Date: May 20, 2022
TPD# BCVS.00002
PennDOT EPS# 261894

Est. 1989

TRAFFIC PLANNING AND DESIGN, INC.

Traffic Impact Study

Bluecup Warehouse

Wilkes-Barre Township, Luzerne County

For Submission To:

Wilkes-Barre Township & PennDOT District 4-0

Bluecup Warehouse Development
TRANSPORTATION IMPACT STUDY

FOR SUBMISSION TO:

Wilkes-Barre Township, Luzerne County, PA,
& PennDOT District 4-0

Prepared For:
Bluecup Ventures Wilkes-Barre, LLC
20 Cedar Woods Lane
Fairfield, CT 06825

Phone: (203) 252-1515

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DRAFT

Prepared By:
Traffic Planning and Design, Inc.
1720 Spillman Drive, Suite 260
Bethlehem, PA 18015

Phone: (610) 625-4242
Fax: (610) 625-4250
E-mail: TPD@TrafficPD.com
Web Site: www.trafficpd.com

Eric M. Mountz, P.E., PTOE
Regional Leader – Transportation Planning

Pennsylvania License Number PE075212

Table of Contents

SCHEMATIC FIGURES

TECHNICAL APPENDICES

EXECUTIVE SUMMARY

The purpose of this report is to examine the potential traffic impact associated with the proposed warehouse on the surrounding roadway network in Wilkes-Barre Township, Luzerne County, PA. Based on this study, the following conclusions were reached:

1. Since the Wilkes-Barre Township Subdivision and Land Development Ordinance (SALDO) does not contain specific criteria related to preparation of a Transportation Impact Study (TIS), this This report has been prepared in accordance with Appendix A - Policies and Procedures for Transportation Impact Studies Related to Highway Occupancy Permits of PennDOT *Publication 282,* dated July 2017.

2. The project scope and the extent of the study area were based on; (1) feedback received during the meeting with representatives of PennDOT and the Township on April 8, 2022; and (2) the contents of the approved TIS Scoping Application dated April 11, 2022. The study area intersections included in this TIS are as follows:

   - Wilkes-Barre Township Blvd (SR 6309) & Blackman Street (SR 2005)/I-81 Southbound Off-Ramp;
   - Wilkes-Barre Township Blvd (SR 6309) & Allan Road;
   - Wilkes-Barre Township Blvd (SR 6309) & Johnson Street/Blackman Plaza Driveway;
   - Wilkes-Barre Township Blvd (SR 6309) & Casey Avenue (SR 2016)/Park & Ride Lot;
   - Wilkes-Barre Township Blvd (SR 6309) & Sheetz Driveway/Shopping Center Driveway;
   - Wilkes-Barre Township Blvd (SR 6309) & Coal Street/Highland Park Boulevard (SR 2063);
   - Johnson Street & Haul Road/Private Driveway;
   - Johnson Street & Relocated Allan Road.

   As outlined in the approved TIS Scoping Application, the intersection of Wilkes-Barre Township Boulevard and Allan Road has been included in the TIS for purposes of volume development only in order to accurately depict the trips that will be redistributed to the relocated Allan Road intersection with Johnson Street. Additionally, since Haul Road and Allan Road are both private roadways each of the proposed site driveways were not specifically included as study area intersections. Instead, the Haul Road and Relocated Allan Road intersections with Johnson Street were considered the site access locations.

3. The proposed development is located on the southern side of Johnson Street/Haul Road, immediately east of I-81. The proposed development is anticipated to consist of a 937,440 square foot (s.f.) warehouse.

4. Access to the site is proposed via two (2) driveways to Allan Road (private roadway) and five (5) driveways to Haul Road (private roadway). Additionally, in anticipation of PennDOT's P3 I-81 widening project, the segment of Allan Road between Wilkes-Barre Township Boulevard (SR 6309) and the I-81 overpass will be eliminated, and Allan Road will be relocated to create a new intersection with Johnson Street.

5. Based on trip generation data obtained from the 11th edition of the manual *Trip Generation* for Land Use Code #154 (High-Cube Transload and Short-Term Storage Warehouse), build-out of the proposed development is anticipated to generate 75 new vehicle-trips during the weekday A.M. peak hour of Adjacent Street, 122 new vehicle-trips during the weekday A.M. peak hour of Generator, and 159 new vehicle-trips during the weekday P.M. peak hour of Generator.

6. PennDOT's Policies and Procedures for Transportation Impact Studies Related to Highway Occupancy Permits typically requires analyses of the following future years:

   » Opening Year which is assumed to be the last phase of construction;

   » Design Horizon Year which is be assumed to be 5 years after the Opening Year.

   Since PennDOT's background growth factor is 0.00%, the traffic volumes for the 2024 Opening Year (Full Build-Out) and 2029 Design Year (5 years after Full Build-Out) will be the same.

7. Capacity analyses were conducted to determine the quality of operation (LOS) at the study area intersections for the existing, 2024/2029 base (no-build), and 2024/2029 projected (build) conditions. The capacity analyses were conducted in accordance with the standards contained in Appendix A - Policies and Procedures for Transportation Impact Studies Related to Highway Occupancy Permits of PennDOT *Publication 282,* dated July 2017.

8. Levels of Service (LOS) for the study area intersections have been summarized in matrix form. **Table I** details the overall intersection LOS for each study area intersection for the analyzed conditions and time periods. **Tables 13-15** of the report detail the LOS for all approaches and movements at the study area intersections for the analyzed conditions and time periods.

TABLE I
OVERALL INTERSECTION LEVEL OF SERVICE SUMMARY

Intersection	Time Period	Existing	Full Build-Out/Design Year (2024/2029)			Meets LOS Requirements?
			Base	Projected	Projected[1]	
Wilkes-Barre Township Boulevard & Blackman Street/ I-81 SB Off-Ramp	AM ADJ	B (16.2)	C (25.0)	C (25.4)	--	YES
	AM GEN	B (17.2)	C (25.7)	C (26.8)	--	YES
	PM GEN	C (29.4)	D (35.5)	D (38.1)	D (38.1)	YES
Wilkes-Barre Township Boulevard & Johnson Street/ Blackman Plaza Driveway	AM ADJ	A (1.9)	A (9.7)	A (9.8)	--	YES
	AM GEN	A (1.9)	A (9.8)	A (9.9)	--	YES
	PM GEN	B (12.0)	A (9.8)	B (13.9)	B (13.8)	YES
Wilkes-Barre Township Boulevard & Casey Avenue/ Park & Ride Lot	AM ADJ	A (8.4)	A (6.7)	A (6.7)	--	YES
	AM GEN	A (7.7)	A (7.0)	A (7.0)	--	YES
	PM GEN	B (10.4)	B (11.3)	B (11.4)	B (11.3)	YES
Wilkes-Barre Township Boulevard & Sheetz Driveway/ Shopping Center Driveway	AM ADJ	A (8.0)	A (8.0)	A (7.9)	--	YES
	AM GEN	A (7.6)	A (7.6)	A (7.6)	--	YES
	PM GEN	B (10.6)	B (10.4)	B (10.5)	B (10.5)	YES
Wilkes-Barre Township Boulevard & Coal Street/ Highland Park Boulevard	AM ADJ	C (28.4)	C (29.0)	C (29.1)	--	YES
	AM GEN	C (28.9)	C (28.9)	C (29.0)	--	YES
	PM GEN	F (92.8)	C (31.9)	C (32.3)	C (32.3)	YES
Johnson Street & Haul Road	AM ADJ	A (1.9)	A (1.7)	A (2.0)	--	YES
	AM GEN	A (1.0)	A (0.9)	A (1.6)	--	YES
	PM GEN	A (0.7)	A (0.7)	A (2.9)	A (2.9)	YES
Johnson Street & Allan Road	AM ADJ	--	--	A (1.1)	--	YES
	AM GEN	--	--	A (1.0)	--	YES
	PM GEN	--	--	A (2.0)	A (2.0)	YES

Base = No-Build scenario Projected = Build scenario
1=Projected conditions with implementation of recommended improvements

9. Under the 2024/2029 projected (build) conditions, with implementation of the recommended improvements, the study area intersections will operate in accordance with the standards contained in Appendix A - Policies and Procedures for Transportation Impact Studies Related to Highway Occupancy Permits of PennDOT *Publication 282,* dated July 2017.

10. Based on the results of this study, Traffic Planning and Design Inc. (TPD) recommends the following roadway improvements as outlined at the study area intersections:

Wilkes-Barre Township Blvd & Blackman Street/I-81 Southbound Off-Ramp

» No improvements are recommended for this intersection.

Wilkes-Barre Township Blvd & Johnson Street/Blackman Plaza Driveway

» Provide optimized traffic signal splits and offsets during the weekday P.M. peak period.

» Coordinate to confirm the improvements to be constructed in conjunction with PennDOT's programmed project will accommodate turning movements to/from Johnson Street by tractor trailers.

Wilkes-Barre Township Blvd & Casey Avenue/Park & Ride Lot

» Provide optimized traffic signal splits and offsets during the weekday P.M. peak period.

Wilkes-Barre Township Blvd & Sheetz Driveway/Shopping Center Driveway

» No improvements are recommended for this intersection.

Wilkes-Barre Township Blvd & Coal Street/Highland Park Boulevard

» No improvements are recommended for this intersection.

Johnson Street & Haul Road

» Design Haul Road as a full-movement private roadway.

» Provide one entering and one exiting lane.

» Provide a "Stop" sign, (PennDOT designation R1-1) to control exiting traffic.

» Design Haul Road to accommodate turning movements by tractor trailers.

» Provide and perpetually maintain required sight distances in accordance with Section 810 of the Wilkes-Barre Township SALDO.

Johnson Street & Relocated Allan Road

» Design Relocated Allan Road as a full-movement private roadway.

» Provide one entering and one exiting lane.

» Provide a "Stop" sign, (PennDOT designation R1-1) to control exiting traffic.

» Design Relocated Allan Road to accommodate turning movements by tractor trailers.

» Provide and perpetually maintain required sight distances in accordance with Section 810 of the Wilkes-Barre Township SALDO.

General Recommendations

» The applicant should work with the Township to develop language that will require a post-development study to evaluate the actual traffic volumes generated by the subject warehouse.

» The applicant should work with the Township to determine if improvements are required to Haul Road and/or Johnson Street to accommodate traffic to/from the site, particularly for tractor trailers. The improvements should consider pavement condition, pavement markings, signage, etc.

The applicant will coordinate and fund the implementation of the recommended roadway improvements.

11. If any of the roadway improvements outlined in the Scheduled Roadway Improvements section of this report that are proposed to be provided by PennDOT or the nearby proposed developments are not constructed by the opening of the subject development, the applicant would be required to either construct the improvements or provide a revised TIS that evaluates the need for additional roadway improvements to mitigate any impacts resulting from the site generated traffic from build-out of the subject development. If the revised TIS does identify the need for additional improvements, it would be the applicant's responsibility to construct the improvements.

INTRODUCTION

Traffic Planning and Design, Inc. (TPD) has completed a Transportation Impact Study (TIS) to examine the potential traffic impacts associated with the proposed warehouse development proposed by Bluecup Ventures Wilkes-Barre, LLC on the surrounding roadway network in Wilkes-Barre Township, Luzerne County, Pennsylvania. As shown in **Figure 1**, the proposed development is located on the southern side of Johnson Street/Haul Road, immediately east of I-81. The proposed development is anticipated to consist of a 937,440 square foot (s.f.) warehouse. A site plan for the proposed development is shown in **Figure 2**.

Based on a review of Section 406 (Additional Materials Submitted with Preliminary Plan) of the Wilkes-Barre Township Subdivision and Land Development Ordinance (SALDO) the Planning Commission can request an Impact Analysis be submitted in conjunction with a Subdivision and/or Land Development Application. Section 200 of the SALDO defines an Impact Analysis as follows, "*A study, which may be required by the Planning Commission prior to preliminary or conditional approval of a subdivision or land development, to determine the potential impact of the proposed development on activities, utilities, traffic generation and circulation, surrounding land uses, community facilities, environmental features, critical areas, the health, safety and welfare of residents and other factors directly, indirectly or potentially affected. The landowner and/or applicant shall be responsible for all costs related to the any and all reports and/or studies required by the Planning Commission under or within the context of the term "IMPACT ANALYSIS". The landowner and/or applicant shall also be responsible to fully reimburse the Township for any engineering and/or other consulting fees which are incurred for the review of any required studies or reports*".

Since the Wilkes-Barre Township SALDO does not contain specific criteria related to preparation of a TIS, this report has been prepared in accordance with Appendix A – Policies and Procedures for Transportation Impact Studies Related to Highway Occupancy Permits of PennDOT *Publication 282,* dated July 2017. The project scope and the extent of the study area were based on; (1) feedback received during the meeting with representatives of PennDOT and the Township on April 8, 2022; and (2) the contents of the approved TIS Scoping Application dated April 11, 2022. All relevant correspondence pertaining to this project has been included in **Appendix A**.

EXISTING ROADWAY NETWORK

A field review of the existing roadway system in the study area was conducted. The existing roadway characteristics within the study area are summarized in **Table 1**.

TABLE 1
ROADWAY CHARACTERISTICS

Roadway	Ownership	Functional Classification/ Roadway Type	Predominant Directional Orientation	Posted Speed Limit
Wilkes-Barre Township Boulevard	State (SR 6309)	Principal Arterial	North-South	35 mph-40 mph[1]
Blackman Street	State (SR 2005)	Principal Arterial	East-West	35 mph
Casey Avenue	State (SR 2016)	Local	East-West	30 mph
Coal Street	Township	Principal Arterial	East-West	25 mph
Highland Park Boulevard	State (SR 2063)	Minor Arterial	East-West	35 mph
Johnson Street	Township	Local	East-West	25 mph
Haul Road	Private	Local	East-West	25 mph
Allan Road	Private	Local	North-South	25 mph

1 = Posted speed limit of 35 mph to south of Casey Avenue and 40 mph to the north of Casey Avenue

The existing intersection controls, lane configurations, lane widths, shoulder widths, and approach grades for the study area intersections are summarized in **Table 2**. Photographs of the study area intersections are included in **Appendix B**.

TABLE 2
EXISTING INTERSECTION CONTROLS, LANE WIDTHS, SHOULDER WIDTHS, AND APPROACH GRADES

Intersection	Control	Lane Configuration	Lane Width	Shoulder Width	Approach Grade
Wilkes-Barre Township Boulevard & Blackman Street/ I-81 SB Off-Ramp	Traffic Signal	EB L	10′	--	-1%
		EB R	14′	1′ (Curbed)	
		WB L	13′	10′	-4%
		WB T	11′	--	
		WB R	14′	10′	
		NB L	12′	--	-3%
		NB T-T	12′	5′	
		SB T-T	12′-13′	--	-3%
		SB R	14′	0′ (Curbed)	
Wilkes-Barre Township Boulevard & Johnson Street/ Blackman Plaza Driveway	Stop Controlled	EB L/T/R	34′	--	0%
		WB L/T/R	14′	--	0%
	Free	NB L/T/R	12′	6′	0%
		SB L/T/R	12′	6′	0%
Wilkes-Barre Township Boulevard & Casey Avenue/ Park & Ride Lot	Traffic Signal	EB L	10′	--	-2%
		EB T/R	10′	0′ (Curbed)	
		WB L/T/R	13′	4′ (Curbed)	0%
		NB L	10′	--	0%
		NB T/R	13′	6′	
		SB L	10′	--	-1%
		SB T	13′	--	
		SB R	10′	0′ (Curbed)	
Wilkes-Barre Township Boulevard & Sheetz Driveway/ Shopping Center Driveway	Traffic Signal	EB L/T/R	15′	0′ (Curbed)	0%
		WB L/T	12′	--	-5%
		WB R	12′	0′ (Curbed)	
		NB L	10′	--	1%
		NB T-T	12′	--	
		NB R	13′	0′ (Curbed)	
		SB L	10′	--	-3%
		SB T-T/R	12′-14′	0′ (Curbed)	
Wilkes-Barre Township Boulevard & Coal Street/ Highland Park Boulevard	Traffic Signal	EB L	11′	--	1%
		EB T-T/R	11′-13′	0′ (Curbed)	
		WB L	12′	--	0%
		WB T-T	12′	--	
		WB R	12′	4′ (Curbed)	
		NB L	10′	--	2%
		NB T-T	12′	--	
		NB R	13′	0′ (Curbed)	
		SB L	10′	--	0%
		SB T-TR	12′-13′	0′ (Curbed)	
Johnson Street & Haul Road	Stop Controlled	EB L/T/R	Undefined[1]	--	0%
		WB L/T/R	15′	--	-1%
	Free	NB L/T/R	13′	--	+1%
		SB L/T/R	13′	--	-2%

1 = Large uncontrolled curb cut

Land Use Context

In Section 1.2 of the Design Manual, Part 2, there is guidance pertaining to defining the land use context(s) for a given area. Based upon review of this information, the land uses surrounding the proposed site best fits the Suburban Corridor designation, as described below:

Suburban Corridor, *"…characterized by big box stores, commercial strip centers, restaurants, auto dealerships, office parks, and gas stations. These uses are sometimes interspersed with natural areas and occasional clusters of homes. Buildings are usually set back from the roadway behind surface parking."*

Roadway Type

In Section 1.2 of the Design Manual, Part 2, there is guidance pertaining to defining the transportation context(s) for a given area. Comparing the existing condition roadway characteristics to the various options presented in Table 1.2, the study area roadways best fit the following categories, as described below:

Regional Arterial, traffic volumes of 10,000 to 40,000 vehicles per day, intersection spacing of 660 to 1,320 feet, a desired operating speed of 30-55 mph, and a description as follows: *"Roadways in this category would be considered "Principal Arterial" in traditional functional classification."*

- Wilkes-Barre Township Boulevard (SR 6309).

Community Arterial, traffic volumes of 5,000 to 25,000 vehicles per day, intersection spacing of 300 to 1,320 feet, a desired operating speed of 25-55 mph, and a description as follows: *"often classified as Minor Arterial in traditional classification but may include road segments classified as Principal Arterial."*

- Blackman Street (SR 2005).
- Coal Street.
- Highland Park Boulevard (SR 2063).

Local Road, traffic volumes of <3,000 vehicles per day, intersection spacing of 000 to 660 feet, a desired operating speed of 20-30 mph.

- Casey Avenue (SR 2016).
- Johnson Street.
- Allan Road.
- Haul Road.

Bicycle and Pedestrian Facilities

Based on observations at the proposed study area intersections, sidewalks, paved shoulders, and/or the travel lanes currently accommodate bicycle and pedestrian traffic in the vicinity of the proposed development.

Mass Transit Facilities

Luzerne County is provided with public transportation by the Luzerne County Transportation Authority (LCTA). There are multiple fixed bus routes which provide service in the vicinity of the proposed site. There are no rail centers within ½ mile of the site.

Crash Data Investigation

Crash data were obtained from PennDOT for the study area intersections. PennDOT defines a reportable crash as follows, "A reportable (crash) is one in which an injury or fatality occurs or if at least one of the vehicles involved requires towing from the scene." Reportable crashes were tabulated for the five-year time period beginning 1/1/2016 and ending 12/31/2020. For a given intersection, PennDOT considers a crash

occurrence of 5 reportable, correctable crashes over a continuous twelve-month period during the past five years to be a threshold value, above which the intersection design should be reviewed to examine if corrective measures can be taken to enhance safety. In accordance with typical PennDOT policy the crash data investigation was provided for their review under separate cover.

EXISTING TRAFFIC CONDITIONS

Manual Turning Movement Counts

Manual traffic counts were conducted on 15-minute intervals during the weekday morning (6:00 to 10:00 A.M.) and weekday evening (3:00 to 6:00 P.M.) peak periods when the area schools were in session. Data pertaining to heavy vehicles, pedestrians and transit vehicles were observed during the manual counts. Peak hours and count dates for the study area intersections are identified in **Table 3**.

TABLE 3
MANUAL TRAFFIC COUNT INFORMATION

Intersection	Date of Traffic Counts	Time Period	Intersection Peak Hour[1]
Wilkes-Barre Township Boulevard & Blackman Street/ I-81 SB Off-Ramp	Tuesday, March 15, 2022	A.M. Adjacent Street	7:30 to 8:30 A.M.
		A.M. Generator	9:00 to 10:00 A.M.
		P.M. Generator	4:00 to 5:00 P.M.
Wilkes-Barre Township Boulevard & Allan Road/ Private Driveway	Tuesday, March 15, 2022	A.M. Adjacent Street	8:00 to 9:00 A.M.
		A.M. Generator	9:00 to 10:00 A.M.
		P.M. Generator	3:15 to 4:15 P.M.
Wilkes-Barre Township Boulevard & Johnson Street/ Blackman Plaza Driveway	Thursday, December 9, 2021	A.M. Adjacent Street	8:00 to 9:00 A.M.
		A.M. Generator	9:00 to 10:00 A.M.
		P.M. Generator	4:30 to 5:30 P.M.
Wilkes-Barre Township Boulevard & Casey Avenue/ Park & Ride Lot	Tuesday, March 15, 2022	A.M. Adjacent Street	8:00 to 9:00 A.M.
		A.M. Generator	9:00 to 10:00 A.M.
		P.M. Generator	3:15 to 4:15 P.M.
Wilkes-Barre Township Boulevard & Sheetz Driveway/ Shopping Center Driveway	Tuesday, March 15, 2022	A.M. Adjacent Street	8:00 to 9:00 A.M.
		A.M. Generator	9:00 to 10:00 A.M.
		P.M. Generator	4:30 to 5:30 P.M.
Wilkes-Barre Township Boulevard & Coal Street/ Highland Park Boulevard	Tuesday, March 15, 2022	A.M. Adjacent Street	8:00 to 9:00 A.M.
		A.M. Generator	9:00 to 10:00 A.M.
		P.M. Generator	3:15 to 4:15 P.M.
Johnson Street & Haul Road	Thursday, December 9, 2021	A.M. Adjacent Street	7:00 to 8:00 A.M.
		A.M. Generator	9:00 to 10:00 A.M.
		P.M. Generator	5:00 to 6:00 P.M.

1 = Peak Hour consists of the four consecutive 15-minute intervals where the highest traffic volumes occur.

In accordance with SOL 424-21-07 regarding COVID-19 traffic data guidance, since the traffic counts were completed after September 7, 20201 no adjustment is necessary. Existing condition traffic volumes for the weekday A.M. Adjacent Street, weekday A.M. Generator, and weekday P.M. Generator peak hours are illustrated in **Figures 3-5**. The manual traffic count data sheets are provided in **Appendix C**.

Average Daily Traffic

The traffic volume map contained on the PennDOT Traffic Information Repository (TIRe) website was reviewed to determine the Average Daily Traffic (ADT) for a typical weekday along the State-maintained roadways in the vicinity of the proposed site. The available ADT information from the TIRe website is summarized below in **Table 4**.

TABLE 4
AVERAGE DAILY TRAFFIC (ADT) IN VICINTY OF PROPOSED SITE

Roadway	ADT
Wilkes-Barre Township Boulevard (SR 6309), near Johnson Street	19,981 vehicles per day
Blackman Street (SR 2005)	13,192 vehicles per day
I-81 SB Off-Ramp, opposite Blackman Street (SR 2005)	5,617 vehicles per day
Casey Avenue (SR 2016)	3,992 vehicles per day
Coal Street	15,821 vehicles per day
Highland Park Boulevard (SR 2063)	19,854 vehicles per day

BASE (NO-BUILD) CONDITIONS

Annual Background Growth

A background growth factor for the roadways in the study area was developed based on growth factors obtained from the PennDOT Bureau of Planning and Research (BPR) for August 2021 to July 2022. The PennDOT BPR suggests using a background growth trend factor of 0.00% per year in Luzerne County for urban, non-interstate roadways.

PennDOT's Policies and Procedures for Transportation Impact Studies Related to Highway Occupancy Permits typically requires analyses of the following future years:

- Opening Year which is assumed to be the last phase of construction;
- Design Horizon Year which is be assumed to be 5 years after the Opening Year.

Since PennDOT's background growth factor is 0.00%, the traffic volumes for the 2024 Opening Year (Full Build-Out) and 2029 Design Year (5 years after Full Build-Out) will be the same.

Nearby Proposed Developments

Base (no-build) traffic conditions are typically calculated to include traffic volumes from proposed developments, which, though not operating under existing conditions, may be operating by the build-out of the proposed development.

Based on the approved TIS Scoping Application, the following nearby developments were specifically considered as part of this study.

- **Turkey Hill Convenience Store and Gas Station** located on the southwest corner of the intersection of Wilkes-Barre Township Boulevard (SR 6309) and Blackman Street/I-81 South Ramp G in Wilkes-Barre Township. The trip generation/distribution information for the development will be obtained from the TIS prepared for the development by L&V Engineering, LLC.

- **Blackman Plaza Redevelopment** located on the western side of Wilkes-Barre Township Boulevard (SR 6309) generally between Johnson Street and Casey Avenue in Wilkes-Barre Township. The trip generation/distribution information for the development will be obtained from the TIS prepared for the development by L&V Engineering, LLC.

Trip generation/distribution information for the nearby proposed developments is included in **Appendix D**. Note, the TIS's for the above nearby developments do not provide trip distribution information for the weekday A.M. peak hour of Generator. Therefore, to provide a conservative analysis, the weekday A.M. pea hour of Adjacent Street volumes were utilized for the weekday A.M. peak hour of Generator.

Schematic figures summarizing the traffic volumes resulting from the nearby proposed developments at the study area intersections for the weekday A.M. Adjacent Street, weekday A.M. Generator, and weekday P.M. Generator peak hours are illustrated in **Figures 6-11**.

The additional traffic volumes due to nearby proposed developments were added to the 2021 existing condition traffic volumes to produce the 2024/2029 base (no-build) condition traffic volumes. Base condition volumes for the weekday A.M. Adjacent Street, weekday A.M. Generator, and weekday P.M. Generator peak hours are illustrated in **Figures 12-14**.

SCHEDULED ROADWAY IMPROVEMENTS

Programmed Improvements

Based on a review of the Transportation Improvement Program (TIP) for PennDOT, there are programmed roadway improvement projects within the study area, as follows:

- **SR 309 Safety Improvement** is Project ID #109543 and includes safety improvements at the Wilkes-Barre Township Boulevard intersections with Johnson Street/Blackman Plaza Driveway and Casey Avenue, including creation of a 4-way signalized intersection and additional turning lanes at Johnson Street/Blackman Plaza Driveway. The project was let in July 2021 and is anticipated to be complete by August 2022. Based on the anticipated completion date, the above referenced programmed roadway improvement project were included in all the future condition capacity analyses, as applicable.

- **I-81 SB Ramp G at Blackman Street** proposes improvements at the intersection of Wilkes-Barre Township Boulevard and I-81 SB Off-Ramp/Blackman Street, including dual left-turn lanes for the I-81 SB Off-Ramp. Given the current uncertainty regarding the completion date for this project, the future condition capacity analyses were completed with and without the referenced programmed roadway improvement project.

Information regarding the above projects were obtained from PennDOT and is included in **Appendix E**.

Improvements By Others

Based on a review of the TIS's for the nearby proposed developments referenced in the Nearby Proposed Developments section of this report, there are proposed roadway improvements at the following study area intersections:

» Wilkes-Barre Township (SR 6309) and I-81 SB Off-Ramp/Blackman Street, including northbound dual left-turn lanes from Wilkes-Barre Township Boulevard to Blackman Street. The proposed roadway improvements by others were included in all future condition capacity analyses, as applicable.

PROPOSED SITE ACCESS

Access to the site is proposed via two (2) driveways to Allan Road (private roadway) and five (5) driveways to Haul Road (private roadway). Additionally, in anticipation of PennDOT's P3 I-81 widening project, the segment of Allan Road between Wilkes-Barre Township Boulevard (SR 6309) and the I-81 overpass will be eliminated, and Allan Road will be relocated to create a new intersection with Johnson Street.

Sight Distance Analysis

A sight distance analysis was prepared for the Haul Road and Relocated Allan Road intersections with Johnson Street in accordance with Section 810 of the Wilkes-Barre Township SALDO which states, *"Streets shall be so laid out that there will be unobstructed sight distances along centerlines thereof measured from a point five (5) feet above the proposed grade line, to permit horizontal visibility as follows:*

» *Arterial Streets – Six hundred (600) feet.*

» *Collector Streets – Three hundred (300) feet.*

» *Local Streets – One hundred fifty (150) feet.*

Table 5 shows the ordinance required and existing (measured) sight distances for the Haul Road and Relocated Allan Road intersections with Johnson Street. Note, all three roadways were identified as local streets for purposes of the sight distance analysis.

TABLE 5
SIGHT DISTANCE ANALYSIS

	Direction	Posted Speed	Sight Distances (feet)	
			ORDINANCE	EXIST
Haul Road intersection with Johnson Street				
Exiting Movements	To the Left	25 mph	150′	**315′**
	To the Right	25 mph	150′	**420′**
Relocated Allan Road intersection with Johnson Street				
Exiting Movements	To the Left	25 mph	150′	**320′**
	To the Right	25 mph	150′	**500′+**

ORDINANCE = Ordinance Required Sight Distance
EXIST = Existing (measured) Sight Distance

As shown in **Table 5** above, the existing (measured) sight distances for the Haul Road and Relocated Allan Road intersections with Johnson Street will exceed the ordinance required sight distance requirements.

TRIP GENERATION

The trip generation data were obtained from the manual *Trip Generation*, Eleventh Edition, 2021, an Institute of Transportation Engineers (ITE) Informational Report. For the proposed development, Land Use Code #154 (High-Cube Transload and Short-Term Storage Warehouse) was used to calculate the number of vehicular trips the development will generate during the following time periods: (1) average weekday; (2) weekday A.M. Peak Hour of Adjacent Street Traffic; (3) weekday A.M. Peak Hour of Generator; and (4) weekday P.M. Peak Hour of Generator.

Table 6 shows the ITE trip generation data for the analyzed time periods.

TABLE 6
ITE TRIP GENERATION DATA

Land Use	ITE #	X	Time Period	Trip Type	Equation/Rate	Splits	
						Enter %	Exit %
High-Cube Transload and Short-Term Storage Warehouse	154	937.44	Average Weekday	All Vehicular	T = 1.40*(X)	50%	50%
				Trucks	T = 0.22*(X)	50%	50%
			Weekday A.M. Peak Hour of Adjacent Street Traffic	All Vehicular	T = 0.08*(X)	77%	23%
				Trucks	T = 0.02*(X)	49%	51%
			Weekday A.M. Peak Hour of Generator	All Vehicular	T = 0.13*(X)	78%	22%
				Trucks	T = 0.01*(X)	56%	44%
			Weekday P.M. Peak Hour of Generator	All Vehicular	T = 0.17*(X)	34%	66%
				Trucks	T = 0.03*(X) – 5.07	55%	45%

T = number of site-generated vehicular trips
X = independent variable (ksf = 1,000 s.f. gross floor area)

Table 7 summarizes the trip generation of the proposed development the analyzed time periods.

TABLE 7
TRIP GENERATION SUMMARY

Land Use	Total Vehicular Trips			Truck Trips			Passenger Car Trips		
	Total	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit
Average Weekday	1,312	656	656	206	103	103	1,106	553	553
Weekday A.M. Peak Hour of Adjacent Street Traffic	75	58	17	19	9	10	56	49	7
Weekday A.M. Peak Hour of Generator	122	95	27	9	5	4	113	90	23
Weekday P.M. Peak Hour of Generator	159	54	105	23	13	10	136	41	95

TRIP DISTRIBUTION

Redistributed Trips

As previously noted, in anticipation of PennDOT's P3 I-81 widening project, the segment of Allan Road between Wilkes-Barre Township Boulevard (SR 6309) and the I-81 overpass will be eliminated, and Allan Road will be relocated to create a new intersection with Johnson Street. The redistribution of trips for

Relocated Allan Road during the weekday A.M. Adjacent Street, weekday A.M. Generator, and weekday P.M. Generator peak hours are illustrated in **Figures 15-17**.

Passenger Car Trips

The distribution of passenger car trips (i.e. mainly employees) generated by the proposed development was based on the following: (1) the average one-way commute time to work in the United States; (2) the proximity of local population centers in the vicinity of the subject tract; and (3) the available routes for travel. Based on TPD's research the average one-way commute to work in the United States is approximately 30 minutes. Taking this into consideration the population centers in the vicinity of the subject tract that are anticipated to be the origin of the majority of employee trips to/from the proposed warehouse are Wilkes-Barre, Pittston, Scranton, and Hazelton. Based on the available travel routes for travel to/from these population centers, the passenger car trips generated by the proposed warehouse were distributed to the local roadway network based on the below percentages and as summarized in **Table 8**. These percentages were reviewed and approved in conjunction with the TIS Scoping Application.

The overall origin/destinations for the passenger vehicle trip distributions are as follows:

- To/from north of the site = 60%;
- To/from south of the site = 40%.

TABLE 8
TRIP DISTRIBUTION PERCENTAGES: NEW PASSENGER VEHICLE TRIPS

Assignment – To/From	Distribution Percentages: Passenger Car Trips	
	Entering Trips	Exiting Trips
North via Wilkes-Barre Township Boulevard (SR 6309)	14%	14%
North via Johnson Street	5%	5%
South via Wilkes-Barre Township Boulevard (SR 6309)/I-81	10%	20%[1]
East via Highland Park Boulevard (SR 2063)	5%	25%
West via Coal Street	5%	5%
West via Casey Avenue (SR 2016)	1%	1%
West via Blackman Street (SR 2005)	30%	30%
North via I-81 SB Off-Ramp at Blackman Street	30%	--

1 = Includes 10% oriented to the north which are assumed to utilize the I-81 NB On-Ramp to the south of the site

Truck Trips

The distribution of truck trips generated by the proposed development was based on the following: (1) the proximity of regional population centers in the vicinity of the subject tract; and (2) the location of major interstates/arterials in the vicinity of the subject tract. Based on TPD's review, major regional population centers such as Philadelphia, New York, Boston and Hartford are anticipated to utilize I-80, I-81, I-84 and I-476 to travel to/from the proposed warehouse to/from the north via Wilkes-Barre Township Boulevard. Additionally, major regional population centers such as Harrisburg, Pittsburgh, Baltimore and Washington D.C. are anticipated to utilize I-80, I-81, and I-83 to travel to/from the proposed warehouse to/from the south via Wilkes-Barre Township Boulevard. Based on the available travel routes for travel to/from these population centers, the truck trips generated by the proposed warehouse were distributed to the local

roadway network based on the below percentages and as summarized in **Table 9**. These percentages were reviewed and approved in conjunction with the TIS Scoping Application.

The overall origin/destinations for the truck trip distributions are as follows:

» To/from north of the site = 25%;

» To/from south of the site = 75%.

TABLE 9
TRIP DISTRIBUTION PERCENTAGES: TRUCK TRIPS

Assignment – To/From	Distribution Percentages: Truck Trips	
	Entering Trips	Exiting Trips
North via Wilkes-Barre Township Boulevard (SR 6309)	--	--
North via Johnson Street	--	--
South via Wilkes-Barre Township Boulevard (SR 6309)/I-81	75%	90%[1]
East via Highland Park Boulevard (SR 2063)	10%	10%
West via Coal Street	--	--
West via Casey Avenue (SR 2016)	--	--
West via Blackman Street (SR 2005)	--	--
North via I-81 SB Off-Ramp at Blackman Street	15%	--

1 = Includes 15% oriented to the north which are assumed to utilize the I-81 NB On-Ramp to the south of the site

Schematic figures summarizing the trip assignment percentages at the study area intersections for the proposed development are illustrated in **Figures 18-19**.

Schematic figures summarizing the assignment of site-generated trips at the study area intersections for the proposed development during the weekday A.M. Adjacent Street, weekday A.M. Generator, and weekday P.M. Generator peak hours are illustrated in **Figures 20-22**.

PROJECTED (BUILD) CONDITION TRAFFIC VOLUMES

The site-generated trips for the proposed development were added to the 2024/2029 base (no-build) condition traffic volumes to develop 2024/2029 projected (build) condition traffic volumes.

Projected (build) condition traffic volumes for the weekday A.M. Adjacent Street, weekday A.M. Generator, and weekday P.M. Generator peak hours are illustrated in **Figures 23-25.** Traffic volume development worksheets are contained in **Appendix F**.

LEVELS OF SERVICE FOR AN INTERSECTION

For analysis of intersections, level of service is defined in terms of delay, which is a measure of driver discomfort and frustration, fuel consumption, and lost travel time. LOS criteria is stated in terms of control delay per vehicle for a one-hour analysis period. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. The criteria are shown in **Table 10**. Delay, as it relates to level of service, is a complex measure and is dependent upon a number of variables. For signalized intersections, these variables include the quality of vehicle progression, the cycle length, the green time ratio, and the volume/capacity ratio for the lane group in question. For unsignalized intersections, delay is related to the availability of gaps in the flow of traffic on the major street and the driver's discretion in selecting an appropriate gap for a particular movement from the minor street (straight across, left, or right turn).

TABLE 10
LEVEL OF SERVICE CRITERIA
UNSIGNALIZED AND SIGNALIZED INTERSECTIONS[1]

Level of Service	Control Delay Per Vehicle (Seconds)	
	Signalized	Unsignalized
A	< 10	< 10
B	> 10 and < 20	> 10 and < 15
C	> 20 and < 35	> 15 and < 25
D	> 35 and < 55	> 25 and < 35
E	> 55 and < 80	> 35 and < 50
F	> 80 or v/c > 1.0	> 50 or v/c > 1.0

1 = Obtained from Exhibits 19-8 and 20-2 of the Transportation Research Board's Highway Capacity Manual 6th Edition

CAPACITY ANALYSIS METHODOLOGY

Capacity analyses were conducted for the weekday A.M. Adjacent Street, weekday A.M. Generator, and weekday P.M. Generator peak hours at the study area intersections. These analyses were conducted according to the methodologies contained in the *Highway Capacity Manual* (HCM) 6th Edition using *Synchro* version 11.1, build 1, revision 6 software, a Trafficware product.

The following conditions were analyzed, as applicable:

- Existing conditions.
- 2024/2029 Base conditions (Full Build-Out Year and 5 years after Full Build-Out without development).
- 2024/2029 Projected conditions (Full Build-Out Year and 5 years after Full Build-Out with development).

The capacity analysis worksheets are included in **Appendix G.**

The following items should be noted with respect to the capacity analyses:

- The Pennsylvania default values for signalized intersections in a suburban land use context contained in Chapter 10 of PennDOT's *Publication 46* were utilized for the base saturation flow rate (1800 pcphpl), start-up lost time (2.5 seconds), extension of effective green time (3.5 seconds) and number of left turn sneakers (2 vehicles).

- The Pennsylvania default values for two-way stop controlled intersections in a suburban land use context contained in Chapter 10 of PennDOT's *Publication 46* were utilized for the base critical headway and base follow-up headways. Worksheets related to the calculated critical and follow-up headways are included at the beginning of **Appendix G**.
- Per PennDOT standards, the signal timings at the study area intersections were optimized under the base (no-build) and projected (build) conditions.
- The heavy vehicle percentages at the study area intersections were calculated, as applicable, to account for the additional truck traffic generated by the proposed development. The calculated heavy vehicles percentages are included at the beginning of **Appendix G**.
- The capacity analyses for the existing conditions utilized the traffic signal permit plans included in **Appendix H**. Based on correspondence with PennDOT, the following should be noted with respect to the existing traffic signal permit plans:
    - Wilkes-Barre Township (SR 6309) and Blackman Street (SR 2005)/I-81 SB Off-Ramp: Utilized the signal plan indicating Revision 3 dated 4/20 based on the recently completed Burger King project and associated improvements which included lengthening the northbound and eastbound left-turn lanes to 275' and 380', respectively.
    - Wilkes-Barre Township (SR 6309) and Coal Street/Highland Park Boulevard (SR 2063): Utilized a cycle length of 128 seconds in the AM peak period and 86 seconds in the PM peak period based on field verification of timings. These cycle lengths reflect coordination with other signals in the system which includes the signalized intersection of Wilkes-Barre Township (SR 6309) and Sheetz Driveway/Shopping Center Driveway.
- The capacity analyses for the base (no-build) and projected (build) conditions utilized the traffic signal permit plans included in **Appendix E** for the SR 309 Safety Improvement Project.

Per the approved TIS Scoping Application, separate capacity analyses are included in **Appendix M** for the intersection of Wilkes-Barre Township (SR 6309) and Blackman Street (SR 2005)/I-81 SB Off-Ramp that include the programmed PennDOT project that includes dual left-turn lanes from the I-81 SB Off-Ramp Wilkes-Barre Township (SR 6309).

PennDOT Standards

The capacity analyses were conducted in accordance with the below noted standards contained in Appendix A - Policies and Procedures for Transportation Impact Studies Related to Highway Occupancy Permits of PennDOT *Publication 282,* dated July 2017:

- Page 32 of the Guidelines state that if evaluation of the With Development Horizon Year Scenario to the Without Development Horizon Year Scenario indicates that the overall intersection level of service has dropped, the applicant will be required to mitigate the level of service if the increase in overall intersection delay is greater than 10-seconds. If the overall intersection delay increase is less than or equal to 10-seconds, mitigation of the intersection will not be required. If the intersection level of service meets the level of service requirements, applicants may still be required to provide mitigation to address critical lanes or approaches. For locations where the level of service of the design horizon year without the development is LOS F and with development, the delay increases more than 10 seconds, the remedies shall provide an estimated delay which will be no worse than the delay for the design year without the development.
- Page 33 of the Guidelines state that for mitigation scenarios, applicants are expected to mitigate the overall intersection LOS to the original Without Development LOS; the 10-second delay variance is not applied to mitigation scenarios. Applicants may be required to address available storage and queue lengths at critical movements or approaches even if the overall LOS requirements are met.

- Page 34 of the Guidelines state that if signalization is the preferred alternative for mitigation, overall intersection LOS C in rural areas and LOS D in urban areas is acceptable.
- Page 35 of the Guidelines states new signalized or unsignalized intersections established to serve as access to the development shall be designed to operate at minimum LOS C for rural areas, and minimum LOS D for urban areas.

LEVELS OF SERVICE IN THE STUDY AREA

Levels of service (LOS) at the study area intersections for the weekday A.M. Adjacent Street, weekday A.M. Generator, and weekday P.M. Generator peak hours are summarized in matrix form in **Tables 11-13** for the existing conditions, 2024/2029 base (no-build) conditions, and 2024/2029 projected (build) conditions.

TABLE 11
LEVEL OF SERVICE SUMMARY (DELAY): WEEKDAY A.M. ADJACENT STREET

Intersection	Approach/ Movement	Weekday A.M. Peak Hour of Adjacent Street			
		Existing Conditions	Full Build-Out/Design Year (2024/2029)		
			Base Conditions	Projected Conditions	Projected Conditions[1]
Wilkes-Barre Township Boulevard & Blackman Street/ I-81 SB Off-Ramp	EB L	C	D	D	--
	EB R	A	A	A	--
	WB L	C	C	B	--
	WB T	C	D	D	--
	WB R	A	A	A	--
	NB L / LL	B	D	D	--
	NB TT	A	B	B	--
	SB TT	C	C	C	--
	SB R	A	A	A	--
	ILOS	**B (16.2)**	**C (25.0)**	**C (25.4)**	--
Wilkes-Barre Township Boulevard & Johnson Street/ Blackman Plaza Driveway	EB LT	C	C	C	--
	EB R		A	A	--
	WB LTR	D	C	C	--
	NB L	A	A	A	--
	NB T		A	A	--
	NB R		A	A	--
	SB L	B	A	A	--
	SB T		A	A	--
	SB R		A	A	--
	ILOS	**A (1.9)**	**A (9.7)**	**A (9.8)**	--
Wilkes-Barre Township Boulevard & Casey Avenue/ Park & Ride Lot	EB L	C	C	C	--
	EB TR	C	C	C	--
	WB LTR	C	C	C	--
	NB L	A	A	A	--
	NB TR	A	A	A	--
	SB L	A	A	A	--
	SB T	A	A	A	--
	SB R	A	A	A	--
	ILOS	**A (8.4)**	**A (6.7)**	**A (6.7)**	--
Wilkes-Barre Township Boulevard & Sheetz Driveway/ Shopping Center Driveway	EB LTR	C	C	C	--
	WB LT	C	C	C	--
	WB R	A	A	A	--
	NB L	A	A	A	--
	NB TT	A	A	A	--
	NB R	A	A	A	--
	SB L	A	A	A	--
	SB TTR	A	A	A	--
	ILOS	**A (8.0)**	**A (8.0)**	**A (7.9)**	--

Base = No-Build scenario Projected = Build scenario ILOS = Overall Intersection Level of Service
1 = Projected conditions with implementation of recommended improvements

TABLE 11 (CONTINUED)
LEVEL OF SERVICE SUMMARY (DELAY): WEEKDAY A.M. ADJACENT STREET

Intersection	Approach/ Movement	Weekday A.M. Peak Hour of Adjacent Street			
		Existing Conditions	Full Build-Out/Design Year (2024/2029)		
			Base Conditions	Projected Conditions	Projected Conditions[1]
Wilkes-Barre Township Boulevard & Coal Street/ Highland Park Boulevard	EB L	D	D	D	--
	EB TTR	E (59.0)	E (58.6)	E (58.5)	--
	WB L	D	D	D	--
	WB TT	D	D	D	--
	WB R	A	A	A	--
	NB L	B	B	B	--
	NB TT	A	A	A	--
	NB R	A	A	A	--
	SB L	C	B	B	--
	SB TTR	C	C	C	--
	ILOS	**C (28.4)**	**C (29.0)**	**C (29.1)**	--
Johnson Street & Haul Road	EB LTR	A	A	A	--
	WB LTR	A	A	A	--
	NB L	A	A	A	--
	SB L	A	A	A	--
	ILOS	**A (1.9)**	**A (1.7)**	**A (2.0)**	--
Johnson Street & Relocated Allan Road	WB L	--	--	A	--
	NB LR	--	--	A	--
	ILOS	--	--	**A (1.1)**	--

Base = No-Build scenario Projected = Build scenario ILOS = Overall Intersection Level of Service
1 = Projected conditions with implementation of recommended improvements

TABLE 12
LEVEL OF SERVICE SUMMARY (DELAY): WEEKDAY A.M. GENERATOR

Intersection	Approach/ Movement	Weekday A.M. Peak Hour of Generator			
		Existing Conditions	Full Build-Out/Design Year (2024/2029)		
			Base Conditions	Projected Conditions	Projected Conditions[1]
Wilkes-Barre Township Boulevard & Blackman Street/ I-81 SB Off-Ramp	EB L	C	D	D	--
	EB R	A	A	A	--
	WB L	C	B	B	--
	WB T	C	D	D	--
	WB R	A	A	A	--
	NB L / LL	B	C	C	--
	NB TT	B	B	B	--
	SB TT	C	C	C	--
	SB R	A	A	A	--
	ILOS	**B (17.2)**	**C (25.7)**	**C (26.8)**	--
Wilkes-Barre Township Boulevard & Johnson Street/ Blackman Plaza Driveway	EB LT	C	C	C	--
	EB R		A	A	--
	WB LTR	D	C	C	--
	NB L	A	A	A	--
	NB T		A	A	--
	NB R		A	A	--
	SB L	B	A	A	--
	SB T		A	A	--
	SB R		A	A	--
	ILOS	**A (1.9)**	**A (9.8)**	**A (9.9)**	--
Wilkes-Barre Township Boulevard & Casey Avenue/ Park & Ride Lot	EB L	C	C	C	--
	EB TR	C	C	C	--
	WB LTR	C	C	C	--
	NB L	A	A	A	--
	NB TR	A	A	A	--
	SB L	A	A	A	--
	SB T	A	A	A	--
	SB R	A	A	A	--
	ILOS	**A (7.7)**	**A (7.0)**	**A (7.0)**	--
Wilkes-Barre Township Boulevard & Sheetz Driveway/ Shopping Center Driveway	EB LTR	C	C	C	--
	WB LT	C	C	C	--
	WB R	A	A	A	--
	NB L	A	A	A	--
	NB TT	A	A	A	--
	NB R	A	A	A	--
	SB L	A	A	A	--
	SB TTR	A	A	A	--
	ILOS	**A (7.6)**	**A (7.6)**	**A (7.6)**	--

Base = No-Build scenario Projected = Build scenario ILOS = Overall Intersection Level of Service
1 = Projected conditions with implementation of recommended improvements

TABLE 12 (CONTINUED)
LEVEL OF SERVICE SUMMARY (DELAY): WEEKDAY A.M. GENERATOR

Intersection	Approach/ Movement	Weekday A.M. Peak Hour of Generator			
		Existing Conditions	Full Build-Out/Design Year (2024/2029)		
			Base Conditions	Projected Conditions	Projected Conditions[1]
Wilkes-Barre Township Boulevard & Coal Street/ Highland Park Boulevard	EB L	D	D	D	--
	EB TTR	E (58.0)	E (58.2)	E (58.3)	--
	WB L	D	D	D	--
	WB TT	D	D	D	--
	WB R	A	A	A	--
	NB L	B	B	B	--
	NB TT	A	A	A	--
	NB R	A	A	A	--
	SB L	B	B	B	--
	SB TTR	B	C	C	--
	ILOS	**C (28.9)**	**C (28.9)**	**C (29.0)**	--
Johnson Street & Haul Road	EB LTR	A	A	A	--
	WB LTR	A	A	A	--
	NB L	A	A	A	--
	SB L	A	A	A	--
	ILOS	**A (1.0)**	**A (0.9)**	**A (1.6)**	--
Johnson Street & Relocated Allan Road	WB L	--	--	A	--
	NB LR	--	--	A	--
	ILOS	--	--	**A (1.0)**	--

Base = No-Build scenario Projected = Build scenario ILOS = Overall Intersection Level of Service
1 = Projected conditions with implementation of recommended improvements

TABLE 13
LEVEL OF SERVICE SUMMARY (DELAY): WEEKDAY P.M. GENERATOR

Intersection	Approach/ Movement	Weekday P.M. Peak Hour of Generator			
		Existing Conditions	Full Build-Out/Design Year (2024/2029)		
			Base Conditions	Projected Conditions	Projected Conditions[1]
Wilkes-Barre Township Boulevard & Blackman Street/ I-81 SB Off-Ramp	EB L	D	D	D	D
	EB R	A	A	A	A
	WB L	C	C	C	C
	WB T	D	D	D	D
	WB R	A	A	A	A
	NB L / LL	C	D	D	D
	NB TT	B	B	B	B
	SB TT	C	D	D	D
	SB R	A	A	A	A
	ILOS	**C (29.4)**	**D (35.5)**	**D (38.1)**	**D (38.1)**
Wilkes-Barre Township Boulevard & Johnson Street/ Blackman Plaza Driveway	EB LT	F (65.9)	D	D	D
	EB R		A	A	A
	WB LTR	F (280.0)	D	D	D
	NB L	B	A	B	B
	NB T		A	A	A
	NB R		A	A	A
	SB L	B	A	A	A
	SB T		A	B	B
	SB R		A	A	A
	ILOS	**B (12.0)**	**A (9.8)**	**B (13.9)**	**B (13.8)**
Wilkes-Barre Township Boulevard & Casey Avenue/ Park & Ride Lot	EB L	C	D	D	D
	EB TR	C	C	C	C
	WB LTR	C	C	C	C
	NB L	B	A	A	A
	NB TR	A	A	A	A
	SB L	A	A	A	A
	SB T	A	B	B	B
	SB R	A	A	A	A
	ILOS	**B (10.4)**	**B (11.3)**	**B (11.4)**	**B (11.3)**
Wilkes-Barre Township Boulevard & Sheetz Driveway/ Shopping Center Driveway	EB LTR	C	C	C	C
	WB LT	D	C	C	C
	WB R	A	A	A	A
	NB L	A	A	A	A
	NB TT	B	B	B	B
	NB R	A	A	A	A
	SB L	A	A	A	A
	SB TTR	A	A	A	A
	ILOS	**B (10.6)**	**B (10.4)**	**B (10.5)**	**B (10.5)**

Base = No-Build scenario Projected = Build scenario ILOS = Overall Intersection Level of Service
1 = Projected conditions with implementation of recommended improvements

TABLE 13 (CONTINUED)
LEVEL OF SERVICE SUMMARY (DELAY): WEEKDAY P.M. GENERATOR

Intersection	Approach/ Movement	Weekday P.M. Peak Hour of Generator			
		Existing Conditions	Full Build-Out/Design Year (2024/2029)		
			Base Conditions	Projected Conditions	Projected Conditions[1]
Wilkes-Barre Township Boulevard & Coal Street/ Highland Park Boulevard	EB L	C	C	C	C
	EB TTR	F (321.7)	D	D	D
	WB L	C	D	D	D
	WB TT	C	C	C	C
	WB R	A	A	A	A
	NB L	B	C	C	C
	NB TT	B	B	B	B
	NB R	A	A	A	A
	SB L	B	C	C	C
	SB TTR	C	C	C	C
	ILOS	**F (92.8)**	**C (31.9)**	**C (32.3)**	**C (32.3)**
Johnson Street & Haul Road	EB LTR	A	A	A	A
	WB LTR	A	A	A	A
	NB L	A	A	A	A
	SB L	A	A	A	A
	ILOS	**A (0.7)**	**A (0.7)**	**A (2.9)**	**A (2.9)**
Johnson Street & Relocated Allan Road	WB L	--	--	A	A
	NB LR	--	--	A	A
	ILOS	--	--	**A (2.0)**	**A (2.0)**

Base = No-Build scenario Projected = Build scenario ILOS = Overall Intersection Level of Service
1 = Projected conditions with implementation of recommended improvements

As summarized in **Tables 11-13**, under the 2024/2029 projected (build) conditions, the study area intersections will operate in accordance with the standards contained in Appendix A - Policies and Procedures for Transportation Impact Studies Related to Highway Occupancy Permits of PennDOT *Publication 282,* dated July 2017.

95TH PERCENTILE QUEUE ANALYSIS

95th percentile queue analyses were conducted at the study area intersections using SimTraffic based on the following methodology:

- Calibration settings: 3 intervals, as follows:
  - 10-minute seeding.
  - 15-minute recording with PHF Adjust set to "Yes" and the AntiPHF Adjust set to "No".
  - 45-minute recording with PHF Adjust set to "No" and the AntiPHF Adjust set to "Yes".
- Results based on average of 5 simulations runs.

The SimTraffic queue analysis worksheets are included in **Appendix I**, and the results are summarized in **Tables 14-16** for the analyzed conditions and time periods.

TABLE 14
95TH PERCENTILE QUEUE ANALYSIS: WEEKDAY A.M. ADJACENT STREET

Intersection	Approach/ Movement	Existing Storage	Base Storage	Projected Storage[1]	PennDOT Pub. 46 Storage	Weekday A.M. Peak Hour of Adjacent Street			
						Existing Conditions	Full Build-Out/Design Year (2024/2029)		
							Base Conditions	Projected Conditions	Projected Conditions[1]
Wilkes-Barre Township Boulevard & Blackman Street/ I-81 SB Off-Ramp	EB L	380'	Same	Same	250'	87'	182'	206'	--
	EB R	1,000'+[2]	Same	Same	350'	0'	25'	14'	--
	WB L	180'	Same	Same	525'	192'	217'	220'	--
	WB T	750'+[2]	Same	Same	--	123'	149'	143'	--
	WB R	180'	Same	Same	--	0'	0'	0'	--
	NB L	275'	275'	Same	375'	138'	236'	226'	--
	NB L	--	275'	Same		--	258'	254'	--
	NB T	800'[2]	Same	Same	--	164'	179'	176'	--
	NB T					127'	136'	152'	--
	SB T	1200'[2]	Same	Same	--	114'	142'	139'	--
	SB T					112'	141'	134'	--
	SB R	225'	Same	Same	200'	0'	0'	0'	--
Wilkes-Barre Township Boulevard & Johnson Street/ Blackman Plaza Driveway	EB LT	0'	150' [2]	Same	--	67'	153'	125'	--
	EB R		150' [2]	Same	--		19'	13'	--
	WB LTR	700' [2]	Same	Same	--	50'	49'	88'	--
	NB L	TWTL	150'+[3]	Same	200'	27'	106'	103'	--
	NB T	1200'[2]	Same	Same	--	4'	182'	178'	--
	NB R		100'	Same	150'		38'	60'	--
	SB L	TWTL	110'+[3]	Same	75'	23'	39'	59'	--
	SB T	735' [2]	Same	Same	--	20'	214'	200'	--
	SB R		150'	Same	200'		57'	46'	--
Wilkes-Barre Township Boulevard & Casey Avenue/ Park & Ride Lot	EB L	125'	250'	Same	--	133'	190'	170'	--
	EB TR	150'[2]	Same	Same	--	35'	39'	38'	--
	WB LTR	--	Same	Same	--	6'	11'	4'	--
	NB L	125'+[3]	Same	Same	75'	33'	49'	21'	--
	NB TR	735' [2]	Same	Same	--	202'	221'	199'	--
	SB L	125'+[3]	Same	Same	--	0'	0'	0'	--
	SB T	1,000'+[2]	Same	Same	--	112'	143'	159'	--
	SB R	125'	Same	Same	75'	30'	33'	43'	--
Wilkes-Barre Township Boulevard & Sheetz Driveway/ Shopping Center Driveway	EB LTR	--	Same	Same	--	91'	79'	80'	--
	WB LT	--	Same	Same	--	80'	76'	85'	--
	WB R	--	Same	Same	--	0'	0'	0'	--
	NB L	100'	Same	Same	150'	41'	53'	47'	--
	NB T	750'[2]	Same	Same	--	125'	138'	142'	--
	NB T					117'	119'	114'	--
	NB R	185'	Same	Same	275'	0'	0'	0'	--
	SB L	235'	Same	Same	225'	48'	51'	54'	--
	SB T	600'[2]	Same	Same	--	145'	161'	176'	--
	SB TR				175'	58'	55'	66'	--

Base = No-Build scenario Projected = Build scenario
1 = Projected conditions with implementation of recommended improvements as applicable
2 = Distance to nearest public street intersection or mainline interstate
3 = Notes dedicated storage length, however additional storage available via two-way turn lane

= *95th percentile queue exceeds available storage*

TABLE 14 (CONTINUED)
95TH PERCENTILE QUEUE ANALYSIS: WEEKDAY A.M. GENERATOR

Intersection	Approach/ Movement	Existing Storage	Base Storage	Projected Storage[1]	PennDOT Pub. 46 Storage	Weekday A.M. Peak Hour of Adjacent Street			
						Existing Conditions	Full Build-Out/Design Year (2024/2029)		
							Base Conditions	Projected Conditions	Projected Conditions[1]
Wilkes-Barre Township Boulevard & Coal Street/ Highland Park Boulevard	EB L	235'+[3]	Same	Same	150'	81'	76'	76'	--
	EB T	400'[2]	Same	Same	--	170'	195'	186'	--
	EB TR				200'	195'	212'	195'	--
	WB L	650'	Same	Same	275'	164'	162'	171'	--
	WB T	1,000'+[2]	Same	Same	--	135'	137'	145'	--
	WB T					114'	107'	109'	--
	WB R	200'	Same	Same	--	0'	0'	0'	--
	NB L	300'	Same	Same	600'	251'	327'	289'	--
	NB T	600'[2]	Same	Same	--	102'	215'	134'	--
	NB T					119'	141'	121'	--
	NB R	600'[2]	Same	Same	550'	0'	0'	0'	--
	SB L	125'	Same	Same	175'	22'	32'	28'	--
	SB T	1,000'+[2]	Same	Same	--	118'	134'	155'	--
	SB TR				--	92'	86'	108'	--
Johnson Street & Haul Road	EB LTR	--	--	--	--	0'	0'	0'	--
	WB LTR	--	--	--	--	54'	55'	69'	--
	NB L	700' [2]	Same	Same	--	0'	0'	8'	--
	SB L	1,000'+[2]	Same	Same	--	0'	0'	0'	--
Johnson Street & Relocated Allan Road	WB L	--	--	1,000'+[2]	--	--	--	6'	--
	NB LR	--	--	--	--	--	--	56'	--

Base = No-Build scenario Projected = Build scenario
1 = Projected conditions with implementation of recommended improvements as applicable
2 = Distance to nearest public street intersection or mainline interstate
3 = Notes dedicated storage length, however additional storage available via two-way turn lane

= *95th percentile queue exceeds available storage*

TABLE 15
95TH PERCENTILE QUEUE ANALYSIS: WEEKDAY A.M. GENERATOR

Intersection	Approach/ Movement	Existing Storage	Base Storage	Projected Storage[1]	PennDOT Pub. 46 Storage	Weekday A.M. Peak Hour of Generator			
						Existing Conditions	Full Build-Out/Design Year (2024/2029)		
							Base Conditions	Projected Conditions	Projected Conditions[1]
Wilkes-Barre Township Boulevard & Blackman Street/ I-81 SB Off-Ramp	EB L	380'	Same	Same	250'	118'	246'	239'	--
	EB R	1,000'+[2]	Same	Same	350'	0'	0'	22'	--
	WB L	180'	Same	Same	525'	150'	178'	188'	--
	WB T	750'+[2]	Same	Same	--	124'	120'	153'	--
	WB R	180'	Same	Same	--	0'	0'	0'	--
	NB L	275'	275'	Same	375'	100'	170'	178'	--
	NB L	--	275'	Same		--	200'	202'	--
	NB T	800'[2]	Same	Same	--	143'	152'	149'	--
	NB T					102'	101'	105'	--
	SB T	1200'[2]	Same	Same	--	125'	160'	155'	--
	SB T					126'	160'	154'	--
	SB R	225'	Same	Same	200'	0'	0'	0'	--
Wilkes-Barre Township Boulevard & Johnson Street/ Blackman Plaza Driveway	EB LT	0'	150' [2]	Same	--	59'	140'	139'	--
	EB R		150' [2]	Same	--		47'	13'	--
	WB LTR	700' [2]	Same	Same	--	65'	68'	106'	--
	NB L	TWTL	150'+[3]	Same	200'	29'	88'	75'	--
	NB T	1200'[2]	Same	Same	--	18'	123'	129'	--
	NB R		100'	Same	150'		37'	36'	--
	SB L	TWTL	110'+[3]	Same	75'	7'	21'	78'	--
	SB T	735' [2]	Same	Same	--	20'	215'	230'	--
	SB R		150'	Same	200'		45'	57'	--
Wilkes-Barre Township Boulevard & Casey Avenue/ Park & Ride Lot	EB L	125'	250'	Same	--	150'	203'	209'	--
	EB TR	150'[2]	Same	Same	--	27'	23'	26'	--
	WB LTR	--	Same	Same	--	0'	0'	0'	--
	NB L	125'+[3]	Same	Same	75'	16'	24'	15'	--
	NB TR	735' [2]	Same	Same	--	154'	195'	200'	--
	SB L	125'+[3]	Same	Same	--	0'	0'	0'	--
	SB T	1,000'+[2]	Same	Same	--	126'	181'	169'	--
	SB R	125'	Same	Same	75'	26'	39'	54'	--
Wilkes-Barre Township Boulevard & Sheetz Driveway /Shopping Center Driveway	EB LTR	--	Same	Same	--	92'	89'	84'	--
	WB LT	--	Same	Same	--	75'	79'	87'	--
	WB R	--	Same	Same	--	0'	0'	0'	--
	NB L	100'	Same	Same	150'	45'	45'	43'	--
	NB T	750'[2]	Same	Same	--	101'	104'	103'	--
	NB T					113'	136'	136'	--
	NB R	185'	Same	Same	275'	0'	0'	0'	--
	SB L	235'	Same	Same	225'	55'	57'	54'	--
	SB T	600'[2]	Same	Same	--	166'	186'	197'	--
	SB TR				175'	52'	56'	66'	--

Base = No-Build scenario Projected = Build scenario
1 = Projected conditions with implementation of recommended improvements as applicable
2 = Distance to nearest public street intersection or mainline interstate
3 = Notes dedicated storage length, however additional storage available via two-way turn lane

= *95th percentile queue exceeds available storage*

TABLE 15 (CONTINUED)
95TH PERCENTILE QUEUE ANALYSIS: WEEKDAY A.M. GENERATOR

Intersection	Approach/ Movement	Existing Storage	Base Storage	Projected Storage[1]	PennDOT Pub. 46 Storage	Weekday A.M. Peak Hour of Generator			
						Existing Conditions	Full Build-Out/Design Year (2024/2029)		
							Base Conditions	Projected Conditions	Projected Conditions[1]
Wilkes-Barre Township Boulevard & Coal Street/ Highland Park Boulevard	EB L	235'+[3]	Same	Same	150'	99'	92'	100'	--
	EB T	400'[2]	Same	Same	--	193'	221'	203'	--
	EB TR				200'	206'	233'	205'	--
	WB L	650'	Same	Same	275'	123'	147'	156'	--
	WB T	1,000'+[2]	Same	Same	--	129'	123'	135'	--
	WB T					99'	88'	99'	--
	WB R	200'	Same	Same	--	0'	0'	0'	--
	NB L	300'	Same	Same	600'	167'	189'	191'	--
	NB T	600'[2]	Same	Same	--	100'	116'	113'	--
	NB T					108'	119'	121'	--
	NB R	600'[2]	Same	Same	550'	0'	91'	0'	--
	SB L	125'	Same	Same	175'	45'	49'	41'	--
	SB T	1,000'+[2]	Same	Same	--	159'	179'	181'	--
	SB TR				--	108'	139'	142'	--
Johnson Street & Haul Road	EB LTR	--	--	--	--	0'	0'	0'	--
	WB LTR	--	--	--	--	43'	42'	59'	--
	NB LR[3]	700' [2]	Same	Same	--	0'	0'	0'	--
	SB LR[3]	1,000'+[2]	Same	Same	--	0'	0'	0'	--
Johnson Street & Relocated Allan Road	WB LT[3]	--	--	1,000'+[2]	--	--	--	4'	--
	NB LR	--	--	--	--	--	--	47'	--

Base = No-Build scenario Projected = Build scenario
1 = Projected conditions with implementation of recommended improvements as applicable
2 = Distance to nearest public street intersection or mainline interstate
3 = Notes dedicated storage length, however additional storage available via two-way turn lane

= *95th percentile queue exceeds available storage*

TABLE 16
95TH PERCENTILE QUEUE ANALYSIS: WEEKDAY P.M. GENERATOR

Intersection	Approach/ Movement	Existing Storage	Base Storage	Projected Storage[1]	PennDOT Pub. 46 Storage	Weekday P.M. Peak Hour of Generator			
						Existing Conditions	Full Build-Out/Design Year (2024/2029)		
							Base Conditions	Projected Conditions	Projected Conditions[1]
Wilkes-Barre Township Boulevard & Blackman Street/ I-81 SB Off-Ramp	EB L	380'	Same	Same	250'	235'	213'	238'	242'
	EB R	1,000'+[2]	Same	Same	350'	429'	323'	379'	350'
	WB L	180'	Same	Same	525'	315'	317'	317'	319'
	WB T	750'+[2]	Same	Same	--	435'	652'	664'	526'
	WB R	180'	Same	Same	--	58'	83'	143'	58'
	NB L	275'	275'	Same	375'	143'	139'	163'	157'
	NB L	--	275'	Same		--	176'	198'	193'
	NB T	800'[2]	Same	Same	--	180'	188'	198'	195'
	NB T					136'	157'	161'	166'
	SB T	1200'[2]	Same	Same	--	282'	441'	429'	437'
	SB T					288'	441'	437'	443'
	SB R	225'	Same	Same	200'	111'	434'	435'	430'
Wilkes-Barre Township Boulevard & Johnson Street/ Blackman Plaza Driveway	EB LT	0'	150' [2]	Same	--	141'	124'	200'	113'
	EB R		150' [2]	Same	--		276'	318'	241'
	WB LTR	700' [2]	Same	Same	--	96'	90'	571'	175'
	NB L	TWTL	150'+[3]	Same	200'	50'	137'	146'	143'
	NB T	1200'[2]	Same	Same	--	0'	217'	239'	223'
	NB R		100'	Same	150'		82'	114'	91'
	SB L	TWTL	110'+[3]	Same	75'	34'	40'	75'	76'
	SB T	735' [2]	Same	Same	--	8'	407'	396'	348'
	SB R		150'	Same	200'		120'	145'	115'
Wilkes-Barre Township Boulevard & Casey Avenue/ Park & Ride Lot	EB L	125'	250'	Same	--	201'	275'	280'	248'
	EB TR	150'[2]	Same	Same	--	224'	75'	90'	79'
	WB LTR	--	Same	Same	--	25'	34'	35'	32'
	NB L	125'+[3]	Same	Same	75'	39'	61'	45'	44'
	NB TR	735' [2]	Same	Same	--	181'	211'	249'	201'
	SB L	125'+[3]	Same	Same	--	10'	14'	15'	15'
	SB T	1,000'+[2]	Same	Same	--	219'	426'	319'	432'
	SB R	125'	Same	Same	75'	113'	190'	187'	220'
Wilkes-Barre Township Boulevard & Sheetz Driveway/ Shopping Center Driveway	EB LTR	--	Same	Same	--	90'	93'	84'	100'
	WB LT	--	Same	Same	--	232'	219'	235'	205'
	WB R	--	Same	Same	--	122'	95'	112'	65'
	NB L	100'	Same	Same	150'	63'	64'	78'	76'
	NB T	750'[2]	Same	Same	--	153'	169'	180'	165'
	NB T					197'	208'	216'	211'
	NB R	185'	Same	Same	275'	0'	53'	53'	77'
	SB L	235'	Same	Same	225'	153'	198'	178'	185'
	SB T	600'[2]	Same	Same	--	303'	381'	362'	367'
	SB TR				175'	187'	245'	234'	244'

Base = No-Build scenario Projected = Build scenario
1 = Projected conditions with implementation of recommended improvements as applicable
2 = Distance to nearest public street intersection or mainline interstate
3 = Notes dedicated storage length, however additional storage available via two-way turn lane

= *95th percentile queue exceeds available storage*

TABLE 16 (CONTINUED)
95TH PERCENTILE QUEUE ANALYSIS: WEEKDAY P.M. GENERATOR

Intersection	Approach/ Movement	Existing Storage	Base Storage	Projected Storage[1]	PennDOT Pub. 46 Storage	Weekday P.M. Peak Hour of Generator			
						Existing Conditions	Full Build-Out/Design Year (2024/2029)		
							Base Conditions	Projected Conditions	Projected Conditions[1]
Wilkes-Barre Township Boulevard & Coal Street/ Highland Park Boulevard	EB L	235'+[3]	Same	Same	150'	433'	169'	181'	150'
	EB T	400'[2]	Same	Same	--	1056'	291'	325'	290'
	EB TR				200'	1062'	329'	346'	302'
	WB L	650'	Same	Same	275'	214'	310'	297'	341'
	WB T	1,000'+[2]	Same	Same	--	183'	167'	162'	246'
	WB T					165'	161'	147'	200'
	WB R	200'	Same	Same	--	0'	0'	0'	0'
	NB L	300'	Same	Same	600'	213'	300'	275'	276'
	NB T	600'[2]	Same	Same	--	121'	209'	187'	148'
	NB T					266'	164'	165'	139'
	NB R	600'[2]	Same	Same	550'	132'	0'	0'	0'
	SB L	125'	Same	Same	175'	81'	181'	183'	181'
	SB T	1,000'+[2]	Same	Same	--	222'	392'	304'	328'
	SB TR				--	184'	335'	269'	277'
Johnson Street & Haul Road	EB LTR	--	--	--	--	0'	0'	0'	0'
	WB LTR	--	--	--	--	30'	31'	79'	67'
	NB LR[3]	700' [2]	Same	Same	--	0'	0'	0'	0'
	SB LR[3]	1,000'+[2]	Same	Same	--	0'	0'	8'	0'
Johnson Street & Relocated Allan Road	WB LT[3]	--	--	1,000'+[2]	--	--	--	46'	0'
	NB LR	--	--	--	--	--	--	150'	52'

Base = No-Build scenario Projected = Build scenario
1 = Projected conditions with implementation of recommended improvements as applicable
2 = Distance to nearest public street intersection or mainline interstate
3 = Notes dedicated storage length, however additional storage available via two-way turn lane

= *95th percentile queue exceeds available storage*

As summarized in **Tables 14-16**, under the 2024/2029 projected (build) conditions, with implementation of the recommended improvements, all of the 95th percentile queues will be accommodated within the available storage length, with the following exception of the following:

Wilkes-Barre Township Blvd & Blackman Street/I-81 Southbound Off-Ramp

- The westbound left-turn from the I-81 SB Off-Ramp; Available Storage = 180'; Maximum 95th percentile queue length = 319'. PennDOT's programmed I-81 SB Ramp G project includes the addition of a second left-turn lane on the I-81 SB Off-Ramp, resulting in dual left-turn lanes each with 300 feet of storage per lane. As summarized in Appendix M, the 95th percentile queue length for the subject movement will be accommodated by the dual-left-turn lanes. It should be noted the proposed development does not add any site-generated trips to this movement.
- The southbound Wilkes-Barre Township Boulevard right-turn; Available Storage = 225'; Maximum 95th percentile queue length = 430'. Based on a review of the SimTraffic simulation, the noted 95th percentile queue length is the result of the queue for the southbound Wilkes-Barre Township Boulevard through lanes extending beyond the subject right-turn lane, thus preventing vehicles from entering the right-turn lane. TPD evaluated potential traffic signal timing adjustments, however it was determined it is

not feasible to reduce the queue length for the through lanes such that they do not block the right-turn lane. It also is not feasible to lengthen the subject right-turn lane without impacting the driveways and parking for multiple commercial business along Wilkes-Barre Township Boulevard.

Wilkes-Barre Township Blvd & Casey Avenue/Park & Ride Lot

» The southbound Wilkes-Barre Township Boulevard right-turn; Available Storage = 125'; Maximum 95th percentile queue length = 220'. Based on a review of the SimTraffic simulation, the noted 95th percentile queue length is the result of the queue for the southbound Wilkes-Barre Township Boulevard through lane extending beyond the subject right-turn lane, thus preventing vehicles from entering the right-turn lane. TPD evaluated potential traffic signal timing adjustments, however it was determined it is not feasible to reduce the queue length for the through lanes such that they do not block the right-turn lane. It also is not feasible to lengthen the subject right-turn lane as a result of the steep slope off of the edge of roadway that is currently protected by guiderail. It should be noted the proposed development does not add any site-generated trips to this movement.

Wilkes-Barre Township Blvd & Coal Street/Highland Park Boulevard

» The southbound Wilkes-Barre Township Boulevard left-turn; Available Storage = 125'; Maximum 95th percentile queue length = 181'. TPD evaluated potential traffic signal timing adjustments, however it was determined it is not feasible to reduce the queue length to be accommodated by the available storage. It also is not feasible to lengthen the subject left-turn lane since it is constrained by the back-to-back left-turn lane at Raco Drive. It should be noted the proposed development does not add any site-generated trips to this movement.

AUXILIARY TURN LANE ANALYSIS

Methodology

TPD evaluated auxiliary turn lane warrants at the study intersections, as applicable. The warrant analysis was conducted according to the methodologies contained in Chapter 11 of PennDOT's *Publication 46* utilizing the posted speed limits. The auxiliary turn lane warrant analysis worksheets are contained in **Appendix J**.

Findings

Table 17 summarizes the results of the auxiliary turn lane analysis.

TABLE 17
AUXILIARY TURN LANE ANALYSIS SUMMARY

Intersection	Auxiliary Lane	Full Build-Out/Design Year (2024/2029)				
		Additional Site Traffic[1]	Warrant Satisfied?	Warranted Length	Provided Length[2]	Maximum Queue Length[3]
Wilkes-Barre Township Boulevard & Blackman Street/ I-81 SB Off-Ramp	EB Left	13-27	Yes	250′	380′	242′
	EB Right	0	Yes	350′	1,000′+[4]	350′
	WB Left	0	Yes	525′	180′/ **300′-300′ (dual)**	319′
	WB Right	14-28	No	--	180′/**165′**	58′
	NB Left	0	Yes	375′	275′-275′ (dual)	226′-254′
	SB Right	2-28	Yes	200′	225′	430′
Wilkes-Barre Township Boulevard & Johnson Street/ Blackman Plaza Driveway	EB Left	0	No	--	150′	139′
	EB Right	0	No	--	--	241′
	WB Left	13-56	No	--	--	175′
	WB Right	4-44	No	--	--	175′
	NB Left	0	Yes	200′	150′+[5]	143′
	NB Right	41-67	Yes	150′	100′	91′
	SB Left	11-24	Yes	75′	110′+[5]	78′
	SB Right	0	Yes	200′	150′	115′
Wilkes-Barre Township Boulevard & Casey Avenue/ Park & Ride Lot	EB Left	0	No	--	250′	248′
	EB Right	0	No	--	--	79′
	WB Left	0	No	--	--	32′
	WB Right	0	No	--	--	32′
	NB Left	0	Yes	75′	125′+[5]	44′
	NB Right	0	No	--	--	201′
	SB Left	0	No	--	125′+[5]	15′
	SB Right	0	Yes	75′	125′	220′
Wilkes-Barre Township Boulevard & Sheetz Driveway/ Shopping Center Driveway	EB Left	0	No	--	--	100′
	EB Right	0	No	--	--	100′
	WB Left	0	No	--	--	205′
	WB Right	0	No	--	150′	65′
	NB Left	0	Yes	150′	100′	76′
	NB Right	0	Yes	275′	185′	77′
	SB Left	0	Yes	225′	235′	185′
	SB Right	0	Yes	175′	0′	244′

1 = During Analyzed Peak Hours
*2 = Base (No-Build) Length / **Projected (Build) Length with PennDOT Ramp G Project***
3 = Based on 95th Percentile Queue Lengths Summarized in Tables 15-17 for the 2024/2029 Projected (Build) Conditions
4 = Blackman Street Through Lane Becomes Right-Turn Lane at Signal
5 = Notes dedicated storage length, however additional storage available via two-way turn lane

TABLE 17 (CONTINUED)
AUXILIARY TURN LANE ANALYSIS SUMMARY

Intersection	Auxiliary Lane	Full Build-Out/Design Year (2024/2029)				
		Additional Site Traffic[1]	Warrant Satisfied?	Warranted Length	Provided Length[2]	Maximum Queue Length[3]
Wilkes-Barre Township Boulevard & Coal Street/ Highland Park Boulevard	EB Left	0	Yes	150'	235'+[5]	150'
	EB Right	2-4	Yes	200'	0'	302'
	WB Left	3-6	Yes	275'	650'	341'
	WB Right	0	No	--	200'	0'
	NB Left	1-5	Yes	600'	300'	289'
	NB Right	3-25	Yes	550'	650'	99'
	SB Left	0	Yes	175'	125'	181'
	SB Right	0	No	--	--	277'
Johnson Street & Haul Road	WB Left	9-52	No	--	--	69'
	WB Right	1-3	No	--	--	69'
	NB Right	21-45	No	--	--	8'
	SB Left	1-2	No	--	--	0'
Johnson Street & Relocated Allan Road	EB Right	31-46	No	--	--	0'
	WB Left	1-2	No	--	--	6'
	NB Left	8-48	No	--	--	56'
	NB Right	2	No	--	--	56'

1 = During Analyzed Peak Hours
*2 = Base (No-Build) Length / **Projected (Build) Length with PennDOT Ramp G Project***
3 = Based on 95th Percentile Queue Lengths Summarized in Tables 15-17 for the 2024/2029 Projected (Build) Conditions
4 = Blackman Street Through Lane Becomes Right-Turn Lane at Signal
5 = Notes dedicated storage length, however additional storage available via two-way turn lane

As summarized in **Table 17**, the warranted auxiliary turn lanes and associated lane lengths are provided at the study area intersections, with the exception of the following:

Wilkes-Barre Township Blvd & Johnson Street/ Blackman Plaza Driveway

- The northbound Wilkes-Barre Township Boulevard right-turn lane; Warranted lane length = 150'; Provided lane length = 100'. PennDOT's SR 309 Safety Improvement project includes construction of the subject right-turn lane with 100' of available storage. Based on TPD's review it appears lengthening the subject right-turn lane to provide the 50' of additional storage is not feasible since the area of widening is within a steep slope off of the edge of roadway that is currently protected by guiderail, as well as the nearby branch of Spring Run Creek. It should be noted the 100' of available storage will accommodate the maximum 95th percentile queue length.
- The southbound Wilkes-Barre Township Boulevard right-turn lane; Warranted lane length = 200'; Provided lane length = 150'. PennDOT's SR 309 Safety Improvement project includes construction of the subject right-turn lane with 150' of available storage. It should be noted the proposed development does not add any site-generated trips to this movement, and the 150' of available storage will accommodate the maximum 95th percentile queue length.

Wilkes-Barre Township Blvd & Sheetz Driveway/ Shopping Center Driveway

- The northbound Wilkes-Barre Township Boulevard left-turn lane; Warranted lane length = 150'; Provided lane length = 100'. Based on TPD's review it appears lengthening the subject left-turn lane to provide the 50' of additional storage is not feasible since the area of widening is within a steep slope off of the edge of roadway that is currently protected by guiderail, as well as a structure. It should be noted the proposed development does not add any site-generated trips to this movement, and the 100' of available storage will accommodate the maximum 95th percentile queue length.
- The northbound Wilkes-Barre Township Boulevard right-turn lane; Warranted lane length = 275'; Provided lane length = 185'. Based on TPD's review it appears lengthening the subject right-turn lane to provide the 90' of additional storage is not feasible since the area of widening is within a steep slope off of the edge of roadway that is currently protected by guiderail, as well as a structure. It should be noted the proposed development does not add any site-generated trips to this movement, and the 185' of available storage will accommodate the maximum 95th percentile queue length.
- The southbound Wilkes-Barre Township Boulevard right-turn lane; Warranted lane length = 175'; Provided lane length = Separate lane not provided. Based on TPD's review it appears construction of the subject right-turn lane is not feasible since the widening would impact several parking spaces within the Sheetz lot. It should be noted the proposed development does not add any site-generated trips to this movement.

Wilkes-Barre Township Blvd & Coal Street/Highland Park Boulevard

- The eastbound Coal Street right-turn lane; Warranted lane length = 200'; Provided lane length = Separate lane not provided. Based on TPD's review it appears construction of the subject right-turn lane is not feasible since the widening would impact several parking spaces within the Advanced Auto lot, as well as a significant utility pole for high tension lines.
- The northbound Wilkes-Barre Township Boulevard left-turn lane; Warranted lane length = 600'; Provided lane length = 300'. Based on the warranted lane length dual left-turn lanes would need to be considered. Based on TPD's review it appears construction of the dual left-turn lanes is not feasible since the widening would impact several parking spaces within the Advanced Auto and/or Sam's Club lots. It should be noted the 300' of available storage will accommodate the maximum 95th percentile queue length.
- The southbound Wilkes-Barre Township Boulevard left-turn lane; Warranted lane length = 175'; Provided lane length = 125'. Based on TPD's review it appears construction of the dual left-turn lanes is not feasible since the Based on TPD's review it appears lengthening the subject right-turn lane to provide the 50' of additional storage is not feasible since it is constrained by the back-to-back left-turn lane at Raco Drive. It should be noted the proposed development does not add any site-generated trips to this movement.

LEFT TURN SIGNAL PHASING

Methodology

TPD evaluated left-turn signal phasing at the intersection of Wilkes-Barre Township Boulevard and Johnson Street/Blackman Plaza Driveway. The evaluation of left-turn phasing was conducted according to the methodologies contained in Chapter 3 of PennDOT's *Publication 149*.

PennDOT's *Publication 149* states: "*Traffic volumes are the most reliable and useful method of analyzing the need for special phasing for left-turning vehicles; however, consideration must be given to the delay experienced by left-turning vehicles, safety, characteristics of the traffic stream, roadway and intersection geometry, and the type of signal operation in the area or along the street. Therefore, the following criteria have been established with the realization that a complete study for the entire intersection will be a necessary part of any evaluation of the need for consideration of a protected left turn movement. This study shall discuss each of the following criteria and include a capacity analysis for both the existing and proposed signal consideration. The engineering study shall include calculations and evaluations as indicated below. The results of the engineering study and engineering judgment shall be used to determine the most appropriate intersection operation*".

The left-turn phasing analysis worksheets are included in **Appendix K**.

Findings

Table 18 summarizes the results of the left-turn signal phasing analysis.

TABLE 18
LEFT-TURN SIGNAL PHASING ANALYSIS SUMMARY

Intersection	Direction	Existing Left-Turn Phasing	Pub 149 Warrant Satisfied?	Recommended Left-Turn Phasing
Wilkes-Barre Township Boulevard & Johnson Street/ Blackman Plaza Driveway	EB	None	No	None
	WB	None	No	None
	NB	Protected/Permitted	Yes	Protected/Permitted
	SB	None	No	None

SIGNAL WARRANT ANALYSIS

Methodology

A preliminary traffic signal warrant analysis was conducted for the Haul Road and Relocated Allan Road intersections with Johnson Street in accordance with PennDOT Publication 212, *Official Traffic Control Devices*, Subchapter D, "Highway Traffic Signals".

TPD evaluated traffic volumes at the subject intersection to determine if the following warrants are anticipated to be satisfied based on the traffic volume projections for the full build-out of the proposed development (i.e. 2024/2029 projected conditions).

» Warrant 3, Peak Hour Volume Warrant.

All relevant signal warrant analysis worksheets and supporting documentation, including the signal warrant volume development calculations, are included in **Appendix L**.

Findings

Table 19 summarizes the results of the preliminary traffic signal warrant analysis.

TABLE 19
PRELIMINARY TRAFFIC SIGNAL WARRANT ANALYSIS SUMMARY

Intersection	Warrant	Warrant Satisfied?
Johnson Street & Haul Road	Warrant 3, Peak Hour Volume	No
Johnson Street & Relocated Allan Road	Warrant 3, Peak Hour Volume	No

RECOMMENDATIONS AND CONCLUSIONS

The recommendations and conclusions for this Transportation Impact Study are identified in the Executive Summary.

KEY: ● = STUDY INTERSECTION
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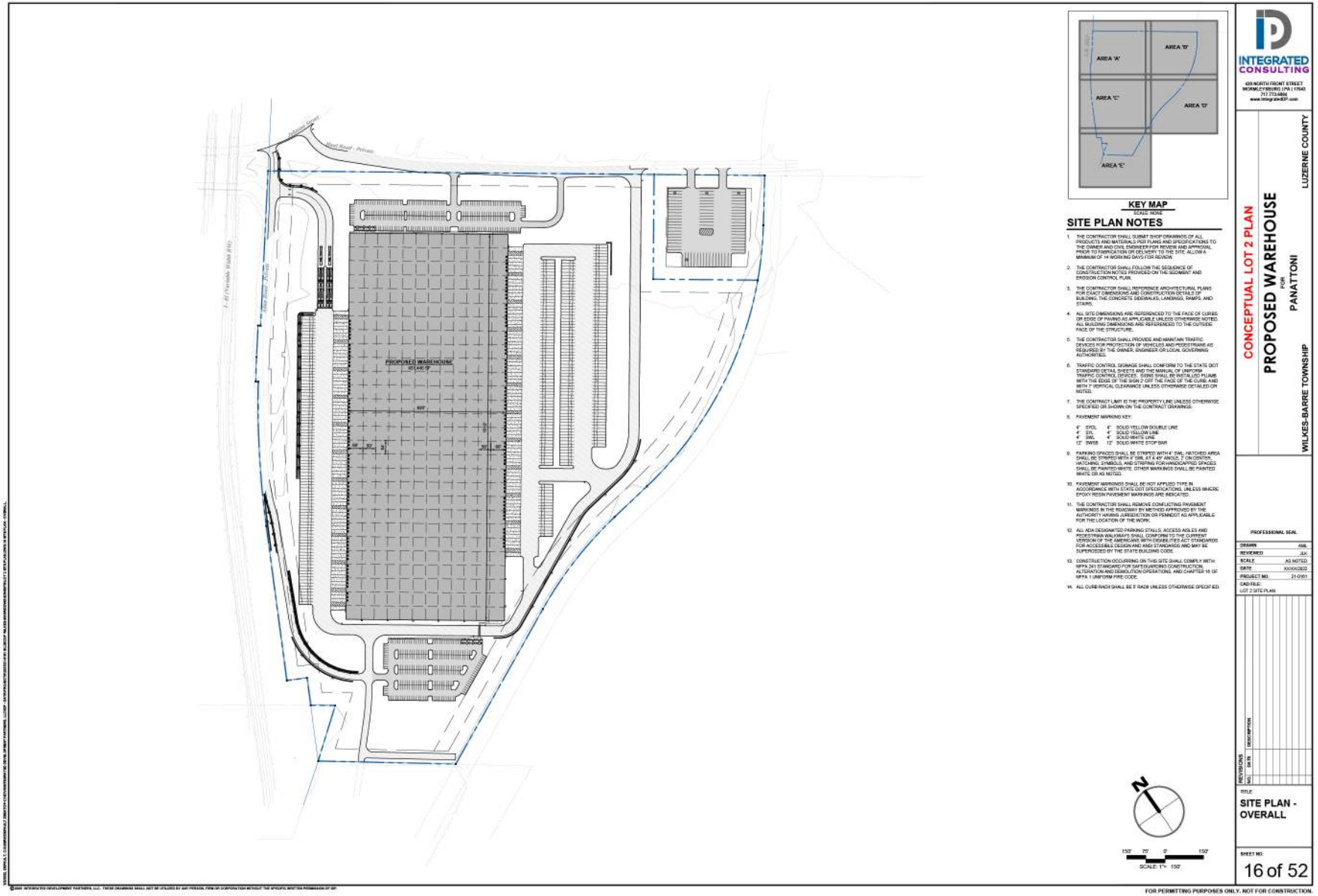
FIGURE 1

PROJECT LOCATION



KEY:
SCHEMATIC DRAWING:NOT TO SCALE

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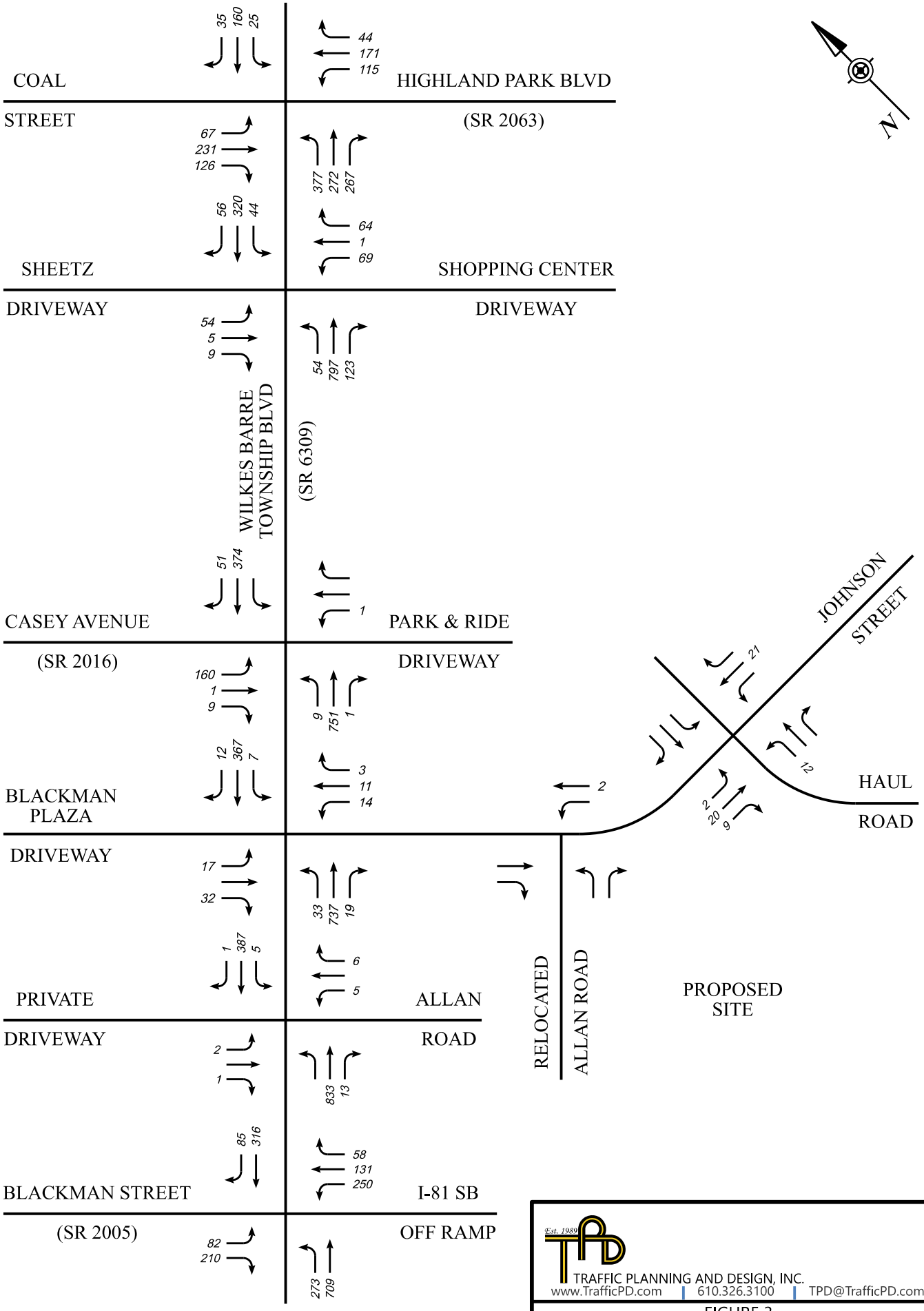
FIGURE 2

SITE PLAN



KEY:

- - - - - PROPOSED DRIVEWAY

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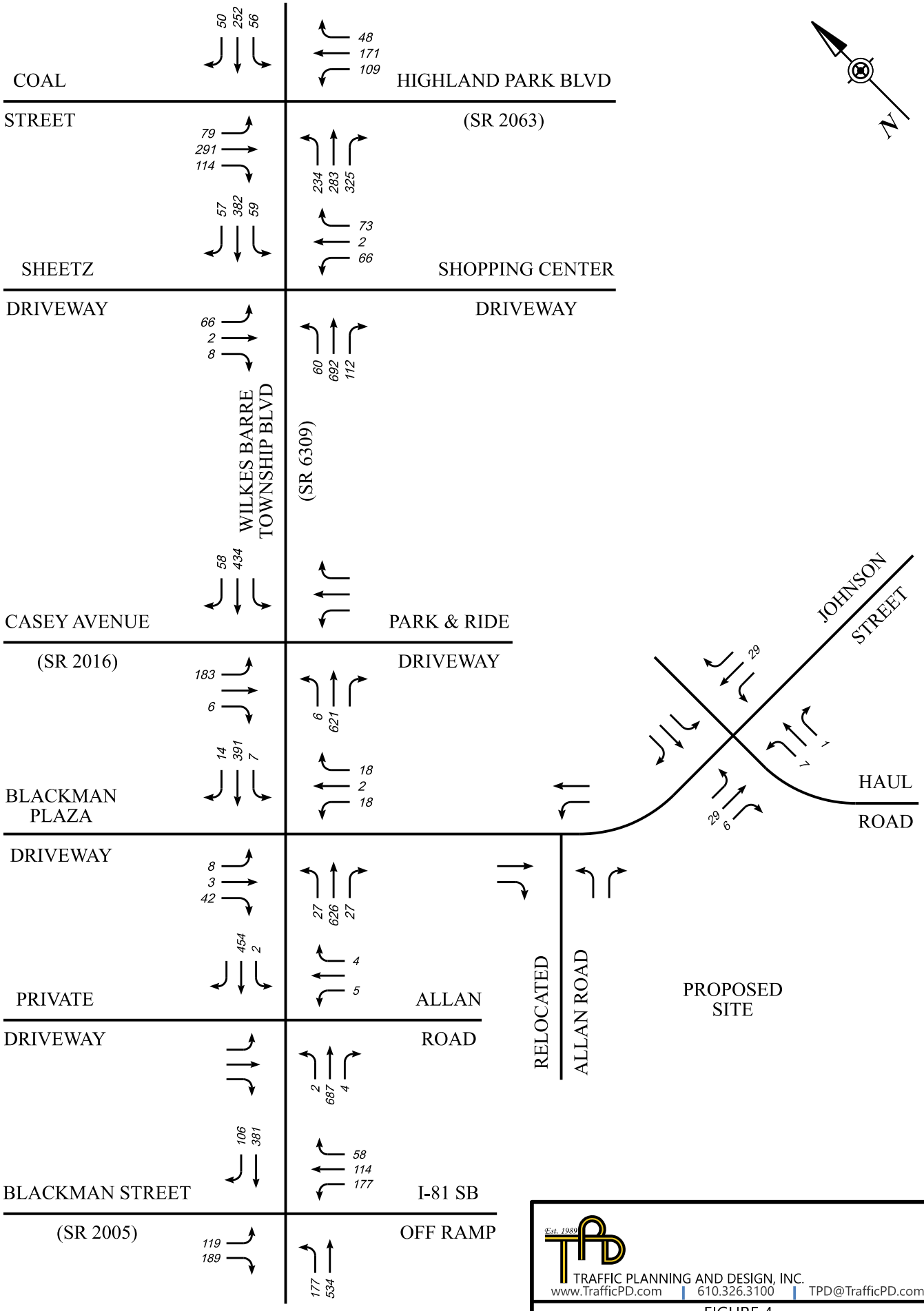
FIGURE 3

EXISTING CONDITIONS
WEEKDAY A.M. PEAK HOUR OF ADJACENT STREET TRAFFIC VOLUMES



KEY:

- - - - - PROPOSED DRIVEWAY

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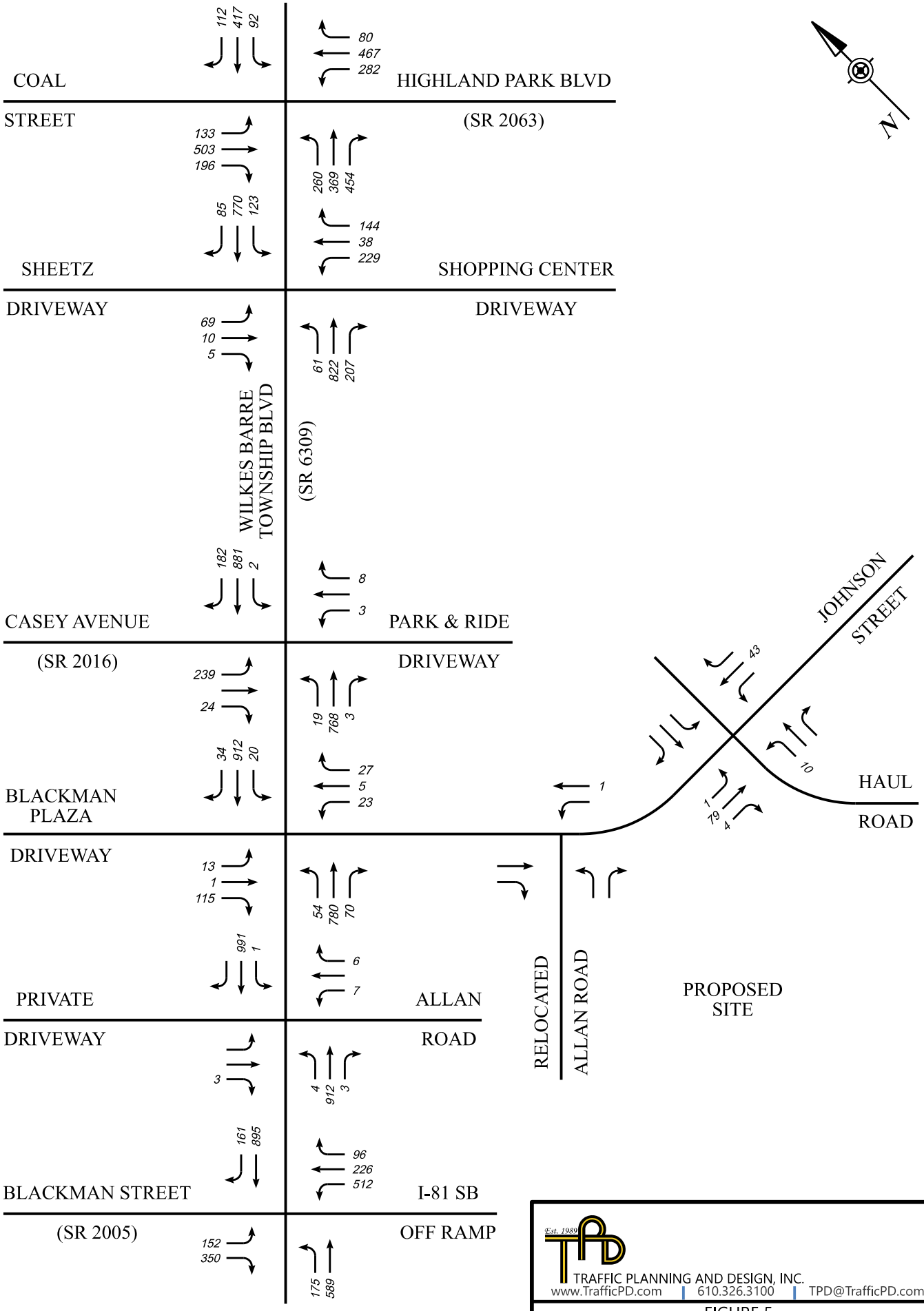
FIGURE 4

EXISTING CONDITIONS
WEEKDAY A.M. PEAK HOUR OF GENERATOR
TRAFFIC VOLUMES



KEY:

- - - - - PROPOSED DRIVEWAY

SCHEMATIC DRAWING:NOT TO SCALE

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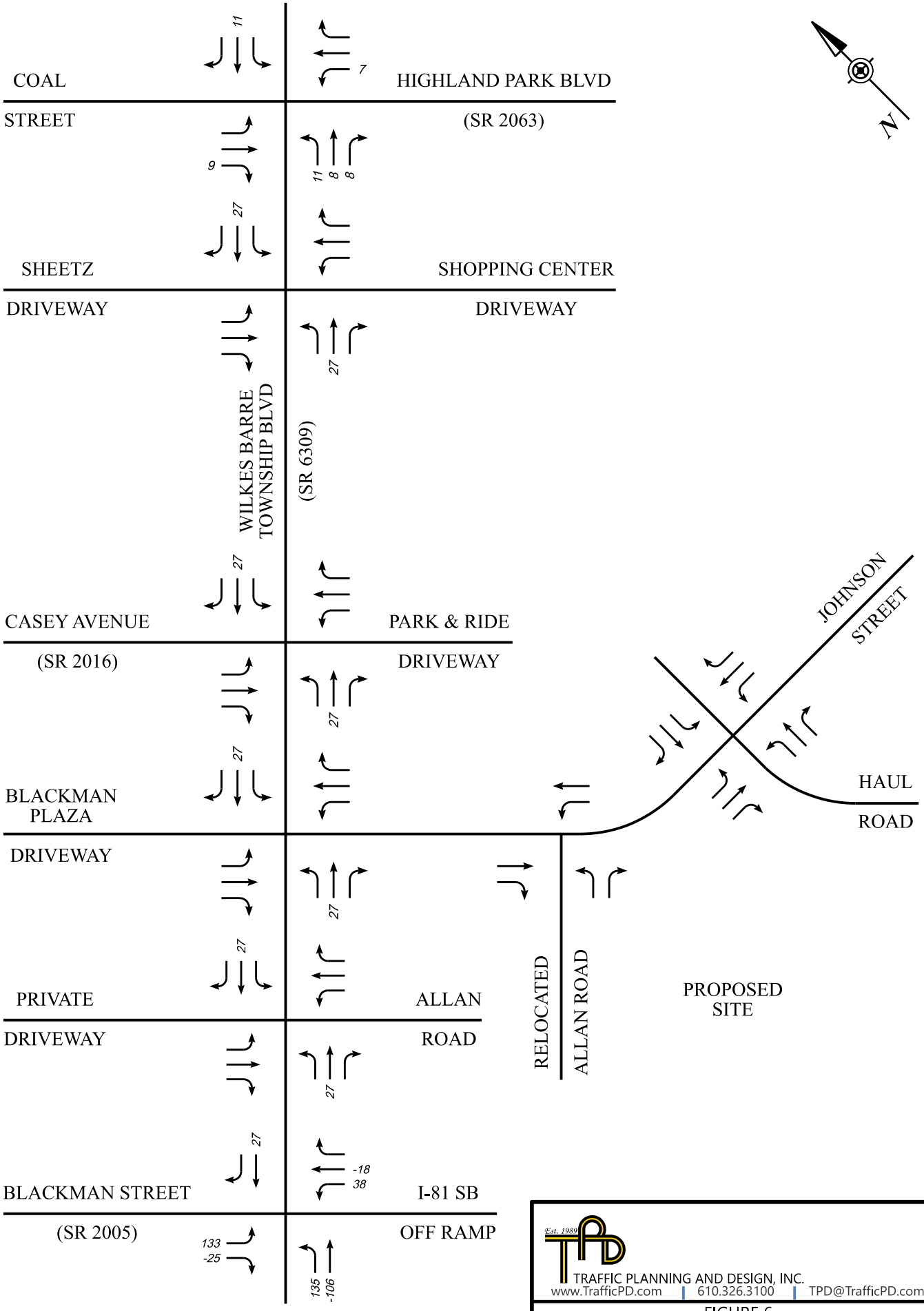
FIGURE 5

EXISTING CONDITIONS
WEEKDAY P.M. PEAK HOUR OF GENERATOR
TRAFFIC VOLUMES



KEY:

- - - - - PROPOSED DRIVEWAY

SCHEMATIC DRAWING:NOT TO SCALE

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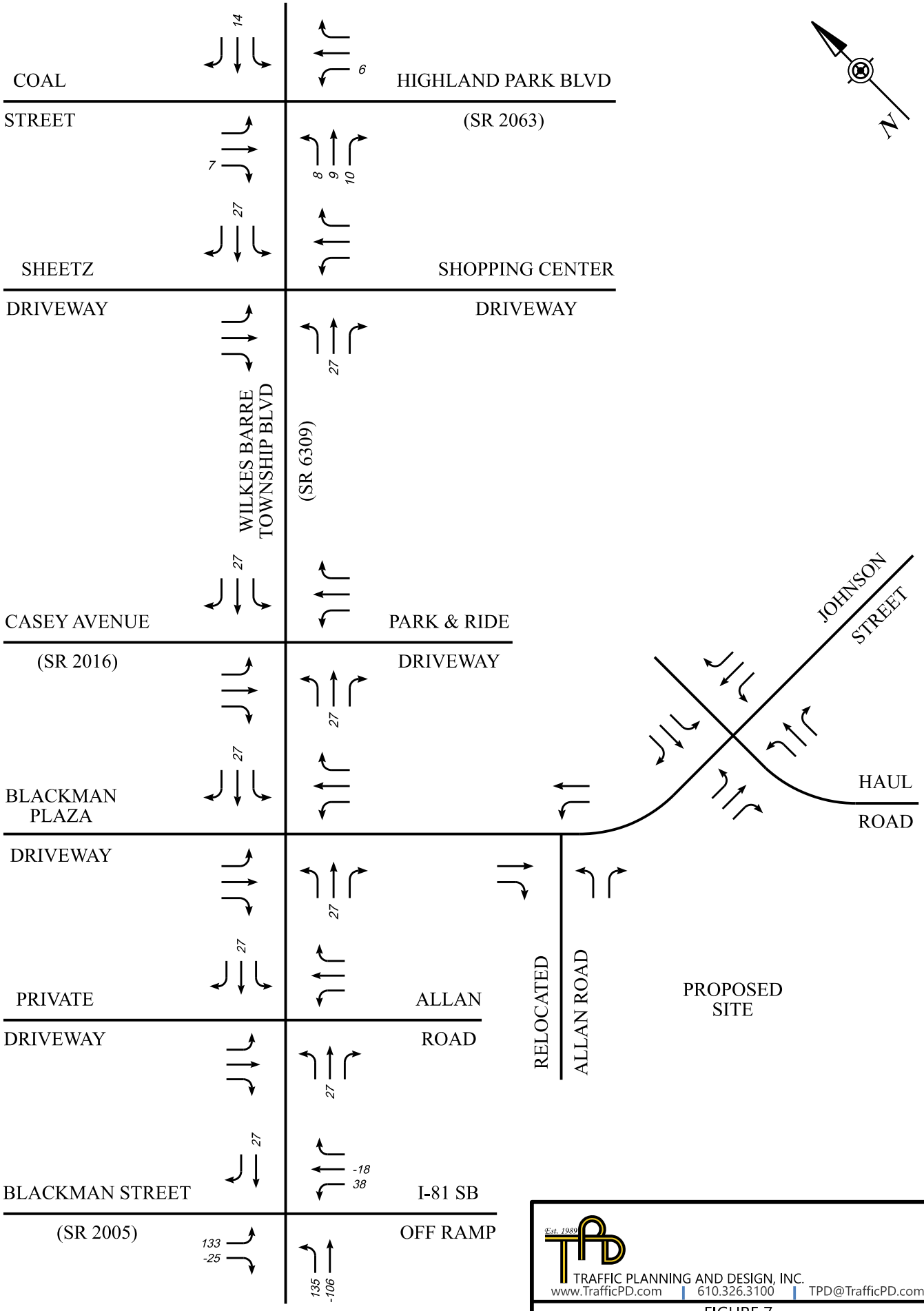
FIGURE 6

TURKEY HILL CONVENIENCE STORE & GAS STATION
WEEKDAY A.M. PEAK HOUR OF ADJACENT STREET
TRIP DISTRIBUTION: NEARBY DEVELOPMENT



KEY:

- - - - - PROPOSED DRIVEWAY

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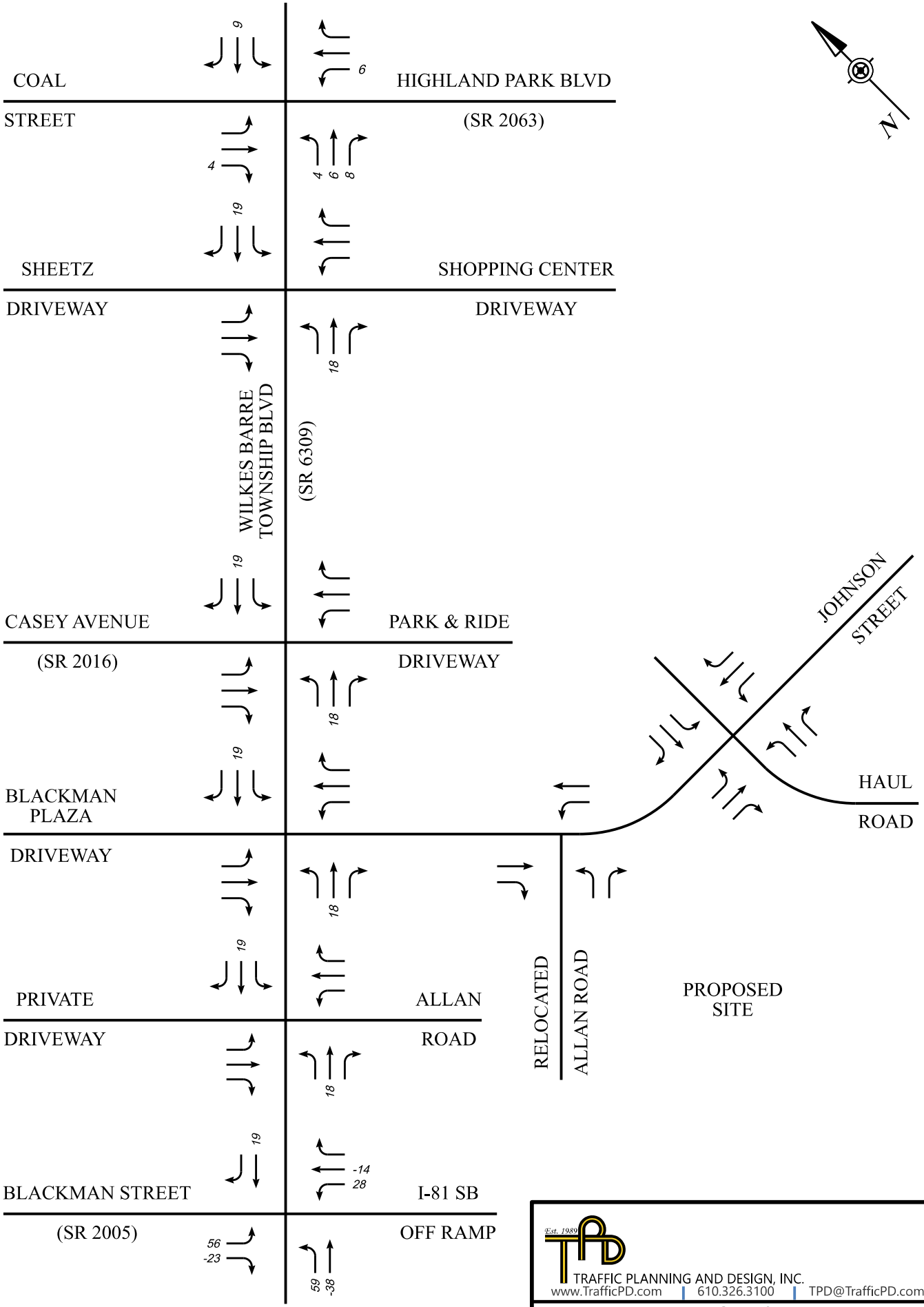
FIGURE 7

TURKEY HILL CONVENIENCE STORE & GAS STATION
WEEKDAY A.M. PEAK HOUR OF GENERATOR
TRIP DISTRIBUTION: NEARBY DEVELOPMENT



KEY:

- - - - - PROPOSED DRIVEWAY

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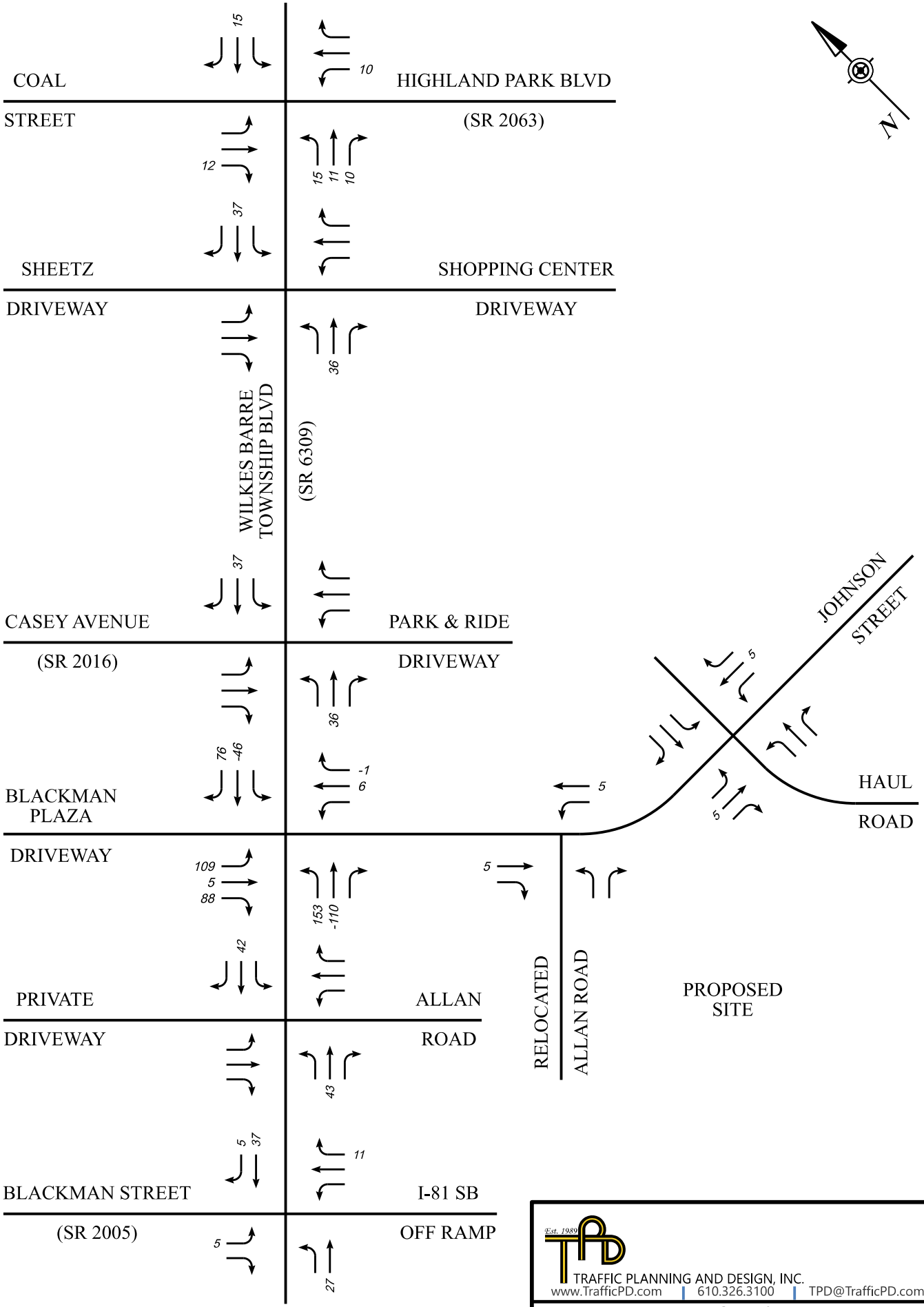
FIGURE 8

TURKEY HILL CONVENIENCE STORE & GAS STATION
WEEKDAY P.M. PEAK HOUR OF GENERATOR
TRIP DISTRIBUTION: NEARBY DEVELOPMENT



KEY:

- - - - - PROPOSED DRIVEWAY

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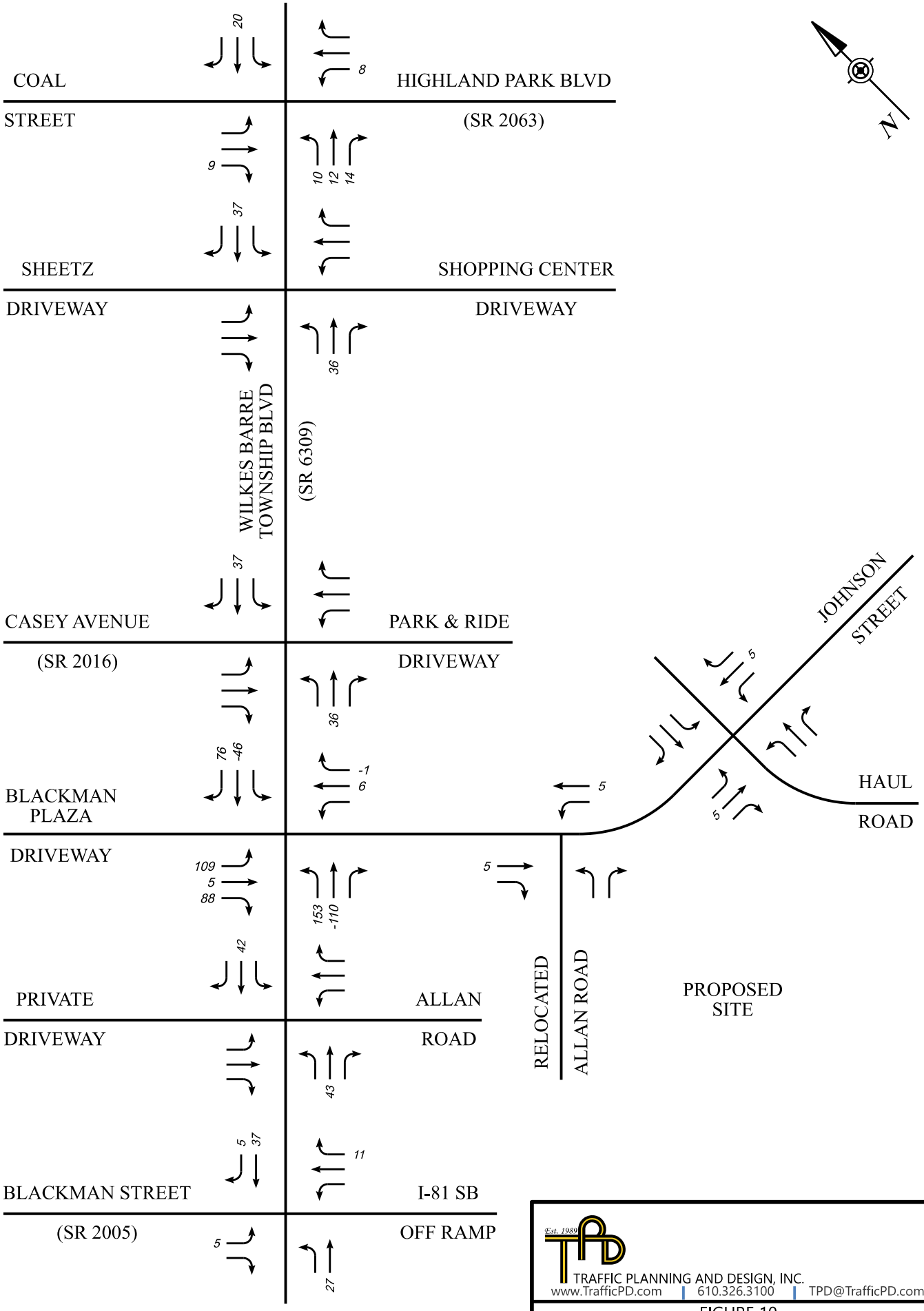
FIGURE 9

BLACKMAN PLAZA REDEVELOPMENT
WEEKDAY A.M. PEAK HOUR OF ADJACENT STREET
TRIP DISTRIBUTION: NEARBY DEVELOPMENT



KEY:

- - - - - PROPOSED DRIVEWAY

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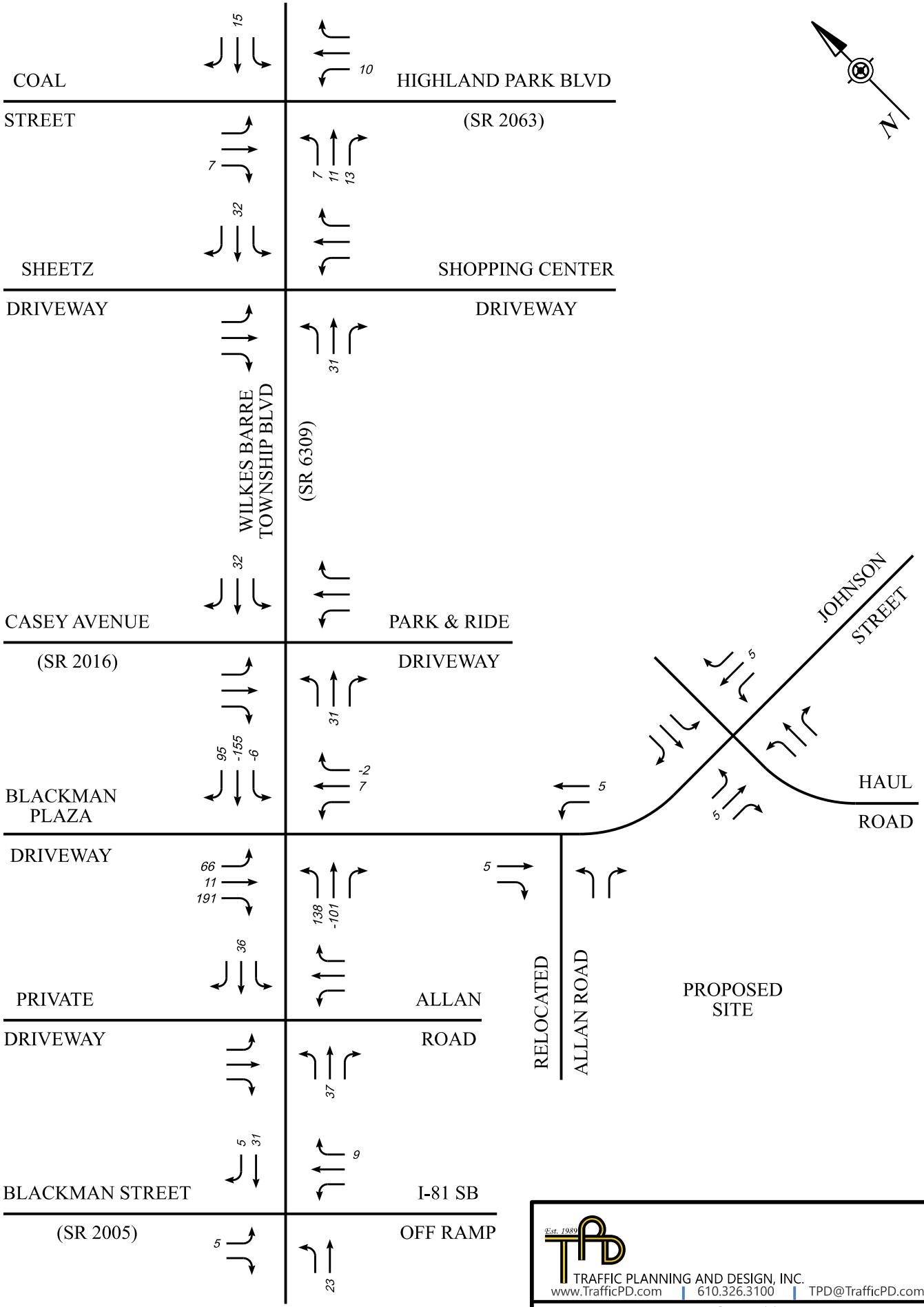
FIGURE 10

BLACKMAN PLAZA REDEVELOPMENT
WEEKDAY A.M. PEAK HOUR OF GENERATOR
TRIP DISTRIBUTION: NEARBY DEVELOPMENT



KEY:

- - - - - PROPOSED DRIVEWAY

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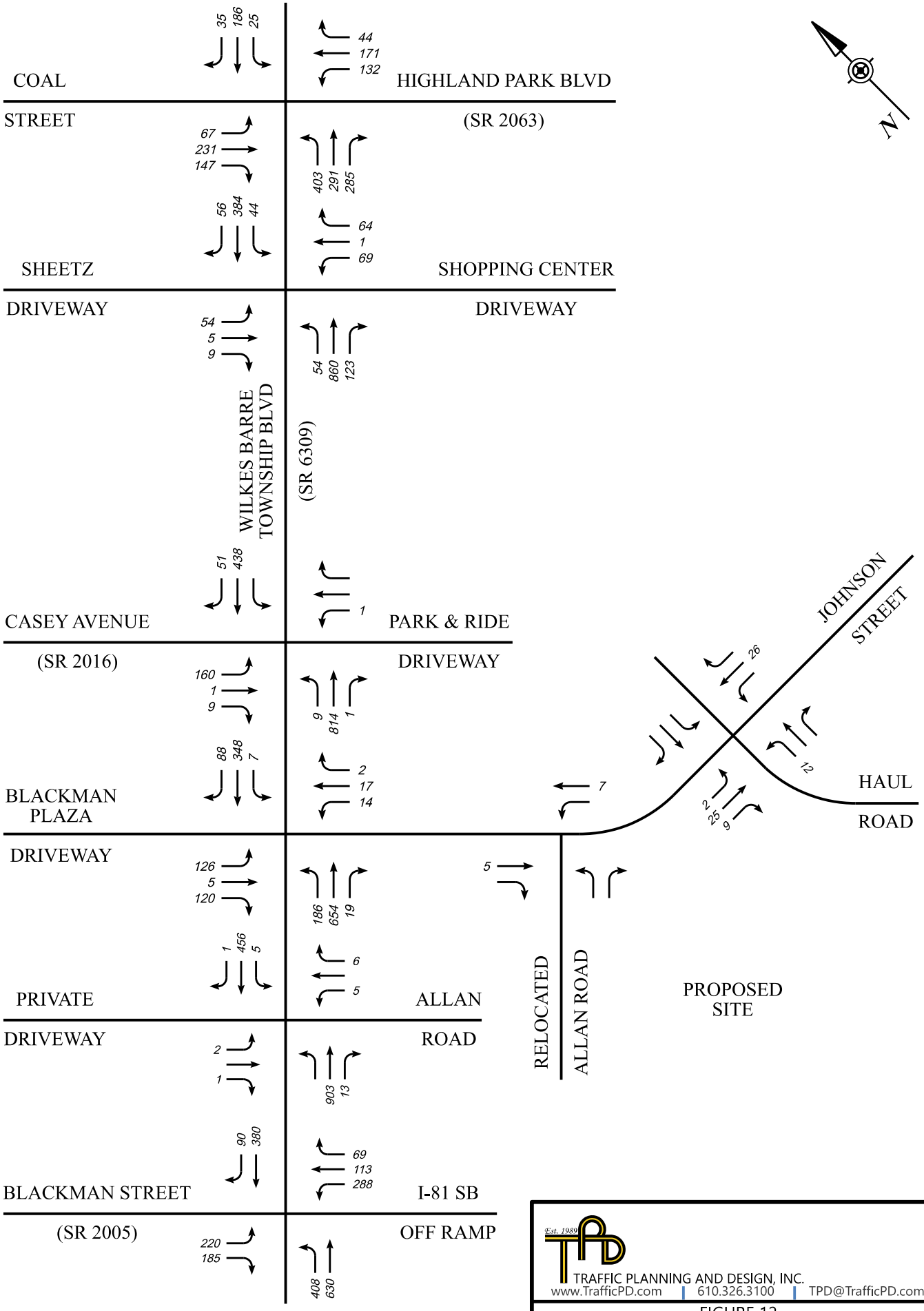
FIGURE 11

BLACKMAN PLAZA REDEVELOPMENT
WEEKDAY P.M. PEAK HOUR OF GENERATOR
TRIP DISTRIBUTION: NEARBY DEVELOPMENT



KEY:

- - - - - PROPOSED DRIVEWAY

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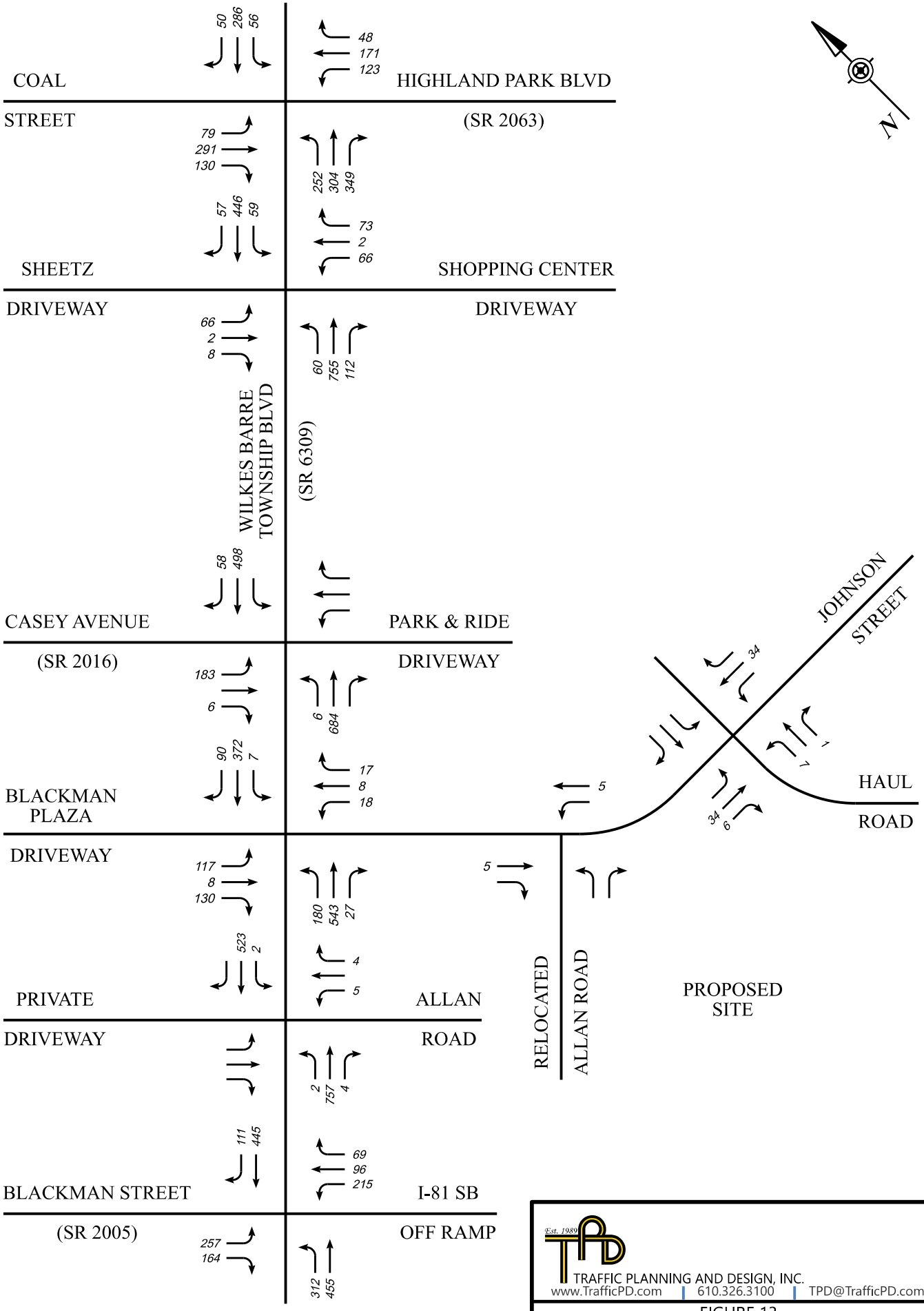
FIGURE 12

2024/2029 BASE (NO-BUILD) CONDITIONS
WEEKDAY A.M. PEAK HOUR OF ADJACENT STREET TRAFFIC VOLUMES



KEY:

- - - - - PROPOSED DRIVEWAY

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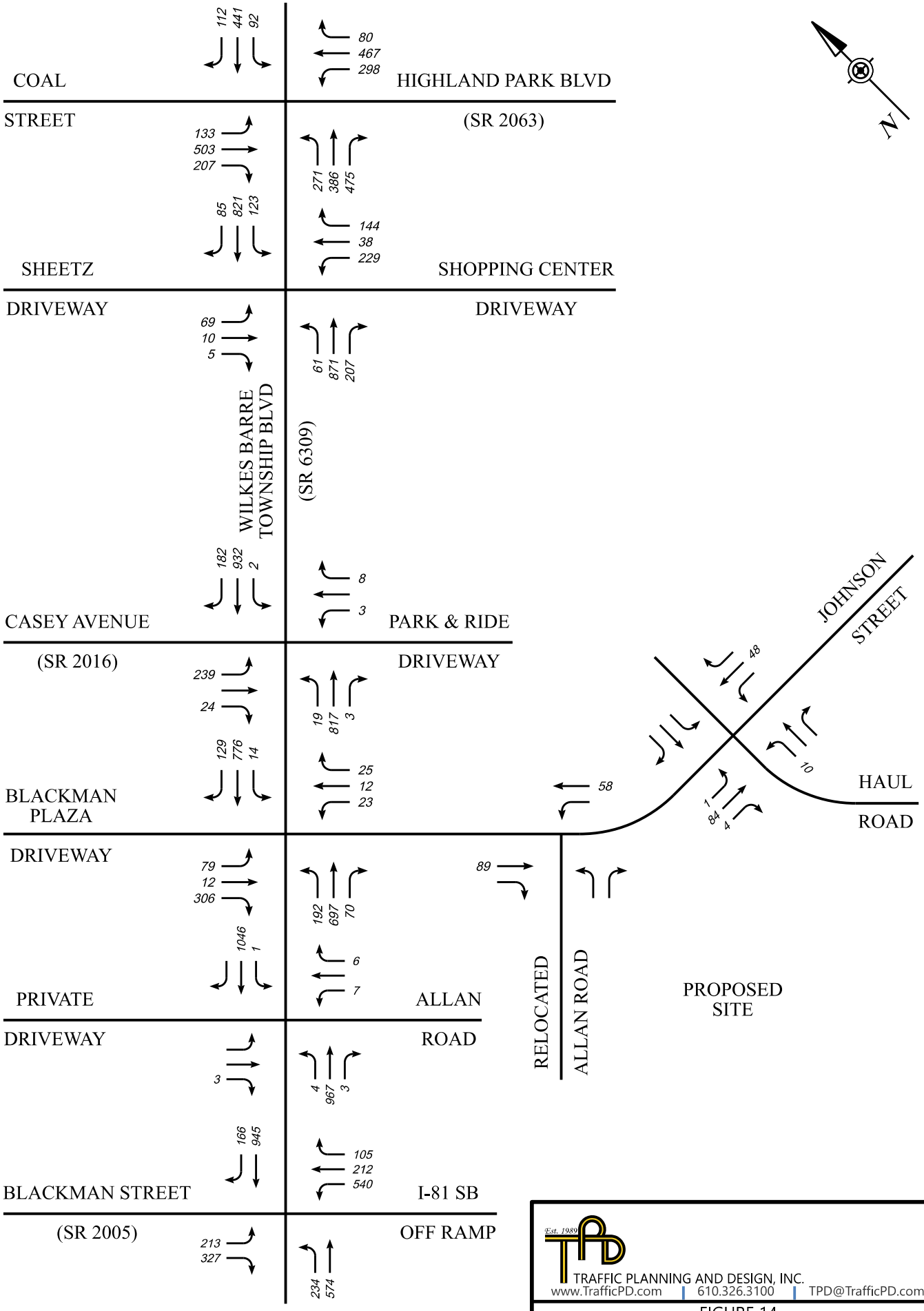
FIGURE 13

2024/2029 BASE (NO-BUILD) CONDITIONS
WEEKDAY A.M. PEAK HOUR OF GENERATOR
TRAFFIC VOLUMES



KEY:

- - - - - PROPOSED DRIVEWAY

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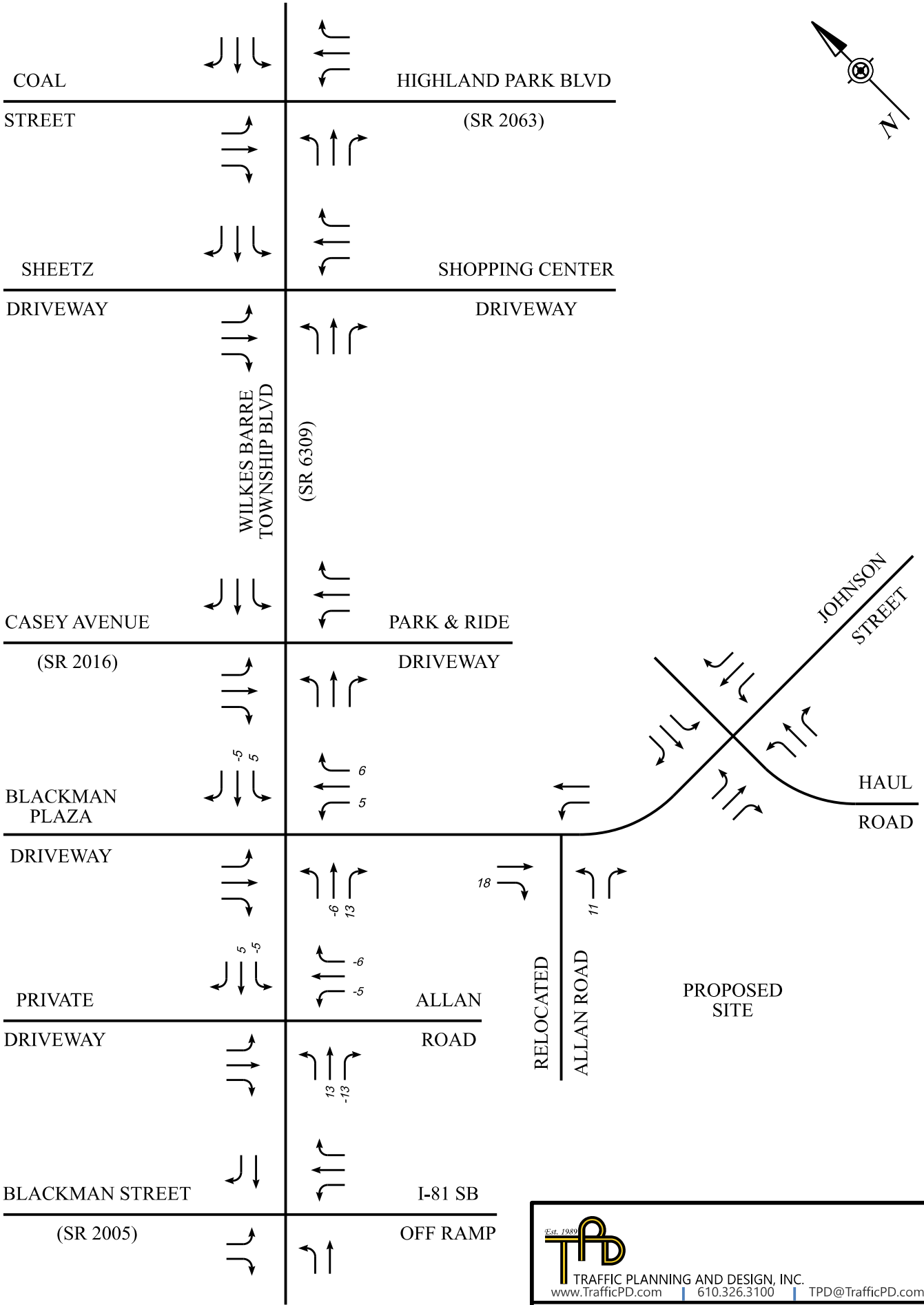
FIGURE 14

2024/2029 BASE (NO-BUILD) CONDITIONS
WEEKDAY P.M. PEAK HOUR OF GENERATOR
TRAFFIC VOLUMES



KEY:

- - - - - PROPOSED DRIVEWAY

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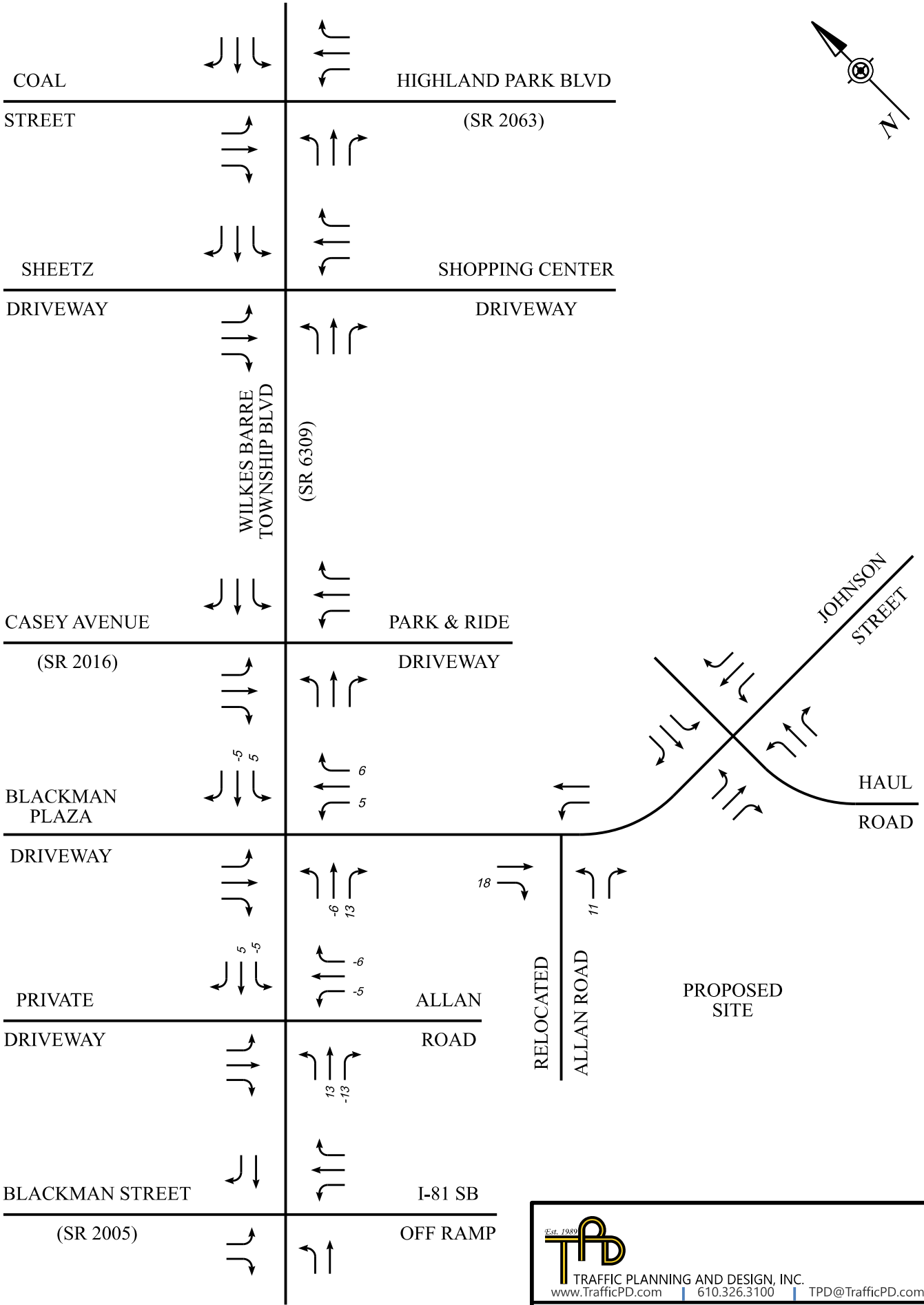
FIGURE 15

RELOCATED ALLAN ROAD
WEEKDAY A.M. PEAK HOUR OF ADJACENT STREET
TRIP REDISTRIBUTION



KEY:

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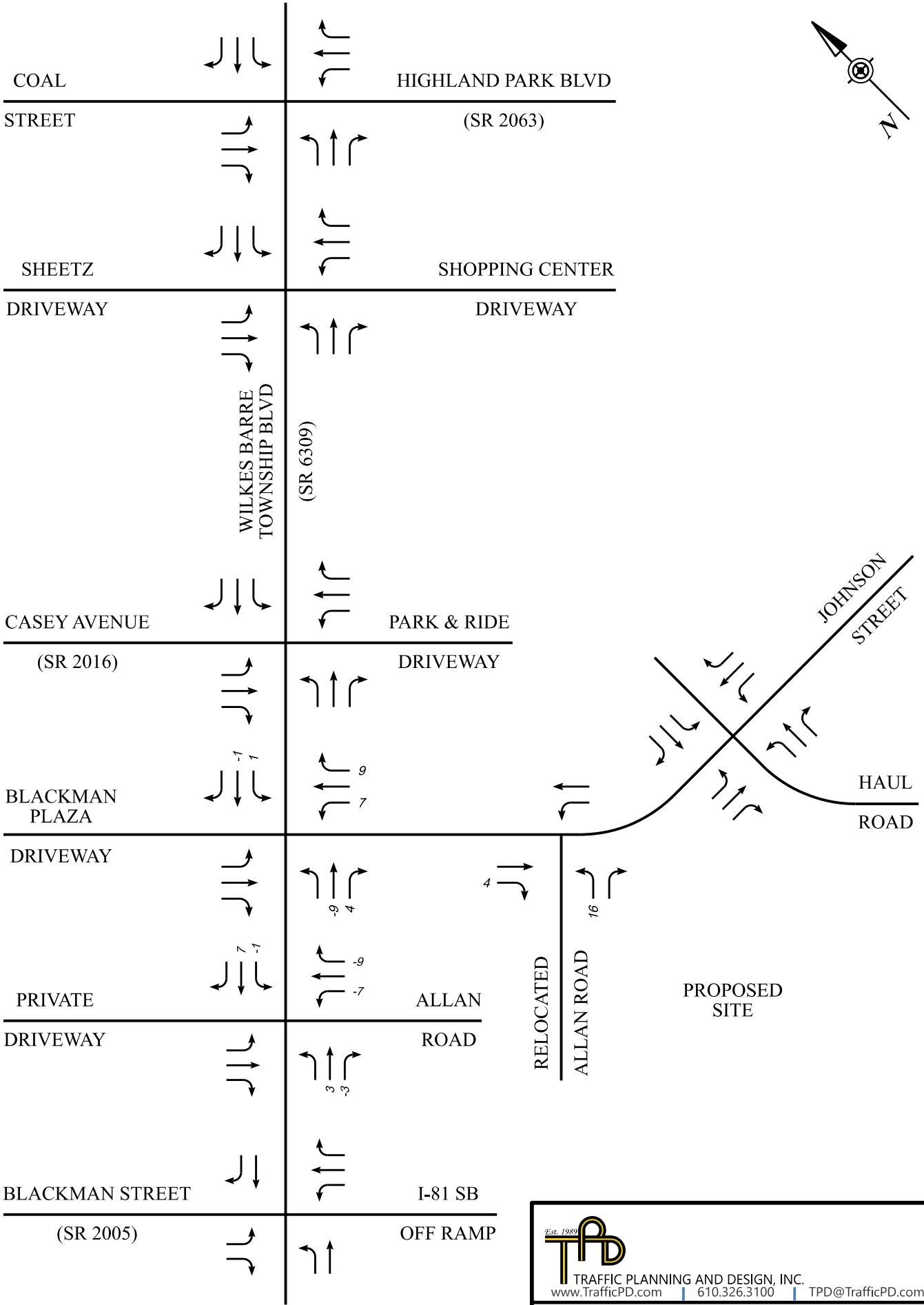
FIGURE 15

RELOCATED ALLAN ROAD
WEEKDAY A.M. PEAK HOUR OF ADJACENT STREET
TRIP REDISTRIBUTION



KEY:

- - - - - PROPOSED DRIVEWAY

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FIGURE 17

RELOCATED ALLAN ROAD
WEEKDAY P.M. PEAK HOUR OF GENERATOR
TRIP REDISTRIBUTION

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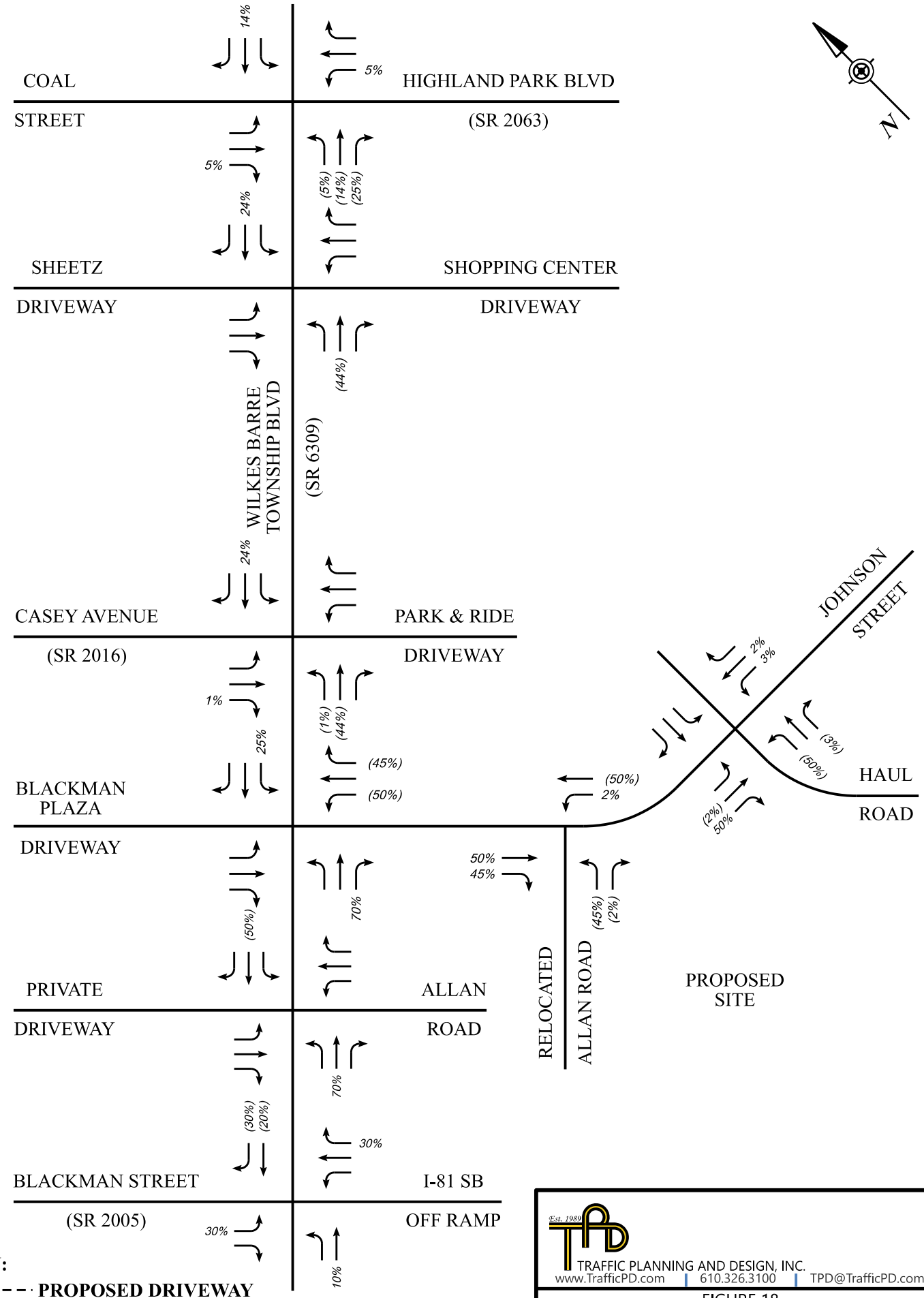
5/20/2022 7:51:13 AM emouriz



KEY:

- - - - - PROPOSED DRIVEWAY

SCHEMATIC DRAWING:NOT TO SCALE

ENTERING % (EXITING %)

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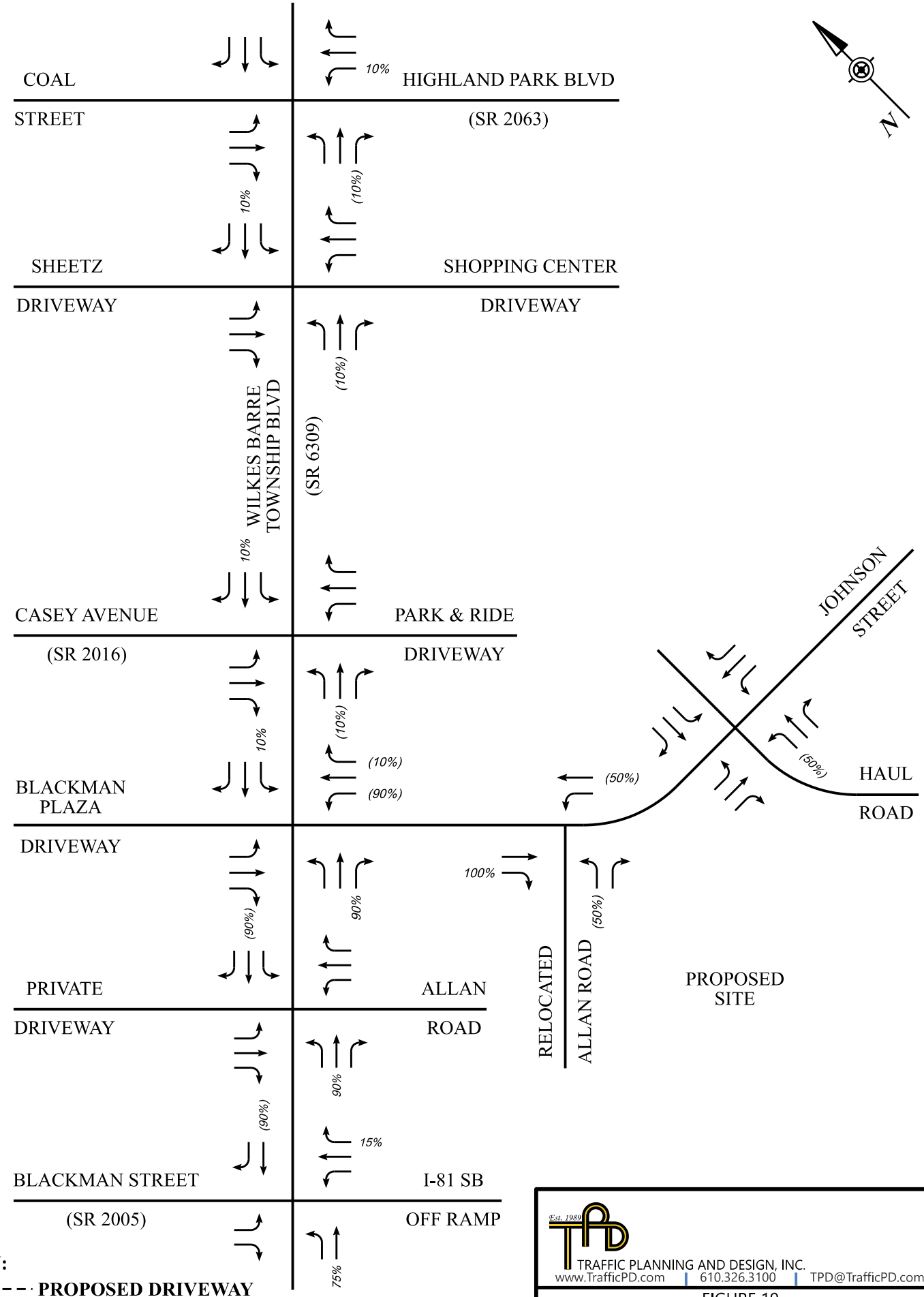
FIGURE 18

BLUECUP WAREHOUSE DEVELOPMENT
TRIP ASSIGNMENT PERCENTAGES
PASSENGER CARS



KEY:

- - - - - PROPOSED DRIVEWAY

SCHEMATIC DRAWING:NOT TO SCALE

ENTERING % (EXITING %)

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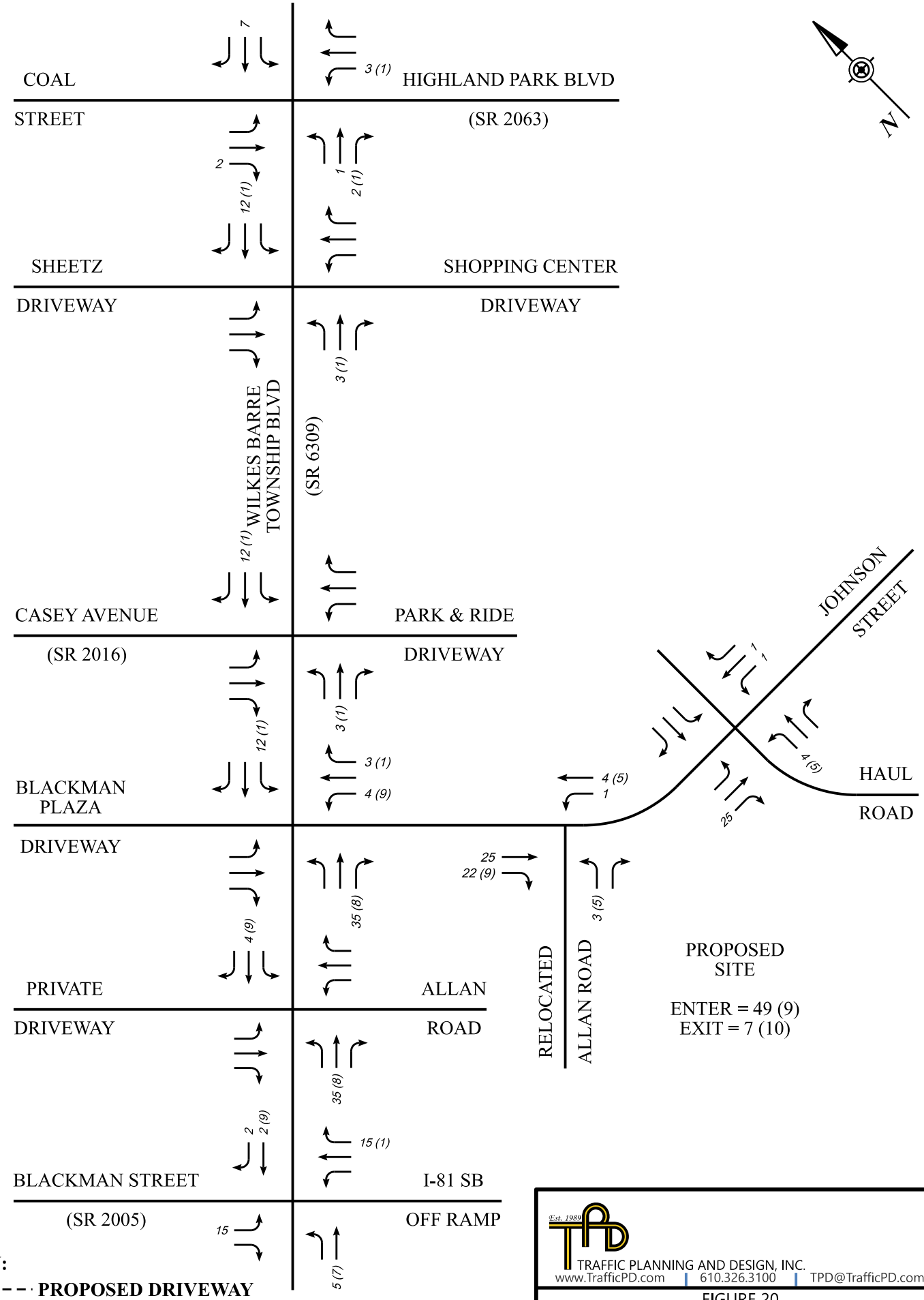
FIGURE 19

BLUECUP WAREHOUSE DEVELOPMENT
TRIP ASSIGNMENT PERCENTAGES
TRUCKS



KEY:

- - - - - PROPOSED DRIVEWAY

SCHEMATIC DRAWING:NOT TO SCALE

PASSENGER CAR (TRUCK) TRIPS

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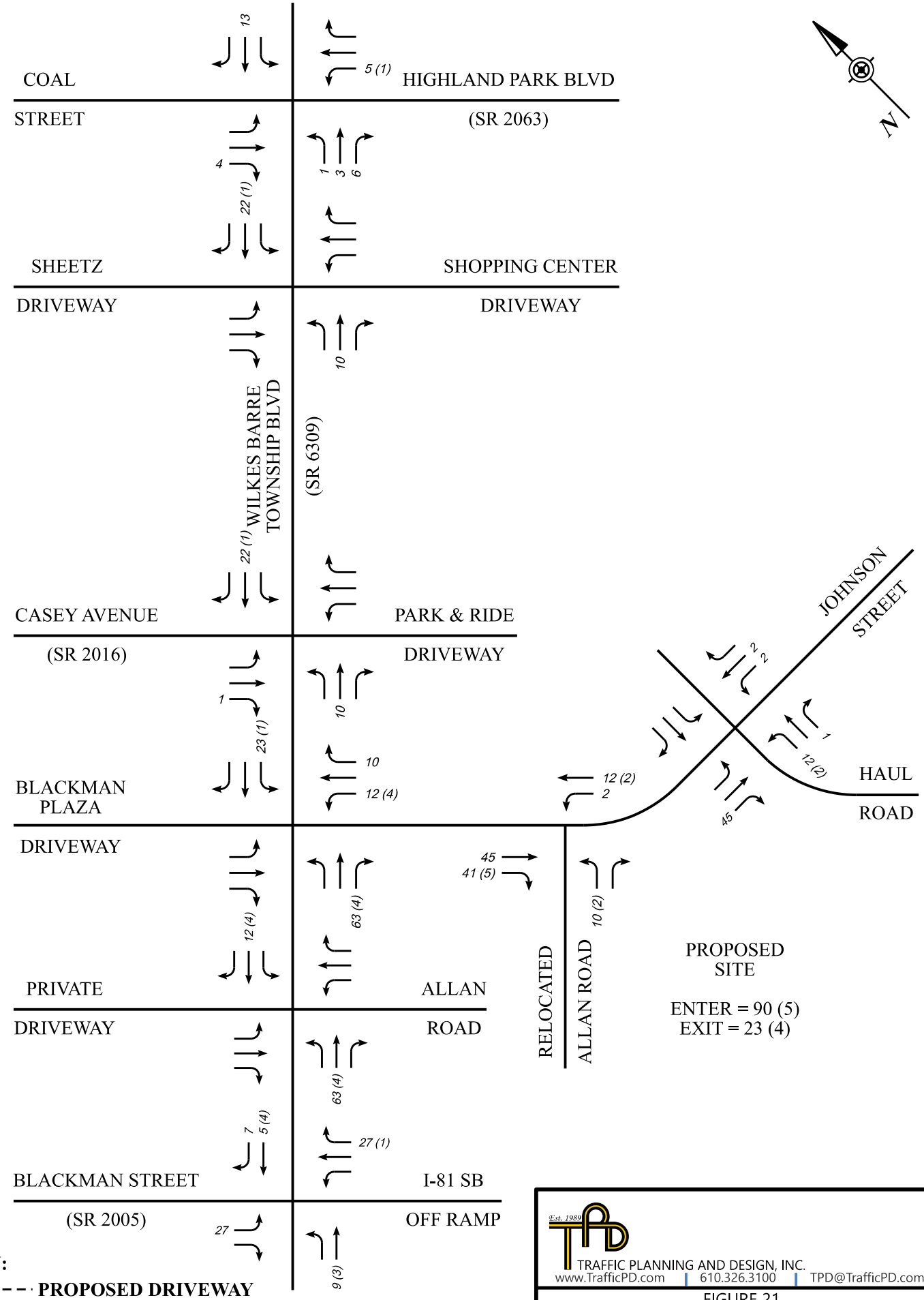
FIGURE 20

BLUECUP WAREHOUSE DEVELOPMENT
WEEKDAY A.M. PEAK HOUR OF ADJACENT STREET TRIP DISTRIBUTION



KEY:

- - - - - PROPOSED DRIVEWAY

SCHEMATIC DRAWING:NOT TO SCALE

PASSENGER CAR (TRUCK) TRIPS

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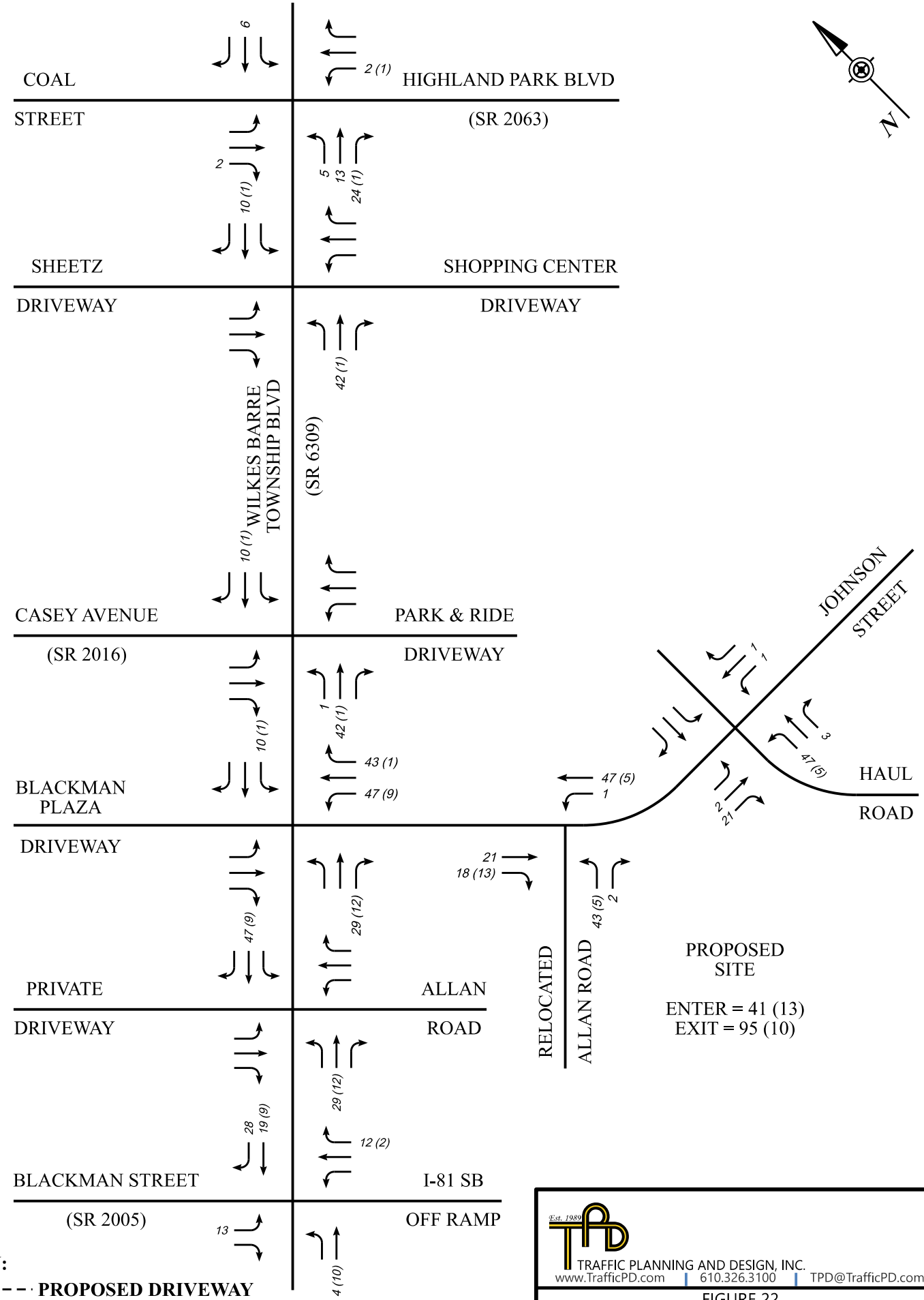
FIGURE 21

BLUECUP WAREHOUSE DEVELOPMENT
WEEKDAY A.M. PEAK HOUR OF GENERATOR
TRIP DISTRIBUTION



KEY:

- - - - - PROPOSED DRIVEWAY

SCHEMATIC DRAWING:NOT TO SCALE

PASSENGER CAR (TRUCK) TRIPS

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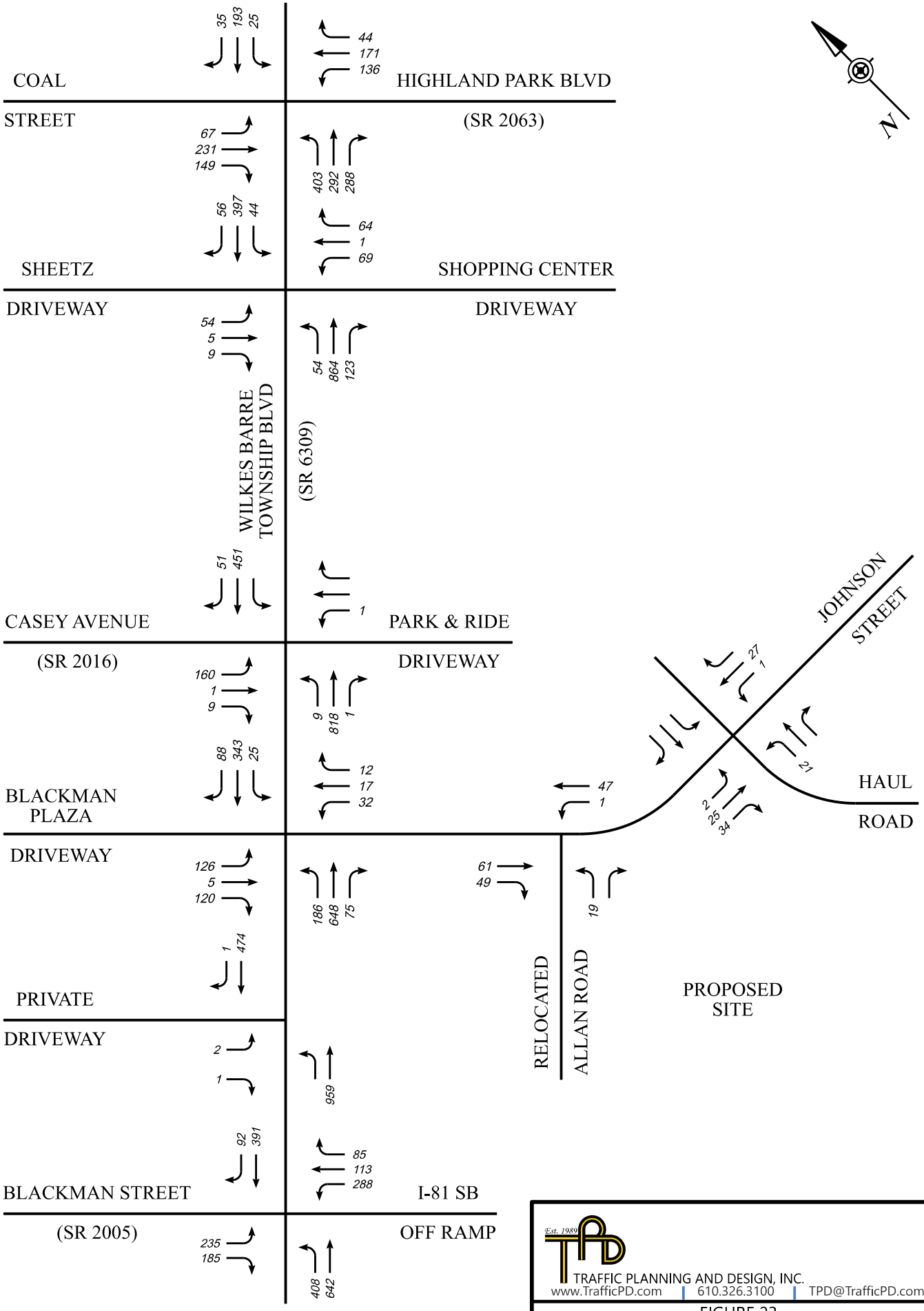
FIGURE 22

BLUECUP WAREHOUSE DEVELOPMENT
WEEKDAY P.M. PEAK HOUR OF GENERATOR
TRIP DISTRIBUTION



KEY:

- - - - - PROPOSED DRIVEWAY

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FIGURE 23

2024/2029 PROJECTED (BUILD) CONDITIONS
WEEKDAY A.M. PEAK HOUR OF ADJACENT STREET TRAFFIC VOLUMES

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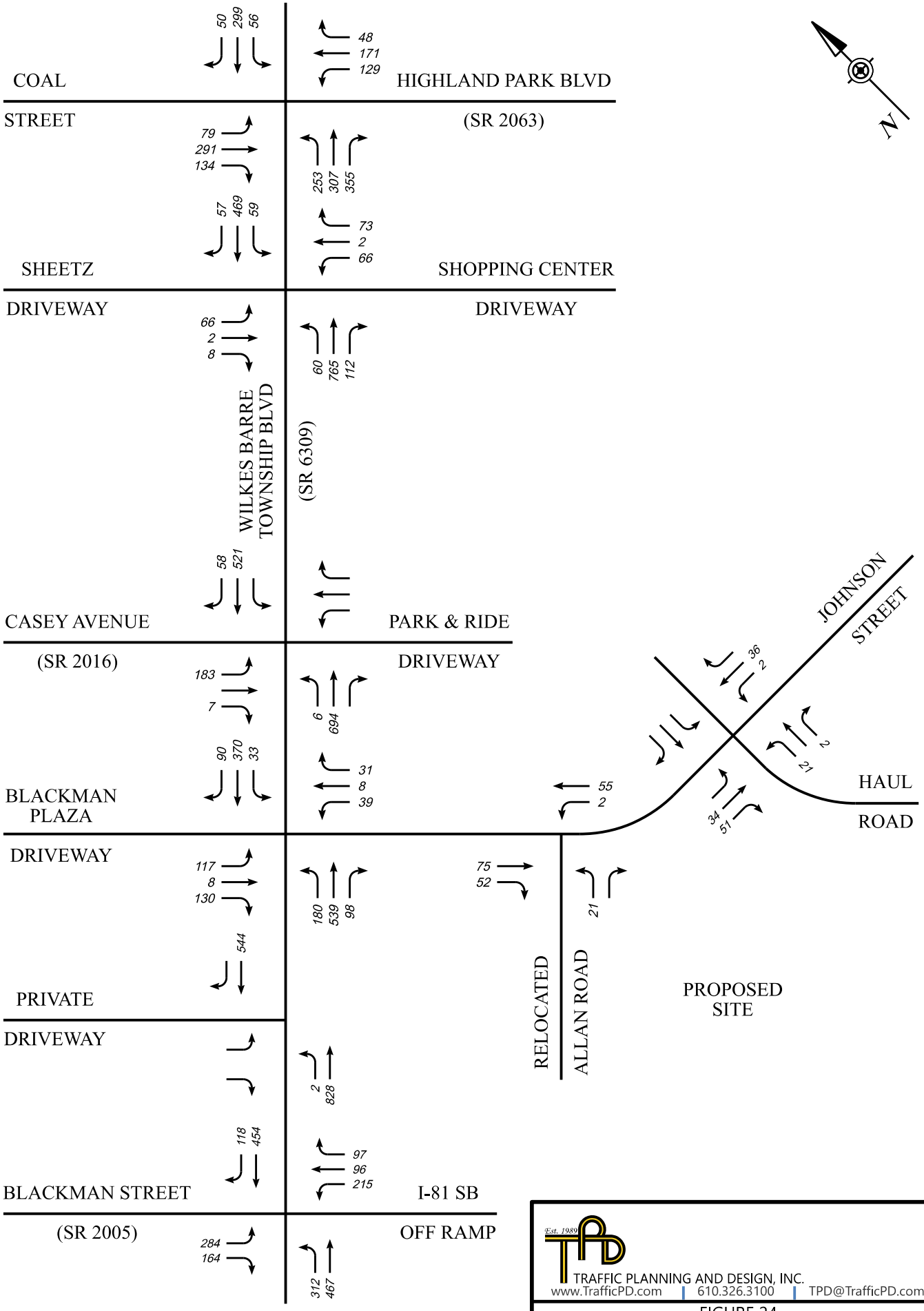

KEY:

- - - - - PROPOSED DRIVEWAY

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FIGURE 24

2024/2029 PROJECTED (BUILD) CONDITIONS
WEEKDAY A.M. PEAK HOUR OF GENERATOR
TRAFFIC VOLUMES

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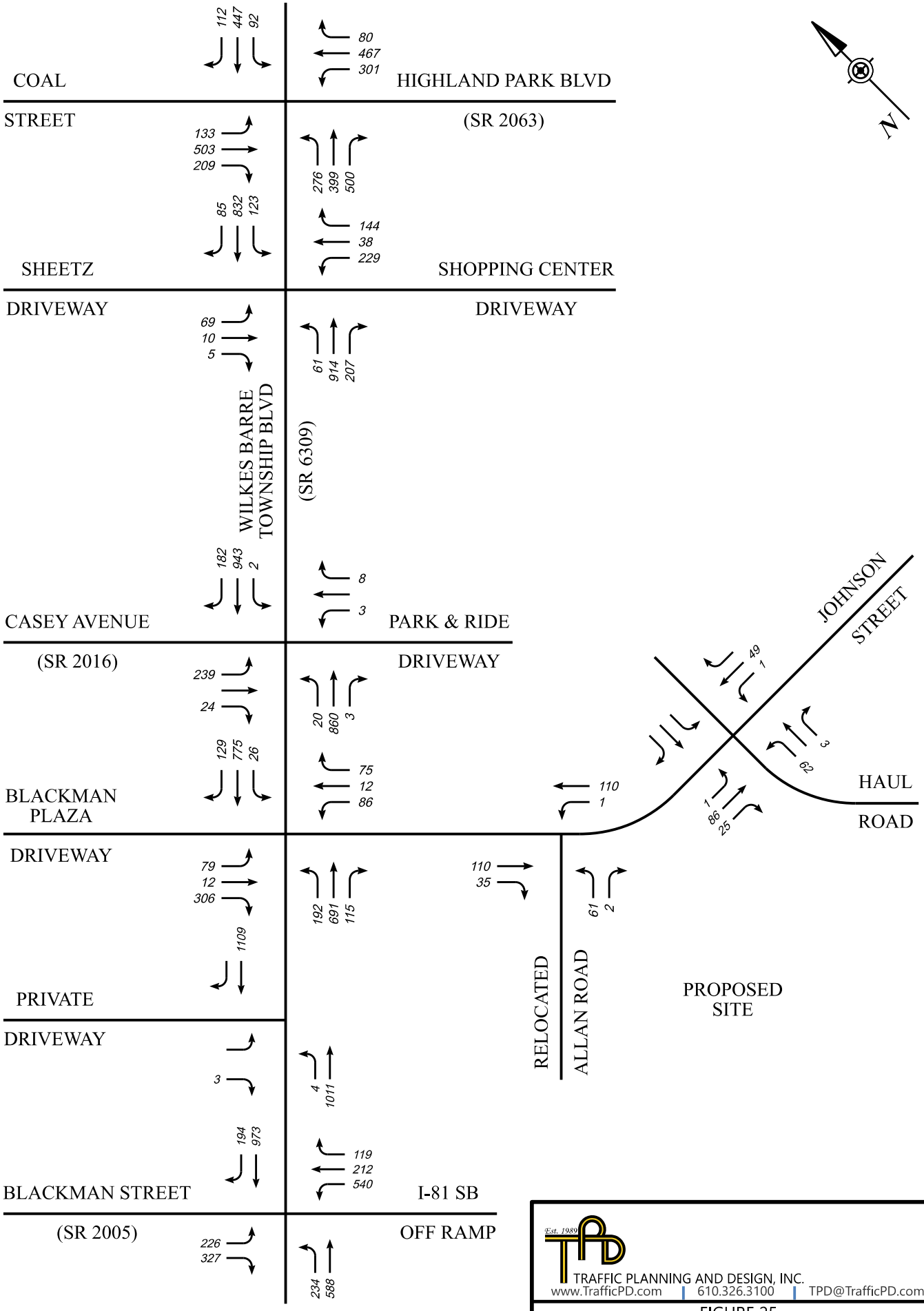

KEY:

- - - - - PROPOSED DRIVEWAY

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FIGURE 25

2024/2029 PROJECTED (BUILD) CONDITIONS
WEEKDAY P.M. PEAK HOUR OF GENERATOR
TRAFFIC VOLUMES

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5/20/2022 7:51:15 AM emountz
025

APPENDIX A:

Project Correspondence

Zheng, Jason

From: Daryl Pawlush <DarylPawlush@PennEastern.com>
Sent: Tuesday, May 3, 2022 10:43 AM
To: Mountz, Eric; tomz150@live.com; mrevitt@verizon.net; Tom Barna
Cc: Jeff Randolph; Zheng, Jason; Daryl Pawlush
Subject: RE: TIS Scoping Application Approval - Bluecup Ventures, LLC - Wilkes Barre Township

We concur with PennDOT's comments.

From: Mountz, Eric <emountz@trafficpd.com>
Sent: Monday, May 2, 2022 7:07 AM
To: tomz150@live.com; mrevitt@verizon.net; Daryl Pawlush <DarylPawlush@PennEastern.com>
Cc: Jeff Randolph <jeff.randolph@bluecup.ventures>; Zheng, Jason <jzheng@trafficpd.com>
Subject: TIS Scoping Application Approval - Bluecup Ventures, LLC - Wilkes Barre Township

Tom/Mike/Daryl,

Per the attached response letter, PennDOT has approved the attached revised TIS scoping meeting application dated 4/11/22 regarding the proposed warehouse development proposed by Bluecup Ventures, LLC along Johnson Street in Wilkes-Barre Township. I'd appreciate if you'd please confirm the Township is also in agreement with the contents of the application.

Thanks,
Eric

Eric Mountz, P.E., PTOE, *Regional Leader - Transportation Planning*

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From: ePermitting Help <penndotepermittinghelp@pa.gov>
Sent: Friday, April 22, 2022 2:31 PM
To: tomz150@live.com; mrevitt@verizon.net; darylpawlush@penneastern.com
Cc: RA-PDEPSPROD@pa.gov; Mountz, Eric <emountz@trafficpd.com>; jgonzalo@pa.gov; jgonzalo@pa.gov; jopfeiffer@state.pa.us; pazipprich@pa.gov; rokretschm@pa.gov; tpichiarel@state.pa.us
Subject: [EXTERNAL]:ePermitting - Highway Occupancy Permit, Bridge Occupancy License, or Supplement Application Returned For Revision - Application : 261,894

Application: 261894		Cycle: 3			Returned For Revisions
Applicant Name:	Wilkes-Barre Township	District:	04	Permit Group:	HOP
Business Partner ID:		County:	Luzerne	Permit Type:	Driveway
Paper Application No:		Municipality:	WILKES BARRE T	Permit Sub type:	Local Road

We have completed our review and are returning your application for a permit, license, or supplement. Details of our response are available online. If you wish to pursue a permit, license, or supplement, you can revise and resubmit your application.

Click here to access the Application Response Letter

Or, after logging on, enter the application number listed above. You will be routed to the Application Information window. On that window, please click on the Response Letter link to view the details of our response.

PENNDOT EPERMIT - PLEASE DO NOT REPLY TO THIS EMAIL

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pennsylvania
DEPARTMENT OF TRANSPORTATION

Date: 04/22/2022

Subject: Highway Occupancy Permit Application No. 261894, Cycle No.3 - Returned For Revisions

To: Wilkes-Barre Township
152 Watson Street
Wilkes Barre Township, PA 18702

From: PennDOT Engineering District 4-0
55 Keystone Industrial Park
Dunmore, PA 18512

Dear Applicant,

PennDOT has reviewed your application for completeness, consistency and compliance with applicable Department Regulations. This review has identified issues that must be addressed in order for our review to continue.

The Department's review comments are attached.

Once the comments have been addressed, please resubmit the application and associated material for further review.

Upon resubmission, the applicant's engineer should put together a letter that describes how each comment has been addressed and where each can be found. This will help expedite the review. For guidance on HOP applications refer to 67 PA Code, Chapter 441, Chapter 459 and PennDOT Publication 282, "Highway Occupancy Permit Guidelines". Additional comments may follow upon review of the resubmitted application.

If you have any questions regarding this matter, you may contact Jeremiah Gonzalo EIT, District Permit Manager, at (570) 963-4067.

pennsylvania
DEPARTMENT OF TRANSPORTATION

Response Comments
Date: 04/22/2022
Application Number: 261894, Cycle No.3

Application

(1) The scoping application has been accepted. Please provide all items in the traffic study that were requested in the scoping meeting by Wilkes Barre Township including crash analysis, turn lane analysis, and level of service at the off site intersections.

Date: April 11, 2022
TPD# BCVS.00002

Est. 1989

TRAFFIC PLANNING AND DESIGN, INC.

Transportation Impact Study Scoping Meeting Application

Bluecup Warehouse Development
Wilkes-Barre Township, Luzerne County

For Submission To:
Wilkes-Barre Township & PennDOT 4-0

Transportation Impact Study (TIS)
Scoping Meeting Application

Scoping Meeting Date: April 8, 2022

Applicant: Wilkes-Barre Township

Applicant's Consultant: Traffic Planning and Design, Inc. - Eric Mountz, P.E., PTOE (Emountz@trafficpd.com)

Applicant's Primary Contact: Tom Zedolik (tomz150@live.com)

(Attach a list of meeting attendees along with phone numbers and email addresses)

1. LOCATION OF PROPOSED DEVELOPMENT: (Attach location map if available)

   - PennDOT Engineering District: 4 - 0 County: Luzerne
   - Municipality: Wilkes-Barre Township
   - State Road(s) (SR): SR 6309 (Wilkes-Barre Township Boulevard)
   - Segment(s)/Offsets(s): Segment 0570/Offset 0886

2. DESCRIPTION OF PROPOSED DEVELOPMENT: (Attach site plan if available)

   - Proposed Site Access: Access to the site is proposed via two (2) driveways to Allan Road (private roadway) and five (5) driveways to Haul Road (private roadway). Additionally, in anticipation of PennDOT's P3 I-81 widening project, the segment of Allan Road between Wilkes-Barre Township Boulevard and the I-81 overpass will be eliminated, and Allan Road will be relocated to create a new intersection with Johnson Street.
   - Proposed Land Use(s): The proposed development is anticipated to consist of a 937,440 square foot (s.f.) warehouse.
   - Community Linkages (access to neighboring properties, cross easements, pedestrian and transit accommodations): To be determined.

3. DEVELOPMENT SCHEDULE AND STAGING:

   - Anticipated Opening Date: 2024
   - Full Build-out Date: 2024
   - Describe Proposed Development Schedule/Staging: N/A

4. TRIP GENERATION: (Use the most recent edition of "Institute of Transportation Engineers (ITE) Trip Generation," unless the Department approves another source. Non-ITE methods must be fully justified on surveys of multiple sites of the same land use type and size.)

   - The trip generation data for the proposed development will be based on the manual *Trip Generation*, Eleventh Edition, 2021, an Institute of Transportation Engineers (ITE) Informational Report. Land Use Code #154 (High-Cube Transload and Short-Term Storage Warehouse) was used to calculate the number of vehicular trips the proposed development will generate during

the following time periods: 1) average weekday; (2) weekday A.M. Peak Hour of Adjacent Street Traffic, (3) weekday A.M. Peak Hour of Generator, (4) weekday P.M. Peak Hour of Generator, and (5) weekday P.M. Peak Hour of Adjacent Street Traffic.

- **Table 1** shows the trip generation data for the analyzed time periods.

TABLE 1
ITE TRIP GENERATION DATA

Land Use	ITE #	X	Time Period	Trip Type	Equation/Rate	Splits	
						Enter %	Exit %
High-Cube Transload and Short-Term Storage Warehouse	154	937.44	Average Weekday	All Vehicular	T = 1.40*(X)	50%	50%
				Trucks	T = 0.22*(X)	50%	50%
			Weekday A.M. Peak Hour of Adjacent Street Traffic	All Vehicular	T = 0.08*(X)	77%	23%
				Trucks	T = 0.02*(X)	49%	51%
			Weekday A.M. Peak Hour of Generator	All Vehicular	T = 0.13*(X)	78%	22%
				Trucks	T = 0.01*(X)	56%	44%
			Weekday P.M. Peak Hour of Generator	All Vehicular	T = 0.17*(X)	34%	66%
				Trucks	T = 0.03*(X) – 5.07	55%	45%
			Weekday A.M. Peak Hour of Adjacent Street Traffic	All Vehicular	T = 0.10*(X)	28%	72%
				Trucks	T = 0.01*(X)	47%	53%

T = number of site-generated vehicular trips
X = independent variable (ksf = 1,000 s.f. gross floor area)

- **Table 2** summarizes the trip generation of the proposed development for the analyzed time periods.

TABLE 2
TRIP GENERATION SUMMARY

Land Use	Total Vehicular Trips			Truck Trips			Passenger Car Trips		
	Total	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit
Average Weekday	1,312	656	656	206	103	103	1,106	553	553
Weekday A.M. Peak Hour of Adjacent Street Traffic	75	58	17	19	9	10	56	49	7
Weekday A.M. Peak Hour of Generator	122	95	27	9	5	4	113	90	23
Weekday P.M. Peak Hour of Generator	159	54	105	23	13	10	136	41	95
Weekday P.M. Peak Hour of Adjacent Street Traffic	94	26	68	9	4	5	85	22	63

5. ESTIMATED DAILY TRIP GENERATION/DRIVEWAY CLASSIFICATION:

   a. Estimated Daily Trip Generation of Proposed Development (Assuming One Access Point and Full Buildout/Occupancy of Entire Tract): 1,312 trips/day or 656 vehicles/day

   b. Driveway Classification Based on Trip Generation and One Access Point:

   ☐ Minimum Use ☐ Medium Volume
   ☒ Low Volume ☐ High Volume

6. TRANSPORTATION IMPACT STUDY REQUIRED?

☐ No

☒ Yes, based on:

☐ 3,000 or more vehicle trips/day generated

☒ During any one-hour time period, 100 or more new (added) vehicle trips generated entering or 100 or more new (added) vehicle trips generated exiting development

☐ Other considerations as described below:

7. TRAFFIC IMPACT ASSESSMENT REQUIRED? ☒ No ☐ Yes

(If a TIS is required, the following sections of this checklist will be discussed at the TIS Scoping Meeting. The applicant may provide preliminary information.)

8. TIS STUDY AREA: (Describe; attach map and/or diagram)

Roadway and Study Intersections:

Based on guidance provided in Appendix A - Policies and Procedures for Transportation Impact Studies Related to Highway Occupancy Permits of PennDOT Publication 282, dated July 2017 and Chapter 2 of ITE's Transportation Impact Analyses for Site Development which suggests a study area limit of 1,000 feet from the site access for developments with fewer than 200 trips during any peak hour, the following study area intersections have been identified:

- Wilkes-Barre Township Boulevard (SR 6309) and Johnson Street/Blackman Plaza Driveway;
- Wilkes-Barre Township Boulevard (SR 6309) and Allan Road;
- Johnson Street and Relocated Allan Road;
- Johnson Street and Haul Road/Private Driveway.

Inclusion of the noted study area intersections is also consistent with typical District 4-0 policy of including all intersections that are anticipated to experience an increase of 100 or more new directional trips during the analyzed peak hours. See Section 13 for additional detail.

Note, the intersection of Wilkes-Barre Township Boulevard (SR 6309) and Allan Road will be included in the TIS for purposes of volume development only in order to accurately depict the trips that will be redistributed to the relocated Allan Road intersection with Johnson Street. Additionally, since Haul Road and Allan Road are both private roadways it is not proposed to include each proposed site driveway as a study area intersection. Instead, the Haul Road and Relocated Allan Road intersections with Johnson Street will be considered the site access locations.

Per the discussions during the TIS Scoping Meeting Wilkes-Barre Township requested the following intersections also be included in the study area for the TIS:

- Wilkes-Barre Township (SR 6309) and I-81 SB Off-Ramp/Blackman Street (SR 2005);
- Wilkes-Barre Township (SR 6309) and Casey Avenue (SR 2016)/PennDOT Park-and-Ride Lot;
- Wilkes-Barre Township (SR 6309) and Sheetz Driveway/Shopping Center Driveway;
- Wilkes-Barre Township (SR 6309) and Coal Street/Highland Park Boulevard (SR 2063).

Land Use Context: (Refer to Smart Transportation Handbook)

- In Section 1.2 of the Design Manual, Part 2, there is guidance pertaining to defining the land use context(s) for a given area. Based upon review of this information, the land uses surrounding the proposed site best fits the Suburban Corridor designation, as described below:

  Suburban Corridor, *"…characterized by big box stores, commercial strip centers, restaurants, auto dealerships, office parks, and gas stations. These uses are sometimes interspersed with natural areas and occasional clusters of homes. Buildings are usually set back from the roadway behind surface parking."*

Known Congestion Areas:

- None.

Known Safety Concerns:

- None.

Known Environmental Constraints:

- None.

Pedestrian/Bike Review (Community Centers, Parks, Schools, etc):

- Based on observations at the proposed study area intersections, sidewalks, paved shoulders and/or the travel lanes currently accommodate pedestrians and bicycle traffic in the vicinity of the proposed development.

Transit Review (Current Routes/Stops):

- Luzerne County is provided with public transportation via the Luzerne County Transportation Authority (LCTA). There are multiple fixed bus routes which provide service in the vicinity of the proposed site. There are no rail centers within ½ mile of the site.

9. STUDY AREA TYPE: Urban ☒ Rural ☐

10. TIS ANALYSIS PERIOD AND TIMES:
    (List periods and times. Normal analysis periods are existing conditions, 5 years in the future without development, and 5 years in the future with development. Normal analysis times for each period are the AM peak hour, the PM peak hour, and the peak hour of site-generated traffic.)

    Peak Hours to be evaluated:

    - Weekday A.M. Peak Hour of Adjacent Street Traffic;
    - Weekday A.M. Peak Hour of Generator;
    - Weekday P.M. Peak Hour of Generator.

Study Years to be evaluated:

- Existing Conditions;
- 2024/2029 Base conditions (Opening Year and 5 years after Opening without development);
- 2024/2029 Projected conditions (Opening Year and 5 years after Opening with development.

It should be noted PennDOT's Policies and Procedures for Transportation Impact Studies typically requires analyses of the following future years:

- Opening Year which is assumed to be the last phase of construction (build-out);
- Design Horizon Year which is be assumed to be 5 years after the Opening Year.

However, since PennDOT's recommended growth factor is 0.0% (see section 11.b), the traffic volumes for the Opening and Design Horizon Years will be the same.

11. TRAFFIC ADJUSTMENT FACTORS:

a. Seasonal Adjustment: (Identify counts requiring adjustment and methodology) In accordance with SOL 424-21-07 regarding COVID-19 traffic data guidance, the traffic counts will be completed after September 7, 2021, and thus no adjustment will be required.

b. Annual Base Traffic Growth: A background growth factor for the roadways in the study area will developed based on growth factors obtained from the PennDOT Bureau of Planning and Research (BPR) for August 2021 to July 2021. The PennDOT BPR suggests using a background growth trend factor of 0.0% per year in Luzerne County for urban non-interstate roadways.

c. Pass-By Trips: (Attach Justification where required) None.

d. Captured Trips for Multi-Use Sites: None.

e. Modal Split Reductions: None.

f. Other Reduction: None.

12. OTHER PROJECTS WITHIN STUDY AREA TO BE ADDED TO BASE TRAFFIC:
(Identify proposed developments with issued permits that need to be included.)

- **Turkey Hill Convenience Store and Gas Station** located on the southwest corner of the intersection of Wilkes-Barre Township Boulevard and Blackman Street/I-81 South Ramp G in Wilkes-Barre Township. The trip generation/distribution information for the development will be obtained from the TIS prepared for the development by L&V Engineering, LLC.

- **Blackman Plaza Redevelopment** located on the western side of Wilkes-Barre Township Boulevard generally between Johnson Street and Casey Avenue in Wilkes-Barre Township. The trip generation/distribution information for the development will be obtained from the TIS prepared for the development by L&V Engineering, LLC.

13. *TRIP DISTRIBUTION AND ASSIGNMENT:*
(Describe; explain/justify; attached diagram and related information)

- The distribution of passenger car trips (i.e. mainly employees) generated by the proposed development has been based on the following: (1) the average one-way commute time to work in

the United States; (2) the proximity of local population centers in the vicinity of the subject tract; and (3) the available routes for travel. Based on TPD's research the average one-way commute to work in the United States is approximately 30 minutes. Taking this into consideration the population centers in the vicinity of the subject tract that are anticipated to be the origin of the majority of employee trips to/from the proposed warehouse are Wilkes-Barre, Pittston, Scranton, and Hazelton. Based on the available travel routes for travel to/from these population centers, TPD proposes to distribute the passenger car trips generated by the proposed warehouse to the local roadway network based on the below percentages and as summarized in **Table 3**.

The overall origin/destinations for the passenger vehicle trip distributions are as follows:

- To/from north of the site = 60%;
- To/from south of the site = 40%.

TABLE 3
TRIP DISTRIBUTION PERCENTAGES: PASSENGER VEHICLE TRIPS

Assignment – To/From	Distribution Percentages: Passenger Car Trips	
	Entering Trips	Exiting Trips
North via Wilkes-Barre Township Boulevard (SR 6309)	14%	14%
North via Johnson Street	5%	5%
South via Wilkes-Barre Township Boulevard (SR 6309)/I-81	10%	20%[1]
East via Highland Park Boulevard (SR 2063)	5%	25%
West via Coal Street	5%	5%
West via Casey Avenue (SR 2016)	1%	1%
West via Blackman Street (SR 2005)	30%	30%
North via I-81 SB Off-Ramp at Blackman Street	30%	--

1 = Includes 10% oriented to the north which are assumed to utilize the I-81 NB On-Ramp to the south of the site

- The distribution of truck trips generated by the proposed development has been based on the following: (1) the proximity of regional population centers in the vicinity of the subject tract; and (2) the location of major interstates/arterials in the vicinity of the subject tract. Based on TPD's review, major regional population centers such as Philadelphia, New York, Boston and Hartford are anticipated to utilize I-80, I-81, I-84 and I-476 to travel to/from the proposed warehouse to/from the north via Wilkes-Barre Township Boulevard. Additionally, major regional population centers such as Harrisburg, Pittsburgh, Baltimore and Washington D.C. are anticipated to utilize I-80, I-81, and I-83 to travel to/from the proposed warehouse to/from the south via Wilkes-Barre Township Boulevard. Based on the available travel routes for travel to/from these population centers, TPD proposes to distribute the truck trips generated by the proposed warehouse to the local roadway network based on the below percentages and as summarized in **Table 4**.

The overall origin/destinations for the truck trip distributions are as follows:

- To/from north of the site = 25%;
- To/from south of the site = 75%.

TABLE 4
TRIP DISTRIBUTION PERCENTAGES: TRUCK TRIPS

Assignment – To/From	Distribution Percentages: Truck Trips	
	Entering Trips	Exiting Trips
North via Wilkes-Barre Township Boulevard (SR 6309)	--	--
North via Johnson Street	--	--
South via Wilkes-Barre Township Boulevard (SR 6309)/I-81	75%	90%[1]
East via Highland Park Boulevard (SR 2063)	10%	10%
West via Coal Street	--	--
West via Casey Avenue (SR 2016)	--	--
West via Blackman Street (SR 2005)	--	--
North via I-81 SB Off-Ramp at Blackman Street	15%	--

1 = Includes 15% oriented to the north which are assumed to utilize the I-81 NB On-Ramp to the south of the site

- Schematic figures summarizing the assumed assignment/distribution of site-generated trips for the proposed warehouse are attached.

14. APPROVAL OF DATA COLLECTION ELEMENTS AND METHODOLOGIES:

- Manual turning movement counts will be conducted at the study area intersections on a typical weekday (Tuesday-Thursday), as follows:
  - Weekday A.M. Peak Hour of Adjacent Street Traffic (peak hour between 6:00-9:00 A.M.);
  - Weekday A.M. Peak Hour of Generator (peak hour between 9:00-10:00 A.M.);
  - Weekday P.M. Peak Hour of Adjacent Street Traffic (peak hour between 3:00-6:00 P.M.).
- In accordance with SOL 424-21-07 regarding COVID-19 traffic data guidance, the traffic counts will be completed after September 7, 2021, and thus no adjustment will be required.

15. CAPACITY/LOS ANALYSIS:

- Capacity analyses will be conducted for the study area intersections according to the methodologies contained in the *Highway Capacity Manual* (HCM), 6th edition using *Synchro 11* software. In addition, the Pennsylvania default values for a suburban land use context contained in Chapter 10 of PennDOT's *Publication 46* will be utilized as applicable.
- Calibrated Synchro analyses (in electronic format) will be provided with each submission.

16. ROADWAY IMPROVEMENTS/MODIFICATIONS BY OTHERS TO BE INCLUDED:

Programmed Improvement Projects:

Based on a review of the Transportation Improvement Program (TIP) for PennDOT, there are programmed roadway improvement projects within the study area, as follows:

- **SR 309 Safety Improvement** is Project ID #109543 and includes safety improvements at the Wilkes-Barre Township Boulevard intersections with Johnson Street/Blackman Plaza Driveway and Casey Avenue, including creation of a 4-way signalized intersection and additional turning lanes at Johnson Street/Blackman Plaza Driveway. The project was let in July 2021 and is anticipated to be complete by August 2022.

Based on the anticipated completion date, the referenced programmed roadway improvement project will be included in all the future condition capacity analyses.

- **I-81 SB Ramp at Blackman Street** includes improvements at the intersection of Wilkes-Barre Township Boulevard and I-81 SB Off-Ramp/Blackman Street, including dual left-turn lanes for the I-81 SB Off-Ramp.

Given the current uncertainty regarding the completion date for this project, it was agreed during the TIS Scoping Meeting the future condition capacity analyses would be completed with and without the referenced programmed roadway improvement project.

Improvement Projects By Others:

Based on a review of the Transportation Impact Studies for the nearby proposed developments referenced in Section 12, there are proposed roadway improvements at the following study area intersection:

- Wilkes-Barre Township (SR 6309) and I-81 SB Off-Ramp/Blackman Street, including dual left-turn lanes for from Wilkes-Barre Township to Blackman Street.

The proposed roadway improvements by others will be included in all future condition capacity analyses, as applicable.

17. OTHER NEEDED ANALYSES:

a. Sight Distance Analysis: A sight distance analysis will be performed for the proposed site driveway locations, as applicable.
(Required for all site access driveways; identify other locations)

b. Signal Warrant Analysis: TPD will complete signal warrant analyses at all unsignalized study intersections and/or proposed site driveway locations.
(Identify locations)

c. Required Signal Phasing/Timing Modifications: If necessary, TPD will make recommendations for traffic signal timing and/or phasing modifications based on results of the analysis.
(Determine for all signalized intersections; specify methodology)

d. Traffic Signal Corridor/Network Analysis: None.
(Identify locations/methodology)

e. Analysis of the Need for Turning Lanes: TPD will analyze auxiliary turn lane warrants at all study area intersections. The warrant analysis methodology contained within Chapter 11 of PennDOT's Publication 46 will be utilized for this analysis.

f. Turning Lane Lengths: TPD will analyze auxiliary turn lane lengths at all study area intersections. The analysis methodology contained within Chapter 11 of PennDOT's Publication, as well as the

95th percentile queue lengths, will be utilized for this analysis.

g. Left Turn Signal Phasing Analysis: TPD will analyze left turn signal phasing at all study area intersections, as applicable.
(Identify locations/methodology)

h. Queuing Analysis: TPD will analyze the 95th percentile queue lengths at the study area intersections using SimTraffic based on the following methodology:

- Calibration settings: 3 intervals, as follows:
  - 10-minute seeding.
  - 15-minute recording with PHF Adjust set to "Yes" and the AntiPHF Adjust set to "No".
  - 45-minute recording with PHF Adjust set to "No" and the AntiPHF Adjust set to "Yes".
- Results based on average of 5 simulations runs.

i. Gap Studies: None.
(Identify locations/methodology)

j. Crash Analysis: A crash data analysis will be prepared and submitted under separate cover that will contain an analysis of reportable crashes along the segment of Wilkes-Barre Township Boulevard in the vicinity of the proposed site.
(Identify locations)

k. Weaving Analysis: None.
(Identify locations/methodology)

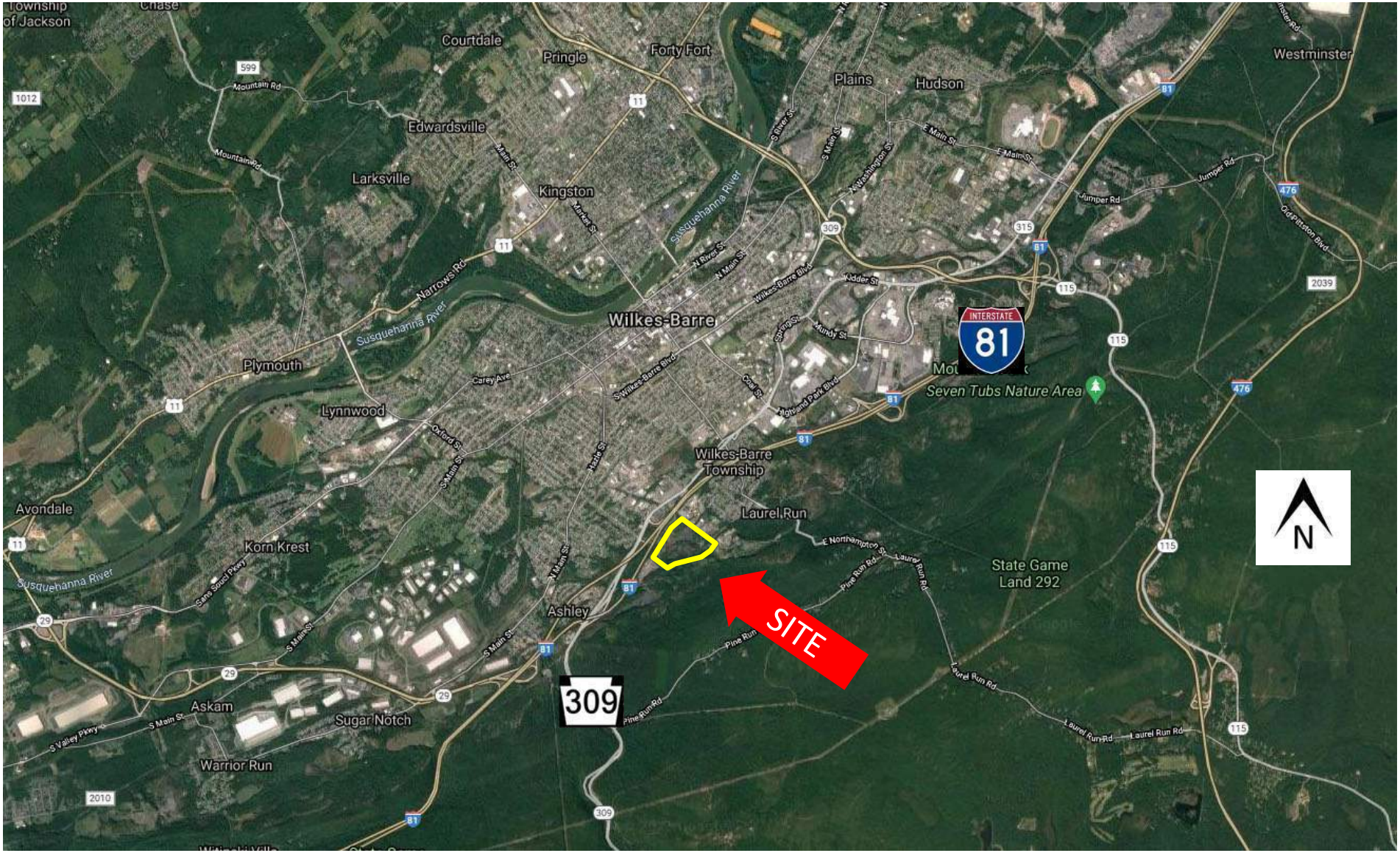
l. Other Required Studies: None.
(Specify locations/methodology)

18. ADDITIONAL COMMENTS OR RECOMMENDATIONS RELATIVE TO THE SCOPE OF THE TIS:

- None.

ATTACHMENT #1:

Location Maps



Preliminary

August 25, 2021

BLUECUP VENTURES LLC

Area Plan

Wilkes-Barre Twp., PA S-1

Preliminary

August 25, 2021

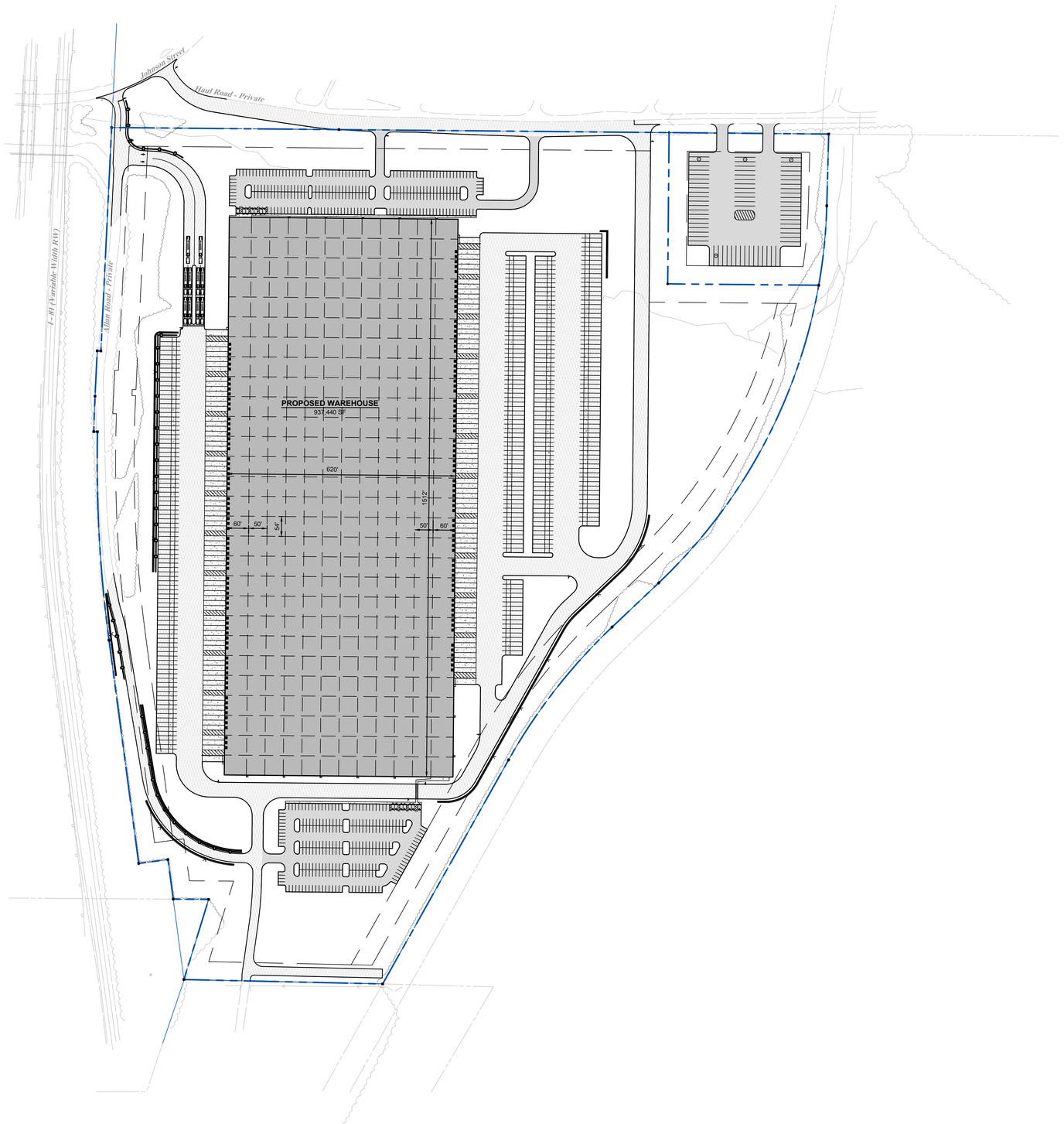
BLUECUP VENTURES LLC

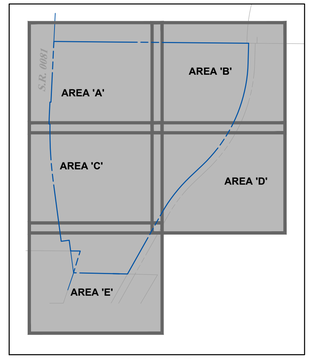
Parcel Boundary

Wilkes-Barre Twp., PA **S-2**

ATTACHMENT #2:

Conceptual Site Plan





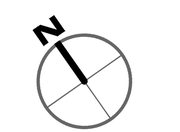
KEY MAP
SCALE: NONE

SITE PLAN NOTES

1. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OF ALL PRODUCTS AND MATERIALS PER PLANS AND SPECIFICATIONS TO THE OWNER AND CIVIL ENGINEER FOR REVIEW AND APPROVAL PRIOR TO FABRICATION OR DELIVERY TO THE SITE. ALLOW A MINIMUM OF 14 WORKING DAYS FOR REVIEW.
2. THE CONTRACTOR SHALL FOLLOW THE SEQUENCE OF CONSTRUCTION NOTES PROVIDED ON THE SEDIMENT AND EROSION CONTROL PLAN.
3. THE CONTRACTOR SHALL REFERENCE ARCHITECTURAL PLANS FOR EXACT DIMENSIONS AND CONSTRUCTION DETAILS OF BUILDING, THE CONCRETE SIDEWALKS, LANDINGS, RAMPS, AND STAIRS.
4. ALL SITE DIMENSIONS ARE REFERENCED TO THE FACE OF CURBS OR EDGE OF PAVING AS APPLICABLE UNLESS OTHERWISE NOTED. ALL BUILDING DIMENSIONS ARE REFERENCED TO THE OUTSIDE FACE OF THE STRUCTURE.
5. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN TRAFFIC DEVICES FOR PROTECTION OF VEHICLES AND PEDESTRIANS AS REQUIRED BY THE OWNER, ENGINEER OR LOCAL GOVERNING AUTHORITIES.
6. TRAFFIC CONTROL SIGNAGE SHALL CONFORM TO THE STATE DOT STANDARD DETAIL SHEETS AND THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. SIGNS SHALL BE INSTALLED PLUMB WITH THE EDGE OF THE SIGN 2' OFF THE FACE OF THE CURB, AND WITH 7' VERTICAL CLEARANCE UNLESS OTHERWISE DETAILED OR NOTED.
7. THE CONTRACT LIMIT IS THE PROPERTY LINE UNLESS OTHERWISE SPECIFIED OR SHOWN ON THE CONTRACT DRAWINGS.
8. PAVEMENT MARKING KEY:

4"	SYDL	4"	SOLID YELLOW DOUBLE LINE
4"	SYL	4"	SOLID YELLOW LINE
4"	SWL	4"	SOLID WHITE LINE
12"	SWSB	12"	SOLID WHITE STOP BAR

9. PARKING SPACES SHALL BE STRIPED WITH 4" SWL; HATCHED AREA SHALL BE STRIPED WITH 4" SWL AT A 45° ANGLE, 2' ON CENTER. HATCHING, SYMBOLS, AND STRIPING FOR HANDICAPPED SPACES SHALL BE PAINTED WHITE. OTHER MARKINGS SHALL BE PAINTED WHITE OR AS NOTED.
10. PAVEMENT MARKINGS SHALL BE HOT APPLIED TYPE IN ACCORDANCE WITH STATE DOT SPECIFICATIONS, UNLESS WHERE EPOXY RESIN PAVEMENT MARKINGS ARE INDICATED.
11. THE CONTRACTOR SHALL REMOVE CONFLICTING PAVEMENT MARKINGS IN THE ROADWAY BY METHOD APPROVED BY THE AUTHORITY HAVING JURISDICTION OR PENNDOT AS APPLICABLE FOR THE LOCATION OF THE WORK.
12. ALL ADA DESIGNATED PARKING STALLS, ACCESS AISLES AND PEDESTRIAN WALKWAYS SHALL CONFORM TO THE CURRENT VERSION OF THE AMERICANS WITH DISABILITIES ACT STANDARDS FOR ACCESSIBLE DESIGN AND ANSI STANDARDS AND MAY BE SUPERCEDED BY THE STATE BUILDING CODE.
13. CONSTRUCTION OCCURRING ON THIS SITE SHALL COMPLY WITH NFPA 241 STANDARD FOR SAFEGUARDING CONSTRUCTION, ALTERATION AND DEMOLITION OPERATIONS, AND CHAPTER 16 OF NFPA 1 UNIFORM FIRE CODE.
14. ALL CURB RADII SHALL BE 5' RADII UNLESS OTHERWISE SPECIFIED.



150' 75' 0' 150'
SCALE: 1"= 150'

INTEGRATED CONSULTING
430 NORTH FRONT STREET
WORMLEYSBURG | PA | 17043
717.773.6084
www.IntegratedDP.com

CONCEPTUAL LOT 2 PLAN

PROPOSED WAREHOUSE
FOR
PANATTONI

LUZERNE COUNTY
WILKES-BARRE TOWNSHIP

PROFESSIONAL SEAL

DRAWN	AML
REVIEWED	JLK
SCALE	AS NOTED
DATE	XX/XX/2022
PROJECT NO.	21-0161
CAD FILE:	LOT 2 SITE PLAN

REVISIONS

NO.	DATE	DESCRIPTION

TITLE
SITE PLAN - OVERALL

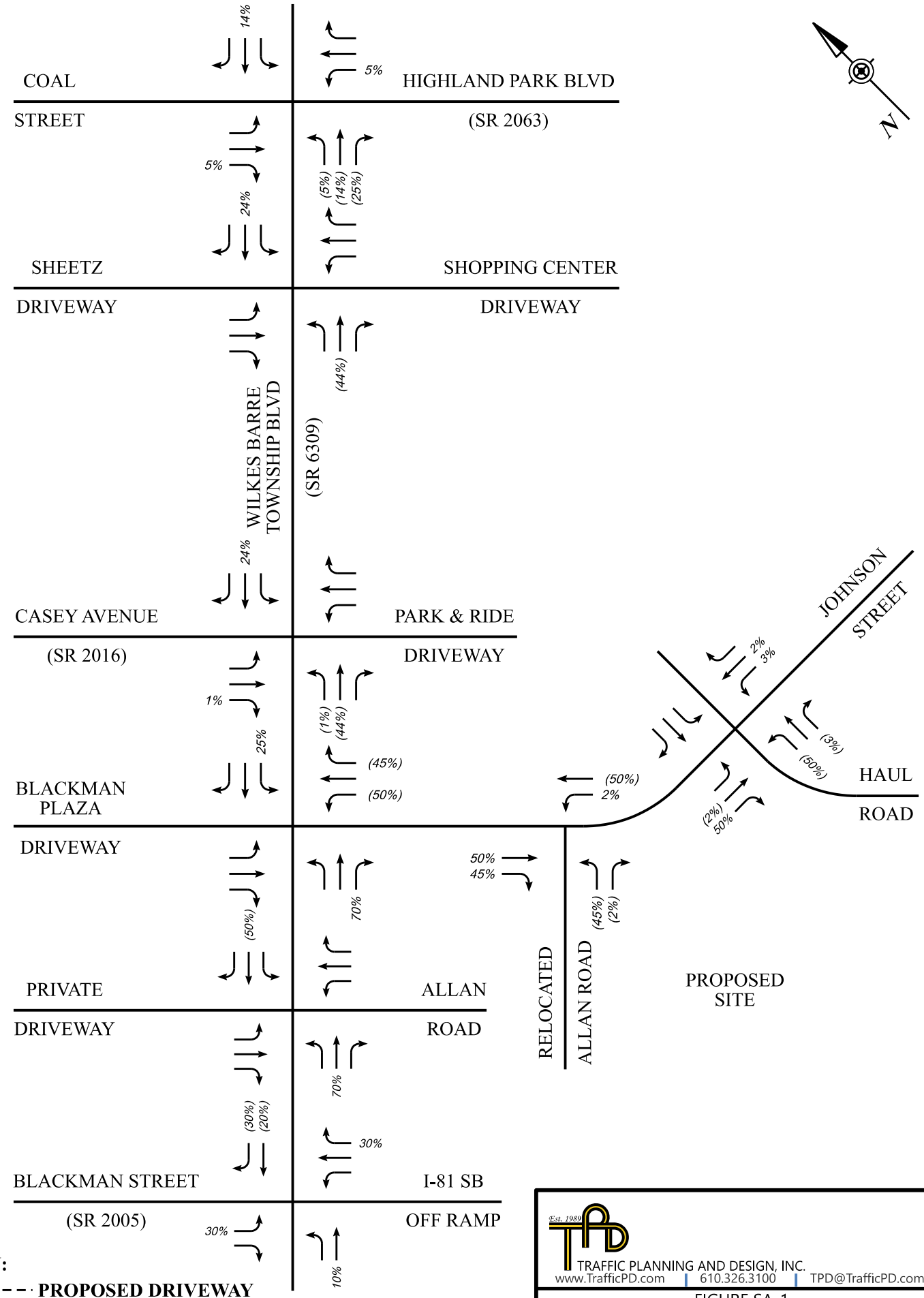
SHEET NO.
16 of 52

3/2/2022, DEFAULT, C:\USERS\DEFAULT.DESKTOP-O16OVJH\INTEGRATED DEVELOPMENT PARTNERS, LLC\IDP - DATA\PROJECTS\2021\21-0161 BLUECUP WILKES-BARRE\DWG\EXHIBITS\LOT 2 SITE PLAN.DWG,16 SITE PLAN - OVERALL

FOR PERMITTING PURPOSES ONLY. NOT FOR CONSTRUCTION.

ATTACHMENT #3:

Trip Assignment Percentages & Trip Distributions



KEY:

- - - - - PROPOSED DRIVEWAY

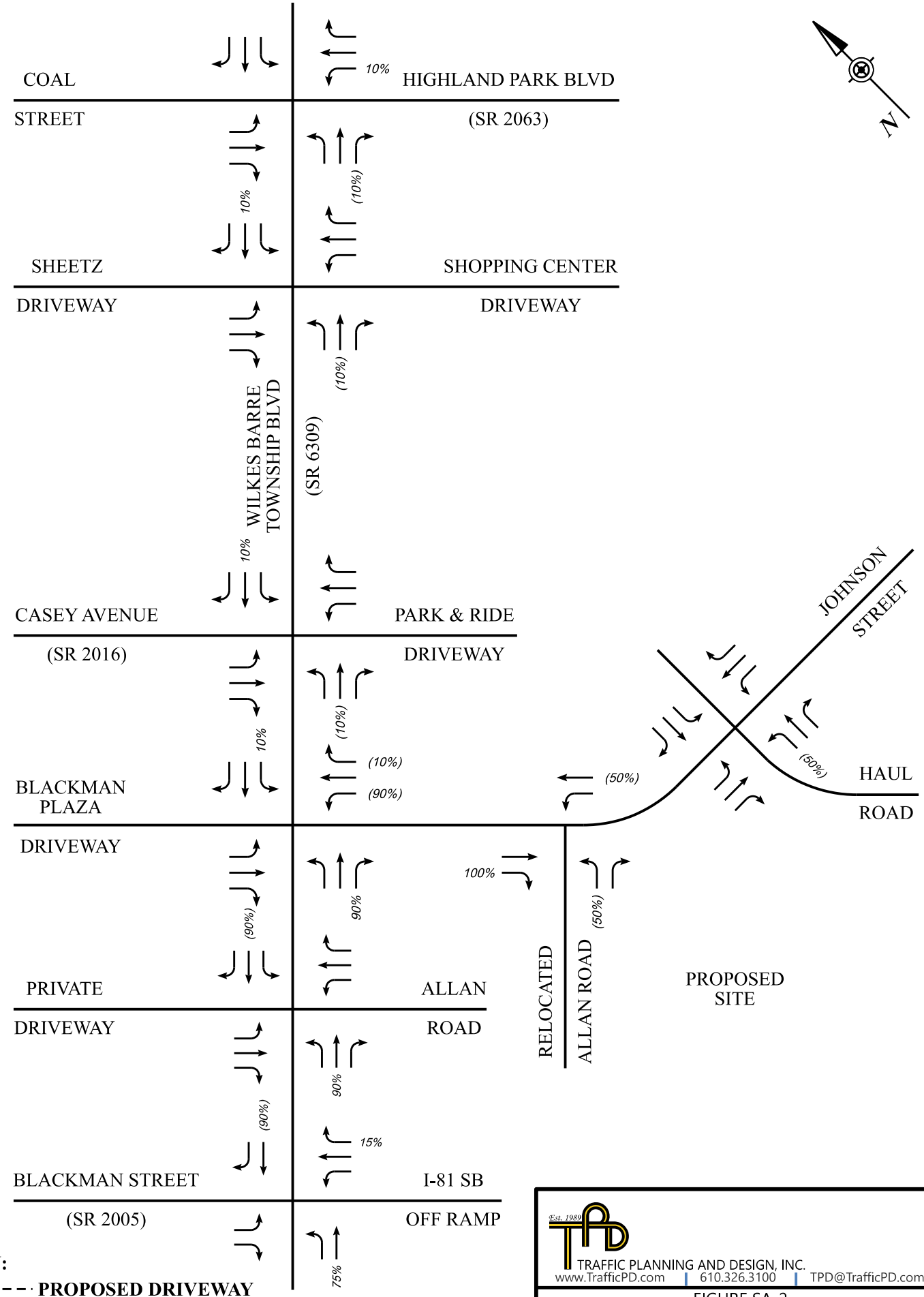
SCHEMATIC DRAWING:NOT TO SCALE

ENTERING % (EXITING %)

TRAFFIC PLANNING AND DESIGN, INC.
www.TrafficPD.com | 610.326.3100 | TPD@TrafficPD.com

FIGURE SA-1

BLUECUP WAREHOUSE DEVELOPMENT
TRIP ASSIGNMENT PERCENTAGES
PASSENGER CARS



KEY:

- - - - - PROPOSED DRIVEWAY

SCHEMATIC DRAWING:NOT TO SCALE

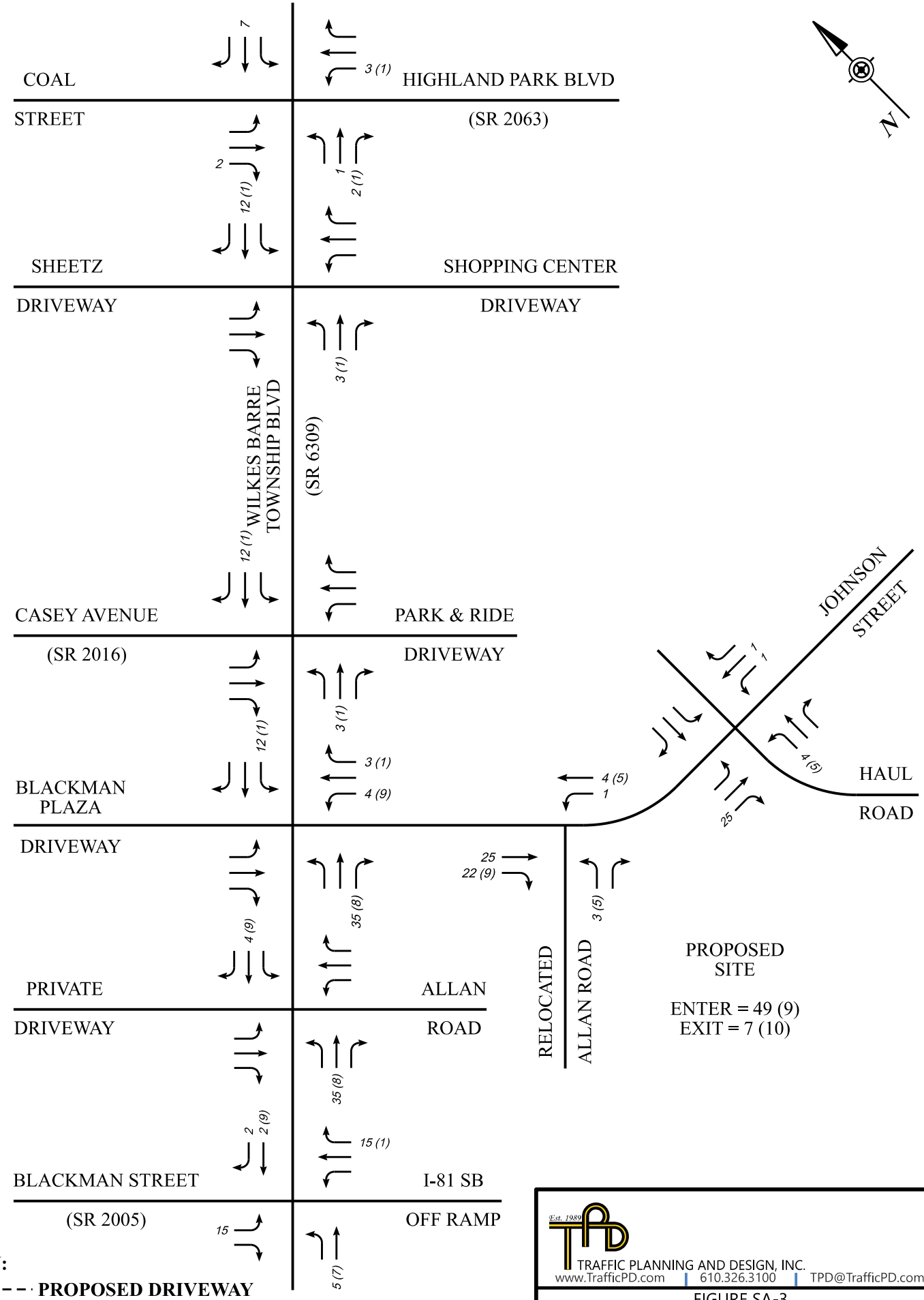
ENTERING % (EXITING %)

TRAFFIC PLANNING AND DESIGN, INC.
www.TrafficPD.com | 610.326.3100 | TPD@TrafficPD.com

FIGURE SA-2

BLUECUP WAREHOUSE DEVELOPMENT
TRIP ASSIGNMENT PERCENTAGES
TRUCKS

c:\pwworking\projectwise\emountz\d1676229\2022-04-10 - TIS Scoping Figures.dgn
4/10/2022 4:54:24 PM emountz SA-2



KEY:

- - - - - PROPOSED DRIVEWAY

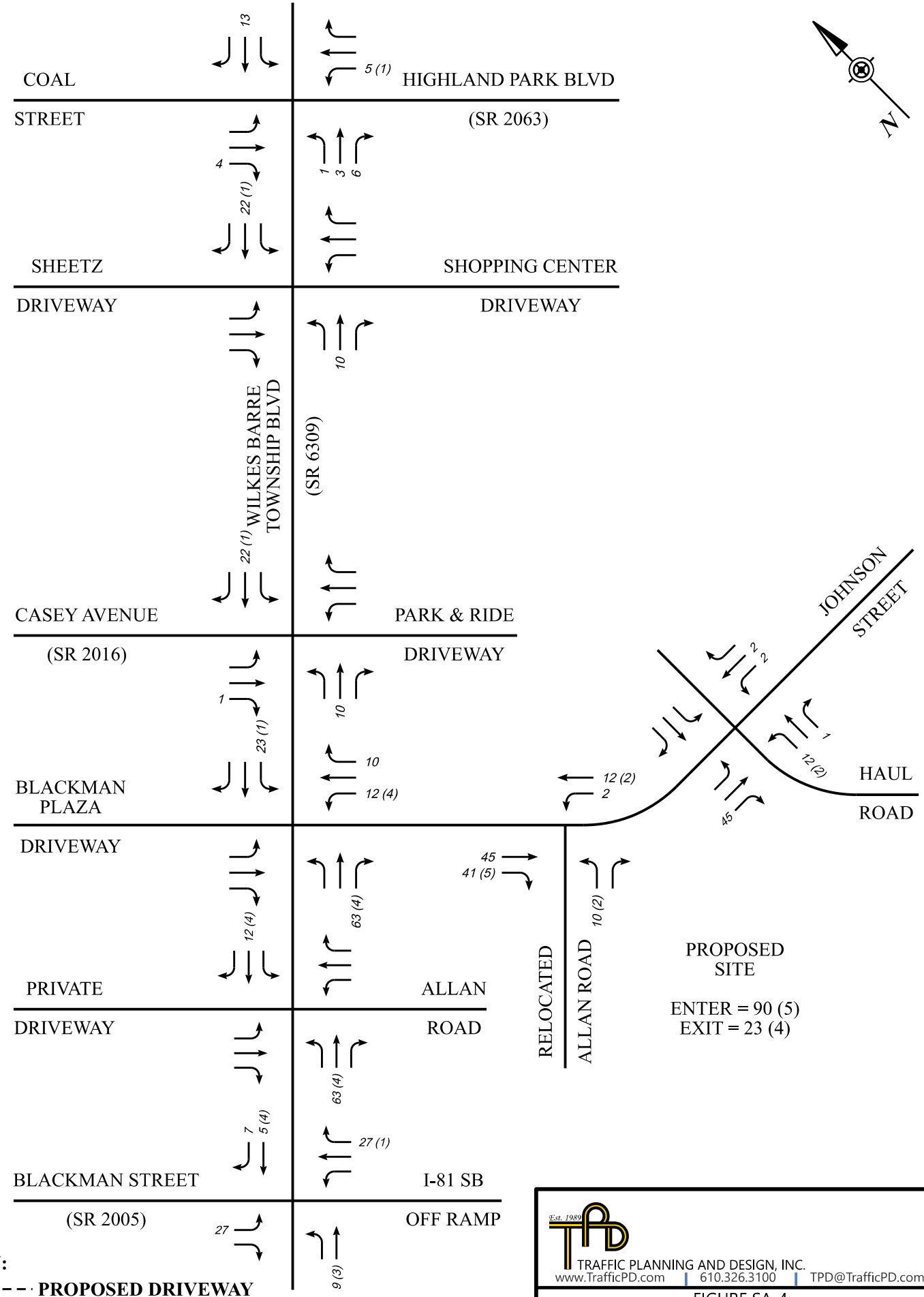
SCHEMATIC DRAWING:NOT TO SCALE

PASSENGER CAR (TRUCK) TRIPS

TRAFFIC PLANNING AND DESIGN, INC.
www.TrafficPD.com | 610.326.3100 | TPD@TrafficPD.com

FIGURE SA-3

BLUECUP WAREHOUSE DEVELOPMENT
WEEKDAY A.M. PEAK HOUR OF ADJACENT STREET TRIP DISTRIBUTIONS



KEY:

- - - - - PROPOSED DRIVEWAY

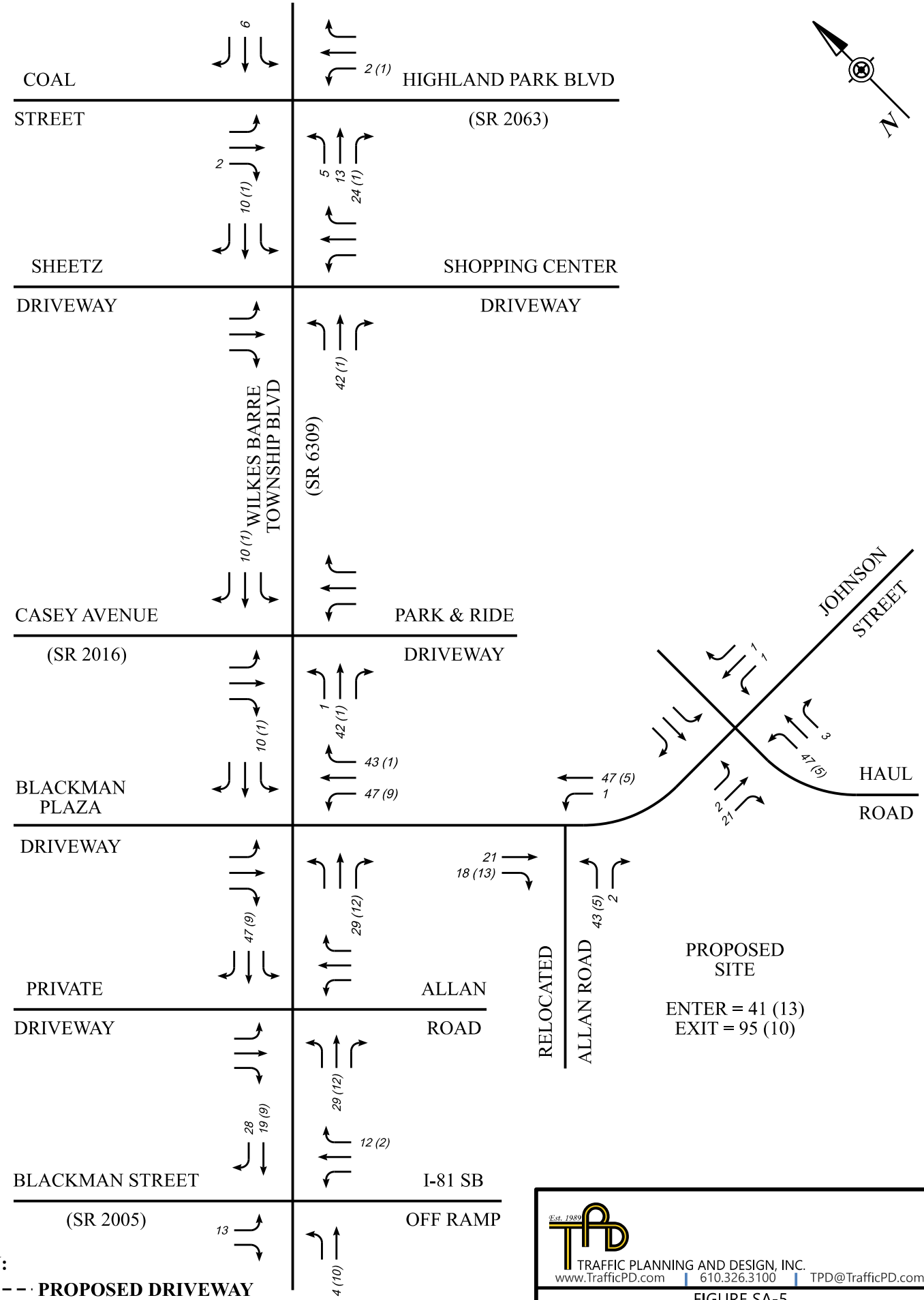
SCHEMATIC DRAWING:NOT TO SCALE

PASSENGER CAR (TRUCK) TRIPS

TRAFFIC PLANNING AND DESIGN, INC.
Est. 1989
www.TrafficPD.com | 610.326.3100 | TPD@TrafficPD.com

FIGURE SA-4

BLUECUP WAREHOUSE DEVELOPMENT
WEEKDAY A.M. PEAK HOUR OF GENERATOR
TRIP DISTRIBUTIONS



KEY:

- - - - - PROPOSED DRIVEWAY

SCHEMATIC DRAWING:NOT TO SCALE

PASSENGER CAR (TRUCK) TRIPS

TRAFFIC PLANNING AND DESIGN, INC.
www.TrafficPD.com | 610.326.3100 | TPD@TrafficPD.com

FIGURE SA-5

BLUECUP WAREHOUSE DEVELOPMENT
WEEKDAY P.M. PEAK HOUR OF GENERATOR
TRIP DISTRIBUTIONS

ATTACHMENT #4:

Project Correspondence

TRAFFIC PLANNING AND DESIGN, INC.
WWW.TRAFFICPD.COM

April 11, 2022

PennDOT Engineering District 4-0
Highway Occupancy Permits Unit
55 Keystone Industrial Park Road
Dunmore, PA 18512

Attention: Mr. Jeremiah Gonzalo, District Permit Manager

RE: Response to 3/28/22 TIS Scoping Meeting Application Review
Bluecup Warehouse Development
EPS Application #261894; Cycle #3
Wilkes-Barre Township, Luzerne County, PA
TPD No. BCVS.00002

Dear Jeremiah:

This letter regards the proposed Warehouse Development proposed by Bluecup Ventures, LLC along Haul Road in Wilkes-Barre Township, Luzerne County, PA. Traffic Planning and Design, Inc. (TPD) has prepared this response letter to address comments provided by PennDOT District 4-0 in a letter dated March 28, 2022. These comments were offered with respect to TPD's Transportation Impact Study (TIS) Scoping Meeting Application dated March 4, 2022. For the discussion below, the Department's comments are shown in *italic* type, with the corresponding TPD response shown in **bold** type:

TRANSPORTATION IMPACT STUDY/TRANSPORTATION IMPACT ASSESSMENT

1) *The Municipality has the option to request analysis of additional intersections in the TIS as well as those identified by PennDOT. A supplemental report may be required.*

   Based on the discussions during the Scoping Meeting on 4/8/22, Section 8 of the TIS Scoping Meeting Application has been revised to include the following intersections requested by Wilkes-Barre Township:

   - **Wilkes-Barre Township (SR 6309) and I-81 SB Off-Ramp/Blackman Street (SR 2005);**
   - **Wilkes-Barre Township (SR 6309) and Casey Avenue (SR 2016)/PennDOT Park-and-Ride Lot;**
   - **Wilkes-Barre Township (SR 6309) and Sheetz Driveway/Shopping Center Driveway;**
   - **Wilkes-Barre Township (SR 6309) and Coal Street/Highland Park Boulevard (SR 2063).**

2) *Please note table 2 in the scoping is mislabeled for the PM Peak hour of adjacent street traffic.*

   Table 2 has been revised accordingly in the TIS Scoping Meeting Application.

3) *Synchro 11 is preferable if available.*

Section 15 of the TIS Scoping Meeting Application has been revised to note Synchro 11 will be utilized.

4) *Trip generation general comments:*

The explanation of the inbound/outbound discrepancy with passenger car trip distribution does not seem to agree with expected traffic patterns in the area as many employees would most likely come from and return to local population centers as noted in scoping form #13. Also, the congestion on SR 309 gets much worse as you approach Highland Park boulevard. Exiting drivers that want to get to the interstate may take a left on SR 309 to go south to get to I-81 North to avoid congestion, however this may change with the PennDOT I-81 project.

The TIS Scoping Meeting Application has been revised to include updated trip assignment/distribution information in accordance with the discussions during the Scoping Meeting on 4/8/22.

Should the truck distribution for Allan Road and Haul road be split evenly?

The TIS Scoping Meeting Application has been revised to assume the exiting truck distribution will be evenly split between Haul Road and Relocated Allan Road. Please note all trucks are assumed to enter the site via Relocated Allan Road since they'll need to go through the scales before proceeding to a dock.

SIGNAL SECTION (PUBLICATION 46, 148 AND 149)

1) *Traffic signal warrants should be performed at all study intersections if there is not a signal already.*

Section 17.b of the TIS Scoping Meeting Application has been revised to note signal warrants will be conducted at all unsignalized study intersections.

For example where your driveway meets the Township Road. Thank you for your continuing review, and please call if there is any further information you require with regards to these responses.

Sincerely,

TRAFFIC PLANNING AND DESIGN, INC.

Eric M. Mountz, P.E., PTOE
Regional Leader – Transportation Planning
emountz@TrafficPD.com

cc: Wilkes-Barre Township
Bluecup Ventures, LLC

pennsylvania
DEPARTMENT OF TRANSPORTATION

Date: 03/28/2022

Subject: Highway Occupancy Permit Application No. 261894, Cycle No.2 - Returned For Revisions

To: Wilkes-Barre Township
152 Watson Street
Wilkes Barre Township, PA 18702

From: PennDOT Engineering District 4-0
55 Keystone Industrial Park
Dunmore, PA 18512

Dear Applicant,

PennDOT has reviewed your application for completeness, consistency and compliance with applicable Department Regulations. This review has identified issues that must be addressed in order for our review to continue.

The Department's review comments are attached.

Once the comments have been addressed, please resubmit the application and associated material for further review.

Upon resubmission, the applicant's engineer should put together a letter that describes how each comment has been addressed and where each can be found. This will help expedite the review. For guidance on HOP applications refer to 67 PA Code, Chapter 441, Chapter 459 and PennDOT Publication 282, "Highway Occupancy Permit Guidelines". Additional comments may follow upon review of the resubmitted application.

If you have any questions regarding this matter, you may contact Jeremiah Gonzalo EIT, District Permit Manager, at (570) 963-4067.

pennsylvania
DEPARTMENT OF TRANSPORTATION

Response Comments
Date: 03/28/2022
Application Number: 261894, Cycle No.2

Transportation Impact Study/Transportation Impact Assessment

(1) The Municipality has the option to request analysis of additional intersections in the TIS as well as those identified by PennDOT. A supplemental report may be required.
(2) Please note table 2 in the scoping is mislabeled for the PM Peak hour of adjacent street traffic.
(3) Synchro 11 is preferable if available
(4) Trip generation general comments:

The explanation of the inbound/outbound discrepancy with passenger car trip distribution does not seem to agree with expected traffic patterns in the area as many employees would most likely come from and return to local population centers as noted in scoping form #13. Also, the congestion on SR 309 gets much worse as you approach Highland Park boulevard. Exiting drivers that want to get to the interstate may take a left on SR 309 to go south to get to I-81 North to avoid congestion, however this may change with the PennDOT I-81 project.

Should the truck distribution for Allan road and Haul road be split evenly?

Signal Section (Publication 46, 148 And 149)

(1) Traffic signal warrants should be performed at all study intersections if there is not a signal already. For example where your driveway meets the Township Road.

TRAFFIC PLANNING AND DESIGN, INC.
WWW.TRAFFICPD.COM

March 4, 2022

PennDOT Engineering District 4-0
Highway Occupancy Permits Unit
55 Keystone Industrial Park Road
Dunmore, PA 18512

Attention: Mr. Jeremiah Gonzalo, District Permit Manager

RE: Response to 1/3/22 TIS Scoping Meeting Application Review
Bluecup Warehouse Development
EPS Application #261894; Cycle #2
Wilkes-Barre Township, Luzerne County, PA
TPD No. BCVS.00002

Dear Jeremiah:

This letter regards the proposed Warehouse Development proposed by Bluecup Ventures, LLC along Haul Road in Wilkes-Barre Township, Luzerne County, PA. Traffic Planning and Design, Inc. (TPD) has prepared this response letter to address comments provided by PennDOT District 4-0 in a letter dated January 3, 2022. These comments were offered with respect to TPD's Transportation Impact Study (TIS) Scoping Meeting Application dated December 10, 2021. For the discussion below, the Department's comments are shown in *italic* type, with the corresponding TPD response shown in **bold** type:

APPLICATION

(1) This application should be in the name of the municipality. PennDOT M950AA form must be submitted.

A M-950 AA form in the name of Wilkes-Barre Township will be provided in conjunction with the initial submission of the TIS.

(2) EPS application identification: Permit Type should be revised to 'driveway'. Permit Sub type should be revised to 'local road'.

Revised as requested.

TRANSPORTATION IMPACT STUDY/TRANSPORTATION IMPACT ASSESSMENT

(1).1 What is the actual square footage of the building? In the concept 973,500 SF is shown, but 1,103,100 SF is listed in the table. Doing the math of the area, it is 937,400 SF.

A revised conceptual site plan is included that confirms the building size is 937,440 s.f.

(1).2 Wilkes-Barre Township wants the follow intersections studied:

Rt 309/Blackman Street
Rt 309/Casey Ave.
Rt 309/Sheetz
Rt309/Coal Street
Highland Blvd/Wegmans
Highland Blvd/Walmart
Highland Blvd/Rt 81 Exit Ramp

Analyze capacity/level of service, queuing analysis, and crash analysis for these intersections. Invite the township to scoping meeting to ensure their concerns are met.

The study area intersections identified in the TIS scoping application were based on guidance provided in Appendix A - Policies and Procedures for Transportation Impact Studies Related to Highway Occupancy Permits of PennDOT Publication 282, dated July 2017 and Chapter 2 of ITE's Transportation Impact Analyses for Site Development which suggests a study area limit of 1,000 feet from the site access for developments with fewer than 200 trips during any peak hour. Based on this guidance the following study area intersections have been identified:

- **Wilkes-Barre Township Boulevard and Johnson Street/Blackman Plaza Driveway;**
- **Johnson Street and Haul Road;**
- **Haul Road and Proposed Site Driveways.**

Inclusion of the noted study area intersections is also consistent the feedback provided by PennDOT District 4-0 in the attached email which noted their requirement is to include all intersections that are anticipated to experience an increase of 100 or more new directional trips during the analyzed peak hours.

TPD respectfully requests the study area intersections to be included in the TIS be further discussed with all project stakeholders during the scoping meeting.

(1).3 Truck trip distribution: Elaborate on truck enter/exit percentages note. Would expect entering/exiting trips to be similar.

The overall origin/destinations for the truck trip distributions are as follows:

- **To/From the North via Wilkes-Barre Township Boulevard (SR 6309) = 50%;**
- **To/From the South via Wilkes-Barre Township Boulevard (SR 6309) = 50%.**

The trip distribution percentages for the entering/existing trips are not equal as a result of the configuration/proximity of the I-81 Exits in the vicinity of the site. A portion of the trucks traveling to the site from the north (20%) are anticipated to pass Exit 163 (Highland Park Boulevard/Wilkes-Barre) and utilize Exit 165 (Mountain Top/Wilkes-Barre). Since Exit 165 is to the south of the site, these entering trips translate into trips from the south via Wilkes-Barre Township Boulevard (SR 6309). However, all of the trucks traveling from the site to the north (50%) are anticipated to utilize Exit 163 (Highland Park Boulevard/Wilkes-Barre). Since Exit 163 is to the north of the site, the existing trips all translate into trips to the north via Wilkes-Barre Township Boulevard (SR 6309). Hence the imbalance for the entering/existing trips.

(1).4 Any roadway improvements to be completed prior this HOP should be reflected in the no-build synchro analysis.

Noted. The programmed improvements associated the SR 309 Safety Improvement project will be considered, as applicable, in the capacity analyses under both the base (no-build) and projected (build) conditions.

(2).1 Also provide peak hour of adjacent street in your tables.

Provided as requested.

(2).2 Explain why the trip percentages are so different in different directions for passenger vehicles entering Johnson street from Wilkes Barre Township boulevard versus leaving Johnson Street shown in table SA-1. For example 70% come from the Blackman Street direction but only 40% return.

The overall origin/destinations for the passenger vehicle trip distributions are as follows:

- **To/From the North via Wilkes-Barre Township Boulevard (SR 6309) = 55%;**
- **To/From the South via Wilkes-Barre Township Boulevard (SR 6309) = 40%;**
- **To/From the North via Johnson Street = 5%.**

The trip distribution percentages for the entering/existing trips are not equal as a result of the configuration/proximity of the I-81 Exits in the vicinity of the site. A portion of the passenger cars traveling to the site from the north (30%) are anticipated to pass Exit 163 (Highland Park Boulevard/Wilkes-Barre) and utilize Exit 165 (Mountain Top/Wilkes-Barre). Since Exit 165 is to the south of the site, these entering trips translate into trips from the south via Wilkes-Barre Township Boulevard (SR 6309). However, all of the passenger cars traveling from the site to the north (55%) are anticipated to utilize Exit 163 (Highland Park Boulevard/Wilkes-Barre). Since Exit 163 is to the north of the site, the existing trips all translate into trips to the north via Wilkes-Barre Township Boulevard (SR 6309). Hence the imbalance for the entering/existing trips.

Thank you for your continuing review, and please call if there is any further information you require with regards to these responses.

Sincerely,

TRAFFIC PLANNING AND DESIGN, INC.

Eric M. Mountz, P.E., PTOE
Regional Leader – Transportation Planning
emountz@TrafficPD.com

cc: Wilkes-Barre Township
Bluecup Ventures, LLC

pennsylvania
DEPARTMENT OF TRANSPORTATION

Date: 01/03/2022

Subject: Highway Occupancy Permit Application No. 261894, Cycle No.1 - Returned For Revisions

To: Bluecup Ventures, LLC
20 Cedar Woods Lane
Fairfield, CT 06825

From: PennDOT Engineering District 4-0
55 Keystone Industrial Park
Dunmore, PA 18512

Dear Applicant,

PennDOT has reviewed your application for completeness, consistency and compliance with applicable Department Regulations. This review has identified issues that must be addressed in order for our review to continue.

The Department's review comments are attached.

Once the comments have been addressed, please resubmit the application and associated material for further review.

Upon resubmission, the applicant's engineer should put together a letter that describes how each comment has been addressed and where each can be found. This will help expedite the review. For guidance on HOP applications refer to 67 PA Code, Chapter 441, Chapter 459 and PennDOT Publication 282, "Highway Occupancy Permit Guidelines". Additional comments may follow upon review of the resubmitted application.

If you have any questions regarding this matter, you may contact Jeremiah Gonzalo EIT, District Permit Manager, at (570) 963-4067.

pennsylvania
DEPARTMENT OF TRANSPORTATION

Response Comments
Date: 01/03/2022
Application Number: 261894, Cycle No.1

Application

(1) This application should be in the name of the municipality. PennDOT M950AA form must be submitted.
(2) EPS application identification: Permit Type should be revised to 'driveway'. Permit Sub type should be revised to 'local road'.

Transportation Impact Study/Transportation Impact Assessment

(1) 1. What is the actual square footage of the building? In the concept 973,500 SF is shown, but 1,103,100 SF is listed in the table. Doing the math of the area, it is 937,400 SF.

2. Wilkes-Barre Township wants the follow intersections studied:
Rt 309/Blackman Street
Rt 309/Casey Ave.
Rt 309/Sheetz
Rt309/Coal Street
Highland Blvd/Wegmans
Highland Blvd/Walmart
Highland Blvd/Rt 81 Exit Ramp
Analyze capacity/level of service, queuing analysis, and crash analysis for these intersections. Invite the township to scoping meeting to ensure their concerns are met.

3. Truck trip distribution Elaborate on truck enter/exit percentages note. Would expect entering/exiting trips to be similar.

4. Any roadway improvements to be completed prior this HOP should be reflected in the no-build synchro analysis

(2) 1.Also provide peak hour of adjacent street in your tables.
2.Explain why the trip percentages are so different in different directions for passenger vehicles entering Johnson street from Wilkes Barre Township boulevard versus leaving Johnson Street shown in table SA-1. For example 70% come from the Blackman Street direction but only 40%

return.

APPENDIX B:

Study Area Photographs

Job #: BCVS.00002 *Date Taken:* 03/16/2022 *Intersection Of:* Blackman St- I -81 SB Off Ramp & WB TWP Blvd

Direction / Road: **Nb. Wilkes-Barre Township Blvd (SR 6309)**
Approach / Departure: Approach
Distance: 50 feet

Direction / Road: **Nb. Wilkes-Barre Township Blvd (SR 6309)**
Approach / Departure: Approach
Distance: 150 Feet

Job #: BCVS.00002 *Date Taken:* 03/16/2022 *Intersection Of:* Blackman St- I -81 SB Off Ramp & WB TWP Blvd

Direction / Road:	**Sb. Wilkes-Barre Township Blvd (SR 6309)**
Approach / Departure:	Approach
Distance:	50 feet

Direction / Road:	**Sb. Wilkes-Barre Township Blvd (SR 6309)**
Approach / Departure:	Approach
Distance:	150 Feet

Job #: BCVS.00002 *Date Taken:* 03/16/2022 *Intersection Of:* Blackman St- I -81 SB Off Ramp & WB TWP Blvd

Direction / Road: **Eb. Blackman Street**
Approach / Departure: Approach
Distance: 50 feet

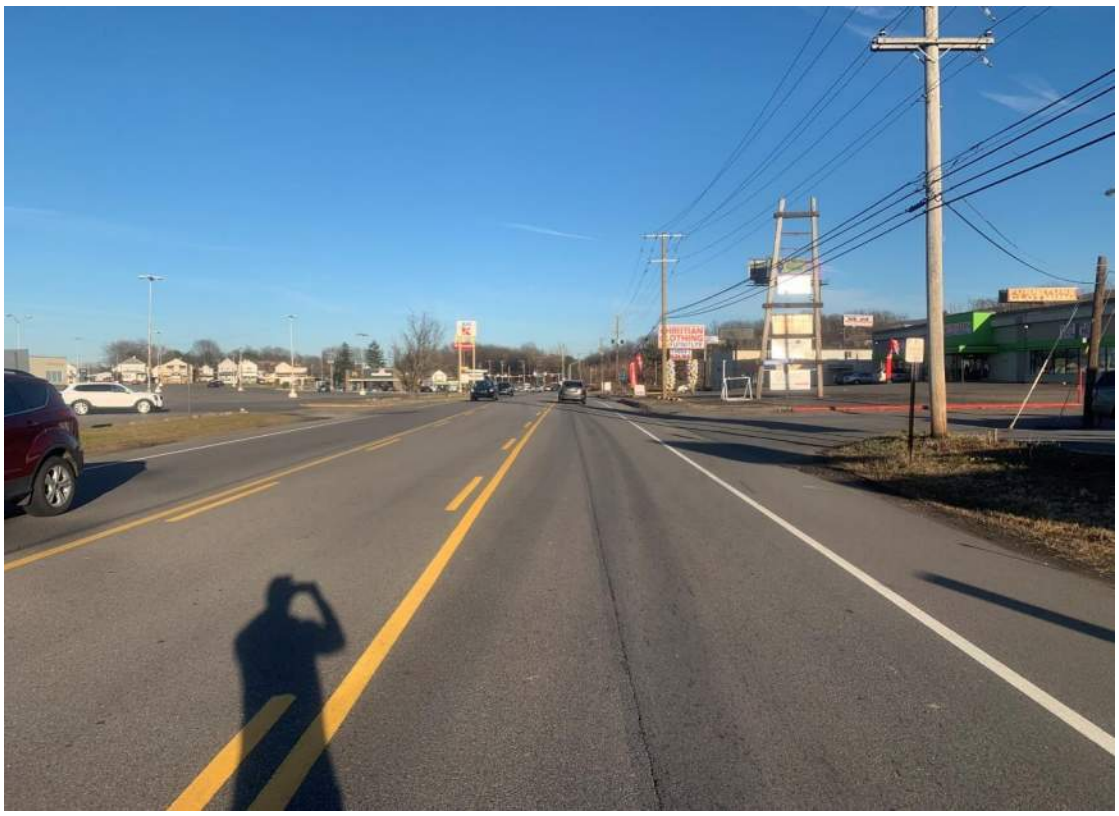
Direction / Road: **Eb. Blackman Street**
Approach / Departure: Approach
Distance: 150 Feet

Job #: BCVS.00002 *Date Taken:* 03/16/2022 *Intersection Of:* Blackman St- I -81 SB Off Ramp & WB TWP Blvd

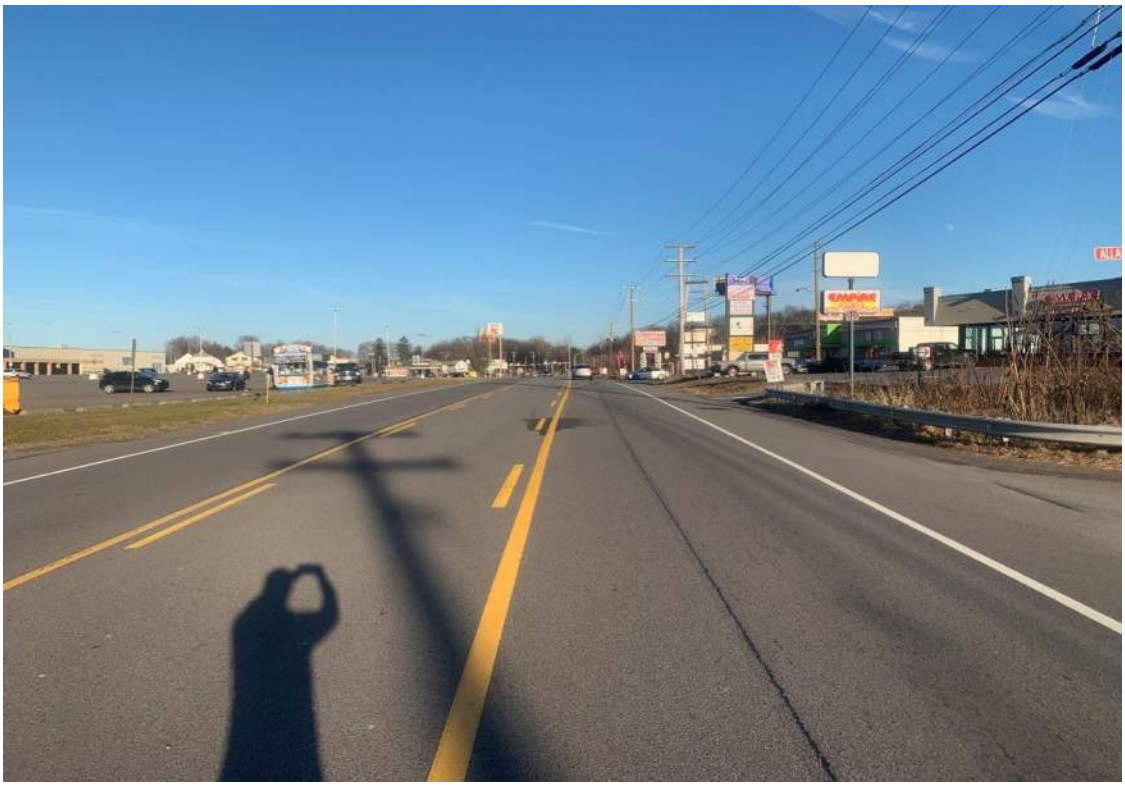
Direction / Road: **Wb. I-81 SB Off Ramp**
Approach / Departure: Approach
Distance: 50 feet

Direction / Road: **Wb. I-81 SB Off Ramp**
Approach / Departure: Approach
Distance: 150 Feet

Job #: BCVS.00002 *Date Taken:* 12/14/2021 *Intersection Of:* Blackman Plaza - Johnson St & Wilkes-Barre Township BLVD



Direction / Road: **NB. Wilkes-Barre Township BLVD**
Approach / Departure: Approach
Distance: 50 feet



Direction / Road: **NB. Wilkes-Barre Township BLVD**
Approach / Departure: Approach
Distance: 150 Feet

Job #: *BCVS.00002* *Date Taken:* *12/14/2021* *Intersection Of:* *Blackman Plaza -Johnson St & Wilkes-Barre Township BLVD*

Direction / Road: **SB. Wilkes-Barre Township BLVD**
Approach / Departure: Approach
Distance: 50 feet

Direction / Road: **SB. Wilkes-Barre Township BLVD**
Approach / Departure: Approach
Distance: 150 Feet

Job #: BCVS.00002 *Date Taken:* 12/14/2021 *Intersection Of:* Blackman Plaza - Johnson St & Wilkes-Barre Township BLVD

Direction / Road: **Wb. Blackman Plaza DW- Johnson St**
Approach / Departure: Approach
Distance: 50 feet

Direction / Road: **Wb. Blackman Plaza DW- Johnson St**
Approach / Departure: Approach
Distance: 150 Feet

Job #: BCVS.00002 *Date Taken:* 03/16/2022 *Intersection Of:* Casey Avenue & Wilkes-Barre Township Blvd

Direction / Road: **Nb. Wilkes-Barre Township Blvd (SR 6309)**
Approach / Departure: Approach
Distance: 50 feet

Direction / Road: **Nb. Wilkes-Barre Township Blvd (SR 6309)**
Approach / Departure: Approach
Distance: 150 Feet

Job #: BCVS.00002 *Date Taken:* 03/16/2022 *Intersection Of:* Casey Avenue & Wilkes-Barre Township Blvd

Direction / Road: **Sb. Wilkes-Barre Township Blvd (SR 6309)**
Approach / Departure: Approach
Distance: 50 feet

Direction / Road: **Sb. Wilkes-Barre Township Blvd (SR 6309)**
Approach / Departure: Approach
Distance: 150 Feet

Job #: BCVS.00002 *Date Taken:* 03/16/2022 *Intersection Of:* Casey Avenue & Wilkes-Barre Township Blvd

Direction / Road: **Eb. Casey Avenue**
Approach / Departure: Approach
Distance: 50 feet

Direction / Road: **Eb. Casey Avenue**
Approach / Departure: Approach
Distance: 150 Feet

Job #: BCVS.00002 *Date Taken:* 03/16/2022 *Intersection Of:* Casey Avenue & Wilkes-Barre Township Blvd

Direction / Road: **Wb. Casey Avenue**
Approach / Departure: Approach
Distance: 50 feet

Direction / Road: **Wb. Casey Avenue**
Approach / Departure: Approach
Distance: 150 Feet

Job #: BCVS.00002 *Date Taken:* 03/16/2022 *Intersection Of:* Sheetz Shopping Center Driveways & WB TWP Blvd

Direction / Road:	**Nb. Wilkes-Barre Township Blvd (SR 6309)**
Approach / Departure:	Approach
Distance:	50 feet

Direction / Road:	**Nb. Wilkes-Barre Township Blvd (SR 6309)**
Approach / Departure:	Approach
Distance:	150 Feet

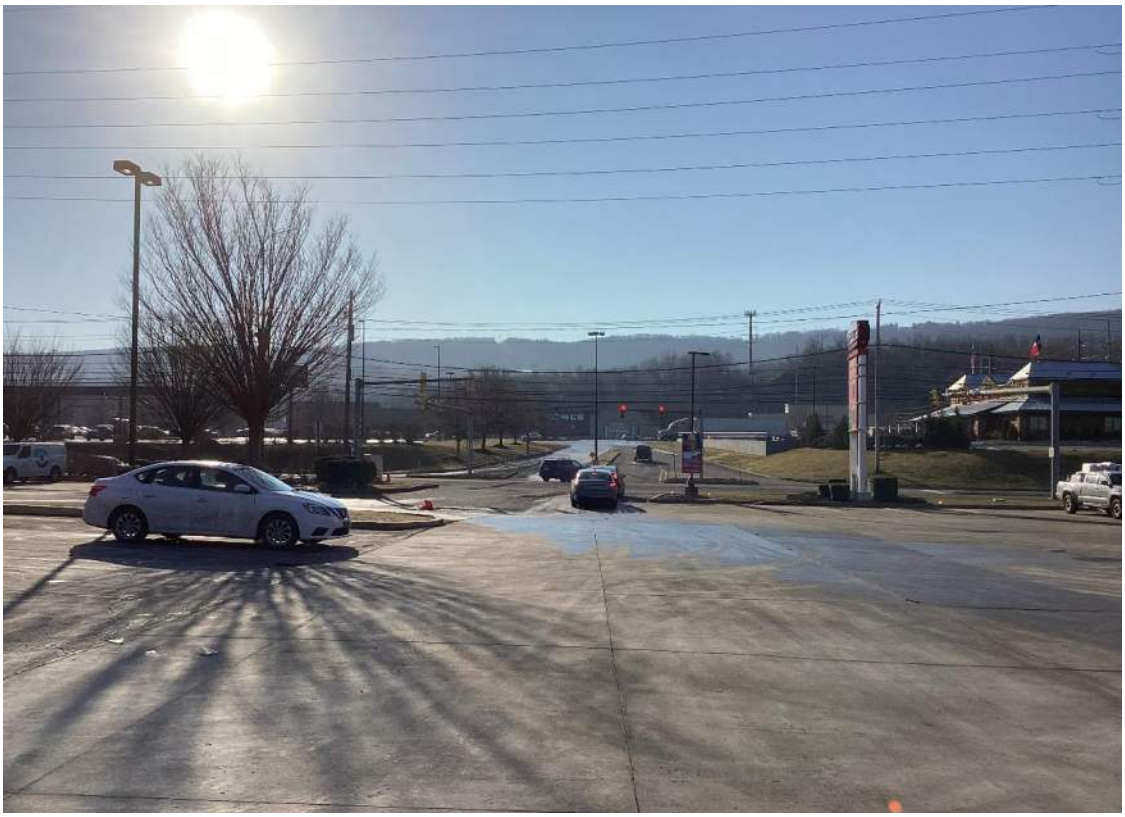
Job #: BCVS.00002 *Date Taken:* 03/16/2022 *Intersection Of:* Sheetz Shopping Center Driveways & WB TWP Blvd

Direction / Road: **Sb. Wilkes-Barre Township Blvd (SR 6309)**
Approach / Departure: Approach
Distance: 50 feet

Direction / Road: **Sb. Wilkes-Barre Township Blvd (SR 6309)**
Approach / Departure: Approach
Distance: 150 Feet

Job #: BCVS.00002 *Date Taken:* 03/16/2022 *Intersection Of:* Sheetz Shopping Center Driveways & WB TWP Blvd

Direction / Road: **Eb. Sheetz Driveway**
Approach / Departure: Approach
Distance: 50 feet



Direction / Road: **Eb. Sheetz Driveway**
Approach / Departure: Approach
Distance: 150 Feet

Job #: BCVS.00002 *Date Taken:* 03/16/2022 *Intersection Of:* Sheetz Shopping Center Driveways & WB TWP Blvd

Direction / Road: **Wb. Shopping Center Driveways**
Approach / Departure: Approach
Distance: 50 feet

Direction / Road: **Wb. Shopping Center Driveways**
Approach / Departure: Approach
Distance: 150 Feet

Job #: BCVS.00002 *Date Taken:* 03/16/2022 *Intersection Of:* Coal Street- Highland Park Blvd & WB TWP Blvd

Direction / Road:	**Nb. Wilkes-Barre Township Blvd (SR 6309)**
Approach / Departure:	Approach
Distance:	50 feet

Direction / Road:	**Nb. Wilkes-Barre Township Blvd (SR 6309)**
Approach / Departure:	Approach
Distance:	150 Feet

Job #: BCVS.00002 *Date Taken:* 03/16/2022 *Intersection Of:* Coal Street- Highland Park Blvd & WB TWP Blvd

Direction / Road: **Sb. Wilkes-Barre Township Blvd (SR 6309)**
Approach / Departure: Approach
Distance: 50 feet

Direction / Road: **Sb. Wilkes-Barre Township Blvd (SR 6309)**
Approach / Departure: Approach
Distance: 150 Feet

Job #: BCVS.00002 *Date Taken:* 03/16/2022 *Intersection Of:* Coal Street- Highland Park Blvd & WB TWP Blvd

Direction / Road: **Eb. Coal Street**
Approach / Departure: Approach
Distance: 50 feet

Direction / Road: **Eb. Coal Street**
Approach / Departure: Approach
Distance: 150 Feet

Job #: BCVS.00002 *Date Taken:* 03/16/2022 *Intersection Of:* Coal Street- Highland Park Blvd & WB TWP Blvd

Direction / Road: **Wb. Highland Park Boulevard**
Approach / Departure: Approach
Distance: 50 feet

Direction / Road: **Wb. Highland Park Boulevard**
Approach / Departure: Approach
Distance: 150 Feet

Job #: BCVS.00002 *Date Taken:* 12/14/2021 *Intersection Of:* Johnson Street & Haul Road

Direction / Road: **NB. Haul Road**
Approach / Departure: Approach
Distance: 50 feet

Direction / Road: **NB. Haul Road**
Approach / Departure: Approach
Distance: 150 Feet

Job #: BCVS.00002 *Date Taken:* 12/14/2021 *Intersection Of:* Johnson Street & Haul Road

Direction / Road: **EB. Johnson Street**
Approach / Departure: Approach
Distance: 50 feet

Direction / Road: **EB. Johnson Street**
Approach / Departure: Approach
Distance: 150 Feet

Job #: *BCVS.00002* *Date Taken:* *12/14/2021* *Intersection Of:* *Johnson Street & Haul Road*

Direction / Road: **Wb. Johnson Street**
Approach / Departure: Approach
Distance: 50 feet

Direction / Road: **Wb. Johnson Street**
Approach / Departure: Approach
Distance: 150 Feet

APPENDIX C:

Manual Traffic Count Data Sheets

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Counter: MIO:
Set up By JH::

Count Name: Blackman Street-81 SB Off Ramp & Wilkes-Barre Township Blvd (SR 6309)
Site Code:
Start Date: 03/15/2022

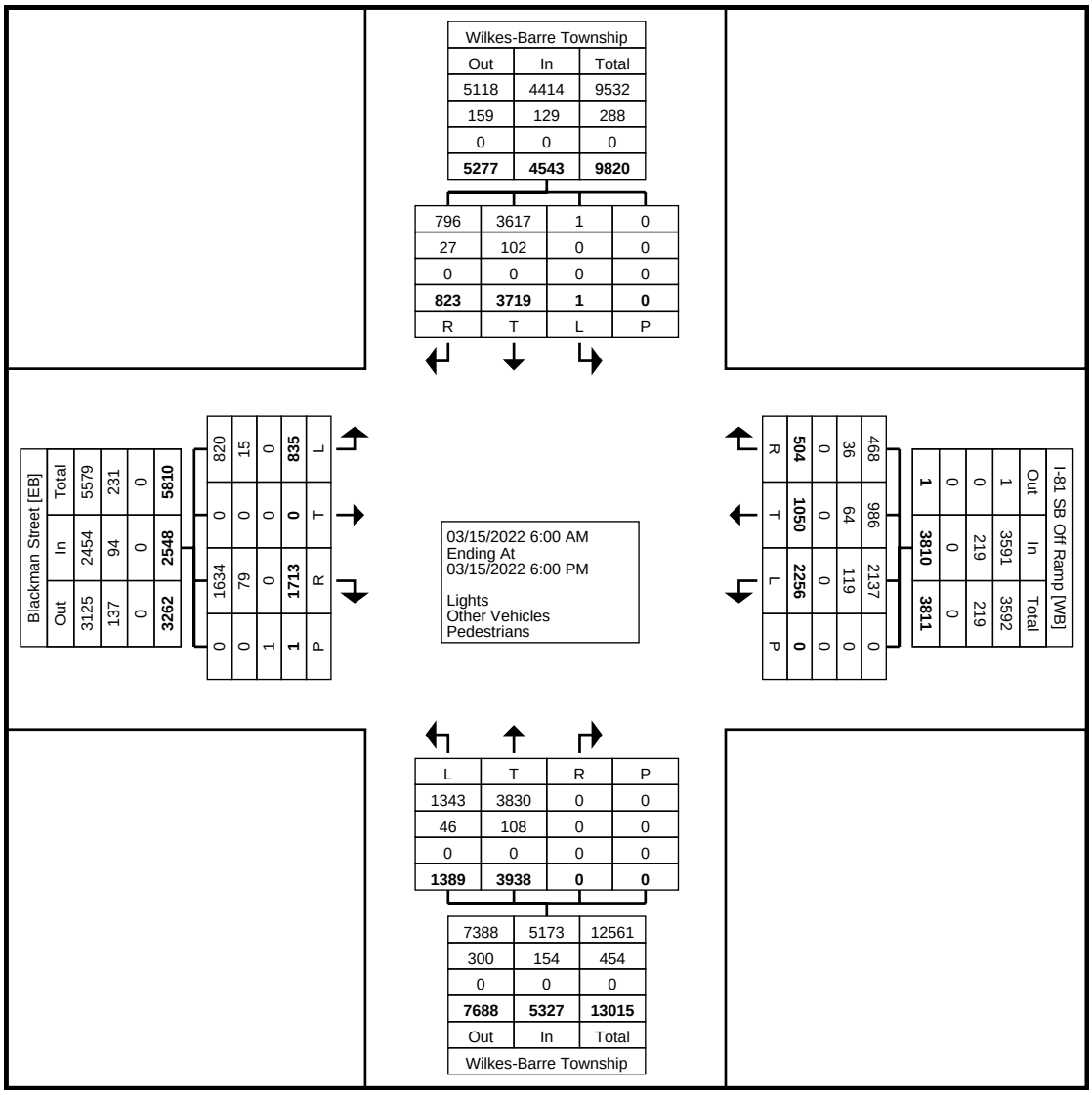
Turning Movement Data

Start Time	Blackman Street Eastbound						I-81 SB Off Ramp Westbound						Wilkes-Barre Township Blvd (SR 6309) Northbound						Wilkes-Barre Township Blvd (SR 6309) Southbound						Int. Total
	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	
6:00 AM	8	0	14	26	0	48	30	10	2	1	0	43	19	51	0	0	0	70	0	52	8	1	0	61	222
6:15 AM	21	0	22	38	0	81	41	16	2	4	0	63	20	57	0	0	0	77	0	59	9	2	0	70	291
6:30 AM	15	0	21	41	0	77	56	30	6	9	0	101	36	89	0	0	0	125	0	67	9	2	0	78	381
6:45 AM	17	0	15	25	0	57	60	22	1	15	0	98	31	117	0	0	0	148	0	70	16	1	0	87	390
Hourly Total	61	0	72	130	0	263	187	78	11	29	0	305	106	314	0	0	0	420	0	248	42	6	0	296	1284
7:00 AM	15	0	7	40	0	62	40	26	6	13	0	85	58	101	0	0	0	159	0	60	9	4	0	73	379
7:15 AM	15	0	12	30	0	57	43	27	2	3	0	75	83	139	0	0	0	222	0	72	7	4	0	83	437
7:30 AM	20	0	25	34	0	79	61	29	3	8	0	101	78	176	0	0	0	254	0	79	14	4	0	97	531
7:45 AM	24	0	19	41	0	84	63	34	4	12	0	113	77	193	0	0	0	270	0	75	16	6	0	97	564
Hourly Total	74	0	63	145	0	282	207	116	15	36	0	374	296	609	0	0	0	905	0	286	46	18	0	350	1911
8:00 AM	23	0	17	30	0	70	54	42	4	8	0	108	54	155	0	0	0	209	0	72	15	8	0	95	482
8:15 AM	15	0	21	23	0	59	72	26	8	11	0	117	64	185	0	0	0	249	0	90	15	7	0	112	537
8:30 AM	24	0	16	27	0	67	62	23	5	7	0	97	67	175	0	0	0	242	0	75	21	15	0	111	517
8:45 AM	27	0	9	22	0	58	54	23	7	11	0	95	62	176	0	0	0	238	0	75	16	17	0	108	499
Hourly Total	89	0	63	102	0	254	242	114	24	37	0	417	247	691	0	0	0	938	0	312	67	47	0	426	2035
9:00 AM	32	0	19	25	0	76	45	28	9	9	0	91	49	133	0	0	0	182	0	85	15	15	0	115	464
9:15 AM	16	0	16	23	0	55	45	27	7	7	0	86	39	127	0	0	0	166	0	89	19	9	0	117	424
9:30 AM	40	0	34	24	0	98	37	27	7	7	0	78	43	140	0	0	0	183	0	92	18	8	0	118	477
9:45 AM	31	0	21	27	0	79	50	32	6	6	0	94	46	134	0	0	0	180	0	115	10	12	0	137	490
Hourly Total	119	0	90	99	0	308	177	114	29	29	0	349	177	534	0	0	0	711	0	381	62	44	0	487	1855
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	43	0	37	34	0	114	99	36	5	9	0	149	42	137	0	0	0	179	1	209	21	23	0	254	696
3:15 PM	41	0	41	42	0	124	109	35	9	15	0	168	47	165	0	0	0	212	0	177	28	17	0	222	726
3:30 PM	37	0	43	32	0	112	109	48	9	19	0	185	57	166	0	0	0	223	0	206	28	23	0	257	777
3:45 PM	43	0	40	35	1	118	125	76	15	26	0	242	54	171	0	0	0	225	0	196	16	14	0	226	811
Hourly Total	164	0	161	143	1	468	442	195	38	69	0	744	200	639	0	0	0	839	1	788	93	77	0	959	3010
4:00 PM	35	0	37	54	0	126	102	38	14	16	0	170	40	151	0	0	0	191	0	242	26	20	0	288	775
4:15 PM	30	0	24	64	0	118	135	62	10	15	0	222	42	136	0	0	0	178	0	222	26	13	0	261	779
4:30 PM	39	0	18	70	0	127	121	51	8	12	0	192	46	133	0	0	0	179	0	208	19	13	0	240	738
4:45 PM	48	0	21	62	0	131	154	75	13	8	0	250	47	169	0	0	0	216	0	223	25	19	0	267	864
Hourly Total	152	0	100	250	0	502	512	226	45	51	0	834	175	589	0	0	0	764	0	895	96	65	0	1056	3156
5:00 PM	46	0	24	44	0	114	130	48	10	14	0	202	42	154	0	0	0	196	0	216	20	25	0	261	773
5:15 PM	41	0	30	50	0	121	137	53	7	16	0	213	48	143	0	0	0	191	0	194	17	10	0	221	746
5:30 PM	47	0	20	55	0	122	127	47	8	17	0	199	49	145	0	0	0	194	0	206	18	26	0	250	765
5:45 PM	42	0	24	48	0	114	95	59	6	13	0	173	49	120	0	0	0	169	0	193	17	27	0	237	693
Hourly Total	176	0	98	197	0	471	489	207	31	60	0	787	188	562	0	0	0	750	0	809	72	88	0	969	2977
Grand Total	835	0	647	1066	1	2548	2256	1050	193	311	0	3810	1389	3938	0	0	0	5327	1	3719	478	345	0	4543	16228
Approach %	32.8	0.0	25.4	41.8	-	-	59.2	27.6	5.1	8.2	-	-	26.1	73.9	0.0	0.0	-	-	0.0	81.9	10.5	7.6	-	-	-
Total %	5.1	0.0	4.0	6.6	-	15.7	13.9	6.5	1.2	1.9	-	23.5	8.6	24.3	0.0	0.0	-	32.8	0.0	22.9	2.9	2.1	-	28.0	-
Lights	820	0	622	1012	-	2454	2137	986	175	293	-	3591	1343	3830	0	0	-	5173	1	3617	462	334	-	4414	15632
% Lights	98.2	-	96.1	94.9	-	96.3	94.7	93.9	90.7	94.2	-	94.3	96.7	97.3	-	-	-	97.1	100.0	97.3	96.7	96.8	-	97.2	96.3
Other Vehicles	15	0	25	54	-	94	119	64	18	18	-	219	46	108	0	0	-	154	0	102	16	11	-	129	596
% Other Vehicles	1.8	-	3.9	5.1	-	3.7	5.3	6.1	9.3	5.8	-	5.7	3.3	2.7	-	-	-	2.9	0.0	2.7	3.3	3.2	-	2.8	3.7
Pedestrians	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Counter: MIO:
Set up By JH::

Count Name: Blackman Street-81
SB Off Ramp & Wilkes-Barre
Township Blvd (SR 6309)
Site Code:
Start Date: 03/15/2022



Turning Movement Data Plot

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Counter: MIO:
Set up By JH::

Count Name: Blackman Street-81 SB Off Ramp & Wilkes-Barre Township Blvd (SR 6309)
Site Code:
Start Date: 03/15/2022

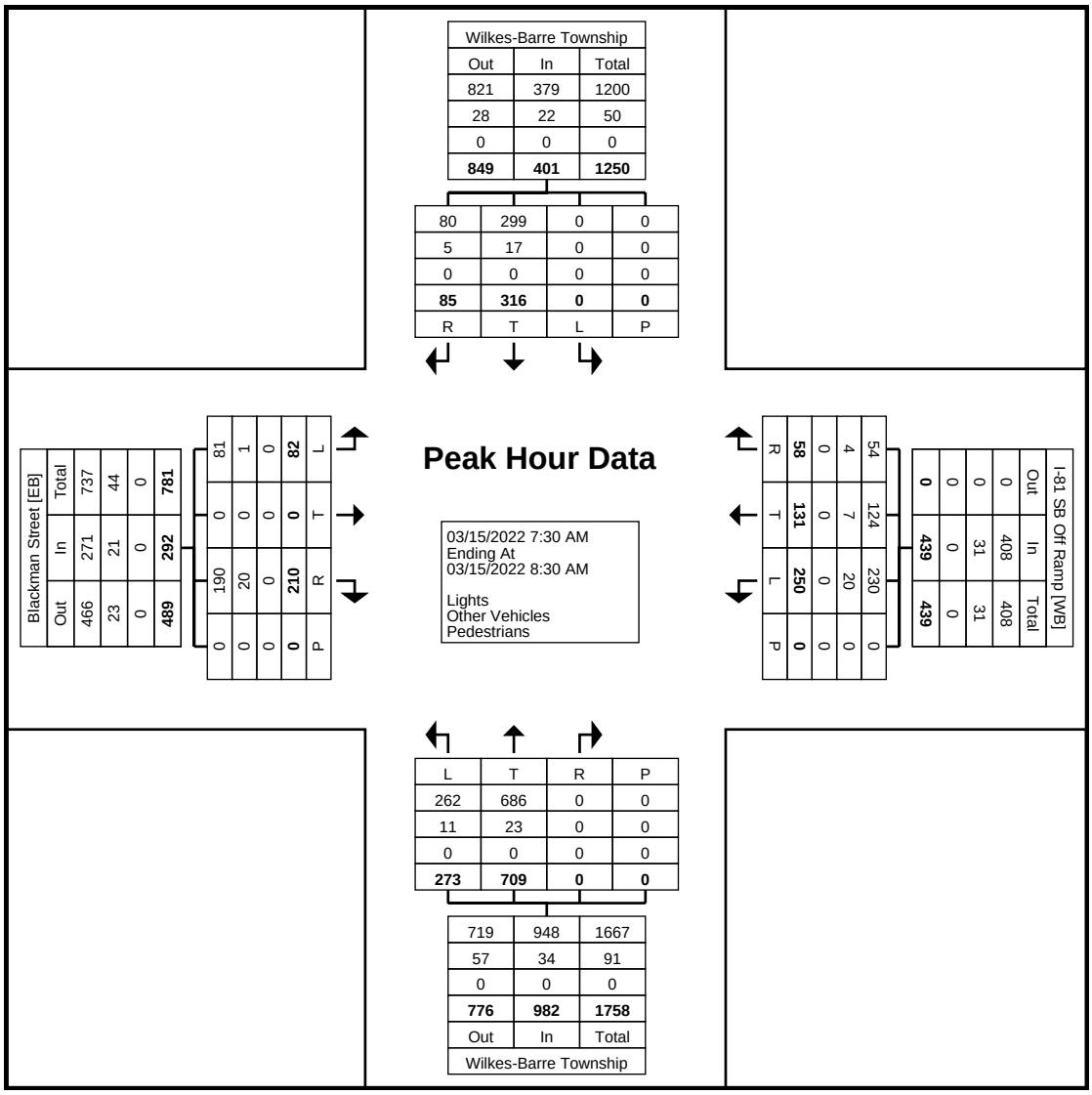
Turning Movement Peak Hour Data (7:30 AM)

Start Time	Blackman Street Eastbound						I-81 SB Off Ramp Westbound						Wilkes-Barre Township Blvd (SR 6309) Northbound						Wilkes-Barre Township Blvd (SR 6309) Southbound						Int. Total
	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	
7:30 AM	20	0	25	34	0	79	61	29	3	8	0	101	78	176	0	0	0	254	0	79	14	4	0	97	531
7:45 AM	24	0	19	41	0	84	63	34	4	12	0	113	77	193	0	0	0	270	0	75	16	6	0	97	564
8:00 AM	23	0	17	30	0	70	54	42	4	8	0	108	54	155	0	0	0	209	0	72	15	8	0	95	482
8:15 AM	15	0	21	23	0	59	72	26	8	11	0	117	64	185	0	0	0	249	0	90	15	7	0	112	537
Total	82	0	82	128	0	292	250	131	19	39	0	439	273	709	0	0	0	982	0	316	60	25	0	401	2114
Approach %	28.1	0.0	28.1	43.8	-	-	56.9	29.8	4.3	8.9	-	-	27.8	72.2	0.0	0.0	-	-	0.0	78.8	15.0	6.2	-	-	-
Total %	3.9	0.0	3.9	6.1	-	13.8	11.8	6.2	0.9	1.8	-	20.8	12.9	33.5	0.0	0.0	-	46.5	0.0	14.9	2.8	1.2	-	19.0	-
PHF	0.854	0.000	0.820	0.780	-	0.869	0.868	0.780	0.594	0.813	-	0.938	0.875	0.918	0.000	0.000	-	0.909	0.000	0.878	0.938	0.781	-	0.895	0.937
Lights	81	0	76	114	-	271	230	124	16	38	-	408	262	686	0	0	-	948	0	299	56	24	-	379	2006
% Lights	98.8	-	92.7	89.1	-	92.8	92.0	94.7	84.2	97.4	-	92.9	96.0	96.8	-	-	-	96.5	-	94.6	93.3	96.0	-	94.5	94.9
Other Vehicles	1	0	6	14	-	21	20	7	3	1	-	31	11	23	0	0	-	34	0	17	4	1	-	22	108
% Other Vehicles	1.2	-	7.3	10.9	-	7.2	8.0	5.3	15.8	2.6	-	7.1	4.0	3.2	-	-	-	3.5	-	5.4	6.7	4.0	-	5.5	5.1
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Counter: MIO:
Set up By JH::

Count Name: Blackman Street-81
SB Off Ramp & Wilkes-Barre
Township Blvd (SR 6309)
Site Code:
Start Date: 03/15/2022



Turning Movement Peak Hour Data Plot (7:30 AM)

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Counter: MIO:
Set up By JH::

Count Name: Blackman Street-81 SB Off Ramp & Wilkes-Barre Township Blvd (SR 6309)
Site Code:
Start Date: 03/15/2022

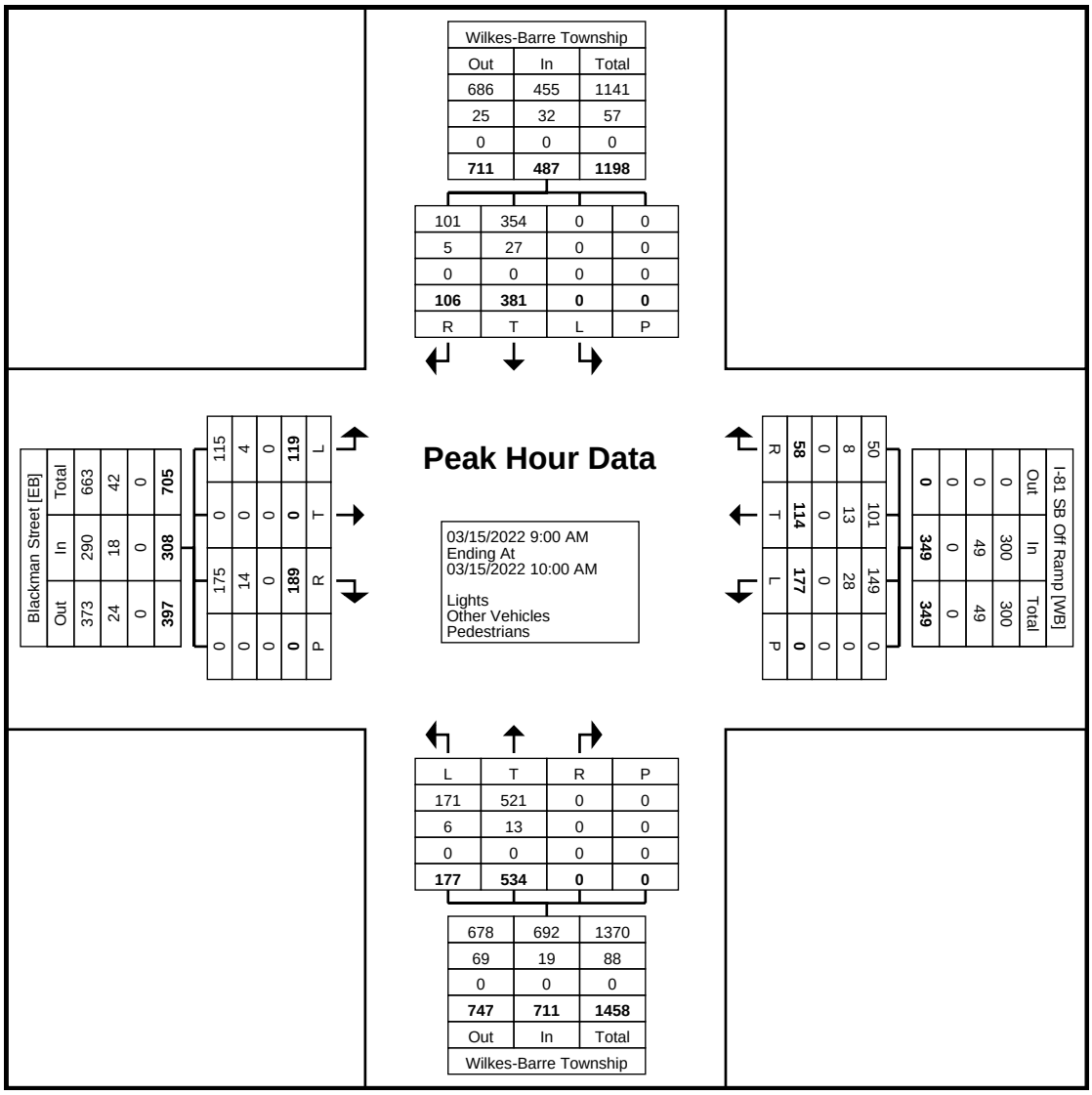
Turning Movement Peak Hour Data (9:00 AM)

Start Time	Blackman Street Eastbound						I-81 SB Off Ramp Westbound						Wilkes-Barre Township Blvd (SR 6309) Northbound						Wilkes-Barre Township Blvd (SR 6309) Southbound						Int. Total
	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	
9:00 AM	32	0	19	25	0	76	45	28	9	9	0	91	49	133	0	0	0	182	0	85	15	15	0	115	464
9:15 AM	16	0	16	23	0	55	45	27	7	7	0	86	39	127	0	0	0	166	0	89	19	9	0	117	424
9:30 AM	40	0	34	24	0	98	37	27	7	7	0	78	43	140	0	0	0	183	0	92	18	8	0	118	477
9:45 AM	31	0	21	27	0	79	50	32	6	6	0	94	46	134	0	0	0	180	0	115	10	12	0	137	490
Total	119	0	90	99	0	308	177	114	29	29	0	349	177	534	0	0	0	711	0	381	62	44	0	487	1855
Approach %	38.6	0.0	29.2	32.1	-	-	50.7	32.7	8.3	8.3	-	-	24.9	75.1	0.0	0.0	-	-	0.0	78.2	12.7	9.0	-	-	-
Total %	6.4	0.0	4.9	5.3	-	16.6	9.5	6.1	1.6	1.6	-	18.8	9.5	28.8	0.0	0.0	-	38.3	0.0	20.5	3.3	2.4	-	26.3	-
PHF	0.744	0.000	0.662	0.917	-	0.786	0.885	0.891	0.806	0.806	-	0.928	0.903	0.954	0.000	0.000	-	0.971	0.000	0.828	0.816	0.733	-	0.889	0.946
Lights	115	0	84	91	-	290	149	101	25	25	-	300	171	521	0	0	-	692	0	354	60	41	-	455	1737
% Lights	96.6	-	93.3	91.9	-	94.2	84.2	88.6	86.2	86.2	-	86.0	96.6	97.6	-	-	-	97.3	-	92.9	96.8	93.2	-	93.4	93.6
Other Vehicles	4	0	6	8	-	18	28	13	4	4	-	49	6	13	0	0	-	19	0	27	2	3	-	32	118
% Other Vehicles	3.4	-	6.7	8.1	-	5.8	15.8	11.4	13.8	13.8	-	14.0	3.4	2.4	-	-	-	2.7	-	7.1	3.2	6.8	-	6.6	6.4
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Counter: MIO:
Set up By JH::

Count Name: Blackman Street-81
SB Off Ramp & Wilkes-Barre
Township Blvd (SR 6309)
Site Code:
Start Date: 03/15/2022



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

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Counter: MIO:
Set up By JH::

Count Name: Blackman Street-81 SB Off Ramp & Wilkes-Barre Township Blvd (SR 6309)
Site Code:
Start Date: 03/15/2022

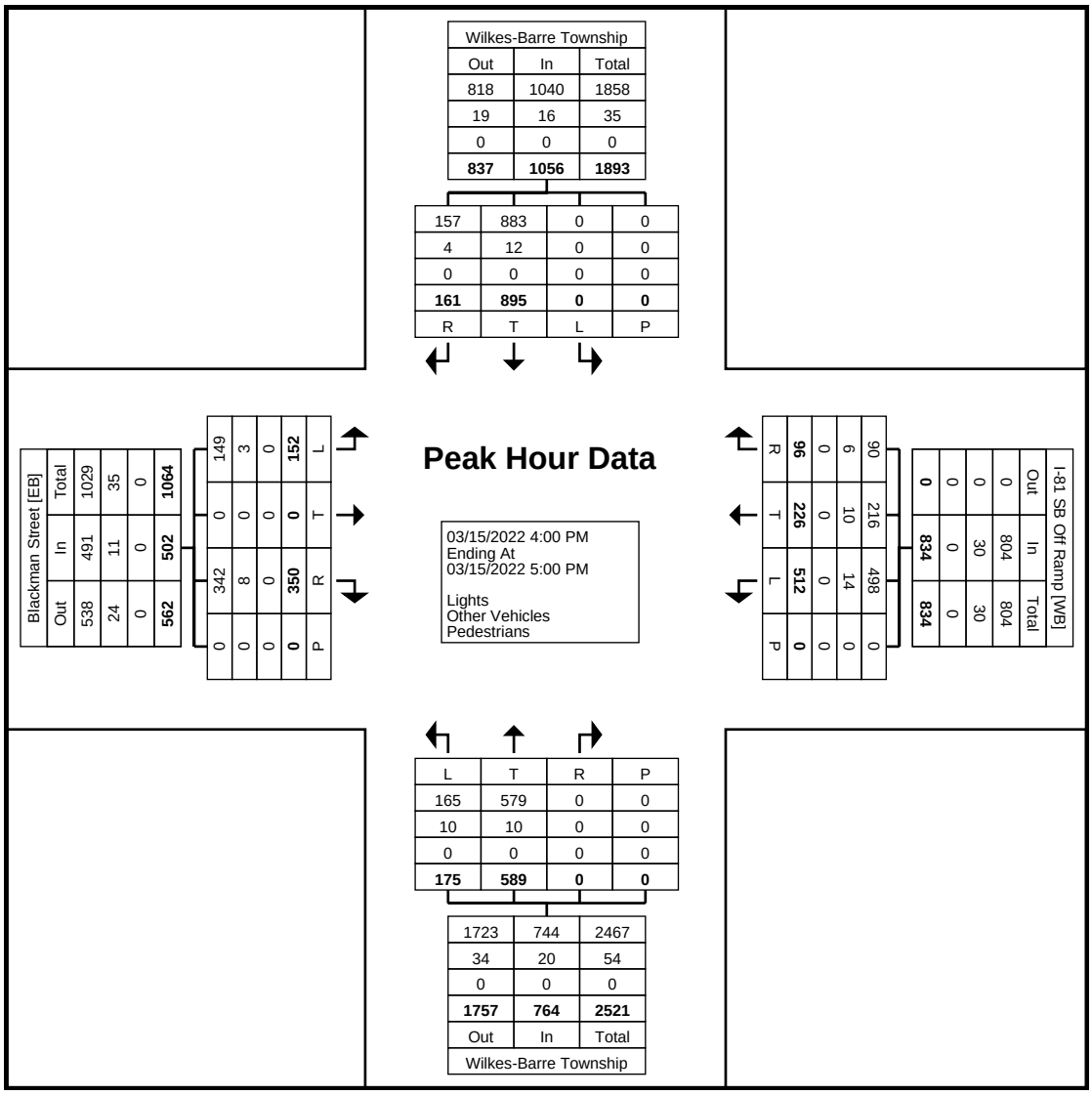
Turning Movement Peak Hour Data (4:00 PM)

Start Time	Blackman Street Eastbound						I-81 SB Off Ramp Westbound						Wilkes-Barre Township Blvd (SR 6309) Northbound						Wilkes-Barre Township Blvd (SR 6309) Southbound						Int. Total
	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	
4:00 PM	35	0	37	54	0	126	102	38	14	16	0	170	40	151	0	0	0	191	0	242	26	20	0	288	775
4:15 PM	30	0	24	64	0	118	135	62	10	15	0	222	42	136	0	0	0	178	0	222	26	13	0	261	779
4:30 PM	39	0	18	70	0	127	121	51	8	12	0	192	46	133	0	0	0	179	0	208	19	13	0	240	738
4:45 PM	48	0	21	62	0	131	154	75	13	8	0	250	47	169	0	0	0	216	0	223	25	19	0	267	864
Total	152	0	100	250	0	502	512	226	45	51	0	834	175	589	0	0	0	764	0	895	96	65	0	1056	3156
Approach %	30.3	0.0	19.9	49.8	-	-	61.4	27.1	5.4	6.1	-	-	22.9	77.1	0.0	0.0	-	-	0.0	84.8	9.1	6.2	-	-	-
Total %	4.8	0.0	3.2	7.9	-	15.9	16.2	7.2	1.4	1.6	-	26.4	5.5	18.7	0.0	0.0	-	24.2	0.0	28.4	3.0	2.1	-	33.5	-
PHF	0.792	0.000	0.676	0.893	-	0.958	0.831	0.753	0.804	0.797	-	0.834	0.931	0.871	0.000	0.000	-	0.884	0.000	0.925	0.923	0.813	-	0.917	0.913
Lights	149	0	96	246	-	491	498	216	41	49	-	804	165	579	0	0	-	744	0	883	93	64	-	1040	3079
% Lights	98.0	-	96.0	98.4	-	97.8	97.3	95.6	91.1	96.1	-	96.4	94.3	98.3	-	-	-	97.4	-	98.7	96.9	98.5	-	98.5	97.6
Other Vehicles	3	0	4	4	-	11	14	10	4	2	-	30	10	10	0	0	-	20	0	12	3	1	-	16	77
% Other Vehicles	2.0	-	4.0	1.6	-	2.2	2.7	4.4	8.9	3.9	-	3.6	5.7	1.7	-	-	-	2.6	-	1.3	3.1	1.5	-	1.5	2.4
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Counter: MIO:
Set up By JH::

Count Name: Blackman Street-81
SB Off Ramp & Wilkes-Barre
Township Blvd (SR 6309)
Site Code:
Start Date: 03/15/2022



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

Counter: MIO:
Set up By JH::

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Count Name: Allan Road & Wilkes-Barre Township Blvd (SR 6309)
Site Code:
Start Date: 03/15/2022

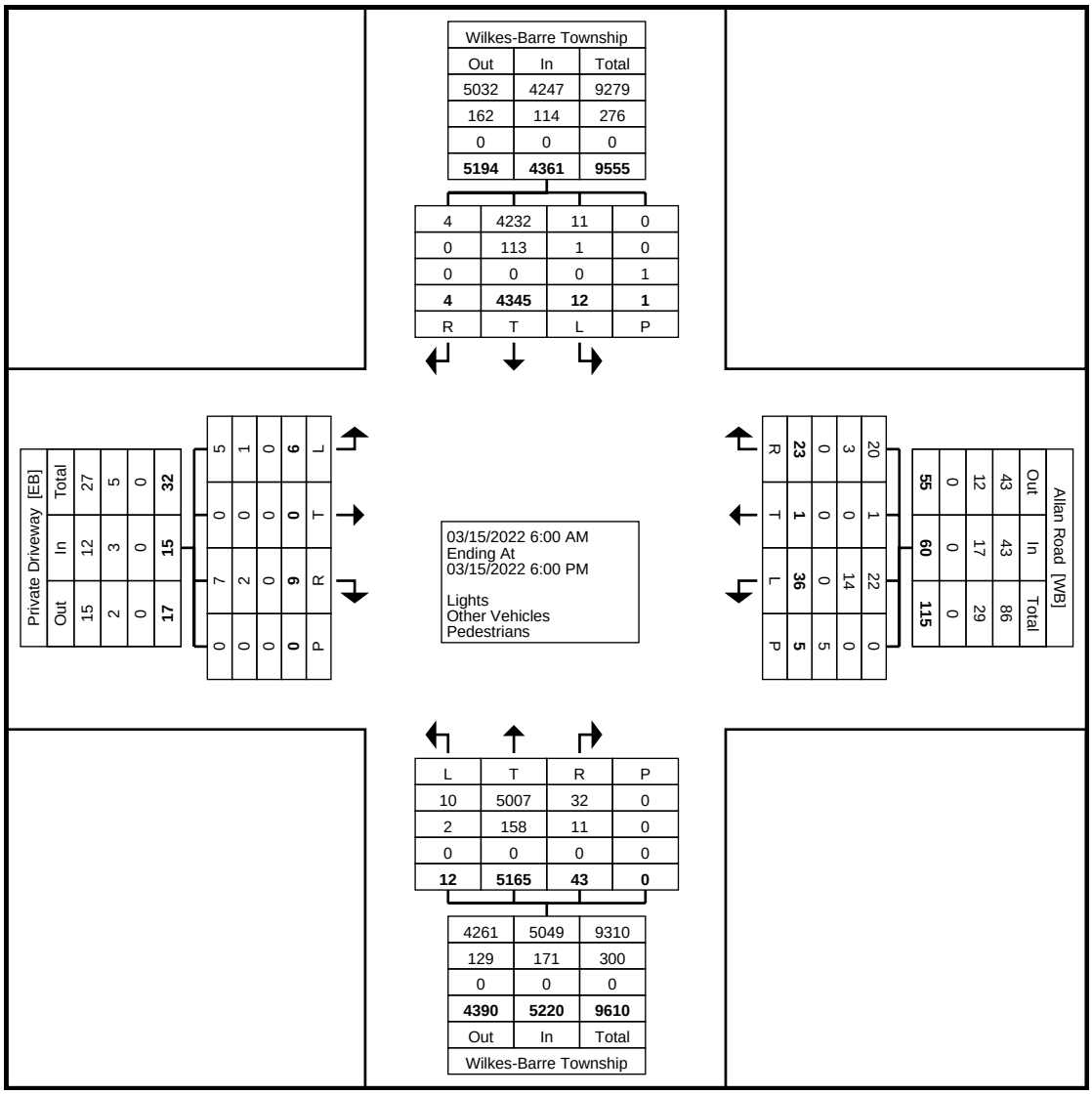
Turning Movement Data

Start Time	Private Driveway Eastbound					Allan Road Westbound					Wilkes-Barre Township Blvd (SR 6309) Northbound					Wilkes-Barre Township Blvd (SR 6309) Southbound					
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
6:00 AM	0	0	0	0	0	4	0	0	0	4	0	62	1	0	63	0	46	0	0	46	113
6:15 AM	0	0	0	0	0	2	0	0	0	2	0	80	1	0	81	0	57	0	0	57	140
6:30 AM	0	0	0	0	0	0	0	0	0	0	1	112	3	0	116	0	76	0	0	76	192
6:45 AM	0	0	1	0	1	0	0	0	0	0	2	147	2	0	151	0	77	0	0	77	229
Hourly Total	0	0	1	0	1	6	0	0	0	6	3	401	7	0	411	0	256	0	0	256	674
7:00 AM	0	0	1	0	1	0	0	0	0	0	0	130	1	0	131	0	64	0	0	64	196
7:15 AM	1	0	0	0	1	4	0	1	0	5	0	157	5	0	162	2	73	0	0	75	243
7:30 AM	0	0	0	0	0	0	0	1	0	1	0	201	3	0	204	0	92	0	0	92	297
7:45 AM	0	0	0	0	0	1	0	0	0	1	0	230	1	0	231	0	91	1	0	92	324
Hourly Total	1	0	1	0	2	5	0	2	0	7	0	718	10	0	728	2	320	1	0	323	1060
8:00 AM	0	0	1	0	1	1	0	0	0	1	0	175	2	0	177	3	86	0	0	89	268
8:15 AM	2	0	0	0	2	0	0	2	0	2	0	220	1	0	221	1	96	1	0	98	323
8:30 AM	0	0	0	0	0	1	0	1	0	2	0	211	4	0	215	0	100	0	0	100	317
8:45 AM	0	0	0	0	0	3	0	3	0	6	0	227	6	0	233	1	105	0	0	106	345
Hourly Total	2	0	1	0	3	5	0	6	0	11	0	833	13	0	846	5	387	1	0	393	1253
9:00 AM	0	0	0	0	0	3	0	2	0	5	0	171	2	0	173	0	106	0	0	106	284
9:15 AM	0	0	0	0	0	2	0	0	0	2	1	152	1	0	154	2	104	0	0	106	262
9:30 AM	0	0	0	0	0	0	0	0	0	0	1	190	0	0	191	0	115	0	0	115	306
9:45 AM	0	0	0	0	0	0	0	2	0	2	0	174	1	0	175	0	129	0	0	129	306
Hourly Total	0	0	0	0	0	5	0	4	0	9	2	687	4	0	693	2	454	0	0	456	1158
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	0	0	0	0	0	1	0	1	0	2	0	195	2	0	197	0	231	0	0	231	430
3:15 PM	0	0	0	0	0	1	0	0	0	1	1	222	0	0	223	1	229	0	0	230	454
3:30 PM	0	0	0	0	0	0	0	0	0	0	2	230	0	0	232	0	243	0	0	243	475
3:45 PM	0	0	2	0	2	1	0	3	2	4	0	244	2	0	246	0	247	0	0	247	499
Hourly Total	0	0	2	0	2	3	0	4	2	7	3	891	4	0	898	1	950	0	0	951	1858
4:00 PM	0	0	1	0	1	5	0	3	2	8	1	216	1	0	218	0	272	0	0	272	499
4:15 PM	0	0	1	0	1	2	0	0	0	2	1	183	2	0	186	0	242	1	0	243	432
4:30 PM	0	0	0	0	0	1	0	1	1	2	1	195	0	0	196	2	241	0	1	243	441
4:45 PM	0	0	0	0	0	3	0	1	0	4	1	234	0	0	235	0	255	1	0	256	495
Hourly Total	0	0	2	0	2	11	0	5	3	16	4	828	3	0	835	2	1010	2	1	1014	1867
5:00 PM	1	0	1	0	2	1	0	0	0	1	0	224	0	0	224	0	263	0	0	263	490
5:15 PM	2	0	1	0	3	0	0	1	0	1	0	204	1	0	205	0	225	0	0	225	434
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	206	0	0	206	0	253	0	0	253	459
5:45 PM	0	0	0	0	0	0	1	1	0	2	0	173	1	0	174	0	227	0	0	227	403
Hourly Total	3	0	2	0	5	1	1	2	0	4	0	807	2	0	809	0	968	0	0	968	1786
Grand Total	6	0	9	0	15	36	1	23	5	60	12	5165	43	0	5220	12	4345	4	1	4361	9656
Approach %	40.0	0.0	60.0	-	-	60.0	1.7	38.3	-	-	0.2	98.9	0.8	-	-	0.3	99.6	0.1	-	-	-
Total %	0.1	0.0	0.1	-	0.2	0.4	0.0	0.2	-	0.6	0.1	53.5	0.4	-	54.1	0.1	45.0	0.0	-	45.2	-
Lights	5	0	7	-	12	22	1	20	-	43	10	5007	32	-	5049	11	4232	4	-	4247	9351
% Lights	83.3	-	77.8	-	80.0	61.1	100.0	87.0	-	71.7	83.3	96.9	74.4	-	96.7	91.7	97.4	100.0	-	97.4	96.8
Other Vehicles	1	0	2	-	3	14	0	3	-	17	2	158	11	-	171	1	113	0	-	114	305
% Other Vehicles	16.7	-	22.2	-	20.0	38.9	0.0	13.0	-	28.3	16.7	3.1	25.6	-	3.3	8.3	2.6	0.0	-	2.6	3.2
Pedestrians	-	-	-	0	-	-	-	-	5	-	-	-	-	0	-	-	-	-	1	-	-
% Pedestrians	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	100.0	-	-

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Counter: MIO:
Set up By JH::

Count Name: Allan Road & Wilkes-Barre Township Blvd (SR 6309)
Site Code:
Start Date: 03/15/2022



Turning Movement Data Plot

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
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610.326.3100

Counter: MIO:
Set up By JH::

Count Name: Allan Road & Wilkes-Barre Township Blvd (SR 6309)
Site Code:
Start Date: 03/15/2022

Turning Movement Peak Hour Data (8:00 AM)

Start Time	Private Driveway Eastbound					Allan Road Westbound					Wilkes-Barre Township Blvd (SR 6309) Northbound					Wilkes-Barre Township Blvd (SR 6309) Southbound					
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
8:00 AM	0	0	1	0	1	1	0	0	0	1	0	175	2	0	177	3	86	0	0	89	268
8:15 AM	2	0	0	0	2	0	0	2	0	2	0	220	1	0	221	1	96	1	0	98	323
8:30 AM	0	0	0	0	0	1	0	1	0	2	0	211	4	0	215	0	100	0	0	100	317
8:45 AM	0	0	0	0	0	3	0	3	0	6	0	227	6	0	233	1	105	0	0	106	345
Total	2	0	1	0	3	5	0	6	0	11	0	833	13	0	846	5	387	1	0	393	1253
Approach %	66.7	0.0	33.3	-	-	45.5	0.0	54.5	-	-	0.0	98.5	1.5	-	-	1.3	98.5	0.3	-	-	-
Total %	0.2	0.0	0.1	-	0.2	0.4	0.0	0.5	-	0.9	0.0	66.5	1.0	-	67.5	0.4	30.9	0.1	-	31.4	-
PHF	0.250	0.000	0.250	-	0.375	0.417	0.000	0.500	-	0.458	0.000	0.917	0.542	-	0.908	0.417	0.921	0.250	-	0.927	0.908
Lights	1	0	1	-	2	3	0	3	-	6	0	800	6	-	806	4	364	1	-	369	1183
% Lights	50.0	-	100.0	-	66.7	60.0	-	50.0	-	54.5	-	96.0	46.2	-	95.3	80.0	94.1	100.0	-	93.9	94.4
Other Vehicles	1	0	0	-	1	2	0	3	-	5	0	33	7	-	40	1	23	0	-	24	70
% Other Vehicles	50.0	-	0.0	-	33.3	40.0	-	50.0	-	45.5	-	4.0	53.8	-	4.7	20.0	5.9	0.0	-	6.1	5.6
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Traffic Planning and Design, Inc
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Counter: MIO:
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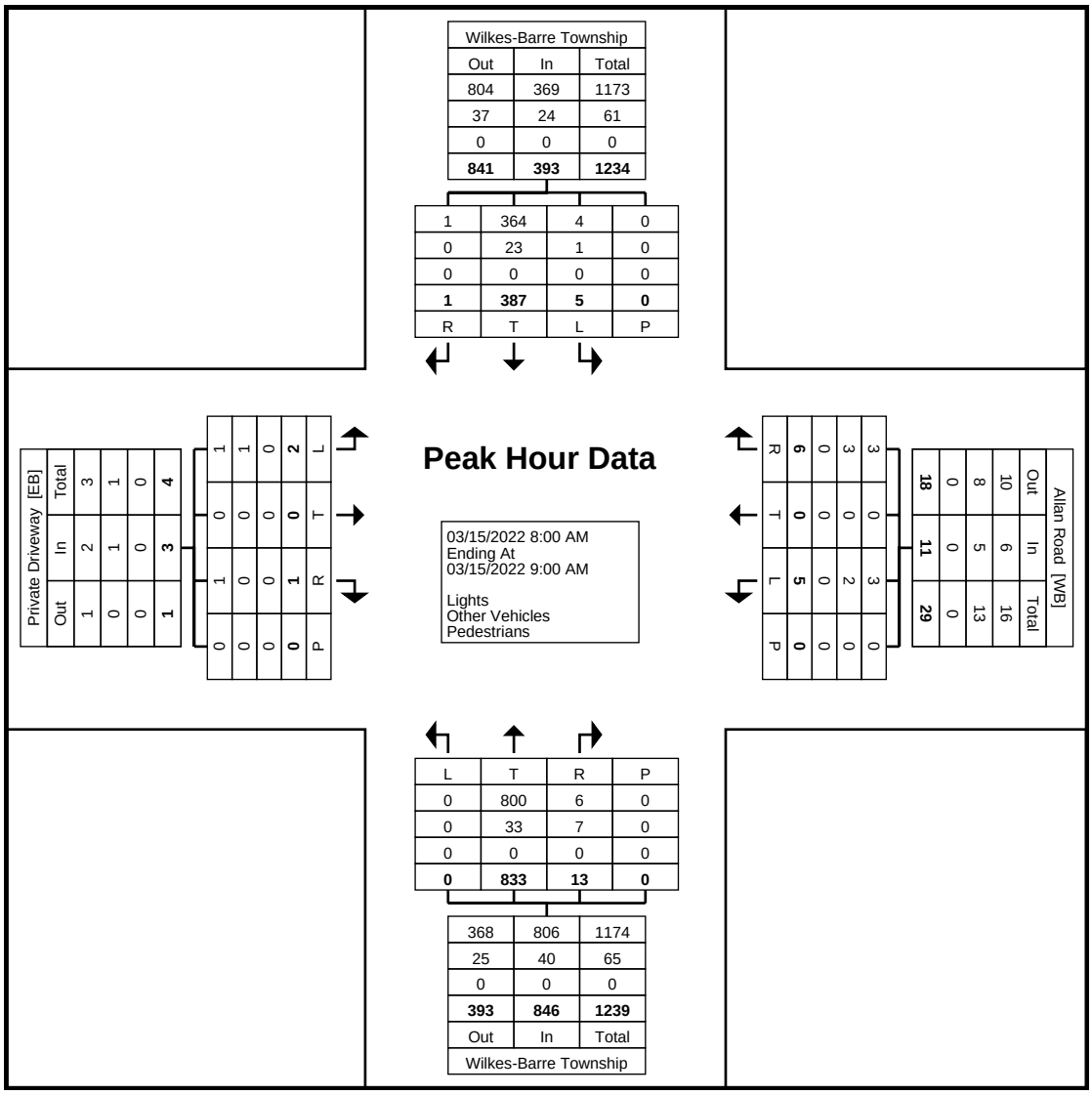
Count Name: Allan Road & Wilkes-Barre Township Blvd (SR 6309)
Site Code:
Start Date: 03/15/2022



Turning Movement Peak Hour Data Plot (8:00 AM)

Counter: MIO:
Set up By JH::

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Count Name: Allan Road & Wilkes-Barre Township Blvd (SR 6309)
Site Code:
Start Date: 03/15/2022

Turning Movement Peak Hour Data (9:00 AM)

Start Time	Private Driveway Eastbound					Allan Road Westbound					Wilkes-Barre Township Blvd (SR 6309) Northbound					Wilkes-Barre Township Blvd (SR 6309) Southbound					
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
9:00 AM	0	0	0	0	0	3	0	2	0	5	0	171	2	0	173	0	106	0	0	106	284
9:15 AM	0	0	0	0	0	2	0	0	0	2	1	152	1	0	154	2	104	0	0	106	262
9:30 AM	0	0	0	0	0	0	0	0	0	0	1	190	0	0	191	0	115	0	0	115	306
9:45 AM	0	0	0	0	0	0	0	2	0	2	0	174	1	0	175	0	129	0	0	129	306
Total	0	0	0	0	0	5	0	4	0	9	2	687	4	0	693	2	454	0	0	456	1158
Approach %	0.0	0.0	0.0	-	-	55.6	0.0	44.4	-	-	0.3	99.1	0.6	-	-	0.4	99.6	0.0	-	-	-
Total %	0.0	0.0	0.0	-	0.0	0.4	0.0	0.3	-	0.8	0.2	59.3	0.3	-	59.8	0.2	39.2	0.0	-	39.4	-
PHF	0.000	0.000	0.000	-	0.000	0.417	0.000	0.500	-	0.450	0.500	0.904	0.500	-	0.907	0.250	0.880	0.000	-	0.884	0.946
Lights	0	0	0	-	0	1	0	4	-	5	1	661	3	-	665	2	428	0	-	430	1100
% Lights	-	-	-	-	-	20.0	-	100.0	-	55.6	50.0	96.2	75.0	-	96.0	100.0	94.3	-	-	94.3	95.0
Other Vehicles	0	0	0	-	0	4	0	0	-	4	1	26	1	-	28	0	26	0	-	26	58
% Other Vehicles	-	-	-	-	-	80.0	-	0.0	-	44.4	50.0	3.8	25.0	-	4.0	0.0	5.7	-	-	5.7	5.0
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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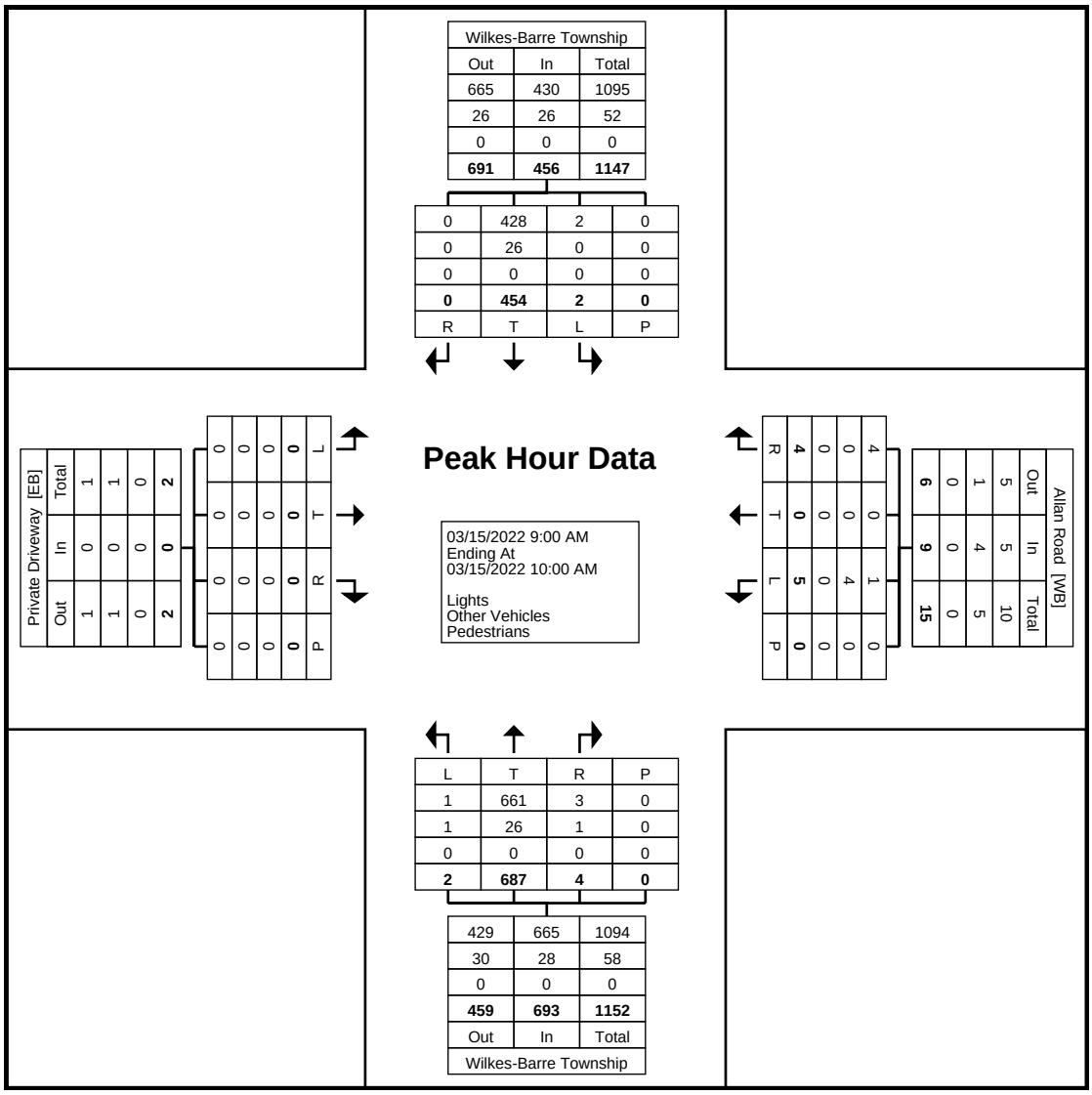
Count Name: Allan Road & Wilkes-Barre Township Blvd (SR 6309)
Site Code:
Start Date: 03/15/2022



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

Counter: MIO:
Set up By JH::

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Count Name: Allan Road & Wilkes-Barre Township Blvd (SR 6309)
Site Code:
Start Date: 03/15/2022

Turning Movement Peak Hour Data (3:15 PM)

Start Time	Private Driveway Eastbound					Allan Road Westbound					Wilkes-Barre Township Blvd (SR 6309) Northbound					Wilkes-Barre Township Blvd (SR 6309) Southbound					
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
3:15 PM	0	0	0	0	0	1	0	0	0	1	1	222	0	0	223	1	229	0	0	230	454
3:30 PM	0	0	0	0	0	0	0	0	0	0	2	230	0	0	232	0	243	0	0	243	475
3:45 PM	0	0	2	0	2	1	0	3	2	4	0	244	2	0	246	0	247	0	0	247	499
4:00 PM	0	0	1	0	1	5	0	3	2	8	1	216	1	0	218	0	272	0	0	272	499
Total	0	0	3	0	3	7	0	6	4	13	4	912	3	0	919	1	991	0	0	992	1927
Approach %	0.0	0.0	100.0	-	-	53.8	0.0	46.2	-	-	0.4	99.2	0.3	-	-	0.1	99.9	0.0	-	-	-
Total %	0.0	0.0	0.2	-	0.2	0.4	0.0	0.3	-	0.7	0.2	47.3	0.2	-	47.7	0.1	51.4	0.0	-	51.5	-
PHF	0.000	0.000	0.375	-	0.375	0.350	0.000	0.500	-	0.406	0.500	0.934	0.375	-	0.934	0.250	0.911	0.000	-	0.912	0.965
Lights	0	0	2	-	2	6	0	6	-	12	3	888	2	-	893	1	972	0	-	973	1880
% Lights	-	-	66.7	-	66.7	85.7	-	100.0	-	92.3	75.0	97.4	66.7	-	97.2	100.0	98.1	-	-	98.1	97.6
Other Vehicles	0	0	1	-	1	1	0	0	-	1	1	24	1	-	26	0	19	0	-	19	47
% Other Vehicles	-	-	33.3	-	33.3	14.3	-	0.0	-	7.7	25.0	2.6	33.3	-	2.8	0.0	1.9	-	-	1.9	2.4
Pedestrians	-	-	-	0	-	-	-	-	4	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-

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Counter: MIO:
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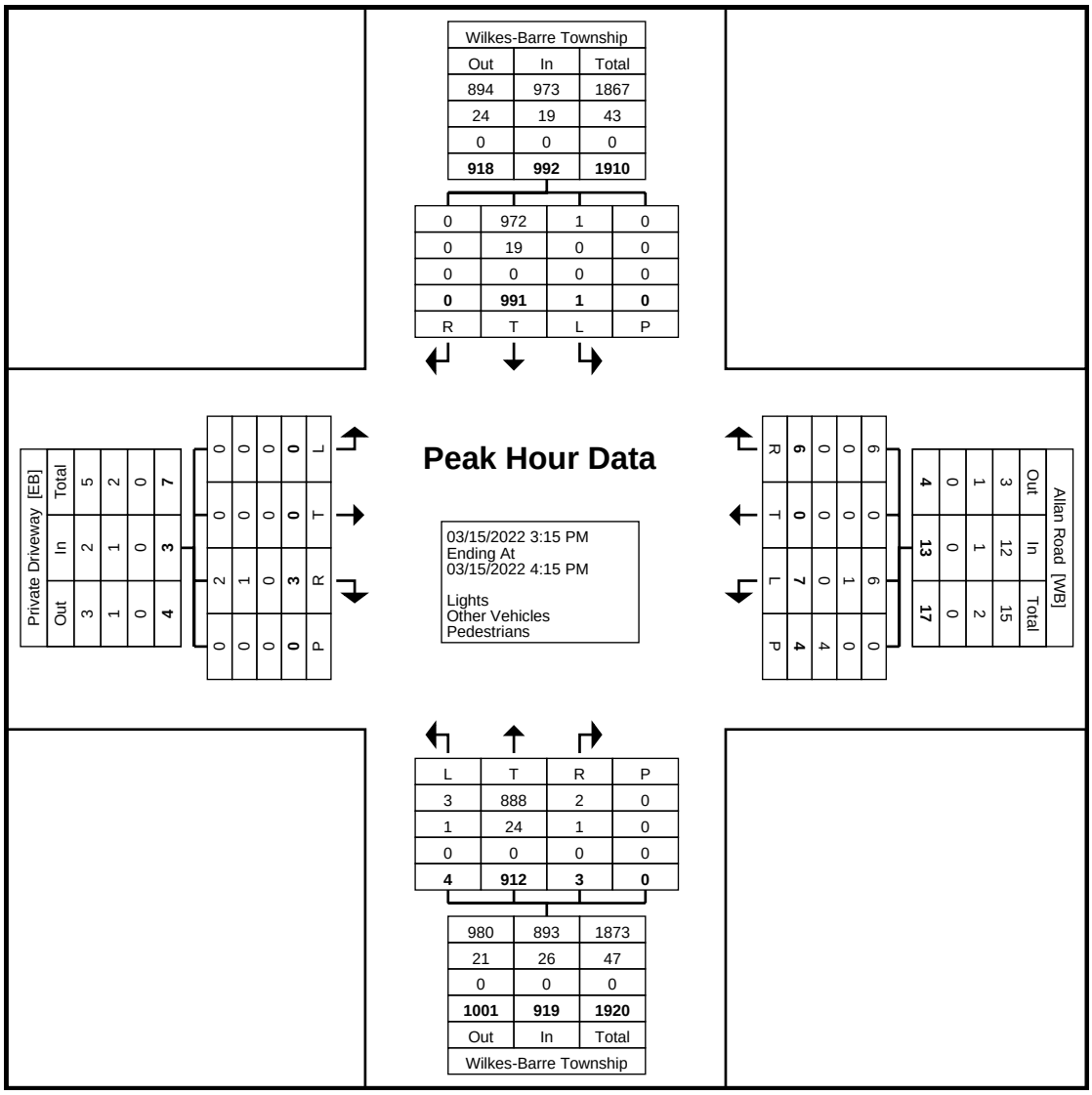
Count Name: Allan Road & Wilkes-Barre Township Blvd (SR 6309)
Site Code:
Start Date: 03/15/2022



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

Counter: MIO:
Set up By JH::

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Count Name: Blackman Plaza Driveway-Johnson Street & Wilkes-Barre Township Blvd
Site Code:
Start Date: 12/09/2021

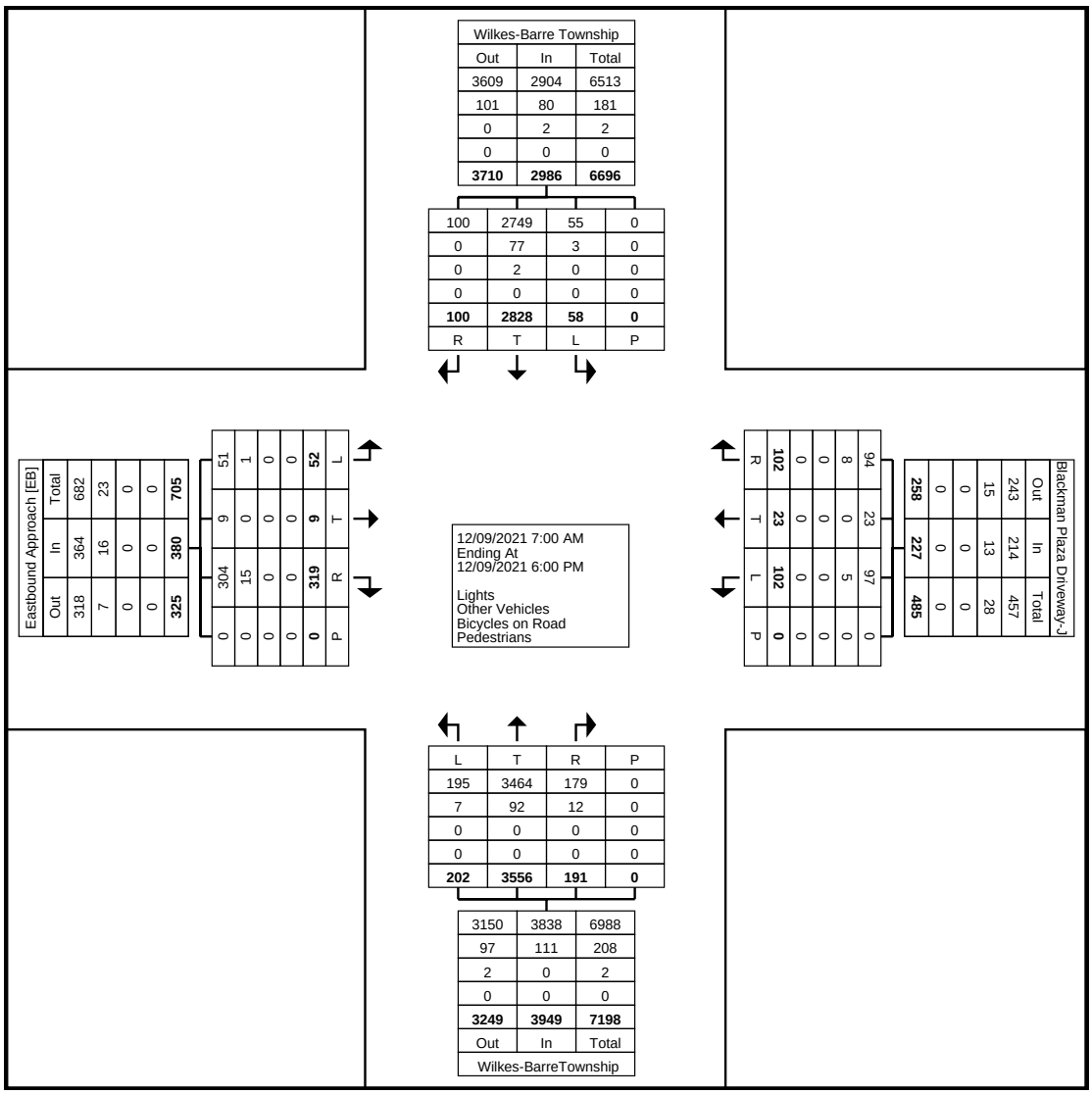
Turning Movement Data

Start Time	Eastbound Approach					Blackman Plaza Driveway-Johnson Street					Wilkes-BarreTownship Blvd					Wilkes-Barre Township Blvd (SR 309)					
	Eastbound					Westbound					Northbound					Southbound					
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
7:00 AM	0	0	0	0	0	3	0	3	0	6	4	136	2	0	142	2	77	1	0	80	228
7:15 AM	0	0	3	0	3	5	0	4	0	9	2	155	6	0	163	2	69	0	0	71	246
7:30 AM	1	0	4	0	5	2	0	5	0	7	5	204	6	0	215	1	91	0	0	92	319
7:45 AM	0	0	3	0	3	3	0	7	0	10	9	186	8	0	203	2	93	3	0	98	314
Hourly Total	1	0	10	0	11	13	0	19	0	32	20	681	22	0	723	7	330	4	0	341	1107
8:00 AM	2	0	3	0	5	4	0	0	0	4	11	169	2	0	182	0	91	3	0	94	285
8:15 AM	4	0	7	0	11	2	2	1	0	5	8	196	9	0	213	2	77	3	0	82	311
8:30 AM	9	0	11	0	20	5	5	0	0	10	8	199	3	0	210	1	94	3	0	98	338
8:45 AM	2	0	11	0	13	3	4	2	0	9	6	173	5	0	184	4	105	3	0	112	318
Hourly Total	17	0	32	0	49	14	11	3	0	28	33	737	19	0	789	7	367	12	0	386	1252
9:00 AM	3	0	9	0	12	0	1	7	0	8	6	150	3	0	159	1	108	0	0	109	288
9:15 AM	1	2	10	0	13	9	0	1	0	10	4	128	10	0	142	2	91	6	0	99	264
9:30 AM	0	0	13	0	13	6	1	4	0	11	9	172	4	0	185	1	92	2	0	95	304
9:45 AM	4	1	10	0	15	3	0	6	0	9	8	176	10	0	194	3	100	6	0	109	327
Hourly Total	8	3	42	0	53	18	2	18	0	38	27	626	27	0	680	7	391	14	0	412	1183
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	6	2	36	0	44	5	0	7	0	12	18	183	13	0	214	7	223	10	0	240	510
4:15 PM	1	1	25	0	27	5	0	8	0	13	20	183	16	0	219	1	213	9	0	223	482
4:30 PM	5	0	35	0	40	6	1	9	0	16	11	201	15	0	227	9	224	12	0	245	528
4:45 PM	2	1	39	0	42	6	2	7	0	15	11	192	16	0	219	4	220	10	0	234	510
Hourly Total	14	4	135	0	153	22	3	31	0	56	60	759	60	0	879	21	880	41	0	942	2030
5:00 PM	3	0	23	0	26	5	2	4	0	11	9	190	23	0	222	3	239	5	0	247	506
5:15 PM	3	0	18	0	21	6	0	7	0	13	23	197	16	0	236	4	229	7	0	240	510
5:30 PM	0	1	33	0	34	15	2	7	0	24	15	208	14	0	237	6	209	10	0	225	520
5:45 PM	6	1	26	0	33	9	3	13	0	25	15	158	10	0	183	3	183	7	0	193	434
Hourly Total	12	2	100	0	114	35	7	31	0	73	62	753	63	0	878	16	860	29	0	905	1970
Grand Total	52	9	319	0	380	102	23	102	0	227	202	3556	191	0	3949	58	2828	100	0	2986	7542
Approach %	13.7	2.4	83.9	-	-	44.9	10.1	44.9	-	-	5.1	90.0	4.8	-	-	1.9	94.7	3.3	-	-	-
Total %	0.7	0.1	4.2	-	5.0	1.4	0.3	1.4	-	3.0	2.7	47.1	2.5	-	52.4	0.8	37.5	1.3	-	39.6	-
Lights	51	9	304	-	364	97	23	94	-	214	195	3464	179	-	3838	55	2749	100	-	2904	7320
% Lights	98.1	100.0	95.3	-	95.8	95.1	100.0	92.2	-	94.3	96.5	97.4	93.7	-	97.2	94.8	97.2	100.0	-	97.3	97.1
Other Vehicles	1	0	15	-	16	5	0	8	-	13	7	92	12	-	111	3	77	0	-	80	220
% Other Vehicles	1.9	0.0	4.7	-	4.2	4.9	0.0	7.8	-	5.7	3.5	2.6	6.3	-	2.8	5.2	2.7	0.0	-	2.7	2.9
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	2	0	-	2	2
% Bicycles on Road	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.0	0.1	0.0	-	0.1	0.0
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Counter: MIO:
Set up By JH::

Count Name: Blackman Plaza Driveway-Johnson Street & Wilkes-Barre Township Blvd
Site Code:
Start Date: 12/09/2021



Turning Movement Data Plot

Counter: MIO:
Set up By JH::

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Count Name: Johnson Street & Wilkes-Barre Township Blvd
Site Code:
Start Date: 12/09/2021

Turning Movement Data

Start Time	Blackman Plaza Driveway Eastbound					Johnson Street Westbound					Wilkes-Barre Township Blvd (SR 309) Northbound					Wilkes-Barre Township Blvd (SR 309) Southbound					
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
6:00 AM	0	0	3	0	3	1	0	0	0	1	1	67	5	0	73	4	48	0	0	52	129
6:15 AM	0	0	2	0	2	2	0	1	0	3	0	88	4	0	92	2	46	0	0	48	145
6:30 AM	0	0	1	0	1	5	0	1	0	6	1	97	6	0	104	2	90	0	0	92	203
6:45 AM	0	0	3	0	3	2	0	4	0	6	3	110	11	0	124	3	74	0	0	77	210
Hourly Total	0	0	9	0	9	10	0	6	0	16	5	362	26	0	393	11	258	0	0	269	687
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	1	0	23	1	24	9	3	6	0	18	17	182	8	0	207	5	203	12	0	220	469
3:15 PM	3	1	26	0	30	7	1	6	0	14	11	205	6	0	222	1	206	8	0	215	481
3:30 PM	0	0	25	0	25	8	1	11	0	20	13	246	9	0	268	2	192	10	0	204	517
3:45 PM	2	1	31	0	34	8	0	7	0	15	18	190	21	0	229	2	208	13	0	223	501
Hourly Total	6	2	105	1	113	32	5	30	0	67	59	823	44	0	926	10	809	43	0	862	1968
Grand Total	6	2	114	1	122	42	5	36	0	83	64	1185	70	0	1319	21	1067	43	0	1131	2655
Approach %	4.9	1.6	93.4	-	-	50.6	6.0	43.4	-	-	4.9	89.8	5.3	-	-	1.9	94.3	3.8	-	-	-
Total %	0.2	0.1	4.3	-	4.6	1.6	0.2	1.4	-	3.1	2.4	44.6	2.6	-	49.7	0.8	40.2	1.6	-	42.6	-
Lights	6	2	110	-	118	40	4	31	-	75	63	1149	69	-	1281	20	1045	43	-	1108	2582
% Lights	100.0	100.0	96.5	-	96.7	95.2	80.0	86.1	-	90.4	98.4	97.0	98.6	-	97.1	95.2	97.9	100.0	-	98.0	97.3
Other Vehicles	0	0	4	-	4	2	1	5	-	8	1	36	1	-	38	1	22	0	-	23	73
% Other Vehicles	0.0	0.0	3.5	-	3.3	4.8	20.0	13.9	-	9.6	1.6	3.0	1.4	-	2.9	4.8	2.1	0.0	-	2.0	2.7
Pedestrians	-	-	-	1	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
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610.326.3100

Counter: MIO:
Set up By JH::

Count Name: Blackman Plaza Driveway-Johnson Street & Wilkes-Barre Township Blvd
Site Code:
Start Date: 12/09/2021

Turning Movement Peak Hour Data (8:00 AM)

Start Time	Eastbound Approach					Blackman Plaza Driveway-Johnson Street					Wilkes-BarreTownship Blvd					Wilkes-Barre Township Blvd (SR 309)					
	Eastbound					Westbound					Northbound					Southbound					
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
8:00 AM	2	0	3	0	5	4	0	0	0	4	11	169	2	0	182	0	91	3	0	94	285
8:15 AM	4	0	7	0	11	2	2	1	0	5	8	196	9	0	213	2	77	3	0	82	311
8:30 AM	9	0	11	0	20	5	5	0	0	10	8	199	3	0	210	1	94	3	0	98	338
8:45 AM	2	0	11	0	13	3	4	2	0	9	6	173	5	0	184	4	105	3	0	112	318
Total	17	0	32	0	49	14	11	3	0	28	33	737	19	0	789	7	367	12	0	386	1252
Approach %	34.7	0.0	65.3	-	-	50.0	39.3	10.7	-	-	4.2	93.4	2.4	-	-	1.8	95.1	3.1	-	-	-
Total %	1.4	0.0	2.6	-	3.9	1.1	0.9	0.2	-	2.2	2.6	58.9	1.5	-	63.0	0.6	29.3	1.0	-	30.8	-
PHF	0.472	0.000	0.727	-	0.613	0.700	0.550	0.375	-	0.700	0.750	0.926	0.528	-	0.926	0.438	0.874	1.000	-	0.862	0.926
Lights	16	0	27	-	43	14	11	3	-	28	32	718	18	-	768	6	344	12	-	362	1201
% Lights	94.1	-	84.4	-	87.8	100.0	100.0	100.0	-	100.0	97.0	97.4	94.7	-	97.3	85.7	93.7	100.0	-	93.8	95.9
Other Vehicles	1	0	5	-	6	0	0	0	-	0	1	19	1	-	21	1	23	0	-	24	51
% Other Vehicles	5.9	-	15.6	-	12.2	0.0	0.0	0.0	-	0.0	3.0	2.6	5.3	-	2.7	14.3	6.3	0.0	-	6.2	4.1
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	0.0	-	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.0
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Traffic Planning and Design, Inc
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Counter: MIO:
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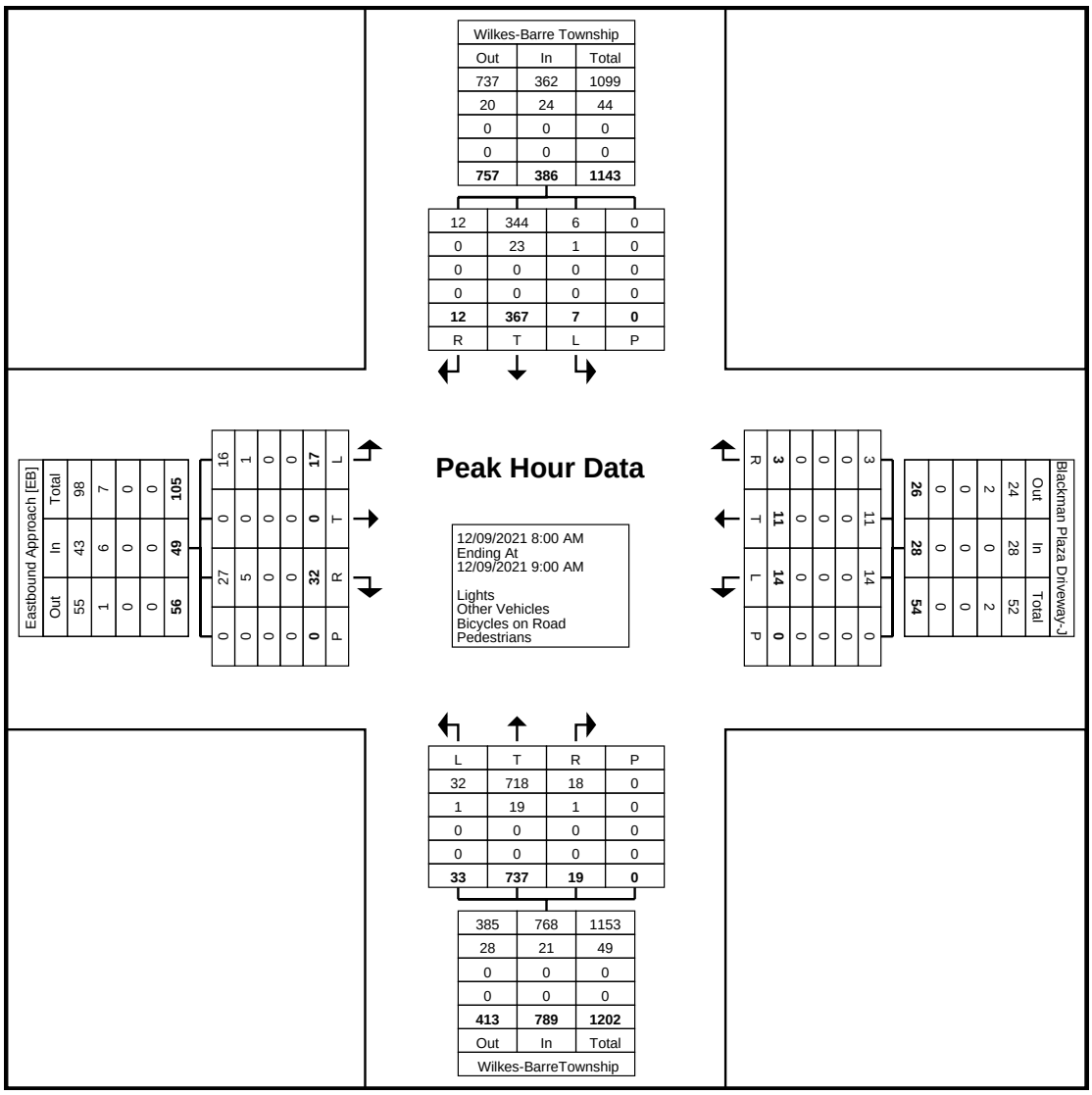
Count Name: Blackman Plaza Driveway-Johnson Street & Wilkes-Barre Township Blvd
Site Code:
Start Date: 12/09/2021



Turning Movement Peak Hour Data Plot (8:00 AM)

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Counter: MIO:
Set up By JH::

Count Name: Blackman Plaza Driveway-Johnson Street & Wilkes-Barre Township Blvd
Site Code:
Start Date: 12/09/2021

Turning Movement Peak Hour Data (9:00 AM)

Start Time	Eastbound Approach					Blackman Plaza Driveway-Johnson Street					Wilkes-BarreTownship Blvd					Wilkes-Barre Township Blvd (SR 309)					
	Eastbound					Westbound					Northbound					Southbound					
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
9:00 AM	3	0	9	0	12	0	1	7	0	8	6	150	3	0	159	1	108	0	0	109	288
9:15 AM	1	2	10	0	13	9	0	1	0	10	4	128	10	0	142	2	91	6	0	99	264
9:30 AM	0	0	13	0	13	6	1	4	0	11	9	172	4	0	185	1	92	2	0	95	304
9:45 AM	4	1	10	0	15	3	0	6	0	9	8	176	10	0	194	3	100	6	0	109	327
Total	8	3	42	0	53	18	2	18	0	38	27	626	27	0	680	7	391	14	0	412	1183
Approach %	15.1	5.7	79.2	-	-	47.4	5.3	47.4	-	-	4.0	92.1	4.0	-	-	1.7	94.9	3.4	-	-	-
Total %	0.7	0.3	3.6	-	4.5	1.5	0.2	1.5	-	3.2	2.3	52.9	2.3	-	57.5	0.6	33.1	1.2	-	34.8	-
PHF	0.500	0.375	0.808	-	0.883	0.500	0.500	0.643	-	0.864	0.750	0.889	0.675	-	0.876	0.583	0.905	0.583	-	0.945	0.904
Lights	8	3	39	-	50	15	2	17	-	34	25	606	24	-	655	7	374	14	-	395	1134
% Lights	100.0	100.0	92.9	-	94.3	83.3	100.0	94.4	-	89.5	92.6	96.8	88.9	-	96.3	100.0	95.7	100.0	-	95.9	95.9
Other Vehicles	0	0	3	-	3	3	0	1	-	4	2	20	3	-	25	0	17	0	-	17	49
% Other Vehicles	0.0	0.0	7.1	-	5.7	16.7	0.0	5.6	-	10.5	7.4	3.2	11.1	-	3.7	0.0	4.3	0.0	-	4.1	4.1
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.0
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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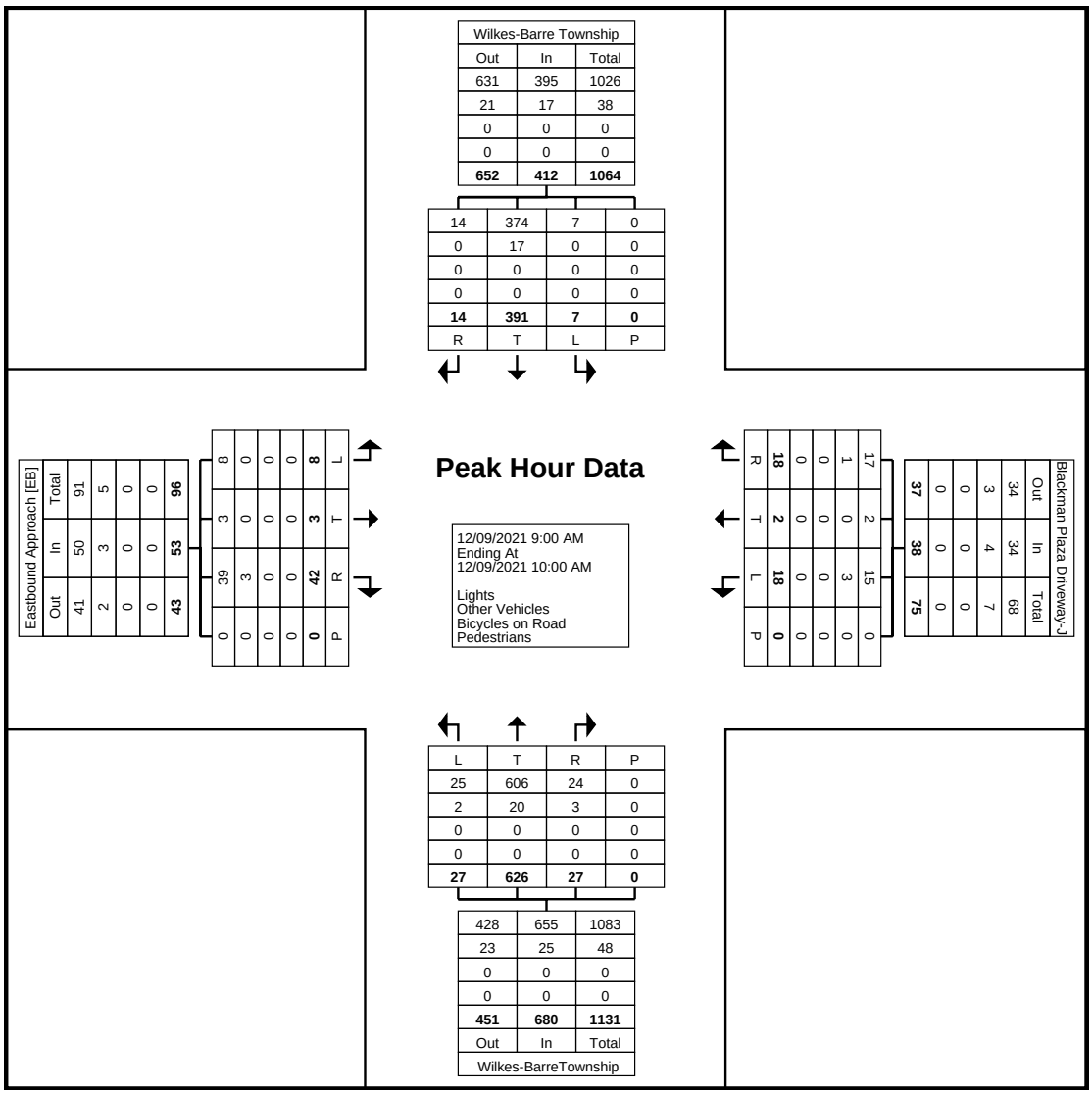
Site Code:
Start Date: 12/09/2021



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

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Counter: MIO:
Set up By JH::

Count Name: Blackman Plaza Driveway-Johnson Street & Wilkes-Barre Township Blvd
Site Code:
Start Date: 12/09/2021

Turning Movement Peak Hour Data (4:30 PM)

Start Time	Eastbound Approach					Blackman Plaza Driveway-Johnson Street					Wilkes-BarreTownship Blvd					Wilkes-Barre Township Blvd (SR 309)					
	Eastbound					Westbound					Northbound					Southbound					
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
4:30 PM	5	0	35	0	40	6	1	9	0	16	11	201	15	0	227	9	224	12	0	245	528
4:45 PM	2	1	39	0	42	6	2	7	0	15	11	192	16	0	219	4	220	10	0	234	510
5:00 PM	3	0	23	0	26	5	2	4	0	11	9	190	23	0	222	3	239	5	0	247	506
5:15 PM	3	0	18	0	21	6	0	7	0	13	23	197	16	0	236	4	229	7	0	240	510
Total	13	1	115	0	129	23	5	27	0	55	54	780	70	0	904	20	912	34	0	966	2054
Approach %	10.1	0.8	89.1	-	-	41.8	9.1	49.1	-	-	6.0	86.3	7.7	-	-	2.1	94.4	3.5	-	-	-
Total %	0.6	0.0	5.6	-	6.3	1.1	0.2	1.3	-	2.7	2.6	38.0	3.4	-	44.0	1.0	44.4	1.7	-	47.0	-
PHF	0.650	0.250	0.737	-	0.768	0.958	0.625	0.750	-	0.859	0.587	0.970	0.761	-	0.958	0.556	0.954	0.708	-	0.978	0.973
Lights	13	1	112	-	126	23	5	26	-	54	53	765	66	-	884	20	902	34	-	956	2020
% Lights	100.0	100.0	97.4	-	97.7	100.0	100.0	96.3	-	98.2	98.1	98.1	94.3	-	97.8	100.0	98.9	100.0	-	99.0	98.3
Other Vehicles	0	0	3	-	3	0	0	1	-	1	1	15	4	-	20	0	10	0	-	10	34
% Other Vehicles	0.0	0.0	2.6	-	2.3	0.0	0.0	3.7	-	1.8	1.9	1.9	5.7	-	2.2	0.0	1.1	0.0	-	1.0	1.7
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.0
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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Counter: MIO:
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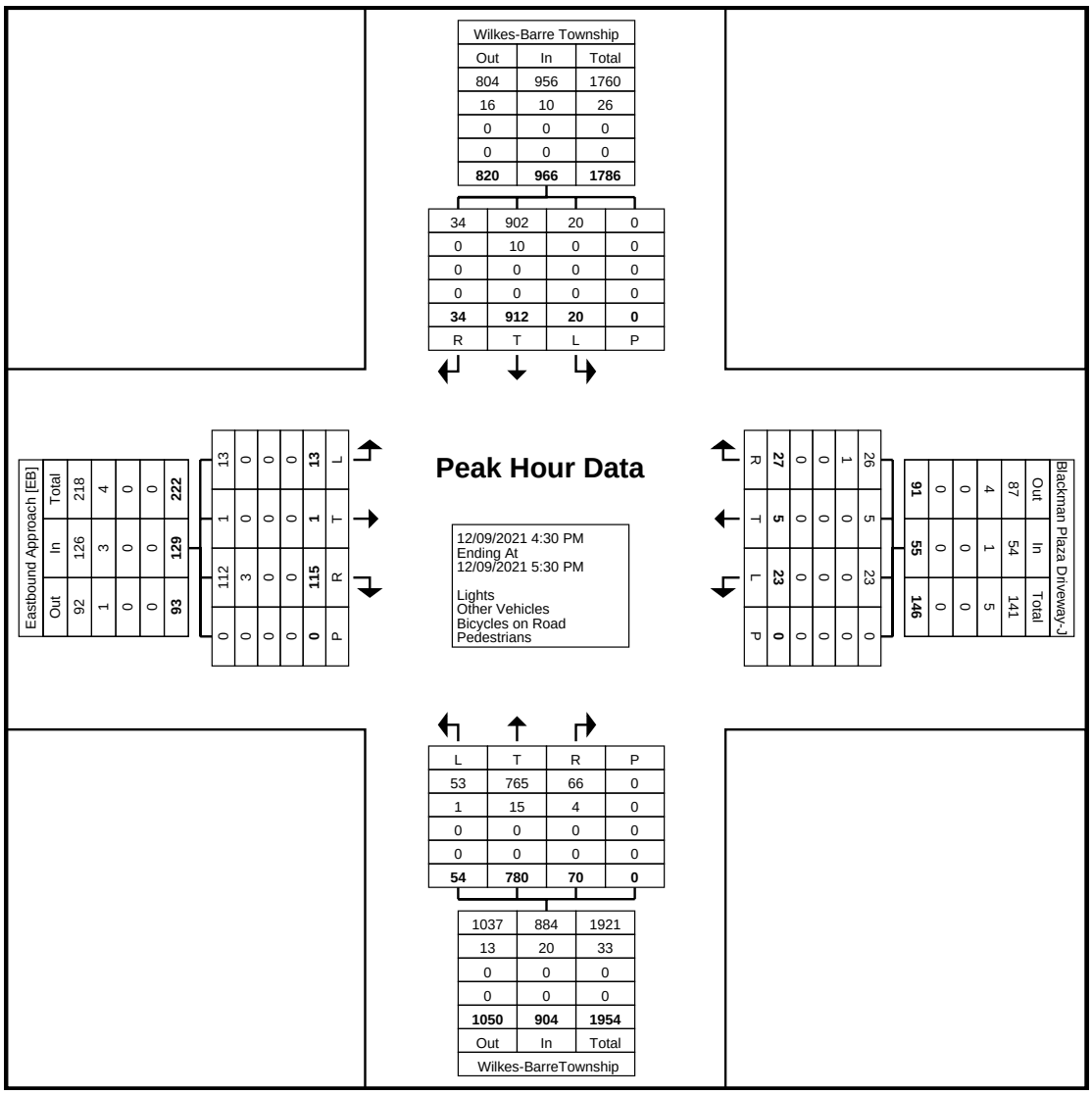
Count Name: Blackman Plaza Driveway-Johnson Street & Wilkes-Barre Township Blvd
Site Code:
Start Date: 12/09/2021



Turning Movement Peak Hour Data Plot (4:30 PM)

Counter: MIO:
Set up By JH::

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Count Name: Casey Avenue & Wilkes-Barre Township Blvd
Site Code:
Start Date: 03/15/2022

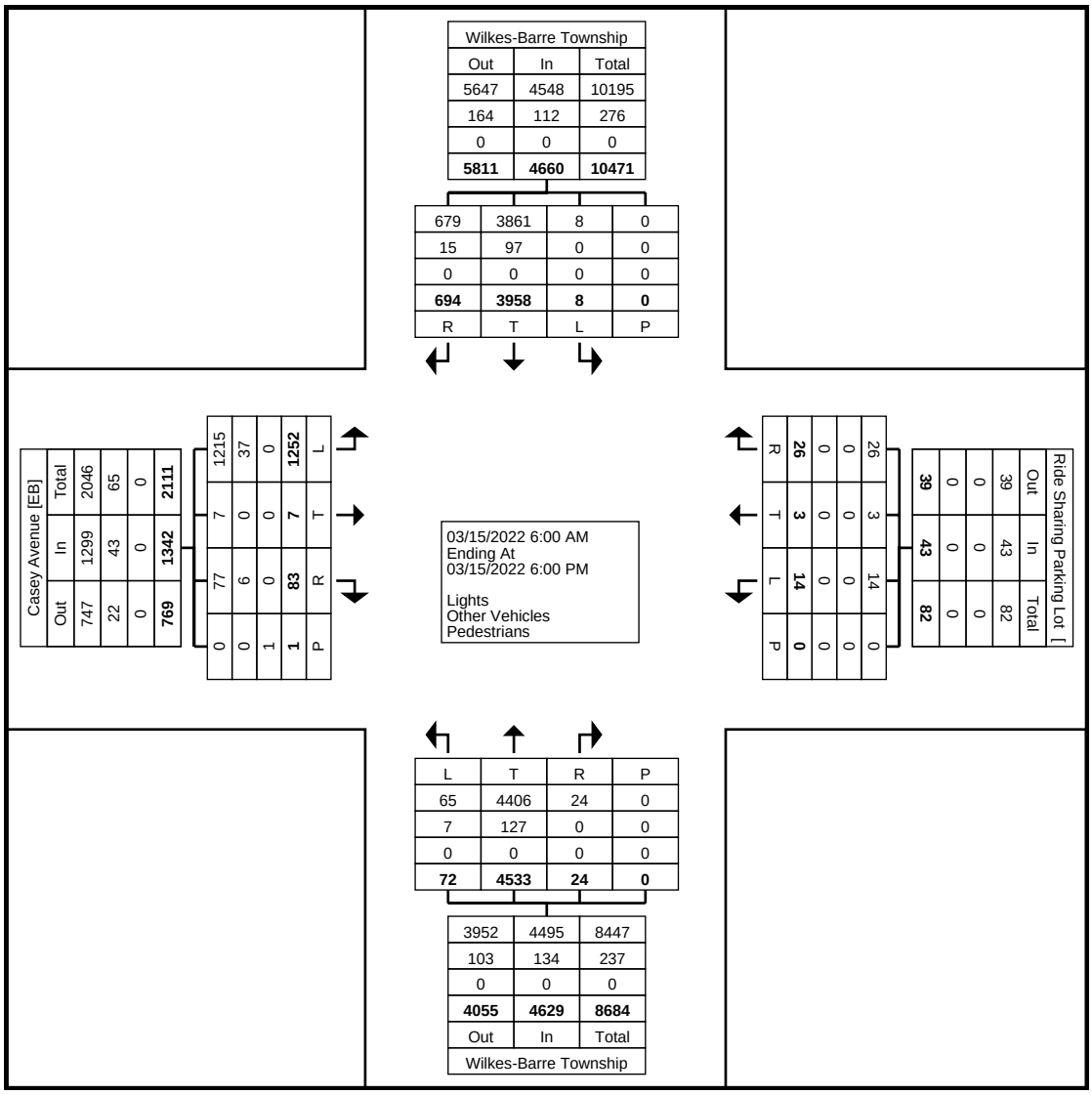
Turning Movement Data

Start Time	Casey Avenue Eastbound						Ride Sharing Parking Lot Westbound						Wilkes-Barre Township Blvd (SR 6309) Northbound						Wilkes-Barre Township Blvd (SR 6309) Southbound						Int. Total
	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	
6:00 AM	18	0	0	0	0	18	0	0	0	1	0	1	0	59	1	1	0	61	0	43	4	2	0	49	129
6:15 AM	24	0	0	0	0	24	0	0	0	0	0	0	0	78	1	0	0	79	2	51	6	0	0	59	162
6:30 AM	33	2	0	0	0	35	5	0	0	0	0	5	0	92	4	0	0	96	2	64	5	1	0	72	208
6:45 AM	26	0	0	0	1	26	0	0	0	2	0	2	1	127	2	0	0	130	0	71	8	2	0	81	239
Hourly Total	101	2	0	0	1	103	5	0	0	3	0	8	1	356	8	1	0	366	4	229	23	5	0	261	738
7:00 AM	22	0	0	0	0	22	0	0	1	1	0	2	0	110	2	0	0	112	0	61	9	5	0	75	211
7:15 AM	36	0	1	1	0	38	0	0	0	0	0	0	1	148	0	0	0	149	1	75	10	0	0	86	273
7:30 AM	39	0	3	2	0	44	0	0	1	1	0	2	1	191	1	0	0	193	1	81	9	1	0	92	331
7:45 AM	37	1	1	2	0	41	0	0	0	1	0	1	0	206	0	0	0	206	0	84	5	1	0	90	338
Hourly Total	134	1	5	5	0	145	0	0	2	3	0	5	2	655	3	0	0	660	2	301	33	7	0	343	1153
8:00 AM	35	1	2	0	0	38	0	0	0	0	0	0	2	153	0	0	0	155	0	92	11	0	0	103	296
8:15 AM	45	0	2	2	0	49	0	0	0	0	0	0	4	207	0	0	0	211	0	86	10	0	0	96	356
8:30 AM	35	0	1	0	0	36	1	0	0	0	0	1	3	182	1	0	0	186	0	96	8	3	0	107	330
8:45 AM	45	0	0	2	0	47	0	0	0	0	0	0	0	209	0	0	0	209	0	100	15	4	0	119	375
Hourly Total	160	1	5	4	0	170	1	0	0	0	0	1	9	751	1	0	0	761	0	374	44	7	0	425	1357
9:00 AM	40	0	0	2	0	42	0	0	0	0	0	0	1	153	0	0	0	154	0	98	8	4	0	110	306
9:15 AM	46	0	0	0	0	46	0	0	0	0	0	0	1	138	0	0	0	139	0	99	10	2	0	111	296
9:30 AM	57	0	1	0	0	58	0	0	0	0	0	0	2	172	0	0	0	174	0	109	8	5	0	122	354
9:45 AM	40	0	1	2	0	43	0	0	0	0	0	0	2	158	0	0	0	160	0	128	17	4	0	149	352
Hourly Total	183	0	2	4	0	189	0	0	0	0	0	0	6	621	0	0	0	627	0	434	43	15	0	492	1308
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	49	0	1	0	0	50	2	0	1	4	0	7	7	171	0	1	0	179	0	212	38	4	0	254	490
3:15 PM	58	0	1	0	0	59	0	0	0	0	0	0	7	197	0	0	0	204	0	211	31	5	0	247	510
3:30 PM	54	0	4	0	0	58	0	0	1	0	0	1	5	197	1	0	0	203	1	216	48	8	0	273	535
3:45 PM	69	0	7	0	0	76	3	0	3	2	0	8	4	192	2	0	0	198	1	219	31	9	0	260	542
Hourly Total	230	0	13	0	0	243	5	0	5	6	0	16	23	757	3	1	0	784	2	858	148	26	0	1034	2077
4:00 PM	58	0	11	1	0	70	0	0	1	1	0	2	3	182	0	0	0	185	0	235	40	10	0	285	542
4:15 PM	59	0	6	1	0	66	2	0	2	0	0	4	4	164	2	0	0	170	0	212	44	3	0	259	499
4:30 PM	69	0	5	3	0	77	1	0	1	0	0	2	2	177	1	0	0	180	0	225	25	6	0	256	515
4:45 PM	54	0	3	0	0	57	0	0	1	0	0	1	4	190	1	0	0	195	0	234	30	10	0	274	527
Hourly Total	240	0	25	5	0	270	3	0	5	1	0	9	13	713	4	0	0	730	0	906	139	29	0	1074	2083
5:00 PM	56	0	2	0	0	58	0	2	0	0	0	2	3	183	1	0	0	187	0	243	37	9	0	289	536
5:15 PM	51	1	2	2	0	56	0	0	0	0	0	0	4	173	0	0	0	177	0	209	36	4	0	249	482
5:30 PM	52	1	3	0	0	56	0	0	0	0	0	0	7	173	1	0	0	181	0	220	45	6	0	271	508
5:45 PM	45	1	5	1	0	52	0	1	0	1	0	2	4	151	1	0	0	156	0	184	36	2	0	222	432
Hourly Total	204	3	12	3	0	222	0	3	0	1	0	4	18	680	3	0	0	701	0	856	154	21	0	1031	1958
Grand Total	1252	7	62	21	1	1342	14	3	12	14	0	43	72	4533	22	2	0	4629	8	3958	584	110	0	4660	10674
Approach %	93.3	0.5	4.6	1.6	-	-	32.6	7.0	27.9	32.6	-	-	1.6	97.9	0.5	0.0	-	-	0.2	84.9	12.5	2.4	-	-	-
Total %	11.7	0.1	0.6	0.2	-	12.6	0.1	0.0	0.1	0.1	-	0.4	0.7	42.5	0.2	0.0	-	43.4	0.1	37.1	5.5	1.0	-	43.7	-
Lights	1215	7	56	21	-	1299	14	3	12	14	-	43	65	4406	22	2	-	4495	8	3861	571	108	-	4548	10385
% Lights	97.0	100.0	90.3	100.0	-	96.8	100.0	100.0	100.0	100.0	-	100.0	90.3	97.2	100.0	100.0	-	97.1	100.0	97.5	97.8	98.2	-	97.6	97.3
Other Vehicles	37	0	6	0	-	43	0	0	0	0	-	0	7	127	0	0	-	134	0	97	13	2	-	112	289
% Other Vehicles	3.0	0.0	9.7	0.0	-	3.2	0.0	0.0	0.0	0.0	-	0.0	9.7	2.8	0.0	0.0	-	2.9	0.0	2.5	2.2	1.8	-	2.4	2.7
Pedestrians	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Counter: MIO:
Set up By JH::

Count Name: Casey Avenue & Wilkes-Barre Township Blvd
Site Code:
Start Date: 03/15/2022



Turning Movement Data Plot

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Counter: MIO:
Set up By JH::

Count Name: Casey Avenue & Wilkes-Barre Township Blvd
Site Code:
Start Date: 03/15/2022

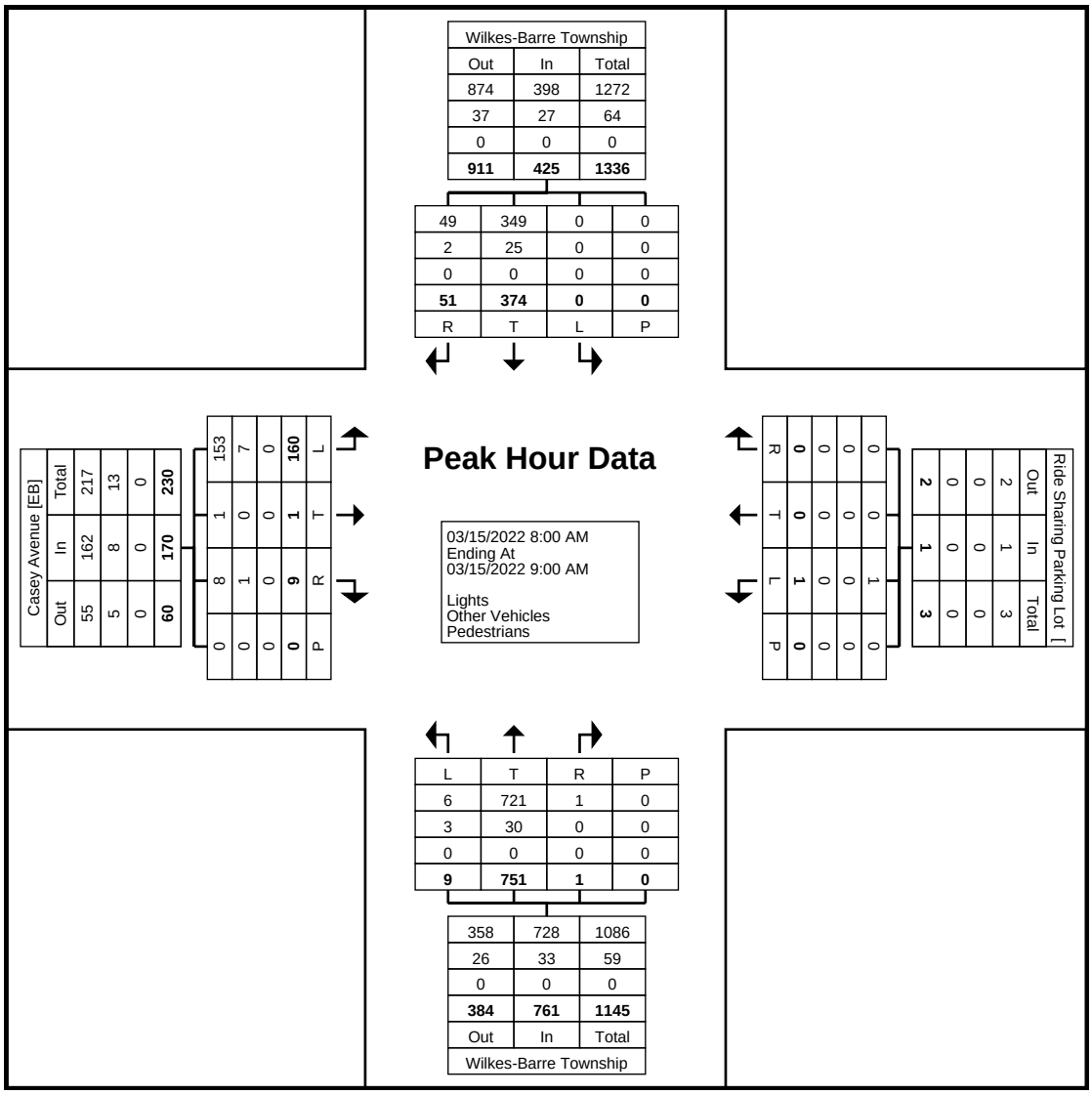
Turning Movement Peak Hour Data (8:00 AM)

Start Time	Casey Avenue Eastbound						Ride Sharing Parking Lot Westbound						Wilkes-Barre Township Blvd (SR 6309) Northbound						Wilkes-Barre Township Blvd (SR 6309) Southbound						Int. Total
	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	
8:00 AM	35	1	2	0	0	38	0	0	0	0	0	0	2	153	0	0	0	155	0	92	11	0	0	103	296
8:15 AM	45	0	2	2	0	49	0	0	0	0	0	0	4	207	0	0	0	211	0	86	10	0	0	96	356
8:30 AM	35	0	1	0	0	36	1	0	0	0	0	1	3	182	1	0	0	186	0	96	8	3	0	107	330
8:45 AM	45	0	0	2	0	47	0	0	0	0	0	0	0	209	0	0	0	209	0	100	15	4	0	119	375
Total	160	1	5	4	0	170	1	0	0	0	0	1	9	751	1	0	0	761	0	374	44	7	0	425	1357
Approach %	94.1	0.6	2.9	2.4	-	-	100.0	0.0	0.0	0.0	-	-	1.2	98.7	0.1	0.0	-	-	0.0	88.0	10.4	1.6	-	-	-
Total %	11.8	0.1	0.4	0.3	-	12.5	0.1	0.0	0.0	0.0	-	0.1	0.7	55.3	0.1	0.0	-	56.1	0.0	27.6	3.2	0.5	-	31.3	-
PHF	0.889	0.250	0.625	0.500	-	0.867	0.250	0.000	0.000	0.000	-	0.250	0.563	0.898	0.250	0.000	-	0.902	0.000	0.935	0.733	0.438	-	0.893	0.905
Lights	153	1	4	4	-	162	1	0	0	0	-	1	6	721	1	0	-	728	0	349	42	7	-	398	1289
% Lights	95.6	100.0	80.0	100.0	-	95.3	100.0	-	-	-	-	100.0	66.7	96.0	100.0	-	-	95.7	-	93.3	95.5	100.0	-	93.6	95.0
Other Vehicles	7	0	1	0	-	8	0	0	0	0	-	0	3	30	0	0	-	33	0	25	2	0	-	27	68
% Other Vehicles	4.4	0.0	20.0	0.0	-	4.7	0.0	-	-	-	-	0.0	33.3	4.0	0.0	-	-	4.3	-	6.7	4.5	0.0	-	6.4	5.0
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Counter: MIO:
Set up By JH::

Count Name: Casey Avenue & Wilkes-Barre Township Blvd
Site Code:
Start Date: 03/15/2022



Turning Movement Peak Hour Data Plot (8:00 AM)

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Counter: MIO:
Set up By JH::

Count Name: Casey Avenue & Wilkes-Barre Township Blvd
Site Code:
Start Date: 03/15/2022

Turning Movement Peak Hour Data (9:00 AM)

Start Time	Casey Avenue Eastbound						Ride Sharing Parking Lot Westbound						Wilkes-Barre Township Blvd (SR 6309) Northbound						Wilkes-Barre Township Blvd (SR 6309) Southbound						Int. Total
	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	
9:00 AM	40	0	0	2	0	42	0	0	0	0	0	0	1	153	0	0	0	154	0	98	8	4	0	110	306
9:15 AM	46	0	0	0	0	46	0	0	0	0	0	0	1	138	0	0	0	139	0	99	10	2	0	111	296
9:30 AM	57	0	1	0	0	58	0	0	0	0	0	0	2	172	0	0	0	174	0	109	8	5	0	122	354
9:45 AM	40	0	1	2	0	43	0	0	0	0	0	0	2	158	0	0	0	160	0	128	17	4	0	149	352
Total	183	0	2	4	0	189	0	0	0	0	0	0	6	621	0	0	0	627	0	434	43	15	0	492	1308
Approach %	96.8	0.0	1.1	2.1	-	-	0.0	0.0	0.0	0.0	-	-	1.0	99.0	0.0	0.0	-	-	0.0	88.2	8.7	3.0	-	-	-
Total %	14.0	0.0	0.2	0.3	-	14.4	0.0	0.0	0.0	0.0	-	0.0	0.5	47.5	0.0	0.0	-	47.9	0.0	33.2	3.3	1.1	-	37.6	-
PHF	0.803	0.000	0.500	0.500	-	0.815	0.000	0.000	0.000	0.000	-	0.000	0.750	0.903	0.000	0.000	-	0.901	0.000	0.848	0.632	0.750	-	0.826	0.924
Lights	180	0	2	4	-	186	0	0	0	0	-	0	5	601	0	0	-	606	0	411	42	15	-	468	1260
% Lights	98.4	-	100.0	100.0	-	98.4	-	-	-	-	-	-	83.3	96.8	-	-	-	96.7	-	94.7	97.7	100.0	-	95.1	96.3
Other Vehicles	3	0	0	0	-	3	0	0	0	0	-	0	1	20	0	0	-	21	0	23	1	0	-	24	48
% Other Vehicles	1.6	-	0.0	0.0	-	1.6	-	-	-	-	-	-	16.7	3.2	-	-	-	3.3	-	5.3	2.3	0.0	-	4.9	3.7
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Traffic Planning and Design, Inc
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610.326.3100

Counter: MIO:
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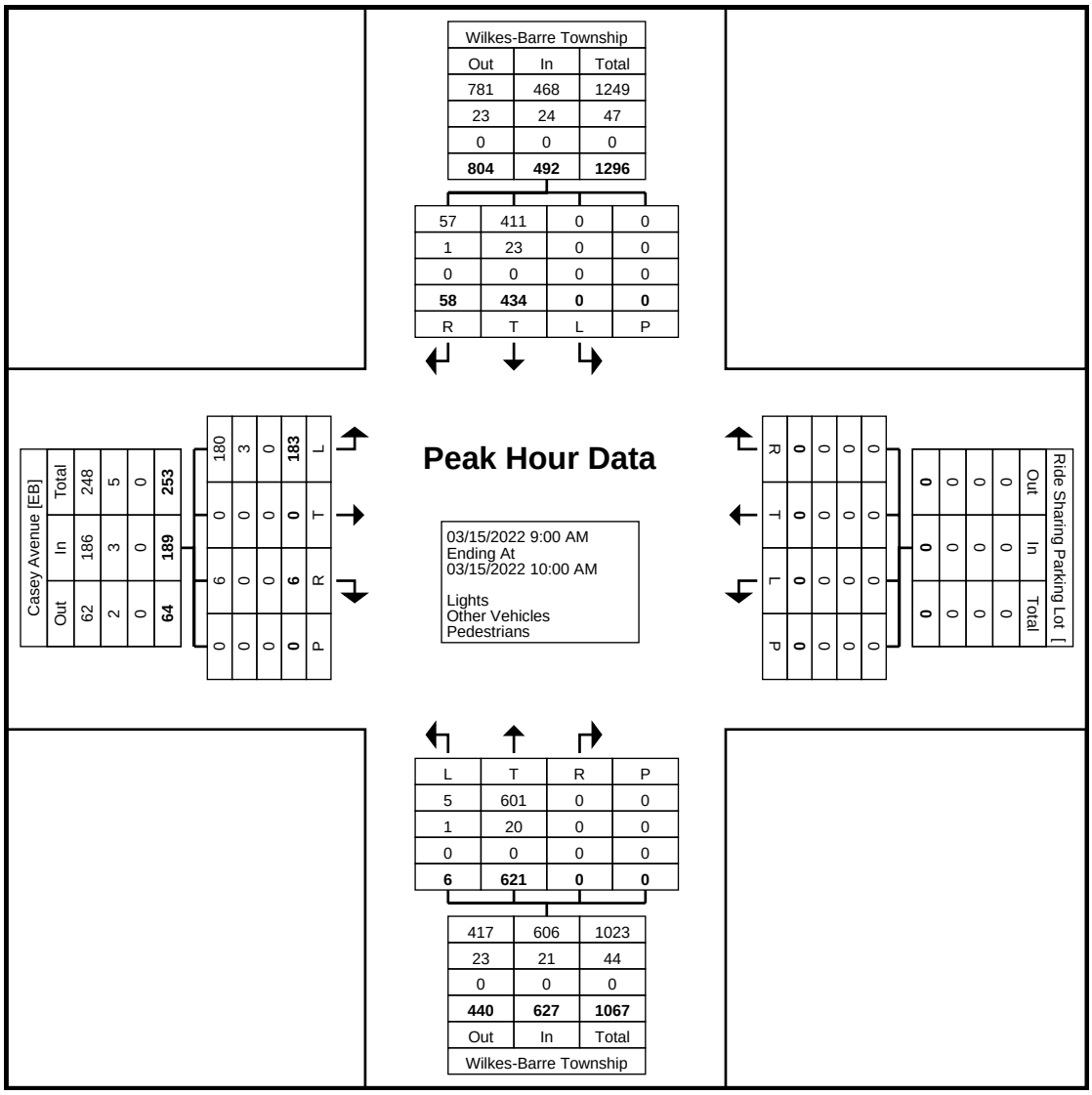
Count Name: Casey Avenue & Wilkes-Barre Township Blvd
Site Code:
Start Date: 03/15/2022



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

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Counter: MIO:
Set up By JH::

Count Name: Casey Avenue & Wilkes-Barre Township Blvd
Site Code:
Start Date: 03/15/2022

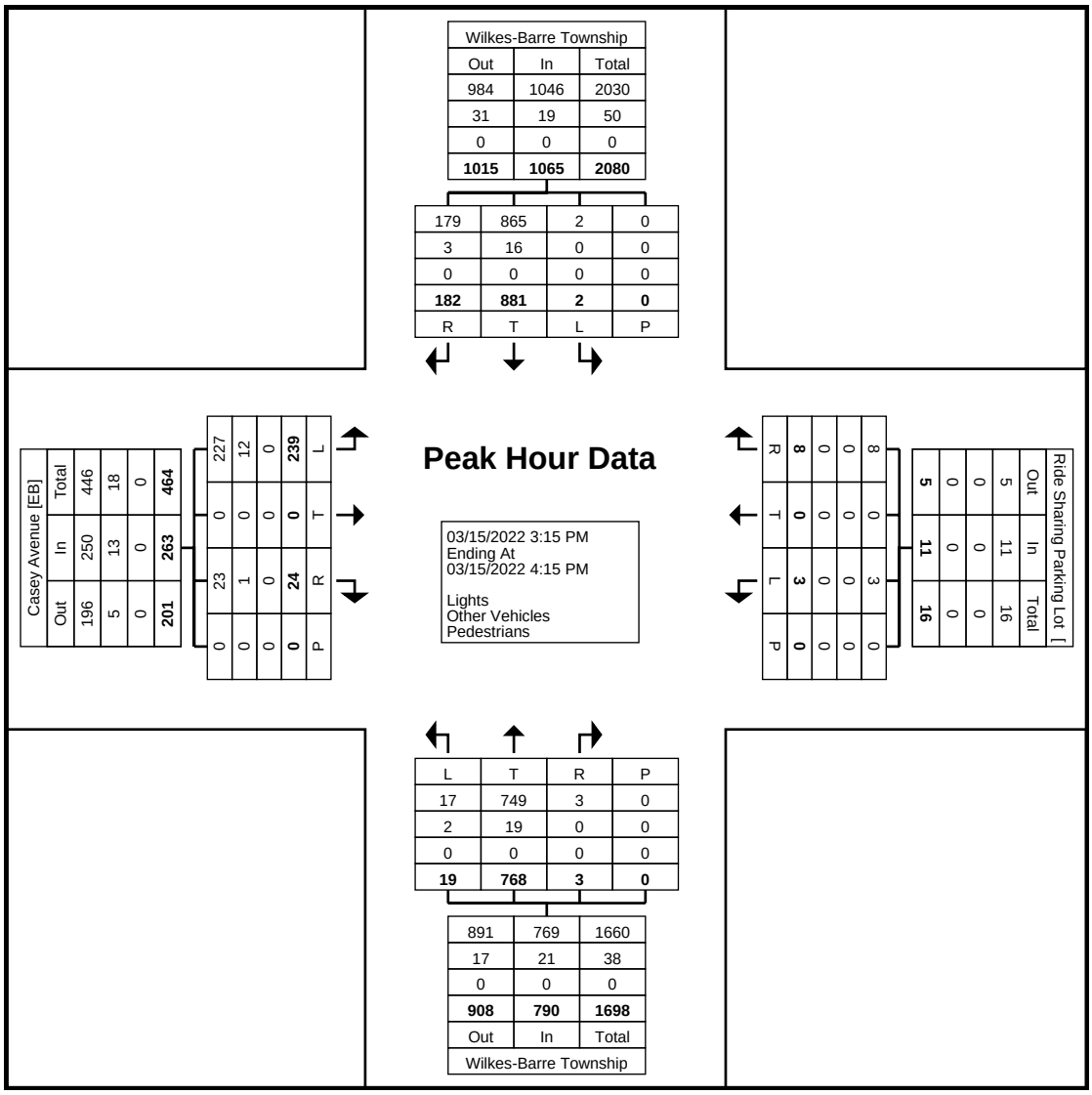
Turning Movement Peak Hour Data (3:15 PM)

Start Time	Casey Avenue Eastbound						Ride Sharing Parking Lot Westbound						Wilkes-Barre Township Blvd (SR 6309) Northbound						Wilkes-Barre Township Blvd (SR 6309) Southbound						Int. Total
	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	
3:15 PM	58	0	1	0	0	59	0	0	0	0	0	0	7	197	0	0	0	204	0	211	31	5	0	247	510
3:30 PM	54	0	4	0	0	58	0	0	1	0	0	1	5	197	1	0	0	203	1	216	48	8	0	273	535
3:45 PM	69	0	7	0	0	76	3	0	3	2	0	8	4	192	2	0	0	198	1	219	31	9	0	260	542
4:00 PM	58	0	11	1	0	70	0	0	1	1	0	2	3	182	0	0	0	185	0	235	40	10	0	285	542
Total	239	0	23	1	0	263	3	0	5	3	0	11	19	768	3	0	0	790	2	881	150	32	0	1065	2129
Approach %	90.9	0.0	8.7	0.4	-	-	27.3	0.0	45.5	27.3	-	-	2.4	97.2	0.4	0.0	-	-	0.2	82.7	14.1	3.0	-	-	-
Total %	11.2	0.0	1.1	0.0	-	12.4	0.1	0.0	0.2	0.1	-	0.5	0.9	36.1	0.1	0.0	-	37.1	0.1	41.4	7.0	1.5	-	50.0	-
PHF	0.866	0.000	0.523	0.250	-	0.865	0.250	0.000	0.417	0.375	-	0.344	0.679	0.975	0.375	0.000	-	0.968	0.500	0.937	0.781	0.800	-	0.934	0.982
Lights	227	0	22	1	-	250	3	0	5	3	-	11	17	749	3	0	-	769	2	865	147	32	-	1046	2076
% Lights	95.0	-	95.7	100.0	-	95.1	100.0	-	100.0	100.0	-	100.0	89.5	97.5	100.0	-	-	97.3	100.0	98.2	98.0	100.0	-	98.2	97.5
Other Vehicles	12	0	1	0	-	13	0	0	0	0	-	0	2	19	0	0	-	21	0	16	3	0	-	19	53
% Other Vehicles	5.0	-	4.3	0.0	-	4.9	0.0	-	0.0	0.0	-	0.0	10.5	2.5	0.0	-	-	2.7	0.0	1.8	2.0	0.0	-	1.8	2.5
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Counter: MIO:
Set up By JH::

Count Name: Casey Avenue & Wilkes-Barre Township Blvd
Site Code:
Start Date: 03/15/2022



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

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Counter: MIO:
Set up By JH::

Count Name: Sheetz/Shopping Center Driveways & Wilkes-Barre Township Blvd (SR 6309)
Site Code:
Start Date: 03/15/2022

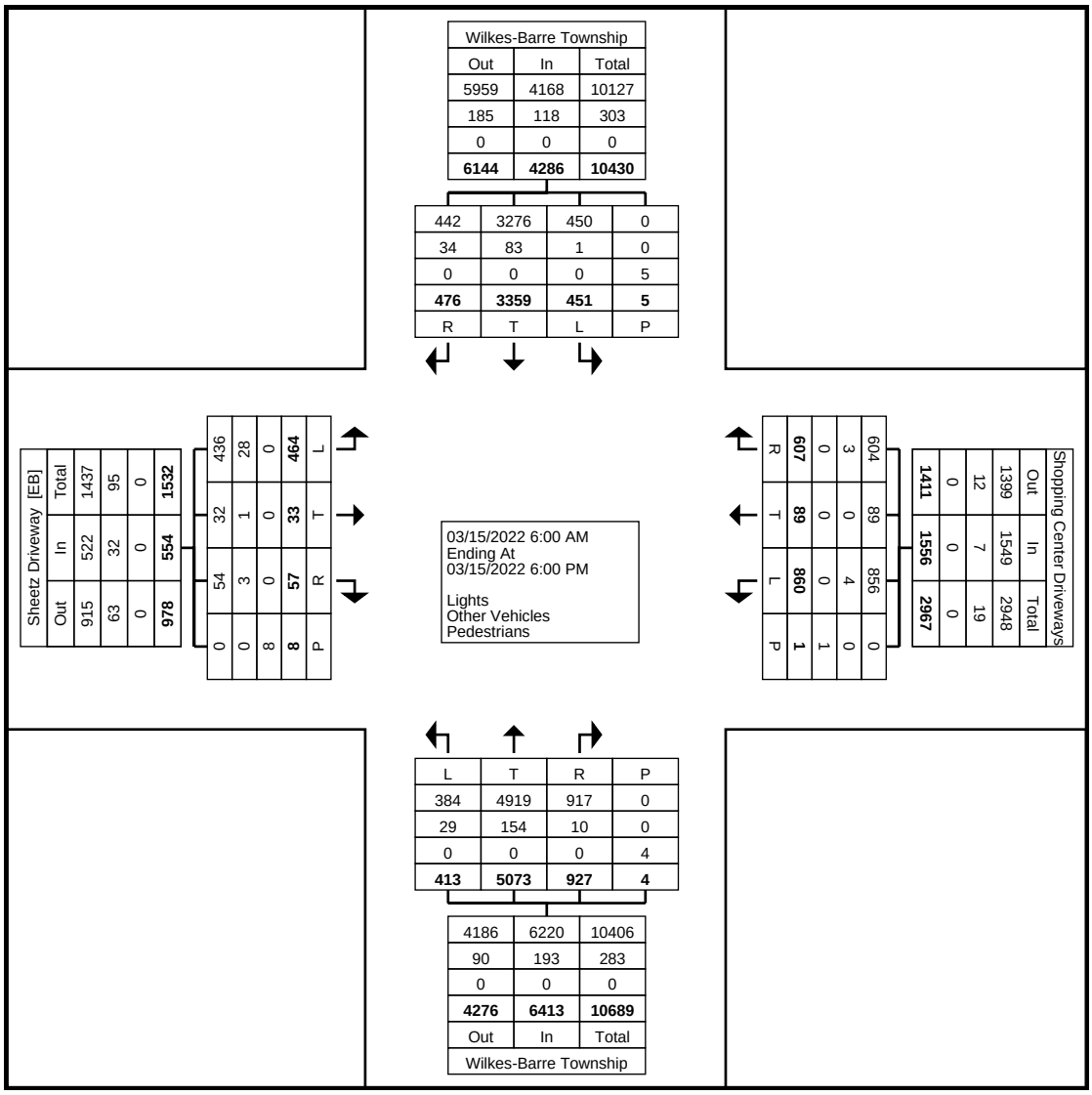
Turning Movement Data

Start Time	Sheetz Driveway Eastbound						Shopping Center Driveways Westbound						Wilkes-Barre Township Blvd (SR 6309) Northbound						Wilkes-Barre Township Blvd (SR 6309) Southbound						Int. Total
	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	
6:00 AM	14	0	0	1	0	15	6	0	0	1	0	7	13	68	5	7	0	93	3	21	8	3	0	35	150
6:15 AM	8	0	0	0	0	8	8	0	0	1	0	9	8	113	5	4	0	130	5	38	5	2	0	50	197
6:30 AM	12	1	0	1	0	14	8	0	2	4	0	14	11	115	11	3	0	140	1	47	9	1	0	58	226
6:45 AM	16	0	0	0	0	16	7	2	1	9	0	19	14	163	11	7	0	195	1	54	17	4	0	76	306
Hourly Total	50	1	0	2	0	53	29	2	3	15	0	49	46	459	32	21	0	558	10	160	39	10	0	219	879
7:00 AM	10	0	2	1	0	13	8	1	3	1	0	13	14	109	8	6	0	137	6	63	8	2	0	79	242
7:15 AM	22	0	0	0	0	22	9	2	8	2	0	21	23	163	16	11	1	213	5	50	9	1	0	65	321
7:30 AM	23	2	0	0	0	25	10	1	0	5	0	16	21	186	15	8	0	230	5	62	11	4	0	82	353
7:45 AM	23	1	0	1	1	25	8	3	7	6	0	24	14	208	13	7	1	242	7	73	12	1	1	93	384
Hourly Total	78	3	2	2	1	85	35	7	18	14	0	74	72	666	52	32	2	822	23	248	40	8	1	319	1300
8:00 AM	9	1	1	1	1	12	15	0	3	4	0	22	10	194	18	10	0	232	7	72	9	1	0	89	355
8:15 AM	10	3	0	4	0	17	18	0	9	11	1	38	14	187	19	8	0	228	9	83	14	4	0	110	393
8:30 AM	23	0	0	2	0	25	17	0	6	5	0	28	16	207	25	9	0	257	12	74	16	2	1	104	414
8:45 AM	12	1	0	1	0	14	19	1	8	18	0	46	14	209	22	12	0	257	16	91	9	1	1	117	434
Hourly Total	54	5	1	8	1	68	69	1	26	38	1	134	54	797	84	39	0	974	44	320	48	8	2	420	1596
9:00 AM	20	1	3	0	0	24	17	1	9	10	0	37	18	156	9	16	0	199	19	84	13	1	0	117	377
9:15 AM	14	0	1	0	0	15	12	0	6	10	0	28	12	166	8	17	0	203	9	81	15	2	0	107	353
9:30 AM	17	0	0	3	0	20	19	0	13	7	0	39	19	192	15	14	0	240	10	105	9	5	0	129	428
9:45 AM	15	1	1	0	0	17	18	1	10	8	0	37	11	178	16	17	0	222	21	112	10	2	0	145	421
Hourly Total	66	2	5	3	0	76	66	2	38	35	0	141	60	692	48	64	0	864	59	382	47	10	0	498	1579
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	19	1	1	3	0	24	50	2	33	8	0	93	18	186	26	21	0	251	20	183	18	4	0	225	593
3:15 PM	19	2	3	1	1	25	43	4	16	12	0	75	13	230	17	17	0	277	23	180	17	6	0	226	603
3:30 PM	20	4	3	1	1	28	50	5	29	6	0	90	19	212	17	22	0	270	24	204	23	2	0	253	641
3:45 PM	18	0	4	1	0	23	51	6	26	11	0	94	10	221	25	24	0	280	21	177	20	4	0	222	619
Hourly Total	76	7	11	6	2	100	194	17	104	37	0	352	60	849	85	84	0	1078	88	744	78	16	0	926	2456
4:00 PM	20	0	3	0	0	23	56	2	18	11	0	87	18	214	27	18	2	277	34	199	21	3	0	257	644
4:15 PM	12	1	1	0	0	14	52	5	26	8	0	91	6	222	28	17	0	273	16	185	17	7	1	225	603
4:30 PM	8	0	0	2	0	10	61	6	17	12	0	96	10	206	39	16	0	271	33	185	21	1	0	240	617
4:45 PM	17	2	3	0	0	22	54	11	27	14	0	106	16	201	31	15	0	263	28	211	16	6	0	261	652
Hourly Total	57	3	7	2	0	69	223	24	88	45	0	380	50	843	125	66	2	1084	111	780	75	17	1	983	2516
5:00 PM	23	5	0	0	0	28	62	7	40	4	0	113	13	212	39	24	0	288	31	188	19	2	0	240	669
5:15 PM	21	3	0	0	0	24	52	14	24	6	0	96	22	203	26	17	0	268	31	186	18	2	1	237	625
5:30 PM	24	1	3	1	0	29	64	8	28	5	0	105	20	174	33	22	0	249	30	180	14	4	0	228	611
5:45 PM	15	3	2	2	4	22	66	7	34	5	0	112	16	178	17	17	0	228	24	171	15	6	0	216	578
Hourly Total	83	12	5	3	4	103	244	36	126	20	0	426	71	767	115	80	0	1033	116	725	66	14	1	921	2483
Grand Total	464	33	31	26	8	554	860	89	403	204	1	1556	413	5073	541	386	4	6413	451	3359	393	83	5	4286	12809
Approach %	83.8	6.0	5.6	4.7	-	-	55.3	5.7	25.9	13.1	-	-	6.4	79.1	8.4	6.0	-	-	10.5	78.4	9.2	1.9	-	-	-
Total %	3.6	0.3	0.2	0.2	-	4.3	6.7	0.7	3.1	1.6	-	12.1	3.2	39.6	4.2	3.0	-	50.1	3.5	26.2	3.1	0.6	-	33.5	-
Lights	436	32	31	23	-	522	856	89	401	203	-	1549	384	4919	534	383	-	6220	450	3276	364	78	-	4168	12459
% Lights	94.0	97.0	100.0	88.5	-	94.2	99.5	100.0	99.5	99.5	-	99.6	93.0	97.0	98.7	99.2	-	97.0	99.8	97.5	92.6	94.0	-	97.2	97.3
Other Vehicles	28	1	0	3	-	32	4	0	2	1	-	7	29	154	7	3	-	193	1	83	29	5	-	118	350
% Other Vehicles	6.0	3.0	0.0	11.5	-	5.8	0.5	0.0	0.5	0.5	-	0.4	7.0	3.0	1.3	0.8	-	3.0	0.2	2.5	7.4	6.0	-	2.8	2.7
Pedestrians	-	-	-	-	8	-	-	-	-	-	1	-	-	-	-	-	4	-	-	-	-	-	5	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Counter: MIO:
Set up By JH::

Count Name: Sheetz/Shopping Center Driveways & Wilkes-Barre Township Blvd (SR 6309)
Site Code:
Start Date: 03/15/2022



Turning Movement Data Plot

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
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610.326.3100

Counter: MIO:
Set up By JH::

Count Name: Sheetz/Shopping Center Driveways & Wilkes-Barre Township Blvd (SR 6309)
Site Code:
Start Date: 03/15/2022

Turning Movement Peak Hour Data (8:00 AM)

Start Time	Sheetz Driveway Eastbound						Shopping Center Driveways Westbound						Wilkes-Barre Township Blvd (SR 6309) Northbound						Wilkes-Barre Township Blvd (SR 6309) Southbound						Int. Total
	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	
8:00 AM	9	1	1	1	1	12	15	0	3	4	0	22	10	194	18	10	0	232	7	72	9	1	0	89	355
8:15 AM	10	3	0	4	0	17	18	0	9	11	1	38	14	187	19	8	0	228	9	83	14	4	0	110	393
8:30 AM	23	0	0	2	0	25	17	0	6	5	0	28	16	207	25	9	0	257	12	74	16	2	1	104	414
8:45 AM	12	1	0	1	0	14	19	1	8	18	0	46	14	209	22	12	0	257	16	91	9	1	1	117	434
Total	54	5	1	8	1	68	69	1	26	38	1	134	54	797	84	39	0	974	44	320	48	8	2	420	1596
Approach %	79.4	7.4	1.5	11.8	-	-	51.5	0.7	19.4	28.4	-	-	5.5	81.8	8.6	4.0	-	-	10.5	76.2	11.4	1.9	-	-	-
Total %	3.4	0.3	0.1	0.5	-	4.3	4.3	0.1	1.6	2.4	-	8.4	3.4	49.9	5.3	2.4	-	61.0	2.8	20.1	3.0	0.5	-	26.3	-
PHF	0.587	0.417	0.250	0.500	-	0.680	0.908	0.250	0.722	0.528	-	0.728	0.844	0.953	0.840	0.813	-	0.947	0.688	0.879	0.750	0.500	-	0.897	0.919
Lights	47	5	1	6	-	59	69	1	26	38	-	134	49	765	83	39	-	936	44	299	38	7	-	388	1517
% Lights	87.0	100.0	100.0	75.0	-	86.8	100.0	100.0	100.0	100.0	-	100.0	90.7	96.0	98.8	100.0	-	96.1	100.0	93.4	79.2	87.5	-	92.4	95.1
Other Vehicles	7	0	0	2	-	9	0	0	0	0	-	0	5	32	1	0	-	38	0	21	10	1	-	32	79
% Other Vehicles	13.0	0.0	0.0	25.0	-	13.2	0.0	0.0	0.0	0.0	-	0.0	9.3	4.0	1.2	0.0	-	3.9	0.0	6.6	20.8	12.5	-	7.6	4.9
Pedestrians	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	2	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-

Traffic Planning and Design, Inc
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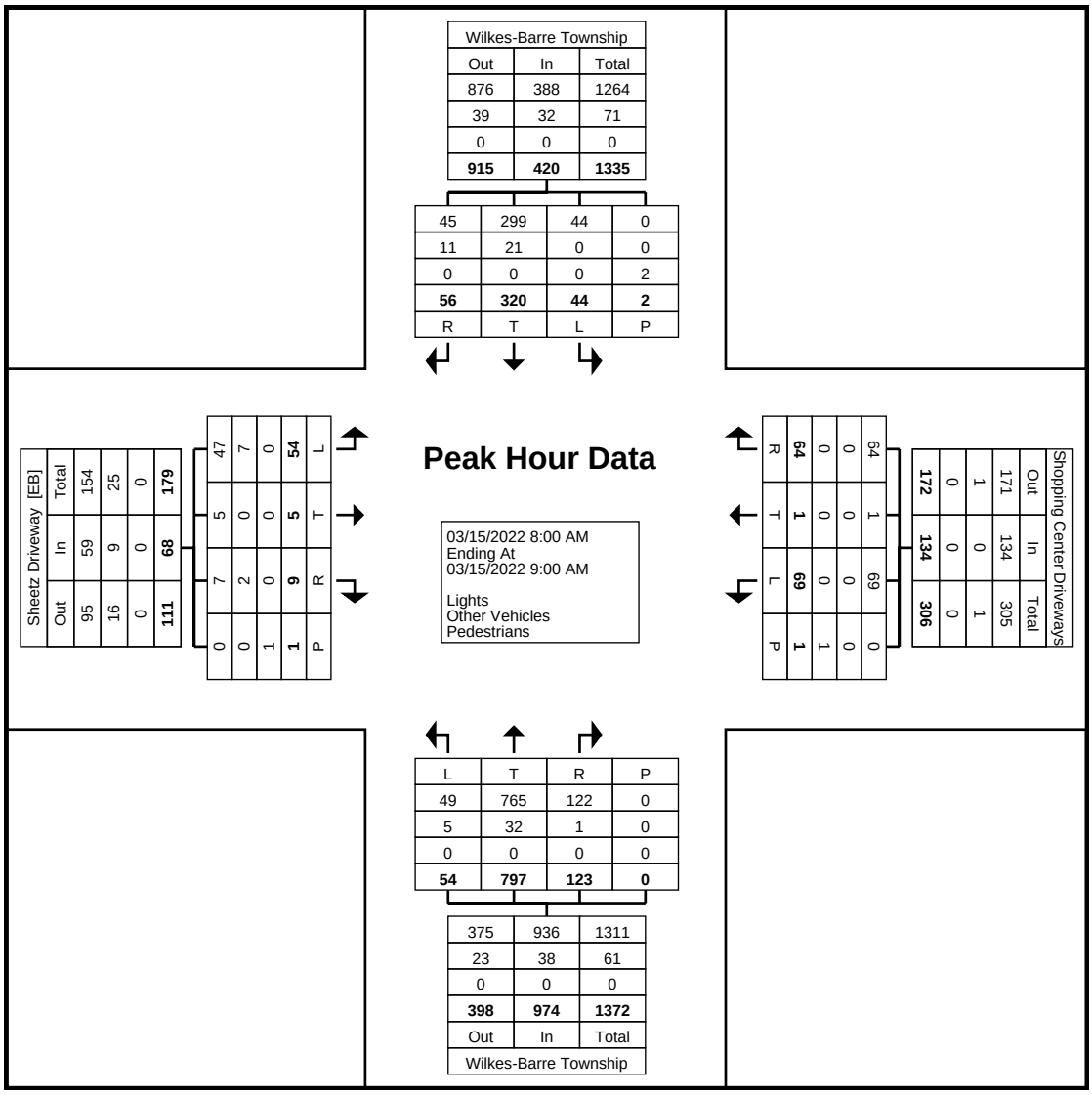
Count Name: Sheetz/Shopping Center Driveways & Wilkes-Barre Township Blvd (SR 6309)
Site Code:
Start Date: 03/15/2022



Turning Movement Peak Hour Data Plot (8:00 AM)

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Counter: MIO:
Set up By JH::

Count Name: Sheetz/Shopping Center Driveways & Wilkes-Barre Township Blvd (SR 6309)
Site Code:
Start Date: 03/15/2022

Turning Movement Peak Hour Data (9:00 AM)

Start Time	Sheetz Driveway Eastbound						Shopping Center Driveways Westbound						Wilkes-Barre Township Blvd (SR 6309) Northbound						Wilkes-Barre Township Blvd (SR 6309) Southbound						Int. Total
	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	
9:00 AM	20	1	3	0	0	24	17	1	9	10	0	37	18	156	9	16	0	199	19	84	13	1	0	117	377
9:15 AM	14	0	1	0	0	15	12	0	6	10	0	28	12	166	8	17	0	203	9	81	15	2	0	107	353
9:30 AM	17	0	0	3	0	20	19	0	13	7	0	39	19	192	15	14	0	240	10	105	9	5	0	129	428
9:45 AM	15	1	1	0	0	17	18	1	10	8	0	37	11	178	16	17	0	222	21	112	10	2	0	145	421
Total	66	2	5	3	0	76	66	2	38	35	0	141	60	692	48	64	0	864	59	382	47	10	0	498	1579
Approach %	86.8	2.6	6.6	3.9	-	-	46.8	1.4	27.0	24.8	-	-	6.9	80.1	5.6	7.4	-	-	11.8	76.7	9.4	2.0	-	-	-
Total %	4.2	0.1	0.3	0.2	-	4.8	4.2	0.1	2.4	2.2	-	8.9	3.8	43.8	3.0	4.1	-	54.7	3.7	24.2	3.0	0.6	-	31.5	-
PHF	0.825	0.500	0.417	0.250	-	0.792	0.868	0.500	0.731	0.875	-	0.904	0.789	0.901	0.750	0.941	-	0.900	0.702	0.853	0.783	0.500	-	0.859	0.922
Lights	61	2	5	3	-	71	66	2	38	34	-	140	57	656	48	62	-	823	59	366	43	10	-	478	1512
% Lights	92.4	100.0	100.0	100.0	-	93.4	100.0	100.0	100.0	97.1	-	99.3	95.0	94.8	100.0	96.9	-	95.3	100.0	95.8	91.5	100.0	-	96.0	95.8
Other Vehicles	5	0	0	0	-	5	0	0	0	1	-	1	3	36	0	2	-	41	0	16	4	0	-	20	67
% Other Vehicles	7.6	0.0	0.0	0.0	-	6.6	0.0	0.0	0.0	2.9	-	0.7	5.0	5.2	0.0	3.1	-	4.7	0.0	4.2	8.5	0.0	-	4.0	4.2
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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Counter: MIO:
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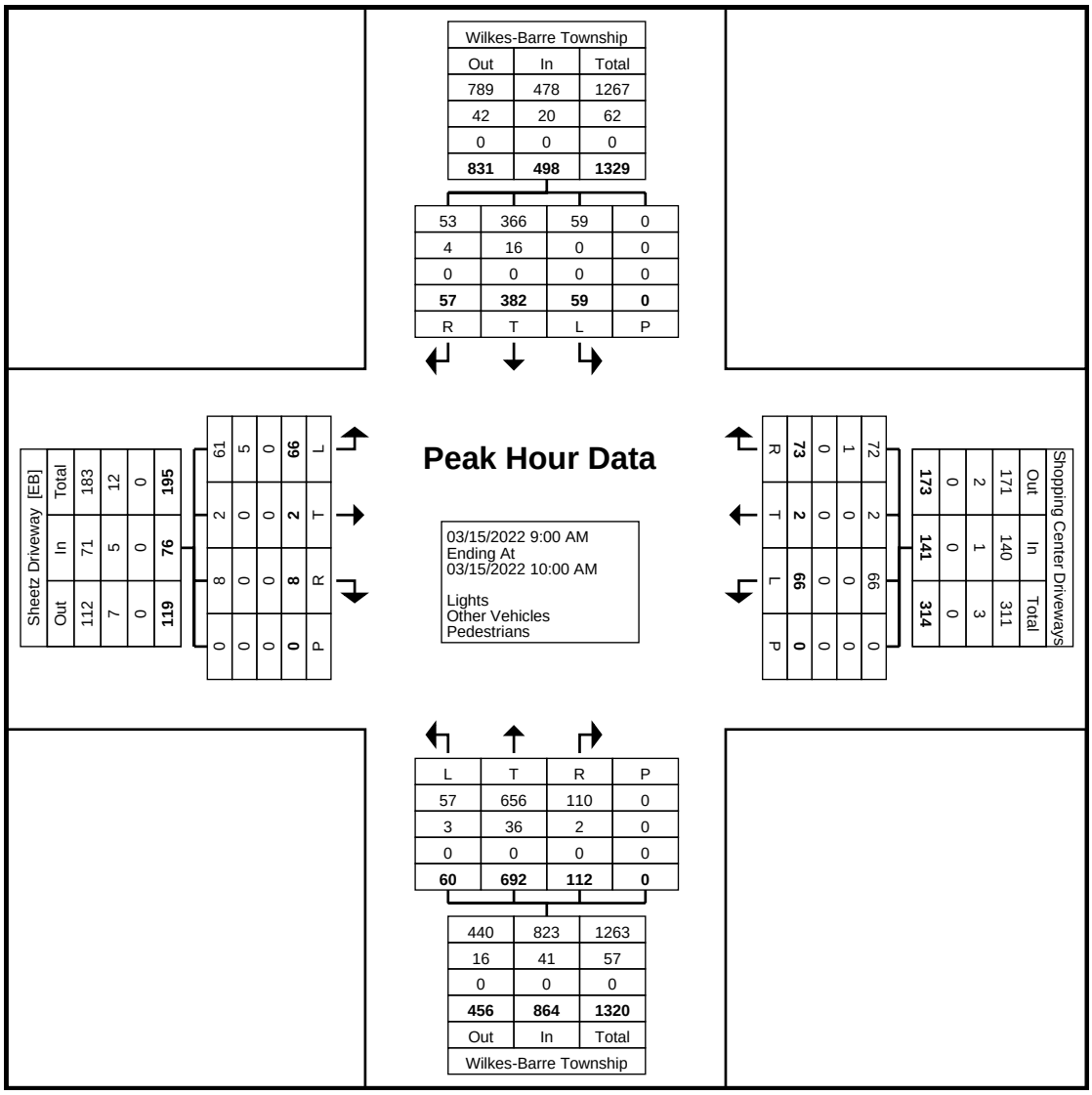
Count Name: Sheetz/Shopping Center Driveways & Wilkes-Barre Township Blvd (SR 6309)
Site Code:
Start Date: 03/15/2022



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

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
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Counter: MIO:
Set up By JH::

Count Name: Sheetz/Shopping Center Driveways & Wilkes-Barre Township Blvd (SR 6309)
Site Code:
Start Date: 03/15/2022

Turning Movement Peak Hour Data (4:30 PM)

Start Time	Sheetz Driveway Eastbound						Shopping Center Driveways Westbound						Wilkes-Barre Township Blvd (SR 6309) Northbound						Wilkes-Barre Township Blvd (SR 6309) Southbound						Int. Total
	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	
4:30 PM	8	0	0	2	0	10	61	6	17	12	0	96	10	206	39	16	0	271	33	185	21	1	0	240	617
4:45 PM	17	2	3	0	0	22	54	11	27	14	0	106	16	201	31	15	0	263	28	211	16	6	0	261	652
5:00 PM	23	5	0	0	0	28	62	7	40	4	0	113	13	212	39	24	0	288	31	188	19	2	0	240	669
5:15 PM	21	3	0	0	0	24	52	14	24	6	0	96	22	203	26	17	0	268	31	186	18	2	1	237	625
Total	69	10	3	2	0	84	229	38	108	36	0	411	61	822	135	72	0	1090	123	770	74	11	1	978	2563
Approach %	82.1	11.9	3.6	2.4	-	-	55.7	9.2	26.3	8.8	-	-	5.6	75.4	12.4	6.6	-	-	12.6	78.7	7.6	1.1	-	-	-
Total %	2.7	0.4	0.1	0.1	-	3.3	8.9	1.5	4.2	1.4	-	16.0	2.4	32.1	5.3	2.8	-	42.5	4.8	30.0	2.9	0.4	-	38.2	-
PHF	0.750	0.500	0.250	0.250	-	0.750	0.923	0.679	0.675	0.643	-	0.909	0.693	0.969	0.865	0.750	-	0.946	0.932	0.912	0.881	0.458	-	0.937	0.958
Lights	69	10	3	2	-	84	229	38	108	36	-	411	60	813	134	71	-	1078	122	761	72	11	-	966	2539
% Lights	100.0	100.0	100.0	100.0	-	100.0	100.0	100.0	100.0	100.0	-	100.0	98.4	98.9	99.3	98.6	-	98.9	99.2	98.8	97.3	100.0	-	98.8	99.1
Other Vehicles	0	0	0	0	-	0	0	0	0	0	-	0	1	9	1	1	-	12	1	9	2	0	-	12	24
% Other Vehicles	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	-	0.0	1.6	1.1	0.7	1.4	-	1.1	0.8	1.2	2.7	0.0	-	1.2	0.9
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-

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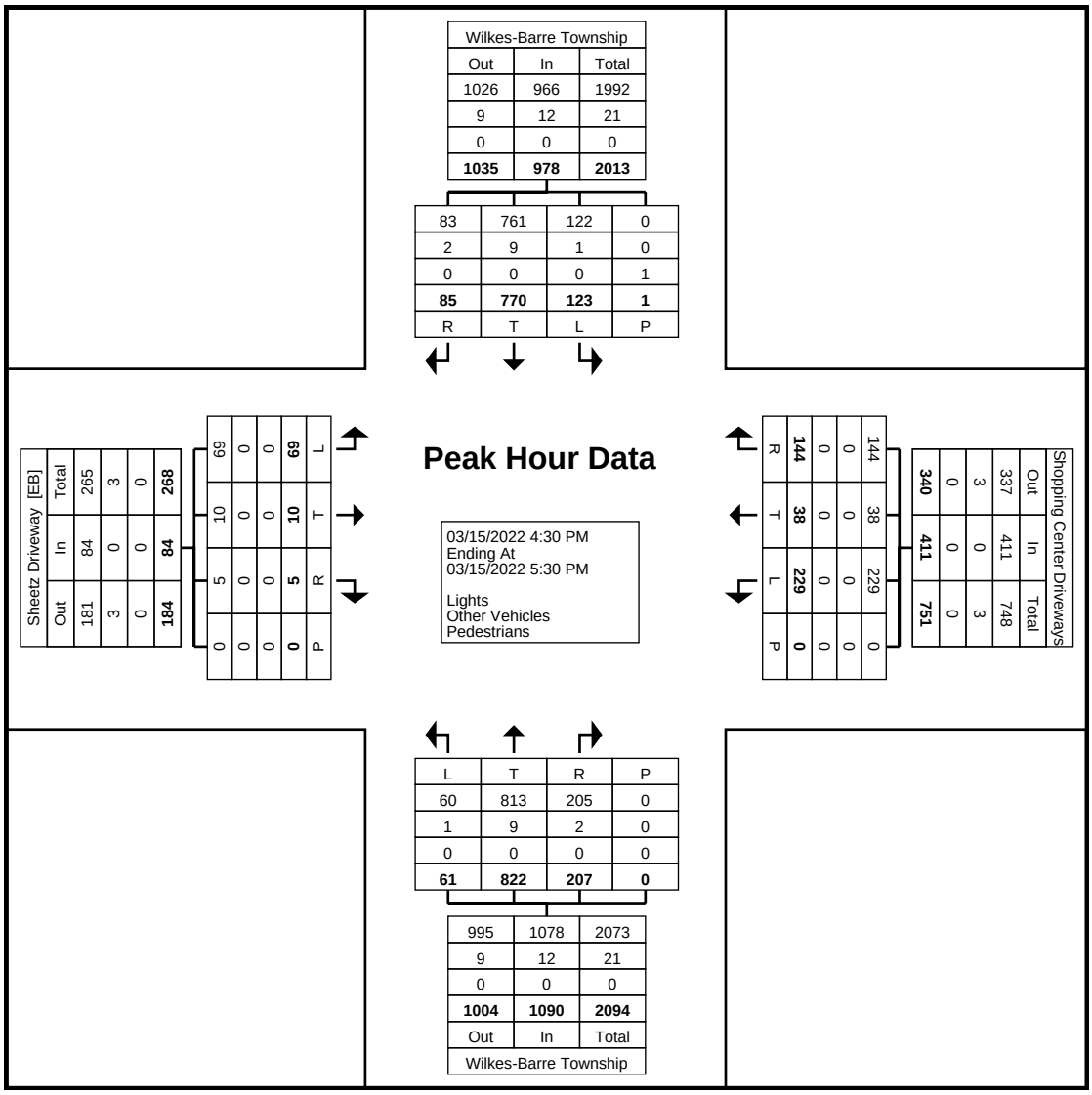
Count Name: Sheetz/Shopping Center Driveways & Wilkes-Barre Township Blvd (SR 6309)
Site Code:
Start Date: 03/15/2022



Turning Movement Peak Hour Data Plot (4:30 PM)

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Counter: MIO:
Set up By JH::

Count Name: Coal Street- Highland Park Blvd & WB TWP Blvd
Site Code:
Start Date: 03/15/2022

Turning Movement Data

Start Time	Coal Street Eastbound						Highland Park Boulevard Westbound						Wilkes-Barre Township Blvd (SR 6309) Northbound						Wilkes-Barre Township Blvd (SR 6309) Southbound						Int. Total
	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	
6:00 AM	2	22	6	9	0	39	13	9	0	0	0	22	25	19	30	11	0	85	1	8	0	0	1	9	155
6:15 AM	6	18	4	13	0	41	17	11	1	3	0	32	24	26	55	15	0	120	2	14	2	0	0	18	211
6:30 AM	5	41	9	18	0	73	18	15	0	5	0	38	27	30	51	13	0	121	5	14	4	1	1	24	256
6:45 AM	7	49	13	14	0	83	24	23	0	2	0	49	54	52	59	15	0	180	6	25	1	0	0	32	344
Hourly Total	20	130	32	54	0	236	72	58	1	10	0	141	130	127	195	54	0	506	14	61	7	1	2	83	966
7:00 AM	4	40	8	21	0	73	25	20	3	5	0	53	37	37	33	12	0	119	3	21	4	0	0	28	273
7:15 AM	7	34	7	9	0	57	18	33	1	3	0	55	62	63	57	17	0	199	3	28	2	0	0	33	344
7:30 AM	8	41	18	8	0	75	16	26	4	1	0	47	81	48	51	32	0	212	5	38	8	6	0	57	391
7:45 AM	18	51	16	18	0	103	20	26	2	3	0	51	101	64	64	19	0	248	7	35	5	1	0	48	450
Hourly Total	37	166	49	56	0	308	79	105	10	12	0	206	281	212	205	80	0	778	18	122	19	7	0	166	1458
8:00 AM	4	42	12	13	0	71	29	29	2	3	0	63	92	57	47	12	0	208	4	35	4	2	0	45	387
8:15 AM	12	57	21	17	0	107	28	34	2	9	1	73	98	60	45	16	0	219	9	34	10	0	0	53	452
8:30 AM	17	49	13	16	0	95	27	60	4	11	0	102	109	68	45	16	0	238	6	43	4	1	0	54	489
8:45 AM	34	83	20	14	1	151	31	48	3	10	0	92	78	87	72	14	0	251	6	48	12	2	0	68	562
Hourly Total	67	231	66	60	1	424	115	171	11	33	1	330	377	272	209	58	0	916	25	160	30	5	0	220	1890
9:00 AM	17	61	21	10	0	109	23	47	3	12	0	85	60	68	54	16	0	198	14	57	12	2	0	85	477
9:15 AM	20	63	15	13	0	111	17	34	4	7	0	62	59	62	60	18	2	199	14	60	11	1	3	86	458
9:30 AM	20	77	19	6	0	122	34	49	2	9	0	94	66	79	68	24	0	237	17	63	11	0	0	91	544
9:45 AM	22	90	19	11	0	142	35	41	5	6	0	87	49	74	65	20	1	208	11	72	12	1	1	96	533
Hourly Total	79	291	74	40	0	484	109	171	14	34	0	328	234	283	247	78	3	842	56	252	46	4	4	358	2012
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	31	123	29	12	0	195	75	102	9	15	0	201	73	89	37	45	0	244	23	98	15	1	0	137	777
3:15 PM	25	121	22	10	1	178	73	112	6	16	0	207	60	97	73	48	0	278	16	108	17	6	7	147	810
3:30 PM	33	123	37	20	1	213	77	138	6	8	0	229	74	97	48	51	0	270	24	108	30	3	2	165	877
3:45 PM	52	111	24	7	0	194	78	91	10	16	0	195	59	92	65	53	2	269	31	97	20	8	0	156	814
Hourly Total	141	478	112	49	2	780	303	443	31	55	0	832	266	375	223	197	2	1061	94	411	82	18	9	605	3278
4:00 PM	23	148	55	21	1	247	54	126	7	11	0	198	67	83	73	43	1	266	21	104	23	5	4	153	864
4:15 PM	28	108	39	25	0	200	51	113	5	15	0	184	75	95	64	42	0	276	23	94	28	3	2	148	808
4:30 PM	35	138	48	14	0	235	62	138	10	12	0	222	61	73	55	42	2	231	20	100	31	5	3	156	844
4:45 PM	24	122	44	22	0	212	58	110	4	13	0	185	64	84	60	45	1	253	21	133	28	2	0	184	834
Hourly Total	110	516	186	82	1	894	225	487	26	51	0	789	267	335	252	172	4	1026	85	431	110	15	9	641	3350
5:00 PM	30	147	54	19	0	250	62	155	13	8	1	238	75	74	63	55	0	267	19	74	21	4	2	118	873
5:15 PM	29	95	39	25	0	188	52	102	13	16	0	183	65	89	50	65	3	269	15	113	29	2	1	159	799
5:30 PM	20	135	45	11	2	211	65	109	12	15	0	201	51	65	49	56	0	221	24	97	21	2	6	144	777
5:45 PM	28	97	34	7	0	166	62	96	5	11	0	174	61	80	54	46	0	241	22	95	16	3	1	136	717
Hourly Total	107	474	172	62	2	815	241	462	43	50	1	796	252	308	216	222	3	998	80	379	87	11	10	557	3166
Grand Total	561	2286	691	403	6	3941	1144	1897	136	245	2	3422	1807	1912	1547	861	12	6127	372	1816	381	61	34	2630	16120
Approach %	14.2	58.0	17.5	10.2	-	-	33.4	55.4	4.0	7.2	-	-	29.5	31.2	25.2	14.1	-	-	14.1	69.0	14.5	2.3	-	-	-
Total %	3.5	14.2	4.3	2.5	-	24.4	7.1	11.8	0.8	1.5	-	21.2	11.2	11.9	9.6	5.3	-	38.0	2.3	11.3	2.4	0.4	-	16.3	-
Lights	552	2229	675	395	-	3851	1112	1860	130	237	-	3339	1760	1859	1492	833	-	5944	364	1763	360	57	-	2544	15678
% Lights	98.4	97.5	97.7	98.0	-	97.7	97.2	98.0	95.6	96.7	-	97.6	97.4	97.2	96.4	96.7	-	97.0	97.8	97.1	94.5	93.4	-	96.7	97.3
Other Vehicles	9	57	16	8	-	90	32	37	6	8	-	83	47	53	55	28	-	183	8	53	21	4	-	86	442
% Other Vehicles	1.6	2.5	2.3	2.0	-	2.3	2.8	2.0	4.4	3.3	-	2.4	2.6	2.8	3.6	3.3	-	3.0	2.2	2.9	5.5	6.6	-	3.3	2.7
Pedestrians	-	-	-	-	6	-	-	-	-	-	2	-	-	-	-	-	12	-	-	-	-	-	34	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-

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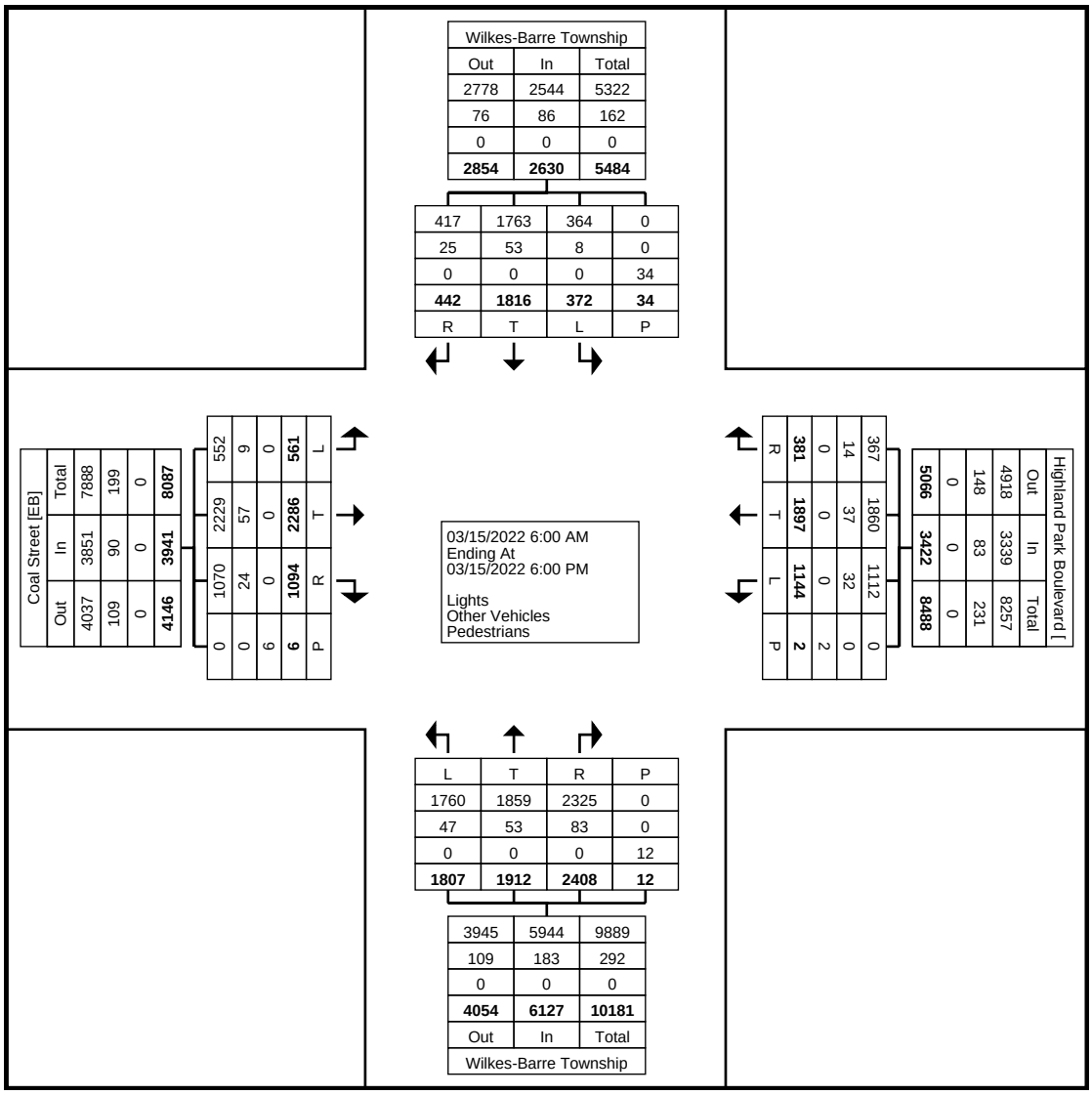
Site Code:
Start Date: 03/15/2022



Turning Movement Data Plot

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Counter: MIO:
Set up By JH::

Count Name: Coal Street- Highland Park Blvd & WB TWP Blvd
Site Code:
Start Date: 03/15/2022

Turning Movement Peak Hour Data (8:00 AM)

Start Time	Coal Street Eastbound						Highland Park Boulevard Westbound						Wilkes-Barre Township Blvd (SR 6309) Northbound						Wilkes-Barre Township Blvd (SR 6309) Southbound						Int. Total
	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	
8:00 AM	4	42	12	13	0	71	29	29	2	3	0	63	92	57	47	12	0	208	4	35	4	2	0	45	387
8:15 AM	12	57	21	17	0	107	28	34	2	9	1	73	98	60	45	16	0	219	9	34	10	0	0	53	452
8:30 AM	17	49	13	16	0	95	27	60	4	11	0	102	109	68	45	16	0	238	6	43	4	1	0	54	489
8:45 AM	34	83	20	14	1	151	31	48	3	10	0	92	78	87	72	14	0	251	6	48	12	2	0	68	562
Total	67	231	66	60	1	424	115	171	11	33	1	330	377	272	209	58	0	916	25	160	30	5	0	220	1890
Approach %	15.8	54.5	15.6	14.2	-	-	34.8	51.8	3.3	10.0	-	-	41.2	29.7	22.8	6.3	-	-	11.4	72.7	13.6	2.3	-	-	-
Total %	3.5	12.2	3.5	3.2	-	22.4	6.1	9.0	0.6	1.7	-	17.5	19.9	14.4	11.1	3.1	-	48.5	1.3	8.5	1.6	0.3	-	11.6	-
PHF	0.493	0.696	0.786	0.882	-	0.702	0.927	0.713	0.688	0.750	-	0.809	0.865	0.782	0.726	0.906	-	0.912	0.694	0.833	0.625	0.625	-	0.809	0.841
Lights	66	211	60	54	-	391	106	156	9	32	-	303	364	261	199	56	-	880	24	147	27	5	-	203	1777
% Lights	98.5	91.3	90.9	90.0	-	92.2	92.2	91.2	81.8	97.0	-	91.8	96.6	96.0	95.2	96.6	-	96.1	96.0	91.9	90.0	100.0	-	92.3	94.0
Other Vehicles	1	20	6	6	-	33	9	15	2	1	-	27	13	11	10	2	-	36	1	13	3	0	-	17	113
% Other Vehicles	1.5	8.7	9.1	10.0	-	7.8	7.8	8.8	18.2	3.0	-	8.2	3.4	4.0	4.8	3.4	-	3.9	4.0	8.1	10.0	0.0	-	7.7	6.0
Pedestrians	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Traffic Planning and Design, Inc
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610.326.3100

Counter: MIO:
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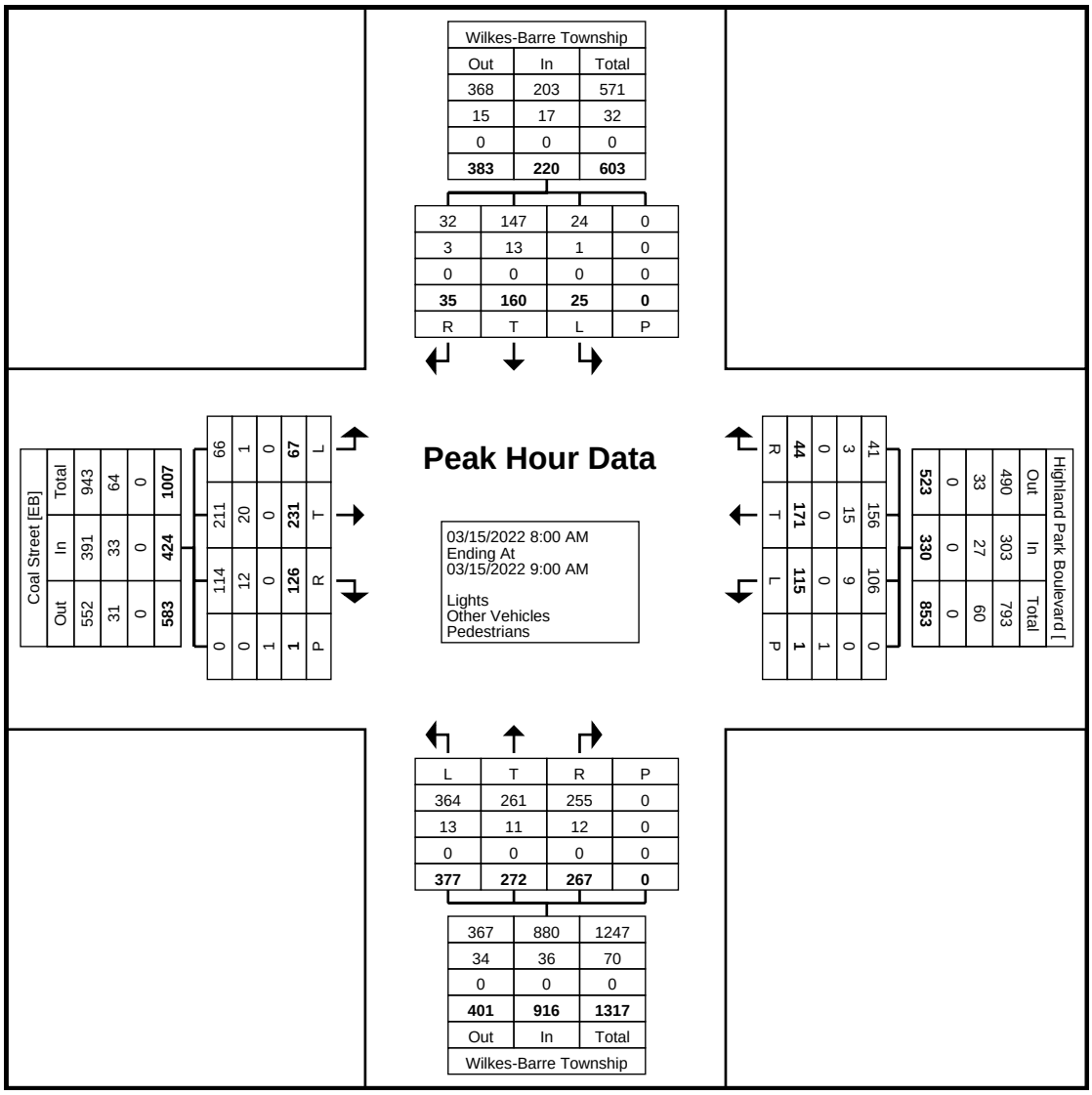
Site Code:
Start Date: 03/15/2022



Turning Movement Peak Hour Data Plot (8:00 AM)

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Counter: MIO:
Set up By JH::

Count Name: Coal Street- Highland Park Blvd & WB TWP Blvd
Site Code:
Start Date: 03/15/2022

Turning Movement Peak Hour Data (9:00 AM)

Start Time	Coal Street Eastbound						Highland Park Boulevard Westbound						Wilkes-Barre Township Blvd (SR 6309) Northbound						Wilkes-Barre Township Blvd (SR 6309) Southbound						Int. Total
	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	
9:00 AM	17	61	21	10	0	109	23	47	3	12	0	85	60	68	54	16	0	198	14	57	12	2	0	85	477
9:15 AM	20	63	15	13	0	111	17	34	4	7	0	62	59	62	60	18	2	199	14	60	11	1	3	86	458
9:30 AM	20	77	19	6	0	122	34	49	2	9	0	94	66	79	68	24	0	237	17	63	11	0	0	91	544
9:45 AM	22	90	19	11	0	142	35	41	5	6	0	87	49	74	65	20	1	208	11	72	12	1	1	96	533
Total	79	291	74	40	0	484	109	171	14	34	0	328	234	283	247	78	3	842	56	252	46	4	4	358	2012
Approach %	16.3	60.1	15.3	8.3	-	-	33.2	52.1	4.3	10.4	-	-	27.8	33.6	29.3	9.3	-	-	15.6	70.4	12.8	1.1	-	-	-
Total %	3.9	14.5	3.7	2.0	-	24.1	5.4	8.5	0.7	1.7	-	16.3	11.6	14.1	12.3	3.9	-	41.8	2.8	12.5	2.3	0.2	-	17.8	-
PHF	0.898	0.808	0.881	0.769	-	0.852	0.779	0.872	0.700	0.708	-	0.872	0.886	0.896	0.908	0.813	-	0.888	0.824	0.875	0.958	0.500	-	0.932	0.925
Lights	77	281	71	40	-	469	106	169	14	31	-	320	224	274	233	71	-	802	55	240	42	4	-	341	1932
% Lights	97.5	96.6	95.9	100.0	-	96.9	97.2	98.8	100.0	91.2	-	97.6	95.7	96.8	94.3	91.0	-	95.2	98.2	95.2	91.3	100.0	-	95.3	96.0
Other Vehicles	2	10	3	0	-	15	3	2	0	3	-	8	10	9	14	7	-	40	1	12	4	0	-	17	80
% Other Vehicles	2.5	3.4	4.1	0.0	-	3.1	2.8	1.2	0.0	8.8	-	2.4	4.3	3.2	5.7	9.0	-	4.8	1.8	4.8	8.7	0.0	-	4.7	4.0
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	3	-	-	-	-	-	4	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-

Traffic Planning and Design, Inc
2500 East High Street
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610.326.3100

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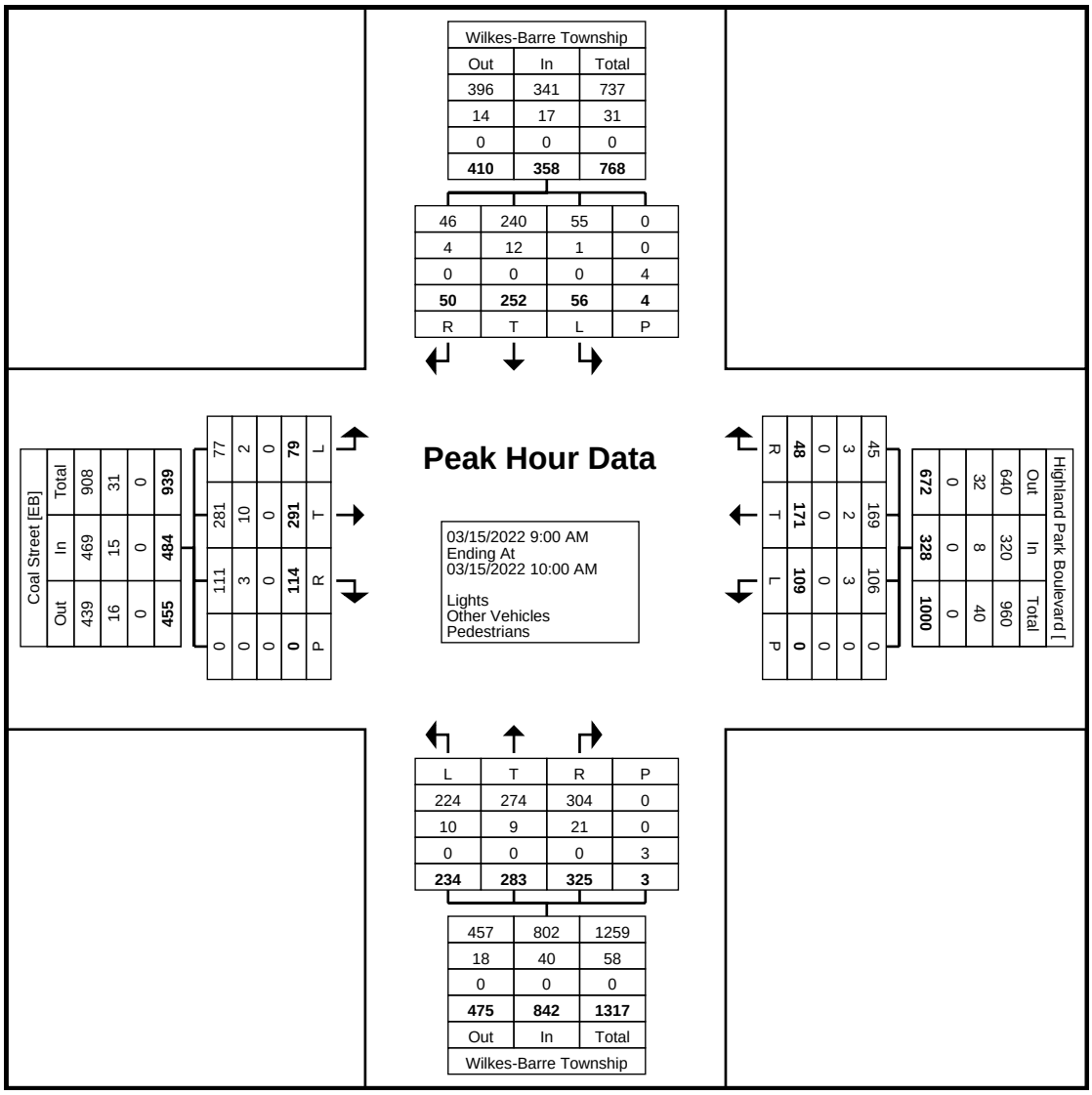
Site Code:
Start Date: 03/15/2022



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

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Counter: MIO:
Set up By JH::

Count Name: Coal Street- Highland Park Blvd & WB TWP Blvd
Site Code:
Start Date: 03/15/2022

Turning Movement Peak Hour Data (3:15 PM)

Start Time	Coal Street Eastbound						Highland Park Boulevard Westbound						Wilkes-Barre Township Blvd (SR 6309) Northbound						Wilkes-Barre Township Blvd (SR 6309) Southbound						Int. Total
	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	
3:15 PM	25	121	22	10	1	178	73	112	6	16	0	207	60	97	73	48	0	278	16	108	17	6	7	147	810
3:30 PM	33	123	37	20	1	213	77	138	6	8	0	229	74	97	48	51	0	270	24	108	30	3	2	165	877
3:45 PM	52	111	24	7	0	194	78	91	10	16	0	195	59	92	65	53	2	269	31	97	20	8	0	156	814
4:00 PM	23	148	55	21	1	247	54	126	7	11	0	198	67	83	73	43	1	266	21	104	23	5	4	153	864
Total	133	503	138	58	3	832	282	467	29	51	0	829	260	369	259	195	3	1083	92	417	90	22	13	621	3365
Approach %	16.0	60.5	16.6	7.0	-	-	34.0	56.3	3.5	6.2	-	-	24.0	34.1	23.9	18.0	-	-	14.8	67.1	14.5	3.5	-	-	-
Total %	4.0	14.9	4.1	1.7	-	24.7	8.4	13.9	0.9	1.5	-	24.6	7.7	11.0	7.7	5.8	-	32.2	2.7	12.4	2.7	0.7	-	18.5	-
PHF	0.639	0.850	0.627	0.690	-	0.842	0.904	0.846	0.725	0.797	-	0.905	0.878	0.951	0.887	0.920	-	0.974	0.742	0.965	0.750	0.688	-	0.941	0.959
Lights	130	496	134	58	-	818	279	463	28	51	-	821	257	357	250	183	-	1047	90	413	84	20	-	607	3293
% Lights	97.7	98.6	97.1	100.0	-	98.3	98.9	99.1	96.6	100.0	-	99.0	98.8	96.7	96.5	93.8	-	96.7	97.8	99.0	93.3	90.9	-	97.7	97.9
Other Vehicles	3	7	4	0	-	14	3	4	1	0	-	8	3	12	9	12	-	36	2	4	6	2	-	14	72
% Other Vehicles	2.3	1.4	2.9	0.0	-	1.7	1.1	0.9	3.4	0.0	-	1.0	1.2	3.3	3.5	6.2	-	3.3	2.2	1.0	6.7	9.1	-	2.3	2.1
Pedestrians	-	-	-	-	3	-	-	-	-	-	0	-	-	-	-	-	3	-	-	-	-	-	13	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-

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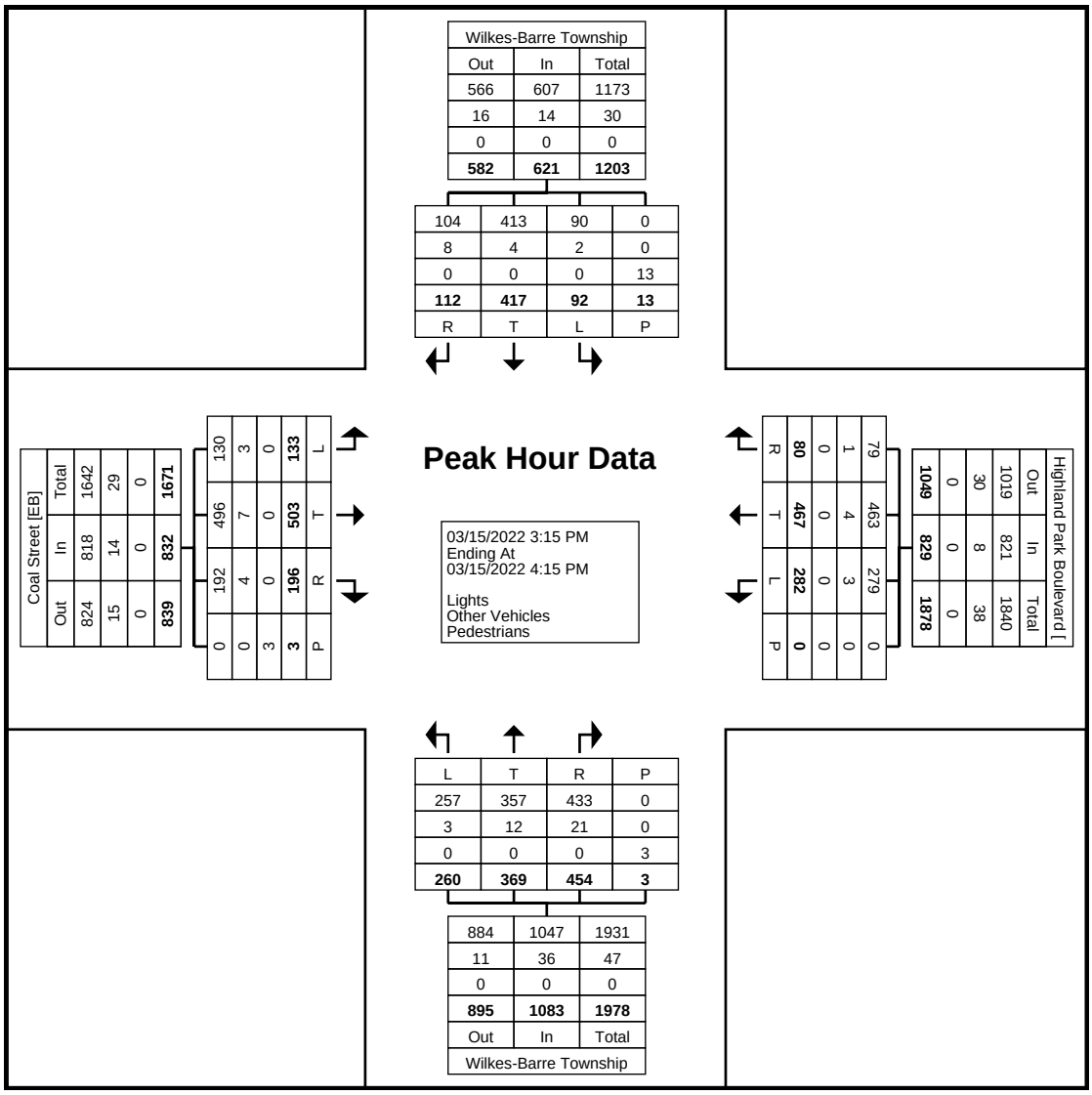
Count Name: Coal Street- Highland Park Blvd & WB TWP Blvd
Site Code:
Start Date: 03/15/2022



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

Counter: MIO:
Set up By JH::

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Count Name: Johnson Street & Haul Road
Site Code:
Start Date: 12/09/2021

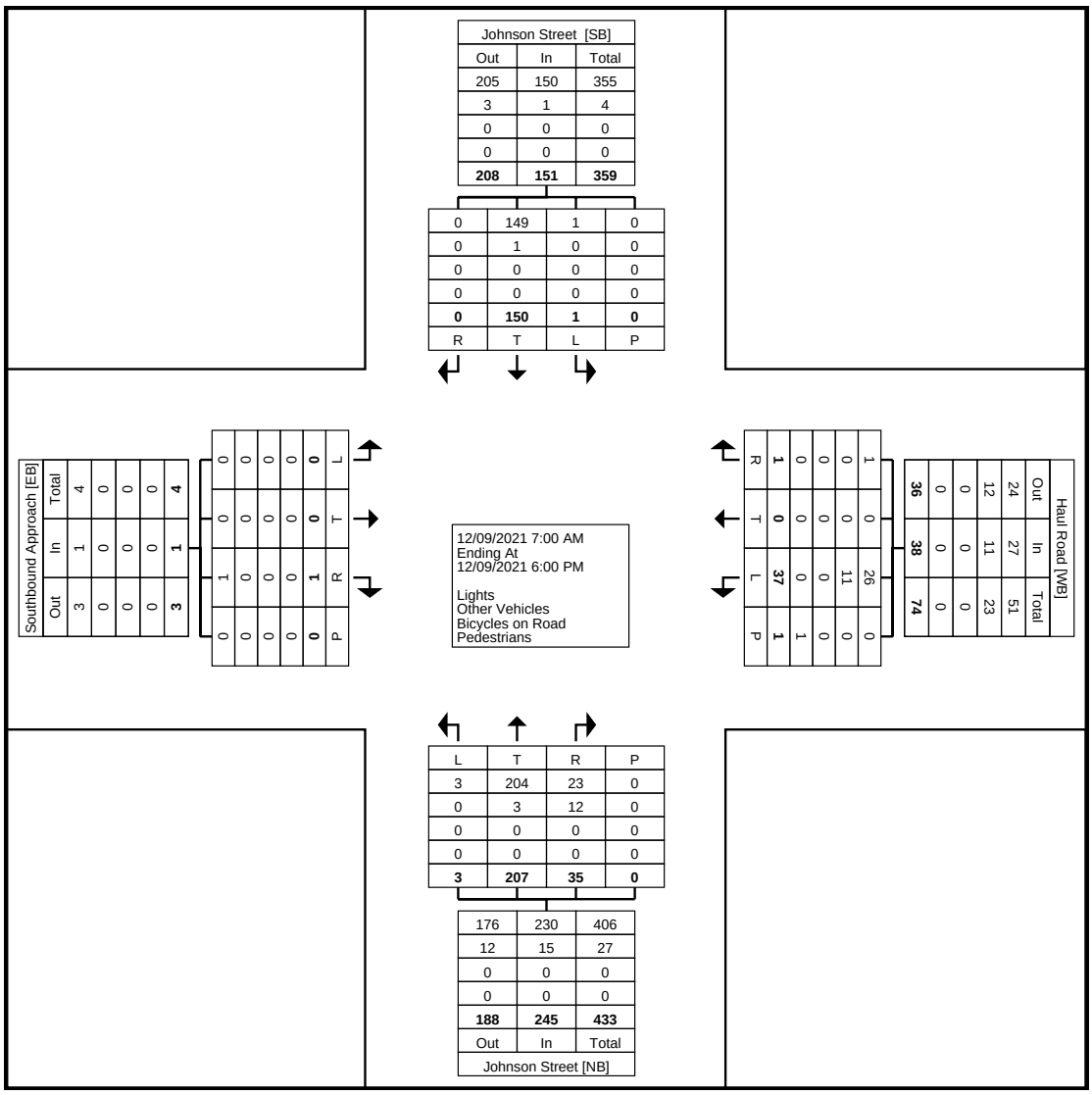
Turning Movement Data

Start Time	Southbound Approach Eastbound					Haul Road Westbound					Johnson Street Northbound					Johnson Street Southbound					
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
7:00 AM	0	0	0	0	0	3	0	0	0	3	0	4	0	0	4	0	3	0	0	3	10
7:15 AM	0	0	0	0	0	1	0	0	0	1	2	3	3	0	8	0	7	0	0	7	16
7:30 AM	0	0	0	0	0	1	0	0	0	1	0	4	3	0	7	0	7	0	0	7	15
7:45 AM	0	0	0	0	0	7	0	0	0	7	0	9	3	0	12	0	4	0	0	4	23
Hourly Total	0	0	0	0	0	12	0	0	0	12	2	20	9	0	31	0	21	0	0	21	64
8:00 AM	0	0	0	0	0	1	0	0	0	1	0	1	1	0	2	0	3	0	0	3	6
8:15 AM	0	0	0	0	0	0	0	0	1	0	0	6	3	0	9	0	4	0	0	4	13
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	3	1	0	4	0	8	0	0	8	12
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	9	2	0	11	1	10	0	0	11	22
Hourly Total	0	0	0	0	0	1	0	0	1	1	0	19	7	0	26	1	25	0	0	26	53
9:00 AM	0	0	0	0	0	2	0	1	0	3	0	3	1	0	4	0	5	0	0	5	12
9:15 AM	0	0	0	0	0	2	0	0	0	2	0	11	3	0	14	0	7	0	0	7	23
9:30 AM	0	0	0	0	0	1	0	0	0	1	0	3	1	0	4	0	8	0	0	8	13
9:45 AM	0	0	0	0	0	2	0	0	0	2	0	12	1	0	13	0	9	0	0	9	24
Hourly Total	0	0	0	0	0	7	0	1	0	8	0	29	6	0	35	0	29	0	0	29	72
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	17	0	0	17	0	10	0	0	10	27
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	15	0	0	15	0	10	0	0	10	25
4:30 PM	0	0	0	0	0	4	0	0	0	4	0	15	4	0	19	0	7	0	0	7	30
4:45 PM	0	0	0	0	0	3	0	0	0	3	0	13	5	0	18	0	5	0	0	5	26
Hourly Total	0	0	0	0	0	7	0	0	0	7	0	60	9	0	69	0	32	0	0	32	108
5:00 PM	0	0	1	0	1	1	0	0	0	1	1	23	3	0	27	0	6	0	0	6	35
5:15 PM	0	0	0	0	0	3	0	0	0	3	0	25	0	0	25	0	7	0	0	7	35
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	21	1	0	22	0	16	0	0	16	38
5:45 PM	0	0	0	0	0	6	0	0	0	6	0	10	0	0	10	0	14	0	0	14	30
Hourly Total	0	0	1	0	1	10	0	0	0	10	1	79	4	0	84	0	43	0	0	43	138
Grand Total	0	0	1	0	1	37	0	1	1	38	3	207	35	0	245	1	150	0	0	151	435
Approach %	0.0	0.0	100.0	-	-	97.4	0.0	2.6	-	-	1.2	84.5	14.3	-	-	0.7	99.3	0.0	-	-	-
Total %	0.0	0.0	0.2	-	0.2	8.5	0.0	0.2	-	8.7	0.7	47.6	8.0	-	56.3	0.2	34.5	0.0	-	34.7	-
Lights	0	0	1	-	1	26	0	1	-	27	3	204	23	-	230	1	149	0	-	150	408
% Lights	-	-	100.0	-	100.0	70.3	-	100.0	-	71.1	100.0	98.6	65.7	-	93.9	100.0	99.3	-	-	99.3	93.8
Other Vehicles	0	0	0	-	0	11	0	0	-	11	0	3	12	-	15	0	1	0	-	1	27
% Other Vehicles	-	-	0.0	-	0.0	29.7	-	0.0	-	28.9	0.0	1.4	34.3	-	6.1	0.0	0.7	-	-	0.7	6.2
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	-	-	0.0	-	0.0	0.0	-	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	-	-	0.0	0.0
Pedestrians	-	-	-	0	-	-	-	-	1	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Counter: MIO:
Set up By JH::

Count Name: Johnson Street & Haul Road
Site Code:
Start Date: 12/09/2021



Turning Movement Data Plot

Counter: MIO:
Set up By JH::

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Count Name: Johnson Street & Haul Road
Site Code:
Start Date: 12/09/2021

Turning Movement Data

Start Time	Haul Road Westbound				Johnson Street Northbound				Johnson Street Southbound				
	Left	Right	Peds	App. Total	Thru	Right	Peds	App. Total	Left	Thru	Peds	App. Total	Int. Total
6:00 AM	0	0	0	0	4	4	0	8	0	1	0	1	9
6:15 AM	0	0	0	0	5	1	0	6	0	3	0	3	9
6:30 AM	0	0	0	0	7	1	0	8	0	6	0	6	14
6:45 AM	2	0	0	2	12	2	0	14	0	4	0	4	20
Hourly Total	2	0	0	2	28	8	0	36	0	14	0	14	52
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	5	0	0	5	6	6	0	12	0	13	0	13	30
3:15 PM	4	0	0	4	8	5	0	13	0	6	0	6	23
3:30 PM	5	0	0	5	10	3	0	13	0	15	0	15	33
3:45 PM	3	0	0	3	21	3	0	24	0	9	0	9	36
Hourly Total	17	0	0	17	45	17	0	62	0	43	0	43	122
Grand Total	19	0	0	19	73	25	0	98	0	57	0	57	174
Approach %	100.0	0.0	-	-	74.5	25.5	-	-	0.0	100.0	-	-	-
Total %	10.9	0.0	-	10.9	42.0	14.4	-	56.3	0.0	32.8	-	32.8	-
Lights	4	0	-	4	72	11	-	83	0	53	-	53	140
% Lights	21.1	-	-	21.1	98.6	44.0	-	84.7	-	93.0	-	93.0	80.5
Other Vehicles	15	0	-	15	1	14	-	15	0	4	-	4	34
% Other Vehicles	78.9	-	-	78.9	1.4	56.0	-	15.3	-	7.0	-	7.0	19.5
Pedestrians	-	-	0	-	-	-	0	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-

Counter: MIO:
Set up By JH::

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2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Count Name: Johnson Street & Haul Road
Site Code:
Start Date: 12/09/2021

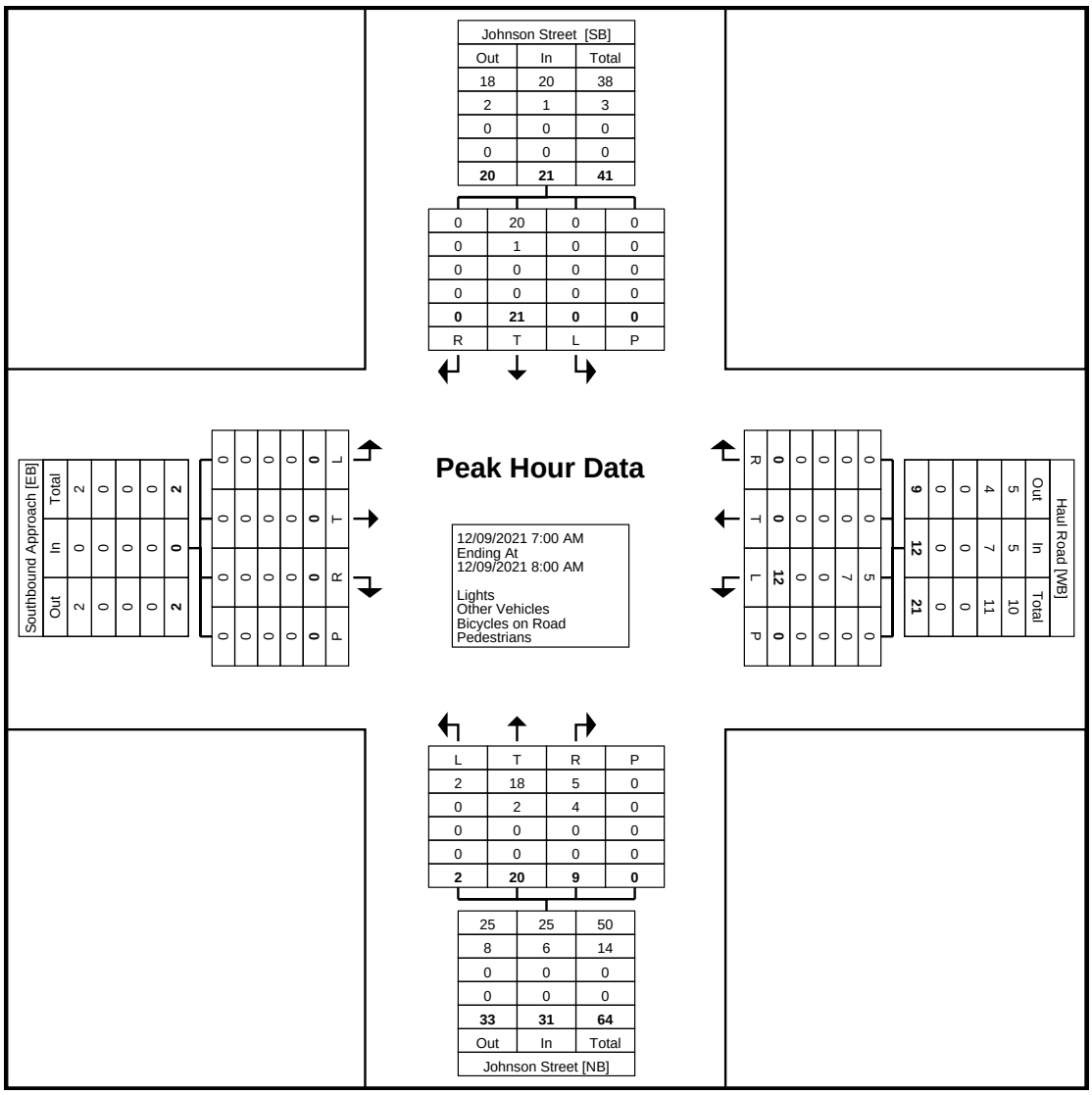
Turning Movement Peak Hour Data (7:00 AM)

Start Time	Southbound Approach Eastbound					Haul Road Westbound					Johnson Street Northbound					Johnson Street Southbound					
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
7:00 AM	0	0	0	0	0	3	0	0	0	3	0	4	0	0	4	0	3	0	0	3	10
7:15 AM	0	0	0	0	0	1	0	0	0	1	2	3	3	0	8	0	7	0	0	7	16
7:30 AM	0	0	0	0	0	1	0	0	0	1	0	4	3	0	7	0	7	0	0	7	15
7:45 AM	0	0	0	0	0	7	0	0	0	7	0	9	3	0	12	0	4	0	0	4	23
Total	0	0	0	0	0	12	0	0	0	12	2	20	9	0	31	0	21	0	0	21	64
Approach %	0.0	0.0	0.0	-	-	100.0	0.0	0.0	-	-	6.5	64.5	29.0	-	-	0.0	100.0	0.0	-	-	-
Total %	0.0	0.0	0.0	-	0.0	18.8	0.0	0.0	-	18.8	3.1	31.3	14.1	-	48.4	0.0	32.8	0.0	-	32.8	-
PHF	0.000	0.000	0.000	-	0.000	0.429	0.000	0.000	-	0.429	0.250	0.556	0.750	-	0.646	0.000	0.750	0.000	-	0.750	0.696
Lights	0	0	0	-	0	5	0	0	-	5	2	18	5	-	25	0	20	0	-	20	50
% Lights	-	-	-	-	-	41.7	-	-	-	41.7	100.0	90.0	55.6	-	80.6	-	95.2	-	-	95.2	78.1
Other Vehicles	0	0	0	-	0	7	0	0	-	7	0	2	4	-	6	0	1	0	-	1	14
% Other Vehicles	-	-	-	-	-	58.3	-	-	-	58.3	0.0	10.0	44.4	-	19.4	-	4.8	-	-	4.8	21.9
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	-	-	-	-	-	0.0	-	-	-	0.0	0.0	0.0	0.0	-	0.0	-	0.0	-	-	0.0	0.0
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Counter: MIO:
Set up By JH::

Count Name: Johnson Street & Haul Road
Site Code:
Start Date: 12/09/2021



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

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Counter: MIO:
Set up By JH::

Count Name: Johnson Street & Haul Road
Site Code:
Start Date: 12/09/2021

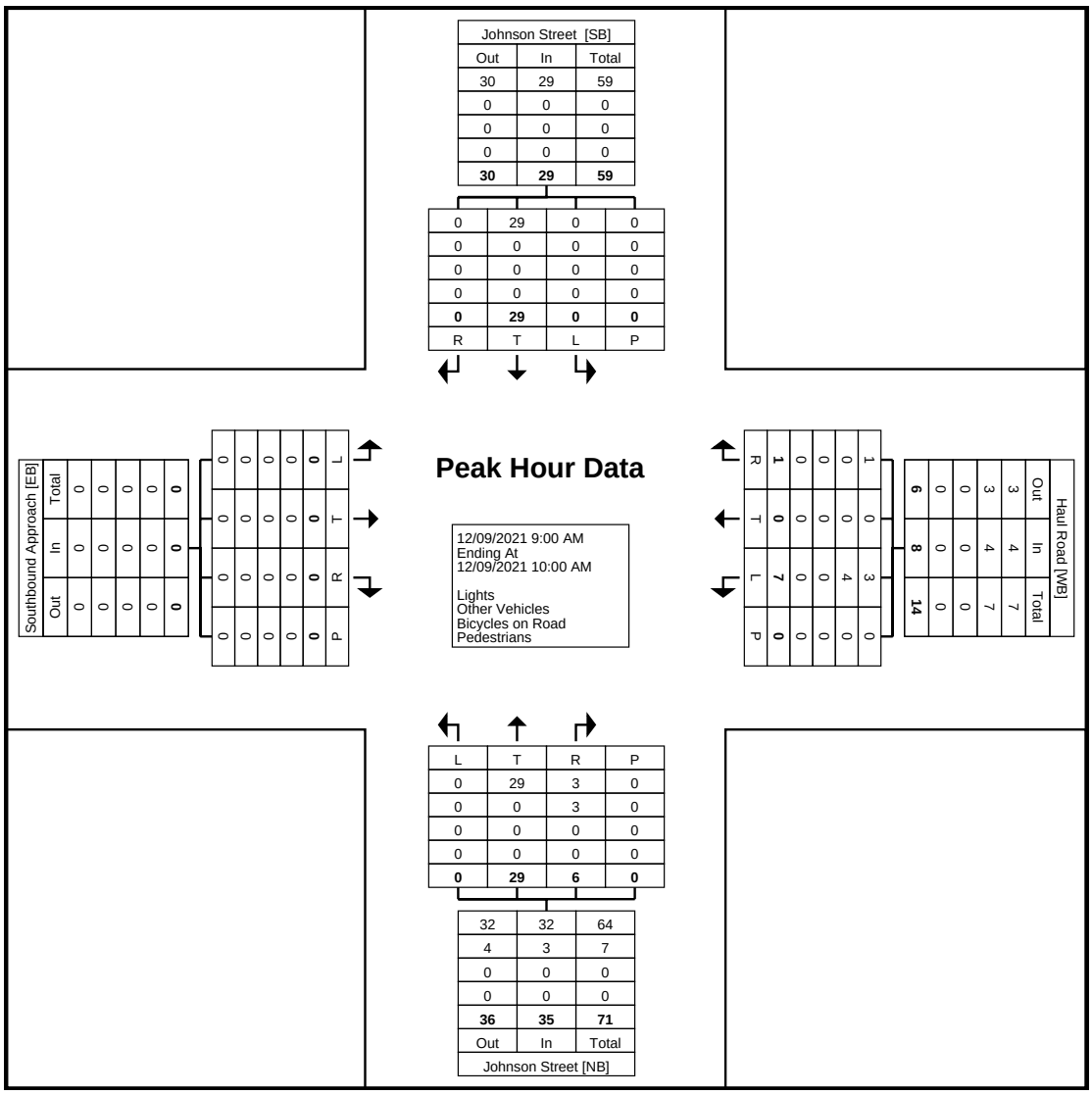
Turning Movement Peak Hour Data (9:00 AM)

Start Time	Southbound Approach Eastbound					Haul Road Westbound					Johnson Street Northbound					Johnson Street Southbound					
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
9:00 AM	0	0	0	0	0	2	0	1	0	3	0	3	1	0	4	0	5	0	0	5	12
9:15 AM	0	0	0	0	0	2	0	0	0	2	0	11	3	0	14	0	7	0	0	7	23
9:30 AM	0	0	0	0	0	1	0	0	0	1	0	3	1	0	4	0	8	0	0	8	13
9:45 AM	0	0	0	0	0	2	0	0	0	2	0	12	1	0	13	0	9	0	0	9	24
Total	0	0	0	0	0	7	0	1	0	8	0	29	6	0	35	0	29	0	0	29	72
Approach %	0.0	0.0	0.0	-	-	87.5	0.0	12.5	-	-	0.0	82.9	17.1	-	-	0.0	100.0	0.0	-	-	-
Total %	0.0	0.0	0.0	-	0.0	9.7	0.0	1.4	-	11.1	0.0	40.3	8.3	-	48.6	0.0	40.3	0.0	-	40.3	-
PHF	0.000	0.000	0.000	-	0.000	0.875	0.000	0.250	-	0.667	0.000	0.604	0.500	-	0.625	0.000	0.806	0.000	-	0.806	0.750
Lights	0	0	0	-	0	3	0	1	-	4	0	29	3	-	32	0	29	0	-	29	65
% Lights	-	-	-	-	-	42.9	-	100.0	-	50.0	-	100.0	50.0	-	91.4	-	100.0	-	-	100.0	90.3
Other Vehicles	0	0	0	-	0	4	0	0	-	4	0	0	3	-	3	0	0	0	-	0	7
% Other Vehicles	-	-	-	-	-	57.1	-	0.0	-	50.0	-	0.0	50.0	-	8.6	-	0.0	-	-	0.0	9.7
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	-	-	-	-	-	0.0	-	0.0	-	0.0	-	0.0	0.0	-	0.0	-	0.0	-	-	0.0	0.0
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Counter: MIO:
Set up By JH::

Count Name: Johnson Street & Haul Road
Site Code:
Start Date: 12/09/2021



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

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Counter: MIO:
Set up By JH::

Count Name: Johnson Street & Haul Road
Site Code:
Start Date: 12/09/2021

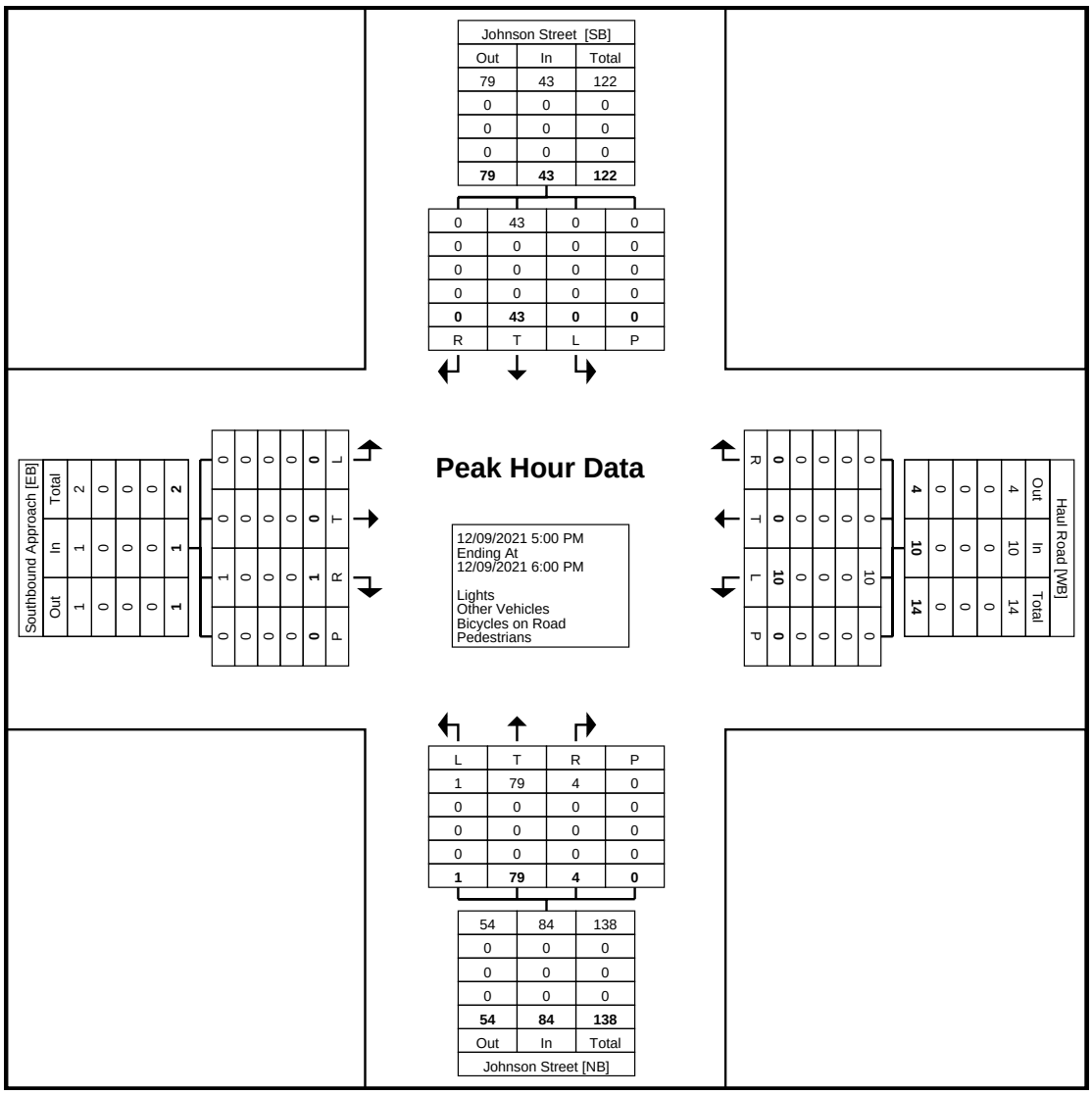
Turning Movement Peak Hour Data (5:00 PM)

Start Time	Southbound Approach Eastbound					Haul Road Westbound					Johnson Street Northbound					Johnson Street Southbound					
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
5:00 PM	0	0	1	0	1	1	0	0	0	1	1	23	3	0	27	0	6	0	0	6	35
5:15 PM	0	0	0	0	0	3	0	0	0	3	0	25	0	0	25	0	7	0	0	7	35
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	21	1	0	22	0	16	0	0	16	38
5:45 PM	0	0	0	0	0	6	0	0	0	6	0	10	0	0	10	0	14	0	0	14	30
Total	0	0	1	0	1	10	0	0	0	10	1	79	4	0	84	0	43	0	0	43	138
Approach %	0.0	0.0	100.0	-	-	100.0	0.0	0.0	-	-	1.2	94.0	4.8	-	-	0.0	100.0	0.0	-	-	-
Total %	0.0	0.0	0.7	-	0.7	7.2	0.0	0.0	-	7.2	0.7	57.2	2.9	-	60.9	0.0	31.2	0.0	-	31.2	-
PHF	0.000	0.000	0.250	-	0.250	0.417	0.000	0.000	-	0.417	0.250	0.790	0.333	-	0.778	0.000	0.672	0.000	-	0.672	0.908
Lights	0	0	1	-	1	10	0	0	-	10	1	79	4	-	84	0	43	0	-	43	138
% Lights	-	-	100.0	-	100.0	100.0	-	-	-	100.0	100.0	100.0	100.0	-	100.0	-	100.0	-	-	100.0	100.0
Other Vehicles	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Other Vehicles	-	-	0.0	-	0.0	0.0	-	-	-	0.0	0.0	0.0	0.0	-	0.0	-	0.0	-	-	0.0	0.0
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	-	-	0.0	-	0.0	0.0	-	-	-	0.0	0.0	0.0	0.0	-	0.0	-	0.0	-	-	0.0	0.0
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Counter: MIO:
Set up By JH::

Count Name: Johnson Street & Haul Road
Site Code:
Start Date: 12/09/2021



Turning Movement Peak Hour Data Plot (5:00 PM)

APPENDIX D:

Nearby Proposed Development Information

Turkey Hill Convenience Store

Transportation Impact Study

Turkey Hill Convenience Market and Gas Station

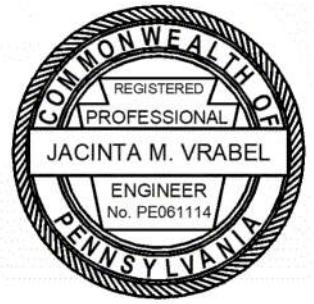
Wilkes-Barre Township
Luzerne County
Pennsylvania

May 2020
Revised September 2020

Prepared for:

George M. Albert, P.E., LLC
33 S. Wilkes-Barre Blvd., Suite 4
Wilkes-Barre, PA 18702
(570) 270-4255

Prepared by:



Jacinta M. Vrabel, P.E., PTOE

L&V ENGINEERING, LLC
P.O. Box 347
Honesdale, PA 18431
(888) 902-3651

EXECUTIVE SUMMARY

The proposed project is new construction of a 7,500 square foot Turkey Hill super convenience market/gas station with 20 vehicle fueling positions on the southwest corner of the intersection of Wilkes-Barre Township Boulevard (SR 6309) and Blackman Street (SR 2005)/I-81 South Ramp G (SR 8013) in Wilkes-Barre Township, Luzerne County. The Institute of Transportation Engineers Land Use Code is 960, Super Convenience Market/Gas Station.

The proposed accesses consist of a right-in/right-out driveway on Wilkes-Barre Township Boulevard (SR 6309) as well as a full access driveway on Blackman Street (SR 2005) across from Company Row (township road). The estimated daily traffic for the right-in/right-out driveway on Wilkes-Barre Township Boulevard (SR 6309) is 2,952 trips per day. A total of 3,330 trips per day are projected for the full access driveway on Blackman Street (SR 2005).

This transportation impact study was prepared to evaluate traffic conditions in the vicinity of the project and to provide an analysis of the traffic impacts of the proposed development in accordance with PennDOT policies and procedures. Impacts to the following intersections were evaluated:

- Wilkes-Barre Township Boulevard (SR 6309) and Blackman Street (SR 2005)/ I-81 South Ramp G (SR 8013) [signalized]
- Blackman Street (SR 2005) and Company Row [presently unsignalized and proposed to be signalized]

Based on the results of the analyses contained herein, the development is not expected to adversely impact traffic in the surrounding area. PennDOT's SR 81 Section 308 project, currently in final design, involves addition of a second left turn lane on I-81 South Ramp G (SR 8013) westbound approaching Wilkes-Barre Township Boulevard (SR 6309) to provide dual left turn lanes each with 300 feet of storage. Construction of the Ramp G improvements would become the responsibility of the Turkey Hill development if the PennDOT project is not completed.

The following improvements are proposed to be implemented by the Turkey Hill development:

1. Wilkes-Barre Township Boulevard (SR 6309) and Blackman Street (SR 2005)/I-81 South Ramp G (SR 8013)

- Addition of a second left turn lane with protected-only left turn phasing on Wilkes-Barre Township Boulevard (SR 6309) northbound to provide dual left turn lanes each with 275 feet of storage, in conjunction with providing two receiving lanes on Blackman Street (SR 2005) as described in #2 on the next page.

- Traffic signal retiming and coordination with the proposed signal at the intersection of Blackman Street (SR 2005) and Company Row/Turkey Hill driveway

2. Blackman Street (SR 2005) and Company Row/Turkey Hill Driveway

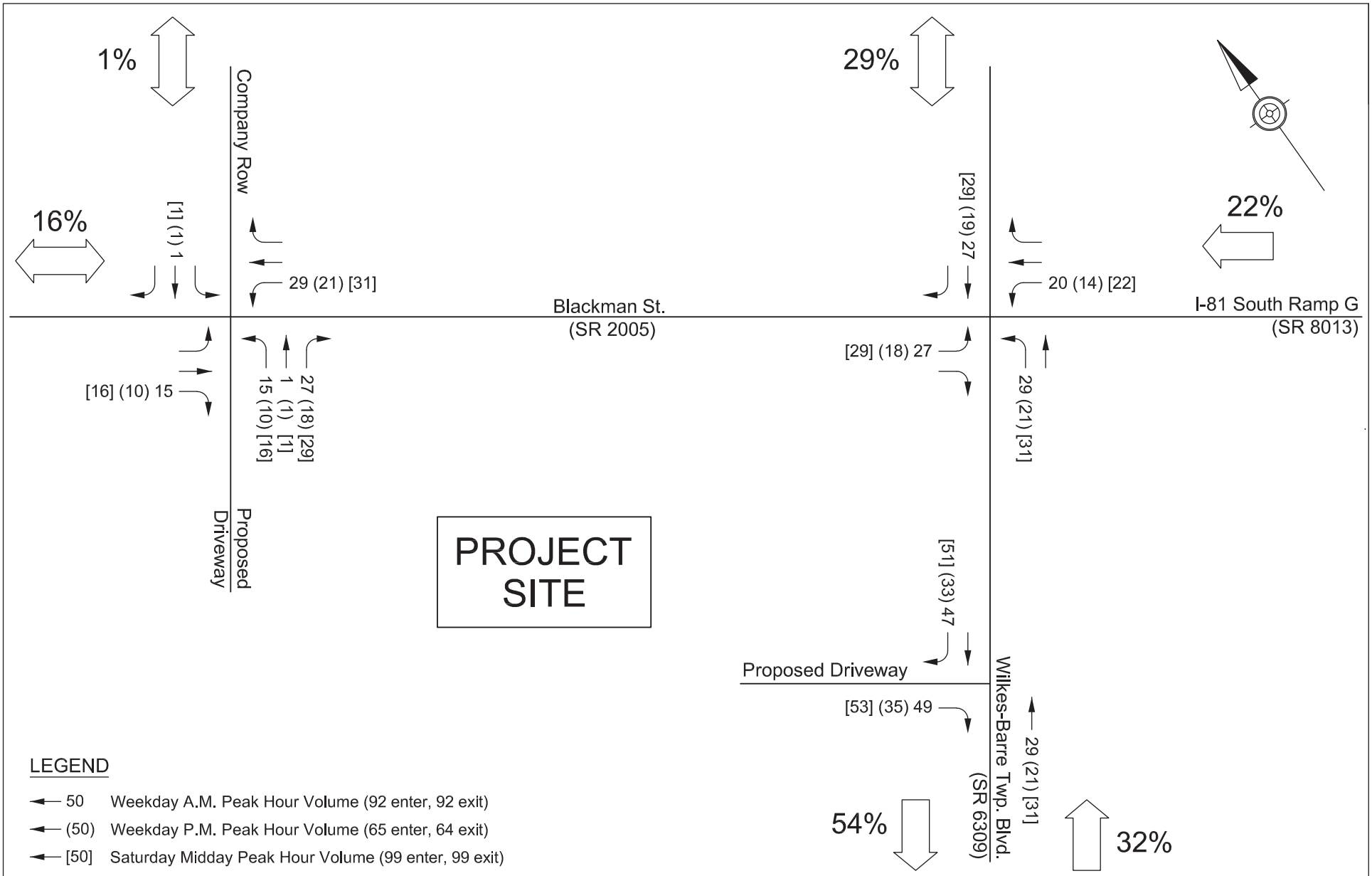
- Widening of Blackman Street (SR 2005) westbound between Wilkes-Barre Township Boulevard (SR 6309) and Company Row/Turkey Hill driveway to three lanes (one left turn lane with a minimum storage length of 185 feet for entering Turkey Hill plus two through lanes with a shared right to Company Row). The two through lanes on Blackman Street (SR 2005) westbound will merge back to one lane at a point west of Company Row. The highest 95th percentile queue in the proposed left turn lane for entering Turkey Hill is projected to be 110 feet without, and 100 feet with, PennDOT's SR 81 Section 308 project.
- Construction of the full access site driveway in accordance with PennDOT requirements
- Traffic signal installation and coordination with the existing signal at the intersection of Wilkes-Barre Township Boulevard (SR 6309) and Blackman Street (SR 2005)/I-81 South Ramp G (SR 8013)
- On Blackman Street (SR 2005) eastbound, maintaining the restriping being done by the developer of Burger King to extend the length of the two approach lane configuration to provide 133 feet of storage for left turns entering Company Row

3. Wilkes-Barre Township Boulevard (SR 6309) and Turkey Hill Driveway

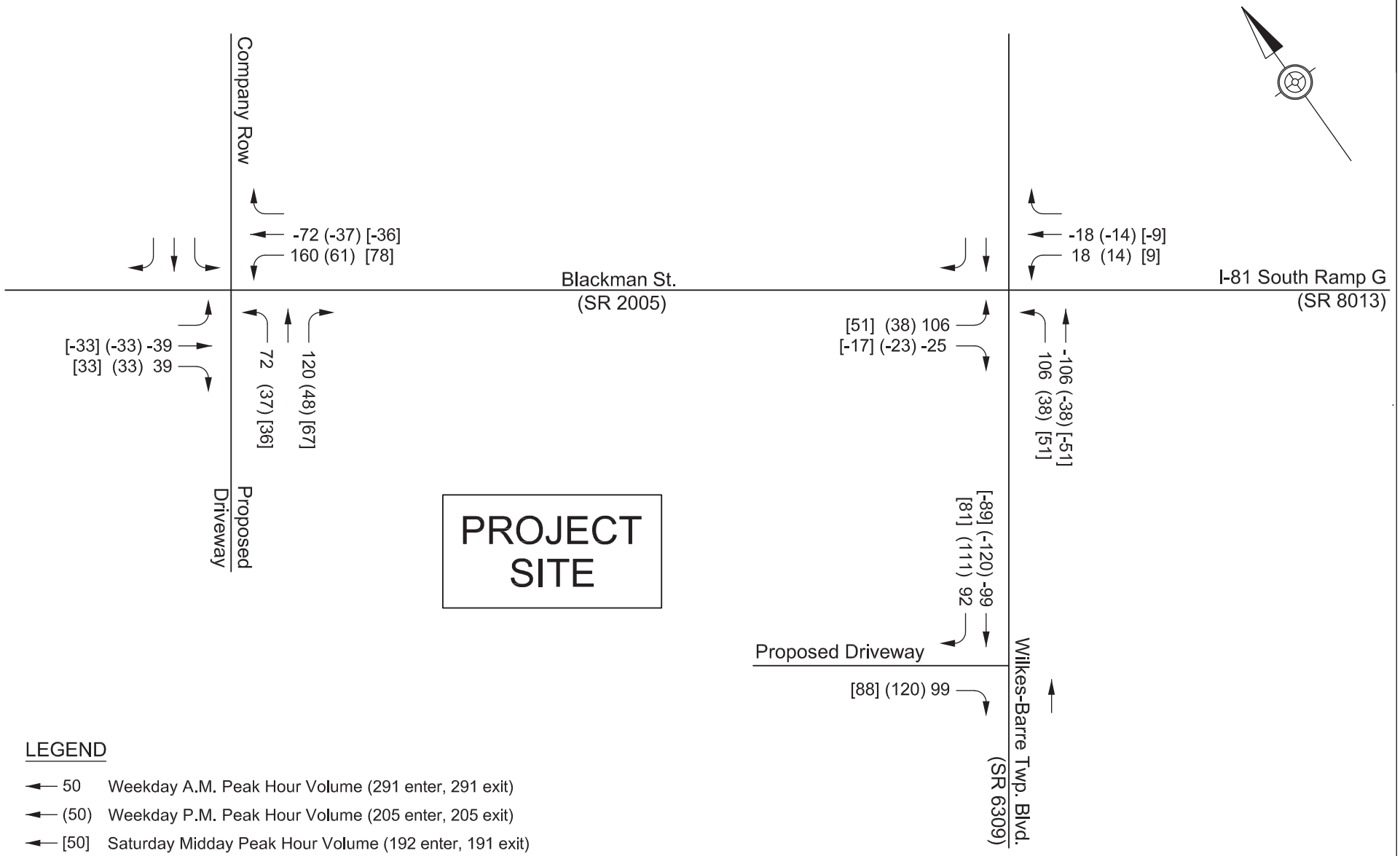
- Construction of the right-in/right-out site driveway in accordance with PennDOT requirements, inclusive of installation of a right turn lane with an approximated feasible storage length of 91 feet on Wilkes-Barre Township Boulevard (SR 6309) southbound for entering Turkey Hill

According to PennDOT's *Policies and Procedures for Transportation Impact Studies*, the pre- to post-development mitigation threshold is a drop in overall intersection Level of Service with an overall intersection delay increase of more than 10 seconds. At the intersection of Wilkes-Barre Township Boulevard (SR 6309) and Blackman Street (SR 2005)/I-81 South Ramp G (SR 8013), the only overall intersection Level of Service drop is from "C" to "D" at 10.1 seconds in the year 2027 weekday A.M. peak hour with all developer improvements and without PennDOT's SR 81 Section 308 project. With inclusion of the PennDOT project, the intersection Level of Service is restored to "C."

With full mitigation, the 95th percentile queues in the dual left turn lanes and the adjacent through lane on Wilkes-Barre Township Boulevard (SR 6309) northbound, as well as on I-81 South Ramp G (SR 8013) westbound, are projected to be less than the proposed dual left turn lane storage lengths.



L&V Engineering, LLC P.O. Box 347 Honesdale, PA 18431 (888) 902-3651	Turkey Hill - Blackman Street Wilkes-Barre Township Luzerne County	FIGURE 15 TURKEY HILL SITE GENERATED PEAK HOUR PRIMARY TRIPS



L&V Engineering, LLC P.O. Box 347 Honesdale, PA 18431 (888) 902-3651	Turkey Hill - Blackman Street Wilkes-Barre Township Luzerne County	FIGURE 16 TURKEY HILL SITE GENERATED PEAK HOUR PASS-BY TRIPS

Blackman Plaza Redevelopment

TRANSPORTATION IMPACT STUDY

BLACKMAN PLAZA DEVELOPMENT

WILKES-BARRE TOWNSHIP
LUZERNE COUNTY
PENNSYLVANIA

May 2012
Revised January 2013

Prepared for:

Delaware Land Company, LLC
952 Wilkes-Barre Twp. Blvd.
Wilkes-Barre, PA 18702
(570) 704-4223

Jacinta M. Vrabel
PA Registration P.E. 061114

Prepared by:

L&V Engineering, LLC
PO Box 132
Bear Creek, PA 18602
(888) 902-3651

EXECUTIVE SUMMARY

The project consists of a commercial development on the site of the existing Blackman Plaza on Wilkes-Barre Twp. Boulevard (SR 6309) in Wilkes-Barre Township, Luzerne County, Pennsylvania. The development plans include the following land use and access characteristics:

- Addition of new retail tenants in presently unoccupied space within the existing plaza building (7,800 square feet)
- Establishment of an 1,800 square foot Dunkin Donuts and a 3,000 square foot fast-food restaurant on two outparcels in front of the existing plaza
- Construction of two buildings in the rear of the site for storage and maintenance, for use by plaza occupants (5,250 square feet each)
- Reconfiguration of the site parking lot
- Demolition and reconstruction of McDonald's restaurant (3,900 square feet)
- Removal of the McDonald's entrance driveway on Wilkes-Barre Twp. Boulevard
- Modification of the Blackman Plaza north driveway on Wilkes-Barre Twp. Boulevard as well as the Blackman Plaza east and west driveways on Casey Avenue (SR 2016) to comply with PennDOT Highway Occupancy Permit requirements
- Relocation of the Blackman Plaza south driveway on Wilkes-Barre Twp. Boulevard to align with Johnson Street

The purpose of this study was to evaluate traffic conditions in the vicinity of the project and to provide an analysis of the traffic impacts of the development in accordance with PennDOT policies and procedures. The intersections analyzed for this study consist of the following:

- Wilkes-Barre Twp. Boulevard and Casey Avenue
- Wilkes-Barre Twp. Boulevard and Blackman Plaza north driveway
- Wilkes-Barre Twp. Boulevard and Blackman Plaza south driveway/Johnson Street
- Wilkes-Barre Twp. Boulevard and Blackman Street
- Casey Avenue and Blackman Plaza east driveway
- Casey Avenue and Blackman Plaza west driveway/Anderson Street

Based on the results of the analyses contained herein, the development is not expected to adversely impact traffic in the surrounding area. Significant findings are as follows:

1. Minor peak hour movement Level of Service (LOS) drops are projected at the following study intersections as a result of traffic generated by the proposed development:

- Wilkes-Barre Twp. Boulevard and Casey Avenue
- Wilkes-Barre Twp. Boulevard and Blackman Plaza north driveway
- Wilkes-Barre Twp. Boulevard and Blackman Street

According to PennDOT's *Policies and Procedures for Transportation Impact Studies* (2009), mitigation is required when there is a drop in overall intersection Level of Service, and the average intersection delay increases by more than 10 seconds. No overall intersection Level of Service drops are projected as a result of new traffic generated by the proposed development.

2. Warrants are expected to be satisfied for traffic signal installation at the intersection of Wilkes-Barre Twp. Boulevard and Blackman Plaza south driveway/Johnson Street.

3. At the four Blackman Plaza driveway intersections, all movements as well as the overall intersection are expected to operate at Level of Service "D" or better during peak periods.

The following improvements are recommended to accommodate future post-development traffic volumes:

<u>Wilkes-Barre Twp. Boulevard and Casey Avenue</u>

- Revise traffic signal timings.
- Interconnect with the new signal at the intersection of Wilkes-Barre Twp. Boulevard and Blackman Plaza south driveway/Johnson Street, as well as with the existing signal at the intersection of Wilkes-Barre Twp. Boulevard and Blackman Street.
- Extend the eastbound Casey Avenue left turn lane to increase the storage length to 250 feet.

<u>Wilkes-Barre Twp. Boulevard and Blackman Plaza North Driveway</u>

- Revise to comply with PennDOT Highway Occupancy Permit requirements.
- Construct a 100 foot right turn lane on southbound Wilkes-Barre Twp. Boulevard.
- A two-way left turn lane exists on Wilkes-Barre Twp. Boulevard. Provide striping for 100 feet of left turn lane storage.

<u>Wilkes-Barre Twp. Boulevard and Blackman Plaza South Driveway/Johnson Street</u>

- Install traffic signal.
- Interconnect with the existing signal at the intersection of Wilkes-Barre Twp. Boulevard and Casey Avenue, as well as with the existing signal at the intersection of Wilkes-Barre Twp. Boulevard and Blackman Street.
- Construct a 100 foot right turn lane on northbound Wilkes-Barre Twp. Boulevard.
- Construct a 150 foot right turn lane on southbound Wilkes-Barre Twp. Boulevard.

- A two-way left turn lane exists on Wilkes-Barre Twp. Boulevard. A storage length of 200 feet northbound is required to accommodate left turns. The Highway Occupancy Permit and traffic signal design plans will show the lane striped as a dedicated northbound left turn lane for a distance as far south as practical, estimated to be close to 200 feet. The striping will then transition back to the two-way left turn lane pattern so as to continue serving left turns into other properties. The 200 feet of storage will exist if needed for left turns into the Blackman Plaza. The 95th percentile queues from the post-development year 2018 SimTraffic analyses are 177 feet, 150 feet and 140 feet for the A.M., P.M. and Saturday peak hours, respectively.
- On the southbound approach of Wilkes-Barre Twp. Boulevard, restripe the two-way left turn lane pattern to provide 75 feet of dedicated left turn lane storage. The striping will then transition back to the two-way left turn lane pattern so as to continue serving left turns into other properties.

Wilkes-Barre Twp. Boulevard and Blackman Street

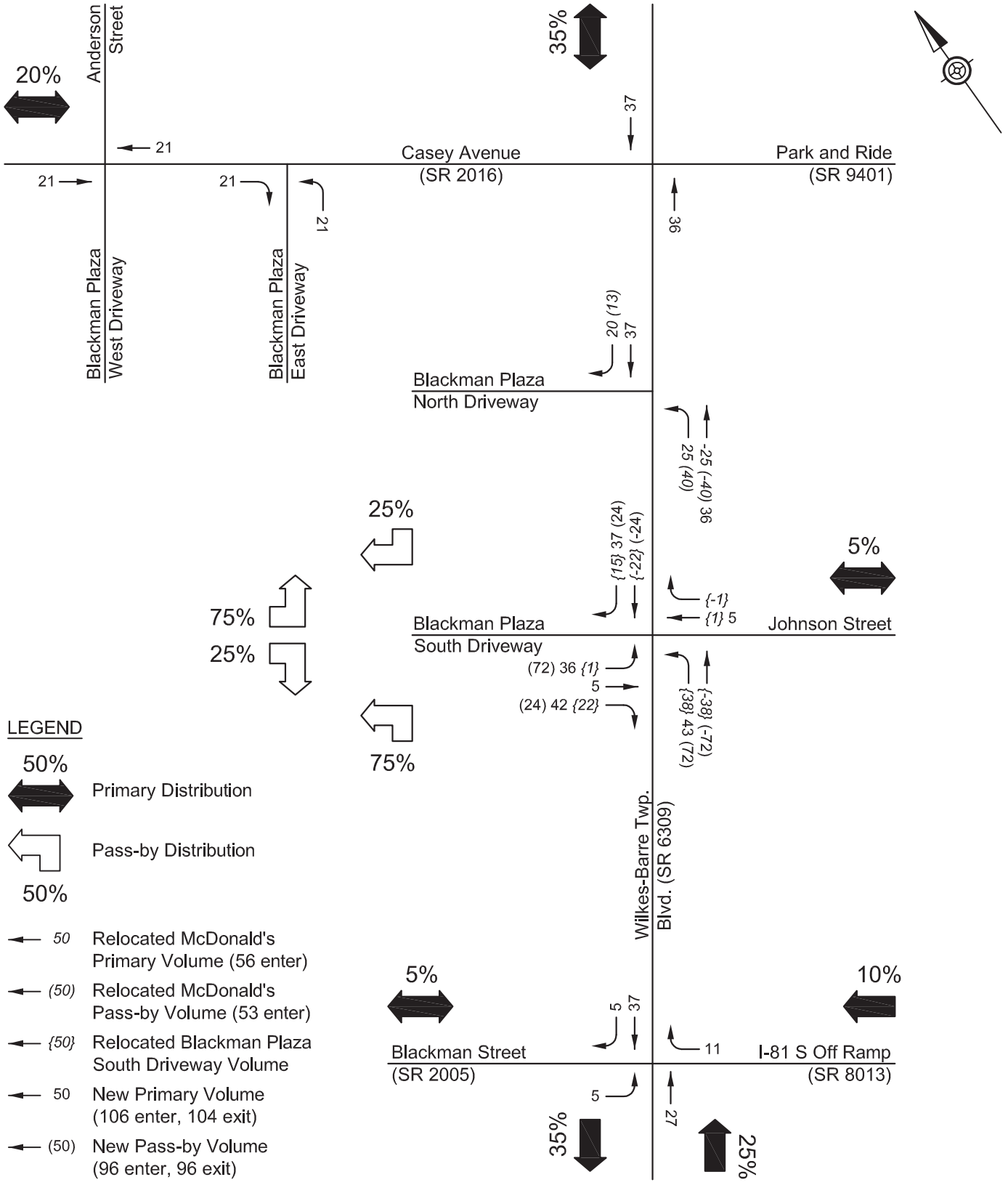
- Revise traffic signal timings.
- As required by PennDOT, interconnect with the new signal at the intersection of Wilkes-Barre Twp. Boulevard and Blackman Plaza south driveway/Johnson Street, as well as with the existing signal at the intersection of Wilkes-Barre Twp. Boulevard and Casey Avenue.

Casey Avenue and Blackman Plaza East Driveway

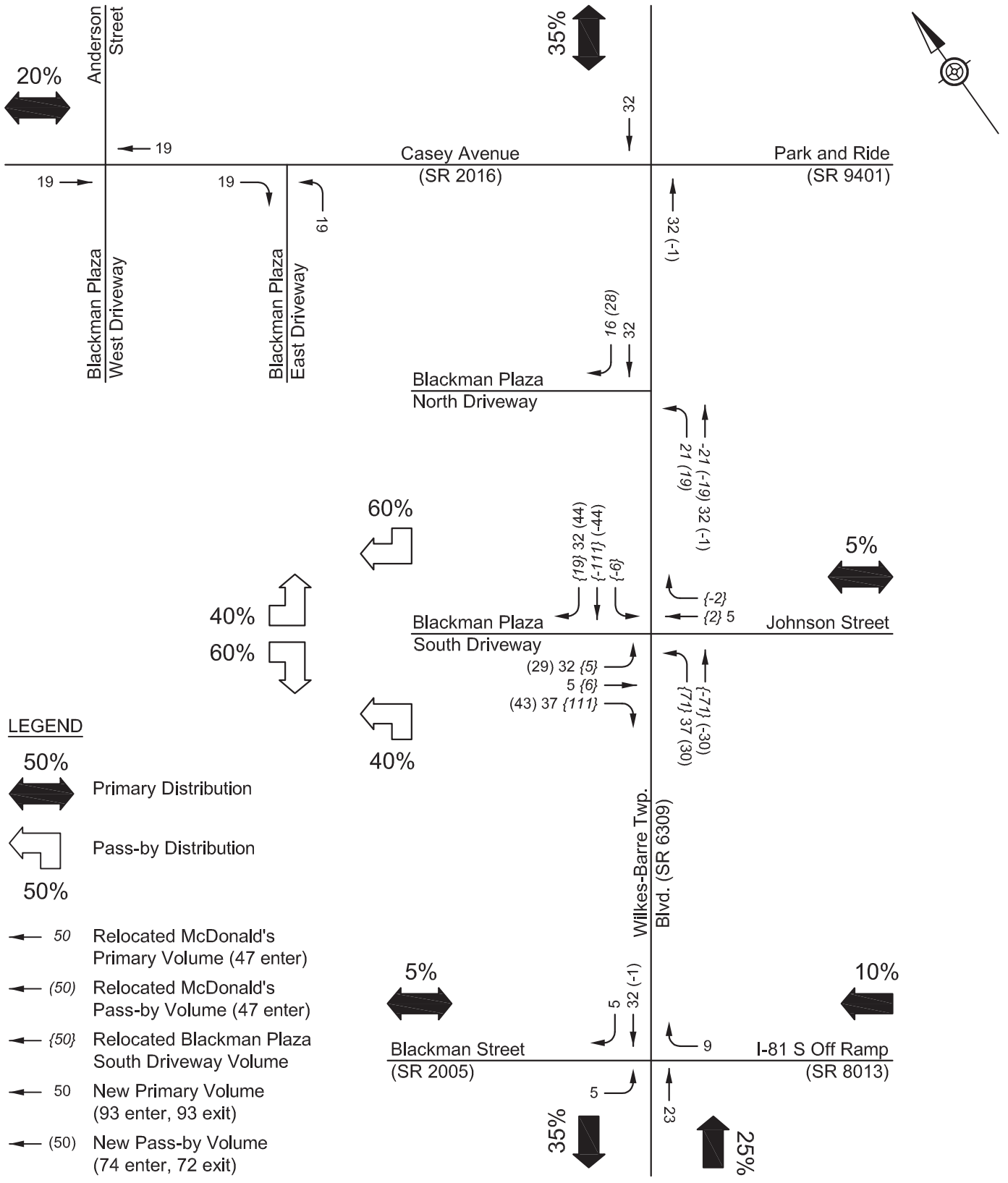
- Revise to comply with PennDOT Highway Occupancy Permit requirements.

Casey Avenue and Blackman Plaza West Driveway/Anderson Street

- Revise to comply with PennDOT Highway Occupancy Permit requirements.



L&V Engineering, LLC PO Box 132 Bear Creek, PA 18602 Project No. DLCO1101	Blackman Plaza Development Wilkes-Barre Township Luzerne County	FIGURE 13 SITE GENERATED WEEKDAY A.M. PEAK HOUR VOLUMES



L&V Engineering, LLC PO Box 132 Bear Creek, PA 18602 Project No. DLCO1101	Blackman Plaza Development Wilkes-Barre Township Luzerne County	FIGURE 14 SITE GENERATED WEEKDAY P.M. PEAK HOUR VOLUMES

APPENDIX E:

Programmed Improvement Project: SR 309 Safety Improvement Project

Zheng, Jason

From: Hannon, April <ahannon@pa.gov>
Sent: Tuesday, May 18, 2021 7:27 AM
To: Mountz, Eric
Subject: RE: [External] Project No 109543 - SR 309 Safety Improvement

This project is in our ECMS system. It is in the process of award. It will be under construction soon.

Thank you,

April

April L. Hannon | Project Manager
PA Department of Transportation
District 4-0
55 Keystone Industrial Park | Dunmore PA 18512
Phone: 570.963.4076 | Fax: 570.963.4949
Email: ahannon@pa.gov

From: Mountz, Eric <emountz@trafficpd.com>
Sent: Monday, April 12, 2021 2:40 PM
To: Hannon, April <ahannon@pa.gov>
Subject: [External] Project No 109543 - SR 309 Safety Improvement

Good afternoon April,

I'm currently doing some due diligence on a private development in the vicinity of the referenced project on PennDOT's TIP. Do you happen to have a plan depicting the proposed improvements that you'd be able to share?

You attention to this request is appreciated.

Thanks,
Eric

Est. 1989

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Offices serving the eastern United States
Office Locations
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MOVEMENT, SEQUENCE AND TIMING DIAGRAM

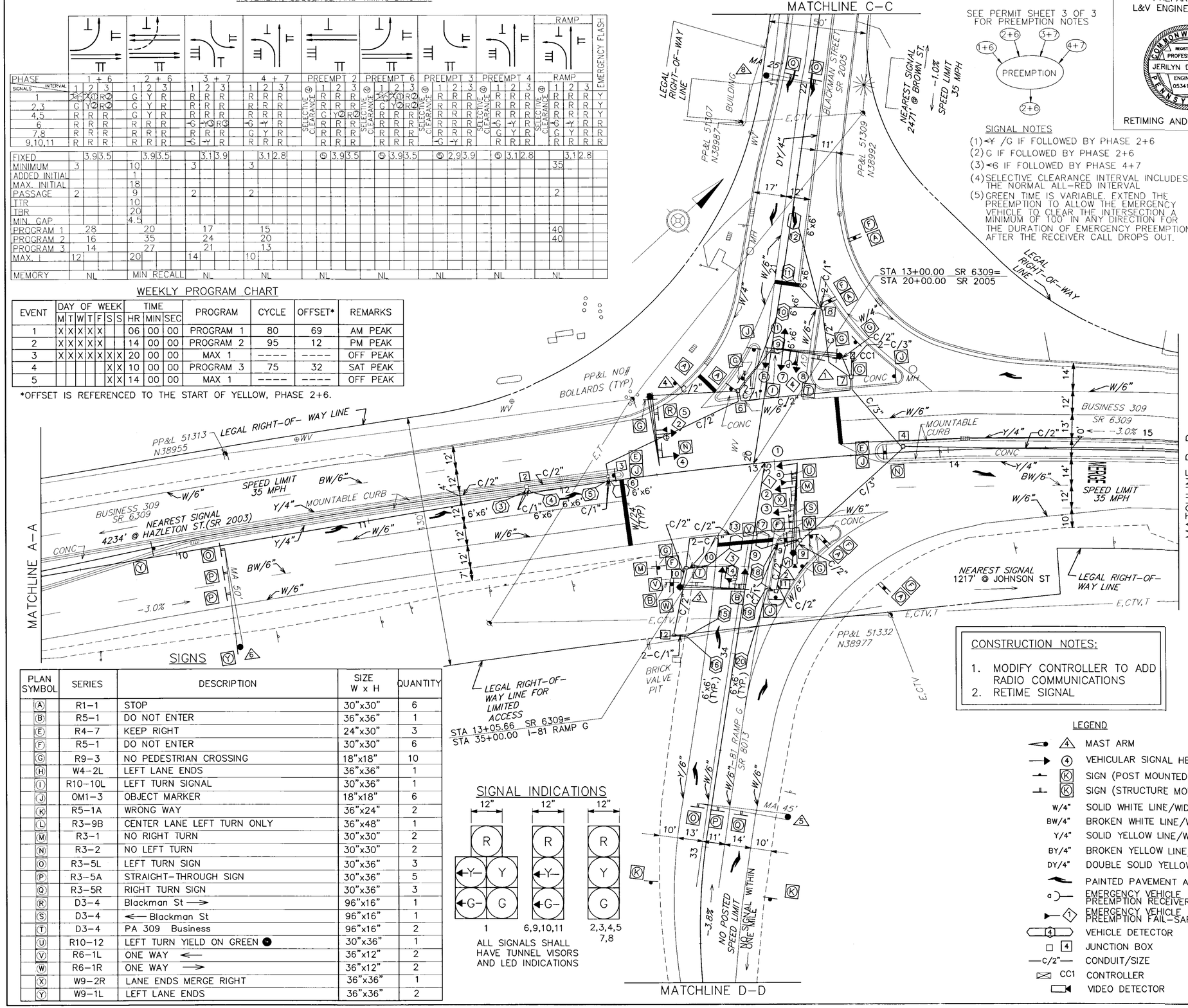
PHASE	1 + 6			2 + 6			3 + 7			4 + 7			PREEMPT 2			PREEMPT 6			PREEMPT 3			PREEMPT 4			RAMP			EMERGENCY FLASH
SIGNALS / INTERVAL	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	
1	G	Y	R	G	Y	R	R	R	R	R	R	R	SELECTIVE CLEARANCE	R	R	R	SELECTIVE CLEARANCE	R	R	R	R	R	R	R	R	R	R	R	Y
2,3	G	Y	R	G	Y	R	R	R	R	R	R	R		G	Y	R		G	Y	R	R	R	R	R	R	R	R	Y
4,5	R	R	R	G	Y	R	R	R	R	R	R	R		R	R	R		R	R	R	R	R	R	R	R	R	R	Y
6	R	R	R	R	R	R	G	Y	R	G	Y	R		R	R	R		R	R	R	R	R	R	R	R	R	R	Y
7,8	R	R	R	R	R	R	R	R	R	G	Y	R		R	R	R		R	R	R	R	R	R	G	Y	R	R	Y
9,10,11	R	R	R	R	R	R	R	R	R	R	R	R		R	R	R		R	R	R	R	R	R	G	Y	R	R	Y

FIXED		3.9	3.5		3.9	3.5		3.1	3.9		3.1	2.8		3.9	3.5		3.9	3.5		2.9	3.9		3.1	2.8		3.1	2.8	
MINIMUM	3			10			3			3															35			
ADDED INITIAL				1																								
MAX. INITIAL				18																								
PASSAGE	2			9			2			2															2			
TTR				10																								
TBR				20																								
MIN. CAP				4.5																								
PROGRAM 1		28			20			17			15														40			
PROGRAM 2		16			35			24			20														40			
PROGRAM 3		14			27			21			13																	
MAX. I	12			20			14			10																		
MEMORY	NL			MIN RECALL			NL			NL			NL			NL			NL			NL			NL			

WEEKLY PROGRAM CHART

EVENT	DAY OF WEEK							TIME			PROGRAM	CYCLE	OFFSET*	REMARKS
	M	T	W	T	F	S	S	HR	MIN	SEC				
1	X	X	X	X	X			06	00	00	PROGRAM 1	80	69	AM PEAK
2	X	X	X	X	X			14	00	00	PROGRAM 2	95	12	PM PEAK
3	X	X	X	X	X	X	X	20	00	00	MAX 1	----	----	OFF PEAK
4						X	X	10	00	00	PROGRAM 3	75	32	SAT PEAK
5						X	X	14	00	00	MAX 1	----	----	OFF PEAK

*OFFSET IS REFERENCED TO THE START OF YELLOW, PHASE 2+6.



SIGNS

PLAN SYMBOL	SERIES	DESCRIPTION	SIZE W x H	QUANTITY
A	R1-1	STOP	30"x30"	6
B	R5-1	DO NOT ENTER	36"x36"	1
E	R4-7	KEEP RIGHT	24"x30"	3
F	R5-1	DO NOT ENTER	30"x30"	6
G	R9-3	NO PEDESTRIAN CROSSING	18"x18"	10
H	W4-2L	LEFT LANE ENDS	36"x36"	1
I	R10-10L	LEFT TURN SIGNAL	30"x36"	1
J	OM1-3	OBJECT MARKER	18"x18"	6
K	R5-1A	WRONG WAY	36"x24"	2
L	R3-9B	CENTER LANE LEFT TURN ONLY	36"x48"	1
M	R3-1	NO RIGHT TURN	30"x30"	2
N	R3-2	NO LEFT TURN	30"x30"	2
O	R3-5L	LEFT TURN SIGN	30"x36"	3
P	R3-5A	STRAIGHT-THROUGH SIGN	30"x36"	5
Q	R3-5R	RIGHT TURN SIGN	30"x36"	3
R	D3-4	Blackman St →	96"x16"	1
S	D3-4	← Blackman St	96"x16"	1
T	D3-4	PA 309 Business	96"x16"	2
U	R10-12	LEFT TURN YIELD ON GREEN	30"x36"	1
V	R6-1L	ONE WAY ←	36"x12"	2
W	R6-1R	ONE WAY →	36"x12"	2
X	W9-2R	LANE ENDS MERGE RIGHT	36"x36"	1
Y	W9-1L	LEFT LANE ENDS	36"x36"	2

SIGNAL INDICATIONS

ALL SIGNALS SHALL HAVE TUNNEL VISORS AND LED INDICATIONS

PREPARED BY:
L&V ENGINEERING, LLC

RETIMING AND RADIO ONLY

SEE PERMIT SHEET 3 OF 3 FOR PREEMPTION NOTES

SIGNAL NOTES

(1) ←Y /G IF FOLLOWED BY PHASE 2+6
(2) G IF FOLLOWED BY PHASE 2+6
(3) ←G IF FOLLOWED BY PHASE 4+7
(4) SELECTIVE CLEARANCE INTERVAL INCLUDES THE NORMAL ALL-RED INTERVAL
(5) GREEN TIME IS VARIABLE. EXTEND THE PREEMPTION TO ALLOW THE EMERGENCY VEHICLE TO CLEAR THE INTERSECTION A MINIMUM OF 100' IN ANY DIRECTION FOR THE DURATION OF EMERGENCY PREEMPTION AFTER THE RECEIVER CALL DROPS OUT.

CONSTRUCTION NOTES:

1. MODIFY CONTROLLER TO ADD RADIO COMMUNICATIONS
2. RETIME SIGNAL

LEGEND

- MAST ARM
- VEHICULAR SIGNAL HEAD
- SIGN (POST MOUNTED)
- SIGN (STRUCTURE MOUNTED)
- W/4" SOLID WHITE LINE/WIDTH
- BW/4" BROKEN WHITE LINE/WIDTH
- Y/4" SOLID YELLOW LINE/WIDTH
- BY/4" BROKEN YELLOW LINE/WIDTH
- DY/4" DOUBLE SOLID YELLOW LINE/WIDTH
- PAINTED PAVEMENT ARROW
- EMERGENCY VEHICLE PREEMPTION RECEIVER
- EMERGENCY VEHICLE PREEMPTION FAIL-SAFE LIGHT
- VEHICLE DETECTOR
- JUNCTION BOX
- C/2" CONDUIT/SIZE
- CC1 CONTROLLER
- VIDEO DETECTOR

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
4-0	LUZERNE	6309		

WILKES-BARRE TOWNSHIP

PERMIT NO. 5815 SHEET 2 OF 3

DATE ISSUED 1/28/66 DATE REVISED

REVISION NUMBER	REVISIONS	DATE	BY
1	AS-BUILT PLANS	11/08	JEP
2	RETIMING, ADD RADIO INTERCONNECT	02/19	JDL

GENERAL NOTES

1. INSTALL, OPERATE AND MAINTAIN THIS TRAFFIC SIGNAL IN ACCORDANCE WITH PENNSYLVANIA DEPARTMENT OF TRANSPORTATION REGULATIONS ON OFFICIAL TRAFFIC CONTROL DEVICES (PUB 212), SPECIFICATIONS (PUB 408), TRAFFIC STANDARDS TC-8700 AND TC-8800 SERIES (PUB 148), AND TRAFFIC SIGNAL DESIGN HANDBOOK (PUB 149).
2. NO MODIFICATION OF THIS INSTALLATION IS PERMITTED UNLESS PRIOR APPROVAL IS GRANTED IN WRITING BY THE DISTRICT TRAFFIC ENGINEER.
3. ALL MAINTENANCE NECESSARY FOR THE PROPER VISIBILITY OF THESE SIGNALS, INCLUDING TRIMMING OF TREES, IS THE RESPONSIBILITY OF THE CONTRACTOR.
4. THE CONTRACTOR MAINTAINS ALL SIGNS IN THE SIGN BLOCK AND ALL PAVEMENT MARKINGS INDICATED ON THIS DRAWING, WHICH ARE CONSIDERED PART OF THE PERMIT, UNLESS OTHERWISE INDICATED.
5. EACH LOOP MUST BE ASSIGNED TO A SEPARATE DETECTOR INPUT IN THE CONTROLLER TIMER WHICH WILL PROVIDE THE CAPABILITY OF EXTENSIONS AND DELAYS TO ALL INDIVIDUAL LOOPS.
6. CARD RACK TO BE NEMA TYPE 7-T.
7. THIS DRAWING CANNOT BE USED AS A CONSTRUCTION DRAWING, UNLESS THE CONTRACTOR COMPLIES WITH THE PROVISIONS OF ACT 287, AS AMENDED, PREVENTION OF DAMAGE TO UNDERGROUND UTILITIES. PRIOR TO CONSTRUCTION CONSULT WITH UTILITY COMPANIES TO RESOLVE ANY CONFLICTS.
8. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING ANY RELOCATION OF OVERHEAD UTILITIES THAT MAY INTERFERE WITH CLEAR VISIBILITY OF THE SIGNAL HEADS.
9. INSTALL SIGNAL HEADS AND SIGNS WITH BOTTOMS NOT LESS THAN 17 FEET NOR MORE THAN 19 FEET ABOVE THE ROADWAY.
10. INSTALL SIGNAL SUPPORTS AND POST MOUNTED SIGNAL HEADS A MINIMUM OF 2 FEET BEHIND THE FACE OF CURB.
11. INSTALL ALL SIGNS AND PAVEMENT MARKINGS, AS INDICATED ON THIS PLAN, BEFORE SIGNALS CAN BE PUT INTO RED, YELLOW, GREEN OPERATION.
12. CONTACT PENNDOT TRAFFIC UNIT TO SCHEDULE A TRAFFIC SIGNAL INSPECTION A MINIMUM OF 3 DAYS PRIOR TO RED, YELLOW, GREEN OPERATION.
13. NOTIFY THE DISTRICT TRAFFIC ENGINEER 7 CALENDAR DAYS PRIOR TO CONDUCTING THE PHYSICAL AND FUNCTIONAL SHOP TEST AS REQUIRED IN SECTION 1104 OF PUB 408, SO THAT THE DISTRICT REPRESENTATIVES MAY WITNESS THE TESTING.
14. SIGNALS MUST FLASH A MINIMUM OF 3 DAYS AND A MAXIMUM OF 7 DAYS PRIOR TO RED, YELLOW, GREEN OPERATION.
15. ALL PAVEMENT MARKINGS ON THE TRAFFIC SIGNAL PERMIT ARE TO BE HOT THERMOPLASTIC AND MAINTAINED BY THE CONTRACTOR. THE DEPARTMENT MAINTAINS THE LONGITUDINAL MARKINGS ON STATE HIGHWAYS.
16. INSTALL TRAFFIC SIGNAL HEADS WITH A MINIMUM OF 8 FEET SEPARATION BETWEEN HEADS AS VIEWED FROM THE APPROACH.
17. THE HOP PERMITTEE IS RESPONSIBLE TO MAKE THE SIGNAL FUNCTION ACCORDING TO PLAN.
18. THE HOP PERMITTEE IS RESPONSIBLE TO ENSURE EXISTING EQUIPMENT, INCLUDING INTERCONNECT SYSTEM, IS OPERATING ACCORDING TO PLANS.

COUNTY : LUZERNE

MUNICIPALITY : WILKES-BARRE TOWNSHIP

INTERSECTION : BUS. PA 309(SR 6309) AND BLACKMAN ST./ I-81 RAMP G

REVIEWED :
SEE SIGNED ORIGINAL
MUNICIPAL OFFICIAL DATE

RECOMMENDED :
SEE SIGNED ORIGINAL
DISTRICT TRAFFIC ENGINEER DATE

SCALE : 1"=25' 25' 0' 25'

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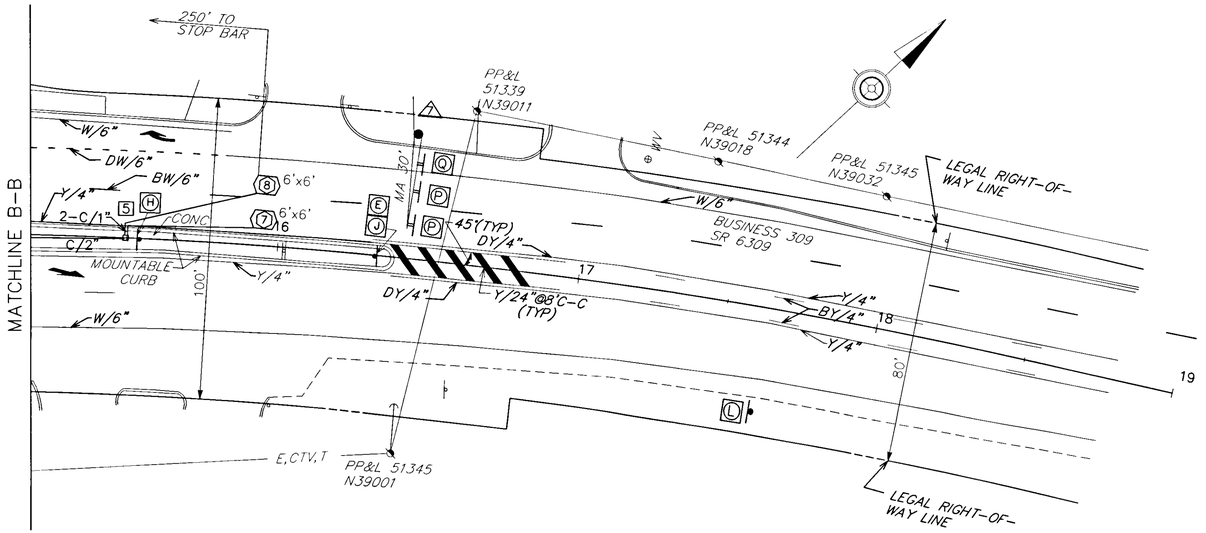
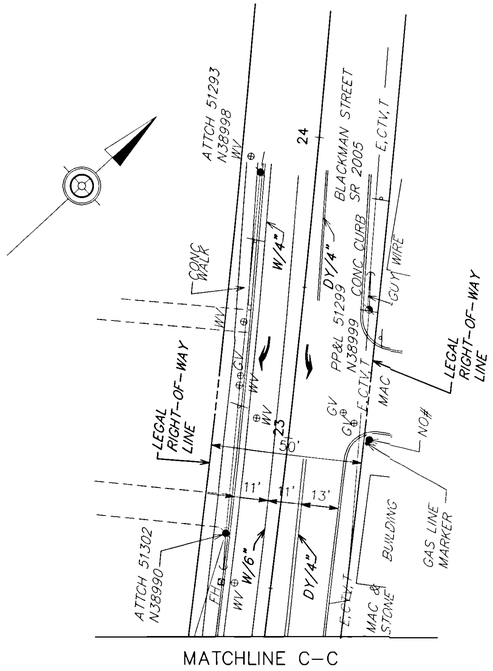
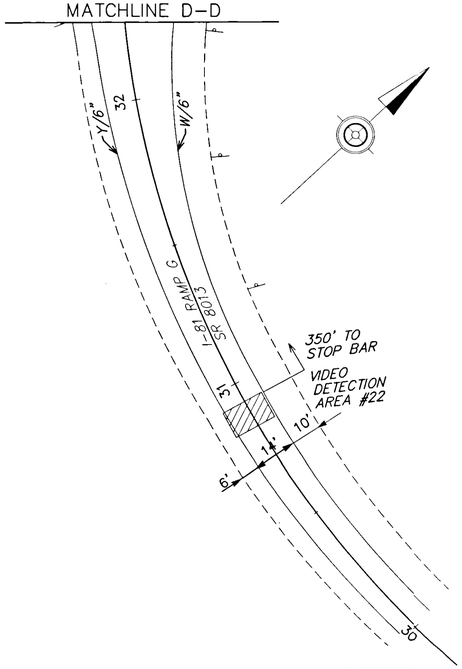
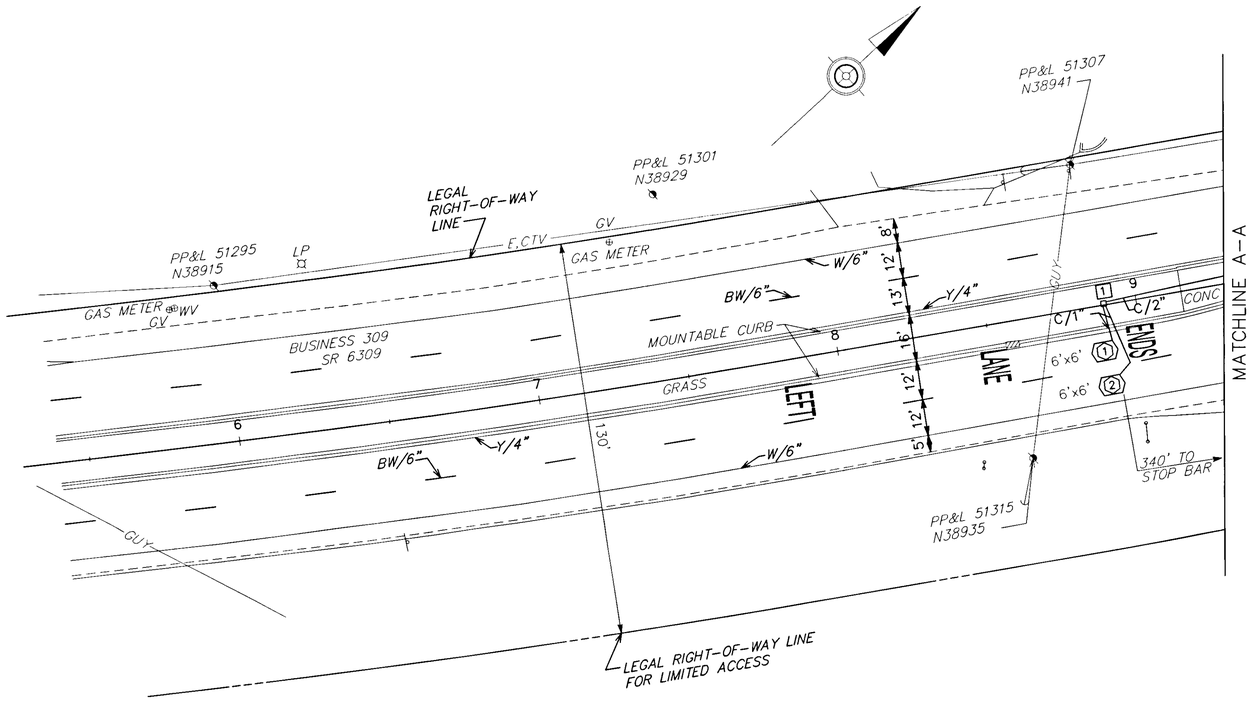




MATCHLINE C–C





SR 6309 INTERCONNECT WIRING DIAGRAM

CC–1 — RADIO — CC–2 — RADIO — CC–3

BLACKMAN STREET/ I–81 RAMP G | JOHNSON STREET/ BLACKMAN PLAZA | CASEY AVENUE

NOTES:
PERMITTEE MAINTAINS INTERCONNECT FOR LOCAL TRAFFIC SIGNAL SYSTEM

THE HOP APPLICANT SHALL ENSURE THE FUNCTIONALITY OF THE INTERCONNECT FOR THE DURATION OF THE 30–DAY TEST

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
4–0	LUZERNE	6309		

WILKES–BARRE TOWNSHIP

PERMIT NO. 5815 SHEET 3 OF 3

DATE ISSUED 1/28/66 DATE REVISED

REVISION NUMBER	REVISIONS	DATE	BY
1	AS–BUILT PLANS	11/08	JEP
2	RETIMING, ADD RADIO INTERCONNECT	02/19	JDL

EMERGENCY PREEMPTION NOTES

CONTROLLER TO BE EQUIPPED WITH EMERGENCY PREEMPTION FOR ALL APPROACHES OF SR 6309 AND I–81 SB EXIT RAMP AND BLACKMAN ST WITH A FAIL SAFE DEVICE FOR EACH DIRECTION OF OPERATION.

THIS FAIL SAFE DEVICE SHALL CONSIST OF A FLASHING WHITE FLOOD LIGHT AND SHALL FLASH WHEN THE EMERGENCY VEHICLE HAS CONTROL OF THE INTERSECTION FOR THE APPROPRIATE APPROACH.

THE SIGNALS WHEN ACTIVATED BY EMERGENCY VEHICLE SHALL TERMINATE ALL GREEN INDICATIONS EXCEPT THE GREEN INDICATIONS FOR THE PHASE GOVERNED BY THE APPROACHING EMERGENCY VEHICLE, FOLLOWED BY SELECTIVE CLEARANCES DEPENDENT UPON THE PHASE IN WHICH THE PREEMPTION OCCURS.

THE GREEN INDICATIONS FOR THE PREEMPTED PHASE SHALL REMAIN GREEN FOR THE DURATION OF SIGNAL PREEMPTION AND RED INDICATIONS DISPLAYED FOR ALL OTHER PHASES.

THE SIGNALS, WHEN ACTIVATED BY EMERGENCY VEHICLE, SHALL TIME OUT ALL YELLOW AND RED INDICATIONS FOLLOWED BY THE GREEN INTERVAL OF THE PREEMPTION PHASE GOVERNED BY THE APPROACHING EMERGENCY VEHICLE.

IF SIGNALS HAVE BEEN ACTUATED BY PEDESTRIAN PUSH BUTTON, AND THE SIGNAL IS PREEMPTED, THE PEDESTRIAN WALK INTERVAL SHALL TERMINATE IMMEDIATELY AND BE FOLLOWED BY THE PED CLEAR INTERVAL. THIS INTERVAL SHALL TIME OUT FOLLOWED BY THE APPROPRIATE SELECTIVE CLEARANCES BEFORE GOING INTO EMERGENCY PREEMPTION.

FOR WIRELESS PREEMPTION, THE GREEN INTERVAL SHALL EQUAL THE LENGTH OF THE PREEMPTION DETECTOR CALL PLUS 5 SECONDS.

IF THE SIGNALS WHEN ACTIVATED BY AN EMERGENCY VEHICLE ARE FLASHING, ALL SIGNALS SHALL REMAIN FLASHING.

UPON COMPLETION OF THE PREEMPTION PHASE 2, 3, 4, OR 6, IN RETURNING TO NORMAL OPERATION, PHASE 2+6 INTERVAL 1 SHALL FOLLOW.

IN EMERGENCY PREEMPTION NO PRIORITY SHALL BE ESTABLISHED. PREEMPTION SHALL BE A FIRST COME, FIRST SERVE OPERATION.

WIRELESS PREEMPTION WILL BE PROVIDED FOR ALL APPROACHES OF THE INTERSECTION.

THE CONTRACTOR IS RESPONSIBLE FOR LOCATING THE RECEIVING DEVICE(S) IN ORDER TO ACHIEVE PROPER OPERATION ACCORDING TO THE MANUFACTURER'S SPECIFICATIONS. MOST CONDUITS ARE ADEQUATE SIZE TO HANDLE THE ADDITIONAL PREEMPTION DEVICE WIRE, BUT THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE DIAMETER(S).

PREPARED BY:
L&V ENGINEERING, LLC

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JERILYN D. LUBEN
ENGINEER
053418–E

RETIMING AND RADIO ONLY

COUNTY : LUZERNE

MUNICIPALITY : WILKES–BARRE TOWNSHIP

INTERSECTION : BUS. PA 309(SR 6309) AND BLACKMAN ST./ I–81 RAMP G

REVIEWED :
SEE SIGNED ORIGINAL
MUNICIPAL OFFICIAL DATE

RECOMMENDED :
SEE SIGNED ORIGINAL
DISTRICT TRAFFIC ENGINEER DATE

SCALE : 1"=25' 25' 0' 25'

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TRAFFIC SIGNAL PLAN

SR 6309 AND JOHNSON STREET/
BLACKMAN PLAZA DRIVEWAY

PREPARED BY:
L&V ENGINEERING, LLC

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JERILYN D. LUBEN
ENGINEER
053418-E

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
4-0	LUZERNE	6309		
WILKES-BARRE TOWNSHIP				

REVISION NUMBER	REVISIONS	DATE	BY

SIGNS

SYMBOL	DESCRIPTION		SIZE (IN.)	QTY.	POST MOUNTED SIGNS, TYPE B (0931 0001 SF)	POST MOUNTED SIGNS, TYPE F (0935 0001 SF)	STRUCTURE MOUNTED FLAT SHEET ALUMINUM SIGNS WITH STIFFENERS (0936 0010 SF)	STRUCTURE MOUNTED FLAT SHEET ALUMINUM SIGNS (0936 0200 SF)
A	R1-1	STOP	30 X 30	1	6.25			
B	R3-5A	STRAIGHT-THROUGH	30 X 36	2				15.00
C	R3-5L	LEFT TURN	30 X 36	2				15.00
D	R3-5R	RIGHT TURN	30 X 36	2				15.00
E	R3-8A	LANE USE CONTROL (LS-R)	30 X 30	1	6.25			
F	R3-9CP	BEGIN	30 X 15	2	6.25			
G	R3-9A	TWO-WAY LEFT TURN ONLY	30 X 36	2	15.00			
H	R4-7C	KEEP RIGHT (NARROW)	18 X 30	1	3.75			
I	R9-3	NO PEDESTRIAN CROSSING	18 X 18	2		4.50		
J	R9-3BPL	USE CROSSWALK LEFT PLAQUE	18 X 12	1		1.50		
K	R9-3BPR	USE CROSSWALK RIGHT PLAQUE	18 X 12	1		1.50		
L	R10-3E	EDUCATIONAL PUSH BUTTON FOR WALK SIGNAL W/C'DOWN TIMER ←	9 X 15	4		*		
M	R10-3E	EDUCATIONAL PUSH BUTTON FOR WALK SIGNAL W/C'DOWN TIMER →	9 X 15	2		*		
N	R10-12	LEFT TURN YIELD ON GREEN ●	30 X 36	1				7.50
O	W11-2	PEDESTRIAN	30 X 30	2	12.50			
P	W16-7P	DIAGONAL DOWNWARD POINTING ARROW	24 X 12	2	4.00			
Q	D3-5	WILKES-BARRE TOWNSHIP BLVD	28 X 96	2			37.33	
R	D3-4	JOHNSON →	16 X 78	1			8.67	
S	D3-4	← JOHNSON	16 X 78	1			8.67	
				TOTAL	54.00	7.50	54.67	52.50
				CALL	54	8	55	53

* INCLUDED WITH ITEM NUMBER 0956-0500

TRENCH, CONDUIT, JUNCTION BOX, ELECTRICAL ITEMS

DESCRIPTION		2 INCH CONDUIT	3 INCH CONDUIT	TRENCH AND BACKFILL, TYPE IV	SIGNAL CABLE, 14 AWG, 3 CONDUCTOR	SIGNAL CABLE, 14 AWG, 5 CONDUCTOR	SIGNAL CABLE, 14 AWG, 7 CONDUCTOR	JUNCTION BOX, JB 27	ELECTRICAL SERVICE, TYPE C
LOCATION	ITEM NUMBER	0954 0012	0954 0013	0954 0154	0954 0201	0954 0202	0954 0203	0954 0302	0954 0403
	UNIT	LF	LF	LF	LF	LF	LF	EACH	EACH
JUNCTION BOX 1 SR 6309 STA. 1314+18 RT								1	
JUNCTION BOX 2 SR 6309 STA. 1313+25 RT								1	
JUNCTION BOX 3 SR 6309 STA. 1313+99 LT								1	
JUNCTION BOX 4 SR 6309 STA. 1313+47 LT								1	
JB 4 TO JB 3			51	51					
JB 3 TO JB 1			67	67					
JB 2 TO JB 1			92	92					
JB 1 TO POLE 1		8		8					
JB 2 TO POLE 2		11		11					
JB 4 TO POLE 3		13		13					
JB 3 TO POLE 4		14		14					
POLE 1 TO CC-2					74	86	110		
POLE 2 TO CC-2					138	352			
POLE 3 TO CC-2					172	407			
POLE 4 TO CC-2					232	416			
JB 1 TO CC-2			12	6					
CC-2 ELECTRICAL SERVICE		40		40					1
TOTAL		86	222	302	616	1261	110	4	1

TRAFFIC SIGNAL SUPPORTS △

STRUCTURE NUMBER	ITEM NUMBER / UNIT	DESCRIPTION	QTY.	ROUTE	STATION	SIDE	OFFSET (FT)	MAST ARM H	MAST ARM K	SIGNALS M	SIGNALS N	SIGNALS O	SIGNS R	SIGNS S	SIGNS T	SIGNS Y	W
1	0951 0150 EACH	TRAFFIC SIGNAL SUPPORT, 50' MAST ARM	1	6309	1314+16	RT	46	17	10	46	34		42			29	0°
2	0951 0145 EACH	TRAFFIC SIGNAL SUPPORT, 45' MAST ARM	1	6309	1313+27	RT	55	17	10	43	35					16	90°
3	0951 0135 EACH	TRAFFIC SIGNAL SUPPORT, 35' MAST ARM	1	6309	1313+39	LT	36	17	10	30	21					18	0°
4	0951 0130 EACH	TRAFFIC SIGNAL SUPPORT, 30' MAST ARM	1	6309	1314+05	LT	36	17	10	29	21					13	270°
5	0951 0140 EACH	TRAFFIC SIGNAL SUPPORT, 40' MAST ARM	1	6309	1312+33	RT	38						37	26	15		0°
6	0951 0145 EACH	TRAFFIC SIGNAL SUPPORT, 45' MAST ARM	1	6309	1315+94	LT	40						41	30	18		0°

△ – REFER TO TRAFFIC STANDARDS (TC-8800 SERIES) SIGNALS, FOR LETTER DESIGNATIONS

VERTICAL POLES AND MAST ARMS TO BE DESIGNED BY MANUFACTURER TO ADEQUATELY SUPPORT LOADS AS SHOWN ON THE PLAN OR MAXIMUM LOAD REQUIREMENTS ESTABLISHED BY AASHTO SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS, WHICHEVER IS GREATER.

PHASING, TIMING AND SEQUENCE CHART

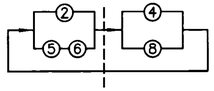
PHASE	2+5				2+6				4+8				EMERGENCY FLASHING OPERATION
INTERVAL / SIGNALS	1	2	3	4	5	6	7	8	9	10	11	12	
1	G/~~G~~	G/~~G~~	Y②	R③	G	G	Y	R	R	R	R	R	Y
2	G	G	Y③	R③	G	G	Y	R	R	R	R	R	Y
3,4	R	R	R	R	G	G	Y	R	R	R	R	R	Y
5,6	R	R	R	R	R	R	R	R	G	G	Y	R	R
7,8	R	R	R	R	R	R	R	R	G	G	Y	R	R
9,10	M	FH	H	H	M	FH	H	H	H	H	H	H	OFF
11,12	H	H	H	H	M	FH	H	H	H	H	H	H	OFF
13,14	H	H	H	H	H	H	H	H	M	FH	H	H	OFF
FIXED			3.6	2.4			3.6	2.4			2.9	3.1	
MINIMUM					3								
PASSAGE					2								
PROGRAM 1	13				48				19				
PROGRAM 2	13				65				17				
PROGRAM 3	14				44				17				
MAX 1	7				46				12				
PEDESTRIAN①	7④ 19				7 19				7 18				
MEMORY	NON-LOCKING				MAX RECALL				NON-LOCKING				

WEEKLY PROGRAM CHART

EVENT	DAY OF WEEK							TIME			PROGRAM	CYCLE	OFFSET*	REMARKS
	M	T	W	T	F	S	S	HR	MIN	SEC				
1	X	X	X	X	X			06	00	00	PROGRAM 1	80	0	AM PEAK
2	X	X	X	X	X			14	00	00	PROGRAM 2	95	0	PM PEAK
3	X	X	X	X	X	X	X	20	00	00	MAX 1	----	----	OFF PEAK
4						X	X	10	00	00	PROGRAM 3	75	0	SAT PEAK
5						X	X	14	00	00	MAX 1	----	----	OFF PEAK

*OFFSET IS REFERENCED TO THE START OF YELLOW, PHASE 2+6.

NEMA DIAGRAM



PHASING NOTES

① UPON ACTUATION ONLY, OTHERWISE H AT ALL TIMES
② G/~~Y~~ IF FOLLOWED BY PHASE 2+6
③ G IF FOLLOWED BY PHASE 2+6
④ TIMING MAY BE STARTED IN THIS PHASE AND COMPLETED IN PHASE 2+6

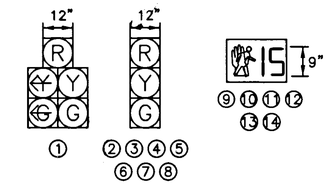
PREPARED BY:
L&V ENGINEERING, LLC

COMMONWEALTH OF PENNSYLVANIA — REGISTERED PROFESSIONAL — JERILYN D. LUBEN — ENGINEER — 053418-E

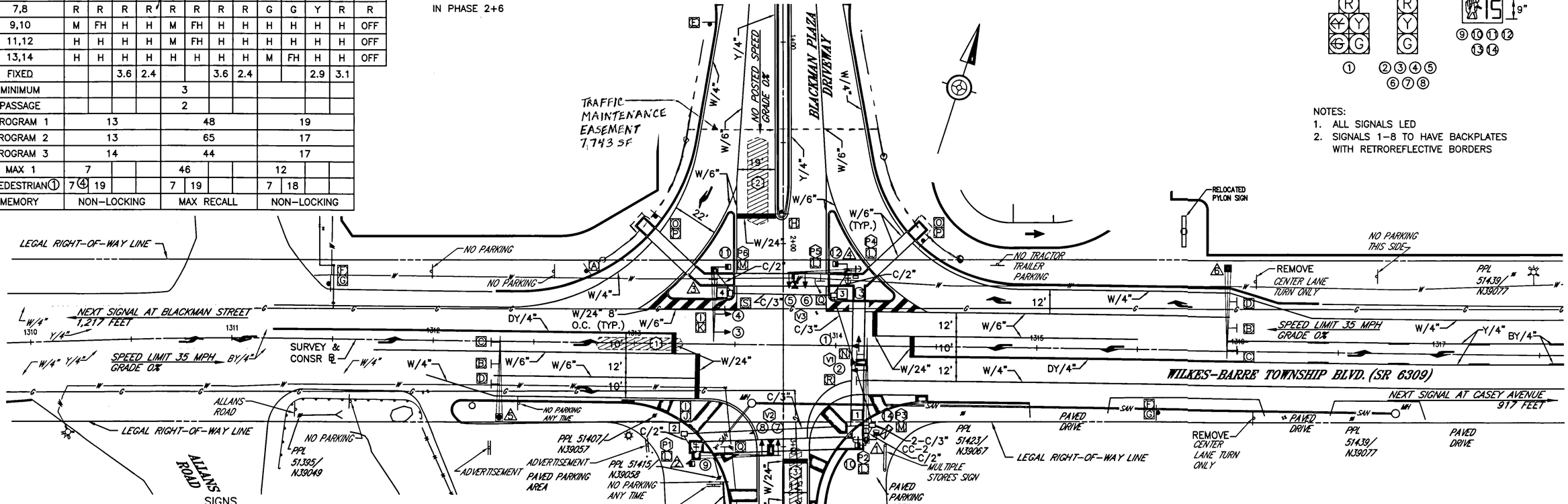
DISTRICT	COUNTY	ROUTE	SECTION	SHEET
4-0	LUZERNE	6309		
WILKES-BARRE TOWNSHIP				
PERMIT NO. 07810		SHEET 2 OF 3		
DATE ISSUED:		DATE REVISED:		

REVISION NUMBER	REVISIONS	DATE	BY

SIGNAL INDICATIONS



NOTES:
1. ALL SIGNALS LED
2. SIGNALS 1-8 TO HAVE BACKPLATES WITH RETROREFLECTIVE BORDERS



SIGNS

SYMBOL	SERIES	DESCRIPTION	SIZE (IN.)	QTY.
A	R1-1	STOP	30 X 30	1
B	R3-5A	STRAIGHT-THROUGH	30 X 36	2
C	R3-5L	LEFT TURN	30 X 36	2
D	R3-5R	RIGHT TURN	30 X 36	2
E	R3-8A	LANE USE CONTROL (LS-R)	30 X 30	1
F	R3-9CP	BEGIN	30 X 15	2
G	R3-9A	TWO-WAY LEFT TURN ONLY	30 X 36	2
H	R4-7C	KEEP RIGHT (NARROW)	18 X 30	1
I	R9-3	NO PEDESTRIAN CROSSING	18 X 18	2
J	R9-3BPL	USE CROSSWALK LEFT PLAQUE	18 X 12	1
K	R9-3BPR	USE CROSSWALK RIGHT PLAQUE	18 X 12	1
L	R10-3E	EDUCATIONAL PUSH BUTTON FOR WALK SIGNAL W/C'DOWN TIMER ←	9 X 15	4
M	R10-3E	EDUCATIONAL PUSH BUTTON FOR WALK SIGNAL W/C'DOWN TIMER →	9 X 15	2
N	R10-12	LEFT TURN YIELD ON GREEN ●	30 X 36	1
O	W11-2	PEDESTRIAN	30 X 30	2
P	W16-7P	DIAGONAL DOWNWARD POINTING ARROW	24 X 12	2
Q	D3-5	WILKES-BARRE TOWNSHIP BLVD	28 X 96	2
R	D3-4	JOHNSON →	16 X 78	1
S	D3-4	← JOHNSON	16 X 78	1

LEGEND

- A – MAST ARM
- 2 – VEHICULAR SIGNAL HEAD
- 2 – PEDESTRIAN SIGNAL HEAD
- A – POST MOUNTED SIGN
- A – MAST ARM OR PEDESTAL MOUNTED SIGN
- W/24" – PAVEMENT MARKING WHITE/WIDTH
- DY/4" – PAVEMENT MARKING DOUBLE YELLOW/WIDTH
- CC-2 – SIGNAL CONTROLLER
- V2 – VIDEO DETECTOR
- (21) – AREA OF VIDEO DETECTION
- P2 A – PEDESTRIAN PUSH BUTTON/SIGN
- 2 – CONDUIT AND JUNCTION BOX
- C/2" – CONDUIT/SIZE

COUNTY:	LUZERNE
MUNICIPALITY:	WILKES-BARRE TOWNSHIP
INTERSECTION:	SR 6309 AND JOHNSON STREET/ BLACKMAN PLAZA DRIVEWAY

RECOMMENDED: _____ MUNICIPAL OFFICIAL — DATE: 6-26-19

RECOMMENDED: _____ DISTRICT TRAFFIC ENGINEER — DATE: 7/19/19

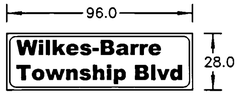
25' 0 12.5' 25' 50' 100'

6/17/2019 2:42:04 PM, L&V Engineering

OVERHEAD STREET NAME SIGNS
(NOT TO SCALE)

SIGNS SHALL BE WHITE LEGEND AND BORDER ON GREEN BACKGROUND. LEGEND, BORDER AND BACKGROUND SHALL BE CLASS II REFLECTIVE MATERIAL WITH 1 INCH BORDER AND 2 INCH RADIUS ON CORNERS. ALL DIMENSIONS SHOWN IN INCHES.

[Q]



SPACE	9.2	SPACE	6.6
W	9.5	T	6.7
i	4.1	o	6.2
l	4.1	w	9.1
k	6.2	n	6.7
e	6.1	s	6.8
s	4.6	h	7.4
SPACE	4.5	i	4.1
DASH	4.5	p	4.6
SPACE	4.5	SPACE	8.0
B	7.7	B	8.4
a	7.4	l	3.4
r	5.2	v	6.8
r	4.6	d	4.6
e	4.6	SPACE	6.6
SPACE	9.2	TOTAL = 96.0	
TOTAL = 96.0			

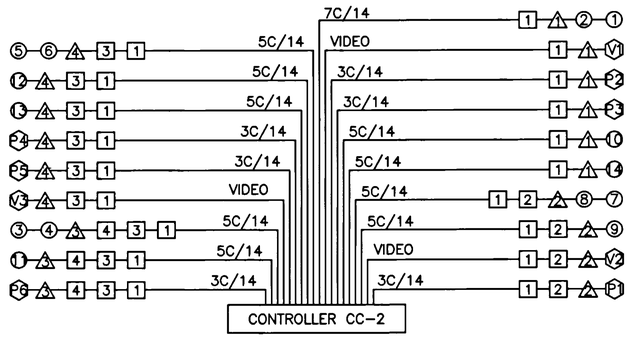
[R]

SPACE	6.1
J	8.7
o	7.7
h	8.2
n	7.4
s	6.9
o	7.7
n	5.1
SPACE	5.0
ARROW	9.0
SPACE	6.2
TOTAL = 78.0	

[S]

SPACE	6.1
ARROW	9.0
SPACE	5.0
J	8.7
o	7.7
h	8.2
n	7.4
s	6.9
o	7.7
n	5.1
SPACE	6.2
TOTAL = 78.0	

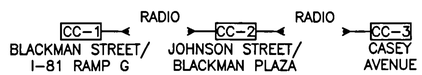
WIRING DIAGRAM



LEGEND

- △ – MAST ARM OR PEDESTAL POLE
- V2 – VIDEO DETECTOR
- P2 – PUSH BUTTON
- ② – SIGNAL HEAD/PEDESTRIAN SIGNAL HEAD
- [2] – JUNCTION BOX

SR 6309 INTERCONNECT WIRING DIAGRAM



NOTES:
PERMITTEE MAINTAINS INTERCONNECT FOR LOCAL TRAFFIC SIGNAL SYSTEM

THE HOP APPLICANT SHALL ENSURE THE FUNCTIONALITY OF THE INTERCONNECT FOR THE DURATION OF THE 30-DAY TEST

NOTE

THE TRAFFIC SIGNAL SHALL NOT BE PLACED INTO OPERATION UNTIL THE TRAFFIC SIGNAL IS CONSTRUCTED AND OPERATING ACCORDING TO THE PERMITTED PLAN. ALSO AN INSPECTION CHECKLIST SHALL BE SIGNED AND SUBMITTED BY THE H.O.P. APPLICANT'S ENGINEER OR THE DEPARTMENT'S H.O.P. INSPECTOR INDICATING THAT THE SIGNAL IS COMPLETE BEFORE THE SIGNALS UNIT WILL COME OUT AND INSPECT THE SIGNAL TO ALLOW THE SIGNAL TO BE TURNED ON.

PREPARED BY:
L&V ENGINEERING, LLC

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JERILYN D. LUBEN
ENGINEER
053418-E

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
4-0	LUZERNE	6309		
WILKES-BARRE TOWNSHIP				
PERMIT NO. 07810		SHEET 3 OF 3		
DATE ISSUED:		DATE REVISED:		

REVISION NUMBER	REVISIONS	DATE	BY

GENERAL NOTES

1. INSTALL, OPERATE AND MAINTAIN THIS TRAFFIC SIGNAL IN ACCORDANCE WITH PENNSYLVANIA DEPARTMENT OF TRANSPORTATION REGULATIONS ON OFFICIAL TRAFFIC CONTROL DEVICES (PUB 212), SPECIFICATIONS (PUB 408), TRAFFIC STANDARDS TC-8700 AND TC-8800 SERIES (PUB 148), AND TRAFFIC SIGNAL DESIGN HANDBOOK (PUB 149).
2. NO MODIFICATION OF THIS INSTALLATION IS PERMITTED UNLESS PRIOR APPROVAL IS GRANTED IN WRITING BY THE DISTRICT TRAFFIC ENGINEER.
3. ALL MAINTENANCE NECESSARY FOR THE PROPER VISIBILITY OF THESE SIGNALS, INCLUDING TRIMMING OF TREES, IS THE RESPONSIBILITY OF THE CONTRACTOR.
4. THE CONTRACTOR MAINTAINS ALL SIGNS IN THE SIGN BLOCK AND ALL PAVEMENT MARKINGS INDICATED ON THIS DRAWING, WHICH ARE CONSIDERED PART OF THE PERMIT, UNLESS OTHERWISE INDICATED.
5. EACH LOOP MUST BE ASSIGNED TO A SEPARATE DETECTOR INPUT IN THE CONTROLLER TIMER WHICH WILL PROVIDE THE CAPABILITY OF EXTENSIONS AND DELAYS TO ALL INDIVIDUAL LOOPS.
6. CARD RACK TO BE NEMA TYPE 7-T.
7. THIS DRAWING CANNOT BE USED AS A CONSTRUCTION DRAWING, UNLESS THE CONTRACTOR COMPLIES WITH THE PROVISIONS OF ACT 287, AS AMENDED, PREVENTION OF DAMAGE TO UNDERGROUND UTILITIES. PRIOR TO CONSTRUCTION CONSULT WITH UTILITY COMPANIES TO RESOLVE ANY CONFLICTS.
8. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING ANY RELOCATION OF OVERHEAD UTILITIES THAT MAY INTERFERE WITH CLEAR VISIBILITY OF THE SIGNAL HEADS.
9. INSTALL SIGNAL HEADS AND SIGNS WITH BOTTOMS NOT LESS THAN 17 FEET NOR MORE THAN 19 FEET ABOVE THE ROADWAY.
10. INSTALL SIGNAL SUPPORTS AND POST MOUNTED SIGNAL HEADS A MINIMUM OF 2 FEET BEHIND THE FACE OF CURB.
11. INSTALL ALL SIGNS AND PAVEMENT MARKINGS, AS INDICATED ON THIS PLAN, BEFORE SIGNALS CAN BE PUT INTO RED, YELLOW, GREEN OPERATION.
12. CONTACT PENNDOT TRAFFIC UNIT TO SCHEDULE A TRAFFIC SIGNAL INSPECTION A MINIMUM OF 3 DAYS PRIOR TO RED, YELLOW, GREEN OPERATION.
13. NOTIFY THE DISTRICT TRAFFIC ENGINEER 7 CALENDAR DAYS PRIOR TO CONDUCTING THE PHYSICAL AND FUNCTIONAL SHOP TEST AS REQUIRED IN SECTION 1104 OF PUB 408, SO THAT THE DISTRICT REPRESENTATIVES MAY WITNESS THE TESTING.
14. SIGNALS MUST FLASH A MINIMUM OF 3 DAYS AND A MAXIMUM OF 7 DAYS PRIOR TO RED, YELLOW, GREEN OPERATION.
15. ALL PAVEMENT MARKINGS ON THE TRAFFIC SIGNAL PERMIT ARE TO BE HOT THERMOPLASTIC AND MAINTAINED BY THE CONTRACTOR. THE DEPARTMENT MAINTAINS THE LONGITUDINAL MARKINGS ON STATE HIGHWAYS.
16. INSTALL TRAFFIC SIGNAL HEADS WITH A MINIMUM OF 8 FEET SEPARATION BETWEEN HEADS AS VIEWED FROM THE APPROACH.
17. THE HOP PERMITTEE IS RESPONSIBLE TO MAKE THE SIGNAL FUNCTION ACCORDING TO PLAN.
18. THE HOP PERMITTEE IS RESPONSIBLE TO ENSURE EXISTING EQUIPMENT, INCLUDING INTERCONNECT SYSTEM, IS OPERATING ACCORDING TO PLANS.

COUNTY:	LUZERNE
MUNICIPALITY:	WILKES-BARRE TOWNSHIP
INTERSECTION:	SR 6309 AND JOHNSON STREET/ BLACKMAN PLAZA DRIVEWAY

RECOMMENDED:
MUNICIPAL OFFICIAL — DATE: 6-20-19

RECOMMENDED:
DISTRICT TRAFFIC ENGINEER — DATE: 7/19/19

6/17/2019 2:42:23 PM, L&V Engineering

TRAFFIC SIGNAL PLAN

SR 6309 AND JOHNSON STREET/
BLACKMAN PLAZA DRIVEWAY

PREPARED BY:
L&V ENGINEERING, LLC

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JERILYN D. LUBEN
ENGINEER
053418-E

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
4-0	LUZERNE	6309		
WILKES-BARRE TOWNSHIP				

REVISION NUMBER	REVISIONS	DATE	BY

MISCELLANEOUS

ITEM NUMBER / UNIT	DESCRIPTION	QTY.	LOCATION	REMARKS
0952 1030 EACH	NEMA TS-2; TYPE 1 CONTROLLER ASSEMBLY, TYPE 1 MOUNTING	1	CC-2	
0953 0401 LS	RADIO COMMUNICATIONS SYSTEM	1	CC-2	
0955 3208 EACH	VEHICULAR SIGNAL HEAD, THREE 12" SECTIONS	7	SIGNALS (2)(3)(4)(5)(6)(7)(8)	
0955 3210 EACH	VEHICULAR SIGNAL HEAD, FIVE 12" SECTIONS	1	SIGNALS (1)	PROTECTED PERMITTED
0955 3722 EACH	LED COUNTDOWN PEDESTRIAN SIGNAL HEAD, TYPE A	6	SIGNALS (9)(10)(11)(12)(13)(14)	

DETECTORS

ITEM NUMBER / UNIT	DESCRIPTION	LOCATION	SENSOR NUMBER	QTY.
0956 0500 EACH	PEDESTRIAN PUSH BUTTON	POLE (2)	(P1)	1
0956 0500 EACH	PEDESTRIAN PUSH BUTTON	POLE (1)	(P2)(P3)	2
0956 0500 EACH	PEDESTRIAN PUSH BUTTON	POLE (4)	(P4)(P5)	2
0956 0500 EACH	PEDESTRIAN PUSH BUTTON	POLE (3)	(P6)	1
			TOTAL	6
0956 0700 EACH	VIDEO DETECTOR	POLE (1)	(V1)	1
0956 0700 EACH	VIDEO DETECTOR	POLE (2)	(V2)	1
0956 0700 EACH	VIDEO DETECTOR	POLE (4)	(V3)	1
			TOTAL	3

PAVEMENT MARKINGS*

ITEM NUMBER / UNIT	DESCRIPTION	QTY.
0964 0001 LF	4" WHITE EPOXY PAVEMENT MARKINGS	704
0964 0002 LF	4" YELLOW EPOXY PAVEMENT MARKINGS	714
0964 0005 LF	6" WHITE EPOXY PAVEMENT MARKINGS	1392
0964 0021 LF	24" WHITE EPOXY PAVEMENT MARKINGS	155
0964 0222 EACH	WHITE EPOXY LEGEND, "RIGHT ARROW", 12'-0" X 3'-0"	4
0964 0224 EACH	WHITE EPOXY LEGEND, "LEFT ARROW", 12'-0" X 3'-0"	4

*SEE SIGNING AND PAVEMENT MARKING PLANS FOR ADDITIONAL INFORMATION

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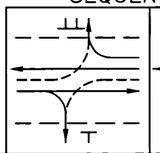
PHASING, TIMING AND SEQUENCE CHART



PHASE	2+6				4+8				EMERGENCY FLASHING OPERATION
SIGNALS \ INTERVAL	1	2	3	4	5	6	7	8	
1,2	G	G	Y	R	R	R	R	R	Y
3,4	G	G	Y	R	R	R	R	R	Y
5,6,7	R	R	R	R	G	G	Y	R	R
8,9	R	R	R	R	G	G	Y	R	R
10,11	H	H	H	H	M	FH	H	H	OFF
12,13	M	FH	H	H	H	H	H	H	OFF
14,15	H	H	H	H	M	FH	H	H	OFF
16,17	M	FH	H	H	H	H	H	H	OFF
FIXED			3.7	1.7			3.4	2.9	
MINIMUM	0				2				
PASSAGE	0				2				
PROGRAM 1	62				18				
PROGRAM 2	71				24				
PROGRAM 3	49				26				
MAX 1	55				17				
PEDESTRIAN①	7	18			7	21			
MEMORY	MAX RECALL				NON-LOCKING				

PHASING NOTE

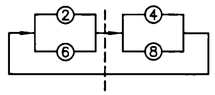
① UPON ACTUATION ONLY, OTHERWISE H AT ALL TIMES

WEEKLY PROGRAM CHART

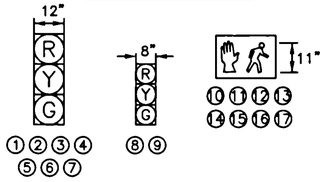
EVENT	DAY OF WEEK							TIME			PROGRAM	CYCLE	OFFSET*	REMARKS
	M	T	W	T	F	S	S	HR	MIN	SEC				
1	X	X	X	X	X			06	00	00	PROGRAM 1	80	31	AM PEAK
2	X	X	X	X	X			14	00	00	PROGRAM 2	95	77	PM PEAK
3	X	X	X	X	X	X	X	20	00	00	MAX 1	----	----	OFF PEAK
4						X	X	10	00	00	PROGRAM 3	75	60	SAT PEAK
5						X	X	14	00	00	MAX 1	----	----	OFF PEAK

*OFFSET IS REFERENCED TO THE START OF YELLOW, PHASE 2+6.

NEMA DIAGRAM

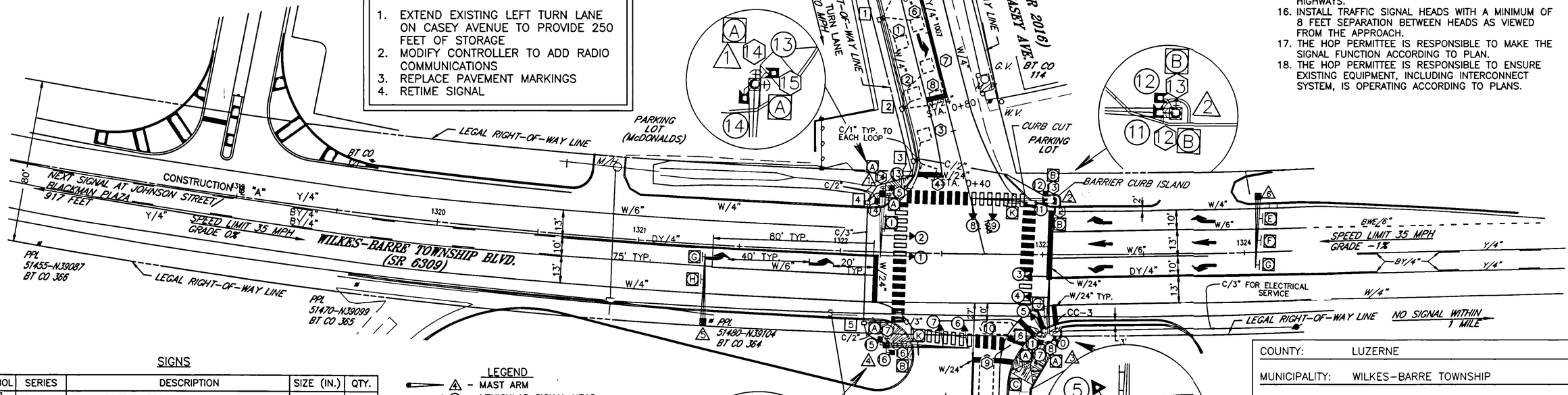


SIGNAL INDICATIONS



CONSTRUCTION NOTES:

1. EXTEND EXISTING LEFT TURN LANE ON CASEY AVENUE TO PROVIDE 250 FEET OF STORAGE
2. MODIFY CONTROLLER TO ADD RADIO COMMUNICATIONS
3. REPLACE PAVEMENT MARKINGS
4. RETIME SIGNAL



SIGNS

SYMBOL	SERIES	DESCRIPTION	SIZE (IN.)	QTY.
A	R10-4	PUSH BUTTON FOR WALK ←	9 X 12	5
B	R10-4	PUSH BUTTON FOR WALK →	9 X 12	3
C	R10-6AL	STOP HERE ON RED	24 X 30	1
D	R3-8A	LANE USE CONTROL (L-SR)	30 X 30	1
E	R3-5R	RIGHT TURN SIGN	30 X 36	1
F	R3-5A	STRAIGHT-THROUGH SIGN	30 X 36	1
G	R3-5L	LEFT TURN SIGN	30 X 36	2
H	R3-6SR	OPTIONAL RIGHT TURN SIGN	30 X 36	1
I	D3-4	CASEY AVE→	16 X 90	1
J	D3-4	← CASEY AVE	16 X 90	1
K *	D3-5	WILKES-BARRE TOWNSHIP BLVD	28 X 96	2

* SIGN K WAS COMPRESSED 4 %

LEGEND

- A - MAST ARM
- ④ - VEHICULAR SIGNAL HEAD
- ④ - PEDESTRIAN SIGNAL HEAD
- A - SIGN
- ④ - VEHICLE DETECTOR
- ④ - PEDESTRIAN PUSH BUTTON/SIGN
- CC-3 - CONTROLLER ASSEMBLY
- 4 - JUNCTION BOX
- C/4" - CONDUIT/SIZE
- W/4" - SOLID WHITE LINE/WIDTH
- Y/4" - SOLID YELLOW LINE/WIDTH
- BY/4" - BROKEN YELLOW LINE/WIDTH
- DY/4" - DOUBLE SOLID YELLOW LINE/WIDTH
- CONCRETE CURB
- HANDICAP RAMP
- DROP CURB FOR HANDICAP ACCESSIBILITY

GENERAL NOTES

1. INSTALL, OPERATE AND MAINTAIN THIS TRAFFIC SIGNAL IN ACCORDANCE WITH PENNSYLVANIA DEPARTMENT OF TRANSPORTATION REGULATIONS ON OFFICIAL TRAFFIC CONTROL DEVICES (PUB 212), SPECIFICATIONS (PUB 408), TRAFFIC STANDARDS TC-8700 AND TC-8800 SERIES (PUB 148), AND TRAFFIC SIGNAL DESIGN HANDBOOK (PUB 149).
2. NO MODIFICATION OF THIS INSTALLATION IS PERMITTED UNLESS PRIOR APPROVAL IS GRANTED IN WRITING BY THE DISTRICT TRAFFIC ENGINEER.
3. ALL MAINTENANCE NECESSARY FOR THE PROPER VISIBILITY OF THESE SIGNALS, INCLUDING TRIMMING OF TREES, IS THE RESPONSIBILITY OF THE CONTRACTOR.
4. THE CONTRACTOR MAINTAINS ALL SIGNS IN THE SIGN BLOCK AND ALL PAVEMENT MARKINGS INDICATED ON THIS DRAWING, WHICH ARE CONSIDERED PART OF THE PERMIT, UNLESS OTHERWISE INDICATED.
5. EACH LOOP MUST BE ASSIGNED TO A SEPARATE DETECTOR INPUT IN THE CONTROLLER TIMER WHICH WILL PROVIDE THE CAPABILITY OF EXTENSIONS AND DELAYS TO ALL INDIVIDUAL LOOPS.
6. CARD RACK TO BE NEMA TYPE 7-T.
7. THIS DRAWING CANNOT BE USED AS A CONSTRUCTION DRAWING, UNLESS THE CONTRACTOR COMPLIES WITH THE PROVISIONS OF ACT 287, AS AMENDED, PREVENTION OF DAMAGE TO UNDERGROUND UTILITIES. PRIOR TO CONSTRUCTION CONSULT WITH UTILITY COMPANIES TO RESOLVE ANY CONFLICTS.
8. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING ANY RELOCATION OF OVERHEAD UTILITIES THAT MAY INTERFERE WITH CLEAR VISIBILITY OF THE SIGNAL HEADS.
9. INSTALL SIGNAL HEADS AND SIGNS WITH BOTTOMS NOT LESS THAN 17 FEET NOR MORE THAN 19 FEET ABOVE THE ROADWAY.
10. INSTALL SIGNAL SUPPORTS AND POST MOUNTED SIGNAL HEADS A MINIMUM OF 2 FEET BEHIND THE FACE OF CURB.
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12. CONTACT PENNDOT TRAFFIC UNIT TO SCHEDULE A TRAFFIC SIGNAL INSPECTION A MINIMUM OF 3 DAYS PRIOR TO RED, YELLOW, GREEN OPERATION.
13. NOTIFY THE DISTRICT TRAFFIC ENGINEER 7 CALENDAR DAYS PRIOR TO CONDUCTING THE PHYSICAL AND FUNCTIONAL SHOP TEST AS REQUIRED IN SECTION 1104 OF PUB 408, SO THAT THE DISTRICT REPRESENTATIVES MAY WITNESS THE TESTING.
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16. INSTALL TRAFFIC SIGNAL HEADS WITH A MINIMUM OF 8 FEET SEPARATION BETWEEN HEADS AS VIEWED FROM THE APPROACH.
17. THE HOP PERMITTEE IS RESPONSIBLE TO MAKE THE SIGNAL FUNCTION ACCORDING TO PLAN.
18. THE HOP PERMITTEE IS RESPONSIBLE TO ENSURE EXISTING EQUIPMENT, INCLUDING INTERCONNECT SYSTEM, IS OPERATING ACCORDING TO PLANS.

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
4-0	LUZERNE	6309		
WILKES-BARRE TOWNSHIP				
PERMIT NO. 07809		SHEET 2 OF 3		
DATE ISSUED: 04-02-76		DATE REVISED:		

REVISION NUMBER	REVISIONS	DATE	BY
1	RETIMING, INTERCONNECT, LENGTHEN LANE ON CASEY, REVISE PAVEMENT MARKINGS	02/19	JDL

PREPARED BY:
L&V ENGINEERING, LLC

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JERILYN D. LUBEN
ENGINEER
053418-E

COUNTY:	LUZERNE
MUNICIPALITY:	WILKES-BARRE TOWNSHIP
INTERSECTION:	SR 6309 AND SR 2016 (CASEY AVE.)/ PENNDOT PARK AND RIDE DRIVEWAY

RECOMMENDED:
MUNICIPAL OFFICIAL — DATE: 6-20-19

RECOMMENDED:
DISTRICT TRAFFIC ENGINEER — DATE: 7/9/19

25' 0 12.5' 25' 50' 100'

6/17/2019 2:42:30 PM, L&V Engineering

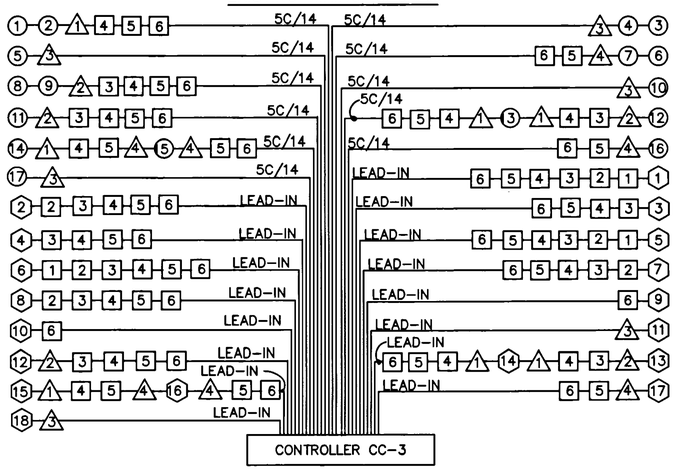
PREPARED BY:
L&V ENGINEERING, LLC

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JERILYN D. LUBEN
ENGINEER
053418-E

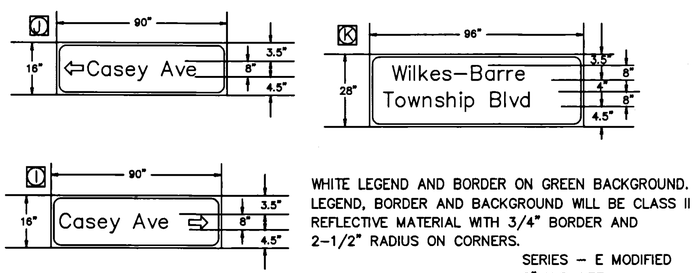
DISTRICT	COUNTY	ROUTE	SECTION	SHEET
4-0	LUZERNE	6309		
WILKES-BARRE TOWNSHIP				
PERMIT NO. 07809		SHEET 3 OF 3		
DATE ISSUED: 04-02-76		DATE REVISED:		

REVISION NUMBER	REVISIONS	DATE	BY
1	RETIMING, INTERCONNECT, LENGTHEN LANE ON CASEY; REVISE PAVEMENT MARKINGS	02/19	JDL

EXISTING WIRING DIAGRAM



△ – SIGNAL SUPPORT ○ – SIGNAL HEAD
□ – JUNCTION BOX ⬡ – DETECTOR
5C/14 – CABLE (NO. OF CONDUCTORS/SIZE AWG.)



WHITE LEGEND AND BORDER ON GREEN BACKGROUND.
LEGEND, BORDER AND BACKGROUND WILL BE CLASS II REFLECTIVE MATERIAL WITH 3/4" BORDER AND 2-1/2" RADIUS ON CORNERS.

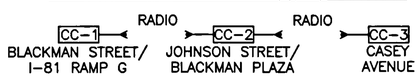
SERIES – E MODIFIED
8" U.C. LET.
6" L.C. LET.

6.00=SPACE	6.00=SPACE	5.40=SPACE	5.50=SPACE
8.30=TYPE T ARROW	8.50=C	10.50=W	7.40=T
6.00=SPACE	7.40=a	4.50=l	6.90=o
8.50=C	6.90=s	4.50=l	10.10=w
7.40=a	6.80=e	6.80=k	7.30=n
6.90=s	6.50=y	6.80=e	7.60=s
6.80=e	5.70=SPACE	5.10=s	8.00=h
6.50=y	9.30=A	6.00=SPACE	4.50=l
5.70=SPACE	7.50=v	6.00=–	5.10=p
9.30=A	5.10=e	6.00=SPACE	6.00=SPACE
7.50=v	6.00=SPACE	8.60=B	9.30=B
5.10=e	8.30=TYPE T ARROW	8.10=a	3.80=l
6.00=SPACE	6.00=SPACE	5.80=r	7.50=v
90.00	90.00	5.00=r	5.10=d
		5.10=e	5.50=SPACE
		5.40=SPACE	96.00
		96.00	

88.80 COMPRESS 4% = 85.20

88.60 COMPRESS 4% = 85.00

SR 6309 INTERCONNECT WIRING DIAGRAM



NOTES:
PERMITTEE MAINTAINS INTERCONNECT FOR LOCAL TRAFFIC SIGNAL SYSTEM

THE HOP APPLICANT SHALL ENSURE THE FUNCTIONALITY OF THE INTERCONNECT FOR THE DURATION OF THE 30-DAY TEST

COUNTY:	LUZERNE
MUNICIPALITY:	WILKES-BARRE TOWNSHIP
INTERSECTION:	SR 6309 AND SR 2016 (CASEY AVE.)/ PENNDOT PARK AND RIDE DRIVEWAY

RECOMMENDED:
MUNICIPAL OFFICIAL — DATE: 6.20.19

RECOMMENDED:
DISTRICT TRAFFIC ENGINEER — DATE: 7/19/19

6/17/2019 2:42:36 PM, L&V Engineering

TRAFFIC SIGNAL PLAN

SR 6309 AND SR 2016 (CASEY AVE.)/
PENNDOT PARK AND RIDE DRIVEWAY

PREPARED BY:
L&V ENGINEERING, LLC

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JERILYN D. LUBEN
ENGINEER
053418-E

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
4-0	LUZERNE	6309		
WILKES-BARRE TOWNSHIP				

REVISION NUMBER	REVISIONS	DATE	BY

MISCELLANEOUS

ITEM NUMBER				
UNIT	DESCRIPTION	QTY.	LOCATION	REMARKS
9000 0001 EACH	TIMING IMPLEMENTATION INCLUDING RADIO COMMUNICATIONS	1	CC-3	

PAVEMENT MARKINGS*

ITEM NUMBER / UNIT	DESCRIPTION	QTY.
0964 0001 LF	4" WHITE EPOXY PAVEMENT MARKINGS	954
0964 0002 LF	4" YELLOW EPOXY PAVEMENT MARKINGS	1706
0964 0005 LF	6" WHITE EPOXY PAVEMENT MARKINGS	700
0964 0021 LF	24" WHITE EPOXY PAVEMENT MARKINGS	441
0964 0022 LF	24" YELLOW EPOXY PAVEMENT MARKINGS	108
0964 0220 EACH	WHITE EPOXY LEGEND, "STRAIGHT ARROW", 12'-0" X 1'-8"	2
0964 0222 EACH	WHITE EPOXY LEGEND, "RIGHT ARROW", 12'-0" X 3'-0"	2
0964 0224 EACH	WHITE EPOXY LEGEND, "LEFT ARROW", 12'-0" X 3'-0"	7

*SEE SIGNING AND PAVEMENT MARKING PLANS
FOR ADDITIONAL INFORMATION

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
4–0	LUZERNE	6309	MTM	1 OF 7
WILKES–BARRE TOWNSHIP				
REVISION NUMBER	REVISIONS	DATE	BY	

LEGEND

W/4" –SOLID WHITE LINE/4" WIDTH
W/6" –WHITE AUXILARY LANE LINE/4" WIDTH
YDL/4"–YELLOW DOTTED LINE/4" WIDTH
W/24" –WHITE LINE/24" WIDTH
Y/4" –SOLID YELLOW LINE/4" WIDTH
DY/4" –YELLOW DOUBLE LINE/4" WIDTH
Y/24" –YELLOW LINE/24" WIDTH

–SIGN
– 12'–0"X 3'–0" ARROW (WHITE)
– 20'–0"X 3'–7" ARROW (WHITE)

START WORK
STA 1310+56.00
SEG 0570 OFF 0587
SR 6309 SEC MTM
LEGAL RIGHT–OF–WAY LINE

R3–9CP 30"x15" BEGIN CENTER LANE ONLY
R3–9B 24"x36"
POST MOUNTED SIGNS, TYPE B STA 1311+47

STA 1310+76 START Y/4"BY/4"
STA 1310+56 START Y/4"BY/4"
STA 1311+21 STOP Y/4"BY/4"

CONSTR & SURVEY ℄
SR 6309
LEGAL RIGHT–OF–WAY LINE

LIMIT OF WORK
STA 1300+36.00
SEG 0560 OFF 1932
SR 6309 SEC MTM
WILKES–BARRE TOWNSHIP
LUZERNE COUNTY

ALLANS ST TO REMAIN
TO REMAIN
ALLANS ROAD

Ⓖ REMOVE SIGN AND POST STA 1313+20

Ⓘ W11–2 30"x30"
W16–7P 24"x12"
POST MOUNTED SIGNS, TYPE B STA 1+86

Ⓗ R1–1 30"x30" STOP
POST MOUNTED SIGNS, TYPE B STA 1312+76

TO REMAIN
REMOVE SIGN AND POST STA 1312+59

R3–8A LS–R 30"x30" ONLY
POST MOUNTED SIGNS, TYPE B STA 0+91

STA 0+37 START Y/4"
STA 0+38 START W/6"
R=25'
R=15'
W/24" 8' O.C. (TYP.)
Y/24" 8' O.C. (TYP.)
R1–1 30"x30" STOP
POST MOUNTED SIGNS, TYPE B STA 0+48
STA 0+52 START W/4"

CONSTR ℄ DRIVE A

STA 0+49 START W/4"
R4–7C 18"x30"
POST MOUNTED SIGNS, TYPE B STA 0+74

R4–7C 18"x30"
POST MOUNTED SIGNS, TYPE B STA 1+85

STA 1+66 STOP W/6"
STA 1+88 STOP Y/4"
STA 1+71 STOP W/6"
STA 1+94 STOP W/4"
STA 1+96 STOP W/4"
R=115'
R=99'
R=96'
R=76'

Ⓙ W11–2 30"x30"
W16–7P 24"x12"
POST MOUNTED SIGNS, TYPE B STA 1314+43

NO TRACTOR TRAILER PARKING
REMOVE SIGN AND POST STA 1314+80

REMOVE SIGN AND POST STA 1316+08
CENTER LANE ONLY

REMOVE SIGN AND POST NO PARKING ANY SIDE
R8–3 24"x24"
POST MOUNTED SIGNS, TYPE B STA 1316+42

STA 1315+95 START Y/4"BY/4"
STA 1316+42 START W/4"
LEGAL RIGHT–OF–WAY LINE

1311 1312 1313 1314 1315 1316 1317
SR 6309
WILKES–BARRE TOWNSHIP BLVD.

Ⓐ R8–3 24"X24"
POST MOUNTED SIGNS, TYPE B STA 1312+69

STA 3+02 START W/4"
ENTER TO REMAIN
STA 3+44 44' STOP W/4"
STA 3+57 44' RT STOP DY/4"
STA 3+57 22' RT START DY/4"
STA 3+70 44' RT START W/4"

CONSTR & SURVEY ℄
JOHNSON STREET

STA 3+02 START W/4"
STA 3+06 START DY/4"
STA 3+43 37' LT STOP W/4"
STA 3+56 37' LT STOP DY/4"
STA 3+56 22' LT START DY/4"
STA 3+69 37' LT START W/4"
STA 3+37 STOP DY/4" START YDL/4"
STA 3+76 STOP YDL/4" START DY/4"

STA 1314+97 START W/4"
POT SR 6309 STA 1313+73.95 =
POT JOHNSON ST STA 2+50.00 =
POT DRIVE A STA 2+50.00
START WORK
STA 2+74.68
JOHNSTON ST

R3–9CP 30"x15" BEGIN CENTER LANE ONLY
R3–9B 24"x36"
POST MOUNTED SIGNS, TYPE B STA 1315+61

CENTER LANE ONLY
REMOVE SIGN AND POST STA 1316+08

Ⓑ NO PARKING HERE TO CORNER
REMOVE SIGN AND POST STA 1313+00

Ⓒ NO PARKING ANY TIME
REMOVE SIGN AND POST STA 3+18

Ⓓ NO PARKING ANY TIME
REMOVE SIGN AND POST STA 3+24

Ⓔ JOHNSON ST STOP
REMOVE SIGN AND POST STA 3+00

Ⓕ STOP R1–1 30"x30"
POST MOUNTED SIGNS, TYPE B STA 3+38

R1–1 30"x30" STOP
POST MOUNTED SIGNS, TYPE B STA 3+74

MATCHLINE

NO PARKING ANY TIME TO REMAIN
REMOVE SIGN AND POST STA 4+58

STOP WORK
STA 5+35.00
JOHNSTON ST
STA 5+35 STOP DY/4", W/4"

MATCHLINE

NOTE:
TABULATION OF THE SIGNALIZED INTERSECTION PAVEMENT MARKINGS ARE INCLUDED IN THE TRAFFIC SIGNAL PLANS.

SCALE
0 25 50 FEET

SIGNING AND PAVEMENT MARKING PLAN

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL
JOSEPH STACHOKUS
ENGINEER PE–055580–E

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL
LISA ANN MARTIN
ENGINEER PE056124

SEE SHEET 2

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
4–0	LUZERNE	6309	MTM	2 OF 7
WILKES–BARRE TOWNSHIP				
REVISION NUMBER	REVISIONS	DATE	BY	

SEE SHEET 1

SEE SHEET 3

LEGEND

W/4" –SOLID WHITE LINE/4" WIDTH
W/6" –WHITE AUXILARY LANE LINE/4" WIDTH
YDL/4"–YELLOW DOTTED LINE/4" WIDTH
W/24" –WHITE LINE/24" WIDTH
Y/4" –SOLID YELLOW LINE/4" WIDTH
DY/4" –YELLOW DOUBLE LINE/4" WIDTH
Y/24" –YELLOW LINE/24" WIDTH

–SIGN
– 12'–0"X 3'–0" ARROW (WHITE)
– 20'–0"X 3'–7" ARROW (WHITE)

STA 0+25
START DY/4"
R1–1 30"x30" STOP
POST MOUNTED SIGNS, TYPE B STA 0+21
R1–1 30"x30" STOP
POST MOUNTED SIGNS, TYPE B STA 0+26
R1–1 30"x30" STOP
POST MOUNTED SIGNS, TYPE B STA 1+05
STA 1+06
STOP DY/4"
STA 1+30
23' RT START DY/4"
STA 1+30
51' RT STOP DY/4"
R1–1 30"x30" STOP
POST MOUNTED SIGNS, TYPE B STA 1+48
R1–1 30"x30" STOP
POST MOUNTED SIGNS, TYPE B STA 1+11
STA 1+30
51' LT STOP DY/4"
STA 1+30
23' LT START DY/4"
STA 1+47
START Y/4"
STA 1+59
START W/4"
STA 1+59
START W/4"
DRIVE B
CONSTR B
W/24"
DY/4"
W/4"
+03
13'
13'
Y/24" 8' O.C. (TYP.)
R4–7C 18"x30"
POST MOUNTED SIGNS, TYPE B STA 2+30
R4–7C 18"x30"
POST MOUNTED SIGNS, TYPE B STA 3+12
12'
12'
Y/4"
DRIVE B
R1–1 30"x30" STOP
POST MOUNTED SIGNS, TYPE B STA 1318+58
STA 3+44
STOP Y/4"
STA 1319+31
START W/4"
STOP W/4"
R=25'
R=3'
LEGAL RIGHT–OF–WAY LINE
STA 1318+50
START W/4"
STOP W/4"
R=25'
W/24"
W/4"
Y/4"
1318
1319
1320
WILKES–BARRE TOWNSHIP BLVD.
STA 1319+13
START W/6"
POC SR 6309 STA 1318+88.41 =
POT DRIVE B STA 3+64.73
PARK & RIDE
BLUE DETOUR
TO REMAIN
R5–1 30"x30" DO NOT ENTER
POST MOUNTED SIGNS, TYPE B STA 1320+69
R3–7R 30"x30" RIGHT LANE MUST TURN RIGHT
POST MOUNTED SIGNS, TYPE B STA 1320+57
R6–1L 36"x12" ONE WAY
POST MOUNTED SIGNS, TYPE B STA 1320+70
R5–1 30"x30" DO NOT ENTER
POST MOUNTED SIGNS, TYPE B STA 1320+92
R6–1R 36"x12" ONE WAY
POST MOUNTED SIGNS, TYPE B STA 1320+91
R=11'
STA 1320+62
STOP W/4"
STA 1320+97
STOP W/6"
STA 1320+62
STOP Y/4"BY/4"
W/4"
W/6"
CONSTR & SURVEY B
1321
1322
REMOVE SIGN AND POST
NO PARKING ANY SIDE
R8–3 24"X24"
POST MOUNTED SIGNS, TYPE B STA 1320+38
SOUTH BUSINESS 309
RESET SIGN AND POST STA 1321+62
REMOVE SIGN AND POST
NO PARKING ANY SIDE
R8–3 24"X24"
POST MOUNTED SIGNS, TYPE B STA 1321+83
SCALE
0 25 50 FEET
W/4"
CASEY AVE
W/4" SR 2016 – CONSTR & SURVEY B
1007
DY/4"
W/24"
CINEMA 309
R=25'
W/24"
1008
STA 1007+63
STOP W/4"
STOP WORK
STA 1007+63.00
SEG 0010 OFF 3197
SR 2016 SEC MTM
CONCRETE CURB (TYP)
1325
1324
1323
STOP WORK
STA 1325+23.00
SEG 0570 OFF 2054
SR 6309 SEC MTM
LIMIT OF WORK
STA 1325+73.00
SEG 0570 OFF 2104
SR 6309 SEC MTM
WILKES–BARRE TOWNSHIP
LUZERNE COUNTY
POT SR 6309 STA 1322+71.38 =
POT SR 2016 STA 1008+12.73

NOTE:
TABULATION OF THE SIGNALIZED INTERSECTION PAVEMENT MARKINGS ARE INCLUDED IN THE TRAFFIC SIGNAL PLANS.

SIGNING AND PAVEMENT MARKING PLAN

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL JOSEPH STACHOKUS ENGINEER PE–055580–E

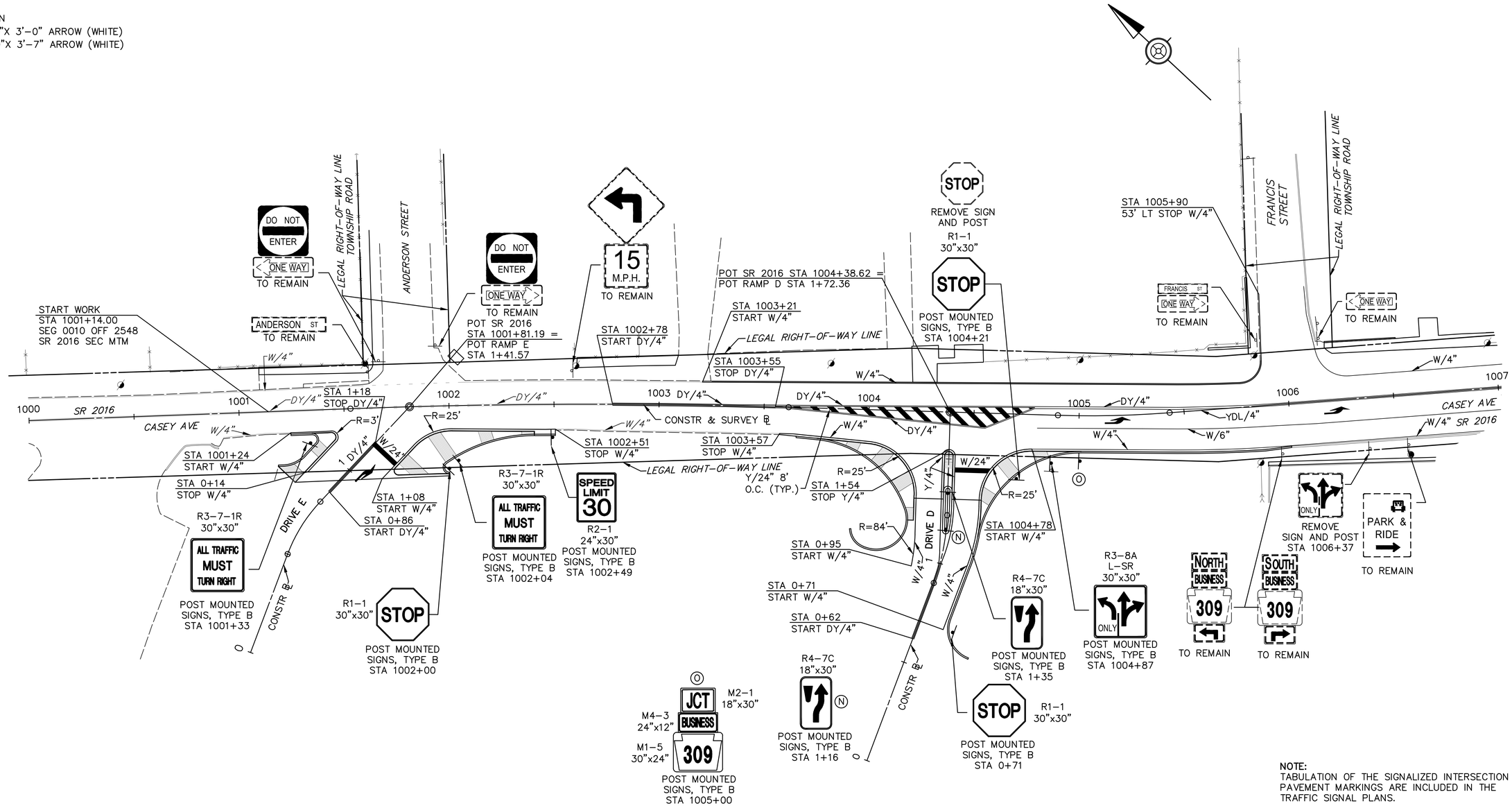
COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL LISA ANN MARTIN ENGINEER PE056124

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
4-0	LUZERNE	6309	MTM	3 OF 7
WILKES-BARRE TOWNSHIP				
REVISION NUMBER	REVISIONS		DATE	BY

LEGEND

W/4" -SOLID WHITE LINE/4" WIDTH
W/6" -WHITE AUXILARY LANE LINE/4" WIDTH
YDL/4"-YELLOW DOTTED LINE/4" WIDTH
W/24" -WHITE LINE/24" WIDTH
Y/4" -SOLID YELLOW LINE/4" WIDTH
DY/4" -YELLOW DOUBLE LINE/4" WIDTH
Y/24" -YELLOW LINE/24" WIDTH

-SIGN
- 12'-0"X 3'-0" ARROW (WHITE)
- 20'-0"X 3'-7" ARROW (WHITE)



SCALE
0 25 50 FEET

SEE SHEET 2

NOTE:
TABULATION OF THE SIGNALIZED INTERSECTION PAVEMENT MARKINGS ARE INCLUDED IN THE TRAFFIC SIGNAL PLANS.

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JOSEPH STACHOKUS
ENGINEER
PE-055580-E

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
LISA ANN MARTIN
ENGINEER
PE056124

SIGNING AND PAVEMENT MARKING PLAN

APPENDIX F:

Volume Development Worksheets

TPD# BCVS.00002
5/19/2022
Traffic Volumes Worksheet
Intersection: **Wilkes Barre Township Blvd & Blackman St/I-81 SB Off-Ramp**
Synchro Node: **1** **Adjacent intersections:** **West** **0** **East** **0** **North** **0** **South** **0**

Time Period: Weekday A.M. Peak Hour of Adjacent Street Traffic

	Eastbound			Westbound			Northbound			Southbound			Intersection
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	Volume
2021 Existing Counts	**82**	**0**	**210**	**250**	**131**	**58**	**273**	**709**	**0**	**0**	**316**	**85**	**2114**
Balancing													0
2021 Existing Volumes (Balanced)	**82**	**0**	**210**	**250**	**131**	**58**	**273**	**709**	**0**	**0**	**316**	**85**	**2114**
Base growth (0.0% compounded 3 years)	0	0	0	0	0	0	0	0	0	0	0	0	0
Turkey Hill C-Store w Gas	133		-25	38	-18		135	-106			27		184
Blackman Plaza Redevelopment	5					11		27			37	5	85
													0
Total Nearby Developments	138	0	-25	38	-18	11	135	-79	0	0	64	5	269
2024/2029 Base (No-Build) Volumes	**220**	**0**	**185**	**288**	**113**	**69**	**408**	**630**	**0**	**0**	**380**	**90**	**2383**
Distribution % - Entering Trips (Passenger Cars)	30%					30%		10%					
Distribution % - Exiting New Trips (Passenger Cars)											20%	30%	
Distribution % - Entering New Trips (Trucks)						15%		75%					
Distribution % - Exiting New Trips (Trucks)											90%		
Building 1 - Passenger Car Trips	15					15		5			2	2	39
Building 1 - Truck Trips						1		7			9		17
Total Trip Distribution	**15**	**0**	**0**	**0**	**0**	**16**	**0**	**12**	**0**	**0**	**11**	**2**	**56**
Redistributed Trips (Allan Road)													0
2024/2029 Projected (Build) Volumes	**235**	**0**	**185**	**288**	**113**	**85**	**408**	**642**	**0**	**0**	**391**	**92**	**2439**

Time Period: Weekday A.M. Peak Hour of Generator

	Eastbound			Westbound			Northbound			Southbound			Intersection
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	Volume
2021 Existing Counts	**119**	**0**	**189**	**177**	**114**	**58**	**177**	**534**	**0**	**0**	**381**	**106**	**1855**
Balancing	0	0	0	0	0	0	0	0	0	0	0	0	0
2021 Existing Volumes (Balanced)	**119**	**0**	**189**	**177**	**114**	**58**	**177**	**534**	**0**	**0**	**381**	**106**	**1855**
Base growth (0.0% compounded 3 years)	0	0	0	0	0	0	0	0	0	0	0	0	0
Turkey Hill C-Store w Gas	133		-25	38	-18		135	-106			27		184
Blackman Plaza Redevelopment	5					11		27			37	5	85
0													0
Total Nearby Developments	138	0	-25	38	-18	11	135	-79	0	0	64	5	269
2024/2029 Base (No-Build) Volumes	**257**	**0**	**164**	**215**	**96**	**69**	**312**	**455**	**0**	**0**	**445**	**111**	**2124**
Distribution % - Entering Trips (Passenger Cars)	30%	0%	0%	0%	0%	30%	0%	10%	0%	0%	0%	0%	
Distribution % - Exiting New Trips (Passenger Cars)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	20%	30%	
Distribution % - Entering New Trips (Trucks)	0%	0%	0%	0%	0%	15%	0%	75%	0%	0%	0%	0%	
Distribution % - Exiting New Trips (Trucks)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	90%	0%	
Building 1 - Passenger Car Trips	27					27		9			5	7	75
Building 1 - Truck Trips						1		3			4		8
Total Trip Distribution	**27**	**0**	**0**	**0**	**0**	**28**	**0**	**12**	**0**	**0**	**9**	**7**	**83**
Redistributed Trips (Allan Road)													0
2024/2029 Projected (Build) Volumes	**284**	**0**	**164**	**215**	**96**	**97**	**312**	**467**	**0**	**0**	**454**	**118**	**2207**

Time Period: Weekday P.M. Peak Hour of Generator

	Eastbound			Westbound			Northbound			Southbound			Intersection
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	Volume
2021 Existing Counts	**152**	**0**	**350**	**512**	**226**	**96**	**175**	**589**	**0**	**0**	**895**	**161**	**3156**
Balancing	0	0	0	0	0	0	0	0	0	0	0	0	0
2021 Existing Volumes (Balanced)	**152**	**0**	**350**	**512**	**226**	**96**	**175**	**589**	**0**	**0**	**895**	**161**	**3156**
Base growth (0.0% compounded 3 years)	0	0	0	0	0	0	0	0	0	0	0	0	0
Turkey Hill C-Store w Gas	56		-23	28	-14		59	-38			19		87
Blackman Plaza Redevelopment	5					9		23			31	5	73
0													0
Total Nearby Developments	61	0	-23	28	-14	9	59	-15	0	0	50	5	160
2024/2029 Base (No-Build) Volumes	**213**	**0**	**327**	**540**	**212**	**105**	**234**	**574**	**0**	**0**	**945**	**166**	**3316**
Distribution % - Entering Trips (Passenger Cars)	30%	0%	0%	0%	0%	30%	0%	10%	0%	0%	0%	0%	
Distribution % - Exiting New Trips (Passenger Cars)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	20%	30%	
Distribution % - Entering New Trips (Trucks)	0%	0%	0%	0%	0%	15%	0%	75%	0%	0%	0%	0%	
Distribution % - Exiting New Trips (Trucks)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	90%	0%	
Building 1 - Passenger Car Trips	13					12		4			19	28	76
Building 1 - Truck Trips						2		10			9		21
Total Trip Distribution	**13**	**0**	**0**	**0**	**0**	**14**	**0**	**14**	**0**	**0**	**28**	**28**	**97**
Redistributed Trips (Allan Road)													0
2024/2029 Projected (Build) Volumes	**226**	**0**	**327**	**540**	**212**	**119**	**234**	**588**	**0**	**0**	**973**	**194**	**3413**

TPD# BCVS.00002
5/19/2022
Traffic Volumes Worksheet
Intersection: **Wilkes Barre Township Blvd & Johnson Street/Blackman Plaza Driveway**
Synchro Node: **3** **Adjacent intersections:** **West** **0** **East** **0** **North** **0** **South** **0**

Time Period: Weekday A.M. Peak Hour of Adjacent Street Traffic

	Eastbound			Westbound			Northbound			Southbound			Intersection
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	Volume
2021 Existing Counts	**17**	**0**	**32**	**14**	**11**	**3**	**33**	**737**	**19**	**7**	**367**	**12**	**1252**
Balancing													0
2021 Existing Volumes (Balanced)	**17**	**0**	**32**	**14**	**11**	**3**	**33**	**737**	**19**	**7**	**367**	**12**	**1252**
Base growth (0.0% compounded 3 years)	0	0	0	0	0	0	0	0	0	0	0	0	0
Turkey Hill C-Store w Gas								27			27		54
Blackman Plaza Redevelopment	109	5	88	0	6	-1	153	-110			-46	76	280
													0
Total Nearby Developments	109	5	88	0	6	-1	153	-83	0	0	-19	76	334
2024/2029 Base (No-Build) Volumes	**126**	**5**	**120**	**14**	**17**	**2**	**186**	**654**	**19**	**7**	**348**	**88**	**1586**
Distribution % - Entering Trips (Passenger Cars)									70%	25%			
Distribution % - Exiting New Trips (Passenger Cars)				50%		45%							
Distribution % - Entering New Trips (Trucks)									90%	10%			
Distribution % - Exiting New Trips (Trucks)				90%		10%							
Building 1 - Passenger Car Trips				4		3			35	12			54
Building 1 - Truck Trips				9		1			8	1			19
Total Trip Distribution	**0**	**0**	**0**	**13**	**0**	**4**	**0**	**0**	**43**	**13**	**0**	**0**	**73**
Redistributed Trips (Allan Road)				5		6		-6	13	5	-5		18
2024/2029 Projected (Build) Volumes	**126**	**5**	**120**	**32**	**17**	**12**	**186**	**648**	**75**	**25**	**343**	**88**	**1677**

Time Period: Weekday A.M. Peak Hour of Generator

	Eastbound			Westbound			Northbound			Southbound			Intersection
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	Volume
2021 Existing Counts	**8**	**3**	**42**	**18**	**2**	**18**	**27**	**626**	**27**	**7**	**391**	**14**	**1183**
Balancing	0	0	0	0	0	0	0	0	0	0	0	0	0
2021 Existing Volumes (Balanced)	**8**	**3**	**42**	**18**	**2**	**18**	**27**	**626**	**27**	**7**	**391**	**14**	**1183**
Base growth (0.0% compounded 3 years)	0	0	0	0	0	0	0	0	0	0	0	0	0
Turkey Hill C-Store w Gas								27			27		54
Blackman Plaza Redevelopment	109	5	88	0	6	-1	153	-110	0	0	-46	76	280
0													0
Total Nearby Developments	109	5	88	0	6	-1	153	-83	0	0	-19	76	334
2024/2029 Base (No-Build) Volumes	**117**	**8**	**130**	**18**	**8**	**17**	**180**	**543**	**27**	**7**	**372**	**90**	**1517**
Distribution % - Entering Trips (Passenger Cars)	0%	0%	0%	0%	0%	0%	0%	0%	70%	25%	0%	0%	
Distribution % - Exiting New Trips (Passenger Cars)	0%	0%	0%	50%	0%	45%	0%	0%	0%	0%	0%	0%	
Distribution % - Entering New Trips (Trucks)	0%	0%	0%	0%	0%	0%	0%	0%	90%	10%	0%	0%	
Distribution % - Exiting New Trips (Trucks)	0%	0%	0%	90%	0%	10%	0%	0%	0%	0%	0%	0%	
Building 1 - Passenger Car Trips				12		10			63	23			108
Building 1 - Truck Trips				4					4	1			9
Total Trip Distribution	**0**	**0**	**0**	**16**	**0**	**10**	**0**	**0**	**67**	**24**	**0**	**0**	**117**
Redistributed Trips (Allan Road)				5		4		-4	4	2	-2		9
2024/2029 Projected (Build) Volumes	**117**	**8**	**130**	**39**	**8**	**31**	**180**	**539**	**98**	**33**	**370**	**90**	**1643**

Time Period: Weekday P.M. Peak Hour of Generator

	Eastbound			Westbound			Northbound			Southbound			Intersection
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	Volume
2021 Existing Counts	**13**	**1**	**115**	**23**	**5**	**27**	**54**	**780**	**70**	**20**	**912**	**34**	**2054**
Balancing	0	0	0	0	0	0	0	0	0	0	0	0	0
2021 Existing Volumes (Balanced)	**13**	**1**	**115**	**23**	**5**	**27**	**54**	**780**	**70**	**20**	**912**	**34**	**2054**
Base growth (0.0% compounded 3 years)	0	0	0	0	0	0	0	0	0	0	0	0	0
Turkey Hill C-Store w Gas								18			19		37
Blackman Plaza Redevelopment	66	11	191	0	7	-2	138	-101	0	-6	-155	95	244
0													0
Total Nearby Developments	66	11	191	0	7	-2	138	-83	0	-6	-136	95	281
2024/2029 Base (No-Build) Volumes	**79**	**12**	**306**	**23**	**12**	**25**	**192**	**697**	**70**	**14**	**776**	**129**	**2335**
Distribution % - Entering Trips (Passenger Cars)	0%	0%	0%	0%	0%	0%	0%	0%	70%	25%	0%	0%	
Distribution % - Exiting New Trips (Passenger Cars)	0%	0%	0%	50%	0%	45%	0%	0%	0%	0%	0%	0%	
Distribution % - Entering New Trips (Trucks)	0%	0%	0%	0%	0%	0%	0%	0%	90%	10%	0%	0%	
Distribution % - Exiting New Trips (Trucks)	0%	0%	0%	90%	0%	10%	0%	0%	0%	0%	0%	0%	
Building 1 - Passenger Car Trips				47		43			29	10			129
Building 1 - Truck Trips				9		1			12	1			23
Total Trip Distribution	**0**	**0**	**0**	**56**	**0**	**44**	**0**	**0**	**41**	**11**	**0**	**0**	**152**
Redistributed Trips (Allan Road)				7		6		-6	4	1	-1		11
2024/2029 Projected (Build) Volumes	**79**	**12**	**306**	**86**	**12**	**75**	**192**	**691**	**115**	**26**	**775**	**129**	**2498**

TPD# BCVS.00002
5/19/2022
Traffic Volumes Worksheet
Intersection: **Wilkes Barre Township Blvd & Casey Avenue/Park & Ride Lot Driveway**
Synchro Node: **4** **Adjacent intersections:** **West** 0 **East** 0 **North** 0 **South** 0

Time Period: Weekday A.M. Peak Hour of Adjacent Street Traffic

	Eastbound			Westbound			Northbound			Southbound			Intersection
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	Volume
2021 Existing Counts	**160**	**1**	**9**	**1**	**0**	**0**	**9**	**751**	**1**	**0**	**374**	**51**	**1357**
Balancing													0
2021 Existing Volumes (Balanced)	**160**	**1**	**9**	**1**	**0**	**0**	**9**	**751**	**1**	**0**	**374**	**51**	**1357**
Base growth (0.0% compounded 3 years)	0	0	0	0	0	0	0	0	0	0	0	0	0
Turkey Hill C-Store w Gas								27			27		54
Blackman Plaza Redevelopment								36			37		73
													0
Total Nearby Developments	0	0	0	0	0	0	0	63	0	0	64	0	127
2024/2029 Base (No-Build) Volumes	**160**	**1**	**9**	**1**	**0**	**0**	**9**	**814**	**1**	**0**	**438**	**51**	**1484**
Distribution % - Entering Trips (Passenger Cars)			1%								24%		
Distribution % - Exiting New Trips (Passenger Cars)							1%	44%					
Distribution % - Entering New Trips (Trucks)											10%		
Distribution % - Exiting New Trips (Trucks)								10%					
Building 1 - Passenger Car Trips								3			12		15
Building 1 - Truck Trips								1			1		2
Total Trip Distribution	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**13**	**0**	**17**
Redistributed Trips (Allan Road)													0
2024/2029 Projected (Build) Volumes	**160**	**1**	**9**	**1**	**0**	**0**	**9**	**818**	**1**	**0**	**451**	**51**	**1501**

Time Period: Weekday A.M. Peak Hour of Generator

	Eastbound			Westbound			Northbound			Southbound			Intersection
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	Volume
2021 Existing Counts	**183**	**0**	**6**	**0**	**0**	**0**	**6**	**621**	**0**	**0**	**434**	**58**	**1308**
Balancing	0	0	0	0	0	0	0	0	0	0	0	0	0
2021 Existing Volumes (Balanced)	**183**	**0**	**6**	**0**	**0**	**0**	**6**	**621**	**0**	**0**	**434**	**58**	**1308**
Base growth (0.0% compounded 3 years)	0	0	0	0	0	0	0	0	0	0	0	0	0
Turkey Hill C-Store w Gas								27			27		54
Blackman Plaza Redevelopment								36			37		73
0													0
Total Nearby Developments	0	0	0	0	0	0	0	63	0	0	64	0	127
2024/2029 Base (No-Build) Volumes	**183**	**0**	**6**	**0**	**0**	**0**	**6**	**684**	**0**	**0**	**498**	**58**	**1435**
Distribution % - Entering Trips (Passenger Cars)	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	24%	0%	
Distribution % - Exiting New Trips (Passenger Cars)	0%	0%	0%	0%	0%	0%	1%	44%	0%	0%	0%	0%	
Distribution % - Entering New Trips (Trucks)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%	
Distribution % - Exiting New Trips (Trucks)	0%	0%	0%	0%	0%	0%	0%	10%	0%	0%	0%	0%	
Building 1 - Passenger Car Trips			1					10			22		33
Building 1 - Truck Trips											1		1
Total Trip Distribution	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**10**	**0**	**0**	**23**	**0**	**34**
Redistributed Trips (Allan Road)													0
2024/2029 Projected (Build) Volumes	**183**	**0**	**7**	**0**	**0**	**0**	**6**	**694**	**0**	**0**	**521**	**58**	**1469**

Time Period: Weekday P.M. Peak Hour of Generator

	Eastbound			Westbound			Northbound			Southbound			Intersection
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	Volume
2021 Existing Counts	**239**	**0**	**24**	**3**	**0**	**8**	**19**	**768**	**3**	**2**	**881**	**182**	**2129**
Balancing	0	0	0	0	0	0	0	0	0	0	0	0	0
2021 Existing Volumes (Balanced)	**239**	**0**	**24**	**3**	**0**	**8**	**19**	**768**	**3**	**2**	**881**	**182**	**2129**
Base growth (0.0% compounded 3 years)	0	0	0	0	0	0	0	0	0	0	0	0	0
Turkey Hill C-Store w Gas								18			19		37
Blackman Plaza Redevelopment								31			32		63
0													0
Total Nearby Developments	0	0	0	0	0	0	0	49	0	0	51	0	100
2024/2029 Base (No-Build) Volumes	**239**	**0**	**24**	**3**	**0**	**8**	**19**	**817**	**3**	**2**	**932**	**182**	**2229**
Distribution % - Entering Trips (Passenger Cars)	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	24%	0%	
Distribution % - Exiting New Trips (Passenger Cars)	0%	0%	0%	0%	0%	0%	1%	44%	0%	0%	0%	0%	
Distribution % - Entering New Trips (Trucks)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%	
Distribution % - Exiting New Trips (Trucks)	0%	0%	0%	0%	0%	0%	0%	10%	0%	0%	0%	0%	
Building 1 - Passenger Car Trips							1	42			10		53
Building 1 - Truck Trips								1			1		2
Total Trip Distribution	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**43**	**0**	**0**	**11**	**0**	**55**
Redistributed Trips (Allan Road)													0
2024/2029 Projected (Build) Volumes	**239**	**0**	**24**	**3**	**0**	**8**	**20**	**860**	**3**	**2**	**943**	**182**	**2284**

TPD# BCVS.00002
5/19/2022
Traffic Volumes Worksheet
Intersection: **Wilkes Barre Township Blvd & Sheetz/Shopping Center Driveway**
Synchro Node: **5** **Adjacent intersections:** **West** 0 **East** 0 **North** 0 **South** 0

Time Period: Weekday A.M. Peak Hour of Adjacent Street Traffic

	Eastbound			Westbound			Northbound			Southbound			Intersection
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	Volume
2021 Existing Counts	**54**	**5**	**9**	**69**	**1**	**64**	**54**	**797**	**123**	**44**	**320**	**56**	**1596**
Balancing													0
2021 Existing Volumes (Balanced)	**54**	**5**	**9**	**69**	**1**	**64**	**54**	**797**	**123**	**44**	**320**	**56**	**1596**
Base growth (0.0% compounded 3 years)	0	0	0	0	0	0	0	0	0	0	0	0	0
Turkey Hill C-Store w Gas								27			27		54
Blackman Plaza Redevelopment								36			37		73
													0
Total Nearby Developments	0	0	0	0	0	0	0	63	0	0	64	0	127
2024/2029 Base (No-Build) Volumes	**54**	**5**	**9**	**69**	**1**	**64**	**54**	**860**	**123**	**44**	**384**	**56**	**1723**
Distribution % - Entering Trips (Passenger Cars)											24%		
Distribution % - Exiting New Trips (Passenger Cars)								44%					
Distribution % - Entering New Trips (Trucks)											10%		
Distribution % - Exiting New Trips (Trucks)								10%					
Building 1 - Passenger Car Trips								3			12		15
Building 1 - Truck Trips								1			1		2
Total Trip Distribution	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**13**	**0**	**17**
Redistributed Trips (Allan Road)													0
2024/2029 Projected (Build) Volumes	**54**	**5**	**9**	**69**	**1**	**64**	**54**	**864**	**123**	**44**	**397**	**56**	**1740**

Time Period: Weekday A.M. Peak Hour of Generator

	Eastbound			Westbound			Northbound			Southbound			Intersection
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	Volume
2021 Existing Counts	**66**	**2**	**8**	**66**	**2**	**73**	**60**	**692**	**112**	**59**	**382**	**57**	**1579**
Balancing	0	0	0	0	0	0	0	0	0	0	0	0	0
2021 Existing Volumes (Balanced)	**66**	**2**	**8**	**66**	**2**	**73**	**60**	**692**	**112**	**59**	**382**	**57**	**1579**
Base growth (0.0% compounded 3 years)	0	0	0	0	0	0	0	0	0	0	0	0	0
Turkey Hill C-Store w Gas								27			27		54
Blackman Plaza Redevelopment								36			37		73
0													0
Total Nearby Developments	0	0	0	0	0	0	0	63	0	0	64	0	127
2024/2029 Base (No-Build) Volumes	**66**	**2**	**8**	**66**	**2**	**73**	**60**	**755**	**112**	**59**	**446**	**57**	**1706**
Distribution % - Entering Trips (Passenger Cars)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	24%	0%	
Distribution % - Exiting New Trips (Passenger Cars)	0%	0%	0%	0%	0%	0%	0%	44%	0%	0%	0%	0%	
Distribution % - Entering New Trips (Trucks)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%	
Distribution % - Exiting New Trips (Trucks)	0%	0%	0%	0%	0%	0%	0%	10%	0%	0%	0%	0%	
Building 1 - Passenger Car Trips								10			22		32
Building 1 - Truck Trips											1		1
Total Trip Distribution	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**10**	**0**	**0**	**23**	**0**	**33**
Redistributed Trips (Allan Road)													0
2024/2029 Projected (Build) Volumes	**66**	**2**	**8**	**66**	**2**	**73**	**60**	**765**	**112**	**59**	**469**	**57**	**1739**

Time Period: Weekday P.M. Peak Hour of Generator

	Eastbound			Westbound			Northbound			Southbound			Intersection
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	Volume
2021 Existing Counts	**69**	**10**	**5**	**229**	**38**	**144**	**61**	**822**	**207**	**123**	**770**	**85**	**2563**
Balancing	0	0	0	0	0	0	0	0	0	0	0	0	0
2021 Existing Volumes (Balanced)	**69**	**10**	**5**	**229**	**38**	**144**	**61**	**822**	**207**	**123**	**770**	**85**	**2563**
Base growth (0.0% compounded 3 years)	0	0	0	0	0	0	0	0	0	0	0	0	0
Turkey Hill C-Store w Gas								18			19		37
Blackman Plaza Redevelopment								31			32		63
0													0
Total Nearby Developments	0	0	0	0	0	0	0	49	0	0	51	0	100
2024/2029 Base (No-Build) Volumes	**69**	**10**	**5**	**229**	**38**	**144**	**61**	**871**	**207**	**123**	**821**	**85**	**2663**
Distribution % - Entering Trips (Passenger Cars)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	24%	0%	
Distribution % - Exiting New Trips (Passenger Cars)	0%	0%	0%	0%	0%	0%	0%	44%	0%	0%	0%	0%	
Distribution % - Entering New Trips (Trucks)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%	
Distribution % - Exiting New Trips (Trucks)	0%	0%	0%	0%	0%	0%	0%	10%	0%	0%	0%	0%	
Building 1 - Passenger Car Trips								42			10		52
Building 1 - Truck Trips								1			1		2
Total Trip Distribution	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**43**	**0**	**0**	**11**	**0**	**54**
Redistributed Trips (Allan Road)													0
2024/2029 Projected (Build) Volumes	**69**	**10**	**5**	**229**	**38**	**144**	**61**	**914**	**207**	**123**	**832**	**85**	**2717**

TPD# BCVS.00002
5/19/2022
Traffic Volumes Worksheet
Intersection: **Wilkes Barre Township Blvd & Coal St/Highland Park Blvd**
Synchro Node: **6** **Adjacent intersections:** **West** 0 **East** 0 **North** 0 **South** 0

Time Period: Weekday A.M. Peak Hour of Adjacent Street Traffic

	Eastbound			Westbound			Northbound			Southbound			Intersection
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	Volume
2021 Existing Counts	**67**	**231**	**126**	**115**	**171**	**44**	**377**	**272**	**267**	**25**	**160**	**35**	**1890**
Balancing													0
2021 Existing Volumes (Balanced)	**67**	**231**	**126**	**115**	**171**	**44**	**377**	**272**	**267**	**25**	**160**	**35**	**1890**
Base growth (0.0% compounded 3 years)	0	0	0	0	0	0	0	0	0	0	0	0	0
Turkey Hill C-Store w Gas			9	7			11	8	8		11		54
Blackman Plaza Redevelopment			12	10			15	11	10		15		73
													0
Total Nearby Developments	0	0	21	17	0	0	26	19	18	0	26	0	127
2024/2029 Base (No-Build) Volumes	**67**	**231**	**147**	**132**	**171**	**44**	**403**	**291**	**285**	**25**	**186**	**35**	**2017**
Distribution % - Entering Trips (Passenger Cars)			5%	5%							14%		
Distribution % - Exiting New Trips (Passenger Cars)							5%	14%	25%				
Distribution % - Entering New Trips (Trucks)				10%									
Distribution % - Exiting New Trips (Trucks)									10%				
Building 1 - Passenger Car Trips			2	3				1	2		7		15
Building 1 - Truck Trips				1					1				2
Total Trip Distribution	**0**	**0**	**2**	**4**	**0**	**0**	**0**	**1**	**3**	**0**	**7**	**0**	**17**
Redistributed Trips (Allan Road)													0
2024/2029 Projected (Build) Volumes	**67**	**231**	**149**	**136**	**171**	**44**	**403**	**292**	**288**	**25**	**193**	**35**	**2034**

Time Period: Weekday A.M. Peak Hour of Generator

	Eastbound			Westbound			Northbound			Southbound			Intersection
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	Volume
2021 Existing Counts	**79**	**291**	**114**	**109**	**171**	**48**	**234**	**283**	**325**	**56**	**252**	**50**	**2012**
Balancing	0	0	0	0	0	0	0	0	0	0	0	0	0
2021 Existing Volumes (Balanced)	**79**	**291**	**114**	**109**	**171**	**48**	**234**	**283**	**325**	**56**	**252**	**50**	**2012**
Base growth (0.0% compounded 3 years)	0	0	0	0	0	0	0	0	0	0	0	0	0
Turkey Hill C-Store w Gas			7	6			8	9	10		14		54
Blackman Plaza Redevelopment			9	8			10	12	14		20		73
0													0
Total Nearby Developments	0	0	16	14	0	0	18	21	24	0	34	0	127
2024/2029 Base (No-Build) Volumes	**79**	**291**	**130**	**123**	**171**	**48**	**252**	**304**	**349**	**56**	**286**	**50**	**2139**
Distribution % - Entering Trips (Passenger Cars)	0%	0%	5%	5%	0%	0%	0%	0%	0%	0%	14%	0%	
Distribution % - Exiting New Trips (Passenger Cars)	0%	0%	0%	0%	0%	0%	5%	14%	25%	0%	0%	0%	
Distribution % - Entering New Trips (Trucks)	0%	0%	0%	10%	0%	0%	0%	0%	0%	0%	0%	0%	
Distribution % - Exiting New Trips (Trucks)	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%	0%	0%	
Building 1 - Passenger Car Trips			4	5			1	3	6		13		32
Building 1 - Truck Trips				1									1
Total Trip Distribution	**0**	**0**	**4**	**6**	**0**	**0**	**1**	**3**	**6**	**0**	**13**	**0**	**33**
Redistributed Trips (Allan Road)													0
2024/2029 Projected (Build) Volumes	**79**	**291**	**134**	**129**	**171**	**48**	**253**	**307**	**355**	**56**	**299**	**50**	**2172**

Time Period: Weekday P.M. Peak Hour of Generator

	Eastbound			Westbound			Northbound			Southbound			Intersection
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	Volume
2021 Existing Counts	**133**	**503**	**196**	**282**	**467**	**80**	**260**	**369**	**454**	**92**	**417**	**112**	**3365**
Balancing	0	0	0	0	0	0	0	0	0	0	0	0	0
2021 Existing Volumes (Balanced)	**133**	**503**	**196**	**282**	**467**	**80**	**260**	**369**	**454**	**92**	**417**	**112**	**3365**
Base growth (0.0% compounded 3 years)	0	0	0	0	0	0	0	0	0	0	0	0	0
Turkey Hill C-Store w Gas			4	6			4	6	8		9		37
Blackman Plaza Redevelopment			7	10			7	11	13		15		63
0													0
Total Nearby Developments	0	0	11	16	0	0	11	17	21	0	24	0	100
2024/2029 Base (No-Build) Volumes	**133**	**503**	**207**	**298**	**467**	**80**	**271**	**386**	**475**	**92**	**441**	**112**	**3465**
Distribution % - Entering Trips (Passenger Cars)	0%	0%	5%	5%	0%	0%	0%	0%	0%	0%	14%	0%	
Distribution % - Exiting New Trips (Passenger Cars)	0%	0%	0%	0%	0%	0%	5%	14%	25%	0%	0%	0%	
Distribution % - Entering New Trips (Trucks)	0%	0%	0%	10%	0%	0%	0%	0%	0%	0%	0%	0%	
Distribution % - Exiting New Trips (Trucks)	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%	0%	0%	
Building 1 - Passenger Car Trips			2	2			5	13	24		6		52
Building 1 - Truck Trips				1					1				2
Total Trip Distribution	**0**	**0**	**2**	**3**	**0**	**0**	**5**	**13**	**25**	**0**	**6**	**0**	**54**
Redistributed Trips (Allan Road)													0
2024/2029 Projected (Build) Volumes	**133**	**503**	**209**	**301**	**467**	**80**	**276**	**399**	**500**	**92**	**447**	**112**	**3519**

TPD# BCVS.00002
5/19/2022
Traffic Volumes Worksheet
Intersection: **Johnson Street & Haul Road/Private Driveway**
Synchro Node: **7** **Adjacent intersections:** **West** **0** **East** **0** **North** **0** **South** **0**

Time Period: Weekday A.M. Peak Hour of Adjacent Street Traffic

	Eastbound			Westbound			Northbound			Southbound			Intersection
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	Volume
2021 Existing Counts	**0**	**0**	**0**	**12**	**0**	**0**	**2**	**20**	**9**	**0**	**21**	**0**	**64**
Balancing													0
2021 Existing Volumes (Balanced)	**0**	**0**	**0**	**12**	**0**	**0**	**2**	**20**	**9**	**0**	**21**	**0**	**64**
Base growth (0.0% compounded 3 years)	0	0	0	0	0	0	0	0	0	0	0	0	0
Turkey Hill C-Store w Gas													0
Blackman Plaza Redevelopment								5			5		10
													0
Total Nearby Developments	0	0	0	0	0	0	0	5	0	0	5	0	10
2024/2029 Base (No-Build) Volumes	**0**	**0**	**0**	**12**	**0**	**0**	**2**	**25**	**9**	**0**	**26**	**0**	**74**
Distribution % - Entering Trips (Passenger Cars)									50%	3%	2%		
Distribution % - Exiting New Trips (Passenger Cars)				50%		3%		2%					
Distribution % - Entering New Trips (Trucks)													
Distribution % - Exiting New Trips (Trucks)				50%									
Building 1 - Passenger Car Trips				4					25	1	1		31
Building 1 - Truck Trips				5									5
Total Trip Distribution	**0**	**0**	**0**	**9**	**0**	**0**	**0**	**0**	**25**	**1**	**1**	**0**	**36**
Redistributed Trips (Allan Road)													0
2024/2029 Projected (Build) Volumes	**0**	**0**	**0**	**21**	**0**	**0**	**2**	**25**	**34**	**1**	**27**	**0**	**110**

Time Period: Weekday A.M. Peak Hour of Generator

	Eastbound			Westbound			Northbound			Southbound			Intersection
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	Volume
2021 Existing Counts	**0**	**0**	**0**	**7**	**0**	**1**	**0**	**29**	**6**	**0**	**29**	**0**	**72**
Balancing	0	0	0	0	0	0	0	0	0	0	0	0	0
2021 Existing Volumes (Balanced)	**0**	**0**	**0**	**7**	**0**	**1**	**0**	**29**	**6**	**0**	**29**	**0**	**72**
Base growth (0.0% compounded 3 years)	0	0	0	0	0	0	0	0	0	0	0	0	0
Turkey Hill C-Store w Gas													0
Blackman Plaza Redevelopment								5			5		10
0													0
Total Nearby Developments	0	0	0	0	0	0	0	5	0	0	5	0	10
2024/2029 Base (No-Build) Volumes	**0**	**0**	**0**	**7**	**0**	**1**	**0**	**34**	**6**	**0**	**34**	**0**	**82**
Distribution % - Entering Trips (Passenger Cars)	0%	0%	0%	0%	0%	0%	0%	0%	50%	3%	2%	0%	
Distribution % - Exiting New Trips (Passenger Cars)	0%	0%	0%	50%	0%	3%	0%	2%	0%	0%	0%	0%	
Distribution % - Entering New Trips (Trucks)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Distribution % - Exiting New Trips (Trucks)	0%	0%	0%	50%	0%	0%	0%	0%	0%	0%	0%	0%	
Building 1 - Passenger Car Trips				12		1			45	2	2		62
Building 1 - Truck Trips				2									2
Total Trip Distribution	**0**	**0**	**0**	**14**	**0**	**1**	**0**	**0**	**45**	**2**	**2**	**0**	**64**
Redistributed Trips (Allan Road)													0
2024/2029 Projected (Build) Volumes	**0**	**0**	**0**	**21**	**0**	**2**	**0**	**34**	**51**	**2**	**36**	**0**	**146**

Time Period: Weekday P.M. Peak Hour of Generator

	Eastbound			Westbound			Northbound			Southbound			Intersection
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	Volume
2021 Existing Counts	**0**	**0**	**0**	**10**	**0**	**0**	**1**	**79**	**4**	**0**	**43**	**0**	**137**
Balancing	0	0	0	0	0	0	0	0	0	0	0	0	0
2021 Existing Volumes (Balanced)	**0**	**0**	**0**	**10**	**0**	**0**	**1**	**79**	**4**	**0**	**43**	**0**	**137**
Base growth (0.0% compounded 3 years)	0	0	0	0	0	0	0	0	0	0	0	0	0
Turkey Hill C-Store w Gas													0
Blackman Plaza Redevelopment								5			5		10
0													0
Total Nearby Developments	0	0	0	0	0	0	0	5	0	0	5	0	10
2024/2029 Base (No-Build) Volumes	**0**	**0**	**0**	**10**	**0**	**0**	**1**	**84**	**4**	**0**	**48**	**0**	**147**
Distribution % - Entering Trips (Passenger Cars)	0%	0%	0%	0%	0%	0%	0%	0%	50%	3%	2%	0%	
Distribution % - Exiting New Trips (Passenger Cars)	0%	0%	0%	50%	0%	3%	0%	2%	0%	0%	0%	0%	
Distribution % - Entering New Trips (Trucks)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Distribution % - Exiting New Trips (Trucks)	0%	0%	0%	50%	0%	0%	0%	0%	0%	0%	0%	0%	
Building 1 - Passenger Car Trips				47		3		2	21	1	1		75
Building 1 - Truck Trips				5									5
Total Trip Distribution	**0**	**0**	**0**	**52**	**0**	**3**	**0**	**2**	**21**	**1**	**1**	**0**	**80**
Redistributed Trips (Allan Road)													0
2024/2029 Projected (Build) Volumes	**0**	**0**	**0**	**62**	**0**	**3**	**1**	**86**	**25**	**1**	**49**	**0**	**227**

TPD# BCVS.00002
5/19/2022
Traffic Volumes Worksheet
Intersection: **Johnson Street & Relocated Allan Road**
Synchro Node: **8** **Adjacent intersections:** **West** 0 **East** 0 **North** 0 **South** 0

Time Period: Weekday A.M. Peak Hour of Adjacent Street Traffic

	Eastbound			Westbound			Northbound			Southbound			Intersection
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	Volume
2021 Existing Counts	**0**	**31**	**0**	**0**	**33**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**64**
Balancing													0
2021 Existing Volumes (Balanced)	**0**	**31**	**0**	**0**	**33**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**64**
Base growth (0.0% compounded 3 years)	0	0	0	0	0	0	0	0	0	0	0	0	0
Turkey Hill C-Store w Gas													0
Blackman Plaza Redevelopment		5			5								10
													0
Total Nearby Developments	0	5	0	0	5	0	0	0	0	0	0	0	10
2024/2029 Base (No-Build) Volumes	**0**	**36**	**0**	**0**	**38**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**74**
Distribution % - Entering Trips (Passenger Cars)		50%	45%	2%									
Distribution % - Exiting New Trips (Passenger Cars)					50%		45%		2%				
Distribution % - Entering New Trips (Trucks)			100%										
Distribution % - Exiting New Trips (Trucks)					50%		50%						
Building 1 - Passenger Car Trips		25	22	1	4		3						55
Building 1 - Truck Trips			9		5		5						19
Total Trip Distribution	**0**	**25**	**31**	**1**	**9**	**0**	**8**	**0**	**0**	**0**	**0**	**0**	**74**
Redistributed Trips (Allan Road)			18				11						29
2024/2029 Projected (Build) Volumes	**0**	**61**	**49**	**1**	**47**	**0**	**19**	**0**	**0**	**0**	**0**	**0**	**177**

Time Period: Weekday A.M. Peak Hour of Generator

	Eastbound			Westbound			Northbound			Southbound			Intersection
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	Volume
2021 Existing Counts	**0**	**25**	**0**	**0**	**36**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**61**
Balancing	0	0	0	0	0	0	0	0	0	0	0	0	0
2021 Existing Volumes (Balanced)	**0**	**25**	**0**	**0**	**36**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**61**
Base growth (0.0% compounded 3 years)	0	0	0	0	0	0	0	0	0	0	0	0	0
Turkey Hill C-Store w Gas													0
Blackman Plaza Redevelopment		5			5								10
0													0
Total Nearby Developments	0	5	0	0	5	0	0	0	0	0	0	0	10
2024/2029 Base (No-Build) Volumes	**0**	**30**	**0**	**0**	**41**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**71**
Distribution % - Entering Trips (Passenger Cars)	0%	50%	45%	2%	0%	0%	0%	0%	0%	0%	0%	0%	
Distribution % - Exiting New Trips (Passenger Cars)	0%	0%	0%	0%	50%	0%	45%	0%	2%	0%	0%	0%	
Distribution % - Entering New Trips (Trucks)	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Distribution % - Exiting New Trips (Trucks)	0%	0%	0%	0%	50%	0%	50%	0%	0%	0%	0%	0%	
Building 1 - Passenger Car Trips		45	41	2	12		10						110
Building 1 - Truck Trips			5		2		2						9
Total Trip Distribution	**0**	**45**	**46**	**2**	**14**	**0**	**12**	**0**	**0**	**0**	**0**	**0**	**119**
Redistributed Trips (Allan Road)			6				9						15
2024/2029 Projected (Build) Volumes	**0**	**75**	**52**	**2**	**55**	**0**	**21**	**0**	**0**	**0**	**0**	**0**	**205**

Time Period: Weekday P.M. Peak Hour of Generator

	Eastbound			Westbound			Northbound			Southbound			Intersection
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	Volume
2021 Existing Counts	**0**	**84**	**0**	**0**	**53**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**137**
Balancing	0	0	0	0	0	0	0	0	0	0	0	0	0
2021 Existing Volumes (Balanced)	**0**	**84**	**0**	**0**	**53**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**137**
Base growth (0.0% compounded 3 years)	0	0	0	0	0	0	0	0	0	0	0	0	0
Turkey Hill C-Store w Gas													0
Blackman Plaza Redevelopment		5			5								10
0													0
Total Nearby Developments	0	5	0	0	5	0	0	0	0	0	0	0	10
2024/2029 Base (No-Build) Volumes	**0**	**89**	**0**	**0**	**58**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**147**
Distribution % - Entering Trips (Passenger Cars)	0%	50%	45%	2%	0%	0%	0%	0%	0%	0%	0%	0%	
Distribution % - Exiting New Trips (Passenger Cars)	0%	0%	0%	0%	50%	0%	45%	0%	2%	0%	0%	0%	
Distribution % - Entering New Trips (Trucks)	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Distribution % - Exiting New Trips (Trucks)	0%	0%	0%	0%	50%	0%	50%	0%	0%	0%	0%	0%	
Building 1 - Passenger Car Trips		21	18	1	47		43		2				132
Building 1 - Truck Trips			13		5		5						23
Total Trip Distribution	**0**	**21**	**31**	**1**	**52**	**0**	**48**	**0**	**2**	**0**	**0**	**0**	**155**
Redistributed Trips (Allan Road)			4				13						17
2024/2029 Projected (Build) Volumes	**0**	**110**	**35**	**1**	**110**	**0**	**61**	**0**	**2**	**0**	**0**	**0**	**319**

APPENDIX G:
Capacity Analysis Worksheets

Supporting Calculations

CRITICAL HEADWAY CALCULATIONS FOR TWSC INTERSECTION WITHIN SUBURBAN LAND USE CONTEXT
BASED ON PENNSYLVANIA DEFAULT VALUES FROM CHAPTER 10 OF PENNDOT PUBLICATION 46

$t_{c,x} = t_{c,\,base} + t_{c,HV} * P_{HV} + t_{c,G} * G - t_{3,LT}$

where:

$t_{c,x}$ = critical headway for movement x (s)
$t_{c,base}$ = base crtitcal headway from Chapter 10 of PennDOT Publication 46
$t_{c,HV}$ = adjustment factor for heavy vehciles (1.0 for major streets with one lane in each direction; 2.0 for major streets with two or three lanes in each direction) (s)
P_{HV} = proportion of heavy vehciles for movement (expressed as a decimal; e.g., P_{HV}=0.02 for 2% heavy vehciles)
$t_{c,G}$ = adjustment factor for grade (0.1 for Movement 9 and 12; 0.2 for Movements 7,8,10, and 11) (s)
G = percent grade (expressed as an integer; e.g., G= -2 for a 2% downhill grade)
$t_{c,base}$ = adjustment factor for intersction geometry (0.7 for minor street left-turn movement at three-leg intersections; 0.0 otherwise) (s)

LEFT TURN FROM MAJOR ROADWAY - TWO LANES ($t_{c,\,base}$ = 4.3)

GRADE	0	-1	1	-2	2	-3	3	-4	4	-5	5	-6	6	-7	7	-8	8	-9	9	-10	10
HV %																					
0	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
1	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
2	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
4	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
5	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
6	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
7	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
8	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
9	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
10	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4

LEFT TURN FROM MINOR ROADWAY - TWO LANES - 4-LEG INTERSECTION ($t_{c,\,base}$ = 7.1)

GRADE	0	-1	1	-2	2	-3	3	-4	4	-5	5	-6	6	-7	7	-8	8	-9	9	-10	10
HV %																					
0	7.1	6.9	7.3	6.7	7.5	6.5	7.7	6.3	7.9	6.1	8.1	5.9	8.3	5.7	8.5	5.5	8.7	5.3	8.9	5.1	9.1
1	7.1	6.9	7.3	6.7	7.5	6.5	7.7	6.3	7.9	6.1	8.1	5.9	8.3	5.7	8.5	5.5	8.7	5.3	8.9	5.1	9.1
2	7.1	6.9	7.3	6.7	7.5	6.5	7.7	6.3	7.9	6.1	8.1	5.9	8.3	5.7	8.5	5.5	8.7	5.3	8.9	5.1	9.1
3	7.1	6.9	7.3	6.7	7.5	6.5	7.7	6.3	7.9	6.1	8.1	5.9	8.3	5.7	8.5	5.5	8.7	5.3	8.9	5.1	9.1
4	7.1	6.9	7.3	6.7	7.5	6.5	7.7	6.3	7.9	6.1	8.1	5.9	8.3	5.7	8.5	5.5	8.7	5.3	8.9	5.1	9.1
5	7.2	7.0	7.4	6.8	7.6	6.6	7.8	6.4	8.0	6.2	8.2	6.0	8.4	5.8	8.6	5.6	8.8	5.4	9.0	5.2	9.2
6	7.2	7.0	7.4	6.8	7.6	6.6	7.8	6.4	8.0	6.2	8.2	6.0	8.4	5.8	8.6	5.6	8.8	5.4	9.0	5.2	9.2
7	7.2	7.0	7.4	6.8	7.6	6.6	7.8	6.4	8.0	6.2	8.2	6.0	8.4	5.8	8.6	5.6	8.8	5.4	9.0	5.2	9.2
8	7.2	7.0	7.4	6.8	7.6	6.6	7.8	6.4	8.0	6.2	8.2	6.0	8.4	5.8	8.6	5.6	8.8	5.4	9.0	5.2	9.2
9	7.2	7.0	7.4	6.8	7.6	6.6	7.8	6.4	8.0	6.2	8.2	6.0	8.4	5.8	8.6	5.6	8.8	5.4	9.0	5.2	9.2
10	7.2	7.0	7.4	6.8	7.6	6.6	7.8	6.4	8.0	6.2	8.2	6.0	8.4	5.8	8.6	5.6	8.8	5.4	9.0	5.2	9.2

THROUGH TRAFFIC ON MINOR ROADWAY - TWO LANES ($t_{c,\,base}$ = 6.5)

GRADE	0	-1	1	-2	2	-3	3	-4	4	-5	5	-6	6	-7	7	-8	8	-9	9	-10	10
HV %																					
0	6.5	6.3	6.7	6.1	6.9	5.9	7.1	5.7	7.3	5.5	7.5	5.3	7.7	5.1	7.9	4.9	8.1	4.7	8.3	4.5	8.5
1	6.5	6.3	6.7	6.1	6.9	5.9	7.1	5.7	7.3	5.5	7.5	5.3	7.7	5.1	7.9	4.9	8.1	4.7	8.3	4.5	8.5
2	6.5	6.3	6.7	6.1	6.9	5.9	7.1	5.7	7.3	5.5	7.5	5.3	7.7	5.1	7.9	4.9	8.1	4.7	8.3	4.5	8.5
3	6.5	6.3	6.7	6.1	6.9	5.9	7.1	5.7	7.3	5.5	7.5	5.3	7.7	5.1	7.9	4.9	8.1	4.7	8.3	4.5	8.5
4	6.5	6.3	6.7	6.1	6.9	5.9	7.1	5.7	7.3	5.5	7.5	5.3	7.7	5.1	7.9	4.9	8.1	4.7	8.3	4.5	8.5
5	6.6	6.4	6.8	6.2	7.0	6.0	7.2	5.8	7.4	5.6	7.6	5.4	7.8	5.2	8.0	5.0	8.2	4.8	8.4	4.6	8.6
6	6.6	6.4	6.8	6.2	7.0	6.0	7.2	5.8	7.4	5.6	7.6	5.4	7.8	5.2	8.0	5.0	8.2	4.8	8.4	4.6	8.6
7	6.6	6.4	6.8	6.2	7.0	6.0	7.2	5.8	7.4	5.6	7.6	5.4	7.8	5.2	8.0	5.0	8.2	4.8	8.4	4.6	8.6
8	6.6	6.4	6.8	6.2	7.0	6.0	7.2	5.8	7.4	5.6	7.6	5.4	7.8	5.2	8.0	5.0	8.2	4.8	8.4	4.6	8.6
9	6.6	6.4	6.8	6.2	7.0	6.0	7.2	5.8	7.4	5.6	7.6	5.4	7.8	5.2	8.0	5.0	8.2	4.8	8.4	4.6	8.6
10	6.6	6.4	6.8	6.2	7.0	6.0	7.2	5.8	7.4	5.6	7.6	5.4	7.8	5.2	8.0	5.0	8.2	4.8	8.4	4.6	8.6

RIGHT TURN FROM MINOR ROADWAY - TWO LANES ($t_{c,\,base}$ = 6.2)

GRADE	0	-1	1	-2	2	-3	3	-4	4	-5	5	-6	6	-7	7	-8	8	-9	9	-10	10
HV %																					
0	6.2	6.1	6.3	6.0	6.4	5.9	6.5	5.8	6.6	5.7	6.7	5.6	6.8	5.5	6.9	5.4	7.0	5.3	7.1	5.2	7.2
1	6.2	6.1	6.3	6.0	6.4	5.9	6.5	5.8	6.6	5.7	6.7	5.6	6.8	5.5	6.9	5.4	7.0	5.3	7.1	5.2	7.2
2	6.2	6.1	6.3	6.0	6.4	5.9	6.5	5.8	6.6	5.7	6.7	5.6	6.8	5.5	6.9	5.4	7.0	5.3	7.1	5.2	7.2
3	6.2	6.1	6.3	6.0	6.4	5.9	6.5	5.8	6.6	5.7	6.7	5.6	6.8	5.5	6.9	5.4	7.0	5.3	7.1	5.2	7.2
4	6.2	6.1	6.3	6.0	6.4	5.9	6.5	5.8	6.6	5.7	6.7	5.6	6.8	5.5	6.9	5.4	7.0	5.3	7.1	5.2	7.2
5	6.3	6.2	6.4	6.1	6.5	6.0	6.6	5.9	6.7	5.8	6.8	5.7	6.9	5.6	7.0	5.5	7.1	5.4	7.2	5.3	7.3
6	6.3	6.2	6.4	6.1	6.5	6.0	6.6	5.9	6.7	5.8	6.8	5.7	6.9	5.6	7.0	5.5	7.1	5.4	7.2	5.3	7.3
7	6.3	6.2	6.4	6.1	6.5	6.0	6.6	5.9	6.7	5.8	6.8	5.7	6.9	5.6	7.0	5.5	7.1	5.4	7.2	5.3	7.3
8	6.3	6.2	6.4	6.1	6.5	6.0	6.6	5.9	6.7	5.8	6.8	5.7	6.9	5.6	7.0	5.5	7.1	5.4	7.2	5.3	7.3
9	6.3	6.2	6.4	6.1	6.5	6.0	6.6	5.9	6.7	5.8	6.8	5.7	6.9	5.6	7.0	5.5	7.1	5.4	7.2	5.3	7.3
10	6.3	6.2	6.4	6.1	6.5	6.0	6.6	5.9	6.7	5.8	6.8	5.7	6.9	5.6	7.0	5.5	7.1	5.4	7.2	5.3	7.3

CRITICAL HEADWAY CALCULATIONS FOR TWSC INTERSECTION WITHIN SUBURBAN LAND USE CONTEXT
BASED ON PENNSYLVANIA DEFAULT VALUES FROM CHAPTER 10 OF PENNDOT PUBLICATION 46

$t_{c,x} = t_{c,\,base} + t_{c,HV} * P_{HV} + t_{c,G} * G - t_{3,LT}$

where:

$t_{c,x}$ = critical headway for movement x (s)
$t_{c,base}$ = base crtitcal headway from Chapter 10 of PennDOT Publication 46
$t_{c,HV}$ = adjustment factor for heavy vehciles (1.0 for major streets with one lane in each direction; 2.0 for major streets with two or three lanes in each direction) (s)
P_{HV} = proportion of heavy vehciles for movement (expressed as a decimal; e.g., P_{HV}=0.02 for 2% heavy vehciles)
$t_{c,G}$ = adjustment factor for grade (0.1 for Movement 9 and 12; 0.2 for Movements 7,8,10, and 11) (s)
G = percent grade (expressed as an integer; e.g., G= -2 for a 2% downhill grade)
$t_{c,base}$ = adjustment factor for intersction geometry (0.7 for minor street left-turn movement at three-leg intersections; 0.0 otherwise) (s)

LEFT TURN FROM MAJOR ROADWAY - TWO LANES ($t_{c,\,base}$ = 4.3)

GRADE	0	-1	1	-2	2	-3	3	-4	4	-5	5	-6	6	-7	7	-8	8	-9	9	-10	10
HV %																					
0	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
1	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
2	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
4	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
5	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
6	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
7	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
8	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
9	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
10	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4

LEFT TURN FROM MINOR ROADWAY - TWO LANES - 3-LEG INTERSECTION ($t_{c,\,base}$ = 7.1)

GRADE	0	-1	1	-2	2	-3	3	-4	4	-5	5	-6	6	-7	7	-8	8	-9	9	-10	10
HV %																					
0	6.4	6.2	6.6	6.0	6.8	5.8	7.0	5.6	7.2	5.4	7.4	5.2	7.6	5.0	7.8	4.8	8.0	4.6	8.2	4.4	8.4
1	6.4	6.2	6.6	6.0	6.8	5.8	7.0	5.6	7.2	5.4	7.4	5.2	7.6	5.0	7.8	4.8	8.0	4.6	8.2	4.4	8.4
2	6.4	6.2	6.6	6.0	6.8	5.8	7.0	5.6	7.2	5.4	7.4	5.2	7.6	5.0	7.8	4.8	8.0	4.6	8.2	4.4	8.4
3	6.4	6.2	6.6	6.0	6.8	5.8	7.0	5.6	7.2	5.4	7.4	5.2	7.6	5.0	7.8	4.8	8.0	4.6	8.2	4.4	8.4
4	6.4	6.2	6.6	6.0	6.8	5.8	7.0	5.6	7.2	5.4	7.4	5.2	7.6	5.0	7.8	4.8	8.0	4.6	8.2	4.4	8.4
5	6.5	6.3	6.7	6.1	6.9	5.9	7.1	5.7	7.3	5.5	7.5	5.3	7.7	5.1	7.9	4.9	8.1	4.7	8.3	4.5	8.5
6	6.5	6.3	6.7	6.1	6.9	5.9	7.1	5.7	7.3	5.5	7.5	5.3	7.7	5.1	7.9	4.9	8.1	4.7	8.3	4.5	8.5
7	6.5	6.3	6.7	6.1	6.9	5.9	7.1	5.7	7.3	5.5	7.5	5.3	7.7	5.1	7.9	4.9	8.1	4.7	8.3	4.5	8.5
8	6.5	6.3	6.7	6.1	6.9	5.9	7.1	5.7	7.3	5.5	7.5	5.3	7.7	5.1	7.9	4.9	8.1	4.7	8.3	4.5	8.5
9	6.5	6.3	6.7	6.1	6.9	5.9	7.1	5.7	7.3	5.5	7.5	5.3	7.7	5.1	7.9	4.9	8.1	4.7	8.3	4.5	8.5
10	6.5	6.3	6.7	6.1	6.9	5.9	7.1	5.7	7.3	5.5	7.5	5.3	7.7	5.1	7.9	4.9	8.1	4.7	8.3	4.5	8.5

RIGHT TURN FROM MINOR ROADWAY - TWO LANES ($t_{c,\,base}$ = 6.2)

GRADE	0	-1	1	-2	2	-3	3	-4	4	-5	5	-6	6	-7	7	-8	8	-9	9	-10	10
HV %																					
0	6.2	6.1	6.3	6.0	6.4	5.9	6.5	5.8	6.6	5.7	6.7	5.6	6.8	5.5	6.9	5.4	7.0	5.3	7.1	5.2	7.2
1	6.2	6.1	6.3	6.0	6.4	5.9	6.5	5.8	6.6	5.7	6.7	5.6	6.8	5.5	6.9	5.4	7.0	5.3	7.1	5.2	7.2
2	6.2	6.1	6.3	6.0	6.4	5.9	6.5	5.8	6.6	5.7	6.7	5.6	6.8	5.5	6.9	5.4	7.0	5.3	7.1	5.2	7.2
3	6.2	6.1	6.3	6.0	6.4	5.9	6.5	5.8	6.6	5.7	6.7	5.6	6.8	5.5	6.9	5.4	7.0	5.3	7.1	5.2	7.2
4	6.2	6.1	6.3	6.0	6.4	5.9	6.5	5.8	6.6	5.7	6.7	5.6	6.8	5.5	6.9	5.4	7.0	5.3	7.1	5.2	7.2
5	6.3	6.2	6.4	6.1	6.5	6.0	6.6	5.9	6.7	5.8	6.8	5.7	6.9	5.6	7.0	5.5	7.1	5.4	7.2	5.3	7.3
6	6.3	6.2	6.4	6.1	6.5	6.0	6.6	5.9	6.7	5.8	6.8	5.7	6.9	5.6	7.0	5.5	7.1	5.4	7.2	5.3	7.3
7	6.3	6.2	6.4	6.1	6.5	6.0	6.6	5.9	6.7	5.8	6.8	5.7	6.9	5.6	7.0	5.5	7.1	5.4	7.2	5.3	7.3
8	6.3	6.2	6.4	6.1	6.5	6.0	6.6	5.9	6.7	5.8	6.8	5.7	6.9	5.6	7.0	5.5	7.1	5.4	7.2	5.3	7.3
9	6.3	6.2	6.4	6.1	6.5	6.0	6.6	5.9	6.7	5.8	6.8	5.7	6.9	5.6	7.0	5.5	7.1	5.4	7.2	5.3	7.3
10	6.3	6.2	6.4	6.1	6.5	6.0	6.6	5.9	6.7	5.8	6.8	5.7	6.9	5.6	7.0	5.5	7.1	5.4	7.2	5.3	7.3

FOLLOW-UP HEADWAY CALCULATIONS FOR TWSC INTERSECTION WITHIN SUBURBAN LAND USE CONTEXT
BASED ON PENNSYLVANIA DEFAULT VALUES FROM CHAPTER 10 OF PENNDOT PUBLICATION 46

$t_{f,x} = t_{f,\,base} + t_{f,HV} * P_{HV}$

where:

$t_{f,x}$ = follow-up headway for movement x (s)
$t_{f,base}$ = base follow-up headway from Chapter 10 of PennDOT Publication 46
$t_{f,HV}$ = adjustment factor for heavy vehciles (0.9 for major streets with one lane in each direction; 1.0 for major streets with two or three lanes in each direction) (s)
P_{HV} = proportion of heavy vehciles for movement (expressed as a decimal; e.g., P_{HV}=0.02 for 2% heavy vehciles)

LEFT TURN FROM MAJOR ROADWAY - TWO LANES ($t_{f,\,base}$ = 3.0)

GRADE	0	-1	1	-2	2	-3	3	-4	4	-5	5	-6	6	-7	7	-8	8	-9	9	-10	10
HV %																					
0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
1	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
2	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
3	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
4	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
5	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
6	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
7	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
8	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
9	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
10	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1

LEFT TURN FROM MINOR ROADWAY - TWO LANES ($t_{f,\,base}$ = 3.0)

GRADE	0	-1	1	-2	2	-3	3	-4	4	-5	5	-6	6	-7	7	-8	8	-9	9	-10	10
HV %																					
0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
1	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
2	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
3	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
4	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
5	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
6	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
7	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
8	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
9	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
10	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1

THROUGH TRAFFIC ON MINOR ROADWAY - TWO LANES ($t_{f,\,base}$ = 4.0)

GRADE	0	-1	1	-2	2	-3	3	-4	4	-5	5	-6	6	-7	7	-8	8	-9	9	-10	10
HV %																					
0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
1	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
2	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
3	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
4	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
5	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
6	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1
7	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1
8	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1
9	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1
10	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1

RIGHT TURN FROM MINOR ROADWAY - TWO LANES ($t_{f,\,base}$ = 3.1)

GRADE	0	-1	1	-2	2	-3	3	-4	4	-5	5	-6	6	-7	7	-8	8	-9	9	-10	10
HV %																					
0	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
2	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
3	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
4	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
5	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
6	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
7	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
8	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
9	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
10	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2

TPD# BCVS.00002
12/23/2021
Heavy Vehicle Percentage Worksheet
Intersection: **Wilkes Barre Township Boulevard (SR 6309) & Johnson Street/Blackman Plaza Driveway**
Synchro Node: **3** **Adjacent intersections:** **West** **0** **East** **0** **North** **0** **South** **0**

Time Period: Weekday A.M. Peak Hour of Adjacent Street Traffic

	Eastbound			Westbound			Northbound			Southbound			Intersection
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	Volume
Existing Trucks	1		5				1	19	1	1	23		51
Relocated Allan Road Redistributions - Truck Trips				2		3			7	1			
Proposed Trip Distribution - Truck Trips				9		1			8	1			19
Projected 2024/2029 Truck Volumes	1	0	5	11	0	4	1	19	16	3	23	0	83
Projected 2024/2029 Vehicle Volumes	126	5	120	32	17	12	186	648	75	25	343	88	1677
Projected 2024/2029 Heavy Vehicle %	**1%**	**0%**	**4%**	**34%**	**0%**	**33%**	**1%**	**3%**	**21%**	**12%**	**7%**	**0%**	

Time Period: Weekday A.M. Peak Hour of Generator

	Eastbound			Westbound			Northbound			Southbound			Intersection
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	Volume
Existing Volumes (Trucks)			3	3		1	2	20	3		17		49
Relocated Allan Road Redistributions - Truck Trips				4					1				
Proposed Trip Distribution - Truck Trips				4					4	1			9
Projected 2024/2029 Truck Volumes	0	0	3	11	0	1	2	20	8	1	17	0	63
Projected 2024/2029 Vehicle Volumes	117	8	130	39	8	31	180	539	98	33	370	90	1643
Projected 2024/2029 Heavy Vehicle %	**0%**	**0%**	**2%**	**28%**	**0%**	**3%**	**1%**	**4%**	**8%**	**3%**	**5%**	**0%**	

Time Period: Weekday P.M. Peak Hour of Generator

	Eastbound			Westbound			Northbound			Southbound			Intersection
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	Volume
Existing Volumes (Trucks)			3			1	1	15	4		10		34
Relocated Allan Road Redistributions - Truck Trips				1					1				
Proposed Trip Distribution - Truck Trips				9		1			12	1			23
Projected 2024/2029 Truck Volumes	0	0	3	10	0	2	1	15	17	1	10	0	59
Projected 2024/2029 Vehicle Volumes	79	12	306	86	12	75	192	691	115	26	775	129	2498
Projected 2024/2029 Heavy Vehicle %	**0%**	**0%**	**1%**	**12%**	**0%**	**3%**	**1%**	**2%**	**15%**	**4%**	**1%**	**0%**	

TPD# BCVS.00002
12/23/2021
Heavy Vehicle Percentage Worksheet

Intersection:	**Johnson Street & Haul Road**
Synchro Node:	**7**

Adjacent intersections: West 0 | East 0 | North 0 | South 0

Time Period: Weekday A.M. Peak Hour of Adjacent Street Traffic

	Eastbound			Westbound			Northbound			Southbound			Intersection
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	Volume
Existing Trucks				7				2	4		1		14
Proposed Trip Distribution - Truck Trips				5									5
Projected 2024/2029 Truck Volumes	0	0	0	12	0	0	0	2	4	0	1	0	19
Projected 2024/2029 Vehicle Volumes	0	0	0	21	0	0	2	25	34	1	27	0	110
Projected 2024/2029 Heavy Vehicle %	**0%**	**2% ***	**0%**	**57%**	**2% ***	**2% ***	**0%**	**8%**	**12%**	**2% ***	**4%**	**0%**	

Time Period: Weekday A.M. Peak Hour of Generator

	Eastbound			Westbound			Northbound			Southbound			Intersection
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	Volume
Existing Volumes (Trucks)				4					3				7
Proposed Trip Distribution - Truck Trips				2									2
Projected 2024/2029 Truck Volumes	0	0	0	6	0	0	0	0	3	0	0	0	9
Projected 2024/2029 Vehicle Volumes	0	0	0	21	0	2	0	34	51	2	36	0	146
Projected 2024/2029 Heavy Vehicle %	**0%**	**2% ***	**0%**	**29%**	**2% ***	**2% ***	**0%**	**0%**	**6%**	**2% ***	**0%**	**0%**	

Time Period: Weekday P.M. Peak Hour of Generator

	Eastbound			Westbound			Northbound			Southbound			Intersection
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	Volume
Existing Volumes (Trucks)													0
Proposed Trip Distribution - Truck Trips				5									5
Projected 2024/2029 Truck Volumes	0	0	0	5	0	0	0	0	0	0	0	0	5
Projected 2024/2029 Vehicle Volumes	0	0	0	62	0	3	1	86	25	1	49	0	227
Projected 2024/2029 Heavy Vehicle %	**0%**	**2% ***	**0%**	**8%**	**2% ***	**2% ***	**0%**	**0%**	**2% ***	**2% ***	**0%**	**0%**	

*Minimum 2% utilized per PennDOT standards

Note: Northbound and Southbound are Johnson Street

TPD# BCVS.00002
12/23/2021
Heavy Vehicle Percentage Worksheet

Intersection:	**Johnson Street & Relocated Allan Road**								
Synchro Node:	**8**	**Adjacent intersections:**	**West**	**0**	**East**	**0**	**North**	**0**	**South**	**0**

Time Period: Weekday A.M. Peak Hour of Adjacent Street Traffic

	Eastbound			Westbound			Northbound			Southbound			Intersection
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	Volume
Existing Trucks		6			8								14
Relocated Allan Road Redistributions - Truck Trips			8				5						
Proposed Trip Distribution - Truck Trips			9		5		5						19
Projected 2024/2029 Truck Volumes	0	6	17	0	13	0	10	0	0	0	0	0	46
Projected 2024/2029 Vehicle Volumes	0	61	49	1	47	0	19	0	0	0	0	0	177
Projected 2024/2029 Heavy Vehicle %	**0%**	**10%**	**35%**	**2% ***	**28%**	**0%**	**53%**	**0%**	**2% ***	**0%**	**0%**	**0%**	

Time Period: Weekday A.M. Peak Hour of Generator

	Eastbound			Westbound			Northbound			Southbound			Intersection
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	Volume
Existing Volumes (Trucks)		3			4								7
Relocated Allan Road Redistributions - Truck Trips			1				4						
Proposed Trip Distribution - Truck Trips			5		2		2						9
Projected 2024/2029 Truck Volumes	0	3	6	0	6	0	6	0	0	0	0	0	21
Projected 2024/2029 Vehicle Volumes	0	75	52	2	55	0	21	0	0	0	0	0	205
Projected 2024/2029 Heavy Vehicle %	**0%**	**4%**	**12%**	**2% ***	**11%**	**0%**	**29%**	**0%**	**2% ***	**0%**	**0%**	**0%**	

Time Period: Weekday P.M. Peak Hour of Generator

	Eastbound			Westbound			Northbound			Southbound			Intersection
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	Volume
Existing Volumes (Trucks)		0			0								0
Relocated Allan Road Redistributions - Truck Trips			1				1						
Proposed Trip Distribution - Truck Trips			13		5		5						23
Projected 2024/2029 Truck Volumes	0	0	14	0	5	0	6	0	0	0	0	0	25
Projected 2024/2029 Vehicle Volumes	0	110	35	1	110	0	61	0	2	0	0	0	319
Projected 2024/2029 Heavy Vehicle %	**0%**	**0%**	**40%**	**2% ***	**5%**	**0%**	**10%**	**0%**	**2% ***	**0%**	**0%**	**0%**	

*Minimum 2% utilized per PennDOT standards
Note: Westbound and Eastbound are Johnson Street

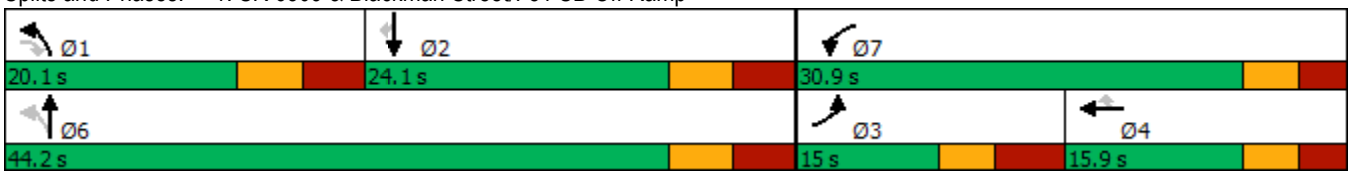
Existing Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	82	0	210	250	131	58	273	709	0	0	316	85
Future Volume (vph)	82	0	210	250	131	58	273	709	0	0	316	85
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	14	13	11	14	12	12	12	13	12	14
Grade (%)		-1%			-4%			-3%			-3%	
Storage Length (ft)	380		0	180		180	275		0	0		225
Storage Lanes	1		1	1		1	1		0	0		1
Taper Length (ft)	75			100			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor												
Frt			0.850			0.850						0.850
Flt Protected	0.950			0.950			0.950					
Satd. Flow (prot)	1588	0	1533	1669	1690	1435	1669	3370	0	0	3306	1548
Flt Permitted	0.950			0.950			0.393					
Satd. Flow (perm)	1588	0	1533	1669	1690	1435	690	3370	0	0	3306	1548
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			247			264						247
Link Speed (mph)		35			25			35			35	
Link Distance (ft)		1012			1172			871			378	
Travel Time (s)		19.7			32.0			17.0			7.4	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	1%	0%	7%	8%	5%	16%	4%	3%	0%	0%	5%	7%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	87	0	223	266	139	62	290	754	0	0	336	90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	87	0	223	266	139	62	290	754	0	0	336	90
Turn Type	Prot		Perm	Prot	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases	3			7	4		1	6			2	
Permitted Phases			1			4	6					2
Detector Phase	3		1	7	4	4	1	6			2	2
Switch Phase												
Minimum Initial (s)	3.0		3.0	3.0	3.0	3.0	3.0	10.0			10.0	10.0
Minimum Split (s)	10.0		10.1	8.9	8.9	8.9	10.1	17.1			17.1	17.1
Total Split (s)	15.0		20.1	30.9	15.9	15.9	20.1	44.2			24.1	24.1
Total Split (%)	20.0%		26.8%	41.1%	21.2%	21.2%	26.8%	58.9%			32.1%	32.1%
Yellow Time (s)	3.1		3.6	3.1	3.1	3.1	3.6	3.6			3.6	3.6
All-Red Time (s)	3.9		3.5	2.8	2.8	2.8	3.5	3.5			3.5	3.5
Lost Time Adjust (s)	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0			-1.0	-1.0
Total Lost Time (s)	6.0		6.1	4.9	4.9	4.9	6.1	6.1			6.1	6.1
Lead/Lag	Lead		Lead		Lag	Lag	Lead				Lag	Lag
Lead-Lag Optimize?	Yes		Yes		Yes	Yes	Yes				Yes	Yes
Recall Mode	None		None	None	None	None	None	Min			Min	Min

Intersection Summary

Area Type:	Other
Cycle Length: 75.1	
Actuated Cycle Length: 65.8	
Natural Cycle: 55	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 1: SR 6309 & Blackman Street/I-81 SB Off Ramp



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	82	0	210	250	131	58	273	709	0	0	316	85
Future Volume (veh/h)	82	0	210	250	131	58	273	709	0	0	316	85
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	1823	0	1807	1909	1878	1790	1855	1869	0	0	1841	1885
Adj Flow Rate, veh/h	87	0	0	266	139	0	290	754	0	0	336	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	1	0	7	8	5	16	4	3	0	0	5	7
Cap, veh/h	147	0		405	241		604	1857	0	0	928	
Arrive On Green	0.08	0.00	0.00	0.22	0.13	0.00	0.16	0.52	0.00	0.00	0.27	0.00
Sat Flow, veh/h	1736	87		1818	1878	1517	1767	3645	0	0	3589	1597
Grp Volume(v), veh/h	87	29.8		266	139	0	290	754	0	0	336	0
Grp Sat Flow(s),veh/h/ln	1736	C		1818	1878	1517	1767	1776	0	0	1749	1597
Q Serve(g_s), s	3.1			8.6	4.5	0.0	6.7	8.3	0.0	0.0	5.0	0.0
Cycle Q Clear(g_c), s	3.1			8.6	4.5	0.0	6.7	8.3	0.0	0.0	5.0	0.0
Prop In Lane	1.00			1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h	147			405	241		604	1857	0	0	928	
V/C Ratio(X)	0.59			0.66	0.58		0.48	0.41	0.00	0.00	0.36	
Avail Cap(c_a), veh/h	243			734	321		701	2101	0	0	978	
HCM Platoon Ratio	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	0.00	1.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	28.4			22.8	26.4	0.0	11.5	9.3	0.0	0.0	19.2	0.0
Incr Delay (d2), s/veh	1.4			0.7	0.8	0.0	0.2	0.7	0.0	0.0	1.1	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
%ile BackOfQ(95%),veh/ln	2.3			6.4	3.6	0.0	4.1	5.0	0.0	0.0	3.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.8			23.5	27.2	0.0	11.8	10.0	0.0	0.0	20.3	0.0
LnGrp LOS	C			C	C		B	A	A	A	C	
Approach Vol, veh/h					405			1044			336	
Approach Delay, s/veh					24.8			10.5			20.3	
Approach LOS					C			B			C	

Timer - Assigned Phs	1	2	3	4	6	7
Phs Duration (G+Y+Rc), s	16.6	23.2	11.5	13.2	39.8	19.2
Change Period (Y+Rc), s	7.1	7.1	7.0	* 5.9	7.1	* 5.9
Max Green Setting (Gmax), s	13.0	17.0	8.0	* 10	37.1	* 25
Max Q Clear Time (g_c+I1), s	9.2	7.5	5.6	7.0	10.8	11.1
Green Ext Time (p_c), s	0.3	4.7	0.0	0.3	21.9	2.4

Intersection Summary	
HCM 6th Ctrl Delay	16.2
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	0	32	14	11	3	33	737	19	7	367	12
Future Volume (vph)	17	0	32	14	11	3	33	737	19	7	367	12
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	16	16	16	14	14	14	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	50		0	50		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	75			75			50			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.912			0.986			0.996			0.995	
Flt Protected		0.983			0.976		0.950			0.950		
Satd. Flow (prot)	0	1625	0	0	1848	0	1660	1740	0	1500	1693	0
Flt Permitted		0.983			0.976		0.950			0.950		
Satd. Flow (perm)	0	1625	0	0	1848	0	1660	1740	0	1500	1693	0
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		268			799			710			875	
Travel Time (s)		7.3			21.8			13.8			17.0	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	6%	0%	16%	0%	0%	0%	3%	3%	5%	14%	6%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	18	0	34	15	12	3	35	792	20	8	395	13
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	52	0	0	30	0	35	812	0	8	408	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	17	0	32	14	11	3	33	737	19	7	367	12
Future Vol, veh/h	17	0	32	14	11	3	33	737	19	7	367	12
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	50	-	-	50	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	6	0	16	0	0	0	3	3	5	14	6	0
Mvmt Flow	18	0	34	15	12	3	35	792	20	8	395	13

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1298	1300	402	1307	1296	802	408	0	0	812	0	0
Stage 1	418	418	-	872	872	-	-	-	-	-	-	-
Stage 2	880	882	-	435	424	-	-	-	-	-	-	-
Critical Hdwy	7.16	6.5	6.36	7.1	6.5	6.2	4.3	-	-	4.4	-	-
Critical Hdwy Stg 1	6.16	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.16	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.1	4	3.2	3	4	3.1	3	-	-	3.1	-	-
Pot Cap-1 Maneuver	146	163	658	150	164	404	870	-	-	598	-	-
Stage 1	676	594	-	385	371	-	-	-	-	-	-	-
Stage 2	367	367	-	685	590	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	131	155	658	136	155	404	870	-	-	598	-	-
Mov Cap-2 Maneuver	131	155	-	136	155	-	-	-	-	-	-	-
Stage 1	649	586	-	370	356	-	-	-	-	-	-	-
Stage 2	338	352	-	640	582	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	21.2	34	0.4	0.2
HCM LOS	C	D		

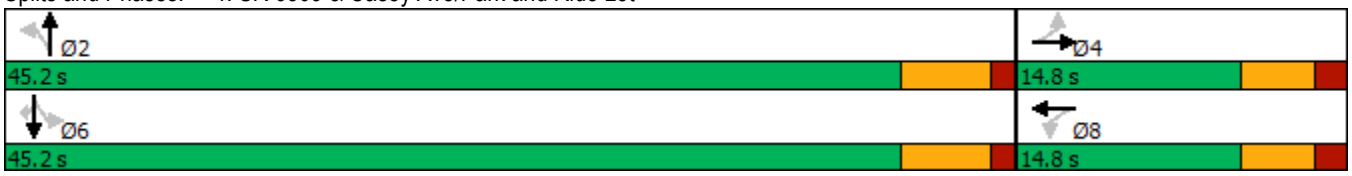
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	870	-	-	275	154	598	-	-
HCM Lane V/C Ratio	0.041	-	-	0.192	0.196	0.013	-	-
HCM Control Delay (s)	9.3	-	-	21.2	34	11.1	-	-
HCM Lane LOS	A	-	-	C	D	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.7	0.7	0	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	160	1	9	1	0	0	9	751	1	0	374	51
Future Volume (vph)	160	1	9	1	0	0	9	751	1	0	374	51
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	13	13	13	10	13	13	10	13	10
Grade (%)		-2%			0%			0%			-1%	
Storage Length (ft)	125		0	0		0	125		0	125		125
Storage Lanes	1		0	0		0	1		0	1		1
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.864										0.850
Flt Protected	0.950				0.950		0.950					
Satd. Flow (prot)	1550	1240	0	0	1767	0	1200	1789	0	1688	1747	1367
Flt Permitted	0.757				0.750		0.505					
Satd. Flow (perm)	1235	1240	0	0	1395	0	638	1789	0	1688	1747	1367
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10										56
Link Speed (mph)		30			25			35			35	
Link Distance (ft)		870			135			875			1750	
Travel Time (s)		19.8			3.7			17.0			34.1	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	0%	20%	0%	0%	0%	33%	4%	0%	0%	7%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	176	1	10	1	0	0	10	825	1	0	411	56
Shared Lane Traffic (%)												
Lane Group Flow (vph)	176	11	0	0	1	0	10	826	0	0	411	56
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Minimum Split (s)	6.8	6.8		6.8	6.8		7.2	7.2		7.2	7.2	7.2
Total Split (s)	14.8	14.8		14.8	14.8		45.2	45.2		45.2	45.2	45.2
Total Split (%)	24.7%	24.7%		24.7%	24.7%		75.3%	75.3%		75.3%	75.3%	75.3%
Yellow Time (s)	3.3	3.3		3.3	3.3		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	1.5	1.5		1.5	1.5		1.2	1.2		1.2	1.2	1.2
Lost Time Adjust (s)	-1.0	-1.0			-1.0		-1.0	-1.0		-1.0	-1.0	-1.0
Total Lost Time (s)	3.8	3.8			3.8		4.2	4.2		4.2	4.2	4.2
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Max	Max		Max	Max	Max

Intersection Summary

Area Type:	Other
Cycle Length: 60	
Actuated Cycle Length: 61.7	
Natural Cycle: 60	
Control Type: Semi Act-Uncoord	

Splits and Phases: 4: SR 6309 & Casey Ave/Park and Ride Lot



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	160	1	9	1	0	0	9	751	1	0	374	51
Future Volume (veh/h)	160	1	9	1	0	0	9	751	1	0	374	51
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	1818	1875	1590	1872	1872	1872	1337	1814	1872	1837	1807	1766
Adj Flow Rate, veh/h	176	1	6	1	0	0	10	825	1	0	411	48
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, %	4	0	20	0	0	0	33	4	0	0	7	5
Cap, veh/h	365	39	232	357	0	0	550	1262	2	122	1260	1043
Arrive On Green	0.17	0.17	0.15	0.15	0.00	0.00	0.70	0.70	0.68	0.00	0.70	0.70
Sat Flow, veh/h	1454	232	1392	1404	0	0	704	1811	2	688	1807	1497
Grp Volume(v), veh/h	176	0	7	1	0	0	10	0	826	0	411	48
Grp Sat Flow(s),veh/h/ln	1454	0	1624	1404	0	0	704	0	1813	688	1807	1497
Q Serve(g_s), s	6.7	0.0	0.2	0.0	0.0	0.0	0.3	0.0	14.9	0.0	5.2	0.6
Cycle Q Clear(g_c), s	6.7	0.0	0.2	0.5	0.0	0.0	5.6	0.0	14.9	0.0	5.2	0.6
Prop In Lane	1.00		0.86	1.00		0.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	365	0	271	333	0	0	550	0	1264	122	1260	1043
V/C Ratio(X)	0.48	0.00	0.03	0.00	0.00	0.00	0.02	0.00	0.65	0.00	0.33	0.05
Avail Cap(c_a), veh/h	395	0	304	363	0	0	550	0	1264	122	1260	1043
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	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	23.2	0.0	20.9	21.3	0.0	0.0	4.6	0.0	5.0	0.0	3.5	2.8
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.0	0.0	0.0	0.1	0.0	2.6	0.0	0.7	0.1
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(95%),veh/ln	3.9	0.0	0.1	0.0	0.0	0.0	0.1	0.0	6.7	0.0	2.2	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.6	0.0	20.9	21.3	0.0	0.0	4.6	0.0	7.6	0.0	4.2	2.9
LnGrp LOS	C	A	C	C	A	A	A	A	A	A	A	A
Approach Vol, veh/h		183			1			836			459	
Approach Delay, s/veh		23.5			21.3			7.6			4.0	
Approach LOS		C			C			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		45.2		13.6		45.2		13.6				
Change Period (Y+Rc), s		* 5.2		* 4.8		* 5.2		* 4.8				
Max Green Setting (Gmax), s		* 40		* 10		* 40		* 10				
Max Q Clear Time (g_c+I1), s		0.0		9.2		0.0		2.5				
Green Ext Time (p_c), s		0.0		0.0		0.0		0.0				

Intersection Summary	
HCM 6th Ctrl Delay	8.4
HCM 6th LOS	A

Notes

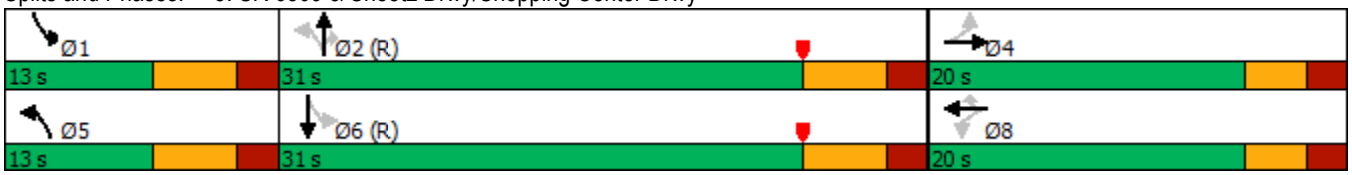
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

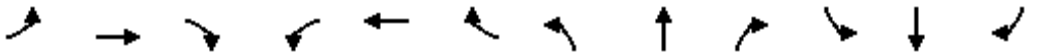
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	54	5	9	69	1	64	54	797	123	44	320	56
Future Volume (vph)	54	5	9	69	1	64	54	797	123	44	320	56
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	15	15	15	12	12	12	10	12	13	10	12	14
Grade (%)		0%			-5%			1%			-3%	
Storage Length (ft)	0		0	0		150	100		185	235		0
Storage Lanes	0		0	0		1	1		1	1		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor		1.00			1.00	0.99	1.00			1.00	1.00	
Frt		0.982				0.850			0.850		0.978	
Flt Protected		0.962			0.953		0.950			0.950		
Satd. Flow (prot)	0	1692	0	0	1758	1568	1457	3272	1558	1620	3102	0
Flt Permitted		0.718			0.751		0.510			0.284		
Satd. Flow (perm)	0	1263	0	0	1383	1548	782	3272	1558	484	3102	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10				153			136		38	
Link Speed (mph)		25			25			40			40	
Link Distance (ft)		263			298			338			775	
Travel Time (s)		7.2			8.1			5.8			13.2	
Confl. Peds. (#/hr)			1	2		1	1			1		2
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	13%	0%	0%	0%	0%	0%	9%	4%	1%	0%	7%	21%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	59	5	10	75	1	70	59	866	134	48	348	61
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	74	0	0	76	70	59	866	134	48	409	0
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		8	2		2	6		
Detector Phase	4	4		8	8	8	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	5.0	20.0	20.0	5.0	20.0	
Minimum Split (s)	15.0	15.0		15.0	15.0	15.0	11.0	26.0	26.0	11.0	26.0	
Total Split (s)	20.0	20.0		20.0	20.0	20.0	13.0	31.0	31.0	13.0	31.0	
Total Split (%)	31.3%	31.3%		31.3%	31.3%	31.3%	20.3%	48.4%	48.4%	20.3%	48.4%	
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)		-1.0			-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
Total Lost Time (s)		4.0			4.0	4.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	

Intersection Summary

Area Type:	Other
Cycle Length: 64	
Actuated Cycle Length: 64	
Offset: 52 (81%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	

Splits and Phases: 5: SR 6309 & Sheetz Drwy/Shopping Center Drwy





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	54	5	9	69	1	64	54	797	123	44	320	56
Future Volume (veh/h)	54	5	9	69	1	64	54	797	123	44	320	56
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	1682	1872	1872	1986	1986	1986	1668	1738	1852	1912	1812	1678
Adj Flow Rate, veh/h	59	5	1	75	1	0	59	866	0	48	348	52
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	13	0	0	0	0	0	9	4	1	0	7	21
Cap, veh/h	330	25	4	370	4		733	1855		502	1671	248
Arrive On Green	0.14	0.16	0.14	0.14	0.16	0.00	0.07	0.56	0.00	0.12	1.00	1.00
Sat Flow, veh/h	1402	160	24	1624	27	1683	1589	3303	1569	1821	3007	445
Grp Volume(v), veh/h	65	0	0	76	0	0	59	866	0	48	198	202
Grp Sat Flow(s),veh/h/ln	1586	0	0	1651	0	1683	1589	1651	1569	1821	1722	1731
Q Serve(g_s), s	0.0	0.0	0.0	0.3	0.0	0.0	0.9	10.0	0.0	0.6	0.0	0.0
Cycle Q Clear(g_c), s	2.1	0.0	0.0	2.3	0.0	0.0	0.9	10.0	0.0	0.6	0.0	0.0
Prop In Lane	0.91		0.02	0.99		1.00	1.00		1.00	1.00		0.26
Lane Grp Cap(c), veh/h	335	0	0	349	0		733	1855		502	957	962
V/C Ratio(X)	0.19	0.00	0.00	0.22	0.00		0.08	0.47		0.10	0.21	0.21
Avail Cap(c_a), veh/h	473	0	0	492	0		826	1855		620	957	962
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	0.96	0.96	0.96
Uniform Delay (d), s/veh	23.9	0.0	0.0	24.0	0.0	0.0	4.7	8.3	0.0	5.2	0.0	0.0
Incr Delay (d2), s/veh	0.3	0.0	0.0	0.3	0.0	0.0	0.0	0.8	0.0	0.1	0.5	0.5
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(95%),veh/ln	1.6	0.0	0.0	1.9	0.0	0.0	0.4	5.1	0.0	0.3	0.2	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.2	0.0	0.0	24.3	0.0	0.0	4.8	9.2	0.0	5.3	0.5	0.5
LnGrp LOS	C	A	A	C	A		A	A		A	A	A
Approach Vol, veh/h		65			76			925			448	
Approach Delay, s/veh		24.2			24.3			8.9			1.0	
Approach LOS		C			C			A			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.9	40.9		14.2	9.2	40.6		14.2				
Change Period (Y+Rc), s	6.0	6.0		5.0	6.0	6.0		5.0				
Max Green Setting (Gmax), s	7.0	25.0		15.0	7.0	25.0		15.0				
Max Q Clear Time (g_c+I1), s	3.1	0.0		4.1	3.4	0.0		4.3				
Green Ext Time (p_c), s	0.0	0.0		0.1	0.0	0.0		0.2				

Intersection Summary			
HCM 6th Ctrl Delay		8.0	
HCM 6th LOS		A	

Notes

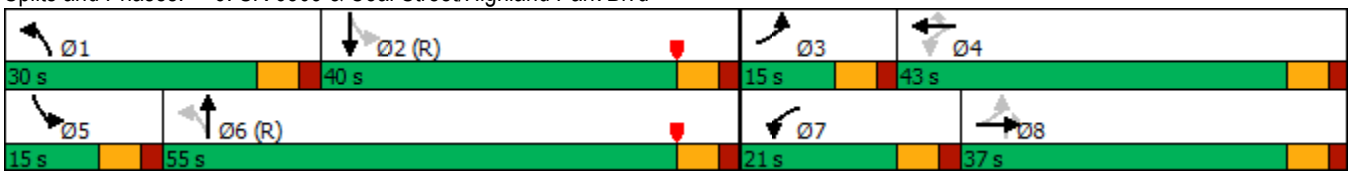
Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

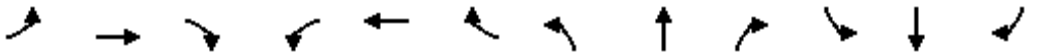
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	67	231	126	115	171	44	377	272	267	25	160	35
Future Volume (vph)	67	231	126	115	171	44	377	272	267	25	160	35
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	13	12	12	12	10	12	13	10	12	13
Grade (%)		1%			0%			2%			0%	
Storage Length (ft)	235		0	650		200	300		0	125		0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor		1.00				0.99	1.00			1.00		
Frt		0.947				0.850			0.850		0.973	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1612	2845	0	1583	3138	1297	1534	3256	1491	1535	3071	0
Flt Permitted	0.624			0.263			0.533			0.556		
Satd. Flow (perm)	1059	2845	0	438	3138	1280	860	3256	1491	898	3071	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		76				179			318		20	
Link Speed (mph)		25			35			40			40	
Link Distance (ft)		1019			1253			775			948	
Travel Time (s)		27.8			24.4			13.2			16.2	
Confl. Peds. (#/hr)			1			1	1			1		
Confl. Bikes (#/hr)												
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	9%	9%	8%	9%	18%	3%	4%	5%	4%	8%	10%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	80	275	150	137	204	52	449	324	318	30	190	42
Shared Lane Traffic (%)												
Lane Group Flow (vph)	80	425	0	137	204	52	449	324	318	30	232	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	custom	pm+pt	NA	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8			4		4	6		8	2		
Detector Phase	3	8		7	4	4	1	6	8	5	2	
Switch Phase												
Minimum Initial (s)	3.0	3.0		3.0	3.0	3.0	3.0	20.0	3.0	3.0	20.0	
Minimum Split (s)	9.0	9.0		9.0	9.0	9.0	9.0	26.0	9.0	9.0	26.0	
Total Split (s)	15.0	37.0		21.0	43.0	43.0	30.0	55.0	37.0	15.0	40.0	
Total Split (%)	11.7%	28.9%		16.4%	33.6%	33.6%	23.4%	43.0%	28.9%	11.7%	31.3%	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None		None	None	None	None	C-Max	None	None	C-Max	

Intersection Summary

Area Type:	Other
Cycle Length: 128	
Actuated Cycle Length: 128	
Offset: 83 (65%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	

Splits and Phases: 6: SR 6309 & Coal Street/Highland Park Blvd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	67	231	126	115	171	44	377	272	267	25	160	35
Future Volume (veh/h)	67	231	126	115	171	44	377	272	267	25	160	35
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	1766	1668	1735	1688	1674	1547	1736	1722	1776	1744	1688	1726
Adj Flow Rate, veh/h	80	275	79	137	204	0	449	324	0	30	190	36
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	2	9	9	8	9	18	3	4	5	4	8	10
Cap, veh/h	307	356	100	250	570		785	1876		530	1113	207
Arrive On Green	0.06	0.15	0.14	0.10	0.18	0.00	0.31	0.96	0.00	0.03	0.41	0.40
Sat Flow, veh/h	1682	2440	687	1607	3180	1311	1653	3271	1505	1661	2699	502
Grp Volume(v), veh/h	80	177	177	137	204	0	449	324	0	30	111	115
Grp Sat Flow(s),veh/h/ln	1682	1585	1543	1607	1590	1311	1653	1635	1505	1661	1603	1597
Q Serve(g_s), s	5.1	13.7	14.2	8.9	7.2	0.0	20.4	0.6	0.0	1.3	5.6	5.8
Cycle Q Clear(g_c), s	5.1	13.7	14.2	8.9	7.2	0.0	20.4	0.6	0.0	1.3	5.6	5.8
Prop In Lane	1.00		0.45	1.00		1.00	1.00		1.00	1.00		0.31
Lane Grp Cap(c), veh/h	307	231	225	250	570		785	1876		530	662	659
V/C Ratio(X)	0.26	0.76	0.79	0.55	0.36		0.57	0.17		0.06	0.17	0.17
Avail Cap(c_a), veh/h	332	396	386	295	944		796	1876		615	662	659
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.67	1.67	1.67	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	0.92	0.92	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.0	52.5	53.0	39.8	46.1	0.0	11.4	1.2	0.0	20.4	23.7	23.9
Incr Delay (d2), s/veh	0.4	5.2	6.0	1.9	0.4	0.0	0.9	0.2	0.0	0.0	0.6	0.6
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(95%),veh/ln	3.9	9.8	10.0	6.5	5.2	0.0	8.7	0.4	0.0	0.9	4.0	4.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.5	57.7	59.0	41.6	46.5	0.0	12.3	1.3	0.0	20.5	24.3	24.5
LnGrp LOS	D	E	E	D	D		B	A		C	C	C
Approach Vol, veh/h		434			341			773			256	
Approach Delay, s/veh		55.4			44.5			7.7			23.9	
Approach LOS		E			D			A			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	29.1	57.8	13.1	27.9	8.5	78.4	17.4	23.7
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	24.0	34.0	9.0	37.0	9.0	49.0	15.0	31.0
Max Q Clear Time (g_c+I1), s	22.9	0.0	7.6	9.7	3.8	0.0	11.4	16.2
Green Ext Time (p_c), s	0.2	0.0	0.0	0.7	0.0	0.0	0.1	1.5

Intersection Summary	
HCM 6th Ctrl Delay	28.4
HCM 6th LOS	C

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	12	0	0	2	20	9	0	21	0
Future Volume (vph)	0	0	0	12	0	0	2	20	9	0	21	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	16	16	16	15	15	15	13	13	13	13	13	13
Grade (%)		0%			-1%			1%			-2%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt								0.961				
Flt Protected					0.950			0.997				
Satd. Flow (prot)	0	2040	0	0	1196	0	0	1488	0	0	1789	0
Flt Permitted					0.950			0.997				
Satd. Flow (perm)	0	2040	0	0	1196	0	0	1488	0	0	1789	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		198			1616			799			711	
Travel Time (s)		5.4			44.1			21.8			19.4	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	0%	58%	0%	0%	0%	10%	44%	0%	5%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	0	0	0	17	0	0	3	29	13	0	30	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	17	0	0	45	0	0	30	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

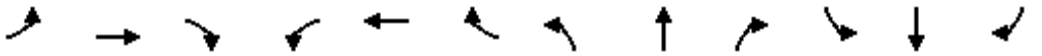
Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	0	12	0	0	2	20	9	0	21	0
Future Vol, veh/h	0	0	0	12	0	0	2	20	9	0	21	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	-1	-	-	1	-	-	-2	-
Peak Hour Factor	70	70	70	70	70	70	70	70	70	70	70	70
Heavy Vehicles, %	0	0	0	58	0	0	0	10	44	0	5	0
Mvmt Flow	0	0	0	17	0	0	3	29	13	0	30	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	72	78	30	72	72	36	30	0	0	42	0	0
Stage 1	30	30	-	42	42	-	-	-	-	-	-	-
Stage 2	42	48	-	30	30	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.48	6.3	6.1	4.3	-	-	4.3	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.48	5.3	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.48	5.3	-	-	-	-	-	-	-
Follow-up Hdwy	3	4	3.1	3.5	4	3.1	3	-	-	3	-	-
Pot Cap-1 Maneuver	1073	816	1117	917	826	1110	1172	-	-	1161	-	-
Stage 1	1155	874	-	973	866	-	-	-	-	-	-	-
Stage 2	1137	859	-	989	876	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	1071	814	1117	915	824	1110	1172	-	-	1161	-	-
Mov Cap-2 Maneuver	1071	814	-	915	824	-	-	-	-	-	-	-
Stage 1	1152	874	-	970	863	-	-	-	-	-	-	-
Stage 2	1134	856	-	989	876	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	9	0.5	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1172	-	-	-	915	1161	-	-
HCM Lane V/C Ratio	0.002	-	-	-	0.019	-	-	-
HCM Control Delay (s)	8.1	0	-	0	9	0	-	-
HCM Lane LOS	A	A	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	0.1	0	-	-

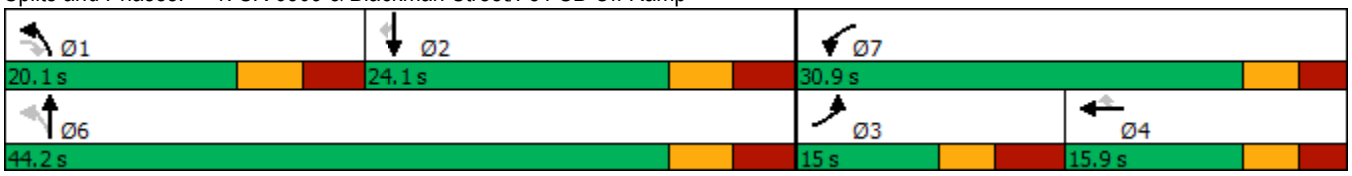


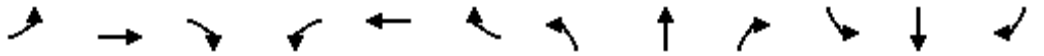
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	119	0	189	177	114	58	177	534	0	0	381	106
Future Volume (vph)	119	0	189	177	114	58	177	534	0	0	381	106
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	14	13	11	14	12	12	12	13	12	14
Grade (%)		-1%			-4%			-3%			-3%	
Storage Length (ft)	380		0	180		180	275		0	0		225
Storage Lanes	1		1	1		1	1		0	0		1
Taper Length (ft)	75			100			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor												
Frt			0.850			0.850						0.850
Flt Protected	0.950			0.950			0.950					
Satd. Flow (prot)	1557	0	1533	1554	1599	1460	1685	3403	0	0	3244	1608
Flt Permitted	0.950			0.950			0.362					
Satd. Flow (perm)	1557	0	1533	1554	1599	1460	642	3403	0	0	3244	1608
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			247			264						247
Link Speed (mph)		35			25			35			35	
Link Distance (ft)		1012			1172			871			378	
Travel Time (s)		19.7			32.0			17.0			7.4	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	0%	7%	16%	11%	14%	3%	2%	0%	0%	7%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	125	0	199	186	120	61	186	562	0	0	401	112
Shared Lane Traffic (%)												
Lane Group Flow (vph)	125	0	199	186	120	61	186	562	0	0	401	112
Turn Type	Prot		Perm	Prot	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases	3			7	4		1	6			2	
Permitted Phases			1			4	6					2
Detector Phase	3		1	7	4	4	1	6			2	2
Switch Phase												
Minimum Initial (s)	3.0		3.0	3.0	3.0	3.0	3.0	10.0			10.0	10.0
Minimum Split (s)	10.0		10.1	8.9	8.9	8.9	10.1	17.1			17.1	17.1
Total Split (s)	15.0		20.1	30.9	15.9	15.9	20.1	44.2			24.1	24.1
Total Split (%)	20.0%		26.8%	41.1%	21.2%	21.2%	26.8%	58.9%			32.1%	32.1%
Yellow Time (s)	3.1		3.6	3.1	3.1	3.1	3.6	3.6			3.6	3.6
All-Red Time (s)	3.9		3.5	2.8	2.8	2.8	3.5	3.5			3.5	3.5
Lost Time Adjust (s)	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0			-1.0	-1.0
Total Lost Time (s)	6.0		6.1	4.9	4.9	4.9	6.1	6.1			6.1	6.1
Lead/Lag	Lead		Lead		Lag	Lag	Lead				Lag	Lag
Lead-Lag Optimize?	Yes		Yes		Yes	Yes	Yes				Yes	Yes
Recall Mode	None		None	None	None	None	None	Min			Min	Min

Intersection Summary

Area Type:	Other
Cycle Length: 75.1	
Actuated Cycle Length: 64.4	
Natural Cycle: 55	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 1: SR 6309 & Blackman Street/I-81 SB Off Ramp





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	119	0	189	177	114	58	177	534	0	0	381	106
Future Volume (veh/h)	119	0	189	177	114	58	177	534	0	0	381	106
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	1795	0	1807	1790	1793	1820	1869	1883	0	0	1812	1944
Adj Flow Rate, veh/h	125	0	0	186	120	0	186	562	0	0	401	0
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, %	3	0	7	16	11	14	3	2	0	0	7	3
Cap, veh/h	196	0		305	224		502	1715	0	0	874	
Arrive On Green	0.11	0.00	0.00	0.18	0.12	0.00	0.12	0.48	0.00	0.00	0.25	0.00
Sat Flow, veh/h	1709	125		1705	1793	1542	1780	3673	0	0	3534	1647
Grp Volume(v), veh/h	125	26.8		186	120	0	186	562	0	0	401	0
Grp Sat Flow(s),veh/h/ln	1709	C		1705	1793	1542	1780	1789	0	0	1722	1647
Q Serve(g_s), s	4.2			6.1	3.8	0.0	4.1	5.9	0.0	0.0	5.9	0.0
Cycle Q Clear(g_c), s	4.2			6.1	3.8	0.0	4.1	5.9	0.0	0.0	5.9	0.0
Prop In Lane	1.00			1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h	196			305	224		502	1715	0	0	874	
V/C Ratio(X)	0.64			0.61	0.54		0.37	0.33	0.00	0.00	0.46	
Avail Cap(c_a), veh/h	255			734	326		693	2256	0	0	1026	
HCM Platoon Ratio	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	0.00	1.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	25.6			22.9	24.8	0.0	12.1	9.7	0.0	0.0	19.0	0.0
Incr Delay (d2), s/veh	1.3			0.7	0.7	0.0	0.2	0.5	0.0	0.0	1.7	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
%ile BackOfQ(95%),veh/ln	3.0			4.3	2.9	0.0	2.5	3.6	0.0	0.0	4.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.8			23.6	25.5	0.0	12.3	10.2	0.0	0.0	20.8	0.0
LnGrp LOS	C			C	C		B	B	A	A	C	
Approach Vol, veh/h					306			748			401	
Approach Delay, s/veh					24.4			10.7			20.8	
Approach LOS					C			B			C	

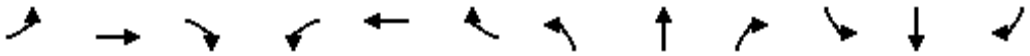
Timer - Assigned Phs	1	2	3	4	6	7
Phs Duration (G+Y+Rc), s	13.6	21.4	12.9	12.4	35.1	15.7
Change Period (Y+Rc), s	7.1	7.1	7.0	* 5.9	7.1	* 5.9
Max Green Setting (Gmax), s	13.0	17.0	8.0	* 10	37.1	* 25
Max Q Clear Time (g_c+I1), s	6.6	8.4	6.7	6.3	8.4	8.6
Green Ext Time (p_c), s	0.2	5.0	0.0	0.3	19.6	1.7

Intersection Summary	
HCM 6th Ctrl Delay	17.2
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	3	42	18	2	18	27	626	27	7	391	14
Future Volume (vph)	8	3	42	18	2	18	27	626	27	7	391	14
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	16	16	16	14	14	14	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	50		0	50		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	75			75			50			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.892			0.936			0.994			0.995	
Flt Protected		0.992			0.977		0.950			0.950		
Satd. Flow (prot)	0	1710	0	0	1582	0	1598	1732	0	1710	1724	0
Flt Permitted		0.992			0.977		0.950			0.950		
Satd. Flow (perm)	0	1710	0	0	1582	0	1598	1732	0	1710	1724	0
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		268			799			711			875	
Travel Time (s)		7.3			21.8			13.9			17.0	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	7%	17%	0%	6%	7%	3%	11%	0%	4%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	9	3	47	20	2	20	30	696	30	8	434	16
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	59	0	0	42	0	30	726	0	8	450	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

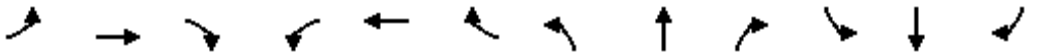
Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	3	42	18	2	18	27	626	27	7	391	14
Future Vol, veh/h	8	3	42	18	2	18	27	626	27	7	391	14
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	50	-	-	50	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	7	17	0	6	7	3	11	0	4	0
Mvmt Flow	9	3	47	20	2	20	30	696	30	8	434	16

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1240	1244	442	1254	1237	711	450	0	0	726	0	0
Stage 1	458	458	-	771	771	-	-	-	-	-	-	-
Stage 2	782	786	-	483	466	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.27	7.27	6.5	6.26	4.3	-	-	4.4	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.27	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.27	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.1	4	3.2	3	4	3.1	3	-	-	3.1	-	-
Pot Cap-1 Maneuver	164	176	630	154	177	451	841	-	-	643	-	-
Stage 1	647	570	-	425	413	-	-	-	-	-	-	-
Stage 2	424	406	-	629	566	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	150	168	630	135	169	451	841	-	-	643	-	-
Mov Cap-2 Maneuver	150	168	-	135	169	-	-	-	-	-	-	-
Stage 1	624	563	-	410	398	-	-	-	-	-	-	-
Stage 2	389	391	-	572	559	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	16.1	27.1	0.4	0.2
HCM LOS	C	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	841	-	-	384	205	643	-	-
HCM Lane V/C Ratio	0.036	-	-	0.153	0.206	0.012	-	-
HCM Control Delay (s)	9.4	-	-	16.1	27.1	10.7	-	-
HCM Lane LOS	A	-	-	C	D	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.5	0.8	0	-	-

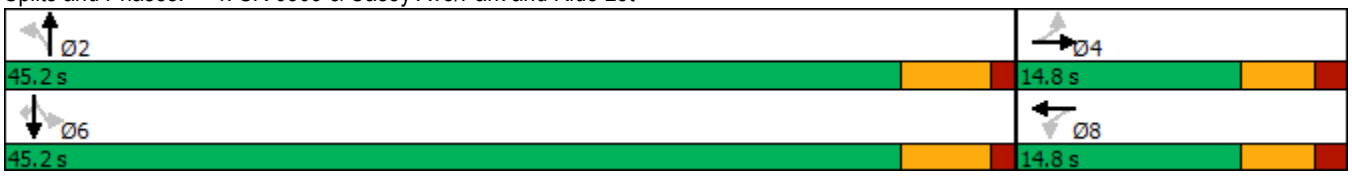


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	183	0	6	0	0	0	6	621	0	0	434	58
Future Volume (vph)	183	0	6	0	0	0	6	621	0	0	434	58
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	13	13	13	10	13	13	10	13	10
Grade (%)		-2%			0%			0%			-1%	
Storage Length (ft)	125		0	0		0	125		0	125		125
Storage Lanes	1		0	0		0	1		0	1		1
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.850										0.850
Flt Protected	0.950						0.950					
Satd. Flow (prot)	1580	1442	0	0	1860	0	1364	1806	0	1688	1780	1407
Flt Permitted	0.757						0.462					
Satd. Flow (perm)	1259	1442	0	0	1860	0	663	1806	0	1688	1780	1407
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		448										63
Link Speed (mph)		30			25			35			35	
Link Distance (ft)		870			135			875			1750	
Travel Time (s)		19.8			3.7			17.0			34.1	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	0%	0%	0%	0%	0%	17%	3%	0%	0%	5%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	199	0	7	0	0	0	7	675	0	0	472	63
Shared Lane Traffic (%)												
Lane Group Flow (vph)	199	7	0	0	0	0	7	675	0	0	472	63
Turn Type	Perm	NA					Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Minimum Split (s)	6.8	6.8		6.8	6.8		7.2	7.2		7.2	7.2	7.2
Total Split (s)	14.8	14.8		14.8	14.8		45.2	45.2		45.2	45.2	45.2
Total Split (%)	24.7%	24.7%		24.7%	24.7%		75.3%	75.3%		75.3%	75.3%	75.3%
Yellow Time (s)	3.3	3.3		3.3	3.3		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	1.5	1.5		1.5	1.5		1.2	1.2		1.2	1.2	1.2
Lost Time Adjust (s)	-1.0	-1.0			-1.0		-1.0	-1.0		-1.0	-1.0	-1.0
Total Lost Time (s)	3.8	3.8			3.8		4.2	4.2		4.2	4.2	4.2
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Max	Max		Max	Max	Max

Intersection Summary

Area Type:	Other
Cycle Length: 60	
Actuated Cycle Length: 59.9	
Natural Cycle: 45	
Control Type: Semi Act-Uncoord	

Splits and Phases: 4: SR 6309 & Casey Ave/Park and Ride Lot



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	183	0	6	0	0	0	6	621	0	0	434	58
Future Volume (veh/h)	183	0	6	0	0	0	6	621	0	0	434	58
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	1846	1875	1875	1872	1872	1872	1561	1828	1872	1837	1837	1809
Adj Flow Rate, veh/h	199	0	3	0	0	0	7	675	0	0	472	47
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	0	0	0	0	0	17	3	0	0	5	2
Cap, veh/h	408	0	258	0	304	0	588	1282	0	123	1288	1075
Arrive On Green	0.16	0.00	0.15	0.00	0.00	0.00	0.70	0.70	0.00	0.00	0.70	0.70
Sat Flow, veh/h	1758	0	1589	0	1872	0	778	1828	0	792	1837	1533
Grp Volume(v), veh/h	199	0	3	0	0	0	7	675	0	0	472	47
Grp Sat Flow(s),veh/h/ln	1758	0	1589	0	1872	0	778	1828	0	792	1837	1533
Q Serve(g_s), s	6.3	0.0	0.1	0.0	0.0	0.0	0.2	10.2	0.0	0.0	6.0	0.6
Cycle Q Clear(g_c), s	6.3	0.0	0.1	0.0	0.0	0.0	6.3	10.2	0.0	0.0	6.0	0.6
Prop In Lane	1.00		1.00	0.00		0.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	408	0	258	0	304	0	588	1282	0	123	1288	1075
V/C Ratio(X)	0.49	0.00	0.01	0.00	0.00	0.00	0.01	0.53	0.00	0.00	0.37	0.04
Avail Cap(c_a), veh/h	454	0	299	0	352	0	588	1282	0	123	1288	1075
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	0.00	1.00	0.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	23.1	0.0	21.0	0.0	0.0	0.0	4.8	4.1	0.0	0.0	3.5	2.7
Incr Delay (d2), s/veh	0.3	0.0	0.0	0.0	0.0	0.0	0.0	1.6	0.0	0.0	0.8	0.1
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(95%),veh/ln	4.4	0.0	0.1	0.0	0.0	0.0	0.1	4.3	0.0	0.0	2.5	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.5	0.0	21.0	0.0	0.0	0.0	4.8	5.7	0.0	0.0	4.3	2.8
LnGrp LOS	C	A	C	A	A	A	A	A	A	A	A	A
Approach Vol, veh/h		202			0			682			519	
Approach Delay, s/veh		23.4			0.0			5.7			4.2	
Approach LOS		C						A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		45.2		13.3		45.2		13.3				
Change Period (Y+Rc), s		* 5.2		* 4.8		* 5.2		* 4.8				
Max Green Setting (Gmax), s		* 40		* 10		* 40		* 10				
Max Q Clear Time (g_c+I1), s		0.0		8.8		0.0		0.0				
Green Ext Time (p_c), s		0.0		0.1		0.0		0.0				

Intersection Summary	
HCM 6th Ctrl Delay	7.7
HCM 6th LOS	A

Notes

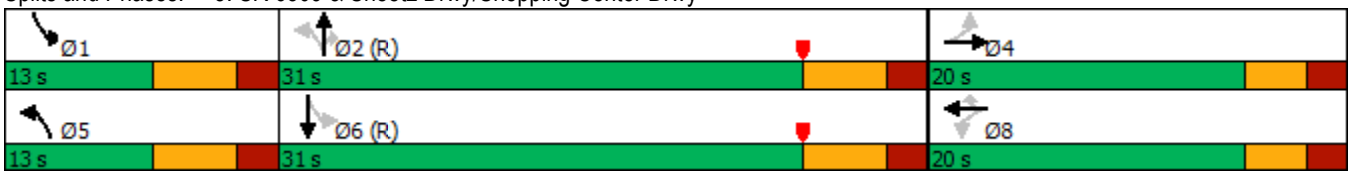
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	66	2	8	66	2	73	60	692	112	59	382	57
Future Volume (vph)	66	2	8	66	2	73	60	692	112	59	382	57
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	15	15	15	12	12	12	10	12	13	10	12	14
Grade (%)		0%			-5%			1%			-3%	
Storage Length (ft)	0		0	0		150	100		185	235		0
Storage Lanes	0		0	0		1	1		1	1		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor												
Frt		0.985				0.850			0.850		0.981	
Flt Protected		0.958			0.954		0.950			0.950		
Satd. Flow (prot)	0	1747	0	0	1760	1568	1512	3241	1573	1620	3254	0
Flt Permitted		0.702			0.738		0.478			0.335		
Satd. Flow (perm)	0	1280	0	0	1362	1568	761	3241	1573	571	3254	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		9				153			136		31	
Link Speed (mph)		25			25			40			40	
Link Distance (ft)		263			298			338			775	
Travel Time (s)		7.2			8.1			5.8			13.2	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	8%	0%	0%	0%	0%	0%	5%	5%	0%	0%	4%	9%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	72	2	9	72	2	79	65	752	122	64	415	62
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	83	0	0	74	79	65	752	122	64	477	0
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		8	2		2	6		
Detector Phase	4	4		8	8	8	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	5.0	20.0	20.0	5.0	20.0	
Minimum Split (s)	15.0	15.0		15.0	15.0	15.0	11.0	26.0	26.0	11.0	26.0	
Total Split (s)	20.0	20.0		20.0	20.0	20.0	13.0	31.0	31.0	13.0	31.0	
Total Split (%)	31.3%	31.3%		31.3%	31.3%	31.3%	20.3%	48.4%	48.4%	20.3%	48.4%	
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)		-1.0			-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
Total Lost Time (s)		4.0			4.0	4.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	

Intersection Summary

Area Type:	Other
Cycle Length: 64	
Actuated Cycle Length: 64	
Offset: 52 (81%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	

Splits and Phases: 5: SR 6309 & Sheetz Drwy/Shopping Center Drwy



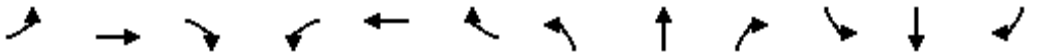
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	66	2	8	66	2	73	60	692	112	59	382	57
Future Volume (veh/h)	66	2	8	66	2	73	60	692	112	59	382	57
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	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	1755	1872	1872	1986	1986	1986	1724	1724	1866	1912	1855	1855
Adj Flow Rate, veh/h	72	2	6	72	2	0	65	752	0	64	415	51
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	8	0	0	0	0	0	5	5	0	0	4	9
Cap, veh/h	330	13	19	372	9		722	1804		557	1740	213
Arrive On Green	0.15	0.16	0.15	0.15	0.16	0.00	0.07	0.55	0.00	0.14	1.00	1.00
Sat Flow, veh/h	1380	79	118	1616	57	1683	1642	3276	1582	1821	3161	386
Grp Volume(v), veh/h	80	0	0	74	0	0	65	752	0	64	230	236
Grp Sat Flow(s),veh/h/ln	1577	0	0	1673	0	1683	1642	1638	1582	1821	1762	1785
Q Serve(g_s), s	0.4	0.0	0.0	0.0	0.0	0.0	1.0	8.6	0.0	0.9	0.0	0.0
Cycle Q Clear(g_c), s	2.6	0.0	0.0	2.2	0.0	0.0	1.0	8.6	0.0	0.9	0.0	0.0
Prop In Lane	0.90		0.07	0.97		1.00	1.00		1.00	1.00		0.22
Lane Grp Cap(c), veh/h	337	0	0	355	0		722	1804		557	970	983
V/C Ratio(X)	0.24	0.00	0.00	0.21	0.00		0.09	0.42		0.11	0.24	0.24
Avail Cap(c_a), veh/h	471	0	0	495	0		814	1804		660	970	983
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	0.96	0.96	0.96
Uniform Delay (d), s/veh	24.0	0.0	0.0	23.8	0.0	0.0	4.8	8.4	0.0	5.0	0.0	0.0
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.3	0.0	0.0	0.1	0.7	0.0	0.1	0.6	0.6
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(95%),veh/ln	2.0	0.0	0.0	1.8	0.0	0.0	0.4	4.4	0.0	0.4	0.3	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.3	0.0	0.0	24.1	0.0	0.0	4.9	9.1	0.0	5.1	0.6	0.6
LnGrp LOS	C	A	A	C	A		A	A		A	A	A
Approach Vol, veh/h		80			74			817			530	
Approach Delay, s/veh		24.3			24.1			8.8			1.1	
Approach LOS		C			C			A			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.4	40.2		14.4	9.4	40.2		14.4				
Change Period (Y+Rc), s	6.0	6.0		5.0	6.0	6.0		5.0				
Max Green Setting (Gmax), s	7.0	25.0		15.0	7.0	25.0		15.0				
Max Q Clear Time (g_c+I1), s	3.4	0.0		4.6	3.5	0.0		4.2				
Green Ext Time (p_c), s	0.0	0.0		0.1	0.0	0.0		0.2				

Intersection Summary		
HCM 6th Ctrl Delay		7.6
HCM 6th LOS		A

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

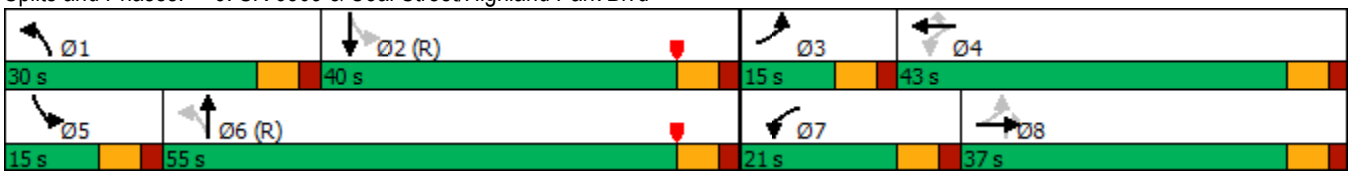


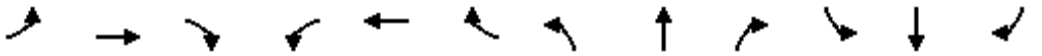
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	79	291	114	109	171	48	234	283	325	56	252	50
Future Volume (vph)	79	291	114	109	171	48	234	283	325	56	252	50
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	13	12	12	12	10	12	13	10	12	13
Grade (%)		1%			0%			2%			0%	
Storage Length (ft)	235		0	650		200	300		0	125		0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor	1.00			1.00					0.98		1.00	
Frt		0.958				0.850			0.850		0.975	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1597	3051	0	1660	3386	1530	1519	3287	1477	1565	3147	0
Flt Permitted	0.636			0.255			0.477			0.567		
Satd. Flow (perm)	1066	3051	0	445	3386	1530	763	3287	1454	934	3147	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		44				179			349		18	
Link Speed (mph)		25			35			40			40	
Link Distance (ft)		1019			1253			775			948	
Travel Time (s)		27.8			24.4			13.2			16.2	
Confl. Peds. (#/hr)	4			3					3			4
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	3%	4%	3%	1%	0%	4%	3%	6%	2%	5%	9%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	85	313	123	117	184	52	252	304	349	60	271	54
Shared Lane Traffic (%)												
Lane Group Flow (vph)	85	436	0	117	184	52	252	304	349	60	325	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	custom	pm+pt	NA	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8			4		4	6		8	2		
Detector Phase	3	8		7	4	4	1	6	8	5	2	
Switch Phase												
Minimum Initial (s)	3.0	3.0		3.0	3.0	3.0	3.0	20.0	3.0	3.0	20.0	
Minimum Split (s)	9.0	9.0		9.0	9.0	9.0	9.0	26.0	9.0	9.0	26.0	
Total Split (s)	15.0	37.0		21.0	43.0	43.0	30.0	55.0	37.0	15.0	40.0	
Total Split (%)	11.7%	28.9%		16.4%	33.6%	33.6%	23.4%	43.0%	28.9%	11.7%	31.3%	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None		None	None	None	None	C-Max	None	None	C-Max	

Intersection Summary

Area Type:	Other
Cycle Length: 128	
Actuated Cycle Length: 128	
Offset: 83 (65%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	

Splits and Phases: 6: SR 6309 & Coal Street/Highland Park Blvd





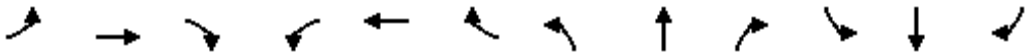
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	79	291	114	109	171	48	234	283	325	56	252	50
Future Volume (veh/h)	79	291	114	109	171	48	234	283	325	56	252	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		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	1752	1752	1808	1758	1786	1800	1722	1736	1761	1772	1730	1741
Adj Flow Rate, veh/h	85	313	80	117	184	0	252	304	0	60	271	50
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, %	3	3	4	3	1	0	4	3	6	2	5	9
Cap, veh/h	313	402	101	237	580		688	1867		664	1395	254
Arrive On Green	0.07	0.15	0.15	0.08	0.17	0.00	0.17	0.95	0.00	0.04	0.50	0.49
Sat Flow, veh/h	1669	2630	661	1674	3393	1525	1640	3298	1493	1688	2776	505
Grp Volume(v), veh/h	85	196	197	117	184	0	252	304	0	60	159	162
Grp Sat Flow(s),veh/h/ln	1669	1665	1627	1674	1697	1525	1640	1649	1493	1688	1643	1637
Q Serve(g_s), s	5.4	14.5	14.9	7.3	6.1	0.0	9.1	0.8	0.0	2.2	6.8	7.0
Cycle Q Clear(g_c), s	5.4	14.5	14.9	7.3	6.1	0.0	9.1	0.8	0.0	2.2	6.8	7.0
Prop In Lane	1.00		0.41	1.00		1.00	1.00		1.00	1.00		0.31
Lane Grp Cap(c), veh/h	313	255	249	237	580		688	1867		664	826	823
V/C Ratio(X)	0.27	0.77	0.79	0.49	0.32		0.37	0.16		0.09	0.19	0.20
Avail Cap(c_a), veh/h	332	416	407	305	1007		838	1867		728	826	823
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.67	1.67	1.67	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	0.94	0.94	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.1	52.1	52.4	40.9	46.5	0.0	10.2	1.5	0.0	13.9	17.5	17.7
Incr Delay (d2), s/veh	0.5	4.9	5.6	1.6	0.3	0.0	0.3	0.2	0.0	0.1	0.5	0.5
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(95%),veh/ln	4.1	10.6	10.7	5.6	4.7	0.0	5.0	0.5	0.0	1.5	4.7	4.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.6	56.9	58.0	42.5	46.8	0.0	10.5	1.7	0.0	13.9	18.0	18.2
LnGrp LOS	D	E	E	D	D		B	A		B	B	B
Approach Vol, veh/h		478			301			556			381	
Approach Delay, s/veh		54.7			45.2			5.7			17.5	
Approach LOS		D			D			A			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.3	69.3	13.5	26.9	10.1	77.5	15.8	24.6
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	24.0	34.0	9.0	37.0	9.0	49.0	15.0	31.0
Max Q Clear Time (g_c+I1), s	11.6	0.0	7.9	8.6	4.7	0.0	9.8	17.0
Green Ext Time (p_c), s	0.7	0.0	0.0	0.7	0.0	0.0	0.1	1.6

Intersection Summary	
HCM 6th Ctrl Delay	28.9
HCM 6th LOS	C

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	7	0	1	0	29	6	0	29	0
Future Volume (vph)	0	0	0	7	0	1	0	29	6	0	29	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	16	16	16	15	15	15	13	13	13	13	13	13
Grade (%)		0%			-1%			1%			-2%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt					0.986			0.977				
Flt Protected					0.957							
Satd. Flow (prot)	0	2040	0	0	1241	0	0	1666	0	0	1879	0
Flt Permitted					0.957							
Satd. Flow (perm)	0	2040	0	0	1241	0	0	1666	0	0	1879	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		198			1616			799			711	
Travel Time (s)		5.4			44.1			21.8			19.4	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	0%	57%	0%	0%	0%	0%	50%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	0	0	0	9	0	1	0	39	8	0	39	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	10	0	0	47	0	0	39	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

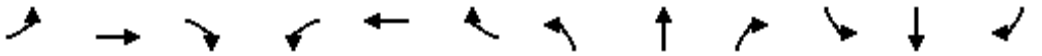
Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	0	0	0	7	0	1	0	29	6	0	29	0
Future Vol, veh/h	0	0	0	7	0	1	0	29	6	0	29	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	-1	-	-	1	-	-	-2	-
Peak Hour Factor	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	0	0	0	57	0	0	0	0	50	0	0	0
Mvmt Flow	0	0	0	9	0	1	0	39	8	0	39	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	83	86	39	82	82	43	39	0	0	47	0	0
Stage 1	39	39	-	43	43	-	-	-	-	-	-	-
Stage 2	44	47	-	39	39	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.47	6.3	6.1	4.3	-	-	4.3	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.47	5.3	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.47	5.3	-	-	-	-	-	-	-
Follow-up Hdwy	3	4	3.1	3.5	4	3.1	3	-	-	3	-	-
Pot Cap-1 Maneuver	1054	808	1104	903	816	1100	1164	-	-	1157	-	-
Stage 1	1142	866	-	972	865	-	-	-	-	-	-	-
Stage 2	1134	860	-	977	868	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	1053	808	1104	903	816	1100	1164	-	-	1157	-	-
Mov Cap-2 Maneuver	1053	808	-	903	816	-	-	-	-	-	-	-
Stage 1	1142	866	-	972	865	-	-	-	-	-	-	-
Stage 2	1133	860	-	977	868	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	8.9	0	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1164	-	-	-	924	1157	-	-
HCM Lane V/C Ratio	-	-	-	-	0.012	-	-	-
HCM Control Delay (s)	0	-	-	0	8.9	0	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	0	0	-	-

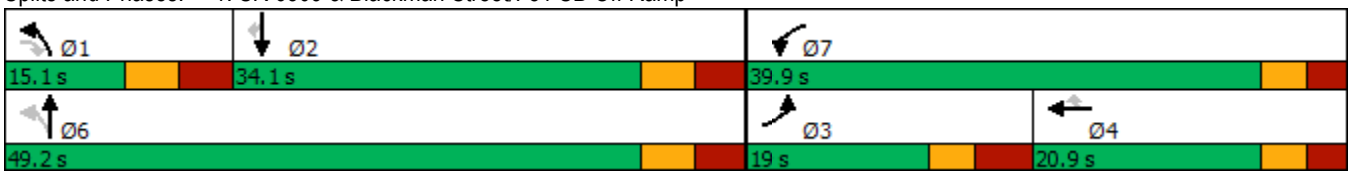


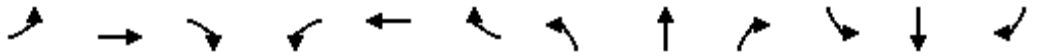
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	152	0	350	512	226	96	175	589	0	0	895	161
Future Volume (vph)	152	0	350	512	226	96	175	589	0	0	895	161
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	14	13	11	14	12	12	12	13	12	14
Grade (%)		-1%			-4%			-3%			-3%	
Storage Length (ft)	380		0	180		180	275		0	0		225
Storage Lanes	1		1	1		1	1		0	0		1
Taper Length (ft)	75			100			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor												
Frt			0.850			0.850						0.850
Flt Protected	0.950			0.950			0.950					
Satd. Flow (prot)	1573	0	1577	1750	1707	1527	1637	3403	0	0	3437	1608
Flt Permitted	0.950			0.950			0.117					
Satd. Flow (perm)	1573	0	1577	1750	1707	1527	202	3403	0	0	3437	1608
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			208			223						208
Link Speed (mph)		35			25			35			35	
Link Distance (ft)		1012			1172			871			378	
Travel Time (s)		19.7			32.0			17.0			7.4	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	0%	4%	3%	4%	9%	6%	2%	0%	0%	1%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	167	0	385	563	248	105	192	647	0	0	984	177
Shared Lane Traffic (%)												
Lane Group Flow (vph)	167	0	385	563	248	105	192	647	0	0	984	177
Turn Type	Prot		Perm	Prot	NA	Perm	pm+pt	NA			NA	Perm
Protected Phases	3			7	4		1	6			2	
Permitted Phases			1			4	6					2
Detector Phase	3		1	7	4	4	1	6			2	2
Switch Phase												
Minimum Initial (s)	3.0		3.0	3.0	3.0	3.0	3.0	10.0			10.0	10.0
Minimum Split (s)	10.0		10.1	8.9	8.9	8.9	10.1	17.1			17.1	17.1
Total Split (s)	19.0		15.1	39.9	20.9	20.9	15.1	49.2			34.1	34.1
Total Split (%)	21.3%		16.9%	44.8%	23.5%	23.5%	16.9%	55.2%			38.3%	38.3%
Yellow Time (s)	3.1		3.6	3.1	3.1	3.1	3.6	3.6			3.6	3.6
All-Red Time (s)	3.9		3.5	2.8	2.8	2.8	3.5	3.5			3.5	3.5
Lost Time Adjust (s)	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0			-1.0	-1.0
Total Lost Time (s)	6.0		6.1	4.9	4.9	4.9	6.1	6.1			6.1	6.1
Lead/Lag	Lead		Lead		Lag	Lag	Lead				Lag	Lag
Lead-Lag Optimize?	Yes		Yes		Yes	Yes	Yes				Yes	Yes
Recall Mode	None		None	None	None	None	None	Min			Min	Min

Intersection Summary

Area Type:	Other
Cycle Length: 89.1	
Actuated Cycle Length: 87.6	
Natural Cycle: 80	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 1: SR 6309 & Blackman Street/I-81 SB Off Ramp





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	152	0	350	512	226	96	175	589	0	0	895	161
Future Volume (veh/h)	152	0	350	512	226	96	175	589	0	0	895	161
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	0	1852	1983	1892	1894	1826	1883	0	0	1898	1944
Adj Flow Rate, veh/h	167	0	0	563	248	0	192	647	0	0	984	0
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	0	4	3	4	9	6	2	0	0	1	3
Cap, veh/h	228	0		675	322		307	1788	0	0	1169	
Arrive On Green	0.13	0.00	0.00	0.36	0.17	0.00	0.10	0.50	0.00	0.00	0.32	0.00
Sat Flow, veh/h	1723	167		1888	1892	1605	1739	3673	0	0	3700	1647
Grp Volume(v), veh/h	167	42.8		563	248	0	192	647	0	0	984	0
Grp Sat Flow(s),veh/h/ln	1723	D		1888	1892	1605	1739	1789	0	0	1803	1647
Q Serve(g_s), s	8.0			23.5	10.8	0.0	5.8	9.5	0.0	0.0	21.8	0.0
Cycle Q Clear(g_c), s	8.0			23.5	10.8	0.0	5.8	9.5	0.0	0.0	21.8	0.0
Prop In Lane	1.00			1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h	228			675	322		307	1788	0	0	1169	
V/C Ratio(X)	0.73			0.83	0.77		0.62	0.36	0.00	0.00	0.84	
Avail Cap(c_a), veh/h	260			769	352		307	1793	0	0	1174	
HCM Platoon Ratio	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	0.00	1.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	35.9			25.3	34.1	0.0	18.9	13.1	0.0	0.0	27.0	0.0
Incr Delay (d2), s/veh	7.0			6.3	7.9	0.0	3.0	0.6	0.0	0.0	7.4	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
%ile BackOfQ(95%),veh/ln	6.7			16.9	9.5	0.0	4.3	6.5	0.0	0.0	15.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.8			31.5	42.0	0.0	21.9	13.7	0.0	0.0	34.4	0.0
LnGrp LOS	D			C	D		C	B	A	A	C	
Approach Vol, veh/h					811			839			984	
Approach Delay, s/veh					34.7			15.6			34.4	
Approach LOS					C			B			C	

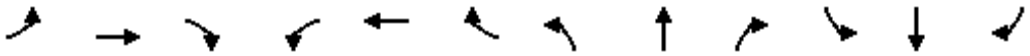
Timer - Assigned Phs	1	2	3	4	6	7
Phs Duration (G+Y+Rc), s	15.1	34.0	17.4	19.5	49.1	35.7
Change Period (Y+Rc), s	7.1	7.1	7.0	* 5.9	7.1	* 5.9
Max Green Setting (Gmax), s	8.0	27.0	12.0	* 15	42.1	* 34
Max Q Clear Time (g_c+I1), s	8.3	24.3	10.5	13.3	12.0	26.0
Green Ext Time (p_c), s	0.0	2.6	0.1	0.4	22.4	3.8

Intersection Summary	
HCM 6th Ctrl Delay	29.4
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	1	115	23	5	27	54	780	70	20	912	34
Future Volume (vph)	13	1	115	23	5	27	54	780	70	20	912	34
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	16	16	16	14	14	14	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	50		0	50		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	75			75			50			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.879			0.934			0.988			0.995	
Flt Protected		0.995			0.979		0.950			0.950		
Satd. Flow (prot)	0	1738	0	0	1722	0	1676	1738	0	1710	1774	0
Flt Permitted		0.995			0.979		0.950			0.950		
Satd. Flow (perm)	0	1738	0	0	1722	0	1676	1738	0	1710	1774	0
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		268			799			711			875	
Travel Time (s)		7.3			21.8			13.9			17.0	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	3%	0%	0%	4%	2%	2%	6%	0%	1%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	13	1	119	24	5	28	56	804	72	21	940	35
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	133	0	0	57	0	56	876	0	21	975	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	12

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	13	1	115	23	5	27	54	780	70	20	912	34
Future Vol, veh/h	13	1	115	23	5	27	54	780	70	20	912	34
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	50	-	-	50	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	0	0	3	0	0	4	2	2	6	0	1	0
Mvmt Flow	13	1	119	24	5	28	56	804	72	21	940	35

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1969	1988	958	2012	1969	840	975	0	0	876	0	0
Stage 1	1000	1000	-	952	952	-	-	-	-	-	-	-
Stage 2	969	988	-	1060	1017	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.23	7.1	6.5	6.24	4.3	-	-	4.4	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.1	4	3.2	3	4	3.1	3	-	-	3.1	-	-
Pot Cap-1 Maneuver	50	62	318	47	63	380	547	-	-	567	-	-
Stage 1	318	324	-	346	341	-	-	-	-	-	-	-
Stage 2	332	328	-	300	318	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	39	54	318	26	54	380	547	-	-	567	-	-
Mov Cap-2 Maneuver	39	54	-	26	54	-	-	-	-	-	-	-
Stage 1	286	312	-	311	306	-	-	-	-	-	-	-
Stage 2	272	295	-	181	306	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	65.9	280	0.7	0.2
HCM LOS	F	F		

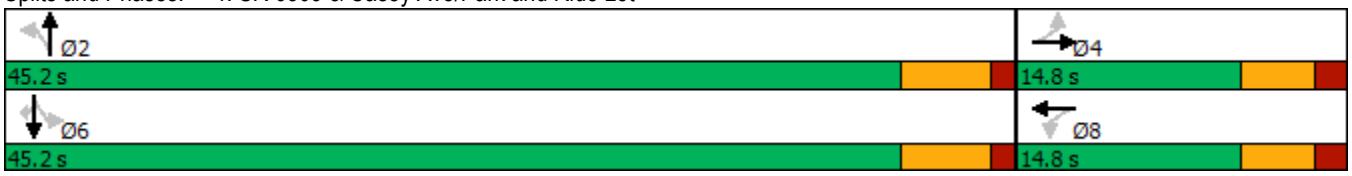
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	547	-	-	181	52	567	-	-
HCM Lane V/C Ratio	0.102	-	-	0.735	1.09	0.036	-	-
HCM Control Delay (s)	12.3	-	-	65.9	280	11.6	-	-
HCM Lane LOS	B	-	-	F	F	B	-	-
HCM 95th %tile Q(veh)	0.3	-	-	4.7	4.9	0.1	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	239	0	24	3	0	8	19	768	3	2	881	182
Future Volume (vph)	239	0	24	3	0	8	19	768	3	2	881	182
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	13	13	13	10	13	13	10	13	10
Grade (%)		-2%			0%			0%			-1%	
Storage Length (ft)	125		0	0		0	125		0	125		125
Storage Lanes	1		0	0		0	1		0	1		1
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.850			0.902			0.999				0.850
Flt Protected	0.950				0.987		0.950			0.950		
Satd. Flow (prot)	1535	1387	0	0	1656	0	1438	1804	0	1604	1833	1407
Flt Permitted	0.750				0.945		0.212			0.273		
Satd. Flow (perm)	1212	1387	0	0	1585	0	321	1804	0	461	1833	1407
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		195			40			1				186
Link Speed (mph)		30			25			35			35	
Link Distance (ft)		870			135			875			1750	
Travel Time (s)		19.8			3.7			17.0			34.1	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	0%	4%	0%	0%	0%	11%	3%	0%	0%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	244	0	24	3	0	8	19	784	3	2	899	186
Shared Lane Traffic (%)												
Lane Group Flow (vph)	244	24	0	0	11	0	19	787	0	2	899	186
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Minimum Split (s)	6.8	6.8		6.8	6.8		7.2	7.2		7.2	7.2	7.2
Total Split (s)	14.8	14.8		14.8	14.8		45.2	45.2		45.2	45.2	45.2
Total Split (%)	24.7%	24.7%		24.7%	24.7%		75.3%	75.3%		75.3%	75.3%	75.3%
Yellow Time (s)	3.3	3.3		3.3	3.3		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	1.5	1.5		1.5	1.5		1.2	1.2		1.2	1.2	1.2
Lost Time Adjust (s)	-1.0	-1.0			-1.0		-1.0	-1.0		-1.0	-1.0	-1.0
Total Lost Time (s)	3.8	3.8			3.8		4.2	4.2		4.2	4.2	4.2
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Max	Max		Max	Max	Max

Intersection Summary

Area Type:	Other
Cycle Length: 60	
Actuated Cycle Length: 60	
Natural Cycle: 55	
Control Type: Semi Act-Uncoord	

Splits and Phases: 4: SR 6309 & Casey Ave/Park and Ride Lot



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	239	0	24	3	0	8	19	768	3	2	881	182
Future Volume (veh/h)	239	0	24	3	0	8	19	768	3	2	881	182
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	1803	1875	1818	1872	1872	1872	1646	1828	1872	1837	1881	1809
Adj Flow Rate, veh/h	244	0	23	3	0	8	19	784	0	2	899	153
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	5	0	4	0	0	0	11	3	0	0	2	2
Cap, veh/h	383	0	291	121	35	213	316	1249	0	439	1285	1047
Arrive On Green	0.18	0.00	0.17	0.17	0.00	0.17	0.68	0.68	0.00	0.68	0.68	0.68
Sat Flow, veh/h	1432	0	1589	243	192	1161	498	1828	0	715	1881	1533
Grp Volume(v), veh/h	244	0	23	11	0	0	19	784	0	2	899	153
Grp Sat Flow(s),veh/h/ln	1432	0	1589	1596	0	0	498	1828	0	715	1881	1533
Q Serve(g_s), s	10.1	0.0	0.7	0.0	0.0	0.0	1.4	14.3	0.0	0.1	17.4	2.1
Cycle Q Clear(g_c), s	10.1	0.0	0.7	0.3	0.0	0.0	18.8	14.3	0.0	14.4	17.4	2.1
Prop In Lane	1.00		1.00	0.27		0.73	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	383	0	291	342	0	0	316	1249	0	439	1285	1047
V/C Ratio(X)	0.64	0.00	0.08	0.03	0.00	0.00	0.06	0.63	0.00	0.00	0.70	0.15
Avail Cap(c_a), veh/h	383	0	291	342	0	0	316	1249	0	439	1285	1047
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	0.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.1	0.0	20.7	20.6	0.0	0.0	11.5	5.3	0.0	9.2	5.8	3.3
Incr Delay (d2), s/veh	2.7	0.0	0.0	0.0	0.0	0.0	0.4	2.4	0.0	0.0	3.2	0.3
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(95%),veh/ln	6.2	0.0	0.5	0.2	0.0	0.0	0.3	6.8	0.0	0.0	8.5	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.8	0.0	20.8	20.6	0.0	0.0	11.8	7.7	0.0	9.3	8.9	3.6
LnGrp LOS	C	A	C	C	A	A	B	A	A	A	A	A
Approach Vol, veh/h		267			11			803			1054	
Approach Delay, s/veh		26.3			20.6			7.8			8.2	
Approach LOS		C			C			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		45.2		14.8		45.2		14.8				
Change Period (Y+Rc), s		* 5.2		* 4.8		* 5.2		* 4.8				
Max Green Setting (Gmax), s		* 40		* 10		* 40		* 10				
Max Q Clear Time (g_c+I1), s		0.0		12.6		0.0		2.5				
Green Ext Time (p_c), s		0.0		0.0		0.0		0.0				

Intersection Summary	
HCM 6th Ctrl Delay	10.4
HCM 6th LOS	B

Notes

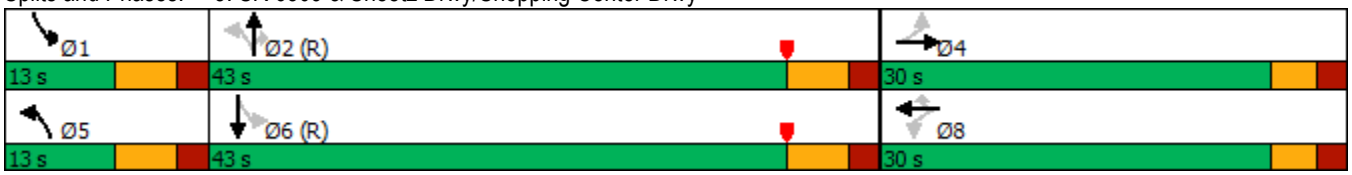
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	69	10	5	229	38	144	61	822	207	123	770	85
Future Volume (vph)	69	10	5	229	38	144	61	822	207	123	770	85
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	15	15	15	12	12	12	10	12	13	10	12	14
Grade (%)		0%			-5%			1%			-3%	
Storage Length (ft)	0		0	0		150	100		185	235		0
Storage Lanes	0		0	0		1	1		1	1		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor					1.00						1.00	
Frt		0.992				0.850			0.850		0.985	
Flt Protected		0.960			0.959		0.950			0.950		
Satd. Flow (prot)	0	1886	0	0	1769	1568	1557	3369	1558	1604	3372	0
Flt Permitted		0.499			0.723		0.251			0.245		
Satd. Flow (perm)	0	980	0	0	1333	1568	411	3369	1558	414	3372	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4				150			216		18	
Link Speed (mph)		25			25			40			40	
Link Distance (ft)		263			298			338			775	
Travel Time (s)		7.2			8.1			5.8			13.2	
Confl. Peds. (#/hr)				1								1
Confl. Bikes (#/hr)												
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	2%	1%	1%	1%	1%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	72	10	5	239	40	150	64	856	216	128	802	89
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	87	0	0	279	150	64	856	216	128	891	0
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		8	2		2	6		
Detector Phase	4	4		8	8	8	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	5.0	20.0	20.0	5.0	20.0	
Minimum Split (s)	15.0	15.0		15.0	15.0	15.0	11.0	26.0	26.0	11.0	26.0	
Total Split (s)	30.0	30.0		30.0	30.0	30.0	13.0	43.0	43.0	13.0	43.0	
Total Split (%)	34.9%	34.9%		34.9%	34.9%	34.9%	15.1%	50.0%	50.0%	15.1%	50.0%	
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)		-1.0			-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
Total Lost Time (s)		4.0			4.0	4.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	

Intersection Summary

Area Type:	Other
Cycle Length: 86	
Actuated Cycle Length: 86	
Offset: 25 (29%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	

Splits and Phases: 5: SR 6309 & Sheetz Drwy/Shopping Center Drwy



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	69	10	5	229	38	144	61	822	207	123	770	85
Future Volume (veh/h)	69	10	5	229	38	144	61	822	207	123	770	85
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	1872	1872	1872	1986	1986	1986	1766	1780	1852	1898	1898	1944
Adj Flow Rate, veh/h	72	10	3	239	40	0	64	856	0	128	802	78
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	2	1	1	1	1	3
Cap, veh/h	350	46	12	372	49		536	1916		495	1913	186
Arrive On Green	0.19	0.20	0.19	0.19	0.20	0.00	0.06	0.57	0.00	0.13	1.00	1.00
Sat Flow, veh/h	1336	225	57	1442	241	1683	1682	3383	1569	1807	3319	323
Grp Volume(v), veh/h	85	0	0	279	0	0	64	856	0	128	436	444
Grp Sat Flow(s),veh/h/ln	1618	0	0	1684	0	1683	1682	1691	1569	1807	1803	1839
Q Serve(g_s), s	0.0	0.0	0.0	9.9	0.0	0.0	1.3	12.6	0.0	2.4	0.0	0.0
Cycle Q Clear(g_c), s	3.7	0.0	0.0	13.7	0.0	0.0	1.3	12.6	0.0	2.4	0.0	0.0
Prop In Lane	0.85		0.04	0.86		1.00	1.00		1.00	1.00		0.18
Lane Grp Cap(c), veh/h	388	0	0	401	0		536	1916		495	1039	1060
V/C Ratio(X)	0.22	0.00	0.00	0.70	0.00		0.12	0.45		0.26	0.42	0.42
Avail Cap(c_a), veh/h	535	0	0	561	0		596	1916		542	1039	1060
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	0.72	0.72	0.72
Uniform Delay (d), s/veh	29.1	0.0	0.0	32.9	0.0	0.0	6.3	10.8	0.0	6.8	0.0	0.0
Incr Delay (d2), s/veh	0.3	0.0	0.0	2.2	0.0	0.0	0.1	0.8	0.0	0.2	0.9	0.9
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(95%),veh/ln	2.8	0.0	0.0	9.8	0.0	0.0	0.7	7.6	0.0	1.3	0.5	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.4	0.0	0.0	35.1	0.0	0.0	6.4	11.6	0.0	7.0	0.9	0.9
LnGrp LOS	C	A	A	D	A		A	B		A	A	A
Approach Vol, veh/h		85			279			920			1008	
Approach Delay, s/veh		29.4			35.1			11.2			1.7	
Approach LOS		C			D			B			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.8	53.7		21.5	9.9	54.6		21.5				
Change Period (Y+Rc), s	6.0	6.0		5.0	6.0	6.0		5.0				
Max Green Setting (Gmax), s	7.0	37.0		25.0	7.0	37.0		25.0				
Max Q Clear Time (g_c+I1), s	4.9	0.0		5.7	3.8	0.0		15.7				
Green Ext Time (p_c), s	0.1	0.0		0.2	0.0	0.0		0.9				

Intersection Summary		
HCM 6th Ctrl Delay		10.6
HCM 6th LOS		B

Notes

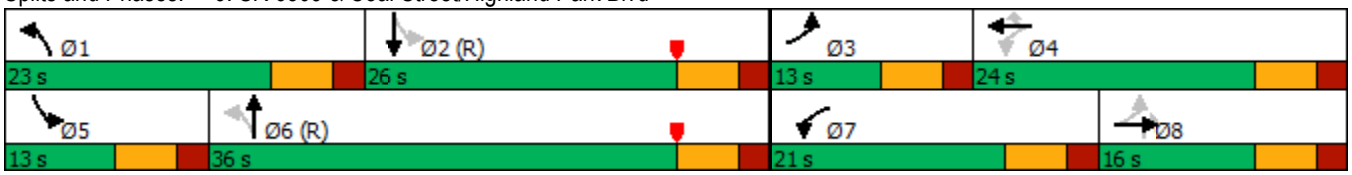
Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

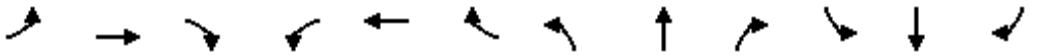
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	133	503	196	282	467	80	260	369	454	92	417	112
Future Volume (vph)	133	503	196	282	467	80	260	369	454	92	417	112
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	13	12	12	12	10	12	13	10	12	13
Grade (%)		1%			0%			2%			0%	
Storage Length (ft)	235		0	650		200	300		0	125		0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor	0.99	0.99		1.00			1.00		0.98		0.99	
Frt		0.958				0.850			0.850		0.968	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1612	3086	0	1693	3386	1485	1564	3287	1505	1565	3218	0
Flt Permitted	0.475			0.250			0.269			0.524		
Satd. Flow (perm)	799	3086	0	445	3386	1485	443	3287	1477	863	3218	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		55				266			473		37	
Link Speed (mph)		25			35			40			40	
Link Distance (ft)		1019			1253			775			948	
Travel Time (s)		27.8			24.4			13.2			16.2	
Confl. Peds. (#/hr)	13		3	3			3		3			13
Confl. Bikes (#/hr)												
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	1%	3%	1%	1%	3%	1%	3%	4%	2%	1%	7%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	139	524	204	294	486	83	271	384	473	96	434	117
Shared Lane Traffic (%)												
Lane Group Flow (vph)	139	728	0	294	486	83	271	384	473	96	551	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	custom	pm+pt	NA	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8			4		4	6		8	2		
Detector Phase	3	8		7	4	4	1	6	8	5	2	
Switch Phase												
Minimum Initial (s)	3.0	3.0		3.0	3.0	3.0	3.0	20.0	3.0	3.0	20.0	
Minimum Split (s)	9.0	9.0		9.0	9.0	9.0	9.0	26.0	9.0	9.0	26.0	
Total Split (s)	13.0	16.0		21.0	24.0	24.0	23.0	36.0	16.0	13.0	26.0	
Total Split (%)	15.1%	18.6%		24.4%	27.9%	27.9%	26.7%	41.9%	18.6%	15.1%	30.2%	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None		None	None	None	None	C-Max	None	None	C-Max	

Intersection Summary

Area Type:	Other
Cycle Length: 86	
Actuated Cycle Length: 86	
Offset: 1 (1%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	

Splits and Phases: 6: SR 6309 & Coal Street/Highland Park Blvd





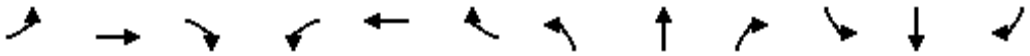
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	133	503	196	282	467	80	260	369	454	92	417	112
Future Volume (veh/h)	133	503	196	282	467	80	260	369	454	92	417	112
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		1.00	1.00		1.00	1.00		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	1766	1780	1822	1786	1786	1758	1764	1736	1790	1772	1786	1770
Adj Flow Rate, veh/h	139	524	144	294	486	0	271	384	0	96	434	94
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	1	3	1	1	3	1	3	4	2	1	7
Cap, veh/h	316	333	91	390	729		491	1280		517	870	187
Arrive On Green	0.09	0.13	0.12	0.18	0.21	0.00	0.24	0.65	0.00	0.07	0.31	0.30
Sat Flow, veh/h	1682	2603	711	1701	3393	1490	1680	3298	1517	1688	2771	595
Grp Volume(v), veh/h	139	339	329	294	486	0	271	384	0	96	264	264
Grp Sat Flow(s),veh/h/ln	1682	1691	1623	1701	1697	1490	1680	1649	1517	1688	1697	1670
Q Serve(g_s), s	6.0	11.0	11.0	11.9	11.3	0.0	8.6	4.4	0.0	3.2	10.9	11.1
Cycle Q Clear(g_c), s	6.0	11.0	11.0	11.9	11.3	0.0	8.6	4.4	0.0	3.2	10.9	11.1
Prop In Lane	1.00		0.44	1.00		1.00	1.00		1.00	1.00		0.36
Lane Grp Cap(c), veh/h	316	216	208	390	729		491	1280		517	532	524
V/C Ratio(X)	0.44	1.57	1.58	0.75	0.67		0.55	0.30		0.19	0.50	0.50
Avail Cap(c_a), veh/h	316	216	208	400	750		598	1280		554	532	524
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.67	1.67	1.67	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	0.87	0.87	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.5	37.5	37.7	23.9	30.9	0.0	13.2	10.0	0.0	17.2	24.0	24.2
Incr Delay (d2), s/veh	1.0	277.2	283.9	7.7	2.2	0.0	0.8	0.5	0.0	0.2	3.3	3.4
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(95%),veh/ln	4.5	33.6	32.9	9.1	8.2	0.0	4.7	2.6	0.0	2.1	8.1	8.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.5	314.7	321.7	31.7	33.1	0.0	14.0	10.5	0.0	17.4	27.3	27.6
LnGrp LOS	C	F	F	C	C		B	B		B	C	C
Approach Vol, veh/h		807			780			655			624	
Approach Delay, s/veh		268.4			32.6			12.0			25.9	
Approach LOS		F			C			B			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.5	32.0	13.0	23.5	11.1	38.4	20.5	16.0
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	17.0	20.0	7.0	18.0	7.0	30.0	15.0	10.0
Max Q Clear Time (g_c+I1), s	11.1	0.0	8.5	13.8	5.7	0.0	14.4	13.5
Green Ext Time (p_c), s	0.5	0.0	0.0	0.8	0.0	0.0	0.1	0.0

Intersection Summary	
HCM 6th Ctrl Delay	92.8
HCM 6th LOS	F

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	10	0	0	1	79	4	0	43	0
Future Volume (vph)	0	0	0	10	0	0	1	79	4	0	43	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	16	16	16	15	15	15	13	13	13	13	13	13
Grade (%)		0%			-1%			1%			-2%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt								0.994				
Flt Protected					0.950			0.999				
Satd. Flow (prot)	0	2040	0	0	1890	0	0	1838	0	0	1879	0
Flt Permitted					0.950			0.999				
Satd. Flow (perm)	0	2040	0	0	1890	0	0	1838	0	0	1879	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		198			1616			799			711	
Travel Time (s)		5.4			44.1			21.8			19.4	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	0	0	0	11	0	0	1	87	4	0	47	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	11	0	0	92	0	0	47	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	0	0	0	10	0	0	1	79	4	0	43	0
Future Vol, veh/h	0	0	0	10	0	0	1	79	4	0	43	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	-1	-	-	1	-	-	-2	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	0	11	0	0	1	87	4	0	47	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	138	140	47	138	138	89	47	0	0	91	0	0
Stage 1	47	47	-	91	91	-	-	-	-	-	-	-
Stage 2	91	93	-	47	47	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	6.9	6.3	6.1	4.3	-	-	4.3	-	-
Critical Hdwy Stg 1	6.1	5.5	-	5.9	5.3	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	5.9	5.3	-	-	-	-	-	-	-
Follow-up Hdwy	3	4	3.1	3	4	3.1	3	-	-	3	-	-
Pot Cap-1 Maneuver	968	755	1093	975	762	1037	1157	-	-	1118	-	-
Stage 1	1130	860	-	1073	828	-	-	-	-	-	-	-
Stage 2	1068	822	-	1133	862	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	967	754	1093	974	761	1037	1157	-	-	1118	-	-
Mov Cap-2 Maneuver	967	754	-	974	761	-	-	-	-	-	-	-
Stage 1	1129	860	-	1072	827	-	-	-	-	-	-	-
Stage 2	1067	821	-	1133	862	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	8.7	0.1	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1157	-	-	-	974	1118	-	-
HCM Lane V/C Ratio	0.001	-	-	-	0.011	-	-	-
HCM Control Delay (s)	8.1	0	-	0	8.7	0	-	-
HCM Lane LOS	A	A	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	0	0	-	-

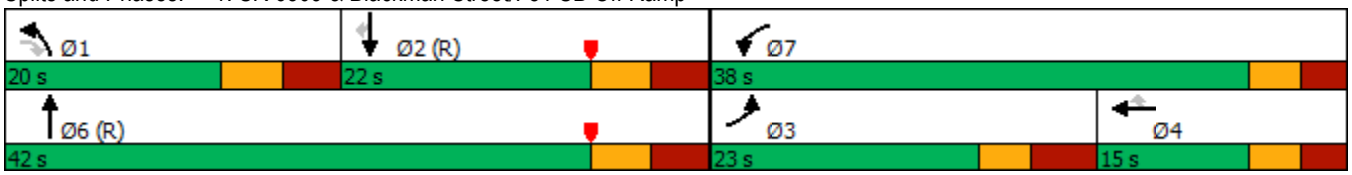
2024/2029 Base (No-Build) Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	220	0	185	288	113	69	408	630	0	0	380	90
Future Volume (vph)	220	0	185	288	113	69	408	630	0	0	380	90
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	14	13	11	14	12	12	12	13	12	14
Grade (%)		-1%			-4%			-3%			-3%	
Storage Length (ft)	380		0	180		180	275		0	0		225
Storage Lanes	1		1	1		1	2		0	0		1
Taper Length (ft)	75			100			140			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.97	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor												
Frt			0.850			0.850						0.850
Flt Protected	0.950			0.950			0.950					
Satd. Flow (prot)	1588	0	1533	1669	1690	1435	3238	3370	0	0	3306	1548
Flt Permitted	0.950			0.950			0.950					
Satd. Flow (perm)	1588	0	1533	1669	1690	1435	3238	3370	0	0	3306	1548
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			232			248						232
Link Speed (mph)		35			25			35			35	
Link Distance (ft)		1012			1172			871			378	
Travel Time (s)		19.7			32.0			17.0			7.4	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	1%	0%	7%	8%	5%	16%	4%	3%	0%	0%	5%	7%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	234	0	197	306	120	73	434	670	0	0	404	96
Shared Lane Traffic (%)												
Lane Group Flow (vph)	234	0	197	306	120	73	434	670	0	0	404	96
Turn Type	Prot		Perm	Prot	NA	Perm	Prot	NA			NA	Perm
Protected Phases	3			7	4		1	6			2	
Permitted Phases			1			4						2
Detector Phase	3		1	7	4	4	1	6			2	2
Switch Phase												
Minimum Initial (s)	3.0		3.0	3.0	3.0	3.0	3.0	10.0			10.0	10.0
Minimum Split (s)	10.0		10.1	8.9	8.9	8.9	10.1	17.1			17.1	17.1
Total Split (s)	23.0		20.0	38.0	15.0	15.0	20.0	42.0			22.0	22.0
Total Split (%)	28.8%		25.0%	47.5%	18.8%	18.8%	25.0%	52.5%			27.5%	27.5%
Yellow Time (s)	3.1		3.6	3.1	3.1	3.1	3.6	3.6			3.6	3.6
All-Red Time (s)	3.9		3.5	2.8	2.8	2.8	3.5	3.5			3.5	3.5
Lost Time Adjust (s)	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0			-1.0	-1.0
Total Lost Time (s)	6.0		6.1	4.9	4.9	4.9	6.1	6.1			6.1	6.1
Lead/Lag	Lead		Lead		Lag	Lag	Lead				Lag	Lag
Lead-Lag Optimize?	Yes		Yes		Yes	Yes	Yes				Yes	Yes
Recall Mode	None		None	None	None	None	None	C-Max			C-Max	C-Max

Intersection Summary

Area Type:	Other
Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 69 (86%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	

Splits and Phases: 1: SR 6309 & Blackman Street/I-81 SB Off Ramp



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	220	0	185	288	113	69	408	630	0	0	380	90
Future Volume (veh/h)	220	0	185	288	113	69	408	630	0	0	380	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	1823	0	1807	1909	1878	1790	1855	1869	0	0	1841	1885
Adj Flow Rate, veh/h	234	0	0	306	120	0	434	670	0	0	404	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	1	0	7	8	5	16	4	3	0	0	5	7
Cap, veh/h	302	0		646	200		570	1801	0	0	925	
Arrive On Green	0.17	0.00	0.00	0.36	0.11	0.00	0.17	0.51	0.00	0.00	0.26	0.00
Sat Flow, veh/h	1736	234		1818	1878	1517	3427	3645	0	0	3589	1597
Grp Volume(v), veh/h	234	37.9		306	120	0	434	670	0	0	404	0
Grp Sat Flow(s),veh/h/ln	1736	D		1818	1878	1517	1714	1776	0	0	1749	1597
Q Serve(g_s), s	10.3			10.4	4.9	0.0	9.7	9.2	0.0	0.0	7.7	0.0
Cycle Q Clear(g_c), s	10.3			10.4	4.9	0.0	9.7	9.2	0.0	0.0	7.7	0.0
Prop In Lane	1.00			1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h	302			646	200		570	1801	0	0	925	
V/C Ratio(X)	0.78			0.47	0.60		0.76	0.37	0.00	0.00	0.44	
Avail Cap(c_a), veh/h	369			752	237		595	1801	0	0	925	
HCM Platoon Ratio	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	0.00	1.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	31.6			20.0	34.1	0.0	31.8	12.0	0.0	0.0	24.5	0.0
Incr Delay (d2), s/veh	6.3			0.2	1.2	0.0	4.8	0.6	0.0	0.0	1.5	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
%ile BackOfQ(95%),veh/ln	8.2			7.7	4.1	0.0	7.6	6.1	0.0	0.0	5.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.9			20.2	35.3	0.0	36.7	12.6	0.0	0.0	26.0	0.0
LnGrp LOS	D			C	D		D	B	A	A	C	
Approach Vol, veh/h					426			1104			404	
Approach Delay, s/veh					24.5			22.0			26.0	
Approach LOS					C			C			C	

Timer - Assigned Phs	1	2	3	4	6	7
Phs Duration (G+Y+Rc), s	19.4	27.3	19.9	13.4	46.7	33.3
Change Period (Y+Rc), s	7.1	7.1	7.0	* 5.9	7.1	* 5.9
Max Green Setting (Gmax), s	12.9	14.9	16.0	* 9.1	34.9	* 32
Max Q Clear Time (g_c+I1), s	12.2	10.2	12.8	7.4	11.7	12.9
Green Ext Time (p_c), s	0.1	2.9	0.2	0.1	18.4	3.4

Intersection Summary	
HCM 6th Ctrl Delay	25.0
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

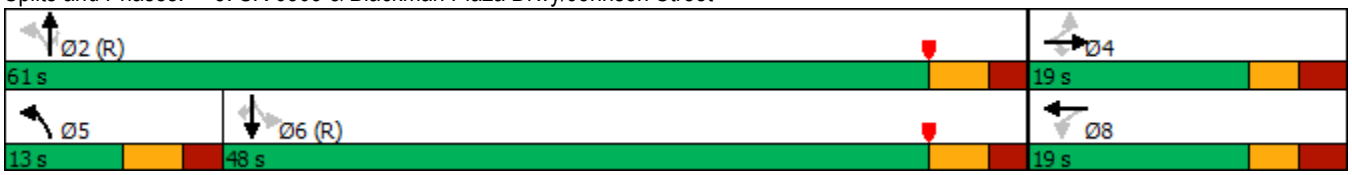
Unsignalized Delay for [EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	126	5	120	14	17	2	186	654	19	7	348	88
Future Volume (vph)	126	5	120	14	17	2	186	654	19	7	348	88
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	16	16	16	12	12	12	10	12	10	10	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	150		100	110		150
Storage Lanes	0		1	0		0	1		1	1		1
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt			0.850		0.992				0.850			0.850
Flt Protected		0.954			0.979		0.950			0.950		
Satd. Flow (prot)	0	1840	1495	0	1748	0	1550	1748	1360	1400	1698	1530
Flt Permitted		0.708			0.834		0.441			0.398		
Satd. Flow (perm)	0	1365	1495	0	1489	0	719	1748	1360	587	1698	1530
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			129		2				41			123
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		268			799			711			875	
Travel Time (s)		7.3			21.8			13.9			17.0	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	6%	0%	16%	0%	0%	0%	3%	3%	5%	14%	6%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	135	5	129	15	18	2	200	703	20	8	374	95
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	140	129	0	35	0	200	703	20	8	374	95
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases		4			8		5	2			6	
Permitted Phases	4		4	8			2		2	6		6
Detector Phase	4	4	4	8	8		5	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Minimum Split (s)	9.0	9.0	9.0	9.0	9.0		9.0	9.0	9.0	9.0	9.0	9.0
Total Split (s)	19.0	19.0	19.0	19.0	19.0		13.0	61.0	61.0	48.0	48.0	48.0
Total Split (%)	23.8%	23.8%	23.8%	23.8%	23.8%		16.3%	76.3%	76.3%	60.0%	60.0%	60.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.6	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		2.4	2.4	2.4	2.4	2.4	2.4
Lost Time Adjust (s)		-1.0	-1.0		-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)		5.0	5.0		5.0		5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag							Lead			Lag	Lag	Lag
Lead-Lag Optimize?							Yes			Yes	Yes	Yes
Recall Mode	None	None	None	None	None		None	C-Max	C-Max	C-Max	C-Max	C-Max

Intersection Summary

Area Type:	Other
Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow	
Natural Cycle: 40	
Control Type: Actuated-Coordinated	

Splits and Phases: 3: SR 6309 & Blackman Plaza Drwy/Johnson Street



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	126	5	120	14	17	2	186	654	19	7	348	88
Future Volume (veh/h)	126	5	120	14	17	2	186	654	19	7	348	88
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	1784	1872	1638	1800	1800	1800	1758	1758	1730	1603	1716	1800
Adj Flow Rate, veh/h	135	5	0	15	18	2	200	703	20	8	374	0
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, %	6	0	16	0	0	0	3	3	5	14	6	0
Cap, veh/h	272	7		131	137	12	723	1319	1100	476	1040	
Arrive On Green	0.11	0.12	0.00	0.11	0.12	0.11	0.08	0.75	0.75	0.61	0.61	0.00
Sat Flow, veh/h	1475	55	1388	535	1101	99	1674	1758	1466	661	1716	1525
Grp Volume(v), veh/h	140	0	0	35	0	0	200	703	20	8	374	0
Grp Sat Flow(s),veh/h/ln	1530	0	1388	1735	0	0	1674	1758	1466	661	1716	1525
Q Serve(g_s), s	5.7	0.0	0.0	0.0	0.0	0.0	3.0	13.3	0.3	0.4	8.8	0.0
Cycle Q Clear(g_c), s	7.1	0.0	0.0	1.4	0.0	0.0	3.0	13.3	0.3	2.2	8.8	0.0
Prop In Lane	0.96		1.00	0.43		0.06	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	260	0		259	0	0	723	1319	1100	476	1040	
V/C Ratio(X)	0.54	0.00		0.14	0.00	0.00	0.28	0.53	0.02	0.02	0.36	
Avail Cap(c_a), veh/h	335	0		340	0	0	754	1319	1100	476	1040	
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	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.93	0.93	0.00
Uniform Delay (d), s/veh	34.1	0.0	0.0	31.5	0.0	0.0	4.6	4.2	2.5	7.0	7.9	0.0
Incr Delay (d2), s/veh	0.6	0.0	0.0	0.1	0.0	0.0	0.1	1.5	0.0	0.1	0.9	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(95%),veh/ln	4.9	0.0	0.0	1.1	0.0	0.0	1.3	6.2	0.1	0.1	5.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.7	0.0	0.0	31.6	0.0	0.0	4.7	5.7	2.6	7.1	8.8	0.0
LnGrp LOS	C	A		C	A	A	A	A	A	A	A	
Approach Vol, veh/h		140			35			923			382	
Approach Delay, s/veh		34.7			31.6			5.4			8.8	
Approach LOS		C			C			A			A	

Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		65.0		15.0	11.5	53.5		15.0				
Change Period (Y+Rc), s		6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s		55.0		13.0	7.0	42.0		13.0				
Max Q Clear Time (g_c+I1), s		0.0		9.1	5.5	0.0		3.4				
Green Ext Time (p_c), s		0.0		0.1	0.1	0.0		0.0				

Intersection Summary		
HCM 6th Ctrl Delay		9.7
HCM 6th LOS		A

Notes

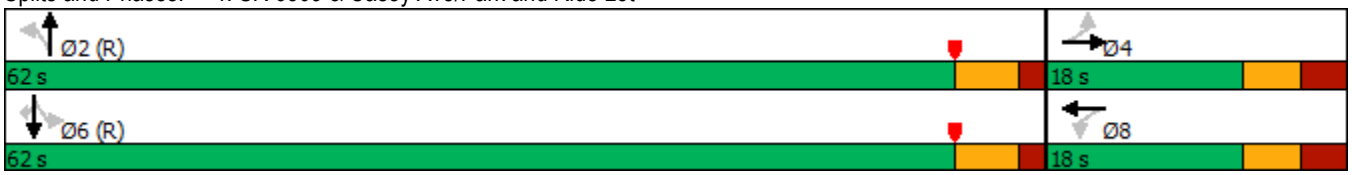
Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	160	1	9	1	0	0	9	814	1	0	438	51
Future Volume (vph)	160	1	9	1	0	0	9	814	1	0	438	51
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	13	13	13	10	13	13	10	13	10
Grade (%)		-2%			0%			0%			-1%	
Storage Length (ft)	250		0	0		0	125		0	125		125
Storage Lanes	1		0	0		0	1		0	1		1
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.864										0.850
Flt Protected	0.950				0.950		0.950					
Satd. Flow (prot)	1550	1240	0	0	1767	0	1200	1789	0	1688	1747	1367
Flt Permitted	0.757				0.750		0.457					
Satd. Flow (perm)	1235	1240	0	0	1395	0	577	1789	0	1688	1747	1367
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10										56
Link Speed (mph)		30			25			35			35	
Link Distance (ft)		870			135			875			1750	
Travel Time (s)		19.8			3.7			17.0			34.1	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	0%	20%	0%	0%	0%	33%	4%	0%	0%	7%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	176	1	10	1	0	0	10	895	1	0	481	56
Shared Lane Traffic (%)												
Lane Group Flow (vph)	176	11	0	0	1	0	10	896	0	0	481	56
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Minimum Split (s)	8.3	8.3		8.3	8.3		7.4	7.4		7.4	7.4	7.4
Total Split (s)	18.0	18.0		18.0	18.0		62.0	62.0		62.0	62.0	62.0
Total Split (%)	22.5%	22.5%		22.5%	22.5%		77.5%	77.5%		77.5%	77.5%	77.5%
Yellow Time (s)	3.4	3.4		3.4	3.4		3.7	3.7		3.7	3.7	3.7
All-Red Time (s)	2.9	2.9		2.9	2.9		1.7	1.7		1.7	1.7	1.7
Lost Time Adjust (s)	-1.0	-1.0			-1.0		-1.0	-1.0		-1.0	-1.0	-1.0
Total Lost Time (s)	5.3	5.3			5.3		4.4	4.4		4.4	4.4	4.4
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	C-Max

Intersection Summary

Area Type:	Other
Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 31 (39%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	

Splits and Phases: 4: SR 6309 & Casey Ave/Park and Ride Lot



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	160	1	9	1	0	0	9	814	1	0	438	51
Future Volume (veh/h)	160	1	9	1	0	0	9	814	1	0	438	51
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	1818	1875	1590	1872	1872	1872	1337	1814	1872	1837	1807	1766
Adj Flow Rate, veh/h	176	1	6	1	0	0	10	895	1	0	481	48
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, %	4	0	20	0	0	0	33	4	0	0	7	5
Cap, veh/h	319	36	219	314	0	0	499	1307	1	90	1304	1080
Arrive On Green	0.16	0.16	0.14	0.14	0.00	0.00	1.00	1.00	1.00	0.00	0.72	0.72
Sat Flow, veh/h	1454	232	1392	1424	0	0	660	1811	2	644	1807	1497
Grp Volume(v), veh/h	176	0	7	1	0	0	10	0	896	0	481	48
Grp Sat Flow(s),veh/h/ln	1454	0	1624	1424	0	0	660	0	1813	644	1807	1497
Q Serve(g_s), s	9.2	0.0	0.3	0.0	0.0	0.0	0.2	0.0	0.0	0.0	8.1	0.7
Cycle Q Clear(g_c), s	9.3	0.0	0.3	0.5	0.0	0.0	8.3	0.0	0.0	0.0	8.1	0.7
Prop In Lane	1.00		0.86	1.00		0.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	319	0	255	296	0	0	499	0	1308	90	1304	1080
V/C Ratio(X)	0.55	0.00	0.03	0.00	0.00	0.00	0.02	0.00	0.68	0.00	0.37	0.04
Avail Cap(c_a), veh/h	321	0	258	298	0	0	499	0	1308	90	1304	1080
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	0.81	0.00	0.81	0.00	1.00	1.00
Uniform Delay (d), s/veh	32.3	0.0	28.9	29.3	0.0	0.0	0.6	0.0	0.0	0.0	4.2	3.2
Incr Delay (d2), s/veh	1.2	0.0	0.0	0.0	0.0	0.0	0.1	0.0	2.4	0.0	0.8	0.1
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(95%),veh/ln	5.9	0.0	0.2	0.0	0.0	0.0	0.0	0.0	1.6	0.0	4.2	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.5	0.0	28.9	29.3	0.0	0.0	0.6	0.0	2.4	0.0	5.0	3.3
LnGrp LOS	C	A	C	C	A	A	A	A	A	A	A	A
Approach Vol, veh/h		183			1			906			529	
Approach Delay, s/veh		33.3			29.3			2.4			4.9	
Approach LOS		C			C			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		62.1		17.9		62.1		17.9				
Change Period (Y+Rc), s		5.4		6.3		5.4		6.3				
Max Green Setting (Gmax), s		56.6		11.7		56.6		11.7				
Max Q Clear Time (g_c+I1), s		0.0		11.8		0.0		2.5				
Green Ext Time (p_c), s		0.0		0.0		0.0		0.0				

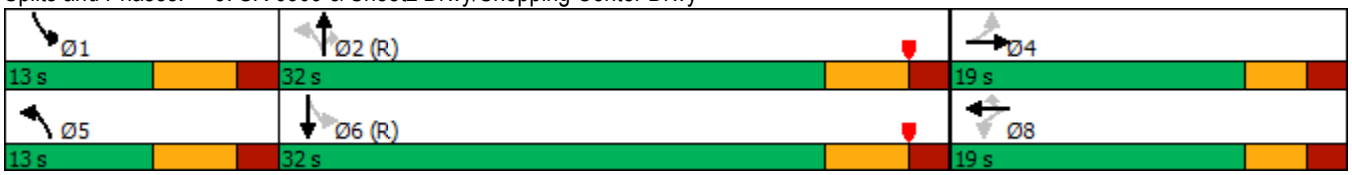
Intersection Summary												
HCM 6th Ctrl Delay			6.7									
HCM 6th LOS			A									

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	54	5	9	69	1	64	54	860	123	44	384	56
Future Volume (vph)	54	5	9	69	1	64	54	860	123	44	384	56
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	15	15	15	12	12	12	10	12	13	10	12	14
Grade (%)		0%			-5%			1%			-3%	
Storage Length (ft)	0		0	0		150	100		185	235		0
Storage Lanes	0		0	0		1	1		1	1		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor		1.00			1.00	0.99	1.00			1.00	1.00	
Frt		0.982				0.850			0.850		0.981	
Flt Protected		0.962			0.953		0.950			0.950		
Satd. Flow (prot)	0	1692	0	0	1758	1568	1457	3272	1558	1620	3121	0
Flt Permitted		0.718			0.751		0.477			0.256		
Satd. Flow (perm)	0	1263	0	0	1382	1547	731	3272	1558	436	3121	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10				153			136		31	
Link Speed (mph)		25			25			40			40	
Link Distance (ft)		263			298			338			775	
Travel Time (s)		7.2			8.1			5.8			13.2	
Confl. Peds. (#/hr)			1	2		1	1			1		2
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	13%	0%	0%	0%	0%	0%	9%	4%	1%	0%	7%	21%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	59	5	10	75	1	70	59	935	134	48	417	61
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	74	0	0	76	70	59	935	134	48	478	0
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		8	2		2	6		
Detector Phase	4	4		8	8	8	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	5.0	20.0	20.0	5.0	20.0	
Minimum Split (s)	15.0	15.0		15.0	15.0	15.0	11.0	26.0	26.0	11.0	26.0	
Total Split (s)	19.0	19.0		19.0	19.0	19.0	13.0	32.0	32.0	13.0	32.0	
Total Split (%)	29.7%	29.7%		29.7%	29.7%	29.7%	20.3%	50.0%	50.0%	20.3%	50.0%	
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)		-1.0			-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
Total Lost Time (s)		4.0			4.0	4.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	

Intersection Summary

Area Type:	Other
Cycle Length: 64	
Actuated Cycle Length: 64	
Offset: 52 (81%), Referenced to phase 2:NBTL and 6:SBTL, Start of Red	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	

Splits and Phases: 5: SR 6309 & Sheetz Drwy/Shopping Center Drwy



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	54	5	9	69	1	64	54	860	123	44	384	56
Future Volume (veh/h)	54	5	9	69	1	64	54	860	123	44	384	56
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	1682	1872	1872	1986	1986	1986	1668	1738	1852	1912	1812	1678
Adj Flow Rate, veh/h	59	5	1	75	1	0	59	935	0	48	417	52
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	13	0	0	0	0	0	9	4	1	0	7	21
Cap, veh/h	330	25	4	370	4		701	1855		474	1713	212
Arrive On Green	0.14	0.16	0.14	0.14	0.16	0.00	0.07	0.56	0.00	0.12	1.00	1.00
Sat Flow, veh/h	1402	160	24	1624	27	1683	1589	3303	1569	1821	3082	382
Grp Volume(v), veh/h	65	0	0	76	0	0	59	935	0	48	232	237
Grp Sat Flow(s),veh/h/ln	1586	0	0	1651	0	1683	1589	1651	1569	1821	1722	1743
Q Serve(g_s), s	0.0	0.0	0.0	0.3	0.0	0.0	0.9	11.1	0.0	0.6	0.0	0.0
Cycle Q Clear(g_c), s	2.1	0.0	0.0	2.3	0.0	0.0	0.9	11.1	0.0	0.6	0.0	0.0
Prop In Lane	0.91		0.02	0.99		1.00	1.00		1.00	1.00		0.22
Lane Grp Cap(c), veh/h	335	0	0	349	0		701	1855		474	957	968
V/C Ratio(X)	0.19	0.00	0.00	0.22	0.00		0.08	0.50		0.10	0.24	0.24
Avail Cap(c_a), veh/h	449	0	0	468	0		794	1855		591	957	968
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	0.94	0.94	0.94
Uniform Delay (d), s/veh	23.9	0.0	0.0	24.0	0.0	0.0	4.7	8.6	0.0	5.4	0.0	0.0
Incr Delay (d2), s/veh	0.3	0.0	0.0	0.3	0.0	0.0	0.1	1.0	0.0	0.1	0.6	0.6
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(95%),veh/ln	1.6	0.0	0.0	1.9	0.0	0.0	0.4	5.7	0.0	0.3	0.3	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.2	0.0	0.0	24.3	0.0	0.0	4.8	9.6	0.0	5.5	0.6	0.6
LnGrp LOS	C	A	A	C	A		A	A		A	A	A
Approach Vol, veh/h		65			76			994			517	
Approach Delay, s/veh		24.2			24.3			9.3			1.0	
Approach LOS		C			C			A			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.9	40.9		14.2	9.2	40.6		14.2				
Change Period (Y+Rc), s	6.0	6.0		5.0	6.0	6.0		5.0				
Max Green Setting (Gmax), s	7.0	26.0		14.0	7.0	26.0		14.0				
Max Q Clear Time (g_c+I1), s	3.1	0.0		4.1	3.4	0.0		4.3				
Green Ext Time (p_c), s	0.0	0.0		0.1	0.0	0.0		0.1				

Intersection Summary			
HCM 6th Ctrl Delay		8.0	
HCM 6th LOS		A	

Notes

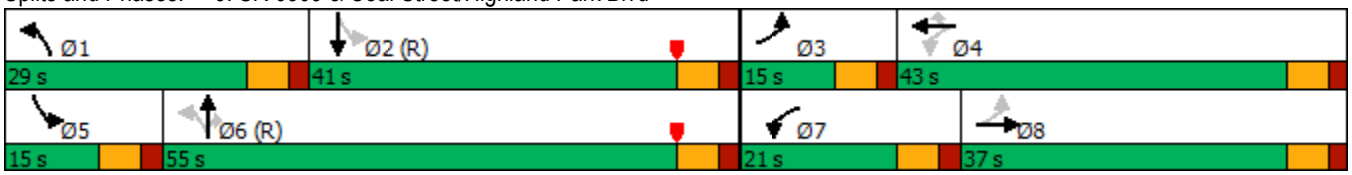
Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	67	231	147	132	171	44	403	291	285	25	186	35
Future Volume (vph)	67	231	147	132	171	44	403	291	285	25	186	35
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	13	12	12	12	10	12	13	10	12	13
Grade (%)		1%			0%			2%			0%	
Storage Length (ft)	235		0	650		200	300		0	125		0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor		0.99				0.99	1.00			1.00		
Frt		0.942				0.850			0.850		0.976	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1612	2828	0	1583	3138	1297	1534	3256	1491	1535	3082	0
Flt Permitted	0.624			0.226			0.509			0.544		
Satd. Flow (perm)	1059	2828	0	377	3138	1280	822	3256	1491	878	3082	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		106				179			339		17	
Link Speed (mph)		25			35			40			40	
Link Distance (ft)		1019			1253			775			948	
Travel Time (s)		27.8			24.4			13.2			16.2	
Confl. Peds. (#/hr)			1			1	1			1		
Confl. Bikes (#/hr)												
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	9%	9%	8%	9%	18%	3%	4%	5%	4%	8%	10%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	80	275	175	157	204	52	480	346	339	30	221	42
Shared Lane Traffic (%)												
Lane Group Flow (vph)	80	450	0	157	204	52	480	346	339	30	263	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8			4		4	6		6	2		
Detector Phase	3	8		7	4	4	1	6	6	5	2	
Switch Phase												
Minimum Initial (s)	3.0	3.0		3.0	3.0	3.0	3.0	20.0	20.0	3.0	20.0	
Minimum Split (s)	9.0	9.0		9.0	9.0	9.0	9.0	26.0	26.0	9.0	26.0	
Total Split (s)	15.0	37.0		21.0	43.0	43.0	29.0	55.0	55.0	15.0	41.0	
Total Split (%)	11.7%	28.9%		16.4%	33.6%	33.6%	22.7%	43.0%	43.0%	11.7%	32.0%	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	

Intersection Summary

Area Type:	Other
Cycle Length: 128	
Actuated Cycle Length: 128	
Offset: 83 (65%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	

Splits and Phases: 6: SR 6309 & Coal Street/Highland Park Blvd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	67	231	147	132	171	44	403	291	285	25	186	35
Future Volume (veh/h)	67	231	147	132	171	44	403	291	285	25	186	35
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	1766	1668	1735	1688	1674	1547	1736	1722	1776	1744	1688	1726
Adj Flow Rate, veh/h	80	275	104	157	204	0	480	346	0	30	221	36
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	2	9	9	8	9	18	3	4	5	4	8	10
Cap, veh/h	330	352	130	264	630		743	1815		504	1093	175
Arrive On Green	0.06	0.16	0.15	0.11	0.20	0.00	0.31	0.93	0.00	0.03	0.40	0.39
Sat Flow, veh/h	1682	2264	836	1607	3180	1311	1653	3271	1505	1661	2767	444
Grp Volume(v), veh/h	80	190	189	157	204	0	480	346	0	30	127	130
Grp Sat Flow(s),veh/h/ln	1682	1585	1516	1607	1590	1311	1653	1635	1505	1661	1603	1607
Q Serve(g_s), s	5.0	14.8	15.4	10.0	7.0	0.0	24.0	1.2	0.0	1.4	6.6	6.9
Cycle Q Clear(g_c), s	5.0	14.8	15.4	10.0	7.0	0.0	24.0	1.2	0.0	1.4	6.6	6.9
Prop In Lane	1.00		0.55	1.00		1.00	1.00		1.00	1.00		0.28
Lane Grp Cap(c), veh/h	330	247	236	264	630		743	1815		504	633	635
V/C Ratio(X)	0.24	0.77	0.80	0.60	0.32		0.65	0.19		0.06	0.20	0.21
Avail Cap(c_a), veh/h	355	396	379	295	944		743	1815		588	633	635
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.67	1.67	1.67	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	0.90	0.90	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.0	51.9	52.4	38.1	44.0	0.0	13.1	2.1	0.0	21.7	25.4	25.6
Incr Delay (d2), s/veh	0.4	5.1	6.2	2.6	0.3	0.0	1.7	0.2	0.0	0.0	0.7	0.7
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(95%),veh/ln	3.9	10.4	10.4	7.4	5.0	0.0	10.2	0.7	0.0	1.0	4.7	4.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.4	57.0	58.6	40.7	44.3	0.0	14.9	2.3	0.0	21.8	26.1	26.3
LnGrp LOS	D	E	E	D	D		B	A		C	C	C
Approach Vol, veh/h		459			361			826			287	
Approach Delay, s/veh		54.9			42.7			9.6			25.8	
Approach LOS		D			D			A			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	29.0	55.6	13.1	30.3	8.5	76.0	18.5	24.9
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	23.0	35.0	9.0	37.0	9.0	49.0	15.0	31.0
Max Q Clear Time (g_c+I1), s	26.5	0.0	7.5	9.5	3.9	0.0	12.5	17.4
Green Ext Time (p_c), s	0.0	0.0	0.0	0.7	0.0	0.0	0.1	1.5

Intersection Summary	
HCM 6th Ctrl Delay	29.0
HCM 6th LOS	C

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	12	0	0	2	25	9	0	26	0
Future Volume (vph)	0	0	0	12	0	0	2	25	9	0	26	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	16	16	16	15	15	15	13	13	13	13	13	13
Grade (%)		0%			-1%			1%			-2%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt								0.966				
Flt Protected					0.950			0.997				
Satd. Flow (prot)	0	2040	0	0	1196	0	0	1512	0	0	1789	0
Flt Permitted					0.950			0.997				
Satd. Flow (perm)	0	2040	0	0	1196	0	0	1512	0	0	1789	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		198			1616			799			711	
Travel Time (s)		5.4			44.1			21.8			19.4	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	0%	58%	0%	0%	0%	10%	44%	0%	5%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	0	0	0	17	0	0	3	36	13	0	37	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	17	0	0	52	0	0	37	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	0	0	0	12	0	0	2	25	9	0	26	0
Future Vol, veh/h	0	0	0	12	0	0	2	25	9	0	26	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	-1	-	-	1	-	-	-2	-
Peak Hour Factor	70	70	70	70	70	70	70	70	70	70	70	70
Heavy Vehicles, %	0	0	0	58	0	0	0	10	44	0	5	0
Mvmt Flow	0	0	0	17	0	0	3	36	13	0	37	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	86	92	37	86	86	43	37	0	0	49	0	0
Stage 1	37	37	-	49	49	-	-	-	-	-	-	-
Stage 2	49	55	-	37	37	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.48	6.3	6.1	4.3	-	-	4.3	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.48	5.3	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.48	5.3	-	-	-	-	-	-	-
Follow-up Hdwy	3	4	3.1	3.5	4	3.1	3	-	-	3	-	-
Pot Cap-1 Maneuver	1050	802	1107	897	812	1100	1166	-	-	1155	-	-
Stage 1	1145	868	-	964	860	-	-	-	-	-	-	-
Stage 2	1127	853	-	980	870	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	1048	800	1107	895	810	1100	1166	-	-	1155	-	-
Mov Cap-2 Maneuver	1048	800	-	895	810	-	-	-	-	-	-	-
Stage 1	1142	868	-	961	857	-	-	-	-	-	-	-
Stage 2	1124	850	-	980	870	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	9.1	0.4	0
HCM LOS	A	A		

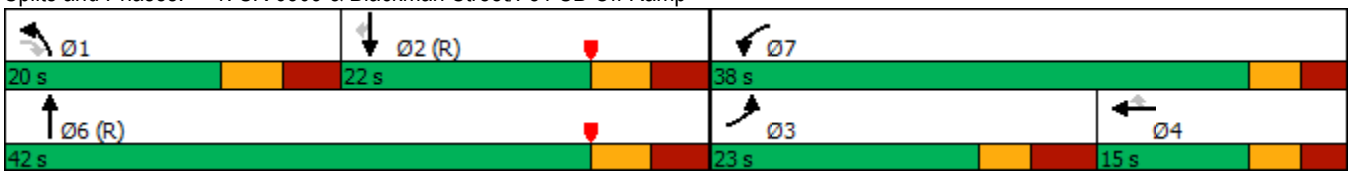
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1166	-	-	-	895	1155	-	-
HCM Lane V/C Ratio	0.002	-	-	-	0.019	-	-	-
HCM Control Delay (s)	8.1	0	-	0	9.1	0	-	-
HCM Lane LOS	A	A	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	0.1	0	-	-

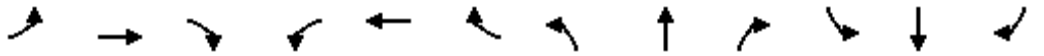
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	257	0	164	215	96	69	312	455	0	0	445	111
Future Volume (vph)	257	0	164	215	96	69	312	455	0	0	445	111
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	14	13	11	14	12	12	12	13	12	14
Grade (%)		-1%			-4%			-3%			-3%	
Storage Length (ft)	380		0	180		180	275		0	0		225
Storage Lanes	1		1	1		1	2		0	0		1
Taper Length (ft)	75			100			140			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.97	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor												
Frt			0.850			0.850						0.850
Flt Protected	0.950			0.950			0.950					
Satd. Flow (prot)	1557	0	1533	1554	1599	1460	3269	3403	0	0	3244	1608
Flt Permitted	0.950			0.950			0.950					
Satd. Flow (perm)	1557	0	1533	1554	1599	1460	3269	3403	0	0	3244	1608
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			232			248						232
Link Speed (mph)		35			25			35			35	
Link Distance (ft)		1012			1172			871			378	
Travel Time (s)		19.7			32.0			17.0			7.4	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	0%	7%	16%	11%	14%	3%	2%	0%	0%	7%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	271	0	173	226	101	73	328	479	0	0	468	117
Shared Lane Traffic (%)												
Lane Group Flow (vph)	271	0	173	226	101	73	328	479	0	0	468	117
Turn Type	Prot		Perm	Prot	NA	Perm	Prot	NA			NA	Perm
Protected Phases	3			7	4		1	6			2	
Permitted Phases			1			4						2
Detector Phase	3		1	7	4	4	1	6			2	2
Switch Phase												
Minimum Initial (s)	3.0		3.0	3.0	3.0	3.0	3.0	10.0			10.0	10.0
Minimum Split (s)	10.0		10.1	8.9	8.9	8.9	10.1	17.1			17.1	17.1
Total Split (s)	23.0		20.0	38.0	15.0	15.0	20.0	42.0			22.0	22.0
Total Split (%)	28.8%		25.0%	47.5%	18.8%	18.8%	25.0%	52.5%			27.5%	27.5%
Yellow Time (s)	3.1		3.6	3.1	3.1	3.1	3.6	3.6			3.6	3.6
All-Red Time (s)	3.9		3.5	2.8	2.8	2.8	3.5	3.5			3.5	3.5
Lost Time Adjust (s)	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0			-1.0	-1.0
Total Lost Time (s)	6.0		6.1	4.9	4.9	4.9	6.1	6.1			6.1	6.1
Lead/Lag	Lead		Lead		Lag	Lag	Lead				Lag	Lag
Lead-Lag Optimize?	Yes		Yes		Yes	Yes	Yes				Yes	Yes
Recall Mode	None		None	None	None	None	None	C-Max			C-Max	C-Max

Intersection Summary

Area Type:	Other
Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 69 (86%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	

Splits and Phases: 1: SR 6309 & Blackman Street/I-81 SB Off Ramp





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	257	0	164	215	96	69	312	455	0	0	445	111
Future Volume (veh/h)	257	0	164	215	96	69	312	455	0	0	445	111
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	1795	0	1807	1790	1793	1820	1869	1883	0	0	1812	1944
Adj Flow Rate, veh/h	271	0	0	226	101	0	328	479	0	0	468	0
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, %	3	0	7	16	11	14	3	2	0	0	7	3
Cap, veh/h	335	0		632	178		478	1761	0	0	955	
Arrive On Green	0.20	0.00	0.00	0.37	0.10	0.00	0.14	0.49	0.00	0.00	0.28	0.00
Sat Flow, veh/h	1709	271		1705	1793	1542	3453	3673	0	0	3534	1647
Grp Volume(v), veh/h	271	41.5		226	101	0	328	479	0	0	468	0
Grp Sat Flow(s),veh/h/ln	1709	D		1705	1793	1542	1727	1789	0	0	1722	1647
Q Serve(g_s), s	12.1			7.7	4.3	0.0	7.2	6.3	0.0	0.0	9.1	0.0
Cycle Q Clear(g_c), s	12.1			7.7	4.3	0.0	7.2	6.3	0.0	0.0	9.1	0.0
Prop In Lane	1.00			1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h	335			632	178		478	1761	0	0	955	
V/C Ratio(X)	0.81			0.36	0.57		0.69	0.27	0.00	0.00	0.49	
Avail Cap(c_a), veh/h	363			705	226		600	1761	0	0	955	
HCM Platoon Ratio	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	0.00	1.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	30.7			18.3	34.4	0.0	32.8	11.9	0.0	0.0	24.2	0.0
Incr Delay (d2), s/veh	10.7			0.1	1.1	0.0	1.4	0.4	0.0	0.0	1.8	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
%ile BackOfQ(95%),veh/ln	9.7			5.4	3.4	0.0	5.4	4.2	0.0	0.0	6.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.5			18.4	35.4	0.0	34.2	12.3	0.0	0.0	26.0	0.0
LnGrp LOS	D			B	D		C	B	A	A	C	
Approach Vol, veh/h					327			807			468	
Approach Delay, s/veh					23.7			21.2			26.0	
Approach LOS					C			C			C	

Timer - Assigned Phs	1	2	3	4	6	7
Phs Duration (G+Y+Rc), s	17.2	28.3	21.7	12.8	45.5	34.5
Change Period (Y+Rc), s	7.1	7.1	7.0	* 5.9	7.1	* 5.9
Max Green Setting (Gmax), s	12.9	14.9	16.0	* 9.1	34.9	* 32
Max Q Clear Time (g_c+I1), s	9.7	11.6	14.6	6.8	8.8	10.2
Green Ext Time (p_c), s	0.3	2.3	0.1	0.1	16.1	2.5

Intersection Summary	
HCM 6th Ctrl Delay	25.7
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

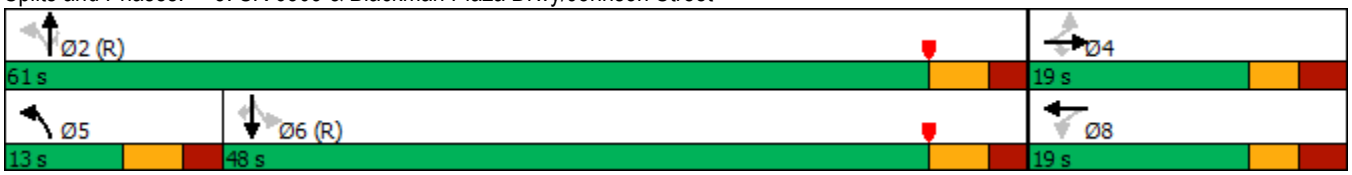
Unsignalized Delay for [EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	117	8	130	18	8	17	180	543	27	7	372	90
Future Volume (vph)	117	8	130	18	8	17	180	543	27	7	372	90
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	16	16	16	12	12	12	10	12	10	10	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	150		100	110		150
Storage Lanes	0		1	0		0	1		1	1		1
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt			0.850		0.947				0.850			0.850
Flt Protected		0.955			0.980		0.950			0.950		
Satd. Flow (prot)	0	1948	1621	0	1526	0	1492	1748	1286	1596	1731	1530
Flt Permitted		0.705			0.827		0.414			0.437		
Satd. Flow (perm)	0	1438	1621	0	1288	0	650	1748	1286	734	1731	1530
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			144		19				41			123
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		268			799			710			875	
Travel Time (s)		7.3			21.8			13.8			17.0	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	7%	17%	0%	6%	7%	3%	11%	0%	4%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	130	9	144	20	9	19	200	603	30	8	413	100
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	139	144	0	48	0	200	603	30	8	413	100
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases		4			8		5	2			6	
Permitted Phases	4		4	8			2		2	6		6
Detector Phase	4	4	4	8	8		5	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Minimum Split (s)	9.0	9.0	9.0	9.0	9.0		9.0	9.0	9.0	9.0	9.0	9.0
Total Split (s)	19.0	19.0	19.0	19.0	19.0		13.0	61.0	61.0	48.0	48.0	48.0
Total Split (%)	23.8%	23.8%	23.8%	23.8%	23.8%		16.3%	76.3%	76.3%	60.0%	60.0%	60.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.6	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		2.4	2.4	2.4	2.4	2.4	2.4
Lost Time Adjust (s)		-1.0	-1.0		-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)		5.0	5.0		5.0		5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag							Lead			Lag	Lag	Lag
Lead-Lag Optimize?							Yes			Yes	Yes	Yes
Recall Mode	None	None	None	None	None		None	C-Max	C-Max	C-Max	C-Max	C-Max

Intersection Summary

Area Type:	Other
Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow	
Natural Cycle: 40	
Control Type: Actuated-Coordinated	

Splits and Phases: 3: SR 6309 & Blackman Plaza Drwy/Johnson Street



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	117	8	130	18	8	17	180	543	27	7	372	90
Future Volume (veh/h)	117	8	130	18	8	17	180	543	27	7	372	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	1872	1872	1770	1561	1800	1716	1702	1758	1646	1800	1744	1800
Adj Flow Rate, veh/h	130	9	0	20	9	19	200	603	30	8	413	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	7	17	0	6	7	3	11	0	4	0
Cap, veh/h	266	12		125	64	82	677	1322	1049	579	1058	
Arrive On Green	0.11	0.12	0.00	0.11	0.12	0.11	0.08	0.75	0.75	0.61	0.61	0.00
Sat Flow, veh/h	1453	101	1500	502	518	668	1621	1758	1395	807	1744	1525
Grp Volume(v), veh/h	139	0	0	48	0	0	200	603	30	8	413	0
Grp Sat Flow(s),veh/h/ln	1554	0	1500	1687	0	0	1621	1758	1395	807	1744	1525
Q Serve(g_s), s	4.8	0.0	0.0	0.0	0.0	0.0	3.1	10.4	0.4	0.3	9.8	0.0
Cycle Q Clear(g_c), s	6.9	0.0	0.0	2.1	0.0	0.0	3.1	10.4	0.4	0.3	9.8	0.0
Prop In Lane	0.94		1.00	0.42		0.40	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	259	0		250	0	0	677	1322	1049	579	1058	
V/C Ratio(X)	0.54	0.00		0.19	0.00	0.00	0.30	0.46	0.03	0.01	0.39	
Avail Cap(c_a), veh/h	336	0		330	0	0	705	1322	1049	579	1058	
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	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.91	0.91	0.00
Uniform Delay (d), s/veh	34.1	0.0	0.0	32.1	0.0	0.0	4.8	3.7	2.5	6.2	8.1	0.0
Incr Delay (d2), s/veh	0.6	0.0	0.0	0.1	0.0	0.0	0.1	1.1	0.1	0.0	1.0	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(95%),veh/ln	4.8	0.0	0.0	1.6	0.0	0.0	1.3	4.7	0.2	0.1	6.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.8	0.0	0.0	32.2	0.0	0.0	4.8	4.9	2.6	6.3	9.1	0.0
LnGrp LOS	C	A		C	A	A	A	A	A	A	A	
Approach Vol, veh/h		139			48			833			421	
Approach Delay, s/veh		34.8			32.2			4.8			9.0	
Approach LOS		C			C			A			A	
Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		65.2		14.8	11.6	53.5		14.8				
Change Period (Y+Rc), s		6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s		55.0		13.0	7.0	42.0		13.0				
Max Q Clear Time (g_c+I1), s		0.0		8.9	5.6	0.0		4.1				
Green Ext Time (p_c), s		0.0		0.1	0.1	0.0		0.0				

Intersection Summary	
HCM 6th Ctrl Delay	9.8
HCM 6th LOS	A

Notes

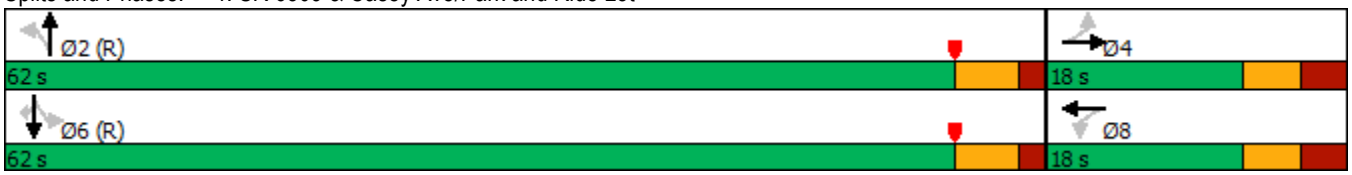
Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	183	0	6	0	0	0	6	684	0	0	498	58
Future Volume (vph)	183	0	6	0	0	0	6	684	0	0	498	58
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	13	13	13	10	13	13	10	13	10
Grade (%)		-2%			0%			0%			-1%	
Storage Length (ft)	250		0	0		0	125		0	125		125
Storage Lanes	1		0	0		0	1		0	1		1
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.850										0.850
Flt Protected	0.950						0.950					
Satd. Flow (prot)	1580	1442	0	0	1860	0	1364	1806	0	1688	1780	1407
Flt Permitted	0.757						0.420					
Satd. Flow (perm)	1259	1442	0	0	1860	0	603	1806	0	1688	1780	1407
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		413										63
Link Speed (mph)		30			25			35			35	
Link Distance (ft)		870			135			875			1750	
Travel Time (s)		19.8			3.7			17.0			34.1	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	0%	0%	0%	0%	0%	17%	3%	0%	0%	5%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	199	0	7	0	0	0	7	743	0	0	541	63
Shared Lane Traffic (%)												
Lane Group Flow (vph)	199	7	0	0	0	0	7	743	0	0	541	63
Turn Type	Perm	NA					Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Minimum Split (s)	8.3	8.3		8.3	8.3		7.4	7.4		7.4	7.4	7.4
Total Split (s)	18.0	18.0		18.0	18.0		62.0	62.0		62.0	62.0	62.0
Total Split (%)	22.5%	22.5%		22.5%	22.5%		77.5%	77.5%		77.5%	77.5%	77.5%
Yellow Time (s)	3.4	3.4		3.4	3.4		3.7	3.7		3.7	3.7	3.7
All-Red Time (s)	2.9	2.9		2.9	2.9		1.7	1.7		1.7	1.7	1.7
Lost Time Adjust (s)	-1.0	-1.0			-1.0		-1.0	-1.0		-1.0	-1.0	-1.0
Total Lost Time (s)	5.3	5.3			5.3		4.4	4.4		4.4	4.4	4.4
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	C-Max

Intersection Summary

Area Type:	Other
Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 31 (39%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	

Splits and Phases: 4: SR 6309 & Casey Ave/Park and Ride Lot



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	183	0	6	0	0	0	6	684	0	0	498	58
Future Volume (veh/h)	183	0	6	0	0	0	6	684	0	0	498	58
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	1846	1875	1875	1872	1872	1872	1561	1828	1872	1837	1837	1809
Adj Flow Rate, veh/h	199	0	3	0	0	0	7	743	0	0	541	47
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	0	0	0	0	0	17	3	0	0	5	2
Cap, veh/h	355	0	240	0	282	0	538	1331	0	90	1337	1116
Arrive On Green	0.15	0.00	0.14	0.00	0.00	0.00	1.00	1.00	0.00	0.00	0.73	0.73
Sat Flow, veh/h	1758	0	1589	0	1872	0	730	1828	0	743	1837	1533
Grp Volume(v), veh/h	199	0	3	0	0	0	7	743	0	0	541	47
Grp Sat Flow(s),veh/h/ln	1758	0	1589	0	1872	0	730	1828	0	743	1837	1533
Q Serve(g_s), s	8.7	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	9.1	0.7
Cycle Q Clear(g_c), s	8.7	0.0	0.1	0.0	0.0	0.0	9.2	0.0	0.0	0.0	9.1	0.7
Prop In Lane	1.00		1.00	0.00		0.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	355	0	240	0	282	0	538	1331	0	90	1337	1116
V/C Ratio(X)	0.56	0.00	0.01	0.00	0.00	0.00	0.01	0.56	0.00	0.00	0.40	0.04
Avail Cap(c_a), veh/h	369	0	252	0	297	0	538	1331	0	90	1337	1116
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	0.00	0.88	0.88	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	32.5	0.0	29.3	0.0	0.0	0.0	0.7	0.0	0.0	0.0	4.2	3.1
Incr Delay (d2), s/veh	1.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.0	0.0	0.9	0.1
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(95%),veh/ln	6.6	0.0	0.1	0.0	0.0	0.0	0.0	1.0	0.0	0.0	4.7	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.5	0.0	29.3	0.0	0.0	0.0	0.8	1.5	0.0	0.0	5.1	3.1
LnGrp LOS	C	A	C	A	A	A	A	A	A	A	A	A
Approach Vol, veh/h		202			0			750			588	
Approach Delay, s/veh		33.4			0.0			1.5			5.0	
Approach LOS		C						A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		62.6		17.4		62.6		17.4				
Change Period (Y+Rc), s		5.4		6.3		5.4		6.3				
Max Green Setting (Gmax), s		56.6		11.7		56.6		11.7				
Max Q Clear Time (g_c+I1), s		0.0		11.2		0.0		0.0				
Green Ext Time (p_c), s		0.0		0.0		0.0		0.0				

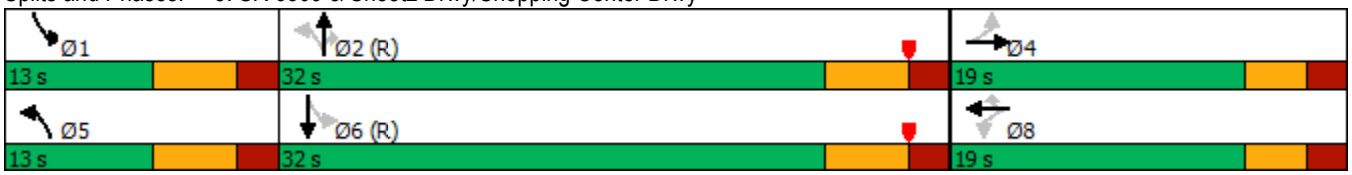
Intersection Summary												
HCM 6th Ctrl Delay			7.0									
HCM 6th LOS			A									

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	66	2	8	66	2	73	60	755	112	59	446	57
Future Volume (vph)	66	2	8	66	2	73	60	755	112	59	446	57
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	15	15	15	12	12	12	10	12	13	10	12	14
Grade (%)		0%			-5%			1%			-3%	
Storage Length (ft)	0		0	0		150	100		185	235		0
Storage Lanes	0		0	0		1	1		1	1		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor												
Frt		0.985				0.850			0.850		0.983	
Flt Protected		0.958			0.954		0.950			0.950		
Satd. Flow (prot)	0	1747	0	0	1760	1568	1512	3241	1573	1620	3263	0
Flt Permitted		0.702			0.738		0.440			0.303		
Satd. Flow (perm)	0	1280	0	0	1362	1568	700	3241	1573	517	3263	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		9				153			136		27	
Link Speed (mph)		25			25			40			40	
Link Distance (ft)		263			298			338			775	
Travel Time (s)		7.2			8.1			5.8			13.2	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	8%	0%	0%	0%	0%	0%	5%	5%	0%	0%	4%	9%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	72	2	9	72	2	79	65	821	122	64	485	62
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	83	0	0	74	79	65	821	122	64	547	0
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		8	2		2	6		
Detector Phase	4	4		8	8	8	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	5.0	20.0	20.0	5.0	20.0	
Minimum Split (s)	15.0	15.0		15.0	15.0	15.0	11.0	26.0	26.0	11.0	26.0	
Total Split (s)	19.0	19.0		19.0	19.0	19.0	13.0	32.0	32.0	13.0	32.0	
Total Split (%)	29.7%	29.7%		29.7%	29.7%	29.7%	20.3%	50.0%	50.0%	20.3%	50.0%	
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)		-1.0			-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
Total Lost Time (s)		4.0			4.0	4.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	

Intersection Summary

Area Type:	Other
Cycle Length: 64	
Actuated Cycle Length: 64	
Offset: 52 (81%), Referenced to phase 2:NBTL and 6:SBTL, Start of Red	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	

Splits and Phases: 5: SR 6309 & Sheetz Drwy/Shopping Center Drwy



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	66	2	8	66	2	73	60	755	112	59	446	57
Future Volume (veh/h)	66	2	8	66	2	73	60	755	112	59	446	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	1755	1872	1872	1986	1986	1986	1724	1724	1866	1912	1855	1855
Adj Flow Rate, veh/h	72	2	6	72	2	0	65	821	0	64	485	51
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	8	0	0	0	0	0	5	5	0	0	4	9
Cap, veh/h	330	13	19	372	9		691	1804		526	1772	186
Arrive On Green	0.15	0.16	0.15	0.15	0.16	0.00	0.07	0.55	0.00	0.14	1.00	1.00
Sat Flow, veh/h	1380	79	118	1616	57	1683	1642	3276	1582	1821	3219	337
Grp Volume(v), veh/h	80	0	0	74	0	0	65	821	0	64	265	271
Grp Sat Flow(s),veh/h/ln	1577	0	0	1673	0	1683	1642	1638	1582	1821	1762	1794
Q Serve(g_s), s	0.4	0.0	0.0	0.0	0.0	0.0	1.0	9.6	0.0	0.9	0.0	0.0
Cycle Q Clear(g_c), s	2.6	0.0	0.0	2.2	0.0	0.0	1.0	9.6	0.0	0.9	0.0	0.0
Prop In Lane	0.90		0.07	0.97		1.00	1.00		1.00	1.00		0.19
Lane Grp Cap(c), veh/h	337	0	0	355	0		691	1804		526	970	987
V/C Ratio(X)	0.24	0.00	0.00	0.21	0.00		0.09	0.46		0.12	0.27	0.27
Avail Cap(c_a), veh/h	447	0	0	471	0		783	1804		628	970	987
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	0.95	0.95	0.95
Uniform Delay (d), s/veh	24.0	0.0	0.0	23.8	0.0	0.0	4.8	8.6	0.0	5.2	0.0	0.0
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.3	0.0	0.0	0.1	0.8	0.0	0.1	0.7	0.7
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(95%),veh/ln	2.0	0.0	0.0	1.8	0.0	0.0	0.4	5.0	0.0	0.4	0.3	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.3	0.0	0.0	24.1	0.0	0.0	4.9	9.4	0.0	5.3	0.7	0.7
LnGrp LOS	C	A	A	C	A		A	A		A	A	A
Approach Vol, veh/h		80			74			886			600	
Approach Delay, s/veh		24.3			24.1			9.1			1.2	
Approach LOS		C			C			A			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.4	40.2		14.4	9.4	40.2		14.4				
Change Period (Y+Rc), s	6.0	6.0		5.0	6.0	6.0		5.0				
Max Green Setting (Gmax), s	7.0	26.0		14.0	7.0	26.0		14.0				
Max Q Clear Time (g_c+I1), s	3.4	0.0		4.6	3.5	0.0		4.2				
Green Ext Time (p_c), s	0.0	0.0		0.1	0.0	0.0		0.1				

Intersection Summary		
HCM 6th Ctrl Delay		7.6
HCM 6th LOS		A

Notes

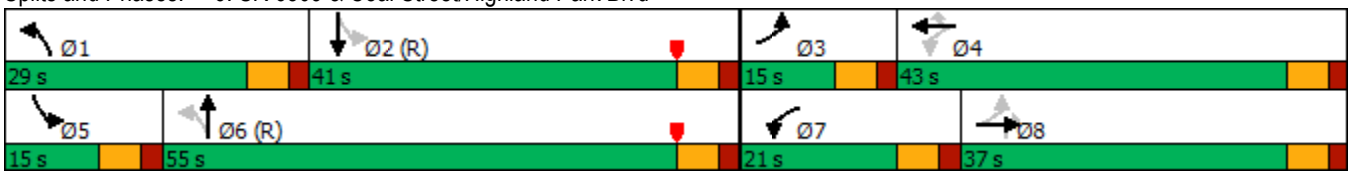
Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	79	291	130	123	171	48	252	304	349	56	286	50
Future Volume (vph)	79	291	130	123	171	48	252	304	349	56	286	50
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	13	12	12	12	10	12	13	10	12	13
Grade (%)		1%			0%			2%			0%	
Storage Length (ft)	235		0	650		200	300		0	125		0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor	1.00			1.00					0.98		1.00	
Frt		0.954				0.850			0.850		0.978	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1597	3038	0	1660	3386	1530	1519	3287	1477	1565	3160	0
Flt Permitted	0.636			0.241			0.446			0.554		
Satd. Flow (perm)	1066	3038	0	421	3386	1530	713	3287	1454	912	3160	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		54				179			375		15	
Link Speed (mph)		25			35			40			40	
Link Distance (ft)		1019			1253			775			948	
Travel Time (s)		27.8			24.4			13.2			16.2	
Confl. Peds. (#/hr)	4			3					3			4
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	3%	4%	3%	1%	0%	4%	3%	6%	2%	5%	9%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	85	313	140	132	184	52	271	327	375	60	308	54
Shared Lane Traffic (%)												
Lane Group Flow (vph)	85	453	0	132	184	52	271	327	375	60	362	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	custom	pm+pt	NA	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8			4		4	6		8	2		
Detector Phase	3	8		7	4	4	1	6	8	5	2	
Switch Phase												
Minimum Initial (s)	3.0	3.0		3.0	3.0	3.0	3.0	20.0	3.0	3.0	20.0	
Minimum Split (s)	9.0	9.0		9.0	9.0	9.0	9.0	26.0	9.0	9.0	26.0	
Total Split (s)	15.0	37.0		21.0	43.0	43.0	29.0	55.0	37.0	15.0	41.0	
Total Split (%)	11.7%	28.9%		16.4%	33.6%	33.6%	22.7%	43.0%	28.9%	11.7%	32.0%	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None		None	None	None	None	C-Max	None	None	C-Max	

Intersection Summary

Area Type:	Other
Cycle Length: 128	
Actuated Cycle Length: 128	
Offset: 83 (65%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	

Splits and Phases: 6: SR 6309 & Coal Street/Highland Park Blvd



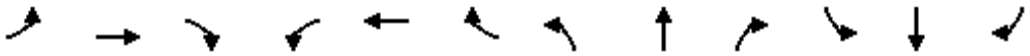
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	79	291	130	123	171	48	252	304	349	56	286	50
Future Volume (veh/h)	79	291	130	123	171	48	252	304	349	56	286	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		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	1752	1752	1808	1758	1786	1800	1722	1736	1761	1772	1730	1741
Adj Flow Rate, veh/h	85	313	97	132	184	0	271	327	0	60	308	50
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, %	3	3	4	3	1	0	4	3	6	2	5	9
Cap, veh/h	329	399	121	248	624		657	1823		630	1362	219
Arrive On Green	0.07	0.16	0.15	0.09	0.18	0.00	0.19	0.92	0.00	0.04	0.48	0.47
Sat Flow, veh/h	1669	2509	763	1674	3393	1525	1640	3298	1493	1688	2835	455
Grp Volume(v), veh/h	85	206	204	132	184	0	271	327	0	60	177	181
Grp Sat Flow(s),veh/h/ln	1669	1665	1608	1674	1697	1525	1640	1649	1493	1688	1643	1647
Q Serve(g_s), s	5.3	15.2	15.7	8.2	6.0	0.0	10.3	1.2	0.0	2.3	8.0	8.2
Cycle Q Clear(g_c), s	5.3	15.2	15.7	8.2	6.0	0.0	10.3	1.2	0.0	2.3	8.0	8.2
Prop In Lane	1.00		0.47	1.00		1.00	1.00		1.00	1.00		0.28
Lane Grp Cap(c), veh/h	329	264	255	248	624		657	1823		630	789	791
V/C Ratio(X)	0.26	0.78	0.80	0.53	0.29		0.41	0.18		0.10	0.22	0.23
Avail Cap(c_a), veh/h	349	416	402	304	1007		778	1823		693	789	791
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.67	1.67	1.67	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	0.93	0.93	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.5	51.7	52.1	39.6	45.1	0.0	11.1	2.2	0.0	15.2	19.4	19.5
Incr Delay (d2), s/veh	0.4	4.9	6.0	1.8	0.3	0.0	0.4	0.2	0.0	0.1	0.7	0.7
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(95%),veh/ln	4.1	11.0	11.1	6.2	4.6	0.0	5.6	0.7	0.0	1.6	5.7	5.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.9	56.6	58.2	41.4	45.3	0.0	11.5	2.4	0.0	15.3	20.0	20.2
LnGrp LOS	D	E	E	D	D		B	A		B	C	C
Approach Vol, veh/h		495			316			598			418	
Approach Delay, s/veh		54.5			43.7			6.6			19.4	
Approach LOS		D			D			A			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.5	66.5	13.5	28.6	10.2	75.8	16.7	25.3
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	23.0	35.0	9.0	37.0	9.0	49.0	15.0	31.0
Max Q Clear Time (g_c+I1), s	12.8	0.0	7.8	8.5	4.8	0.0	10.7	17.7
Green Ext Time (p_c), s	0.6	0.0	0.0	0.7	0.0	0.0	0.1	1.6

Intersection Summary	
HCM 6th Ctrl Delay	28.9
HCM 6th LOS	C

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	7	0	1	0	34	6	0	34	0
Future Volume (vph)	0	0	0	7	0	1	0	34	6	0	34	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	16	16	16	15	15	15	13	13	13	13	13	13
Grade (%)		0%			-1%			1%			-2%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt					0.986			0.980				
Flt Protected					0.957							
Satd. Flow (prot)	0	2040	0	0	1241	0	0	1686	0	0	1879	0
Flt Permitted					0.957							
Satd. Flow (perm)	0	2040	0	0	1241	0	0	1686	0	0	1879	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		198			1616			799			711	
Travel Time (s)		5.4			44.1			21.8			19.4	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	0%	57%	0%	0%	0%	0%	50%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	0	0	0	9	0	1	0	45	8	0	45	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	10	0	0	53	0	0	45	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	0	0	0	7	0	1	0	34	6	0	34	0
Future Vol, veh/h	0	0	0	7	0	1	0	34	6	0	34	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	-1	-	-	1	-	-	-2	-
Peak Hour Factor	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	0	0	0	57	0	0	0	0	50	0	0	0
Mvmt Flow	0	0	0	9	0	1	0	45	8	0	45	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	95	98	45	94	94	49	45	0	0	53	0	0
Stage 1	45	45	-	49	49	-	-	-	-	-	-	-
Stage 2	50	53	-	45	45	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.47	6.3	6.1	4.3	-	-	4.3	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.47	5.3	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.47	5.3	-	-	-	-	-	-	-
Follow-up Hdwy	3	4	3.1	3.5	4	3.1	3	-	-	3	-	-
Pot Cap-1 Maneuver	1035	796	1096	886	804	1091	1159	-	-	1151	-	-
Stage 1	1133	861	-	964	860	-	-	-	-	-	-	-
Stage 2	1126	855	-	970	864	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	1034	796	1096	886	804	1091	1159	-	-	1151	-	-
Mov Cap-2 Maneuver	1034	796	-	886	804	-	-	-	-	-	-	-
Stage 1	1133	861	-	964	860	-	-	-	-	-	-	-
Stage 2	1125	855	-	970	864	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	9	0	0
HCM LOS	A	A		

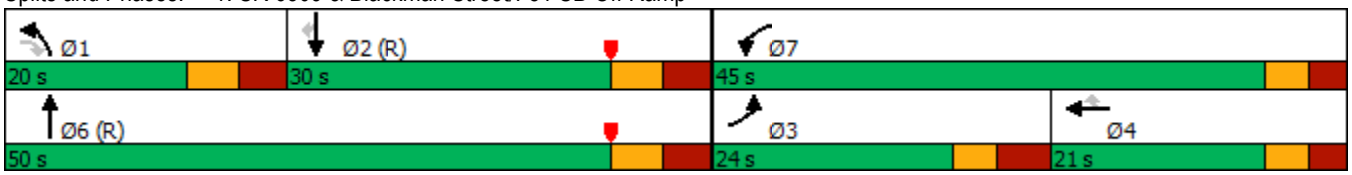
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1159	-	-	-	907	1151	-	-
HCM Lane V/C Ratio	-	-	-	-	0.012	-	-	-
HCM Control Delay (s)	0	-	-	0	9	0	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	0	0	-	-

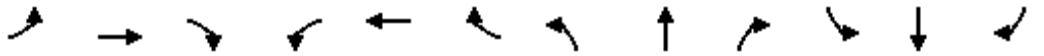
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	213	0	327	540	212	105	234	574	0	0	945	166
Future Volume (vph)	213	0	327	540	212	105	234	574	0	0	945	166
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	14	13	11	14	12	12	12	13	12	14
Grade (%)		-1%			-4%			-3%			-3%	
Storage Length (ft)	380		0	180		180	275		0	0		225
Storage Lanes	1		1	1		1	2		0	0		1
Taper Length (ft)	75			100			140			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.97	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor												
Frt			0.850			0.850						0.850
Flt Protected	0.950			0.950			0.950					
Satd. Flow (prot)	1573	0	1577	1750	1707	1527	3177	3403	0	0	3437	1608
Flt Permitted	0.950			0.950			0.950					
Satd. Flow (perm)	1573	0	1577	1750	1707	1527	3177	3403	0	0	3437	1608
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			195			209						195
Link Speed (mph)		35			25			35			35	
Link Distance (ft)		1012			1172			871			378	
Travel Time (s)		19.7			32.0			17.0			7.4	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	0%	4%	3%	4%	9%	6%	2%	0%	0%	1%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	234	0	359	593	233	115	257	631	0	0	1038	182
Shared Lane Traffic (%)												
Lane Group Flow (vph)	234	0	359	593	233	115	257	631	0	0	1038	182
Turn Type	Prot		Perm	Prot	NA	Perm	Prot	NA			NA	Perm
Protected Phases	3			7	4		1	6			2	
Permitted Phases			1			4						2
Detector Phase	3		1	7	4	4	1	6			2	2
Switch Phase												
Minimum Initial (s)	3.0		3.0	3.0	3.0	3.0	3.0	10.0			10.0	10.0
Minimum Split (s)	10.0		10.1	8.9	8.9	8.9	10.1	17.1			17.1	17.1
Total Split (s)	24.0		20.0	45.0	21.0	21.0	20.0	50.0			30.0	30.0
Total Split (%)	25.3%		21.1%	47.4%	22.1%	22.1%	21.1%	52.6%			31.6%	31.6%
Yellow Time (s)	3.1		3.6	3.1	3.1	3.1	3.6	3.6			3.6	3.6
All-Red Time (s)	3.9		3.5	2.8	2.8	2.8	3.5	3.5			3.5	3.5
Lost Time Adjust (s)	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0			-1.0	-1.0
Total Lost Time (s)	6.0		6.1	4.9	4.9	4.9	6.1	6.1			6.1	6.1
Lead/Lag	Lead		Lead		Lag	Lag	Lead				Lag	Lag
Lead-Lag Optimize?	Yes		Yes		Yes	Yes	Yes				Yes	Yes
Recall Mode	None		None	None	None	None	None	C-Max			C-Max	C-Max

Intersection Summary

Area Type:	Other
Cycle Length: 95	
Actuated Cycle Length: 95	
Offset: 12 (13%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	

Splits and Phases: 1: SR 6309 & Blackman Street/I-81 SB Off Ramp





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	213	0	327	540	212	105	234	574	0	0	945	166
Future Volume (veh/h)	213	0	327	540	212	105	234	574	0	0	945	166
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	0	1852	1983	1892	1894	1826	1883	0	0	1898	1944
Adj Flow Rate, veh/h	234	0	0	593	233	0	257	631	0	0	1038	0
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	0	4	3	4	9	6	2	0	0	1	3
Cap, veh/h	290	0		736	299		380	1769	0	0	1145	
Arrive On Green	0.17	0.00	0.00	0.39	0.16	0.00	0.11	0.49	0.00	0.00	0.32	0.00
Sat Flow, veh/h	1723	234		1888	1892	1605	3375	3673	0	0	3700	1647
Grp Volume(v), veh/h	234	49.0		593	233	0	257	631	0	0	1038	0
Grp Sat Flow(s),veh/h/ln	1723	D		1888	1892	1605	1687	1789	0	0	1803	1647
Q Serve(g_s), s	12.4			26.5	11.2	0.0	6.9	10.3	0.0	0.0	26.2	0.0
Cycle Q Clear(g_c), s	12.4			26.5	11.2	0.0	6.9	10.3	0.0	0.0	26.2	0.0
Prop In Lane	1.00			1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h	290			736	299		380	1769	0	0	1145	
V/C Ratio(X)	0.81			0.81	0.78		0.68	0.36	0.00	0.00	0.91	
Avail Cap(c_a), veh/h	326			797	321		494	1769	0	0	1145	
HCM Platoon Ratio	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	0.00	1.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	38.0			25.8	38.4	0.0	40.5	14.7	0.0	0.0	31.1	0.0
Incr Delay (d2), s/veh	11.0			5.1	9.6	0.0	1.2	0.6	0.0	0.0	11.9	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
%ile BackOfQ(95%),veh/ln	10.0			18.5	10.0	0.0	5.2	7.3	0.0	0.0	18.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.0			30.9	48.0	0.0	41.6	15.3	0.0	0.0	42.9	0.0
LnGrp LOS	D			C	D		D	B	A	A	D	
Approach Vol, veh/h					826			888			1038	
Approach Delay, s/veh					35.7			22.9			42.9	
Approach LOS					D			C			D	

Timer - Assigned Phs	1	2	3	4	6	7
Phs Duration (G+Y+Rc), s	16.8	36.3	22.0	19.9	53.1	41.9
Change Period (Y+Rc), s	7.1	7.1	7.0	* 5.9	7.1	* 5.9
Max Green Setting (Gmax), s	12.9	22.9	17.0	* 15	42.9	* 39
Max Q Clear Time (g_c+I1), s	9.4	28.7	14.9	13.7	12.8	29.0
Green Ext Time (p_c), s	0.3	0.0	0.1	0.3	22.1	4.8

Intersection Summary	
HCM 6th Ctrl Delay	35.5
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

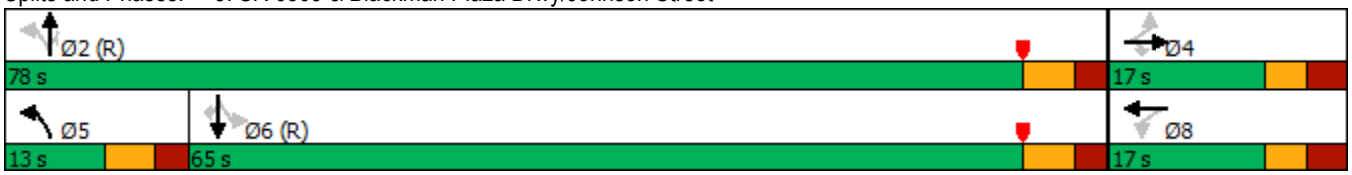
Unsignalized Delay for [EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	79	12	306	23	12	25	192	697	70	14	776	129
Future Volume (vph)	79	12	306	23	12	25	192	697	70	14	776	129
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	16	16	16	12	12	12	10	12	10	10	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	150		100	110		150
Storage Lanes	0		1	0		0	1		1	1		1
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt			0.850		0.943				0.850			0.850
Flt Protected		0.958			0.981		0.950			0.950		
Satd. Flow (prot)	0	1954	1683	0	1638	0	1565	1765	1347	1596	1782	1530
Flt Permitted		0.789			0.833		0.222			0.392		
Satd. Flow (perm)	0	1610	1683	0	1391	0	366	1765	1347	659	1782	1530
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			302		26				72			120
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		268			799			710			875	
Travel Time (s)		7.3			21.8			13.8			17.0	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	3%	0%	0%	4%	2%	2%	6%	0%	1%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	81	12	315	24	12	26	198	719	72	14	800	133
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	93	315	0	62	0	198	719	72	14	800	133
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases		4			8		5	2			6	
Permitted Phases	4		4	8			2		2	6		6
Detector Phase	4	4	4	8	8		5	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Minimum Split (s)	9.0	9.0	9.0	9.0	9.0		9.0	9.0	9.0	9.0	9.0	9.0
Total Split (s)	17.0	17.0	17.0	17.0	17.0		13.0	78.0	78.0	65.0	65.0	65.0
Total Split (%)	17.9%	17.9%	17.9%	17.9%	17.9%		13.7%	82.1%	82.1%	68.4%	68.4%	68.4%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.6	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		2.4	2.4	2.4	2.4	2.4	2.4
Lost Time Adjust (s)		-1.0	-1.0		-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)		5.0	5.0		5.0		5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag							Lead			Lag	Lag	Lag
Lead-Lag Optimize?							Yes			Yes	Yes	Yes
Recall Mode	None	None	None	None	None		None	C-Max	C-Max	C-Max	C-Max	C-Max

Intersection Summary

Area Type:	Other
Cycle Length: 95	
Actuated Cycle Length: 95	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	

Splits and Phases: 3: SR 6309 & Blackman Plaza Drwy/Johnson Street



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	79	12	306	23	12	25	192	697	70	14	776	129
Future Volume (veh/h)	79	12	306	23	12	25	192	697	70	14	776	129
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	1872	1872	1828	1800	1800	1744	1772	1772	1716	1800	1786	1800
Adj Flow Rate, veh/h	81	12	0	24	12	26	198	719	72	14	800	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	3	0	0	4	2	2	6	0	1	0
Cap, veh/h	191	18		94	41	60	487	1435	1178	549	1235	
Arrive On Green	0.07	0.08	0.00	0.07	0.08	0.07	0.07	0.81	0.81	0.69	0.69	0.00
Sat Flow, veh/h	1421	211	1549	494	481	704	1688	1772	1454	696	1786	1525
Grp Volume(v), veh/h	93	0	0	62	0	0	198	719	72	14	800	0
Grp Sat Flow(s),veh/h/ln	1632	0	1549	1679	0	0	1688	1772	1454	696	1786	1525
Q Serve(g_s), s	1.8	0.0	0.0	0.0	0.0	0.0	2.7	12.3	0.9	0.6	23.8	0.0
Cycle Q Clear(g_c), s	5.1	0.0	0.0	3.3	0.0	0.0	2.7	12.3	0.9	1.7	23.8	0.0
Prop In Lane	0.87		1.00	0.39		0.42	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	192	0		177	0	0	487	1435	1178	549	1235	
V/C Ratio(X)	0.48	0.00		0.35	0.00	0.00	0.41	0.50	0.06	0.03	0.65	
Avail Cap(c_a), veh/h	254	0		241	0	0	518	1435	1178	549	1235	
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	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.59	0.59	0.00
Uniform Delay (d), s/veh	42.5	0.0	0.0	41.7	0.0	0.0	7.7	2.9	1.8	5.0	8.2	0.0
Incr Delay (d2), s/veh	0.7	0.0	0.0	0.4	0.0	0.0	0.2	1.3	0.1	0.1	1.6	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(95%),veh/ln	4.0	0.0	0.0	2.6	0.0	0.0	2.2	5.1	0.3	0.2	11.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.2	0.0	0.0	42.1	0.0	0.0	7.9	4.1	1.9	5.0	9.8	0.0
LnGrp LOS	D	A		D	A	A	A	A	A	A	A	
Approach Vol, veh/h		93			62			989			814	
Approach Delay, s/veh		43.2			42.1			4.7			9.7	
Approach LOS		D			D			A			A	

Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		81.9		13.1	11.3	70.7		13.1				
Change Period (Y+Rc), s		6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s		72.0		11.0	7.0	59.0		11.0				
Max Q Clear Time (g_c+I1), s		0.0		7.1	5.2	0.0		5.3				
Green Ext Time (p_c), s		0.0		0.0	0.1	0.0		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			9.8									
HCM 6th LOS			A									

Notes

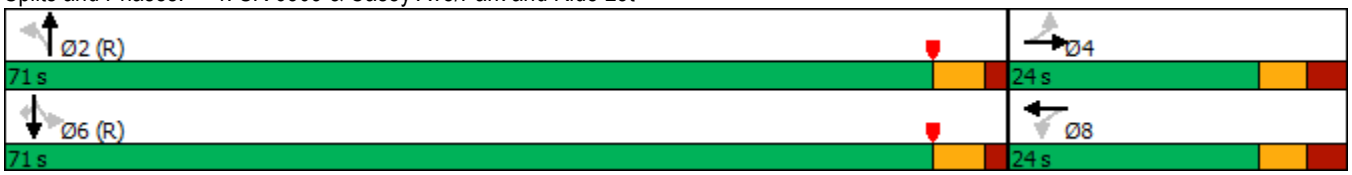
Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	239	0	24	3	0	8	19	817	3	2	932	182
Future Volume (vph)	239	0	24	3	0	8	19	817	3	2	932	182
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	13	13	13	10	13	13	10	13	10
Grade (%)		-2%			0%			0%			-1%	
Storage Length (ft)	250		0	0		0	125		0	125		125
Storage Lanes	1		0	0		0	1		0	1		1
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.850			0.902			0.999				0.850
Flt Protected	0.950				0.987		0.950			0.950		
Satd. Flow (prot)	1535	1387	0	0	1656	0	1438	1804	0	1604	1833	1407
Flt Permitted	0.750				0.951		0.186			0.244		
Satd. Flow (perm)	1212	1387	0	0	1596	0	282	1804	0	412	1833	1407
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		184			28							149
Link Speed (mph)		30			25			35			35	
Link Distance (ft)		870			135			875			1750	
Travel Time (s)		19.8			3.7			17.0			34.1	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	0%	4%	0%	0%	0%	11%	3%	0%	0%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	244	0	24	3	0	8	19	834	3	2	951	186
Shared Lane Traffic (%)												
Lane Group Flow (vph)	244	24	0	0	11	0	19	837	0	2	951	186
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Minimum Split (s)	8.3	8.3		8.3	8.3		7.4	7.4		7.4	7.4	7.4
Total Split (s)	24.0	24.0		24.0	24.0		71.0	71.0		71.0	71.0	71.0
Total Split (%)	25.3%	25.3%		25.3%	25.3%		74.7%	74.7%		74.7%	74.7%	74.7%
Yellow Time (s)	3.4	3.4		3.4	3.4		3.7	3.7		3.7	3.7	3.7
All-Red Time (s)	2.9	2.9		2.9	2.9		1.7	1.7		1.7	1.7	1.7
Lost Time Adjust (s)	-1.0	-1.0			-1.0		-1.0	-1.0		-1.0	-1.0	-1.0
Total Lost Time (s)	5.3	5.3			5.3		4.4	4.4		4.4	4.4	4.4
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	C-Max

Intersection Summary

Area Type:	Other
Cycle Length: 95	
Actuated Cycle Length: 95	
Offset: 77 (81%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	

Splits and Phases: 4: SR 6309 & Casey Ave/Park and Ride Lot



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	239	0	24	3	0	8	19	817	3	2	932	182
Future Volume (veh/h)	239	0	24	3	0	8	19	817	3	2	932	182
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	1803	1875	1818	1872	1872	1872	1646	1828	1872	1837	1881	1809
Adj Flow Rate, veh/h	244	0	23	3	0	8	19	834	0	2	951	153
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	5	0	4	0	0	0	11	3	0	0	2	2
Cap, veh/h	358	0	313	108	25	226	263	1282	0	554	1319	1075
Arrive On Green	0.20	0.00	0.19	0.19	0.00	0.19	1.00	1.00	0.00	0.70	0.70	0.70
Sat Flow, veh/h	1432	0	1589	303	128	1150	474	1828	0	683	1881	1533
Grp Volume(v), veh/h	244	0	23	11	0	0	19	834	0	2	951	153
Grp Sat Flow(s),veh/h/ln	1432	0	1589	1581	0	0	474	1828	0	683	1881	1533
Q Serve(g_s), s	15.6	0.0	1.1	0.0	0.0	0.0	1.8	0.0	0.0	0.1	29.0	3.1
Cycle Q Clear(g_c), s	15.7	0.0	1.1	0.5	0.0	0.0	30.8	0.0	0.0	0.1	29.0	3.1
Prop In Lane	1.00		1.00	0.27		0.73	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	358	0	313	343	0	0	263	1282	0	554	1319	1075
V/C Ratio(X)	0.68	0.00	0.07	0.03	0.00	0.00	0.07	0.65	0.00	0.00	0.72	0.14
Avail Cap(c_a), veh/h	358	0	313	343	0	0	263	1282	0	554	1319	1075
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	0.84	0.84	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.9	0.0	31.5	31.3	0.0	0.0	6.7	0.0	0.0	4.3	8.6	4.7
Incr Delay (d2), s/veh	4.3	0.0	0.0	0.0	0.0	0.0	0.4	2.2	0.0	0.0	3.4	0.3
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(95%),veh/ln	9.8	0.0	0.8	0.4	0.0	0.0	0.3	1.4	0.0	0.0	15.8	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.3	0.0	31.5	31.3	0.0	0.0	7.2	2.2	0.0	4.3	12.0	5.0
LnGrp LOS	D	A	C	C	A	A	A	A	A	A	B	A
Approach Vol, veh/h		267			11			853			1106	
Approach Delay, s/veh		40.4			31.3			2.3			11.0	
Approach LOS		D			C			A			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		71.0		24.0		71.0		24.0				
Change Period (Y+Rc), s		5.4		6.3		5.4		6.3				
Max Green Setting (Gmax), s		65.6		17.7		65.6		17.7				
Max Q Clear Time (g_c+I1), s		0.0		18.2		0.0		2.5				
Green Ext Time (p_c), s		0.0		0.0		0.0		0.0				

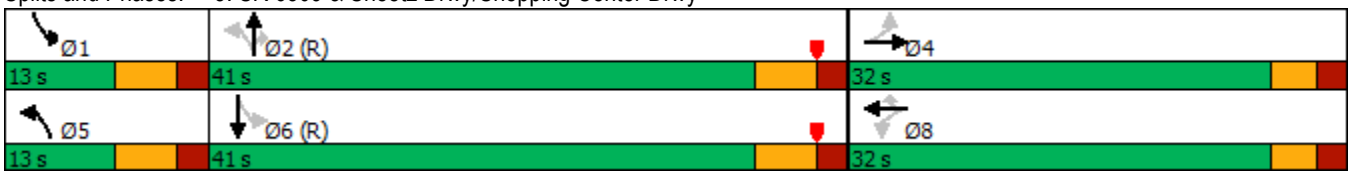
Intersection Summary												
HCM 6th Ctrl Delay			11.3									
HCM 6th LOS			B									

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	69	10	5	229	38	144	61	871	207	123	821	85
Future Volume (vph)	69	10	5	229	38	144	61	871	207	123	821	85
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	15	15	15	12	12	12	10	12	13	10	12	14
Grade (%)		0%			-5%			1%			-3%	
Storage Length (ft)	0		0	0		150	100		185	235		0
Storage Lanes	0		0	0		1	1		1	1		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor					1.00						1.00	
Frt		0.992				0.850			0.850		0.986	
Flt Protected		0.960			0.959		0.950			0.950		
Satd. Flow (prot)	0	1886	0	0	1769	1568	1557	3369	1558	1604	3376	0
Flt Permitted		0.513			0.722		0.226			0.221		
Satd. Flow (perm)	0	1008	0	0	1331	1568	370	3369	1558	373	3376	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4				150			216		16	
Link Speed (mph)		25			25			40			40	
Link Distance (ft)		263			298			338			775	
Travel Time (s)		7.2			8.1			5.8			13.2	
Confl. Peds. (#/hr)				1								1
Confl. Bikes (#/hr)												
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	2%	1%	1%	1%	1%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	72	10	5	239	40	150	64	907	216	128	855	89
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	87	0	0	279	150	64	907	216	128	944	0
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		8	2		2	6		
Detector Phase	4	4		8	8	8	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	5.0	20.0	20.0	5.0	20.0	
Minimum Split (s)	15.0	15.0		15.0	15.0	15.0	11.0	26.0	26.0	11.0	26.0	
Total Split (s)	32.0	32.0		32.0	32.0	32.0	13.0	41.0	41.0	13.0	41.0	
Total Split (%)	37.2%	37.2%		37.2%	37.2%	37.2%	15.1%	47.7%	47.7%	15.1%	47.7%	
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)		-1.0			-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
Total Lost Time (s)		4.0			4.0	4.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	

Intersection Summary

Area Type:	Other
Cycle Length: 86	
Actuated Cycle Length: 86	
Offset: 25 (29%), Referenced to phase 2:NBTL and 6:SBTL, Start of Red	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	

Splits and Phases: 5: SR 6309 & Sheetz Drwy/Shopping Center Drwy



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	69	10	5	229	38	144	61	871	207	123	821	85
Future Volume (veh/h)	69	10	5	229	38	144	61	871	207	123	821	85
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	1872	1872	1872	1986	1986	1986	1766	1780	1852	1898	1898	1944
Adj Flow Rate, veh/h	72	10	3	239	40	0	64	907	0	128	855	78
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	2	1	1	1	1	3
Cap, veh/h	351	46	12	373	49		518	1913		472	1922	175
Arrive On Green	0.19	0.20	0.19	0.19	0.20	0.00	0.06	0.57	0.00	0.13	1.00	1.00
Sat Flow, veh/h	1336	225	57	1442	241	1683	1682	3383	1569	1807	3340	305
Grp Volume(v), veh/h	85	0	0	279	0	0	64	907	0	128	461	472
Grp Sat Flow(s),veh/h/ln	1617	0	0	1683	0	1683	1682	1691	1569	1807	1803	1842
Q Serve(g_s), s	0.0	0.0	0.0	9.9	0.0	0.0	1.3	13.7	0.0	2.4	0.0	0.0
Cycle Q Clear(g_c), s	3.7	0.0	0.0	13.6	0.0	0.0	1.3	13.7	0.0	2.4	0.0	0.0
Prop In Lane	0.85		0.04	0.86		1.00	1.00		1.00	1.00		0.17
Lane Grp Cap(c), veh/h	390	0	0	403	0		518	1913		472	1037	1060
V/C Ratio(X)	0.22	0.00	0.00	0.69	0.00		0.12	0.47		0.27	0.44	0.44
Avail Cap(c_a), veh/h	569	0	0	598	0		578	1913		519	1037	1060
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	0.47	0.47	0.47
Uniform Delay (d), s/veh	29.0	0.0	0.0	32.8	0.0	0.0	6.4	11.1	0.0	7.0	0.0	0.0
Incr Delay (d2), s/veh	0.3	0.0	0.0	2.1	0.0	0.0	0.1	0.8	0.0	0.1	0.7	0.6
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(95%),veh/ln	2.8	0.0	0.0	9.8	0.0	0.0	0.7	8.1	0.0	1.3	0.3	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.3	0.0	0.0	35.0	0.0	0.0	6.5	11.9	0.0	7.2	0.7	0.6
LnGrp LOS	C	A	A	C	A		A	B		A	A	A
Approach Vol, veh/h		85			279			971			1061	
Approach Delay, s/veh		29.3			35.0			11.6			1.4	
Approach LOS		C			C			B			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.8	53.6		21.6	9.9	54.5		21.6				
Change Period (Y+Rc), s	6.0	6.0		5.0	6.0	6.0		5.0				
Max Green Setting (Gmax), s	7.0	35.0		27.0	7.0	35.0		27.0				
Max Q Clear Time (g_c+I1), s	4.9	0.0		5.7	3.8	0.0		15.6				
Green Ext Time (p_c), s	0.1	0.0		0.2	0.0	0.0		1.0				

Intersection Summary		
HCM 6th Ctrl Delay		10.4
HCM 6th LOS		B

Notes

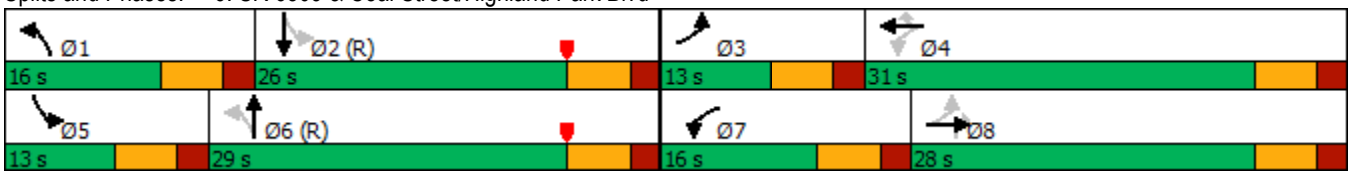
Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	133	503	207	298	467	80	271	386	475	92	441	112
Future Volume (vph)	133	503	207	298	467	80	271	386	475	92	441	112
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	13	12	12	12	10	12	13	10	12	13
Grade (%)		1%			0%			2%			0%	
Storage Length (ft)	235		0	650		200	300		0	125		0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor	0.99	1.00		1.00			1.00		0.98		0.99	
Frt		0.956				0.850			0.850		0.970	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1612	3082	0	1693	3386	1485	1564	3287	1505	1565	3227	0
Flt Permitted	0.433			0.156			0.223			0.515		
Satd. Flow (perm)	731	3082	0	278	3386	1485	367	3287	1482	848	3227	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		71				190			495		35	
Link Speed (mph)		25			35			40			40	
Link Distance (ft)		1019			1253			775			948	
Travel Time (s)		27.8			24.4			13.2			16.2	
Confl. Peds. (#/hr)	13		3	3			3		3			13
Confl. Bikes (#/hr)												
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	1%	3%	1%	1%	3%	1%	3%	4%	2%	1%	7%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	139	524	216	310	486	83	282	402	495	96	459	117
Shared Lane Traffic (%)												
Lane Group Flow (vph)	139	740	0	310	486	83	282	402	495	96	576	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	custom	pm+pt	NA	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8			4		4	6		8	2		
Detector Phase	3	8		7	4	4	1	6	8	5	2	
Switch Phase												
Minimum Initial (s)	3.0	3.0		3.0	3.0	3.0	3.0	20.0	3.0	3.0	20.0	
Minimum Split (s)	9.0	9.0		9.0	9.0	9.0	9.0	26.0	9.0	9.0	26.0	
Total Split (s)	13.0	28.0		16.0	31.0	31.0	16.0	29.0	28.0	13.0	26.0	
Total Split (%)	15.1%	32.6%		18.6%	36.0%	36.0%	18.6%	33.7%	32.6%	15.1%	30.2%	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None		None	None	None	None	C-Max	None	None	C-Max	

Intersection Summary

Area Type:	Other
Cycle Length: 86	
Actuated Cycle Length: 86	
Offset: 1 (1%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	

Splits and Phases: 6: SR 6309 & Coal Street/Highland Park Blvd



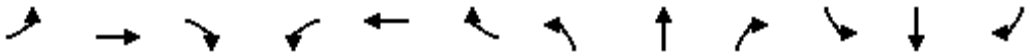
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	133	503	207	298	467	80	271	386	475	92	441	112
Future Volume (veh/h)	133	503	207	298	467	80	271	386	475	92	441	112
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		0.98
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	1766	1780	1822	1786	1786	1758	1764	1736	1790	1772	1786	1770
Adj Flow Rate, veh/h	139	524	156	310	486	0	282	402	0	96	459	94
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	1	3	1	1	3	1	3	4	2	1	7
Cap, veh/h	386	630	187	342	953		402	1054		452	744	151
Arrive On Green	0.09	0.25	0.23	0.13	0.28	0.00	0.21	0.53	0.00	0.07	0.27	0.25
Sat Flow, veh/h	1682	2561	759	1701	3393	1490	1680	3298	1517	1688	2800	569
Grp Volume(v), veh/h	139	345	335	310	486	0	282	402	0	96	277	276
Grp Sat Flow(s),veh/h/ln	1682	1691	1629	1701	1697	1490	1680	1649	1517	1688	1697	1673
Q Serve(g_s), s	5.1	16.6	16.8	11.0	10.3	0.0	10.5	6.1	0.0	3.4	12.3	12.5
Cycle Q Clear(g_c), s	5.1	16.6	16.8	11.0	10.3	0.0	10.5	6.1	0.0	3.4	12.3	12.5
Prop In Lane	1.00		0.47	1.00		1.00	1.00		1.00	1.00		0.34
Lane Grp Cap(c), veh/h	386	416	401	342	953		402	1054		452	451	444
V/C Ratio(X)	0.36	0.83	0.84	0.91	0.51		0.70	0.38		0.21	0.61	0.62
Avail Cap(c_a), veh/h	386	452	436	342	1026		402	1054		484	451	444
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.67	1.67	1.67	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	0.84	0.84	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.8	30.7	31.0	23.6	26.0	0.0	17.4	15.1	0.0	19.9	27.7	27.9
Incr Delay (d2), s/veh	0.6	11.5	12.5	26.9	0.4	0.0	4.5	0.9	0.0	0.2	6.1	6.4
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(95%),veh/ln	3.7	12.6	12.5	11.3	7.3	0.0	6.5	3.7	0.0	2.3	9.3	9.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.4	42.2	43.5	50.5	26.4	0.0	22.0	15.9	0.0	20.1	33.9	34.4
LnGrp LOS	C	D	D	D	C		C	B		C	C	C
Approach Vol, veh/h		819			796			684			649	
Approach Delay, s/veh		39.2			35.8			18.4			32.0	
Approach LOS		D			D			B			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.0	27.8	13.0	29.2	11.3	32.5	16.0	26.2
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	10.0	20.0	7.0	25.0	7.0	23.0	10.0	22.0
Max Q Clear Time (g_c+I1), s	13.0	0.0	7.6	12.8	5.9	0.0	13.5	19.1
Green Ext Time (p_c), s	0.0	0.0	0.0	1.6	0.0	0.0	0.0	1.0

Intersection Summary	
HCM 6th Ctrl Delay	31.9
HCM 6th LOS	C

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	10	0	0	1	84	4	0	48	0
Future Volume (vph)	0	0	0	10	0	0	1	84	4	0	48	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	16	16	16	15	15	15	13	13	13	13	13	13
Grade (%)		0%			-1%			1%			-2%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt								0.994				
Flt Protected					0.950			0.999				
Satd. Flow (prot)	0	2040	0	0	1890	0	0	1838	0	0	1879	0
Flt Permitted					0.950			0.999				
Satd. Flow (perm)	0	2040	0	0	1890	0	0	1838	0	0	1879	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		198			1616			799			711	
Travel Time (s)		5.4			44.1			21.8			19.4	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	0	0	0	11	0	0	1	92	4	0	53	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	11	0	0	97	0	0	53	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	0	0	0	10	0	0	1	84	4	0	48	0
Future Vol, veh/h	0	0	0	10	0	0	1	84	4	0	48	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	-1	-	-	1	-	-	-2	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	0	11	0	0	1	92	4	0	53	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	149	151	53	149	149	94	53	0	0	96	0	0
Stage 1	53	53	-	96	96	-	-	-	-	-	-	-
Stage 2	96	98	-	53	53	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	6.9	6.3	6.1	4.3	-	-	4.3	-	-
Critical Hdwy Stg 1	6.1	5.5	-	5.9	5.3	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	5.9	5.3	-	-	-	-	-	-	-
Follow-up Hdwy	3	4	3.1	3	4	3.1	3	-	-	3	-	-
Pot Cap-1 Maneuver	951	744	1084	959	752	1031	1151	-	-	1113	-	-
Stage 1	1121	855	-	1067	824	-	-	-	-	-	-	-
Stage 2	1061	818	-	1125	857	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	950	743	1084	958	751	1031	1151	-	-	1113	-	-
Mov Cap-2 Maneuver	950	743	-	958	751	-	-	-	-	-	-	-
Stage 1	1120	855	-	1066	823	-	-	-	-	-	-	-
Stage 2	1060	817	-	1125	857	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	8.8	0.1	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1151	-	-	-	958	1113	-	-
HCM Lane V/C Ratio	0.001	-	-	-	0.011	-	-	-
HCM Control Delay (s)	8.1	0	-	0	8.8	0	-	-
HCM Lane LOS	A	A	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	0	0	-	-

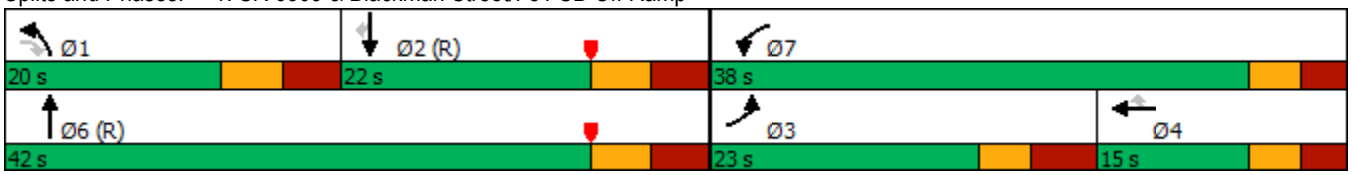
2024/2029 Projected (Build) Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	235	0	185	288	113	85	408	642	0	0	391	92
Future Volume (vph)	235	0	185	288	113	85	408	642	0	0	391	92
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	14	13	11	14	12	12	12	13	12	14
Grade (%)		-1%			-4%			-3%			-3%	
Storage Length (ft)	380		0	180		180	275		0	0		225
Storage Lanes	1		1	1		1	2		0	0		1
Taper Length (ft)	75			100			140			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.97	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor												
Frt			0.850			0.850						0.850
Flt Protected	0.950			0.950			0.950					
Satd. Flow (prot)	1588	0	1533	1669	1690	1435	3238	3370	0	0	3306	1548
Flt Permitted	0.950			0.950			0.950					
Satd. Flow (perm)	1588	0	1533	1669	1690	1435	3238	3370	0	0	3306	1548
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			232			248						232
Link Speed (mph)		35			25			35			35	
Link Distance (ft)		1012			1172			871			378	
Travel Time (s)		19.7			32.0			17.0			7.4	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	1%	0%	7%	8%	5%	16%	4%	3%	0%	0%	5%	7%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	250	0	197	306	120	90	434	683	0	0	416	98
Shared Lane Traffic (%)												
Lane Group Flow (vph)	250	0	197	306	120	90	434	683	0	0	416	98
Turn Type	Prot		Perm	Prot	NA	Perm	Prot	NA			NA	Perm
Protected Phases	3			7	4		1	6			2	
Permitted Phases			1			4						2
Detector Phase	3		1	7	4	4	1	6			2	2
Switch Phase												
Minimum Initial (s)	3.0		3.0	3.0	3.0	3.0	3.0	10.0			10.0	10.0
Minimum Split (s)	10.0		10.1	8.9	8.9	8.9	10.1	17.1			17.1	17.1
Total Split (s)	23.0		20.0	38.0	15.0	15.0	20.0	42.0			22.0	22.0
Total Split (%)	28.8%		25.0%	47.5%	18.8%	18.8%	25.0%	52.5%			27.5%	27.5%
Yellow Time (s)	3.1		3.6	3.1	3.1	3.1	3.6	3.6			3.6	3.6
All-Red Time (s)	3.9		3.5	2.8	2.8	2.8	3.5	3.5			3.5	3.5
Lost Time Adjust (s)	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0			-1.0	-1.0
Total Lost Time (s)	6.0		6.1	4.9	4.9	4.9	6.1	6.1			6.1	6.1
Lead/Lag	Lead		Lead		Lag	Lag	Lead				Lag	Lag
Lead-Lag Optimize?	Yes		Yes		Yes	Yes	Yes				Yes	Yes
Recall Mode	None		None	None	None	None	None	C-Max			C-Max	C-Max

Intersection Summary

Area Type:	Other
Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 69 (86%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	

Splits and Phases: 1: SR 6309 & Blackman Street/I-81 SB Off Ramp



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	235	0	185	288	113	85	408	642	0	0	391	92
Future Volume (veh/h)	235	0	185	288	113	85	408	642	0	0	391	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	1823	0	1807	1909	1878	1790	1855	1869	0	0	1841	1885
Adj Flow Rate, veh/h	250	0	0	306	120	0	434	683	0	0	416	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	1	0	7	8	5	16	4	3	0	0	5	7
Cap, veh/h	317	0		662	200		570	1770	0	0	895	
Arrive On Green	0.18	0.00	0.00	0.36	0.11	0.00	0.17	0.50	0.00	0.00	0.26	0.00
Sat Flow, veh/h	1736	250		1818	1878	1517	3427	3645	0	0	3589	1597
Grp Volume(v), veh/h	250	39.2		306	120	0	434	683	0	0	416	0
Grp Sat Flow(s),veh/h/ln	1736	D		1818	1878	1517	1714	1776	0	0	1749	1597
Q Serve(g_s), s	11.0			10.3	4.9	0.0	9.7	9.6	0.0	0.0	8.0	0.0
Cycle Q Clear(g_c), s	11.0			10.3	4.9	0.0	9.7	9.6	0.0	0.0	8.0	0.0
Prop In Lane	1.00			1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h	317			662	200		570	1770	0	0	895	
V/C Ratio(X)	0.79			0.46	0.60		0.76	0.39	0.00	0.00	0.46	
Avail Cap(c_a), veh/h	369			752	237		595	1770	0	0	895	
HCM Platoon Ratio	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	0.00	1.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	31.2			19.4	34.1	0.0	31.8	12.5	0.0	0.0	25.1	0.0
Incr Delay (d2), s/veh	7.9			0.2	1.2	0.0	4.8	0.6	0.0	0.0	1.7	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
%ile BackOfQ(95%),veh/ln	8.8			7.6	4.1	0.0	7.6	6.4	0.0	0.0	6.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.2			19.6	35.3	0.0	36.7	13.1	0.0	0.0	26.9	0.0
LnGrp LOS	D			B	D		D	B	A	A	C	
Approach Vol, veh/h					426			1117			416	
Approach Delay, s/veh					24.1			22.3			26.9	
Approach LOS					C			C			C	

Timer - Assigned Phs	1	2	3	4	6	7
Phs Duration (G+Y+Rc), s	19.4	26.6	20.6	13.4	46.0	34.0
Change Period (Y+Rc), s	7.1	7.1	7.0	* 5.9	7.1	* 5.9
Max Green Setting (Gmax), s	12.9	14.9	16.0	* 9.1	34.9	* 32
Max Q Clear Time (g_c+I1), s	12.2	10.5	13.5	7.4	12.1	12.8
Green Ext Time (p_c), s	0.1	2.8	0.2	0.1	18.3	3.4

Intersection Summary	
HCM 6th Ctrl Delay	25.4
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

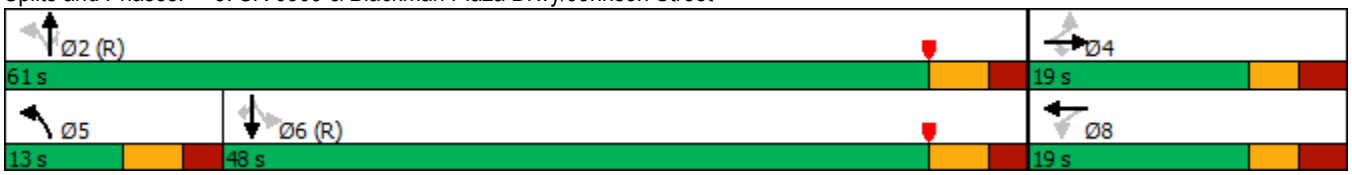
Unsignalized Delay for [EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	126	5	120	32	17	12	186	648	75	25	343	88
Future Volume (vph)	126	5	120	32	17	12	186	648	75	25	343	88
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	16	16	16	12	12	12	10	12	10	10	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	150		100	110		150
Storage Lanes	0		1	0		0	1		1	1		1
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt			0.850		0.973				0.850			0.850
Flt Protected		0.954			0.975		0.950			0.950		
Satd. Flow (prot)	0	1928	1667	0	1373	0	1580	1748	1180	1425	1682	1530
Flt Permitted		0.780			0.730		0.447			0.400		
Satd. Flow (perm)	0	1576	1667	0	1028	0	744	1748	1180	600	1682	1530
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			129		13				81			123
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		268			645			711			875	
Travel Time (s)		7.3			17.6			13.9			17.0	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	1%	0%	4%	34%	0%	33%	1%	3%	21%	12%	7%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	135	5	129	34	18	13	200	697	81	27	369	95
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	140	129	0	65	0	200	697	81	27	369	95
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases		4			8		5	2			6	
Permitted Phases	4		4	8			2		2	6		6
Detector Phase	4	4	4	8	8		5	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Minimum Split (s)	9.0	9.0	9.0	9.0	9.0		9.0	9.0	9.0	9.0	9.0	9.0
Total Split (s)	19.0	19.0	19.0	19.0	19.0		13.0	61.0	61.0	48.0	48.0	48.0
Total Split (%)	23.8%	23.8%	23.8%	23.8%	23.8%		16.3%	76.3%	76.3%	60.0%	60.0%	60.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.6	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		2.4	2.4	2.4	2.4	2.4	2.4
Lost Time Adjust (s)		-1.0	-1.0		-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)		5.0	5.0		5.0		5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag							Lead			Lag	Lag	Lag
Lead-Lag Optimize?							Yes			Yes	Yes	Yes
Recall Mode	None	None	None	None	None		None	C-Max	C-Max	C-Max	C-Max	C-Max

Intersection Summary

Area Type:	Other
Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow	
Natural Cycle: 40	
Control Type: Actuated-Coordinated	

Splits and Phases: 3: SR 6309 & Blackman Plaza Drwy/Johnson Street



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	126	5	120	32	17	12	186	648	75	25	343	88
Future Volume (veh/h)	126	5	120	32	17	12	186	648	75	25	343	88
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	1857	1872	1814	1323	1800	1337	1786	1758	1505	1632	1702	1800
Adj Flow Rate, veh/h	135	5	0	34	18	13	200	697	81	27	369	0
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, %	1	0	4	34	0	33	1	3	21	12	7	0
Cap, veh/h	274	7		156	80	42	739	1322	959	466	1036	
Arrive On Green	0.11	0.12	0.00	0.11	0.12	0.11	0.08	0.75	0.75	0.61	0.61	0.00
Sat Flow, veh/h	1511	56	1537	710	652	340	1701	1758	1276	639	1702	1525
Grp Volume(v), veh/h	140	0	0	65	0	0	200	697	81	27	369	0
Grp Sat Flow(s),veh/h/ln	1567	0	1537	1702	0	0	1701	1758	1276	639	1702	1525
Q Serve(g_s), s	4.1	0.0	0.0	0.0	0.0	0.0	3.0	13.0	1.3	1.5	8.7	0.0
Cycle Q Clear(g_c), s	6.8	0.0	0.0	2.7	0.0	0.0	3.0	13.0	1.3	3.0	8.7	0.0
Prop In Lane	0.96		1.00	0.52		0.20	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	261	0		256	0	0	739	1322	959	466	1036	
V/C Ratio(X)	0.54	0.00		0.25	0.00	0.00	0.27	0.53	0.08	0.06	0.36	
Avail Cap(c_a), veh/h	338	0		337	0	0	771	1322	959	466	1036	
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	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.92	0.92	0.00
Uniform Delay (d), s/veh	34.1	0.0	0.0	32.3	0.0	0.0	4.5	4.1	2.6	7.0	7.8	0.0
Incr Delay (d2), s/veh	0.6	0.0	0.0	0.2	0.0	0.0	0.1	1.5	0.2	0.2	0.9	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(95%),veh/ln	4.9	0.0	0.0	2.1	0.0	0.0	1.3	6.0	0.5	0.4	5.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.7	0.0	0.0	32.5	0.0	0.0	4.6	5.6	2.8	7.3	8.7	0.0
LnGrp LOS	C	A		C	A	A	A	A	A	A	A	
Approach Vol, veh/h		140			65			978			396	
Approach Delay, s/veh		34.7			32.5			5.1			8.6	
Approach LOS		C			C			A			A	
Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		65.2		14.8	11.5	53.7		14.8				
Change Period (Y+Rc), s		6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s		55.0		13.0	7.0	42.0		13.0				
Max Q Clear Time (g_c+I1), s		0.0		8.8	5.5	0.0		4.7				
Green Ext Time (p_c), s		0.0		0.1	0.1	0.0		0.0				

Intersection Summary	
HCM 6th Ctrl Delay	9.8
HCM 6th LOS	A

Notes

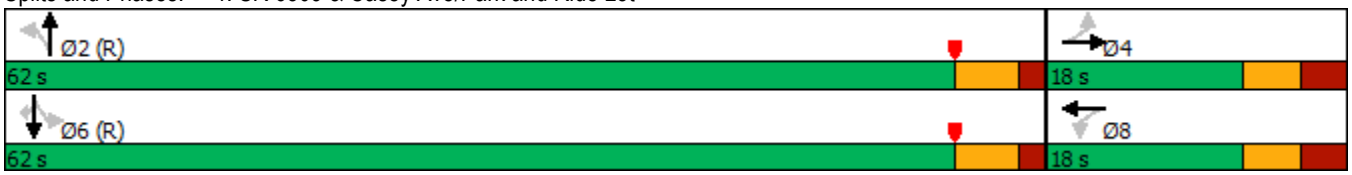
Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	160	1	9	1	0	0	9	818	1	0	451	51
Future Volume (vph)	160	1	9	1	0	0	9	818	1	0	451	51
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	13	13	13	10	13	13	10	13	10
Grade (%)		-2%			0%			0%			-1%	
Storage Length (ft)	250		0	0		0	125		0	125		125
Storage Lanes	1		0	0		0	1		0	1		1
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.864										0.850
Flt Protected	0.950				0.950		0.950					
Satd. Flow (prot)	1550	1240	0	0	1767	0	1200	1789	0	1688	1747	1367
Flt Permitted	0.757				0.750		0.447					
Satd. Flow (perm)	1235	1240	0	0	1395	0	565	1789	0	1688	1747	1367
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10										56
Link Speed (mph)		30			25			35			35	
Link Distance (ft)		870			135			875			1750	
Travel Time (s)		19.8			3.7			17.0			34.1	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	0%	20%	0%	0%	0%	33%	4%	0%	0%	7%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	176	1	10	1	0	0	10	899	1	0	496	56
Shared Lane Traffic (%)												
Lane Group Flow (vph)	176	11	0	0	1	0	10	900	0	0	496	56
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Minimum Split (s)	8.3	8.3		8.3	8.3		7.4	7.4		7.4	7.4	7.4
Total Split (s)	18.0	18.0		18.0	18.0		62.0	62.0		62.0	62.0	62.0
Total Split (%)	22.5%	22.5%		22.5%	22.5%		77.5%	77.5%		77.5%	77.5%	77.5%
Yellow Time (s)	3.4	3.4		3.4	3.4		3.7	3.7		3.7	3.7	3.7
All-Red Time (s)	2.9	2.9		2.9	2.9		1.7	1.7		1.7	1.7	1.7
Lost Time Adjust (s)	-1.0	-1.0			-1.0		-1.0	-1.0		-1.0	-1.0	-1.0
Total Lost Time (s)	5.3	5.3			5.3		4.4	4.4		4.4	4.4	4.4
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	C-Max

Intersection Summary

Area Type:	Other
Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 31 (39%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	

Splits and Phases: 4: SR 6309 & Casey Ave/Park and Ride Lot



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	160	1	9	1	0	0	9	818	1	0	451	51
Future Volume (veh/h)	160	1	9	1	0	0	9	818	1	0	451	51
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	1818	1875	1590	1872	1872	1872	1337	1814	1872	1837	1807	1766
Adj Flow Rate, veh/h	176	1	6	1	0	0	10	899	1	0	496	48
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, %	4	0	20	0	0	0	33	4	0	0	7	5
Cap, veh/h	319	36	219	314	0	0	491	1307	1	90	1304	1080
Arrive On Green	0.16	0.16	0.14	0.14	0.00	0.00	1.00	1.00	1.00	0.00	0.72	0.72
Sat Flow, veh/h	1454	232	1392	1424	0	0	651	1811	2	642	1807	1497
Grp Volume(v), veh/h	176	0	7	1	0	0	10	0	900	0	496	48
Grp Sat Flow(s),veh/h/ln	1454	0	1624	1424	0	0	651	0	1813	642	1807	1497
Q Serve(g_s), s	9.2	0.0	0.3	0.0	0.0	0.0	0.2	0.0	0.0	0.0	8.4	0.7
Cycle Q Clear(g_c), s	9.3	0.0	0.3	0.5	0.0	0.0	8.6	0.0	0.0	0.0	8.4	0.7
Prop In Lane	1.00		0.86	1.00		0.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	319	0	255	296	0	0	491	0	1308	90	1304	1080
V/C Ratio(X)	0.55	0.00	0.03	0.00	0.00	0.00	0.02	0.00	0.69	0.00	0.38	0.04
Avail Cap(c_a), veh/h	321	0	258	298	0	0	491	0	1308	90	1304	1080
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	0.82	0.00	0.82	0.00	1.00	1.00
Uniform Delay (d), s/veh	32.3	0.0	28.9	29.3	0.0	0.0	0.6	0.0	0.0	0.0	4.3	3.2
Incr Delay (d2), s/veh	1.2	0.0	0.0	0.0	0.0	0.0	0.1	0.0	2.4	0.0	0.8	0.1
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(95%),veh/ln	5.9	0.0	0.2	0.0	0.0	0.0	0.0	0.0	1.6	0.0	4.3	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.5	0.0	28.9	29.3	0.0	0.0	0.7	0.0	2.4	0.0	5.1	3.3
LnGrp LOS	C	A	C	C	A	A	A	A	A	A	A	A
Approach Vol, veh/h		183			1			910			544	
Approach Delay, s/veh		33.3			29.3			2.4			5.0	
Approach LOS		C			C			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		62.1		17.9		62.1		17.9				
Change Period (Y+Rc), s		5.4		6.3		5.4		6.3				
Max Green Setting (Gmax), s		56.6		11.7		56.6		11.7				
Max Q Clear Time (g_c+I1), s		0.0		11.8		0.0		2.5				
Green Ext Time (p_c), s		0.0		0.0		0.0		0.0				

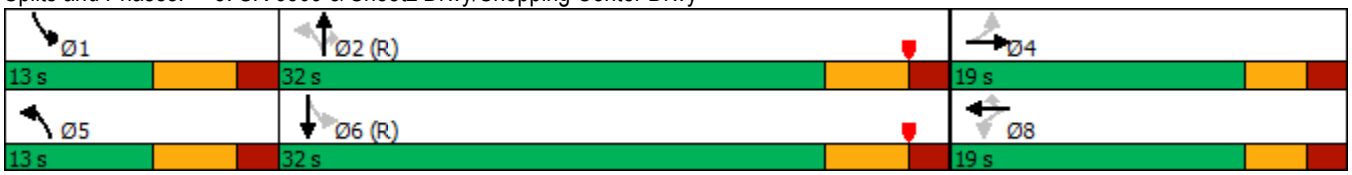
Intersection Summary												
HCM 6th Ctrl Delay			6.7									
HCM 6th LOS			A									

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	54	5	9	69	1	64	54	864	123	44	397	56
Future Volume (vph)	54	5	9	69	1	64	54	864	123	44	397	56
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	15	15	15	12	12	12	10	12	13	10	12	14
Grade (%)		0%			-5%			1%			-3%	
Storage Length (ft)	0		0	0		150	100		185	235		0
Storage Lanes	0		0	0		1	1		1	1		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor		1.00			1.00	0.99	1.00			1.00	1.00	
Frt		0.982				0.850			0.850		0.981	
Flt Protected		0.962			0.953		0.950			0.950		
Satd. Flow (prot)	0	1692	0	0	1758	1568	1457	3272	1558	1620	3123	0
Flt Permitted		0.718			0.751		0.471			0.254		
Satd. Flow (perm)	0	1263	0	0	1382	1547	722	3272	1558	433	3123	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10				153			136		30	
Link Speed (mph)		25			25			40			40	
Link Distance (ft)		263			298			338			775	
Travel Time (s)		7.2			8.1			5.8			13.2	
Confl. Peds. (#/hr)			1	2		1	1			1		2
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	13%	0%	0%	0%	0%	0%	9%	4%	1%	0%	7%	21%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	59	5	10	75	1	70	59	939	134	48	432	61
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	74	0	0	76	70	59	939	134	48	493	0
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		8	2		2	6		
Detector Phase	4	4		8	8	8	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	5.0	20.0	20.0	5.0	20.0	
Minimum Split (s)	15.0	15.0		15.0	15.0	15.0	11.0	26.0	26.0	11.0	26.0	
Total Split (s)	19.0	19.0		19.0	19.0	19.0	13.0	32.0	32.0	13.0	32.0	
Total Split (%)	29.7%	29.7%		29.7%	29.7%	29.7%	20.3%	50.0%	50.0%	20.3%	50.0%	
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)		-1.0			-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
Total Lost Time (s)		4.0			4.0	4.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	

Intersection Summary

Area Type:	Other
Cycle Length: 64	
Actuated Cycle Length: 64	
Offset: 52 (81%), Referenced to phase 2:NBTL and 6:SBTL, Start of Red	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	

Splits and Phases: 5: SR 6309 & Sheetz Drwy/Shopping Center Drwy



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	54	5	9	69	1	64	54	864	123	44	397	56
Future Volume (veh/h)	54	5	9	69	1	64	54	864	123	44	397	56
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	1682	1872	1872	1986	1986	1986	1668	1738	1852	1912	1812	1678
Adj Flow Rate, veh/h	59	5	1	75	1	0	59	939	0	48	432	52
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	13	0	0	0	0	0	9	4	1	0	7	21
Cap, veh/h	330	25	4	370	4		694	1855		472	1720	206
Arrive On Green	0.14	0.16	0.14	0.14	0.16	0.00	0.07	0.56	0.00	0.12	1.00	1.00
Sat Flow, veh/h	1402	160	24	1624	27	1683	1589	3303	1569	1821	3096	371
Grp Volume(v), veh/h	65	0	0	76	0	0	59	939	0	48	239	245
Grp Sat Flow(s),veh/h/ln	1586	0	0	1651	0	1683	1589	1651	1569	1821	1722	1745
Q Serve(g_s), s	0.0	0.0	0.0	0.3	0.0	0.0	0.9	11.1	0.0	0.6	0.0	0.0
Cycle Q Clear(g_c), s	2.1	0.0	0.0	2.3	0.0	0.0	0.9	11.1	0.0	0.6	0.0	0.0
Prop In Lane	0.91		0.02	0.99		1.00	1.00		1.00	1.00		0.21
Lane Grp Cap(c), veh/h	335	0	0	349	0		694	1855		472	957	970
V/C Ratio(X)	0.19	0.00	0.00	0.22	0.00		0.08	0.51		0.10	0.25	0.25
Avail Cap(c_a), veh/h	449	0	0	468	0		787	1855		590	957	970
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	0.93	0.93	0.93
Uniform Delay (d), s/veh	23.9	0.0	0.0	24.0	0.0	0.0	4.7	8.6	0.0	5.4	0.0	0.0
Incr Delay (d2), s/veh	0.3	0.0	0.0	0.3	0.0	0.0	0.1	1.0	0.0	0.1	0.6	0.6
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(95%),veh/ln	1.6	0.0	0.0	1.9	0.0	0.0	0.4	5.7	0.0	0.3	0.3	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.2	0.0	0.0	24.3	0.0	0.0	4.8	9.6	0.0	5.5	0.6	0.6
LnGrp LOS	C	A	A	C	A		A	A		A	A	A
Approach Vol, veh/h		65			76			998			532	
Approach Delay, s/veh		24.2			24.3			9.3			1.0	
Approach LOS		C			C			A			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.9	40.9		14.2	9.2	40.6		14.2				
Change Period (Y+Rc), s	6.0	6.0		5.0	6.0	6.0		5.0				
Max Green Setting (Gmax), s	7.0	26.0		14.0	7.0	26.0		14.0				
Max Q Clear Time (g_c+I1), s	3.1	0.0		4.1	3.4	0.0		4.3				
Green Ext Time (p_c), s	0.0	0.0		0.1	0.0	0.0		0.1				

Intersection Summary			
HCM 6th Ctrl Delay		7.9	
HCM 6th LOS		A	

Notes

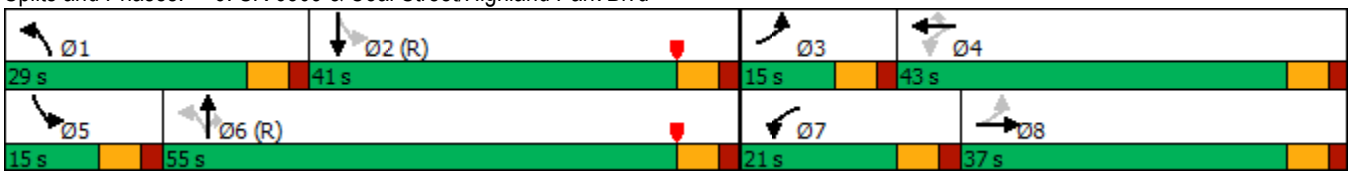
Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	67	231	149	136	171	44	403	292	288	25	193	35
Future Volume (vph)	67	231	149	136	171	44	403	292	288	25	193	35
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	13	12	12	12	10	12	13	10	12	13
Grade (%)		1%			0%			2%			0%	
Storage Length (ft)	235		0	650		200	300		0	125		0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor		0.99				0.99	1.00			1.00		
Frt		0.941				0.850			0.850		0.977	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1612	2825	0	1583	3138	1297	1534	3256	1491	1535	3085	0
Flt Permitted	0.624			0.224			0.501			0.543		
Satd. Flow (perm)	1059	2825	0	373	3138	1280	809	3256	1491	877	3085	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		109				179			343		16	
Link Speed (mph)		25			35			40			40	
Link Distance (ft)		1019			1253			775			948	
Travel Time (s)		27.8			24.4			13.2			16.2	
Confl. Peds. (#/hr)			1			1	1			1		
Confl. Bikes (#/hr)												
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	9%	9%	8%	9%	18%	3%	4%	5%	4%	8%	10%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	80	275	177	162	204	52	480	348	343	30	230	42
Shared Lane Traffic (%)												
Lane Group Flow (vph)	80	452	0	162	204	52	480	348	343	30	272	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8			4		4	6		6	2		
Detector Phase	3	8		7	4	4	1	6	6	5	2	
Switch Phase												
Minimum Initial (s)	3.0	3.0		3.0	3.0	3.0	3.0	15.0	15.0	3.0	15.0	
Minimum Split (s)	9.0	9.0		9.0	9.0	9.0	9.0	26.0	26.0	9.0	26.0	
Total Split (s)	15.0	37.0		21.0	43.0	43.0	29.0	55.0	55.0	15.0	41.0	
Total Split (%)	11.7%	28.9%		16.4%	33.6%	33.6%	22.7%	43.0%	43.0%	11.7%	32.0%	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	

Intersection Summary

Area Type:	Other
Cycle Length: 128	
Actuated Cycle Length: 128	
Offset: 83 (65%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	

Splits and Phases: 6: SR 6309 & Coal Street/Highland Park Blvd



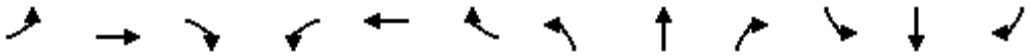
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	67	231	149	136	171	44	403	292	288	25	193	35
Future Volume (veh/h)	67	231	149	136	171	44	403	292	288	25	193	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		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	1766	1668	1735	1688	1674	1547	1736	1722	1776	1744	1688	1726
Adj Flow Rate, veh/h	80	275	106	162	204	0	480	348	0	30	230	36
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	2	9	9	8	9	18	3	4	5	4	8	10
Cap, veh/h	334	352	132	268	640		734	1804		500	1091	168
Arrive On Green	0.06	0.16	0.15	0.11	0.20	0.00	0.31	0.92	0.00	0.03	0.39	0.38
Sat Flow, veh/h	1682	2251	847	1607	3180	1311	1653	3271	1505	1661	2784	430
Grp Volume(v), veh/h	80	192	189	162	204	0	480	348	0	30	131	135
Grp Sat Flow(s),veh/h/ln	1682	1585	1514	1607	1590	1311	1653	1635	1505	1661	1603	1610
Q Serve(g_s), s	5.0	14.8	15.5	10.3	7.0	0.0	24.0	1.3	0.0	1.4	6.9	7.1
Cycle Q Clear(g_c), s	5.0	14.8	15.5	10.3	7.0	0.0	24.0	1.3	0.0	1.4	6.9	7.1
Prop In Lane	1.00		0.56	1.00		1.00	1.00		1.00	1.00		0.27
Lane Grp Cap(c), veh/h	334	248	237	268	640		734	1804		500	628	631
V/C Ratio(X)	0.24	0.77	0.80	0.61	0.32		0.65	0.19		0.06	0.21	0.21
Avail Cap(c_a), veh/h	359	396	378	295	944		734	1804		584	628	631
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.67	1.67	1.67	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	0.90	0.90	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.9	51.8	52.3	37.9	43.6	0.0	13.4	2.3	0.0	22.0	25.8	25.9
Incr Delay (d2), s/veh	0.4	5.1	6.2	3.0	0.3	0.0	1.9	0.2	0.0	0.0	0.8	0.8
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(95%),veh/ln	3.8	10.4	10.5	7.6	5.0	0.0	10.3	0.8	0.0	1.0	4.9	5.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.3	56.9	58.5	40.9	43.9	0.0	15.3	2.5	0.0	22.0	26.5	26.7
LnGrp LOS	D	E	E	D	D		B	A		C	C	C
Approach Vol, veh/h		461			366			828			296	
Approach Delay, s/veh		54.9			42.6			9.9			26.2	
Approach LOS		D			D			A			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	29.0	55.2	13.1	30.8	8.5	75.6	18.8	25.0
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	23.0	35.0	9.0	37.0	9.0	49.0	15.0	31.0
Max Q Clear Time (g_c+I1), s	26.5	0.0	7.5	9.5	3.9	0.0	12.8	17.5
Green Ext Time (p_c), s	0.0	0.0	0.0	0.7	0.0	0.0	0.1	1.5

Intersection Summary	
HCM 6th Ctrl Delay	29.1
HCM 6th LOS	C

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	21	0	0	2	25	34	1	27	0
Future Volume (vph)	0	0	0	21	0	0	2	25	34	1	27	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	16	16	16	15	15	15	13	13	13	13	13	13
Grade (%)		0%			-1%			1%			-2%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt								0.925				
Flt Protected					0.950			0.998			0.999	
Satd. Flow (prot)	0	2000	0	0	1204	0	0	1554	0	0	1805	0
Flt Permitted					0.950			0.998			0.999	
Satd. Flow (perm)	0	2000	0	0	1204	0	0	1554	0	0	1805	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		198			1616			151			711	
Travel Time (s)		5.4			44.1			4.1			19.4	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	2%	0%	57%	2%	2%	0%	8%	12%	2%	4%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	0	0	0	30	0	0	3	36	49	1	39	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	30	0	0	88	0	0	40	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	0	21	0	0	2	25	34	1	27	0
Future Vol, veh/h	0	0	0	21	0	0	2	25	34	1	27	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	-1	-	-	1	-	-	-2	-
Peak Hour Factor	70	70	70	70	70	70	70	70	70	70	70	70
Heavy Vehicles, %	0	2	0	57	2	2	0	8	12	2	4	0
Mvmt Flow	0	0	0	30	0	0	3	36	49	1	39	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	108	132	39	108	108	61	39	0	0	85	0	0
Stage 1	41	41	-	67	67	-	-	-	-	-	-	-
Stage 2	67	91	-	41	41	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.52	6.2	7.47	6.32	6.12	4.3	-	-	4.3	-	-
Critical Hdwy Stg 1	6.1	5.52	-	6.47	5.32	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.52	-	6.47	5.32	-	-	-	-	-	-	-
Follow-up Hdwy	3	4.018	3.1	3.5	4.018	3.1	3	-	-	3	-	-
Pot Cap-1 Maneuver	1014	759	1104	866	787	1075	1164	-	-	1123	-	-
Stage 1	1139	861	-	942	842	-	-	-	-	-	-	-
Stage 2	1101	820	-	975	863	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	1011	756	1104	863	784	1075	1164	-	-	1123	-	-
Mov Cap-2 Maneuver	1011	756	-	863	784	-	-	-	-	-	-	-
Stage 1	1136	860	-	939	839	-	-	-	-	-	-	-
Stage 2	1098	818	-	974	862	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	9.3	0.3	0.3
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1164	-	-	-	863	1123	-	-
HCM Lane V/C Ratio	0.002	-	-	-	0.035	0.001	-	-
HCM Control Delay (s)	8.1	0	-	0	9.3	8.2	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	-	0.1	0	-	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	61	49	1	47	19	0
Future Volume (vph)	61	49	1	47	19	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	1%			-1%	2%	
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)			75		75	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.940					
Flt Protected				0.999	0.950	
Satd. Flow (prot)	1391	0	0	1417	1106	0
Flt Permitted				0.999	0.950	
Satd. Flow (perm)	1391	0	0	1417	1106	0
Link Speed (mph)	25			25	25	
Link Distance (ft)	645			151	550	
Travel Time (s)	17.6			4.1	15.0	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	10%	35%	2%	28%	53%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	68	54	1	52	21	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	122	0	0	53	21	0
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	1.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	61	49	1	47	19	0
Future Vol, veh/h	61	49	1	47	19	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	1	-	-	-1	2	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	10	35	2	28	53	2
Mvmt Flow	68	54	1	52	21	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	122	0	149	95
Stage 1	-	-	-	-	95	-
Stage 2	-	-	-	-	54	-
Critical Hdwy	-	-	4.3	-	7.33	6.42
Critical Hdwy Stg 1	-	-	-	-	6.33	-
Critical Hdwy Stg 2	-	-	-	-	6.33	-
Follow-up Hdwy	-	-	3	-	3.5	3.1
Pot Cap-1 Maneuver	-	-	1092	-	828	1033
Stage 1	-	-	-	-	920	-
Stage 2	-	-	-	-	960	-
Platoon blocked, %	-	-	1	-	1	1
Mov Cap-1 Maneuver	-	-	1092	-	827	1033
Mov Cap-2 Maneuver	-	-	-	-	827	-
Stage 1	-	-	-	-	920	-
Stage 2	-	-	-	-	959	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	9.5
HCM LOS			A

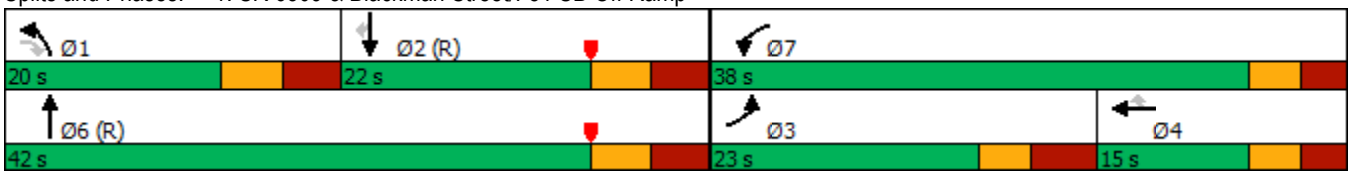
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	827	-	-	1092	-
HCM Lane V/C Ratio	0.026	-	-	0.001	-
HCM Control Delay (s)	9.5	-	-	8.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

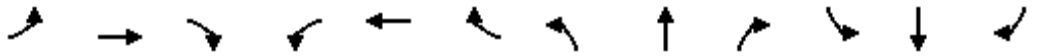
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	284	0	164	215	96	97	312	467	0	0	454	118
Future Volume (vph)	284	0	164	215	96	97	312	467	0	0	454	118
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	14	13	11	14	12	12	12	13	12	14
Grade (%)		-1%			-4%			-3%			-3%	
Storage Length (ft)	380		0	180		180	275		0	0		225
Storage Lanes	1		1	1		1	2		0	0		1
Taper Length (ft)	75			100			140			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.97	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor												
Frt			0.850			0.850						0.850
Flt Protected	0.950			0.950			0.950					
Satd. Flow (prot)	1557	0	1533	1554	1599	1460	3269	3403	0	0	3244	1608
Flt Permitted	0.950			0.950			0.950					
Satd. Flow (perm)	1557	0	1533	1554	1599	1460	3269	3403	0	0	3244	1608
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			232			248						232
Link Speed (mph)		35			25			35			35	
Link Distance (ft)		1012			1172			871			378	
Travel Time (s)		19.7			32.0			17.0			7.4	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	0%	7%	16%	11%	14%	3%	2%	0%	0%	7%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	299	0	173	226	101	102	328	492	0	0	478	124
Shared Lane Traffic (%)												
Lane Group Flow (vph)	299	0	173	226	101	102	328	492	0	0	478	124
Turn Type	Prot		Perm	Prot	NA	Perm	Prot	NA			NA	Perm
Protected Phases	3			7	4		1	6			2	
Permitted Phases			1			4						2
Detector Phase	3		1	7	4	4	1	6			2	2
Switch Phase												
Minimum Initial (s)	3.0		3.0	3.0	3.0	3.0	3.0	10.0			10.0	10.0
Minimum Split (s)	10.0		10.1	8.9	8.9	8.9	10.1	17.1			17.1	17.1
Total Split (s)	23.0		20.0	38.0	15.0	15.0	20.0	42.0			22.0	22.0
Total Split (%)	28.8%		25.0%	47.5%	18.8%	18.8%	25.0%	52.5%			27.5%	27.5%
Yellow Time (s)	3.1		3.6	3.1	3.1	3.1	3.6	3.6			3.6	3.6
All-Red Time (s)	3.9		3.5	2.8	2.8	2.8	3.5	3.5			3.5	3.5
Lost Time Adjust (s)	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0			-1.0	-1.0
Total Lost Time (s)	6.0		6.1	4.9	4.9	4.9	6.1	6.1			6.1	6.1
Lead/Lag	Lead		Lead		Lag	Lag	Lead				Lag	Lag
Lead-Lag Optimize?	Yes		Yes		Yes	Yes	Yes				Yes	Yes
Recall Mode	None		None	None	None	None	None	C-Max			C-Max	C-Max

Intersection Summary

Area Type:	Other
Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 69 (86%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	

Splits and Phases: 1: SR 6309 & Blackman Street/I-81 SB Off Ramp





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	284	0	164	215	96	97	312	467	0	0	454	118
Future Volume (veh/h)	284	0	164	215	96	97	312	467	0	0	454	118
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	1795	0	1807	1790	1793	1820	1869	1883	0	0	1812	1944
Adj Flow Rate, veh/h	299	0	0	226	101	0	328	492	0	0	478	0
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, %	3	0	7	16	11	14	3	2	0	0	7	3
Cap, veh/h	361	0		657	178		478	1708	0	0	904	
Arrive On Green	0.21	0.00	0.00	0.39	0.10	0.00	0.14	0.48	0.00	0.00	0.26	0.00
Sat Flow, veh/h	1709	299		1705	1793	1542	3453	3673	0	0	3534	1647
Grp Volume(v), veh/h	299	44.1		226	101	0	328	492	0	0	478	0
Grp Sat Flow(s),veh/h/ln	1709	D		1705	1793	1542	1727	1789	0	0	1722	1647
Q Serve(g_s), s	13.4			7.5	4.3	0.0	7.2	6.7	0.0	0.0	9.5	0.0
Cycle Q Clear(g_c), s	13.4			7.5	4.3	0.0	7.2	6.7	0.0	0.0	9.5	0.0
Prop In Lane	1.00			1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h	361			657	178		478	1708	0	0	904	
V/C Ratio(X)	0.83			0.34	0.57		0.69	0.29	0.00	0.00	0.53	
Avail Cap(c_a), veh/h	363			705	226		600	1708	0	0	904	
HCM Platoon Ratio	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	0.00	1.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	30.2			17.4	34.4	0.0	32.8	12.7	0.0	0.0	25.3	0.0
Incr Delay (d2), s/veh	13.9			0.1	1.1	0.0	1.4	0.4	0.0	0.0	2.2	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
%ile BackOfQ(95%),veh/ln	10.8			5.2	3.4	0.0	5.4	4.5	0.0	0.0	7.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.1			17.5	35.4	0.0	34.2	13.1	0.0	0.0	27.5	0.0
LnGrp LOS	D			B	D		C	B	A	A	C	
Approach Vol, veh/h					327			820			478	
Approach Delay, s/veh					23.1			21.5			27.5	
Approach LOS					C			C			C	

Timer - Assigned Phs	1	2	3	4	6	7
Phs Duration (G+Y+Rc), s	17.2	27.1	22.9	12.8	44.3	35.7
Change Period (Y+Rc), s	7.1	7.1	7.0	* 5.9	7.1	* 5.9
Max Green Setting (Gmax), s	12.9	14.9	16.0	* 9.1	34.9	* 32
Max Q Clear Time (g_c+I1), s	9.7	12.0	15.9	6.8	9.2	10.0
Green Ext Time (p_c), s	0.3	2.1	0.0	0.1	16.3	2.5

Intersection Summary	
HCM 6th Ctrl Delay	26.8
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

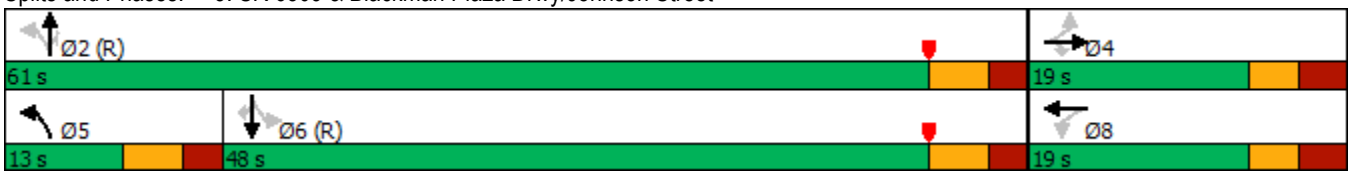
Unsignalized Delay for [EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	117	8	130	39	8	31	180	539	98	33	370	90
Future Volume (vph)	117	8	130	39	8	31	180	539	98	33	370	90
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	16	16	16	12	12	12	10	12	10	10	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	150		100	110		150
Storage Lanes	0		1	0		0	1		1	1		1
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt			0.850		0.947				0.850			0.850
Flt Protected		0.955			0.976		0.950			0.950		
Satd. Flow (prot)	0	1948	1700	0	1444	0	1580	1731	1322	1550	1714	1530
Flt Permitted		0.737			0.725		0.416			0.438		
Satd. Flow (perm)	0	1503	1700	0	1073	0	692	1731	1322	714	1714	1530
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			144		34				109			123
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		268			645			711			875	
Travel Time (s)		7.3			17.6			13.9			17.0	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	2%	28%	0%	3%	1%	4%	8%	3%	5%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	130	9	144	43	9	34	200	599	109	37	411	100
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	139	144	0	86	0	200	599	109	37	411	100
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases		4			8		5	2			6	
Permitted Phases	4		4	8			2		2	6		6
Detector Phase	4	4	4	8	8		5	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Minimum Split (s)	9.0	9.0	9.0	9.0	9.0		9.0	9.0	9.0	9.0	9.0	9.0
Total Split (s)	19.0	19.0	19.0	19.0	19.0		13.0	61.0	61.0	48.0	48.0	48.0
Total Split (%)	23.8%	23.8%	23.8%	23.8%	23.8%		16.3%	76.3%	76.3%	60.0%	60.0%	60.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.6	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		2.4	2.4	2.4	2.4	2.4	2.4
Lost Time Adjust (s)		-1.0	-1.0		-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)		5.0	5.0		5.0		5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag							Lead			Lag	Lag	Lag
Lead-Lag Optimize?							Yes			Yes	Yes	Yes
Recall Mode	None	None	None	None	None		None	C-Max	C-Max	C-Max	C-Max	C-Max

Intersection Summary

Area Type:	Other
Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow	
Natural Cycle: 40	
Control Type: Actuated-Coordinated	

Splits and Phases: 3: SR 6309 & Blackman Plaza Drwy/Johnson Street



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	117	8	130	39	8	31	180	539	98	33	370	90
Future Volume (veh/h)	117	8	130	39	8	31	180	539	98	33	370	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	1872	1872	1843	1407	1800	1758	1786	1744	1688	1758	1730	1800
Adj Flow Rate, veh/h	130	9	0	43	9	34	200	599	109	37	411	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	2	28	0	3	1	4	8	3	5	0
Cap, veh/h	267	12		148	41	80	709	1317	1080	540	1059	
Arrive On Green	0.11	0.12	0.00	0.11	0.12	0.11	0.08	0.75	0.75	0.61	0.61	0.00
Sat Flow, veh/h	1501	104	1562	671	345	664	1701	1744	1430	735	1730	1525
Grp Volume(v), veh/h	139	0	0	86	0	0	200	599	109	37	411	0
Grp Sat Flow(s),veh/h/ln	1605	0	1562	1680	0	0	1701	1744	1430	735	1730	1525
Q Serve(g_s), s	2.8	0.0	0.0	0.0	0.0	0.0	2.9	10.3	1.6	1.6	9.7	0.0
Cycle Q Clear(g_c), s	6.6	0.0	0.0	3.8	0.0	0.0	2.9	10.3	1.6	1.6	9.7	0.0
Prop In Lane	0.94		1.00	0.50		0.40	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	260	0		248	0	0	709	1317	1080	540	1059	
V/C Ratio(X)	0.54	0.00		0.35	0.00	0.00	0.28	0.45	0.10	0.07	0.39	
Avail Cap(c_a), veh/h	340	0		331	0	0	743	1317	1080	540	1059	
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	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.90	0.90	0.00
Uniform Delay (d), s/veh	34.2	0.0	0.0	33.1	0.0	0.0	4.6	3.7	2.6	6.3	7.9	0.0
Incr Delay (d2), s/veh	0.6	0.0	0.0	0.3	0.0	0.0	0.1	1.1	0.2	0.2	1.0	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(95%),veh/ln	4.8	0.0	0.0	2.9	0.0	0.0	1.2	4.6	0.6	0.4	5.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.8	0.0	0.0	33.4	0.0	0.0	4.7	4.8	2.8	6.6	8.9	0.0
LnGrp LOS	C	A		C	A	A	A	A	A	A	A	
Approach Vol, veh/h		139			86			908			448	
Approach Delay, s/veh		34.8			33.4			4.5			8.7	
Approach LOS		C			C			A			A	
Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		65.4		14.6	11.4	54.0		14.6				
Change Period (Y+Rc), s		6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s		55.0		13.0	7.0	42.0		13.0				
Max Q Clear Time (g_c+I1), s		0.0		8.6	5.4	0.0		5.8				
Green Ext Time (p_c), s		0.0		0.1	0.1	0.0		0.1				

Intersection Summary	
HCM 6th Ctrl Delay	9.9
HCM 6th LOS	A

Notes

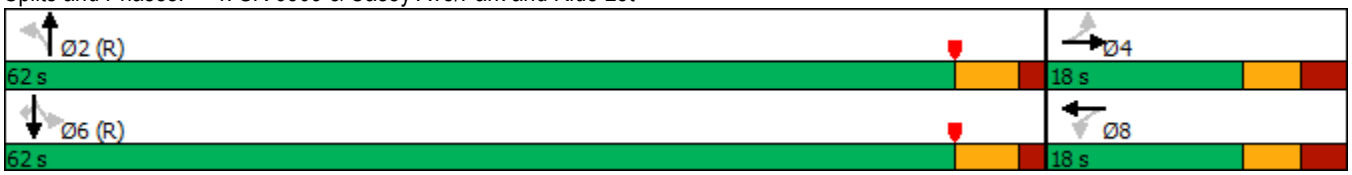
Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	183	0	7	0	0	0	6	694	0	0	521	58
Future Volume (vph)	183	0	7	0	0	0	6	694	0	0	521	58
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	13	13	13	10	13	13	10	13	10
Grade (%)		-2%			0%			0%			-1%	
Storage Length (ft)	250		0	0		0	125		0	125		125
Storage Lanes	1		0	0		0	1		0	1		1
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.850										0.850
Flt Protected	0.950						0.950					
Satd. Flow (prot)	1580	1442	0	0	1860	0	1364	1806	0	1688	1780	1407
Flt Permitted	0.757						0.406					
Satd. Flow (perm)	1259	1442	0	0	1860	0	583	1806	0	1688	1780	1407
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		395										63
Link Speed (mph)		30			25			35			35	
Link Distance (ft)		870			135			875			1750	
Travel Time (s)		19.8			3.7			17.0			34.1	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	0%	0%	0%	0%	0%	17%	3%	0%	0%	5%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	199	0	8	0	0	0	7	754	0	0	566	63
Shared Lane Traffic (%)												
Lane Group Flow (vph)	199	8	0	0	0	0	7	754	0	0	566	63
Turn Type	Perm	NA					Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Minimum Split (s)	8.3	8.3		8.3	8.3		7.4	7.4		7.4	7.4	7.4
Total Split (s)	18.0	18.0		18.0	18.0		62.0	62.0		62.0	62.0	62.0
Total Split (%)	22.5%	22.5%		22.5%	22.5%		77.5%	77.5%		77.5%	77.5%	77.5%
Yellow Time (s)	3.4	3.4		3.4	3.4		3.7	3.7		3.7	3.7	3.7
All-Red Time (s)	2.9	2.9		2.9	2.9		1.7	1.7		1.7	1.7	1.7
Lost Time Adjust (s)	-1.0	-1.0			-1.0		-1.0	-1.0		-1.0	-1.0	-1.0
Total Lost Time (s)	5.3	5.3			5.3		4.4	4.4		4.4	4.4	4.4
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	C-Max

Intersection Summary

Area Type:	Other
Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 31 (39%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	

Splits and Phases: 4: SR 6309 & Casey Ave/Park and Ride Lot



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	183	0	7	0	0	0	6	694	0	0	521	58
Future Volume (veh/h)	183	0	7	0	0	0	6	694	0	0	521	58
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	1846	1875	1875	1872	1872	1872	1561	1828	1872	1837	1837	1809
Adj Flow Rate, veh/h	199	0	4	0	0	0	7	754	0	0	566	47
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	0	0	0	0	0	17	3	0	0	5	2
Cap, veh/h	355	0	240	0	283	0	522	1331	0	90	1337	1116
Arrive On Green	0.15	0.00	0.14	0.00	0.00	0.00	1.00	1.00	0.00	0.00	0.73	0.73
Sat Flow, veh/h	1758	0	1589	0	1872	0	713	1828	0	736	1837	1533
Grp Volume(v), veh/h	199	0	4	0	0	0	7	754	0	0	566	47
Grp Sat Flow(s),veh/h/ln	1758	0	1589	0	1872	0	713	1828	0	736	1837	1533
Q Serve(g_s), s	8.7	0.0	0.2	0.0	0.0	0.0	0.1	0.0	0.0	0.0	9.7	0.7
Cycle Q Clear(g_c), s	8.7	0.0	0.2	0.0	0.0	0.0	9.8	0.0	0.0	0.0	9.7	0.7
Prop In Lane	1.00		1.00	0.00		0.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	355	0	240	0	283	0	522	1331	0	90	1337	1116
V/C Ratio(X)	0.56	0.00	0.02	0.00	0.00	0.00	0.01	0.57	0.00	0.00	0.42	0.04
Avail Cap(c_a), veh/h	369	0	252	0	297	0	522	1331	0	90	1337	1116
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	0.00	0.88	0.88	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	32.5	0.0	29.3	0.0	0.0	0.0	0.8	0.0	0.0	0.0	4.3	3.1
Incr Delay (d2), s/veh	1.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.0	0.0	1.0	0.1
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(95%),veh/ln	6.6	0.0	0.1	0.0	0.0	0.0	0.0	1.0	0.0	0.0	5.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.5	0.0	29.3	0.0	0.0	0.0	0.9	1.5	0.0	0.0	5.3	3.1
LnGrp LOS	C	A	C	A	A	A	A	A	A	A	A	A
Approach Vol, veh/h		203			0			761			613	
Approach Delay, s/veh		33.4			0.0			1.5			5.1	
Approach LOS		C						A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		62.6		17.4		62.6		17.4				
Change Period (Y+Rc), s		5.4		6.3		5.4		6.3				
Max Green Setting (Gmax), s		56.6		11.7		56.6		11.7				
Max Q Clear Time (g_c+I1), s		0.0		11.2		0.0		0.0				
Green Ext Time (p_c), s		0.0		0.0		0.0		0.0				

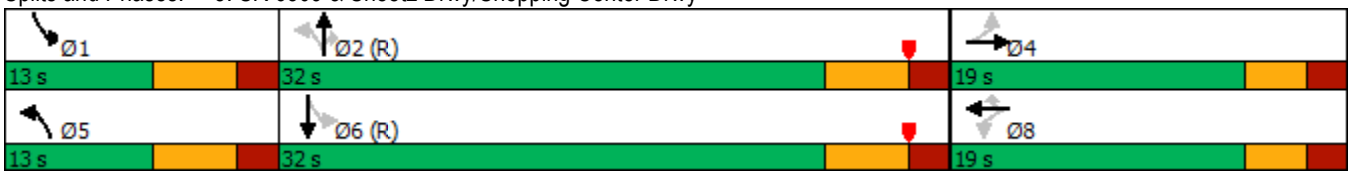
Intersection Summary												
HCM 6th Ctrl Delay			7.0									
HCM 6th LOS			A									

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	66	2	8	66	2	73	60	765	112	59	469	57
Future Volume (vph)	66	2	8	66	2	73	60	765	112	59	469	57
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	15	15	15	12	12	12	10	12	13	10	12	14
Grade (%)		0%			-5%			1%			-3%	
Storage Length (ft)	0		0	0		150	100		185	235		0
Storage Lanes	0		0	0		1	1		1	1		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor												
Frt		0.985				0.850			0.850		0.984	
Flt Protected		0.958			0.954		0.950			0.950		
Satd. Flow (prot)	0	1747	0	0	1760	1568	1512	3241	1573	1620	3267	0
Flt Permitted		0.702			0.738		0.426			0.298		
Satd. Flow (perm)	0	1280	0	0	1362	1568	678	3241	1573	508	3267	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		9				153			136		25	
Link Speed (mph)		25			25			40			40	
Link Distance (ft)		263			298			338			775	
Travel Time (s)		7.2			8.1			5.8			13.2	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	8%	0%	0%	0%	0%	0%	5%	5%	0%	0%	4%	9%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	72	2	9	72	2	79	65	832	122	64	510	62
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	83	0	0	74	79	65	832	122	64	572	0
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		8	2		2	6		
Detector Phase	4	4		8	8	8	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	5.0	20.0	20.0	5.0	20.0	
Minimum Split (s)	15.0	15.0		15.0	15.0	15.0	11.0	26.0	26.0	11.0	26.0	
Total Split (s)	19.0	19.0		19.0	19.0	19.0	13.0	32.0	32.0	13.0	32.0	
Total Split (%)	29.7%	29.7%		29.7%	29.7%	29.7%	20.3%	50.0%	50.0%	20.3%	50.0%	
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)		-1.0			-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
Total Lost Time (s)		4.0			4.0	4.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	

Intersection Summary

Area Type:	Other
Cycle Length: 64	
Actuated Cycle Length: 64	
Offset: 52 (81%), Referenced to phase 2:NBTL and 6:SBTL, Start of Red	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	

Splits and Phases: 5: SR 6309 & Sheetz Drwy/Shopping Center Drwy



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	66	2	8	66	2	73	60	765	112	59	469	57
Future Volume (veh/h)	66	2	8	66	2	73	60	765	112	59	469	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	1755	1872	1872	1986	1986	1986	1724	1724	1866	1912	1855	1855
Adj Flow Rate, veh/h	72	2	6	72	2	0	65	832	0	64	510	51
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	8	0	0	0	0	0	5	5	0	0	4	9
Cap, veh/h	330	13	19	372	9		681	1804		521	1781	178
Arrive On Green	0.15	0.16	0.15	0.15	0.16	0.00	0.07	0.55	0.00	0.14	1.00	1.00
Sat Flow, veh/h	1380	79	118	1616	57	1683	1642	3276	1582	1821	3236	323
Grp Volume(v), veh/h	80	0	0	74	0	0	65	832	0	64	277	284
Grp Sat Flow(s),veh/h/ln	1577	0	0	1673	0	1683	1642	1638	1582	1821	1762	1797
Q Serve(g_s), s	0.4	0.0	0.0	0.0	0.0	0.0	1.0	9.8	0.0	0.9	0.0	0.0
Cycle Q Clear(g_c), s	2.6	0.0	0.0	2.2	0.0	0.0	1.0	9.8	0.0	0.9	0.0	0.0
Prop In Lane	0.90		0.07	0.97		1.00	1.00		1.00	1.00		0.18
Lane Grp Cap(c), veh/h	337	0	0	355	0		681	1804		521	970	989
V/C Ratio(X)	0.24	0.00	0.00	0.21	0.00		0.10	0.46		0.12	0.29	0.29
Avail Cap(c_a), veh/h	447	0	0	471	0		772	1804		623	970	989
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	0.94	0.94	0.94
Uniform Delay (d), s/veh	24.0	0.0	0.0	23.8	0.0	0.0	4.8	8.7	0.0	5.2	0.0	0.0
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.3	0.0	0.0	0.1	0.9	0.0	0.1	0.7	0.7
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(95%),veh/ln	2.0	0.0	0.0	1.8	0.0	0.0	0.4	5.1	0.0	0.4	0.3	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.3	0.0	0.0	24.1	0.0	0.0	4.9	9.5	0.0	5.3	0.7	0.7
LnGrp LOS	C	A	A	C	A		A	A		A	A	A
Approach Vol, veh/h		80			74			897			625	
Approach Delay, s/veh		24.3			24.1			9.2			1.2	
Approach LOS		C			C			A			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.4	40.2		14.4	9.4	40.2		14.4				
Change Period (Y+Rc), s	6.0	6.0		5.0	6.0	6.0		5.0				
Max Green Setting (Gmax), s	7.0	26.0		14.0	7.0	26.0		14.0				
Max Q Clear Time (g_c+I1), s	3.4	0.0		4.6	3.5	0.0		4.2				
Green Ext Time (p_c), s	0.0	0.0		0.1	0.0	0.0		0.1				

Intersection Summary		
HCM 6th Ctrl Delay		7.6
HCM 6th LOS		A

Notes

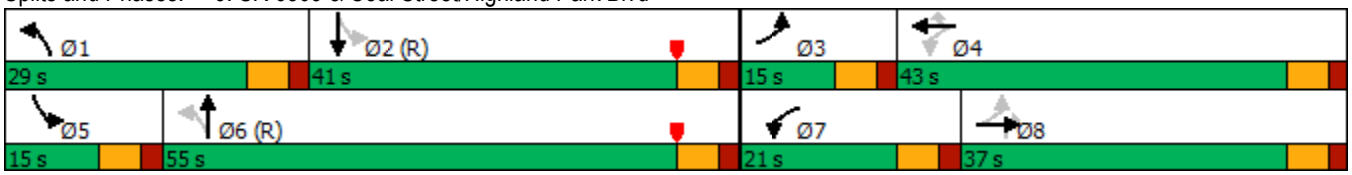
Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	79	291	134	129	171	48	253	307	355	56	299	50
Future Volume (vph)	79	291	134	129	171	48	253	307	355	56	299	50
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	13	12	12	12	10	12	13	10	12	13
Grade (%)		1%			0%			2%			0%	
Storage Length (ft)	235		0	650		200	300		0	125		0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor	1.00			1.00					0.98		1.00	
Frt		0.953				0.850			0.850		0.978	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1597	3034	0	1660	3386	1530	1519	3287	1477	1565	3161	0
Flt Permitted	0.636			0.237			0.435			0.553		
Satd. Flow (perm)	1066	3034	0	414	3386	1530	696	3287	1454	911	3161	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		56				179			382		15	
Link Speed (mph)		25			35			40			40	
Link Distance (ft)		1019			1253			775			948	
Travel Time (s)		27.8			24.4			13.2			16.2	
Confl. Peds. (#/hr)	4			3					3			4
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	3%	4%	3%	1%	0%	4%	3%	6%	2%	5%	9%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	85	313	144	139	184	52	272	330	382	60	322	54
Shared Lane Traffic (%)												
Lane Group Flow (vph)	85	457	0	139	184	52	272	330	382	60	376	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	custom	pm+pt	NA	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8			4		4	6		8	2		
Detector Phase	3	8		7	4	4	1	6	8	5	2	
Switch Phase												
Minimum Initial (s)	3.0	3.0		3.0	3.0	3.0	3.0	20.0	3.0	3.0	15.0	
Minimum Split (s)	9.0	9.0		9.0	9.0	9.0	9.0	26.0	9.0	9.0	21.0	
Total Split (s)	15.0	37.0		21.0	43.0	43.0	29.0	55.0	37.0	15.0	41.0	
Total Split (%)	11.7%	28.9%		16.4%	33.6%	33.6%	22.7%	43.0%	28.9%	11.7%	32.0%	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None		None	None	None	None	C-Max	None	None	C-Max	

Intersection Summary

Area Type:	Other
Cycle Length: 128	
Actuated Cycle Length: 128	
Offset: 83 (65%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	

Splits and Phases: 6: SR 6309 & Coal Street/Highland Park Blvd



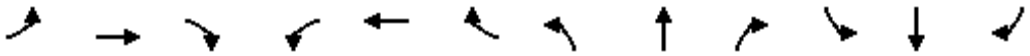
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	79	291	134	129	171	48	253	307	355	56	299	50
Future Volume (veh/h)	79	291	134	129	171	48	253	307	355	56	299	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		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	1752	1752	1808	1758	1786	1800	1722	1736	1761	1772	1730	1741
Adj Flow Rate, veh/h	85	313	101	139	184	0	272	330	0	60	322	50
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, %	3	3	4	3	1	0	4	3	6	2	5	9
Cap, veh/h	335	398	126	253	640		644	1807		623	1355	208
Arrive On Green	0.07	0.16	0.15	0.09	0.19	0.00	0.19	0.92	0.00	0.04	0.47	0.47
Sat Flow, veh/h	1669	2482	786	1674	3393	1525	1640	3298	1493	1688	2854	439
Grp Volume(v), veh/h	85	208	206	139	184	0	272	330	0	60	184	188
Grp Sat Flow(s),veh/h/ln	1669	1665	1603	1674	1697	1525	1640	1649	1493	1688	1643	1650
Q Serve(g_s), s	5.3	15.3	15.9	8.5	6.0	0.0	10.5	1.3	0.0	2.3	8.5	8.7
Cycle Q Clear(g_c), s	5.3	15.3	15.9	8.5	6.0	0.0	10.5	1.3	0.0	2.3	8.5	8.7
Prop In Lane	1.00		0.49	1.00		1.00	1.00		1.00	1.00		0.27
Lane Grp Cap(c), veh/h	335	267	257	253	640		644	1807		623	780	783
V/C Ratio(X)	0.25	0.78	0.80	0.55	0.29		0.42	0.18		0.10	0.24	0.24
Avail Cap(c_a), veh/h	355	416	401	304	1007		764	1807		686	780	783
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.67	1.67	1.67	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	0.92	0.92	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.4	51.6	52.0	39.1	44.5	0.0	11.4	2.5	0.0	15.6	19.9	20.0
Incr Delay (d2), s/veh	0.4	4.9	6.3	1.9	0.2	0.0	0.4	0.2	0.0	0.1	0.7	0.7
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(95%),veh/ln	4.1	11.1	11.2	6.5	4.5	0.0	5.7	0.8	0.0	1.6	6.0	6.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.8	56.5	58.3	41.0	44.8	0.0	11.8	2.7	0.0	15.6	20.6	20.8
LnGrp LOS	D	E	E	D	D		B	A		B	C	C
Approach Vol, veh/h		499			323			602			432	
Approach Delay, s/veh		54.6			43.1			6.8			20.0	
Approach LOS		D			D			A			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.6	65.7	13.5	29.1	10.3	75.1	17.1	25.5
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	23.0	35.0	9.0	37.0	9.0	49.0	15.0	31.0
Max Q Clear Time (g_c+I1), s	13.0	0.0	7.8	8.5	4.8	0.0	11.0	17.9
Green Ext Time (p_c), s	0.6	0.0	0.0	0.7	0.0	0.0	0.1	1.7

Intersection Summary	
HCM 6th Ctrl Delay	29.0
HCM 6th LOS	C

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	21	0	2	0	34	51	2	36	0
Future Volume (vph)	0	0	0	21	0	2	0	34	51	2	36	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	16	16	16	15	15	15	13	13	13	13	13	13
Grade (%)		0%			-1%			1%			-2%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt					0.987			0.919				
Flt Protected					0.957						0.997	
Satd. Flow (prot)	0	2000	0	0	1487	0	0	1642	0	0	1871	0
Flt Permitted					0.957						0.997	
Satd. Flow (perm)	0	2000	0	0	1487	0	0	1642	0	0	1871	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		198			1616			151			711	
Travel Time (s)		5.4			44.1			4.1			19.4	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	2%	0%	29%	2%	2%	0%	0%	6%	2%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	0	0	0	28	0	3	0	45	68	3	48	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	31	0	0	113	0	0	51	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	0	21	0	2	0	34	51	2	36	0
Future Vol, veh/h	0	0	0	21	0	2	0	34	51	2	36	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	-1	-	-	1	-	-	-2	-
Peak Hour Factor	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	0	2	0	29	2	2	0	0	6	2	0	0
Mvmt Flow	0	0	0	28	0	3	0	45	68	3	48	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	135	167	48	133	133	79	48	0	0	113	0	0
Stage 1	54	54	-	79	79	-	-	-	-	-	-	-
Stage 2	81	113	-	54	54	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.52	6.2	7.19	6.32	6.12	4.3	-	-	4.3	-	-
Critical Hdwy Stg 1	6.1	5.52	-	6.19	5.32	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.52	-	6.19	5.32	-	-	-	-	-	-	-
Follow-up Hdwy	3	4.018	3.1	3.3	4.018	3.1	3	-	-	3	-	-
Pot Cap-1 Maneuver	972	726	1091	888	763	1050	1156	-	-	1099	-	-
Stage 1	1120	850	-	987	833	-	-	-	-	-	-	-
Stage 2	1082	802	-	1019	852	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	967	724	1091	886	761	1050	1156	-	-	1099	-	-
Mov Cap-2 Maneuver	967	724	-	886	761	-	-	-	-	-	-	-
Stage 1	1120	847	-	987	833	-	-	-	-	-	-	-
Stage 2	1079	802	-	1016	849	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	9.2	0	0.4
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1156	-	-	-	898	1099	-	-
HCM Lane V/C Ratio	-	-	-	-	0.034	0.002	-	-
HCM Control Delay (s)	0	-	-	0	9.2	8.3	0	-
HCM Lane LOS	A	-	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	-	0.1	0	-	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	75	52	2	55	21	0
Future Volume (vph)	75	52	2	55	21	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	1%			-1%	2%	
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)			75		75	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.944					
Flt Protected				0.998	0.950	
Satd. Flow (prot)	1576	0	0	1631	1312	0
Flt Permitted				0.998	0.950	
Satd. Flow (perm)	1576	0	0	1631	1312	0
Link Speed (mph)	25			25	25	
Link Distance (ft)	645			151	550	
Travel Time (s)	17.6			4.1	15.0	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	12%	2%	11%	29%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	83	58	2	61	23	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	141	0	0	63	23	0
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	75	52	2	55	21	0
Future Vol, veh/h	75	52	2	55	21	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	1	-	-	-1	2	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	4	12	2	11	29	2
Mvmt Flow	83	58	2	61	23	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	141	0	177	112
Stage 1	-	-	-	-	112	-
Stage 2	-	-	-	-	65	-
Critical Hdwy	-	-	4.3	-	7.09	6.42
Critical Hdwy Stg 1	-	-	-	-	6.09	-
Critical Hdwy Stg 2	-	-	-	-	6.09	-
Follow-up Hdwy	-	-	3	-	3.3	3.1
Pot Cap-1 Maneuver	-	-	1079	-	881	1046
Stage 1	-	-	-	-	987	-
Stage 2	-	-	-	-	1007	-
Platoon blocked, %	-	-	1	-	1	1
Mov Cap-1 Maneuver	-	-	1079	-	879	1046
Mov Cap-2 Maneuver	-	-	-	-	879	-
Stage 1	-	-	-	-	987	-
Stage 2	-	-	-	-	1005	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	9.2
HCM LOS			A

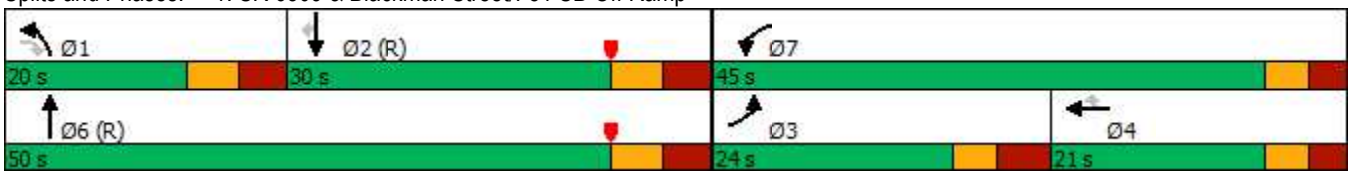
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	879	-	-	1079	-
HCM Lane V/C Ratio	0.027	-	-	0.002	-
HCM Control Delay (s)	9.2	-	-	8.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	226	0	327	540	212	119	234	588	0	0	973	194
Future Volume (vph)	226	0	327	540	212	119	234	588	0	0	973	194
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	14	13	11	14	12	12	12	13	12	14
Grade (%)		-1%			-4%			-3%			-3%	
Storage Length (ft)	380		0	180		180	275		0	0		225
Storage Lanes	1		1	1		1	2		0	0		1
Taper Length (ft)	75			100			140			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.97	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor												
Frt			0.850			0.850						0.850
Flt Protected	0.950			0.950			0.950					
Satd. Flow (prot)	1573	0	1577	1750	1707	1527	3177	3403	0	0	3437	1608
Flt Permitted	0.950			0.950			0.950					
Satd. Flow (perm)	1573	0	1577	1750	1707	1527	3177	3403	0	0	3437	1608
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			195			209						195
Link Speed (mph)		35			25			35			35	
Link Distance (ft)		1012			1172			871			378	
Travel Time (s)		19.7			32.0			17.0			7.4	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	0%	4%	3%	4%	9%	6%	2%	0%	0%	1%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	248	0	359	593	233	131	257	646	0	0	1069	213
Shared Lane Traffic (%)												
Lane Group Flow (vph)	248	0	359	593	233	131	257	646	0	0	1069	213
Turn Type	Prot		Perm	Prot	NA	Perm	Prot	NA			NA	Perm
Protected Phases	3			7	4		1	6			2	
Permitted Phases			1			4						2
Detector Phase	3		1	7	4	4	1	6			2	2
Switch Phase												
Minimum Initial (s)	3.0		3.0	3.0	3.0	3.0	3.0	10.0			10.0	10.0
Minimum Split (s)	10.0		10.1	8.9	8.9	8.9	10.1	17.1			17.1	17.1
Total Split (s)	24.0		20.0	45.0	21.0	21.0	20.0	50.0			30.0	30.0
Total Split (%)	25.3%		21.1%	47.4%	22.1%	22.1%	21.1%	52.6%			31.6%	31.6%
Yellow Time (s)	3.1		3.6	3.1	3.1	3.1	3.6	3.6			3.6	3.6
All-Red Time (s)	3.9		3.5	2.8	2.8	2.8	3.5	3.5			3.5	3.5
Lost Time Adjust (s)	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0			-1.0	-1.0
Total Lost Time (s)	6.0		6.1	4.9	4.9	4.9	6.1	6.1			6.1	6.1
Lead/Lag	Lead		Lead		Lag	Lag	Lead				Lag	Lag
Lead-Lag Optimize?	Yes		Yes		Yes	Yes	Yes				Yes	Yes
Recall Mode	None		None	None	None	None	None	C-Max			C-Max	C-Max

Intersection Summary

Area Type:	Other
Cycle Length: 95	
Actuated Cycle Length: 95	
Offset: 12 (13%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	

Splits and Phases: 1: SR 6309 & Blackman Street/I-81 SB Off Ramp



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	226	0	327	540	212	119	234	588	0	0	973	194
Future Volume (veh/h)	226	0	327	540	212	119	234	588	0	0	973	194
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	0	1852	1983	1892	1894	1826	1883	0	0	1898	1944
Adj Flow Rate, veh/h	248	0	0	593	233	0	257	646	0	0	1069	0
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	0	4	3	4	9	6	2	0	0	1	3
Cap, veh/h	303	0		750	299		380	1742	0	0	1118	
Arrive On Green	0.18	0.00	0.00	0.40	0.16	0.00	0.11	0.49	0.00	0.00	0.31	0.00
Sat Flow, veh/h	1723	248		1888	1892	1605	3375	3673	0	0	3700	1647
Grp Volume(v), veh/h	248	50.5		593	233	0	257	646	0	0	1069	0
Grp Sat Flow(s),veh/h/ln	1723	D		1888	1892	1605	1687	1789	0	0	1803	1647
Q Serve(g_s), s	13.2			26.2	11.2	0.0	6.9	10.7	0.0	0.0	27.6	0.0
Cycle Q Clear(g_c), s	13.2			26.2	11.2	0.0	6.9	10.7	0.0	0.0	27.6	0.0
Prop In Lane	1.00			1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h	303			750	299		380	1742	0	0	1118	
V/C Ratio(X)	0.82			0.79	0.78		0.68	0.37	0.00	0.00	0.96	
Avail Cap(c_a), veh/h	326			797	321		494	1742	0	0	1118	
HCM Platoon Ratio	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	0.00	1.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	37.7			25.2	38.4	0.0	40.5	15.3	0.0	0.0	32.1	0.0
Incr Delay (d2), s/veh	12.8			4.6	9.6	0.0	1.2	0.6	0.0	0.0	18.3	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
%ile BackOfQ(95%),veh/ln	10.6			18.2	10.0	0.0	5.2	7.6	0.0	0.0	20.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.5			29.7	48.0	0.0	41.6	15.9	0.0	0.0	50.4	0.0
LnGrp LOS	D			C	D		D	B	A	A	D	
Approach Vol, veh/h					826			903			1069	
Approach Delay, s/veh					34.9			23.2			50.4	
Approach LOS					C			C			D	

Timer - Assigned Phs	1	2	3	4	6	7
Phs Duration (G+Y+Rc), s	16.8	35.6	22.7	19.9	52.4	42.6
Change Period (Y+Rc), s	7.1	7.1	7.0	* 5.9	7.1	* 5.9
Max Green Setting (Gmax), s	12.9	22.9	17.0	* 15	42.9	* 39
Max Q Clear Time (g_c+I1), s	9.4	30.1	15.7	13.7	13.2	28.7
Green Ext Time (p_c), s	0.3	0.0	0.1	0.3	22.1	4.9

Intersection Summary	
HCM 6th Ctrl Delay	38.1
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

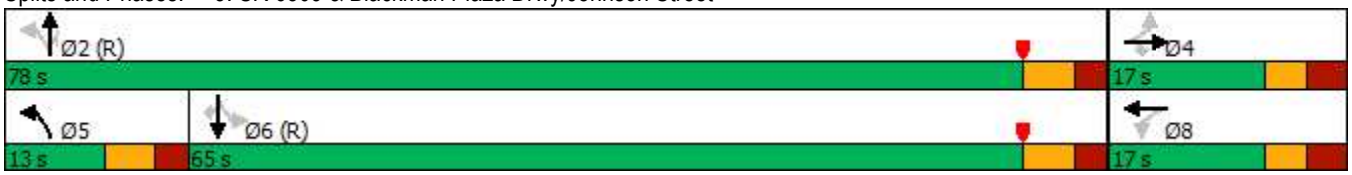
Unsignalized Delay for [EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	79	12	306	86	12	75	192	691	115	26	775	129
Future Volume (vph)	79	12	306	86	12	75	192	691	115	26	775	129
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	16	16	16	12	12	12	10	12	10	10	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	150		100	110		150
Storage Lanes	0		1	0		0	1		1	1		1
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt			0.850		0.942				0.850			0.850
Flt Protected		0.958			0.976		0.950			0.950		
Satd. Flow (prot)	0	1954	1717	0	1542	0	1580	1765	1242	1535	1782	1530
Flt Permitted		0.578			0.794		0.209			0.394		
Satd. Flow (perm)	0	1179	1717	0	1255	0	348	1765	1242	636	1782	1530
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			302		33				119			120
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		268			645			711			875	
Travel Time (s)		7.3			17.6			13.9			17.0	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	1%	12%	0%	3%	1%	2%	15%	4%	1%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	81	12	315	89	12	77	198	712	119	27	799	133
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	93	315	0	178	0	198	712	119	27	799	133
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases		4			8		5	2			6	
Permitted Phases	4		4	8			2		2	6		6
Detector Phase	4	4	4	8	8		5	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Minimum Split (s)	9.0	9.0	9.0	9.0	9.0		9.0	9.0	9.0	9.0	9.0	9.0
Total Split (s)	17.0	17.0	17.0	17.0	17.0		13.0	78.0	78.0	65.0	65.0	65.0
Total Split (%)	17.9%	17.9%	17.9%	17.9%	17.9%		13.7%	82.1%	82.1%	68.4%	68.4%	68.4%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.6	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		2.4	2.4	2.4	2.4	2.4	2.4
Lost Time Adjust (s)		-1.0	-1.0		-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)		5.0	5.0		5.0		5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag							Lead			Lag	Lag	Lag
Lead-Lag Optimize?							Yes			Yes	Yes	Yes
Recall Mode	None	None	None	None	None		None	C-Max	C-Max	C-Max	C-Max	C-Max

Intersection Summary

Area Type:	Other
Cycle Length: 95	
Actuated Cycle Length: 95	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	

Splits and Phases: 3: SR 6309 & Blackman Plaza Drwy/Johnson Street



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	79	12	306	86	12	75	192	691	115	26	775	129
Future Volume (veh/h)	79	12	306	86	12	75	192	691	115	26	775	129
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	1872	1872	1857	1632	1800	1758	1786	1772	1589	1744	1786	1800
Adj Flow Rate, veh/h	81	12	0	89	12	77	198	712	119	27	799	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	1	12	0	3	1	2	15	4	1	0
Cap, veh/h	197	25		154	19	89	441	1362	1035	474	1152	
Arrive On Green	0.12	0.13	0.00	0.12	0.13	0.12	0.07	0.77	0.77	0.64	0.64	0.00
Sat Flow, veh/h	997	198	1574	771	149	702	1701	1772	1347	650	1786	1525
Grp Volume(v), veh/h	93	0	0	178	0	0	198	712	119	27	799	0
Grp Sat Flow(s),veh/h/ln	1195	0	1574	1622	0	0	1701	1772	1347	650	1786	1525
Q Serve(g_s), s	0.0	0.0	0.0	3.2	0.0	0.0	3.2	14.8	2.1	1.6	27.3	0.0
Cycle Q Clear(g_c), s	7.1	0.0	0.0	10.3	0.0	0.0	3.2	14.8	2.1	4.6	27.3	0.0
Prop In Lane	0.87		1.00	0.50		0.43	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	209	0		245	0	0	441	1362	1035	474	1152	
V/C Ratio(X)	0.44	0.00		0.73	0.00	0.00	0.45	0.52	0.11	0.06	0.69	
Avail Cap(c_a), veh/h	209	0		245	0	0	464	1362	1035	474	1152	
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	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.58	0.58	0.00
Uniform Delay (d), s/veh	39.7	0.0	0.0	41.1	0.0	0.0	10.2	4.3	2.8	7.4	10.8	0.0
Incr Delay (d2), s/veh	0.6	0.0	0.0	9.1	0.0	0.0	0.3	1.4	0.2	0.1	2.0	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(95%),veh/ln	3.8	0.0	0.0	8.4	0.0	0.0	2.7	7.4	0.8	0.4	13.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.3	0.0	0.0	50.2	0.0	0.0	10.4	5.7	3.0	7.6	12.9	0.0
LnGrp LOS	D	A		D	A	A	B	A	A	A	B	
Approach Vol, veh/h		93			178			1029			826	
Approach Delay, s/veh		40.3			50.2			6.3			12.7	
Approach LOS		D			D			A			B	

Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		78.0		17.0	11.7	66.3		17.0				
Change Period (Y+Rc), s		6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s		72.0		11.0	7.0	59.0		11.0				
Max Q Clear Time (g_c+I1), s		0.0		9.1	5.7	0.0		12.3				
Green Ext Time (p_c), s		0.0		0.0	0.0	0.0		0.0				

Intersection Summary		
HCM 6th Ctrl Delay		13.9
HCM 6th LOS		B

Notes

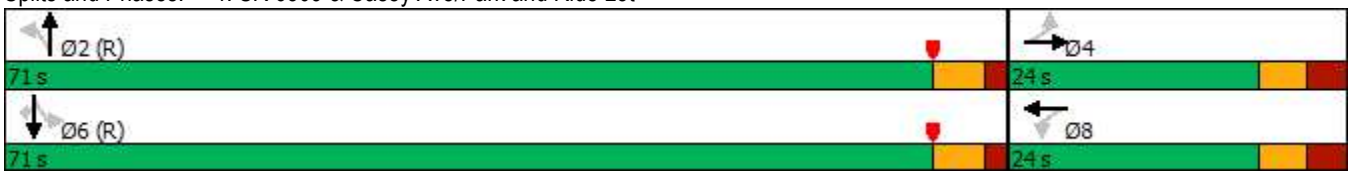
Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	239	0	24	3	0	8	20	860	3	2	943	182
Future Volume (vph)	239	0	24	3	0	8	20	860	3	2	943	182
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	13	13	13	10	13	13	10	13	10
Grade (%)		-2%			0%			0%			-1%	
Storage Length (ft)	250		0	0		0	125		0	125		125
Storage Lanes	1		0	0		0	1		0	1		1
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.850			0.902			0.999				0.850
Flt Protected	0.950				0.987		0.950			0.950		
Satd. Flow (prot)	1535	1387	0	0	1656	0	1438	1804	0	1604	1833	1407
Flt Permitted	0.750				0.951		0.180			0.221		
Satd. Flow (perm)	1212	1387	0	0	1596	0	272	1804	0	373	1833	1407
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		180			28							147
Link Speed (mph)		30			25			35			35	
Link Distance (ft)		870			135			875			1750	
Travel Time (s)		19.8			3.7			17.0			34.1	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	0%	4%	0%	0%	0%	11%	3%	0%	0%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	244	0	24	3	0	8	20	878	3	2	962	186
Shared Lane Traffic (%)												
Lane Group Flow (vph)	244	24	0	0	11	0	20	881	0	2	962	186
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Minimum Split (s)	8.3	8.3		8.3	8.3		7.4	7.4		7.4	7.4	7.4
Total Split (s)	24.0	24.0		24.0	24.0		71.0	71.0		71.0	71.0	71.0
Total Split (%)	25.3%	25.3%		25.3%	25.3%		74.7%	74.7%		74.7%	74.7%	74.7%
Yellow Time (s)	3.4	3.4		3.4	3.4		3.7	3.7		3.7	3.7	3.7
All-Red Time (s)	2.9	2.9		2.9	2.9		1.7	1.7		1.7	1.7	1.7
Lost Time Adjust (s)	-1.0	-1.0			-1.0		-1.0	-1.0		-1.0	-1.0	-1.0
Total Lost Time (s)	5.3	5.3			5.3		4.4	4.4		4.4	4.4	4.4
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	C-Max

Intersection Summary

Area Type:	Other
Cycle Length: 95	
Actuated Cycle Length: 95	
Offset: 77 (81%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	

Splits and Phases: 4: SR 6309 & Casey Ave/Park and Ride Lot



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	239	0	24	3	0	8	20	860	3	2	943	182
Future Volume (veh/h)	239	0	24	3	0	8	20	860	3	2	943	182
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	1803	1875	1818	1872	1872	1872	1646	1828	1872	1837	1881	1809
Adj Flow Rate, veh/h	244	0	23	3	0	8	20	878	0	2	962	153
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	5	0	4	0	0	0	11	3	0	0	2	2
Cap, veh/h	358	0	313	108	25	226	258	1282	0	535	1319	1075
Arrive On Green	0.20	0.00	0.19	0.19	0.00	0.19	1.00	1.00	0.00	0.70	0.70	0.70
Sat Flow, veh/h	1432	0	1589	303	128	1150	469	1828	0	655	1881	1533
Grp Volume(v), veh/h	244	0	23	11	0	0	20	878	0	2	962	153
Grp Sat Flow(s),veh/h/ln	1432	0	1589	1581	0	0	469	1828	0	655	1881	1533
Q Serve(g_s), s	15.6	0.0	1.1	0.0	0.0	0.0	1.9	0.0	0.0	0.1	29.7	3.1
Cycle Q Clear(g_c), s	15.7	0.0	1.1	0.5	0.0	0.0	31.6	0.0	0.0	0.1	29.7	3.1
Prop In Lane	1.00		1.00	0.27		0.73	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	358	0	313	343	0	0	258	1282	0	535	1319	1075
V/C Ratio(X)	0.68	0.00	0.07	0.03	0.00	0.00	0.08	0.69	0.00	0.00	0.73	0.14
Avail Cap(c_a), veh/h	358	0	313	343	0	0	258	1282	0	535	1319	1075
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	0.84	0.84	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.9	0.0	31.5	31.3	0.0	0.0	7.1	0.0	0.0	4.3	8.7	4.7
Incr Delay (d2), s/veh	4.3	0.0	0.0	0.0	0.0	0.0	0.5	2.5	0.0	0.0	3.6	0.3
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(95%),veh/ln	9.8	0.0	0.8	0.4	0.0	0.0	0.3	1.6	0.0	0.0	16.2	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.3	0.0	31.5	31.3	0.0	0.0	7.6	2.5	0.0	4.3	12.3	5.0
LnGrp LOS	D	A	C	C	A	A	A	A	A	A	B	A
Approach Vol, veh/h		267			11			898			1117	
Approach Delay, s/veh		40.4			31.3			2.6			11.3	
Approach LOS		D			C			A			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		71.0		24.0		71.0		24.0				
Change Period (Y+Rc), s		5.4		6.3		5.4		6.3				
Max Green Setting (Gmax), s		65.6		17.7		65.6		17.7				
Max Q Clear Time (g_c+I1), s		0.0		18.2		0.0		2.5				
Green Ext Time (p_c), s		0.0		0.0		0.0		0.0				

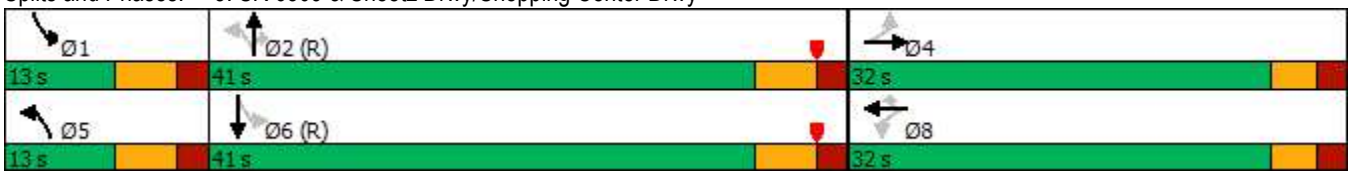
Intersection Summary												
HCM 6th Ctrl Delay			11.4									
HCM 6th LOS			B									

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	69	10	5	229	38	144	61	914	207	123	832	85
Future Volume (vph)	69	10	5	229	38	144	61	914	207	123	832	85
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	15	15	15	12	12	12	10	12	13	10	12	14
Grade (%)		0%			-5%			1%			-3%	
Storage Length (ft)	0		0	0		150	100		185	235		0
Storage Lanes	0		0	0		1	1		1	1		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor					1.00						1.00	
Frt		0.992				0.850			0.850		0.986	
Flt Protected		0.960			0.959		0.950			0.950		
Satd. Flow (prot)	0	1886	0	0	1769	1568	1557	3369	1558	1604	3376	0
Flt Permitted		0.513			0.722		0.221			0.203		
Satd. Flow (perm)	0	1008	0	0	1331	1568	362	3369	1558	343	3376	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4				150			216		15	
Link Speed (mph)		25			25			40			40	
Link Distance (ft)		263			298			338			775	
Travel Time (s)		7.2			8.1			5.8			13.2	
Confl. Peds. (#/hr)				1								1
Confl. Bikes (#/hr)												
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	2%	1%	1%	1%	1%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	72	10	5	239	40	150	64	952	216	128	867	89
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	87	0	0	279	150	64	952	216	128	956	0
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		8	2		2	6		
Detector Phase	4	4		8	8	8	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	5.0	20.0	20.0	5.0	20.0	
Minimum Split (s)	15.0	15.0		15.0	15.0	15.0	11.0	26.0	26.0	11.0	26.0	
Total Split (s)	32.0	32.0		32.0	32.0	32.0	13.0	41.0	41.0	13.0	41.0	
Total Split (%)	37.2%	37.2%		37.2%	37.2%	37.2%	15.1%	47.7%	47.7%	15.1%	47.7%	
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)		-1.0			-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
Total Lost Time (s)		4.0			4.0	4.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	

Intersection Summary

Area Type:	Other
Cycle Length: 86	
Actuated Cycle Length: 86	
Offset: 25 (29%), Referenced to phase 2:NBTL and 6:SBTL, Start of Red	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	

Splits and Phases: 5: SR 6309 & Sheetz Drwy/Shopping Center Drwy



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	69	10	5	229	38	144	61	914	207	123	832	85
Future Volume (veh/h)	69	10	5	229	38	144	61	914	207	123	832	85
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	1872	1872	1872	1986	1986	1986	1766	1780	1852	1898	1898	1944
Adj Flow Rate, veh/h	72	10	3	239	40	0	64	952	0	128	867	78
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	2	1	1	1	1	3
Cap, veh/h	351	46	12	373	49		514	1913		454	1924	173
Arrive On Green	0.19	0.20	0.19	0.19	0.20	0.00	0.06	0.57	0.00	0.13	1.00	1.00
Sat Flow, veh/h	1336	225	57	1442	241	1683	1682	3383	1569	1807	3345	301
Grp Volume(v), veh/h	85	0	0	279	0	0	64	952	0	128	467	478
Grp Sat Flow(s),veh/h/ln	1617	0	0	1683	0	1683	1682	1691	1569	1807	1803	1843
Q Serve(g_s), s	0.0	0.0	0.0	9.9	0.0	0.0	1.3	14.6	0.0	2.4	0.0	0.0
Cycle Q Clear(g_c), s	3.7	0.0	0.0	13.6	0.0	0.0	1.3	14.6	0.0	2.4	0.0	0.0
Prop In Lane	0.85		0.04	0.86		1.00	1.00		1.00	1.00		0.16
Lane Grp Cap(c), veh/h	390	0	0	403	0		514	1913		454	1037	1060
V/C Ratio(X)	0.22	0.00	0.00	0.69	0.00		0.12	0.50		0.28	0.45	0.45
Avail Cap(c_a), veh/h	569	0	0	598	0		575	1913		501	1037	1060
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	0.45	0.45	0.45
Uniform Delay (d), s/veh	29.0	0.0	0.0	32.8	0.0	0.0	6.4	11.3	0.0	7.2	0.0	0.0
Incr Delay (d2), s/veh	0.3	0.0	0.0	2.1	0.0	0.0	0.1	0.9	0.0	0.2	0.6	0.6
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(95%),veh/ln	2.8	0.0	0.0	9.8	0.0	0.0	0.7	8.5	0.0	1.3	0.3	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.3	0.0	0.0	35.0	0.0	0.0	6.5	12.2	0.0	7.4	0.6	0.6
LnGrp LOS	C	A	A	C	A		A	B		A	A	A
Approach Vol, veh/h		85			279			1016			1073	
Approach Delay, s/veh		29.3			35.0			11.9			1.4	
Approach LOS		C			C			B			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.8	53.6		21.6	9.9	54.5		21.6				
Change Period (Y+Rc), s	6.0	6.0		5.0	6.0	6.0		5.0				
Max Green Setting (Gmax), s	7.0	35.0		27.0	7.0	35.0		27.0				
Max Q Clear Time (g_c+I1), s	4.9	0.0		5.7	3.8	0.0		15.6				
Green Ext Time (p_c), s	0.1	0.0		0.2	0.0	0.0		1.0				

Intersection Summary	
HCM 6th Ctrl Delay	10.5
HCM 6th LOS	B

Notes

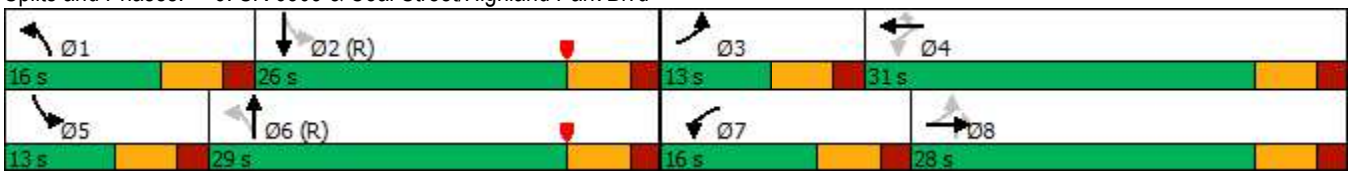
Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

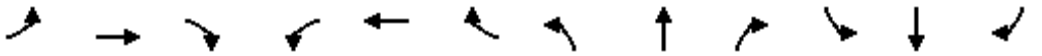
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	133	503	209	301	467	80	276	399	500	92	447	112
Future Volume (vph)	133	503	209	301	467	80	276	399	500	92	447	112
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	13	12	12	12	10	12	13	10	12	13
Grade (%)		1%			0%			2%			0%	
Storage Length (ft)	235		0	650		200	300		0	125		0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor	0.99	1.00		1.00			1.00		0.98		0.99	
Frt		0.956				0.850			0.850		0.970	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1612	3082	0	1693	3386	1485	1564	3287	1505	1565	3228	0
Flt Permitted	0.434			0.155			0.218			0.508		
Satd. Flow (perm)	733	3082	0	276	3386	1485	359	3287	1482	837	3228	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		72				190			521		34	
Link Speed (mph)		25			35			40			40	
Link Distance (ft)		1019			1253			775			948	
Travel Time (s)		27.8			24.4			13.2			16.2	
Confl. Peds. (#/hr)	13		3	3			3		3			13
Confl. Bikes (#/hr)												
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	1%	3%	1%	1%	3%	1%	3%	4%	2%	1%	7%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	139	524	218	314	486	83	288	416	521	96	466	117
Shared Lane Traffic (%)												
Lane Group Flow (vph)	139	742	0	314	486	83	288	416	521	96	583	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	custom	pm+pt	NA	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8			4		4	6		8	2		
Detector Phase	3	8		7	4	4	1	6	8	5	2	
Switch Phase												
Minimum Initial (s)	3.0	3.0		3.0	3.0	3.0	3.0	20.0	3.0	3.0	20.0	
Minimum Split (s)	9.0	9.0		9.0	9.0	9.0	9.0	26.0	9.0	9.0	26.0	
Total Split (s)	13.0	28.0		16.0	31.0	31.0	16.0	29.0	28.0	13.0	26.0	
Total Split (%)	15.1%	32.6%		18.6%	36.0%	36.0%	18.6%	33.7%	32.6%	15.1%	30.2%	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None		None	None	None	None	C-Max	None	None	C-Max	

Intersection Summary

Area Type:	Other
Cycle Length: 86	
Actuated Cycle Length: 86	
Offset: 1 (1%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	

Splits and Phases: 6: SR 6309 & Coal Street/Highland Park Blvd





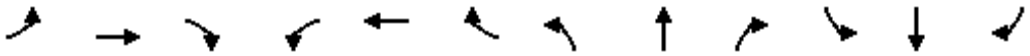
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	133	503	209	301	467	80	276	399	500	92	447	112
Future Volume (veh/h)	133	503	209	301	467	80	276	399	500	92	447	112
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		0.98
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	1766	1780	1822	1786	1786	1758	1764	1736	1790	1772	1786	1770
Adj Flow Rate, veh/h	139	524	158	314	486	0	288	416	0	96	466	94
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	1	3	1	1	3	1	3	4	2	1	7
Cap, veh/h	386	629	189	341	955		399	1052		445	744	149
Arrive On Green	0.09	0.25	0.23	0.13	0.28	0.00	0.21	0.53	0.00	0.07	0.27	0.25
Sat Flow, veh/h	1682	2553	766	1701	3393	1490	1680	3298	1517	1688	2808	563
Grp Volume(v), veh/h	139	346	336	314	486	0	288	416	0	96	280	280
Grp Sat Flow(s),veh/h/ln	1682	1691	1627	1701	1697	1490	1680	1649	1517	1688	1697	1674
Q Serve(g_s), s	5.1	16.7	16.9	11.0	10.3	0.0	10.8	6.4	0.0	3.4	12.5	12.7
Cycle Q Clear(g_c), s	5.1	16.7	16.9	11.0	10.3	0.0	10.8	6.4	0.0	3.4	12.5	12.7
Prop In Lane	1.00		0.47	1.00		1.00	1.00		1.00	1.00		0.34
Lane Grp Cap(c), veh/h	386	417	401	341	955		399	1052		445	450	444
V/C Ratio(X)	0.36	0.83	0.84	0.92	0.51		0.72	0.40		0.22	0.62	0.63
Avail Cap(c_a), veh/h	386	452	435	341	1026		399	1052		478	450	444
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.67	1.67	1.67	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	0.81	0.81	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.8	30.7	31.0	23.9	25.9	0.0	17.6	15.2	0.0	19.9	27.8	28.0
Incr Delay (d2), s/veh	0.6	11.6	12.6	29.2	0.4	0.0	5.1	0.9	0.0	0.2	6.4	6.6
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(95%),veh/ln	3.7	12.7	12.5	11.7	7.3	0.0	6.7	3.9	0.0	2.3	9.4	9.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.4	42.3	43.6	53.1	26.3	0.0	22.7	16.1	0.0	20.2	34.2	34.7
LnGrp LOS	C	D	D	D	C		C	B		C	C	C
Approach Vol, veh/h		821			800			704			656	
Approach Delay, s/veh		39.3			36.8			18.8			32.4	
Approach LOS		D			D			B			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.0	27.8	13.0	29.2	11.4	32.4	16.0	26.2
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	10.0	20.0	7.0	25.0	7.0	23.0	10.0	22.0
Max Q Clear Time (g_c+I1), s	13.3	0.0	7.6	12.8	5.9	0.0	13.5	19.2
Green Ext Time (p_c), s	0.0	0.0	0.0	1.6	0.0	0.0	0.0	1.0

Intersection Summary	
HCM 6th Ctrl Delay	32.3
HCM 6th LOS	C

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	62	0	3	1	86	25	1	49	0
Future Volume (vph)	0	0	0	62	0	3	1	86	25	1	49	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	16	16	16	15	15	15	13	13	13	13	13	13
Grade (%)		0%			-1%			1%			-2%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt					0.994			0.970				
Flt Protected					0.954						0.999	
Satd. Flow (prot)	0	2000	0	0	1751	0	0	1787	0	0	1876	0
Flt Permitted					0.954						0.999	
Satd. Flow (perm)	0	2000	0	0	1751	0	0	1787	0	0	1876	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		198			1616			151			711	
Travel Time (s)		5.4			44.1			4.1			19.4	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	2%	0%	8%	2%	2%	0%	0%	2%	2%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	0	0	0	68	0	3	1	95	27	1	54	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	71	0	0	123	0	0	55	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	0	62	0	3	1	86	25	1	49	0
Future Vol, veh/h	0	0	0	62	0	3	1	86	25	1	49	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	-1	-	-	1	-	-	-2	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	0	2	0	8	2	2	0	0	2	2	0	0
Mvmt Flow	0	0	0	68	0	3	1	95	27	1	54	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	168	180	54	167	167	109	54	0	0	122	0	0
Stage 1	56	56	-	111	111	-	-	-	-	-	-	-
Stage 2	112	124	-	56	56	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.52	6.2	6.98	6.32	6.12	4.3	-	-	4.3	-	-
Critical Hdwy Stg 1	6.1	5.52	-	5.98	5.32	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.52	-	5.98	5.32	-	-	-	-	-	-	-
Follow-up Hdwy	3	4.018	3.1	3.5	4.018	3.1	3	-	-	3	-	-
Pot Cap-1 Maneuver	923	714	1083	806	733	1011	1151	-	-	1091	-	-
Stage 1	1117	848	-	902	808	-	-	-	-	-	-	-
Stage 2	1040	793	-	963	851	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	918	713	1083	804	732	1011	1151	-	-	1091	-	-
Mov Cap-2 Maneuver	918	713	-	804	732	-	-	-	-	-	-	-
Stage 1	1116	847	-	901	807	-	-	-	-	-	-	-
Stage 2	1036	792	-	962	850	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	9.9	0.1	0.2
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1151	-	-	-	812	1091	-	-
HCM Lane V/C Ratio	0.001	-	-	-	0.088	0.001	-	-
HCM Control Delay (s)	8.1	0	-	0	9.9	8.3	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	-	0.3	0	-	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	110	35	1	110	61	2
Future Volume (vph)	110	35	1	110	61	2
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	1%			-1%	2%	
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)			75		75	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.967				0.996	
Flt Protected					0.954	
Satd. Flow (prot)	1579	0	0	1723	1543	0
Flt Permitted					0.954	
Satd. Flow (perm)	1579	0	0	1723	1543	0
Link Speed (mph)	25			25	25	
Link Distance (ft)	645			151	550	
Travel Time (s)	17.6			4.1	15.0	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	40%	2%	5%	10%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	122	39	1	122	68	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	161	0	0	123	70	0
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	2

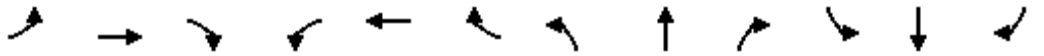
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	110	35	1	110	61	2
Future Vol, veh/h	110	35	1	110	61	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	1	-	-	-1	2	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	40	2	5	10	2
Mvmt Flow	122	39	1	122	68	2

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	161	0	266	142
Stage 1	-	-	-	-	142	-
Stage 2	-	-	-	-	124	-
Critical Hdwy	-	-	4.3	-	6.9	6.42
Critical Hdwy Stg 1	-	-	-	-	5.9	-
Critical Hdwy Stg 2	-	-	-	-	5.9	-
Follow-up Hdwy	-	-	3	-	3.1	3.1
Pot Cap-1 Maneuver	-	-	1066	-	837	1027
Stage 1	-	-	-	-	1032	-
Stage 2	-	-	-	-	999	-
Platoon blocked, %	-	-	1	-	1	1
Mov Cap-1 Maneuver	-	-	1066	-	836	1027
Mov Cap-2 Maneuver	-	-	-	-	836	-
Stage 1	-	-	-	-	1032	-
Stage 2	-	-	-	-	998	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	9.7
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	841	-	-	1066	-
HCM Lane V/C Ratio	0.083	-	-	0.001	-
HCM Control Delay (s)	9.7	-	-	8.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0	-

2024/2029 Projected (Build) Conditions With Improvements

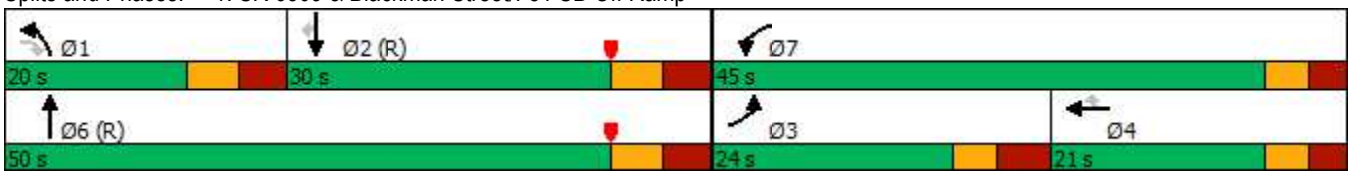


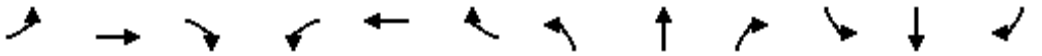
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	226	0	327	540	212	119	234	588	0	0	973	194
Future Volume (vph)	226	0	327	540	212	119	234	588	0	0	973	194
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	14	13	11	14	12	12	12	13	12	14
Grade (%)		-1%			-4%			-3%			-3%	
Storage Length (ft)	380		0	180		180	275		0	0		225
Storage Lanes	1		1	1		1	2		0	0		1
Taper Length (ft)	75			100			140			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.97	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor												
Frt			0.850			0.850						0.850
Flt Protected	0.950			0.950			0.950					
Satd. Flow (prot)	1573	0	1577	1750	1707	1527	3177	3403	0	0	3437	1608
Flt Permitted	0.950			0.950			0.950					
Satd. Flow (perm)	1573	0	1577	1750	1707	1527	3177	3403	0	0	3437	1608
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			195			209						195
Link Speed (mph)		35			25			35			35	
Link Distance (ft)		1012			1172			871			378	
Travel Time (s)		19.7			32.0			17.0			7.4	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	0%	4%	3%	4%	9%	6%	2%	0%	0%	1%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	248	0	359	593	233	131	257	646	0	0	1069	213
Shared Lane Traffic (%)												
Lane Group Flow (vph)	248	0	359	593	233	131	257	646	0	0	1069	213
Turn Type	Prot		Perm	Prot	NA	Perm	Prot	NA			NA	Perm
Protected Phases	3			7	4		1	6			2	
Permitted Phases			1			4						2
Detector Phase	3		1	7	4	4	1	6			2	2
Switch Phase												
Minimum Initial (s)	3.0		3.0	3.0	3.0	3.0	3.0	10.0			10.0	10.0
Minimum Split (s)	10.0		10.1	8.9	8.9	8.9	10.1	17.1			17.1	17.1
Total Split (s)	24.0		20.0	45.0	21.0	21.0	20.0	50.0			30.0	30.0
Total Split (%)	25.3%		21.1%	47.4%	22.1%	22.1%	21.1%	52.6%			31.6%	31.6%
Yellow Time (s)	3.1		3.6	3.1	3.1	3.1	3.6	3.6			3.6	3.6
All-Red Time (s)	3.9		3.5	2.8	2.8	2.8	3.5	3.5			3.5	3.5
Lost Time Adjust (s)	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0			-1.0	-1.0
Total Lost Time (s)	6.0		6.1	4.9	4.9	4.9	6.1	6.1			6.1	6.1
Lead/Lag	Lead		Lead		Lag	Lag	Lead				Lag	Lag
Lead-Lag Optimize?	Yes		Yes		Yes	Yes	Yes				Yes	Yes
Recall Mode	None		None	None	None	None	None	C-Max			C-Max	C-Max

Intersection Summary

Area Type:	Other
Cycle Length: 95	
Actuated Cycle Length: 95	
Offset: 12 (13%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	

Splits and Phases: 1: SR 6309 & Blackman Street/I-81 SB Off Ramp





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	226	0	327	540	212	119	234	588	0	0	973	194
Future Volume (veh/h)	226	0	327	540	212	119	234	588	0	0	973	194
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	0	1852	1983	1892	1894	1826	1883	0	0	1898	1944
Adj Flow Rate, veh/h	248	0	0	593	233	0	257	646	0	0	1069	0
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	0	4	3	4	9	6	2	0	0	1	3
Cap, veh/h	303	0		750	299		380	1742	0	0	1118	
Arrive On Green	0.18	0.00	0.00	0.40	0.16	0.00	0.11	0.49	0.00	0.00	0.31	0.00
Sat Flow, veh/h	1723	248		1888	1892	1605	3375	3673	0	0	3700	1647
Grp Volume(v), veh/h	248	50.5		593	233	0	257	646	0	0	1069	0
Grp Sat Flow(s),veh/h/ln	1723	D		1888	1892	1605	1687	1789	0	0	1803	1647
Q Serve(g_s), s	13.2			26.2	11.2	0.0	6.9	10.7	0.0	0.0	27.6	0.0
Cycle Q Clear(g_c), s	13.2			26.2	11.2	0.0	6.9	10.7	0.0	0.0	27.6	0.0
Prop In Lane	1.00			1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h	303			750	299		380	1742	0	0	1118	
V/C Ratio(X)	0.82			0.79	0.78		0.68	0.37	0.00	0.00	0.96	
Avail Cap(c_a), veh/h	326			797	321		494	1742	0	0	1118	
HCM Platoon Ratio	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	0.00	1.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	37.7			25.2	38.4	0.0	40.5	15.3	0.0	0.0	32.1	0.0
Incr Delay (d2), s/veh	12.8			4.6	9.6	0.0	1.2	0.6	0.0	0.0	18.3	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
%ile BackOfQ(95%),veh/ln	10.6			18.2	10.0	0.0	5.2	7.6	0.0	0.0	20.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.5			29.7	48.0	0.0	41.6	15.9	0.0	0.0	50.4	0.0
LnGrp LOS	D			C	D		D	B	A	A	D	
Approach Vol, veh/h					826			903			1069	
Approach Delay, s/veh					34.9			23.2			50.4	
Approach LOS					C			C			D	

Timer - Assigned Phs	1	2	3	4	6	7
Phs Duration (G+Y+Rc), s	16.8	35.6	22.7	19.9	52.4	42.6
Change Period (Y+Rc), s	7.1	7.1	7.0	* 5.9	7.1	* 5.9
Max Green Setting (Gmax), s	12.9	22.9	17.0	* 15	42.9	* 39
Max Q Clear Time (g_c+I1), s	9.4	30.1	15.7	13.7	13.2	28.7
Green Ext Time (p_c), s	0.3	0.0	0.1	0.3	22.1	4.9

Intersection Summary	
HCM 6th Ctrl Delay	38.1
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

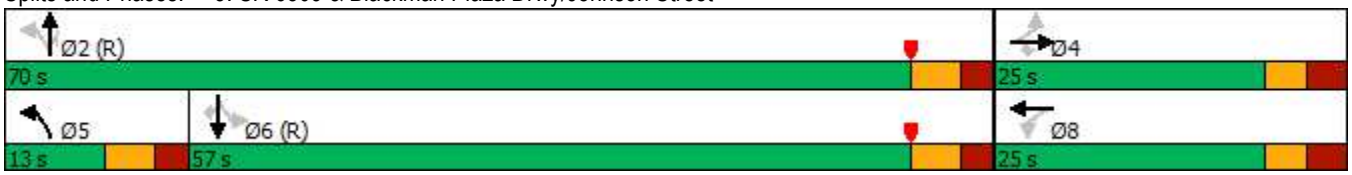
Unsignalized Delay for [EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	79	12	306	86	12	75	192	691	115	26	775	129
Future Volume (vph)	79	12	306	86	12	75	192	691	115	26	775	129
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	16	16	16	12	12	12	10	12	10	10	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	150		100	110		150
Storage Lanes	0		1	0		0	1		1	1		1
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt			0.850		0.942				0.850			0.850
Flt Protected		0.958			0.976		0.950			0.950		
Satd. Flow (prot)	0	1954	1717	0	1542	0	1580	1765	1242	1535	1782	1530
Flt Permitted		0.597			0.794		0.184			0.394		
Satd. Flow (perm)	0	1218	1717	0	1255	0	306	1765	1242	636	1782	1530
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			272		37				100			103
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		268			645			711			875	
Travel Time (s)		7.3			17.6			13.9			17.0	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	1%	12%	0%	3%	1%	2%	15%	4%	1%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	81	12	315	89	12	77	198	712	119	27	799	133
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	93	315	0	178	0	198	712	119	27	799	133
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases		4			8		5	2			6	
Permitted Phases	4		4	8			2		2	6		6
Detector Phase	4	4	4	8	8		5	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Minimum Split (s)	9.0	9.0	9.0	9.0	9.0		9.0	9.0	9.0	9.0	9.0	9.0
Total Split (s)	25.0	25.0	25.0	25.0	25.0		13.0	70.0	70.0	57.0	57.0	57.0
Total Split (%)	26.3%	26.3%	26.3%	26.3%	26.3%		13.7%	73.7%	73.7%	60.0%	60.0%	60.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.6	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0		2.4	2.4	2.4	2.4	2.4	2.4
Lost Time Adjust (s)		-1.0	-1.0		-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)		5.0	5.0		5.0		5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag							Lead			Lag	Lag	Lag
Lead-Lag Optimize?							Yes			Yes	Yes	Yes
Recall Mode	None	None	None	None	None		None	C-Max	C-Max	C-Max	C-Max	C-Max

Intersection Summary

Area Type:	Other
Cycle Length: 95	
Actuated Cycle Length: 95	
Offset: 77 (81%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	

Splits and Phases: 3: SR 6309 & Blackman Plaza Drwy/Johnson Street



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	79	12	306	86	12	75	192	691	115	26	775	129
Future Volume (veh/h)	79	12	306	86	12	75	192	691	115	26	775	129
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	1872	1872	1857	1632	1800	1758	1786	1772	1589	1744	1786	1800
Adj Flow Rate, veh/h	81	12	0	89	12	77	198	712	119	27	799	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	1	12	0	3	1	2	15	4	1	0
Cap, veh/h	215	28		161	23	97	426	1338	1017	459	1124	
Arrive On Green	0.13	0.14	0.00	0.13	0.14	0.13	0.07	0.75	0.75	0.63	0.63	0.00
Sat Flow, veh/h	1031	198	1574	748	164	696	1701	1772	1347	650	1786	1525
Grp Volume(v), veh/h	93	0	0	178	0	0	198	712	119	27	799	0
Grp Sat Flow(s),veh/h/ln	1228	0	1574	1608	0	0	1701	1772	1347	650	1786	1525
Q Serve(g_s), s	0.0	0.0	0.0	3.1	0.0	0.0	3.4	15.6	2.3	1.7	28.5	0.0
Cycle Q Clear(g_c), s	7.0	0.0	0.0	10.1	0.0	0.0	3.4	15.6	2.3	5.4	28.5	0.0
Prop In Lane	0.87		1.00	0.50		0.43	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	230	0		265	0	0	426	1338	1017	459	1124	
V/C Ratio(X)	0.40	0.00		0.67	0.00	0.00	0.47	0.53	0.12	0.06	0.71	
Avail Cap(c_a), veh/h	331	0		370	0	0	445	1338	1017	459	1124	
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	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.51	0.51	0.00
Uniform Delay (d), s/veh	38.5	0.0	0.0	39.8	0.0	0.0	11.1	4.8	3.1	8.3	11.8	0.0
Incr Delay (d2), s/veh	0.4	0.0	0.0	1.1	0.0	0.0	0.3	1.5	0.2	0.1	2.0	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(95%),veh/ln	3.8	0.0	0.0	7.5	0.0	0.0	2.8	8.1	0.9	0.4	14.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.9	0.0	0.0	40.9	0.0	0.0	11.4	6.3	3.4	8.4	13.8	0.0
LnGrp LOS	D	A		D	A	A	B	A	A	A	B	
Approach Vol, veh/h		93			178			1029			826	
Approach Delay, s/veh		38.9			40.9			6.9			13.6	
Approach LOS		D			D			A			B	
Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		76.7		18.3	11.9	64.8		18.3				
Change Period (Y+Rc), s		6.0		6.0	6.0	6.0		6.0				
Max Green Setting (Gmax), s		64.0		19.0	7.0	51.0		19.0				
Max Q Clear Time (g_c+I1), s		0.0		9.0	5.9	0.0		12.1				
Green Ext Time (p_c), s		0.0		0.1	0.0	0.0		0.2				

Intersection Summary	
HCM 6th Ctrl Delay	13.8
HCM 6th LOS	B

Notes

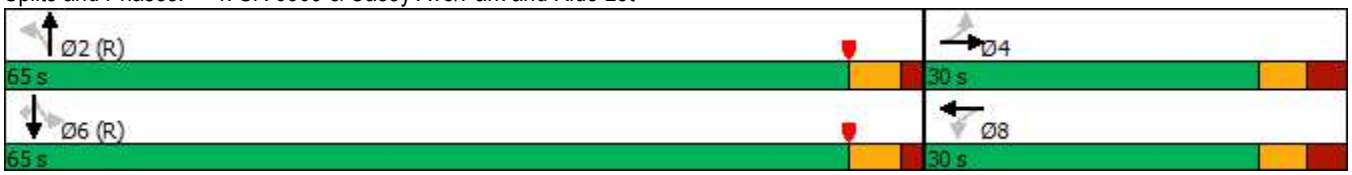
Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	239	0	24	3	0	8	20	860	3	2	943	182
Future Volume (vph)	239	0	24	3	0	8	20	860	3	2	943	182
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	13	13	13	10	13	13	10	13	10
Grade (%)		-2%			0%			0%			-1%	
Storage Length (ft)	250		0	0		0	125		0	125		125
Storage Lanes	1		0	0		0	1		0	1		1
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.850			0.902			0.999				0.850
Flt Protected	0.950				0.987		0.950			0.950		
Satd. Flow (prot)	1535	1387	0	0	1656	0	1438	1804	0	1604	1833	1407
Flt Permitted	0.750				0.956		0.152			0.196		
Satd. Flow (perm)	1212	1387	0	0	1604	0	230	1804	0	331	1833	1407
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		150			28							121
Link Speed (mph)		30			25			35			35	
Link Distance (ft)		870			135			875			1750	
Travel Time (s)		19.8			3.7			17.0			34.1	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	0%	4%	0%	0%	0%	11%	3%	0%	0%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	244	0	24	3	0	8	20	878	3	2	962	186
Shared Lane Traffic (%)												
Lane Group Flow (vph)	244	24	0	0	11	0	20	881	0	2	962	186
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Minimum Split (s)	8.3	8.3		8.3	8.3		7.4	7.4		7.4	7.4	7.4
Total Split (s)	30.0	30.0		30.0	30.0		65.0	65.0		65.0	65.0	65.0
Total Split (%)	31.6%	31.6%		31.6%	31.6%		68.4%	68.4%		68.4%	68.4%	68.4%
Yellow Time (s)	3.4	3.4		3.4	3.4		3.7	3.7		3.7	3.7	3.7
All-Red Time (s)	2.9	2.9		2.9	2.9		1.7	1.7		1.7	1.7	1.7
Lost Time Adjust (s)	-1.0	-1.0			-1.0		-1.0	-1.0		-1.0	-1.0	-1.0
Total Lost Time (s)	5.3	5.3			5.3		4.4	4.4		4.4	4.4	4.4
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	C-Max

Intersection Summary

Area Type:	Other
Cycle Length: 95	
Actuated Cycle Length: 95	
Offset: 77 (81%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	

Splits and Phases: 4: SR 6309 & Casey Ave/Park and Ride Lot



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	239	0	24	3	0	8	20	860	3	2	943	182
Future Volume (veh/h)	239	0	24	3	0	8	20	860	3	2	943	182
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	1803	1875	1818	1872	1872	1872	1646	1828	1872	1837	1881	1809
Adj Flow Rate, veh/h	244	0	23	3	0	8	20	878	0	2	962	153
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	5	0	4	0	0	0	11	3	0	0	2	2
Cap, veh/h	368	0	324	111	25	234	251	1269	0	530	1306	1064
Arrive On Green	0.20	0.00	0.19	0.19	0.00	0.19	1.00	1.00	0.00	0.69	0.69	0.69
Sat Flow, veh/h	1432	0	1589	307	124	1149	469	1828	0	655	1881	1533
Grp Volume(v), veh/h	244	0	23	11	0	0	20	878	0	2	962	153
Grp Sat Flow(s),veh/h/ln	1432	0	1589	1580	0	0	469	1828	0	655	1881	1533
Q Serve(g_s), s	15.5	0.0	1.1	0.0	0.0	0.0	2.0	0.0	0.0	0.1	30.4	3.2
Cycle Q Clear(g_c), s	15.5	0.0	1.1	0.5	0.0	0.0	32.4	0.0	0.0	0.1	30.4	3.2
Prop In Lane	1.00		1.00	0.27		0.73	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	368	0	324	354	0	0	251	1269	0	530	1306	1064
V/C Ratio(X)	0.66	0.00	0.07	0.03	0.00	0.00	0.08	0.69	0.00	0.00	0.74	0.14
Avail Cap(c_a), veh/h	448	0	413	441	0	0	251	1269	0	530	1306	1064
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	0.82	0.82	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.3	0.0	31.0	30.7	0.0	0.0	7.5	0.0	0.0	4.5	9.1	4.9
Incr Delay (d2), s/veh	1.5	0.0	0.0	0.0	0.0	0.0	0.5	2.6	0.0	0.0	3.7	0.3
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(95%),veh/ln	9.3	0.0	0.8	0.4	0.0	0.0	0.4	1.6	0.0	0.0	16.6	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.8	0.0	31.0	30.7	0.0	0.0	8.0	2.6	0.0	4.5	12.8	5.2
LnGrp LOS	D	A	C	C	A	A	A	A	A	A	B	A
Approach Vol, veh/h		267			11			898			1117	
Approach Delay, s/veh		37.2			30.7			2.7			11.8	
Approach LOS		D			C			A			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		70.3		24.7		70.3		24.7				
Change Period (Y+Rc), s		5.4		6.3		5.4		6.3				
Max Green Setting (Gmax), s		59.6		23.7		59.6		23.7				
Max Q Clear Time (g_c+I1), s		0.0		18.0		0.0		2.5				
Green Ext Time (p_c), s		0.0		0.4		0.0		0.0				

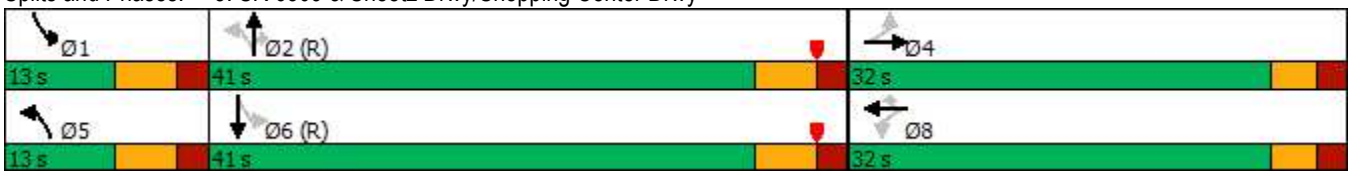
Intersection Summary												
HCM 6th Ctrl Delay			11.3									
HCM 6th LOS			B									

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	69	10	5	229	38	144	61	914	207	123	832	85
Future Volume (vph)	69	10	5	229	38	144	61	914	207	123	832	85
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	15	15	15	12	12	12	10	12	13	10	12	14
Grade (%)		0%			-5%			1%			-3%	
Storage Length (ft)	0		0	0		150	100		185	235		0
Storage Lanes	0		0	0		1	1		1	1		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor					1.00						1.00	
Frt		0.992				0.850			0.850		0.986	
Flt Protected		0.960			0.959		0.950			0.950		
Satd. Flow (prot)	0	1886	0	0	1769	1568	1557	3369	1558	1604	3376	0
Flt Permitted		0.513			0.722		0.221			0.203		
Satd. Flow (perm)	0	1008	0	0	1331	1568	362	3369	1558	343	3376	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4				150			216		15	
Link Speed (mph)		25			25			40			40	
Link Distance (ft)		263			298			338			775	
Travel Time (s)		7.2			8.1			5.8			13.2	
Confl. Peds. (#/hr)				1								1
Confl. Bikes (#/hr)												
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	2%	1%	1%	1%	1%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	72	10	5	239	40	150	64	952	216	128	867	89
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	87	0	0	279	150	64	952	216	128	956	0
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		8	2		2	6		
Detector Phase	4	4		8	8	8	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	5.0	20.0	20.0	5.0	20.0	
Minimum Split (s)	15.0	15.0		15.0	15.0	15.0	11.0	26.0	26.0	11.0	26.0	
Total Split (s)	32.0	32.0		32.0	32.0	32.0	13.0	41.0	41.0	13.0	41.0	
Total Split (%)	37.2%	37.2%		37.2%	37.2%	37.2%	15.1%	47.7%	47.7%	15.1%	47.7%	
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)		-1.0			-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
Total Lost Time (s)		4.0			4.0	4.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	

Intersection Summary

Area Type:	Other
Cycle Length: 86	
Actuated Cycle Length: 86	
Offset: 25 (29%), Referenced to phase 2:NBTL and 6:SBTL, Start of Red	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	

Splits and Phases: 5: SR 6309 & Sheetz Drwy/Shopping Center Drwy



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	69	10	5	229	38	144	61	914	207	123	832	85
Future Volume (veh/h)	69	10	5	229	38	144	61	914	207	123	832	85
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	1872	1872	1872	1986	1986	1986	1766	1780	1852	1898	1898	1944
Adj Flow Rate, veh/h	72	10	3	239	40	0	64	952	0	128	867	78
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	2	1	1	1	1	3
Cap, veh/h	351	46	12	373	49		514	1913		454	1924	173
Arrive On Green	0.19	0.20	0.19	0.19	0.20	0.00	0.06	0.57	0.00	0.13	1.00	1.00
Sat Flow, veh/h	1336	225	57	1442	241	1683	1682	3383	1569	1807	3345	301
Grp Volume(v), veh/h	85	0	0	279	0	0	64	952	0	128	467	478
Grp Sat Flow(s),veh/h/ln	1617	0	0	1683	0	1683	1682	1691	1569	1807	1803	1843
Q Serve(g_s), s	0.0	0.0	0.0	9.9	0.0	0.0	1.3	14.6	0.0	2.4	0.0	0.0
Cycle Q Clear(g_c), s	3.7	0.0	0.0	13.6	0.0	0.0	1.3	14.6	0.0	2.4	0.0	0.0
Prop In Lane	0.85		0.04	0.86		1.00	1.00		1.00	1.00		0.16
Lane Grp Cap(c), veh/h	390	0	0	403	0		514	1913		454	1037	1060
V/C Ratio(X)	0.22	0.00	0.00	0.69	0.00		0.12	0.50		0.28	0.45	0.45
Avail Cap(c_a), veh/h	569	0	0	598	0		575	1913		501	1037	1060
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	0.45	0.45	0.45
Uniform Delay (d), s/veh	29.0	0.0	0.0	32.8	0.0	0.0	6.4	11.3	0.0	7.2	0.0	0.0
Incr Delay (d2), s/veh	0.3	0.0	0.0	2.1	0.0	0.0	0.1	0.9	0.0	0.2	0.6	0.6
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(95%),veh/ln	2.8	0.0	0.0	9.8	0.0	0.0	0.7	8.5	0.0	1.3	0.3	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.3	0.0	0.0	35.0	0.0	0.0	6.5	12.2	0.0	7.4	0.6	0.6
LnGrp LOS	C	A	A	C	A		A	B		A	A	A
Approach Vol, veh/h		85			279			1016			1073	
Approach Delay, s/veh		29.3			35.0			11.9			1.4	
Approach LOS		C			C			B			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.8	53.6		21.6	9.9	54.5		21.6				
Change Period (Y+Rc), s	6.0	6.0		5.0	6.0	6.0		5.0				
Max Green Setting (Gmax), s	7.0	35.0		27.0	7.0	35.0		27.0				
Max Q Clear Time (g_c+I1), s	4.9	0.0		5.7	3.8	0.0		15.6				
Green Ext Time (p_c), s	0.1	0.0		0.2	0.0	0.0		1.0				

Intersection Summary		
HCM 6th Ctrl Delay		10.5
HCM 6th LOS		B

Notes

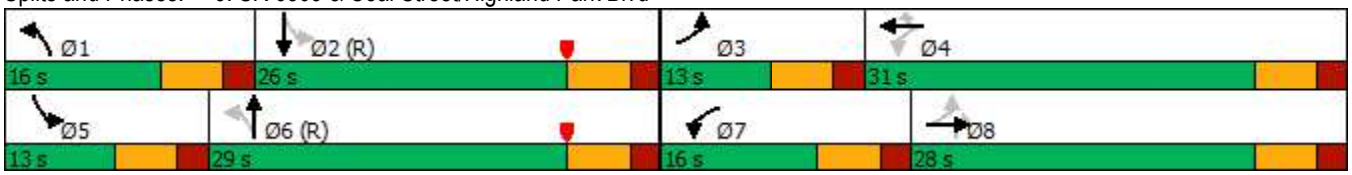
Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

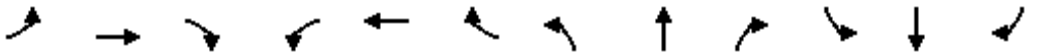
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	133	503	209	301	467	80	276	399	500	92	447	112
Future Volume (vph)	133	503	209	301	467	80	276	399	500	92	447	112
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	13	12	12	12	10	12	13	10	12	13
Grade (%)		1%			0%			2%			0%	
Storage Length (ft)	235		0	650		200	300		0	125		0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor	0.99	1.00		1.00			1.00		0.98		0.99	
Frt		0.956				0.850			0.850		0.970	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1612	3082	0	1693	3386	1485	1564	3287	1505	1565	3228	0
Flt Permitted	0.434			0.155			0.218			0.508		
Satd. Flow (perm)	733	3082	0	276	3386	1485	359	3287	1482	837	3228	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		72				190			521		34	
Link Speed (mph)		25			35			40			40	
Link Distance (ft)		1019			1253			775			948	
Travel Time (s)		27.8			24.4			13.2			16.2	
Confl. Peds. (#/hr)	13		3	3			3		3			13
Confl. Bikes (#/hr)												
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	1%	3%	1%	1%	3%	1%	3%	4%	2%	1%	7%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	139	524	218	314	486	83	288	416	521	96	466	117
Shared Lane Traffic (%)												
Lane Group Flow (vph)	139	742	0	314	486	83	288	416	521	96	583	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	custom	pm+pt	NA	
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8			4		4	6		8	2		
Detector Phase	3	8		7	4	4	1	6	8	5	2	
Switch Phase												
Minimum Initial (s)	3.0	3.0		3.0	3.0	3.0	3.0	20.0	3.0	3.0	20.0	
Minimum Split (s)	9.0	9.0		9.0	9.0	9.0	9.0	26.0	9.0	9.0	26.0	
Total Split (s)	13.0	28.0		16.0	31.0	31.0	16.0	29.0	28.0	13.0	26.0	
Total Split (%)	15.1%	32.6%		18.6%	36.0%	36.0%	18.6%	33.7%	32.6%	15.1%	30.2%	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None		None	None	None	None	C-Max	None	None	C-Max	

Intersection Summary

Area Type:	Other
Cycle Length: 86	
Actuated Cycle Length: 86	
Offset: 1 (1%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	

Splits and Phases: 6: SR 6309 & Coal Street/Highland Park Blvd





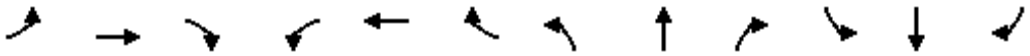
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	133	503	209	301	467	80	276	399	500	92	447	112
Future Volume (veh/h)	133	503	209	301	467	80	276	399	500	92	447	112
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		0.98
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	1766	1780	1822	1786	1786	1758	1764	1736	1790	1772	1786	1770
Adj Flow Rate, veh/h	139	524	158	314	486	0	288	416	0	96	466	94
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	1	3	1	1	3	1	3	4	2	1	7
Cap, veh/h	386	629	189	341	955		399	1052		445	744	149
Arrive On Green	0.09	0.25	0.23	0.13	0.28	0.00	0.21	0.53	0.00	0.07	0.27	0.25
Sat Flow, veh/h	1682	2553	766	1701	3393	1490	1680	3298	1517	1688	2808	563
Grp Volume(v), veh/h	139	346	336	314	486	0	288	416	0	96	280	280
Grp Sat Flow(s),veh/h/ln	1682	1691	1627	1701	1697	1490	1680	1649	1517	1688	1697	1674
Q Serve(g_s), s	5.1	16.7	16.9	11.0	10.3	0.0	10.8	6.4	0.0	3.4	12.5	12.7
Cycle Q Clear(g_c), s	5.1	16.7	16.9	11.0	10.3	0.0	10.8	6.4	0.0	3.4	12.5	12.7
Prop In Lane	1.00		0.47	1.00		1.00	1.00		1.00	1.00		0.34
Lane Grp Cap(c), veh/h	386	417	401	341	955		399	1052		445	450	444
V/C Ratio(X)	0.36	0.83	0.84	0.92	0.51		0.72	0.40		0.22	0.62	0.63
Avail Cap(c_a), veh/h	386	452	435	341	1026		399	1052		478	450	444
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.67	1.67	1.67	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	0.81	0.81	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.8	30.7	31.0	23.9	25.9	0.0	17.6	15.2	0.0	19.9	27.8	28.0
Incr Delay (d2), s/veh	0.6	11.6	12.6	29.2	0.4	0.0	5.1	0.9	0.0	0.2	6.4	6.6
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(95%),veh/ln	3.7	12.7	12.5	11.7	7.3	0.0	6.7	3.9	0.0	2.3	9.4	9.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.4	42.3	43.6	53.1	26.3	0.0	22.7	16.1	0.0	20.2	34.2	34.7
LnGrp LOS	C	D	D	D	C		C	B		C	C	C
Approach Vol, veh/h		821			800			704			656	
Approach Delay, s/veh		39.3			36.8			18.8			32.4	
Approach LOS		D			D			B			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.0	27.8	13.0	29.2	11.4	32.4	16.0	26.2
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	10.0	20.0	7.0	25.0	7.0	23.0	10.0	22.0
Max Q Clear Time (g_c+I1), s	13.3	0.0	7.6	12.8	5.9	0.0	13.5	19.2
Green Ext Time (p_c), s	0.0	0.0	0.0	1.6	0.0	0.0	0.0	1.0

Intersection Summary	
HCM 6th Ctrl Delay	32.3
HCM 6th LOS	C

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	62	0	3	1	86	25	1	49	0
Future Volume (vph)	0	0	0	62	0	3	1	86	25	1	49	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	16	16	16	15	15	15	13	13	13	13	13	13
Grade (%)		0%			-1%			1%			-2%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt					0.994			0.970				
Flt Protected					0.954						0.999	
Satd. Flow (prot)	0	2000	0	0	1751	0	0	1787	0	0	1876	0
Flt Permitted					0.954						0.999	
Satd. Flow (perm)	0	2000	0	0	1751	0	0	1787	0	0	1876	0
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		198			1616			151			711	
Travel Time (s)		5.4			44.1			4.1			19.4	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	2%	0%	8%	2%	2%	0%	0%	2%	2%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	0	0	0	68	0	3	1	95	27	1	54	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	71	0	0	123	0	0	55	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	0	0	0	62	0	3	1	86	25	1	49	0
Future Vol, veh/h	0	0	0	62	0	3	1	86	25	1	49	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	-1	-	-	1	-	-	-2	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	0	2	0	8	2	2	0	0	2	2	0	0
Mvmt Flow	0	0	0	68	0	3	1	95	27	1	54	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	168	180	54	167	167	109	54	0	0	122	0	0
Stage 1	56	56	-	111	111	-	-	-	-	-	-	-
Stage 2	112	124	-	56	56	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.52	6.2	6.98	6.32	6.12	4.3	-	-	4.3	-	-
Critical Hdwy Stg 1	6.1	5.52	-	5.98	5.32	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.52	-	5.98	5.32	-	-	-	-	-	-	-
Follow-up Hdwy	3	4.018	3.1	3.5	4.018	3.1	3	-	-	3	-	-
Pot Cap-1 Maneuver	923	714	1083	806	733	1011	1151	-	-	1091	-	-
Stage 1	1117	848	-	902	808	-	-	-	-	-	-	-
Stage 2	1040	793	-	963	851	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	918	713	1083	804	732	1011	1151	-	-	1091	-	-
Mov Cap-2 Maneuver	918	713	-	804	732	-	-	-	-	-	-	-
Stage 1	1116	847	-	901	807	-	-	-	-	-	-	-
Stage 2	1036	792	-	962	850	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	9.9	0.1	0.2
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1151	-	-	-	812	1091	-	-
HCM Lane V/C Ratio	0.001	-	-	-	0.088	0.001	-	-
HCM Control Delay (s)	8.1	0	-	0	9.9	8.3	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	-	0.3	0	-	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	110	35	1	110	61	2
Future Volume (vph)	110	35	1	110	61	2
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	1%			-1%	2%	
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)			75		75	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.967				0.996	
Flt Protected					0.954	
Satd. Flow (prot)	1579	0	0	1723	1543	0
Flt Permitted					0.954	
Satd. Flow (perm)	1579	0	0	1723	1543	0
Link Speed (mph)	25			25	25	
Link Distance (ft)	645			151	550	
Travel Time (s)	17.6			4.1	15.0	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	40%	2%	5%	10%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	122	39	1	122	68	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	161	0	0	123	70	0
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	110	35	1	110	61	2
Future Vol, veh/h	110	35	1	110	61	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, %	1	-	-	-1	2	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	40	2	5	10	2
Mvmt Flow	122	39	1	122	68	2

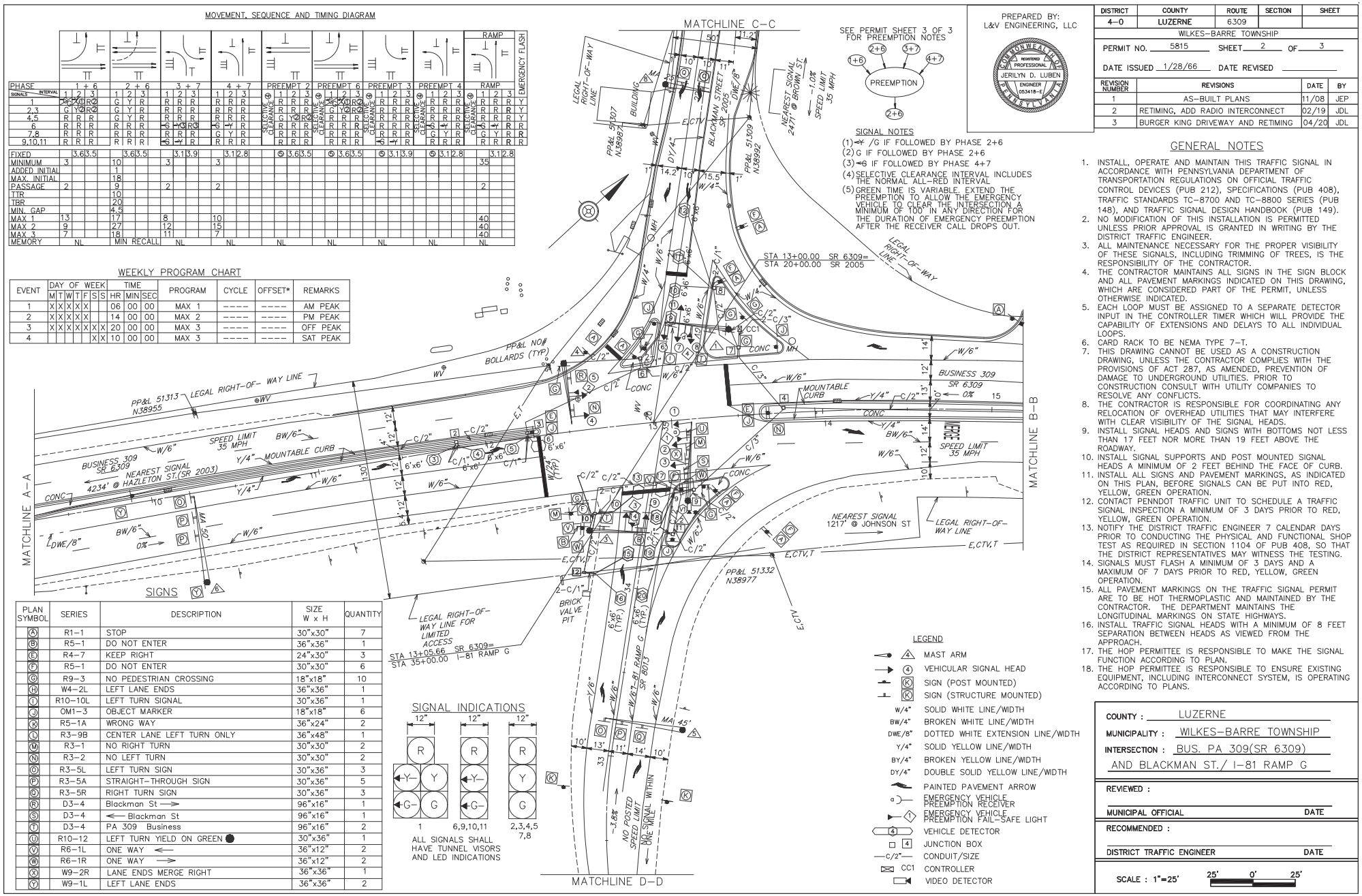
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	161	0	266	142
Stage 1	-	-	-	-	142	-
Stage 2	-	-	-	-	124	-
Critical Hdwy	-	-	4.3	-	6.9	6.42
Critical Hdwy Stg 1	-	-	-	-	5.9	-
Critical Hdwy Stg 2	-	-	-	-	5.9	-
Follow-up Hdwy	-	-	3	-	3.1	3.1
Pot Cap-1 Maneuver	-	-	1066	-	837	1027
Stage 1	-	-	-	-	1032	-
Stage 2	-	-	-	-	999	-
Platoon blocked, %	-	-	1	-	1	1
Mov Cap-1 Maneuver	-	-	1066	-	836	1027
Mov Cap-2 Maneuver	-	-	-	-	836	-
Stage 1	-	-	-	-	1032	-
Stage 2	-	-	-	-	998	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	9.7
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	841	-	-	1066	-
HCM Lane V/C Ratio	0.083	-	-	0.001	-
HCM Control Delay (s)	9.7	-	-	8.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0	-

APPENDIX H:

Traffic Signal Diagrams (Existing Conditions)



PHASE	1 + 6			2 + 6			3 + 7			4 + 7			PREEMPT 2			PREEMPT 6			PREEMPT 3			PREEMPT 4			RAMP			EMERGENCY FLASH
SIGNALS / INTERVAL	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	
1	R	Y	R	G	Y	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	Y
2,3	G	Y	R	G	Y	R	R	R	R	R	R	R	G	Y	R	G	Y	R	R	R	R	R	R	R	R	R	R	Y
4,5	R	R	R	G	Y	R	R	R	R	R	R	R	G	Y	R	G	Y	R	R	R	R	R	R	R	R	R	R	Y
6	R	R	R	R	R	R	G	Y	R	G	Y	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
7,8	R	R	R	R	R	R	R	R	R	G	Y	R	R	R	R	R	R	R	R	R	R	R	R	R	G	Y	R	R
9,10,11	R	R	R	R	R	R	G	Y	R	R	R	R	R	R	R	R	R	R	G	Y	R	R	R	R	R	R	R	R

FIXED			3.6	3.5				3.6	3.5				3.1	3.9			3.1	2.8			3.6	3.5			3.6	3.5			3.1	3.9			3.1	2.8			3.1	2.8
MINIMUM	3						10						3				3																		35	
ADDED INITIAL							1																													
MAX. INITIAL							18																													
PASSAGE	2						9						2				2																		2	
TTR							10																													
TBR							20																													
MIN. GAP							4.5																													
MAX. 1	13						17						8				10																		40	
MAX. 2	9						27						12				15																		40	
MAX. 3	7						18						11				7																		40	
MEMORY	NL						MIN RECALL			NL			NL			NL			NL			NL			NL			NL			NL			NL		

WEEKLY PROGRAM CHART

EVENT	DAY OF WEEK							TIME			PROGRAM	CYCLE	OFFSET*	REMARKS
	M	T	W	T	F	S	S	HR	MIN	SEC				
1	X	X	X	X	X			06	00	00	MAX 1	-----	-----	AM PEAK
2	X	X	X	X	X			14	00	00	MAX 2	-----	-----	PM PEAK
3	X	X	X	X	X	X	X	20	00	00	MAX 3	-----	-----	OFF PEAK
4						X	X	10	00	00	MAX 3	-----	-----	SAT PEAK

SIGNS

PLAN SYMBOL	SERIES	DESCRIPTION	SIZE W x H	QUANTITY
A	R1–1	STOP	30"x30"	7
B	R5–1	DO NOT ENTER	36"x36"	1
E	R4–7	KEEP RIGHT	24"x30"	3
F	R5–1	DO NOT ENTER	30"x30"	6
G	R9–3	NO PEDESTRIAN CROSSING	18"x18"	10
H	W4–2L	LEFT LANE ENDS	36"x36"	1
I	R10–10L	LEFT TURN SIGNAL	30"x36"	1
J	OM1–3	OBJECT MARKER	18"x18"	6
K	R5–1A	WRONG WAY	36"x24"	2
L	R3–9B	CENTER LANE LEFT TURN ONLY	36"x48"	1
M	R3–1	NO RIGHT TURN	30"x30"	2
N	R3–2	NO LEFT TURN	30"x30"	2
O	R3–5L	LEFT TURN SIGN	30"x36"	3
P	R3–5A	STRAIGHT–THROUGH SIGN	30"x36"	5
Q	R3–5R	RIGHT TURN SIGN	30"x36"	3
R	D3–4	Blackman St ⟶	96"x16"	1
S	D3–4	⟵ Blackman St	96"x16"	1
T	D3–4	PA 309 Business	96"x16"	2
U	R10–12	LEFT TURN YIELD ON GREEN ●	30"x36"	1
V	R6–1L	ONE WAY ⟵	36"x12"	2
W	R6–1R	ONE WAY ⟶	36"x12"	2
X	W9–2R	LANE ENDS MERGE RIGHT	36"x36"	1
Y	W9–1L	LEFT LANE ENDS	36"x36"	2

PREPARED BY:
L&V ENGINEERING, LLC

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL JERILYN D. LUBEN ENGINEER 053418–E

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
4–0	LUZERNE	6309		
WILKES–BARRE TOWNSHIP				

PERMIT NO. 5815 SHEET 2 OF 3

DATE ISSUED 1/28/66 DATE REVISED

REVISION NUMBER	REVISIONS	DATE	BY
1	AS–BUILT PLANS	11/08	JEP
2	RETIMING, ADD RADIO INTERCONNECT	02/19	JDL
3	BURGER KING DRIVEWAY AND RETIMING	04/20	JDL

GENERAL NOTES

1. INSTALL, OPERATE AND MAINTAIN THIS TRAFFIC SIGNAL IN ACCORDANCE WITH PENNSYLVANIA DEPARTMENT OF TRANSPORTATION REGULATIONS ON OFFICIAL TRAFFIC CONTROL DEVICES (PUB 212), SPECIFICATIONS (PUB 408), TRAFFIC STANDARDS TC–8700 AND TC–8800 SERIES (PUB 148), AND TRAFFIC SIGNAL DESIGN HANDBOOK (PUB 149).
2. NO MODIFICATION OF THIS INSTALLATION IS PERMITTED UNLESS PRIOR APPROVAL IS GRANTED IN WRITING BY THE DISTRICT TRAFFIC ENGINEER.
3. ALL MAINTENANCE NECESSARY FOR THE PROPER VISIBILITY OF THESE SIGNALS, INCLUDING TRIMMING OF TREES, IS THE RESPONSIBILITY OF THE CONTRACTOR.
4. THE CONTRACTOR MAINTAINS ALL SIGNS IN THE SIGN BLOCK AND ALL PAVEMENT MARKINGS INDICATED ON THIS DRAWING, WHICH ARE CONSIDERED PART OF THE PERMIT, UNLESS OTHERWISE INDICATED.
5. EACH LOOP MUST BE ASSIGNED TO A SEPARATE DETECTOR INPUT IN THE CONTROLLER TIMER WHICH WILL PROVIDE THE CAPABILITY OF EXTENSIONS AND DELAYS TO ALL INDIVIDUAL LOOPS.
6. CARD RACK TO BE NEMA TYPE 7–T.
7. THIS DRAWING CANNOT BE USED AS A CONSTRUCTION DRAWING, UNLESS THE CONTRACTOR COMPLIES WITH THE PROVISIONS OF ACT 287, AS AMENDED, PREVENTION OF DAMAGE TO UNDERGROUND UTILITIES. PRIOR TO CONSTRUCTION CONSULT WITH UTILITY COMPANIES TO RESOLVE ANY CONFLICTS.
8. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING ANY RELOCATION OF OVERHEAD UTILITIES THAT MAY INTERFERE WITH CLEAR VISIBILITY OF THE SIGNAL HEADS.
9. INSTALL SIGNAL HEADS AND SIGNS WITH BOTTOMS NOT LESS THAN 17 FEET NOR MORE THAN 19 FEET ABOVE THE ROADWAY.
10. INSTALL SIGNAL SUPPORTS AND POST MOUNTED SIGNAL HEADS A MINIMUM OF 2 FEET BEHIND THE FACE OF CURB.
11. INSTALL ALL SIGNS AND PAVEMENT MARKINGS, AS INDICATED ON THIS PLAN, BEFORE SIGNALS CAN BE PUT INTO RED, YELLOW, GREEN OPERATION.
12. CONTACT PENNDOT TRAFFIC UNIT TO SCHEDULE A TRAFFIC SIGNAL INSPECTION A MINIMUM OF 3 DAYS PRIOR TO RED, YELLOW, GREEN OPERATION.
13. NOTIFY THE DISTRICT TRAFFIC ENGINEER 7 CALENDAR DAYS PRIOR TO CONDUCTING THE PHYSICAL AND FUNCTIONAL SHOP TEST AS REQUIRED IN SECTION 1104 OF PUB 408, SO THAT THE DISTRICT REPRESENTATIVES MAY WITNESS THE TESTING.
14. SIGNALS MUST FLASH A MINIMUM OF 3 DAYS AND A MAXIMUM OF 7 DAYS PRIOR TO RED, YELLOW, GREEN OPERATION.
15. ALL PAVEMENT MARKINGS ON THE TRAFFIC SIGNAL PERMIT ARE TO BE HOT THERMOPLASTIC AND MAINTAINED BY THE CONTRACTOR. THE DEPARTMENT MAINTAINS THE LONGITUDINAL MARKINGS ON STATE HIGHWAYS.
16. INSTALL TRAFFIC SIGNAL HEADS WITH A MINIMUM OF 8 FEET SEPARATION BETWEEN HEADS AS VIEWED FROM THE APPROACH.
17. THE HOP PERMITTEE IS RESPONSIBLE TO MAKE THE SIGNAL FUNCTION ACCORDING TO PLAN.
18. THE HOP PERMITTEE IS RESPONSIBLE TO ENSURE EXISTING EQUIPMENT, INCLUDING INTERCONNECT SYSTEM, IS OPERATING ACCORDING TO PLANS.

COUNTY : LUZERNE

MUNICIPALITY : WILKES–BARRE TOWNSHIP

INTERSECTION : BUS. PA 309(SR 6309) AND BLACKMAN ST./ I–81 RAMP G

REVIEWED :

MUNICIPAL OFFICIAL DATE

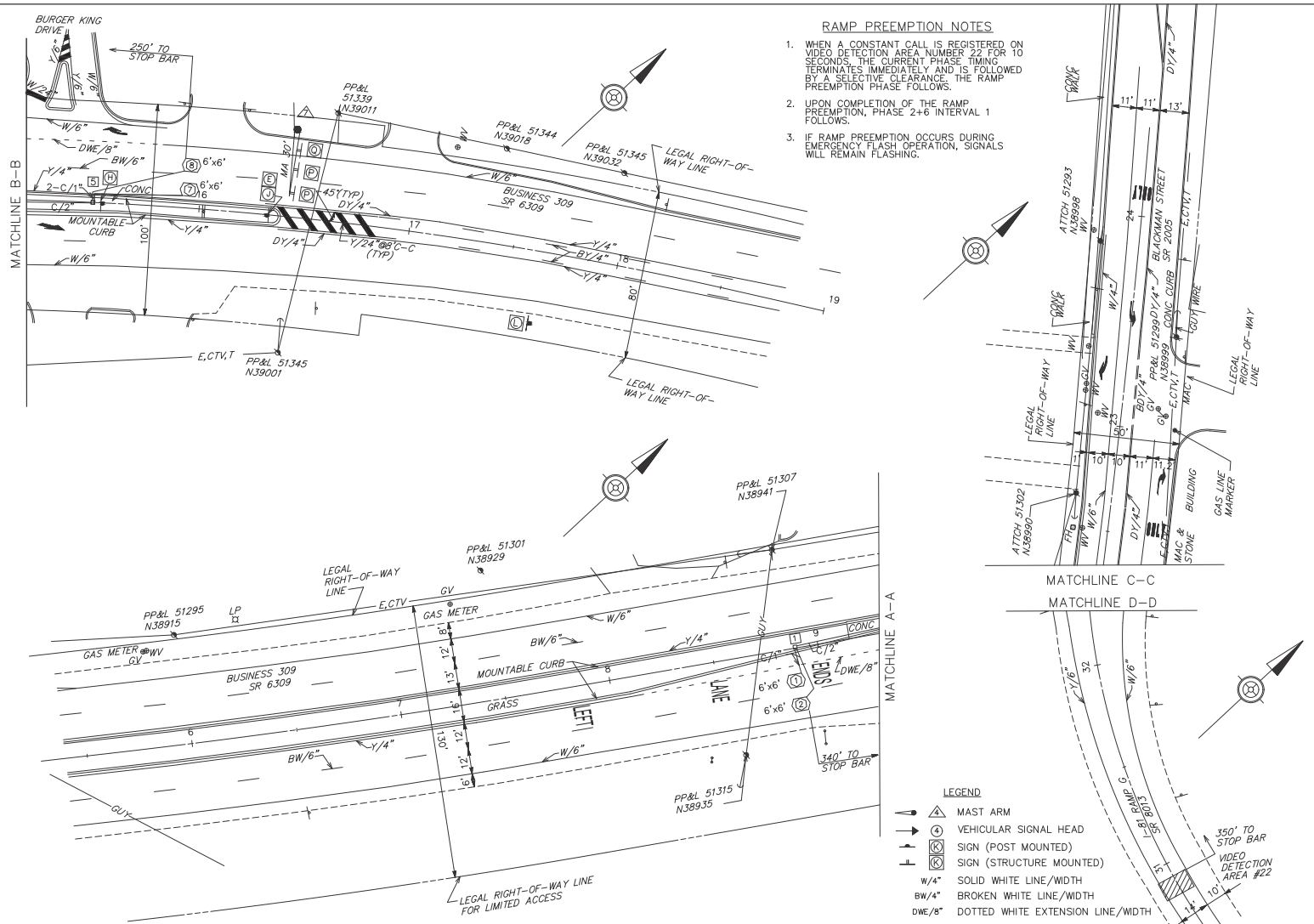
RECOMMENDED :

DISTRICT TRAFFIC ENGINEER DATE

SCALE : 1"=25' 25' 0' 25'

4/1/2020 2:59:18 PM, L&V Engineering

Note: See SR 6309 approach grades on signed Signal Plan



RAMP PREEMPTION NOTES

1. WHEN A CONSTANT CALL IS REGISTERED ON VIDEO DETECTION AREA NUMBER 22 FOR 10 SECONDS, THE CURRENT PHASE TIMING TERMINATES IMMEDIATELY AND IS FOLLOWED BY A SELECTIVE CLEARANCE. THE RAMP PREEMPTION PHASE FOLLOWS.
2. UPON COMPLETION OF THE RAMP PREEMPTION, PHASE 2+6 INTERVAL 1 FOLLOWS.
3. IF RAMP PREEMPTION OCCURS DURING EMERGENCY FLASH OPERATION, SIGNALS WILL REMAIN FLASHING.

LEGEND

- MAST ARM
- VEHICULAR SIGNAL HEAD
- SIGN (POST MOUNTED)
- SIGN (STRUCTURE MOUNTED)
- W/4" SOLID WHITE LINE/WIDTH
- BW/4" BROKEN WHITE LINE/WIDTH
- DWE/8" DOTTED WHITE EXTENSION LINE/WIDTH
- Y/4" SOLID YELLOW LINE/WIDTH
- BY/4" BROKEN YELLOW LINE/WIDTH
- DY/4" DOUBLE SOLID YELLOW LINE/WIDTH
- PAINTED PAVEMENT ARROW
- EMERGENCY VEHICLE PREEMPTION RECEIVER
- EMERGENCY VEHICLE PREEMPTION FAIL-SAFE LIGHT
- VEHICLE DETECTOR
- JUNCTION BOX
- C/2"— CONDUIT/SIZE
- CC1 CONTROLLER
- VIDEO DETECTOR

PREPARED BY:
L&V ENGINEERING, LLC

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL JERILYN D. LUBEN ENGINEER 053418-E

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
4-0	LUZERNE	6309		

WILKES-BARRE TOWNSHIP

PERMIT NO. 5815 SHEET 3 OF 3

DATE ISSUED 1/28/66 DATE REVISED

REVISION NUMBER	REVISIONS	DATE	BY
1	AS-BUILT PLANS	11/08	JEP
2	RETIMING, ADD RADIO INTERCONNECT	02/19	JDL
3	BURGER KING DRIVEWAY AND RETIMING	04/20	JDL

EMERGENCY PREEMPTION NOTES

CONTROLLER TO BE EQUIPPED WITH EMERGENCY PREEMPTION FOR ALL APPROACHES OF SR 6309 AND I-81 SB EXIT RAMP AND BLACKMAN ST WITH A FAIL SAFE DEVICE FOR EACH DIRECTION OF OPERATION.

THIS FAIL SAFE DEVICE SHALL CONSIST OF A FLASHING WHITE FLOOD LIGHT AND SHALL FLASH WHEN THE EMERGENCY VEHICLE HAS CONTROL OF THE INTERSECTION FOR THE APPROPRIATE APPROACH.

THE SIGNALS WHEN ACTIVATED BY EMERGENCY VEHICLE SHALL TERMINATE ALL GREEN INDICATIONS EXCEPT THE GREEN INDICATIONS FOR THE PHASE GOVERNED BY THE APPROACHING EMERGENCY VEHICLE, FOLLOWED BY SELECTIVE CLEARANCES DEPENDENT UPON THE PHASE IN WHICH THE PREEMPTION OCCURS.

THE GREEN INDICATIONS FOR THE PREEMPTED PHASE SHALL REMAIN GREEN FOR THE DURATION OF SIGNAL PREEMPTION AND RED INDICATIONS DISPLAYED FOR ALL OTHER PHASES.

THE SIGNALS, WHEN ACTIVATED BY EMERGENCY VEHICLE, SHALL TIME OUT ALL YELLOW AND RED INDICATIONS FOLLOWED BY THE GREEN INTERVAL OF THE PREEMPTION PHASE GOVERNED BY THE APPROACHING EMERGENCY VEHICLE.

IF SIGNALS HAVE BEEN ACTUATED BY PEDESTRIAN PUSH BUTTON, AND THE SIGNAL IS PREEMPTED, THE PEDESTRIAN WALK INTERVAL SHALL TERMINATE IMMEDIATELY AND BE FOLLOWED BY THE PED CLEAR INTERVAL. THIS INTERVAL SHALL TIME OUT FOLLOWED BY THE APPROPRIATE SELECTIVE CLEARANCES BEFORE GOING INTO EMERGENCY PREEMPTION.

FOR WIRELESS PREEMPTION, THE GREEN INTERVAL SHALL EQUAL THE LENGTH OF THE PREEMPTION DETECTOR CALL PLUS 5 SECONDS.

IF THE SIGNALS WHEN ACTIVATED BY AN EMERGENCY VEHICLE ARE FLASHING, ALL SIGNALS SHALL REMAIN FLASHING.

UPON COMPLETION OF THE PREEMPTION PHASE 2, 3, 4, OR 6, IN RETURNING TO NORMAL OPERATION, PHASE 2+6 INTERVAL 1 SHALL FOLLOW.

IN EMERGENCY PREEMPTION NO PRIORITY SHALL BE ESTABLISHED. PREEMPTION SHALL BE A FIRST COME, FIRST SERVE OPERATION.

WIRELESS PREEMPTION WILL BE PROVIDED FOR ALL APPROACHES OF THE INTERSECTION.

THE CONTRACTOR IS RESPONSIBLE FOR LOCATING THE RECEIVING DEVICE(S) IN ORDER TO ACHIEVE PROPER OPERATION ACCORDING TO THE MANUFACTURER'S SPECIFICATIONS. MOST CONDUITS ARE ADEQUATE SIZE TO HANDLE THE ADDITIONAL PREEMPTION DEVICE WIRE, BUT THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE DIAMETER(S).

COUNTY : LUZERNE

MUNICIPALITY : WILKES-BARRE TOWNSHIP

INTERSECTION : BUS. PA 309(SR 6309) AND BLACKMAN ST./ I-81 RAMP G

REVIEWED :

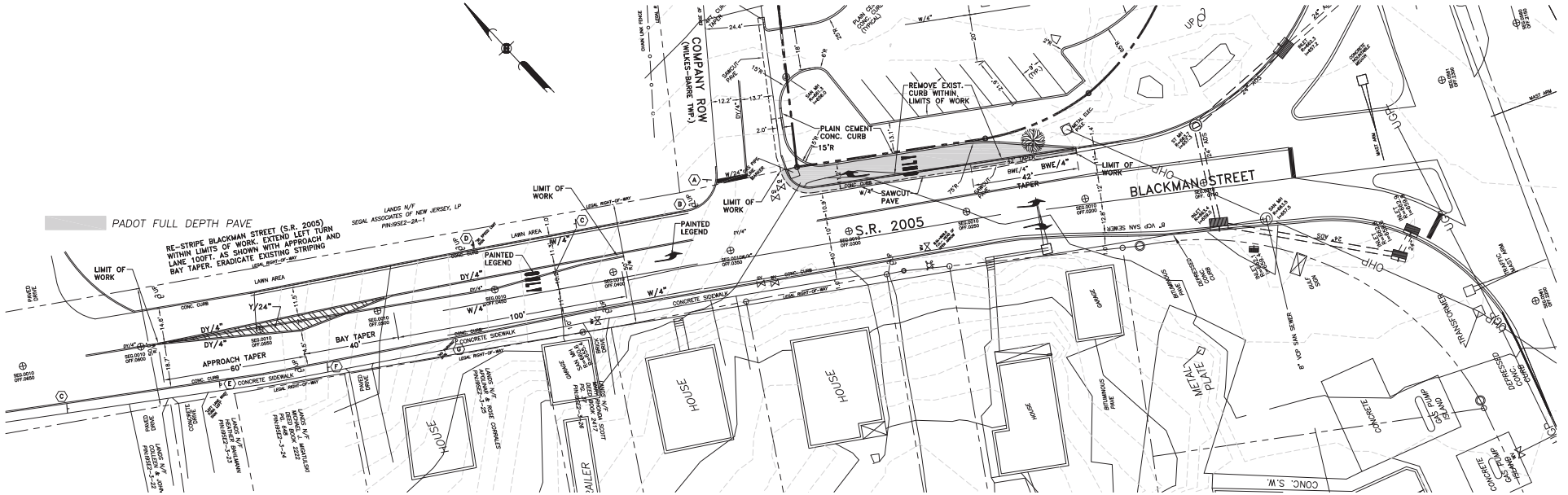
MUNICIPAL OFFICIAL DATE

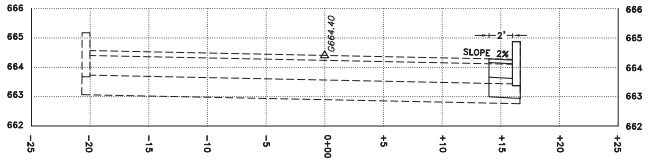
RECOMMENDED :

DISTRICT TRAFFIC ENGINEER DATE

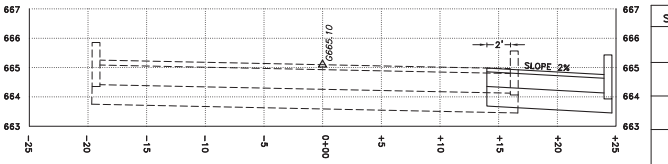
SCALE : 1"=25' 25' 0' 25'

4/1/2020 2:59:19 PM, L&V Engineering

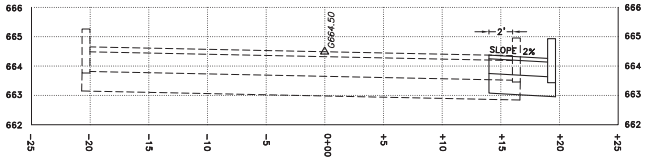




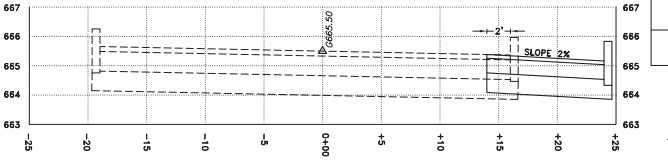
SECTION – STA. 1+86.0



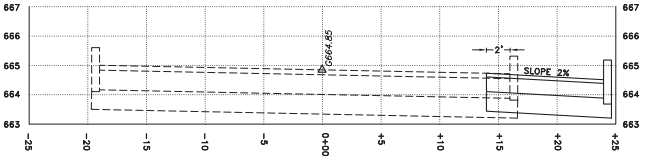
SECTION – STA. 2+50.0



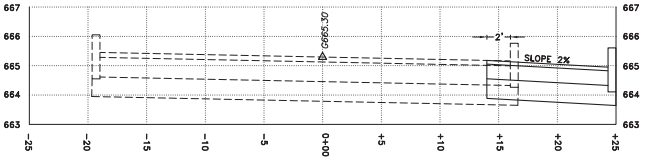
SECTION – STA. 2+00.0



SECTION – STA. 2+75.0



SECTION – STA. 2+25.0



SECTION – STA. 3+00.0

SYMBOL	SIGN	SIZE	QTY.
A	R1–1, STOP	36"x36"	1
B	SP, HAZARD, 'WATCH CHILDREN'	24"x24"	1
C	SP, HAZARD, 'HIDDEN DRIVE'	24"x24"	2
D	R2–1, SPEED LIMIT 35	18"x24"	1
E	R3–7L,LEFT LANE MUST TURN LEFT	18"x24"	1
F	'BUSINESS JCT 309'	18"x24"	1
G	R7–7, NO PARKING	12"x18"	1

NOTE: ALL SIGNS ASSOCIATED WITH THIS PERMIT ARE TO BE MOUNTED AT A HEIGHT OF 7'–0" MEASURED FROM THE BOTTOM OF THE SIGN TO THE GROUND.

George M. Albert, PE, LLC
ENGINEERING PLANNING DEVELOPMENT
33 S. WILKES-BARRE BLVD. SUITE 4, WILKES-BARRE, PA 18702
PHONE: (570) 954-4048 FAX: (570) 270-4243
EMAIL: galbert@engineer.com

NO.	DATE	BY	DESCRIPTION	CONST

REVISIONS

CERTIFICATION AND SEAL

I HEREBY CERTIFY THAT THIS PLAN AND SPECIFICATION WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED ENGINEER UNDER THE LAWS OF THE COMMONWEALTH OF PENNSYLVANIA AS SIGNIFIED BY MY HAND AND SEAL.

BURGER KING

FOUR ONE COMPANY
S.R. 0309 AND BLACKMAN STREET
WILKES-BARRE TOWNSHIP
LUZERNE COUNTY, PENNSYLVANIA

DRAWING TITLE

S.R. 2005 HIGHWAY OCCUPANCY PERMIT PLAN

CADD PLOT: 2543-12	SCALE: 1" = 20'	DRAWING NO. C-12
VOID PLOT: -	DRAWN BY: GMA	OF 16
RELEASED TO CONSTRUCTION -	DATE: 6/04/19	
	REVIEWED BY: GMA	

MOVEMENT, SEQUENCE AND TIMING DIAGRAM

PHASE	1 + 6			2 + 6			3 + 7			4 + 7			PRE-EMPT 2			PRE-EMPT 6			PRE-EMPT 3			PRE-EMPT 4			PRE-EMPT 4+7			EMERGENCY FLASHING
SIGNALS \ INTERVAL	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	
1	~~G~~	Y	R	R	R	R	R	R	R	R	R	R	SELECTIVE CLEARANCE	R	R	R	SELECTIVE CLEARANCE	~~G~~	Y	R	SELECTIVE CLEARANCE	R	R	R	SELECTIVE CLEARANCE	R	R	R	SELECTIVE CLEARANCE	R	R	R	Y
2,3	G	Y	R	R	R	R	R	R	R	R	R	R		R	R	R		G	Y	R		R	R	R		R	R	R		R	R	R	Y
4,5	R	R	R	G	Y	R	R	R	R	R	R	R		G	Y	R		R	R	R		R	R	R		R	R	R		R	R	R	Y
6	R	R	R	R	R	R	~~G~~	Y	R	~~G~~	~~Y~~	R		R	R	R		R	R	R		~~G~~	~~Y~~	R		~~G~~	~~Y~~	R		R	R	R	
7,8	R	R	R	R	R	R	R	R	R	R	R	R		G	Y	R		R	R	R		R	R	R		G	Y	R		G	Y	R	R
9,10,11	R	R	R	R	R	R	~~G~~	~~Y~~	R	R	R	R		G	Y	R		R	R	R		~~G~~	~~Y~~	R		R	R	R		R	R	R	R

FIXED	3.9	1.8		3.9	1.8		3.9	3.4		3.9	3.4		3.9	1.8		3.9	1.8		3.9	3.4		3.9	3.4		3.9	3.4	
MINIMUM	3			10			3			3															40		
ADDED INITIAL				1																							
MAX. INITIAL				18																							
PASSAGE	2			9			2			2															2		
TTR				10																							
TBR				20																							
MIN. GAP				4.5																							
MAX. I	7			30			8			12															40		
MAX. II	8			30			15			12															40		
MAX. III	8			20			8			8																	
MEMORY	NL			MIN RECALL			NL			NL			NL			NL			NL			NL			NL		

SIGNAL NOTES

(1) ~~R~~ /G IF FOLLOWED BY PHASE 2+6

(2) G IF FOLLOWED BY PHASE 2+6

(3) ~~G~~ IF FOLLOWED BY PHASE 3+8

(4) SELECTIVE CLEARANCE INTERVAL INCLUDES THE NORMAL ALL-RED INTERVAL

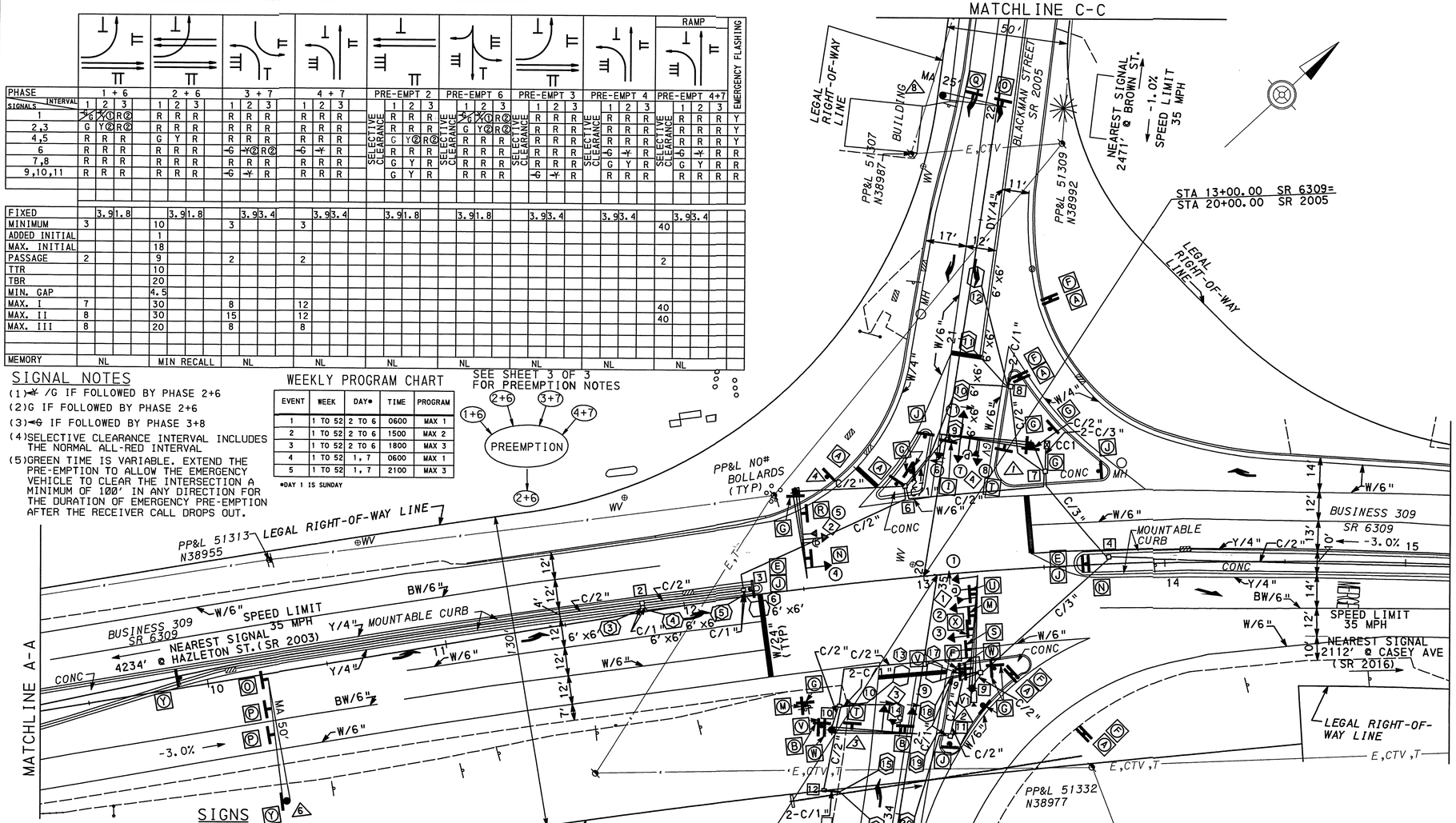
(5) GREEN TIME IS VARIABLE. EXTEND THE PRE-EMPTION TO ALLOW THE EMERGENCY VEHICLE TO CLEAR THE INTERSECTION A MINIMUM OF 100' IN ANY DIRECTION FOR THE DURATION OF EMERGENCY PRE-EMPTION AFTER THE RECEIVER CALL DROPS OUT.

WEEKLY PROGRAM CHART

EVENT	WEEK	DAY*	TIME	PROGRAM
1	1 TO 52	2 TO 6	0600	MAX 1
2	1 TO 52	2 TO 6	1500	MAX 2
3	1 TO 52	2 TO 6	1800	MAX 3
4	1 TO 52	1, 7	0600	MAX 1
5	1 TO 52	1, 7	2100	MAX 3

*DAY 1 IS SUNDAY

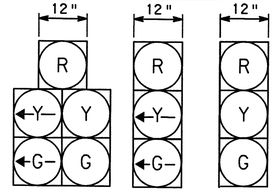
SEE SHEET 3 OF 3 FOR PREEMPTION NOTES



SIGNS

PLAN SYMBOL	SERIES	DESCRIPTION	SIZE W x H	QUANTITY
A	R1-1	STOP	30"x30"	6
B	R5-1	DO NOT ENTER	36"x36"	1
E	R4-7R	KEEP RIGHT	24"x30"	3
F	R5-1	DO NOT ENTER	30"x30"	6
G	R9-3A	NO PEDESTRAIN CROSSING	18"x18"	10
H	W4-2L	LEFT LANE ENDS	36"x36"	3
I	R10-10L	LEFT TURN SIGNAL	30"x36"	1
J	OM1-3	OBJECT MARKER	18"x18"	6
K	R5-1A	WRONG WAY	36"x24"	2
L	R3-9B	CENTER LANE LEFT TURN ONLY	36"x48"	1
M	R3-1	NO RIGHT TURN	30"x30"	1
N	R3-2	NO LEFT TURN	30"x30"	1
O	R3-5(L)	LEFT TURN SIGN	30"x36"	3
P	R3-5(S)	STRAIGHT-THROUGH SIGN	30"x36"	5
Q	R3-5(R)	RIGHT TURN SIGN	30"x36"	3
R	D3-4	Blackman St →	96"x16"	1
S	D3-4	← Blackman St	96"x16"	1
T	D3-4	PA 309 Business	96"x16"	2
U	R10-12	LEFT TURN YIELD ON GREEN ●	30"x36"	1
V	R6-1L	ONE WAY ←	36"x12"	2
W	R6-1R	ONE WAY →	36"x12"	2
X	W9-2R	LANE ENDS MERGE RIGHT	36"x36"	1
Y	W9-1L	LEFT LANE ENDS	36"x36"	2

SIGNAL INDICATIONS



ALL SIGNALS SHALL HAVE TUNNEL VISORS AND LED INDICATIONS

LEGEND

- MAST ARM
- VEHICULAR SIGNAL HEAD
- SIGN (POST MOUNTED)
- SIGN (STRUCTURE MOUNTED)
- W/4" SOLID WHITE LINE/WIDTH
- BW/4" BROKEN WHITE LINE/WIDTH
- Y/4" SOLID YELLOW LINE/WIDTH
- BY/4" BROKEN YELLOW LINE/WIDTH
- DY/4" DOUBLE SOLID YELLOW LINE/WIDTH
- PAINTED PAVEMENT ARROW
- EMERGENCY VEHICLE PRE-EMPTION RECEIVER
- EMERGENCY VEHICLE PRE-EMPTION FAIL-SAFE LIGHT
- VEHICLE DETECTOR
- JUNCTION BOX
- C/2 CONDUIT/SIZE
- CC1 CONTROLLER
- VIDEO DETECTOR

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
4-0	LUZERNE	6309	000	1 OF 3

WILKES-BARRE TOWNSHIP

PERMIT NO. 5815 SHEET 2 OF 4

DATE ISSUED 1/28/66 DATE REVISED 11/04/08

REVISION NUMBER	REVISIONS	DATE	BY
1	AS-BUILT PLANS	11/08	JEP

GENERAL NOTES

(1) THIS DRAWING CANNOT BE USED AS A CONSTRUCTION DRAWING, UNLESS THE CONTRACTOR COMPLIES WITH THE PROVISIONS OF ACT 199, 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.

(2) INSTALL SIGNAL HEADS WITH A MINIMUM HORIZONTAL DISTANCE OF 8 FEET BETWEEN THE HEADS AS MEASURED AT RIGHT ANGLES TO THE APPROACH.

(3) SIGNAL INSTALLATION IS TO BE COMPLETED IN ACCORDANCE WITH PUB 408.

(4) EACH LOOP WILL BE ASSIGNED TO A SEPARATE DETECTOR INPUT IN THE CONTROLLER TIMER WHICH PROVIDES SWITCHING, EXTENSION TIMES AND A DELAY TIMER TO AN INDIVIDUAL LOOP.

(5) DETAILS OTHER THAN THOSE INDICATED, ARE ON THE FOLLOWING STANDARD DRAWINGS:
TC-8702B MAY 25, 2007
TC-7801 JUN 30, 1989
TC-7802 JUN 30, 1989
TC-7803 JUN 30, 1989
TC-7804 JUN 30, 1989
TC-7805 JUN 30, 1989
TC-7806 JUN 30 ,1989

(6) INSTALL, OPERATE AND MAINTAIN THIS TRAFFIC SIGNAL IN ACCORDANCE WITH PENNSYLVANIA DEPARTMENT OF TRANSPORTATION REGULATIONS ON OFFICIAL TRAFFIC CONTROL DEVICES SPECIFICATIONS (PUB 408), TRAFFIC CONTROL STANDARDS (TC-8700 & TC-7800 SERIES) AND TRAFFIC SIGNAL DESIGN HANDBOOK (PUB 149).

(7) NO MODIFICATION OF THIS INSTALLATION IS ALLOWED UNLESS PRIOR APPROVAL IS GRANTED, IN WRITING, BY THE DEPARTMENT.

(8) ALL MAINTENANCE NECESSARY FOR PROPER VISIBILITY OF THESE SIGNALS, INCLUDING TRIMMING TREES, IS THE RESPONSIBILITY OF THE PERMITTEE.

(9) THE PERMITTEE INSTALLS AND MAINTAINS ALL SIGNS AND PAVEMENT MARKINGS INDICATED ON THIS DRAWING WHICH ARE CONSIDERED PART OF THE PERMIT, UNLESS OTHERWISE INDICATED. THE DEPARTMENT MAINTAINS THE LONGITUDINAL MARKINGS ON THE STATE HIGHWAYS.

(10) INSTALL SIGNS AND SIGNAL HEADS ERECTED OVER THE ROADWAY WITH BOTTOMS NOT LESS THAN 16 FEET NOR MORE THAN 17 FEET ABOVE THE ROADWAY.

(11) ALL INPUTS AND OUTPUTS OF THE CONTROLLER ASSEMBLY INCLUDING THE CARD RACK ASSEMBLY SHALL BE WIRED TO THE APPROPRIATE CONNECTORS AND HARNESSES.

(12) CARD RACK ASSEMBLY TO BE NEMA TYPE 7T.

(13) INSTALL ALL SIGNS AND PAVEMENT MARKINGS, AS INDICATED ON THE PLAN BEFORE SIGNALS ARE PUT INTO RED, YELLOW, GREEN OPERATION.

(14) CONTACT PENNDOT TRAFFIC UNIT, TO SCHEDULE A TRAFFIC INSPECTION, A MINIMUM OF THREE DAYS PRIOR TO PLACING SIGNALS INTO RED, YELLOW, GREEN OPERATION.

(15) NOTIFY THE DISTRICT TRAFFIC ENGINEER 7 CALENDAR DAYS PRIOR TO CONDUCTING A PHYSICAL AND FUNCTIONAL SHOP TEST AS REQUIRED IN SECTION 1104 (PUB 408), SO THAT DISTRICT REPRESENTATIVES MAY WITNESS THE TESTING. PROVIDE A COPY OF THE CERTIFICATION THAT THE EQUIPMENT OPERATES AS INDICATED TO THE DISTRICT TRAFFIC ENGINEER.

(16) TRAFFIC SIGNAL SUPPORTS TO BE PLACED A MINIMUM OF 2 FEET BEHIND THE FACE OF CURB. IN AREAS WHERE CURBING DOES NOT EXIST, THE SUPPORT IS TO BE PLACED 2 FEET FROM THE EDGE OF SHOULDER, OR 10 FEET FROM THE EDGE OF TRAVELWAY, WHICHEVER IS GREATER.

COUNTY : LUZERNE

MUNICIPALITY : WILKES-BARRE TOWNSHIP

INTERSECTION : BUS. PA 309(SR 6309) AND BLACKMAN ST./ I-81 RAMP G

REVIEWED :
SEE SIGNED ORIGINAL
MUNICIPAL OFFICIAL DATE

RECOMMENDED :
SEE SIGNED ORIGINAL
DISTRICT TRAFFIC ENGINEER DATE

SCALE : 1"=25' 25' 0' 25'

FILE NAME: G:\rd8\LUZERNE\Wilkesbarre Twp\309 AND BLACKMAN\I-81 RAMP.dgn
PLOTTED-2010 13:52 $$USER$
$$TIME$$

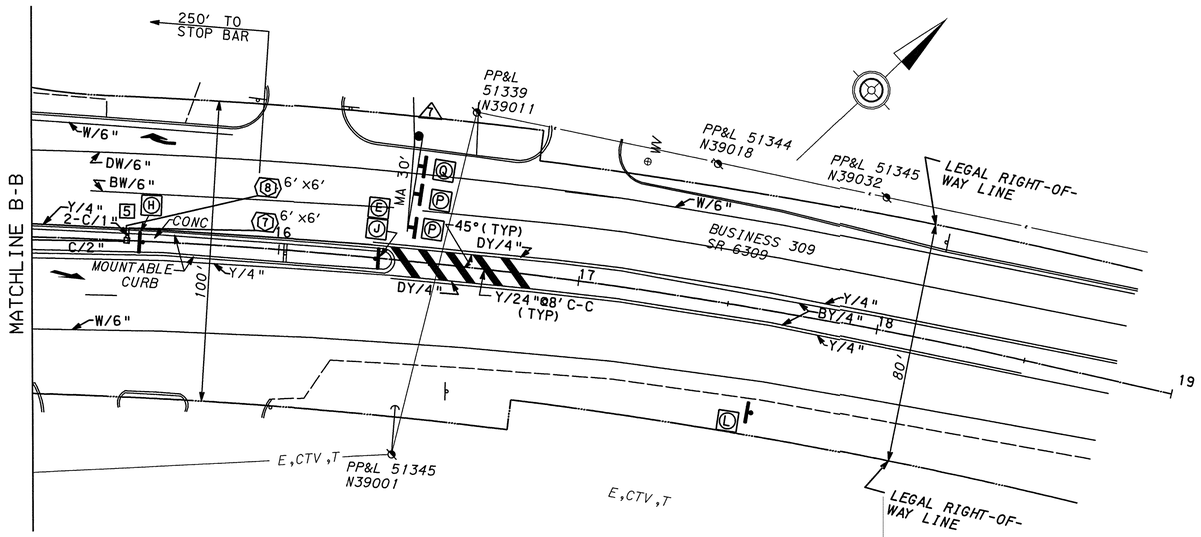
DISTRICT	COUNTY	ROUTE	SECTION	SHEET
4-0	LUZERNE	6309	000	2 OF 3

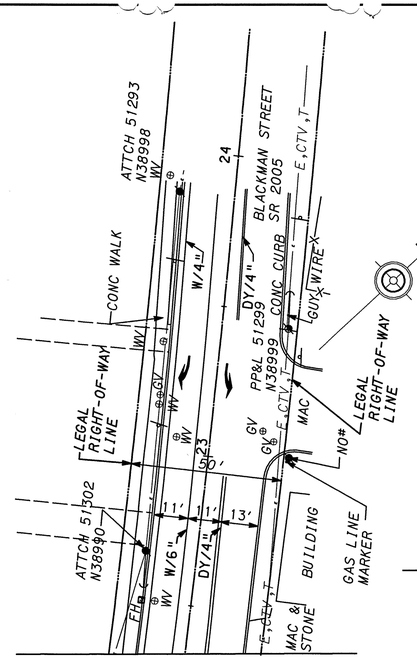
WILKES-BARRE TOWNSHIP

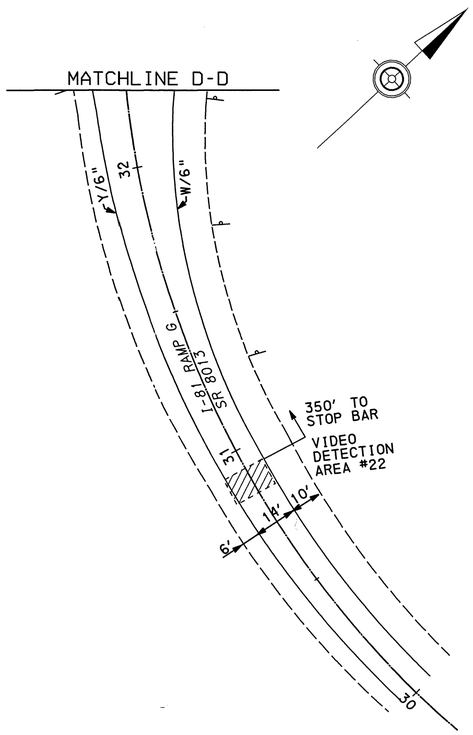
PERMIT NO. 5815 SHEET 3 OF 4

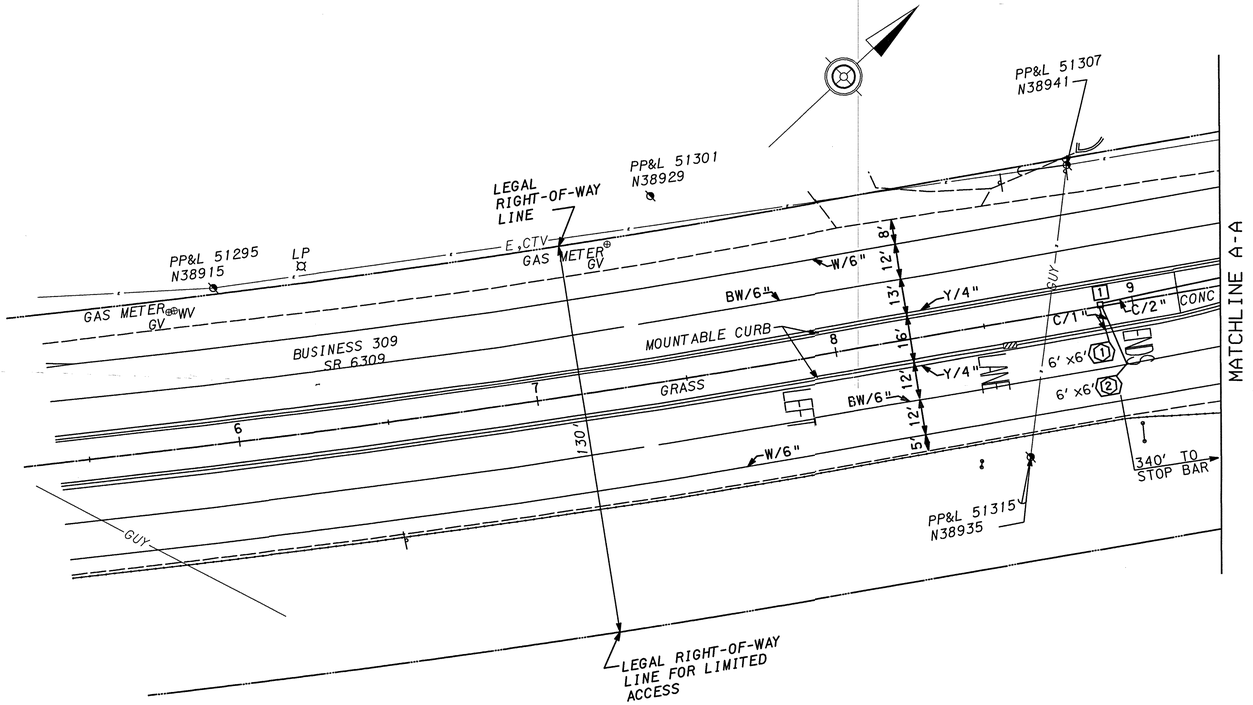
DATE ISSUED 1/28/66 DATE REVISED 11/04/08

REVISION NUMBER	REVISIONS	DATE	BY
1	AS-BUILT PLANS	11/08	JEP









LEGEND

- MAST ARM
- VEHICULAR SIGNAL HEAD
- SIGN (POST MOUNTED)
- SIGN (STRUCTURE MOUNTED)
- W/4" SOLID WHITE LINE/WIDTH
- BW/4" BROKEN WHITE LINE/WIDTH
- Y/4" SOLID YELLOW LINE/WIDTH
- BY/4" BROKEN YELLOW LINE/WIDTH
- DY/4" DOUBLE SOLID YELLOW LINE/WIDTH
- PAINTED PAVEMENT ARROW
- EMERGENCY VEHICLE PRE-EMPTION RECEIVER
- EMERGENCY VEHICLE PRE-EMPTION FAIL-SAFE LIGHT
- VEHICLE DETECTOR
- JUNCTION BOX
- C/2" CONDUIT/SIZE

COUNTY : LUZERNE

MUNICIPALITY : WILKES-BARRE TOWNSHIP

INTERSECTION : BUS. PA 309(SR 6309) AND BLACKMAN ST./ I-81 RAMP G

REVIEWED :

SEE SIGNED ORIGINAL

MUNICIPAL OFFICIAL DATE

RECOMMENDED :

SEE SIGNED ORIGINAL

DISTRICT TRAFFIC ENGINEER DATE

SCALE : 1"=25' 25' 0' 25'

FILE NAME: G:\rd8\LUZERNE\Wilkesbarre Twp\309 AND BLACKMAN1-81 RAMP.dgn $USER$
PLOT DATE: 4-NOV-2008 14:43 $$TIME$$

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
4-0	LUZERNE	6309	000	3 OF 3
	WILKES-BARRE TOWNSHIP			

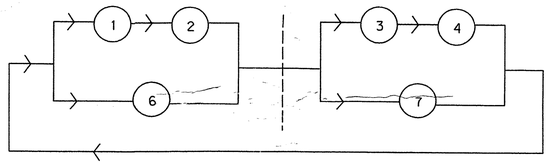
PERMIT NO. 5815 SHEET 4 OF 4

DATE ISSUED 1/28/66 DATE REVISED 05/21/2007

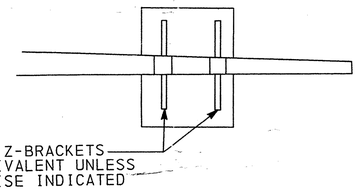
REVISION NUMBER	REVISIONS	DATE	BY

PROGRAM CHART						
EVENT	WEEK	DAY*	TIME	DIAL	OFFSET (SEC)	CYCLE LENGTH
1	1 - 52	2 - 6	0600	MAX 1	--	65
2	1 - 52	2 - 6	1500	MAX 2	--	75
3	1 - 52	2 - 6	1800	MAX 3	--	70
2	1 - 52	1 , 7	0600	MAX 1	--	65
3	1 - 52	1 , 7	2100	MAX 3	--	70
* DAY 1 IS SUNDAY						
MAX 1 - AM PEAK AND MIDDAY PEAK						
MAX 2 - PM PEAK						
MAX 3 - OFF PEAK						

PHASING DIAGRAM



MOUNTING DETAIL
TYPE F SIGN, SPECIAL & STRUCTURE MOUNTED FLAT SHEET ALUMINUM SIGNS, SPECIAL



EMERGENCY VEHICLE PRE-EMPTION NOTES

CONTROLLER TO BE EQUIPPED WITH EMERGENCY PREEMPTION FOR ALL APPROACHES OF PA BUSINESS 309 (SR 6309), I-81 RAMP G AND BLACKMAN ST. WITH A FAIL SAFE DEVICE FOR EACH DIRECTION OF OPERATION.

THIS FAIL SAFE DEVICE SHALL CONSIST OF A FLASHING WHITE FLOOD LIGHT AND SHALL FLASH WHEN THE EMERGENCY VEHICLE HAS CONTROL OF THE INTERSECTION FOR THE APPROPRIATE APPROACH.

THE SIGNALS, WHEN ACTIVATED BY EMERGENCY VEHICLE, SHALL TIME OUT ALL YELLOW AND RED INDICATIONS FOLLOWED BY THE GREEN INTERVAL OF THE PREEMPTION PHASE GOVERNED BY THE APPROACHING EMERGENCY VEHICLE.

THE SIGNALS WHEN ACTIVATED BY EMERGENCY VEHICLE SHALL TERMINATE ALL GREEN INDICATIONS EXCEPT THE GREEN INDICATIONS FOR THE PHASE GOVERNED BY THE APPROACHING EMERGENCY VEHICLE, FOLLOWED BY SELECTIVE CLEARANCES DEPENDENT UPON THE PHASE IN WHICH THE PREEMPTION OCCURS. THE GREEN INDICATIONS FOR THE PREEMPTED PHASE SHALL REMAIN GREEN FOR THE DURATION OF SIGNAL PREEMPTION AND RED INDICATIONS DISPLAYED FOR ALL OTHER PHASES.

IF SIGNALS HAVE BEEN ACTUATED BY PEDESTRIAN PUSHBUTTON, AND THE SIGNAL IS PREEMPTED, THE PED WALK INTERVAL SHALL TERMINATE IMMEDIATELY, FOLLOWED BY THE PED CLEAR INTERVAL. THIS INTERVAL SHALL TIME OUT FOLLOWED BY THE APPROPRIATE SELECTIVE CLEARANCES BEFORE GOING INTO EMERGENCY PREEMPTION.

FOR WIRELESS PREEMPTION, THE GREEN INTERVAL SHALL EQUAL THE LENGTH OF THE PREEMPTION DETECTOR CALL PLUS 5 SECONDS.

IF THE SIGNALS WHEN ACTIVATED BY AN EMERGENCY VEHICLE ARE FLASHING, ALL SIGNALS SHALL REMAIN FLASHING.

UPON COMPLETION OF THE PREEMPTION PHASE 2,6,3 OR 4, IN RETURNING TO NORMAL OPERATION, PHASE 2+6 INTERVAL 1 SHALL FOLLOW.

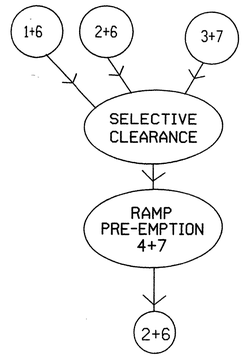
IN EMERGENCY PREEMPTION NO PRIORITY SHALL BE ESTABLISHED. PREEMPTION SHALL BE A "FIRST COME, FIRST SERVE" OPERATION.

WIRELESS PREEMPTION WILL BE PROVIDED FOR ALL APPROACHES OF THE INTERSECTION. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE LOCATION OF THE DEVICE(S) IN ORDER TO ACHIEVE PROPER OPERATION ACCORDING TO THE MANUFACTURER'S SPECIFICATIONS. MOST CONDUITS ARE ADEQUATE SIZE TO HANDLE THE ADDITIONAL PREEMPTION DEVICE WIRE, BUT THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE DIAMETER(S).

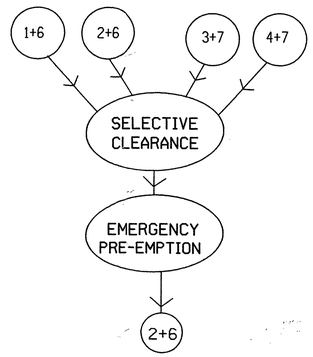
RAMP PRE-EMPTION NOTES

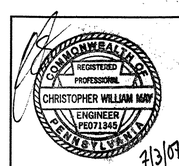
1. WHEN A CONSTANT CALL IS REGISTERED ON VIDEO DETECTION AREA NUMBER 22 FOR 10 SECONDS, THE CURRENT PHASE TIMING TERMINATES IMMEDIATELY AND IS FOLLOWED BY A SELECTIVE CLEARANCE. THE RAMP PRE-EMPTION PHASE FOLLOWS.
2. UPON COMPLETION OF THE RAMP PRE-EMPTION PHASE 2+6 INTERVAL FOLLOWS.
3. IF RAMP PRE-EMPTION OCCURS DURING EMERGENCY FLASH OPERATION, SIGNALS WILL REMAIN FLASHING.

RAMP PRE-EMPTION PHASING DIAGRAM



EMERGENCY VEHICLE PRE-EMPTION PHASING DIAGRAM





7/3/07

COUNTY : LUZERNE

MUNICIPALITY : WILKES-BARRE TOWNSHIP

INTERSECTION : BUS. PA 309 (SR 6309) AND BLACKMAN ST. / I-81 RAMP G

REVIEWED : Carl Swen 7/9/07
MUNICIPAL OFFICIAL DATE

RECOMMENDED : Keith D. Williams 07/16/2007
DISTRICT TRAFFIC ENGINEER DATE

SCALE : 1"=25' 25' 0' 25'

FILE NAME: Y:\11\1159\1159342\1159342m\3-309 and Blackman St\TS\t1159342tspp138.dgn
PLOTTED: 7/2/2007 6:12:35 PM edudkowski

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
4-0	LUZERNE	6309	000	3 OF 3
	WILKES-BARRE TOWNSHIP			

PERMIT NO. 5815 SHEET 4 OF 4

DATE ISSUED 1/28/66 DATE REVISED 05/21/2007

REVISION NUMBER	REVISIONS	DATE	BY

PROGRAM CHART						
EVENT	WEEK	DAY*	TIME	DIAL	OFFSET (SEC)	CYCLE LENGTH
1	1 - 52	2 - 6	0600	MAX 1	--	65
2	1 - 52	2 - 6	1500	MAX 2	--	75
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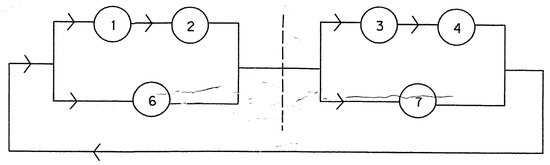
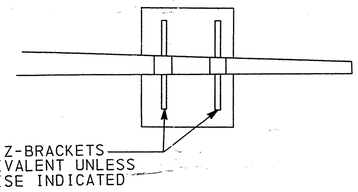
2	1 - 52	1 , 7	0600	MAX 1	--	65
3	1 - 52	1 , 7	2100	MAX 3	--	70
* DAY 1 IS SUNDAY						
MAX 1 - AM PEAK AND MIDDAY PEAK						
MAX 2 - PM PEAK						
MAX 3 - OFF PEAK						

PHASING DIAGRAM



MOUNTING DETAIL
TYPE F SIGN, SPECIAL & STRUCTURE MOUNTED FLAT SHEET ALUMINUM SIGNS, SPECIAL



EMERGENCY VEHICLE PRE-EMPTION NOTES

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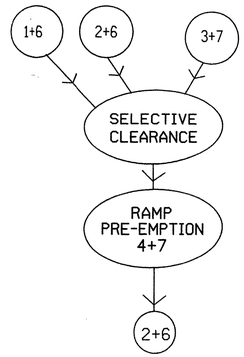
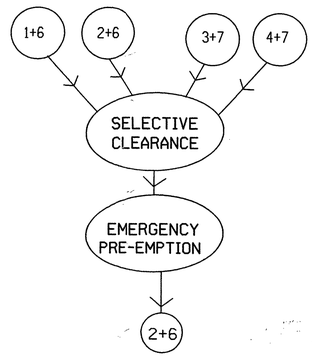
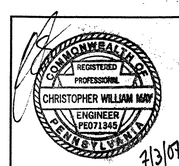
RAMP PRE-EMPTION PHASING DIAGRAM



EMERGENCY VEHICLE PRE-EMPTION PHASING DIAGRAM





7/3/07

COUNTY : LUZERNE

MUNICIPALITY : WILKES-BARRE TOWNSHIP

INTERSECTION : BUS. PA 309 (SR 6309) AND BLACKMAN ST. / I-81 RAMP G

REVIEWED : Carl Swen 7/9/07
MUNICIPAL OFFICIAL DATE

RECOMMENDED : Keith D. Williams 07/16/2007
DISTRICT TRAFFIC ENGINEER DATE

SCALE : 1"=25' 25' 0' 25'

FILE NAME: Y:\11\1159\1159342\1159342m\3-309 and Blackman St\TS\t1159342tspp138.dgn
PLOTTED: 7/2/2007 6:12:35 PM edudkowski

16-JAN-1998 11:28

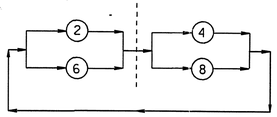
D-D-90(8)C(4B)96(2-90)

PHASING DIAGRAM

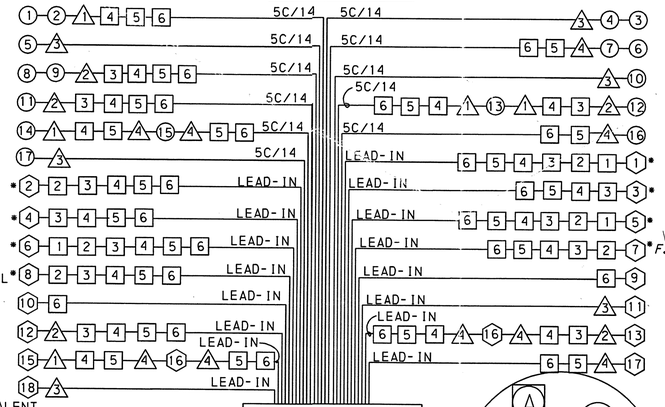
SIGNALS	1	2	3	4	1	2	3	4	EMERGENCY FLASHING	CYCLE LENGTH
	PHASE 2+6				PHASE 4+8					
	INTERVALS				INTERVALS					
1-2	G	G	Y	R	R	R	R	R	Y	
3-4	G	G	Y	R	R	R	R	R	Y	
5-6-7	R	R	R	R	G	G	Y	R	R	
8-9	R	R	R	R	G	G	Y	R	R	
10-11	W	DW	DW	DW	W	FDW	DW	DW	OFF	
12-13	W	FDW	DW	DW	DW	DW	DW	DW	OFF	
14-15	DW	DW	DW	DW	W	FDW	DW	DW	OFF	
16-17	W	FDW	DW	DW	DW	DW	DW	DW	OFF	
FIXED			4	1.2			3.3	1.5		
MINIMUM	0				2					
PASSAGE	0				2					
MAX 1	←40→				←10→					60
MAX 2	←61→				←14→					85
DIAL 1	—				—					
DIAL 2	—				—					
DIAL 3	—				—					
DIAL 4	—				—					
DIAL 5	—				—					
** PEDESTRIAN	8	9			9	12				
MEMORY	MAX RECALL									

**UPON PEDESTRIAN ACTUATION ONLY, OTHERWISE " DON,T WALK" AT ALL TIMES

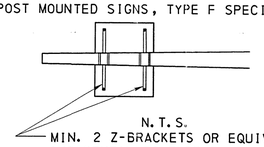
PHASING DIAGRAM



WIRING DIAGRAM

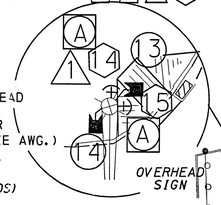


POST MOUNTED SIGNS, TYPE F SPECIAL

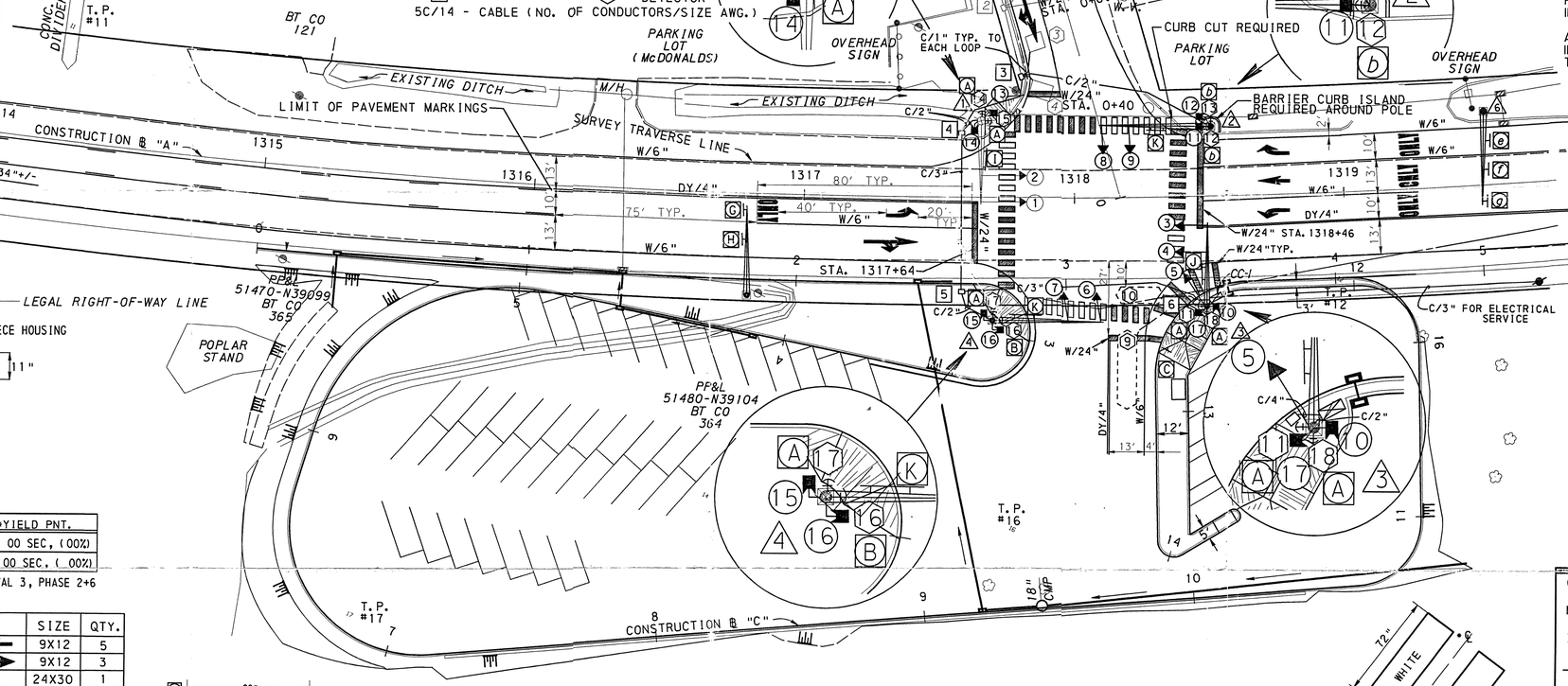


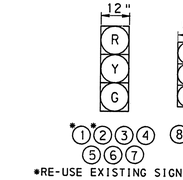
N.T.S.
MIN. 2 Z-BRACKETS OR EQUIVALENT INCIDENTAL TO TYPE F SPECIAL

△ - SIGNAL SUPPORT ○ - SIGNAL HEAD
□ - JUNCTION BOX ⬡ - DETECTOR
5C/14 - CABLE (NO. OF CONDUCTORS/SIZE AWG.)



OVERHEAD SIGN





*RE-USE EXISTING SIGNAL

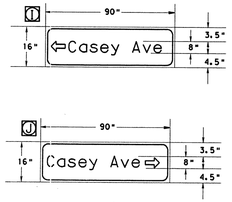
WEEKLY PROGRAM CHART

EVENT	WEEK	*DAY	TIME	DIAL NO.	**YIELD PNT.
1	1 to 52	1 to 7	0630	MAX 1	00 SEC, (00%)
2	1 to 52	1 to 7	2130	MAX 2	00 SEC, (00%)

** YIELD POINT REFERENCE TO START OF INTERVAL 3, PHASE 2+6
* DAY 1 IS SUNDAY

SYMBOL	DESCRIPTION	SIZE	QTY.
A	R10-4, PUSH BUTTON FOR WALK ←	9X12	5
B	R10-4, PUSH BUTTON FOR WALK →	9X12	3
C	R10-6L, STOP HERE ON RED	24X30	1
D	R3-8LSR, LANE USE CONTROL	30X30	1
E	R3-5R, RIGHT TURN SIGN	30X36	1
F	R3-5S, STRAIGHT-THROUGH SIGN	30X36	1
G	R3-5L, LEFT TURN SIGN	30X36	2
H	R3-6SR, OPTIONAL RIGHT TURN SIGN	30X36	1
I	D3-4, CASEY AVE. →	16X90	1
J	D3-4, ← CASEY AVE.	16X90	1
* K	D3-5, WILKES-BARRE TOWNSHIP BLVD.	28X96	2

* SIGN K WAS COMPRESSED 4 %



WHITE LEGEND AND BORDER ON GREEN BACKGROUND.
LEGEND, BORDER AND BACKGROUND WILL BE CLASS II REFLECTIVE MATERIAL WITH ¾" BORDER AND 2½" RADIUS ON CORNERS.

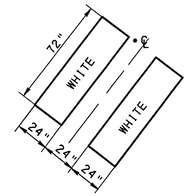
SERIES - E MODIFIED
8" U.C. LET.
6" L.C. LET.

6.00=SPACE
8.30=TYPE T ARROW
6.00=SPACE
8.50=C
7.40=o
6.90=s
6.80=e
6.50=y
5.70=SPACE
9.30=A
7.50=v
5.10=e
90.00

6.00=SPACE
8.50=C
7.40=o
6.90=s
6.80=e
6.50=y
5.70=SPACE
9.30=A
7.50=v
5.10=e
6.00=SPACE
8.30=TYPE T ARROW
6.00=SPACE
90.00

5.40=SPACE
10.50=W
4.50=I
4.50=I
6.80=K
6.80=e
5.10=s
6.00=SPACE
6.00=-
6.00=SPACE
8.60=B
8.10=a
5.80=r
5.00=r
5.10=e
5.40=SPACE
96.00
88.80 COMPRESS 4% = 85.20

5.50=SPACE
7.40=T
6.90=o
10.10=w
7.30=n
7.60=s
8.00=n
4.50=I
5.10=e
6.00=SPACE
9.30=B
3.80=I
7.50=v
5.10=d
5.50=SPACE
96.00
88.60 COMPRESS 4% = 85.00



CROSSWALK DETAIL - TYPICAL

N.T.S.
*INSTALL PAVEMENT MARKINGS PARALLEL TO WHEEL TRACKS.

LEGEND

- A - MAST ARM
- (4) - VEHICULAR SIGNAL HEAD
- (4) - PEDESTRIAN SIGNAL HEAD
- R - SIGN
- D - VEHICLE DETECTOR
- PEDESTRIAN PUSH BUTTON/SIGN
- CC-4 - CONTROLLER ASSEMBLY
- 4 - JUNCTION BOX
- C/4" - CONDUIT/SIZE
- W/4" - SOLID WHITE LINE/WIDTH
- Y/4" - SOLID YELLOW LINE/WIDTH
- BY/4" - BROKEN YELLOW LINE/WIDTH
- DY/4" - DOUBLE SOLID YELLOW LINE/WIDTH
- NEW CONCRETE CURB
- HANDICAP RAMP
- NEW DROP CURB FOR HANDICAP ACCESSIBILITY

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
4-0	LUZERNE	0081	391	OF
WILKES-BARRE TOWNSHIP				

PERMIT NO. 7809 SHEET 2 OF 2
DATE ISSUED 4-2-76

REVISION NUMBER	REVISIONS	DATE	BY
1	PERMIT AND CONDITION DIAGRAM	1-21-98	J. J. F

PERMIT NOTES

INSTALL, OPERATE, AND MAINTAIN THIS TRAFFIC SIGNAL IN ACCORDANCE WITH DEPARTMENT OF TRANSPORTATION REGULATIONS ON OFFICIAL TRAFFIC CONTROL DEVICES, SPECIFICATIONS (PUB 408), TRAFFIC CONTROL STANDARDS (TC-7700 & TC-7800 SERIES), AND TRAFFIC SIGNAL DESIGN HANDBOOK (PUB 149).

NO MODIFICATION OF THIS INSTALLATION IS PERMITTED UNLESS PRIOR APPROVAL IS GRANTED IN WRITING BY THE DISTRICT TRAFFIC ENGINEER.

ALL MAINTENANCE NECESSARY FOR THE VISIBILITY OF THESE SIGNALS, INCLUDING TRIMMING OF TREES, IS THE RESPONSIBILITY OF THE PERMITTEE.

THE PERMITTEE INSTALLS AND MAINTAINS ALL SIGNS IN THE SIGN BLOCK AND ALL PAVEMENT MARKINGS INDICATED ON THIS DRAWING, WHICH ARE CONSIDERED PART OF THE PERMIT, UNLESS OTHERWISE INDICATED. THE DEPARTMENT MAINTAINS ALL LONGITUDINAL PAVEMENT MARKINGS ON STATE HIGHWAYS.

ALL PAVEMENT MARKINGS SHALL BE HOT THERMOPLASTIC ON EXISTING SURFACES, OR PREFORMED (380) INLAID ON NEW SURFACES.

INSTALL SIGNAL HEADS AND SIGNS ERECTED OVER THE ROADWAY NOT LESS THAN 16 FEET NOR MORE THAN 17 FEET ABOVE THE ROADWAY.

PERMIT NOTES

INSTALL SIGNAL HEADS WITH A MINIMUM HORIZONTAL DISTANCE OF 8 FEET BETWEEN THE HEADS AS MEASURED AT RIGHT ANGLES TO THE APPROACH.

THIS DRAWING CANNOT BE USED AS A CONSTRUCTION DRAWING UNLESS THE PERMITTEE COMPLIES WITH THE PROVISIONS OF ACT 38, PREVENTION OF DAMAGE TO UNDERGROUND UTILITIES. PRIOR TO CONSTRUCTION CONSULT WITH UTILITY COMPANIES TO RESOLVE ANY CONFLICTS.

TRAFFIC SIGNAL SUPPORTS SHALL BE PLACED A MINIMUM OF 2 FEET BEHIND THE FACE OF CURB. IN AREAS WHERE CURBING DOES NOT EXIST, SUPPORT SHALL BE PLACED 2 FEET FROM THE EDGE OF SHOULDER, OR 10 FEET FROM THE EDGE OF TRAVELWAY, WHICHEVER IS GREATER. IN AREAS WHERE GUIDERAIL EXISTS, THE SUPPORT SHALL BE PLACED IN ACCORDANCE WITH DESIGN MANUAL (PUB 13, PART 2, CHAPTER 12).

CARD RACK ASSEMBLY TO BE NEMA TYPE 7T.

EACH LOOP WILL BE ASIGNED A SEPARATE DETECTOR INPUT IN THE CONTROLLER TIMER WHICH IS CAPABLE OF PROVIDING AN EXTENSION TIME AND A DELAY TIME TO AN INDIVIDUAL LOOP.

ALL INPUTS AND OUTPUTS OF THE CONTROLLER ASSEMBLY, INCLUDING CARD RACK ASSEMBLY, SHALL BE WIRED TO THE APPROPRIATE CONNECTORS AND HARNESSES.

COUNTY : LUZERNE

MUNICIPALITY : TOWNSHIP OF WILKES-BARRE

INTERSECTION : S.R. 6309 (BUS. 309), S.R. 2016 (CASEY AVE), AND PA.DOT. PARK AND RIDE

REVIEWED :
SIGNED ORIGINAL 4-4-96
MUNICIPAL OFFICIAL DATE

RECOMMENDED :
SIGNED ORIGINAL 4-4-96
DISTRICT TRAFFIC ENGINEER DATE

SCALE : 0 25 50 75

5400

OPERATOR:
FILE NAME:

G:\PDB\LUZERNE\WILKESBARRETWP\81391.51G
MOD-30081391-516

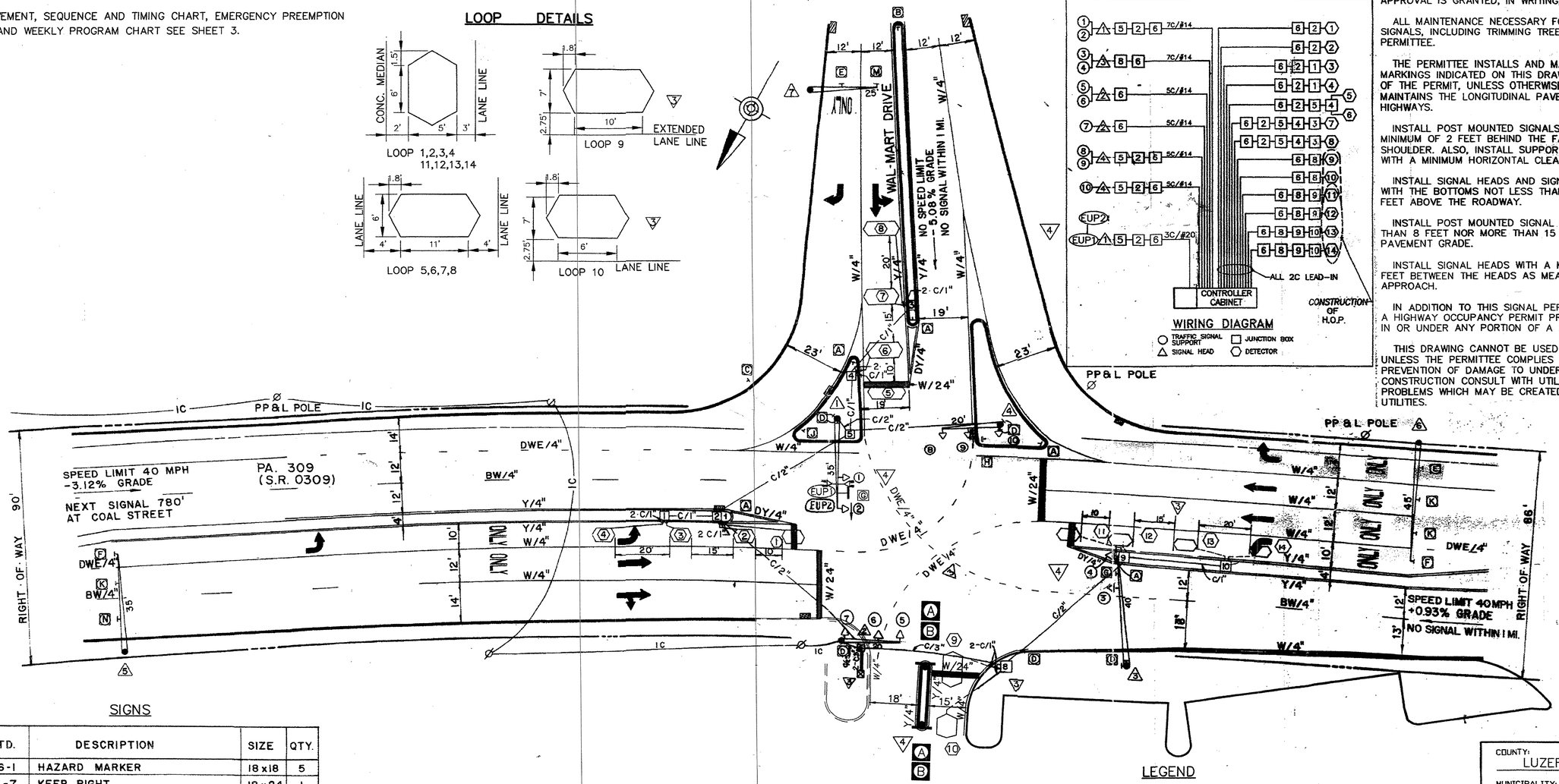
PERMIT NO. 40069	SHEET 2 OF 3
DATE ISSUED 3-11-91	DATE REVISED 05/16/08

PERMIT & CONDITION DIAGRAM REVISED — 9-23-94
CONDITION DIAGRAM REVISED — 2-25-95
3 CONDITION DIAGRAM REVISED 8 22 97
4 CONDITION DIAGRAM REVISED 2-21-00

NOTES

FOR MOVEMENT, SEQUENCE AND TIMING CHART, EMERGENCY PREEMPTION CHART, AND WEEKLY PROGRAM CHART SEE SHEET 3.

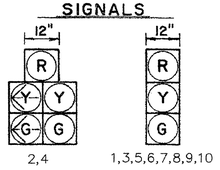
LOOP DETAILS



SIGNS

SIGN	STD.	DESCRIPTION	SIZE	QTY.
A	W16-1	HAZARD MARKER	18x18	5
B	R4-7	KEEP RIGHT	18x24	1
C	R1-2	YIELD	36x36	1
D	R9-3	NO PEDESTRIAN CROSSING	18x18	8
E	R3-5R	RIGHT TURN	30x36	2
F	R3-5L	LEFT TURN	30x36	2
G	R10-12	LEFT TURN YIELD ON GREEN	30x36	2
J	R5-1	DO NOT ENTER	30x30	1
K	R3-5S	STRAIGHT THROUGH	30x36	3
H	R4-14	ENTER HERE	24x30	1
M	R3-6LS	OPTIONAL LEFT TURN	30x36	1
N	R3-6SR	OPTIONAL RIGHT TURN	30x36	1

SIGNALS



GENEARAL NOTES (CONT'D)

DISTRICT TRAFFIC UNIT TO BE CONTACTED 3 DAYS PRIOR TO OPENING DRIVEWAY TO PUBLIC FOR INSPECTION/ACCEPTANCE OF CONSTRUCTION.

ALL SPLICES ARE TO BE MADE IN JUNCTION BOXES & POLE BASE ONLY.

THIS DRAWING WAS REVISED BY MICHAEL J. PASONICK, Jr. INC. FROM A DRAWING PREPARED BY OTHERS AND PROVIDED BY PA. D.O.T.

LEGEND

- EUP — PREEMPTION DETECTOR
- C/2" — CONDUIT / SIZE
- 2 — JUNCTION BOX
- 25' 2 — MAST ARM AND LENGTH
- 2 — VEHICULAR SIGNAL HEAD
- A — SIGN
- VEHICLE DETECTOR
- CONTROLLER ASSEMBLY
- W/4" — SOLID WHITE LINE / WIDTH
- BW/4" — BROKEN WHITE LINE / WIDTH
- Y/4" — SOLID YELLOW LINE / WIDTH
- DY/4" — DOUBLE SOLID YELLOW LINE / WIDTH
- DWE/4" — DOTTED WHITE EXTENTION LINE / WIDTH
- IC — AERIAL INTERCONNECT CABLE

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL MICHAEL JOHN PASONICK, JR. ENGINEER PE016039-E

Michael J. Pasonick Jr

GENERAL NOTES

INSTALL, OPERATE AND MAINTAIN THIS TRAFFIC SIGNAL IN ACCORDANCE WITH PENNSYLVANIA DEPARTMENT OF TRANSPORTATION REGULATIONS ON OFFICIAL TRAFFIC CONTROL DEVICES.

NO MODIFICATION OF THIS INSTALLATION IS PERMITTED UNLESS PRIOR APPROVAL IS GRANTED, IN WRITING, BY THE DEPARTMENT.

ALL MAINTENANCE NECESSARY FOR PROPER VISIBILITY OF THE SIGNALS, INCLUDING TRIMMING TREES, IS THE RESPONSIBILITY OF THE PERMITTEE.

THE PERMITTEE INSTALLS AND MAINTAINS ALL SIGNS AND PAVEMENT MARKINGS INDICATED ON THIS DRAWING WHICH ARE CONSIDERED PART OF THE PERMIT, UNLESS OTHERWISE INDICATED. THE DEPARTMENT MAINTAINS THE LONGITUDINAL PAVEMENT MARKINGS ON STATE HIGHWAYS.

INSTALL POST MOUNTED SIGNALS WITH THE SIGNAL HEADS A MINIMUM OF 2 FEET BEHIND THE FACE OF THE CURB OR EDGE OF THE SHOULDER. ALSO, INSTALL SUPPORT POLES FOR OVERHEAD SIGNALS WITH A MINIMUM HORIZONTAL CLEARANCE OF 2 FEET.

INSTALL SIGNAL HEADS AND SIGNS ERECTED OVER THE ROADWAY WITH THE BOTTOMS NOT LESS THAN 16 FEET NOR MORE THAN 19 FEET ABOVE THE ROADWAY.

INSTALL POST MOUNTED SIGNAL HEADS WITH BOTTOMS NOT LESS THAN 8 FEET NOR MORE THAN 15 FEET ABOVE THE SIDEWALK OR PAVEMENT GRADE.

INSTALL SIGNAL HEADS WITH A MINIMUM HORIZONTAL DISTANCE OF 8 FEET BETWEEN THE HEADS AS MEASURED AT RIGHT ANGLES TO THE APPROACH.

IN ADDITION TO THIS SIGNAL PERMIT, THE PERMITTEE MUST OBTAIN A HIGHWAY OCCUPANCY PERMIT PRIOR TO ANY OPENINGS BEING MADE IN OR UNDER ANY PORTION OF A STATE HIGHWAY.

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.

(CONT'D)

COUNTY: LUZERNE

MUNICIPALITY: WILKES-BARRE TOWNSHIP

INTERSECTION: PA ROUTE 309 (S.R. 0309) & WAL-MART DRIVE

REVIEWED: Carl Kwen — MUNICIPAL OFFICIAL — 4/23/08 DATE

RECOMMENDED: Keith D. Williams — DISTRICT TRAFFIC ENGINEER — 4/16/2008 DATE

SCALE 20' 10' 0' 20'

PERMIT NO. 40069	SHEET 3 OF 3
DATE ISSUED 3-11-91	DATE REVISED 05/16/08

MOVEMENT, PHASING AND TIMING CHART

	PHASE 1+5			PHASE 1+6			PHASE 2+5			PHASE 2+6			PHASE 4+8			FLASHING	CYCLE LENGTH
	INTERVALS			INTERVALS			INTERVALS			INTERVALS			INTERVALS				
SIGNALS	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3		
1	R	R	R	R	R	R	G	Y⑤	R⑥	G	Y⑦	R⑦	R	R	R	Y	
2	R/G①	R⑤	R⑤	R	R	R	G/G③	Y⑤	R⑥	G	Y⑦	R⑦	R	R	R	Y	
3	R	R	R	G	Y⑤	R⑥	R	R	R	G	Y⑦	R⑦	R	R	R	Y	
4	R/G①	R⑤	R⑤	G/G③	Y⑤	R⑥	R	R	R	G	Y⑦	R⑦	R	R	R	Y	
5,6,7,8,9,10	R	R	R	R	R	R	R	R	R	R	R	R	G	Y	R	R	
FIXED		4	2		4	2		4	2		4	2		3	2		
MINIMUM	5			5			5			20			10				
PASSAGE	2			2			2						2				
MAX I	7			7			7			50			20				
MAX II	7			7			7			50			20				
MEMORY	NL			NL			NL			MR			NL				
PROGRAM 1	7	4	2	7	4	2	7	4	2	25	4	2	15	3	2		64
PROGRAM 2	7	4	2	7	4	2	7	4	2	37	4	2	25	3	2		86
PROGRAM 3	10	4	2	10	4	2	10	4	2	46	4	2	31	3	2		104

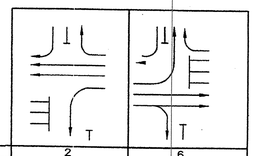
① REMAINS R/G IF FOLLOWED BY PHASE 2+5
② REMAINS R/G IF FOLLOWED BY PHASE 1+6
③ BECOMES G/Y IF FOLLOWED BY PHASE 2+6
④ BECOMES G IF FOLLOWED BY PHASE 2+6
⑤ REMAINS G IF FOLLOWED BY 2+6
⑥ REMAINS G IF FOLLOWED BY PHASE 1+6
⑦ REMAINS G IF FOLLOWED BY PHASE 2+5

WEEKLY PROGRAM CHART

EVENT	WEEK	*DAY	TIME	CYCLE	PROGRAM	**OFFSET	REMARKS
1	1-52	2-6	0700	64	1	52	MID-DAY
2	1-52	2-6	1500	86	2	25	PM
3	1-52	1-7	2200	–	–	–	FREE
4	1-52	7,1	0600	104	3	62	WEEKEND

*DAY ONE IS SUNDAY
**OFFSET REFERENCED TO THE START OF INTERVAL 3, PHASE 2+6

EMERGENCY PREEMPTION PHASING



PHASE	2				6			
INTERVAL / SIGNAL		16	17	18		19	20	21
1	SELECTIVE CLEARANCES	G	Y	R	SELECTIVE CLEARANCES	R	R	R
2		G/-G	Y/-Y	R		R	R	R
3		R	R	R		G	Y	R
4		R	R	R		G/-G	Y/-Y	R
5,6,7,8		R	R	R				
FIXED TIME		*	4.0	2.0		*	4.0	2.0

* FOR DURATION OF PREEMPTION

EMERGENCY PREEMPTION NOTES:

CONTROLLER TO BE EQUIPPED WITH EMERGENCY PREEMPTION FOR THE NORTHBOUND AND SOUTHBOUND APPROACHES OF S.R. 0309, WITH A FLASHING FAIL SAFE DEVICE FOR EACH DIRECTION.

THE SIGNALS, WHEN ACTIVATED BY A EMERGENCY VEHICLE, SHALL TERMINATE ALL GREEN INDICATIONS, EXCEPT THE GREEN INDICATIONS FOR THE PHASE GOVERNED BY THE APPROACHING EMERGENCY VEHICLE, FOLLOWED BY SELECTIVE CLEARANCES DEPENDENT UPON THE PHASE IN WHICH THE PREEMPTION OCCURS. THE GREEN INDICATIONS FOR THE PREEMPTION PHASE SHALL REMAIN GREEN FOR THE DURATION OF SIGNAL PREEMPTION AND RED INDICATIONS DISPLAYED FOR ALL OTHER PHASES.

THE SIGNALS, WHEN ACTIVATED BY AN EMERGENCY VEHICLE, SHALL TIME OUT ALL YELLOW AND RED INDICATIONS, FOLLOWED BY THE GREEN INTERVAL OF THE PREEMPTION PHASE GOVERNED BY THE ACTUATION OF THE APPROACHING EMERGENCY VEHICLE.

IF THE SIGNALS, WHEN ACTIVATED BY AN EMERGENCY VEHICLE, ARE FLASHING, ALL SIGNALS SHALL REMAIN FLASHING.

UPON COMPLETION OF PREEMPTION, IN RETURNING TO NORMAL OPERATION, PHASE 2+6 INTERVAL 1 SHALL FOLLOW.

NORTHBOUND VEHICLES SHALL ACTIVATE PHASE 2. SOUTHBOUND VEHICLES SHALL ACTIVATE PHASE 6.

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL MICHAEL JOHN PASONICK, JR. ENGINEER PE 19559-E

Michael J. Pasonick Jr

THIS DRAWING WAS REVISED BY
MICHAEL J. PASONICK, Jr. INC.
FROM A DRAWING PREPARED BY
OTHERS AND PROVIDED BY PA. D.O.T.

COUNTY: LUZERNE

MUNICIPALITY: WILKES-BARRE TOWNSHIP

INTERSECTION: PA ROUTE 309 (S.R. 0309) &

WAL-MART DRIVE

REVIEWED: Carl Kuzma 4/6/08
MUNICIPAL OFFICIAL DATE

RECOMMENDED: Keith D. Williams 4/6/2008
DISTRICT TRAFFIC ENGINEER DATE

SCALE 20' 10' 0' 20'

LEGEND

- MAST ARM
- (4) VEHICULAR SIGNAL HEAD
- (A) SIGN
- (P4) PEDESTRIAN PUSH BUTTON
- (4) PEDESTRIAN SIGNAL HEAD
- (4) VEHICLE DETECTOR/IDENTIFYING NUMBER
- (S1-SYS) SYSTEM LOOP/IDENTIFYING NUMBER (FOR TRAFFIC RESPONSIVE OPERATION)
- [4] JUNCTION BOX
- [S4] INTERCONNECT JUNCTION BOX
- CONTROLLER ASSEMBLY
- W/6" SOLID WHITE LINE/WIDTH
- Y/4" SOLID YELLOW LINE/WIDTH
- BW/4" BROKEN WHITE LINE/WIDTH
- DWE/6" DOTTED WHITE EXTENSION LINE/WIDTH
- (L1) LUMINAIRE/IDENTIFYING NUMBER
- (D1) EMERGENCY PREEMPTION DETECTOR/ IDENTIFYING NUMBER
- (B1) EMERGENCY PREEMPTION BEACON/ IDENTIFYING NUMBER

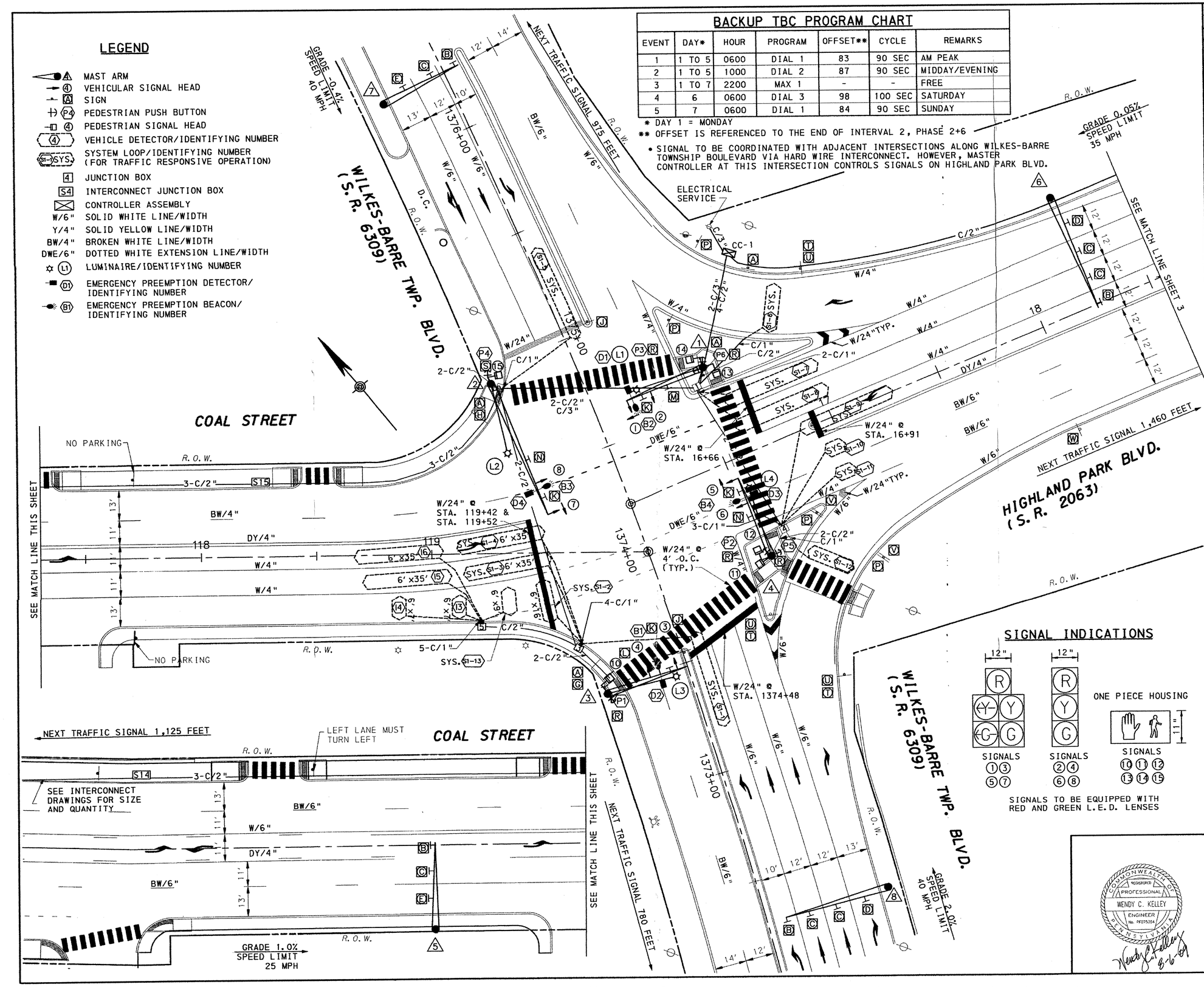
BACKUP TBC PROGRAM CHART

EVENT	DAY*	HOUR	PROGRAM	OFFSET**	CYCLE	REMARKS
1	1 TO 5	0600	DIAL 1	83	90 SEC	AM PEAK
2	1 TO 5	1000	DIAL 2	87	90 SEC	MIDDAY/EVENING
3	1 TO 7	2200	MAX 1	-	-	FREE
4	6	0600	DIAL 3	98	100 SEC	SATURDAY
5	7	0600	DIAL 1	84	90 SEC	SUNDAY

* DAY 1 = MONDAY

** OFFSET IS REFERENCED TO THE END OF INTERVAL 2, PHASE 2+6

- SIGNAL TO BE COORDINATED WITH ADJACENT INTERSECTIONS ALONG WILKES-BARRE TOWNSHIP BOULEVARD VIA HARD WIRE INTERCONNECT. HOWEVER, MASTER CONTROLLER AT THIS INTERSECTION CONTROLS SIGNALS ON HIGHLAND PARK BLVD.



SIGNAL INDICATIONS

SIGNALS TO BE EQUIPPED WITH RED AND GREEN L.E.D. LENSES

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
4-0	LUZERNE	COAL ST.	001	7 OF 9

WILKES-BARRE TOWNSHIP

PERMIT NO. 08090 SHEET 2 OF 4

DATE ISSUED 12/09/77 DATE REVISED 6/6/2017

DATE	REVISION	BY
08/17/00	ADDED EMERGENCY PREEMPTION, LUMINAIRES, L.E.D.'S	
09/10/02	NO-BUILD COAL STREET	
10/10/03	FIELD VIEW ADDITIONS	T.H. III
12/01/03	AS BUILTS	C.G.
08/06/09	LANE CONFIG. REVISIONS, TIMING CHANGES, CURB RAMP REVISIONS, ADDED LOOPS	W.C.K.

GENERAL NOTES

INSTALL, OPERATE AND MAINTAIN THIS TRAFFIC SIGNAL IN ACCORDANCE WITH PENNSYLVANIA DEPARTMENT OF TRANSPORTATION REGULATIONS ON OFFICIAL TRAFFIC CONTROL DEVICES, SPECIFICATIONS (PUB 408), TRAFFIC CONTROL STANDARDS AND TRAFFIC SIGNAL DESIGN HANDBOOK (PUB 149).

NO MODIFICATION OF THIS INSTALLATION IS PERMITTED UNLESS PRIOR APPROVAL IS GRANTED, IN WRITING, BY THE DISTRICT TRAFFIC ENGINEER.

ALL MAINTENANCE NECESSARY FOR THE PROPER VISIBILITY OF THESE SIGNALS, INCLUDING TRIMMING OF TREES, IS THE RESPONSIBILITY OF THE PERMITTEE.

THE PERMITTEE INSTALLS AND MAINTAINS ALL SIGNS IN THE SIGN BLOCK AND ALL PAVEMENT MARKINGS INDICATED ON THIS DRAWING, WHICH ARE CONSIDERED PART OF THE PERMIT, UNLESS OTHERWISE INDICATED.

EACH LOOP MUST BE ASSIGNED TO A SEPARATE DETECTOR INPUT IN THE CONTROLLER TIMER WHICH WILL PROVIDE THE CAPABILITY OF EXTENSIONS AND DELAYS TO ALL INDIVIDUAL LOOPS.

CARD RACK TO BE NEMA TYPE 7-T.

THIS DRAWING CANNOT BE USED AS A CONSTRUCTION DRAWING, UNLESS THE PERMITTEE COMPLIES WITH THE PROVISIONS OF ACT 121, AS AMENDED, PREVENTION OF DAMAGE TO UNDERGROUND UTILITIES. PRIOR TO CONSTRUCTION, CONSULT WITH UTILITY COMPANIES TO RESOLVE ANY CONFLICTS.

THE PERMITTEE IS RESPONSIBLE FOR COORDINATING ANY RELOCATION OF OVERHEAD UTILITIES THAT MAY INTERFERE WITH CLEAR VISION OF THE SIGNAL HEADS.

INSTALL SIGNAL HEADS AND SIGNS WITH BOTTOMS NOT LESS THAN 16 FEET NOR MORE THAN 17 FEET ABOVE THE ROADWAY. INSTALL SIGNAL SUPPORTS AND POST MOUNTED SIGNAL HEADS A MINIMUM OF 2 FEET BEHIND THE FACE OF CURB.

INSTALL ALL SIGNS AND PAVEMENT MARKINGS, AS INDICATED ON THIS PLAN, BEFORE SIGNALS CAN BE PUT INTO RED, *YELLOW, GREEN OPERATION.*

CONTACT PENNDOT TRAFFIC UNIT TO SCHEDULE A TRAFFIC SIGNAL INSPECTION A MINIMUM OF THREE DAYS PRIOR TO PLACING THE SIGNALS INTO RED, YELLOW, GREEN OPERATION.

NOTIFY THE DISTRICT TRAFFIC ENGINEER SEVEN CALENDAR DAYS PRIOR TO CONDUCTING A PHYSICAL AND FUNCTIONAL SHOP TEST AS REQUIRED IN SECTION 1104 (PUB 408), SO THAT DISTRICT REPRESENTATIVES MAY WITNESS THE TESTING.

SIGNALS MUST FLASH A MINIMUM OF THREE DAYS PRIOR TO RED, YELLOW, GREEN OPERATION.

ALL PAVEMENT MARKINGS TO BE HOT THERMOPLASTIC.

COUNTY: LUZERNE COUNTY

MUNICIPALITY: WILKES-BARRE TOWNSHIP

INTERSECTION: WILKES-BARRE TWP. BLVD. (S.R. 6309) AND COAL ST., HIGHLAND PARK BLVD. (S.R. 2063)

REVIEWED: Mayo Card Kuren 9/27/09
MUNICIPAL OFFICIAL DATE

RECOMMENDED: Keith D. Williams 9-23-2009
DISTRICT TRAFFIC ENGINEER DATE

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL WENDY C. KELLEY ENGINEER No. PE075364

Wendy C. Kelley 8-6-09

SCALE: 0 20 40 60

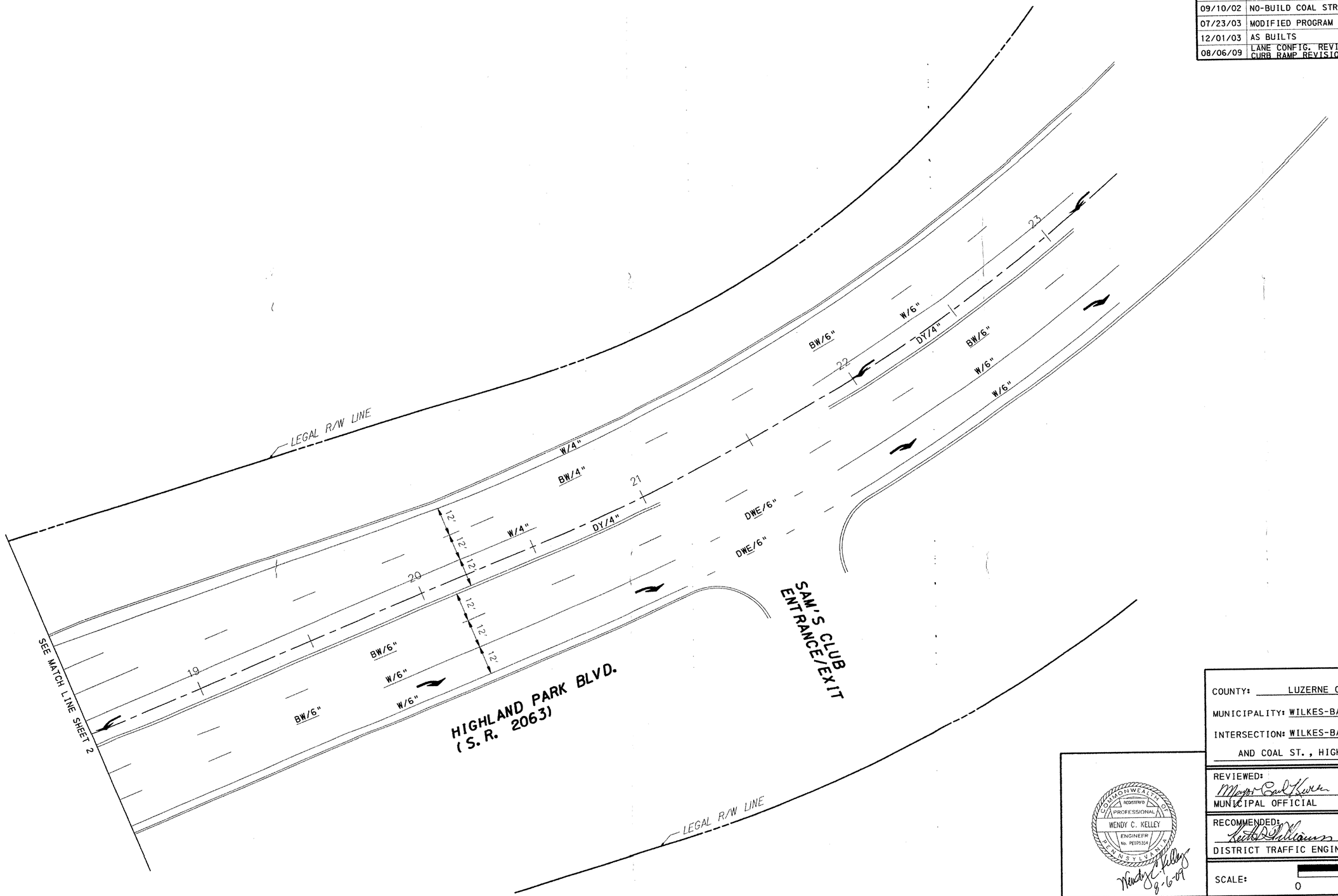
DISTRICT	COUNTY	ROUTE	SECTION	SHEET
4-0	LUZERNE	COAL ST.	001	8 OF 9

WILKES-BARRE TOWNSHIP

PERMIT NO. 08090 SHEET 3 OF 4

DATE ISSUED 12/09/77 DATE REVISED 6/6/2017

DATE	REVISION	BY
08/17/00	ADDED EMERGENCY PREEMPTION, LUMINAIRES, L.E.D.'S	
09/10/02	NO-BUILD COAL STREET	
07/23/03	MODIFIED PROGRAM TIMING	T.H. III
12/01/03	AS BUILTS	C.G.
08/06/09	LANE CONFIG. REVISIONS, TIMING CHANGES, CURB RAMP REVISIONS, ADDED LOOPS	W.C.K.



COUNTY: LUZERNE COUNTY

MUNICIPALITY: WILKES-BARRE TOWNSHIP

INTERSECTION: WILKES-BARRE TWP. BLVD. (S.R. 6309) AND COAL ST., HIGHLAND PARK BLVD. (S.R. 2063)

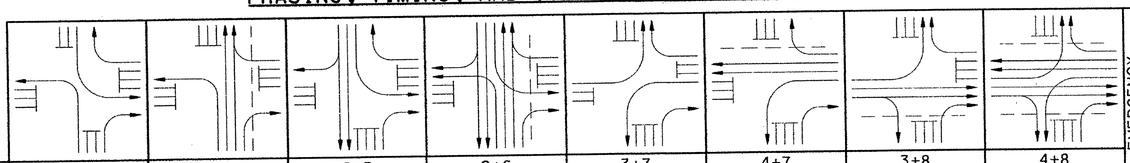
REVIEWED: Mayor Carl Kuren 9/23/09
MUNICIPAL OFFICIAL DATE

RECOMMENDED: Keith D. Williams 9-23-2009
DISTRICT TRAFFIC ENGINEER DATE

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL WENDY C. KELLEY ENGINEER No. PE075354
9/6/09

SCALE: 0 20 40 60

PHASING, TIMING, AND COLOR SEQUENCE CHART



PHASE	1+5			1+6				2+5			2+6				3+7			4+7				3+8				4+8				EMERGENCY FLASHING
SIGNALS \ INTERVAL	1	2	3	1	2	3	4	1	2	3	1	2	3	4	1	2	3	1	2	3	4	1	2	3	4	1	2	3	4	
1	R/G ⑥	R/Y ①	R ①	G/G ⑥	G/G ⑥	Y ④	R ④	R	R	R	G	G	Y	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	Y
2	R	R	R	G	G	Y ④	R ④	R	R	R	G	G	Y	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	Y
3	R/G ⑥	R/Y ②	R ②	R	R	R	R	G/G ⑥	Y ⑤	R ⑤	G	G	Y	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	Y
4	R	R	R	R	R	R	R	G	Y ⑤	R ⑤	G	G	Y	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	Y
5	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R/G ⑥	R/Y ⑥	R ⑥	R	R	R	R	G/G ⑥	G/G ⑥	Y ⑦	R ⑧	G	G	Y	R	R
6	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	G	G	Y ⑧	R ⑧	G	G	Y	R	R
7	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R/G ⑥	R/Y ⑥	R ⑥	G/G ⑥	G/G ⑥	Y ⑦	R ⑧	R	R	R	R	G	G	Y	R	R
8	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	G	G	Y ⑧	R ⑧	R	R	R	R	G	G	Y	R	R
10,11	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	M FH*	H	H	H	M FH*	H	H	H	OFF
12,13	H	H	H	M FH*	H	H	H	H	H	H	M FH*	H	H	H	H	H	H	H	H	H	H	H	H	H	H	M FH*	H	H	H	OFF
14,15	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	M FH*	H	H	H	H	H	H	H					OFF
FIXED		4	2			4	2		4	2			4	2			4	2			4	2			4	2			4	2	
MINIMUM	0			← 0 →				0			← 20 →				0			← 0 →				← 0 →				← 0 →			
PASSAGE	3			← 3 →				3							3			← 3 →				← 3 →				← 3 →			
MAX I	8			← 8 →				8			← 29 →				13			← 13 →				← 13 →				← 16 →			
MAX II	12			← 12 →				12			← 34 →				18			← 18 →				← 18 →				← 32 →			
MEMORY	NL			← NL →				NL			← mR →				NL			← NL →				← NL →				← NL →			
PEDESTRIAN*				11⑨ 15⑨							11 15							13⑩ 17⑩				13⑩ 17⑩				13 17				
PROGRAM 1	9	4	2	← 24 →	4	2		9	4	2	← 15 →	4	2		9	4	2	← 15 →	4	2		← 9 →	4	2		← 12 →	4	2		(90 SEC)
PROGRAM 2	7	4	2	← 20 →	4	2		7	4	2	← 19 →	4	2		7	4	2	← 15 →	4	2		← 7 →	4	2		← 12 →	4	2		(90 SEC)
PROGRAM 3	7	4	2	← 14 →	4	2		7	4	2	← 23 →	4	2		7	4	2	← 15 →	4	2		← 7 →	4	2		← 24 →	4	2		(100 SEC)

* UPON PEDESTRIAN ACTUATION ONLY, OTHERWISE HAND AT ALL TIMES.

mR = MINIMUM RECALL
NL = NON-LOCKING

① R/⊖ IF FOLLOWED BY 1+6
② R/⊖ IF FOLLOWED BY 2+5
③ G/Y IF FOLLOWED BY 2+6
④ G IF FOLLOWED BY 2+6
⑤ R/⊖ IF FOLLOWED BY 3+8
⑥ R/⊖ IF FOLLOWED BY 4+7
⑦ G/Y IF FOLLOWED BY 4+8
⑧ G IF FOLLOWED BY 4+8

⑨ TIMING MAY TIME OUT IN THIS PHASE OR MAY BE COMPLETED IN PHASE 2+6.

⑩ TIMING MAY TIME OUT IN THIS PHASE OR MAY BE COMPLETED IN PHASE 4+8.

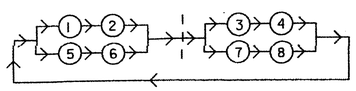
⑪ M IF FOLLOWED BY PHASE 2+6.

⑫ PEDESTRIAN WALK TIME SHALL BE 11 SECONDS MINIMUM. ACTUAL WALK TIME VARIES WITH PHASE 2+6, INTERVAL 1.

⑬ M IF FOLLOWED BY PHASE 4+8.

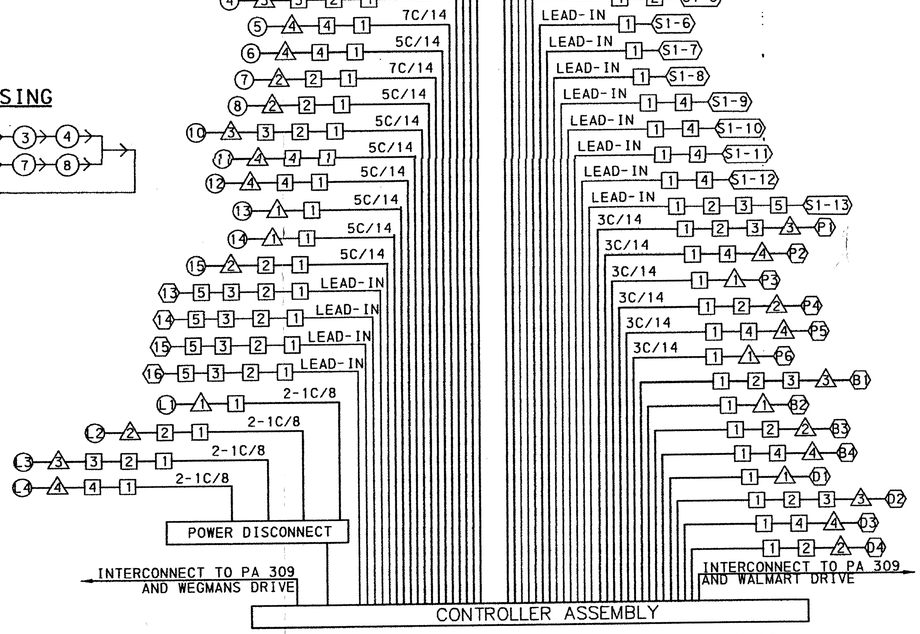
⑭ PEDESTRIAN WALK TIME SHALL BE 13 SECONDS MINIMUM. ACTUAL WALK TIME VARIES WITH PHASE 4+8, INTERVAL 1.

NEMA PHASING



SIGN TABULATION

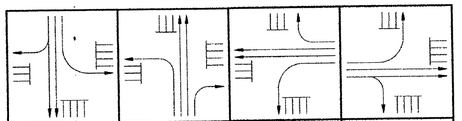
PLAN SYMBOL	STANDARD	DESCRIPTION	SIZE (IN.)	QTY.
A	R9-3A	NO PEDESTRIAN CROSSING	18x18	4
B	R3-5L	LEFT TURN	30x36	4
C	R3-5S	STRAIGHT THROUGH	30x36	6
D	R3-5R	RIGHT TURN	30x36	2
E	R3-6SR	OPTIONAL RIGHT TURN	30x36	2
G	R9-3BL	USE CROSSWALK ←	18x12	1
H	R9-3BR	USE CROSSWALK →	18x12	1
J	OM1-3	OBJECT MARKER	18x18	2
K	R10-12	LEFT TURN YIELD ON GREEN ●	30x36	4
L	D3-5	← Highland Park/Coal St →	96x28	1
M	D3-5	← Coal St/Highland Park →	96x28	1
N	D3-4	W-B Twp Blvd	90x16	2
P	R1-2	YIELD	36x36	4
R	R10-3BR	EDUCATIONAL PUSH BUTTON FOR WALKING PERSON →	9x12	5
S	R10-3BL	EDUCATIONAL PUSH BUTTON FOR WALKING PERSON ←	9x12	1
U	W11-2	PEDESTRIAN CROSSING	30x30	3
U	R1-5	YIELD TO PEDS IN CROSSWALK	24x18	3
V	R5-1	DO NOT ENTER	36x36	2
W	R3-7R	RIGHT LANE MUST TURN RIGHT	30x30	1



④ - SIGNAL HEAD
④ - DETECTOR
△ - TRAFFIC SIGNAL SUPPORT
4 - JUNCTION BOX
5C/14 - CABLE (NO. OF CONDUCTORS/SIZE AWG)

WIRING DIAGRAM

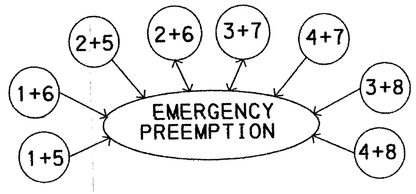
EMERGENCY PREEMPTION PHASING, TIMING, AND COLOR SEQUENCE CHART



PHASE	2			6			4			8		
SIGNALS \ INTERVAL	1	2	3	1	2	3	1	2	3	1	2	3
1	R	R	R	G/G ⑥	Y	R	R	R	R	R	R	R
2	R	R	R	G	Y	R	R	R	R	R	R	R
3	G/G ⑥	Y	R	R	R	R	R	R	R	R	R	R
4	G	Y	R	R	R	R	R	R	R	R	R	R
5	R	R	R	R	R	R	R	R	R	G/G ⑥	Y	R
6	R	R	R	R	R	R	R	R	R	G	Y	R
7	R	R	R	R	R	R	G/G ⑥	Y	R	G	Y	R
8	R	R	R	R	R	R	G	Y	R	R	R	R
10,11	H	H	H	H	H	H	H	H	H	R	R	R
12,13	H	H	H	H	H	H	H	H	H	R	R	R
14,15	H	H	H	H	H	H	H	H	H	H	H	H
SELECTIVE CLEARANCES												
FIXED TIME	*	4	2	*	4	2	*	4	2	*	4	2

* FOR DURATION OF PREEMPTION CALL PLUS A 5 SECOND EXTENSION ADDED AFTER THE LAST CALL DROPS OUT.

NOTE: IF PREEMPTION EQUIPMENT HAS ENCODING CAPABILITIES FOR VEHICLE IDENTIFICATION, IT IS RECOMMENDED TO HAVE THE ZERO "00" FEATURE ON TO GIVE UNCODED EMITTERS THE ABILITY TO ACTIVATE THE EMERGENCY PREEMPTION.



EMERGENCY PREEMPTION PHASING DIAGRAM

EMERGENCY PREEMPTION NOTES

- CONTROLLER TO BE EQUIPPED WITH EMERGENCY PREEMPTION FOR THE EASTBOUND APPROACH OF COAL STREET, WESTBOUND APPROACH OF HIGHLAND PARK BOULEVARD (S.R. 2063) AND THE NORTHBOUND & SOUTHBOUND APPROACHES OF WILKES-BARRE TOWNSHIP BOULEVARD (S.R. 6309) WITH A FLASHING FAIL SAFE DEVICE FOR EACH DIRECTION OF OPERATION. THIS FAIL SAFE DEVICE SHALL CONSIST OF A FLASHING WHITE FLOOD LIGHT, AND SHALL BEGIN FLASHING WHEN THE PREEMPTION PHASE DISPLAYS PREEMPTION GREEN FOR THE EMERGENCY VEHICLE APPROACH.
- THE SIGNALS, WHEN ACTIVATED BY AN EMERGENCY VEHICLE, SHALL TERMINATE ALL GREEN INDICATIONS EXCEPT THE GREEN INDICATIONS FOR THE PHASE GOVERNED BY THE APPROACHING EMERGENCY VEHICLE, FOLLOWED BY SELECTIVE CLEARANCES DEPENDENT UPON THE PHASE IN WHICH THE PREEMPTION OCCURS. THE GREEN INDICATIONS FOR THE PREEMPTED PHASE SHALL REMAIN GREEN FOR THE DURATION OF SIGNAL PREEMPTION WITH RED INDICATIONS DISPLAYED FOR ALL OTHER PHASES.
- THE SIGNALS, WHEN ACTIVATED BY AN EMERGENCY VEHICLE, SHALL TIME OUT ALL YELLOW AND RED INDICATIONS FOLLOWED BY THE GREEN INTERVAL OF THE PREEMPTION PHASE GOVERNED BY THE ACTUATION OF THE APPROACHING EMERGENCY VEHICLE.
- IF THE SIGNALS ARE FLASHING WHEN ACTIVATED BY AN EMERGENCY VEHICLE ALL SIGNALS SHALL REMAIN FLASHING.
- *UPON COMPLETION OF PREEMPTION, THE SIGNAL SHALL RETURN TO THE PHASE* BEING SERVICED WHEN ACTIVATED BY AN EMERGENCY VEHICLE.
- IF ADDITIONAL PREEMPTION PHASES ARE ACTIVATED WHILE IN PREEMPTION, THE ORIGINAL PREEMPTION PHASE SHALL TIME OUT BEFORE PROCEEDING TO THE NEXT PREEMPTION PHASE.
- IN EMERGENCY PREEMPTION, NO PRIORITY SHALL BE ESTABLISHED, PREEMPTION SHALL BE A "FIRST COME, FIRST SERVE" OPERATION.
- IF THE SIGNAL HAS BEEN ACTUATED BY A PEDESTRIAN PUSH BUTTON AND THE SIGNAL IS PREEMPTED DURING THE "MAN" PHASE, THE "MAN" PHASE SHALL TERMINATE IMMEDIATELY, FOLLOWED BY THE FLASHING "HAND" INDICATION IN ITS ENTIRETY, FOLLOWED BY THE APPROPRIATE SELECTIVE YELLOW AND RED CLEARANCE INTERVALS BEFORE PROCEEDING TO THE PREEMPTION PHASE. IF THE SIGNAL IS PREEMPTED DURING THE FLASHING "HAND" INDICATION, THE INTERVAL SHALL TIME OUT IN ITS ENTIRETY FOLLOWED BY THE APPROPRIATE SELECTIVE RED AND YELLOW CLEARANCE INTERVALS BEFORE PROCEEDING TO THE PREEMPTION PHASE.

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
4-0	LUZERNE	COAL ST.	001	9 OF 9

WILKES-BARRE TOWNSHIP

PERMIT NO. 08090 SHEET 4 OF 4

DATE ISSUED 12/09/77 DATE REVISED 6/6/2017

DATE	REVISION	BY
08/17/00	ADDED EMERGENCY PREEMPTION, LUMINAIRES, L.E.D.'S	
09/10/02	NO-BUILD COAL STREET	
07/23/03	MODIFIED PROGRAM TIMING	T.H. III
12/01/03	AS BUILTS	C.G.
08/06/09	LANE CONFIG. REVISIONS, TIMING CHANGES, CURB RAMP REVISIONS, ADDED LOOPS	W.C.K.

COUNTY: LUZERNE COUNTY

MUNICIPALITY: WILKES-BARRE TOWNSHIP

INTERSECTION: WILKES-BARRE TWP. BLVD. (S.R. 6309) AND COAL ST., HIGHLAND PARK BLVD. (S.R. 2063)

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL ENGINEER WENDY C. KELLEY No. PE075354

REVIEWED:
Mayor Earl Hare 9/22/09
MUNICIPAL OFFICIAL DATE

RECOMMENDED:
Kathy Williams 9-23-2009
DISTRICT TRAFFIC ENGINEER DATE

APPENDIX I:

SimTraffic Queue Analysis Worksheets

Existing Conditions

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	6:50	6:50	6:50	6:50	6:50	6:50
End Time	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	3	3	3	3	3	3
# of Recorded Intervals	2	2	2	2	2	2
Vehs Entered	3223	3289	3368	3273	3246	3281
Vehs Exited	3229	3316	3366	3258	3273	3288
Starting Vehs	139	142	142	127	155	140
Ending Vehs	133	115	144	142	128	132
Travel Distance (mi)	2861	2977	3043	2911	2937	2946
Travel Time (hr)	123.9	128.0	131.6	124.4	127.4	127.1
Total Delay (hr)	35.6	36.1	37.7	34.8	36.6	36.1
Total Stops	3319	3360	3461	3260	3455	3369
Fuel Used (gal)	102.8	105.9	108.8	103.4	104.9	105.2

Interval #0 Information Seeding

Start Time	6:50
End Time	7:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	7:15
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	900	954	931	911	941	926
Vehs Exited	915	940	950	907	938	930
Starting Vehs	139	142	142	127	155	140
Ending Vehs	124	156	123	131	158	137
Travel Distance (mi)	811	871	841	791	828	829
Travel Time (hr)	36.4	38.4	37.1	34.3	37.0	36.6
Total Delay (hr)	11.3	11.6	11.0	9.9	11.2	11.0
Total Stops	982	1054	998	929	1019	996
Fuel Used (gal)	29.3	31.5	30.1	28.2	29.8	29.8

Interval #2 Information

Start Time	7:15
End Time	8:00
Total Time (min)	45

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	Avg
Vehs Entered	2323	2335	2437	2362	2305	2352
Vehs Exited	2314	2376	2416	2351	2335	2361
Starting Vehs	124	156	123	131	158	137
Ending Vehs	133	115	144	142	128	132
Travel Distance (mi)	2049	2105	2203	2120	2109	2117
Travel Time (hr)	87.6	89.5	94.5	90.0	90.4	90.4
Total Delay (hr)	24.3	24.5	26.7	24.9	25.4	25.1
Total Stops	2337	2306	2463	2331	2436	2376
Fuel Used (gal)	73.4	74.4	78.7	75.1	75.2	75.4

Intersection: 1: SR 6309 & Blackman Street/I-81 SB Off Ramp

Movement	EB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	L	T	L	T	T	T	T
Maximum Queue (ft)	118	216	147	154	178	156	126	136
Average Queue (ft)	46	112	68	80	105	63	65	66
95th Queue (ft)	87	192	123	138	164	127	114	112
Link Distance (ft)			1119		833	833	313	313
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	380	180		275				
Storage Blk Time (%)		1	0					
Queuing Penalty (veh)		3	0					

Intersection: 3: SR 6309 & Blackman Plaza Drwy/Johnson Street

Movement	EB	WB	NB	NB	B8	B8	SB	SB
Directions Served	LTR	LTR	L	TR	T		L	TR
Maximum Queue (ft)	81	52	34	5	100	41	41	28
Average Queue (ft)	31	21	7	0	9	3	4	1
95th Queue (ft)	67	50	27	4	59	20	23	20
Link Distance (ft)	232	722		647	313	313		805
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)			50				50	
Storage Blk Time (%)			0				0	
Queuing Penalty (veh)			1				1	

Intersection: 4: SR 6309 & Casey Ave/Park and Ride Lot

Movement	EB	EB	WB	NB	NB	SB	SB
Directions Served	L	TR	LTR	L	TR	T	R
Maximum Queue (ft)	159	46	12	64	244	151	38
Average Queue (ft)	78	9	0	4	100	51	9
95th Queue (ft)	133	35	6	33	202	112	30
Link Distance (ft)		827	100		805	1687	
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	125			125			125
Storage Blk Time (%)	2				3	0	
Queuing Penalty (veh)	0				0	0	

Intersection: 5: SR 6309 & Sheetz Drwy/Shopping Center Drwy

Movement	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	L	T	T	L	T	TR
Maximum Queue (ft)	120	96	59	160	151	55	209	88
Average Queue (ft)	43	42	15	60	54	21	64	17
95th Queue (ft)	91	80	41	125	117	48	145	58
Link Distance (ft)	211	221		269	269		695	695
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)			100			235		
Storage Blk Time (%)				2	0		0	
Queuing Penalty (veh)				1	0		0	

Intersection: 6: SR 6309 & Coal Street/Highland Park Blvd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	T	L	T	T	L	T	TR
Maximum Queue (ft)	101	198	216	184	164	159	286	115	133	30	164	143
Average Queue (ft)	37	103	105	89	80	53	142	50	65	7	53	36
95th Queue (ft)	81	170	195	164	135	114	251	102	119	22	118	92
Link Distance (ft)		951	951		1209	1209		695	695		879	879
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	235			650			300			125		
Storage Blk Time (%)						0	0				1	
Queuing Penalty (veh)						0	0				0	

Intersection: 7: Johnson Street & Private Drwy/Haul Road

Movement	WB
Directions Served	LTR
Maximum Queue (ft)	66
Average Queue (ft)	16
95th Queue (ft)	54
Link Distance (ft)	1556
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Zone Summary

Zone wide Queuing Penalty: 6

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	8:50	8:50	8:50	8:50	8:50	8:50
End Time	10:00	10:00	10:00	10:00	10:00	10:00
Total Time (min)	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	3	3	3	3	3	3
# of Recorded Intervals	2	2	2	2	2	2
Vehs Entered	3191	3263	3229	3219	3263	3230
Vehs Exited	3188	3268	3226	3204	3259	3229
Starting Vehs	116	135	116	133	114	119
Ending Vehs	119	130	119	148	118	120
Travel Distance (mi)	2831	2835	2805	2820	2850	2828
Travel Time (hr)	120.7	122.6	120.7	120.8	124.0	121.7
Total Delay (hr)	34.1	35.5	34.6	34.8	36.3	35.1
Total Stops	3266	3313	3268	3202	3365	3283
Fuel Used (gal)	101.2	102.1	100.4	100.7	101.7	101.2

Interval #0 Information Seeding

Start Time	8:50
End Time	9:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	9:00
End Time	9:15
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	846	849	850	861	834	843
Vehs Exited	851	860	855	867	808	846
Starting Vehs	116	135	116	133	114	119
Ending Vehs	111	124	111	127	140	119
Travel Distance (mi)	727	767	769	767	743	755
Travel Time (hr)	31.5	33.1	33.2	33.6	32.6	32.8
Total Delay (hr)	9.3	9.6	9.7	10.0	9.6	9.6
Total Stops	859	894	915	908	875	889
Fuel Used (gal)	26.3	27.6	27.5	27.8	26.2	27.1

Interval #2 Information

Start Time	9:15
End Time	10:00
Total Time (min)	45

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	Avg
Vehs Entered	2345	2414	2379	2358	2429	2384
Vehs Exited	2337	2408	2371	2337	2451	2382
Starting Vehs	111	124	111	127	140	119
Ending Vehs	119	130	119	148	118	120
Travel Distance (mi)	2104	2068	2036	2053	2107	2074
Travel Time (hr)	89.1	89.5	87.5	87.3	91.3	89.0
Total Delay (hr)	24.9	25.9	24.9	24.8	26.7	25.4
Total Stops	2407	2419	2353	2294	2490	2392
Fuel Used (gal)	74.9	74.5	72.9	72.9	75.5	74.1

Intersection: 1: SR 6309 & Blackman Street/I-81 SB Off Ramp

Movement	EB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	L	T	L	T	T	T	T
Maximum Queue (ft)	138	174	148	132	163	144	148	157
Average Queue (ft)	67	88	66	52	86	46	75	72
95th Queue (ft)	118	150	124	100	143	102	125	126
Link Distance (ft)			1119		833	833	313	313
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	380	180		275				
Storage Blk Time (%)		0	0					
Queuing Penalty (veh)		0	0					

Intersection: 3: SR 6309 & Blackman Plaza Drwy/Johnson Street

Movement	EB	WB	NB	B8	B8	SB
Directions Served	LTR	LTR	L	T		L
Maximum Queue (ft)	73	91	40	31	10	31
Average Queue (ft)	30	29	7	1	0	4
95th Queue (ft)	59	65	29	18	7	20
Link Distance (ft)	230	725		313	313	
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			50			50
Storage Blk Time (%)			0			0
Queuing Penalty (veh)			1			0

Intersection: 4: SR 6309 & Casey Ave/Park and Ride Lot

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	T	R
Maximum Queue (ft)	173	36	30	184	166	26
Average Queue (ft)	90	6	3	80	57	8
95th Queue (ft)	150	27	16	154	126	26
Link Distance (ft)		827		805	1687	
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	125		125			125
Storage Blk Time (%)	3			1	1	
Queuing Penalty (veh)	0			0	0	

Intersection: 5: SR 6309 & Sheetz Drwy/Shopping Center Drwy

Movement	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	L	T	T	L	T	TR
Maximum Queue (ft)	113	85	69	124	136	66	206	75
Average Queue (ft)	46	41	18	45	50	25	79	18
95th Queue (ft)	92	75	45	101	113	55	166	52
Link Distance (ft)	211	221		269	269		695	695
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)			100			235		
Storage Blk Time (%)			0	1	0		0	
Queuing Penalty (veh)			0	1	0		0	

Intersection: 6: SR 6309 & Coal Street/Highland Park Blvd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	T	L	T	T	L	T	TR
Maximum Queue (ft)	129	207	226	152	153	143	203	112	134	63	183	156
Average Queue (ft)	45	121	120	64	75	46	100	50	58	17	82	46
95th Queue (ft)	99	193	208	123	129	99	167	100	108	45	159	108
Link Distance (ft)		951	951		1209	1209		695	695		879	879
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	235			650			300			125		
Storage Blk Time (%)		0									4	
Queuing Penalty (veh)		0									2	

Intersection: 7: Johnson Street & Private Drwy/Haul Road

Movement	WB
Directions Served	LTR
Maximum Queue (ft)	72
Average Queue (ft)	10
95th Queue (ft)	43
Link Distance (ft)	1556
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Zone Summary

Zone wide Queuing Penalty: 4

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	3:50	3:50	3:50	3:50	3:50	3:50
End Time	5:00	5:00	5:00	5:00	5:00	5:00
Total Time (min)	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	3	3	3	3	3	3
# of Recorded Intervals	2	2	2	2	2	2
Vehs Entered	5590	5505	5467	5438	5558	5508
Vehs Exited	5553	5484	5444	5445	5516	5488
Starting Vehs	261	309	290	295	251	281
Ending Vehs	298	330	313	288	293	308
Travel Distance (mi)	4659	4557	4459	4569	4625	4574
Travel Time (hr)	478.0	437.6	436.8	452.8	372.3	435.5
Total Delay (hr)	334.4	296.6	299.1	312.0	229.7	294.4
Total Stops	6809	6664	6291	6470	6727	6592
Fuel Used (gal)	232.5	220.0	216.8	223.7	207.1	220.0

Interval #0 Information Seeding

Start Time	3:50
End Time	4:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	4:00
End Time	4:15
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	1499	1476	1465	1419	1493	1470
Vehs Exited	1431	1476	1452	1397	1411	1435
Starting Vehs	261	309	290	295	251	281
Ending Vehs	329	309	303	317	333	316
Travel Distance (mi)	1188	1216	1180	1200	1181	1193
Travel Time (hr)	89.6	88.4	85.3	88.8	75.4	85.5
Total Delay (hr)	53.1	50.7	48.9	51.8	39.0	48.7
Total Stops	1828	1950	1703	1801	1875	1830
Fuel Used (gal)	52.1	52.2	50.6	51.9	48.6	51.1

Interval #2 Information

Start Time	4:15
End Time	5:00
Total Time (min)	45

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	Avg
Vehs Entered	4091	4029	4002	4019	4065	4038
Vehs Exited	4122	4008	3992	4048	4105	4056
Starting Vehs	329	309	303	317	333	316
Ending Vehs	298	330	313	288	293	308
Travel Distance (mi)	3471	3341	3279	3370	3445	3381
Travel Time (hr)	388.4	349.2	351.6	364.0	296.9	350.0
Total Delay (hr)	281.4	245.9	250.2	260.2	190.7	245.7
Total Stops	4981	4714	4588	4669	4852	4762
Fuel Used (gal)	180.4	167.8	166.2	171.8	158.5	168.9

Intersection: 1: SR 6309 & Blackman Street/I-81 SB Off Ramp

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	R	L	T	R	L	T	T	T	T	R
Maximum Queue (ft)	243	498	280	536	112	179	201	166	296	315	180
Average Queue (ft)	106	139	209	203	4	77	116	68	196	189	12
95th Queue (ft)	235	429	315	435	58	143	180	136	282	288	111
Link Distance (ft)		965		1119			833	833	313	313	
Upstream Blk Time (%)		1							0	0	0
Queuing Penalty (veh)		0							2	2	0
Storage Bay Dist (ft)	380		180		180	275					225
Storage Blk Time (%)	0	3	18	2						5	
Queuing Penalty (veh)	0	5	58	11						9	

Intersection: 3: SR 6309 & Blackman Plaza Drwy/Johnson Street

Movement	EB	WB	NB	B8	B8	SB	SB
Directions Served	LTR	LTR	L	T		L	TR
Maximum Queue (ft)	181	129	56	197	35	36	13
Average Queue (ft)	74	46	22	14	2	10	1
95th Queue (ft)	141	96	50	93	15	34	8
Link Distance (ft)	230	723		313	313		805
Upstream Blk Time (%)	0						
Queuing Penalty (veh)	0						
Storage Bay Dist (ft)			50			50	
Storage Blk Time (%)			2			0	
Queuing Penalty (veh)			14			0	

Intersection: 4: SR 6309 & Casey Ave/Park and Ride Lot

Movement	EB	EB	WB	NB	NB	SB	SB	SB
Directions Served	L	TR	LTR	L	TR	L	T	R
Maximum Queue (ft)	199	329	33	52	208	22	246	199
Average Queue (ft)	127	60	6	12	104	1	128	36
95th Queue (ft)	201	224	25	39	181	10	219	113
Link Distance (ft)		827	100		805		1687	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	125			125		125		125
Storage Blk Time (%)	21	0			3		5	
Queuing Penalty (veh)	5	0			1		9	

Intersection: 5: SR 6309 & Sheetz Drwy/Shopping Center Drwy

Movement	EB	WB	WB	B15	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	T	L	T	T	L	T	TR
Maximum Queue (ft)	120	274	221	12	100	180	236	262	368	278
Average Queue (ft)	47	147	20	0	23	84	111	58	175	49
95th Queue (ft)	90	232	122	6	63	153	197	152	303	187
Link Distance (ft)	211	221		111		269	269		695	695
Upstream Blk Time (%)		1	0				0			
Queuing Penalty (veh)		0	0				1			
Storage Bay Dist (ft)			150		100			235		
Storage Blk Time (%)		8				4	1		5	
Queuing Penalty (veh)		11				2	2		6	

Intersection: 6: SR 6309 & Coal Street/Highland Park Blvd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	T	L	T	T	R	L	T
Maximum Queue (ft)	310	994	986	245	197	198	242	138	363	256	129	255
Average Queue (ft)	267	957	955	134	117	102	128	71	105	9	33	141
95th Queue (ft)	433	1056	1062	214	183	165	213	121	266	132	81	222
Link Distance (ft)		951	951		1209	1209		695	695	695		879
Upstream Blk Time (%)		89	88									
Queuing Penalty (veh)		0	0									
Storage Bay Dist (ft)	235			650			300				125	
Storage Blk Time (%)		97				0	0					14
Queuing Penalty (veh)		129				0	0					13

Intersection: 6: SR 6309 & Coal Street/Highland Park Blvd

Movement	SB
Directions Served	TR
Maximum Queue (ft)	220
Average Queue (ft)	101
95th Queue (ft)	184
Link Distance (ft)	879
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 7: Johnson Street & Private Drwy/Haul Road

Movement	WB
Directions Served	LTR
Maximum Queue (ft)	31
Average Queue (ft)	8
95th Queue (ft)	30
Link Distance (ft)	1556
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Zone Summary

Zone wide Queuing Penalty: 281

2024/2029 Base (No-Build) Conditions

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	6:50	6:50	6:50	6:50	6:50	6:50
End Time	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	3	3	3	3	3	3
# of Recorded Intervals	2	2	2	2	2	2
Vehs Entered	3913	3870	3855	3846	3872	3870
Vehs Exited	3932	3833	3878	3846	3873	3872
Starting Vehs	160	127	155	145	162	144
Ending Vehs	141	164	132	145	161	147
Travel Distance (mi)	3291	3288	3279	3190	3267	3263
Travel Time (hr)	158.8	155.7	154.8	150.5	156.4	155.2
Total Delay (hr)	55.8	53.4	53.2	50.8	54.5	53.5
Total Stops	4791	4636	4611	4435	4735	4642
Fuel Used (gal)	123.4	122.3	121.6	118.9	121.8	121.6

Interval #0 Information Seeding

Start Time	6:50
End Time	7:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	7:15
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	1100	1101	1038	1085	1036	1070
Vehs Exited	1078	1046	1036	1046	1008	1044
Starting Vehs	160	127	155	145	162	144
Ending Vehs	182	182	157	184	190	169
Travel Distance (mi)	906	909	880	867	840	880
Travel Time (hr)	45.8	45.9	42.3	42.0	41.3	43.5
Total Delay (hr)	17.5	17.4	15.1	14.8	14.9	16.0
Total Stops	1457	1430	1303	1250	1281	1342
Fuel Used (gal)	34.4	34.5	32.7	32.5	31.7	33.2

Interval #2 Information

Start Time	7:15
End Time	8:00
Total Time (min)	45

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	Avg
Vehs Entered	2813	2769	2817	2761	2836	2801
Vehs Exited	2854	2787	2842	2800	2865	2830
Starting Vehs	182	182	157	184	190	169
Ending Vehs	141	164	132	145	161	147
Travel Distance (mi)	2385	2378	2398	2323	2427	2382
Travel Time (hr)	113.0	109.7	112.5	108.4	115.2	111.8
Total Delay (hr)	38.3	35.9	38.1	36.0	39.6	37.6
Total Stops	3334	3206	3308	3185	3454	3296
Fuel Used (gal)	88.9	87.8	88.9	86.4	90.1	88.4

Intersection: 1: SR 6309 & Blackman Street/I-81 SB Off Ramp

Movement	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	R	L	T	L	L	T	T	T	T
Maximum Queue (ft)	206	48	254	188	256	300	218	156	164	191
Average Queue (ft)	118	2	129	79	129	178	113	71	82	78
95th Queue (ft)	182	25	217	149	236	258	179	136	142	141
Link Distance (ft)		958		1112			830	830	301	301
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	380		180		275	275				
Storage Blk Time (%)			2	1	0	0	0			0
Queuing Penalty (veh)			4	2	0	1	0			0

Intersection: 3: SR 6309 & Blackman Plaza Drwy/Johnson Street

Movement	EB	EB	WB	NB	NB	NB	B8	B8	SB	SB	SB
Directions Served	LT	R	LTR	L	T	R	T		L	T	R
Maximum Queue (ft)	189	38	54	151	211	62	159	50	62	254	45
Average Queue (ft)	89	1	19	51	98	7	7	3	7	107	5
95th Queue (ft)	153	19	49	106	182	38	53	24	39	214	57
Link Distance (ft)	233	233	714		637		301	301		806	
Upstream Blk Time (%)	0										
Queuing Penalty (veh)	0										
Storage Bay Dist (ft)				150		100			110		150
Storage Blk Time (%)				0	5					7	
Queuing Penalty (veh)				0	9					6	

Intersection: 4: SR 6309 & Casey Ave/Park and Ride Lot

Movement	EB	EB	WB	NB	NB	SB	SB
Directions Served	L	TR	LTR	L	TR	T	R
Maximum Queue (ft)	223	60	18	110	286	203	56
Average Queue (ft)	109	10	1	7	124	57	8
95th Queue (ft)	190	39	11	49	221	143	33
Link Distance (ft)		828	101		806	1687	
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	250			125			125
Storage Blk Time (%)	1				4	1	
Queuing Penalty (veh)	0				0	1	

Intersection: 5: SR 6309 & Sheetz Drwy/Shopping Center Drwy

Movement	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	L	T	T	L	T	TR
Maximum Queue (ft)	92	85	81	175	137	61	207	75
Average Queue (ft)	38	39	19	67	54	22	77	18
95th Queue (ft)	79	76	53	138	119	51	161	55
Link Distance (ft)	211	221		269	269		695	695
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)			100			235		
Storage Blk Time (%)				2			0	
Queuing Penalty (veh)				1			0	

Intersection: 6: SR 6309 & Coal Street/Highland Park Blvd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	T	L	T	T	L	T	TR
Maximum Queue (ft)	88	224	227	196	158	143	351	349	200	51	162	118
Average Queue (ft)	36	111	109	89	80	50	181	68	67	10	67	35
95th Queue (ft)	76	195	212	162	137	107	327	215	141	32	134	86
Link Distance (ft)		951	951		1209	1209		695	695		879	879
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	235			650			300			125		
Storage Blk Time (%)		0					4				1	
Queuing Penalty (veh)		0					7				0	

Intersection: 7: Johnson Street & Private Drwy/Haul Road

Movement	WB
Directions Served	LTR
Maximum Queue (ft)	66
Average Queue (ft)	16
95th Queue (ft)	55
Link Distance (ft)	1556
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Zone Summary

Zone wide Queuing Penalty: 34

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	8:50	8:50	8:50	8:50	8:50	8:50
End Time	10:00	10:00	10:00	10:00	10:00	10:00
Total Time (min)	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	3	3	3	3	3	3
# of Recorded Intervals	2	2	2	2	2	2
Vehs Entered	3690	3679	3602	3723	3645	3668
Vehs Exited	3699	3675	3631	3749	3655	3682
Starting Vehs	148	146	161	165	140	150
Ending Vehs	139	150	132	139	130	134
Travel Distance (mi)	3099	3081	3122	3198	3146	3129
Travel Time (hr)	144.7	144.6	147.4	148.6	145.0	146.1
Total Delay (hr)	49.3	49.5	51.4	50.4	48.7	49.9
Total Stops	4222	4223	4291	4321	4148	4240
Fuel Used (gal)	115.2	114.7	116.9	118.2	116.3	116.3

Interval #0 Information Seeding

Start Time	8:50
End Time	9:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	9:00
End Time	9:15
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	994	969	999	1000	955	979
Vehs Exited	979	984	1013	1014	911	979
Starting Vehs	148	146	161	165	140	150
Ending Vehs	163	131	147	151	184	150
Travel Distance (mi)	834	862	903	866	812	855
Travel Time (hr)	39.4	41.6	43.9	40.7	37.8	40.7
Total Delay (hr)	13.7	15.2	16.3	13.9	12.9	14.4
Total Stops	1200	1261	1305	1172	1085	1203
Fuel Used (gal)	31.1	32.6	34.4	32.3	29.8	32.1

Interval #2 Information

Start Time	9:15
End Time	10:00
Total Time (min)	45

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	Avg
Vehs Entered	2696	2710	2603	2723	2690	2685
Vehs Exited	2720	2691	2618	2735	2744	2699
Starting Vehs	163	131	147	151	184	150
Ending Vehs	139	150	132	139	130	134
Travel Distance (mi)	2264	2219	2219	2332	2334	2274
Travel Time (hr)	105.3	103.0	103.5	107.9	107.1	105.4
Total Delay (hr)	35.6	34.3	35.1	36.5	35.7	35.4
Total Stops	3022	2962	2986	3149	3063	3036
Fuel Used (gal)	84.1	82.1	82.4	85.8	86.5	84.2

Intersection: 1: SR 6309 & Blackman Street/I-81 SB Off Ramp

Movement	EB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	L	T	L	L	T	T	T	T
Maximum Queue (ft)	279	226	160	180	215	186	127	188	201
Average Queue (ft)	151	105	63	71	134	86	47	95	92
95th Queue (ft)	246	178	120	170	200	152	101	160	160
Link Distance (ft)			1112			830	830	301	301
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	380	180		275	275				
Storage Blk Time (%)	0	1	0					0	
Queuing Penalty (veh)	0	1	0					0	

Intersection: 3: SR 6309 & Blackman Plaza Drwy/Johnson Street

Movement	EB	EB	WB	NB	NB	NB	B8	B8	SB	SB	SB
Directions Served	LT	R	LTR	L	T	R	T		L	T	R
Maximum Queue (ft)	181	73	89	111	163	57	26	8	30	256	132
Average Queue (ft)	78	8	27	47	58	6	1	0	4	111	3
95th Queue (ft)	140	47	68	88	123	37	16	6	21	215	45
Link Distance (ft)	234	234	714		649		301	301		806	
Upstream Blk Time (%)	0										
Queuing Penalty (veh)	0										
Storage Bay Dist (ft)				150		100			110		150
Storage Blk Time (%)				0	2					7	
Queuing Penalty (veh)				0	3					7	

Intersection: 4: SR 6309 & Casey Ave/Park and Ride Lot

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	T	R
Maximum Queue (ft)	232	30	33	211	232	65
Average Queue (ft)	117	5	5	113	79	7
95th Queue (ft)	203	23	24	195	181	39
Link Distance (ft)		828		806	1687	
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	250		125			125
Storage Blk Time (%)	1			3	2	
Queuing Penalty (veh)	0			0	1	

Intersection: 5: SR 6309 & Sheetz Drwy/Shopping Center Drwy

Movement	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	L	T	T	L	T	TR
Maximum Queue (ft)	123	95	56	132	172	69	222	90
Average Queue (ft)	43	41	18	51	66	27	95	18
95th Queue (ft)	89	79	45	104	136	57	186	56
Link Distance (ft)	211	221		269	269		695	695
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)			100			235		
Storage Blk Time (%)			0	1	0		0	
Queuing Penalty (veh)			0	0	0		0	

Intersection: 6: SR 6309 & Coal Street/Highland Park Blvd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	T	L	T	T	R	L	T
Maximum Queue (ft)	129	266	276	165	138	114	243	136	139	127	64	202
Average Queue (ft)	43	135	132	80	73	39	108	61	70	4	21	100
95th Queue (ft)	92	221	233	147	123	88	189	116	119	91	49	179
Link Distance (ft)		951	951		1209	1209		695	695	695		879
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	235			650			300				125	
Storage Blk Time (%)		0										6
Queuing Penalty (veh)		0										3

Intersection: 6: SR 6309 & Coal Street/Highland Park Blvd

Movement	SB
Directions Served	TR
Maximum Queue (ft)	167
Average Queue (ft)	60
95th Queue (ft)	139
Link Distance (ft)	879
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 7: Johnson Street & Private Drwy/Haul Road

Movement	WB
Directions Served	LTR
Maximum Queue (ft)	65
Average Queue (ft)	10
95th Queue (ft)	42
Link Distance (ft)	1556
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Zone Summary

Zone wide Queuing Penalty: 17

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	3:50	3:50	3:50	3:50	3:50	3:50
End Time	5:00	5:00	5:00	5:00	5:00	5:00
Total Time (min)	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	3	3	3	3	3	3
# of Recorded Intervals	2	2	2	2	2	2
Vehs Entered	6320	6222	6077	6209	6236	6210
Vehs Exited	6242	6187	6092	6188	6243	6191
Starting Vehs	239	233	268	246	287	250
Ending Vehs	317	268	253	267	280	278
Travel Distance (mi)	4954	4981	4883	5026	5043	4977
Travel Time (hr)	293.8	295.8	261.2	274.7	316.8	288.5
Total Delay (hr)	139.3	140.8	109.4	118.8	159.9	133.6
Total Stops	9578	9432	8250	8592	10740	9316
Fuel Used (gal)	198.4	199.3	189.2	196.3	204.3	197.5

Interval #0 Information Seeding

Start Time	3:50
End Time	4:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	4:00
End Time	4:15
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	1678	1644	1603	1639	1664	1648
Vehs Exited	1629	1551	1604	1588	1607	1596
Starting Vehs	239	233	268	246	287	250
Ending Vehs	288	326	267	297	344	300
Travel Distance (mi)	1235	1296	1258	1267	1325	1276
Travel Time (hr)	69.3	77.7	70.9	71.1	80.6	73.9
Total Delay (hr)	30.4	37.5	31.7	31.6	39.3	34.1
Total Stops	2199	2506	2312	2224	2646	2375
Fuel Used (gal)	48.6	52.1	50.0	50.1	53.4	50.8

Interval #2 Information

Start Time	4:15
End Time	5:00
Total Time (min)	45

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	Avg
Vehs Entered	4642	4578	4474	4570	4572	4564
Vehs Exited	4613	4636	4488	4600	4636	4595
Starting Vehs	288	326	267	297	344	300
Ending Vehs	317	268	253	267	280	278
Travel Distance (mi)	3719	3685	3625	3760	3717	3701
Travel Time (hr)	224.5	218.1	190.3	203.6	236.2	214.6
Total Delay (hr)	108.9	103.3	77.7	87.2	120.6	99.5
Total Stops	7379	6926	5938	6368	8094	6944
Fuel Used (gal)	149.8	147.3	139.2	146.2	150.9	146.7

Intersection: 1: SR 6309 & Blackman Street/I-81 SB Off Ramp

Movement	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	R	L	T	R	L	L	T	T	T	T	R
Maximum Queue (ft)	241	336	280	731	56	178	210	200	176	400	399	300
Average Queue (ft)	132	137	238	282	8	50	113	122	80	337	339	202
95th Queue (ft)	213	323	317	652	83	139	176	188	157	441	441	434
Link Distance (ft)		958		1112				830	830	301	301	
Upstream Blk Time (%)										39	38	1
Queuing Penalty (veh)										218	210	0
Storage Bay Dist (ft)	380		180		180	275	275					225
Storage Blk Time (%)			24	4							54	
Queuing Penalty (veh)			78	29							90	

Intersection: 1: SR 6309 & Blackman Street/I-81 SB Off Ramp

Movement	B8	B8	B17
Directions Served	T	T	T
Maximum Queue (ft)	181	191	436
Average Queue (ft)	80	84	180
95th Queue (ft)	200	209	624
Link Distance (ft)	102	102	636
Upstream Blk Time (%)	12	15	10
Queuing Penalty (veh)	65	80	105
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: SR 6309 & Blackman Plaza Drwy/Johnson Street

Movement	EB	EB	WB	NB	NB	NB	B8	B8	SB	SB	SB
Directions Served	LT	R	LTR	L	T	R	T		L	T	R
Maximum Queue (ft)	161	260	118	194	244	151	236	111	69	311	133
Average Queue (ft)	69	129	39	69	120	20	17	6	8	102	18
95th Queue (ft)	124	276	90	137	217	82	110	56	40	407	120
Link Distance (ft)	233	233	714		636		301	301		806	
Upstream Blk Time (%)	0	4					0	0		0	
Queuing Penalty (veh)	0	0					0	0		1	
Storage Bay Dist (ft)				150		100			110		150
Storage Blk Time (%)				1	7					6	
Queuing Penalty (veh)				7	18					8	

Intersection: 4: SR 6309 & Casey Ave/Park and Ride Lot

Movement	EB	EB	WB	NB	NB	SB	SB	SB
Directions Served	L	TR	LTR	L	TR	L	T	R
Maximum Queue (ft)	313	186	34	100	294	29	487	200
Average Queue (ft)	175	22	10	19	95	2	207	66
95th Queue (ft)	275	75	34	61	211	14	426	190
Link Distance (ft)		828	101		806		1687	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	250			125		125		125
Storage Blk Time (%)	4				3		12	
Queuing Penalty (veh)	1				1		23	

Intersection: 5: SR 6309 & Sheetz Drwy/Shopping Center Drwy

Movement	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	L	T	T	R	L	T	TR
Maximum Queue (ft)	110	255	177	96	204	241	102	310	450	358
Average Queue (ft)	48	141	12	27	93	123	4	75	233	76
95th Queue (ft)	93	219	95	64	169	208	53	198	381	245
Link Distance (ft)	211	221			269	269			695	695
Upstream Blk Time (%)		1	0		0	0	0			
Queuing Penalty (veh)		0	0		0	1	0			
Storage Bay Dist (ft)			150	100			185	235		
Storage Blk Time (%)		7		0	6	1			9	
Queuing Penalty (veh)		10		0	4	3			11	

Intersection: 6: SR 6309 & Coal Street/Highland Park Blvd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	T	L	T	T	L	T	TR
Maximum Queue (ft)	209	328	383	339	178	183	320	261	224	200	388	350
Average Queue (ft)	67	179	200	169	109	94	172	88	91	68	215	175
95th Queue (ft)	169	291	329	310	167	161	300	209	164	181	392	335
Link Distance (ft)		951	951		1209	1209		695	695		879	879
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	235			650			300			125		
Storage Blk Time (%)		5				0	6			0	38	
Queuing Penalty (veh)		6				0	11			0	35	

Intersection: 7: Johnson Street & Private Drwy/Haul Road

Movement	WB
Directions Served	LTR
Maximum Queue (ft)	40
Average Queue (ft)	8
95th Queue (ft)	31
Link Distance (ft)	1556
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Zone Summary

Zone wide Queuing Penalty: 1016

2024/2029 Projected (Build) Conditions

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	6:50	6:50	6:50	6:50	6:50	6:50
End Time	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	3	3	3	3	3	3
# of Recorded Intervals	2	2	2	2	2	2
Vehs Entered	3918	3858	3833	3909	3831	3862
Vehs Exited	3954	3877	3820	3911	3803	3873
Starting Vehs	161	155	138	171	141	152
Ending Vehs	125	136	151	169	169	149
Travel Distance (mi)	3333	3293	3274	3302	3281	3297
Travel Time (hr)	160.3	156.1	153.5	156.6	153.8	156.1
Total Delay (hr)	55.8	53.2	51.1	53.2	51.6	53.0
Total Stops	4891	4661	4554	4632	4522	4651
Fuel Used (gal)	124.9	122.5	121.2	122.3	121.8	122.6

Interval #0 Information Seeding

Start Time	6:50
End Time	7:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	7:15
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	1078	1072	1083	1122	1011	1071
Vehs Exited	1070	1053	1053	1123	987	1055
Starting Vehs	161	155	138	171	141	152
Ending Vehs	169	174	168	170	165	166
Travel Distance (mi)	900	873	906	939	853	894
Travel Time (hr)	43.6	42.3	42.8	46.3	40.2	43.0
Total Delay (hr)	15.4	15.0	14.5	16.8	13.7	15.1
Total Stops	1333	1263	1328	1413	1185	1303
Fuel Used (gal)	33.6	32.7	33.3	35.5	31.6	33.4

Interval #2 Information

Start Time	7:15
End Time	8:00
Total Time (min)	45

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	Avg
Vehs Entered	2840	2786	2750	2787	2820	2794
Vehs Exited	2884	2824	2767	2788	2816	2816
Starting Vehs	169	174	168	170	165	166
Ending Vehs	125	136	151	169	169	149
Travel Distance (mi)	2432	2420	2368	2363	2428	2402
Travel Time (hr)	116.7	113.8	110.7	110.3	113.7	113.0
Total Delay (hr)	40.4	38.2	36.6	36.5	37.9	37.9
Total Stops	3558	3398	3226	3219	3337	3347
Fuel Used (gal)	91.3	89.8	87.9	86.8	90.1	89.2

Intersection: 1: SR 6309 & Blackman Street/I-81 SB Off Ramp

Movement	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	R	L	T	L	L	T	T	T	T
Maximum Queue (ft)	236	20	253	206	246	285	196	183	166	177
Average Queue (ft)	126	1	130	74	122	173	116	79	83	82
95th Queue (ft)	206	14	220	143	226	254	176	152	139	134
Link Distance (ft)		958		1112			830	830	301	301
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	380		180		275	275				
Storage Blk Time (%)			3	0	0	0				0
Queuing Penalty (veh)			6	0	0	1				0

Intersection: 3: SR 6309 & Blackman Plaza Drwy/Johnson Street

Movement	EB	EB	WB	NB	NB	NB	B29	B29	SB	SB	SB
Directions Served	LT	R	LTR	L	T	R	T		L	T	R
Maximum Queue (ft)	155	18	112	154	206	109	221	53	82	239	90
Average Queue (ft)	75	1	38	48	96	18	16	4	20	104	3
95th Queue (ft)	125	13	88	103	178	60	104	25	59	200	46
Link Distance (ft)	233	233	570		637		301	301		806	
Upstream Blk Time (%)							0				
Queuing Penalty (veh)							0				
Storage Bay Dist (ft)				150		100			110		150
Storage Blk Time (%)				0	5					6	
Queuing Penalty (veh)				0	12					7	

Intersection: 4: SR 6309 & Casey Ave/Park and Ride Lot

Movement	EB	EB	WB	NB	NB	SB	SB
Directions Served	L	TR	LTR	L	TR	T	R
Maximum Queue (ft)	194	56	6	41	217	213	68
Average Queue (ft)	100	10	0	4	116	67	9
95th Queue (ft)	170	38	4	21	199	159	43
Link Distance (ft)		828	101		806	1687	
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	250			125			125
Storage Blk Time (%)					3	1	
Queuing Penalty (veh)					0	1	

Intersection: 5: SR 6309 & Sheetz Drwy/Shopping Center Drwy

Movement	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	L	T	T	L	T	TR
Maximum Queue (ft)	91	101	63	171	132	65	222	107
Average Queue (ft)	43	43	17	67	53	24	86	21
95th Queue (ft)	80	85	47	142	114	54	176	66
Link Distance (ft)	211	221		269	269		695	695
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)			100			235		
Storage Blk Time (%)			0	3			0	
Queuing Penalty (veh)			0	1			0	

Intersection: 6: SR 6309 & Coal Street/Highland Park Blvd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	T	L	T	T	L	T	TR
Maximum Queue (ft)	94	204	223	196	168	137	341	200	137	43	197	166
Average Queue (ft)	34	114	108	94	82	53	171	52	68	8	79	41
95th Queue (ft)	76	186	195	171	145	109	289	134	121	28	155	108
Link Distance (ft)		951	951		1209	1209		695	695		879	879
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	235			650			300			125		
Storage Blk Time (%)		0					1				3	
Queuing Penalty (veh)		0					2				1	

Intersection: 7: Johnson Street & Private Drwy/Haul Road

Movement	WB	NB
Directions Served	LTR	LTR
Maximum Queue (ft)	90	18
Average Queue (ft)	22	1
95th Queue (ft)	69	8
Link Distance (ft)	1556	72
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 8: Allan Road & Johnson Street

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	12	68
Average Queue (ft)	0	18
95th Queue (ft)	6	56
Link Distance (ft)	72	508
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary

Zone wide Queuing Penalty: 33

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	8:50	8:50	8:50	8:50	8:50	8:50
End Time	10:00	10:00	10:00	10:00	10:00	10:00
Total Time (min)	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	3	3	3	3	3	3
# of Recorded Intervals	2	2	2	2	2	2
Vehs Entered	3824	3868	3822	3806	3766	3819
Vehs Exited	3835	3903	3883	3803	3760	3838
Starting Vehs	128	178	179	164	153	157
Ending Vehs	117	143	118	167	159	140
Travel Distance (mi)	3270	3271	3329	3217	3212	3260
Travel Time (hr)	153.9	155.6	155.0	152.5	149.5	153.3
Total Delay (hr)	52.1	53.3	51.3	51.9	49.2	51.6
Total Stops	4570	4549	4513	4453	4337	4485
Fuel Used (gal)	122.5	122.8	123.3	120.0	118.9	121.5

Interval #0 Information Seeding

Start Time	8:50
End Time	9:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	9:00
End Time	9:15
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	1017	1091	1004	993	955	1011
Vehs Exited	987	1097	1021	989	966	1011
Starting Vehs	128	178	179	164	153	157
Ending Vehs	158	172	162	168	142	159
Travel Distance (mi)	843	908	894	841	812	859
Travel Time (hr)	39.9	44.2	42.3	39.7	38.7	41.0
Total Delay (hr)	13.6	15.7	14.6	13.3	13.3	14.1
Total Stops	1216	1290	1302	1178	1125	1224
Fuel Used (gal)	31.5	34.4	33.5	31.2	30.0	32.1

Interval #2 Information

Start Time	9:15
End Time	10:00
Total Time (min)	45

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	Avg
Vehs Entered	2807	2777	2818	2813	2811	2802
Vehs Exited	2848	2806	2862	2814	2794	2825
Starting Vehs	158	172	162	168	142	159
Ending Vehs	117	143	118	167	159	140
Travel Distance (mi)	2428	2362	2435	2376	2400	2400
Travel Time (hr)	113.9	111.3	112.7	112.8	110.8	112.3
Total Delay (hr)	38.5	37.6	36.7	38.6	35.9	37.5
Total Stops	3354	3259	3211	3275	3212	3267
Fuel Used (gal)	91.0	88.4	89.7	88.9	88.9	89.4

Intersection: 1: SR 6309 & Blackman Street/I-81 SB Off Ramp

Movement	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	B17
Directions Served	L	R	L	T	L	L	T	T	T	T	T
Maximum Queue (ft)	261	42	217	196	195	216	164	130	190	192	142
Average Queue (ft)	152	1	107	69	73	135	89	51	91	89	5
95th Queue (ft)	239	22	188	153	178	202	149	105	155	154	102
Link Distance (ft)		958		1112			830	830	301	301	637
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	380		180		275	275					
Storage Blk Time (%)			1	1						0	
Queuing Penalty (veh)			2	2						0	

Intersection: 3: SR 6309 & Blackman Plaza Drwy/Johnson Street

Movement	EB	EB	WB	NB	NB	NB	B29	B29	SB	SB	SB
Directions Served	LT	R	LTR	L	T	R	T		L	T	R
Maximum Queue (ft)	165	18	142	97	161	47	52	8	131	266	90
Average Queue (ft)	80	1	48	40	67	12	2	0	25	118	5
95th Queue (ft)	139	13	106	75	129	36	20	5	78	230	57
Link Distance (ft)	233	233	569		637		301	301		806	
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)				150		100			110		150
Storage Blk Time (%)				0	1					8	
Queuing Penalty (veh)				0	4					10	

Intersection: 4: SR 6309 & Casey Ave/Park and Ride Lot

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	T	R
Maximum Queue (ft)	245	35	32	238	213	107
Average Queue (ft)	124	6	2	116	75	12
95th Queue (ft)	209	26	15	200	169	54
Link Distance (ft)		828		806	1687	
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	250		125			125
Storage Blk Time (%)	1			3	2	
Queuing Penalty (veh)	0			0	1	

Intersection: 5: SR 6309 & Sheetz Drwy/Shopping Center Drwy

Movement	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	L	T	T	L	T	TR
Maximum Queue (ft)	112	117	66	123	161	57	250	107
Average Queue (ft)	44	43	19	48	64	27	100	21
95th Queue (ft)	84	87	43	103	136	54	197	66
Link Distance (ft)	211	221		269	269		695	695
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)			100			235		
Storage Blk Time (%)		0		1	0		0	
Queuing Penalty (veh)		0		0	0		0	

Intersection: 6: SR 6309 & Coal Street/Highland Park Blvd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	T	L	T	T	L	T	TR
Maximum Queue (ft)	124	226	229	194	150	130	231	138	140	65	205	173
Average Queue (ft)	45	126	118	84	77	46	113	60	70	17	106	65
95th Queue (ft)	100	203	205	156	135	99	191	113	121	41	181	142
Link Distance (ft)		951	951		1209	1209		695	695		879	879
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	235			650			300			125		
Storage Blk Time (%)		0									6	
Queuing Penalty (veh)		0									3	

Intersection: 7: Johnson Street & Private Drwy/Haul Road

Movement	WB
Directions Served	LTR
Maximum Queue (ft)	70
Average Queue (ft)	23
95th Queue (ft)	59
Link Distance (ft)	1556
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 8: Allan Road & Johnson Street

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	6	53
Average Queue (ft)	0	17
95th Queue (ft)	4	47
Link Distance (ft)	72	508
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary

Zone wide Queuing Penalty: 23

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	3:50	3:50	3:50	3:50	3:50	3:50
End Time	5:00	5:00	5:00	5:00	5:00	5:00
Total Time (min)	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	3	3	3	3	3	3
# of Recorded Intervals	2	2	2	2	2	2
Vehs Entered	6434	6461	6376	6378	6382	6405
Vehs Exited	6388	6418	6360	6296	6348	6361
Starting Vehs	262	252	273	254	263	259
Ending Vehs	308	295	289	336	297	298
Travel Distance (mi)	5115	5224	5114	5130	5140	5145
Travel Time (hr)	326.9	353.4	292.5	339.0	327.3	327.8
Total Delay (hr)	165.3	188.3	130.8	177.0	164.8	165.2
Total Stops	10343	10544	9306	10620	10324	10225
Fuel Used (gal)	210.6	218.8	202.8	213.3	209.7	211.0

Interval #0 Information Seeding

Start Time	3:50
End Time	4:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	4:00
End Time	4:15
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	1683	1720	1726	1640	1689	1694
Vehs Exited	1641	1609	1652	1545	1592	1606
Starting Vehs	262	252	273	254	263	259
Ending Vehs	304	363	347	349	360	342
Travel Distance (mi)	1297	1333	1319	1301	1331	1316
Travel Time (hr)	74.8	82.2	79.7	73.3	80.6	78.1
Total Delay (hr)	33.7	40.1	38.0	32.3	38.5	36.5
Total Stops	2353	2580	2584	2357	2696	2509
Fuel Used (gal)	52.2	54.2	53.3	51.4	53.2	52.9

Interval #2 Information

Start Time	4:15
End Time	5:00
Total Time (min)	45

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	Avg
Vehs Entered	4751	4741	4650	4738	4693	4718
Vehs Exited	4747	4809	4708	4751	4756	4755
Starting Vehs	304	363	347	349	360	342
Ending Vehs	308	295	289	336	297	298
Travel Distance (mi)	3818	3891	3796	3829	3810	3829
Travel Time (hr)	252.1	271.2	212.7	265.7	246.7	249.7
Total Delay (hr)	131.6	148.1	92.7	144.7	126.3	128.7
Total Stops	7990	7964	6722	8263	7628	7717
Fuel Used (gal)	158.3	164.5	149.5	161.9	156.5	158.2

Intersection: 1: SR 6309 & Blackman Street/I-81 SB Off Ramp

Movement	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	R	L	T	R	L	L	T	T	T	T	R
Maximum Queue (ft)	283	424	280	758	223	178	224	219	181	394	408	300
Average Queue (ft)	148	175	244	304	22	62	123	126	84	355	358	246
95th Queue (ft)	238	379	317	664	143	163	198	198	161	429	437	435
Link Distance (ft)		958		1112				830	830	301	301	
Upstream Blk Time (%)				0						51	49	2
Queuing Penalty (veh)				0						295	285	0
Storage Bay Dist (ft)	380		180		180	275	275					225
Storage Blk Time (%)		2	28	7							63	
Queuing Penalty (veh)		4	92	47							122	

Intersection: 1: SR 6309 & Blackman Street/I-81 SB Off Ramp

Movement	B29	B29	B17
Directions Served	T	T	T
Maximum Queue (ft)	179	190	670
Average Queue (ft)	110	121	371
95th Queue (ft)	222	235	905
Link Distance (ft)	102	102	637
Upstream Blk Time (%)	16	25	32
Queuing Penalty (veh)	95	148	372
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: SR 6309 & Blackman Plaza Drwy/Johnson Street

Movement	EB	EB	WB	NB	NB	NB	B29	B29	SB	SB	SB
Directions Served	LT	R	LTR	L	T	R	T		L	T	R
Maximum Queue (ft)	229	253	514	167	287	175	228	46	112	503	180
Average Queue (ft)	89	190	259	77	145	36	18	4	22	129	26
95th Queue (ft)	200	318	571	146	239	114	107	25	75	396	145
Link Distance (ft)	233	233	570		637		301	301		806	
Upstream Blk Time (%)	2	41	10							0	
Queuing Penalty (veh)	0	0	16							1	
Storage Bay Dist (ft)				150		100			110		150
Storage Blk Time (%)				1	9	0				9	
Queuing Penalty (veh)				11	28	0				14	

Intersection: 4: SR 6309 & Casey Ave/Park and Ride Lot

Movement	EB	EB	WB	NB	NB	SB	SB	SB
Directions Served	L	TR	LTR	L	TR	L	T	R
Maximum Queue (ft)	307	126	47	86	298	31	382	200
Average Queue (ft)	171	24	10	18	121	2	182	64
95th Queue (ft)	280	90	35	45	249	15	319	187
Link Distance (ft)		828	101		806		1687	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	250			125		125		125
Storage Blk Time (%)	5				6		10	
Queuing Penalty (veh)	1				1		19	

Intersection: 5: SR 6309 & Sheetz Drwy/Shopping Center Drwy

Movement	EB	WB	WB	B15	NB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	T	L	T	T	R	L	T	TR
Maximum Queue (ft)	107	266	177	32	139	211	238	103	275	426	327
Average Queue (ft)	43	145	17	2	31	99	129	4	69	224	76
95th Queue (ft)	84	235	112	25	78	180	216	53	178	362	234
Link Distance (ft)	211	221		111		269	269			695	695
Upstream Blk Time (%)		1	0	0		0	0	0			
Queuing Penalty (veh)		0	0	0		0	0	0			
Storage Bay Dist (ft)			150		100			185	235		
Storage Blk Time (%)		9			0	8	2			9	
Queuing Penalty (veh)		12			0	5	4			11	

Intersection: 6: SR 6309 & Coal Street/Highland Park Blvd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	T	L	T	T	L	T	TR
Maximum Queue (ft)	193	356	382	343	193	163	314	270	224	200	352	300
Average Queue (ft)	65	189	209	164	102	90	171	88	93	69	193	159
95th Queue (ft)	181	325	346	297	162	147	275	187	165	183	304	269
Link Distance (ft)		951	951		1209	1209		695	695		879	879
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	235			650			300			125		
Storage Blk Time (%)		7					3			0	35	
Queuing Penalty (veh)		10					5			0	32	

Intersection: 7: Johnson Street & Private Drwy/Haul Road

Movement	WB	SB
Directions Served	LTR	LTR
Maximum Queue (ft)	104	13
Average Queue (ft)	36	1
95th Queue (ft)	79	8
Link Distance (ft)	1556	642
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 8: Allan Road & Johnson Street

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	30	157
Average Queue (ft)	9	50
95th Queue (ft)	46	150
Link Distance (ft)	72	508
Upstream Blk Time (%)	4	
Queuing Penalty (veh)	4	
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary

Zone wide Queuing Penalty: 1636

2024/2029 Projected (Build) Conditions With Improvements

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	3:50	3:50	3:50	3:50	3:50	3:50
End Time	5:00	5:00	5:00	5:00	5:00	5:00
Total Time (min)	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	3	3	3	3	3	3
# of Recorded Intervals	2	2	2	2	2	2
Vehs Entered	6392	6486	6257	6316	6325	6357
Vehs Exited	6328	6439	6262	6323	6280	6328
Starting Vehs	250	273	280	296	245	269
Ending Vehs	314	320	275	289	290	298
Travel Distance (mi)	5202	5212	4996	5064	5062	5107
Travel Time (hr)	293.6	323.8	275.7	288.5	282.9	292.9
Total Delay (hr)	129.0	159.2	117.6	127.9	122.4	131.2
Total Stops	9545	11005	8863	9243	9169	9562
Fuel Used (gal)	205.6	211.8	195.4	200.3	199.5	202.5

Interval #0 Information Seeding

Start Time	3:50
End Time	4:00
Total Time (min)	10

Volumes adjusted by Growth Factors.
No data recorded this interval.

Interval #1 Information Recording

Start Time	4:00
End Time	4:15
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	1656	1710	1644	1619	1613	1648
Vehs Exited	1604	1637	1617	1635	1579	1616
Starting Vehs	250	273	280	296	245	269
Ending Vehs	302	346	307	280	279	299
Travel Distance (mi)	1307	1326	1308	1327	1284	1310
Travel Time (hr)	72.7	82.3	75.6	77.8	68.8	75.4
Total Delay (hr)	31.3	40.3	34.5	35.5	28.1	33.9
Total Stops	2445	2721	2477	2424	2133	2441
Fuel Used (gal)	51.6	54.4	51.8	53.2	49.6	52.1

Interval #2 Information

Start Time	4:15
End Time	5:00
Total Time (min)	45

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	Avg
Vehs Entered	4736	4776	4613	4697	4712	4707
Vehs Exited	4724	4802	4645	4688	4701	4710
Starting Vehs	302	346	307	280	279	299
Ending Vehs	314	320	275	289	290	298
Travel Distance (mi)	3895	3886	3688	3737	3778	3797
Travel Time (hr)	220.9	241.5	200.1	210.7	214.1	217.5
Total Delay (hr)	97.7	118.9	83.1	92.4	94.3	97.3
Total Stops	7100	8284	6386	6819	7036	7125
Fuel Used (gal)	154.0	157.5	143.6	147.1	150.0	150.4

Intersection: 1: SR 6309 & Blackman Street/I-81 SB Off Ramp

Movement	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	R	L	T	R	L	L	T	T	T	T	R
Maximum Queue (ft)	275	365	280	666	112	200	247	218	195	389	390	300
Average Queue (ft)	152	164	234	249	4	58	112	128	81	329	335	194
95th Queue (ft)	242	350	319	526	58	157	193	195	166	437	443	430
Link Distance (ft)		958		1112				830	830	301	301	
Upstream Blk Time (%)										34	33	1
Queuing Penalty (veh)										197	191	0
Storage Bay Dist (ft)	380		180		180	275	275					225
Storage Blk Time (%)		1	24	4			0	0			50	
Queuing Penalty (veh)		2	79	27			0	0			98	

Intersection: 1: SR 6309 & Blackman Street/I-81 SB Off Ramp

Movement	B29	B29	B17
Directions Served	T	T	T
Maximum Queue (ft)	168	165	428
Average Queue (ft)	64	66	131
95th Queue (ft)	180	179	523
Link Distance (ft)	102	102	637
Upstream Blk Time (%)	8	12	4
Queuing Penalty (veh)	46	71	52
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: SR 6309 & Blackman Plaza Drwy/Johnson Street

Movement	EB	EB	WB	NB	NB	NB	B29	B29	SB	SB	SB
Directions Served	LT	R	LTR	L	T	R	T		L	T	R
Maximum Queue (ft)	165	238	225	191	293	152	223	87	131	381	225
Average Queue (ft)	58	107	96	72	108	24	16	5	23	176	17
95th Queue (ft)	112	241	175	143	223	91	106	44	76	348	115
Link Distance (ft)	233	233	570		637		301	301		806	
Upstream Blk Time (%)	0	2					0				
Queuing Penalty (veh)	0	0					0				
Storage Bay Dist (ft)				150		100			110		150
Storage Blk Time (%)				1	5				0	20	
Queuing Penalty (veh)				8	15				0	31	

Intersection: 4: SR 6309 & Casey Ave/Park and Ride Lot

Movement	EB	EB	WB	NB	NB	SB	SB	SB
Directions Served	L	TR	LTR	L	TR	L	T	R
Maximum Queue (ft)	280	128	43	54	229	23	476	200
Average Queue (ft)	157	21	9	15	104	2	238	83
95th Queue (ft)	248	79	32	44	201	15	432	220
Link Distance (ft)		828	101		806		1687	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	250			125		125		125
Storage Blk Time (%)	1				4		15	
Queuing Penalty (veh)	0				1		28	

Intersection: 5: SR 6309 & Sheetz Drwy/Shopping Center Drwy

Movement	EB	WB	WB	B15	NB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LT	R	T	L	T	T	R	L	T	TR
Maximum Queue (ft)	130	239	133	5	114	187	232	104	270	418	301
Average Queue (ft)	51	132	6	0	29	94	124	7	67	232	76
95th Queue (ft)	100	205	65	4	76	165	211	77	185	367	244
Link Distance (ft)	211	221		111		269	269			695	695
Upstream Blk Time (%)		1	0				0	0			
Queuing Penalty (veh)		0	0				0	0			
Storage Bay Dist (ft)			150		100			185	235		
Storage Blk Time (%)		6			0	6	1			11	
Queuing Penalty (veh)		9			0	4	3			13	

Intersection: 6: SR 6309 & Coal Street/Highland Park Blvd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	T	L	T	T	L	T	TR
Maximum Queue (ft)	212	325	331	342	266	234	283	191	151	200	348	298
Average Queue (ft)	63	185	196	167	117	96	166	81	88	69	202	158
95th Queue (ft)	150	290	302	341	246	200	276	148	139	181	328	277
Link Distance (ft)		951	951		1209	1209		695	695		879	879
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	235			650			300			125		
Storage Blk Time (%)		4					1	0		0	36	
Queuing Penalty (veh)		5					3	0		1	33	

Intersection: 7: Johnson Street & Private Drwy/Haul Road

Movement	WB
Directions Served	LTR
Maximum Queue (ft)	78
Average Queue (ft)	34
95th Queue (ft)	67
Link Distance (ft)	1556
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 8: Allan Road & Johnson Street

Movement	NB
Directions Served	LR
Maximum Queue (ft)	59
Average Queue (ft)	28
95th Queue (ft)	52
Link Distance (ft)	508
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Zone Summary

Zone wide Queuing Penalty: 915

APPENDIX J:

Auxiliary Turn Lane Warrant Analysis Worksheets

Wilkes-Barre Township Boulevard & Johnson Street/Blackman Plaza Driveway

Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Wilkes-Barre Township	**Analysis Date:**	5/17/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Blackman Street/I-81 SB Off Ramp (Eastbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	AM Adjacent Street	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	235	1.0%	237
	Through	-	0	0.0%	0
	Right	Yes	185	7.0%	192
Opposing	Left	No	288	8.0%	N/A
	Through	-	113	5.0%	116
	Right	No	85	16.0%	N/A

Advancing Volume:	429
Opposing Volume:	116
Left Turn Volume:	237
% Left Turns in Advancing Volume:	55.24%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	235	1.0%	N/A
	Through	-	0	0.0%	N/A
	Right	-	185	7.0%	N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: 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:	237
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	45

Average # of Vehicles/Cycle: 5.0

PennDOT Publication 46, Exhibit 11-6

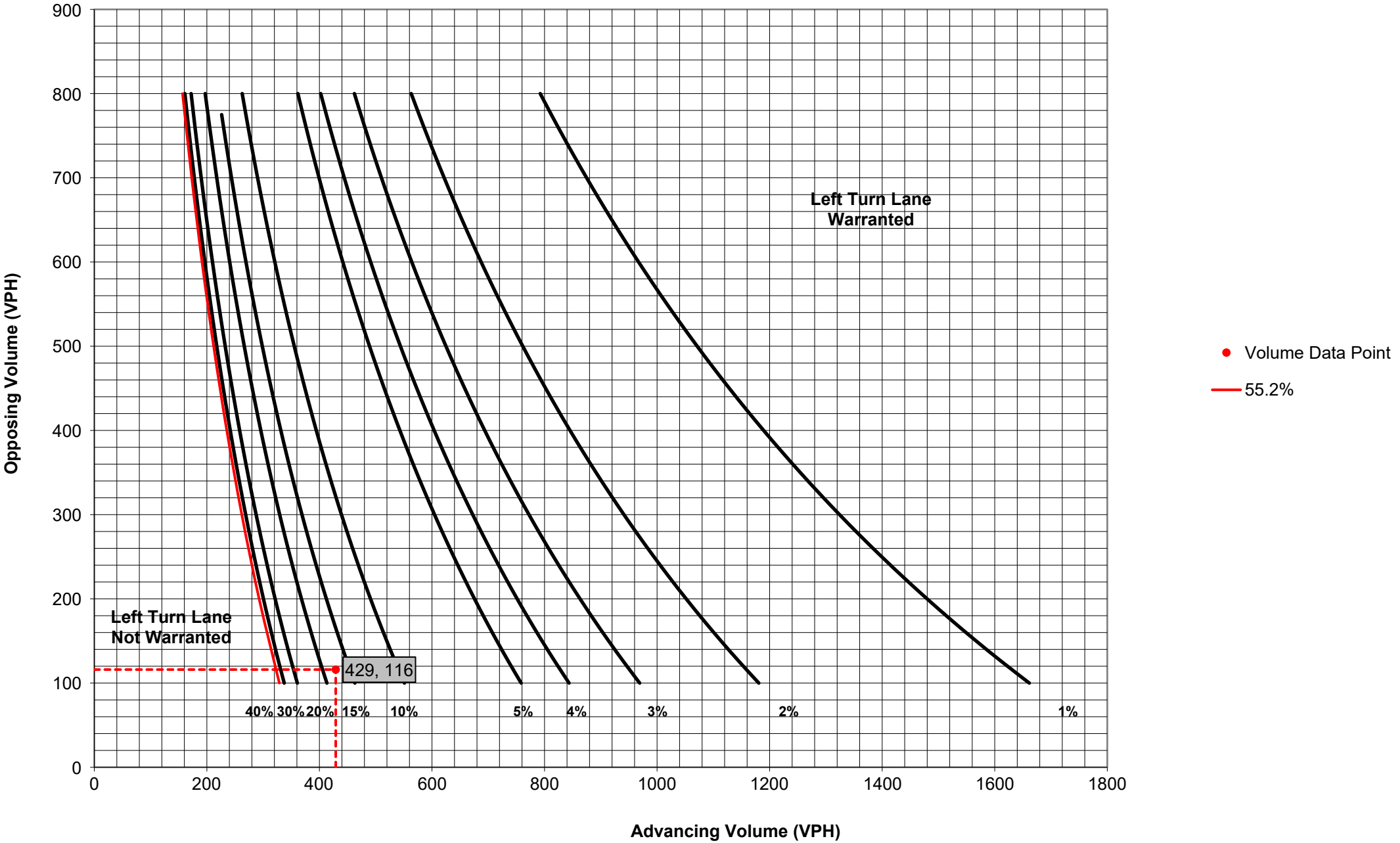
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	200	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	200	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:	Wilkes-Barre Township	**Analysis Date:**	5/17/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Blackman Street/I-81 SB Off Ramp (Eastbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour Generator	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	284	3.0%	289
	Through	-	0	0.0%	0
	Right	Yes	164	7.0%	170
Opposing	Left	No	215	16.0%	N/A
	Through	-	96	11.0%	102
	Right	No	97	14.0%	N/A

Advancing Volume:	459
Opposing Volume:	102
Left Turn Volume:	289
% Left Turns in Advancing Volume:	62.96%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	284	3.0%	N/A
	Through	-	0	0.0%	N/A
	Right	-	164	7.0%	N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: 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:	289
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	45

Average # of Vehicles/Cycle: 6.0

PennDOT Publication 46, Exhibit 11-6

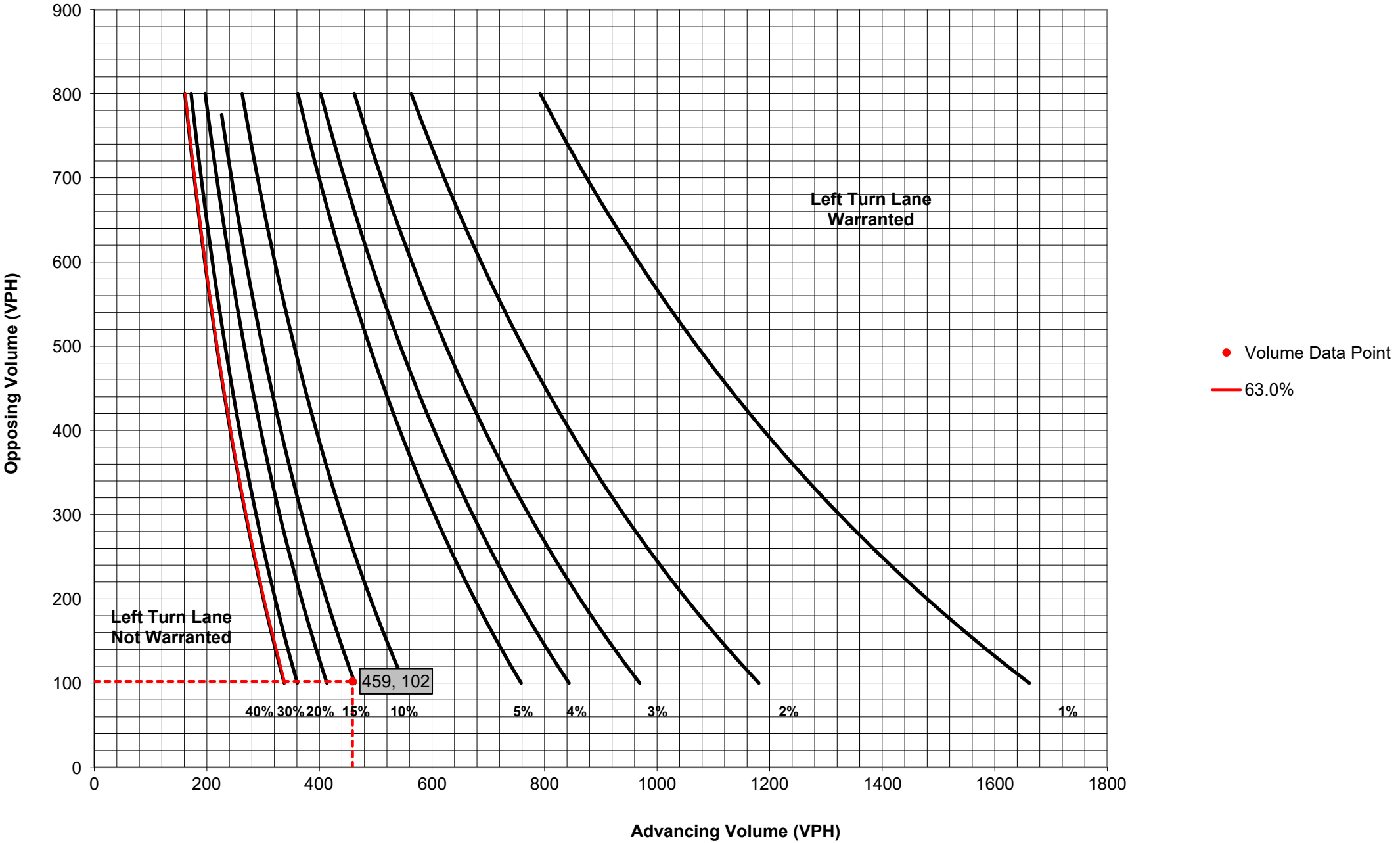
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	250	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	250	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:	Wilkes-Barre Township	**Analysis Date:**	5/17/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Blackman Street/I-81 SB Off Ramp (Eastbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour Generator	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	226	2.0%	229
	Through	-	0	0.0%	0
	Right	Yes	327	4.0%	334
Opposing	Left	No	540	3.0%	N/A
	Through	-	212	4.0%	217
	Right	No	119	9.0%	N/A

Advancing Volume:	563
Opposing Volume:	217
Left Turn Volume:	229
% Left Turns in Advancing Volume:	40.67%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	226	2.0%	N/A
	Through	-	0	0.0%	N/A
	Right	-	327	4.0%	N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: 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:	229
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	38

Average # of Vehicles/Cycle: 6.0

PennDOT Publication 46, Exhibit 11-6

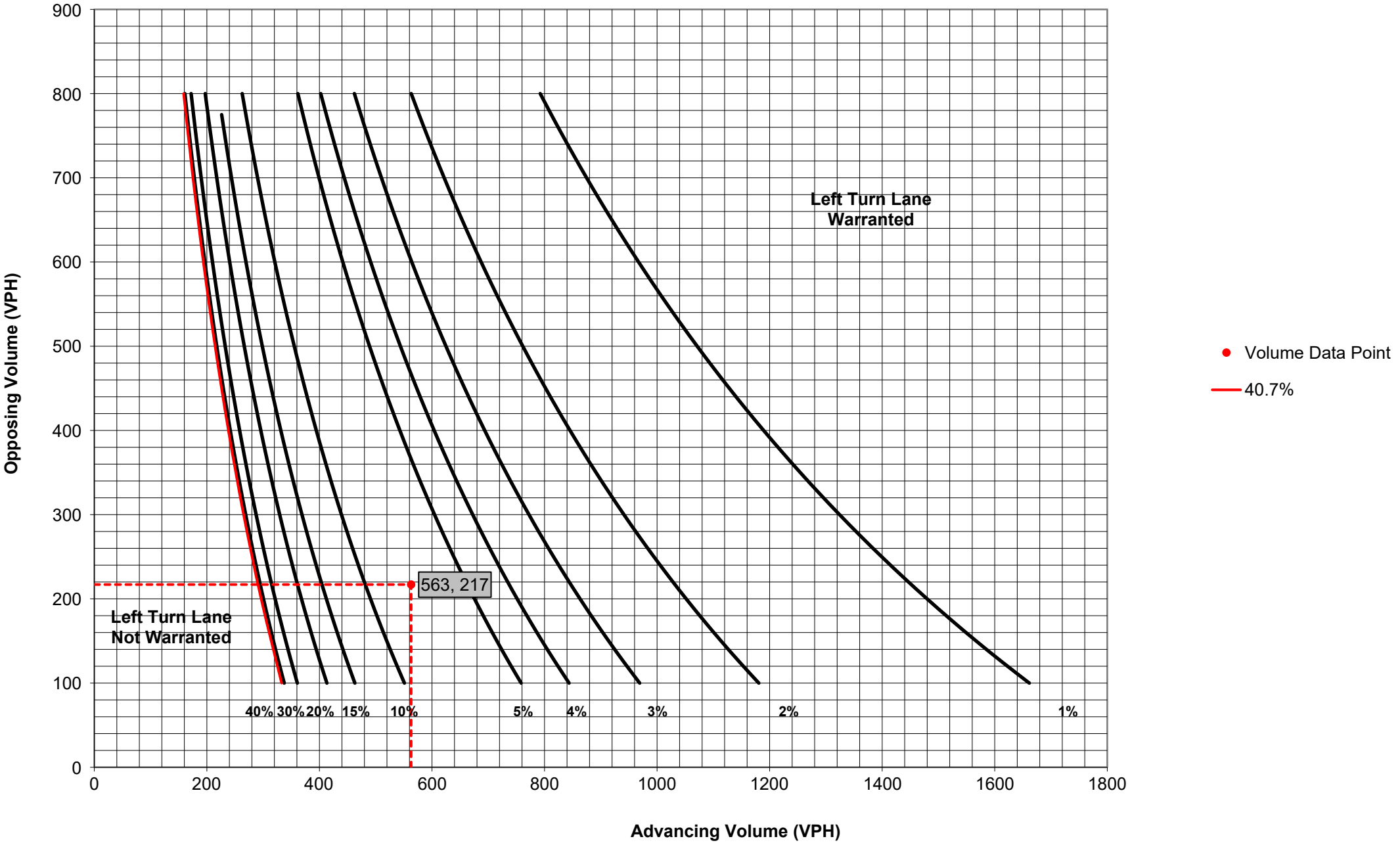
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	250	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	250	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:	Wilkes-Barre Township	**Analysis Date:**	5/17/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Blackman Street/I-81 SB Off Ramp (Eastbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	AM Adjacent Street	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	235	1.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	185	7.0%	N/A
Opposing	Left	No	288	8.0%	N/A
	Through	-	113	5.0%	N/A
	Right	No	85	16.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
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	235	1.0%	237
	Through	-	0	0.0%	0
	Right	-	185	7.0%	192

Advancing Volume:	429
Right Turn Volume:	192

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9

Warrant Met?: Yes

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	192
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	45

Average # of Vehicles/Cycle: 4.0

PennDOT Publication 46, Exhibit 11-6

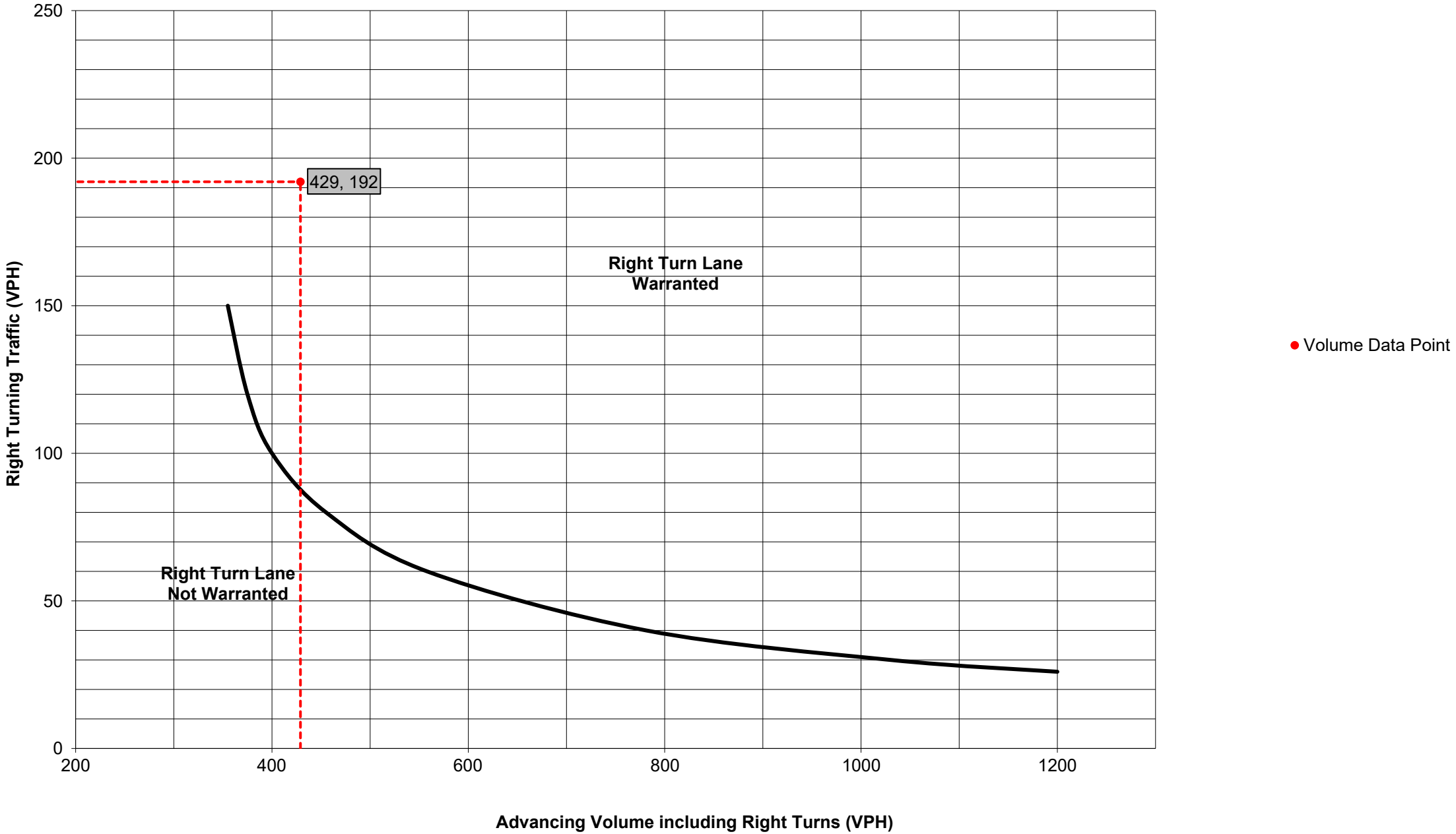
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	175	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	175	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Wilkes-Barre Township	**Analysis Date:**	5/17/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Blackman Street/I-81 SB Off Ramp (Eastbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour Generator	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	284	3.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	164	7.0%	N/A
Opposing	Left	No	215	16.0%	N/A
	Through	-	96	11.0%	N/A
	Right	No	97	14.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
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	284	3.0%	289
	Through	-	0	0.0%	0
	Right	-	164	7.0%	170

Advancing Volume:	459
Right Turn Volume:	170

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9

Warrant Met?: Yes

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	170
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	45

Average # of Vehicles/Cycle: 4.0

PennDOT Publication 46, Exhibit 11-6

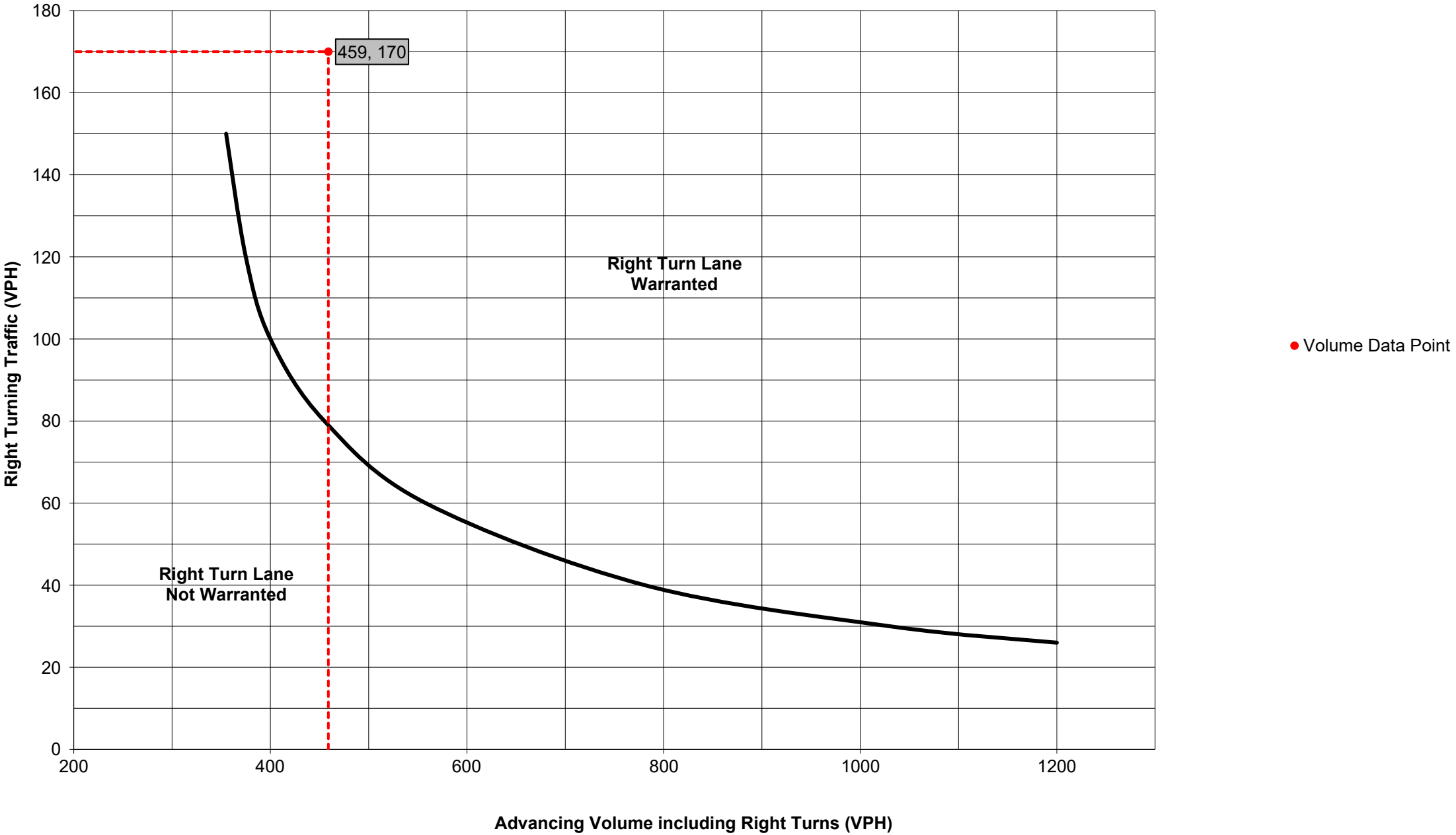
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	175	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	175	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Wilkes-Barre Township	**Analysis Date:**	5/17/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Blackman Street/I-81 SB Off Ramp (Eastbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour Generator	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	226	2.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	327	4.0%	N/A
Opposing	Left	No	540	3.0%	N/A
	Through	-	212	4.0%	N/A
	Right	No	119	9.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
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	226	2.0%	229
	Through	-	0	0.0%	0
	Right	-	327	4.0%	334

Advancing Volume:	563
Right Turn Volume:	334

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9

Warrant Met?: Yes

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	334
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	38

Average # of Vehicles/Cycle: 9.0

PennDOT Publication 46, Exhibit 11-6

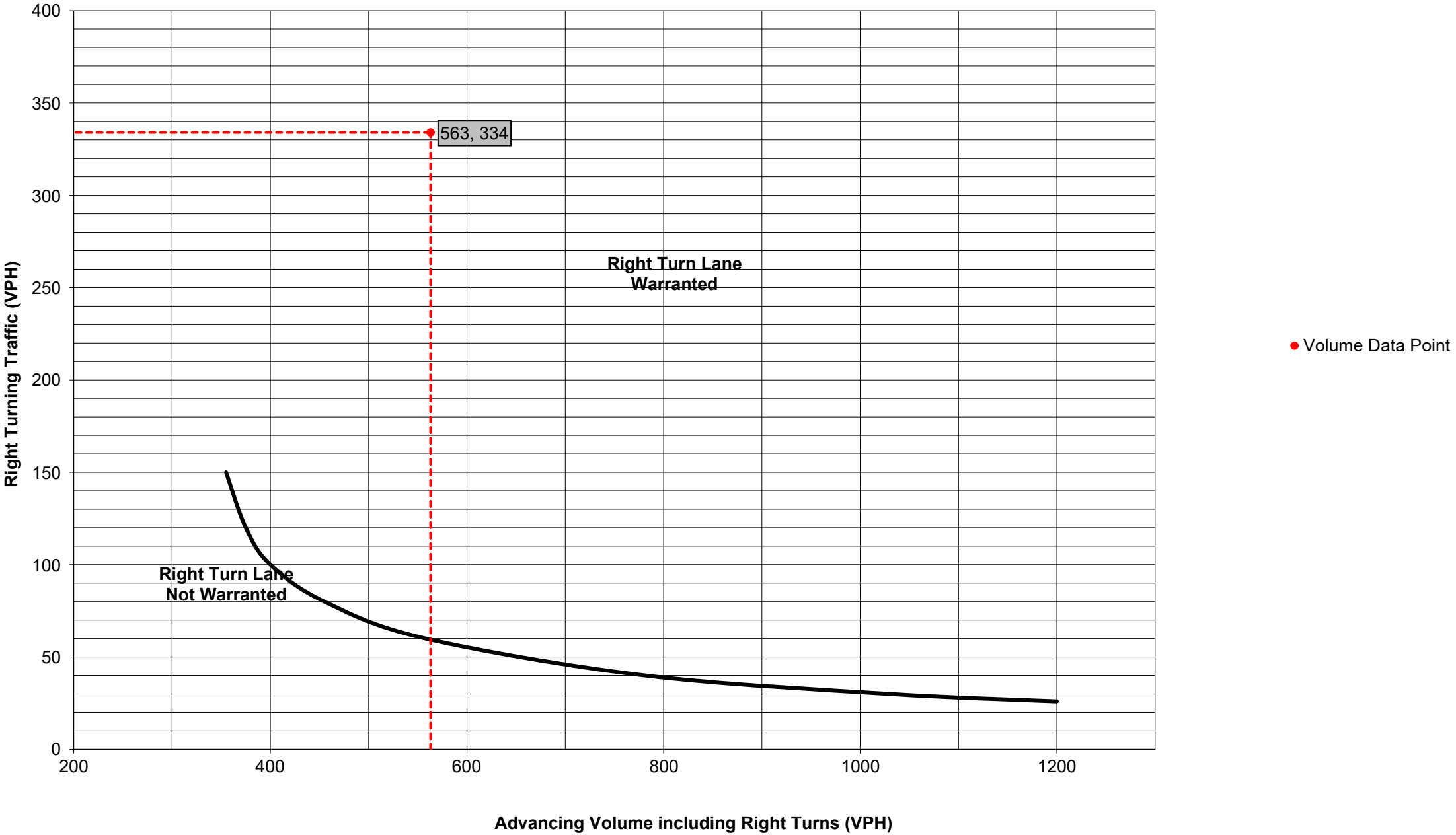
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	350	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	350	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Wilkes-Barre Township	**Analysis Date:**	5/12/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Blackman Street/I-81 SB Off Ramp (Westbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	AM Adjacent Street	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	288	8.0%	323
	Through	-	113	5.0%	122
	Right	No	85	16.0%	N/A
Opposing	Left	Yes	235	1.0%	239
	Through	-	0	0.0%	0
	Right	No	185	7.0%	N/A

Advancing Volume:	445
Opposing Volume:	239
Left Turn Volume:	323
% Left Turns in Advancing Volume:	72.58%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	288	8.0%	N/A
	Through	-	113	5.0%	N/A
	Right	-	85	16.0%	N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: 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:	323
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	45

Average # of Vehicles/Cycle: 7.0

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

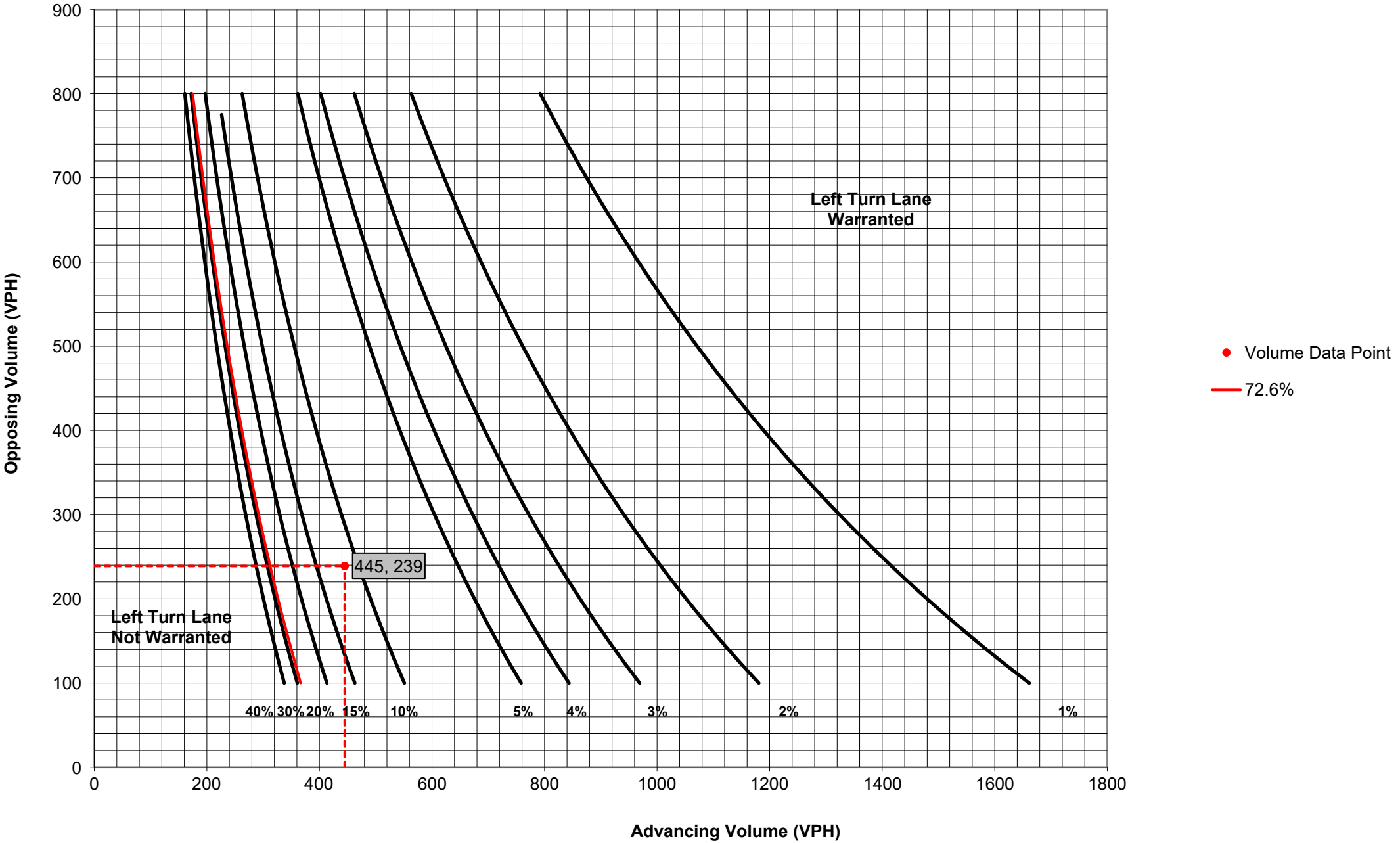
Left Turn Lane Storage Length, Condition A:	275	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	275	Feet

Additional Findings:

Consider Dual Left Turn Lanes and Operational Analyses

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Blackman Street/I-81 SB Off Ramp (Westbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour Generator	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	215	16.0%	267
	Through	-	96	11.0%	112
	Right	No	97	14.0%	N/A
Opposing	Left	Yes	284	3.0%	297
	Through	-	0	0.0%	0
	Right	No	164	7.0%	N/A

Advancing Volume:	379
Opposing Volume:	297
Left Turn Volume:	267
% Left Turns in Advancing Volume:	70.45%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	215	16.0%	N/A
	Through	-	96	11.0%	N/A
	Right	-	97	14.0%	N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: 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:	267
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	45

Average # of Vehicles/Cycle: 6.0

PennDOT Publication 46, Exhibit 11-6

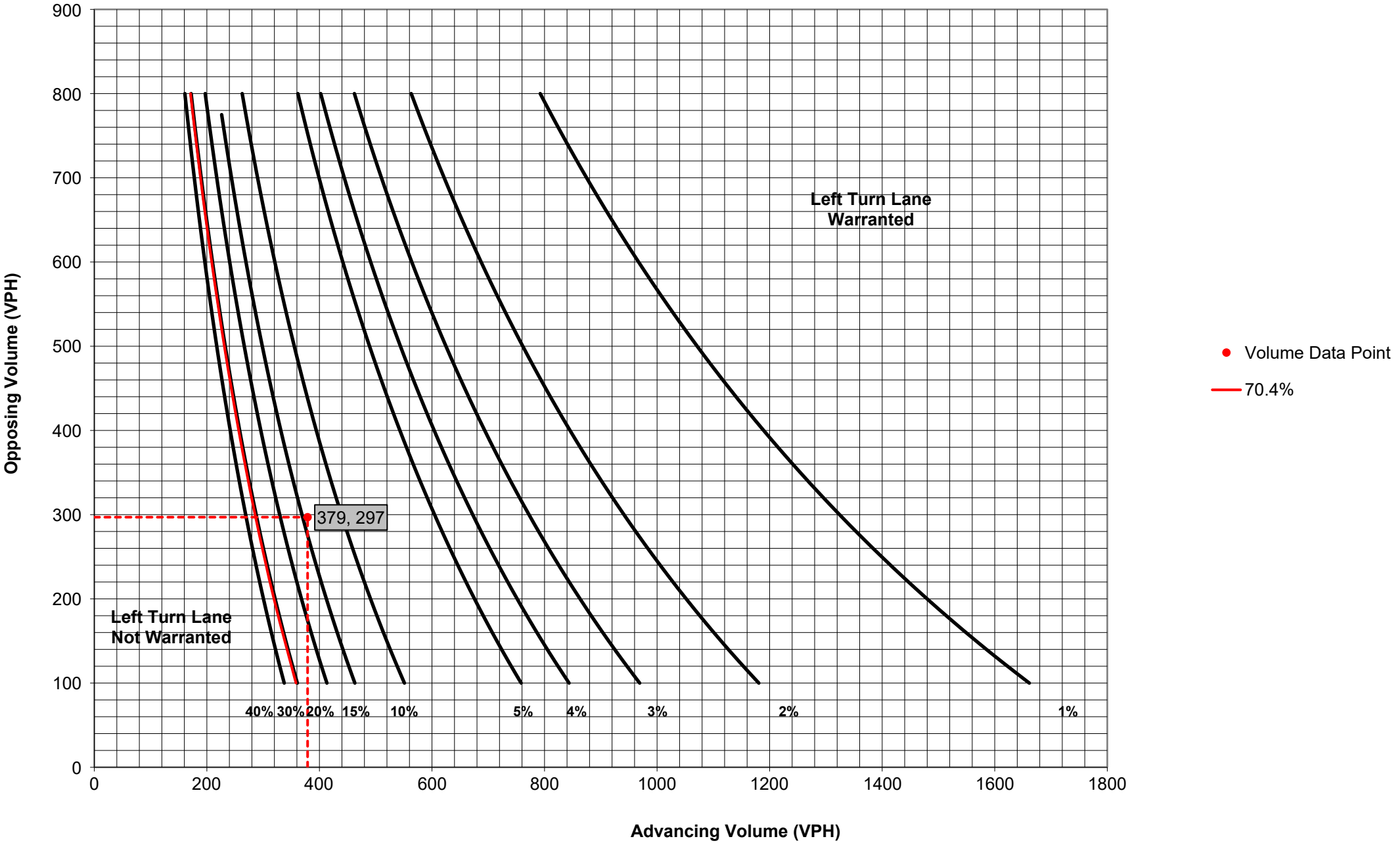
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	250	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	250	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:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Blackman Street/I-81 SB Off Ramp (Westbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour Generator	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	540	3.0%	565
	Through	-	212	4.0%	225
	Right	No	119	9.0%	N/A
Opposing	Left	Yes	226	2.0%	233
	Through	-	0	0.0%	0
	Right	No	327	4.0%	N/A

Advancing Volume:	790
Opposing Volume:	233
Left Turn Volume:	565
% Left Turns in Advancing Volume:	71.52%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	540	3.0%	N/A
	Through	-	212	4.0%	N/A
	Right	-	119	9.0%	N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: 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:	565
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	38

Average # of Vehicles/Cycle: 15.0

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

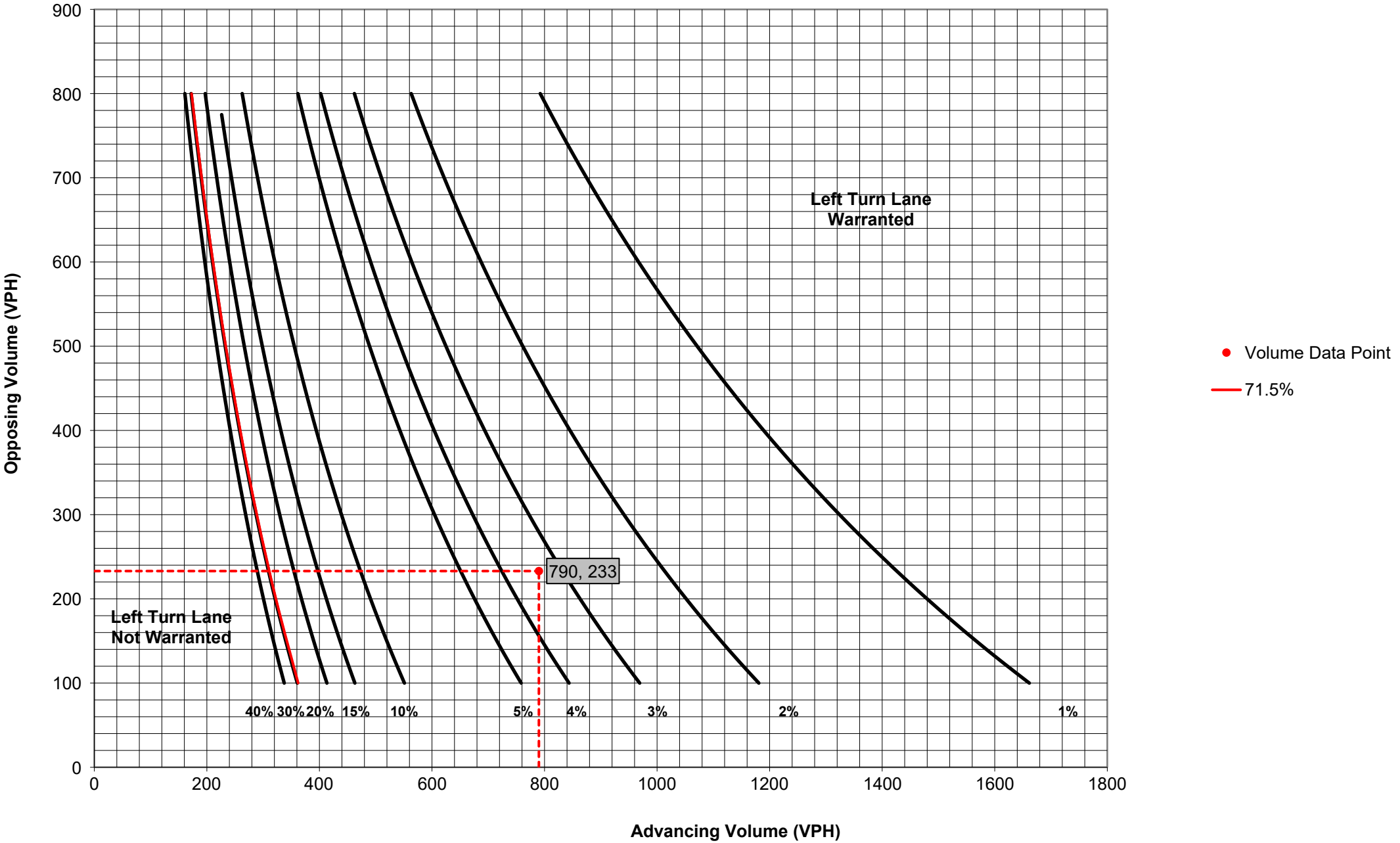
Left Turn Lane Storage Length, Condition A:	525	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	525	Feet

Additional Findings:

Consider Dual Left Turn Lanes and Operational Analyses

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Wilkes-Barre Township	**Analysis Date:**	5/12/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Blackman Street/I-81 SB Off Ramp (Westbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	AM Adjacent Street	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	288	8.0%	N/A
	Through	-	113	5.0%	N/A
	Right	No	85	16.0%	N/A
Opposing	Left	Yes	235	1.0%	N/A
	Through	-	0	0.0%	N/A
	Right	No	185	7.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
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	288	8.0%	N/A
	Through	-	113	5.0%	122
	Right	-	85	16.0%	106

Advancing Volume:	228
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:	Signalized
Design Hour Volume of Turning Lane:	106
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	45

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

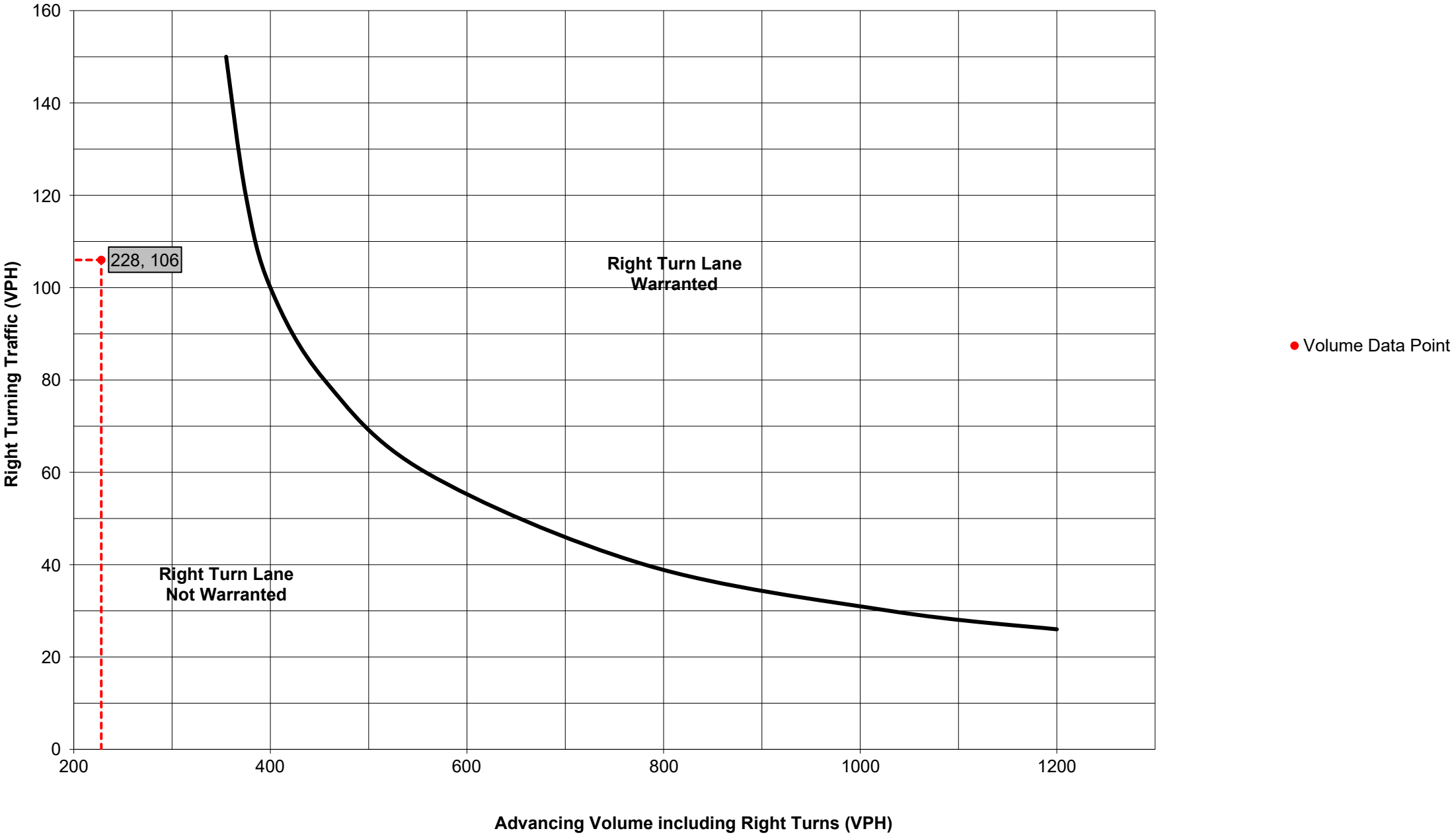
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Blackman Street/I-81 SB Off Ramp (Westbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour Generator	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	215	16.0%	N/A
	Through	-	96	11.0%	N/A
	Right	No	97	14.0%	N/A
Opposing	Left	Yes	284	3.0%	N/A
	Through	-	0	0.0%	N/A
	Right	No	164	7.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
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	215	16.0%	N/A
	Through	-	96	11.0%	112
	Right	-	97	14.0%	118

Advancing Volume:	230
Right Turn Volume:	118

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/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:	118
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	45

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

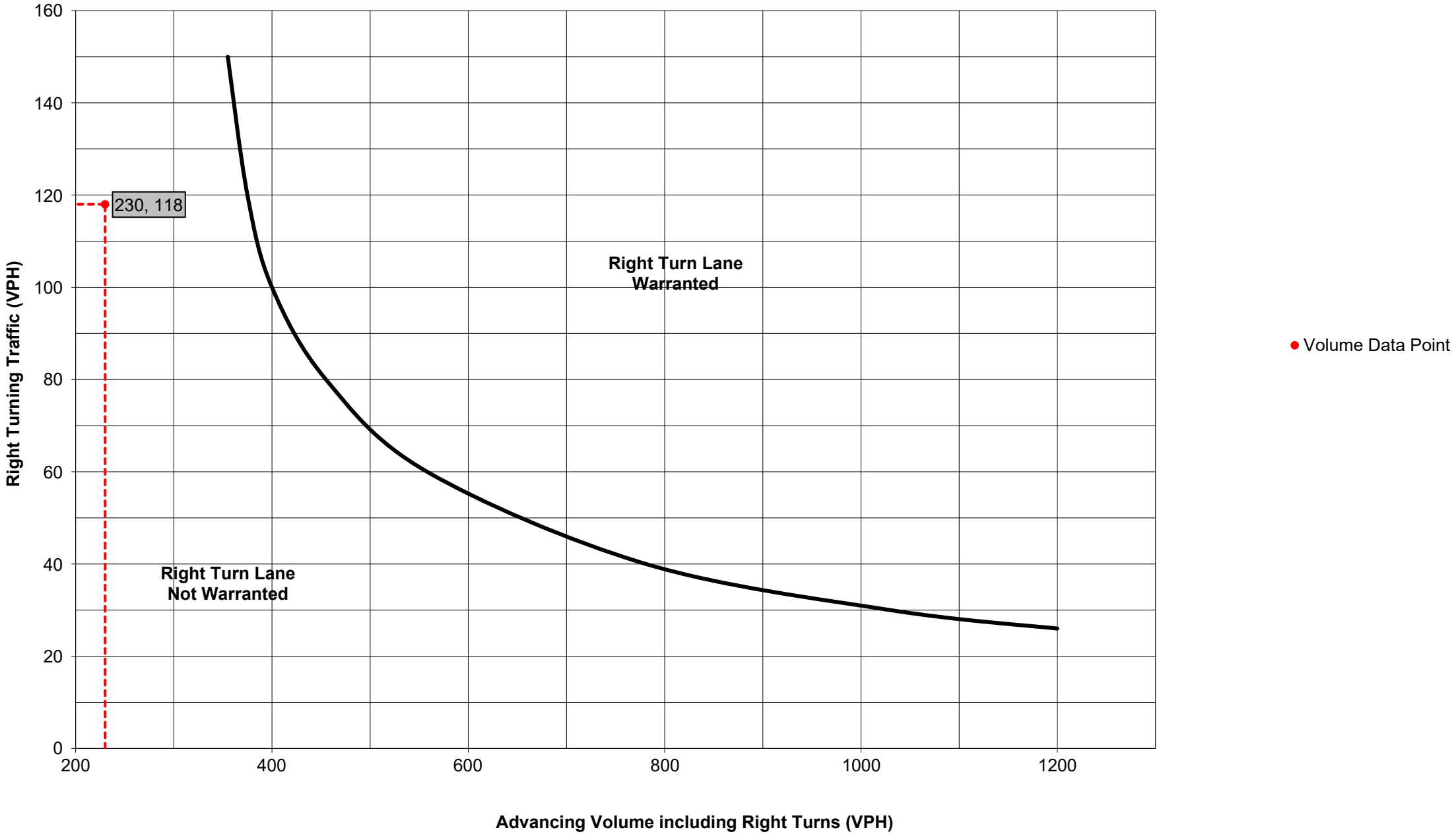
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Blackman Street/I-81 SB Off Ramp (Westbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour Generator	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	540	3.0%	N/A
	Through	-	212	4.0%	N/A
	Right	No	119	9.0%	N/A
Opposing	Left	Yes	226	2.0%	N/A
	Through	-	0	0.0%	N/A
	Right	No	327	4.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
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	540	3.0%	N/A
	Through	-	212	4.0%	225
	Right	-	119	9.0%	136

Advancing Volume:	361
Right Turn Volume:	136

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/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:	136
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	38

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

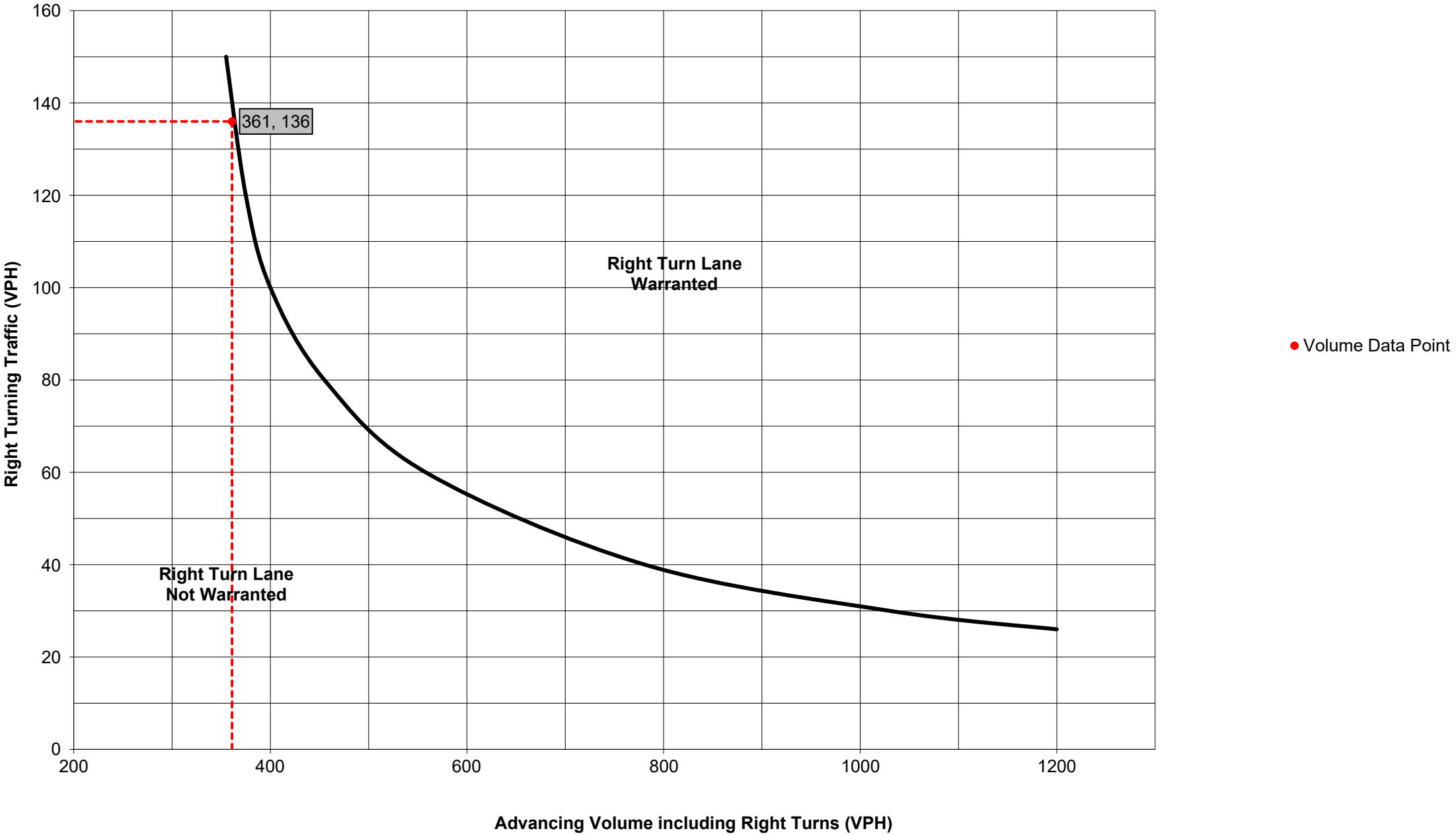
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Blackman Street/I-81 SB Off Ramp (Northbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	2
Design Hour:	AM Adjacent Street	**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	408	4.0%	433
	Through	-	642	3.0%	671
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	391	5.0%	421
	Right	No	92	7.0%	N/A

Advancing Volume:	1104
Opposing Volume:	421
Left Turn Volume:	433
% Left Turns in Advancing Volume:	39.22%

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:	433
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	45

Average # of Vehicles/Cycle: 10.0

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

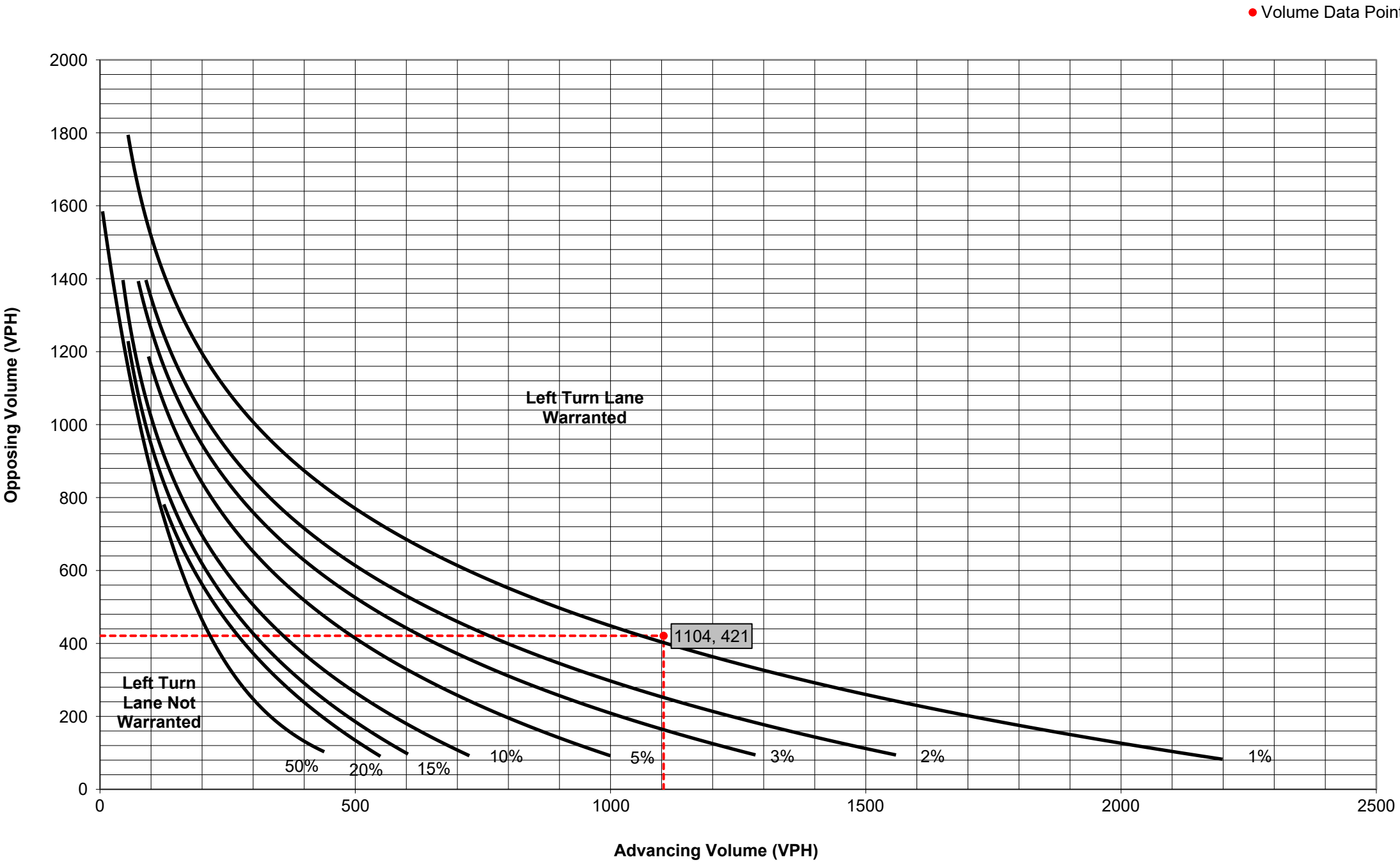
Left Turn Lane Storage Length, Condition A:	375	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	375	Feet

Additional Findings:

Consider Dual Left Turn Lanes and Operational Analyses

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:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Blackman Street/I-81 SB Off Ramp (Northbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	2
Design Hour:	AM Peak Hour Generator	**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	312	3.0%	327
	Through	-	467	2.0%	482
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	454	7.0%	502
	Right	No	118	3.0%	N/A

Advancing Volume:	809
Opposing Volume:	502
Left Turn Volume:	327
% Left Turns in Advancing Volume:	40.42%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: **Figure 8**

Warrant Met?: **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:	327
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	45

Average # of Vehicles/Cycle: 7.0

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

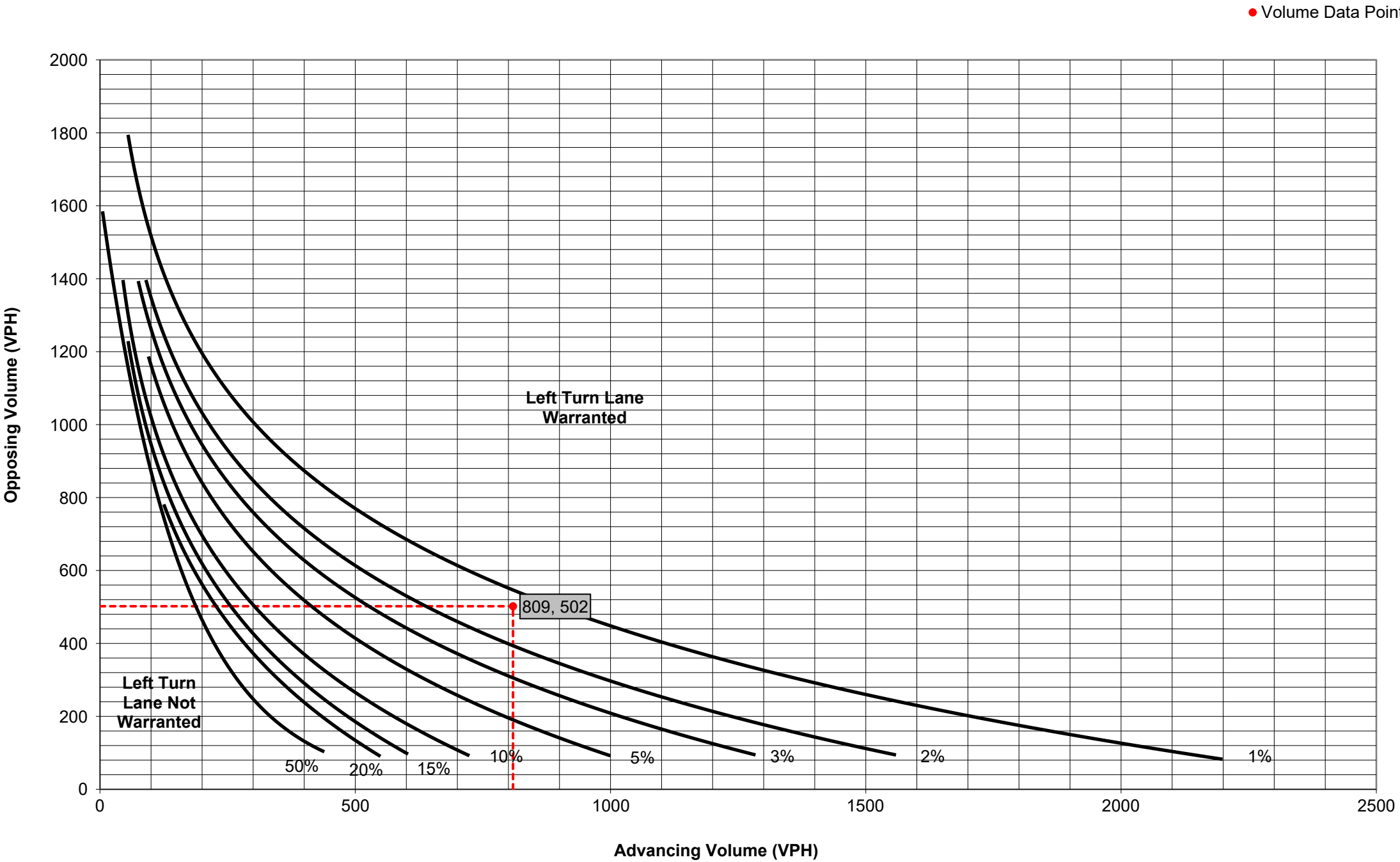
Left Turn Lane Storage Length, Condition A:	**275**	**Feet**
Condition B:	**N/A**	**Feet**
Condition C:	**N/A**	**Feet**
Required Left Turn Lane Storage Length:	**275**	**Feet**

Additional Findings:

Consider Dual Left Turn Lanes and Operational Analyses

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:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Blackman Street/I-81 SB Off Ramp (Northbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	2
Design Hour:	PM Peak Hour Generator	**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	234	6.0%	256
	Through	-	588	2.0%	606
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	973	1.0%	988
	Right	No	194	3.0%	N/A

Advancing Volume:	862
Opposing Volume:	988
Left Turn Volume:	256
% Left Turns in Advancing Volume:	29.70%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: **Figure 8**

Warrant Met?: **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:	256
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	38

Average # of Vehicles/Cycle: 7.0

PennDOT Publication 46, Exhibit 11-6

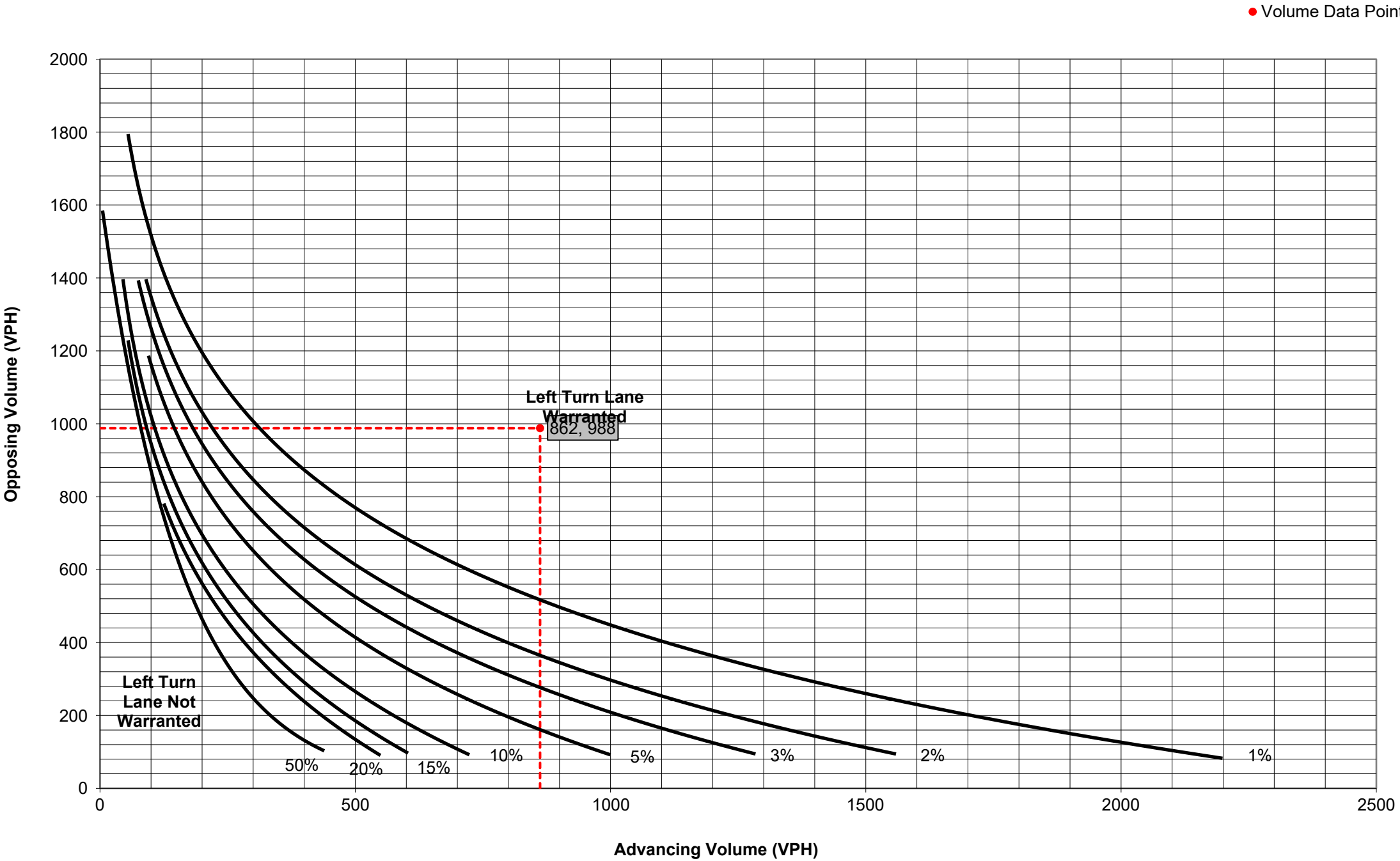
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	**275**	**Feet**
Condition B:	**N/A**	**Feet**
Condition C:	**N/A**	**Feet**
Required Left Turn Lane Storage Length:	**275**	**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:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Blackman Street/I-81 SB Off Ramp (Southbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	2
Design Hour:	AM Adjacent Street	**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	No			N/A
	Through	-			N/A
	Right	No			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	No			N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	0	0.0%	N/A
	Through	-	391	5.0%	421
	Right	-	92	7.0%	102

Advancing Volume:	523
Right Turn Volume:	102

TURN LANE WARRANT 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:	102
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	45

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

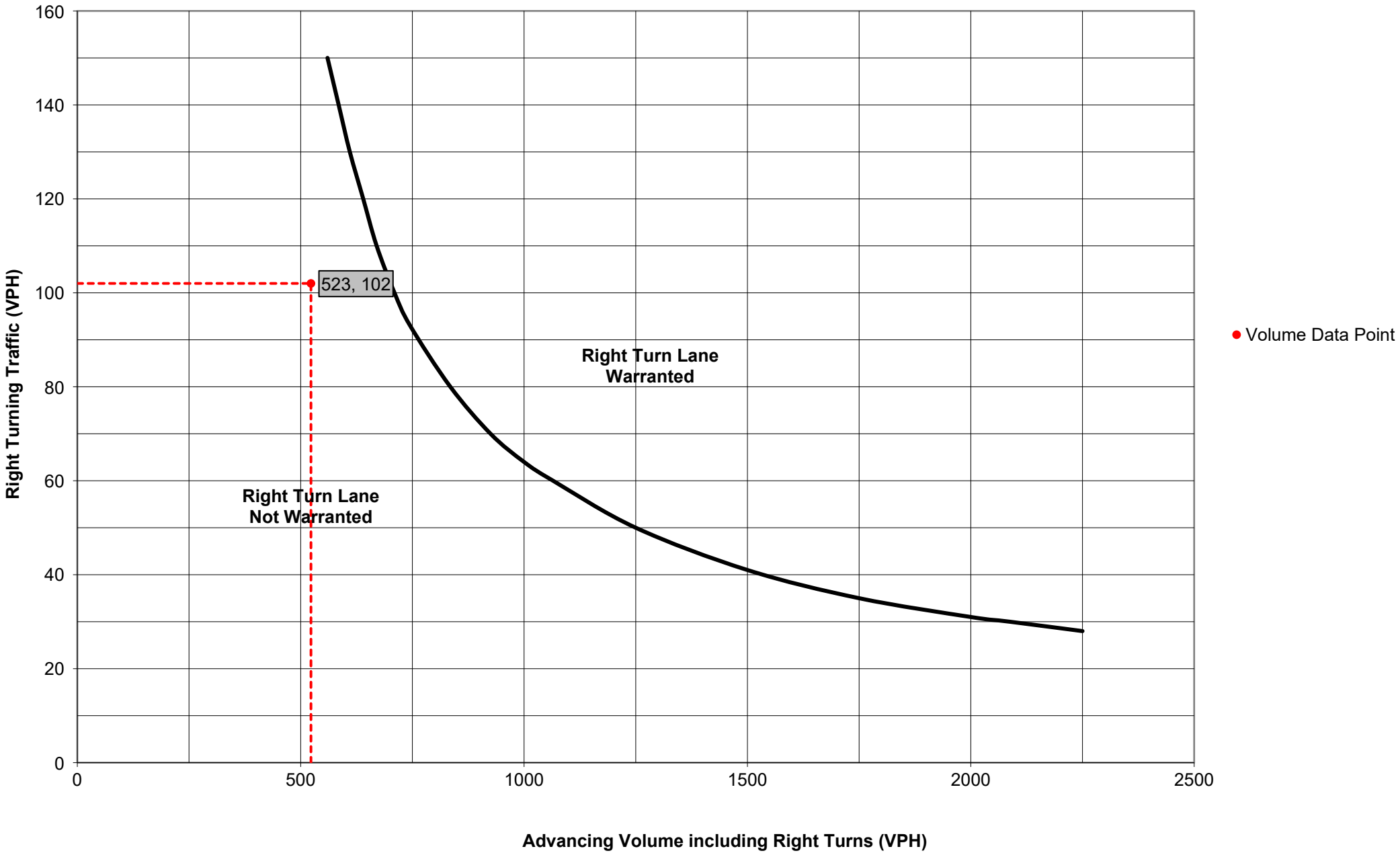
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/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:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Blackman Street/I-81 SB Off Ramp (Southbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	2
Design Hour:	AM Peak Hour Generator	**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	No			N/A
	Through	-			N/A
	Right	No			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	No			N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	0	0.0%	N/A
	Through	-	454	7.0%	502
	Right	-	118	3.0%	124

Advancing Volume:	626
Right Turn Volume:	124

TURN LANE WARRANT 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:	124
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	45

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

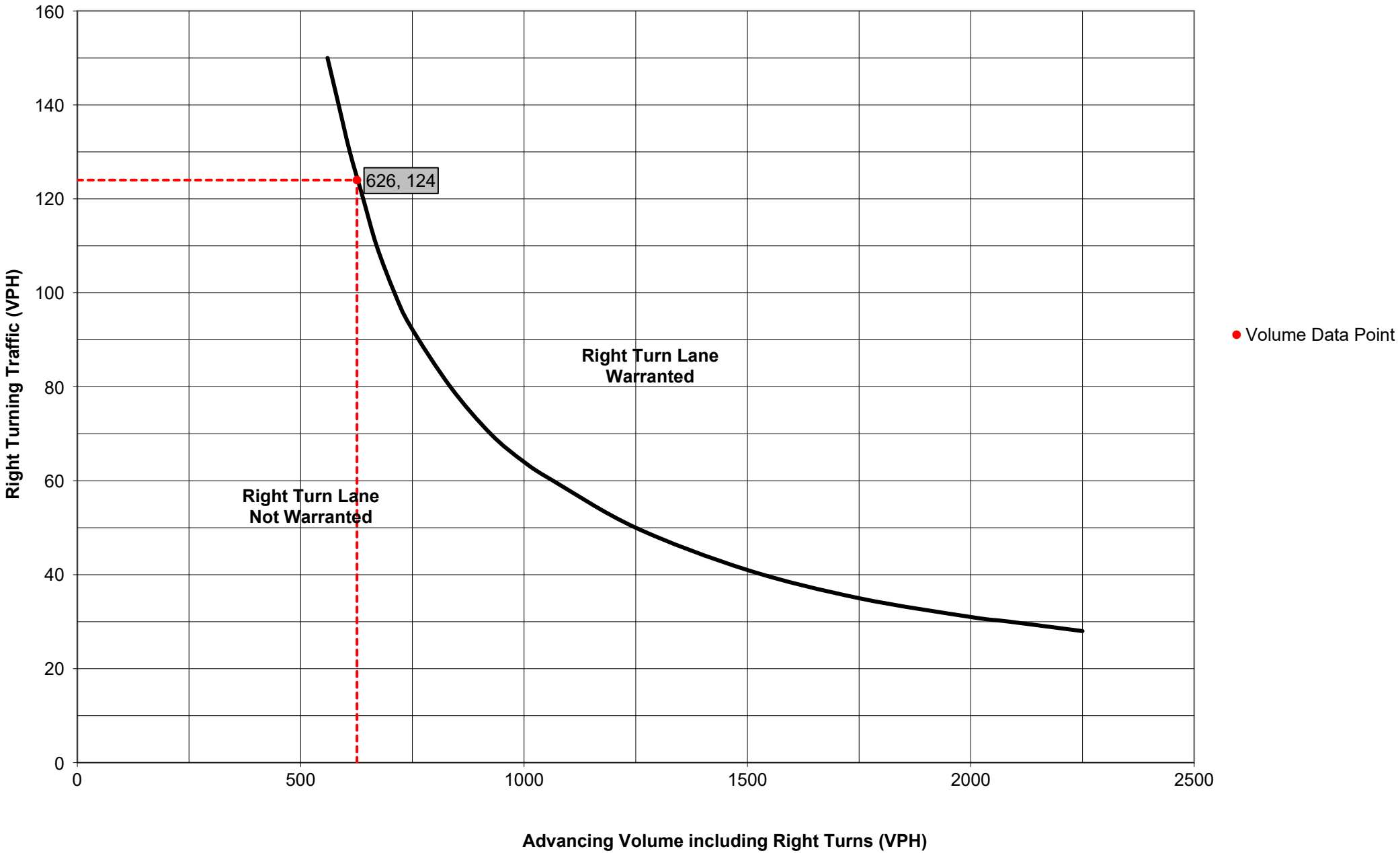
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/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:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Blackman Street/I-81 SB Off Ramp (Southbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	2
Design Hour:	PM Peak Hour Generator	**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	No			N/A
	Through	-			N/A
	Right	No			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	No			N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	0	0.0%	N/A
	Through	-	973	1.0%	988
	Right	-	194	3.0%	203

Advancing Volume:	1191
Right Turn Volume:	203

TURN LANE WARRANT 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?: Yes

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	203
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	38

Average # of Vehicles/Cycle: 5.0

PennDOT Publication 46, Exhibit 11-6

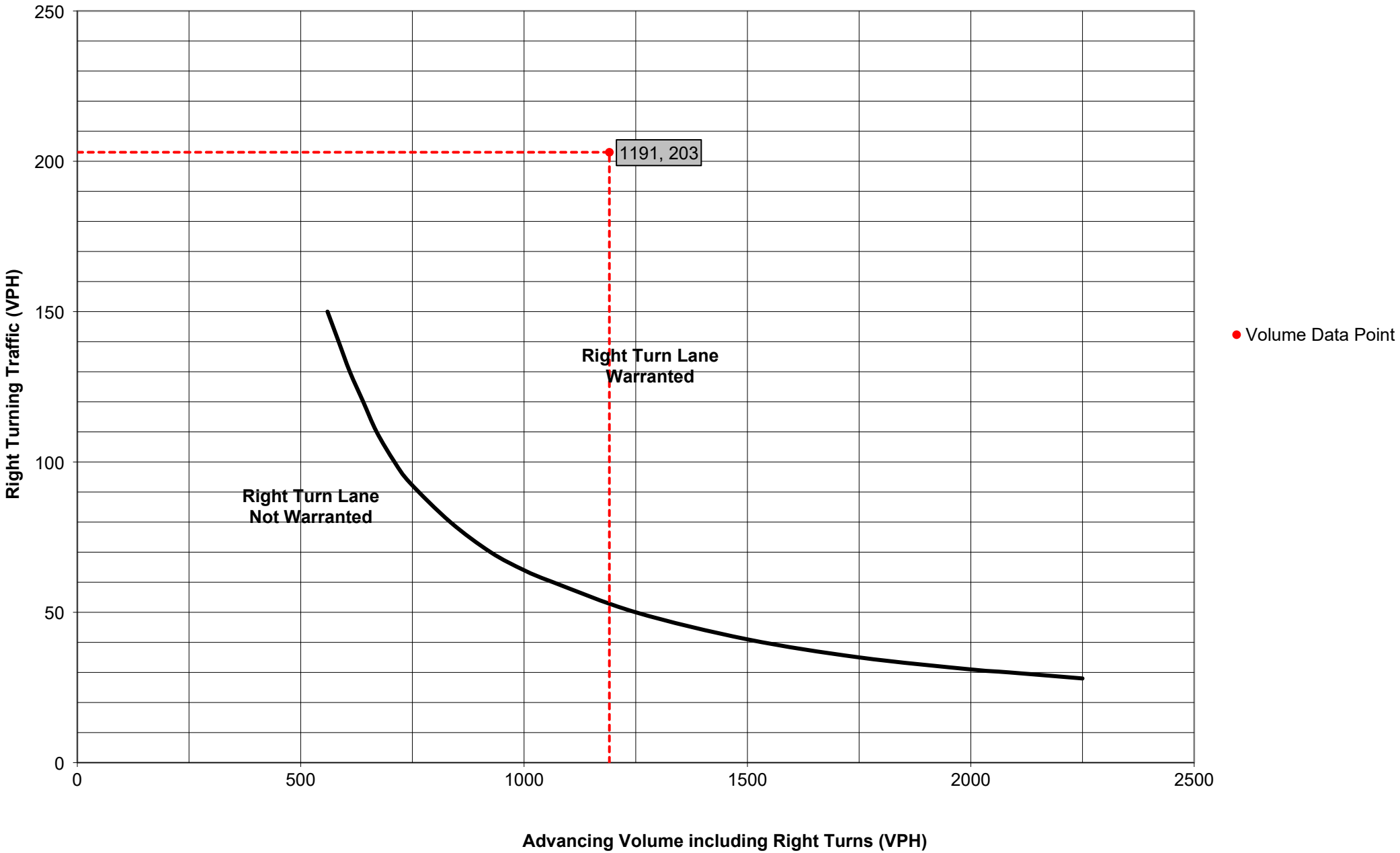
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	200	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	200	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 11. Warrant for right turn lanes on four-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Wilkes-Barre Township Boulevard & Johnson Street/Blackman Plaza Driveway

Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Johnson Street/Blackman Plaza Driveway (Eastbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	AM Adjacent Street	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	126	1.0%	127
	Through	-	5	0.0%	5
	Right	No	120	4.0%	N/A
Opposing	Left	Yes	32	34.0%	38
	Through	-	17	0.0%	17
	Right	Yes	12	33.0%	14

Advancing Volume:	132
Opposing Volume:	69
Left Turn Volume:	127
% Left Turns in Advancing Volume:	96.21%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	126	1.0%	N/A
	Through	-	5	0.0%	N/A
	Right	-	120	4.0%	N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	127
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	45

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

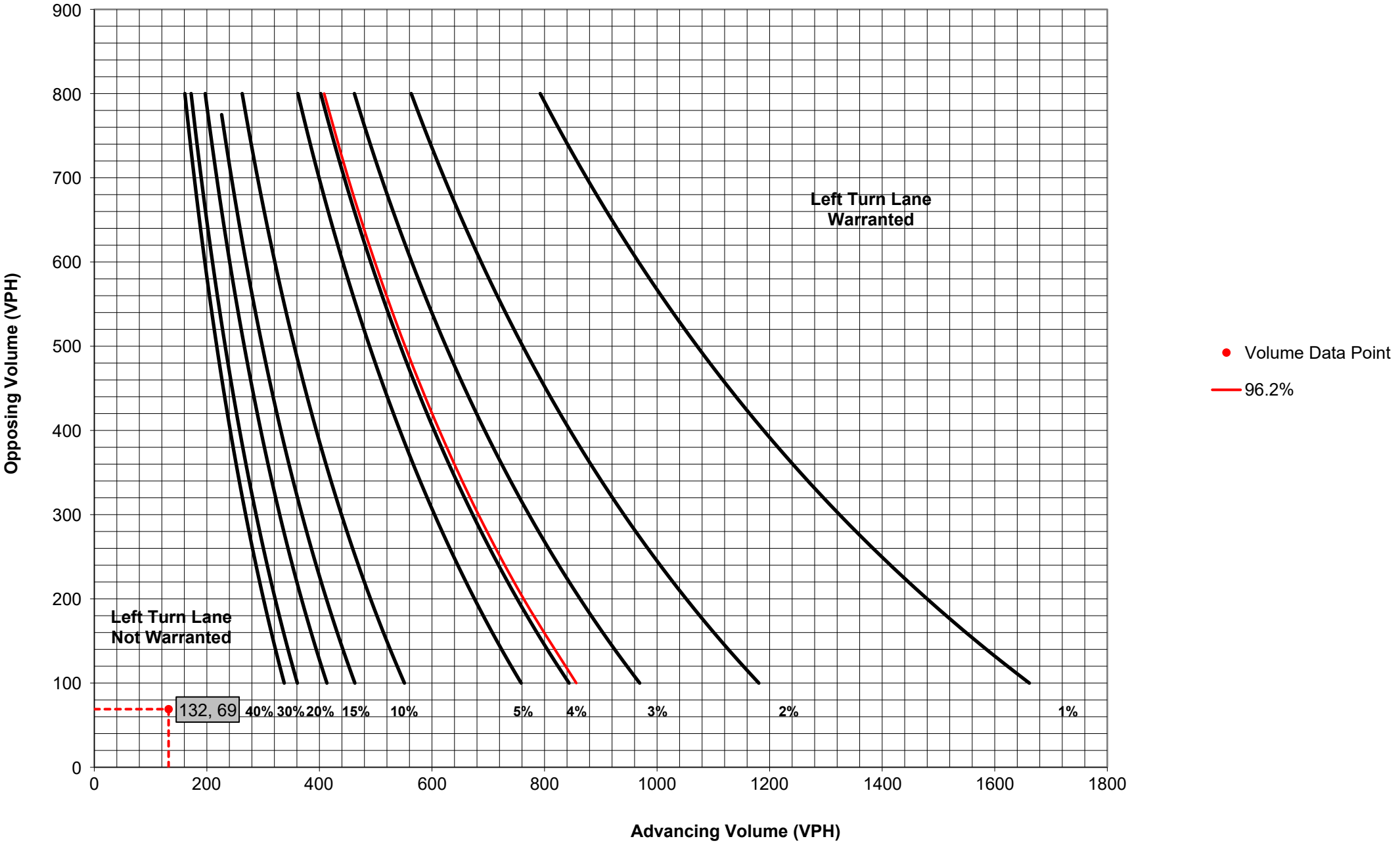
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Johnson Street/Blackman Plaza Driveway (Eastbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour Generator	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	117	0.0%	117
	Through	-	8	0.0%	8
	Right	No	130	2.0%	N/A
Opposing	Left	Yes	39	28.0%	45
	Through	-	8	0.0%	8
	Right	Yes	31	3.0%	32

Advancing Volume:	125
Opposing Volume:	85
Left Turn Volume:	117
% Left Turns in Advancing Volume:	93.60%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	117	0.0%	N/A
	Through	-	8	0.0%	N/A
	Right	-	130	2.0%	N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: **Figure 1**

Warrant Met?: **No**

Right Turn Lane Warrant Findings

Applicable Warrant Figure: **N/A**

Warrant Met?: **N/A**

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	117
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	45

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

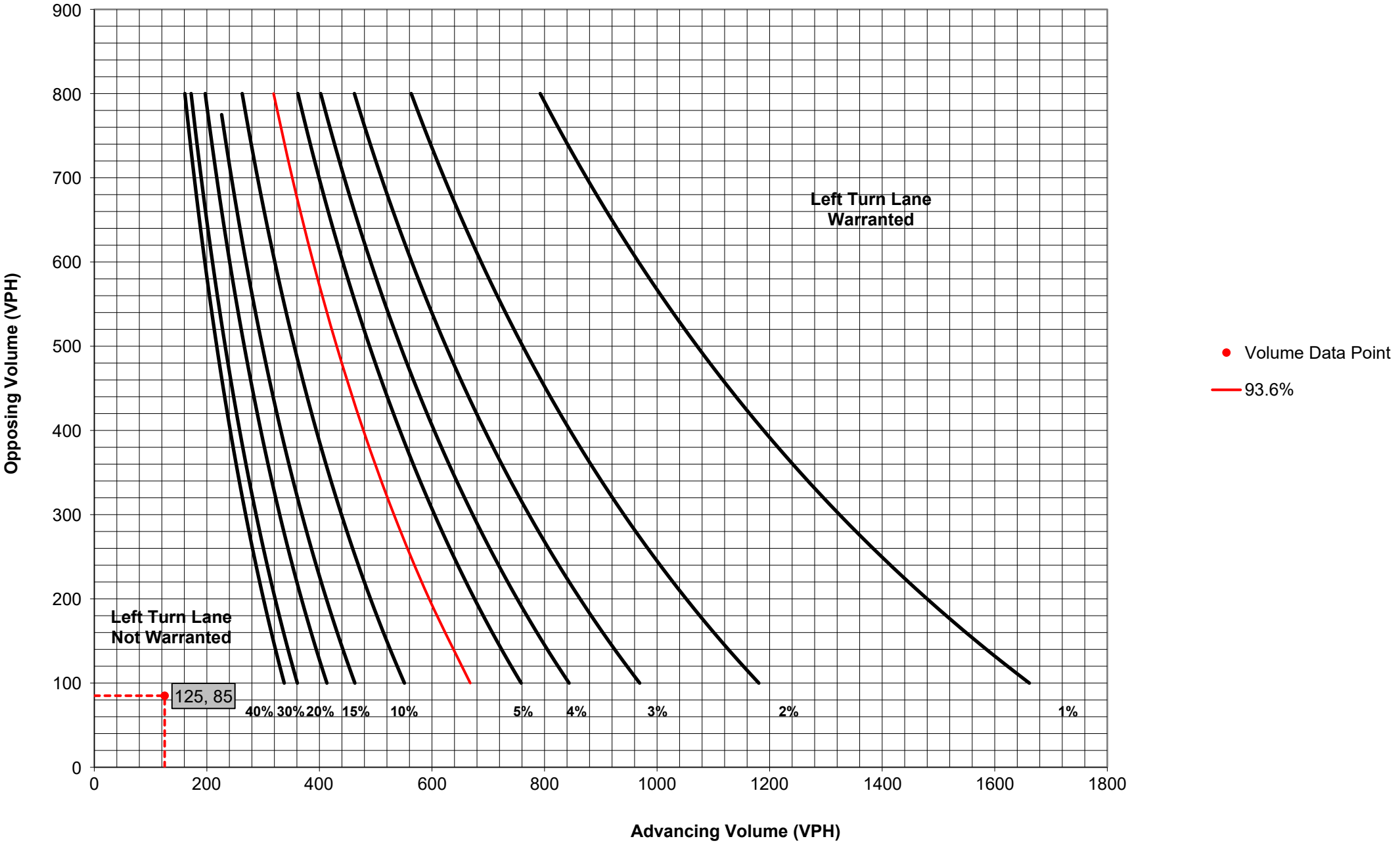
Left Turn Lane Storage Length, Condition A:	**N/A**	**Feet**
Condition B:	**N/A**	**Feet**
Condition C:	**N/A**	**Feet**
Required Left Turn Lane Storage Length:	**N/A**	**Feet**

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:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Johnson Street/Blackman Plaza Driveway (Eastbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour Generator	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	79	0.0%	79
	Through	-	12	0.0%	12
	Right	No	306	1.0%	N/A
Opposing	Left	Yes	86	12.0%	92
	Through	-	12	0.0%	12
	Right	Yes	75	3.0%	77

Advancing Volume:	91
Opposing Volume:	181
Left Turn Volume:	79
% Left Turns in Advancing Volume:	86.81%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	79	0.0%	N/A
	Through	-	12	0.0%	N/A
	Right	-	306	1.0%	N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: **Figure 1**

Warrant Met?: **No**

Right Turn Lane Warrant Findings

Applicable Warrant Figure: **N/A**

Warrant Met?: **N/A**

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	79
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	38

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

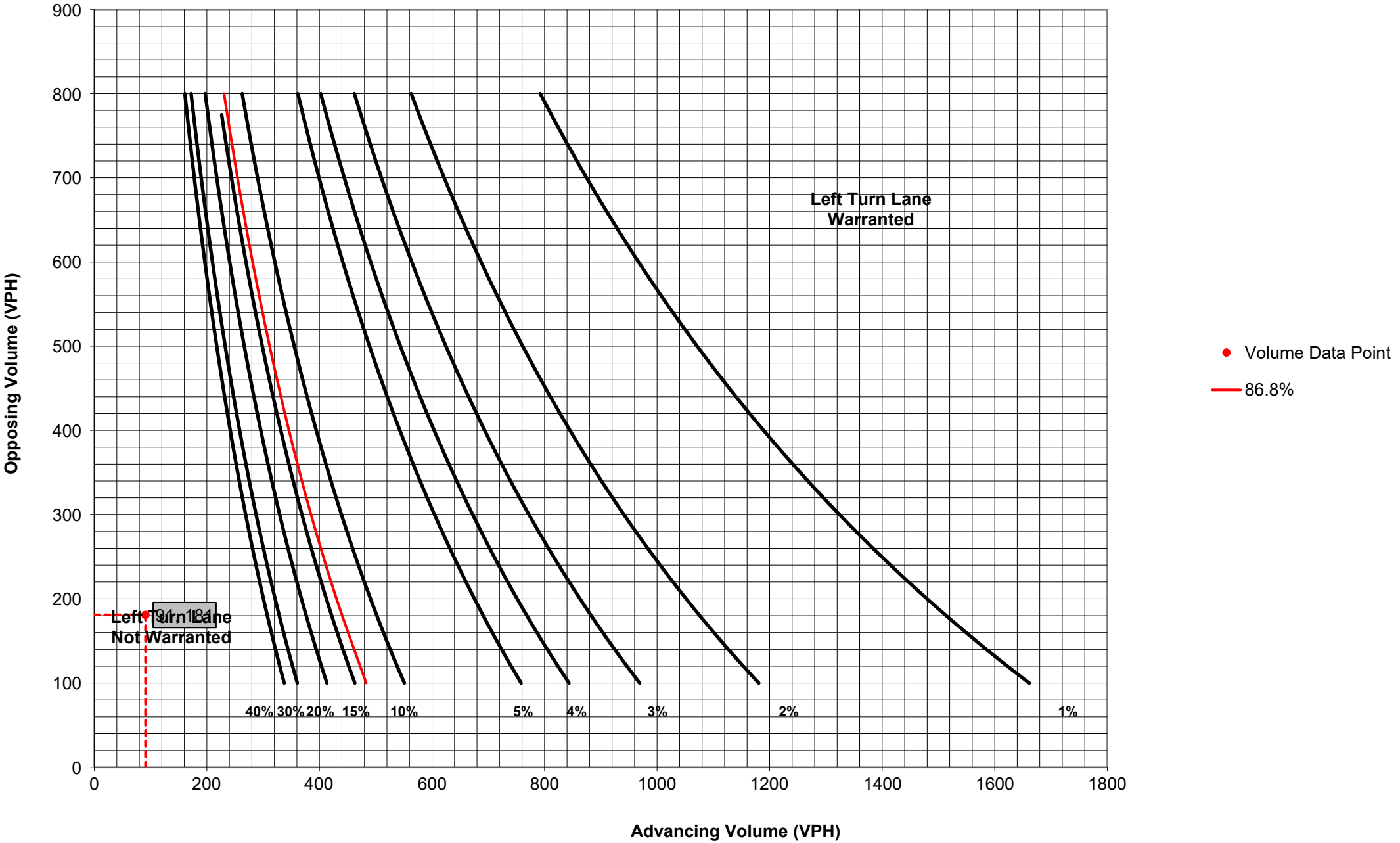
Left Turn Lane Storage Length, Condition A:	**N/A**	**Feet**
Condition B:	**N/A**	**Feet**
Condition C:	**N/A**	**Feet**
Required Left Turn Lane Storage Length:	**N/A**	**Feet**

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:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Johnson Street/Blackman Plaza Driveway (Eastbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	AM Adjacent Street	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	126	1.0%	N/A
	Through	-	5	0.0%	N/A
	Right	No	120	4.0%	N/A
Opposing	Left	Yes	32	34.0%	N/A
	Through	-	17	0.0%	N/A
	Right	Yes	12	33.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
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	126	1.0%	N/A
	Through	-	5	0.0%	5
	Right	-	120	4.0%	123

Advancing Volume:	128
Right Turn Volume:	123

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/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:	123
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	45

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

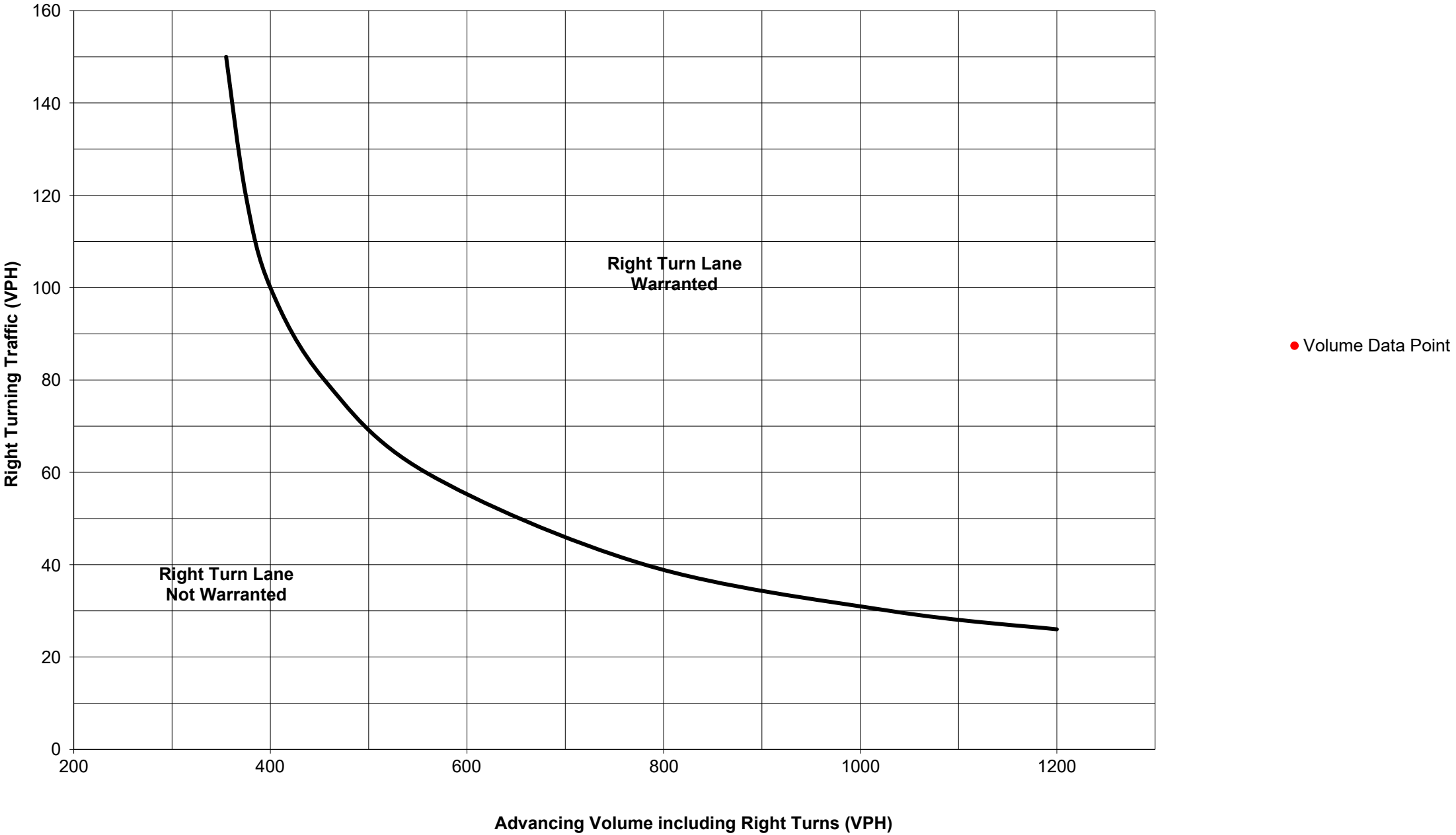
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Johnson Street/Blackman Plaza Driveway (Eastbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour Generator	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	117	0.0%	N/A
	Through	-	8	0.0%	N/A
	Right	No	130	2.0%	N/A
Opposing	Left	Yes	39	28.0%	N/A
	Through	-	8	0.0%	N/A
	Right	Yes	31	3.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
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	117	0.0%	N/A
	Through	-	8	0.0%	8
	Right	-	130	2.0%	132

Advancing Volume:	140
Right Turn Volume:	132

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/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:	132
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	45

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

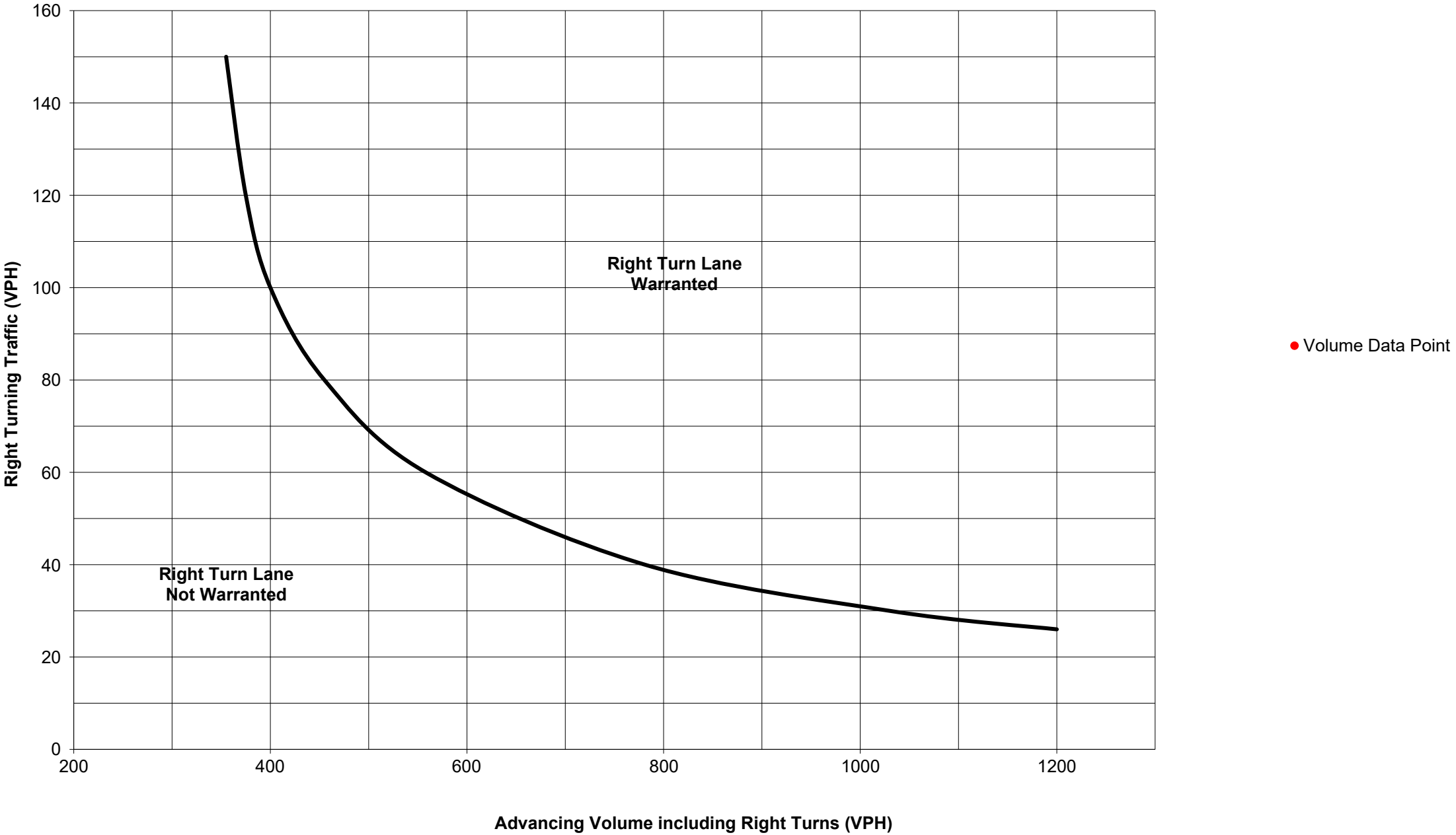
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Johnson Street/Blackman Plaza Driveway (Eastbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour Generator	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	79	0.0%	N/A
	Through	-	12	0.0%	N/A
	Right	Yes	306	1.0%	N/A
Opposing	Left	Yes	86	12.0%	N/A
	Through	-	12	0.0%	N/A
	Right	Yes	75	3.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
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	79	0.0%	N/A
	Through	-	12	0.0%	12
	Right	-	306	1.0%	308

Advancing Volume:	320
Right Turn Volume:	308

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/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:	308
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	38

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

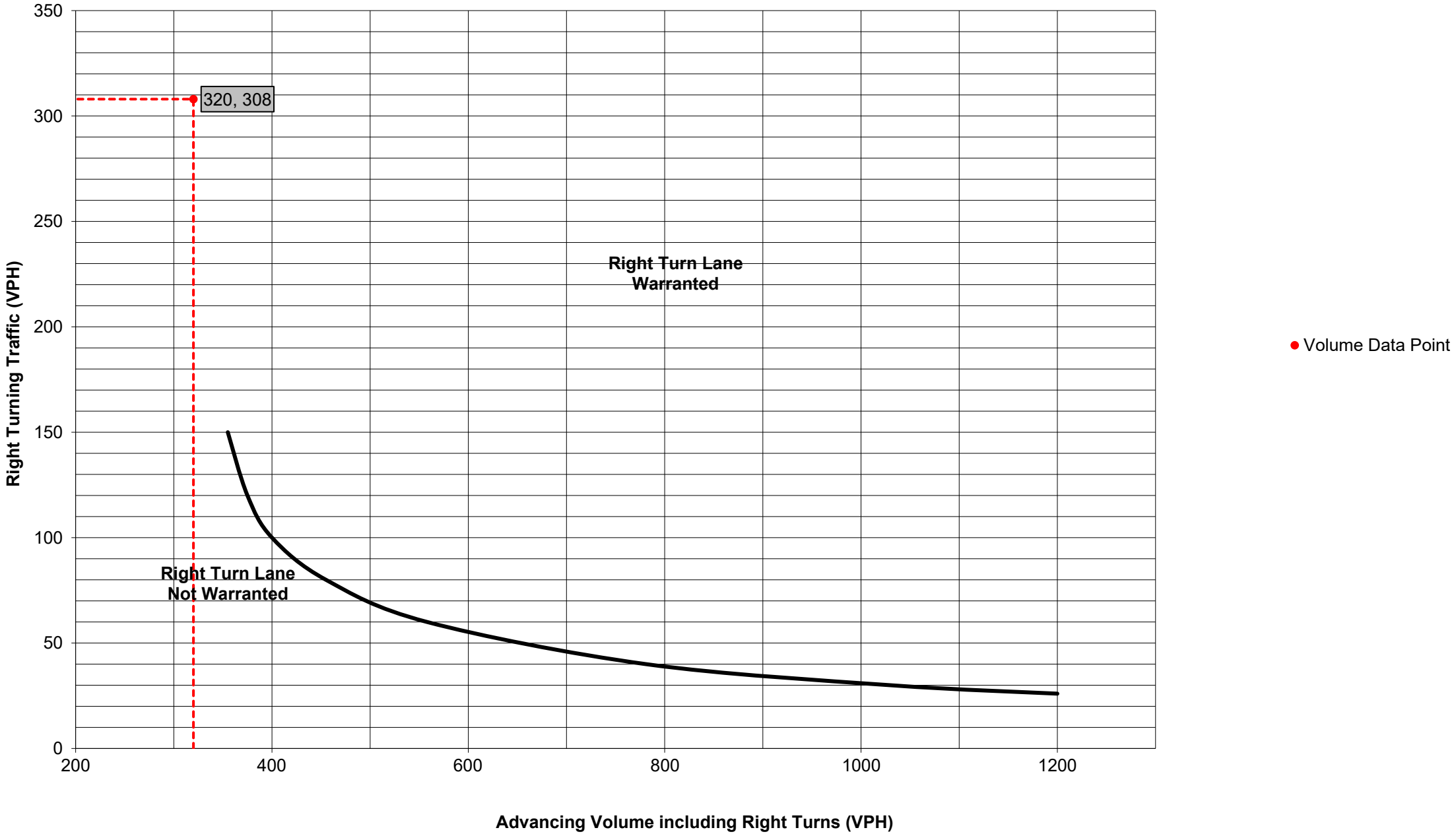
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Johnson Street/Blackman Plaza Driveway (Westbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	AM Adjacent Street	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	32	34.0%	38
	Through	-	17	0.0%	17
	Right	Yes	12	33.0%	14
Opposing	Left	Yes	126	1.0%	127
	Through	-	5	0.0%	5
	Right	No	120	4.0%	N/A

Advancing Volume:	69
Opposing Volume:	132
Left Turn Volume:	38
% Left Turns in Advancing Volume:	55.07%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	32	34.0%	N/A
	Through	-	17	0.0%	N/A
	Right	-	12	33.0%	N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	38
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	45

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

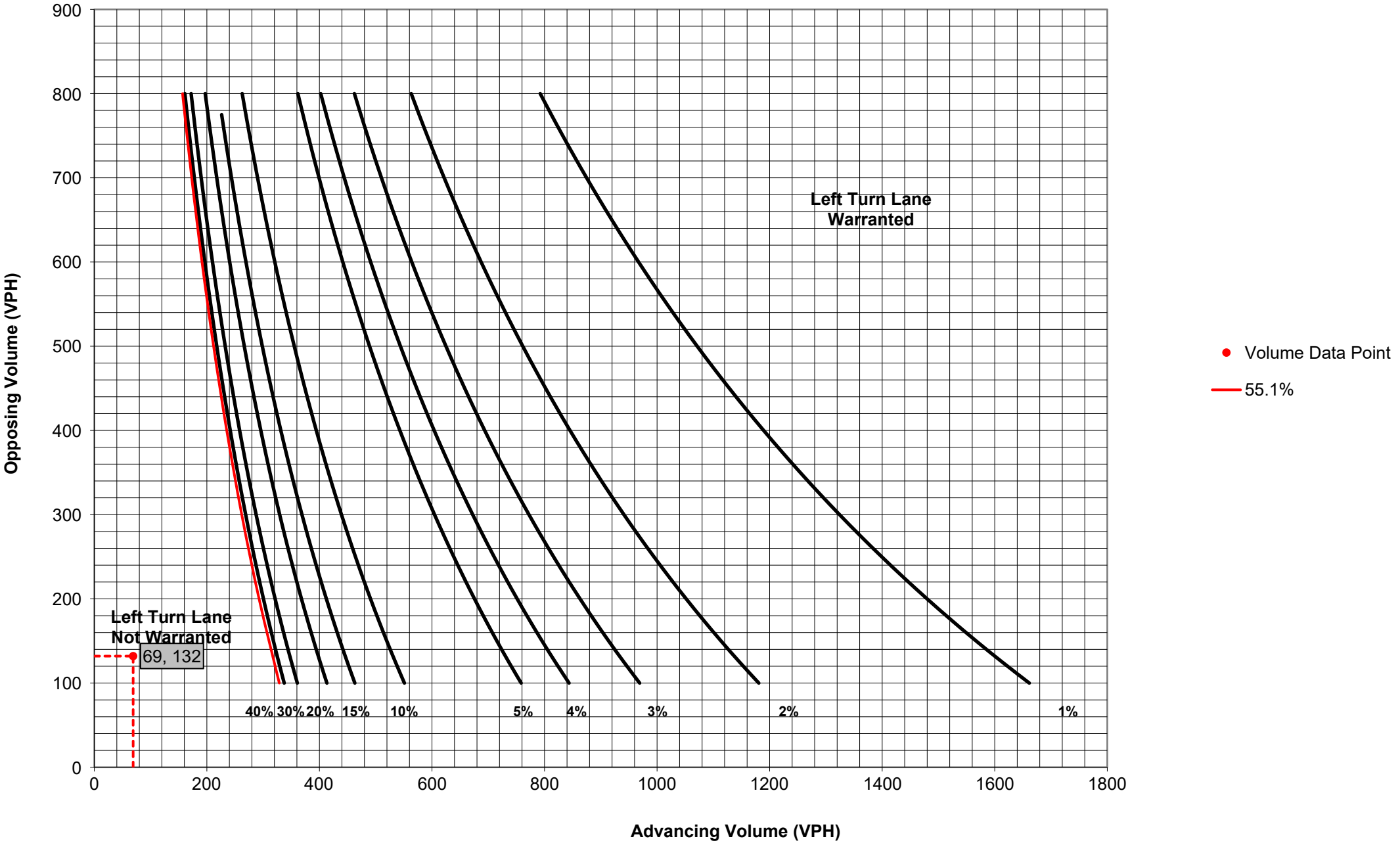
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Johnson Street/Blackman Plaza Driveway (Westbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour Generator	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Level	**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	28.0%	45
	Through	-	8	0.0%	8
	Right	Yes	31	3.0%	32
Opposing	Left	Yes	117	0.0%	117
	Through	-	8	0.0%	8
	Right	No	130	2.0%	N/A

Advancing Volume:	85
Opposing Volume:	125
Left Turn Volume:	45
% Left Turns in Advancing Volume:	52.94%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	39	28.0%	N/A
	Through	-	8	0.0%	N/A
	Right	-	31	3.0%	N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	45
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	45

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

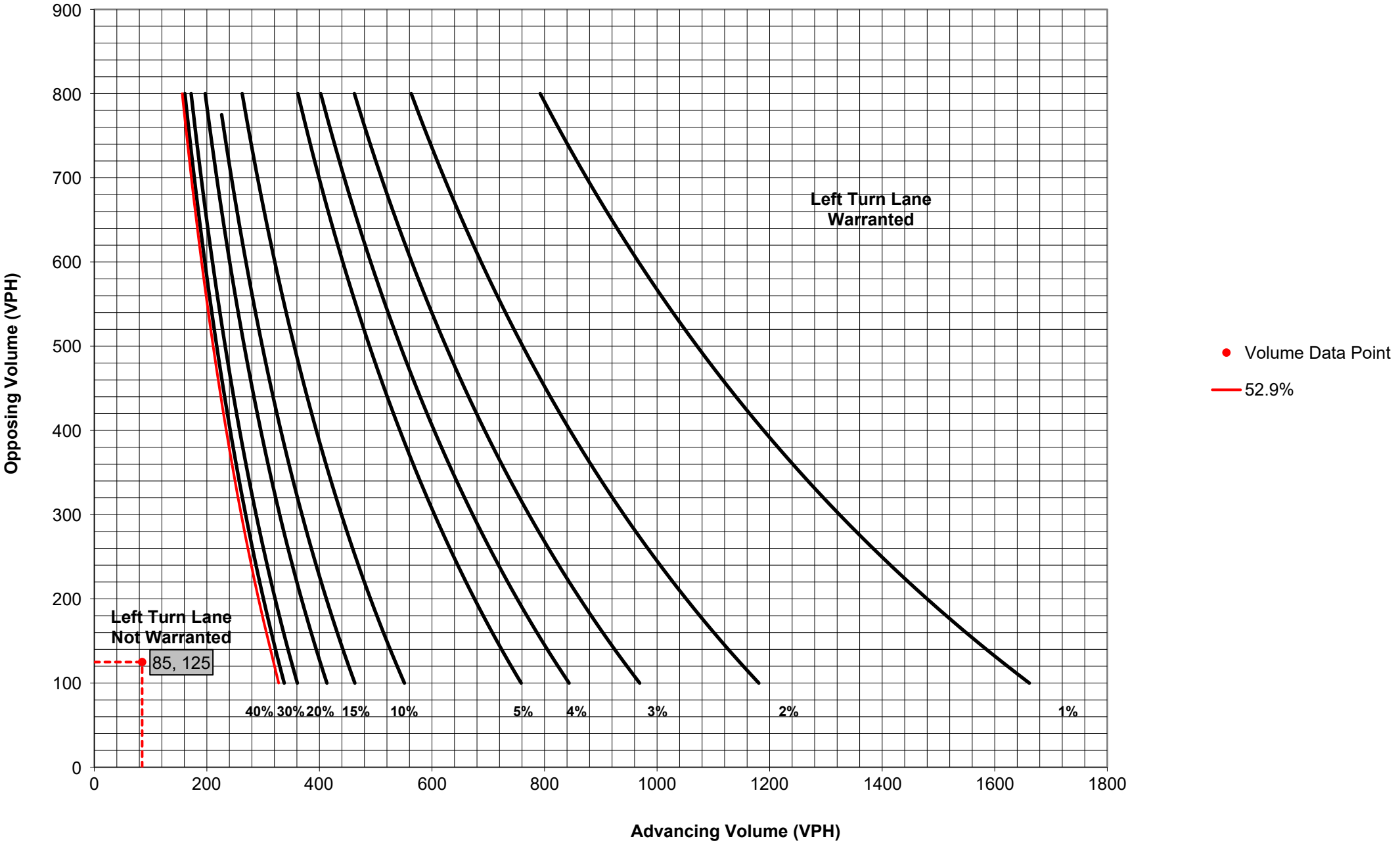
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Johnson Street/Blackman Plaza Driveway (Westbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour Generator	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	86	12.0%	92
	Through	-	12	0.0%	12
	Right	Yes	75	3.0%	77
Opposing	Left	Yes	79	0.0%	79
	Through	-	12	0.0%	12
	Right	No	306	1.0%	N/A

Advancing Volume:	181
Opposing Volume:	91
Left Turn Volume:	92
% Left Turns in Advancing Volume:	50.83%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	86	12.0%	N/A
	Through	-	12	0.0%	N/A
	Right	-	75	3.0%	N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	92
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	38

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

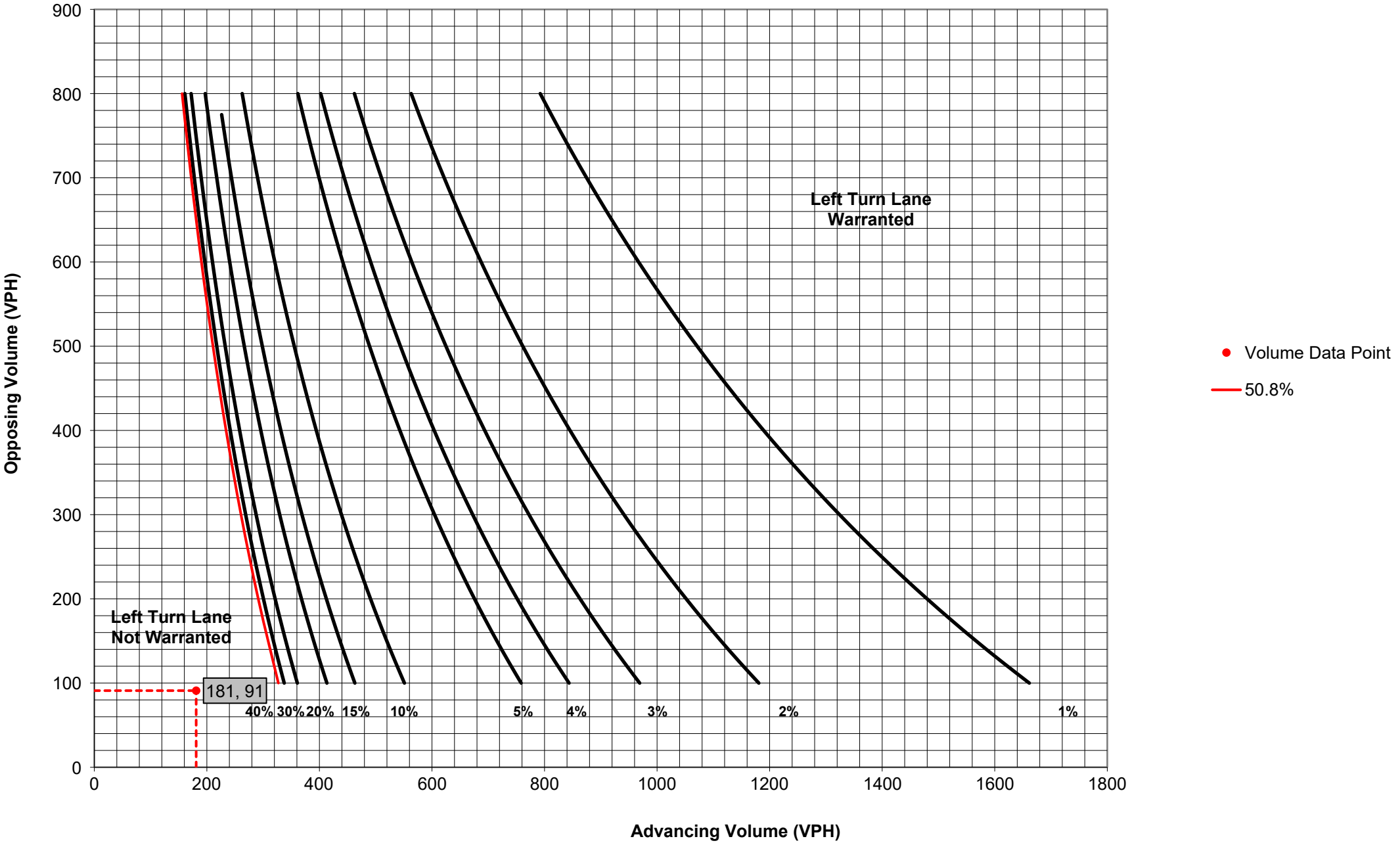
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Johnson Street/Blackman Plaza Driveway (Westbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	AM Adjacent Street	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	32	34.0%	N/A
	Through	-	17	0.0%	N/A
	Right	Yes	12	33.0%	N/A
Opposing	Left	Yes	126	1.0%	N/A
	Through	-	5	0.0%	N/A
	Right	No	120	4.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
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	32	34.0%	38
	Through	-	17	0.0%	17
	Right	-	12	33.0%	14

Advancing Volume:	69
Right Turn Volume:	14

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9

Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	14
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	45

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

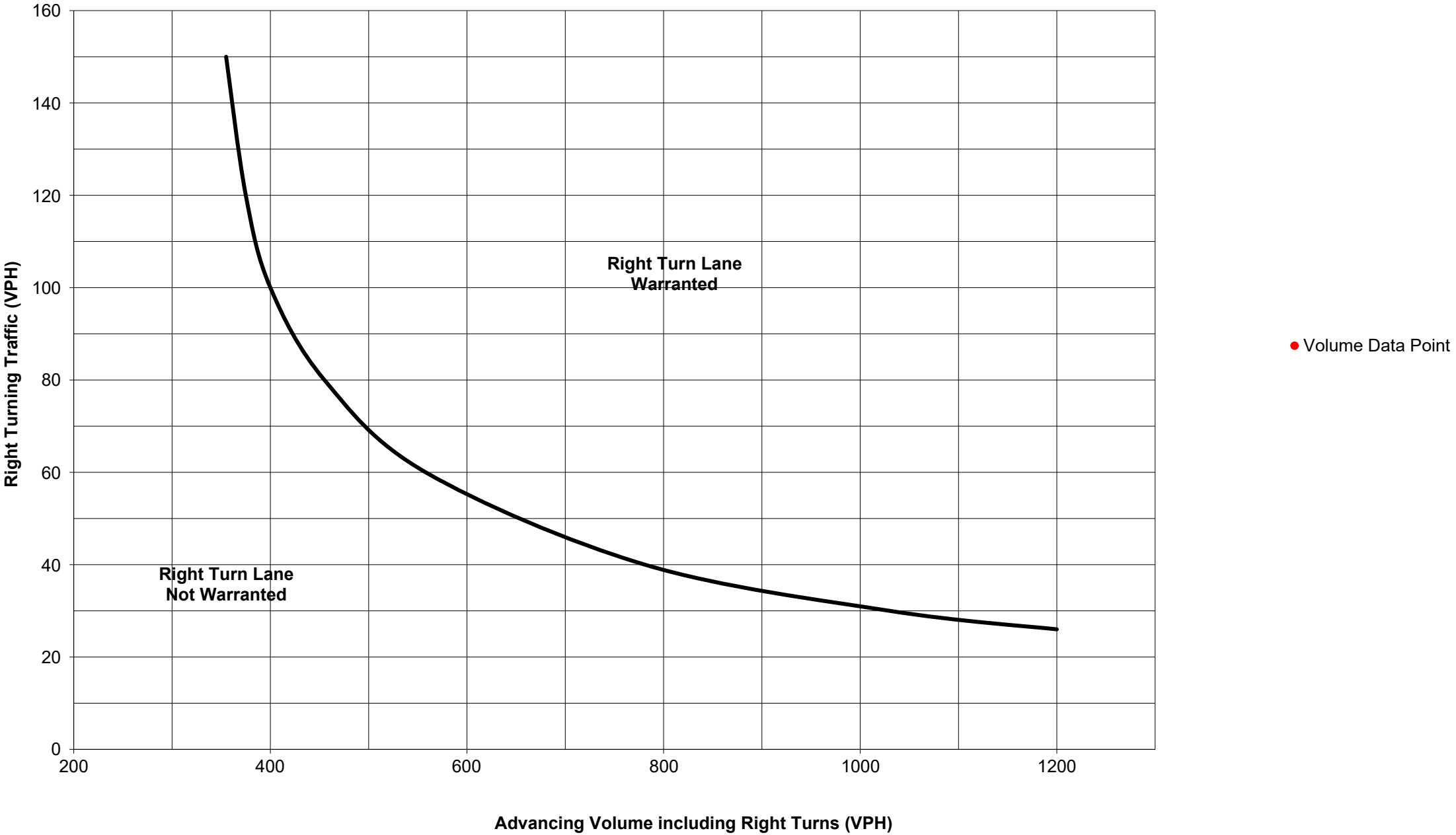
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Johnson Street/Blackman Plaza Driveway (Westbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour Generator	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	39	28.0%	N/A
	Through	-	8	0.0%	N/A
	Right	Yes	31	3.0%	N/A
Opposing	Left	Yes	117	0.0%	N/A
	Through	-	8	0.0%	N/A
	Right	No	130	2.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
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	28.0%	45
	Through	-	8	0.0%	8
	Right	-	31	3.0%	32

Advancing Volume:	85
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):	45

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

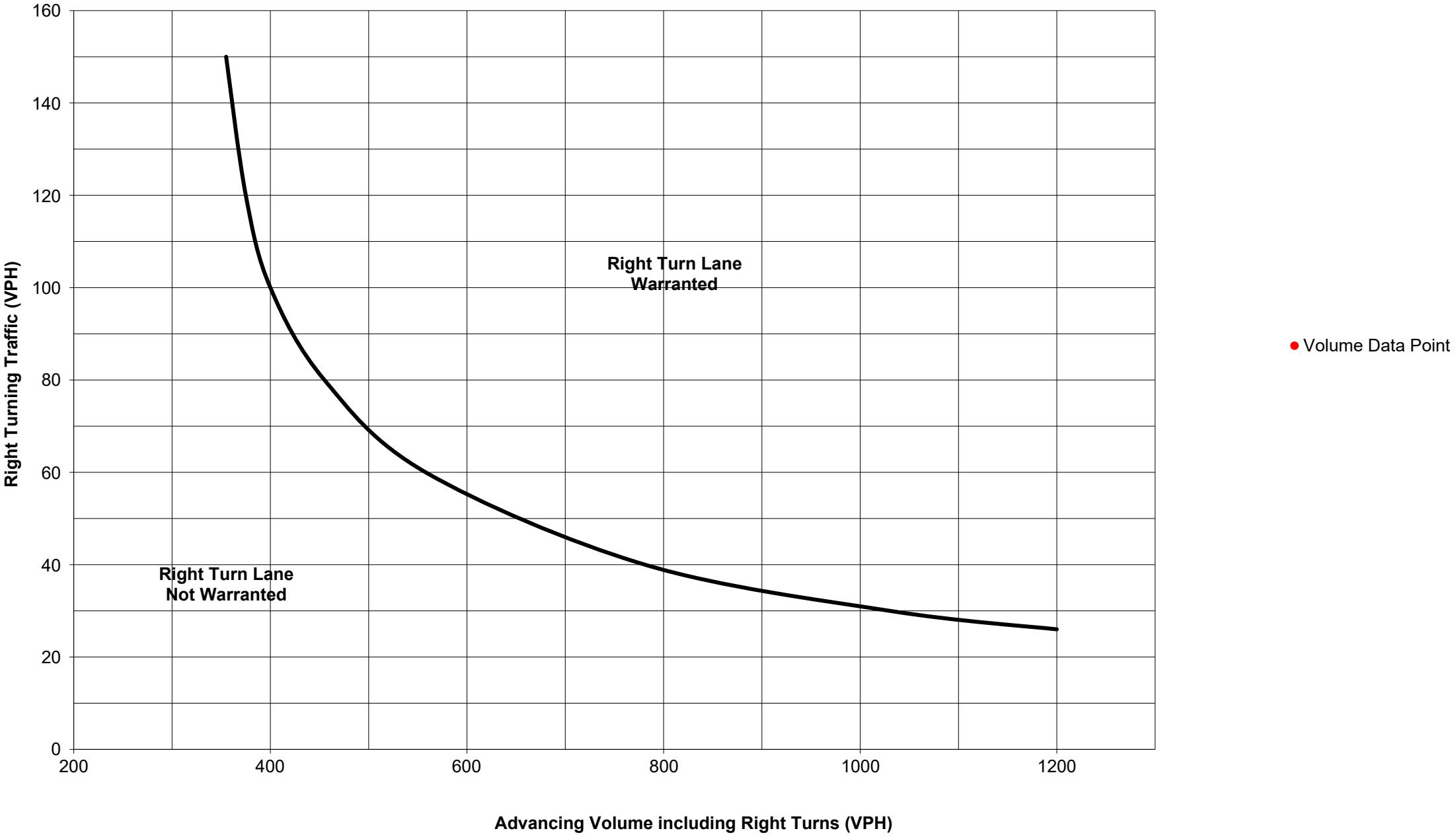
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Johnson Street/Blackman Plaza Driveway (Westbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour Generator	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	86	12.0%	N/A
	Through	-	12	0.0%	N/A
	Right	Yes	75	3.0%	N/A
Opposing	Left	Yes	79	0.0%	N/A
	Through	-	12	0.0%	N/A
	Right	No	306	1.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
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	86	12.0%	92
	Through	-	12	0.0%	12
	Right	-	75	3.0%	77

Advancing Volume:	181
Right Turn Volume:	77

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/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:	77
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	38

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

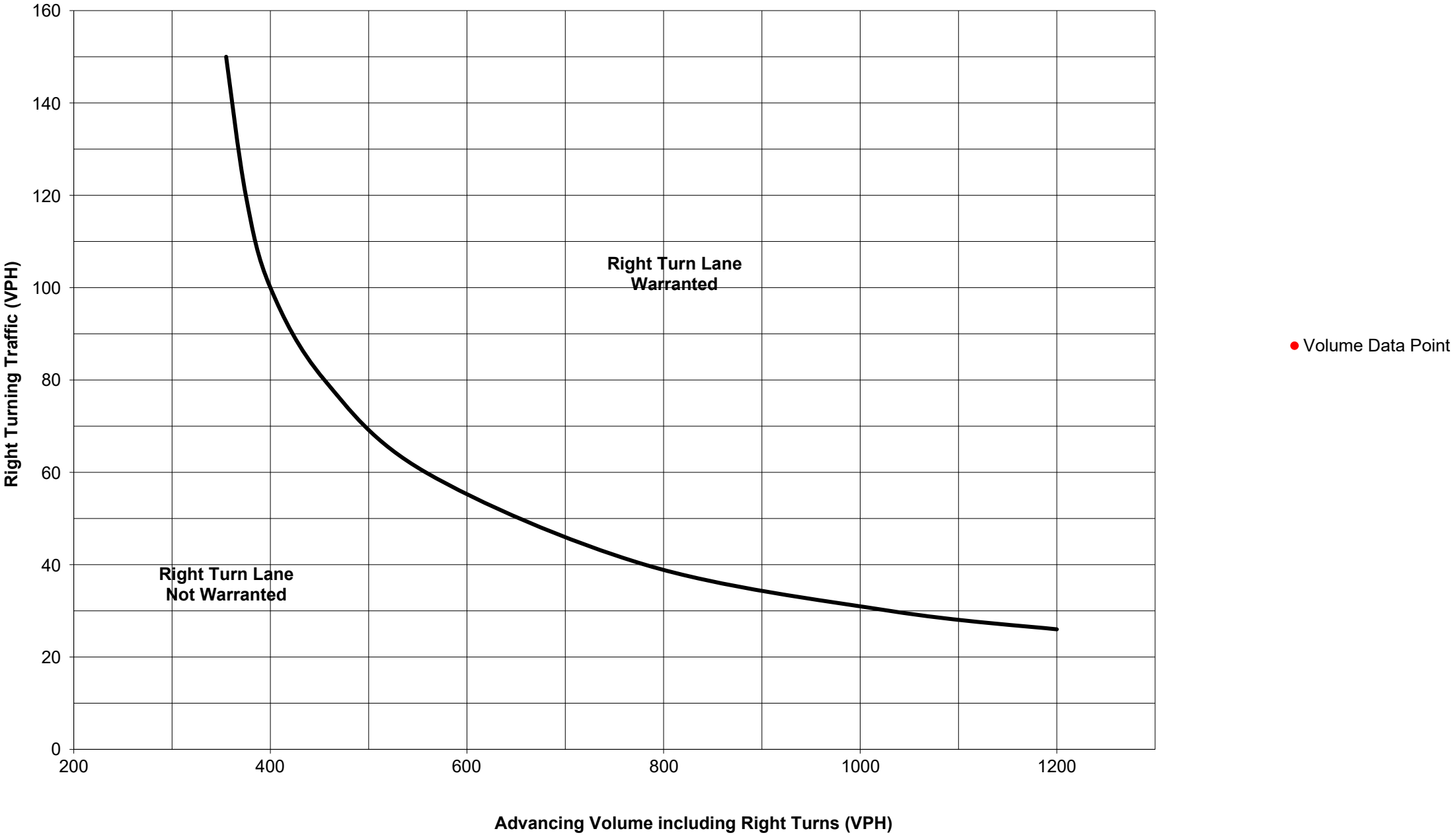
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Wilkes-Barre Township	**Analysis Date:**	5/12/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Johnson Street/Blackman Plaza Driveway (Northbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	AM Adjacent Street	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	186	1.0%	187
	Through	-	648	3.0%	658
	Right	No	75	21.0%	N/A
Opposing	Left	No	25	12.0%	N/A
	Through	-	343	7.0%	356
	Right	No	88	0.0%	N/A

Advancing Volume:	845
Opposing Volume:	356
Left Turn Volume:	187
% Left Turns in Advancing Volume:	22.13%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	186	1.0%	N/A
	Through	-	648	3.0%	N/A
	Right	-	75	21.0%	N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: **Figure 1**

Warrant Met?: **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:	187
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	45

Average # of Vehicles/Cycle: 4.0

PennDOT Publication 46, Exhibit 11-6

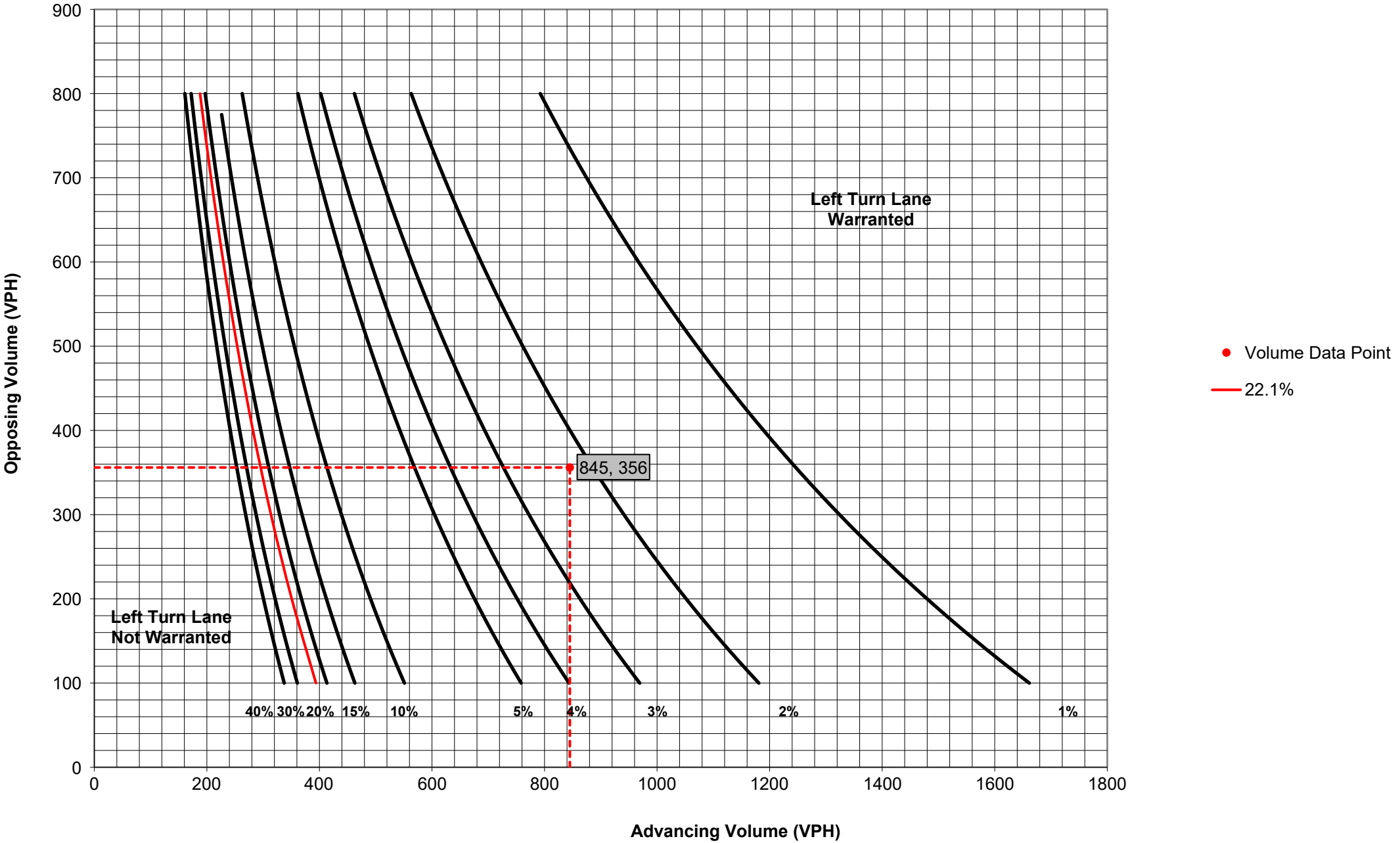
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Johnson Street/Blackman Plaza Driveway (Northbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour Generator	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	180	1.0%	181
	Through	-	539	4.0%	550
	Right	No	98	8.0%	N/A
Opposing	Left	No	33	3.0%	N/A
	Through	-	370	5.0%	380
	Right	No	90	0.0%	N/A

Advancing Volume:	731
Opposing Volume:	380
Left Turn Volume:	181
% Left Turns in Advancing Volume:	24.76%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	180	1.0%	N/A
	Through	-	539	4.0%	N/A
	Right	-	98	8.0%	N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: 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:	181
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	45

Average # of Vehicles/Cycle: 4.0

PennDOT Publication 46, Exhibit 11-6

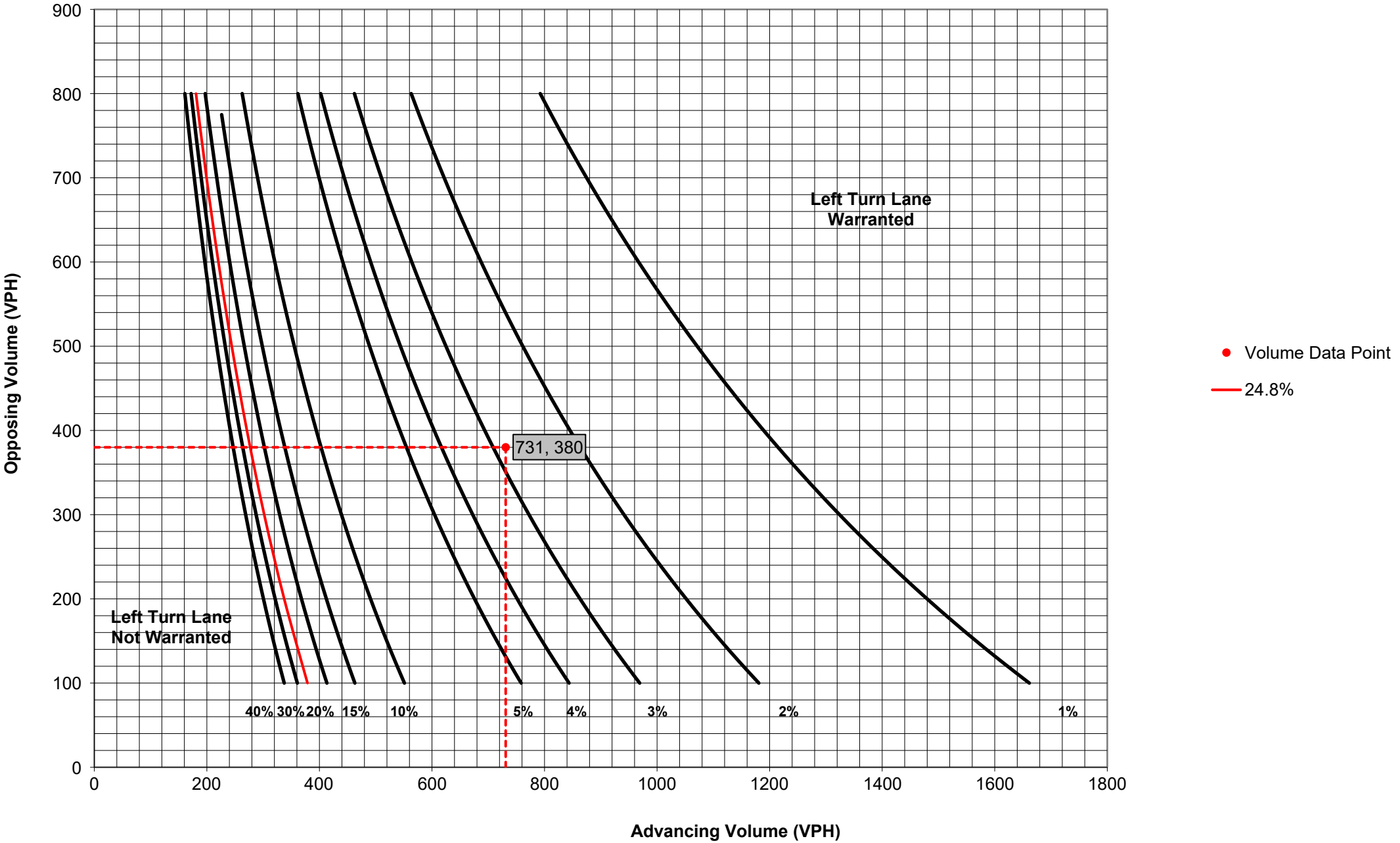
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Johnson Street/Blackman Plaza Driveway (Northbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour Generator	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	192	1.0%	193
	Through	-	691	2.0%	698
	Right	No	115	15.0%	N/A
Opposing	Left	No	26	4.0%	N/A
	Through	-	775	1.0%	779
	Right	No	129	0.0%	N/A

Advancing Volume:	891
Opposing Volume:	779
Left Turn Volume:	193
% Left Turns in Advancing Volume:	21.66%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	192	1.0%	N/A
	Through	-	691	2.0%	N/A
	Right	-	115	15.0%	N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: 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:	193
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	38

Average # of Vehicles/Cycle: 5.0

PennDOT Publication 46, Exhibit 11-6

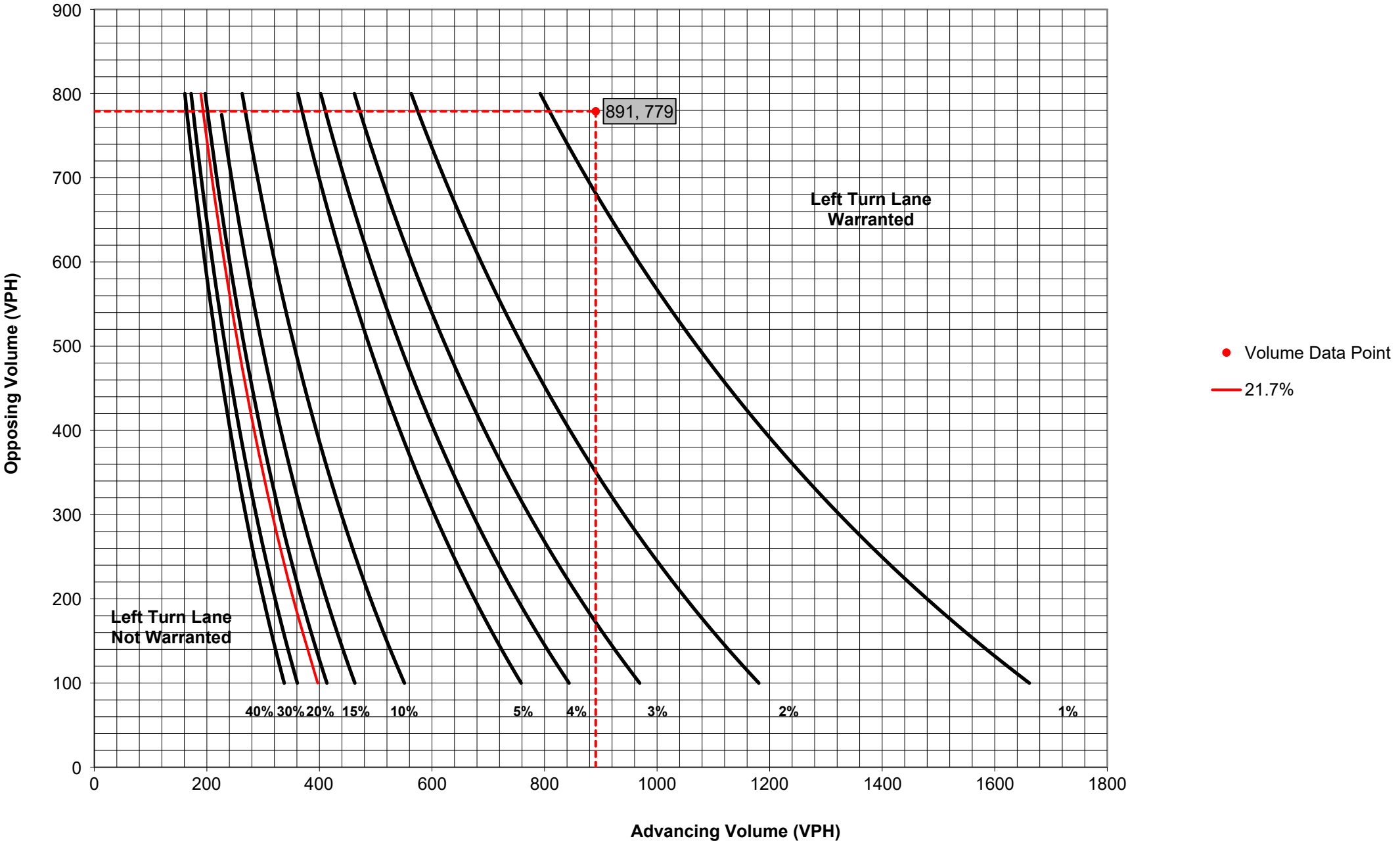
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	200	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	200	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:	Wilkes-Barre Township	**Analysis Date:**	5/12/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Johnson Street/Blackman Plaza Driveway (Northbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	AM Adjacent Street	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	186	1.0%	N/A
	Through	-	648	3.0%	N/A
	Right	No	75	21.0%	N/A
Opposing	Left	No	25	12.0%	N/A
	Through	-	343	7.0%	N/A
	Right	No	88	0.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
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	186	1.0%	N/A
	Through	-	648	3.0%	658
	Right	-	75	21.0%	83

Advancing Volume:	741
Right Turn Volume:	83

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9

Warrant Met?: Yes

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	83
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	45

Average # of Vehicles/Cycle: 2.0

PennDOT Publication 46, Exhibit 11-6

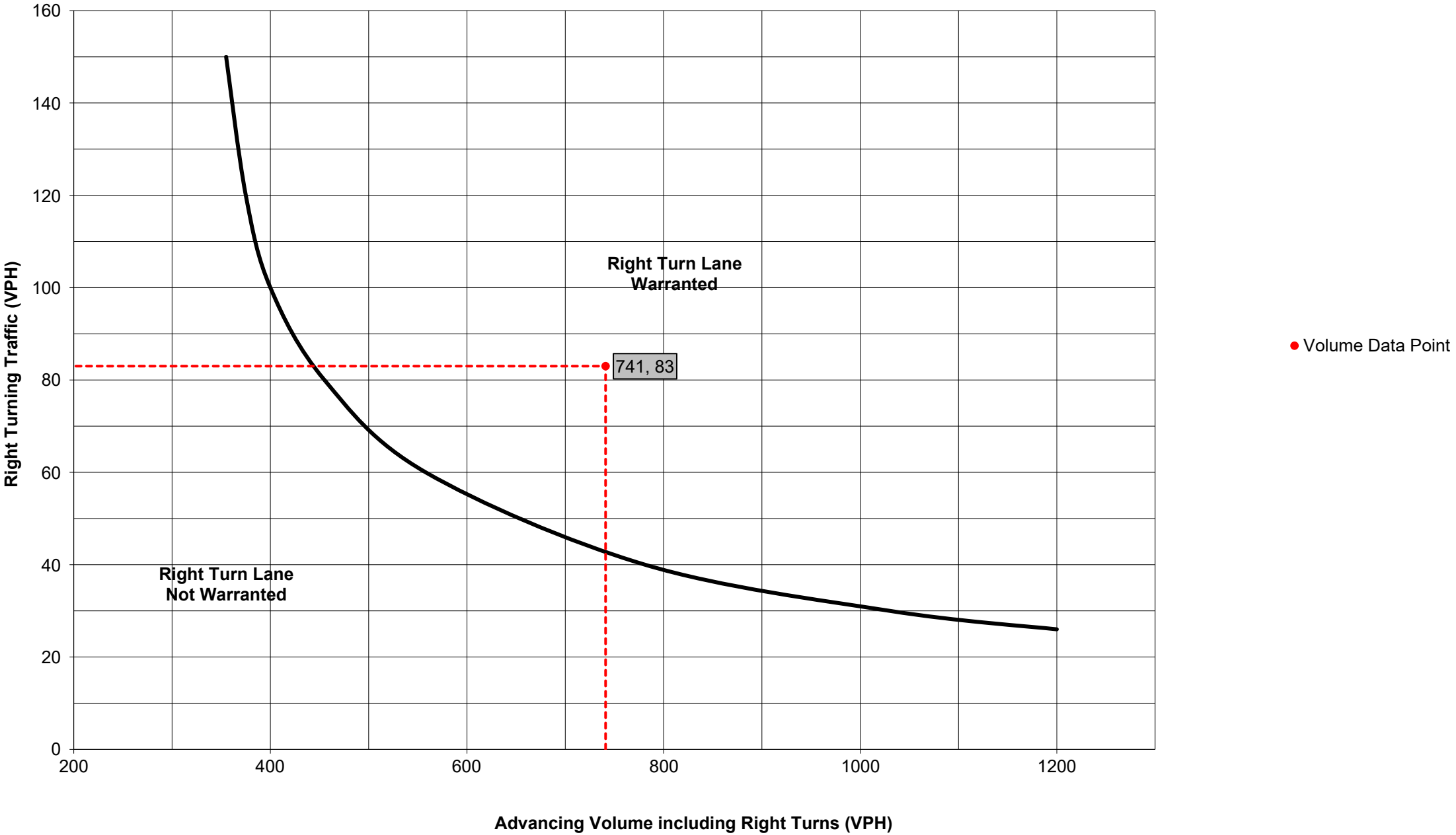
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	100	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	100	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Johnson Street/Blackman Plaza Driveway (Northbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour Generator	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	180	1.0%	N/A
	Through	-	539	4.0%	N/A
	Right	No	98	8.0%	N/A
Opposing	Left	No	33	3.0%	N/A
	Through	-	370	5.0%	N/A
	Right	No	90	0.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
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	180	1.0%	N/A
	Through	-	539	4.0%	550
	Right	-	98	8.0%	102

Advancing Volume:	652
Right Turn Volume:	102

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9

Warrant Met?: Yes

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	102
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	45

Average # of Vehicles/Cycle: 2.0

PennDOT Publication 46, Exhibit 11-6

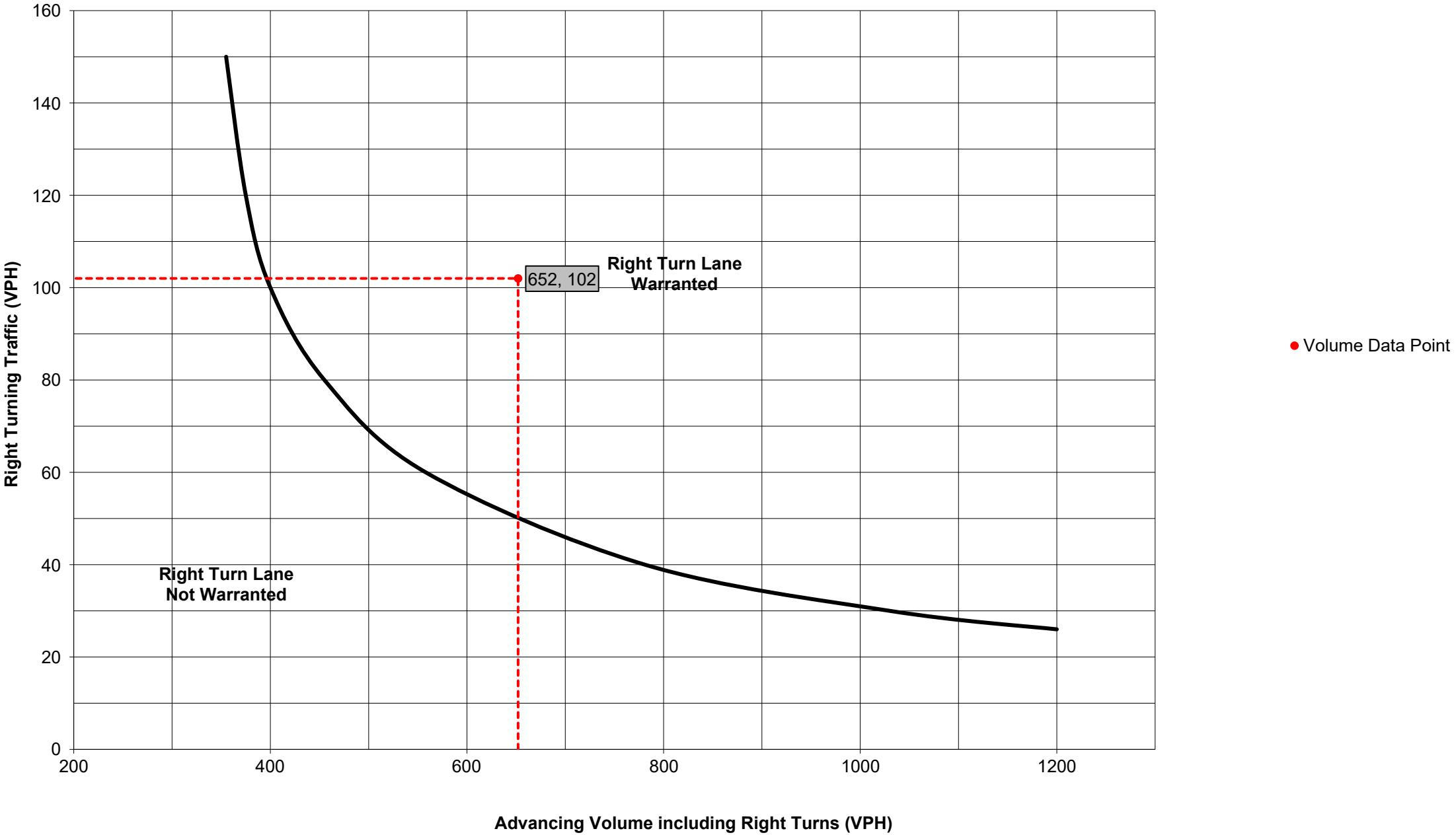
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	100	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	100	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Johnson Street/Blackman Plaza Driveway (Northbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour Generator	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	192	1.0%	N/A
	Through	-	691	2.0%	N/A
	Right	No	115	15.0%	N/A
Opposing	Left	No	26	4.0%	N/A
	Through	-	775	1.0%	N/A
	Right	No	129	0.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
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	192	1.0%	N/A
	Through	-	691	2.0%	698
	Right	-	115	15.0%	124

Advancing Volume:	822
Right Turn Volume:	124

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9

Warrant Met?: Yes

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	124
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	38

Average # of Vehicles/Cycle: 3.0

PennDOT Publication 46, Exhibit 11-6

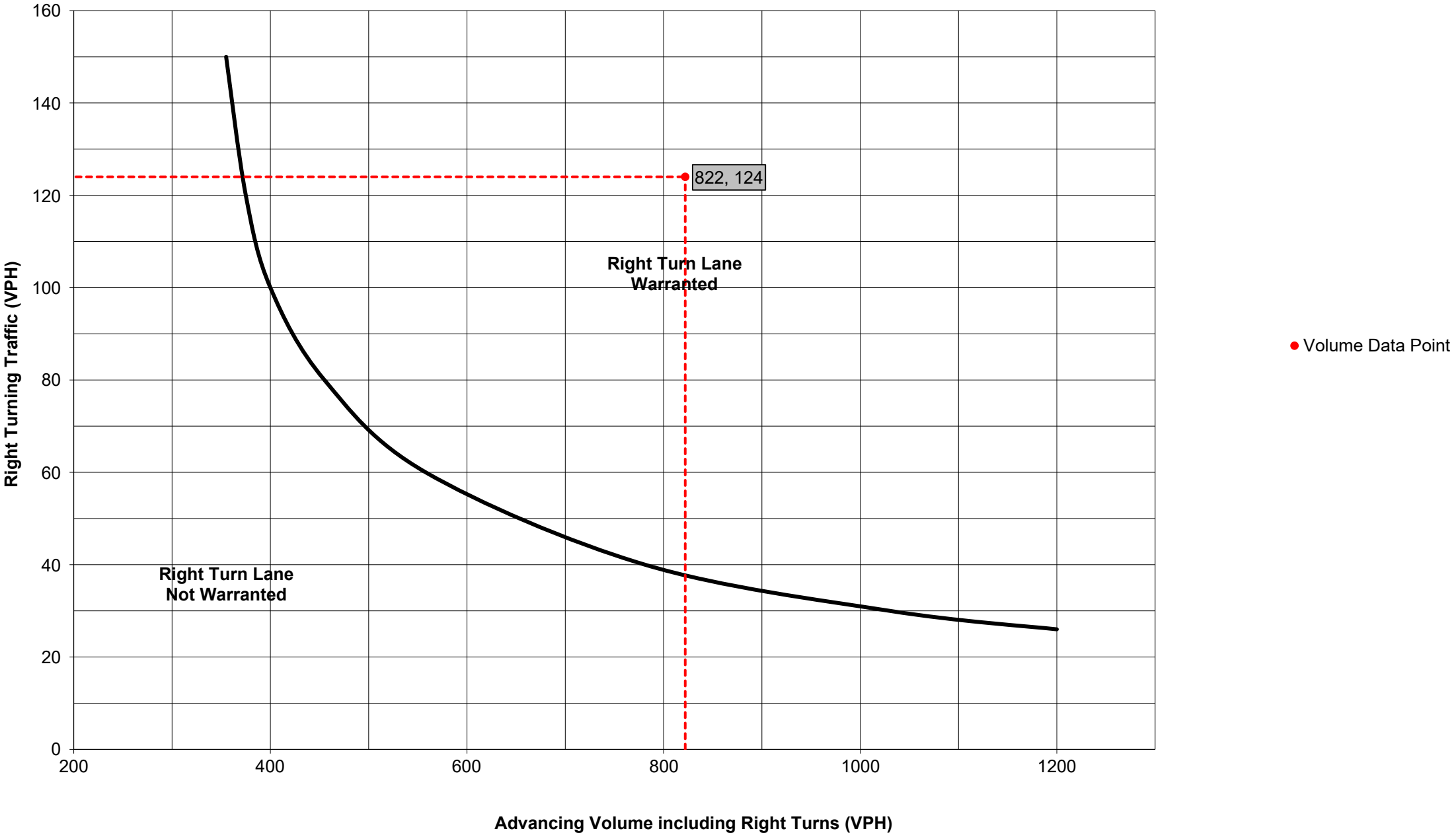
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	150	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	150	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Wilkes-Barre Township Boulevard & Casey Avenue/Park & Ride Lot

Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Casey Avenue/Park and Ride Lot (Eastbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	AM Adjacent Street	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	30	**Type of Analysis**	
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	160	4.0%	164
	Through	-	1	0.0%	1
	Right	Yes	9	20.0%	10
Opposing	Left	Yes	1	0.0%	1
	Through	-	0	0.0%	0
	Right	Yes	0	0.0%	0

Advancing Volume:	175
Opposing Volume:	1
Left Turn Volume:	164
% Left Turns in Advancing Volume:	93.71%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	160	0.0%	N/A
	Through	-	1	0.0%	N/A
	Right	-	9	0.0%	N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	164
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	45

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

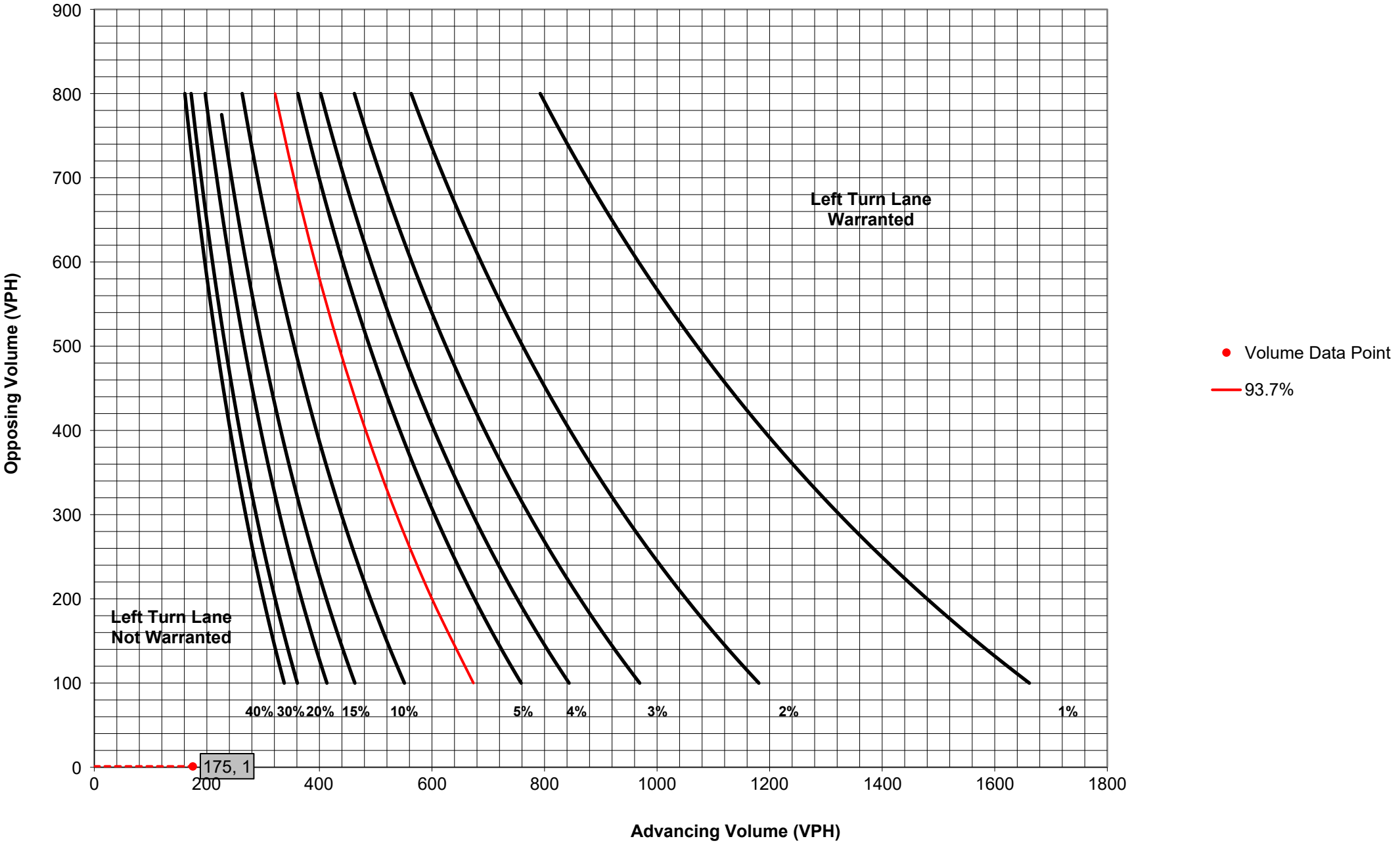
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Wilkes-Barre Township	**Analysis Date:**	5/12/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Johnson Street/Blackman Plaza Driveway (Southbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	AM Adjacent Street	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Level	**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	12.0%	27
	Through	-	343	7.0%	356
	Right	No	88	0.0%	N/A
Opposing	Left	No	186	1.0%	N/A
	Through	-	648	3.0%	658
	Right	Yes	75	21.0%	83

Advancing Volume:	383
Opposing Volume:	741
Left Turn Volume:	27
% Left Turns in Advancing Volume:	7.05%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	25	12.0%	N/A
	Through	-	343	7.0%	N/A
	Right	-	88	0.0%	N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: 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):	45

Average # of Vehicles/Cycle: 1.0

PennDOT Publication 46, Exhibit 11-6

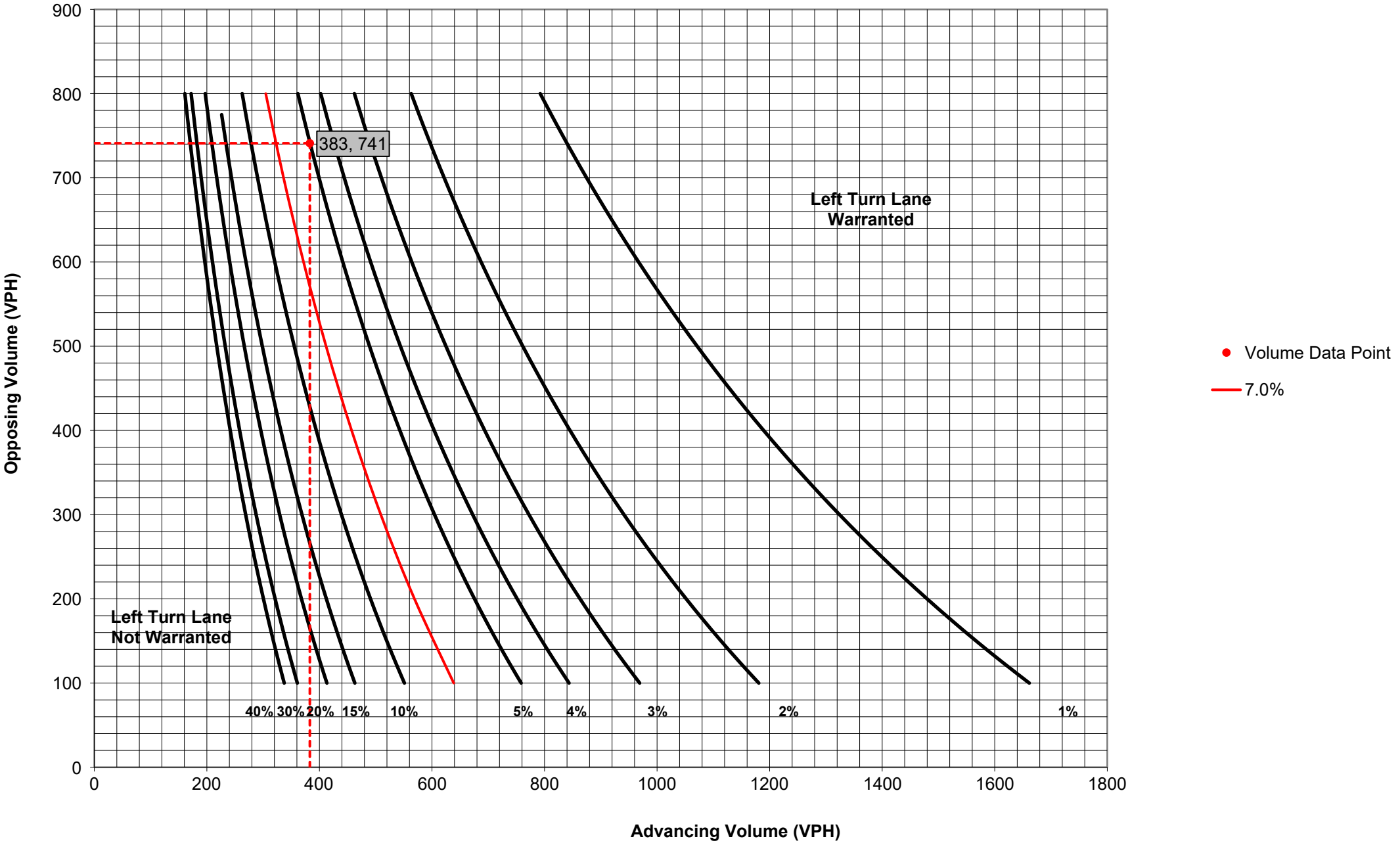
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Johnson Street/Blackman Plaza Driveway (Southbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour Generator	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	33	3.0%	34
	Through	-	370	5.0%	380
	Right	No	90	0.0%	N/A
Opposing	Left	No	180	1.0%	N/A
	Through	-	539	4.0%	550
	Right	Yes	98	8.0%	102

Advancing Volume:	414
Opposing Volume:	652
Left Turn Volume:	34
% Left Turns in Advancing Volume:	8.21%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	33	3.0%	N/A
	Through	-	370	5.0%	N/A
	Right	-	90	0.0%	N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: 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):	45

Average # of Vehicles/Cycle: 1.0

PennDOT Publication 46, Exhibit 11-6

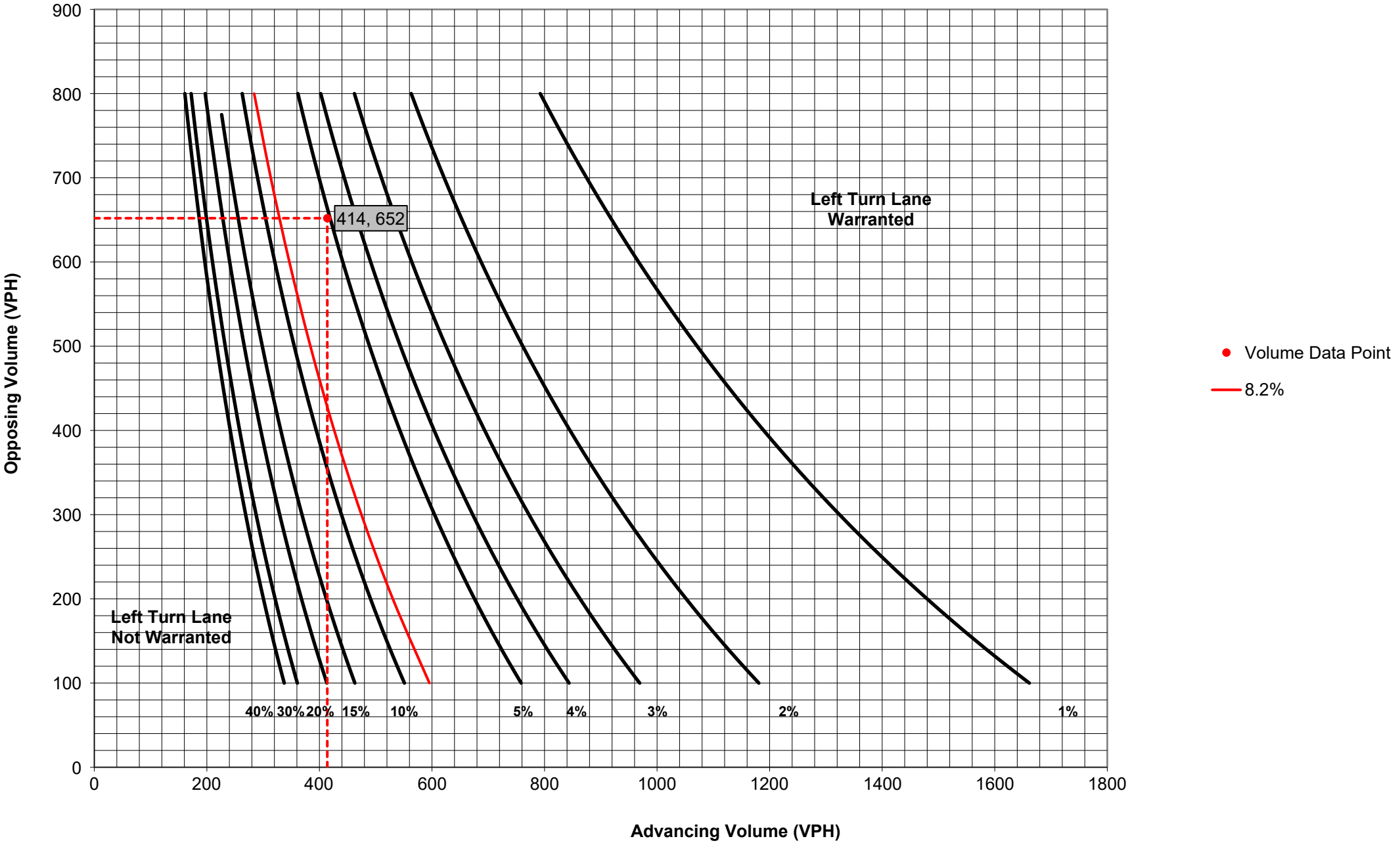
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Johnson Street/Blackman Plaza Driveway (Southbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour Generator	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Level	**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	4.0%	27
	Through	-	775	1.0%	779
	Right	No	129	0.0%	N/A
Opposing	Left	No	192	1.0%	N/A
	Through	-	691	2.0%	698
	Right	Yes	115	15.0%	124

Advancing Volume:	806
Opposing Volume:	822
Left Turn Volume:	27
% Left Turns in Advancing Volume:	3.35%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	26	4.0%	N/A
	Through	-	775	1.0%	N/A
	Right	-	129	0.0%	N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: 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):	38

Average # of Vehicles/Cycle: 1.0

PennDOT Publication 46, Exhibit 11-6

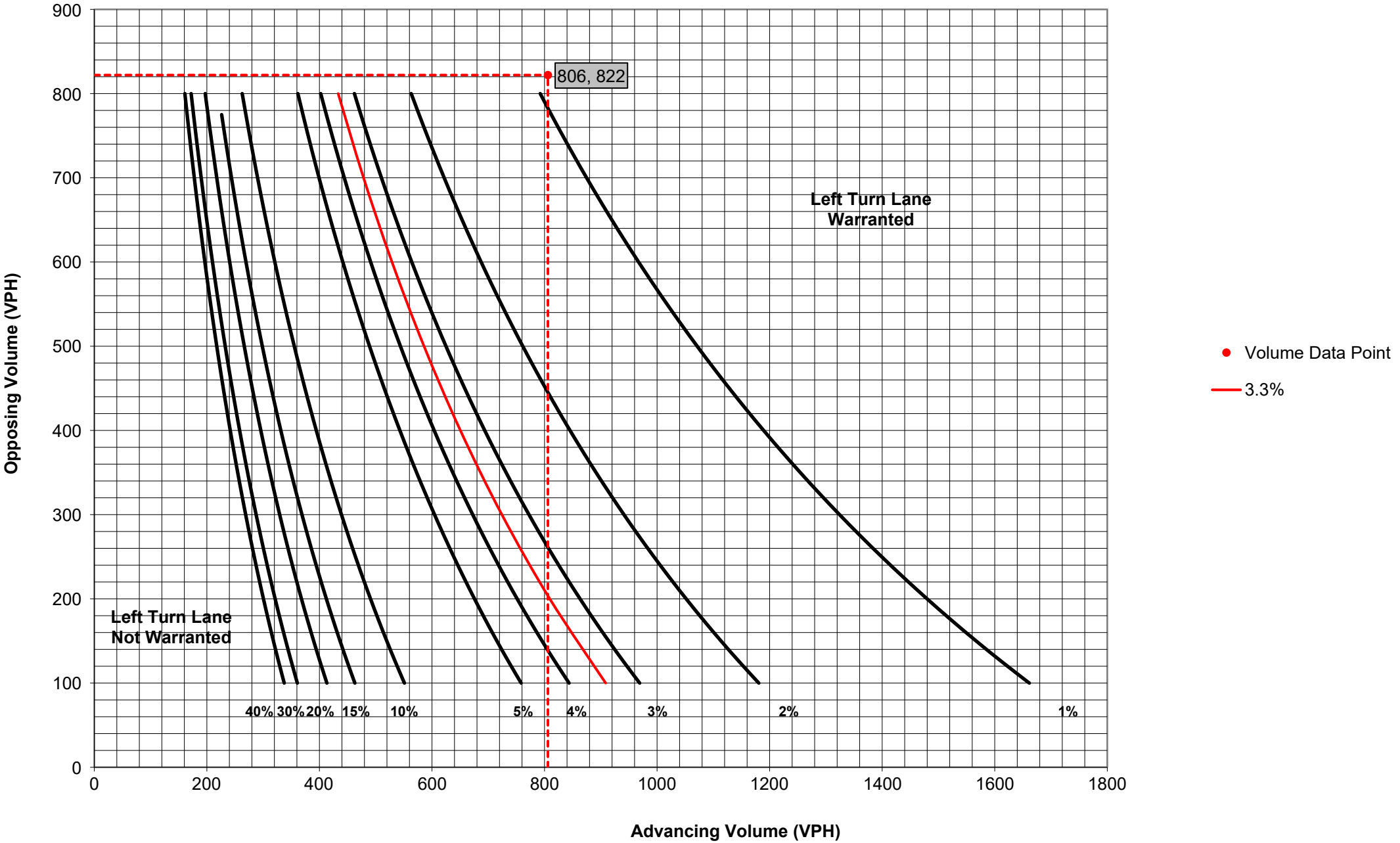
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Wilkes-Barre Township	**Analysis Date:**	5/12/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Johnson Street/Blackman Plaza Driveway (Southbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	AM Adjacent Street	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	25	12.0%	N/A
	Through	-	343	7.0%	N/A
	Right	No	88	0.0%	N/A
Opposing	Left	No	186	1.0%	N/A
	Through	-	648	3.0%	N/A
	Right	Yes	75	21.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
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	12.0%	N/A
	Through	-	343	7.0%	356
	Right	-	88	0.0%	88

Advancing Volume:	444
Right Turn Volume:	88

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9

Warrant Met?: Yes

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	88
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	45

Average # of Vehicles/Cycle: 2.0

PennDOT Publication 46, Exhibit 11-6

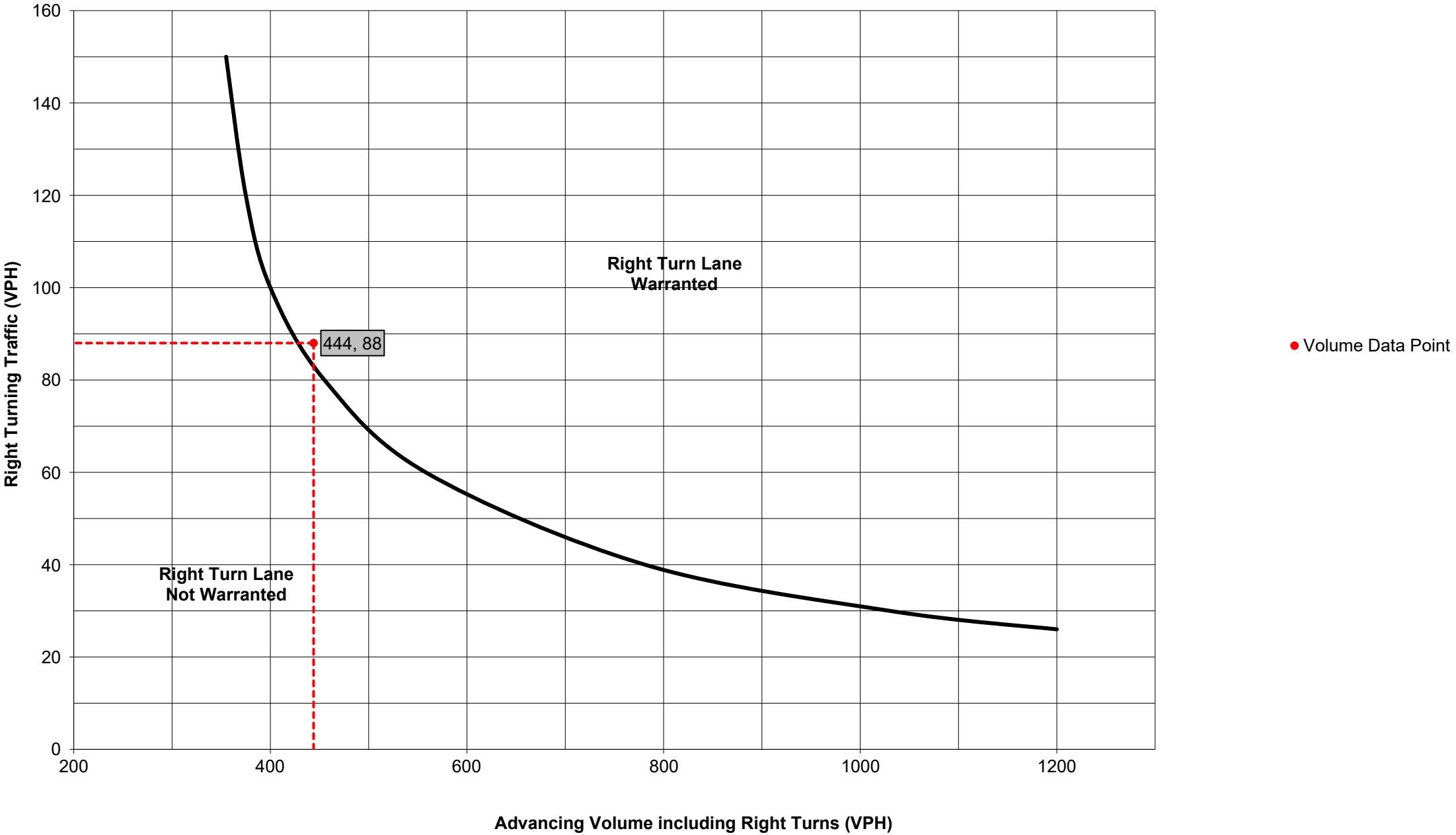
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	100	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	100	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Johnson Street/Blackman Plaza Driveway (Southbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour Generator	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	33	3.0%	N/A
	Through	-	370	5.0%	N/A
	Right	No	90	0.0%	N/A
Opposing	Left	No	180	1.0%	N/A
	Through	-	539	4.0%	N/A
	Right	Yes	98	8.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	33	3.0%	N/A
	Through	-	370	5.0%	380
	Right	-	90	0.0%	90

Advancing Volume:	470
Right Turn Volume:	90

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9

Warrant Met?: Yes

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	90
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	45

Average # of Vehicles/Cycle: 2.0

PennDOT Publication 46, Exhibit 11-6

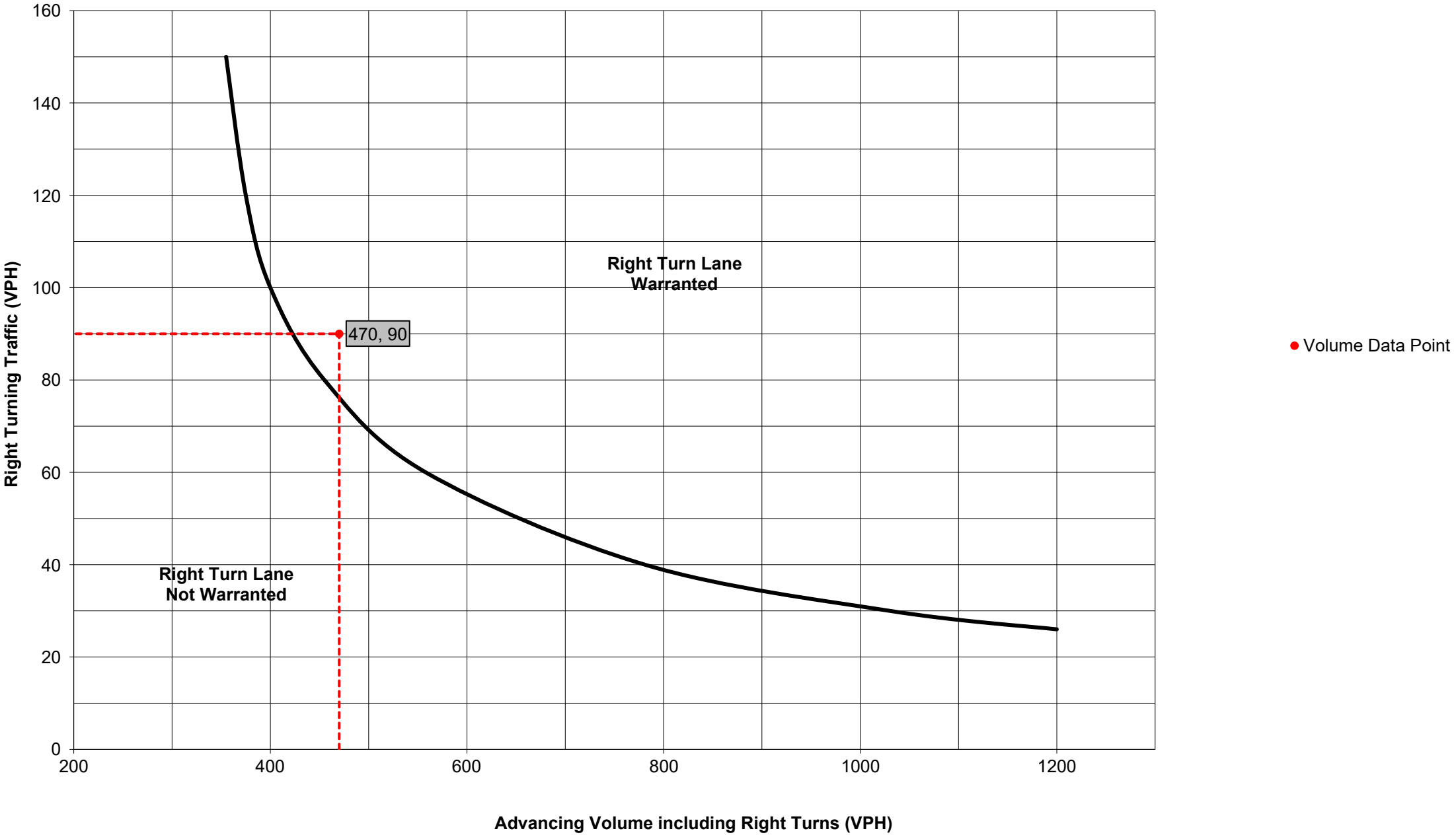
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	100	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	100	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Johnson Street/Blackman Plaza Driveway (Southbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour Generator	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	26	4.0%	N/A
	Through	-	775	1.0%	N/A
	Right	No	129	0.0%	N/A
Opposing	Left	No	192	1.0%	N/A
	Through	-	691	2.0%	N/A
	Right	Yes	115	15.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
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	26	4.0%	N/A
	Through	-	775	1.0%	779
	Right	-	129	0.0%	129

Advancing Volume:	908
Right Turn Volume:	129

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9

Warrant Met?: Yes

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	129
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	38

Average # of Vehicles/Cycle: 3.0

PennDOT Publication 46, Exhibit 11-6

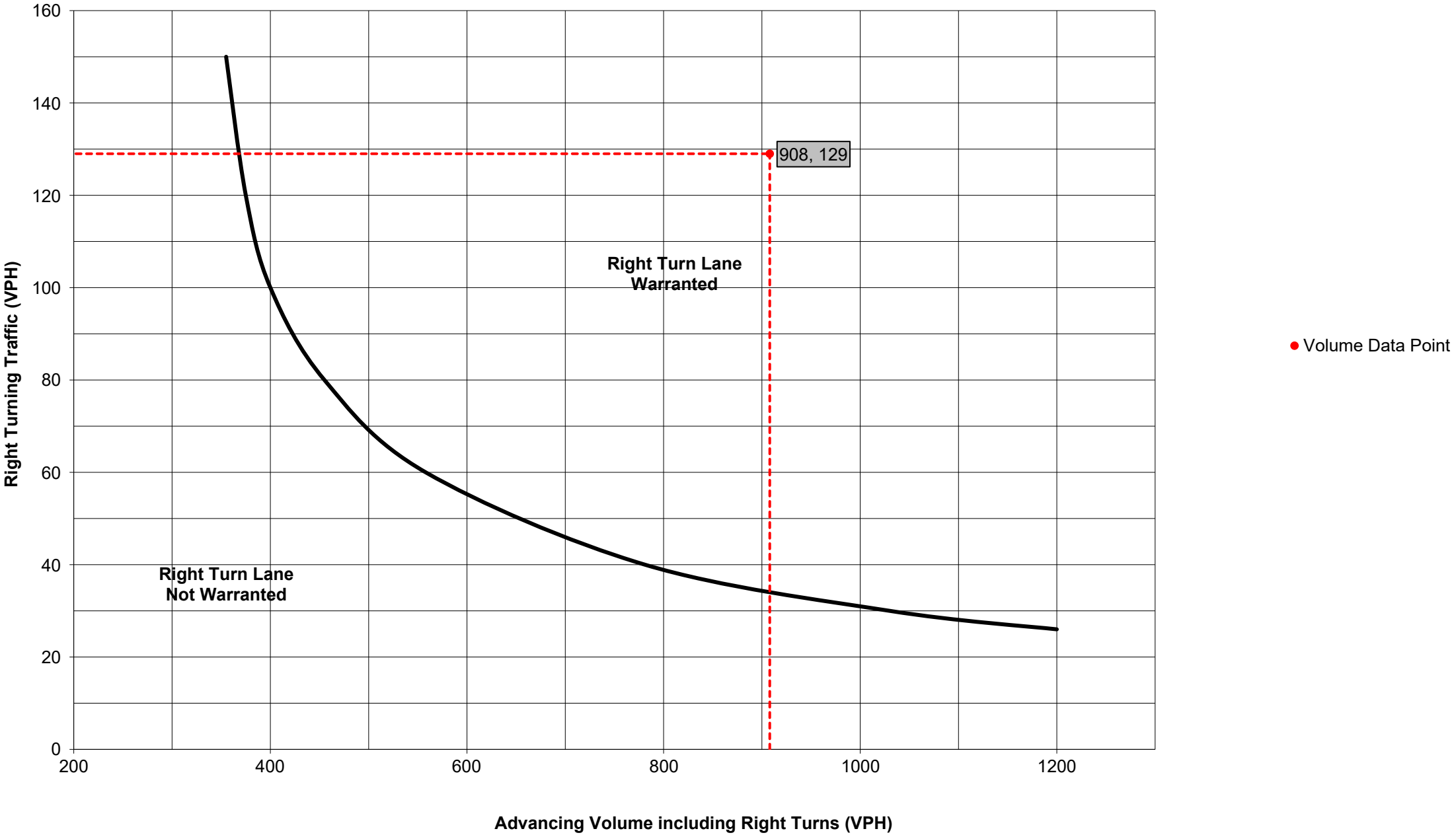
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	150	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	150	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Casey Avenue/Park and Ride Lot (Eastbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour Generator	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	30		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	183	0.0%	183
	Through	-	0	0.0%	0
	Right	Yes	7	0.0%	7
Opposing	Left	Yes	0	0.0%	0
	Through	-	0	0.0%	0
	Right	Yes	0	0.0%	0

Advancing Volume:	190
Opposing Volume:	0
Left Turn Volume:	183
% Left Turns in Advancing Volume:	96.32%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	183	2.0%	N/A
	Through	-	0	0.0%	N/A
	Right	-	7	0.0%	N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: #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:	183
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	45

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

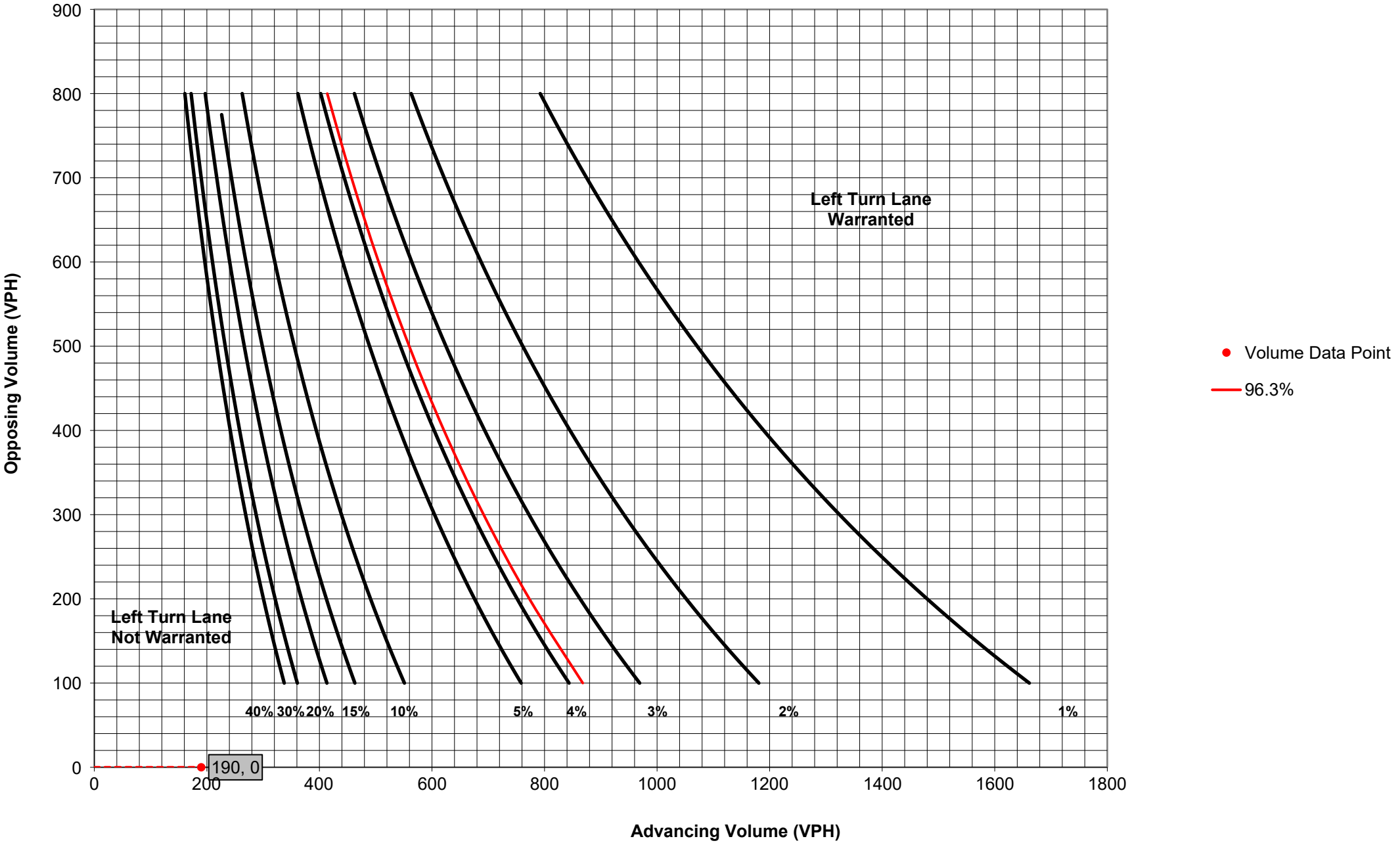
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Casey Avenue/Park and Ride Lot (Eastbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour Generator	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	30		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	239	5.0%	245
	Through	-	0	0.0%	0
	Right	Yes	24	4.0%	25
Opposing	Left	Yes	3	0.0%	3
	Through	-	0	0.0%	0
	Right	Yes	8	0.0%	8

Advancing Volume:	270
Opposing Volume:	11
Left Turn Volume:	245
% Left Turns in Advancing Volume:	90.74%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	239	5.0%	N/A
	Through	-	0	0.0%	N/A
	Right	-	24	4.0%	N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: **Figure 1**

Warrant Met?: **No**

Right Turn Lane Warrant Findings

Applicable Warrant Figure: **N/A**

Warrant Met?: **N/A**

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	245
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	38

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

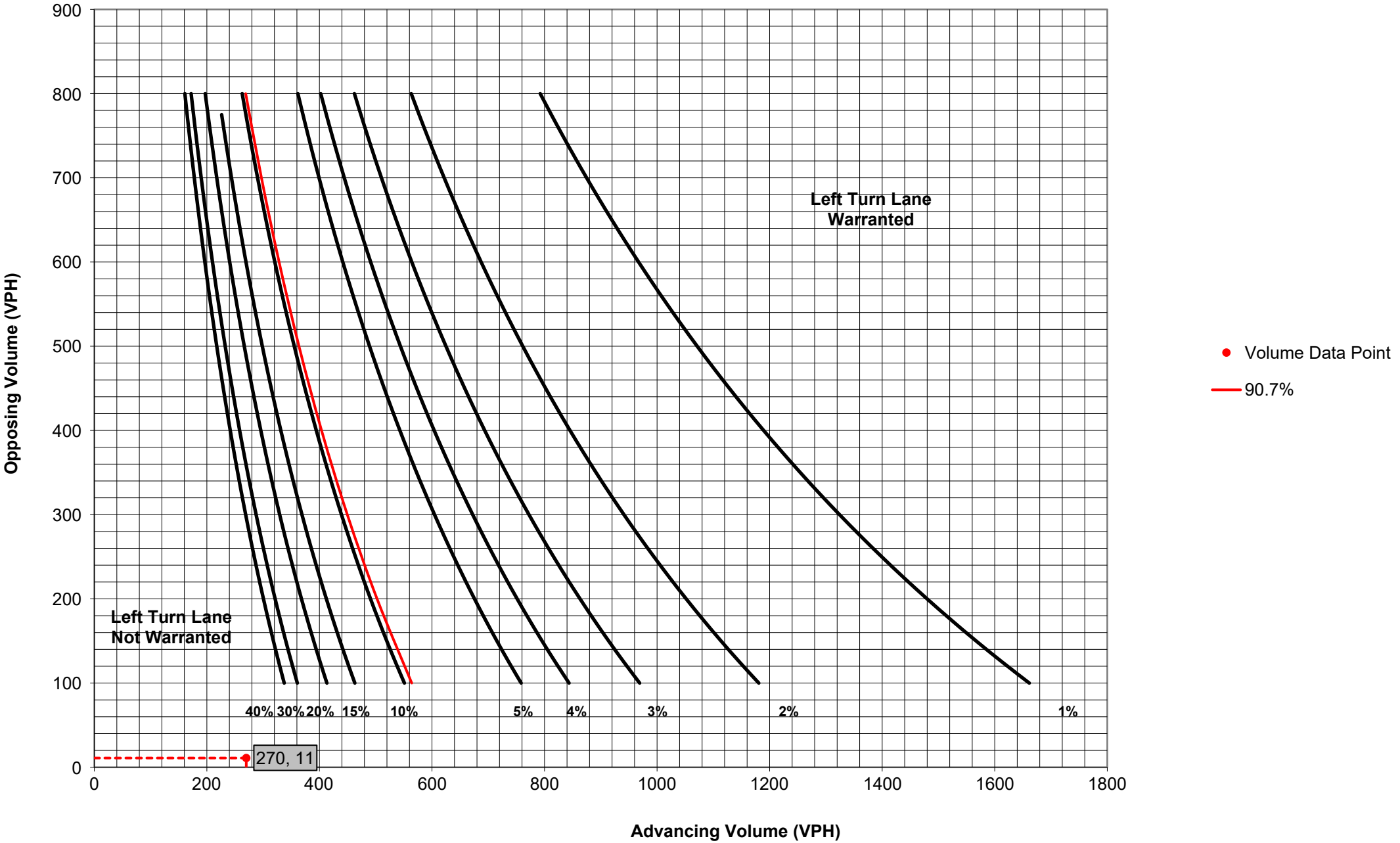
Left Turn Lane Storage Length, Condition A:	**N/A**	**Feet**
Condition B:	**N/A**	**Feet**
Condition C:	**N/A**	**Feet**
Required Left Turn Lane Storage Length:	**N/A**	**Feet**

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:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Casey Avenue/Park and Ride Lot (Eastbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	AM Adjacent Street	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	30		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	160	4.0%	N/A
	Through	-	1	0.0%	N/A
	Right	Yes	9	20.0%	N/A
Opposing	Left	Yes	1	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	0	0.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
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	160	0.0%	N/A
	Through	-	1	0.0%	1
	Right	-	9	0.0%	9

Advancing Volume:	10
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:	Signalized
Design Hour Volume of Turning Lane:	9
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	45

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

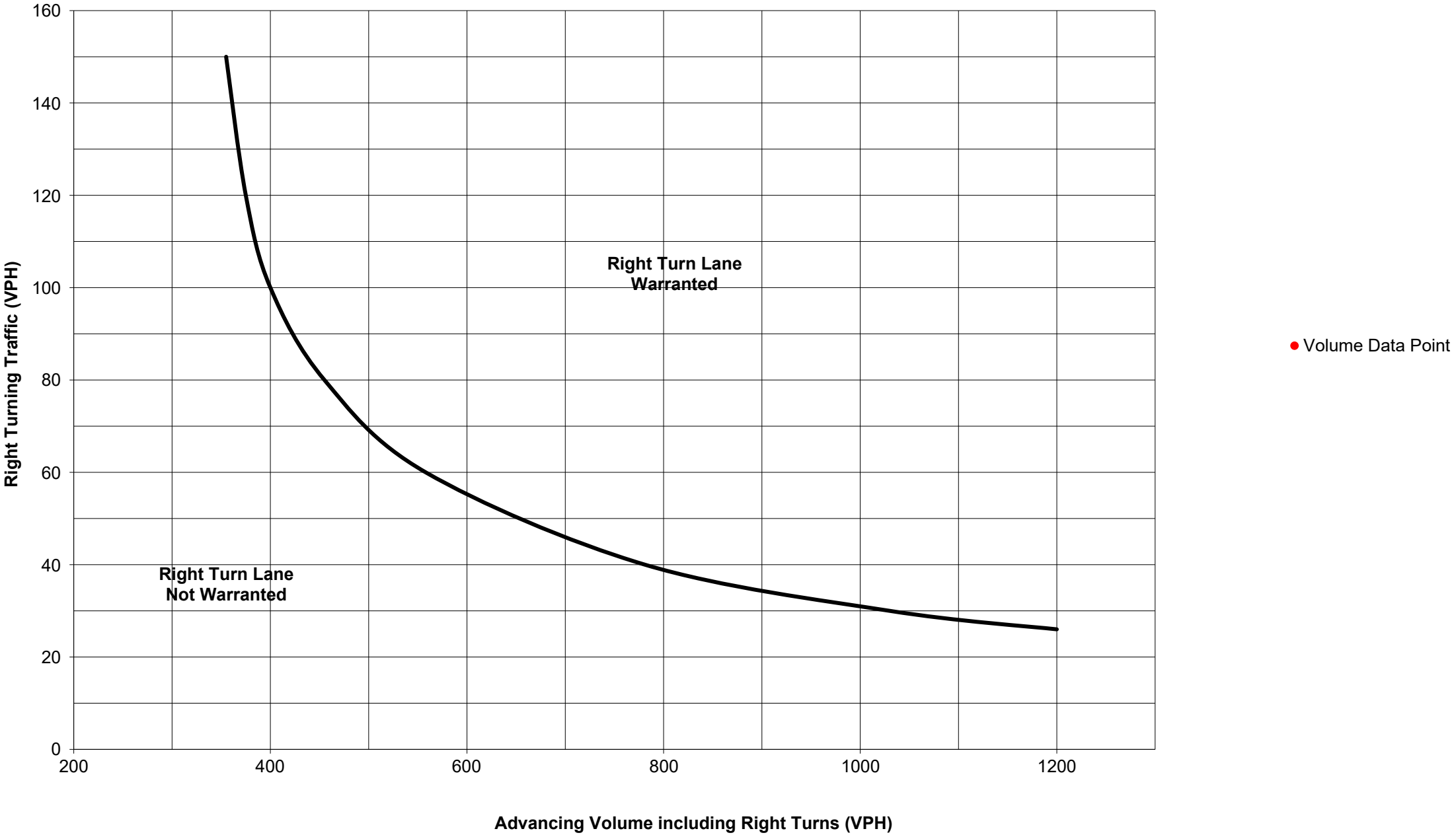
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Casey Avenue/Park and Ride Lot (Eastbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour Generator	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	30		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	183	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	7	0.0%	N/A
Opposing	Left	Yes	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	0	0.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
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	183	2.0%	N/A
	Through	-	0	0.0%	0
	Right	-	7	0.0%	7

Advancing Volume:	7
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:	Signalized
Design Hour Volume of Turning Lane:	7
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	45

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

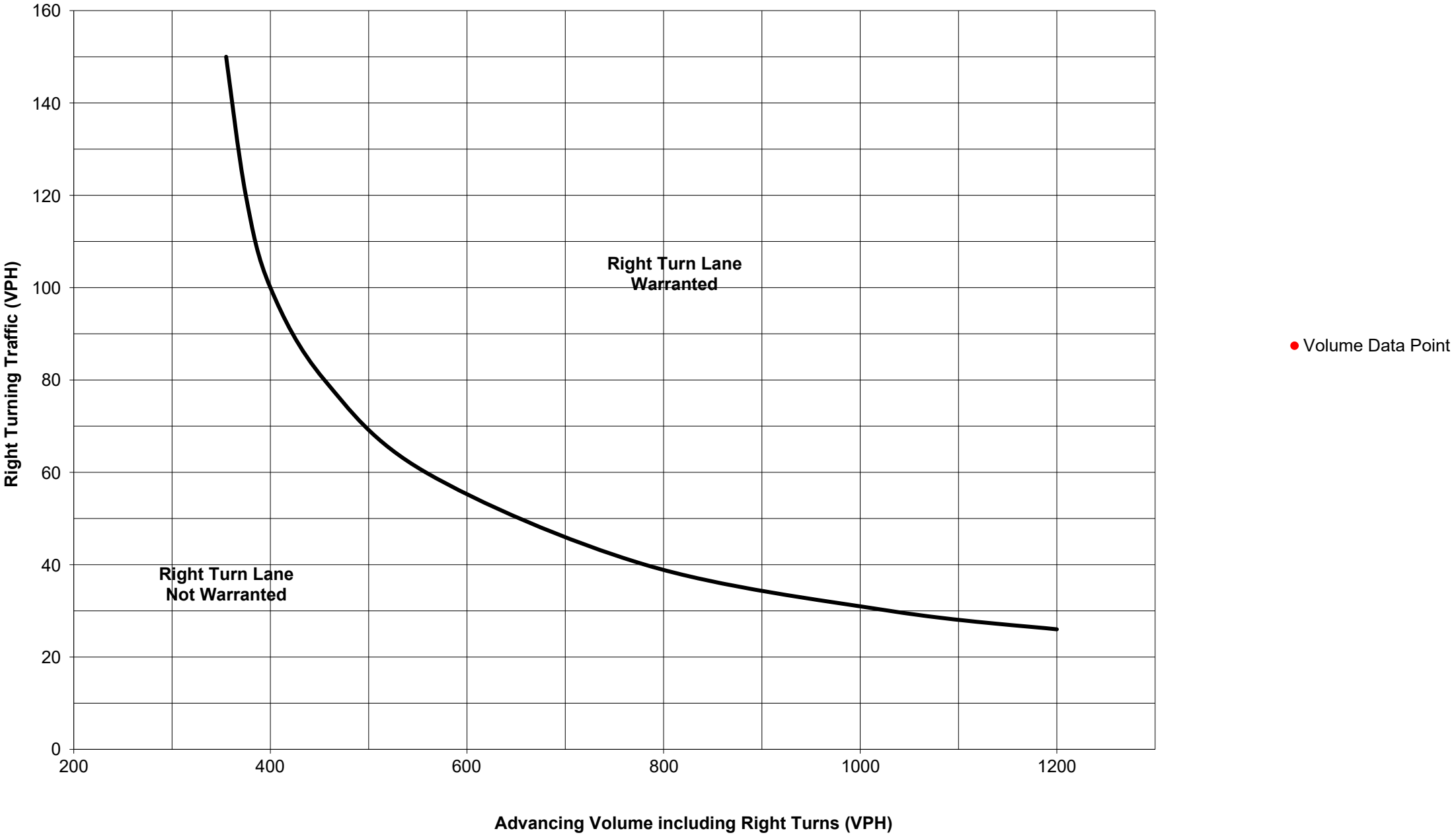
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Casey Avenue/Park and Ride Lot (Eastbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour Generator	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	30		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	239	5.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	24	4.0%	N/A
Opposing	Left	Yes	3	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	8	0.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
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	239	5.0%	N/A
	Through	-	0	0.0%	0
	Right	-	24	4.0%	25

Advancing Volume:	25
Right Turn Volume:	25

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9

Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	25
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	38

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

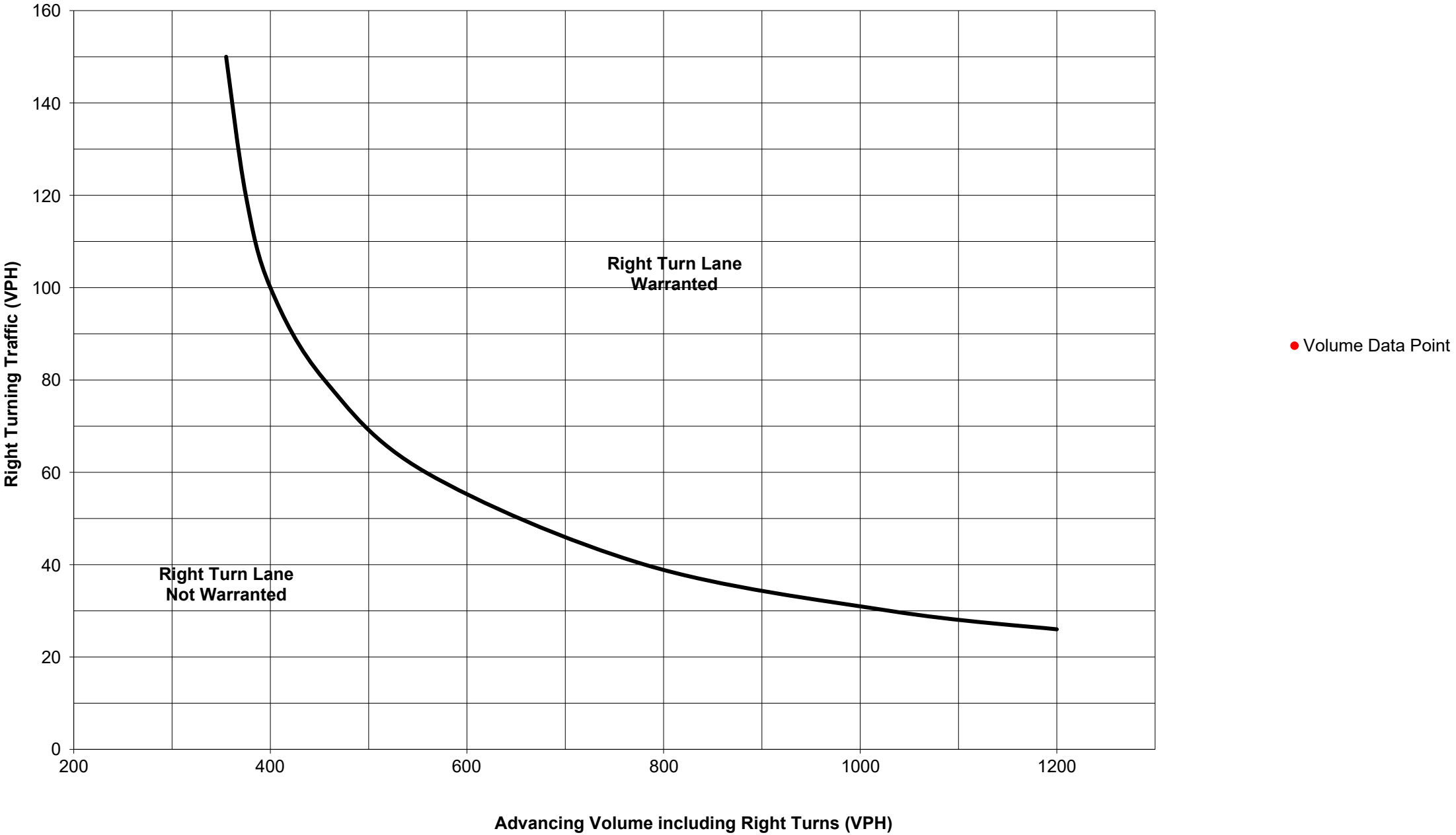
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Wilkes-Barre Township	**Analysis Date:**	5/12/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Casey Avenue/Park and Ride Lot (Westbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	AM Adjacent Street	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	1	0.0%	1
	Through	-	0	0.0%	0
	Right	Yes	0	0.0%	0
Opposing	Left	No	160	4.0%	N/A
	Through	-	1	0.0%	1
	Right	Yes	9	20.0%	10

Advancing Volume:	1
Opposing Volume:	11
Left Turn Volume:	1
% Left Turns in Advancing Volume:	100.00%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	1	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	-	0	0.0%	N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: #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:	1
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	45

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

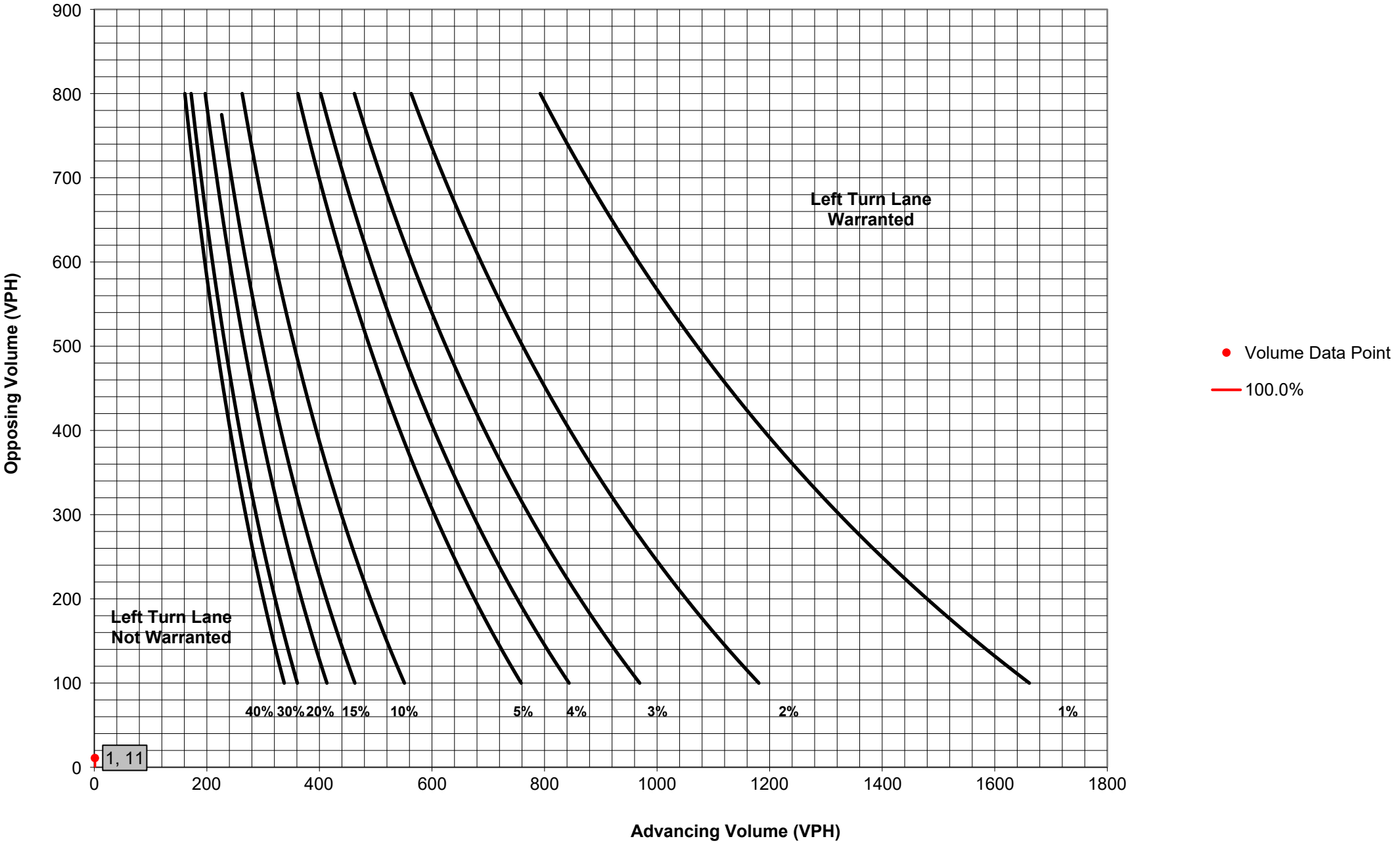
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Casey Avenue/Park and Ride Lot (Westbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour Generator	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Level	**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	0	0.0%	0
Opposing	Left	No	183	2.0%	N/A
	Through	-	0	0.0%	0
	Right	Yes	7	0.0%	7

Advancing Volume:	0
Opposing Volume:	7
Left Turn Volume:	0
% Left Turns in Advancing Volume:	#DIV/0!

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	-	0	0.0%	N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: #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:	0
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	45

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

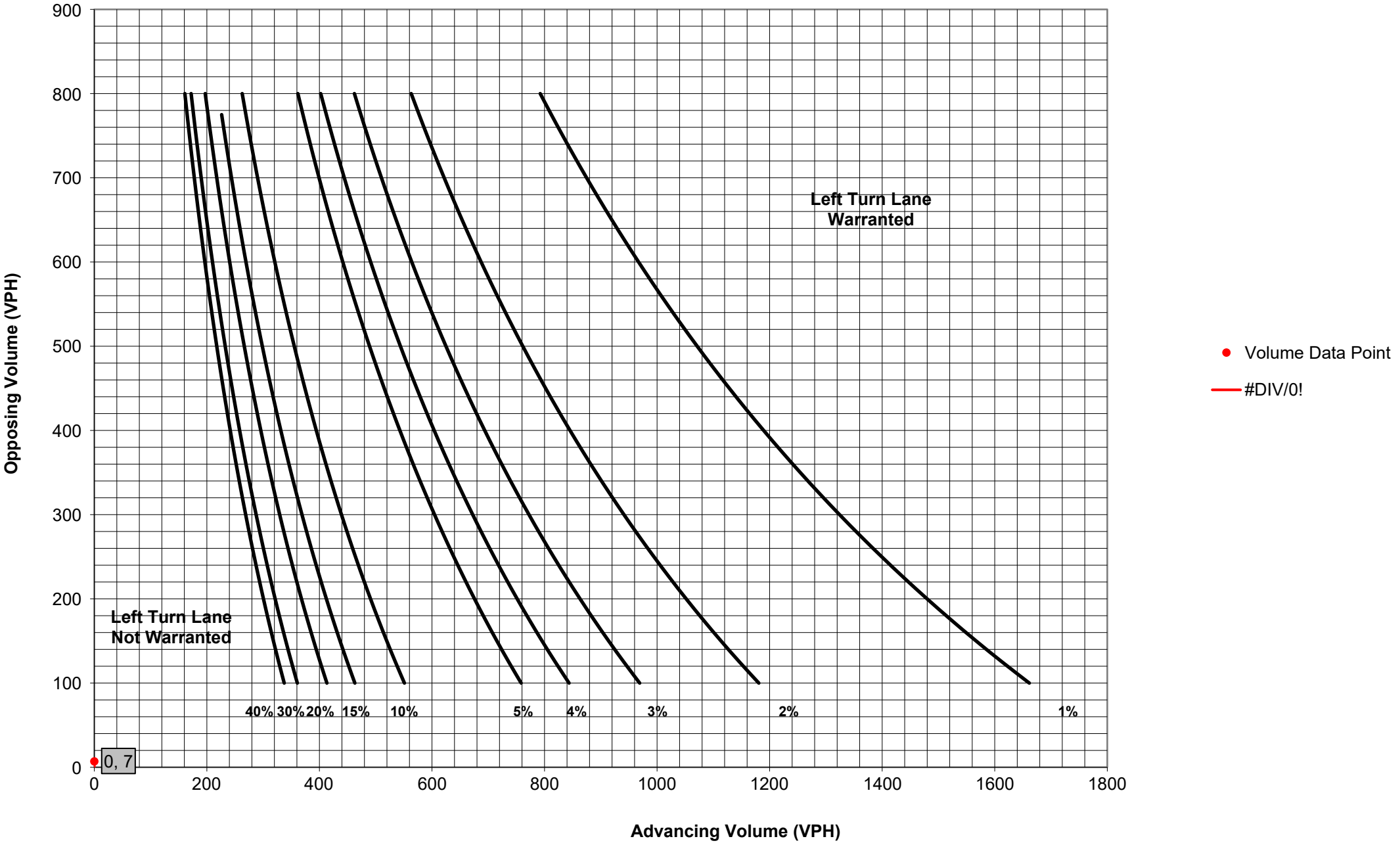
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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

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		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Casey Avenue/Park and Ride Lot (Westbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour Generator	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Level	**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	-	0	0.0%	0
	Right	Yes	8	0.0%	8
Opposing	Left	No	239	5.0%	N/A
	Through	-	0	0.0%	0
	Right	Yes	24	4.0%	25

Advancing Volume:	11
Opposing Volume:	25
Left Turn Volume:	3
% Left Turns in Advancing Volume:	27.27%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	3	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	-	8	0.0%	N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: **Figure 1**

Warrant Met?: **No**

Right Turn Lane Warrant Findings

Applicable Warrant Figure: **N/A**

Warrant Met?: **N/A**

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	3
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	38

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

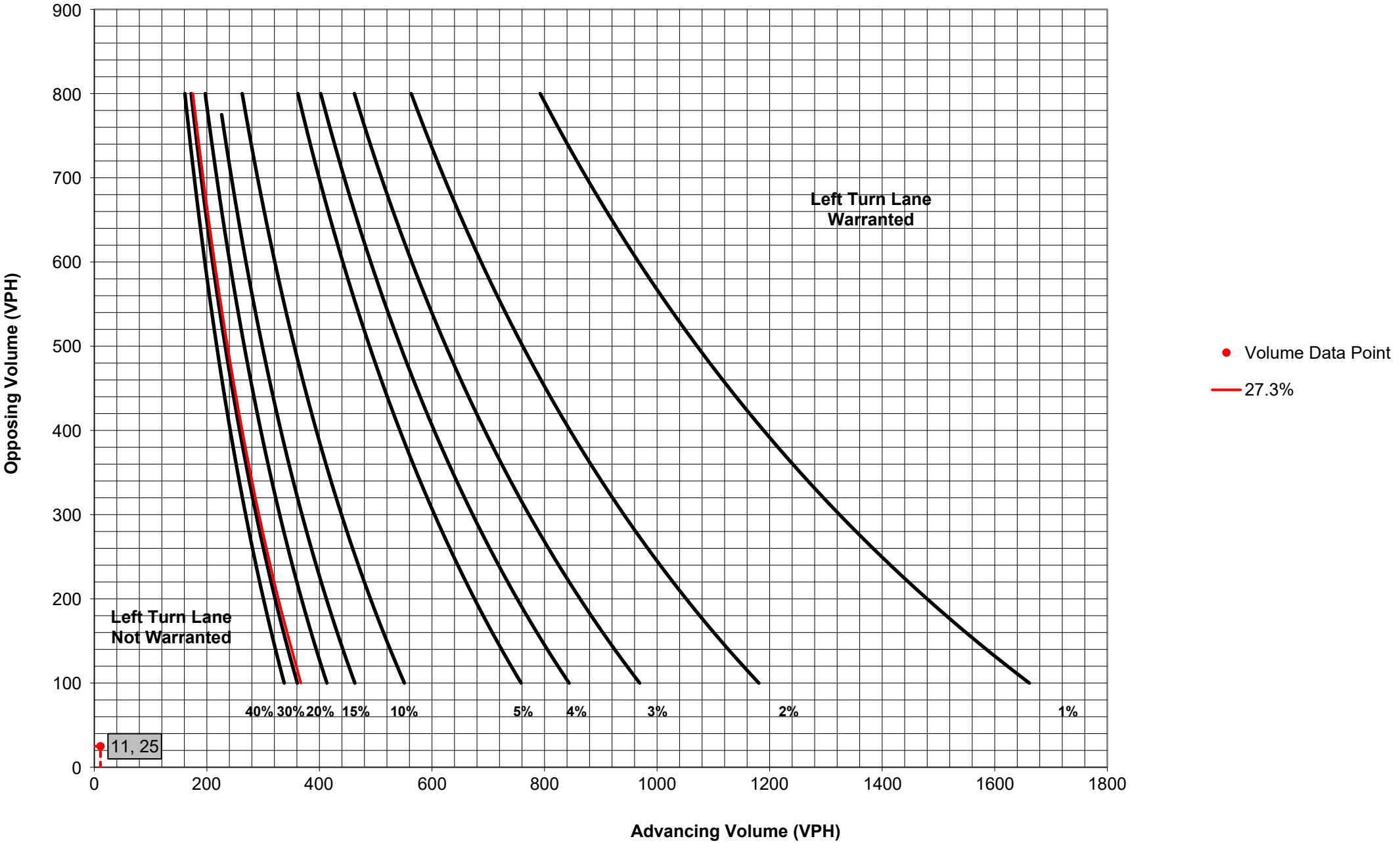
Left Turn Lane Storage Length, Condition A:	**N/A**	**Feet**
Condition B:	**N/A**	**Feet**
Condition C:	**N/A**	**Feet**
Required Left Turn Lane Storage Length:	**N/A**	**Feet**

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

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PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Casey Avenue/Park and Ride Lot (Westbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	AM Adjacent Street	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	1	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	0	0.0%	N/A
Opposing	Left	No	160	4.0%	N/A
	Through	-	1	0.0%	N/A
	Right	Yes	9	20.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	1	0.0%	1
	Through	-	0	0.0%	0
	Right	-	0	0.0%	0

Advancing Volume:	1
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:	Signalized
Design Hour Volume of Turning Lane:	0
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	45

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

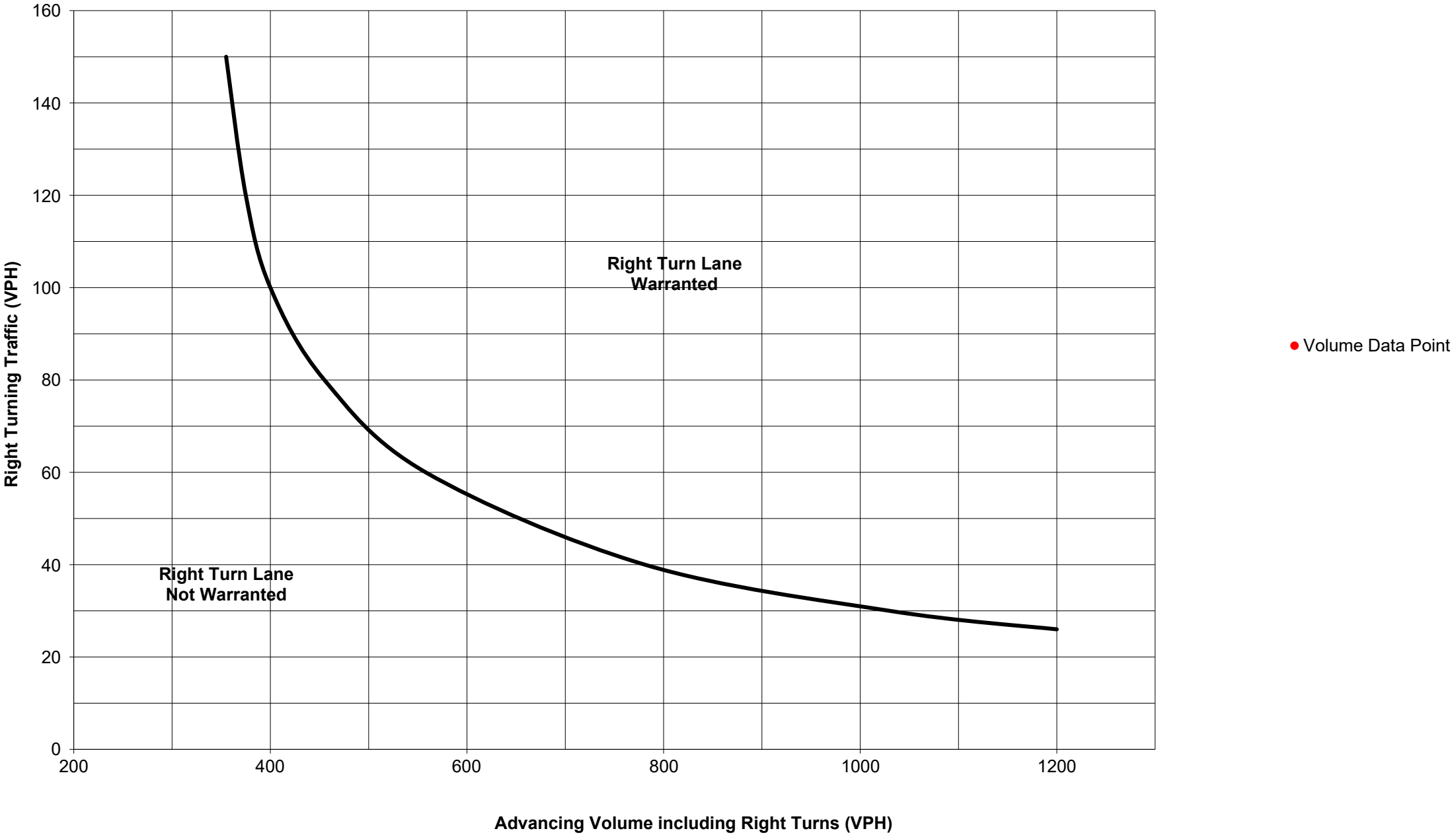
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Casey Avenue/Park and Ride Lot (Westbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour Generator	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	0	0.0%	N/A
Opposing	Left	No	183	2.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	7	0.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
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	-	0	0.0%	0

Advancing Volume:	0
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:	Signalized
Design Hour Volume of Turning Lane:	0
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	45

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

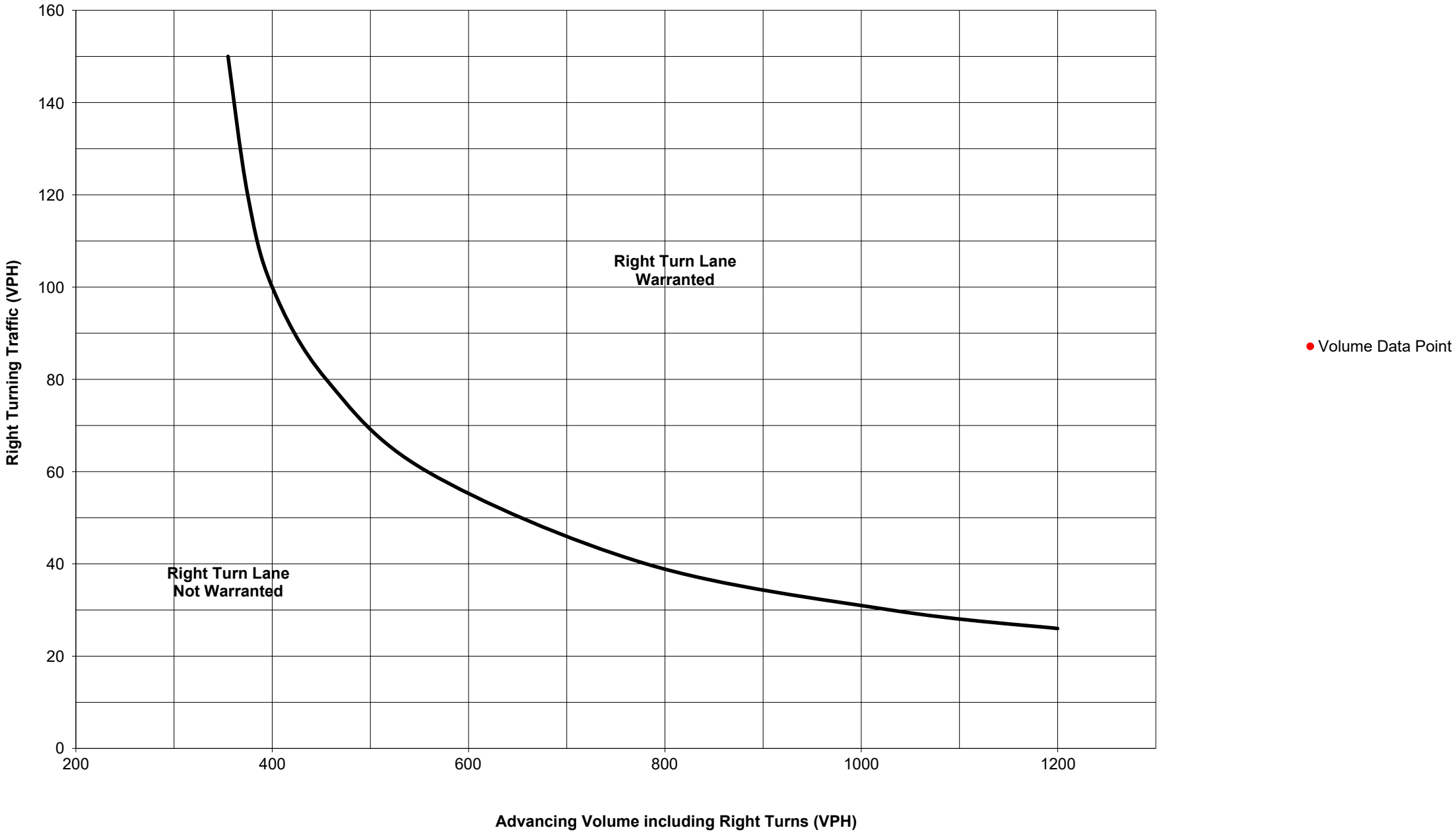
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Casey Avenue/Park and Ride Lot (Westbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour Generator	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	3	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	8	0.0%	N/A
Opposing	Left	No	239	5.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	24	4.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	3	0.0%	3
	Through	-	0	0.0%	0
	Right	-	8	0.0%	8

Advancing Volume:	11
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:	Signalized
Design Hour Volume of Turning Lane:	8
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	38

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

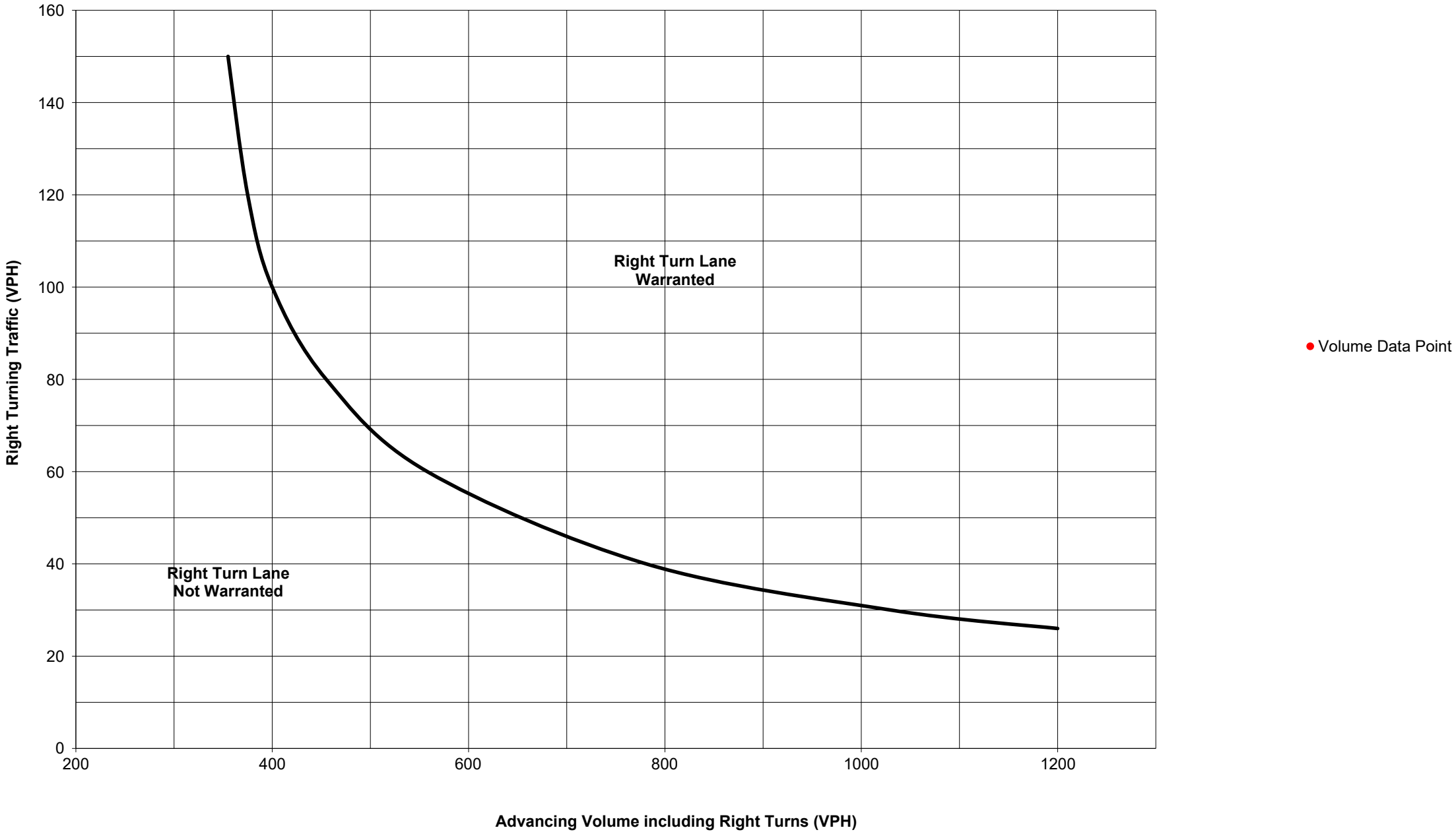
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Wilkes-Barre Township	**Analysis Date:**	5/12/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Casey Avenue/Park and Ride Lot (Northbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	AM Adjacent Street	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Level	**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	33.0%	11
	Through	-	818	4.0%	835
	Right	Yes	1	0.0%	1
Opposing	Left	No	0	0.0%	N/A
	Through	-	451	7.0%	467
	Right	Yes	51	5.0%	53

Advancing Volume:	847
Opposing Volume:	520
Left Turn Volume:	11
% Left Turns in Advancing Volume:	1.30%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	9	33.0%	N/A
	Through	-	818	4.0%	N/A
	Right	-	1	0.0%	N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	11
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	45

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

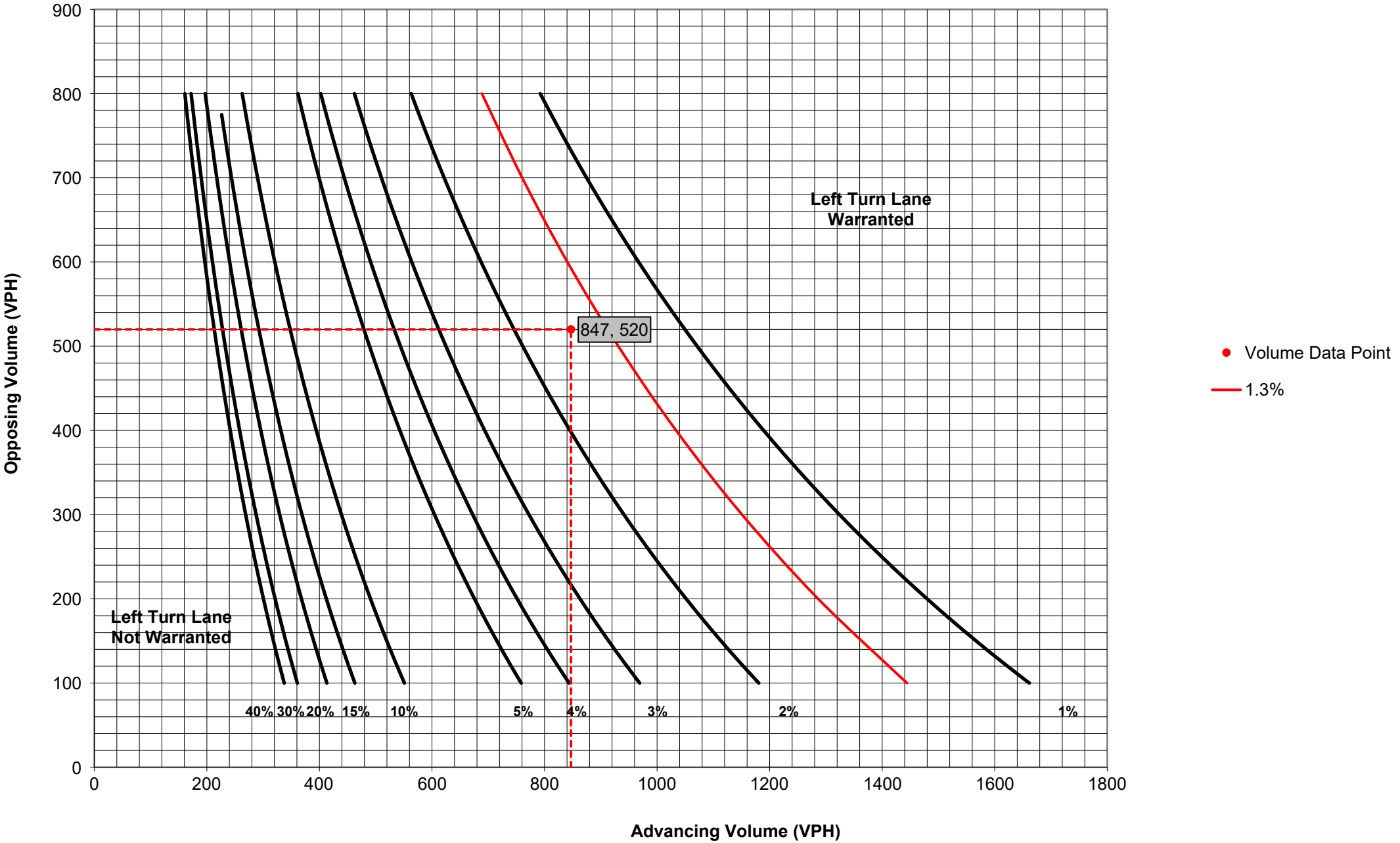
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Casey Avenue/Park and Ride Lot (Northbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour Generator	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	6	17.0%	7
	Through	-	694	3.0%	705
	Right	Yes	0	0.0%	0
Opposing	Left	No	0	0.0%	N/A
	Through	-	521	5.0%	535
	Right	Yes	58	2.0%	59

Advancing Volume:	712
Opposing Volume:	594
Left Turn Volume:	7
% Left Turns in Advancing Volume:	0.98%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	6	17.0%	N/A
	Through	-	694	3.0%	N/A
	Right	-	0	0.0%	N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: **Figure 1**

Warrant Met?: **No**

Right Turn Lane Warrant Findings

Applicable Warrant Figure: **N/A**

Warrant Met?: **N/A**

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	7
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	45

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

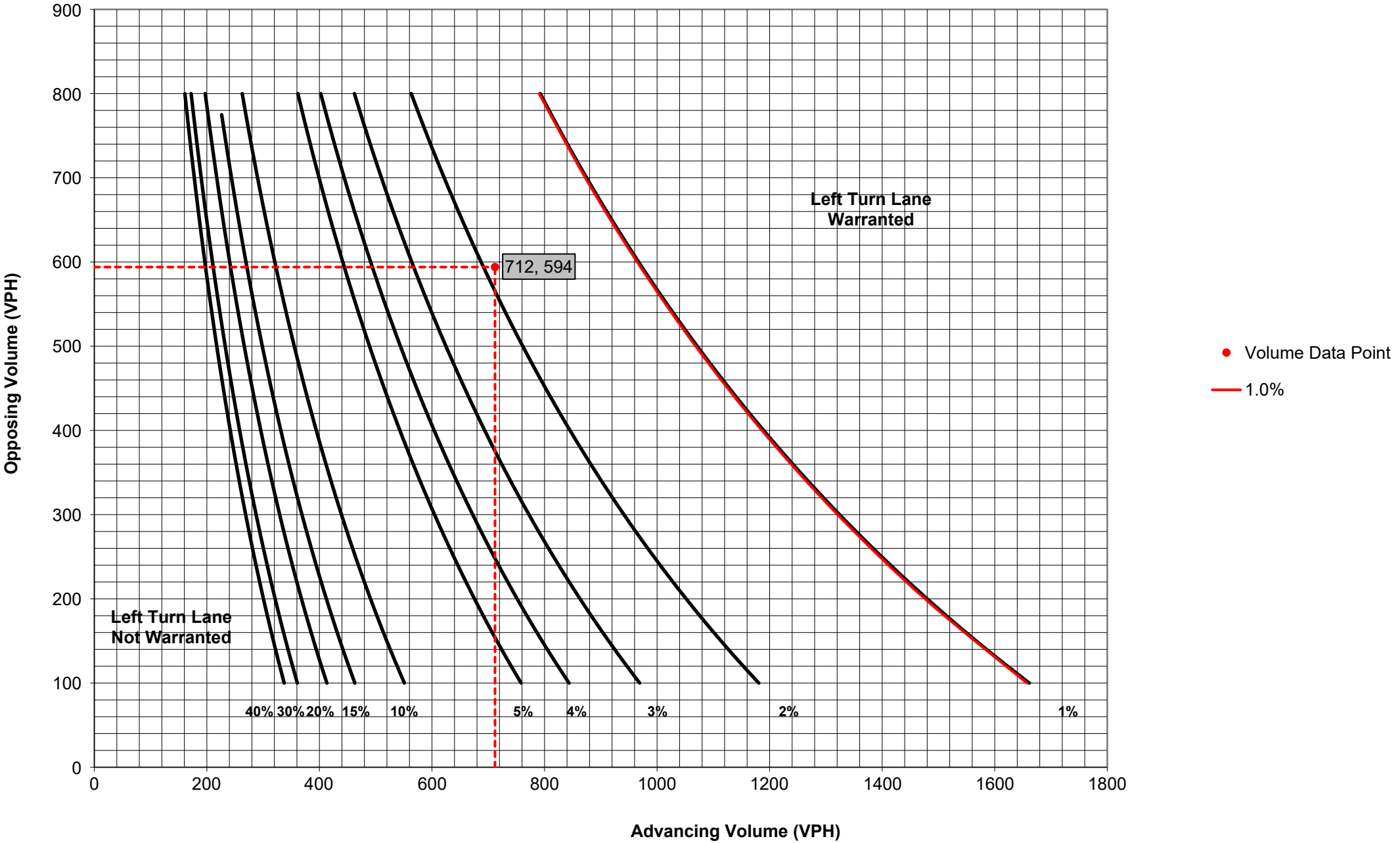
Left Turn Lane Storage Length, Condition A:	**N/A**	**Feet**
Condition B:	**N/A**	**Feet**
Condition C:	**N/A**	**Feet**
Required Left Turn Lane Storage Length:	**N/A**	**Feet**

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:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Casey Avenue/Park and Ride Lot (Northbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour Generator	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Level	**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	11.0%	22
	Through	-	860	3.0%	873
	Right	Yes	3	0.0%	3
Opposing	Left	No	2	0.0%	N/A
	Through	-	943	2.0%	953
	Right	Yes	182	2.0%	184

Advancing Volume:	898
Opposing Volume:	1137
Left Turn Volume:	22
% Left Turns in Advancing Volume:	2.45%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	20	11.0%	N/A
	Through	-	860	3.0%	N/A
	Right	-	3	0.0%	N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: 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:	22
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	38

Average # of Vehicles/Cycle: 1.0

PennDOT Publication 46, Exhibit 11-6

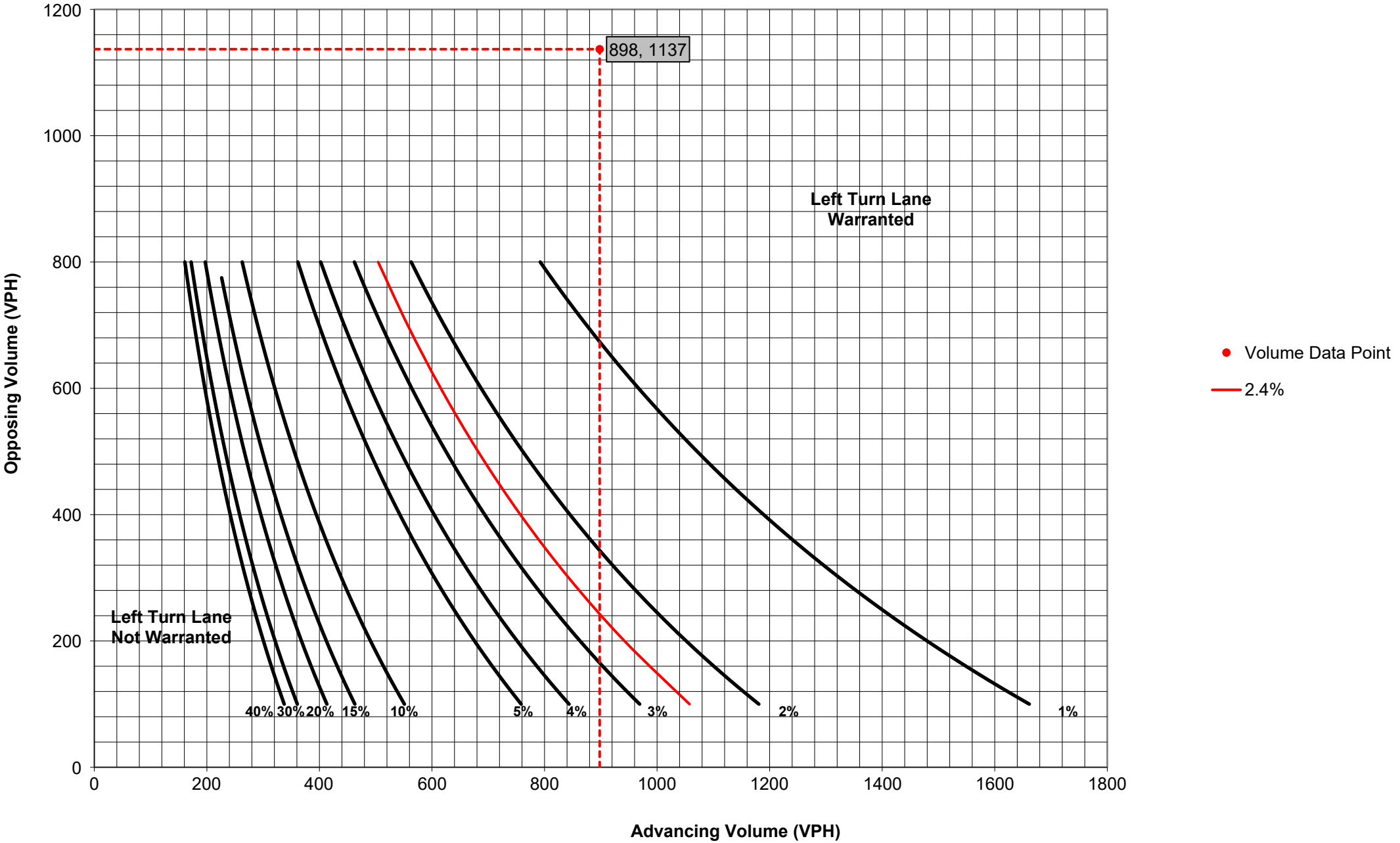
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Wilkes-Barre Township	**Analysis Date:**	5/12/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Casey Avenue/Park and Ride Lot (Northbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	AM Adjacent Street	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	9	33.0%	N/A
	Through	-	818	4.0%	N/A
	Right	Yes	1	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	451	7.0%	N/A
	Right	Yes	51	5.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
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	33.0%	N/A
	Through	-	818	4.0%	835
	Right	-	1	0.0%	1

Advancing Volume:	836
Right Turn Volume:	1

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9

Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	1
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	45

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

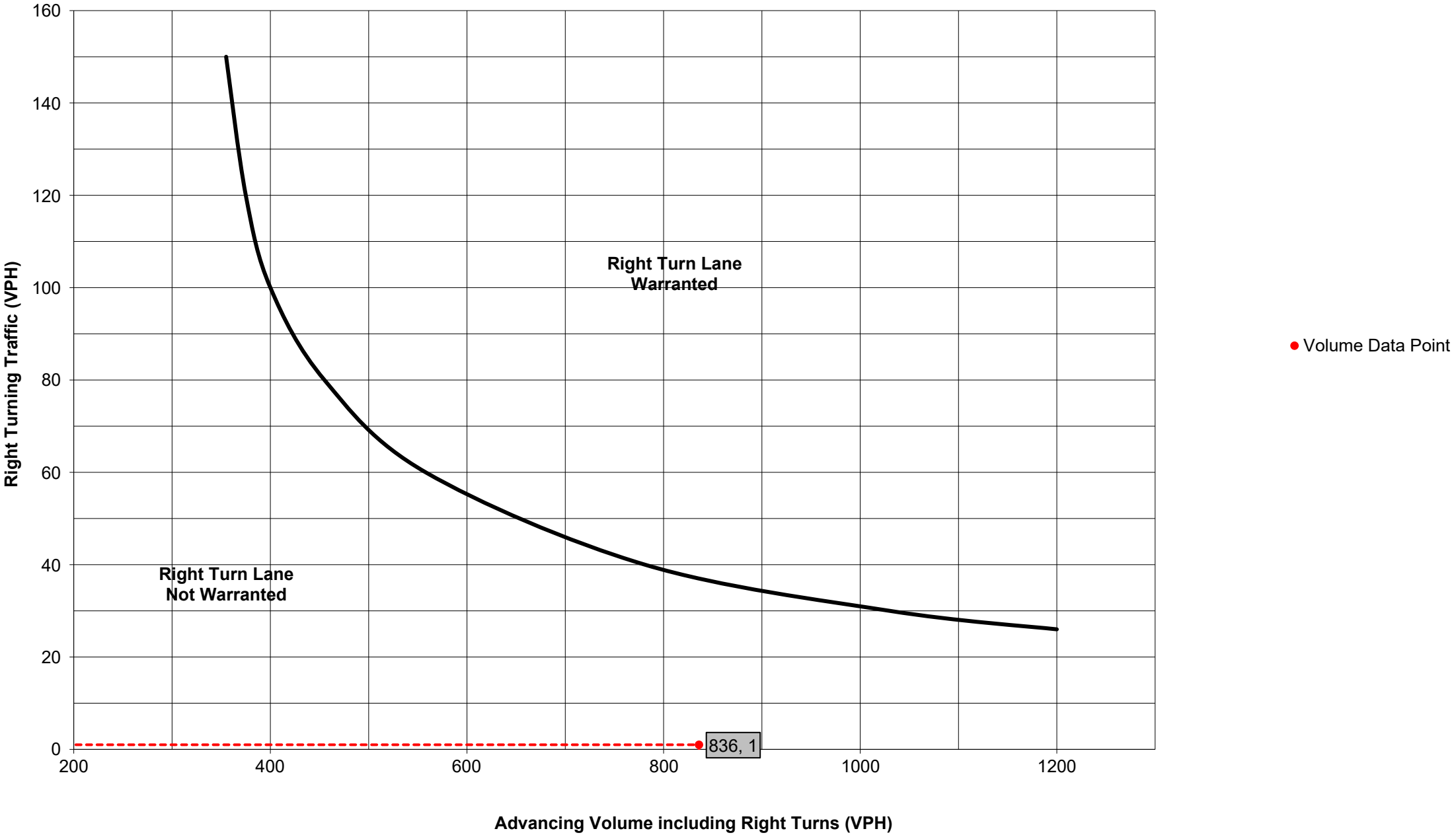
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant 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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		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Casey Avenue/Park and Ride Lot (Northbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour Generator	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	6	17.0%	N/A
	Through	-	694	3.0%	N/A
	Right	Yes	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	521	5.0%	N/A
	Right	Yes	58	2.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	6	17.0%	N/A
	Through	-	694	3.0%	705
	Right	-	0	0.0%	0

Advancing Volume:	705
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:	Signalized
Design Hour Volume of Turning Lane:	0
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	45

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

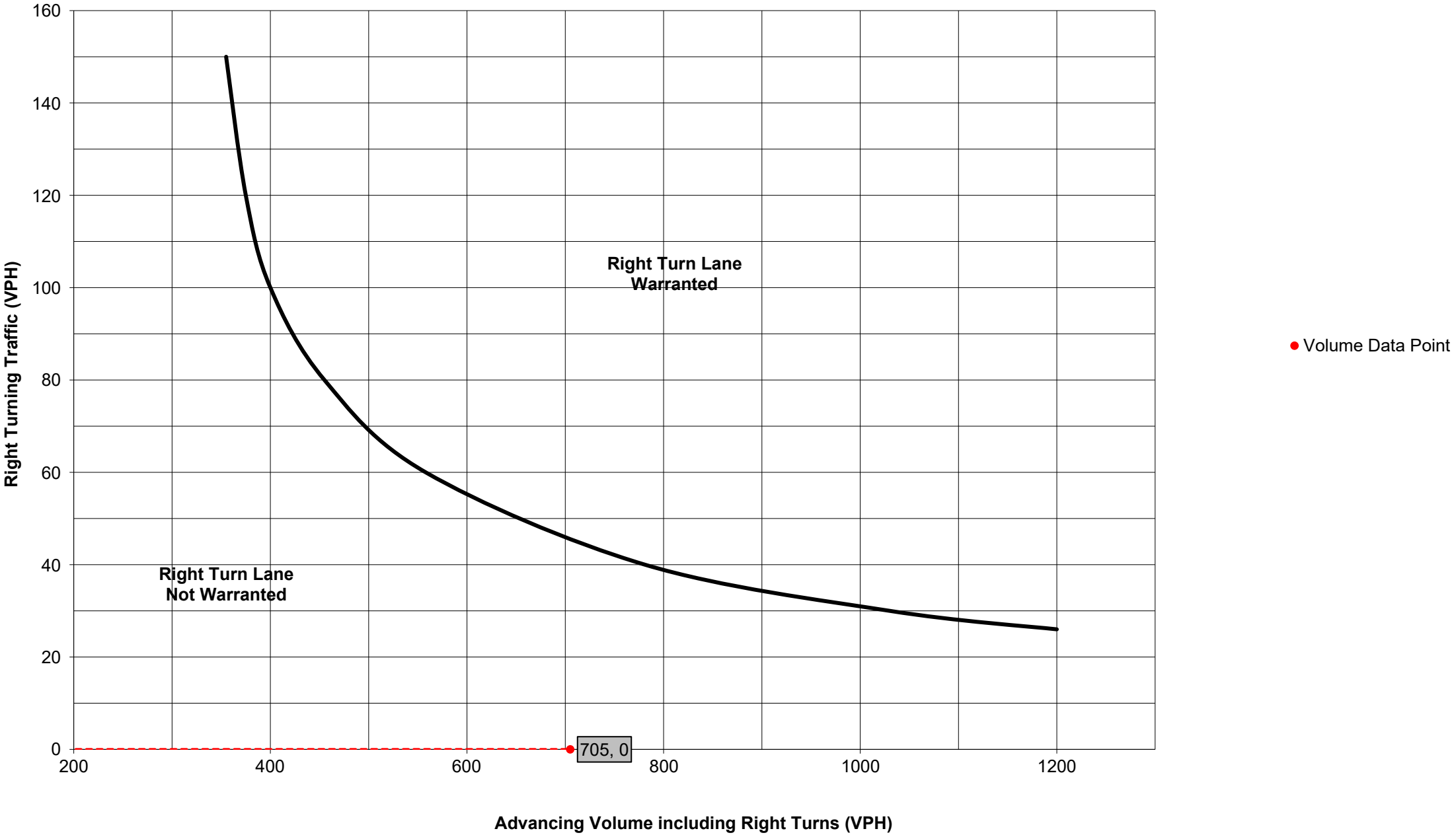
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Casey Avenue/Park and Ride Lot (Northbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour Generator	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	20	11.0%	N/A
	Through	-	860	3.0%	N/A
	Right	Yes	3	0.0%	N/A
Opposing	Left	No	2	0.0%	N/A
	Through	-	943	2.0%	N/A
	Right	Yes	182	2.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
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	11.0%	N/A
	Through	-	860	3.0%	873
	Right	-	3	0.0%	3

Advancing Volume:	876
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:	Signalized
Design Hour Volume of Turning Lane:	3
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	38

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

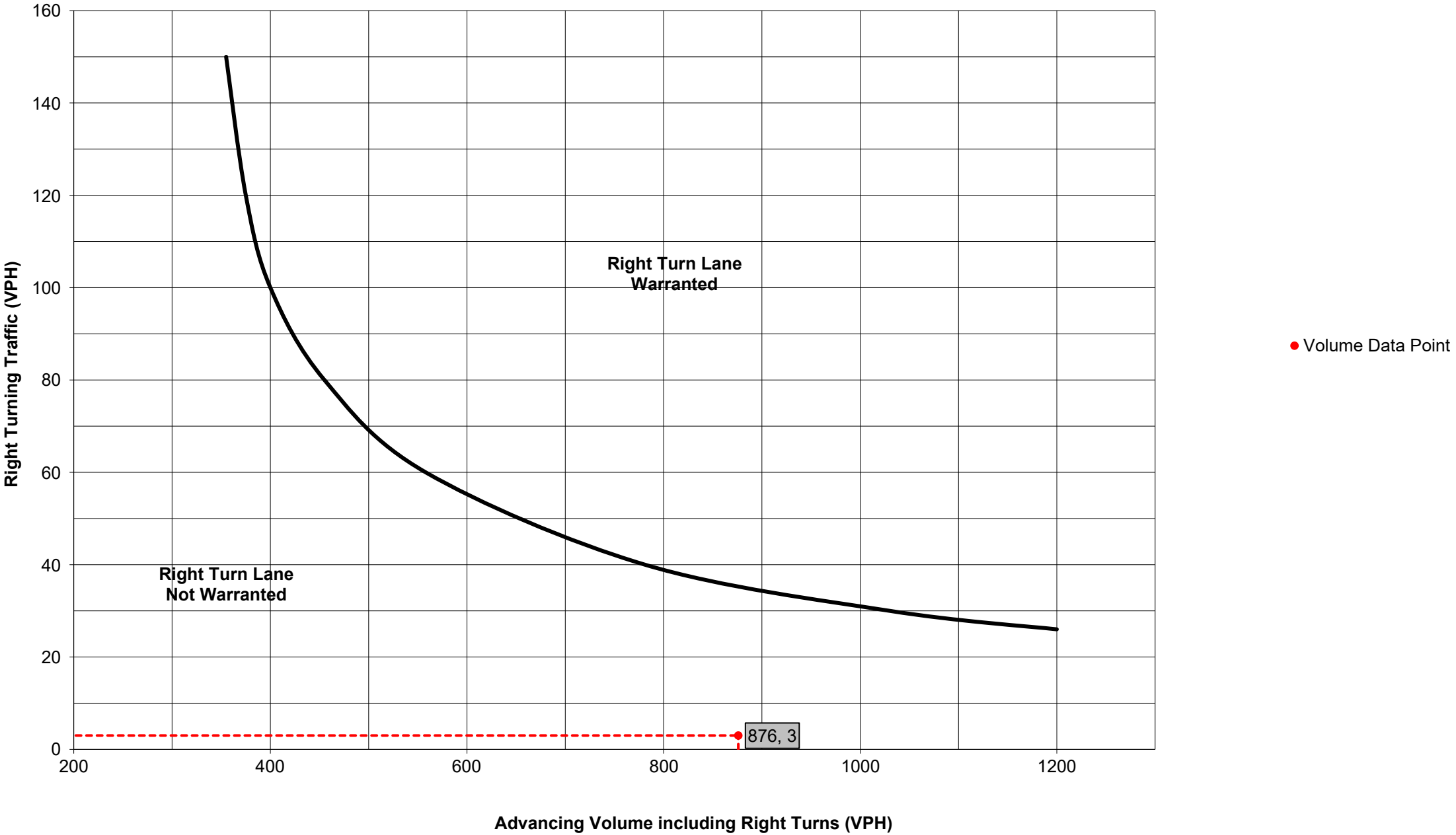
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Wilkes-Barre Township	**Analysis Date:**	5/12/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Casey Avenue/Park and Ride Lot (Southbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	AM Adjacent Street	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Level	**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	-	451	7.0%	467
	Right	No	51	5.0%	N/A
Opposing	Left	No	9	33.0%	N/A
	Through	-	818	4.0%	835
	Right	Yes	1	0.0%	1

Advancing Volume:	467
Opposing Volume:	836
Left Turn Volume:	0
% Left Turns in Advancing Volume:	0.00%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	0	0.0%	N/A
	Through	-	451	7.0%	N/A
	Right	-	51	5.0%	N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: #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:	0
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	45

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

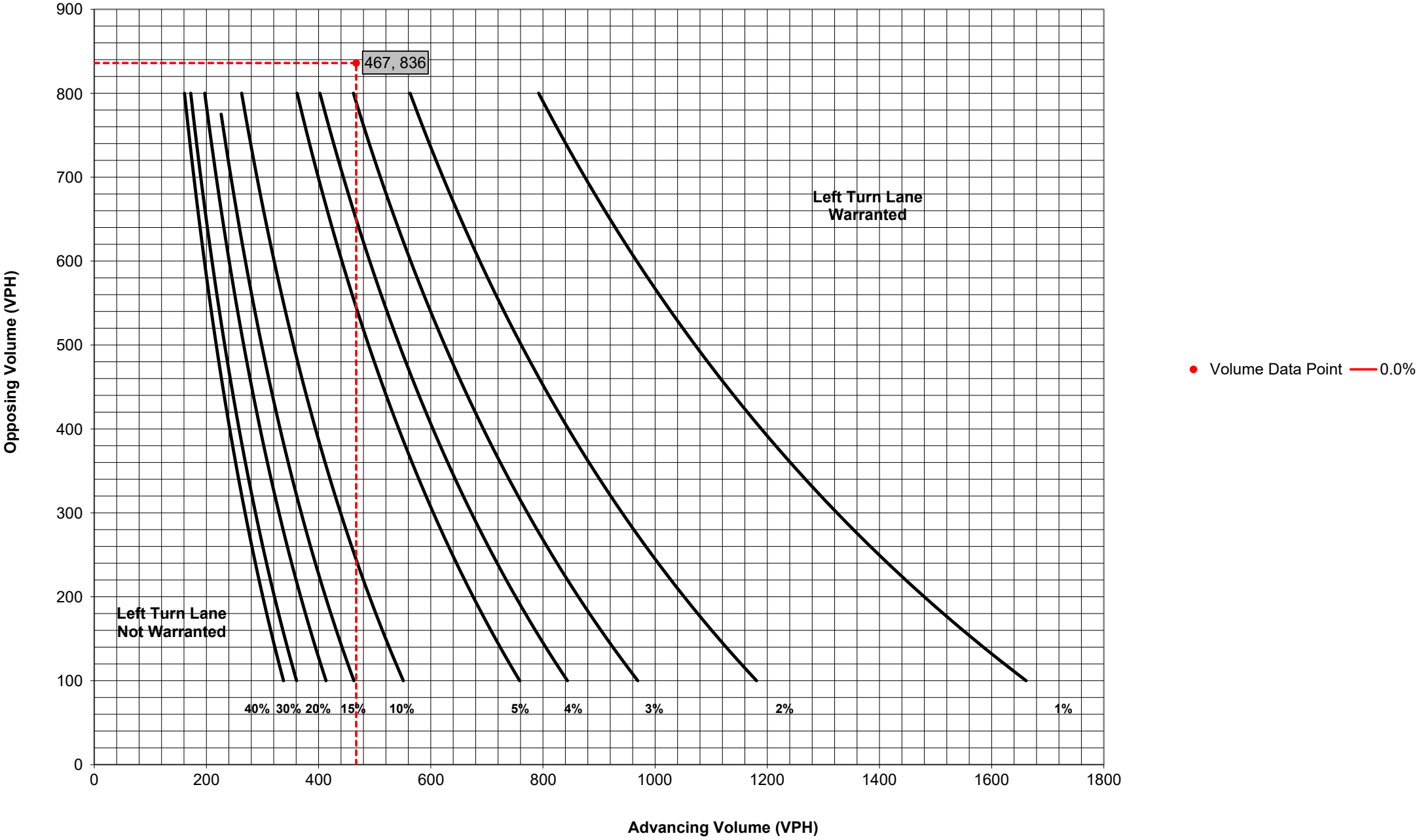
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Casey Avenue/Park and Ride Lot (Southbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour Generator	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	35	**Type of Analysis**	
Type of Terrain:	Level	**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	-	521	5.0%	535
	Right	No	58	2.0%	N/A
Opposing	Left	No	6	17.0%	N/A
	Through	-	694	3.0%	705
	Right	Yes	0	0.0%	0

Advancing Volume:	535
Opposing Volume:	705
Left Turn Volume:	0
% Left Turns in Advancing Volume:	0.00%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	0	0.0%	N/A
	Through	-	521	5.0%	N/A
	Right	-	58	2.0%	N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: #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:	0
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	45

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

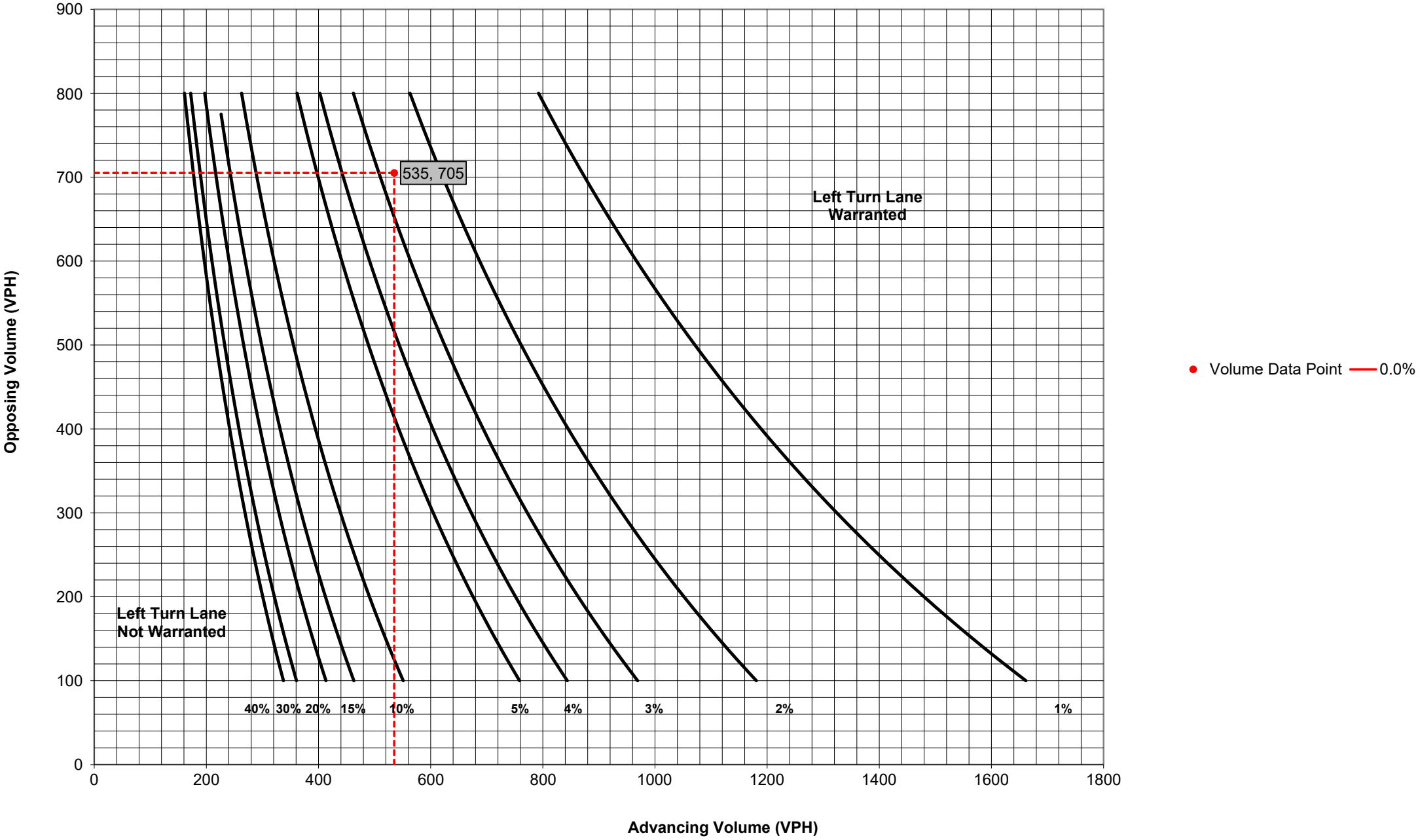
Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

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:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Casey Avenue/Park and Ride Lot (Southbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour Generator	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	2	0.0%	2
	Through	-	943	2.0%	953
	Right	No	182	2.0%	N/A
Opposing	Left	No	20	11.0%	N/A
	Through	-	860	3.0%	873
	Right	Yes	3	0.0%	3

Advancing Volume:	955
Opposing Volume:	876
Left Turn Volume:	2
% Left Turns in Advancing Volume:	0.21%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	2	0.0%	N/A
	Through	-	943	2.0%	N/A
	Right	-	182	2.0%	N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: **Figure 1**

Warrant Met?: **No**

Right Turn Lane Warrant Findings

Applicable Warrant Figure: **N/A**

Warrant Met?: **N/A**

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	2
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	38

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

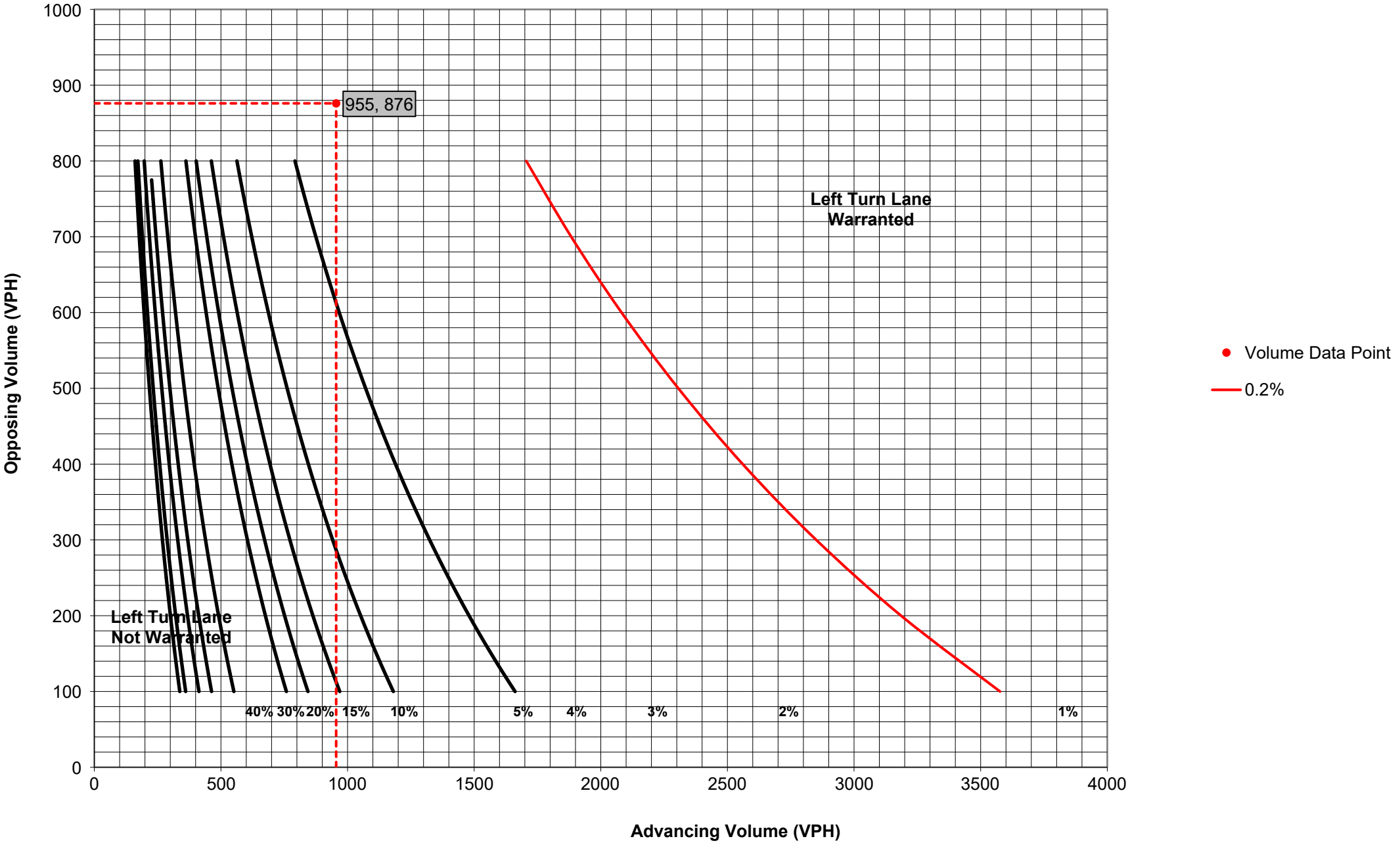
Left Turn Lane Storage Length, Condition A:	**N/A**	**Feet**
Condition B:	**N/A**	**Feet**
Condition C:	**N/A**	**Feet**
Required Left Turn Lane Storage Length:	**N/A**	**Feet**

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:	Wilkes-Barre Township	**Analysis Date:**	5/12/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Casey Avenue/Park and Ride Lot (Southbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	AM Adjacent Street	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	0.0%	N/A
	Through	-	451	7.0%	N/A
	Right	No	51	5.0%	N/A
Opposing	Left	No	9	33.0%	N/A
	Through	-	818	4.0%	N/A
	Right	Yes	1	0.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
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	-	451	7.0%	467
	Right	-	51	5.0%	53

Advancing Volume:	520
Right Turn Volume:	53

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/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:	53
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	45

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

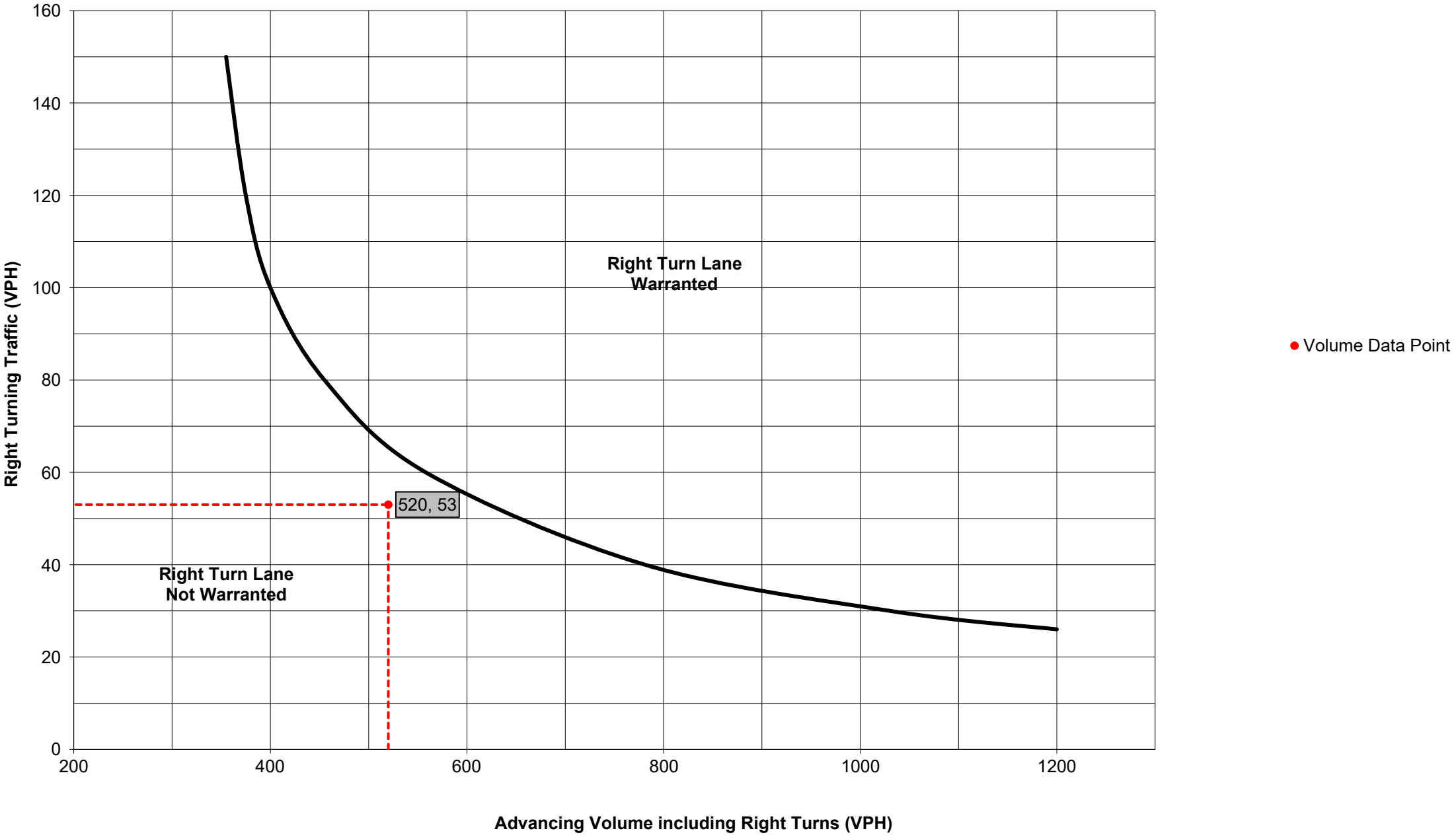
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Casey Avenue/Park and Ride Lot (Southbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour Generator	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	35	**Type of Analysis**	
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	0.0%	N/A
	Through	-	521	5.0%	N/A
	Right	No	58	2.0%	N/A
Opposing	Left	No	6	17.0%	N/A
	Through	-	694	3.0%	N/A
	Right	Yes	0	0.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
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	-	521	5.0%	535
	Right	-	58	2.0%	59

Advancing Volume:	594
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?: Yes

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	59
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	45

Average # of Vehicles/Cycle: 1.0

PennDOT Publication 46, Exhibit 11-6

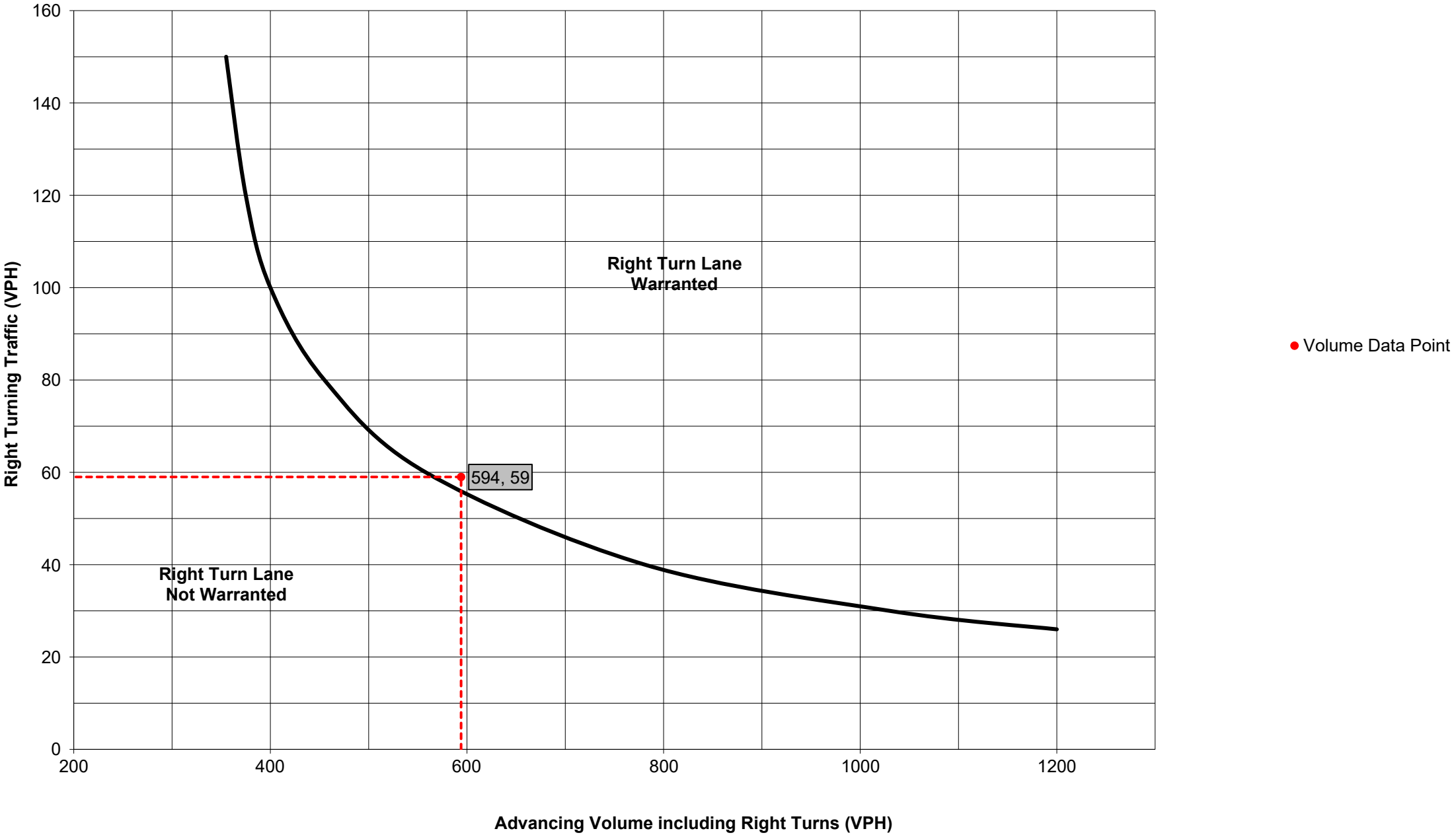
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	75	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	75	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Casey Avenue/Park and Ride Lot (Southbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour Generator	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	2	0.0%	N/A
	Through	-	943	2.0%	N/A
	Right	No	182	2.0%	N/A
Opposing	Left	No	20	11.0%	N/A
	Through	-	860	3.0%	N/A
	Right	Yes	3	0.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
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	2	0.0%	N/A
	Through	-	943	2.0%	953
	Right	-	182	2.0%	184

Advancing Volume:	1137
Right Turn Volume:	184

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9

Warrant Met?: Yes

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	184
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	38

Average # of Vehicles/Cycle: 5.0

PennDOT Publication 46, Exhibit 11-6

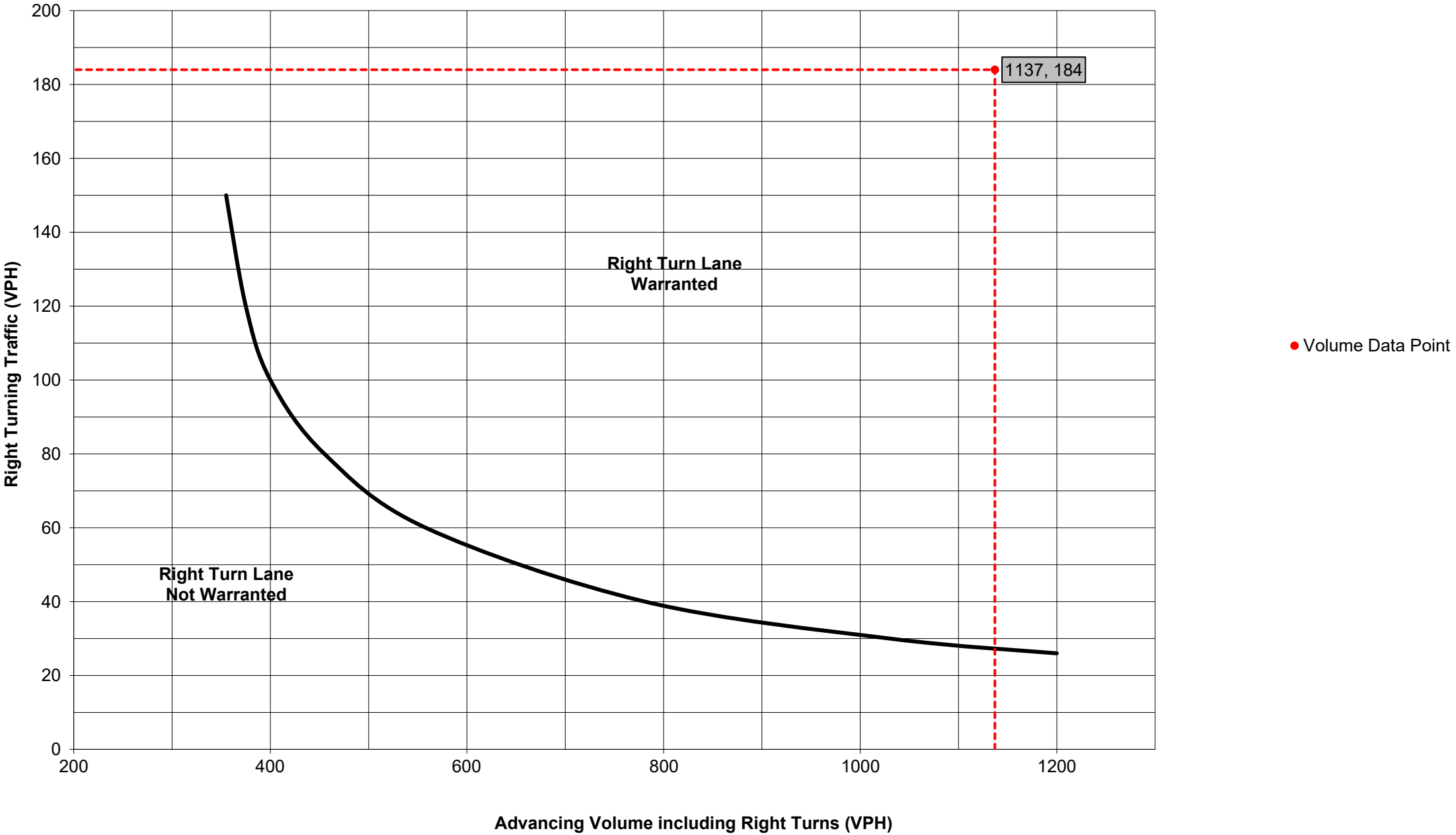
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	200	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	200	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Wilkes-Barre Township Boulevard & Sheetz Driveway/Shopping Center Driveway

Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Wilkes-Barre Township	**Analysis Date:**	5/12/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Sheetz Driveway/Shopping Center Driveway(Eastbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	AM Adjacent Street	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	54	13.0%	58
	Through	-	5	0.0%	5
	Right	Yes	9	0.0%	9
Opposing	Left	Yes	69	0.0%	69
	Through	-	1	0.0%	1
	Right	No	64	0.0%	N/A

Advancing Volume:	72
Opposing Volume:	70
Left Turn Volume:	58
% Left Turns in Advancing Volume:	80.56%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	54	13.0%	N/A
	Through	-	5	0.0%	N/A
	Right	-	9	0.0%	N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	58
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	56

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

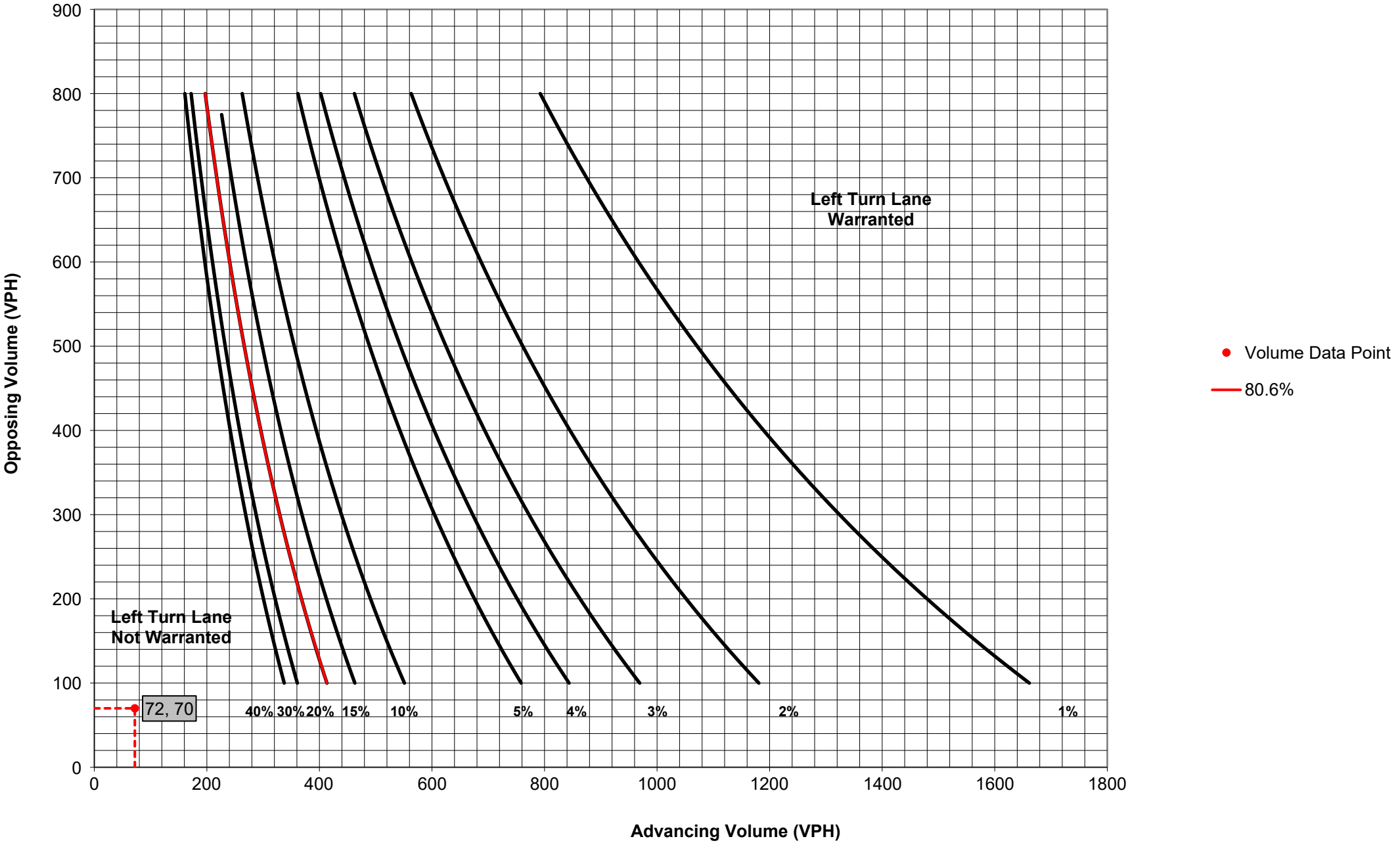
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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

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Municipality:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Sheetz Driveway/Shopping Center Driveway (Eastbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour Generator	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Level	**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	8.0%	69
	Through	-	2	0.0%	2
	Right	Yes	8	0.0%	8
Opposing	Left	Yes	66	0.0%	66
	Through	-	2	0.0%	2
	Right	No	73	0.0%	N/A

Advancing Volume:	79
Opposing Volume:	68
Left Turn Volume:	69
% Left Turns in Advancing Volume:	87.34%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	66	8.0%	N/A
	Through	-	2	0.0%	N/A
	Right	-	8	0.0%	N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	69
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	56

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

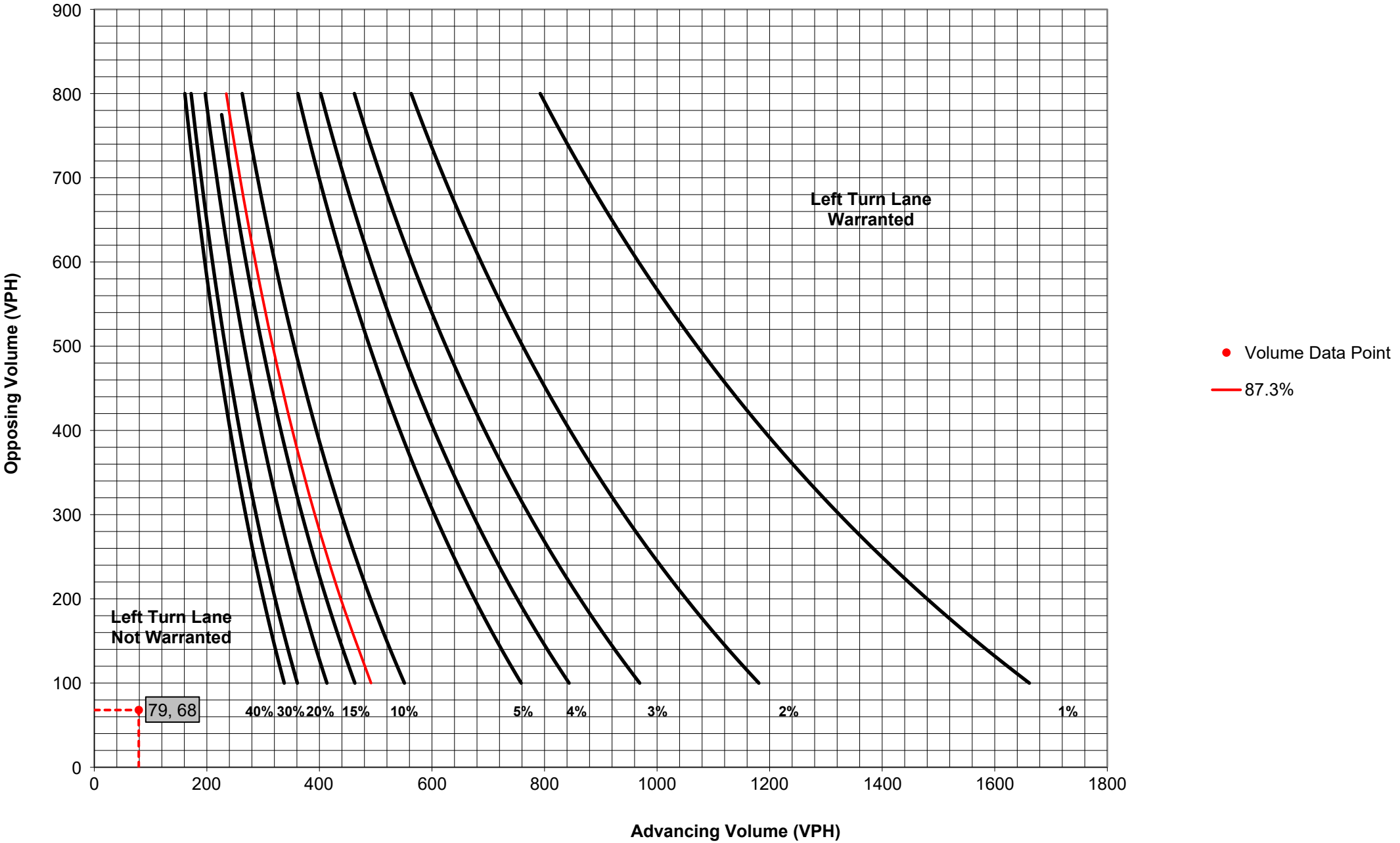
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Sheetz Driveway/Shopping Center Driveway (Eastbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour Generator	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	69	0.0%	69
	Through	-	10	0.0%	10
	Right	Yes	5	0.0%	5
Opposing	Left	Yes	229	0.0%	229
	Through	-	38	0.0%	38
	Right	No	144	0.0%	N/A

Advancing Volume:	84
Opposing Volume:	267
Left Turn Volume:	69
% Left Turns in Advancing Volume:	82.14%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	69	0.0%	N/A
	Through	-	10	0.0%	N/A
	Right	-	5	0.0%	N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: **Figure 1**

Warrant Met?: **No**

Right Turn Lane Warrant Findings

Applicable Warrant Figure: **N/A**

Warrant Met?: **N/A**

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	69
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	42

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

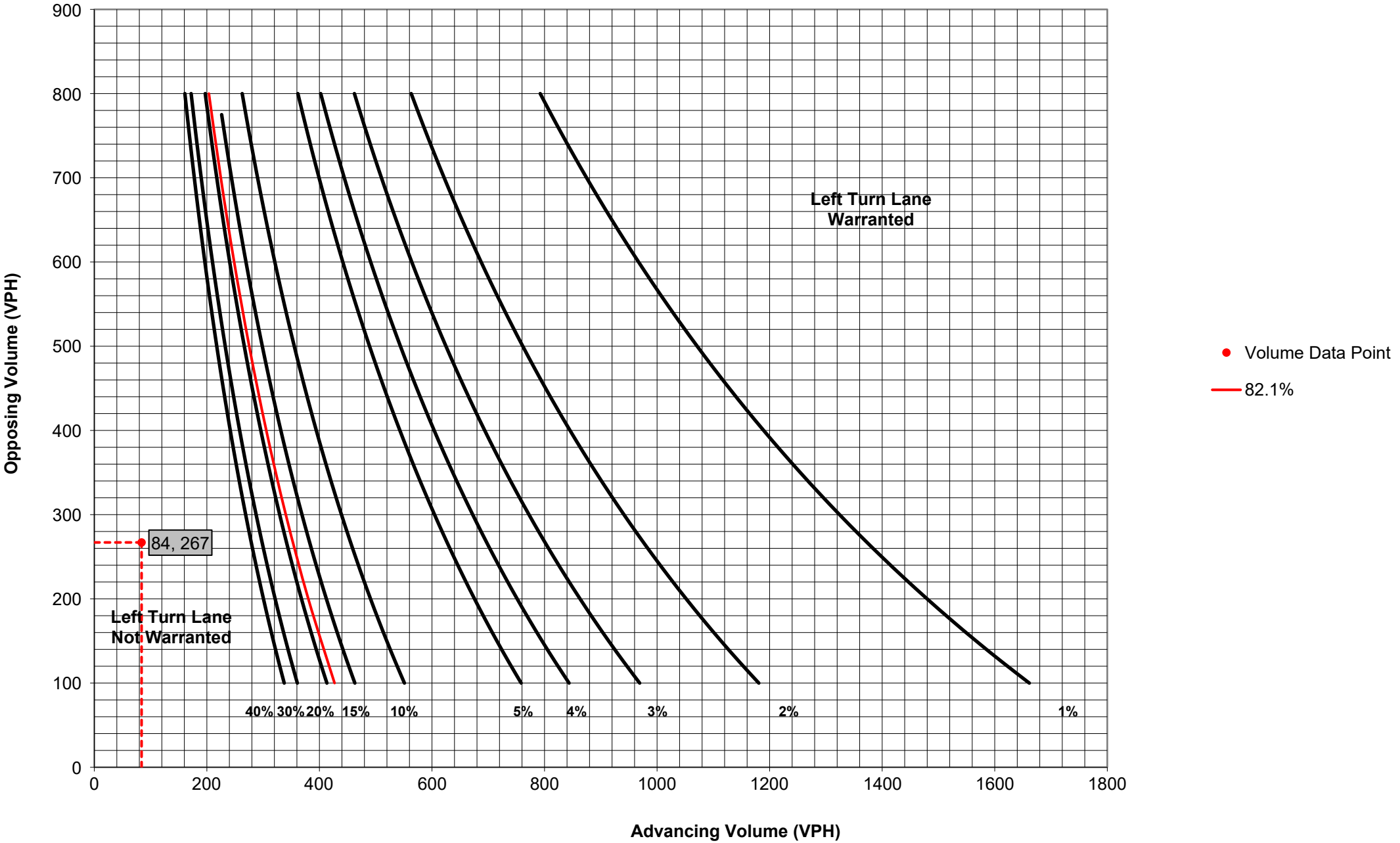
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Wilkes-Barre Township	**Analysis Date:**	5/12/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Sheetz Driveway/Shopping Center Driveway(Eastbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	AM Adjacent Street	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	54	13.0%	N/A
	Through	-	5	0.0%	N/A
	Right	Yes	9	0.0%	N/A
Opposing	Left	Yes	69	0.0%	N/A
	Through	-	1	0.0%	N/A
	Right	No	64	0.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	54	13.0%	58
	Through	-	5	0.0%	5
	Right	-	9	0.0%	9

Advancing Volume:	72
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:	Signalized
Design Hour Volume of Turning Lane:	9
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	56

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

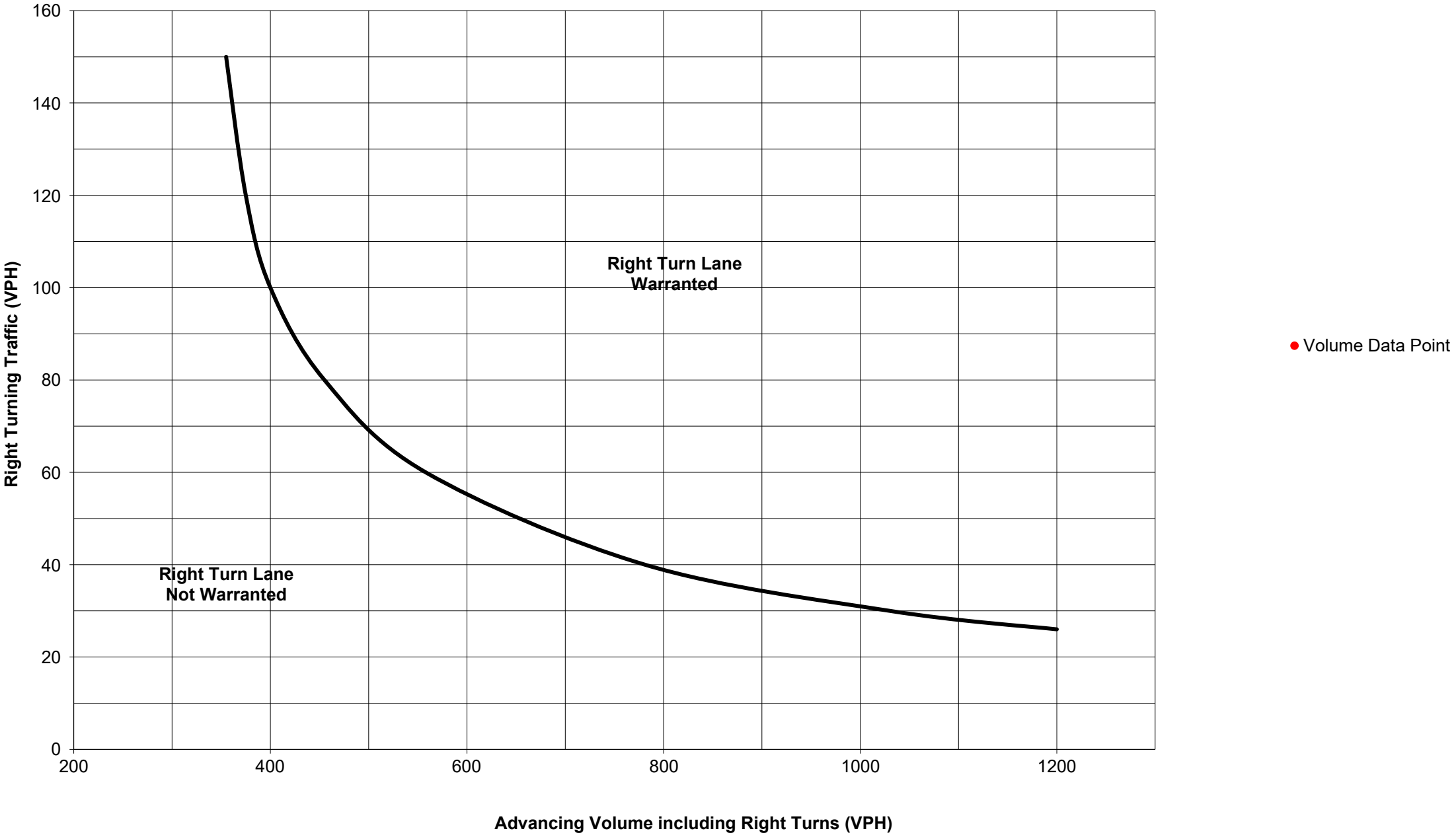
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Sheetz Driveway/Shopping Center Driveway (Eastbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour Generator	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	66	8.0%	N/A
	Through	-	2	0.0%	N/A
	Right	Yes	8	0.0%	N/A
Opposing	Left	Yes	66	0.0%	N/A
	Through	-	2	0.0%	N/A
	Right	No	73	0.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
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	8.0%	69
	Through	-	2	0.0%	2
	Right	-	8	0.0%	8

Advancing Volume:	79
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:	Signalized
Design Hour Volume of Turning Lane:	8
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	56

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

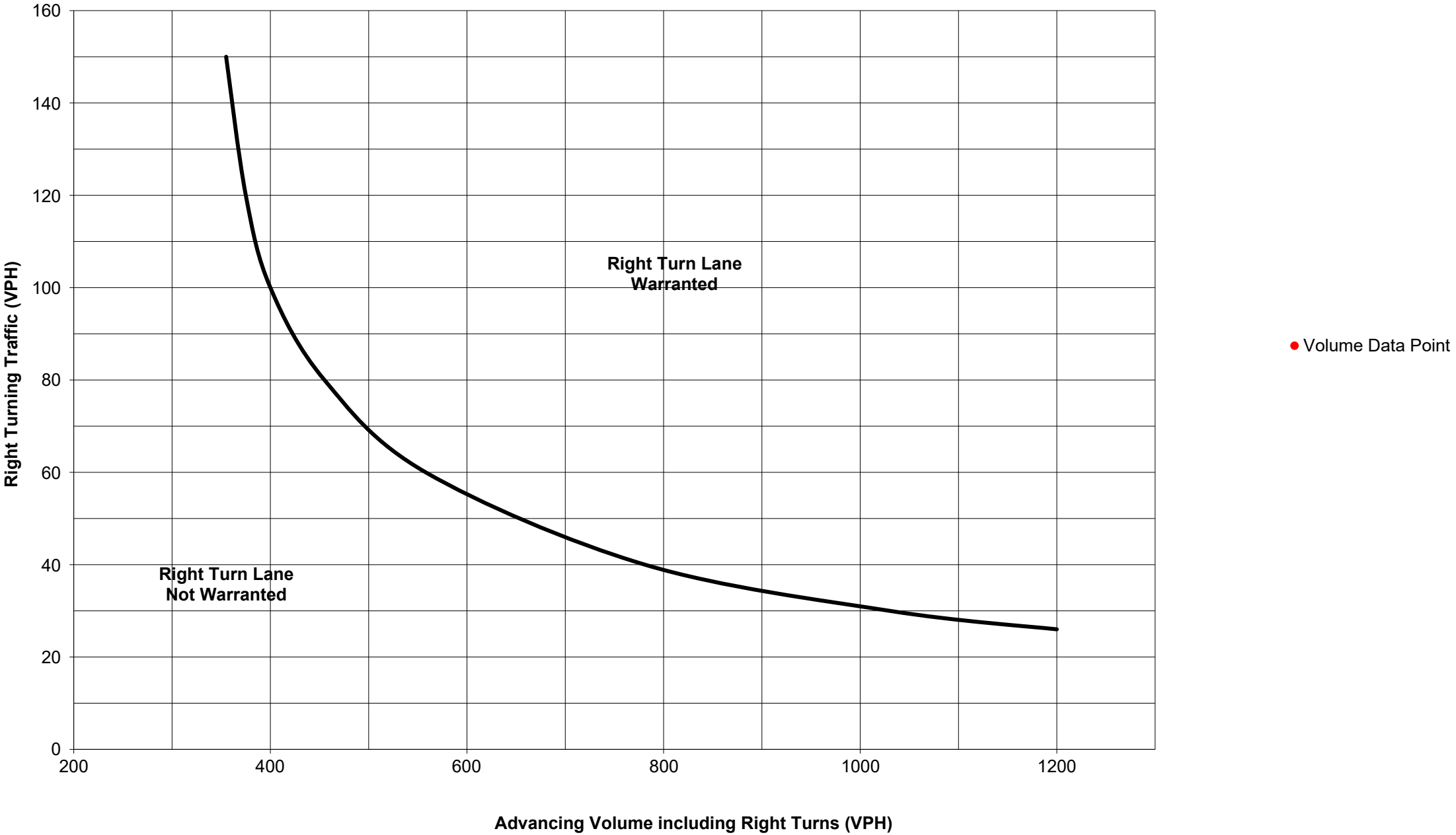
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Sheetz Driveway/Shopping Center Driveway (Eastbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour Generator	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	69	0.0%	N/A
	Through	-	10	0.0%	N/A
	Right	Yes	5	0.0%	N/A
Opposing	Left	Yes	229	0.0%	N/A
	Through	-	38	0.0%	N/A
	Right	No	144	0.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
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	69	0.0%	69
	Through	-	10	0.0%	10
	Right	-	5	0.0%	5

Advancing Volume:	84
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:	Signalized
Design Hour Volume of Turning Lane:	5
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	42

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

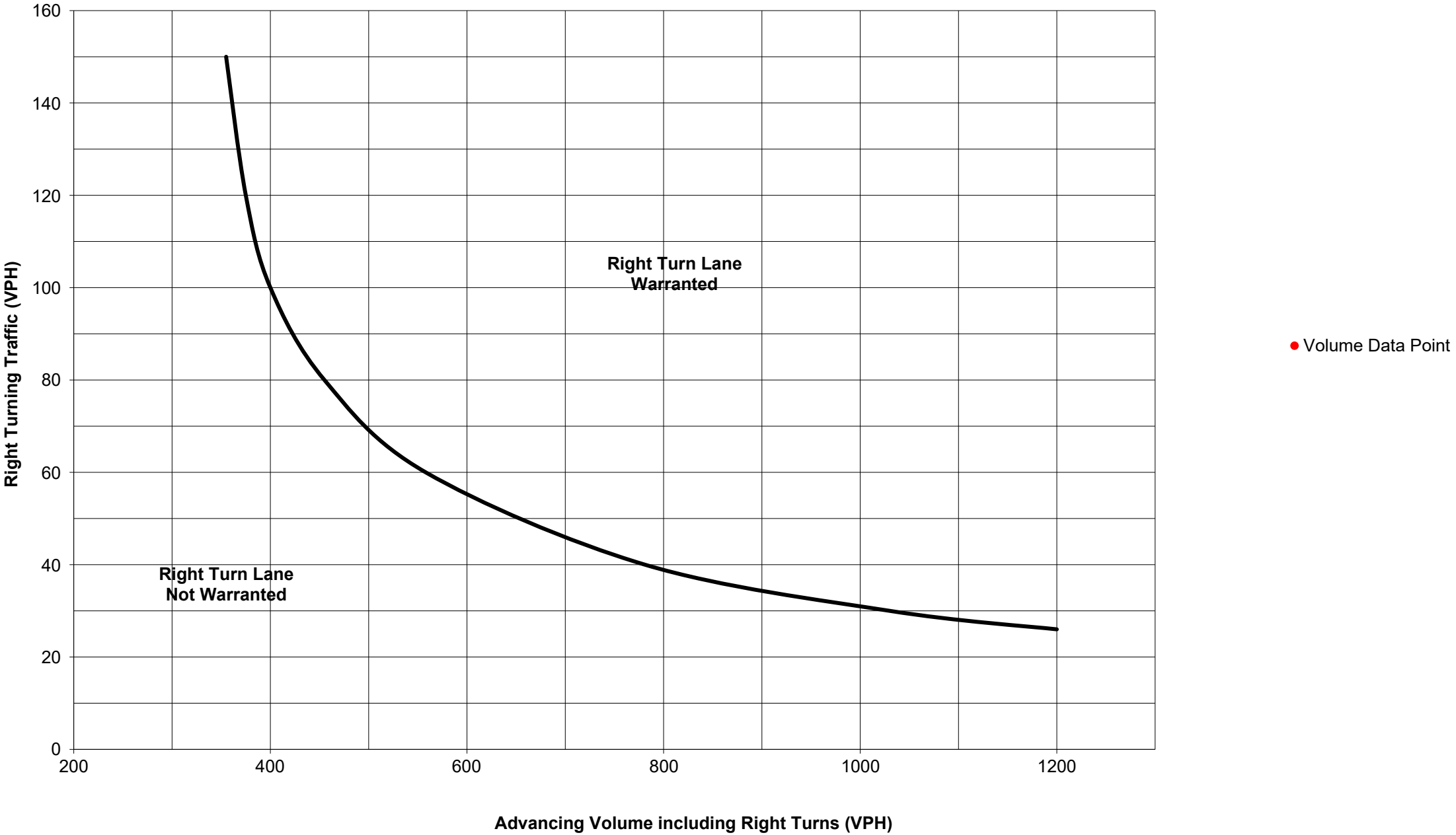
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Wilkes-Barre Township	**Analysis Date:**	5/12/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Sheetz Driveway/Shopping Center Driveway (Westbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	AM Adjacent Street	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	69	0.0%	69
	Through	-	1	0.0%	1
	Right	No	64	0.0%	N/A
Opposing	Left	Yes	54	13.0%	65
	Through	-	5	0.0%	5
	Right	Yes	9	0.0%	9

Advancing Volume:	70
Opposing Volume:	79
Left Turn Volume:	69
% Left Turns in Advancing Volume:	98.57%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	69	0.0%	N/A
	Through	-	1	0.0%	N/A
	Right	-	64	0.0%	N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	69
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	56

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

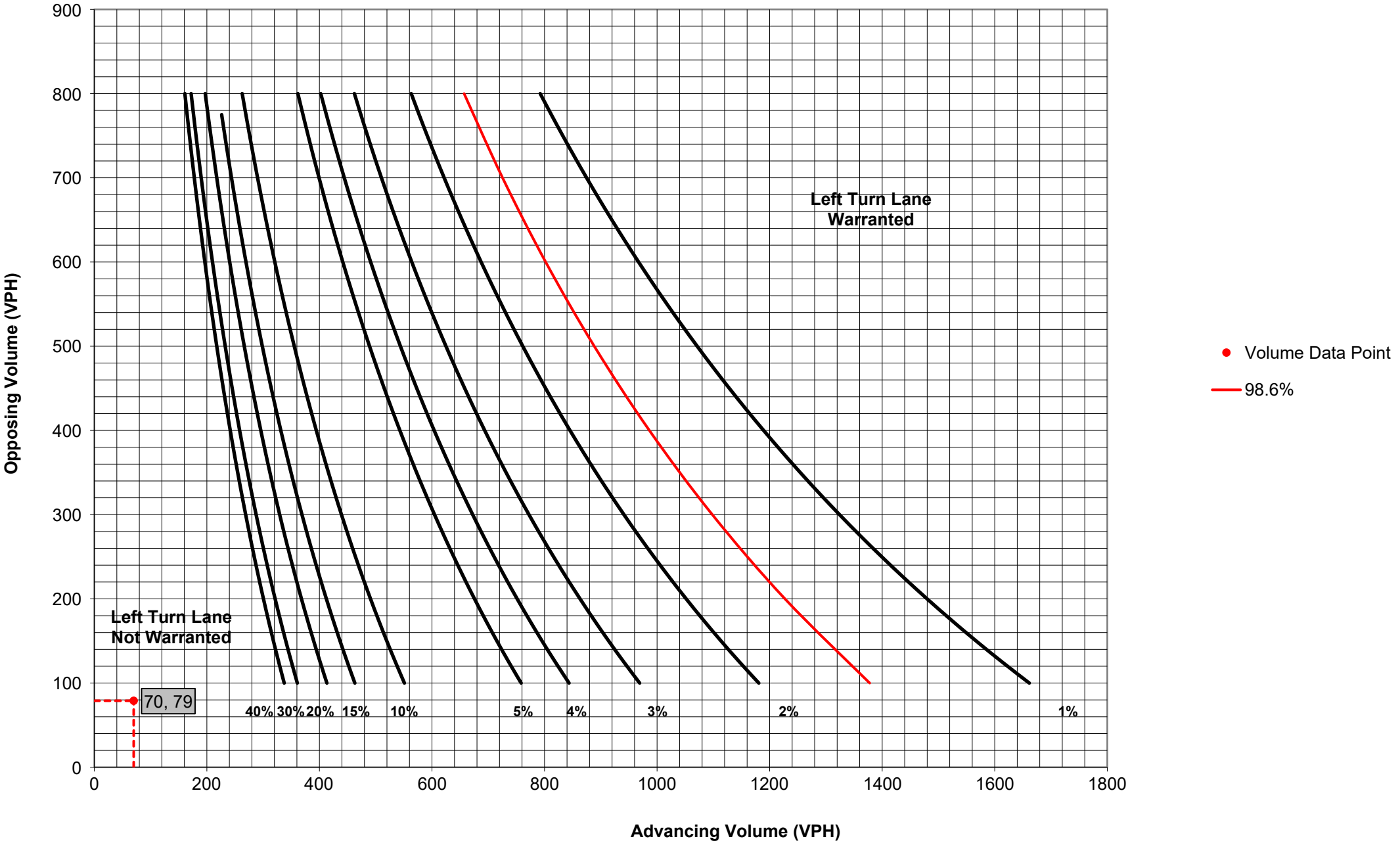
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Sheetz Driveway/Shopping Center Driveway (Westbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour Generator	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	66	0.0%	66
	Through	-	2	0.0%	2
	Right	No	73	0.0%	N/A
Opposing	Left	Yes	66	8.0%	74
	Through	-	2	0.0%	2
	Right	Yes	8	0.0%	8

Advancing Volume:	68
Opposing Volume:	84
Left Turn Volume:	66
% Left Turns in Advancing Volume:	97.06%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	66	0.0%	N/A
	Through	-	2	0.0%	N/A
	Right	-	73	0.0%	N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	66
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	56

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

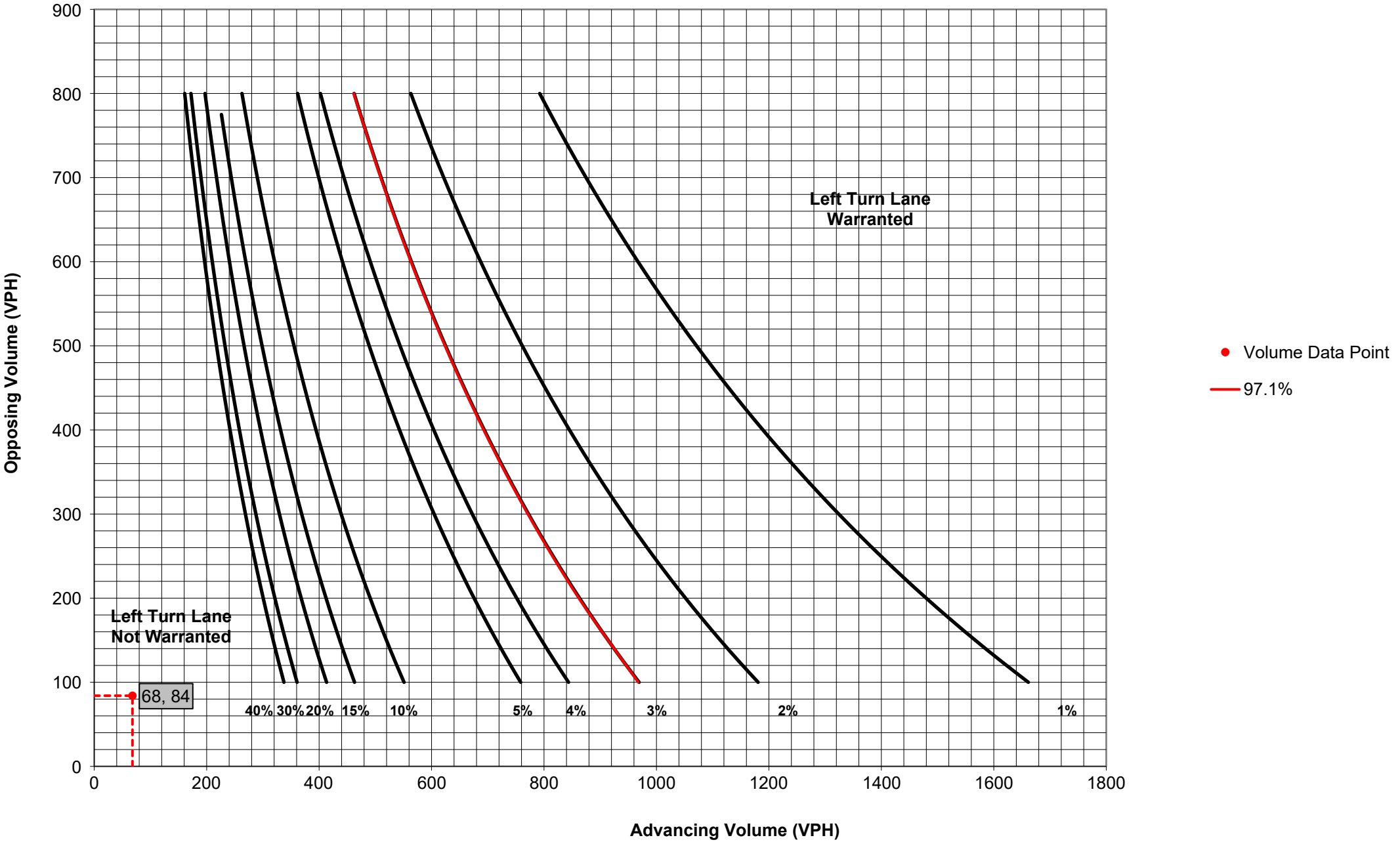
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Sheetz Driveway/Shopping Center Driveway (Westbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour Generator	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	229	0.0%	229
	Through	-	38	0.0%	38
	Right	No	144	0.0%	N/A
Opposing	Left	Yes	69	0.0%	69
	Through	-	10	0.0%	10
	Right	Yes	5	0.0%	5

Advancing Volume:	267
Opposing Volume:	84
Left Turn Volume:	229
% Left Turns in Advancing Volume:	85.77%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	69	0.0%	N/A
	Through	-	10	0.0%	N/A
	Right	-	5	0.0%	N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	229
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	42

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

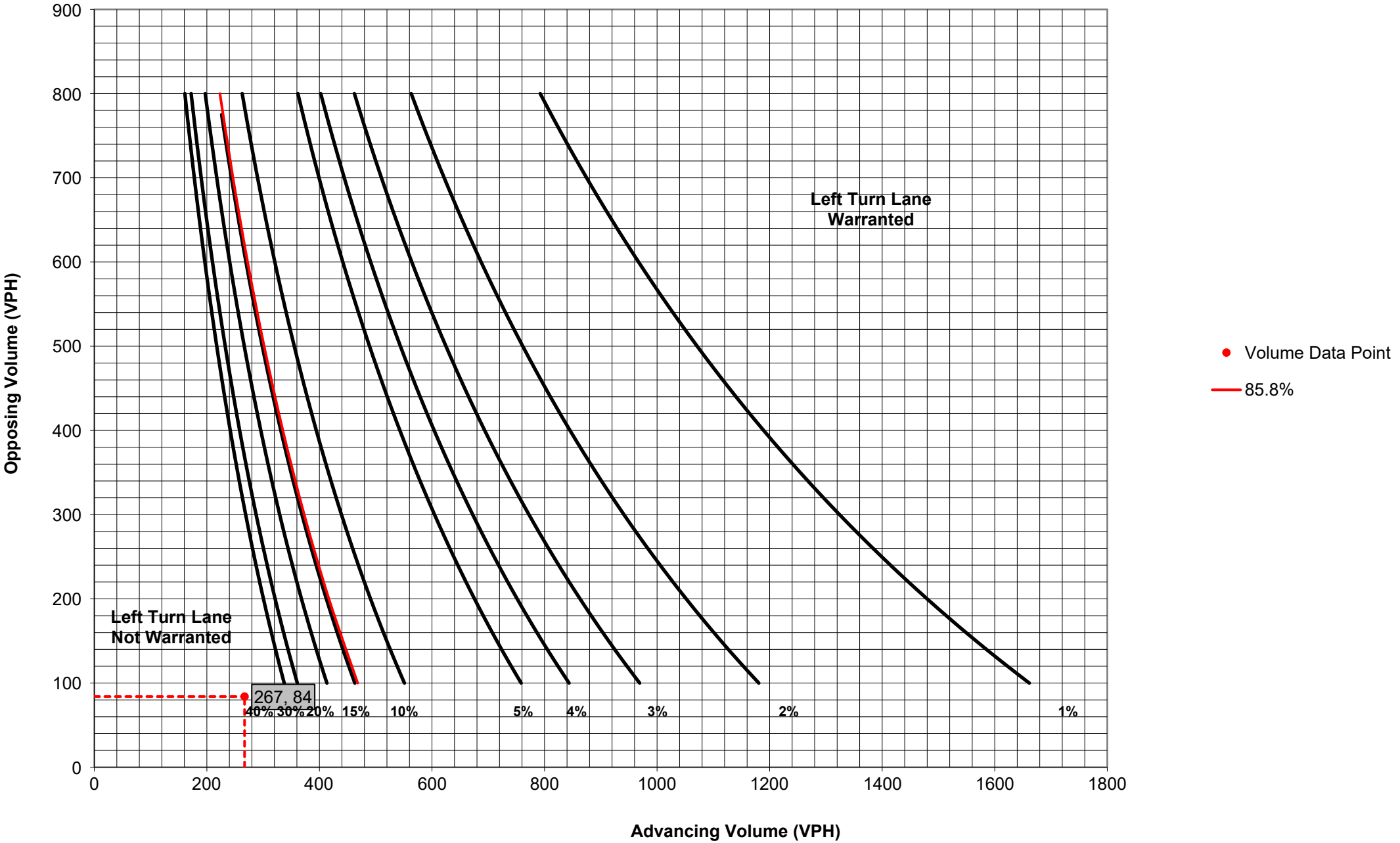
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Wilkes-Barre Township	**Analysis Date:**	5/12/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Sheetz Driveway/Shopping Center Driveway (Westbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	AM Adjacent Street	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	69	0.0%	N/A
	Through	-	1	0.0%	N/A
	Right	No	64	0.0%	N/A
Opposing	Left	Yes	54	13.0%	N/A
	Through	-	5	0.0%	N/A
	Right	Yes	9	0.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
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	69	0.0%	69
	Through	-	1	0.0%	1
	Right	-	64	0.0%	64

Advancing Volume:	134
Right Turn Volume:	64

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9

Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	64
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	56

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

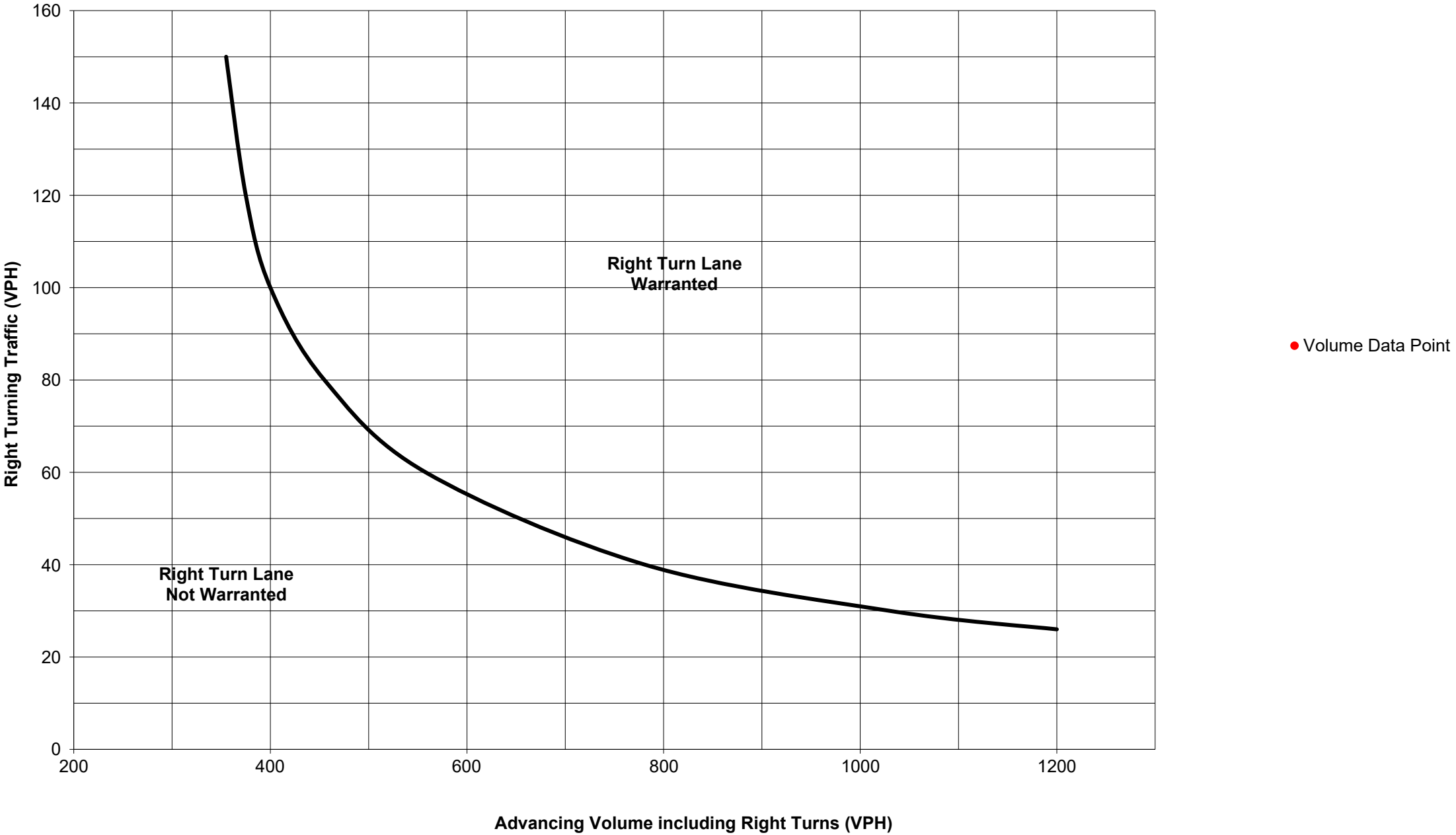
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Sheetz Driveway/Shopping Center Driveway (Westbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour Generator	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	66	0.0%	N/A
	Through	-	2	0.0%	N/A
	Right	No	73	0.0%	N/A
Opposing	Left	Yes	66	8.0%	N/A
	Through	-	2	0.0%	N/A
	Right	Yes	8	0.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
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	0.0%	66
	Through	-	2	0.0%	2
	Right	-	73	0.0%	73

Advancing Volume:	141
Right Turn Volume:	73

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/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:	73
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	56

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

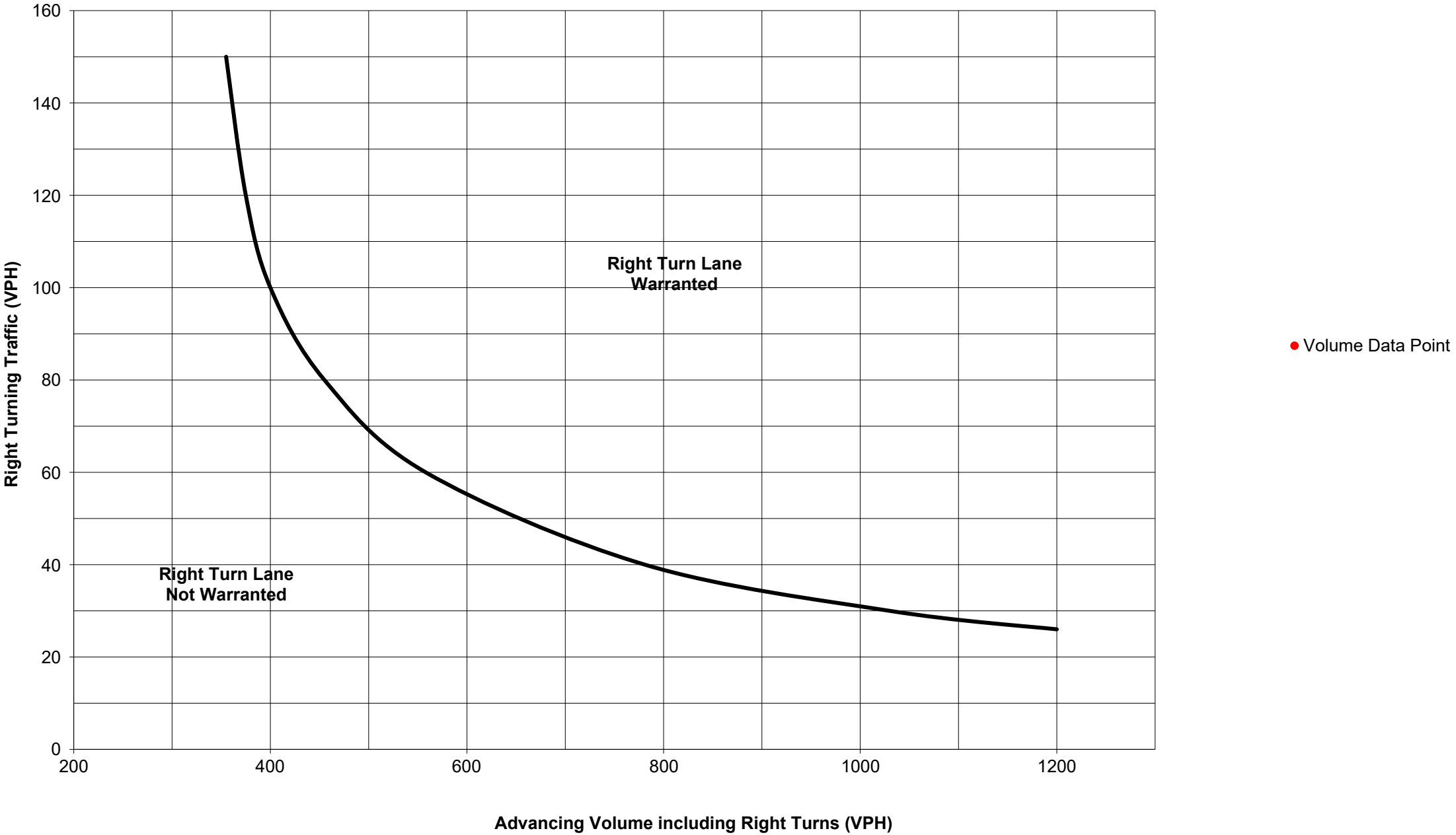
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Sheetz Driveway/Shopping Center Driveway (Westbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour Generator	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	229	0.0%	N/A
	Through	-	38	0.0%	N/A
	Right	No	144	0.0%	N/A
Opposing	Left	Yes	69	0.0%	N/A
	Through	-	10	0.0%	N/A
	Right	Yes	5	0.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
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	69	0.0%	69
	Through	-	10	0.0%	10
	Right	-	5	0.0%	5

Advancing Volume:	84
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:	Signalized
Design Hour Volume of Turning Lane:	5
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	42

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

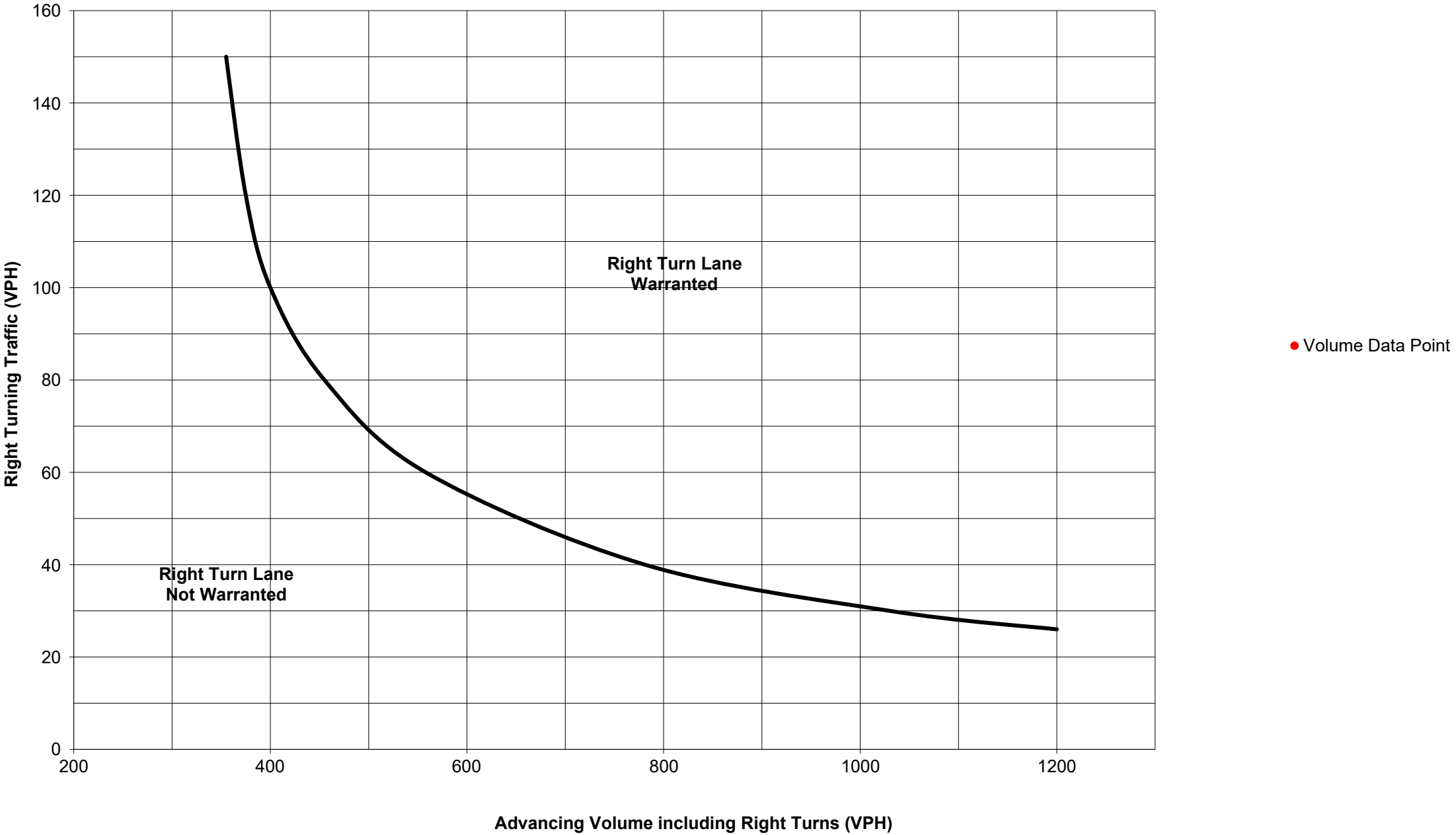
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Wilkes-Barre Township	**Analysis Date:**	5/12/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Sheetz Driveway/Shopping Center Driveway (Northbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	2
Design Hour:	AM Adjacent Street	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	40		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	54	9.0%	57
	Through	-	864	4.0%	882
	Right	No	123	1.0%	N/A
Opposing	Left	No	44	0.0%	N/A
	Through	-	397	7.0%	411
	Right	Yes	56	21.0%	62

Advancing Volume:	939
Opposing Volume:	473
Left Turn Volume:	57
% Left Turns in Advancing Volume:	6.07%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	54	9.0%	N/A
	Through	-	864	4.0%	N/A
	Right	-	123	1.0%	N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: **Figure 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:	57
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	56

Average # of Vehicles/Cycle: 1.0

PennDOT Publication 46, Exhibit 11-6

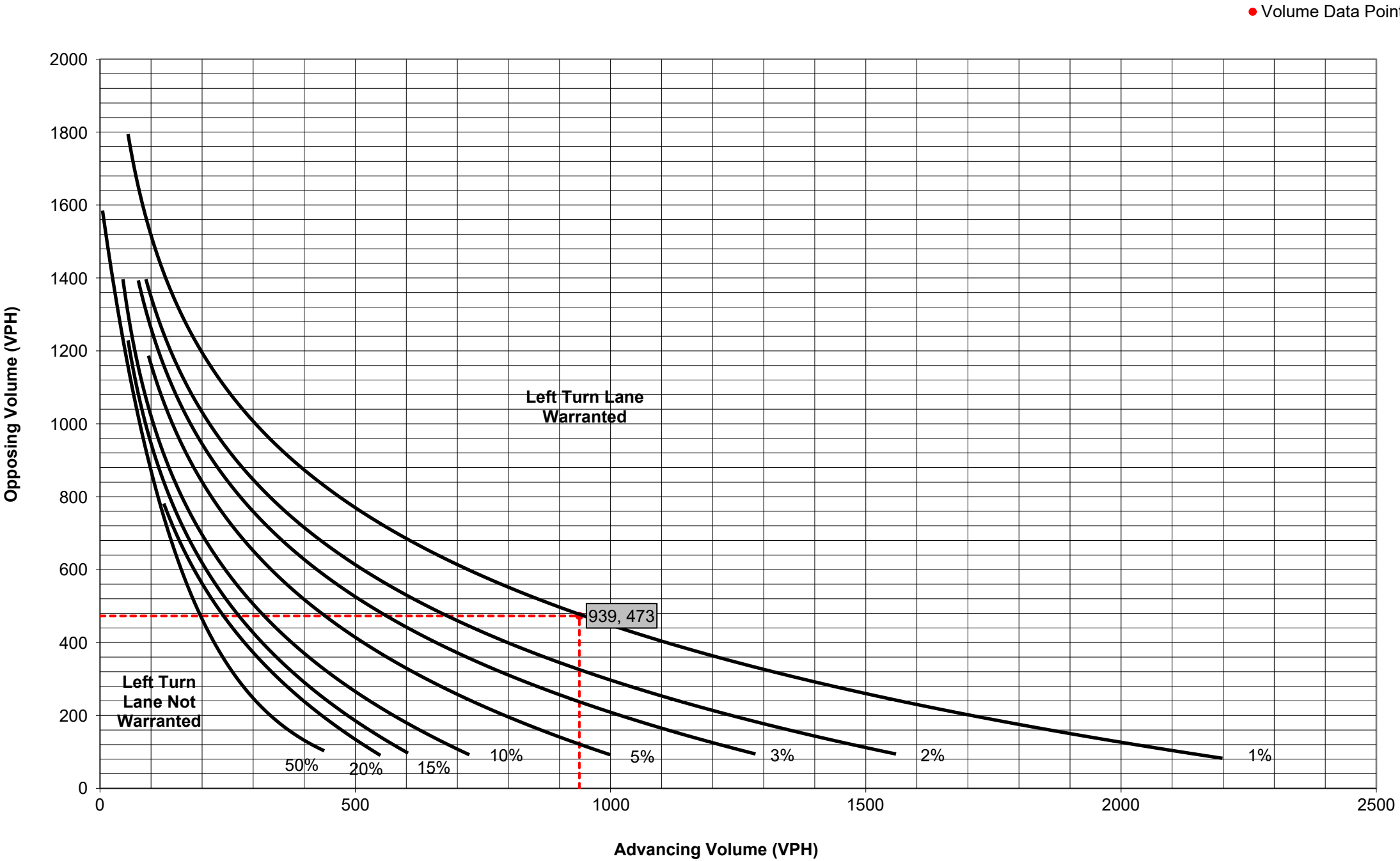
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	**N/A**	**Feet**
Condition B:	**75**	**Feet**
Condition C:	**136**	**Feet**
Required Left Turn Lane Storage Length:	**150**	**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:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Sheetz Driveway/Shopping Center Driveway (Northbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	2
Design Hour:	AM Peak Hour Generator	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	40		**Type of Analysis**
Type of Terrain:	Level	**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	5.0%	62
	Through	-	765	5.0%	785
	Right	No	112	0.0%	N/A
Opposing	Left	No	59	0.0%	N/A
	Through	-	469	4.0%	479
	Right	Yes	57	9.0%	60

Advancing Volume:	847
Opposing Volume:	539
Left Turn Volume:	62
% Left Turns in Advancing Volume:	7.32%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	60	5.0%	N/A
	Through	-	765	5.0%	N/A
	Right	-	112	0.0%	N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 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):	56

Average # of Vehicles/Cycle: 1.0

PennDOT Publication 46, Exhibit 11-6

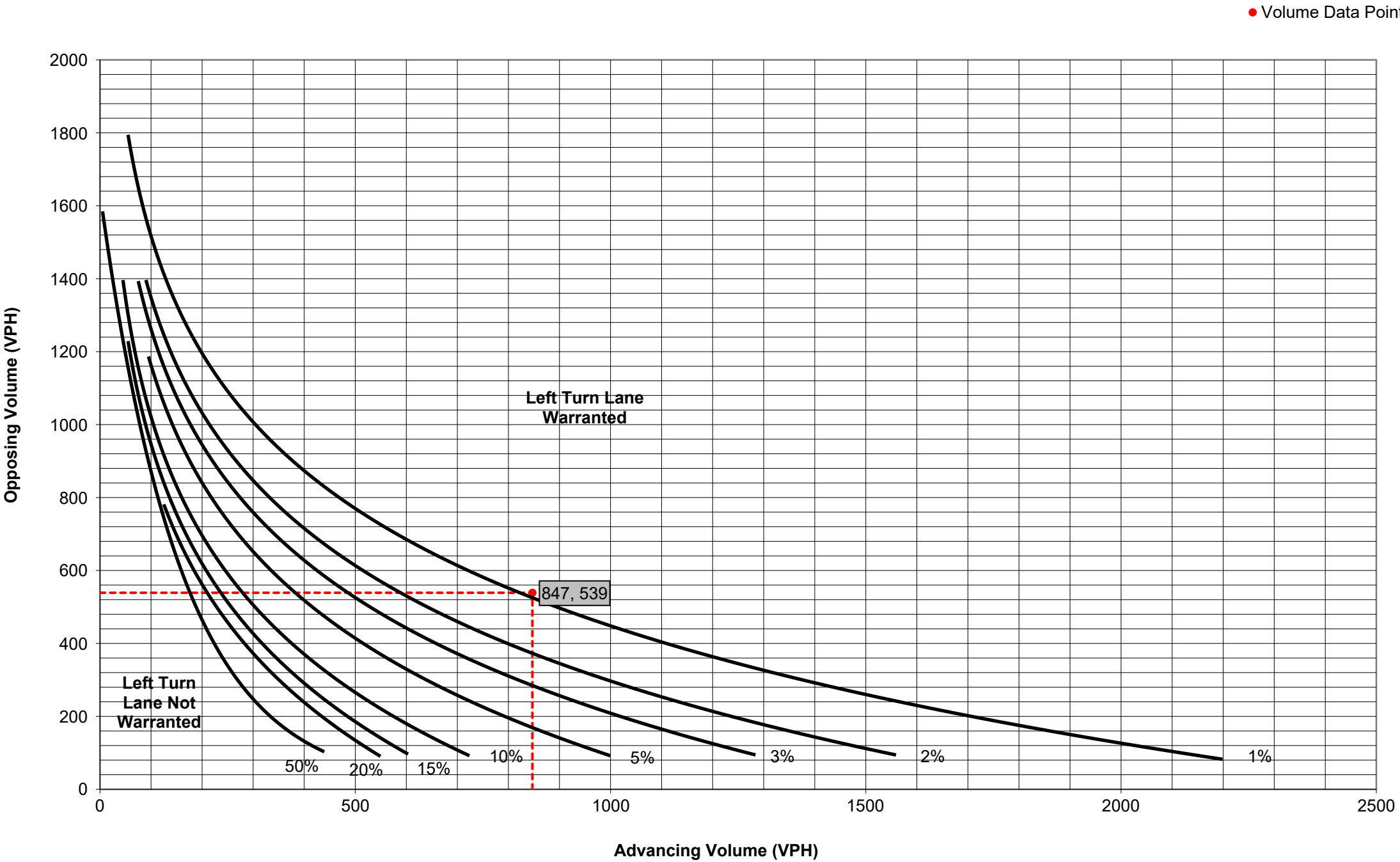
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	75	Feet
Condition C:	136	Feet
Required Left Turn Lane Storage Length:	150	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:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Sheetz Driveway/Shopping Center Driveway (Northbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	2
Design Hour:	PM Peak Hour Generator	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	40		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	61	2.0%	62
	Through	-	914	1.0%	919
	Right	No	207	1.0%	N/A
Opposing	Left	No	123	1.0%	N/A
	Through	-	832	1.0%	837
	Right	Yes	85	3.0%	87

Advancing Volume:	981
Opposing Volume:	924
Left Turn Volume:	62
% Left Turns in Advancing Volume:	6.32%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	61	2.0%	N/A
	Through	-	914	1.0%	N/A
	Right	-	207	1.0%	N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: **Figure 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):	42

Average # of Vehicles/Cycle: 1.0

PennDOT Publication 46, Exhibit 11-6

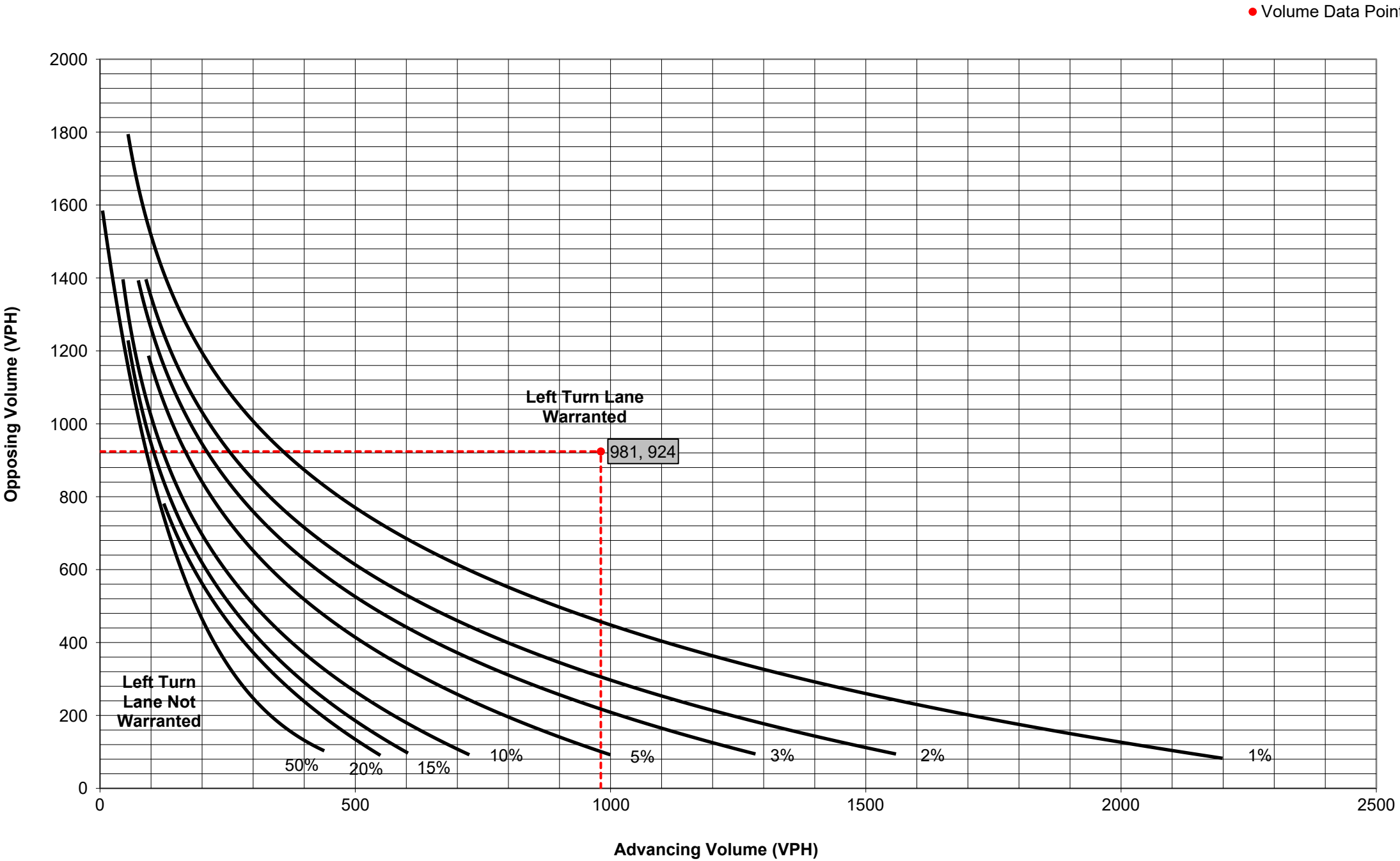
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	**N/A**	**Feet**
Condition B:	**75**	**Feet**
Condition C:	**136**	**Feet**
Required Left Turn Lane Storage Length:	**150**	**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:	Wilkes-Barre Township	**Analysis Date:**	5/12/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Sheetz Driveway/Shopping Center Driveway (Northbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	2
Design Hour:	AM Adjacent Street	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	40		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	54	9.0%	N/A
	Through	-	864	4.0%	N/A
	Right	No	123	1.0%	N/A
Opposing	Left	No	44	0.0%	N/A
	Through	-	397	7.0%	N/A
	Right	Yes	56	21.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
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	54	9.0%	N/A
	Through	-	864	4.0%	882
	Right	-	123	1.0%	124

Advancing Volume:	1006
Right Turn Volume:	124

TURN LANE WARRANT 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?: Yes

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	124
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	56

Average # of Vehicles/Cycle: 2.0

PennDOT Publication 46, Exhibit 11-6

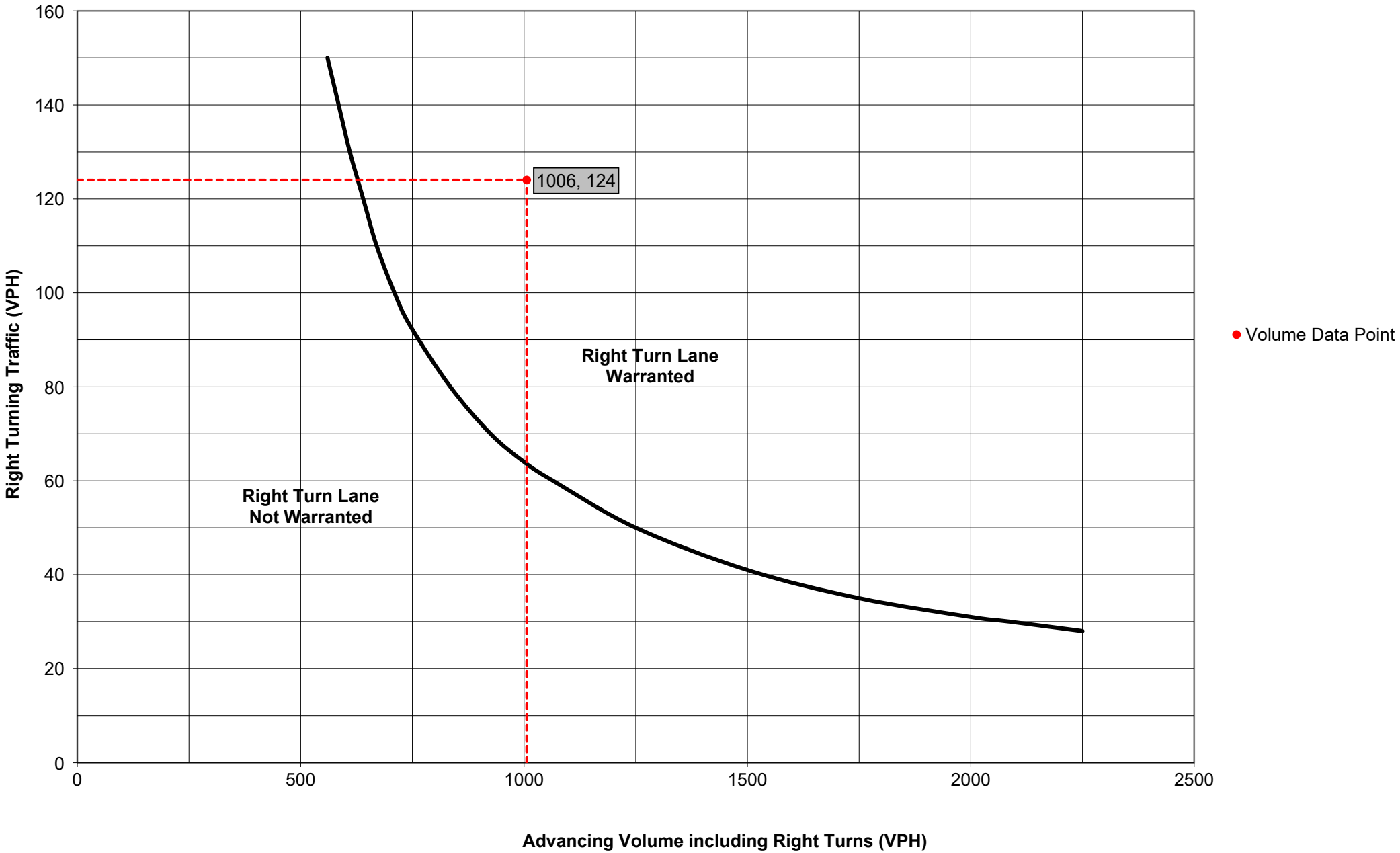
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	75	Feet
Condition C:	161	Feet
Required Right Turn Lane Storage Length:	175	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:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Sheetz Driveway/Shopping Center Driveway (Northbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	2
Design Hour:	AM Peak Hour Generator	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	40		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	60	5.0%	N/A
	Through	-	765	5.0%	N/A
	Right	No	112	0.0%	N/A
Opposing	Left	No	59	0.0%	N/A
	Through	-	469	4.0%	N/A
	Right	Yes	57	9.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
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	5.0%	N/A
	Through	-	765	5.0%	785
	Right	-	112	0.0%	112

Advancing Volume:	897
Right Turn Volume:	112

TURN LANE WARRANT 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?: Yes

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	112
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	56

Average # of Vehicles/Cycle: 2.0

PennDOT Publication 46, Exhibit 11-6

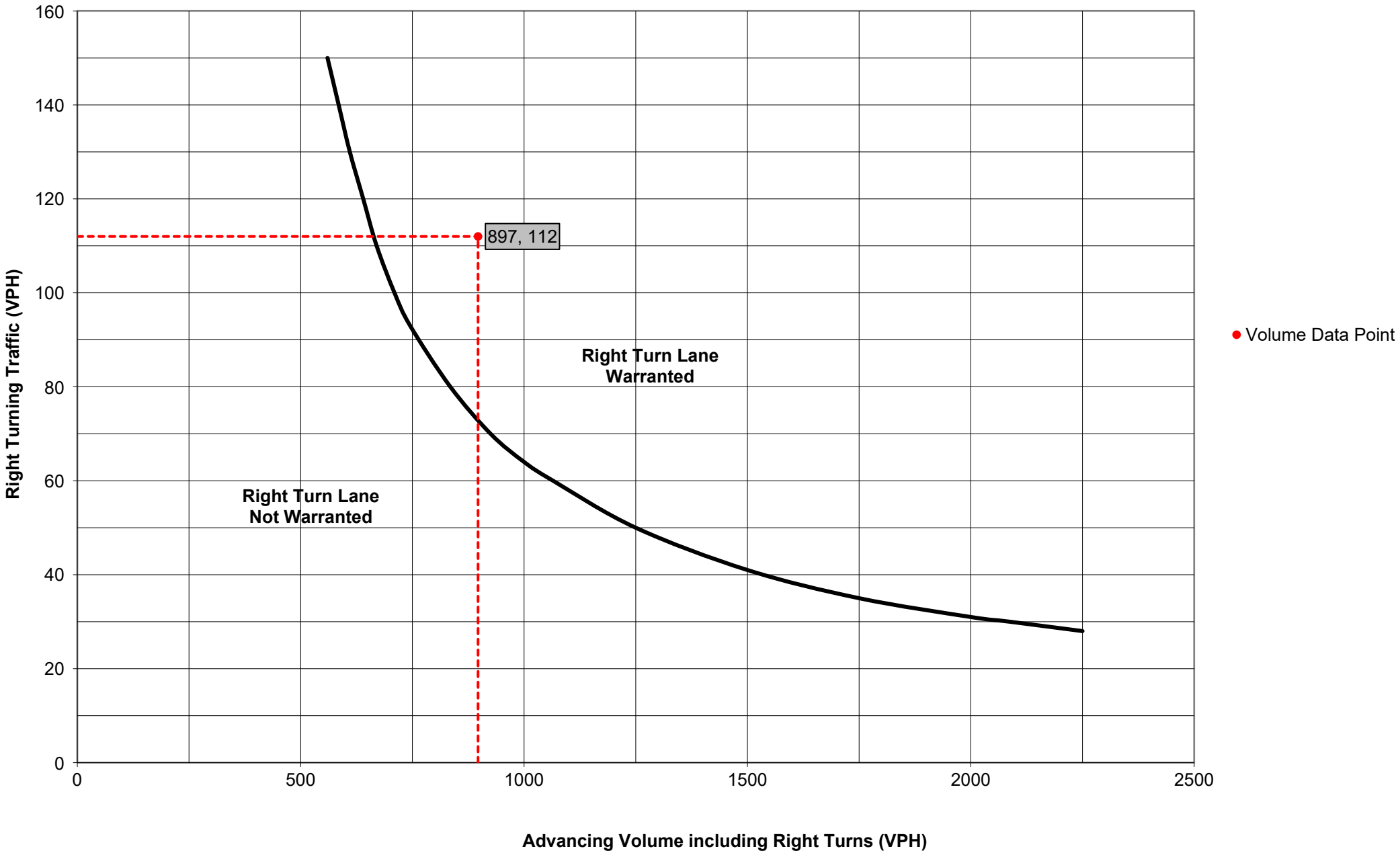
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	75	Feet
Condition C:	161	Feet
Required Right Turn Lane Storage Length:	175	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:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Sheetz Driveway/Shopping Center Driveway (Northbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	2
Design Hour:	PM Peak Hour Generator	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	40		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	61	2.0%	N/A
	Through	-	914	1.0%	N/A
	Right	No	207	1.0%	N/A
Opposing	Left	No	123	1.0%	N/A
	Through	-	832	1.0%	N/A
	Right	Yes	85	3.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
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	61	2.0%	N/A
	Through	-	914	1.0%	919
	Right	-	207	1.0%	209

Advancing Volume:	1128
Right Turn Volume:	209

TURN LANE WARRANT 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?: Yes

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	209
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	42

Average # of Vehicles/Cycle: 5.0

PennDOT Publication 46, Exhibit 11-6

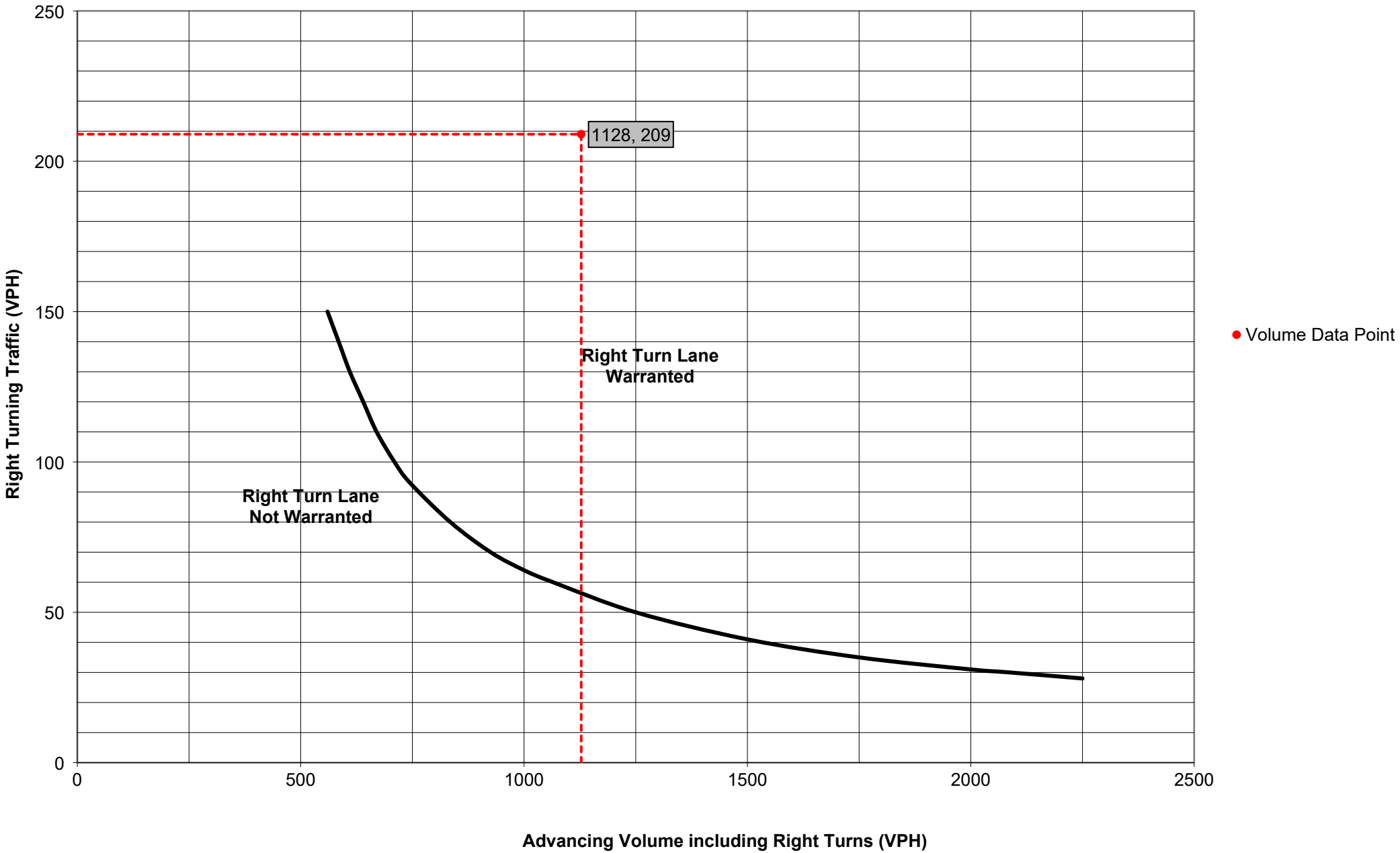
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	75	Feet
Condition C:	261	Feet
Required Right Turn Lane Storage Length:	275	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:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Sheetz Driveway/Shopping Center Driveway (Southbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	2
Design Hour:	AM Adjacent Street	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	40	**Type of Analysis**	
Type of Terrain:	Rolling	**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	-	397	7.0%	439
	Right	Yes	56	21.0%	74
Opposing	Left	No	54	9.0%	N/A
	Through	-	864	4.0%	916
	Right	No	123	1.0%	N/A

Advancing Volume:	557
Opposing Volume:	916
Left Turn Volume:	44
% Left Turns in Advancing Volume:	7.90%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	44	0.0%	N/A
	Through	-	397	7.0%	N/A
	Right	-	56	21.0%	N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 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):	56

Average # of Vehicles/Cycle: 1.0

PennDOT Publication 46, Exhibit 11-6

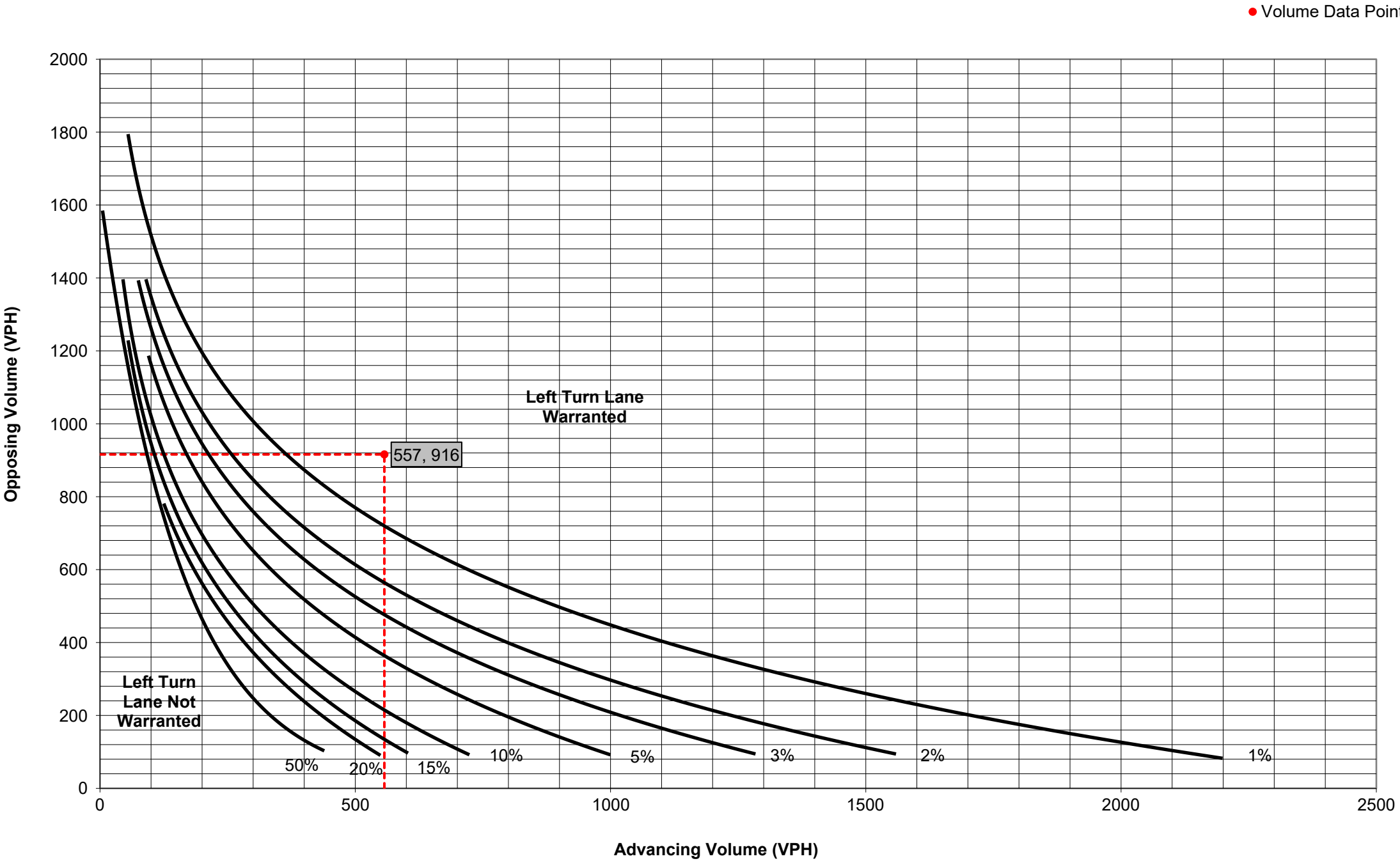
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	75	Feet
Condition C:	136	Feet
Required Left Turn Lane Storage Length:	150	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:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Sheetz Driveway/Shopping Center Driveway (Southbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	2
Design Hour:	AM Peak Hour Generator	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	40		**Type of Analysis**
Type of Terrain:	Rolling	**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	0.0%	59
	Through	-	469	4.0%	498
	Right	Yes	57	9.0%	65
Opposing	Left	No	60	5.0%	N/A
	Through	-	765	5.0%	823
	Right	No	112	0.0%	N/A

Advancing Volume:	622
Opposing Volume:	823
Left Turn Volume:	59
% Left Turns in Advancing Volume:	9.49%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	59	0.0%	N/A
	Through	-	469	4.0%	N/A
	Right	-	57	9.0%	N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 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):	56

Average # of Vehicles/Cycle: 1.0

PennDOT Publication 46, Exhibit 11-6

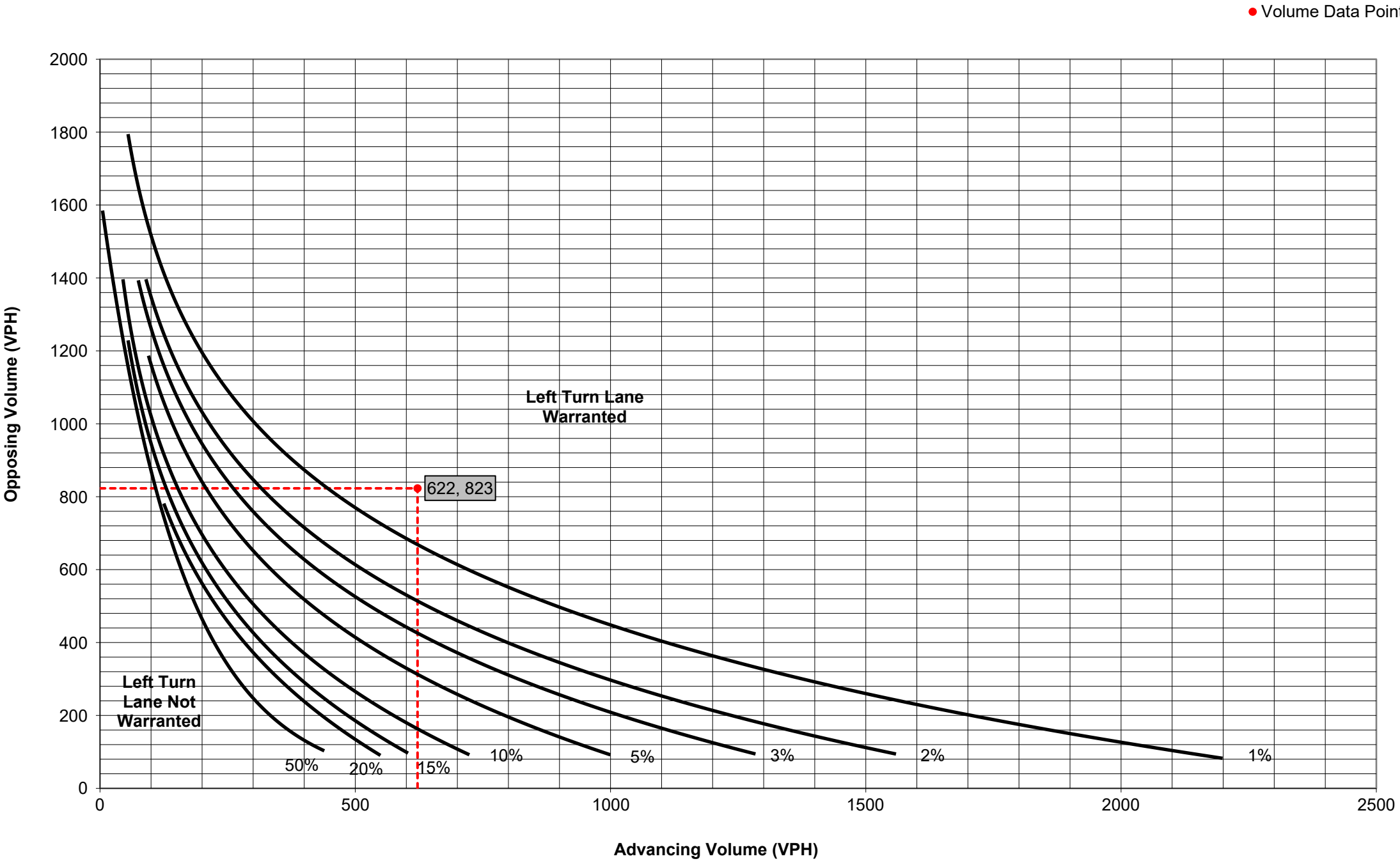
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	75	Feet
Condition C:	136	Feet
Required Left Turn Lane Storage Length:	150	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:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Sheetz Driveway/Shopping Center Driveway (Southbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	2
Design Hour:	PM Peak Hour Generator	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	40		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	123	1.0%	125
	Through	-	832	1.0%	845
	Right	Yes	85	3.0%	89
Opposing	Left	No	61	2.0%	N/A
	Through	-	914	1.0%	928
	Right	No	207	1.0%	N/A

Advancing Volume:	1059
Opposing Volume:	928
Left Turn Volume:	125
% Left Turns in Advancing Volume:	11.80%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	123	1.0%	N/A
	Through	-	832	1.0%	N/A
	Right	-	85	3.0%	N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 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:	125
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	42

Average # of Vehicles/Cycle: 3.0

PennDOT Publication 46, Exhibit 11-6

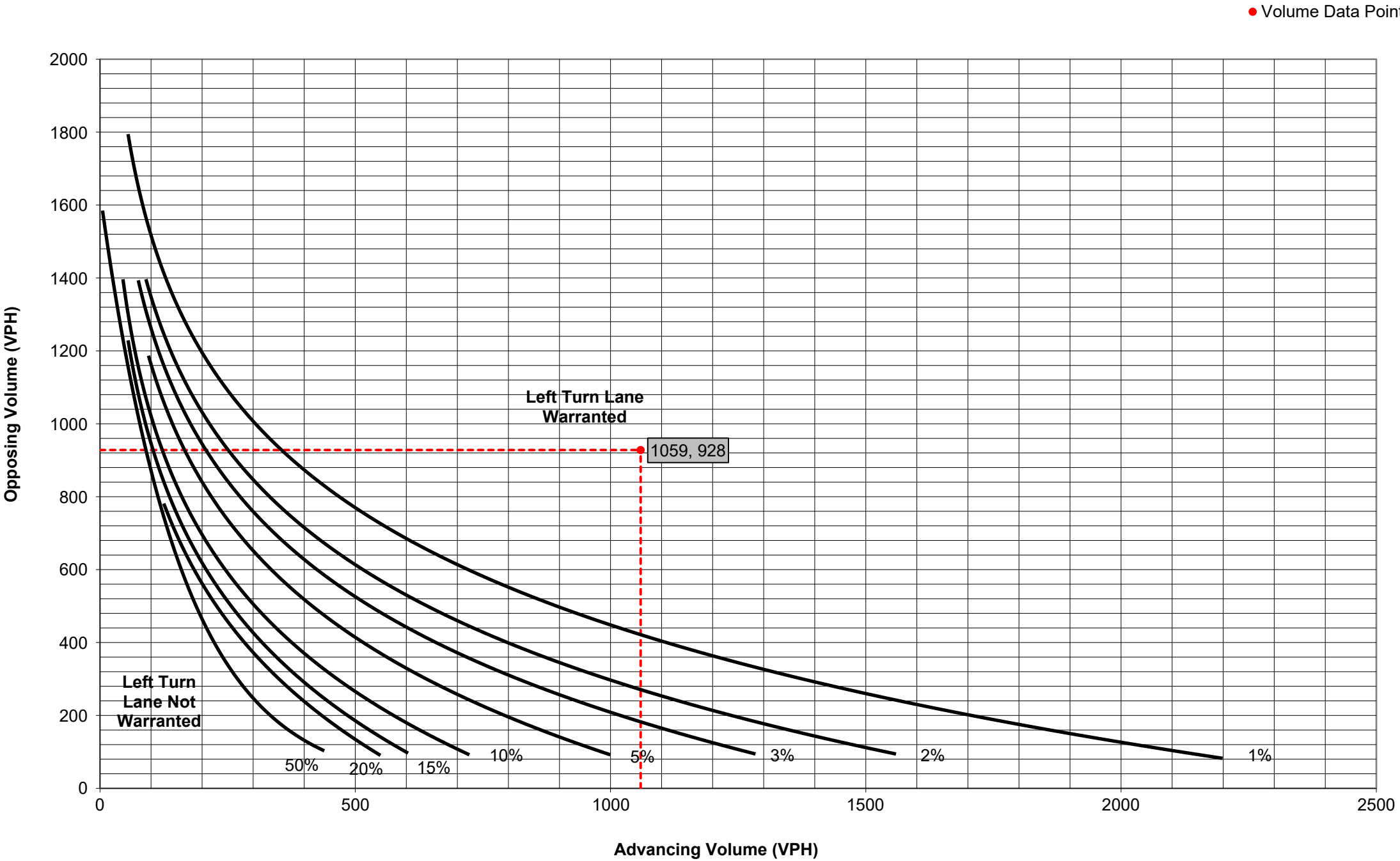
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	75	Feet
Condition C:	211	Feet
Required Left Turn Lane Storage Length:	225	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:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Sheetz Driveway/Shopping Center Driveway (Southbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	2
Design Hour:	AM Adjacent Street	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	40		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	44	0.0%	N/A
	Through	-	397	7.0%	N/A
	Right	Yes	56	21.0%	N/A
Opposing	Left	No	54	9.0%	N/A
	Through	-	864	4.0%	N/A
	Right	No	123	1.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
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	-	397	7.0%	439
	Right	-	56	21.0%	74

Advancing Volume:	513
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 11

Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	74
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	56

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

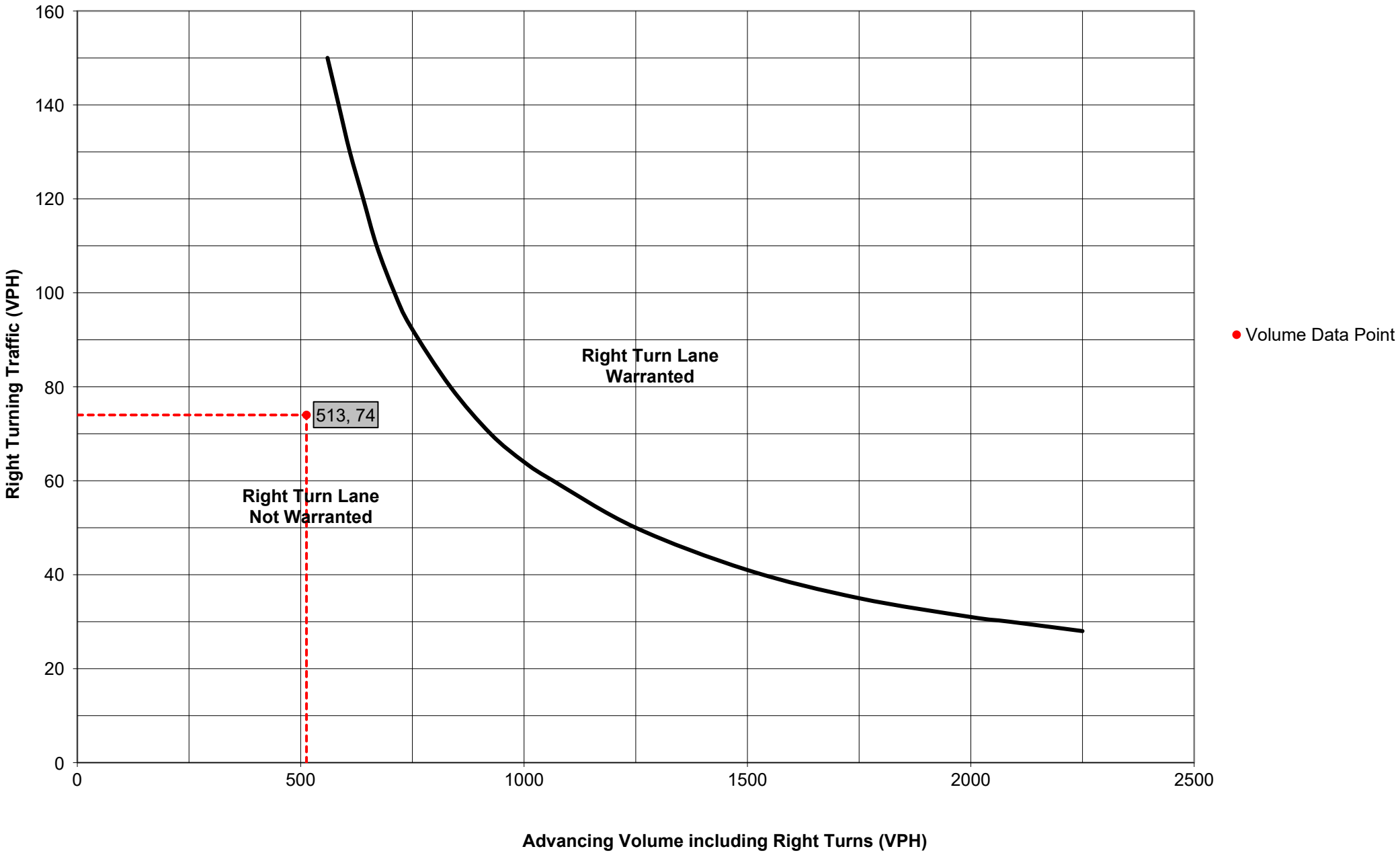
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/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:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Sheetz Driveway/Shopping Center Driveway (Southbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	2
Design Hour:	AM Peak Hour Generator	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	40		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	59	0.0%	N/A
	Through	-	469	4.0%	N/A
	Right	Yes	57	9.0%	N/A
Opposing	Left	No	60	5.0%	N/A
	Through	-	765	5.0%	N/A
	Right	No	112	0.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
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	59	0.0%	N/A
	Through	-	469	4.0%	498
	Right	-	57	9.0%	65

Advancing Volume:	563
Right Turn Volume:	65

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 11

Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	65
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	56

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

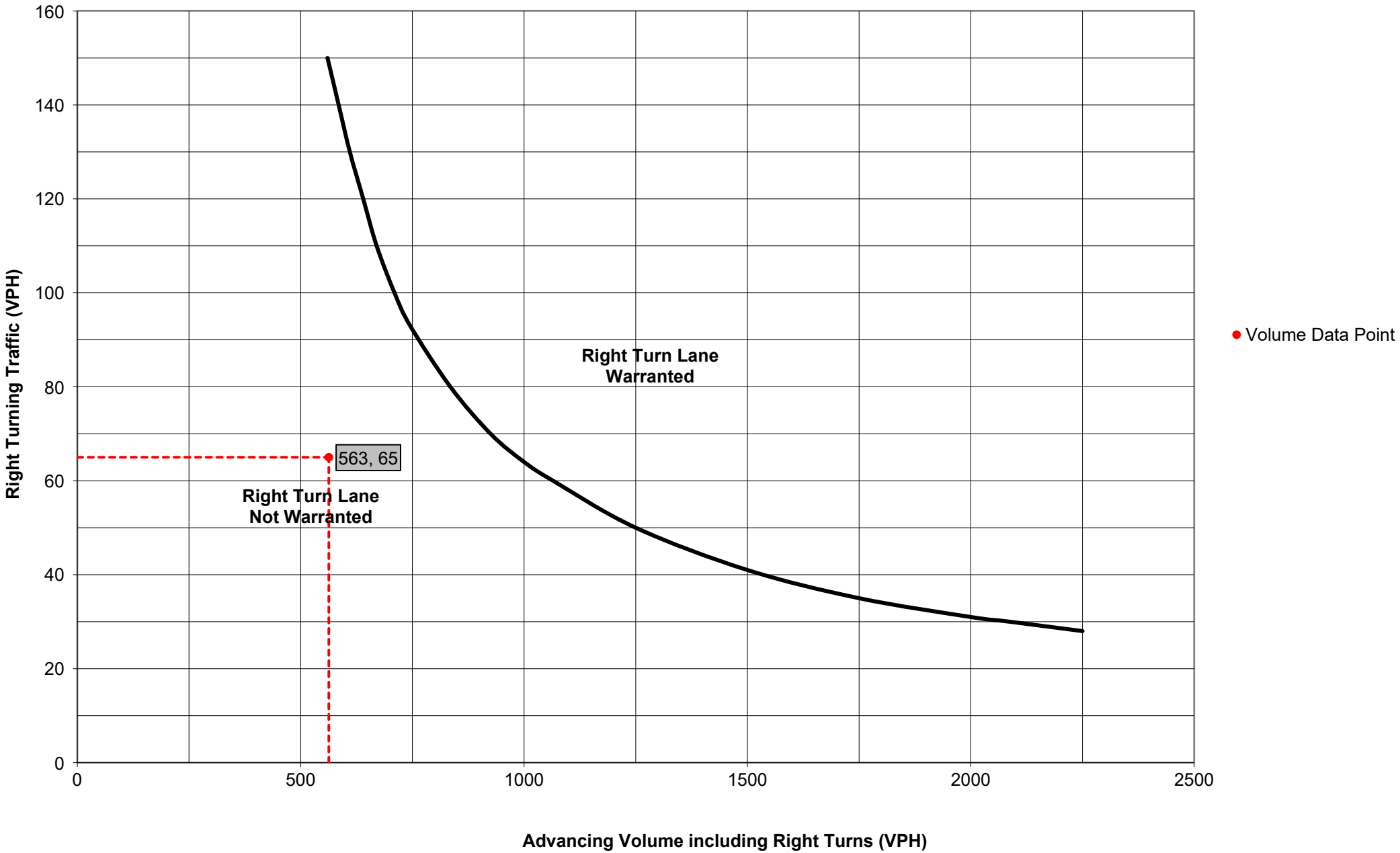
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/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:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Sheetz Driveway/Shopping Center Driveway (Southbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	2
Design Hour:	PM Peak Hour Generator	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	40		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	123	1.0%	N/A
	Through	-	832	1.0%	N/A
	Right	Yes	85	3.0%	N/A
Opposing	Left	No	61	2.0%	N/A
	Through	-	914	1.0%	N/A
	Right	No	207	1.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
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	123	1.0%	N/A
	Through	-	832	1.0%	845
	Right	-	85	3.0%	89

Advancing Volume:	934
Right Turn Volume:	89

TURN LANE WARRANT 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?: Yes

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	89
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	42

Average # of Vehicles/Cycle: 2.0

PennDOT Publication 46, Exhibit 11-6

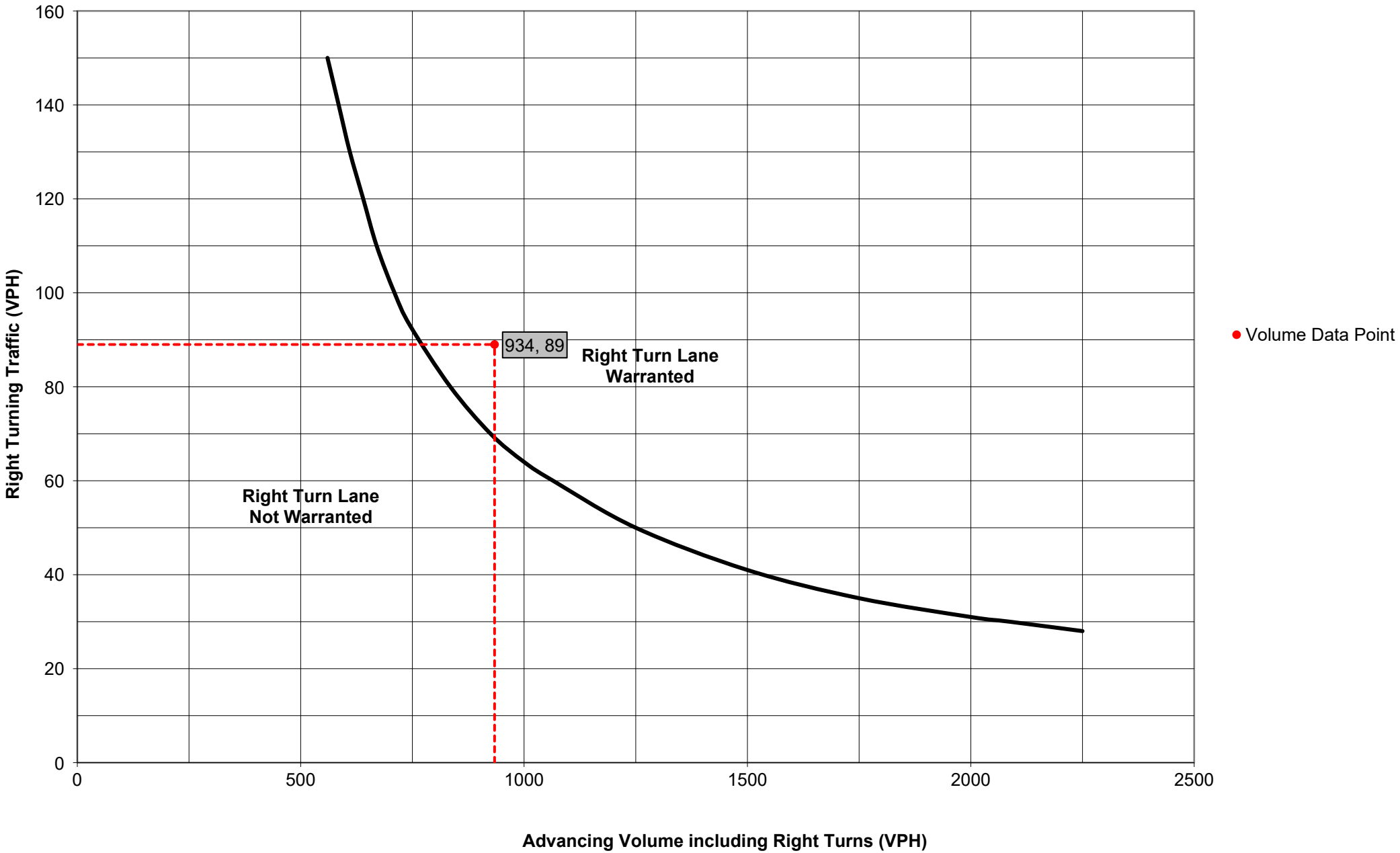
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	75	Feet
Condition C:	161	Feet
Required Right Turn Lane Storage Length:	175	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)



Wilkes-Barre Township Boulevard & Coal Street/Highland Park Boulevard

Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Wilkes-Barre Township	**Analysis Date:**	5/12/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Coal Street/Highland Park Boulevard (Eastbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	2
Design Hour:	AM Adjacent Street	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	67	2.0%	68
	Through	-	231	9.0%	242
	Right	Yes	149	9.0%	156
Opposing	Left	No	136	8.0%	N/A
	Through	-	171	9.0%	179
	Right	No	44	18.0%	N/A

Advancing Volume:	466
Opposing Volume:	179
Left Turn Volume:	68
% Left Turns in Advancing Volume:	14.59%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	67	2.0%	N/A
	Through	-	231	9.0%	N/A
	Right	-	149	9.0%	N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 7

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:	68
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	28

Average # of Vehicles/Cycle: 2.0

PennDOT Publication 46, Exhibit 11-6

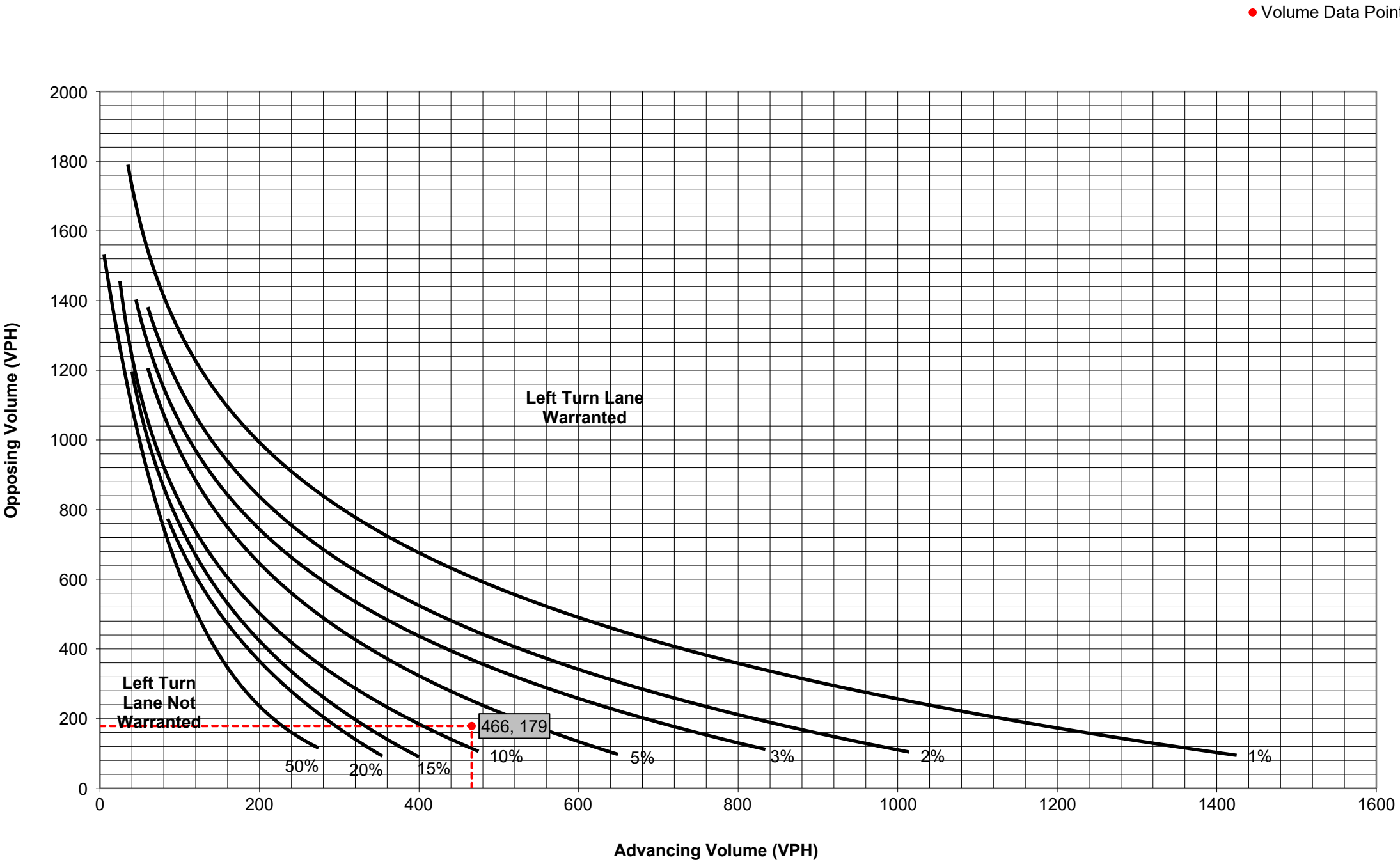
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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 7. Warrant for left turn lanes on four-lane, undivided highways (unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Coal Street/Highland Park Boulevard (Eastbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	2
Design Hour:	AM Peak Hour Generator	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	79	3.0%	81
	Through	-	291	3.0%	296
	Right	Yes	134	4.0%	137
Opposing	Left	No	129	3.0%	N/A
	Through	-	171	1.0%	172
	Right	No	48	0.0%	N/A

Advancing Volume:	514
Opposing Volume:	172
Left Turn Volume:	81
% Left Turns in Advancing Volume:	15.76%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	79	3.0%	N/A
	Through	-	291	3.0%	N/A
	Right	-	134	4.0%	N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 7

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:	81
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	28

Average # of Vehicles/Cycle: 3.0

PennDOT Publication 46, Exhibit 11-6

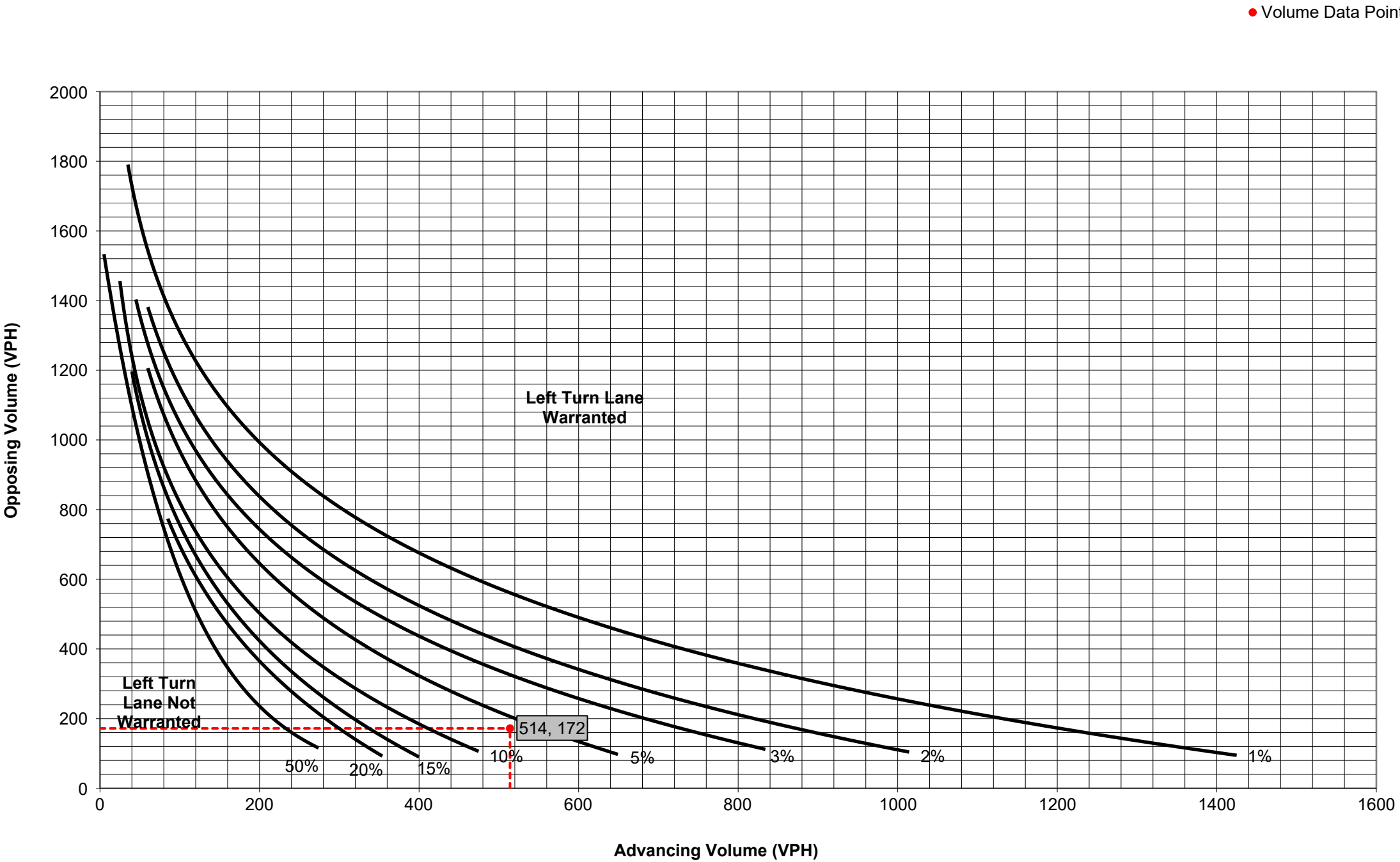
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	150	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	150	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 7. Warrant for left turn lanes on four-lane, undivided highways (unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Coal Street/Highland Park Boulevard (Eastbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	2
Design Hour:	PM Peak Hour Generator	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	133	2.0%	135
	Through	-	503	1.0%	506
	Right	Yes	209	3.0%	213
Opposing	Left	No	301	1.0%	N/A
	Through	-	467	1.0%	470
	Right	No	80	3.0%	N/A

Advancing Volume:	854
Opposing Volume:	470
Left Turn Volume:	135
% Left Turns in Advancing Volume:	15.81%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	133	2.0%	N/A
	Through	-	503	1.0%	N/A
	Right	-	209	3.0%	N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 7

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:	135
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	42

Average # of Vehicles/Cycle: 3.0

PennDOT Publication 46, Exhibit 11-6

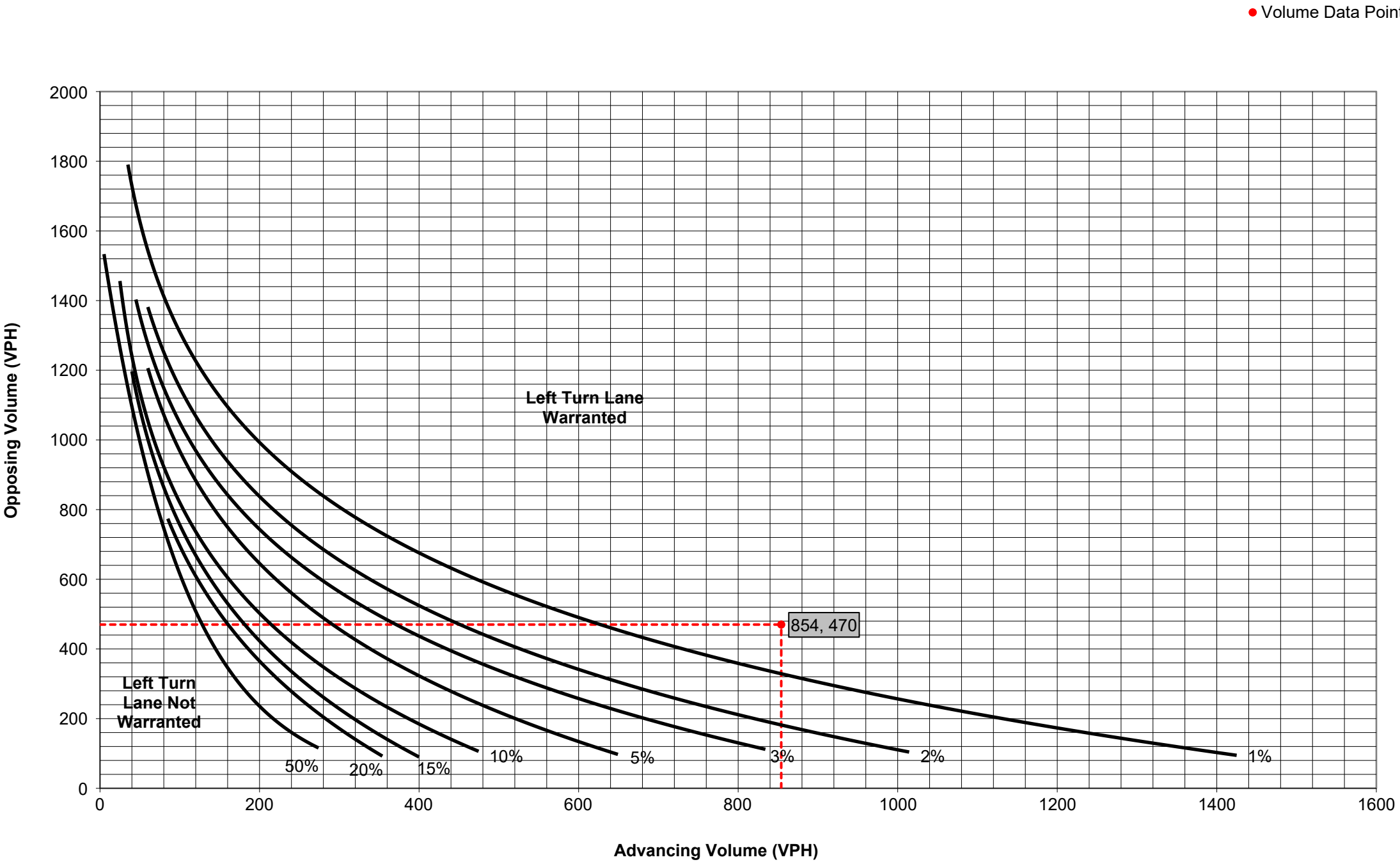
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	150	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	150	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 7. Warrant for left turn lanes on four-lane, undivided highways (unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Wilkes-Barre Township	**Analysis Date:**	5/12/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Coal Street/Highland Park Boulevard (Eastbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	2
Design Hour:	AM Adjacent Street	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	67	2.0%	N/A
	Through	-	231	9.0%	N/A
	Right	Yes	149	9.0%	N/A
Opposing	Left	No	136	8.0%	N/A
	Through	-	171	9.0%	N/A
	Right	No	44	18.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
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	67	2.0%	N/A
	Through	-	231	9.0%	242
	Right	-	149	9.0%	156

Advancing Volume:	398
Right Turn Volume:	156

TURN LANE WARRANT 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:	156
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	28

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

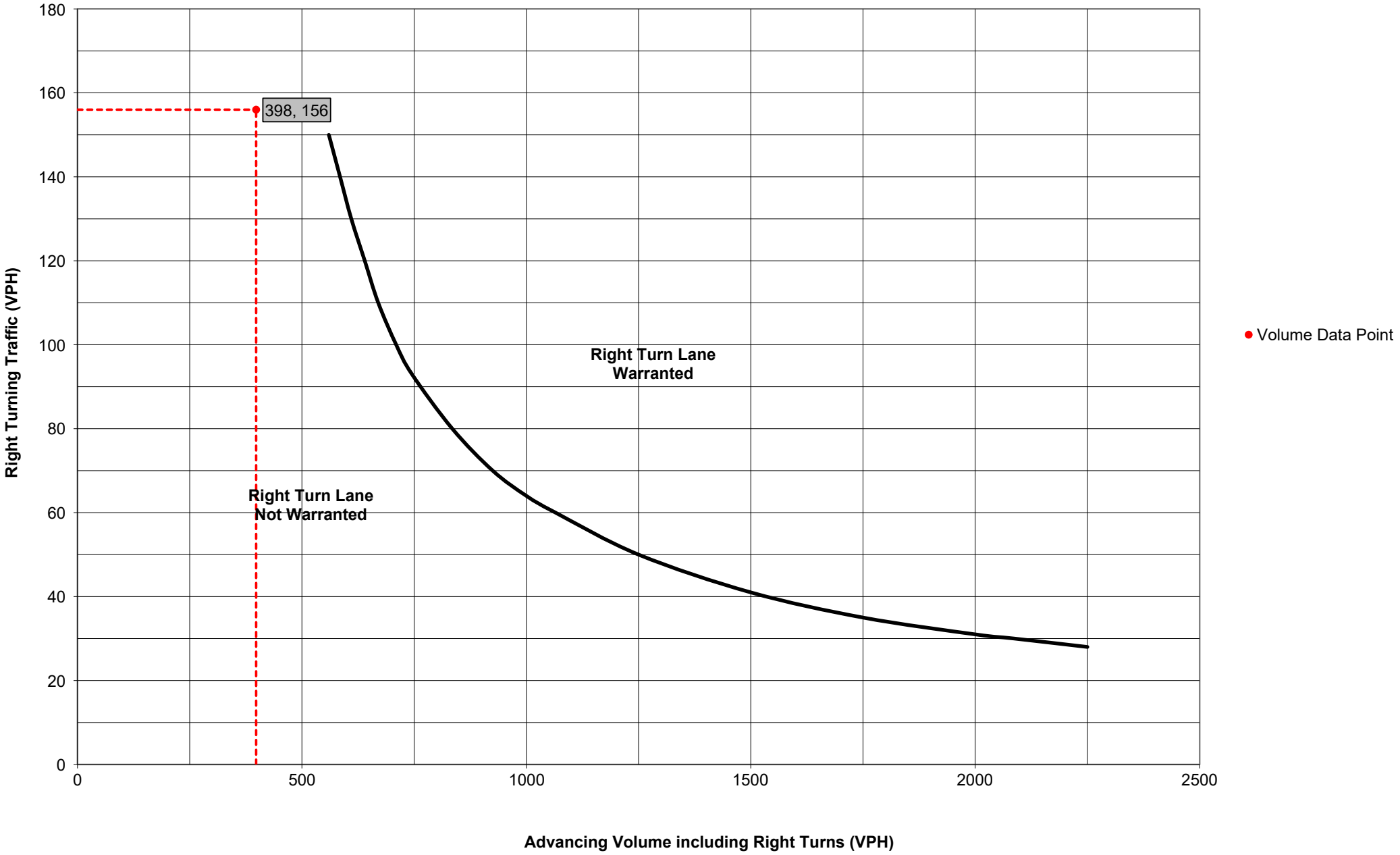
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/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:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Coal Street/Highland Park Boulevard (Eastbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	2
Design Hour:	AM Peak Hour Generator	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	79	3.0%	N/A
	Through	-	291	3.0%	N/A
	Right	Yes	134	4.0%	N/A
Opposing	Left	No	129	3.0%	N/A
	Through	-	171	1.0%	N/A
	Right	No	48	0.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
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	79	3.0%	N/A
	Through	-	291	3.0%	296
	Right	-	134	4.0%	137

Advancing Volume:	433
Right Turn Volume:	137

TURN LANE WARRANT 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:	137
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	28

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

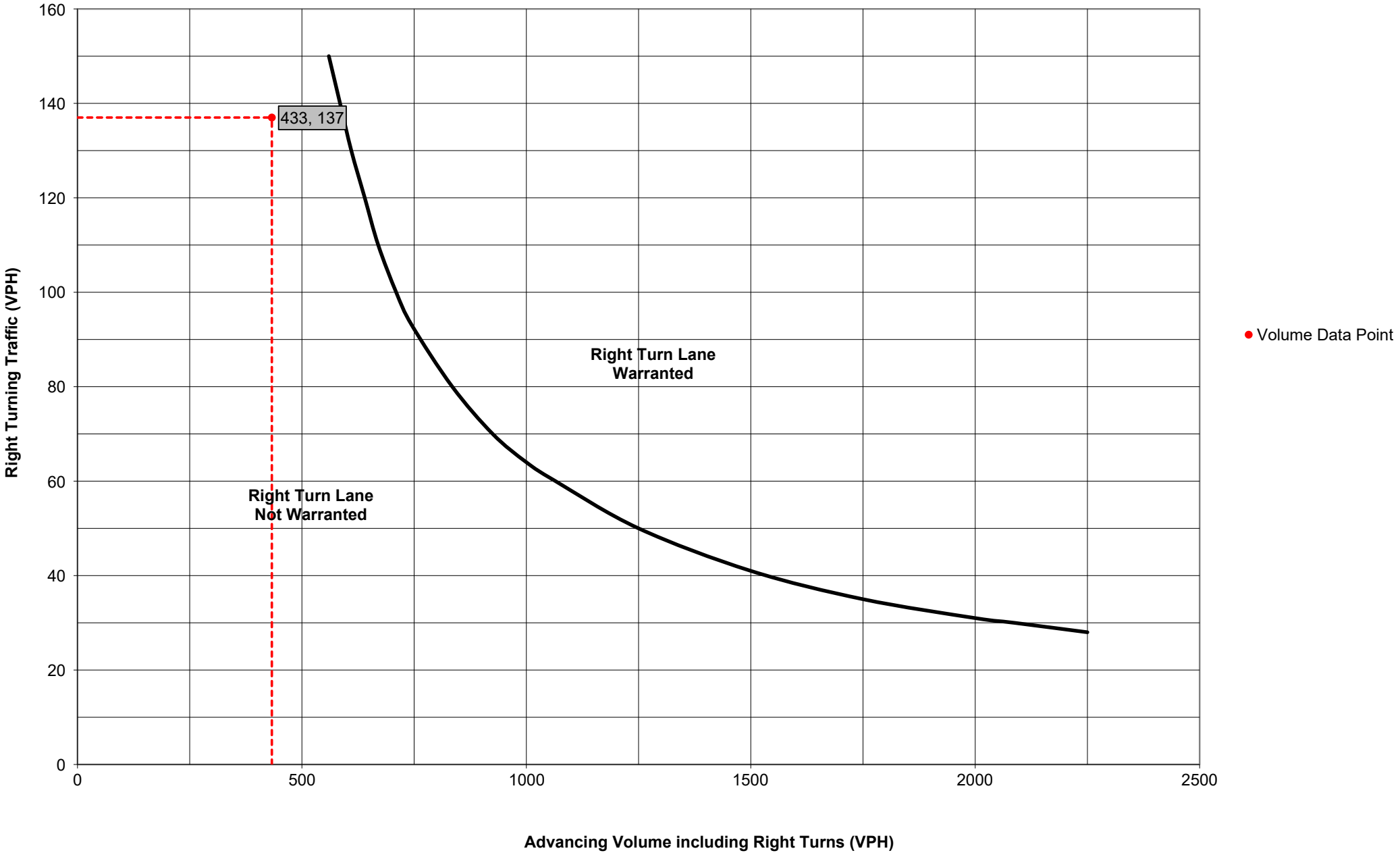
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/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:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Coal Street/Highland Park Boulevard (Eastbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	2
Design Hour:	PM Peak Hour Generator	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	133	2.0%	N/A
	Through	-	503	1.0%	N/A
	Right	Yes	209	3.0%	N/A
Opposing	Left	No	301	1.0%	N/A
	Through	-	467	1.0%	N/A
	Right	No	80	3.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
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	133	2.0%	N/A
	Through	-	503	1.0%	506
	Right	-	209	3.0%	213

Advancing Volume:	719
Right Turn Volume:	213

TURN LANE WARRANT 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?: Yes

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	213
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	42

Average # of Vehicles/Cycle: 5.0

PennDOT Publication 46, Exhibit 11-6

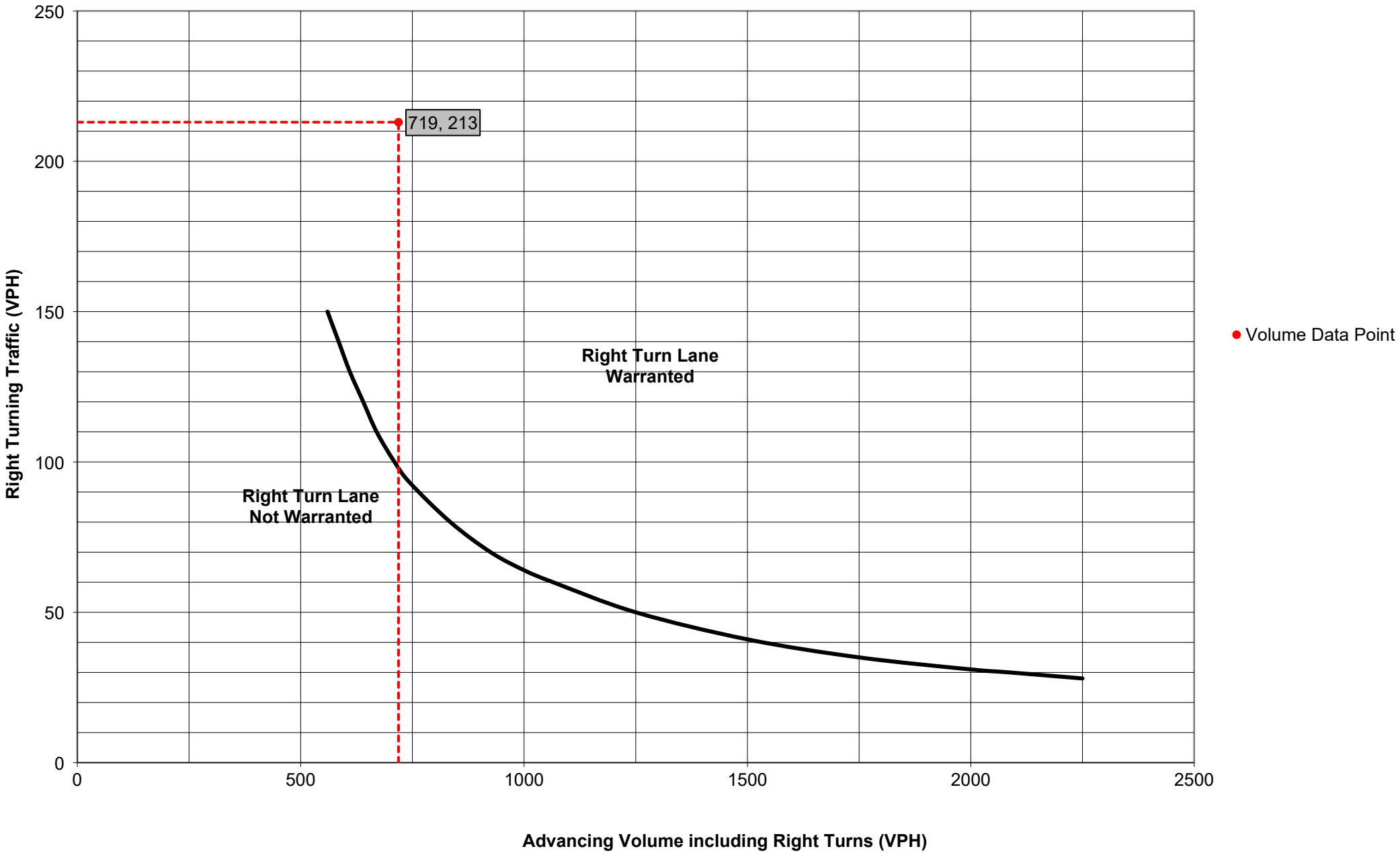
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	200	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	200	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 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:	Wilkes-Barre Township	**Analysis Date:**	5/12/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Coal Street/Highland Park Boulevard (Westbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	2
Design Hour:	AM Adjacent Street	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	136	8.0%	142
	Through	-	171	9.0%	179
	Right	No	44	18.0%	N/A
Opposing	Left	No	67	2.0%	N/A
	Through	-	231	9.0%	242
	Right	Yes	149	9.0%	156

Advancing Volume:	321
Opposing Volume:	398
Left Turn Volume:	142
% Left Turns in Advancing Volume:	44.24%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	136	8.0%	N/A
	Through	-	171	9.0%	N/A
	Right	-	44	18.0%	N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 7

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:	142
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	28

Average # of Vehicles/Cycle: 5.0

PennDOT Publication 46, Exhibit 11-6

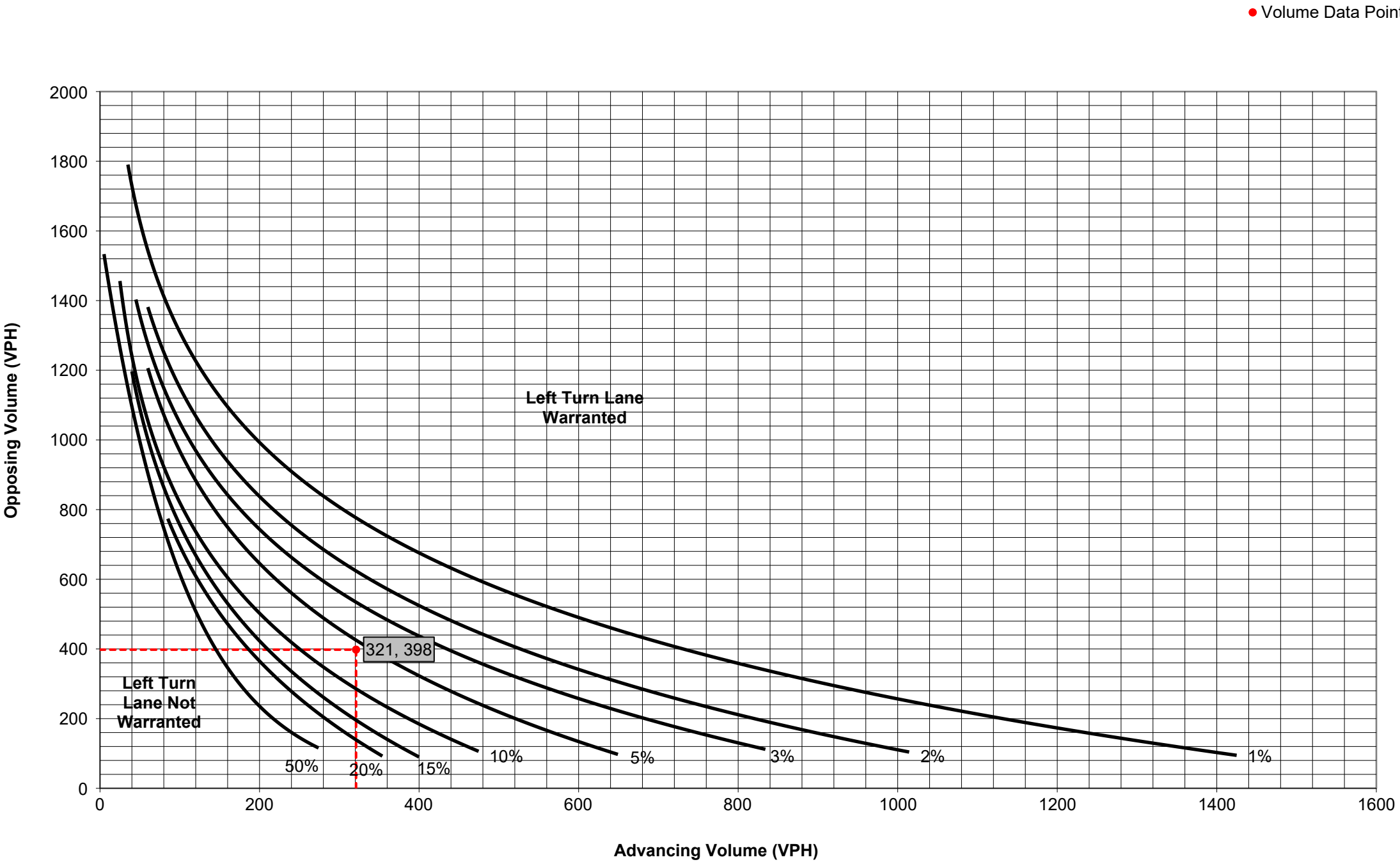
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	200	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	200	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 7. Warrant for left turn lanes on four-lane, undivided highways (unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Coal Street/Highland Park Boulevard (Westbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	2
Design Hour:	AM Peak Hour Generator	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	129	3.0%	131
	Through	-	171	1.0%	172
	Right	No	48	0.0%	N/A
Opposing	Left	No	79	3.0%	N/A
	Through	-	291	3.0%	296
	Right	Yes	134	4.0%	137

Advancing Volume:	303
Opposing Volume:	433
Left Turn Volume:	131
% Left Turns in Advancing Volume:	43.23%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	129	3.0%	N/A
	Through	-	171	1.0%	N/A
	Right	-	48	0.0%	N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 7

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:	131
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	28

Average # of Vehicles/Cycle: 5.0

PennDOT Publication 46, Exhibit 11-6

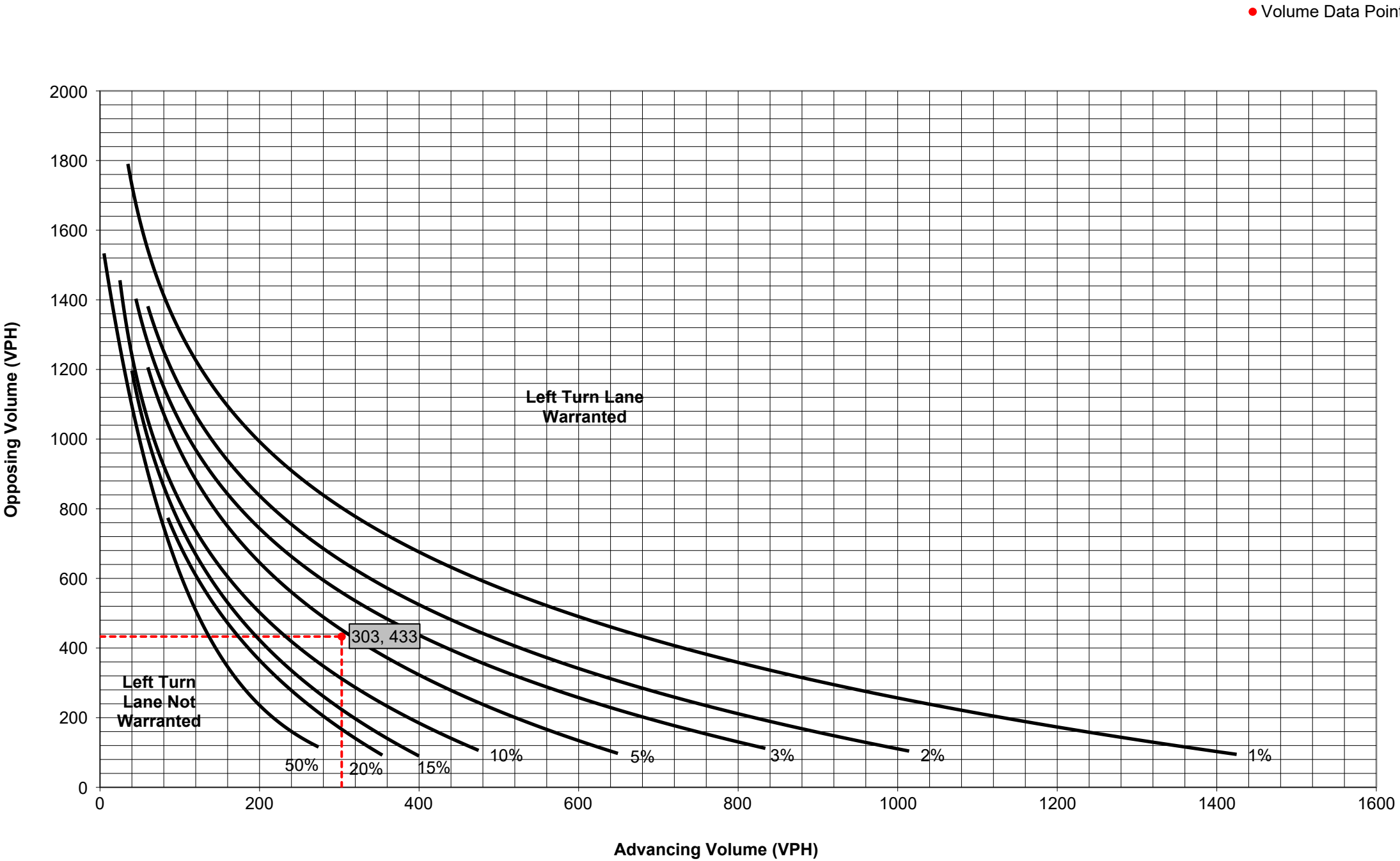
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	200	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	200	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 7. Warrant for left turn lanes on four-lane, undivided highways (unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Coal Street/Highland Park Boulevard (Westbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	2
Design Hour:	PM Peak Hour Generator	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	301	1.0%	303
	Through	-	467	1.0%	470
	Right	No	80	3.0%	N/A
Opposing	Left	No	133	2.0%	N/A
	Through	-	503	1.0%	506
	Right	Yes	209	3.0%	213

Advancing Volume:	773
Opposing Volume:	719
Left Turn Volume:	303
% Left Turns in Advancing Volume:	39.20%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	301	1.0%	N/A
	Through	-	467	1.0%	N/A
	Right	-	80	3.0%	N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 7

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:	303
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	42

Average # of Vehicles/Cycle: 7.0

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

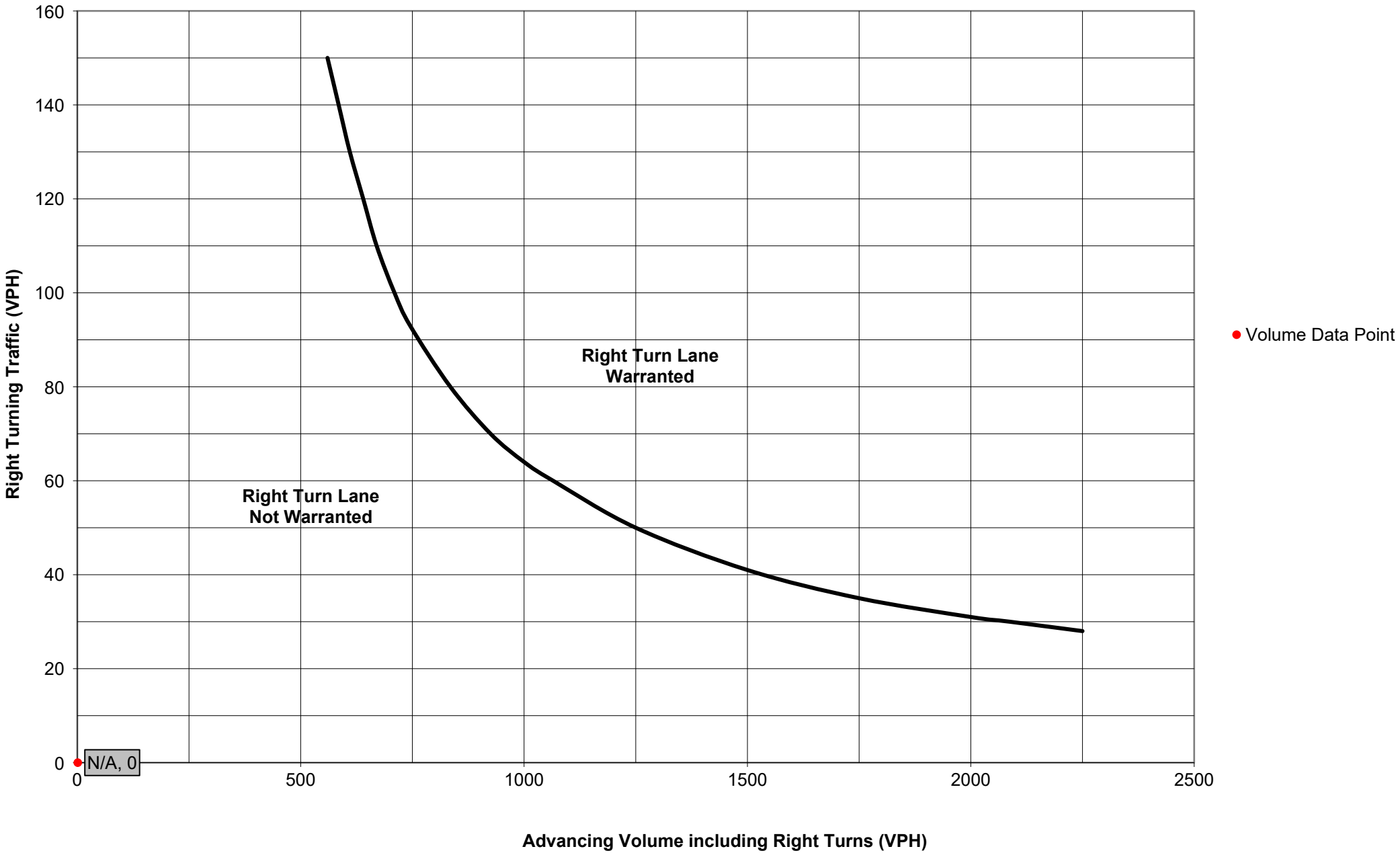
Left Turn Lane Storage Length, Condition A:	275	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	275	Feet

Additional Findings:

Consider Dual Left Turn Lanes and Operational Analyses

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:	Wilkes-Barre Township	**Analysis Date:**	5/12/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Coal Street/Highland Park Boulevard (Westbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	2
Design Hour:	AM Adjacent Street	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	136	8.0%	N/A
	Through	-	171	9.0%	N/A
	Right	No	44	18.0%	N/A
Opposing	Left	No	67	2.0%	N/A
	Through	-	231	9.0%	N/A
	Right	Yes	149	9.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
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	136	8.0%	N/A
	Through	-	171	9.0%	179
	Right	-	44	18.0%	48

Advancing Volume:	227
Right Turn Volume:	48

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 11

Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	48
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	28

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

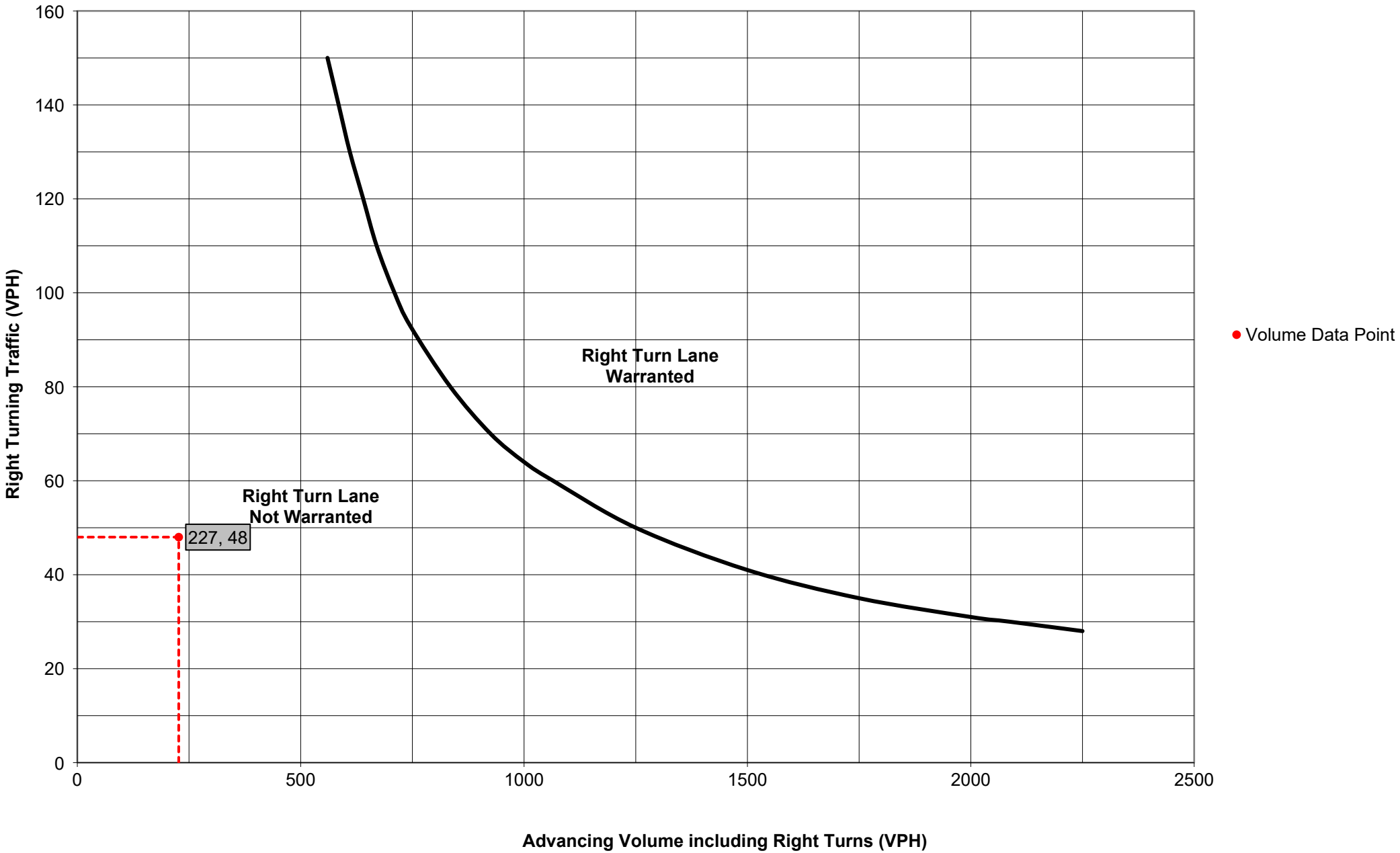
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/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:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Coal Street/Highland Park Boulevard (Westbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	2
Design Hour:	AM Peak Hour Generator	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	129	3.0%	N/A
	Through	-	171	1.0%	N/A
	Right	No	48	0.0%	N/A
Opposing	Left	No	79	3.0%	N/A
	Through	-	291	3.0%	N/A
	Right	Yes	134	4.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
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	129	3.0%	N/A
	Through	-	171	1.0%	172
	Right	-	48	0.0%	48

Advancing Volume:	220
Right Turn Volume:	48

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 11

Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	48
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	28

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

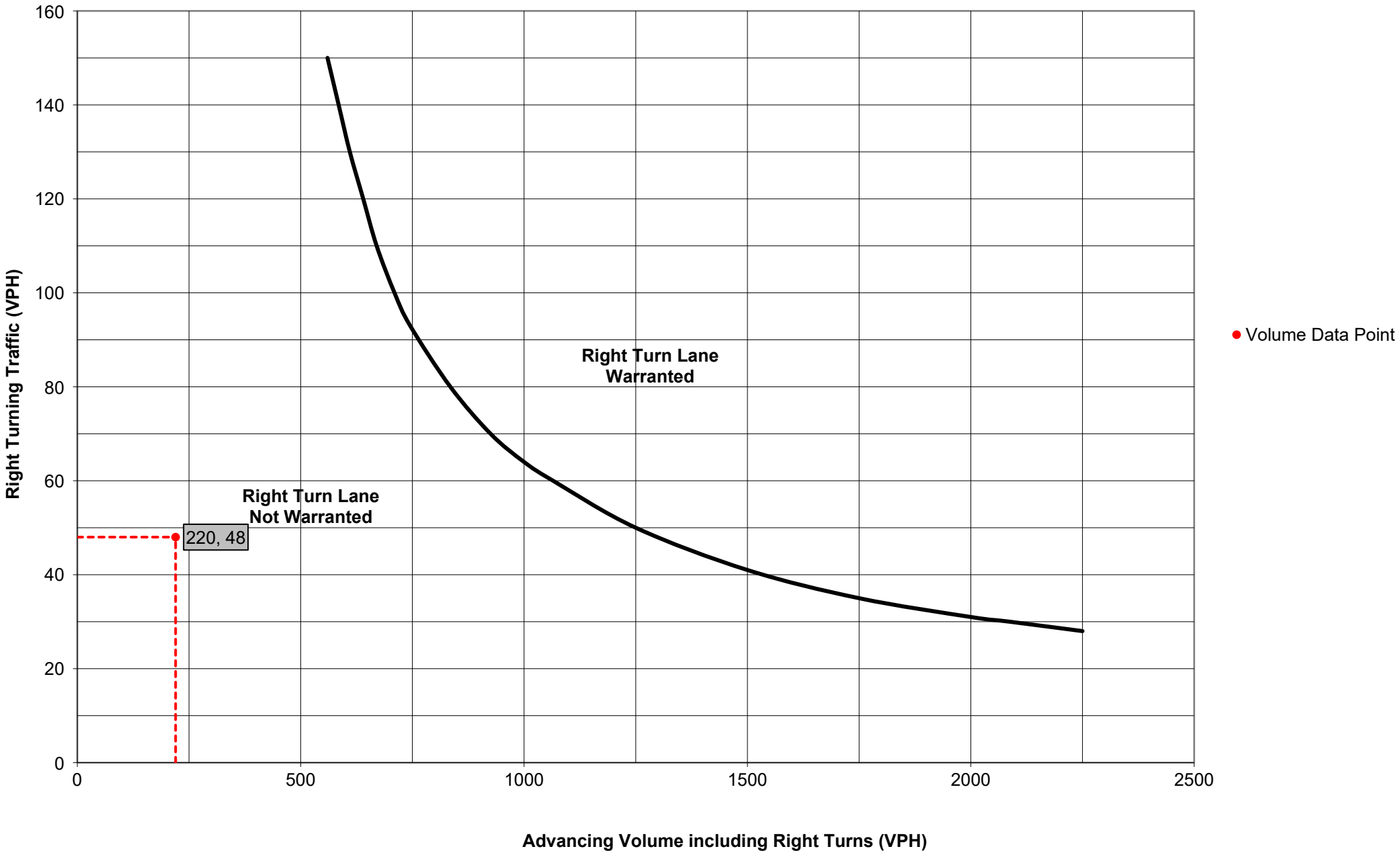
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/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:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Coal Street/Highland Park Boulevard (Westbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	2
Design Hour:	PM Peak Hour Generator	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	301	1.0%	N/A
	Through	-	467	1.0%	N/A
	Right	No	80	3.0%	N/A
Opposing	Left	No	133	2.0%	N/A
	Through	-	503	1.0%	N/A
	Right	Yes	209	3.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
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	301	1.0%	N/A
	Through	-	467	1.0%	470
	Right	-	80	3.0%	82

Advancing Volume:	552
Right Turn Volume:	82

TURN LANE WARRANT 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:	82
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	42

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

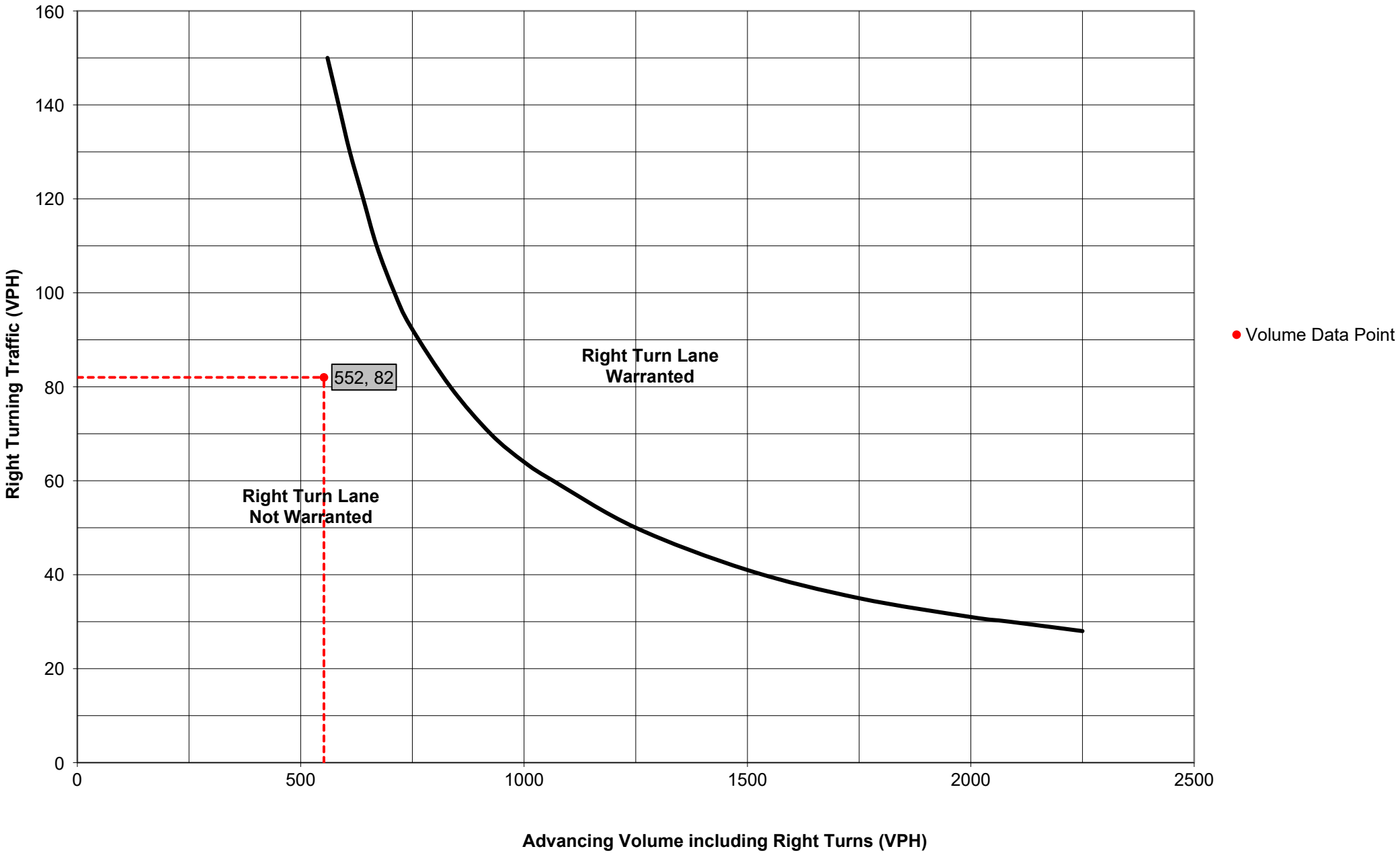
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/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:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Coal Street/Highland Park Boulevard (Northbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	2
Design Hour:	AM Peak Hour Generator	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	40		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	253	4.0%	259
	Through	-	307	3.0%	312
	Right	No	355	6.0%	N/A
Opposing	Left	No	56	2.0%	N/A
	Through	-	299	5.0%	307
	Right	Yes	50	9.0%	53

Advancing Volume:	571
Opposing Volume:	360
Left Turn Volume:	259
% Left Turns in Advancing Volume:	45.36%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	253	4.0%	N/A
	Through	-	307	3.0%	N/A
	Right	-	355	6.0%	N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 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:	259
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	28

Average # of Vehicles/Cycle: 9.0

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

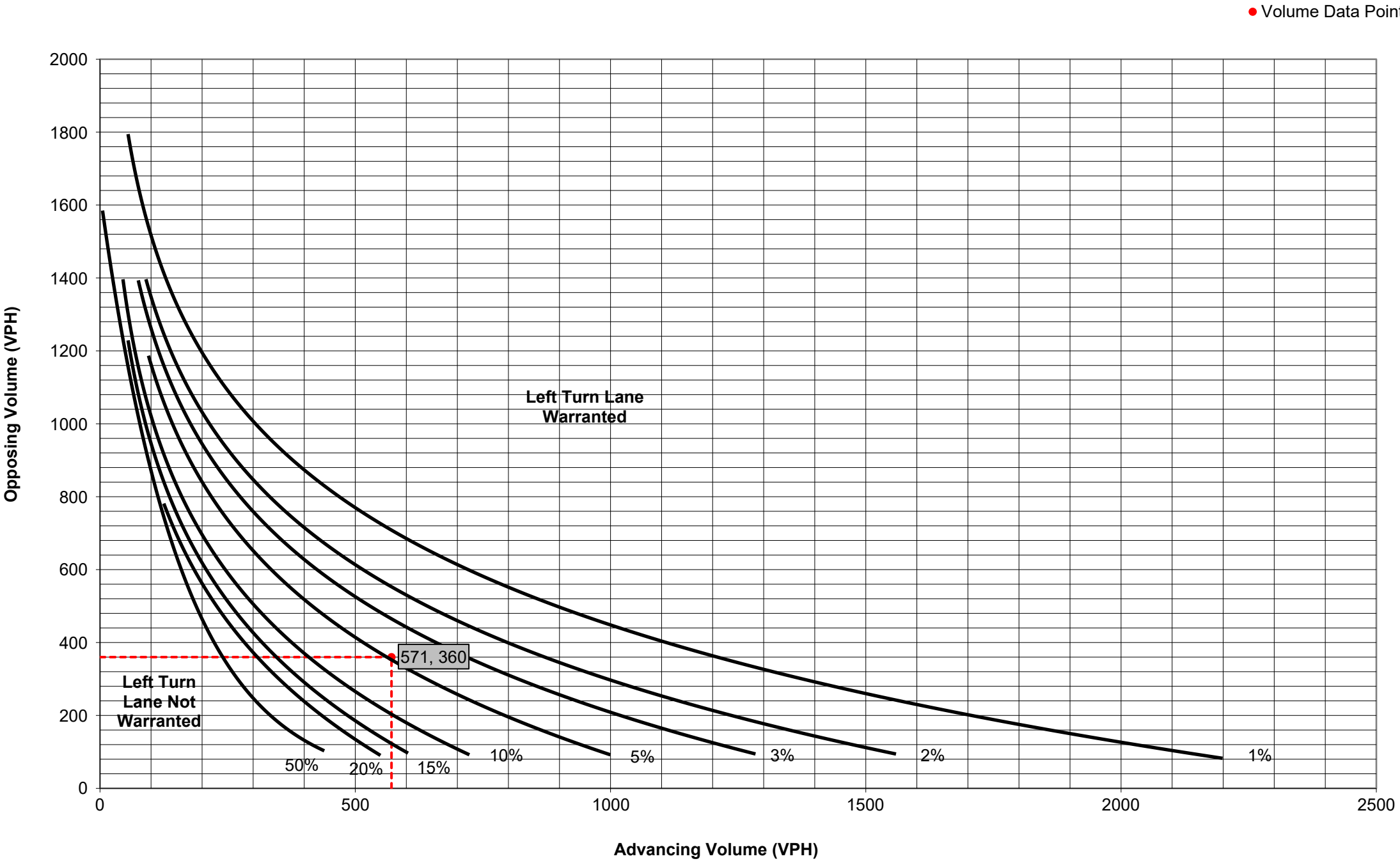
Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	75	Feet
Condition C:	411	Feet
Required Left Turn Lane Storage Length:	425	Feet

Additional Findings:

Consider Dual Left Turn Lanes and Operational Analyses

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:	Wilkes-Barre Township	**Analysis Date:**	5/12/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Coal Street/Highland Park Boulevard (Northbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	2
Design Hour:	AM Adjacent Street	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	40		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	403	3.0%	410
	Through	-	292	4.0%	298
	Right	No	288	5.0%	N/A
Opposing	Left	No	25	4.0%	N/A
	Through	-	193	8.0%	201
	Right	Yes	35	10.0%	37

Advancing Volume:	708
Opposing Volume:	238
Left Turn Volume:	410
% Left Turns in Advancing Volume:	57.91%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	403	3.0%	N/A
	Through	-	292	4.0%	N/A
	Right	-	288	5.0%	N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 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:	410
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	28

Average # of Vehicles/Cycle: 15.0

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

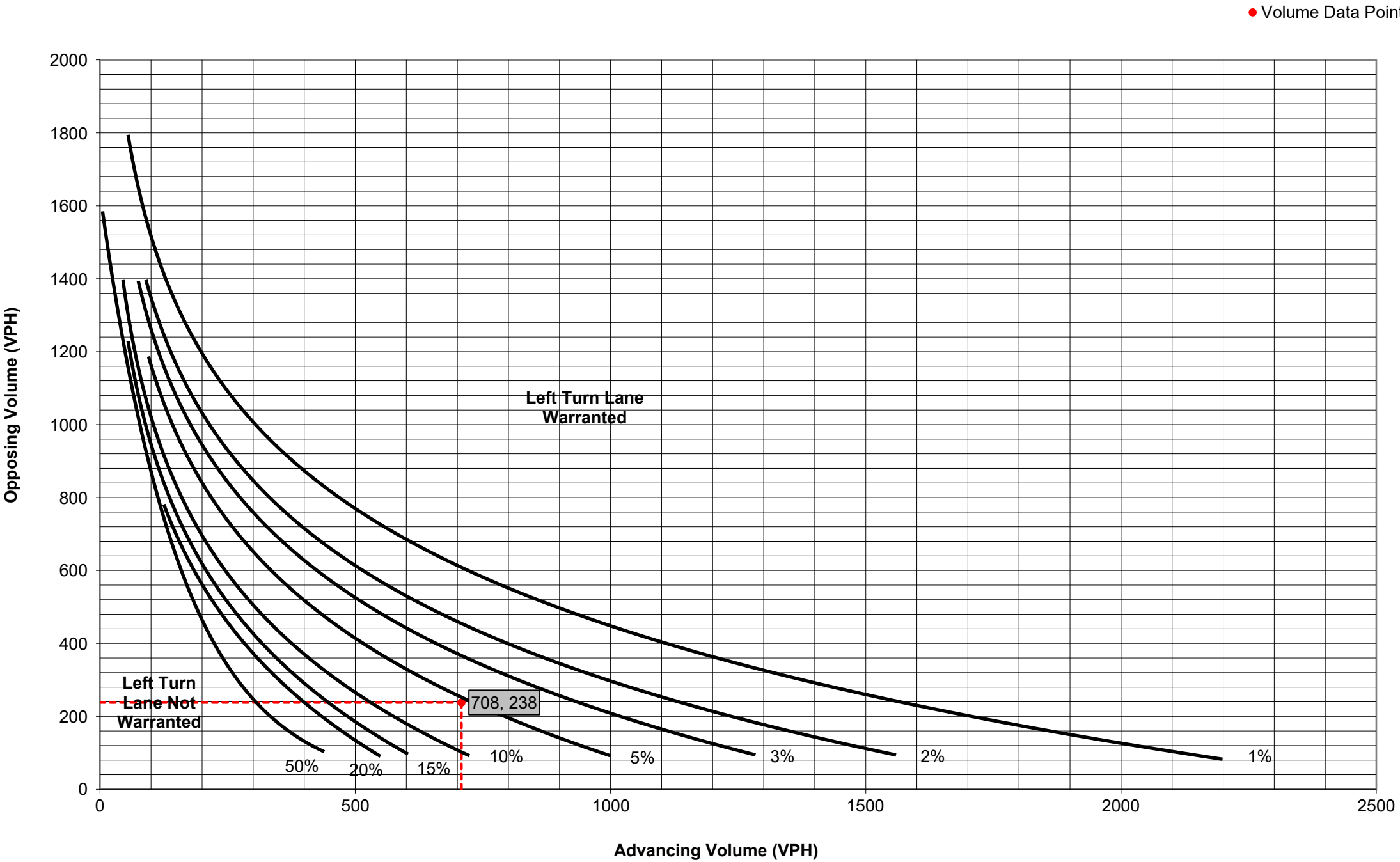
Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	75	Feet
Condition C:	586	Feet
Required Left Turn Lane Storage Length:	600	Feet

Additional Findings:

Consider Dual Left Turn Lanes and Operational Analyses

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:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Coal Street/Highland Park Boulevard (Northbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	2
Design Hour:	PM Peak Hour Generator	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	40		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	276	1.0%	278
	Through	-	399	3.0%	405
	Right	No	500	4.0%	N/A
Opposing	Left	No	92	2.0%	N/A
	Through	-	447	1.0%	450
	Right	Yes	112	7.0%	116

Advancing Volume:	683
Opposing Volume:	566
Left Turn Volume:	278
% Left Turns in Advancing Volume:	40.70%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	276	1.0%	N/A
	Through	-	399	3.0%	N/A
	Right	-	500	4.0%	N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 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:	278
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	42

Average # of Vehicles/Cycle: 7.0

PennDOT Publication 46, Exhibit 11-6

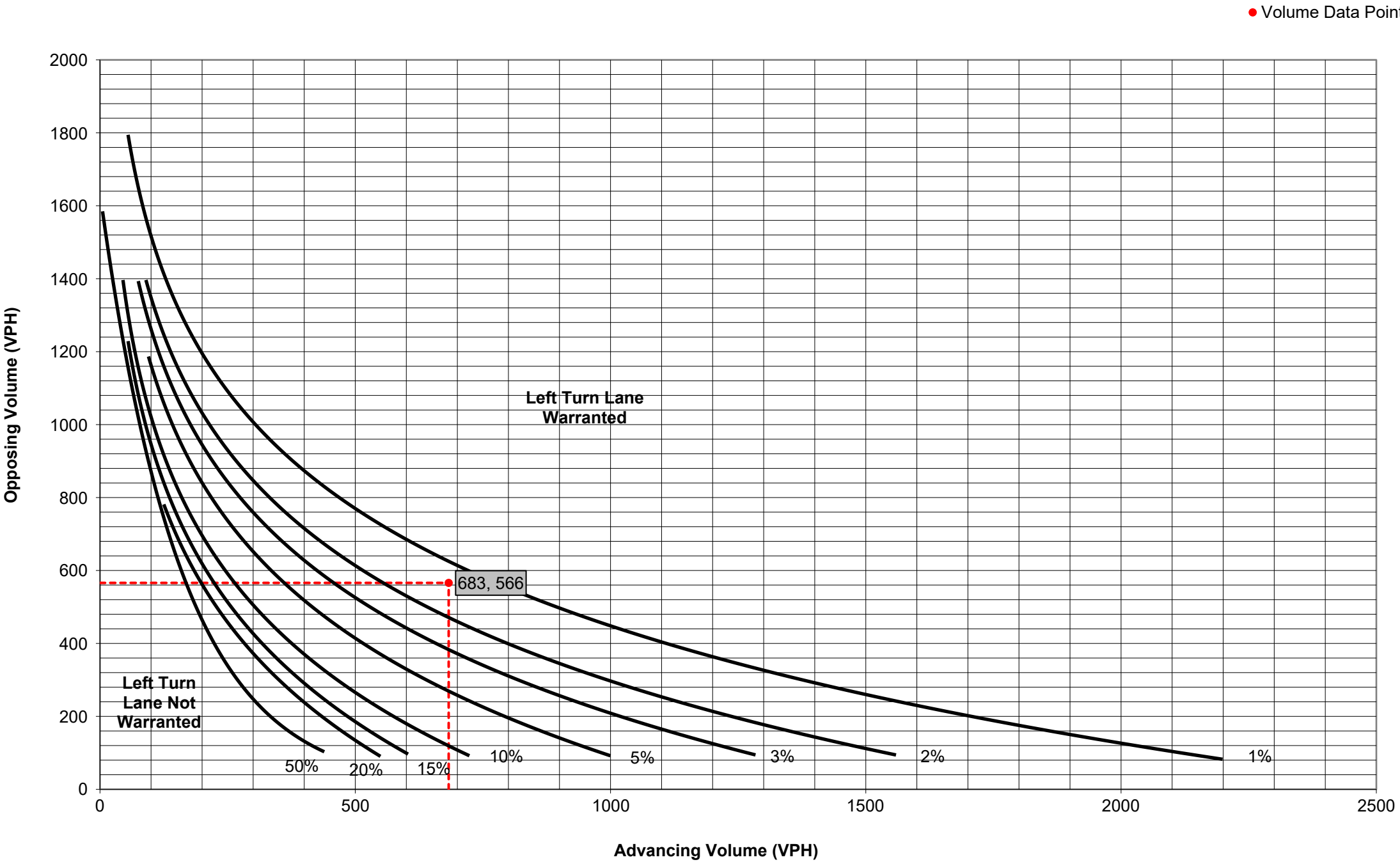
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	75	Feet
Condition C:	336	Feet
Required Left Turn Lane Storage Length:	350	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:	Wilkes-Barre Township	**Analysis Date:**	5/12/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Coal Street/Highland Park Boulevard (Northbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	2
Design Hour:	AM Adjacent Street	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	40		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	403	3.0%	N/A
	Through	-	292	4.0%	N/A
	Right	No	288	5.0%	N/A
Opposing	Left	No	25	4.0%	N/A
	Through	-	193	8.0%	N/A
	Right	Yes	35	10.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
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	403	3.0%	N/A
	Through	-	292	4.0%	298
	Right	-	288	5.0%	296

Advancing Volume:	594
Right Turn Volume:	296

TURN LANE WARRANT 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?: Yes

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	296
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	28

Average # of Vehicles/Cycle: 11.0

PennDOT Publication 46, Exhibit 11-6

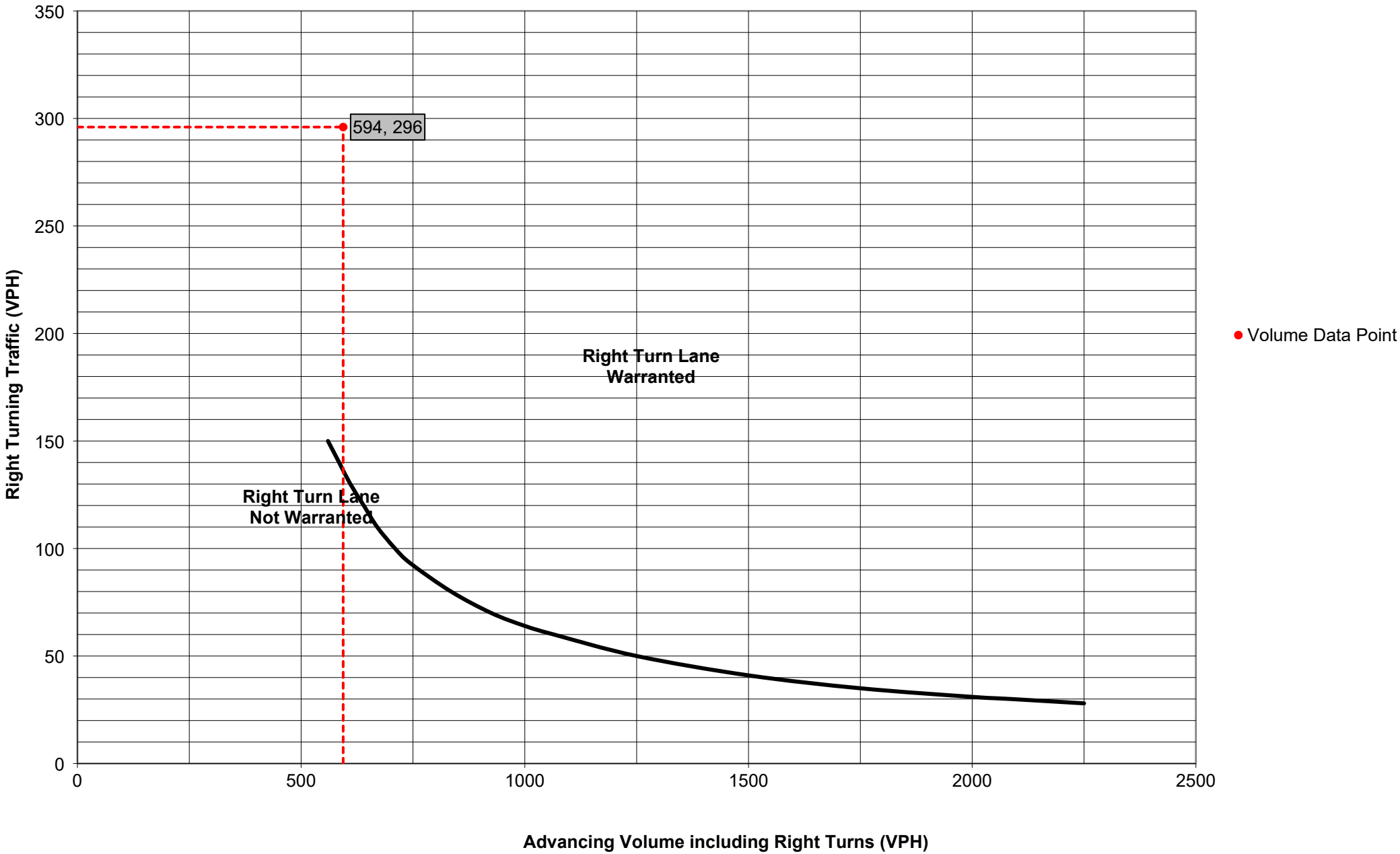
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	75	Feet
Condition C:	461	Feet
Required Right Turn Lane Storage Length:	475	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:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Coal Street/Highland Park Boulevard (Northbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	2
Design Hour:	AM Peak Hour Generator	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	40		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	253	4.0%	N/A
	Through	-	307	3.0%	N/A
	Right	No	355	6.0%	N/A
Opposing	Left	No	56	2.0%	N/A
	Through	-	299	5.0%	N/A
	Right	Yes	50	9.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
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	253	4.0%	N/A
	Through	-	307	3.0%	312
	Right	-	355	6.0%	366

Advancing Volume:	678
Right Turn Volume:	366

TURN LANE WARRANT 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?: Yes

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	366
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	28

Average # of Vehicles/Cycle: 13.0

PennDOT Publication 46, Exhibit 11-6

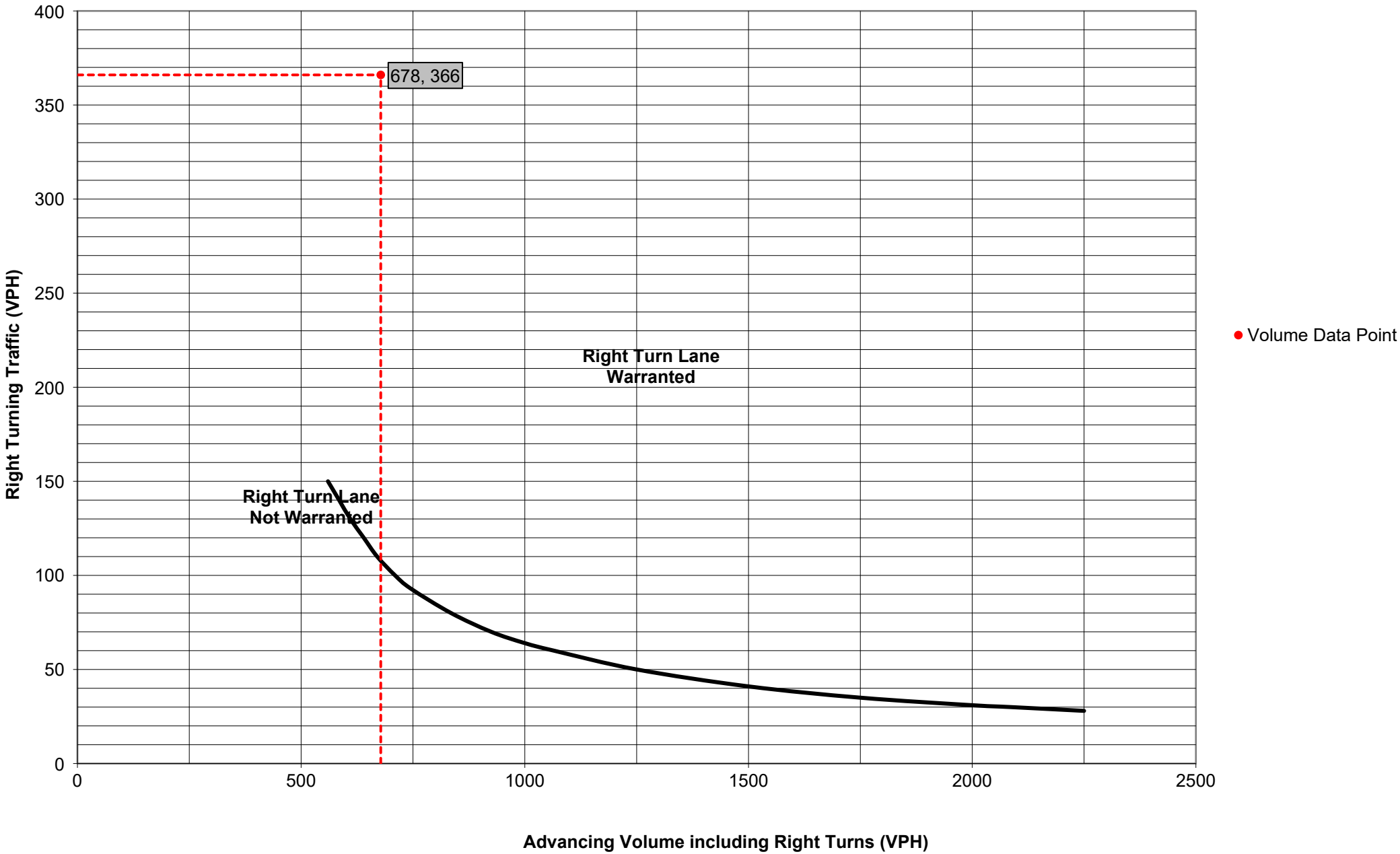
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	75	Feet
Condition C:	536	Feet
Required Right Turn Lane Storage Length:	550	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:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Coal Street/Highland Park Boulevard (Northbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	2
Design Hour:	PM Peak Hour Generator	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	40		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	276	1.0%	N/A
	Through	-	399	3.0%	N/A
	Right	No	500	4.0%	N/A
Opposing	Left	No	92	2.0%	N/A
	Through	-	447	1.0%	N/A
	Right	Yes	112	7.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
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	276	1.0%	N/A
	Through	-	399	3.0%	405
	Right	-	500	4.0%	510

Advancing Volume:	915
Right Turn Volume:	510

TURN LANE WARRANT 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?: Yes

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	510
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	42

Average # of Vehicles/Cycle: 12.0

PennDOT Publication 46, Exhibit 11-6

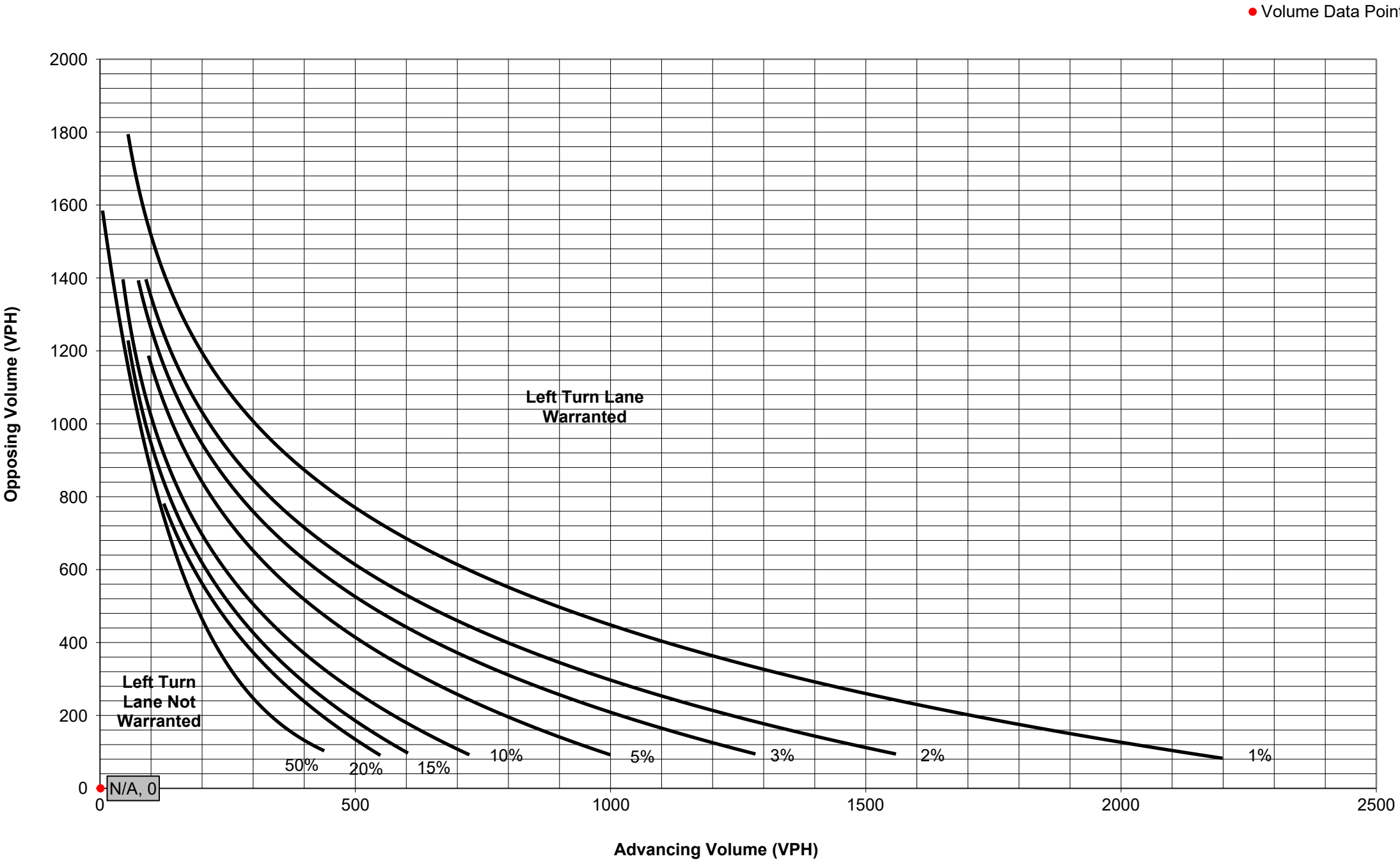
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	75	Feet
Condition C:	511	Feet
Required Right Turn Lane Storage Length:	525	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:	Wilkes-Barre Township	**Analysis Date:**	5/12/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Coal Street/Highland Park Boulevard (Southbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	2
Design Hour:	AM Adjacent Street	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	40		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	25	4.0%	26
	Through	-	193	8.0%	201
	Right	Yes	35	10.0%	37
Opposing	Left	No	403	3.0%	N/A
	Through	-	292	4.0%	298
	Right	No	288	5.0%	N/A

Advancing Volume:	264
Opposing Volume:	298
Left Turn Volume:	26
% Left Turns in Advancing Volume:	9.85%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	25	4.0%	N/A
	Through	-	193	8.0%	N/A
	Right	-	35	10.0%	N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 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:	26
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	28

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

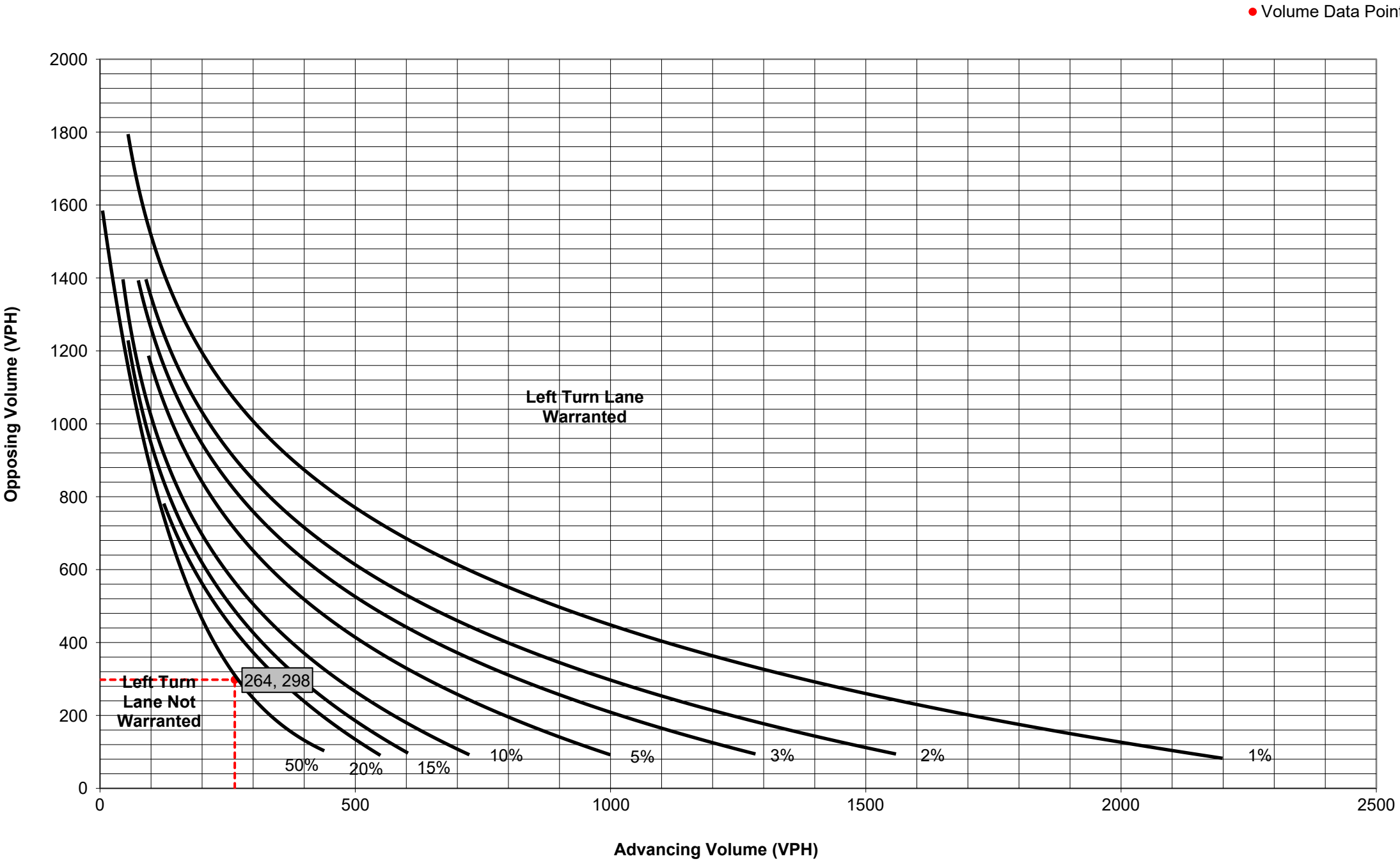
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Wilkes-Barre Township	**Analysis Date:**	5/12/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Coal Street/Highland Park Boulevard (Southbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	2
Design Hour:	AM Adjacent Street	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	40		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	25	4.0%	N/A
	Through	-	193	8.0%	N/A
	Right	Yes	35	10.0%	N/A
Opposing	Left	No	403	3.0%	N/A
	Through	-	292	4.0%	N/A
	Right	No	288	5.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
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	4.0%	N/A
	Through	-	193	8.0%	201
	Right	-	35	10.0%	37

Advancing Volume:	238
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):	28

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

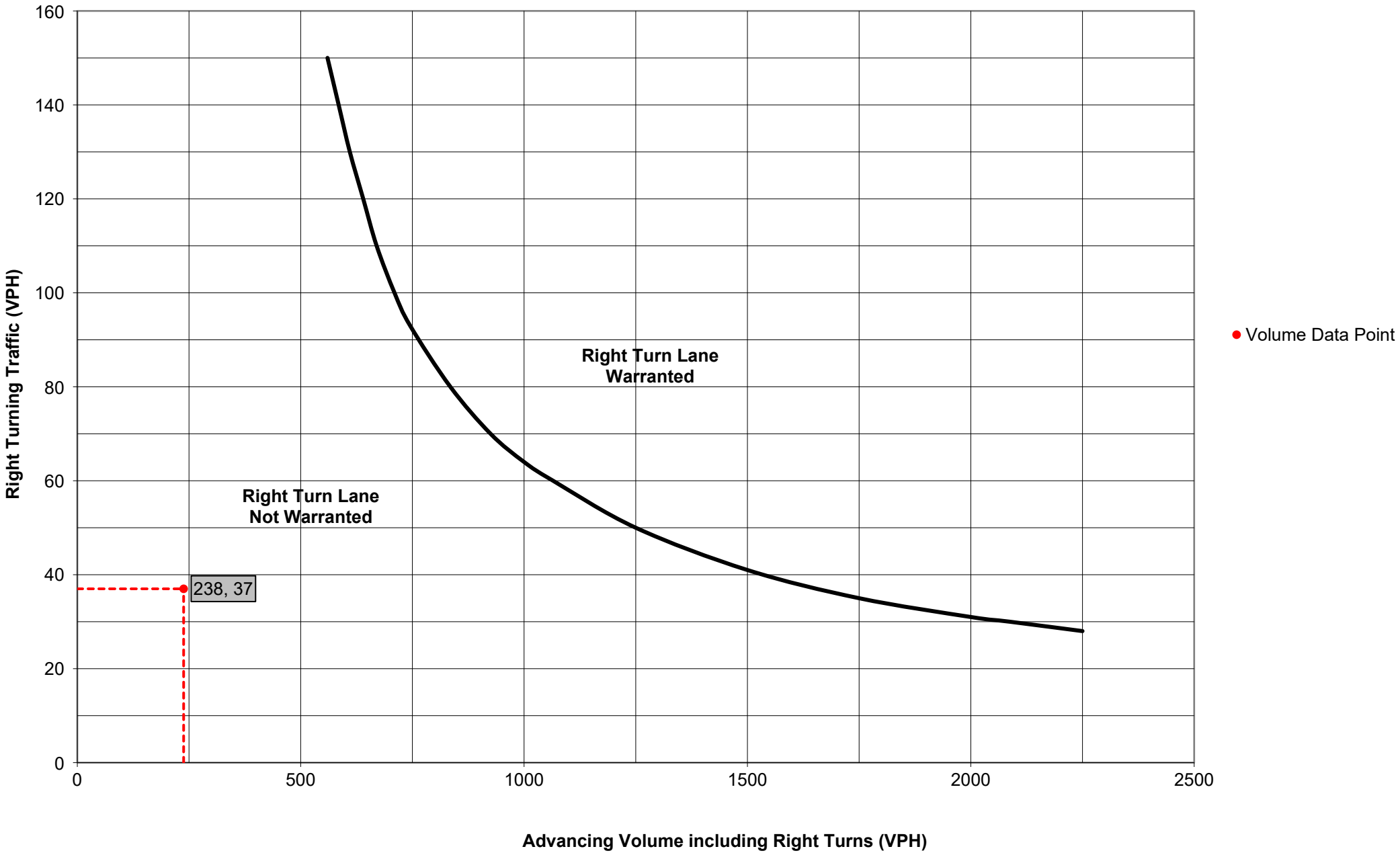
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/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:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Coal Street/Highland Park Boulevard (Southbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	2
Design Hour:	AM Peak Hour Generator	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	40		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	56	2.0%	57
	Through	-	299	5.0%	307
	Right	Yes	50	9.0%	53
Opposing	Left	No	253	4.0%	N/A
	Through	-	307	3.0%	312
	Right	No	355	6.0%	N/A

Advancing Volume:	417
Opposing Volume:	312
Left Turn Volume:	57
% Left Turns in Advancing Volume:	13.67%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	56	2.0%	N/A
	Through	-	299	5.0%	N/A
	Right	-	50	9.0%	N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: **Figure 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:	57
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	28

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

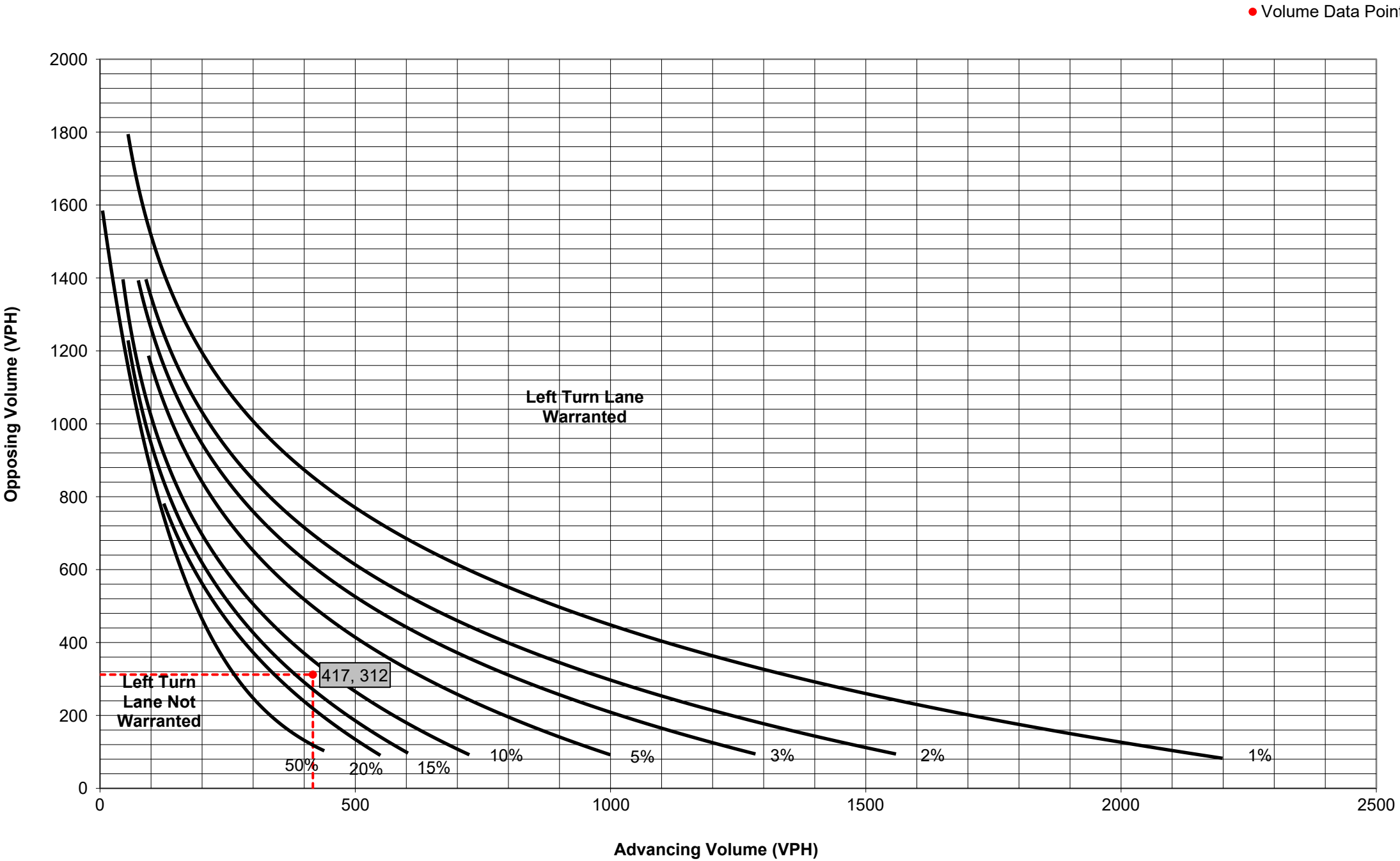
Left Turn Lane Storage Length, Condition A:	**N/A**	**Feet**
Condition B:	**N/A**	**Feet**
Condition C:	**N/A**	**Feet**
Required Left Turn Lane Storage Length:	**N/A**	**Feet**

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:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Coal Street/Highland Park Boulevard (Southbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	2
Design Hour:	AM Peak Hour Generator	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	40		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	56	2.0%	N/A
	Through	-	299	5.0%	N/A
	Right	Yes	50	9.0%	N/A
Opposing	Left	No	253	4.0%	N/A
	Through	-	307	3.0%	N/A
	Right	No	355	6.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
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	56	2.0%	N/A
	Through	-	299	5.0%	307
	Right	-	50	9.0%	53

Advancing Volume:	360
Right Turn Volume:	53

TURN LANE WARRANT 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:	53
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	28

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

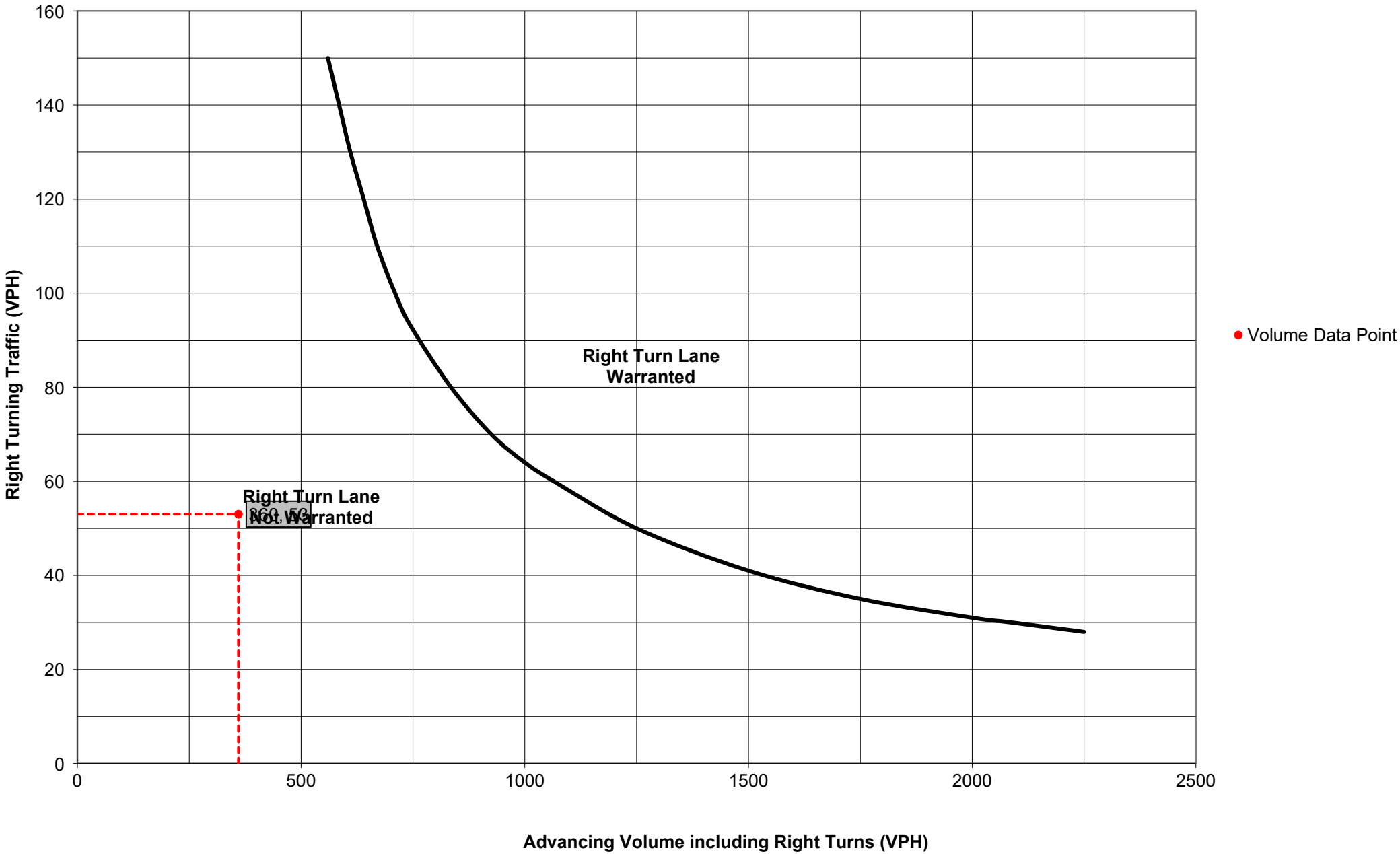
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/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:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Coal Street/Highland Park Boulevard (Southbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	2
Design Hour:	PM Peak Hour Generator	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	40		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	92	2.0%	93
	Through	-	447	1.0%	450
	Right	Yes	112	7.0%	116
Opposing	Left	No	276	1.0%	N/A
	Through	-	399	3.0%	405
	Right	No	500	5.0%	N/A

Advancing Volume:	659
Opposing Volume:	405
Left Turn Volume:	93
% Left Turns in Advancing Volume:	14.11%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	92	2.0%	N/A
	Through	-	447	1.0%	N/A
	Right	-	112	7.0%	N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 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:	93
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	42

Average # of Vehicles/Cycle: 2.0

PennDOT Publication 46, Exhibit 11-6

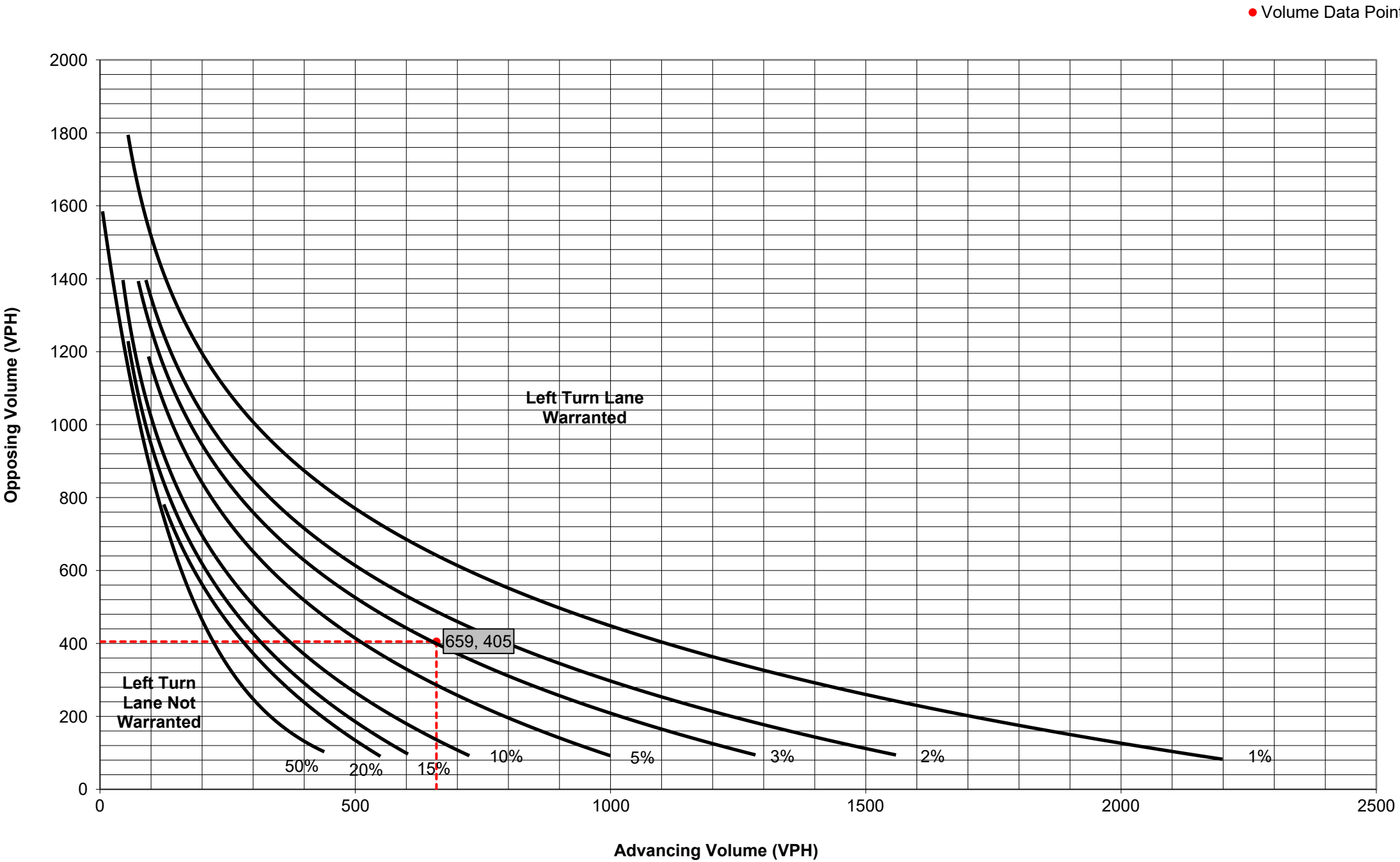
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	75	Feet
Condition C:	161	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:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: SR 6309 & Coal Street/Highland Park Boulevard (Southbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	2
Design Hour:	PM Peak Hour Generator	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	40		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	92	2.0%	N/A
	Through	-	447	1.0%	N/A
	Right	Yes	112	7.0%	N/A
Opposing	Left	No	276	1.0%	N/A
	Through	-	399	3.0%	N/A
	Right	No	500	5.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
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	92	2.0%	N/A
	Through	-	447	1.0%	450
	Right	-	112	7.0%	116

Advancing Volume:	566
Right Turn Volume:	116

TURN LANE WARRANT 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:	116
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	42

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

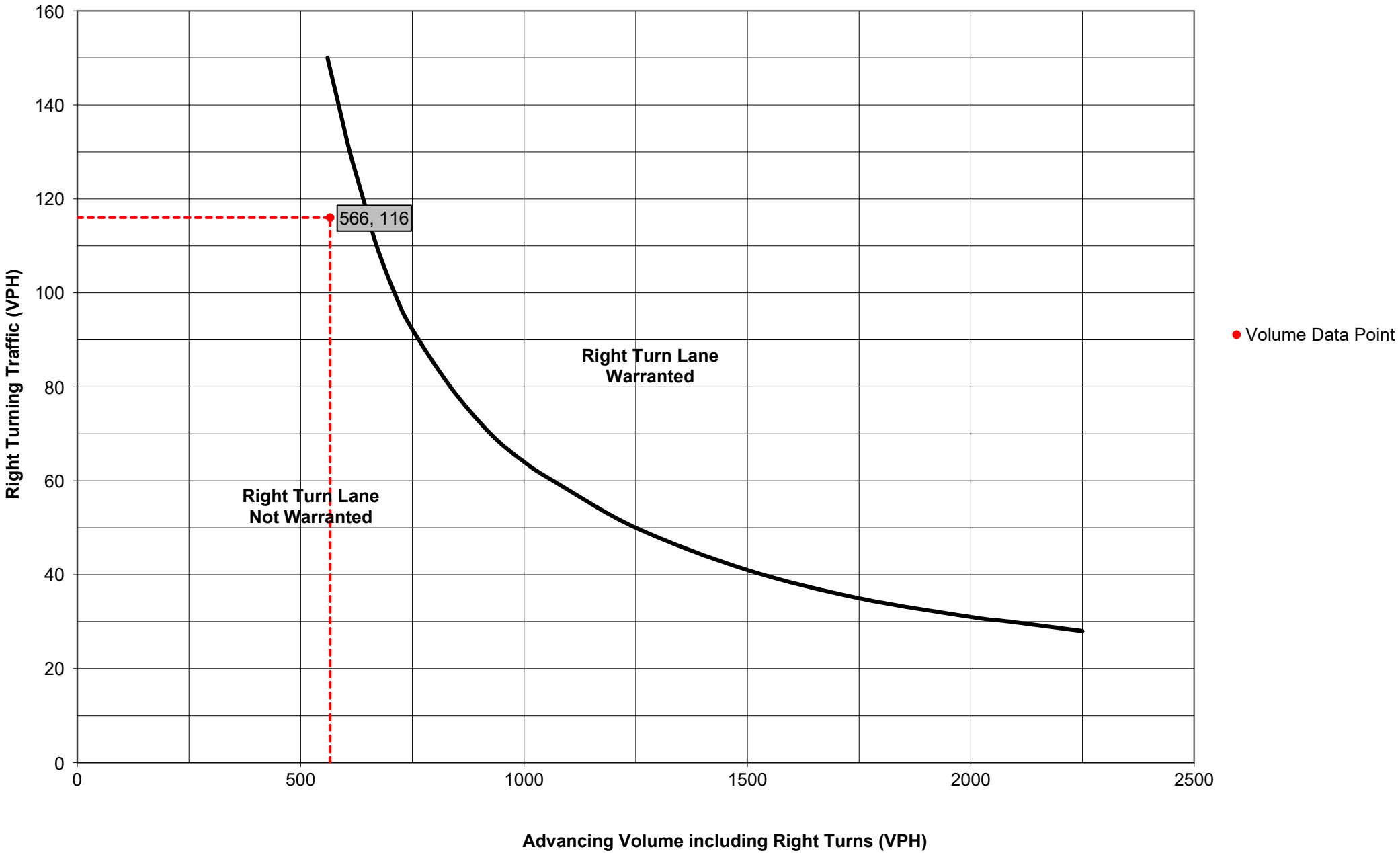
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/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)



Johnson Street & Haul Road

Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: Johnson Street & Haul Road (Westbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	AM Adjacent Street	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Level	**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	57.0%	27
	Through	-	0	2.0%	0
	Right	Yes	0	2.0%	0
Opposing	Left	Yes	0	0.0%	0
	Through	-	0	0.0%	0
	Right	Yes	0	0.0%	0

Advancing Volume:	27
Opposing Volume:	0
Left Turn Volume:	27
% Left Turns in Advancing Volume:	100.00%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	21	57.0%	N/A
	Through	-	0	2.0%	N/A
	Right	-	0	2.0%	N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: #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:	27
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

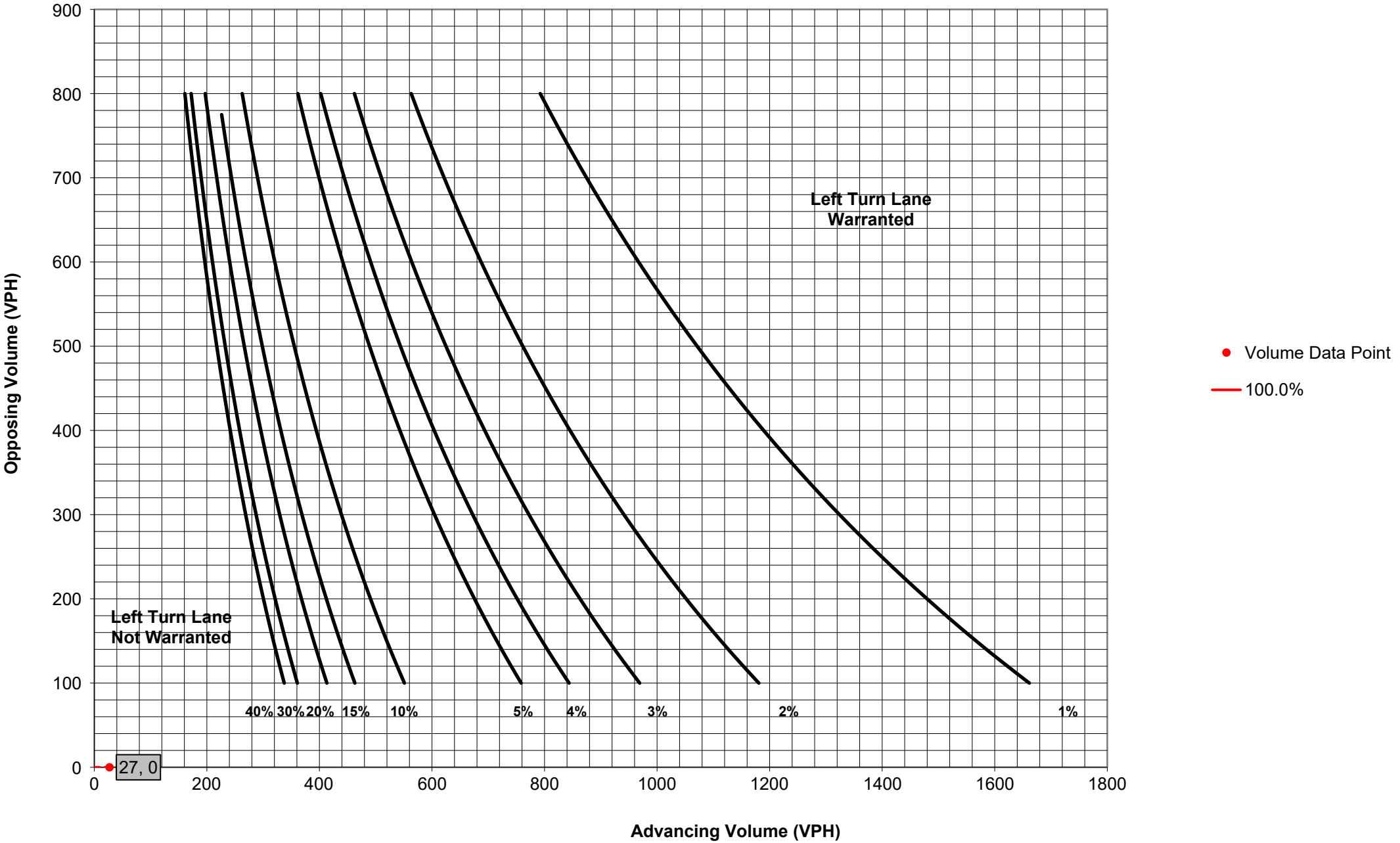
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: Johnson Street & Haul Road (Westbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour Generator	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	25	**Type of Analysis**	
Type of Terrain:	Level	**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	29.0%	25
	Through	-	0	2.0%	0
	Right	Yes	2	2.0%	3
Opposing	Left	Yes	0	0.0%	0
	Through	-	0	0.0%	0
	Right	Yes	0	0.0%	0

Advancing Volume:	28
Opposing Volume:	0
Left Turn Volume:	25
% Left Turns in Advancing Volume:	89.29%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	21	29.0%	N/A
	Through	-	0	2.0%	N/A
	Right	-	2	2.0%	N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: #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:	25
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

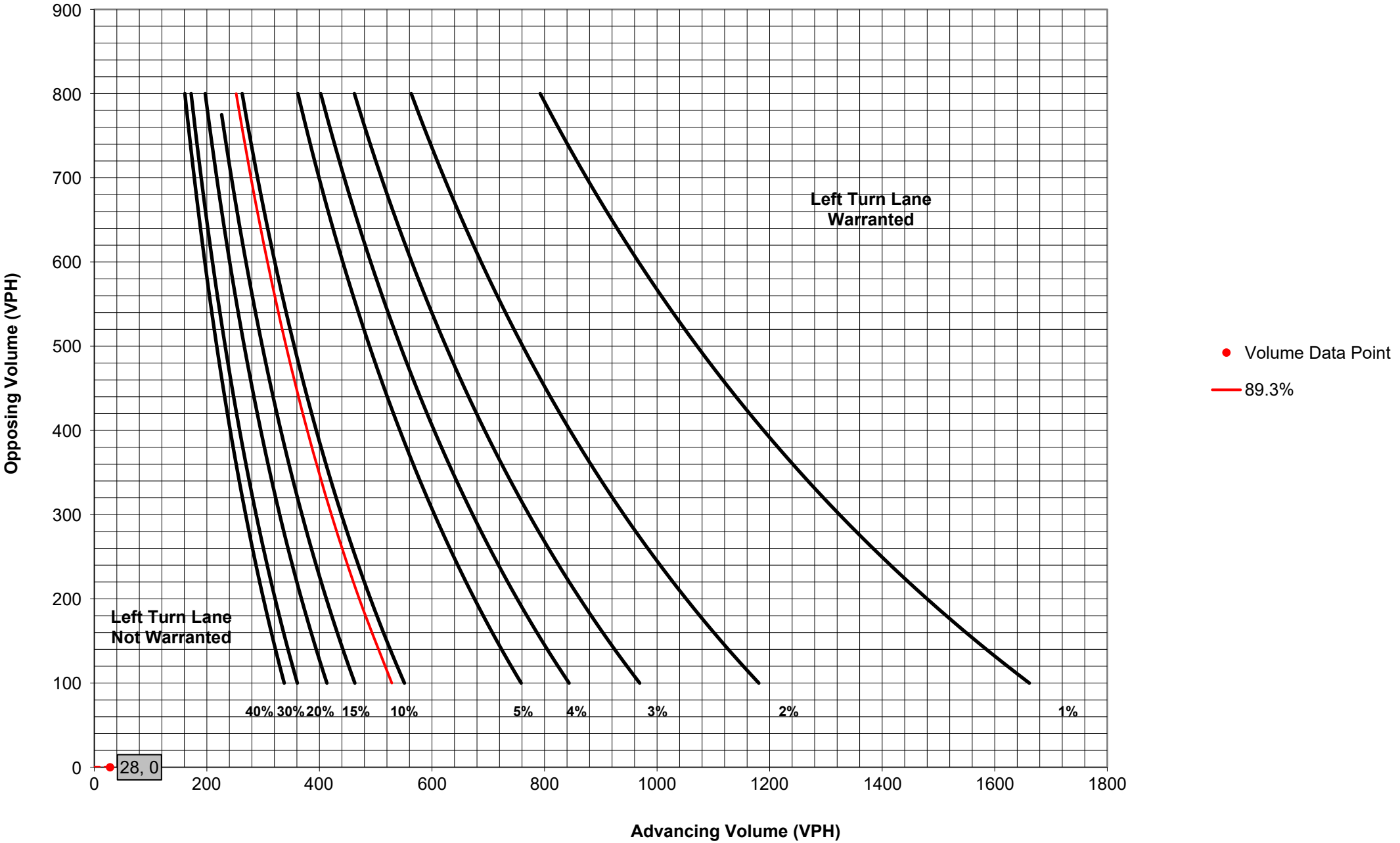
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: Johnson Street & Haul Road (Westbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour Generator	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Level	**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	8.0%	65
	Through	-	0	2.0%	0
	Right	Yes	3	2.0%	4
Opposing	Left	Yes	0	0.0%	0
	Through	-	0	0.0%	0
	Right	Yes	0	0.0%	0

Advancing Volume:	69
Opposing Volume:	0
Left Turn Volume:	65
% Left Turns in Advancing Volume:	94.20%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	62	8.0%	N/A
	Through	-	0	2.0%	N/A
	Right	-	3	2.0%	N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: #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:	65
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

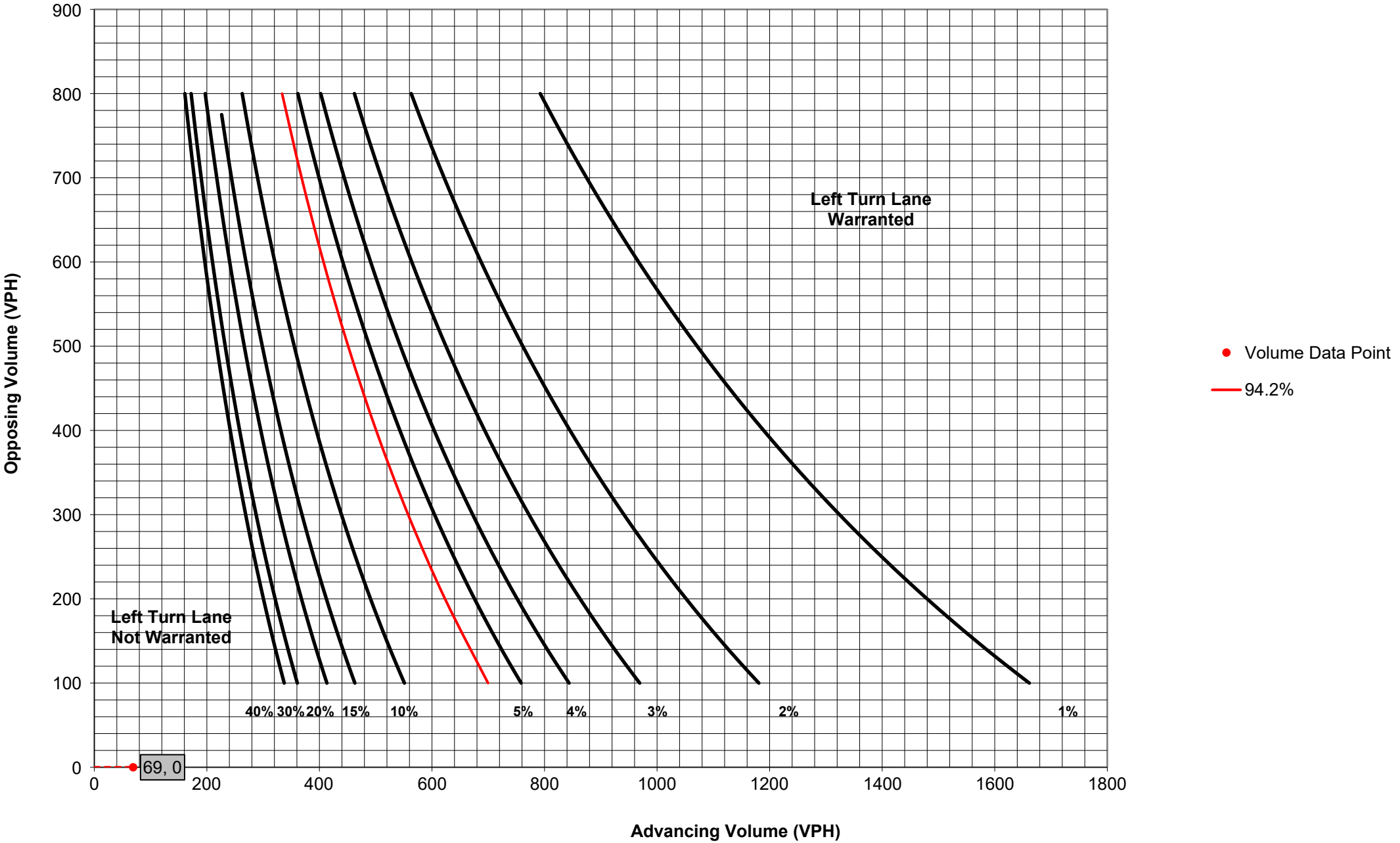
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: Johnson Street & Haul Road (Westbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	AM Adjacent Street	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	21	57.0%	N/A
	Through	-	0	2.0%	N/A
	Right	Yes	0	2.0%	N/A
Opposing	Left	Yes	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	0	0.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	21	57.0%	27
	Through	-	0	2.0%	0
	Right	-	0	2.0%	0

Advancing Volume:	27
Right Turn Volume:	0

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9

Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	0
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

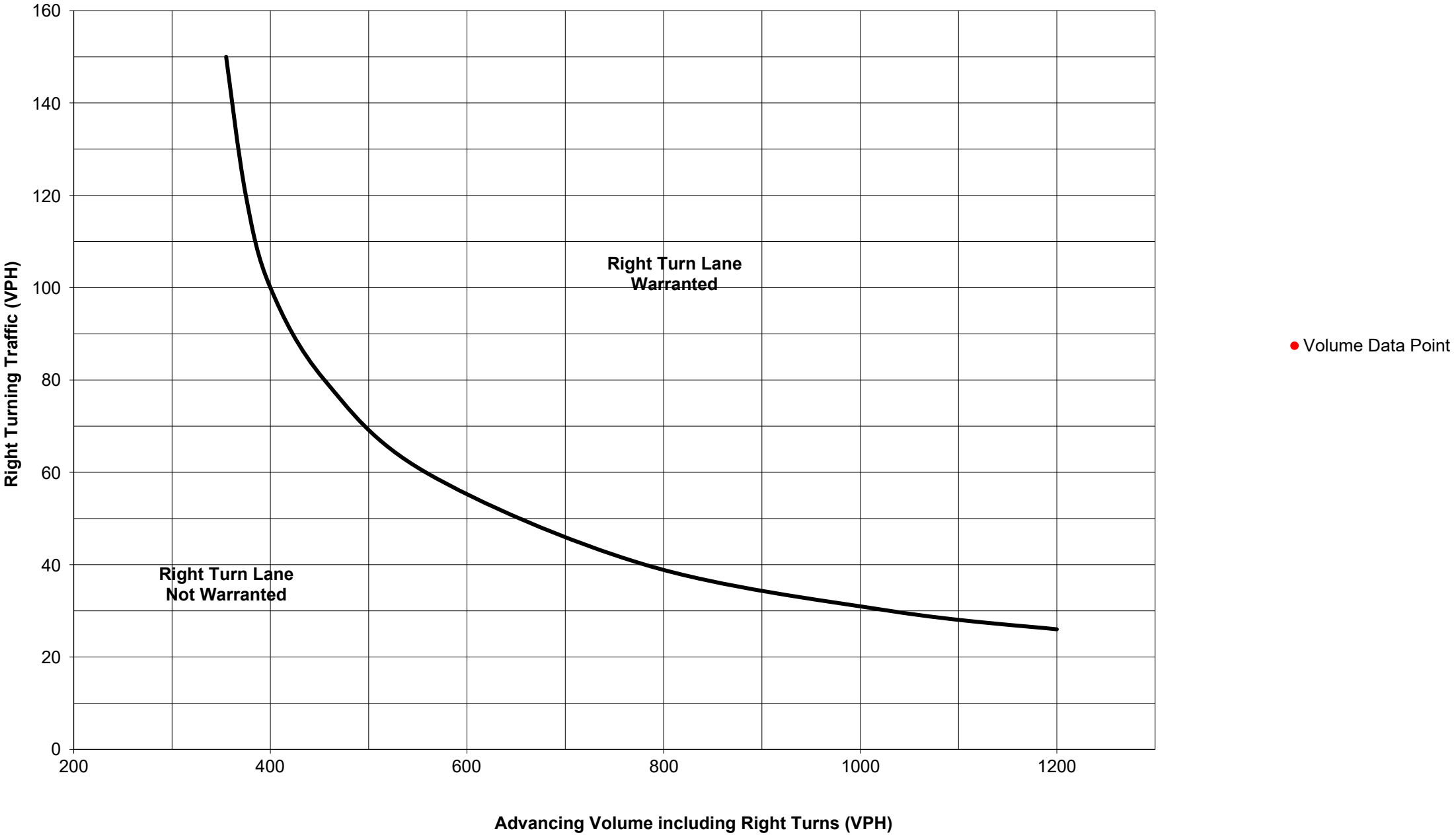
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: Johnson Street & Haul Road (Westbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour Generator	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	21	29.0%	N/A
	Through	-	0	2.0%	N/A
	Right	Yes	2	2.0%	N/A
Opposing	Left	Yes	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	0	0.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	21	29.0%	25
	Through	-	0	2.0%	0
	Right	-	2	2.0%	3

Advancing Volume:	28
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

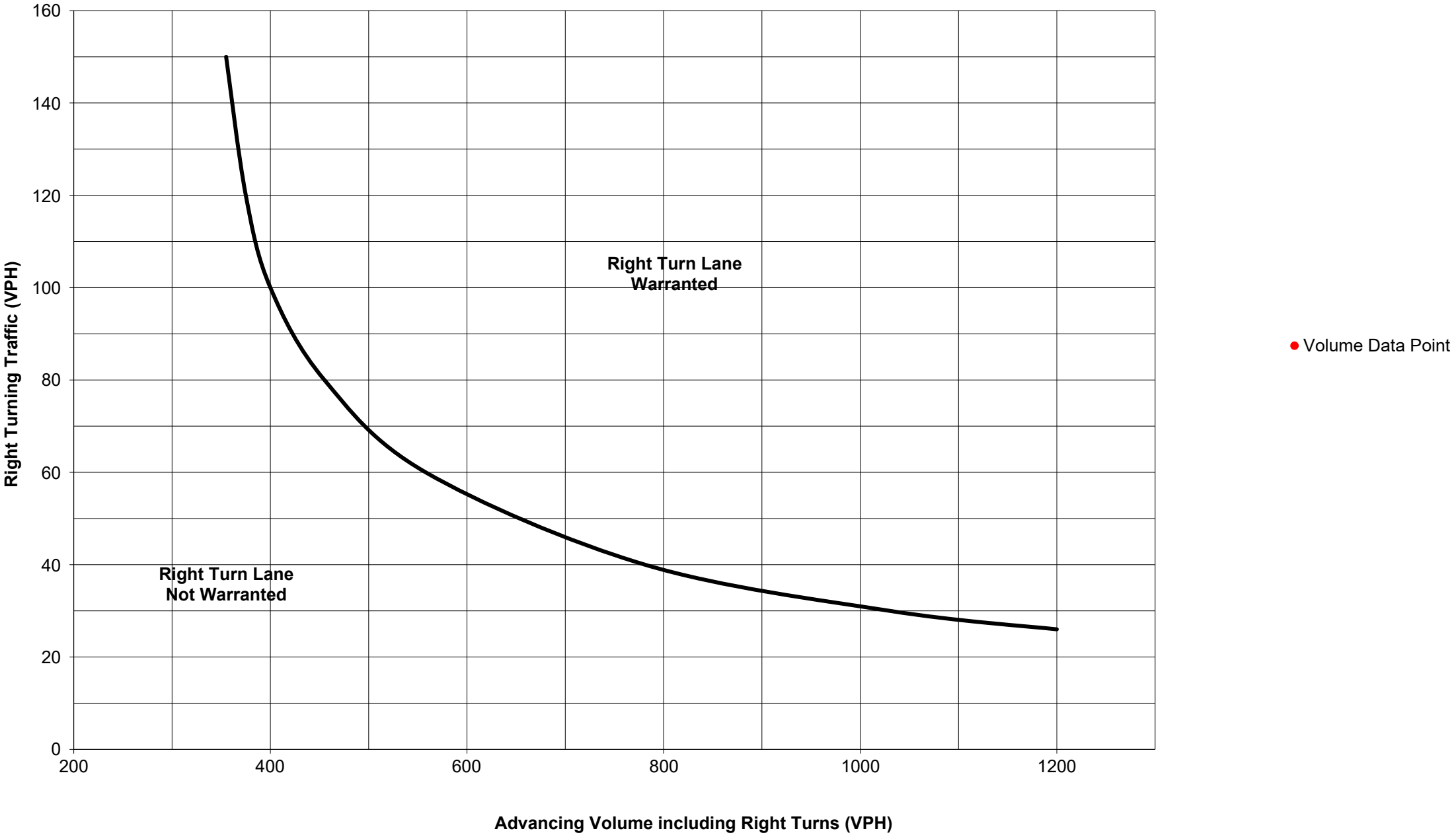
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: Johnson Street & Haul Road (Westbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour Generator	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	62	8.0%	N/A
	Through	-	0	2.0%	N/A
	Right	Yes	3	2.0%	N/A
Opposing	Left	Yes	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	0	0.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
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	8.0%	65
	Through	-	0	2.0%	0
	Right	-	3	2.0%	4

Advancing Volume:	69
Right Turn Volume:	4

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9

Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	4
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

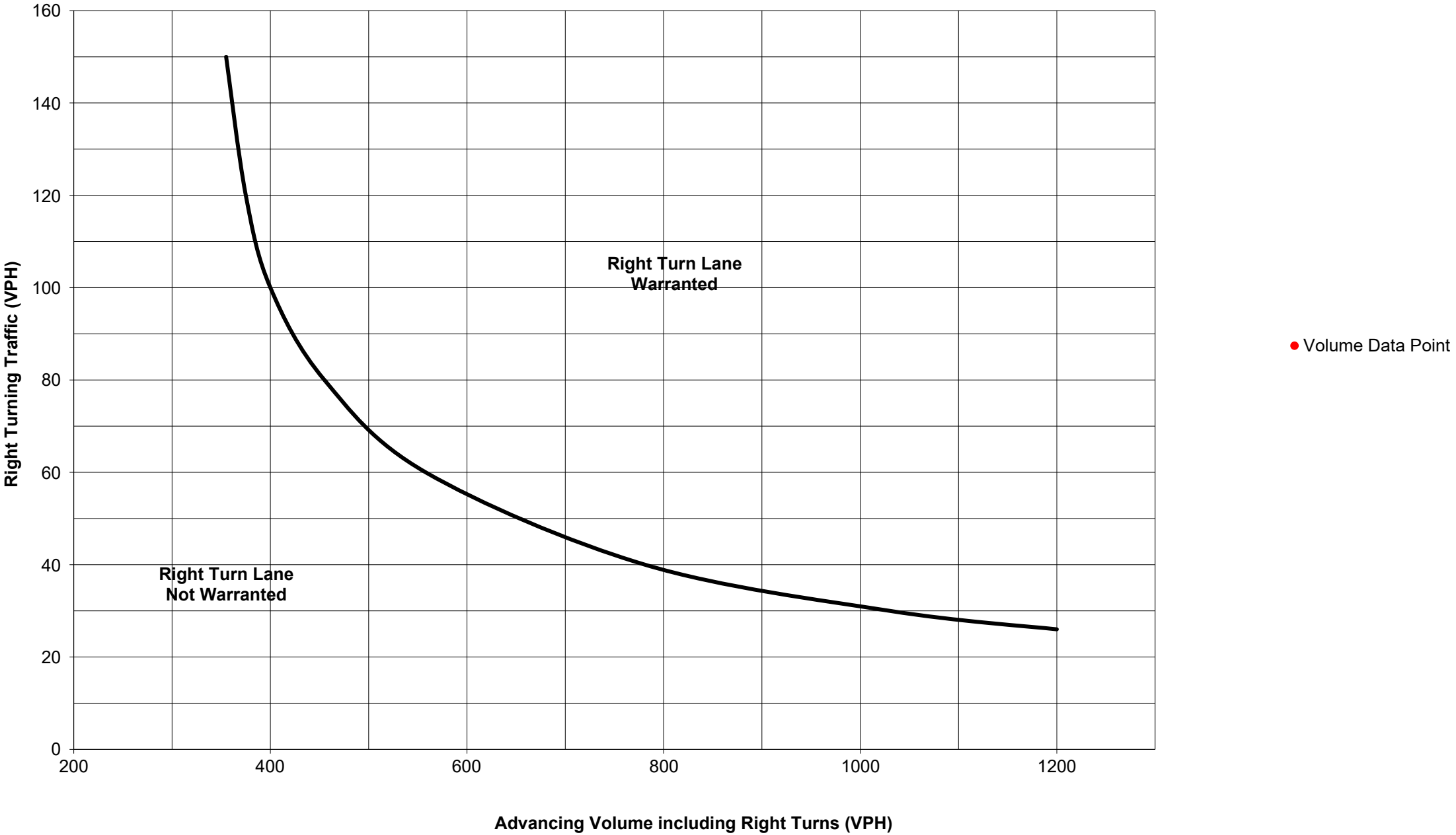
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: Johnson Street & Haul Road (Southbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	AM Adjacent Street	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Level	**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	2.0%	2
	Through	-	27	4.0%	28
	Right	Yes	0	0.0%	0
Opposing	Left	Yes	2	0.0%	2
	Through	-	25	8.0%	26
	Right	Yes	34	12.0%	37

Advancing Volume:	30
Opposing Volume:	65
Left Turn Volume:	2
% Left Turns in Advancing Volume:	6.67%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	2
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

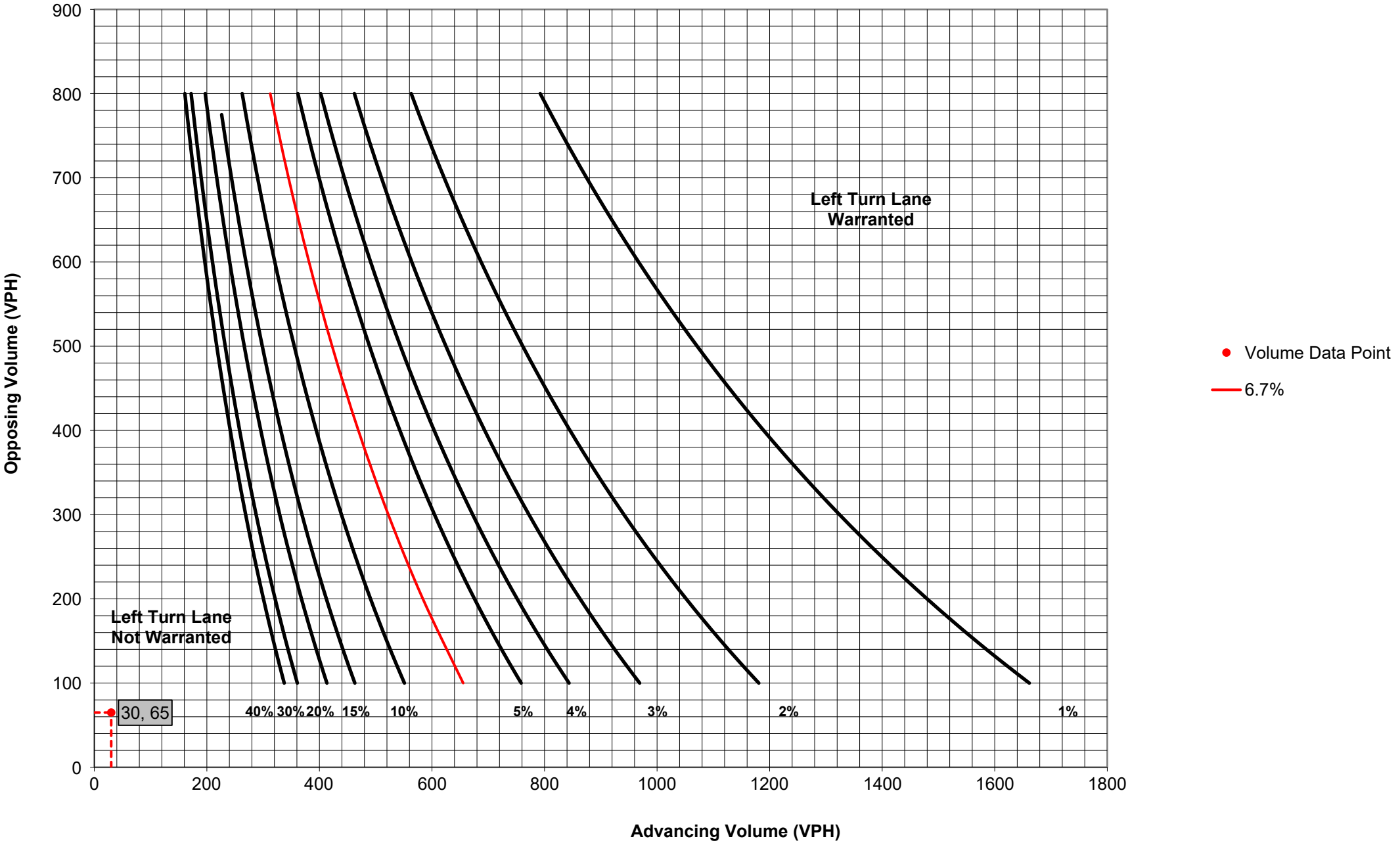
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: Johnson Street & Haul Road (Southbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour Generator	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Level	**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	-	36	0.0%	36
	Right	Yes	0	0.0%	0
Opposing	Left	Yes	0	0.0%	0
	Through	-	34	0.0%	34
	Right	Yes	51	6.0%	53

Advancing Volume:	39
Opposing Volume:	87
Left Turn Volume:	3
% Left Turns in Advancing Volume:	7.69%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	3
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

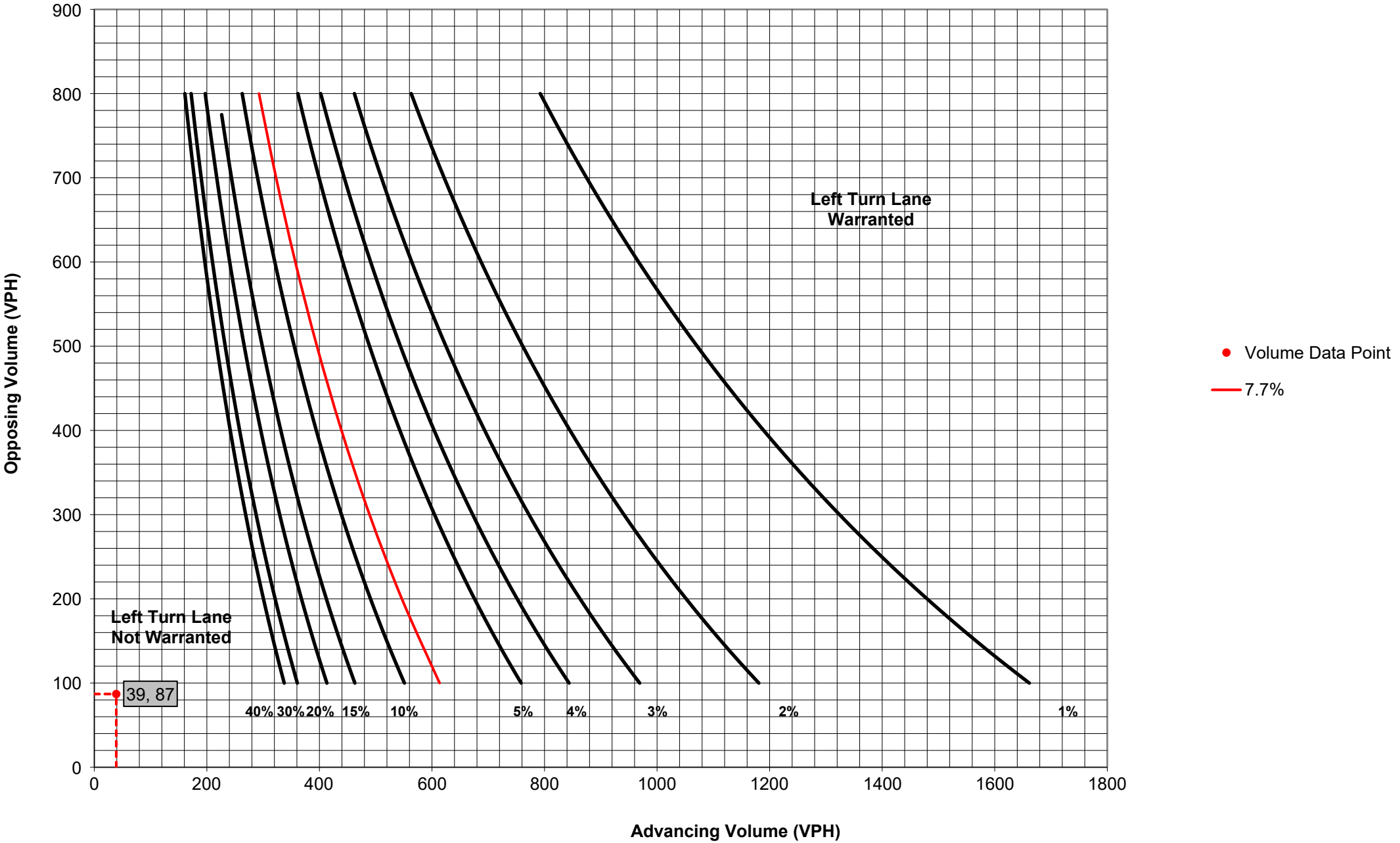
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: Johnson Street & Haul Road (Southbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour Generator	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Level	**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	2.0%	2
	Through	-	49	0.0%	49
	Right	Yes	0	0.0%	0
Opposing	Left	Yes	1	0.0%	1
	Through	-	86	0.0%	86
	Right	Yes	25	2.0%	26

Advancing Volume:	51
Opposing Volume:	113
Left Turn Volume:	2
% Left Turns in Advancing Volume:	3.92%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	2
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

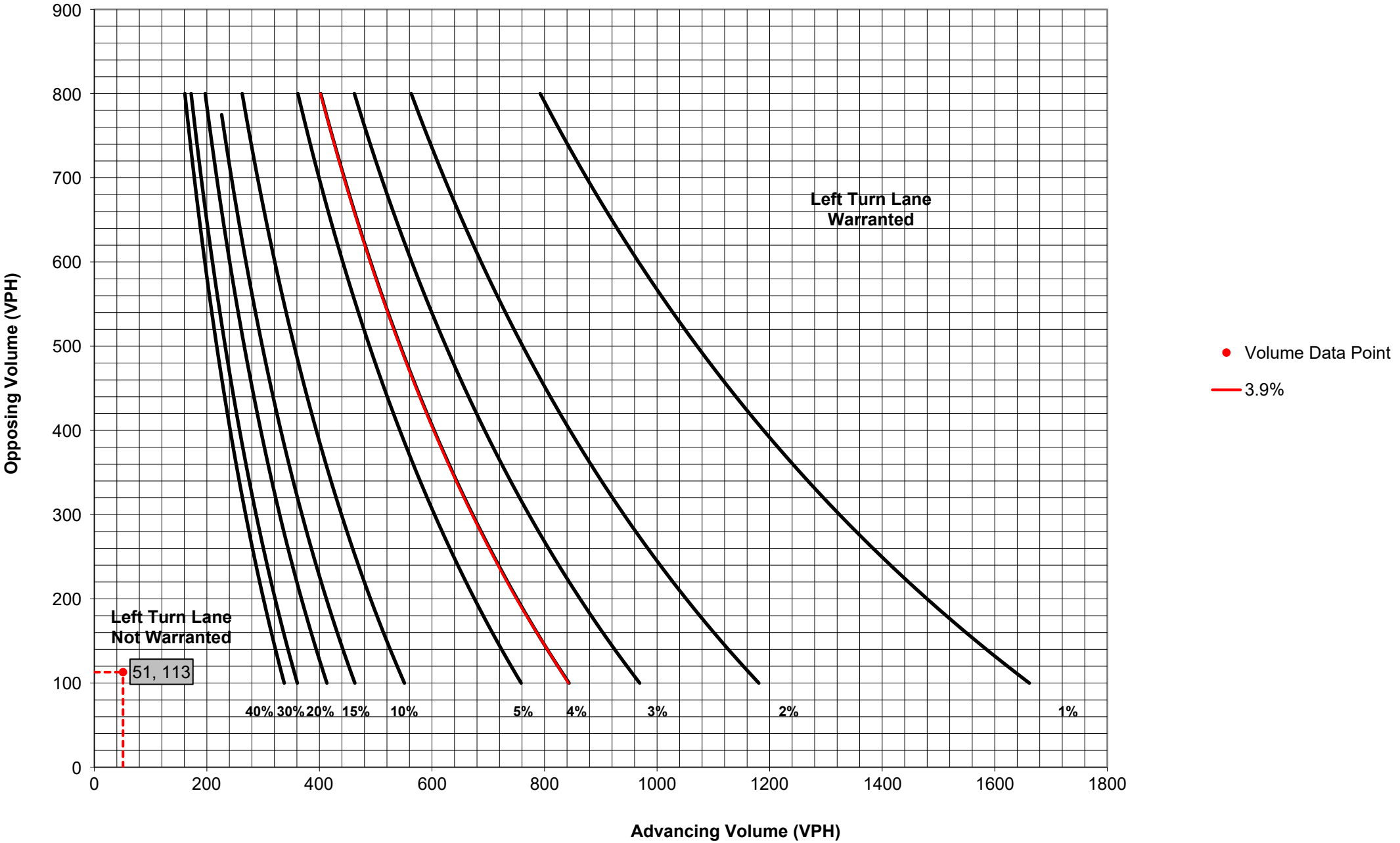
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Wilkes-Barre Township	**Analysis Date:**	5/12/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: Johnson Street & Haul Road (Northbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	2
Design Hour:	AM Adjacent Street	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	2	0.0%	2
	Through	-	25	8.0%	26
	Right	-	34	12.0%	37

Advancing Volume:	65
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:	Unsignalized
Design Hour Volume of Turning Lane:	37
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

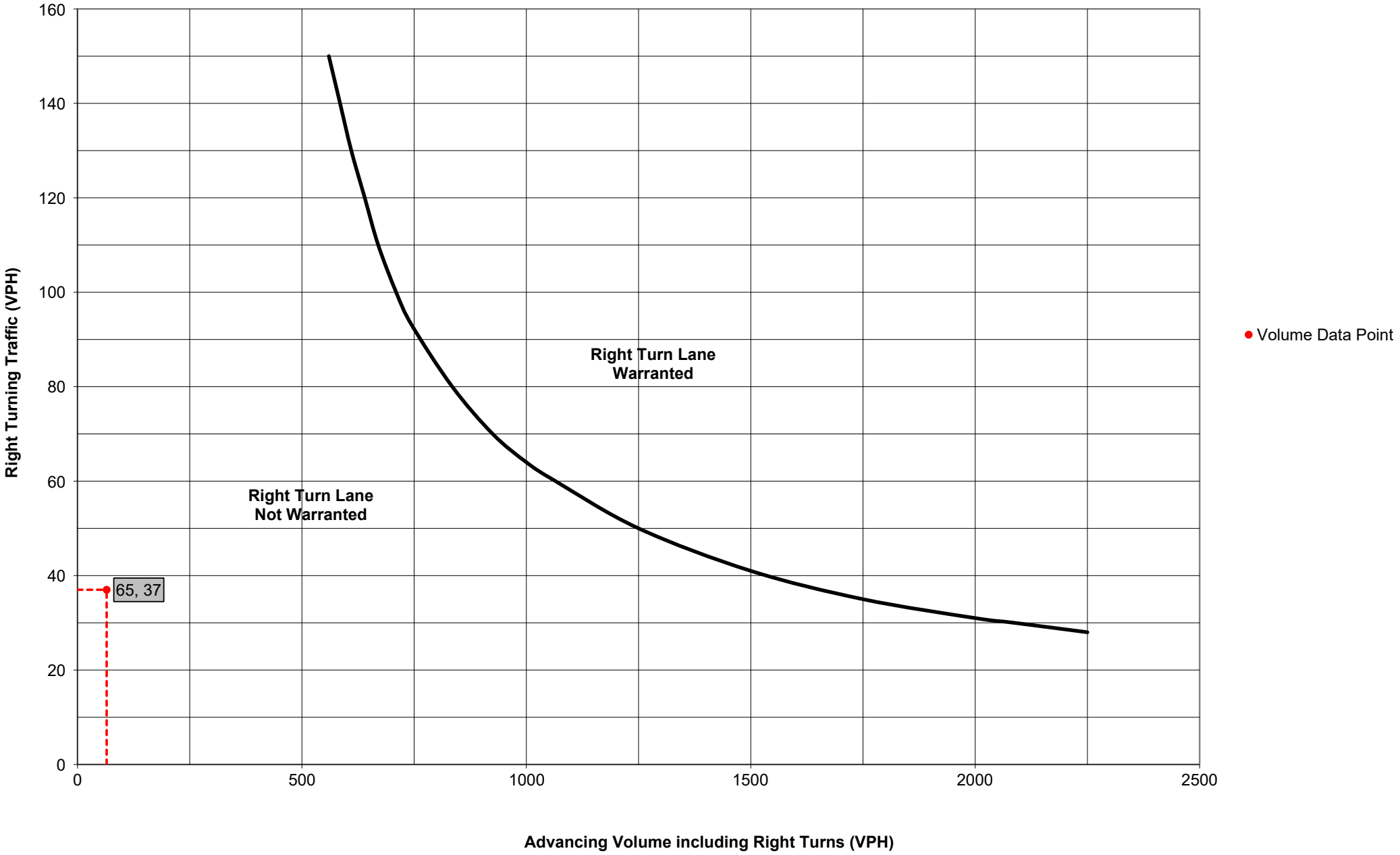
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/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:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: Johnson Street & Haul Road (Northbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	2
Design Hour:	AM Peak Hour Generator	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	0.0%	0
	Through	-	34	0.0%	34
	Right	-	51	6.0%	53

Advancing Volume:	87
Right Turn Volume:	53

TURN LANE WARRANT 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:	Unsignalized
Design Hour Volume of Turning Lane:	53
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

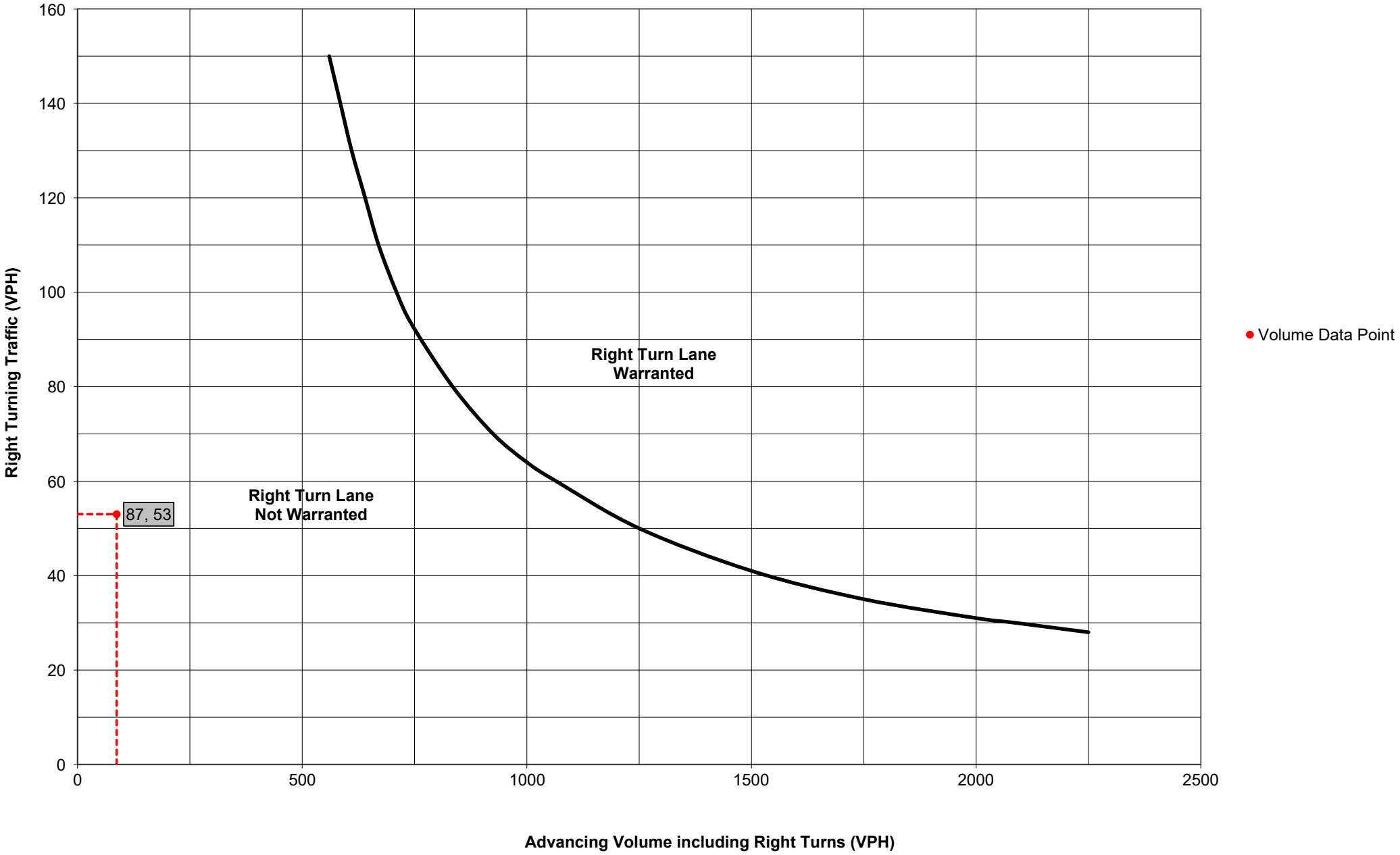
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/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:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: Johnson Street & Haul Road (Northbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	2
Design Hour:	PM Peak Hour Generator	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	25	**Type of Analysis**	
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	1	0.0%	1
	Through	-	86	0.0%	86
	Right	-	25	2.0%	26

Advancing Volume:	113
Right Turn Volume:	26

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 11

Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	26
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

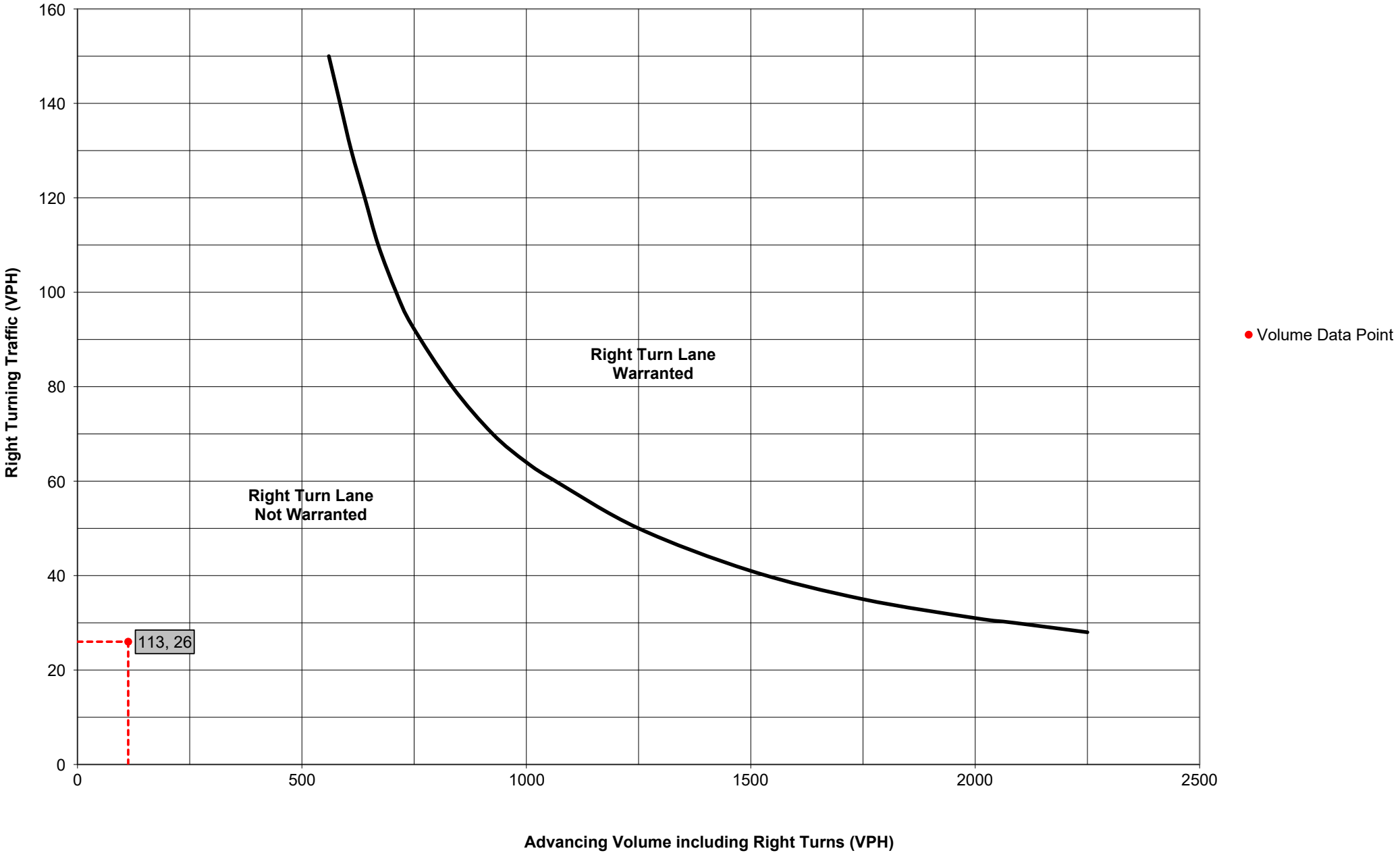
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 11. Warrant for right turn lanes on four-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Johnson Street & Relocated Allan Road

Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Wilkes-Barre Township	**Analysis Date:**	5/12/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: Johnson Street & Allan Road (Eastbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	AM Adjacent Street	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	0.0%	0
	Through	-	61	10.0%	65
	Right	-	49	35.0%	58

Advancing Volume:	123
Right Turn Volume:	58

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9

Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	58
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

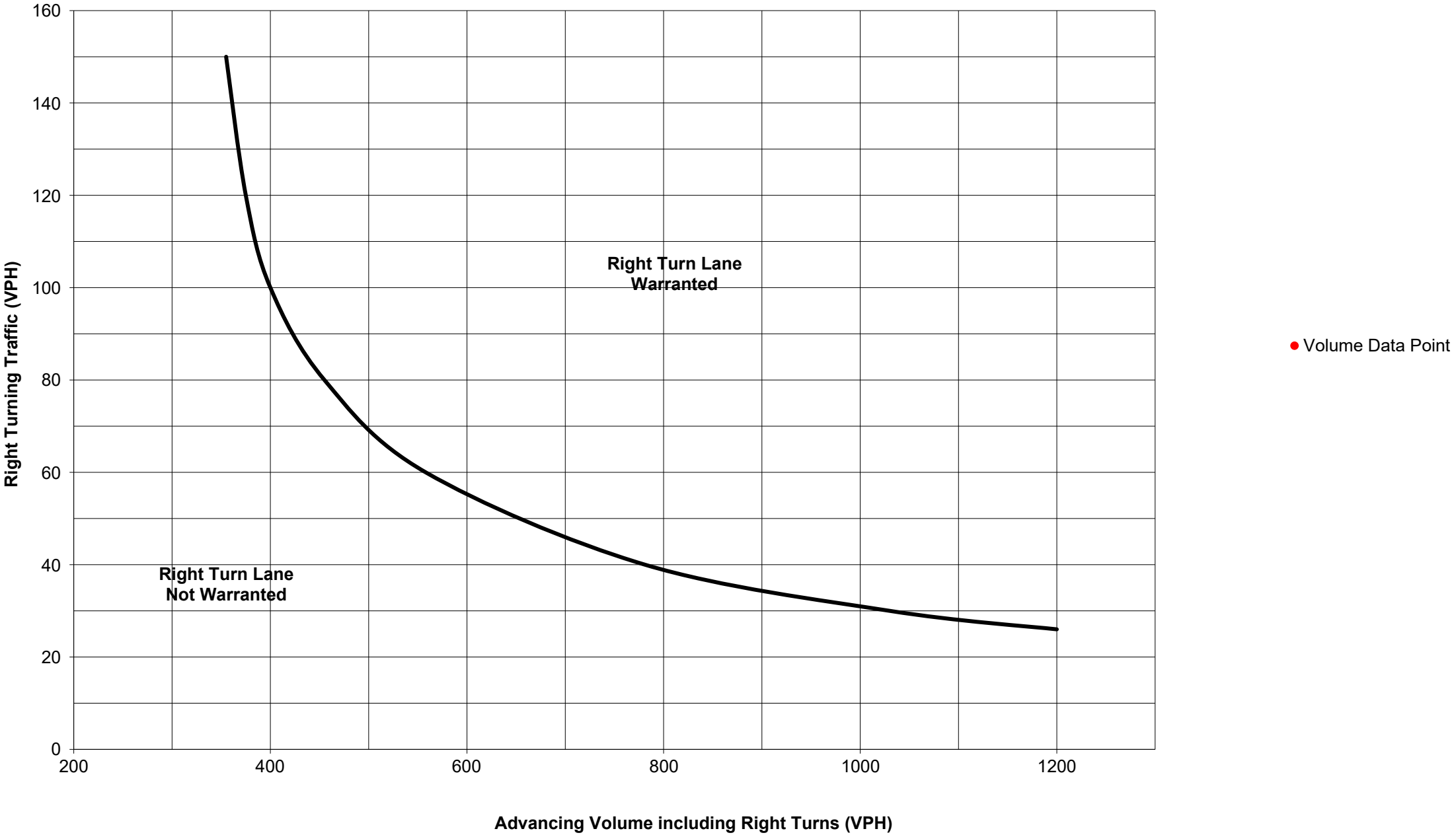
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: Johnson Street & Allan Road (Eastbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour Generator	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	0.0%	0
	Through	-	75	4.0%	77
	Right	-	52	12.0%	56

Advancing Volume:	133
Right Turn Volume:	56

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9

Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	56
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

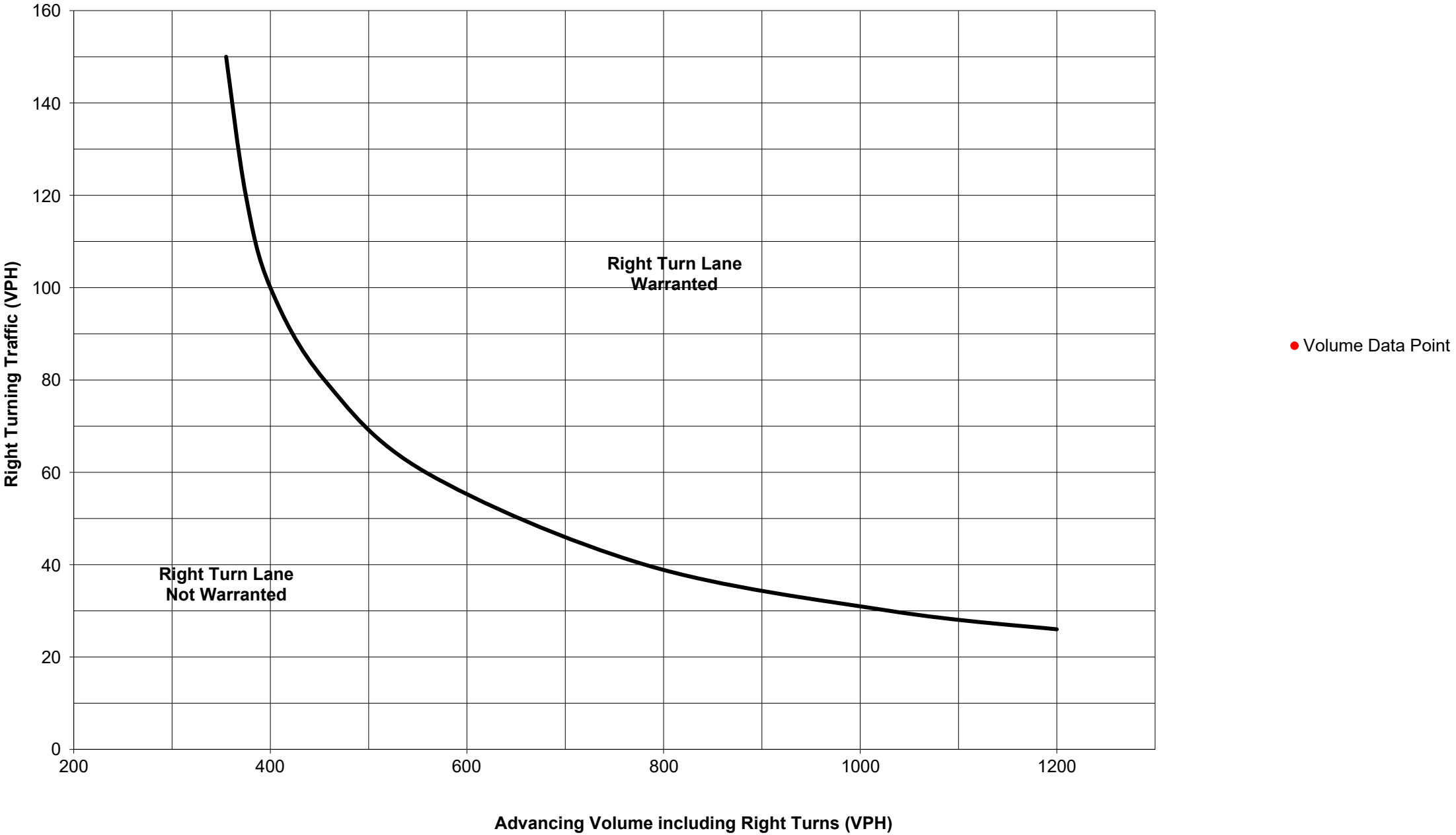
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: Johnson Street & Allan Road (Eastbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour Generator	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	0.0%	0
	Through	-	110	0.0%	110
	Right	-	35	40.0%	42

Advancing Volume:	152
Right Turn Volume:	42

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9

Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	42
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

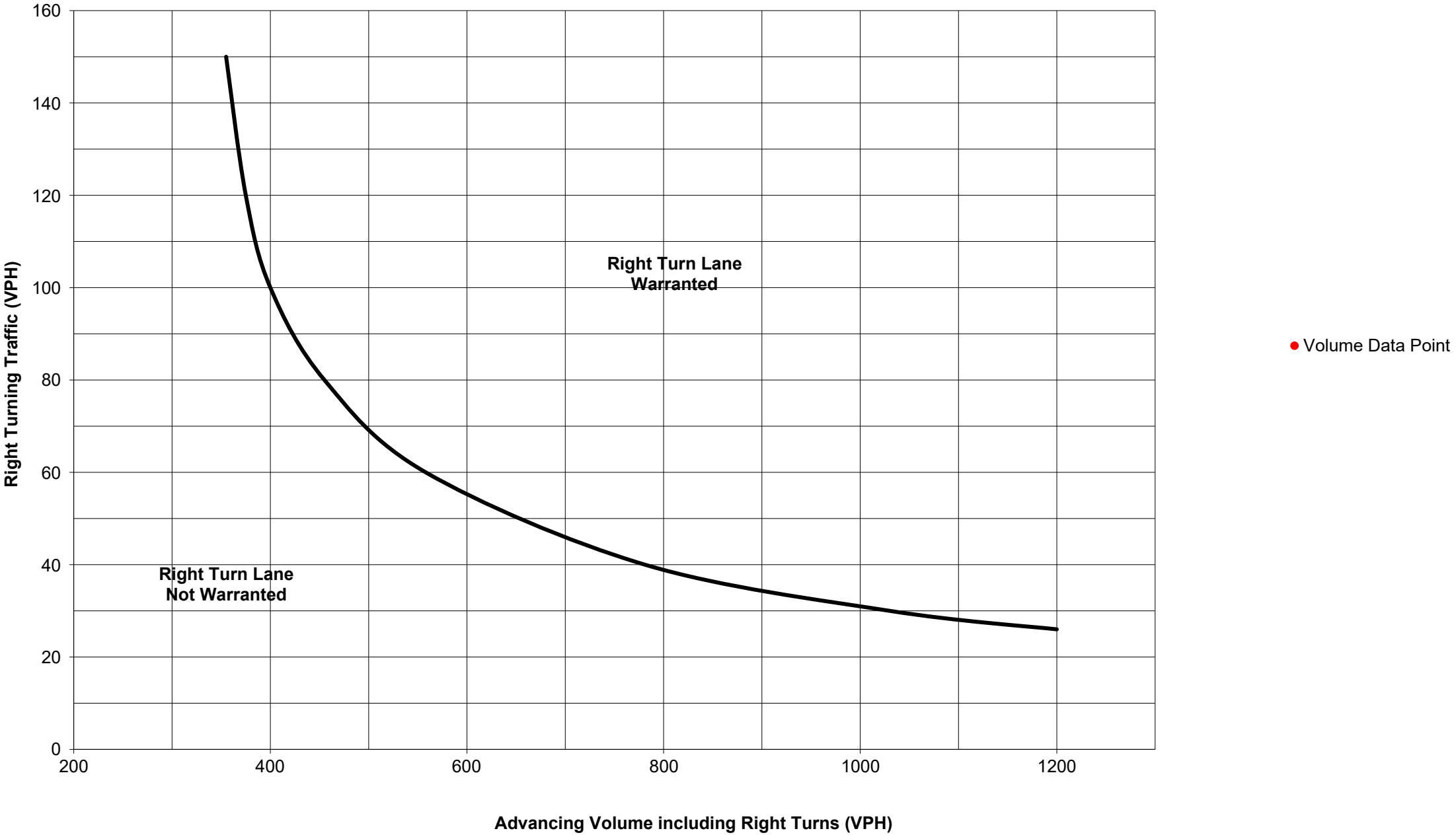
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Wilkes-Barre Township	**Analysis Date:**	5/12/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: Johnson Street & Allan Road (Westbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	AM Adjacent Street	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Level	**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	2.0%	2
	Through	-	47	28.0%	54
	Right	Yes	0	0.0%	0
Opposing	Left	Yes	0	0.0%	0
	Through	-	61	10.0%	65
	Right	Yes	49	35.0%	58

Advancing Volume:	56
Opposing Volume:	123
Left Turn Volume:	2
% Left Turns in Advancing Volume:	3.57%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	2
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

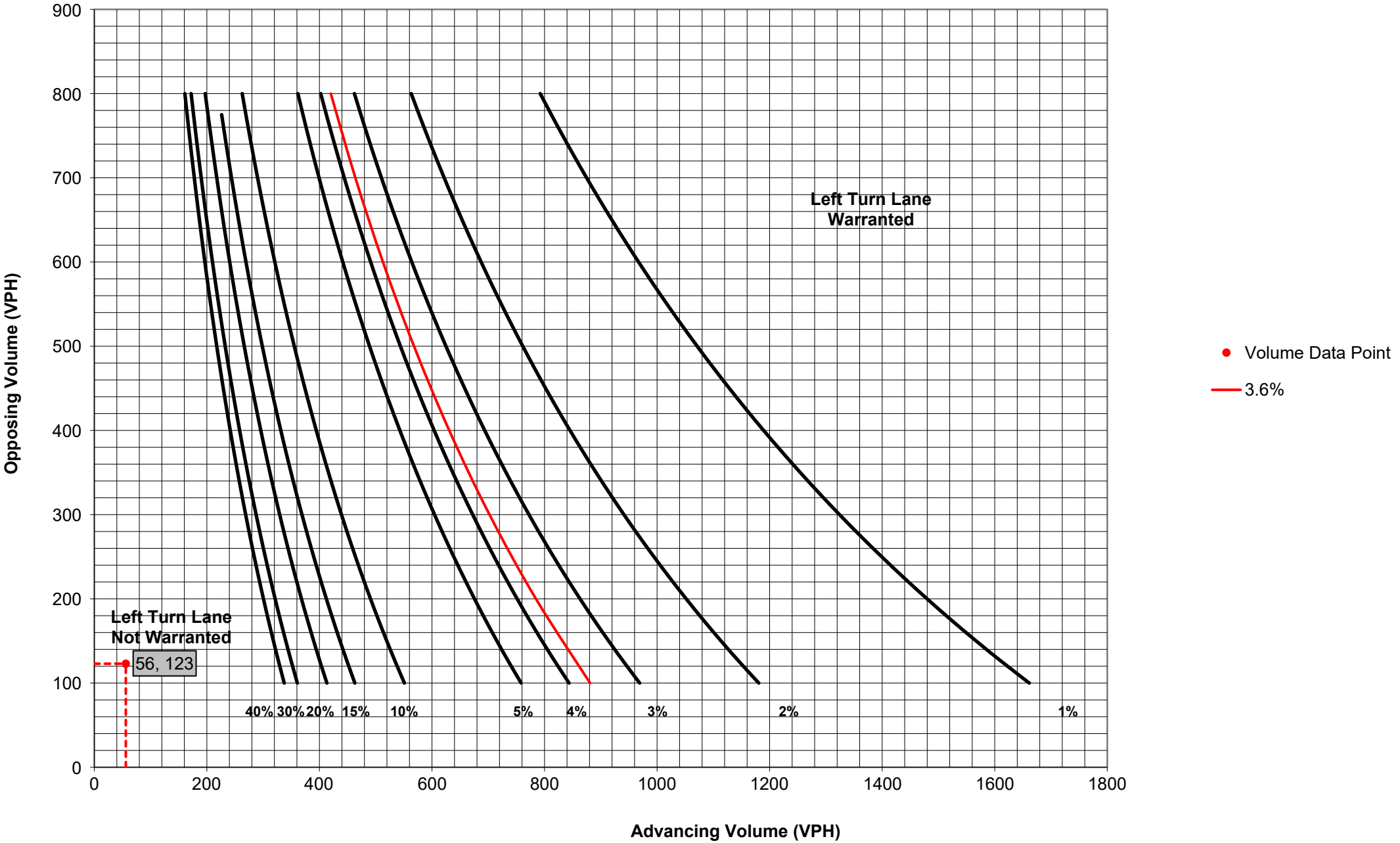
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: Johnson Street & Allan Road (Westbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour of Generator	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	25	**Type of Analysis**	
Type of Terrain:	Level	**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	-	55	11.0%	59
	Right	Yes	0	0.0%	0
Opposing	Left	Yes	0	0.0%	0
	Through	-	75	4.0%	77
	Right	Yes	52	12.0%	56

Advancing Volume:	62
Opposing Volume:	133
Left Turn Volume:	3
% Left Turns in Advancing Volume:	4.84%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	3
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

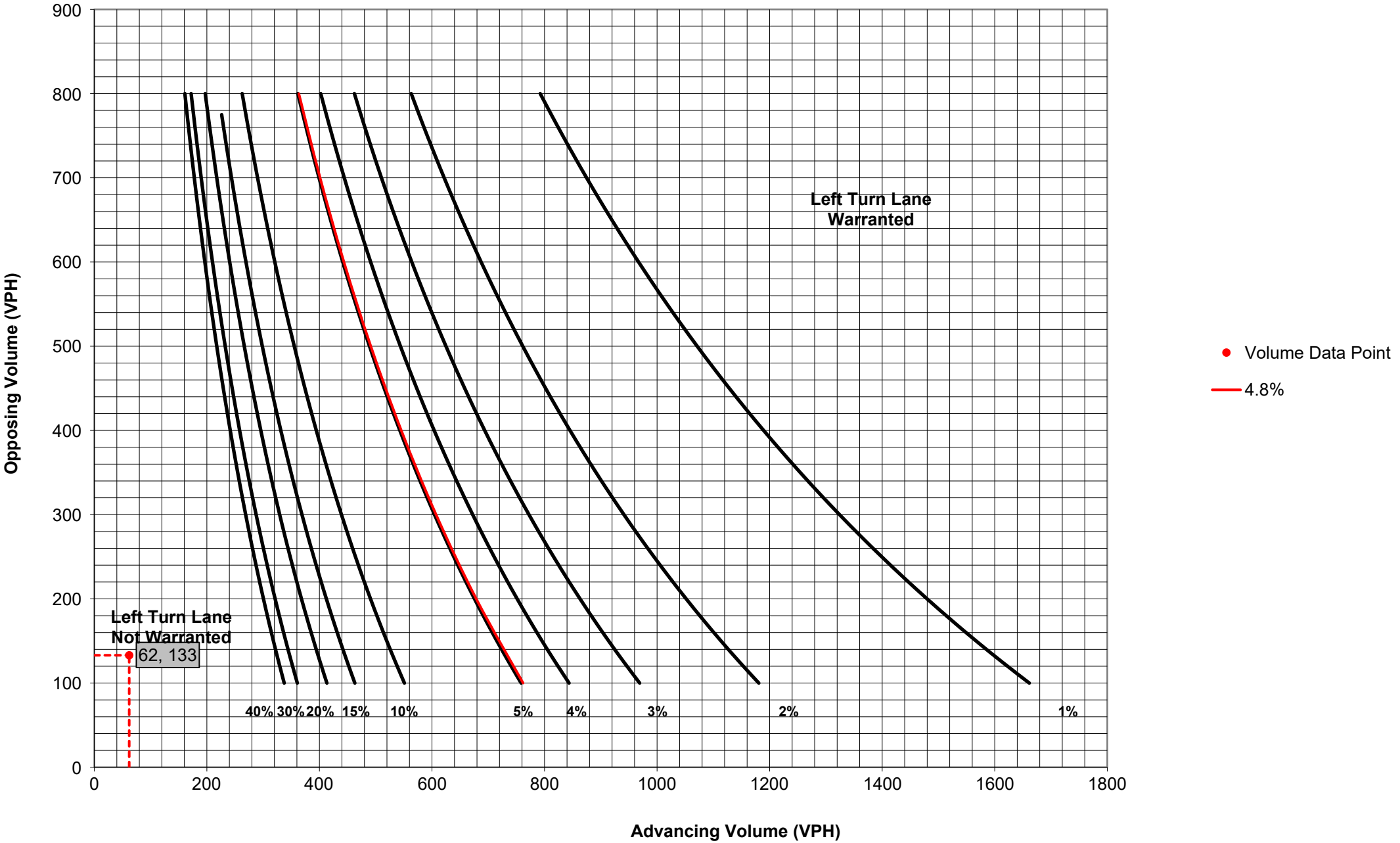
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: Johnson Street & Allan Road (Westbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour of Generator	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	25	**Type of Analysis**	
Type of Terrain:	Level	**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	2.0%	2
	Through	-	110	5.0%	113
	Right	Yes	0	0.0%	0
Opposing	Left	Yes	0	0.0%	0
	Through	-	110	0.0%	110
	Right	Yes	35	40.0%	42

Advancing Volume:	115
Opposing Volume:	152
Left Turn Volume:	2
% Left Turns in Advancing Volume:	1.74%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: **Figure 1**

Warrant Met?: **No**

Right Turn Lane Warrant Findings

Applicable Warrant Figure: **N/A**

Warrant Met?: **N/A**

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	2
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

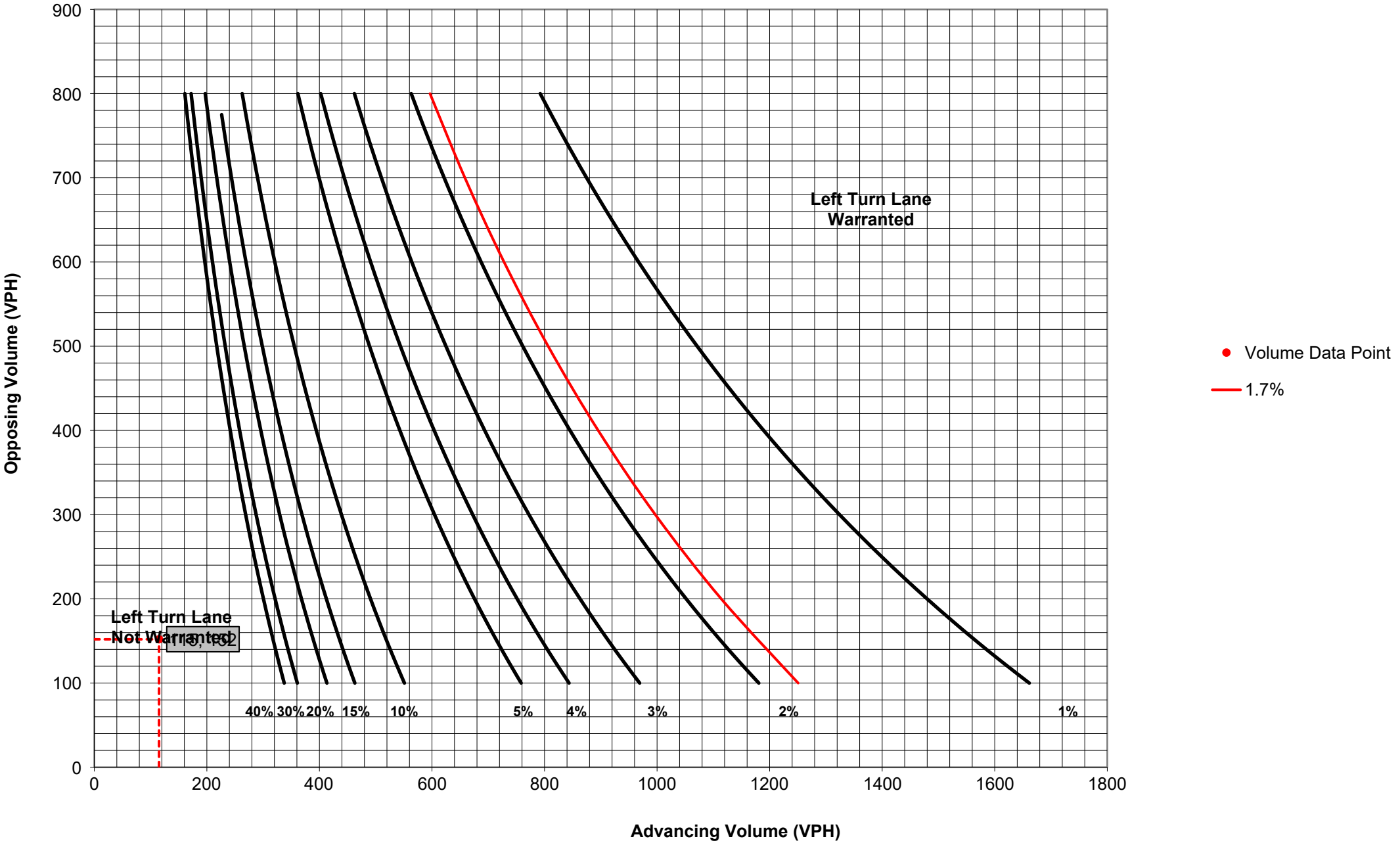
Left Turn Lane Storage Length, Condition A:	**N/A**	**Feet**
Condition B:	**N/A**	**Feet**
Condition C:	**N/A**	**Feet**
Required Left Turn Lane Storage Length:	**N/A**	**Feet**

Additional Findings:

N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: Johnson Street & Allan Road (Northbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	AM Adjacent Street	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Level	**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	53.0%	25
	Through	-	0	0.0%	0
	Right	Yes	0	2.0%	0
Opposing	Left	Yes	0	0.0%	0
	Through	-	0	0.0%	0
	Right	Yes	0	0.0%	0

Advancing Volume:	25
Opposing Volume:	0
Left Turn Volume:	25
% Left Turns in Advancing Volume:	100.00%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	19	53.0%	N/A
	Through	-	0	0.0%	N/A
	Right	-	0	2.0%	N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: #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:	25
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

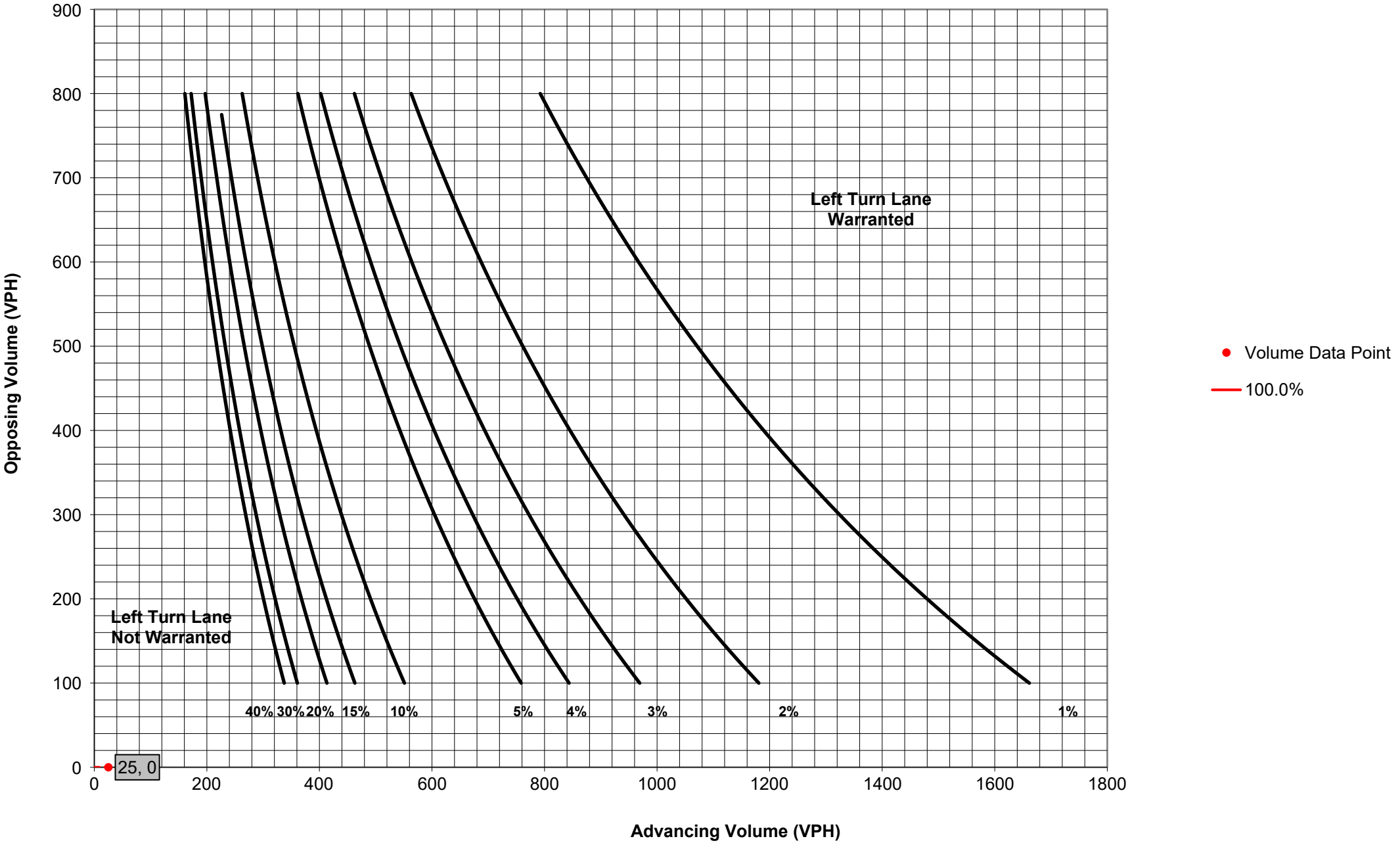
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: Johnson Street & Allan Road (Northbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour Generator	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Level	**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	29.0%	25
	Through	-	0	0.0%	0
	Right	Yes	0	2.0%	0
Opposing	Left	Yes	0	0.0%	0
	Through	-	0	0.0%	0
	Right	Yes	0	0.0%	0

Advancing Volume:	25
Opposing Volume:	0
Left Turn Volume:	25
% Left Turns in Advancing Volume:	100.00%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	21	29.0%	N/A
	Through	-	0	0.0%	N/A
	Right	-	0	2.0%	N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: #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:	25
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

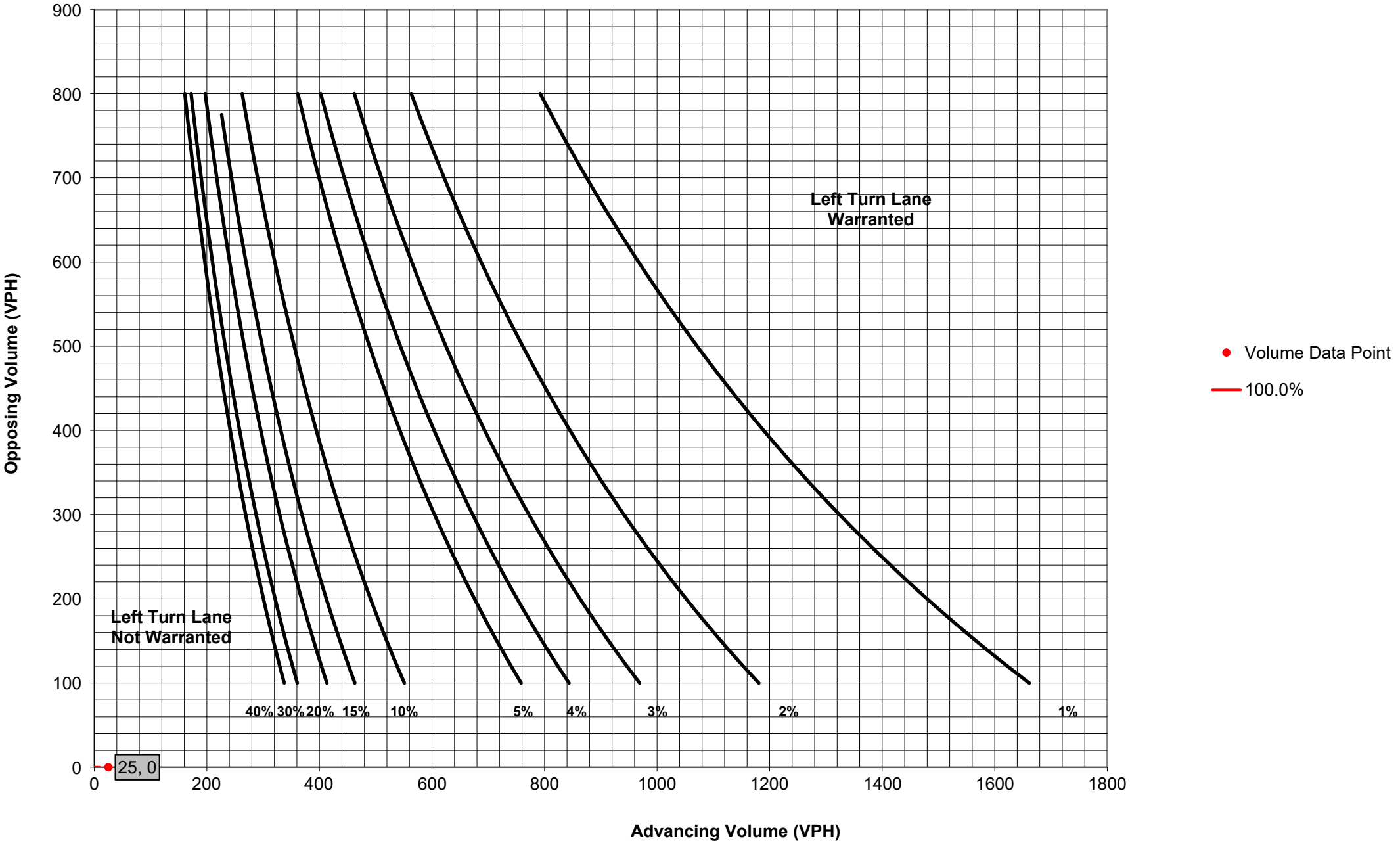
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: Johnson Street & Allan Road (Northbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour Generator	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	61	10.0%	65
	Through	-	0	0.0%	0
	Right	Yes	2	2.0%	3
Opposing	Left	Yes	0	0.0%	0
	Through	-	0	0.0%	0
	Right	Yes	0	0.0%	0

Advancing Volume:	68
Opposing Volume:	0
Left Turn Volume:	65
% Left Turns in Advancing Volume:	95.59%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	61	10.0%	N/A
	Through	-	0	0.0%	N/A
	Right	-	2	2.0%	N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: #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:	65
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

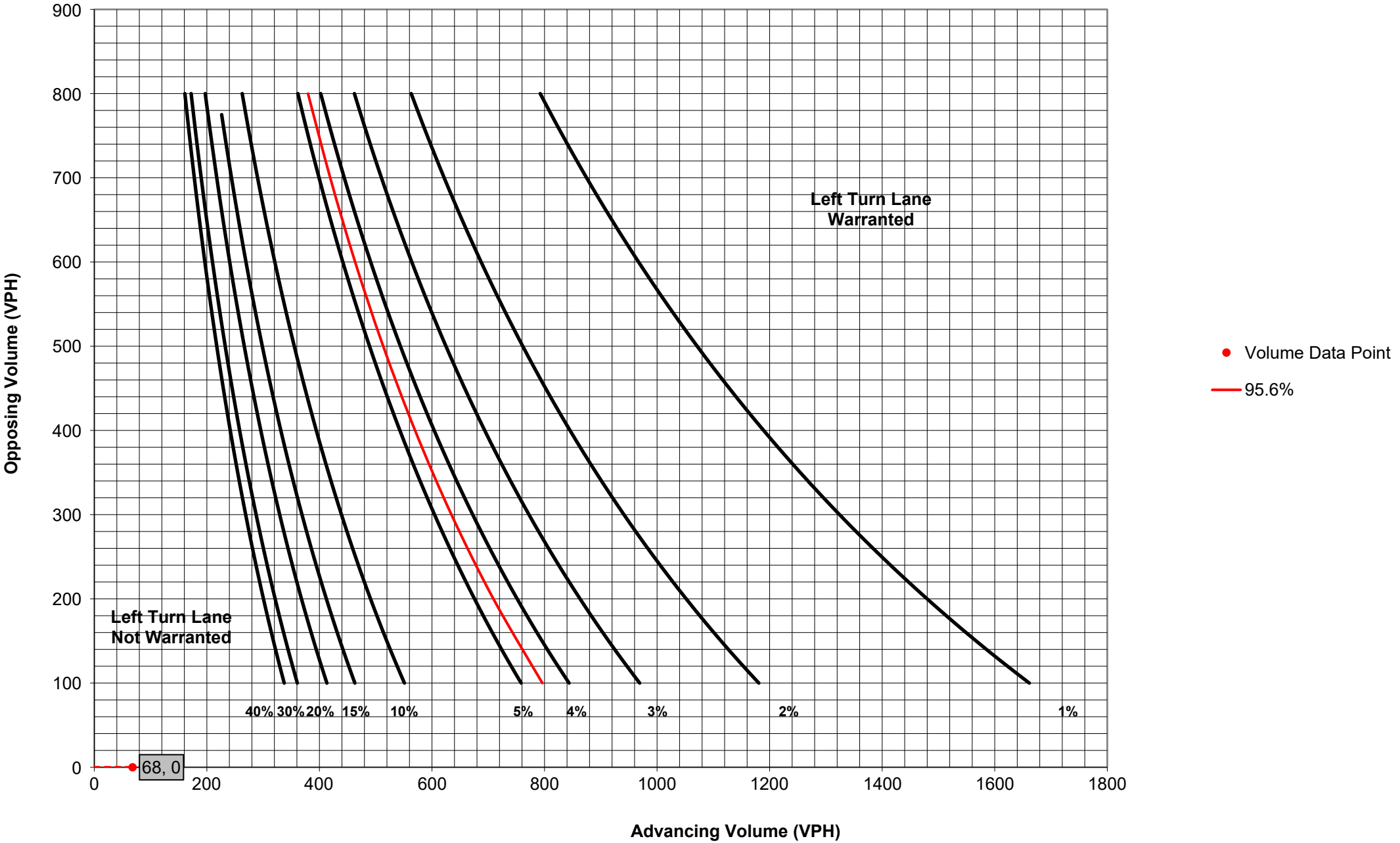
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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)



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Intersection & Approach Description: Johnson Street & Allan Road (Northbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	AM Adjacent Street	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	19	53.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	0	2.0%	N/A
Opposing	Left	Yes	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	0	0.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	19	53.0%	25
	Through	-	0	0.0%	0
	Right	-	0	2.0%	0

Advancing Volume:	25
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

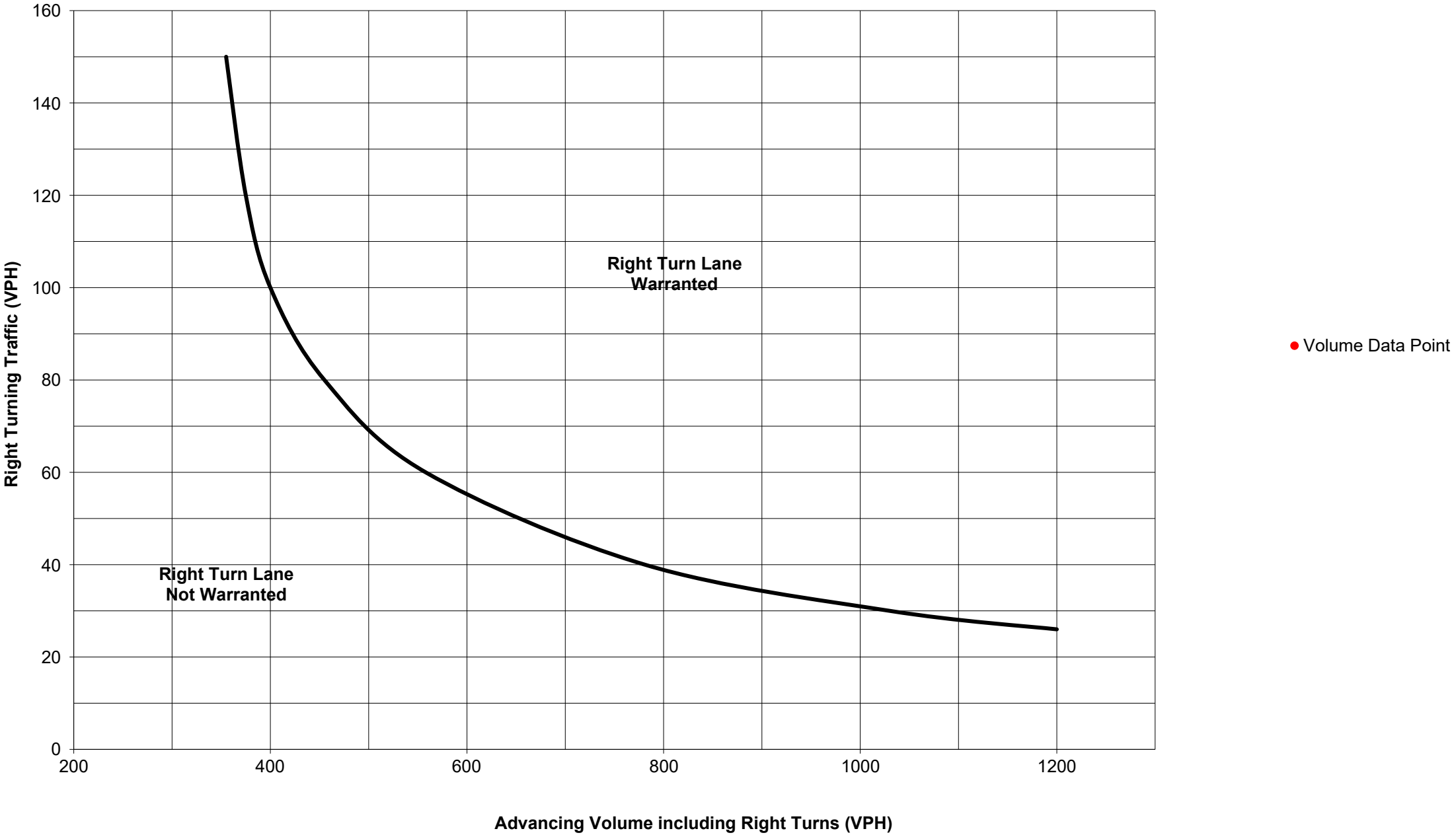
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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)



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Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour Generator	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	25	**Type of Analysis**	
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	21	29.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	0	2.0%	N/A
Opposing	Left	Yes	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	0	0.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	21	29.0%	25
	Through	-	0	0.0%	0
	Right	-	0	2.0%	0

Advancing Volume:	25
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

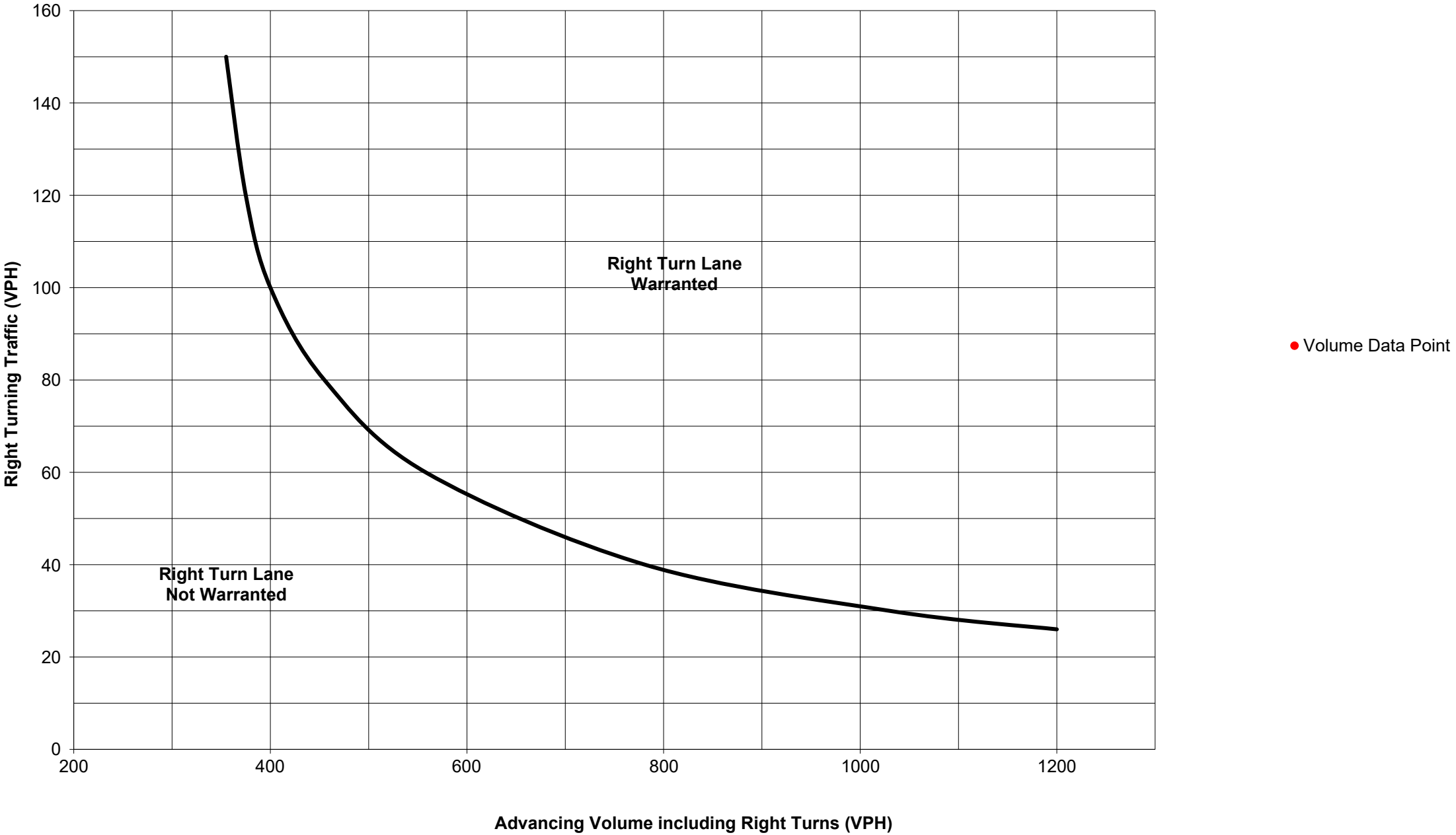
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Wilkes-Barre Township	**Analysis Date:**	5/13/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Checked By:**	EMM
		Agency/Company Name:	Traffic Planning and Design, Inc.

Intersection & Approach Description: Johnson Street & Allan Road (Northbound)

Analysis Period:	2029 Build	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour Generator	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	25	**Type of Analysis**	
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	61	10.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	2	2.0%	N/A
Opposing	Left	Yes	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	0	0.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
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	61	10.0%	65
	Through	-	0	0.0%	0
	Right	-	2	2.0%	3

Advancing Volume:	68
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

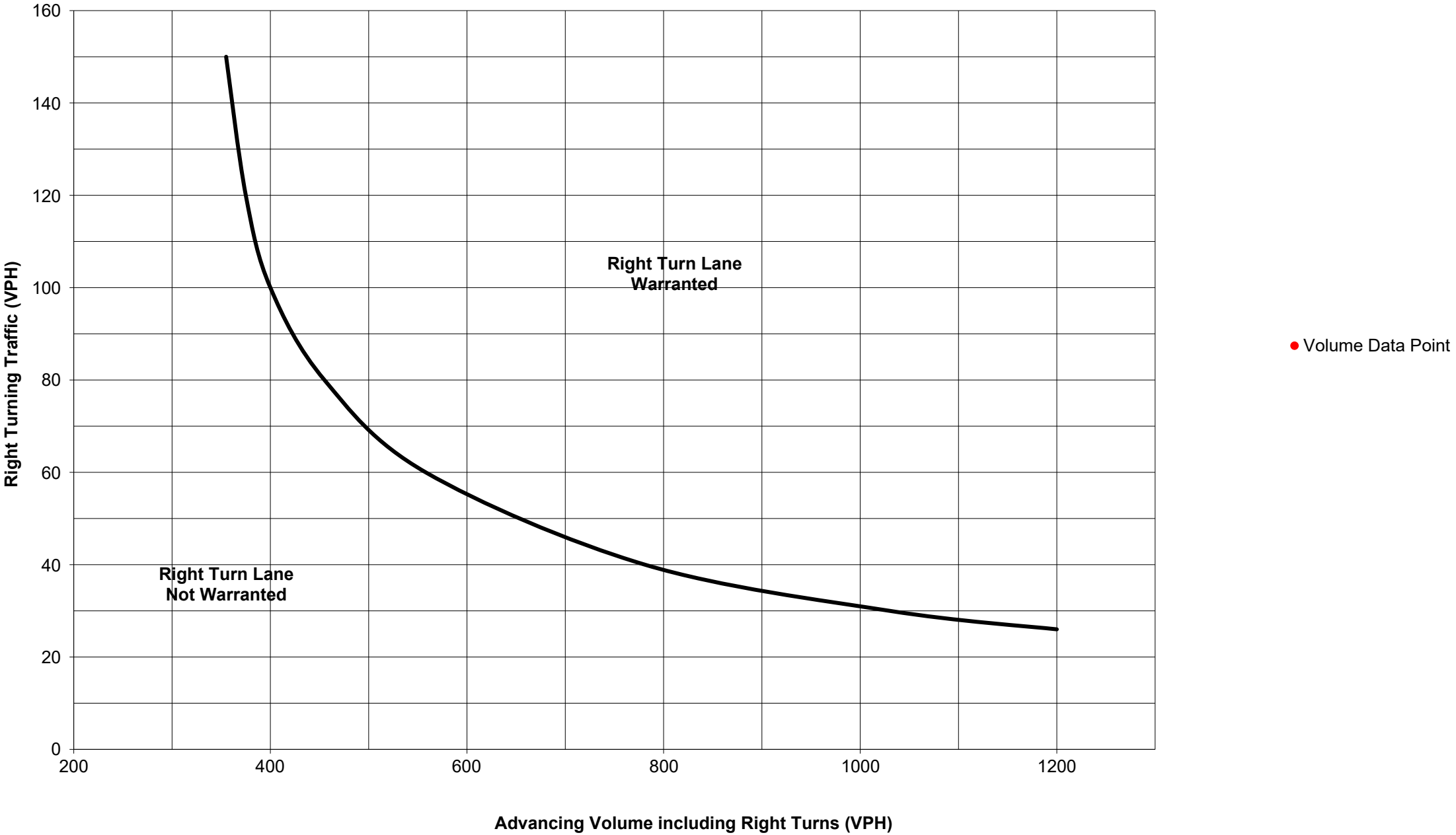
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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)



APPENDIX K:

Left-Turn Signal Phasing Analysis Worksheets

Wilkes-Barre Township Boulevard &
Johnson Street/Blackman Plaza Driveway

LEFT TURN SIGNALIZATION DOCUMENTATION

COUNTY: **Luzerne**
MUNICIPALITY: **Wilkes-Barre Township**
INTERSECTION: **Wilkes-Barre Township Boulevard & Johnson Street/Blackman Plaza Driveway**
DIRECTION: **(N/S)** **(E/W)**

Time	Left Turn				Opposing		Calculated Conflict Factor	Required Conflict Factor
	Direction	Exclusive Lane	Per Cycle	Volume	Volume	# of Lanes		
AM ADJACENT PEAK HOUR	EB	N	0.71	32	131	1	4,192	35,000
	WB	N	2.80	126	61	1	7,686	35,000
	NB	Y	4.13	186	343	1	63,798	50,000
	SB	Y	0.56	25	723	1	18,075	50,000
AM GENERATOR PEAK HOUR	EB	N	2.60	117	78	1	9,126	35,000
	WB	N	0.87	39	125	1	4,875	35,000
	NB	Y	4.00	180	370	1	66,600	50,000
	SB	Y	0.73	33	817	1	26,961	50,000
PM GENERATOR PEAK HOUR	EB	N	1.76	79	173	1	13,667	35,000
	WB	N	1.91	86	91	1	7,826	35,000
	NB	Y	5.07	192	775	1	148,800	50,000
	SB	Y	0.69	26	806	1	20,956	50,000

***Volumes based on 2024/2029 Projected (Build) Conditions**

AM Adjacent Peak Hour Cycle Length (Sec) - 80
AM Generator Peak Hour Cycle Length (Sec) - 80
PM Generator Peak Hour Cycle Length (Sec) - 95

Protected/Permitted
No Turn Lane >35,000 one lane >45,000 two lane
Turn Lane >50,000 one lane >65,000 two lane
Protected/Prohibited
Turn Lane >67,500 one lane >90,000 two lane

DIRECTION	LEFT TURN PHASES		
	Warrant Satified	Base	Projected
EB	No	None	None
WB	No	None	None
NB	Yes	Protected/Permitted	Protected/Permitted
SB	No	None	None

COMMENTS:
Maintain NB protected/permitted left turn phase as proposed by PennDOT SR 309 Safety Improvement project

APPENDIX L:

Traffic Signal Warrant Analysis Worksheets

Johnson Street & Haul Road

Traffic Signal Warrant Analysis Workbook

5/12/2022

STUDY AND ANALYSIS INFORMATION

Municipality:	Wilkes-Barre Township	**Analysis Date:**	5/12/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Agency/Company Name:**	TPD

Analysis Information

Data Collection Date:	12/9/2021
Day of the Week:	Thursday

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:	Johnson Street
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:	25	**MPH**

Minor Street Information

Minor Street Name and Route Number:	Haul Road
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	**No**	**N/A**
Warrant 2, Four-Hour Vehicular Volume	**No**	**N/A**
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	**No**	**N/A**
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		
12:15 AM	12:29 AM			0		
12:30 AM	12:44 AM			0		
12:45 AM	12:59 AM			0		
1:00 AM	1:14 AM			0		
1:15 AM	1:29 AM			0		
1:30 AM	1:44 AM			0		
1:45 AM	1:59 AM			0		
2:00 AM	2:14 AM			0		
2:15 AM	2:29 AM			0		
2:30 AM	2:44 AM			0		
2:45 AM	2:59 AM			0		
3:00 AM	3:14 AM			0		
3:15 AM	3:29 AM			0		
3:30 AM	3:44 AM			0		
3:45 AM	3:59 AM			0		
4:00 AM	4:14 AM			0		
4:15 AM	4:29 AM			0		
4:30 AM	4:44 AM			0		
4:45 AM	4:59 AM			0		
5:00 AM	5:14 AM			0		
5:15 AM	5:29 AM			0		
5:30 AM	5:44 AM			0		
5:45 AM	5:59 AM			0		
6:00 AM	6:14 AM			0		
6:15 AM	6:29 AM			0		
6:30 AM	6:44 AM			0		
6:45 AM	6:59 AM			0		
7:00 AM	7:14 AM	61	28	89	21	
7:15 AM	7:29 AM			0		
7:30 AM	7:44 AM			0		
7:45 AM	7:59 AM			0		
8:00 AM	8:14 AM			0		
8:15 AM	8:29 AM			0		
8:30 AM	8:44 AM			0		
8:45 AM	8:59 AM			0		
9:00 AM	9:14 AM	85	38	123	23	
9:15 AM	9:29 AM			0		
9:30 AM	9:44 AM			0		
9:45 AM	9:59 AM			0		
10:00 AM	10:14 AM			0		
10:15 AM	10:29 AM			0		
10:30 AM	10:44 AM			0		
10:45 AM	10:59 AM			0		
11:00 AM	11:14 AM			0		
11:15 AM	11:29 AM			0		
11:30 AM	11:44 AM			0		
11:45 AM	11:59 AM			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		
12:15 PM	12:29 PM			0		
12:30 PM	12:44 PM			0		
12:45 PM	12:59 PM			0		
1:00 PM	1:14 PM			0		
1:15 PM	1:29 PM			0		
1:30 PM	1:44 PM			0		
1:45 PM	1:59 PM			0		
2:00 PM	2:14 PM			0		
2:15 PM	2:29 PM			0		
2:30 PM	2:44 PM			0		
2:45 PM	2:59 PM			0		
3:00 PM	3:14 PM			0		
3:15 PM	3:29 PM			0		
3:30 PM	3:44 PM			0		
3:45 PM	3:59 PM			0		
4:00 PM	4:14 PM			0		
4:15 PM	4:29 PM			0		
4:30 PM	4:44 PM			0		
4:45 PM	4:59 PM			0		
5:00 PM	5:14 PM	112	50	162	65	
5:15 PM	5:29 PM			0		
5:30 PM	5:44 PM			0		
5:45 PM	5:59 PM			0		
6:00 PM	6:14 PM			0		
6:15 PM	6:29 PM			0		
6:30 PM	6:44 PM			0		
6:45 PM	6:59 PM			0		
7:00 PM	7:14 PM			0		
7:15 PM	7:29 PM			0		
7:30 PM	7:44 PM			0		
7:45 PM	7:59 PM			0		
8:00 PM	8:14 PM			0		
8:15 PM	8:29 PM			0		
8:30 PM	8:44 PM			0		
8:45 PM	8:59 PM			0		
9:00 PM	9:14 PM			0		
9:15 PM	9:29 PM			0		
9:30 PM	9:44 PM			0		
9:45 PM	9:59 PM			0		
10:00 PM	10:14 PM			0		
10:15 PM	10:29 PM			0		
10:30 PM	10:44 PM			0		
10:45 PM	10:59 PM			0		
11:00 PM	11:14 PM			0		
11:15 PM	11:29 PM			0		
11:30 PM	11:44 PM			0		
11:45 PM	11:59 PM			0		
Approach Totals:		258	116	374	109	0

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?	No

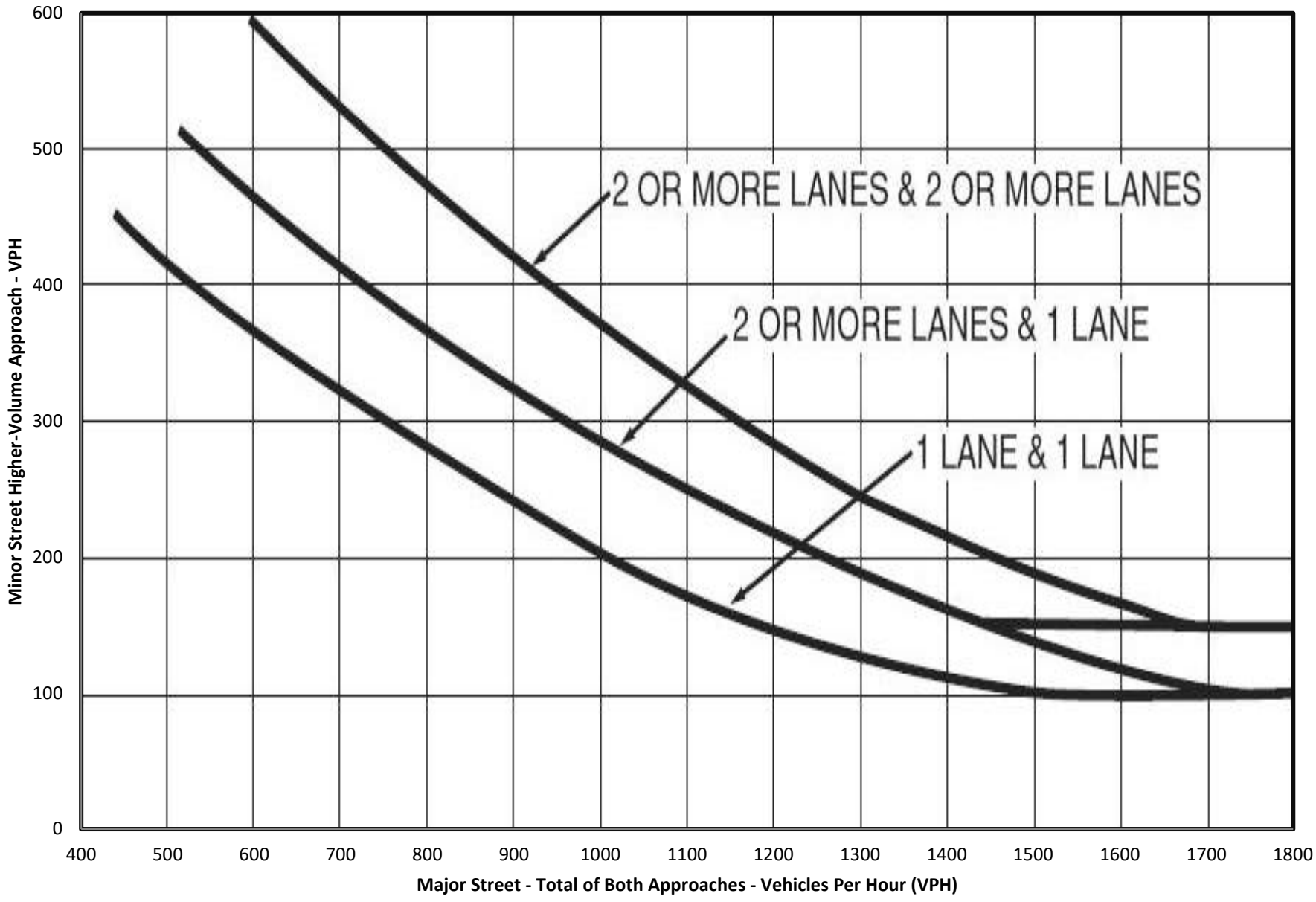
Indicate whether all three of the following conditions for the same 1 hour (any four consecutive 15-minute periods) of an average day are present*	
Does the total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equal or exceed 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	0	0	
12:15 AM	0	0	
12:30 AM	0	0	
12:45 AM	0	0	
1:00 AM	0	0	
1:15 AM	0	0	
1:30 AM	0	0	
1:45 AM	0	0	
2:00 AM	0	0	
2:15 AM	0	0	
2:30 AM	0	0	
2:45 AM	0	0	
3:00 AM	0	0	
3:15 AM	0	0	
3:30 AM	0	0	
3:45 AM	0	0	
4:00 AM	0	0	
4:15 AM	0	0	
4:30 AM	0	0	
4:45 AM	0	0	
5:00 AM	0	0	
5:15 AM	0	0	
5:30 AM	0	0	
5:45 AM	0	0	
6:00 AM	0	0	
6:15 AM	89	21	
6:30 AM	89	21	
6:45 AM	89	21	
7:00 AM	89	21	
7:15 AM	0	0	
7:30 AM	0	0	
7:45 AM	0	0	
8:00 AM	0	0	
8:15 AM	123	23	

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	123	23	
8:45 AM	123	23	
9:00 AM	123	23	
9:15 AM	0	0	
9:30 AM	0	0	
9:45 AM	0	0	
10:00 AM	0	0	
10:15 AM	0	0	
10:30 AM	0	0	
10:45 AM	0	0	
11:00 AM	0	0	
11:15 AM	0	0	
11:30 AM	0	0	
11:45 AM	0	0	
12:00 PM	0	0	
12:15 PM	0	0	
12:30 PM	0	0	
12:45 PM	0	0	
1:00 PM	0	0	
1:15 PM	0	0	
1:30 PM	0	0	
1:45 PM	0	0	
2:00 PM	0	0	
2:15 PM	0	0	
2:30 PM	0	0	
2:45 PM	0	0	
3:00 PM	0	0	
3:15 PM	0	0	
3:30 PM	0	0	
3:45 PM	0	0	
4:00 PM	0	0	
4:15 PM	162	65	
4:30 PM	162	65	
4:45 PM	162	65	
5:00 PM	162	65	
5:15 PM	0	0	
5:30 PM	0	0	
5:45 PM	0	0	
6:00 PM	0	0	
6:15 PM	0	0	
6:30 PM	0	0	
6:45 PM	0	0	
7:00 PM	0	0	
7:15 PM	0	0	
7:30 PM	0	0	
7:45 PM	0	0	
8:00 PM	0	0	
8:15 PM	0	0	
8:30 PM	0	0	
8:45 PM	0	0	
9:00 PM	0	0	
9:15 PM	0	0	
9:30 PM	0	0	
9:45 PM	0	0	
10:00 PM	0	0	
10:15 PM	0	0	
10:30 PM	0	0	
10:45 PM	0	0	
11:00 PM	0	0	

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



Johnson Street & Relocated Allan Road

Traffic Signal Warrant Analysis Workbook

STUDY AND ANALYSIS INFORMATION

Municipality:	Wilkes-Barre Township	**Analysis Date:**	5/12/2022
County:	Luzerne County	**Conducted By:**	JZ
PennDOT Engineering District:	4	**Agency/Company Name:**	TPD

Analysis Information

Data Collection Date:	3/15/2022
Day of the Week:	Tuesday

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:	Johnson Street
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:	25	**MPH**

Minor Street Information

Minor Street Name and Route Number:	Allan Road
Minor Street Approach #1 Direction:	N-Bound
Minor Street Approach #2 Direction:	S-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	**No**	**N/A**
Warrant 2, Four-Hour Vehicular Volume	**No**	**N/A**
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	**No**	**N/A**
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 (N-Bound)	Minor Street Approach #2 (S-Bound)
Begin At	End Of	Volume	Volume	Total Volume	Volume	Volume
12:00 AM	12:14 AM			0		
12:15 AM	12:29 AM			0		
12:30 AM	12:44 AM			0		
12:45 AM	12:59 AM			0		
1:00 AM	1:14 AM			0		
1:15 AM	1:29 AM			0		
1:30 AM	1:44 AM			0		
1:45 AM	1:59 AM			0		
2:00 AM	2:14 AM			0		
2:15 AM	2:29 AM			0		
2:30 AM	2:44 AM			0		
2:45 AM	2:59 AM			0		
3:00 AM	3:14 AM			0		
3:15 AM	3:29 AM			0		
3:30 AM	3:44 AM			0		
3:45 AM	3:59 AM			0		
4:00 AM	4:14 AM			0		
4:15 AM	4:29 AM			0		
4:30 AM	4:44 AM			0		
4:45 AM	4:59 AM			0		
5:00 AM	5:14 AM			0		
5:15 AM	5:29 AM			0		
5:30 AM	5:44 AM			0		
5:45 AM	5:59 AM			0		
6:00 AM	6:14 AM			0		
6:15 AM	6:29 AM			0		
6:30 AM	6:44 AM			0		
6:45 AM	6:59 AM			0		
7:00 AM	7:14 AM			0		
7:15 AM	7:29 AM			0		
7:30 AM	7:44 AM			0		
7:45 AM	7:59 AM			0		
8:00 AM	8:14 AM	110	48	158	19	
8:15 AM	8:29 AM			0		
8:30 AM	8:44 AM			0		
8:45 AM	8:59 AM			0		
9:00 AM	9:14 AM	127	57	184	21	
9:15 AM	9:29 AM			0		
9:30 AM	9:44 AM			0		
9:45 AM	9:59 AM			0		
10:00 AM	10:14 AM			0		
10:15 AM	10:29 AM			0		
10:30 AM	10:44 AM			0		
10:45 AM	10:59 AM			0		
11:00 AM	11:14 AM			0		
11:15 AM	11:29 AM			0		
11:30 AM	11:44 AM			0		
11:45 AM	11:59 AM			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 (N-Bound)	Minor Street Approach #2 (S-Bound)
Begin At	End Of	Volume	Volume	Total Volume	Volume	Volume
12:00 PM	12:14 PM			0		
12:15 PM	12:29 PM			0		
12:30 PM	12:44 PM			0		
12:45 PM	12:59 PM			0		
1:00 PM	1:14 PM			0		
1:15 PM	1:29 PM			0		
1:30 PM	1:44 PM			0		
1:45 PM	1:59 PM			0		
2:00 PM	2:14 PM			0		
2:15 PM	2:29 PM			0		
2:30 PM	2:44 PM			0		
2:45 PM	2:59 PM			0		
3:00 PM	3:14 PM			0		
3:15 PM	3:29 PM	145	111	256	63	
3:30 PM	3:44 PM			0		
3:45 PM	3:59 PM			0		
4:00 PM	4:14 PM			0		
4:15 PM	4:29 PM			0		
4:30 PM	4:44 PM			0		
4:45 PM	4:59 PM			0		
5:00 PM	5:14 PM			0		
5:15 PM	5:29 PM			0		
5:30 PM	5:44 PM			0		
5:45 PM	5:59 PM			0		
6:00 PM	6:14 PM			0		
6:15 PM	6:29 PM			0		
6:30 PM	6:44 PM			0		
6:45 PM	6:59 PM			0		
7:00 PM	7:14 PM			0		
7:15 PM	7:29 PM			0		
7:30 PM	7:44 PM			0		
7:45 PM	7:59 PM			0		
8:00 PM	8:14 PM			0		
8:15 PM	8:29 PM			0		
8:30 PM	8:44 PM			0		
8:45 PM	8:59 PM			0		
9:00 PM	9:14 PM			0		
9:15 PM	9:29 PM			0		
9:30 PM	9:44 PM			0		
9:45 PM	9:59 PM			0		
10:00 PM	10:14 PM			0		
10:15 PM	10:29 PM			0		
10:30 PM	10:44 PM			0		
10:45 PM	10:59 PM			0		
11:00 PM	11:14 PM			0		
11:15 PM	11:29 PM			0		
11:30 PM	11:44 PM			0		
11:45 PM	11:59 PM			0		
Approach Totals:		382	216	598	103	0

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?	No

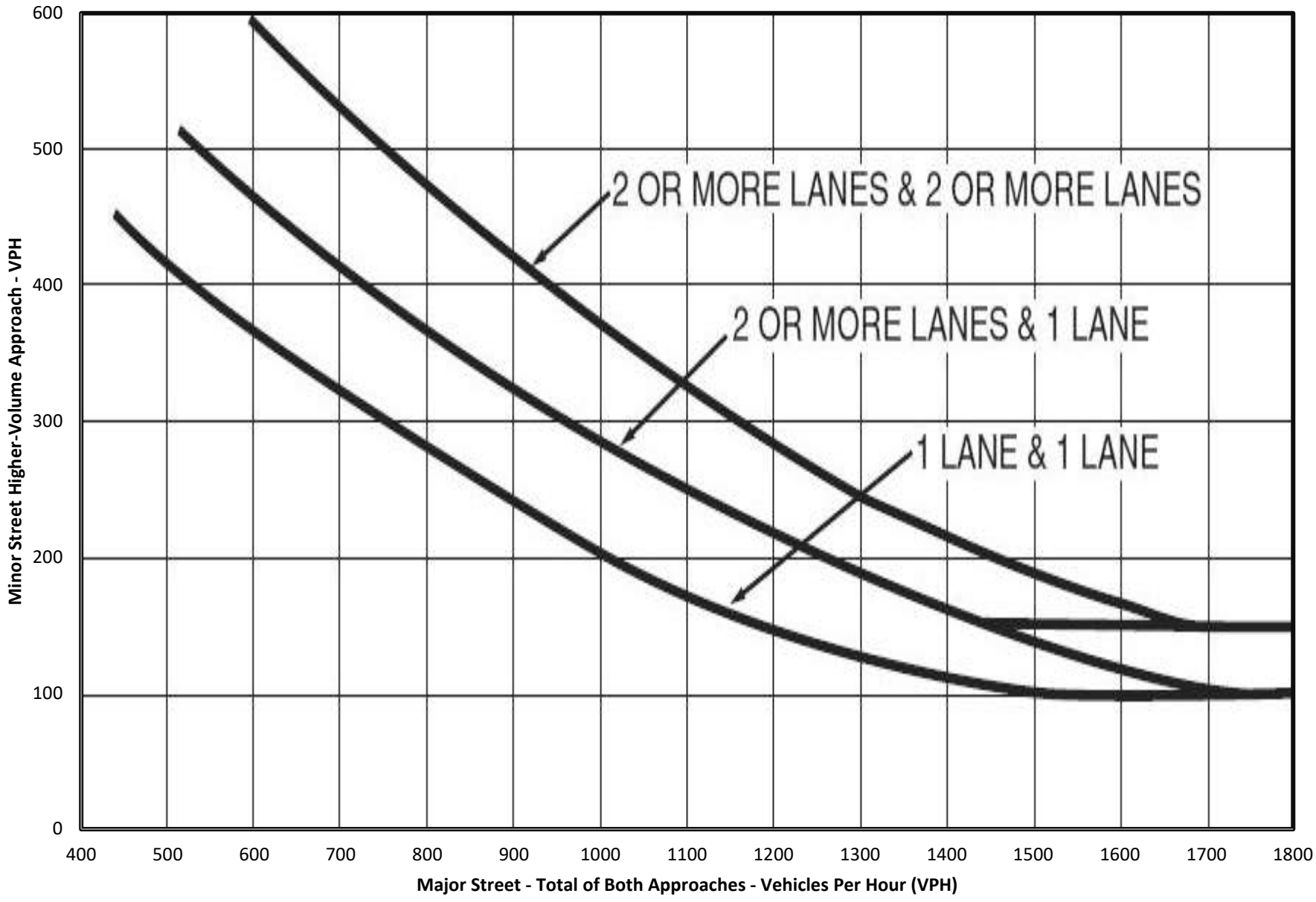
Indicate whether all three of the following conditions for the same 1 hour (any four consecutive 15-minute periods) of an average day are present*	
Does the total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equal or exceed 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	0	0	
12:15 AM	0	0	
12:30 AM	0	0	
12:45 AM	0	0	
1:00 AM	0	0	
1:15 AM	0	0	
1:30 AM	0	0	
1:45 AM	0	0	
2:00 AM	0	0	
2:15 AM	0	0	
2:30 AM	0	0	
2:45 AM	0	0	
3:00 AM	0	0	
3:15 AM	0	0	
3:30 AM	0	0	
3:45 AM	0	0	
4:00 AM	0	0	
4:15 AM	0	0	
4:30 AM	0	0	
4:45 AM	0	0	
5:00 AM	0	0	
5:15 AM	0	0	
5:30 AM	0	0	
5:45 AM	0	0	
6:00 AM	0	0	
6:15 AM	0	0	
6:30 AM	0	0	
6:45 AM	0	0	
7:00 AM	0	0	
7:15 AM	158	19	
7:30 AM	158	19	
7:45 AM	158	19	
8:00 AM	158	19	
8:15 AM	184	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	184	21	
8:45 AM	184	21	
9:00 AM	184	21	
9:15 AM	0	0	
9:30 AM	0	0	
9:45 AM	0	0	
10:00 AM	0	0	
10:15 AM	0	0	
10:30 AM	0	0	
10:45 AM	0	0	
11:00 AM	0	0	
11:15 AM	0	0	
11:30 AM	0	0	
11:45 AM	0	0	
12:00 PM	0	0	
12:15 PM	0	0	
12:30 PM	0	0	
12:45 PM	0	0	
1:00 PM	0	0	
1:15 PM	0	0	
1:30 PM	0	0	
1:45 PM	0	0	
2:00 PM	0	0	
2:15 PM	0	0	
2:30 PM	256	63	
2:45 PM	256	63	
3:00 PM	256	63	
3:15 PM	256	63	
3:30 PM	0	0	
3:45 PM	0	0	
4:00 PM	0	0	
4:15 PM	0	0	
4:30 PM	0	0	
4:45 PM	0	0	
5:00 PM	0	0	
5:15 PM	0	0	
5:30 PM	0	0	
5:45 PM	0	0	
6:00 PM	0	0	
6:15 PM	0	0	
6:30 PM	0	0	
6:45 PM	0	0	
7:00 PM	0	0	
7:15 PM	0	0	
7:30 PM	0	0	
7:45 PM	0	0	
8:00 PM	0	0	
8:15 PM	0	0	
8:30 PM	0	0	
8:45 PM	0	0	
9:00 PM	0	0	
9:15 PM	0	0	
9:30 PM	0	0	
9:45 PM	0	0	
10:00 PM	0	0	
10:15 PM	0	0	
10:30 PM	0	0	
10:45 PM	0	0	
11:00 PM	0	0	

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



APPENDIX M:

Level of Service and Queue Analysis With PennDOT Ramp G Project

ANALYSES WITH PENNDOT RAMP G PROJECT

As requested by PennDOT during the scoping process, TPD prepared additional capacity analyses to compare the levels of service (LOS) and 95th percentile queue lengths at the intersection of Wilkes-Barre Township Boulevard (SR 6309) & Blackman Street/I-81 SB Off-Ramp with and without PennDOT's programmed I-81 SB Ramp G project. The programmed project includes construction of a second left turn lane on the I-81 SB Off-Ramp (Ramp G) to provide dual left-turn lanes with 300 feet of storage per lane.

LEVELS OF SERVICE SUMMARY

Levels of service (LOS) at the intersection of Wilkes-Barre Township Boulevard (SR 6309) & Blackman Street/I-81 SB Off-Ramp with and without PennDOT's programmed I-81 SB Ramp G project for the weekday A.M. Adjacent Street, weekday A.M. Generator, and weekday P.M. Generator peak hours are summarized in matrix form in **Tables M-1 to M-3** for the 2024/2029 base (no-build) conditions and 2024/2029 projected (build) conditions.

TABLE M-1
LEVEL OF SERVICE SUMMARY (DELAY): WEEKDAY A.M. ADJACENT STREET

Intersection	Approach/ Movement	Weekday A.M. Peak Hour of Adjacent Street			
		Full Build-Out/Design Year (2024/2029)			
		Without PennDOT Project		With PennDOT Project	
		Base Conditions	Projected Conditions	Base Conditions	Projected Conditions
Wilkes-Barre Township Boulevard (SR 6309) & Blackman Street/I-81 Southbound Off-Ramps	EB L	D	D	D	D
	EB R	A	A	A	A
	WB L / LL	C	B	B	B
	WB T	D	D	D	D
	WB R	A	A	A	A
	NB LL	D	D	D	D
	NB TT	B	B	B	B
	SB TT	C	C	C	C
	SB R	A	A	A	A
	ILOS	**C (25.0)**	**C (25.4)**	**C (24.7)**	**C (25.1)**

Base = No-Build scenario Projected = Build scenario ILOS = Overall Intersection Level of Service

TABLE M-2
LEVEL OF SERVICE SUMMARY (DELAY): WEEKDAY A.M. GENERATOR

Intersection	Approach/ Movement	Weekday A.M. Peak Hour of Generator			
		Full Build-Out/Design Year (2024/2029)			
		Without PennDOT Project		With PennDOT Project	
		Base Conditions	Projected Conditions	Base Conditions	Projected Conditions
Wilkes-Barre Township Boulevard (SR 6309) & Blackman Street/I-81 Southbound Off-Ramps	EB L	D	D	D	D
	EB R	A	A	A	A
	WB L / LL	B	B	B	B
	WB T	D	D	D	D
	WB R	A	A	A	A
	NB LL	C	C	C	C
	NB TT	B	B	B	B
	SB TT	C	C	C	C
	SB R	A	A	A	A
	ILOS	**C (25.7)**	**C (26.8)**	**C (25.6)**	**C (26.6)**

Base = No-Build scenario Projected = Build scenario ILOS = Overall Intersection Level of Service

TABLE M-3
LEVEL OF SERVICE SUMMARY (DELAY): WEEKDAY P.M. GENERATOR

Intersection	Approach/ Movement	Weekday P.M. Peak Hour of Generator			
		Full Build-Out/Design Year (2024/2029)			
		Without PennDOT Project		With PennDOT Project	
		Base Conditions	Projected Conditions	Base Conditions	Projected Conditions
Wilkes-Barre Township Boulevard (SR 6309) & Blackman Street/I-81 Southbound Off-Ramps	EB L	D	D	D	D
	EB R	A	A	A	A
	WB L / LL	C	C	C	C
	WB T	D	D	D	D
	WB R	A	A	A	A
	NB LL	D	D	D	D
	NB TT	B	B	B	B
	SB TT	D	D	D	D
	SB R	A	A	A	A
	ILOS	**D (35.5)**	**D (38.1)**	**D (33.6)**	**D (36.4)**

Base = No-Build scenario Projected = Build scenario ILOS = Overall Intersection Level of Service

As summarized in **Tables M-1 to M-3**, under the 2024/2029 projected (build) conditions, the Level of Service (LOS) for the study area intersections will operate in accordance with the standards contained in Appendix A - Policies and Procedures for Transportation Impact Studies Related to Highway Occupancy Permits of PennDOT *Publication 282,* dated July 2017.

95th PERCENTILE QUEUE SUMMARY

95th percentile queue analyses were conducted at the intersection of Wilkes-Barre Township Boulevard (SR 6309) & Blackman Street/I-81 SB Off-Ramp with and without PennDOT's programmed I-81 SB Ramp G project using SimTraffic based on the following methodology:

- Calibration settings: 3 intervals, as follows:
  - 10-minute seeding.
  - 15-minute recording with PHF Adjust set to "Yes" and the AntiPHF Adjust set to "No".
  - 45-minute recording with PHF Adjust set to "No" and the AntiPHF Adjust set to "Yes".
- Results based on average of 5 simulations runs.

The SimTraffic results are summarized in **Tables M-4 to M-6** for the analyzed conditions and time periods.

TABLE M-4
95TH PERCENTILE QUEUE ANALYSIS: WEEKDAY A.M. ADJACENT STREET

Intersection	Approach/ Movement	Available Storage	Weekday A.M. Peak Hour of Adjacent Street			
			Full Build-Out/Design Year (2024/2029)			
			Without PennDOT Project		With PennDOT Project	
			Base Conditions	Projected Conditions	Base Conditions	Projected Conditions
Wilkes-Barre Township Boulevard (SR 6309) & Blackman Street/I-81 Southbound Off-Ramps	EB L	380′	182'	206'	197'	221'
	EB R	1,000′+[1]	25'	14'	0'	21'
	WB L	180′ / **300′**	217'	220'	114'	122'
	WB L	**300′**	--	--	158'	153'
	WB T	750′+[1]	149'	143'	117'	119'
	WB R	180′ / **165′**	0'	0'	0'	0'
	NB L	275′	236'	226'	213'	230'
	NB L	275′	258'	254'	236'	263'
	NB T	800′[1]	179'	176'	188'	184'
	NB T		136'	152'	140'	143'
	SB T	1200′[1]	142'	139'	133'	137'
	SB T		141'	134'	131'	136'
	SB R	225′	0'	0'	0'	0'

Base = No-Build scenario Projected = Build scenario
*Available Storage without PennDOT Project / **Available Storage with PennDOT Project***
1 = Distance to nearest public street intersection or mainline interstate

TABLE M-5
95TH PERCENTILE QUEUE ANALYSIS: WEEKDAY A.M. GENERATOR

Intersection	Approach/ Movement	Available Storage	Weekday A.M. Peak Hour of Generator			
			Full Build-Out/Design Year (2024/2029)			
			Without PennDOT Project		With PennDOT Project	
			Base Conditions	Projected Conditions	Base Conditions	Projected Conditions
Wilkes-Barre Township Boulevard (SR 6309) & Blackman Street/I-81 Southbound Off-Ramps	EB L	380′	246'	239'	224'	247'
	EB R	1,000′+[1]	0'	22'	0'	0'
	WB L	180′ / **300′**	178'	188'	108'	102'
	WB L	**300′**	--	--	155'	157'
	WB T	750′+[1]	120'	153'	118'	120'
	WB R	180′ / **165′**	0'	0'	0'	0'
	NB L	275′	170'	178'	157'	176'
	NB L	275′	200'	202'	198'	203'
	NB T	800′[1]	152'	149'	137'	142'
	NB T		101'	105'	97'	100'
	SB T	1200′[1]	160'	155'	160'	169'
	SB T		160'	154'	145'	163'
	SB R	225′	0'	0'	0'	0'

Base = No-Build scenario Projected = Build scenario
*Available Storage without PennDOT Project / **Available Storage with PennDOT Project***
1 = Distance to nearest public street intersection or mainline interstate

TABLE M-6
95TH PERCENTILE QUEUE ANALYSIS: WEEKDAY P.M. GENERATOR

Intersection	Approach/ Movement	Available Storage	Weekday P.M. Peak Hour of Generator			
			Full Build-Out/Design Year (2024/2029)			
			Without PennDOT Project		With PennDOT Project	
			Base Conditions	Projected Conditions	Base Conditions	Projected Conditions
Wilkes-Barre Township Boulevard (SR 6309) & Blackman Street/I-81 Southbound Off-Ramps	EB L	380′	213'	242'	240'	269′
	EB R	1,000′+[1]	323'	350'	288'	319′
	WB L	180′ / **300′**	317'	319'	182'	197′
	WB L	**300′**	--	--	212'	224′
	WB T	750′+[1]	652'	526'	231'	220′
	WB R	180′ / **165′**	83'	58'	70'	67′
	NB L	275′	139'	157'	159'	156′
	NB L	275′	176'	193'	194'	187′
	NB T	800′[1]	188'	195'	183'	193′
	NB T		157'	166'	135'	156′
	SB T	1200′[1]	441'	437'	405'	420′
	SB T		441'	443'	414'	426′
	SB R	225′	434'	430'	361'	376′

Base = No-Build scenario Projected = Build scenario
*Available Storage without PennDOT Project / **Available Storage with PennDOT Project***
1 = Distance to nearest public street intersection or mainline interstate

= *95th percentile queue exceeds available storage*

As summarized in **Tables M-4 to M-6**, under the 2024/2029 projected (build) conditions, with PennDOT's programmed I-81 SB Ramp G project, all of the 95th percentile queues will be accommodated within the available storage length, with the following exception:

Wilkes-Barre Township Blvd & Blackman Street/I-81 Southbound Off-Ramp

- The southbound Wilkes-Barre Township Boulevard right-turn; Available Storage = 225'; Maximum 95th percentile queue length = 376'. Based on a review of the SimTraffic simulation, the noted 95th percentile queue length is the result of the queue for the southbound Wilkes-Barre Township Boulevard through lanes extending beyond the subject right-turn lane, thus preventing vehicles from entering the right-turn lane. TPD evaluated potential traffic signal timing adjustments, however it was determined it is not feasible to reduce the queue length for the through lanes such that they do not block the right-turn lane. It also is not feasible to lengthen the subject right-turn lane without impacting the driveways and parking for multiple commercial business along Wilkes-Barre Township Boulevard.

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
4-0	LUZERNE	0081	308	22 OF 27
WILKES-BARRE TOWNSHIP				

REVISION NUMBER	REVISIONS	DATE	BY

NORTH BUSINESS 309 SIGN
DIRECTIONAL SIGN
STA AHEAD
SR 6309 CONSTR & SURVEY ℄
SOUTH 309 SIGN
49.16'
48.34'
20.79'

TRAVERSE PT. #4
STA 1296+11.20
OFFSET 303.74' RT

STOP/ DO NOT ENTER SIGNS
UTILITY POLE PPL 51332/ N38977
DO NOT ENTER/ ONE WAY SIGNS
11.59'
57.44'
8.89'

TRAVERSE PT. #2
STA 1297+06.73
OFFSET 47.08' RT

STOP WORK
STA 1299+64.00
SEG 0561 OFFSET 2417
SEG 0560 OFFSET 2323
SR 6309

BM#1 ELEV 667.49
71' RT STA 1295+39
MAG NAIL ON WEST SIDE OF
UTILITY POLE PPL 51327/N38962

BM#2 ELEV 657.59
79' RT STA 1298+50
MAG NAIL ON WEST SIDE OF
UTILITY POLE PPL 51338/N38987

LEGAL LIMIT OF SLOPE EASEMENT
LEGAL RIGHT-OF-WAY LINE
100'
10' 12' 12'
1299
W/4" Y/4" BW/6"
MERGE
PCC
SR 6309
8" RCP
1298
18" RCP
SR 6309 CONSTR & SURVEY ℄
JB
MH
W/24"
15" RCP
50' RT
51
S51°07'58"E
SAWCUT
PC
PCC
IN 103
PROPOSED CURB
IN 102
IN 101
SAWCUT
FLUSH CORRUGATED CONCRETE
TO BE RELOCATED (BY OTHERS)
DRIVEWAY ADJUSTMENT
50'
10'
80'
T/CTV
WILKES BARRE TOWNSHIP BL
W/6" W/4" Y/4"
BM1 51327 N38962
E1328 N38961
LEGAL RIGHT OF WAY LINE FOR LIMITED ACCESS

MACADAM PARKING
GAS STATION
WILKES BARRE ASSOC LTD
51350 N38980
51341 N38990
AWAD TAREK
OUTLET
24" RCP
FUEL INTAKES
E/T/CTV
BM2
51338 N38987
ENTIRE AREA INCLUDED IN LEGAL RIGHT-OF-WAY FOR LIMITED ACCESS
BRUSH
51332 N38977

PI STA 54+83.85
Δ = 28°56'07" LT
D = 16°0'0"
T = 92.40'
L = 180.85'
R = 358.10'
E = 11.73'

PI STA 53+14.12
Δ = 36°45'50" LT
D = 22°55'6"
T = 83.08'
L = 160.41'
R = 250.00'
E = 13.44'

PC STA 52+31.05
PCC STA 53+91.46
RAMP G
SR 8013
SR 8013 CONSTR & SURVEY ℄
S87°53'48"E
SAWCUT
52
53
54
12' 11' 12'

STA 1296+83.42 SR 6309 =
STA 10+00.00 SR 2005

3 FOUR ONE COMPANY, LP
START WORK
STA 10+29.00
SEG 0010 OFFSET 0031
SR 2005

START WORK
STA 50+39.00
SEG 0520 OFFSET 0746
SR 8013 SECTION 0308

STA 50+00.00 SR 8013 =
STA 1297+05.62 SR 6309

LIMIT OF WORK
STA 50+00.00
SEG 0520 OFFSET 0785
SR 8013 SECTION 0308
WILKES-BARRE TOWNSHIP
LUZERNE COUNTY

LEGAL RIGHT-OF-WAY LINE
4" CI (QL-D) COMPANY ROW
GRAVEL DRIVE
GARAGE
DWELLING
51307 N38987
51309 N38992
PLANTER
GRAVEL DRIVE
18" RCP
GLW
E/T/CTV
10" CI
GV(2)
DY/4"
WV(3)
W/6"
6" CI (QL-D)
FH
BLACKMAN STREET
SR 2005
SR 2005 CONSTR & SURVEY ℄
51302 N38990
51295 N38978
MACADAM DRIVE
2 CAROL A. OPET & RITA WOODS
STOP WORK
STA 12+00.00
SEG 0010 OFFSET 0200
SR 2005
LEGAL RIGHT-OF-WAY LINE

PI STA 0+00.00
Δ = 00°00'00" LT
D = 0°0'0"
T = 0.00'
L = 0.00'
R = 0.00'
E = 0.00'
PC STA = 10+00.00
PT STA = 13+48.51

EXISTING GAS SIGN (TO BE REMOVED)
MONITORING WELL
1 ROSE ANN COYNE, ET AL
GAS PUMP AWNING
MACADAM PARKING
WOODS

SEE SHEET 24
SEE SHEET 23

PLAN
SCALE
0 25 50FEET

PRELIMINARY

FULL DEPTH RECONSTRUCTION

FOR PROFILE, SEE SHEET 25,26,27 | SURVEY BOOK NO 30384

File: W:\01\01240-32\DGN\Highway\01240-32-0081-308-Roadway Plan.dgn
Model: View 1
4/8/2021 12:51:39 PM Byjroth

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
4-0	LUZERNE	0081	308	23 OF 27
WILKES-BARRE TOWNSHIP				

REVISION NUMBER	REVISIONS	DATE	BY

SEE SHEET 22

ENTIRE AREA INCLUDED IN LEGAL RIGHT-OF-WAY FOR LIMITED ACCESS

MACADAM PARKING

WILKES BARRE ASSOC LTD

51,350 N38980

WOODS

DUMPSTER PAD

SHED

PI STA 54+83.85
Δ = 28°56'07" LT
D = 16°0'0"
T = 92.40'
L = 180.85'
R = 358.10'
E = 11.73'

PCC STA 53+91.46

PCC STA 55+72.30

PI STA 57+25.46
Δ = 13°43'06" LT
D = 4°30'0"
T = 153.16'
L = 304.85'
R = 1273.24'
E = 9.18'

PI STA 59+27.28
Δ = 10°00'00" LT
D = 10°0'0"
T = 50.13'
L = 100.00'
R = 572.96'
E = 2.19'

PCC STA 58+77.16

PT STA 59+77.16

STOP WORK
STA 57+35.00
SEG 0520 OFFSET 0050
SR 8013 SECTION 0308

SR 8013 CONSTR & SURVEY ℄

RAMP G S87°53'48"E N63°10'05"E

N63°10'05"E N49°26'59"E

N49°26'59"E N39°26'59"E

N39°26'59"E

54 55 56 57 58 59 60 61

1388 1387 1386 1385 1384 1383 1382

SR 0081 SB

SAWCUT

150'

LIMIT OF WORK
STA 57+85.00
SEG 0520 OFFSET 0000
SR 8013 SECTION 0308
WILKES-BARRE TOWNSHIP
LUZERNE COUNTY

PLAN

SCALE

0 25 50FEET

PRELIMINARY

FULL DEPTH RECONSTRUCTION

FOR PROFILE, SEE SHEET 25

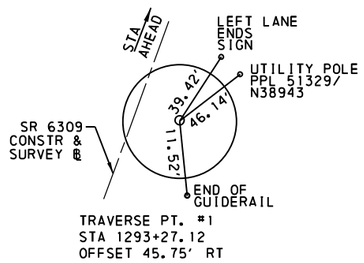
SURVEY BOOK NO 30384

File: M:\01\01240-32\DGN\Highway\01240-32-0081-308-Roadway Plan.dgn
Model: View 3 4/8/2021 12:10:09 PM Byt jroth

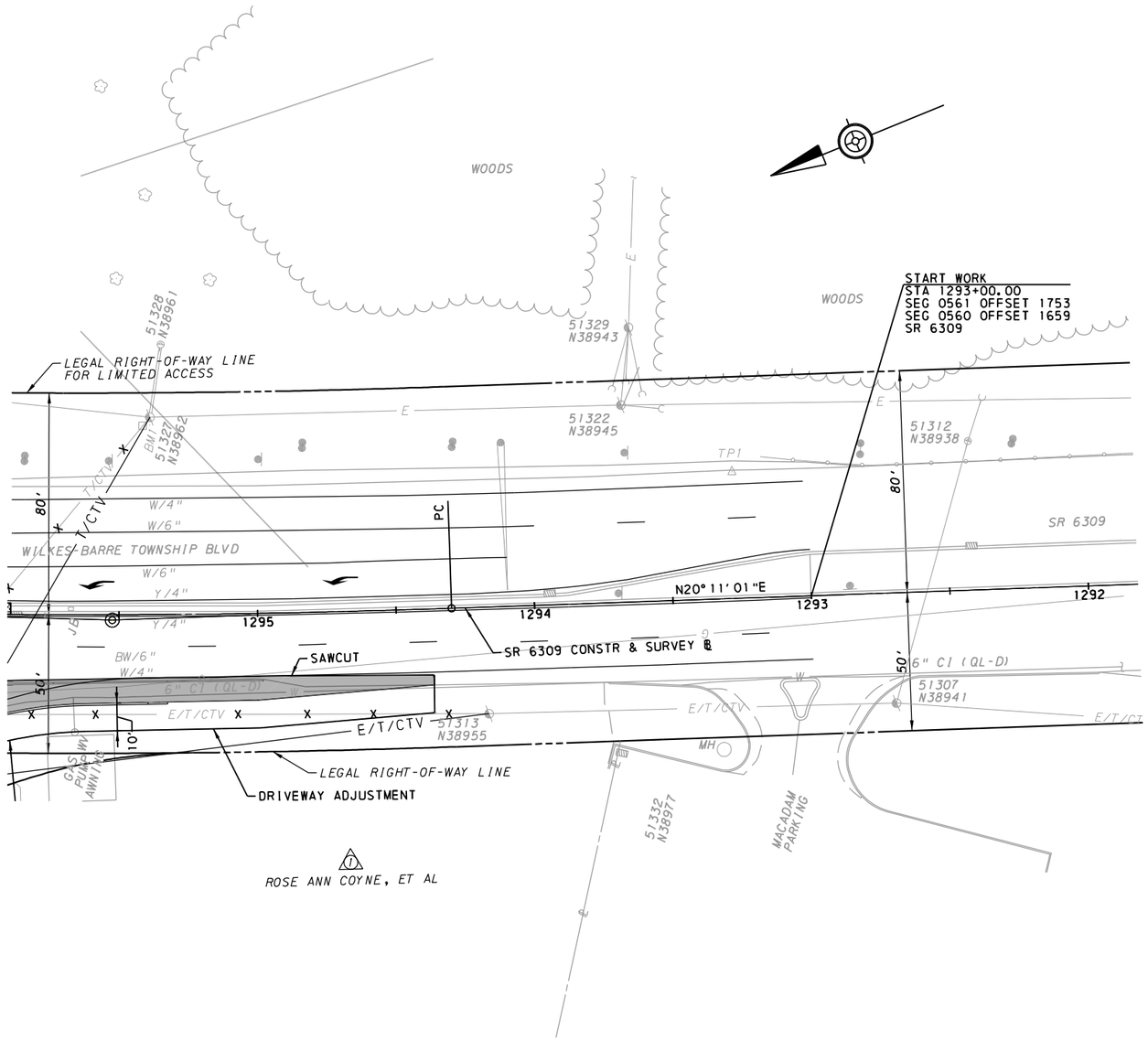
DISTRICT	COUNTY	ROUTE	SECTION	SHEET
4-0	LUZERNE	0081	308	24 OF 27
WILKES-BARRE TOWNSHIP				

REVISION NUMBER	REVISIONS	DATE	BY

SEE SHEET 22



BM#1 ELEV 667.49
71' RT STA 1295+39
MAG NAIL ON WEST SIDE OF
UTILITY POLE PPL 51327/N38962



1 ROSE ANN COYNE, ET AL

PLAN

SCALE

0 25 50FEET

PRELIMINARY

FULL DEPTH RECONSTRUCTION

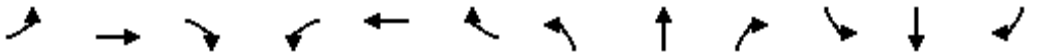
FOR PROFILE, SEE SHEET 26

SURVEY BOOK NO 30384

File: M:\01\01240-32\DGN\Highway\01240-32-0081-308-Roadway Plan.dgn
4/8/2021 12:10:09 PM Byjrorh
ModelView 2

Capacity Analysis Worksheets With PennDOT Ramp G Project

2024/2029 Base (No-Build) Conditions With PennDOT Ramp G Project

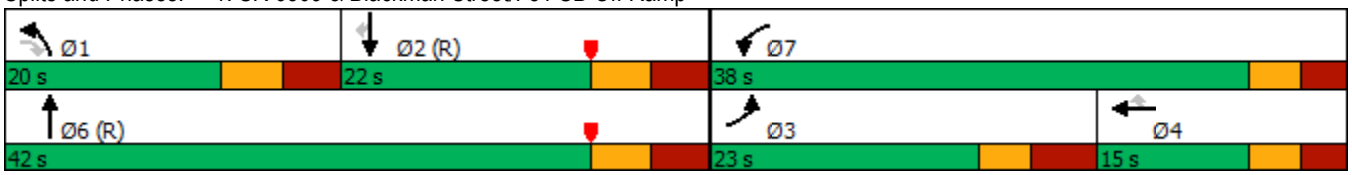


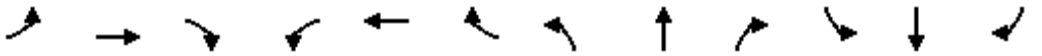
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	220	0	185	288	113	69	408	630	0	0	380	90
Future Volume (vph)	220	0	185	288	113	69	408	630	0	0	380	90
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	14	12	11	12	12	12	12	13	12	14
Grade (%)		-1%			-4%			-3%			-3%	
Storage Length (ft)	380		0	300		165	275		0	0		225
Storage Lanes	1		1	2		1	2		0	0		1
Taper Length (ft)	75			180			140			75		
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	0.97	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor												
Frt			0.850			0.850						0.850
Flt Protected	0.950			0.950			0.950					
Satd. Flow (prot)	1588	0	1533	3133	1690	1345	3238	3370	0	0	3306	1548
Flt Permitted	0.950			0.950			0.950					
Satd. Flow (perm)	1588	0	1533	3133	1690	1345	3238	3370	0	0	3306	1548
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			232			248						232
Link Speed (mph)		35			25			35			35	
Link Distance (ft)		1012			1172			871			378	
Travel Time (s)		19.7			32.0			17.0			7.4	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	1%	0%	7%	8%	5%	16%	4%	3%	0%	0%	5%	7%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	234	0	197	306	120	73	434	670	0	0	404	96
Shared Lane Traffic (%)												
Lane Group Flow (vph)	234	0	197	306	120	73	434	670	0	0	404	96
Turn Type	Prot		Perm	Prot	NA	Perm	Prot	NA			NA	Perm
Protected Phases	3			7	4		1	6			2	
Permitted Phases			1			4						2
Detector Phase	3		1	7	4	4	1	6			2	2
Switch Phase												
Minimum Initial (s)	3.0		3.0	3.0	3.0	3.0	3.0	10.0			10.0	10.0
Minimum Split (s)	10.0		10.1	8.9	8.9	8.9	10.1	17.1			17.1	17.1
Total Split (s)	23.0		20.0	38.0	15.0	15.0	20.0	42.0			22.0	22.0
Total Split (%)	28.8%		25.0%	47.5%	18.8%	18.8%	25.0%	52.5%			27.5%	27.5%
Yellow Time (s)	3.1		3.6	3.1	3.1	3.1	3.6	3.6			3.6	3.6
All-Red Time (s)	3.9		3.5	2.8	2.8	2.8	3.5	3.5			3.5	3.5
Lost Time Adjust (s)	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0			-1.0	-1.0
Total Lost Time (s)	6.0		6.1	4.9	4.9	4.9	6.1	6.1			6.1	6.1
Lead/Lag	Lead		Lead		Lag	Lag	Lead				Lag	Lag
Lead-Lag Optimize?	Yes		Yes		Yes	Yes	Yes				Yes	Yes
Recall Mode	None		None	None	None	None	None	C-Max			C-Max	C-Max

Intersection Summary

Area Type:	Other
Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 69 (86%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	

Splits and Phases: 1: SR 6309 & Blackman Street/I-81 SB Off Ramp





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	220	0	185	288	113	69	408	630	0	0	380	90
Future Volume (veh/h)	220	0	185	288	113	69	408	630	0	0	380	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	1823	0	1807	1835	1878	1722	1855	1869	0	0	1841	1885
Adj Flow Rate, veh/h	234	0	0	306	120	0	434	670	0	0	404	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	1	0	7	8	5	16	4	3	0	0	5	7
Cap, veh/h	302	0		1205	200		570	1801	0	0	925	
Arrive On Green	0.17	0.00	0.00	0.36	0.11	0.00	0.17	0.51	0.00	0.00	0.26	0.00
Sat Flow, veh/h	1736	234		3391	1878	1459	3427	3645	0	0	3589	1597
Grp Volume(v), veh/h	234	37.9		306	120	0	434	670	0	0	404	0
Grp Sat Flow(s),veh/h/ln	1736	D		1695	1878	1459	1714	1776	0	0	1749	1597
Q Serve(g_s), s	10.3			5.1	4.9	0.0	9.7	9.2	0.0	0.0	7.7	0.0
Cycle Q Clear(g_c), s	10.3			5.1	4.9	0.0	9.7	9.2	0.0	0.0	7.7	0.0
Prop In Lane	1.00			1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h	302			1205	200		570	1801	0	0	925	
V/C Ratio(X)	0.78			0.25	0.60		0.76	0.37	0.00	0.00	0.44	
Avail Cap(c_a), veh/h	369			1403	237		595	1801	0	0	925	
HCM Platoon Ratio	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	0.00	1.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	31.6			18.3	34.1	0.0	31.8	12.0	0.0	0.0	24.5	0.0
Incr Delay (d2), s/veh	6.3			0.0	1.2	0.0	4.8	0.6	0.0	0.0	1.5	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
%ile BackOfQ(95%),veh/ln	8.2			3.5	4.1	0.0	7.6	6.1	0.0	0.0	5.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.9			18.3	35.3	0.0	36.7	12.6	0.0	0.0	26.0	0.0
LnGrp LOS	D			B	D		D	B	A	A	C	
Approach Vol, veh/h					426			1104			404	
Approach Delay, s/veh					23.1			22.0			26.0	
Approach LOS					C			C			C	

Timer - Assigned Phs	1	2	3	4	6	7
Phs Duration (G+Y+Rc), s	19.4	27.3	19.9	13.4	46.7	33.3
Change Period (Y+Rc), s	7.1	7.1	7.0	* 5.9	7.1	* 5.9
Max Green Setting (Gmax), s	12.9	14.9	16.0	* 9.1	34.9	* 32
Max Q Clear Time (g_c+I1), s	12.2	10.2	12.8	7.4	11.7	7.6
Green Ext Time (p_c), s	0.1	2.9	0.2	0.1	18.4	3.9

Intersection Summary	
HCM 6th Ctrl Delay	24.7
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

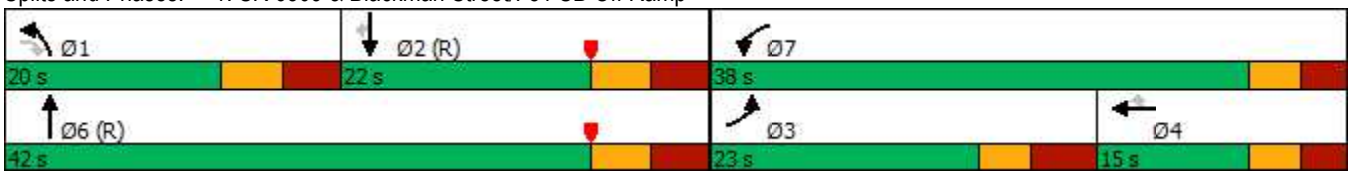
Unsignalized Delay for [EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

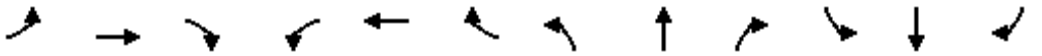
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	257	0	164	215	96	69	312	455	0	0	445	111
Future Volume (vph)	257	0	164	215	96	69	312	455	0	0	445	111
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	14	12	11	12	12	12	12	13	12	14
Grade (%)		-1%			-4%			-3%			-3%	
Storage Length (ft)	380		0	300		165	275		0	0		225
Storage Lanes	1		1	2		1	2		0	0		1
Taper Length (ft)	75			180			140			75		
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	0.97	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor												
Frt			0.850			0.850						0.850
Flt Protected	0.950			0.950			0.950					
Satd. Flow (prot)	1557	0	1533	2917	1599	1369	3269	3403	0	0	3244	1608
Flt Permitted	0.950			0.950			0.950					
Satd. Flow (perm)	1557	0	1533	2917	1599	1369	3269	3403	0	0	3244	1608
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			232			248						232
Link Speed (mph)		35			25			35			35	
Link Distance (ft)		1012			1172			871			378	
Travel Time (s)		19.7			32.0			17.0			7.4	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	0%	7%	16%	11%	14%	3%	2%	0%	0%	7%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	271	0	173	226	101	73	328	479	0	0	468	117
Shared Lane Traffic (%)												
Lane Group Flow (vph)	271	0	173	226	101	73	328	479	0	0	468	117
Turn Type	Prot		Perm	Prot	NA	Perm	Prot	NA			NA	Perm
Protected Phases	3			7	4		1	6			2	
Permitted Phases			1			4						2
Detector Phase	3		1	7	4	4	1	6			2	2
Switch Phase												
Minimum Initial (s)	3.0		3.0	3.0	3.0	3.0	3.0	10.0			10.0	10.0
Minimum Split (s)	10.0		10.1	8.9	8.9	8.9	10.1	17.1			17.1	17.1
Total Split (s)	23.0		20.0	38.0	15.0	15.0	20.0	42.0			22.0	22.0
Total Split (%)	28.8%		25.0%	47.5%	18.8%	18.8%	25.0%	52.5%			27.5%	27.5%
Yellow Time (s)	3.1		3.6	3.1	3.1	3.1	3.6	3.6			3.6	3.6
All-Red Time (s)	3.9		3.5	2.8	2.8	2.8	3.5	3.5			3.5	3.5
Lost Time Adjust (s)	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0			-1.0	-1.0
Total Lost Time (s)	6.0		6.1	4.9	4.9	4.9	6.1	6.1			6.1	6.1
Lead/Lag	Lead		Lead		Lag	Lag	Lead				Lag	Lag
Lead-Lag Optimize?	Yes		Yes		Yes	Yes	Yes				Yes	Yes
Recall Mode	None		None	None	None	None	None	C-Max			C-Max	C-Max

Intersection Summary

Area Type:	Other
Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 69 (86%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	

Splits and Phases: 1: SR 6309 & Blackman Street/I-81 SB Off Ramp





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	257	0	164	215	96	69	312	455	0	0	445	111
Future Volume (veh/h)	257	0	164	215	96	69	312	455	0	0	445	111
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	1795	0	1807	1722	1793	1750	1869	1883	0	0	1812	1944
Adj Flow Rate, veh/h	271	0	0	226	101	0	328	479	0	0	468	0
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, %	3	0	7	16	11	14	3	2	0	0	7	3
Cap, veh/h	335	0		1178	178		478	1761	0	0	955	
Arrive On Green	0.20	0.00	0.00	0.37	0.10	0.00	0.14	0.49	0.00	0.00	0.28	0.00
Sat Flow, veh/h	1709	271		3181	1793	1483	3453	3673	0	0	3534	1647
Grp Volume(v), veh/h	271	41.5		226	101	0	328	479	0	0	468	0
Grp Sat Flow(s),veh/h/ln	1709	D		1590	1793	1483	1727	1789	0	0	1722	1647
Q Serve(g_s), s	12.1			3.9	4.3	0.0	7.2	6.3	0.0	0.0	9.1	0.0
Cycle Q Clear(g_c), s	12.1			3.9	4.3	0.0	7.2	6.3	0.0	0.0	9.1	0.0
Prop In Lane	1.00			1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h	335			1178	178		478	1761	0	0	955	
V/C Ratio(X)	0.81			0.19	0.57		0.69	0.27	0.00	0.00	0.49	
Avail Cap(c_a), veh/h	363			1316	226		600	1761	0	0	955	
HCM Platoon Ratio	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	0.00	1.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	30.7			17.1	34.4	0.0	32.8	11.9	0.0	0.0	24.2	0.0
Incr Delay (d2), s/veh	10.7			0.0	1.1	0.0	1.4	0.4	0.0	0.0	1.8	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
%ile BackOfQ(95%),veh/ln	9.7			2.5	3.4	0.0	5.4	4.2	0.0	0.0	6.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.5			17.1	35.4	0.0	34.2	12.3	0.0	0.0	26.0	0.0
LnGrp LOS	D			B	D		C	B	A	A	C	
Approach Vol, veh/h					327			807			468	
Approach Delay, s/veh					22.8			21.2			26.0	
Approach LOS					C			C			C	

Timer - Assigned Phs	1	2	3	4	6	7
Phs Duration (G+Y+Rc), s	17.2	28.3	21.7	12.8	45.5	34.5
Change Period (Y+Rc), s	7.1	7.1	7.0	* 5.9	7.1	* 5.9
Max Green Setting (Gmax), s	12.9	14.9	16.0	* 9.1	34.9	* 32
Max Q Clear Time (g_c+I1), s	9.7	11.6	14.6	6.8	8.8	6.4
Green Ext Time (p_c), s	0.3	2.3	0.1	0.1	16.1	2.8

Intersection Summary	
HCM 6th Ctrl Delay	25.6
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

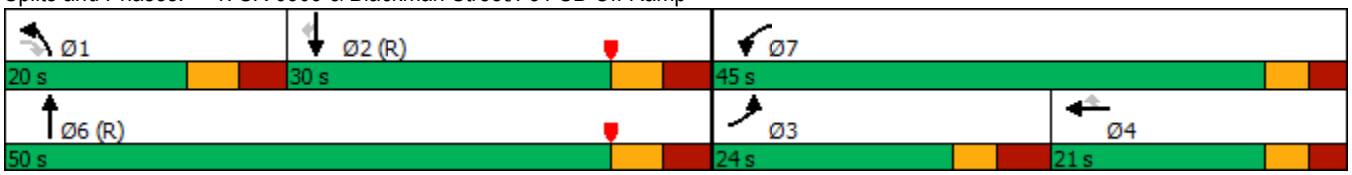
Unsignalized Delay for [EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

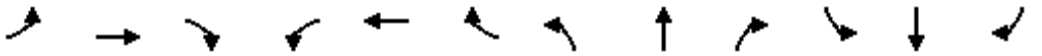
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	213	0	327	540	212	105	234	574	0	0	945	166
Future Volume (vph)	213	0	327	540	212	105	234	574	0	0	945	166
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	14	12	11	12	12	12	12	13	12	14
Grade (%)		-1%			-4%			-3%			-3%	
Storage Length (ft)	380		0	300		165	275		0	0		225
Storage Lanes	1		1	2		1	2		0	0		1
Taper Length (ft)	75			180			140			75		
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	0.97	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor												
Frt			0.850			0.850						0.850
Flt Protected	0.950			0.950			0.950					
Satd. Flow (prot)	1573	0	1577	3285	1707	1432	3177	3403	0	0	3437	1608
Flt Permitted	0.950			0.950			0.950					
Satd. Flow (perm)	1573	0	1577	3285	1707	1432	3177	3403	0	0	3437	1608
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			195			209						195
Link Speed (mph)		35			25			35			35	
Link Distance (ft)		1012			1172			871			378	
Travel Time (s)		19.7			32.0			17.0			7.4	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	0%	4%	3%	4%	9%	6%	2%	0%	0%	1%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	234	0	359	593	233	115	257	631	0	0	1038	182
Shared Lane Traffic (%)												
Lane Group Flow (vph)	234	0	359	593	233	115	257	631	0	0	1038	182
Turn Type	Prot		Perm	Prot	NA	Perm	Prot	NA			NA	Perm
Protected Phases	3			7	4		1	6			2	
Permitted Phases			1			4						2
Detector Phase	3		1	7	4	4	1	6			2	2
Switch Phase												
Minimum Initial (s)	3.0		3.0	3.0	3.0	3.0	3.0	10.0			10.0	10.0
Minimum Split (s)	10.0		10.1	8.9	8.9	8.9	10.1	17.1			17.1	17.1
Total Split (s)	24.0		20.0	45.0	21.0	21.0	20.0	50.0			30.0	30.0
Total Split (%)	25.3%		21.1%	47.4%	22.1%	22.1%	21.1%	52.6%			31.6%	31.6%
Yellow Time (s)	3.1		3.6	3.1	3.1	3.1	3.6	3.6			3.6	3.6
All-Red Time (s)	3.9		3.5	2.8	2.8	2.8	3.5	3.5			3.5	3.5
Lost Time Adjust (s)	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0			-1.0	-1.0
Total Lost Time (s)	6.0		6.1	4.9	4.9	4.9	6.1	6.1			6.1	6.1
Lead/Lag	Lead		Lead		Lag	Lag	Lead				Lag	Lag
Lead-Lag Optimize?	Yes		Yes		Yes	Yes	Yes				Yes	Yes
Recall Mode	None		None	None	None	None	None	C-Max			C-Max	C-Max

Intersection Summary

Area Type:	Other
Cycle Length: 95	
Actuated Cycle Length: 95	
Offset: 12 (13%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	

Splits and Phases: 1: SR 6309 & Blackman Street/I-81 SB Off Ramp





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	213	0	327	540	212	105	234	574	0	0	945	166
Future Volume (veh/h)	213	0	327	540	212	105	234	574	0	0	945	166
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	0	1852	1906	1892	1821	1826	1883	0	0	1898	1944
Adj Flow Rate, veh/h	234	0	0	593	233	0	257	631	0	0	1038	0
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	0	4	3	4	9	6	2	0	0	1	3
Cap, veh/h	290	0		1373	299		380	1769	0	0	1145	
Arrive On Green	0.17	0.00	0.00	0.39	0.16	0.00	0.11	0.49	0.00	0.00	0.32	0.00
Sat Flow, veh/h	1723	234		3522	1892	1543	3375	3673	0	0	3700	1647
Grp Volume(v), veh/h	234	49.0		593	233	0	257	631	0	0	1038	0
Grp Sat Flow(s),veh/h/ln	1723	D		1761	1892	1543	1687	1789	0	0	1803	1647
Q Serve(g_s), s	12.4			11.7	11.2	0.0	6.9	10.3	0.0	0.0	26.2	0.0
Cycle Q Clear(g_c), s	12.4			11.7	11.2	0.0	6.9	10.3	0.0	0.0	26.2	0.0
Prop In Lane	1.00			1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h	290			1373	299		380	1769	0	0	1145	
V/C Ratio(X)	0.81			0.43	0.78		0.68	0.36	0.00	0.00	0.91	
Avail Cap(c_a), veh/h	326			1487	321		494	1769	0	0	1145	
HCM Platoon Ratio	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	0.00	1.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	38.0			21.3	38.4	0.0	40.5	14.7	0.0	0.0	31.1	0.0
Incr Delay (d2), s/veh	11.0			0.1	9.6	0.0	1.2	0.6	0.0	0.0	11.9	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
%ile BackOfQ(95%),veh/ln	10.0			8.4	10.0	0.0	5.2	7.3	0.0	0.0	18.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.0			21.4	48.0	0.0	41.6	15.3	0.0	0.0	42.9	0.0
LnGrp LOS	D			C	D		D	B	A	A	D	
Approach Vol, veh/h					826			888			1038	
Approach Delay, s/veh					28.9			22.9			42.9	
Approach LOS					C			C			D	

Timer - Assigned Phs	1	2	3	4	6	7
Phs Duration (G+Y+Rc), s	16.8	36.3	22.0	19.9	53.1	41.9
Change Period (Y+Rc), s	7.1	7.1	7.0	* 5.9	7.1	* 5.9
Max Green Setting (Gmax), s	12.9	22.9	17.0	* 15	42.9	* 39
Max Q Clear Time (g_c+I1), s	9.4	28.7	14.9	13.7	12.8	14.2
Green Ext Time (p_c), s	0.3	0.0	0.1	0.3	22.1	8.1

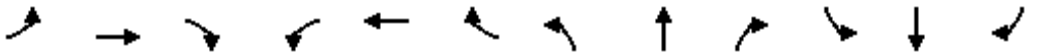
Intersection Summary	
HCM 6th Ctrl Delay	33.6
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

2024/2029 Projected (Build) Conditions With PennDOT Ramp G Project

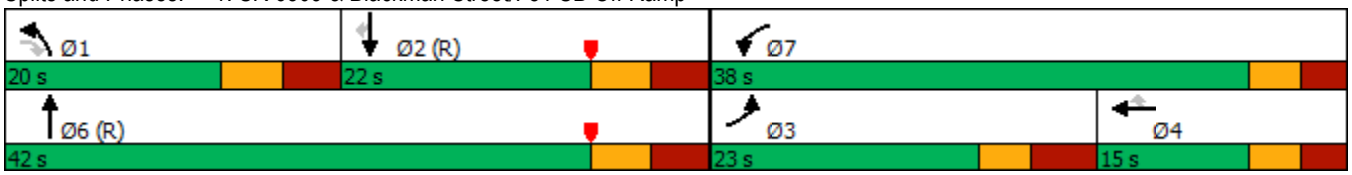


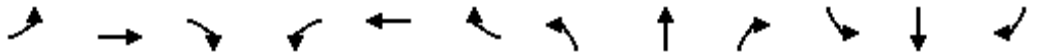
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	235	0	185	288	113	85	408	642	0	0	391	92
Future Volume (vph)	235	0	185	288	113	85	408	642	0	0	391	92
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	14	12	11	12	12	12	12	13	12	14
Grade (%)		-1%			-4%			-3%			-3%	
Storage Length (ft)	380		0	300		165	275		0	0		225
Storage Lanes	1		1	2		1	2		0	0		1
Taper Length (ft)	75			180			140			75		
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	0.97	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor												
Frt			0.850			0.850						0.850
Flt Protected	0.950			0.950			0.950					
Satd. Flow (prot)	1588	0	1533	3133	1690	1345	3238	3370	0	0	3306	1548
Flt Permitted	0.950			0.950			0.950					
Satd. Flow (perm)	1588	0	1533	3133	1690	1345	3238	3370	0	0	3306	1548
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			232			248						232
Link Speed (mph)		35			25			35			35	
Link Distance (ft)		1012			1172			871			378	
Travel Time (s)		19.7			32.0			17.0			7.4	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	1%	0%	7%	8%	5%	16%	4%	3%	0%	0%	5%	7%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	250	0	197	306	120	90	434	683	0	0	416	98
Shared Lane Traffic (%)												
Lane Group Flow (vph)	250	0	197	306	120	90	434	683	0	0	416	98
Turn Type	Prot		Perm	Prot	NA	Perm	Prot	NA			NA	Perm
Protected Phases	3			7	4		1	6			2	
Permitted Phases			1			4						2
Detector Phase	3		1	7	4	4	1	6			2	2
Switch Phase												
Minimum Initial (s)	3.0		3.0	3.0	3.0	3.0	3.0	10.0			10.0	10.0
Minimum Split (s)	10.0		10.1	8.9	8.9	8.9	10.1	17.1			17.1	17.1
Total Split (s)	23.0		20.0	38.0	15.0	15.0	20.0	42.0			22.0	22.0
Total Split (%)	28.8%		25.0%	47.5%	18.8%	18.8%	25.0%	52.5%			27.5%	27.5%
Yellow Time (s)	3.1		3.6	3.1	3.1	3.1	3.6	3.6			3.6	3.6
All-Red Time (s)	3.9		3.5	2.8	2.8	2.8	3.5	3.5			3.5	3.5
Lost Time Adjust (s)	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0			-1.0	-1.0
Total Lost Time (s)	6.0		6.1	4.9	4.9	4.9	6.1	6.1			6.1	6.1
Lead/Lag	Lead		Lead		Lag	Lag	Lead				Lag	Lag
Lead-Lag Optimize?	Yes		Yes		Yes	Yes	Yes				Yes	Yes
Recall Mode	None		None	None	None	None	None	C-Max			C-Max	C-Max

Intersection Summary

Area Type:	Other
Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 69 (86%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	

Splits and Phases: 1: SR 6309 & Blackman Street/I-81 SB Off Ramp





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	235	0	185	288	113	85	408	642	0	0	391	92
Future Volume (veh/h)	235	0	185	288	113	85	408	642	0	0	391	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	1823	0	1807	1835	1878	1722	1855	1869	0	0	1841	1885
Adj Flow Rate, veh/h	250	0	0	306	120	0	434	683	0	0	416	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	1	0	7	8	5	16	4	3	0	0	5	7
Cap, veh/h	317	0		1235	200		570	1770	0	0	895	
Arrive On Green	0.18	0.00	0.00	0.36	0.11	0.00	0.17	0.50	0.00	0.00	0.26	0.00
Sat Flow, veh/h	1736	250		3391	1878	1459	3427	3645	0	0	3589	1597
Grp Volume(v), veh/h	250	39.2		306	120	0	434	683	0	0	416	0
Grp Sat Flow(s),veh/h/ln	1736	D		1695	1878	1459	1714	1776	0	0	1749	1597
Q Serve(g_s), s	11.0			5.0	4.9	0.0	9.7	9.6	0.0	0.0	8.0	0.0
Cycle Q Clear(g_c), s	11.0			5.0	4.9	0.0	9.7	9.6	0.0	0.0	8.0	0.0
Prop In Lane	1.00			1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h	317			1235	200		570	1770	0	0	895	
V/C Ratio(X)	0.79			0.25	0.60		0.76	0.39	0.00	0.00	0.46	
Avail Cap(c_a), veh/h	369			1403	237		595	1770	0	0	895	
HCM Platoon Ratio	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	0.00	1.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	31.2			17.8	34.1	0.0	31.8	12.5	0.0	0.0	25.1	0.0
Incr Delay (d2), s/veh	7.9			0.0	1.2	0.0	4.8	0.6	0.0	0.0	1.7	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
%ile BackOfQ(95%),veh/ln	8.8			3.5	4.1	0.0	7.6	6.4	0.0	0.0	6.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.2			17.8	35.3	0.0	36.7	13.1	0.0	0.0	26.9	0.0
LnGrp LOS	D			B	D		D	B	A	A	C	
Approach Vol, veh/h					426			1117			416	
Approach Delay, s/veh					22.8			22.3			26.9	
Approach LOS					C			C			C	

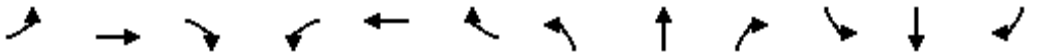
Timer - Assigned Phs	1	2	3	4	6	7
Phs Duration (G+Y+Rc), s	19.4	26.6	20.6	13.4	46.0	34.0
Change Period (Y+Rc), s	7.1	7.1	7.0	* 5.9	7.1	* 5.9
Max Green Setting (Gmax), s	12.9	14.9	16.0	* 9.1	34.9	* 32
Max Q Clear Time (g_c+I1), s	12.2	10.5	13.5	7.4	12.1	7.5
Green Ext Time (p_c), s	0.1	2.8	0.2	0.1	18.3	3.9

Intersection Summary	
HCM 6th Ctrl Delay	25.1
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

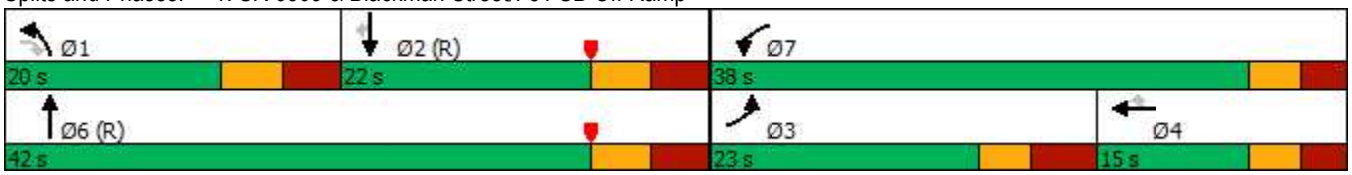


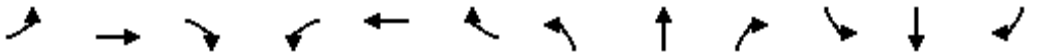
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	284	0	164	215	96	97	312	467	0	0	454	118
Future Volume (vph)	284	0	164	215	96	97	312	467	0	0	454	118
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	14	12	11	12	12	12	12	13	12	14
Grade (%)		-1%			-4%			-3%			-3%	
Storage Length (ft)	380		0	300		165	275		0	0		225
Storage Lanes	1		1	2		1	2		0	0		1
Taper Length (ft)	75			180			140			75		
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	0.97	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor												
Frt			0.850			0.850						0.850
Flt Protected	0.950			0.950			0.950					
Satd. Flow (prot)	1557	0	1533	2917	1599	1369	3269	3403	0	0	3244	1608
Flt Permitted	0.950			0.950			0.950					
Satd. Flow (perm)	1557	0	1533	2917	1599	1369	3269	3403	0	0	3244	1608
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			232			248						232
Link Speed (mph)		35			25			35			35	
Link Distance (ft)		1012			1172			871			378	
Travel Time (s)		19.7			32.0			17.0			7.4	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	0%	7%	16%	11%	14%	3%	2%	0%	0%	7%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	299	0	173	226	101	102	328	492	0	0	478	124
Shared Lane Traffic (%)												
Lane Group Flow (vph)	299	0	173	226	101	102	328	492	0	0	478	124
Turn Type	Prot		Perm	Prot	NA	Perm	Prot	NA			NA	Perm
Protected Phases	3			7	4		1	6			2	
Permitted Phases			1			4						2
Detector Phase	3		1	7	4	4	1	6			2	2
Switch Phase												
Minimum Initial (s)	3.0		3.0	3.0	3.0	3.0	3.0	10.0			10.0	10.0
Minimum Split (s)	10.0		10.1	8.9	8.9	8.9	10.1	17.1			17.1	17.1
Total Split (s)	23.0		20.0	38.0	15.0	15.0	20.0	42.0			22.0	22.0
Total Split (%)	28.8%		25.0%	47.5%	18.8%	18.8%	25.0%	52.5%			27.5%	27.5%
Yellow Time (s)	3.1		3.6	3.1	3.1	3.1	3.6	3.6			3.6	3.6
All-Red Time (s)	3.9		3.5	2.8	2.8	2.8	3.5	3.5			3.5	3.5
Lost Time Adjust (s)	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0			-1.0	-1.0
Total Lost Time (s)	6.0		6.1	4.9	4.9	4.9	6.1	6.1			6.1	6.1
Lead/Lag	Lead		Lead		Lag	Lag	Lead				Lag	Lag
Lead-Lag Optimize?	Yes		Yes		Yes	Yes	Yes				Yes	Yes
Recall Mode	None		None	None	None	None	None	C-Max			C-Max	C-Max

Intersection Summary

Area Type:	Other
Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 69 (86%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	

Splits and Phases: 1: SR 6309 & Blackman Street/I-81 SB Off Ramp





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	284	0	164	215	96	97	312	467	0	0	454	118
Future Volume (veh/h)	284	0	164	215	96	97	312	467	0	0	454	118
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	1795	0	1807	1722	1793	1750	1869	1883	0	0	1812	1944
Adj Flow Rate, veh/h	299	0	0	226	101	0	328	492	0	0	478	0
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, %	3	0	7	16	11	14	3	2	0	0	7	3
Cap, veh/h	361	0		1225	178		478	1708	0	0	904	
Arrive On Green	0.21	0.00	0.00	0.39	0.10	0.00	0.14	0.48	0.00	0.00	0.26	0.00
Sat Flow, veh/h	1709	299		3181	1793	1483	3453	3673	0	0	3534	1647
Grp Volume(v), veh/h	299	44.1		226	101	0	328	492	0	0	478	0
Grp Sat Flow(s),veh/h/ln	1709	D		1590	1793	1483	1727	1789	0	0	1722	1647
Q Serve(g_s), s	13.4			3.8	4.3	0.0	7.2	6.7	0.0	0.0	9.5	0.0
Cycle Q Clear(g_c), s	13.4			3.8	4.3	0.0	7.2	6.7	0.0	0.0	9.5	0.0
Prop In Lane	1.00			1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h	361			1225	178		478	1708	0	0	904	
V/C Ratio(X)	0.83			0.18	0.57		0.69	0.29	0.00	0.00	0.53	
Avail Cap(c_a), veh/h	363			1316	226		600	1708	0	0	904	
HCM Platoon Ratio	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	0.00	1.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	30.2			16.3	34.4	0.0	32.8	12.7	0.0	0.0	25.3	0.0
Incr Delay (d2), s/veh	13.9			0.0	1.1	0.0	1.4	0.4	0.0	0.0	2.2	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
%ile BackOfQ(95%),veh/ln	10.8			2.4	3.4	0.0	5.4	4.5	0.0	0.0	7.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.1			16.3	35.4	0.0	34.2	13.1	0.0	0.0	27.5	0.0
LnGrp LOS	D			B	D		C	B	A	A	C	
Approach Vol, veh/h					327			820			478	
Approach Delay, s/veh					22.2			21.5			27.5	
Approach LOS					C			C			C	

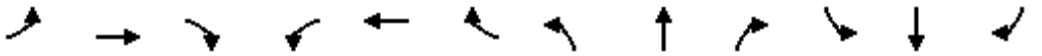
Timer - Assigned Phs	1	2	3	4	6	7
Phs Duration (G+Y+Rc), s	17.2	27.1	22.9	12.8	44.3	35.7
Change Period (Y+Rc), s	7.1	7.1	7.0	* 5.9	7.1	* 5.9
Max Green Setting (Gmax), s	12.9	14.9	16.0	* 9.1	34.9	* 32
Max Q Clear Time (g_c+I1), s	9.7	12.0	15.9	6.8	9.2	6.3
Green Ext Time (p_c), s	0.3	2.1	0.0	0.1	16.3	2.8

Intersection Summary	
HCM 6th Ctrl Delay	26.6
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

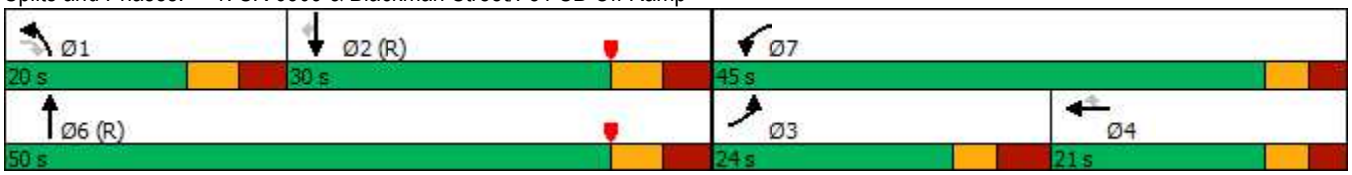


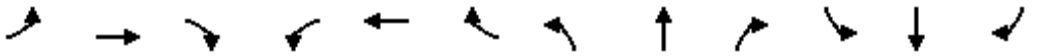
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	226	0	327	540	212	119	234	588	0	0	973	194
Future Volume (vph)	226	0	327	540	212	119	234	588	0	0	973	194
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	14	12	11	12	12	12	12	13	12	14
Grade (%)		-1%			-4%			-3%			-3%	
Storage Length (ft)	380		0	300		165	275		0	0		225
Storage Lanes	1		1	2		1	2		0	0		1
Taper Length (ft)	75			180			140			75		
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	0.97	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor												
Frt			0.850			0.850						0.850
Flt Protected	0.950			0.950			0.950					
Satd. Flow (prot)	1573	0	1577	3285	1707	1432	3177	3403	0	0	3437	1608
Flt Permitted	0.950			0.950			0.950					
Satd. Flow (perm)	1573	0	1577	3285	1707	1432	3177	3403	0	0	3437	1608
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			195			209						195
Link Speed (mph)		35			25			35			35	
Link Distance (ft)		1012			1172			871			378	
Travel Time (s)		19.7			32.0			17.0			7.4	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	0%	4%	3%	4%	9%	6%	2%	0%	0%	1%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	248	0	359	593	233	131	257	646	0	0	1069	213
Shared Lane Traffic (%)												
Lane Group Flow (vph)	248	0	359	593	233	131	257	646	0	0	1069	213
Turn Type	Prot		Perm	Prot	NA	Perm	Prot	NA			NA	Perm
Protected Phases	3			7	4		1	6			2	
Permitted Phases			1			4						2
Detector Phase	3		1	7	4	4	1	6			2	2
Switch Phase												
Minimum Initial (s)	3.0		3.0	3.0	3.0	3.0	3.0	10.0			10.0	10.0
Minimum Split (s)	10.0		10.1	8.9	8.9	8.9	10.1	17.1			17.1	17.1
Total Split (s)	24.0		20.0	45.0	21.0	21.0	20.0	50.0			30.0	30.0
Total Split (%)	25.3%		21.1%	47.4%	22.1%	22.1%	21.1%	52.6%			31.6%	31.6%
Yellow Time (s)	3.1		3.6	3.1	3.1	3.1	3.6	3.6			3.6	3.6
All-Red Time (s)	3.9		3.5	2.8	2.8	2.8	3.5	3.5			3.5	3.5
Lost Time Adjust (s)	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0			-1.0	-1.0
Total Lost Time (s)	6.0		6.1	4.9	4.9	4.9	6.1	6.1			6.1	6.1
Lead/Lag	Lead		Lead		Lag	Lag	Lead				Lag	Lag
Lead-Lag Optimize?	Yes		Yes		Yes	Yes	Yes				Yes	Yes
Recall Mode	None		None	None	None	None	None	C-Max			C-Max	C-Max

Intersection Summary

Area Type:	Other
Cycle Length: 95	
Actuated Cycle Length: 95	
Offset: 12 (13%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	

Splits and Phases: 1: SR 6309 & Blackman Street/I-81 SB Off Ramp





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	226	0	327	540	212	119	234	588	0	0	973	194
Future Volume (veh/h)	226	0	327	540	212	119	234	588	0	0	973	194
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	0	1852	1906	1892	1821	1826	1883	0	0	1898	1944
Adj Flow Rate, veh/h	248	0	0	593	233	0	257	646	0	0	1069	0
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	0	4	3	4	9	6	2	0	0	1	3
Cap, veh/h	303	0		1400	299		380	1742	0	0	1118	
Arrive On Green	0.18	0.00	0.00	0.40	0.16	0.00	0.11	0.49	0.00	0.00	0.31	0.00
Sat Flow, veh/h	1723	248		3522	1892	1543	3375	3673	0	0	3700	1647
Grp Volume(v), veh/h	248	50.5		593	233	0	257	646	0	0	1069	0
Grp Sat Flow(s),veh/h/ln	1723	D		1761	1892	1543	1687	1789	0	0	1803	1647
Q Serve(g_s), s	13.2			11.6	11.2	0.0	6.9	10.7	0.0	0.0	27.6	0.0
Cycle Q Clear(g_c), s	13.2			11.6	11.2	0.0	6.9	10.7	0.0	0.0	27.6	0.0
Prop In Lane	1.00			1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h	303			1400	299		380	1742	0	0	1118	
V/C Ratio(X)	0.82			0.42	0.78		0.68	0.37	0.00	0.00	0.96	
Avail Cap(c_a), veh/h	326			1487	321		494	1742	0	0	1118	
HCM Platoon Ratio	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	0.00	1.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	37.7			20.7	38.4	0.0	40.5	15.3	0.0	0.0	32.1	0.0
Incr Delay (d2), s/veh	12.8			0.1	9.6	0.0	1.2	0.6	0.0	0.0	18.3	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
%ile BackOfQ(95%),veh/ln	10.6			8.3	10.0	0.0	5.2	7.6	0.0	0.0	20.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.5			20.8	48.0	0.0	41.6	15.9	0.0	0.0	50.4	0.0
LnGrp LOS	D			C	D		D	B	A	A	D	
Approach Vol, veh/h					826			903			1069	
Approach Delay, s/veh					28.5			23.2			50.4	
Approach LOS					C			C			D	

Timer - Assigned Phs	1	2	3	4	6	7
Phs Duration (G+Y+Rc), s	16.8	35.6	22.7	19.9	52.4	42.6
Change Period (Y+Rc), s	7.1	7.1	7.0	* 5.9	7.1	* 5.9
Max Green Setting (Gmax), s	12.9	22.9	17.0	* 15	42.9	* 39
Max Q Clear Time (g_c+I1), s	9.4	30.1	15.7	13.7	13.2	14.1
Green Ext Time (p_c), s	0.3	0.0	0.1	0.3	22.1	8.1

Intersection Summary	
HCM 6th Ctrl Delay	36.4
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

SimTraffic Queue Analysis Worksheets With PennDOT Ramp G Project

2024/2029 Base (No-Build) Conditions With PennDOT Ramp G Project

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	6:50	6:50	6:50	6:50	6:50	6:50
End Time	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	3	3	3	3	3	3
# of Recorded Intervals	2	2	2	2	2	2
Vehs Entered	3869	3824	3853	3797	3824	3833
Vehs Exited	3878	3840	3896	3801	3853	3854
Starting Vehs	156	166	168	165	178	163
Ending Vehs	147	150	125	161	149	142
Travel Distance (mi)	3280	3231	3315	3182	3268	3255
Travel Time (hr)	156.3	152.5	157.9	150.5	156.3	154.7
Total Delay (hr)	53.9	51.6	54.7	51.3	54.2	53.1
Total Stops	4750	4521	4758	4524	4660	4639
Fuel Used (gal)	122.3	119.9	123.4	118.0	121.4	121.0

Interval #0 Information Seeding

Start Time	6:50
End Time	7:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	7:15
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	1081	1074	1066	1065	1054	1068
Vehs Exited	1061	1066	1083	1034	1055	1060
Starting Vehs	156	166	168	165	178	163
Ending Vehs	176	174	151	196	177	169
Travel Distance (mi)	913	891	896	870	918	898
Travel Time (hr)	44.7	43.1	43.3	41.8	45.1	43.6
Total Delay (hr)	16.2	15.3	15.5	14.5	16.5	15.6
Total Stops	1393	1276	1304	1299	1396	1333
Fuel Used (gal)	34.7	33.6	33.3	32.6	34.2	33.7

Interval #2 Information

Start Time	7:15
End Time	8:00
Total Time (min)	45

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	Avg
Vehs Entered	2788	2750	2787	2732	2770	2765
Vehs Exited	2817	2774	2813	2767	2798	2795
Starting Vehs	176	174	151	196	177	169
Ending Vehs	147	150	125	161	149	142
Travel Distance (mi)	2368	2340	2419	2311	2350	2358
Travel Time (hr)	111.7	109.3	114.6	108.7	111.2	111.1
Total Delay (hr)	37.7	36.3	39.2	36.8	37.6	37.5
Total Stops	3357	3245	3454	3225	3264	3309
Fuel Used (gal)	87.6	86.4	90.1	85.4	87.2	87.3

Intersection: 1: SR 6309 & Blackman Street/I-81 SB Off Ramp

Movement	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	L	L	T	L	L	T	T	T	T
Maximum Queue (ft)	226	146	182	136	215	255	201	149	164	165
Average Queue (ft)	123	50	95	64	114	167	122	73	80	75
95th Queue (ft)	197	114	158	117	213	236	188	140	133	131
Link Distance (ft)				1110			824	824	296	296
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	380	300	300		275	275				
Storage Blk Time (%)				0		0				
Queuing Penalty (veh)				0		0				

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	8:50	8:50	8:50	8:50	8:50	8:50
End Time	10:00	10:00	10:00	10:00	10:00	10:00
Total Time (min)	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	3	3	3	3	3	3
# of Recorded Intervals	2	2	2	2	2	2
Vehs Entered	3784	3810	3694	3656	3612	3713
Vehs Exited	3779	3841	3714	3668	3617	3723
Starting Vehs	150	155	166	143	151	148
Ending Vehs	155	124	146	131	146	135
Travel Distance (mi)	3237	3223	3154	3124	3081	3164
Travel Time (hr)	153.3	149.8	147.7	145.7	142.7	147.9
Total Delay (hr)	53.3	50.6	50.3	49.3	47.8	50.3
Total Stops	4653	4386	4383	4245	4241	4383
Fuel Used (gal)	120.4	119.3	117.3	115.7	113.7	117.3

Interval #0 Information Seeding

Start Time	8:50
End Time	9:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	9:00
End Time	9:15
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	981	1014	966	948	929	967
Vehs Exited	928	1028	979	946	915	958
Starting Vehs	150	155	166	143	151	148
Ending Vehs	203	141	153	145	165	158
Travel Distance (mi)	817	841	837	810	821	825
Travel Time (hr)	39.6	39.6	39.2	38.4	38.3	39.0
Total Delay (hr)	14.2	13.6	13.6	13.3	13.0	13.5
Total Stops	1210	1221	1182	1143	1156	1181
Fuel Used (gal)	30.3	31.3	31.1	30.5	30.4	30.7

Interval #2 Information

Start Time	9:15
End Time	10:00
Total Time (min)	45

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	Avg
Vehs Entered	2803	2796	2728	2708	2683	2746
Vehs Exited	2851	2813	2735	2722	2702	2765
Starting Vehs	203	141	153	145	165	158
Ending Vehs	155	124	146	131	146	135
Travel Distance (mi)	2420	2382	2316	2314	2261	2338
Travel Time (hr)	113.7	110.2	108.5	107.3	104.4	108.8
Total Delay (hr)	39.1	37.0	36.7	36.0	34.8	36.7
Total Stops	3443	3165	3201	3102	3085	3201
Fuel Used (gal)	90.1	88.0	86.2	85.2	83.3	86.6

Intersection: 1: SR 6309 & Blackman Street/I-81 SB Off Ramp

Movement	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	L	L	T	L	L	T	T	T	T
Maximum Queue (ft)	242	147	170	140	171	225	156	132	189	182
Average Queue (ft)	143	40	91	62	60	128	81	44	96	86
95th Queue (ft)	224	108	155	118	157	198	137	97	160	145
Link Distance (ft)				1110			824	824	296	296
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	380	300	300		275	275				
Storage Blk Time (%)				0		0				0
Queuing Penalty (veh)				0		0				0

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	3:50	3:50	3:50	3:50	3:50	3:50
End Time	5:00	5:00	5:00	5:00	5:00	5:00
Total Time (min)	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	3	3	3	3	3	3
# of Recorded Intervals	2	2	2	2	2	2
Vehs Entered	6209	6239	6084	6118	6096	6150
Vehs Exited	6199	6226	6061	6131	6117	6146
Starting Vehs	260	284	248	261	267	263
Ending Vehs	270	297	271	248	246	262
Travel Distance (mi)	4945	5028	4923	4923	4929	4950
Travel Time (hr)	277.3	272.2	257.0	260.4	273.2	268.0
Total Delay (hr)	123.2	116.1	104.4	107.6	119.8	114.2
Total Stops	8834	8392	7834	7962	8446	8291
Fuel Used (gal)	195.0	196.0	189.4	189.8	192.9	192.6

Interval #0 Information Seeding

Start Time	3:50
End Time	4:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	4:00
End Time	4:15
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	1642	1640	1635	1593	1569	1618
Vehs Exited	1579	1647	1608	1577	1539	1590
Starting Vehs	260	284	248	261	267	263
Ending Vehs	323	277	275	277	297	286
Travel Distance (mi)	1298	1276	1331	1245	1273	1284
Travel Time (hr)	80.4	72.2	73.2	67.4	71.9	73.0
Total Delay (hr)	40.0	32.5	32.1	28.4	32.1	33.0
Total Stops	2581	2229	2233	2076	2267	2273
Fuel Used (gal)	52.4	50.7	52.1	48.6	50.1	50.8

Interval #2 Information

Start Time	4:15
End Time	5:00
Total Time (min)	45

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	Avg
Vehs Entered	4567	4599	4449	4525	4527	4534
Vehs Exited	4620	4579	4453	4554	4578	4554
Starting Vehs	323	277	275	277	297	286
Ending Vehs	270	297	271	248	246	262
Travel Distance (mi)	3647	3752	3593	3677	3657	3665
Travel Time (hr)	197.0	200.0	183.8	193.0	201.3	195.0
Total Delay (hr)	83.2	83.7	72.3	79.1	87.7	81.2
Total Stops	6253	6163	5601	5886	6179	6013
Fuel Used (gal)	142.6	145.3	137.3	141.2	142.8	141.8

Intersection: 1: SR 6309 & Blackman Street/I-81 SB Off Ramp

Movement	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	R	L	L	T	R	L	L	T	T	T	T
Maximum Queue (ft)	307	347	185	224	271	129	176	212	191	159	376	377
Average Queue (ft)	139	92	102	137	135	6	58	123	118	68	275	278
95th Queue (ft)	240	288	182	212	231	70	159	194	183	135	405	414
Link Distance (ft)		958			1110				824	824	296	296
Upstream Blk Time (%)											17	17
Queuing Penalty (veh)											96	95
Storage Bay Dist (ft)	380		300	300		165	275	275				
Storage Blk Time (%)		1			8							30
Queuing Penalty (veh)		1			54							51

Intersection: 1: SR 6309 & Blackman Street/I-81 SB Off Ramp

Movement	SB	B8	B8	B17
Directions Served	R	T	T	T
Maximum Queue (ft)	296	117	131	288
Average Queue (ft)	122	28	32	71
95th Queue (ft)	361	121	125	396
Link Distance (ft)		102	102	650
Upstream Blk Time (%)	1	3	5	6
Queuing Penalty (veh)	0	19	28	67
Storage Bay Dist (ft)	225			
Storage Blk Time (%)				
Queuing Penalty (veh)				

2024/2029 Projected (Build) Conditions With PennDOT Ramp G Project

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	6:50	6:50	6:50	6:50	6:50	6:50
End Time	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	3	3	3	3	3	3
# of Recorded Intervals	2	2	2	2	2	2
Vehs Entered	3925	3890	3993	4012	3914	3943
Vehs Exited	3947	3912	3963	3985	3903	3944
Starting Vehs	165	170	153	151	141	156
Ending Vehs	143	148	183	178	152	154
Travel Distance (mi)	3358	3291	3389	3383	3304	3345
Travel Time (hr)	160.3	157.3	163.5	163.4	157.3	160.4
Total Delay (hr)	55.4	54.3	57.0	57.8	53.9	55.7
Total Stops	4886	4709	4965	4971	4753	4851
Fuel Used (gal)	125.3	123.0	126.5	126.5	122.8	124.8

Interval #0 Information Seeding

Start Time	6:50
End Time	7:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	7:15
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	1062	1110	1133	1109	1088	1101
Vehs Exited	1048	1117	1091	1075	1048	1077
Starting Vehs	165	170	153	151	141	156
Ending Vehs	179	163	195	185	181	181
Travel Distance (mi)	902	940	952	913	888	919
Travel Time (hr)	43.6	45.6	47.3	45.6	43.2	45.1
Total Delay (hr)	15.4	16.1	17.5	17.0	15.4	16.3
Total Stops	1367	1334	1487	1420	1355	1390
Fuel Used (gal)	34.0	35.5	35.7	34.5	33.3	34.6

Interval #2 Information

Start Time	7:15
End Time	8:00
Total Time (min)	45

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	Avg
Vehs Entered	2863	2780	2860	2903	2826	2844
Vehs Exited	2899	2795	2872	2910	2855	2866
Starting Vehs	179	163	195	185	181	181
Ending Vehs	143	148	183	178	152	154
Travel Distance (mi)	2456	2351	2437	2470	2416	2426
Travel Time (hr)	116.6	111.7	116.2	117.9	114.1	115.3
Total Delay (hr)	40.0	38.2	39.5	40.8	38.5	39.4
Total Stops	3519	3375	3478	3551	3398	3464
Fuel Used (gal)	91.3	87.5	90.8	92.0	89.5	90.2

Intersection: 1: SR 6309 & Blackman Street/I-81 SB Off Ramp

Movement	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	R	L	L	T	L	L	T	T	T	T
Maximum Queue (ft)	258	29	147	167	142	230	293	197	163	150	149
Average Queue (ft)	130	1	54	91	63	136	182	119	79	87	82
95th Queue (ft)	221	21	122	153	119	230	263	184	143	137	136
Link Distance (ft)		958			1110			824	824	296	296
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	380		300	300		275	275				
Storage Blk Time (%)					0		1				
Queuing Penalty (veh)					1		2				

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	8:50	8:50	8:50	8:50	8:50	8:50
End Time	10:00	10:00	10:00	10:00	10:00	10:00
Total Time (min)	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	3	3	3	3	3	3
# of Recorded Intervals	2	2	2	2	2	2
Vehs Entered	3823	3825	3807	3770	3800	3807
Vehs Exited	3824	3881	3808	3749	3808	3814
Starting Vehs	152	172	156	152	161	156
Ending Vehs	151	116	155	173	153	148
Travel Distance (mi)	3248	3260	3239	3166	3254	3233
Travel Time (hr)	152.5	152.9	153.7	149.7	153.0	152.4
Total Delay (hr)	50.9	50.8	52.1	50.2	51.7	51.1
Total Stops	4500	4433	4592	4334	4491	4465
Fuel Used (gal)	121.2	121.5	121.3	117.5	121.2	120.5

Interval #0 Information Seeding

Start Time	8:50
End Time	9:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	9:00
End Time	9:15
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	1012	1065	1012	998	991	1015
Vehs Exited	996	1057	1026	973	975	1006
Starting Vehs	152	172	156	152	161	156
Ending Vehs	168	180	142	177	177	166
Travel Distance (mi)	900	918	900	855	842	883
Travel Time (hr)	42.3	43.8	43.3	40.7	40.3	42.1
Total Delay (hr)	14.4	15.0	15.2	13.7	13.8	14.4
Total Stops	1240	1270	1311	1184	1190	1237
Fuel Used (gal)	33.2	34.1	34.0	32.1	31.4	33.0

Interval #2 Information

Start Time	9:15
End Time	10:00
Total Time (min)	45

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	Avg
Vehs Entered	2811	2760	2795	2772	2809	2790
Vehs Exited	2828	2824	2782	2776	2833	2809
Starting Vehs	168	180	142	177	177	166
Ending Vehs	151	116	155	173	153	148
Travel Distance (mi)	2348	2341	2339	2311	2412	2350
Travel Time (hr)	110.2	109.2	110.4	109.0	112.7	110.3
Total Delay (hr)	36.5	35.8	36.9	36.5	37.8	36.7
Total Stops	3260	3163	3281	3150	3301	3229
Fuel Used (gal)	88.0	87.4	87.4	85.5	89.7	87.6

Intersection: 1: SR 6309 & Blackman Street/I-81 SB Off Ramp

Movement	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	L	L	T	L	L	T	T	T	T
Maximum Queue (ft)	284	175	204	150	191	222	153	132	192	189
Average Queue (ft)	154	36	84	60	71	137	87	47	101	92
95th Queue (ft)	247	102	157	120	176	203	142	100	169	163
Link Distance (ft)				1110			824	824	296	296
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	380	300	300		275	275				
Storage Blk Time (%)	0			0						0
Queuing Penalty (veh)	0			1						0

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	3:50	3:50	3:50	3:50	3:50	3:50
End Time	5:00	5:00	5:00	5:00	5:00	5:00
Total Time (min)	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	3	3	3	3	3	3
# of Recorded Intervals	2	2	2	2	2	2
Vehs Entered	6462	6337	6305	6422	6270	6355
Vehs Exited	6488	6378	6275	6391	6232	6353
Starting Vehs	311	286	271	261	257	272
Ending Vehs	285	245	301	292	295	282
Travel Distance (mi)	5239	5069	5091	5182	5081	5133
Travel Time (hr)	292.9	291.2	285.9	289.6	279.5	287.8
Total Delay (hr)	127.5	130.8	124.9	125.4	118.6	125.5
Total Stops	9220	9149	8988	9382	9046	9155
Fuel Used (gal)	206.8	201.2	200.6	204.1	198.9	202.3

Interval #0 Information Seeding

Start Time	3:50
End Time	4:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	4:00
End Time	4:15
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	1679	1687	1641	1688	1596	1660
Vehs Exited	1679	1642	1620	1667	1546	1631
Starting Vehs	311	286	271	261	257	272
Ending Vehs	311	331	292	282	307	301
Travel Distance (mi)	1344	1360	1335	1321	1270	1326
Travel Time (hr)	77.4	83.2	77.2	72.8	70.7	76.2
Total Delay (hr)	34.6	40.2	35.2	30.7	30.3	34.2
Total Stops	2536	2718	2420	2345	2324	2473
Fuel Used (gal)	53.5	55.2	53.0	51.9	49.7	52.7

Interval #2 Information

Start Time	4:15
End Time	5:00
Total Time (min)	45

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	Avg
Vehs Entered	4783	4650	4664	4734	4674	4701
Vehs Exited	4809	4736	4655	4724	4686	4722
Starting Vehs	311	331	292	282	307	301
Ending Vehs	285	245	301	292	295	282
Travel Distance (mi)	3895	3709	3756	3861	3811	3806
Travel Time (hr)	215.5	208.0	208.7	216.9	208.9	211.6
Total Delay (hr)	92.9	90.7	89.7	94.7	88.3	91.3
Total Stops	6684	6431	6568	7037	6722	6691
Fuel Used (gal)	153.2	145.9	147.6	152.2	149.2	149.6

Intersection: 1: SR 6309 & Blackman Street/I-81 SB Off Ramp

Movement	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	R	L	L	T	R	L	L	T	T	T	T
Maximum Queue (ft)	327	341	210	269	268	159	171	208	211	178	392	399
Average Queue (ft)	152	104	113	147	128	5	60	119	124	79	289	293
95th Queue (ft)	269	319	197	224	220	67	156	187	193	156	420	426
Link Distance (ft)		958			1110				824	824	296	296
Upstream Blk Time (%)											21	20
Queuing Penalty (veh)											122	118
Storage Bay Dist (ft)	380		300	300		165	275	275				
Storage Blk Time (%)	0	1		0	7							33
Queuing Penalty (veh)	0	3		0	45							65

Intersection: 1: SR 6309 & Blackman Street/I-81 SB Off Ramp

Movement	SB	B29	B29	B17
Directions Served	R	T	T	T
Maximum Queue (ft)	296	172	184	492
Average Queue (ft)	135	38	42	64
95th Queue (ft)	376	140	149	333
Link Distance (ft)		102	102	637
Upstream Blk Time (%)	1	4	7	2
Queuing Penalty (veh)	0	25	41	21
Storage Bay Dist (ft)	225			
Storage Blk Time (%)				
Queuing Penalty (veh)				