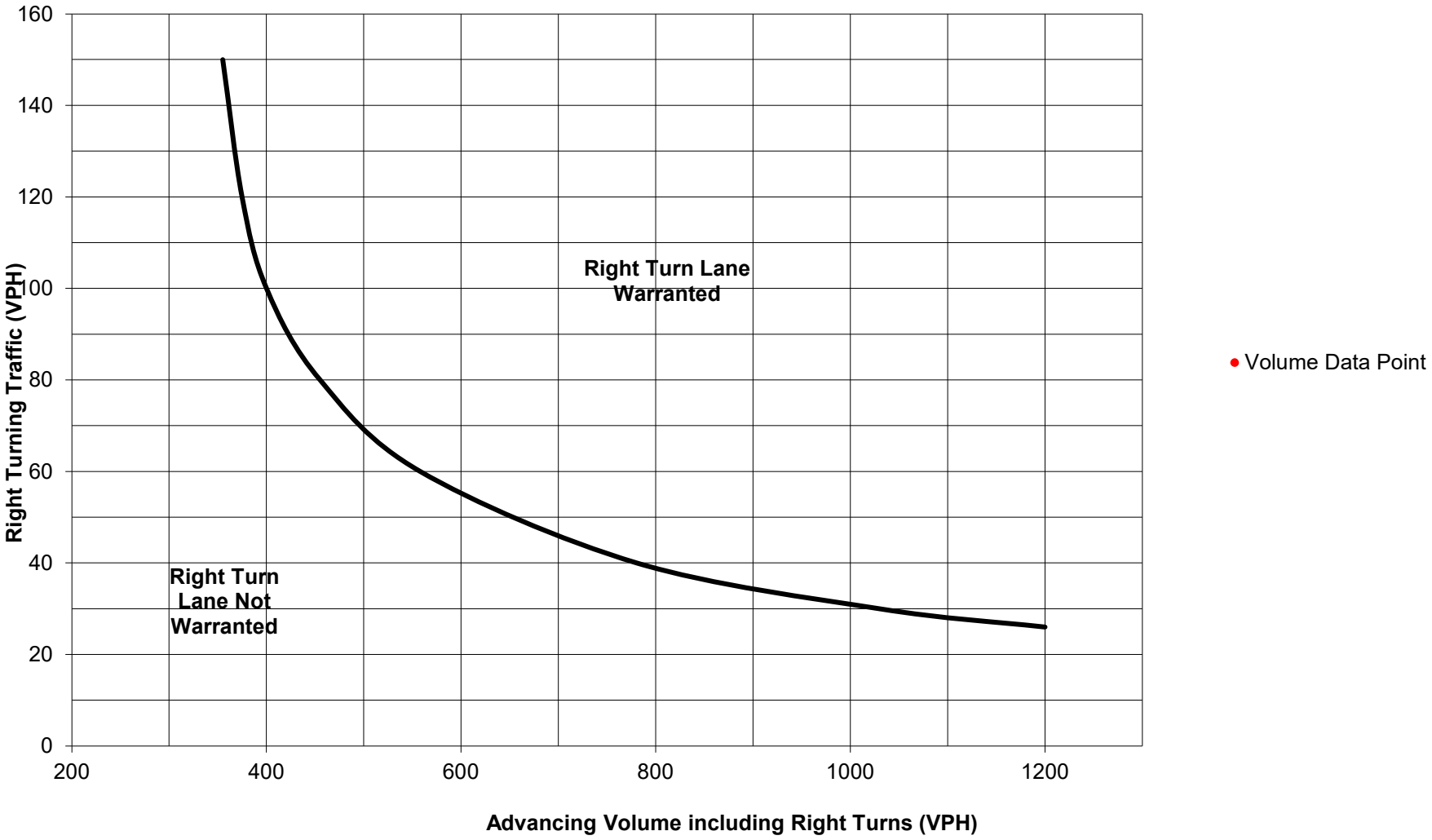
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: County Club Rd & Eastern Driveway
Westbound Right Turn

Analysis Period:	2027 Opening Year (Build)	**Number of Approach Lanes:**	1
Design Hour:	SAT 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	-	21	2.0%	22
	Right	-	8	2.0%	9

Advancing Volume:	31
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

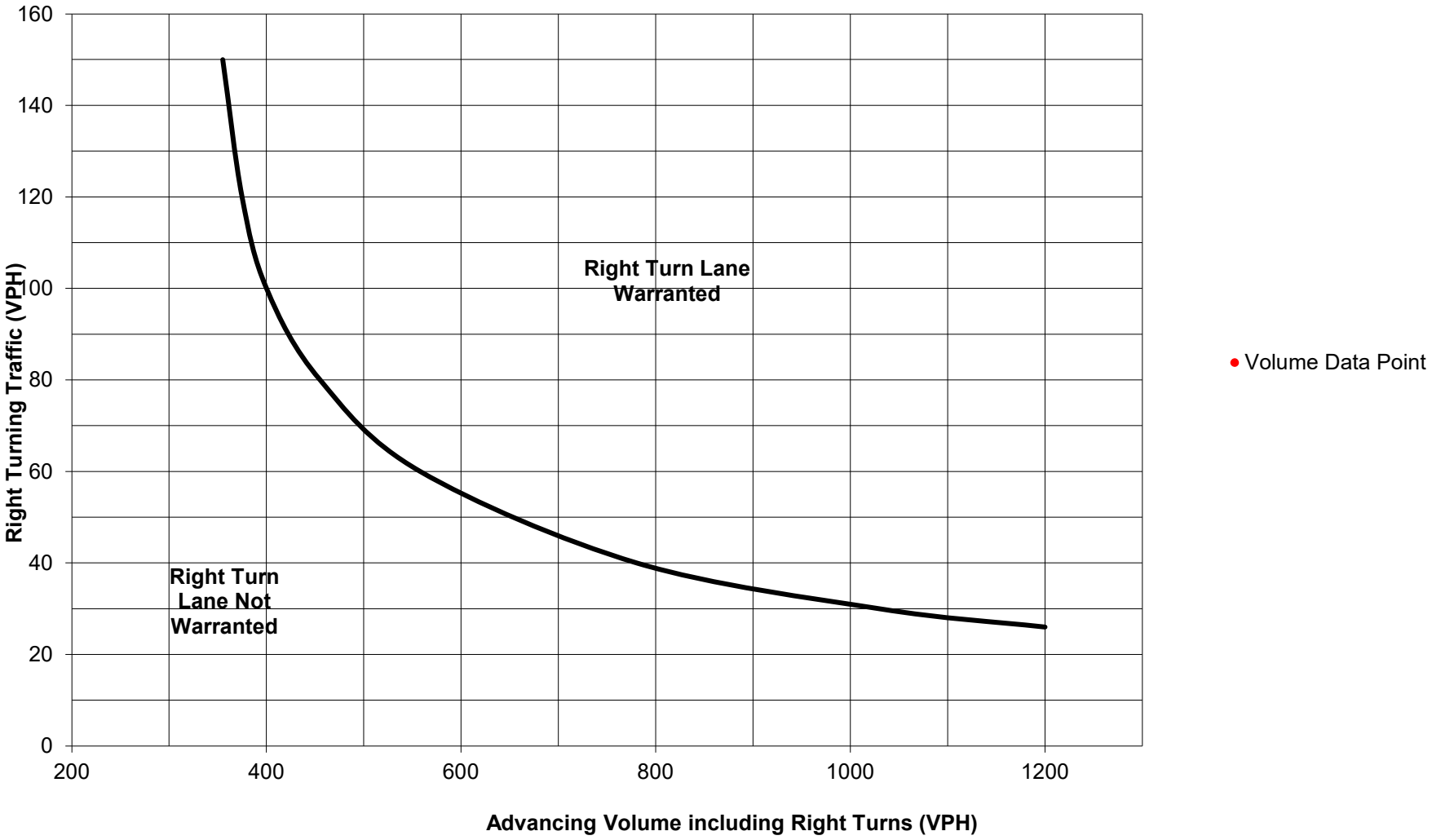
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Eastbound Left Turn

Analysis Period:	2037 Design Year (No Build)	**Number of Approach Lanes:**	2
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
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	22	15.0%	27
	Through	-	1056	23.0%	1421
	Right	No	10	11.0%	N/A
Opposing	Left	No	3	33.0%	N/A
	Through	-	753	25.0%	1036
	Right	Yes	20	6.0%	22

Advancing Volume:	1448
Opposing Volume:	1058
Left Turn Volume:	27
% Left Turns in Advancing Volume:	1.86%

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 8

Warrant Met?: Yes

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):	33

Average # of Vehicles/Cycle: 1.0

PennDOT Publication 46, Exhibit 11-6

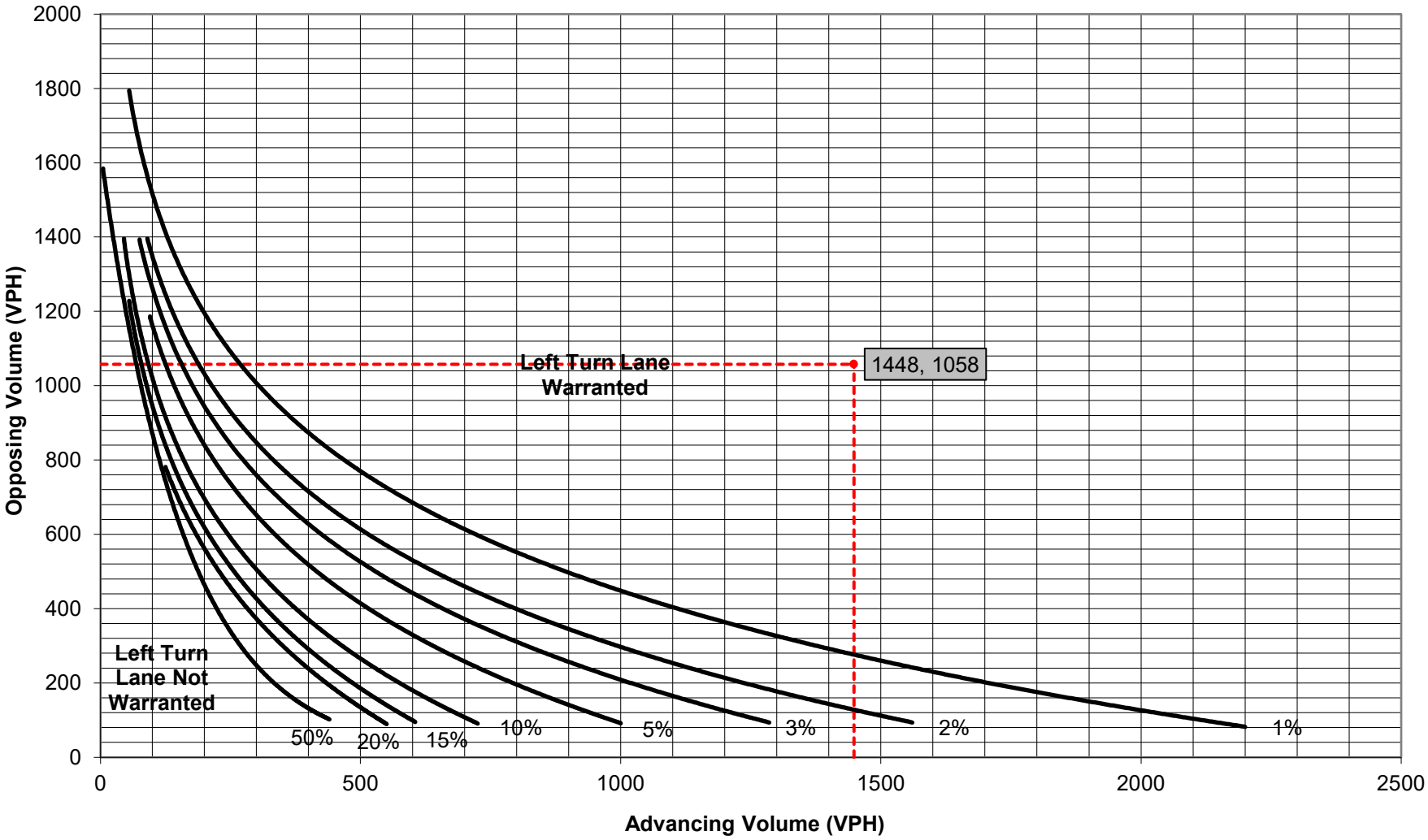
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	75	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	75	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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Eastbound Right Turn

Analysis Period:	2037 Design Year (No Build)	**Number of Approach Lanes:**	2
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
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	22	15.0%	N/A
	Through	-	1056	23.0%	1421
	Right	-	10	11.0%	12

Advancing Volume:	1433
Right Turn Volume:	12

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:	12
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

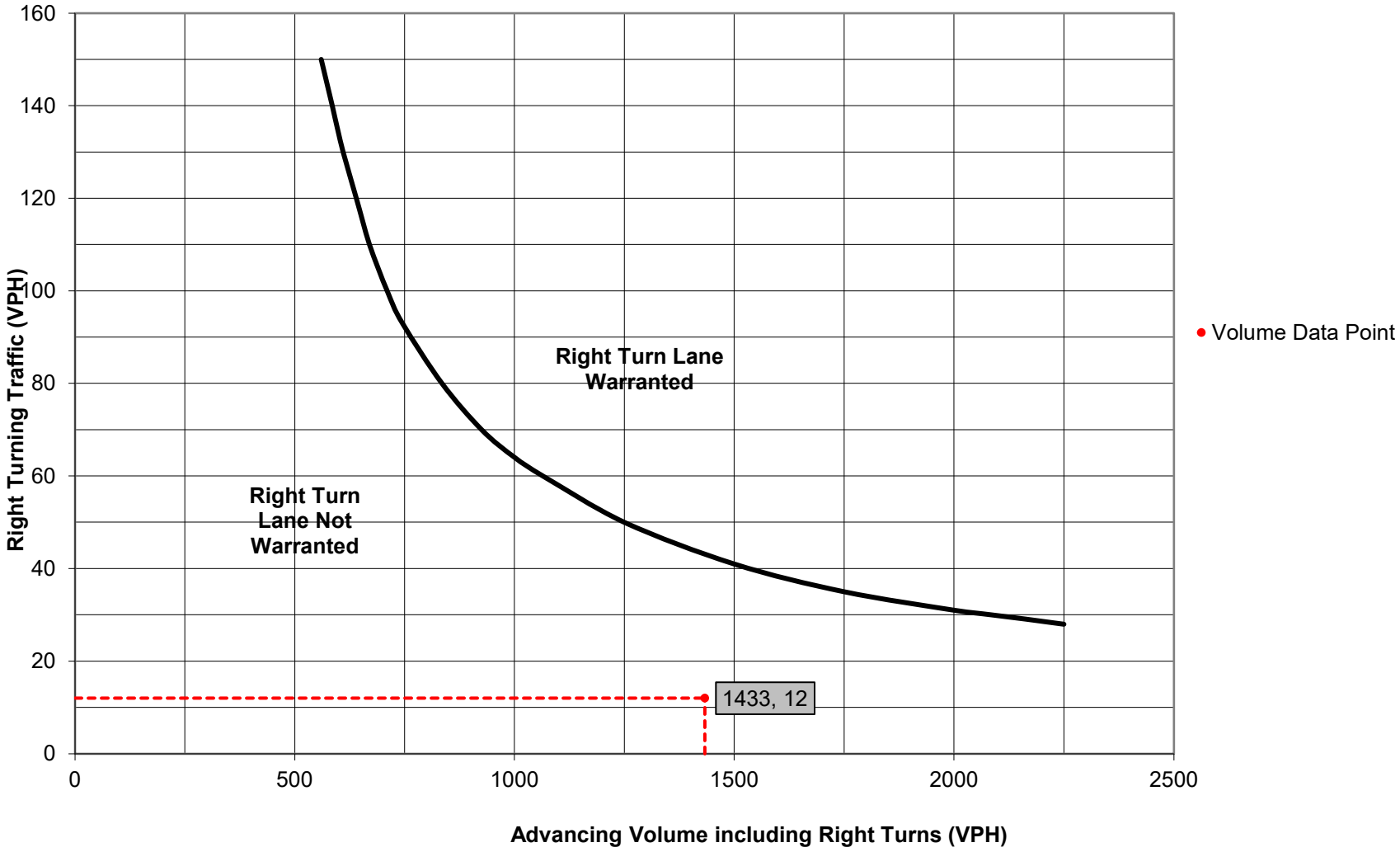
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Northbound Left Turn

Analysis Period:	2037 Design Year (No Build)	**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	1	0.0%	1
	Through	-	1	0.0%	1
	Right	No	17	13.0%	N/A
Opposing	Left	Yes	63	3.0%	66
	Through	-	1	0.0%	1
	Right	Yes	33	0.0%	33

Advancing Volume:	2
Opposing Volume:	100
Left Turn Volume:	1
% Left Turns in Advancing Volume:	50.00%

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?: **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:	1
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

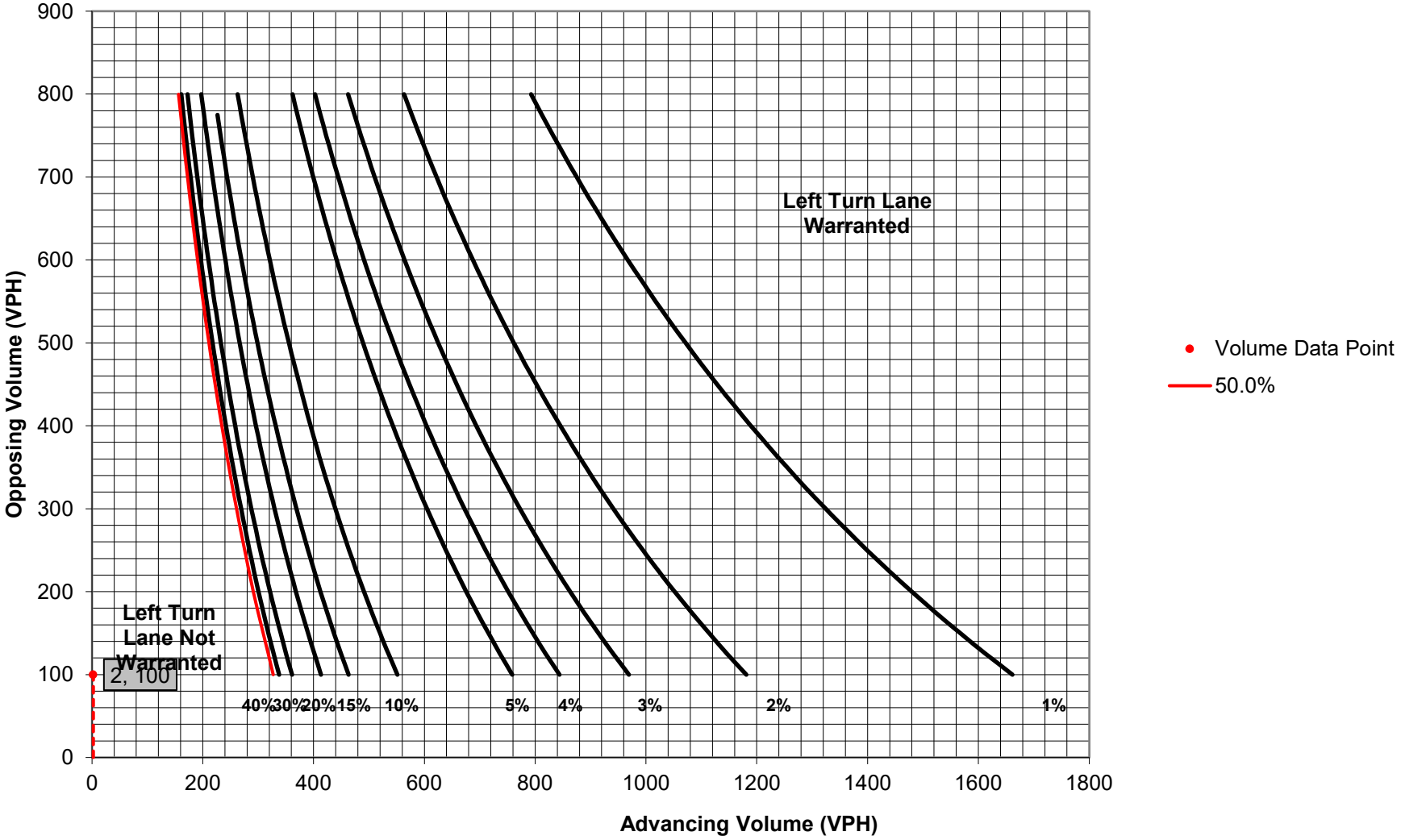
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Northbound Right Turn

Analysis Period:	2037 Design Year (No Build)	**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	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	No	1	0.0%	N/A
	Through	-	1	0.0%	1
	Right	-	17	13.0%	21

Advancing Volume:	22
Right Turn Volume:	21

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:	21
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

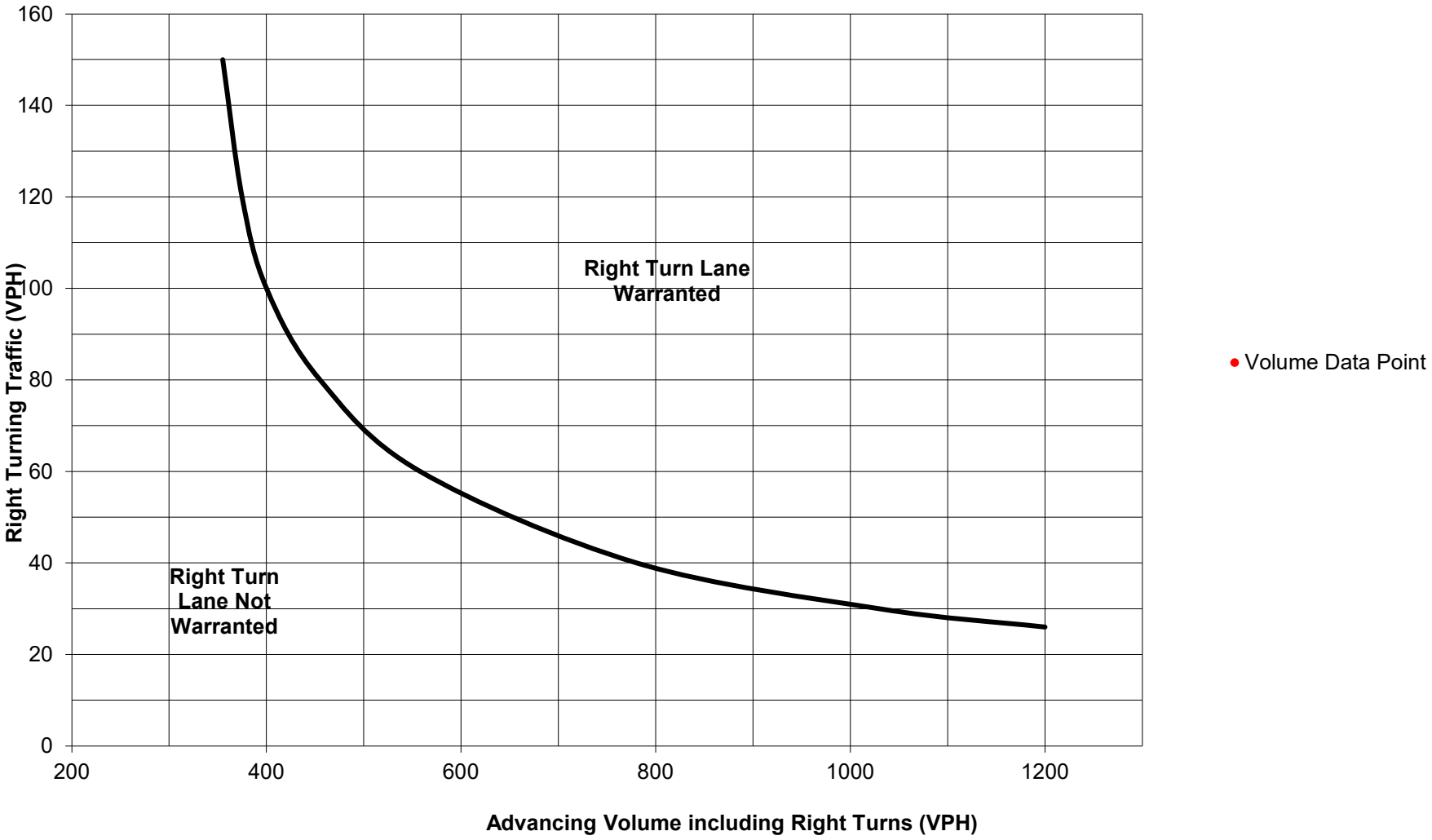
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Southbound Left Turn

Analysis Period:	2037 Design Year (No Build)	**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	63	3.0%	66
	Through	-	1	0.0%	1
	Right	Yes	33	0.0%	33
Opposing	Left	Yes	1	0.0%	1
	Through	-	1	0.0%	1
	Right	Yes	17	13.0%	21

Advancing Volume:	100
Opposing Volume:	23
Left Turn Volume:	66
% Left Turns in Advancing Volume:	66.00%

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:	Signalized
Design Hour Volume of Turning Lane:	66
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

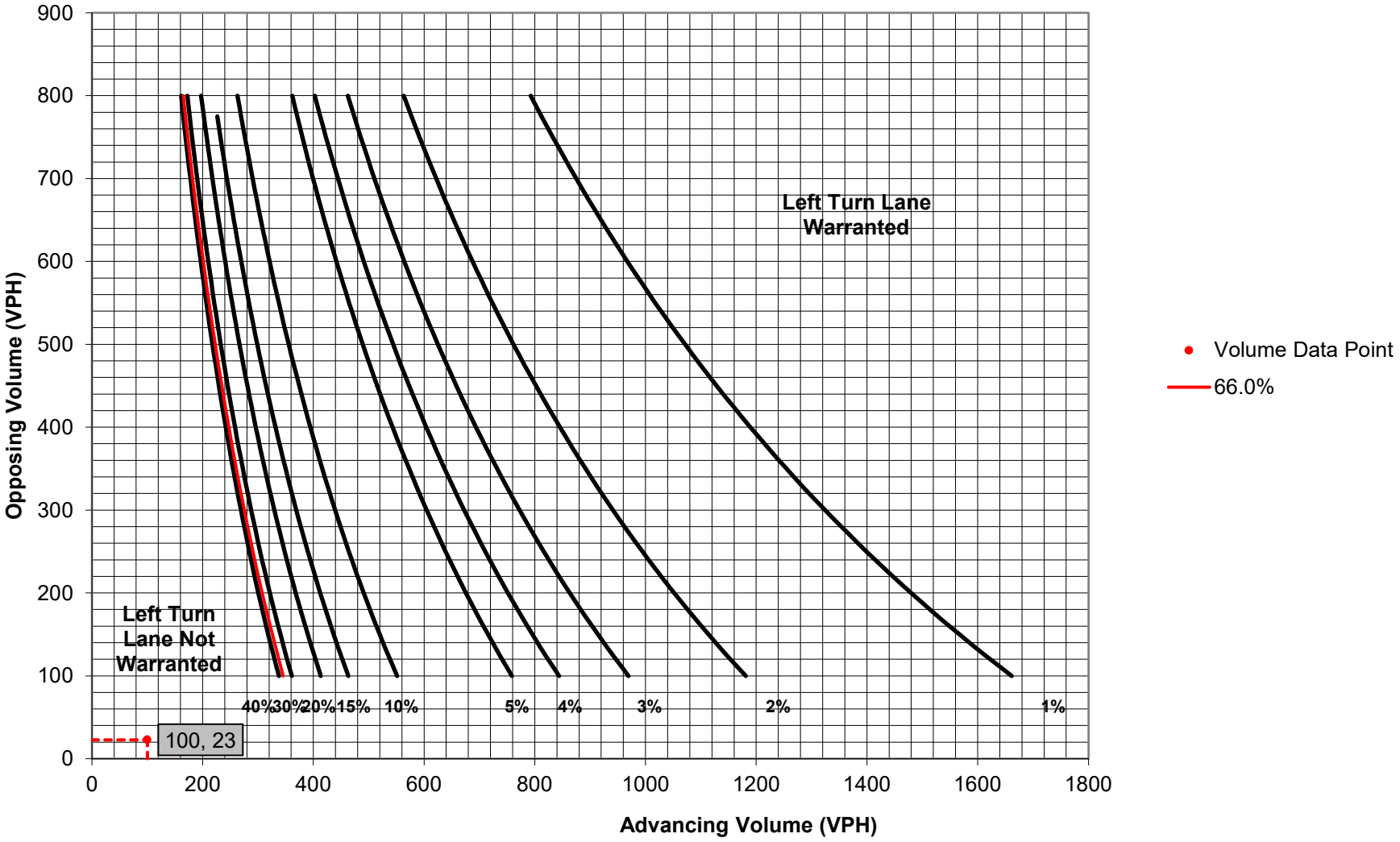
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Southbound Right Turn

Analysis Period:	2037 Design Year (No Build)	**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	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	63	3.0%	66
	Through	-	1	0.0%	1
	Right	-	33	0.0%	33

Advancing Volume: 100
Right Turn Volume: 33

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:	33
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

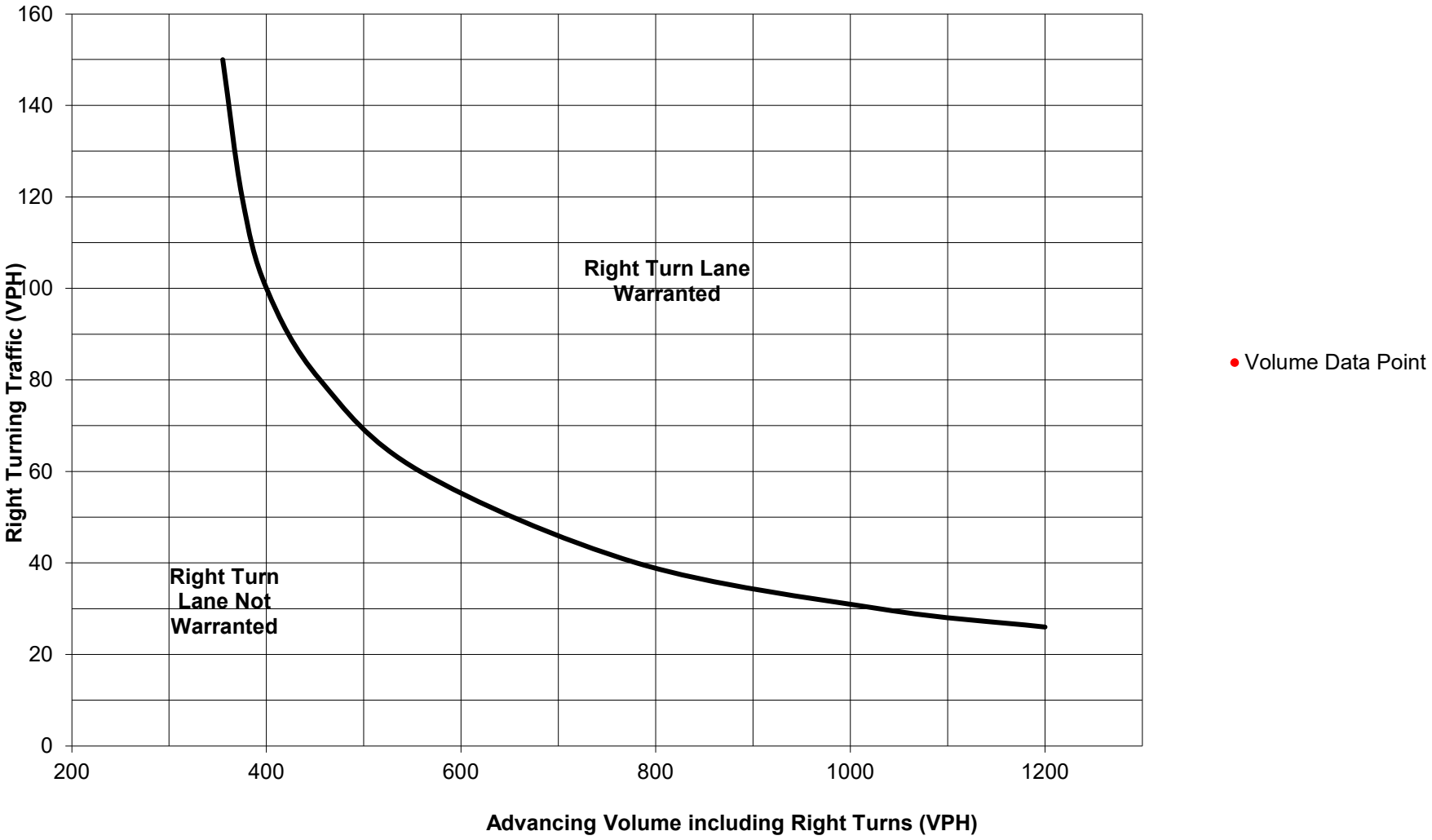
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Westbound Left Turn

Analysis Period:	2037 Design Year (No Build)	**Number of Approach Lanes:**	2
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
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	33.0%	5
	Through	-	753	25.0%	1036
	Right	No	20	6.0%	N/A
Opposing	Left	No	22	15.0%	N/A
	Through	-	1056	23.0%	1421
	Right	Yes	10	11.0%	12

Advancing Volume:	1041
Opposing Volume:	1433
Left Turn Volume:	5
% Left Turns in Advancing Volume:	0.48%

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:	5
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

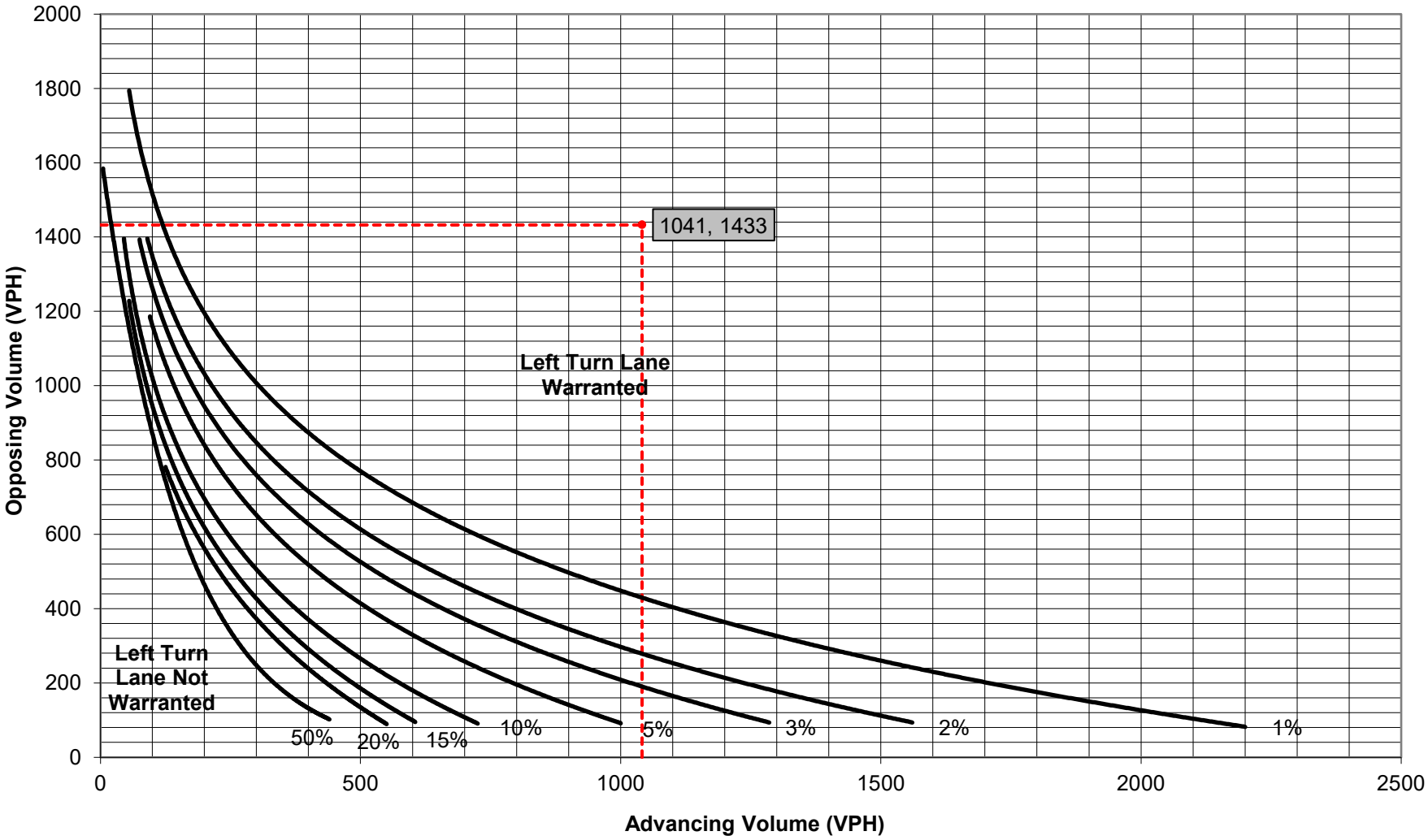
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Westbound Right Turn

Analysis Period:	2037 Design Year (No Build)	**Number of Approach Lanes:**	2
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
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	3	33.0%	N/A
	Through	-	753	25.0%	1036
	Right	-	20	6.0%	22

Advancing Volume:	1058
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 11

Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	22
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

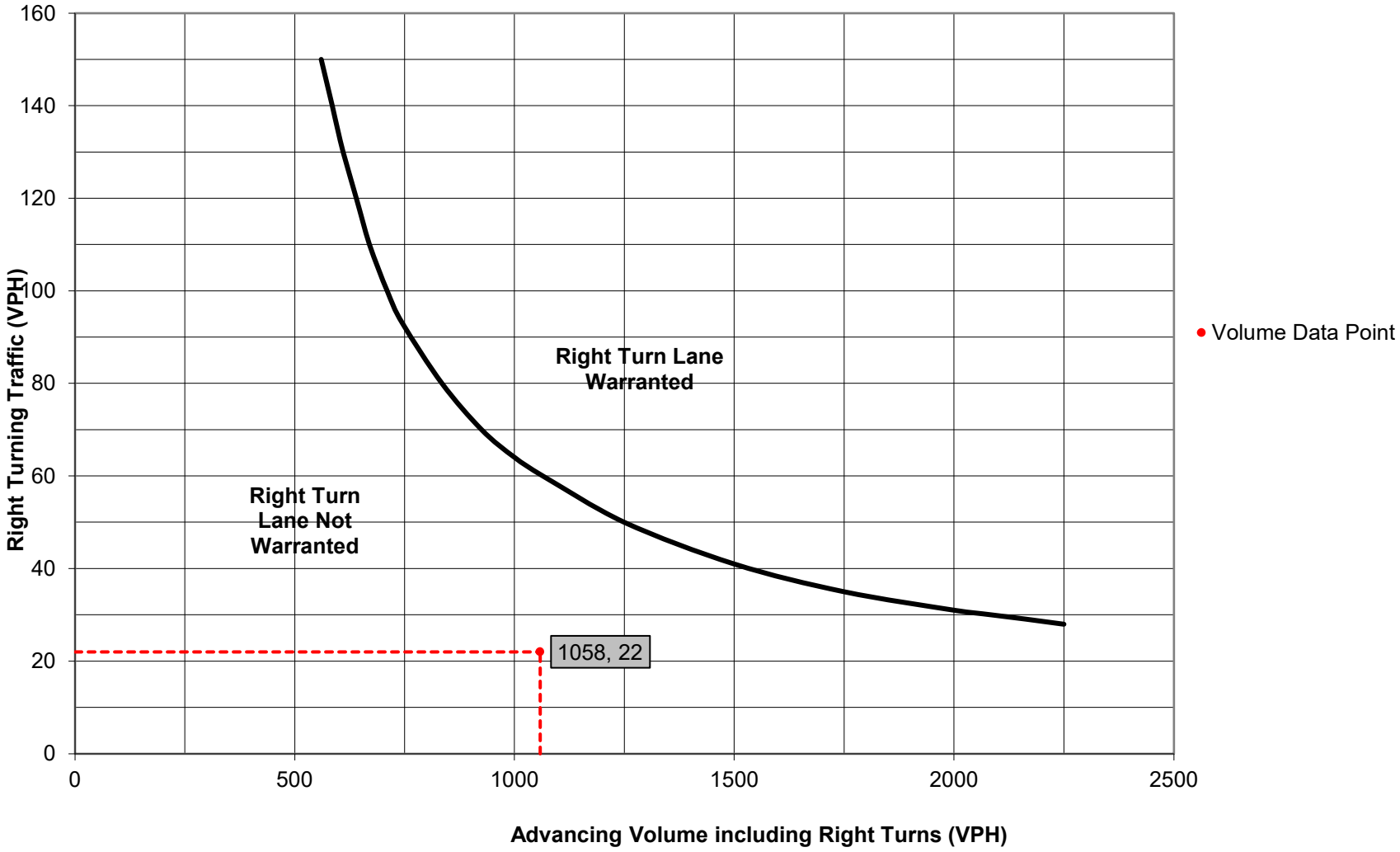
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Eastbound Left Turn

Analysis Period:	2037 Design Year (No Build)	**Number of Approach Lanes:**	2
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
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	47	0.0%	47
	Through	-	1299	28.0%	1845
	Right	No	14	8.0%	N/A
Opposing	Left	No	27	16.0%	N/A
	Through	-	942	26.0%	1310
	Right	Yes	31	7.0%	35

Advancing Volume:	1892
Opposing Volume:	1345
Left Turn Volume:	47
% Left Turns in Advancing Volume:	2.48%

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?: Yes

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):	33

Average # of Vehicles/Cycle: 1.0

PennDOT Publication 46, Exhibit 11-6

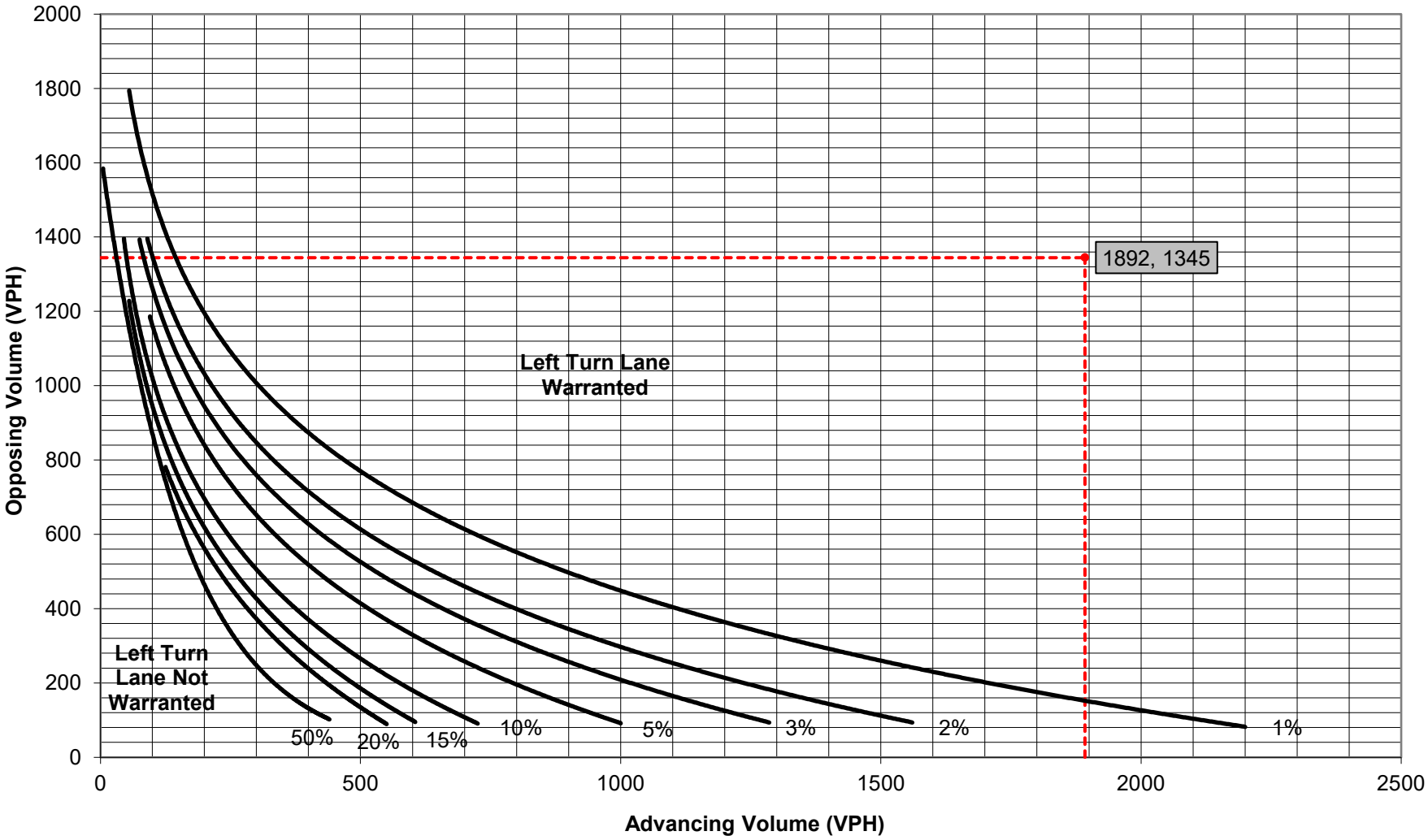
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	75	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	75	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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Eastbound Right Turn

Analysis Period:	2037 Design Year (No Build)	**Number of Approach Lanes:**	2
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
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	47	0.0%	N/A
	Through	-	1299	28.0%	1845
	Right	-	14	8.0%	16

Advancing Volume:	1861
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 11

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):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

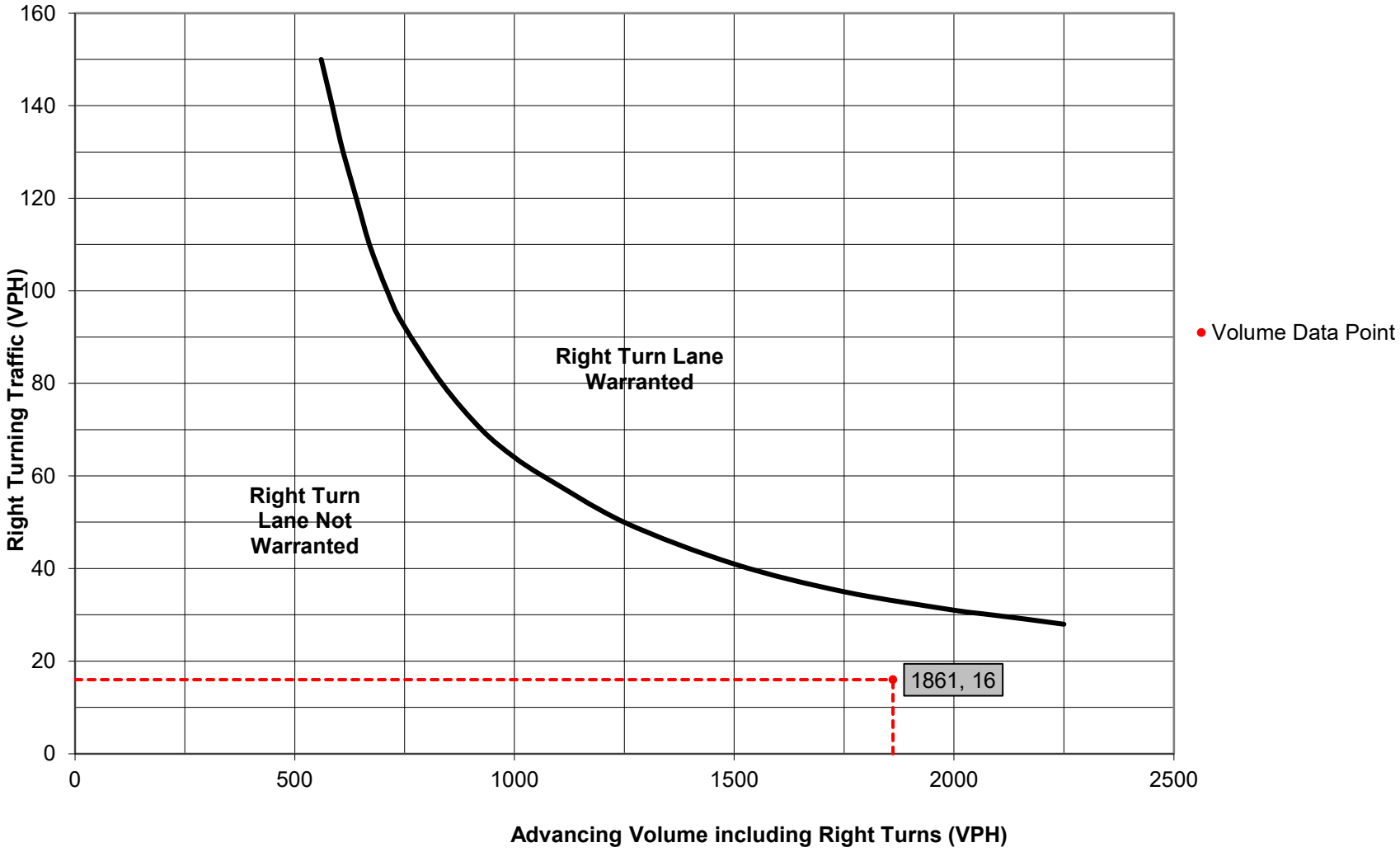
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Northbound Left Turn

Analysis Period:	2037 Design Year (No Build)	**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	13	0.0%	13
	Through	-	0	0.0%	0
	Right	No	27	8.0%	N/A
Opposing	Left	Yes	40	8.0%	45
	Through	-	1	0.0%	1
	Right	Yes	28	8.0%	32

Advancing Volume:	13
Opposing Volume:	78
Left Turn Volume:	13
% 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:	13
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

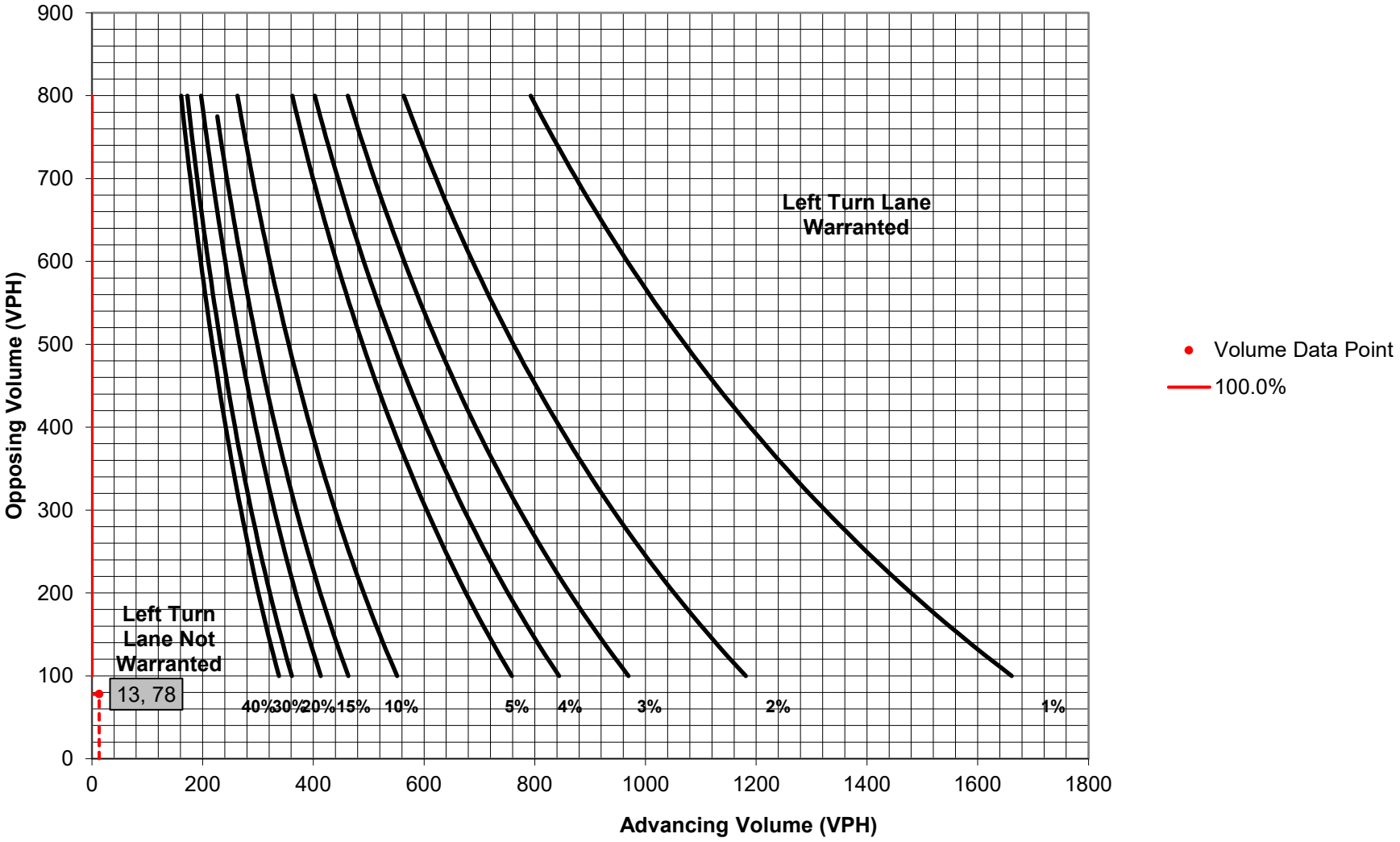
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Northbound Right Turn

Analysis Period:	2037 Design Year (No Build)	**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	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	No	13	0.0%	N/A
	Through	-	0	0.0%	0
	Right	-	27	8.0%	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:	Signalized
Design Hour Volume of Turning Lane:	31
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

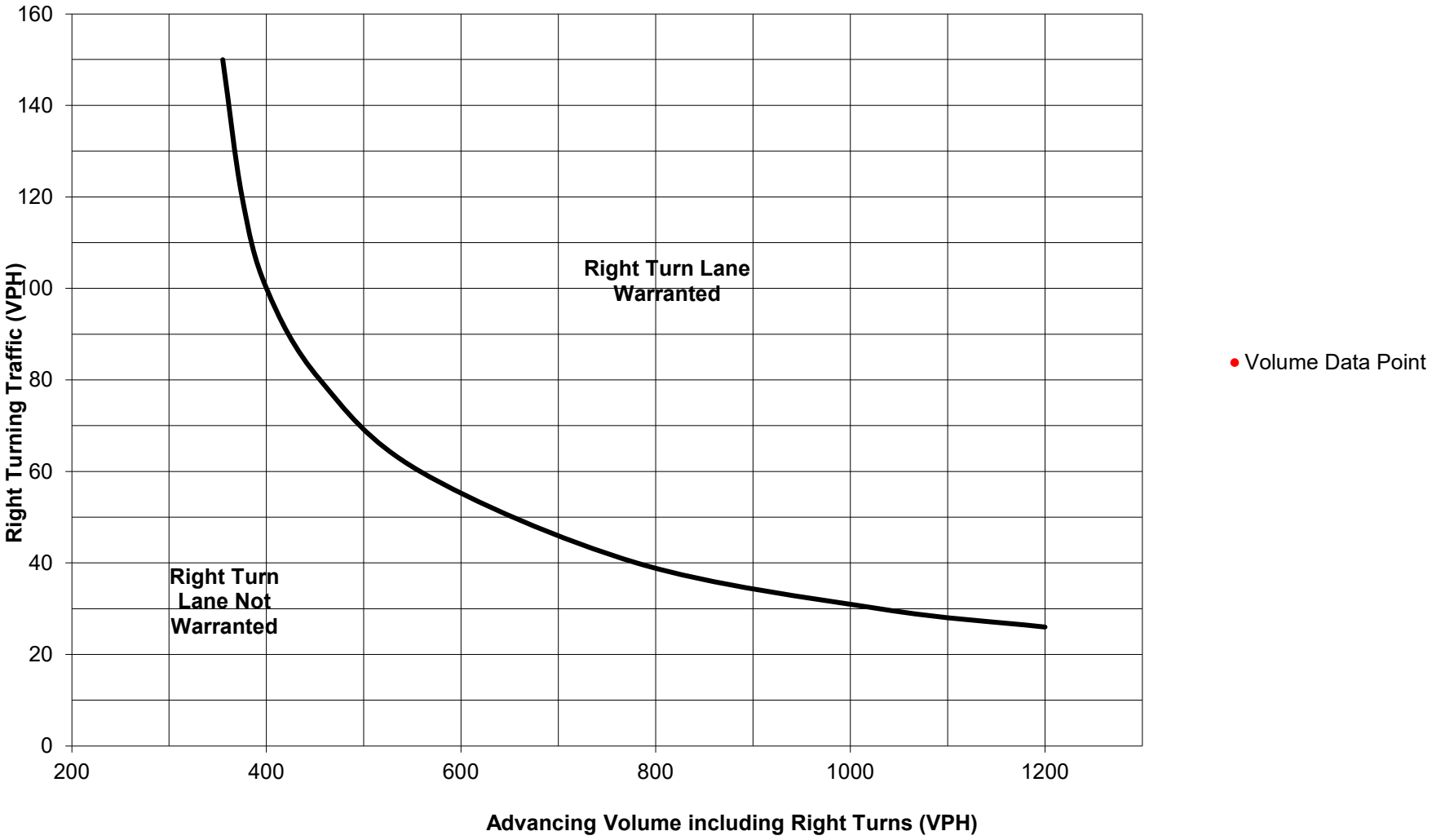
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Southbound Left Turn

Analysis Period:	2037 Design Year (No Build)	**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	8.0%	45
	Through	-	1	0.0%	1
	Right	Yes	28	8.0%	32
Opposing	Left	Yes	13	0.0%	13
	Through	-	0	0.0%	0
	Right	Yes	27	8.0%	31

Advancing Volume:	78
Opposing Volume:	44
Left Turn Volume:	45
% Left Turns in Advancing Volume:	57.69%

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:	Signalized
Design Hour Volume of Turning Lane:	45
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

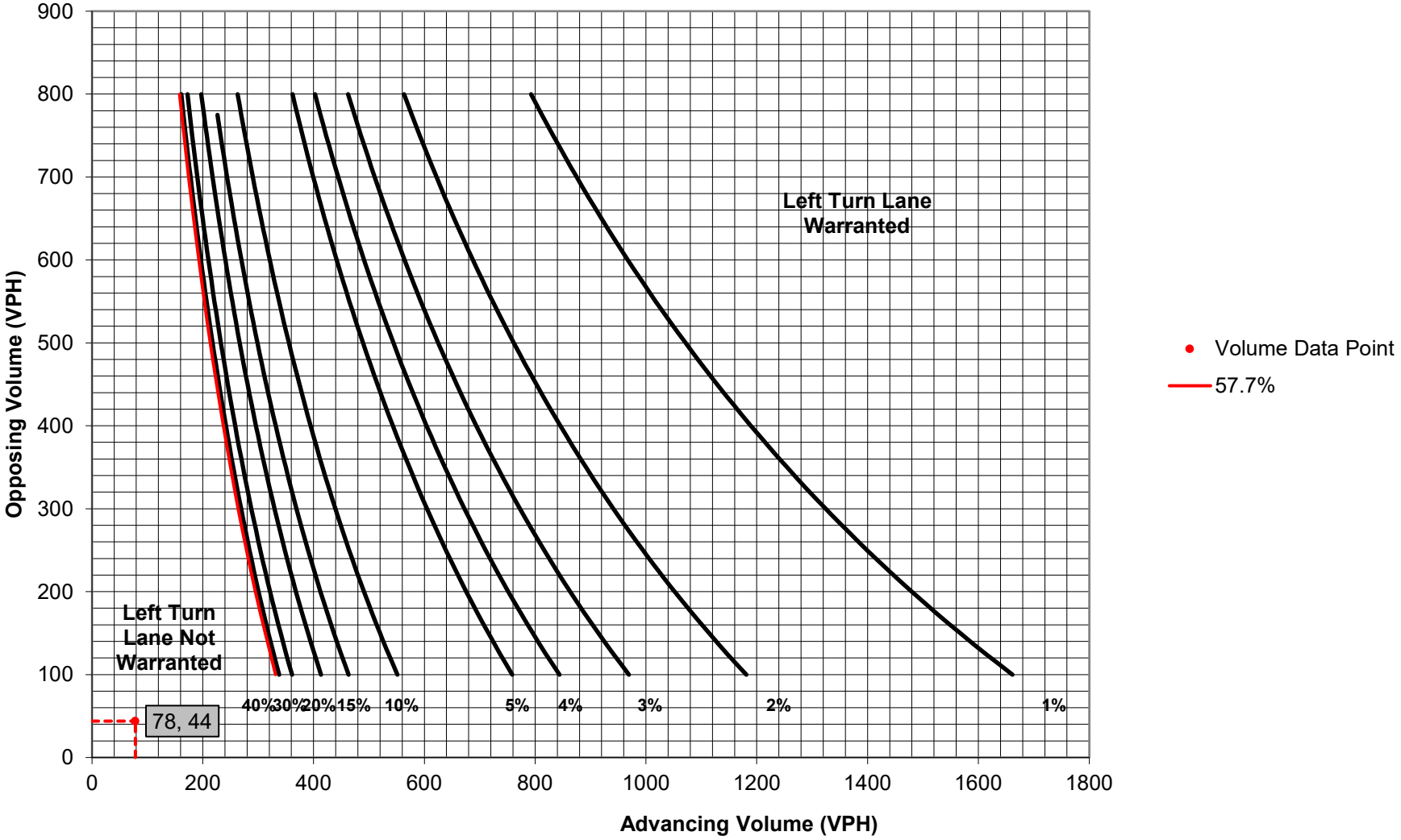
Left Turn Lane Storage Length, Condition A:	**N/A**	**Feet**
Condition B:	**N/A**	**Feet**
Condition C:	**N/A**	**Feet**
Required Left Turn Lane Storage Length:	**N/A**	**Feet**

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Southbound Right Turn

Analysis Period:	2037 Design Year (No Build)	**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	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	40	8.0%	45
	Through	-	1	0.0%	1
	Right	-	28	8.0%	32

Advancing Volume:	78
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):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

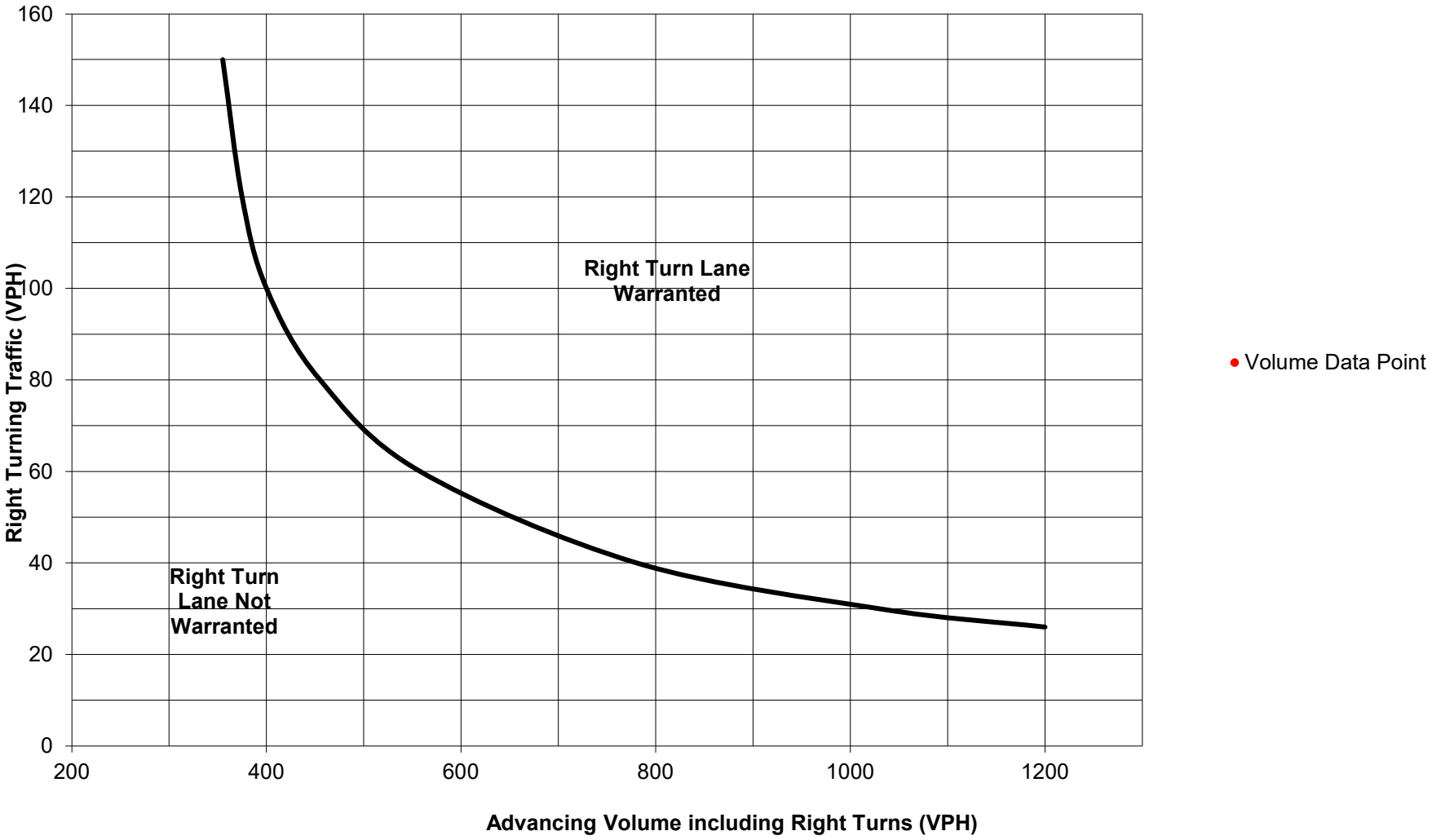
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Westbound Left Turn

Analysis Period:	2037 Design Year (No Build)	**Number of Approach Lanes:**	2
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
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	16.0%	34
	Through	-	942	26.0%	1310
	Right	No	31	7.0%	N/A
Opposing	Left	No	47	0.0%	N/A
	Through	-	1299	28.0%	1845
	Right	Yes	14	8.0%	16

Advancing Volume:	1344
Opposing Volume:	1861
Left Turn Volume:	34
% Left Turns in Advancing Volume:	2.53%

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?: Yes

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:	34
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: 1.0

PennDOT Publication 46, Exhibit 11-6

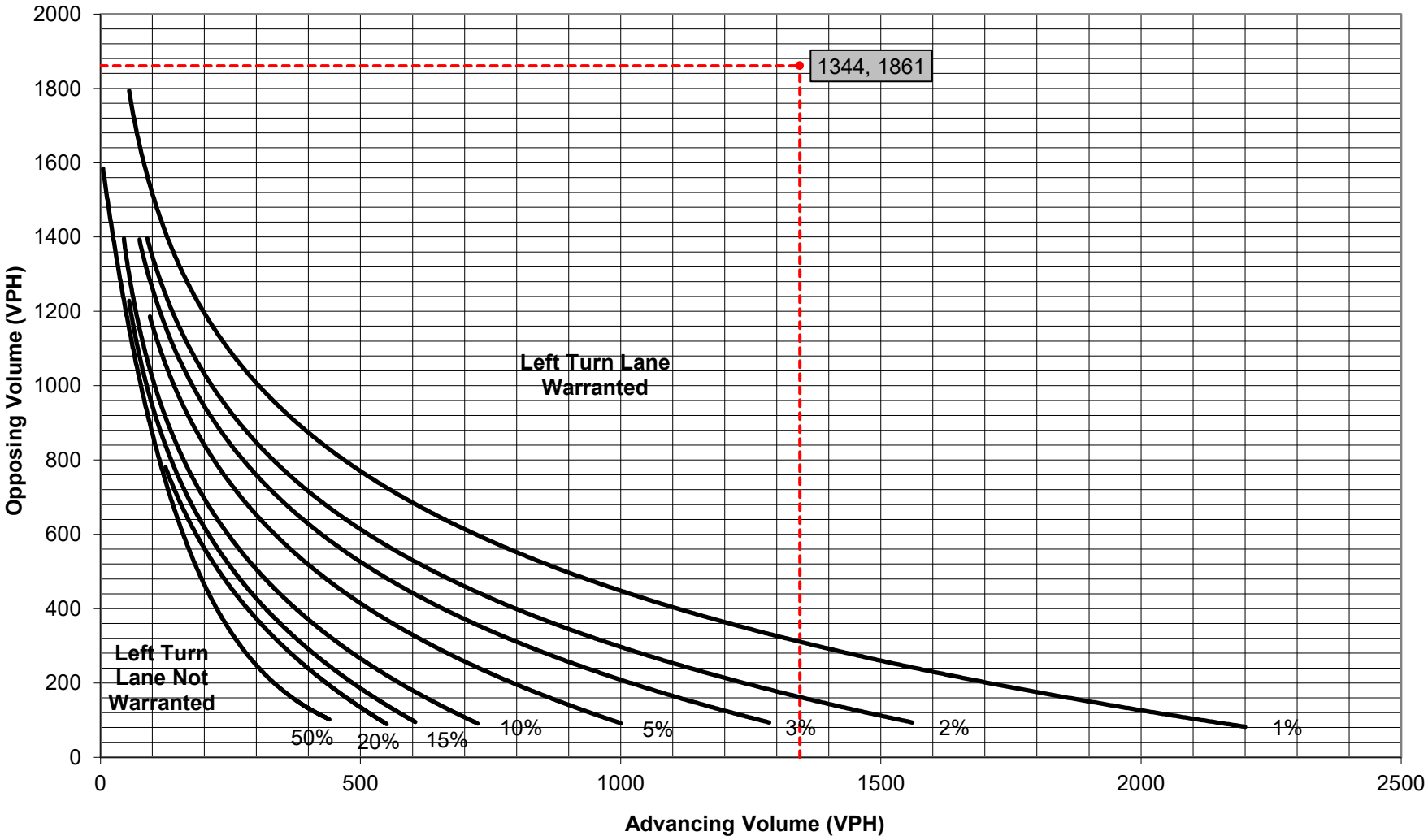
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	75	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	75	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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Westbound Right Turn

Analysis Period:	2037 Design Year (No Build)	**Number of Approach Lanes:**	2
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
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	27	16.0%	N/A
	Through	-	942	26.0%	1310
	Right	-	31	7.0%	35

Advancing Volume:	1345
Right Turn Volume:	35

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:	35
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

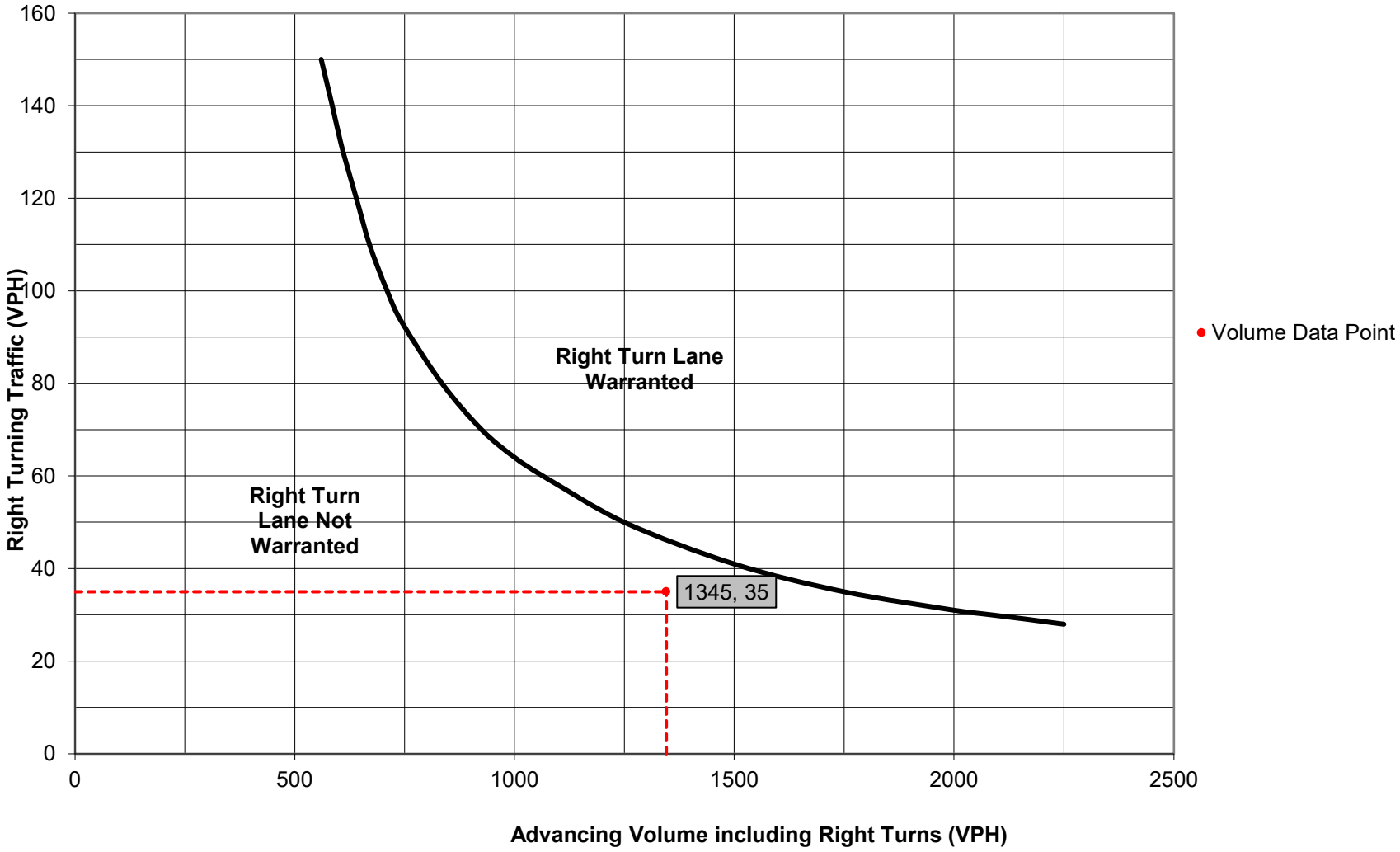
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Eastbound Left Turn

Analysis Period:	2037 Design Year (No Build)	**Number of Approach Lanes:**	2
Design Hour:	SAT Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
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	-	704	19.0%	905
	Right	No	12	0.0%	N/A
Opposing	Left	No	21	32.0%	N/A
	Through	-	782	18.0%	994
	Right	Yes	40	0.0%	40

Advancing Volume:	936
Opposing Volume:	1034
Left Turn Volume:	31
% Left Turns in Advancing Volume:	3.31%

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?: Yes

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:	31
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: 1.0

PennDOT Publication 46, Exhibit 11-6

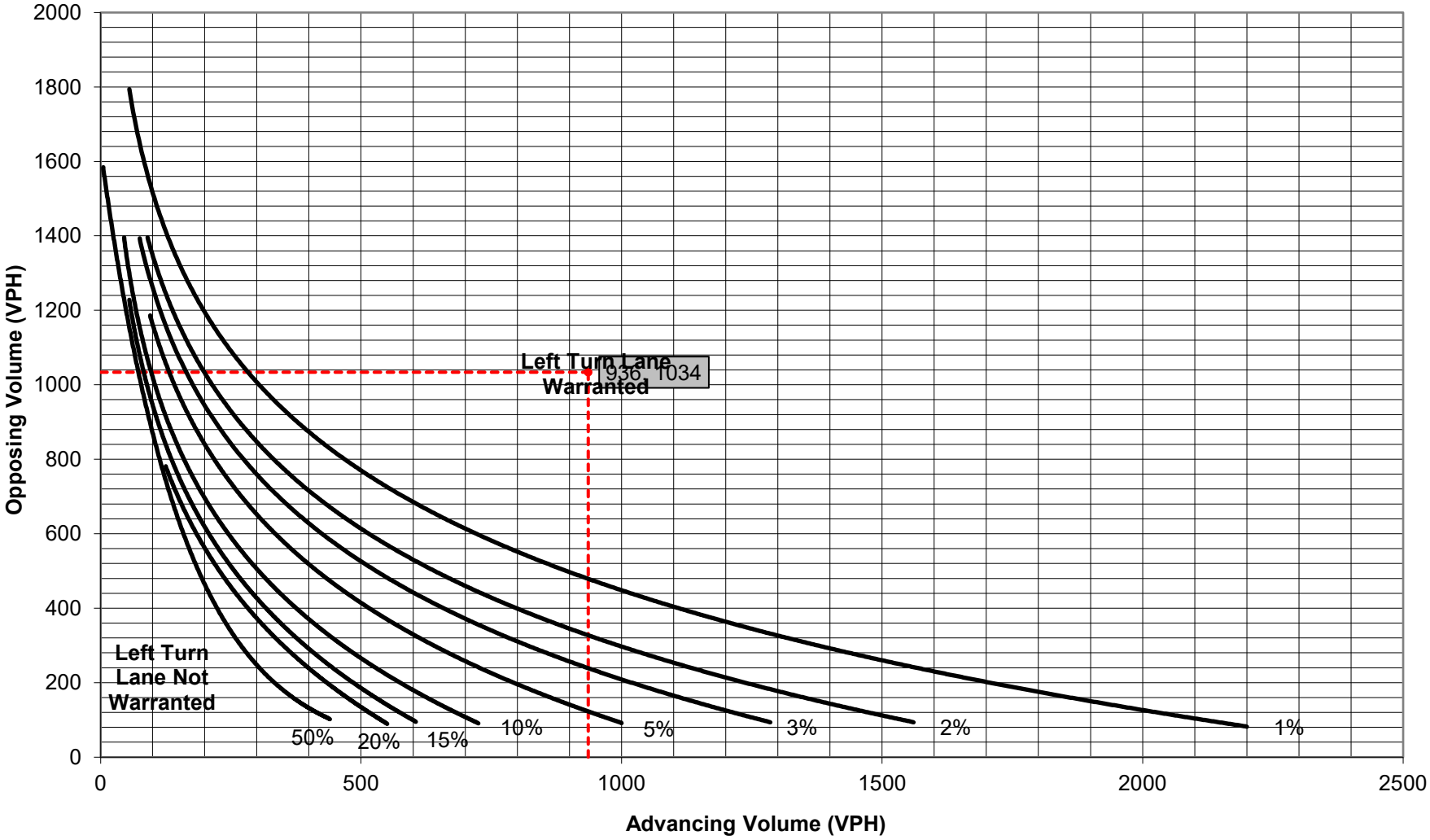
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	75	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	75	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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Eastbound Right Turn

Analysis Period:	2037 Design Year (No Build)	**Number of Approach Lanes:**	2
Design Hour:	SAT Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
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	31	0.0%	N/A
	Through	-	704	19.0%	905
	Right	-	12	0.0%	12

Advancing Volume:	917
Right Turn Volume:	12

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:	12
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

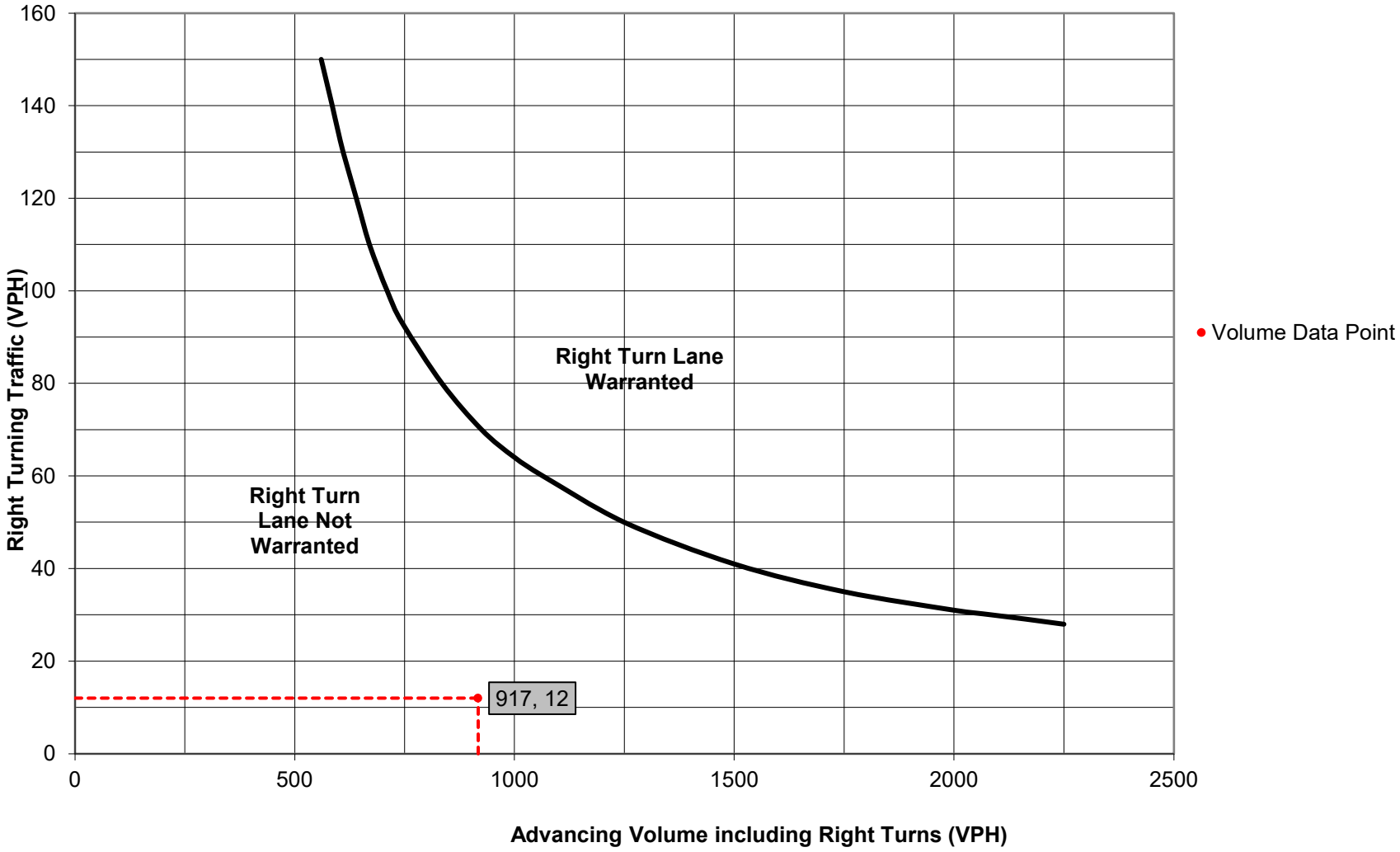
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Northbound Left Turn

Analysis Period:	2037 Design Year (No Build)	**Number of Approach Lanes:**	1
Design Hour:	SAT 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	10	22.0%	14
	Through	-	2	0.0%	2
	Right	No	22	0.0%	N/A
Opposing	Left	Yes	33	0.0%	33
	Through	-	1	0.0%	1
	Right	Yes	20	0.0%	20

Advancing Volume:	16
Opposing Volume:	54
Left Turn Volume:	14
% Left Turns in Advancing Volume:	87.50%

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 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):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

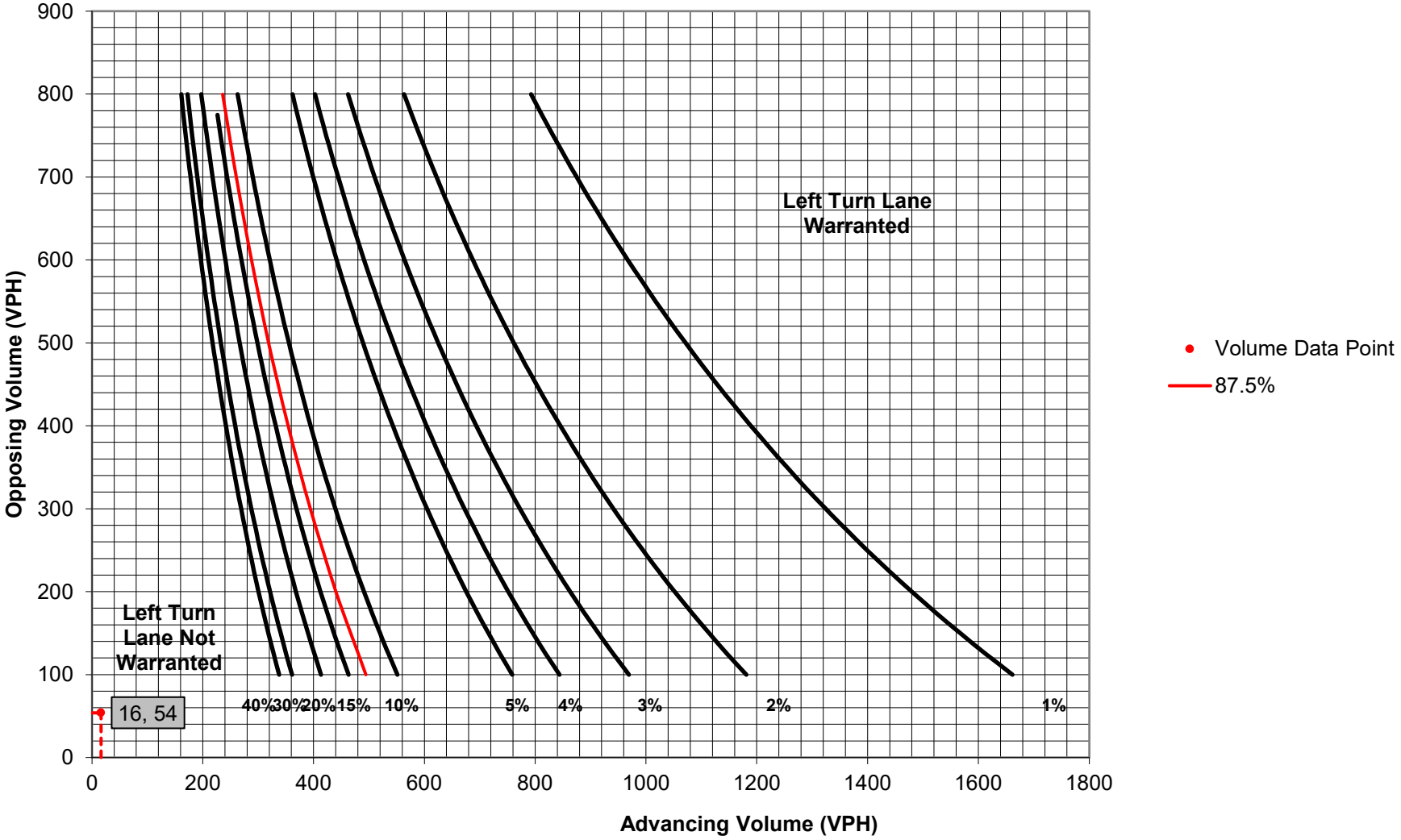
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Northbound Right Turn

Analysis Period:	2037 Design Year (No Build)	**Number of Approach Lanes:**	1
Design Hour:	SAT 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	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	No	10	22.0%	N/A
	Through	-	2	0.0%	2
	Right	-	22	0.0%	22

Advancing Volume:	24
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:	Signalized
Design Hour Volume of Turning Lane:	22
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

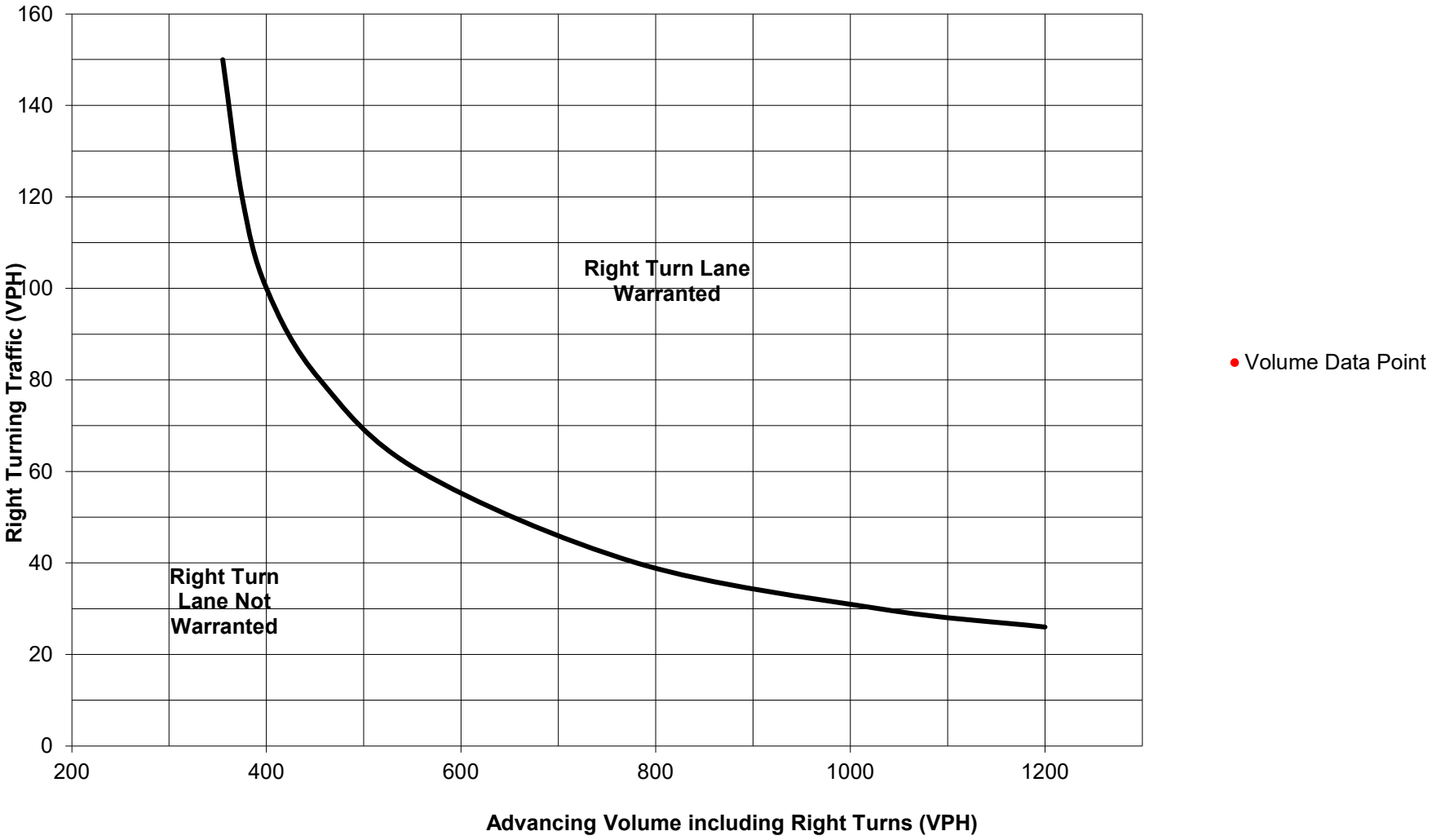
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Southbound Left Turn

Analysis Period:	2037 Design Year (No Build)	**Number of Approach Lanes:**	1
Design Hour:	SAT 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	33	0.0%	33
	Through	-	1	0.0%	1
	Right	Yes	20	0.0%	20
Opposing	Left	Yes	10	22.0%	14
	Through	-	2	0.0%	2
	Right	Yes	22	0.0%	22

Advancing Volume:	54
Opposing Volume:	38
Left Turn Volume:	33
% Left Turns in Advancing Volume:	61.11%

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:	33
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

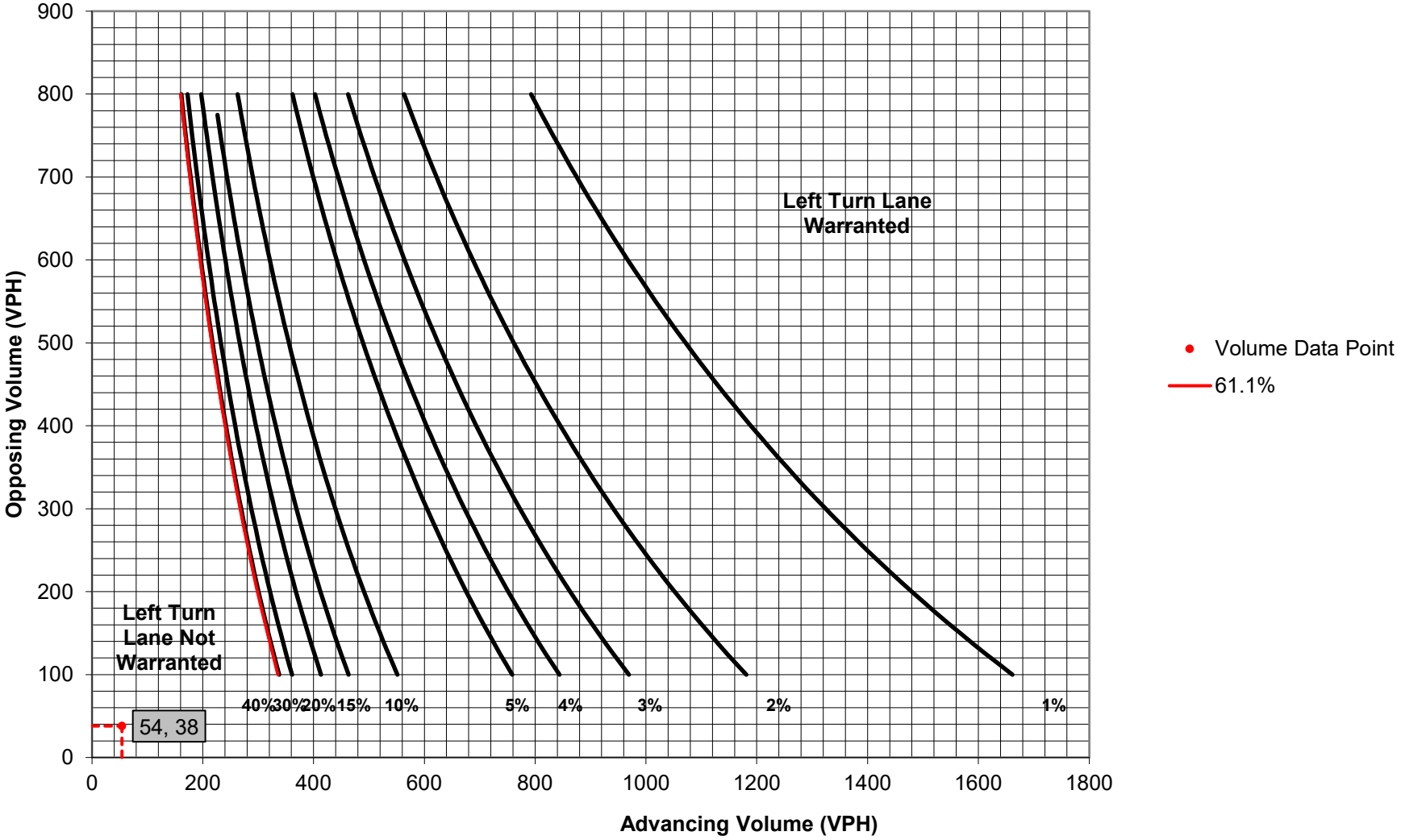
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Southbound Right Turn

Analysis Period:	2037 Design Year (No Build)	**Number of Approach Lanes:**	1
Design Hour:	SAT 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	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	0.0%	33
	Through	-	1	0.0%	1
	Right	-	20	0.0%	20

Advancing Volume: 54
Right Turn Volume: 20

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:	20
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

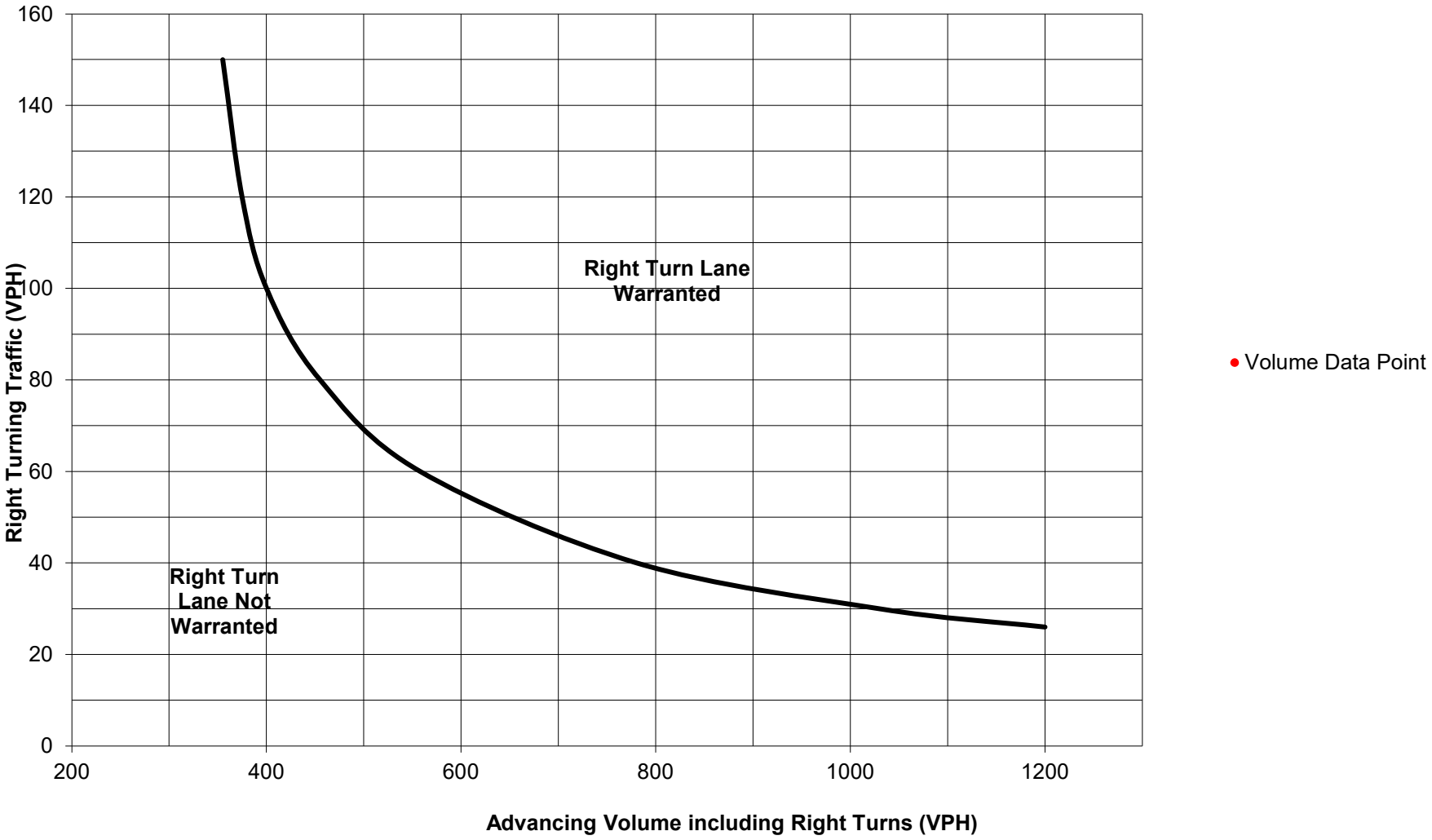
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Westbound Left Turn

Analysis Period:	2037 Design Year (No Build)	**Number of Approach Lanes:**	2
Design Hour:	SAT Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
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	21	32.0%	32
	Through	-	782	18.0%	994
	Right	No	40	0.0%	N/A
Opposing	Left	No	31	0.0%	N/A
	Through	-	704	19.0%	905
	Right	Yes	12	0.0%	12

Advancing Volume:	1026
Opposing Volume:	917
Left Turn Volume:	32
% Left Turns in Advancing Volume:	3.12%

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?: Yes

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:	32
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: 1.0

PennDOT Publication 46, Exhibit 11-6

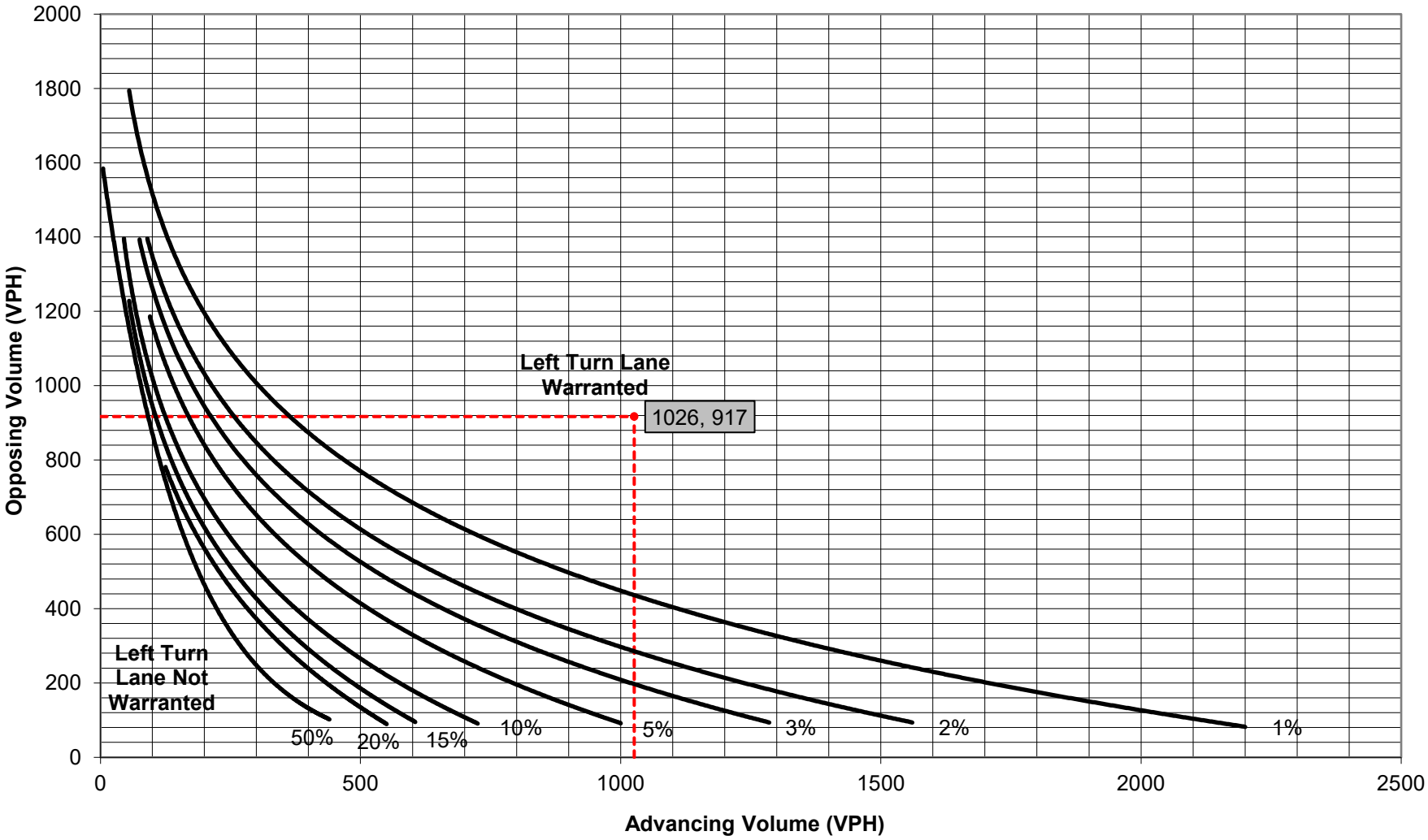
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	75	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	75	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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Westbound Right Turn

Analysis Period:	2037 Design Year (No Build)	**Number of Approach Lanes:**	2
Design Hour:	SAT Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
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	21	32.0%	N/A
	Through	-	782	18.0%	994
	Right	-	40	0.0%	40

Advancing Volume:	1034
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 11

Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	40
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

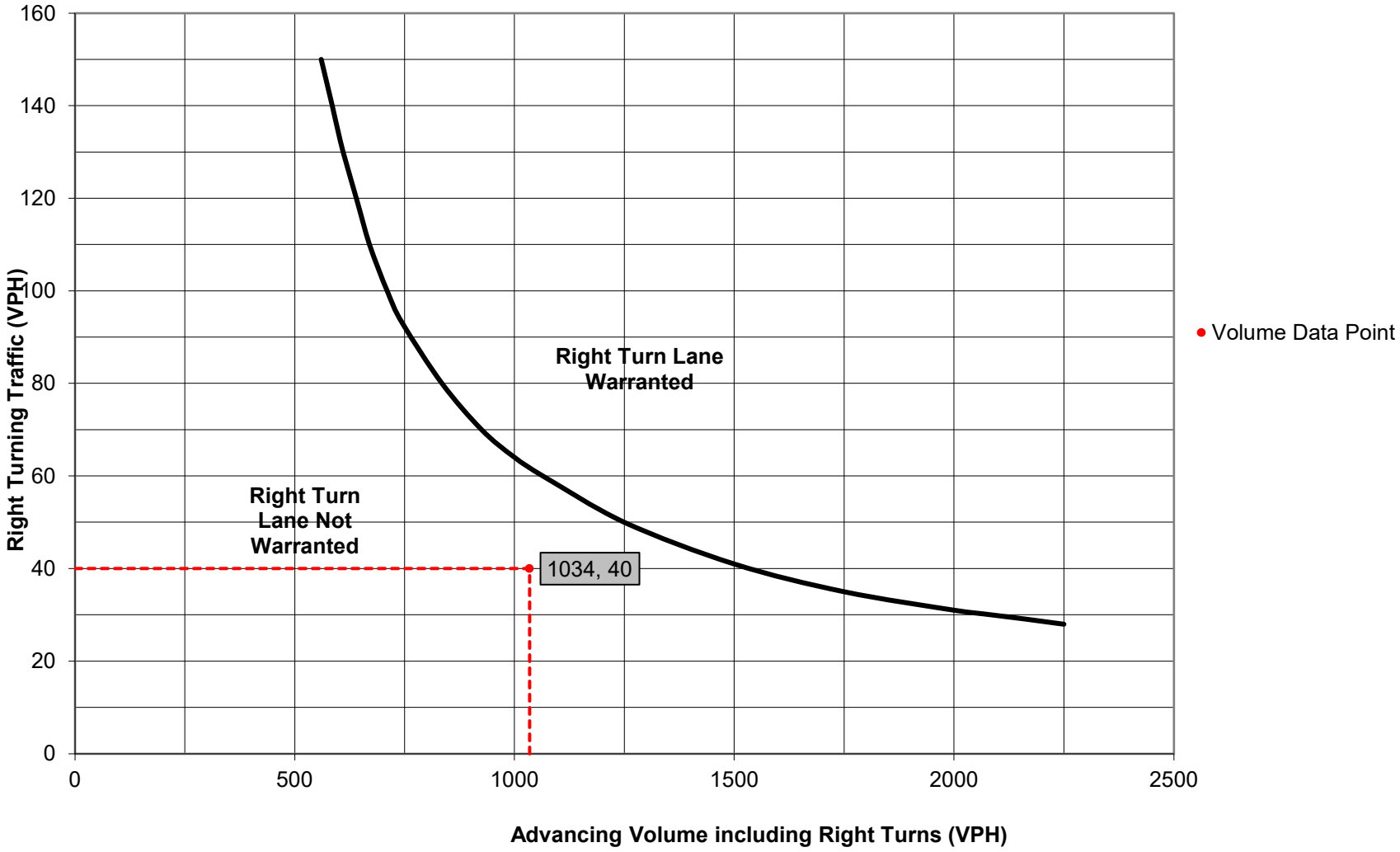
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Country Club Rd & Bernheisel Bridge Rd
Eastbound Left Turn

Analysis Period:	2037 Design Year (No Build)	**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	13	0.0%	13
	Through	-	0	0.0%	0
	Right	Yes	5	20.0%	7
Opposing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	0
	Right	No	0	0.0%	N/A

Advancing Volume:	20
Opposing Volume:	0
Left Turn Volume:	13
% Left Turns in Advancing Volume:	65.00%

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:	13
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

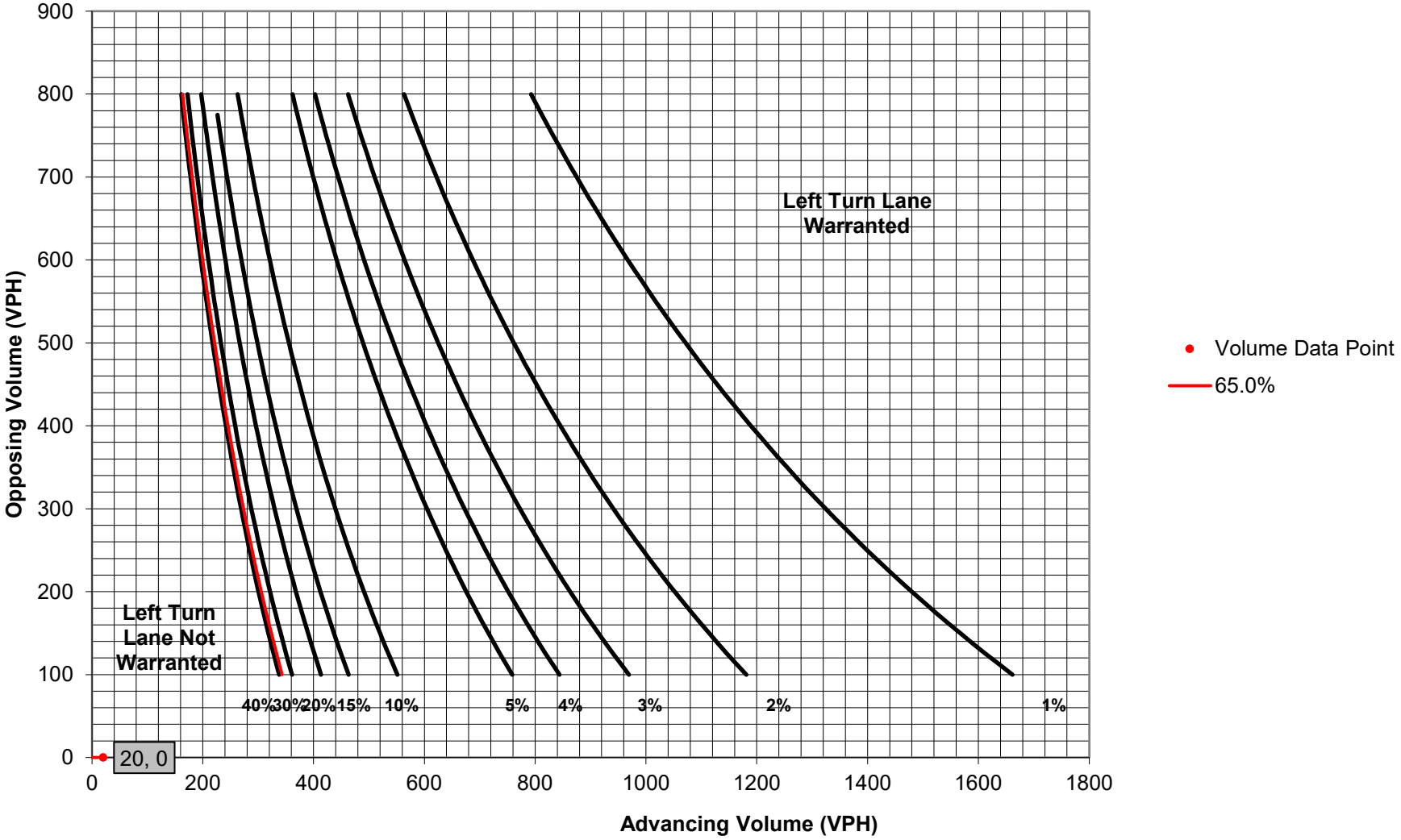
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Country Club Rd & Bernheisel Bridge Rd / Eastbound Right Turn

Analysis Period:	2037 Design Year (No Build)	**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	13	0.0%	13
	Through	-	0	0.0%	0
	Right	-	5	20.0%	7

Advancing Volume:	20
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

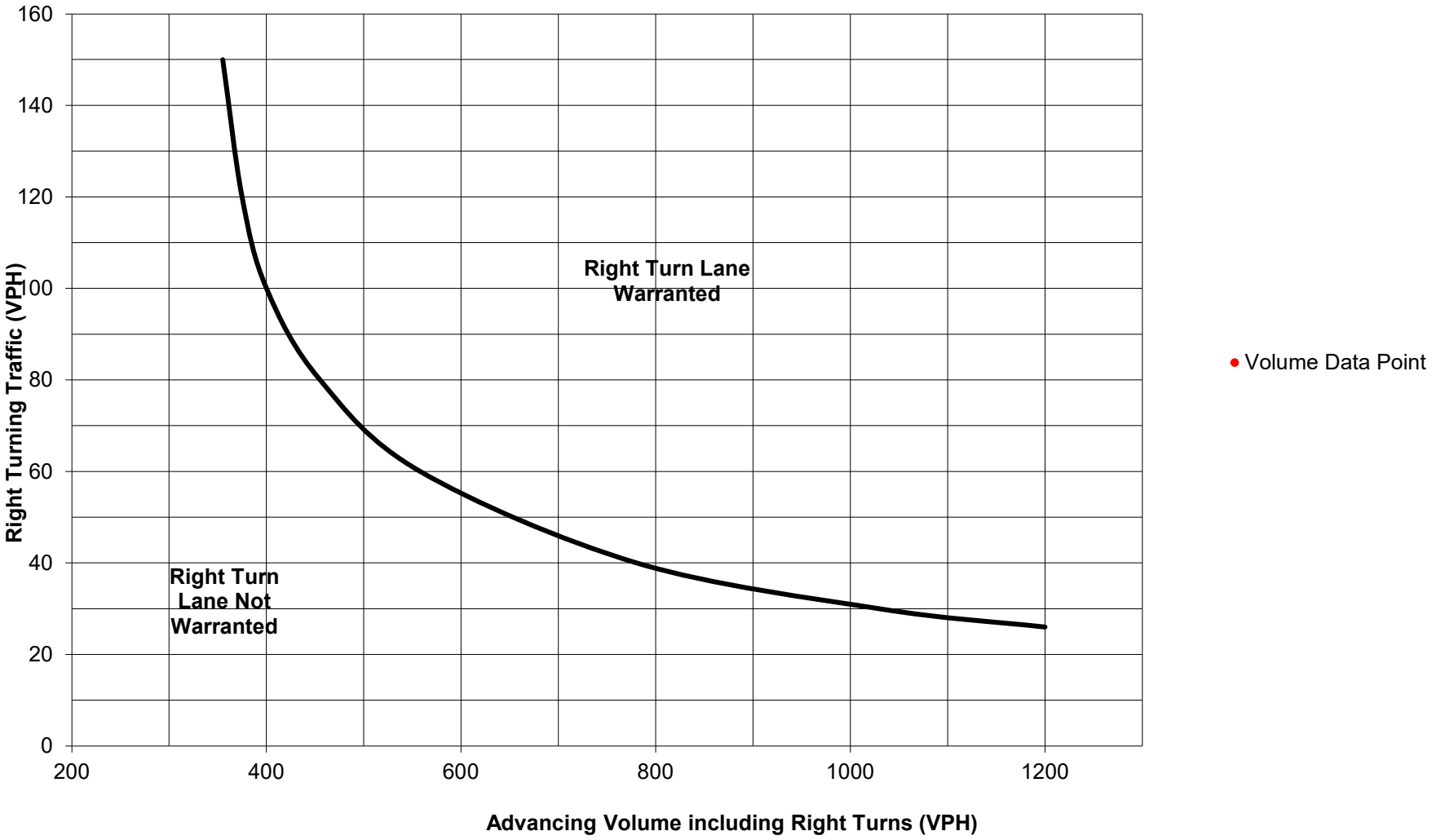
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Country Club Rd & Bernheisel Bridge Rd / Northbound Left Turn

Analysis Period:	2037 Design Year (No Build)	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
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	1	0.0%	1
	Through	-	35	6.0%	39
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	115	2.0%	119
	Right	Yes	41	0.0%	41

Advancing Volume:	40
Opposing Volume:	160
Left Turn Volume:	1
% Left Turns in Advancing Volume:	2.50%

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 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

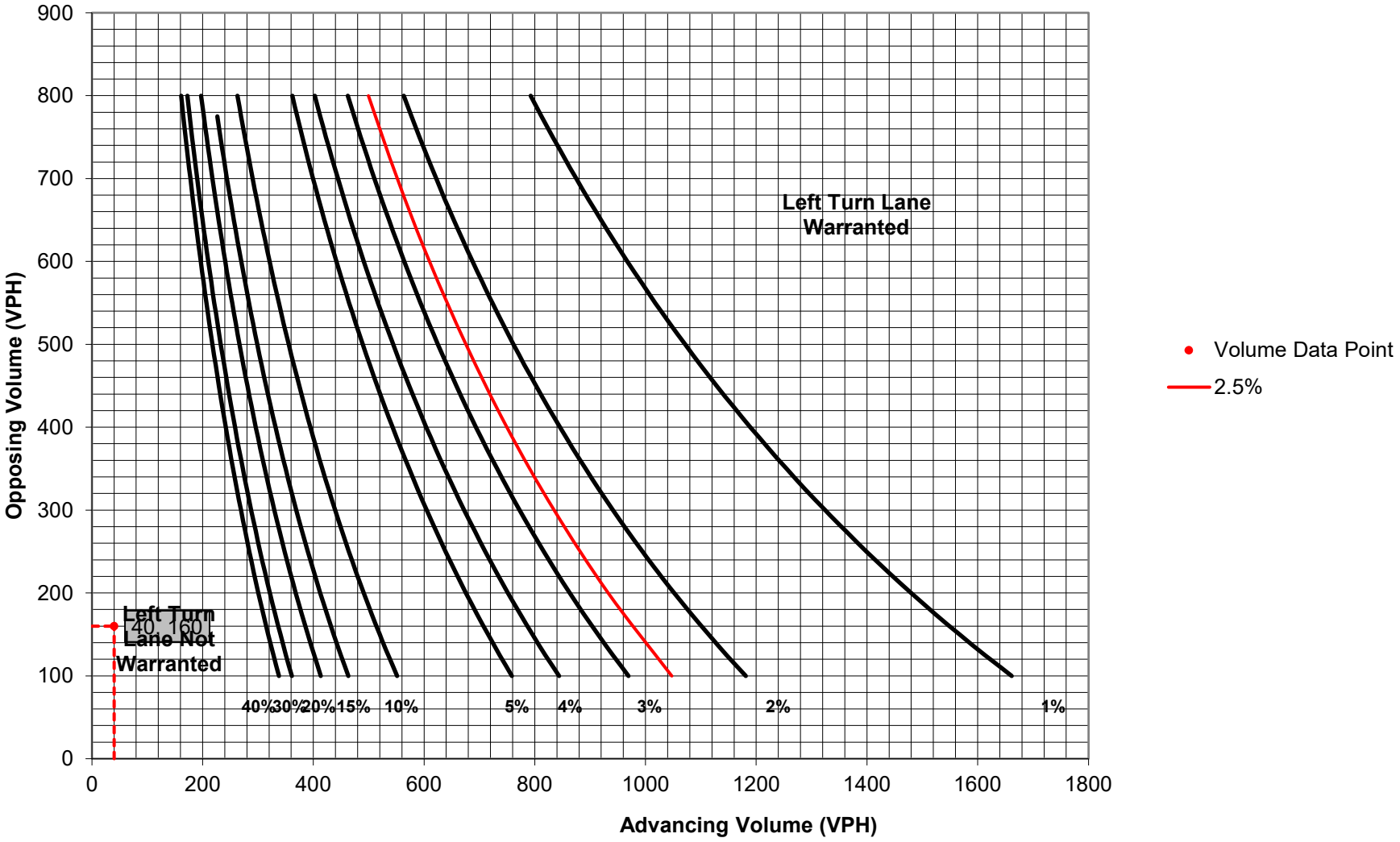
Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Country Club Rd & Bernheisel Bridge Rd / Southbound Right Turn

Analysis Period:	2037 Design Year (No Build)	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
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	0	0.0%	N/A
	Through	-	115	2.0%	119
	Right	-	41	0.0%	41

Advancing Volume:	160
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

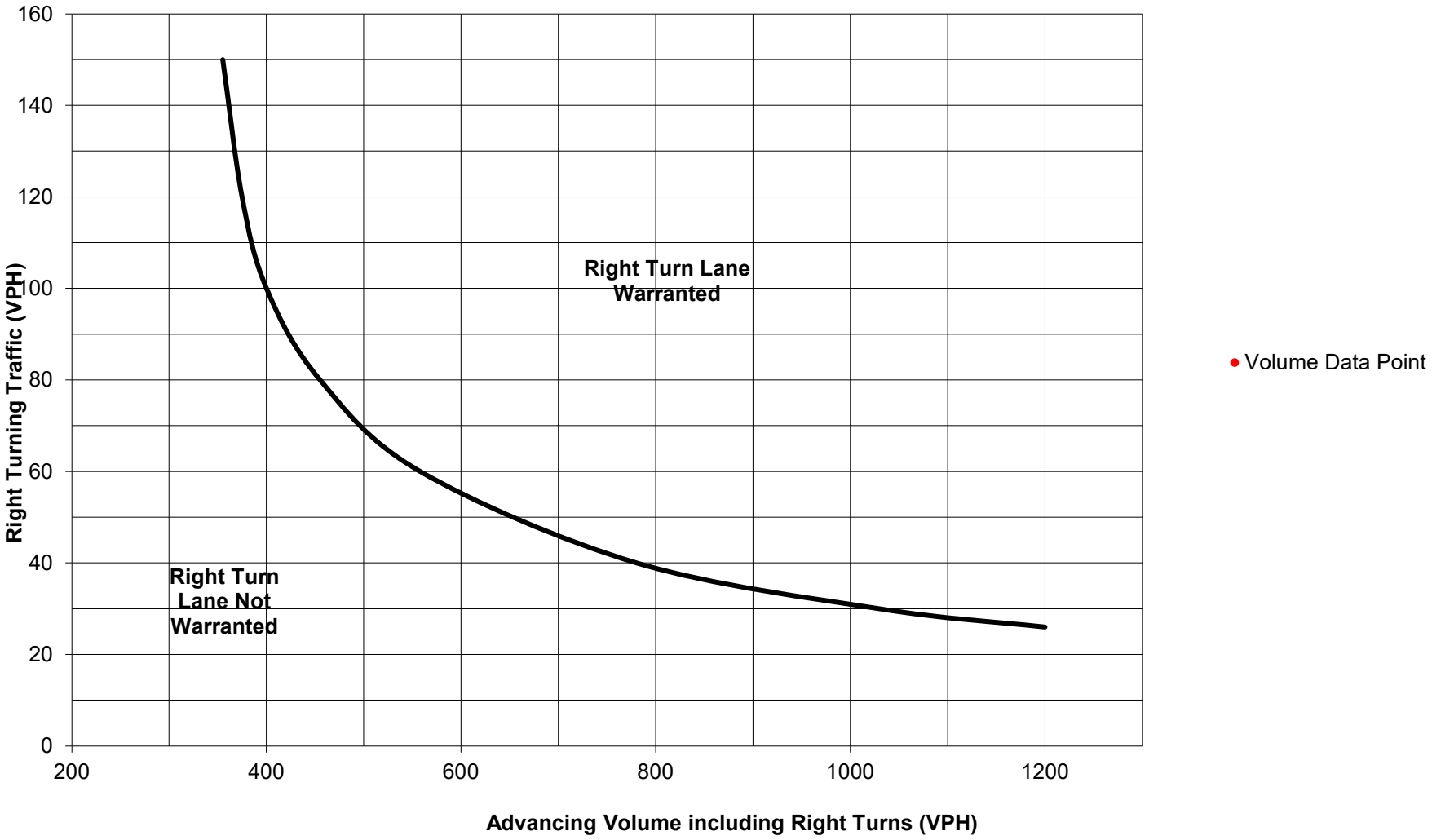
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Country Club Rd & Bernheisel Bridge Rd
Eastbound Left Turn

Analysis Period:	2037 Design Year (No Build)	**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	39	0.0%	39
	Through	-	0	0.0%	0
	Right	Yes	3	0.0%	3
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:	39
% Left Turns in Advancing Volume:	92.86%

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?: #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

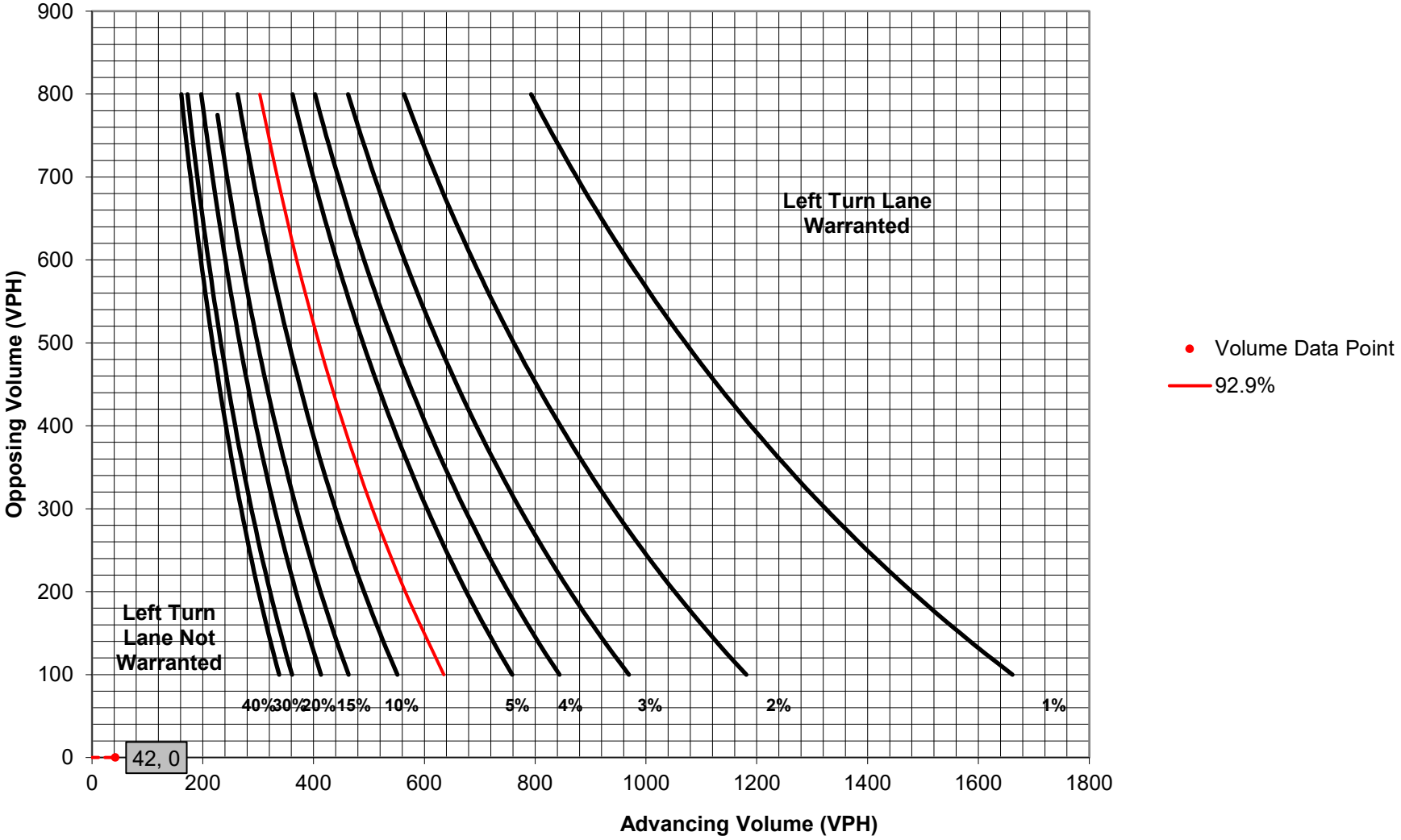
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Country Club Rd & Bernheisel Bridge Rd
Eastbound Right Turn

Analysis Period:	2037 Design Year (No Build)	**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	39	0.0%	39
	Through	-	0	0.0%	0
	Right	-	3	0.0%	3

Advancing Volume:	42
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

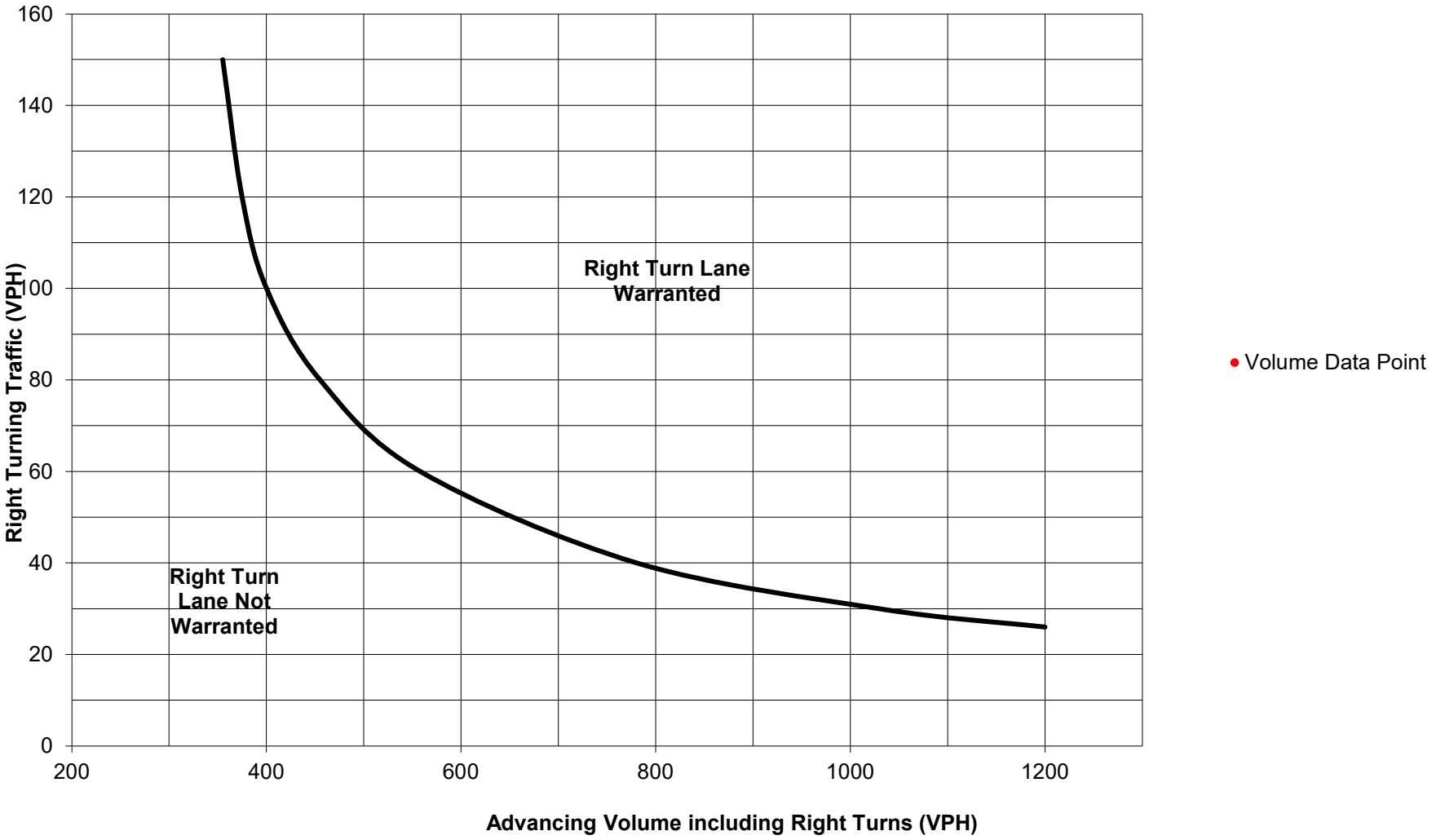
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Country Club Rd & Bernheisel Bridge Rd / Northbound Left Turn

Analysis Period:	2037 Design Year (No Build)	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
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	5	0.0%	5
	Through	-	96	2.0%	99
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	56	0.0%	56
	Right	Yes	25	13.0%	30

Advancing Volume:	104
Opposing Volume:	86
Left Turn Volume:	5
% Left Turns in Advancing Volume:	4.81%

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:	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

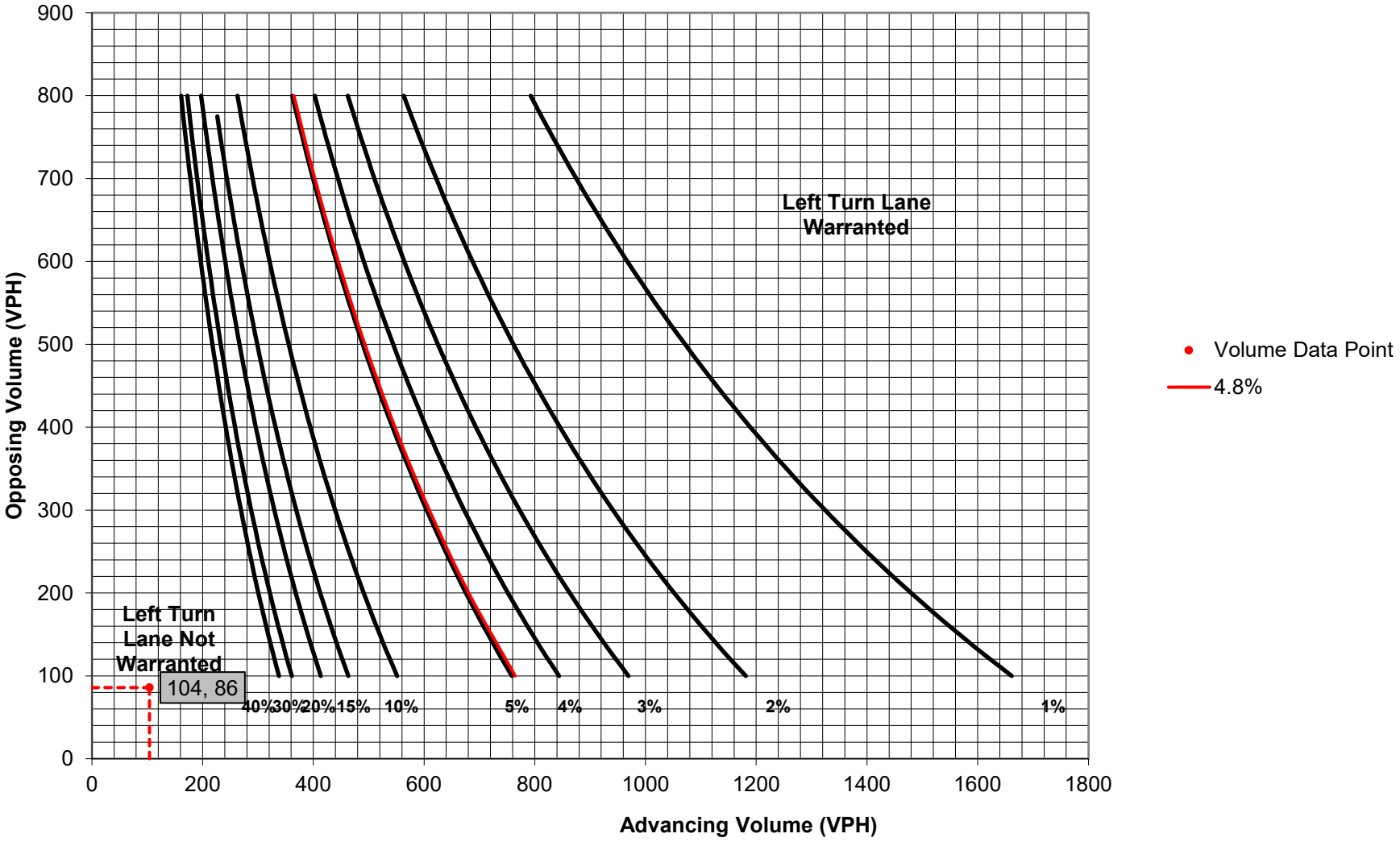
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Country Club Rd & Bernheisel Bridge Rd / Southbound Right Turn

Analysis Period:	2037 Design Year (No Build)	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
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	0	0.0%	N/A
	Through	-	56	0.0%	56
	Right	-	25	13.0%	30

Advancing Volume: 86
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:	Unsignalized
Design Hour Volume of Turning Lane:	30
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

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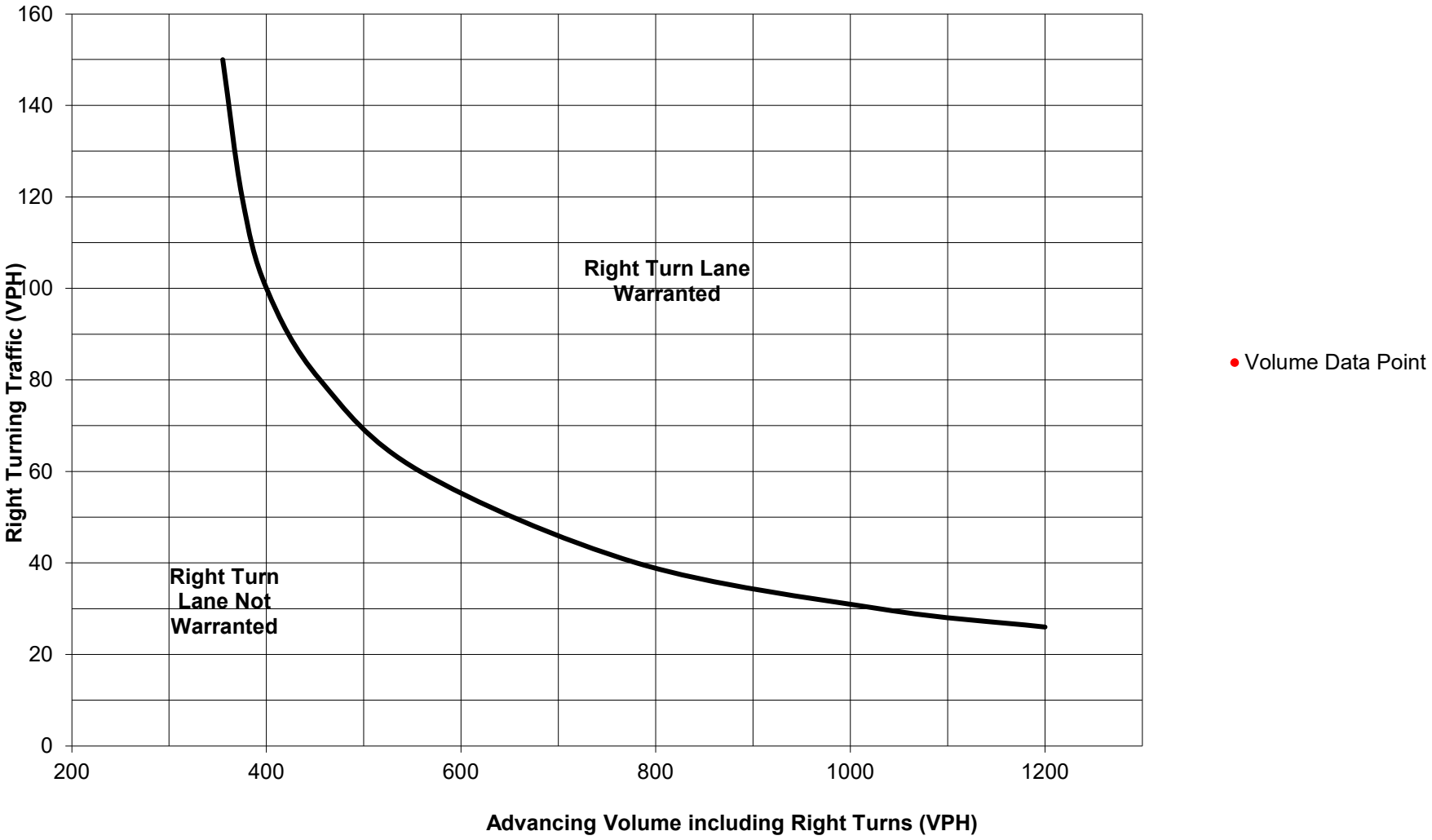
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Country Club Rd & Bernheisel Bridge Rd
Eastbound Left Turn

Analysis Period:	2037 Design Year (No Build)	**Number of Approach Lanes:**	1
Design Hour:	SAT 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	37	0.0%	37
	Through	-	0	0.0%	0
	Right	Yes	5	0.0%	5
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:	37
% Left Turns in Advancing Volume:	88.10%

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:	37
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

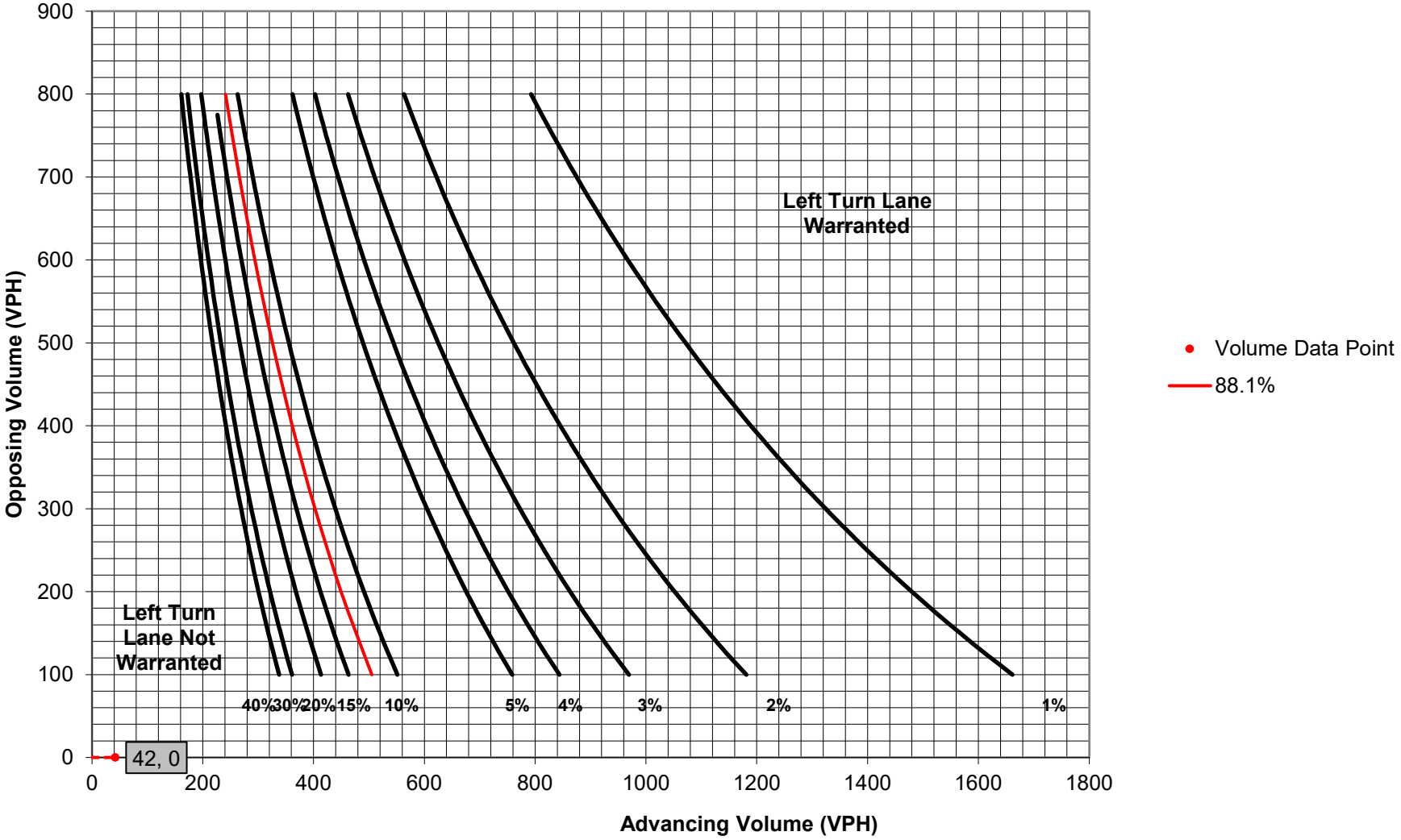
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Country Club Rd & Bernheisel Bridge Rd
Eastbound Right Turn

Analysis Period:	2037 Design Year (No Build)	**Number of Approach Lanes:**	1
Design Hour:	SAT 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	37	0.0%	37
	Through	-	0	0.0%	0
	Right	-	5	0.0%	5

Advancing Volume:	42
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 9

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

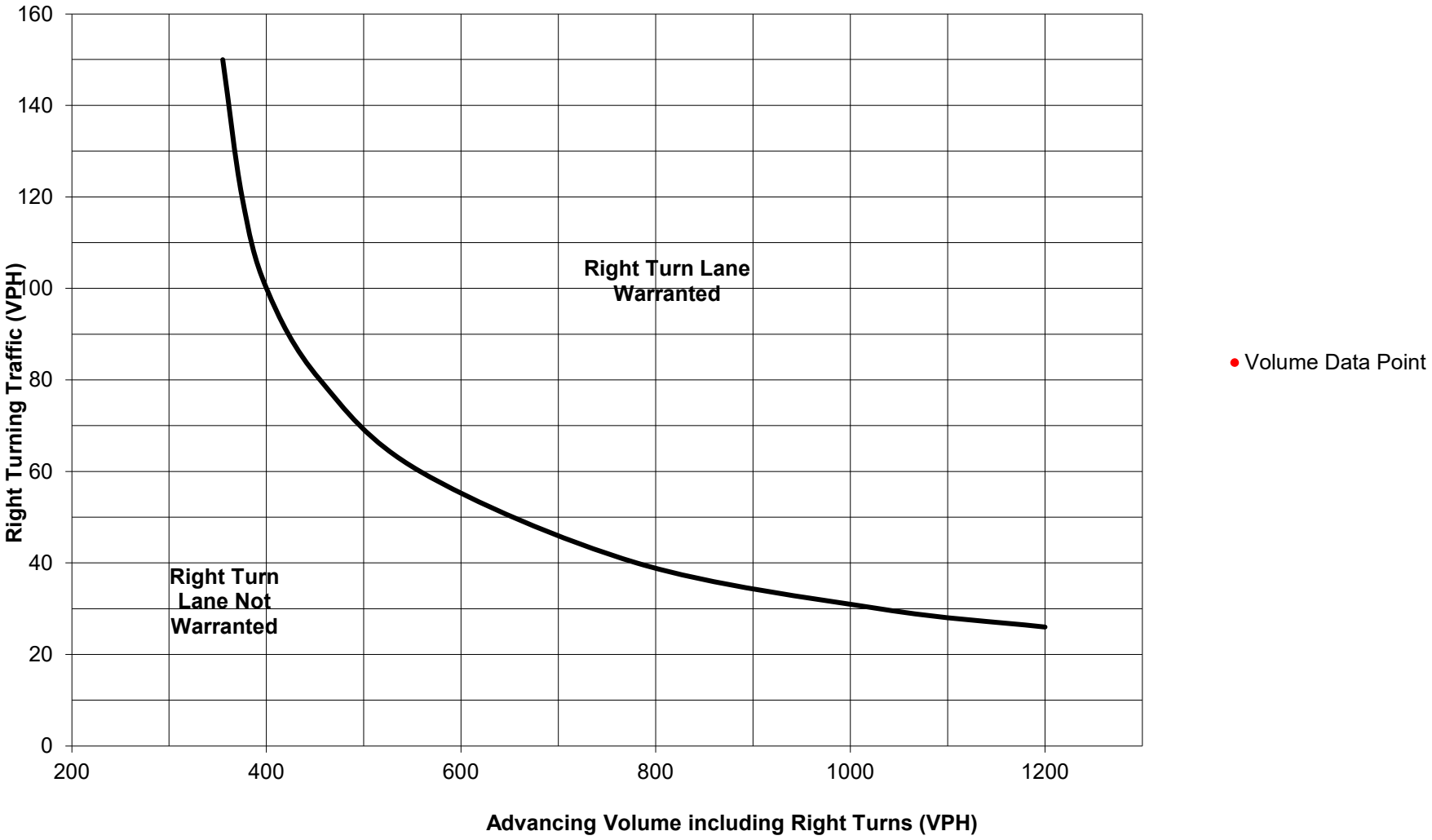
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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 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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Country Club Rd & Bernheisel Bridge Rd / Northbound Left Turn

Analysis Period:	2037 Design Year (No Build)	**Number of Approach Lanes:**	1
Design Hour:	SAT Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
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	3	0.0%	3
	Through	-	46	0.0%	46
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	52	4.0%	56
	Right	Yes	25	0.0%	25

Advancing Volume:	49
Opposing Volume:	81
Left Turn Volume:	3
% Left Turns in Advancing Volume:	6.12%

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:	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

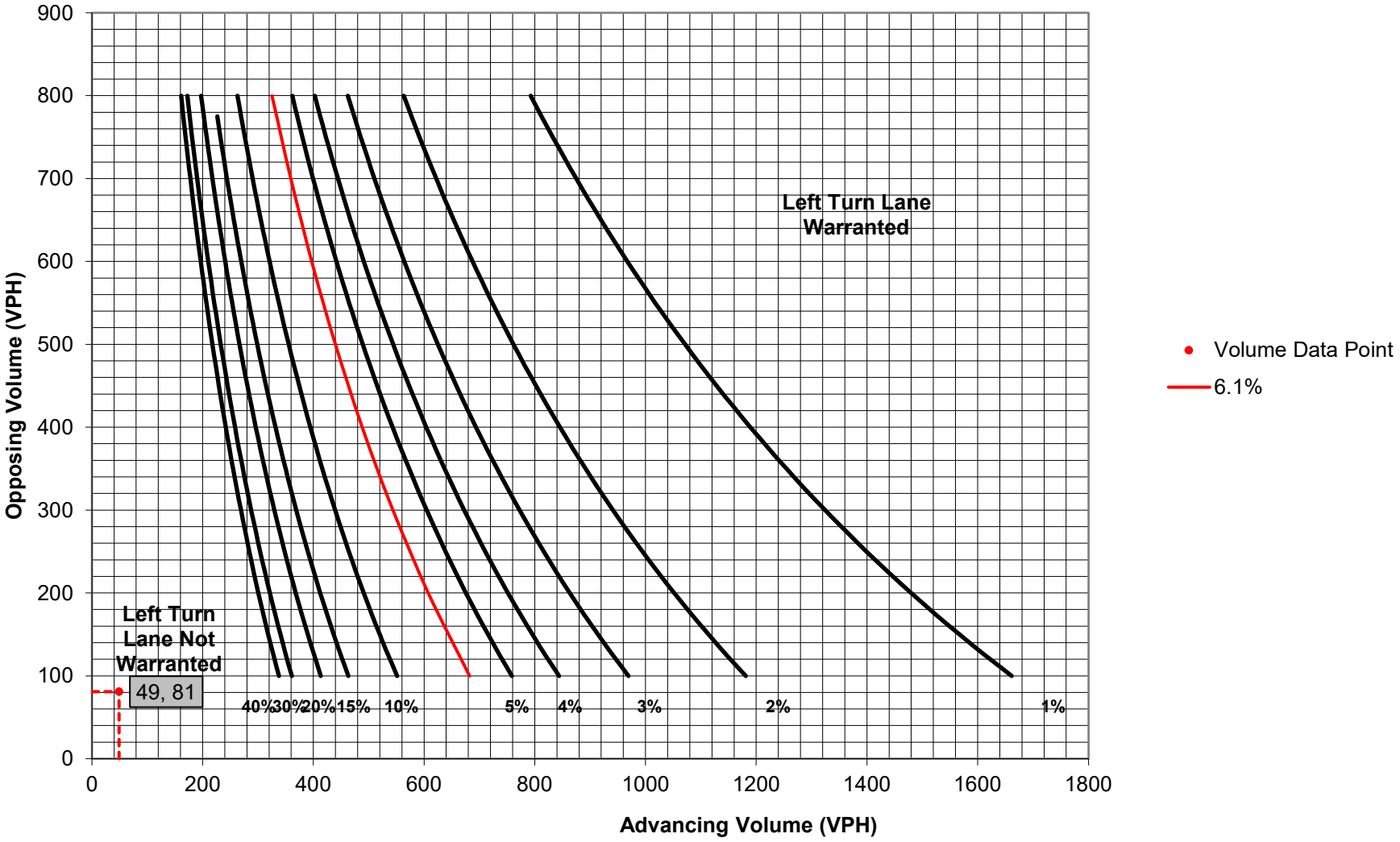
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Country Club Rd & Bernheisel Bridge Rd / Southbound Right Turn

Analysis Period:	2037 Design Year (No Build)	**Number of Approach Lanes:**	1
Design Hour:	SAT Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
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	0	0.0%	N/A
	Through	-	52	4.0%	56
	Right	-	25	0.0%	25

Advancing Volume:	81
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

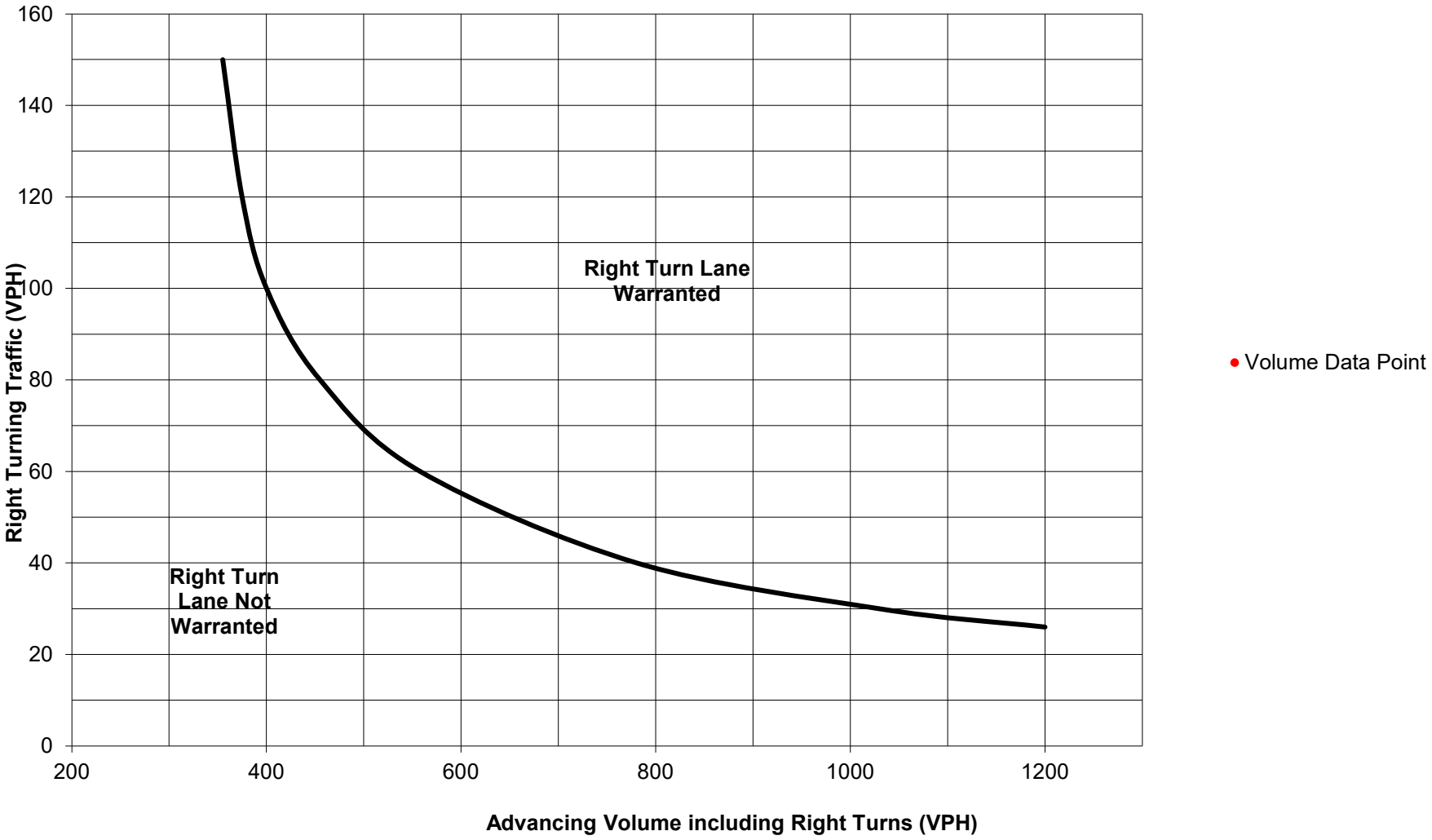
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Bernheisel Bridge Rd & Green Hill Rd
Northbound Right Turn

Analysis Period:	2037 Design Year (No Build)	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
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	0	0.0%	N/A
	Through	-	38	0.0%	38
	Right	-	9	13.0%	11

Advancing Volume:	49
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

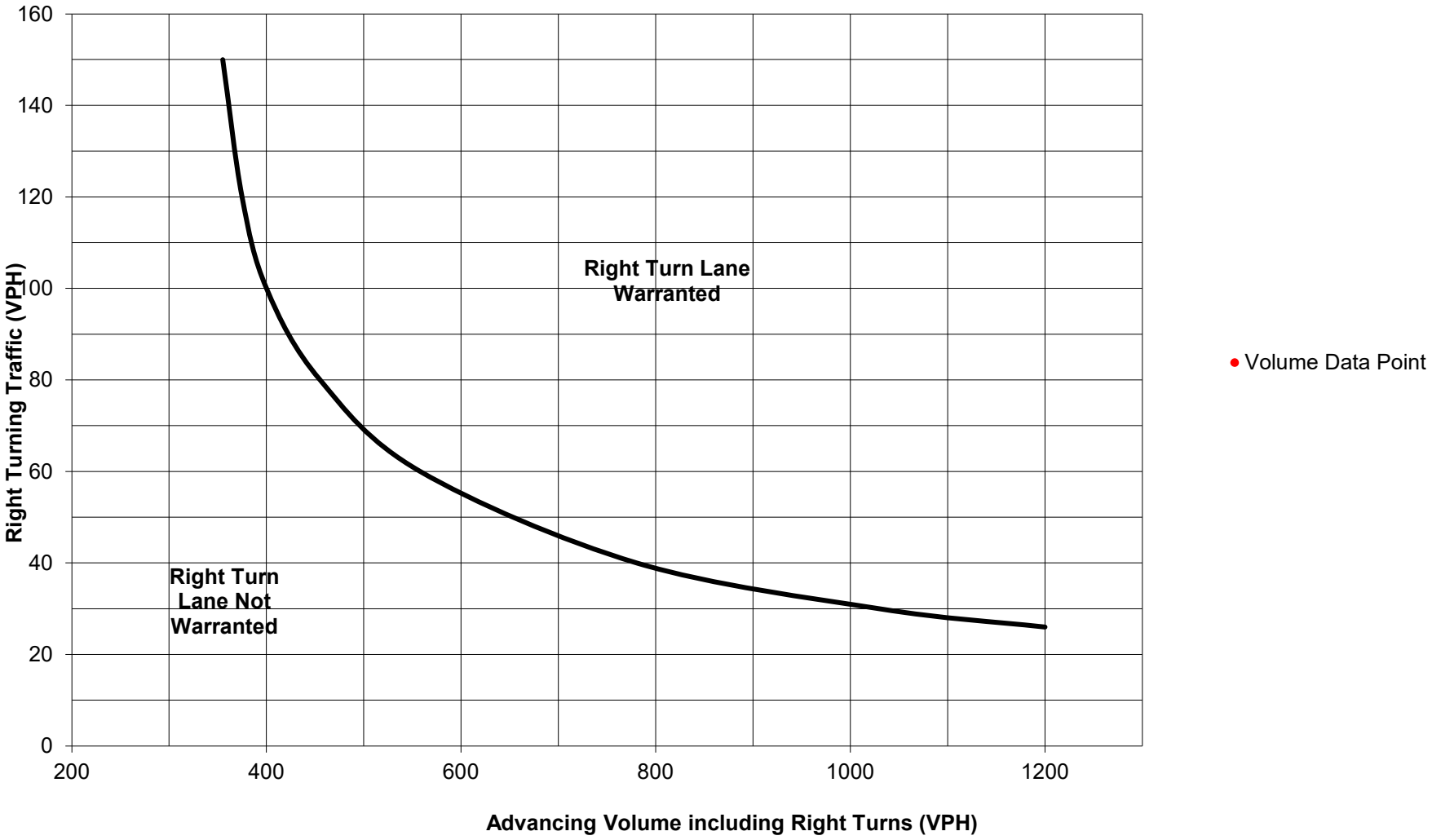
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Bernheisel Bridge Rd & Green Hill Rd
Southbound Left Turn

Analysis Period:	2037 Design Year (No Build)	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
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	89	2.0%	92
	Through	-	152	1.0%	155
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	38	0.0%	38
	Right	Yes	9	13.0%	11

Advancing Volume:	247
Opposing Volume:	49
Left Turn Volume:	92
% Left Turns in Advancing Volume:	37.25%

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:	Unsignalized
Design Hour Volume of Turning Lane:	92
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

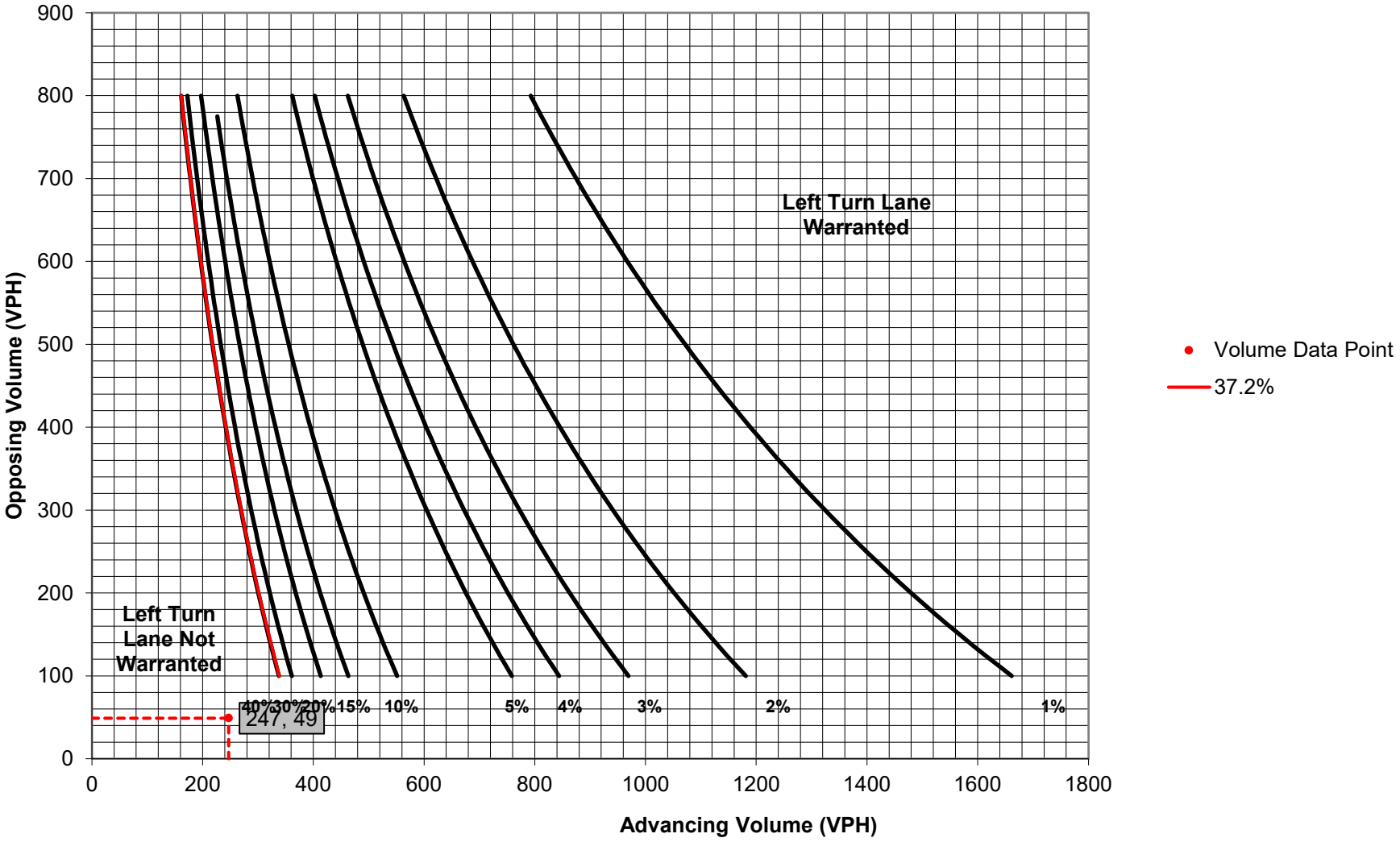
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Bernheisel Bridge Rd & Green Hill Rd
Westbound Left Turn

Analysis Period:	2037 Design Year (No Build)	**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	20.0%	7
	Through	-	0	0.0%	0
	Right	Yes	11	0.0%	11
Opposing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	0
	Right	No	0	0.0%	N/A

Advancing Volume: 18
Opposing Volume: 0
Left Turn Volume: 7
% Left Turns in Advancing Volume: 38.89%

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?: #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:	7
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

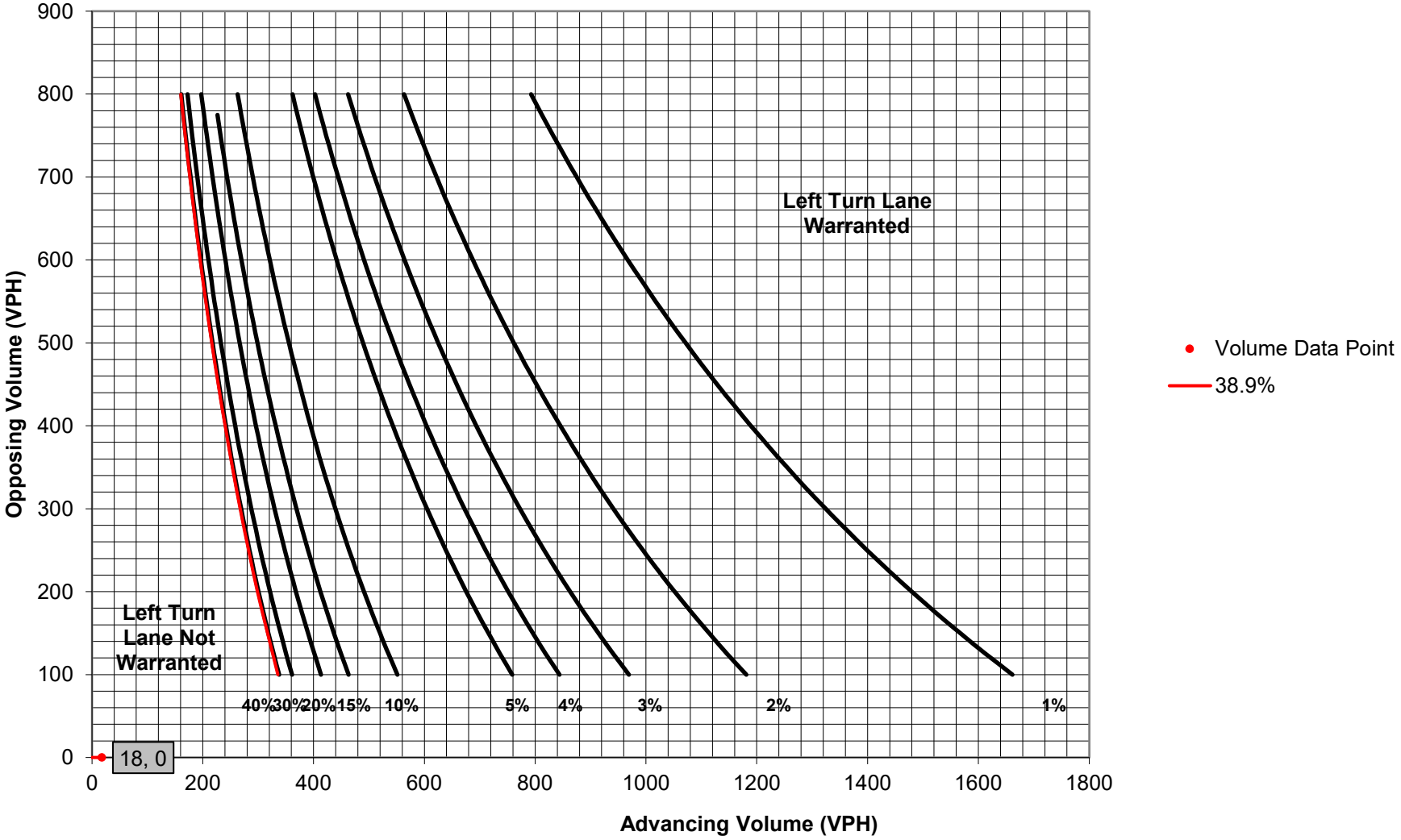
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Bernheisel Bridge Rd & Green Hill Rd
Westbound Right Turn

Analysis Period:	2037 Design Year (No Build)	**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	5	20.0%	7
	Through	-	0	0.0%	0
	Right	-	11	0.0%	11

Advancing Volume:	18
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

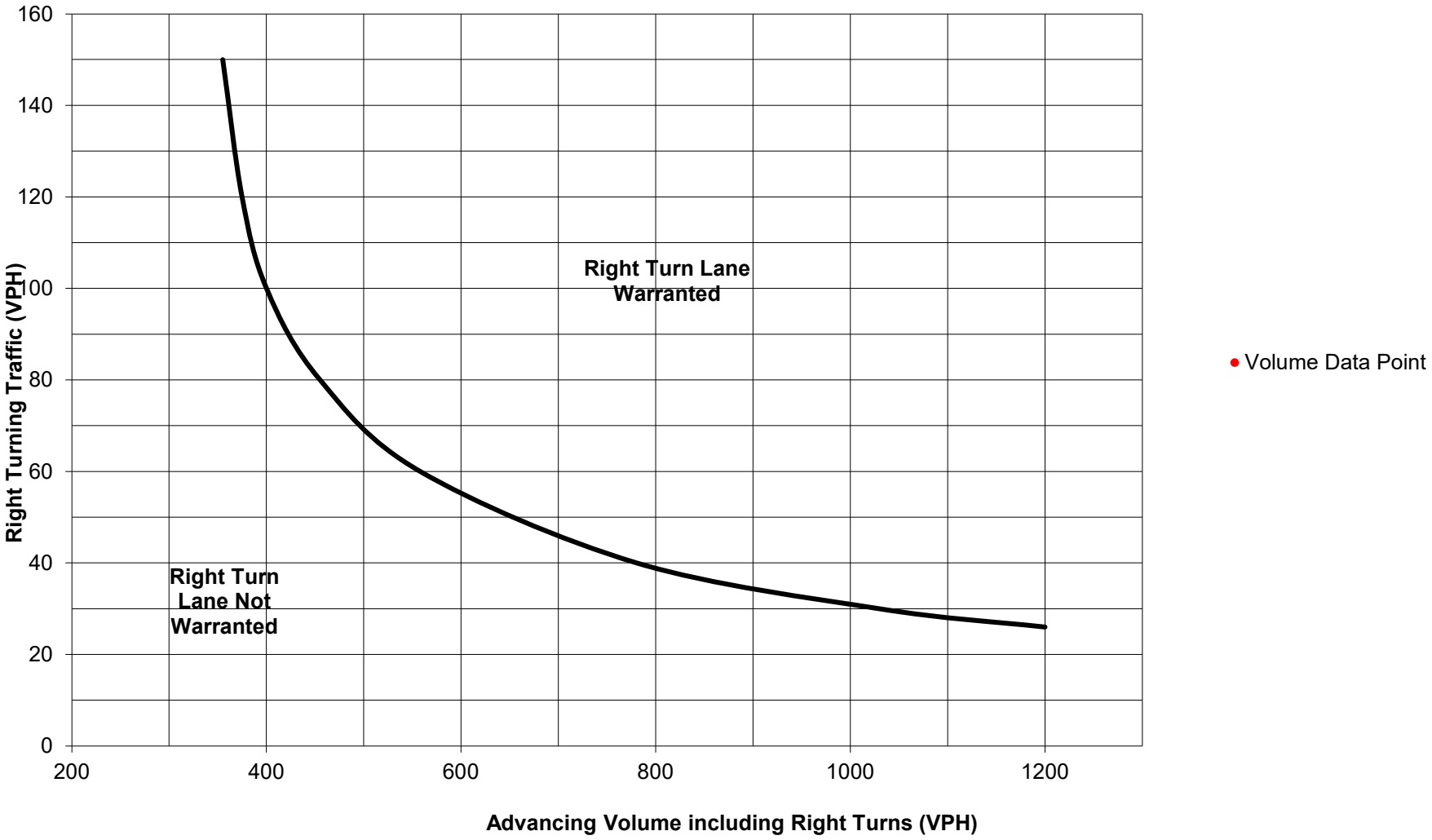
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Bernheisel Bridge Rd & Green Hill Rd
Northbound Right Turn

Analysis Period:	2037 Design Year (No Build)	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
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	0	0.0%	N/A
	Through	-	121	2.0%	125
	Right	-	12	0.0%	12

Advancing Volume: 137
Right Turn Volume: 12

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:	12
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

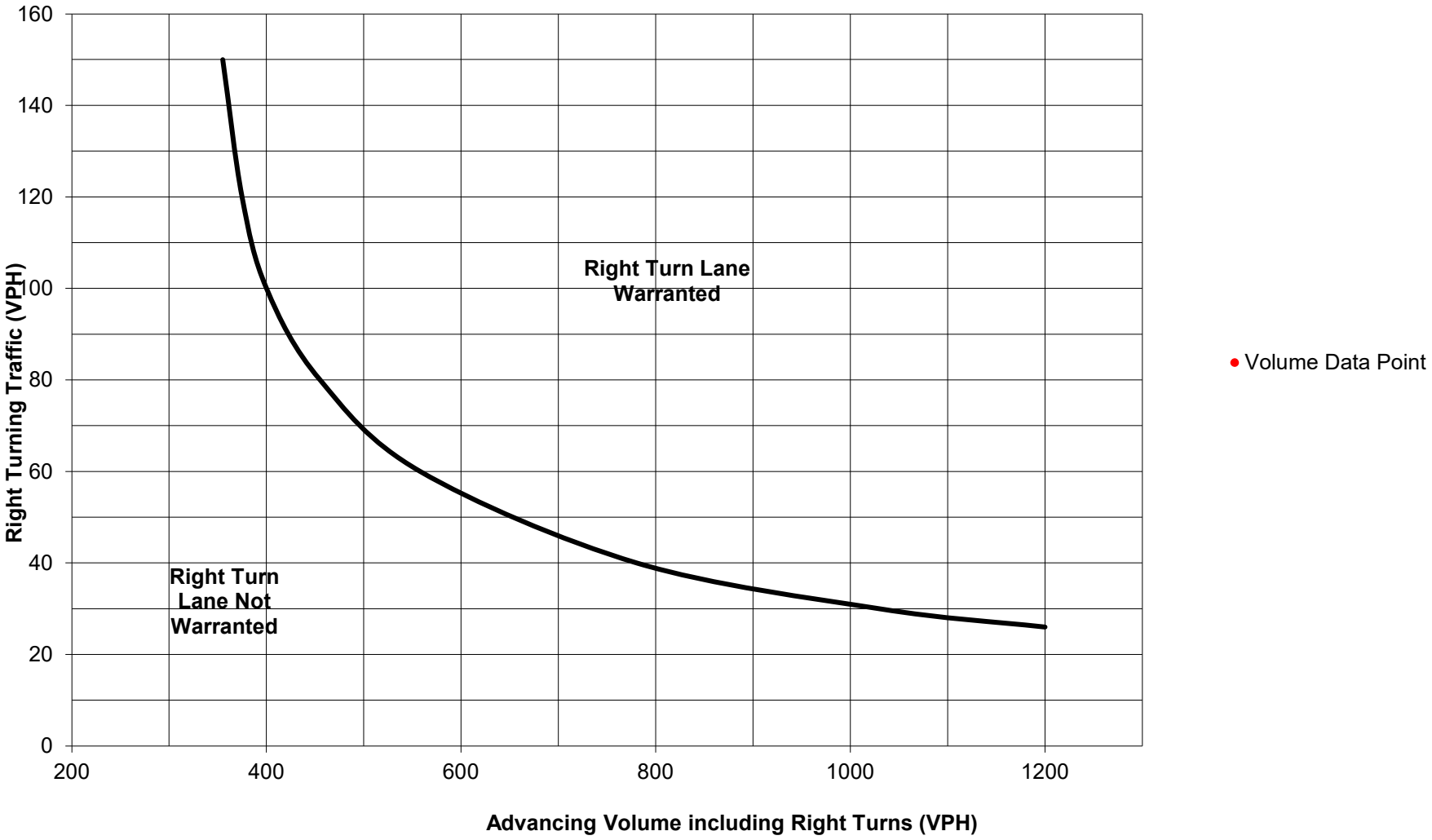
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Bernheisel Bridge Rd & Green Hill Rd
Southbound Left Turn

Analysis Period:	2037 Design Year (No Build)	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
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	41	0.0%	41
	Through	-	73	3.0%	77
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	121	2.0%	125
	Right	Yes	12	0.0%	12

Advancing Volume:	118
Opposing Volume:	137
Left Turn Volume:	41
% Left Turns in Advancing Volume:	34.75%

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:	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

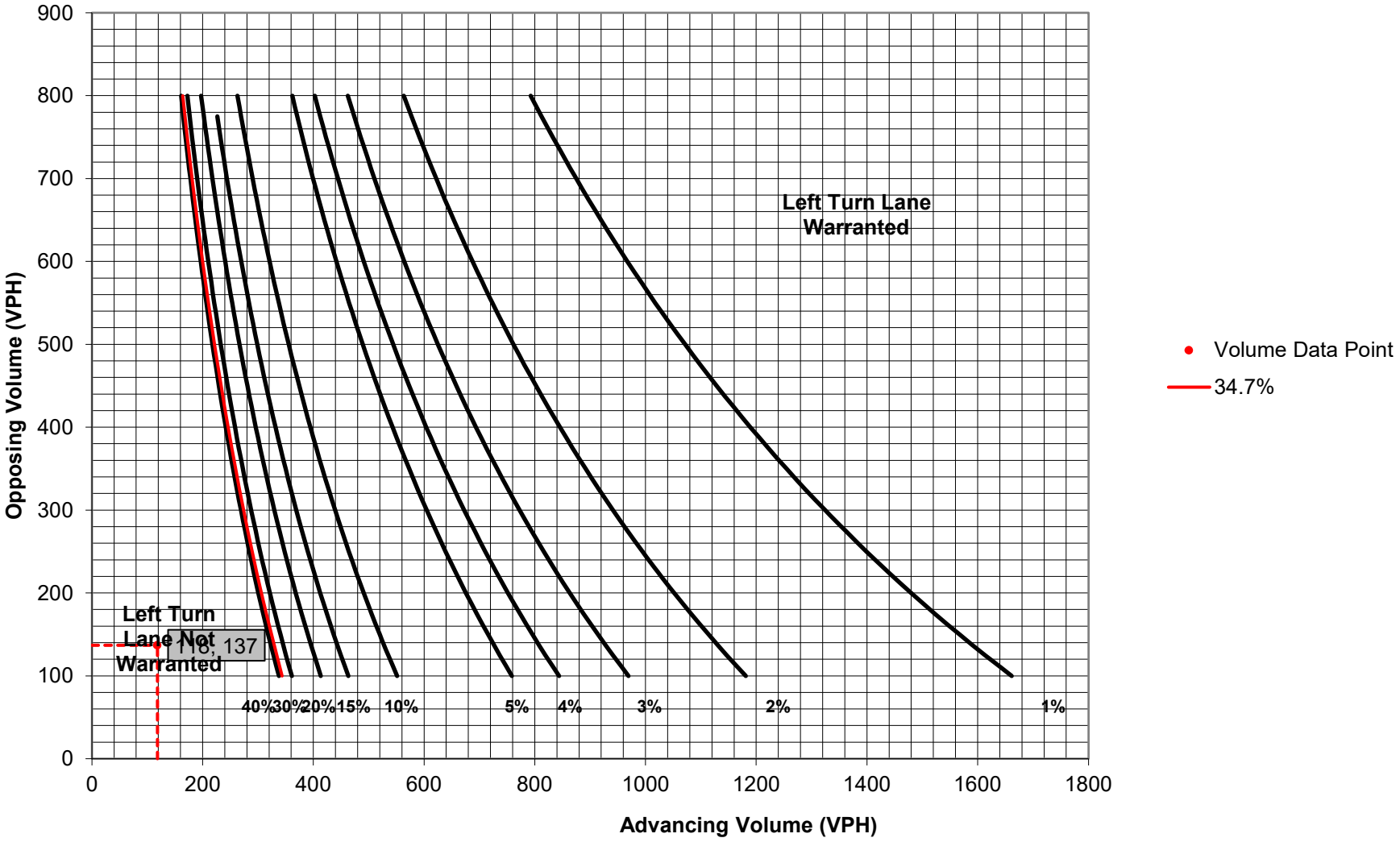
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Bernheisel Bridge Rd & Green Hill Rd
Westbound Left Turn

Analysis Period:	2037 Design Year (No Build)	**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	13.0%	11
	Through	-	0	0.0%	0
	Right	Yes	80	0.0%	80
Opposing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	0
	Right	No	0	0.0%	N/A

Advancing Volume: 91
Opposing Volume: 0
Left Turn Volume: 11
% Left Turns in Advancing Volume: 12.09%

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:	11
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

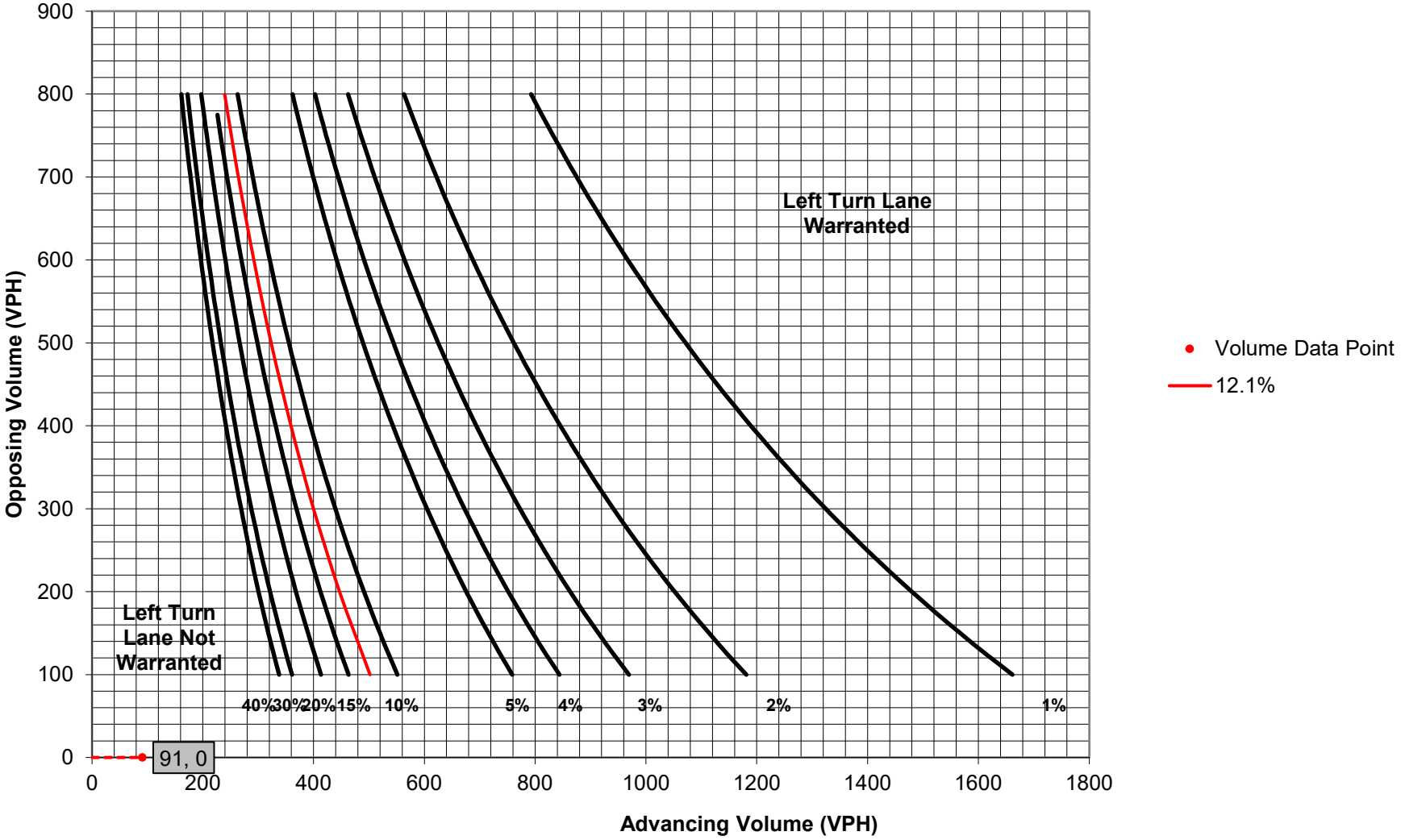
Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Bernheisel Bridge Rd & Green Hill Rd
Westbound Right Turn

Analysis Period:	2037 Design Year (No Build)	**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	9	13.0%	11
	Through	-	0	0.0%	0
	Right	-	80	0.0%	80

Advancing Volume:	91
Right Turn Volume:	80

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:	80
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

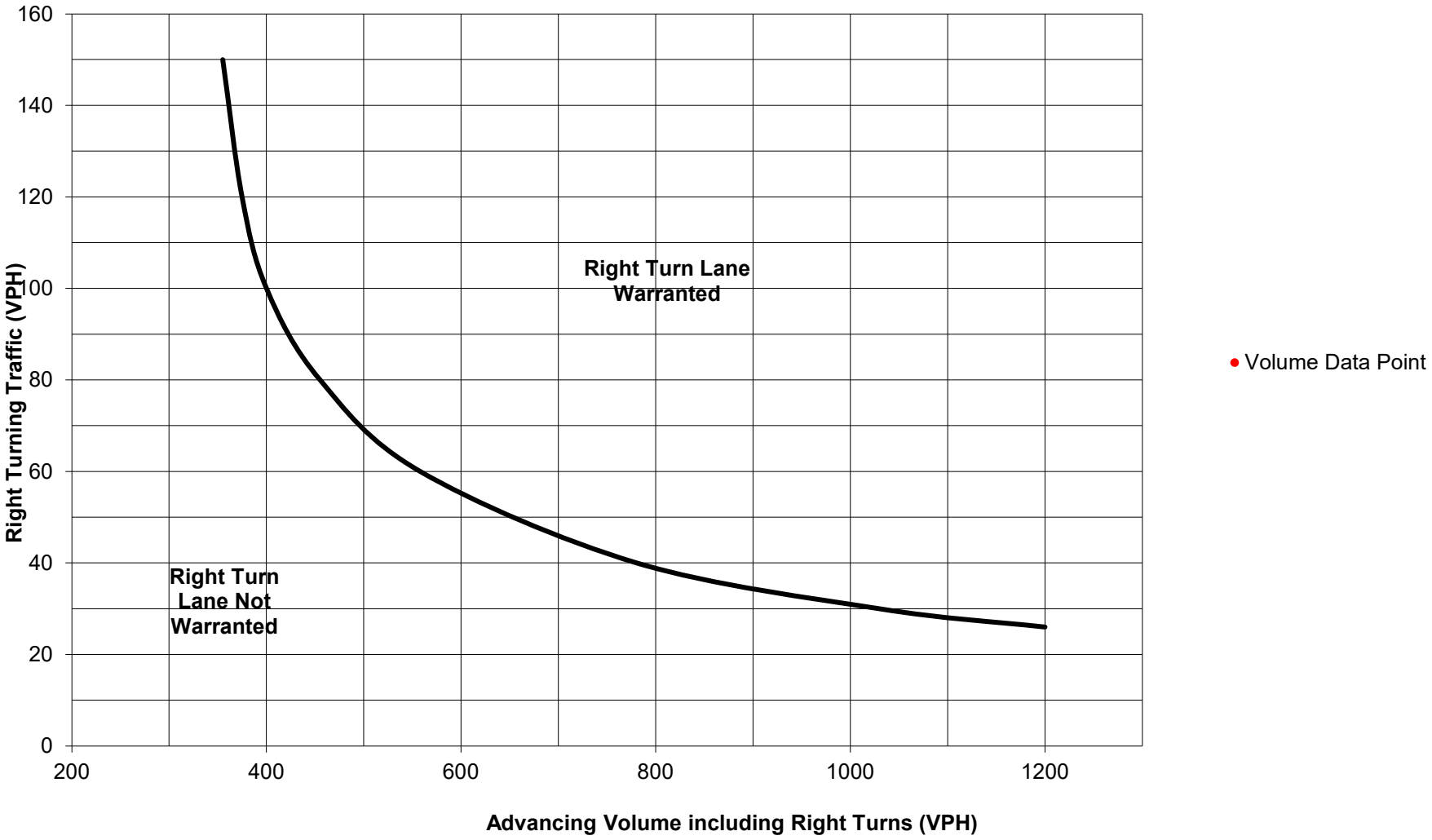
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Bernheisel Bridge Rd & Green Hill Rd
Northbound Right Turn

Analysis Period:	2037 Design Year (No Build)	**Number of Approach Lanes:**	1
Design Hour:	SAT Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
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	0	0.0%	N/A
	Through	-	74	0.0%	74
	Right	-	8	0.0%	8

Advancing Volume:	82
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

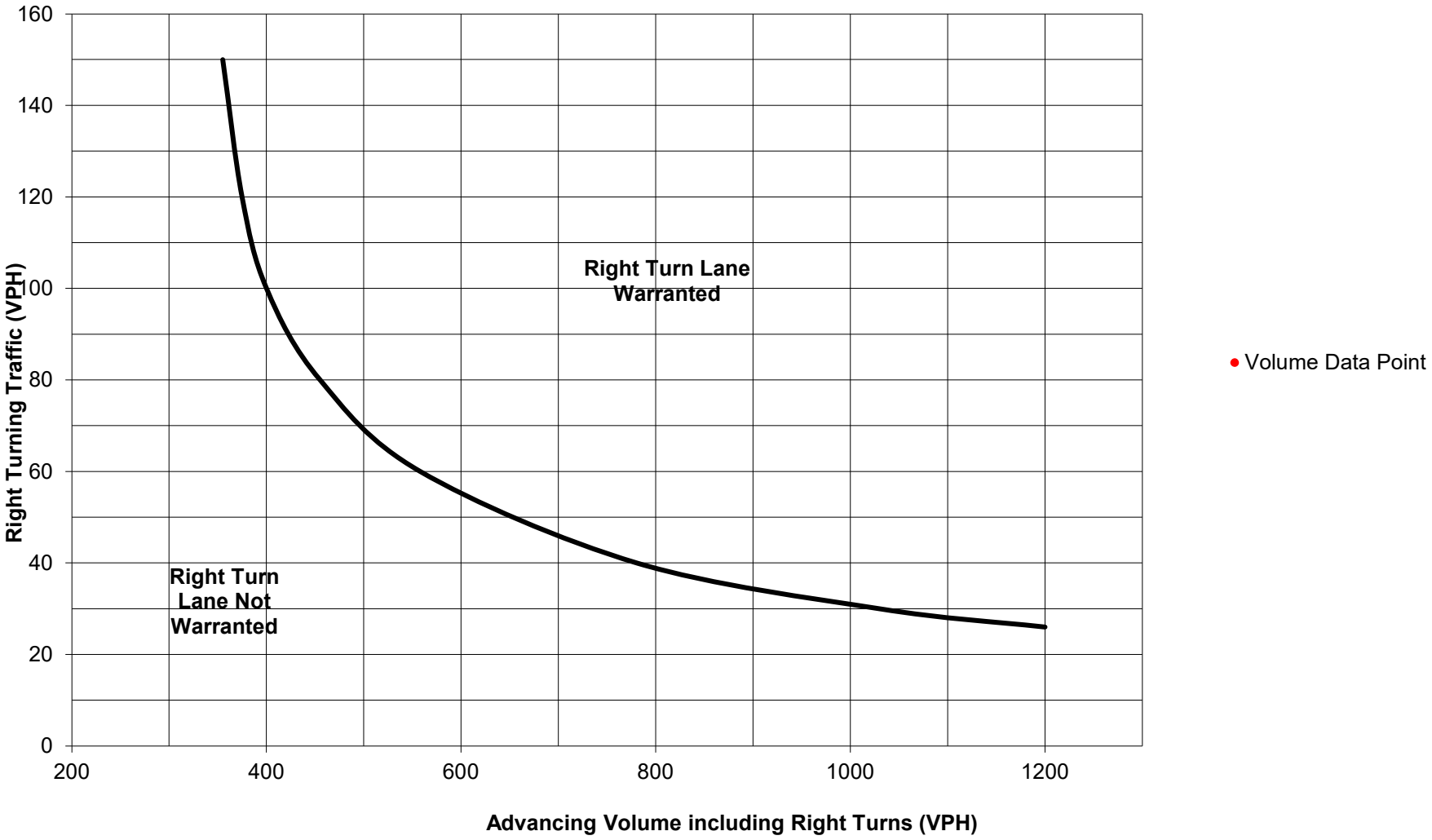
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Bernheisel Bridge Rd & Green Hill Rd
Southbound Left Turn

Analysis Period:	2037 Design Year (No Build)	**Number of Approach Lanes:**	1
Design Hour:	SAT Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
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	26	0.0%	26
	Through	-	72	3.0%	76
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	74	0.0%	74
	Right	Yes	8	0.0%	8

Advancing Volume:	102
Opposing Volume:	82
Left Turn Volume:	26
% Left Turns in Advancing Volume:	25.49%

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:	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

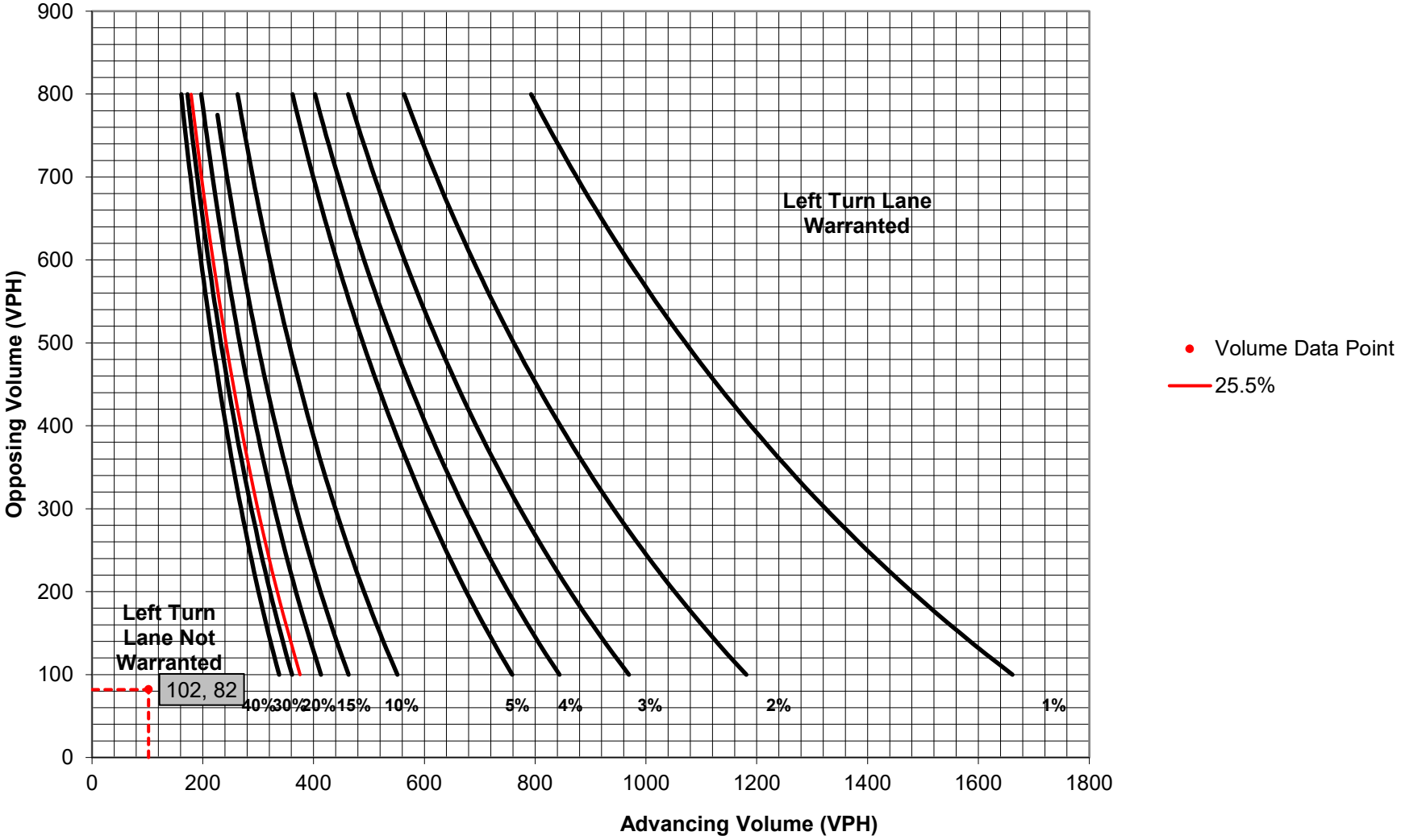
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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 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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Bernheisel Bridge Rd & Green Hill Rd
Westbound Left Turn

Analysis Period:	2037 Design Year (No Build)	**Number of Approach Lanes:**	1
Design Hour:	SAT 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	-	0	0.0%	0
	Right	Yes	49	0.0%	49
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:	5
% Left Turns in Advancing Volume:	9.26%

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?: #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

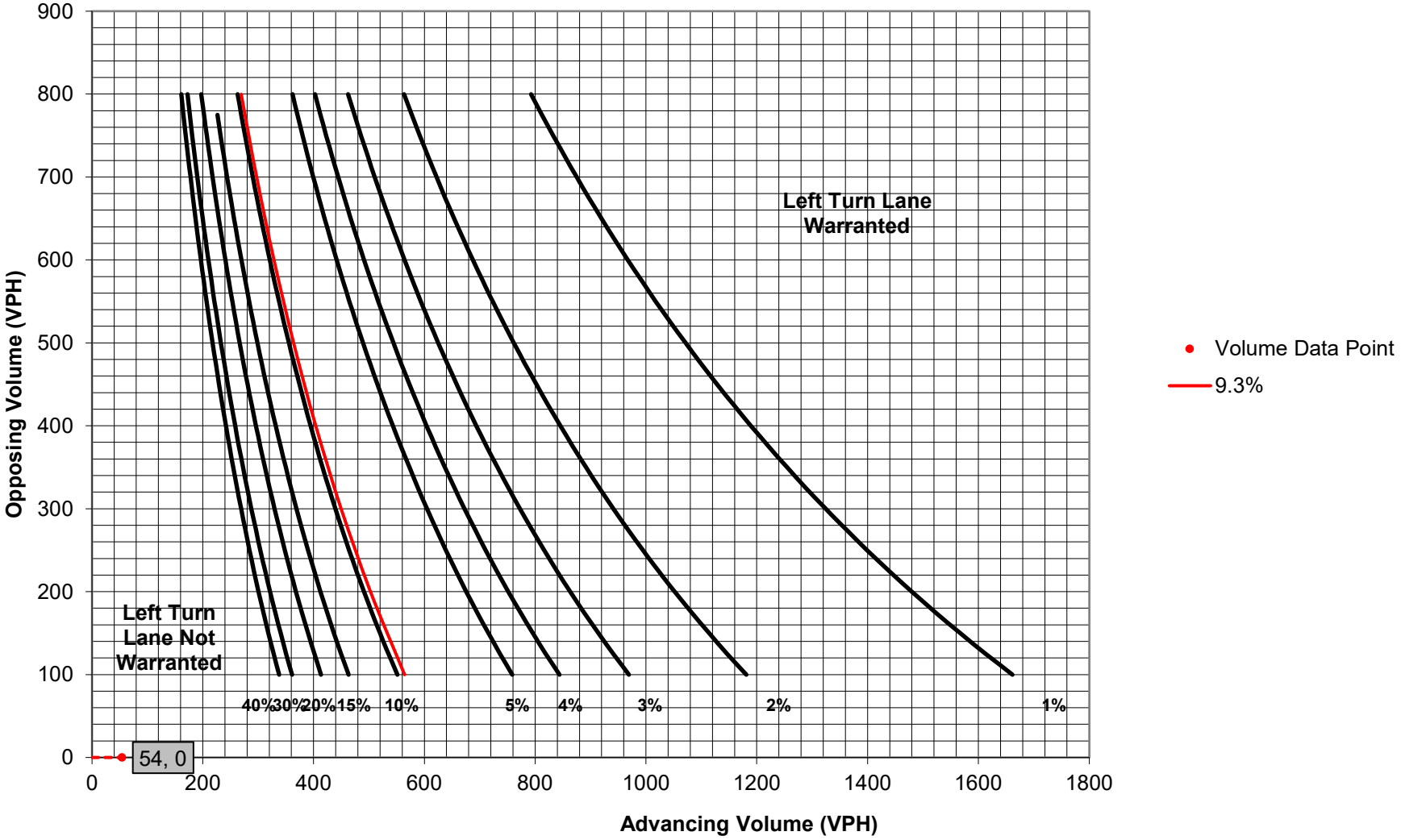
Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Bernheisel Bridge Rd & Green Hill Rd
Westbound Right Turn

Analysis Period:	2037 Design Year (No Build)	**Number of Approach Lanes:**	1
Design Hour:	SAT 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	5	0.0%	5
	Through	-	0	0.0%	0
	Right	-	49	0.0%	49

Advancing Volume:	54
Right Turn Volume:	49

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:	49
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

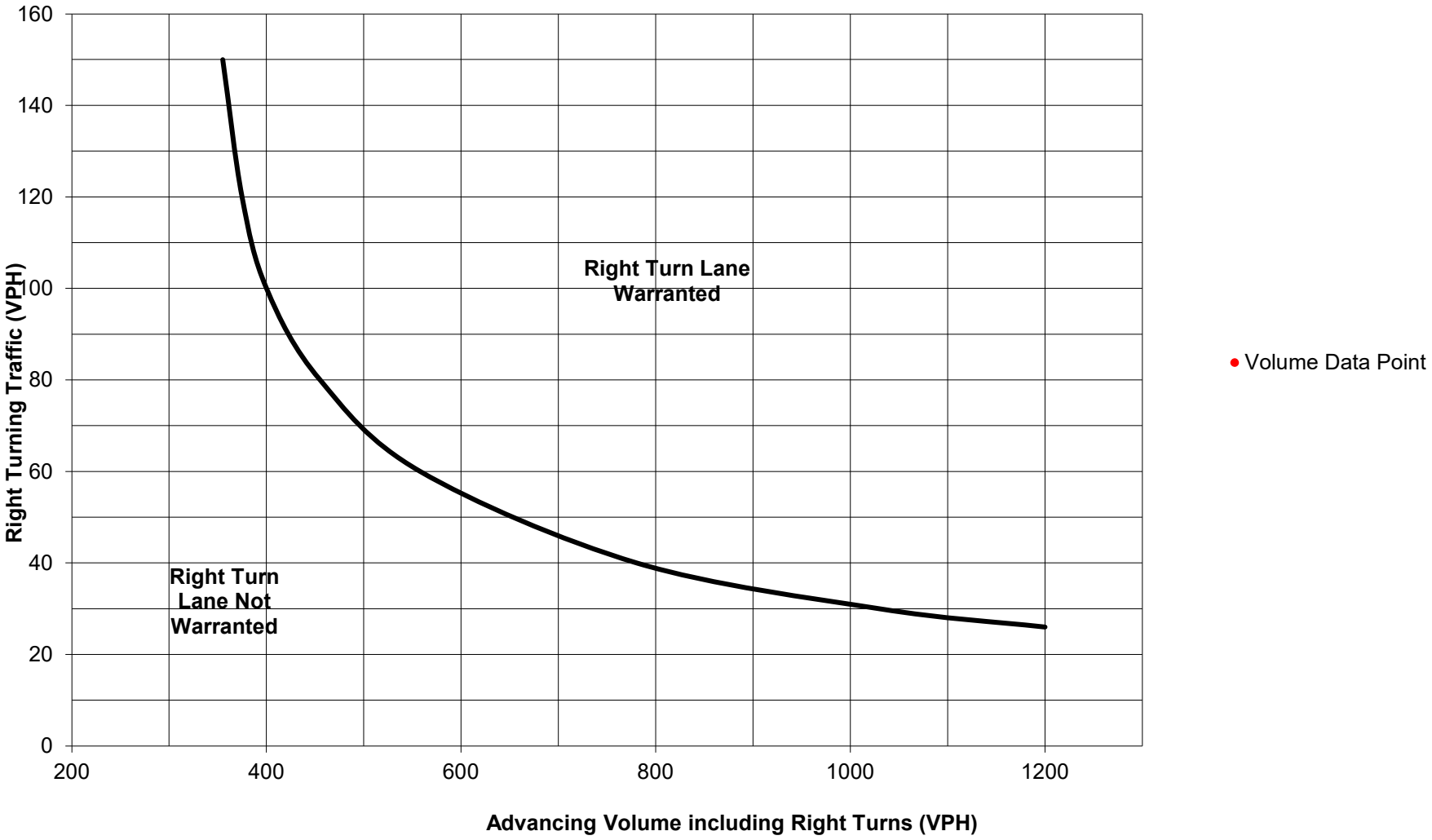
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Eastbound Left Turn

Analysis Period:	2037 Design Year (Build)	**Number of Approach Lanes:**	2
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
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	113	15.0%	139
	Through	-	1056	23.0%	1421
	Right	No	10	11.0%	N/A
Opposing	Left	No	3	33.0%	N/A
	Through	-	753	25.0%	1036
	Right	Yes	45	6.0%	50

Advancing Volume:	1560
Opposing Volume:	1086
Left Turn Volume:	139
% Left Turns in Advancing Volume:	8.91%

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?: Yes

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:	139
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: 4.0

PennDOT Publication 46, Exhibit 11-6

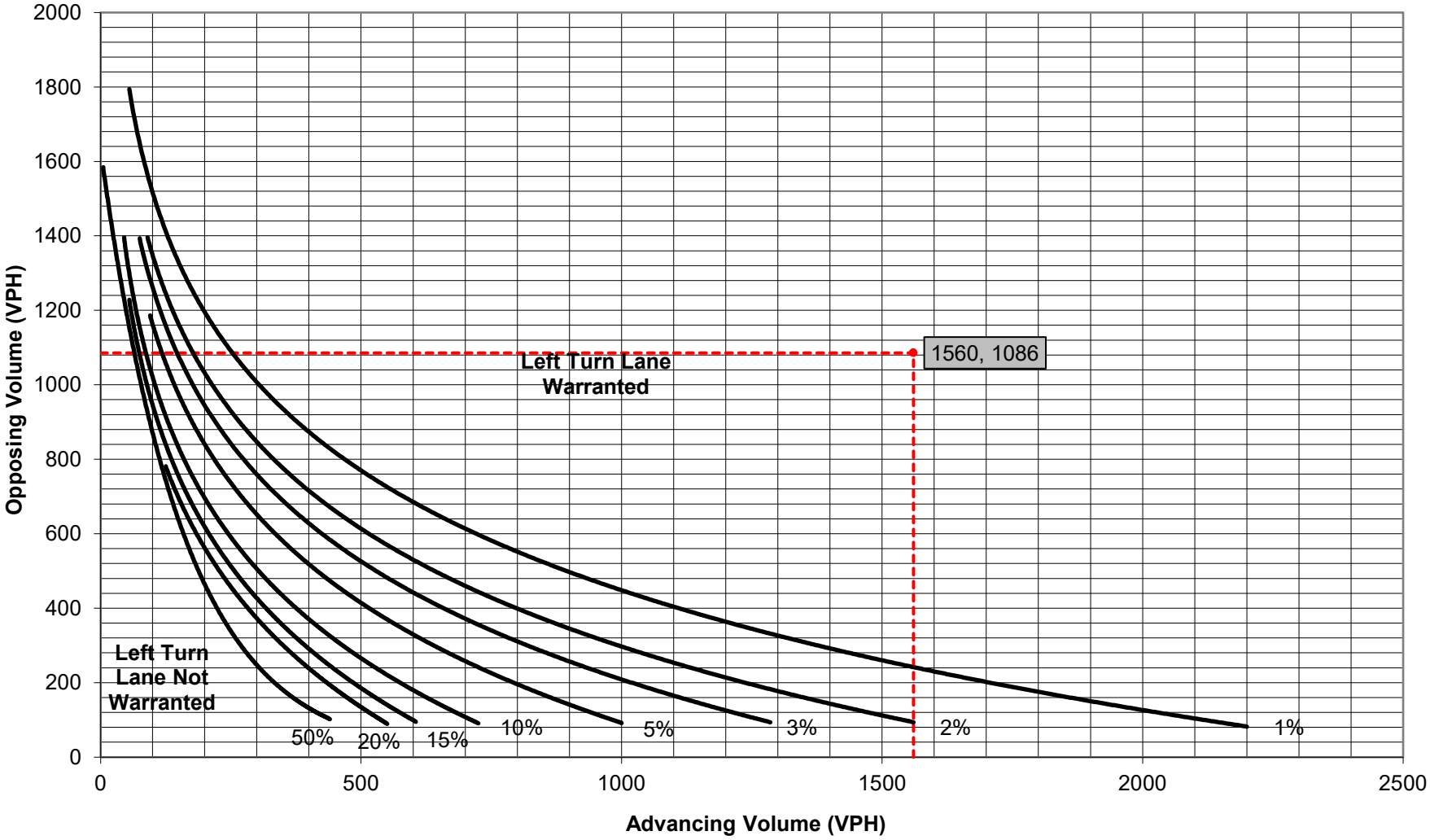
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	175	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	175	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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Eastbound Right Turn

Analysis Period:	2037 Design Year (Build)	**Number of Approach Lanes:**	2
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
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	113	15.0%	N/A
	Through	-	1056	23.0%	1421
	Right	-	10	11.0%	12

Advancing Volume:	1433
Right Turn Volume:	12

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:	12
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

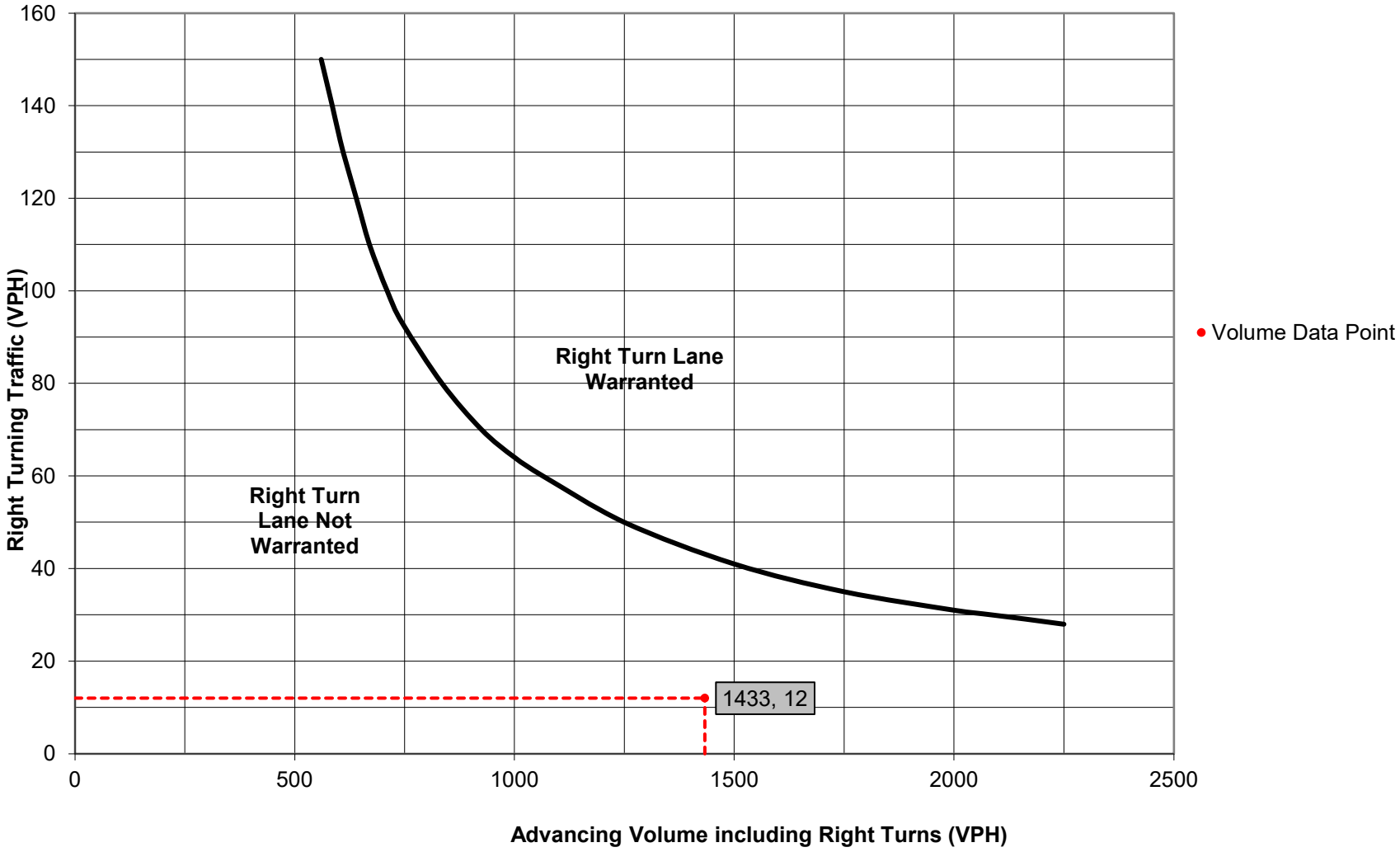
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Northbound Left Turn

Analysis Period:	2037 Design Year (Build)	**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	1	0.0%	1
	Through	-	1	0.0%	1
	Right	No	17	13.0%	N/A
Opposing	Left	Yes	70	3.0%	74
	Through	-	1	0.0%	1
	Right	Yes	57	2.0%	59

Advancing Volume:	2
Opposing Volume:	134
Left Turn Volume:	1
% Left Turns in Advancing Volume:	50.00%

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?: **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:	1
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

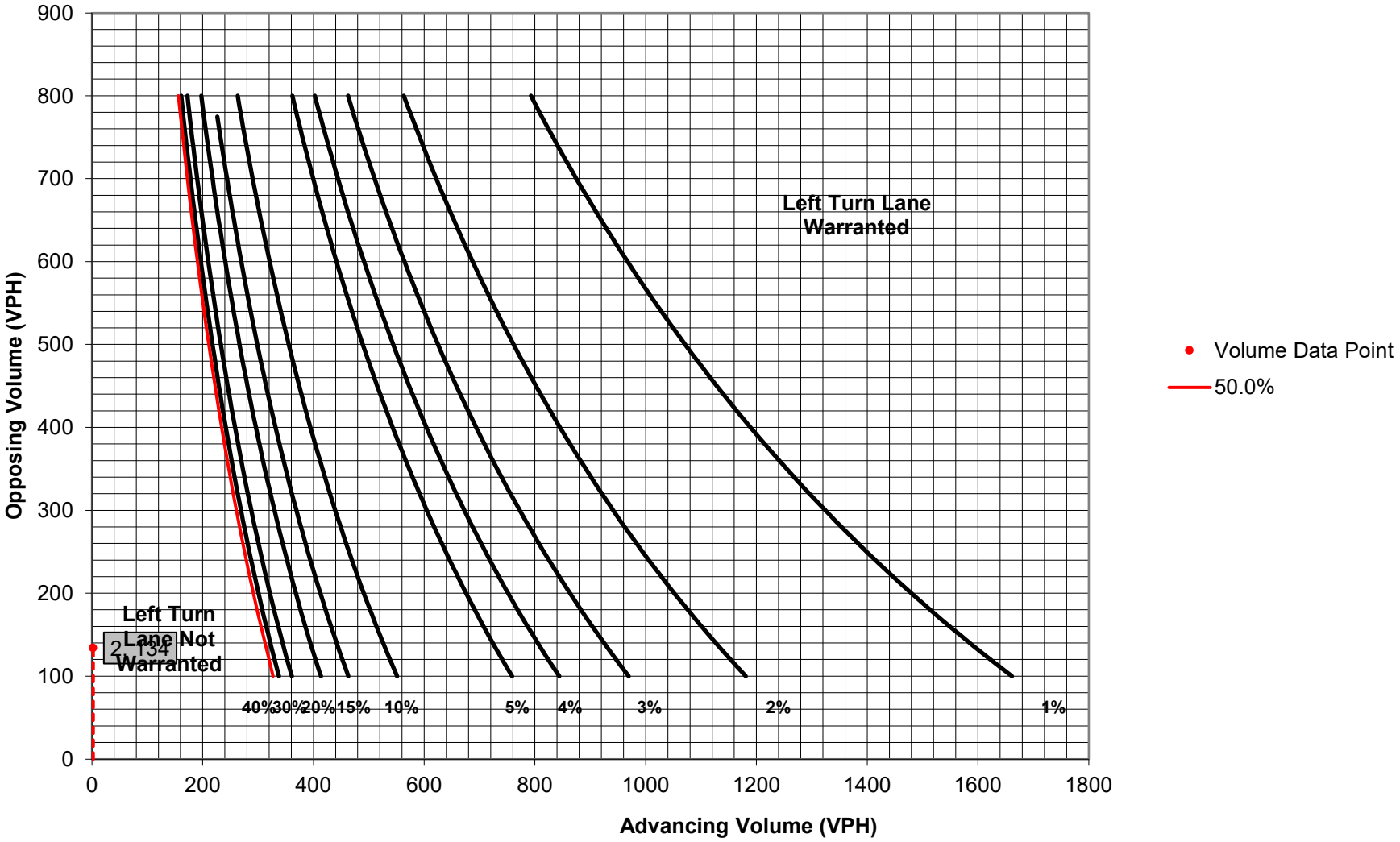
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Northbound Right Turn

Analysis Period:	2037 Design Year (Build)	**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	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	No	1	0.0%	N/A
	Through	-	1	0.0%	1
	Right	-	17	13.0%	21

Advancing Volume:	22
Right Turn Volume:	21

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:	21
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

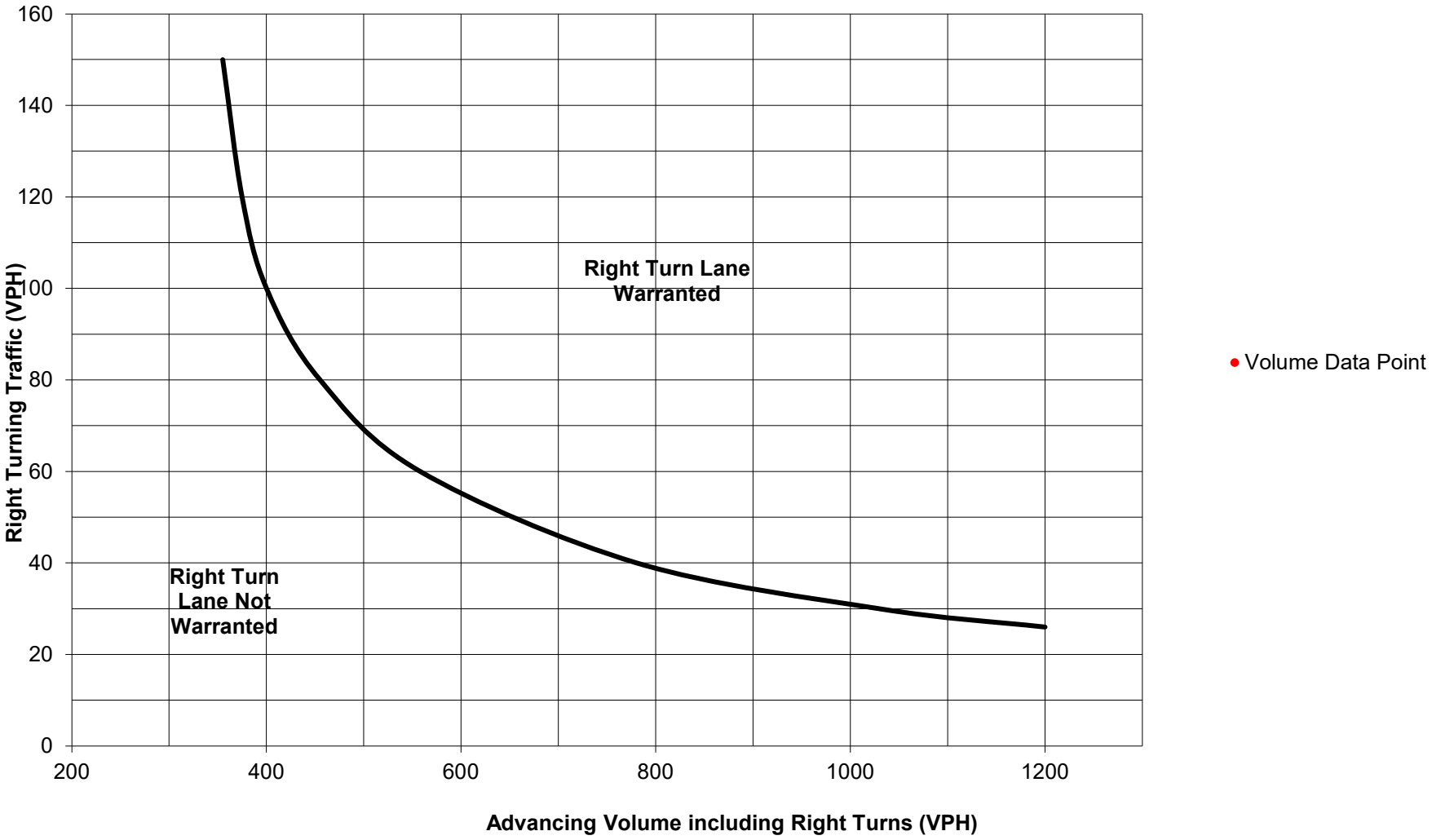
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Southbound Left Turn

Analysis Period:	2037 Design Year (Build)	**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	70	3.0%	74
	Through	-	1	0.0%	1
	Right	Yes	57	2.0%	59
Opposing	Left	Yes	1	0.0%	1
	Through	-	1	0.0%	1
	Right	Yes	17	13.0%	21

Advancing Volume:	134
Opposing Volume:	23
Left Turn Volume:	74
% Left Turns in Advancing Volume:	55.22%

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:	Signalized
Design Hour Volume of Turning Lane:	74
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

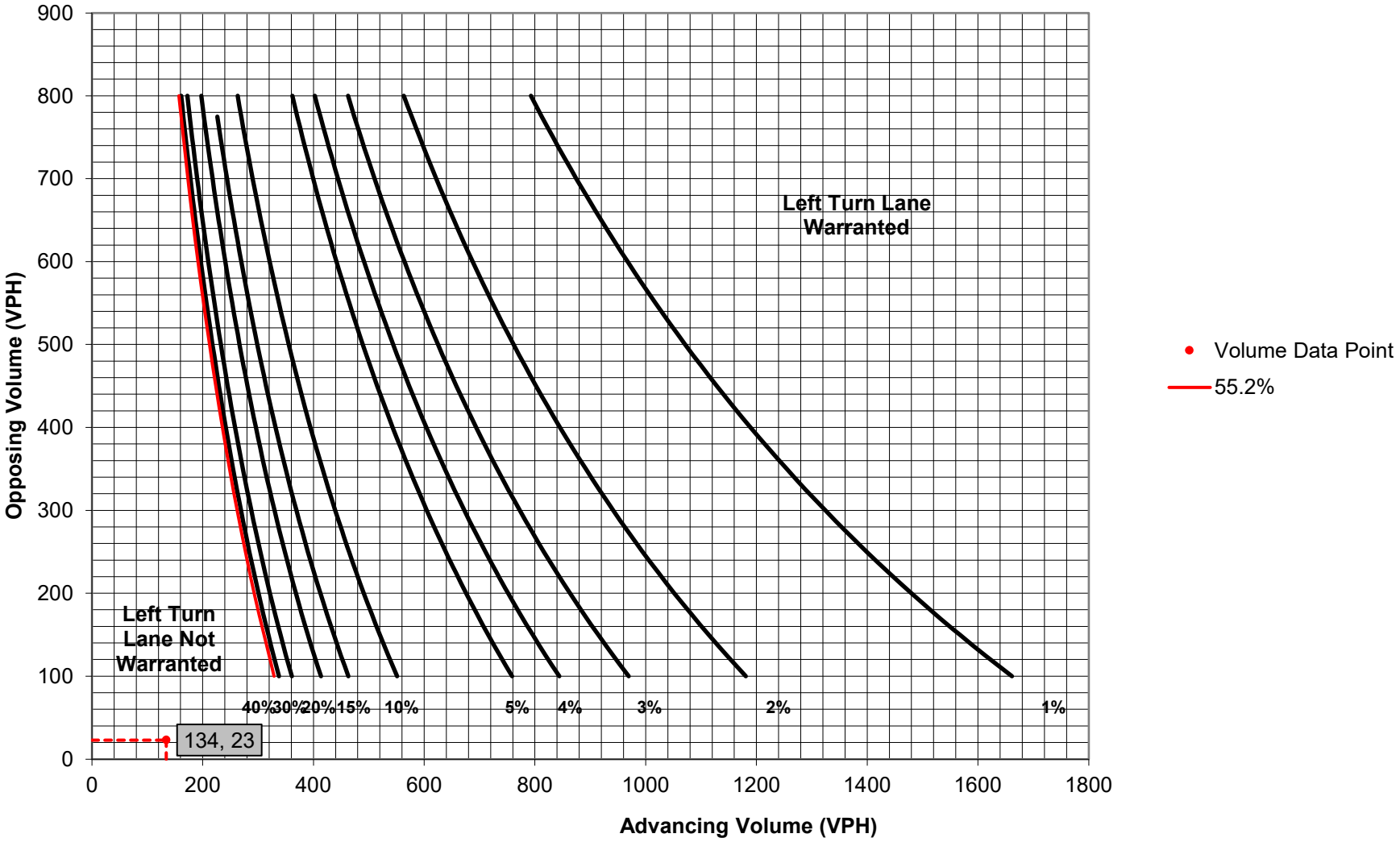
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Southbound Right Turn

Analysis Period:	2037 Design Year (Build)	**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	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	3.0%	74
	Through	-	1	0.0%	1
	Right	-	57	2.0%	59

Advancing Volume: 134
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):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

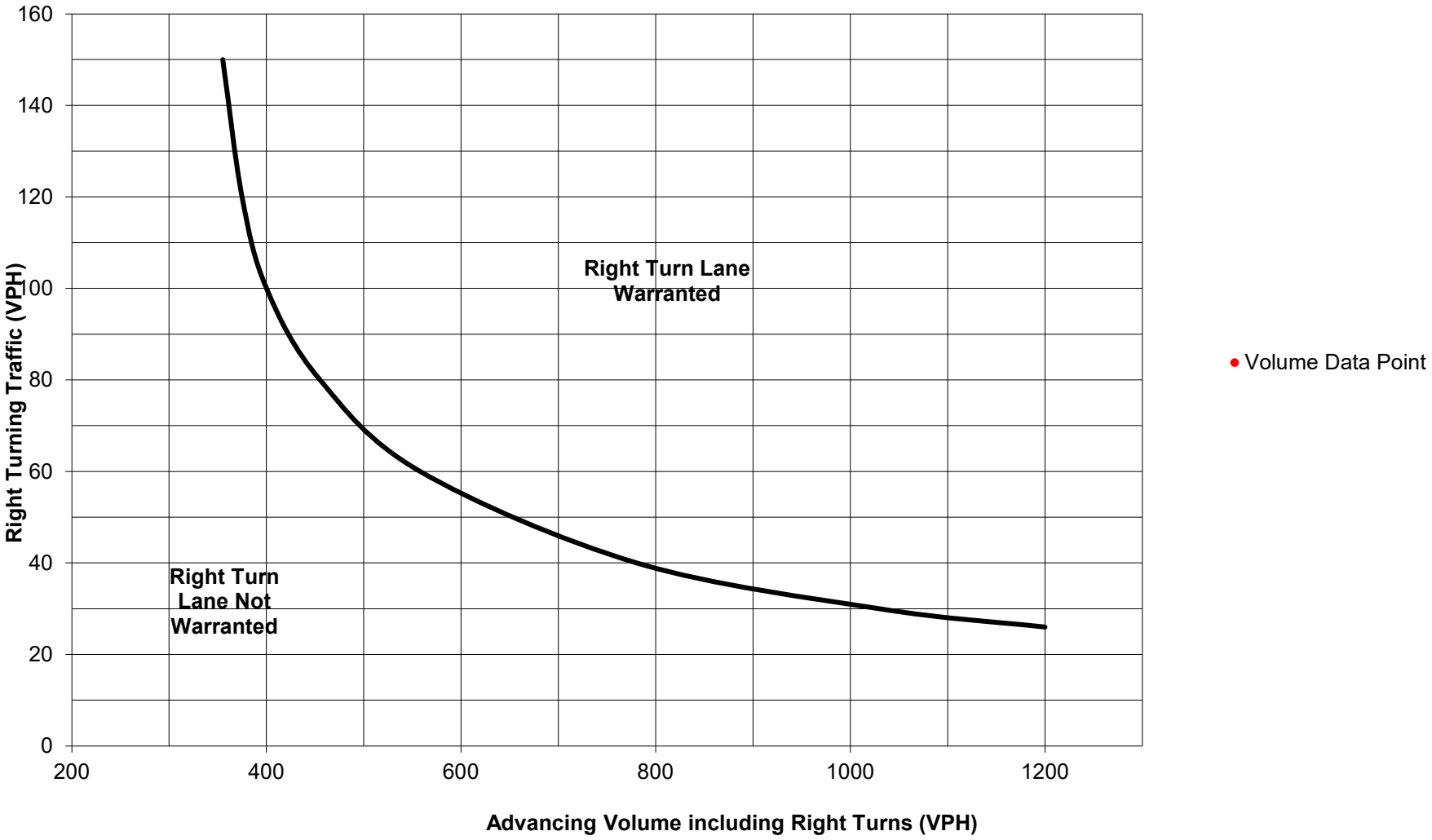
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Westbound Left Turn

Analysis Period:	2037 Design Year (Build)	**Number of Approach Lanes:**	2
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
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	33.0%	5
	Through	-	753	25.0%	1036
	Right	No	45	6.0%	N/A
Opposing	Left	No	113	15.0%	N/A
	Through	-	1056	23.0%	1421
	Right	Yes	10	11.0%	12

Advancing Volume:	1041
Opposing Volume:	1433
Left Turn Volume:	5
% Left Turns in Advancing Volume:	0.48%

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:	5
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

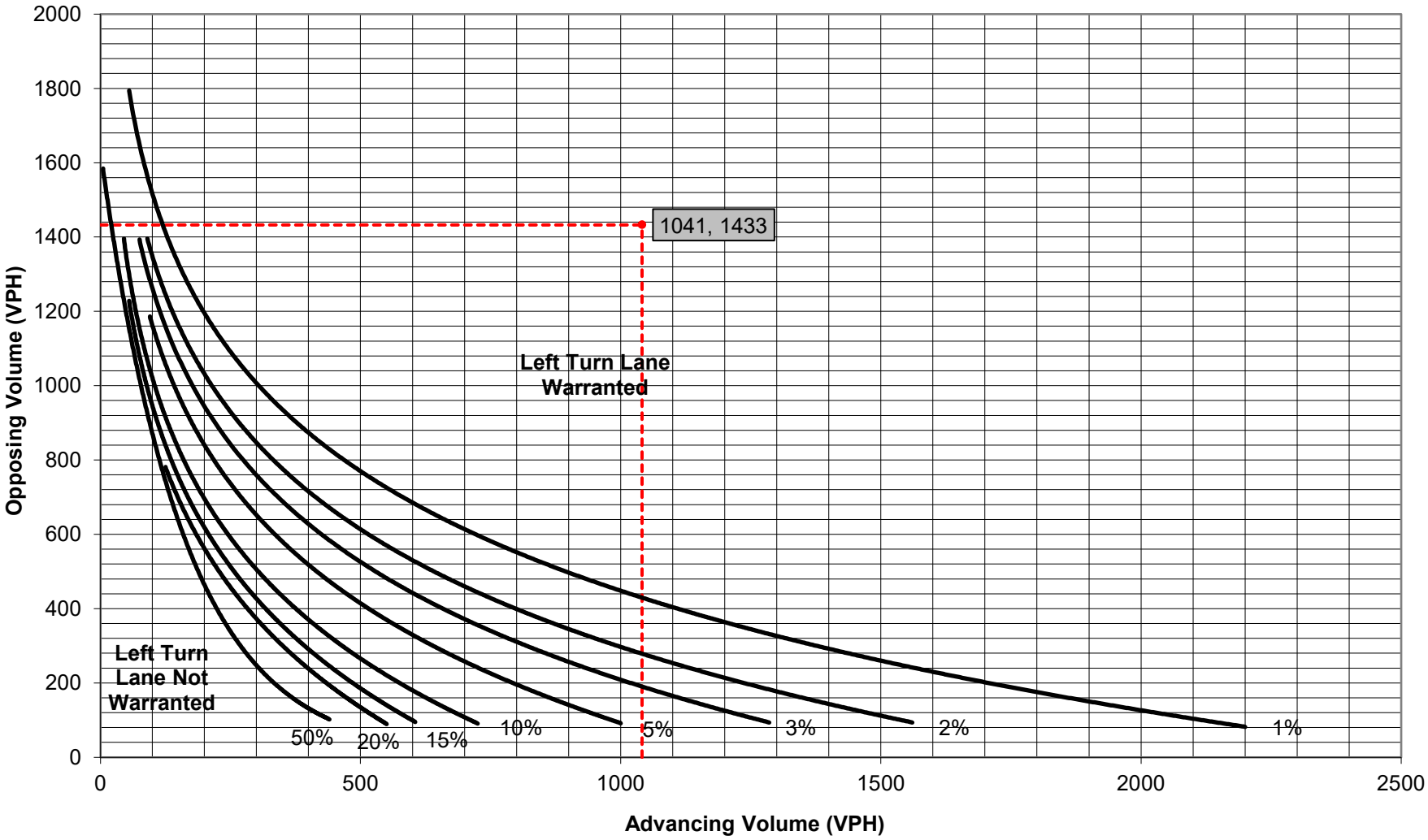
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Westbound Right Turn

Analysis Period:	2037 Design Year (Build)	**Number of Approach Lanes:**	2
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
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	3	33.0%	N/A
	Through	-	753	25.0%	1036
	Right	-	45	6.0%	50

Advancing Volume:	1086
Right Turn Volume:	50

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:	50
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

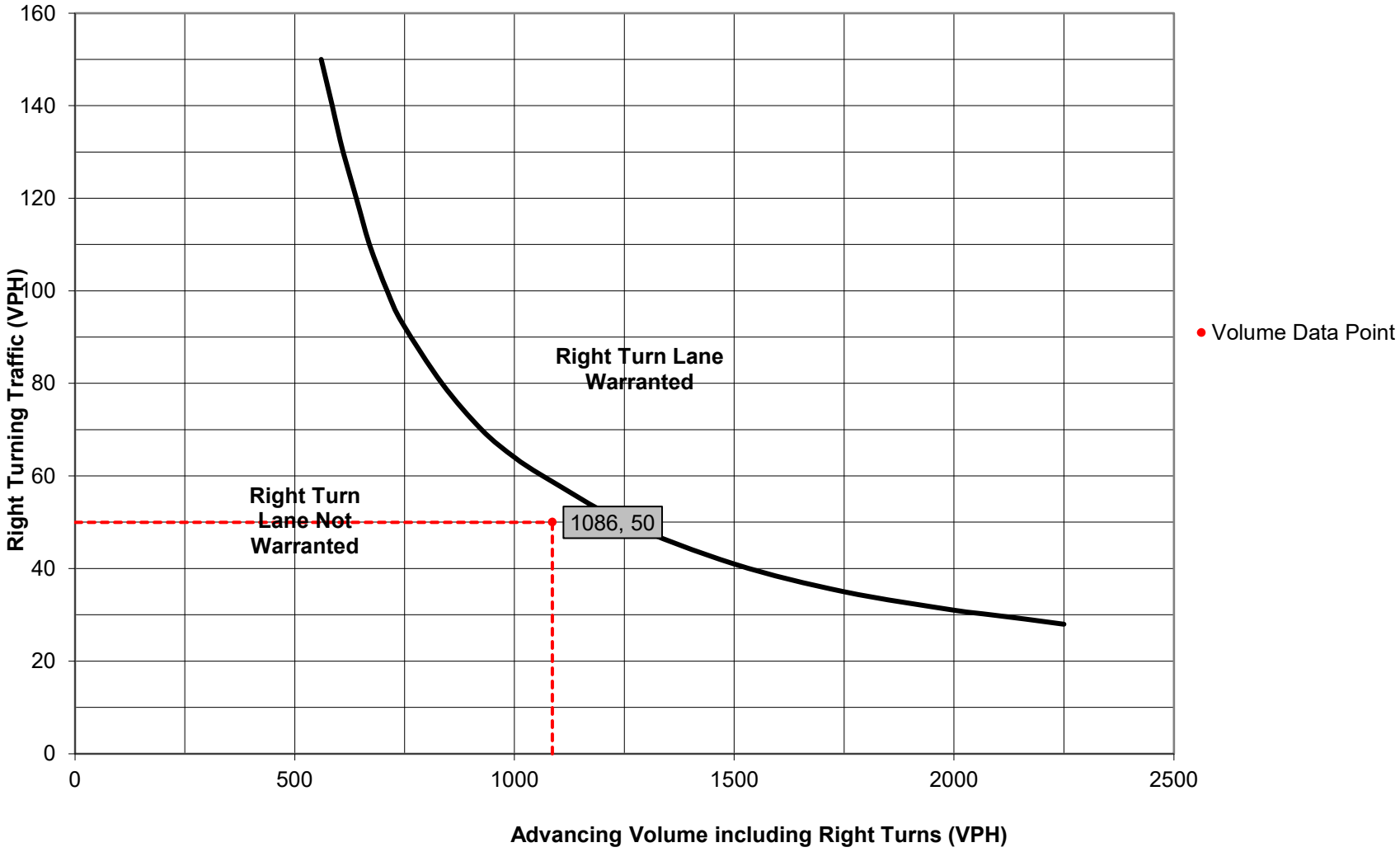
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Eastbound Left Turn

Analysis Period:	2037 Design Year (Build)	**Number of Approach Lanes:**	2
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
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	60	2.0%	62
	Through	-	1299	28.0%	1845
	Right	No	14	8.0%	N/A
Opposing	Left	No	27	16.0%	N/A
	Through	-	942	26.0%	1310
	Right	Yes	34	7.0%	38

Advancing Volume:	1907
Opposing Volume:	1348
Left Turn Volume:	62
% Left Turns in Advancing Volume:	3.25%

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?: Yes

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:	62
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: 2.0

PennDOT Publication 46, Exhibit 11-6

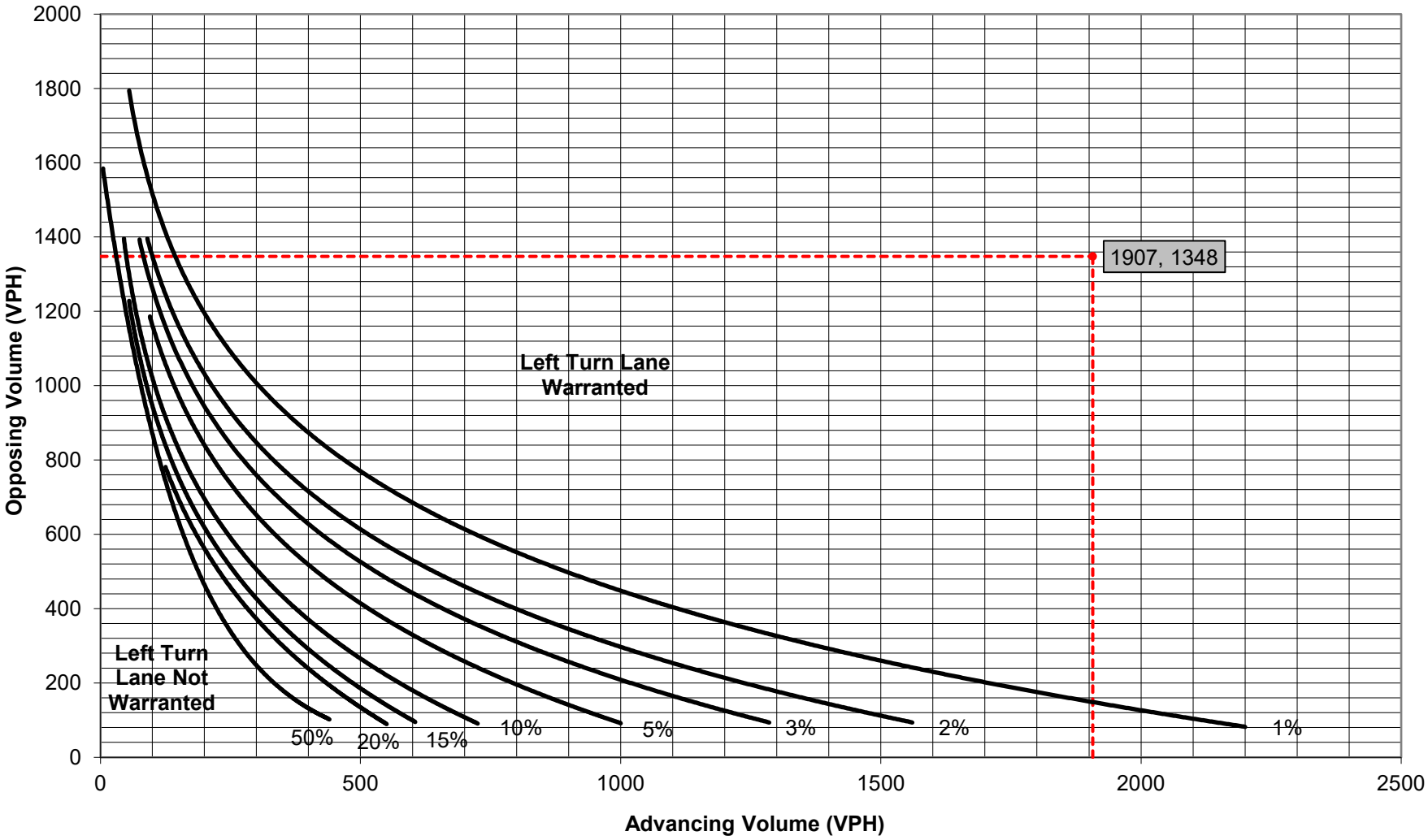
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	100	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	100	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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Eastbound Right Turn

Analysis Period:	2037 Design Year (Build)	**Number of Approach Lanes:**	2
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
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	60	2.0%	N/A
	Through	-	1299	28.0%	1845
	Right	-	14	8.0%	16

Advancing Volume:	1861
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 11

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):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

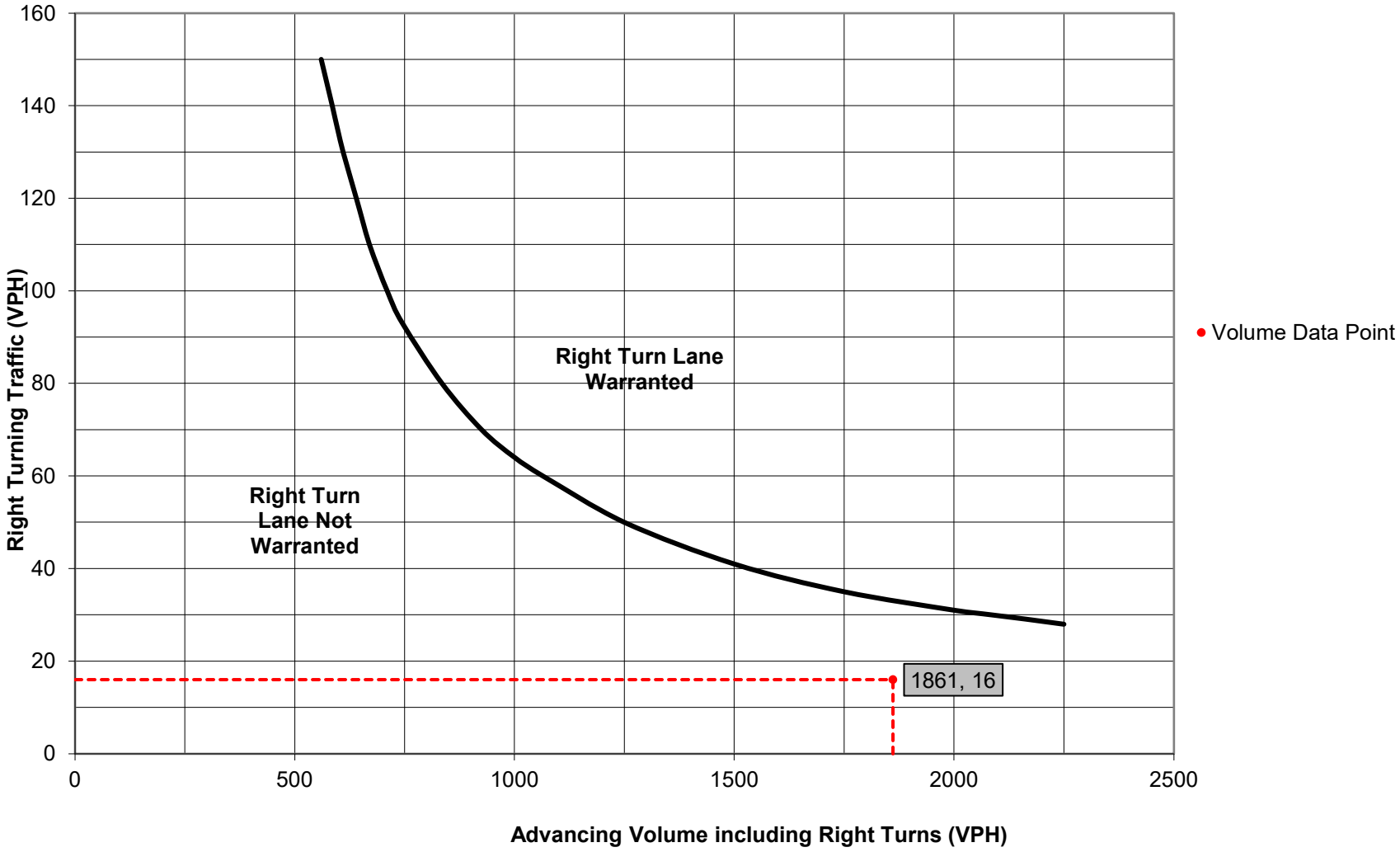
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Northbound Left Turn

Analysis Period:	2037 Design Year (Build)	**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	13	0.0%	13
	Through	-	0	0.0%	0
	Right	No	27	8.0%	N/A
Opposing	Left	Yes	58	8.0%	65
	Through	-	1	0.0%	1
	Right	Yes	92	8.0%	104

Advancing Volume:	13
Opposing Volume:	170
Left Turn Volume:	13
% 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:	13
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

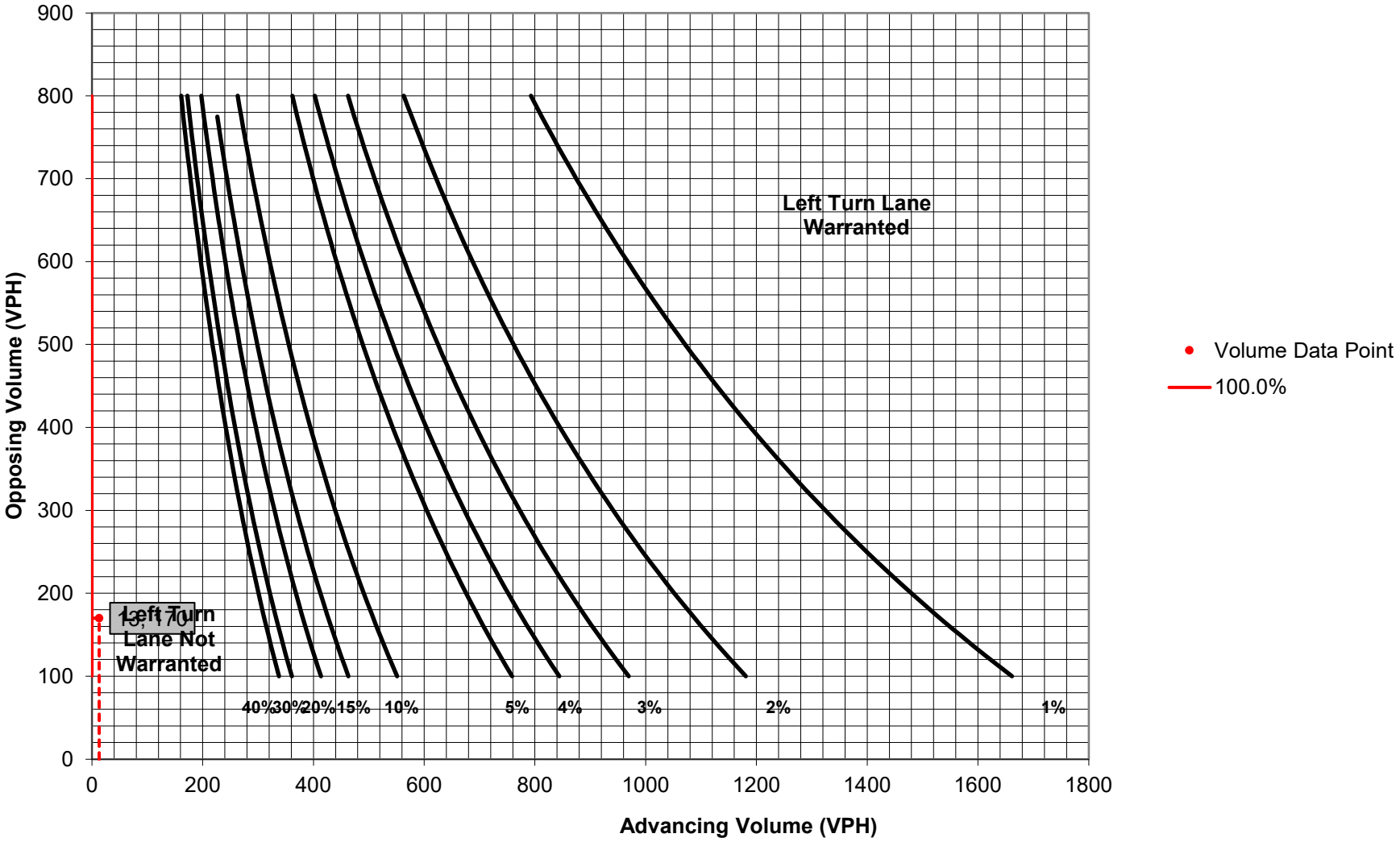
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Northbound Right Turn

Analysis Period:	2037 Design Year (Build)	**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	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	No	13	0.0%	N/A
	Through	-	0	0.0%	0
	Right	-	27	8.0%	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:	Signalized
Design Hour Volume of Turning Lane:	31
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

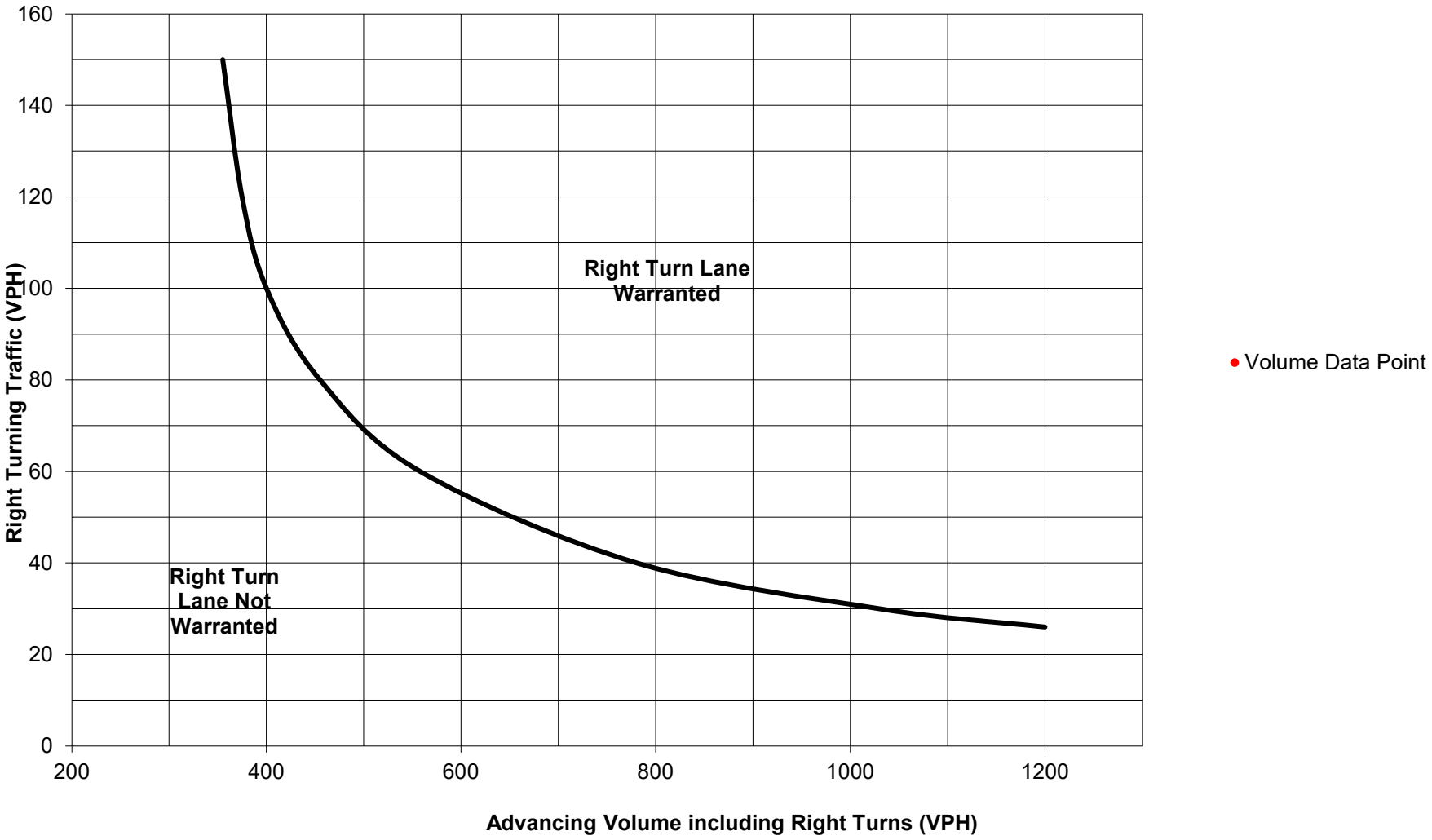
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Southbound Left Turn

Analysis Period:	2037 Design Year (Build)	**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	58	8.0%	65
	Through	-	1	0.0%	1
	Right	Yes	92	8.0%	104
Opposing	Left	Yes	13	0.0%	13
	Through	-	0	0.0%	0
	Right	Yes	27	8.0%	31

Advancing Volume:	170
Opposing Volume:	44
Left Turn Volume:	65
% Left Turns in Advancing Volume:	38.24%

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:	Signalized
Design Hour Volume of Turning Lane:	65
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

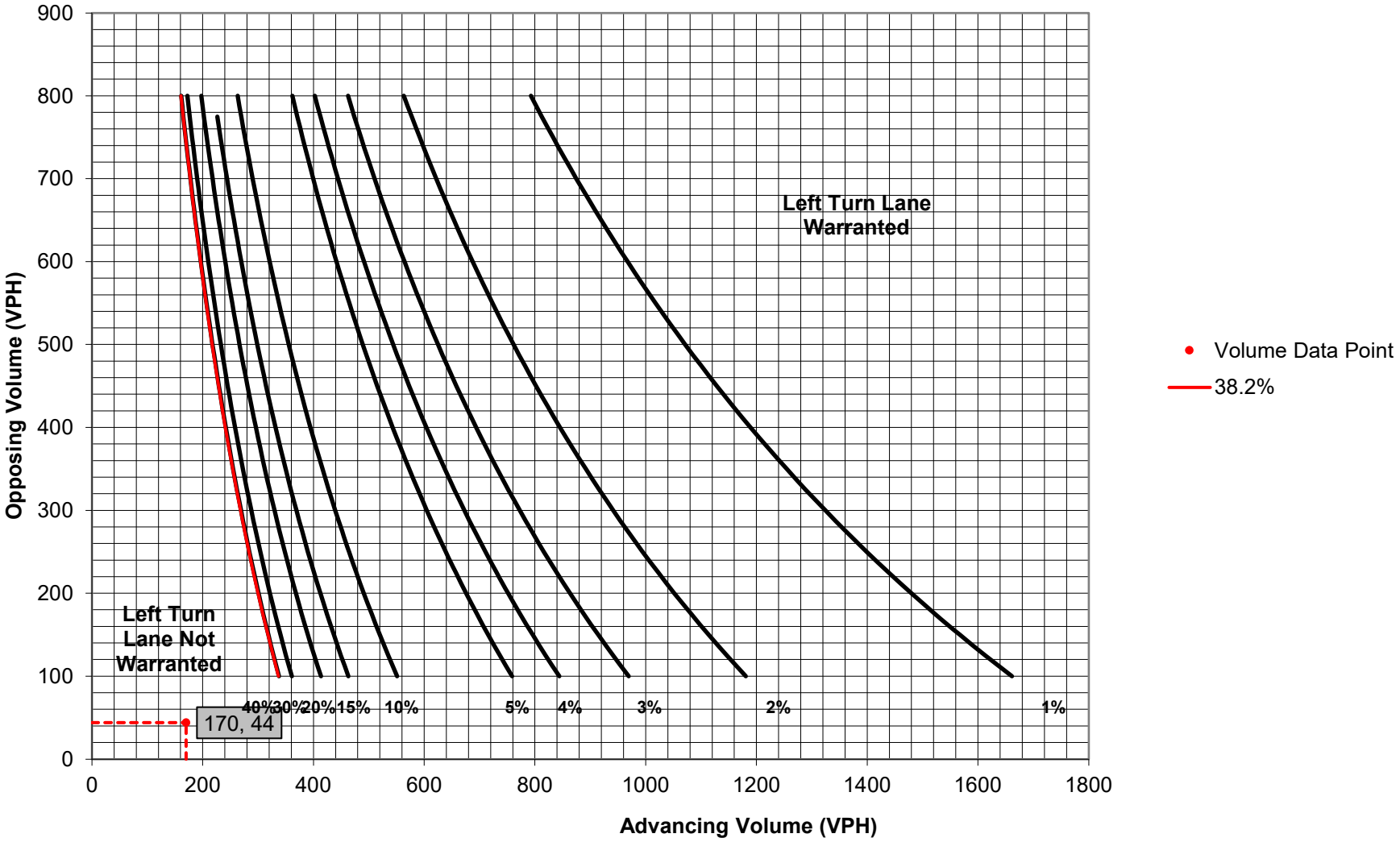
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Southbound Right Turn

Analysis Period:	2037 Design Year (Build)	**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	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	58	8.0%	65
	Through	-	1	0.0%	1
	Right	-	92	8.0%	104

Advancing Volume: 170
Right Turn Volume: 104

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:	104
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

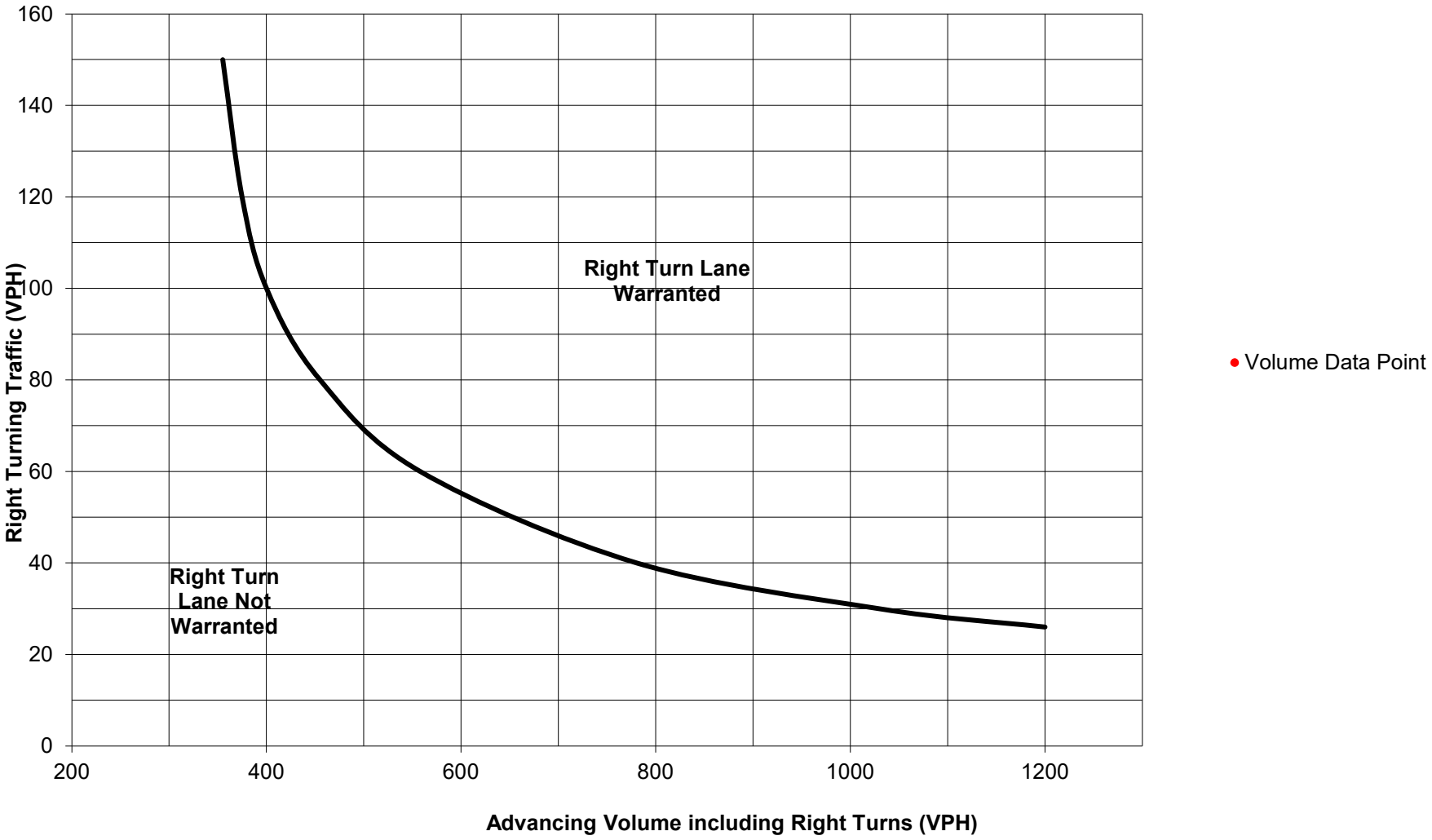
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Westbound Left Turn

Analysis Period:	2037 Design Year (Build)	**Number of Approach Lanes:**	2
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
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	16.0%	34
	Through	-	942	26.0%	1310
	Right	No	34	7.0%	N/A
Opposing	Left	No	60	2.0%	N/A
	Through	-	1299	28.0%	1845
	Right	Yes	14	8.0%	16

Advancing Volume:	1344
Opposing Volume:	1861
Left Turn Volume:	34
% Left Turns in Advancing Volume:	2.53%

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?: Yes

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:	34
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: 1.0

PennDOT Publication 46, Exhibit 11-6

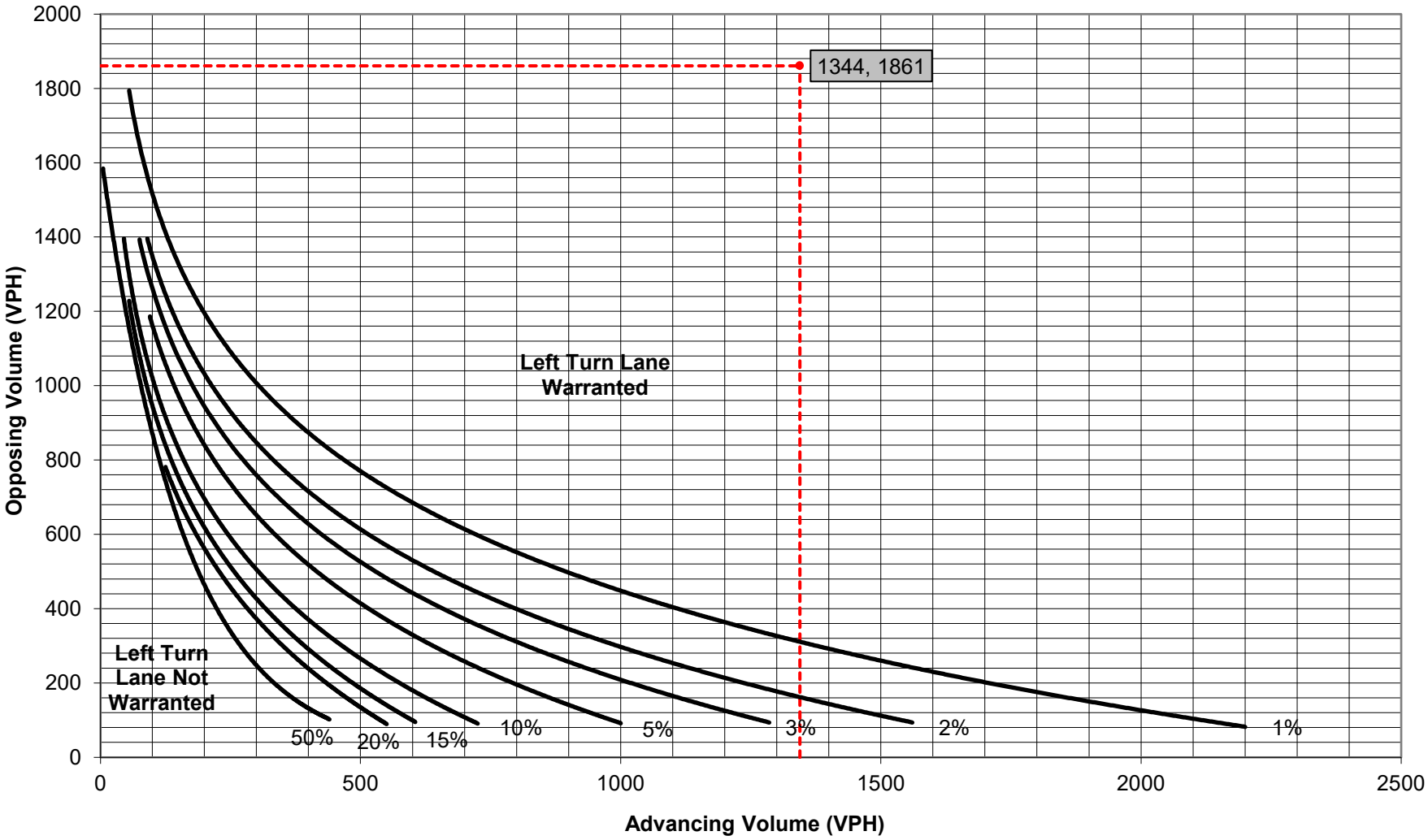
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	75	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	75	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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Westbound Right Turn

Analysis Period:	2037 Design Year (Build)	**Number of Approach Lanes:**	2
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
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	27	16.0%	N/A
	Through	-	942	26.0%	1310
	Right	-	34	7.0%	38

Advancing Volume:	1348
Right Turn Volume:	38

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:	38
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

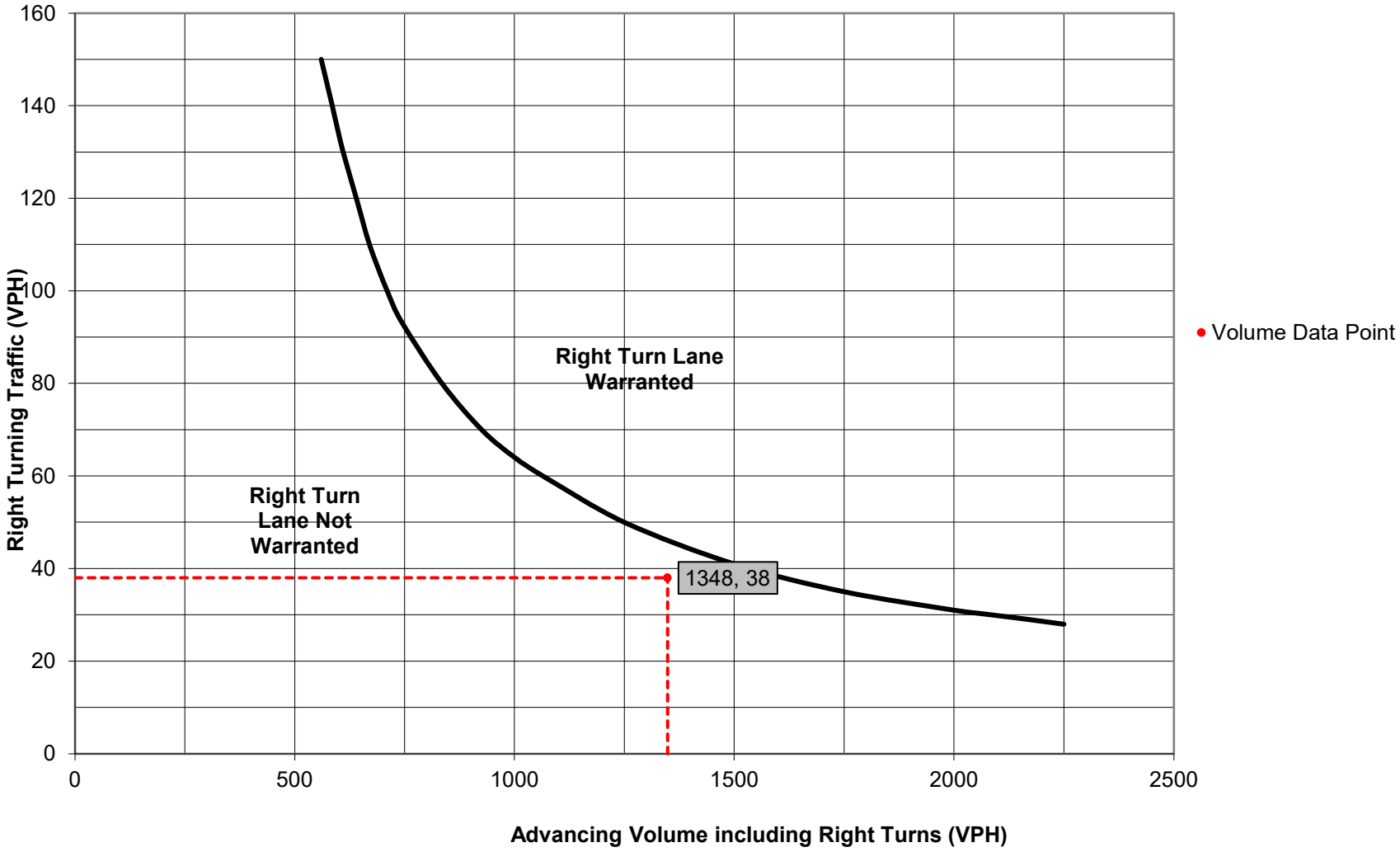
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Eastbound Left Turn

Analysis Period:	2037 Design Year (Build)	**Number of Approach Lanes:**	2
Design Hour:	SAT Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
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	44	2.0%	46
	Through	-	704	19.0%	905
	Right	No	12	0.0%	N/A
Opposing	Left	No	21	32.0%	N/A
	Through	-	782	18.0%	994
	Right	Yes	43	2.0%	45

Advancing Volume:	951
Opposing Volume:	1039
Left Turn Volume:	46
% Left Turns in Advancing Volume:	4.84%

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?: Yes

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:	46
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: 1.0

PennDOT Publication 46, Exhibit 11-6

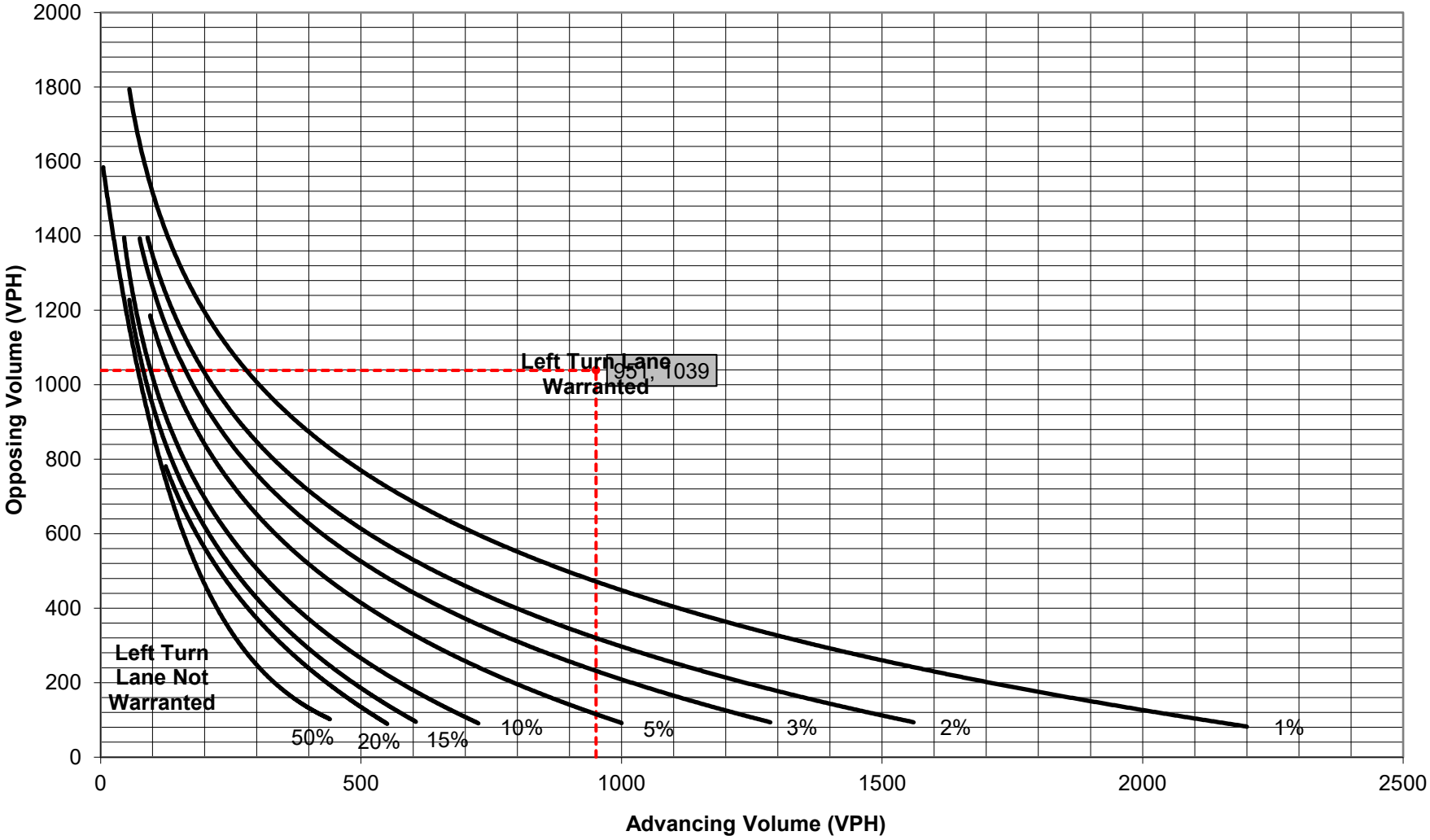
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	75	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	75	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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Eastbound Right Turn

Analysis Period:	2037 Design Year (Build)	**Number of Approach Lanes:**	2
Design Hour:	SAT Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
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	44	2.0%	N/A
	Through	-	704	19.0%	905
	Right	-	12	0.0%	12

Advancing Volume:	917
Right Turn Volume:	12

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:	12
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

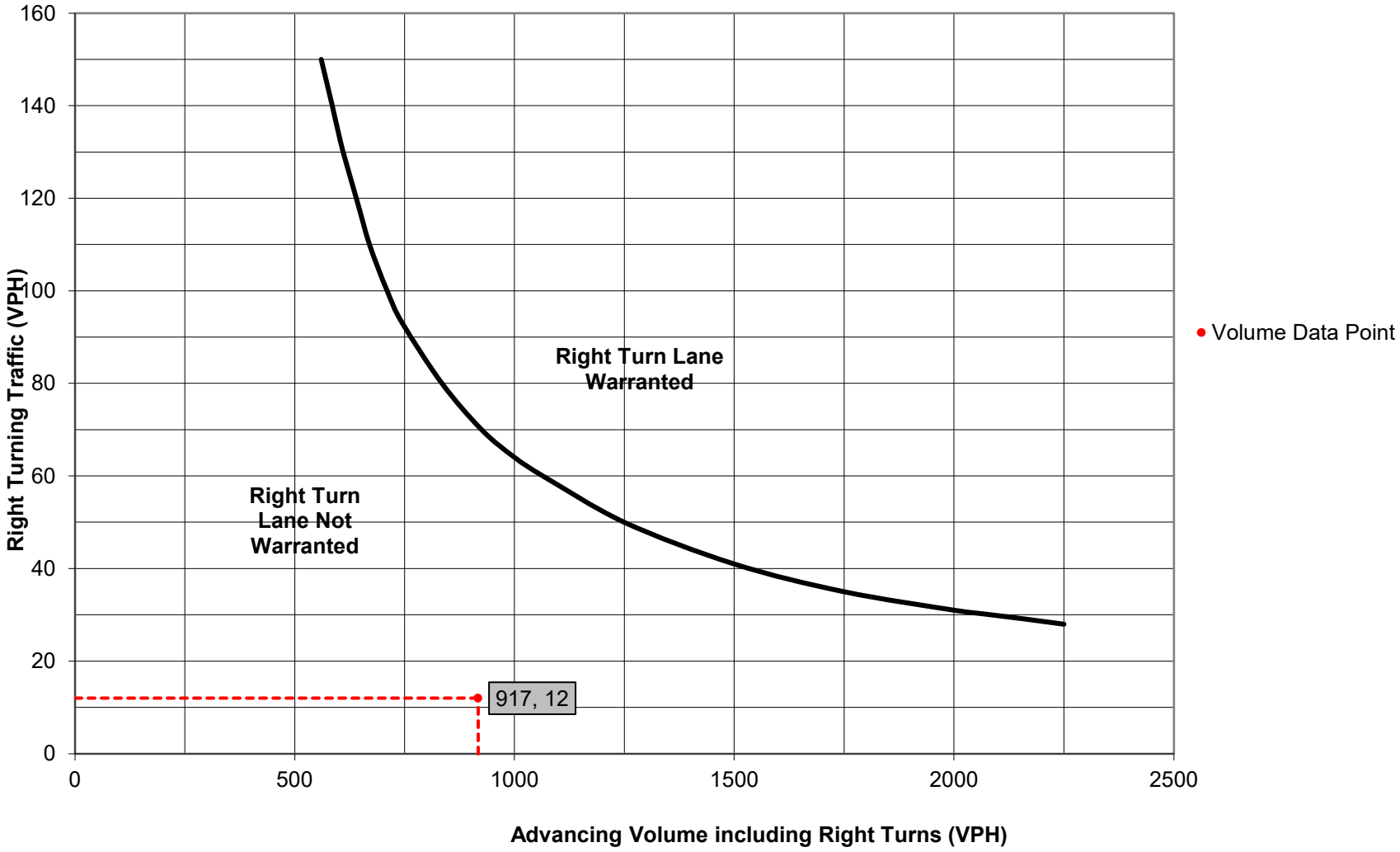
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Northbound Left Turn

Analysis Period:	2037 Design Year (Build)	**Number of Approach Lanes:**	1
Design Hour:	SAT 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	10	22.0%	14
	Through	-	2	0.0%	2
	Right	No	22	0.0%	N/A
Opposing	Left	Yes	51	2.0%	53
	Through	-	1	0.0%	1
	Right	Yes	84	2.0%	87

Advancing Volume:	16
Opposing Volume:	141
Left Turn Volume:	14
% Left Turns in Advancing Volume:	87.50%

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 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):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

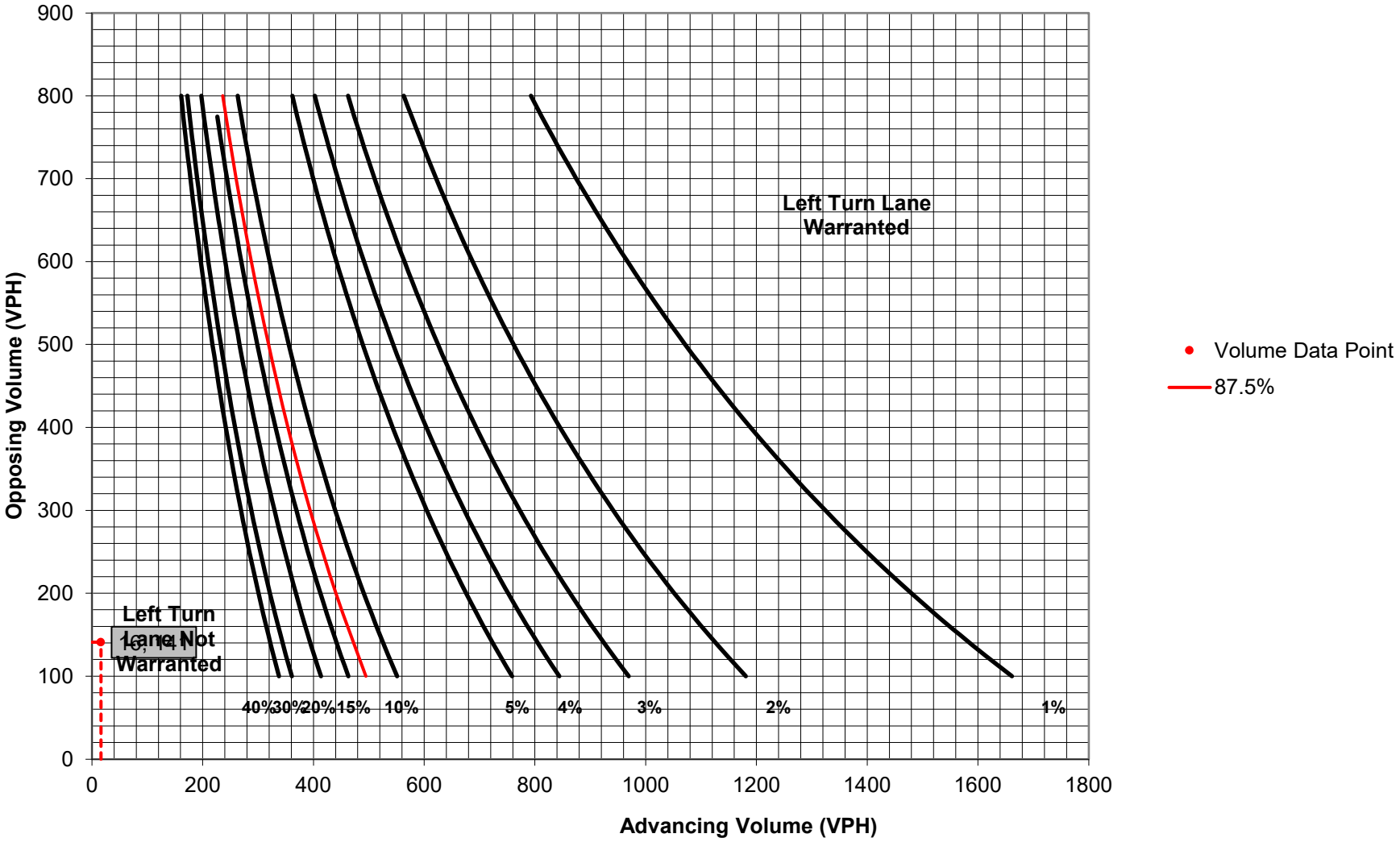
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Northbound Right Turn

Analysis Period:	2037 Design Year (Build)	**Number of Approach Lanes:**	1
Design Hour:	SAT 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	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	No	10	22.0%	N/A
	Through	-	2	0.0%	2
	Right	-	22	0.0%	22

Advancing Volume:	24
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:	Signalized
Design Hour Volume of Turning Lane:	22
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

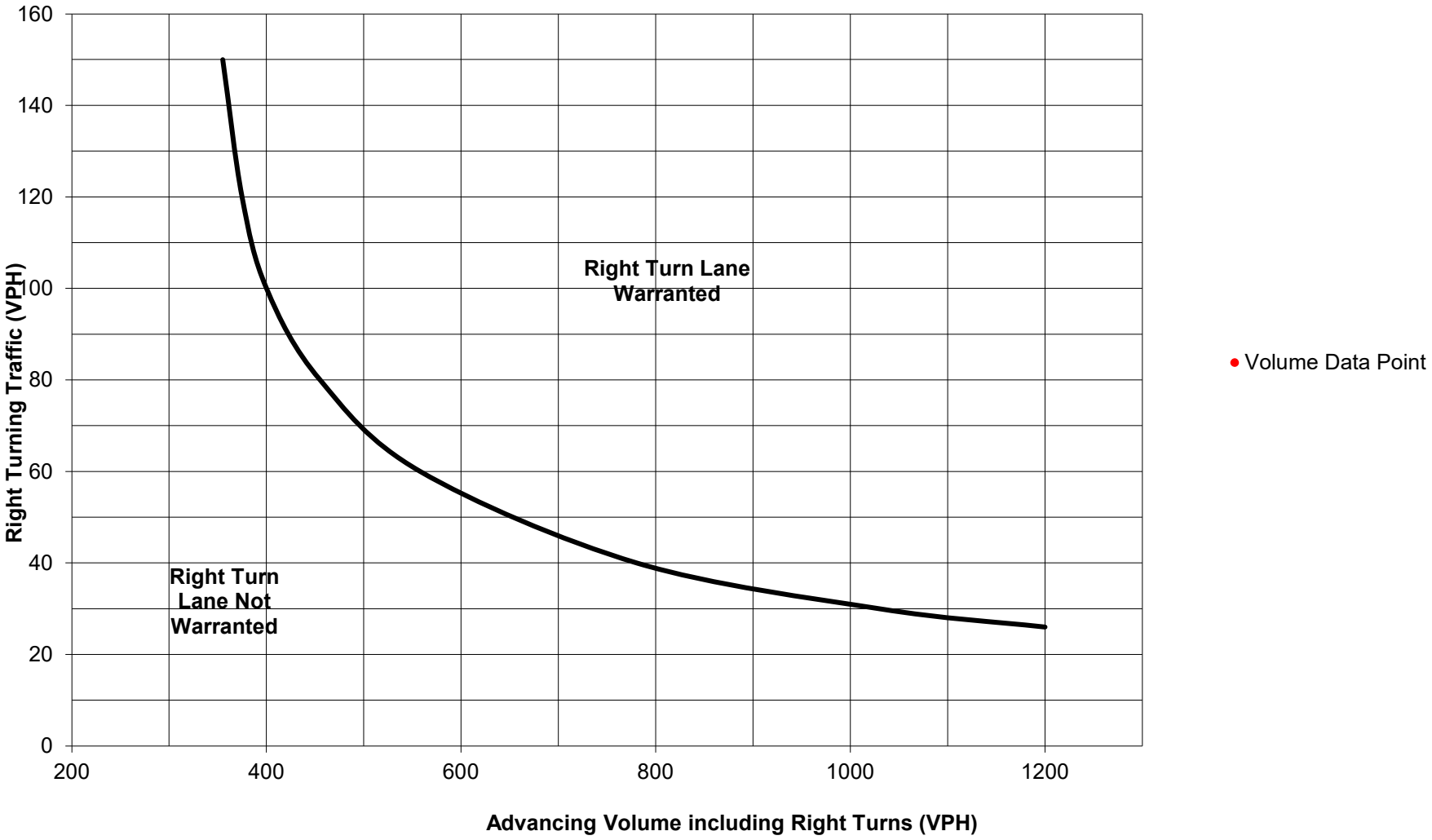
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Southbound Left Turn

Analysis Period:	2037 Design Year (Build)	**Number of Approach Lanes:**	1
Design Hour:	SAT 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	51	2.0%	53
	Through	-	1	0.0%	1
	Right	Yes	84	2.0%	87
Opposing	Left	Yes	10	22.0%	14
	Through	-	2	0.0%	2
	Right	Yes	22	0.0%	22

Advancing Volume:	141
Opposing Volume:	38
Left Turn Volume:	53
% Left Turns in Advancing Volume:	37.59%

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:	Signalized
Design Hour Volume of Turning Lane:	53
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

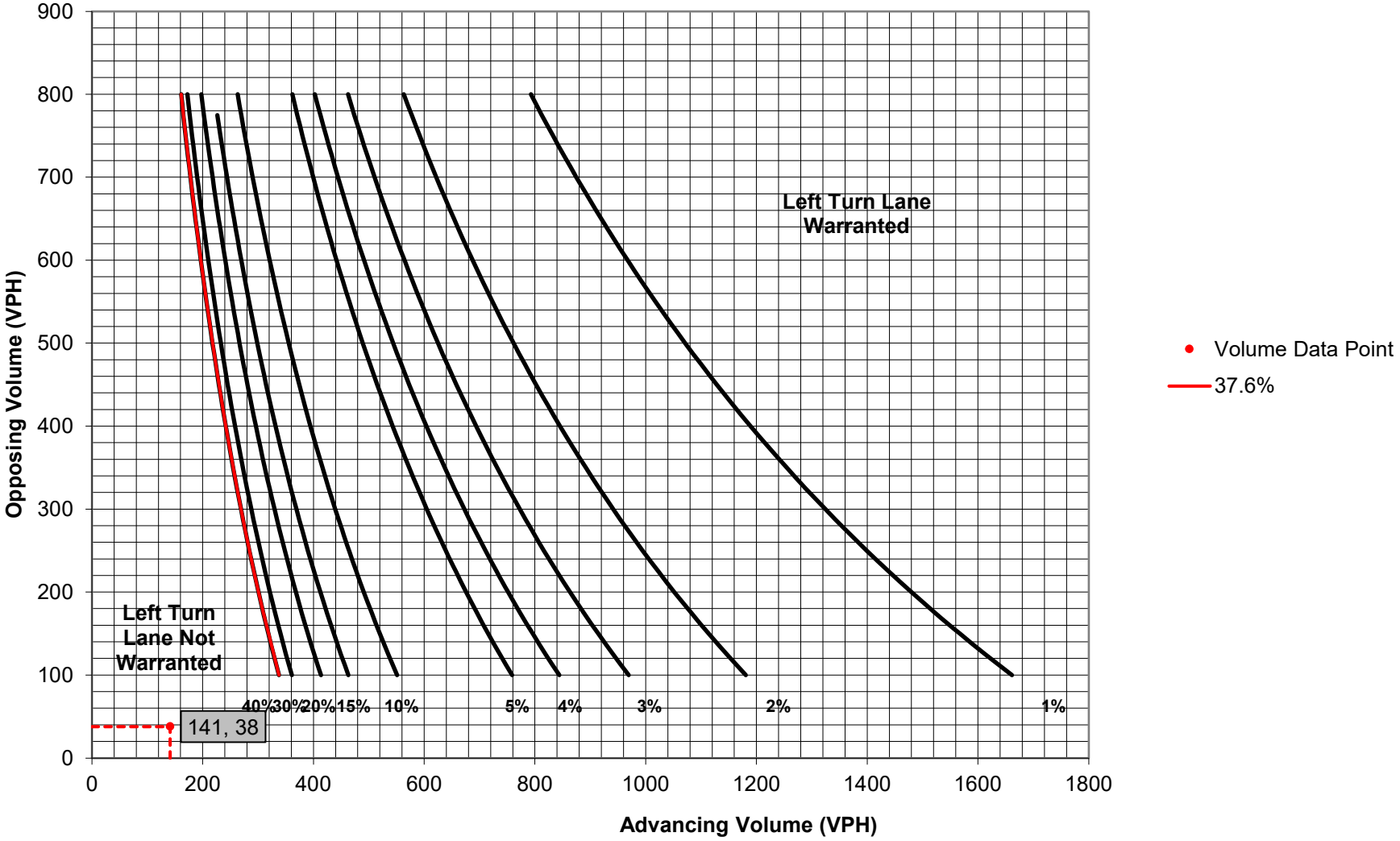
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Southbound Right Turn

Analysis Period:	2037 Design Year (Build)	**Number of Approach Lanes:**	1
Design Hour:	SAT 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	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	51	2.0%	53
	Through	-	1	0.0%	1
	Right	-	84	2.0%	87

Advancing Volume: 141
Right Turn Volume: 87

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:	87
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

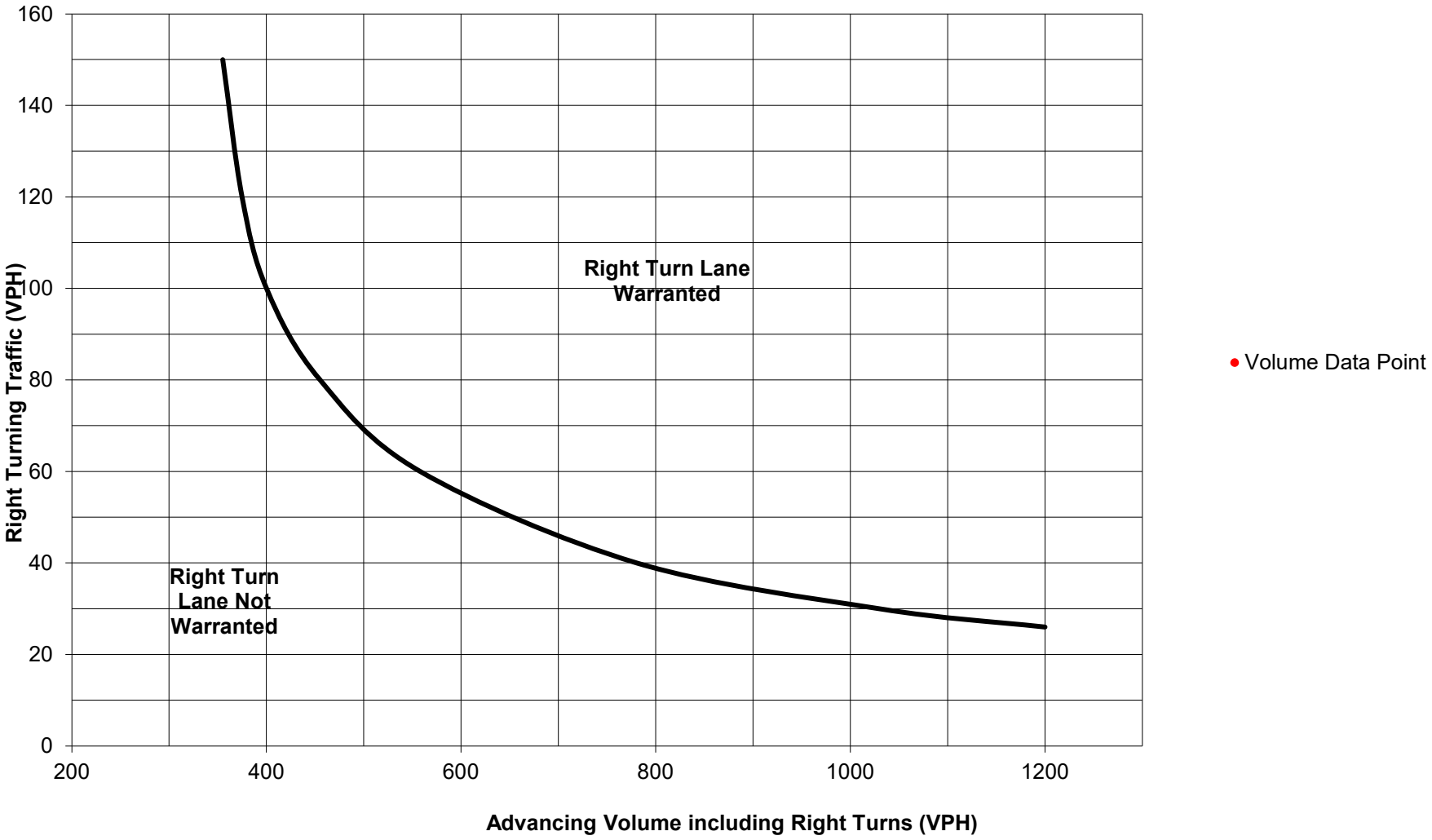
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Westbound Left Turn

Analysis Period:	2037 Design Year (Build)	**Number of Approach Lanes:**	2
Design Hour:	SAT Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
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	21	32.0%	32
	Through	-	782	18.0%	994
	Right	No	43	2.0%	N/A
Opposing	Left	No	44	2.0%	N/A
	Through	-	704	19.0%	905
	Right	Yes	12	0.0%	12

Advancing Volume:	1026
Opposing Volume:	917
Left Turn Volume:	32
% Left Turns in Advancing Volume:	3.12%

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?: Yes

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:	32
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: 1.0

PennDOT Publication 46, Exhibit 11-6

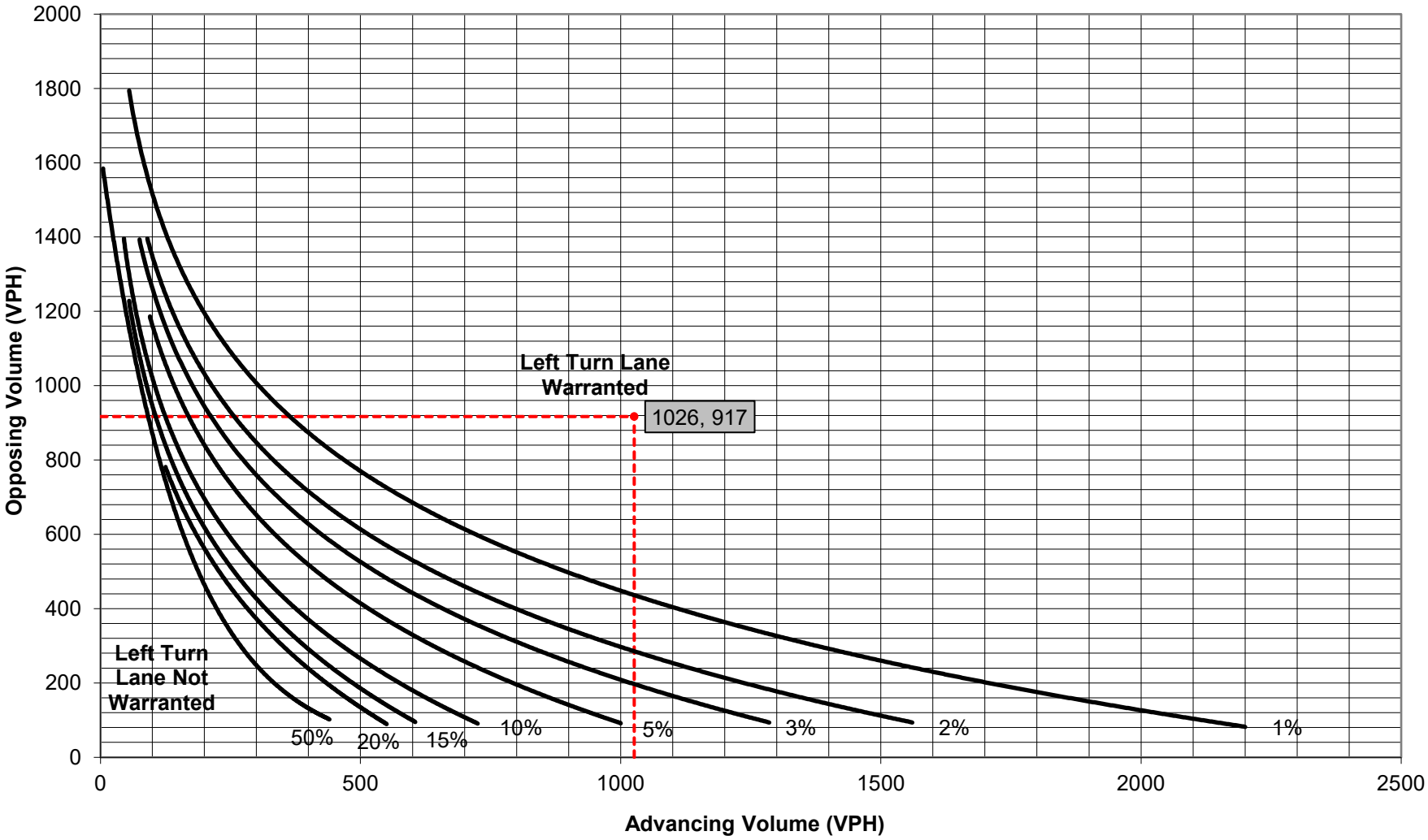
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	75	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	75	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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: US Route 11 (Harrisburg Pike) & County Club Rd
Westbound Right Turn

Analysis Period:	2037 Design Year (Build)	**Number of Approach Lanes:**	2
Design Hour:	SAT Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
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	21	32.0%	N/A
	Through	-	782	18.0%	994
	Right	-	43	2.0%	45

Advancing Volume:	1039
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 11

Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	45
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	33

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

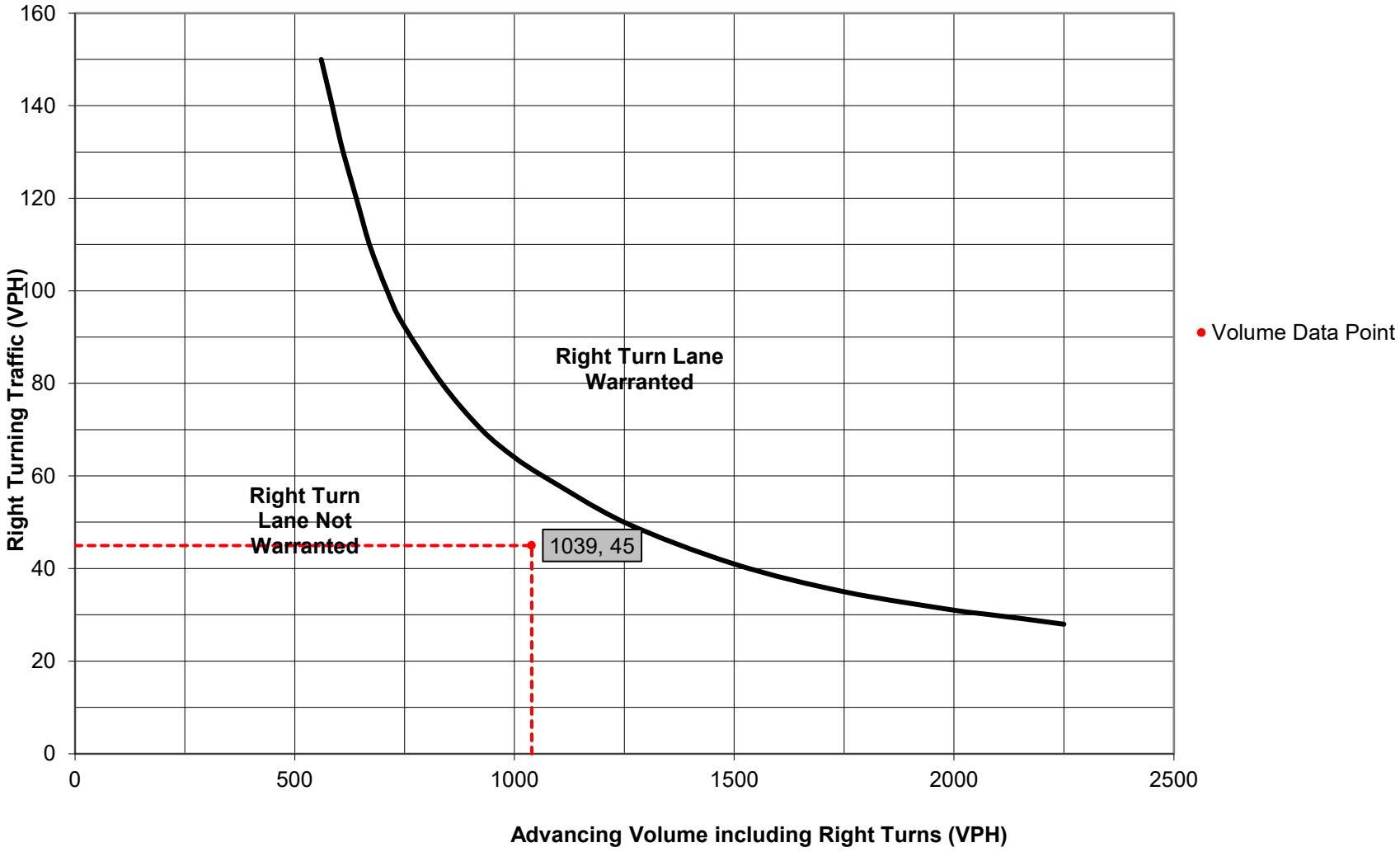
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Country Club Rd & Bernheisel Bridge Rd / Eastbound Left Turn

Analysis Period:	2037 Design Year (Build)	**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	44	2.0%	46
	Through	-	0	0.0%	0
	Right	Yes	12	20.0%	16
Opposing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	0
	Right	No	0	0.0%	N/A

Advancing Volume:	62
Opposing Volume:	0
Left Turn Volume:	46
% Left Turns in Advancing Volume:	74.19%

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?: #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:	46
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

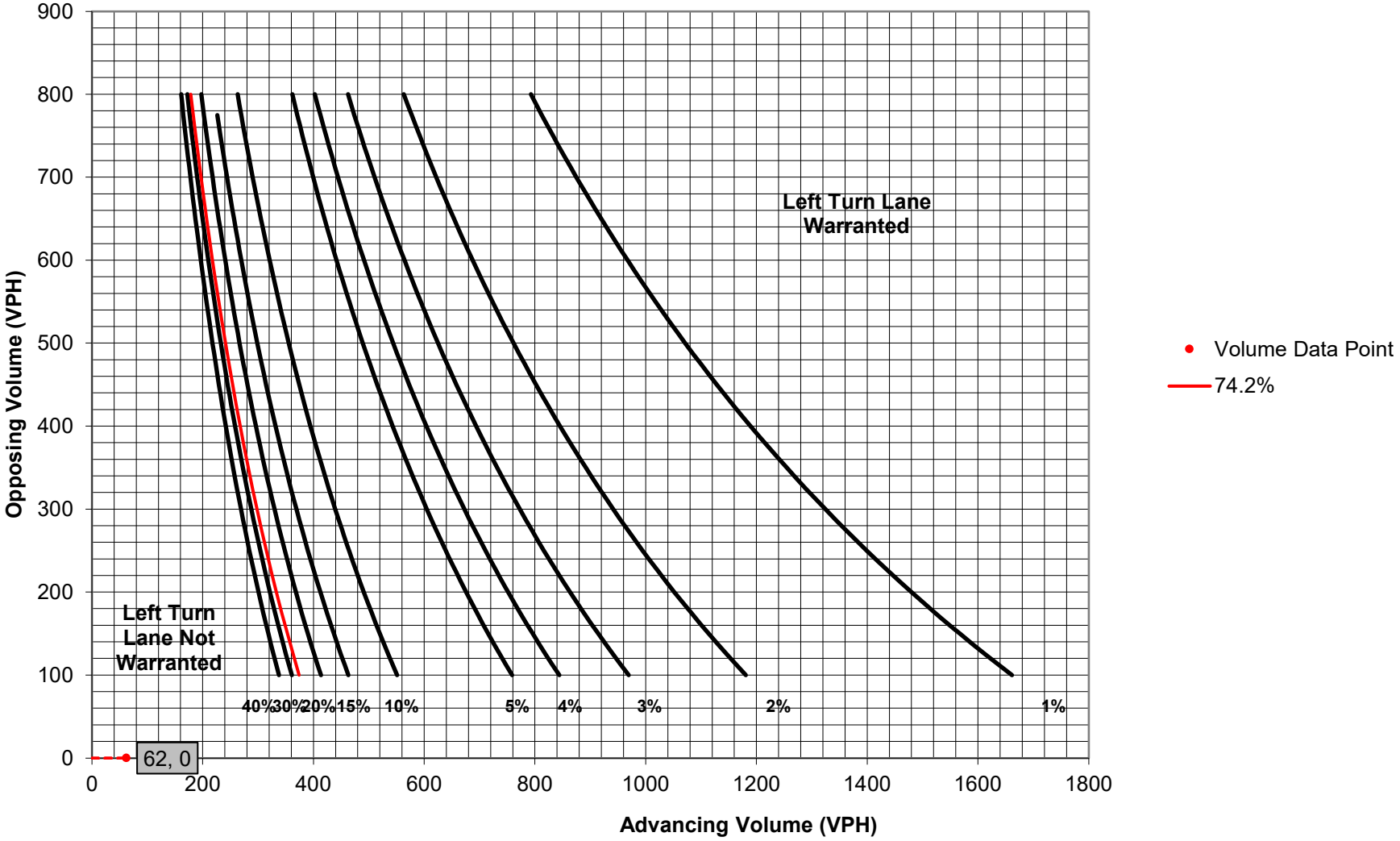
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Country Club Rd & Bernheisel Bridge Rd
Eastbound Right Turn

Analysis Period:	2037 Design Year (Build)	**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	44	2.0%	46
	Through	-	0	0.0%	0
	Right	-	12	20.0%	16

Advancing Volume:	62
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

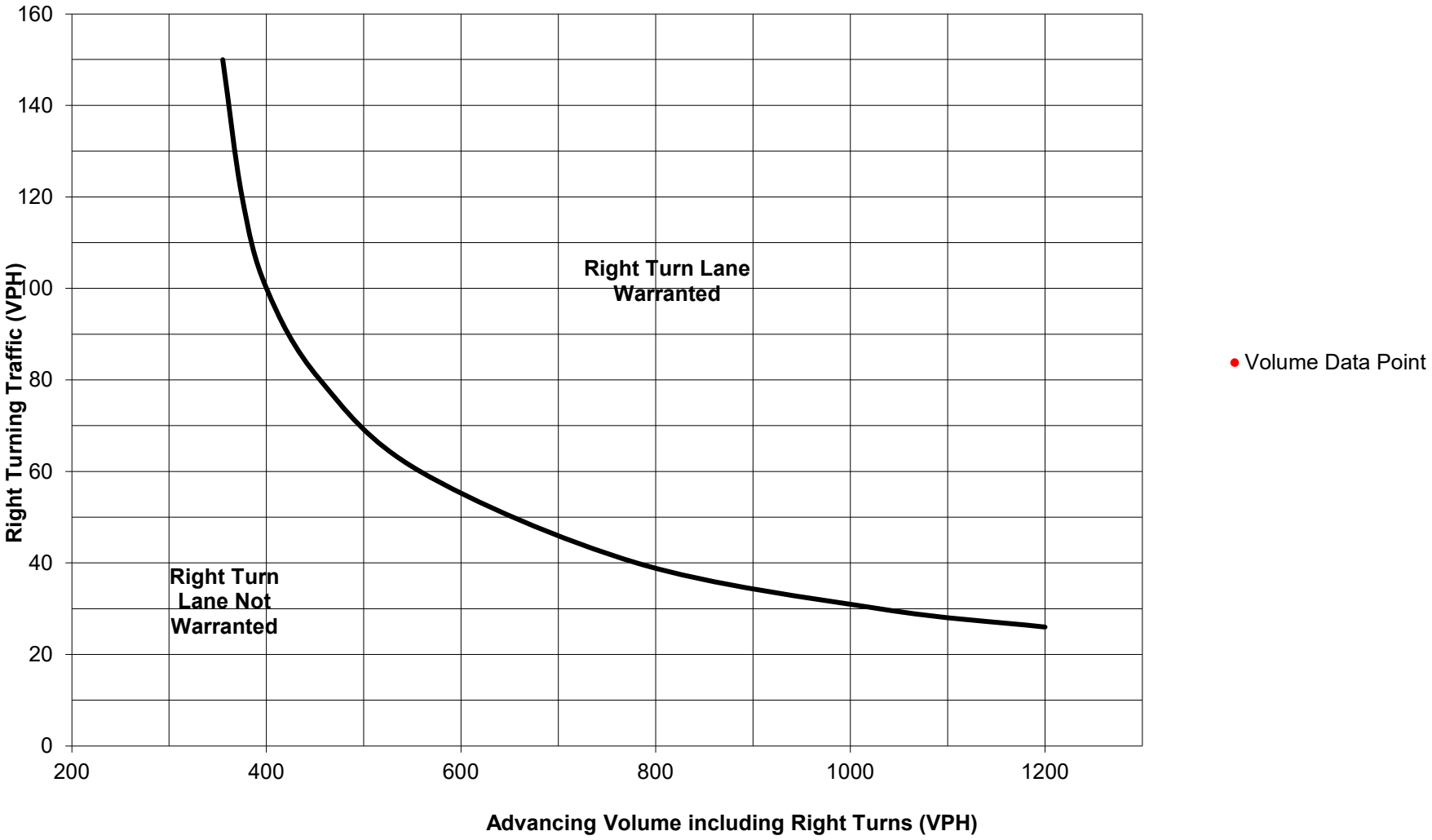
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Country Club Rd & Bernheisel Bridge Rd
Northbound Left Turn

Analysis Period:	2037 Design Year (Build)	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
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	2.0%	29
	Through	-	35	6.0%	39
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	115	2.0%	119
	Right	Yes	157	2.0%	162

Advancing Volume:	68
Opposing Volume:	281
Left Turn Volume:	29
% Left Turns in Advancing Volume:	42.65%

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?: 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

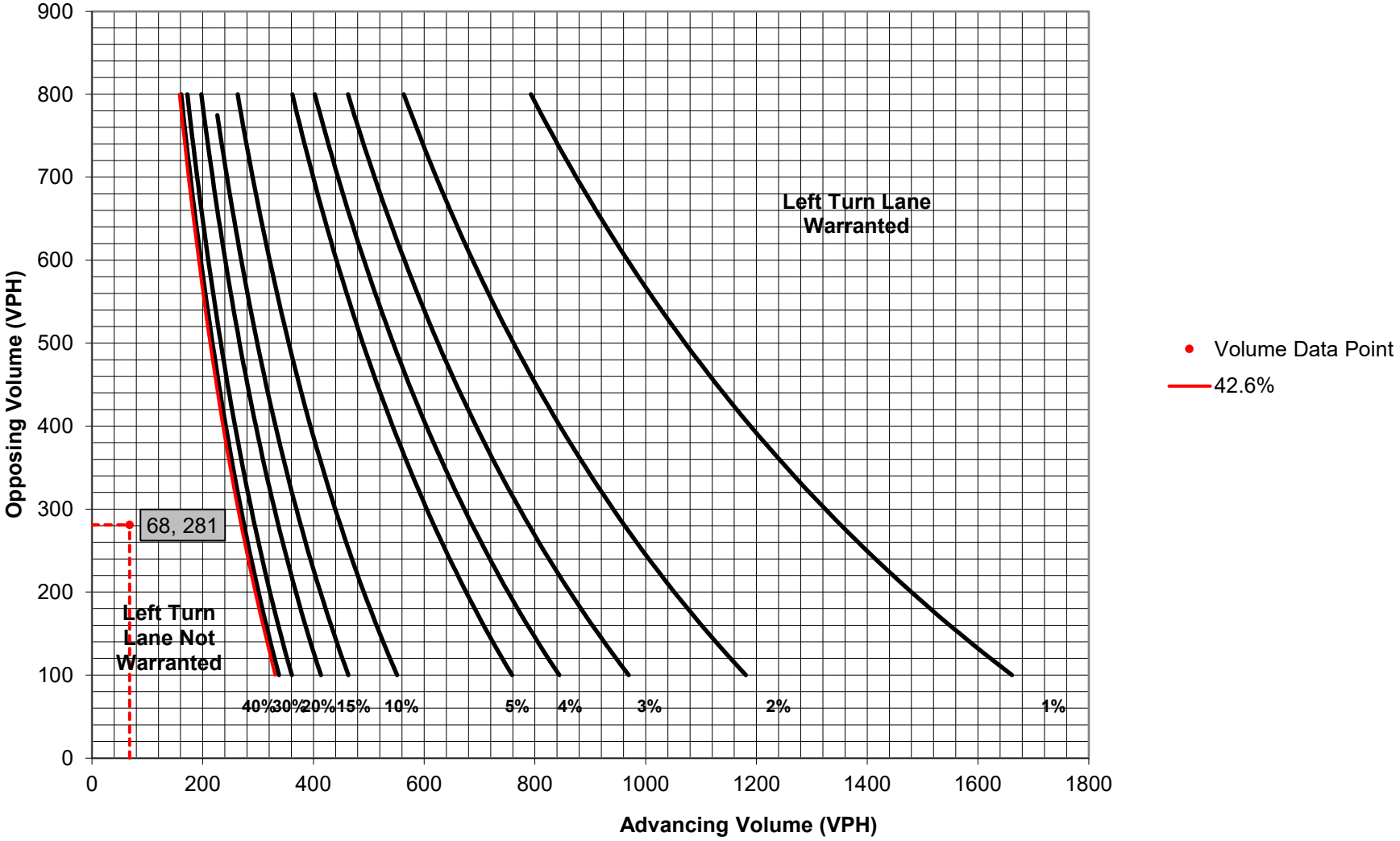
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Country Club Rd & Bernheisel Bridge Rd / Southbound Right Turn

Analysis Period:	2037 Design Year (Build)	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
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	0	0.0%	N/A
	Through	-	115	2.0%	119
	Right	-	157	2.0%	162

Advancing Volume: 281
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:	Unsignalized
Design Hour Volume of Turning Lane:	162
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

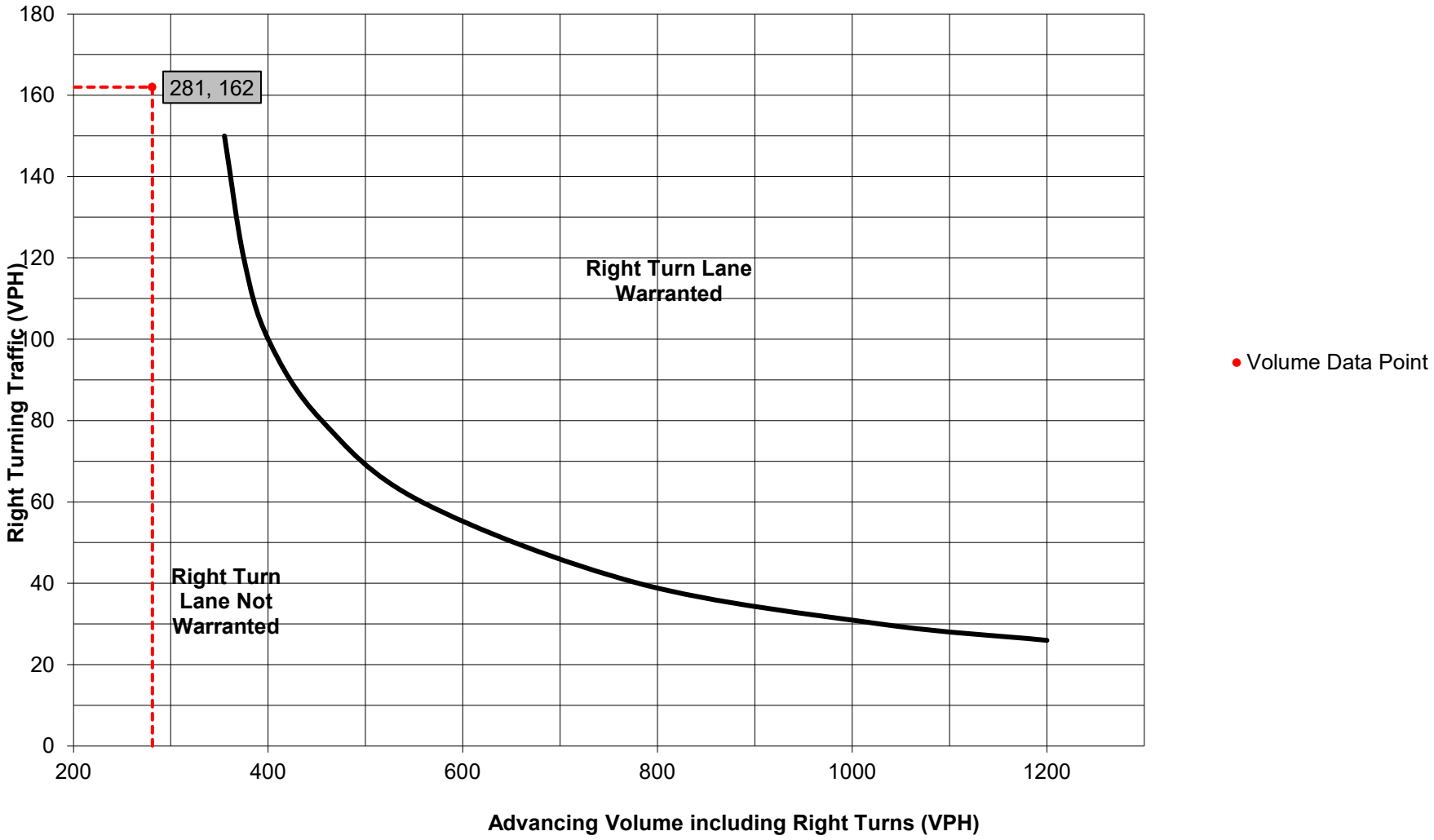
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Country Club Rd & Bernheisel Bridge Rd / Eastbound Left Turn

Analysis Period:	2037 Design Year (Build)	**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	121	2.0%	125
	Through	-	0	0.0%	0
	Right	Yes	21	2.0%	22
Opposing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	0
	Right	No	0	0.0%	N/A

Advancing Volume:	147
Opposing Volume:	0
Left Turn Volume:	125
% Left Turns in Advancing Volume:	85.03%

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:	125
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

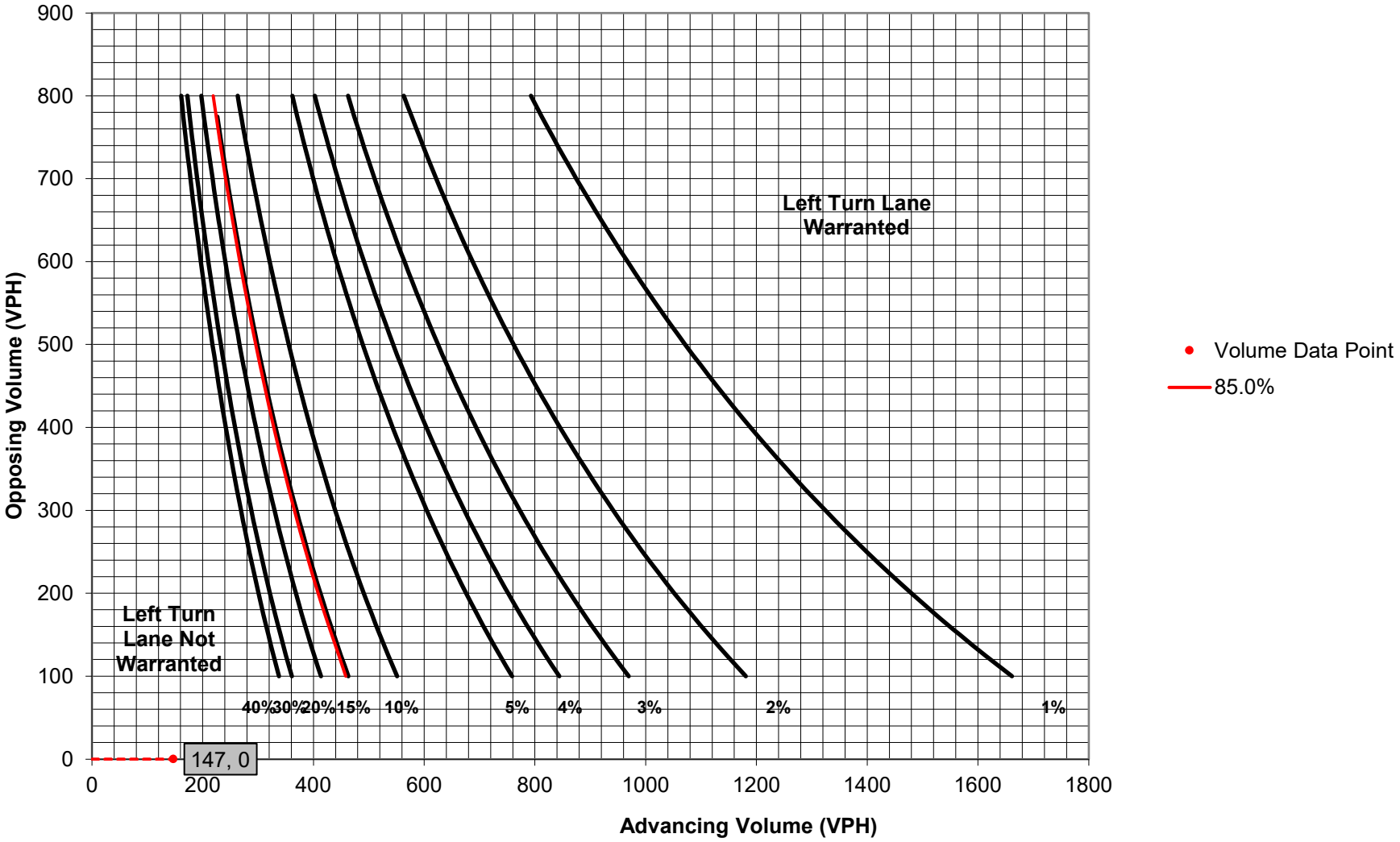
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Country Club Rd & Bernheisel Bridge Rd / Eastbound Right Turn

Analysis Period:	2037 Design Year (Build)	**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	121	2.0%	125
	Through	-	0	0.0%	0
	Right	-	21	2.0%	22

Advancing Volume:	147
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

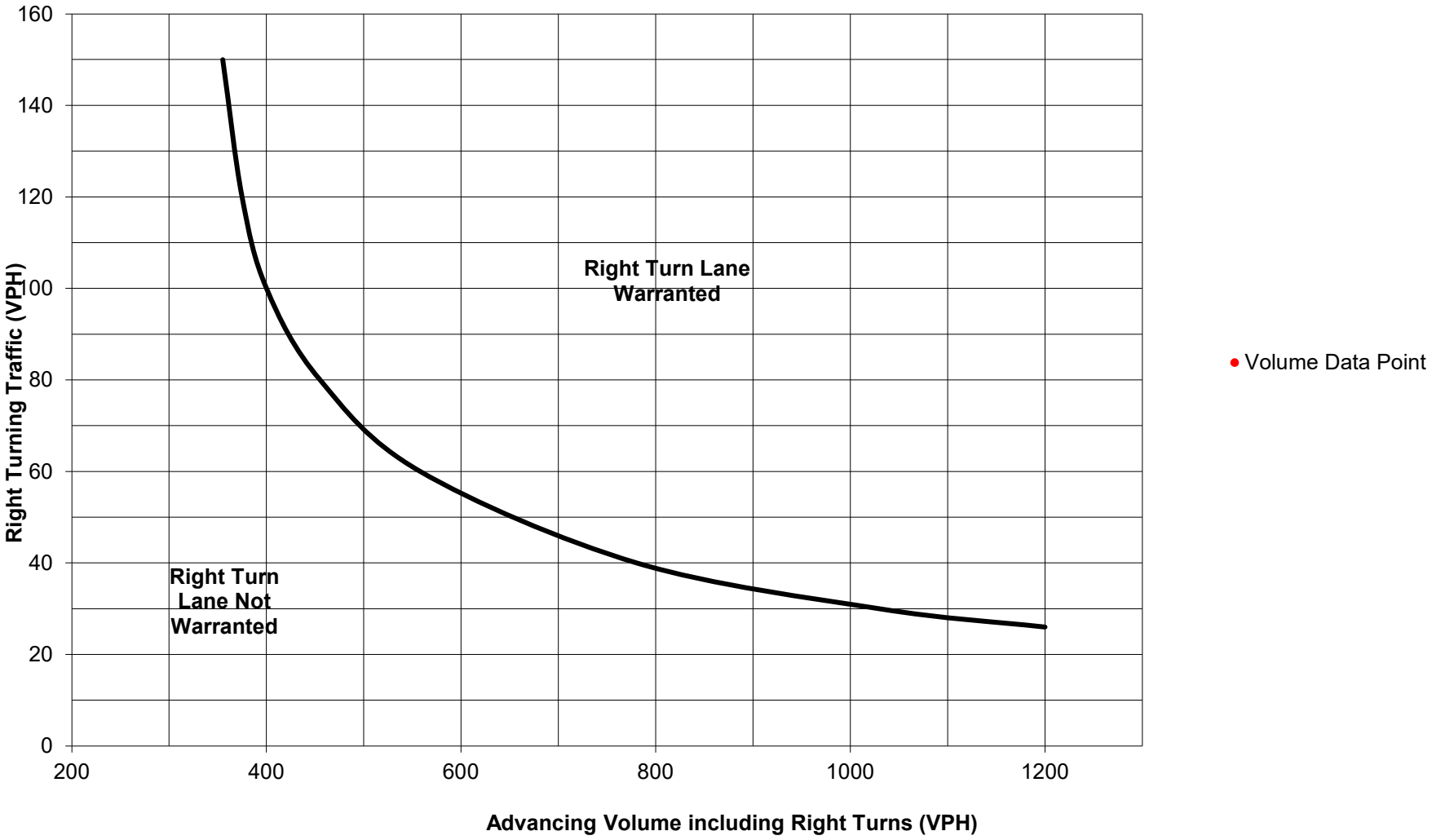
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Country Club Rd & Bernheisel Bridge Rd / Northbound Left Turn

Analysis Period:	2037 Design Year (Build)	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
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	9	2.0%	10
	Through	-	96	2.0%	99
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	56	0.0%	56
	Right	Yes	41	13.0%	49

Advancing Volume:	109
Opposing Volume:	105
Left Turn Volume:	10
% Left Turns in Advancing Volume:	9.17%

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:	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

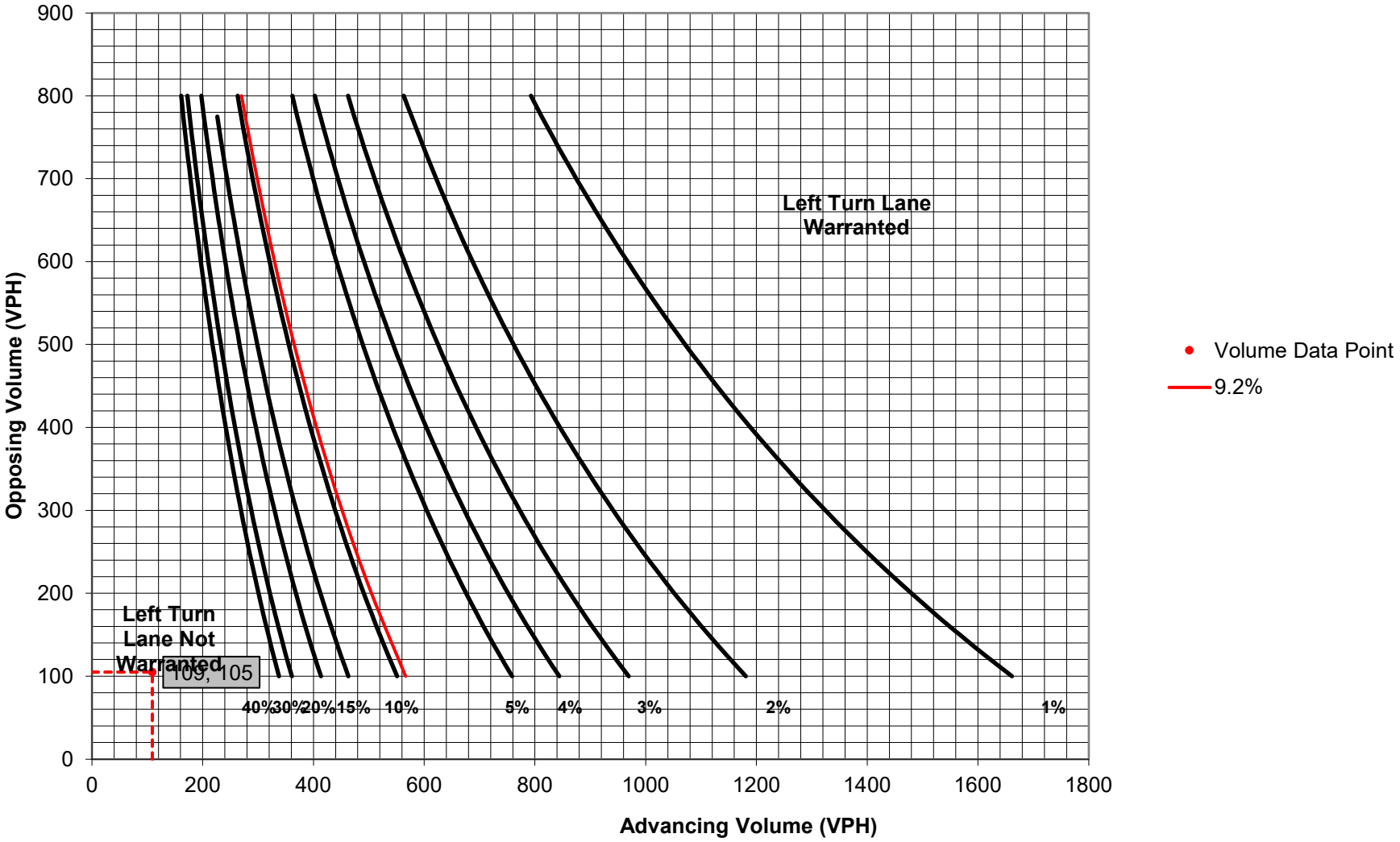
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Country Club Rd & Bernheisel Bridge Rd / Southbound Right Turn

Analysis Period:	2037 Design Year (Build)	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
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	0	0.0%	N/A
	Through	-	56	0.0%	56
	Right	-	41	13.0%	49

Advancing Volume:	105
Right Turn Volume:	49

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:	49
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

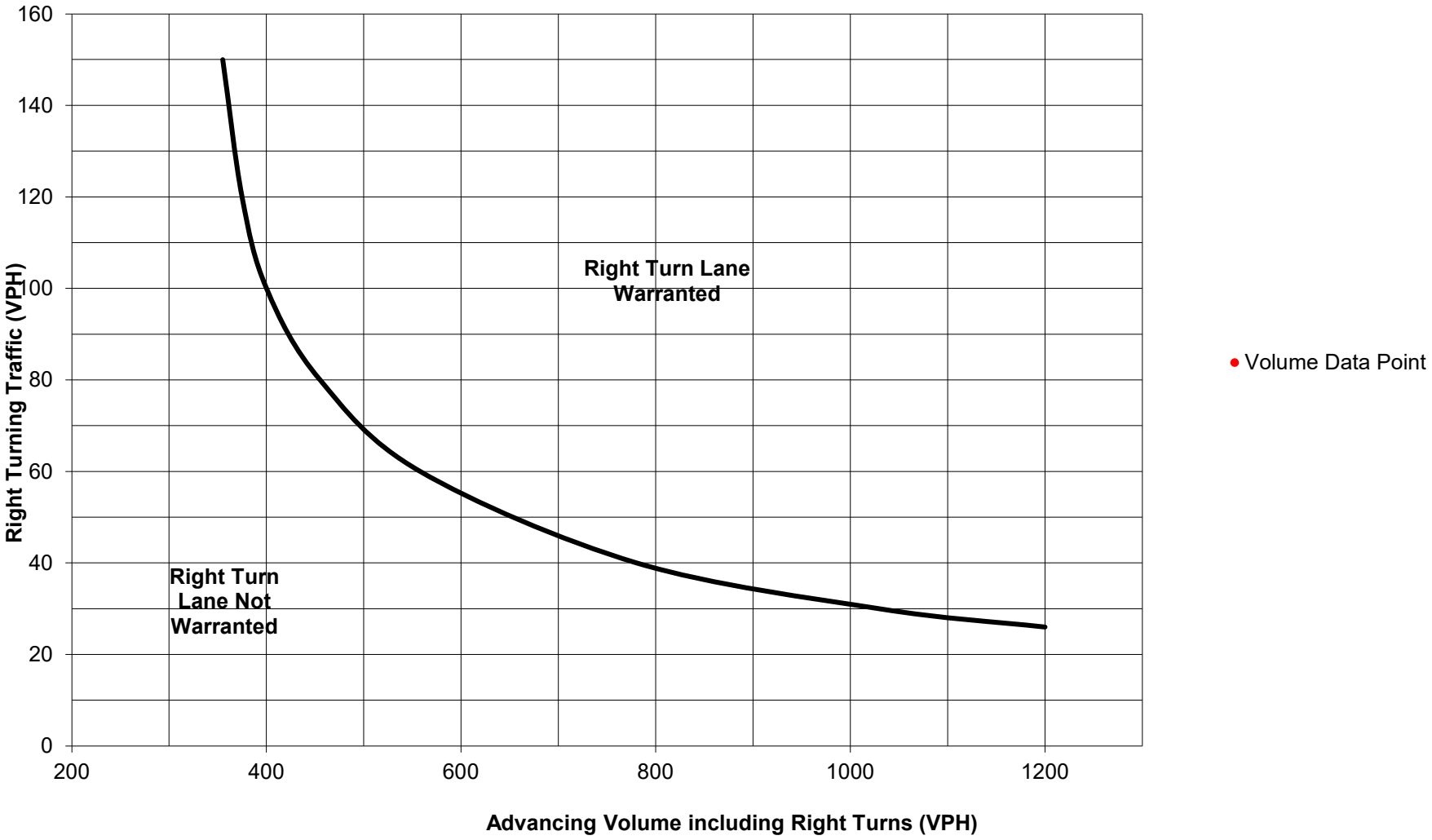
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Country Club Rd & Bernheisel Bridge Rd
Eastbound Left Turn

Analysis Period:	2037 Design Year (Build)	**Number of Approach Lanes:**	1
Design Hour:	SAT 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	119	2.0%	123
	Through	-	0	0.0%	0
	Right	Yes	23	2.0%	24
Opposing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	0
	Right	No	0	0.0%	N/A

Advancing Volume:	147
Opposing Volume:	0
Left Turn Volume:	123
% Left Turns in Advancing Volume:	83.67%

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?: #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:	123
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

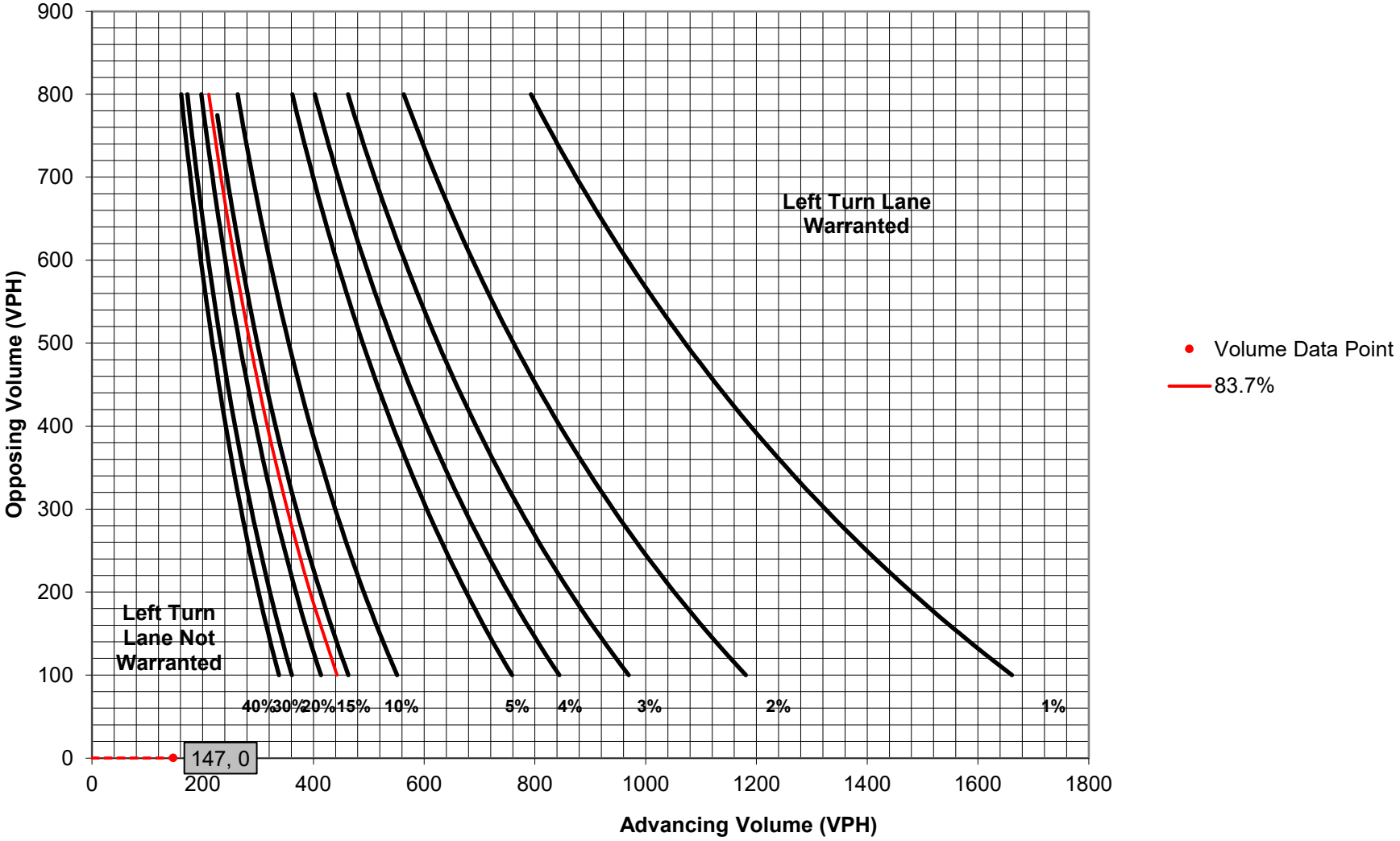
Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Country Club Rd & Bernheisel Bridge Rd / Eastbound Right Turn

Analysis Period:	2037 Design Year (Build)	**Number of Approach Lanes:**	1
Design Hour:	SAT 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	119	2.0%	123
	Through	-	0	0.0%	0
	Right	-	23	2.0%	24

Advancing Volume:	147
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

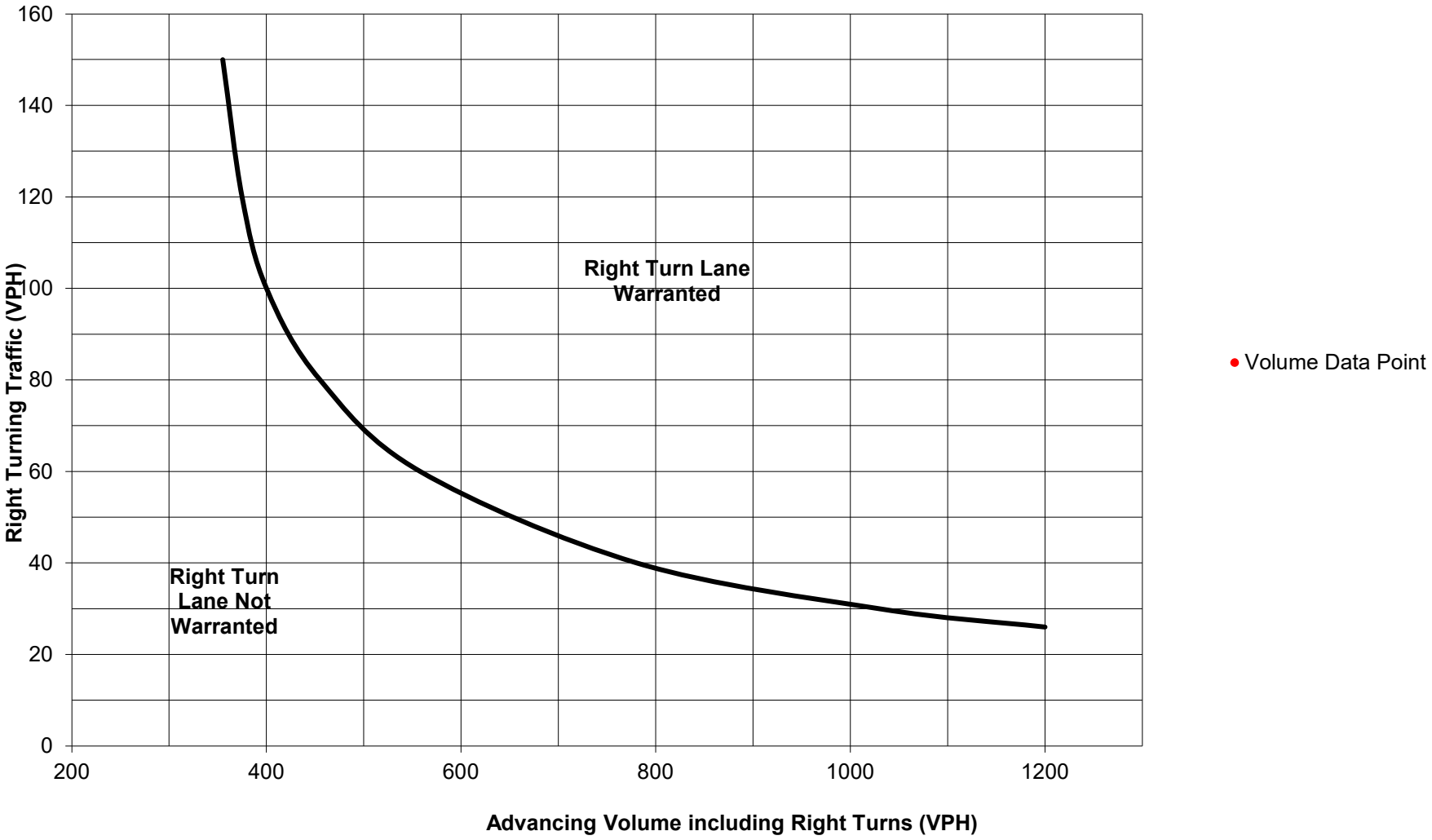
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Country Club Rd & Bernheisel Bridge Rd / Northbound Left Turn

Analysis Period:	2037 Design Year (Build)	**Number of Approach Lanes:**	1
Design Hour:	SAT Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
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	7	2.0%	8
	Through	-	46	0.0%	46
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	52	4.0%	56
	Right	Yes	41	2.0%	43

Advancing Volume:	54
Opposing Volume:	99
Left Turn Volume:	8
% Left Turns in Advancing Volume:	14.81%

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:	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

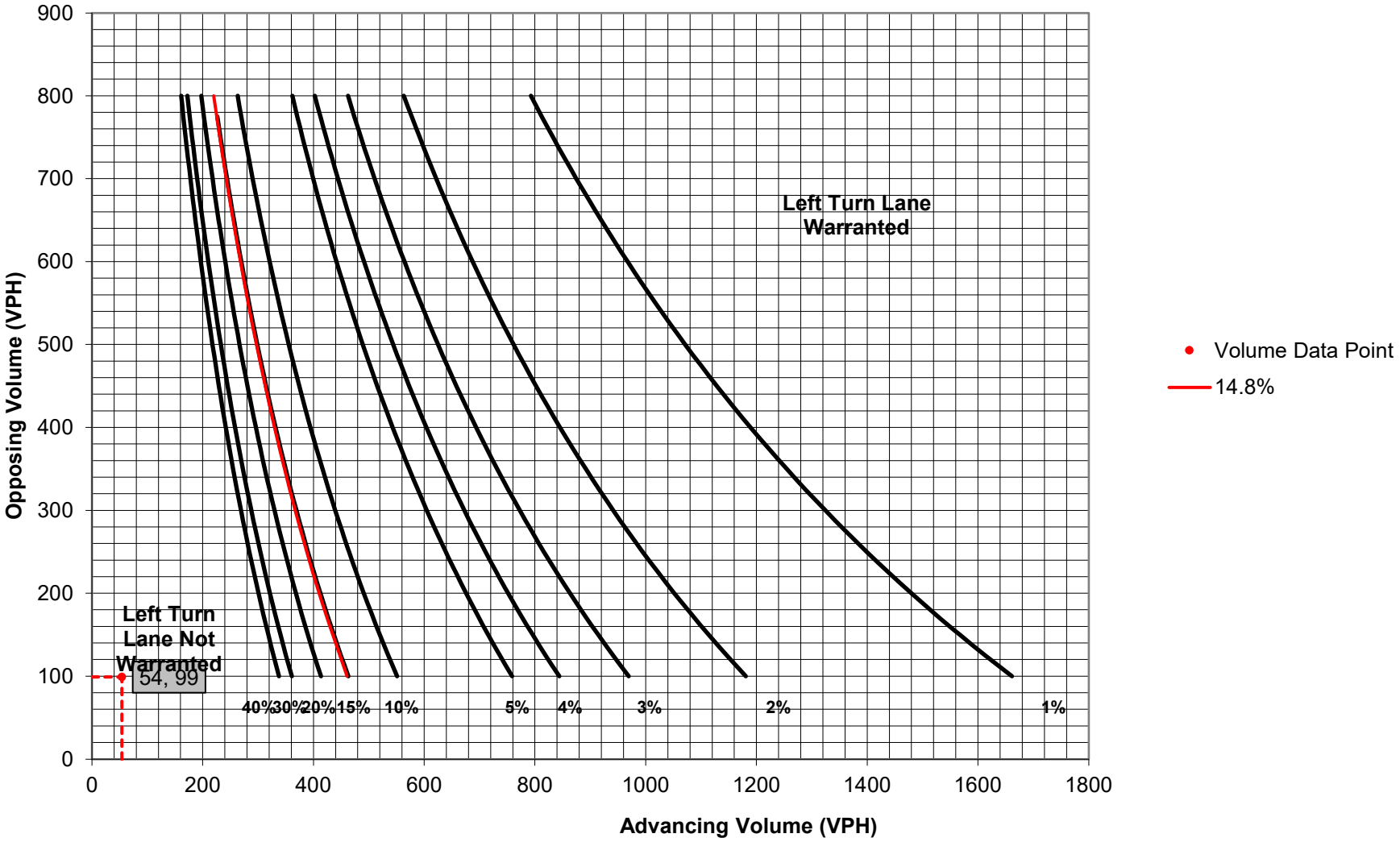
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Country Club Rd & Bernheisel Bridge Rd / Southbound Right Turn

Analysis Period:	2037 Design Year (Build)	**Number of Approach Lanes:**	1
Design Hour:	SAT Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
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	0	0.0%	N/A
	Through	-	52	4.0%	56
	Right	-	41	2.0%	43

Advancing Volume:	99
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

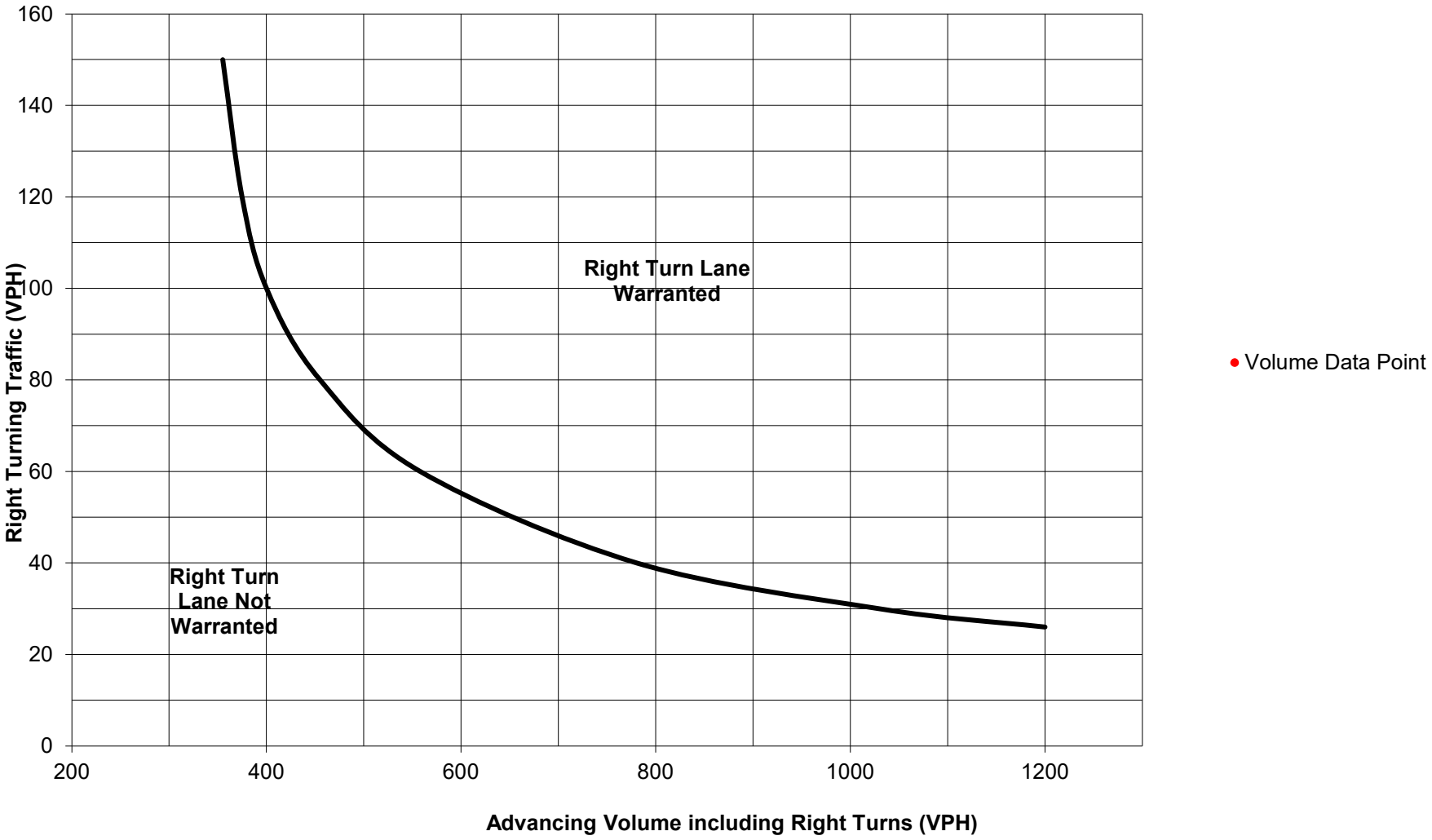
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Bernheisel Bridge Rd & Green Hill Rd
Northbound Right Turn

Analysis Period:	2037 Design Year (Build)	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
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	0	0.0%	N/A
	Through	-	51	2.0%	53
	Right	-	27	13.0%	33

Advancing Volume:	86
Right Turn Volume:	33

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:	33
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

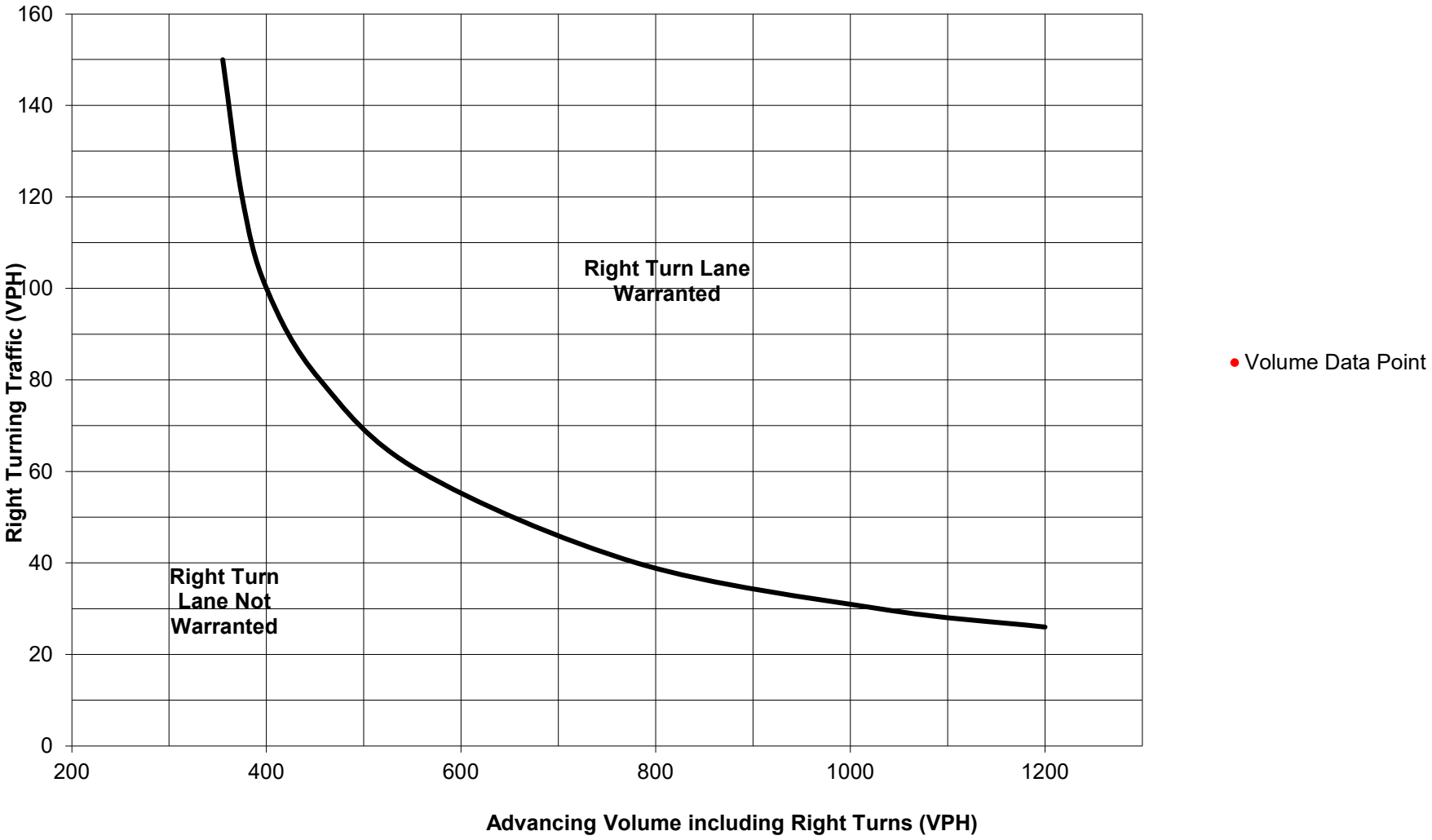
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Bernheisel Bridge Rd & Green Hill Rd
Southbound Left Turn

Analysis Period:	2037 Design Year (Build)	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
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	89	2.0%	92
	Through	-	201	2.0%	208
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	51	2.0%	53
	Right	Yes	27	13.0%	33

Advancing Volume:	300
Opposing Volume:	86
Left Turn Volume:	92
% Left Turns in Advancing Volume:	30.67%

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:	Unsignalized
Design Hour Volume of Turning Lane:	92
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

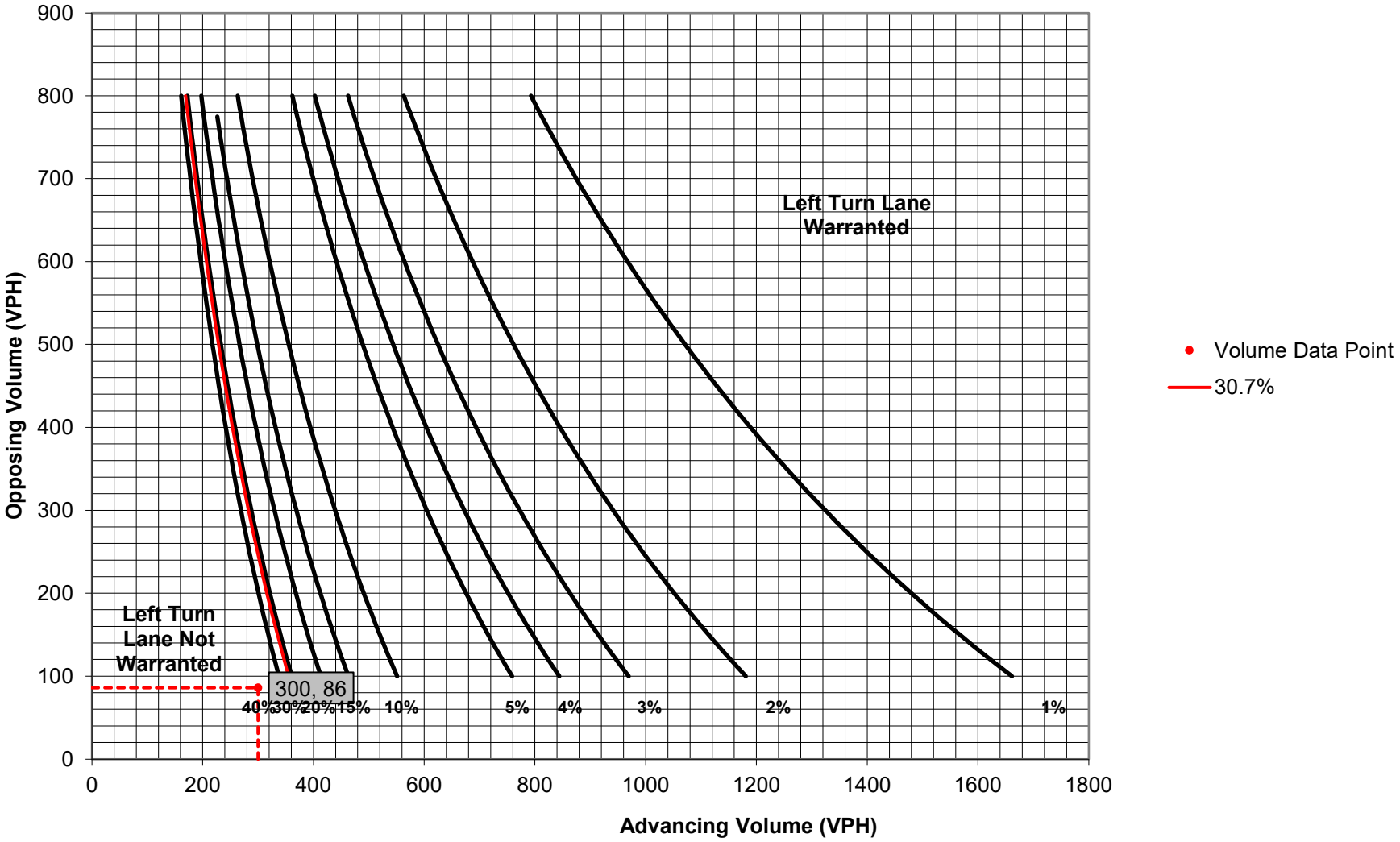
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Bernheisel Bridge Rd & Green Hill Rd
Westbound Left Turn

Analysis Period:	2037 Design Year (Build)	**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	72	20.0%	94
	Through	-	0	0.0%	0
	Right	Yes	11	0.0%	11
Opposing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	0
	Right	No	0	0.0%	N/A

Advancing Volume:	105
Opposing Volume:	0
Left Turn Volume:	94
% Left Turns in Advancing Volume:	89.52%

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?: #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:	94
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

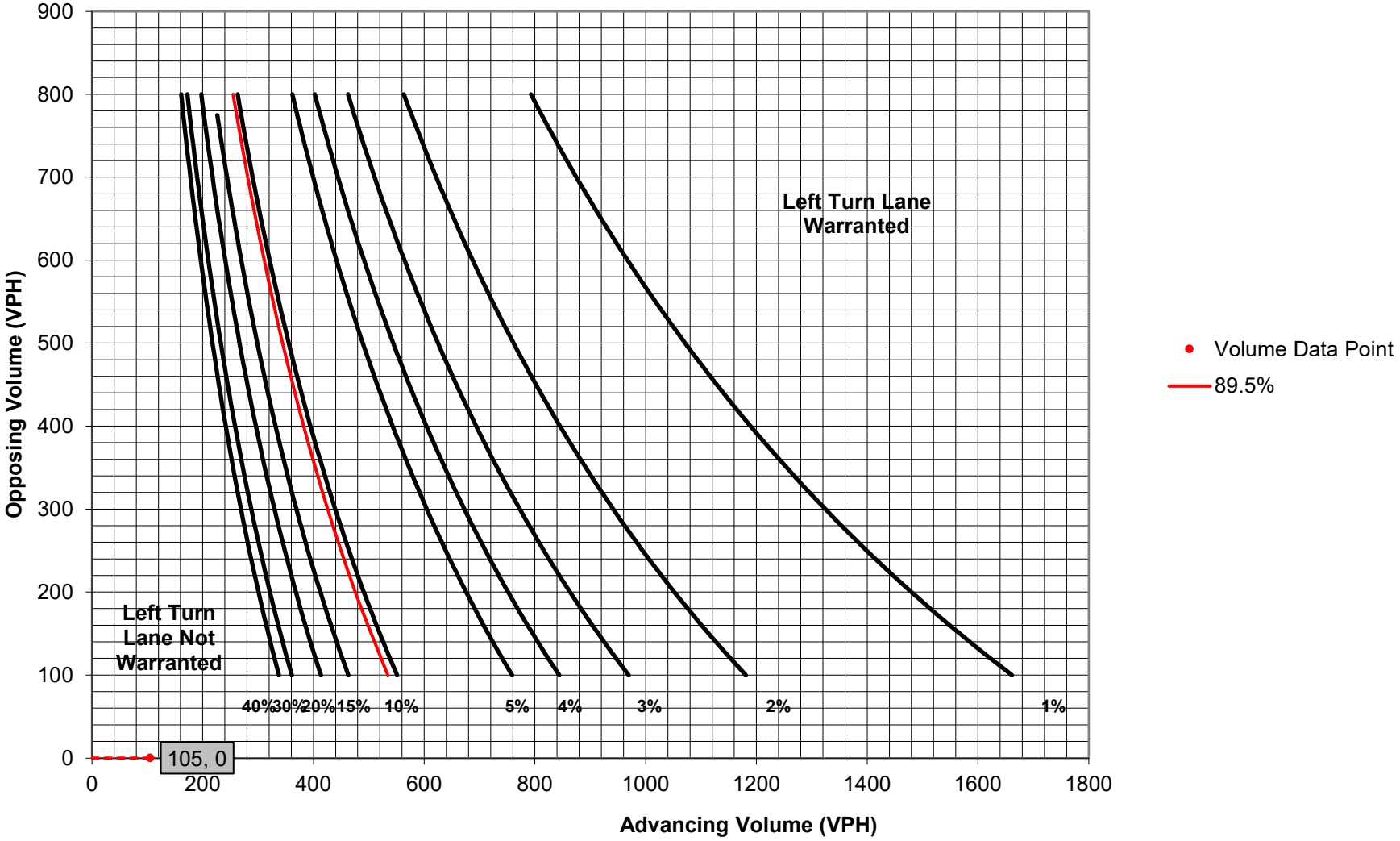
Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Bernheisel Bridge Rd & Green Hill Rd
Westbound Right Turn

Analysis Period:	2037 Design Year (Build)	**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	72	20.0%	94
	Through	-	0	0.0%	0
	Right	-	11	0.0%	11

Advancing Volume:	105
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

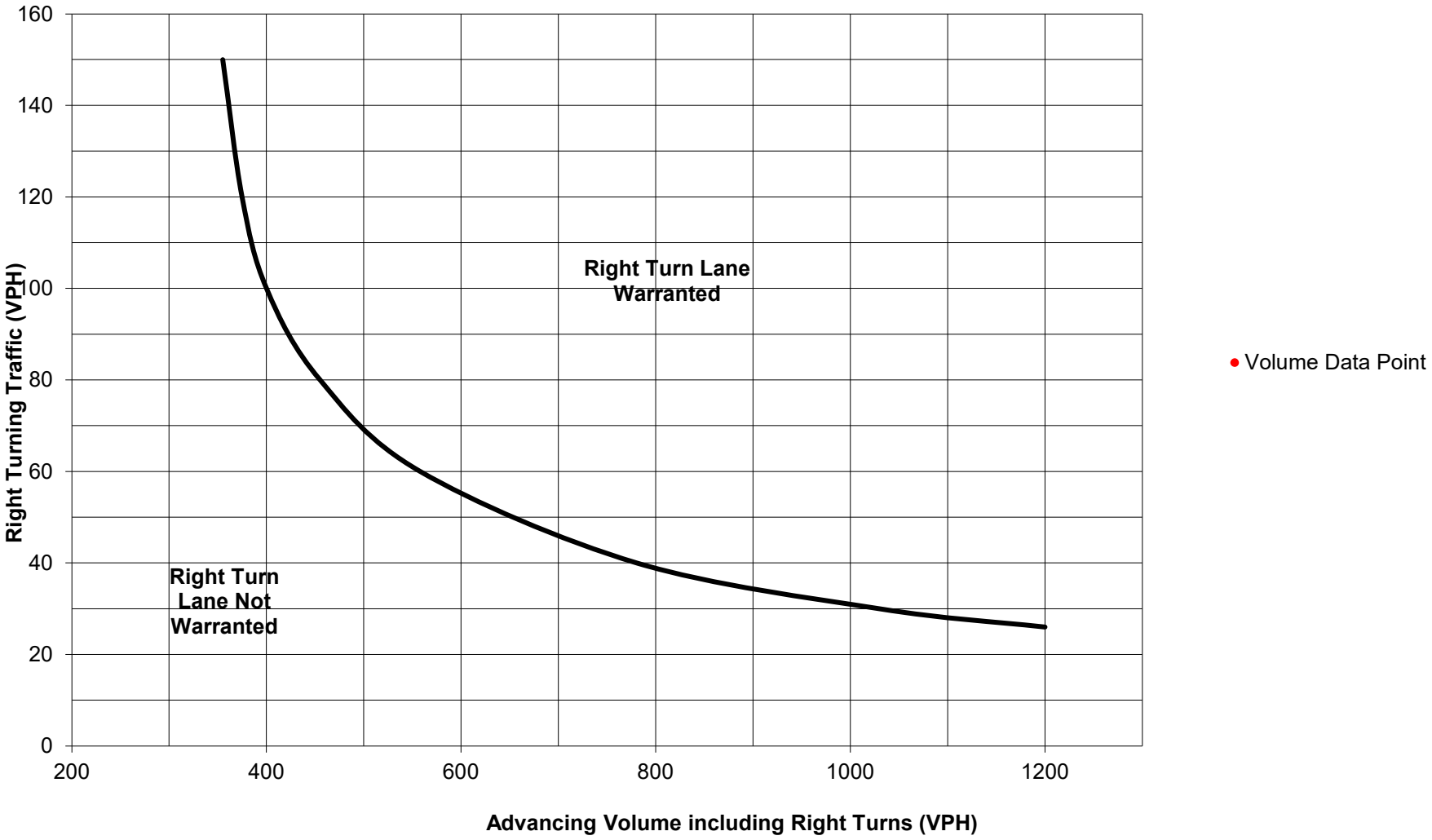
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Bernheisel Bridge Rd & Green Hill Rd
Northbound Right Turn

Analysis Period:	2037 Design Year (Build)	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
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	0	0.0%	N/A
	Through	-	156	2.0%	161
	Right	-	59	2.0%	61

Advancing Volume:	222
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

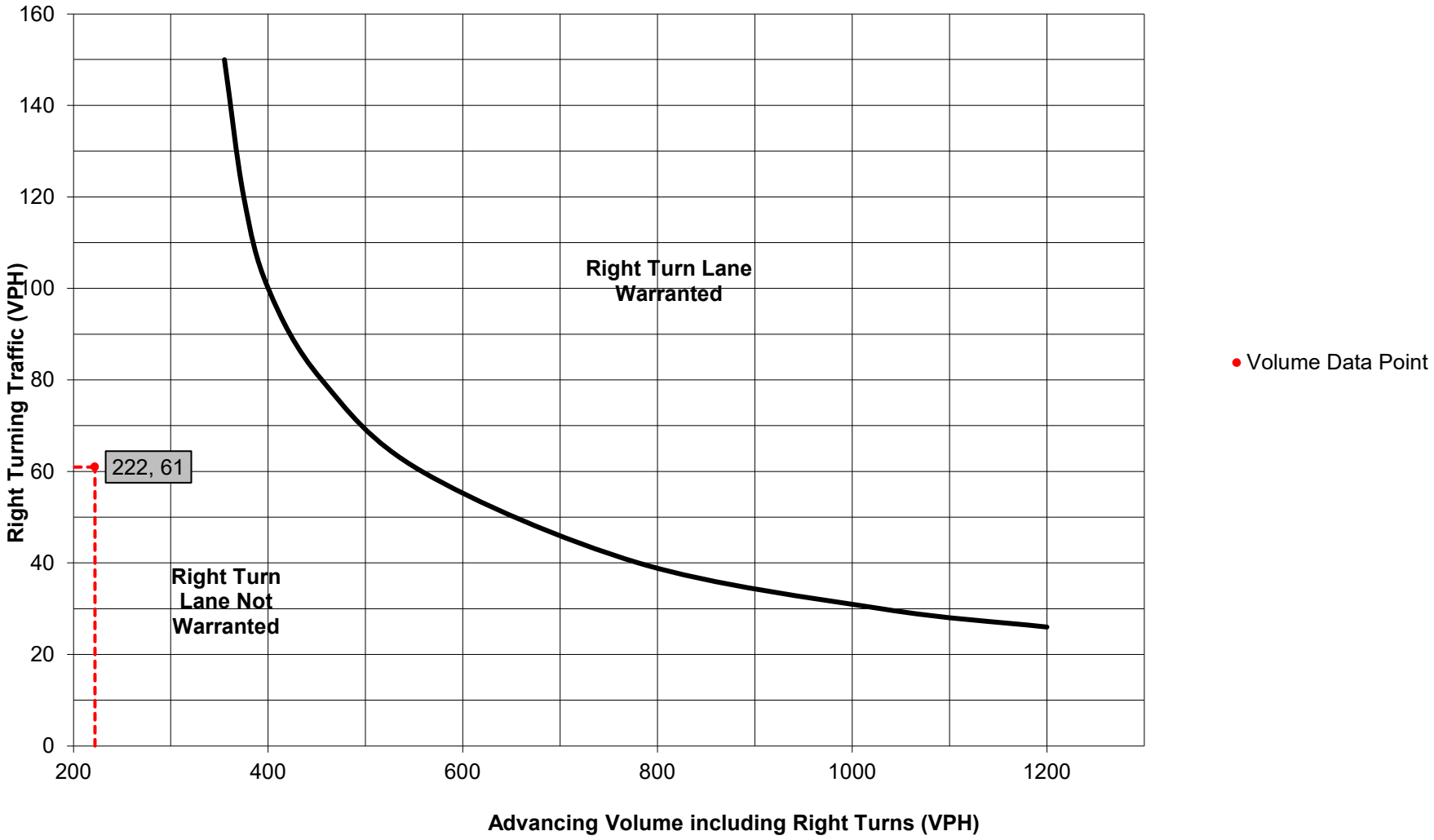
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Bernheisel Bridge Rd & Green Hill Rd
Southbound Left Turn

Analysis Period:	2037 Design Year (Build)	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
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	41	0.0%	41
	Through	-	80	3.0%	84
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	156	2.0%	161
	Right	Yes	59	2.0%	61

Advancing Volume:	125
Opposing Volume:	222
Left Turn Volume:	41
% Left Turns in Advancing Volume:	32.80%

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:	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

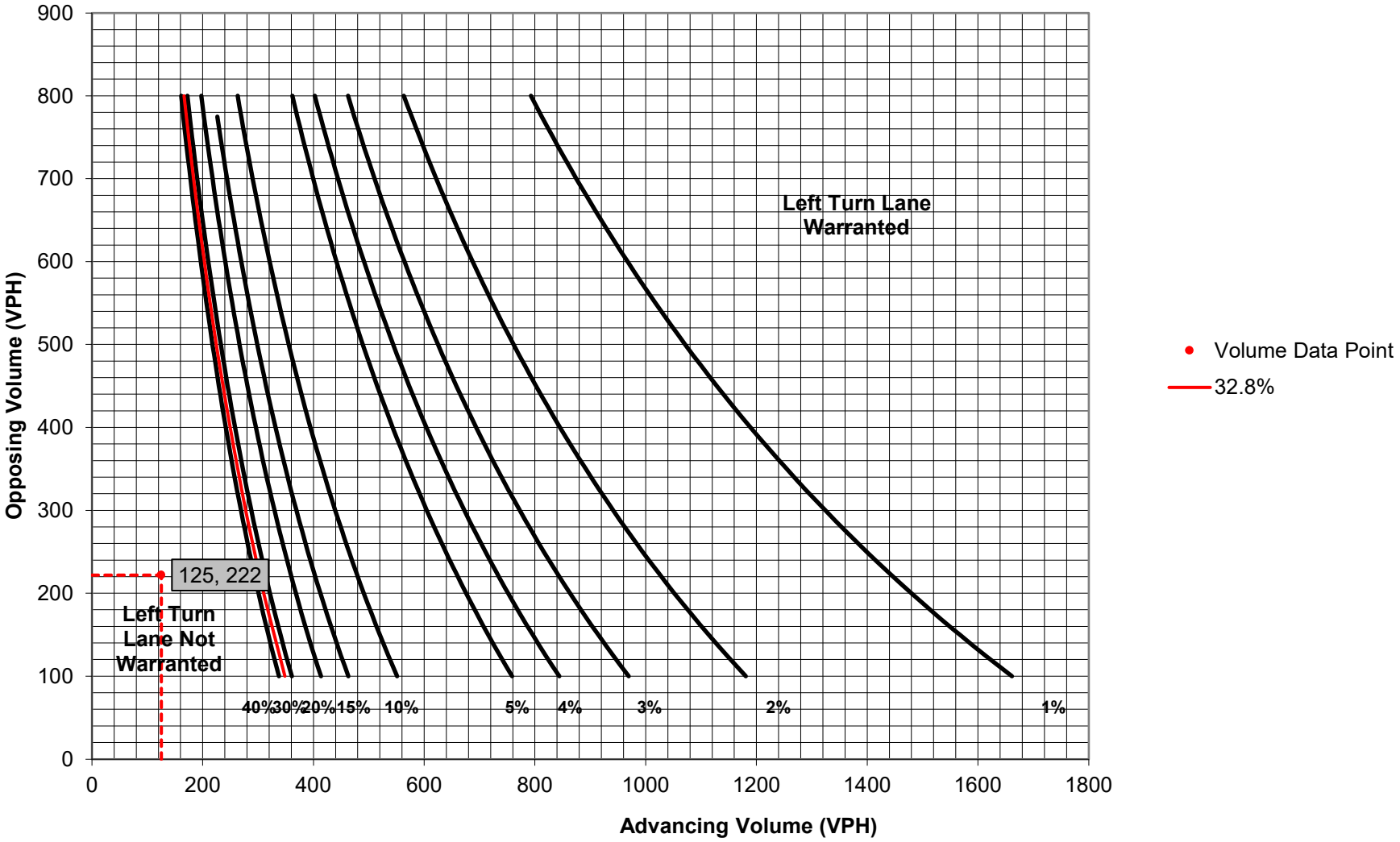
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Bernheisel Bridge Rd & Green Hill Rd
Westbound Left Turn

Analysis Period:	2037 Design Year (Build)	**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	13.0%	22
	Through	-	0	0.0%	0
	Right	Yes	80	0.0%	80
Opposing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	0
	Right	No	0	0.0%	N/A

Advancing Volume: 102
Opposing Volume: 0
Left Turn Volume: 22
% Left Turns in Advancing Volume: 21.57%

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?: #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:	22
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

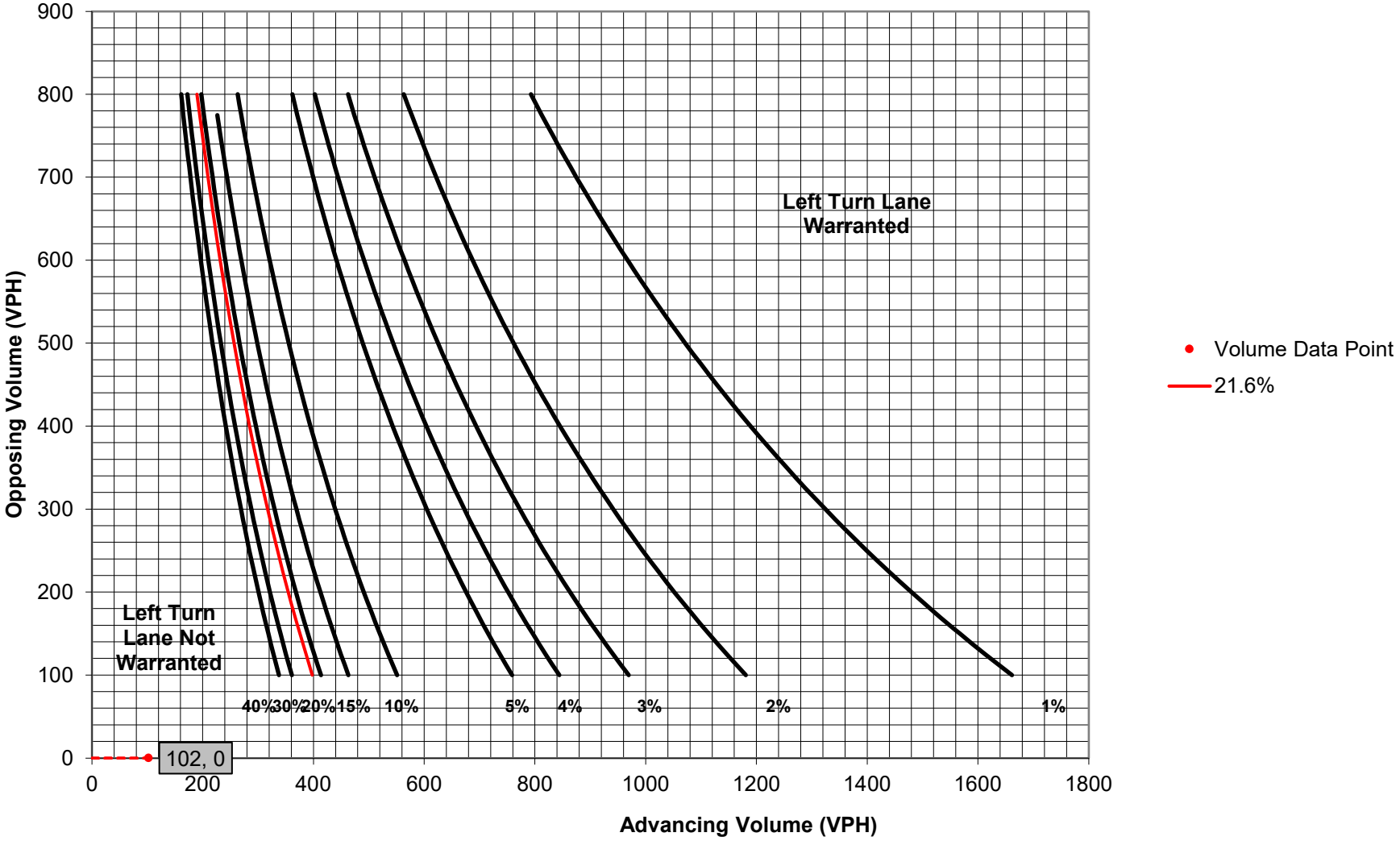
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Bernheisel Bridge Rd & Green Hill Rd
Westbound Right Turn

Analysis Period:	2037 Design Year (Build)	**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	18	13.0%	22
	Through	-	0	0.0%	0
	Right	-	80	0.0%	80

Advancing Volume:	102
Right Turn Volume:	80

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:	80
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

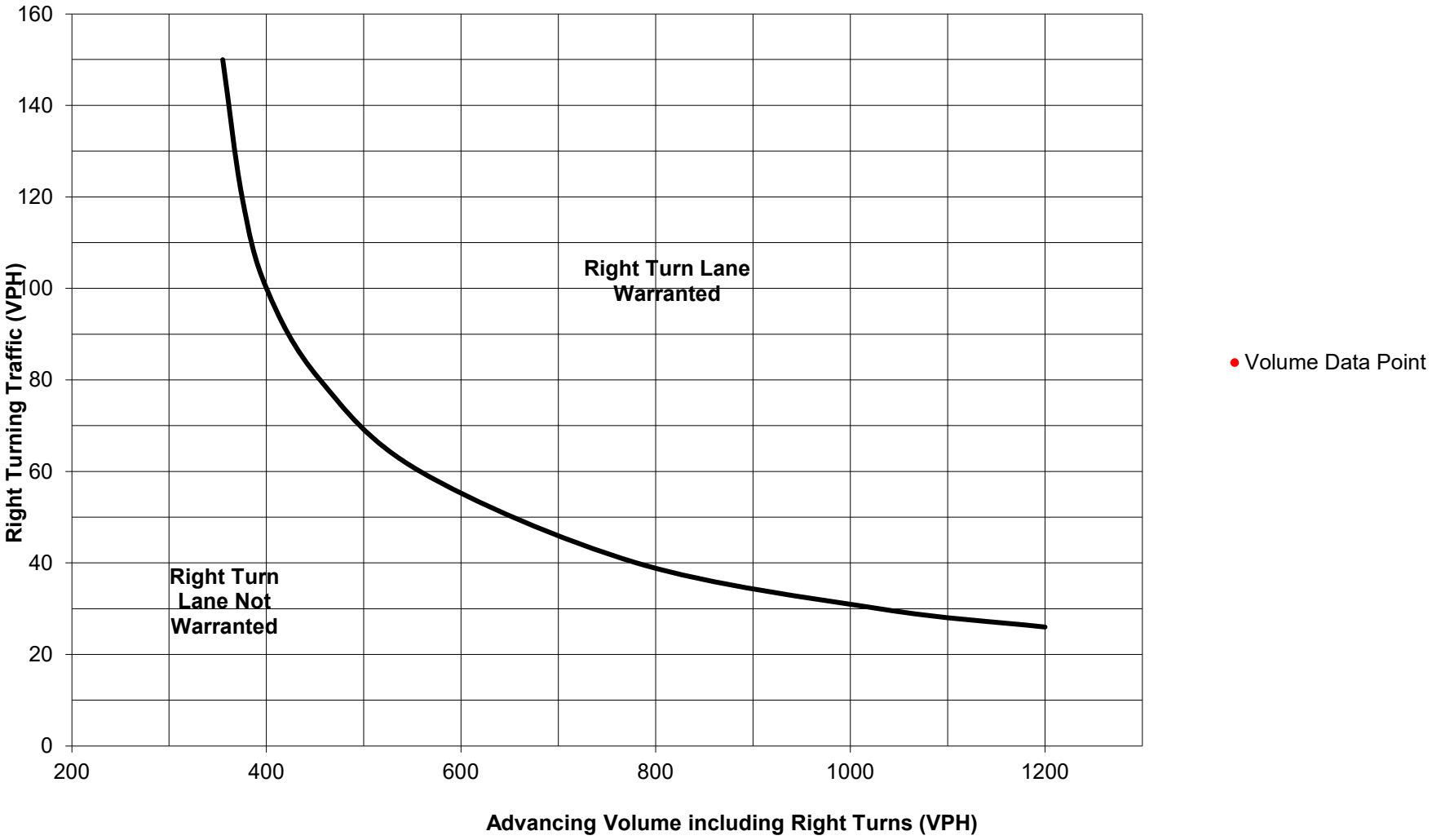
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Bernheisel Bridge Rd & Green Hill Rd
Northbound Right Turn

Analysis Period:	2037 Design Year (Build)	**Number of Approach Lanes:**	1
Design Hour:	SAT Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
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	0	0.0%	N/A
	Through	-	109	2.0%	113
	Right	-	55	2.0%	57

Advancing Volume:	170
Right Turn Volume:	57

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:	57
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

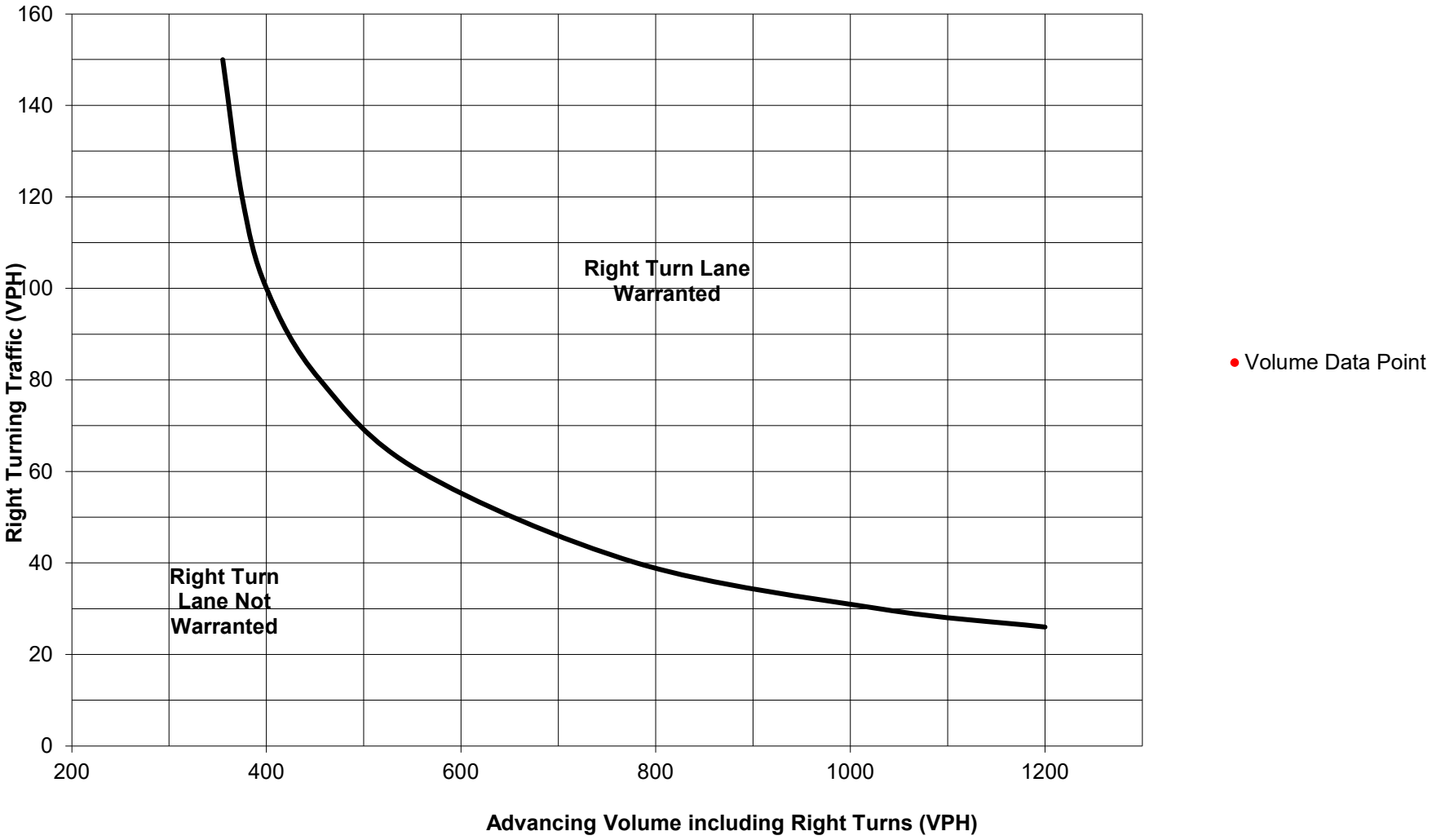
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Bernheisel Bridge Rd & Green Hill Rd
Southbound Left Turn

Analysis Period:	2037 Design Year (Build)	**Number of Approach Lanes:**	1
Design Hour:	SAT Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
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	26	0.0%	26
	Through	-	79	3.0%	83
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	109	2.0%	113
	Right	Yes	55	2.0%	57

Advancing Volume:	109
Opposing Volume:	170
Left Turn Volume:	26
% Left Turns in Advancing Volume:	23.85%

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:	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

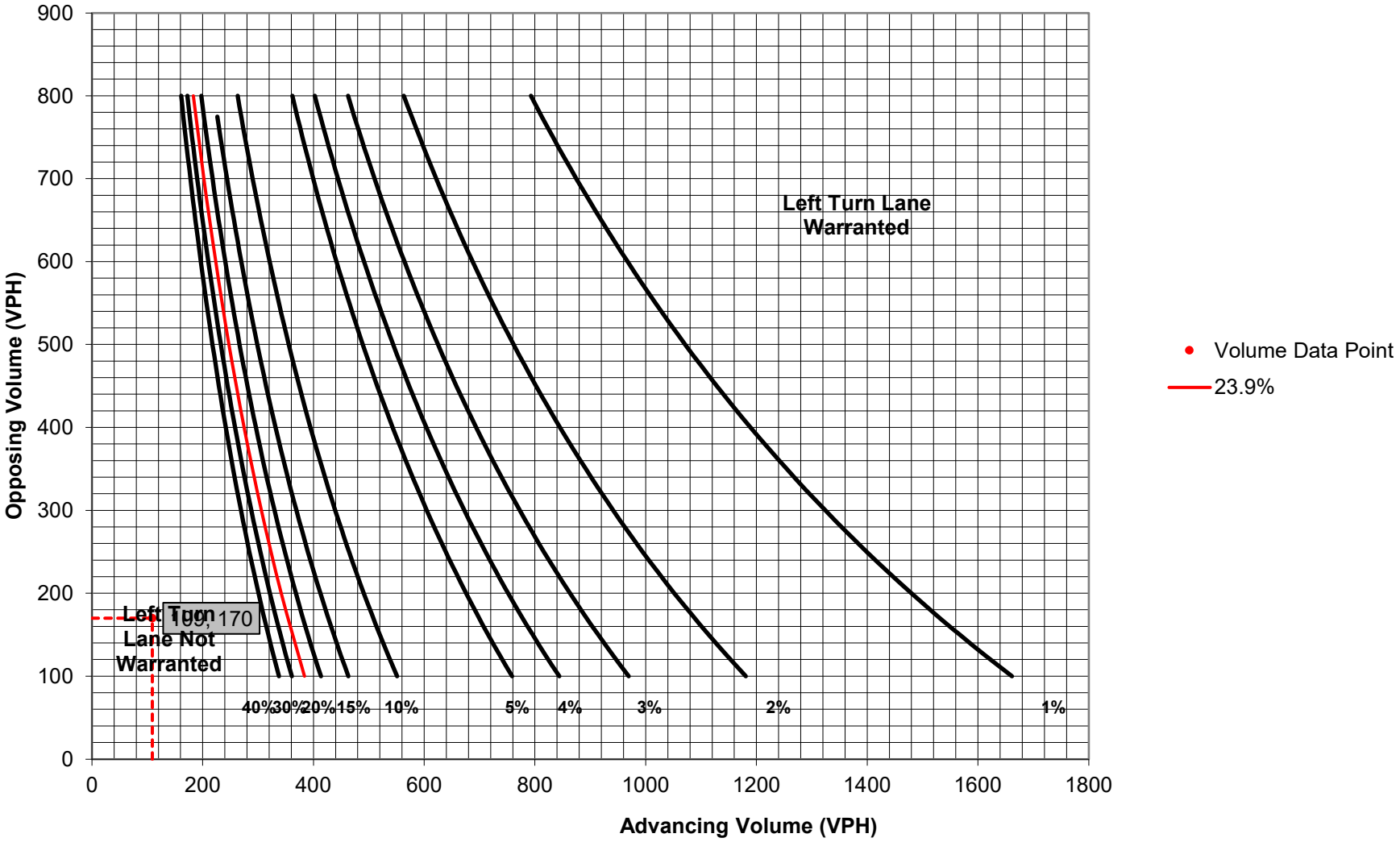
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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 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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Bernheisel Bridge Rd & Green Hill Rd
Westbound Left Turn

Analysis Period:	2037 Design Year (Build)	**Number of Approach Lanes:**	1
Design Hour:	SAT 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	14	2.0%	15
	Through	-	0	0.0%	0
	Right	Yes	49	0.0%	49
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:	15
% Left Turns in Advancing Volume:	23.44%

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?: #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:	15
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

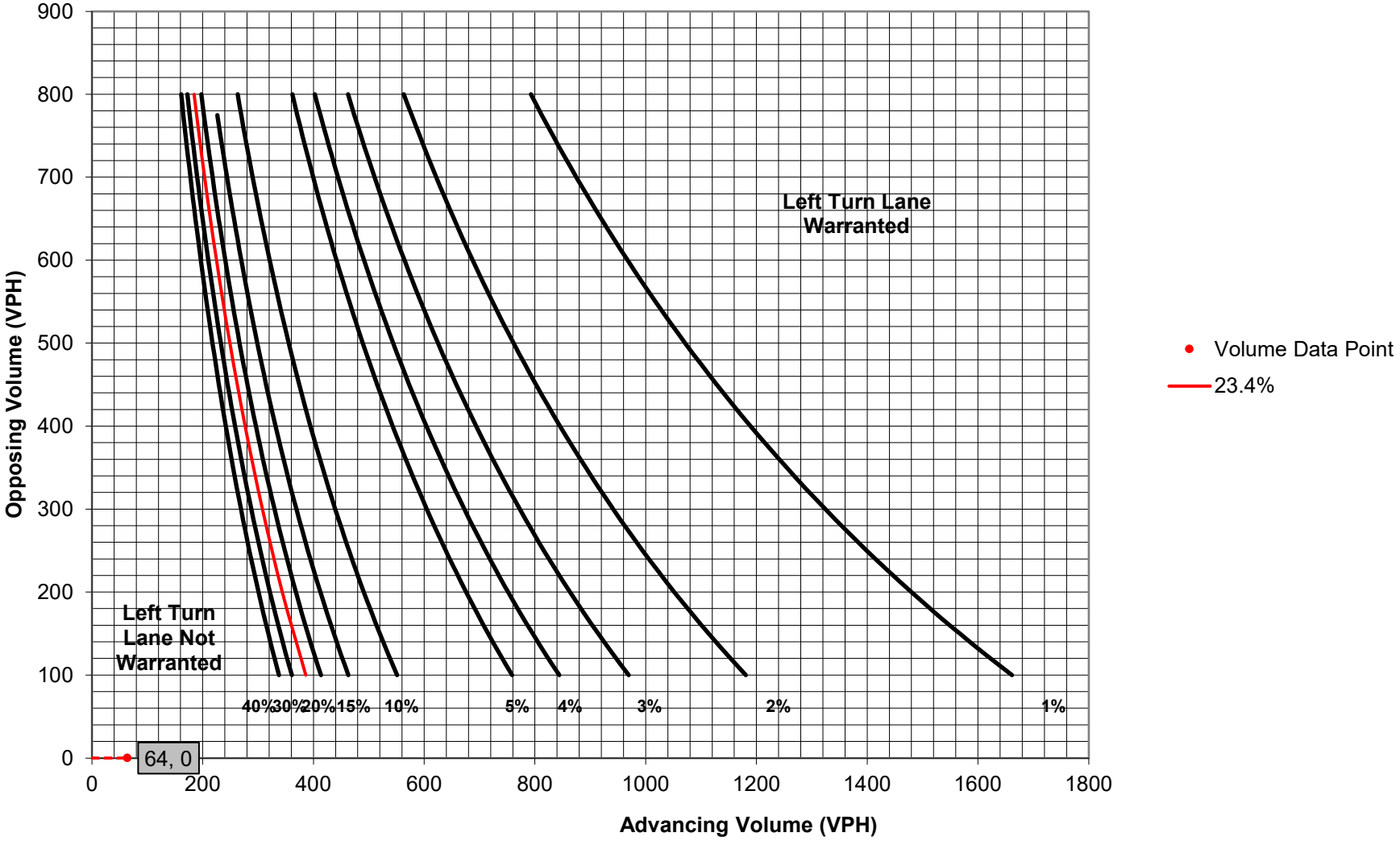
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Bernheisel Bridge Rd & Green Hill Rd
Westbound Right Turn

Analysis Period:	2037 Design Year (Build)	**Number of Approach Lanes:**	1
Design Hour:	SAT 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	14	2.0%	15
	Through	-	0	0.0%	0
	Right	-	49	0.0%	49

Advancing Volume:	64
Right Turn Volume:	49

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:	49
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

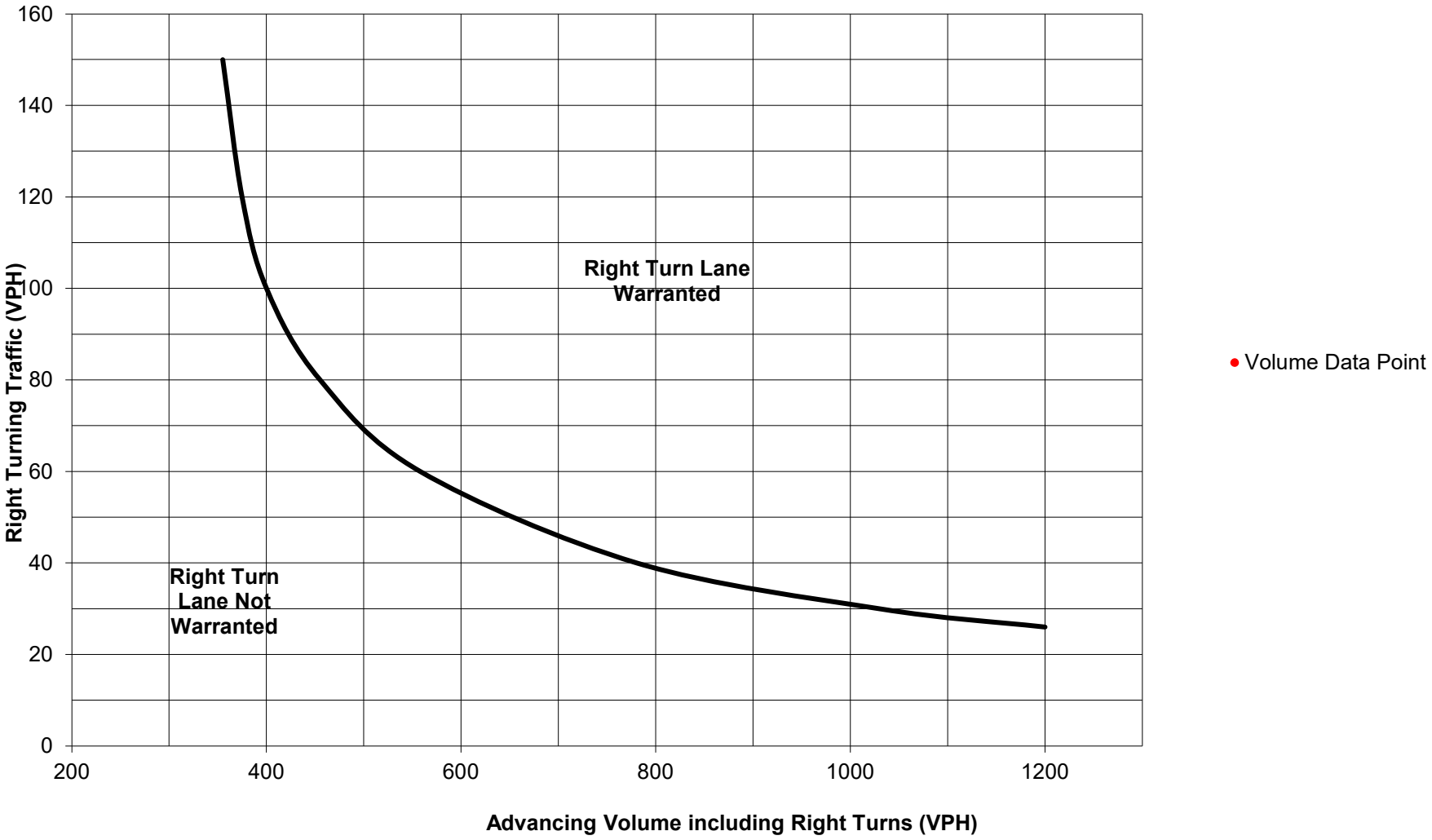
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: County Club Rd & Western Driveway / Eastbound Left Turn

Analysis Period:	2037 Design Year (Build)	**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	0	0.0%	0
	Through	-	0	0.0%	0
	Right	Yes	13	2.0%	14
Opposing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	0
	Right	No	0	0.0%	N/A

Advancing Volume:	14
Opposing Volume:	0
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

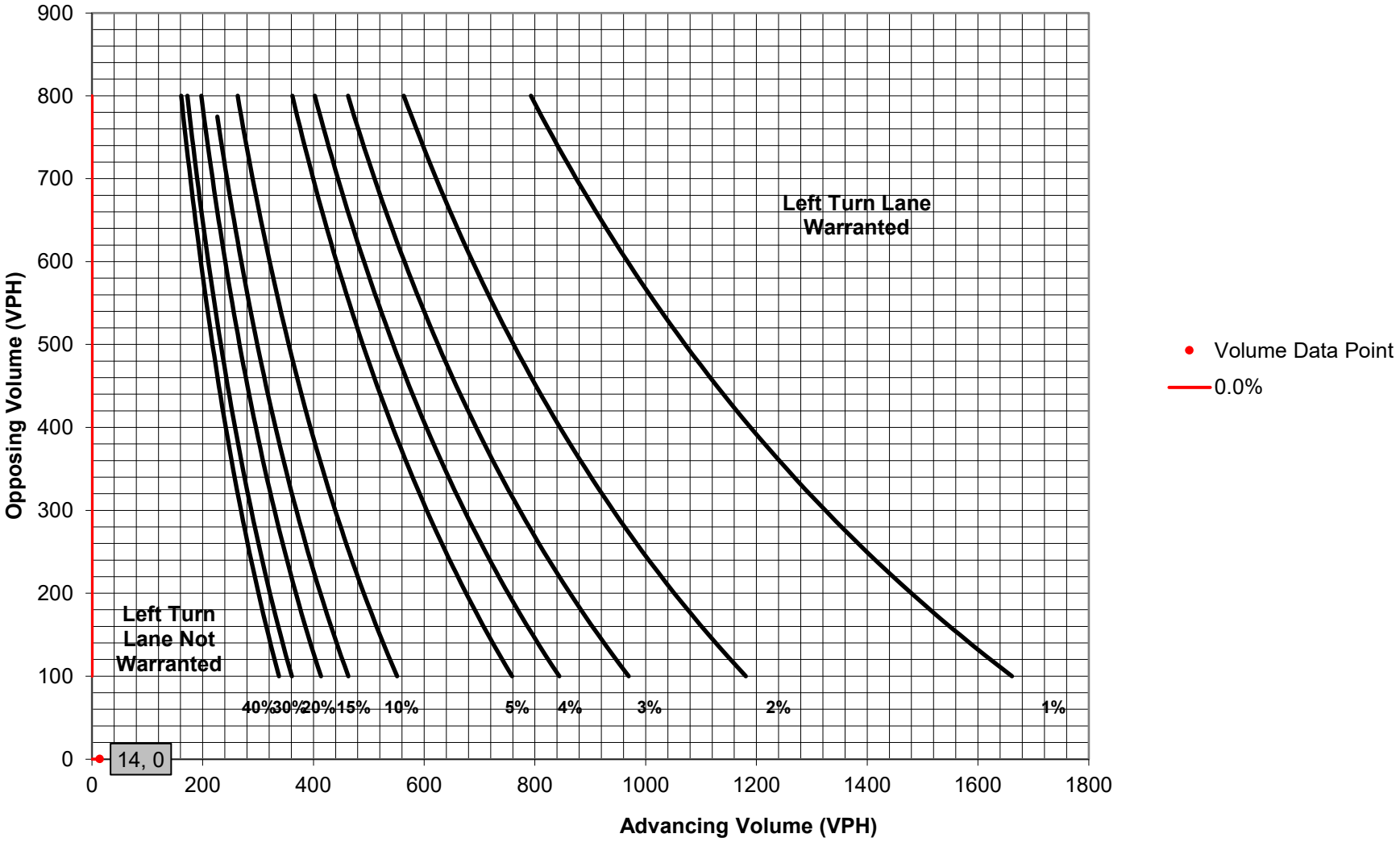
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: County Club Rd & Western Driveway / Eastbound Right Turn

Analysis Period:	2037 Design Year (Build)	**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	0	0.0%	0
	Through	-	0	0.0%	0
	Right	-	13	2.0%	14

Advancing Volume:	14
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

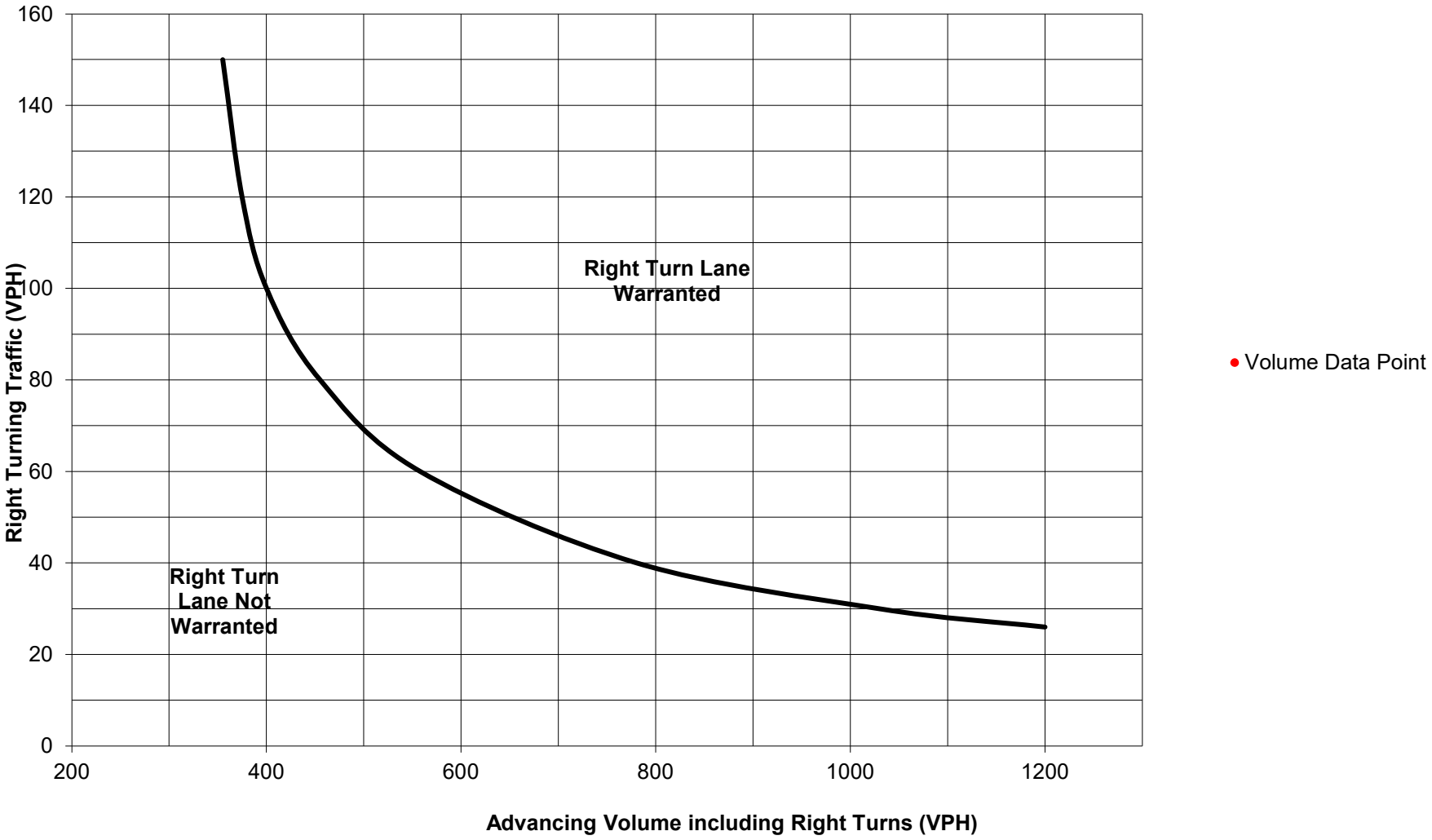
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: County Club Rd & Western Driveway
Northbound Left Turn

Analysis Period:	2037 Design Year (Build)	**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	2.0%	26
	Through	-	146	12.0%	173
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	27	25.0%	38
	Right	Yes	0	0.0%	0

Advancing Volume:	199
Opposing Volume:	38
Left Turn Volume:	26
% Left Turns in Advancing Volume:	13.07%

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:	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

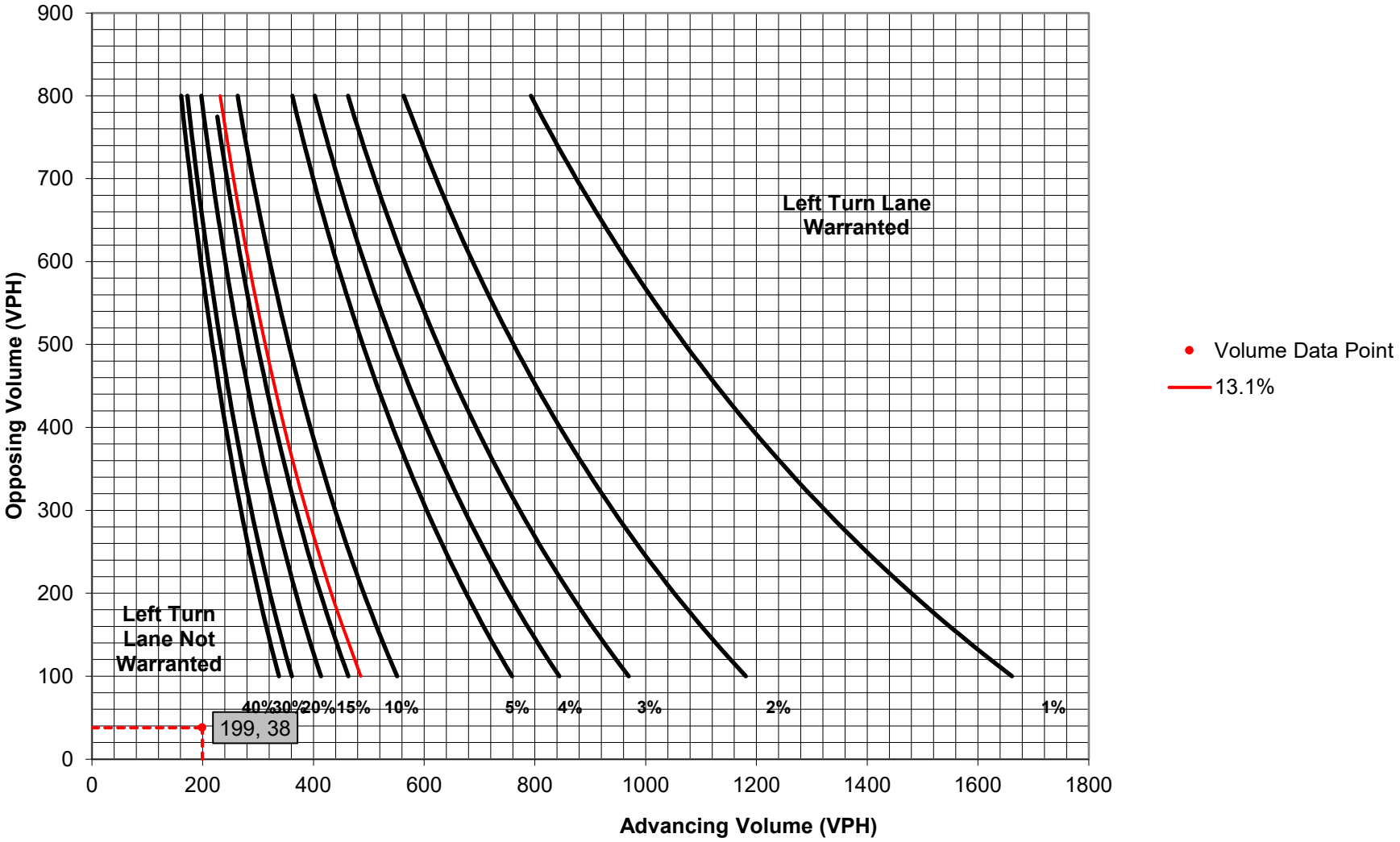
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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 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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: County Club Rd & Western Driveway / Southbound Right Turn

Analysis Period:	2037 Design Year (Build)	**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	-	27	25.0%	38
	Right	-	0	0.0%	0

Advancing Volume:	38
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

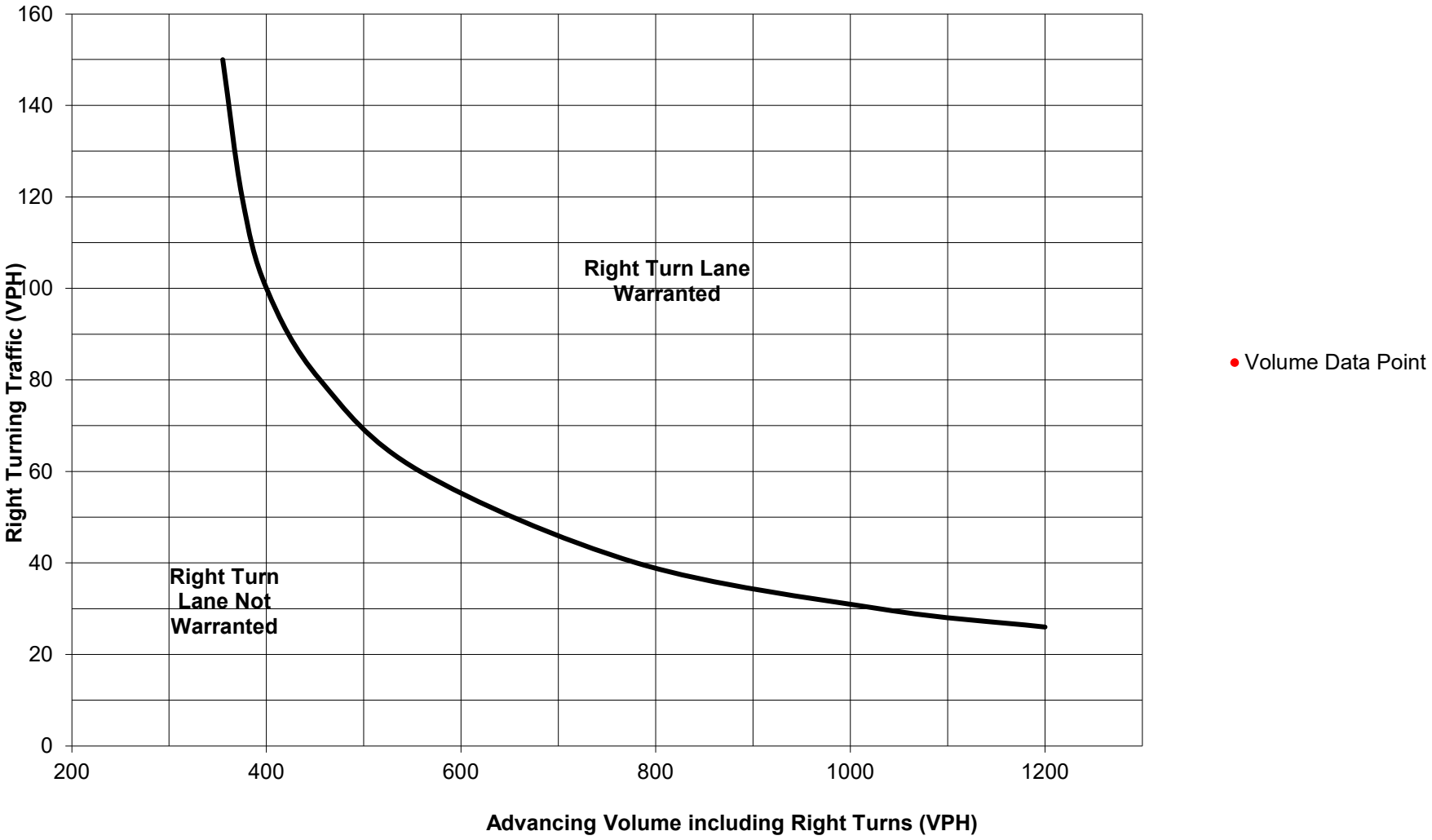
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: County Club Rd & Western Driveway / Eastbound Left Turn

Analysis Period:	2037 Design Year (Build)	**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	0	0.0%	0
	Through	-	0	0.0%	0
	Right	Yes	36	2.0%	38
Opposing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	0
	Right	No	0	0.0%	N/A

Advancing Volume:	38
Opposing Volume:	0
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

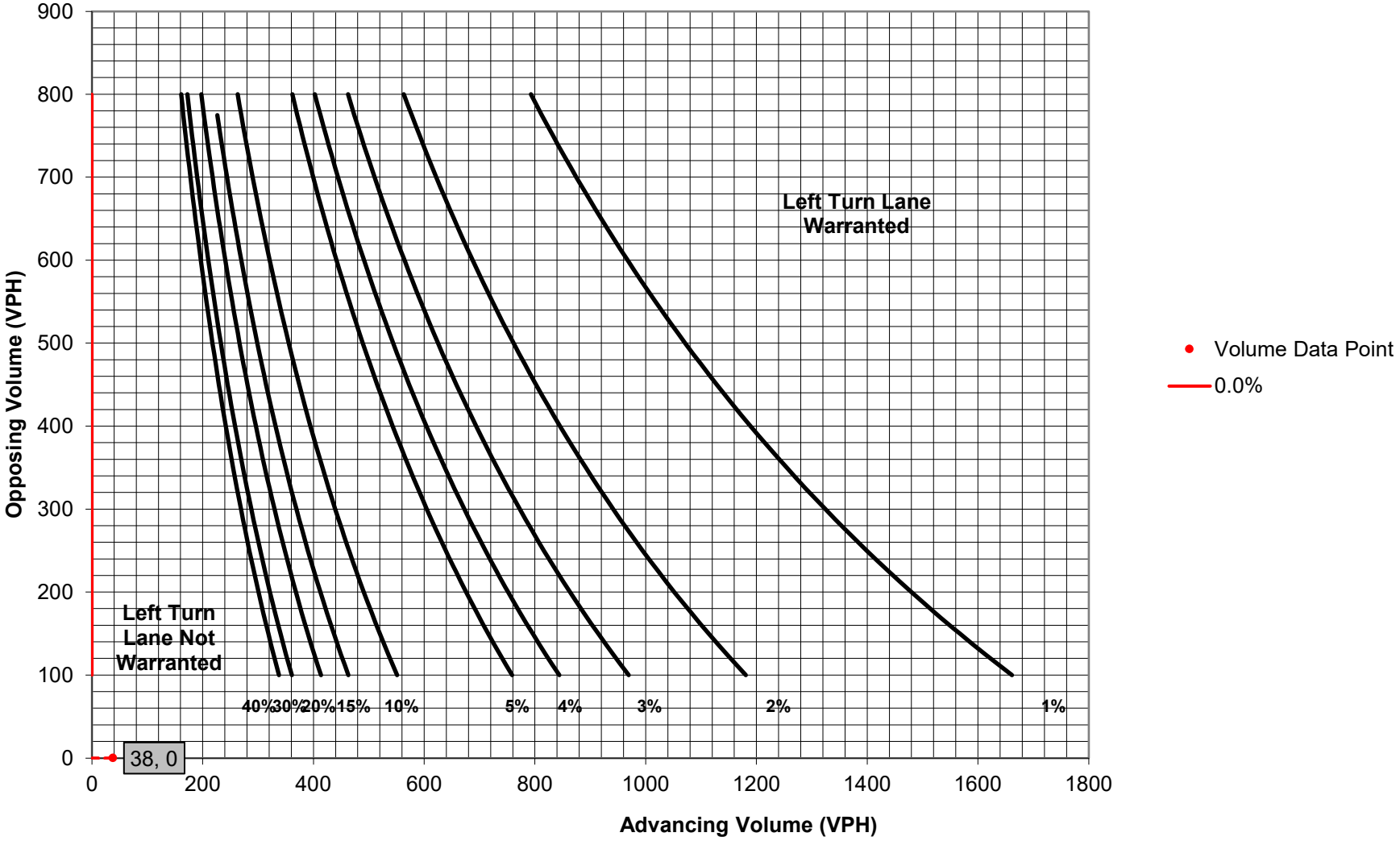
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: County Club Rd & Western Driveway / Eastbound Right Turn

Analysis Period:	2037 Design Year (Build)	**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	0	0.0%	0
	Through	-	0	0.0%	0
	Right	-	36	2.0%	38

Advancing Volume:	38
Right Turn Volume:	38

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:	38
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

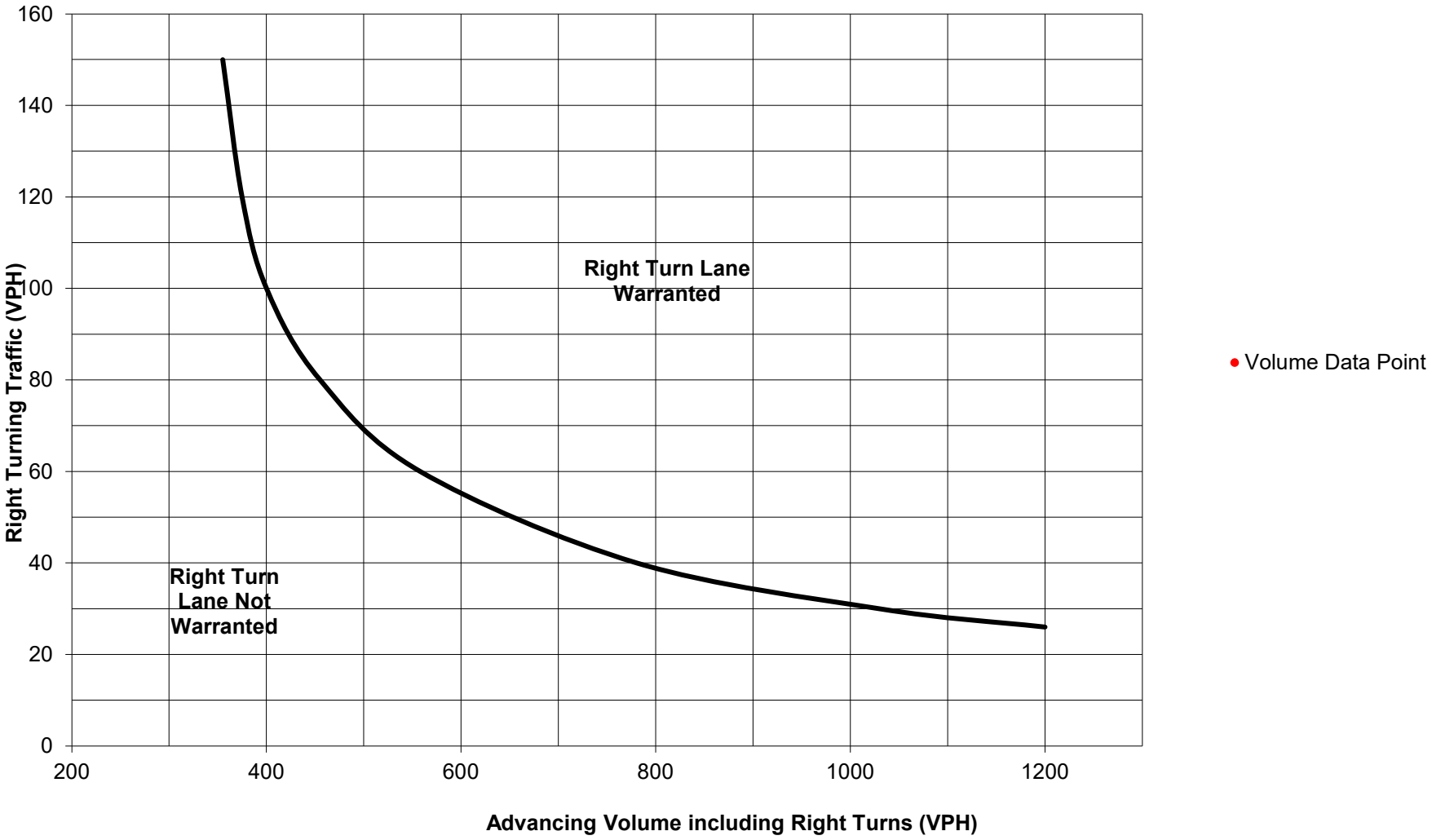
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: County Club Rd & Western Driveway / Northbound Left Turn

Analysis Period:	2037 Design Year (Build)	**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	2.0%	4
	Through	-	63	11.0%	74
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	70	2.0%	73
	Right	Yes	0	0.0%	0

Advancing Volume:	78
Opposing Volume:	73
Left Turn Volume:	4
% Left Turns in Advancing Volume:	5.13%

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:	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

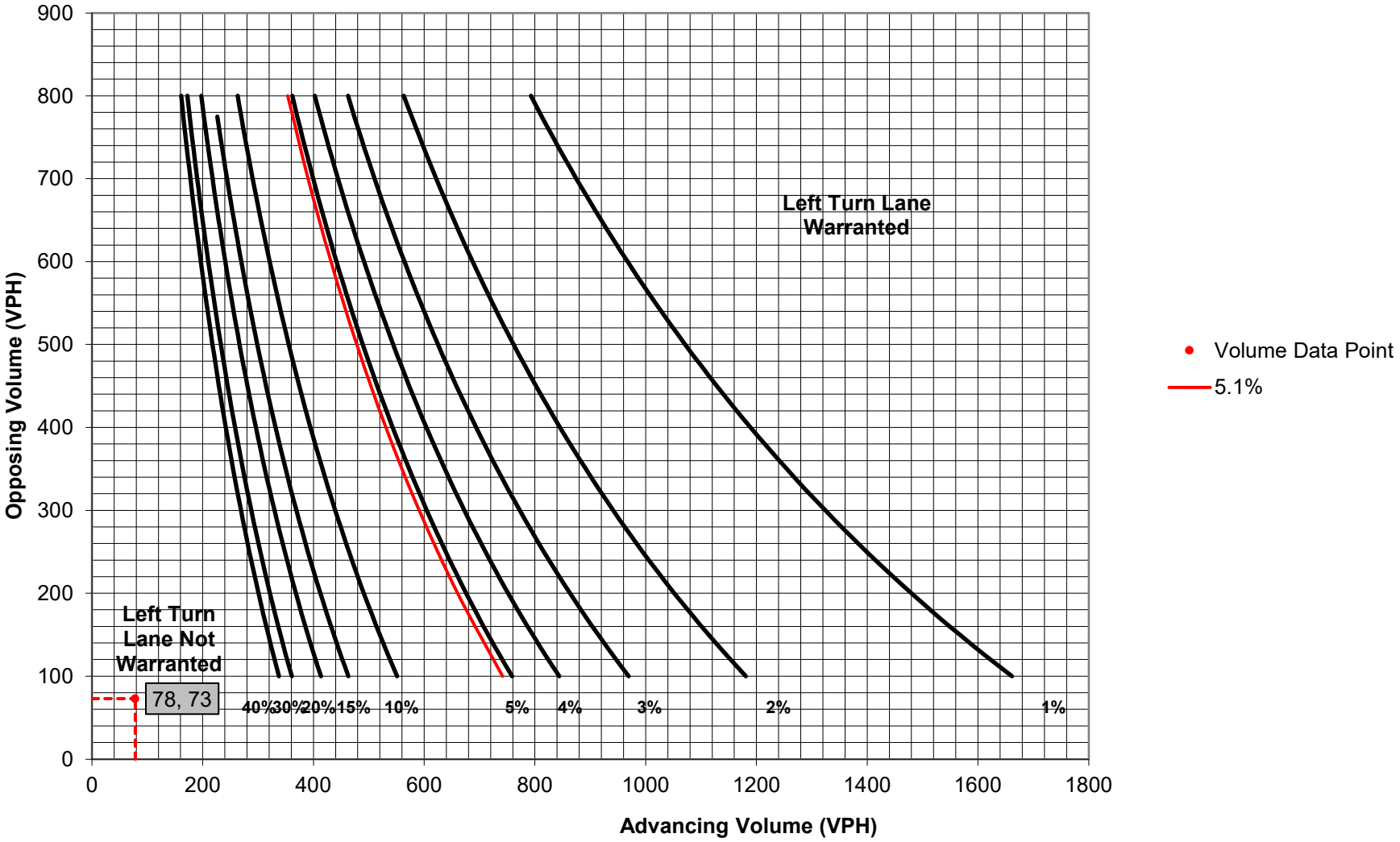
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: County Club Rd & Western Driveway / Southbound Right Turn

Analysis Period:	2037 Design Year (Build)	**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	-	70	2.0%	73
	Right	-	0	0.0%	0

Advancing Volume:	73
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

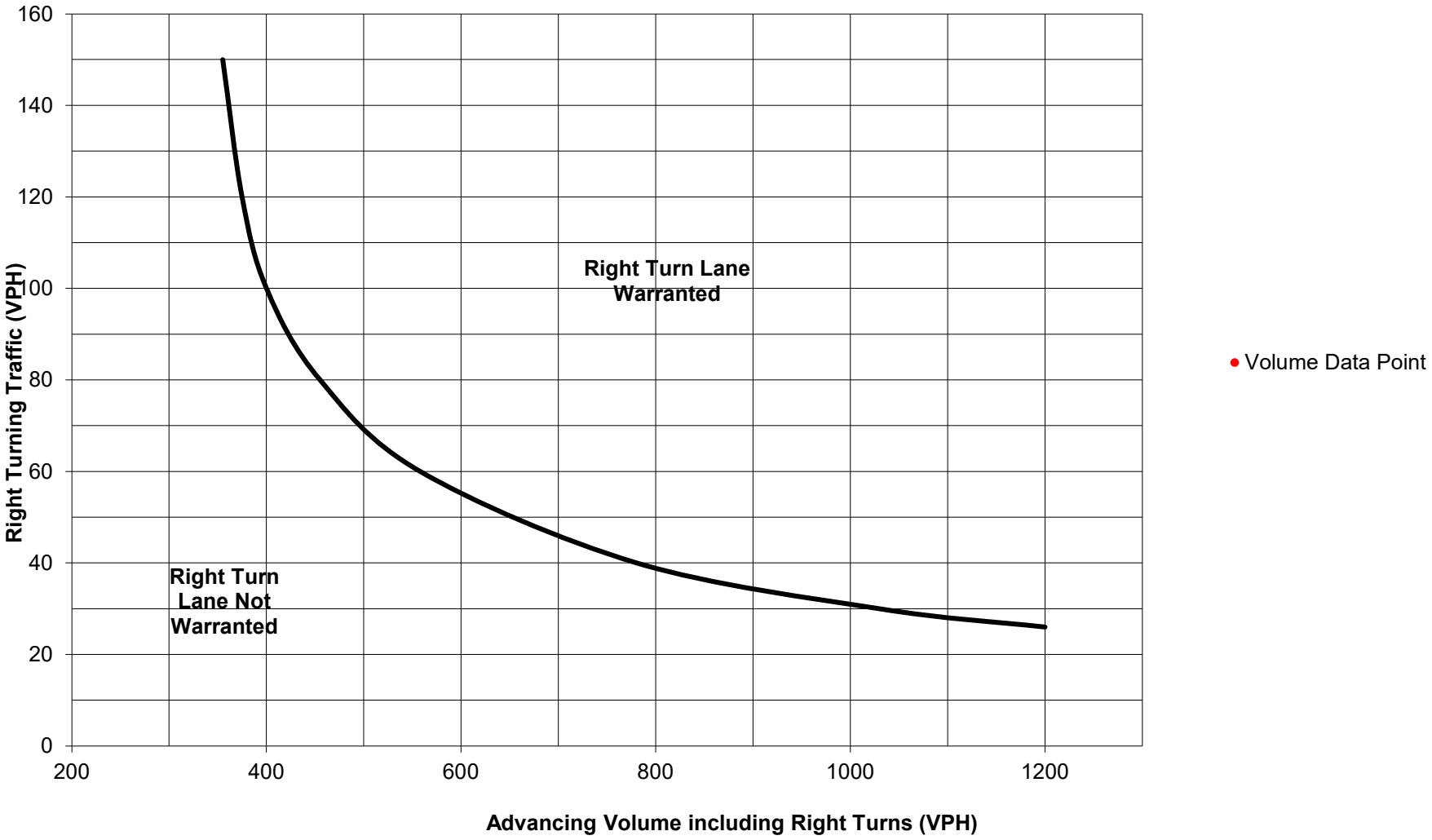
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: County Club Rd & Western Driveway
Eastbound Left Turn

Analysis Period:	2037 Design Year (Build)	**Number of Approach Lanes:**	1
Design Hour:	SAT 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	0	0.0%	0
	Through	-	0	0.0%	0
	Right	Yes	36	2.0%	38
Opposing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	0
	Right	No	0	0.0%	N/A

Advancing Volume:	38
Opposing Volume:	0
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

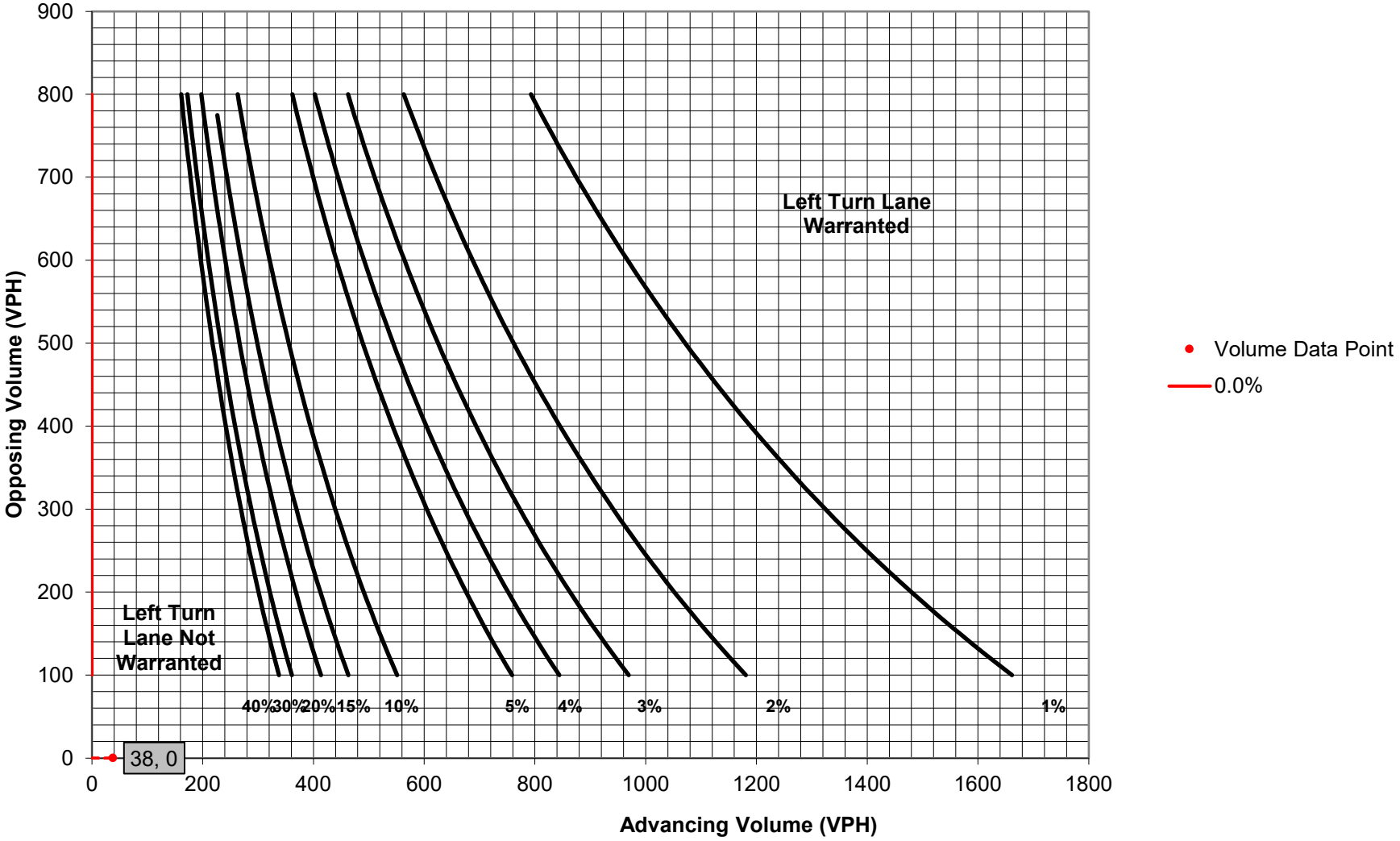
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: County Club Rd & Western Driveway / Eastbound Right Turn

Analysis Period:	2037 Design Year (Build)	**Number of Approach Lanes:**	1
Design Hour:	SAT 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	0	0.0%	0
	Through	-	0	0.0%	0
	Right	-	36	2.0%	38

Advancing Volume:	38
Right Turn Volume:	38

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:	38
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

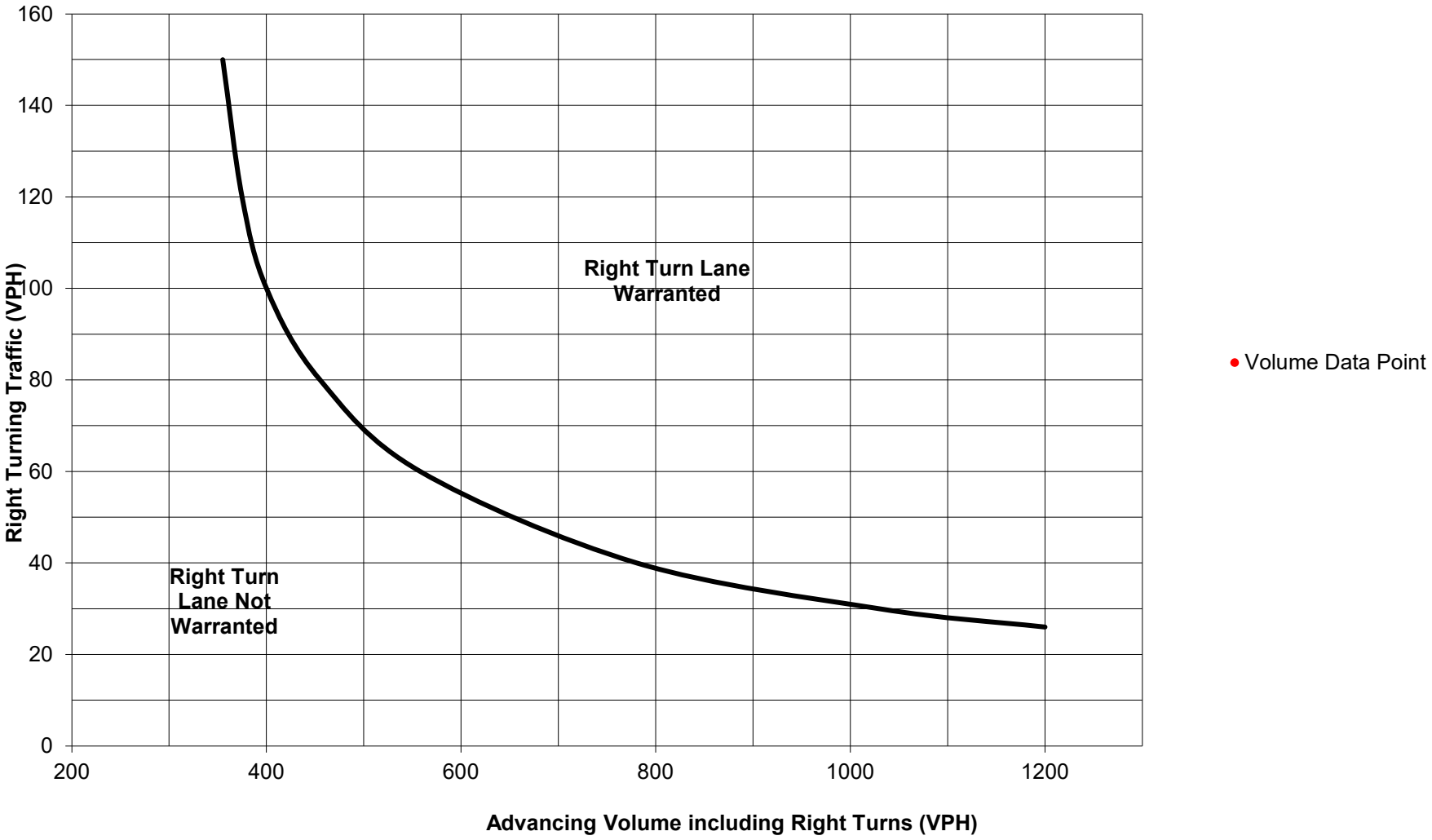
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: County Club Rd & Western Driveway / Northbound Left Turn

Analysis Period:	2037 Design Year (Build)	**Number of Approach Lanes:**	1
Design Hour:	SAT 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	2.0%	4
	Through	-	62	4.0%	66
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	56	2.0%	58
	Right	Yes	0	0.0%	0

Advancing Volume:	70
Opposing Volume:	58
Left Turn Volume:	4
% Left Turns in Advancing Volume:	5.71%

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:	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

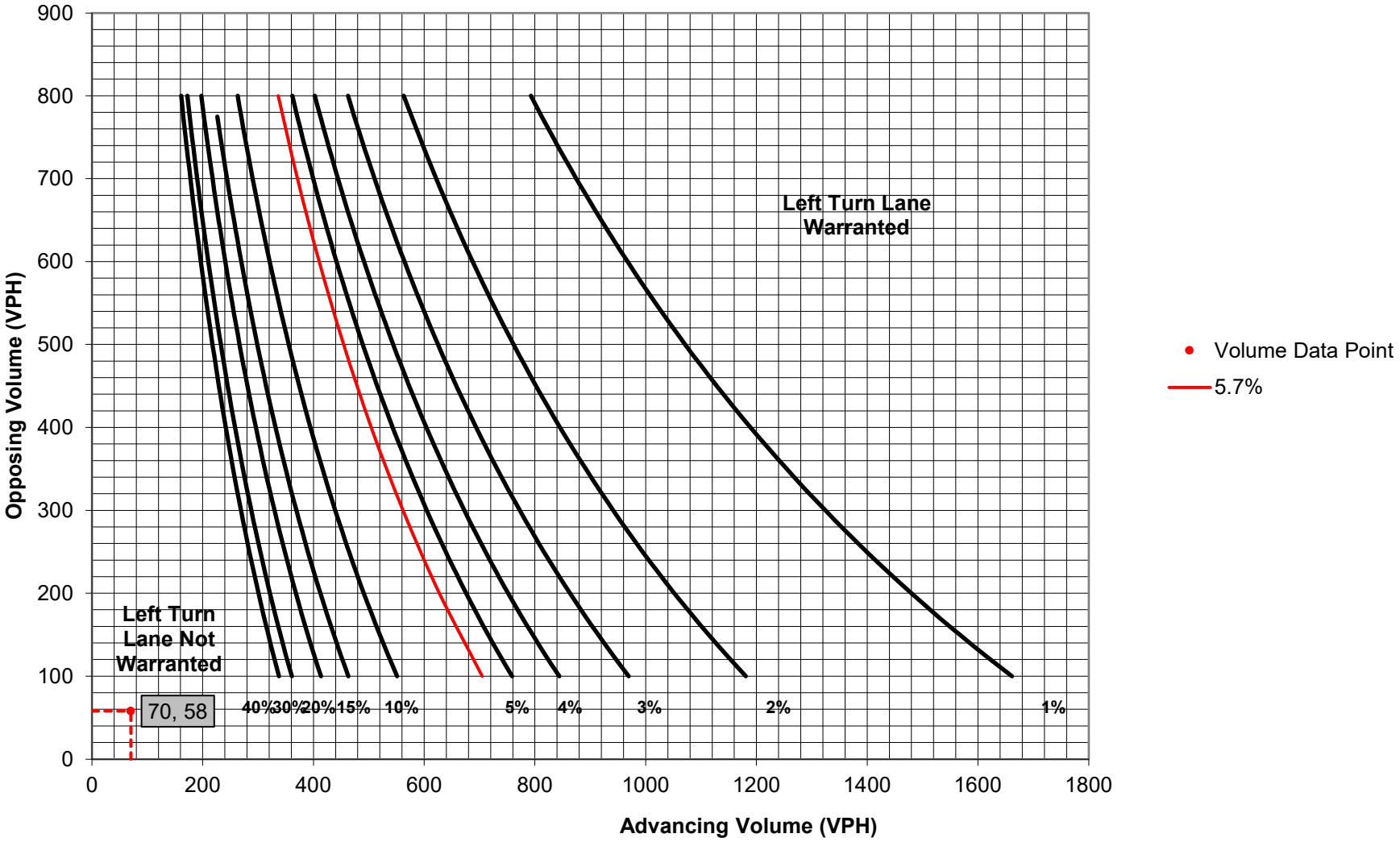
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: County Club Rd & Western Driveway / Southbound Right Turn

Analysis Period:	2037 Design Year (Build)	**Number of Approach Lanes:**	1
Design Hour:	SAT 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	-	56	2.0%	58
	Right	-	0	0.0%	0

Advancing Volume:	58
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

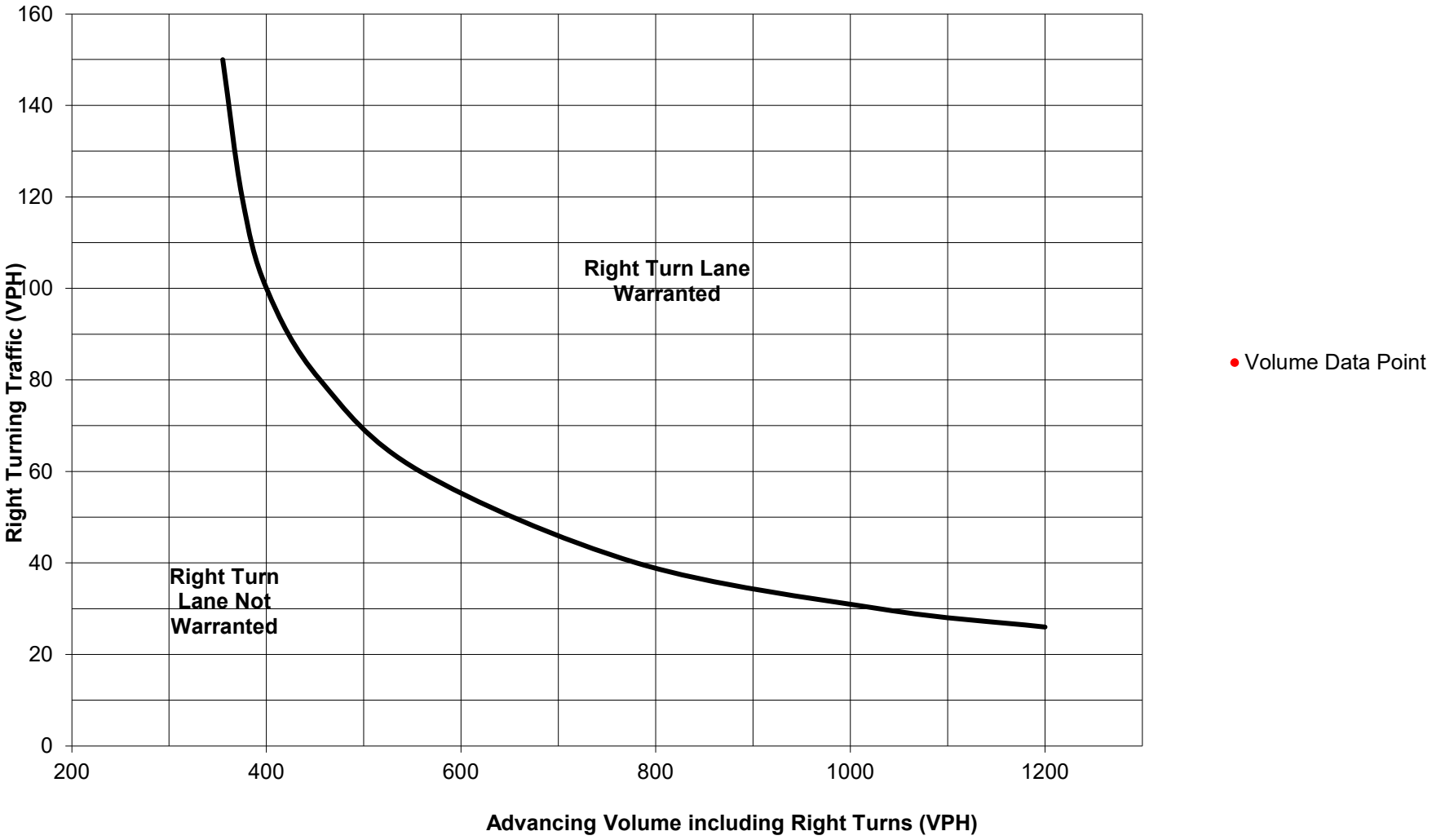
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: County Club Rd & Main Driveway / Eastbound Left Turn

Analysis Period:	2037 Design Year (Build)	**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	89	2.0%	92
	Through	-	57	12.0%	68
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	11	25.0%	16
	Right	Yes	102	2.0%	106

Advancing Volume:	160
Opposing Volume:	122
Left Turn Volume:	92
% Left Turns in Advancing Volume:	57.50%

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 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:	92
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

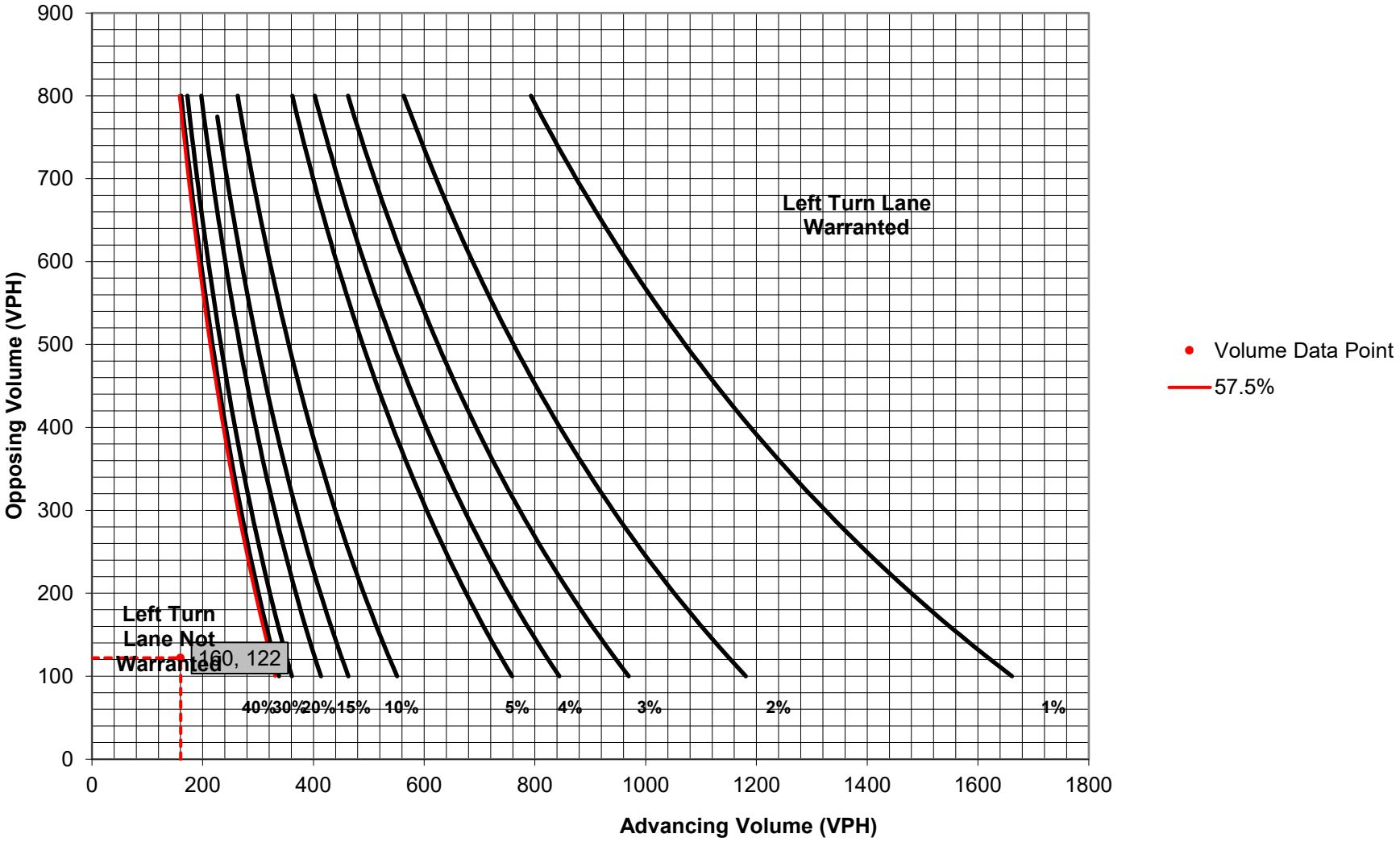
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: County Club Rd & Main Driveway / Southbound Left Turn

Analysis Period:	2037 Design Year (Build)	**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	22	2.0%	23
	Through	-	0	0.0%	0
	Right	Yes	16	2.0%	17
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:	23
% Left Turns in Advancing Volume:	57.50%

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:	23
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

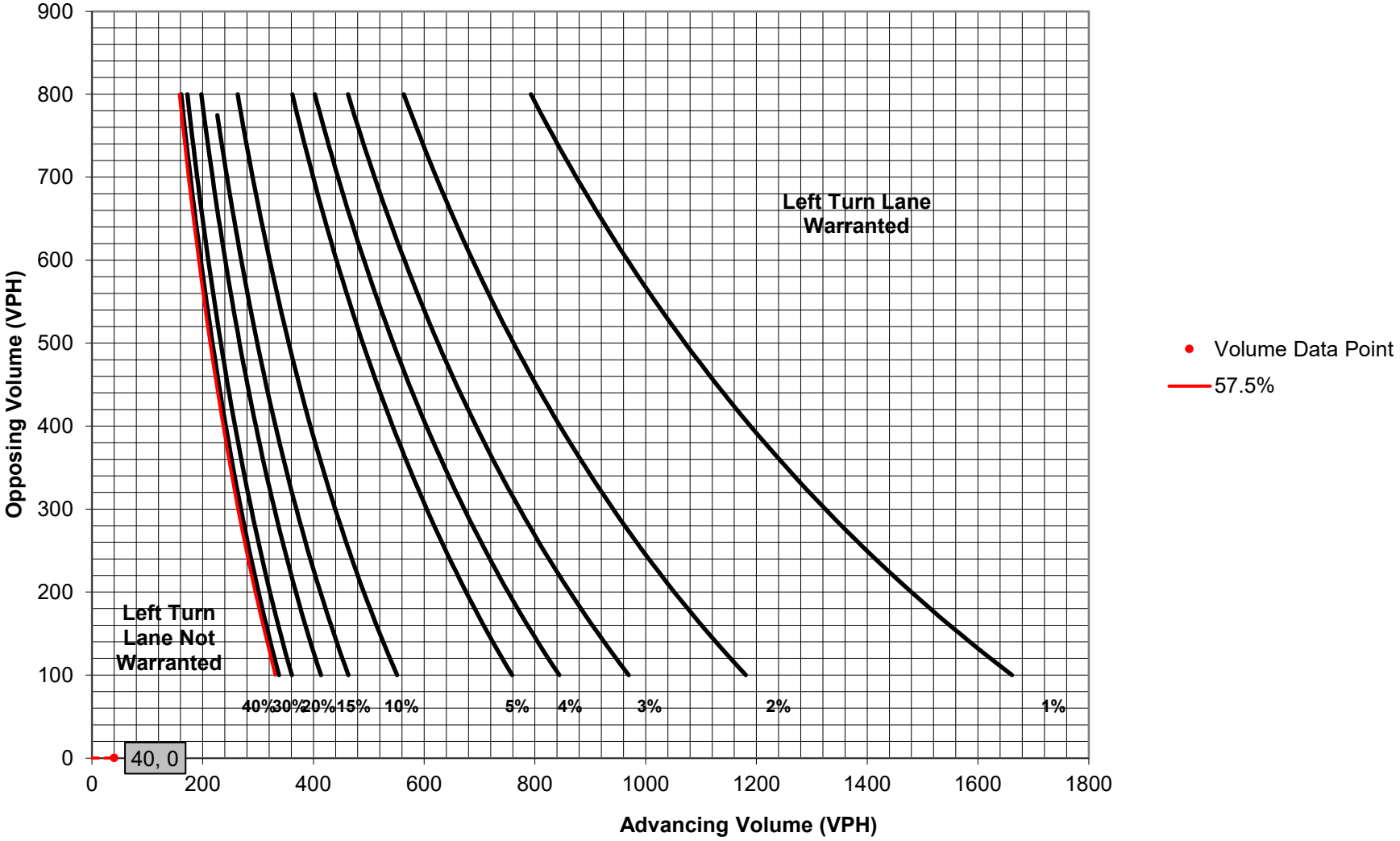
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: County Club Rd & Main Driveway / Southbound Right Turn

Analysis Period:	2037 Design Year (Build)	**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	22	2.0%	23
	Through	-	0	0.0%	0
	Right	-	16	2.0%	17

Advancing Volume:	40
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

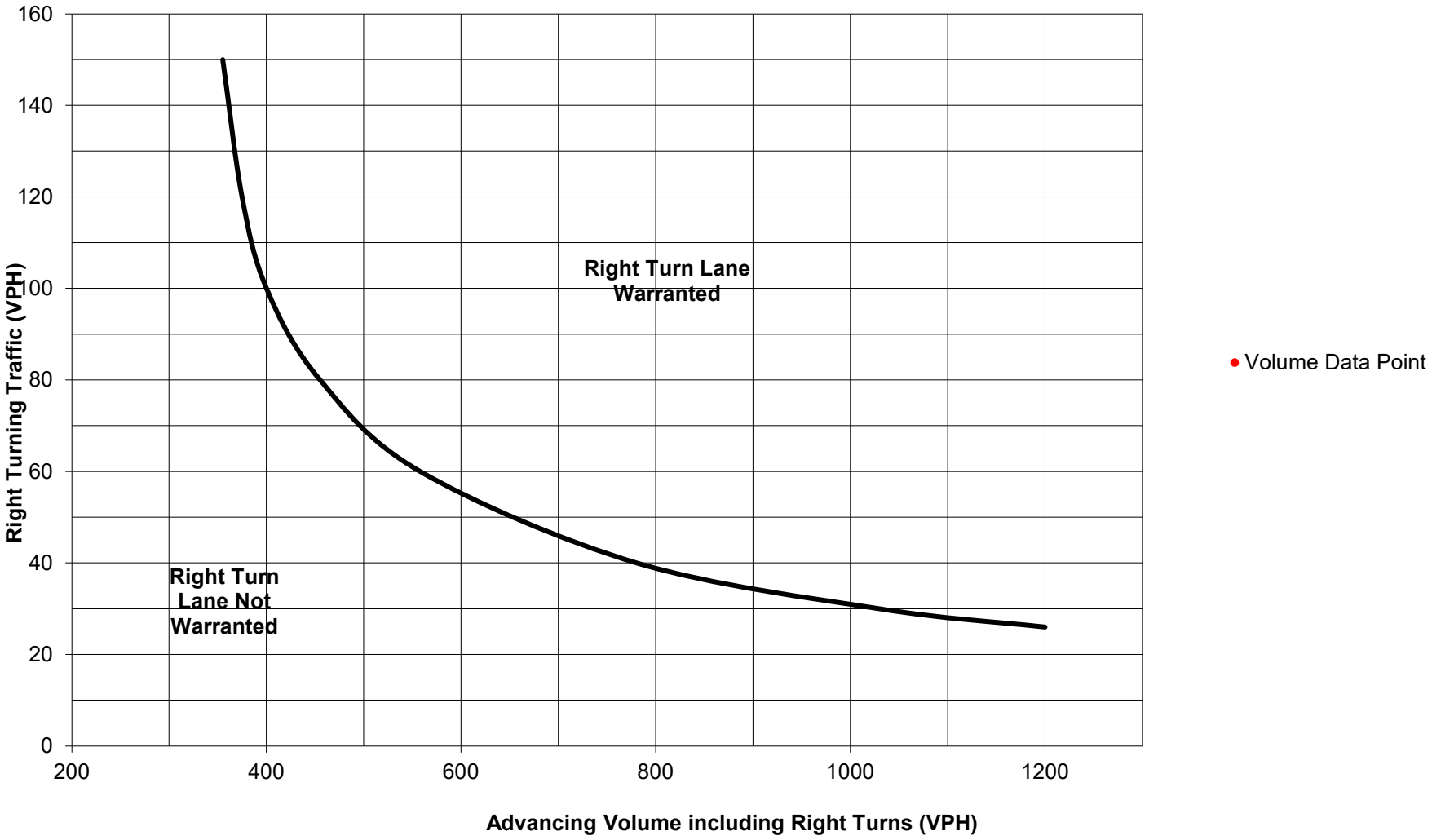
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: County Club Rd & Main Driveway / Westbound Right Turn

Analysis Period:	2037 Design Year (Build)	**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	-	11	25.0%	16
	Right	-	102	2.0%	106

Advancing Volume: 122
Right Turn Volume: 106

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:	106
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

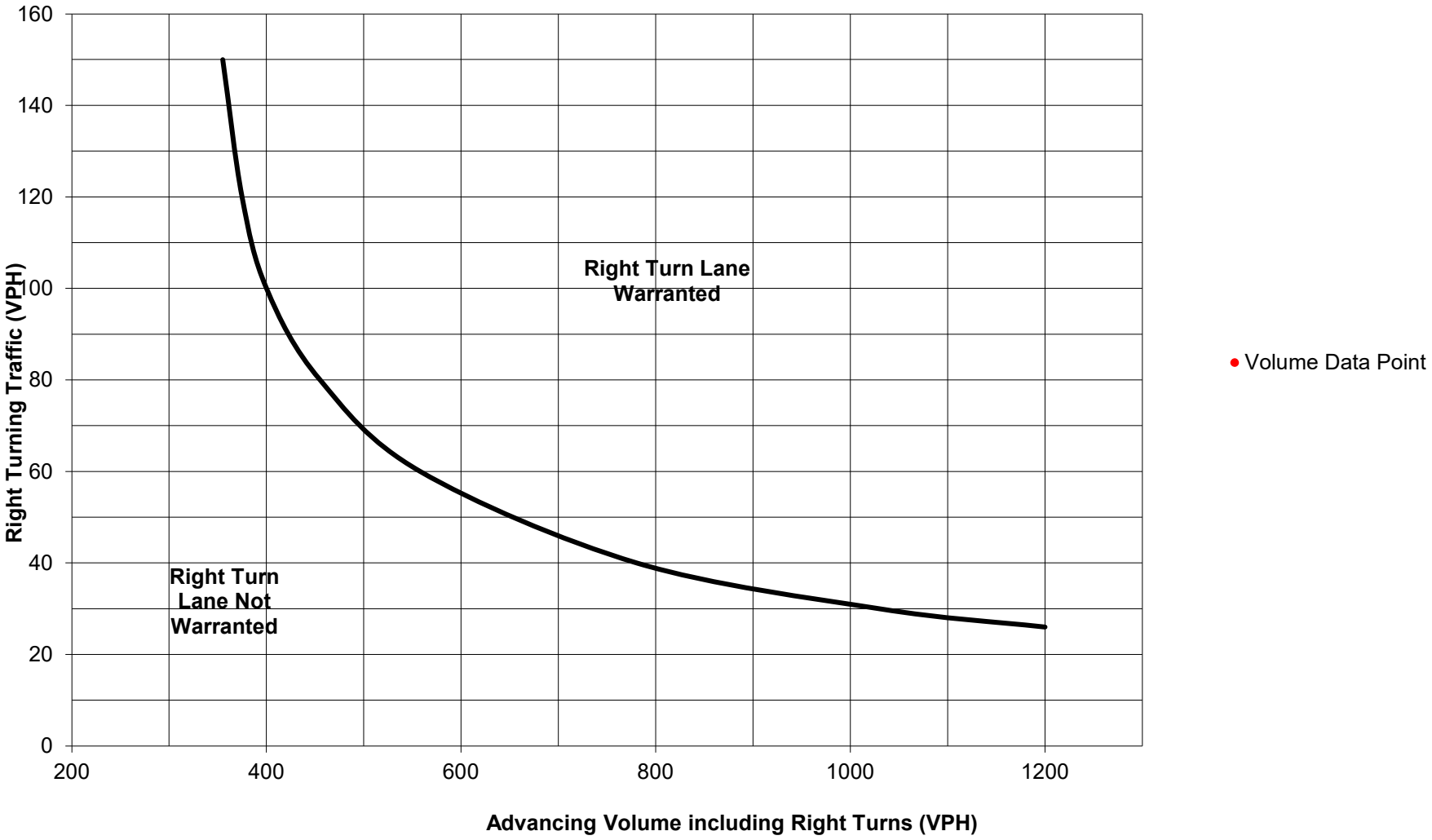
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: County Club Rd & Main Driveway / Eastbound Left Turn

Analysis Period:	2037 Design Year (Build)	**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	2.0%	12
	Through	-	52	11.0%	61
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	26	2.0%	27
	Right	Yes	12	2.0%	13

Advancing Volume:	73
Opposing Volume:	40
Left Turn Volume:	12
% Left Turns in Advancing Volume:	16.44%

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:	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

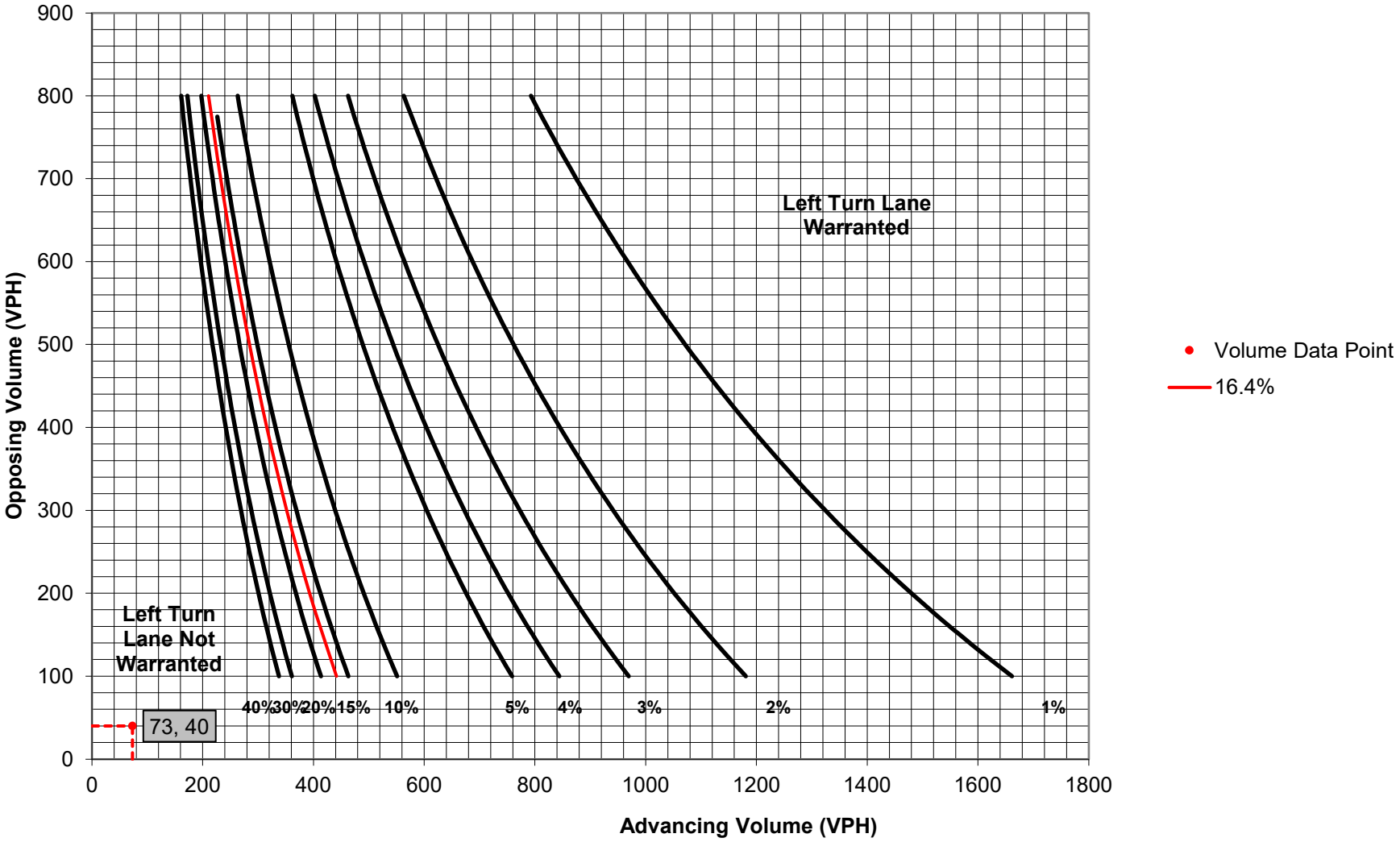
Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: County Club Rd & Main Driveway / Southbound Left Turn

Analysis Period:	2037 Design Year (Build)	**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	62	0.0%	62
	Through	-	0	0.0%	0
	Right	Yes	44	0.0%	44
Opposing	Left	No	0	2.0%	N/A
	Through	-	0	2.0%	0
	Right	No	0	0.0%	N/A

Advancing Volume:	106
Opposing Volume:	0
Left Turn Volume:	62
% Left Turns in Advancing Volume:	58.49%

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:	62
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

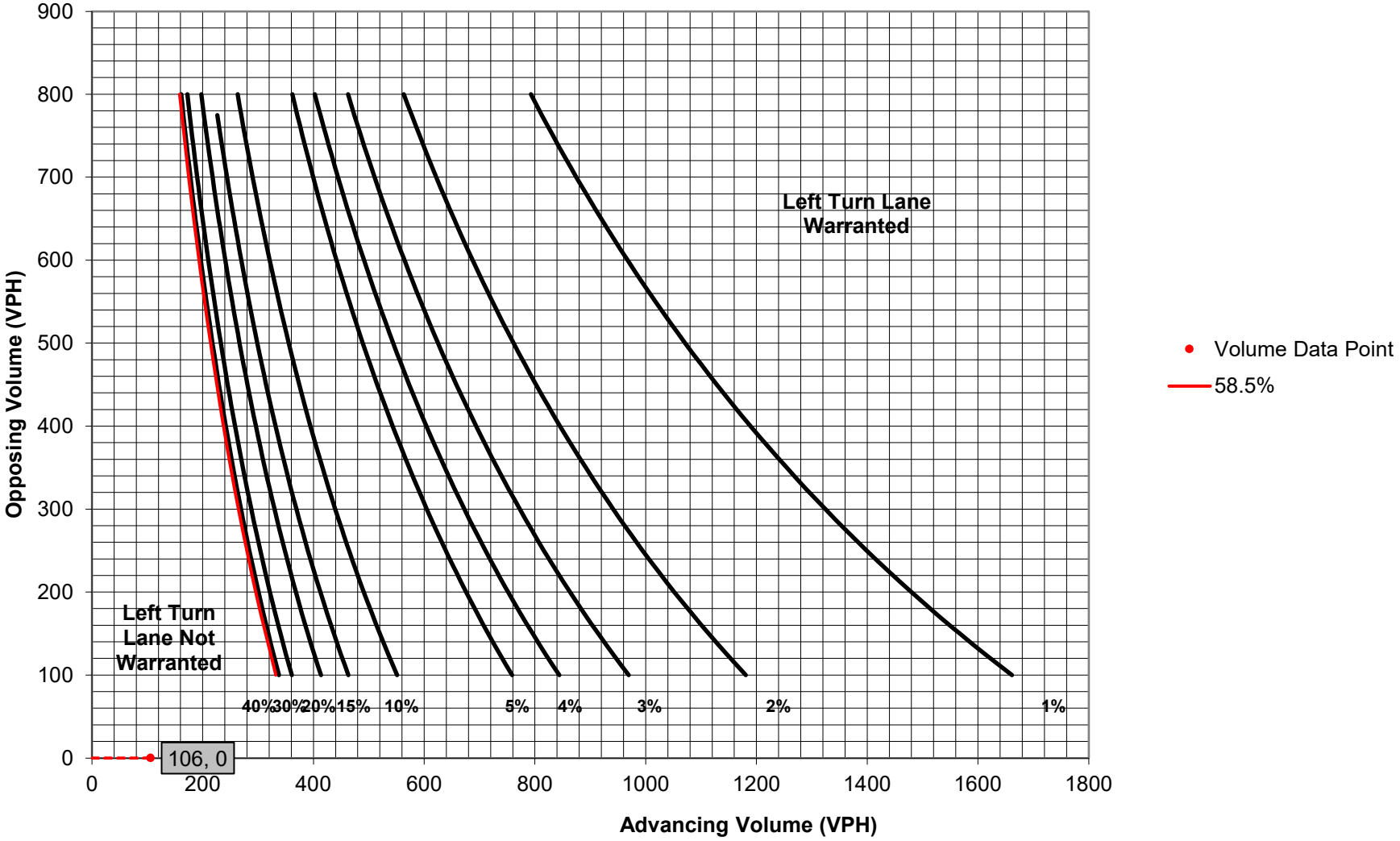
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township
County:	CUMBERLAND
PennDOT Engineering District:	District 8
Analysis Date:	2/7/2025
Conducted By:	JBS
Checked By:	0
Agency/Company Name:	LIVIC Civil, LLC
Intersection & Approach Description:	County Club Rd & Main Driveway Southbound Right Turn
Analysis Period:	2037 Design Year (Build)
Design Hour:	PM Peak Hour
Intersection Control:	Unsignalized
Posted Speed Limit (MPH):	15
Type of Terrain:	Rolling
Number of Approach Lanes:	1
Undivided or Divided Highway:	Undivided
Type of Analysis	
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	62	0.0%	62
	Through	-	0	0.0%	0
	Right	-	44	0.0%	44

Advancing Volume:	106
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

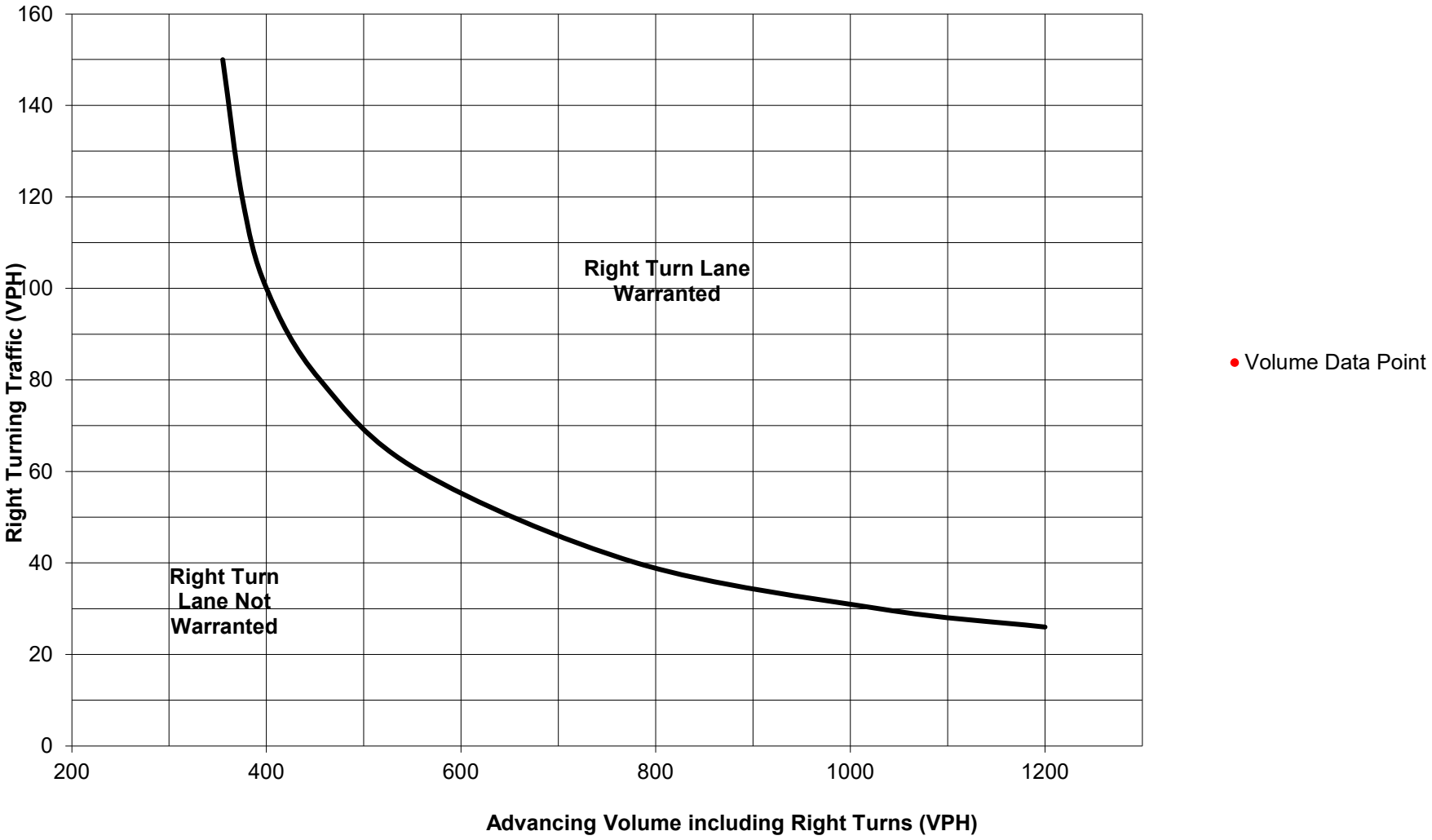
Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

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:	Middlesex Township
County:	CUMBERLAND
PennDOT Engineering District:	District 8
Analysis Date:	2/7/2025
Conducted By:	JBS
Checked By:	0
Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: County Club Rd & Main Driveway / Westbound Right Turn

Analysis Period:	2037 Design Year (Build)
Design Hour:	PM Peak Hour
Intersection Control:	Unsignalized
Posted Speed Limit (MPH):	35
Type of Terrain:	Rolling
Number of Approach Lanes:	1
Undivided or Divided Highway:	Undivided
Type of Analysis	
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	2.0%	27
	Right	-	12	2.0%	13

Advancing Volume:	40
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

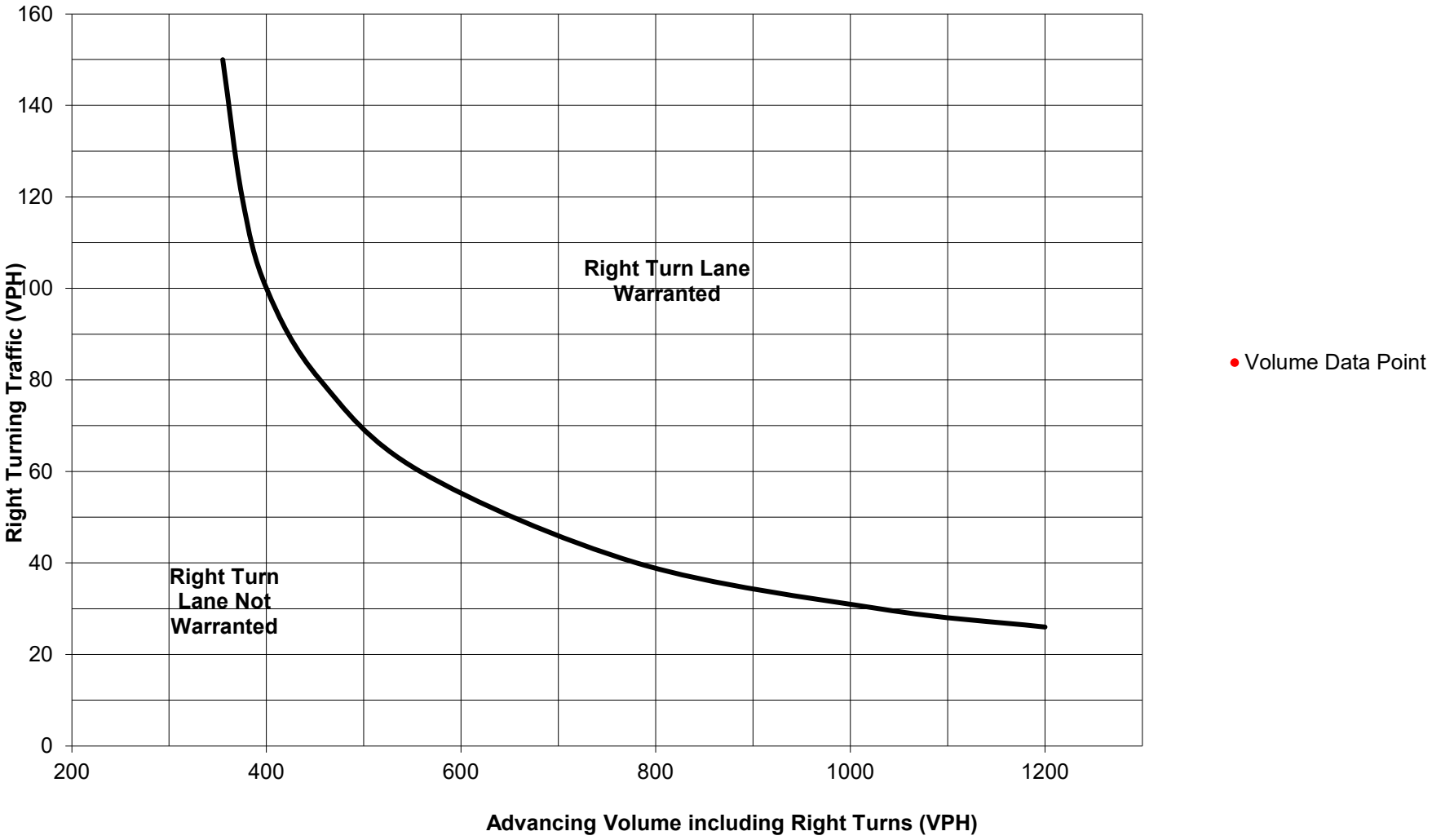
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: County Club Rd & Main Driveway / Eastbound Left Turn

Analysis Period:	2037 Design Year (Build)	**Number of Approach Lanes:**	1
Design Hour:	SAT 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	-	51	4.0%	55
	Right	No	0	2.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	12	2.0%	13
	Right	Yes	12	2.0%	13

Advancing Volume:	66
Opposing Volume:	26
Left Turn Volume:	11
% Left Turns in Advancing Volume:	16.67%

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:	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

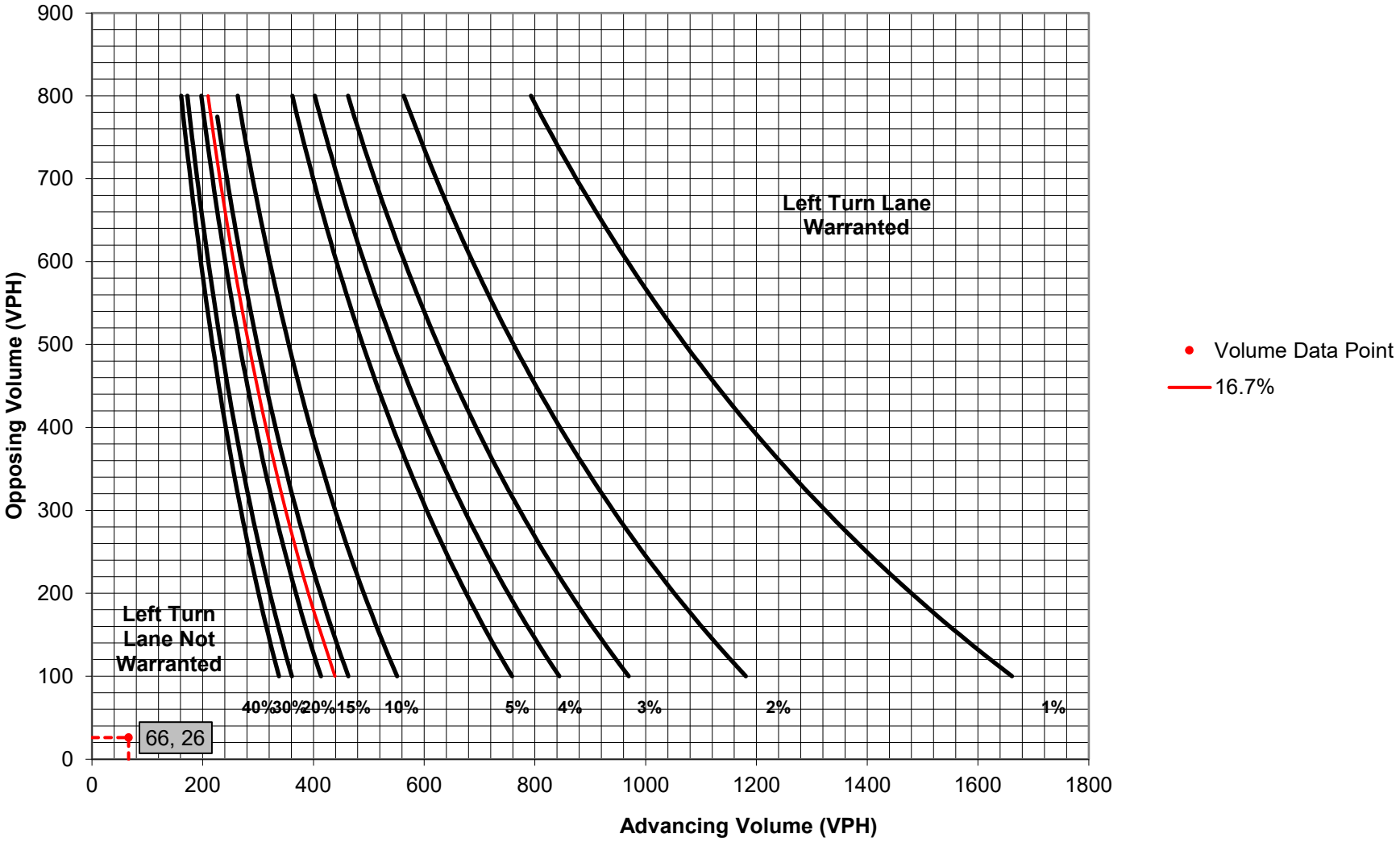
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: County Club Rd & Main Driveway / Southbound Left Turn

Analysis Period:	2037 Design Year (Build)	**Number of Approach Lanes:**	1
Design Hour:	SAT 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	62	0.0%	62
	Through	-	0	0.0%	0
	Right	Yes	44	0.0%	44
Opposing	Left	No	0	2.0%	N/A
	Through	-	0	2.0%	0
	Right	No	0	0.0%	N/A

Advancing Volume:	106
Opposing Volume:	0
Left Turn Volume:	62
% Left Turns in Advancing Volume:	58.49%

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:	62
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

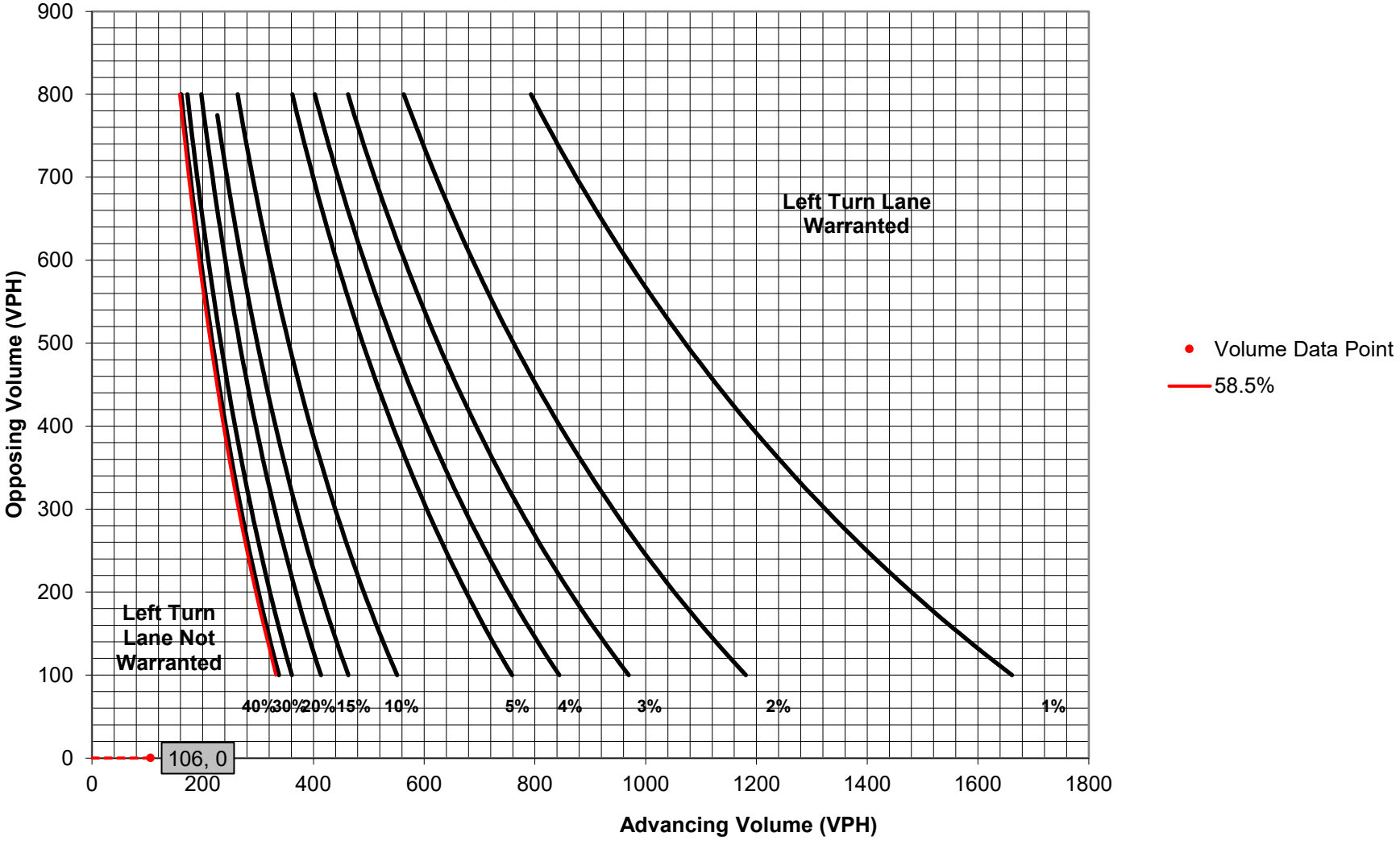
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: County Club Rd & Main Driveway / Southbound Right Turn

Analysis Period:	2037 Design Year (Build)	**Number of Approach Lanes:**	1
Design Hour:	SAT 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	62	0.0%	62
	Through	-	0	0.0%	0
	Right	-	44	0.0%	44

Advancing Volume:	106
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

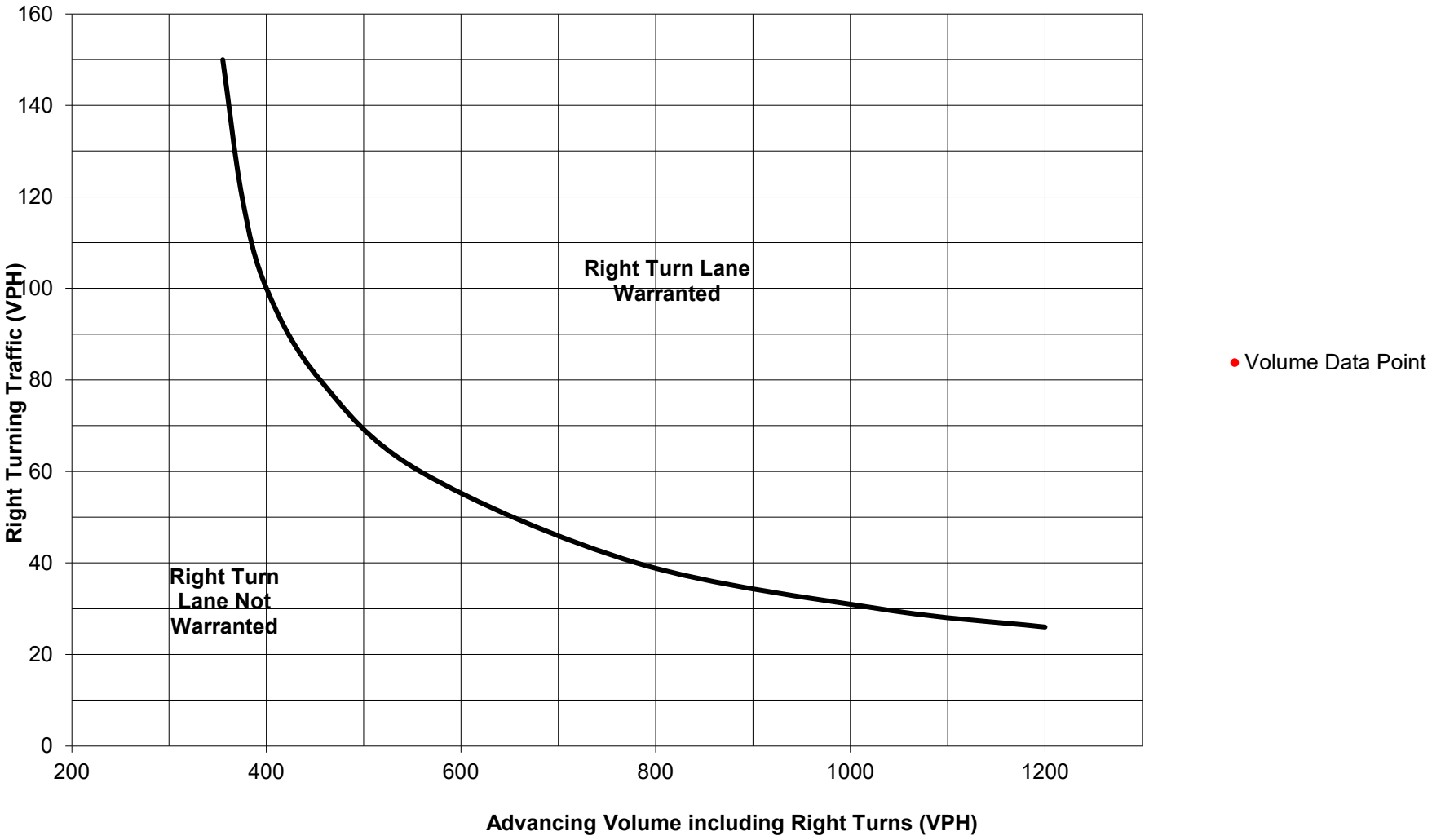
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: County Club Rd & Main Driveway / Westbound Right Turn

Analysis Period:	2037 Design Year (Build)	**Number of Approach Lanes:**	1
Design Hour:	SAT 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	-	12	2.0%	13
	Right	-	12	2.0%	13

Advancing Volume: 26
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

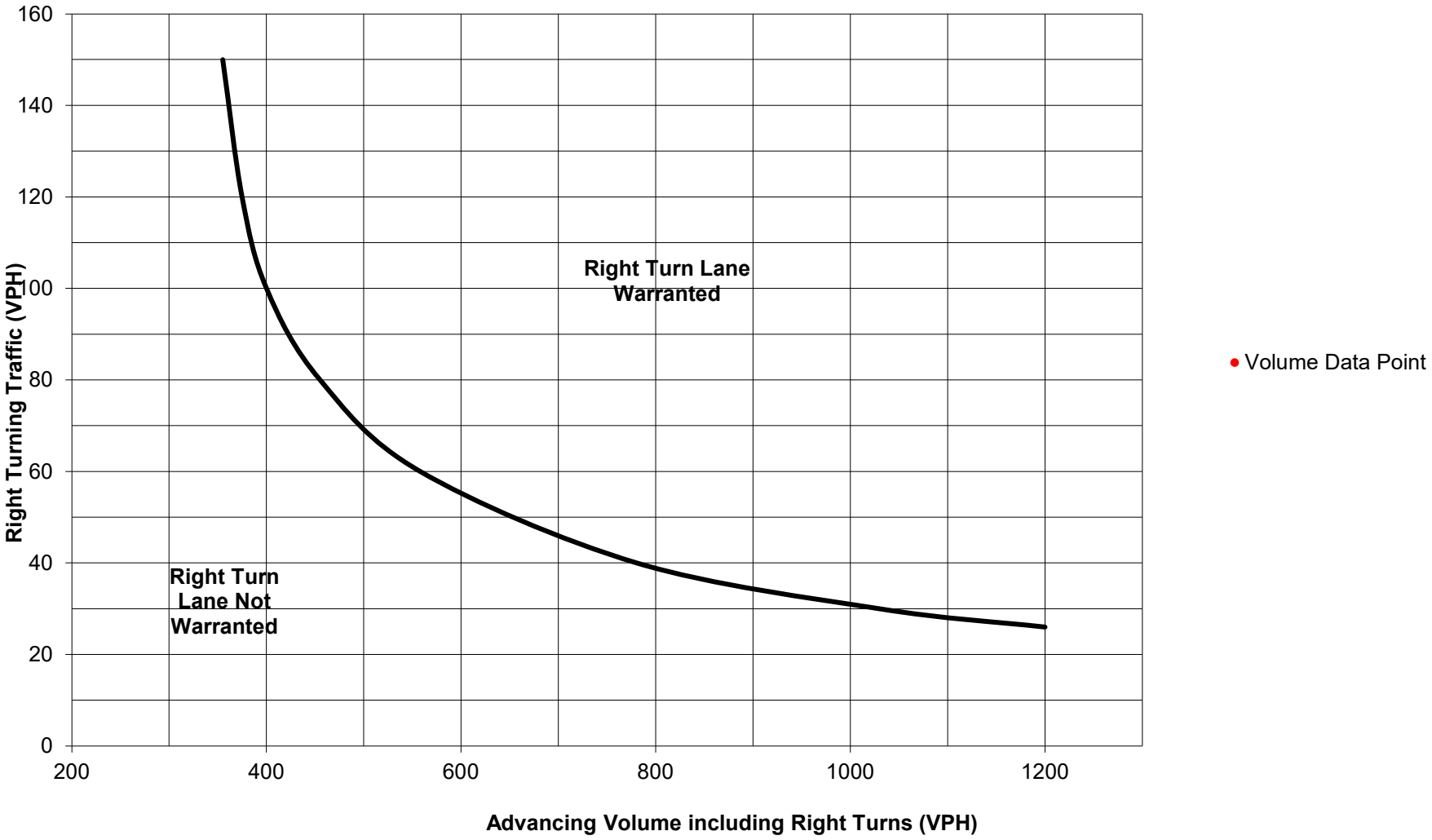
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: County Club Rd & Eastern Driveway / Eastbound Left Turn

Analysis Period:	2037 Design Year (Build)	**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	2.0%	3
	Through	-	77	12.0%	91
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	111	25.0%	153
	Right	Yes	41	2.0%	43

Advancing Volume:	94
Opposing Volume:	196
Left Turn Volume:	3
% Left Turns in Advancing Volume:	3.19%

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?: 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

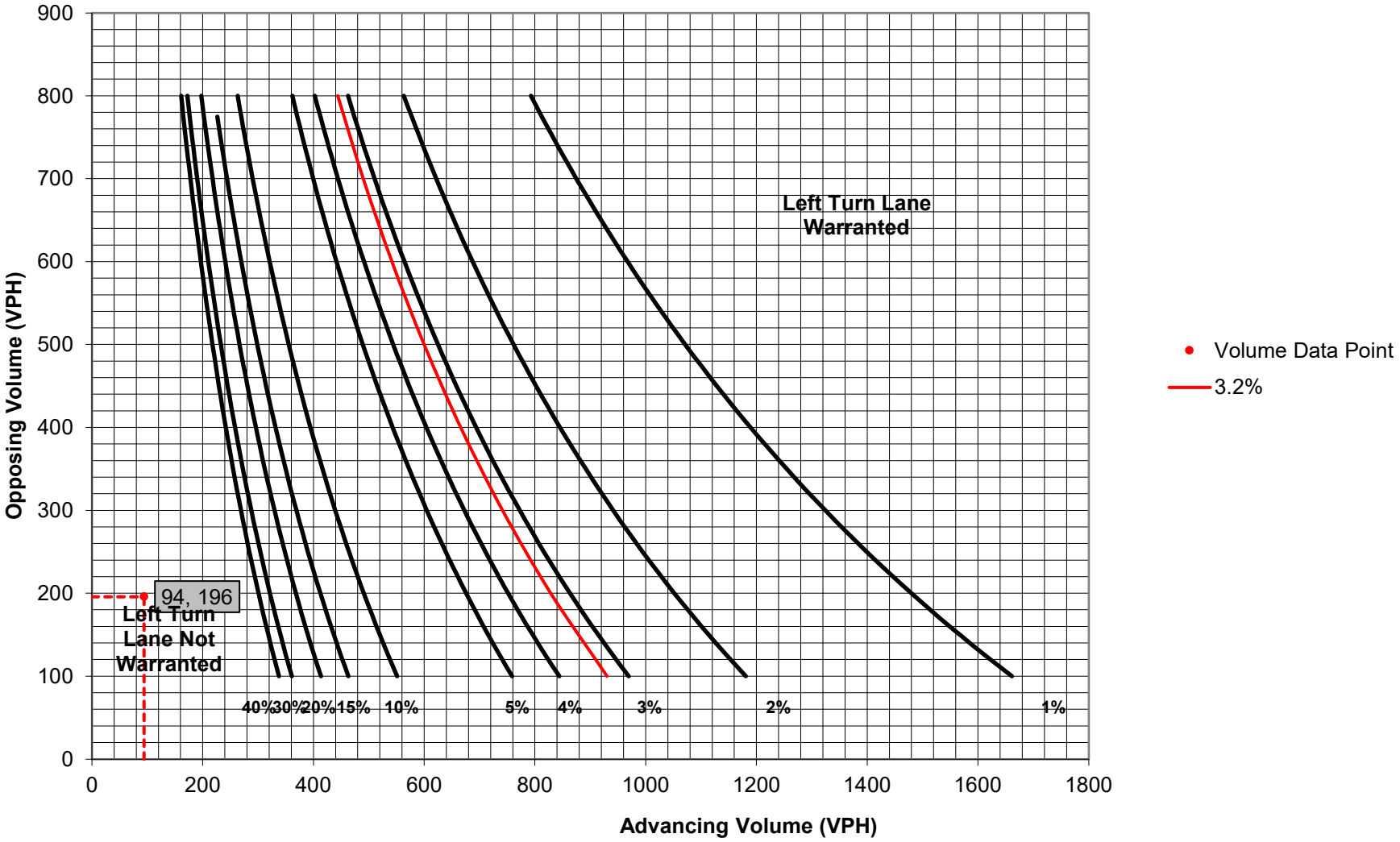
Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: County Club Rd & Eastern Driveway / Southbound Left Turn

Analysis Period:	2037 Design Year (Build)	**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	16	2.0%	17
	Through	-	0	0.0%	0
	Right	Yes	2	2.0%	3
Opposing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	0
	Right	No	0	0.0%	N/A

Advancing Volume:	20
Opposing Volume:	0
Left Turn Volume:	17
% Left Turns in Advancing Volume:	85.00%

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

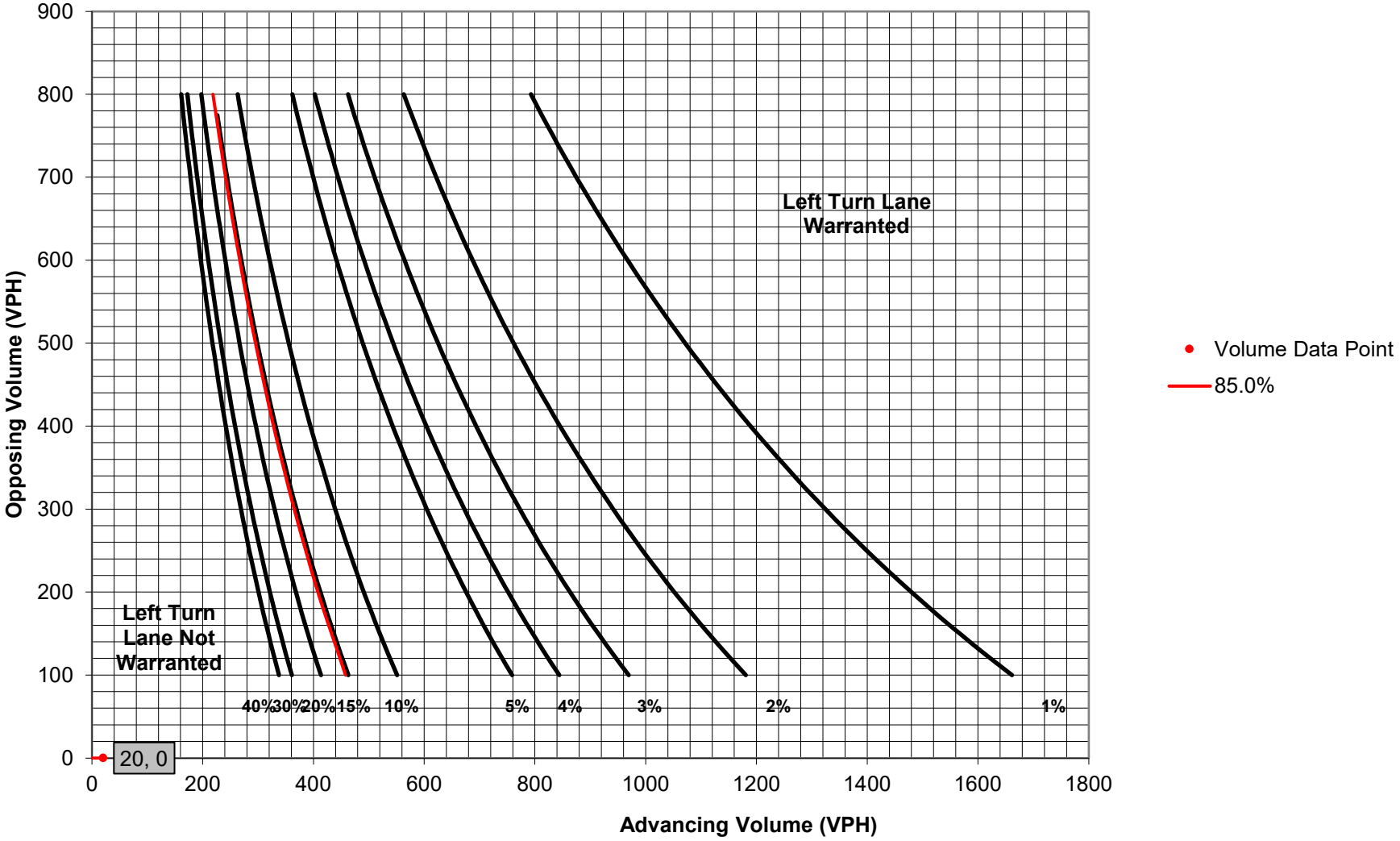
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: County Club Rd & Eastern Driveway / Southbound Right Turn

Analysis Period:	2037 Design Year (Build)	**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	16	2.0%	17
	Through	-	0	0.0%	0
	Right	-	2	2.0%	3

Advancing Volume:	20
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

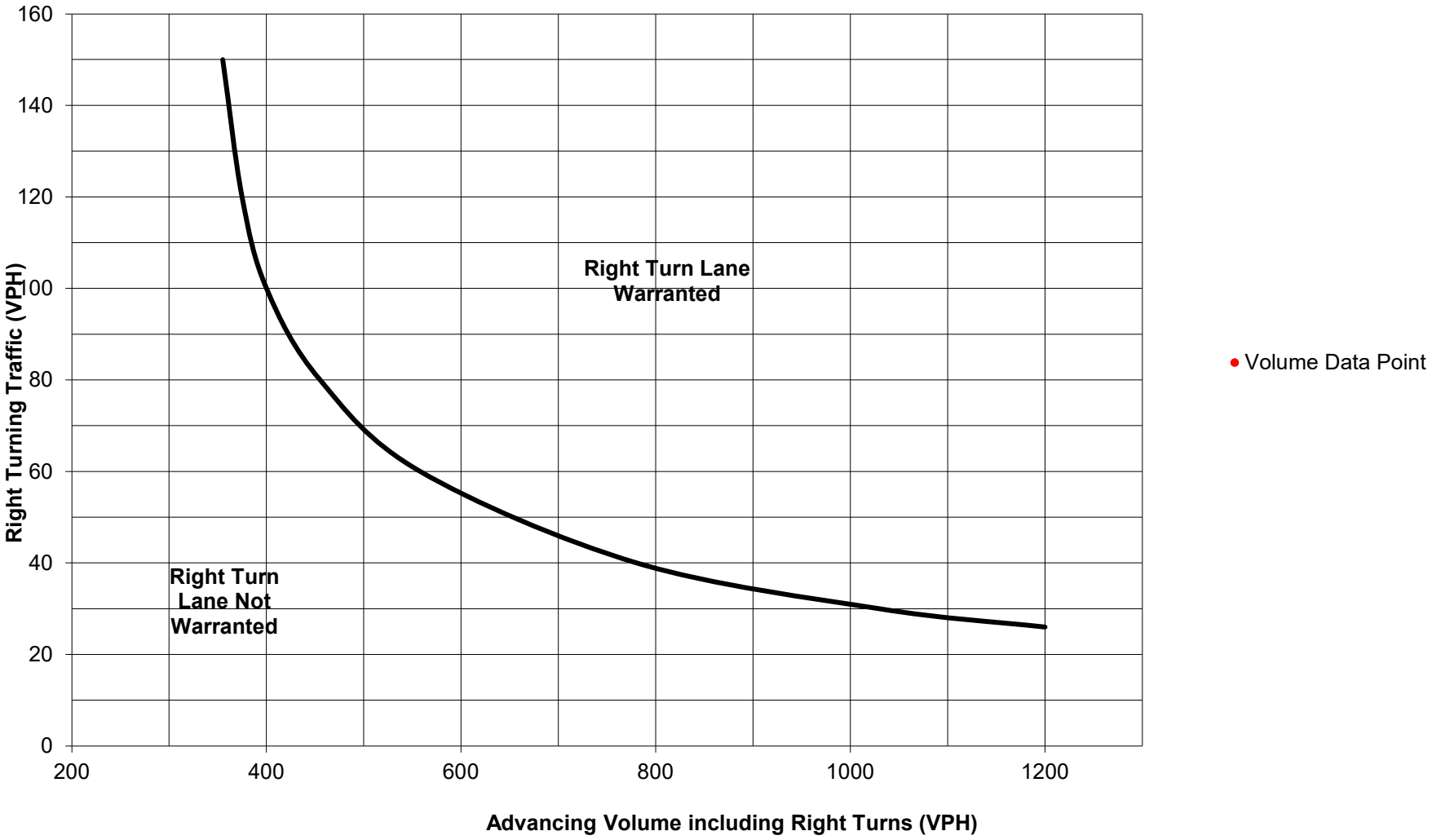
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: County Club Rd & Eastern Driveway
Westbound Right Turn

Analysis Period:	2037 Design Year (Build)	**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	-	111	25.0%	153
	Right	-	41	2.0%	43

Advancing Volume: 196
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

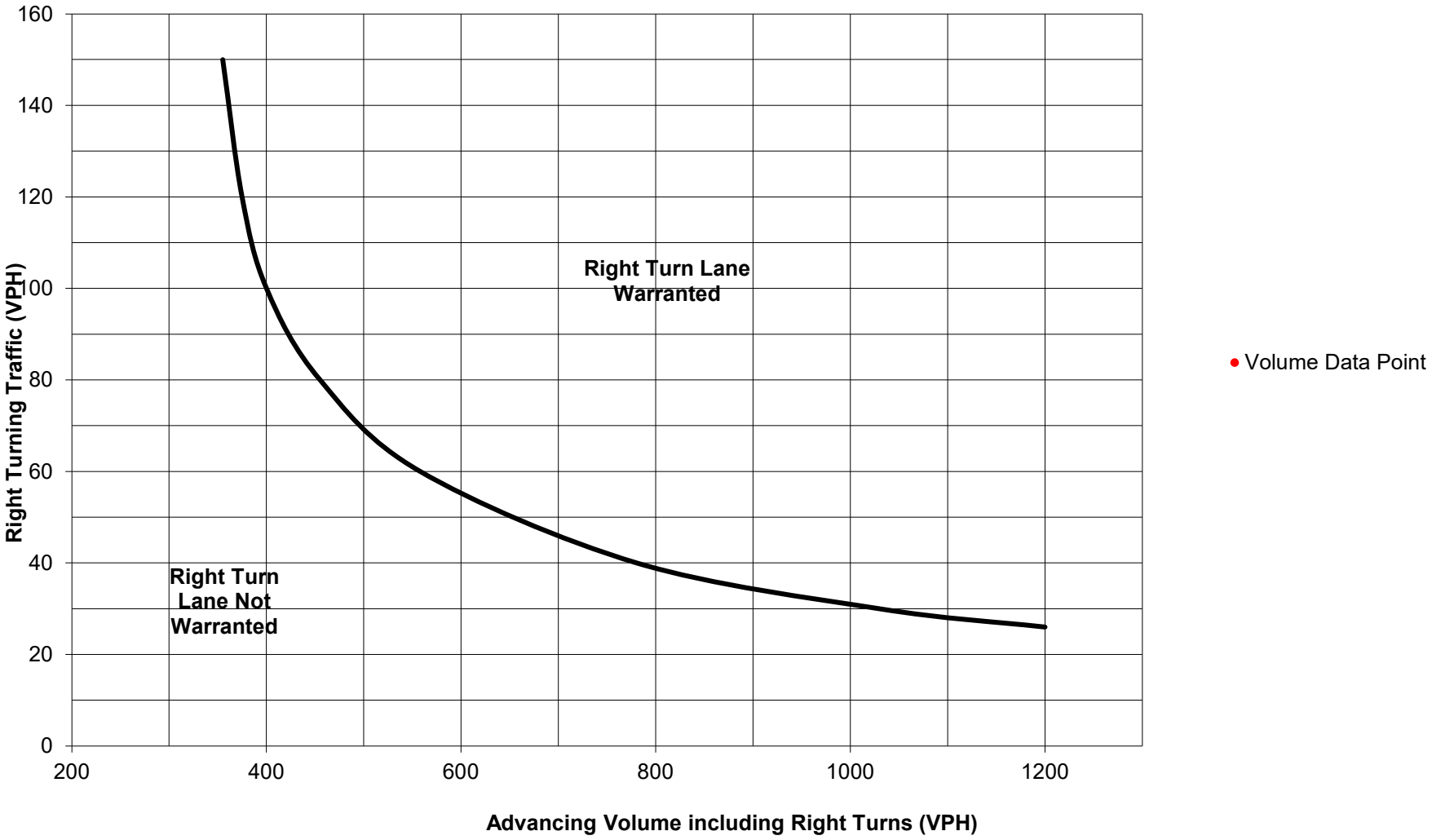
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: County Club Rd & Eastern Driveway / Eastbound Left Turn

Analysis Period:	2037 Design Year (Build)	**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	2	2.0%	3
	Through	-	112	11.0%	131
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	36	2.0%	38
	Right	Yes	8	2.0%	9

Advancing Volume:	134
Opposing Volume:	47
Left Turn Volume:	3
% Left Turns in Advancing Volume:	2.24%

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 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

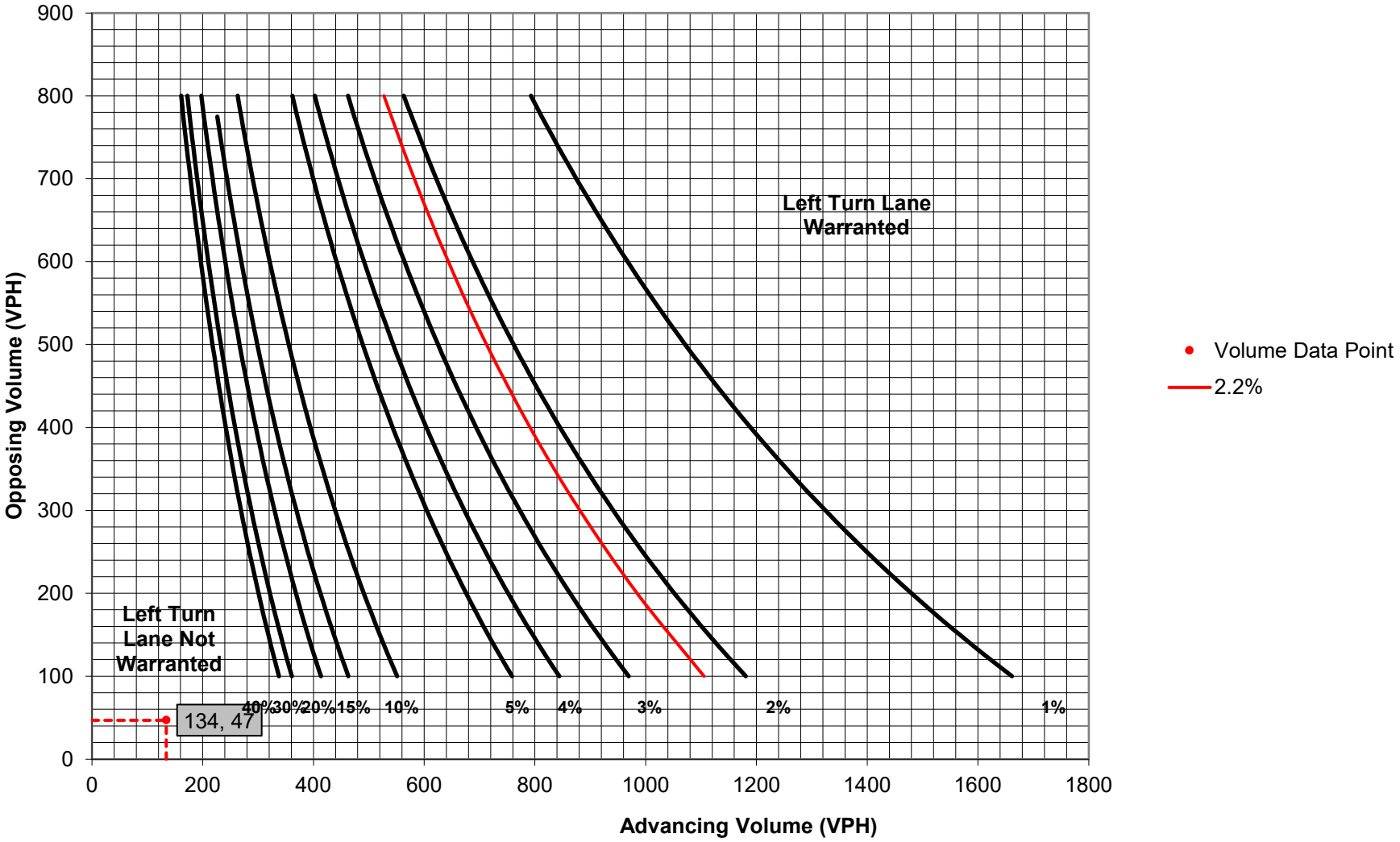
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: County Club Rd & Eastern Driveway / Southbound Left Turn

Analysis Period:	2037 Design Year (Build)	**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	38	2.0%	40
	Through	-	0	0.0%	0
	Right	Yes	2	2.0%	3
Opposing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	0
	Right	No	0	0.0%	N/A

Advancing Volume:	43
Opposing Volume:	0
Left Turn Volume:	40
% Left Turns in Advancing Volume:	93.02%

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?: #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:	40
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

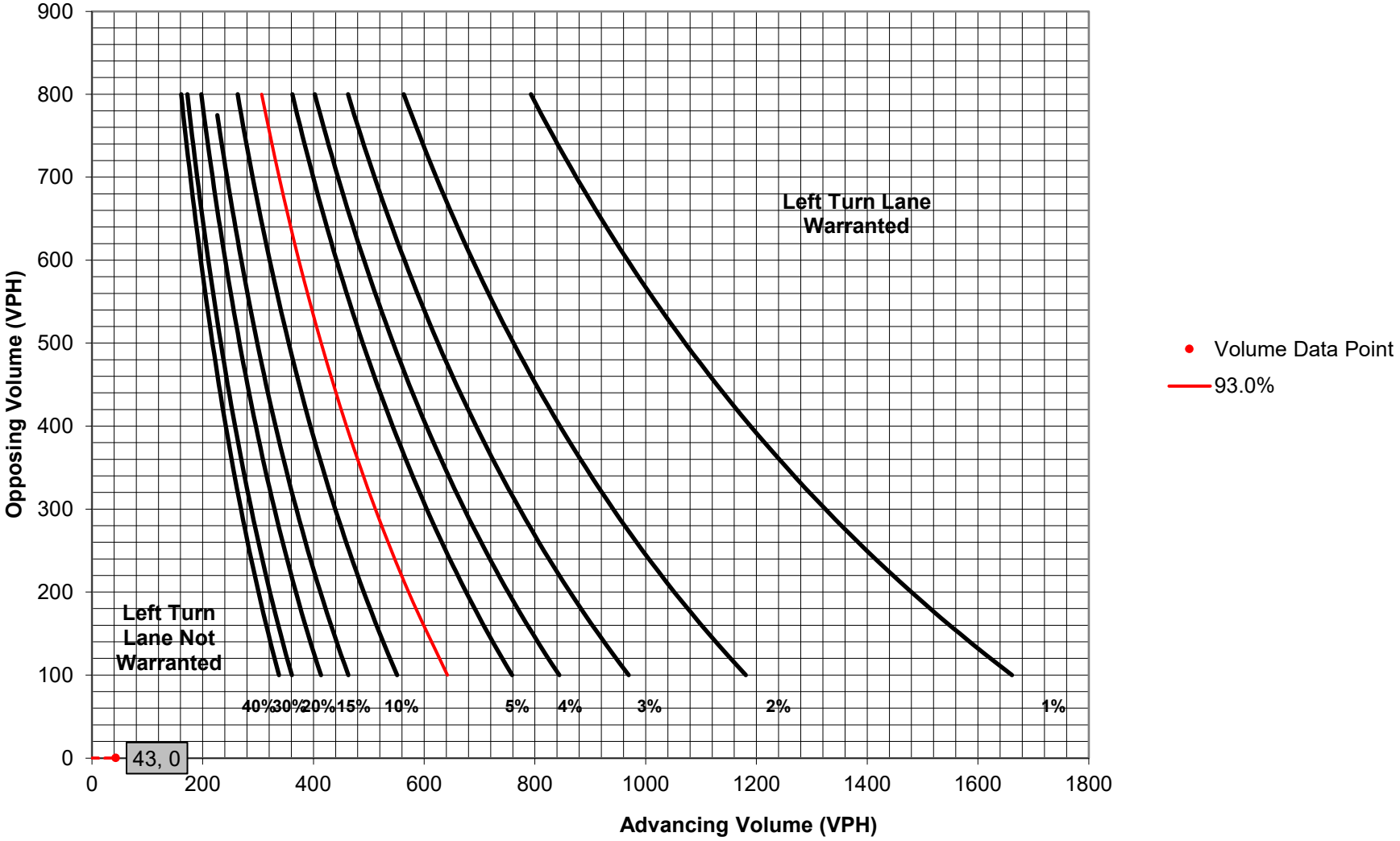
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: County Club Rd & Eastern Driveway / Southbound Right Turn

Analysis Period:	2037 Design Year (Build)	**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	38	2.0%	40
	Through	-	0	0.0%	0
	Right	-	2	2.0%	3

Advancing Volume:	43
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

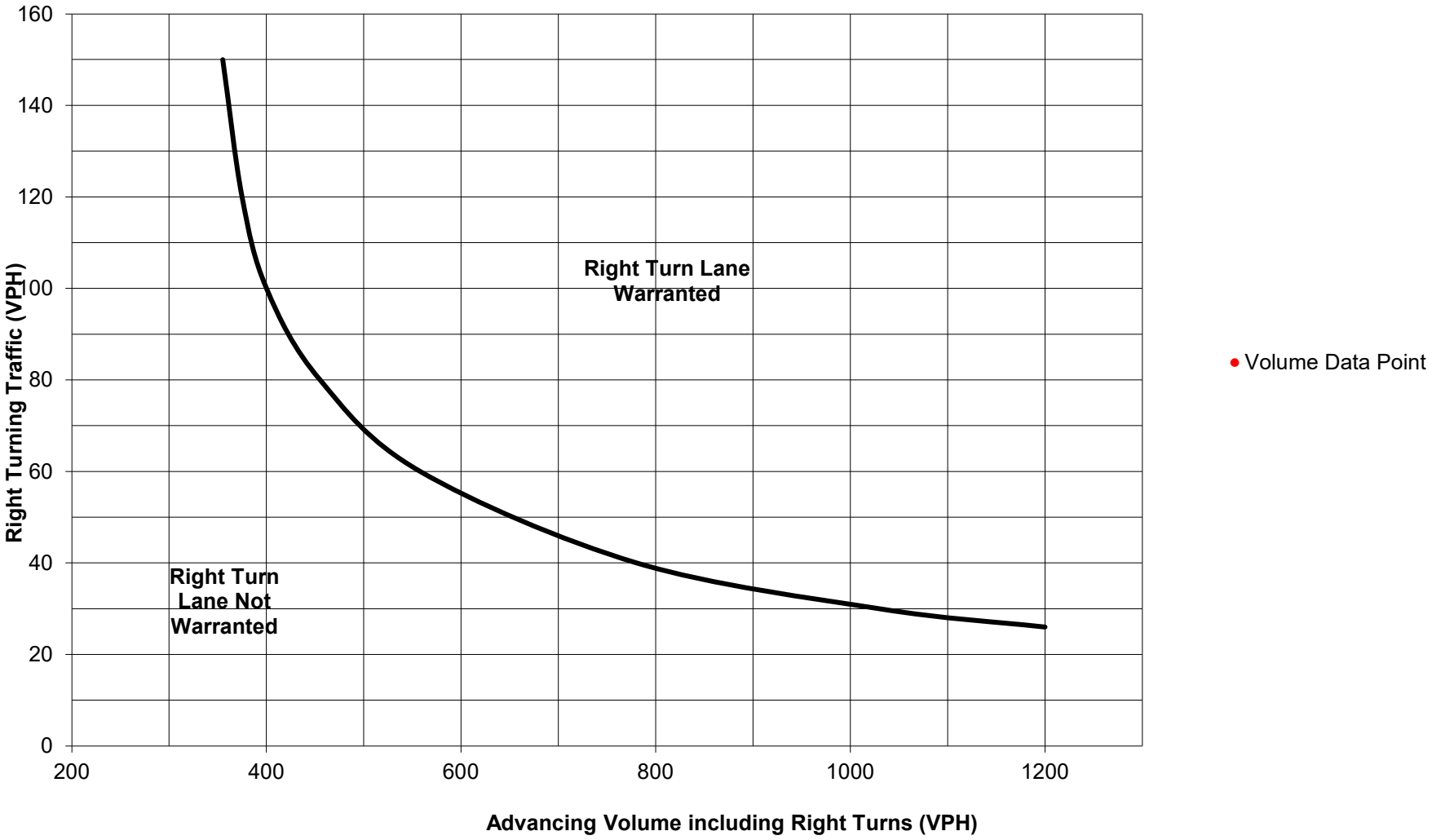
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: County Club Rd & Eastern Driveway / Westbound Right Turn

Analysis Period:	2037 Design Year (Build)	**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	-	36	2.0%	38
	Right	-	8	2.0%	9

Advancing Volume:	47
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

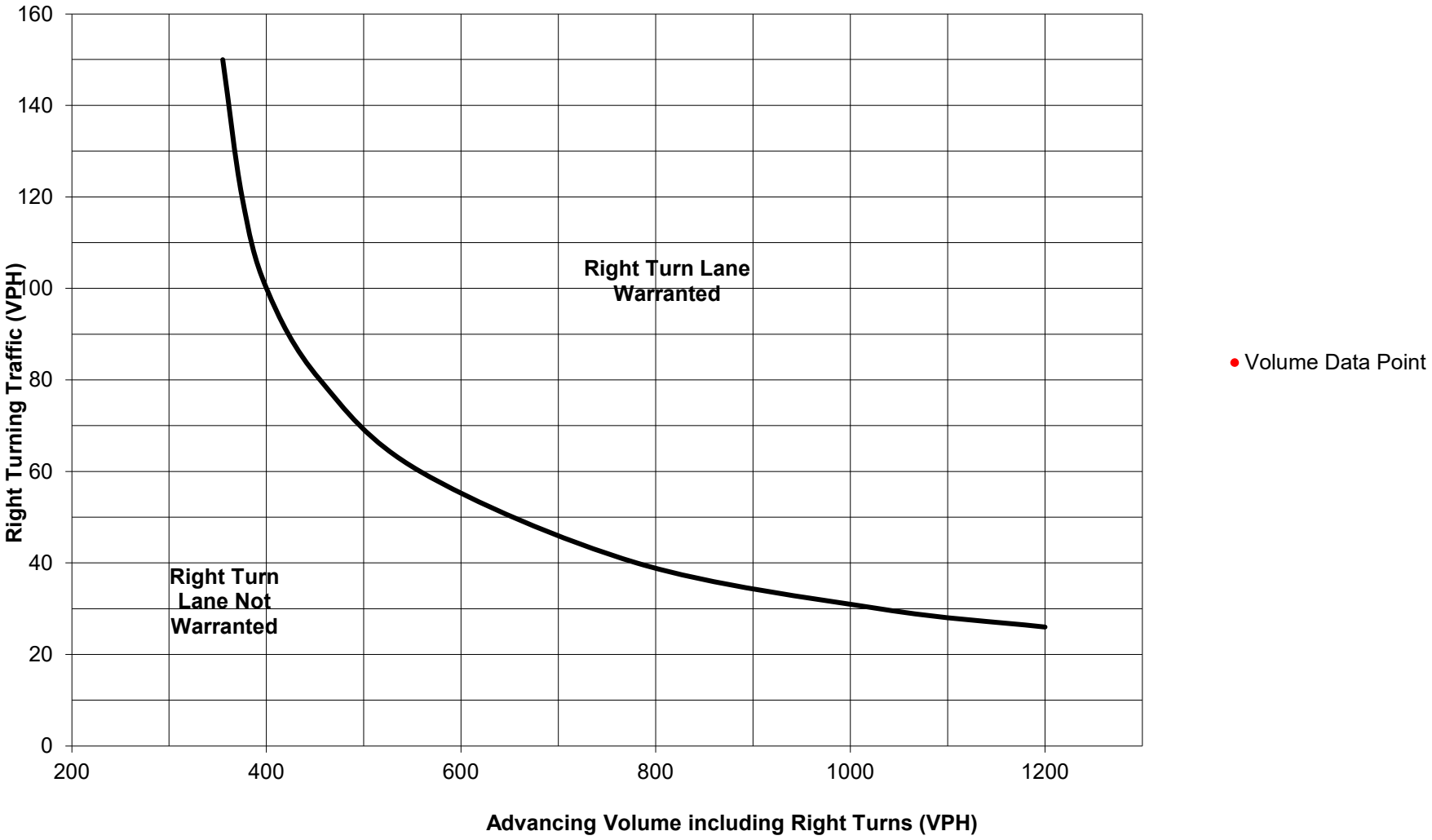
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: County Club Rd & Eastern Driveway / Eastbound Left Turn

Analysis Period:	2037 Design Year (Build)	**Number of Approach Lanes:**	1
Design Hour:	SAT 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	2.0%	3
	Through	-	111	4.0%	118
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	22	2.0%	23
	Right	Yes	8	2.0%	9

Advancing Volume:	121
Opposing Volume:	32
Left Turn Volume:	3
% Left Turns in Advancing Volume:	2.48%

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:	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

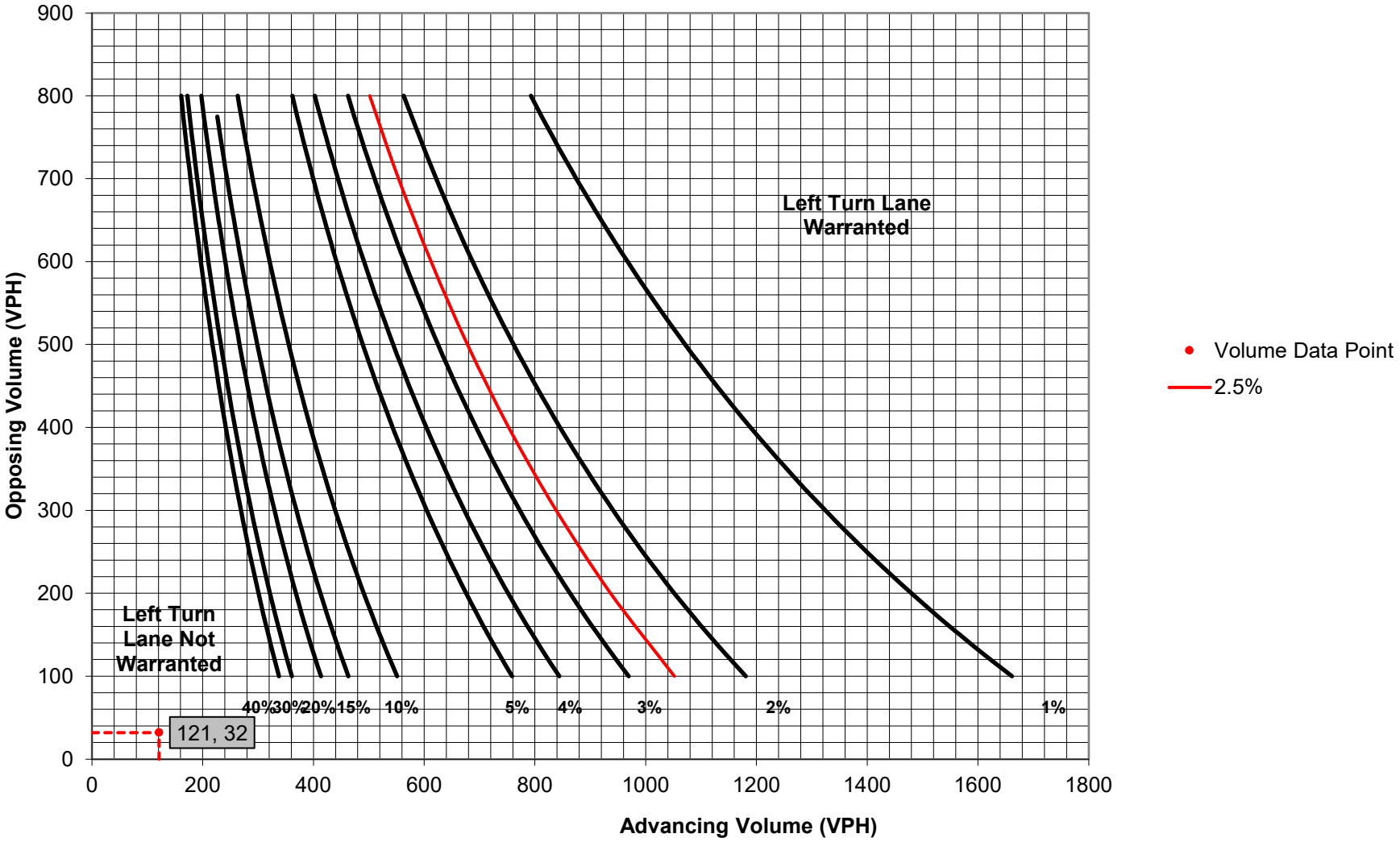
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: County Club Rd & Eastern Driveway / Southbound Left Turn

Analysis Period:	2037 Design Year (Build)	**Number of Approach Lanes:**	1
Design Hour:	SAT 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	38	2.0%	40
	Through	-	0	0.0%	0
	Right	Yes	2	2.0%	3
Opposing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	0
	Right	No	0	0.0%	N/A

Advancing Volume: 43
Opposing Volume: 0
Left Turn Volume: 40
% Left Turns in Advancing Volume: 93.02%

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?: #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: 40
Cycles Per Hour (Assumed): 60
Cycles Per Hour (If Known):

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

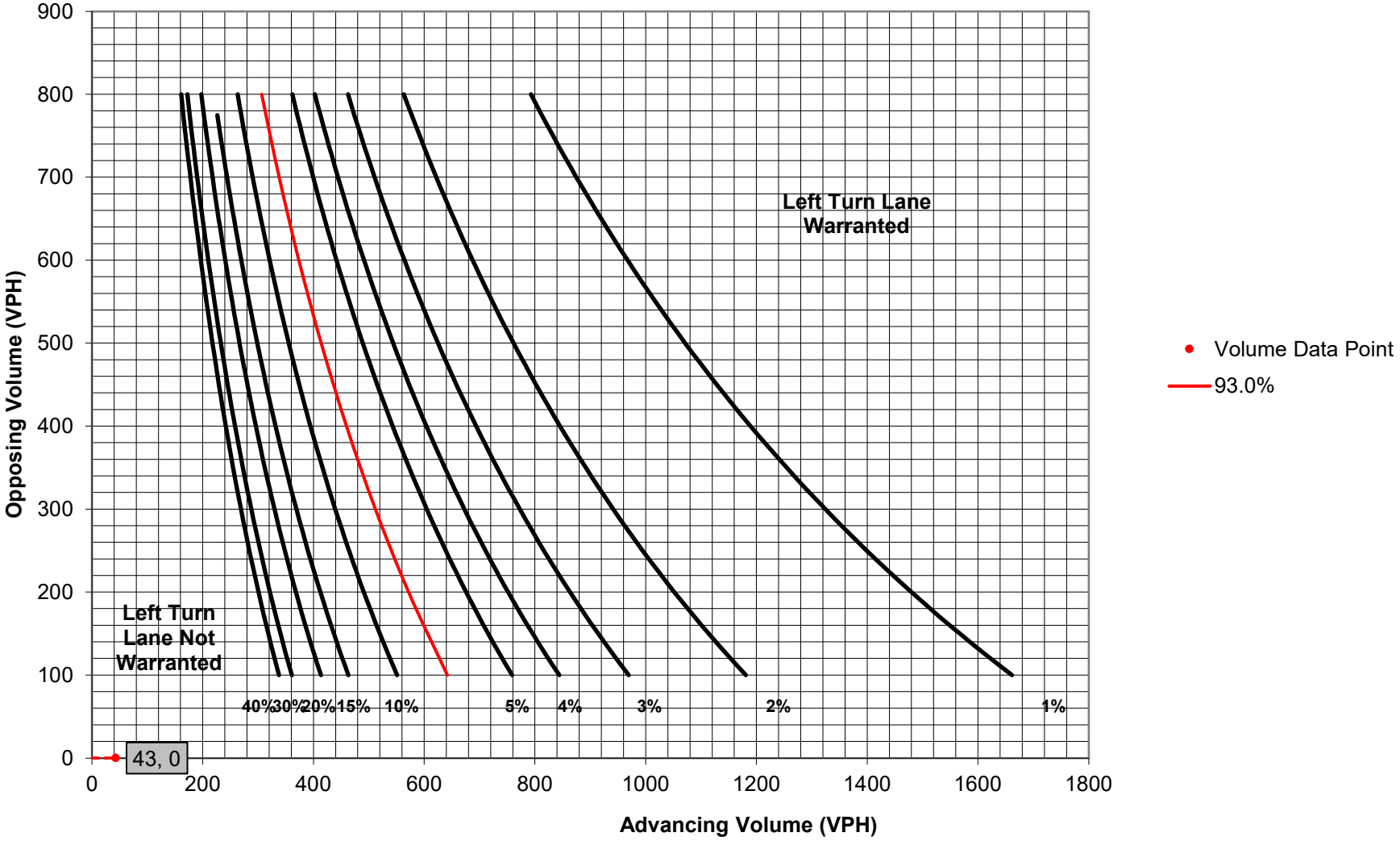
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: County Club Rd & Eastern Driveway / Southbound Right Turn

Analysis Period:	2037 Design Year (Build)	**Number of Approach Lanes:**	1
Design Hour:	SAT 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	38	2.0%	40
	Through	-	0	0.0%	0
	Right	-	2	2.0%	3

Advancing Volume:	43
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

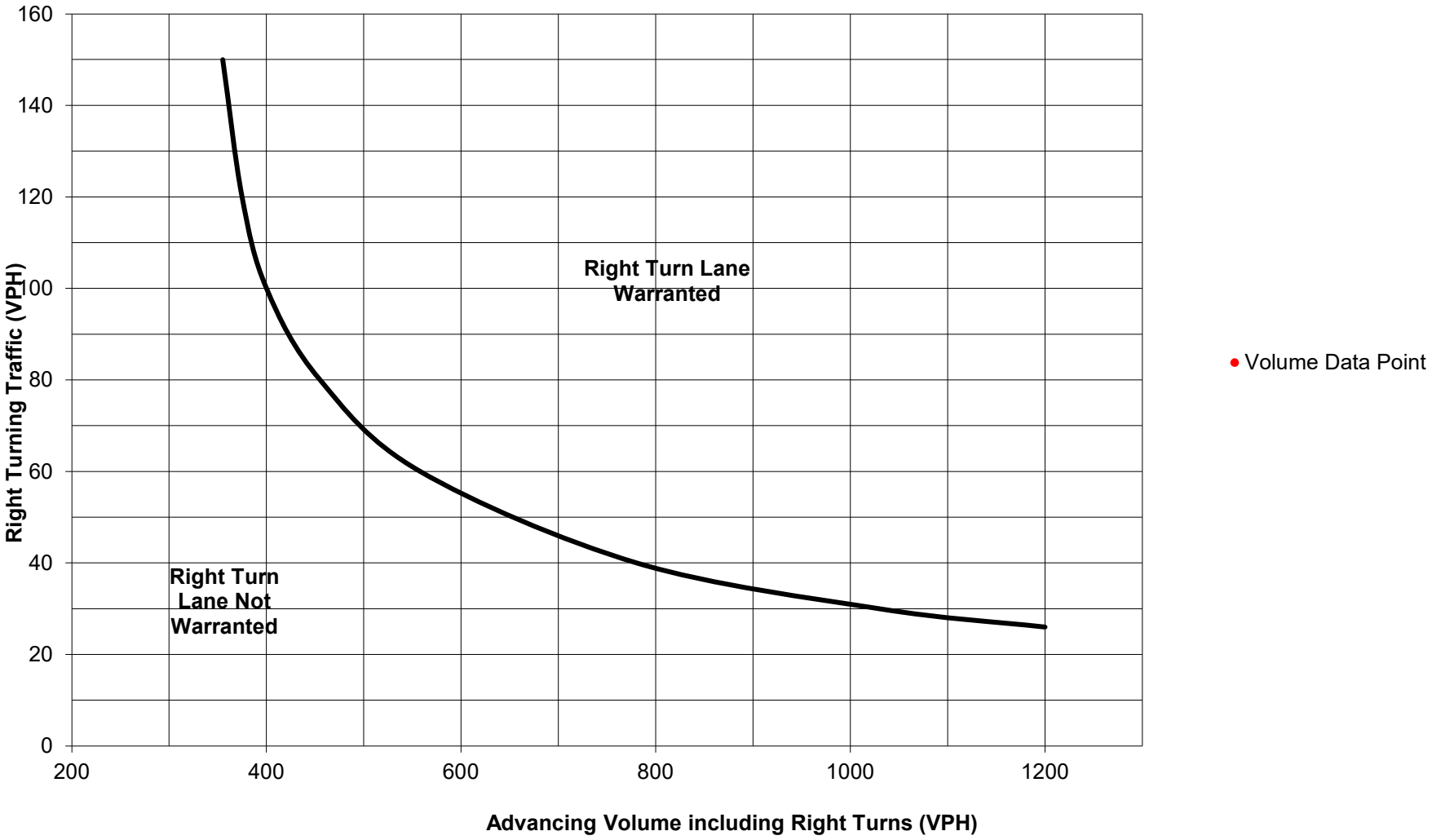
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Middlesex Township	**Analysis Date:**	2/7/2025
County:	CUMBERLAND	**Conducted By:**	JBS
PennDOT Engineering District:	District 8	**Checked By:**	0
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: County Club Rd & Eastern Driveway / Westbound Right Turn

Analysis Period:	2037 Design Year (Build)	**Number of Approach Lanes:**	1
Design Hour:	SAT 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	2.0%	23
	Right	-	8	2.0%	9

Advancing Volume:	32
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

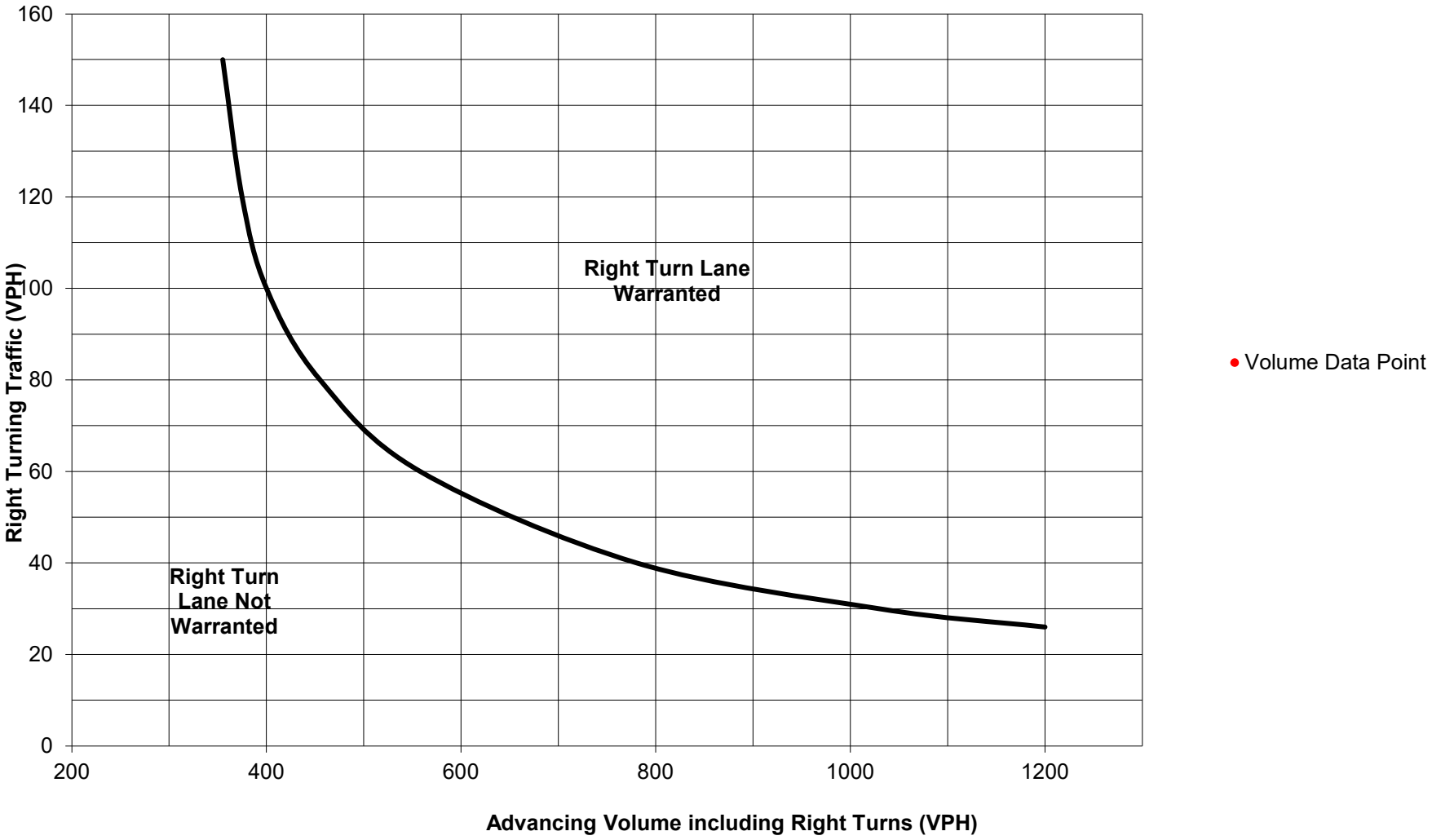
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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)



Appendix P - Traffic Signal Permit Plans

SYSTEM COORDINATION PROGRAM
MIDDLESEX

PLAN NO.	M	T	W	T	F	S	S	TIME	CYCLE	OFFSET	SPLIT	REMARKS
1	X	X	X	X	X	X	X	6:00	2	1	1	
2	X	X	X	X	X	X	X	9:00	1	1	1	
3	x	x	x	x	x	x	x	15:00	2	1	1	
4	x	x	x	x	x	x	x	20:00				Free

Existing Coord

	CYCLE NO	1								
	CYCLE LENGTH	110	PHASE - SPLIT TIMES							
INTERSECTION		OFFSET	1	2	3	4	5	6	7	8
Pilot & SR11		18	22	55		33	22	55		33
N. Middlesex / Clinton & SR11		20	19	49		42	19	49	15	27
S. Middlesex & SR11		24	13	57		40	13	57		40
Country Club & SR11		74	16	59		35	16	59		35
I-81 Ramp C and SR11		6		72		38		72		
Cook and SR11		92	13	61		36		61		36
Flying J and SR11		0	15	65		30	15	37		30

OFFSET REFERENCED TO BEGINNING OF MAIN STREET GREEN			
		SECONDS	7.
SPLITS		X	
OFFSET		X	

Revised Coord due to 81 closure (truck explosion) – turnpike opened up free tolls from Hbg to carlisle.

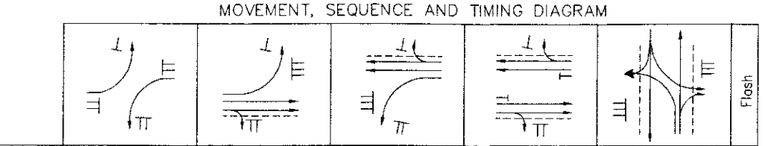
	CYCLE NO	2								
	CYCLE LENGTH	160	PHASE - SPLIT TIMES							
INTERSECTION		OFFSET	1	2	3	4	5	6	7	8
Pilot & SR11		0	32	95		33	32	95		33
N. Middlesex / Clinton & SR11		5	29	89		42	29	89	15	27
S. Middlesex & SR11		150	23	97		40	23	97		40
Country Club & SR11		100	26	99		35	26	99		35
I-81 Ramp C and SR11		116		122		38		122		
Cook and SR11										
Flying J and SR11										

ADD 10 SEC. ADD 40 SEC.

T087

Permit No. 82-76 Sheet 3 of 3
Date Issued 2-11-98 Date Revised 5/23/97

MOVEMENT, SEQUENCE AND TIMING DIAGRAM



PHASE	1 + 5				2 + 5				1 + 6				2 + 6				4 + 8				Flash
Signal / Interval	1	2	3		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
1,2	R	R	R		R	R	R	R	G	G	Y①	R①	G	G	Y②	R②	R	R	R	R	Y
3	-G-	-Y-	R①		R	R	R	R	-G-	-G-	Y①	R①	R	R	R	R	R	R	R	R	OFF
4	-G-	-Y-	R①		-G-	-G-	Y①	R①	R	R	R	R	R	R	R	R	R	R	R	R	OFF
5,6	R	R	R		G	G	Y①	R①	R	R	R	R	G	G	Y②	R②	R	R	R	R	Y
7,8	R	R	R		R	R	R	R	R	R	R	R	R	R	R	R	G	G	Y	R	R
9,10	R	R	R		R	R	R	R	R	R	R	R	R	R	R	R	G	G	Y	R	R
*11,12	DW	DW	DW		DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	W	FD	DW	DW	OFF
*13,14	DW	DW	DW		W	FD	DW	DW	DW	DW	DW	DW	W	FD	DW	DW	DW	DW	DW	DW	OFF
*15,16	DW	DW	DW		DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	W	FD	DW	DW	OFF
*17,18	DW	DW	DW		DW	DW	DW	DW	W	FD	DW	DW	W	FD	DW	DW	DW	DW	DW	DW	OFF
Fixed		3.0	1.0				3.0	1.0			3.0	1.0			4.0	2.5			3.3	2.3	
Minimum	3				3				3				10				5				
Added Int.													2.0								
Max. Int.													30								
Passage	3				3				3				6				3				
TBR													30								
TTR													15								
Min. Gap													3.0								
Maximum	25				25				25				50				35				
* Pedestrian					⑦				⑦				7	18			7	26			
Memory	NON-LOCK				NON-LOCK				NON-LOCK				MINIMUM RECALL				NON-LOCK				

* UPON PEDESTRIAN ACTUATION, OTHERWISE DON'T WALK AT ALL TIMES

DETECTOR NOTES

1. DETECTORS 1 AND 2 CALL AND EXTEND PHASE 6.
2. DETECTOR 3 CALLS AND EXTENDS PHASE 1.
3. DETECTOR 4 CALLS AND EXTENDS PHASE 5
4. DETECTORS 5 AND 6 CALL AND EXTEND PHASE 2.
5. DETECTORS 7 AND 8 CALL AND EXTEND PHASE 8.
6. DETECTOR 9 CALLS AND EXTENDS PHASE 4.
7. PEDESTRIAN PUSHBUTTONS 10 AND 11 TO CALL PHASE 4.
8. PEDESTRIAN PUSHBUTTONS 12 AND 13 TO CALL PHASE 2.
9. PEDESTRIAN PUSHBUTTONS 14 AND 15 TO CALL PHASE 8.
10. PEDESTRIAN PUSHBUTTONS 16 AND 17 TO CALL PHASE 6.

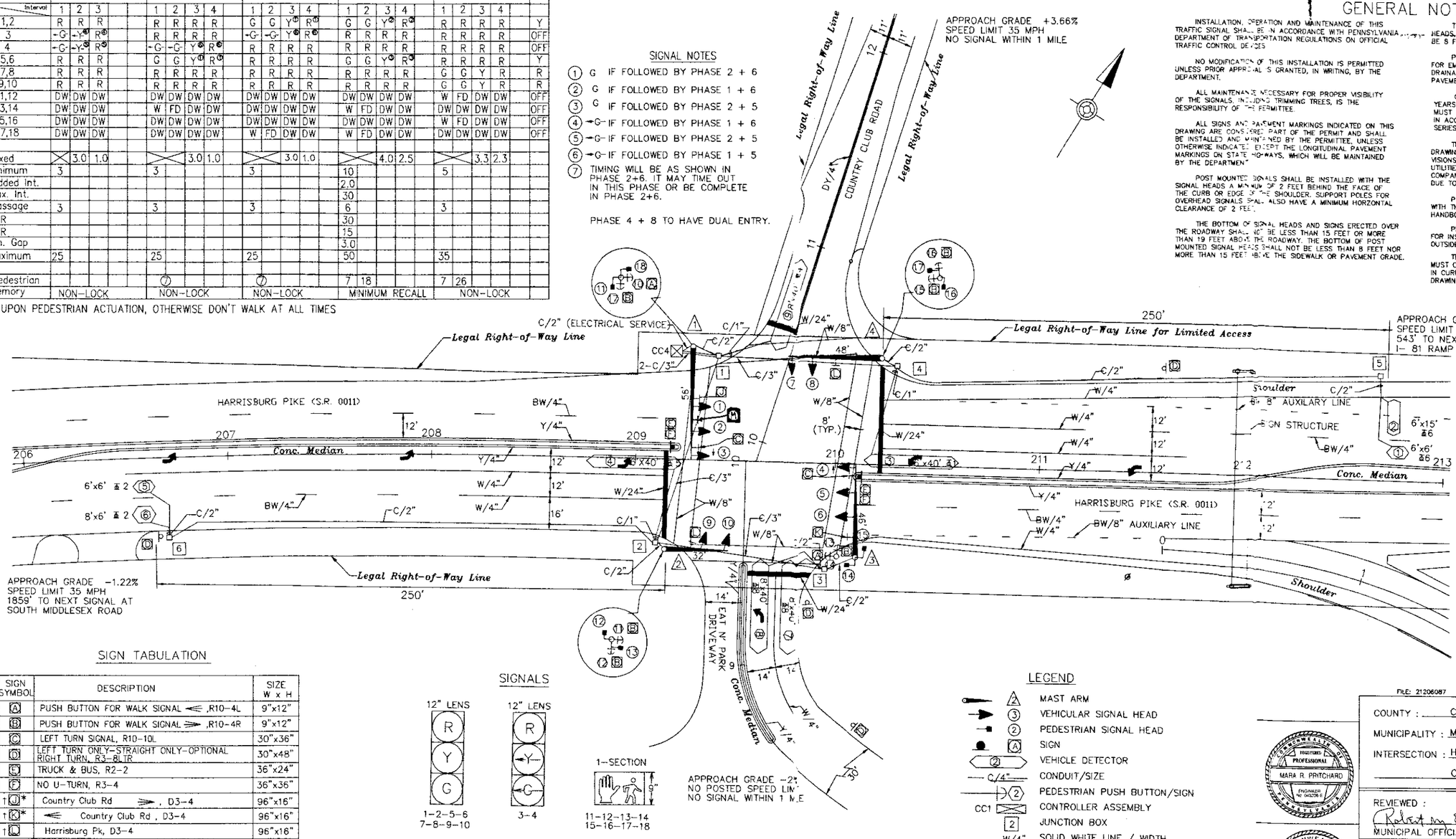
CONTROLLER TO BE INTERCONNECTED WITH THE ADJACENT SIGNAL CONTROLLERS ALONG S.R.11 VIA TELEPHONE LINE. MASTER CONTROLLER IS LOCATED AT THE DRIVEWAY TO EMBER'S INN/FLYING J TRAVEL PLAZA INTERSECTION.

Add sign M

SIGNAL NOTES

1. G IF FOLLOWED BY PHASE 2 + 6
2. G IF FOLLOWED BY PHASE 1 + 6
3. G IF FOLLOWED BY PHASE 2 + 5
4. →G← IF FOLLOWED BY PHASE 1 + 6
5. →G← IF FOLLOWED BY PHASE 2 + 5
6. →G← IF FOLLOWED BY PHASE 1 + 5
7. TIMING WILL BE AS SHOWN IN PHASE 2+6. IT MAY TIME OUT IN THIS PHASE OR BE COMPLETE IN PHASE 2+6.

PHASE 4 + 8 TO HAVE DUAL ENTRY.



GENERAL NOTES

INSTALLATION, OPERATION AND MAINTENANCE OF THIS TRAFFIC SIGNAL SHALL BE 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.

ALL SIGNS AND PAVEMENT MARKINGS INDICATED ON THIS DRAWING ARE CONSIDERED PART OF THE PERMIT AND SHALL BE INSTALLED AND MAINTAINED BY THE PERMITTEE, UNLESS OTHERWISE INDICATED, EXCEPT THE LONGITUDINAL PAVEMENT MARKINGS ON STATE HIGHWAYS, WHICH WILL BE MAINTAINED BY THE DEPARTMENT.

POST MOUNTED SIGNALS SHALL BE INSTALLED WITH THE SIGNAL HEADS A MINIMUM OF 2 FEET BEHIND THE FACE OF THE CURB OR EDGE OF THE SHOULDER. SUPPORT POLES FOR OVERHEAD SIGNALS SHALL ALSO HAVE A MINIMUM HORIZONTAL CLEARANCE OF 2 FEET.

THE BOTTOM OF SIGNAL HEADS AND SIGNS ERECTED OVER THE ROADWAY SHALL NOT BE LESS THAN 15 FEET OR MORE THAN 19 FEET ABOVE THE ROADWAY. THE BOTTOM OF POST MOUNTED SIGNAL HEADS SHALL NOT BE LESS THAN 8 FEET NOR MORE THAN 15 FEET ABOVE THE SIDEWALK OR PAVEMENT GRADE.

THE MINIMUM HORIZONTAL DISTANCE BETWEEN SIGNAL HEADS, MEASURED AT RIGHT ANGLES TO THE APPROACH, SHALL BE 8 FEET.

PERMITTEE SHALL OBTAIN A HIGHWAY OCCUPANCY PERMIT FOR EMBANKMENT REMOVAL, CURBING AND/OR SIDEWALK, DRAINAGE STRUCTURES, CHANGES IN HIGHWAY GEOMETRY, PAVEMENT WIDENING, OR INSTALLATION OF ADDITIONAL LANES.

CONDUIT INSTALLED IN BITUMINOUS ROADWAY LESS THAN 5 YEARS OLD, OR CONCRETE ROADWAY REGARDLESS OF AGE, MUST BE BORED OR JACKED UNDER THE ROADWAY. INSTALL IN ACCORDANCE WITH TRAFFIC SIGNAL STANDARDS TC-7800 SERIES.

THIS DRAWING CANNOT BE USED AS A CONSTRUCTION DRAWING UNLESS THE PERMITTEE COMPLIES WITH THE PROVISIONS OF ACT 38, 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.

PAVEMENT MARKINGS SHALL BE PLACED IN ACCORDANCE WITH THE DEPARTMENT OF TRANSPORTATION PAVEMENT MARKING HANDBOOK.

PERMITTEE IS RESPONSIBLE FOR OBTAINING APPROVAL FOR INSTALLATION OF TRAFFIC SIGNAL DEVICES LOCATED OUTSIDE HIGHWAY RIGHT-OF-WAY.

TRAFFIC SIGNALS INSTALLED USING LIQUID FUELS TAX FUNDS MUST CONFORM TO DEPARTMENT SPECIFICATIONS AS SET FORTH IN CURRENT PUBLICATION 408, SUPPLEMENTS AND STANDARD DRAWINGS.

SIGN TABULATION

SIGN SYMBOL	DESCRIPTION	SIZE W x H
A	PUSH BUTTON FOR WALK SIGNAL ⇐ ,R10-4L	9"x12"
B	PUSH BUTTON FOR WALK SIGNAL ⇒ ,R10-4R	9"x12"
C	LEFT TURN SIGNAL, R10-10L	30"x36"
D	LEFT TURN ONLY-STRAIGHT ONLY-OPTIONAL RIGHT TURN, R3-8LTR	30"x48"
E	TRUCK & BUS, R2-2	36"x24"
F	NO U-TURN, R3-4	36"x36"
†J*	Country Club Rd ⇒ , D3-4	96"x16"
†K*	⇐ Country Club Rd , D3-4	96"x16"
†L	Harrisburg Pk, D3-4	96"x16"
M	DO NOT BLOCK INTERSECTION, R10-7	24"x30"

† WHITE LEGEND AND BORDER ON BLUE BACKGROUND
*REDUCE LEGEND WIDTH BY 25%

SIGNALS

SIGNALS 1 THROUGH 6 HAVE BACKPLATES
SIGNALS 1 THROUGH 10 HAVE TUNNEL VISORS

LEGEND

- MAST ARM
- VEHICULAR SIGNAL HEAD
- PEDESTRIAN SIGNAL HEAD
- SIGN
- VEHICLE DETECTOR
- C/4" CONDUIT/SIZE
- PEDESTRIAN PUSH BUTTON/SIGN
- CC1 CONTROLLER ASSEMBLY
- JUNCTION BOX
- W/4" SOLID WHITE LINE / WIDTH
- BW/4" BROKEN WHITE LINE / WIDTH
- W/24" SOLID WHITE LINE / WIDTH
- DY/4" DOUBLE SOLID YELLOW LINE / WIDTH

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL MARIA R. PRITCHARD ENGINEER NO. 040256-E

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL RONALD C. BROWN ENGINEER NO. 37095-E

FILE: T087

FILE: 21206087

COUNTY : CUMBERLAND
MUNICIPALITY : MIDDLESEX TOWNSHIP
INTERSECTION : HARRISBURG PIKE (S.R. 0011), COUNTRY CLUB ROAD AND RESTAURANT DRIVEWAY

REVIEWED :
MUNICIPAL OFFICIAL — DATE

RECOMMENDED : Ronald C. Brown 2/4/98
DISTRICT TRAFFIC ENGINEER — DATE

SCALE IN FEET
0 25 50