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TRANSPORTATION IMPACT STUDY

Wilkes-Barre Area School District

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Harrisburg
Pittsburgh
State College
Wilkes-Barre

Plains Township
Luzerne County

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Executive Summary

A) Introduction

The Wilkes-Barre Area School District (WBASD) is proposing a new 380,000 SF high school in Plains Township, Luzerne County. The new high school will merge the 3 existing high schools in 2 phases, and will be completed by 2022. Phase 1 will merge Coughlin High School and Myers High School, and will be completed in 2021. Phase 2 will merge G.A.R. into the new school and will be completed by 2022. The new school will accommodate 1,860 students in Phase 1 and an additional 720 students in Phase 2. These student counts account for 20% growth in the student body.

B) Data Collection

Automatic Traffic Recorder (ATR) data was collected from Monday, October 16th through Wednesday, October 25th, 2017. Intersection data was collected on Tuesday, October 17th, 2017 from 5am to 6pm.

C) Existing Conditions

The roadway network consists of SR 2004 (River Street), SR 2022 (Main Street) and SR 2024 (Maffett Street). SR 2004 is classified as a Principal Arterial, while SR 2022 and SR 2024 are classified as Minor Arterials. ADTs range from 5,400 vehicles per day to 16,000 vehicles per day.

Several study area intersections experience deficient Levels of Service.

D) Without Development Conditions

A growth rate of 0.00% per year was applied to escalate the existing traffic volumes to the opening and horizon years. Several intersections operate with deficient Levels of Service.

E) Proposed Development

BL utilized the Institute of Transportation Engineer's (ITE) Trip Generation Manual, 9th Edition to determine the developments predicted traffic.

F) With Development Conditions

The new site traffic was distributed through the study area based on the existing schools' area of influence.

The analysis shows that the proposed development will have an impact to several of the study area intersections.

G) Mitigation Identification and Recommendations

The operational analysis shows the development will have an impact to the roadway network. Improvements are proposed to reduce the impacts at the SR 0309 (Cross Valley Expressway) & SR 2004 (River Street) interchange.

Traffic signal warrants are met at the intersection of SR 2024 (Maffett Street) & SR 2022 (Main Street) / Abbott Street. A new traffic signal is proposed.

H) Conclusions

The development has been studied using ITE trip generation Land Use code 530 (High School). The site is expected to generate 3,251 trips per weekday in Phase 1 and 1,326 trips per weekday in Phase 2 (4,577 trips per weekday total). The development is anticipated to have impacts on the surrounding roadway network.

The intersection of SR 2004 & Courtright Avenue will not experience any operational impacts. However, the turn lane warrants show that a northbound SR 2004 left turn lane is warranted. This lane is proposed to be 75', based on the turn lane warrants.

The intersection of SR 2004 & Maple Street should be retimed in order to maintain acceptable Levels of Service.

The intersections of SR 2004 (River Street) & SR 0309 Southbound Ramps and SR 2004 (River Street) & SR 0309 Northbound Ramps experience an operational impact due to the development. In order to mitigate the impact, the following improvements are proposed:

- Install a 400' northbound right turn lane (from SR 2004 onto SR 0309 Southbound On-Ramp)
- Install a westbound right turn lane (from SR 309 Northbound Off-Ramp onto Maffett Street). This lane will operate as a free-flow, yield condition onto Maffett Street.
- Lengthen the westbound right turn lanes (onto SR 2004) to provide 750' of storage each.
- Retime the traffic signal.
- Install queue preemption detectors on Ramp DD (SR 309 Northbound Off-Ramp).

The intersection of SR 2024 (Maffett Street) & SR 2022 (Main Street) / Abbott Street meets traffic signal warrants. A new traffic signal is proposed at this intersection. In addition to the proposed traffic signal, the southbound approach will be restriped to provide a 250' (317' including the TWLTL at the Turkey Hill) southbound left turn lane.

The site will be accessed via two (2) medium volume driveways, one along SR 2024 (Maffett Street) and one along SR 2022 (Main Street). The SR 2024 driveway will include a 150' southbound left turn lane and a 350' northbound right turn lane. The SR 2022 driveway will include a 325' northbound left turn lane.

I. Introduction

The Wilkes-Barre Area School District (WBASD) is proposing a new 380,000 SF high school in Plains Township, Luzerne County. The new high school will merge the 3 existing high schools in 2 phases, and will be completed by 2022. Phase 1 will merge Coughlin High School and Myers High School, and will be completed in 2021. Phase 2 will merge G.A.R. into the new school and will be completed by 2022. The new school will accommodate 1,860 students in Phase 1 and an additional 720 students in Phase 2. These student counts account for 20% growth in the student body.

The land use context of the study area is suburban based on the Smart Transportation Guidebook. SR 2004 is classified as a suburban corridor, while SR 2022 and SR 2024 are classified as town/village neighborhoods. This will not change under the proposed conditions. The study area intersections to be included are:

1. SR 2004 (River Street) & Courtright Avenue (Signalized)
2. SR 2004 (River Street) & Maple Street (Signalized)
3. SR 2004 (River Street) & Chestnut Street (Unsignalized)
4. SR 2004 (River Street) & Waterfront Park Dr/Cross Valley Centre Dr (Signalized)
5. SR 2004 (River Street) & SR 0309 Southbound Ramps (Signalized)
6. SR 2004 (River Street) & SR 0309 Northbound Ramps/Maffett St (Signalized)
7. SR 2024 (Maffett Street) & Haines Street (Unsignalized)
8. SR 2024 (Maffett Street) & Mercer Street (Unsignalized)
9. SR 2024 (Maffett Street) & SR 2020 (Main St)/Abbott St (Unsignalized)
10. SR 2024 (Maffett Street) & Proposed Driveway
11. SR 2022 (Main Street) & Proposed Driveway

This transportation impact study includes engineering analysis comparing the Phase 1 Opening Year without Development (Year 2021 without Development), Phase 1 Opening Year with Development (Year 2021 with Development), Phase 2 Opening Year without Development (Year 2022 without Development), Phase 2 Opening Year with Development (Year 2022 with Development), Design Year without Development (Year 2027 without Development) and Design Year with Development (Year 2027 with Development).

See Figures 1 and 2 in Appendix A for the study area map and site plan.

II. Data Collection

Automatic Traffic Recorder (ATR) data was collected from Monday, October 16th through Wednesday, October 25th, 2017. Intersection data was collected on Tuesday, October 17th, 2017 from 5am to 6pm.

Appendix D contains the existing traffic volume data. Figure 3, in Appendix A, displays the existing traffic volumes.

III. Existing Conditions

A) Roadway Descriptions

River Street (SR 2004) is a three lane roadway (one travel lane in each direction with a center turn lane / auxiliary turn lanes) with a posted speed limit of 40 mph. The roadway consists of 12' lanes with 6' to 8' shoulders north of Chestnut Street. South of Chestnut Street, the roadway is curbed. SR 2004 is classified as an urban principal arterial with an ADT of 16,094 vehicles per day north of SR 0309 and 18,886 vehicles per day south of SR 0309.

Main Street (SR 2022) is a two lane roadway with a speed limit of 25 mph. The roadway consists of 11' lanes and 4' shoulders. SR 2024 is classified as an urban minor arterial with an ADT of 6,208 vehicles per day.

Maffett Street (SR 2024) is a two lane roadway with a speed limit of 25 mph. The roadway consists of 14' lanes. From SR 2004 to Mercer Street, SR 2024 is curbed. From Mercer Street to Main Street, SR 2024 is a mix of curbed and uncurbed. SR 2024 is classified as an urban minor arterial with an ADT of 5,408 vehicles per day.

Site Photos are located in Appendix B. The existing traffic signal permit plans are located in Appendix C. PennDOT iTMS reports are located in Appendix D.

The existing (and future year scenarios) conditions include the improvements to the SR 0309 & SR 2004 (River Street) interchange (MPMS 89012). This project has been let and is anticipated to be completed in the Fall of 2021. This project consists of geometric improvements along SR 2004 and Ramp DD. SR 2004 will receive an additional through lane in each direction and associated traffic signal improvements and retiming. Ramp DD will receive an additional left turn lane.

B) Multimodal Accommodations

Sidewalk is present within the study area in the following locations:

- SR 2024 from SR 2004 to Mercer Street
- Across the bridge between SR 0309 & Waterfront Park Drive
- The intersection of SR 2004 & Waterfront Park Drive / Cross Valley Centre Drive
- SR 2004, beginning approximately 400' north of Chestnut Street and continuing south, through Courtright Avenue and out of the study area

Bus service, provided by the Luzerne County Transportation Authority (LCTA), runs through the study area on the following routes:

- Route 1 – Traverses SR 2004 and SR 2024 with a stop at Wilkes-Barre General Hospital
- Route 16 – Traverses SR 2004 with a stop at Wilkes-Barre General Hospital

C) Existing Conditions Operational Analysis

Existing Conditions operational analysis was performed using Synchro 10 software. The study completes LOS and capacity analysis in accordance with the 2000 Highway Capacity Manual (due to limitations with the HCM 2010 methodology), and implemented by Synchro, Version 10 software. In addition to using HCM 2000 methodologies, intersection 9 (Maffett Street & Main Street/Abbott Street) was analyzed using SimTraffic. Queue analysis was performed using SimTraffic. The results of the analysis show the following deficiencies:

SR 2004 (River Street) & SR 0309 Southbound Ramps

- The eastbound (Ramp AA) left movement operates at an LOS F in the PM peak.
- The eastbound (Ramp AA) left movement operates at an LOS E in the AM peak and an LOS F in the PM peak.
- The eastbound (Ramp AA) approach operates at an LOS F in the PM peak.

SR 2004 (River Street) & SR 0309 Northbound Ramps

- The westbound (Ramp DD) left movement operates at an LOS E in the AM peak.
- The westbound (Ramp DD) right movement operates at an LOS F in the PM peak.
- The northbound left movement operates at an LOS E in the PM peak.
- The southwestbound (Maffett Street) approach operates at an LOS F in the PM peak.

The study area has a 0% growth rate, based on PennDOT published growth rates for Luzerne County. Due to the 0% growth and the inclusion of the PennDOT project, the “Without Development” conditions are the same as the existing conditions. Therefore, Table 1 shows the Levels of Service and Queue Lengths for the Existing, 2021 without development, 2022 without development, and 2027 without development (collectively “Without Development”) scenarios.

Figures 4 and 5 in Appendix A show the existing LOS and existing queue lengths, respectively. Synchro Level of Service reports are located in Appendix H. SimTraffic Queue reports are located in Appendix I.

IV. Opening Years 2021 and 2022 and Design Year 2027 without Development

The Existing Year 2017 traffic volumes were utilized to develop opening year background traffic volumes. A growth rate of 0.00% per year was applied to adjust the traffic volumes to account for yearly escalations. Figures 6 through 14 in Appendix A show the 2021, 2022 and 2027 without Development traffic volumes, LOS and queue lengths. Synchro Level of Service reports are located in Appendix H. SimTraffic Queue reports are located in Appendix I.

Table 1: Existing and Without Development Conditions Operational Analysis

Intersection / Movement			AM Peak			PM Peak		
			LOS	Delay	Queue	LOS	Delay	Queue
1	Courtright Avenue	EB LTR	C	27.8	50	C	30.0	102
		WB LTR	C	29.7	83	C	27.2	59
	River Street	NB LTR	A	3.8	150	A	6.0	238
		SB LTR	A	2.9	177	A	4.2	223
	Overall Intersection			A	5.0		A	7.7
2	Maple Street	WB L	C	29.1	72	C	27.9	72
		WB R	C	27.9	70	C	27.1	126
		Approach	C	28.3		C	27.3	
	River Street	NB T	A	5.4	202	A	5.1	270
		SB T	A	6.6	179	A	4.5	161
	Overall Intersection			A	8.5		A	7.7
3	Chestnut St	EB						
	River Street	NB TR						3
		SB L	A	9.4	59	B	13.6	57
		SB T						
		Approach	A	0.8		A	1.1	
	Overall Intersection			A	0.5		A	0.4
4	Waterfront Park Drive	EB L	D	49.8	66	D	49.0	127
		EB TR	D	47.7	49	D	38.9	46
		Approach	D	48.6		D	45.9	
	Cross Valley Centre Drive	WB L	D	47.9	23	D	39.0	29
		WB TR	D	47.5	16	D	38.9	49
		Approach	D	47.8		D	38.9	
	River Street	NB L	B	10.6	59	A	4.2	34
		NB TR	A	5.7	137	B	15.7	269
		Approach	A	6.2		B	15.5	
		SB L	A	2.8	43	A	9.0	24
		SB T	B	14.9	285	A	8.5	211
		SB R	A	4.1	59	A	4.8	54
	Overall Intersection			B	13.0		B	15.7

Delay is measured in Seconds/vehicle

Queue is measured in feet (SimTraffic 95th percentile Queue)

Table 1: Existing and Without Development Conditions Operational Analysis (Continued)

Intersection / Movement			AM Peak			PM Peak			
			LOS	Delay	Queue	LOS	Delay	Queue	
5	Ramp AA	EB L	D	54.9	227	F	146.5	236	
		EB LT	E	55.8	1002	F	150.5	1622	
		EB R	A	0.6	419	A	0.2	461	
		Approach	C	23.1		F	98.9		
	River Street	NB T	C	25.9	58	C	25.2	132	
		NB T			99			147	
		NB TR			143			245	
		SB L	D	37.2	305	D	43.3	277	
		SB T	B	17.3	230	C	22.1	204	
		SB T			170			133	
		Approach	C	24.2		C	30.5		
	Overall Intersection			C	24.2		D	43.5	
	6	Ramp DD	WB L	E	63.0	283	C	30.9	72
			WB L			307			376
WB R			C	34.5	361	F	120.8	2040	
WB R			C	32.1	47	C	32.2	347	
Approach									
River Street		NB L	C	27.5	121	E	60.9	367	
		NB T	C	22.3	178	C	23.7	232	
		NB TR			144			209	
		Approach	C	22.3		C	34.7		
		SB T	C	21.3	180	C	26.7	169	
		SB T			303			249	
		SB R	C	21.2	147	C	33.0	226	
Approach		C	21.2		C	29.1			
Maffett St		SWB TR	D	35.7	157	F	151.1	599	
Overall Intersection			C	29.0		D	50.0		

Delay is measured in Seconds/vehicle

Queue is measured in feet (SimTraffic 95th percentile Queue)

Table 1: Existing and Without Development Conditions Operational Analysis (Continued)

Intersection / Movement			AM Peak			PM Peak		
			LOS	Delay	Queue	LOS	Delay	Queue
7	Haines St	EB LR	B	11.7	34	B	14.3	36
	Maffett Street	NB LT	A	0.2	6	A	0.4	19
		SB TR						
	Overall Intersection			A	0.4		A	0.7
8	Mercer St	EB LR	B	11.7	33	B	11.8	33
	Maffett Street	NB LT	A	0.2	20	A	0.3	23
		SB TR						
	Overall Intersection			A	0.4		A	0.4
9*	Abbott St	WB LR	F	78.8	148	D	33.7	86
	Main St	NWB LTR	A	8.6	66	C	16.2	125
	Maffett Street	NB TR	A	5.0	20	A	5.8	14
		SB LT	A	7.8	236	A	5.8	143
	Overall Intersection			B	11.5		A	9.0

Delay is measured in Seconds/vehicle

Queue is measured in feet (SimTraffic 95th percentile Queue)

**Indicates Operational Analysis was performed using SimTraffic (Due to HCM limitations)*

V. Development Description

The proposed development will be a 380,000 SF high school will consist of a phased approach; with Phase 1 consisting of moving Meyers and Coughlin high schools and Phase 2 will bring in G.A.R. high school. Phase 1 is anticipated to be opened by 2021 and Phase 2 by 2022.

A) Proposed Site Access

The proposed high school will be served by two driveways, one located along SR 2024 (Maffett Street) and one located along SR 2022 (Main Street). Based on the anticipated trip distribution, both driveways will be medium volume.

B) Trip Generation

The Institute of Transportation Engineers (ITE) Trip Generation Manual (9th Edition) was utilized to determine the expected new traffic associated with the development. Tables 2, 3, and 4 shows the anticipated new trips associated with each existing high school. The “Peak Hour of Generator” was used in order to provide the most conservative analysis.

The following proposed site parameters were used to determine the predicted traffic:

- Meyers High School
 - 744 Students
- Coughlin High School
 - 1,116 Students
- G.A.R. High School
 - 720 Students

Table 2: Meyers High School Traffic

Time Period	Entering	Exiting
AM Peak	218 Trips	102 Trips
PM Peak	122 Trips	137 Trips

Table 3: Coughlin High School Traffic

Time Period	Entering	Exiting
AM Peak	326 Trips	154 Trips
PM Peak	156 Trips	175 Trips

Table 4: G.A.R. High School Traffic

Time Period	Entering	Exiting
AM Peak	211 Trips	99 Trips
PM Peak	119 Trips	134 Trips

Refer to Appendix A for traffic volume figures, and Appendix E for traffic volume calculations.

C) Trip Distribution and Assignment

The trip distribution and assignment is based on the area of influence of the existing schools. The School District provided the areas that each existing school serves. This in turn, was used to distribute each schools traffic individually. Since this is a high school, and therefore a primary destination, pass-by and diverted trips are not applicable. Meyers traffic will primarily be coming from the south, using SR 2004. Coughlin will primarily be coming from the east, using SR 0309 and SR 2022. G.A.R. will primarily be coming from the southeast, using SR 2022.

Refer to Appendix A, Figures 15, 16, and 17 for the trip distribution and assignment.

VI. Opening Years 2021 and 2022 and Design Year 2027 with Development

Future year traffic volumes were calculated by applying the proposed site traffic to the background growth traffic volumes. See Appendix A, Figures 19 through 27 for the traffic volumes, levels of service and queue lengths.

A) Traffic Signal Warrants

Traffic signal warrants were investigated at both of the proposed driveways and at intersections where the development will have impacts. Warrants were investigated for the Design Year 2027. Signal warrants are not met for either of the proposed driveways. Warrant 2 (4 hour volume) is met at the intersection of SR 2024 (Maffett Street) & SR 2022 (Main Street) / Abbott Street.

See Appendix F for the traffic signal warrant analysis.

B) Turn Lane Warrants

Turn lane warrants were investigated at the study intersections. Table 5, below, summarizes the results of the turn lane analysis.

Table 5: Turn Lane Warrant Summary

Intersection / Movement		Existing Storage	Without Development		With Development		Proposed Storage	
			AM	PM	AM	PM		
1	Courtright Avenue	EB L				N	N	
		EB R				N	N	
		WB L				N	N	
		WB R				N	N	
	SR 2004 (River Street)	NB L		N		75	N	75
		NB R				N	N	
		SB L			75	N	75	
	SB R		75		75	N		
3	SR 2004 (River St)	NB R		75	75	75	75	
		SB L	150	100	75	100	75	N/C
4	Waterfront Park Drive	EB L				N	N	
		EB R				N	N	
	Cross Valley Centre Dr	WB L				N	N	
		WB R				N	N	
	SR 2004 (River Street)	NB L	75	75	75	75	75	N/C
		NB R				N	N	
		SB L	75	75	75	75	75	N/C
	SB R	75	175	75	175	75		
5	Ramp AA	EB L	150			N/A	N/A	
		EB R	300	375	200	400	275	
	SR 2004 (River St)	NB R		N	325	200	475	
		SB L		350	325	450	600	
6	Ramp DD	WB L	250			N/A	N/A	
		WB R				N	N	
		WB R	250			N	N	
	SR 2004 (River Street)	NB L		150	350	150	450	
		NB R		175	275	350	475	
		SB R		275	325	275	375	
	SR 2024 (Maffett St)	SWB L				N/A	N/A	
SWB R					N	N		

Lengths are measured in feet

"N" - Not Warranted

"N/A" - Not Applicable

"N/C" - No Change

Table 5: Turn Lane Warrant Summary (Continued)

Intersection / Movement			Existing Storage	Without Development		With Development		Proposed Storage
				AM	PM	AM	PM	
7	Haines Street	EB L				N/A	N/A	
		EB R				N	N	
	SR 2024 (Maffett St)	NB L				N	N	
		SB R				N	N	
8	Mercer Street	EB L				N/A	N/A	
		EB R				N	N	
	SR 2024 (Maffett St)	NB L				N	N	
		SB R				N	N	
9	Abbott Street	WB L				N/A	N/A	
		WB R				N	N	
	SR 2024 (Maffett St)	NB R				N	100	
		SB L		325	150	325	175	325
	SR 2022 (Main St)	NWB L				N/A	N/A	
		NWB R				N	N	
10	SR 2024 (Maffett St)	NB R				350	175	350
		SB L				150	75	150
11	Main Street	NB L				325	175	325

Lengths are measured in feet

"N" – Not Warranted

"N/A" – Not Applicable

"N/C" – No Change

See Appendix G for the turn lane warrant analysis.

C) 2021 with Development Operational Analysis

The results of the analysis show of the following Level of Service decreases.

- SR 2004 (River Street) & Chestnut Street
 - The southbound left movement decreases from LOS A to LOS B in the AM peak and from LOS B to LOS C in the PM peak. These decreases are within the 10 second variance.
- SR 2004 (River Street) & Waterfront Park Drive / Cross Valley Centre Drive
 - The northbound through/right movement and approach decrease from LOS B to LOS C in the PM peak. These decreases are within the 10 second variance.
 - The southbound left movement decreases from LOS A to LOS B in the PM peak. This decrease is within the 10 second variance.

- SR 2004 (River Street) & SR 0309 Southbound Ramps
 - The eastbound left movement decreases from LOS D to LOS F in the AM peak and remain LOS F in the PM peak.
 - The eastbound left/through movement decreases from LOS E to LOS F in the AM peak and remain LOS F in the PM peak.
 - The eastbound approach remains LOS F in the PM peak.
- SR 2004 (River Street) & SR 0309 Northbound Ramps / SR 2024 (Maffett Street)
 - The westbound left movement decreases from LOS E to LOS F in the AM peak and from LOS C to LOS D in the PM peak.
 - The westbound right movement (onto SR 2004) decreases from LOS C to LOS D in the AM peak and remains LOS F in the PM peak. The AM decrease is within the 10 second variance.
 - The westbound right movement (onto SR 2024) decreases from LOS C to LOS F in the AM peak and from LOS C to LOS D in the PM peak.
 - The northbound left movement decreases from LOS E to LOS F in the PM peak.
 - The northbound approach decreases from LOS C to LOS D in the PM peak.
 - The southbound through and right movements and southbound approach decrease from LOS C to LOS D in the PM peak.
 - The southwestbound approach decreases from LOS D to LOS E in the AM peak and remains LOS F in the PM peak.
 - The overall intersection decreases from LOS C to LOS D in the AM peak and from LOS D to LOS E in the PM peak.
- SR 2024 (Maffett Street) & Haines Street
 - The eastbound approach decreases from LOS B to LOS C in the AM and PM peaks. These decreases are within the 10 second variance.
- SR 2024 (Maffett Street) & Mercer Street
 - The eastbound approach decreases from LOS B to LOS C in the AM peak. This decrease is within the 10 second variance.
- SR 2024 (Maffett Street) & SR 2022 (Main Street) / Abbott Street
 - The westbound approach remains LOS F in the AM peak and decreases from LOS D to LOS F in the PM peak.
 - The northwestbound approach decreases from LOS A to LOS C in the AM peak and from LOS C to LOS F in the PM peak.
 - The southbound approach decreases from LOS A to LOS C in the AM peak and from LOS A to LOS B in the PM peak. These decreases are within the 10 second variance.
 - The overall intersection decreases from LOS A to LOS F in the AM peak and from LOS A to LOS D in the PM peak.

D) 2022 and 2027 with Development Operational Analysis

The results of the analysis show the following Level of Service decreases.

- SR 2004 (River Street) & Chestnut Street
 - The southbound left movement decreases from LOS A to LOS B in the AM peak and from LOS B to LOS C in the PM peak. These decreases are within the 10 second variance.

- SR 2004 (River Street) & Waterfront Park Drive / Cross Valley Centre Drive
 - The northbound through/right movement and approach decrease from LOS B to LOS C in the PM peak. These decreases are within the 10 second variance.
 - The southbound left movement decreases from LOS A to LOS B in the PM peak. This decrease is within the 10 second variance.
- SR 2004 (River Street) & SR 0309 Southbound Ramps
 - The eastbound left and left/through movements decrease from LOS D to LOS F in the AM peak and remain LOS F in the PM peak.
 - The eastbound approach decreases from LOS C to LOS D in the AM peak and remains LOS F in the PM peak.
 - The northbound approach decreases from LOS C to LOS D in the PM peak.
- SR 2004 (River Street) & SR 0309 Northbound Ramps / SR 2024 (Maffett Street)
 - The westbound left movement decreases from LOS C to LOS D in the PM peak.
 - The westbound right movement (onto SR 2004) decreases from LOS C to LOS D in the AM peak and remains LOS F in the PM peak.
 - The westbound right (onto SR 2024) movement decreases from LOS C to LOS F in the AM peak and from LOS C to LOS E in the PM peak.
 - The northbound left movement decreases from LOS E to LOS F in the PM peak.
 - The northbound approach decreases from LOS C to LOS D in the PM peak. This decrease is within the 10 second variance.
 - The southbound through and right movements and southbound approach decrease from LOS C to LOS D in the PM peak.
 - The southwestbound approach decreases from LOS D to LOS F in the AM peak and remains LOS F in the PM peak.
 - The overall intersection decreases from LOS C to LOS D in the AM peak and from LOS D to LOS E in the PM peak.
- SR 2024 (Maffett Street) & Haines Street
 - The eastbound approach decreases from LOS B to LOS C in the AM and PM peaks. These decreases are within the 10 second variance.
- SR 2024 (Maffett Street) & Mercer Street
 - The eastbound approach decreases from LOS B to LOS C in the AM and PM peaks. These decreases are within the 10 second variance.
- SR 2024 (Maffett Street) & SR 2022 (Main Street) / Abbott Street
 - The westbound approach remains LOS F in the AM peak and decreases from LOS D to LOS F in the PM peak.
 - The northwestbound approach decreases from LOS A to LOS C in the AM peak and from LOS C to LOS F in the PM peak.
 - The southbound approach decreases from LOS A to LOS B in the AM and PM peaks. These decreases are within the 10 second variance.
 - The overall intersection decreases from LOS A to LOS F in the AM peak and from LOS A to LOS C in the PM peak.

The results of the analysis are shown in Tables 7 and 8. Synchro Level of Service reports are located in Appendix H. SimTraffic Queue reports are located in Appendix I.

Table 6: 2021 with Development Operational Analysis

Intersection / Movement		AM Peak						PM Peak						
		Without Development			2021 with Dev.			Without Development			2021 with Dev.			
		LOS	Delay	Queue	LOS	Delay	Queue	LOS	Delay	Queue	LOS	Delay	Queue	
1	Courtright Avenue	EB LTR	C	27.8	50	C	27.8	56	C	30.0	102	C	30.0	107
		WB LTR	C	29.7	83	C	29.7	88	C	27.2	59	C	27.2	61
	SR 2004	NB LTR	A	3.8	150	A	4.8	189	A	6.0	238	A	7.0	289
		SB LTR	A	2.9	177	A	3.7	189	A	4.2	223	A	6.3	296
	Overall Intersection	A	5.0		A	5.6		A	7.7		A	8.7		
2	Maple Street	WBL	C	29.1	72	C	29.1	77	C	27.9	72	C	27.9	71
		WBR	C	27.9	70	C	27.9	76	C	27.1	126	C	27.3	122
	SR 2004	Approach	C	28.3		C	28.3		C	27.3		C	27.5	
		NB T	A	5.4	202	A	7.3	250	A	5.1	270	A	5.5	269
	Overall Intersection	A	8.5		A	9.5		A	7.7		A	7.9		
3	SR 2004	EB									3			3
		NB TR												
	SR 2004	SB L	A	9.4	59	B	10.7	62	B	13.6	57	C	18.0	77
		SB T												
	Approach	A	0.8		A	0.8		A	1.1		A	1.3		
	Overall Intersection	A	0.5		A	0.5		A	0.4		A	0.5		

Delay is measured in Seconds/vehicle
Queue is measured in feet (Sim Traffic 95th percentile Queue)

Table 6: 2021 with Development Operational Analysis (Continued)

Intersection / Movement	AM Peak						PM Peak					
	Without Development			2021 with Dev.			Without Development			2021 with Dev.		
	LOS	Delay	Queue	LOS	Delay	Queue	LOS	Delay	Queue	LOS	Delay	Queue
Waterfront Park Drive	EB L	49.8	66	D	54.9	67	D	49.0	127	D	49.0	135
	EB TR	47.7	49	D	52.5	50	C	38.9	46	C	38.9	45
	Approach	48.6		D	53.5		D	45.9		D	45.9	
Cross valley Centre Dr	WB L	47.9	23	D	52.7	24	C	39.0	29	C	39.0	31
	WB TR	47.5	16	D	52.3	24	C	38.9	49	C	38.9	49
	Approach	47.8		D	52.6		C	38.9		C	38.9	
4	NB L	10.6	59	B	14.5	60	A	4.2	34	A	5.0	53
	NB TR	5.7	137	A	7.2	154	B	15.7	269	C	21.5	292
	Approach	6.2		A	7.8		B	15.5		C	21.1	
	SB L	2.8	43	A	3.1	47	A	9.0	24	B	12.7	29
	SB T	14.9	285	B	17.3	251	A	8.5	211	A	10.0	285
	SB R	4.1	59	A	3.9	60	A	4.8	54	A	4.8	47
Approach	13.4		B	15.5		A	8.2		A	9.6		
Overall Intersection	B	13.0		B	14.5		B	15.7		B	18.8	

Delay is measured in Seconds/vehicle
 Queue is measured in feet (SimTraffic 95th percentile Queue)

Table 6: 2021 with Development Operational Analysis (Continued)

Intersection / Movement	AM Peak						PM Peak						
	Without Development			2021 with Dev.			Without Development			2021 with Dev.			
	LOS	Delay	Queue	LOS	Delay	Queue	LOS	Delay	Queue	LOS	Delay	Queue	
5	SR 0309 SB Off- Ramp	EB L	54.9	227	F	82.3	237	F	146.5	236	F	141.5	227
		EB LT	55.8	1002	F	85.0	1515	F	150.5	1622	F	143.0	1441
		EB R	0.6	419	A	0.6	394	A	0.2	461	A	0.2	445
	Approach	23.1		C	34.7		F	98.9		F	94.7		
	SR 2004	NB T		58			67				132		236
		NB T	25.9	99	C	29.1	150	C	25.2	147	C	34.9	222
		NB TR		143			251			245			343
	Approach	25.9		C	29.1		C	25.2		C	34.9		
	SR 2004	SB L	37.2	305	D	39.8	318	D	43.3	277	D	41.6	318
SB T		17.3	230	B	10.2	217	C	22.1	204	C	22.3	228	
SB T			170			149			133			193	
Approach	24.2		C	20.5		C	30.5		C	29.7			
Overall Intersection	24.2		C	26.7		D	43.5		D	45.3			

Delay is measured in Seconds/vehicle
Queue is measured in feet (Sim Traffic 95th percentile Queue)

Table 6: 2021 with Development Operational Analysis (Continued)

Intersection / Movement	AM Peak						PM Peak						
	Without Development			2021 with Dev.			Without Development			2021 with Dev.			
	LOS	Delay	Queue	LOS	Delay	Queue	LOS	Delay	Queue	LOS	Delay	Queue	
6	SR 0309 NB Off- Ramp	WBL	63.0	283	F	100.1	336	C	30.9	72	D	42.0	94
		WBL		307			333			376			362
		WBR	34.5	361	D	40.2	1252	F	120.8	2040	F	127.6	1646
		WBR	32.1	47	F	107.7	180	C	32.2	347	D	47.1	358
		Approach											
		NBL	27.5	121	C	25.3	110	E	60.9	367	F	89.5	387
		NBT	22.3	178	C	23.3	159	C	23.7	232	C	26.1	255
		NB TR		144			198			209			252
		Approach	22.3		C	23.6		C	34.7		D	43.4	
		SB T	21.3	180	C	22.6	180	C	26.7	169	D	39.4	186
	SB T		303			309			249			366	
	SBR	21.2	147	C	22.4	175	C	33.0	226	D	50.7	345	
	Approach	21.2		C	22.6		C	29.1		D	43.6		
	Maffett St	35.7	157	E	72.2	276	F	151.1	599	F	118.8	1038	
	Overall Intersection	29.0		D	41.3		D	50.0		E	60.4		
7	Haines St	11.7	34	C	16.9	34	B	14.3	36	C	20.2	44	
	Maffett Street	0.2	6	A	0.1	10	A	0.4	19	A	0.4	54	
	SB TR											156	
	Overall Intersection	0.4		A	0.3		A	0.7		A	0.6		

Delay is measured in Seconds/vehicle

Queue is measured in feet (SimTraffic 95th percentile Queue)

Table 6: 2021 with Development Operational Analysis (Continued)

Intersection / Movement	AM Peak						PM Peak					
	Without Development			2021 with Dev.			Without Development			2021 with Dev.		
	LOS	Delay	Queue	LOS	Delay	Queue	LOS	Delay	Queue	LOS	Delay	Queue
8	Mercer St	EB LR		B	11.7	33	C	16.8	34	B	11.8	33
	Maffett Street	NBLT		A	0.2	20	A	0.1	17	A	0.3	23
		SB TR										
9*	Overall Intersection			A	0.4		A	0.3		A	0.4	
	Abbott St	WB LR		F	78.8	148	F	913.0	935	D	33.7	86
	Main St	NWB LTR		A	8.6	66	C	15.6	68	C	16.2	125
	Maffett Street	NB TR		A	5.0	20	A	3.4	27	A	5.8	14
		SB LT		A	7.8	236	C	13.1	334	A	5.8	143
Overall Intersection			B	11.5		F	80.3			A	9.0	
10	Driveway	WB LR					C	21.2	92			
	Maffett Street	NB T										
		NB R							17			
	Approach											
Overall Intersection	SB L						A	9.0	65			
	SB T											
	Approach						A	2.7				
Overall Intersection							A	4.5				

Delay is measured in Seconds/vehicle

Queue is measured in feet (Sim Traffic 95th percentile Queue)

*Indicates Operational Analysis was performed using SimTraffic (Due to HCM limitations)

Table 6: 2021 with Development Operational Analysis (Continued)

Intersection / Movement	AM Peak						PM Peak					
	Without Development			2021 with Dev.			Without Development			2021 with Dev.		
	LOS	Delay	Queue	LOS	Delay	Queue	LOS	Delay	Queue	LOS	Delay	Queue
11	Driveway	EB LR		B	11.5	61				A	9.7	62
	Main Street	NB L		A	8.8	60				A	7.8	40
		NB T										
		Approach		A	5.1					A	2.2	
	SB TR											
Overall Intersection			A	3.3					A	2.8		

Delay is measured in Seconds/vehicle

Queue is measured in feet (SimTraffic 95th percentile Queue)

Table 7: 2022 and 2027 with Development Operational Analysis

Intersection / Movement		AM Peak						PM Peak						
		Without Development			2022 & 2027 w/ Dev.			Without Development			2022 & 2027 w/ Dev.			
		LOS	Delay	Queue	LOS	Delay	Queue	LOS	Delay	Queue	LOS	Delay	Queue	
1	Courtright Avenue	EB LTR	C	27.8	50	C	27.8	51	C	30.0	102	C	30.0	114
		WB LTR	C	29.7	83	C	29.7	98	C	27.2	59	C	27.2	60
	SR 2004	NB LTR	A	3.8	150	A	4.8	162	A	6.0	238	A	7.0	278
		SB LTR	A	2.9	177	A	3.7	271	A	4.2	223	A	6.3	424
	Overall Intersection	A	5.0		A	5.6		A	7.7		A	8.7		
2	Maple Street	WBL	C	29.1	72	C	29.1	70	C	27.9	72	C	27.9	74
		WBR	C	27.9	70	C	27.9	76	C	27.1	126	C	27.3	126
	SR 2004	Approach	C	28.3		C	28.3		C	27.3		C	27.5	
		NB T	A	5.4	202	A	7.3	251	A	5.1	270	A	5.5	295
	Overall Intersection	A	8.5		A	9.5		A	7.7		A	7.9		
3	SR 2004	EB												
		NB TR					8				3			3
	SR 2004	SB L	A	9.4	59	B	10.7	70	B	13.6	57	C	18.0	72
		SB T												
	Overall Intersection	A	0.8		A	0.8		A	1.1		A	1.3		
	Overall Intersection	A	0.5		A	0.5		A	0.4		A	0.5		

Delay is measured in Seconds/vehicle
Queue is measured in feet (Sim Traffic 95th percentile Queue)

Table 7: 2022 and 2027 with Development Operational Analysis (Continued)

Intersection / Movement	AM Peak						PM Peak					
	Without Development			2022 & 2027 w/ Dev.			Without Development			2022 & 2027 w/ Dev.		
	LOS	Delay	Queue	LOS	Delay	Queue	LOS	Delay	Queue	LOS	Delay	Queue
Waterfront Park Drive	EB L	49.8	66	D	54.9	70	D	49.0	127	D	49.0	117
	EB TR	47.7	49	D	52.5	49	C	38.9	46	D	38.9	48
	Approach	48.6		D	53.5		D	45.9		D	45.9	
Cross valley Centre Dr	WB L	47.9	23	D	52.7	23	D	39.0	29	C	39.0	22
	WB TR	47.5	16	D	52.3	24	D	38.9	49	C	38.9	48
	Approach	47.8		D	52.6		D	38.9		C	38.9	
4	NB L	10.6	59	B	14.5	68	A	4.2	34	A	5.0	51
	NB TR	5.7	137	A	7.2	129	B	15.7	269	C	21.5	268
	Approach	6.2		A	7.8		B	15.5		C	21.1	
	SB L	2.8	43	A	3.1	43	A	9.0	24	B	12.7	24
	SB T	14.9	285	B	17.3	269	A	8.5	211	A	10.0	205
	SB R	4.1	59	A	3.9	62	A	4.8	54	A	4.8	33
Approach	13.4		B	15.5		A	8.2		A	9.6		
Overall Intersection	B	13.0		B	14.5		B	15.7		B	18.8	

Delay is measured in Seconds/vehicle
 Queue is measured in feet (SimTraffic 95th percentile Queue)

Table 7: 2022 and 2027 with Development Operational Analysis (Continued)

Intersection / Movement	AM Peak						PM Peak					
	Without Development			2022 & 2027 w/ Dev.			Without Development			2022 & 2027 w/ Dev.		
	LOS	Delay	Queue	LOS	Delay	Queue	LOS	Delay	Queue	LOS	Delay	Queue
SR 0309 SB Off-Ramp	EB L	54.9	227	F	112.8	235	F	146.5	236	F	170.1	231
	EB LT	55.8	1002	F	114.2	1636	F	150.5	1622	F	174.4	1467
	EB R	0.6	419	A	0.6	438	A	0.2	461	A	0.2	448
	Approach	23.1		D	46.9		F	98.9		F	114.7	
	NB T		58			73			132			154
	NB TR	25.9	99	C	28.1	132	C	25.2	147	D	38.2	258
SR 2004	Approach	25.9	143	C	28.1	232	C	25.2	245	D	38.2	356
	SB L	37.2	305	D	47.2	340	D	43.3	277	D	40.9	331
	SB T	17.3	230	B	13.3	217	C	22.1	204	C	20.7	227
	SB T		170			149			133			172
	Approach	24.2		C	25.6		C	30.5		C	28.9	
	Overall Intersection	24.2		C	32.2		D	43.5		D	50.2	

Delay is measured in Seconds/vehicle
Queue is measured in feet (Sim Traffic 95th percentile Queue)

Table 7: 2022 and 2027 with Development Operational Analysis (Continued)

Intersection / Movement	AM Peak						PM Peak						
	Without Development			2022 & 2027 w/ Dev.			Without Development			2022 & 2027 w/ Dev.			
	LOS	Delay	Queue	LOS	Delay	Queue	LOS	Delay	Queue	LOS	Delay	Queue	
6	SR 0309 NB Off-Ramp	WBL	63.0	283	D	42.1	180	C	30.9	72	D	42.9	113
		WBL		307			225			376			360
		WBR	34.5	361	D	35.2	490	F	120.8	2040	F	145.9	1840
		WBR	32.1	47	F	118.6	302	C	32.2	347	E	58.4	354
	Approach												
	SR 2004	NBL	27.5	121	C	33.3	107	E	60.9	367	F	94.7	358
		NBT	22.3	178	C	29.5	176	C	23.7	232	C	31.0	266
		NB TR		144			210			209			257
		Approach	22.3		C	30.1		C	34.7		D	48.4	
		SB T	21.3	180	C	26.7	182	C	26.7	169	D	40.5	183
SB T		303		332			249			360			
SB R	21.2	147	C	26.8	197	C	33.0	226	D	54.1	326		
Approach	21.2		C	26.8		C	29.1		D	45.6			
Maffett St	SWB TR	35.7	157	F	102.0	464	F	151.1	599	F	126.7	1303	
Overall Intersection		29.0		D	44.2		D	50.0		E	67.0		
Haines St	EB LR	11.7	34	C	18.7	35	B	14.3	36	C	22.2	47	
Maffett Street	NBLT	0.2	6	A	0.1	29	A	0.4	19	A	0.4	44	
	SB TR											313	
Overall Intersection		0.4		A	0.3		A	0.7		A	0.6		

Delay is measured in Seconds/vehicle
Queue is measured in feet (SimTraffic 95th percentile Queue)

Table 7: 2022 and 2027 with Development Operational Analysis (Continued)

Intersection / Movement	AM Peak						PM Peak						
	Without Development			2022 & 2027 w/ Dev.			Without Development			2022 & 2027 w/ Dev.			
	LOS	Delay	Queue	LOS	Delay	Queue	LOS	Delay	Queue	LOS	Delay	Queue	
8	Mercer St EBLR	B	11.7	33	C	18.7	28	B	11.8	33	C	16.0	32
	Maffett Street NBLT	A	0.2	20	A	0.1	32	A	0.3	23	A	0.3	49
	Maffett Street SBTR												192
9*	Overall Intersection	A	0.4		A	0.3		A	0.4		A	0.3	
	Abbott St WB LR	F	78.8	148	F	1455.5	1005	D	33.7	86	F	156.1	200
	Main St NWB LTR	A	8.6	66	C	17.0	76	C	16.2	125	F	132.1	501
	Maffett Street NB TR	A	5.0	20	A	3.4	22	A	5.8	14	A	5.2	30
	Maffett Street SB LT	A	7.8	236	B	13.7	377	A	5.8	143	B	13.8	258
10	Overall Intersection	B	11.5		F	110.1		A	9.0		D	39.1	
	Driveway WB LR				D	25.1	92				E	35.7	135
	NB T												3
	NB R						17						10
	Approach												
	Maffett Street SB L				A	9.3	65				A	8.9	49
	SB T												
	Approach				A	2.8					A	1.5	
	Overall Intersection				A	5.4					A	8.7	

Delay is measured in Seconds/vehicle

Queue is measured in feet (Sim Traffic 95th percentile Queue)

*Indicates Operational Analysis was performed using SimTraffic (Due to HCM limitations)

Table 7: 2022 and 2027 with Development Operational Analysis (Continued)

Intersection / Movement	AM Peak						PM Peak					
	Without Development			2022 & 2027 w/ Dev.			Without Development			2022 & 2027 w/ Dev.		
	LOS	Delay	Queue	LOS	Delay	Queue	LOS	Delay	Queue	LOS	Delay	Queue
11	Driveway	EB LR		B	12.6	68				B	10.5	69
	Main Street	NB L		A	9.5	97				A	8.0	49
		NB T										
		Approach		A	6.9					A	3.5	
		SB TR										
Overall Intersection			A	5.1					A	4.5		

Delay is measured in Seconds/vehicle

Queue is measured in feet (SimTraffic 95th percentile Queue)

VII. Mitigation Identification and Recommendations

The future year capacity analysis has shown that in the With Development condition, the development will have an impact to several of the study area intersections.

The intersections which are anticipated to experience operational impacts, and proposed mitigations are:

- SR 2004 (River Street) & Courtright Avenue
 - Install an SR 2004 northbound left turn lane (75’).
 - Retime traffic signal.
- SR 2004 (River Street) & SR 0309 Southbound Ramps
 - Install an SR 2004 northbound right turn lane (400’).
 - Retime traffic signal.
- SR 2004 (River Street) & SR 0309 Northbound Ramps / SR 2024 (Maffett Street)
 - Widen Ramp DD to provide 2 westbound right turn lanes onto SR 2004 (River Street) and a Yield/Free-flow right turn lane onto SR 2024 (Maffett Street).
 - Lengthen westbound left turn lanes to provide 400’ of storage each.
 - Lengthen westbound right turn lanes to provide 750’ of storage each.
 - Retime traffic signal.
- SR 2024 (Maffett Street) & SR 2022 (Main Street) / Abbott Street
 - Install new traffic signal.
 - Restripe SR 2024 (Maffett Street) southbound approach to provide a 250’ left turn lane.
 - The warrants show the need for a 325’ southbound left turn lane. This cannot be fully achieved by itself. The 250’ lane will abut the TWLTL at the Turkey Hill, located at the next intersection (W. Carey Street). Accounting for the length of the TWLTL at the Turkey Hill (67’), this will provide a total storage length of 317’.

Table 8: 2021 with Improvement Operational Analysis

Intersection / Movement	AM Peak						PM Peak						
	Without Development			2021 w/ Improvement			Without Development			2021 w/ Improvement			
	LOS	Delay	Queue	LOS	Delay	Queue	LOS	Delay	Queue	LOS	Delay	Queue	
Courtright Avenue	EB LTR	C	27.8	50	C	27.8	49	C	30.0	102	C	30.0	100
	WB LTR	C	29.7	83	C	29.7	80	C	27.2	59	C	27.2	60
1 SR 2004	NB LTR	A	3.8	150				A	6.0	238			
	NB L				A	2.3	24				A	2.6	41
	NB TR				A	4.8	148				A	6.9	236
	Approach				A	4.8					A	6.8	
SB LTR	A	2.9	177	A	3.6	196	A	4.2	223	A	6.1	424	
Overall Intersection	A	5.0		A	5.5		A	7.7		A	8.5		

Delay is measured in Seconds/vehicle

Queue is measured in feet (SimTraffic 95th percentile Queue)

Table 8: 2021 with Improvement Operational Analysis (Continued)

Intersection / Movement	AM Peak						PM Peak					
	Without Development			2021 w/ Improvement			Without Development			2021 w/ Improvement		
	LOS	Delay	Queue	LOS	Delay	Queue	LOS	Delay	Queue	LOS	Delay	Queue
SR 0309 SB Off-Ramp	EB L	54.9	227	E	63.9	223	F	146.5	236	F	146.5	231
	EB LT	55.8	1002	E	65.6	1455	F	150.5	1622	F	150.5	1581
	EB R	0.6	419	A	0.6	475	A	0.2	461	A	0.2	456
	Approach	23.1		C	27.0		F	98.9		F	98.9	
	NB T		58			77			132			166
	NB T	25.9	99	C	29.4	126	C	25.2	147	C	33.0	167
SR 2004	NB TR		143						245			
	NB T			C	29.4	141				C	33.0	177
	NB R			A	0.2	94				A	0.4	141
	Approach	25.9		C	20.9		C	25.2		C	24.0	
	SB L	37.2	305	D	37.6	343	D	43.3	277	C	26.0	248
	SB T	17.3	230	B	14.3	257	C	22.1	204	C	20.2	208
Overall Intersection	SB T	24.2	170	C	22.4	220	D	30.5	133	C	22.4	136
	Approach	24.2		C	23.3		D	43.5		D	38.7	

Delay is measured in Seconds/vehicle

Queue is measured in feet (SimTraffic 95th percentile Queue)

Table 8: 2021 with Improvement Operational Analysis (Continued)

Intersection / Movement	AM Peak						PM Peak					
	Without Development			2021 w/ Improvement			Without Development			2021 w/ Improvement		
	LOS	Delay	Queue	LOS	Delay	Queue	LOS	Delay	Queue	LOS	Delay	Queue
SR 0309 NB Off-Ramp	WBL	63.0	283	E	70.7	513	C	30.9	72	D	39.4	88
	WBL		307			511			376			595
	WBR	34.5	361	C	36.8	769	F	120.8	2040	F	111.3	2152
	WBR					518						928
	WBR	32.1	47	C	0.1	21	C	32.2	347	A	0.2	554
	Approach											
SR 2004	NBL	27.5	121	C	26.3	127	E	60.9	367	E	69.5	350
	NBT	22.3	178	C	22.5	171	C	23.7	232	C	22.2	202
	NBTR		144			205			209			199
	Approach	22.3		C	23.0		C	34.7		D	35.1	
	SBT	21.3	180	C	24.6	186	C	26.7	169	C	27.7	168
	SBT		303			345			249			272
Maffett St	SB R	21.2	147	C	24.5	179	C	33.0	226	C	34.8	242
	Approach	21.2		C	24.6		C	29.1		C	30.3	
	SWB TR	35.7	157	D	59.7	346	F	151.1	599	F	102.6	1055
Overall Intersection	C	29.0		D	32.3		D	50.0		D	47.6	

Delay is measured in Seconds/vehicle

Queue is measured in feet (Sim Traffic 95th percentile Queue)

Table 8: 2021 with Improvement Operational Analysis (Continued)

Intersection / Movement	AM Peak						PM Peak						
	Without Development			2021 w/ Improvement			Without Development			2021 w/ Improvement			
	LOS	Delay	Queue	LOS	Delay	Queue	LOS	Delay	Queue	LOS	Delay	Queue	
Abbott St	WB LR	F	78.8	148	D	41.8	111	D	33.7	86	C	33.3	70
Main St	NWB LTR	A	8.6	66	D	41.9	136	C	16.2	125	C	32.3	143
	NB TR	A	5.0	20	A	6.9	159	A	5.8	14	A	9.1	222
9* Maffett Street	SB LT	A	7.8	236				A	5.8	143			
	SB L				C	21.5	302				B	11.5	182
	SB T				A	7.2	447				A	7.8	140
	Approach				B	16.0					A	9.4	
Overall Intersection		B	11.5		B	18.6		A	9.0		B	14.6	

Delay is measured in Seconds/vehicle

Queue is measured in feet (SimTraffic 95th percentile Queue)

*Indicates Operational Analysis was performed using SimTraffic (Due to HCM limitations-Without Development Only)

Table 9: 2022 and 2027 with Improvement Operational Analysis

Intersection / Movement	AM Peak						PM Peak					
	Without Development			2022 & 2027 w/ Imp.			Without Development			2022 & 2027 w/ Imp.		
	LOS	Delay	Queue	LOS	Delay	Queue	LOS	Delay	Queue	LOS	Delay	Queue
Courtright Avenue	EB LTR	27.8	50	C	27.8	46	C	30.0	102	C	30.0	105
	WB LTR	29.7	83	C	29.7	88	C	27.2	59	C	27.2	62
1 SR 2004	NB LTR	3.8	150	A			A	6.0	238			
	NB L			A	2.3	24	A			A	2.6	29
	NB TR			A	4.8	156	A			A	6.9	239
	Approach			A	4.8		A			A	6.8	
SB LTR	A	2.9	177	A	3.6	253	A	4.2	223	A	6.1	381
Overall Intersection	A	5.0		A	5.5		A	7.7		A	8.5	

Delay is measured in Seconds/vehicle

Queue is measured in feet (SimTraffic 95th percentile Queue)

Table 9: 2022 and 2027 with Improvement Operational Analysis (Continued)

Intersection / Movement	AM Peak						PM Peak					
	Without Development			2022 & 2027 w/ Imp.			Without Development			2022 & 2027 w/ Imp.		
	LOS	Delay	Queue	LOS	Delay	Queue	LOS	Delay	Queue	LOS	Delay	Queue
SR 0309 SB Off-Ramp	EB L	54.9	227	F	82.3	236	F	146.5	236	F	146.5	237
	EB LT	55.8	1002	F	85.0	1646	F	150.5	1622	F	150.5	1491
	EB R	0.6	419	A	0.6	463	A	0.2	461	A	0.2	434
	Approach	23.1		C	34.7		F	98.9		F	98.9	
	NB T		58			79			132			152
	NB T	25.9	99	C	29.4	120	C	25.2	147	D	36.8	192
SR 2004	NB TR		143					245				
	NB T			C	29.4	143				D	36.8	175
	NB R			A	0.2	101				A	0.4	150
	Approach	25.9		C	20.9		C	25.2		C	26.8	
	SB L	37.2	305	D	38.1	339	D	43.3	277	C	24.9	268
	SB T	17.3	230	B	12.5	242	C	22.1	204	C	22.6	203
Overall Intersection	SB T		170			183			133			129
	Approach	24.2		C	21.8		D	30.5		C	23.6	
		24.2		C	25.2		D	43.5		D	40.1	

Delay is measured in Seconds/vehicle
Queue is measured in feet (SimTraffic 95th percentile Queue)

Table 9: 2022 and 2027 with Improvement Operational Analysis (Continued)

Intersection / Movement	AM Peak						PM Peak					
	Without Development			2022 & 2027 w/ Imp.			Without Development			2022 & 2027 w/ Imp.		
	LOS	Delay	Queue	LOS	Delay	Queue	LOS	Delay	Queue	LOS	Delay	Queue
SR 0309 NB Off-Ramp	WBL	63.0	283	F	100.1	375	C	30.9	72	D	39.4	126
	WBL		307			401			376			605
	WBR	34.5	361	D	37.9	258	F	120.8	2040	F	111.3	2115
	WBR					74						925
	WBR	32.1	47	A	0.3	67	C	32.2	347	A	0.2	454
	Approach											
SR 2004	NBL	27.5	121	C	27.7	131	E	60.9	367	F	87.5	330
	NBT	22.3	178	C	24.2	163	C	23.7	232	C	24.6	214
	NBTR		144			200			209			203
	Approach	22.3		C	24.7		C	34.7		D	41.8	
	SBT	21.3	180	C	24.6	181	C	26.7	169	C	29.8	172
	SBT		303			344			249			269
Maffett St	SB R	21.2	147	C	24.5	186	C	33.0	226	D	40.5	281
	Approach	21.2		C	24.6		C	29.1		C	33.8	
Overall Intersection	D	35.7	157	E	68.8	439	F	151.1	599	F	100.4	1015
	C	29.0		D	36.7		D	50.0		D	51.1	

Delay is measured in Seconds/vehicle

Queue is measured in feet (Sim Traffic 95th percentile Queue)

Table 9: 2022 and 2027 with Improvement Operational Analysis (Continued)

Intersection / Movement	AM Peak						PM Peak						
	Without Development			2022 & 2027 w/ Imp.			Without Development			2022 & 2027 w/ Imp.			
	LOS	Delay	Queue	LOS	Delay	Queue	LOS	Delay	Queue	LOS	Delay	Queue	
Abbott St	WB LR	F	78.8	148	D	41.8	97	D	33.7	86	C	33.3	77
Main St	NWB LTR	A	8.6	66	D	41.9	116	C	16.2	125	C	32.3	153
	NB TR	A	5.0	20	A	6.9	148	A	5.8	14	A	9.1	240
9* Maffett Street	SB LT	A	7.8	236				A	5.8	143			
	SB L				C	21.5	317				B	11.5	210
	SB T				A	7.2	516				A	7.8	150
	Approach				B	16.0					A	9.4	
Overall Intersection		B	11.5		B	18.6		A	9.0		B	14.6	

Delay is measured in Seconds/vehicle

Queue is measured in feet (SimTraffic 95th percentile Queue)

*Indicates Operational Analysis was performed using SimTraffic (Due to HCM limitations-Without Development Only)

VIII. Conclusions

The development has been studied using ITE trip generation Land Use code 530 (High School). The site is expected to generate 3,251 trips per weekday in Phase 1 and 1,326 trips per weekday in Phase 2 (4,577 trips per weekday total). The development is anticipated to have impacts on the surrounding roadway network.

The intersection of SR 2004 & Courtright Avenue will not experience any operational impacts. However, the turn lane warrants show that a northbound SR 2004 left turn lane is warranted. This lane is proposed to be 75', based on the turn lane warrants.

The intersection of SR 2004 & Maple Street should be retimed in order to maintain acceptable Levels of Service.

The intersections of SR 2004 (River Street) & SR 0309 Southbound Ramps and SR 2004 (River Street) & SR 0309 Northbound Ramps experience an operational impact due to the development. In order to mitigate the impact, the following improvements are proposed:

- Install a 400' northbound right turn lane (from SR 2004 onto SR 0309 Southbound On-Ramp)
- Install a westbound right turn lane (from SR 309 Northbound Off-Ramp onto Maffett Street). This lane will operate as a free-flow, yield condition onto Maffett Street.
- Retime the traffic signal.
- Install queue preemption detectors on Ramp DD (SR 309 Northbound Off-Ramp).

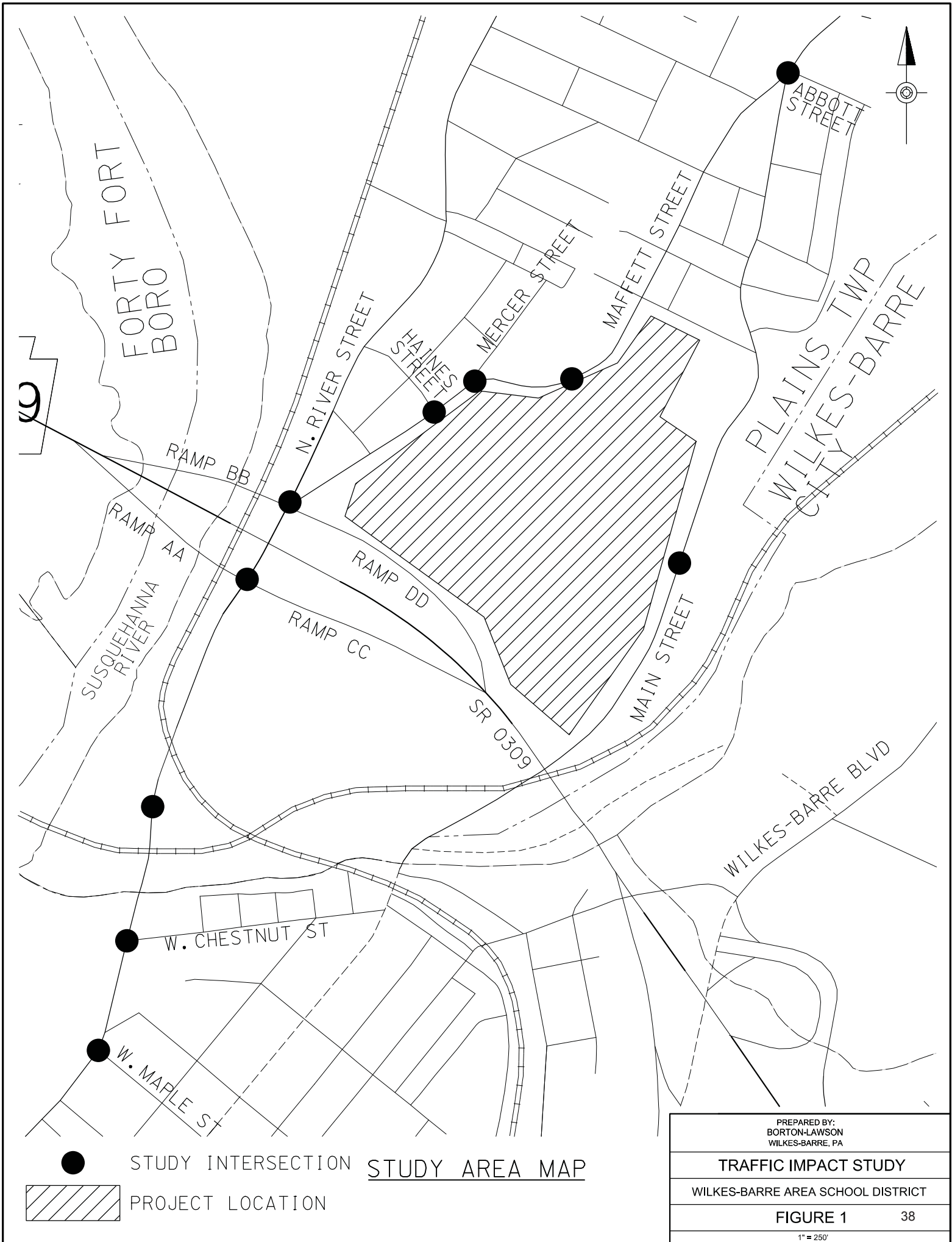
The intersection of SR 2024 (Maffett Street) & SR 2022 (Main Street) / Abbott Street meets traffic signal warrants. A new traffic signal is proposed at this intersection. In addition to the proposed traffic signal, the southbound approach will be restriped to provide a 250' (317' including the TWLTL at the Turkey Hill) southbound left turn lane.

The site will be accessed via two (2) medium volume driveways, one along SR 2024 (Maffett Street) and one along SR 2022 (Main Street). The SR 2024 driveway will include a 150' southbound left turn lane and a 350' northbound right turn lane. The SR 2022 driveway will include a 325' northbound left turn lane.

Project correspondence has been included in Appendix J for reference.

Appendix A

Figures



FORTY FORT BORO

SUSQUEHANNA RIVER

RAMP BB

RAMP AA

RAMP DD

RAMP CC

SR 0309

W. CHESTNUT ST

W. MAPLE ST

N. RIVER STREET

HAINES STREET

MERCER STREET

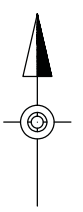
MAFFETT STREET

MAIN STREET

ABBOTT STREET

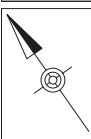
PLAINS TWP
WILKES-BARRE
CITY

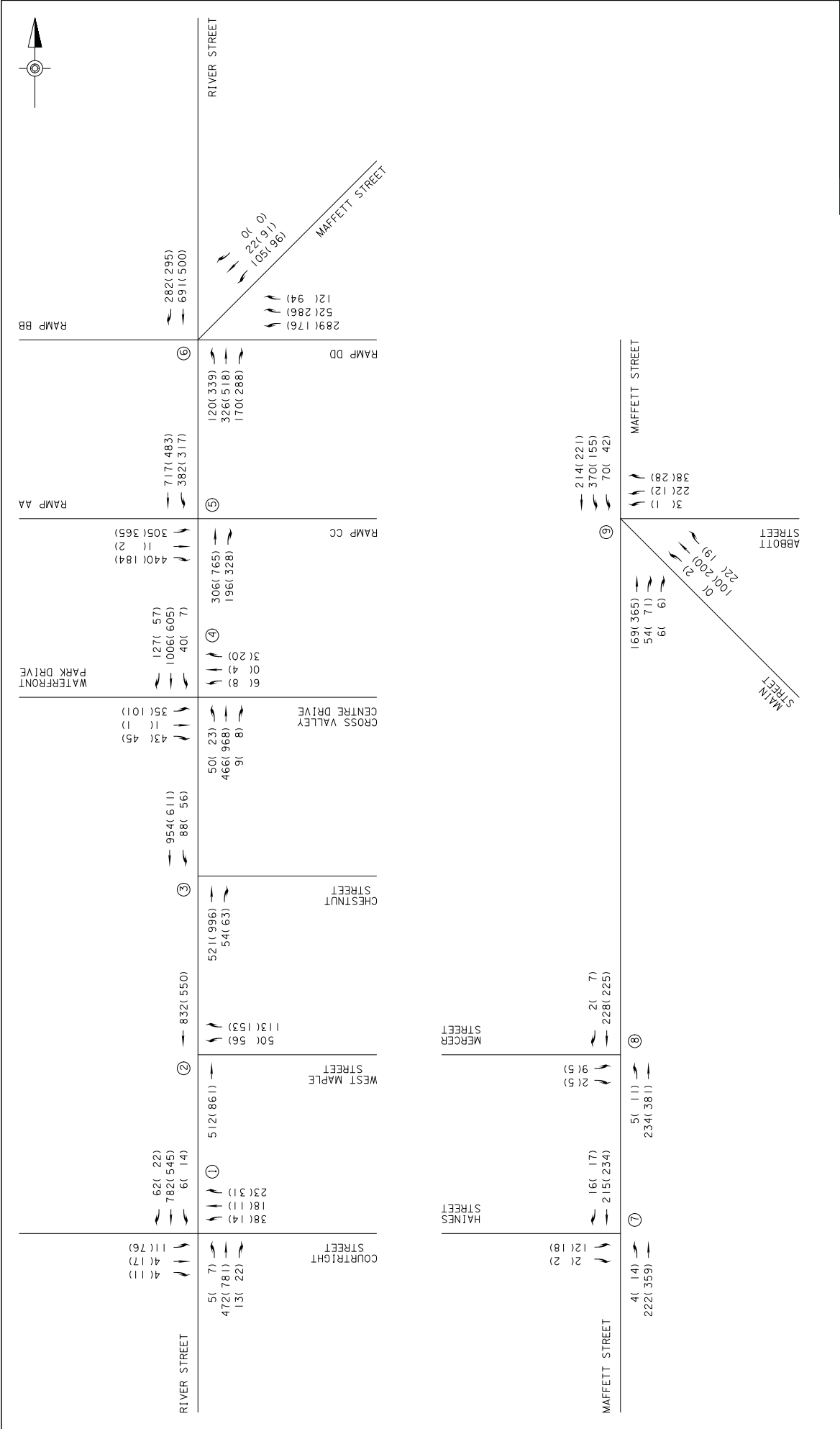
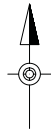
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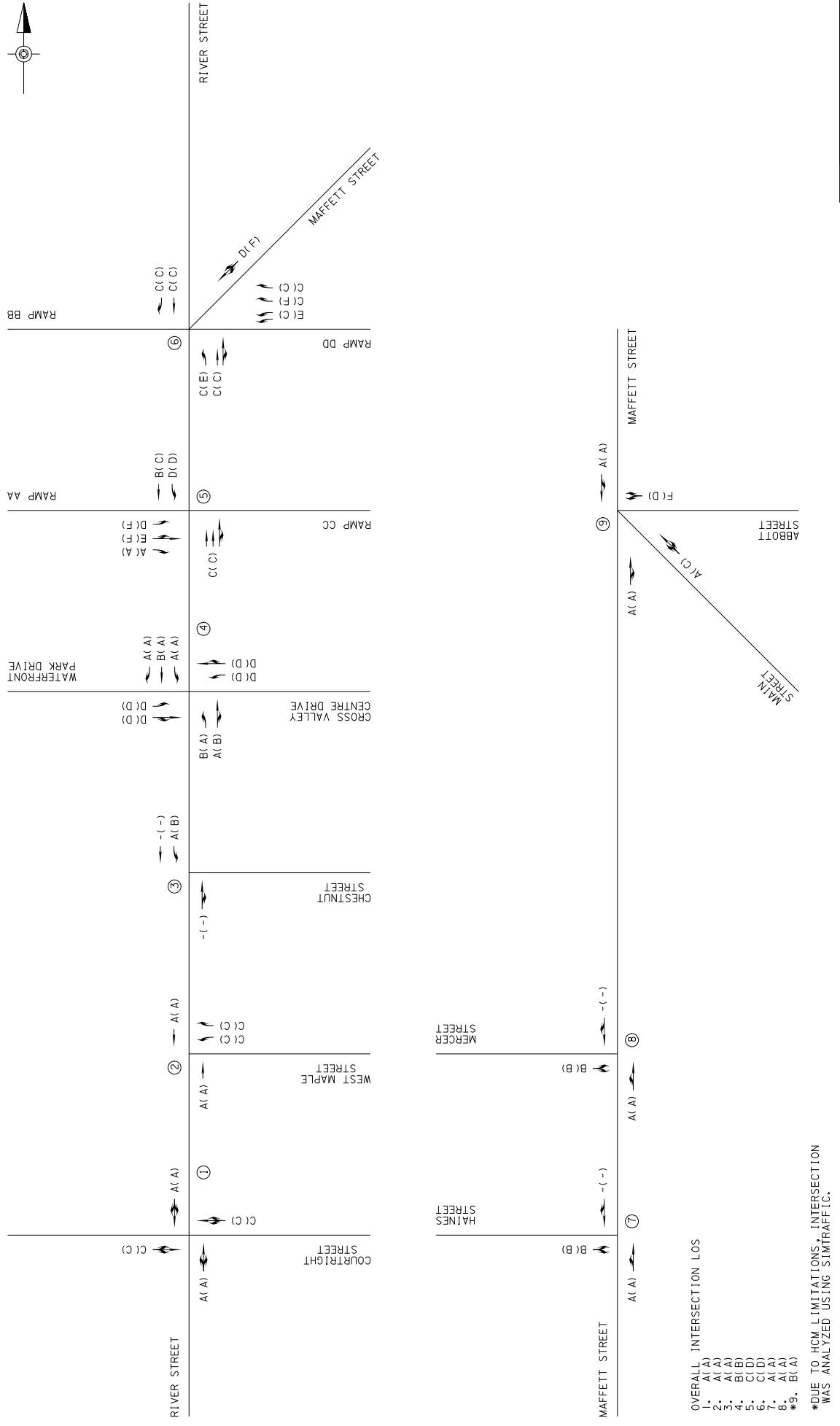
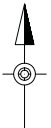


- PROPERTY LINE
- ADJOINER
- RIGHT OF WAY
- EDGE OF PAVE
- GAS LINE
- SANITARY LINE
- OVERHEAD ELECTRIC
- STORM PIPE
- PIPE LINE
- FENCE
- UNRECLAIMED LANDS





2017 EXISTING TRAFFIC VOLUMES



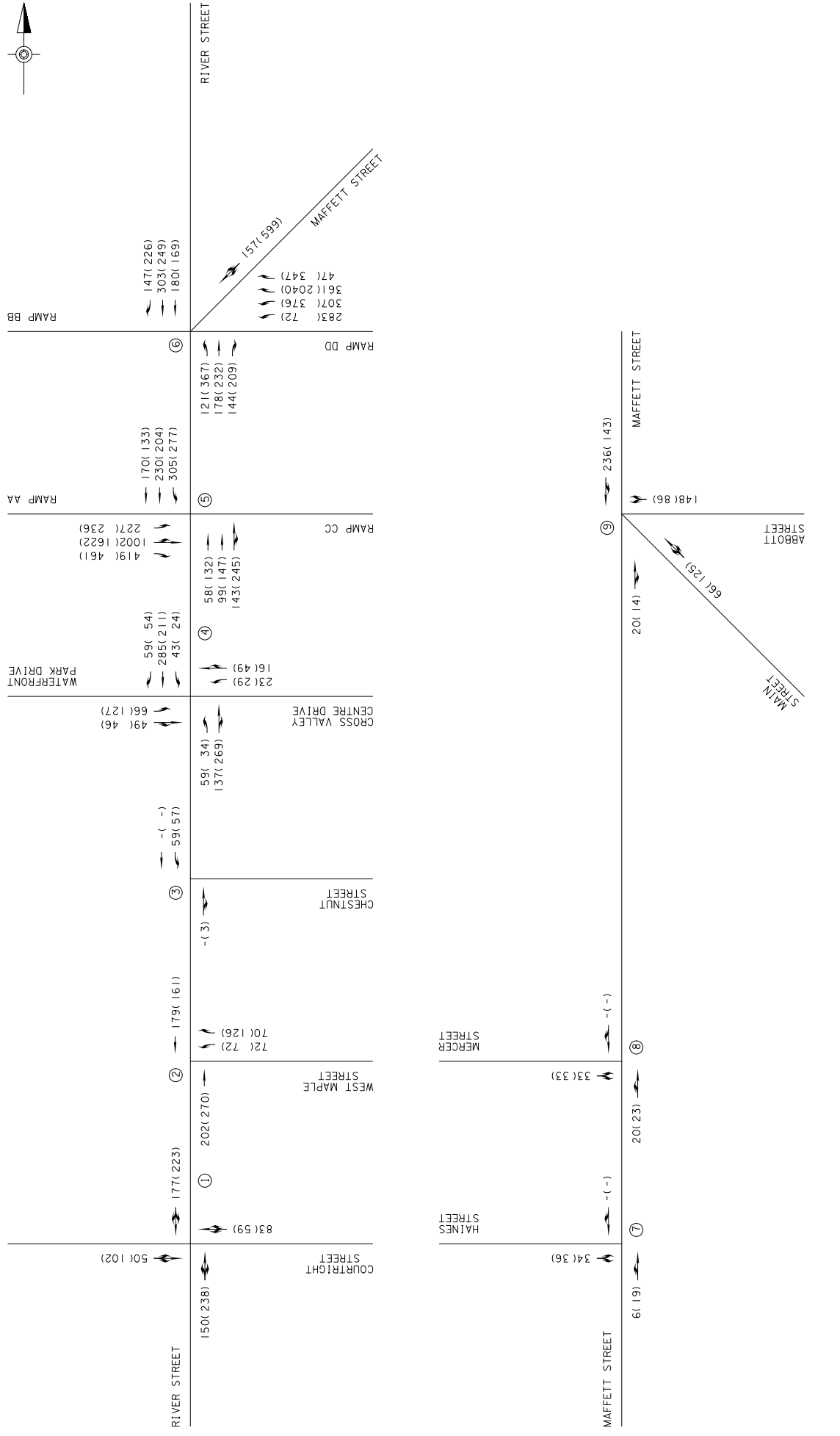
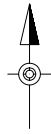
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 2. A(A)
 3. A(A)
 4. B(B)
 5. C(D)
 6. C(D)
 7. A(A)
 8. A(A)
 - *9. B(A)

*DUE TO HCM LIMITATIONS, INTERSECTION WAS ANALYZED USING SIMTRAFFIC.

LEGEND
 AM(PM)
 ① INTERSECTION IDENTIFICATION

2017 EXISTING LEVELS OF SERVICE

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TRAFFIC IMPACT STUDY
WILKES-BARRE AREA SCHOOL DISTRICT
FIGURE 4
41
NOT TO SCALE



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WILKES-BARRE, PA

TRAFFIC IMPACT STUDY

WILKES-BARRE AREA SCHOOL DISTRICT

FIGURE 5

42

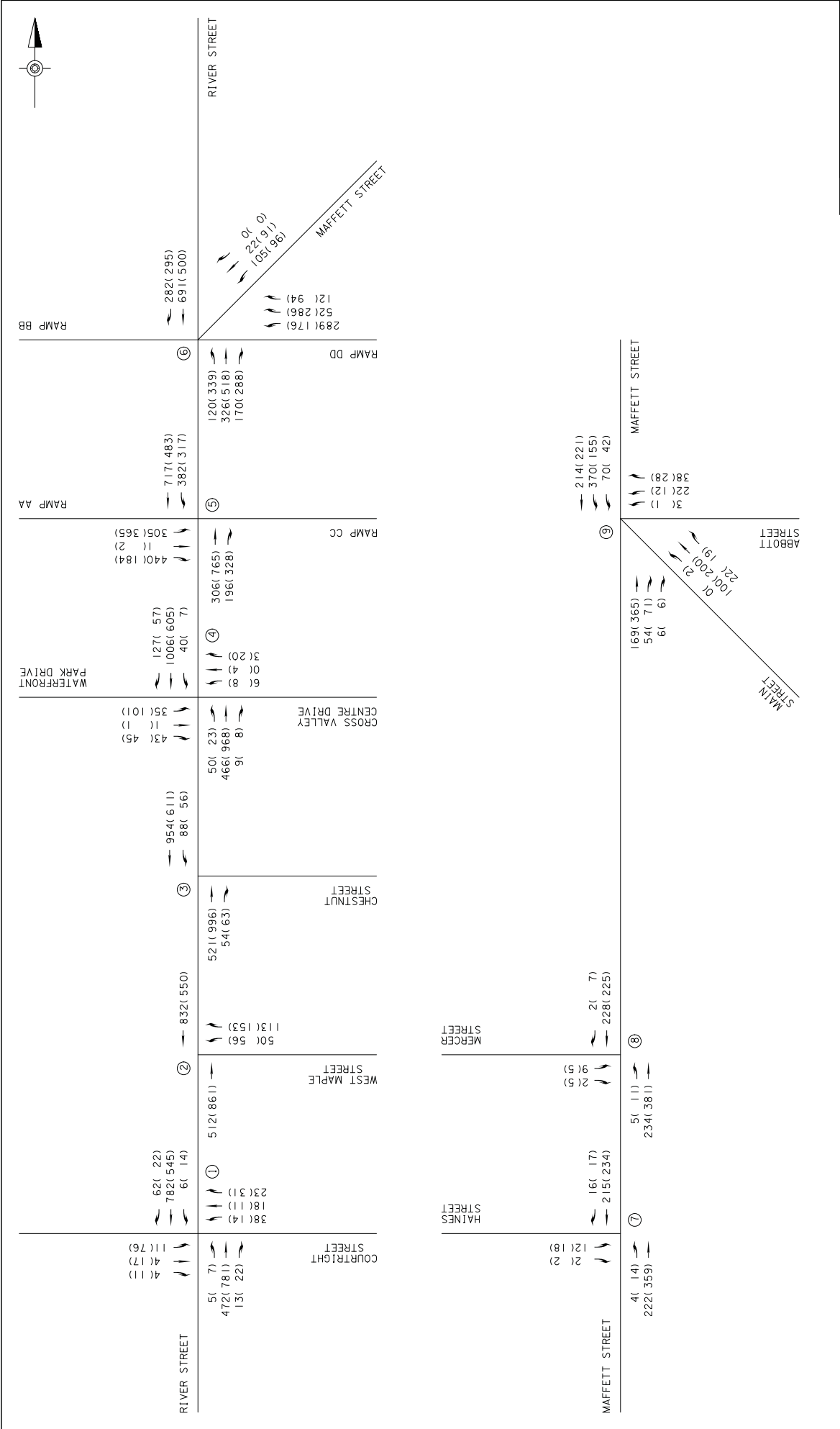
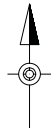
NOT TO SCALE

2017 EXISTING QUEUE LENGTHS

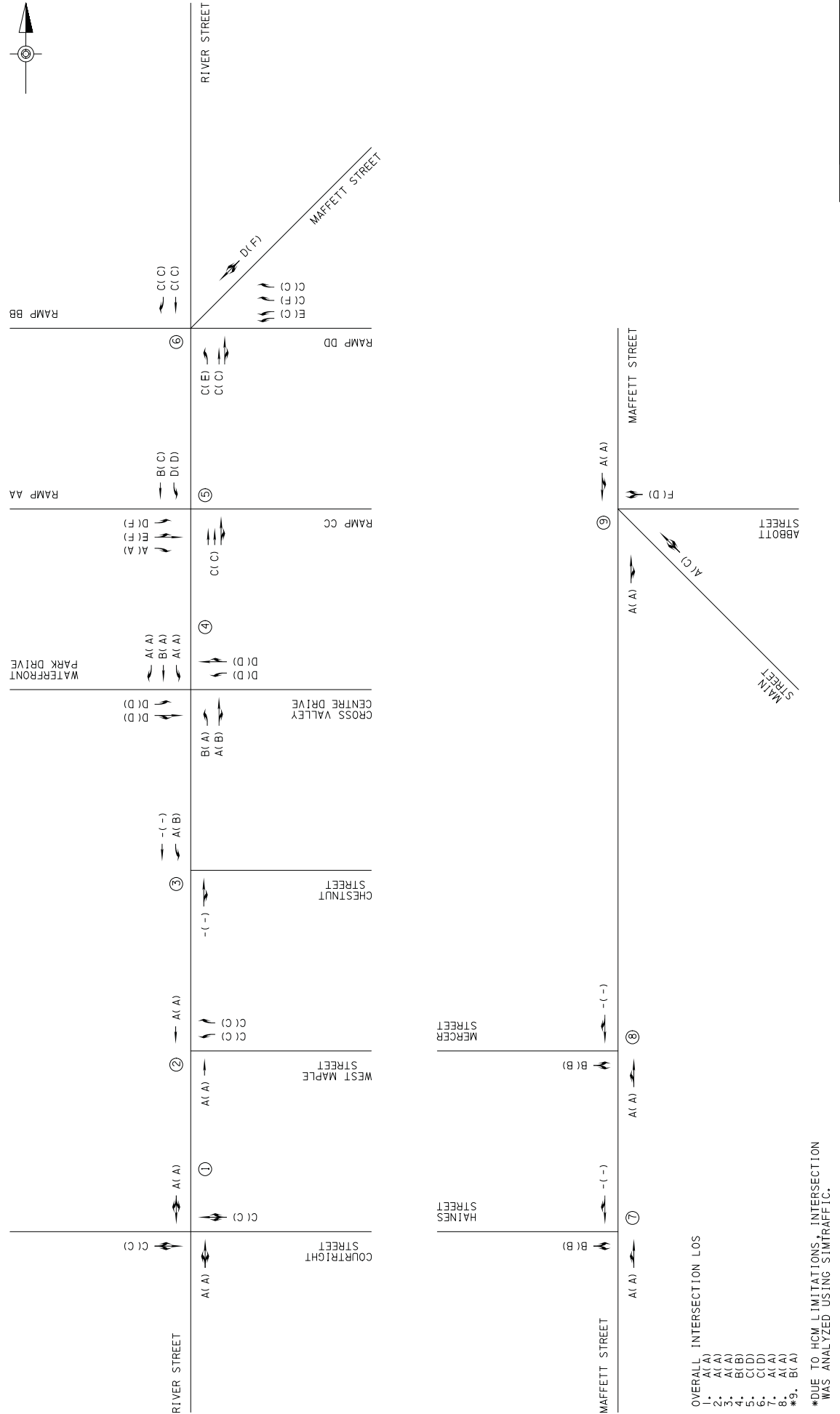
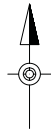
LEGEND

AM (PM)

① INTERSECTION IDENTIFICATION



WITHOUT DEVELOPMENT TRAFFIC VOLUMES



OVERALL INTERSECTION LOS

1. A(A)
2. A(A)
3. A(A)
4. B(B)
5. C(D)
6. C(D)
7. A(A)
8. A(A)
- *9. B(A)

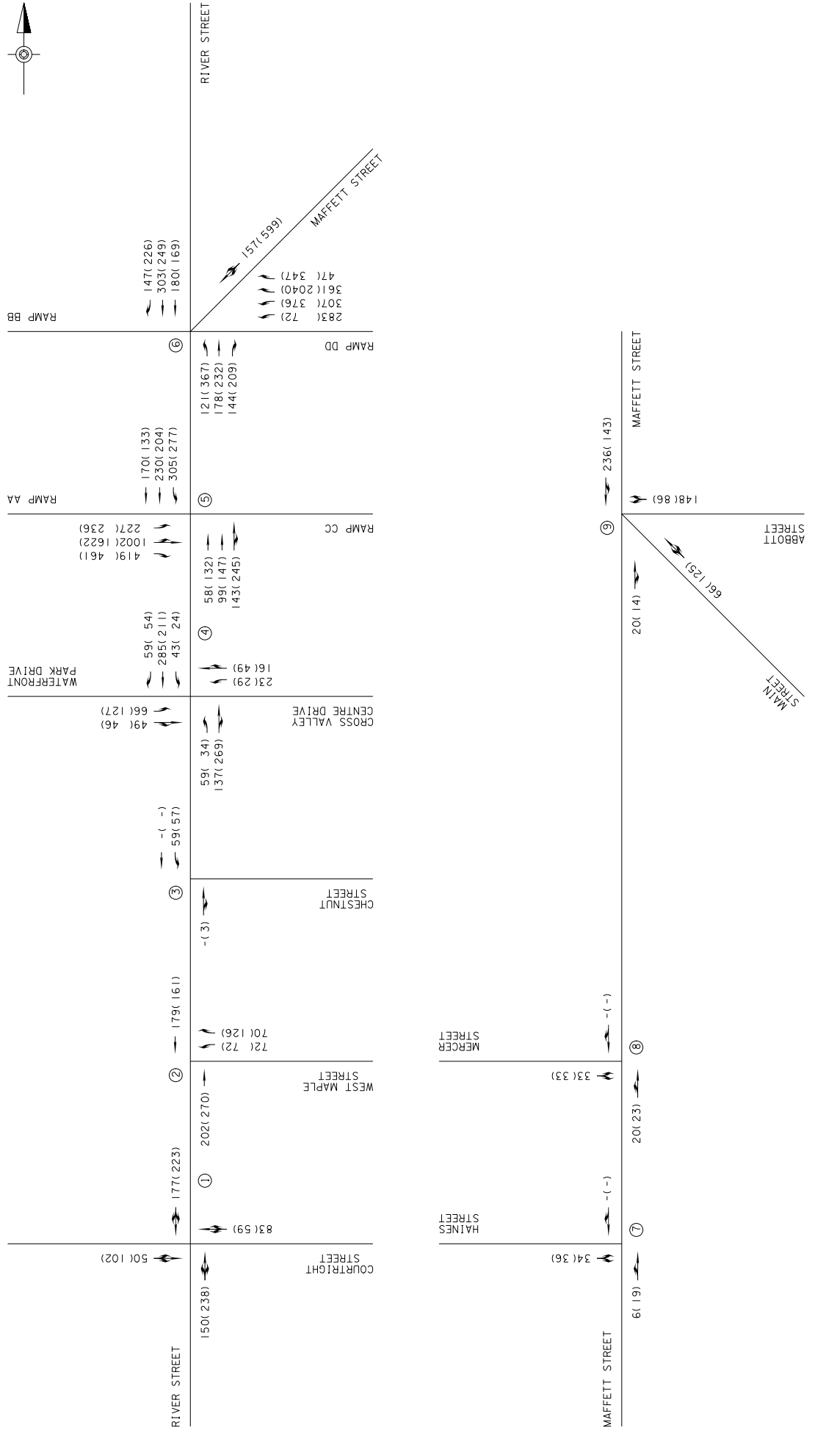
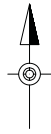
*DUE TO HCM LIMITATIONS, INTERSECTION WAS ANALYZED USING SIMTRAFFIC.

LEGEND

AM(PM)

① INTERSECTION IDENTIFICATION

WITHOUT DEVELOPMENT LEVELS OF SERVICE



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WILKES-BARRE AREA SCHOOL DISTRICT

FIGURE 8

45

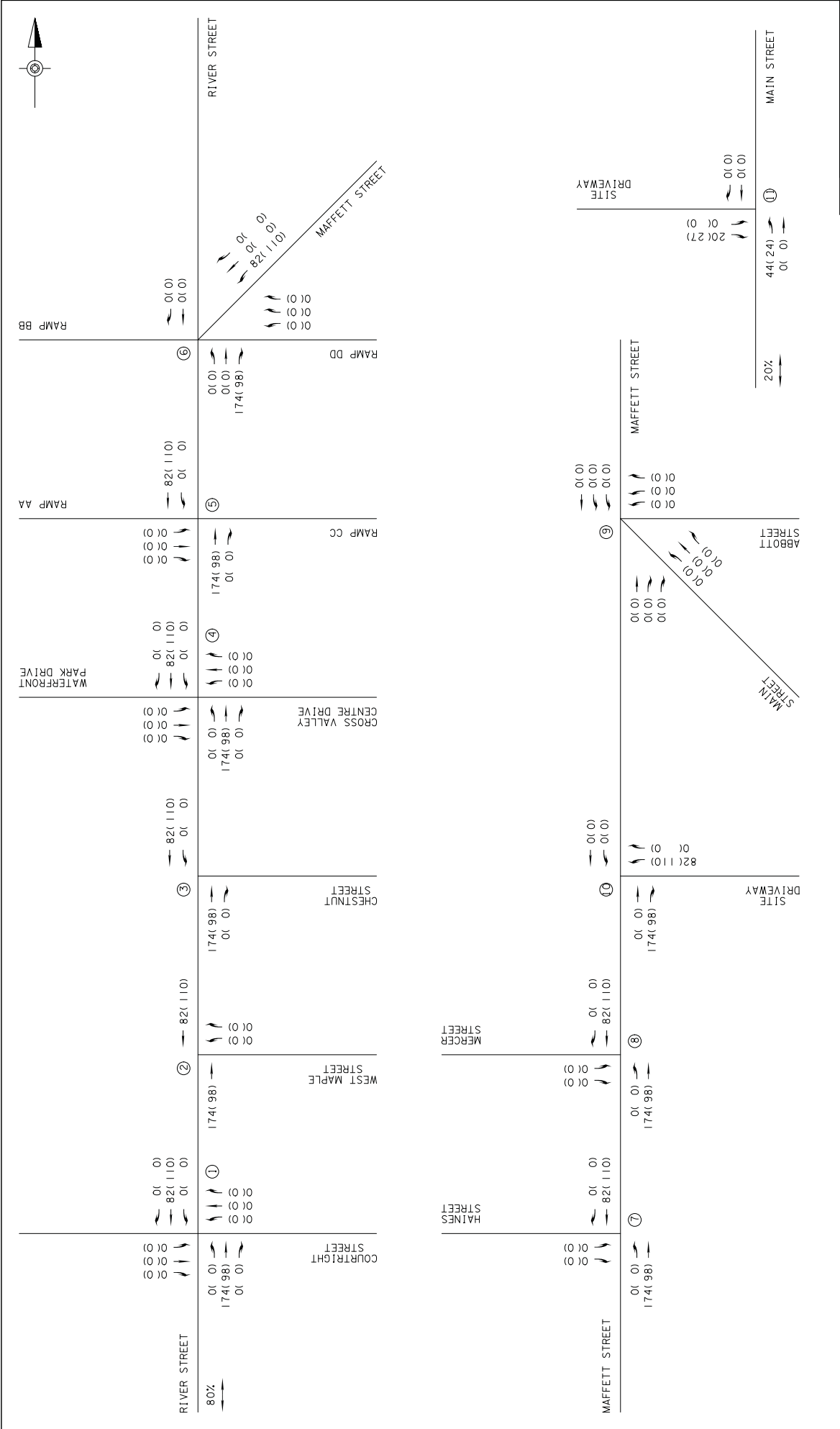
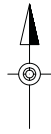
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WITHOUT DEVELOPMENT QUEUE LENGTHS

LEGEND

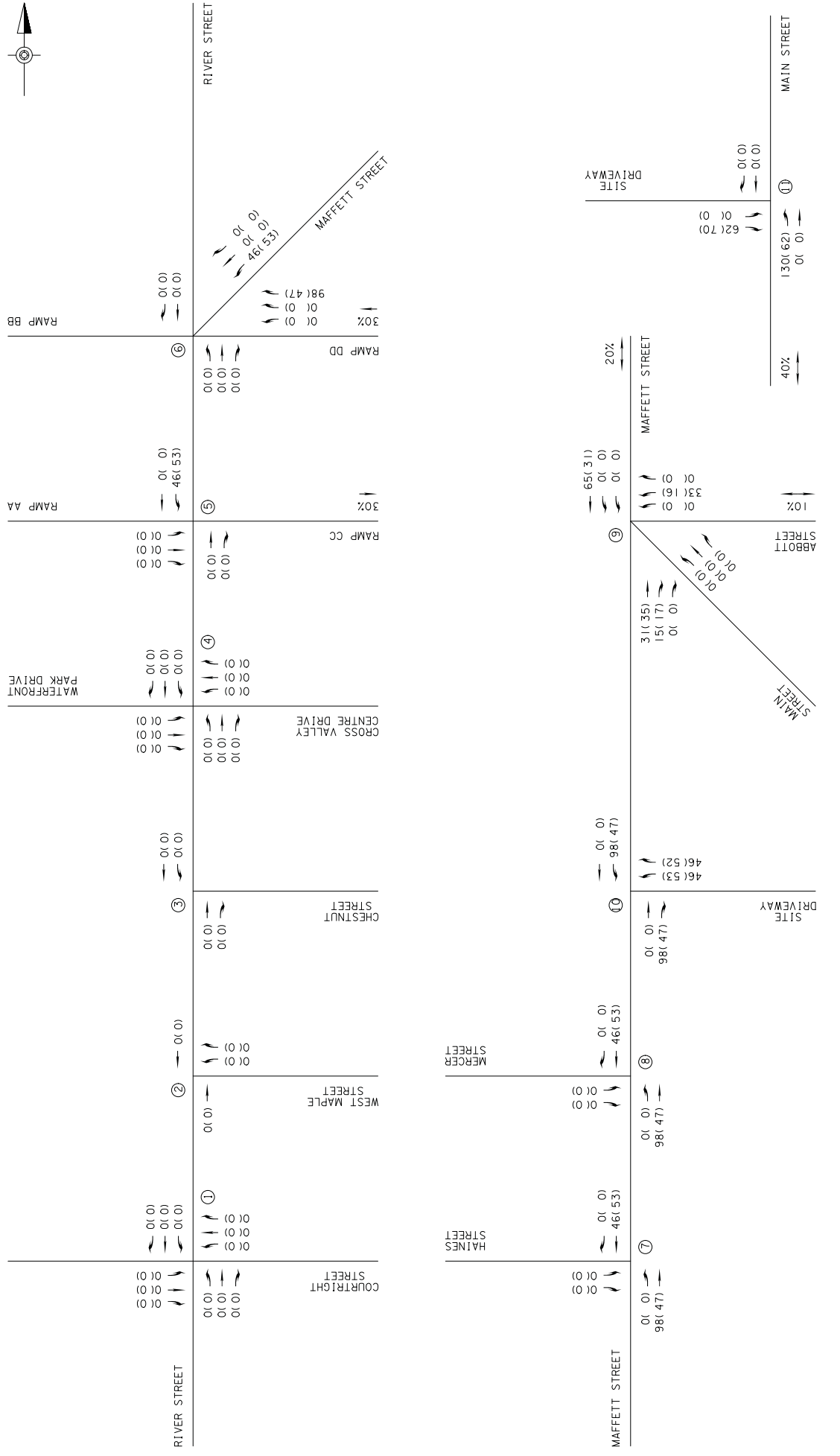
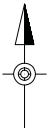
AM (PM)

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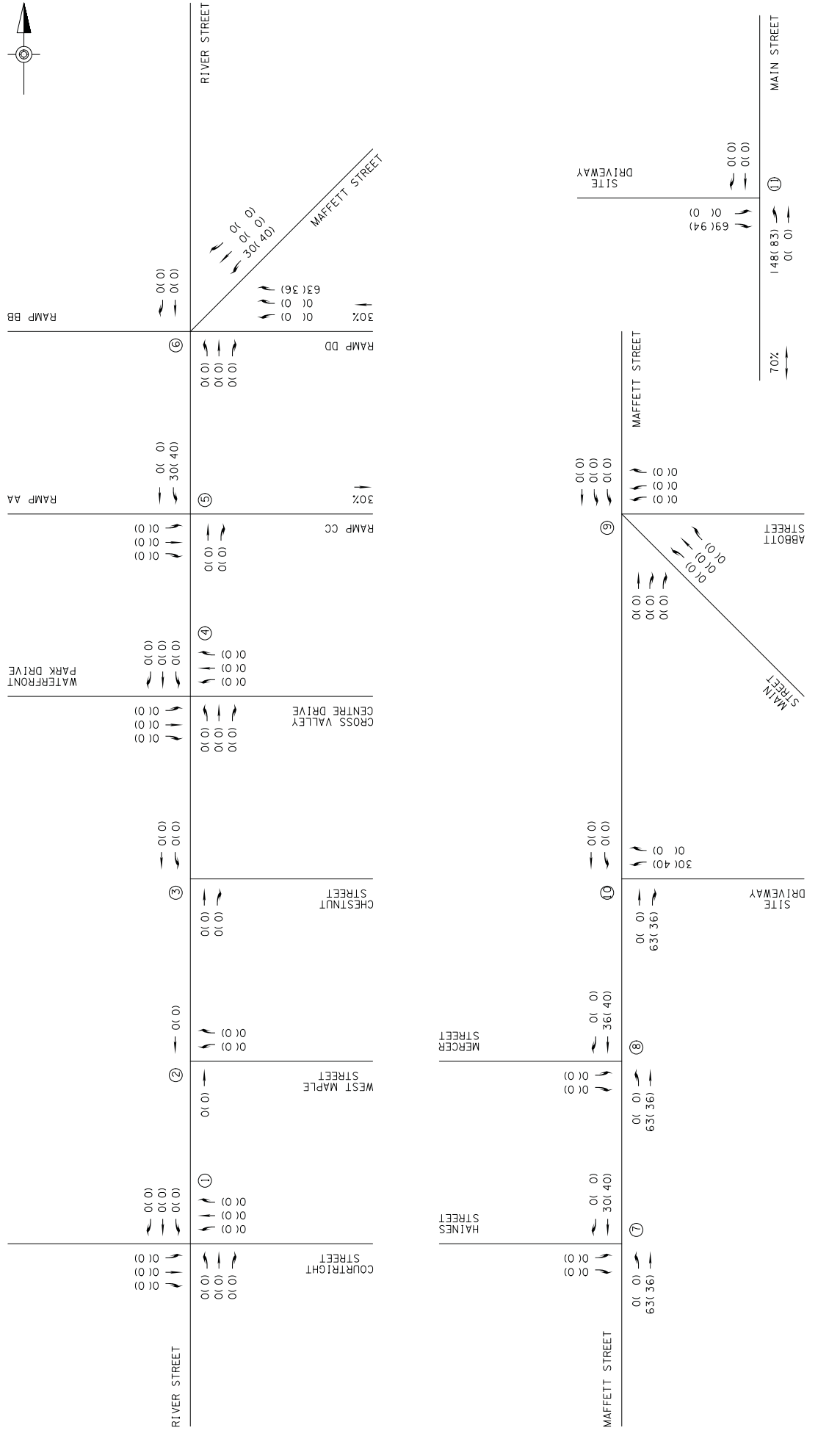
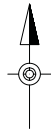
**MEYERS
TRIP DISTRIBUTION
AND ASSIGNMENT**

LEGEND
AM(PM)
① INTERSECTION IDENTIFICATION



LEGEND
AM(PM)
① INTERSECTION IDENTIFICATION

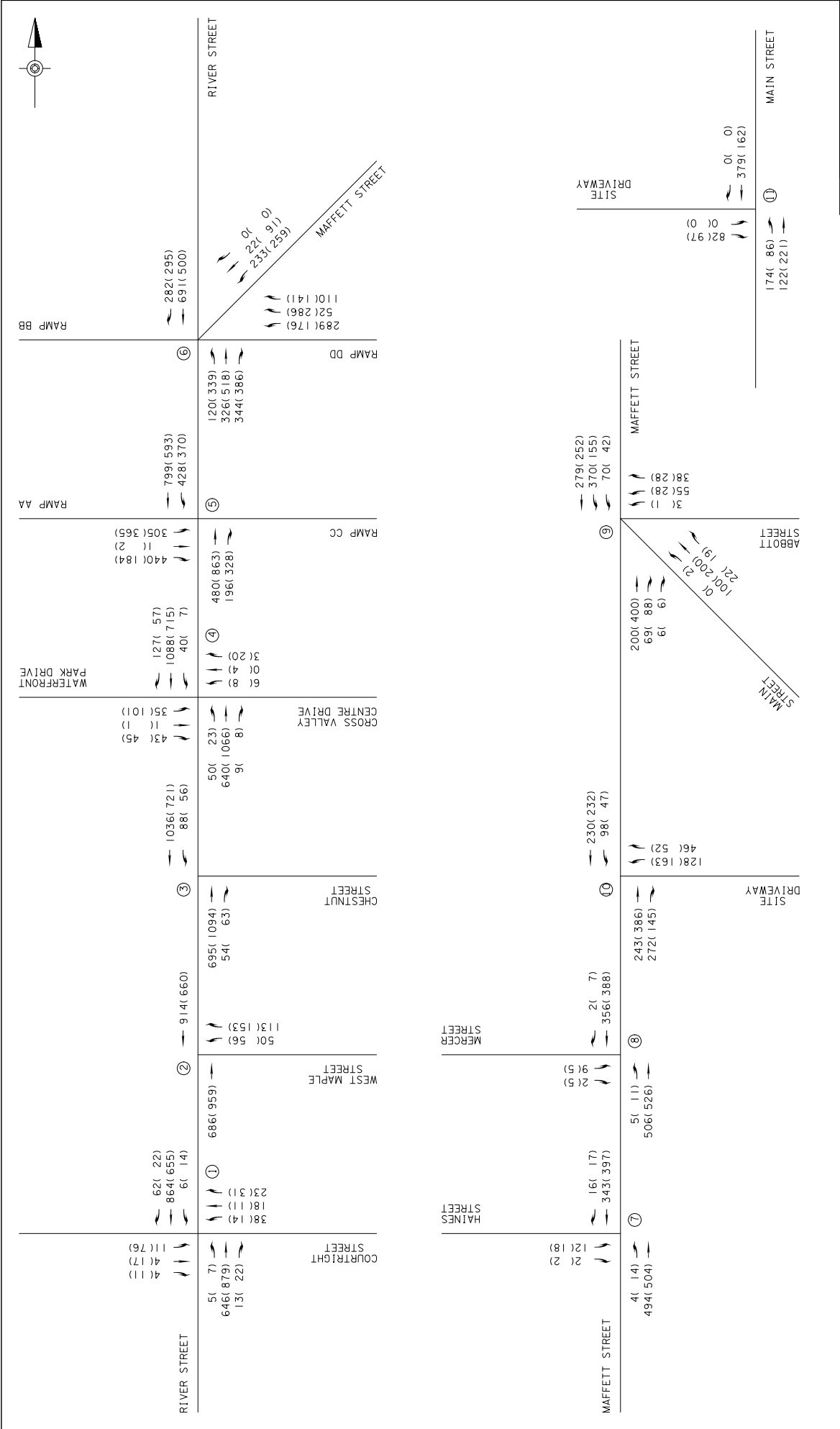
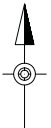
COUGHLIN
TRIP DISTRIBUTION
AND ASSIGNMENT



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TRAFFIC IMPACT STUDY
WILKES-BARRE AREA SCHOOL DISTRICT
FIGURE 11
48
NOT TO SCALE

G.A.R.
TRIP DISTRIBUTION
AND ASSIGNMENT

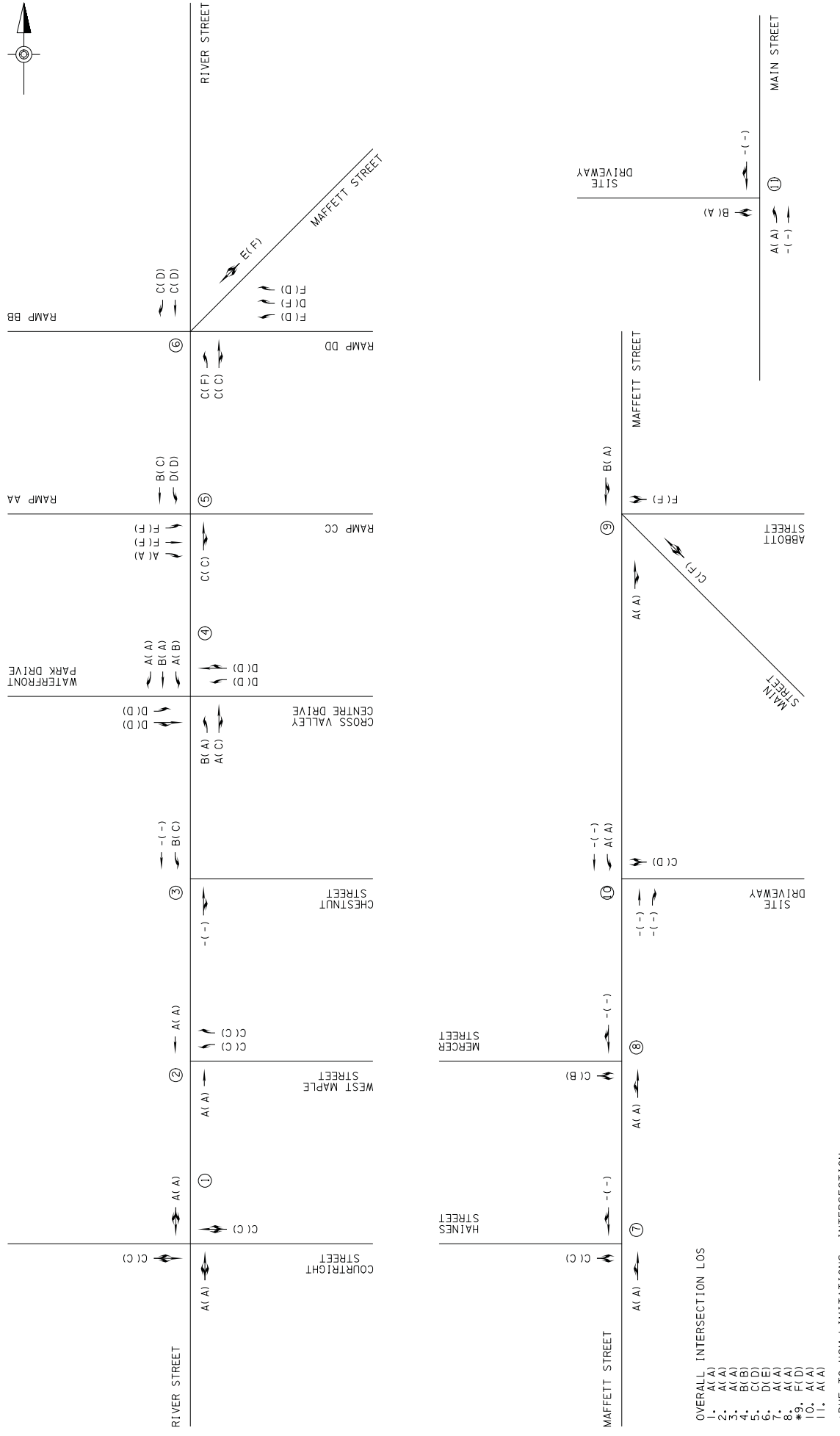
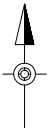
LEGEND
AM(PM)
① INTERSECTION IDENTIFICATION



**2021 OPENING YEAR
WITH DEVELOPMENT
TRAFFIC VOLUMES**

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TRAFFIC IMPACT STUDY
WILKES-BARRE AREA SCHOOL DISTRICT
FIGURE 12
49
NOT TO SCALE

LEGEND
AM (PM)
① INTERSECTION IDENTIFICATION

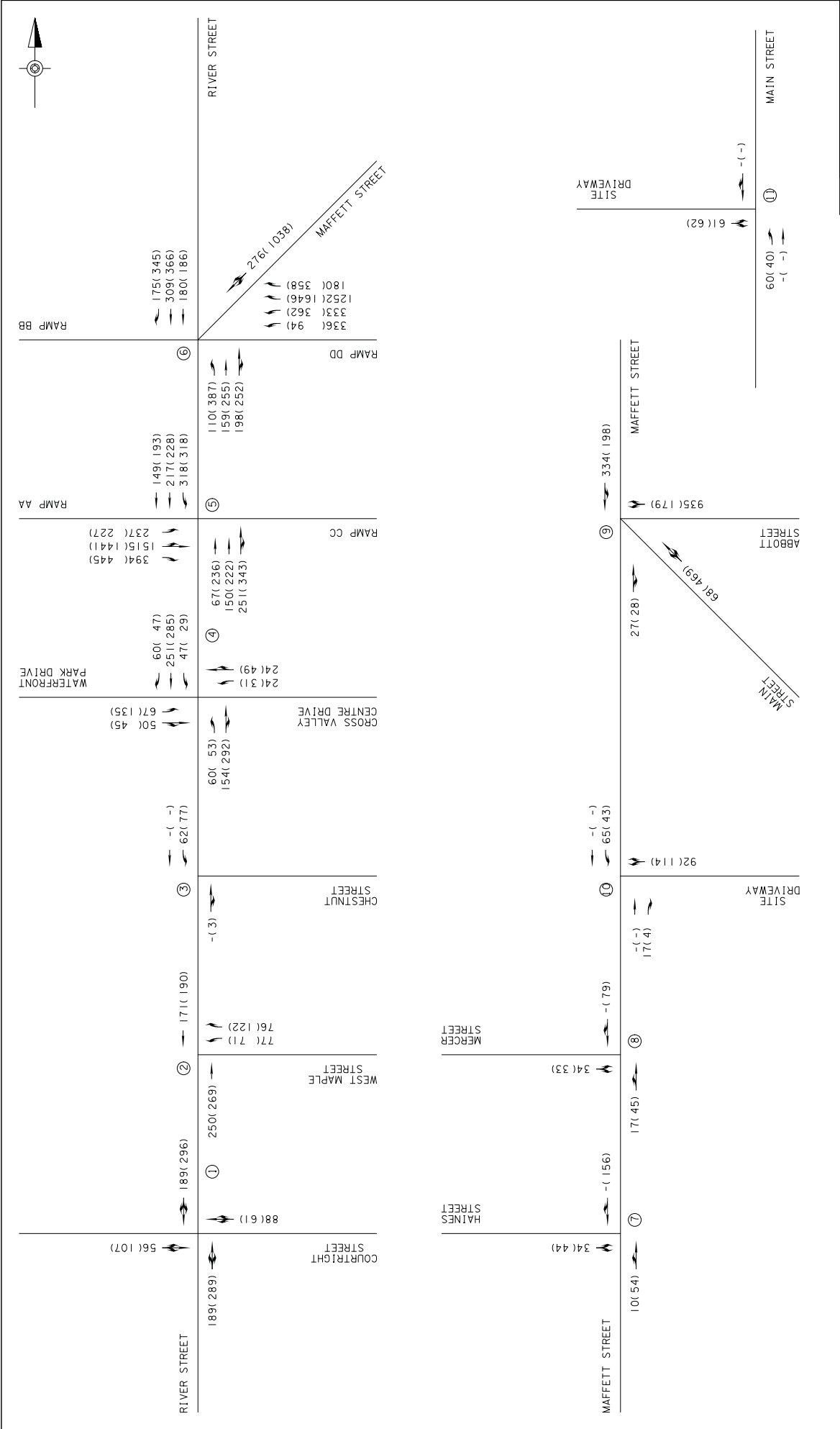
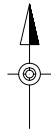


- OVERALL INTERSECTION LOS
1. A(A)
 2. A(A)
 3. A(A)
 4. B(B)
 5. C(D)
 6. D(E)
 7. A(A)
 8. A(A)
 - *9. F(D)
 10. A(A)
 11. A(A)

*DUE TO HCM LIMITATIONS, INTERSECTION WAS ANALYZED USING SIMTRAFFIC.

LEGEND
 AM(PM)
 ① INTERSECTION IDENTIFICATION

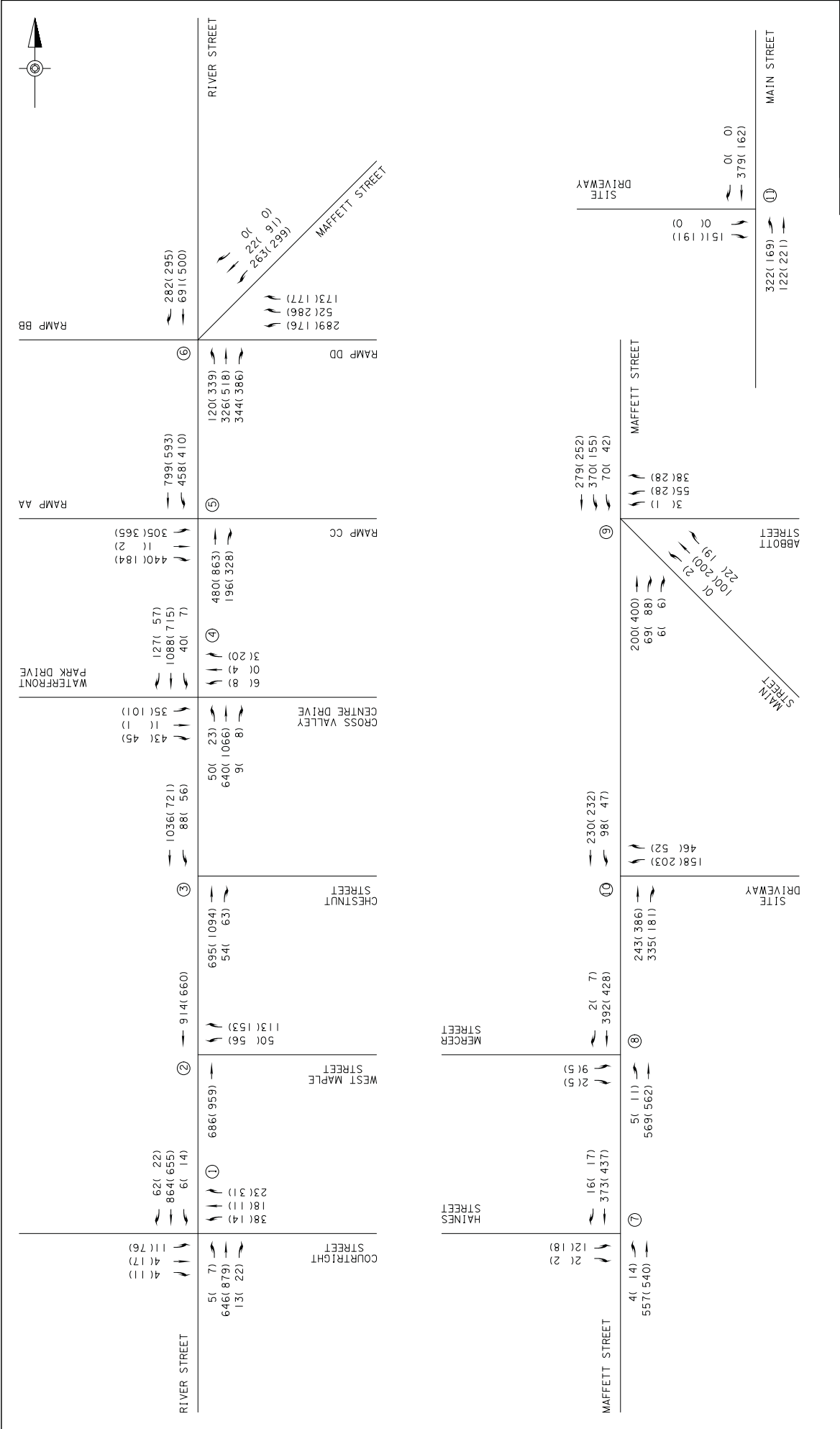
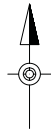
2021 OPENING YEAR
 WITH DEVELOPMENT
 LEVELS OF SERVICE



2021 OPENING YEAR
WITH DEVELOPMENT
QUEUE LENGTHS

LEGEND
AM(PM)
① INTERSECTION IDENTIFICATION

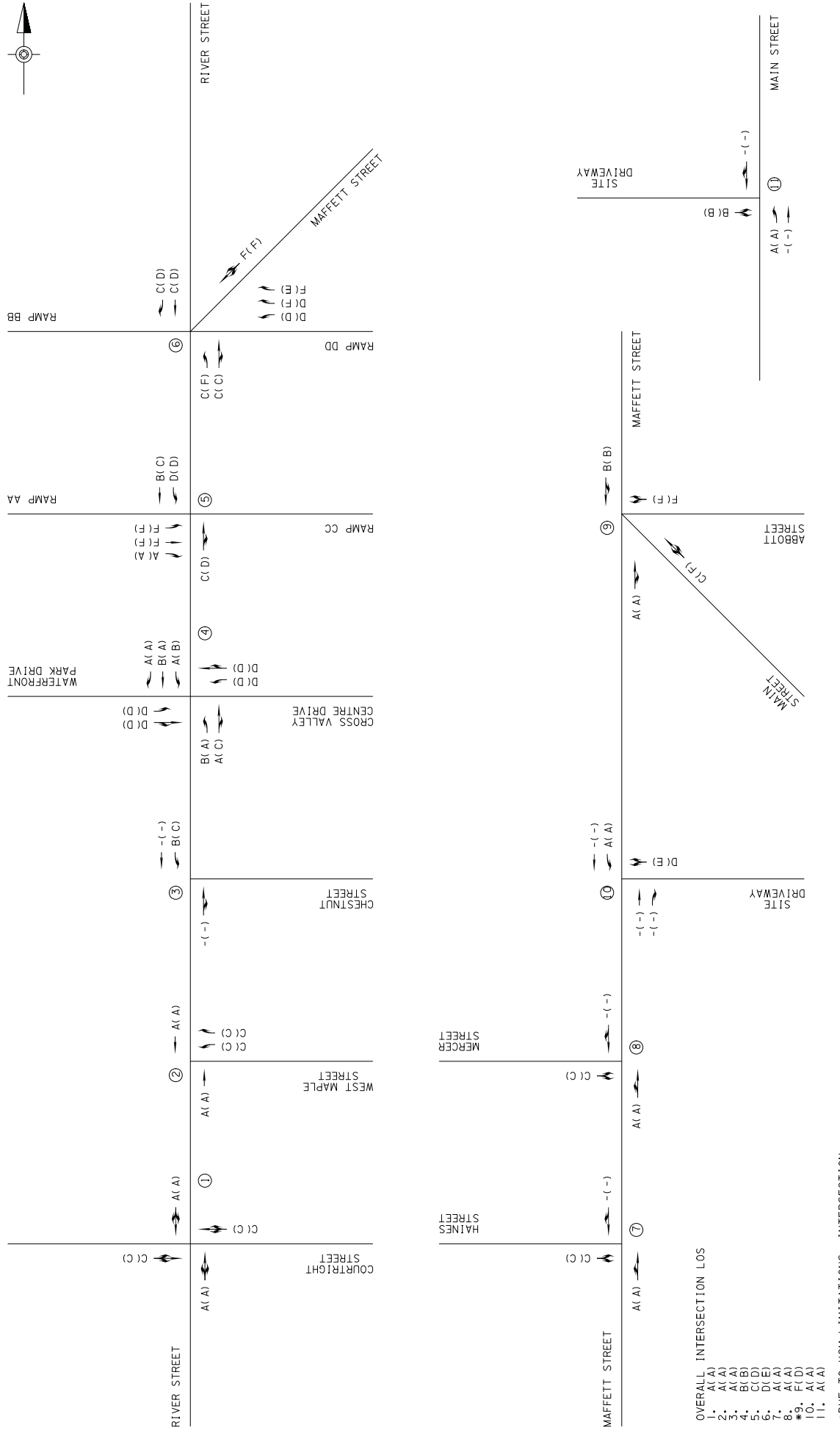
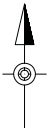
PREPARED BY: BORTON-LAWSON WILKES-BARRE, PA
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WILKES-BARRE AREA SCHOOL DISTRICT
FIGURE 14
51
NOT TO SCALE



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TRAFFIC IMPACT STUDY
WILKES-BARRE AREA SCHOOL DISTRICT
FIGURE 15
NOT TO SCALE

2022 AND 2027
WITH DEVELOPMENT
TRAFFIC VOLUMES

LEGEND
AM (PM)
① INTERSECTION IDENTIFICATION



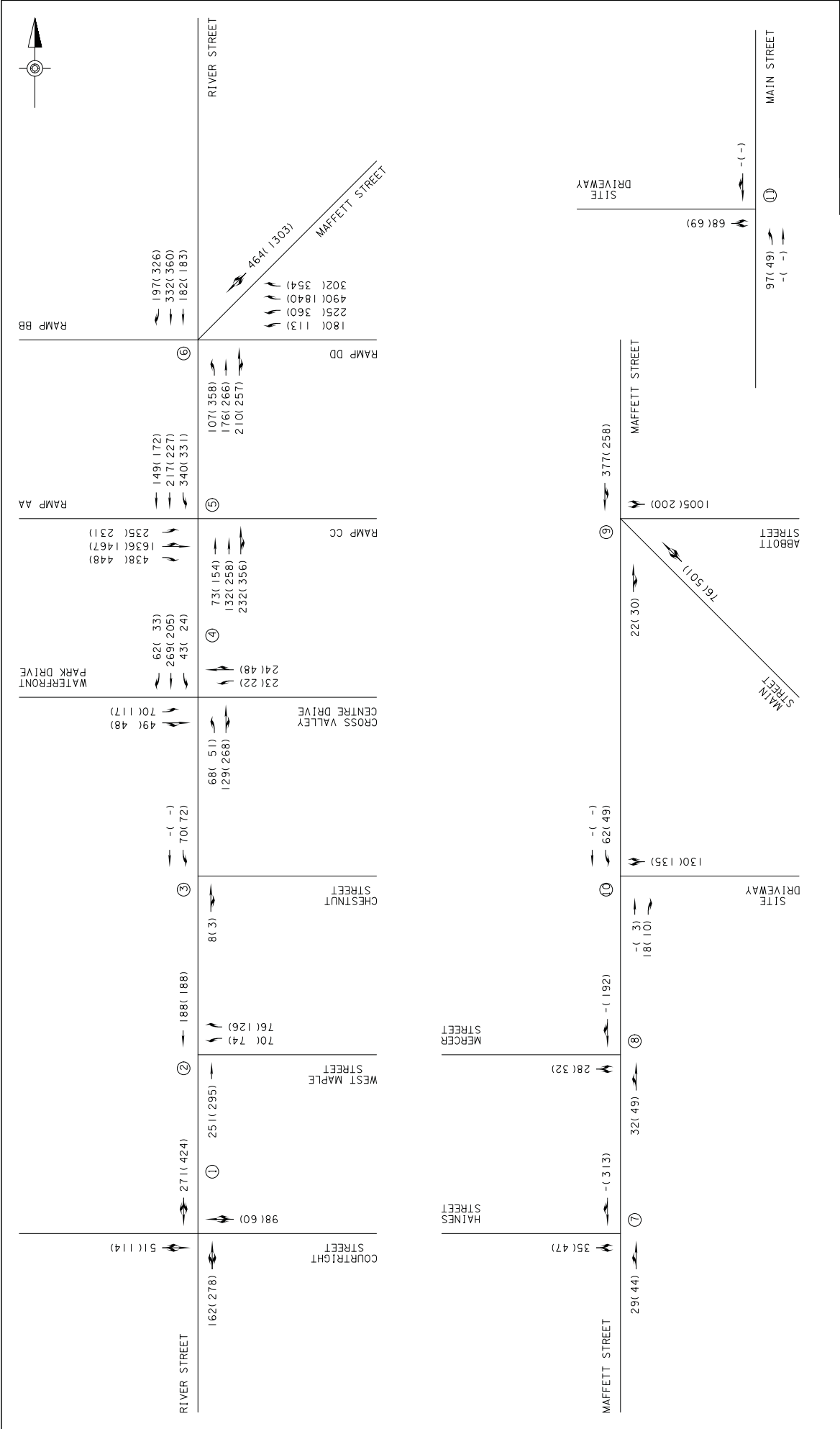
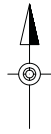
- OVERALL INTERSECTION LOS
1. A(A)
 2. A(A)
 3. A(A)
 4. B(B)
 5. C(C)
 6. D(D)
 7. A(A)
 8. A(A)
 9. F(F)
 10. A(A)
 11. A(A)

*DUE TO HCM LIMITATIONS, INTERSECTION WAS ANALYZED USING SIMTRAFFIC.

LEGEND
AM(PM)
① INTERSECTION IDENTIFICATION

2022 AND 2027
WITH DEVELOPMENT
LEVELS OF SERVICE

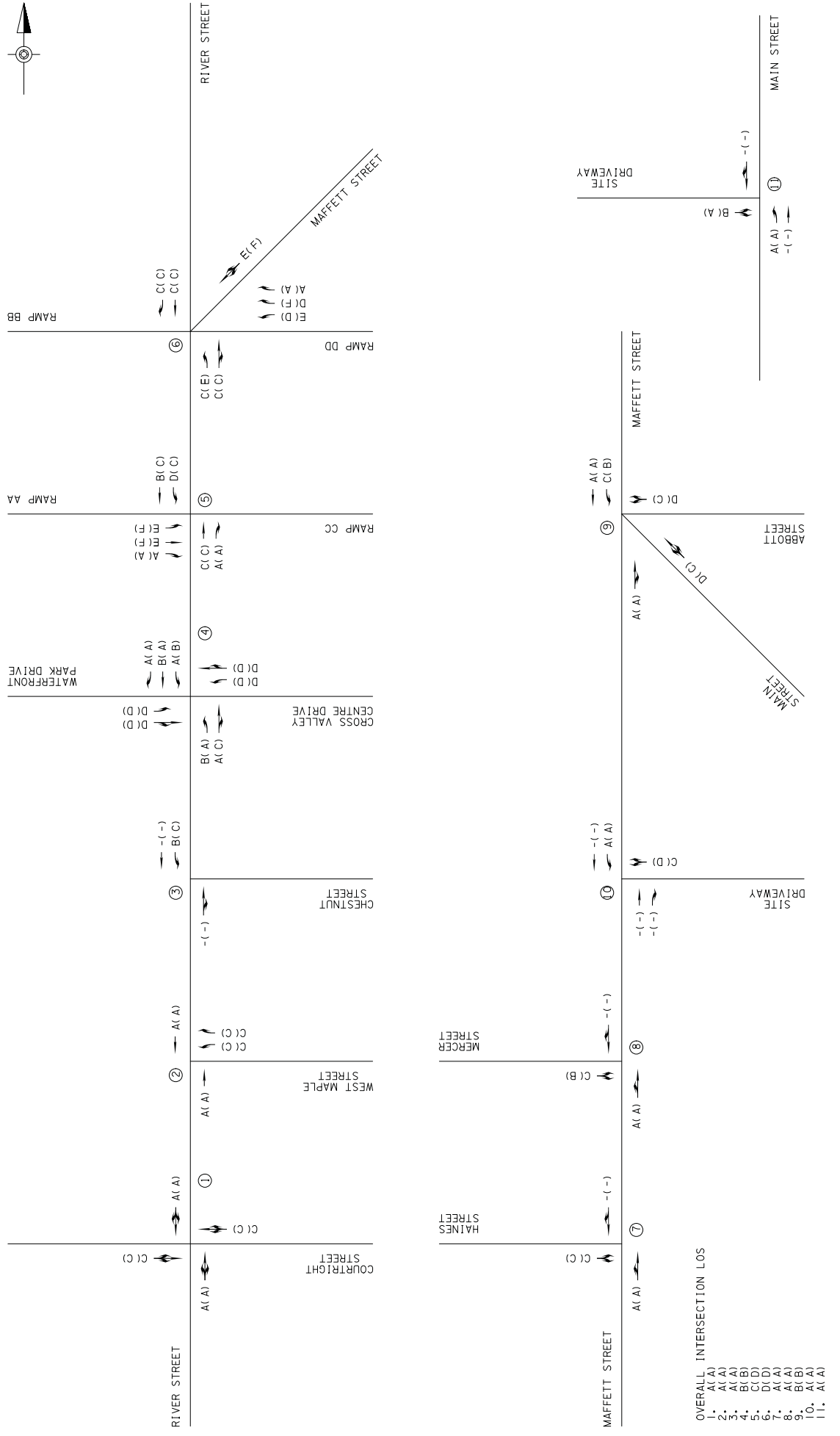
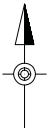
PREPARED BY: BORTON/LAWSON WILKES-BARRE, PA
TRAFFIC IMPACT STUDY
WILKES-BARRE AREA SCHOOL DISTRICT
FIGURE 16
53
NOT TO SCALE



PREPARED BY: BORTON-LAWSON WILKES-BARRE, PA
TRAFFIC IMPACT STUDY
WILKES-BARRE AREA SCHOOL DISTRICT
FIGURE 17
54
NOT TO SCALE

2022 AND 2027
WITH DEVELOPMENT
QUEUE LENGTHS

LEGEND
AM(PM)
① INTERSECTION IDENTIFICATION

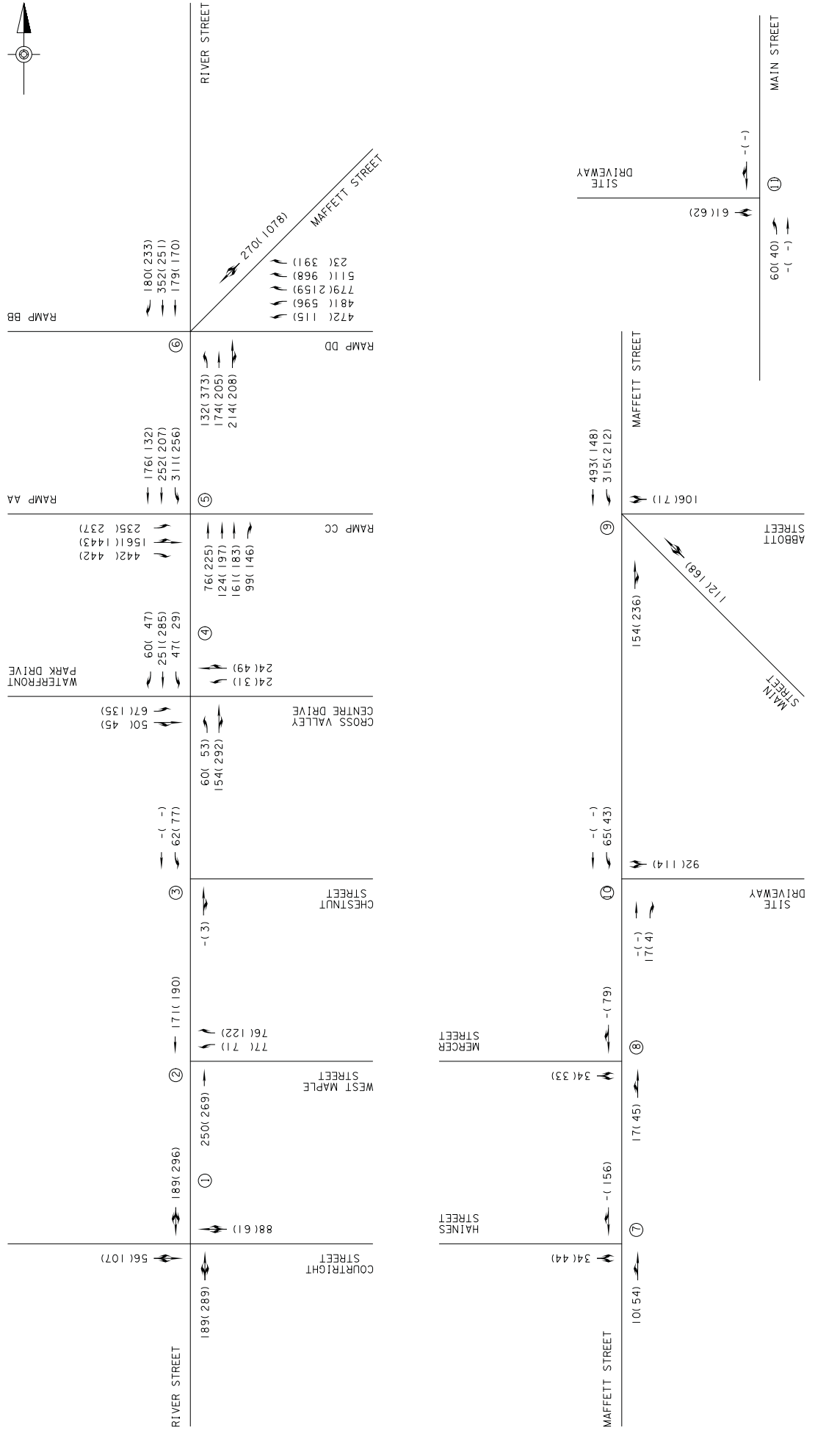
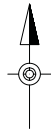


- OVERALL INTERSECTION LOS
1. A(A)
 2. A(A)
 3. A(A)
 4. B(B)
 5. C(D)
 6. D(D)
 7. A(A)
 8. A(A)
 9. B(B)
 10. A(A)
 11. A(A)

LEGEND
 AM(PM)
 ① INTERSECTION IDENTIFICATION

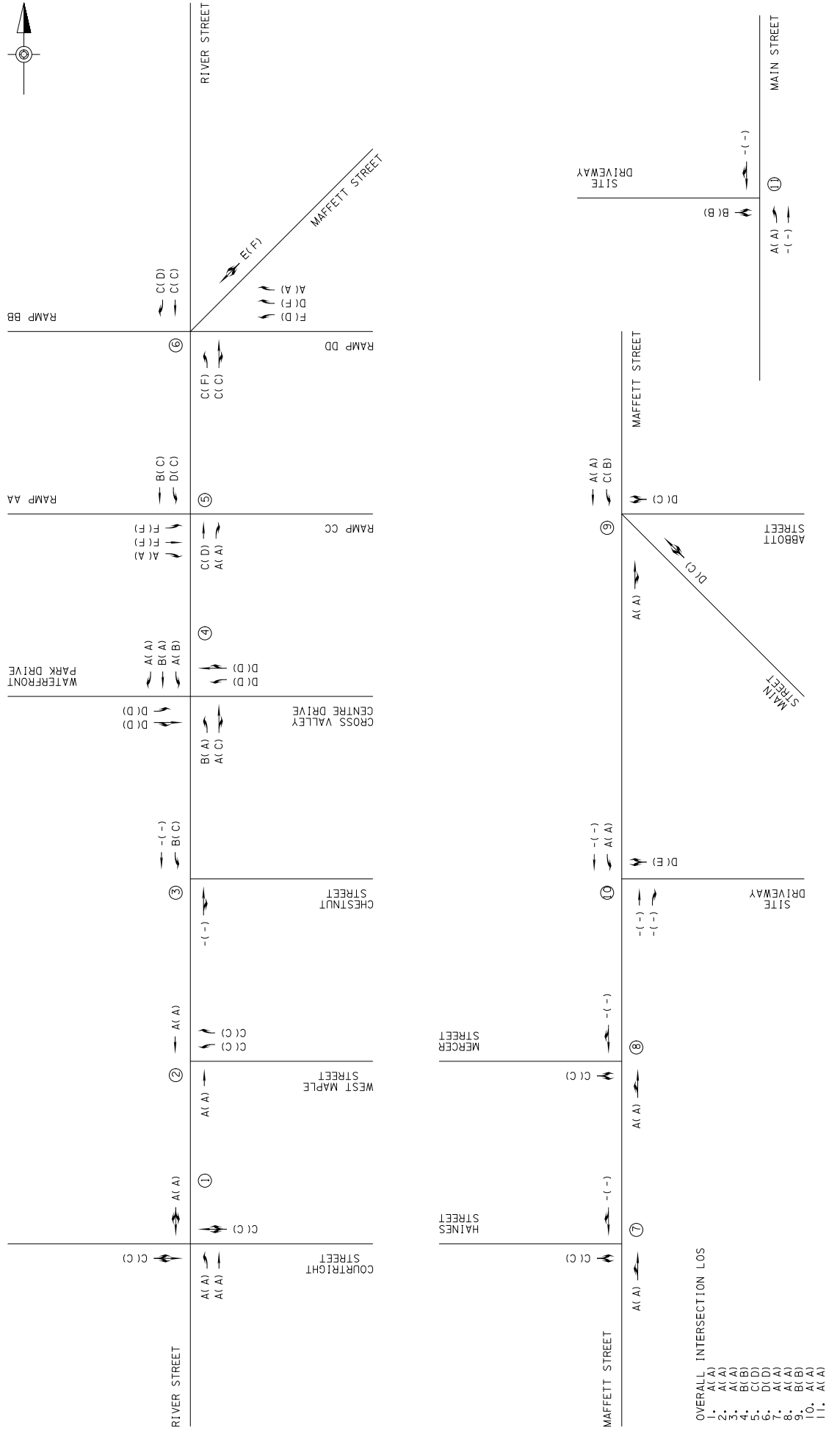
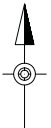
2021 OPENING YEAR
 WITH IMPROVEMENT
 LEVELS OF SERVICE

PREPARED BY: BORTON/LAWSON WILKES-BARRE, PA
TRAFFIC IMPACT STUDY
WILKES-BARRE AREA SCHOOL DISTRICT
FIGURE 18
55
NOT TO SCALE



2021 OPENING YEAR
WITH IMPROVEMENT
QUEUE LENGTHS

LEGEND
AM(PM)
① INTERSECTION IDENTIFICATION



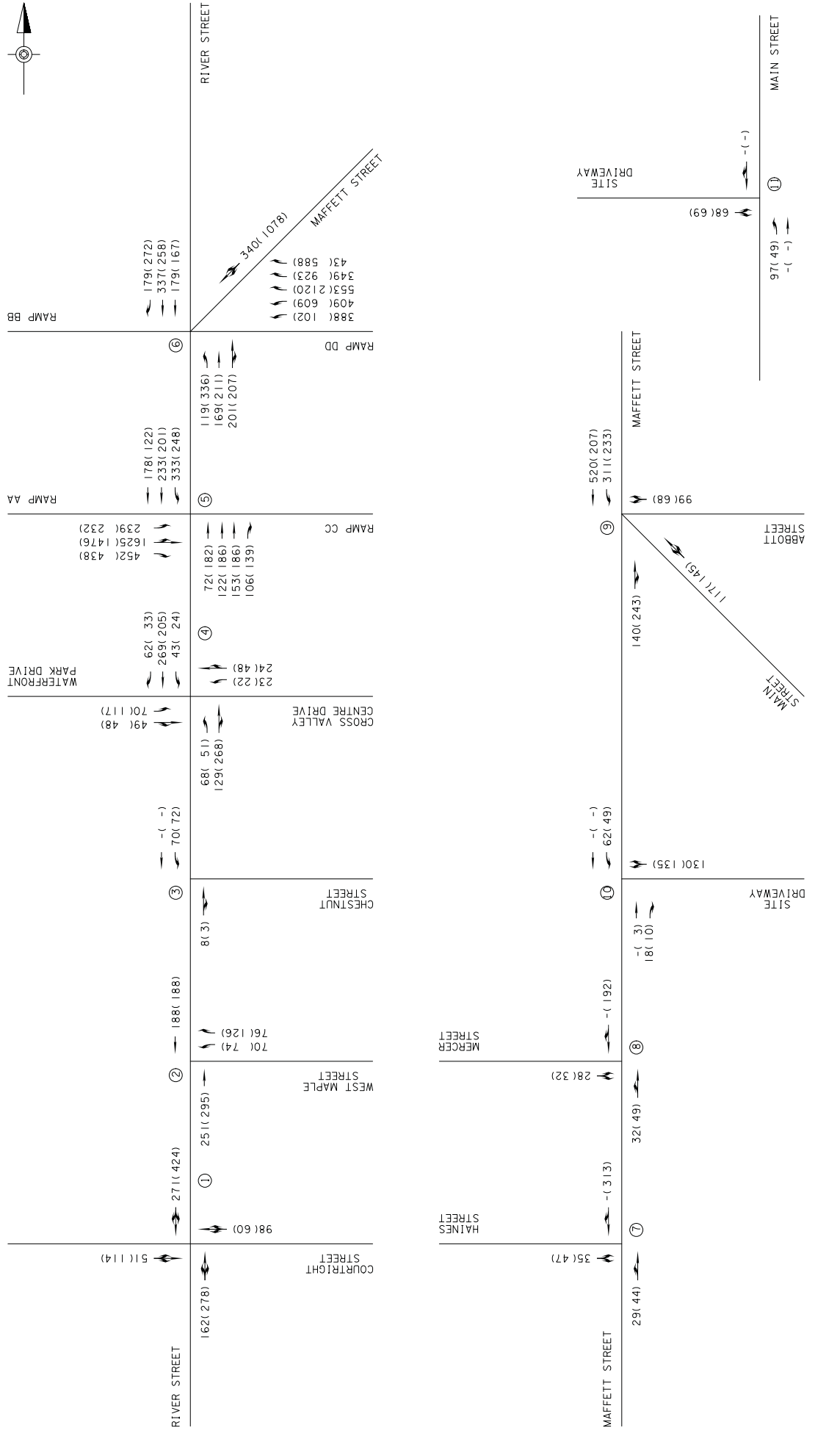
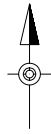
- OVERALL INTERSECTION LOS
1. A(A)
 2. A(A)
 3. A(A)
 4. B(B)
 5. C(D)
 6. D(D)
 7. A(A)
 8. A(A)
 9. B(B)
 10. A(A)
 11. A(A)

LEGEND
 AM(PM)
 ① INTERSECTION IDENTIFICATION

2022 AND 2027
 WITH IMPROVEMENT
 LEVELS OF SERVICE

PREPARED BY: BORTON-LAWSON WILKES-BARRE, PA
TRAFFIC IMPACT STUDY
WILKES-BARRE AREA SCHOOL DISTRICT
FIGURE 20
57

NOT TO SCALE



PREPARED BY: BORTON-LAWSON WILKES-BARRE, PA
TRAFFIC IMPACT STUDY
WILKES-BARRE AREA SCHOOL DISTRICT
FIGURE 21
68
NOT TO SCALE

2022 AND 2027
WITH IMPROVEMENT
QUEUE LENGTHS

LEGEND
AM(PM)
① INTERSECTION IDENTIFICATION

Appendix B

Site Photos



Intersection 1 – Courtright Avenue Looking Eastbound at 50'



Intersection 1 - Courtright Avenue Looking Eastbound at 100'



Intersection 1 - Courtright Avenue Looking Westbound at 50'



Intersection 1 - Courtright Avenue Looking Westbound at 100'



Intersection 1 – SR 2004 Looking Northbound at 50'



Intersection 1 – SR 2004 Looking Northbound at 100'



Intersection 1 – SR 2004 Looking Southbound at 50'



Intersection 1 – SR 2004 Looking Southbound at 100'



Intersection 2 – Maple Street Looking Westbound at 50'



Intersection 2 – Maple Street Looking Westbound at 100'



Intersection 2 – SR 2004 Looking Northbound at 50'



Intersection 2 – SR 2004 Looking Northbound at 100'



Intersection 2 – SR 2004 Looking Southbound at 50'



Intersection 2 – SR 2004 Looking Southbound at 100'



Intersection 3 – Chestnut Street Looking Westbound at 50'



Intersection 3 – Chestnut Street Looking Westbound at 100'



Intersection 3 – SR 2004 Looking Northbound at 50'



Intersection 3 – SR 2004 Looking Northbound at 100'



Intersection 3 – SR 2004 Looking Southbound at 50'



Intersection 3 – SR 2004 Looking Southbound at 100'



Intersection 4 – Waterfront Park Drive Looking Eastbound at 50'



Intersection 4 – Waterfront Park Drive Looking Eastbound at 100'



Intersection 4 – Cross Valley Centre Drive Looking Westbound at 50'



Intersection 4 – Cross Valley Centre Drive Looking Westbound at 100'



Intersection 4 – SR 2004 Looking Northbound at 50'



Intersection 4 – SR 2004 Looking Northbound at 100'



Intersection 4 – SR 2004 Looking Southbound at 50'



Intersection 4 – SR 2004 Looking Southbound at 100'



Intersection 5 – Ramp AA Looking Eastbound at 50'



Intersection 5 – Ramp AA Looking Eastbound at 100'



Intersection 5 – SR 2004 Looking Northbound at 50'



Intersection 5 – SR 2004 Looking Northbound at 100'



Intersection 6 – Ramp DD Looking Westbound at 50'



Intersection 6 – Ramp DD Looking Westbound at 100'



Intersection 6 – SR 2004 Looking Southbound at 50'



Intersection 6 – SR 2004 Looking Southbound at 100'



Intersection 7 – Haines Street Looking Eastbound at 50'



Intersection 7 – Haines Street Looking Eastbound at 100'



Intersection 7 – SR 2024 Looking Northbound at 50'



Intersection 7 – SR 2024 Looking Northbound at 100'



Intersection 7 – SR 2024 Looking Southbound at 50'



Intersection 7 – SR 2024 Looking Southbound at 100'



Intersection 8 – Mercer Street Looking Eastbound at 50'



Intersection 8 – Mercer Street Looking Eastbound at 100'



Intersection 8 – SR 2024 Looking Northbound at 50'



Intersection 8 – SR 2024 Looking Northbound at 100'



Intersection 8 – SR 2024 Looking Southbound at 50'



Intersection 8 – SR 2024 Looking Southbound at 100'



Intersection 9 – Abbott Street Looking Westbound at 50'



Intersection 9 – Abbott Street Looking Westbound at 100'



Intersection 9 – SR 2022 Looking Northwestbound at 50'



Intersection 9 – SR 2022 Looking Northwestbound at 100'



Intersection 9 – SR 2024 Looking Northbound at 50'



Intersection 9 – SR 2024 Looking Northbound at 100'



Intersection 9 – SR 2024 Looking Southbound at 50'



Intersection 9 – SR 2024 Looking Southbound at 100'

Appendix C

Existing Intersection Geometries

PHASING DIAGRAM



OPERATION NOTES

PEDESTRIAN WALK TIME TO BE MINIMUM 8 SECONDS.
ACTUAL WALK TIME TO BE DETERMINED BY PHASE 2 GREEN TIMING.



BACKUP TBC PROGRAM CHART

EVENT	DAY	TIME	CYCLE	OFFSET	PROGRAM	REMARKS
1	2-6	0600	70	45	1 AM PEAK	
2	2-6	0900	80	3	OFF PEAK	
3	2-6	1500	70	7	PM PEAK	
4	1-7	2100	-	-	FREE	
5	7-1	0500	80	2	OFF PEAK (UN-COORDINATED)	

DAY 1 = SUNDAY
 ** OFFSET REFERENCED TO THE BEGINNING OF INTERVAL 3, PHASE 2.



COUNTY LUZERNE W.O. SECTION SHEET

DISTRICT 4-0 LUZERNE 98022 NET 20A OF 17A

CITY OF WILKES-BARRE

PERMIT NO. 6541 SHEET 2 OF 2

DATE ISSUED 7/26/95

DATE REVISED

REMARKS

A 7-30-99 ADDED RADIO EQUIPMENT

A 8-5-9-01 REMOVED COORDINATION

INITIALS
 BEH
 BEH

GENERAL NOTES

INSTALLATION, OPERATION AND MAINTENANCE OF THIS TRAFFIC SIGNAL SHALL BE IN ACCORDANCE WITH PENNSYLVANIA DEPARTMENT OF TRANSPORTATION REGULATIONS ON OPTICAL TRAFFIC CONTROL DEVICES.

NO MODIFICATION OF THIS INSTALLATION IS PERMITTED UNLESS PRIOR APPROVAL IS OBTAINED, IN WRITING, BY THE DEPARTMENT.

ALL MAINTENANCE NECESSARY FOR THE PROPER VISIBILITY OF THE SIGNALS, INCLUDING TRIMMING TREES, IS THE RESPONSIBILITY OF THE PERMITTEE.

ALL SIGNS AND PAVEMENT MARKINGS INDICATED ON THIS DRAWING SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS AND MAINTAINED BY THE PERMITTEE, UNLESS OTHERWISE NOTICED.

THE LEGISLATION WITHIN THIS DRAWING IS THE RESPONSIBILITY OF THE PERMITTEE.

POST MOUNTED SIGNALS SHALL BE INSTALLED WITH THE SIGNAL HEADS A MINIMUM OF 2 FEET BEYOND THE FACE OF THE CURB OR EDGE OF THE SHOULDER, SUPPORT POLES FOR OVERHEAD SIGNALS SHALL ALSO HAVE A MINIMUM HORIZONTAL CLEARANCE OF 2 FEET.

THE MINIMUM HORIZONTAL CLEARANCE BETWEEN SIGNAL HEADS MEASURED AT RIGHT ANGLES TO THE APPROACH, SHALL BE 8 FEET. PERMITTEE SHALL OBTAIN A HIGHWAY OCCUPANCY PERMIT FOR EMBANKMENT REMOVAL, CHANGES IN HIGHWAY GEOMETRY, PAVEMENT RECONSTRUCTION, OR INSTALLATION OF ADDITIONAL LINES.

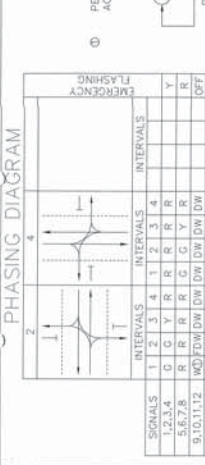
OLD OR CONCRETE ROADWAY REGARDSLESS OF AGE MUST BE MARKED WITH TRAFFIC SIGNAL STANDBY 10-100 SERIES.

THIS DRAWING IS NOT TO BE USED FOR CONSTRUCTION UNLESS IT IS APPROVED BY THE PERMITTEE. NO ALTERATIONS SHALL BE MADE WITHOUT THE WRITTEN APPROVAL OF THE PERMITTEE. PRIOR TO ANY PAVEMENT OR UTILITY WORK, THE PERMITTEE SHALL BE RESPONSIBLE FOR ANY UTILITIES WHICH MAY BE LOCATED ON OR NEAR THE PROJECT.

PAVEMENT MARKINGS SHALL BE PLACED IN ACCORDANCE WITH THE DEPARTMENT OF TRANSPORTATION PAVEMENT MARKING HANDBOOK.

PERMITTEE IS RESPONSIBLE FOR OBTAINING APPROVAL FOR INSTALLATION OF TRAFFIC SIGNAL DEVICES LOCATED OUTSIDE HIGHWAY RIGHT-OF-WAY.

TRAFFIC SIGNALS INSTALLED USING LIGHT PANELS TAX FUNDS MUST CONFORM TO DEPARTMENT SPECIFICATIONS AS SET FORTH IN CURRENT PUBLICATION 408, SUPPLEMENTS AND STANDARD DRAWINGS.



INSTALL UNITY GAIN ANTENNA ON CONTROLLER ENCLOSURE AS SHOWN IN THE SPECIAL PROVISIONS. (S.R. 2004)

ITEM	UNIT	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA
CONTROLLER	CONTROLLER	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7

INSTALL UNITY GAIN ANTENNA ON CONTROLLER ENCLOSURE AS SHOWN IN THE SPECIAL PROVISIONS. (S.R. 2004)

LEGEND

SYMBOL	DESCRIPTION
(Symbol with 'A')	MAST ARM WITH IDENTIFYING NUMBER & LENGTH
(Symbol with 'B')	VEHICULAR SIGNAL HEAD/IDENTIFYING NUMBER
(Symbol with 'C')	PEDESTRIAN SIGNAL HEAD/IDENTIFYING NUMBER
(Symbol with 'D')	SON/IDENTIFYING LETTER
(Symbol with 'E')	VEHICLE DETECTOR/IDENTIFYING NUMBER
(Symbol with 'F')	VEHICLE DETECTOR/IDENTIFYING NUMBER (TYPICAL ASSEMBLY)
(Symbol with 'G')	PEDESTRIAN PUSHBUTTON/SON/IDENTIFYING NUMBER
(Symbol with 'H')	CONTROLLER ASSEMBLY
(Symbol with 'I')	JUNCTION BOX/IDENTIFYING NUMBER
(Symbol with 'J')	CONDUIT/INCH
(Symbol with 'K')	SOLID WHITE LINE/WIDTH
(Symbol with 'L')	SOLID YELLOW LINE/WIDTH
(Symbol with 'M')	BROKEN YELLOW LINE/WIDTH
(Symbol with 'N')	DOUBLE YELLOW SOLID LINE/WIDTH
(Symbol with 'O')	CORB OUT RAMP
(Symbol with 'P')	VIDEO DETECTION CAMERA
(Symbol with 'Q')	VIDEO DETECTION ZONE

TYPICAL SENSOR SPACING

SIGNAL INDICATIONS

SYMBOL	DESCRIPTION
(Symbol with 'R')	9" SYMBOLS
(Symbol with 'S')	8" LENS

MOUNTING DETAIL
 INTERSECTION SPECIAL
 N.T.S.

UNITS: 2" BRACKETS OR EQUIVALENT (PROVIDED TO THE T. SEN. SPEC.)

CLOSED LOOP SIGNAL NOTES
 TRAFFIC RESPONSIVE OPERATION

- PROGRAMS TO BE SELECTED BY CLOSED LOOP SYSTEM OR TBC BACKUP.
- OFFSET REFERENCED TO THE BEGINNING OF YELLOW (PHASE 2, INTERVAL 3).
- ACTUAL GREEN TIME DETERMINED BY CYCLE LENGTH.
- SYSTEM LINE NUMBER (CONTROLLER) STREET ON STREET MASTER: RIVER STREET AND NORTH STREET

PAVEMENT MARKING NOTES

- LIMITS OF PAVEMENT MARKINGS WILL BE 150' FROM THE STOP BAR OF EACH APPROACH, UNLESS OTHERWISE NOTED.

SYMBOL	SERIES	DESCRIPTION	SIZE	QTY.
(Symbol with 'C')	R10-4L-1	TO CROSS, PUSH BUTTON	9" X 12"	2
(Symbol with 'D')	W14-2	NO OUTLET	30" X 50"	1
(Symbol with 'E')	R7-1	NO PARKING	12" X 12"	3
(Symbol with 'F')	R10-4B	STOP HERE ON RED	24" X 50"	1
(Symbol with 'G')	R10-4C	STOP HERE ON RED	24" X 50"	1
(Symbol with 'H')	R10-4-2	PEDESTRIAN INFORMATIONAL CROSSING	9" X 12"	2

REVIEWED: [Signature]
 RECOMMENDED: [Signature]
 DATE: 8/24/99

COUNTY LUZERNE
 MUNICIPALITY: CITY OF WILKES-BARRE
 INTERSECTION: NORTH RIVER STREET (S.R. 2004), AND COURTRIGHT AVENUE

SCALE: 1" = 20'

8/24/99

PERMIT NO. 40037 SHEET 2 OF 2

DATE ISSUED 11-16-87

7-30-99 ADDED RADIO EQUIPMENT

5-9-01 REMOVED COORDINATION

REMARKS: INITIALS: BEH: BEH:

GENERAL NOTES

INSTALLATION, OPERATION AND MAINTENANCE OF THIS TRAFFIC SIGNAL SHALL BE IN ACCORDANCE WITH PENNSYLVANIA DEPARTMENT OF TRANSPORTATION REGULATIONS ON TRAFFIC CONTROL DEVICES.

NO MODIFICATION OF THIS INSTALLATION IS PERMITTED UNLESS PRIOR APPROVAL IS GRANTED, IN WRITING, BY THE DEPARTMENT.

ALL MAINTENANCE NECESSARY FOR THE PROPER VISIBILITY OF THE SIGNALS INCLUDING TRIMMING TREES, IS THE RESPONSIBILITY OF THE PERMITTEE.

ALL SIGNS AND PAVEMENT MARKINGS INDICATED ON THIS DRAWING ARE CONSIDERED PART OF THE PERMIT AND SHALL BE INSTALLED AND MAINTAINED BY THE PERMITTEE, UNLESS OTHERWISE INDICATED. ALL SIGNS SHALL BE IN ACCORDANCE WITH THE PENNSYLVANIA DEPARTMENT OF TRANSPORTATION REGULATIONS ON TRAFFIC CONTROL DEVICES.

POST MOUNTED SIGNALS SHALL BE INSTALLED WITH THE SIGNAL HEADS A MINIMUM OF 2 FEET ABOVE THE FACE OF THE CURB OR SIDEWALK. SIGNALS SHALL ALSO HAVE A MINIMUM HORIZONTAL CLEARANCE OF 2 FEET.

THE BOTTOM OF SIGNAL HEADS AND SPOLLS BECETED OVER THE ROADWAY SHALL NOT BE LESS THAN 15 FEET OR MORE THAN 10 FEET ABOVE THE ROADWAY SURFACE. UNMOUNTED SIGNAL HEADS SHALL NOT BE LESS THAN 15 FEET ABOVE THE ROADWAY SURFACE ABOVE THE SIDEWALK OR PAVEMENT GRADE.

THE MINIMUM HORIZONTAL DISTANCE BETWEEN SIGNAL HEADS, MEASURED AT RIGHT ANGLES TO THE APPROACH, SHALL BE 8 FEET.

PERMITTEE SHALL OBTAIN A HIGHWAY OCCUPANCY PERMIT FOR THE INSTALLATION OF THIS TRAFFIC SIGNAL SYSTEM IN ACCORDANCE WITH THE PENNSYLVANIA DEPARTMENT OF TRANSPORTATION REGULATIONS ON TRAFFIC CONTROL DEVICES.

CONCRETE OR CONCRETE ROADWAY REGARDS OF AGE, MUST BE BORED TO A MINIMUM OF 12" BELOW THE SURFACE OF THE ROADWAY.

THIS DRAWING CANNOT BE USED AS A CONSTRUCTION DRAWING UNLESS THE PERMITTEE COMPLETES WITH THE PROVISIONS OF ACT 34, WHICH PROVIDES FOR THE PROVISIONS OF ACT 34, PRIOR TO ANY CONSTRUCTION OF SIGNALS TO BE INSTALLED. ANY PROBLEMS WHICH MAY BE CREATED DUE TO THE LOCATION OF UTILITIES.

TRAFFIC SIGNALS INSTALLED USING LIQUID FUELS TAX FUNDS MUST BE INSTALLED IN ACCORDANCE WITH THE PROVISIONS OF ACT 34, WHICH PROVIDES FOR THE PROVISIONS OF ACT 34, PRIOR TO ANY CONSTRUCTION OF SIGNALS TO BE INSTALLED.

TRAFFIC SIGNALS INSTALLED USING LIQUID FUELS TAX FUNDS MUST BE INSTALLED IN ACCORDANCE WITH THE PROVISIONS OF ACT 34, WHICH PROVIDES FOR THE PROVISIONS OF ACT 34, PRIOR TO ANY CONSTRUCTION OF SIGNALS TO BE INSTALLED.

BACKUP TBC PROGRAM CHART

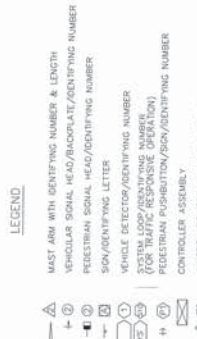
EVENT	DAY*	TIME	CYCLE	OFFSET**	PROGRAM	REMARKS
1	2-6	0900	70	0	1	DAY PEAK
2	2-6	0900	80	0	3	OFF PEAK
3	2-6	1500	70	0	3	PM PEAK
4	1-7	2100	-	-	-	FREE
5	7-1	0600	80	0	2	OFF PEAK

* DAY 1 = SUNDAY
** OFFSET REFERENCED TO THE BEGINNING OF INTERVAL 3, PHASE 2.



DESCRIPTION

ITEM NUMBER	DESCRIPTION	UNIT	QTY	PRICE	TOTAL
1	CONICAL CABLE	EA	1	2.29	2.29
2	MAST PIPE	EA	1	2.29	2.29
3	TO 800 GAIN YAGI ANTENNA	EA	1	2.29	2.29
4	TO 800 GAIN YAGI ANTENNA	EA	1	2.29	2.29
5	TO 800 GAIN YAGI ANTENNA	EA	1	2.29	2.29
6	TO 800 GAIN YAGI ANTENNA	EA	1	2.29	2.29
7	TO 800 GAIN YAGI ANTENNA	EA	1	2.29	2.29
8	TO 800 GAIN YAGI ANTENNA	EA	1	2.29	2.29
9	TO 800 GAIN YAGI ANTENNA	EA	1	2.29	2.29
10	TO 800 GAIN YAGI ANTENNA	EA	1	2.29	2.29
11	TO 800 GAIN YAGI ANTENNA	EA	1	2.29	2.29
12	TO 800 GAIN YAGI ANTENNA	EA	1	2.29	2.29
13	TO 800 GAIN YAGI ANTENNA	EA	1	2.29	2.29
14	TO 800 GAIN YAGI ANTENNA	EA	1	2.29	2.29
15	TO 800 GAIN YAGI ANTENNA	EA	1	2.29	2.29
16	TO 800 GAIN YAGI ANTENNA	EA	1	2.29	2.29
17	TO 800 GAIN YAGI ANTENNA	EA	1	2.29	2.29
18	TO 800 GAIN YAGI ANTENNA	EA	1	2.29	2.29
19	TO 800 GAIN YAGI ANTENNA	EA	1	2.29	2.29
20	TO 800 GAIN YAGI ANTENNA	EA	1	2.29	2.29
21	TO 800 GAIN YAGI ANTENNA	EA	1	2.29	2.29
22	TO 800 GAIN YAGI ANTENNA	EA	1	2.29	2.29
23	TO 800 GAIN YAGI ANTENNA	EA	1	2.29	2.29
24	TO 800 GAIN YAGI ANTENNA	EA	1	2.29	2.29
25	TO 800 GAIN YAGI ANTENNA	EA	1	2.29	2.29
26	TO 800 GAIN YAGI ANTENNA	EA	1	2.29	2.29
27	TO 800 GAIN YAGI ANTENNA	EA	1	2.29	2.29
28	TO 800 GAIN YAGI ANTENNA	EA	1	2.29	2.29
29	TO 800 GAIN YAGI ANTENNA	EA	1	2.29	2.29
30	TO 800 GAIN YAGI ANTENNA	EA	1	2.29	2.29
31	TO 800 GAIN YAGI ANTENNA	EA	1	2.29	2.29
32	TO 800 GAIN YAGI ANTENNA	EA	1	2.29	2.29
33	TO 800 GAIN YAGI ANTENNA	EA	1	2.29	2.29
34	TO 800 GAIN YAGI ANTENNA	EA	1	2.29	2.29
35	TO 800 GAIN YAGI ANTENNA	EA	1	2.29	2.29
36	TO 800 GAIN YAGI ANTENNA	EA	1	2.29	2.29
37	TO 800 GAIN YAGI ANTENNA	EA	1	2.29	2.29
38	TO 800 GAIN YAGI ANTENNA	EA	1	2.29	2.29
39	TO 800 GAIN YAGI ANTENNA	EA	1	2.29	2.29
40	TO 800 GAIN YAGI ANTENNA	EA	1	2.29	2.29
41	TO 800 GAIN YAGI ANTENNA	EA	1	2.29	2.29
42	TO 800 GAIN YAGI ANTENNA	EA	1	2.29	2.29
43	TO 800 GAIN YAGI ANTENNA	EA	1	2.29	2.29
44	TO 800 GAIN YAGI ANTENNA	EA	1	2.29	2.29
45	TO 800 GAIN YAGI ANTENNA	EA	1	2.29	2.29
46	TO 800 GAIN YAGI ANTENNA	EA	1	2.29	2.29
47	TO 800 GAIN YAGI ANTENNA	EA	1	2.29	2.29
48	TO 800 GAIN YAGI ANTENNA	EA	1	2.29	2.29
49	TO 800 GAIN YAGI ANTENNA	EA	1	2.29	2.29
50	TO 800 GAIN YAGI ANTENNA	EA	1	2.29	2.29



OPERATION NOTES

1. PEDESTRIAN WALK TIME TO BE MINIMUM 7 SECONDS. WALKING SPEED TO BE DETERMINED BY PHASE 2.

2. GREEN TIME.



DESCRIPTION

SYMBOL	SERIES	DESCRIPTION	SIZE	QTY
1	R7-1	NO PARKING	12"x12"	7
2	R8-1	NO PARKING - TRUCKS ONLY	9"x12"	1
3	R3-2L	LEFT LANE MUST TURN LEFT	30"x30"	1
4	R9-3	NO PEDESTRIAN CROSSING	18"x12"	1
5	R9-3-1L	USE CROSSWALK	18"x12"	1
6	R5-1	DO NOT ENTER	30"x30"	2
7	R6-11	END ONE WAY	30"x30"	2
8	R10-4L	HORIZONTAL LEFT ONE-WAY	30"x30"	2
9	R10-4R	HORIZONTAL RIGHT ONE-WAY	30"x30"	2
10	R3-1	NO RIGHT TURN	18"x12"	1
11	R3-1R	NO RIGHT TURN	18"x12"	1
12	R1-5	YIELD TO FEDS. IN CROSSWALK	24"x24"	1
13	R3-2	NO LEFT TURN	30"x30"	1
14	R3-1	NO RIGHT TURN	30"x30"	1
15	R3-2	NO LEFT TURN	30"x30"	1
16	R3-3	NO RIGHT TURN	30"x30"	1
17	R10-4-2	PEDESTRIAN INFORMATIONAL CROSSING	30"x30"	1
18	R10-4-1	CROSS. PUSH BUTTON	30"x30"	1
19	R10-4-2	CROSS. PUSH BUTTON	30"x30"	1
20	R10-4-1	CROSS. PUSH BUTTON	30"x30"	1
21	R10-4-2	CROSS. PUSH BUTTON	30"x30"	1
22	R10-4-1	CROSS. PUSH BUTTON	30"x30"	1
23	R10-4-2	CROSS. PUSH BUTTON	30"x30"	1
24	R10-4-1	CROSS. PUSH BUTTON	30"x30"	1
25	R10-4-2	CROSS. PUSH BUTTON	30"x30"	1
26	R10-4-1	CROSS. PUSH BUTTON	30"x30"	1
27	R10-4-2	CROSS. PUSH BUTTON	30"x30"	1
28	R10-4-1	CROSS. PUSH BUTTON	30"x30"	1
29	R10-4-2	CROSS. PUSH BUTTON	30"x30"	1
30	R10-4-1	CROSS. PUSH BUTTON	30"x30"	1
31	R10-4-2	CROSS. PUSH BUTTON	30"x30"	1
32	R10-4-1	CROSS. PUSH BUTTON	30"x30"	1
33	R10-4-2	CROSS. PUSH BUTTON	30"x30"	1
34	R10-4-1	CROSS. PUSH BUTTON	30"x30"	1
35	R10-4-2	CROSS. PUSH BUTTON	30"x30"	1
36	R10-4-1	CROSS. PUSH BUTTON	30"x30"	1
37	R10-4-2	CROSS. PUSH BUTTON	30"x30"	1
38	R10-4-1	CROSS. PUSH BUTTON	30"x30"	1
39	R10-4-2	CROSS. PUSH BUTTON	30"x30"	1
40	R10-4-1	CROSS. PUSH BUTTON	30"x30"	1
41	R10-4-2	CROSS. PUSH BUTTON	30"x30"	1
42	R10-4-1	CROSS. PUSH BUTTON	30"x30"	1
43	R10-4-2	CROSS. PUSH BUTTON	30"x30"	1
44	R10-4-1	CROSS. PUSH BUTTON	30"x30"	1
45	R10-4-2	CROSS. PUSH BUTTON	30"x30"	1
46	R10-4-1	CROSS. PUSH BUTTON	30"x30"	1
47	R10-4-2	CROSS. PUSH BUTTON	30"x30"	1
48	R10-4-1	CROSS. PUSH BUTTON	30"x30"	1
49	R10-4-2	CROSS. PUSH BUTTON	30"x30"	1
50	R10-4-1	CROSS. PUSH BUTTON	30"x30"	1

1. LIMITS OF PAVEMENT MARKINGS WILL BE 150' FROM THE STOP BAR OF EACH APPROACH, UNLESS OTHERWISE NOTED.

2. SYSTEM: RIVER STREET: 2 INTERSECTION (AM AND PM PEAK HOURS ONLY) SYSTEM LIMIT, COURTRIGHT AVENUE AND MAPLE AVENUE ON STREET WASTER, RIVER STREET AND NORTH STREET

3. ACTUAL GREEN TIME DETERMINED BY CYCLE LENGTH.

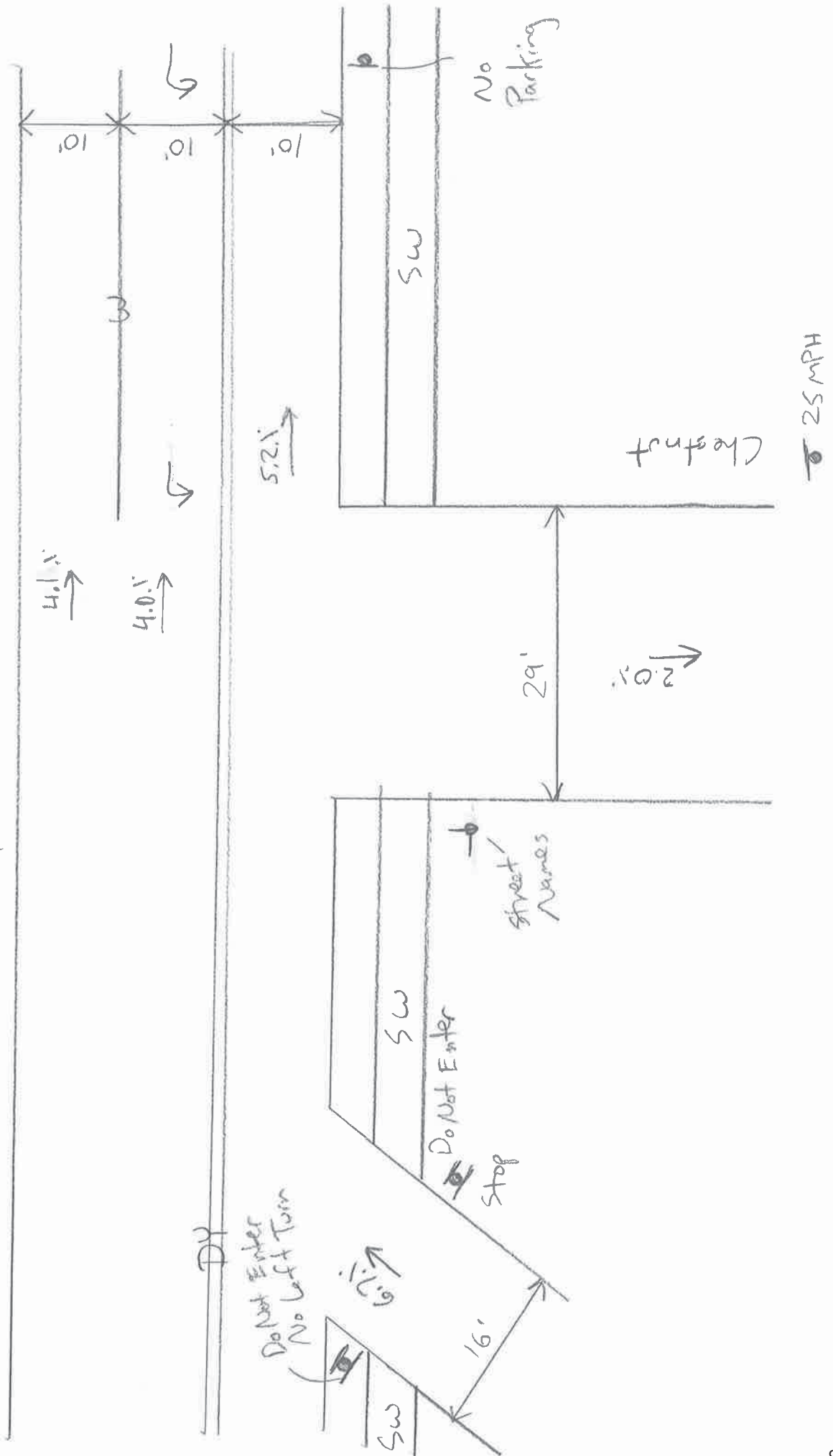
4. OFFSET REFERENCED TO THE BEGINNING OF YELLOW (PHASE 2, INTERVAL 3).

5. PEDESTRIAN WALK TIME DETERMINED BY PHASE 2.

6. GREEN TIME.



N River



PERMIT NO. 40197	SHEET 2 OF 2
DATE ISSUED 5/3/99	DATE REVISED *
REVISION	DATE
CONDITION DIAGRAM ONLY	8-1-02 AIL
REVISED TIMING	8-19-02PERRI

ALL INPUTS AND OUTPUTS OF THE CONTROLLER SHALL BE WIRED TO THE APPROPRIATE CONNECTORS AND HARDWARE. EACH LOOP MUST BE ASSIGNED TO A SEPARATE DETECTOR INPUT IN THE CONTROLLER. THE CAPABILITY OF SWITCHING, EXTENSION AND DELAYS TO AN INDIVIDUAL LOOP. COORDINATING ANY FIELD-CHANGED UTILITIES THAT MAY INTERFERE WITH CLEAR VISION OF SIGNAL HEADS. INSTALL ALL SIGNS AND PAVEMENT MARKINGS AS INDICATED ON THESE PLANS. SIGNALS MUST FLASH A MINIMUM OF THREE DAYS, MAXIMUM OF SEVEN DAYS, PRIOR TO RED, YELLOW, GREEN OPERATION. THE DISTRICT TRAFFIC ENGINEER, IN WRITING, SHALL BE NOTIFIED OF ANY CHANGES TO THE PLACING SIGNALS INTO RED, YELLOW OR GREEN. CALENDAR DAYS PRIOR TO CONDUCTING A PHYSICAL TEST AS REQUIRED IN SECTION 904.004. THE DISTRICT TRAFFIC ENGINEER MAY WITNESS THE TESTING, PROVIDE COMMENTS, CERTIFICATION THAT THE EQUIPMENT, INCLUDING THE CONFLICT MONITOR, OPERATES AS INDICATED TO THE DISTRICT TRAFFIC ENGINEER.

NEAREST SIGNAL IS 1500' AT CHESTNUT STREET GRADE +2.42' SPEED LIMIT 35 MPH

LOOP 2 LOCATED 242 FT FROM STOP BAR

LOOP 3 LOCATED 304 FT FROM STOP BAR

LOOP 4 LOCATED 242 FT FROM STOP BAR

LOOP 5 LOCATED 331 FT FROM STOP BAR

LOOP 6 LOCATED 260 FT FROM STOP BAR

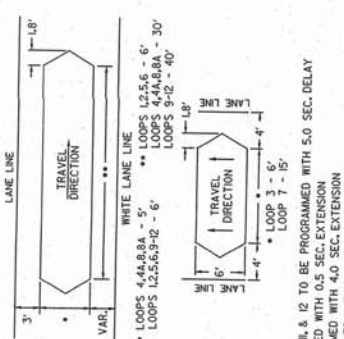
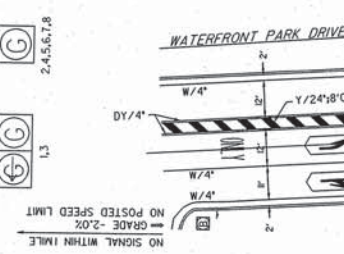
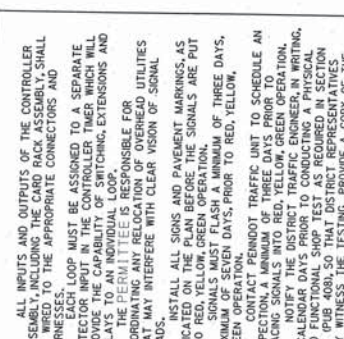
COUNTY: LUZERNE
MUNICIPALITY: PLAINS TOWNSHIP
INTERSECTION: RIVER STREET (SR 2004) AND WATERFRONT PARK/CROSS VALLEY CENTRE DRIVES

BRIGHT M.O'CONNOR SIGNED ORIGINAL 4/27/99
MUNICIPAL OFFICIAL DATE

RECOMMENDED:
ROBERT J. KRETSCHMER P.E. SIGNED ORIGINAL 4/30/99
DISTRICT TRAFFIC ENGINEER DATE

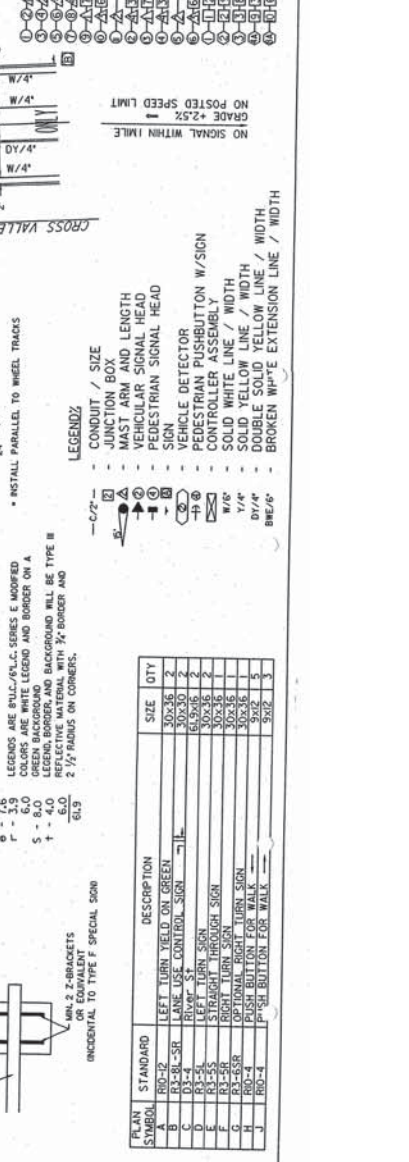
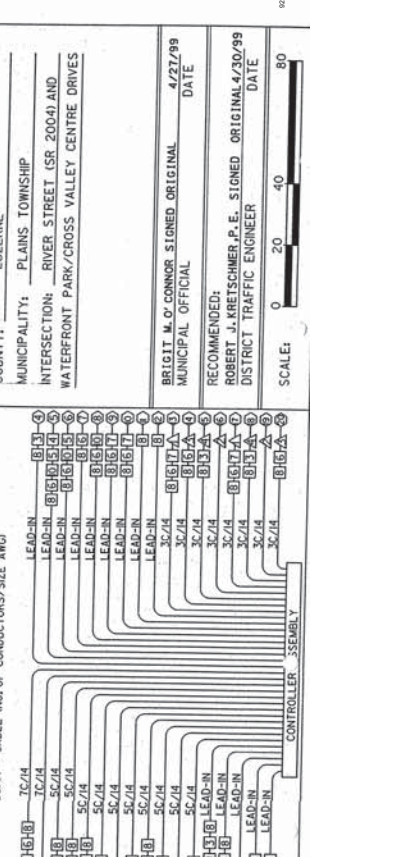
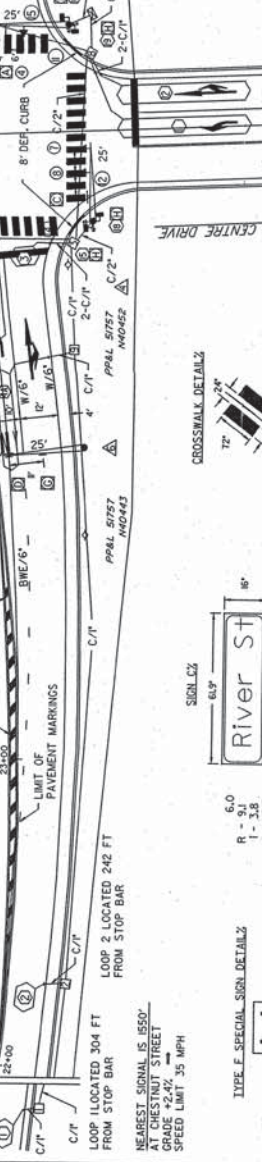
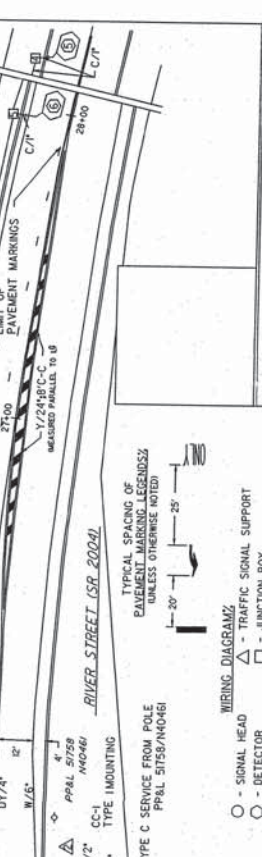
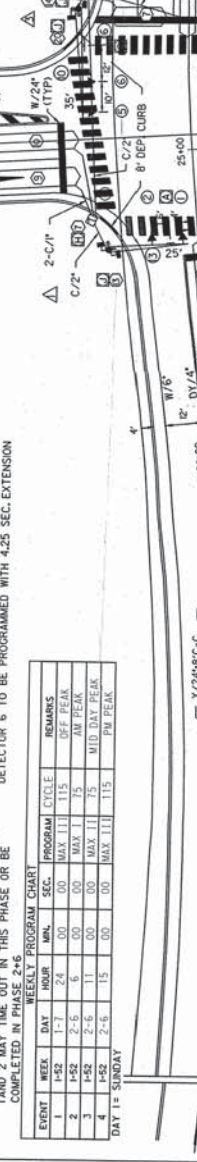
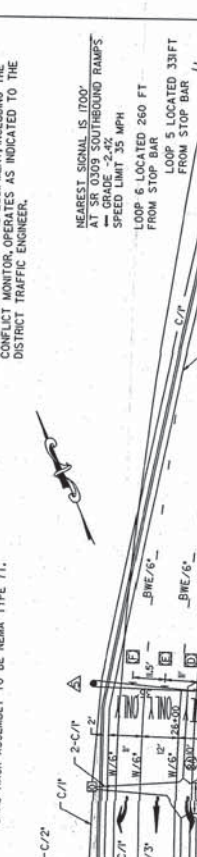
SCALE: 0 20 40 80

GENERAL NOTES:
INSTALL, OPERATE AND MAINTAIN THE TRAFFIC SIGNALS IN ACCORDANCE WITH PENNSYLVANIA DEPARTMENT OF TRANSPORTATION REGULATIONS. TRAFFIC SIGNAL DEVICES, SPECIFICATIONS (PIB 408), TRAFFIC STANDARDS (PIB 409), SIGNALS (TC-7000 SERIES), AND TRAFFIC SIGNAL DESIGN HANDBOOK (PIB 409) APPROVAL IS GRANTED, IN NECESSARY FOR PROPER OPERATION.
ALL MAINTENANCE NECESSARY FOR PROPER OPERATION OF THE SIGNALS INCLUDING TRIMMING TREES, IS THE RESPONSIBILITY OF THE PERMITTEE.
THE PERMITTEE SHALL MAINTAIN AND MAINTAINS ALL SIGNS AND PAVEMENT MARKINGS UNLESS OTHERWISE NOTED. THE DEPARTMENT MAINTAINS THE LONGITUDINAL SIGNS 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, CLEARANCE OF 2 FEET BEHIND OVERHEAD SIGNALS WITH A MINIMUM HORIZONTAL PAVE OR 2 FEET FROM THE SHOULDER, WHICHEVER IS GREATER FROM THE EDGE OF ROADWAY.
INSTALL SIGNAL HEADS AND SIGNS ERRECTED OVER THE ROADWAY WITH NOT LESS THAN 16 FEET NOR MORE THAN 17 FEET ABOVE THE ROADWAY.
INSTALL POST MOUNTED SIGNAL HEADS WITH DISTANCE NOT LESS THAN 8 FEET NOR MORE THAN 15 FEET ABOVE THE SIDEWALK OR PARKING AREA. BETWEEN SIGNAL HEADS AS MEASURED AT RIGHT ANGLES TO THE APPROACH, IN 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 WITH UTILITY COMPANIES TO RESOLVE ANY PROBLEMS WHICH MAY BE CREATED DUE TO THE LOCATION OF UTILITIES.
AFTER THE TRAFFIC SIGNAL INSTALLATION BECOMES OPERATIONAL, CONDUCT A CONTINUOUS 24 HOUR OPERATING TEST AS SPECIFIED IN PUB.408, SECTION 903.3.
CARD RACK ASSEMBLY TO BE NEMA TYPE 1T.



EVENT	WEEK	DAY	HOUR	MIN.	SEC.	PROGRAM	CYCLE	REMARKS
1	1-82	1-7	24	00	00	MAX	111	1115 OFF PEAK
2	1-82	2-6	6	00	00	MAX	1	15 AM PEAK
3	1-82	2-6	11	00	00	MAX	11	15 MID DAY PEAK
4	1-82	2-6	15	00	00	MAX	111	115 PM PEAK

DAY 1 = SUNDAY



DISTRICT	COUNTY	ROUTE	SECTION	SHEET
4-0	LUZERNE	0309	378	1 OF 5
PLAINS TOWNSHIP				
PERMIT NO.	40053	SHEET	2	OF 4
DATE ISSUED		DATE REVISED		
NO.		REVISION		DATE BY

GENERAL NOTES

INSTALL, OPERATE AND MAINTAIN THIS TRAFFIC SIGNAL IN ACCORDANCE WITH PENNSYLVANIA DEPARTMENT OF TRANSPORTATION SPECIFICATIONS (PUB 408) TRAFFIC DEVICES (PUB 212) SPECIFICATIONS (PUB 408) TRAFFIC STANDARDS (TC-8700 AND TC-8800 SERIES (PUB 148), 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 SIGNALS IS TO BE THE RESPONSIBILITY OF THE CONTRACTOR.

THE CONTRACTOR MAINTAINS ALL SIGNS IN THE SIGN BLOCK AND THE SIGN BLOCK IS TO BE MAINTAINED THROUGHOUT THE PROJECT. ANY SIGNS 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 7-1.

THIS DRAWING CANNOT BE USED AS A CONSTRUCTION DRAWING, UNLESS THE CONTRACTOR COMPLETES WITH THE PROVISIONS OF THE PERMIT. THE CONTRACTOR SHALL CONSULT WITH ALL UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION CONSULT WITH UTILITY COMPANIES TO RESOLVE ANY CONFLICTS.

THE CONTRACTOR 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 GREEN OPERATION.

CONTRACTOR SHALL SCHEDULE UNIT TO SCHEDULE A TRAFFIC SIGNAL SECTION WITH A MINIMUM OF THREE DAYS PRIOR TO RED, YELLOW, GREEN OPERATION.

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.

ALL PERMANENT PAVEMENT MARKINGS INSTALLED FOR THIS PROJECT SHALL BE HOT APPLIED THERMOPLASTIC.

THREADED PLATE MAST ARM CONNECTIONS WILL NOT BE PERMITTED FOR THIS TRAFFIC SIGNAL PERMIT.

INSTALL TRAFFIC SIGNAL HEADS WITH A MINIMUM OF 8" SEPARATION BETWEEN HEADS AS VIEWED FROM THE APPROACH.

INSTALL MAST ARMS AND PEDESTAL POLE FOUNDATIONS FLUSH WITH THE SIDEWALK OR SURROUNDING GRADE.

THE CONTRACTOR IS RESPONSIBLE TO MAKE THE SIGNAL FUNCTION ACCORDING TO PLAN.

THE CONTRACTOR IS RESPONSIBLE TO ENSURE EXISTING EQUIPMENT IS OPERATING ACCORDING TO PLANS.

COUNTY : LUZERNE

MUNICIPALITY : PLAINS TOWNSHIP

INTERSECTION : RIVER STREET (SR 2004) & SR 0309 RAMPS

WAFRETT STREET (SR 2011) & SR 0309 RAMPS

REVIEWED : *Robert A. G.*

MUNICIPAL OFFICIAL

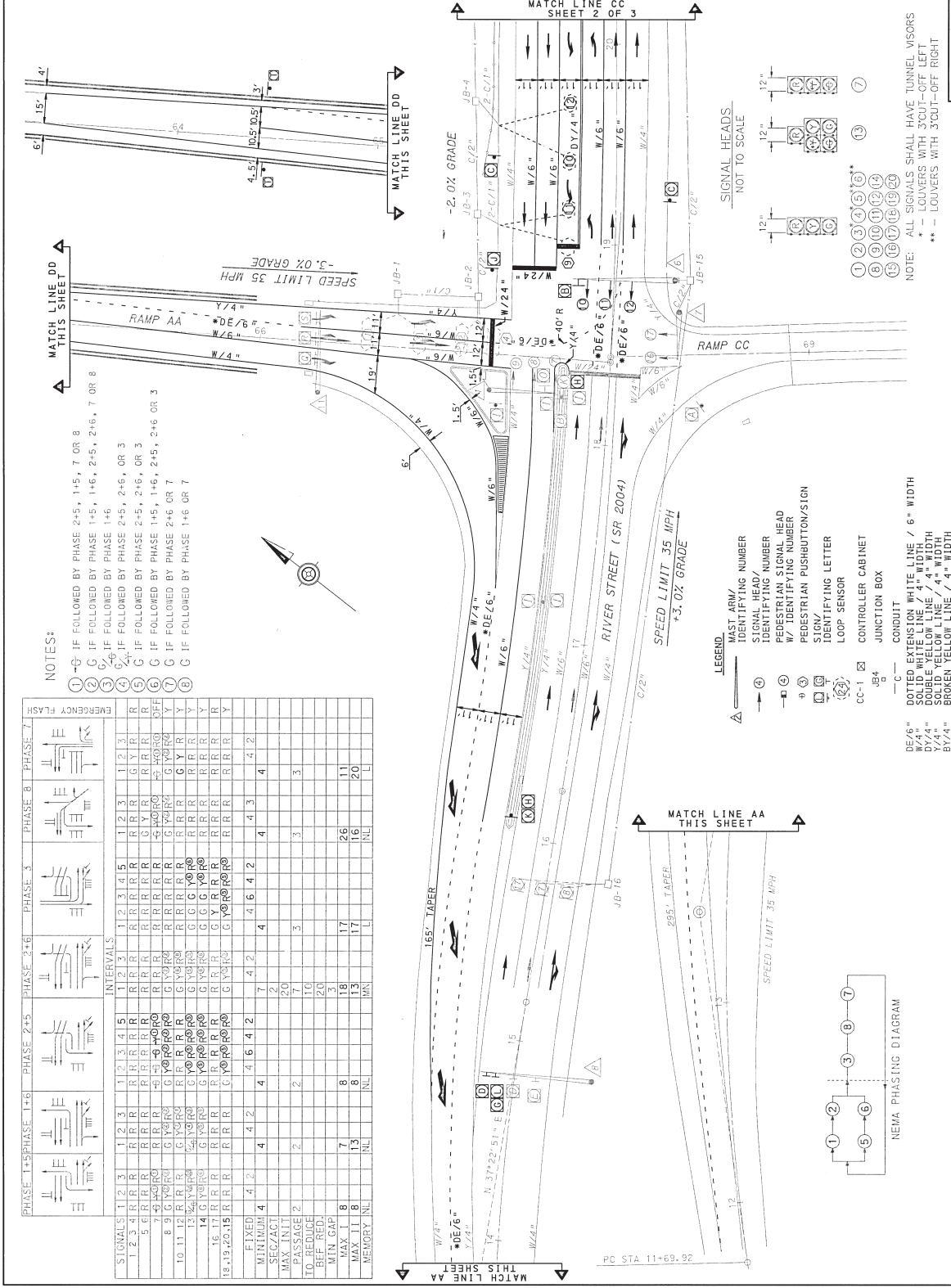
DATE

RECOMMENDED : *North D. G.*

DISTRICT TRAFFIC ENGINEER

DATE 4-12-2016

SCALE : 25' 0 25' 50'

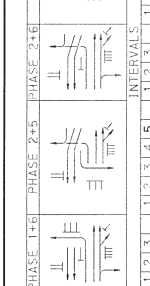


- NOTES:**
- ① C IF FOLLOWED BY PHASE 2+5, 1+5, 7 OR 8
 - ② C IF FOLLOWED BY PHASE 1+5, 1+6, 2+5, 2+6, 7 OR 8
 - ③ C IF FOLLOWED BY PHASE 1+6
 - ④ C IF FOLLOWED BY PHASE 2+5, 2+6, 7 OR 8
 - ⑤ C IF FOLLOWED BY PHASE 2+5, 2+6, 7 OR 8
 - ⑥ C IF FOLLOWED BY PHASE 1+5, 1+6, 2+5, 2+6 OR 7
 - ⑦ C IF FOLLOWED BY PHASE 1+5, 1+6, 2+5, 2+6 OR 7
 - ⑧ C IF FOLLOWED BY PHASE 1+6 OR 7

EMERGENCY FLASH		PHASE 1+5		PHASE 2+5		PHASE 2+6		PHASE 3		PHASE 4		PHASE 5		PHASE 6	
SIGNALS	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3
1,2,3	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR
4	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR
5,6	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR
7	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR
8	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR
9	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR
10,11	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR
12	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR
13	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR
14,15	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR
16,17	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR
18,19,20,21	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR	RRR
FIXED	4	2	4	2	4	2	4	2	4	2	4	2	4	2	4
MINIMUM	4	2	4	2	4	2	4	2	4	2	4	2	4	2	4
SEGMENT															
MAX INT															
PASSAGE	2		2		2		2		2		2		2		2
BEFORE															
MIN. GAP															
MAX L	8	7	8	18	17	17	17	26	11						
MAX I	8	13	8	13	17	17	16	20							
MEMORY	NL	NL	NL	NL	NL	NL	NL	NL	L						

LEGEND

- MAST ARM/IDENTIFYING NUMBER
- SIGNAL HEAD NUMBER
- ADDRESSING NUMBER
- W IDENTIFYING NUMBER
- PEDESTRIAN PUSHBUTTON/SIGN
- STBY IDENTIFYING LETTER
- LOOP SENSOR
- CONTROLLER CABINET
- JUNCTION BOX
- CONDUIT
- DOTTED EXTENSION WHITE LINE / 6" WIDTH
- SOLID WHITE LINE / 4" WIDTH
- DOUBLE YELLOW LINE / 4" WIDTH
- BROKEN YELLOW LINE / 4" WIDTH
- BROKEN WHITE LINE / 4" WIDTH
- SOLID WHITE LINE / 6" WIDTH
- SOLID YELLOW LINE / 24" WIDTH
- DOTTED EXTENSION WHITE LINE / 6" WIDTH
- SOLID WHITE LINE / 6" WIDTH
- UTILITY POLE
- LUMINAIRE/IDENTIFYING LETTER



WEEKLY PROGRAM CHART

EVENT	WEEK DAY	START TIME	END TIME	MAX 2
1	1-7	1:00	2:00	
2	1-7	1:00	2:00	
3	1-7	1:00	2:00	
4	1-7	1:00	2:00	
5	1-7	1:00	2:00	
6	1-7	1:00	2:00	
7	1-7	1:00	2:00	
8	1-7	1:00	2:00	

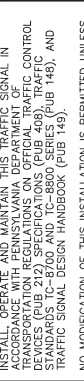
DAY 1 IS SUNDAY

OPERATOR

FILE NAME: G:\V8\LUZERNE\Projects\InSR 309 Snc 378\209Ar\work\hmf1.dgn

0-9012 (040) (02-90) REVISED (10-04)

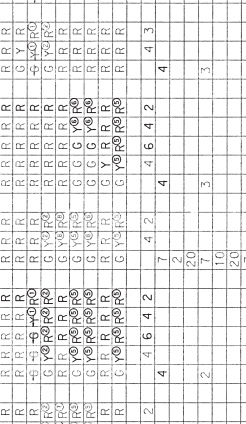
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NOTE: ALL SIGNALS SHALL HAVE TUNNEL VISORS ** - LOUVERS WITH 'OUT-OFF LEFT

** - LOUVERS WITH 'OUT-OFF RIGHT

- ① ② ③ ④ ⑤ ⑥ ⑦ ⑧
- ⑨ ⑩ ⑪ ⑫ ⑬ ⑭ ⑮ ⑯ ⑰ ⑱ ⑲ ⑳

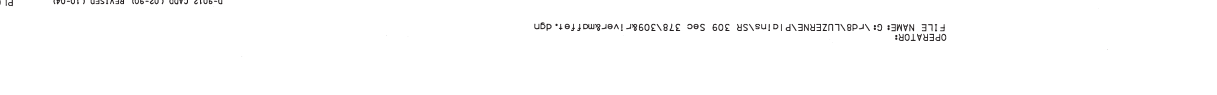
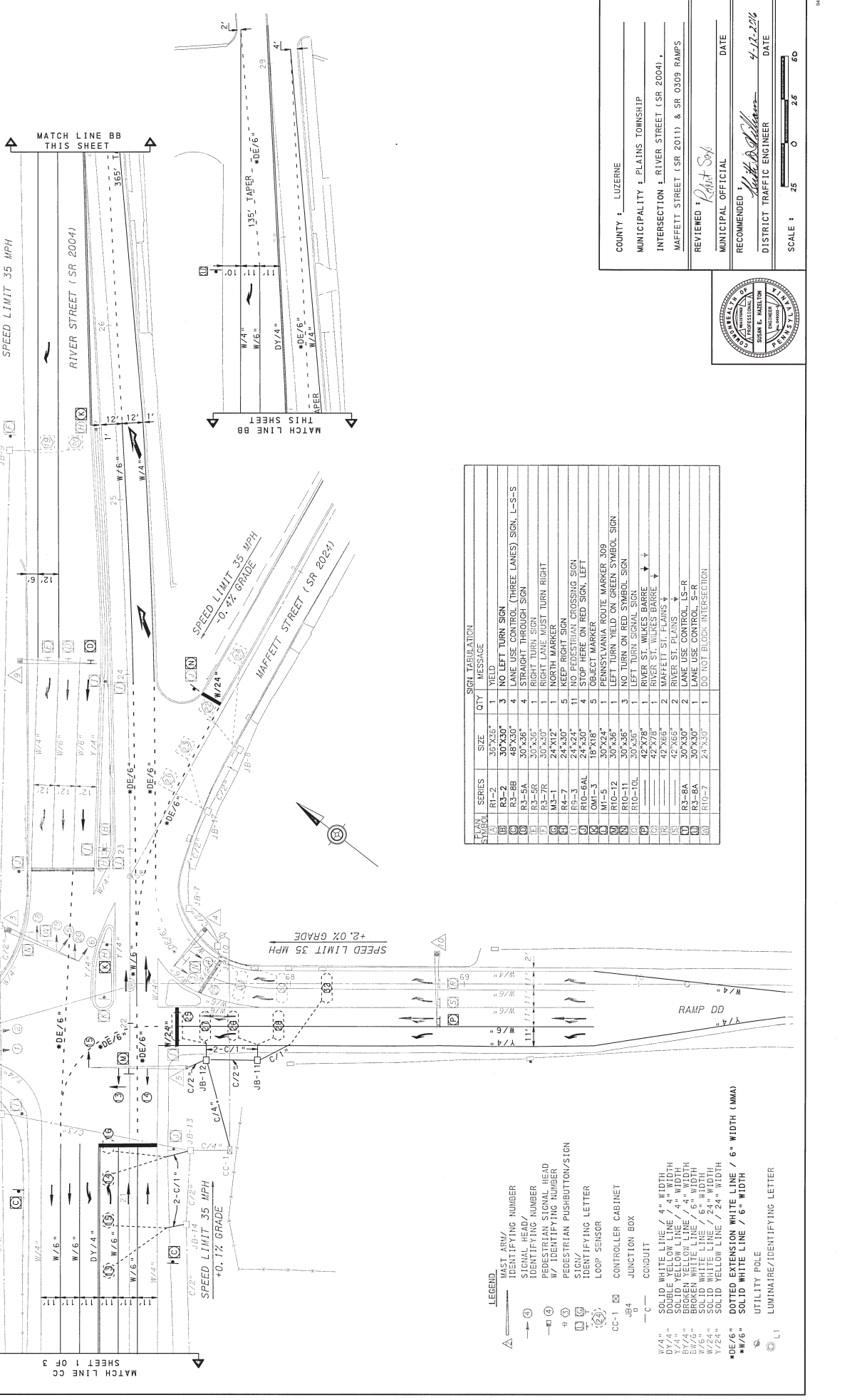


DE/6"	DOTTED EXTENSION WHITE LINE / 6" WIDTH
DY/4"	DOUBLE YELLOW LINE / 4" WIDTH
BY/4"	BROKEN YELLOW LINE / 4" WIDTH
W/6"	WIDE WHITE LINE / 6" WIDTH
W/4"	WIDE WHITE LINE / 4" WIDTH
W/8"	WIDE WHITE LINE / 8" WIDTH
DE/6"	DOTTED EXTENSION WHITE LINE / 6" WIDTH
W/6"	WIDE WHITE LINE / 6" WIDTH
W/4"	WIDE WHITE LINE / 4" WIDTH
W/8"	WIDE WHITE LINE / 8" WIDTH

DISTRICT COUNTY ROUTE SECTION SHEET
 4-0 LUZERNE 0309 378 2 OF 5
 PLAINS TOWNSHIP
 PERMIT NO. 40059 SHEET 3 OF 4
 DATE ISSUED DATE REVISED
 NO. REVISION DATE BY

PLAINS TOWNSHIP
 SPEED LIMIT 35 MPH
 RIVER STREET (SR 2004)
 MAFFETT STREET (SR 2024)
 SPEED LIMIT 35 MPH
 0.1% GRADE
 SPEED LIMIT 35 MPH
 +2.0% GRADE
 RAMP DD
 RAMP BB
 SPEED LIMIT 35 MPH
 +0.1% GRADE
 SPEED LIMIT 35 MPH
 +2.0% GRADE

MATCH LINE CC SHEET 1 OF 3
 MATCH LINE BB THIS SHEET
 MATCH LINE BB THIS SHEET

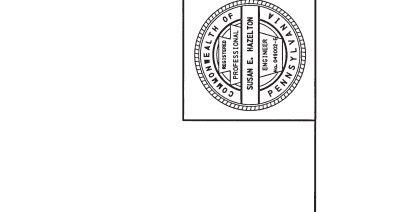


SYMBOL	SERIES	SIZE	QTY	MESSAGE
(A)	RI-2	35"x35"	1	YIELD
(B)	R3-2	30"x30"	3	NO LEFT TURN SIGN
(C)	R3-BB	48"x30"	4	LANE USE CONTROL (THREE LANES) SIGN, L-S-S
(D)	R3-5A	30"x36"	4	STRAIGHT THROUGH SIGN
(E)	R3-SR	30"x36"	1	RIGHT TURN SIGN
(F)	R3-SR	30"x36"	1	RIGHT TURN SIGN
(G)	M3-1	24"x12"	1	NORTH MARKER
(H)	R4-7	24"x30"	5	KEEP RIGHT SIGN
(I)	R9-3	24"x24"	11	NO PEDESTRIAN CROSSING SIGN
(J)	R10-6AL	24"x30"	4	STOP HERE ON RED SIGN, LEFT
(K)	OM-3	18"x18"	5	OBJECT MARKER
(L)	MT-5	30"x24"	1	PENNSYLVANIA ROUTE MARKER 309
(M)	R10-12	30"x36"	1	LEFT TURN YIELD ON GREEN SYMBOL SIGN
(N)	R10-10L	30"x36"	3	LEFT TURN SYMBOL SIGN
(O)	R10-10R	42"x78"	1	RIVER ST. WILKES BARRE
(P)	R10-10R	42"x78"	2	MAFFETT ST. FLANS
(Q)	R10-10R	42"x66"	2	RIVER ST. WILKES BARRE
(R)	R10-10R	42"x66"	2	MAFFETT ST. FLANS
(S)	R3-8A	30"x30"	2	LANE USE CONTROL, LS-R
(T)	R3-8A	30"x30"	1	LANE USE CONTROL, S-R
(U)	R10-7	24"x30"	1	DO NOT BLOCK INTERSECTION

LEGEND:

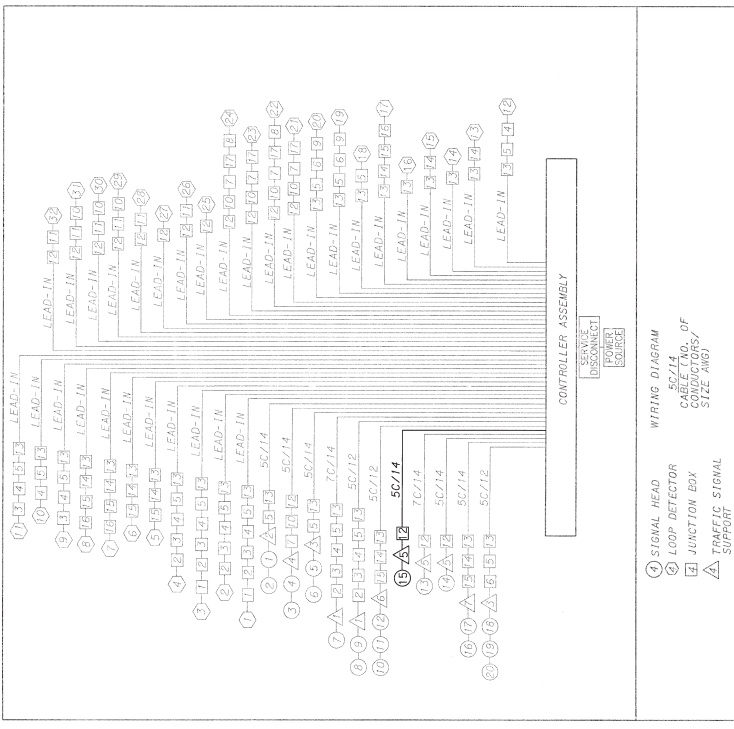
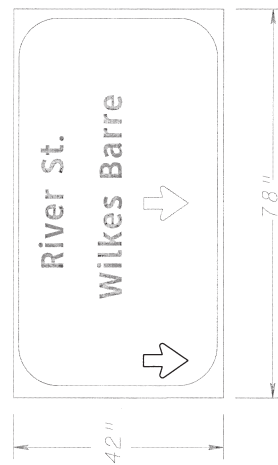
- MAST ARM/IDENTIFYING NUMBER
- SIGNAL HEAD/IDENTIFYING NUMBER
- PEDESTRIAN SIGN/HEAD IDENTIFYING NUMBER
- PEDESTRIAN PUSHBUTTON/SIGN IDENTIFYING LETTER
- LOOP SENSOR
- CC-1 CONTROLLER CABINET
- JB4 JUNCTION BOX
- CONDUIT
- SOLID WHITE LINE / 4" WIDTH
- SOLID YELLOW LINE / 4" WIDTH
- BROKEN YELLOW LINE / 4" WIDTH
- SOLID WHITE LINE / 6" WIDTH
- SOLID YELLOW LINE / 6" WIDTH
- SOLID WHITE LINE / 24" WIDTH
- SOLID YELLOW LINE / 24" WIDTH
- DOTTED EXTENSION WHITE LINE / 6" WIDTH (MMA)
- SOLID WHITE LINE / 6" WIDTH
- UTILITY POLE
- LUMINAIRE/IDENTIFYING LETTER

COUNTY : LUZERNE
 MUNICIPALITY : PLAINS TOWNSHIP
 INTERSECTION : RIVER STREET (SR 2004) ,
 MAFFETT STREET (SR 2011) & SR 0309 RAMPS
 REVIEWED : Robert Soy
 MUNICIPAL OFFICIAL DATE
 RECOMMENDED :
 DISTRICT TRAFFIC ENGINEER DATE 4-12-2016
 SCALE : 1" = 45' 0' 25' 80'



DISTRICT 4-0	COUNTY LUZERNE	ROUTE 0309	SECTION 378	SHEET 3 OF 5
PLAINS TOWNSHIP				
PERMIT NO.	40059	SHEET	4	OF
DATE ISSUED		DATE REVISED		
NO.		REVISION	DATE	BY

SIGN "P" MODIFICATION
ADD TYPE "K" ARROW

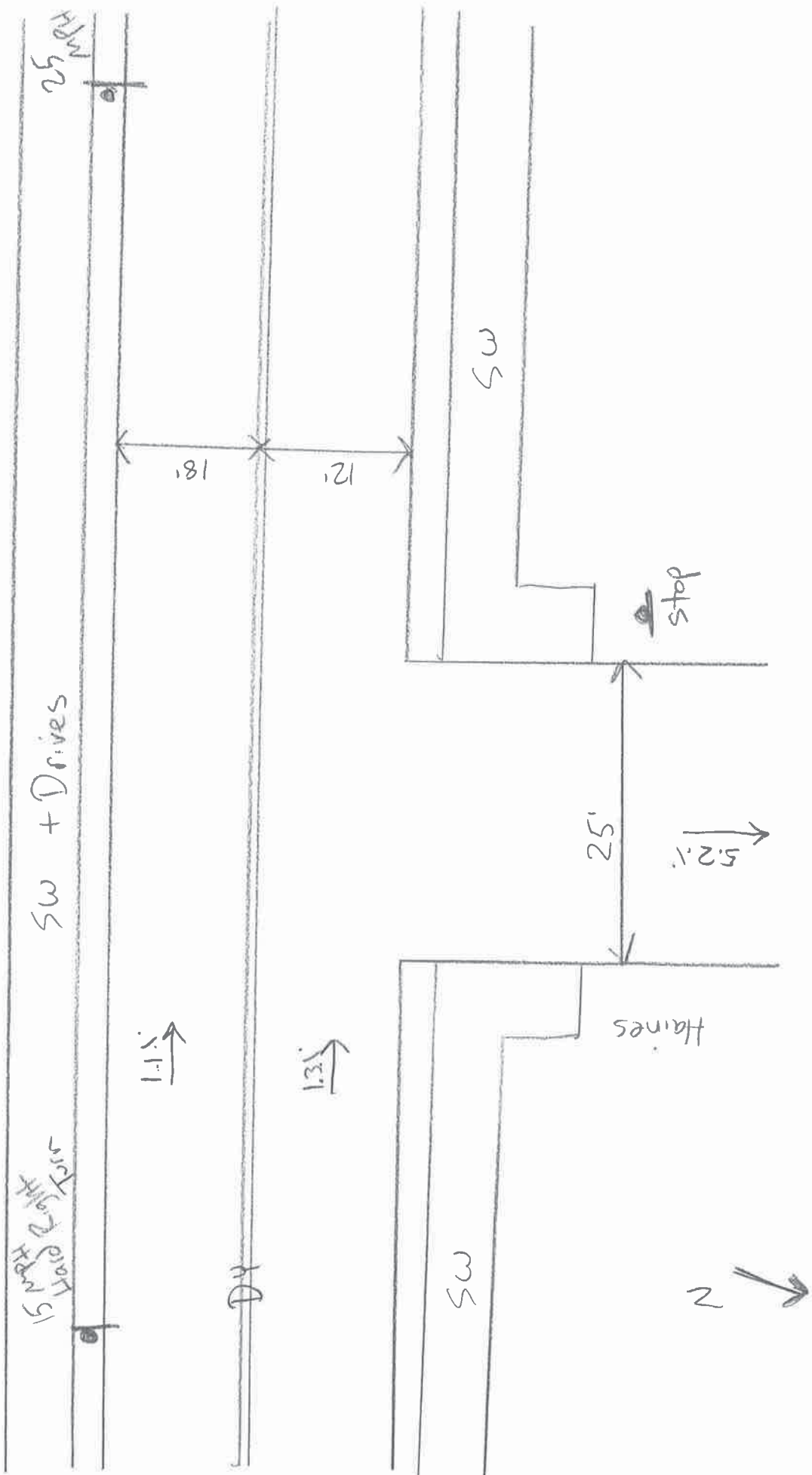


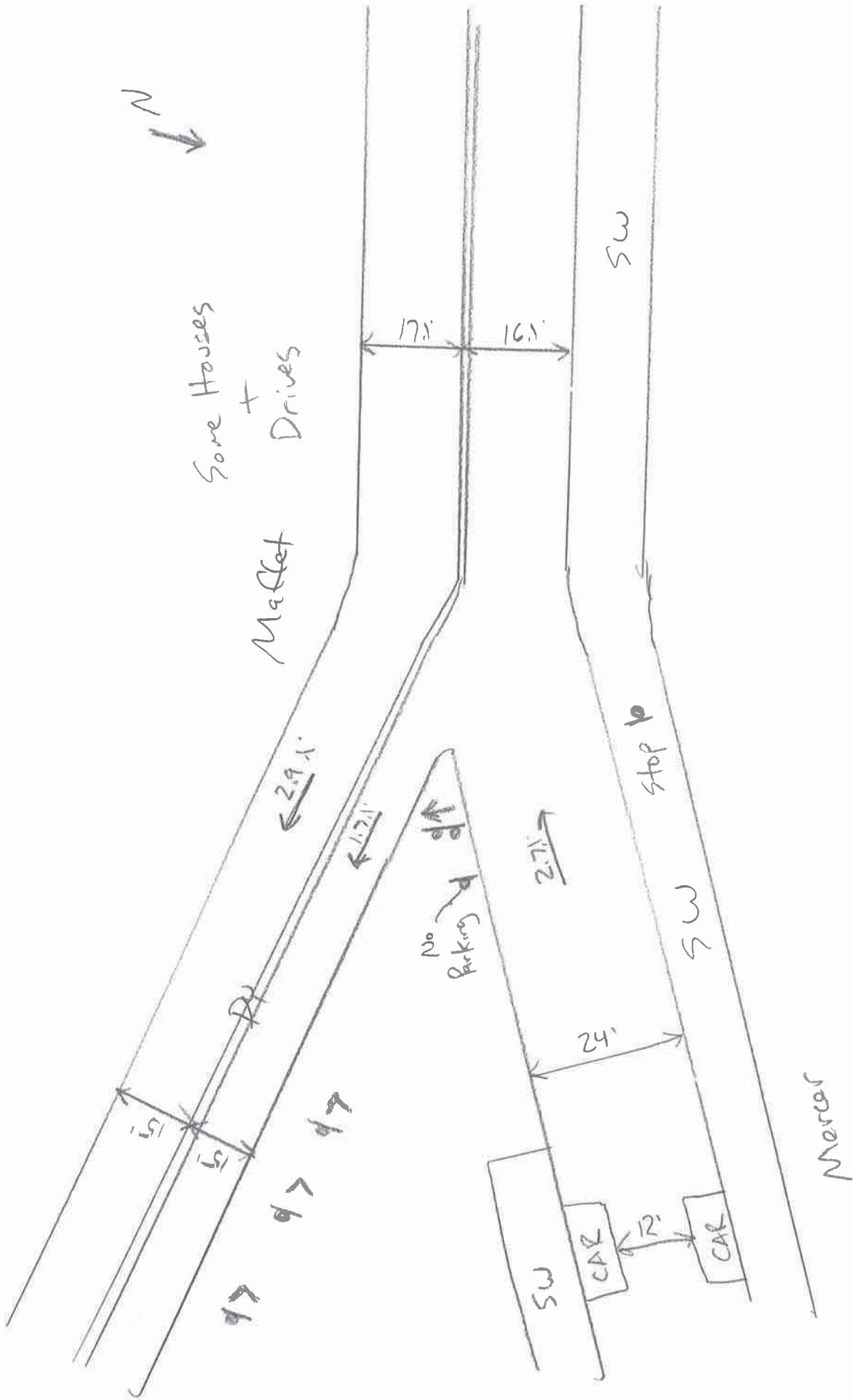
- WIRING DIAGRAM
CABLE TAG. OF
CONDUITS/
SIZE AND
TRAFFIC SIGNAL
SUPPORT
- ① SIGNAL HEAD
 - ② LOOP DETECTOR
 - ③ JUNCTION BOX
 - ④ TRAFFIC SIGNAL SUPPORT

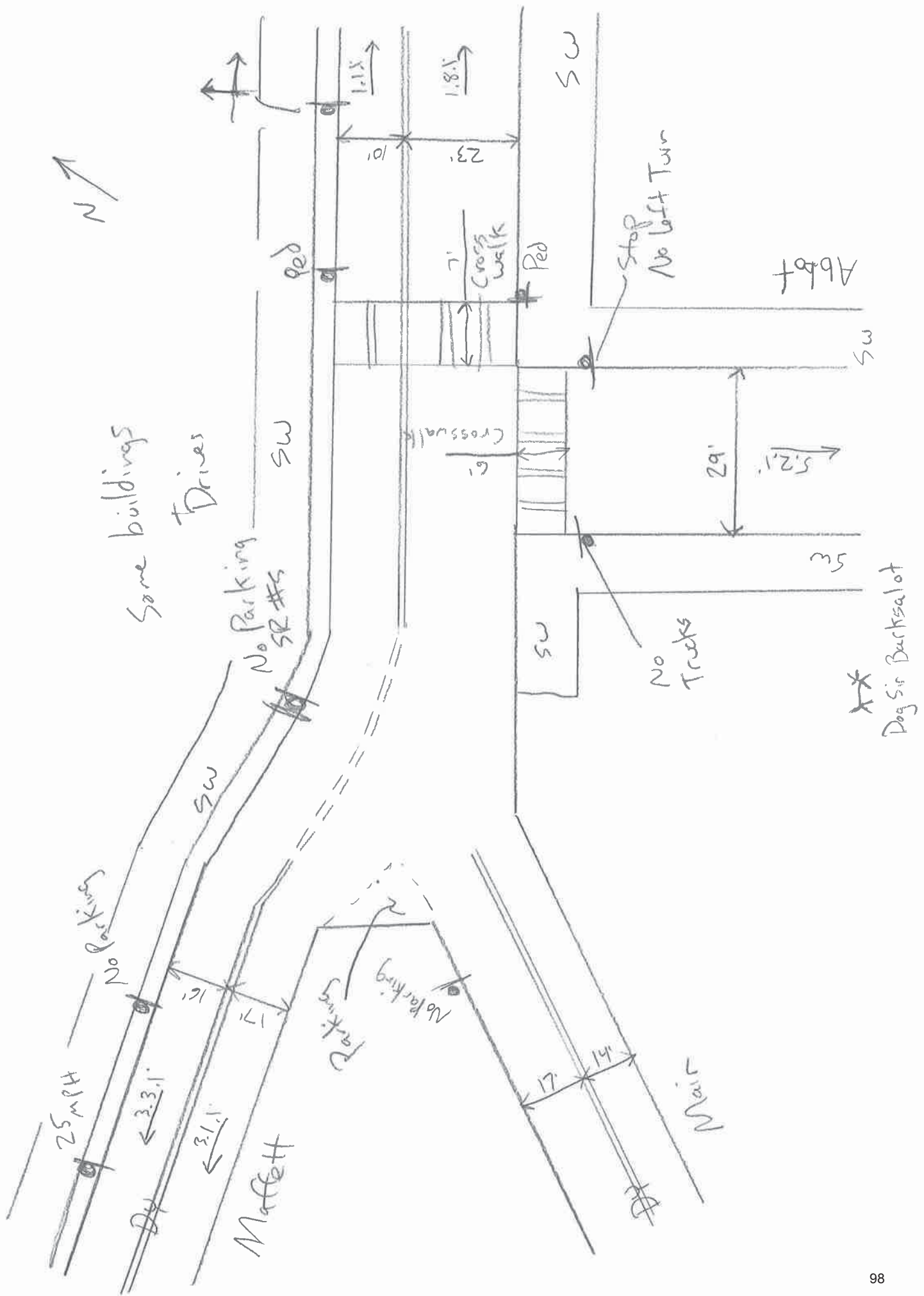


COUNTY	LUZERNE
MUNICIPALITY	PLAINS TOWNSHIP
INTERSECTION	RIVER STREET (SR 2004), MAFFETT STREET (SR 2011) & SR 0309 RAMPS
REVIEWED	<i>[Signature]</i>
MUNICIPAL OFFICIAL	
DATE	
RECOMMENDED	<i>[Signature]</i>
DISTRICT TRAFFIC ENGINEER	
DATE	4-12-2016
SCALE	25 0 25 50

Maffet







Appendix D

Existing Traffic Data

iTMS Data

Courtright Avenue to SR 0309

SITE NO: 17155	
County	LUZERNE (40)
Route	2004
Segment	0080
Dir	B
Current Avg Daily Traffic	18816
Current Avg Daily Truck Volume	377
K Factor	10
D Factor	65
T Factor	1
Truck Percent	2
Base Traffic Year	2016
Traffic Pattern Group	URBAN - OTHER PRINCIPAL ARTERIALS



SR 0309 to Haines Street

SITE NO: 3281	
County	LUZERNE (40)
Route	2004
Segment	0090
Dir	E
Current Avg Daily Traffic	8017
Current Avg Daily Truck Volume	236
K Factor	8
D Factor	54
T Factor	2
Truck Percent	3
Base Traffic Year	2015
Traffic Pattern Group	URBAN - OTHER PRINCIPAL ARTERIALS



SR 0309 to Haines Street

SITE NO: A Count Site could not be identified.	
County	LUZERNE (40)
Route	2004
Segment	
Dir	W
Current Avg Daily Traffic	8017
Current Avg Daily Truck Volume	236
K Factor	8
D Factor	54
T Factor	2
Truck Percent	3
Base Traffic Year	2015
Traffic Pattern Group	URBAN - OTHER PRINCIPAL ARTERIALS



SR 2004 to SR 2022

SITE NO: 10363	
County	LUZERNE (40)
Route	2024
Segment	0010
Dir	B
Current Avg Daily Traffic	5388
Current Avg Daily Truck Volume	216
K Factor	11
D Factor	55
T Factor	2
Truck Percent	4
Base Traffic Year	2013
Traffic Pattern Group	URBAN - MINOR ARTERIALS, COLLECTORS, LOCAL ROADS



SR 2024 to Chestnut Street

SITE NO: 18438	
County	LUZERNE (40)
Route	2022
Segment	0030
Dir	B
Current Avg Daily Traffic	5596
Current Avg Daily Truck Volume	112
K Factor	10
D Factor	55
T Factor	1
Truck Percent	2
Base Traffic Year	2017
Traffic Pattern Group	URBAN - MINOR ARTERIALS, COLLECTORS, LOCAL ROADS



ATR Data

Tri-State Traffic Data, Inc.

Road Name: River St
 Location: S of Route 309
 Counter: CE2452WC
 A-B Direction: NB

www.TSTData.com
 610-466-1469

Site Code: River St
 Station ID: S of 309
 41.26416N
 -75.86603W
 Latitude: 0' 0.0000 Undefined

Start Time	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13	Total
10/16/17	*	*	*	*	*	*	*	*	*	*	*	*	*	*
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12 PM	*	*	*	*	*	*	*	*	*	*	*	*	*	*
13:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
14:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
15:00	0	823	161	2	14	5	1	1	1	0	0	0	0	1008
16:00	1	946	119	1	14	2	2	1	0	0	0	0	0	1086
17:00	1	709	95	3	10	0	0	0	0	0	0	0	0	818
18:00	0	501	64	1	7	0	0	0	1	0	0	0	0	574
19:00	0	403	46	0	6	0	0	0	0	0	0	0	0	455
20:00	0	285	42	2	6	0	0	0	0	0	0	0	0	335
21:00	0	179	26	0	4	0	0	0	0	0	0	0	0	209
22:00	0	171	21	0	5	0	0	0	0	0	0	0	0	197
23:00	0	159	21	0	3	0	0	0	0	0	0	0	0	183
Day Total	2	4176	595	9	69	7	3	2	2	0	0	0	0	4865
Percent	0.0%	85.8%	12.2%	0.2%	1.4%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
AM Peak Vol.														
PM Peak Vol.	16:00	16:00	15:00	17:00	15:00	15:00	16:00	15:00	15:00	15:00	15:00	15:00	15:00	16:00
	1	946	161	3	14	5	2	1	1	0	0	0	0	1086

Tri-State Traffic Data, Inc.

Road Name: River St
 Location: S of Route 309
 Counter: CE2452WC
 A-B Direction: NB

www.TSTData.com
 610-466-1469

Site Code: River St
 Station ID: S of 309
 41.26416N
 -75.86603W
 Latitude: 0' 0.0000 Undefined

Start Time	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13	Total
10/17/17	0	66	11	0	0	1	0	0	0	0	0	0	0	78
01:00	0	42	4	0	0	0	0	0	0	0	0	0	0	46
02:00	0	24	7	2	0	0	0	0	0	0	0	0	0	33
03:00	0	31	5	1	0	0	0	0	3	0	0	0	0	40
04:00	0	45	15	7	2	0	0	1	1	0	0	0	0	71
05:00	1	119	27	0	3	0	0	3	1	0	0	0	0	154
06:00	0	217	38	6	7	1	0	1	2	0	0	0	0	272
07:00	0	411	56	5	11	2	0	0	0	0	0	0	0	485
08:00	0	395	58	4	13	2	0	0	0	0	0	0	0	472
09:00	0	374	63	1	14	2	0	1	1	0	0	0	0	456
10:00	0	427	80	6	12	6	0	1	0	0	0	0	0	532
11:00	0	535	86	5	21	3	1	2	1	0	0	0	0	654
12 PM	0	532	89	2	17	4	0	1	0	0	0	0	0	645
13:00	0	517	87	4	12	3	1	0	0	0	0	0	0	624
14:00	0	662	123	3	18	3	1	2	0	0	0	0	0	812
15:00	0	802	144	2	14	3	0	1	0	0	0	0	0	966
16:00	1	958	110	0	19	1	1	0	0	0	0	0	0	1090
17:00	1	704	73	2	6	1	0	0	1	0	0	0	0	788
18:00	0	516	56	2	13	0	0	1	0	0	0	0	0	588
19:00	0	448	53	0	5	0	0	0	0	0	0	0	0	506
20:00	0	393	46	0	4	0	0	0	0	0	0	0	0	443
21:00	0	270	25	0	1	0	0	0	0	0	0	0	0	296
22:00	1	168	35	0	1	0	0	0	1	0	0	0	0	206
23:00	0	149	26	0	5	0	0	0	0	0	0	0	0	180
Day Total	4	8805	1317	52	198	32	4	14	11	0	0	0	0	10437
Percent	0.0%	84.4%	12.6%	0.5%	1.9%	0.3%	0.0%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
AM Peak	05:00	11:00	11:00	04:00	11:00	10:00	11:00	05:00	03:00					11:00
Vol.	1	535	86	7	21	6	1	3	3					654
PM Peak	16:00	16:00	15:00	13:00	16:00	12:00	13:00	14:00	17:00					16:00
Vol.	1	958	144	4	19	4	1	2	1					1090

Tri-State Traffic Data, Inc.

www.TSTData.com
610-466-1469

Road Name: River St
Location: S of Route 309
Counter: CE2452WC
A-B Direction: NB

Site Code: River St
Station ID: S of 309
41.26416N
-75.86603W
Latitude: 0' 0.0000 Undefined

Start Time	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13	Total
10/18/17	0	77	13	0	1	0	0	0	0	0	0	0	0	91
01:00	0	36	3	0	1	0	0	0	0	0	0	0	0	40
02:00	0	41	8	1	0	0	0	0	0	0	0	0	0	50
03:00	0	36	6	2	1	0	0	0	2	0	0	0	0	47
04:00	0	37	12	7	2	1	0	0	1	0	0	0	0	60
05:00	1	119	28	0	5	0	0	2	1	0	0	0	0	156
06:00	0	234	49	4	10	1	0	0	1	0	0	0	0	299
07:00	0	378	49	5	13	2	0	1	2	0	0	0	0	450
08:00	0	422	66	4	16	4	1	0	1	0	0	0	0	514
09:00	1	391	73	3	20	1	0	1	0	0	0	0	0	490
10:00	0	434	77	2	23	2	0	1	1	0	0	0	0	540
11:00	1	542	100	4	22	5	0	1	2	0	0	0	0	677
12 PM	0	552	97	6	19	4	0	3	0	0	0	0	0	681
13:00	1	559	89	4	16	1	0	0	1	0	0	0	0	671
14:00	2	714	103	7	15	3	1	3	1	0	0	0	0	849
15:00	1	856	127	4	14	2	0	2	0	0	0	0	0	1006
16:00	0	916	101	2	8	5	4	1	1	0	0	0	0	1038
17:00	1	727	81	1	12	1	0	0	1	0	0	0	0	824
18:00	0	538	66	2	8	0	0	1	0	0	0	0	0	615
19:00	2	443	39	0	7	0	0	0	0	0	0	0	0	491
20:00	0	341	39	0	2	0	0	0	0	0	0	0	0	382
21:00	0	234	30	0	1	0	0	1	0	0	0	0	0	266
22:00	0	173	32	0	4	2	0	0	0	0	0	0	0	211
23:00	1	178	19	0	1	0	0	0	0	0	0	0	0	199
Day Total	11	8978	1307	58	221	34	6	17	15	0	0	0	0	10647
Percent	0.1%	84.3%	12.3%	0.5%	2.1%	0.3%	0.1%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	
AM Peak	05:00	11:00	11:00	04:00	10:00	11:00	08:00	05:00	03:00					11:00
Vol.	1	542	100	7	23	5	1	2	2					677
PM Peak	14:00	16:00	15:00	14:00	12:00	16:00	16:00	12:00	13:00					16:00
Vol.	2	916	127	7	19	5	4	3	1					1038

Tri-State Traffic Data, Inc.

Road Name: River St
 Location: S of Route 309
 Counter: CE2452WC
 A-B Direction: NB

www.TSTData.com
 610-466-1469

Site Code: River St
 Station ID: S of 309
 41.26416N
 -75.86603W
 Latitude: 0' 0.0000 Undefined

Start Time	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13	Total
10/19/17	0	75	10	0	0	1	0	0	1	0	0	0	0	87
01:00	0	44	7	0	0	0	0	0	0	0	0	0	0	51
02:00	0	34	10	2	2	0	0	0	1	0	0	0	0	49
03:00	0	29	9	4	1	0	0	0	1	0	0	0	0	44
04:00	0	55	15	5	5	0	0	0	2	0	0	0	0	82
05:00	1	117	26	1	5	0	0	3	1	0	0	0	0	154
06:00	0	246	57	5	11	2	0	1	1	0	0	0	0	323
07:00	4	407	53	4	10	1	0	0	2	0	0	0	0	481
08:00	1	401	65	3	10	1	0	0	0	0	0	0	0	481
09:00	1	385	73	0	15	2	0	1	1	0	0	0	0	478
10:00	1	478	85	0	11	2	0	1	0	1	0	0	0	579
11:00	0	472	82	2	8	3	0	1	2	0	0	0	0	570
12 PM	0	575	94	5	10	1	0	1	0	0	0	0	0	686
13:00	1	554	78	2	12	1	0	2	1	0	0	0	0	651
14:00	1	666	121	3	16	3	0	2	0	0	0	0	0	812
15:00	2	822	158	6	18	2	1	3	0	0	0	0	0	1012
16:00	2	954	110	3	14	1	1	0	1	0	0	0	0	1086
17:00	2	758	76	1	12	0	0	0	0	0	0	0	0	849
18:00	2	508	65	2	8	0	0	0	0	0	0	0	0	585
19:00	1	444	59	0	3	1	0	0	0	0	0	0	0	508
20:00	0	384	33	1	3	0	0	0	0	0	0	0	0	421
21:00	1	259	33	0	1	0	0	0	0	0	0	0	0	294
22:00	0	156	31	0	2	0	0	0	0	0	0	0	0	189
23:00	0	169	20	0	2	0	0	0	0	0	0	0	0	191
Day Total	20	8992	1370	49	179	21	2	15	14	1	0	0	0	10663
Percent	0.2%	84.3%	12.8%	0.5%	1.7%	0.2%	0.0%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	
AM Peak	07:00	10:00	10:00	04:00	09:00	11:00		05:00	04:00	10:00				10:00
Vol.	4	478	85	5	15	3		3	2	1				579
PM Peak	15:00	16:00	15:00	15:00	15:00	14:00	15:00	15:00	13:00					16:00
Vol.	2	954	158	6	18	3	1	3	1					1086

Tri-State Traffic Data, Inc.

Road Name: River St
 Location: S of Route 309
 Counter: CE2452WC
 A-B Direction: NB

www.TSTData.com
 610-466-1469

Site Code: River St
 Station ID: S of 309
 41.26416N
 -75.86603W
 Latitude: 0' 0.0000 Undefined

North														
Start Time	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13	Total
10/20/17	1	89	10	0	2	0	0	0	0	0	0	0	0	102
01:00	0	61	9	0	2	0	0	0	0	0	0	0	0	72
02:00	0	64	13	1	0	0	0	0	0	0	0	0	0	78
03:00	0	35	8	3	0	0	0	0	1	0	0	0	0	47
04:00	0	37	13	5	3	1	0	1	3	0	0	0	0	63
05:00	1	124	28	3	3	0	0	3	2	0	0	0	0	164
06:00	0	219	47	6	15	2	0	0	0	0	0	0	0	289
07:00	0	398	52	6	13	2	0	2	0	0	0	0	0	473
08:00	1	378	70	4	15	2	1	0	1	0	0	0	0	472
09:00	0	392	66	6	15	2	0	0	1	0	0	0	0	482
10:00	1	475	85	5	16	0	0	3	1	0	0	0	0	586
11:00	0	548	67	3	12	1	2	0	2	0	0	0	0	635
12 PM	2	580	100	0	16	3	1	0	1	0	0	0	0	703
13:00	4	597	84	2	15	2	0	0	0	0	0	0	0	704
14:00	1	675	103	3	14	3	1	0	1	1	0	0	0	802
15:00	1	846	117	2	15	0	0	0	0	0	0	0	0	981
16:00	2	901	90	2	16	0	0	0	0	0	0	0	0	1011
17:00	4	671	69	0	2	0	0	0	1	0	0	0	0	747
18:00	2	499	68	0	7	1	0	0	1	0	0	0	0	578
19:00	0	345	39	0	5	0	0	0	0	0	0	0	0	389
20:00	2	347	46	0	9	0	0	0	0	0	0	0	0	404
21:00	0	301	36	0	5	1	0	0	0	0	0	0	0	343
22:00	0	270	47	0	0	0	0	0	0	0	0	0	0	317
23:00	0	217	19	0	3	0	0	0	1	0	0	0	0	240
Day Total	22	9069	1286	51	203	20	5	9	16	1	0	0	0	10682
Percent	0.2%	84.9%	12.0%	0.5%	1.9%	0.2%	0.0%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
AM Peak	00:00	11:00	10:00	06:00	10:00	06:00	11:00	05:00	04:00					11:00
Vol.	1	548	85	6	16	2	2	3	3					635
PM Peak	13:00	16:00	15:00	14:00	12:00	12:00	12:00	12:00	12:00	14:00				16:00
Vol.	4	901	117	3	16	3	1	1	1	1				1011

Tri-State Traffic Data, Inc.

Road Name: River St
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Site Code: River St
 Station ID: S of 309
 41.26416N
 -75.86603W
 Latitude: 0' 0.0000 Undefined

Start Time	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13	Total
10/21/17	0	130	19	0	2	0	0	0	0	0	0	0	0	151
01:00	0	96	7	0	1	0	0	0	0	0	0	0	0	104
02:00	0	74	12	0	0	0	0	0	0	0	0	0	0	86
03:00	0	65	6	0	1	0	0	0	0	0	0	0	0	72
04:00	0	31	11	0	1	0	0	0	0	0	0	0	0	43
05:00	1	83	16	1	1	0	0	0	0	0	0	0	0	102
06:00	0	111	21	6	1	0	0	0	0	0	0	0	0	139
07:00	0	209	29	3	2	0	0	0	0	0	0	0	0	243
08:00	0	266	30	4	1	0	0	0	0	0	0	0	0	301
09:00	0	280	43	4	5	2	0	0	1	0	0	0	0	335
10:00	1	330	60	0	2	0	0	0	1	0	0	0	0	394
11:00	2	383	75	2	9	0	0	2	0	0	0	0	0	473
12 PM	0	405	55	1	9	0	0	1	0	0	0	0	0	471
13:00	3	396	68	0	6	0	0	0	0	0	0	0	0	473
14:00	5	465	62	0	8	0	0	0	0	0	0	0	0	540
15:00	2	508	55	1	9	0	0	0	0	0	0	0	0	575
16:00	2	440	51	0	7	0	0	1	0	0	0	0	0	501
17:00	6	371	45	0	1	0	0	1	0	0	0	0	0	424
18:00	5	385	35	0	0	1	0	0	0	0	0	0	0	426
19:00	1	285	38	1	4	0	0	1	0	0	0	0	0	330
20:00	0	250	23	1	5	0	0	1	0	0	0	0	0	280
21:00	0	219	30	1	3	0	0	0	0	0	0	0	0	253
22:00	0	239	40	0	1	0	0	0	0	0	0	0	0	280
23:00	1	226	29	0	5	0	0	0	0	0	0	0	0	261
Day Total	29	6247	860	25	84	3	0	7	2	0	0	0	0	7257
Percent	0.4%	86.1%	11.9%	0.3%	1.2%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak	11:00	11:00	11:00	06:00	11:00	09:00	0.0%	11:00	09:00	0.0%	0.0%	0.0%	0.0%	11:00
Vol.	2	383	75	6	9	2	2	2	1	1	1	1	1	473
PM Peak	17:00	15:00	13:00	12:00	12:00	18:00	12:00	12:00	12:00	12:00	12:00	12:00	12:00	15:00
Vol.	6	508	68	1	9	1	1	1	1	1	1	1	1	575

Tri-State Traffic Data, Inc.

Road Name: River St
 Location: S of Route 309
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www.TSTData.com
 610-466-1469

Site Code: River St
 Station ID: S of 309
 41.26416N
 -75.86603W
 Latitude: 0' 0.0000 Undefined

Start Time	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13	Total
10/22/17	0	130	14	0	0	0	0	0	0	0	0	0	0	144
01:00	0	131	18	0	1	0	0	0	0	0	0	0	0	150
02:00	0	108	14	0	2	0	0	0	0	0	0	0	0	124
03:00	0	50	11	0	1	0	0	0	0	0	0	0	0	62
04:00	0	35	2	0	0	0	0	0	0	0	0	0	0	37
05:00	0	48	6	0	2	0	0	0	0	0	0	0	0	56
06:00	1	83	13	1	0	0	0	0	0	0	0	0	0	98
07:00	0	139	13	0	2	0	0	1	0	0	0	0	0	155
08:00	0	189	21	1	1	0	0	0	1	0	0	0	0	213
09:00	0	213	21	1	1	0	0	0	0	0	0	0	0	236
10:00	0	321	56	1	4	0	0	1	0	0	0	0	0	383
11:00	4	360	46	0	3	0	0	0	0	0	0	0	0	413
12 PM	1	486	61	2	6	0	0	0	0	0	0	0	0	556
13:00	6	436	48	0	2	0	0	0	0	0	0	0	0	492
14:00	1	469	49	0	3	0	0	0	0	0	0	0	0	522
15:00	3	459	51	1	3	0	0	2	0	0	0	0	0	519
16:00	5	430	49	1	6	0	0	0	0	0	0	0	0	491
17:00	3	350	38	1	8	0	0	0	2	0	0	0	0	402
18:00	2	325	31	1	5	0	0	1	0	0	0	0	0	365
19:00	0	294	35	1	3	0	0	0	0	0	0	0	0	333
20:00	2	232	19	0	2	0	0	0	0	0	0	0	0	255
21:00	0	138	21	0	2	0	0	0	1	0	0	0	0	162
22:00	0	126	21	0	1	0	0	0	0	0	0	0	0	148
23:00	0	133	11	0	1	1	0	0	0	0	0	0	0	146
Day Total	28	5685	669	11	59	1	0	5	4	0	0	0	0	6462
Percent	0.4%	88.0%	10.4%	0.2%	0.9%	0.0%	0.0%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	
AM Peak	11:00	11:00	10:00	06:00	10:00			07:00	08:00					11:00
Vol.	4	360	56	1	4			1	1					413
PM Peak	13:00	12:00	12:00	12:00	17:00	23:00	15:00	17:00						12:00
Vol.	6	486	61	2	8	1	2	2						556

Tri-State Traffic Data, Inc.

Road Name: River St
 Location: S of Route 309
 Counter: CE2452WC
 A-B Direction: NB

www.TSTData.com
 610-466-1469

Site Code: River St
 Station ID: S of 309
 41.26416N
 -75.86603W
 Latitude: 0' 0.0000 Undefined

North														
Start Time	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13	Total
10/23/17	1	50	3	0	0	0	0	0	0	0	0	0	0	54
01:00	0	39	1	0	1	0	0	0	0	0	0	0	0	41
02:00	0	38	8	1	0	0	0	0	1	0	0	0	0	48
03:00	0	39	4	3	2	0	0	0	1	0	0	0	0	49
04:00	0	37	11	5	1	1	0	2	0	0	0	0	0	57
05:00	1	129	22	1	5	2	0	2	2	0	0	0	0	164
06:00	1	238	44	3	14	2	0	0	1	0	0	0	0	303
07:00	5	368	48	5	12	1	0	0	1	0	0	0	0	440
08:00	1	393	65	3	9	1	0	0	1	1	0	0	0	474
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12 PM	*	*	*	*	*	*	*	*	*	*	*	*	*	*
13:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
14:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
15:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
16:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
17:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
18:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
19:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
20:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
21:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
22:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
23:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Day Total	9	1331	206	21	44	7	0	4	7	1	0	0	0	1630
Percent	0.6%	81.7%	12.6%	1.3%	2.7%	0.4%	0.0%	0.2%	0.4%	0.1%	0.0%	0.0%	0.0%	0.0%
AM Peak	07:00	08:00	08:00	04:00	06:00	05:00		04:00	05:00	08:00				08:00
Vol.	5	393	65	5	14	2		2	2	1				474
PM Peak														
Vol.														
Grand Total	125	53283	7610	276	1057	125	20	73	71	3	0	0	0	62643
Percent	0.2%	85.1%	12.1%	0.4%	1.7%	0.2%	0.0%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%

Tri-State Traffic Data, Inc.

Road Name: River St
 Location: S of Route 309
 Counter: CE2452WC
 A-B Direction: NB

www.TSTData.com
 610-466-1469

Site Code: River St
 Station ID: S of 309
 41.26416N
 -75.86603W
 Latitude: 0' 0.0000 Undefined

Start Time	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13	Total
10/16/17	*	*	*	*	*	*	*	*	*	*	*	*	*	*
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12 PM	*	*	*	*	*	*	*	*	*	*	*	*	*	*
13:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
14:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
15:00	2	535	82	0	14	2	0	2	0	0	0	0	0	637
16:00	0	426	46	1	5	0	0	2	0	0	0	0	0	480
17:00	1	489	43	1	9	3	0	1	0	0	0	0	0	547
18:00	2	413	36	2	2	0	0	1	1	0	0	0	0	457
19:00	0	280	29	1	7	0	0	1	0	0	0	0	0	318
20:00	0	192	14	1	3	0	0	0	1	0	0	0	0	211
21:00	0	131	15	1	4	2	0	0	0	0	0	0	0	153
22:00	0	133	18	1	4	0	0	0	0	0	0	0	0	156
23:00	0	92	9	1	2	0	0	0	0	0	0	0	0	104
Day Total	5	2691	292	9	50	7	0	7	2	0	0	0	0	3063
Percent	0.2%	87.9%	9.5%	0.3%	1.6%	0.2%	0.0%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
AM Peak Vol.														
PM Peak Vol.	15:00	15:00	15:00	18:00	15:00	17:00	15:00	18:00	18:00	15:00	18:00	15:00	18:00	15:00
	2	535	82	2	14	3	2	2	1	2	2	2	1	637

Tri-State Traffic Data, Inc.

Road Name: River St
 Location: S of Route 309
 Counter: CE2452WC
 A-B Direction: NB

www.TSTData.com
 610-466-1469

Site Code: River St
 Station ID: S of 309
 41.26416N
 -75.86603W
 Latitude: 0' 0.0000 Undefined

Start Time	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13	Total
10/17/17	0	42	4	0	0	0	0	0	0	0	0	0	0	46
01:00	0	26	6	0	0	0	0	0	0	0	0	0	0	32
02:00	0	27	4	0	0	0	0	0	1	0	0	0	0	32
03:00	0	30	5	0	0	0	0	0	0	0	0	0	0	35
04:00	0	50	10	1	0	1	0	0	0	0	0	0	0	62
05:00	0	161	26	3	1	0	0	0	2	0	0	0	0	193
06:00	0	449	77	0	4	2	1	2	0	0	0	0	0	535
07:00	0	890	99	5	13	2	4	1	0	0	0	0	0	1014
08:00	0	987	101	4	11	5	2	0	0	0	0	0	0	1110
09:00	0	595	72	5	17	0	2	1	1	0	0	0	0	693
10:00	0	571	67	1	15	3	3	2	1	0	0	0	0	663
11:00	1	518	59	0	10	2	2	0	0	0	0	0	0	592
12 PM	1	580	76	0	16	0	2	1	1	0	0	0	0	677
13:00	1	555	70	6	14	2	3	0	1	0	0	0	0	652
14:00	1	561	72	3	8	1	2	0	0	0	0	0	0	648
15:00	1	538	54	3	16	4	1	1	0	0	0	0	0	618
16:00	2	570	72	1	7	0	0	1	0	0	0	0	0	653
17:00	1	577	48	0	9	0	0	1	0	0	0	0	0	636
18:00	1	435	45	3	7	0	0	1	0	0	0	0	0	492
19:00	1	302	35	2	6	0	0	0	0	0	0	0	0	346
20:00	0	203	20	2	1	0	0	0	1	0	0	0	0	227
21:00	0	162	13	2	0	1	0	0	0	0	0	0	0	178
22:00	0	169	18	1	4	3	0	0	0	0	0	0	0	195
23:00	0	85	8	2	2	0	0	0	0	0	0	0	0	97
Day Total	10	9083	1061	44	161	26	22	11	8	0	0	0	0	10426
Percent	0.1%	87.1%	10.2%	0.4%	1.5%	0.2%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	
AM Peak Vol.	11:00	08:00	08:00	07:00	09:00	08:00	07:00	06:00	05:00					08:00
	1	987	101	5	17	5	4	2	2					1110
PM Peak Vol.	16:00	12:00	12:00	13:00	12:00	15:00	13:00	12:00	12:00					12:00
	2	580	76	6	16	4	3	1	1					677

Tri-State Traffic Data, Inc.

Road Name: River St
 Location: S of Route 309
 Counter: CE2452WC
 A-B Direction: NB

www.TSTData.com
 610-466-1469

Site Code: River St
 Station ID: S of 309
 41.26416N
 -75.86603W
 Latitude: 0' 0.0000 Undefined

Start Time	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13	Total
10/18/17	0	44	6	0	0	0	0	0	0	0	0	0	0	50
01:00	0	42	6	0	0	0	0	0	0	0	0	0	0	48
02:00	0	32	6	0	0	0	0	0	0	0	0	0	0	38
03:00	0	31	7	0	0	0	0	0	0	0	0	0	0	38
04:00	0	49	11	0	2	0	0	1	0	0	0	0	0	63
05:00	0	159	27	3	2	1	0	0	1	0	0	0	0	193
06:00	0	503	88	0	5	2	0	1	2	0	0	0	0	601
07:00	0	866	83	4	13	0	3	1	2	0	0	0	0	972
08:00	1	896	99	5	11	2	2	1	0	0	0	0	0	1017
09:00	0	611	93	1	17	2	4	2	0	0	0	0	0	730
10:00	0	549	80	5	12	1	3	1	2	0	0	0	0	653
11:00	0	516	72	1	10	3	3	1	1	0	0	0	0	607
12 PM	1	550	83	5	11	2	2	1	0	0	0	0	0	655
13:00	1	541	71	3	16	4	2	1	1	0	0	0	0	640
14:00	2	564	71	2	11	1	0	0	0	0	0	0	0	651
15:00	1	565	73	3	10	0	0	2	0	0	0	0	0	654
16:00	3	466	51	1	6	1	1	2	0	0	0	0	0	531
17:00	0	580	47	2	5	0	0	1	0	0	0	0	0	635
18:00	2	459	41	3	8	0	0	1	0	0	0	0	0	514
19:00	1	305	30	1	10	0	0	0	0	0	0	0	0	347
20:00	0	239	23	2	1	0	0	0	0	0	0	0	0	265
21:00	0	182	18	3	4	0	0	0	0	0	0	0	0	207
22:00	0	154	19	0	4	0	0	0	1	0	0	0	0	178
23:00	0	81	12	2	0	0	0	0	0	0	0	0	0	95
Day Total	12	8984	1117	46	158	19	20	16	10	0	0	0	0	10382
Percent	0.1%	86.5%	10.8%	0.4%	1.5%	0.2%	0.2%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	
AM Peak	08:00	08:00	08:00	08:00	09:00	11:00	09:00	09:00	06:00					08:00
Vol.	1	896	99	5	17	3	4	2	2					1017
PM Peak	16:00	17:00	12:00	12:00	13:00	13:00	12:00	15:00	13:00					12:00
Vol.	3	580	83	5	16	4	2	2	1					655

Tri-State Traffic Data, Inc.

Road Name: River St
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 Counter: CE2452WC
 A-B Direction: NB

www.TSTData.com
 610-466-1469

Site Code: River St
 Station ID: S of 309
 41.26416N
 -75.86603W
 Latitude: 0° 0.0000 Undefined

Start Time	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13	Total
10/19/17	1	57	7	0	0	0	0	0	0	0	0	0	0	65
01:00	0	36	6	0	0	0	0	0	0	0	0	0	0	42
02:00	0	36	2	1	0	0	0	0	0	0	0	0	0	39
03:00	0	30	10	0	1	0	0	0	0	0	0	0	0	41
04:00	0	50	15	1	1	0	0	0	0	0	0	0	0	67
05:00	0	155	33	3	0	0	0	1	1	0	0	0	0	193
06:00	0	485	92	1	7	1	0	1	1	0	0	0	0	588
07:00	1	861	80	4	13	0	2	0	0	0	0	0	0	961
08:00	2	894	87	4	7	0	3	0	0	0	0	0	0	997
09:00	0	622	99	2	17	3	2	1	0	1	0	0	0	747
10:00	1	550	65	2	9	1	1	5	1	0	0	0	0	635
11:00	3	509	70	5	4	1	1	0	1	0	0	0	0	594
12 PM	0	543	77	5	7	5	1	0	2	0	0	0	0	640
13:00	2	529	79	6	8	1	2	1	1	0	0	0	0	629
14:00	2	562	66	4	8	0	2	1	0	0	0	0	0	645
15:00	0	507	60	4	9	0	0	0	0	0	0	0	0	580
16:00	1	465	46	0	6	0	0	2	0	0	0	0	0	520
17:00	0	600	51	1	5	0	0	0	0	0	0	0	0	657
18:00	3	453	53	4	6	0	0	0	1	0	0	0	0	520
19:00	3	293	31	1	2	0	0	0	0	0	0	0	0	330
20:00	0	234	18	0	0	1	0	0	0	0	0	0	0	253
21:00	0	174	9	0	1	0	0	1	0	0	0	0	0	185
22:00	0	148	16	1	1	0	0	0	0	0	0	0	0	166
23:00	0	112	10	2	0	0	0	0	0	0	0	0	0	124
Day Total	19	8905	1082	51	112	13	14	13	8	1	0	0	0	10218
Percent	0.2%	87.2%	10.6%	0.5%	1.1%	0.1%	0.1%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
AM Peak	11:00	08:00	09:00	11:00	09:00	09:00	08:00	10:00	05:00	09:00	0.0%	0.0%	0.0%	08:00
Vol.	3	894	99	5	17	3	3	5	1	1				997
PM Peak	18:00	17:00	13:00	13:00	15:00	12:00	13:00	16:00	12:00	12:00				17:00
Vol.	3	600	79	6	9	5	2	2	2	2				657

Tri-State Traffic Data, Inc.

Road Name: River St
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www.TSTData.com
610-466-1469

Site Code: River St
 Station ID: S of 309
 41.26416N
 -75.86603W
 Latitude: 0° 0.0000 Undefined

Start Time	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13	Total
10/20/17	0	68	5	2	4	0	0	0	0	0	0	0	0	79
01:00	0	44	5	0	0	0	0	0	0	0	0	0	0	49
02:00	0	45	4	0	1	0	0	0	1	0	0	0	0	51
03:00	0	29	9	1	0	0	0	0	0	0	0	0	0	39
04:00	0	43	9	0	2	0	0	1	1	0	0	0	0	56
05:00	0	142	30	3	0	0	0	0	1	0	0	0	0	176
06:00	0	462	72	1	13	2	1	2	3	0	0	0	0	556
07:00	1	766	74	4	11	2	1	0	1	0	0	0	0	860
08:00	0	875	97	4	8	0	0	0	2	0	0	0	0	986
09:00	2	595	75	1	14	1	1	1	0	0	0	0	0	690
10:00	3	524	86	5	17	2	1	1	1	0	0	0	0	640
11:00	1	492	70	1	8	3	0	0	0	0	0	0	0	575
12 PM	0	547	54	2	10	2	0	0	2	0	0	0	0	617
13:00	1	553	58	4	12	3	0	0	1	0	0	0	0	632
14:00	1	558	60	2	7	1	0	0	0	0	0	0	0	629
15:00	1	546	69	0	7	2	1	0	0	0	0	0	0	626
16:00	6	491	48	0	9	1	0	0	0	0	0	0	0	555
17:00	1	575	45	0	7	1	0	0	0	0	0	0	0	629
18:00	2	469	52	2	7	1	0	0	0	0	0	0	0	533
19:00	0	308	25	0	5	1	0	1	0	0	0	0	0	340
20:00	0	241	31	0	5	0	0	0	0	0	0	0	0	277
21:00	1	220	18	0	4	0	0	0	0	0	0	0	0	243
22:00	1	242	25	1	3	0	0	0	0	0	0	0	0	272
23:00	0	198	12	1	0	1	0	0	1	0	0	0	0	213
Day Total	21	9033	1033	34	154	23	5	6	14	0	0	0	0	10323
Percent	0.2%	87.5%	10.0%	0.3%	1.5%	0.2%	0.0%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	
AM Peak Vol.	3	875	97	5	17	3	1	2	3					986
PM Peak Vol.	6	575	69	4	12	3	1	1	2					632

Tri-State Traffic Data, Inc.

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 610-466-1469

Site Code: River St
 Station ID: S of 309
 41.26416N
 -75.86603W
 Latitude: 0' 0.0000 Undefined

Start Time	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13	Total
10/21/17	0	118	8	0	0	0	0	0	0	0	0	0	0	126
01:00	0	71	6	0	0	0	0	0	0	0	0	0	0	77
02:00	0	51	5	1	2	0	0	0	0	0	0	0	0	59
03:00	0	32	2	0	0	0	0	0	0	0	0	0	0	34
04:00	0	28	10	0	1	0	0	0	0	0	0	0	0	39
05:00	1	78	9	3	0	0	0	0	0	0	0	0	0	91
06:00	0	220	37	1	3	2	0	0	0	0	0	0	0	263
07:00	0	201	29	1	2	0	0	0	0	0	0	0	0	233
08:00	1	300	40	0	5	1	0	0	0	0	0	0	0	347
09:00	0	363	42	1	5	0	0	0	0	0	0	0	0	411
10:00	1	361	44	0	4	2	0	2	0	0	0	0	0	414
11:00	3	439	44	0	7	1	0	1	0	0	0	0	0	495
12 PM	2	448	43	1	2	0	0	0	0	0	0	0	0	496
13:00	3	424	37	1	5	0	0	0	0	0	0	0	0	470
14:00	5	453	45	2	5	0	0	0	0	0	0	0	0	510
15:00	5	380	31	0	4	0	1	0	0	0	0	0	0	421
16:00	4	380	37	0	5	0	0	0	0	0	0	0	0	426
17:00	2	357	31	0	5	0	0	0	0	0	0	0	0	395
18:00	0	376	33	1	3	0	0	0	0	0	0	0	0	413
19:00	0	275	28	1	4	0	0	0	0	0	0	0	0	308
20:00	0	199	20	1	3	0	0	0	0	0	0	0	0	223
21:00	0	223	22	2	1	0	0	0	0	0	0	0	0	248
22:00	0	268	30	2	2	0	0	0	0	0	0	0	0	302
23:00	0	189	12	0	1	0	0	0	0	0	0	0	0	202
Day Total	27	6234	645	18	69	6	1	3	0	0	0	0	0	7003
Percent	0.4%	89.0%	9.2%	0.3%	1.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak	11:00	11:00	10:00	05:00	11:00	06:00		10:00						11:00
Vol.	3	439	44	3	7	2		2						495
PM Peak	14:00	14:00	14:00	14:00	13:00		15:00							14:00
Vol.	5	453	45	2	5		1							510

Tri-State Traffic Data, Inc.

Road Name: River St
 Location: S of Route 309
 Counter: CE2452WC
 A-B Direction: NB

www.TSTData.com
 610-466-1469

Site Code: River St
 Station ID: S of 309
 41.26416N
 -75.86603W
 Latitude: 0' 0.0000 Undefined

Start Time	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13	Total
10/22/17	0	115	12	0	3	0	0	0	0	0	0	0	0	130
01:00	0	89	4	1	1	0	0	0	0	0	0	0	0	95
02:00	0	73	4	0	0	0	0	0	0	0	0	0	0	77
03:00	0	29	5	4	0	0	0	0	0	0	0	0	0	38
04:00	0	16	5	1	0	0	0	0	0	0	0	0	0	22
05:00	0	56	5	0	0	0	0	0	0	0	0	0	0	61
06:00	0	175	38	0	0	0	0	1	0	0	0	0	0	214
07:00	0	160	17	0	1	0	0	1	1	0	0	0	0	180
08:00	0	257	25	0	3	0	0	0	0	0	0	0	0	285
09:00	1	353	41	0	2	1	0	1	0	0	0	0	0	399
10:00	1	312	45	0	2	0	0	0	0	0	0	0	0	360
11:00	4	403	37	0	0	1	0	1	0	0	0	0	0	446
12 PM	7	494	39	0	4	0	0	0	0	0	0	0	0	544
13:00	2	439	42	0	2	0	0	0	0	0	0	0	0	485
14:00	3	476	34	0	0	1	0	1	0	0	0	0	0	515
15:00	11	380	39	0	1	0	0	1	0	0	0	0	0	432
16:00	6	356	19	1	3	1	0	1	1	0	0	0	0	388
17:00	4	311	37	1	6	0	0	0	0	0	0	0	0	359
18:00	2	354	27	0	1	0	0	0	0	0	0	0	0	384
19:00	1	259	26	1	4	0	0	0	0	0	0	0	0	291
20:00	1	233	17	1	2	0	0	0	0	0	0	0	0	254
21:00	1	174	12	1	5	0	0	0	0	0	0	0	0	193
22:00	0	149	17	0	1	0	0	0	0	0	0	0	0	167
23:00	0	70	10	2	1	0	0	0	0	0	0	0	0	83
Day Total	44	5733	557	13	42	4	0	7	2	0	0	0	0	6402
Percent	0.7%	89.6%	8.7%	0.2%	0.7%	0.1%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak Vol.	4	403	45	4	3	1		1	1					11:00 446
PM Peak Vol.	11	494	42	2	6	1		1	1					12:00 544

Tri-State Traffic Data, Inc.

Road Name: River St
 Location: S of Route 309
 Counter: CE2452WC
 A-B Direction: NB

www.TSTData.com
 610-466-1469

Site Code: River St
 Station ID: S of 309
 41.26416N
 -75.86603W
 Latitude: 0' 0.0000 Undefined

Start Time	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13	Total
10/23/17	0	57	6	1	1	0	0	0	0	0	0	0	0	65
01:00	0	31	6	0	0	0	0	0	0	0	0	0	0	37
02:00	0	27	2	0	1	0	0	0	0	0	0	0	0	30
03:00	0	28	4	0	0	0	0	0	0	0	0	0	0	32
04:00	0	46	10	0	1	0	0	1	0	0	0	0	0	58
05:00	0	141	33	0	1	2	0	1	0	0	0	0	0	178
06:00	1	454	90	0	6	2	0	0	1	0	0	0	0	554
07:00	3	844	75	4	11	0	1	1	0	1	0	0	0	940
08:00	1	993	107	3	13	3	3	0	0	0	0	0	0	1123
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12 PM	*	*	*	*	*	*	*	*	*	*	*	*	*	*
13:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
14:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
15:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
16:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
17:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
18:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
19:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
20:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
21:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
22:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
23:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Day Total	5	2621	333	8	34	7	4	3	1	1	0	0	0	3017
Percent	0.2%	86.9%	11.0%	0.3%	1.1%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
AM Peak	07:00	08:00	08:00	07:00	08:00	08:00	08:00	04:00	06:00	07:00	07:00	07:00	07:00	08:00
Vol.	3	993	107	4	13	3	3	1	1	1	1	1	1	1123
PM Peak														
Vol.														
Grand Total	143	53284	6120	223	780	105	66	66	45	2	0	0	0	60834
Percent	0.2%	87.6%	10.1%	0.4%	1.3%	0.2%	0.1%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%

Tri-State Traffic Data, Inc.

Road Name: River St
 Location: N of Haines St
 Counter: GQ96GV7W
 A-B Direction: NB

www.TSTData.com
610-466-1469

Site Code: River St
 Station ID: N of Haines St
 41.27007N
 -75.86166W
 Latitude: 0' 0.0000 Undefined

North														
Start Time	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13	Total
10/16/17	*	*	*	*	*	*	*	*	*	*	*	*	*	*
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12 PM	*	*	*	*	*	*	*	*	*	*	*	*	*	*
13:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
14:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
15:00	0	517	54	1	7	2	0	1	0	0	0	0	0	582
16:00	0	731	71	0	5	2	1	1	0	0	0	0	0	811
17:00	0	654	58	1	8	3	0	2	1	0	0	0	0	727
18:00	0	415	36	0	6	1	0	0	0	0	0	0	0	458
19:00	1	315	27	0	5	1	0	0	0	0	0	0	0	349
20:00	0	205	18	0	3	0	0	0	1	0	0	0	0	227
21:00	0	132	11	0	0	0	1	0	0	0	0	0	0	144
22:00	0	79	5	0	0	0	0	0	0	0	0	0	0	84
23:00	0	66	7	0	1	0	0	0	0	0	0	0	0	74
Day Total	1	3114	287	2	35	9	2	4	2	0	0	0	0	3456
Percent	0.0%	90.1%	8.3%	0.1%	1.0%	0.3%	0.1%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
AM Peak Vol.														
PM Peak Vol.	19:00	16:00	16:00	15:00	17:00	17:00	16:00	17:00	17:00	17:00	17:00	16:00	17:00	16:00
	1	731	71	1	8	3	1	2	1	1	2	1	1	811

Tri-State Traffic Data, Inc.

Road Name: River St
 Location: N of Haines St
 Counter: GQ96GV7W
 A-B Direction: NB

www.TSTData.com
610-466-1469

Site Code: River St
 Station ID: N of Haines St
 41.27007N
 -75.86166W
 Latitude: 0' 0.0000 Undefined

Start Time	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13	Total
10/17/17	0	40	5	0	0	0	0	0	1	0	0	0	0	46
01:00	0	27	1	0	0	0	0	0	0	0	0	0	0	28
02:00	0	23	4	0	0	0	0	0	0	0	0	0	0	27
03:00	0	34	4	0	0	1	0	0	0	0	0	0	0	39
04:00	0	37	9	0	0	0	0	0	0	0	0	0	0	46
05:00	2	133	24	0	3	0	0	0	0	0	0	0	0	162
06:00	2	216	46	2	6	1	0	0	2	1	0	0	0	276
07:00	2	426	39	1	15	5	0	2	1	1	0	0	0	492
08:00	2	493	54	3	6	3	1	0	1	0	0	0	0	563
09:00	2	386	49	1	9	2	1	1	0	0	0	0	0	451
10:00	0	419	56	0	10	5	2	0	1	0	0	0	0	493
11:00	1	472	53	0	5	4	0	1	0	2	0	0	0	538
12 PM	1	476	60	0	9	4	0	0	1	1	0	0	0	552
13:00	4	479	60	2	10	2	1	0	0	0	0	0	0	558
14:00	5	588	56	2	10	3	1	0	0	0	0	0	0	665
15:00	1	604	74	2	11	5	0	1	1	1	0	0	0	700
16:00	1	748	65	0	2	0	0	0	0	0	0	0	0	816
17:00	0	596	51	0	2	0	0	0	1	0	0	0	0	650
18:00	2	421	44	0	4	0	0	0	1	0	0	0	0	472
19:00	0	348	29	0	4	2	0	0	0	0	0	0	0	383
20:00	1	268	26	0	0	1	0	1	0	0	0	0	0	297
21:00	0	157	13	0	1	0	0	0	0	0	0	0	0	171
22:00	0	115	9	0	0	0	0	0	0	0	0	0	0	124
23:00	0	67	9	0	2	0	0	0	1	0	0	0	0	79
Day Total	26	7573	840	13	109	38	6	6	11	6	0	0	0	8628
Percent	0.3%	87.8%	9.7%	0.2%	1.3%	0.4%	0.1%	0.1%	0.1%	0.1%	0.0%	0.0%	0.0%	
AM Peak	05:00	08:00	10:00	08:00	07:00	07:00	10:00	07:00	06:00	11:00	0.0%	0.0%	0.0%	08:00
Vol.	2	493	56	3	15	5	2	2	2	2				563
PM Peak	14:00	16:00	15:00	13:00	15:00	15:00	13:00	15:00	12:00	12:00				16:00
Vol.	5	748	74	2	11	5	1	1	1	1				816

Tri-State Traffic Data, Inc.

Road Name: River St
 Location: N of Haines St
 Counter: GQ96GV7W
 A-B Direction: NB

www.TSTData.com
 610-466-1469

Site Code: River St
 Station ID: N of Haines St
 41.27007N
 -75.86166W
 Latitude: 0' 0.0000 Undefined

Start Time	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13	Total
10/18/17	0	38	6	0	0	2	0	0	0	0	0	0	0	46
01:00	0	34	1	0	0	0	0	0	0	0	0	0	0	35
02:00	0	26	6	0	0	0	0	0	1	0	0	0	0	33
03:00	0	38	3	0	1	1	0	0	0	0	0	0	0	43
04:00	0	34	7	0	1	0	0	0	0	0	0	0	0	42
05:00	0	129	25	0	3	2	0	0	1	0	0	0	0	160
06:00	0	219	45	1	8	1	0	0	1	1	0	0	0	276
07:00	3	441	50	1	4	2	0	0	1	0	0	0	0	502
08:00	3	482	46	4	7	4	0	0	1	0	0	0	0	547
09:00	0	426	66	0	8	2	0	0	1	0	0	0	0	503
10:00	1	418	63	1	7	0	1	1	0	0	0	0	0	492
11:00	6	427	62	1	8	3	0	0	0	1	0	0	0	508
12 PM	1	441	50	1	7	5	0	1	0	0	0	0	0	506
13:00	2	489	55	3	10	3	0	0	0	0	0	0	0	562
14:00	3	595	51	2	10	2	0	1	3	0	0	0	0	667
15:00	1	629	73	0	8	4	0	3	0	0	0	0	0	718
16:00	3	717	75	0	10	1	0	2	1	0	0	0	0	809
17:00	1	644	54	1	7	0	0	0	1	0	0	0	0	708
18:00	6	471	41	0	2	2	0	2	0	0	0	0	0	524
19:00	0	322	24	0	5	2	0	0	0	0	0	0	0	353
20:00	0	252	12	0	2	2	0	0	0	0	0	0	0	268
21:00	0	169	19	0	0	1	0	0	0	0	0	0	0	189
22:00	0	122	17	0	4	0	0	0	0	0	0	0	0	143
23:00	0	93	8	0	0	0	0	0	0	0	0	0	0	101
Day Total	30	7656	859	15	112	39	1	10	11	2	0	0	0	8735
Percent	0.3%	87.6%	9.8%	0.2%	1.3%	0.4%	0.0%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
AM Peak	11:00	08:00	09:00	08:00	06:00	08:00	10:00	10:00	02:00	06:00	0.0%	0.0%	0.0%	08:00
Vol.	6	482	66	4	8	4	1	1	1	1	0	0	0	547
PM Peak	18:00	16:00	16:00	13:00	13:00	12:00	15:00	14:00	14:00	14:00	0.0%	0.0%	0.0%	16:00
Vol.	6	717	75	3	10	5	3	3	3	3	0	0	0	809

Tri-State Traffic Data, Inc.

Road Name: River St
 Location: N of Haines St
 Counter: GQ96GV7W
 A-B Direction: NB

www.TSTData.com
 610-466-1469

Site Code: River St
 Station ID: N of Haines St
 41.27007N
 -75.86166W
 Latitude: 0' 0.0000 Undefined

Start Time	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13	Total
10/19/17	0	41	2	0	0	0	0	0	0	0	0	0	0	43
01:00	0	27	0	0	0	0	0	0	0	0	0	0	0	27
02:00	0	25	3	0	0	1	0	0	0	0	0	0	0	29
03:00	0	29	4	0	1	0	0	0	1	0	0	0	0	35
04:00	0	58	6	0	0	1	0	0	1	0	0	0	0	66
05:00	0	109	25	1	1	1	1	1	1	0	0	0	0	140
06:00	2	253	41	1	12	2	0	0	0	0	0	0	0	311
07:00	3	421	44	0	6	1	0	0	0	1	0	0	0	476
08:00	1	485	42	2	7	3	0	1	0	0	0	0	0	541
09:00	0	373	59	1	16	2	0	1	1	0	0	0	0	453
10:00	1	392	63	2	11	0	0	2	1	0	0	0	0	472
11:00	0	422	61	4	9	5	0	2	0	0	0	0	0	503
12 PM	1	498	64	0	7	0	0	0	0	0	0	0	0	570
13:00	3	469	57	1	9	5	0	1	0	0	0	0	0	545
14:00	2	568	78	0	9	2	0	0	0	0	0	0	0	659
15:00	3	654	95	1	7	3	0	0	0	0	0	0	0	763
16:00	5	766	75	1	8	2	0	0	0	1	0	0	0	858
17:00	4	645	53	2	9	2	0	2	1	0	0	0	0	718
18:00	3	413	37	0	2	3	0	0	0	0	0	0	0	458
19:00	0	323	39	0	3	0	0	0	0	0	0	0	0	365
20:00	2	295	25	0	3	1	0	0	0	0	0	0	0	326
21:00	2	187	17	0	1	0	0	0	2	0	0	0	0	209
22:00	0	107	7	0	0	1	0	0	0	0	0	0	0	115
23:00	0	87	9	0	0	1	0	0	0	0	0	0	0	97
Day Total	32	7647	906	16	121	36	1	10	8	2	0	0	0	8779
Percent	0.4%	87.1%	10.3%	0.2%	1.4%	0.4%	0.0%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
AM Peak	07:00	08:00	10:00	11:00	09:00	11:00	05:00	10:00	03:00	07:00	07:00	07:00	07:00	08:00
Vol.	3	485	63	4	16	5	1	2	1	1	1	1	1	541
PM Peak	16:00	16:00	15:00	17:00	13:00	13:00	17:00	21:00	21:00	16:00	16:00	16:00	16:00	16:00
Vol.	5	766	95	2	9	5	2	2	2	1	1	1	1	858

Tri-State Traffic Data, Inc.

Road Name: River St
 Location: N of Haines St
 Counter: GQ96GV7W
 A-B Direction: NB

www.TSTData.com
 610-466-1469

Site Code: River St
 Station ID: N of Haines St
 41.27007N
 -75.86166W
 Latitude: 0' 0.0000 Undefined

Start Time	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13	Total
10/20/17	1	45	2	0	0	0	0	0	0	0	0	0	0	48
01:00	0	41	4	0	0	0	0	0	0	0	0	0	0	45
02:00	0	27	6	0	0	1	0	0	0	0	0	0	0	34
03:00	0	29	9	0	0	1	0	0	0	0	0	0	0	39
04:00	1	46	6	0	0	1	0	0	0	0	0	0	0	54
05:00	0	112	22	0	3	1	0	1	1	0	0	0	0	140
06:00	0	218	47	2	9	2	0	0	0	0	0	0	0	278
07:00	4	459	56	2	14	0	0	0	0	1	0	0	0	536
08:00	2	470	46	4	8	0	1	0	0	0	0	0	0	531
09:00	1	461	47	3	8	2	0	0	1	1	0	0	0	524
10:00	2	454	57	0	9	4	0	1	0	0	0	0	0	527
11:00	0	480	57	0	6	3	2	0	0	0	0	0	0	548
12 PM	1	497	62	1	8	3	0	3	1	0	0	0	0	576
13:00	1	496	43	2	13	5	0	2	0	0	0	0	0	562
14:00	4	543	61	0	6	2	0	0	0	0	0	0	0	616
15:00	3	633	81	1	8	2	0	0	0	0	0	0	0	728
16:00	2	713	63	1	9	2	0	0	0	0	0	0	0	790
17:00	3	596	43	0	5	2	0	0	0	0	0	0	0	649
18:00	1	438	46	0	1	1	0	0	0	0	0	0	0	487
19:00	0	317	31	0	5	2	0	0	0	0	0	0	0	355
20:00	0	275	24	0	3	0	0	1	0	0	0	0	0	303
21:00	0	248	27	0	0	0	0	0	0	0	0	0	0	275
22:00	0	172	18	0	3	0	0	0	0	0	0	0	0	193
23:00	0	114	9	0	0	0	0	0	0	0	0	0	0	123
Day Total	26	7884	867	16	118	34	3	8	3	2	0	0	0	8961
Percent	0.3%	88.0%	9.7%	0.2%	1.3%	0.4%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak	07:00	11:00	10:00	08:00	07:00	10:00	11:00	05:00	05:00	07:00	07:00	05:00	05:00	11:00
Vol.	4	480	57	4	14	4	2	1	1	1	1	1	1	548
PM Peak	14:00	16:00	15:00	13:00	13:00	13:00	12:00	12:00	12:00	12:00	12:00	12:00	12:00	16:00
Vol.	4	713	81	2	13	5	3	3	1	1	1	1	1	790

Tri-State Traffic Data, Inc.

Road Name: River St
 Location: N of Haines St
 Counter: GQ96GV7W
 A-B Direction: NB

www.TSTData.com
 610-466-1469

Site Code: River St
 Station ID: N of Haines St
 41.27007N
 -75.86166W
 Latitude: 0' 0.0000 Undefined

Start Time	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13	Total
10/21/17	0	63	7	0	2	0	0	0	0	0	0	0	0	72
01:00	0	54	4	0	1	0	0	0	1	0	0	0	0	60
02:00	0	32	6	0	0	0	0	0	0	0	0	0	0	38
03:00	0	35	2	0	1	1	0	0	0	0	0	0	0	39
04:00	0	19	6	0	0	0	0	0	0	0	0	0	0	25
05:00	0	74	6	0	0	1	0	1	0	0	0	0	0	82
06:00	0	128	16	0	2	0	0	0	0	0	0	0	0	146
07:00	0	190	24	1	3	0	0	0	1	0	0	0	0	219
08:00	0	273	33	0	3	2	0	0	0	0	0	0	0	311
09:00	2	359	46	0	3	0	0	1	0	0	0	0	0	411
10:00	2	397	60	0	2	1	1	0	1	0	0	0	0	464
11:00	1	432	54	1	6	3	1	1	0	0	0	0	0	499
12 PM	1	440	34	1	4	4	0	0	1	0	0	0	0	485
13:00	3	390	42	0	4	0	0	1	0	0	0	0	0	440
14:00	3	404	39	0	4	1	0	0	1	0	0	0	0	452
15:00	3	390	39	0	3	2	0	0	1	1	0	0	0	439
16:00	2	377	35	0	5	1	0	0	0	0	0	0	0	420
17:00	0	434	38	0	1	2	0	0	0	0	0	0	0	475
18:00	3	350	34	0	2	2	0	1	0	0	0	0	0	392
19:00	0	282	25	0	2	1	1	0	0	0	0	0	0	311
20:00	1	213	20	0	1	0	0	0	0	0	0	0	0	235
21:00	0	187	34	0	2	1	0	0	0	0	0	0	0	224
22:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
23:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Day Total	21	5523	604	3	51	22	3	5	6	1	0	0	0	6239
Percent	0.3%	88.5%	9.7%	0.0%	0.8%	0.4%	0.0%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
AM Peak	09:00	11:00	10:00	07:00	11:00	11:00	10:00	05:00	01:00	01:00	0.0%	0.0%	0.0%	11:00
Vol.	2	432	60	1	6	3	1	1	1	1	0	0	0	499
PM Peak	13:00	12:00	13:00	12:00	16:00	12:00	19:00	13:00	12:00	15:00	0.0%	0.0%	0.0%	12:00
Vol.	3	440	42	1	5	4	1	1	1	1	0	0	0	485
Grand Total	136	39397	4363	65	546	178	16	43	41	13	0	0	0	44798
Percent	0.3%	87.9%	9.7%	0.1%	1.2%	0.4%	0.0%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%

Tri-State Traffic Data, Inc.

Road Name: River St
 Location: N of Haines St
 Counter: GQ96GV7W
 A-B Direction: NB

www.TSTData.com
 610-466-1469

Site Code: River St
 Station ID: N of Haines St
 41.27007N
 -75.86166W
 Latitude: 0' 0.0000 Undefined

Start Time	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13	Total
10/16/17	*	*	*	*	*	*	*	*	*	*	*	*	*	*
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12 PM	*	*	*	*	*	*	*	*	*	*	*	*	*	*
13:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
14:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
15:00	3	444	49	4	11	8	1	0	2	1	0	0	0	523
16:00	1	674	70	1	9	1	2	3	0	0	0	0	0	761
17:00	3	638	59	0	4	3	1	3	1	0	0	0	0	712
18:00	2	453	42	2	10	1	1	0	5	0	0	0	0	516
19:00	0	282	35	1	9	1	0	0	3	0	0	0	0	331
20:00	0	200	20	0	1	0	0	0	1	0	0	0	0	222
21:00	0	105	14	0	1	0	0	0	2	0	0	0	0	122
22:00	0	83	9	0	3	0	0	0	1	0	0	0	0	96
23:00	0	54	7	0	2	0	0	0	2	0	0	0	0	65
Day Total	9	2933	305	8	50	14	5	6	17	1	0	0	0	3348
Percent	0.3%	87.6%	9.1%	0.2%	1.5%	0.4%	0.1%	0.2%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%
AM Peak Vol.	15:00	16:00	16:00	15:00	15:00	15:00	16:00	16:00	18:00	15:00	15:00	15:00	16:00	16:00
PM Peak Vol.	3	674	70	4	11	8	2	3	5	1	1	1	1	761

Tri-State Traffic Data, Inc.

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Site Code: River St
 Station ID: N of Haines St
 41.27007N
 -75.86166W
 Latitude: 0° 0.0000 Undefined

Start Time	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13	Total
10/17/17	0	26	1	0	0	0	0	0	5	0	0	0	0	32
01:00	0	20	2	0	0	0	0	0	1	0	0	0	0	23
02:00	0	21	6	0	0	0	0	0	0	0	0	0	0	27
03:00	0	29	4	1	0	0	0	0	0	0	0	0	0	34
04:00	0	49	16	0	1	2	0	1	2	0	0	0	0	71
05:00	0	163	36	0	3	1	0	0	4	0	0	0	0	207
06:00	1	415	66	2	9	5	0	0	4	2	0	0	0	504
07:00	10	785	70	3	12	12	0	0	2	0	0	0	0	894
08:00	10	717	69	5	8	4	2	0	5	0	0	0	0	820
09:00	0	562	66	4	14	3	1	0	4	0	0	0	0	654
10:00	2	534	64	1	20	3	6	3	4	1	0	0	0	638
11:00	1	497	71	3	8	7	3	1	3	0	0	0	0	594
12 PM	2	611	62	1	10	7	1	2	5	0	0	0	0	701
13:00	3	538	89	1	8	4	6	0	3	0	0	0	0	652
14:00	3	579	75	4	12	4	2	0	2	0	0	0	0	681
15:00	2	597	82	3	12	4	4	0	0	1	0	0	0	705
16:00	5	650	76	0	12	3	2	2	1	0	0	0	0	751
17:00	2	573	64	1	9	0	2	0	2	0	0	0	0	653
18:00	1	419	47	1	6	1	0	0	1	0	0	0	0	476
19:00	0	294	32	0	2	2	1	0	4	0	0	0	0	335
20:00	0	184	12	0	3	2	0	0	0	0	0	0	0	201
21:00	0	133	14	0	2	0	0	0	0	0	0	0	0	149
22:00	0	117	10	0	1	0	0	0	1	0	0	0	0	129
23:00	0	52	10	0	1	0	0	0	0	0	0	0	0	63
Day Total	42	8565	1044	30	153	64	30	9	53	4	0	0	0	9994
Percent	0.4%	85.7%	10.4%	0.3%	1.5%	0.6%	0.3%	0.1%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%
AM Peak	07:00	07:00	11:00	08:00	10:00	07:00	10:00	10:00	00:00	06:00				07:00
Vol.	10	785	71	5	20	12	6	3	5	2				894
PM Peak	16:00	16:00	13:00	14:00	14:00	12:00	13:00	12:00	12:00	15:00				16:00
Vol.	5	650	89	4	12	7	6	2	5	1				751

Tri-State Traffic Data, Inc.

Road Name: River St
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 Counter: GQ96GV7W
 A-B Direction: NB

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 610-466-1469

Site Code: River St
 Station ID: N of Haines St
 41.27007N
 -75.86166W
 Latitude: 0' 0.0000 Undefined

Start Time	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13	Total
10/18/17	0	27	3	0	1	0	0	0	3	0	0	0	0	34
01:00	0	21	2	0	1	0	0	0	1	0	0	0	0	25
02:00	0	25	4	0	0	0	0	0	1	0	0	0	0	30
03:00	0	16	3	0	0	1	0	0	0	0	0	0	0	20
04:00	0	60	18	1	0	0	0	0	2	0	0	0	0	81
05:00	0	182	39	0	7	2	0	0	0	0	0	0	0	230
06:00	1	426	73	2	10	5	3	1	5	0	0	0	0	526
07:00	7	729	73	5	12	12	0	2	1	2	0	0	0	843
08:00	12	710	66	5	10	20	10	0	3	3	0	0	0	839
09:00	4	550	89	2	11	7	4	1	1	1	0	0	0	670
10:00	0	527	78	2	16	1	8	1	2	0	0	0	0	635
11:00	2	512	61	1	11	2	10	1	2	0	0	0	0	602
12 PM	0	536	68	4	10	2	7	1	1	0	0	0	0	629
13:00	5	522	66	3	16	2	6	3	1	0	0	0	0	624
14:00	3	549	82	3	14	5	5	3	2	0	0	0	0	666
15:00	1	606	89	2	14	3	2	2	1	0	0	0	0	720
16:00	1	612	75	0	12	1	3	2	0	0	0	0	0	706
17:00	8	665	55	3	5	1	0	2	5	0	0	0	0	744
18:00	2	507	41	1	12	0	0	0	1	0	0	0	0	564
19:00	0	330	35	1	4	0	0	0	2	0	0	0	0	372
20:00	1	217	30	0	7	0	0	0	1	0	0	0	0	256
21:00	0	161	9	0	3	0	0	0	1	0	0	0	0	174
22:00	0	90	12	0	4	0	0	0	0	0	0	0	0	106
23:00	0	52	10	0	0	1	0	0	2	0	0	0	0	65
Day Total	47	8632	1081	35	180	65	58	19	38	6	0	0	0	10161
Percent	0.5%	85.0%	10.6%	0.3%	1.8%	0.6%	0.6%	0.2%	0.4%	0.1%	0.0%	0.0%	0.0%	
AM Peak	08:00	07:00	09:00	07:00	10:00	08:00	08:00	07:00	06:00	08:00	08:00	08:00	08:00	07:00
Vol.	12	729	89	5	16	20	10	2	5	3	5	5	3	843
PM Peak	17:00	17:00	15:00	12:00	13:00	14:00	12:00	13:00	17:00	17:00	17:00	17:00	17:00	17:00
Vol.	8	665	89	4	16	5	7	3	5	5	5	5	5	744

Tri-State Traffic Data, Inc.

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Site Code: River St
 Station ID: N of Haines St
 41.27007N
 -75.86166W
 Latitude: 0' 0.0000 Undefined

Start Time	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13	Total
10/19/17	0	38	5	0	0	0	0	0	0	0	0	0	0	43
01:00	0	21	2	0	1	0	0	0	2	0	0	0	0	26
02:00	0	21	2	1	0	0	0	1	0	0	0	0	0	25
03:00	0	29	7	0	0	0	0	0	1	0	0	0	0	37
04:00	0	51	20	0	0	0	0	0	3	0	0	0	0	74
05:00	0	169	43	0	4	3	0	0	0	1	0	0	0	220
06:00	3	430	74	2	6	5	1	3	7	1	0	0	0	532
07:00	13	745	74	4	11	13	5	0	0	0	0	0	0	865
08:00	3	725	80	1	10	10	0	2	1	4	0	0	0	836
09:00	2	556	81	0	8	6	2	0	4	0	0	0	0	659
10:00	1	514	67	2	12	2	3	1	3	0	0	0	0	605
11:00	0	486	71	3	12	5	2	0	2	1	0	0	0	582
12 PM	3	578	71	3	6	6	4	1	5	0	0	0	0	677
13:00	0	559	77	3	15	3	3	1	3	1	0	0	0	665
14:00	1	589	68	0	9	3	2	0	4	0	0	0	0	676
15:00	2	647	84	3	12	4	6	1	1	1	0	0	0	761
16:00	4	651	97	0	7	1	1	2	2	0	0	0	0	765
17:00	3	675	66	1	4	3	0	3	0	0	0	0	0	755
18:00	3	480	43	0	6	0	0	0	2	3	0	0	0	537
19:00	1	321	35	0	2	0	0	0	1	0	0	0	0	360
20:00	0	206	22	0	2	0	0	0	2	0	0	0	0	232
21:00	0	146	6	0	2	0	0	0	3	0	0	0	0	157
22:00	0	106	7	0	1	0	0	0	1	0	0	0	0	115
23:00	0	60	9	0	0	0	0	0	1	0	0	0	0	70
Day Total	39	8803	1111	23	130	64	29	15	48	12	0	0	0	10274
Percent	0.4%	85.7%	10.8%	0.2%	1.3%	0.6%	0.3%	0.1%	0.5%	0.1%	0.0%	0.0%	0.0%	
AM Peak	07:00	07:00	09:00	07:00	10:00	07:00	07:00	06:00	06:00	08:00	08:00	06:00	06:00	07:00
Vol.	13	745	81	4	12	13	5	3	7	4	4	7	4	865
PM Peak	16:00	17:00	16:00	12:00	13:00	12:00	15:00	17:00	12:00	18:00	18:00	12:00	18:00	16:00
Vol.	4	675	97	3	15	6	6	3	5	3	3	5	3	765

Tri-State Traffic Data, Inc.

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Site Code: River St
 Station ID: N of Haines St
 41.27007N
 -75.86166W
 Latitude: 0° 0.0000 Undefined

Start Time	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13	Total
10/20/17	0	33	5	0	0	0	0	0	0	0	0	0	0	38
01:00	0	25	3	0	1	0	0	0	2	0	0	0	0	31
02:00	0	23	9	1	0	0	0	0	1	0	0	0	0	34
03:00	0	25	11	1	0	0	0	0	0	0	0	0	0	37
04:00	0	52	9	0	0	0	0	0	3	1	0	0	0	65
05:00	0	139	38	0	7	2	1	0	3	0	0	0	0	190
06:00	2	431	72	2	7	5	0	2	5	2	0	0	0	528
07:00	4	745	76	4	10	12	6	1	4	2	0	0	0	864
08:00	1	714	83	4	12	8	0	0	2	2	0	0	0	826
09:00	1	590	72	5	14	6	2	6	4	0	0	0	0	700
10:00	3	536	75	4	13	2	2	1	5	0	0	0	0	641
11:00	1	555	68	1	15	5	3	2	6	0	0	0	0	656
12 PM	5	517	72	2	10	4	2	2	1	1	0	0	0	616
13:00	2	543	74	5	14	6	4	0	1	1	0	0	0	650
14:00	4	594	88	2	10	3	1	2	1	0	0	0	0	705
15:00	2	620	81	2	10	1	2	2	3	0	0	0	0	723
16:00	6	665	77	1	8	2	0	1	0	0	0	0	0	760
17:00	3	628	61	1	7	0	2	0	1	0	0	0	0	703
18:00	2	476	61	0	3	0	0	1	2	0	0	0	0	545
19:00	0	305	37	0	2	0	0	0	0	0	0	0	0	344
20:00	0	210	18	0	5	1	0	0	2	0	0	0	0	236
21:00	1	199	18	0	3	1	0	0	0	0	0	0	0	222
22:00	1	175	6	0	4	0	0	0	0	0	0	0	0	186
23:00	0	111	11	0	1	0	0	0	0	0	0	0	0	123
Day Total	38	8911	1125	35	156	58	25	20	46	9	0	0	0	10423
Percent	0.4%	85.5%	10.8%	0.3%	1.5%	0.6%	0.2%	0.2%	0.4%	0.1%	0.0%	0.0%	0.0%	
AM Peak	07:00	07:00	08:00	09:00	11:00	07:00	07:00	09:00	11:00	06:00				07:00
Vol.	4	745	83	5	15	12	6	6	6	2				864
PM Peak	16:00	16:00	14:00	13:00	13:00	13:00	13:00	12:00	15:00	12:00				16:00
Vol.	6	665	88	5	14	6	4	2	3	1				760

Tri-State Traffic Data, Inc.

Road Name: River St
 Location: N of Haines St
 Counter: GQ96GV7W
 A-B Direction: NB

www.TSTData.com
610-466-1469

Site Code: River St
 Station ID: N of Haines St
 41.27007N
 -75.86166W
 Latitude: 0' 0.0000 Undefined

Start Time	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13	Total
10/21/17	0	39	14	0	0	0	0	0	0	0	0	0	0	53
01:00	0	55	4	0	1	0	0	0	1	0	0	0	0	61
02:00	0	20	4	0	1	0	0	0	1	0	0	0	0	26
03:00	0	25	4	0	1	0	0	0	0	0	0	0	0	30
04:00	0	27	10	0	0	0	0	0	1	0	0	0	0	38
05:00	0	76	14	0	4	2	0	0	1	0	0	0	0	97
06:00	0	185	29	1	1	2	0	1	1	0	0	0	0	220
07:00	0	231	42	0	4	4	0	0	0	0	0	0	0	281
08:00	0	373	52	1	5	1	0	1	2	0	0	0	0	435
09:00	1	498	62	0	8	1	0	0	0	0	0	0	0	570
10:00	0	566	75	0	7	0	2	1	2	0	0	0	0	653
11:00	0	636	66	2	10	3	0	0	2	0	0	0	0	719
12 PM	1	505	56	1	7	2	0	0	0	0	0	0	0	572
13:00	0	495	51	0	4	1	0	0	2	0	0	0	0	553
14:00	2	466	58	0	4	1	0	0	2	0	0	0	0	533
15:00	3	386	36	0	5	0	0	0	0	0	0	0	0	430
16:00	4	391	42	0	4	0	0	2	1	1	0	0	0	445
17:00	1	411	46	0	2	1	0	1	0	0	0	0	0	462
18:00	3	369	40	0	5	1	0	0	0	0	0	0	0	418
19:00	0	237	24	0	2	0	0	0	0	0	0	0	0	263
20:00	0	178	10	1	2	1	0	0	0	0	0	0	0	192
21:00	0	148	12	0	2	0	0	0	0	0	0	0	0	162
22:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
23:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Day Total	15	6317	751	6	79	20	2	6	16	1	0	0	0	7213
Percent	0.2%	87.6%	10.4%	0.1%	1.1%	0.3%	0.0%	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	
AM Peak	09:00	11:00	10:00	11:00	11:00	07:00	10:00	06:00	08:00					11:00
Vol.	1	636	75	2	10	4	2	1	2					719
PM Peak	16:00	12:00	14:00	12:00	12:00	12:00	16:00	16:00	13:00	16:00				12:00
Vol.	4	505	58	1	7	2	2	2	2	1				572
Grand Total	190	44161	5417	137	748	285	149	75	218	33	0	0	0	51413
Percent	0.4%	85.9%	10.5%	0.3%	1.5%	0.6%	0.3%	0.1%	0.4%	0.1%	0.0%	0.0%	0.0%	

Tri-State Traffic Data, Inc.

Road Name: Maffet St
 Location: S of Ann St
 Counter: FW79ZA6
 A-B Direction: NB

www.TSTData.com
 610-466-1469

Site Code: Maffet St
 Station ID: S of Ann St
 41.27037N
 -75.85555W
 Latitude: 0' 0.0000 Undefined

Start Time	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13	Total
10/16/17	*	*	*	*	*	*	*	*	*	*	*	*	*	*
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12 PM	*	*	*	*	*	*	*	*	*	*	*	*	*	*
13:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
14:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
15:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
16:00	1	289	46	1	7	4	0	2	0	0	0	0	0	350
17:00	0	289	28	1	1	2	0	0	0	0	0	0	0	321
18:00	0	229	30	0	3	0	0	0	1	0	0	0	0	263
19:00	0	159	26	0	3	0	0	0	0	0	0	0	0	188
20:00	0	98	15	0	1	0	0	0	0	0	0	0	0	114
21:00	0	78	10	0	1	0	0	0	0	0	0	0	0	89
22:00	0	53	5	0	1	0	0	0	0	0	0	0	0	59
23:00	0	39	9	0	0	0	0	0	0	0	0	0	0	48
Day Total	1	1234	169	2	17	6	0	2	1	0	0	0	0	1432
Percent	0.1%	86.2%	11.8%	0.1%	1.2%	0.4%	0.0%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
AM Peak Vol.														
PM Peak Vol.	16:00	16:00	16:00	16:00	16:00	16:00	16:00	16:00	18:00					16:00
	1	289	46	1	7	4	0	2	1					350

Tri-State Traffic Data, Inc.

Road Name: Maffet St
 Location: S of Ann St
 Counter: FW79YZA6
 A-B Direction: NB

www.TSTData.com
 610-466-1469

Site Code: Maffet St
 Station ID: S of Ann St
 41:27037N
 -75.85555W
 Latitude: 0° 0.0000 Undefined

North														
Start Time	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13	Total
10/17/17	0	15	3	0	0	0	0	0	0	0	0	0	0	18
01:00	0	10	0	0	1	0	0	0	0	0	0	0	0	11
02:00	0	9	0	0	0	0	0	0	0	0	0	0	0	9
03:00	0	6	0	0	0	1	0	0	0	0	0	0	0	7
04:00	0	6	5	0	1	0	0	0	0	0	0	0	0	12
05:00	0	43	16	0	0	0	0	0	1	0	0	0	0	60
06:00	0	76	28	1	3	0	0	0	0	0	0	0	0	108
07:00	1	172	39	2	7	3	1	1	2	0	0	0	0	228
08:00	1	179	30	2	4	3	6	0	0	0	0	0	0	225
09:00	0	121	26	1	9	1	9	1	0	0	0	0	1	169
10:00	1	127	33	2	7	2	4	0	0	0	0	0	0	176
11:00	0	154	28	0	10	2	7	1	0	0	0	0	0	202
12 PM	2	168	23	1	6	9	5	1	1	0	0	0	0	216
13:00	0	184	25	2	3	7	2	0	0	0	0	0	0	223
14:00	0	220	34	0	12	7	3	2	0	0	0	0	0	278
15:00	1	240	37	5	8	3	3	0	1	0	0	0	0	298
16:00	2	308	42	1	8	3	1	1	1	0	0	0	0	367
17:00	0	290	33	1	2	1	0	1	0	0	0	0	0	328
18:00	0	189	36	3	4	1	0	0	0	0	0	0	0	233
19:00	0	144	22	0	1	0	0	0	0	0	0	0	0	167
20:00	0	145	17	0	2	0	0	0	0	0	0	0	0	164
21:00	0	92	7	0	0	1	0	0	0	0	0	0	0	100
22:00	0	61	7	0	2	0	0	0	0	0	0	0	0	70
23:00	1	38	6	0	0	0	0	0	0	0	0	0	0	45
Day Total	9	2997	497	21	90	44	41	8	6	0	0	0	1	3714
Percent	0.2%	80.7%	13.4%	0.6%	2.4%	1.2%	1.1%	0.2%	0.2%	0.0%	0.0%	0.0%	0.0%	
AM Peak	07:00	08:00	07:00	07:00	11:00	07:00	09:00	07:00	07:00	07:00	0.0%	0.0%	09:00	07:00
Vol.	1	179	39	2	10	3	9	1	2	2			1	228
PM Peak	12:00	16:00	16:00	15:00	14:00	12:00	12:00	14:00	12:00	12:00			16:00	16:00
Vol.	2	308	42	5	12	9	5	2	1	1			367	367

Tri-State Traffic Data, Inc.

www.TSTData.com
610-466-1469

Road Name: Maffet St
Location: S of Ann St
Counter: FW79ZA6
A-B Direction: NB

Site Code: Maffet St
Station ID: S of Ann St
41.27037N
-75.85555W
Latitude: 0' 0.0000 Undefined

Start Time	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13	Total
10/18/17	0	18	2	0	0	0	0	0	0	0	0	0	0	20
01:00	0	15	0	0	0	0	0	0	0	0	0	0	0	15
02:00	0	14	2	0	0	0	0	0	1	0	0	0	0	17
03:00	0	5	2	0	0	0	0	0	1	0	0	0	0	8
04:00	0	6	4	0	0	0	0	0	1	0	0	0	0	11
05:00	0	41	13	0	0	0	0	0	1	0	0	0	0	55
06:00	0	70	30	1	6	4	0	0	0	0	0	0	0	111
07:00	0	175	31	0	9	4	2	0	1	1	0	0	0	223
08:00	0	170	35	2	10	4	1	0	1	0	0	0	0	223
09:00	0	111	26	0	7	5	4	0	0	0	0	0	0	153
10:00	0	136	32	2	5	10	4	1	1	0	0	0	0	191
11:00	2	146	45	1	4	7	3	0	1	0	0	0	0	209
12 PM	2	190	38	0	5	11	5	0	0	0	0	0	0	251
13:00	0	197	32	0	4	10	4	1	0	0	0	0	0	248
14:00	3	212	34	3	5	6	5	0	0	0	0	0	0	268
15:00	0	280	59	3	5	3	3	0	0	0	0	0	0	353
16:00	2	281	47	1	4	3	0	0	0	0	0	0	0	338
17:00	0	289	31	2	1	0	0	0	0	0	0	0	0	323
18:00	0	247	27	0	2	0	0	0	1	0	0	0	0	277
19:00	0	180	10	2	1	0	0	0	0	0	0	0	0	193
20:00	0	135	26	0	0	0	0	0	0	0	0	0	0	161
21:00	0	87	12	0	1	0	0	0	0	0	0	0	0	100
22:00	0	51	6	0	0	0	0	0	0	0	0	0	0	57
23:00	1	36	6	0	0	0	0	0	0	0	0	0	0	43
Day Total	10	3092	550	17	69	67	31	2	9	1	0	0	0	3848
Percent	0.3%	80.4%	14.3%	0.4%	1.8%	1.7%	0.8%	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
AM Peak	11:00	07:00	11:00	08:00	08:00	10:00	09:00	10:00	02:00	07:00	07:00	07:00	07:00	07:00
Vol.	2	175	45	2	10	10	4	1	1	1	1	1	1	223
PM Peak	14:00	17:00	15:00	14:00	12:00	12:00	12:00	13:00	18:00	18:00	18:00	18:00	18:00	15:00
Vol.	3	289	59	3	5	11	5	1	1	1	1	1	1	353

Tri-State Traffic Data, Inc.

www.TSTData.com
610-466-1469

Road Name: Maffet St
Location: S of Ann St
Counter: FW79ZA6
A-B Direction: NB

Site Code: Maffet St
Station ID: S of Ann St
41:27037N
-75.85555W
Latitude: 0' 0.0000 Undefined

North														
Start Time	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13	Total
10/19/17	0	22	2	0	0	0	0	0	0	0	0	0	0	24
01:00	0	12	2	0	0	0	0	0	0	0	0	0	0	14
02:00	0	8	1	0	0	0	0	0	0	0	0	0	0	9
03:00	0	7	1	0	0	0	0	0	0	0	0	0	0	8
04:00	0	7	10	0	0	0	0	0	0	0	0	0	0	17
05:00	0	40	18	0	3	0	0	0	0	0	0	0	0	61
06:00	0	83	33	2	4	2	0	1	2	0	0	0	0	127
07:00	0	170	40	1	4	0	0	0	1	0	0	0	0	216
08:00	1	171	28	1	8	1	1	0	0	0	0	0	0	211
09:00	0	127	32	0	6	5	2	0	0	0	0	0	0	172
10:00	0	141	30	0	6	2	2	1	0	0	0	0	0	182
11:00	0	159	39	0	7	4	2	0	0	0	0	0	0	211
12 PM	0	193	33	2	6	3	1	0	0	0	0	0	0	238
13:00	0	219	39	1	7	4	0	0	0	1	0	0	0	271
14:00	2	203	28	0	2	4	0	0	0	0	0	0	0	239
15:00	0	269	55	5	7	5	0	1	0	0	0	0	0	342
16:00	2	333	47	1	5	2	0	0	1	0	0	0	0	391
17:00	1	307	43	1	5	0	0	0	1	0	0	0	0	358
18:00	0	219	18	0	6	2	0	0	0	0	0	0	0	245
19:00	1	158	24	0	1	0	0	0	0	0	0	0	0	184
20:00	0	161	15	0	0	0	1	0	0	0	0	0	0	177
21:00	0	103	10	0	0	0	0	0	0	0	0	0	0	113
22:00	0	53	3	0	0	0	0	0	0	0	0	0	0	56
23:00	0	37	10	0	0	0	0	0	0	0	0	0	0	47
Day Total	7	3202	561	14	77	34	9	3	5	1	0	0	0	3913
Percent	0.2%	81.8%	14.3%	0.4%	2.0%	0.9%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
AM Peak Vol.	1	171	40	2	8	5	2	1	2	0	0	0	0	216
PM Peak Vol.	2	333	55	5	7	5	1	1	1	1	0	0	0	391

Tri-State Traffic Data, Inc.

www.TSTData.com
610-466-1469

Road Name: Maffet St
Location: S of Ann St
Counter: FW79ZA6
A-B Direction: NB

Site Code: Maffet St
Station ID: S of Ann St
41:27037N
-75.85555W
Latitude: 0° 0.0000 Undefined

North														
Start Time	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13	Total
10/20/17	0	22	3	0	0	0	0	0	0	0	0	0	0	25
01:00	0	13	2	0	0	0	0	0	0	0	0	0	0	15
02:00	0	13	0	0	1	0	0	0	0	0	0	0	0	14
03:00	0	2	1	0	0	0	0	0	0	0	0	0	0	3
04:00	0	8	10	0	1	0	0	0	0	0	0	0	0	19
05:00	0	37	12	0	2	0	0	0	0	0	0	0	0	51
06:00	1	80	30	1	6	2	0	0	0	0	0	0	0	120
07:00	0	175	39	1	0	2	3	0	1	0	0	0	0	221
08:00	0	184	29	2	11	1	4	0	0	0	0	0	0	231
09:00	0	131	38	0	6	3	0	0	1	0	0	0	0	179
10:00	0	136	22	1	3	1	4	0	2	0	0	0	0	169
11:00	0	175	34	1	3	2	4	1	1	0	0	0	0	221
12 PM	1	179	22	1	8	3	1	0	0	0	0	0	0	215
13:00	3	199	36	1	5	4	3	1	1	0	0	0	0	253
14:00	2	231	40	1	5	8	1	1	0	0	0	0	0	289
15:00	3	274	48	3	3	2	1	0	1	0	0	0	0	335
16:00	0	288	40	1	6	1	0	2	0	0	0	0	0	338
17:00	1	258	44	0	0	1	1	1	0	0	0	0	0	306
18:00	0	187	22	0	4	0	0	1	0	0	0	0	0	214
19:00	0	146	19	0	1	0	0	0	0	0	0	0	0	166
20:00	2	104	15	0	1	0	0	1	0	0	0	0	0	123
21:00	0	121	9	0	1	0	0	0	0	0	0	0	0	131
22:00	0	86	13	0	0	0	0	0	0	0	0	0	0	99
23:00	0	64	12	0	2	0	0	0	0	0	0	0	0	78
Day Total	13	3113	540	13	69	30	22	8	7	0	0	0	0	3815
Percent	0.3%	81.6%	14.2%	0.3%	1.8%	0.8%	0.6%	0.2%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
AM Peak	06:00	08:00	07:00	08:00	08:00	09:00	08:00	11:00	10:00					08:00
Vol.	1	184	39	2	11	3	4	1	2					231
PM Peak	13:00	16:00	15:00	15:00	12:00	14:00	13:00	16:00	13:00					16:00
Vol.	3	288	48	3	8	8	3	2	1					338

Tri-State Traffic Data, Inc.

www.TSTData.com
610-466-1469

Road Name: Maffet St
Location: S of Ann St
Counter: FW79YZA6
A-B Direction: NB

Site Code: Maffet St
Station ID: S of Ann St
41:27037N
-75.85555W
Latitude: 0' 0.0000 Undefined

Start Time	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13	Total
10/21/17	0	33	3	0	0	0	0	0	0	0	0	0	0	36
01:00	0	25	4	0	0	0	0	0	0	0	0	0	0	29
02:00	0	16	1	0	0	0	0	0	0	0	0	0	0	17
03:00	0	10	1	0	0	0	0	0	0	0	0	0	0	11
04:00	0	8	2	0	0	0	0	0	0	0	0	0	0	10
05:00	0	21	6	0	2	0	0	0	0	0	0	0	0	29
06:00	0	39	11	0	0	0	0	0	0	0	0	0	0	50
07:00	0	54	13	0	5	0	0	0	0	0	0	0	0	72
08:00	0	76	6	0	0	0	0	1	0	0	0	0	0	83
09:00	0	142	24	1	2	1	0	0	0	0	0	0	0	170
10:00	0	166	30	0	3	0	0	1	0	0	0	0	0	200
11:00	2	163	35	0	2	0	0	0	0	0	0	0	0	202
12 PM	2	172	33	0	3	1	0	2	0	0	0	0	0	213
13:00	0	185	23	0	2	1	0	0	0	0	0	0	0	211
14:00	0	187	26	0	3	0	0	1	0	0	0	0	0	217
15:00	2	190	25	1	4	1	0	0	0	0	0	0	0	223
16:00	4	166	23	0	1	0	0	1	0	1	0	0	0	196
17:00	0	186	23	0	4	0	0	0	0	0	0	0	0	213
18:00	4	154	23	0	1	0	0	0	0	0	0	0	0	182
19:00	1	147	8	0	3	0	0	0	0	0	0	0	0	159
20:00	0	121	15	0	1	0	0	0	0	0	0	0	0	137
21:00	0	90	7	0	1	0	0	0	0	0	0	0	0	98
22:00	0	88	11	0	1	0	0	0	0	0	0	0	0	100
23:00	0	69	11	0	0	0	0	0	0	0	0	0	0	80
Day Total	15	2508	364	2	38	4	0	6	0	1	0	0	0	2938
Percent	0.5%	85.4%	12.4%	0.1%	1.3%	0.1%	0.0%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak	11:00	10:00	11:00	09:00	07:00	09:00	08:00	08:00	08:00	08:00	08:00	08:00	08:00	11:00
Vol.	2	166	35	1	5	1	1	1	1	1	1	1	1	202
PM Peak	16:00	15:00	12:00	15:00	15:00	12:00	12:00	12:00	12:00	16:00	16:00	16:00	16:00	15:00
Vol.	4	190	33	1	4	1	2	2	2	1	1	1	1	223

Tri-State Traffic Data, Inc.

Road Name: Maffet St
 Location: S of Ann St
 Counter: FW79YZA6
 A-B Direction: NB

www.TSTData.com
 610-466-1469

Site Code: Maffet St
 Station ID: S of Ann St
 41:27037N
 -75.85555W
 Latitude: 0' 0.0000 Undefined

Start Time	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13	Total
10/22/17	0	35	7	0	0	0	0	0	0	0	0	0	0	42
01:00	0	30	1	0	0	0	0	0	0	0	0	0	0	31
02:00	0	21	4	0	0	0	0	0	0	0	0	0	0	25
03:00	0	8	3	0	0	0	0	0	0	0	0	0	0	11
04:00	0	10	1	0	0	0	0	0	0	0	0	0	0	11
05:00	0	11	2	0	1	0	0	0	0	0	0	0	0	14
06:00	1	18	6	0	1	0	0	0	0	0	0	0	0	26
07:00	0	49	10	1	0	0	0	0	0	0	0	0	0	60
08:00	0	82	15	0	0	0	0	0	0	0	0	0	0	97
09:00	1	106	11	0	1	1	0	0	0	0	0	0	0	120
10:00	0	119	21	0	2	0	0	0	0	0	0	0	0	142
11:00	0	143	22	0	1	0	0	0	0	0	0	0	0	166
12 PM	0	197	31	0	2	0	0	2	0	0	0	0	0	232
13:00	0	176	27	0	2	0	0	1	0	0	0	0	0	206
14:00	1	206	29	0	2	0	0	1	0	0	0	0	0	239
15:00	0	199	31	0	0	0	0	0	0	0	0	0	0	230
16:00	1	188	22	1	4	0	0	1	0	0	0	0	0	217
17:00	2	165	19	0	1	0	0	2	0	0	0	0	0	189
18:00	4	166	27	0	2	0	0	0	0	0	0	0	0	199
19:00	2	131	15	0	3	0	0	1	0	0	0	0	0	152
20:00	0	100	7	0	1	0	0	0	0	0	0	0	0	108
21:00	0	69	6	0	0	0	0	0	0	0	0	0	0	75
22:00	0	47	6	0	0	0	0	0	0	0	0	0	0	53
23:00	0	31	3	0	0	0	0	0	0	0	0	0	0	34
Day Total	12	2307	326	2	23	1	0	8	0	0	0	0	0	2679
Percent	0.4%	86.1%	12.2%	0.1%	0.9%	0.0%	0.0%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak	06:00	11:00	11:00	07:00	10:00	09:00								11:00
Vol.	1	143	22	1	2	1								166
PM Peak	18:00	14:00	12:00	16:00	16:00		12:00							14:00
Vol.	4	206	31	1	4		2							239

Tri-State Traffic Data, Inc.

www.TSTData.com
610-466-1469

Road Name: Maffet St
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Counter: FW79ZA6
A-B Direction: NB

Site Code: Maffet St
Station ID: S of Ann St
41.27037N
-75.85555W
Latitude: 0' 0.0000 Undefined

Start Time	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13	Total
10/23/17	0	23	2	0	0	0	0	0	0	0	0	0	0	25
01:00	0	16	1	0	0	0	0	0	0	0	0	0	0	17
02:00	0	12	1	0	1	0	0	0	0	0	0	0	0	14
03:00	0	5	0	0	0	1	0	0	0	0	0	0	0	6
04:00	0	4	9	0	0	0	0	1	0	0	0	0	0	14
05:00	0	37	15	0	1	0	0	0	0	0	0	0	0	53
06:00	0	76	30	1	7	5	0	0	0	0	0	0	0	119
07:00	1	181	31	1	6	2	0	0	0	0	0	0	0	222
08:00	0	169	35	2	5	1	0	0	1	0	0	0	0	213
09:00	1	132	22	1	6	0	0	1	0	0	0	0	0	163
10:00	0	128	24	0	3	2	1	0	0	0	0	0	0	158
11:00	0	161	36	0	6	3	0	3	0	0	0	0	0	209
12 PM	1	187	35	1	4	2	1	1	0	0	0	0	0	232
13:00	0	162	30	1	8	5	0	2	0	0	0	0	0	208
14:00	0	209	38	2	8	1	0	1	0	0	0	0	0	259
15:00	0	250	42	4	10	1	0	1	0	0	0	0	0	308
16:00	0	300	35	0	6	1	0	0	0	0	0	0	0	342
17:00	0	280	43	0	4	0	0	0	0	0	0	0	0	327
18:00	0	189	31	0	2	0	0	0	0	0	0	0	0	222
19:00	1	135	17	0	3	0	0	0	0	0	0	0	0	156
20:00	1	112	11	0	1	0	0	0	0	0	0	0	0	125
21:00	0	73	12	0	1	0	0	0	0	0	0	0	0	86
22:00	0	66	6	0	1	0	0	0	0	0	0	0	0	73
23:00	0	35	10	0	0	0	0	0	0	0	0	0	0	45
Day Total	5	2942	516	13	83	24	2	10	1	0	0	0	0	3596
Percent	0.1%	81.8%	14.3%	0.4%	2.3%	0.7%	0.1%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak Vol.	1	181	36	2	7	5	1	3	1					07:00 222
PM Peak Vol.	1	300	43	4	10	5	1	2						16:00 342

Tri-State Traffic Data, Inc.

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www.TSTData.com
 610-466-1469

Site Code: Maffet St
 Station ID: S of Ann St
 41:27037N
 -75.85555W
 Latitude: 0° 0.0000 Undefined

Start Time	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13	Total
10/24/17	0	24	1	0	1	0	0	0	0	0	0	0	0	26
01:00	0	9	1	0	0	0	0	0	0	0	0	0	0	10
02:00	0	9	2	0	0	0	0	0	0	0	0	0	0	11
03:00	0	4	1	0	0	0	0	0	0	0	0	0	0	5
04:00	0	5	6	0	0	0	0	0	0	0	0	0	0	11
05:00	0	37	15	0	3	0	0	0	0	0	0	0	0	55
06:00	0	79	28	1	2	5	0	1	0	0	0	0	0	116
07:00	0	171	45	1	6	0	0	2	0	0	0	0	0	225
08:00	0	170	34	1	6	0	0	0	2	0	0	0	0	213
09:00	0	118	26	1	3	0	2	0	0	0	0	0	0	150
10:00	1	132	31	1	6	4	0	0	0	1	0	0	0	176
11:00	1	141	35	0	4	3	0	0	0	0	0	0	0	184
12 PM	1	184	41	1	3	3	1	0	0	0	0	0	0	234
13:00	0	183	33	0	6	1	0	0	0	0	0	0	0	223
14:00	0	239	27	2	7	1	1	0	0	0	0	0	0	277
15:00	1	266	52	4	6	0	0	0	0	0	0	0	0	329
16:00	0	294	41	0	5	0	0	0	1	0	0	0	0	341
17:00	0	281	38	1	5	0	0	0	0	0	0	0	0	325
18:00	0	209	28	1	3	0	0	0	0	0	0	0	0	241
19:00	0	146	25	0	3	0	0	0	0	0	0	0	0	174
20:00	0	151	13	2	1	0	0	0	0	0	0	0	0	167
21:00	0	84	11	0	1	0	0	0	0	0	0	0	0	96
22:00	0	55	7	0	0	0	0	0	0	0	0	0	0	62
23:00	0	35	10	0	0	0	0	0	0	0	0	0	0	45
Day Total	4	3026	551	16	71	17	4	3	3	1	0	0	0	3696
Percent	0.1%	81.9%	14.9%	0.4%	1.9%	0.5%	0.1%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
AM Peak	10:00	07:00	07:00	06:00	07:00	06:00	09:00	07:00	08:00	10:00	0.0%	0.0%	0.0%	07:00
Vol.	1	171	45	1	6	5	2	2	2	1				225
PM Peak	12:00	16:00	15:00	15:00	14:00	12:00	12:00	16:00	16:00	16:00				16:00
Vol.	1	294	52	4	7	3	1	1	1	1				341

Tri-State Traffic Data, Inc.

Road Name: Maffet St
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Site Code: Maffet St
 Station ID: S of Ann St
 41:27037N
 -75.85555W
 Latitude: 0' 0.0000 Undefined

Start Time	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13	Total
10/25/17	0	20	1	0	1	0	0	0	0	0	0	0	0	22
01:00	0	15	0	0	0	0	0	0	0	0	0	0	0	15
02:00	0	11	1	0	0	0	0	0	0	0	0	0	0	12
03:00	0	4	2	0	0	0	0	0	0	0	0	0	0	6
04:00	0	7	6	0	1	0	0	0	0	0	0	0	0	14
05:00	0	33	15	0	3	1	0	0	0	0	0	0	0	52
06:00	0	88	24	1	4	3	0	0	0	0	0	0	0	120
07:00	0	172	37	1	6	1	0	0	1	0	0	0	0	218
08:00	0	171	28	2	10	3	1	0	0	0	0	0	0	215
09:00	0	125	23	1	2	5	0	0	1	0	0	0	0	157
10:00	0	132	27	3	4	3	0	0	0	0	0	0	0	169
11:00	0	141	31	0	4	1	1	0	0	0	0	0	0	178
12 PM	1	177	32	1	6	5	0	0	0	0	0	0	0	222
13:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
14:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
15:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
16:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
17:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
18:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
19:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
20:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
21:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
22:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
23:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Day Total	1	1096	227	9	41	22	2	0	2	0	0	0	0	1400
Percent	0.1%	78.3%	16.2%	0.6%	2.9%	1.6%	0.1%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	07:00
AM Peak Vol.	172	172	37	3	10	5	1	0	0	0	0	0	0	218
PM Peak Vol.	1	177	32	1	6	5	1	0	1	0	0	0	0	222
Grand Total	77	25517	4301	109	578	249	111	50	34	4	0	0	1	31031
Percent	0.2%	82.2%	13.9%	0.4%	1.9%	0.8%	0.4%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%

Tri-State Traffic Data, Inc.

Road Name: Maffet St
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Site Code: Maffet St
 Station ID: S of Ann St
 41:27037N
 -75.85555W
 Latitude: 0' 0.0000 Undefined

Start Time	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13	Total
10/16/17	*	*	*	*	*	*	*	*	*	*	*	*	*	*
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12 PM	*	*	*	*	*	*	*	*	*	*	*	*	*	*
13:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
14:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
15:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
16:00	0	204	30	0	4	0	5	0	1	0	0	0	0	244
17:00	0	191	23	0	2	1	0	0	0	0	0	0	0	217
18:00	0	116	18	0	0	0	0	2	0	0	0	0	0	136
19:00	0	91	13	0	2	0	0	0	0	0	0	0	0	106
20:00	0	73	11	1	3	0	0	0	0	0	0	0	0	88
21:00	0	51	10	0	1	0	0	0	0	0	0	0	0	62
22:00	0	60	7	0	0	0	0	0	0	0	0	0	0	67
23:00	0	37	6	0	0	0	0	0	0	0	0	0	0	43
Day Total	0	823	118	1	12	1	5	2	1	0	0	0	0	963
Percent	0.0%	85.5%	12.3%	0.1%	1.2%	0.1%	0.5%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
AM Peak Vol.														
PM Peak Vol.		16:00 204	16:00 30	20:00 1	16:00 4	17:00 1	16:00 5	18:00 2	16:00 1	16:00 2	16:00 1	16:00 1	16:00 1	16:00 244

Tri-State Traffic Data, Inc.

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Station ID: S of Ann St
41.27037N
-75.85555W
Latitude: 0° 0.0000 Undefined

Start Time	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13	Total
10/17/17	0	17	4	0	0	0	0	0	0	0	0	0	0	21
01:00	0	9	1	0	1	0	0	0	0	0	0	0	0	11
02:00	0	5	0	0	0	0	0	0	1	0	0	0	0	6
03:00	0	3	1	0	0	1	0	0	0	0	0	0	0	5
04:00	0	14	4	0	1	0	0	0	0	0	0	0	0	19
05:00	0	38	10	0	1	0	0	0	0	0	0	0	0	49
06:00	0	90	28	1	6	0	1	0	1	0	0	0	0	127
07:00	0	166	39	0	6	1	1	1	0	0	0	0	0	214
08:00	3	181	31	1	8	1	2	0	1	0	0	0	0	228
09:00	0	113	30	2	6	1	2	0	0	0	0	0	0	154
10:00	1	121	28	0	2	2	3	0	0	0	0	0	0	157
11:00	1	141	23	0	9	2	4	0	0	0	0	0	0	180
12 PM	1	140	26	1	5	1	4	2	1	0	0	0	0	181
13:00	0	143	25	2	6	1	2	0	1	0	0	0	0	180
14:00	1	171	38	3	12	1	3	0	0	0	0	0	0	229
15:00	0	208	35	1	11	1	3	0	1	0	0	0	0	260
16:00	1	204	30	2	9	2	1	0	0	0	0	0	0	249
17:00	0	197	33	1	4	0	2	1	0	0	0	0	0	238
18:00	0	137	15	1	2	0	0	0	0	0	0	0	0	155
19:00	0	91	23	0	1	0	0	0	0	0	0	0	0	115
20:00	0	76	9	0	1	0	0	0	1	0	0	0	0	87
21:00	1	57	17	0	0	1	0	0	0	0	0	0	0	76
22:00	0	53	8	0	0	0	0	0	0	0	0	0	0	61
23:00	1	29	2	0	0	0	0	0	0	0	0	0	0	32
Day Total	10	2404	460	15	91	15	28	4	7	0	0	0	0	3034
Percent	0.3%	79.2%	15.2%	0.5%	3.0%	0.5%	0.9%	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	
AM Peak Vol.	3	181	39	2	9	2	4	1	1					08:00 228
PM Peak Vol.	1	208	38	3	12	2	4	2	1					15:00 260

Tri-State Traffic Data, Inc.

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 41.27037N
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 Latitude: 0' 0.0000 Undefined

Start Time	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13	Total
10/18/17	0	14	3	0	0	0	0	0	0	0	0	0	0	17
01:00	0	12	3	0	0	0	0	0	0	0	0	0	0	15
02:00	0	11	1	0	0	0	0	0	0	0	0	0	0	12
03:00	0	2	2	0	0	0	0	1	0	0	0	0	0	5
04:00	0	21	4	0	0	0	0	0	0	0	0	0	0	25
05:00	0	34	12	0	1	0	1	0	0	0	0	0	0	48
06:00	1	100	29	1	5	0	0	0	1	1	0	0	0	138
07:00	0	151	31	0	7	2	0	2	2	0	0	0	1	196
08:00	1	164	27	4	5	1	5	0	1	0	0	0	0	208
09:00	0	104	27	2	8	1	0	0	0	0	0	0	0	142
10:00	1	117	36	0	7	0	1	1	1	0	0	0	0	164
11:00	0	125	30	0	6	0	3	0	0	0	0	0	0	164
12 PM	1	160	28	1	5	0	1	1	0	0	0	0	0	197
13:00	1	125	32	1	6	3	7	0	0	0	0	0	0	175
14:00	1	166	39	2	5	0	1	0	0	1	0	0	0	215
15:00	2	175	37	2	6	2	3	1	0	0	0	0	0	228
16:00	1	193	35	0	0	0	0	0	0	0	0	0	0	229
17:00	0	195	28	1	10	0	0	1	0	0	0	0	0	235
18:00	2	169	33	1	2	0	0	1	0	0	0	0	0	208
19:00	0	102	17	0	6	0	0	0	1	0	0	0	0	126
20:00	0	110	15	0	0	0	0	0	0	0	0	0	0	125
21:00	0	52	11	1	0	0	0	0	0	0	0	0	0	64
22:00	0	51	7	0	1	0	0	0	0	0	0	0	0	59
23:00	0	35	2	0	1	0	0	0	0	0	0	0	0	38
Day Total	11	2388	489	16	81	9	22	8	6	2	0	0	1	3033
Percent	0.4%	78.7%	16.1%	0.5%	2.7%	0.3%	0.7%	0.3%	0.2%	0.1%	0.0%	0.0%	0.0%	
AM Peak	06:00	08:00	10:00	08:00	09:00	07:00	08:00	07:00	07:00	06:00	06:00	07:00	07:00	08:00
Vol.	1	164	36	4	8	2	5	2	2	1	1	2	1	208
PM Peak	15:00	17:00	14:00	14:00	17:00	13:00	13:00	12:00	19:00	14:00	14:00	19:00	17:00	17:00
Vol.	2	195	39	2	10	3	7	1	1	1	1	1	1	235

Tri-State Traffic Data, Inc.

Road Name: Maffet St
 Location: S of Ann St
 Counter: FW79YZA6
 A-B Direction: NB

www.TSTData.com
 610-466-1469

Site Code: Maffet St
 Station ID: S of Ann St
 41.27037N
 -75.85555W
 Latitude: 0° 0.0000 Undefined

Start Time	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13	Total
10/19/17	0	12	8	0	0	0	0	0	0	0	0	0	0	20
01:00	0	8	1	0	0	0	0	0	0	0	0	0	0	9
02:00	0	10	0	0	0	0	0	0	0	0	0	0	0	10
03:00	0	6	2	0	0	0	0	0	0	0	0	0	0	8
04:00	0	16	5	0	1	0	0	0	0	0	0	0	0	22
05:00	0	31	12	0	1	2	0	1	1	0	0	0	0	48
06:00	0	102	21	2	5	1	0	0	0	0	0	0	0	131
07:00	1	158	27	1	6	0	2	1	3	0	0	0	0	199
08:00	1	174	26	5	7	0	1	0	0	0	0	0	0	214
09:00	0	117	23	0	7	0	0	0	0	0	0	0	0	147
10:00	0	129	28	0	4	0	1	1	0	0	0	0	0	163
11:00	2	122	34	1	1	0	0	1	0	0	0	0	1	162
12 PM	0	172	27	0	10	0	2	1	1	0	0	0	0	213
13:00	1	125	35	2	1	0	1	1	0	0	0	0	0	166
14:00	1	160	30	2	5	1	4	0	1	0	0	0	0	204
15:00	1	191	40	0	10	0	4	0	0	0	0	0	0	246
16:00	0	192	30	2	2	0	0	0	0	0	0	0	0	226
17:00	1	213	42	0	4	0	0	0	0	0	0	0	0	260
18:00	2	157	16	0	2	0	0	0	0	0	0	0	0	177
19:00	0	115	18	0	1	0	0	0	0	0	0	0	0	134
20:00	0	96	16	0	1	1	0	0	0	0	0	0	0	114
21:00	0	51	5	0	0	0	0	1	0	0	0	0	0	57
22:00	0	39	9	0	1	0	0	0	0	0	0	0	0	49
23:00	0	37	6	0	0	0	0	0	0	0	0	0	0	43
Day Total	10	2433	461	15	69	5	15	7	6	0	0	0	1	3022
Percent	0.3%	80.5%	15.3%	0.5%	2.3%	0.2%	0.5%	0.2%	0.2%	0.0%	0.0%	0.0%	0.0%	
AM Peak	11:00	08:00	11:00	08:00	08:00	05:00	07:00	05:00	07:00	07:00	07:00	07:00	11:00	08:00
Vol.	2	174	34	5	7	2	2	1	3	3	3	3	1	214
PM Peak	18:00	17:00	17:00	13:00	12:00	14:00	14:00	12:00	12:00	12:00	12:00	12:00	17:00	17:00
Vol.	2	213	42	2	10	1	4	1	1	1	1	1	1	260

Tri-State Traffic Data, Inc.

Road Name: Maffet St
 Location: S of Ann St
 Counter: FW79ZA6
 A-B Direction: NB

www.TSTData.com
 610-466-1469

Site Code: Maffet St
 Station ID: S of Ann St
 41.27037N
 -75.85555W
 Latitude: 0' 0.0000 Undefined

Start Time	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13	Total
10/20/17	0	17	4	0	0	0	0	0	0	0	0	0	0	21
01:00	0	10	1	0	0	0	0	0	0	0	0	0	0	11
02:00	0	7	0	0	0	0	0	1	0	0	0	0	0	8
03:00	0	8	0	0	0	0	0	0	0	0	0	0	0	8
04:00	0	11	7	0	0	0	0	0	0	0	0	0	0	18
05:00	0	36	11	0	2	1	0	0	1	0	0	0	0	51
06:00	1	93	20	1	6	0	0	0	1	0	0	0	0	122
07:00	1	150	32	0	7	0	1	0	0	0	0	0	0	191
08:00	0	191	34	4	7	0	3	1	0	0	0	0	0	240
09:00	0	136	31	3	11	1	1	0	1	0	0	0	0	184
10:00	2	127	34	0	8	4	0	1	0	0	0	0	0	176
11:00	0	145	31	0	5	1	0	0	1	0	0	0	1	184
12 PM	2	159	21	0	7	0	3	1	1	0	0	0	0	194
13:00	2	144	25	2	1	5	1	0	0	0	0	0	0	180
14:00	0	169	31	1	5	0	2	1	0	1	0	0	0	210
15:00	0	218	34	0	7	0	2	0	0	0	0	0	0	261
16:00	2	211	33	0	3	0	0	0	0	0	0	0	0	249
17:00	0	190	25	0	4	0	0	0	0	0	0	0	0	219
18:00	0	168	21	0	1	0	0	0	0	0	0	0	0	190
19:00	0	123	21	0	2	0	0	1	0	0	0	0	0	147
20:00	0	85	18	0	0	0	0	0	0	0	0	0	0	103
21:00	0	69	7	0	0	0	0	0	0	0	0	0	0	76
22:00	1	87	8	0	0	0	0	0	0	0	0	0	0	96
23:00	0	55	2	0	1	0	0	0	0	0	0	0	0	58
Day Total	11	2609	451	11	77	12	13	6	5	1	0	0	1	3197
Percent	0.3%	81.6%	14.1%	0.3%	2.4%	0.4%	0.4%	0.2%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
AM Peak Vol.	2	191	34	4	11	4	3	1	1				1	240
PM Peak Vol.	2	218	34	2	7	5	3	1	1	1	1	1	1	261

Tri-State Traffic Data, Inc.

www.TSTData.com

610-466-1469

Road Name: Maffet St
 Location: S of Ann St
 Counter: FW79YZA6
 A-B Direction: NB

Site Code: Maffet St
 Station ID: S of Ann St
 41.27037N
 -75.85555W
 Latitude: 0' 0.0000 Undefined

Start Time	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13	Total
10/21/17	0	28	4	0	1	0	0	0	0	0	0	0	0	33
01:00	0	26	4	0	0	0	0	0	0	0	0	0	0	30
02:00	0	10	2	0	0	0	0	0	0	0	0	0	0	12
03:00	0	14	2	0	0	0	0	0	1	0	0	0	0	17
04:00	0	9	3	0	0	0	0	0	0	0	0	0	0	12
05:00	0	19	9	0	0	0	0	0	0	0	0	0	0	28
06:00	0	46	10	0	2	2	0	0	0	0	0	0	0	60
07:00	0	65	11	1	3	0	0	1	0	0	0	0	0	81
08:00	0	100	17	0	3	0	0	1	0	0	0	0	0	121
09:00	1	121	22	0	0	0	0	0	0	0	0	0	0	144
10:00	0	158	22	0	5	0	0	1	0	0	0	0	0	186
11:00	2	195	23	0	3	0	1	0	0	1	0	0	0	225
12 PM	1	176	31	2	1	0	0	0	0	0	0	0	0	211
13:00	1	156	19	0	3	0	0	1	0	0	0	0	0	180
14:00	1	148	26	0	5	0	0	0	0	0	0	0	0	180
15:00	1	147	23	0	4	0	0	0	0	0	0	0	0	175
16:00	1	150	28	0	2	0	0	1	0	0	0	0	0	182
17:00	1	158	20	0	2	0	0	0	0	0	0	0	0	181
18:00	1	126	15	0	3	0	0	0	0	0	0	0	0	145
19:00	0	87	6	0	3	0	0	0	0	0	0	0	0	96
20:00	0	55	10	0	0	0	0	0	0	0	0	0	0	65
21:00	0	73	8	0	1	0	0	0	0	0	0	0	0	82
22:00	0	70	10	0	0	0	0	0	0	0	0	0	0	80
23:00	0	77	5	1	0	0	0	0	0	0	0	0	0	83
Day Total	10	2214	330	4	41	2	1	5	1	1	0	0	0	2609
Percent	0.4%	84.9%	12.6%	0.2%	1.6%	0.1%	0.0%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak	11:00	11:00	11:00	07:00	10:00	06:00	11:00	07:00	03:00	11:00	0.0%	0.0%	0.0%	11:00
Vol.	2	195	23	1	5	2	1	1	1	1				225
PM Peak	12:00	12:00	12:00	12:00	14:00			13:00						12:00
Vol.	1	176	31	2	5			1						211

Tri-State Traffic Data, Inc.

Road Name: Maffet St
 Location: S of Ann St
 Counter: FW79YZA6
 A-B Direction: NB

www.TSTData.com
 610-466-1469

Site Code: Maffet St
 Station ID: S of Ann St
 41.27037N
 -75.85555W
 Latitude: 0' 0.0000 Undefined

Start Time	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13	Total
10/22/17	0	30	3	0	0	0	0	0	0	0	0	0	0	33
01:00	0	13	5	0	0	0	0	0	0	0	0	0	0	18
02:00	0	18	4	0	0	0	0	0	0	0	0	0	0	22
03:00	0	6	2	0	0	0	0	0	0	0	0	0	0	8
04:00	0	6	1	0	1	0	0	0	0	0	0	0	0	8
05:00	0	9	0	0	1	0	0	0	0	0	0	0	0	10
06:00	0	30	6	0	0	0	0	1	0	0	0	0	0	37
07:00	0	52	11	0	0	0	0	0	0	0	0	0	0	63
08:00	0	61	9	0	2	0	0	2	0	0	0	0	0	74
09:00	1	109	20	0	1	0	0	0	0	0	0	0	0	131
10:00	0	116	30	0	2	0	0	0	0	0	0	0	0	148
11:00	2	152	22	1	4	0	0	0	0	0	0	0	0	181
12 PM	2	155	17	0	2	0	0	0	0	0	0	0	0	176
13:00	1	134	15	0	5	0	0	0	0	0	0	0	0	155
14:00	0	161	18	0	3	0	0	0	0	0	0	0	0	182
15:00	1	169	28	0	3	0	0	1	0	0	0	0	0	202
16:00	3	137	21	0	2	0	0	0	0	0	0	0	0	163
17:00	0	104	14	0	4	0	0	0	0	0	0	0	0	122
18:00	2	130	12	0	3	0	0	0	0	0	0	0	0	147
19:00	1	92	15	0	0	0	0	1	0	0	0	0	0	109
20:00	0	65	7	0	1	0	0	0	0	0	0	0	0	73
21:00	0	43	7	0	1	0	0	0	0	0	0	0	0	51
22:00	0	50	3	0	0	0	0	0	0	0	0	0	0	53
23:00	1	29	3	0	1	0	0	0	0	0	0	0	0	34
Day Total	14	1871	273	1	36	0	0	5	0	0	0	0	0	2200
Percent	0.6%	85.0%	12.4%	0.0%	1.6%	0.0%	0.0%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak	11:00	11:00	10:00	11:00	11:00			08:00						11:00
Vol.	2	152	30	1	4			2						181
PM Peak	16:00	15:00	15:00	13:00	13:00			15:00						15:00
Vol.	3	169	28	1	5			1						202

Tri-State Traffic Data, Inc.

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Counter: FW79ZA6
A-B Direction: NB

Site Code: Maffet St
Station ID: S of Ann St
41.27037N
-75.85555W
Latitude: 0' 0.0000 Undefined

Start Time	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13	Total
10/23/17	0	19	1	0	0	0	0	0	0	0	0	0	0	20
01:00	0	8	3	0	1	0	0	0	0	0	0	0	0	12
02:00	0	7	1	0	0	0	0	0	0	0	0	0	0	8
03:00	0	3	1	0	0	1	0	0	0	0	0	0	0	5
04:00	0	11	3	0	0	0	0	0	0	0	0	0	0	14
05:00	0	26	17	0	2	0	0	0	0	0	0	0	0	45
06:00	0	84	18	2	3	2	0	1	1	0	0	0	0	111
07:00	0	157	24	0	9	1	1	2	1	0	0	0	0	195
08:00	1	193	41	2	4	1	1	2	0	0	0	0	0	245
09:00	0	110	33	3	3	1	3	1	1	0	0	0	0	155
10:00	0	116	23	1	8	0	0	0	0	0	0	0	0	148
11:00	1	120	30	1	7	0	1	0	0	0	0	0	0	160
12 PM	0	141	28	1	1	1	1	0	0	1	0	0	0	174
13:00	0	120	27	2	3	2	0	0	0	0	0	0	0	154
14:00	1	169	27	2	4	1	1	0	0	0	0	0	0	205
15:00	1	188	39	0	6	0	0	0	0	0	0	0	0	234
16:00	0	184	36	0	2	1	0	1	1	0	0	0	0	225
17:00	0	183	29	0	3	2	0	0	1	0	0	0	0	218
18:00	0	120	27	0	5	0	0	0	0	0	0	0	0	152
19:00	0	87	11	0	1	0	0	0	0	0	0	0	0	99
20:00	0	61	15	0	0	0	0	0	0	0	0	0	0	76
21:00	0	51	9	0	0	0	0	0	0	0	0	0	0	60
22:00	0	67	5	0	1	0	0	0	0	0	0	0	0	73
23:00	0	41	9	0	0	0	0	0	0	0	0	0	0	50
Day Total	4	2266	457	14	63	13	8	7	5	1	0	0	0	2838
Percent	0.1%	79.8%	16.1%	0.5%	2.2%	0.5%	0.3%	0.2%	0.2%	0.0%	0.0%	0.0%	0.0%	
AM Peak Vol.	1	193	41	3	9	2	3	2	1					245
PM Peak Vol.	1	188	39	2	6	2	1	1	1	1	1	1	1	234

Tri-State Traffic Data, Inc.

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Road Name: Maffet St
Location: S of Ann St
Counter: FW79ZA6
A-B Direction: NB

Site Code: Maffet St
Station ID: S of Ann St
41.27037N
-75.85555W
Latitude: 0' 0.0000 Undefined

Start Time	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13	Total
10/24/17	0	21	2	0	1	0	0	0	0	0	0	0	0	24
01:00	0	7	0	0	0	0	0	0	0	0	0	0	0	7
02:00	0	2	0	0	0	0	0	0	0	0	0	0	0	2
03:00	0	7	0	0	0	0	0	0	0	0	0	0	0	7
04:00	0	14	2	0	0	1	0	0	0	0	0	0	0	17
05:00	0	36	14	0	1	1	0	0	0	0	0	0	0	52
06:00	0	104	20	1	1	0	0	1	0	0	0	0	0	127
07:00	0	170	33	0	5	1	0	0	1	0	0	0	0	210
08:00	0	169	22	1	7	1	0	0	0	0	0	0	0	200
09:00	0	111	27	4	4	0	0	0	0	1	0	0	0	147
10:00	0	92	24	0	6	1	1	1	0	0	0	0	0	125
11:00	0	140	34	2	3	0	0	0	0	0	0	0	0	179
12 PM	0	133	25	0	10	2	0	1	1	1	0	0	0	173
13:00	1	114	33	2	4	1	2	0	2	0	0	0	0	159
14:00	0	154	26	1	8	2	1	0	0	0	0	0	0	192
15:00	1	195	32	1	4	2	0	0	0	0	0	0	0	235
16:00	0	182	31	0	5	0	0	0	0	0	0	0	0	218
17:00	0	191	28	1	8	1	0	0	0	0	0	0	0	229
18:00	1	152	30	0	3	0	0	2	0	0	0	0	0	188
19:00	0	97	15	0	2	0	0	0	0	0	0	0	0	114
20:00	0	62	13	0	0	0	0	0	0	0	0	0	0	75
21:00	0	49	8	0	2	0	0	0	0	0	0	0	0	59
22:00	0	51	6	1	0	0	0	0	0	0	0	0	0	58
23:00	0	30	7	0	0	0	0	0	0	0	0	0	0	37
Day Total	3	2283	432	14	74	13	4	5	4	2	0	0	0	2834
Percent	0.1%	80.6%	15.2%	0.5%	2.6%	0.5%	0.1%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%
AM Peak	07:00	170	34	4	7	1	1	1	07:00	09:00	0.0%	0.0%	0.0%	07:00
PM Peak	13:00	195	33	2	10	2	2	2	13:00	12:00	0.0%	0.0%	0.0%	15:00
Vol.	1	195	33	2	10	2	2	2	1	1	1	1	1	235

Tri-State Traffic Data, Inc.

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Site Code: Maffet St
Station ID: S of Ann St
41:27037N
-75.85555W
Latitude: 0° 0.0000 Undefined

Start Time	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13	Total
10/25/17	0	31	2	0	0	0	0	0	0	0	0	0	0	33
01:00	0	5	1	0	0	0	0	0	0	0	0	0	0	6
02:00	0	4	2	0	0	0	0	0	0	0	0	0	0	6
03:00	0	6	1	0	1	0	0	0	0	0	0	0	0	8
04:00	0	13	6	0	1	0	0	0	0	0	0	0	0	20
05:00	0	30	6	0	1	1	0	0	1	0	0	0	0	39
06:00	1	108	24	1	8	3	3	0	1	0	0	0	0	149
07:00	0	161	35	0	8	2	1	0	2	0	0	0	0	209
08:00	2	187	30	5	4	0	3	0	0	0	0	0	0	231
09:00	0	112	39	2	3	2	0	0	0	0	0	0	0	158
10:00	1	110	22	2	7	1	3	1	0	0	0	0	0	147
11:00	0	123	29	0	9	1	1	0	0	0	0	0	0	163
12 PM	0	128	27	0	5	1	3	0	0	0	0	0	0	164
13:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
14:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
15:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
16:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
17:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
18:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
19:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
20:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
21:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
22:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
23:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Day Total	4	1018	224	10	47	11	14	1	4	0	0	0	0	1333
Percent	0.3%	76.4%	16.8%	0.8%	3.5%	0.8%	1.1%	0.1%	0.3%	0.0%	0.0%	0.0%	0.0%	
AM Peak	08:00	08:00	09:00	08:00	11:00	06:00	06:00	10:00	07:00					08:00
Vol.	2	187	39	5	9	3	3	1	2					231
PM Peak		12:00	12:00		12:00	12:00	12:00							12:00
Vol.		128	27		5	1	3							164
Grand Total	77	20309	3695	101	591	81	110	50	39	7	0	0	3	25063
Percent	0.3%	81.0%	14.7%	0.4%	2.4%	0.3%	0.4%	0.2%	0.2%	0.0%	0.0%	0.0%	0.0%	

Tri-State Traffic Data, Inc.

Road Name: Main St
 Location: N of Site Driveway
 Counter: CM28SKK7
 A-B Direction: NB

www.TSTData.com
610-466-1469

Site Code: Main St
 Station ID: N of Site Driveway
 41.26613N
 -75.85461W
 Latitude: 0' 0.0000 Undefined

North														
Start Time	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13	Total
10/16/17	*	*	*	*	*	*	*	*	*	*	*	*	*	*
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12 PM	*	*	*	*	*	*	*	*	*	*	*	*	*	*
13:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
14:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
15:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
16:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
17:00	0	219	30	1	0	0	0	0	0	0	0	0	0	250
18:00	0	130	17	0	0	0	0	0	0	0	0	0	0	147
19:00	0	89	17	1	1	0	0	0	0	0	0	0	0	108
20:00	0	65	8	0	2	0	0	0	0	0	0	0	0	75
21:00	0	48	3	0	1	0	0	0	0	0	0	0	0	52
22:00	0	39	4	0	0	0	0	0	1	0	0	0	0	44
23:00	0	26	3	0	0	0	0	0	0	0	0	0	0	29
Day Total	0	616	82	2	4	0	0	0	1	0	0	0	0	705
Percent	0.0%	87.4%	11.6%	0.3%	0.6%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
AM Peak Vol.														
PM Peak Vol.		17:00	17:00	17:00	20:00				22:00					17:00
		219	30	1	2				1					250

Tri-State Traffic Data, Inc.

Road Name: Main St
 Location: N of Site Driveway
 Counter: CM28SKK7
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www.TSTData.com
610-466-1469

Site Code: Main St
 Station ID: N of Site Driveway
 41.26613N
 -75.85461W
 Latitude: 0' 0.0000 Undefined

North														
Start Time	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13	Total
10/17/17	0	13	1	0	0	0	0	0	0	0	0	0	0	14
01:00	0	7	0	0	0	0	0	0	0	0	0	0	0	7
02:00	0	4	1	0	0	0	0	0	0	0	0	0	0	5
03:00	0	5	0	0	0	0	0	0	0	0	0	0	0	5
04:00	0	7	0	0	0	0	0	0	0	0	0	0	0	7
05:00	0	15	7	0	1	1	0	0	0	0	0	0	0	24
06:00	0	47	6	0	0	0	0	0	0	0	0	0	0	53
07:00	0	118	21	2	3	1	0	0	0	0	0	0	1	146
08:00	0	128	18	7	5	1	0	0	0	0	0	0	0	159
09:00	0	67	12	0	0	2	0	0	1	0	0	0	0	82
10:00	1	89	16	0	3	1	0	0	2	0	0	0	0	112
11:00	0	103	21	0	3	1	0	1	1	0	0	0	0	130
12 PM	0	153	27	6	4	2	0	0	0	0	0	0	0	192
13:00	0	128	27	3	3	2	0	1	0	0	0	0	0	164
14:00	2	189	41	10	3	1	0	0	2	0	0	0	0	248
15:00	1	254	37	4	3	1	0	0	1	0	0	0	0	301
16:00	1	329	32	1	2	0	0	0	0	0	0	0	0	365
17:00	1	248	35	1	1	0	0	0	0	0	0	0	0	286
18:00	1	114	18	0	1	0	0	0	0	0	0	0	0	134
19:00	0	107	13	0	4	0	0	1	0	0	0	0	0	125
20:00	1	105	15	0	0	0	0	0	0	0	0	0	0	121
21:00	0	57	10	0	1	0	0	0	0	0	0	0	0	68
22:00	0	37	4	0	0	0	0	0	0	0	0	0	0	41
23:00	0	30	2	0	0	0	0	0	0	0	0	0	0	32
Day Total	8	2354	364	34	37	13	0	3	7	0	0	0	1	2821
Percent	0.3%	83.4%	12.9%	1.2%	1.3%	0.5%	0.0%	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	
AM Peak	10:00	08:00	07:00	08:00	08:00	09:00		11:00	10:00				07:00	08:00
Vol.	1	128	21	7	5	2		1	2				1	159
PM Peak	14:00	16:00	14:00	14:00	12:00	12:00		13:00	14:00					16:00
Vol.	2	329	41	10	4	2		1	2					365

Tri-State Traffic Data, Inc.

Road Name: Main St
 Location: N of Site Driveway
 Counter: CM28SKK7
 A-B Direction: NB

www.TSTData.com
 610-466-1469

Site Code: Main St
 Station ID: N of Site Driveway
 41.26613N
 -75.85461W
 Latitude: 0' 0.0000 Undefined

Start Time	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13	Total
10/18/17	0	12	2	0	0	0	0	0	0	0	0	0	0	14
01:00	0	6	0	0	0	0	0	0	0	0	0	0	0	6
02:00	0	7	1	0	0	0	0	0	0	0	0	0	0	8
03:00	0	8	0	0	0	0	0	0	0	0	0	0	0	8
04:00	0	5	0	0	0	0	0	0	0	0	0	0	0	5
05:00	0	20	7	0	1	1	0	0	0	0	0	0	0	29
06:00	0	45	11	0	0	1	0	0	1	0	0	0	0	58
07:00	0	120	28	4	3	0	0	0	0	0	0	0	0	155
08:00	0	118	17	8	2	0	0	1	2	0	0	0	0	148
09:00	0	56	23	0	1	0	0	0	2	0	0	0	0	82
10:00	0	81	15	1	2	1	0	1	1	0	0	0	0	102
11:00	1	99	12	6	3	1	0	0	0	0	0	0	0	122
12 PM	0	142	21	1	5	1	0	1	0	0	0	0	0	171
13:00	0	133	20	1	6	0	0	0	1	0	0	0	0	161
14:00	0	189	35	12	3	0	0	2	0	0	0	0	0	241
15:00	2	277	52	3	3	0	1	0	0	0	0	0	0	338
16:00	1	333	30	3	4	0	0	1	0	0	0	0	0	372
17:00	4	266	26	1	0	0	0	0	0	0	0	0	0	297
18:00	0	168	25	0	0	0	0	0	0	0	0	0	0	193
19:00	1	114	11	1	2	0	0	0	0	0	0	0	0	129
20:00	1	70	12	0	4	0	0	0	1	0	0	0	0	88
21:00	0	38	10	0	1	1	0	0	1	0	0	0	0	51
22:00	0	40	4	0	0	0	0	0	0	0	0	0	0	44
23:00	0	27	2	0	0	0	0	0	0	0	0	0	0	29
Day Total	10	2374	364	41	40	6	1	6	9	0	0	0	0	2851
Percent	0.4%	83.3%	12.8%	1.4%	1.4%	0.2%	0.0%	0.2%	0.3%	0.0%	0.0%	0.0%	0.0%	
AM Peak Vol.	1	120	28	8	3	1		1	2					155
PM Peak Vol.	4	333	52	12	6	1	1	2	1					372

Tri-State Traffic Data, Inc.

Road Name: Main St
 Location: N of Site Driveway
 Counter: CM28SKK7
 A-B Direction: NB

www.TSTData.com
610-466-1469

Site Code: Main St
 Station ID: N of Site Driveway
 41.26613N
 -75.85461W
 Latitude: 0' 0.0000 Undefined

North														
Start Time	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13	Total
10/19/17	0	19	2	0	1	0	0	0	0	0	0	0	0	22
01:00	0	8	1	0	0	0	0	0	0	0	0	0	0	9
02:00	0	8	0	0	0	0	0	0	0	0	0	0	0	8
03:00	0	2	0	1	0	0	0	0	0	0	0	0	0	3
04:00	0	6	1	0	0	0	0	0	0	0	0	0	0	7
05:00	0	21	1	1	0	1	0	0	0	0	0	0	0	24
06:00	1	47	9	1	0	0	0	0	0	0	0	0	0	58
07:00	0	124	19	2	3	0	0	0	0	0	0	0	0	148
08:00	0	121	21	9	3	0	0	0	0	0	0	0	0	154
09:00	0	66	17	0	3	0	0	1	0	0	0	0	0	87
10:00	0	92	24	0	4	0	0	0	0	0	0	0	0	120
11:00	0	126	26	4	3	1	0	0	1	0	0	0	0	161
12 PM	0	140	28	3	3	0	0	0	0	0	0	0	0	174
13:00	1	136	30	6	6	1	0	0	1	0	0	0	0	181
14:00	0	199	29	8	0	0	0	0	1	0	0	0	0	237
15:00	0	261	39	1	7	2	0	0	0	0	0	0	0	310
16:00	2	300	40	3	3	0	0	1	0	0	0	0	0	349
17:00	2	271	39	2	0	0	0	0	0	0	0	0	0	314
18:00	0	131	20	0	1	0	0	0	0	0	0	0	0	152
19:00	0	100	17	0	1	0	0	0	0	0	0	0	0	118
20:00	0	92	9	0	1	0	0	0	0	0	0	0	0	102
21:00	0	50	3	0	0	0	0	0	0	0	0	0	0	53
22:00	1	39	7	0	1	0	0	0	0	0	0	0	0	48
23:00	0	31	11	0	1	0	0	0	0	0	0	0	0	43
Day Total	7	2390	393	41	41	5	0	2	3	0	0	0	0	2882
Percent	0.2%	82.9%	13.6%	1.4%	1.4%	0.2%	0.0%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	
AM Peak	06:00	11:00	11:00	08:00	10:00	05:00		09:00	11:00					11:00
Vol.	1	126	26	9	4	1		1	1					161
PM Peak	16:00	16:00	16:00	14:00	15:00	15:00		16:00	13:00					16:00
Vol.	2	300	40	8	7	2		1	1					349

Tri-State Traffic Data, Inc.

Road Name: Main St
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 A-B Direction: NB

www.TSTData.com
 610-466-1469

Site Code: Main St
 Station ID: N of Site Driveway
 41.26613N
 -75.85461W
 Latitude: 0' 0.0000 Undefined

Start Time	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13	Total
10/20/17	0	17	1	0	0	0	0	0	0	0	0	0	0	18
01:00	0	14	1	0	0	0	0	0	0	0	0	0	0	15
02:00	0	11	1	0	0	0	0	0	0	0	0	0	0	12
03:00	0	5	0	0	0	0	0	0	0	0	0	0	0	5
04:00	0	4	0	0	0	0	0	0	0	0	0	0	0	4
05:00	0	22	4	1	0	0	0	0	0	0	0	0	0	27
06:00	0	43	9	0	0	1	0	0	1	0	0	0	0	54
07:00	1	120	21	1	4	0	0	0	0	0	0	0	0	147
08:00	0	139	25	6	3	1	0	0	0	0	0	0	0	174
09:00	2	75	12	1	5	0	0	0	0	0	0	0	0	95
10:00	0	89	17	1	3	0	0	0	0	0	0	0	0	110
11:00	0	109	25	2	3	2	0	0	0	0	0	0	0	141
12 PM	1	145	26	0	5	0	0	0	1	0	0	0	0	178
13:00	2	145	20	2	6	3	0	0	1	0	0	0	0	179
14:00	2	191	32	12	1	1	0	0	1	0	0	0	0	240
15:00	0	260	41	3	6	2	0	2	1	0	0	0	0	315
16:00	1	322	35	4	1	0	0	0	0	0	0	0	0	363
17:00	1	253	23	1	1	0	0	0	0	0	0	0	0	279
18:00	1	136	27	0	2	0	0	0	1	0	0	0	0	167
19:00	0	72	14	0	2	0	0	0	0	0	0	0	0	88
20:00	0	73	8	0	1	0	0	0	0	0	0	0	0	82
21:00	0	60	11	0	1	0	0	0	0	0	0	0	0	72
22:00	0	53	9	0	0	0	0	0	0	0	0	0	0	62
23:00	0	46	7	0	1	0	0	0	0	0	0	0	0	54
Day Total	11	2404	369	34	45	10	0	2	6	0	0	0	0	2881
Percent	0.4%	83.4%	12.8%	1.2%	1.6%	0.3%	0.0%	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	
AM Peak	09:00	08:00	08:00	08:00	09:00	11:00			06:00					08:00
Vol.	2	139	25	6	5	2			1					174
PM Peak	13:00	16:00	15:00	14:00	13:00	13:00		15:00	12:00					16:00
Vol.	2	322	41	12	6	3	2	2	1					363

Tri-State Traffic Data, Inc.

Road Name: Main St
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www.TSTData.com
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Site Code: Main St
 Station ID: N of Site Driveway
 41.26613N
 -75.85461W
 Latitude: 0' 0.0000 Undefined

Start Time	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13	Total
10/21/17	0	21	1	0	0	0	0	0	0	0	0	0	0	22
01:00	0	17	1	0	0	0	0	0	0	0	0	0	0	18
02:00	0	14	0	0	0	0	0	0	0	0	0	0	0	14
03:00	0	11	0	0	0	0	0	0	0	0	0	0	0	11
04:00	0	6	1	0	0	0	0	0	0	0	0	0	0	7
05:00	1	9	1	0	0	1	0	0	0	0	0	0	0	12
06:00	0	18	3	0	0	0	0	0	0	0	0	0	0	21
07:00	0	23	11	0	1	0	0	0	1	0	0	0	0	36
08:00	0	44	5	0	1	0	0	0	0	0	0	0	0	50
09:00	0	58	7	0	0	0	0	0	0	0	0	0	0	65
10:00	1	75	16	0	3	0	0	0	1	0	0	0	0	96
11:00	0	85	15	0	2	1	0	0	1	0	0	0	0	104
12 PM	0	99	11	0	1	1	0	0	0	0	0	0	0	112
13:00	0	97	13	1	2	1	0	0	0	0	0	0	0	114
14:00	0	106	18	1	2	0	0	0	0	0	0	0	0	127
15:00	3	102	17	0	0	0	0	0	0	0	0	0	0	122
16:00	1	120	15	0	0	0	0	0	0	0	0	0	0	136
17:00	2	97	15	1	1	0	0	0	0	0	0	0	0	116
18:00	1	102	7	0	1	0	0	0	0	0	0	0	0	111
19:00	1	54	11	0	0	0	0	0	0	0	0	0	0	66
20:00	0	40	6	0	2	0	0	0	0	0	0	0	0	48
21:00	0	57	2	0	2	0	0	0	0	0	0	0	0	61
22:00	0	63	3	0	0	0	0	0	0	0	0	0	0	66
23:00	0	47	8	0	0	0	0	0	0	0	0	0	0	55
Day Total	10	1365	187	3	18	4	0	0	3	0	0	0	0	1590
Percent	0.6%	85.8%	11.8%	0.2%	1.1%	0.3%	0.0%	0.0%	0.2%	0.0%	0.0%	0.0%	0.0%	
AM Peak	05:00	11:00	10:00		10:00	05:00			07:00					11:00
Vol.	1	85	16		3	1			1					104
PM Peak	15:00	16:00	14:00	13:00	13:00	12:00								16:00
Vol.	3	120	18	1	2	1								136

Tri-State Traffic Data, Inc.

Road Name: Main St
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Site Code: Main St
 Station ID: N of Site Driveway
 41.26613N
 -75.85461W
 Latitude: 0' 0.0000 Undefined

North														
Start Time	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13	Total
10/22/17	0	29	2	0	1	0	0	0	0	0	0	0	0	32
01:00	0	13	1	0	0	0	0	0	0	0	0	0	0	14
02:00	0	17	3	0	0	0	0	0	0	0	0	0	0	20
03:00	0	12	0	0	0	0	0	0	0	0	0	0	0	12
04:00	0	7	0	0	0	0	0	0	0	0	0	0	0	7
05:00	0	7	1	0	0	0	0	0	0	0	0	0	0	8
06:00	0	11	2	0	1	0	0	0	0	0	0	0	0	14
07:00	0	25	7	0	1	0	0	0	0	0	0	0	0	33
08:00	0	37	7	0	0	0	0	0	0	0	0	0	0	44
09:00	0	68	11	0	0	0	0	0	0	0	0	0	0	79
10:00	0	71	7	0	0	0	0	0	0	0	0	0	0	78
11:00	0	91	20	0	0	0	0	0	0	0	0	0	0	111
12 PM	0	118	9	0	1	0	0	0	0	0	0	0	0	128
13:00	1	110	15	0	0	0	0	0	0	0	0	0	0	126
14:00	0	109	17	0	0	0	0	0	0	0	0	0	0	126
15:00	0	104	14	0	0	0	0	0	0	0	0	0	0	118
16:00	0	77	7	0	0	0	0	0	0	0	0	0	0	84
17:00	1	102	7	0	1	0	0	0	0	0	0	0	0	111
18:00	1	69	6	0	1	0	0	0	0	0	0	0	0	77
19:00	0	75	16	0	0	0	0	0	0	0	0	0	0	91
20:00	0	54	7	0	0	0	0	0	0	0	0	0	0	61
21:00	0	25	4	0	0	0	0	0	0	0	0	0	0	29
22:00	0	35	0	0	1	0	0	0	0	0	0	0	0	36
23:00	0	15	6	0	0	0	0	0	0	0	0	0	0	21
Day Total	3	1281	169	0	7	0	0	0	0	0	0	0	0	1460
Percent	0.2%	87.7%	11.6%	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak		11:00	11:00		00:00									11:00
Vol.		91	20		1									111
PM Peak	13:00	12:00	14:00		12:00									12:00
Vol.	1	118	17		1									128

Tri-State Traffic Data, Inc.

Road Name: Main St
 Location: N of Site Driveway
 Counter: CM28SKK7
 A-B Direction: NB

www.TSTData.com
 610-466-1469

Site Code: Main St
 Station ID: N of Site Driveway
 41.26613N
 -75.85461W
 Latitude: 0' 0.0000 Undefined

Start Time	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13	Total
10/23/17	0	11	2	0	0	0	0	0	0	0	0	0	0	13
01:00	0	8	1	0	0	0	0	0	0	0	0	0	0	9
02:00	0	6	0	0	0	0	0	0	0	0	0	0	0	6
03:00	0	5	0	0	0	0	0	0	0	0	0	0	0	5
04:00	0	9	0	0	0	0	0	0	0	0	0	0	0	9
05:00	1	19	5	0	1	0	0	0	0	0	0	0	0	26
06:00	0	39	8	0	1	1	0	0	0	0	0	0	0	49
07:00	0	114	27	1	0	0	0	0	1	0	0	0	0	143
08:00	0	128	20	6	4	1	0	1	1	0	0	0	0	161
09:00	0	73	26	1	2	0	0	0	0	0	0	0	0	102
10:00	0	93	14	0	1	1	1	1	1	0	0	0	0	112
11:00	0	84	22	0	3	1	0	0	0	0	0	0	0	110
12 PM	0	134	24	0	1	0	0	2	0	0	0	0	0	161
13:00	0	120	22	3	6	1	0	2	1	0	0	0	0	155
14:00	0	177	27	10	5	0	0	0	0	0	0	0	0	219
15:00	0	240	48	5	3	0	1	0	1	0	0	0	0	298
16:00	0	348	35	1	2	1	0	0	0	0	0	0	0	387
17:00	2	251	29	1	2	0	0	1	0	0	0	0	0	286
18:00	1	113	14	1	1	0	0	0	0	0	0	0	0	130
19:00	0	86	9	0	2	0	0	0	0	0	0	0	0	97
20:00	0	71	9	0	0	0	0	0	0	0	0	0	0	80
21:00	0	43	5	0	0	0	0	0	0	0	0	0	0	48
22:00	0	36	4	0	0	0	0	0	0	0	0	0	0	40
23:00	1	27	9	0	0	0	0	0	0	0	0	0	0	37
Day Total	5	2235	360	29	34	6	2	7	5	0	0	0	0	2683
Percent	0.2%	83.3%	13.4%	1.1%	1.3%	0.2%	0.1%	0.3%	0.2%	0.0%	0.0%	0.0%	0.0%	
AM Peak	05:00	08:00	07:00	08:00	08:00	06:00	10:00	08:00	07:00					08:00
Vol.	1	128	27	6	4	1	1	1	1					161
PM Peak	17:00	16:00	15:00	14:00	13:00	13:00	15:00	12:00	13:00					16:00
Vol.	2	348	48	10	6	1	1	2	1					387

Tri-State Traffic Data, Inc.

Road Name: Main St
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www.TSTData.com
 610-466-1469

Site Code: Main St
 Station ID: N of Site Driveway
 41.26613N
 -75.85461W
 Latitude: 0' 0.0000 Undefined

Start Time	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13	Total
10/24/17	0	15	0	0	0	0	0	0	0	0	0	0	0	15
01:00	0	5	3	0	1	0	0	0	0	0	0	0	0	9
02:00	0	7	0	0	0	0	0	0	0	0	0	0	0	7
03:00	0	6	0	0	0	0	0	0	0	0	0	0	0	6
04:00	0	6	0	0	0	0	0	0	0	0	0	0	0	6
05:00	0	14	6	0	0	1	0	0	0	0	0	0	0	21
06:00	0	45	12	0	0	0	0	0	0	0	0	0	0	57
07:00	1	115	21	2	2	0	0	1	0	0	0	0	0	142
08:00	0	141	17	7	2	0	0	0	1	0	0	0	0	168
09:00	0	54	24	1	4	1	0	0	0	0	0	0	0	84
10:00	0	69	16	1	4	0	0	0	0	0	0	0	0	90
11:00	1	87	16	1	3	1	0	1	2	0	0	0	0	112
12 PM	0	120	32	1	2	0	0	2	0	0	0	0	0	157
13:00	0	125	28	6	3	1	0	2	1	0	0	0	0	166
14:00	0	201	36	12	2	0	0	2	1	0	0	0	0	254
15:00	1	246	49	4	2	1	0	1	0	0	0	0	1	305
16:00	2	309	37	1	4	0	0	1	0	0	0	0	0	354
17:00	0	247	24	1	2	0	0	0	0	0	0	0	0	274
18:00	1	138	26	1	2	0	0	0	0	0	0	0	0	168
19:00	0	83	10	0	1	0	0	0	0	0	0	0	0	94
20:00	0	80	9	0	1	0	0	0	0	0	0	0	0	90
21:00	0	62	6	0	0	0	0	0	0	0	0	0	0	68
22:00	0	30	6	0	1	0	0	0	0	0	0	0	0	37
23:00	0	29	6	0	1	0	0	0	0	0	0	0	0	36
Day Total	6	2234	384	38	37	5	0	10	5	0	0	0	1	2720
Percent	0.2%	82.1%	14.1%	1.4%	1.4%	0.2%	0.0%	0.4%	0.2%	0.0%	0.0%	0.0%	0.0%	
AM Peak	07:00	08:00	09:00	08:00	09:00	05:00		07:00	11:00					08:00
Vol.	1	141	24	7	4	1		1	2					168
PM Peak	16:00	16:00	15:00	14:00	16:00	13:00		12:00	13:00					16:00
Vol.	2	309	49	12	4	1		2	1				1	354

Tri-State Traffic Data, Inc.

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 Station ID: N of Site Driveway
 41.26613N
 -75.85461W
 Latitude: 0' 0.0000 Undefined

North														
Start Time	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13	Total
10/25/17	0	14	2	0	0	0	0	0	2	0	0	0	0	18
01:00	0	8	1	0	0	0	0	0	0	0	0	0	0	9
02:00	0	5	1	0	0	0	0	0	0	0	0	0	0	6
03:00	0	2	0	0	0	0	0	0	0	0	0	0	0	2
04:00	0	9	0	0	0	0	0	0	0	0	0	0	0	9
05:00	1	16	5	0	0	0	0	0	0	0	0	0	0	22
06:00	0	42	9	0	1	2	0	0	2	0	0	0	0	56
07:00	1	125	27	2	2	1	0	0	2	0	0	0	0	160
08:00	0	122	22	7	4	1	0	0	0	1	0	0	0	157
09:00	0	74	16	0	5	0	1	0	2	0	0	0	0	98
10:00	1	78	17	1	5	2	0	0	0	0	0	0	0	104
11:00	0	91	19	1	0	2	0	1	0	0	0	0	0	114
12 PM	0	128	26	1	3	0	0	2	0	0	0	0	0	160
13:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
14:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
15:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
16:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
17:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
18:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
19:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
20:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
21:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
22:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
23:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Day Total	3	714	145	12	20	8	1	3	8	1	0	0	0	915
Percent	0.3%	78.0%	15.8%	1.3%	2.2%	0.9%	0.1%	0.3%	0.9%	0.1%	0.0%	0.0%	0.0%	
AM Peak	05:00	07:00	07:00	08:00	09:00	06:00	09:00	11:00	00:00	08:00	08:00	08:00	08:00	07:00
Vol.	1	125	27	7	5	2	1	1	2	1	1	1	1	160
PM Peak	12:00	12:00	12:00	12:00	12:00	12:00	12:00	12:00	12:00	12:00	12:00	12:00	12:00	12:00
Vol.	128	128	26	1	3	2	1	2	2	1	1	1	1	160
Grand Total	63	17967	2817	234	283	57	4	33	47	1	0	0	2	21508
Percent	0.3%	83.5%	13.1%	1.1%	1.3%	0.3%	0.0%	0.2%	0.2%	0.0%	0.0%	0.0%	0.0%	

Tri-State Traffic Data, Inc.

Road Name: Main St
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 Counter: CM28SKK7
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www.TSTData.com
 610-466-1469

Site Code: Main St
 Station ID: N of Site Driveway
 41.26613N
 -75.85461W
 Latitude: 0' 0.0000 Undefined

South	Start Time	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13	Total
	10/16/17	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	12 PM	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	13:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	14:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	15:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	16:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	17:00	0	145	17	1	3	0	0	0	0	0	0	0	0	166
	18:00	0	115	19	1	2	0	0	0	0	0	0	0	0	137
	19:00	0	52	11	0	0	0	0	0	0	0	0	0	0	63
	20:00	0	51	8	0	1	0	0	0	0	0	0	0	0	60
	21:00	0	27	2	0	0	0	0	0	0	0	0	0	0	29
	22:00	0	26	1	0	0	0	0	0	0	0	0	0	0	27
	23:00	0	15	0	0	0	0	0	0	0	0	0	0	0	15
	Day Total	0	431	58	2	6	0	0	0	0	0	0	0	0	497
	Percent	0.0%	86.7%	11.7%	0.4%	1.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	AM Peak Vol.														
	PM Peak Vol.	17:00	17:00	18:00	17:00	17:00	17:00	17:00	17:00	17:00	17:00	17:00	17:00	17:00	17:00
		145	19	3	1	3	1	3	1	3	1	3	1	3	166

Tri-State Traffic Data, Inc.

Road Name: Main St
 Location: N of Site Driveway
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www.TSTData.com
610-466-1469

Site Code: Main St
 Station ID: N of Site Driveway
 41.26613N
 -75.85461W
 Latitude: 0° 0.0000 Undefined

Start Time	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13	Total
10/17/17	0	5	2	0	0	0	0	0	0	0	0	0	0	7
01:00	0	4	2	0	0	0	0	0	0	0	0	0	0	6
02:00	0	4	1	0	0	0	0	0	0	0	0	0	0	5
03:00	0	5	0	0	0	0	0	0	0	0	0	0	0	5
04:00	0	1	2	0	0	0	0	0	0	0	0	0	0	3
05:00	0	33	5	0	1	1	0	0	0	0	0	0	0	40
06:00	0	94	21	2	4	0	1	0	0	0	0	0	0	122
07:00	1	339	52	7	3	2	0	1	0	0	0	0	0	405
08:00	0	345	41	4	9	1	1	0	1	0	0	0	0	402
09:00	0	118	19	2	1	1	1	0	1	0	0	0	0	143
10:00	1	96	14	1	5	2	1	0	0	0	0	0	0	120
11:00	0	92	20	0	5	0	1	1	1	0	0	0	0	120
12 PM	0	112	17	2	0	0	1	0	2	0	0	0	0	134
13:00	1	108	27	1	1	0	1	0	0	0	0	0	0	139
14:00	0	178	26	6	4	0	2	0	0	0	0	0	0	216
15:00	0	220	27	3	8	1	0	0	2	0	0	0	0	261
16:00	0	146	27	0	3	0	0	1	1	0	0	0	0	178
17:00	0	175	21	0	1	0	0	0	0	0	0	0	0	197
18:00	1	110	18	1	2	0	0	0	0	0	0	0	0	132
19:00	0	73	12	0	4	0	0	0	0	0	0	0	0	89
20:00	1	43	8	0	1	0	0	0	0	0	0	0	0	53
21:00	0	34	6	0	0	0	0	0	0	0	0	0	0	40
22:00	0	17	5	0	0	0	0	0	0	0	0	0	0	22
23:00	0	14	2	0	0	0	0	0	0	0	0	0	0	16
Day Total	5	2366	375	29	52	8	9	3	8	0	0	0	0	2855
Percent	0.2%	82.9%	13.1%	1.0%	1.8%	0.3%	0.3%	0.1%	0.3%	0.0%	0.0%	0.0%	0.0%	
AM Peak	07:00	08:00	07:00	07:00	08:00	07:00	06:00	07:00	08:00	07:00	08:00	07:00	08:00	07:00
Vol.	1	345	52	7	9	2	1	1	1	1	1	1	1	405
PM Peak	13:00	15:00	13:00	14:00	15:00	15:00	14:00	16:00	12:00	12:00	12:00	12:00	12:00	15:00
Vol.	1	220	27	6	8	1	2	1	2	2	2	2	2	261

Tri-State Traffic Data, Inc.

Road Name: Main St
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 Station ID: N of Site Driveway
 41.26613N
 -75.85461W
 Latitude: 0' 0.0000 Undefined

Start Time	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13	Total
10/18/17	0	9	1	0	0	0	0	0	0	0	0	0	0	10
01:00	0	7	1	0	0	0	0	0	0	0	0	0	0	8
02:00	0	5	1	0	0	0	0	0	0	0	0	0	0	6
03:00	0	5	0	0	0	0	0	0	0	0	0	0	0	5
04:00	0	5	1	0	1	0	0	0	0	0	0	0	0	7
05:00	0	22	8	0	0	1	0	0	0	0	0	0	0	31
06:00	0	105	24	2	4	1	0	1	0	0	0	0	0	137
07:00	0	340	54	8	2	3	0	2	0	0	0	0	0	409
08:00	0	370	30	8	3	1	0	0	0	0	0	0	0	412
09:00	0	135	29	0	4	1	0	0	2	0	0	0	0	171
10:00	1	104	19	2	3	1	0	0	0	0	0	0	0	130
11:00	1	105	20	0	6	1	0	0	4	0	0	0	0	137
12 PM	1	144	19	5	2	0	0	2	1	0	0	0	0	174
13:00	0	118	19	2	2	1	0	1	0	0	0	0	0	143
14:00	2	147	34	6	4	0	0	0	0	0	0	0	0	193
15:00	1	183	32	5	4	0	0	1	0	0	0	0	0	226
16:00	1	181	28	0	1	0	0	0	0	0	0	0	0	211
17:00	2	161	26	0	2	0	0	0	0	0	0	0	0	191
18:00	1	119	12	1	3	0	0	0	0	0	0	0	0	136
19:00	0	72	18	0	2	0	0	0	0	0	0	0	0	92
20:00	0	59	7	0	1	0	0	0	0	0	0	0	0	67
21:00	0	28	3	0	0	0	0	0	1	0	0	0	0	32
22:00	0	27	6	0	0	0	0	0	1	0	0	0	0	34
23:00	0	22	1	0	0	0	0	0	0	0	0	0	0	23
Day Total	10	2473	393	39	44	10	0	7	9	0	0	0	0	2985
Percent	0.3%	82.8%	13.2%	1.3%	1.5%	0.3%	0.0%	0.2%	0.3%	0.0%	0.0%	0.0%	0.0%	
AM Peak	10:00	08:00	07:00	07:00	11:00	07:00	07:00	07:00	11:00	11:00	0.0%	0.0%	0.0%	08:00
Vol.	1	370	54	8	6	3	2	2	4	4				412
PM Peak	14:00	15:00	14:00	14:00	14:00	13:00	12:00	12:00	12:00	12:00				15:00
Vol.	2	183	34	6	4	1	2	2	1	1				226

Tri-State Traffic Data, Inc.

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 -75.85461W
 Latitude: 0' 0.0000 Undefined

Start Time	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13	Total
10/19/17	0	7	2	0	0	0	0	0	0	0	0	0	0	9
01:00	0	11	1	0	0	0	0	0	0	0	0	0	0	12
02:00	0	10	0	0	0	0	0	0	0	0	0	0	0	10
03:00	0	3	0	1	0	0	0	0	0	0	0	0	0	4
04:00	0	3	0	1	0	0	0	0	0	0	0	0	0	4
05:00	0	30	4	0	0	0	0	0	0	0	0	0	0	34
06:00	0	121	23	1	4	0	0	0	0	0	0	0	0	149
07:00	2	334	57	7	3	3	0	0	0	0	0	0	0	406
08:00	0	342	32	4	2	0	0	0	0	0	0	0	0	380
09:00	0	135	18	0	4	1	0	0	2	0	0	0	0	160
10:00	0	101	34	0	2	0	0	0	0	0	0	0	0	137
11:00	0	120	18	2	5	1	0	1	1	0	0	0	0	148
12 PM	1	151	21	1	2	0	0	1	0	0	0	0	0	177
13:00	1	107	26	0	5	1	0	0	0	0	0	0	0	140
14:00	0	173	37	2	6	0	0	0	1	0	0	0	0	219
15:00	0	151	24	1	1	0	0	0	0	0	0	0	0	177
16:00	0	168	21	1	0	0	0	1	0	0	0	0	0	191
17:00	2	191	22	1	2	0	0	0	0	0	0	0	0	218
18:00	0	118	18	0	2	0	0	0	0	0	0	0	0	138
19:00	0	94	16	0	1	0	0	0	0	0	0	0	0	111
20:00	0	68	15	0	0	0	0	0	0	0	0	0	0	83
21:00	0	40	4	0	1	0	0	0	0	0	0	0	0	45
22:00	0	30	6	0	0	0	0	0	0	0	0	0	0	36
23:00	0	16	0	0	0	0	0	0	0	0	0	0	0	16
Day Total	6	2524	399	22	40	6	0	3	4	0	0	0	0	3004
Percent	0.2%	84.0%	13.3%	0.7%	1.3%	0.2%	0.0%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	
AM Peak	07:00	08:00	07:00	07:00	11:00	07:00		11:00	09:00					07:00
Vol.	2	342	57	7	5	3		1	2					406
PM Peak	17:00	17:00	14:00	14:00	14:00	13:00		12:00	14:00					14:00
Vol.	2	191	37	2	6	1		1	1					219

Tri-State Traffic Data, Inc.

Road Name: Main St
 Location: N of Site Driveway
 Counter: CM28SKK7
 A-B Direction: NB

www.TSTData.com
610-466-1469

Site Code: Main St
 Station ID: N of Site Driveway
 41.26613N
 -75.85461W
 Latitude: 0' 0.0000 Undefined

Start Time	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13	Total
10/20/17	0	10	1	0	0	0	0	0	0	0	0	0	0	11
01:00	0	9	1	0	0	0	0	0	0	0	0	0	0	10
02:00	0	6	4	0	0	0	0	0	0	0	0	0	0	10
03:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
04:00	0	6	3	0	1	0	0	0	0	0	0	0	0	10
05:00	0	31	5	0	0	0	0	0	0	0	0	0	0	36
06:00	0	85	25	1	5	1	0	0	0	0	0	0	0	117
07:00	2	339	46	8	3	0	0	0	0	0	0	0	0	398
08:00	0	360	28	6	5	0	0	0	1	0	0	0	0	400
09:00	0	118	22	0	1	0	0	0	0	0	0	0	0	141
10:00	0	106	21	1	1	0	0	0	0	0	0	0	0	129
11:00	0	104	27	1	3	0	0	0	1	0	0	0	0	136
12 PM	0	118	17	1	0	1	0	1	0	0	0	0	0	138
13:00	2	118	23	1	6	1	0	0	0	0	0	0	0	151
14:00	0	160	27	6	5	0	0	1	0	0	0	0	0	199
15:00	0	186	29	3	6	1	0	0	1	0	0	0	0	226
16:00	0	157	29	2	2	0	0	0	0	0	0	0	0	190
17:00	0	157	22	1	0	1	0	1	0	0	0	0	0	182
18:00	0	91	14	0	1	0	0	0	0	0	0	0	0	106
19:00	0	85	19	0	1	0	0	0	0	0	0	0	0	105
20:00	0	53	10	0	0	0	0	0	0	0	0	0	0	63
21:00	0	49	7	0	0	0	0	0	0	0	0	0	0	56
22:00	0	53	11	1	0	0	0	0	0	0	0	0	0	65
23:00	0	23	3	0	0	0	0	0	0	0	0	0	0	26
Day Total	4	2425	394	32	40	5	0	3	3	0	0	0	0	2906
Percent	0.1%	83.4%	13.6%	1.1%	1.4%	0.2%	0.0%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
AM Peak Vol.	2	360	46	8	5	1			08:00	1				400
PM Peak Vol.	2	186	29	6	6	1		12:00	15:00	1				226

Tri-State Traffic Data, Inc.

Road Name: Main St
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 Counter: CM28SKK7
 A-B Direction: NB

www.TSTData.com
 610-466-1469

Site Code: Main St
 Station ID: N of Site Driveway
 41.26613N
 -75.85461W
 Latitude: 0' 0.0000 Undefined

Start Time	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13	Total
10/21/17	0	13	2	0	0	0	0	0	0	0	0	0	0	15
01:00	0	19	3	0	0	0	0	0	0	0	0	0	0	22
02:00	0	7	1	0	0	0	0	0	0	0	0	0	0	8
03:00	0	3	0	0	0	0	0	0	0	0	0	0	0	3
04:00	0	5	0	0	0	0	0	0	0	0	0	0	0	5
05:00	0	13	1	0	0	1	0	0	0	0	0	0	0	15
06:00	0	32	6	0	1	1	0	0	1	0	0	0	0	41
07:00	0	49	16	0	3	0	0	0	0	0	0	0	0	68
08:00	0	71	11	1	1	0	0	0	0	0	0	0	0	84
09:00	0	94	16	0	1	0	0	0	0	0	0	0	0	111
10:00	2	94	19	0	4	1	0	0	1	0	0	0	0	121
11:00	1	86	22	0	1	0	0	0	0	0	0	0	0	110
12 PM	0	109	16	2	1	0	0	0	0	0	0	0	0	128
13:00	0	90	16	1	1	0	0	0	0	0	0	0	0	108
14:00	3	92	15	1	3	0	0	0	0	0	0	0	0	114
15:00	0	104	7	0	0	0	0	0	0	0	0	0	0	111
16:00	0	94	13	0	0	0	0	0	0	0	0	0	0	107
17:00	0	96	9	0	0	0	0	0	0	0	0	0	0	105
18:00	0	92	15	0	1	0	0	0	0	0	0	0	0	108
19:00	0	68	8	0	0	0	0	0	1	0	0	0	0	77
20:00	0	41	6	0	0	0	0	0	0	0	0	0	0	47
21:00	0	44	5	0	0	0	0	0	0	0	0	0	0	49
22:00	0	39	6	0	0	0	0	0	0	0	0	0	0	45
23:00	0	31	4	0	0	0	0	0	0	0	0	0	0	35
Day Total	6	1386	217	5	17	3	0	0	3	0	0	0	0	1637
Percent	0.4%	84.7%	13.3%	0.3%	1.0%	0.2%	0.0%	0.0%	0.2%	0.0%	0.0%	0.0%	0.0%	
AM Peak	10:00	09:00	11:00	08:00	10:00	05:00			06:00					10:00
Vol.	2	94	22	1	4	1			1					121
PM Peak	14:00	12:00	12:00	12:00	14:00				19:00					12:00
Vol.	3	109	16	2	3				1					128

Tri-State Traffic Data, Inc.

Road Name: Main St
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Site Code: Main St
 Station ID: N of Site Driveway
 41.26613N
 -75.85461W
 Latitude: 0' 0.0000 Undefined

Start Time	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13	Total
10/22/17	0	22	3	0	0	0	0	0	0	0	0	0	0	25
01:00	0	8	0	0	0	0	0	0	0	0	0	0	0	8
02:00	0	7	2	0	0	0	0	0	0	0	0	0	0	9
03:00	0	2	0	0	1	0	0	0	0	0	0	0	0	3
04:00	0	2	0	0	0	0	0	0	0	0	0	0	0	2
05:00	0	7	1	0	0	0	0	0	0	0	0	0	0	8
06:00	0	22	4	0	0	0	0	0	0	0	0	0	0	26
07:00	0	40	6	0	0	0	0	0	0	0	0	0	0	46
08:00	0	64	8	0	0	0	0	0	0	0	0	0	0	72
09:00	2	72	10	0	1	0	0	0	0	0	0	0	0	85
10:00	0	90	13	0	2	0	0	0	0	0	0	0	0	105
11:00	0	95	17	0	1	0	0	0	0	0	0	0	0	113
12 PM	0	131	16	0	1	0	0	0	0	0	0	0	0	148
13:00	1	89	11	0	0	0	0	0	0	0	0	0	0	101
14:00	0	96	19	0	1	0	0	0	0	0	0	0	0	116
15:00	0	96	16	0	0	0	0	0	0	0	0	0	0	112
16:00	5	75	13	0	2	0	0	0	0	0	0	0	0	95
17:00	1	82	12	0	0	0	0	0	0	0	0	0	0	95
18:00	0	83	14	0	0	0	0	0	0	0	0	0	0	97
19:00	0	47	4	0	1	0	0	0	0	0	0	0	0	52
20:00	0	45	7	0	0	0	0	0	0	0	0	0	0	52
21:00	0	23	2	0	1	0	0	0	0	0	0	0	0	26
22:00	0	14	1	0	0	0	0	0	0	0	0	0	0	15
23:00	0	9	3	0	1	0	0	0	0	0	0	0	0	13
Day Total	9	1221	182	0	12	0	0	0	0	0	0	0	0	1424
Percent	0.6%	85.7%	12.8%	0.0%	0.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak Vol.	09:00	11:00	11:00	10:00										11:00
	2	95	17	2										113
PM Peak Vol.	16:00	12:00	14:00	16:00										12:00
	5	131	19	2										148

Tri-State Traffic Data, Inc.

Road Name: Main St
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 Counter: CM28SKK7
 A-B Direction: NB

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Site Code: Main St
 Station ID: N of Site Driveway
 41.26613N
 -75.85461W
 Latitude: 0' 0.0000 Undefined

Start Time	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13	Total
10/23/17	0	8	1	0	0	0	0	0	0	0	0	0	0	9
01:00	0	8	0	0	0	0	0	0	0	0	0	0	0	8
02:00	0	3	2	0	0	0	0	0	0	0	0	0	0	5
03:00	0	3	0	0	0	0	0	0	0	0	0	0	0	3
04:00	0	5	2	0	0	0	0	0	0	0	0	0	0	7
05:00	0	28	9	0	0	0	0	0	0	0	0	0	0	37
06:00	0	95	28	1	3	1	0	0	0	0	0	0	0	128
07:00	0	344	51	10	6	1	0	2	1	0	0	0	0	415
08:00	1	340	45	4	3	1	0	1	1	0	0	0	0	396
09:00	0	143	21	0	4	1	0	0	0	0	0	0	0	169
10:00	0	105	25	2	3	1	0	0	0	0	0	0	0	136
11:00	0	89	19	0	7	0	0	0	0	0	0	0	0	115
12 PM	0	132	21	0	1	1	0	0	0	1	0	0	0	156
13:00	0	97	20	0	2	0	0	0	1	0	0	0	0	120
14:00	1	138	36	6	0	0	0	2	0	0	0	0	0	189
15:00	1	174	26	1	2	1	0	0	1	0	0	0	0	206
16:00	0	141	21	0	3	0	0	0	0	0	0	0	0	165
17:00	0	159	20	0	1	0	0	0	0	0	0	0	0	180
18:00	1	110	20	0	0	0	0	0	0	0	0	0	0	131
19:00	0	48	9	0	1	0	0	0	0	0	0	0	0	58
20:00	0	46	4	0	1	0	0	0	0	0	0	0	0	51
21:00	0	26	1	0	0	0	0	0	0	0	0	0	0	27
22:00	0	31	4	0	0	0	0	0	0	0	0	0	0	35
23:00	0	14	3	0	0	0	0	0	0	0	0	0	0	17
Day Total	4	2287	388	24	43	7	0	5	4	1	0	0	0	2763
Percent	0.1%	82.8%	14.0%	0.9%	1.6%	0.3%	0.0%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	
AM Peak	08:00	07:00	07:00	07:00	11:00	06:00	07:00	07:00	07:00	07:00	07:00	07:00	07:00	07:00
Vol.	1	344	51	10	7	1	2	2	1	1	1	1	1	415
PM Peak	14:00	15:00	14:00	14:00	14:00	12:00	14:00	14:00	13:00	12:00	12:00	12:00	15:00	15:00
Vol.	1	174	36	6	6	1	2	2	1	1	1	1	1	206

Tri-State Traffic Data, Inc.

Road Name: Main St
 Location: N of Site Driveway
 Counter: CM28SKK7
 A-B Direction: NB

www.TSTData.com
 610-466-1469

Site Code: Main St
 Station ID: N of Site Driveway
 41.26613N
 -75.85461W
 Latitude: 0' 0.0000 Undefined

Start Time	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13	Total
10/24/17	0	6	1	0	0	0	0	0	0	0	0	0	0	7
01:00	0	3	0	0	0	0	0	0	0	0	0	0	0	3
02:00	0	4	2	0	0	0	0	0	0	0	0	0	0	6
03:00	0	4	1	0	1	0	0	0	0	0	0	0	0	6
04:00	0	7	1	0	0	0	0	0	0	0	0	0	0	8
05:00	0	28	6	0	0	1	0	0	0	0	0	0	0	35
06:00	0	103	30	1	5	0	1	0	1	0	0	0	0	141
07:00	0	328	49	10	5	1	0	0	0	0	0	0	0	393
08:00	0	348	35	5	3	0	0	1	1	0	0	0	0	393
09:00	1	135	24	2	3	1	0	0	0	0	0	0	0	166
10:00	0	86	26	1	3	0	0	1	1	0	0	0	0	118
11:00	0	82	15	0	4	0	0	1	0	0	0	0	0	102
12 PM	2	94	30	0	4	0	0	0	2	0	0	0	0	132
13:00	0	90	24	0	1	0	0	2	0	0	0	0	0	117
14:00	0	154	29	8	4	1	0	0	0	0	0	0	0	196
15:00	0	194	33	1	0	0	0	3	0	0	0	0	0	231
16:00	0	143	26	1	1	0	0	2	0	0	0	0	0	173
17:00	0	176	25	0	0	0	0	0	0	0	0	0	0	201
18:00	0	109	14	2	1	0	0	0	0	0	0	0	0	126
19:00	0	61	12	0	0	0	0	0	0	0	0	0	0	73
20:00	0	43	4	0	0	0	0	0	0	0	0	0	0	47
21:00	0	28	7	0	0	0	0	0	0	0	0	0	0	35
22:00	0	31	6	0	0	0	0	0	0	0	0	0	0	37
23:00	0	25	1	0	0	0	0	0	0	0	0	0	0	26
Day Total	3	2282	401	31	35	4	1	10	5	0	0	0	0	2772
Percent	0.1%	82.3%	14.5%	1.1%	1.3%	0.1%	0.0%	0.4%	0.2%	0.0%	0.0%	0.0%	0.0%	
AM Peak	09:00	08:00	07:00	07:00	06:00	05:00	06:00	08:00	06:00	06:00	06:00	06:00	06:00	07:00
Vol.	1	348	49	10	5	1	1	1	1	1	1	1	1	393
PM Peak	12:00	15:00	15:00	14:00	12:00	14:00	15:00	15:00	12:00	12:00	12:00	12:00	15:00	15:00
Vol.	2	194	33	8	4	1	3	3	2	2	2	2	231	231

Tri-State Traffic Data, Inc.

Road Name: Main St
 Location: N of Site Driveway
 Counter: CM28SKK7
 A-B Direction: NB

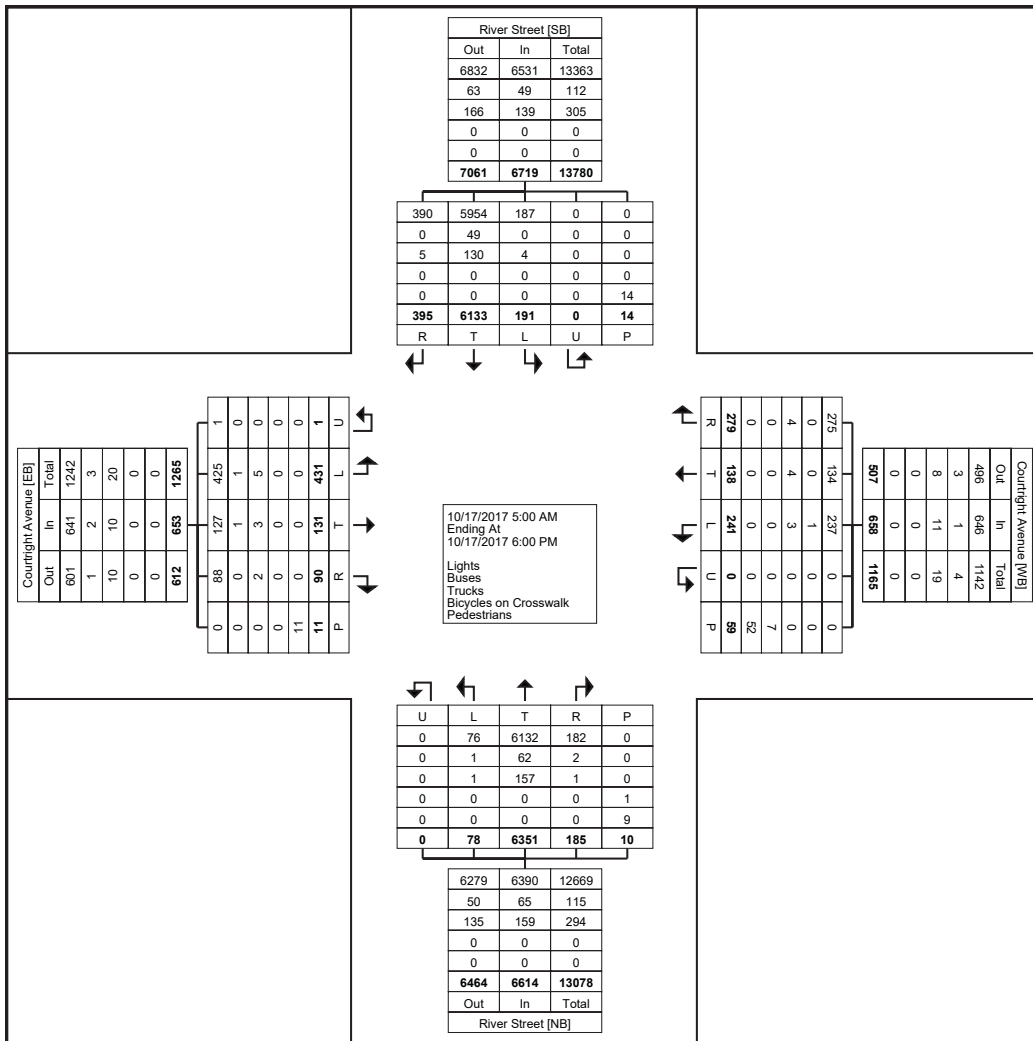
www.TSTData.com
610-466-1469

Site Code: Main St
 Station ID: N of Site Driveway
 41.26613N
 -75.85461W
 Latitude: 0' 0.0000 Undefined

South	Start Time	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13	Total
	10/25/17	0	5	2	0	0	0	0	0	0	0	0	0	0	7
	01:00	0	6	1	0	0	0	0	0	0	0	0	0	0	7
	02:00	0	4	2	0	0	0	0	0	0	0	0	0	0	6
	03:00	0	3	0	0	0	0	0	0	0	0	0	0	0	3
	04:00	0	1	2	0	0	0	0	0	0	0	0	0	0	3
	05:00	0	27	10	0	0	0	0	0	0	0	0	0	0	37
	06:00	0	100	31	1	5	3	0	0	1	0	0	0	0	141
	07:00	0	356	68	10	0	3	0	0	0	0	0	0	0	437
	08:00	0	367	32	5	7	0	0	0	3	0	0	0	0	414
	09:00	0	123	19	3	4	0	0	1	3	0	0	0	0	153
	10:00	0	99	22	1	3	1	0	0	2	0	0	0	0	128
	11:00	0	91	22	1	4	0	0	0	2	0	0	0	0	120
	12 PM	1	123	28	0	2	0	0	1	0	0	0	0	0	155
	13:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	14:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	15:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	16:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	17:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	18:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	19:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	20:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	21:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	22:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	23:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Day	Total	1	1305	239	21	25	7	0	2	11	0	0	0	0	1611
Percent		0.1%	81.0%	14.8%	1.3%	1.6%	0.4%	0.0%	0.1%	0.7%	0.0%	0.0%	0.0%	0.0%	
AM Peak		08:00	07:00	07:00	07:00	08:00	06:00	09:00	08:00	08:00					07:00
Vol.		367	68	10	10	7	3	1	1	3					437
PM Peak		12:00	12:00	12:00	12:00	12:00		12:00							12:00
Vol.		1	123	28	2	2	1	1							155
Grand Total		48	18700	3046	205	314	50	10	33	47	1	0	0	0	22454
Percent		0.2%	83.3%	13.6%	0.9%	1.4%	0.2%	0.0%	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	

TMC Data

5:00 PM	6	2	0	1	0	0	9	3	3	10	2	0	0	18	0	171	4	0	0	0	175	3	143	5	0	0	1	151	353
5:15 PM	5	3	0	1	0	0	9	3	2	8	0	0	5	13	0	150	6	0	0	1	156	5	148	4	0	0	0	157	335
5:30 PM	8	3	1	1	0	0	13	3	0	5	0	0	1	8	0	140	2	1	0	0	143	2	114	2	0	0	0	118	282
5:45 PM	4	1	0	0	0	0	5	3	0	1	1	0	0	5	1	134	0	0	0	0	135	5	129	4	0	0	0	138	283
Hourly Total	23	9	1	3	0	0	36	12	5	24	3	0	6	44	1	595	12	1	0	1	609	15	534	15	0	0	1	564	1253
Grand Total	431	131	62	28	1	11	653	241	138	217	62	0	59	658	78	6351	173	12	0	10	6614	191	6133	349	46	0	14	6719	14644
Approach %	66.0	20.1	9.5	4.3	0.2	-	-	36.6	21.0	33.0	9.4	0.0	-	-	1.2	96.0	2.6	0.2	0.0	-	-	2.8	91.3	5.2	0.7	0.0	-	-	-
Total %	2.9	0.9	0.4	0.2	0.0	-	4.5	1.6	0.9	1.5	0.4	0.0	-	4.5	0.5	43.4	1.2	0.1	0.0	-	45.2	1.3	41.9	2.4	0.3	0.0	-	45.9	-
Lights	425	127	61	27	1	-	641	237	134	214	61	0	-	646	76	6132	171	11	0	-	6390	187	5954	345	45	0	-	6531	14208
% Lights	98.6	96.9	98.4	96.4	100.0	-	98.2	98.3	97.1	98.6	98.4	-	-	98.2	97.4	96.6	98.8	91.7	-	-	96.6	97.9	97.1	98.9	97.8	-	-	97.2	97.0
Buses	1	1	0	0	0	-	2	1	0	0	0	0	-	1	1	62	2	0	0	-	65	0	49	0	0	0	-	49	117
% Buses	0.2	0.8	0.0	0.0	0.0	-	0.3	0.4	0.0	0.0	0.0	-	-	0.2	1.3	1.0	1.2	0.0	-	-	1.0	0.0	0.8	0.0	0.0	-	-	0.7	0.8
Trucks	5	3	1	1	0	-	10	3	4	3	1	0	-	11	1	157	0	1	0	-	159	4	130	4	1	0	-	139	319
% Trucks	1.2	2.3	1.6	3.6	0.0	-	1.5	1.2	2.9	1.4	1.6	-	-	1.7	1.3	2.5	0.0	8.3	-	-	2.4	2.1	2.1	1.1	2.2	-	-	2.1	2.2
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	-	7	-	-	-	-	-	-	1	-	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	0.0	-	-	-	-	-	-	11.9	-	-	-	-	-	-	10.0	-	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	-	11	-	-	-	-	-	-	52	-	-	-	-	-	-	9	-	-	-	-	-	-	14	-	-
% Pedestrians	-	-	-	-	-	100.0	-	-	-	-	-	-	88.1	-	-	-	-	-	-	90.0	-	-	-	-	-	-	100.0	-	-



Turning Movement Data Plot



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184 Baker Rd

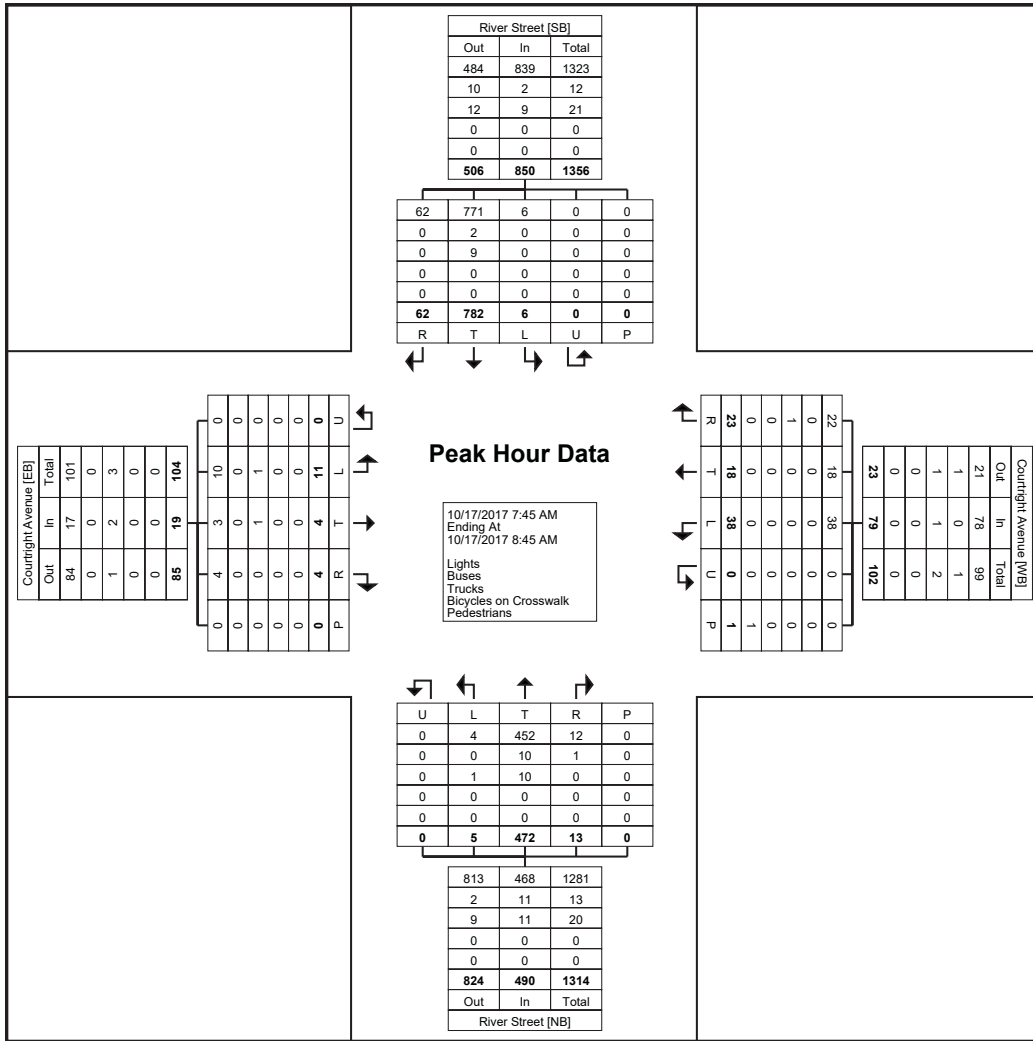
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Count Name: River St-Courtright Ave
Site Code:
Start Date: 10/17/2017
Page No: 4

Wilkes-Barre, PA
River St & Courtright Ave
Tuesday, October 17, 2017
Location: 41.255606, -75.8709

Turning Movement Peak Hour Data (7:45 AM)

Start Time	Courtright Avenue Eastbound							Courtright Avenue Westbound							River Street Northbound							River Street Southbound							Int. Total
	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	
7:45 AM	3	1	1	0	0	0	5	14	3	4	1	0	0	22	4	127	6	0	0	0	137	1	213	13	2	0	0	229	393
8:00 AM	0	1	3	0	0	0	4	5	3	5	0	0	1	13	0	123	2	0	0	0	125	0	187	16	0	0	0	203	345
8:15 AM	4	1	0	0	0	0	5	11	6	5	0	0	0	22	0	102	3	0	0	0	105	1	197	10	3	0	0	211	343
8:30 AM	4	1	0	0	0	0	5	8	6	6	2	0	0	22	1	120	2	0	0	0	123	4	185	16	2	0	0	207	357
Total	11	4	4	0	0	0	19	38	18	20	3	0	1	79	5	472	13	0	0	0	490	6	782	55	7	0	0	850	1438
Approach %	57.9	21.1	21.1	0.0	0.0	-	-	48.1	22.8	25.3	3.8	0.0	-	-	1.0	96.3	2.7	0.0	0.0	-	-	0.7	92.0	6.5	0.8	0.0	-	-	-
Total %	0.8	0.3	0.3	0.0	0.0	-	1.3	2.6	1.3	1.4	0.2	0.0	-	5.5	0.3	32.8	0.9	0.0	0.0	-	34.1	0.4	54.4	3.8	0.5	0.0	-	59.1	-
PHF	0.688	1.000	0.333	0.000	0.000	-	0.950	0.679	0.750	0.833	0.375	0.000	-	0.898	0.313	0.929	0.542	0.000	0.000	-	0.894	0.375	0.918	0.859	0.583	0.000	-	0.928	0.915
Lights	10	3	4	0	0	-	17	38	18	19	3	0	-	78	4	452	12	0	0	-	468	6	771	55	7	0	-	839	1402
% Lights	90.9	75.0	100.0	-	-	-	89.5	100.0	100.0	95.0	100.0	-	-	98.7	80.0	95.8	92.3	-	-	-	95.5	100.0	98.6	100.0	100.0	-	-	98.7	97.5
Buses	0	0	0	0	0	-	0	0	0	0	0	0	-	0	0	10	1	0	0	-	11	0	2	0	0	0	-	2	13
% Buses	0.0	0.0	0.0	-	-	-	0.0	0.0	0.0	0.0	0.0	-	-	0.0	0.0	2.1	7.7	-	-	-	2.2	0.0	0.3	0.0	0.0	-	-	0.2	0.9
Trucks	1	1	0	0	0	-	2	0	0	1	0	0	-	1	1	10	0	0	0	-	11	0	9	0	0	0	-	9	23
% Trucks	9.1	25.0	0.0	-	-	-	10.5	0.0	0.0	5.0	0.0	-	-	1.3	20.0	2.1	0.0	-	-	-	2.2	0.0	1.2	0.0	0.0	-	-	1.1	1.6
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	-	1	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Turning Movement Peak Hour Data Plot (7:45 AM)



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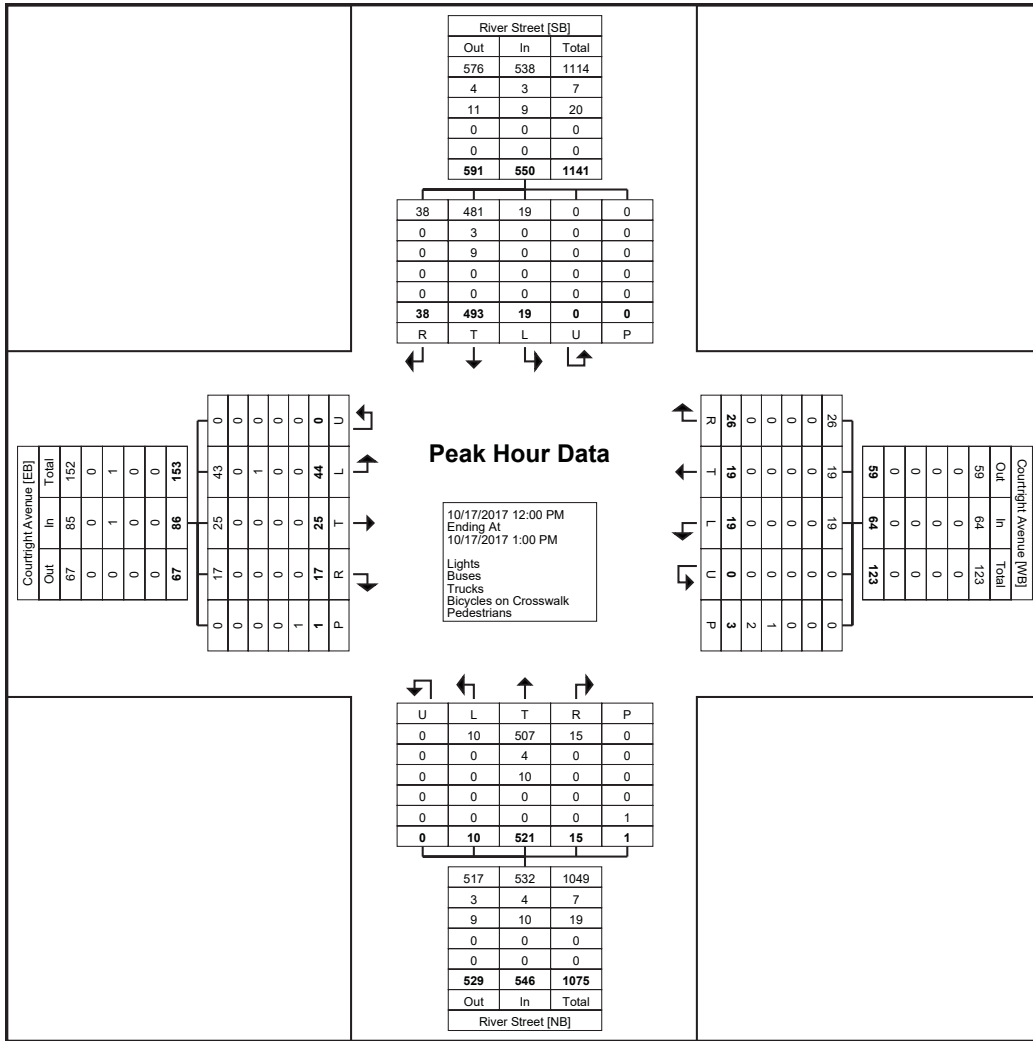
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Count Name: River St-Courtright Ave
Site Code:
Start Date: 10/17/2017
Page No: 6

Wilkes-Barre, PA
River St & Courtright Ave
Tuesday, October 17, 2017
Location: 41.255606, -75.8709

Turning Movement Peak Hour Data (12:00 PM)

Start Time	Courtright Avenue Eastbound							Courtright Avenue Westbound							River Street Northbound							River Street Southbound							Int. Total
	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	
12:00 PM	8	7	3	3	0	0	21	4	2	8	2	0	0	16	2	109	1	0	0	1	112	3	127	7	0	0	0	137	286
12:15 PM	12	4	2	1	0	0	19	4	5	2	4	0	2	15	1	133	6	0	0	0	140	8	111	6	1	0	0	126	300
12:30 PM	8	6	1	1	0	1	16	4	4	6	1	0	0	15	0	123	2	0	0	0	125	5	133	4	2	0	0	144	300
12:45 PM	16	8	5	1	0	0	30	7	8	3	0	0	1	18	7	156	5	1	0	0	169	3	122	16	2	0	0	143	360
Total	44	25	11	6	0	1	86	19	19	19	7	0	3	64	10	521	14	1	0	1	546	19	493	33	5	0	0	550	1246
Approach %	51.2	29.1	12.8	7.0	0.0	-	-	29.7	29.7	29.7	10.9	0.0	-	-	1.8	95.4	2.6	0.2	0.0	-	-	3.5	89.6	6.0	0.9	0.0	-	-	-
Total %	3.5	2.0	0.9	0.5	0.0	-	6.9	1.5	1.5	1.5	0.6	0.0	-	5.1	0.8	41.8	1.1	0.1	0.0	-	43.8	1.5	39.6	2.6	0.4	0.0	-	44.1	-
PHF	0.688	0.781	0.550	0.500	0.000	-	0.717	0.679	0.594	0.594	0.438	0.000	-	0.889	0.357	0.835	0.583	0.250	0.000	-	0.808	0.594	0.927	0.516	0.625	0.000	-	0.955	0.865
Lights	43	25	11	6	0	-	85	19	19	19	7	0	-	64	10	507	14	1	0	-	532	19	481	33	5	0	-	538	1219
% Lights	97.7	100.0	100.0	100.0	-	-	98.8	100.0	100.0	100.0	100.0	-	-	100.0	100.0	97.3	100.0	100.0	-	-	97.4	100.0	97.6	100.0	100.0	-	-	97.8	97.8
Buses	0	0	0	0	0	-	0	0	0	0	0	0	-	0	0	4	0	0	0	-	4	0	3	0	0	0	-	3	7
% Buses	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.8	0.0	0.0	-	-	0.7	0.0	0.6	0.0	0.0	-	-	0.5	0.6
Trucks	1	0	0	0	0	-	1	0	0	0	0	0	-	0	0	10	0	0	0	-	10	0	9	0	0	0	-	9	20
% Trucks	2.3	0.0	0.0	0.0	-	-	1.2	0.0	0.0	0.0	0.0	-	-	0.0	0.0	1.9	0.0	0.0	-	-	1.8	0.0	1.8	0.0	0.0	-	-	1.6	1.6
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	-	1	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	0.0	-	-	-	-	-	-	33.3	-	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	-	1	-	-	-	-	-	-	2	-	-	-	-	-	-	1	-	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	100.0	-	-	-	-	-	-	66.7	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-



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



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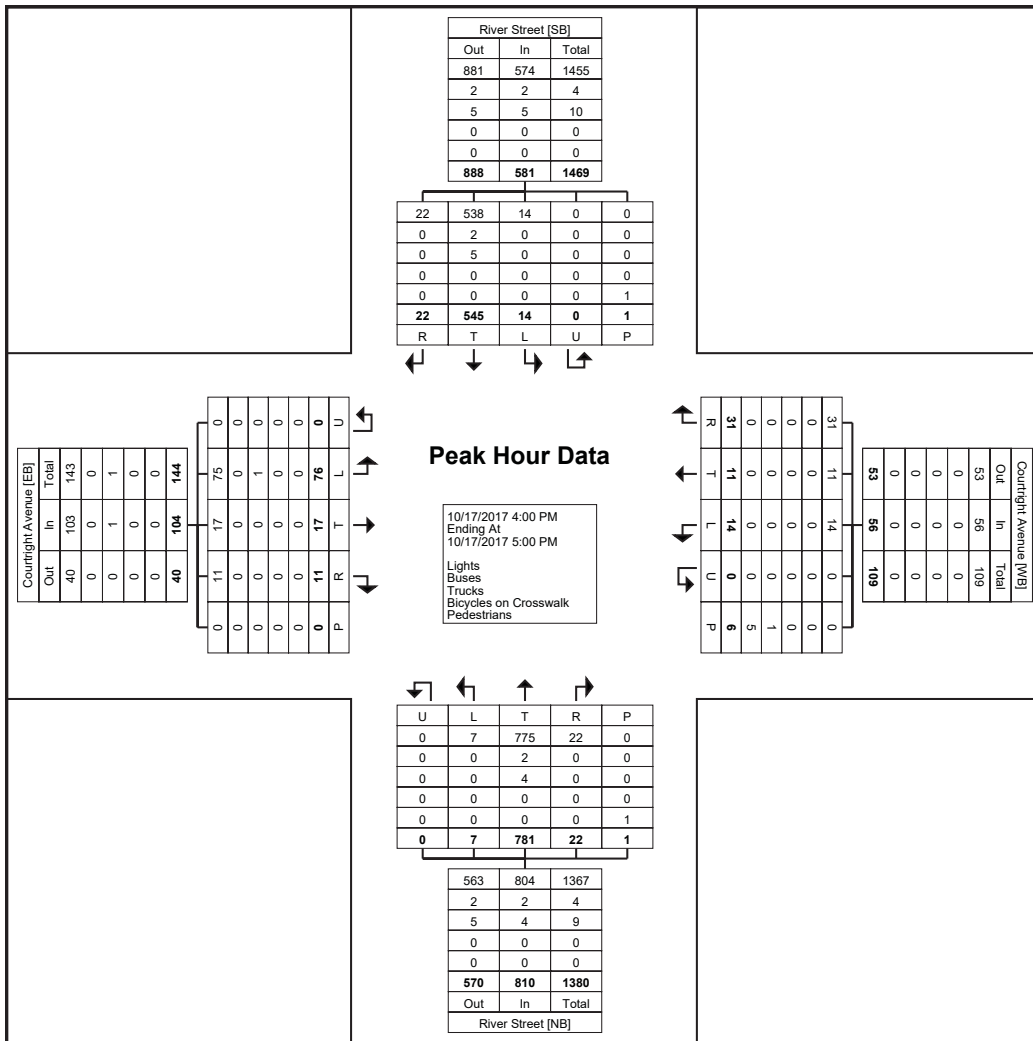
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Count Name: River St-Courtright Ave
Site Code:
Start Date: 10/17/2017
Page No: 8

Wilkes-Barre, PA
River St & Courtright Ave
Tuesday, October 17, 2017
Location: 41.255606, -75.8709

Turning Movement Peak Hour Data (4:00 PM)

Start Time	Courtright Avenue Eastbound							Courtright Avenue Westbound							River Street Northbound							River Street Southbound							Int. Total
	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	
4:00 PM	14	4	4	1	0	0	23	2	4	7	5	0	1	18	3	184	4	0	0	1	191	5	137	6	1	0	0	149	381
4:15 PM	22	6	1	0	0	0	29	3	5	4	2	0	1	14	3	197	3	0	0	0	203	2	137	3	0	0	0	142	388
4:30 PM	30	6	1	1	0	0	38	2	1	7	0	0	1	10	1	203	8	0	0	0	212	3	125	7	0	0	0	135	395
4:45 PM	10	1	1	2	0	0	14	7	1	5	1	0	3	14	0	197	7	0	0	0	204	4	146	5	0	0	1	155	387
Total	76	17	7	4	0	0	104	14	11	23	8	0	6	56	7	781	22	0	0	1	810	14	545	21	1	0	1	581	1551
Approach %	73.1	16.3	6.7	3.8	0.0	-	-	25.0	19.6	41.1	14.3	0.0	-	-	0.9	96.4	2.7	0.0	0.0	-	-	2.4	93.8	3.6	0.2	0.0	-	-	-
Total %	4.9	1.1	0.5	0.3	0.0	-	6.7	0.9	0.7	1.5	0.5	0.0	-	3.6	0.5	50.4	1.4	0.0	0.0	-	52.2	0.9	35.1	1.4	0.1	0.0	-	37.5	-
PHF	0.633	0.708	0.438	0.500	0.000	-	0.684	0.500	0.550	0.821	0.400	0.000	-	0.778	0.583	0.962	0.688	0.000	0.000	-	0.955	0.700	0.933	0.750	0.250	0.000	-	0.937	0.982
Lights	75	17	7	4	0	-	103	14	11	23	8	0	-	56	7	775	22	0	0	-	804	14	538	21	1	0	-	574	1537
% Lights	98.7	100.0	100.0	100.0	-	-	99.0	100.0	100.0	100.0	100.0	-	-	100.0	100.0	99.2	100.0	-	-	-	99.3	100.0	98.7	100.0	100.0	-	-	98.8	99.1
Buses	0	0	0	0	0	-	0	0	0	0	0	0	-	0	0	2	0	0	0	-	2	0	2	0	0	0	-	2	4
% Buses	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.3	0.0	-	-	-	0.2	0.0	0.4	0.0	0.0	-	-	0.3	0.3
Trucks	1	0	0	0	0	-	1	0	0	0	0	0	-	0	0	4	0	0	0	-	4	0	5	0	0	0	-	5	10
% Trucks	1.3	0.0	0.0	0.0	-	-	1.0	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.5	0.0	-	-	-	0.5	0.0	0.9	0.0	0.0	-	-	0.9	0.6
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	-	1	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	16.7	-	-	-	-	-	-	0.0	-	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	-	5	-	-	-	-	-	-	1	-	-	-	-	-	-	1	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	83.3	-	-	-	-	-	-	100.0	-	-	-	-	-	-	100.0	-	-



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

Wilk
River St & Maple St
Tuesday, October 17, 2017
Location: 41.257517, -
75.868533

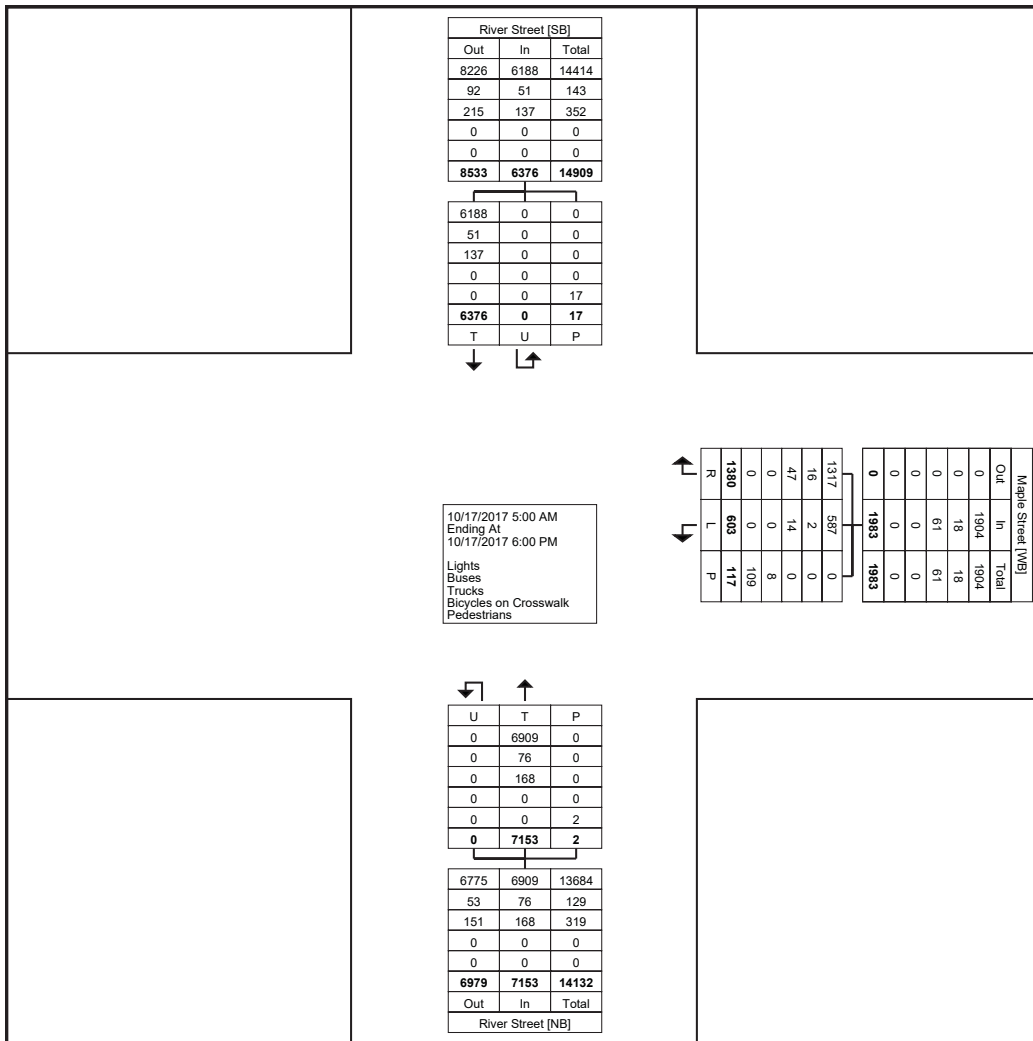
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Count Name: River St-Maple St
Site Code:
Start Date: 10/17/2017
Page No: 1

Turning Movement Data

Start Time	Maple Street Westbound					River Street Northbound				River Street Southbound				Int. Total
	Left	Right	Right on Red	Peds	App. Total	Thru	U-Turn	Peds	App. Total	Thru	U-Turn	Peds	App. Total	
5:00 AM	0	4	0	1	4	25	0	0	25	15	0	0	15	44
5:15 AM	0	3	0	2	3	34	0	0	34	21	0	0	21	58
5:30 AM	2	2	1	1	5	41	0	0	41	24	0	0	24	70
5:45 AM	3	3	0	2	6	60	0	0	60	43	0	0	43	109
Hourly Total	5	12	1	6	18	160	0	0	160	103	0	0	103	281
6:00 AM	5	7	0	2	12	51	0	0	51	38	0	0	38	101
6:15 AM	3	12	0	2	15	51	0	0	51	50	0	0	50	116
6:30 AM	4	14	0	5	18	90	0	0	90	82	0	0	82	190
6:45 AM	5	12	1	10	18	124	0	0	124	101	0	0	101	243
Hourly Total	17	45	1	19	63	316	0	0	316	271	0	0	271	650
7:00 AM	4	10	2	3	16	113	0	0	113	95	0	0	95	224
7:15 AM	5	14	4	2	23	104	0	0	104	140	0	0	140	267
7:30 AM	4	9	6	6	19	126	0	0	126	177	0	0	177	322
7:45 AM	12	23	8	0	43	143	0	0	143	215	0	1	215	401
Hourly Total	25	56	20	11	101	486	0	0	486	627	0	1	627	1214
8:00 AM	17	14	8	0	39	131	0	0	131	199	0	0	199	369
8:15 AM	12	23	7	1	42	112	0	0	112	212	0	0	212	366
8:30 AM	9	21	9	3	39	126	0	0	126	206	0	0	206	371
8:45 AM	13	25	4	0	42	120	0	0	120	217	0	0	217	379
Hourly Total	51	83	28	4	162	489	0	0	489	834	0	0	834	1485
9:00 AM	7	26	3	0	36	116	0	0	116	163	0	0	163	315
9:15 AM	9	18	2	1	29	97	0	0	97	149	0	0	149	275
9:30 AM	8	16	4	2	28	119	0	0	119	103	0	0	103	250
9:45 AM	10	17	4	1	31	133	0	0	133	120	0	0	120	284
Hourly Total	34	77	13	4	124	465	0	0	465	535	0	0	535	1124
10:00 AM	11	21	1	0	33	120	0	0	120	96	0	0	96	249
10:15 AM	14	21	3	0	38	117	0	0	117	128	0	0	128	283
10:30 AM	11	23	7	2	41	126	0	0	126	139	0	1	139	306
10:45 AM	14	29	3	2	46	126	0	0	126	116	0	0	116	288
Hourly Total	50	94	14	4	158	489	0	0	489	479	0	1	479	1126
11:00 AM	14	27	2	1	43	143	0	0	143	132	0	0	132	318
11:15 AM	13	22	4	0	39	145	0	0	145	113	0	1	113	297
11:30 AM	10	29	4	4	43	127	0	0	127	97	0	4	97	267
11:45 AM	19	28	5	4	52	138	0	1	138	117	0	1	117	307
Hourly Total	56	106	15	9	177	553	0	1	553	459	0	6	459	1189
12:00 PM	18	21	8	0	47	124	0	1	124	124	0	0	124	295
12:15 PM	12	25	6	2	43	154	0	0	154	119	0	1	119	316
12:30 PM	8	14	3	1	25	137	0	0	137	136	0	0	136	298
12:45 PM	13	23	7	2	43	182	0	0	182	135	0	2	135	360
Hourly Total	51	83	24	5	158	597	0	1	597	514	0	3	514	1269
1:00 PM	15	23	3	0	41	145	0	0	145	125	0	0	125	311
1:15 PM	13	17	5	3	35	122	0	0	122	124	0	0	124	281
1:30 PM	13	22	2	2	37	141	0	0	141	120	0	2	120	298
1:45 PM	17	27	6	4	50	150	0	0	150	116	0	0	116	316
Hourly Total	58	89	16	9	163	558	0	0	558	485	0	2	485	1206
2:00 PM	23	25	2	1	50	159	0	0	159	132	0	0	132	341
2:15 PM	11	48	3	5	62	170	0	0	170	117	0	0	117	349
2:30 PM	27	46	2	3	75	187	0	0	187	132	0	0	132	394
2:45 PM	20	36	6	10	62	195	0	0	195	117	0	1	117	374
Hourly Total	81	155	13	19	249	711	0	0	711	498	0	1	498	1458
3:00 PM	24	41	2	2	67	205	0	0	205	98	0	1	98	370
3:15 PM	23	44	2	5	69	192	0	0	192	135	0	0	135	396
3:30 PM	19	37	1	5	57	175	0	0	175	131	0	1	131	363
3:45 PM	16	48	6	2	70	208	0	0	208	116	0	0	116	394
Hourly Total	82	170	11	14	263	780	0	0	780	480	0	2	480	1523
4:00 PM	12	28	2	4	42	223	0	0	223	140	0	0	140	405
4:15 PM	13	25	4	3	42	225	0	0	225	127	0	0	127	394
4:30 PM	16	46	5	0	67	226	0	0	226	126	0	0	126	419
4:45 PM	9	27	6	1	42	209	0	0	209	147	0	0	147	398
Hourly Total	50	126	17	8	193	883	0	0	883	540	0	0	540	1616
5:00 PM	18	30	10	1	58	201	0	0	201	150	0	0	150	409

5:15 PM	7	19	10	1	36	163	0	0	163	155	0	0	155	354
5:30 PM	7	14	6	1	27	153	0	0	153	119	0	0	119	299
5:45 PM	11	17	5	2	33	149	0	0	149	127	0	1	127	309
Hourly Total	43	80	31	5	154	666	0	0	666	551	0	1	551	1371
Grand Total	603	1176	204	117	1983	7153	0	2	7153	6376	0	17	6376	15512
Approach %	30.4	59.3	10.3	-	-	100.0	0.0	-	-	100.0	0.0	-	-	-
Total %	3.9	7.6	1.3	-	12.8	46.1	0.0	-	46.1	41.1	0.0	-	41.1	-
Lights	587	1116	201	-	1904	6909	0	-	6909	6188	0	-	6188	15001
% Lights	97.3	94.9	98.5	-	96.0	96.6	-	-	96.6	97.1	-	-	97.1	96.7
Buses	2	14	2	-	18	76	0	-	76	51	0	-	51	145
% Buses	0.3	1.2	1.0	-	0.9	1.1	-	-	1.1	0.8	-	-	0.8	0.9
Trucks	14	46	1	-	61	168	0	-	168	137	0	-	137	366
% Trucks	2.3	3.9	0.5	-	3.1	2.3	-	-	2.3	2.1	-	-	2.1	2.4
Bicycles on Crosswalk	-	-	-	8	-	-	-	0	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	6.8	-	-	-	0.0	-	-	-	0.0	-	-
Pedestrians	-	-	-	109	-	-	-	2	-	-	-	17	-	-
% Pedestrians	-	-	-	93.2	-	-	-	100.0	-	-	-	100.0	-	-



Turning Movement Data Plot



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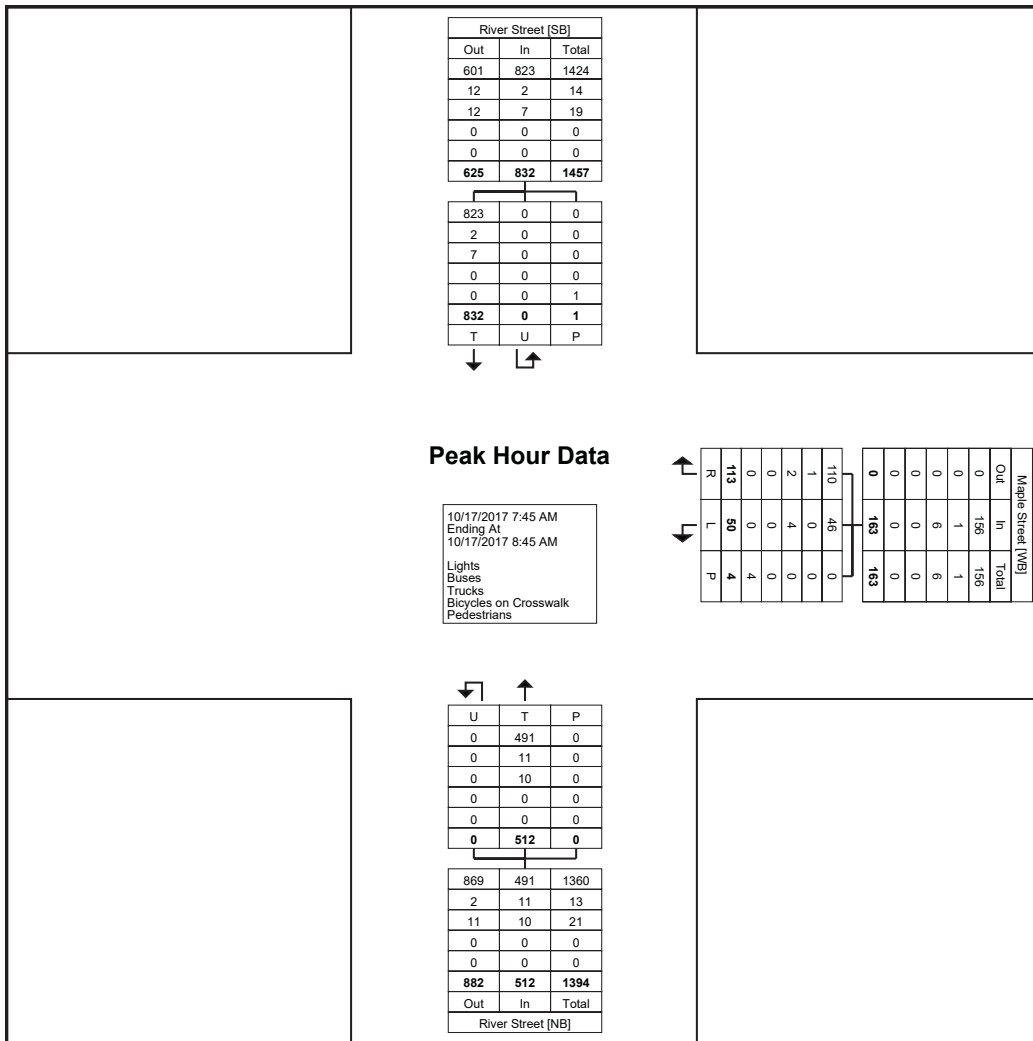
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Count Name: River St-Maple St
Site Code:
Start Date: 10/17/2017
Page No: 4

Wilk
River St & Maple St
Tuesday, October 17, 2017
Location: 41.257517, -
75.868533

Turning Movement Peak Hour Data (7:45 AM)

Start Time	Maple Street Westbound					River Street Northbound				River Street Southbound				Int. Total
	Left	Right	Right on Red	Peds	App. Total	Thru	U-Turn	Peds	App. Total	Thru	U-Turn	Peds	App. Total	
7:45 AM	12	23	8	0	43	143	0	0	143	215	0	1	215	401
8:00 AM	17	14	8	0	39	131	0	0	131	199	0	0	199	369
8:15 AM	12	23	7	1	42	112	0	0	112	212	0	0	212	366
8:30 AM	9	21	9	3	39	126	0	0	126	206	0	0	206	371
Total	50	81	32	4	163	512	0	0	512	832	0	1	832	1507
Approach %	30.7	49.7	19.6	-	-	100.0	0.0	-	-	100.0	0.0	-	-	-
Total %	3.3	5.4	2.1	-	10.8	34.0	0.0	-	34.0	55.2	0.0	-	55.2	-
PHF	0.735	0.880	0.889	-	0.948	0.895	0.000	-	0.895	0.967	0.000	-	0.967	0.940
Lights	46	78	32	-	156	491	0	-	491	823	0	-	823	1470
% Lights	92.0	96.3	100.0	-	95.7	95.9	-	-	95.9	98.9	-	-	98.9	97.5
Buses	0	1	0	-	1	11	0	-	11	2	0	-	2	14
% Buses	0.0	1.2	0.0	-	0.6	2.1	-	-	2.1	0.2	-	-	0.2	0.9
Trucks	4	2	0	-	6	10	0	-	10	7	0	-	7	23
% Trucks	8.0	2.5	0.0	-	3.7	2.0	-	-	2.0	0.8	-	-	0.8	1.5
Bicycles on Crosswalk	-	-	-	0	-	-	-	0	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	0.0	-	-	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	4	-	-	-	0	-	-	-	1	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	-	-	-	100.0	-	-



Turning Movement Peak Hour Data Plot (7:45 AM)



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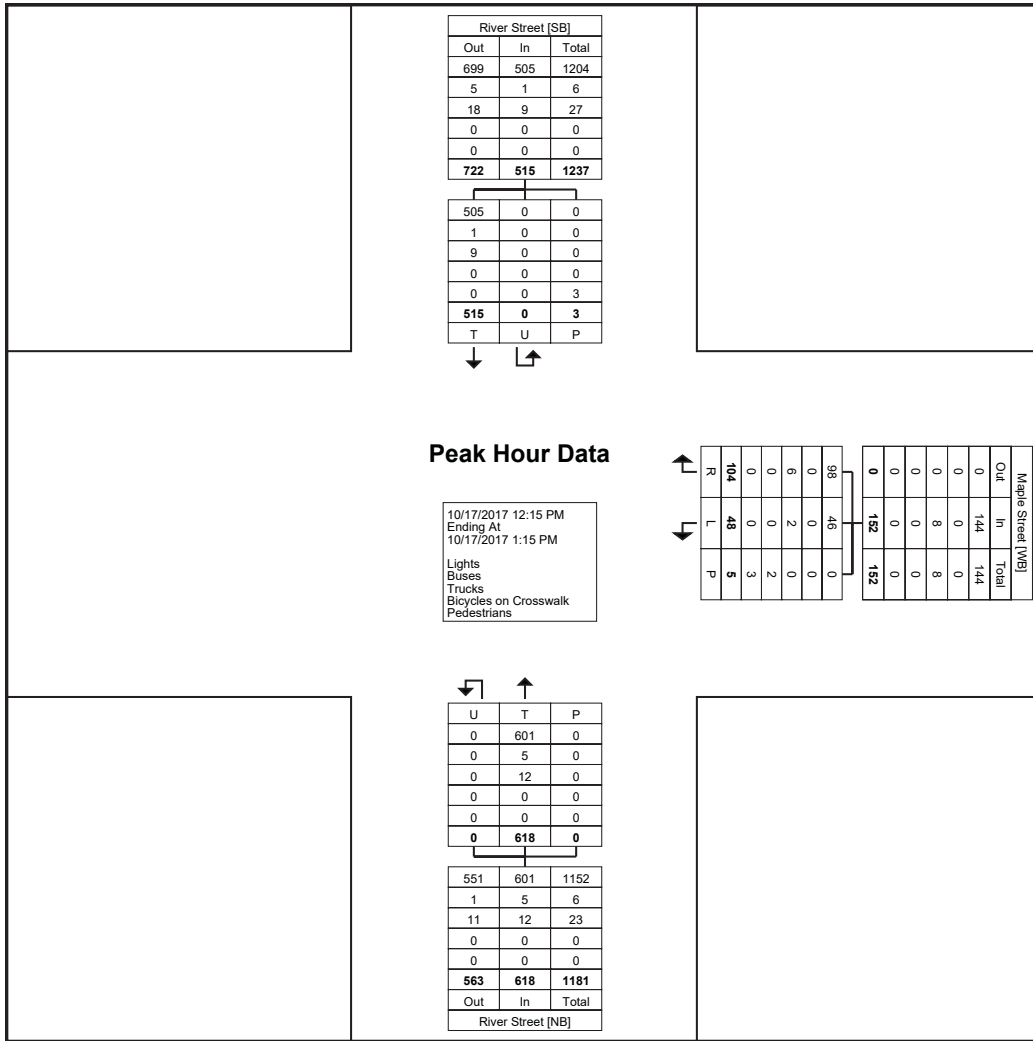
Wilk
River St & Maple St
Tuesday, October 17, 2017
Location: 41.257517, -
75.868533

Count Name: River St-Maple St
Site Code:
Start Date: 10/17/2017
Page No: 6

Turning Movement Peak Hour Data (12:15 PM)

Start Time	Maple Street Westbound					River Street Northbound				River Street Southbound				Int. Total
	Left	Right	Right on Red	Peds	App. Total	Thru	U-Turn	Peds	App. Total	Thru	U-Turn	Peds	App. Total	
12:15 PM	12	25	6	2	43	154	0	0	154	119	0	1	119	316
12:30 PM	8	14	3	1	25	137	0	0	137	136	0	0	136	298
12:45 PM	13	23	7	2	43	182	0	0	182	135	0	2	135	360
1:00 PM	15	23	3	0	41	145	0	0	145	125	0	0	125	311
Total	48	85	19	5	152	618	0	0	618	515	0	3	515	1285
Approach %	31.6	55.9	12.5	-	-	100.0	0.0	-	-	100.0	0.0	-	-	-
Total %	3.7	6.6	1.5	-	11.8	48.1	0.0	-	48.1	40.1	0.0	-	40.1	-
PHF	0.800	0.850	0.679	-	0.884	0.849	0.000	-	0.849	0.947	0.000	-	0.947	0.892
Lights	46	79	19	-	144	601	0	-	601	505	0	-	505	1250
% Lights	95.8	92.9	100.0	-	94.7	97.2	-	-	97.2	98.1	-	-	98.1	97.3
Buses	0	0	0	-	0	5	0	-	5	1	0	-	1	6
% Buses	0.0	0.0	0.0	-	0.0	0.8	-	-	0.8	0.2	-	-	0.2	0.5
Trucks	2	6	0	-	8	12	0	-	12	9	0	-	9	29
% Trucks	4.2	7.1	0.0	-	5.3	1.9	-	-	1.9	1.7	-	-	1.7	2.3
Bicycles on Crosswalk	-	-	-	2	-	-	-	0	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	40.0	-	-	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	3	-	-	-	0	-	-	-	3	-	-
% Pedestrians	-	-	-	60.0	-	-	-	-	-	-	-	100.0	-	-

Wilk
River St & Maple St
Tuesday, October 17, 2017
Location: 41.257517, -
75.868533



Turning Movement Peak Hour Data Plot (12:15 PM)

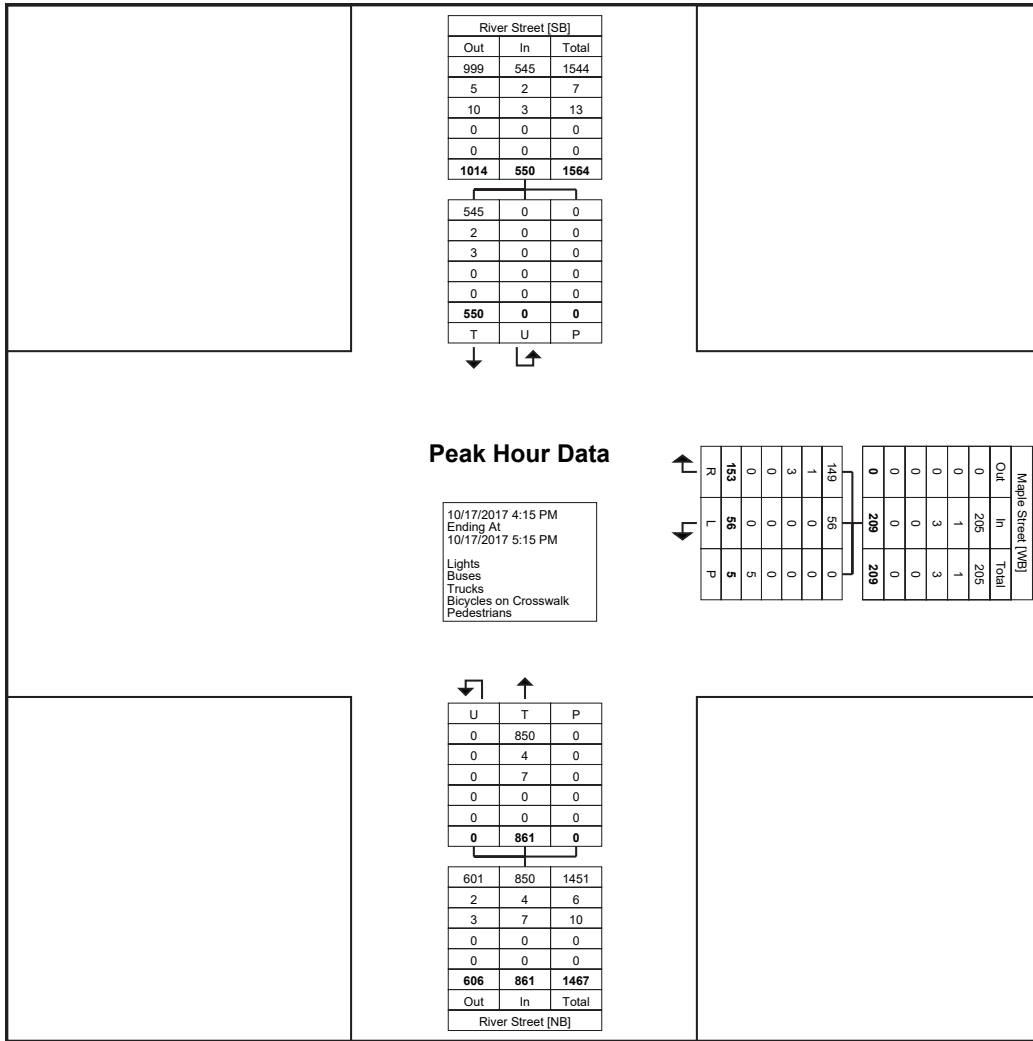
Wilk
River St & Maple St
Tuesday, October 17, 2017
Location: 41.257517, -
75.868533

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Count Name: River St-Maple St
Site Code:
Start Date: 10/17/2017
Page No: 8

Turning Movement Peak Hour Data (4:15 PM)

Start Time	Maple Street Westbound					River Street Northbound				River Street Southbound				Int. Total
	Left	Right	Right on Red	Peds	App. Total	Thru	U-Turn	Peds	App. Total	Thru	U-Turn	Peds	App. Total	
4:15 PM	13	25	4	3	42	225	0	0	225	127	0	0	127	394
4:30 PM	16	46	5	0	67	226	0	0	226	126	0	0	126	419
4:45 PM	9	27	6	1	42	209	0	0	209	147	0	0	147	398
5:00 PM	18	30	10	1	58	201	0	0	201	150	0	0	150	409
Total	56	128	25	5	209	861	0	0	861	550	0	0	550	1620
Approach %	26.8	61.2	12.0	-	-	100.0	0.0	-	-	100.0	0.0	-	-	-
Total %	3.5	7.9	1.5	-	12.9	53.1	0.0	-	53.1	34.0	0.0	-	34.0	-
PHF	0.778	0.696	0.625	-	0.780	0.952	0.000	-	0.952	0.917	0.000	-	0.917	0.967
Lights	56	124	25	-	205	850	0	-	850	545	0	-	545	1600
% Lights	100.0	96.9	100.0	-	98.1	98.7	-	-	98.7	99.1	-	-	99.1	98.8
Buses	0	1	0	-	1	4	0	-	4	2	0	-	2	7
% Buses	0.0	0.8	0.0	-	0.5	0.5	-	-	0.5	0.4	-	-	0.4	0.4
Trucks	0	3	0	-	3	7	0	-	7	3	0	-	3	13
% Trucks	0.0	2.3	0.0	-	1.4	0.8	-	-	0.8	0.5	-	-	0.5	0.8
Bicycles on Crosswalk	-	-	-	0	-	-	-	0	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	5	-	-	-	0	-	-	-	0	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-



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



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184 Baker Rd

Wilkes-Barre, PA
River St & Chestnut St
Thursday, October 19, 2017
Location: 41.25946, -75.867779

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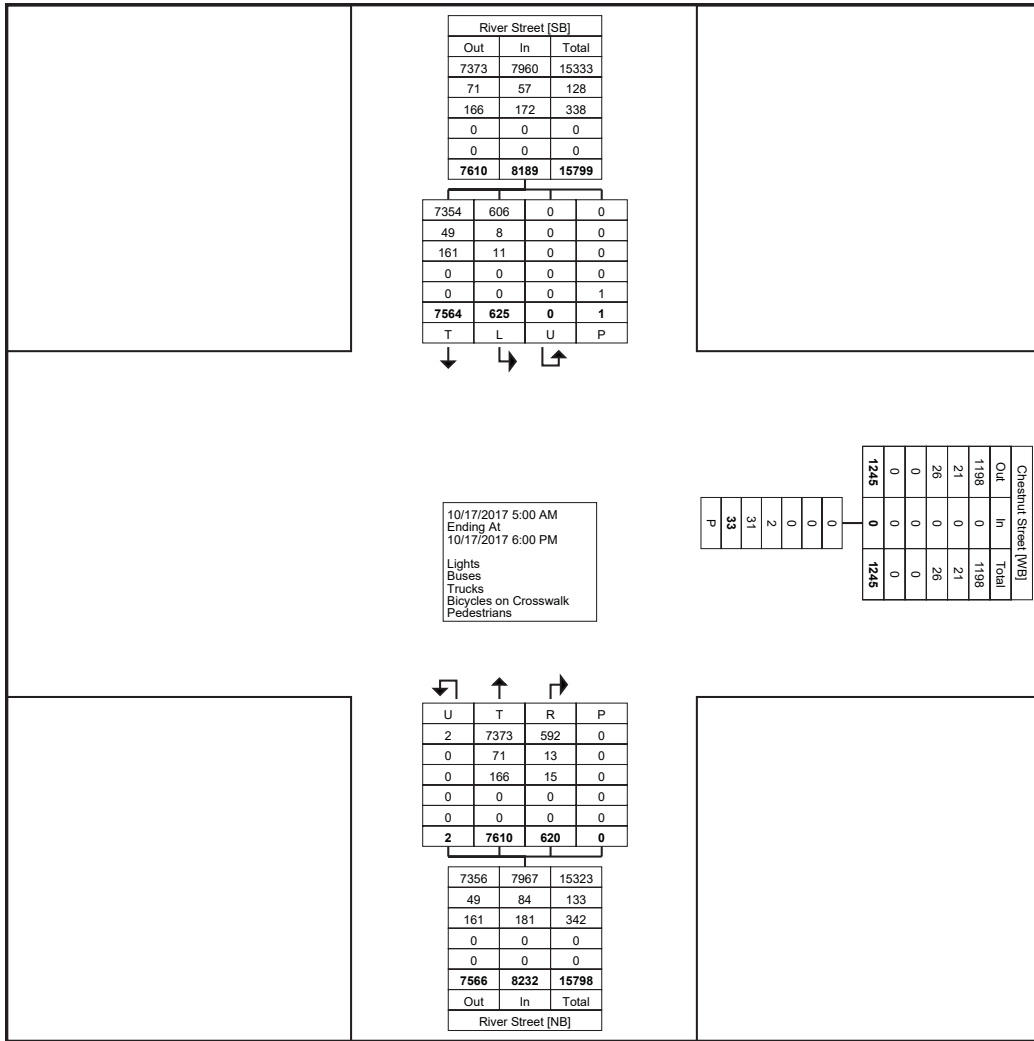
Count Name: River St-Chestnut St
Site Code:
Start Date: 10/17/2017
Page No: 1

Turning Movement Data

Start Time	Chestnut Street Westbound		River Street Northbound				River Street Southbound					Int. Total	
	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds		App. Total
5:00 AM	0	0	23	0	1	0	24	4	21	0	0	25	49
5:15 AM	0	0	37	0	0	0	37	3	29	0	0	32	69
5:30 AM	1	0	37	0	0	0	37	3	34	0	0	37	74
5:45 AM	1	0	56	0	0	0	56	12	68	0	0	80	136
Hourly Total	2	0	153	0	1	0	154	22	152	0	0	174	328
6:00 AM	0	0	41	5	0	0	46	10	52	0	1	62	108
6:15 AM	0	0	53	3	0	0	56	21	76	0	0	97	153
6:30 AM	0	0	86	6	0	0	92	28	118	0	0	146	238
6:45 AM	0	0	85	16	0	0	101	24	163	0	0	187	288
Hourly Total	0	0	265	30	0	0	295	83	409	0	1	492	787
7:00 AM	0	0	115	6	0	0	121	25	125	0	0	150	271
7:15 AM	0	0	112	9	0	0	121	21	185	0	0	206	327
7:30 AM	1	0	135	9	0	0	144	22	210	0	0	232	376
7:45 AM	0	0	144	18	0	0	162	34	261	0	0	295	457
Hourly Total	1	0	506	42	0	0	548	102	781	0	0	883	1431
8:00 AM	0	0	128	15	0	0	143	13	237	0	0	250	393
8:15 AM	0	0	114	12	0	0	126	19	246	0	0	265	391
8:30 AM	1	0	130	7	0	0	137	15	224	0	0	239	376
8:45 AM	2	0	115	11	0	0	126	13	245	0	0	258	384
Hourly Total	3	0	487	45	0	0	532	60	952	0	0	1012	1544
9:00 AM	1	0	117	15	0	0	132	10	177	0	0	187	319
9:15 AM	0	0	93	11	0	0	104	9	158	0	0	167	271
9:30 AM	3	0	113	9	0	0	122	14	136	0	0	150	272
9:45 AM	3	0	115	10	0	0	125	9	139	0	0	148	273
Hourly Total	7	0	438	45	0	0	483	42	610	0	0	652	1135
10:00 AM	1	0	107	14	0	0	121	6	124	0	0	130	251
10:15 AM	0	0	124	10	0	0	134	10	145	0	0	155	289
10:30 AM	0	0	138	10	0	0	148	14	161	0	0	175	323
10:45 AM	0	0	131	10	0	0	141	6	151	0	0	157	298
Hourly Total	1	0	500	44	0	0	544	36	581	0	0	617	1161
11:00 AM	0	0	140	14	0	0	154	10	153	0	0	163	317
11:15 AM	1	0	159	12	0	0	171	11	126	0	0	137	308
11:30 AM	0	0	143	12	0	0	155	9	110	0	0	119	274
11:45 AM	3	0	157	6	0	0	163	9	134	0	0	143	306
Hourly Total	4	0	599	44	0	0	643	39	523	0	0	562	1205
12:00 PM	0	0	152	13	0	0	165	14	149	0	0	163	328
12:15 PM	1	0	172	12	0	0	184	8	130	0	0	138	322
12:30 PM	2	0	145	14	0	0	159	15	161	0	0	176	335
12:45 PM	1	0	179	26	0	0	205	14	159	0	0	173	378
Hourly Total	4	0	648	65	0	0	713	51	599	0	0	650	1363
1:00 PM	0	0	152	14	0	0	166	13	140	0	0	153	319
1:15 PM	1	0	120	9	0	0	129	7	139	0	0	146	275
1:30 PM	2	0	146	12	0	0	158	10	148	0	0	158	316
1:45 PM	0	0	163	20	0	0	183	10	151	0	0	161	344
Hourly Total	3	0	581	55	0	0	636	40	578	0	0	618	1254
2:00 PM	2	0	164	17	0	0	181	6	144	0	0	150	331
2:15 PM	2	0	181	11	0	0	192	9	139	0	0	148	340
2:30 PM	0	0	206	17	0	0	223	11	181	0	0	192	415
2:45 PM	0	0	215	17	0	0	232	9	142	0	0	151	383
Hourly Total	4	0	766	62	0	0	828	35	606	0	0	641	1469
3:00 PM	0	0	236	15	1	0	252	3	114	0	0	117	369
3:15 PM	0	0	225	17	0	0	242	6	160	0	0	166	408
3:30 PM	0	0	208	11	0	0	219	12	140	0	0	152	371
3:45 PM	0	0	239	25	0	0	264	5	133	0	0	138	402
Hourly Total	0	0	908	68	1	0	977	26	547	0	0	573	1550
4:00 PM	1	0	244	17	0	0	261	10	160	0	0	170	431
4:15 PM	0	0	243	16	0	0	259	13	136	0	0	149	408
4:30 PM	0	0	274	14	0	0	288	13	156	0	0	169	457
4:45 PM	0	0	243	14	0	0	257	14	157	0	0	171	428
Hourly Total	1	0	1004	61	0	0	1065	50	609	0	0	659	1724
5:00 PM	1	0	236	19	0	0	255	16	162	0	0	178	433
5:15 PM	1	0	186	11	0	0	197	13	173	0	0	186	383

5:30 PM	0	0	171	16	0	0	187	3	129	0	0	132	319
5:45 PM	1	0	162	13	0	0	175	7	153	0	0	160	335
Hourly Total	3	0	755	59	0	0	814	39	617	0	0	656	1470
Grand Total	33	0	7610	620	2	0	8232	625	7564	0	1	8189	16421
Approach %	-	-	92.4	7.5	0.0	-	-	7.6	92.4	0.0	-	-	-
Total %	-	0.0	46.3	3.8	0.0	-	50.1	3.8	46.1	0.0	-	49.9	-
Lights	-	0	7373	592	2	-	7967	606	7354	0	-	7960	15927
% Lights	-	-	96.9	95.5	100.0	-	96.8	97.0	97.2	-	-	97.2	97.0
Buses	-	0	71	13	0	-	84	8	49	0	-	57	141
% Buses	-	-	0.9	2.1	0.0	-	1.0	1.3	0.6	-	-	0.7	0.9
Trucks	-	0	166	15	0	-	181	11	161	0	-	172	353
% Trucks	-	-	2.2	2.4	0.0	-	2.2	1.8	2.1	-	-	2.1	2.1
Bicycles on Crosswalk	2	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	6.1	-	-	-	-	-	-	-	-	-	0.0	-	-
Pedestrians	31	-	-	-	-	0	-	-	-	-	1	-	-
% Pedestrians	93.9	-	-	-	-	-	-	-	-	-	100.0	-	-

Wilkes-Barre, PA
River St & Chestnut St
Thursday, October 19, 2017
Location: 41.25946, -75.867779



Turning Movement Data Plot



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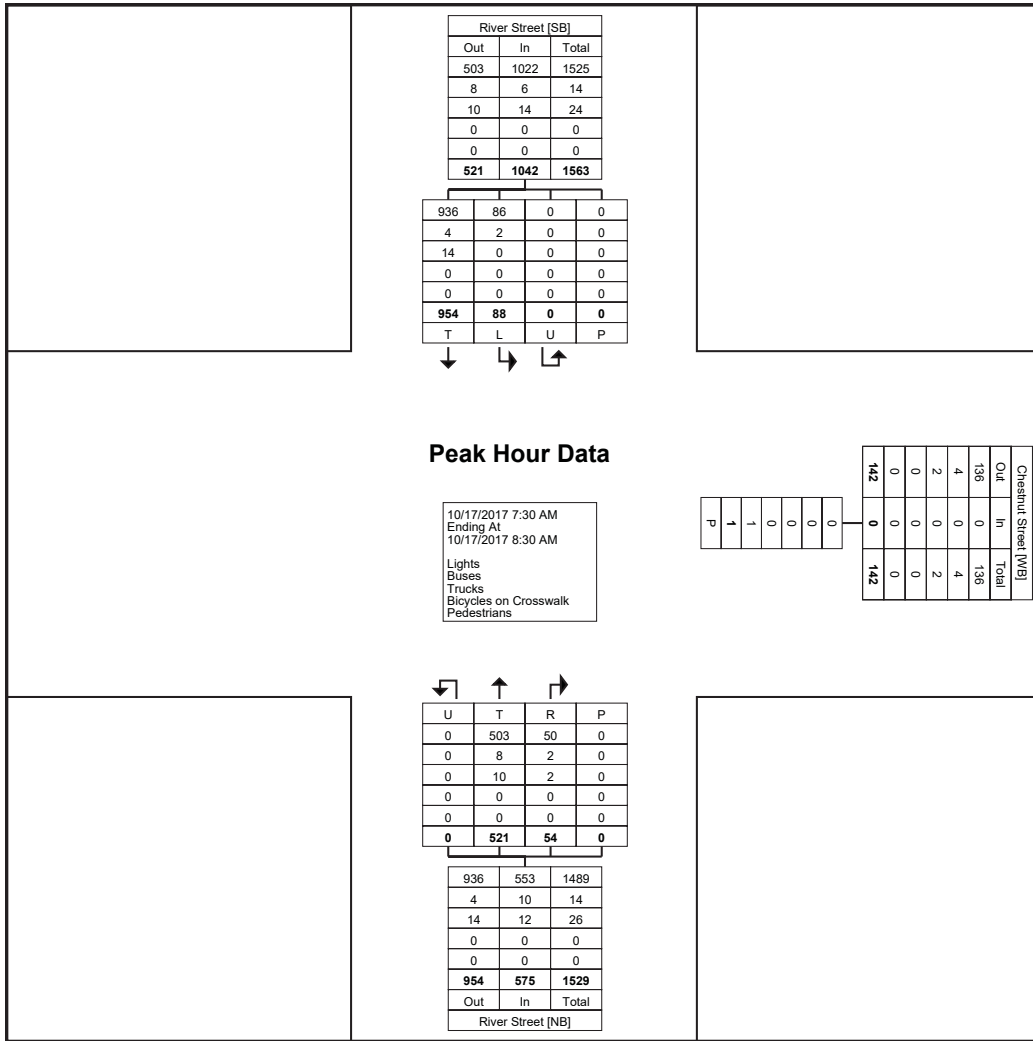
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Count Name: River St-Chestnut St
Site Code:
Start Date: 10/17/2017
Page No: 4

Wilkes-Barre, PA
River St & Chestnut St
Thursday, October 19, 2017
Location: 41.25946, -75.867779

Turning Movement Peak Hour Data (7:30 AM)

Start Time	Chestnut Street Westbound		River Street Northbound					River Street Southbound					Int. Total
	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	
7:30 AM	1	0	135	9	0	0	144	22	210	0	0	232	376
7:45 AM	0	0	144	18	0	0	162	34	261	0	0	295	457
8:00 AM	0	0	128	15	0	0	143	13	237	0	0	250	393
8:15 AM	0	0	114	12	0	0	126	19	246	0	0	265	391
Total	1	0	521	54	0	0	575	88	954	0	0	1042	1617
Approach %	-	-	90.6	9.4	0.0	-	-	8.4	91.6	0.0	-	-	-
Total %	-	0.0	32.2	3.3	0.0	-	35.6	5.4	59.0	0.0	-	64.4	-
PHF	-	0.000	0.905	0.750	0.000	-	0.887	0.647	0.914	0.000	-	0.883	0.885
Lights	-	0	503	50	0	-	553	86	936	0	-	1022	1575
% Lights	-	-	96.5	92.6	-	-	96.2	97.7	98.1	-	-	98.1	97.4
Buses	-	0	8	2	0	-	10	2	4	0	-	6	16
% Buses	-	-	1.5	3.7	-	-	1.7	2.3	0.4	-	-	0.6	1.0
Trucks	-	0	10	2	0	-	12	0	14	0	-	14	26
% Trucks	-	-	1.9	3.7	-	-	2.1	0.0	1.5	-	-	1.3	1.6
Bicycles on Crosswalk	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	0.0	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	1	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	100.0	-	-	-	-	-	-	-	-	-	-	-	-



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



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184 Baker Rd

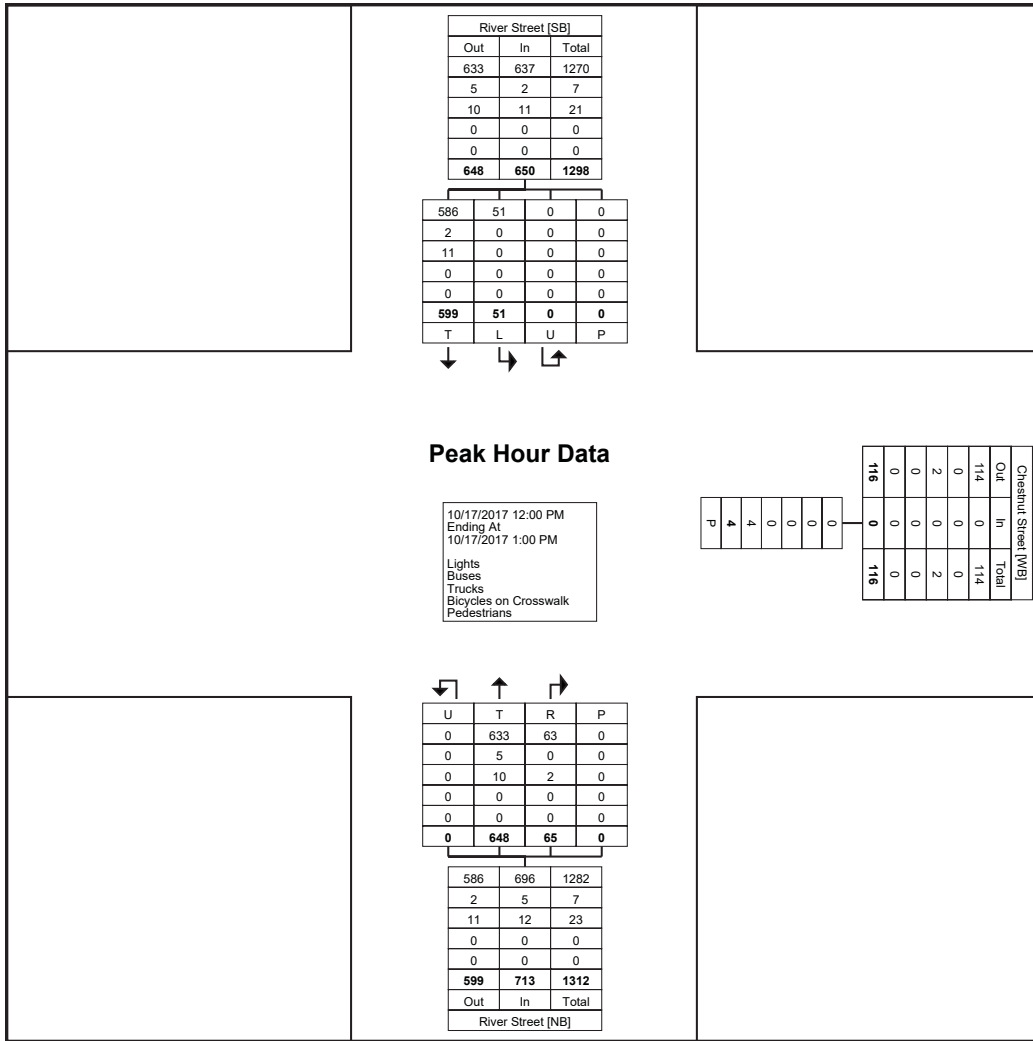
Coatesville, Pennsylvania, United States 19320
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Count Name: River St-Chestnut St
Site Code:
Start Date: 10/17/2017
Page No: 6

Wilkes-Barre, PA
River St & Chestnut St
Thursday, October 19, 2017
Location: 41.25946, -75.867779

Turning Movement Peak Hour Data (12:00 PM)

Start Time	Chestnut Street Westbound		River Street Northbound					River Street Southbound					Int. Total
	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	
12:00 PM	0	0	152	13	0	0	165	14	149	0	0	163	328
12:15 PM	1	0	172	12	0	0	184	8	130	0	0	138	322
12:30 PM	2	0	145	14	0	0	159	15	161	0	0	176	335
12:45 PM	1	0	179	26	0	0	205	14	159	0	0	173	378
Total	4	0	648	65	0	0	713	51	599	0	0	650	1363
Approach %	-	-	90.9	9.1	0.0	-	-	7.8	92.2	0.0	-	-	-
Total %	-	0.0	47.5	4.8	0.0	-	52.3	3.7	43.9	0.0	-	47.7	-
PHF	-	0.000	0.905	0.625	0.000	-	0.870	0.850	0.930	0.000	-	0.923	0.901
Lights	-	0	633	63	0	-	696	51	586	0	-	637	1333
% Lights	-	-	97.7	96.9	-	-	97.6	100.0	97.8	-	-	98.0	97.8
Buses	-	0	5	0	0	-	5	0	2	0	-	2	7
% Buses	-	-	0.8	0.0	-	-	0.7	0.0	0.3	-	-	0.3	0.5
Trucks	-	0	10	2	0	-	12	0	11	0	-	11	23
% Trucks	-	-	1.5	3.1	-	-	1.7	0.0	1.8	-	-	1.7	1.7
Bicycles on Crosswalk	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	0.0	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	4	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	100.0	-	-	-	-	-	-	-	-	-	-	-	-



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



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184 Baker Rd

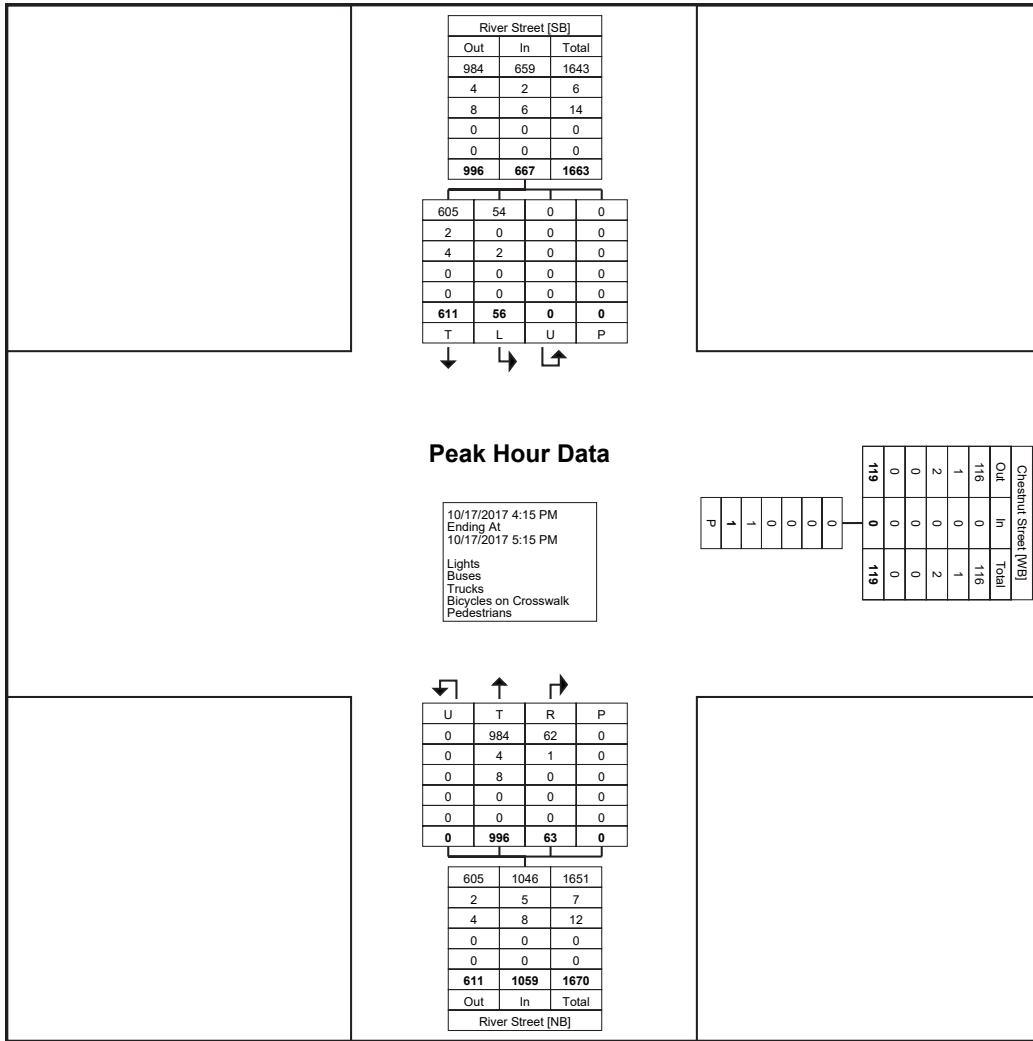
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Count Name: River St-Chestnut St
Site Code:
Start Date: 10/17/2017
Page No: 8

Wilkes-Barre, PA
River St & Chestnut St
Thursday, October 19, 2017
Location: 41.25946, -75.867779

Turning Movement Peak Hour Data (4:15 PM)

Start Time	Chestnut Street Westbound		River Street Northbound					River Street Southbound					Int. Total
	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	
4:15 PM	0	0	243	16	0	0	259	13	136	0	0	149	408
4:30 PM	0	0	274	14	0	0	288	13	156	0	0	169	457
4:45 PM	0	0	243	14	0	0	257	14	157	0	0	171	428
5:00 PM	1	0	236	19	0	0	255	16	162	0	0	178	433
Total	1	0	996	63	0	0	1059	56	611	0	0	667	1726
Approach %	-	-	94.1	5.9	0.0	-	-	8.4	91.6	0.0	-	-	-
Total %	-	0.0	57.7	3.7	0.0	-	61.4	3.2	35.4	0.0	-	38.6	-
PHF	-	0.000	0.909	0.829	0.000	-	0.919	0.875	0.943	0.000	-	0.937	0.944
Lights	-	0	984	62	0	-	1046	54	605	0	-	659	1705
% Lights	-	-	98.8	98.4	-	-	98.8	96.4	99.0	-	-	98.8	98.8
Buses	-	0	4	1	0	-	5	0	2	0	-	2	7
% Buses	-	-	0.4	1.6	-	-	0.5	0.0	0.3	-	-	0.3	0.4
Trucks	-	0	8	0	0	-	8	2	4	0	-	6	14
% Trucks	-	-	0.8	0.0	-	-	0.8	3.6	0.7	-	-	0.9	0.8
Bicycles on Crosswalk	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	0.0	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	1	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	100.0	-	-	-	-	-	-	-	-	-	-	-	-



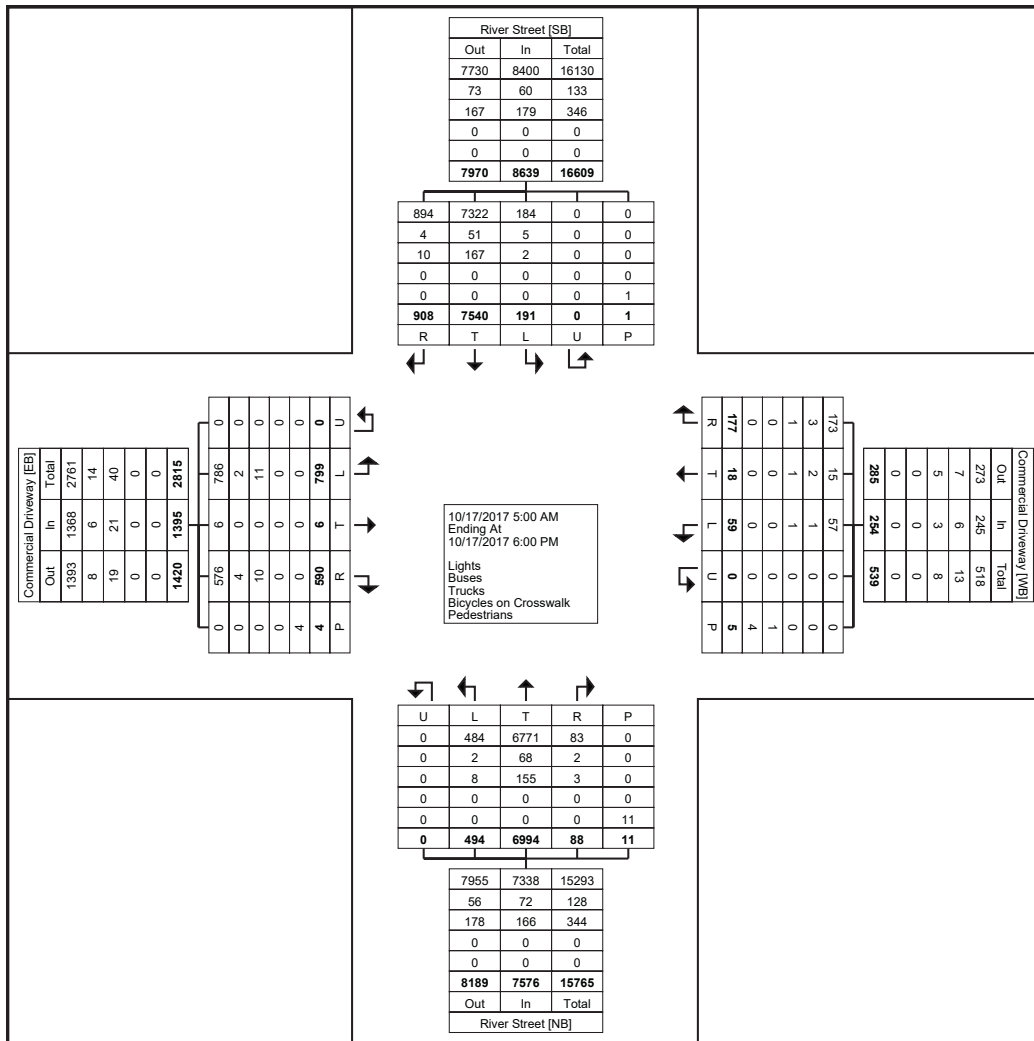
Turning Movement Peak Hour Data Plot (4:15 PM)

5:00 PM	32	1	21	1	0	0	55	0	0	3	4	0	0	7	10	221	0	0	0	1	231	3	149	6	0	0	0	158	451
5:15 PM	27	1	7	7	0	0	42	0	0	1	0	0	0	1	9	182	1	0	0	0	192	0	172	9	1	0	1	182	417
5:30 PM	7	0	3	3	0	0	13	0	0	1	1	0	0	2	11	161	0	0	0	0	172	1	133	14	0	0	0	148	335
5:45 PM	15	0	3	8	0	0	26	0	0	0	2	0	0	2	6	153	1	0	0	0	160	4	146	12	0	0	0	162	350
Hourly Total	81	2	34	19	0	0	136	0	0	5	7	0	0	12	36	717	2	0	0	1	755	8	600	41	1	0	1	650	1553
Grand Total	799	6	254	336	0	4	1395	59	18	75	102	0	5	254	494	6994	87	1	0	11	7576	191	7540	874	34	0	1	8639	17864
Approach %	57.3	0.4	18.2	24.1	0.0	-	-	23.2	7.1	29.5	40.2	0.0	-	-	6.5	92.3	1.1	0.0	0.0	-	-	2.2	87.3	10.1	0.4	0.0	-	-	-
Total %	4.5	0.0	1.4	1.9	0.0	-	7.8	0.3	0.1	0.4	0.6	0.0	-	1.4	2.8	39.2	0.5	0.0	0.0	-	42.4	1.1	42.2	4.9	0.2	0.0	-	48.4	-
Lights	786	6	247	329	0	-	1368	57	15	75	98	0	-	245	484	6771	82	1	0	-	7338	184	7322	861	33	0	-	8400	17351
% Lights	98.4	100.0	97.2	97.9	-	-	98.1	96.6	83.3	100.0	96.1	-	-	96.5	98.0	96.8	94.3	100.0	-	-	96.9	96.3	97.1	98.5	97.1	-	-	97.2	97.1
Buses	2	0	1	3	0	-	6	1	2	0	3	0	-	6	2	68	2	0	0	-	72	5	51	3	1	0	-	60	144
% Buses	0.3	0.0	0.4	0.9	-	-	0.4	1.7	11.1	0.0	2.9	-	-	2.4	0.4	1.0	2.3	0.0	-	-	1.0	2.6	0.7	0.3	2.9	-	-	0.7	0.8
Trucks	11	0	6	4	0	-	21	1	1	0	1	0	-	3	8	155	3	0	0	-	166	2	167	10	0	0	-	179	369
% Trucks	1.4	0.0	2.4	1.2	-	-	1.5	1.7	5.6	0.0	1.0	-	-	1.2	1.6	2.2	3.4	0.0	-	-	2.2	1.0	2.2	1.1	0.0	-	-	2.1	2.1
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	-	1	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	0.0	-	-	-	-	-	-	20.0	-	-	-	-	-	-	0.0	-	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	-	4	-	-	-	-	-	-	4	-	-	-	-	-	-	11	-	-	-	-	-	-	1	-	-
% Pedestrians	-	-	-	-	-	100.0	-	-	-	-	-	-	80.0	-	-	-	-	-	-	100.0	-	-	-	-	-	-	100.0	-	-

Wilkes-Barre, PA
River St & Commercial
Driveways
Tuesday, October 17, 2017
Location: 41.261668, -
75.867183

Coatesville, Pennsylvania, United States 19320
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Count Name: River St-
Commercial Dwys
Site Code:
Start Date: 10/17/2017
Page No: 3



Turning Movement Data Plot



Wilkes-Barre, PA
 River St & Commercial
 Driveways
 Tuesday, October 17, 2017
 Location: 41.261668, -
 75.867183

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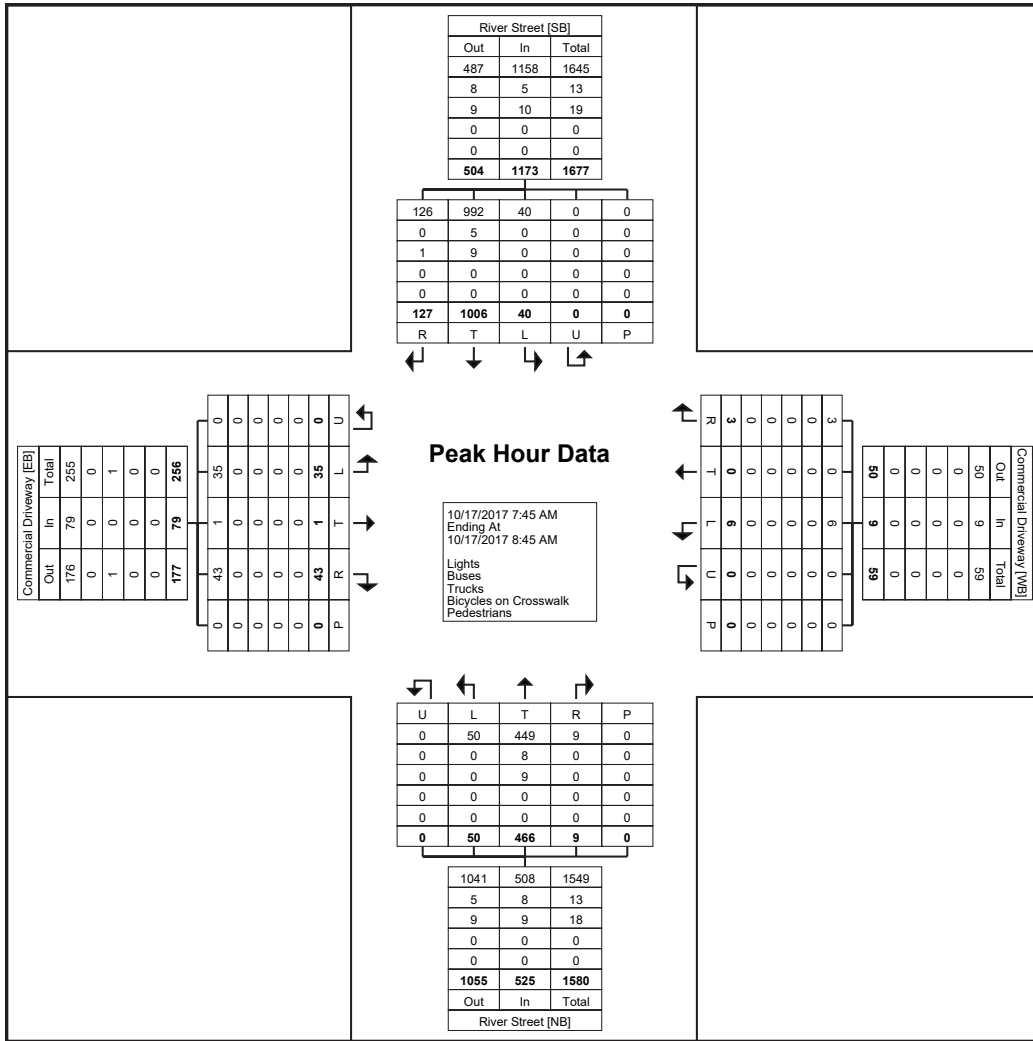
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Count Name: River St-
 Commercial Dwys
 Site Code:
 Start Date: 10/17/2017
 Page No: 4

Turning Movement Peak Hour Data (7:45 AM)

Start Time	Commercial Driveway Eastbound							Commercial Driveway Westbound							River Street Northbound							River Street Southbound							Int. Total
	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	
7:45 AM	7	0	2	8	0	0	17	1	0	0	0	0	0	1	13	131	4	0	0	0	148	7	279	36	0	0	0	322	488
8:00 AM	6	1	1	7	0	0	15	2	0	1	0	0	0	3	8	120	2	0	0	130	14	242	36	0	0	0	292	440	
8:15 AM	9	0	3	10	0	0	22	2	0	0	0	0	0	2	16	96	3	0	0	115	10	256	25	0	0	0	291	430	
8:30 AM	13	0	3	9	0	0	25	1	0	1	1	0	0	3	13	119	0	0	0	132	9	229	28	2	0	0	268	428	
Total	35	1	9	34	0	0	79	6	0	2	1	0	0	9	50	466	9	0	0	525	40	1006	125	2	0	0	1173	1786	
Approach %	44.3	1.3	11.4	43.0	0.0	-	-	66.7	0.0	22.2	11.1	0.0	-	-	9.5	88.8	1.7	0.0	0.0	-	-	3.4	85.8	10.7	0.2	0.0	-	-	-
Total %	2.0	0.1	0.5	1.9	0.0	-	4.4	0.3	0.0	0.1	0.1	0.0	-	0.5	2.8	26.1	0.5	0.0	0.0	-	29.4	2.2	56.3	7.0	0.1	0.0	-	65.7	-
PHF	0.673	0.250	0.750	0.850	0.000	-	0.790	0.750	0.000	0.500	0.250	0.000	-	0.750	0.781	0.889	0.563	0.000	0.000	-	0.887	0.714	0.901	0.868	0.250	0.000	-	0.911	0.915
Lights	35	1	9	34	0	-	79	6	0	2	1	0	-	9	50	449	9	0	0	-	508	40	992	124	2	0	-	1158	1754
% Lights	100.0	100.0	100.0	100.0	-	-	100.0	100.0	-	100.0	100.0	-	-	100.0	100.0	96.4	100.0	-	-	-	96.8	100.0	98.6	99.2	100.0	-	-	98.7	98.2
Buses	0	0	0	0	0	-	0	0	0	0	0	0	-	0	0	8	0	0	0	-	8	0	5	0	0	0	-	5	13
% Buses	0.0	0.0	0.0	0.0	-	-	0.0	0.0	-	0.0	0.0	-	-	0.0	0.0	1.7	0.0	-	-	-	1.5	0.0	0.5	0.0	0.0	-	-	0.4	0.7
Trucks	0	0	0	0	0	-	0	0	0	0	0	0	-	0	0	9	0	0	0	-	9	0	9	1	0	0	-	10	19
% Trucks	0.0	0.0	0.0	0.0	-	-	0.0	0.0	-	0.0	0.0	-	-	0.0	0.0	1.9	0.0	-	-	-	1.7	0.0	0.9	0.8	0.0	-	-	0.9	1.1
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Wilkes-Barre, PA
River St & Commercial
Driveways
Tuesday, October 17, 2017
Location: 41.261668, -
75.867183



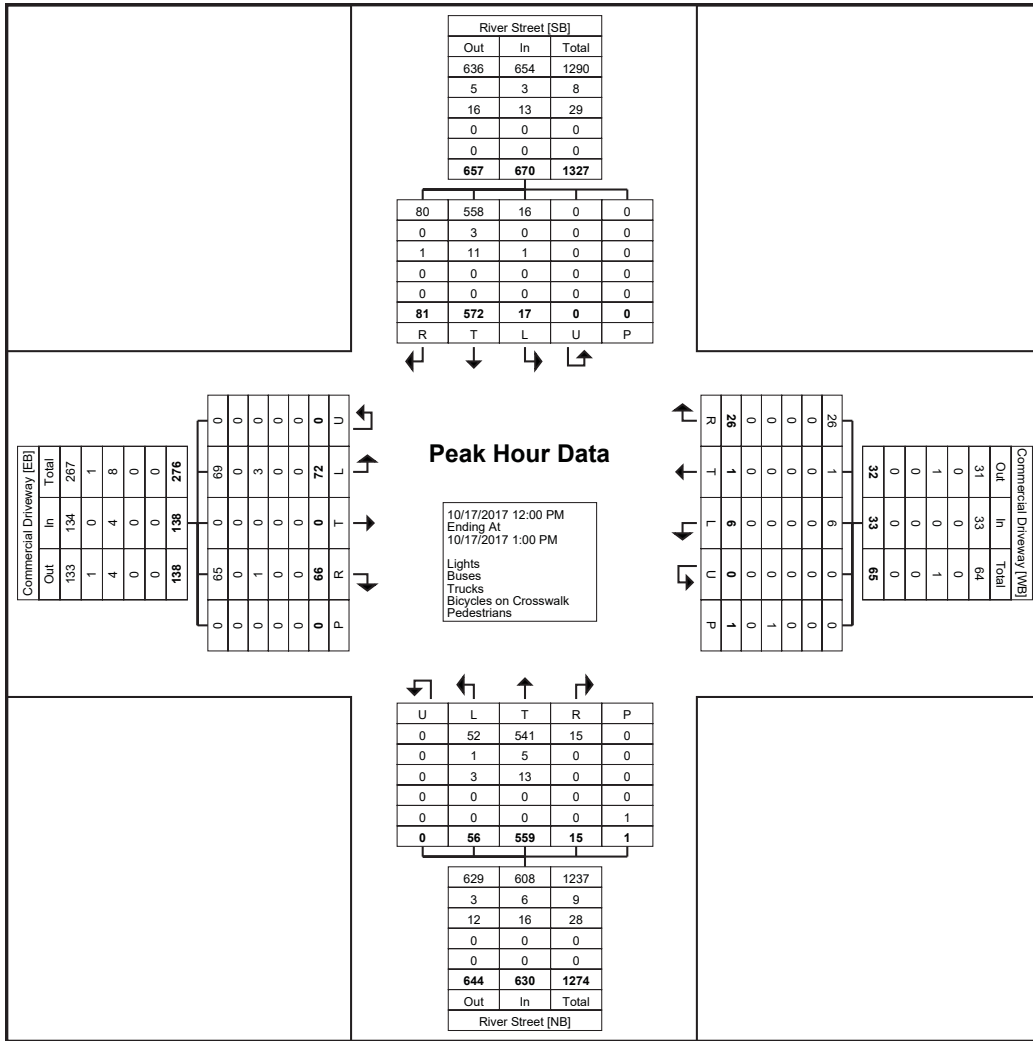
Turning Movement Peak Hour Data Plot (7:45 AM)

Wilkes-Barre, PA
River St & Commercial
Driveways
Tuesday, October 17, 2017
Location: 41.261668, -
75.867183

Turning Movement Peak Hour Data (12:00 PM)

Start Time	Commercial Driveway Eastbound							Commercial Driveway Westbound							River Street Northbound							River Street Southbound							Int. Total
	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	
12:00 PM	28	0	7	10	0	0	45	1	1	2	5	0	0	9	20	127	2	0	0	0	149	3	146	14	0	0	0	163	366
12:15 PM	19	0	11	9	0	0	39	2	0	5	2	0	0	9	16	146	5	0	0	0	167	3	114	20	0	0	0	137	352
12:30 PM	10	0	6	14	0	0	30	2	0	4	3	0	0	9	7	139	1	0	0	1	147	8	153	21	0	0	0	182	368
12:45 PM	15	0	4	5	0	0	24	1	0	2	3	0	1	6	13	147	7	0	0	0	167	3	159	26	0	0	0	188	385
Total	72	0	28	38	0	0	138	6	1	13	13	0	1	33	56	559	15	0	0	1	630	17	572	81	0	0	0	670	1471
Approach %	52.2	0.0	20.3	27.5	0.0	-	-	18.2	3.0	39.4	39.4	0.0	-	-	8.9	88.7	2.4	0.0	0.0	-	-	2.5	85.4	12.1	0.0	0.0	-	-	-
Total %	4.9	0.0	1.9	2.6	0.0	-	9.4	0.4	0.1	0.9	0.9	0.0	-	2.2	3.8	38.0	1.0	0.0	0.0	-	42.8	1.2	38.9	5.5	0.0	0.0	-	45.5	-
PHF	0.643	0.000	0.636	0.679	0.000	-	0.767	0.750	0.250	0.650	0.650	0.000	-	0.917	0.700	0.951	0.536	0.000	0.000	-	0.943	0.531	0.899	0.779	0.000	0.000	-	0.891	0.955
Lights	69	0	27	38	0	-	134	6	1	13	13	0	-	33	52	541	15	0	0	-	608	16	558	80	0	0	-	654	1429
% Lights	95.8	-	96.4	100.0	-	-	97.1	100.0	100.0	100.0	100.0	-	-	100.0	92.9	96.8	100.0	-	-	-	96.5	94.1	97.6	98.8	-	-	-	97.6	97.1
Buses	0	0	0	0	0	-	0	0	0	0	0	0	-	0	1	5	0	0	0	-	6	0	3	0	0	0	-	3	9
% Buses	0.0	-	0.0	0.0	-	-	0.0	0.0	0.0	0.0	0.0	-	-	0.0	1.8	0.9	0.0	-	-	-	1.0	0.0	0.5	0.0	-	-	-	0.4	0.6
Trucks	3	0	1	0	0	-	4	0	0	0	0	0	-	0	3	13	0	0	0	-	16	1	11	1	0	0	-	13	33
% Trucks	4.2	-	3.6	0.0	-	-	2.9	0.0	0.0	0.0	0.0	-	-	0.0	5.4	2.3	0.0	-	-	-	2.5	5.9	1.9	1.2	-	-	-	1.9	2.2
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	-	1	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	1	-	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	0.0	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-

Wilkes-Barre, PA
River St & Commercial
Driveways
Tuesday, October 17, 2017
Location: 41.261668, -
75.867183



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



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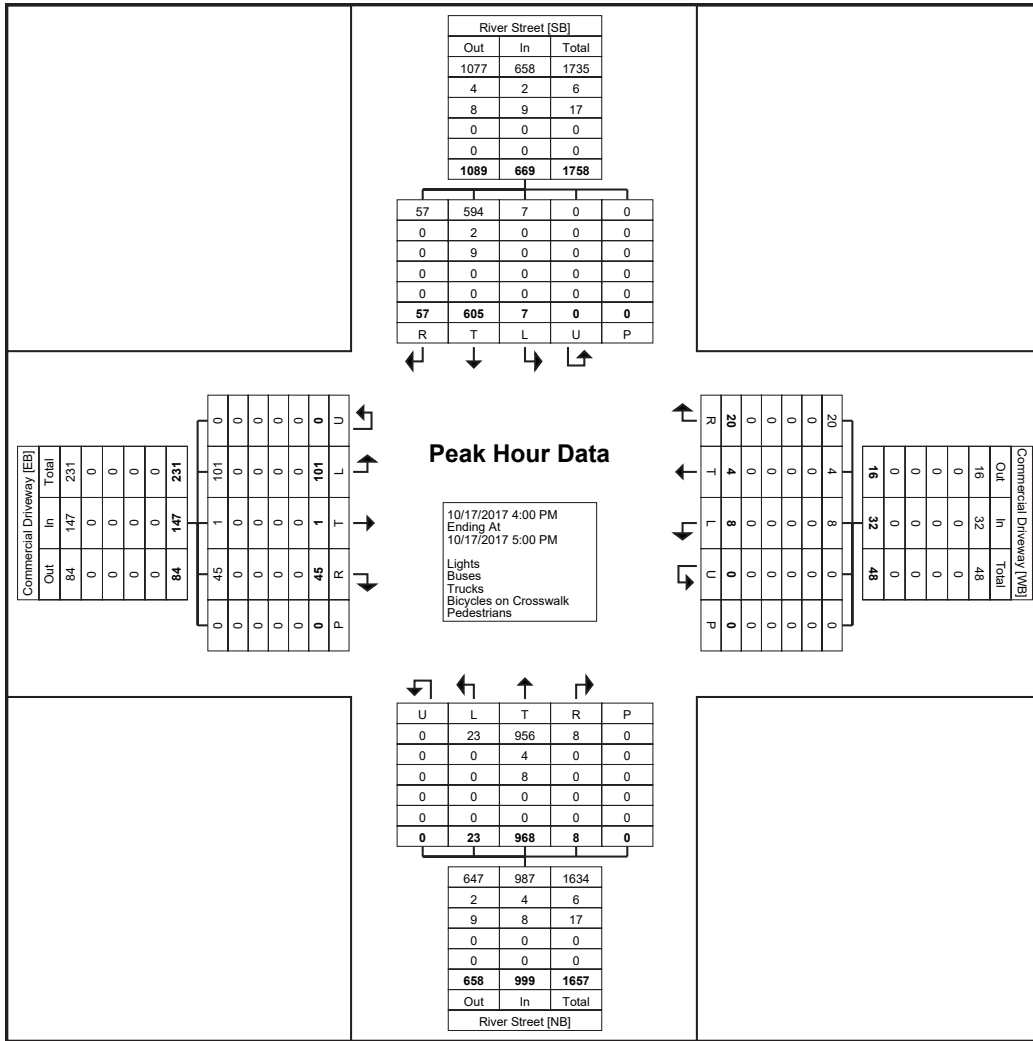
Count Name: River St-
Commercial Dwys
Site Code:
Start Date: 10/17/2017
Page No: 8

Wilkes-Barre, PA
River St & Commercial
Driveways
Tuesday, October 17, 2017
Location: 41.261668, -
75.867183

Turning Movement Peak Hour Data (4:00 PM)

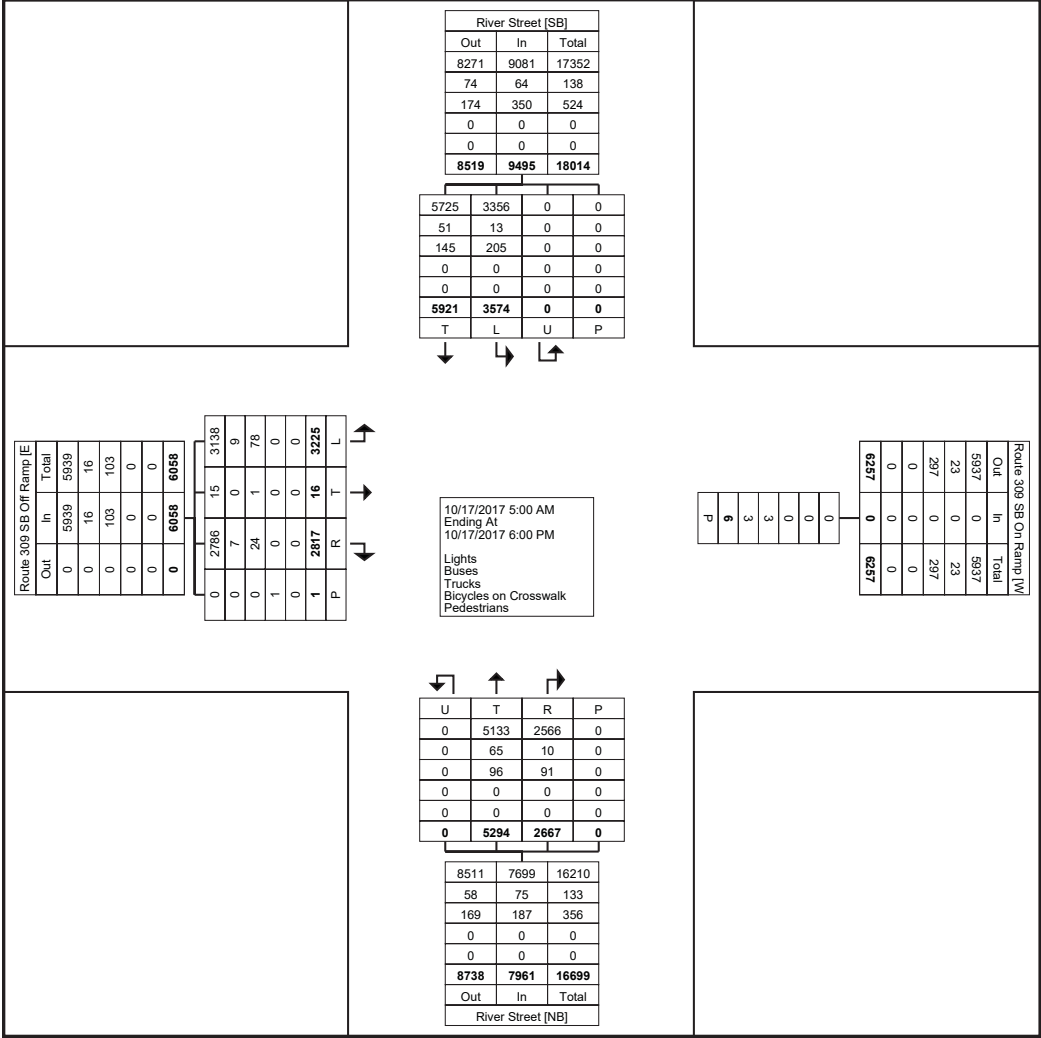
Start Time	Commercial Driveway Eastbound							Commercial Driveway Westbound							River Street Northbound							River Street Southbound							Int. Total
	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	Right	Right on Red	U-Turn	Peds	App. Total	
4:00 PM	37	0	5	7	0	0	49	5	0	4	4	0	0	13	10	229	2	0	0	0	241	0	148	11	2	0	0	161	464
4:15 PM	28	0	11	0	0	0	39	1	1	1	4	0	0	7	1	234	2	0	0	0	237	1	143	9	1	0	0	154	437
4:30 PM	23	1	8	2	0	0	34	1	1	0	3	0	0	5	8	267	2	0	0	0	277	0	153	10	3	0	0	166	482
4:45 PM	13	0	7	5	0	0	25	1	2	3	1	0	0	7	4	238	2	0	0	0	244	6	161	21	0	0	0	188	464
Total	101	1	31	14	0	0	147	8	4	8	12	0	0	32	23	968	8	0	0	0	999	7	605	51	6	0	0	669	1847
Approach %	68.7	0.7	21.1	9.5	0.0	-	-	25.0	12.5	25.0	37.5	0.0	-	-	2.3	96.9	0.8	0.0	0.0	-	-	1.0	90.4	7.6	0.9	0.0	-	-	-
Total %	5.5	0.1	1.7	0.8	0.0	-	8.0	0.4	0.2	0.4	0.6	0.0	-	1.7	1.2	52.4	0.4	0.0	0.0	-	54.1	0.4	32.8	2.8	0.3	0.0	-	36.2	-
PHF	0.682	0.250	0.705	0.500	0.000	-	0.750	0.400	0.500	0.500	0.750	0.000	-	0.615	0.575	0.906	1.000	0.000	0.000	-	0.902	0.292	0.939	0.607	0.500	0.000	-	0.890	0.958
Lights	101	1	31	14	0	-	147	8	4	8	12	0	-	32	23	956	8	0	0	-	987	7	594	51	6	0	-	658	1824
% Lights	100.0	100.0	100.0	100.0	-	-	100.0	100.0	100.0	100.0	100.0	-	-	100.0	100.0	98.8	100.0	-	-	-	98.8	100.0	98.2	100.0	100.0	-	-	98.4	98.8
Buses	0	0	0	0	0	-	0	0	0	0	0	0	-	0	0	4	0	0	0	-	4	0	2	0	0	0	-	2	6
% Buses	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.4	0.0	-	-	-	0.4	0.0	0.3	0.0	0.0	-	-	0.3	0.3
Trucks	0	0	0	0	0	-	0	0	0	0	0	0	-	0	0	8	0	0	0	-	8	0	9	0	0	0	-	9	17
% Trucks	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.8	0.0	-	-	-	0.8	0.0	1.5	0.0	0.0	-	-	1.3	0.9
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Wilkes-Barre, PA
River St & Commercial
Driveways
Tuesday, October 17, 2017
Location: 41.261668, -
75.867183



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

5:00 PM	78	1	41	0	120	0	0	168	28	49	0	0	245	67	120	0	0	187	552
5:15 PM	78	0	52	1	130	0	0	175	38	28	0	0	241	82	124	0	0	206	577
5:30 PM	82	1	38	0	121	0	0	121	22	28	0	0	171	52	108	0	0	160	452
5:45 PM	72	2	40	0	114	0	0	123	25	29	0	0	177	83	124	0	0	207	498
Hourly Total	310	4	171	1	485	0	0	587	113	134	0	0	834	284	476	0	0	760	2079
Grand Total	3225	16	2817	1	6058	6	0	5294	1209	1458	0	0	7961	3574	5921	0	0	9495	23514
Approach %	53.2	0.3	46.5	-	-	-	-	66.5	15.2	18.3	0.0	-	-	37.6	62.4	0.0	-	-	-
Total %	13.7	0.1	12.0	-	25.8	-	0.0	22.5	5.1	6.2	0.0	-	33.9	15.2	25.2	0.0	-	40.4	-
Lights	3138	15	2786	-	5939	-	0	5133	1158	1408	0	-	7699	3356	5725	0	-	9081	22719
% Lights	97.3	93.8	98.9	-	98.0	-	-	97.0	95.8	96.6	-	-	96.7	93.9	96.7	-	-	95.6	96.6
Buses	9	0	7	-	16	-	0	65	5	5	0	-	75	13	51	0	-	64	155
% Buses	0.3	0.0	0.2	-	0.3	-	-	1.2	0.4	0.3	-	-	0.9	0.4	0.9	-	-	0.7	0.7
Trucks	78	1	24	-	103	-	0	96	46	45	0	-	187	205	145	0	-	350	640
% Trucks	2.4	6.3	0.9	-	1.7	-	-	1.8	3.8	3.1	-	-	2.3	5.7	2.4	-	-	3.7	2.7
Bicycles on Crosswalk	-	-	-	1	-	3	-	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	100.0	-	50.0	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	3	-	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	0.0	-	50.0	-	-	-	-	-	-	-	-	-	-	-	-	-



Turning Movement Data Plot



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184 Baker Rd

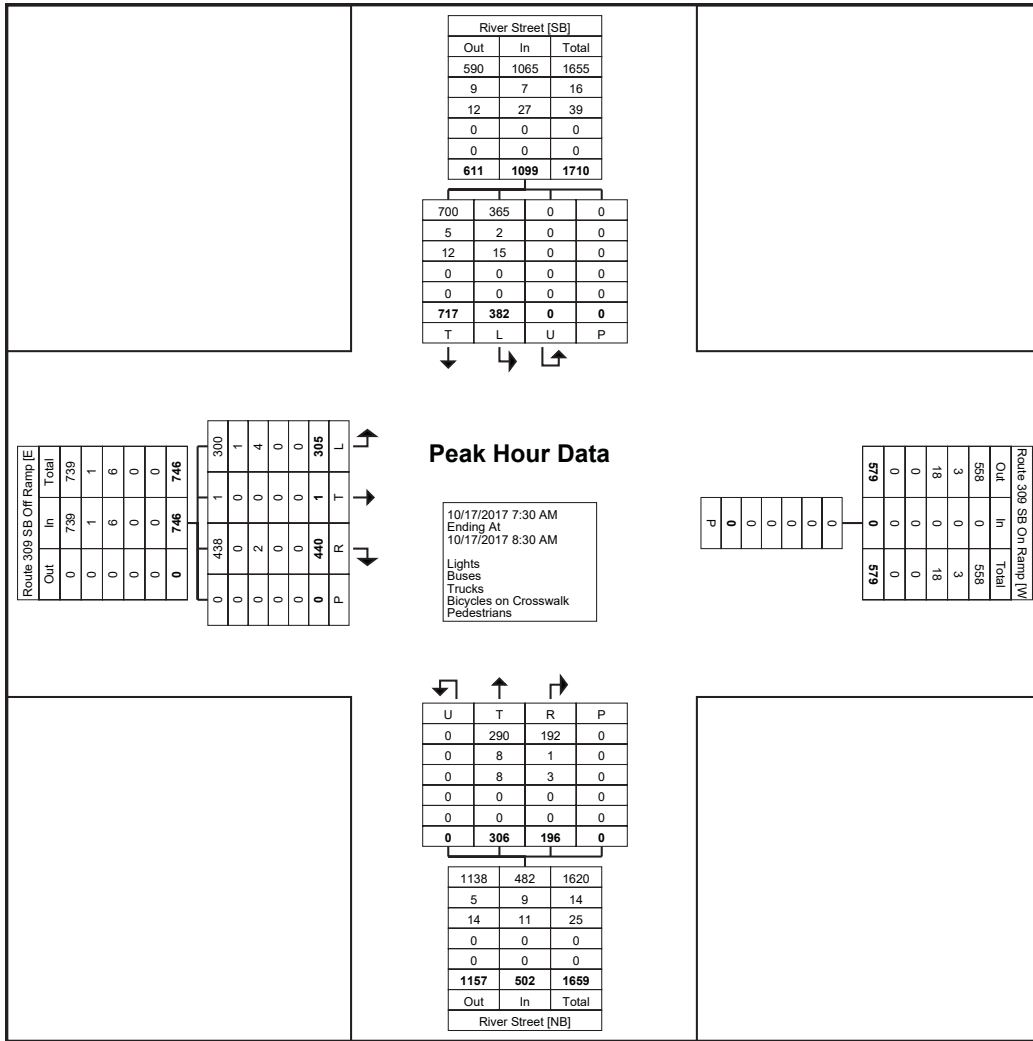
Coatesville, Pennsylvania, United States 19320
610-466-1469
Serving Transportation Professionals Since 1995

Count Name: River St-Rt 309
SB Ramps
Site Code:
Start Date: 10/17/2017
Page No: 4

Wilkes-Barre, PA
River St & Rt 309 SB Ramps
Tuesday, October 17, 2017
Location: 41.266004, -
75.864617

Turning Movement Peak Hour Data (7:30 AM)

Start Time	Route 309 SB Off Ramp					Route 309 SB On Ramp		River Street						River Street					Int. Total
	Eastbound					Westbound		Northbound						Southbound					
	Left	Thru	Right	Peds	App. Total	Peds	App. Total	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	
7:30 AM	72	0	84	0	156	0	0	65	23	41	0	0	129	102	170	0	0	272	557
7:45 AM	76	0	143	0	219	0	0	85	19	36	0	0	140	99	191	0	0	290	649
8:00 AM	75	1	88	0	164	0	0	82	23	19	0	0	124	87	195	0	0	282	570
8:15 AM	82	0	125	0	207	0	0	74	19	16	0	0	109	94	161	0	0	255	571
Total	305	1	440	0	746	0	0	306	84	112	0	0	502	382	717	0	0	1099	2347
Approach %	40.9	0.1	59.0	-	-	-	-	61.0	16.7	22.3	0.0	-	-	34.8	65.2	0.0	-	-	-
Total %	13.0	0.0	18.7	-	31.8	-	0.0	13.0	3.6	4.8	0.0	-	21.4	16.3	30.5	0.0	-	46.8	-
PHF	0.930	0.250	0.769	-	0.852	-	0.000	0.900	0.913	0.683	0.000	-	0.896	0.936	0.919	0.000	-	0.947	0.904
Lights	300	1	438	-	739	-	0	290	83	109	0	-	482	365	700	0	-	1065	2286
% Lights	98.4	100.0	99.5	-	99.1	-	-	94.8	98.8	97.3	-	-	96.0	95.5	97.6	-	-	96.9	97.4
Buses	1	0	0	-	1	-	0	8	1	0	0	-	9	2	5	0	-	7	17
% Buses	0.3	0.0	0.0	-	0.1	-	-	2.6	1.2	0.0	-	-	1.8	0.5	0.7	-	-	0.6	0.7
Trucks	4	0	2	-	6	-	0	8	0	3	0	-	11	15	12	0	-	27	44
% Trucks	1.3	0.0	0.5	-	0.8	-	-	2.6	0.0	2.7	-	-	2.2	3.9	1.7	-	-	2.5	1.9
Bicycles on Crosswalk	-	-	-	0	-	0	-	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	0	-	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



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



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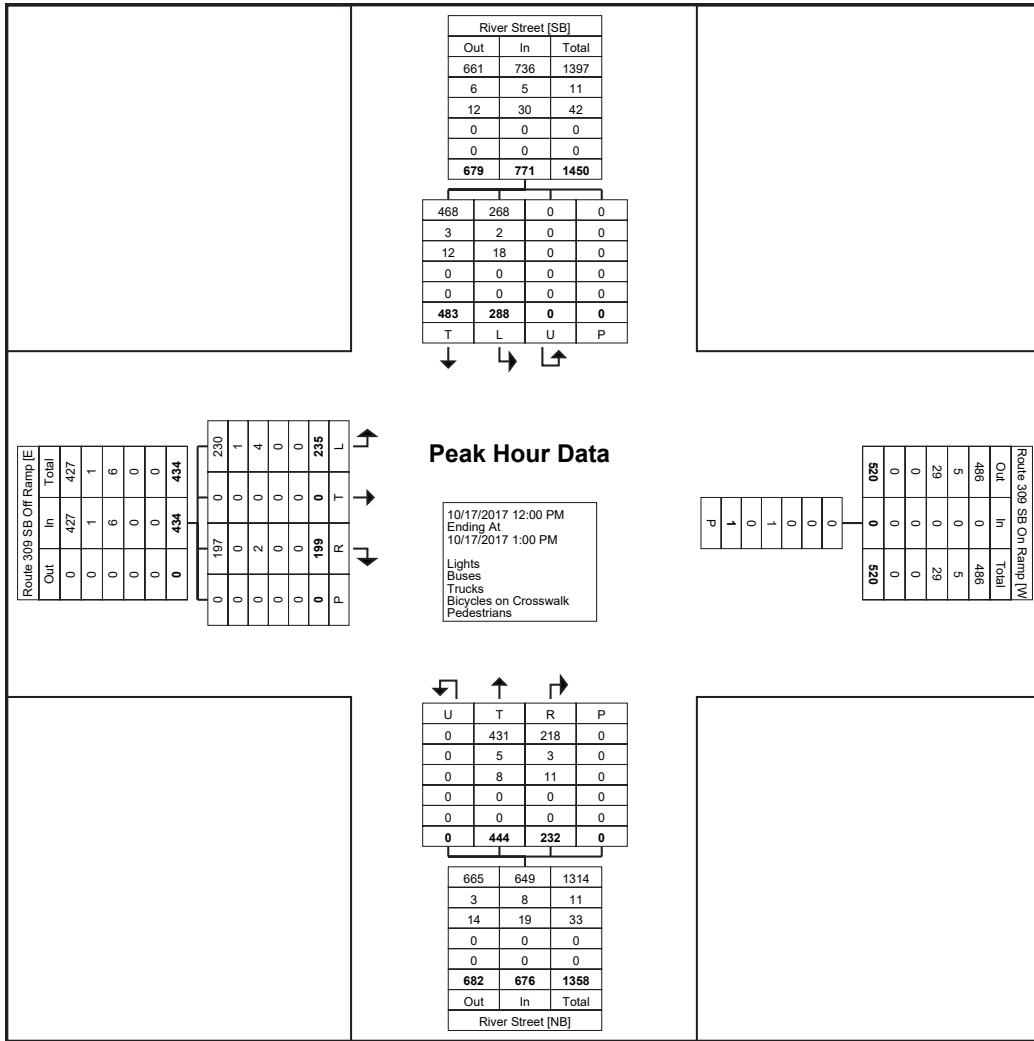
Coatesville, Pennsylvania, United States 19320
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Count Name: River St-Rt 309
SB Ramps
Site Code:
Start Date: 10/17/2017
Page No: 6

Wilkes-Barre, PA
River St & Rt 309 SB Ramps
Tuesday, October 17, 2017
Location: 41.266004, -
75.864617

Turning Movement Peak Hour Data (12:00 PM)

Start Time	Route 309 SB Off Ramp					Route 309 SB On Ramp		River Street						River Street					Int. Total
	Eastbound					Westbound		Northbound						Southbound					
	Left	Thru	Right	Peds	App. Total	Peds	App. Total	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	
12:00 PM	67	0	46	0	113	0	0	112	24	34	0	0	170	67	112	0	0	179	462
12:15 PM	56	0	36	0	92	0	0	112	33	37	0	0	182	72	103	0	0	175	449
12:30 PM	63	0	72	0	135	0	0	97	13	28	0	0	138	76	112	0	0	188	461
12:45 PM	49	0	45	0	94	1	0	123	34	29	0	0	186	73	156	0	0	229	509
Total	235	0	199	0	434	1	0	444	104	128	0	0	676	288	483	0	0	771	1881
Approach %	54.1	0.0	45.9	-	-	-	-	65.7	15.4	18.9	0.0	-	-	37.4	62.6	0.0	-	-	-
Total %	12.5	0.0	10.6	-	23.1	-	0.0	23.6	5.5	6.8	0.0	-	35.9	15.3	25.7	0.0	-	41.0	-
PHF	0.877	0.000	0.691	-	0.804	-	0.000	0.902	0.765	0.865	0.000	-	0.909	0.947	0.774	0.000	-	0.842	0.924
Lights	230	0	197	-	427	-	0	431	98	120	0	-	649	268	468	0	-	736	1812
% Lights	97.9	-	99.0	-	98.4	-	-	97.1	94.2	93.8	-	-	96.0	93.1	96.9	-	-	95.5	96.3
Buses	1	0	0	-	1	-	0	5	0	3	0	-	8	2	3	0	-	5	14
% Buses	0.4	-	0.0	-	0.2	-	-	1.1	0.0	2.3	-	-	1.2	0.7	0.6	-	-	0.6	0.7
Trucks	4	0	2	-	6	-	0	8	6	5	0	-	19	18	12	0	-	30	55
% Trucks	1.7	-	1.0	-	1.4	-	-	1.8	5.8	3.9	-	-	2.8	6.3	2.5	-	-	3.9	2.9
Bicycles on Crosswalk	-	-	-	0	-	1	-	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	0	-	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-



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



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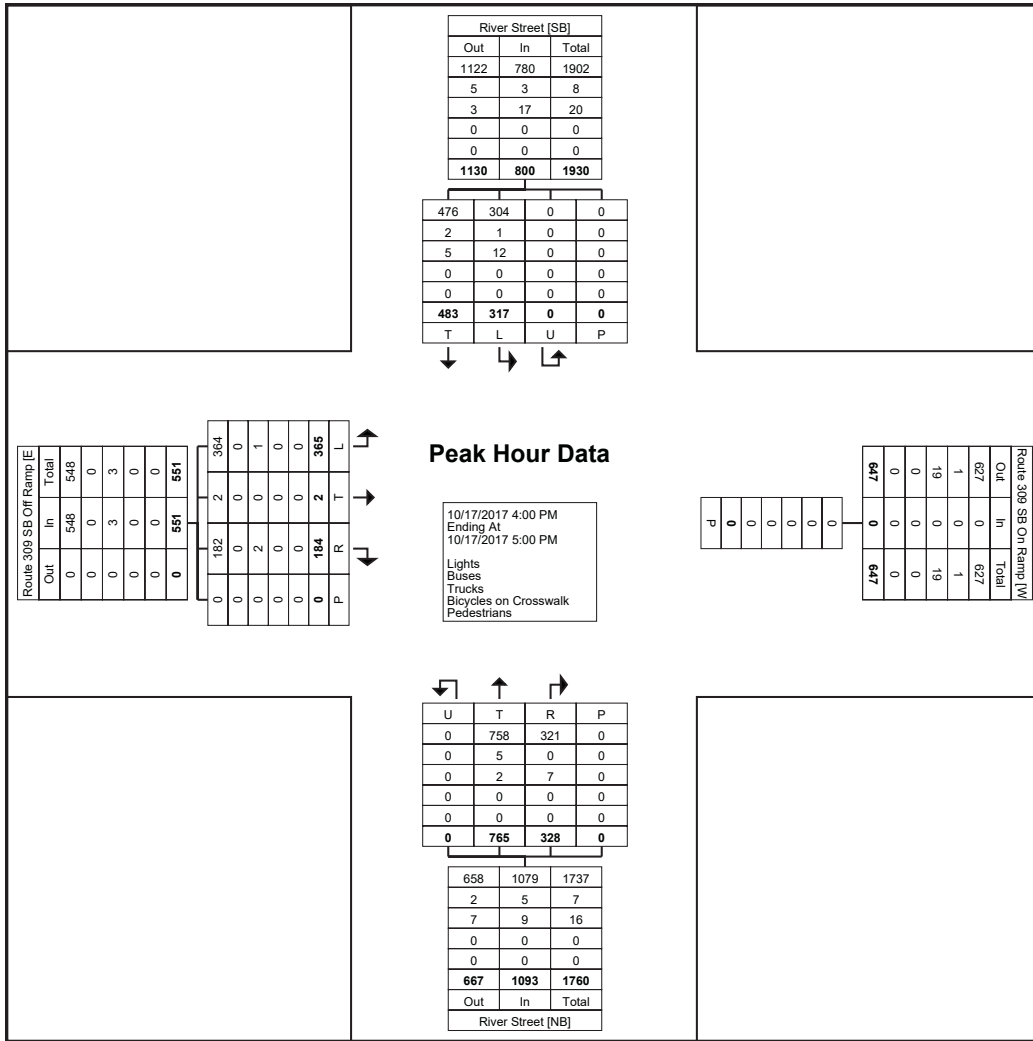
Count Name: River St-Rt 309
SB Ramps
Site Code:
Start Date: 10/17/2017
Page No: 8

Wilkes-Barre, PA
River St & Rt 309 SB Ramps
Tuesday, October 17, 2017
Location: 41.266004, -
75.864617

Turning Movement Peak Hour Data (4:00 PM)

Start Time	Route 309 SB Off Ramp					Route 309 SB On Ramp		River Street						River Street					Int. Total
	Eastbound					Westbound		Northbound						Southbound					
	Left	Thru	Right	Peds	App. Total	Peds	App. Total	Thru	Right	Right on Red	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	
4:00 PM	95	0	48	0	143	0	0	173	41	44	0	0	258	84	108	0	0	192	593
4:15 PM	78	0	46	0	124	0	0	194	49	43	0	0	286	74	104	0	0	178	588
4:30 PM	101	2	49	0	152	0	0	216	34	43	0	0	293	76	116	0	0	192	637
4:45 PM	91	0	41	0	132	0	0	182	31	43	0	0	256	83	155	0	0	238	626
Total	365	2	184	0	551	0	0	765	155	173	0	0	1093	317	483	0	0	800	2444
Approach %	66.2	0.4	33.4	-	-	-	-	70.0	14.2	15.8	0.0	-	-	39.6	60.4	0.0	-	-	-
Total %	14.9	0.1	7.5	-	22.5	-	0.0	31.3	6.3	7.1	0.0	-	44.7	13.0	19.8	0.0	-	32.7	-
PHF	0.903	0.250	0.939	-	0.906	-	0.000	0.885	0.791	0.983	0.000	-	0.933	0.943	0.779	0.000	-	0.840	0.959
Lights	364	2	182	-	548	-	0	758	151	170	0	-	1079	304	476	0	-	780	2407
% Lights	99.7	100.0	98.9	-	99.5	-	-	99.1	97.4	98.3	-	-	98.7	95.9	98.6	-	-	97.5	98.5
Buses	0	0	0	-	0	-	0	5	0	0	0	-	5	1	2	0	-	3	8
% Buses	0.0	0.0	0.0	-	0.0	-	-	0.7	0.0	0.0	-	-	0.5	0.3	0.4	-	-	0.4	0.3
Trucks	1	0	2	-	3	-	0	2	4	3	0	-	9	12	5	0	-	17	29
% Trucks	0.3	0.0	1.1	-	0.5	-	-	0.3	2.6	1.7	-	-	0.8	3.8	1.0	-	-	2.1	1.2
Bicycles on Crosswalk	-	-	-	0	-	0	-	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	0	-	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Wilkes-Barre, PA
River St & Rt 309 SB Ramps
Tuesday, October 17, 2017
Location: 41.266004, -
75.864617



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

Leg	Route 309 NB On Ramp	Route 309 NB Off Ramp										River Street					River Street					Maffett Street							
		Eastbound					Westbound					Northbound					Southbound					Southwestbound							
Direction	App	T	R	HR	RR	HRR	App	Ped*	L	T	BR	U	App	Ped*	HL	T	R	U	RR	App	Ped*	BL	BR	HR	U	HRR	App	Ped*	Int
1:15PM	0	34	0	42	15	0	0	91	40	78	39	0	157	0	0	115	48	0	0	163	0	18	26	0	0	0	44	0	455
1:30PM	0	50	0	59	15	0	1	125	39	95	38	0	172	0	0	102	49	0	2	153	0	24	13	0	0	0	37	0	487
1:45PM	0	41	0	51	16	0	1	109	64	75	40	0	179	0	0	123	51	0	2	176	0	27	13	0	0	0	40	0	504
Hourly Total	0	161	1	193	66	0	2	423	176	339	153	0	668	0	1	464	200	0	4	669	0	100	66	0	0	0	166	0	1926
2:00PM	0	34	1	44	16	0	0	95	37	86	44	0	167	0	0	122	41	0	0	163	0	30	22	1	0	0	53	0	478
2:15PM	0	35	0	59	17	0	0	111	51	114	48	0	213	0	1	139	56	0	0	196	0	27	14	0	0	0	41	0	561
2:30PM	0	49	0	58	12	0	0	119	50	99	47	0	196	0	0	130	62	0	0	192	0	30	17	0	0	0	47	0	554
2:45PM	0	37	0	59	20	0	0	116	61	114	60	0	235	0	1	95	51	0	0	147	0	22	33	0	0	0	55	0	553
Hourly Total	0	155	1	220	65	0	0	441	199	413	199	0	811	0	2	486	210	0	0	698	0	109	86	1	0	0	196	0	2146
3:00PM	0	33	0	56	14	0	0	103	67	96	63	0	226	0	0	110	64	0	1	175	0	26	18	1	0	0	45	0	549
3:15PM	0	38	0	68	14	0	0	120	70	122	63	0	255	0	0	144	76	0	0	220	0	27	25	1	0	0	53	0	648
3:30PM	0	43	0	72	26	0	0	141	80	107	51	0	238	0	0	92	62	0	1	155	0	25	32	0	0	0	57	0	591
3:45PM	0	53	0	70	11	0	0	134	57	101	47	0	205	0	0	112	70	0	0	182	0	24	25	1	0	0	50	0	571
Hourly Total	0	167	0	266	65	0	0	498	274	426	224	0	924	0	0	458	272	0	2	732	0	102	100	3	0	0	205	0	2359
4:00PM	0	31	0	53	15	0	0	99	88	134	66	0	288	0	0	138	74	0	1	213	0	29	28	0	0	0	57	0	657
4:15PM	0	37	0	72	24	0	0	133	85	129	61	0	275	0	0	105	75	0	0	180	0	26	23	0	0	0	49	0	637
4:30PM	0	38	0	70	21	0	0	129	95	131	97	0	323	0	0	122	59	0	0	181	0	18	21	0	0	0	39	0	672
4:45PM	0	57	0	73	29	0	0	159	78	124	54	0	256	0	1	149	79	1	0	230	0	30	30	0	0	0	60	0	705
Hourly Total	0	163	0	268	89	0	0	520	346	518	278	0	1142	0	1	514	287	1	1	804	0	103	102	0	0	0	205	0	2671
5:00PM	0	44	0	71	20	0	0	135	81	134	76	0	291	0	1	124	82	0	0	207	0	22	17	0	0	0	39	0	672
5:15PM	0	53	0	69	24	0	0	146	62	104	71	0	237	0	0	123	54	0	0	177	0	23	25	0	0	0	48	0	608
5:30PM	0	40	0	46	18	0	0	104	58	91	52	0	201	0	0	95	47	0	0	142	0	24	25	1	0	0	50	0	497
5:45PM	0	47	0	47	14	0	0	108	50	90	52	0	192	0	0	132	45	0	0	177	0	21	31	0	0	0	52	0	529
Hourly Total	0	184	0	233	76	0	0	493	251	419	251	0	921	0	1	474	228	0	0	703	0	90	98	1	0	0	189	0	2306
Total	0	2149	6	2268	646	14	9	5092	2030	4341	2115	1	8487	0	8	6058	2666	1	12	8745	0	1160	921	14	0	2	2097	0	24421
% Approach	-	42.2%	0.1%	44.5%	12.7%	0.3%	0.2%	-	23.9%	51.1%	24.9%	0%	-	-	0.1%	69.3%	30.5%	0%	0.1%	-	-	55.3%	43.9%	0.7%	0%	0.1%	-	-	
% Total	0%	8.8%	0%	9.3%	2.6%	0.1%	0%	20.9%	8.3%	17.8%	8.7%	0%	34.8%	-	0%	24.8%	10.9%	0%	0%	35.8%	-	4.8%	3.8%	0.1%	0%	0%	8.6%	-	
Lights	0	2055	6	2125	552	11	6	4755	1990	4211	2039	1	8241	-	7	5823	2596	1	12	8439	-	1074	887	13	0	2	1976	-	23411
% Lights	-	95.6%	100%	93.7%	85.4%	78.6%	66.7%	93.4%	98.0%	97.0%	96.4%	100%	97.1%	-	87.5%	96.1%	97.4%	100%	100%	96.5%	-	92.6%	96.3%	92.9%	0%	100%	94.2%	-	95.9%
Articulated Trucks and Single-Unit Trucks	0	79	0	135	91	3	3	311	26	97	57	0	180	-	1	204	61	0	0	266	-	72	32	0	0	0	104	-	861
% Articulated Trucks and Single-Unit Trucks	-	3.7%	0%	6.0%	14.1%	21.4%	33.3%	6.1%	1.3%	2.2%	2.7%	0%	2.1%	-	12.5%	3.4%	2.3%	0%	0%	3.0%	-	6.2%	3.5%	0%	0%	0%	5.0%	-	3.5%
Buses	0	15	0	8	3	0	0	26	14	33	19	0	66	-	0	31	9	0	0	40	-	14	2	1	0	0	17	-	149
% Buses	-	0.7%	0%	0.4%	0.5%	0%	0%	0.5%	0.7%	0.8%	0.9%	0%	0.8%	-	0%	0.5%	0.3%	0%	0%	0.5%	-	1.2%	0.2%	7.1%	0%	0%	0.8%	-	0.6%
Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0

* Pedestrians and Bicycles on Crosswalk. BL: Bear left, BR: Bear right, HL: Hard left, HR: Hard right, HRR: Hard right on red, L: Left, R: Right, RR: Right on red, T: Thru, U: U-Turn

River St-Rt 309 NB Ramps/Maffett St - TMC

Tue Oct 17, 2017

Full Length (5AM-6PM)

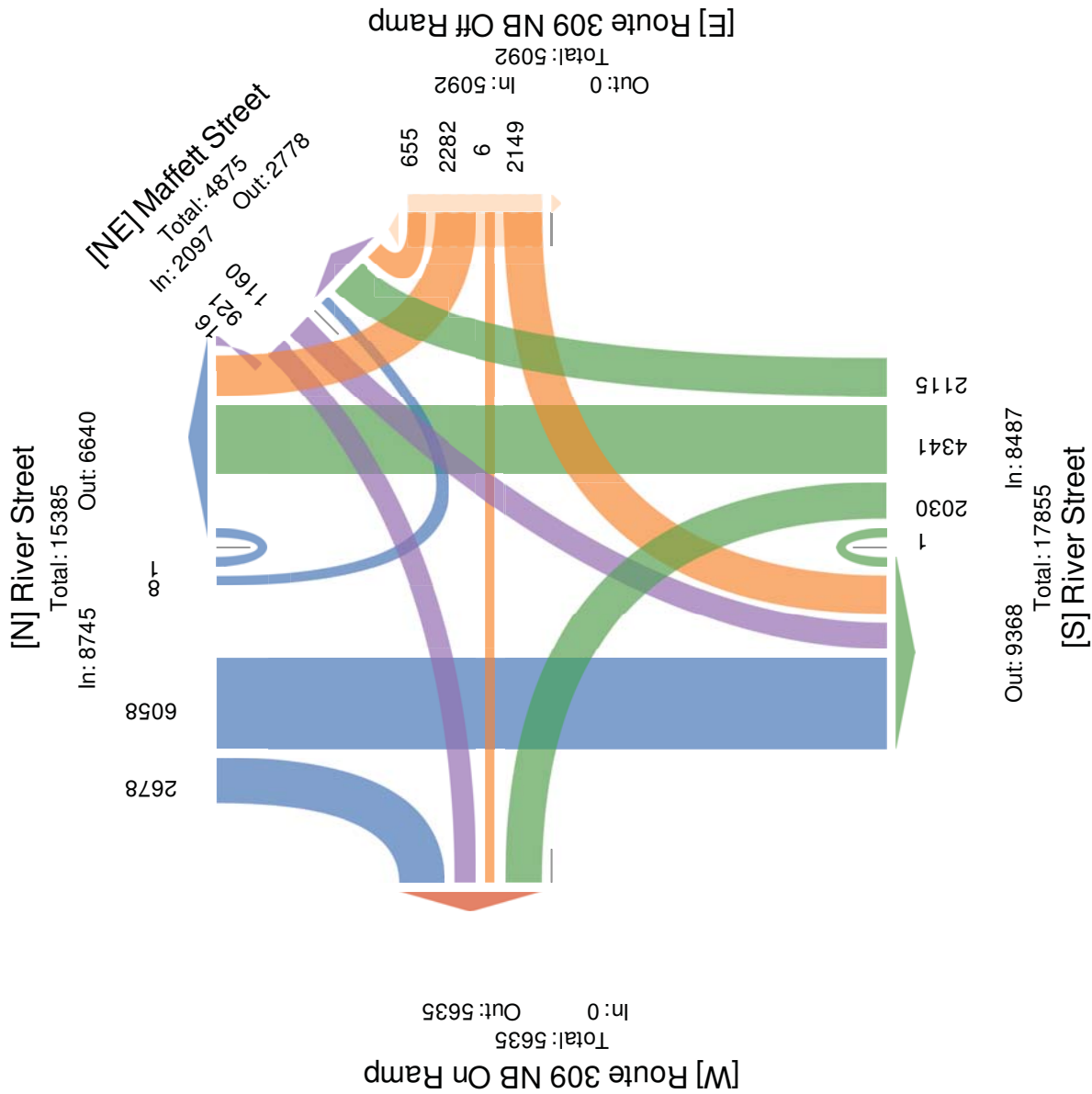
All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians)

All Movements

ID: 459902, Location: 41.266932, -75.86389



Provided by: Tri-State Traffic Data, Inc.
184 Baker Road, Coatesville, PA, 19320, US



River St-Rt 309 NB Ramps/Maffett St - TMC

Tue Oct 17, 2017

AM Peak (7:45AM - 8:45AM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians)

All Movements

ID: 459902, Location: 41.266932, -75.86389



Provided by: Tri-State Traffic Data, Inc.
184 Baker Road, Coatesville, PA, 19320, US

Leg	Route 309 NB On Ramp Eastbound	Route 309 NB Off Ramp Westbound					River Street Northbound					River Street Southbound					Maffett Street Southwestbound														
		App	Ped*	L	T	R	HR	RR	HRR	App	Ped*	L	T	BR	U	RR	App	Ped*	HL	T	R	U	RR	App	Ped*	BL	BR	HR	U	HRR	App	Ped*	Int
2017-10-17 7:45AM	0	0	81	0	59	17	0	2	159	0	33	71	48	1	153	0	0	202	84	0	0	286	0	28	20	0	0	0	48	0	646
8:00AM	0	0	81	0	53	15	0	0	149	0	28	87	44	0	159	0	0	152	67	0	0	219	0	27	20	0	0	0	47	0	574
8:15AM	0	0	54	0	41	8	0	1	104	0	30	76	40	0	146	0	1	184	67	0	0	252	0	27	22	0	0	0	49	0	551
8:30AM	0	0	73	1	52	12	0	0	138	0	29	92	38	0	159	0	0	153	64	0	0	217	0	23	22	0	0	0	45	0	559
Total	0	0	289	1	205	52	0	3	550	0	120	326	170	1	617	0	1	691	282	0	0	974	0	105	84	0	0	0	189	0	2330
% Approach	-	-	52.5%	0.2%	37.3%	9.5%	0%	0.5%	-	-	19.4%	52.8%	27.6%	0.2%	-	-	0.1%	70.9%	29.0%	0%	0%	-	-	55.6%	44.4%	0%	0%	0%	-	-	
% Total	0%	-	12.4%	0%	8.8%	2.2%	0%	0.1%	23.6%	-	5.2%	14.0%	7.3%	0%	26.5%	-	0%	29.7%	12.1%	0%	0%	41.8%	-	4.5%	3.6%	0%	0%	0%	8.1%	-	
PHF	-	-	0.892	0.250	0.869	0.765	-	0.375	0.865	-	0.909	0.886	0.885	0.250	0.970	-	0.250	0.855	0.839	-	-	0.851	-	0.938	0.955	-	-	-	0.964	-	0.902
Lights	0	-	283	1	190	44	0	2	520	-	118	316	164	1	599	-	1	678	272	0	0	951	-	98	81	0	0	0	179	-	2249
% Lights	-	-	97.9%	100%	92.7%	84.6%	0%	66.7%	94.5%	-	98.3%	96.9%	96.5%	100%	97.1%	-	100%	98.1%	96.5%	0%	0%	97.6%	-	93.3%	96.4%	0%	0%	0%	94.7%	-	96.5%
Articulated Trucks and Single-Unit Trucks	0	-	4	0	13	8	0	1	26	-	1	5	4	0	10	-	0	12	9	0	0	21	-	7	3	0	0	0	10	-	67
% Articulated Trucks and Single-Unit Trucks	-	-	1.4%	0%	6.3%	15.4%	0%	33.3%	4.7%	-	0.8%	1.5%	2.4%	0%	1.6%	-	0%	1.7%	3.2%	0%	0%	2.2%	-	6.7%	3.6%	0%	0%	0%	5.3%	-	2.9%
Buses	0	-	2	0	2	0	0	0	4	-	1	5	2	0	8	-	0	1	1	0	0	2	-	0	0	0	0	0	0	-	14
% Buses	-	-	0.7%	0%	1.0%	0%	0%	0%	0.7%	-	0.8%	1.5%	1.2%	0%	1.3%	-	0%	0.1%	0.4%	0%	0%	0.2%	-	0%	0%	0%	0%	0%	0%	-	0.6%
Pedestrians	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

* Pedestrians and Bicycles on Crosswalk. BL: Bear left, BR: Bear right, HL: Hard left, HR: Hard right, HRR: Hard right on red, L: Left, R: Right, RR: Right on red, T: Thru, U: U-Turn

River St-Rt 309 NB Ramps/Maffett St - TMC

Tue Oct 17, 2017

AM Peak (7:45AM - 8:45AM)

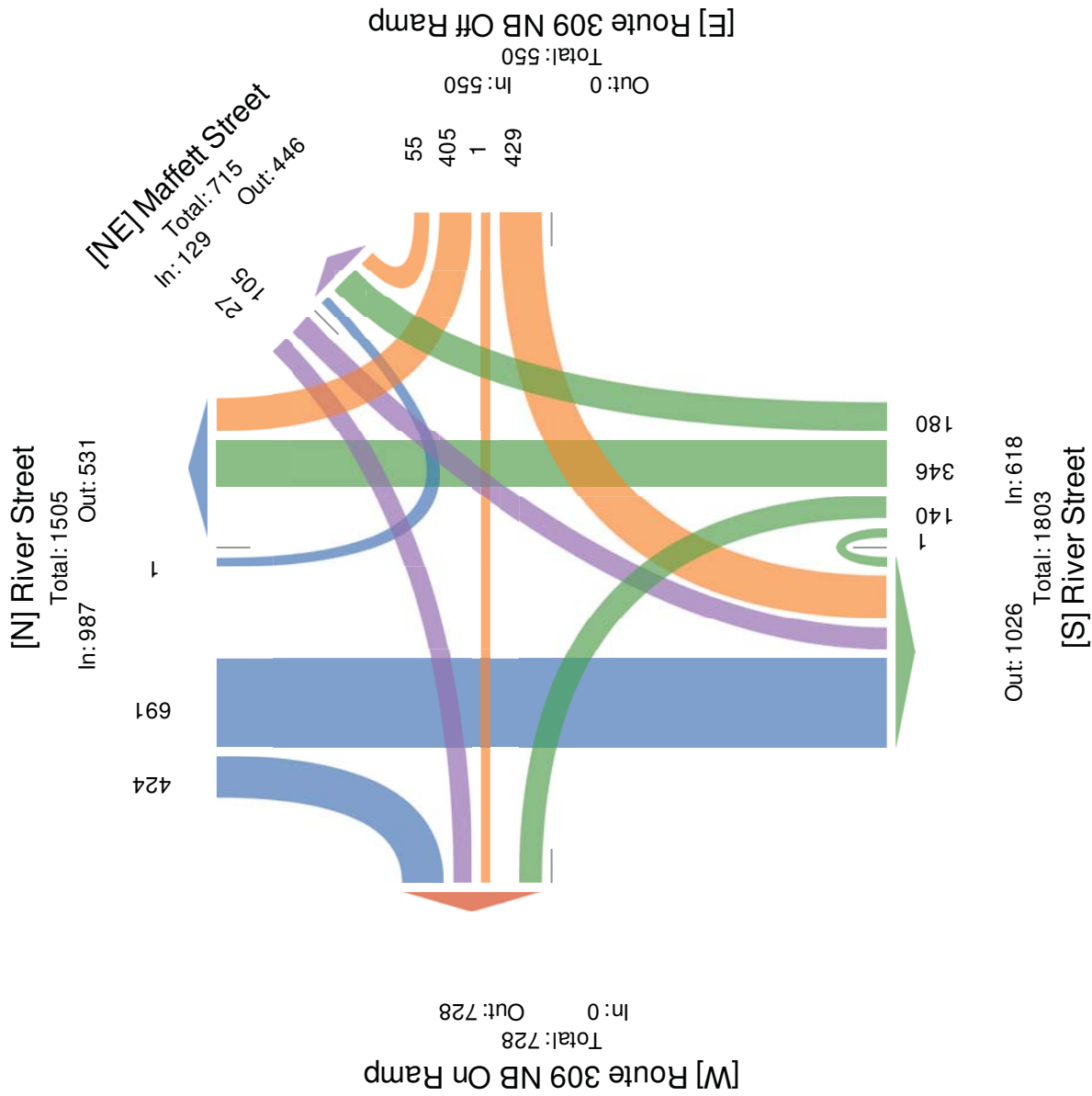
All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians)

All Movements

ID: 459902, Location: 41.266932, -75.86389



Provided by: Tri-State Traffic Data, Inc.
184 Baker Road, Coatesville, PA, 19320, US



River St-Rt 309 NB Ramps/Maffett St - TMC

Tue Oct 17, 2017

AMPak (ea: 415-8(A) 258(AI

CsLsai ei 4gMrti, CdtMtsatePTduc: i anP S Mhæ UnMTduc: i, Buiei, (ePeitdMni

CsAovementi

ID5- 89902, gocatMh5- 1.266932,)78.b63b9



(dovMeyk5TdyState TdaffMData, Inc.
1b- Ba: edRoap, LoateivMæ, (C, 19320, US

gch	Route 309 NB On Ramp		Route 309 NB Off Ramp		RMe d Stde et		RMe d Stde et		A affett Stde et													
	NB On Ramp	Eai tyounP	g	T	R	HR	RR	HRR	App (eP*	g	T	R	U	RR	App (eP*	Bg	BR	HR	UHRR	App (eP*	Int	
2017)10)17	0	0	-1	0	81	16	0	1	105	1	6-	78	-0	0	195	0	27	13	0	0	20	0
15-8(A	0	0	3-	1	--	16	0	0	58	2	37	b6	--	0	139	0	30	22	1	0	86	0
290(A	0	0	38	0	89	17	0	0	111	0	81	11-	-b	0	716	0	27	1-	0	0	21	0
258(A	0	0	-9	0	8b	12	0	0	115	0	80	99	-7	0	153	0	30	17	0	0	29	0
230(A	0	0	189	1	212	61	0	1	262	3	202	37-	179	0	988	0	11-	66	1	0	141	0
Total	0	0	36.6%	0.2%	-b.b%	1-.1%	0%	0.2%	-	-	26.b%	-9.8%	23.7%	0%	-	-	63.0%	36.8%	0.6%	0%	0%	-
% Approach	-	-	7.6%	0%	10.1%	2.9%	0%	0%	70.9%	-	9.6%	17.b%	b.8%	0%	63.0%	-	8.-%	3.1%	0%	0%	0%	4.3%
% Total	0%	0%	0.76%	0%	1.0%	0.3%	0%	0%	0.1%	0%	0.2%	0.8%	0%	0%	0.1%	0%	0.280	0.780	0.280	0%	0.482	0.93-
PHF	-	-	0.76%	0%	1.0%	0.3%	0%	0%	0.1%	0%	0.2%	0.8%	0%	0%	0.1%	0%	0.280	0.780	0.280	0%	0.482	0.93-
Lights	0	0	1-b	1	200	83	0	1	206	-	19b	362	172	0	967	-	99	6-	1	0	132	1996
% Lights	-	-	93.1%	100%	9-.3%	b6.9%	0%	100%	57.5%	-	9b.0%	96.b%	96.1%	0%	59.0%	-	b6.b%	97.0%	100%	0%	0%	50.3%
Articulate d Trucks and Single-Unit Trucks	0	0	7	0	10	b	0	0	78	-	2	7	6	0	18	-	11	2	0	0	16	76
% Articulate d Trucks and Single-Unit Trucks	-	-	-.%	0%	-.7%	13.1%	0%	0%	8.4%	-	1.0%	1.9%	3.-%	0%	7.0%	-	9.6%	3.0%	0%	0%	9.7%	3.6%
Buses	0	0	-	0	2	0	0	0	3	-	2	8	1	0	4	-	-	0	0	0	2	28
% Buses	-	-	2.8%	0%	0.9%	0%	0%	0%	1.2%	-	1.0%	1.3%	0.6%	0%	1.1%	-	3.8%	0%	0%	0%	7.7%	1.2%
(ePeitdMni	0	0	)	)	)	)	)	)	3	)	)	)	)	)	0	)	)	)	)	)	)	0
(ePeitdMni	)	)	)	)	)	)	)	)	100%)))))))))))))

*(ePeitdMni anP Bkæei on Ldooi was .Bg5Beadæft, BR5Beadæft, HR5Hadæft, HR5Hadæft, Hg5Hadæft, HR5Hadæft, HR5Hadæft, RR5RMr t on deP, T5Tr du, U5U)Tudh

River St-Rt 309 NB Ramps/Maffett St - TMC

Tue Oct 17, 2017

AMPAK (ea: 415-8(A) 258(AI

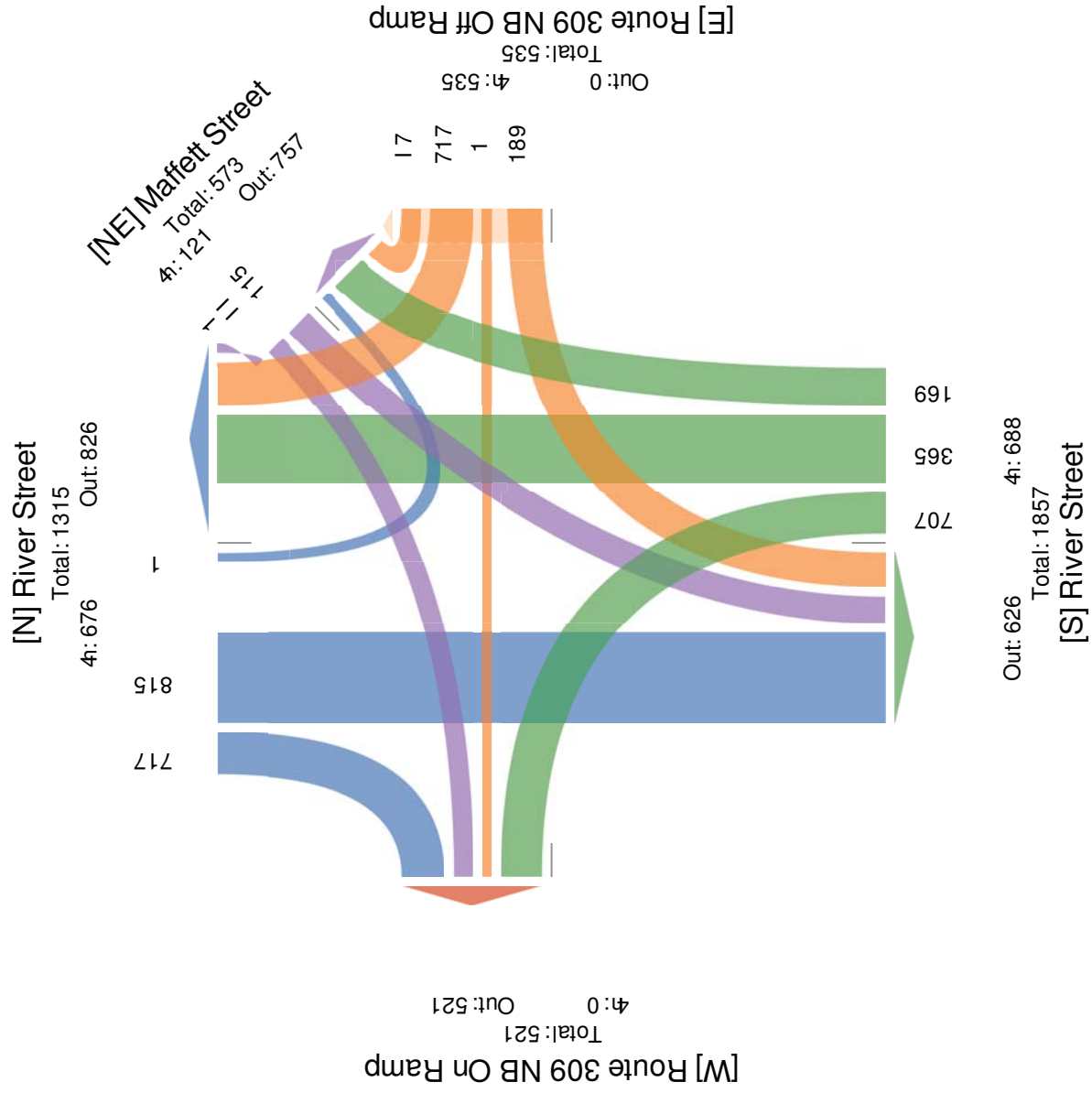
CsLsaiiei 4gMrti, CdMusatP Tdrc:i anP Sthse)UnMTduc:i, Bui ei, (ePeitdnhil

Cs:Aovementi

ID5-89902, gocatMn5-1.266932, J78.b63b9



(dovMeP yk5Td)State T daffMData, Inc.
1b- Ba: edRoap, Loatei vM, (C, 19320, US



River St-Rt 309 NB Ramps/Maffett St - TMC

Tue Oct 17, 2017

AM Ae Pa k :14AM 54:14AM- 508e)PIL Ae Pa Cs u)

Lili i Pgeeg khrdntg, L)rculPteS T)ucag PUS BfUle5o Urt T)ucag, v ugeg, Ae Segt)PUg-

Lili Ms8eme Ug

ID: (49902, hs cPus U (1.266932, 574.b63b9



A)s8eS yf: T)5BtPte T)PRC DPtP, IU.
1b(vPae) NsPS, i sPteg8ille, AL, 19320, oB

hed	h	T	N	CN	NN	CNN	App	AeSH	N8e) Btjeet	h	T	N	o	NN	App	AeSH	MPRte Btjeet	h	T	N	o	CNN	App	AeSH	Int						
Dre cts U	h	T	N	CN	NN	CNN	App	AeSH	ps)tnys uUS	h	T	N	o	NN	App	AeSH	Bs utn* egty s uUS	h	T	N	o	CNN	App	AeSH	Int						
201750517	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						
(:14AM	37	0	72	2	0	0	155	0	b4	129	61	0	932	0	0	104	74	0	0	180	0	26	23	0	0	64	0	753			
(:30AM	3b	0	70	21	0	0	194	0	94	131	97	0	595	0	0	122	49	0	0	181	0	1b	21	0	0	54	0	739			
(:4AM	0	0	47	0	73	29	0	124	0	7b	12	4	0	927	0	1	1	9	79	1	0	950	0	30	0	0	70	0	302		
4:00AM	0	0	0	0	71	20	0	152	0	b1	13	76	0	941	0	1	12	b2	0	0	903	0	22	17	0	0	54	0	739		
Total	0	0	176	0	2b6	9	0	227	0	339	41b	2bb	0	1162	0	2	400	294	1	0	348	0	96	91	0	0	183	0	9787		
% Approach	-	5	31.7%	0%	41.0%	16.9%	0%	0%	-	5	29.6%	(4.2%	24.2%	0%	-	5	0.3%	62.7%	37.0%	0.1%	0%	0%	-	5	41.3%	(b.7%	0%	0%	0%	5	
% Total	0%	5	6.6%	0%	10.6%	3.4%	0%	0%	90.3%	5	12.6%	19.3%	10.7%	0%	69.7%	5	0.1%	1b.6%	11.0%	0%	0%	94.3%	5	3.6%	3.0%	0%	3.0%	5			
PHF	-	5	0.772	5	0.979	0.b10	5	5	0.836	5	0.b92	0.966	0.7	2	5	0.887	5	0.400	0.b39	0.b99	0.240	5	5	0.873	5	0.b00	0.74b	5	5	0.334	5
Lights	0	5	173	0	2b3	b6	0	269	5	334	412	2b6	0	1155	5	2	(b9	290	1	0	389	5	9	b9	0	0	185	5	26		
% Lights	-	5	9b.3%	0%	99.0%	91.4%	0%	0%	43.2%	5	9b.b%	9b.b%	99.3%	0%	44.0%	5	100%	97.b%	9b.3%	100%	0%	48.0%	5	97.9%	97.b%	0%	0%	43.4%	5	9b.3%	
Articulated Trucks and Single-Unit Trucks	0	5	3	0	3	b	0	0	16	5	(	(	1	0	4	5	0	9	(	0	0	15	5	2	2	0	0	6	5	(
% Articulated Trucks and Single-Unit Trucks	-	5	1.7%	0%	1.0%	b.4%	0%	0%	9.2%	5	1.2%	0.b%	0.3%	0%	0.8%	5	0%	1.b%	1.0%	0%	0%	1.7%	5	2.1%	2.2%	0%	0%	9.1%	5	1.4%	
Buses	0	5	0	0	0	0	0	0	0	5	0	2	1	0	5	5	0	2	1	0	0	5	5	0	0	0	0	0	5	6	
% Buses	-	5	0%	0%	0%	0%	0%	0%	0%	5	0%	0.0%	0.3%	0%	0.5%	5	0%	0.0%	0.3%	0%	0%	0.6%	5	0%	0%	0%	0%	0%	5	0.2%	
Ae Segt)hPUg	5	0	5	5	5	5	5	5	0	5	5	5	5	5	0	5	5	5	5	5	5	5	5	5	5	5	5	0	5		
% Ae Segt)hPUg	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	

H Ae Segt)hPUg PUS vtrf cleg sUi)sgg* Pla.vh: veP) leR, vN: veP))rdnt, Ch: CP)S leR, CN: CP)S)rdnt, CNN: CP)S)rdnt sU)eS, h: heR, N: Nrdnt, NN: Nrdnt sU)eS, T: Tn)u, o: o5T)U

River St-Rt 309 NB Ramps/Maffett St - TMC

Tue Oct 17, 2017

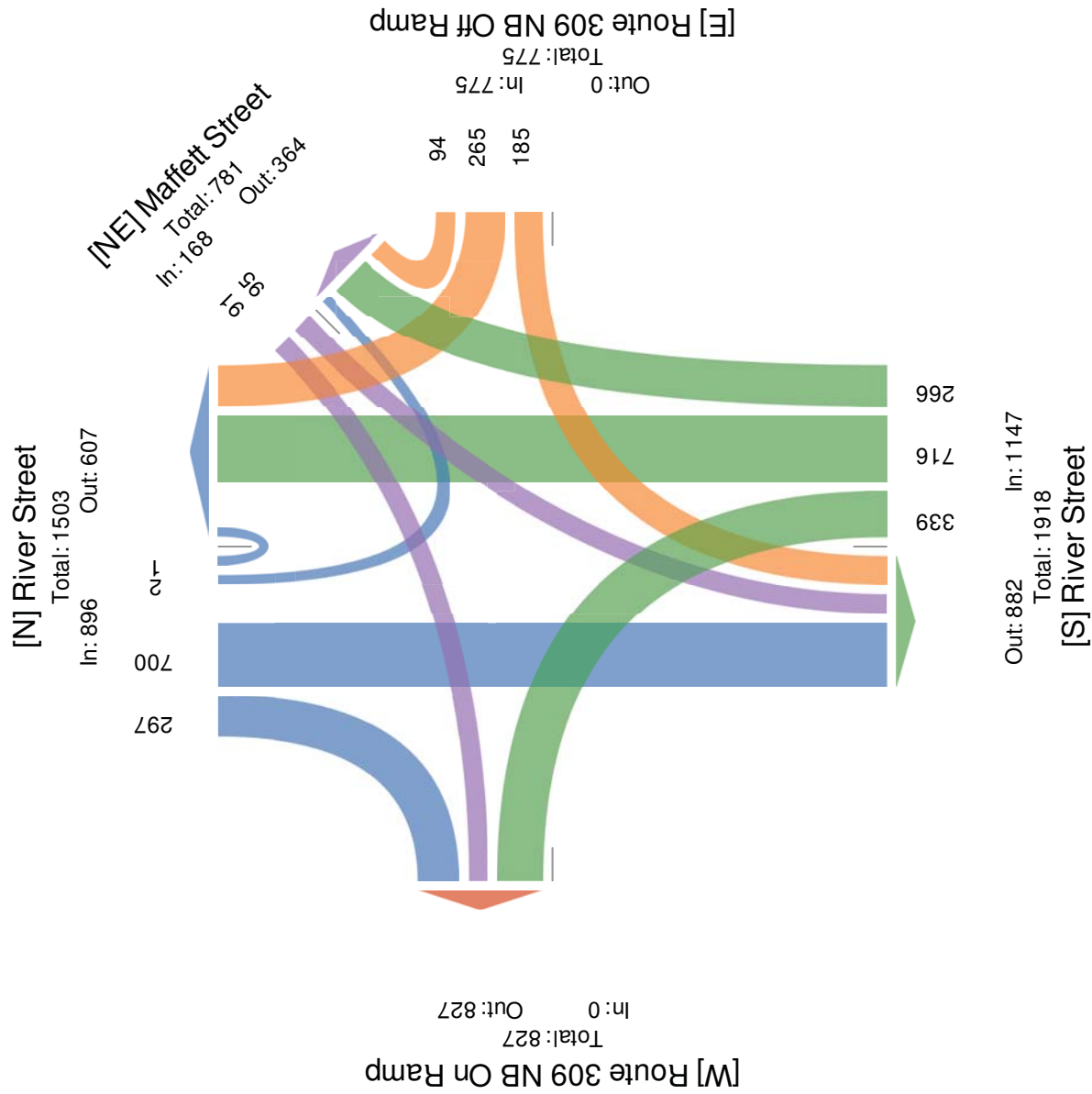
PM Peak (4:15PM - 5:15PM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians)
All Movements

ID: 459902, Location: 41.266932, -75.86389



Provided by: Tri-State Traffic Data, Inc.
184 Baker Road, Coatesville, PA, 19320, US





www.TSTData.com
184 Baker Rd

Wilkes-Barre, PA
Maffett St & Haines St
Tuesday, October 17, 2017
Location: 41.268627, -
75.860381

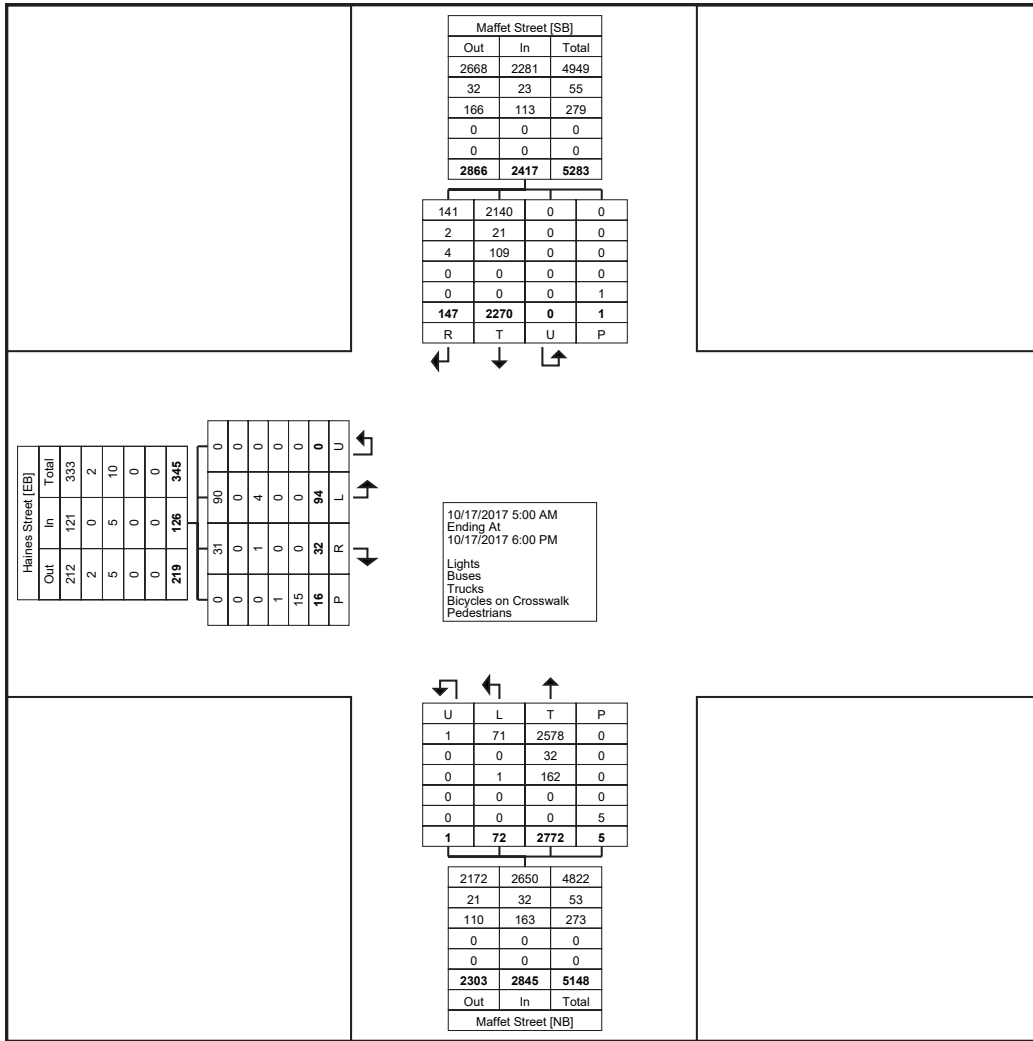
Coatesville, Pennsylvania, United States 19320
610-466-1469
Serving Transportation Professionals Since 1995

Count Name: Maffett St-Haines
St
Site Code:
Start Date: 10/17/2017
Page No: 1

Turning Movement Data

Start Time	Haines Street Eastbound					Maffett Street Northbound					Maffett Street Southbound					Int. Total
	Left	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	
5:00 AM	0	0	0	0	0	0	3	0	0	3	7	0	0	0	7	10
5:15 AM	0	0	0	0	0	0	15	0	0	15	9	0	0	0	9	24
5:30 AM	0	0	0	0	0	1	11	0	0	12	13	0	0	0	13	25
5:45 AM	1	0	0	0	1	0	26	0	0	26	18	2	0	0	20	47
Hourly Total	1	0	0	0	1	1	55	0	0	56	47	2	0	0	49	106
6:00 AM	2	1	0	0	3	0	12	0	0	12	17	1	0	0	18	33
6:15 AM	1	0	0	0	1	0	18	0	0	18	28	3	0	0	31	50
6:30 AM	2	0	0	0	2	0	19	0	0	19	39	2	0	0	41	62
6:45 AM	2	1	0	0	3	1	48	0	0	49	36	2	0	0	38	90
Hourly Total	7	2	0	0	9	1	97	0	0	98	120	8	0	0	128	235
7:00 AM	1	1	0	0	2	0	41	0	0	41	38	2	0	0	40	83
7:15 AM	0	0	0	1	0	1	48	0	0	49	49	6	0	0	55	104
7:30 AM	4	0	0	0	4	0	50	0	0	50	51	2	0	0	53	107
7:45 AM	1	1	0	2	2	2	63	0	0	65	61	2	0	0	63	130
Hourly Total	6	2	0	3	8	3	202	0	0	205	199	12	0	0	211	424
8:00 AM	4	1	0	1	5	0	62	0	0	62	47	4	0	0	51	118
8:15 AM	4	0	0	0	4	0	55	0	0	55	41	4	0	0	45	104
8:30 AM	3	0	0	0	3	2	42	0	0	44	66	6	0	0	72	119
8:45 AM	1	0	0	0	1	0	55	0	0	55	47	5	0	0	52	108
Hourly Total	12	1	0	1	13	2	214	0	0	216	201	19	0	0	220	449
9:00 AM	1	1	0	0	2	1	49	0	0	50	32	3	0	0	35	87
9:15 AM	3	0	0	0	3	0	28	0	0	28	48	1	0	0	49	80
9:30 AM	1	0	0	0	1	0	36	0	0	36	27	1	0	0	28	65
9:45 AM	2	0	0	0	2	1	50	0	0	51	42	2	0	0	44	97
Hourly Total	7	1	0	0	8	2	163	0	0	165	149	7	0	0	156	329
10:00 AM	1	2	0	0	3	0	45	0	0	45	31	1	0	0	32	80
10:15 AM	0	1	0	0	1	2	39	0	0	41	41	1	0	0	42	84
10:30 AM	1	0	0	0	1	2	40	0	0	42	40	3	0	0	43	86
10:45 AM	0	2	0	0	2	1	48	0	0	49	43	3	0	0	46	97
Hourly Total	2	5	0	0	7	5	172	0	0	177	155	8	0	0	163	347
11:00 AM	0	0	0	0	0	1	50	0	0	51	33	1	0	0	34	85
11:15 AM	0	1	0	0	1	3	43	0	0	46	35	3	0	0	38	85
11:30 AM	0	0	0	0	0	1	47	0	0	48	45	3	0	0	48	96
11:45 AM	0	0	0	1	0	2	56	0	0	58	51	2	0	0	53	111
Hourly Total	0	1	0	1	1	7	196	0	0	203	164	9	0	0	173	377
12:00 PM	2	0	0	0	2	3	61	0	0	64	39	5	0	0	44	110
12:15 PM	3	2	0	1	5	2	50	0	0	52	44	3	0	0	47	104
12:30 PM	2	0	0	0	2	0	47	0	2	47	42	1	0	0	43	92
12:45 PM	2	0	0	4	2	1	56	0	0	57	48	1	0	0	49	108
Hourly Total	9	2	0	5	11	6	214	0	2	220	173	10	0	0	183	414
1:00 PM	2	1	0	0	3	2	57	0	0	59	53	2	0	0	55	117
1:15 PM	0	1	0	0	1	2	54	0	0	56	42	5	0	0	47	104
1:30 PM	2	1	0	0	3	0	49	0	0	49	48	0	0	0	48	100
1:45 PM	1	1	0	0	2	1	61	0	0	62	35	3	0	0	38	102
Hourly Total	5	4	0	0	9	5	221	0	0	226	178	10	0	0	188	423
2:00 PM	2	1	0	0	3	1	60	0	0	61	49	3	0	0	52	116
2:15 PM	3	0	0	0	3	2	65	0	0	67	50	5	0	0	55	125
2:30 PM	6	1	0	0	7	2	58	0	0	60	50	2	0	1	52	119
2:45 PM	3	0	0	0	3	0	80	0	0	80	60	3	0	0	63	146
Hourly Total	14	2	0	0	16	5	263	0	0	268	209	13	0	1	222	506
3:00 PM	2	2	0	1	4	0	77	0	0	77	53	1	0	0	54	135
3:15 PM	2	4	0	2	6	5	75	0	3	80	69	5	0	0	74	160
3:30 PM	0	0	0	1	0	4	79	0	0	83	49	6	0	0	55	138
3:45 PM	0	0	0	1	0	1	62	1	0	64	52	4	0	0	56	120
Hourly Total	4	6	0	5	10	10	293	1	3	304	223	16	0	0	239	553
4:00 PM	2	0	0	0	2	4	80	0	0	84	68	2	0	0	70	156
4:15 PM	6	0	0	0	6	2	86	0	0	88	51	4	0	0	55	149
4:30 PM	7	1	0	0	8	5	105	0	0	110	56	4	0	0	60	178
4:45 PM	3	1	0	0	4	3	88	0	0	91	59	7	0	0	66	161
Hourly Total	18	2	0	0	20	14	359	0	0	373	234	17	0	0	251	644
5:00 PM	2	2	0	0	4	4	87	0	0	91	47	4	0	0	51	146

5:15 PM	1	0	0	1	1	4	99	0	0	103	48	4	0	0	52	156
5:30 PM	3	0	0	0	3	2	67	0	0	69	50	6	0	0	56	128
5:45 PM	3	2	0	0	5	1	70	0	0	71	73	2	0	0	75	151
Hourly Total	9	4	0	1	13	11	323	0	0	334	218	16	0	0	234	581
Grand Total	94	32	0	16	126	72	2772	1	5	2845	2270	147	0	1	2417	5388
Approach %	74.6	25.4	0.0	-	-	2.5	97.4	0.0	-	-	93.9	6.1	0.0	-	-	-
Total %	1.7	0.6	0.0	-	2.3	1.3	51.4	0.0	-	52.8	42.1	2.7	0.0	-	44.9	-
Lights	90	31	0	-	121	71	2578	1	-	2650	2140	141	0	-	2281	5052
% Lights	95.7	96.9	-	-	96.0	98.6	93.0	100.0	-	93.1	94.3	95.9	-	-	94.4	93.8
Buses	0	0	0	-	0	0	32	0	-	32	21	2	0	-	23	55
% Buses	0.0	0.0	-	-	0.0	0.0	1.2	0.0	-	1.1	0.9	1.4	-	-	1.0	1.0
Trucks	4	1	0	-	5	1	162	0	-	163	109	4	0	-	113	281
% Trucks	4.3	3.1	-	-	4.0	1.4	5.8	0.0	-	5.7	4.8	2.7	-	-	4.7	5.2
Bicycles on Crosswalk	-	-	-	1	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	6.3	-	-	-	-	0.0	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	15	-	-	-	-	5	-	-	-	-	1	-	-
% Pedestrians	-	-	-	93.8	-	-	-	-	100.0	-	-	-	-	100.0	-	-

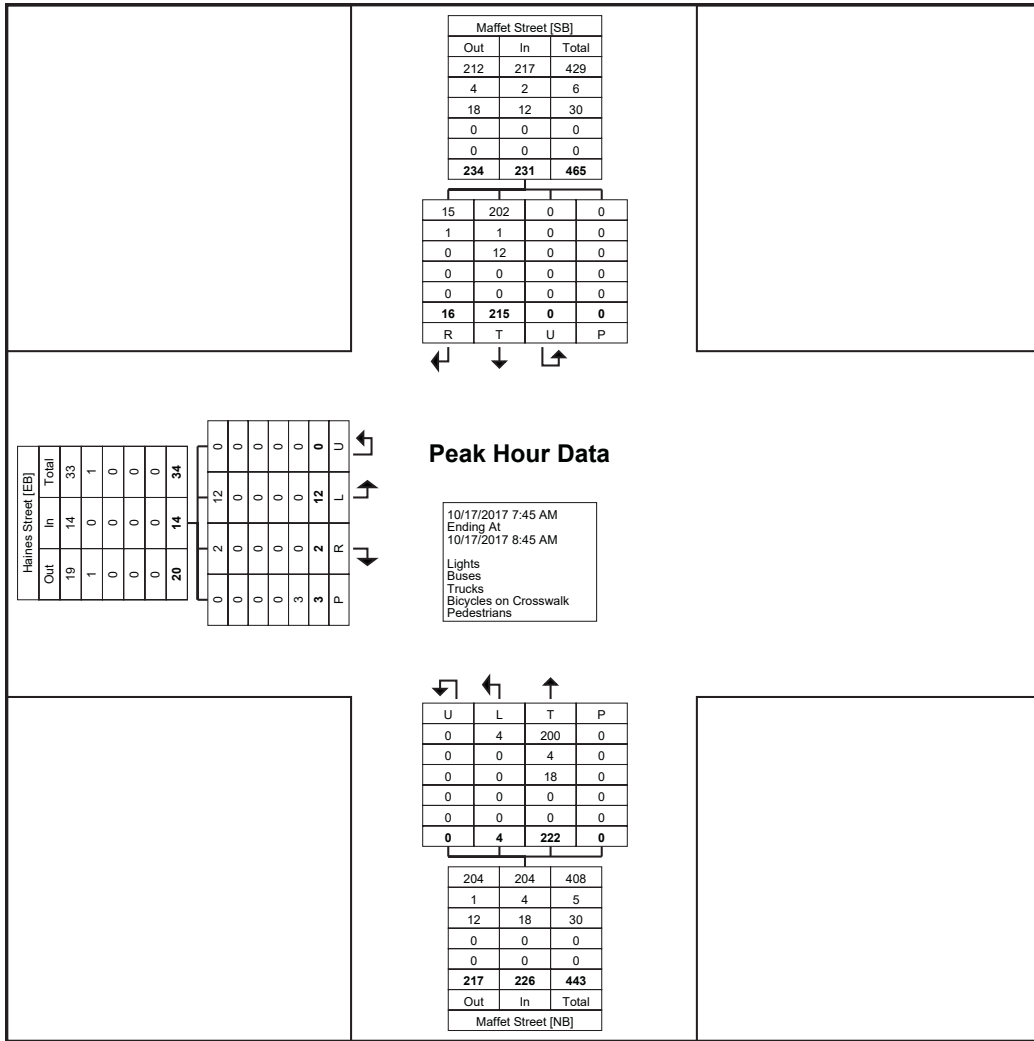


Turning Movement Data Plot

Wilkes-Barre, PA
Maffett St & Haines St
Tuesday, October 17, 2017
Location: 41.268627, -
75.860381

Turning Movement Peak Hour Data (7:45 AM)

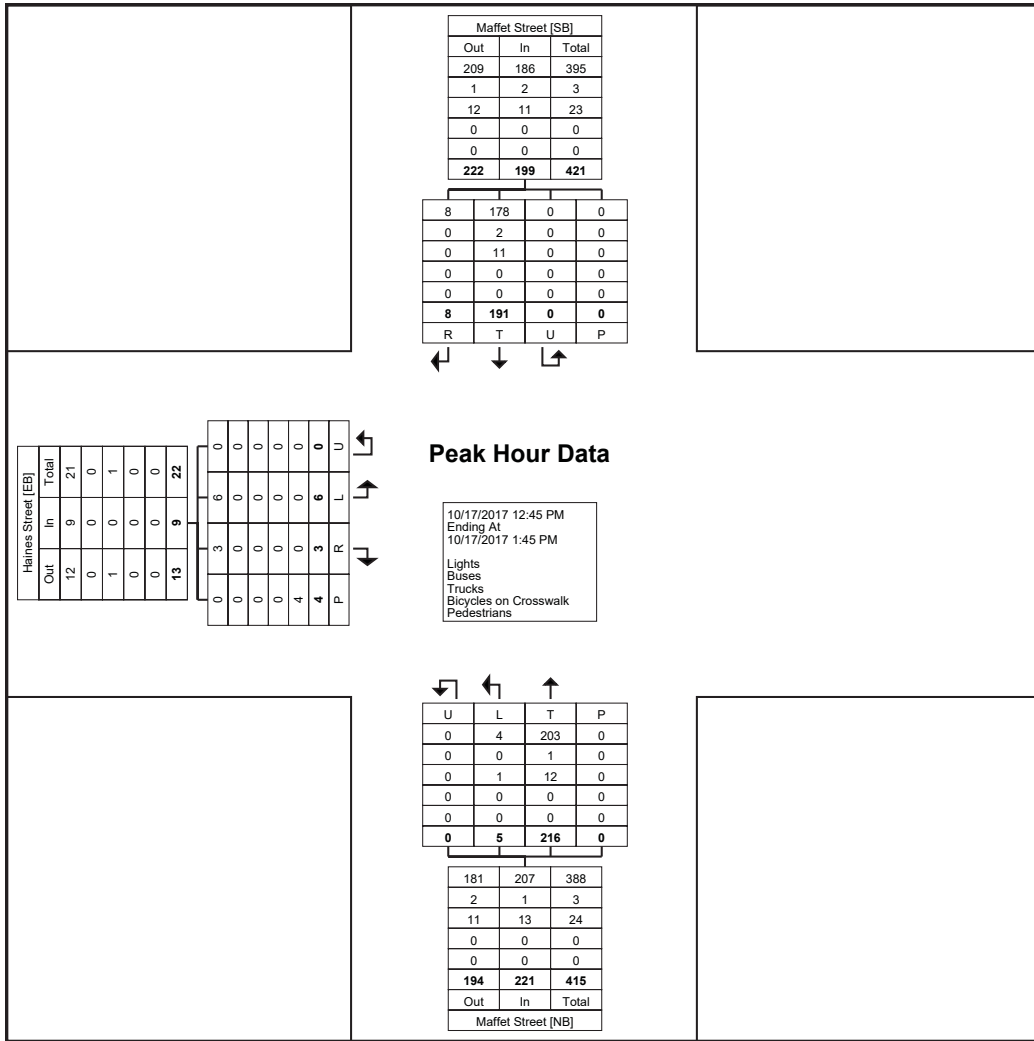
Start Time	Haines Street Eastbound					Maffett Street Northbound					Maffett Street Southbound					Int. Total
	Left	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	
7:45 AM	1	1	0	2	2	2	63	0	0	65	61	2	0	0	63	130
8:00 AM	4	1	0	1	5	0	62	0	0	62	47	4	0	0	51	118
8:15 AM	4	0	0	0	4	0	55	0	0	55	41	4	0	0	45	104
8:30 AM	3	0	0	0	3	2	42	0	0	44	66	6	0	0	72	119
Total	12	2	0	3	14	4	222	0	0	226	215	16	0	0	231	471
Approach %	85.7	14.3	0.0	-	-	1.8	98.2	0.0	-	-	93.1	6.9	0.0	-	-	-
Total %	2.5	0.4	0.0	-	3.0	0.8	47.1	0.0	-	48.0	45.6	3.4	0.0	-	49.0	-
PHF	0.750	0.500	0.000	-	0.700	0.500	0.881	0.000	-	0.869	0.814	0.667	0.000	-	0.802	0.906
Lights	12	2	0	-	14	4	200	0	-	204	202	15	0	-	217	435
% Lights	100.0	100.0	-	-	100.0	100.0	90.1	-	-	90.3	94.0	93.8	-	-	93.9	92.4
Buses	0	0	0	-	0	0	4	0	-	4	1	1	0	-	2	6
% Buses	0.0	0.0	-	-	0.0	0.0	1.8	-	-	1.8	0.5	6.3	-	-	0.9	1.3
Trucks	0	0	0	-	0	0	18	0	-	18	12	0	0	-	12	30
% Trucks	0.0	0.0	-	-	0.0	0.0	8.1	-	-	8.0	5.6	0.0	-	-	5.2	6.4
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	3	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-



Turning Movement Peak Hour Data Plot (7:45 AM)

Turning Movement Peak Hour Data (12:45 PM)

Start Time	Haines Street Eastbound					Maffett Street Northbound					Maffett Street Southbound					Int. Total
	Left	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	
12:45 PM	2	0	0	4	2	1	56	0	0	57	48	1	0	0	49	108
1:00 PM	2	1	0	0	3	2	57	0	0	59	53	2	0	0	55	117
1:15 PM	0	1	0	0	1	2	54	0	0	56	42	5	0	0	47	104
1:30 PM	2	1	0	0	3	0	49	0	0	49	48	0	0	0	48	100
Total	6	3	0	4	9	5	216	0	0	221	191	8	0	0	199	429
Approach %	66.7	33.3	0.0	-	-	2.3	97.7	0.0	-	-	96.0	4.0	0.0	-	-	-
Total %	1.4	0.7	0.0	-	2.1	1.2	50.3	0.0	-	51.5	44.5	1.9	0.0	-	46.4	-
PHF	0.750	0.750	0.000	-	0.750	0.625	0.947	0.000	-	0.936	0.901	0.400	0.000	-	0.905	0.917
Lights	6	3	0	-	9	4	203	0	-	207	178	8	0	-	186	402
% Lights	100.0	100.0	-	-	100.0	80.0	94.0	-	-	93.7	93.2	100.0	-	-	93.5	93.7
Buses	0	0	0	-	0	0	1	0	-	1	2	0	0	-	2	3
% Buses	0.0	0.0	-	-	0.0	0.0	0.5	-	-	0.5	1.0	0.0	-	-	1.0	0.7
Trucks	0	0	0	-	0	1	12	0	-	13	11	0	0	-	11	24
% Trucks	0.0	0.0	-	-	0.0	20.0	5.6	-	-	5.9	5.8	0.0	-	-	5.5	5.6
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	4	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-



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



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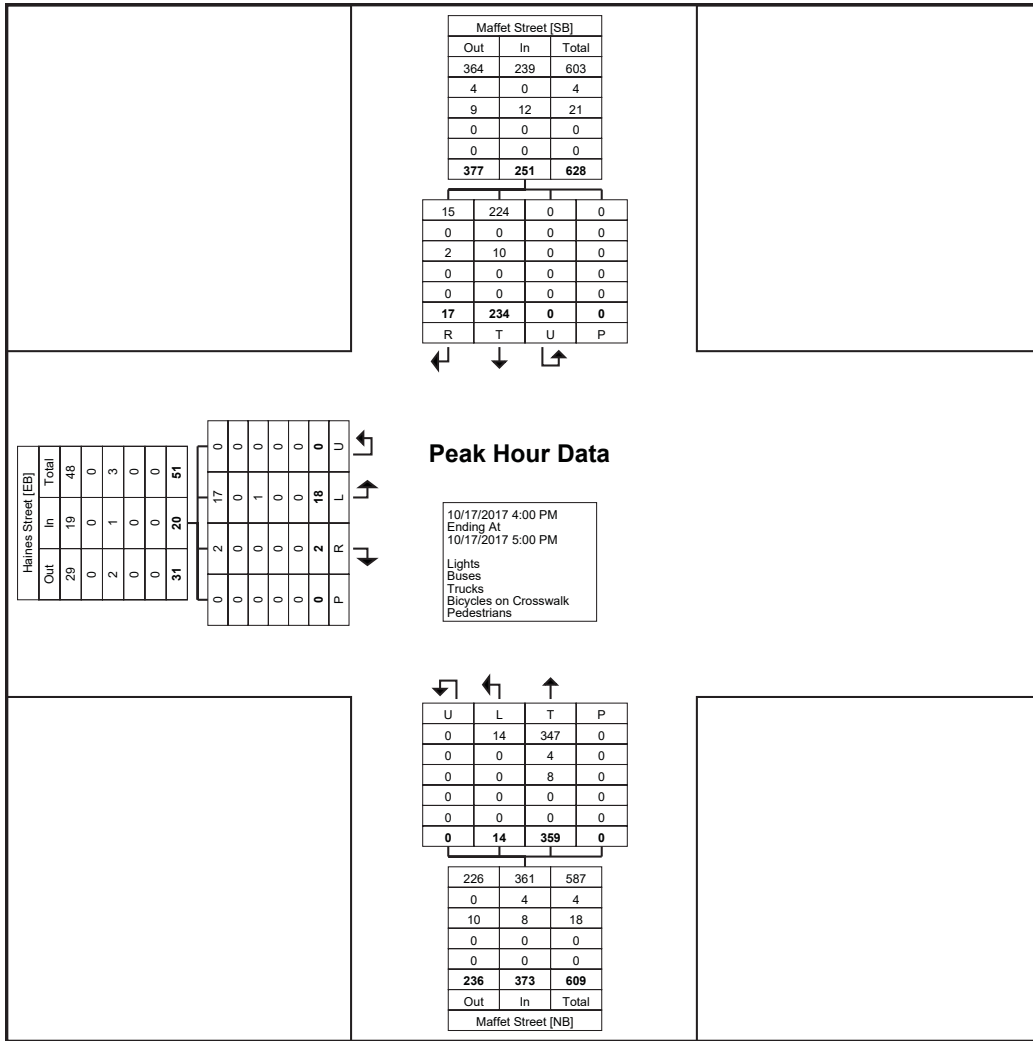
Coatesville, Pennsylvania, United States 19320
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Count Name: Maffett St-Haines St
Site Code:
Start Date: 10/17/2017
Page No: 8

Wilkes-Barre, PA
Maffett St & Haines St
Tuesday, October 17, 2017
Location: 41.268627, -
75.860381

Turning Movement Peak Hour Data (4:00 PM)

Start Time	Haines Street Eastbound					Maffett Street Northbound					Maffett Street Southbound					Int. Total
	Left	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	
4:00 PM	2	0	0	0	2	4	80	0	0	84	68	2	0	0	70	156
4:15 PM	6	0	0	0	6	2	86	0	0	88	51	4	0	0	55	149
4:30 PM	7	1	0	0	8	5	105	0	0	110	56	4	0	0	60	178
4:45 PM	3	1	0	0	4	3	88	0	0	91	59	7	0	0	66	161
Total	18	2	0	0	20	14	359	0	0	373	234	17	0	0	251	644
Approach %	90.0	10.0	0.0	-	-	3.8	96.2	0.0	-	-	93.2	6.8	0.0	-	-	-
Total %	2.8	0.3	0.0	-	3.1	2.2	55.7	0.0	-	57.9	36.3	2.6	0.0	-	39.0	-
PHF	0.643	0.500	0.000	-	0.625	0.700	0.855	0.000	-	0.848	0.860	0.607	0.000	-	0.896	0.904
Lights	17	2	0	-	19	14	347	0	-	361	224	15	0	-	239	619
% Lights	94.4	100.0	-	-	95.0	100.0	96.7	-	-	96.8	95.7	88.2	-	-	95.2	96.1
Buses	0	0	0	-	0	0	4	0	-	4	0	0	0	-	0	4
% Buses	0.0	0.0	-	-	0.0	0.0	1.1	-	-	1.1	0.0	0.0	-	-	0.0	0.6
Trucks	1	0	0	-	1	0	8	0	-	8	10	2	0	-	12	21
% Trucks	5.6	0.0	-	-	5.0	0.0	2.2	-	-	2.1	4.3	11.8	-	-	4.8	3.3
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



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



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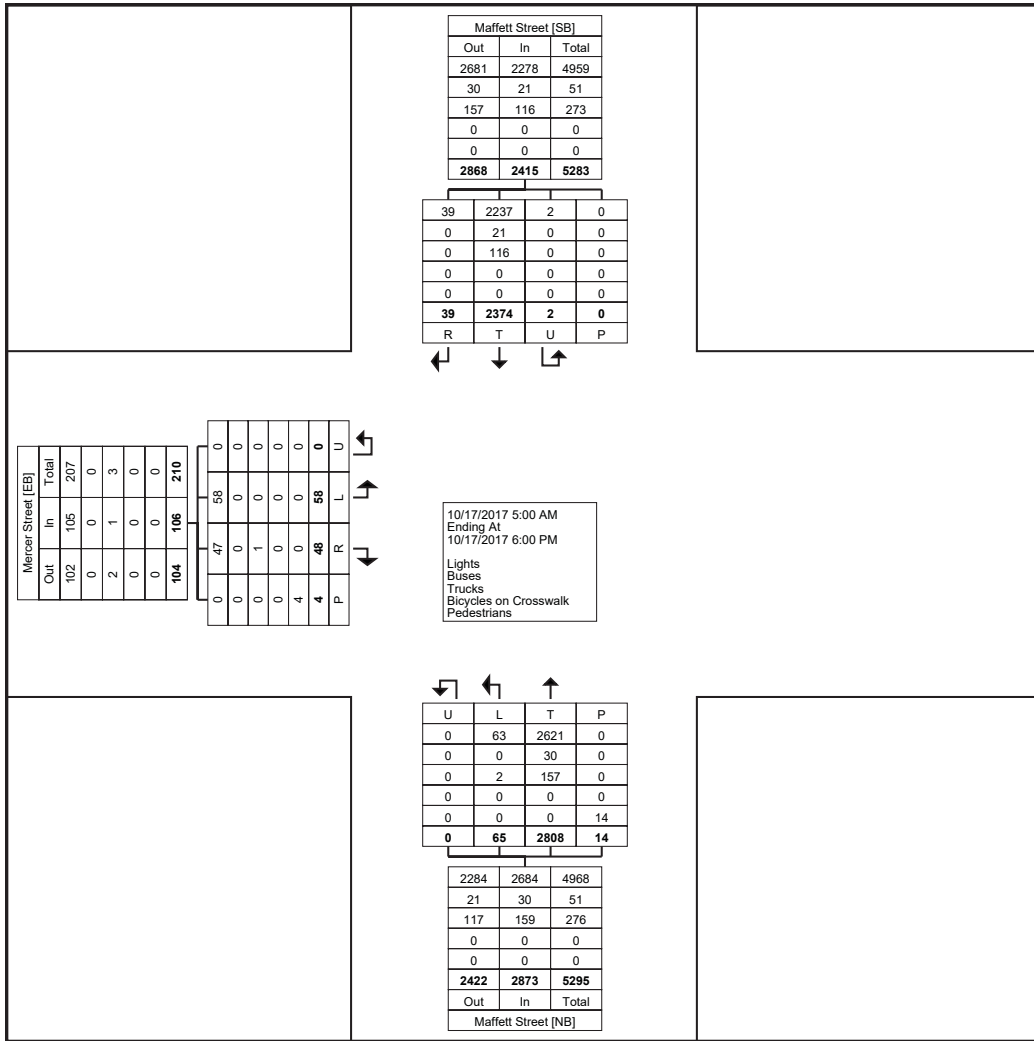
Count Name: Maffett St-Mercer St
Site Code:
Start Date: 10/17/2017
Page No: 1

Wilkes-Barre, PA
Maffett St & Mercer St
Tuesday, October 19, 2017
Location: 41.269142, -
75.859431

Turning Movement Data

Start Time	Mercer Street Eastbound					Maffett Street Northbound					Maffett Street Southbound					Int. Total
	Left	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	
5:00 AM	0	0	0	0	0	0	3	0	0	3	7	0	0	0	7	10
5:15 AM	1	0	0	0	1	0	15	0	0	15	9	0	0	0	9	25
5:30 AM	0	0	0	0	0	0	11	0	0	11	13	0	0	0	13	24
5:45 AM	1	0	0	0	1	1	26	0	0	27	20	1	0	0	21	49
Hourly Total	2	0	0	0	2	1	55	0	0	56	49	1	0	0	50	108
6:00 AM	0	1	0	0	1	0	14	0	0	14	17	0	0	0	17	32
6:15 AM	0	1	0	0	1	0	19	0	0	19	30	0	0	0	30	50
6:30 AM	0	1	0	0	1	0	19	0	0	19	40	0	0	0	40	60
6:45 AM	3	1	0	0	4	0	52	0	0	52	38	0	0	0	38	94
Hourly Total	3	4	0	0	7	0	104	0	0	104	125	0	0	0	125	236
7:00 AM	2	1	0	0	3	0	43	0	0	43	38	1	0	0	39	85
7:15 AM	4	0	0	0	4	0	48	0	0	48	54	1	0	0	55	107
7:30 AM	3	3	0	0	6	1	51	0	1	52	51	1	0	0	52	110
7:45 AM	1	1	0	0	2	0	68	0	0	68	62	0	0	0	62	132
Hourly Total	10	5	0	0	15	1	210	0	1	211	205	3	0	0	208	434
8:00 AM	3	0	0	0	3	0	66	0	0	66	51	0	0	0	51	120
8:15 AM	1	0	0	0	1	4	53	0	0	57	45	1	0	0	46	104
8:30 AM	4	1	0	0	5	1	47	0	0	48	70	1	0	0	71	124
8:45 AM	0	1	0	0	1	1	54	0	1	55	52	0	0	0	52	108
Hourly Total	8	2	0	0	10	6	220	0	1	226	218	2	0	0	220	456
9:00 AM	0	0	0	0	0	0	49	0	0	49	35	0	1	0	36	85
9:15 AM	1	2	0	0	3	1	30	0	0	31	45	0	0	0	45	79
9:30 AM	0	0	0	0	0	1	35	0	0	36	28	0	0	0	28	64
9:45 AM	0	0	0	0	0	2	49	0	0	51	44	0	1	0	45	96
Hourly Total	1	2	0	0	3	4	163	0	0	167	152	0	2	0	154	324
10:00 AM	0	0	0	0	0	0	48	0	0	48	32	0	0	0	32	80
10:15 AM	1	0	0	0	1	0	39	0	0	39	42	1	0	0	43	83
10:30 AM	0	0	0	0	0	1	35	0	0	36	41	0	0	0	41	77
10:45 AM	0	2	0	0	2	1	50	0	0	51	45	0	0	0	45	98
Hourly Total	1	2	0	0	3	2	172	0	0	174	160	1	0	0	161	338
11:00 AM	2	1	0	0	3	2	46	0	1	48	31	0	0	0	31	82
11:15 AM	1	1	0	0	2	0	44	0	0	44	40	0	0	0	40	86
11:30 AM	2	1	0	0	3	2	47	0	0	49	46	0	0	0	46	98
11:45 AM	0	1	0	1	1	0	53	0	0	53	52	0	0	0	52	106
Hourly Total	5	4	0	1	9	4	190	0	1	194	169	0	0	0	169	372
12:00 PM	0	1	0	0	1	3	64	0	0	67	43	0	0	0	43	111
12:15 PM	0	1	0	0	1	3	50	0	2	53	46	0	0	0	46	100
12:30 PM	2	1	0	0	3	4	45	0	0	49	40	2	0	0	42	94
12:45 PM	1	4	0	2	5	0	57	0	1	57	46	1	0	0	47	109
Hourly Total	3	7	0	2	10	10	216	0	3	226	175	3	0	0	178	414
1:00 PM	1	1	0	0	2	2	59	0	0	61	55	0	0	0	55	118
1:15 PM	1	0	0	0	1	1	51	0	0	52	48	1	0	0	49	102
1:30 PM	1	2	0	0	3	2	52	0	0	54	44	0	0	0	44	101
1:45 PM	0	2	0	0	2	0	56	0	0	56	37	0	0	0	37	95
Hourly Total	3	5	0	0	8	5	218	0	0	223	184	1	0	0	185	416
2:00 PM	2	0	0	0	2	4	59	0	1	63	54	0	0	0	54	119
2:15 PM	0	3	0	0	3	4	70	0	1	74	51	3	0	0	54	131
2:30 PM	2	0	0	0	2	1	60	0	0	61	52	2	0	0	54	117
2:45 PM	2	1	0	0	3	1	87	0	0	88	62	2	0	0	64	155
Hourly Total	6	4	0	0	10	10	276	0	2	286	219	7	0	0	226	522
3:00 PM	1	1	0	0	2	1	75	0	3	76	56	5	0	0	61	139
3:15 PM	2	1	0	0	3	3	77	0	2	80	78	2	0	0	80	163
3:30 PM	2	1	0	1	3	1	75	0	0	76	54	1	0	0	55	134
3:45 PM	2	1	0	0	3	2	62	0	1	64	55	2	0	0	57	124
Hourly Total	7	4	0	1	11	7	289	0	6	296	243	10	0	0	253	560
4:00 PM	0	2	0	0	2	0	81	0	0	81	67	2	0	0	69	152
4:15 PM	3	1	0	0	4	2	90	0	0	92	52	1	0	0	53	149
4:30 PM	2	1	0	0	3	4	104	0	0	108	59	2	0	0	61	172
4:45 PM	0	1	0	0	1	1	91	0	0	92	66	0	0	0	66	159
Hourly Total	5	5	0	0	10	7	366	0	0	373	244	5	0	0	249	632
5:00 PM	3	0	0	0	3	4	86	0	0	90	51	3	0	0	54	147

5:15 PM	0	3	0	0	3	2	100	0	0	102	49	2	0	0	51	156
5:30 PM	1	1	0	0	2	0	71	0	0	71	56	0	0	0	56	129
5:45 PM	0	0	0	0	0	2	72	0	0	74	75	1	0	0	76	150
Hourly Total	4	4	0	0	8	8	329	0	0	337	231	6	0	0	237	582
Grand Total	58	48	0	4	106	65	2808	0	14	2873	2374	39	2	0	2415	5394
Approach %	54.7	45.3	0.0	-	-	2.3	97.7	0.0	-	-	98.3	1.6	0.1	-	-	-
Total %	1.1	0.9	0.0	-	2.0	1.2	52.1	0.0	-	53.3	44.0	0.7	0.0	-	44.8	-
Lights	58	47	0	-	105	63	2621	0	-	2684	2237	39	2	-	2278	5067
% Lights	100.0	97.9	-	-	99.1	96.9	93.3	-	-	93.4	94.2	100.0	100.0	-	94.3	93.9
Buses	0	0	0	-	0	0	30	0	-	30	21	0	0	-	21	51
% Buses	0.0	0.0	-	-	0.0	0.0	1.1	-	-	1.0	0.9	0.0	0.0	-	0.9	0.9
Trucks	0	1	0	-	1	2	157	0	-	159	116	0	0	-	116	276
% Trucks	0.0	2.1	-	-	0.9	3.1	5.6	-	-	5.5	4.9	0.0	0.0	-	4.8	5.1
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	0.0	-	-	-	-	0.0	-	-	-	-	-	-	-
Pedestrians	-	-	-	4	-	-	-	-	14	-	-	-	-	0	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	100.0	-	-	-	-	-	-	-



Turning Movement Data Plot



www.TSTData.com
184 Baker Rd

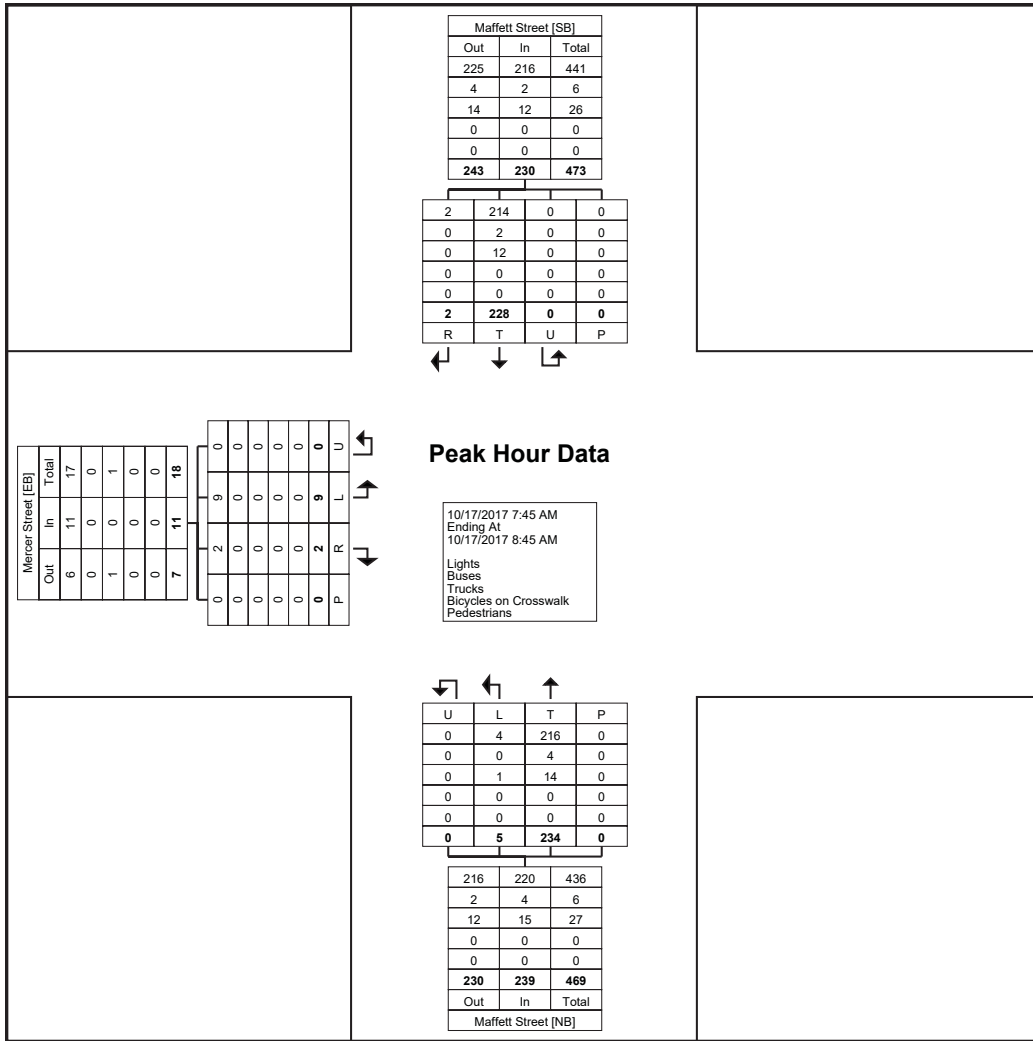
Coatesville, Pennsylvania, United States 19320
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Count Name: Maffett St-Mercer St
Site Code:
Start Date: 10/17/2017
Page No: 4

Wilkes-Barre, PA
Maffett St & Mercer St
Tuesday, October 19, 2017
Location: 41.269142, -
75.859431

Turning Movement Peak Hour Data (7:45 AM)

Start Time	Mercer Street Eastbound					Maffett Street Northbound					Maffett Street Southbound					Int. Total
	Left	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	
7:45 AM	1	1	0	0	2	0	68	0	0	68	62	0	0	0	62	132
8:00 AM	3	0	0	0	3	0	66	0	0	66	51	0	0	0	51	120
8:15 AM	1	0	0	0	1	4	53	0	0	57	45	1	0	0	46	104
8:30 AM	4	1	0	0	5	1	47	0	0	48	70	1	0	0	71	124
Total	9	2	0	0	11	5	234	0	0	239	228	2	0	0	230	480
Approach %	81.8	18.2	0.0	-	-	2.1	97.9	0.0	-	-	99.1	0.9	0.0	-	-	-
Total %	1.9	0.4	0.0	-	2.3	1.0	48.8	0.0	-	49.8	47.5	0.4	0.0	-	47.9	-
PHF	0.563	0.500	0.000	-	0.550	0.313	0.860	0.000	-	0.879	0.814	0.500	0.000	-	0.810	0.909
Lights	9	2	0	-	11	4	216	0	-	220	214	2	0	-	216	447
% Lights	100.0	100.0	-	-	100.0	80.0	92.3	-	-	92.1	93.9	100.0	-	-	93.9	93.1
Buses	0	0	0	-	0	0	4	0	-	4	2	0	0	-	2	6
% Buses	0.0	0.0	-	-	0.0	0.0	1.7	-	-	1.7	0.9	0.0	-	-	0.9	1.3
Trucks	0	0	0	-	0	1	14	0	-	15	12	0	0	-	12	27
% Trucks	0.0	0.0	-	-	0.0	20.0	6.0	-	-	6.3	5.3	0.0	-	-	5.2	5.6
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



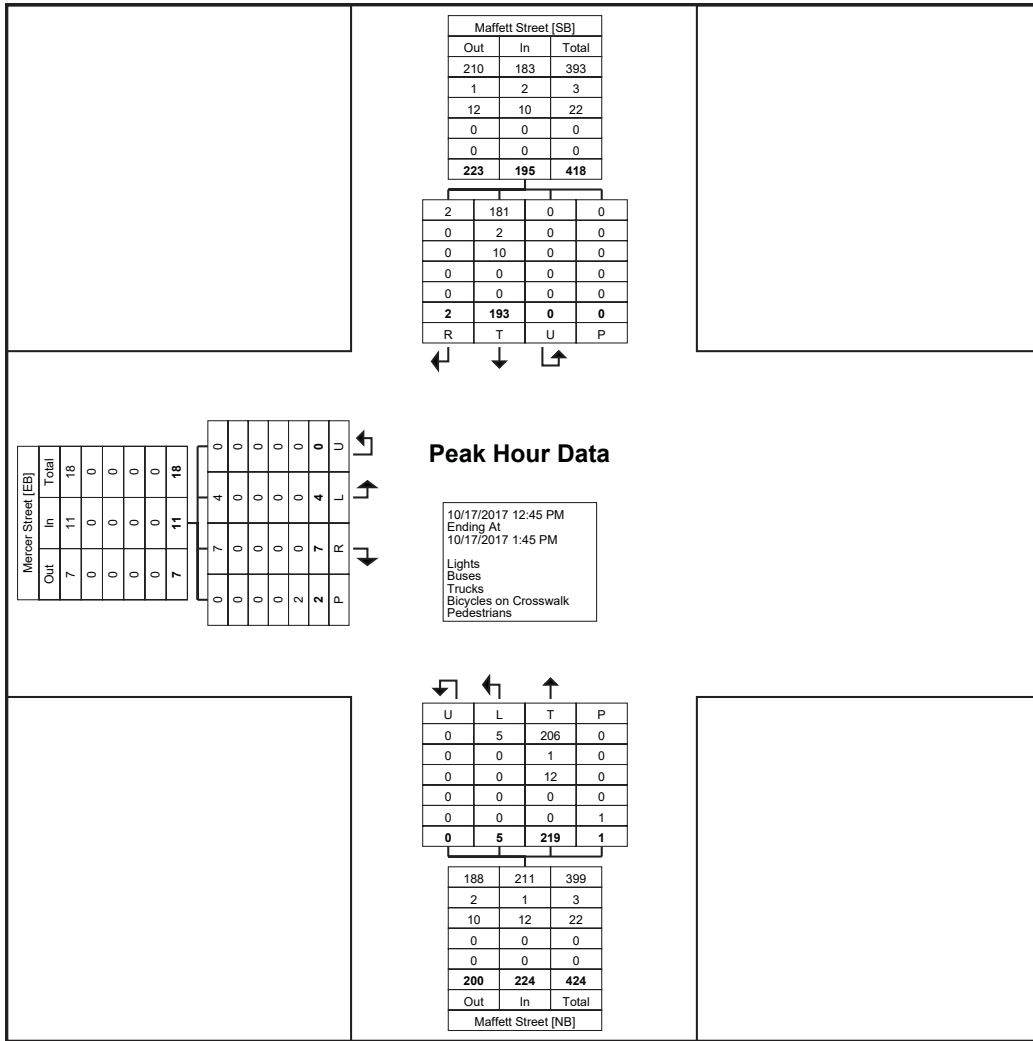
Turning Movement Peak Hour Data Plot (7:45 AM)

Wilkes-Barre, PA
Maffett St & Mercer St
Tuesday, October 19, 2017
Location: 41.269142, -
75.859431

Turning Movement Peak Hour Data (12:45 PM)

Start Time	Mercer Street Eastbound					Maffett Street Northbound					Maffett Street Southbound					Int. Total
	Left	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	
12:45 PM	1	4	0	2	5	0	57	0	1	57	46	1	0	0	47	109
1:00 PM	1	1	0	0	2	2	59	0	0	61	55	0	0	0	55	118
1:15 PM	1	0	0	0	1	1	51	0	0	52	48	1	0	0	49	102
1:30 PM	1	2	0	0	3	2	52	0	0	54	44	0	0	0	44	101
Total	4	7	0	2	11	5	219	0	1	224	193	2	0	0	195	430
Approach %	36.4	63.6	0.0	-	-	2.2	97.8	0.0	-	-	99.0	1.0	0.0	-	-	-
Total %	0.9	1.6	0.0	-	2.6	1.2	50.9	0.0	-	52.1	44.9	0.5	0.0	-	45.3	-
PHF	1.000	0.438	0.000	-	0.550	0.625	0.928	0.000	-	0.918	0.877	0.500	0.000	-	0.886	0.911
Lights	4	7	0	-	11	5	206	0	-	211	181	2	0	-	183	405
% Lights	100.0	100.0	-	-	100.0	100.0	94.1	-	-	94.2	93.8	100.0	-	-	93.8	94.2
Buses	0	0	0	-	0	0	1	0	-	1	2	0	0	-	2	3
% Buses	0.0	0.0	-	-	0.0	0.0	0.5	-	-	0.4	1.0	0.0	-	-	1.0	0.7
Trucks	0	0	0	-	0	0	12	0	-	12	10	0	0	-	10	22
% Trucks	0.0	0.0	-	-	0.0	0.0	5.5	-	-	5.4	5.2	0.0	-	-	5.1	5.1
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	0.0	-	-	-	-	0.0	-	-	-	-	-	-	-
Pedestrians	-	-	-	2	-	-	-	-	1	-	-	-	-	0	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	100.0	-	-	-	-	-	-	-

Wilkes-Barre, PA
Maffett St & Mercer St
Tuesday, October 19, 2017
Location: 41.269142, -
75.859431

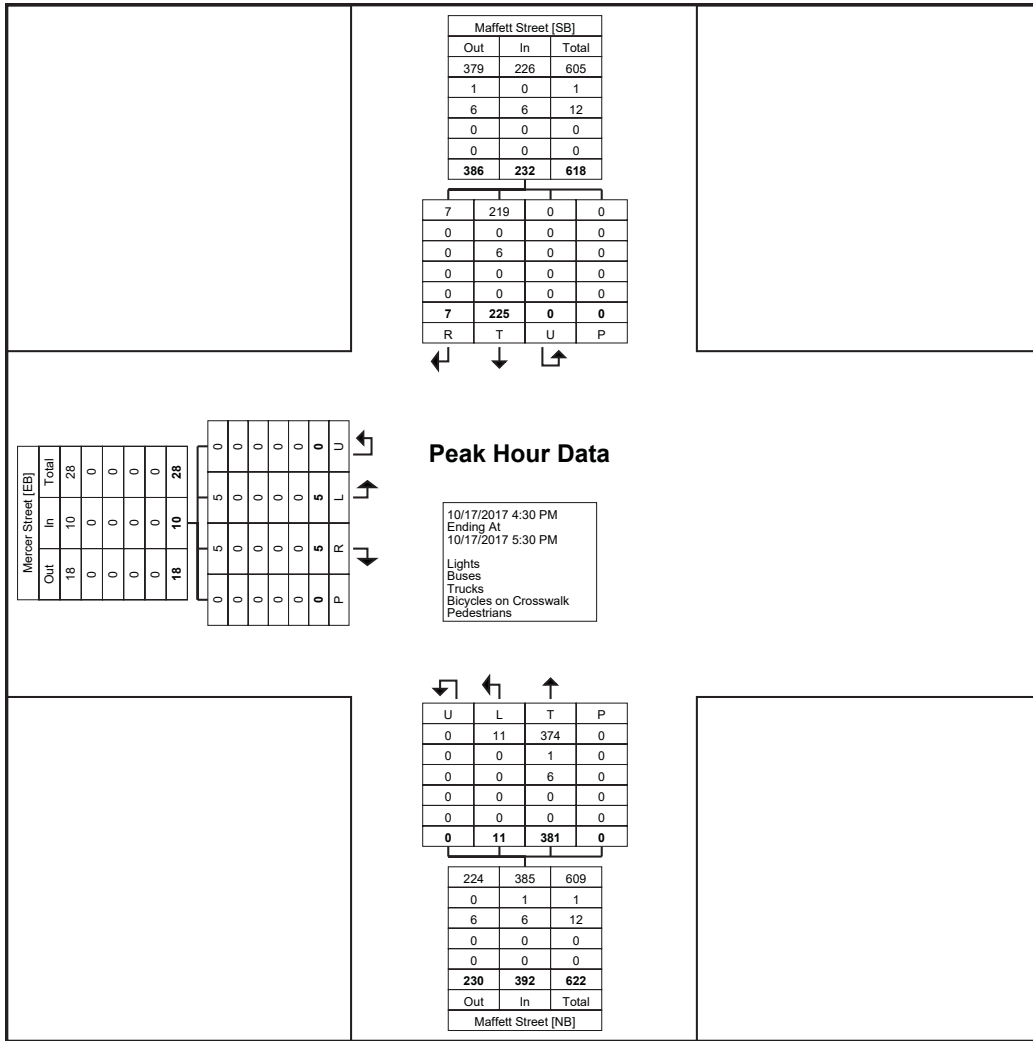


Turning Movement Peak Hour Data Plot (12:45 PM)

Wilkes-Barre, PA
Maffett St & Mercer St
Tuesday, October 19, 2017
Location: 41.269142, -
75.859431

Turning Movement Peak Hour Data (4:30 PM)

Start Time	Mercer Street Eastbound					Maffett Street Northbound					Maffett Street Southbound					Int. Total
	Left	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	
4:30 PM	2	1	0	0	3	4	104	0	0	108	59	2	0	0	61	172
4:45 PM	0	1	0	0	1	1	91	0	0	92	66	0	0	0	66	159
5:00 PM	3	0	0	0	3	4	86	0	0	90	51	3	0	0	54	147
5:15 PM	0	3	0	0	3	2	100	0	0	102	49	2	0	0	51	156
Total	5	5	0	0	10	11	381	0	0	392	225	7	0	0	232	634
Approach %	50.0	50.0	0.0	-	-	2.8	97.2	0.0	-	-	97.0	3.0	0.0	-	-	-
Total %	0.8	0.8	0.0	-	1.6	1.7	60.1	0.0	-	61.8	35.5	1.1	0.0	-	36.6	-
PHF	0.417	0.417	0.000	-	0.833	0.688	0.916	0.000	-	0.907	0.852	0.583	0.000	-	0.879	0.922
Lights	5	5	0	-	10	11	374	0	-	385	219	7	0	-	226	621
% Lights	100.0	100.0	-	-	100.0	100.0	98.2	-	-	98.2	97.3	100.0	-	-	97.4	97.9
Buses	0	0	0	-	0	0	1	0	-	1	0	0	0	-	0	1
% Buses	0.0	0.0	-	-	0.0	0.0	0.3	-	-	0.3	0.0	0.0	-	-	0.0	0.2
Trucks	0	0	0	-	0	0	6	0	-	6	6	0	0	-	6	12
% Trucks	0.0	0.0	-	-	0.0	0.0	1.6	-	-	1.5	2.7	0.0	-	-	2.6	1.9
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



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

Maffett St-Main St/Abbott St - TMC

Tue Oct 17, 2017

Full Length (5AM-6PM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians)

All Movements

ID: 459906, Location: 41.274515, -75.851895



Provided by: Tri-State Traffic Data, Inc.
184 Baker Road, Coatesville, PA, 19320, US

Leg Direction	Abbott Street Westbound					Maffett Street Northbound					Maffett Street Southbound					Main Street Northwestbound					Int															
	R	L	HL	U	App	HR	R	T	U	App	T	BL	L	U	App	HR	BR	HL	U	App		HR	BR	HL	U	App										
2017-10-17 5:00AM	1	1	0	0	0	0	0	3	0	1	9	6	2	0	26	0	1	0	0	2	0	0	0	0	0	0	1	0	0	2	0	0	0	0	0	01
5:15AM	1	0	0	0	2	0	0	15	0	28	8	6	0	0	23	0	2	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	10
5:30AM	2	0	0	0	0	1	2	10	0	21	14	10	1	0	08	0	0	5	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	38
5:45AM	4	0	0	0	3	0	5	22	0	06	15	15	3	0	11	0	0	6	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	67
Hourly Total	8	1	0	0	4	1	7	50	0	85	46	37	6	0	54	0	0	14	0	0	0	0	0	0	0	0	14	0	0	0	0	0	0	0	0	267
6:00AM	0	1	1	0	0	0	1	16	0	26	21	16	3	0	37	0	0	5	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	93
6:15AM	2	2	1	0	8	0	5	11	0	29	25	20	4	0	34	0	0	9	0	0	0	0	0	0	0	0	9	0	0	0	0	0	0	0	0	64
6:30AM	2	3	1	0	9	0	2	20	0	01	36	31	2	0	94	0	1	13	0	0	0	0	0	0	0	1	13	0	0	0	0	0	0	0	0	220
6:45AM	4	2	0	0	9	0	2	47	0	87	31	35	3	0	94	0	0	23	0	0	0	0	0	0	0	0	23	0	0	0	0	0	0	0	0	235
Hourly Total	8	8	3	0	24	2	10	94	0	279	113	102	12	0	006	0	1	50	0	0	0	0	0	0	0	0	50	0	0	0	0	0	0	0	0	371
7:00AM	4	4	0	0	5	1	3	10	33	0	39	41	4	0	53	7	1	11	0	0	0	0	0	0	0	1	11	0	0	0	0	0	0	0	0	287
7:15AM	2	3	0	0	8	4	2	15	36	0	81	0	39	58	12	0	274	0	1	18	0	0	2	18	0	0	0	0	0	0	0	0	0	259		
7:30AM	4	4	0	0	5	2	1	20	35	0	89	0	58	100	16	0	263	0	3	20	0	0	0	20	0	0	0	0	0	0	0	0	092			
7:45AM	5	3	1	0	4	0	4	13	41	0	85	0	68	118	17	0	071	0	2	25	0	0	0	25	0	0	0	0	0	0	0	0	046			
Hourly Total	15	14	1	0	17	7	10	58	145	0	021	0	204	317	49	0	867	7	7	74	0	0	5	74	0	0	0	0	0	0	0	0	543			
8:00AM	6	5	1	0	20	1	1	12	45	0	85	0	45	87	12	0	233	0	4	25	0	0	0	4	25	0	0	0	0	0	0	0	031			
8:15AM	7	7	1	0	28	1	1	16	38	0	88	0	47	88	17	0	280	0	4	12	0	0	0	4	12	0	0	0	0	0	0	0	015			
8:30AM	20	7	0	0	06	0	0	13	45	0	85	0	54	77	24	0	288	0	12	38	0	0	0	12	38	0	0	0	0	0	0	0	047			
8:45AM	3	7	1	0	22	1	0	7	51	0	85	0	51	54	10	0	228	0	0	16	0	0	0	0	16	0	0	0	0	0	0	0	077			
Hourly Total	36	26	3	0	98	3	2	48	179	0	004	0	197	306	63	0	899	0	20	91	0	0	1	20	91	0	0	0	0	0	0	0	462			
9:00AM	2	0	1	0	1	0	2	5	43	0	87	0	33	44	5	0	50	0	2	15	1	0	0	2	15	1	0	0	0	0	0	0	281			
9:15AM	3	4	1	0	5	0	1	7	35	0	31	0	39	31	3	0	61	0	1	16	0	0	0	1	16	0	0	0	0	0	0	0	232			
9:30AM	7	3	0	0	27	1	0	10	27	0	16	1	31	25	11	0	96	2	1	11	0	0	0	1	11	0	0	0	0	0	0	0	209			
9:45AM	6	10	0	0	29	1	1	6	50	0	86	0	44	24	7	0	68	0	1	19	1	0	0	1	19	1	0	0	0	0	0	0	294			
Hourly Total	18	17	2	0	16	2	4	28	155	0	256	1	147	124	26	0	046	2	5	61	2	0	95	5	61	2	0	0	0	0	0	0	854			
10:00AM	4	2	0	0	9	0	0	13	44	0	86	0	31	19	7	0	86	1	1	15	2	0	0	1	15	2	0	0	0	0	0	0	215			
10:15AM	6	5	2	0	21	5	2	8	40	0	87	0	46	24	5	0	68	1	1	21	0	0	0	1	21	0	0	0	0	0	0	0	297			
10:30AM	6	2	1	0	4	0	1	9	33	0	31	0	42	28	4	0	63	0	0	14	0	0	0	0	14	0	0	0	0	0	0	0	237			
10:45AM	4	5	1	0	27	2	1	7	45	0	81	0	37	22	8	0	96	0	0	33	0	0	0	0	33	0	0	0	0	0	0	0	291			
Hourly Total	20	14	4	0	15	7	4	37	162	0	071	0	156	93	24	0	061	2	2	83	2	0	56	2	83	2	0	0	0	0	0	0	972			
11:00AM	5	4	0	0	4	0	1	10	39	0	87	0	25	19	4	0	35	0	4	28	0	0	0	4	28	0	0	0	0	0	0	0	214			
11:15AM	5	4	0	0	4	0	0	7	44	0	82	0	33	22	9	0	93	0	2	19	0	0	0	2	19	0	0	0	0	0	0	0	238			
11:30AM	5	7	2	0	23	0	0	9	43	0	80	0	46	35	2	0	51	0	3	21	0	0	0	3	21	0	0	0	0	0	0	0	261			
11:45AM	7	5	0	0	20	0	1	7	55	0	91	0	48	26	4	0	65	0	5	19	1	0	0	5	19	1	0	0	0	0	0	0	265			
Hourly Total	22	20	2	0	33	0	2	33	181	0	029	0	152	102	19	0	061	0	14	87	1	0	270	0	87	1	0	0	0	0	0	0	918			
12:00PM	2	6	0	0	5	0	1	9	56	0	99	0	28	21	5	0	83	0	6	27	1	0	13	6	27	1	0	0	0	0	0	0	290			
12:15PM	4	7	2	0	21	1	3	5	50	0	85	0	42	23	7	0	60	0	4	37	1	0	30	4	37	1	0	0	0	0	0	0	258			
12:30PM	4	13	1	0	25	1	0	9	43	0	80	1	40	33	10	0	51	0	4	39	0	0	31	4	39	0	0	0	0	0	0	0	249			

Leg Direction	Abbott Street Westbound						Maffett Street Northbound						Maffett Street Southbound						Main Street Northwestbound												
	R	L	HL	U	App	Ped*	HR	R	T	U	App	Ped*	T	BL	L	U	App	Ped*	HR	BR	HL	U	App	Ped*	HR	BR	HL	U	App	Ped*	Int
12:45PM	6	9	1	0	29	3	0	15	47	0	90	0	51	29	5	0	58	0	2	40	0	0	30	0	2	40	0	0	30	0	078
Hourly Total	16	35	4	0	88	5	4	38	196	0	015	1	161	106	27	0	043	0	16	143	2	0	292	0	16	143	2	0	292	0	635
1:00PM	6	6	2	0	23	0	1	5	48	0	83	0	51	31	6	0	55	0	1	24	0	0	08	0	5	30	0	0	18	1	253
1:15PM	5	5	0	0	27	0	1	10	47	0	85	0	40	32	9	0	52	0	4	27	0	0	04	0	2	27	0	0	04	0	261
1:30PM	6	4	1	0	22	0	0	11	46	0	86	0	43	28	5	0	69	0	3	40	0	0	30	0	2	40	0	0	30	0	265
1:45PM	8	5	1	0	23	0	1	12	42	0	88	1	38	17	12	0	96	1	2	40	0	0	30	0	10	121	0	0	212	1	629
Hourly Total	25	20	4	0	34	0	3	38	183	0	003	1	172	108	32	0	120	1	172	108	32	0	120	1	172	108	32	0	120	1	629
2:00PM	7	5	1	0	21	0	0	12	53	0	98	0	54	41	5	0	277	0	6	42	1	0	34	0	6	42	1	0	34	0	006
2:15PM	6	9	1	0	29	9	1	11	59	0	62	0	45	32	7	0	53	3	4	41	1	0	39	2	4	41	1	0	39	2	026
2:30PM	5	8	0	0	21	0	3	13	41	0	86	0	64	44	15	0	201	2	11	34	0	0	38	3	11	34	0	0	38	3	015
2:45PM	6	4	1	0	22	1	0	14	80	0	43	0	48	54	17	0	224	0	2	50	1	0	81	2	2	50	1	0	81	2	066
Hourly Total	24	26	3	0	81	10	4	50	233	0	056	0	211	171	44	0	309	5	23	167	3	0	241	7	23	167	3	0	241	7	484
3:00PM	4	3	0	0	6	1	0	17	68	0	58	0	61	44	16	0	202	2	3	48	0	0	82	0	3	48	0	0	82	0	093
3:15PM	9	0	2	0	22	10	0	24	82	0	279	0	60	27	4	0	42	3	5	53	3	0	92	2	5	53	3	0	92	2	094
3:30PM	11	6	0	0	26	0	1	16	74	0	42	0	60	41	4	0	278	0	4	49	0	0	81	0	4	49	0	0	81	0	099
3:45PM	4	5	0	0	4	0	3	10	54	0	96	1	51	49	12	0	220	0	9	50	1	0	97	0	9	50	1	0	97	0	035
Hourly Total	28	14	2	0	33	11	4	67	278	0	134	1	232	161	36	0	304	5	21	200	4	0	008	2	21	200	4	0	008	2	2736
4:00PM	6	4	1	0	22	0	1	22	70	0	41	0	57	42	10	0	274	0	2	63	1	0	99	0	2	63	1	0	99	0	064
4:15PM	2	3	1	0	9	4	0	19	81	0	277	0	58	40	10	0	275	0	2	60	1	0	91	0	2	60	1	0	91	0	066
4:30PM	5	4	0	0	4	0	2	17	93	0	220	0	53	32	8	0	41	2	0	45	0	0	38	0	0	45	0	0	38	0	084
4:45PM	6	1	0	0	6	0	1	10	92	0	271	0	63	40	13	0	229	0	5	51	1	0	86	0	5	51	1	0	86	0	051
Hourly Total	19	12	2	0	11	4	4	68	336	0	375	0	231	154	41	0	309	2	9	219	3	0	012	0	9	219	3	0	012	0	2745
5:00PM	4	5	1	0	27	0	2	24	96	0	200	0	50	35	4	0	54	0	6	55	0	0	92	0	6	55	0	0	92	0	050
5:15PM	13	2	0	0	28	0	1	20	84	0	278	0	55	48	17	0	207	0	8	49	1	0	85	0	8	49	1	0	85	0	045
5:30PM	13	9	0	0	00	2	0	17	65	0	50	0	51	32	17	0	277	0	1	43	0	0	33	2	1	43	0	0	33	2	035
5:45PM	15	20	1	0	19	0	1	10	67	0	65	0	55	37	15	0	276	0	5	38	2	0	38	0	5	38	2	0	38	0	099
Hourly Total	45	36	2	0	51	2	4	71	312	0	156	0	211	152	53	0	329	0	20	185	3	0	075	2	20	185	3	0	075	2	2743
Total	284	243	32	0	884	51	48	553	2504	0	1278	4	2233	1933	432	0	3845	24	148	1495	20	0	2991	20	148	1495	20	0	2991	20	4408
% Approach	50.8%	43.5%	5.7%	0%	-	-	1.5%	17.8%	80.6%	0%	-	-	48.6%	42.0%	9.4%	0%	-	-	8.9%	89.9%	1.2%	0%	-	-	8.9%	89.9%	1.2%	0%	-	-	-
% Total	2.9%	2.4%	0.3%	0%	8.9%	-	0.5%	5.6%	25.2%	0%	12.1%	-	22.5%	19.5%	4.4%	0%	39.1%	-	1.5%	15.1%	0.2%	0%	29.5%	-	1.5%	15.1%	0.2%	0%	29.5%	-	-
Lights	278	237	31	0	839	-	41	542	2344	0	0406	-	2111	1871	424	0	3379	-	144	1450	14	0	2975	-	144	1450	14	0	2975	-	9487
% Lights	97.9%	97.5%	96.9%	0%	46.6%	-	85.4%	98.0%	93.6%	0%	43.1%	-	94.5%	96.8%	98.1%	0%	48.5%	-	97.3%	97.0%	70.0%	0%	49.6%	-	97.3%	97.0%	70.0%	0%	49.6%	-	95.6%
Articulated Trucks and Single-Unit Trucks	4	4	0	0	5	-	7	4	142	0	281	-	104	45	3	0	280	-	2	31	5	0	15	-	2	31	5	0	15	-	351
% Articulated Trucks and Single-Unit Trucks	1.4%	1.6%	0%	0%	2.3%	-	14.6%	0.7%	5.7%	0%	3.4%	-	4.7%	2.3%	0.7%	0%	1.1%	-	1.4%	2.1%	25.0%	0%	0.1%	-	1.4%	2.1%	25.0%	0%	0.1%	-	3.5%
Buses	2	2	1	0	8	-	0	7	18	0	08	-	18	17	5	0	37	-	2	14	1	0	26	-	2	14	1	0	26	-	87
% Buses	0.7%	0.8%	3.1%	0%	7.4%	-	0%	1.3%	0.7%	0%	7.5%	-	0.8%	0.9%	1.2%	0%	7.4%	-	1.4%	0.9%	5.0%	0%	2.7%	-	1.4%	0.9%	5.0%	0%	2.7%	-	0.9%
Pedestrians	-	-	-	-	-	51	-	-	-	-	-	4	-	-	-	-	-	24	-	-	-	-	-	20	-	-	-	-	-	20	-
% Pedestrians	-	-	-	-	-	-100%	-	-	-	-	-	-100%	-	-	-	-	-	-100%	-	-	-	-	-	-100%	-	-	-	-	-	-100%	-

* Pedestrians and Bicycles on Crosswalk. BL: Bear left, BR: Bear right, HL: Hard left, HR: Hard right, L: Left, R: Right, T: Thru, U: U-Turn

Maffett St-Main St/Abbott St - TMC

Tue Oct 17, 2017

Full Length (5AM-6PM)

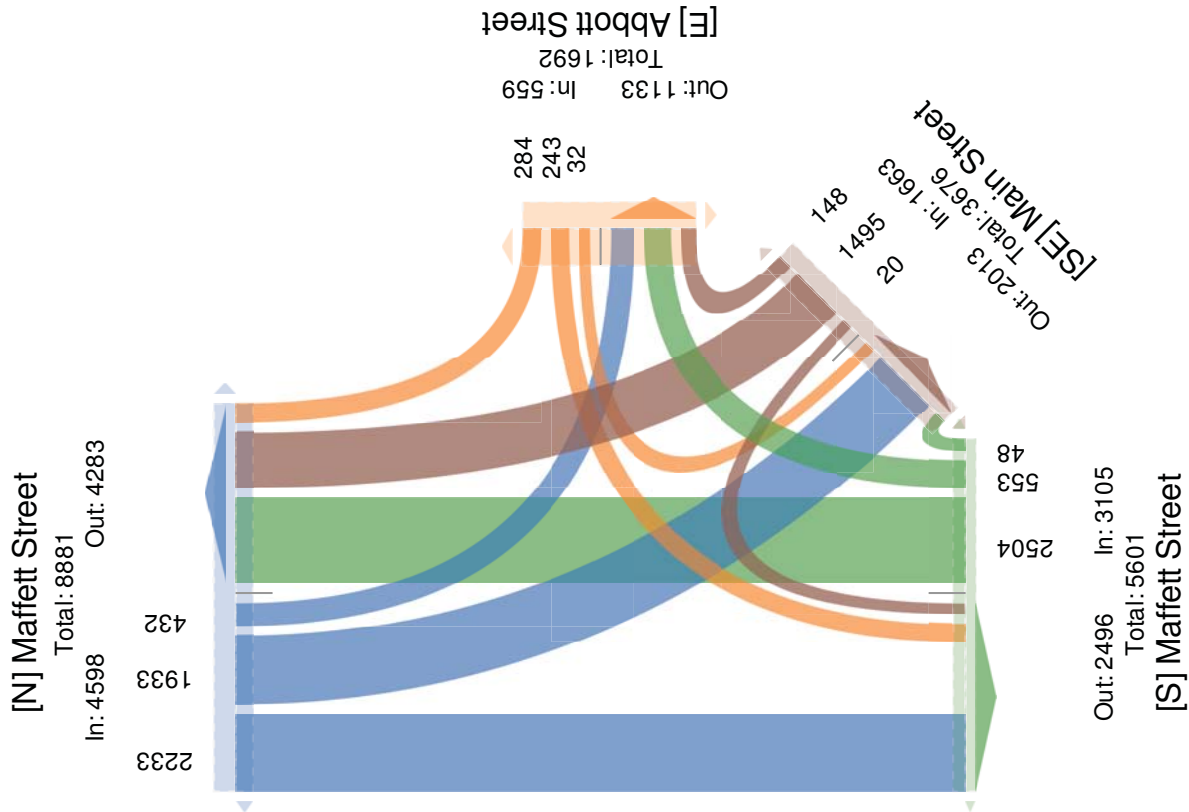
All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians)

All Movements

ID: 459906, Location: 41.274515, -75.351395



Provided 8b: Tri-State Traffic Data, Inc.
134 Baker Road, Coatesville, PA, 19R20, US



Maffett St-Main St/Abbott St - TMC

Tue Oct 17, 2017

AM Peak (7:45AM - 8:45AM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians)

All Movements

ID: 459906, Location: 41.274515, -75.851895



Provided by: Tri-State Traffic Data, Inc.
184 Baker Road, Coatesville, PA, 19320, US

Leg Direction	Abbott Street Westbound				Maffett Street Northbound				Maffett Street Southbound				Main Street Northwestbound			
	R	L	HL	U	HR	R	T	U	T	BL	L	U	HR	BR	HL	U
2017-10-17 7:45AM	5	3	1	0	4	13	41	0	68	118	17	0	2	25	0	0
8:00AM	6	5	1	0	1	12	45	0	45	87	12	0	4	25	0	0
8:15AM	7	7	1	0	1	16	38	0	47	88	17	0	4	12	0	0
8:30AM	20	7	0	0	0	13	45	0	54	77	24	0	12	38	0	0
Total	38	22	3	0	6	54	169	0	214	370	70	0	22	100	0	0
% Approach	60.3%	34.9%	4.8%	0%	2.6%	23.6%	73.8%	0%	32.7%	56.6%	10.7%	0%	18.0%	82.0%	0%	0%
% Total	3.6%	2.1%	0.3%	0%	0.6%	5.1%	15.8%	0%	20.0%	34.6%	6.6%	0%	2.1%	9.4%	0%	0%
PHF	0.475	0.786	0.750	-	0.375	0.844	0.939	-	0.787	0.784	0.729	-	0.458	0.658	-	-
Lights	38	22	3	0	6	53	158	0	207	359	70	0	22	95	0	0
% Lights	100%	100%	100%	0%	100%	98.1%	93.5%	0%	96.7%	97.0%	100%	0%	100%	95.0%	0%	0%
Articulated Trucks and Single-Unit Trucks	0	0	0	0	0	1	9	0	6	7	0	0	0	2	0	0
% Articulate d Trucks and Single-Unit Trucks	0%	0%	0%	0%	0%	1.9%	5.3%	0%	2.8%	1.9%	0%	0%	0%	2.0%	0%	0%
Buses	0	0	0	0	0	0	2	0	1	4	0	0	0	3	0	0
% Buses	0%	0%	0%	0%	0%	0%	1.2%	0%	0.5%	1.1%	0%	0%	0%	3.0%	0%	0%
Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

* Pedestrians and Bicycles on Crosswalk. BL: Bear left, BR: Bear right, HL: Hard left, HR: Hard right, L: Left, R: Right, T: Thru, U: U-Turn

Maffett St-Main St/Abbott St - TMC

Tue Oct 17, 2017

AM Peak (7:45AM - 8:45AM)

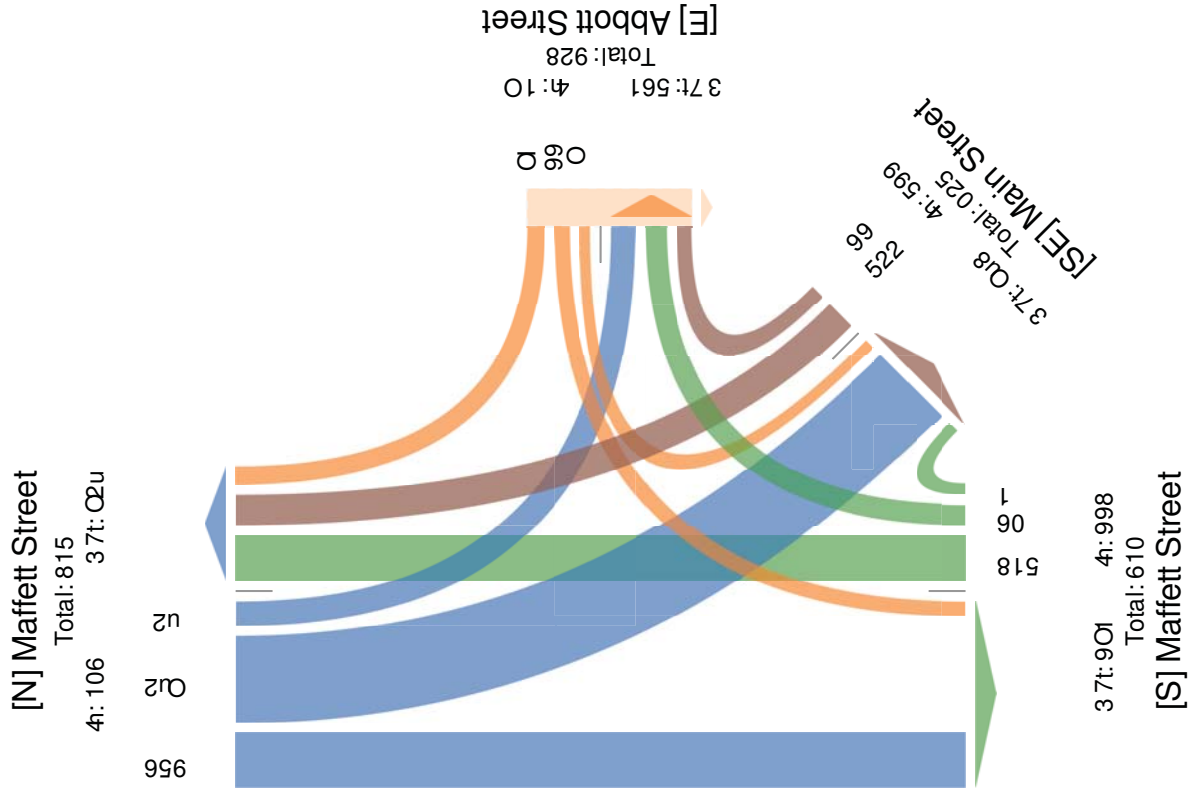
All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians)

All Movements

ID: 45990., Location: 416274515, -756851895



Provided 3b: Tri-State Traffic Data, Inc
184 Baker Road, Coatesville, PA, 19380, US



Maffett St-Main St/Abbott St - TMC

Tue Oct 17, 2017

AMPAK (ea: 415 8(A) 25 8(AI

CsLsaiiei 4gMrti, CdMtsateP Tdrc:i anP Slnhse)UnMTduc:i, Bui ei, (ePeitdMhii

CsAovementi

ID5-89906, gocatMn5-1.27-818, J78.b81b98



(covMeP yk5Td)State TdaffMData, Inc.
1b- Ba: edRoap, Loatei vMte, (C, 19320, US

ge h DMe ctMn	Cyyott Sideet WeityounP				A affie tt Sideet Nodr: youn P				A affie tt Sideet Soutr: youn P				A aM Side et Nodr: we it youn P												
	R	g	Hg	U	App	(eP*	HR	R	T	U	App	(eP*	T	Bg	g	U	App	(eP*	HR	BR	Hg	U	App	(eP*	Int
2017)10)17 15-8(A	b	8	1	0	01	0	1	12	-2	0	55	1	3b	17	12	0	93	1	2	-0	0	0	12	0	038
250(A	7	8	1	0	06	0	0	12	83	0	95	0	8-	-1	8	0	044	0	6	-2	1	0	17	0	223
258(A	6	9	1	0	09	9	1	11	89	0	30	0	-8	32	7	0	81	3	-	-1	1	0	19	2	203
250(A	8	b	0	0	06	0	3	13	-1	0	53	0	6-	--	18	0	026	2	11	3-	0	0	15	3	268
Total	26	27	3	0	59	9	8	-b	198	0	218	1	201	13-	39	0	631	6	23	187	2	0	082	8	894
% Approach	-6.-%	-b.2.-%	8.-%	0.0%	-		2.0%	19.-%	7b.6.-%	0.0%	-		83.7.-%	38.b.-%	10.-%	0.0%	-		12.6.-%	b6.3.-%	1.1.-%	0.0%	-		
% Total	3.0%	3.1%	0.3%	0.0%	9.5%		0.6%	8.6%	22.7.-%	0.0%	28.8.-%		23.-.-%	18.6.-%	-8.-%	0.0%	16.5.-%		2.7.-%	1b.3.-%	0.2.-%	0.0%	20.2.-%		
PHF	0.b13	0.780	0.780		4.835		0.-17	0.923	0.b26		4.836		0.7b8	0.761	0.680		4.394		0.823	0.938	0.800		4.727		0.903
Lights	28	26	3	0	51		-	-b	1b3	0	265		1bb	127	3b	0	656		21	180	2	0	036		b18
% Lights	96.2.-%	96.3.-%	100.0.-%	0.0%	79.1.-%		b0.0.-%	100.-%	93.b.-%	0.0%	71.8.-%		93.8.-%	9.-.b.-%	97.-.-%	0.0%	71.1.-%		91.3.-%	98.8.-%	100.0.-%	0.0%	75.0.-%		9.-.b.-%
Articulated Trucks and Single-Unit Trucks	1	0	0	0	0		1	0	11	0	02		12	8	0	0	03		1	8	0	0	9		36
% Articulated Trucks and Single-Unit Trucks	3.3.-%	0.0%	0.0%	0.0%	0.8.-%		20.0.-%	0.0%	8.6.-%	0.0%	1.8.-%		6.0.-%	3.7.-%	0.0%	0.0%	1.5.-%		-3.-%	3.2.-%	0.0%	0.0%	6.6.-%		-2.-%
Buses	0	1	0	0	0		0	0	1	0	0		1	2	1	0	1		1	2	0	0	6		9
% Buses	0.0%	3.7.-%	0.0%	0.0%	0.8.-%		0.0%	0.0%	0.8.-%	0.0%	4.1.-%		0.8.-%	1.8.-%	2.6.-%	0.0%	0.0.-%		-3.-%	1.3.-%	0.0%	0.0%	0.9.-%		1.0.-%
(ePeitdMhii	)	)	)	)	)	9	)	)	)	)	)	1	)	)	)	)	)	6	)	)	)	)	)	8)
% (ePeitdMhii	)	)	)	)	)	100.-%	)	)	)	)	)	100.-%	)	)	)	)	)	100.-%	)	)	)	)	)	100.-%)

* (ePeitdMhii anP Bkceei on Ldoi i was . Bg5Beadseft, BR5BeadMrt, Hg5HadPseft, HR5HadP dMrt, g5geft, R5RMrt, T5Trdu, U5UJTu

Maffett St-Main St/Abbott St - TMC

Tue Oct 17, 2017

AMPAK (ea: 415-8(A) 258(AI

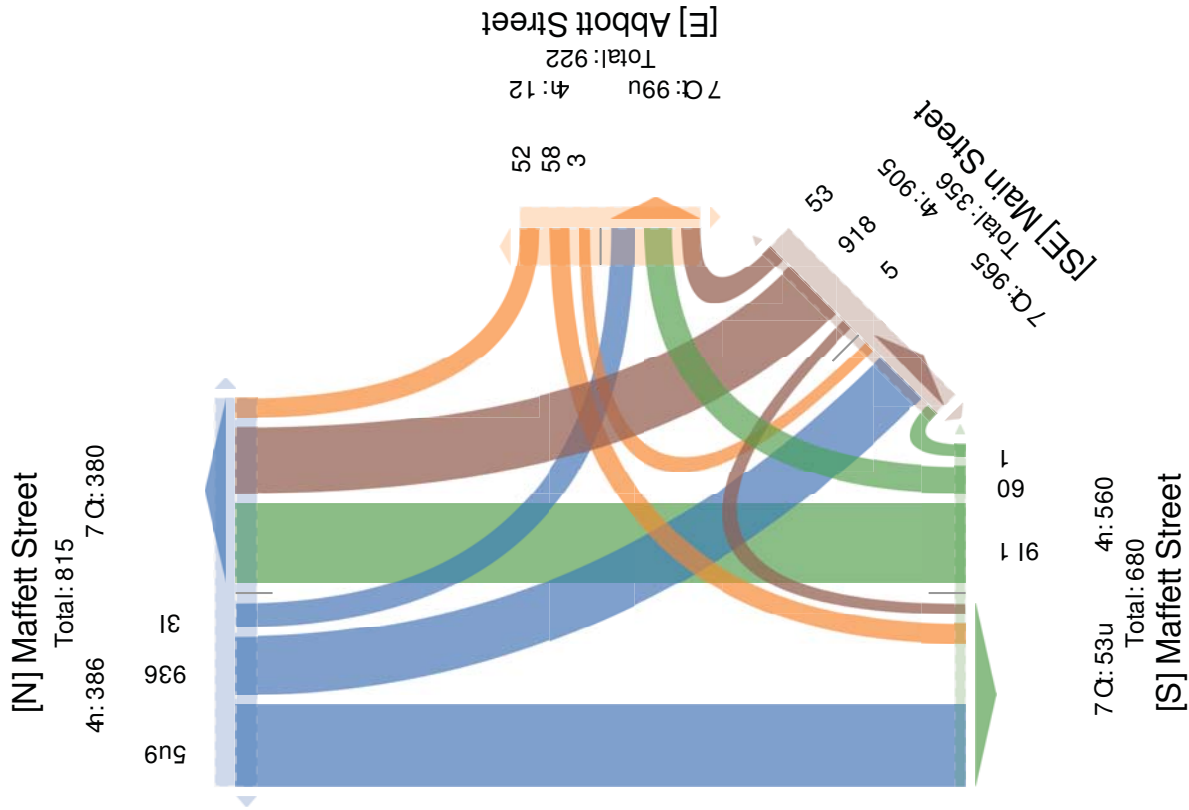
Cs:Lsaiiei 4gMrti, CdMusatP Tdrc:i anP Sthse)UnMTduc:i, Bui ei, (ePeitdnhil

Cs:Aovementi

ID5-8990., gocatMn5-167-818,)786881398



(dovMeP bk5Td)State T dayMData, Inc6
13- Ba:edf oaP, Loatei vM, (C, 19R20, US



Maffett St-Main St/Abbott St - TMC

Tue Oct 17, 2017

AM Ae Pa k :40AM 5- :40AM 850) e l PC Ae Pa s Lu l

i Cg P h e h k r d Sth, i l t r u e t e U T l u c a h P B U o d n e 5 B d T l u c a h, m u h e h, A e U e h t l P B h 8

i CML) e l e B h

D : (-660., r Lc P d B: (1 b 2 7 (- 1 -, 5 7 - h y - 1 y 6 -



AlL) d e U f R: T l d o t P r e T l P 3 3 t 9 P t P, D b c b
1 y (m P a e l W L P U, g l P t e h) d e, A i, 1 6 4 2 0, v o

ren 9 d e c t d B	i f f L i t o t l e e t N e h f L u B U				M P 3 3 t t o t l e e t w L i t s f L u B U				M P 3 3 t t o t l e e t L u t S f L u B U				M P B o t l e e t w L i t S H e h f L u B U												
	W	r	s r	v	App	Ae U*	s W	W	T	v	App	Ae U*	s W	m W	s r	v	App	Ae U*	Int						
201750517 (:40AM	-	(	0	0	0	0	2	17	64	0	115	0	-4	42	y	0	09	2	0					
(: (-AM	.	1	0	0	8	0	1	10	62	0	169	0	.4	(	0	14	0	114	0					
-:00AM	(	-	1	0	16	0	2	2	(	6.	0	155	0	-0	4-	(	0	70	0					
-:1-AM	14	2	0	0	12	0	1	20	y	(	0	162	0	--	(y	17	0	156	0					
Total	2y	12	1	0	31	0	.	71	4-	0	335	0	221	1--	(	2	0	317	2					
% Approach	. y b 4 %	26 b 4 %	2 t %	0 %	-	5	1 t %	1. b l %	y 2 b %	0 %	-	5	- 2 b 6 %	4 7 b l %	10 b 0 %	0 %	-	5	y b %	60 b %	0 b 6 %	0 %	-	5	
% Total	2 b %	1 b l %	0 b l %	0 %	9.8 %	5	0 b %	. b 4 %	4 2 b %	0 %	90.3 %	5	16 b 7 %	14 b y %	4 b 7 %	0 %	98.9 %	5	1 b 7 %	1 7 b y %	0 b 2 %	0 %	10.8 %	5	
PHF	0 b 4 y	0 b 00	0 b 2 - 0	5	6.479	5	0 b 7 - 0	0 b 7 (0	0 b 6 - 1	5	6.064	5	0 b y 7 7	0 b y 0 7	0 b 1 y	5	6.781	5	0 b 6 (0 b 6 0 6	0 b 00	5	6.064	5
Lights	2y	11	1	0	36	5	(71	4-6	0	393	5	216	1--	(2	0	314	5	16	16y	2	0	510	5
% Lights	100%	61 b 7 %	100%	0 %	08.4 %	5	. b 7 %	100%	6 y t %	0 %	07.5 %	5	66 b l %	100%	100%	0 %	00.2 %	5	100%	66 b 0 %	100%	0 %	00.1 %	5	
Articulated Trucks and Single-Unit Trucks	0	1	0	0	1	5	2	0	-	0	8	5	2	0	0	0	5	5	0	2	0	0	5	5	
% Articulated Trucks and Single-Unit Trucks	0%	y b 4 %	0%	0 %	5.3 %	5	44 b 4 %	0%	1 t %	0 %	1.4 %	5	0 b 6 %	0%	0%	0 %	6.2 %	5	0%	1 b 0 %	0%	0 %	6.0 %	5	
Buses	0	0	0	0	6	5	0	0	0	1	1	5	0	0	0	0	6	5	0	0	0	0	6	5	
% Buses	0%	0%	0%	0 %	6%	5	0%	0%	0 b 4 %	0%	6.5 %	5	0%	0%	0%	0 %	6%	5	0%	0%	0%	0 %	6%	5	
Ae Ue h t l P B h	5	5	5	5	5	0	5	5	5	5	5	0	5	5	5	5	5	5	5	5	5	5	5	0	
% Ae Ue h t l P B h	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	

* Ae Ue h t l P B h P B U m d R c e h L B g l L h h P B b m r : m e P l e 3, m W : m e P l l d h S t, s r : s P l U e 3, s W : s P l U l d h S t, r : r e 3, W : W h S t, T : T S l u, v : v 5 T u l B

Maffett St-Main St/Abbott St - TMC

Tue Oct 17, 2017

PM Peak (4:50PM -) :50PMv - Ore la

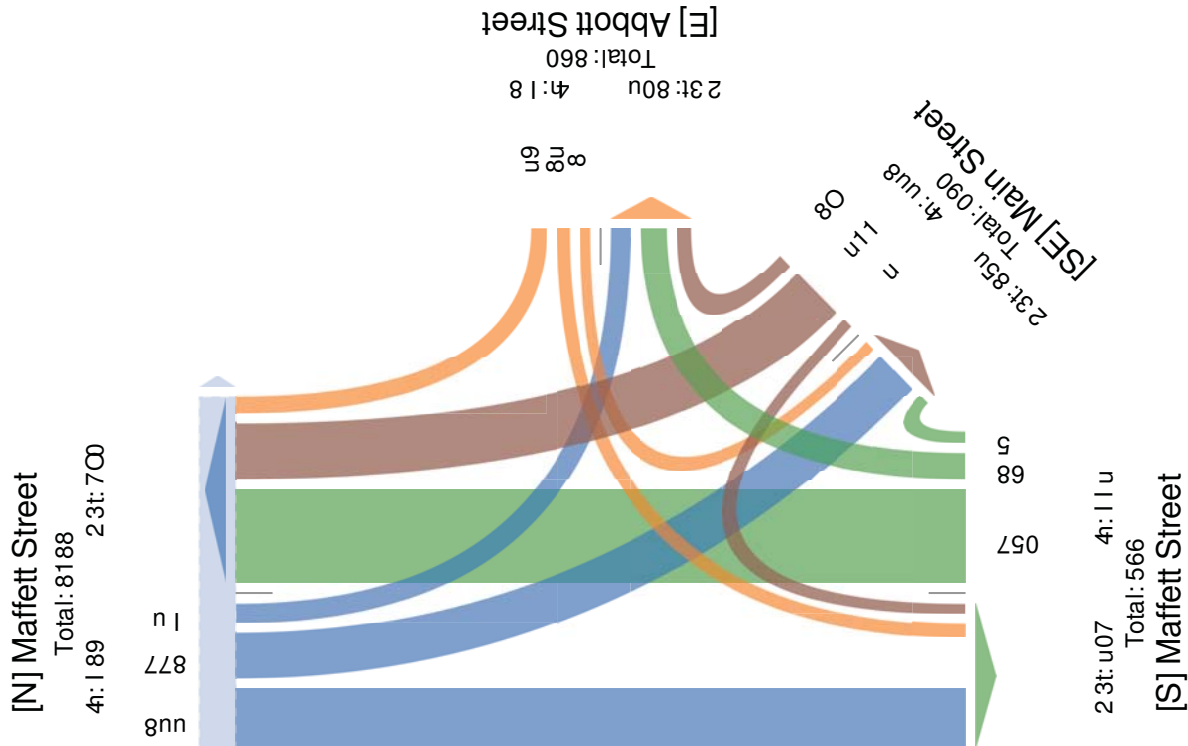
CHS HLLLeL(i ghdtL, Cltiguulätten TluckL aSn Ughld-Bsg TluckL, muLeL, Pene lllgSLv

CHHMAre l eStL

D : 4) . . 06, i AcatgS: 41.374) 1), (-7) B) 18.)



PIAr gnen by: TlgUate Tlaffg: 9 ata, Dc3
184 mäkel RAan, s AateLr gH, PC, 1. 520, BU



Appendix E

Opening and Design Year Traffic Volumes

Existing Year =	2017
Opening Year =	2021
Opening Year =	2022
Horizon Year =	2027
Growth / Year =	0.00%

			AM Peak											
			2017 Existing	Volume Adjust	Myers Volumes	Coughlin Volumes	GAR Volumes	2021		2022		2027		
								w/o Dev	w/ Dev	w/o Dev	w/ Dev	w/o Dev	w/ Dev	
1	Courtright Avenue	EB	L	11					11	11	11	11	11	11
			T	4					4	4	4	4	4	4
			R	4					4	4	4	4	4	4
		WB	L	38					38	38	38	38	38	38
			T	18					18	18	18	18	18	18
			R	23					23	23	23	23	23	23
	SR 2004 (River Street)	NB	L	5					5	5	5	5	5	5
			T	472		174			472	646	472	646	472	646
			R	13					13	13	13	13	13	13
SB		L	6					6	6	6	6	6	6	
		T	782		82			782	864	782	864	782	864	
		R	62					62	62	62	62	62	62	
2		EB	L					0	0	0	0	0	0	
			T					0	0	0	0	0	0	
			R					0	0	0	0	0	0	
	Maple Street	WB	L	50					50	50	50	50	50	50
			T					0	0	0	0	0	0	
			R	113					113	113	113	113	113	
	SR 2004 (River Street)	NB	L						0	0	0	0	0	0
			T	512		174			512	686	512	686	512	686
			R						0	0	0	0	0	0
SB		L						0	0	0	0	0	0	
		T	832		82			832	914	832	914	832	914	
		R						0	0	0	0	0	0	
3		EB	L					0	0	0	0	0	0	
			T					0	0	0	0	0	0	
			R					0	0	0	0	0	0	
	Chestnut Street	WB	L					0	0	0	0	0	0	
			T					0	0	0	0	0	0	
			R					0	0	0	0	0	0	
	SR 2004 (River Street)	NB	L						0	0	0	0	0	0
			T	521		174			521	695	521	695	521	695
			R	54					54	54	54	54	54	54
SB		L	88					88	88	88	88	88	88	
		T	954		82			954	1036	954	1036	954	1036	
		R						0	0	0	0	0	0	
4	Waterfront Park Drive	EB	L	35					35	35	35	35	35	
			T	1					1	1	1	1	1	
			R	43					43	43	43	43	43	
	Cross Valley Centre Drive	WB	L	6					6	6	6	6	6	
			T	0					0	0	0	0	0	
			R	3					3	3	3	3	3	
	SR 2004 (River Street)	NB	L	50					50	50	50	50	50	
			T	466		174			466	640	466	640	466	640
			R	9					9	9	9	9	9	
SB		L	40					40	40	40	40	40		
		T	1006		82			1006	1088	1006	1088	1006	1088	
		R	127					127	127	127	127	127		

Existing Year = 2017
 Opening Year = 2021
 Opening Year = 2022
 Horizon Year = 2027
 Growth / Year = 0.00%

		AM Peak											
		2017 Existing	Volume Adjust	Myers Volumes	Coughlin Volumes	GAR Volumes	2021		2022		2027		
							w/o Dev	w/ Dev	w/o Dev	w/ Dev	w/o Dev	w/ Dev	
5	SR 0309 SB Off-Ramp	EB	L	305				305	305	305	305	305	305
			T	1				1	1	1	1	1	1
			R	440				440	440	440	440	440	440
	SR 0309 SB On-Ramp	WB	L					0	0	0	0	0	0
			T					0	0	0	0	0	0
			R					0	0	0	0	0	0
	SR 2004 (River Street)	NB	L					0	0	0	0	0	0
			T	306	174			306	480	306	480	306	480
			R	196				196	196	196	196	196	196
		SB	L	382		46	30	382	428	382	458	382	458
T			717	82			717	799	717	799	717	799	
R							0	0	0	0	0	0	
6	SR 0309 NB On-Ramp	EB	L					0	0	0	0	0	
			T					0	0	0	0	0	
			R					0	0	0	0	0	
	SR 0309 NB Off-Ramp	WB	L	289				289	289	289	289	289	289
			T	1				1	1	1	1	1	
			R-2004	52				52	52	52	52	52	
			HR-2024	12		98	63	12	110	12	173	12	173
	SR 2004 (River Street)	NB	L	120				120	120	120	120	120	120
			T	326				326	326	326	326	326	
			R-2024	170	174			170	344	170	344	170	344
SB		L-2024	1				1	1	1	1	1	1	
		T	691				691	691	691	691	691	691	
		R	282				282	282	282	282	282		
SR 2024 (Maffett Street)	SWB	L-2004	105	82	46	30	105	233	105	263	105	263	
		T-NB On	22				22	22	22	22	22		
		R-2004	0				0	0	0	0	0		
7	Haines Street	EB	L	12				12	12	12	12	12	
			T					0	0	0	0	0	
			R	2				2	2	2	2	2	
		WB	L					0	0	0	0	0	
			T					0	0	0	0	0	
			R					0	0	0	0	0	
	SR 2024 (Maffett Street)	NB	L	4				4	4	4	4	4	
			T	222	174	98	63	222	494	222	557	222	557
			R					0	0	0	0	0	
		SB	L					0	0	0	0	0	
T			215	82	46	30	215	343	215	373	215	373	
R			16				16	16	16	16	16		

Existing Year =	2017
Opening Year =	2021
Opening Year =	2022
Horizon Year =	2027
Growth / Year =	0.00%

			AM Peak											
			2017 Existing	Volume Adjust	Myers Volumes	Coughlin Volumes	GAR Volumes	2021		2022		2027		
								w/o Dev	w/ Dev	w/o Dev	w/ Dev	w/o Dev	w/ Dev	
8	Mercer Street	EB	L	9				9	9	9	9	9	9	
			T					0	0	0	0	0	0	
			R	2				2	2	2	2	2	2	
		WB	L					0	0	0	0	0	0	
			T					0	0	0	0	0	0	
			R					0	0	0	0	0	0	
	SR 2024 (Maffett Street)	NB	L	5				5	5	5	5	5	5	
			T	234		174	98	63	234	506	234	569	234	569
			R						0	0	0	0	0	0
SB		L						0	0	0	0	0	0	
		T	228		82	46	36	228	356	228	392	228	392	
		R	2					2	2	2	2	2	2	
9	Abbott Street	WB	HL-2022	3				3	3	3	3	3	3	
			L-2024	22			33		22	55	22	55	22	55
			R-2024	38					38	38	38	38	38	38
	SR 2022 (Main Street)	NWB	HL-2024	0					0	0	0	0	0	0
			BR-2024	100					100	100	100	100	100	100
			HR-Abbott	22					22	22	22	22	22	22
	SR 2024 (Maffett Street)	NB	T	169		31		169	200	169	200	169	200	
			R-Abbott	54		15		54	69	54	69	54	69	
			HR-2022	6				6	6	6	6	6	6	
		SB	L-Abbott	70				70	70	70	70	70	70	
			BL-2022	370				370	370	370	370	370	370	
			T	214		65		214	279	214	279	214	279	
10		EB	L					0	0	0	0	0	0	
			T					0	0	0	0	0	0	
			R					0	0	0	0	0	0	
	Site Driveway	WB	L			82	46	30	0	128	0	158	0	158
			T						0	0	0	0	0	0
			R				46		0	46	0	46	0	46
	SR 2024 (Maffett Street)	NB	L						0	0	0	0	0	0
			T	243					243	243	243	243	243	243
			R			174	98	63	0	272	0	335	0	335
SB		L				98		0	98	0	98	0	98	
		T	230					230	230	230	230	230	230	
		R						0	0	0	0	0	0	
11	Site Driveway	EB	L					0	0	0	0	0	0	
			T					0	0	0	0	0	0	
			R			20	62	69	0	82	0	151	0	151
		WB	L						0	0	0	0	0	0
			T						0	0	0	0	0	0
			R						0	0	0	0	0	0
	SR 2022 (Main Street)	NB	L			44	130	148	0	174	0	322	0	322
			T	122					122	122	122	122	122	122
			R						0	0	0	0	0	0
		SB	L						0	0	0	0	0	0
			T	379					379	379	379	379	379	379
			R						0	0	0	0	0	0

Existing Year =	2017
Opening Year =	2021
Opening Year =	2022
Horizon Year =	2027
Growth / Year =	0.00%

			PM Peak											
			2017 Existing	Volume Adjust	Myers Volumes	Coughlin Volumes	GAR Volumes	2021		2022		2027		
								w/o Dev	w/ Dev	w/o Dev	w/ Dev	w/o Dev	w/ Dev	
1	Courtright Avenue	EB	L	76					76	76	76	76	76	76
			T	17					17	17	17	17	17	17
			R	11					11	11	11	11	11	11
		WB	L	14					14	14	14	14	14	14
			T	11					11	11	11	11	11	11
			R	31					31	31	31	31	31	31
	SR 2004 (River Street)	NB	L	7					7	7	7	7	7	7
			T	781		98			781	879	781	879	781	879
			R	22					22	22	22	22	22	22
SB		L	14					14	14	14	14	14	14	
		T	545		110			545	655	545	655	545	655	
		R	22					22	22	22	22	22	22	
2	EB	L						0	0	0	0	0	0	
		T						0	0	0	0	0	0	
		R						0	0	0	0	0	0	
	Maple Street	WB	L	56					56	56	56	56	56	56
			T						0	0	0	0	0	0
			R	153					153	153	153	153	153	153
	SR 2004 (River Street)	NB	L						0	0	0	0	0	0
			T	861		98			861	959	861	959	861	959
			R						0	0	0	0	0	0
SB		L						0	0	0	0	0	0	
		T	550		110			550	660	550	660	550	660	
		R						0	0	0	0	0	0	
3	EB	L						0	0	0	0	0	0	
		T						0	0	0	0	0	0	
		R						0	0	0	0	0	0	
	Chestnut Street	WB	L						0	0	0	0	0	0
			T						0	0	0	0	0	0
			R						0	0	0	0	0	0
	SR 2004 (River Street)	NB	L						0	0	0	0	0	0
			T	996		98			996	1094	996	1094	996	1094
			R	63					63	63	63	63	63	63
SB		L	56					56	56	56	56	56	56	
		T	611		110			611	721	611	721	611	721	
		R						0	0	0	0	0	0	
4	Waterfront Park Drive	EB	L	101					101	101	101	101	101	
			T	1					1	1	1	1	1	
			R	45					45	45	45	45	45	
	Cross Valley Centre Drive	WB	L	8					8	8	8	8	8	
			T	4					4	4	4	4	4	
			R	20					20	20	20	20	20	
	SR 2004 (River Street)	NB	L	23					23	23	23	23	23	
			T	968		98			968	1066	968	1066	968	
			R	8					8	8	8	8	8	
SB		L	7					7	7	7	7	7		
		T	605		110			605	715	605	715	605		
		R	57					57	57	57	57	57		

Existing Year =	2017
Opening Year =	2021
Opening Year =	2022
Horizon Year =	2027
Growth / Year =	0.00%

		PM Peak												
		2017 Existing	Volume Adjust	Myers Volumes	Coughlin Volumes	GAR Volumes	2021		2022		2027			
							w/o Dev	w/ Dev	w/o Dev	w/ Dev	w/o Dev	w/ Dev		
5	SR 0309 SB Off-Ramp	EB	L	365				365	365	365	365	365	365	
			T	2				2	2	2	2	2	2	
			R	184				184	184	184	184	184	184	
	SR 0309 SB On-Ramp	WB	L					0	0	0	0	0	0	
			T					0	0	0	0	0	0	
			R					0	0	0	0	0	0	
	SR 2004 (River Street)	NB	L					0	0	0	0	0	0	
			T	765		98		765	863	765	863	765	863	
			R	328				328	328	328	328	328	328	
SB		L	317			53	40	317	370	317	410	317	410	
		T	483		110			483	593	483	593	483	593	
		R						0	0	0	0	0	0	
6	SR 0309 NB On-Ramp	EB	L					0	0	0	0	0	0	
			T					0	0	0	0	0	0	
			R					0	0	0	0	0	0	
	SR 0309 NB Off-Ramp	WB	L	176				176	176	176	176	176	176	
			T	0				0	0	0	0	0	0	
			R-2004	286				286	286	286	286	286	286	
			HR-2024	94			47	36	94	141	94	177	94	177
	SR 2004 (River Street)	NB	L	339				339	339	339	339	339	339	
			T	518				518	518	518	518	518	518	
R-2024			288		98		288	386	288	386	288	386		
SB		L-2024	2					2	2	2	2	2		
		T	500					500	500	500	500	500		
		R	295					295	295	295	295	295		
SR 2024 (Maffett Street)	SWB	L-2004	96		110	53	40	96	259	96	299	96	299	
		T-NB On	91					91	91	91	91	91		
		R-2004	0					0	0	0	0	0		
7	Haines Street	EB	L	18				18	18	18	18	18	18	
			T					0	0	0	0	0	0	
			R	2				2	2	2	2	2	2	
		WB	L					0	0	0	0	0	0	
			T					0	0	0	0	0	0	
			R					0	0	0	0	0	0	
	SR 2024 (Maffett Street)	NB	L	14				14	14	14	14	14	14	
			T	359		98	47	36	359	504	359	540	359	540
			R						0	0	0	0	0	0
SB		L						0	0	0	0	0	0	
		T	234		110	53	40	234	397	234	437	234	437	
		R	17					17	17	17	17	17	17	

Existing Year =	2017
Opening Year =	2021
Opening Year =	2022
Horizon Year =	2027
Growth / Year =	0.00%

			PM Peak												
			2017 Existing	Volume Adjust	Myers Volumes	Coughlin Volumes	GAR Volumes	2021		2022		2027			
								w/o Dev	w/ Dev	w/o Dev	w/ Dev	w/o Dev	w/ Dev		
8	Mercer Street	EB	L	5				5	5	5	5	5	5		
			T					0	0	0	0	0	0		
			R	5				5	5	5	5	5	5		
		WB		L					0	0	0	0	0	0	
				T					0	0	0	0	0	0	
				R					0	0	0	0	0	0	
	SR 2024 (Maffett Street)	NB		L	11				11	11	11	11	11	11	
				T	381		98	47	36	381	526	381	562	381	562
				R						0	0	0	0	0	0
SB			L						0	0	0	0	0	0	
			T	225		110	53	40	225	388	225	428	225	428	
			R	7					7	7	7	7	7	7	
9	Abbott Street	WB	HL-2022	1				1	1	1	1	1	1		
			L-2024	12			16		12	28	12	28	12	28	
			R-2024	28					28	28	28	28	28	28	
	SR 2022 (Main Street)	NWB		HL-2024	2				2	2	2	2	2	2	
				BR-2024	200					200	200	200	200	200	200
				HR-Abbott	19					19	19	19	19	19	19
	SR 2024 (Maffett Street)	NB		T	365		35		365	400	365	400	365	400	
				R-Abbott	71			17		71	88	71	88	71	88
				HR-2022	6					6	6	6	6	6	6
		SB		L-Abbott	42					42	42	42	42	42	42
				BL-2022	155					155	155	155	155	155	155
				T	221			31		221	252	221	252	221	252
10		EB	L					0	0	0	0	0	0		
			T						0	0	0	0	0	0	
			R						0	0	0	0	0	0	
	Site Driveway	WB		L			110	53	40	0	163	0	203	0	203
				T						0	0	0	0	0	0
				R				52		0	52	0	52	0	52
	SR 2024 (Maffett Street)	NB		L						0	0	0	0	0	0
				T	386					386	386	386	386	386	386
				R			98	47	36	0	145	0	181	0	181
SB			L				47		0	47	0	47	0	47	
			T	232					232	232	232	232	232	232	
			R						0	0	0	0	0	0	
11	Site Driveway	EB	L						0	0	0	0	0	0	
			T						0	0	0	0	0	0	
			R			27	70	94	0	97	0	191	0	191	
		WB		L						0	0	0	0	0	0
				T						0	0	0	0	0	0
				R						0	0	0	0	0	0
	SR 2022 (Main Street)	NB		L			24	62	83	0	86	0	169	0	169
				T	221					221	221	221	221	221	221
				R						0	0	0	0	0	0
		SB		L						0	0	0	0	0	0
				T	162					162	162	162	162	162	162
				R						0	0	0	0	0	0

Growth Factors for August 2017 to July 2018				
County	Urban Interstate	Rural Interstate	Urban Non-Interstate	Rural Non-Interstate
ADAMS	*	*	1.06	0.76
ALLEGHENY	0.92	2.18	0.00	0.39
ARMSTRONG	0.93	*	0.00	0.40
BEAVER	0.87	1.98	0.00	0.36
BEDFORD	*	2.14	*	0.46
BERKS	1.23	2.44	0.33	0.60
BLAIR	0.88	1.94	0.00	0.38
BRADFORD	1.22	*	0.14	0.52
BUCKS	1.42	2.34	0.67	0.62
BUTLER	1.84	2.76	0.78	0.77
CAMBRIA	0.47	*	0.00	0.21
CAMERON	*	*	*	0.18
CARBON	1.40	2.61	0.46	0.65
CENTRE	1.59	2.56	0.78	0.71
CHESTER	1.80	3.04	0.65	0.83
CLARION	1.03	2.04	0.05	0.43
CLEARFIELD	1.05	2.10	0.08	0.45
CLINTON	1.03	2.30	0.00	0.49
COLUMBIA	1.26	2.31	0.43	0.57
CRAWFORD	1.02	2.01	0.16	0.45
CUMBERLAND	1.63	2.57	0.87	0.72
DAUPHIN	1.42	*	0.54	0.66
DELAWARE	1.06	*	0.00	*
ELK	*	*	0.00	0.32
ERIE	1.07	2.16	0.06	0.46
FAYETTE	0.91	*	0.00	0.41
FOREST	*	*	*	0.68
FRANKLIN	1.42	2.58	0.60	0.68
FULTON	*	2.14	*	0.54
GREENE	1.29	2.63	0.03	0.59
HUNTINGDON	*	1.99	0.00	0.41
INDIANA	1.28	*	0.24	0.55
JEFFERSON	*	2.14	0.04	0.45
JUNIATA	*	*	*	0.59
LACKAWANNA	0.92	2.31	0.00	0.45
LANCASTER	1.86	2.68	1.21	0.82
LAWRENCE	0.88	2.11	0.00	0.39
LEBANON	1.37	2.50	0.52	0.64
LEHIGH	1.64	2.88	0.55	0.75
LUZERNE	0.84	2.17	0.00	0.42
LYCOMING	1.09	2.19	0.11	0.48
MCKEAN	0.73	*	0.00	0.35
MERCER	0.77	2.00	0.00	0.36
MIFFLIN	0.87	*	0.00	0.40
MONROE	1.50	2.49	0.81	0.70
MONTGOMERY	1.26	*	0.41	0.59
MONTOUR	1.59	2.66	0.41	0.68
NORTHAMPTON	1.39	2.56	0.54	0.66
NORTHUMBERLAND	0.91	2.12	0.00	0.43
PERRY	*	*	1.05	0.67
PHILADELPHIA	0.81	*	0.00	*
PIKE	2.26	2.87	1.72	1.00
POTTER	*	*	*	0.49
SCHUYLKILL	0.71	1.94	0.00	0.36
SNYDER	1.28	*	0.48	0.59
SOMERSET	0.73	1.78	0.00	0.35
SULLIVAN	*	*	*	0.45
SUSQUEHANNA	1.22	2.27	0.40	0.56
TIOGA	*	*	*	0.52
UNION	1.63	2.48	0.95	0.72
VENANGO	0.73	1.73	0.00	0.31
WARREN	*	*	0.00	0.39
WASHINGTON	1.38	2.63	0.23	0.61
WAYNE	*	2.26	0.29	0.54
WESTMORELAND	1.03	2.11	0.00	0.44
WYOMING	*	*	0.00	0.45
YORK	1.45	2.57	0.67	0.69

* = Functional Class Doesn't Exist in County

Questions? Please contact Andrew O'Neill at the Bureau of Planning and Research, 717-346-3250 or andoneill@pa.gov

NOTE: The projected growth factors are derived using historical VMT (Vehicle Miles Traveled) data (1994 to 2016), as well as Woods and Poole demographic and economic data. The factors should be compounded when calculating future values. The factors should not be used to project traffic beyond a 20-year period. Please be aware that these factors are estimates, and unforeseen events (opening of shopping centers, fast food franchises, gas stations, etc) could cause growth to change over time.



Appendix F

Signal Warrant Analysis

STUDY AND ANALYSIS INFORMATION

Municipality: Plains Township
 County: Luzerne County
 PennDOT Engineering District: 4

Analysis Date: 3/19/2018
 Conducted By: EJD
 Agency/Company Name: Borton-Lawson

Analysis Information

Data Collection Date: 10/17/2017
 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: SR 2024 (Maffett 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: SR 2022 (Main Street) / Abbott Street
 Minor Street Approach #1 Direction: NW-Bound
 Minor Street Approach #2 Direction: W-Bound

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

TRAFFIC SIGNAL WARRANT ANALYSIS FINDINGS

	Applicable?	Warrant Met?
Warrant 1, Eight-Hour Vehicular Volume	Yes	No
Warrant 2, Four-Hour Vehicular Volume	Yes	Yes
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 (NW-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	5	18	23	1	3
5:15 AM	5:29 AM	17	15	32	2	2
5:30 AM	5:44 AM	15	26	41	5	3
5:45 AM	5:59 AM	29	34	63	6	5
6:00 AM	6:14 AM	21	43	64	5	4
6:15 AM	6:29 AM	20	52	72	9	7
6:30 AM	6:44 AM	27	72	99	14	8
6:45 AM	6:59 AM	54	72	126	23	8
7:00 AM	7:14 AM	51	88	139	12	10
7:15 AM	7:29 AM	58	113	171	19	7
7:30 AM	7:44 AM	61	178	239	23	10
7:45 AM	7:59 AM	63	207	270	27	11
8:00 AM	8:14 AM	63	147	210	29	14
8:15 AM	8:29 AM	60	155	215	16	17
8:30 AM	8:44 AM	63	158	221	50	29
8:45 AM	8:59 AM	63	118	181	16	13
9:00 AM	9:14 AM	54	85	139	18	5
9:15 AM	9:29 AM	47	76	123	17	10
9:30 AM	9:44 AM	41	70	111	12	12
9:45 AM	9:59 AM	61	78	139	21	18
10:00 AM	10:14 AM	61	60	121	18	6
10:15 AM	10:29 AM	54	78	132	22	13
10:30 AM	10:44 AM	47	77	124	14	9
10:45 AM	10:59 AM	57	70	127	33	10
11:00 AM	11:14 AM	54	51	105	32	11
11:15 AM	11:29 AM	55	67	122	21	11
11:30 AM	11:44 AM	56	86	142	24	16
11:45 AM	11:59 AM	67	81	148	25	14

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 (NW-Bound)	Minor Street Approach #2 (W-Bound)
Begin At	End Of	Volume	Volume	Total Volume	Volume	Volume
12:00 PM	12:14 PM	71	57	128	34	10
12:15 PM	12:29 PM	63	75	138	42	15
12:30 PM	12:44 PM	57	86	143	43	20
12:45 PM	12:59 PM	67	88	155	42	18
1:00 PM	1:14 PM	59	91	150	25	16
1:15 PM	1:29 PM	63	84	147	35	12
1:30 PM	1:44 PM	62	79	141	29	13
1:45 PM	1:59 PM	60	70	130	42	16
2:00 PM	2:14 PM	70	104	174	49	15
2:15 PM	2:29 PM	76	88	164	46	18
2:30 PM	2:44 PM	62	127	189	45	15
2:45 PM	2:59 PM	99	123	222	53	13
3:00 PM	3:14 PM	91	125	216	51	9
3:15 PM	3:29 PM	112	95	207	61	13
3:30 PM	3:44 PM	97	109	206	53	19
3:45 PM	3:59 PM	73	116	189	60	11
4:00 PM	4:14 PM	99	113	212	66	13
4:15 PM	4:29 PM	106	112	218	63	8
4:30 PM	4:44 PM	118	97	215	45	11
4:45 PM	4:59 PM	109	120	229	57	9
5:00 PM	5:14 PM	128	93	221	61	12
5:15 PM	5:29 PM	111	124	235	58	17
5:30 PM	5:44 PM	88	104	192	44	24
5:45 PM	5:59 PM	84	111	195	45	38
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:		3349	4766	8115	1663	651

MUTCD WARRANT 2, FOUR-HOUR VEHICULAR VOLUME

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

Total Number of Unique Hours Met On Figure 4C-1
5

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

Hourly Vehicular Volume			
Hour Interval	Major Street Combined	Highest Minor Street Approach	Hour Met?
Beginning At	Vehicles Per Hour (VPH)	Vehicles Per Hour (VPH)	
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	23	3	
4:30 AM	55	5	
4:45 AM	96	8	
5:00 AM	159	14	
5:15 AM	200	18	
5:30 AM	240	25	
5:45 AM	298	34	
6:00 AM	361	51	
6:15 AM	436	58	
6:30 AM	535	68	
6:45 AM	675	77	
7:00 AM	819	81	
7:15 AM	890	98	
7:30 AM	934	95	
7:45 AM	916	122	Met
8:00 AM	827	111	
8:15 AM	756	100	
8:30 AM	664	101	
8:45 AM	554	63	
9:00 AM	512	68	
9:15 AM	494	68	
9:30 AM	503	73	
9:45 AM	516	75	
10:00 AM	504	87	
10:15 AM	488	101	
10:30 AM	478	100	
10:45 AM	496	110	
11:00 AM	517	102	
11:15 AM	540	104	
11:30 AM	556	125	
11:45 AM	557	144	

Hourly Vehicular Volume			
Hour Interval	Major Street Combined	Highest Minor Street Approach	Hour Met?
Beginning At	Vehicles Per Hour (VPH)	Vehicles Per Hour (VPH)	
12:00 PM	564	161	
12:15 PM	586	152	
12:30 PM	595	145	
12:45 PM	593	131	
1:00 PM	568	131	
1:15 PM	592	155	
1:30 PM	609	166	
1:45 PM	657	182	
2:00 PM	749	193	Met
2:15 PM	791	195	Met
2:30 PM	834	210	Met
2:45 PM	851	218	Met
3:00 PM	818	225	Met
3:15 PM	814	240	Met
3:30 PM	825	242	Met
3:45 PM	834	234	Met
4:00 PM	874	231	Met
4:15 PM	883	226	Met
4:30 PM	900	221	Met
4:45 PM	877	220	Met
5:00 PM	843	208	Met
5:15 PM	622	147	
5:30 PM	387	89	
5:45 PM	195	45	
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	

STUDY AND ANALYSIS INFORMATION

Municipality: Plains Township
 County: Luzerne County
 PennDOT Engineering District: 4

Analysis Date: 2/15/2018
 Conducted By: EJD
 Agency/Company Name: Borton-Lawson

Analysis Information

Data Collection Date: 10/17/2017
 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: SR 2024 (Maffett 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: Driveway
 Minor Street Approach #1 Direction: W-Bound
 Minor Street Approach #2 Direction: N/A

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

TRAFFIC SIGNAL WARRANT ANALYSIS FINDINGS

	Applicable?	Warrant Met?
Warrant 1, Eight-Hour Vehicular Volume	Yes	No
Warrant 2, Four-Hour Vehicular Volume	Yes	No
Warrant 3, Peak Hour	Yes	No
Warrant 4, Pedestrian Volume	No	N/A
Warrant 5, School Crossing	No	N/A
Warrant 6, Coordinated Signal System	No	N/A
Warrant 7, Crash Experience	No	N/A
Warrant 8, Roadway Network	No	N/A
Warrant 9, Intersection Near a Grade Crossing	No	N/A
Warrant PA-1, ADT Volume Warrant	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 (W-Bound)	Minor Street Approach #2 (N/A)
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	9	9	18	7	
5:15 AM	5:29 AM	22	11	33	7	
5:30 AM	5:44 AM	17	15	32	7	
5:45 AM	5:59 AM	33	23	56	7	
6:00 AM	6:14 AM	28	21	49	17	
6:15 AM	6:29 AM	33	34	67	17	
6:30 AM	6:44 AM	33	44	77	17	
6:45 AM	6:59 AM	69	42	111	17	
7:00 AM	7:14 AM	64	44	108	24	
7:15 AM	7:29 AM	71	60	131	24	
7:30 AM	7:44 AM	73	57	130	24	
7:45 AM	7:59 AM	88	67	155	24	
8:00 AM	8:14 AM	87	56	143	22	
8:15 AM	8:29 AM	72	51	123	22	
8:30 AM	8:44 AM	69	76	145	22	
8:45 AM	8:59 AM	72	57	129	22	
9:00 AM	9:14 AM	64	40	104	19	
9:15 AM	9:29 AM	46	49	95	19	
9:30 AM	9:44 AM	50	32	82	19	
9:45 AM	9:59 AM	64	49	113	19	
10:00 AM	10:14 AM	62	36	98	7	
10:15 AM	10:29 AM	54	47	101	7	
10:30 AM	10:44 AM	49	45	94	7	
10:45 AM	10:59 AM	64	49	113	7	
11:00 AM	11:14 AM	63	35	98	19	
11:15 AM	11:29 AM	60	44	104	19	
11:30 AM	11:44 AM	64	50	114	19	
11:45 AM	11:59 AM	68	56	124	19	

ENTER VOLUME DATA PER 15 MINUTE INTERVAL, PER APPROACH						
Time Interval		Major Street Approach #1 (N-Bound)	Major Street Approach #2 (S-Bound)	Major Street Combined	Minor Street Approach #1 (W-Bound)	Minor Street Approach #2 (N/A)
Begin At	End Of	Volume	Volume	Total Volume	Volume	Volume
12:00 PM	12:14 PM	80	48	128	20	
12:15 PM	12:29 PM	66	51	117	20	
12:30 PM	12:44 PM	63	47	110	20	
12:45 PM	12:59 PM	74	52	126	20	
1:00 PM	1:14 PM	76	60	136	20	
1:15 PM	1:29 PM	68	54	122	20	
1:30 PM	1:44 PM	69	49	118	20	
1:45 PM	1:59 PM	72	42	114	20	
2:00 PM	2:14 PM	79	59	138	23	
2:15 PM	2:29 PM	88	59	147	23	
2:30 PM	2:44 PM	80	59	139	23	
2:45 PM	2:59 PM	107	69	176	23	
3:00 PM	3:14 PM	97	67	164	26	
3:15 PM	3:29 PM	100	86	186	26	
3:30 PM	3:44 PM	98	61	159	26	
3:45 PM	3:59 PM	85	63	148	26	
4:00 PM	4:14 PM	104	75	179	29	
4:15 PM	4:29 PM	116	59	175	29	
4:30 PM	4:44 PM	129	67	196	29	
4:45 PM	4:59 PM	114	72	186	29	
5:00 PM	5:14 PM	112	60	172	29	
5:15 PM	5:29 PM	123	57	180	29	
5:30 PM	5:44 PM	96	62	158	29	
5:45 PM	5:59 PM	95	82	177	29	
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:		3739	2659	6398	1048	0

STUDY AND ANALYSIS INFORMATION

Municipality: Plains Township
 County: Luzerne County
 PennDOT Engineering District: 4

Analysis Date: 2/15/2018
 Conducted By: EJD
 Agency/Company Name: Borton-Lawson

Analysis Information

Data Collection Date: 10/17/2017
 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: SR 2022 (Main 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: Driveway
 Minor Street Approach #1 Direction: E-Bound
 Minor Street Approach #2 Direction: N/A

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

TRAFFIC SIGNAL WARRANT ANALYSIS FINDINGS

	Applicable?	Warrant Met?
Warrant 1, Eight-Hour Vehicular Volume	Yes	No
Warrant 2, Four-Hour Vehicular Volume	Yes	No
Warrant 3, Peak Hour	Yes	No
Warrant 4, Pedestrian Volume	No	N/A
Warrant 5, School Crossing	No	N/A
Warrant 6, Coordinated Signal System	No	N/A
Warrant 7, Crash Experience	No	N/A
Warrant 8, Roadway Network	No	N/A
Warrant 9, Intersection Near a Grade Crossing	No	N/A
Warrant PA-1, ADT Volume Warrant	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 (N/A)
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	10	9	19	6	
5:15 AM	5:29 AM	20	9	29	6	
5:30 AM	5:44 AM	17	16	33	6	
5:45 AM	5:59 AM	31	16	47	6	
6:00 AM	6:14 AM	29	18	47	13	
6:15 AM	6:29 AM	28	28	56	13	
6:30 AM	6:44 AM	34	46	80	13	
6:45 AM	6:59 AM	61	39	100	13	
7:00 AM	7:14 AM	56	42	98	18	
7:15 AM	7:29 AM	67	48	115	18	
7:30 AM	7:44 AM	70	53	123	18	
7:45 AM	7:59 AM	79	62	141	18	
8:00 AM	8:14 AM	74	46	120	17	
8:15 AM	8:29 AM	68	56	124	17	
8:30 AM	8:44 AM	64	63	127	17	
8:45 AM	8:59 AM	61	47	108	17	
9:00 AM	9:14 AM	53	37	90	13	
9:15 AM	9:29 AM	46	40	86	13	
9:30 AM	9:44 AM	47	33	80	13	
9:45 AM	9:59 AM	51	38	89	13	
10:00 AM	10:14 AM	55	30	85	13	
10:15 AM	10:29 AM	53	41	94	13	
10:30 AM	10:44 AM	50	40	90	13	
10:45 AM	10:59 AM	59	41	100	13	
11:00 AM	11:14 AM	52	40	92	15	
11:15 AM	11:29 AM	55	41	96	15	
11:30 AM	11:44 AM	64	44	108	15	
11:45 AM	11:59 AM	70	47	117	15	

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 (N/A)
Begin At	End Of	Volume	Volume	Total Volume	Volume	Volume
12:00 PM	12:14 PM	70	54	124	15	
12:15 PM	12:29 PM	68	49	117	15	
12:30 PM	12:44 PM	61	42	103	15	
12:45 PM	12:59 PM	77	47	124	15	
1:00 PM	1:14 PM	67	41	108	15	
1:15 PM	1:29 PM	69	40	109	15	
1:30 PM	1:44 PM	78	44	122	15	
1:45 PM	1:59 PM	67	45	112	15	
2:00 PM	2:14 PM	71	51	122	18	
2:15 PM	2:29 PM	77	55	132	18	
2:30 PM	2:44 PM	77	55	132	18	
2:45 PM	2:59 PM	89	49	138	18	
3:00 PM	3:14 PM	93	58	151	20	
3:15 PM	3:29 PM	96	72	168	20	
3:30 PM	3:44 PM	99	63	162	20	
3:45 PM	3:59 PM	95	50	145	20	
4:00 PM	4:14 PM	97	54	151	21	
4:15 PM	4:29 PM	110	53	163	21	
4:30 PM	4:44 PM	108	68	176	21	
4:45 PM	4:59 PM	101	57	158	21	
5:00 PM	5:14 PM	112	65	177	21	
5:15 PM	5:29 PM	103	57	160	21	
5:30 PM	5:44 PM	94	52	146	21	
5:45 PM	5:59 PM	81	66	147	21	
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:		3484	2357	5841	820	0

Appendix G

Turn Lane Analysis

2027 Without Development

Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality: <input type="text" value="Plains Township"/>	Analysis Date: <input type="text" value="2/14/2018"/>
County: <input type="text" value="Luzerne County"/>	Conducted By: <input type="text" value="EJD"/>
PennDOT Engineering District: <input type="text" value="4"/>	Checked By: <input type="text"/>
	Agency/Company Name: <input type="text" value="Borton-Lawson"/>
Intersection & Approach Description: <input type="text" value="SR 2004 (River Street) & Courtright Avenue Northbound Left"/>	
Analysis Period: <input type="text" value="2027 No Build"/>	Number of Approach Lanes: <input type="text" value="1"/>
Design Hour: <input type="text" value="AM Peak Hour"/>	Undivided or Divided Highway: <input type="text" value="Undivided"/>
Intersection Control: <input type="text" value="Signalized"/>	
Posted Speed Limit (MPH): <input type="text" value="35"/>	Type of Analysis: <input type="text" value="Left Turn Lane"/>
Type of Terrain: <input type="text" value="Rolling"/>	Left or Right-Turn Lane Analysis?: <input type="text" value="Left Turn Lane"/>

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	5	20.0%	7
	Through	-	472	4.0%	501
	Right	Yes	13	8.0%	15
Opposing	Left	Yes	6	0.0%	6
	Through	-	782	1.0%	794
	Right	Yes	62	0.0%	62

Advancing Volume:	523
Opposing Volume:	862
Left Turn Volume:	7

% Left Turns in Advancing Volume:

Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	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	Right Turn Lane Warrant Findings
Applicable Warrant Figure: <input style="width: 100px;" type="text" value="Figure 1"/>	Applicable Warrant Figure: <input style="width: 100px;" type="text" value="N/A"/>
Warrant Met?: <input style="width: 100px;" type="text" value="No"/>	Warrant Met?: <input style="width: 100px;" type="text" value="N/A"/>

TURN LANE LENGTH CALCULATIONS

Intersection Control: <input type="text" value="Signalized"/>	
Design Hour Volume of Turning Lane: <input type="text" value="7"/>	
Cycles Per Hour (Assumed): <input type="text" value="Known"/>	
Cycles Per Hour (If Known): <input type="text" value="51"/>	Average # of Vehicles/Cycle: <input style="width: 100px;" type="text" value="N/A"/>

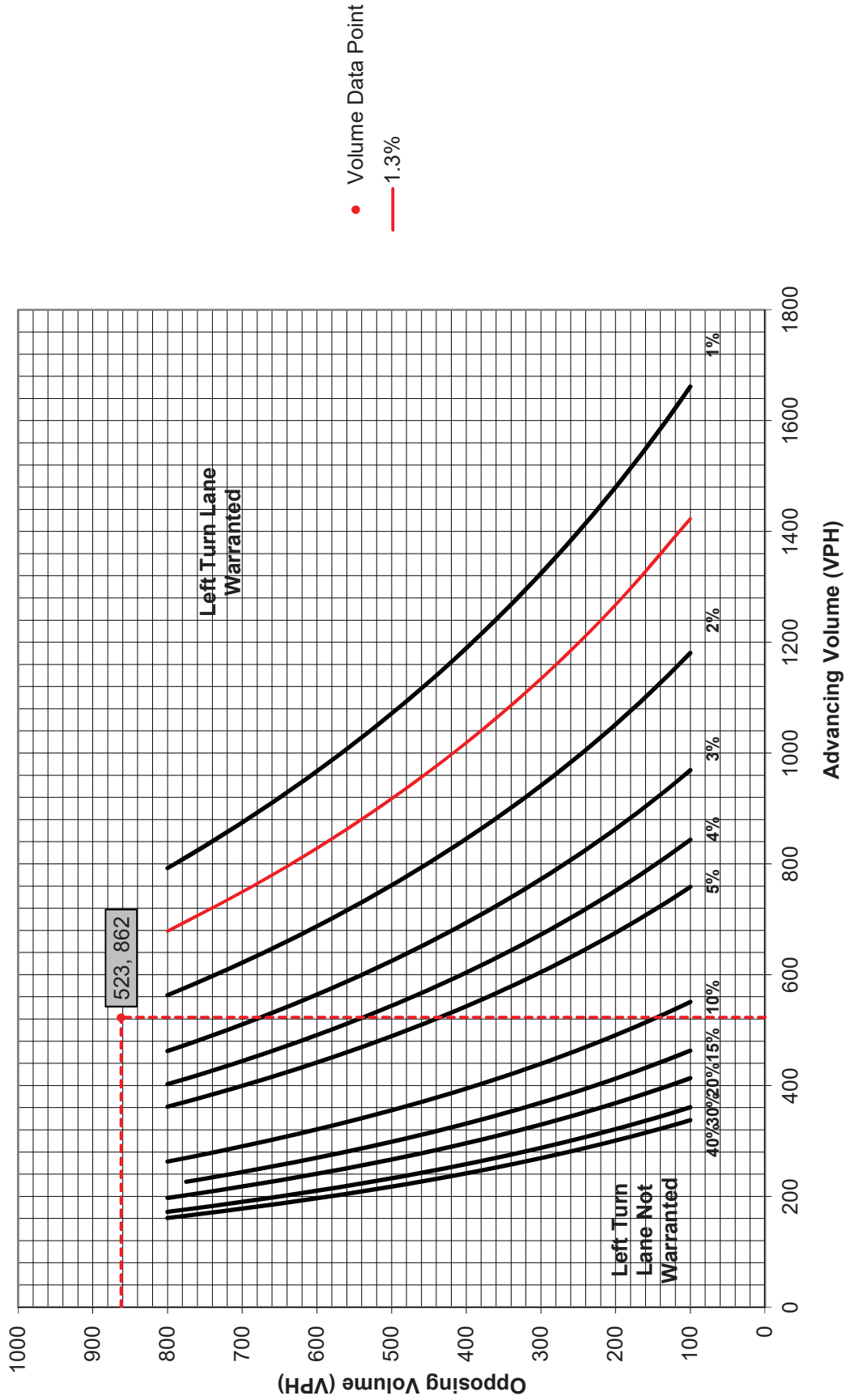
Type of Traffic Control	PennDOT Publication 46, Exhibit 11-6					
	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
 (speeds to 35 mph, unsignalized and signalized intersections)
 (L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality: Plains Township	Analysis Date: 3/16/2018
County: Luzerne County	Conducted By: EJD
PennDOT Engineering District: 4	Checked By: LSS
	Agency/Company Name: Borton-Lawson
Intersection & Approach Description: SR 2004 (River Street) & Courtright Avenue Southbound Right	
Analysis Period: 2027 No Build	Number of Approach Lanes: 1
Design Hour: AM Peak Hour	Undivided or Divided Highway: Undivided
Intersection Control: Signalized	
Posted Speed Limit (MPH): 35	Type of Analysis
Type of Terrain: Rolling	Left or Right-Turn Lane Analysis?: Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	0	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	Yes	6	0.0%	6
	Through	-	782	1.0%	794
	Right	-	62	0.0%	62

Advancing Volume: 862
 Right Turn Volume: 62

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: N/A	Applicable Warrant Figure: Figure 9
Warrant Met?: N/A	Warrant Met?: Yes

TURN LANE LENGTH CALCULATIONS

Intersection Control: Signalized	Average # of Vehicles/Cycle: 1.0
Design Hour Volume of Turning Lane: 62	
Cycles Per Hour (Assumed): Known	
Cycles Per Hour (If Known): 51	

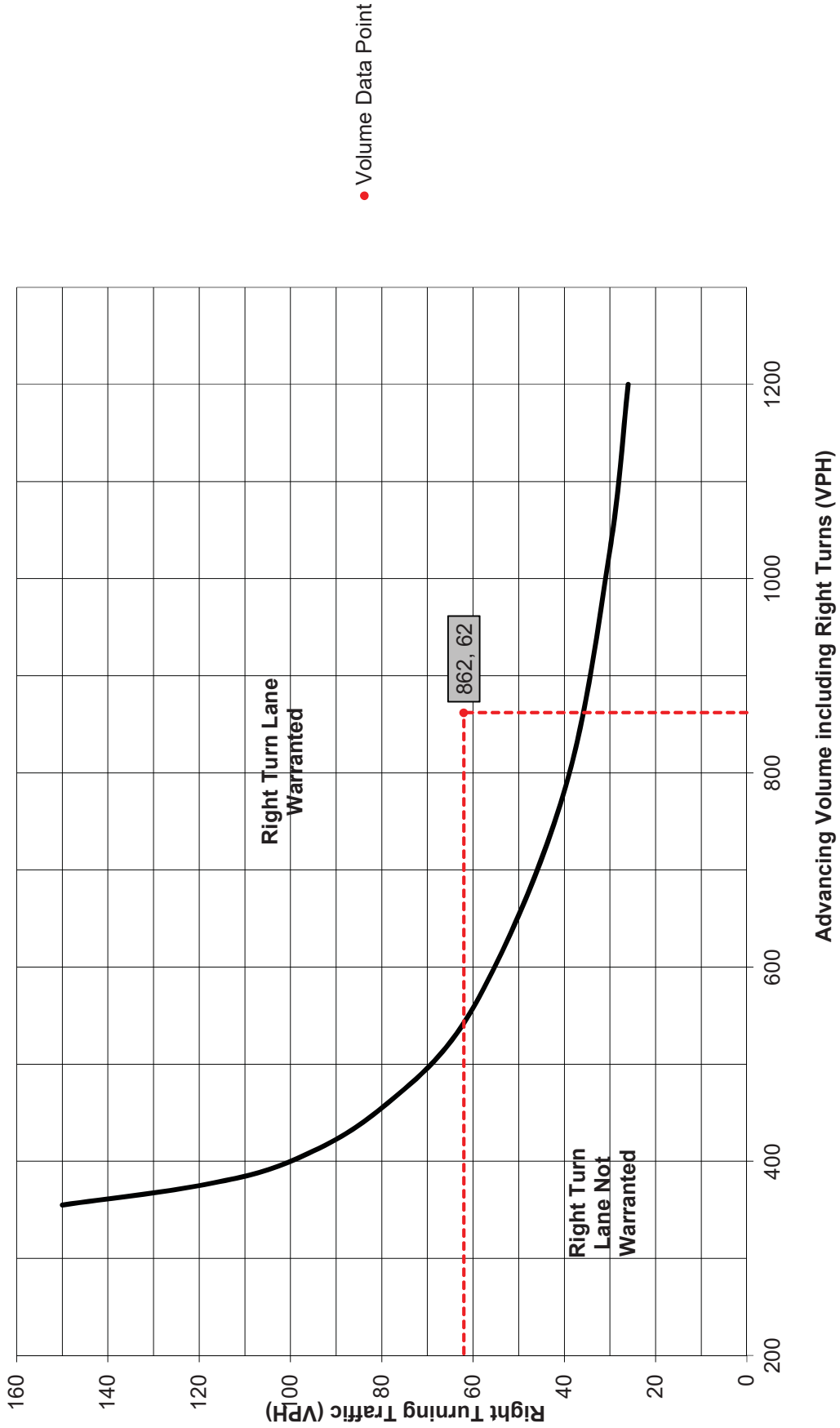
Type of Traffic Control	PennDOT Publication 46, Exhibit 11-6					
	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume		Turn Demand Volume		Turn Demand Volume	
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	0	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	0	Feet

Additional Findings: N/A

Additional Comments / Justifications:

**Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)**



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality: Plains Township	Analysis Date: 2/14/2018
County: Luzerne County	Conducted By: EJD
PennDOT Engineering District: 4	Checked By:
	Agency/Company Name: Borton-Lawson
Intersection & Approach Description: SR 2004 (River Street) & Courtright Avenue Southbound Left	
Analysis Period: 2027 No Build	Number of Approach Lanes: 1
Design Hour: PM Peak Hour	Undivided or Divided Highway: Undivided
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	14	0.0%	14
	Through	-	545	1.0%	554
	Right	Yes	22	0.0%	22
Opposing	Left	Yes	7	0.0%	7
	Through	-	781	1.0%	793
	Right	Yes	22	0.0%	22

Advancing Volume:	590
Opposing Volume:	822
Left Turn Volume:	14

% Left Turns in Advancing Volume: 2.37%

Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	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	Right Turn Lane Warrant Findings
Applicable Warrant Figure: Figure 1	Applicable Warrant Figure: N/A
Warrant Met?: Yes	Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control: Signalized	
Design Hour Volume of Turning Lane: 14	
Cycles Per Hour (Assumed): Known	
Cycles Per Hour (If Known): 51	Average # of Vehicles/Cycle: 1.0

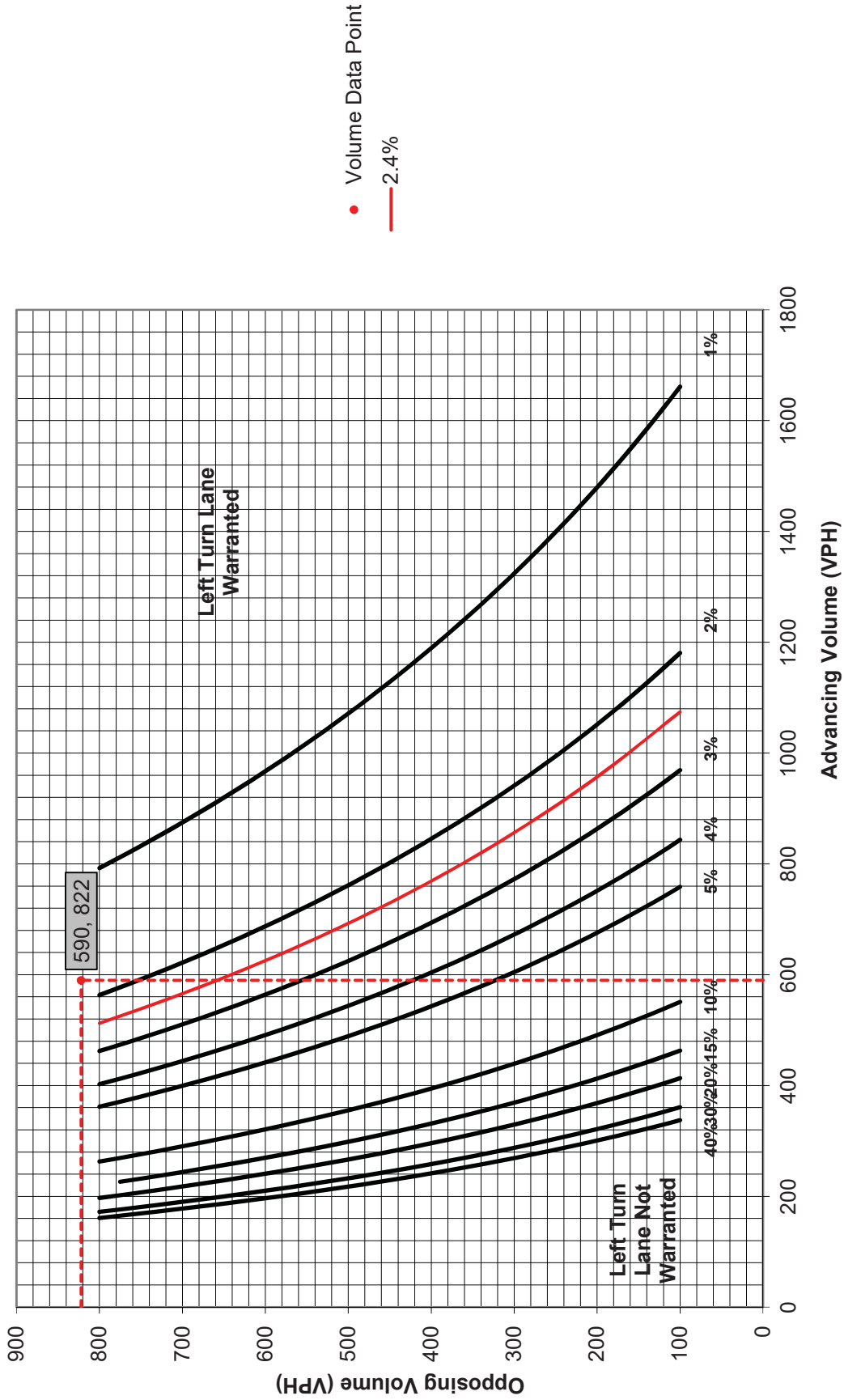
Type of Traffic Control	PennDOT Publication 46, Exhibit 11-6					
	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	0	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	0	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: Plains Township	Analysis Date: 3/16/2018
County: Luzerne County	Conducted By: EJD
PennDOT Engineering District: 4	Checked By: LSS
	Agency/Company Name: Borton-Lawson
Intersection & Approach Description: SR 2004 (River Street) & Chestnut Street Northbound Right	
Analysis Period: 2027 No Build	Number of Approach Lanes: 1
Design Hour: AM Peak Hour	Undivided or Divided Highway: Undivided
Intersection Control: Unsignalized	
Posted Speed Limit (MPH): 35	Type of Analysis
Type of Terrain: Rolling	Left or Right-Turn Lane Analysis?: Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	0	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	0	0.0%	N/A
	Through	-	521	3.0%	545
	Right	-	54	7.0%	60

Advancing Volume: 605
 Right Turn Volume: 60

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: N/A	Applicable Warrant Figure: Figure 9
Warrant Met?: N/A	Warrant Met?: Yes

TURN LANE LENGTH CALCULATIONS

Intersection Control: Unsignalized	
Design Hour Volume of Turning Lane: 60	
Cycles Per Hour (Assumed): Known	
Cycles Per Hour (If Known): 60	Average # of Vehicles/Cycle: 1.0

PennDOT Publication 46, Exhibit 11-6

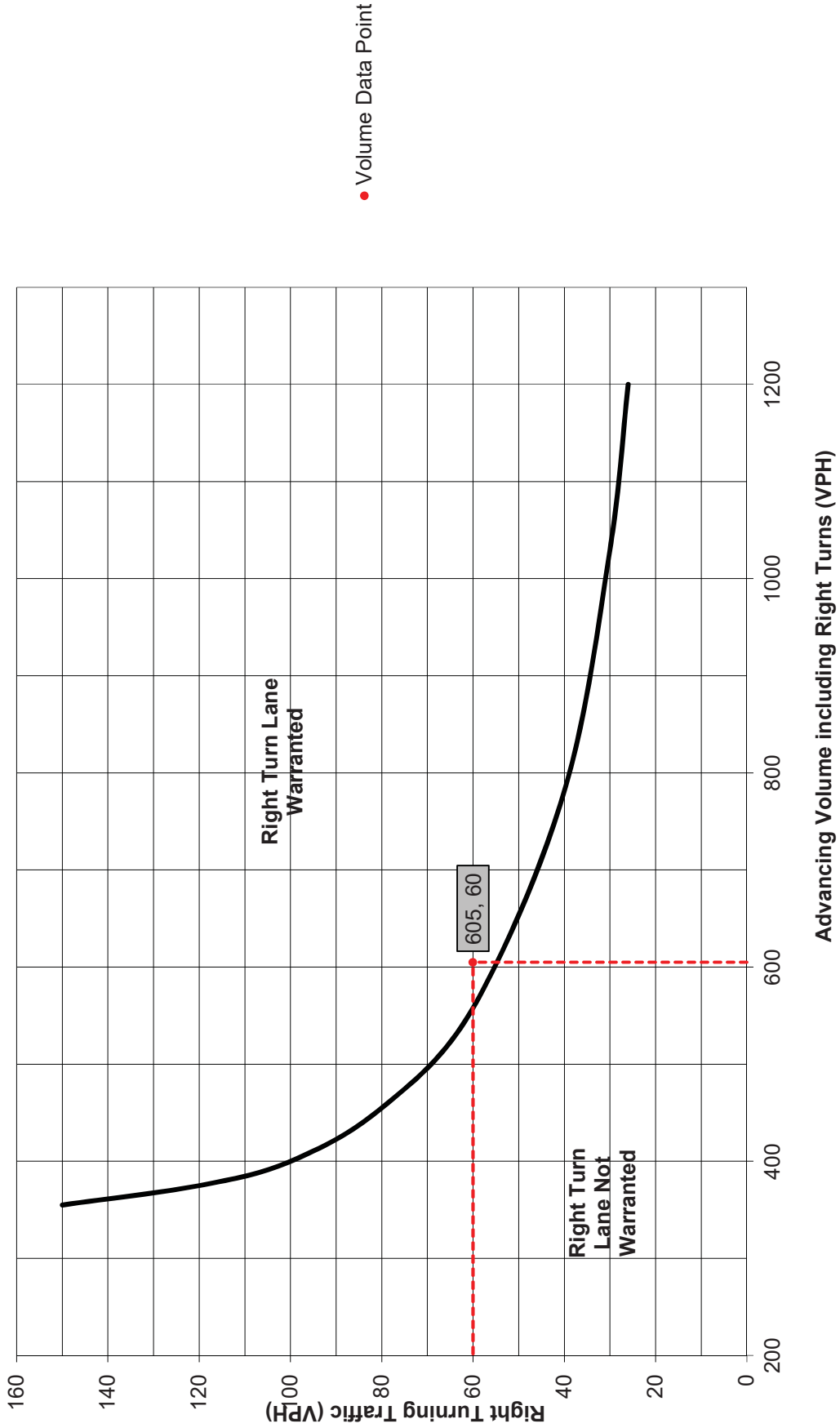
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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: Plains Township	Analysis Date: 2/14/2018
County: Luzerne County	Conducted By: EJD
PennDOT Engineering District: 4	Checked By:
	Agency/Company Name: Borton-Lawson
Intersection & Approach Description: SR 2004 (River Street) & Chestnut Street Southbound Left	
Analysis Period: 2027 No Build	Number of Approach Lanes: 1
Design Hour: AM Peak Hour	Undivided or Divided Highway: Undivided
Intersection Control: Unsignalized	
Posted Speed Limit (MPH): 35	Type of Analysis
Type of Terrain: Rolling	Left or Right-Turn Lane Analysis?: Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	88	2.0%	91
	Through	-	954	2.0%	983
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	521	3.0%	545
	Right	Yes	54	7.0%	60

Advancing Volume:	1074
Opposing Volume:	605
Left Turn Volume:	91

% Left Turns in Advancing Volume: 8.47%

Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	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	Right Turn Lane Warrant Findings
Applicable Warrant Figure: Figure 1	Applicable Warrant Figure: N/A
Warrant Met?: Yes	Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control: Unsignalized	
Design Hour Volume of Turning Lane: 91	
Cycles Per Hour (Assumed): Known	
Cycles Per Hour (If Known): 60	Average # of Vehicles/Cycle: 2.0

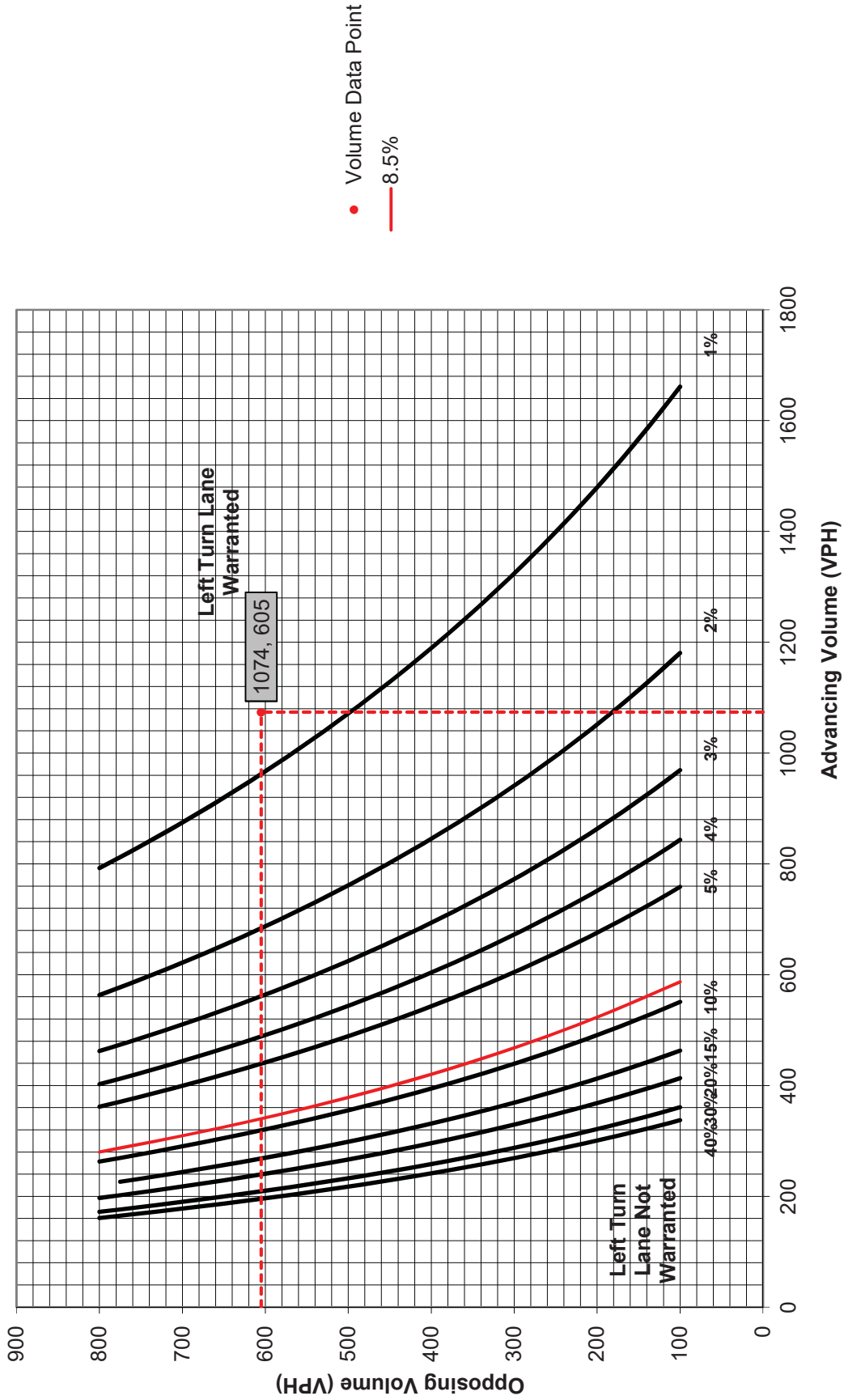
Type of Traffic Control	PennDOT Publication 46, Exhibit 11-6					
	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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 1. Warrant for left turn lanes on two-lane roadways
 (speeds to 35 mph, unsignalized and signalized intersections)
 (L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality: Plains Township	Analysis Date: 3/16/2018
County: Luzerne County	Conducted By: EJD
PennDOT Engineering District: 4	Checked By: LSS
	Agency/Company Name: Borton-Lawson
Intersection & Approach Description: SR 2004 (River Street) & Chestnut Street Northbound Right	
Analysis Period: 2027 No Build	Number of Approach Lanes: 1
Design Hour: PM Peak Hour	Undivided or Divided Highway: Undivided
Intersection Control: Unsignalized	
Posted Speed Limit (MPH): 35	Type of Analysis
Type of Terrain: Rolling	Left or Right-Turn Lane Analysis?: Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	0	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	0	0.0%	N/A
	Through	-	996	1.0%	1011
	Right	-	63	2.0%	65

Advancing Volume: 1076
 Right Turn Volume: 65

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: N/A	Applicable Warrant Figure: Figure 9
Warrant Met?: N/A	Warrant Met?: Yes

TURN LANE LENGTH CALCULATIONS

Intersection Control: Unsignalized	
Design Hour Volume of Turning Lane: 65	
Cycles Per Hour (Assumed): Known	
Cycles Per Hour (If Known): 60	Average # of Vehicles/Cycle: 1.0

PennDOT Publication 46, Exhibit 11-6

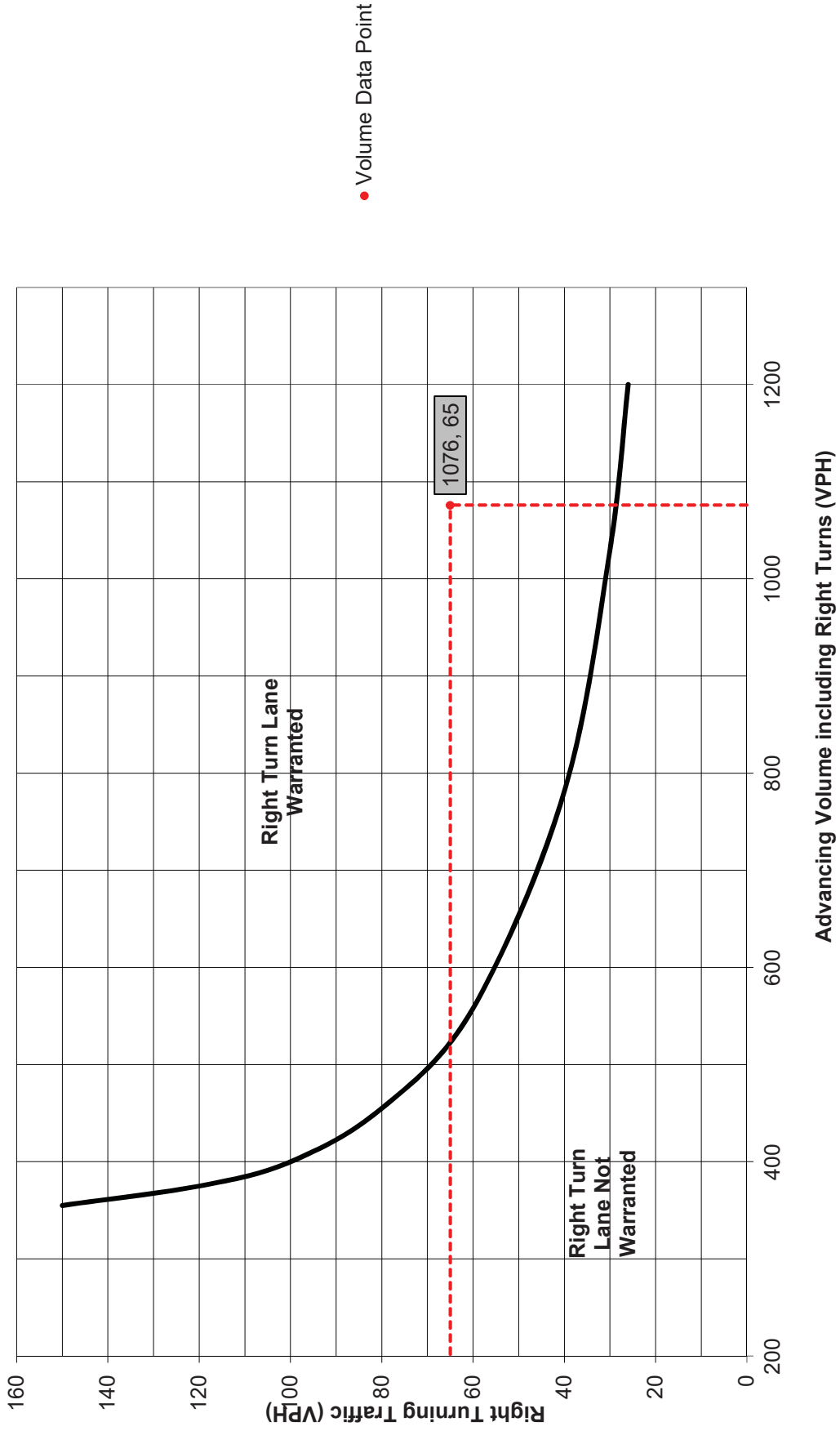
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Plains Township	Analysis Date:	2/14/2018
County:	Luzerne County	Conducted By:	EJD
PennDOT Engineering District:	4	Checked By:	
		Agency/Company Name:	Borton-Lawson
Intersection & Approach Description: SR 2004 (River Street) & Chestnut Street Southbound Left			
Analysis Period:	2027 No Build	Number of Approach Lanes:	1
Design Hour:	PM Peak Hour	Undivided or Divided Highway:	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35	Type of Analysis	
Type of Terrain:	Rolling	Left or Right-Turn Lane Analysis?:	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	56	4.0%	60
	Through	-	611	1.0%	621
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	996	1.0%	1011
	Right	Yes	63	2.0%	65

Advancing Volume:	681
Opposing Volume:	1076
Left Turn Volume:	60

% Left Turns in Advancing Volume: 8.81%

Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	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	Right Turn Lane Warrant Findings
Applicable Warrant Figure: Figure 1	Applicable Warrant Figure: N/A
Warrant Met?: Yes	Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized	Average # of Vehicles/Cycle:	1.0
Design Hour Volume of Turning Lane:	60		
Cycles Per Hour (Assumed):	Known		
Cycles Per Hour (If Known):	60		

PennDOT Publication 46, Exhibit 11-6

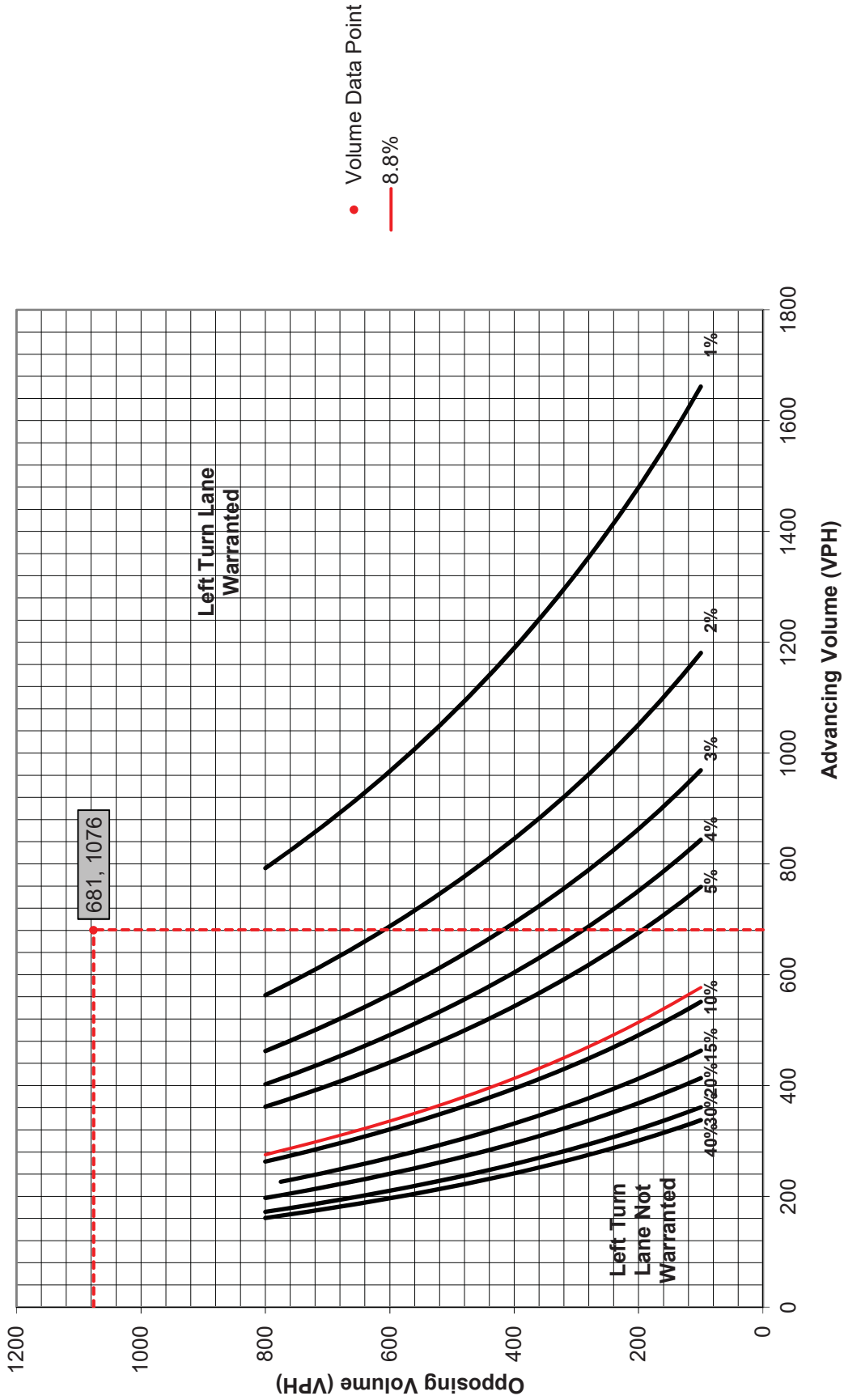
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Plains Township	Analysis Date:	2/14/2018
County:	Luzerne County	Conducted By:	EJD
PennDOT Engineering District:	4	Checked By:	
		Agency/Company Name:	Borton-Lawson
Intersection & Approach Description: SR 2004 (River Street) & Waterfront Park Drive / Cross Valley Centre Drive Northbound Left			
Analysis Period:	2027 No Build	Number of Approach Lanes:	1
Design Hour:	AM Peak Hour	Undivided or Divided Highway:	Undivided
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	50	0.0%	50
	Through	-	466	4.0%	494
	Right	Yes	9	0.0%	9
Opposing	Left	Yes	40	0.0%	40
	Through	-	1006	1.0%	1022
	Right	Yes	127	1.0%	129

Advancing Volume:	553
Opposing Volume:	1191
Left Turn Volume:	50

% Left Turns in Advancing Volume: 9.04%

Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	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	Right Turn Lane Warrant Findings
Applicable Warrant Figure: Figure 1	Applicable Warrant Figure: N/A
Warrant Met?: Yes	Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized		
Design Hour Volume of Turning Lane:	50		
Cycles Per Hour (Assumed):	Known		
Cycles Per Hour (If Known):	33	Average # of Vehicles/Cycle:	2.0

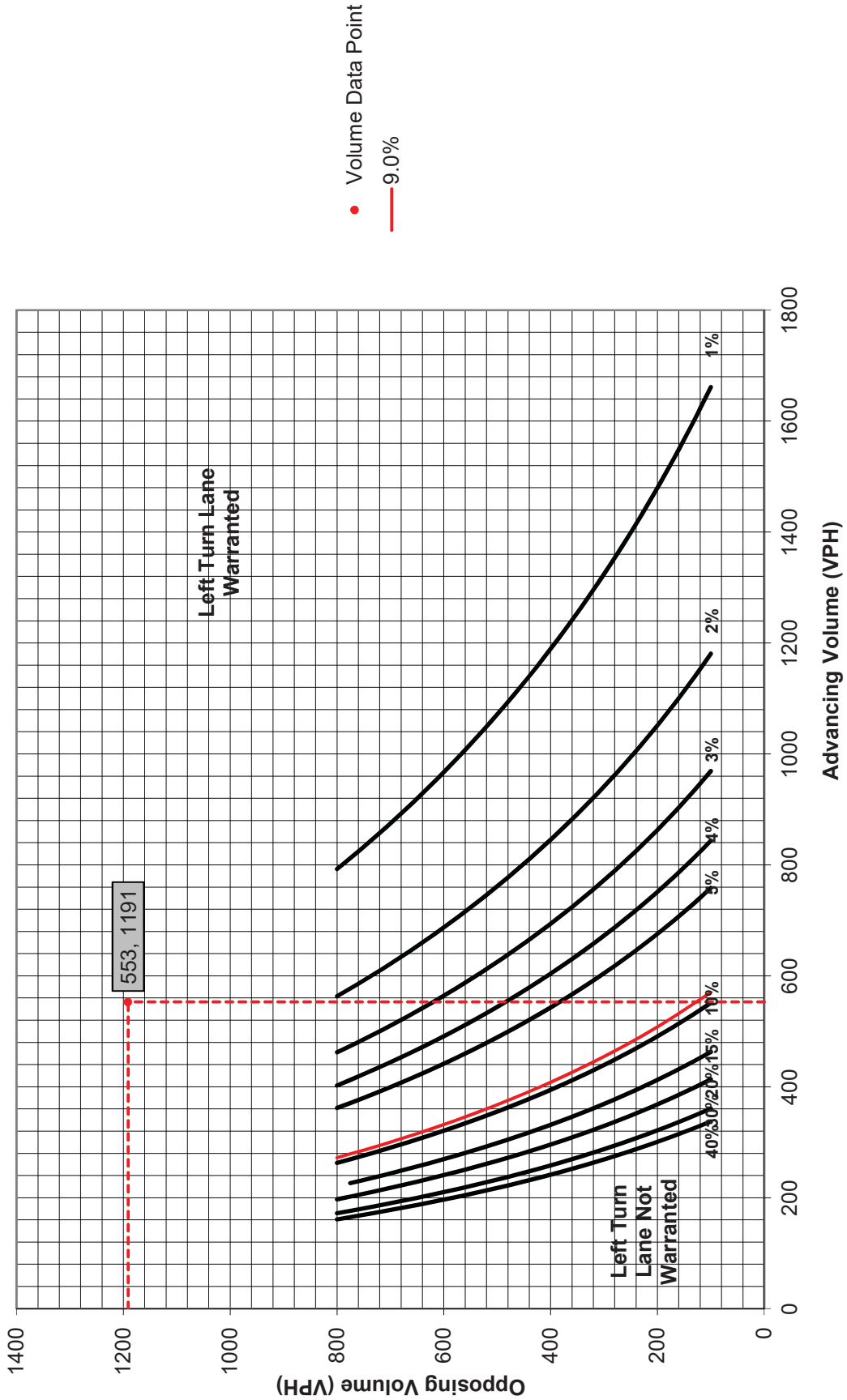
Type of Traffic Control	PennDOT Publication 46, Exhibit 11-6					
	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	0	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	0	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: <input type="text" value="Plains Township"/>	Analysis Date: <input type="text" value="2/14/2018"/>
County: <input type="text" value="Luzerne County"/>	Conducted By: <input type="text" value="EJD"/>
PennDOT Engineering District: <input type="text" value="4"/>	Checked By: <input type="text"/>
	Agency/Company Name: <input type="text" value="Borton-Lawson"/>
Intersection & Approach Description: <input type="text" value="SR 2004 (River Street) & Waterfront Park Drive / Cross Valley Centre Drive Southbound Left"/>	
Analysis Period: <input type="text" value="2027 No Build"/>	Number of Approach Lanes: <input type="text" value="1"/>
Design Hour: <input type="text" value="AM Peak Hour"/>	Undivided or Divided Highway: <input type="text" value="Undivided"/>
Intersection Control: <input type="text" value="Signalized"/>	
Posted Speed Limit (MPH): <input type="text" value="35"/>	Type of Analysis: <input type="text" value="Left Turn Lane"/>
Type of Terrain: <input type="text" value="Rolling"/>	Left or Right-Turn Lane Analysis?: <input type="text" value="Left Turn Lane"/>

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	40	0.0%	40
	Through	-	1006	1.0%	1022
	Right	Yes	127	1.0%	129
Opposing	Left	Yes	50	0.0%	50
	Through	-	466	4.0%	494
	Right	Yes	9	0.0%	9

Advancing Volume:	<input type="text" value="1191"/>
Opposing Volume:	<input type="text" value="553"/>
Left Turn Volume:	<input type="text" value="40"/>
% Left Turns in Advancing Volume: <input type="text" value="3.36%"/>	

Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	-	0	0.0%	N/A

Advancing Volume:	<input type="text" value="N/A"/>
Right Turn Volume:	<input type="text" value="N/A"/>

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: <input type="text" value="Figure 1"/>	Applicable Warrant Figure: <input type="text" value="N/A"/>
Warrant Met?: <input type="text" value="Yes"/>	Warrant Met?: <input type="text" value="N/A"/>

TURN LANE LENGTH CALCULATIONS

Intersection Control: <input type="text" value="Signalized"/>	
Design Hour Volume of Turning Lane: <input type="text" value="40"/>	
Cycles Per Hour (Assumed): <input type="text" value="Known"/>	
Cycles Per Hour (If Known): <input type="text" value="33"/>	Average # of Vehicles/Cycle: <input type="text" value="1.0"/>

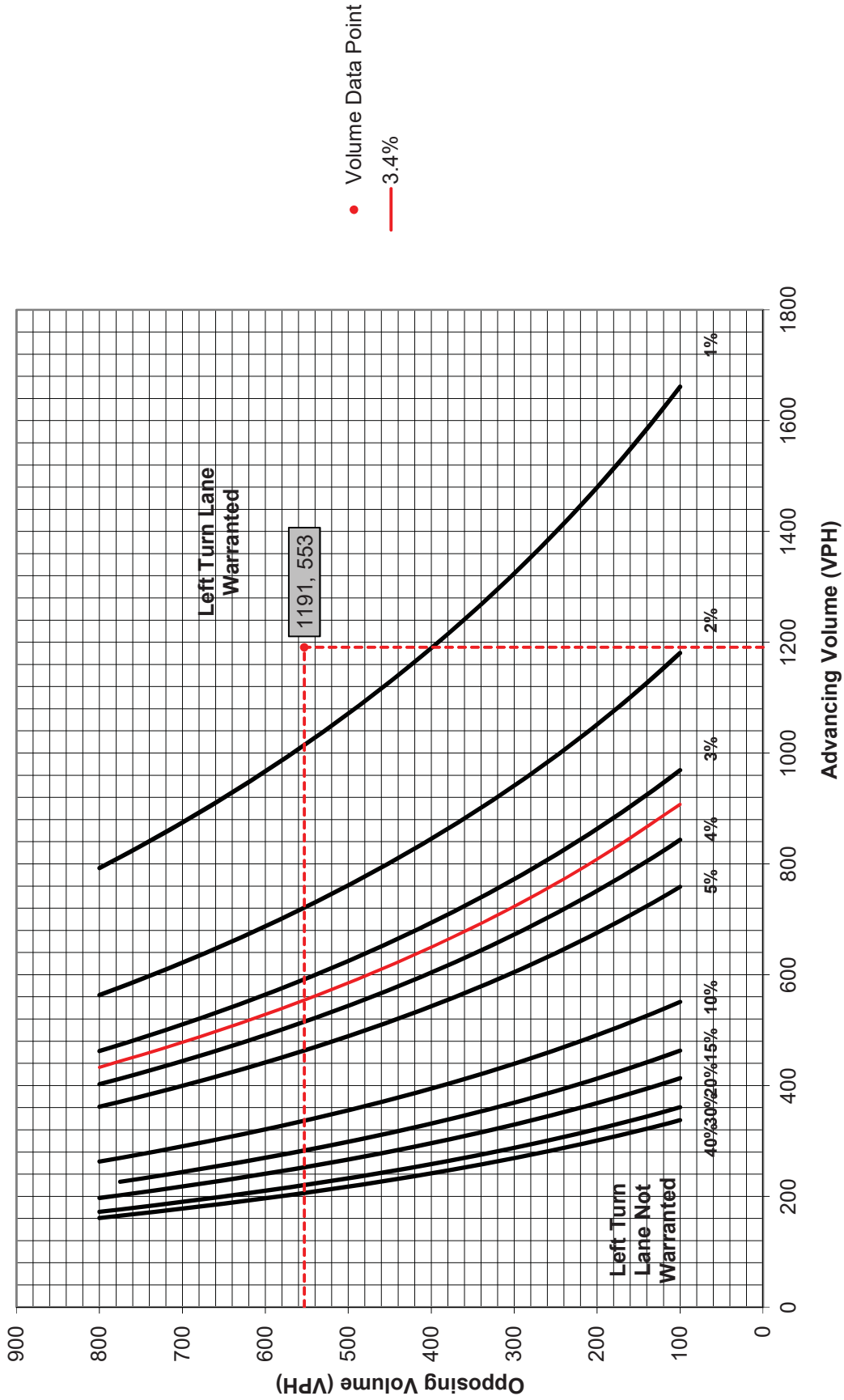
Type of Traffic Control	PennDOT Publication 46, Exhibit 11-6					
	Speed (MPH)					
	25-35		40-45		50-60	
Turn Demand Volume						
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	<input type="text" value="0"/>	Feet
Condition B:	<input type="text" value="N/A"/>	Feet
Condition C:	<input type="text" value="N/A"/>	Feet
Required Left Turn Lane Storage Length:	<input type="text" value="0"/>	Feet

Additional Findings:

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
 (speeds to 35 mph, unsignalized and signalized intersections)
 (L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality: Plains Township	Analysis Date: 3/16/2018
County: Luzerne County	Conducted By: EJD
PennDOT Engineering District: 4	Checked By: LSS
	Agency/Company Name: Borton-Lawson
Intersection & Approach Description: SR 2004 (River Street) & Waterfront Park Drive / Cross Valley Centre Drive Southbound Right	
Analysis Period: 2027 No Build	Number of Approach Lanes: 1
Design Hour: AM Peak Hour	Undivided or Divided Highway: Undivided
Intersection Control: Signalized	
Posted Speed Limit (MPH): 35	Type of Analysis
Type of Terrain: Rolling	Left or Right-Turn Lane Analysis?: Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	0	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	Yes	40	0.0%	40
	Through	-	1006	1.0%	1022
	Right	-	127	1.0%	129

Advancing Volume: 1191
 Right Turn Volume: 129

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: N/A	Applicable Warrant Figure: Figure 9
Warrant Met?: N/A	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): 33	Average # of Vehicles/Cycle: 4.0

PennDOT Publication 46, Exhibit 11-6

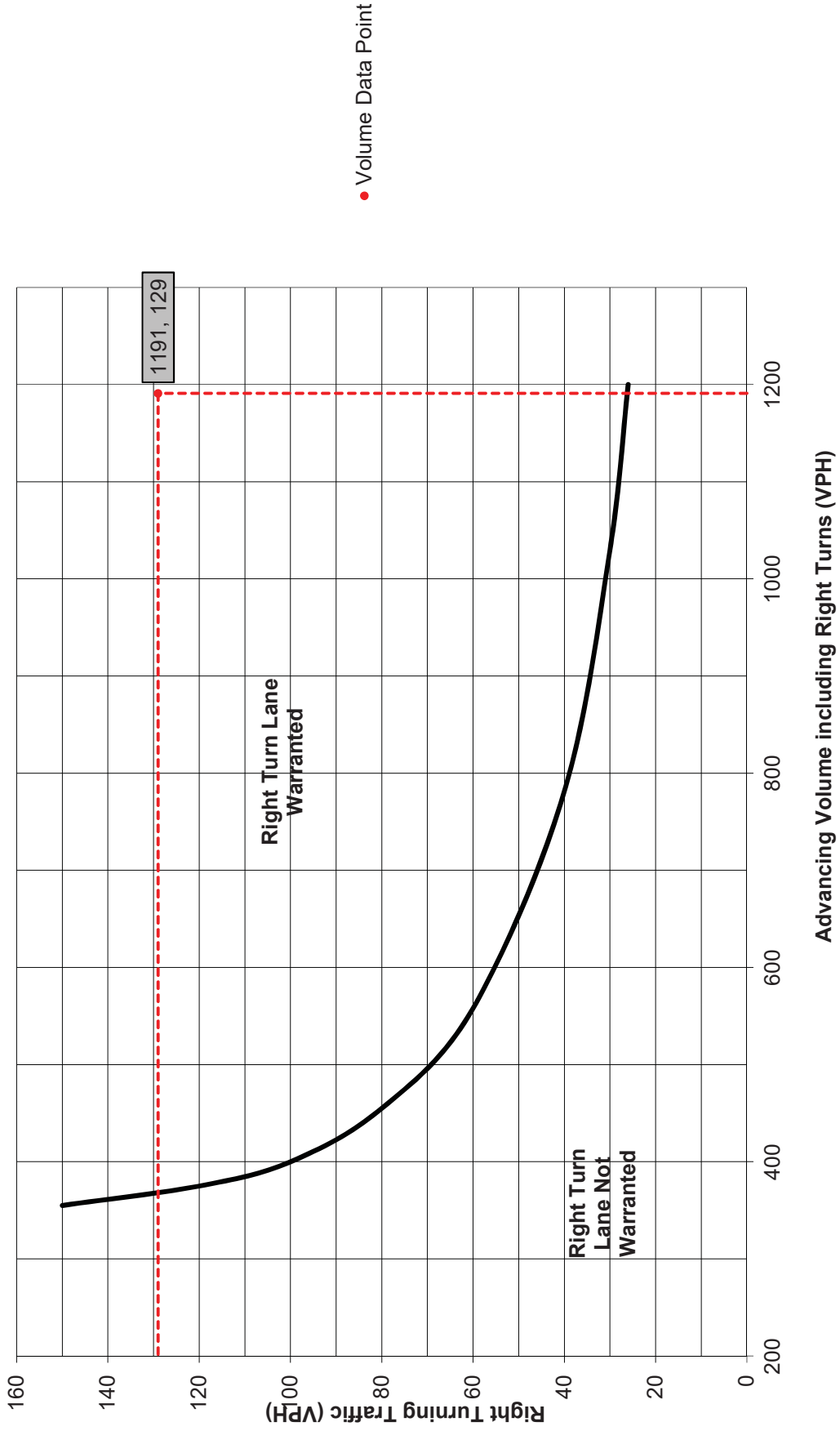
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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: <input type="text" value="Plains Township"/>	Analysis Date: <input type="text" value="2/14/2018"/>
County: <input type="text" value="Luzerne County"/>	Conducted By: <input type="text" value="EJD"/>
PennDOT Engineering District: <input type="text" value="4"/>	Checked By: <input type="text"/>
	Agency/Company Name: <input type="text" value="Borton-Lawson"/>
Intersection & Approach Description: <input type="text" value="SR 2004 (River Street) & Waterfront Park Drive / Cross Valley Centre Drive Northbound Left"/>	
Analysis Period: <input type="text" value="2027 No Build"/>	Number of Approach Lanes: <input type="text" value="1"/>
Design Hour: <input type="text" value="PM Peak Hour"/>	Undivided or Divided Highway: <input type="text" value="Undivided"/>
Intersection Control: <input type="text" value="Signalized"/>	
Posted Speed Limit (MPH): <input type="text" value="35"/>	Type of Analysis: <input type="text" value="Left Turn Lane"/>
Type of Terrain: <input type="text" value="Rolling"/>	Left or Right-Turn Lane Analysis?: <input type="text" value="Left Turn Lane"/>

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	23	0.0%	23
	Through	-	968	1.0%	983
	Right	Yes	8	0.0%	8
Opposing	Left	Yes	7	0.0%	7
	Through	-	605	2.0%	624
	Right	Yes	57	0.0%	57

Advancing Volume:	<input type="text" value="1014"/>
Opposing Volume:	<input type="text" value="688"/>
Left Turn Volume:	<input type="text" value="23"/>
% Left Turns in Advancing Volume: <input type="text" value="2.27%"/>	

Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	-	0	0.0%	N/A

Advancing Volume:	<input type="text" value="N/A"/>
Right Turn Volume:	<input type="text" value="N/A"/>

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: <input type="text" value="Figure 1"/>	Applicable Warrant Figure: <input type="text" value="N/A"/>
Warrant Met?: <input type="text" value="Yes"/>	Warrant Met?: <input type="text" value="N/A"/>

TURN LANE LENGTH CALCULATIONS

Intersection Control: <input type="text" value="Signalized"/>	
Design Hour Volume of Turning Lane: <input type="text" value="23"/>	
Cycles Per Hour (Assumed): <input type="text" value="Known"/>	
Cycles Per Hour (If Known): <input type="text" value="36"/>	Average # of Vehicles/Cycle: <input type="text" value="1.0"/>

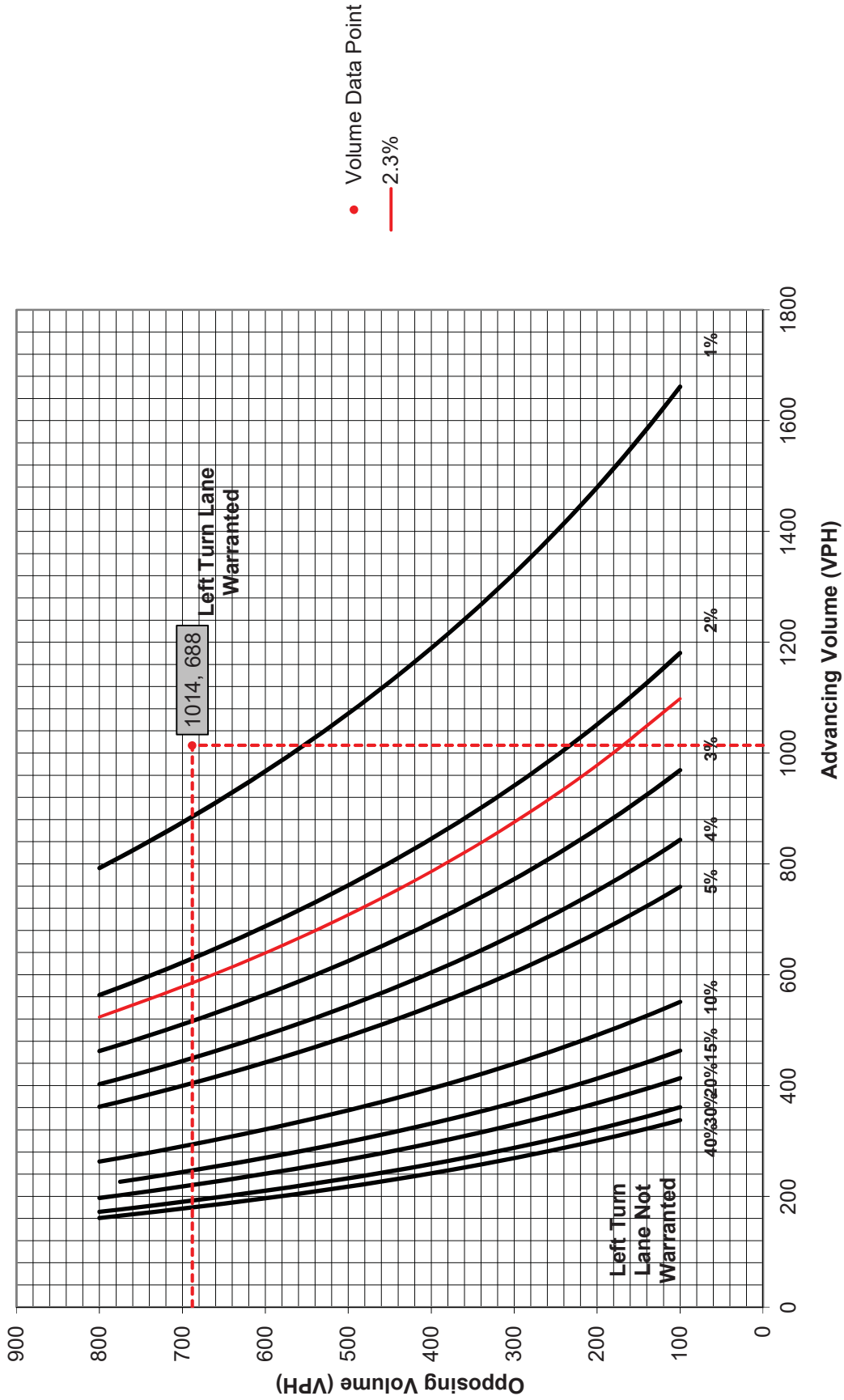
Type of Traffic Control	PennDOT Publication 46, Exhibit 11-6					
	Speed (MPH)					
	25-35		40-45		50-60	
Turn Demand Volume						
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	<input type="text" value="0"/>	Feet
Condition B:	<input type="text" value="N/A"/>	Feet
Condition C:	<input type="text" value="N/A"/>	Feet
Required Left Turn Lane Storage Length:	<input type="text" value="0"/>	Feet

Additional Findings:

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
 (speeds to 35 mph, unsignalized and signalized intersections)
 (L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality: Plains Township	Analysis Date: 2/14/2018
County: Luzerne County	Conducted By: EJD
PennDOT Engineering District: 4	Checked By:
	Agency/Company Name: Borton-Lawson
Intersection & Approach Description: SR 2004 (River Street) & Waterfront Park Drive / Cross Valley Centre Drive Southbound Left	
Analysis Period: 2027 No Build	Number of Approach Lanes: 1
Design Hour: PM Peak Hour	Undivided or Divided Highway: Undivided
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	7	0.0%	7
	Through	-	605	2.0%	624
	Right	Yes	57	0.0%	57
Opposing	Left	Yes	23	0.0%	23
	Through	-	968	1.0%	983
	Right	Yes	8	0.0%	8

Advancing Volume:	688
Opposing Volume:	1014
Left Turn Volume:	7

% Left Turns in Advancing Volume: 1.02%

Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	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	Right Turn Lane Warrant Findings
Applicable Warrant Figure: Figure 1	Applicable Warrant Figure: N/A
Warrant Met?: Yes	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): 36	Average # of Vehicles/Cycle: 1.0

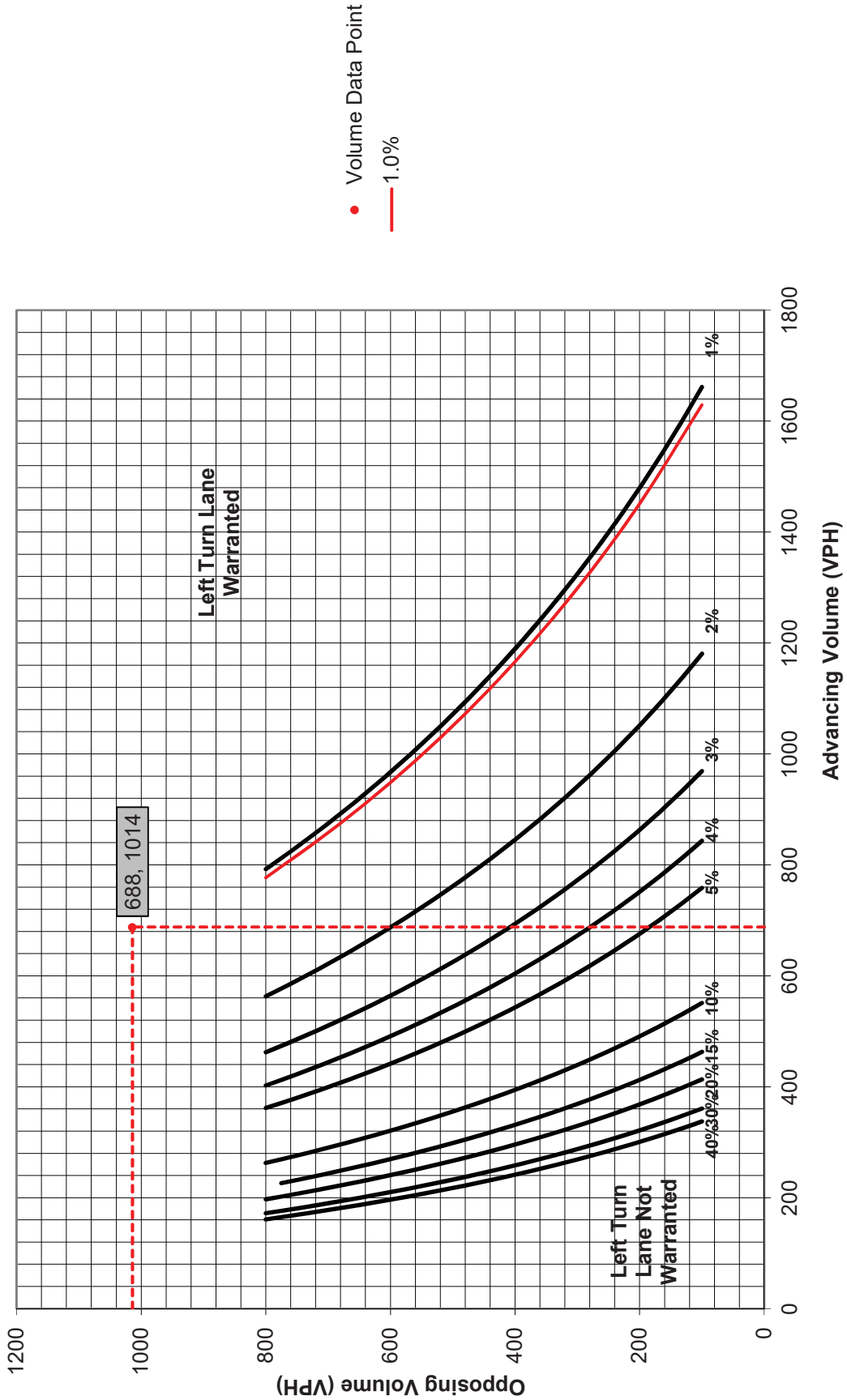
Type of Traffic Control	PennDOT Publication 46, Exhibit 11-6					
	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	0	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	0	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: <input type="text" value="Plains Township"/>	Analysis Date: <input type="text" value="3/16/2018"/>
County: <input type="text" value="Luzerne County"/>	Conducted By: <input type="text" value="EJD"/>
PennDOT Engineering District: <input type="text" value="4"/>	Checked By: <input type="text" value="LSS"/>
	Agency/Company Name: <input type="text" value="Borton-Lawson"/>
Intersection & Approach Description: <input type="text" value="SR 2004 (River Street) & Waterfront Park Drive / Cross Valley Centre Drive Southbound Right"/>	
Analysis Period: <input type="text" value="2027 No Build"/>	Number of Approach Lanes: <input type="text" value="1"/>
Design Hour: <input type="text" value="PM Peak Hour"/>	Undivided or Divided Highway: <input type="text" value="Undivided"/>
Intersection Control: <input type="text" value="Signalized"/>	
Posted Speed Limit (MPH): <input type="text" value="35"/>	Type of Analysis: <input type="text" value="Right Turn Lane"/>
Type of Terrain: <input type="text" value="Rolling"/>	Left or Right-Turn Lane Analysis?: <input type="text" value="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	Yes	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	0	0.0%	N/A

Advancing Volume:
 Opposing Volume:
 Left Turn Volume:
 % Left Turns in Advancing Volume:

Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	7	0.0%	7
	Through	-	605	2.0%	624
	Right	-	57	0.0%	57

Advancing Volume:
 Right Turn Volume:

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: <input type="text" value="N/A"/>	Applicable Warrant Figure: <input type="text" value="Figure 9"/>
Warrant Met?: <input type="text" value="N/A"/>	Warrant Met?: <input type="text" value="Yes"/>

TURN LANE LENGTH CALCULATIONS

Intersection Control: <input type="text" value="Signalized"/>	
Design Hour Volume of Turning Lane: <input type="text" value="57"/>	
Cycles Per Hour (Assumed): <input type="text" value="Known"/>	
Cycles Per Hour (If Known): <input type="text" value="36"/>	Average # of Vehicles/Cycle: <input type="text" value="2.0"/>

PennDOT Publication 46, Exhibit 11-6

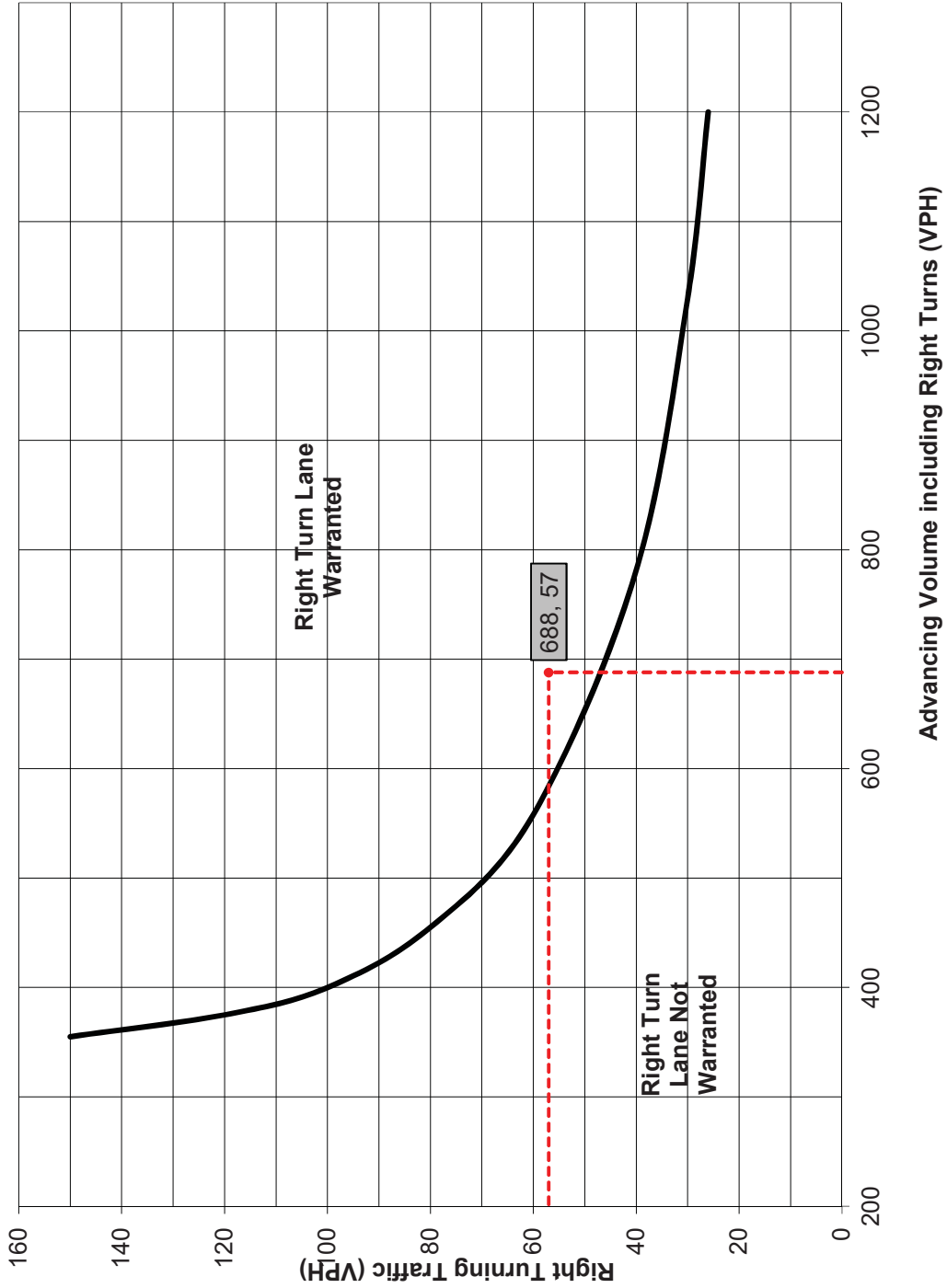
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A: Feet
 Condition B: Feet
 Condition C: Feet
 Required Right Turn Lane Storage Length: Feet

Additional Findings:

Additional Comments / Justifications:

**Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)**



• Volume Data Point

Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality: <input type="text" value="Plains Township"/>	Analysis Date: <input type="text" value="3/16/2018"/>
County: <input type="text" value="Luzerne County"/>	Conducted By: <input type="text" value="EJD"/>
PennDOT Engineering District: <input type="text" value="4"/>	Checked By: <input type="text" value="LSS"/>
	Agency/Company Name: <input type="text" value="Borton-Lawson"/>
Intersection & Approach Description: <input type="text" value="SR 2004 (River Street) & Ramp AA / Ramp CC
Eastbound Right"/>	
Analysis Period: <input type="text" value="2027 No Build"/>	Number of Approach Lanes: <input type="text" value="1"/>
Design Hour: <input type="text" value="PM Peak Hour"/>	Undivided or Divided Highway: <input type="text" value="Undivided"/>
Intersection Control: <input type="text" value="Signalized"/>	
Posted Speed Limit (MPH): <input type="text" value="25"/>	Type of Analysis: <input type="text" value="Right Turn Lane"/>
Type of Terrain: <input type="text" value="Rolling"/>	Left or Right-Turn Lane Analysis?: <input type="text" value="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	Yes	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	0	0.0%	N/A

Advancing Volume:
 Opposing Volume:
 Left Turn Volume:
 % Left Turns in Advancing Volume:

Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	305	2.0%	315
	Through	-	1	0.0%	1
	Right	-	440	1.0%	447

Advancing Volume:
 Right Turn Volume:

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: <input type="text" value="N/A"/>	Applicable Warrant Figure: <input type="text" value="Figure 9"/>
Warrant Met?: <input type="text" value="N/A"/>	Warrant Met?: <input type="text" value="Yes"/>

TURN LANE LENGTH CALCULATIONS

Intersection Control: <input type="text" value="Signalized"/>	
Design Hour Volume of Turning Lane: <input type="text" value="447"/>	
Cycles Per Hour (Assumed): <input type="text" value="Known"/>	
Cycles Per Hour (If Known): <input type="text" value="45"/>	Average # of Vehicles/Cycle: <input type="text" value="10.0"/>

PennDOT Publication 46, Exhibit 11-6

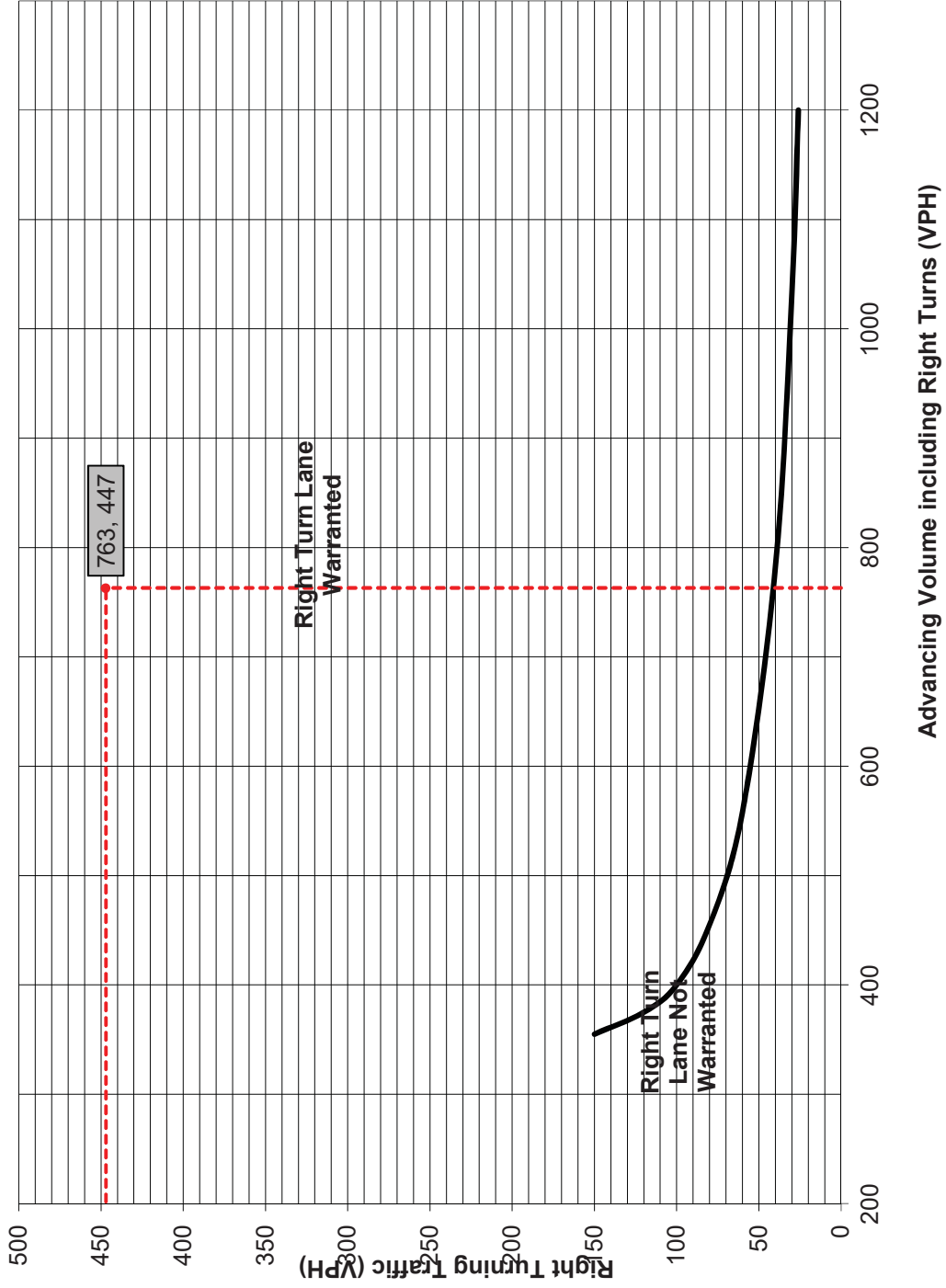
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A: Feet
 Condition B: Feet
 Condition C: Feet
 Required Right Turn Lane Storage Length: Feet

Additional Findings:

Additional Comments / Justifications:

**Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)**



• Volume Data Point

Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality: Plains Township	Analysis Date: 3/16/2018
County: Luzerne County	Conducted By: EJD
PennDOT Engineering District: 4	Checked By: LSS
	Agency/Company Name: Borton-Lawson
Intersection & Approach Description: SR 2004 (River Street) & Ramp AA / Ramp CC Northbound Right	
Analysis Period: 2027 No Build	Number of Approach Lanes: 2
Design Hour: AM Peak Hour	Undivided or Divided Highway: Divided
Intersection Control: Signalized	
Posted Speed Limit (MPH): 35	Type of Analysis
Type of Terrain: Rolling	Left or Right-Turn Lane Analysis?: Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	0	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	Yes	0	0.0%	0
	Through	-	306	5.0%	329
	Right	-	196	2.0%	202

Advancing Volume:	531
Right Turn Volume:	202

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: N/A	Applicable Warrant Figure: Figure 11
Warrant Met?: N/A	Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control: Signalized	
Design Hour Volume of Turning Lane: 202	
Cycles Per Hour (Assumed): Known	
Cycles Per Hour (If Known): 45	Average # of Vehicles/Cycle: N/A

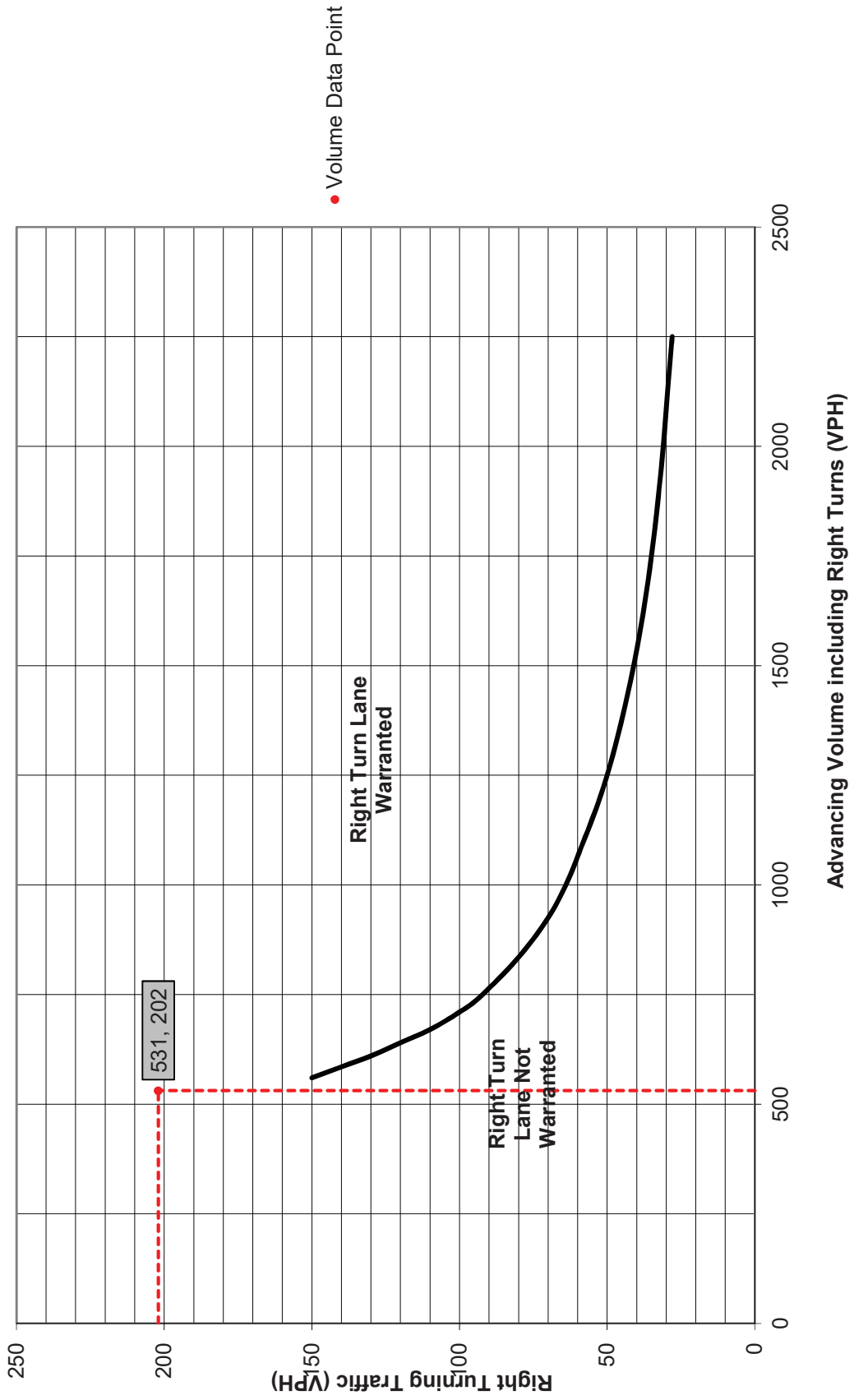
Type of Traffic Control	PennDOT Publication 46, Exhibit 11-6					
	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/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: <input type="text" value="Plains Township"/>	Analysis Date: <input type="text" value="2/14/2018"/>
County: <input type="text" value="Luzerne County"/>	Conducted By: <input type="text" value="EJD"/>
PennDOT Engineering District: <input type="text" value="4"/>	Checked By: <input type="text"/>
	Agency/Company Name: <input type="text" value="Borton-Lawson"/>
Intersection & Approach Description: <input type="text" value="SR 2004 (River Street) & Ramp AA / Ramp CC Southbound Left"/>	
Analysis Period: <input type="text" value="2027 No Build"/>	Number of Approach Lanes: <input type="text" value="2"/>
Design Hour: <input type="text" value="AM Peak Hour"/>	Undivided or Divided Highway: <input type="text" value="Divided"/>
Intersection Control: <input type="text" value="Signalized"/>	
Posted Speed Limit (MPH): <input type="text" value="35"/>	Type of Analysis: <input type="text" value="Left Turn Lane"/>
Type of Terrain: <input type="text" value="Rolling"/>	Left or Right-Turn Lane Analysis?: <input type="text" value="Left Turn Lane"/>

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	382	4.0%	405
	Through	-	717	2.0%	739
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	306	5.0%	329
	Right	Yes	196	2.0%	202

Advancing Volume: <input type="text" value="1144"/>
Opposing Volume: <input type="text" value="531"/>
Left Turn Volume: <input type="text" value="405"/>
% Left Turns in Advancing Volume: <input type="text" value="35.40%"/>

Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	-	0	0.0%	N/A

Advancing Volume: <input type="text" value="N/A"/>
Right Turn Volume: <input type="text" value="N/A"/>

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: <input type="text" value="Figure 8"/>	Applicable Warrant Figure: <input type="text" value="N/A"/>
Warrant Met?: <input type="text" value="Yes"/>	Warrant Met?: <input type="text" value="N/A"/>

TURN LANE LENGTH CALCULATIONS

Intersection Control: <input type="text" value="Signalized"/>	
Design Hour Volume of Turning Lane: <input type="text" value="405"/>	
Cycles Per Hour (Assumed): <input type="text" value="Known"/>	
Cycles Per Hour (If Known): <input type="text" value="45"/>	Average # of Vehicles/Cycle: <input type="text" value="9.0"/>

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

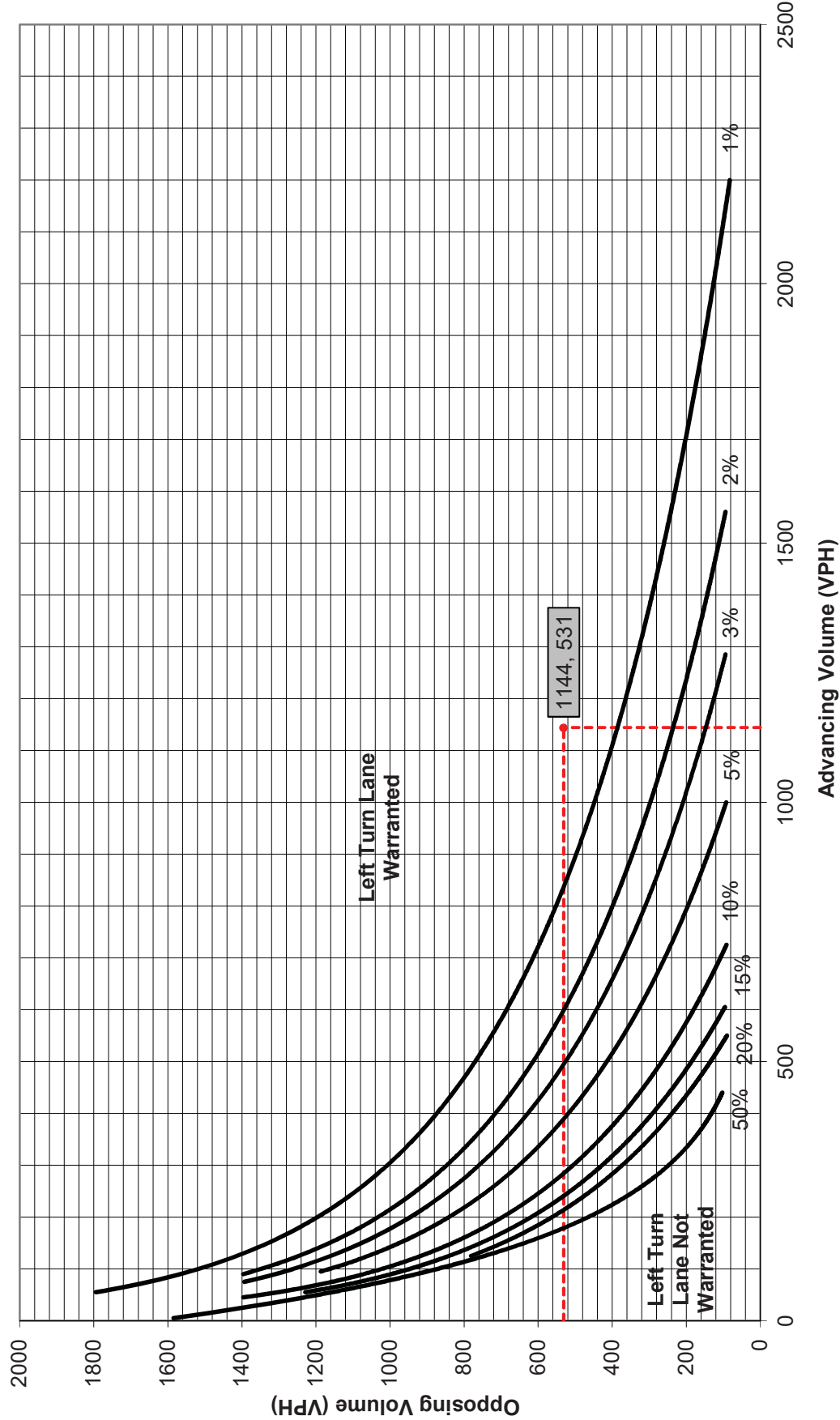
Left Turn Lane Storage Length, Condition A:	<input type="text" value="350"/>	Feet
Condition B:	<input type="text" value="N/A"/>	Feet
Condition C:	<input type="text" value="N/A"/>	Feet
Required Left Turn Lane Storage Length:	<input type="text" value="350"/>	Feet

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:	Plains Township	Analysis Date:	3/16/2018
County:	Luzerne County	Conducted By:	EJD
PennDOT Engineering District:	4	Checked By:	LSS
		Agency/Company Name:	Borton-Lawson
Intersection & Approach Description: SR 2004 (River Street) & Ramp AA / Ramp CC Eastbound Right			
Analysis Period:	2027 No Build	Number of Approach Lanes:	1
Design Hour:	PM Peak Hour	Undivided or Divided Highway:	Undivided
Intersection Control:	Signalized	Type of Analysis	
Posted Speed Limit (MPH):	25	Left or Right-Turn Lane Analysis?:	Right Turn Lane
Type of Terrain:	Rolling		

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	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	365	1.0%	371
	Through	-	2	0.0%	2
	Right	-	184	1.0%	187

Advancing Volume: 560
 Right Turn Volume: 187

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: N/A	Applicable Warrant Figure: Figure 9
Warrant Met?: N/A	Warrant Met?: Yes

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	187
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	40
Average # of Vehicles/Cycle:	5.0

PennDOT Publication 46, Exhibit 11-6

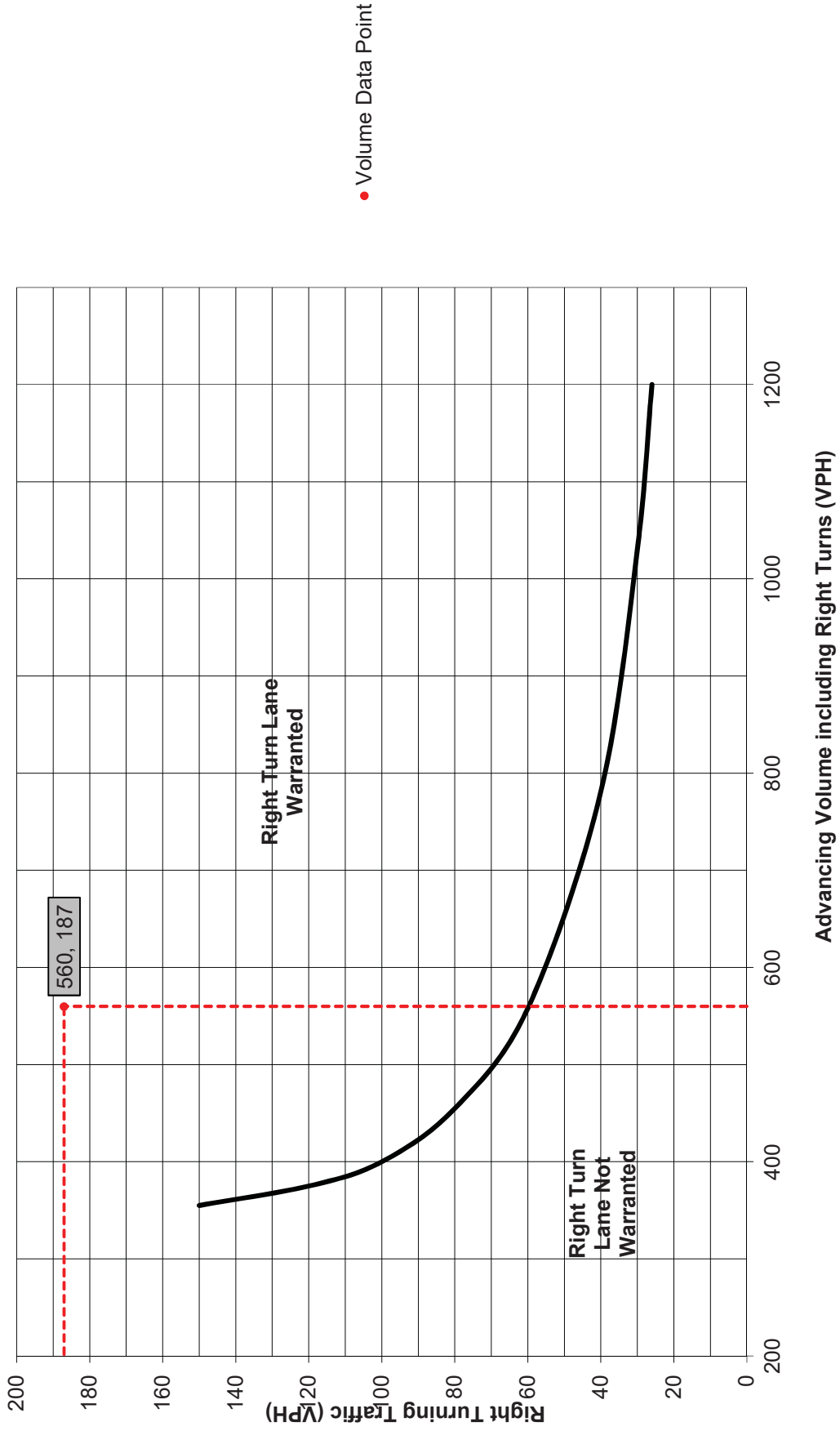
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	200	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	200	Feet

Additional Findings:
N/A

Additional Comments / Justifications:

**Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)**



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Plains Township	Analysis Date:	3/16/2018
County:	Luzerne County	Conducted By:	EJD
PennDOT Engineering District:	4	Checked By:	LSS
		Agency/Company Name:	Borton-Lawson
Intersection & Approach Description: SR 2004 (River Street) & Ramp AA / Ramp CC Northbound Right			
Analysis Period:	2027 No Build	Number of Approach Lanes:	2
Design Hour:	PM Peak Hour	Undivided or Divided Highway:	Divided
Intersection Control:	Signalized	Type of Analysis	
Posted Speed Limit (MPH):	35	Right Turn Lane	
Type of Terrain:	Rolling	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	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	0	0.0%	0
	Through	-	765	1.0%	777
	Right	-	328	2.0%	338

Advancing Volume:	1115
Right Turn Volume:	338

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: N/A	Applicable Warrant Figure: Figure 11
Warrant Met?: N/A	Warrant Met?: Yes

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized		
Design Hour Volume of Turning Lane:	338		
Cycles Per Hour (Assumed):	Known		
Cycles Per Hour (If Known):	40	Average # of Vehicles/Cycle:	8.0

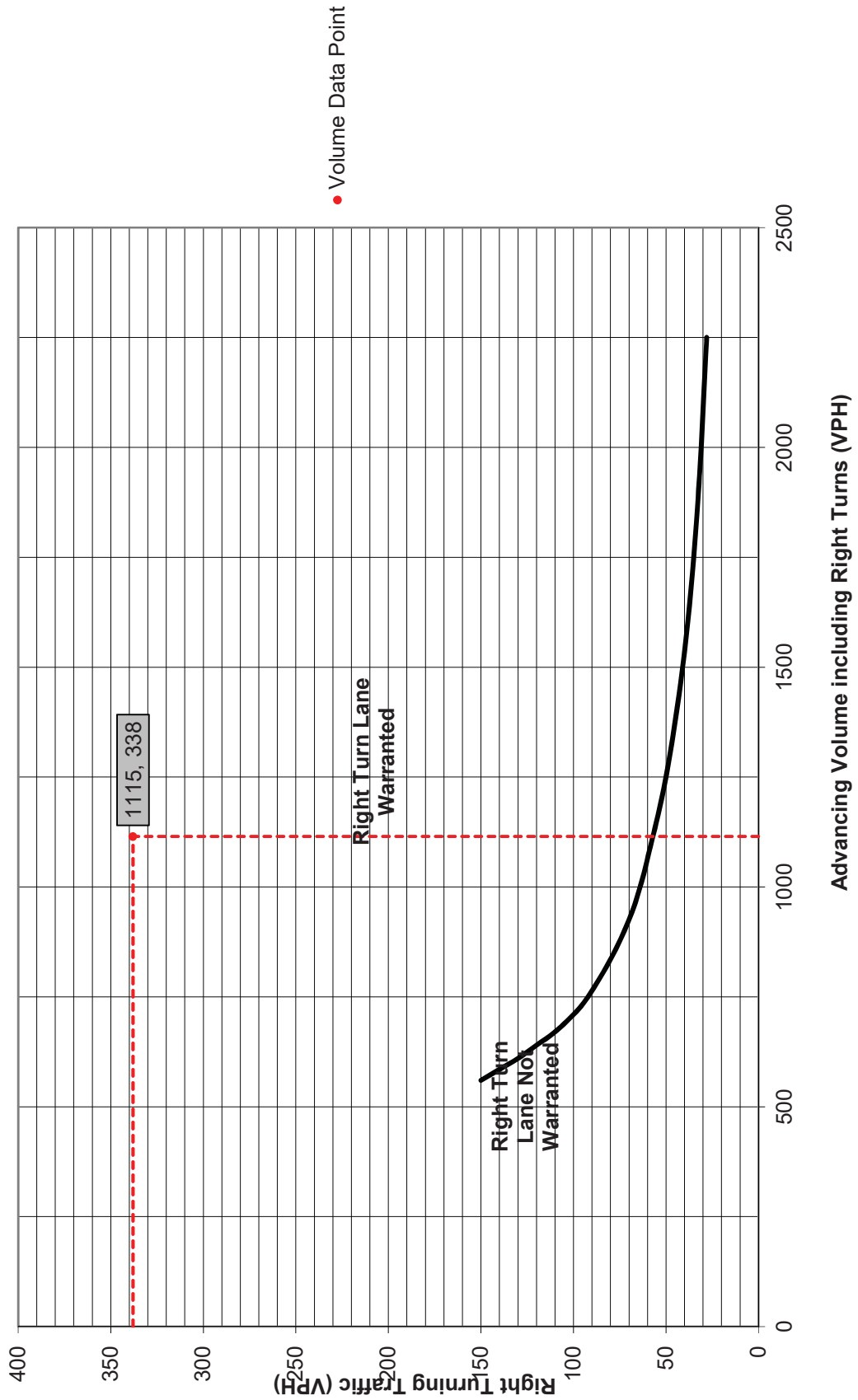
Type of Traffic Control	PennDOT Publication 46, Exhibit 11-6					
	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	325	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	325	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:	Plains Township	Analysis Date:	2/14/2018
County:	Luzerne County	Conducted By:	EJD
PennDOT Engineering District:	4	Checked By:	
		Agency/Company Name:	Borton-Lawson
Intersection & Approach Description: SR 2004 (River Street) & Ramp AA / Ramp CC Southbound Left			
Analysis Period:	2027 No Build	Number of Approach Lanes:	2
Design Hour:	PM Peak Hour	Undivided or Divided Highway:	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	35	Type of Analysis	
Type of Terrain:	Rolling	Left or Right-Turn Lane Analysis?:	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	317	4.0%	337
	Through	-	483	1.0%	491
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	765	1.0%	777
	Right	Yes	328	2.0%	338

Advancing Volume:	828
Opposing Volume:	1115
Left Turn Volume:	337
% Left Turns in Advancing Volume: 40.70%	

Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	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	Right Turn Lane Warrant Findings
Applicable Warrant Figure: Figure 8	Applicable Warrant Figure: N/A
Warrant Met?: Yes	Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized	Average # of Vehicles/Cycle:	8.0
Design Hour Volume of Turning Lane:	337		
Cycles Per Hour (Assumed):	Known		
Cycles Per Hour (If Known):	40		

Type of Traffic Control	PennDOT Publication 46, Exhibit 11-6					
	Speed (MPH)					
	25-35		40-45		50-60	
Turn Demand Volume						
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	325	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	325	Feet

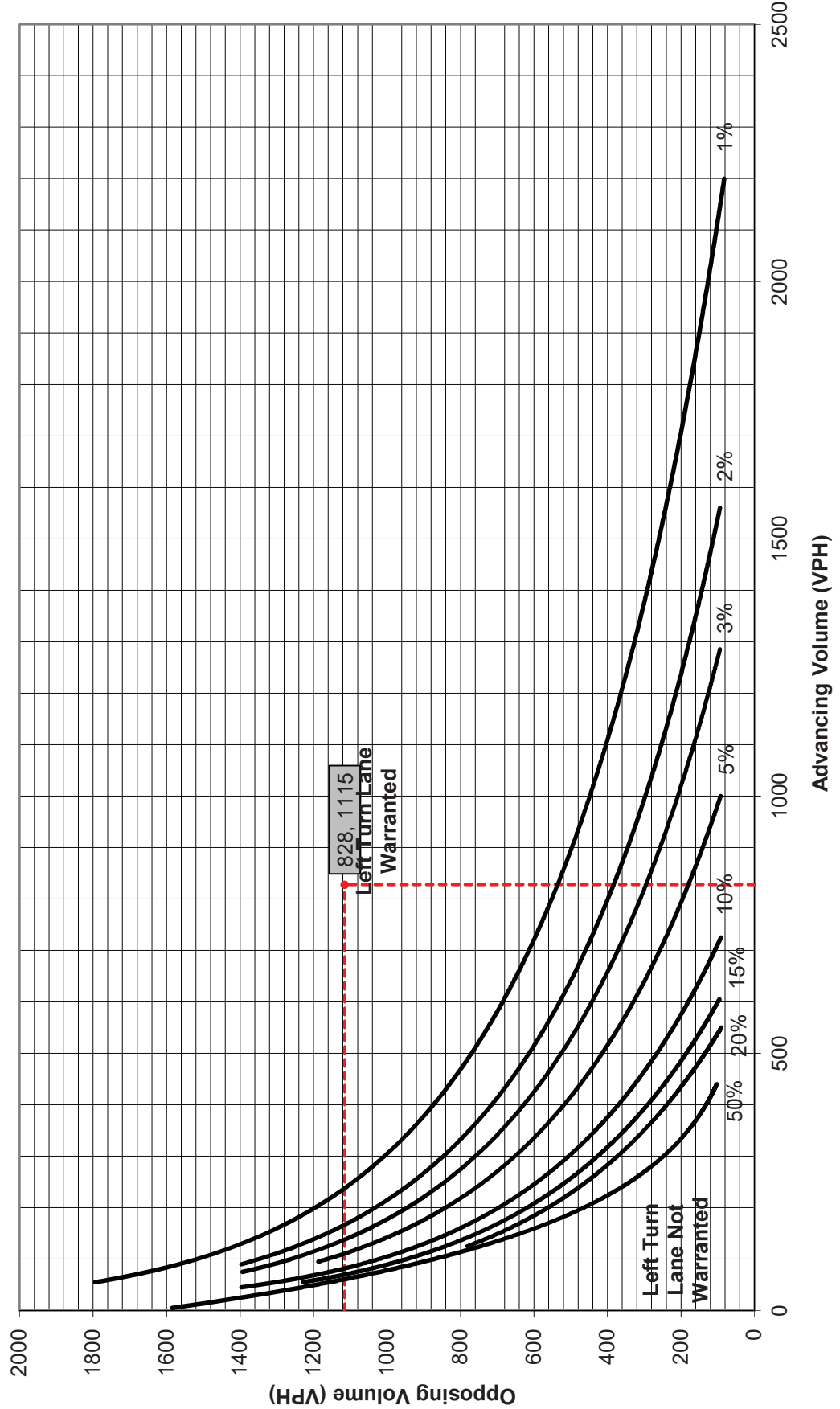
Additional Findings:

Consider Dual Left Turn Lanes and Operational Analyses

Additional Comments / Justifications:

● Volume Data Point

**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:	Plains Township	Analysis Date:	2/14/2018
County:	Luzerne County	Conducted By:	EJD
PennDOT Engineering District:	4	Checked By:	
		Agency/Company Name:	Borton-Lawson
Intersection & Approach Description: SR 2004 (River Street) & Ramp BB / Ramp DD Northbound Left			
Analysis Period:	2027 No Build	Number of Approach Lanes:	2
Design Hour:	AM Peak Hour	Undivided or Divided Highway:	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	35	Type of Analysis	
Type of Terrain:	Rolling	Left or Right-Turn Lane Analysis?:	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	120	2.0%	124
	Through	-	326	3.0%	341
	Right	Yes	170	3.0%	178
Opposing	Left	No	0	0.0%	N/A
	Through	-	691	2.0%	712
	Right	Yes	282	3.0%	295

Advancing Volume:	643
Opposing Volume:	1007
Left Turn Volume:	124
% Left Turns in Advancing Volume: 19.28%	

Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	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	Right Turn Lane Warrant Findings
Applicable Warrant Figure: Figure 8	Applicable Warrant Figure: N/A
Warrant Met?: Yes	Warrant Met?: N/A

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:	3.0

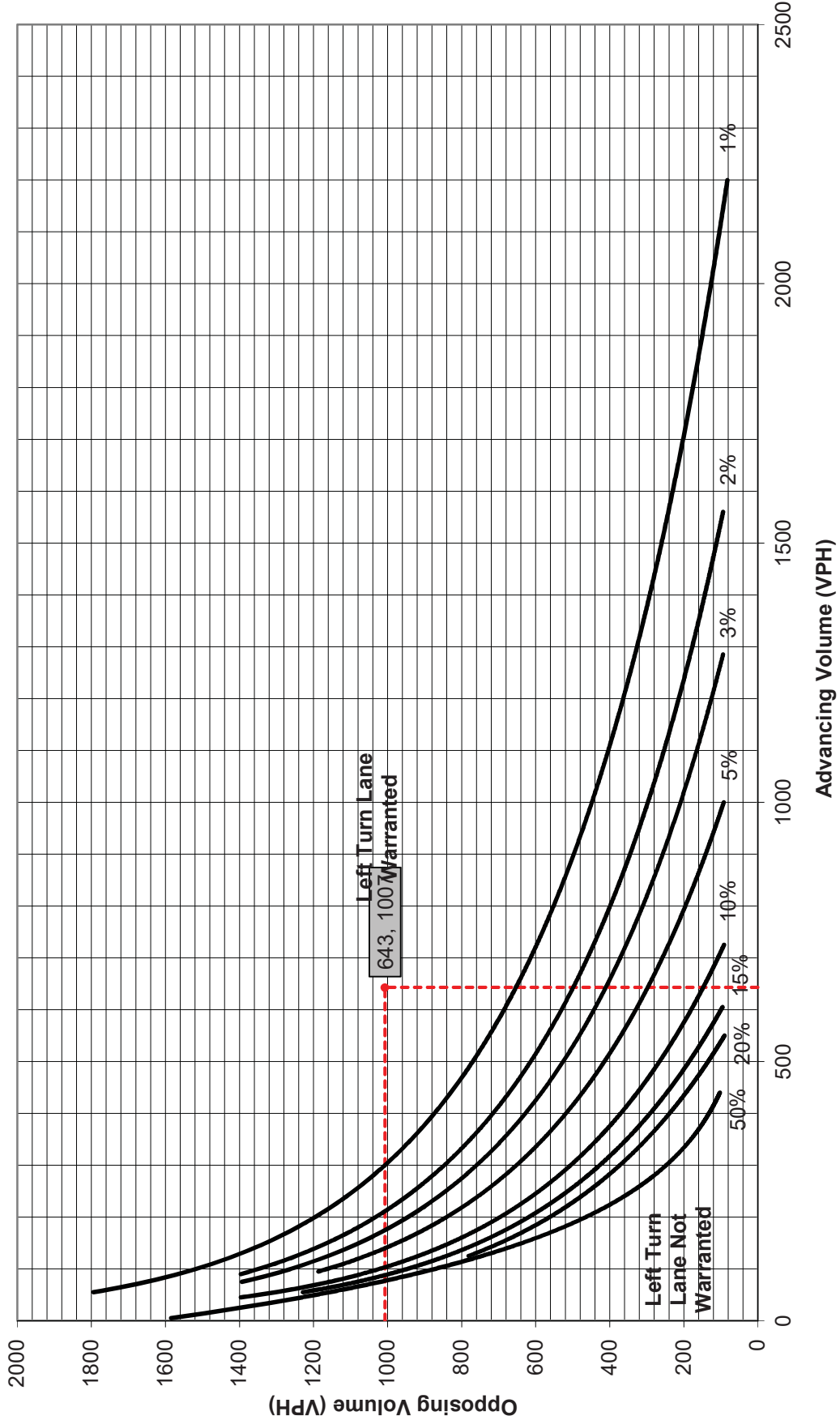
Type of Traffic Control	PennDOT Publication 46, Exhibit 11-6					
	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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 8. Warrant for left turn lanes on four-lane, divided highways
(unsignalized and signalized intersections)**
(L = % Left Turns in Advancing Volume) • Volume Data Point



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality: Plains Township	Analysis Date: 3/16/2018
County: Luzerne County	Conducted By: EJD
PennDOT Engineering District: 4	Checked By: LSS
	Agency/Company Name: Borton-Lawson
Intersection & Approach Description: SR 2004 (River Street) & Ramp BB / Ramp DD Northbound Right	
Analysis Period: 2027 No Build	Number of Approach Lanes: 2
Design Hour: AM Peak Hour	Undivided or Divided Highway: Divided
Intersection Control: Signalized	
Posted Speed Limit (MPH): 35	Type of Analysis
Type of Terrain: Rolling	Left or Right-Turn Lane Analysis?: Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	0	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	Yes	120	2.0%	124
	Through	-	326	3.0%	341
	Right	-	170	3.0%	178

Advancing Volume: 643
 Right Turn Volume: 178

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: N/A	Applicable Warrant Figure: Figure 11
Warrant Met?: N/A	Warrant Met?: Yes

TURN LANE LENGTH CALCULATIONS

Intersection Control: Signalized	Average # of Vehicles/Cycle: 4.0
Design Hour Volume of Turning Lane: 178	
Cycles Per Hour (Assumed): Known	
Cycles Per Hour (If Known): 45	

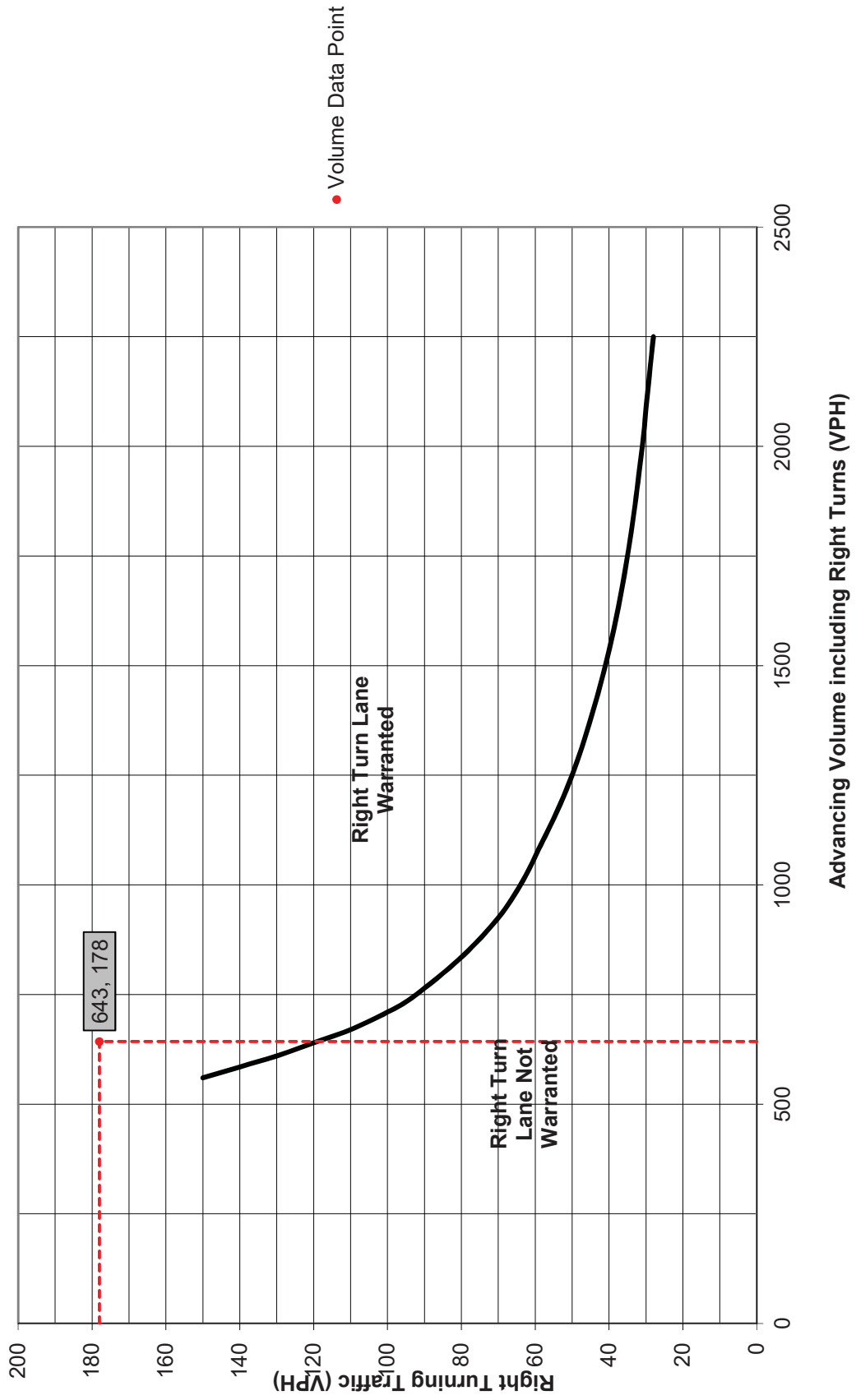
Type of Traffic Control	PennDOT Publication 46, Exhibit 11-6					
	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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 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: Plains Township	Analysis Date: 3/16/2018
County: Luzerne County	Conducted By: EJD
PennDOT Engineering District: 4	Checked By: LSS
	Agency/Company Name: Borton-Lawson
Intersection & Approach Description: SR 2004 (River Street) & Ramp BB / Ramp DD Southbound Right	
Analysis Period: 2027 No Build	Number of Approach Lanes: 2
Design Hour: AM Peak Hour	Undivided or Divided Highway: Divided
Intersection Control: Signalized	
Posted Speed Limit (MPH): 35	Type of Analysis
Type of Terrain: Rolling	Left or Right-Turn Lane Analysis?: Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	0	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	0	0.0%	N/A
	Through	-	691	2.0%	712
	Right	-	282	3.0%	295

Advancing Volume: 1007
 Right Turn Volume: 295

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: N/A	Applicable Warrant Figure: Figure 11
Warrant Met?: N/A	Warrant Met?: Yes

TURN LANE LENGTH CALCULATIONS

Intersection Control: Signalized	
Design Hour Volume of Turning Lane: 295	
Cycles Per Hour (Assumed): Known	
Cycles Per Hour (If Known): 45	Average # of Vehicles/Cycle: 7.0

PennDOT Publication 46, Exhibit 11-6

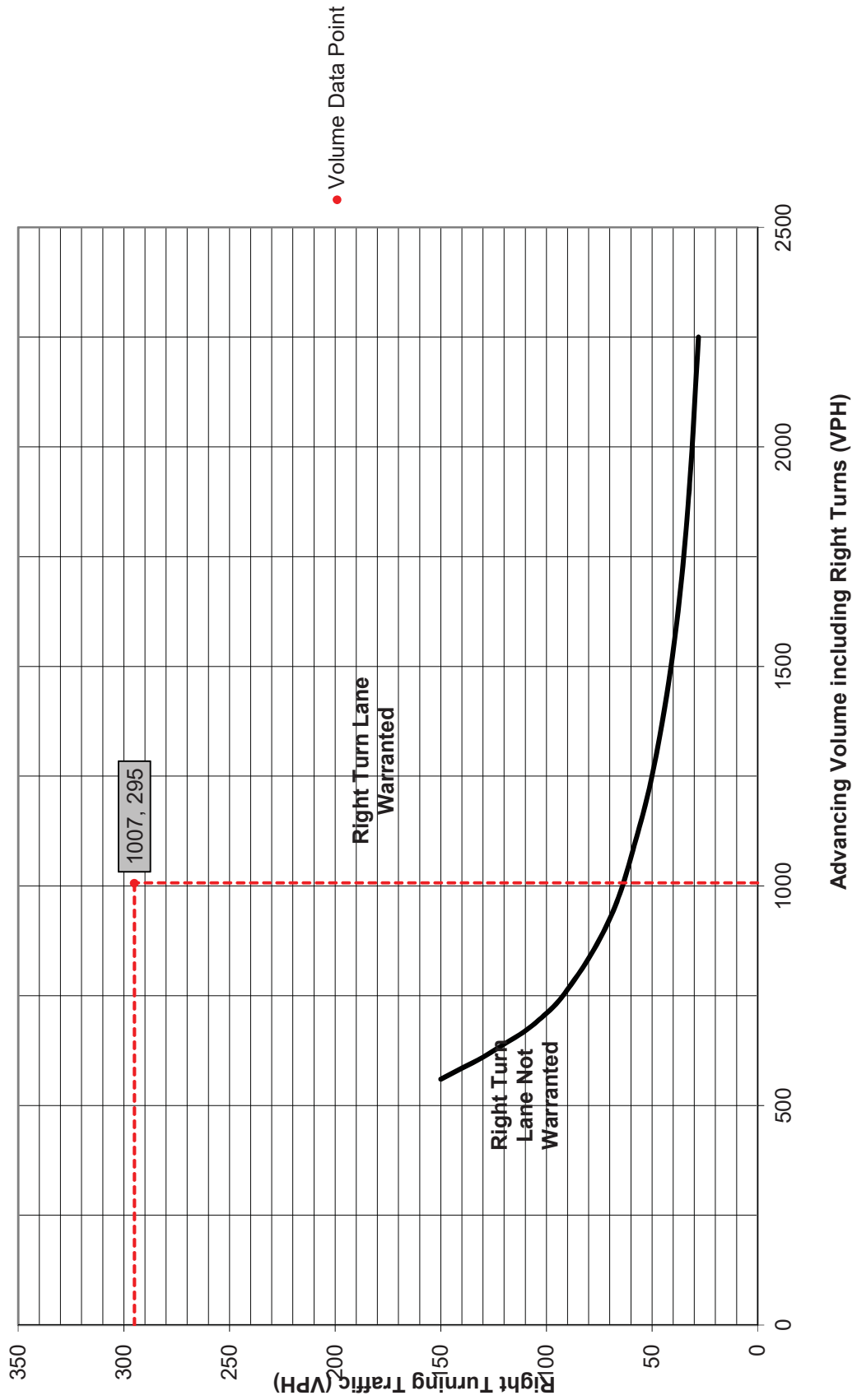
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	275	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	275	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 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:	Plains Township	Analysis Date:	2/14/2018
County:	Luzeerne County	Conducted By:	EJD
PennDOT Engineering District:	4	Checked By:	
		Agency/Company Name:	Borton-Lawson
Intersection & Approach Description: SR 2004 (River Street) & Ramp BB / Ramp DD Northbound Left			
Analysis Period:	2027 No Build	Number of Approach Lanes:	2
Design Hour:	PM Peak Hour	Undivided or Divided Highway:	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	35	Type of Analysis	
Type of Terrain:	Rolling	Left or Right-Turn Lane Analysis?:	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	339	1.0%	345
	Through	-	518	1.0%	526
	Right	Yes	288	1.0%	293
Opposing	Left	No	0	0.0%	N/A
	Through	-	500	2.0%	515
	Right	Yes	295	2.0%	304

Advancing Volume:	1164
Opposing Volume:	819
Left Turn Volume:	345

% Left Turns in Advancing Volume: 29.64%

Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	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	Right Turn Lane Warrant Findings
Applicable Warrant Figure: Figure 8	Applicable Warrant Figure: N/A
Warrant Met?: Yes	Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized	Average # of Vehicles/Cycle:	9.0
Design Hour Volume of Turning Lane:	345		
Cycles Per Hour (Assumed):	Known		
Cycles Per Hour (If Known):	40		

Type of Traffic Control	PennDOT Publication 46, Exhibit 11-6					
	Speed (MPH)					
	25-35		40-45		50-60	
Turn Demand Volume						
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	350	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	350	Feet

Additional Findings:

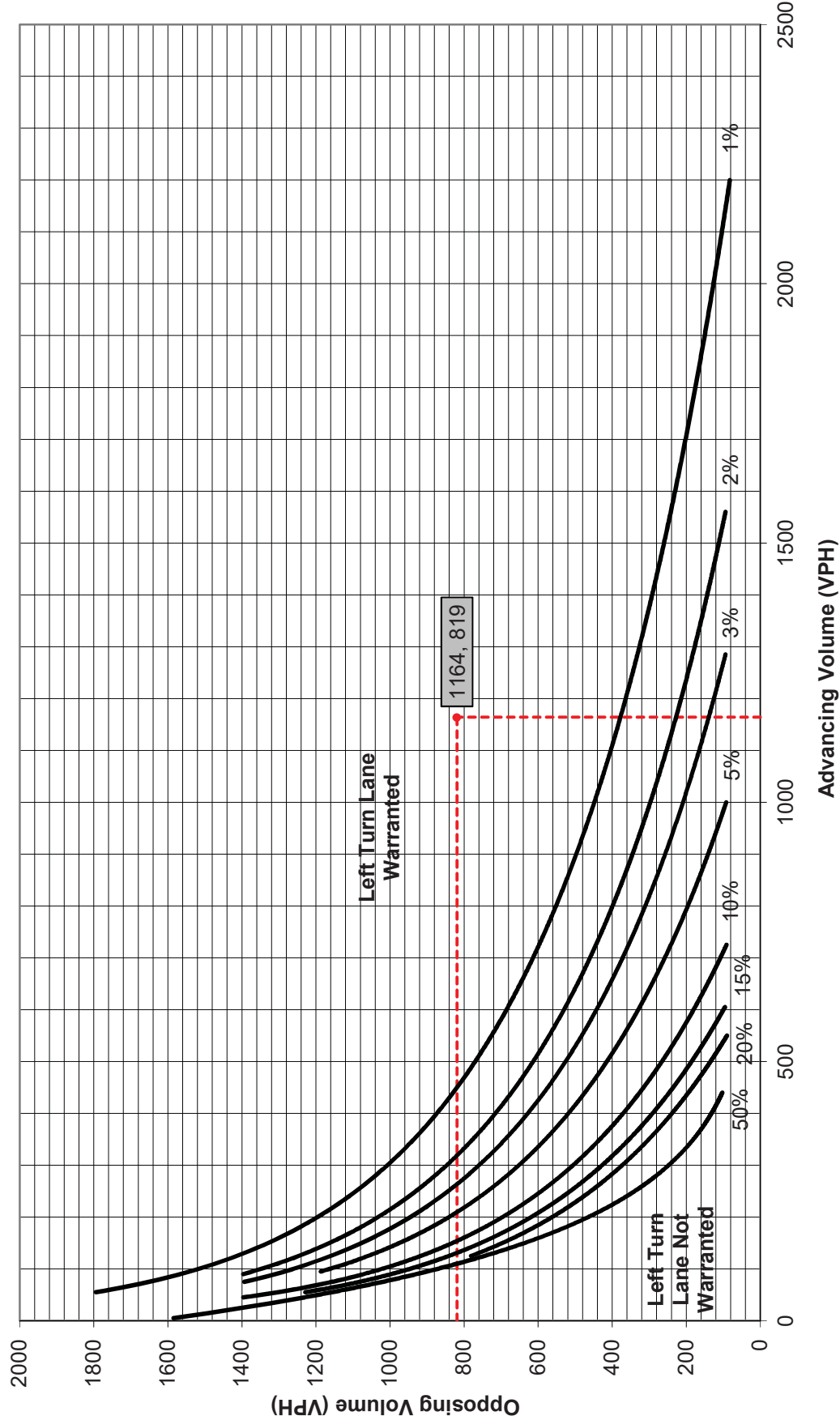
Consider Dual Left Turn Lanes and Operational Analyses

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)

• Volume Data Point



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality: Plains Township	Analysis Date: 3/16/2018
County: Luzerne County	Conducted By: EJD
PennDOT Engineering District: 4	Checked By: LSS
	Agency/Company Name: Borton-Lawson
Intersection & Approach Description: SR 2004 (River Street) & Ramp BB / Ramp DD Northbound Right	
Analysis Period: 2027 No Build	Number of Approach Lanes: 2
Design Hour: PM Peak Hour	Undivided or Divided Highway: Divided
Intersection Control: Signalized	
Posted Speed Limit (MPH): 35	Type of Analysis
Type of Terrain: Rolling	Left or Right-Turn Lane Analysis?: Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	0	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	Yes	339	1.0%	345
	Through	-	518	1.0%	526
	Right	-	288	1.0%	293

Advancing Volume: 1164
 Right Turn Volume: 293

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: N/A	Applicable Warrant Figure: Figure 11
Warrant Met?: N/A	Warrant Met?: Yes

TURN LANE LENGTH CALCULATIONS

Intersection Control: Signalized	
Design Hour Volume of Turning Lane: 293	
Cycles Per Hour (Assumed): Known	
Cycles Per Hour (If Known): 40	Average # of Vehicles/Cycle: 7.0

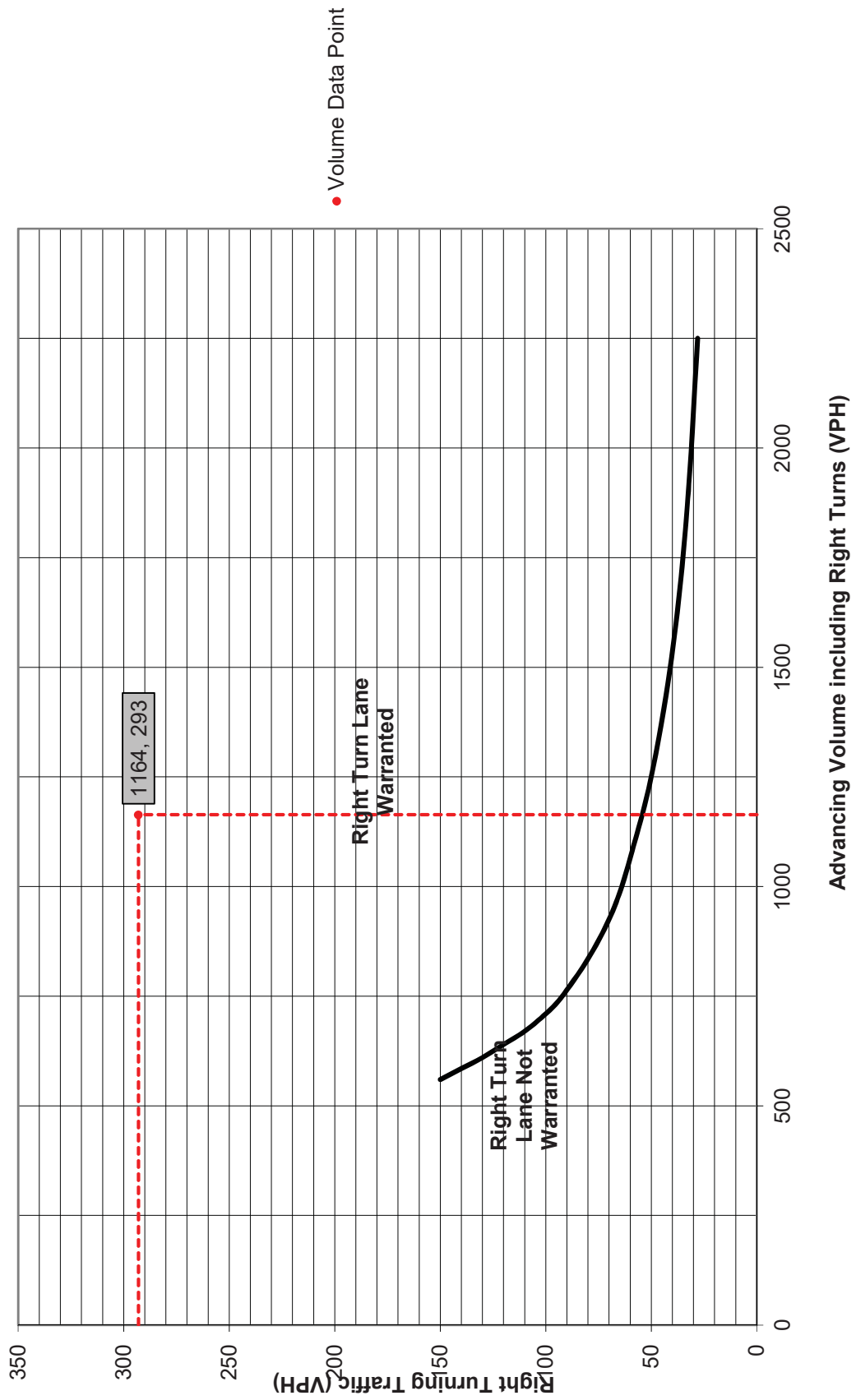
Type of Traffic Control	PennDOT Publication 46, Exhibit 11-6					
	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume		Turn Demand Volume		Turn Demand Volume	
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A: **275** Feet
 Condition B: **N/A** Feet
 Condition C: **N/A** Feet
 Required Right Turn Lane Storage Length: **275** Feet

Additional Findings:
N/A

Additional Comments / Justifications:

Figure 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:	Plains Township	Analysis Date:	3/16/2018
County:	Luzerne County	Conducted By:	EJD
PennDOT Engineering District:	4	Checked By:	LSS
		Agency/Company Name:	Borton-Lawson
Intersection & Approach Description: SR 2004 (River Street) & Ramp BB / Ramp DD Southbound Right			
Analysis Period:	2027 No Build	Number of Approach Lanes:	2
Design Hour:	PM Peak Hour	Undivided or Divided Highway:	Divided
Intersection Control:	Signalized	Type of Analysis	
Posted Speed Limit (MPH):	35	Left or Right-Turn Lane Analysis?:	Right Turn Lane
Type of Terrain:	Rolling		

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	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	0	0.0%	N/A
	Through	-	500	2.0%	515
	Right	-	295	2.0%	304

Advancing Volume: 819
 Right Turn Volume: 304

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: N/A	Applicable Warrant Figure: Figure 11
Warrant Met?: N/A	Warrant Met?: Yes

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	304
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	40
Average # of Vehicles/Cycle:	8.0

PennDOT Publication 46, Exhibit 11-6

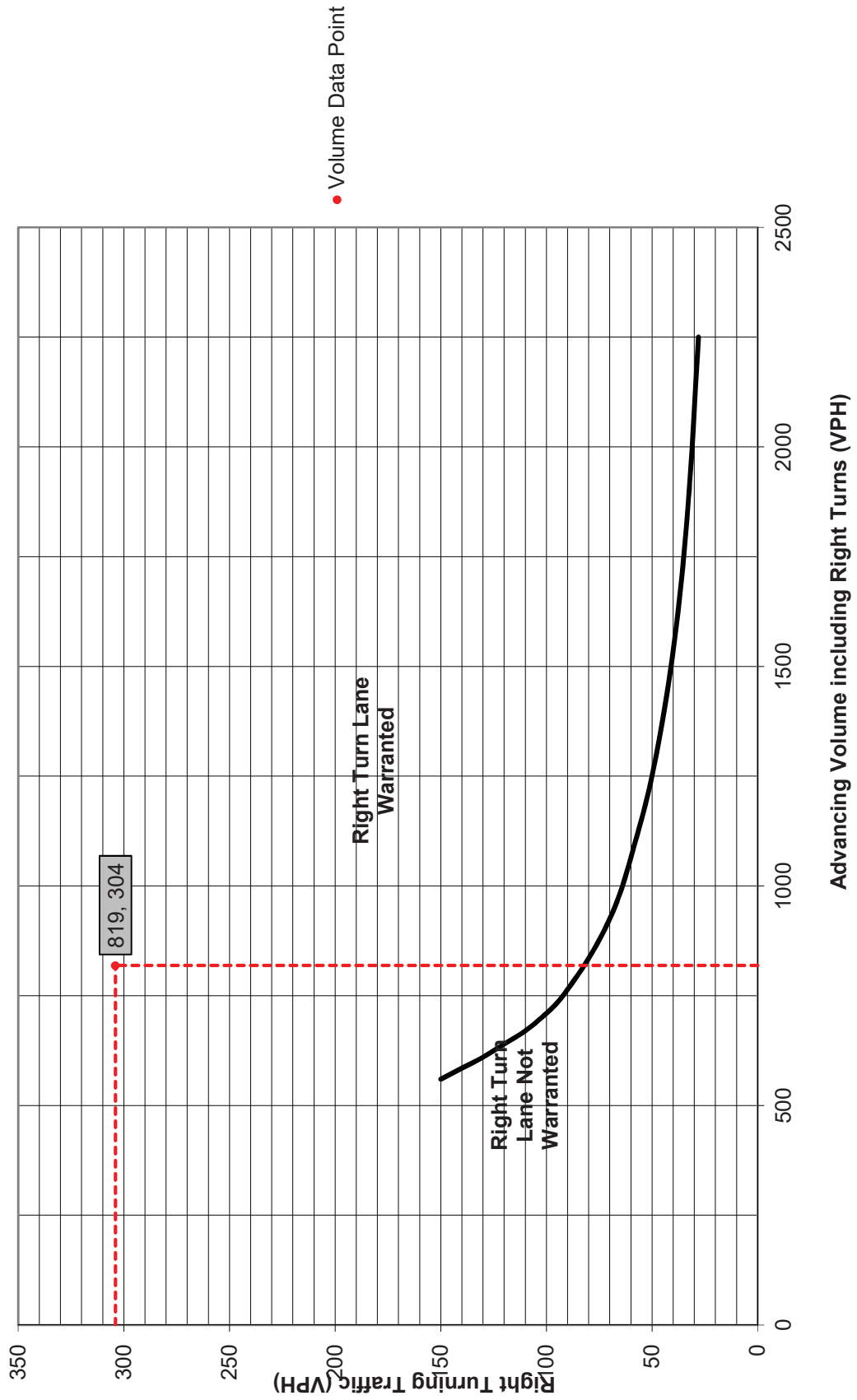
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	325	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	325	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: <input type="text" value="Plains Township"/>	Analysis Date: <input type="text" value="2/14/2018"/>
County: <input type="text" value="Luzerne County"/>	Conducted By: <input type="text" value="EJD"/>
PennDOT Engineering District: <input type="text" value="4"/>	Checked By: <input type="text"/>
	Agency/Company Name: <input type="text" value="Borton-Lawson"/>
Intersection & Approach Description: <input type="text" value="SR 2024 (Maffett Street) & SR 2022 (Main Street) / Abbott Street Southbound Left"/>	
Analysis Period: <input type="text" value="2027 No Build"/>	Number of Approach Lanes: <input type="text" value="1"/>
Design Hour: <input type="text" value="AM Peak Hour"/>	Undivided or Divided Highway: <input type="text" value="Undivided"/>
Intersection Control: <input type="text" value="Unsignalized"/>	
Posted Speed Limit (MPH): <input type="text" value="25"/>	Type of Analysis: <input type="text" value="Left Turn Lane"/>
Type of Terrain: <input type="text" value="Rolling"/>	Left or Right-Turn Lane Analysis?: <input type="text" value="Left Turn Lane"/>

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	440	3.0%	460
	Through	-	214	3.0%	224
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	169	6.0%	185
	Right	Yes	60	2.0%	62

Advancing Volume:	<input type="text" value="684"/>
Opposing Volume:	<input type="text" value="247"/>
Left Turn Volume:	<input type="text" value="460"/>
% Left Turns in Advancing Volume: <input type="text" value="67.25%"/>	

Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	-	0	0.0%	N/A

Advancing Volume:	<input type="text" value="N/A"/>
Right Turn Volume:	<input type="text" value="N/A"/>

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: <input type="text" value="Figure 1"/>	Applicable Warrant Figure: <input type="text" value="N/A"/>
Warrant Met?: <input type="text" value="Yes"/>	Warrant Met?: <input type="text" value="N/A"/>

TURN LANE LENGTH CALCULATIONS

Intersection Control: <input type="text" value="Unsignalized"/>	
Design Hour Volume of Turning Lane: <input type="text" value="460"/>	
Cycles Per Hour (Assumed): <input type="text" value="Known"/>	
Cycles Per Hour (If Known): <input type="text" value="60"/>	Average # of Vehicles/Cycle: <input type="text" value="8.0"/>

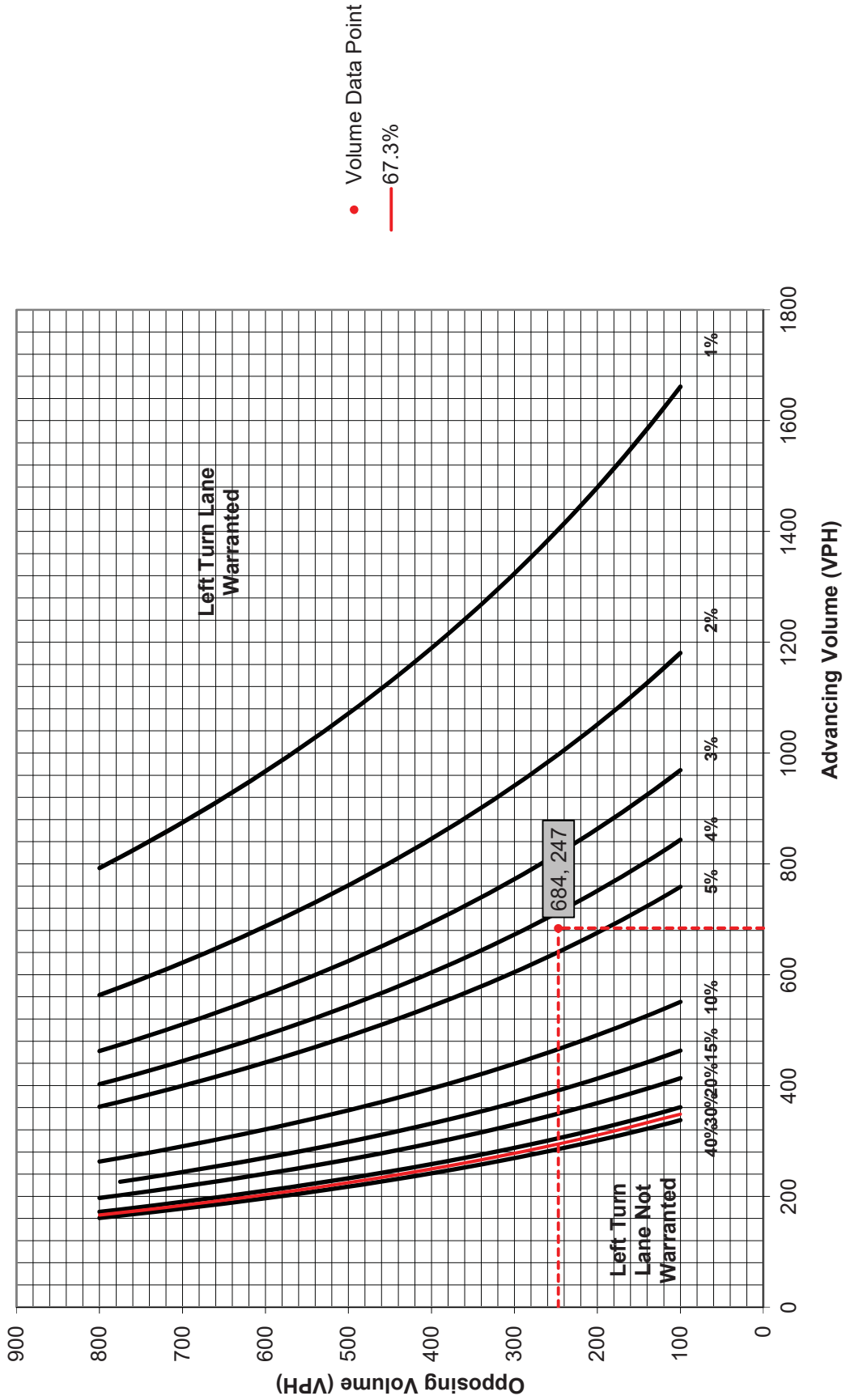
Type of Traffic Control	PennDOT Publication 46, Exhibit 11-6					
	Speed (MPH)					
	25-35		40-45		50-60	
Turn Demand Volume						
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	<input type="text" value="325"/>	Feet
Condition B:	<input type="text" value="N/A"/>	Feet
Condition C:	<input type="text" value="N/A"/>	Feet
Required Left Turn Lane Storage Length:	<input type="text" value="325"/>	Feet

Additional Findings:

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
 (speeds to 35 mph, unsignalized and signalized intersections)
 (L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality: <input type="text" value="Plains Township"/>	Analysis Date: <input type="text" value="2/14/2018"/>
County: <input type="text" value="Luzerne County"/>	Conducted By: <input type="text" value="EJD"/>
PennDOT Engineering District: <input type="text" value="4"/>	Checked By: <input type="text"/>
	Agency/Company Name: <input type="text" value="Borton-Lawson"/>
Intersection & Approach Description: <input type="text" value="SR 2024 (Maffett Street) & SR 2022 (Main Street) / Abbott Street Southbound Left"/>	
Analysis Period: <input type="text" value="2027 No Build"/>	Number of Approach Lanes: <input type="text" value="1"/>
Design Hour: <input type="text" value="PM Peak Hour"/>	Undivided or Divided Highway: <input type="text" value="Undivided"/>
Intersection Control: <input type="text" value="Unsignalized"/>	
Posted Speed Limit (MPH): <input type="text" value="25"/>	Type of Analysis: <input type="text" value="Left Turn Lane"/>
Type of Terrain: <input type="text" value="Rolling"/>	Left or Right-Turn Lane Analysis?: <input type="text" value="Left Turn Lane"/>

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	197	1.0%	200
	Through	-	221	0.0%	221
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	365	2.0%	376
	Right	Yes	77	2.0%	80

Advancing Volume:	<input type="text" value="421"/>
Opposing Volume:	<input type="text" value="456"/>
Left Turn Volume:	<input type="text" value="200"/>
% Left Turns in Advancing Volume: <input type="text" value="47.51%"/>	

Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	-	0	0.0%	N/A

Advancing Volume:	<input type="text" value="N/A"/>
Right Turn Volume:	<input type="text" value="N/A"/>

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: <input type="text" value="Figure 1"/>	Applicable Warrant Figure: <input type="text" value="N/A"/>
Warrant Met?: <input type="text" value="Yes"/>	Warrant Met?: <input type="text" value="N/A"/>

TURN LANE LENGTH CALCULATIONS

Intersection Control: <input type="text" value="Unsignalized"/>	
Design Hour Volume of Turning Lane: <input type="text" value="200"/>	
Cycles Per Hour (Assumed): <input type="text" value="Known"/>	
Cycles Per Hour (If Known): <input type="text" value="60"/>	Average # of Vehicles/Cycle: <input type="text" value="3.0"/>

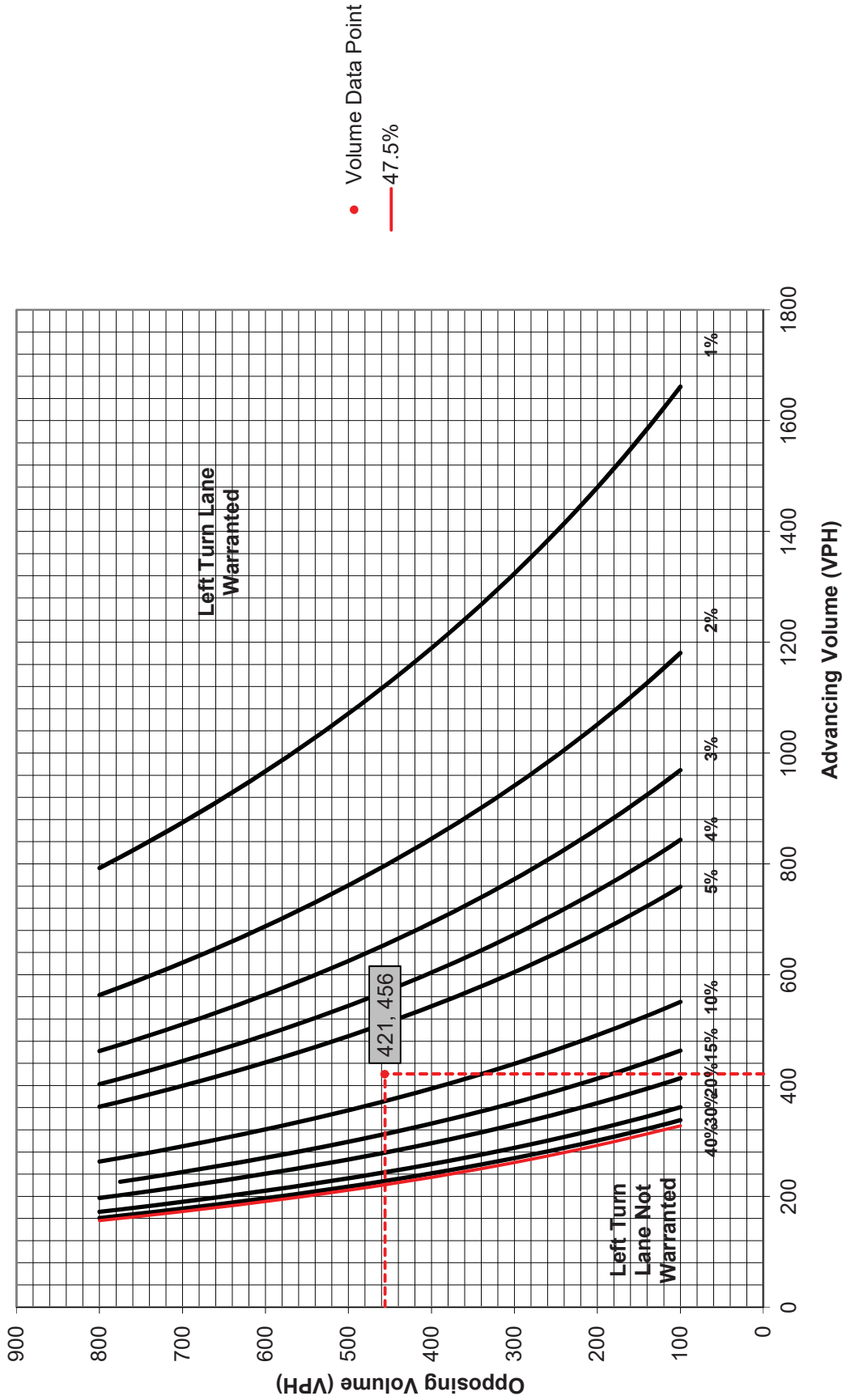
Type of Traffic Control	PennDOT Publication 46, Exhibit 11-6					
	Speed (MPH)					
	25-35		40-45		50-60	
Turn Demand Volume						
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	<input type="text" value="150"/>	Feet
Condition B:	<input type="text" value="N/A"/>	Feet
Condition C:	<input type="text" value="N/A"/>	Feet
Required Left Turn Lane Storage Length:	<input type="text" value="150"/>	Feet

Additional Findings:

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
 (speeds to 35 mph, unsignalized and signalized intersections)
 (L = % Left Turns in Advancing Volume)



2027 With Development

Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality: <input type="text" value="Plains Township"/>	Analysis Date: <input type="text" value="2/14/2018"/>
County: <input type="text" value="Luzerne County"/>	Conducted By: <input type="text" value="EJD"/>
PennDOT Engineering District: <input type="text" value="4"/>	Checked By: <input type="text"/>
	Agency/Company Name: <input type="text" value="Borton-Lawson"/>
Intersection & Approach Description: <input type="text" value="SR 2004 (River Street) & Courtright Avenue Eastbound Left"/>	
Analysis Period: <input type="text" value="2027 Build"/>	Number of Approach Lanes: <input type="text" value="1"/>
Design Hour: <input type="text" value="AM Peak Hour"/>	Undivided or Divided Highway: <input type="text" value="Undivided"/>
Intersection Control: <input type="text" value="Signalized"/>	
Posted Speed Limit (MPH): <input type="text" value="25"/>	Type of Analysis: <input type="text" value="Left Turn Lane"/>
Type of Terrain: <input type="text" value="Rolling"/>	Left or Right-Turn Lane Analysis?: <input type="text" value="Left Turn Lane"/>

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	11	9.0%	13
	Through	-	4	25.0%	6
	Right	Yes	4	0.0%	4
Opposing	Left	Yes	38	0.0%	38
	Through	-	18	0.0%	18
	Right	Yes	23	4.0%	25

Advancing Volume: <input type="text" value="23"/>
Opposing Volume: <input type="text" value="81"/>
Left Turn Volume: <input type="text" value="13"/>
% Left Turns in Advancing Volume: <input type="text" value="56.52%"/>

Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	-	0	0.0%	N/A

Advancing Volume: <input type="text" value="N/A"/>
Right Turn Volume: <input type="text" value="N/A"/>

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: <input type="text" value="Figure 1"/>	Applicable Warrant Figure: <input type="text" value="N/A"/>
Warrant Met?: <input type="text" value="No"/>	Warrant Met?: <input type="text" value="N/A"/>

TURN LANE LENGTH CALCULATIONS

Intersection Control: <input type="text" value="Signalized"/>	
Design Hour Volume of Turning Lane: <input type="text" value="13"/>	
Cycles Per Hour (Assumed): <input type="text" value="Known"/>	
Cycles Per Hour (If Known): <input type="text" value="51"/>	Average # of Vehicles/Cycle: <input type="text" value="N/A"/>

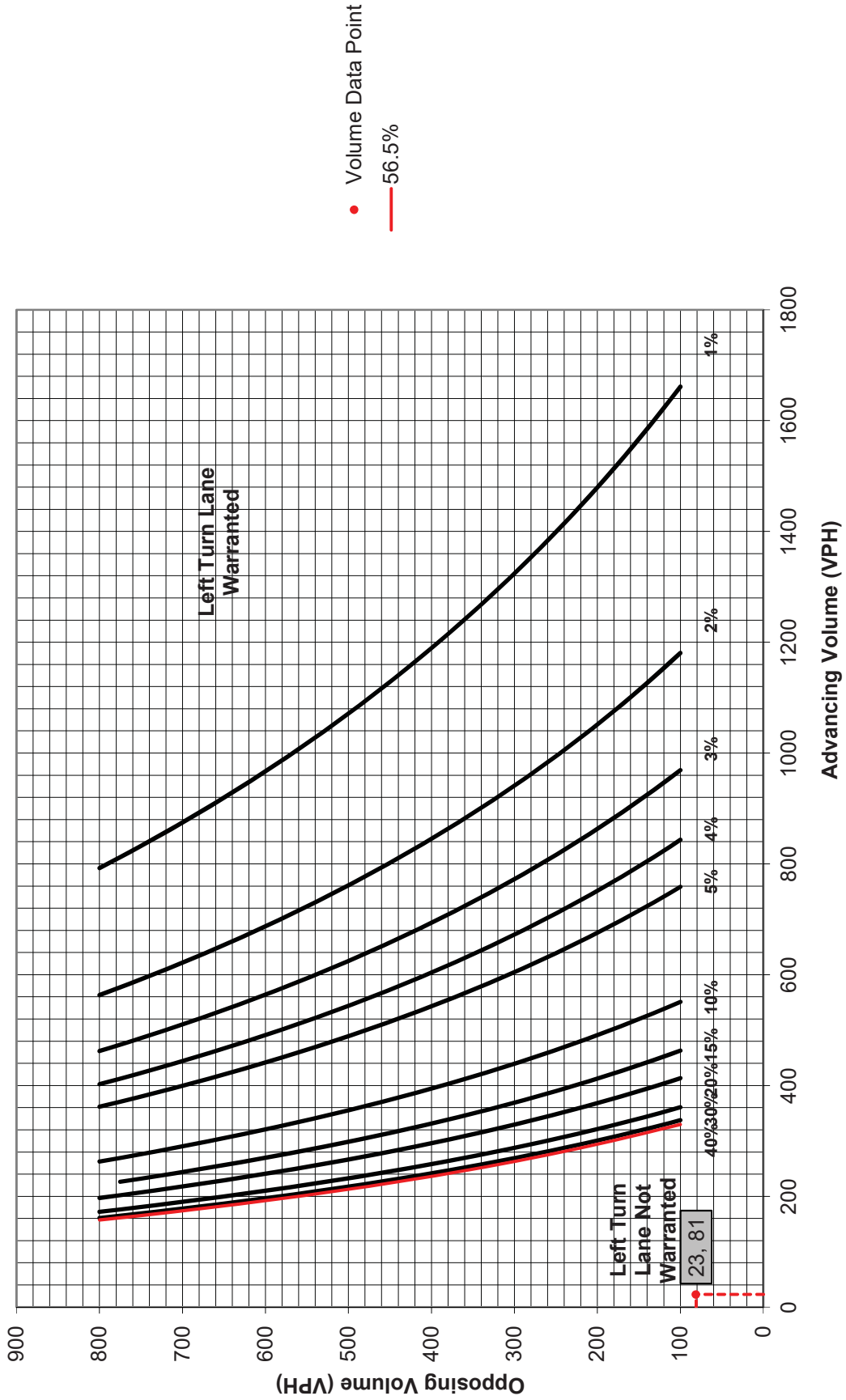
Type of Traffic Control	PennDOT Publication 46, Exhibit 11-6					
	Speed (MPH)					
	25-35		40-45		50-60	
Turn Demand Volume						
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	<input type="text" value="N/A"/>	Feet
Condition B:	<input type="text" value="N/A"/>	Feet
Condition C:	<input type="text" value="N/A"/>	Feet
Required Left Turn Lane Storage Length:	<input type="text" value="N/A"/>	Feet

Additional Findings:

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
 (speeds to 35 mph, unsignalized and signalized intersections)
 (L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality: Plains Township	Analysis Date: 3/16/2018
County: Luzerne County	Conducted By: EJD
PennDOT Engineering District: 4	Checked By: LSS
	Agency/Company Name: Borton-Lawson
Intersection & Approach Description: SR 2004 (River Street) & Courtright Avenue Eastbound Right	
Analysis Period: 2027 Build	Number of Approach Lanes: 1
Design Hour: AM Peak Hour	Undivided or Divided Highway: Undivided
Intersection Control: Signalized	
Posted Speed Limit (MPH): 25	Type of Analysis
Type of Terrain: Rolling	Left or Right-Turn Lane Analysis?: Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	0	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	Yes	11	9.0%	13
	Through	-	4	25.0%	6
	Right	-	4	0.0%	4

Advancing Volume: 23

Right Turn Volume: 4

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: N/A	Applicable Warrant Figure: Figure 9
Warrant Met?: N/A	Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control: Signalized	Average # of Vehicles/Cycle: N/A
Design Hour Volume of Turning Lane: 4	
Cycles Per Hour (Assumed): Known	
Cycles Per Hour (If Known): 51	

Type of Traffic Control	PennDOT Publication 46, Exhibit 11-6					
	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A: N/A Feet

Condition B: N/A Feet

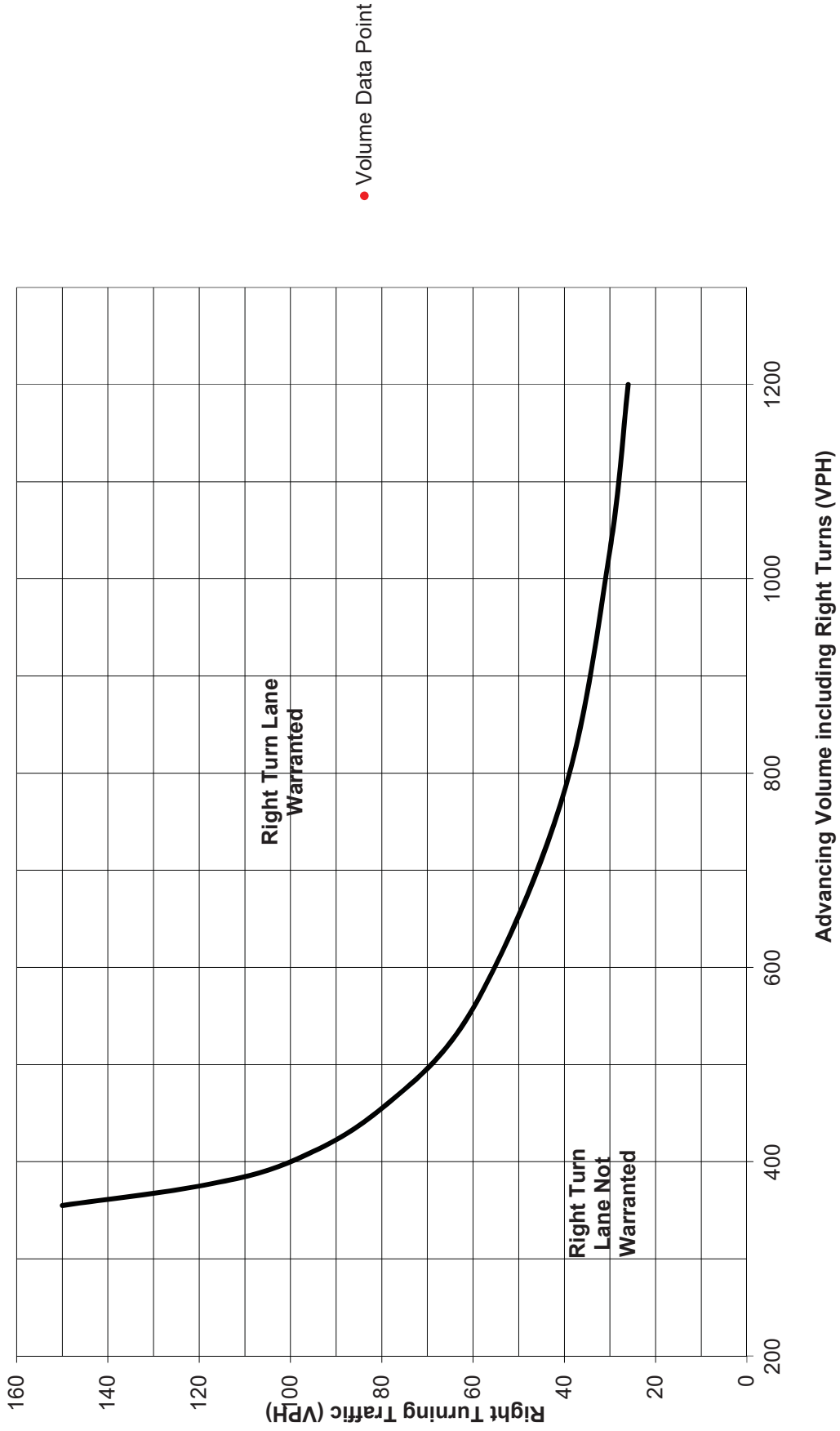
Condition C: N/A Feet

Required Right Turn Lane Storage Length: N/A Feet

Additional Findings: N/A

Additional Comments / Justifications:

**Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)**



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality: <input type="text" value="Plains Township"/>	Analysis Date: <input type="text" value="2/14/2018"/>
County: <input type="text" value="Luzerne County"/>	Conducted By: <input type="text" value="EJD"/>
PennDOT Engineering District: <input type="text" value="4"/>	Checked By: <input type="text"/>
	Agency/Company Name: <input type="text" value="Borton-Lawson"/>
Intersection & Approach Description: <input type="text" value="SR 2004 (River Street) & Courtright Avenue Northbound Left"/>	
Analysis Period: <input type="text" value="2027 Build"/>	Number of Approach Lanes: <input type="text" value="1"/>
Design Hour: <input type="text" value="AM Peak Hour"/>	Undivided or Divided Highway: <input type="text" value="Undivided"/>
Intersection Control: <input type="text" value="Signalized"/>	
Posted Speed Limit (MPH): <input type="text" value="35"/>	Type of Analysis: <input type="text" value="Left Turn Lane"/>
Type of Terrain: <input type="text" value="Rolling"/>	Left or Right-Turn Lane Analysis?: <input type="text" value="Left Turn Lane"/>

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	5	20.0%	7
	Through	-	646	4.0%	685
	Right	Yes	13	8.0%	15
Opposing	Left	Yes	6	0.0%	6
	Through	-	880	1.0%	894
	Right	Yes	62	0.0%	62

Advancing Volume:	<input type="text" value="707"/>
Opposing Volume:	<input type="text" value="962"/>
Left Turn Volume:	<input type="text" value="7"/>
% Left Turns in Advancing Volume:	
	<input type="text" value="0.99%"/>

Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	-	0	0.0%	N/A

Advancing Volume:	<input type="text" value="N/A"/>
Right Turn Volume:	<input type="text" value="N/A"/>

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: <input type="text" value="Figure 1"/>	Applicable Warrant Figure: <input type="text" value="N/A"/>
Warrant Met?: <input type="text" value="Yes"/>	Warrant Met?: <input type="text" value="N/A"/>

TURN LANE LENGTH CALCULATIONS

Intersection Control: <input type="text" value="Signalized"/>	
Design Hour Volume of Turning Lane: <input type="text" value="7"/>	
Cycles Per Hour (Assumed): <input type="text" value="Known"/>	
Cycles Per Hour (If Known): <input type="text" value="51"/>	Average # of Vehicles/Cycle: <input type="text" value="1.0"/>

PennDOT Publication 46, Exhibit 11-6

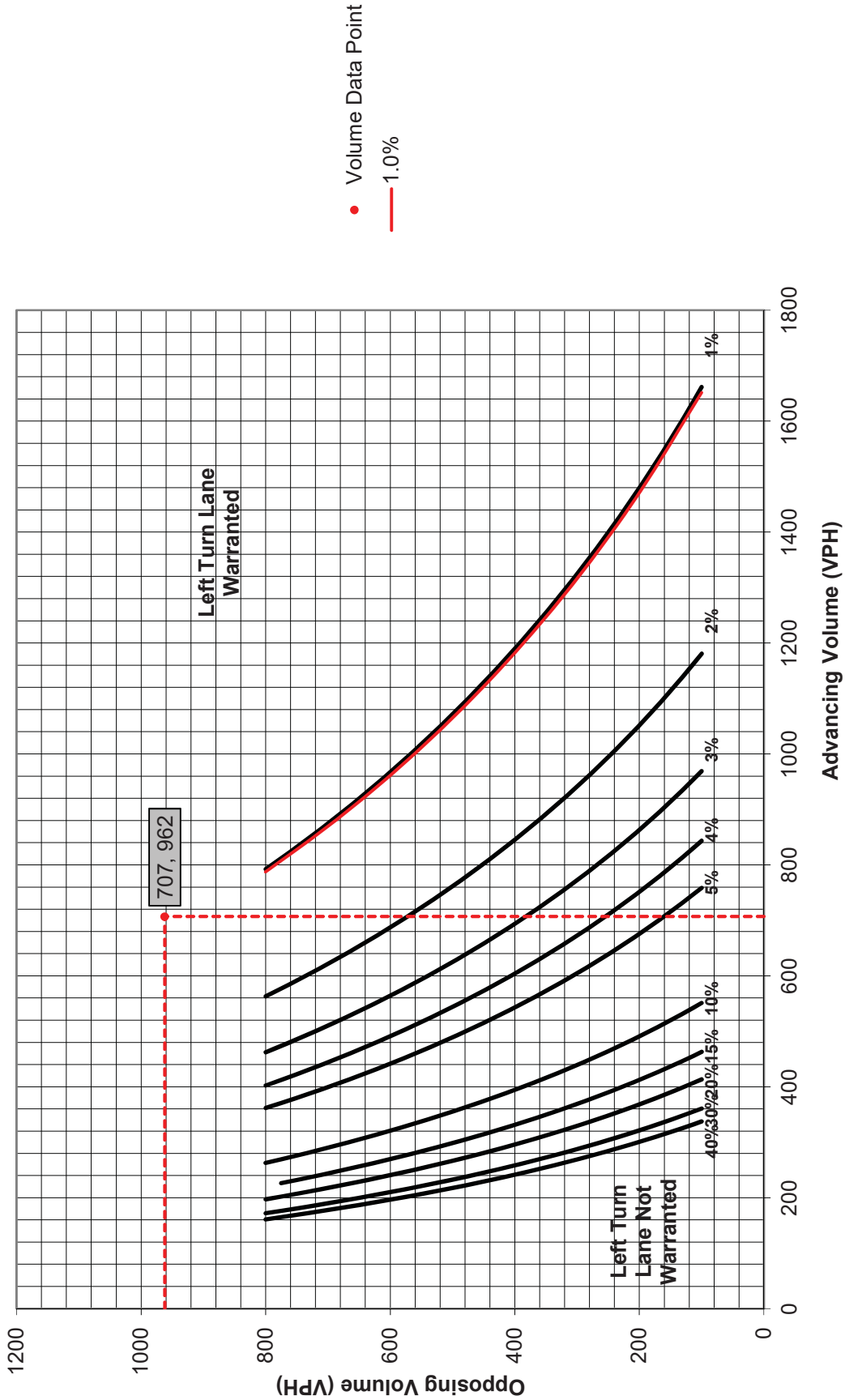
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	<input type="text" value="0"/>	Feet
Condition B:	<input type="text" value="N/A"/>	Feet
Condition C:	<input type="text" value="N/A"/>	Feet
Required Left Turn Lane Storage Length:	<input type="text" value="0"/>	Feet

Additional Findings:

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
 (speeds to 35 mph, unsignalized and signalized intersections)
 (L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Plains Township	Analysis Date:	3/16/2018
County:	Luzerne County	Conducted By:	EJD
PennDOT Engineering District:	4	Checked By:	LSS
		Agency/Company Name:	Borton-Lawson
Intersection & Approach Description: SR 2004 (River Street) & Courtright Avenue Northbound Right			
Analysis Period:	2027 Build	Number of Approach Lanes:	1
Design Hour:	AM Peak Hour	Undivided or Divided Highway:	Undivided
Intersection Control:	Signalized	Type of Analysis	
Posted Speed Limit (MPH):	35	Left or Right-Turn Lane Analysis?: Right Turn Lane	
Type of Terrain:	Rolling		

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	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	5	20.0%	7
	Through	-	646	4.0%	685
	Right	-	13	8.0%	15

Advancing Volume: 707
 Right Turn Volume: 15

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: N/A	Applicable Warrant Figure: Figure 9
Warrant Met?: N/A	Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	15
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	51
Average # of Vehicles/Cycle:	N/A

PennDOT Publication 46, Exhibit 11-6

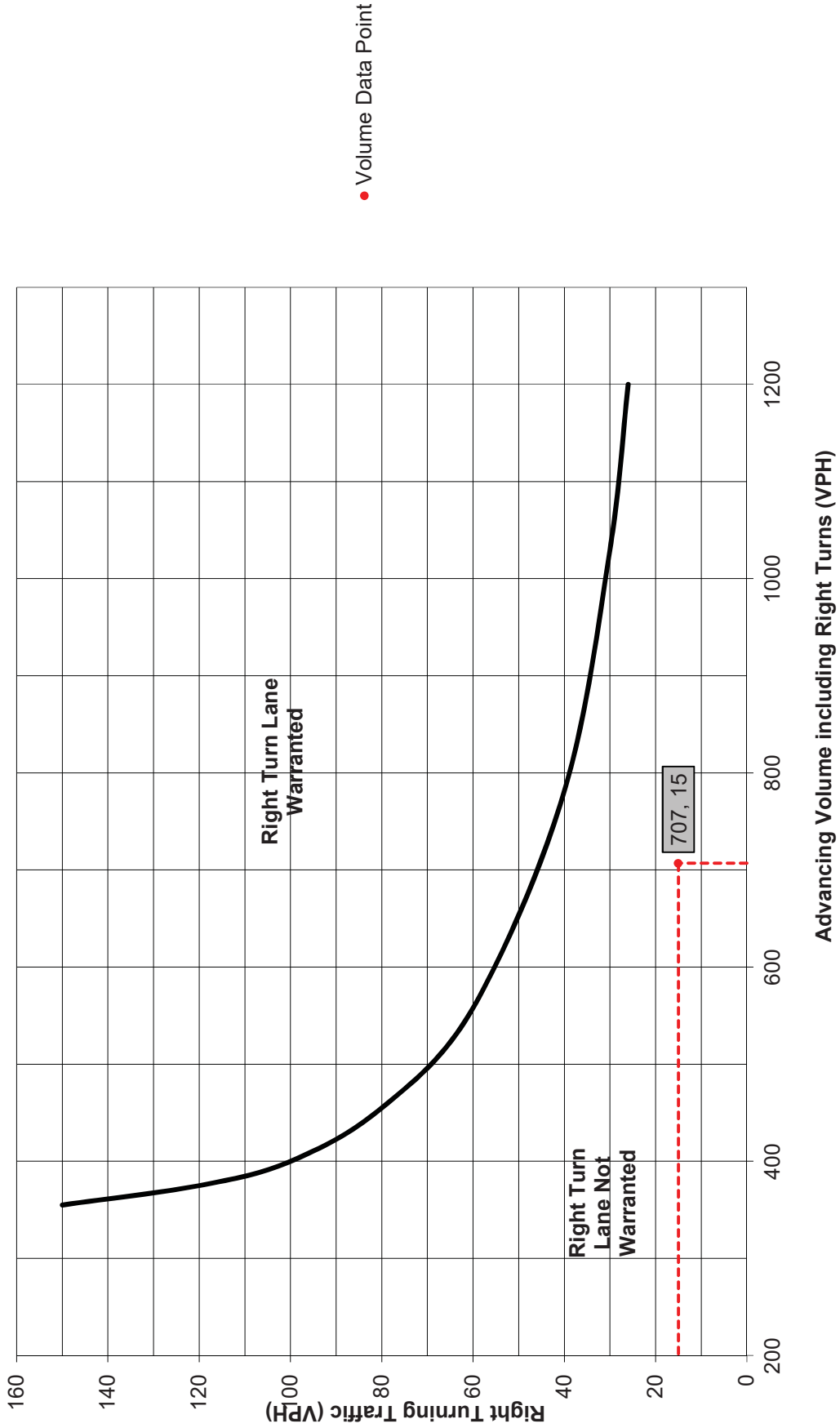
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A: N/A Feet
 Condition B: N/A Feet
 Condition C: N/A Feet
 Required Right Turn Lane Storage Length: N/A Feet

Additional Findings:
N/A

Additional Comments / Justifications:

**Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)**



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality: Plains Township	Analysis Date: 2/14/2018
County: Luzerne County	Conducted By: EJD
PennDOT Engineering District: 4	Checked By:
	Agency/Company Name: Borton-Lawson
Intersection & Approach Description: SR 2004 (River Street) & Courtright Avenue Southbound Left	
Analysis Period: 2027 Build	Number of Approach Lanes: 1
Design Hour: AM Peak Hour	Undivided or Divided Highway: Undivided
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	6	0.0%	6
	Through	-	880	1.0%	894
	Right	Yes	62	0.0%	62
Opposing	Left	Yes	5	20.0%	7
	Through	-	646	4.0%	685
	Right	Yes	13	8.0%	15

Advancing Volume:	962
Opposing Volume:	707
Left Turn Volume:	6

% Left Turns in Advancing Volume: 0.62%

Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	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	Right Turn Lane Warrant Findings
Applicable Warrant Figure: Figure 1	Applicable Warrant Figure: N/A
Warrant Met?: No	Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control: Signalized	
Design Hour Volume of Turning Lane: 6	
Cycles Per Hour (Assumed): Known	
Cycles Per Hour (If Known): 51	Average # of Vehicles/Cycle: N/A

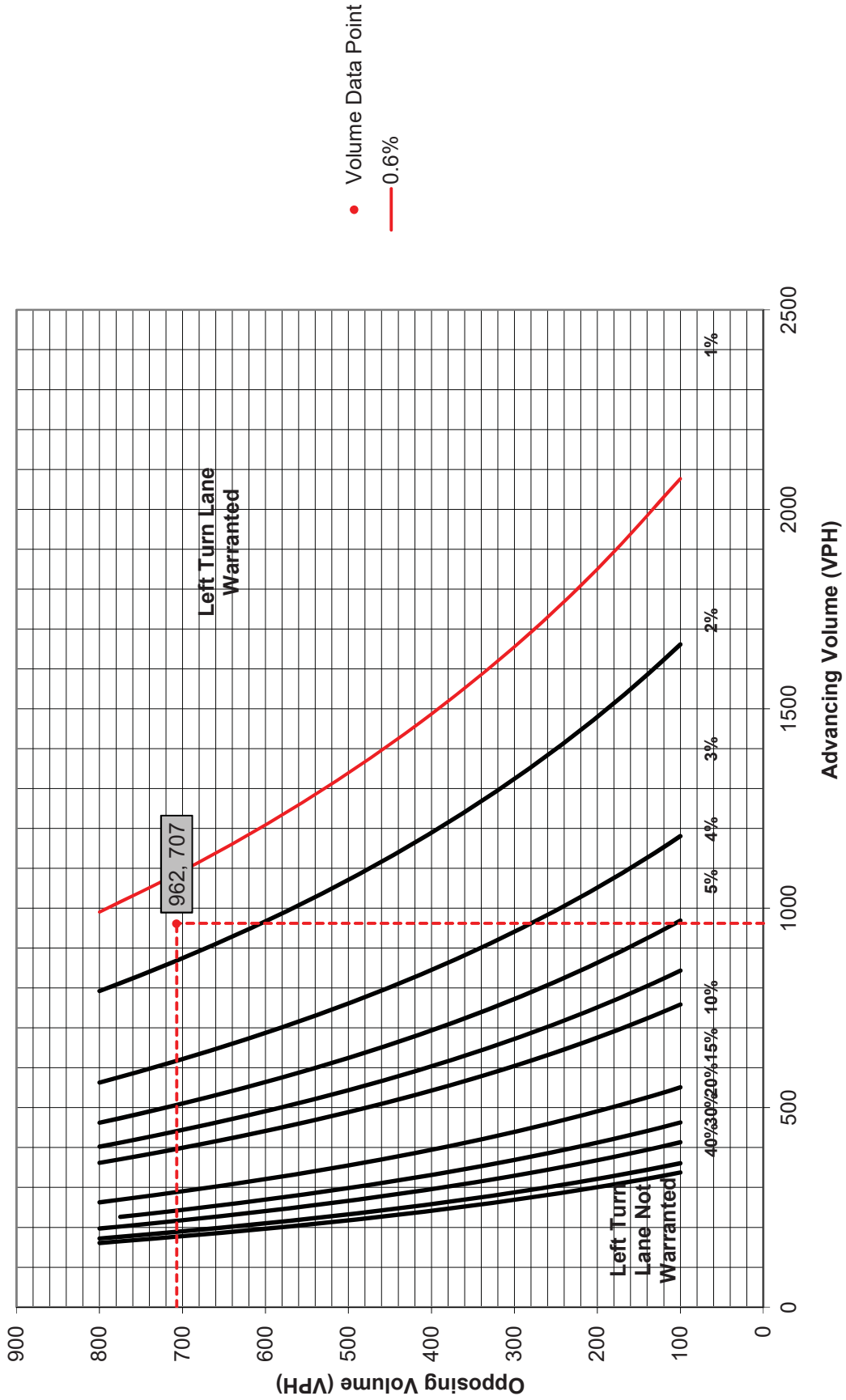
Type of Traffic Control	PennDOT Publication 46, Exhibit 11-6					
	Speed (MPH)					
	25-35		40-45		50-60	
Turn Demand Volume						
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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: Plains Township	Analysis Date: 3/16/2018
County: Luzerne County	Conducted By: EJD
PennDOT Engineering District: 4	Checked By: LSS
	Agency/Company Name: Borton-Lawson
Intersection & Approach Description: SR 2004 (River Street) & Courtright Avenue Southbound Right	
Analysis Period: 2027 Build	Number of Approach Lanes: 1
Design Hour: AM Peak Hour	Undivided or Divided Highway: Undivided
Intersection Control: Signalized	
Posted Speed Limit (MPH): 35	Type of Analysis
Type of Terrain: Rolling	Left or Right-Turn Lane Analysis?: Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	0	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	Yes	6	0.0%	6
	Through	-	880	1.0%	894
	Right	-	62	0.0%	62

Advancing Volume:	962
Right Turn Volume:	62

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: N/A	Applicable Warrant Figure: Figure 9
Warrant Met?: N/A	Warrant Met?: Yes

TURN LANE LENGTH CALCULATIONS

Intersection Control: Signalized	
Design Hour Volume of Turning Lane: 62	
Cycles Per Hour (Assumed): Known	
Cycles Per Hour (If Known): 51	Average # of Vehicles/Cycle: 1.0

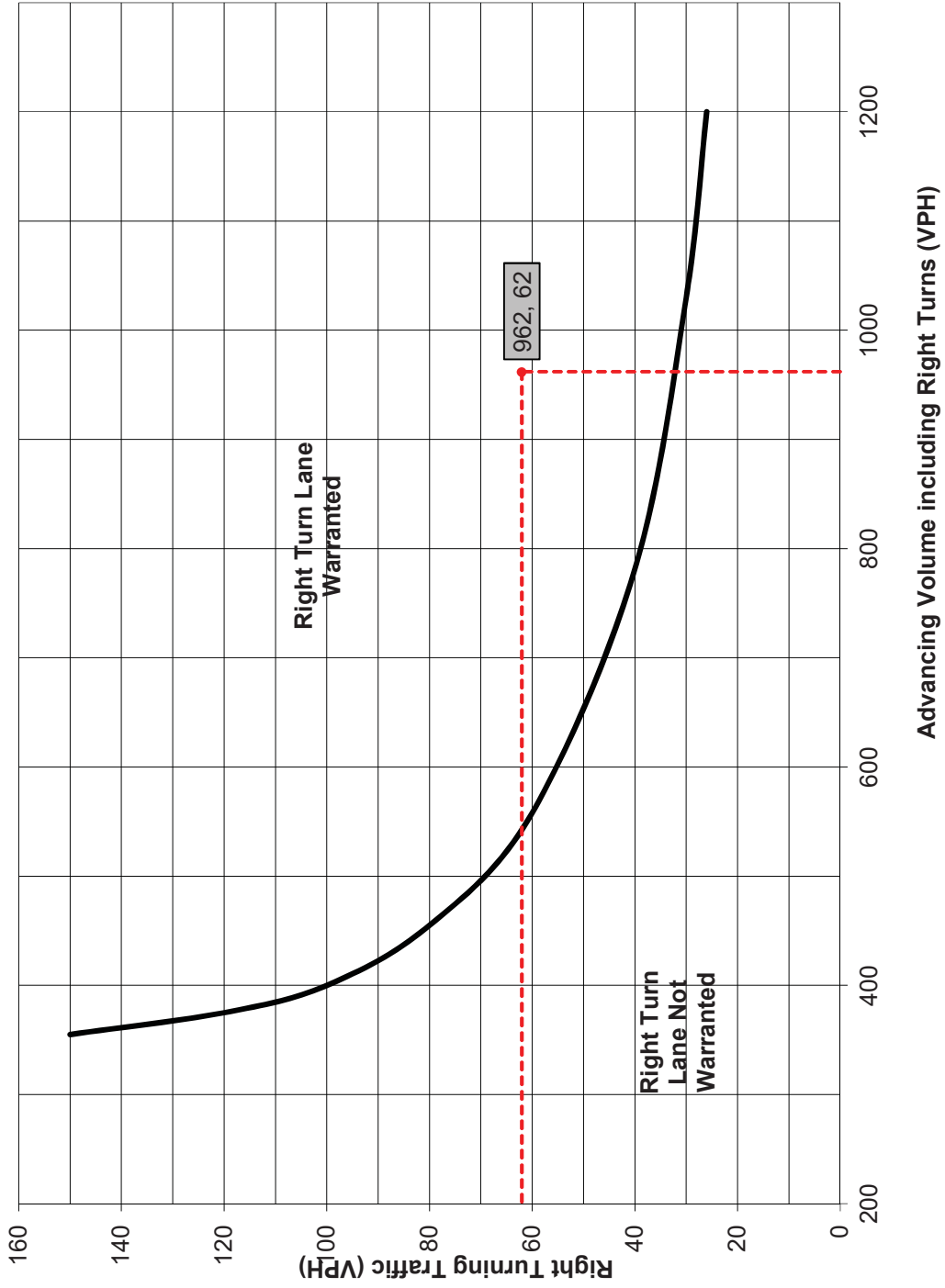
Type of Traffic Control	PennDOT Publication 46, Exhibit 11-6					
	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	0	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	0	Feet

Additional Findings:
N/A

Additional Comments / Justifications:

**Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)**



• Volume Data Point

Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality: Plains Township	Analysis Date: 2/14/2018
County: Luzerne County	Conducted By: EJD
PennDOT Engineering District: 4	Checked By:
	Agency/Company Name: Borton-Lawson
Intersection & Approach Description: SR 2004 (River Street) & Courtright Avenue Westbound Left	
Analysis Period: 2027 Build	Number of Approach Lanes: 1
Design Hour: AM Peak Hour	Undivided or Divided Highway: Undivided
Intersection Control: Signalized	
Posted Speed Limit (MPH): 25	Type of Analysis
Type of Terrain: Rolling	Left or Right-Turn Lane Analysis?: Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	38	0.0%	38
	Through	-	18	0.0%	18
	Right	Yes	23	4.0%	25
Opposing	Left	Yes	11	9.0%	13
	Through	-	4	25.0%	6
	Right	Yes	4	0.0%	4

Advancing Volume:	81
Opposing Volume:	23
Left Turn Volume:	38

% Left Turns in Advancing Volume: 46.91%

Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	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	Right Turn Lane Warrant Findings
Applicable Warrant Figure: Figure 1	Applicable Warrant Figure: N/A
Warrant Met?: No	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): 51	Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

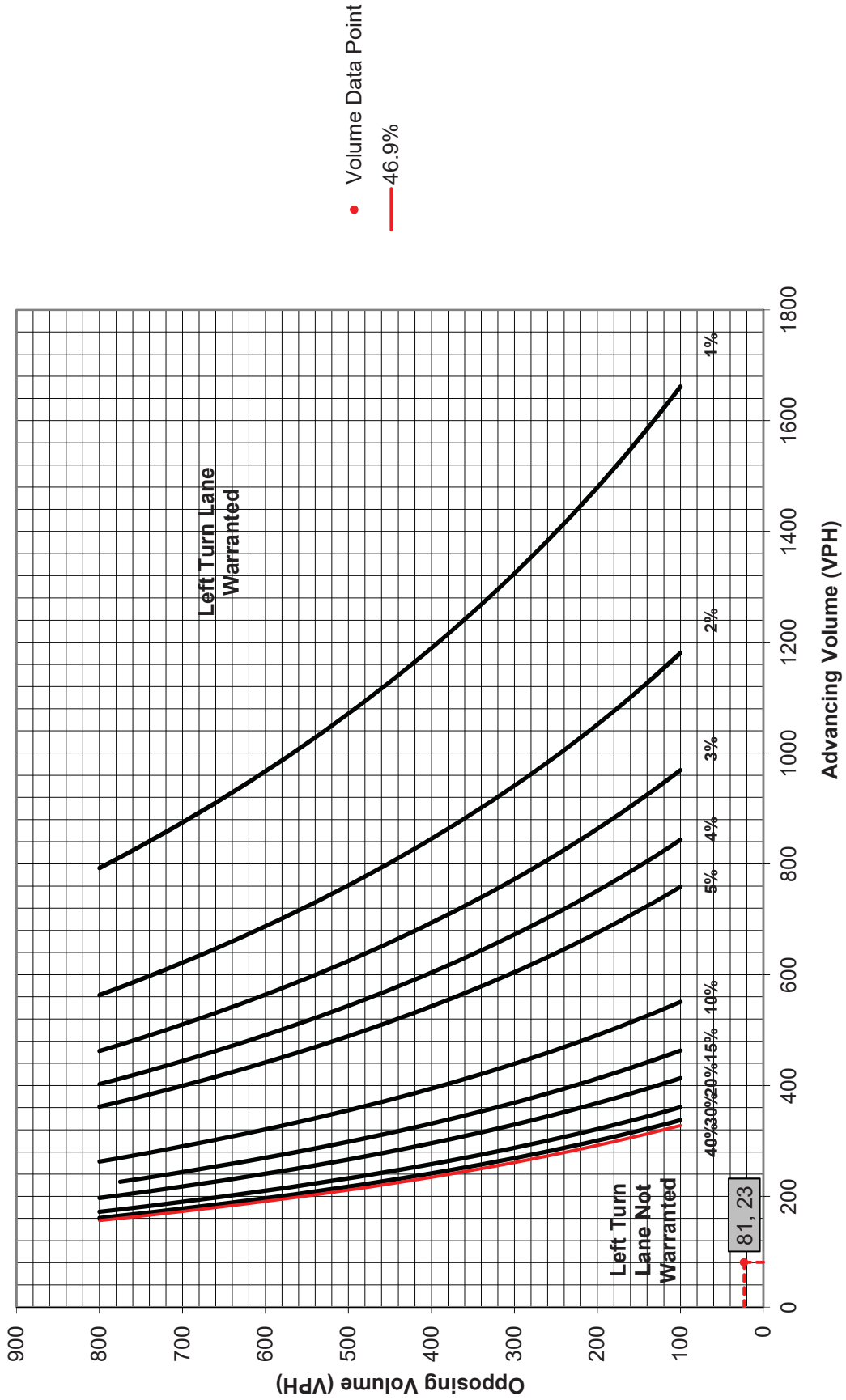
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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: Plains Township	Analysis Date: 3/16/2018
County: Luzerne County	Conducted By: EJD
PennDOT Engineering District: 4	Checked By: LSS
	Agency/Company Name: Borton-Lawson
Intersection & Approach Description: SR 2004 (River Street) & Courtright Avenue Westbound Right	
Analysis Period: 2027 Build	Number of Approach Lanes: 1
Design Hour: AM Peak Hour	Undivided or Divided Highway: Undivided
Intersection Control: Signalized	
Posted Speed Limit (MPH): 25	Type of Analysis
Type of Terrain: Rolling	Left or Right-Turn Lane Analysis?: Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	0	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	Yes	38	0.0%	38
	Through	-	18	0.0%	18
	Right	-	23	4.0%	25

Advancing Volume: 81
 Right Turn Volume: 25

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: N/A	Applicable Warrant Figure: Figure 9
Warrant Met?: N/A	Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control: Signalized	Average # of Vehicles/Cycle: N/A
Design Hour Volume of Turning Lane: 25	
Cycles Per Hour (Assumed): Known	
Cycles Per Hour (If Known): 51	

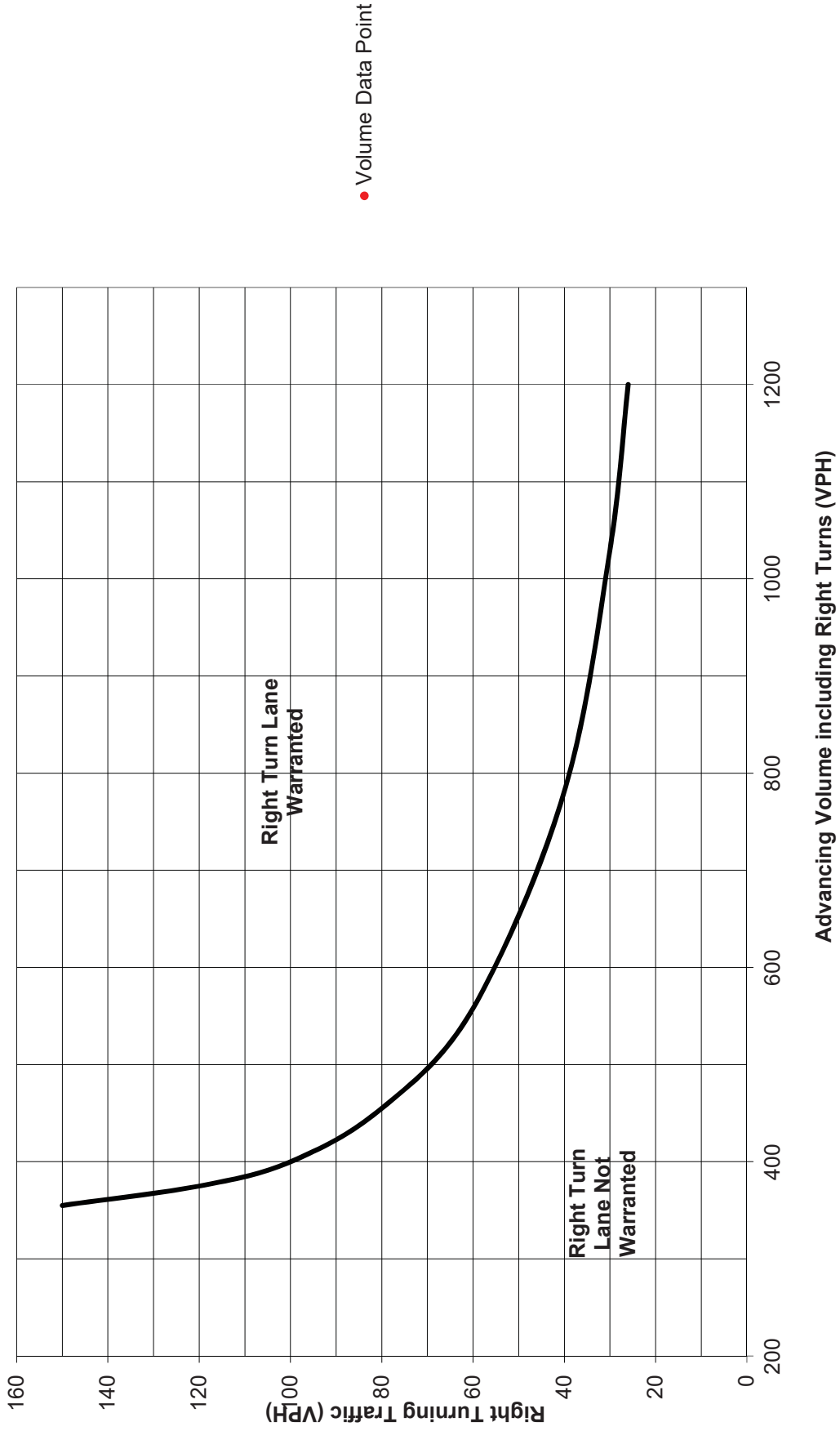
Type of Traffic Control	PennDOT Publication 46, Exhibit 11-6					
	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

**Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)**



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality: <input type="text" value="Plains Township"/>	Analysis Date: <input type="text" value="2/14/2018"/>
County: <input type="text" value="Luzerne County"/>	Conducted By: <input type="text" value="EJD"/>
PennDOT Engineering District: <input type="text" value="4"/>	Checked By: <input type="text"/>
	Agency/Company Name: <input type="text" value="Borton-Lawson"/>
Intersection & Approach Description: <input type="text" value="SR 2004 (River Street) & Courtright Avenue Eastbound Left"/>	
Analysis Period: <input type="text" value="2027 Build"/>	Number of Approach Lanes: <input type="text" value="1"/>
Design Hour: <input type="text" value="PM Peak Hour"/>	Undivided or Divided Highway: <input type="text" value="Undivided"/>
Intersection Control: <input type="text" value="Signalized"/>	
Posted Speed Limit (MPH): <input type="text" value="25"/>	Type of Analysis: <input type="text" value="Left Turn Lane"/>
Type of Terrain: <input type="text" value="Rolling"/>	Left or Right-Turn Lane Analysis?: <input type="text" value="Left Turn Lane"/>

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	76	1.0%	78
	Through	-	17	0.0%	17
	Right	Yes	11	0.0%	11
Opposing	Left	Yes	14	0.0%	14
	Through	-	11	0.0%	11
	Right	Yes	31	0.0%	31

Advancing Volume:	<input type="text" value="106"/>
Opposing Volume:	<input type="text" value="56"/>
Left Turn Volume:	<input type="text" value="78"/>

% Left Turns in Advancing Volume:

Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	-	0	0.0%	N/A

Advancing Volume:	<input type="text" value="N/A"/>
Right Turn Volume:	<input type="text" value="N/A"/>

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: <input type="text" value="Figure 1"/>	Applicable Warrant Figure: <input type="text" value="N/A"/>
Warrant Met?: <input type="text" value="No"/>	Warrant Met?: <input type="text" value="N/A"/>

TURN LANE LENGTH CALCULATIONS

Intersection Control: <input type="text" value="Signalized"/>	
Design Hour Volume of Turning Lane: <input type="text" value="78"/>	
Cycles Per Hour (Assumed): <input type="text" value="Known"/>	
Cycles Per Hour (If Known): <input type="text" value="51"/>	Average # of Vehicles/Cycle: <input type="text" value="N/A"/>

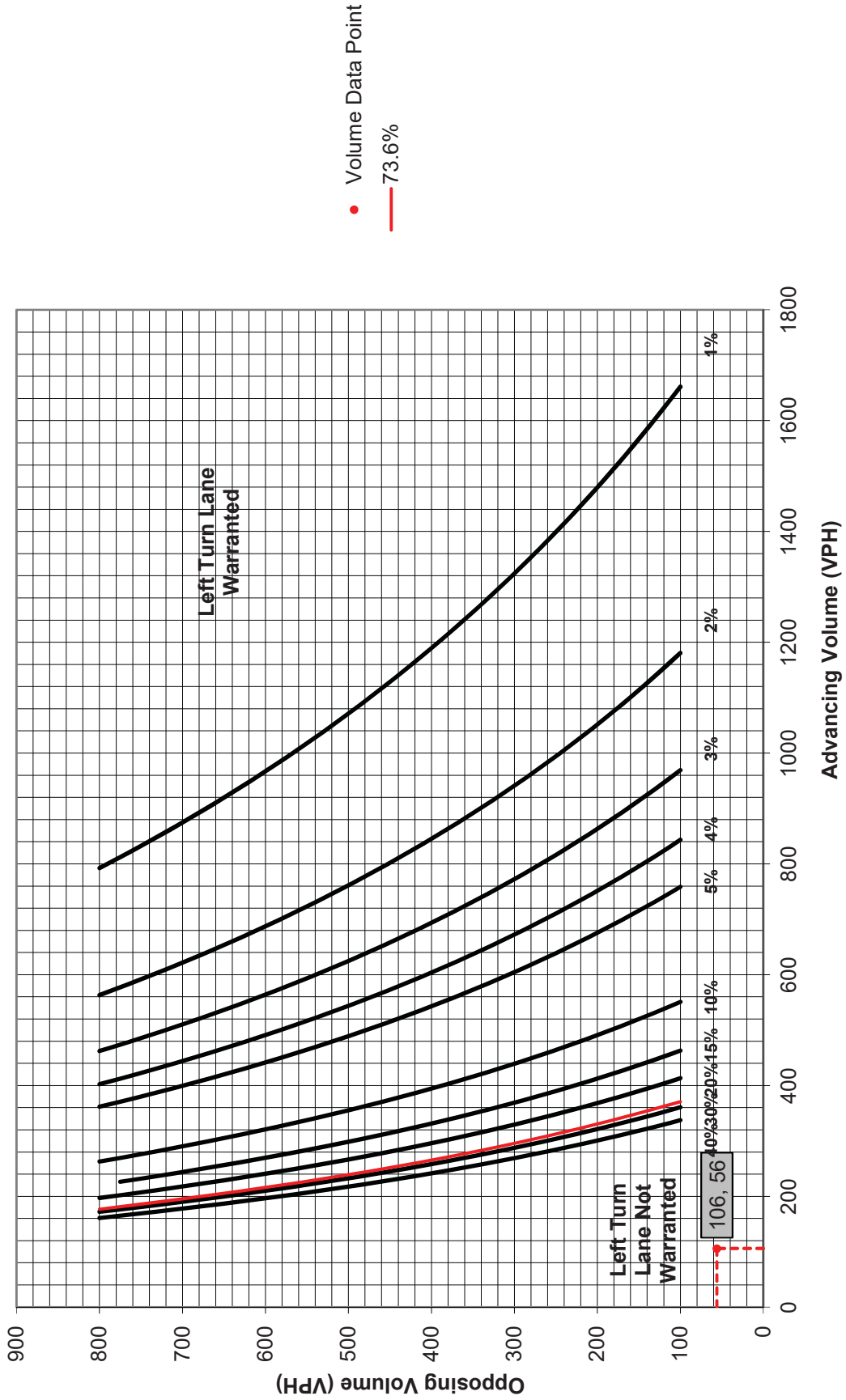
Type of Traffic Control	PennDOT Publication 46, Exhibit 11-6					
	Speed (MPH)					
	25-35		40-45		50-60	
Turn Demand Volume						
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	<input type="text" value="N/A"/>	Feet
Condition B:	<input type="text" value="N/A"/>	Feet
Condition C:	<input type="text" value="N/A"/>	Feet
Required Left Turn Lane Storage Length:	<input type="text" value="N/A"/>	Feet

Additional Findings:

Additional Comments / Justifications:

**Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)**
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Plains Township	Analysis Date:	3/16/2018
County:	Luzerne County	Conducted By:	EJD
PennDOT Engineering District:	4	Checked By:	LSS
		Agency/Company Name:	Borton-Lawson
Intersection & Approach Description: SR 2004 (River Street) & Courtright Avenue Eastbound Right			
Analysis Period:	2027 Build	Number of Approach Lanes:	1
Design Hour:	PM Peak Hour	Undivided or Divided Highway:	Undivided
Intersection Control:	Signalized	Type of Analysis	
Posted Speed Limit (MPH):	25	Right Turn Lane	
Type of Terrain:	Rolling	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	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	76	1.0%	78
	Through	-	17	0.0%	17
	Right	-	11	0.0%	11

Advancing Volume: 106
 Right Turn Volume: 11

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: N/A	Applicable Warrant Figure: Figure 9
Warrant Met?: N/A	Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	11
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	51
Average # of Vehicles/Cycle:	N/A

PennDOT Publication 46, Exhibit 11-6

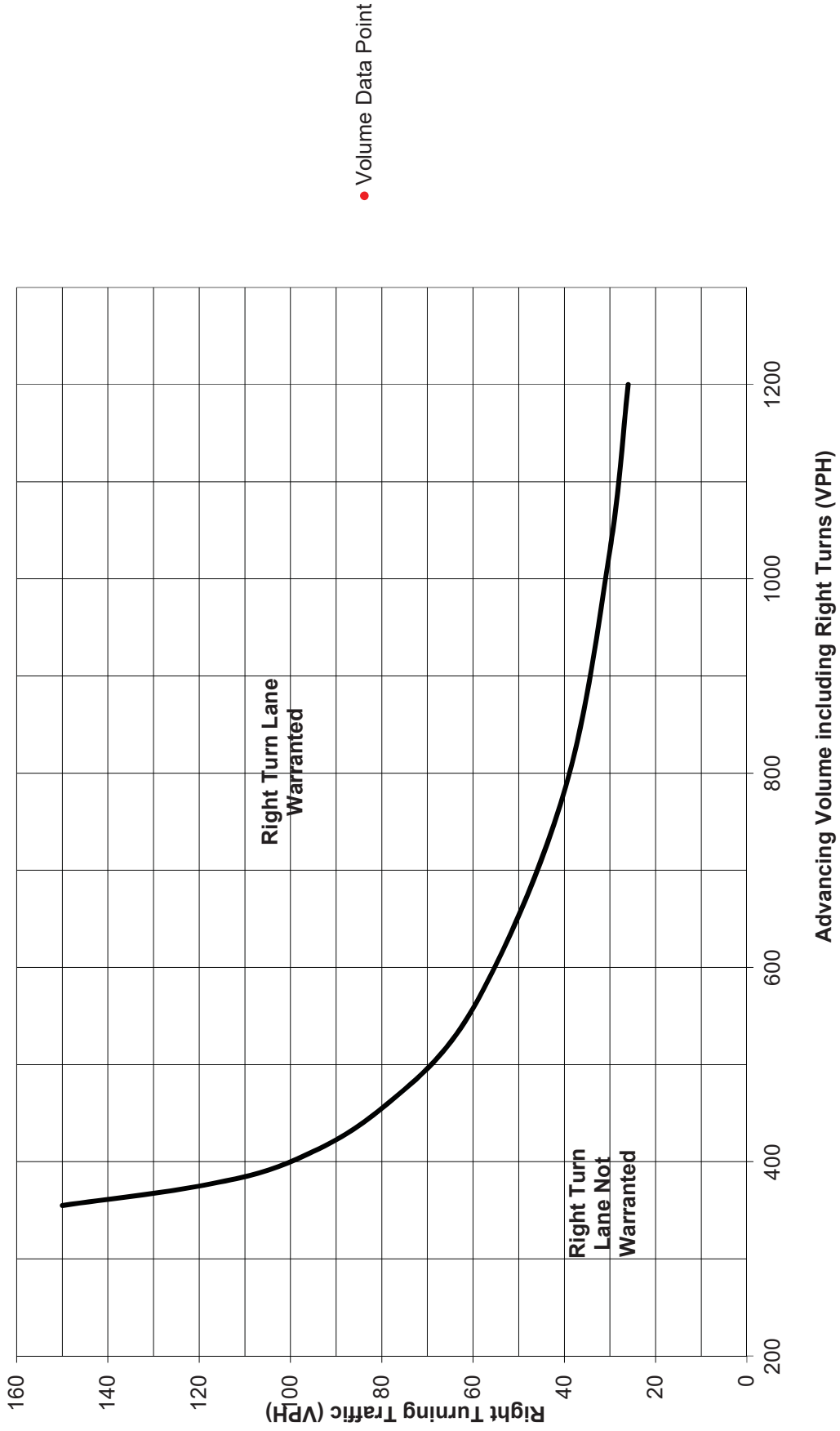
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A: N/A Feet
 Condition B: N/A Feet
 Condition C: N/A Feet
 Required Right Turn Lane Storage Length: N/A Feet

Additional Findings:
N/A

Additional Comments / Justifications:

**Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)**



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Plains Township	Analysis Date:	2/14/2018
County:	Luzeerne County	Conducted By:	EJD
PennDOT Engineering District:	4	Checked By:	
		Agency/Company Name:	Borton-Lawson
Intersection & Approach Description: SR 2004 (River Street) & Courtright Avenue Northbound Left			
Analysis Period:	2027 Build	Number of Approach Lanes:	1
Design Hour:	PM Peak Hour	Undivided or Divided Highway:	Undivided
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	7	0.0%	7
	Through	-	863	1.0%	876
	Right	Yes	22	0.0%	22
Opposing	Left	Yes	14	0.0%	14
	Through	-	655	1.0%	665
	Right	Yes	22	0.0%	22

Advancing Volume:	905
Opposing Volume:	701
Left Turn Volume:	7

% Left Turns in Advancing Volume: 0.77%

Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	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	Right Turn Lane Warrant Findings
Applicable Warrant Figure: Figure 1	Applicable Warrant Figure: N/A
Warrant Met?: No	Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized	Average # of Vehicles/Cycle:	N/A
Design Hour Volume of Turning Lane:	7		
Cycles Per Hour (Assumed):	Known		
Cycles Per Hour (If Known):	51		

PennDOT Publication 46, Exhibit 11-6

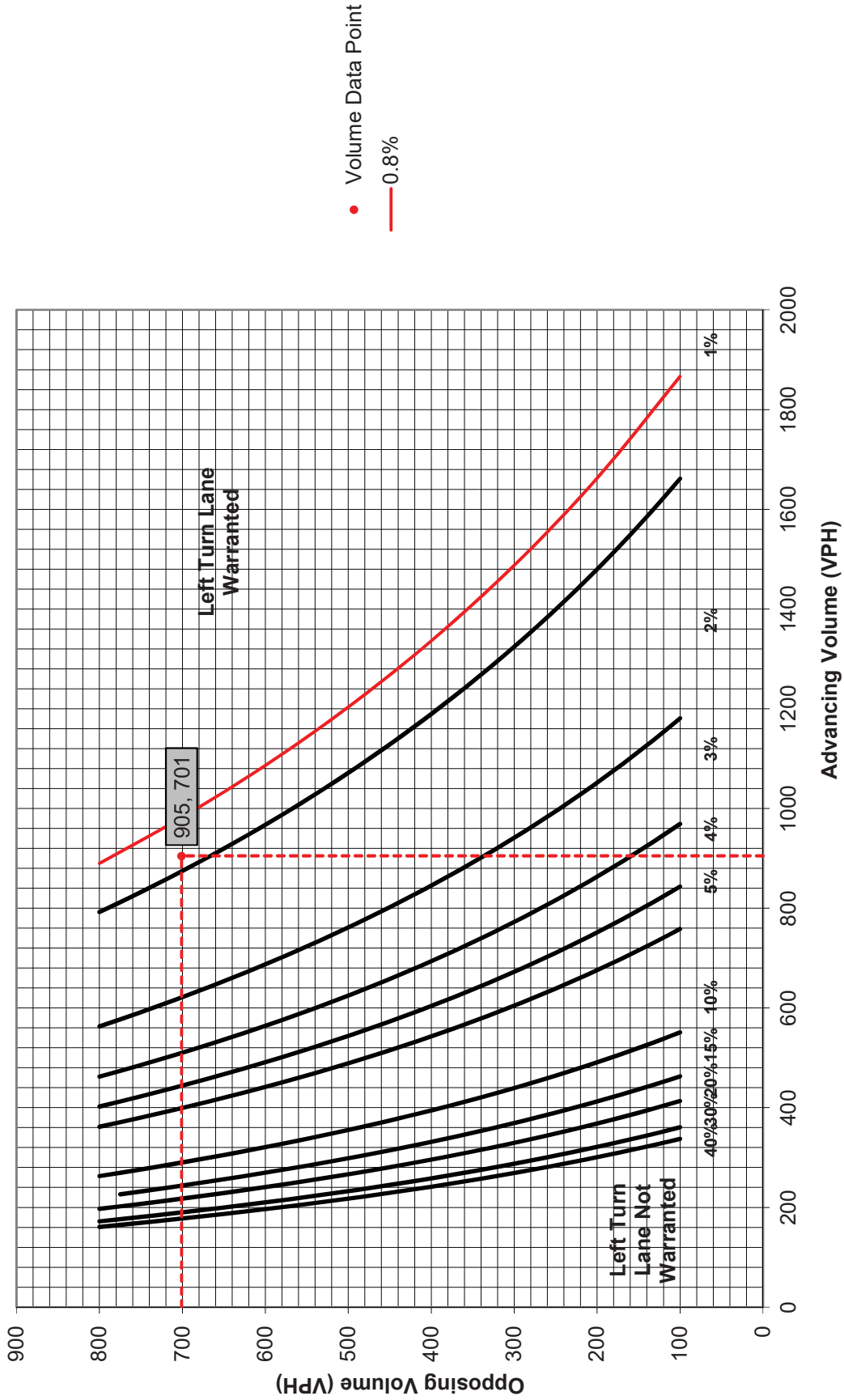
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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: Plains Township	Analysis Date: 3/16/2018
County: Luzerne County	Conducted By: EJD
PennDOT Engineering District: 4	Checked By: LSS
	Agency/Company Name: Borton-Lawson
Intersection & Approach Description: SR 2004 (River Street) & Courtright Avenue Northbound Right	
Analysis Period: 2027 Build	Number of Approach Lanes: 1
Design Hour: PM Peak Hour	Undivided or Divided Highway: Undivided
Intersection Control: Signalized	
Posted Speed Limit (MPH): 35	Type of Analysis
Type of Terrain: Rolling	Left or Right-Turn Lane Analysis?: Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	0	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	Yes	7	0.0%	7
	Through	-	863	1.0%	876
	Right	-	22	0.0%	22

Advancing Volume:	905
Right Turn Volume:	22

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: N/A	Applicable Warrant Figure: Figure 9
Warrant Met?: N/A	Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control: Signalized	
Design Hour Volume of Turning Lane: 22	
Cycles Per Hour (Assumed): Known	
Cycles Per Hour (If Known): 51	Average # of Vehicles/Cycle: N/A

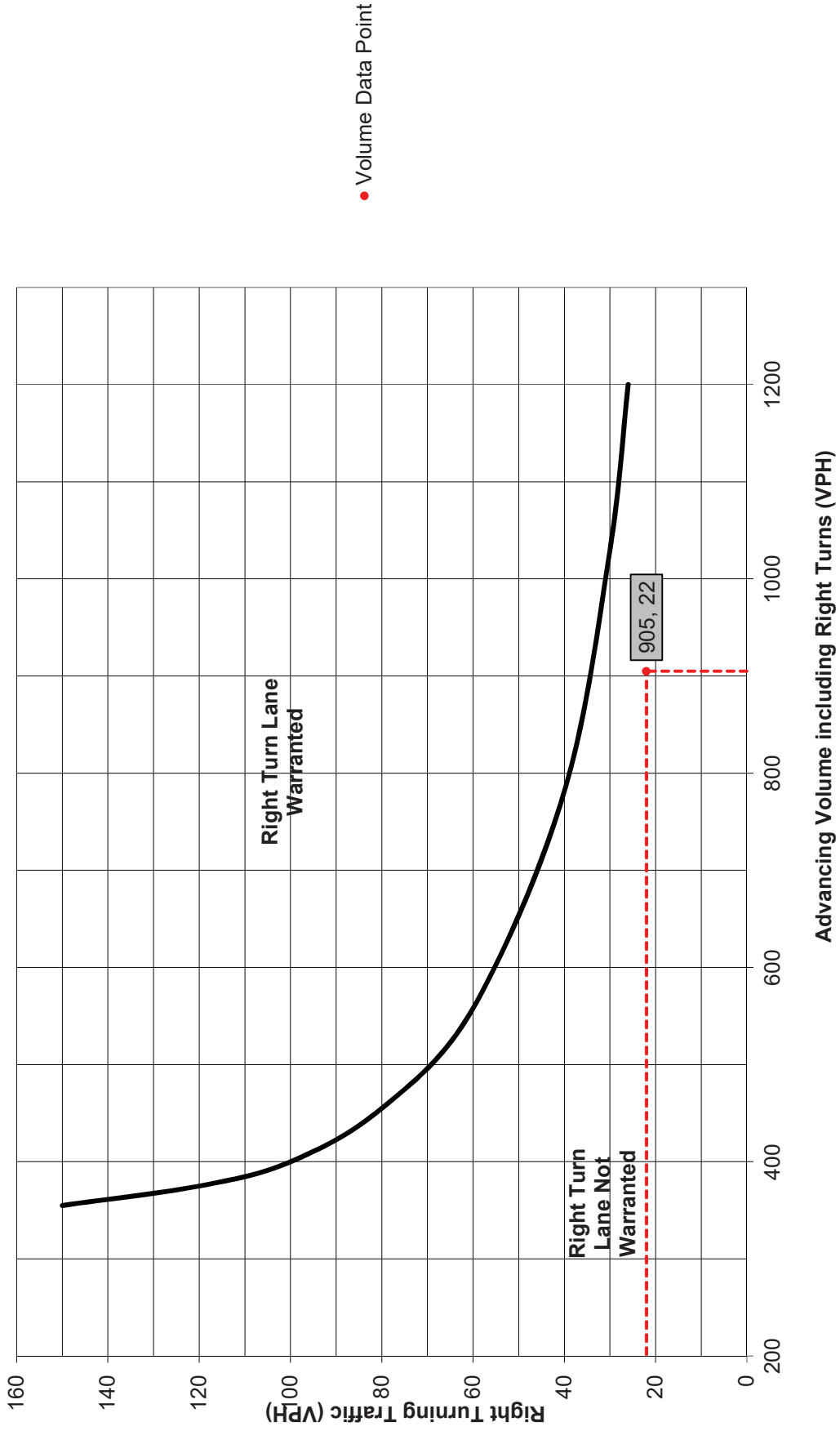
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings:
N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Plains Township	Analysis Date:	2/14/2018
County:	Luzerne County	Conducted By:	EJD
PennDOT Engineering District:	4	Checked By:	
		Agency/Company Name:	Borton-Lawson
Intersection & Approach Description: SR 2004 (River Street) & Courtright Avenue Southbound Left			
Analysis Period:	2027 Build	Number of Approach Lanes:	1
Design Hour:	PM Peak Hour	Undivided or Divided Highway:	Undivided
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	14	0.0%	14
	Through	-	655	1.0%	665
	Right	Yes	22	0.0%	22
Opposing	Left	Yes	7	0.0%	7
	Through	-	863	1.0%	876
	Right	Yes	22	0.0%	22

Advancing Volume:	701
Opposing Volume:	905
Left Turn Volume:	14

% Left Turns in Advancing Volume: 2.00%

Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	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	Right Turn Lane Warrant Findings
Applicable Warrant Figure: Figure 1	Applicable Warrant Figure: N/A
Warrant Met?: Yes	Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized		
Design Hour Volume of Turning Lane:	14		
Cycles Per Hour (Assumed):	Known		
Cycles Per Hour (If Known):	51	Average # of Vehicles/Cycle:	1.0

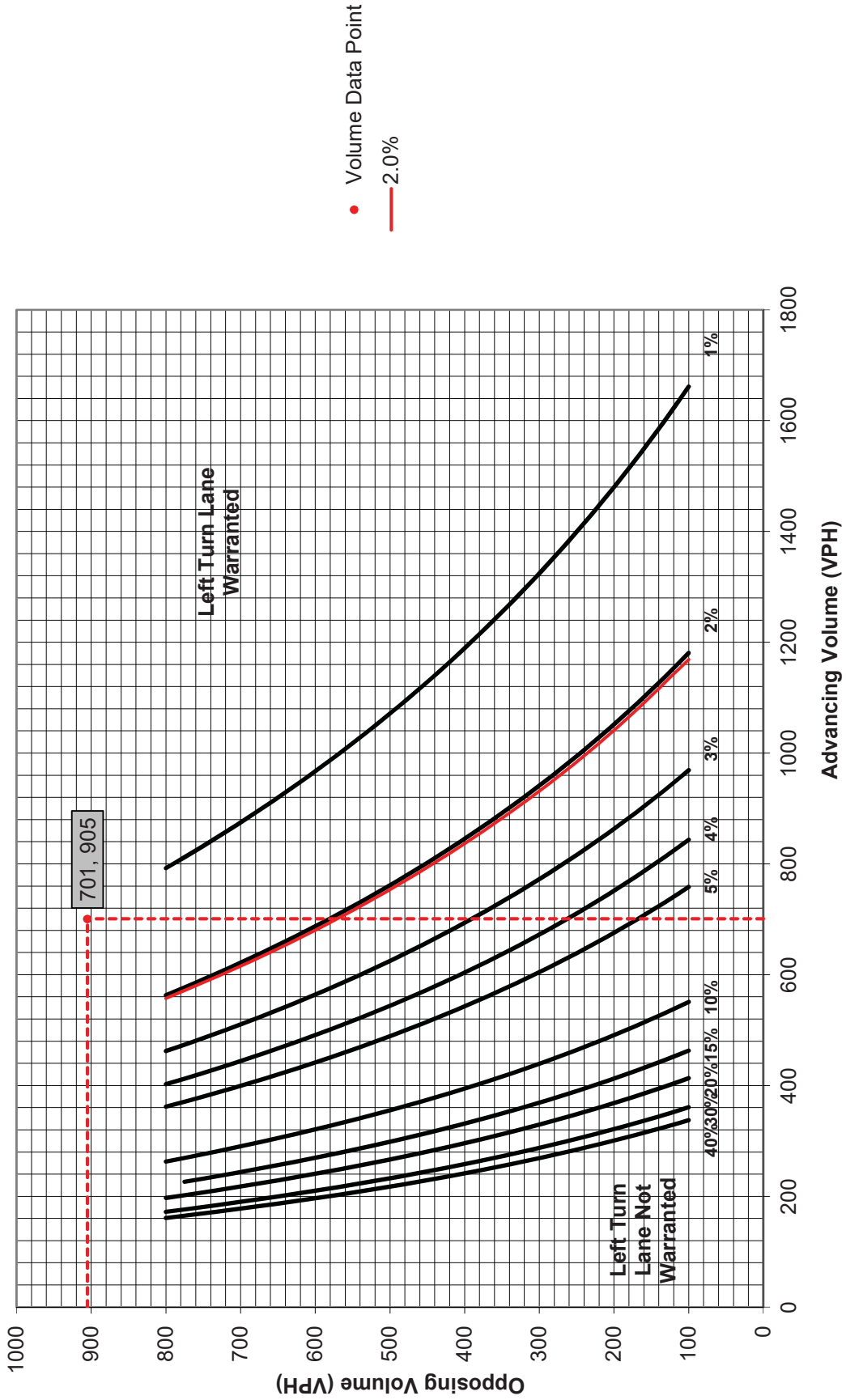
Type of Traffic Control	PennDOT Publication 46, Exhibit 11-6					
	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	0	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	0	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: Plains Township	Analysis Date: 3/16/2018
County: Luzerne County	Conducted By: EJD
PennDOT Engineering District: 4	Checked By: LSS
	Agency/Company Name: Borton-Lawson
Intersection & Approach Description: SR 2004 (River Street) & Courtright Avenue Southbound Right	
Analysis Period: 2027 Build	Number of Approach Lanes: 1
Design Hour: PM Peak Hour	Undivided or Divided Highway: Undivided
Intersection Control: Signalized	
Posted Speed Limit (MPH): 35	Type of Analysis
Type of Terrain: Rolling	Left or Right-Turn Lane Analysis?: Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	0	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	Yes	14	0.0%	14
	Through	-	655	1.0%	665
	Right	-	22	0.0%	22

Advancing Volume: 701
Right Turn Volume: 22

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: N/A	Applicable Warrant Figure: Figure 9
Warrant Met?: N/A	Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control: Signalized	Average # of Vehicles/Cycle: N/A
Design Hour Volume of Turning Lane: 22	
Cycles Per Hour (Assumed): Known	
Cycles Per Hour (If Known): 51	

PennDOT Publication 46, Exhibit 11-6

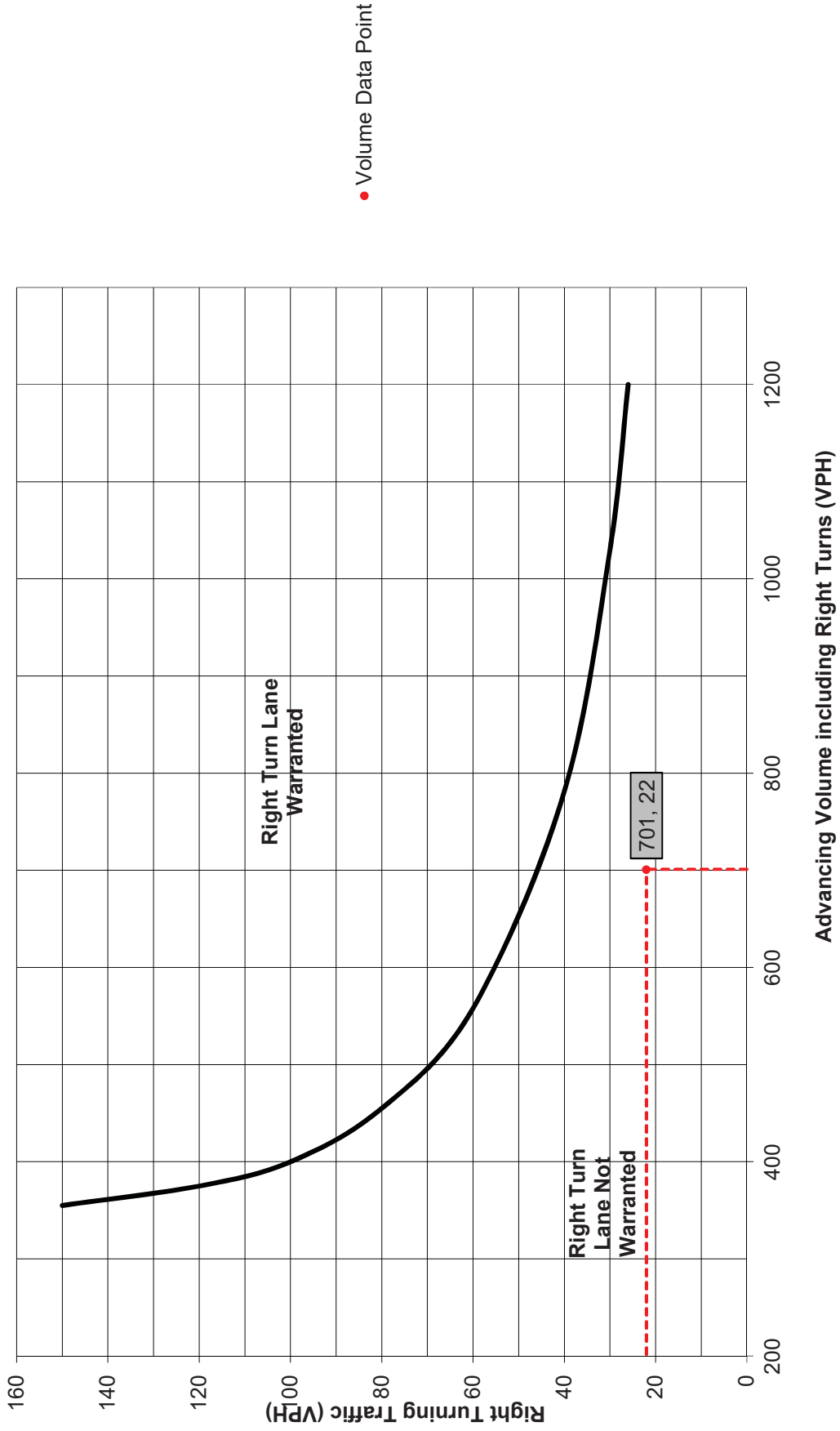
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A: N/A Feet
 Condition B: N/A Feet
 Condition C: N/A Feet
 Required Right Turn Lane Storage Length: N/A Feet

Additional Findings:
N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways (40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Plains Township	Analysis Date:	2/14/2018
County:	Luzerne County	Conducted By:	EJD
PennDOT Engineering District:	4	Checked By:	
		Agency/Company Name:	Borton-Lawson
Intersection & Approach Description: SR 2004 (River Street) & Courtright Avenue Westbound Left			
Analysis Period:	2027 Build	Number of Approach Lanes:	1
Design Hour:	PM Peak Hour	Undivided or Divided Highway:	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25	Type of Analysis	
Type of Terrain:	Rolling	Left or Right-Turn Lane Analysis?:	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	14	0.0%	14
	Through	-	11	0.0%	11
	Right	Yes	31	0.0%	31
Opposing	Left	Yes	76	1.0%	78
	Through	-	17	0.0%	17
	Right	Yes	11	0.0%	11

Advancing Volume:	56
Opposing Volume:	106
Left Turn Volume:	14
% Left Turns in Advancing Volume: 25.00%	

Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	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	Right Turn Lane Warrant Findings
Applicable Warrant Figure: Figure 1	Applicable Warrant Figure: N/A
Warrant Met?: No	Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized	Average # of Vehicles/Cycle:	N/A
Design Hour Volume of Turning Lane:	14		
Cycles Per Hour (Assumed):	Known		
Cycles Per Hour (If Known):	51		

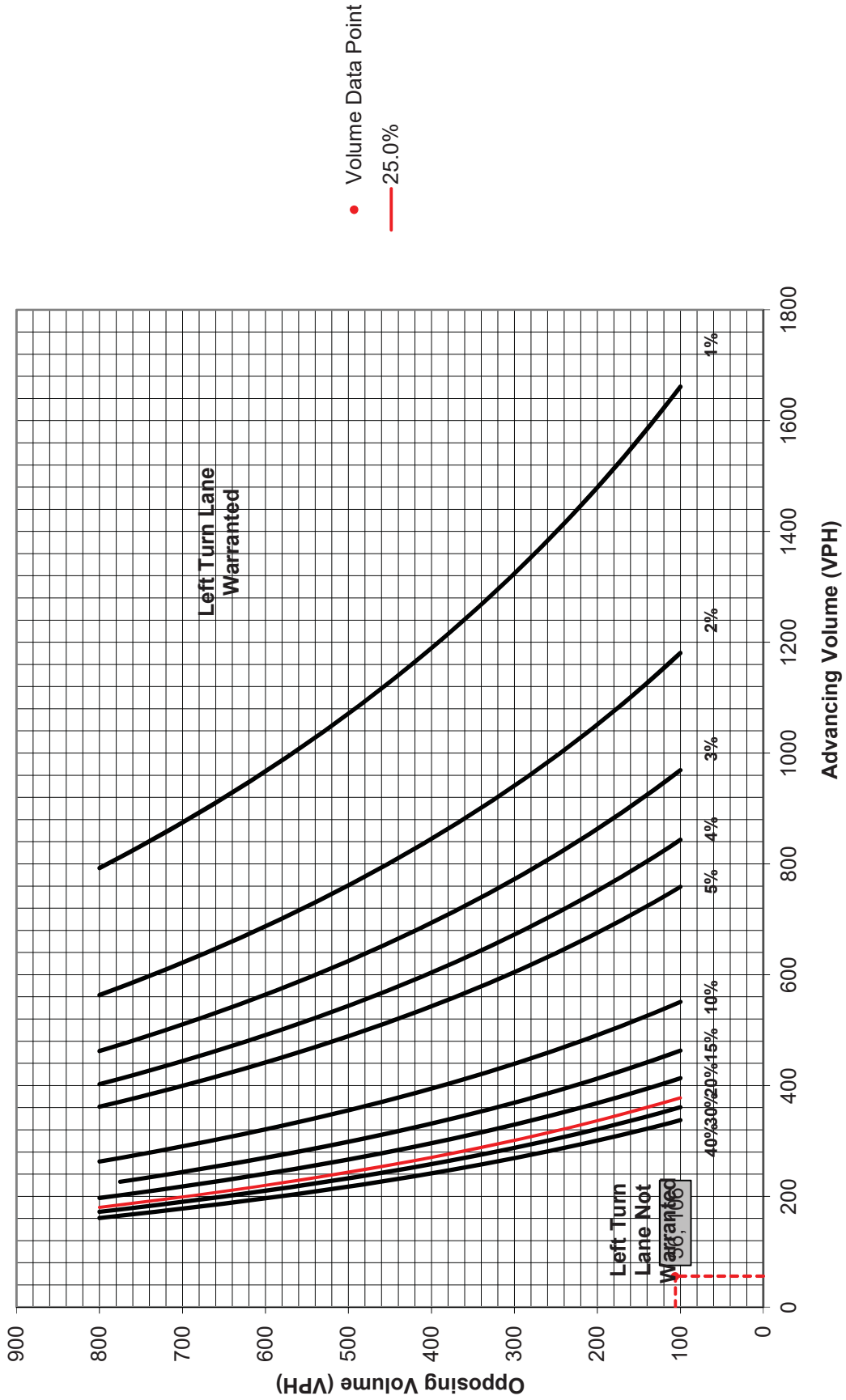
Type of Traffic Control	PennDOT Publication 46, Exhibit 11-6					
	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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: <input type="text" value="Plains Township"/>	Analysis Date: <input type="text" value="3/16/2018"/>
County: <input type="text" value="Luzerne County"/>	Conducted By: <input type="text" value="EJD"/>
PennDOT Engineering District: <input type="text" value="4"/>	Checked By: <input type="text" value="LSS"/>
	Agency/Company Name: <input type="text" value="Borton-Lawson"/>
Intersection & Approach Description: <input type="text" value="SR 2004 (River Street) & Courtright Avenue Westbound Right"/>	
Analysis Period: <input type="text" value="2027 Build"/>	Number of Approach Lanes: <input type="text" value="1"/>
Design Hour: <input type="text" value="PM Peak Hour"/>	Undivided or Divided Highway: <input type="text" value="Undivided"/>
Intersection Control: <input type="text" value="Signalized"/>	
Posted Speed Limit (MPH): <input type="text" value="25"/>	Type of Analysis: <input type="text" value="Right Turn Lane"/>
Type of Terrain: <input type="text" value="Rolling"/>	Left or Right-Turn Lane Analysis?: <input type="text" value="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	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	14	0.0%	14
	Through	-	11	0.0%	11
	Right	-	31	0.0%	31

Advancing Volume:	56
Right Turn Volume:	31

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: <input style="width: 100px;" type="text" value="N/A"/>	Applicable Warrant Figure: <input style="width: 100px;" type="text" value="Figure 9"/>
Warrant Met?: <input style="width: 100px;" type="text" value="N/A"/>	Warrant Met?: <input style="width: 100px;" type="text" value="No"/>

TURN LANE LENGTH CALCULATIONS

Intersection Control: <input type="text" value="Signalized"/>	
Design Hour Volume of Turning Lane: <input type="text" value="31"/>	
Cycles Per Hour (Assumed): <input type="text" value="Known"/>	
Cycles Per Hour (If Known): <input type="text" value="51"/>	Average # of Vehicles/Cycle: <input style="width: 100px;" type="text" value="N/A"/>

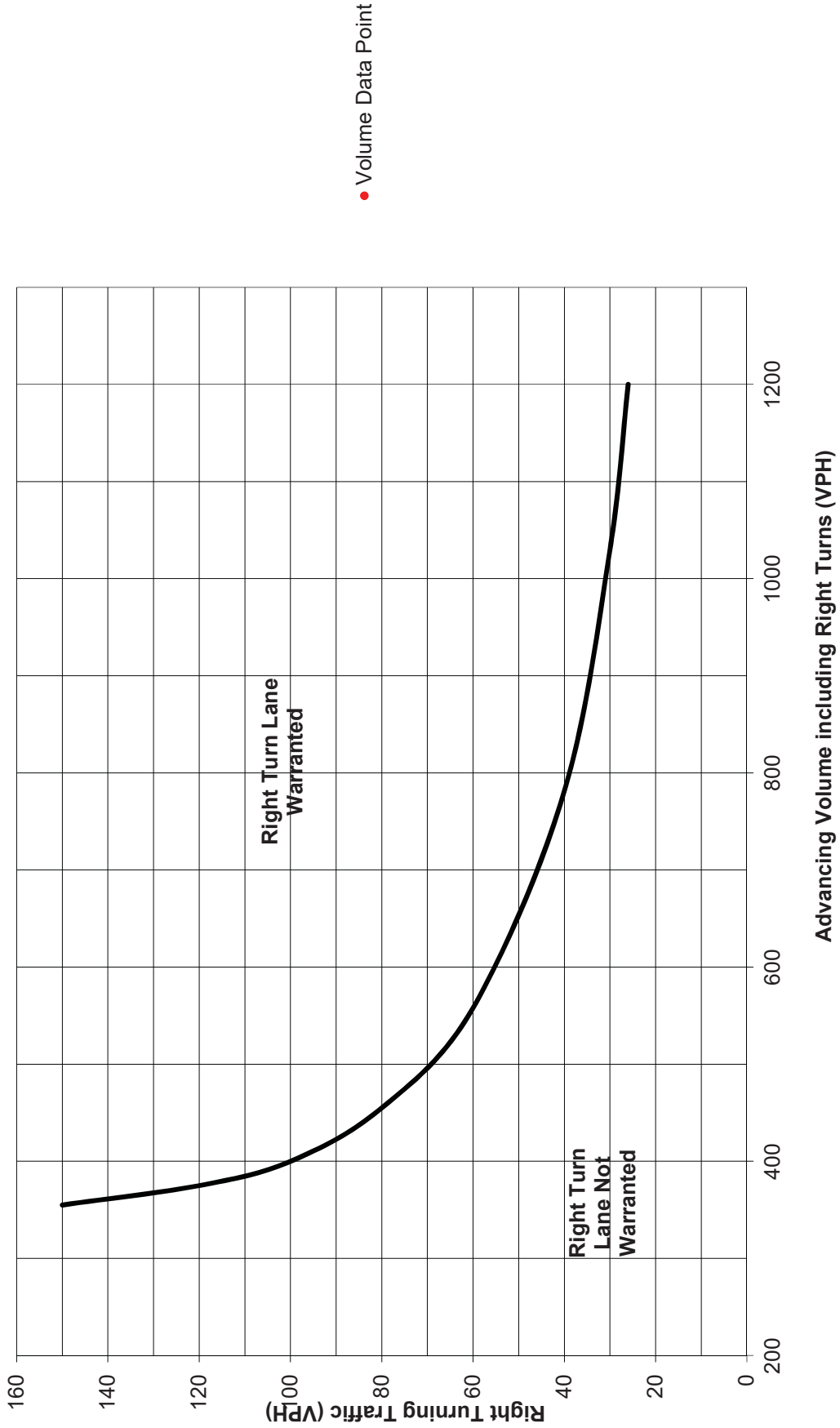
Type of Traffic Control	PennDOT Publication 46, Exhibit 11-6					
	Speed (MPH)					
	25-35		40-45		50-60	
Turn Demand Volume						
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings:

Additional Comments / Justifications:

**Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)**



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality: Plains Township	Analysis Date: 3/16/2018
County: Luzerne County	Conducted By: EJD
PennDOT Engineering District: 4	Checked By: LSS
	Agency/Company Name: Borton-Lawson
Intersection & Approach Description: SR 2004 (River Street) & Chestnut Street Northbound Right	
Analysis Period: 2027 Build	Number of Approach Lanes: 1
Design Hour: AM Peak Hour	Undivided or Divided Highway: Undivided
Intersection Control: Unsignalized	
Posted Speed Limit (MPH): 35	Type of Analysis
Type of Terrain: Rolling	Left or Right-Turn Lane Analysis?: Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	0	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	0	0.0%	N/A
	Through	-	695	3.0%	727
	Right	-	54	7.0%	60

Advancing Volume: 787
 Right Turn Volume: 60

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: N/A	Applicable Warrant Figure: Figure 9
Warrant Met?: N/A	Warrant Met?: Yes

TURN LANE LENGTH CALCULATIONS

Intersection Control: Unsignalized	
Design Hour Volume of Turning Lane: 60	
Cycles Per Hour (Assumed): Known	
Cycles Per Hour (If Known): 60	Average # of Vehicles/Cycle: 1.0

PennDOT Publication 46, Exhibit 11-6

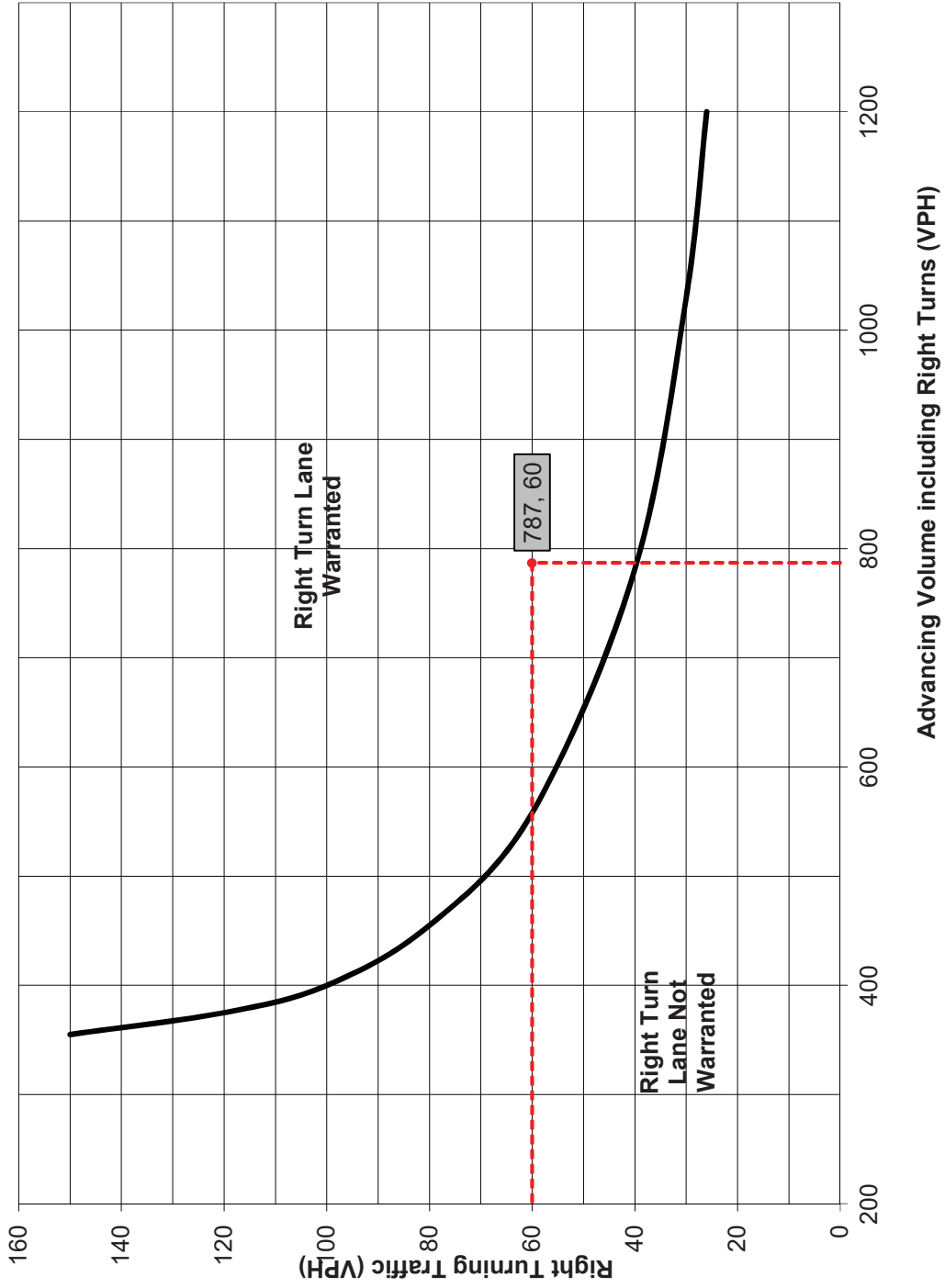
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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: Plains Township	Analysis Date: 2/14/2018
County: Luzerne County	Conducted By: EJD
PennDOT Engineering District: 4	Checked By:
	Agency/Company Name: Borton-Lawson
Intersection & Approach Description: SR 2004 (River Street) & Chestnut Street Southbound Left	
Analysis Period: 2027 Build	Number of Approach Lanes: 1
Design Hour: AM Peak Hour	Undivided or Divided Highway: Undivided
Intersection Control: Unsignalized	
Posted Speed Limit (MPH): 35	Type of Analysis
Type of Terrain: Rolling	Left or Right-Turn Lane Analysis?: Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	88	2.0%	91
	Through	-	1052	2.0%	1084
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	695	3.0%	727
	Right	Yes	54	7.0%	60

Advancing Volume:	1175
Opposing Volume:	787
Left Turn Volume:	91

% Left Turns in Advancing Volume: 7.74%

Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	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	Right Turn Lane Warrant Findings
Applicable Warrant Figure: Figure 1	Applicable Warrant Figure: N/A
Warrant Met?: Yes	Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control: Unsignalized	
Design Hour Volume of Turning Lane: 91	
Cycles Per Hour (Assumed): Known	
Cycles Per Hour (If Known): 60	Average # of Vehicles/Cycle: 2.0

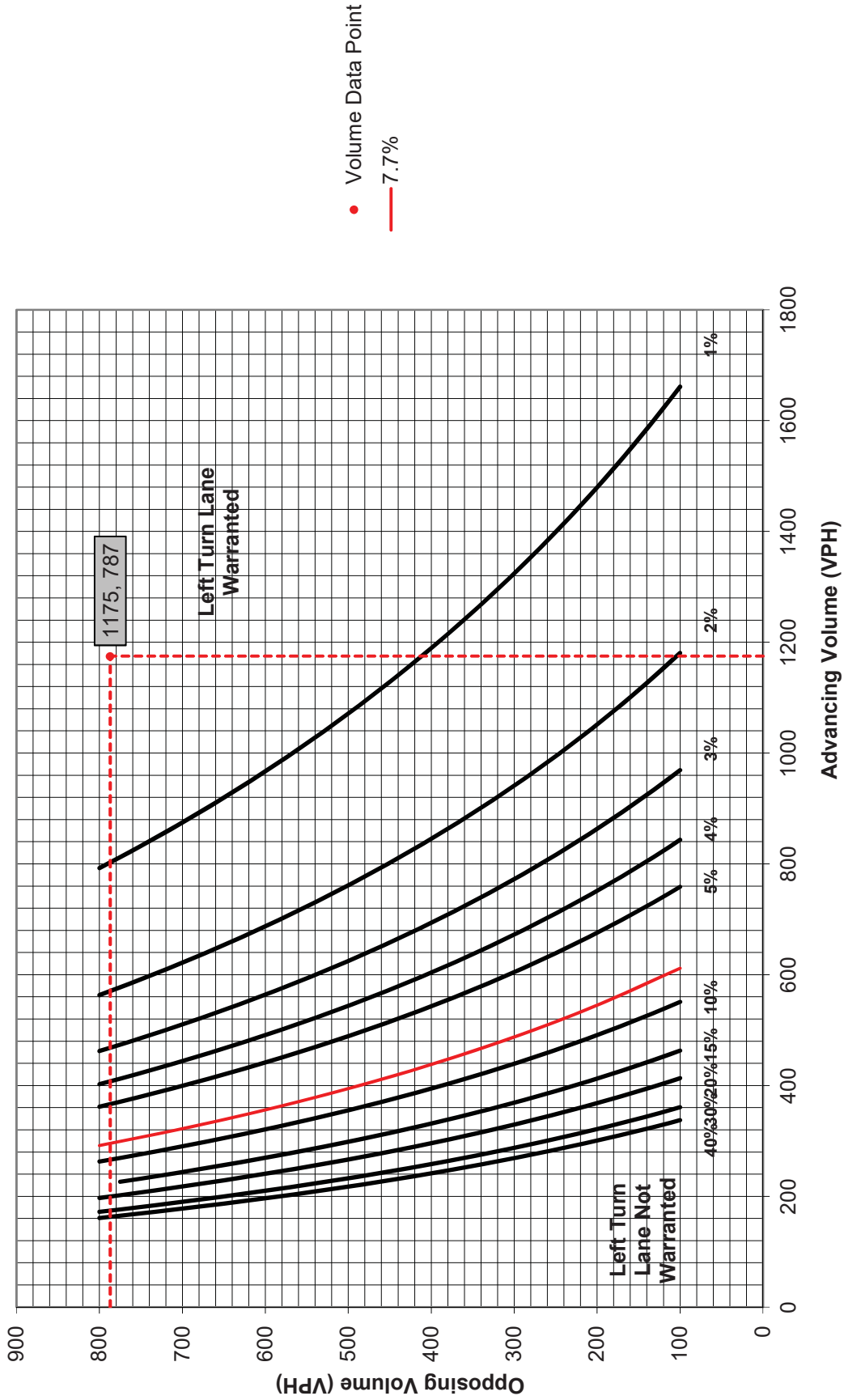
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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 1. Warrant for left turn lanes on two-lane roadways
 (speeds to 35 mph, unsignalized and signalized intersections)
 (L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality: Plains Township	Analysis Date: 3/16/2018
County: Luzerne County	Conducted By: EJD
PennDOT Engineering District: 4	Checked By: LSS
	Agency/Company Name: Borton-Lawson
Intersection & Approach Description: SR 2004 (River Street) & Chestnut Street Northbound Right	
Analysis Period: 2027 Build	Number of Approach Lanes: 1
Design Hour: PM Peak Hour	Undivided or Divided Highway: Undivided
Intersection Control: Unsignalized	
Posted Speed Limit (MPH): 35	Type of Analysis
Type of Terrain: Rolling	Left or Right-Turn Lane Analysis?: Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	0	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	0	0.0%	N/A
	Through	-	1078	1.0%	1095
	Right	-	63	2.0%	65

Advancing Volume:	1160
Right Turn Volume:	65

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: N/A	Applicable Warrant Figure: Figure 9
Warrant Met?: N/A	Warrant Met?: Yes

TURN LANE LENGTH CALCULATIONS

Intersection Control: Unsignalized	
Design Hour Volume of Turning Lane: 65	
Cycles Per Hour (Assumed): Known	
Cycles Per Hour (If Known): 60	Average # of Vehicles/Cycle: 1.0

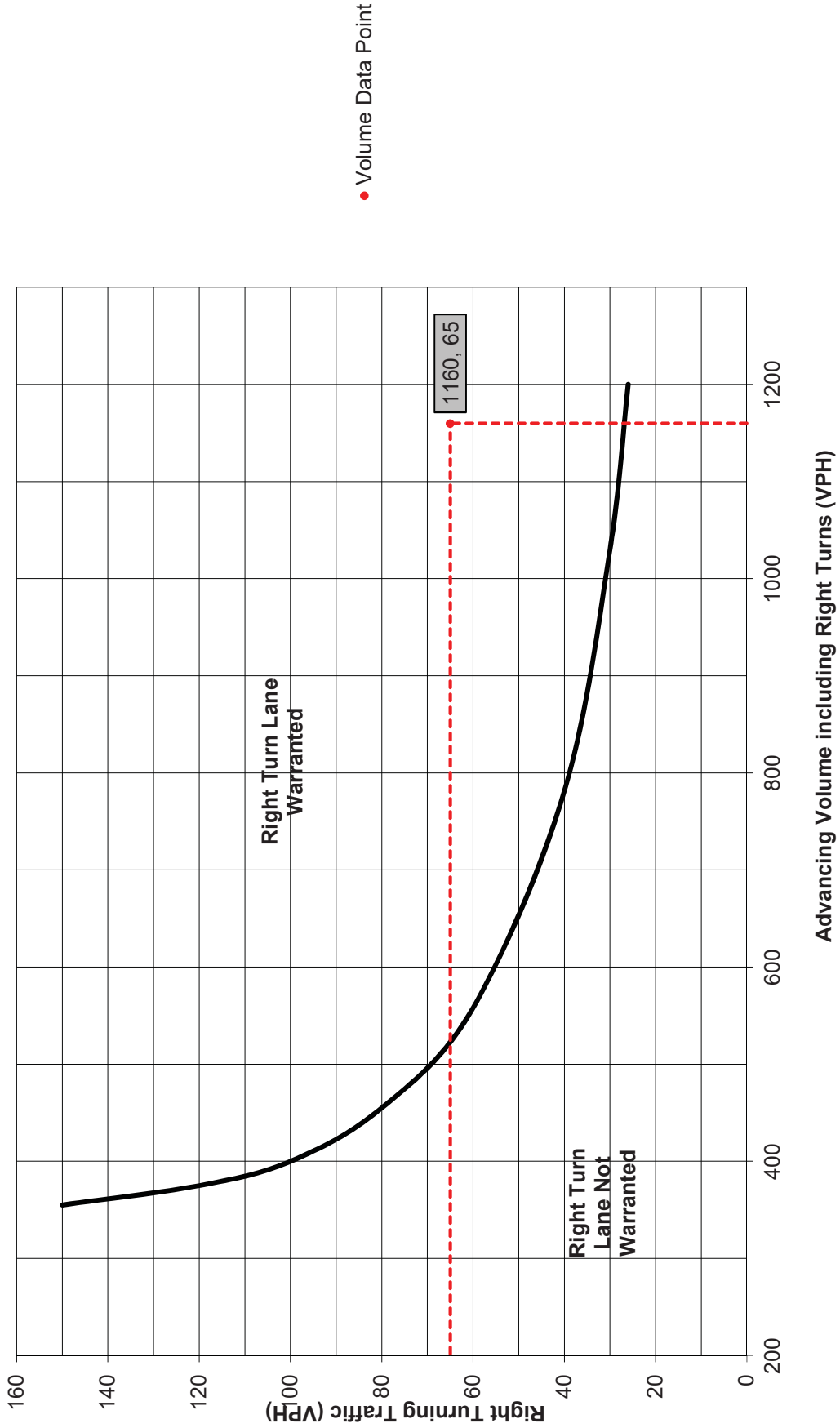
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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: Plains Township	Analysis Date: 2/14/2018
County: Luzerne County	Conducted By: EJD
PennDOT Engineering District: 4	Checked By:
	Agency/Company Name: Borton-Lawson
Intersection & Approach Description: SR 2004 (River Street) & Chestnut Street Southbound Left	
Analysis Period: 2027 Build	Number of Approach Lanes: 1
Design Hour: PM Peak Hour	Undivided or Divided Highway: Undivided
Intersection Control: Unsignalized	
Posted Speed Limit (MPH): 35	Type of Analysis
Type of Terrain: Rolling	Left or Right-Turn Lane Analysis?: Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	56	4.0%	60
	Through	-	721	1.0%	732
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	1078	1.0%	1095
	Right	Yes	63	2.0%	65

Advancing Volume:	792
Opposing Volume:	1160
Left Turn Volume:	60

% Left Turns in Advancing Volume: 7.58%

Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	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	Right Turn Lane Warrant Findings
Applicable Warrant Figure: Figure 1	Applicable Warrant Figure: N/A
Warrant Met?: Yes	Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control: Unsignalized	
Design Hour Volume of Turning Lane: 60	
Cycles Per Hour (Assumed): Known	
Cycles Per Hour (If Known): 60	Average # of Vehicles/Cycle: 1.0

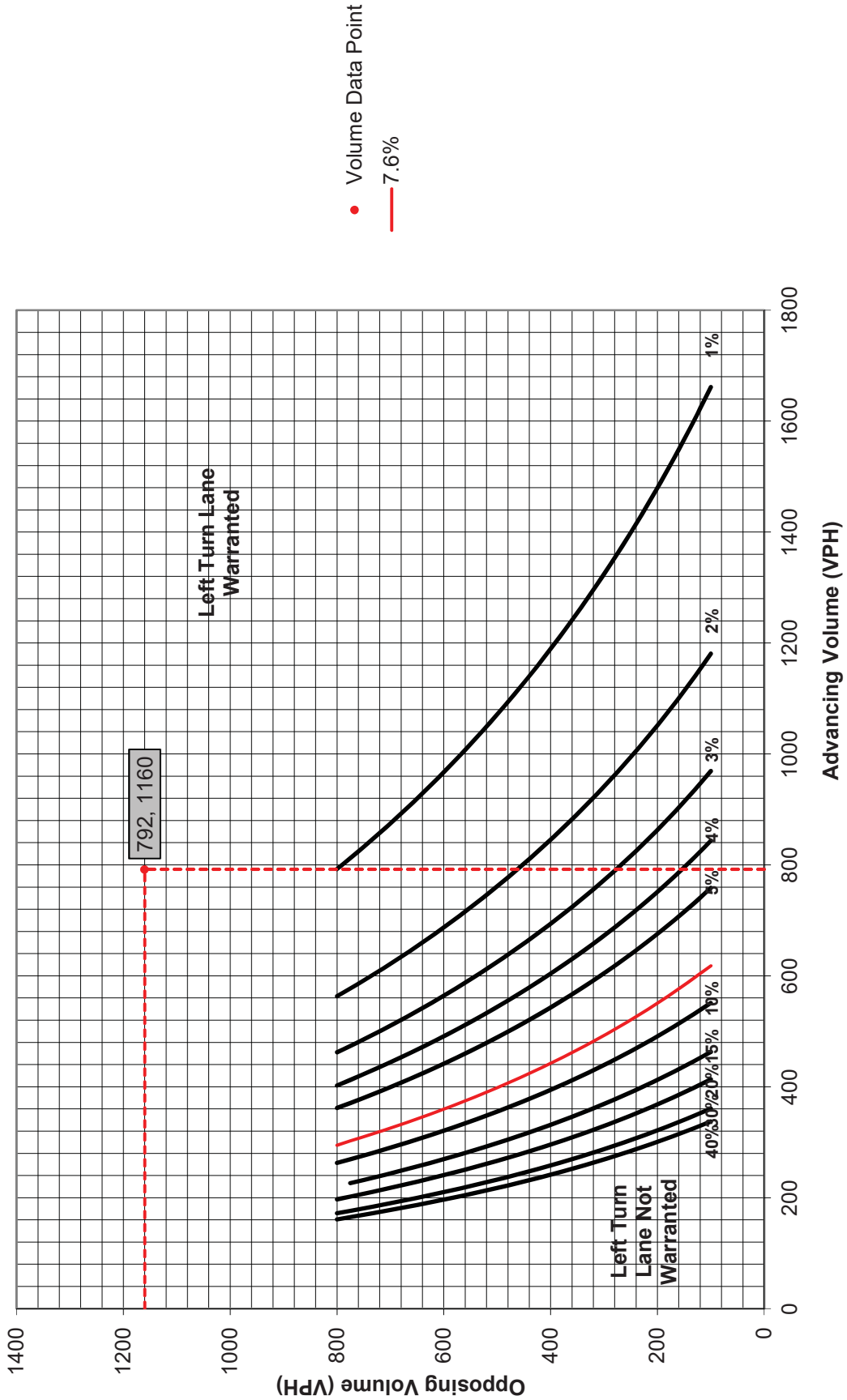
Type of Traffic Control	PennDOT Publication 46, Exhibit 11-6					
	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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: Plains Township	Analysis Date: 2/14/2018
County: Luzerne County	Conducted By: EJD
PennDOT Engineering District: 4	Checked By:
	Agency/Company Name: Borton-Lawson
Intersection & Approach Description: SR 2004 (River Street) & Waterfront Park Drive / Cross Valley Centre Drive Eastbound Left	
Analysis Period: 2027 Build	Number of Approach Lanes: 1
Design Hour: AM Peak Hour	Undivided or Divided Highway: Undivided
Intersection Control: Signalized	
Posted Speed Limit (MPH): 25	Type of Analysis
Type of Terrain: Rolling	Left or Right-Turn Lane Analysis?: Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	35	0.0%	35
	Through	-	1	0.0%	1
	Right	Yes	43	0.0%	43
Opposing	Left	Yes	6	0.0%	6
	Through	-	0	0.0%	0
	Right	Yes	3	0.0%	3

Advancing Volume:	79
Opposing Volume:	9
Left Turn Volume:	35

% Left Turns in Advancing Volume:	44.30%
-----------------------------------	--------

Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	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	Right Turn Lane Warrant Findings
Applicable Warrant Figure: Figure 1	Applicable Warrant Figure: N/A
Warrant Met?: No	Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control: Signalized	
Design Hour Volume of Turning Lane: 35	
Cycles Per Hour (Assumed): Known	
Cycles Per Hour (If Known): 30	Average # of Vehicles/Cycle: N/A

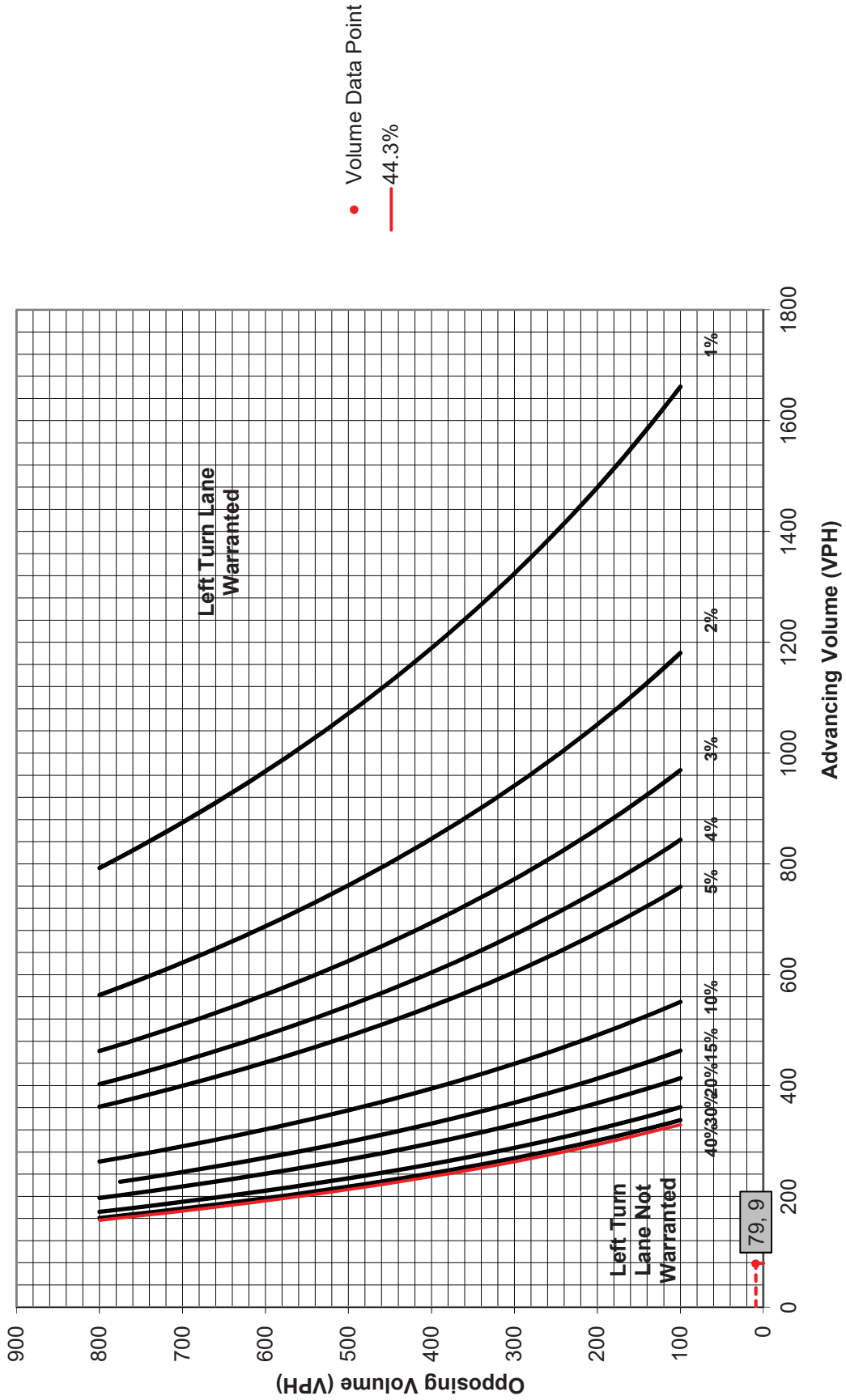
Type of Traffic Control	PennDOT Publication 46, Exhibit 11-6					
	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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: <input type="text" value="Plains Township"/>	Analysis Date: <input type="text" value="3/16/2018"/>
County: <input type="text" value="Luzerne County"/>	Conducted By: <input type="text" value="EJD"/>
PennDOT Engineering District: <input type="text" value="4"/>	Checked By: <input type="text" value="LSS"/>
	Agency/Company Name: <input type="text" value="Borton-Lawson"/>
Intersection & Approach Description: <input type="text" value="SR 2004 (River Street) & Waterfront Park Drive / Cross Valley Centre Drive Eastbound Right"/>	
Analysis Period: <input type="text" value="2027 Build"/>	Number of Approach Lanes: <input type="text" value="1"/>
Design Hour: <input type="text" value="AM Peak Hour"/>	Undivided or Divided Highway: <input type="text" value="Undivided"/>
Intersection Control: <input type="text" value="Signalized"/>	
Posted Speed Limit (MPH): <input type="text" value="25"/>	Type of Analysis: <input type="text" value="Right Turn Lane"/>
Type of Terrain: <input type="text" value="Rolling"/>	Left or Right-Turn Lane Analysis?: <input type="text" value="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	Yes	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	0	0.0%	N/A

Advancing Volume:	<input type="text" value="N/A"/>
Opposing Volume:	<input type="text" value="N/A"/>
Left Turn Volume:	<input type="text" value="N/A"/>
% Left Turns in Advancing Volume:	
	<input type="text" value="N/A"/>

Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	35	0.0%	35
	Through	-	1	0.0%	1
	Right	-	43	0.0%	43

Advancing Volume:	<input type="text" value="79"/>
Right Turn Volume:	<input type="text" value="43"/>

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: <input type="text" value="N/A"/>	Applicable Warrant Figure: <input type="text" value="Figure 9"/>
Warrant Met?: <input type="text" value="N/A"/>	Warrant Met?: <input type="text" value="No"/>

TURN LANE LENGTH CALCULATIONS

Intersection Control: <input type="text" value="Signalized"/>	
Design Hour Volume of Turning Lane: <input type="text" value="43"/>	
Cycles Per Hour (Assumed): <input type="text" value="Known"/>	
Cycles Per Hour (If Known): <input type="text" value="30"/>	Average # of Vehicles/Cycle: <input type="text" value="N/A"/>

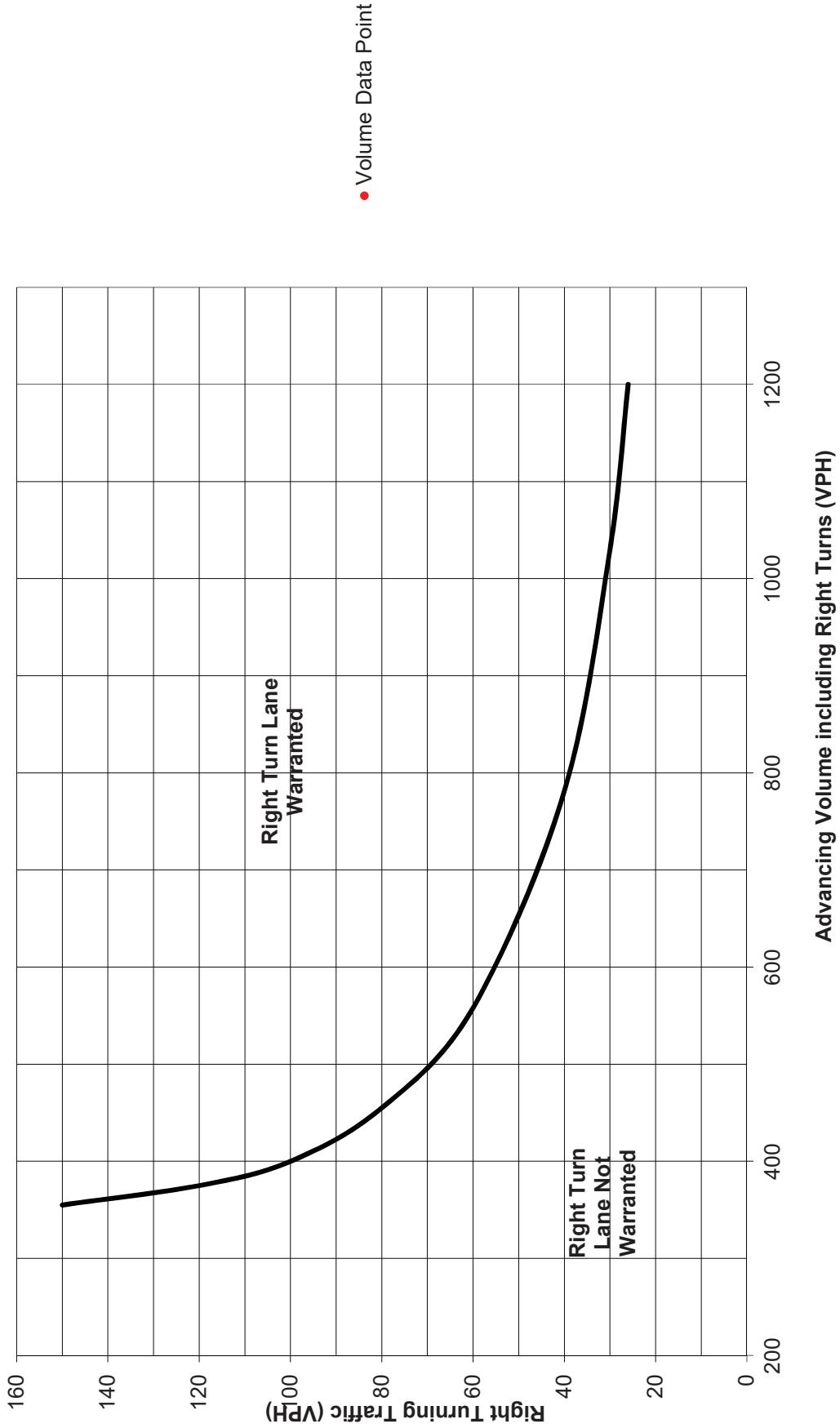
Type of Traffic Control	PennDOT Publication 46, Exhibit 11-6					
	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	<input type="text" value="N/A"/>	Feet
Condition B:	<input type="text" value="N/A"/>	Feet
Condition C:	<input type="text" value="N/A"/>	Feet
Required Right Turn Lane Storage Length:	<input type="text" value="N/A"/>	Feet

Additional Findings:

Additional Comments / Justifications:

**Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)**



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality: Plains Township	Analysis Date: 2/14/2018
County: Luzerne County	Conducted By: EJD
PennDOT Engineering District: 4	Checked By:
	Agency/Company Name: Borton-Lawson
Intersection & Approach Description: SR 2004 (River Street) & Waterfront Park Drive / Cross Valley Centre Drive Northbound Left	
Analysis Period: 2027 Build	Number of Approach Lanes: 1
Design Hour: AM Peak Hour	Undivided or Divided Highway: Undivided
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	50	0.0%	50
	Through	-	640	4.0%	679
	Right	Yes	9	0.0%	9
Opposing	Left	Yes	40	0.0%	40
	Through	-	1104	1.0%	1121
	Right	Yes	127	1.0%	129

Advancing Volume:	738
Opposing Volume:	1290
Left Turn Volume:	50

% Left Turns in Advancing Volume: 6.78%

Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	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	Right Turn Lane Warrant Findings
Applicable Warrant Figure: Figure 1	Applicable Warrant Figure: N/A
Warrant Met?: Yes	Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control: Signalized	
Design Hour Volume of Turning Lane: 50	
Cycles Per Hour (Assumed): Known	
Cycles Per Hour (If Known): 30	Average # of Vehicles/Cycle: 2.0

PennDOT Publication 46, Exhibit 11-6

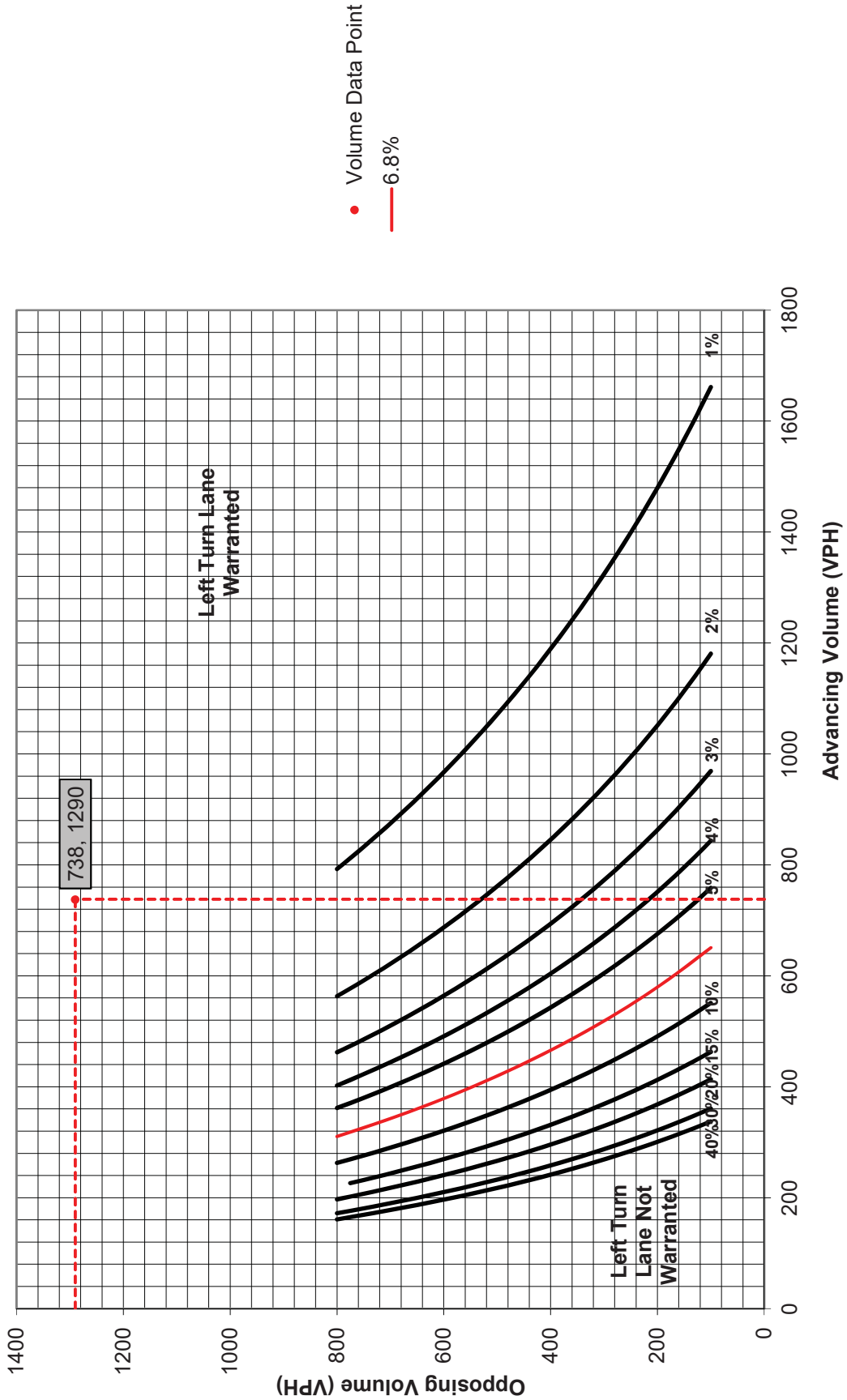
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	0	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	0	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: Plains Township	Analysis Date: 3/16/2018
County: Luzerne County	Conducted By: EJD
PennDOT Engineering District: 4	Checked By: LSS
	Agency/Company Name: Borton-Lawson
Intersection & Approach Description: SR 2004 (River Street) & Waterfront Park Drive / Cross Valley Centre Drive Northbound Right	
Analysis Period: 2027 Build	Number of Approach Lanes: 1
Design Hour: AM Peak Hour	Undivided or Divided Highway: Undivided
Intersection Control: Signalized	
Posted Speed Limit (MPH): 35	Type of Analysis
Type of Terrain: Rolling	Left or Right-Turn Lane Analysis?: Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	0	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	Yes	50	0.0%	50
	Through	-	640	4.0%	679
	Right	-	9	0.0%	9

Advancing Volume:	738
Right Turn Volume:	9

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: N/A	Applicable Warrant Figure: Figure 9
Warrant Met?: N/A	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): 30	Average # of Vehicles/Cycle: N/A

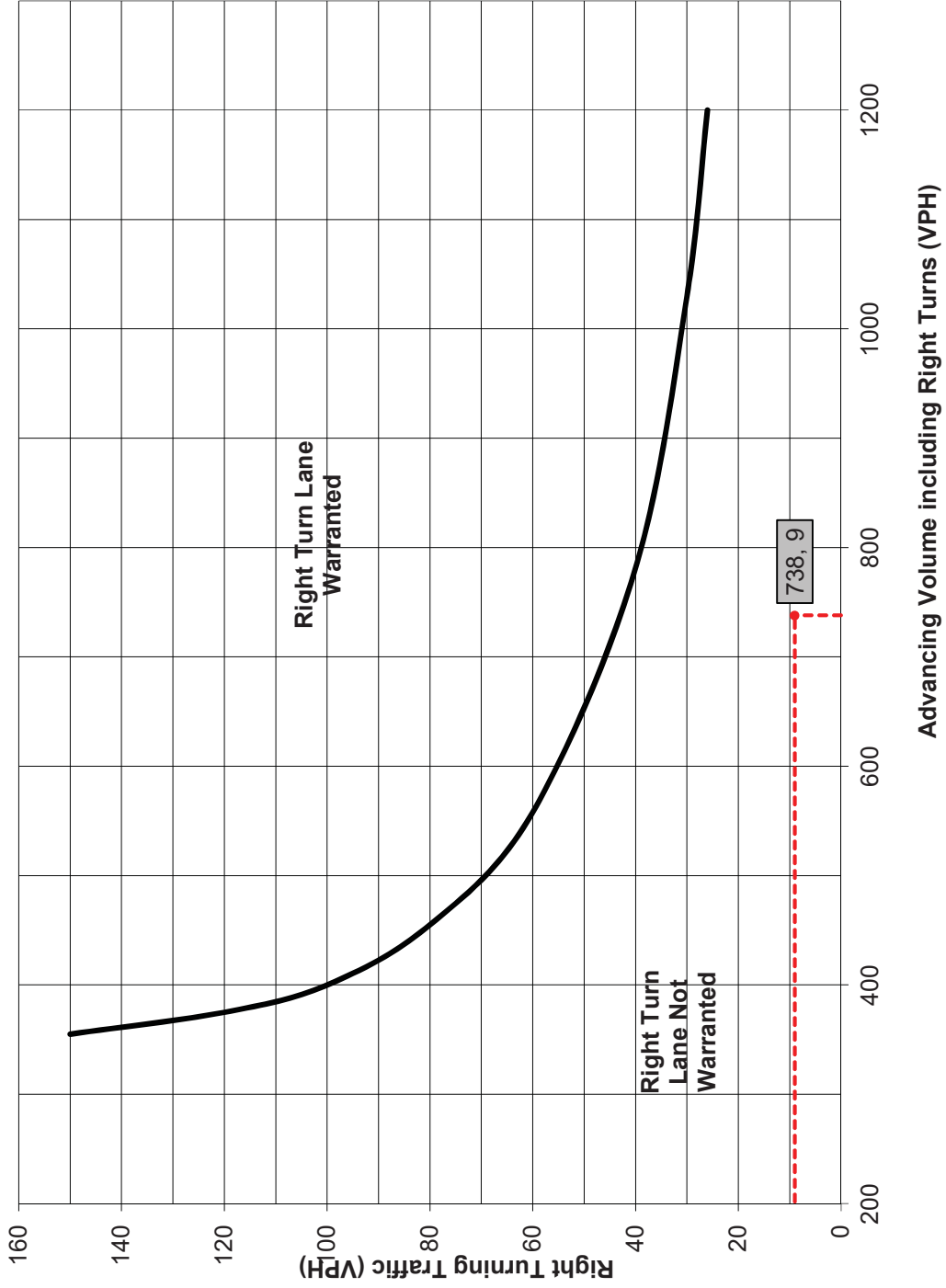
Type of Traffic Control	PennDOT Publication 46, Exhibit 11-6					
	Speed (MPH)					
	25-35		40-45		50-60	
Turn Demand Volume						
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings:
N/A

Additional Comments / Justifications:

**Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)**



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality: <input type="text" value="Plains Township"/>	Analysis Date: <input type="text" value="2/14/2018"/>
County: <input type="text" value="Luzerne County"/>	Conducted By: <input type="text" value="EJD"/>
PennDOT Engineering District: <input type="text" value="4"/>	Checked By: <input type="text"/>
	Agency/Company Name: <input type="text" value="Borton-Lawson"/>
Intersection & Approach Description: <input type="text" value="SR 2004 (River Street) & Waterfront Park Drive / Cross Valley Centre Drive Southbound Left"/>	
Analysis Period: <input type="text" value="2027 Build"/>	Number of Approach Lanes: <input type="text" value="1"/>
Design Hour: <input type="text" value="AM Peak Hour"/>	Undivided or Divided Highway: <input type="text" value="Undivided"/>
Intersection Control: <input type="text" value="Signalized"/>	
Posted Speed Limit (MPH): <input type="text" value="35"/>	Type of Analysis: <input type="text" value="Left Turn Lane"/>
Type of Terrain: <input type="text" value="Rolling"/>	Left or Right-Turn Lane Analysis?: <input type="text" value="Left Turn Lane"/>

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	40	0.0%	40
	Through	-	1104	1.0%	1121
	Right	Yes	127	1.0%	129
Opposing	Left	Yes	50	0.0%	50
	Through	-	640	4.0%	679
	Right	Yes	9	0.0%	9

Advancing Volume:	<input type="text" value="1290"/>
Opposing Volume:	<input type="text" value="738"/>
Left Turn Volume:	<input type="text" value="40"/>
% Left Turns in Advancing Volume: <input type="text" value="3.10%"/>	

Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	-	0	0.0%	N/A

Advancing Volume:	<input type="text" value="N/A"/>
Right Turn Volume:	<input type="text" value="N/A"/>

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: <input type="text" value="Figure 1"/>	Applicable Warrant Figure: <input type="text" value="N/A"/>
Warrant Met?: <input type="text" value="Yes"/>	Warrant Met?: <input type="text" value="N/A"/>

TURN LANE LENGTH CALCULATIONS

Intersection Control: <input type="text" value="Signalized"/>	
Design Hour Volume of Turning Lane: <input type="text" value="40"/>	
Cycles Per Hour (Assumed): <input type="text" value="Known"/>	
Cycles Per Hour (If Known): <input type="text" value="30"/>	Average # of Vehicles/Cycle: <input type="text" value="1.0"/>

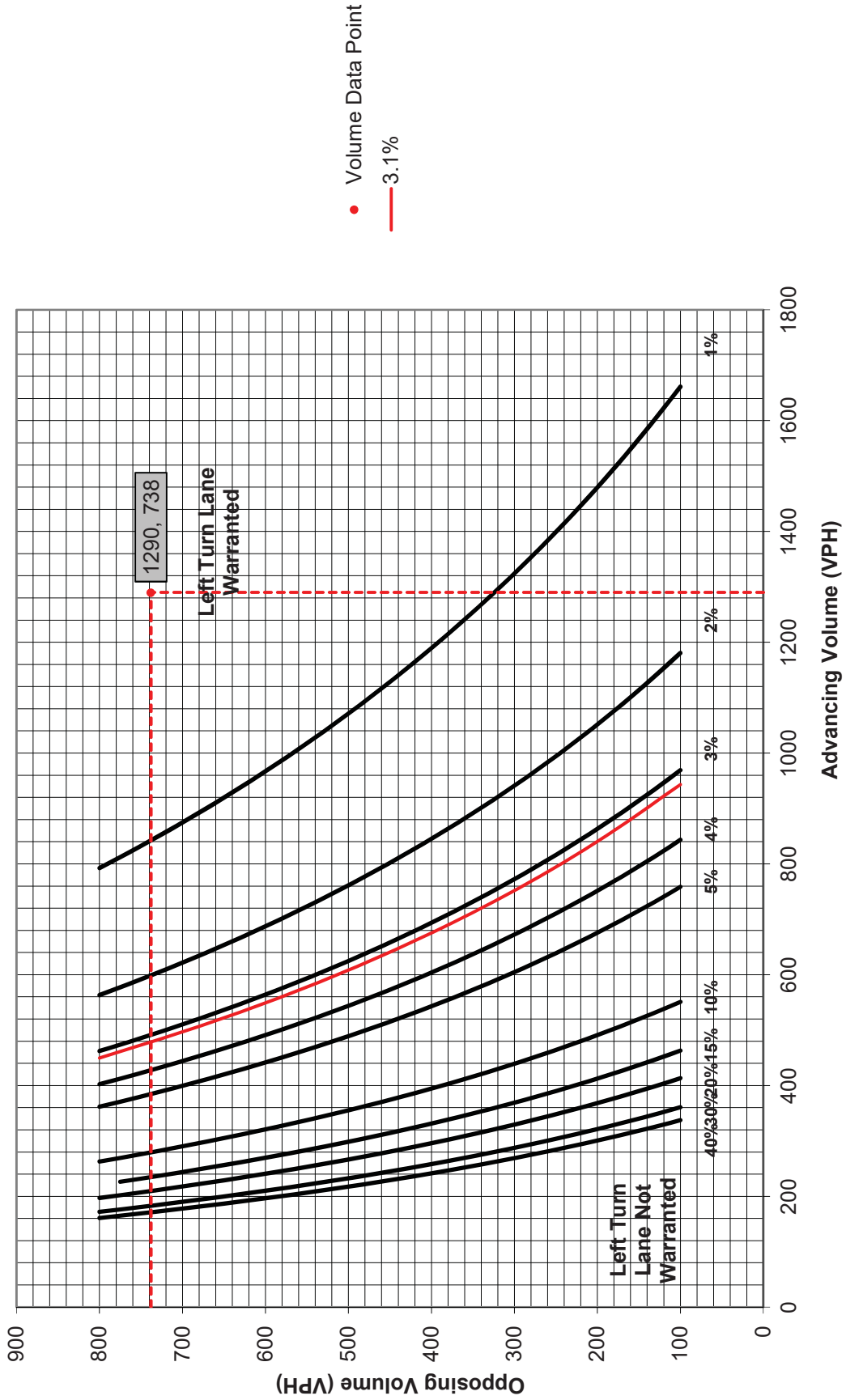
Type of Traffic Control	PennDOT Publication 46, Exhibit 11-6					
	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume			Turn Demand Volume		
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	<input type="text" value="0"/>	Feet
Condition B:	<input type="text" value="N/A"/>	Feet
Condition C:	<input type="text" value="N/A"/>	Feet
Required Left Turn Lane Storage Length:	<input type="text" value="0"/>	Feet

Additional Findings:

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
 (speeds to 35 mph, unsignalized and signalized intersections)
 (L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality: Plains Township	Analysis Date: 3/16/2018
County: Luzerne County	Conducted By: EJD
PennDOT Engineering District: 4	Checked By: LSS
	Agency/Company Name: Borton-Lawson
Intersection & Approach Description: SR 2004 (River Street) & Waterfront Park Drive / Cross Valley Centre Drive Southbound Right	
Analysis Period: 2027 Build	Number of Approach Lanes: 1
Design Hour: AM Peak Hour	Undivided or Divided Highway: Undivided
Intersection Control: Signalized	
Posted Speed Limit (MPH): 35	Type of Analysis
Type of Terrain: Rolling	Left or Right-Turn Lane Analysis?: Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	0	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	Yes	40	0.0%	40
	Through	-	1088	1.0%	1105
	Right	-	127	1.0%	129

Advancing Volume: 1274
 Right Turn Volume: 129

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: N/A	Applicable Warrant Figure: Figure 9
Warrant Met?: N/A	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): 30	Average # of Vehicles/Cycle: 4.0

PennDOT Publication 46, Exhibit 11-6

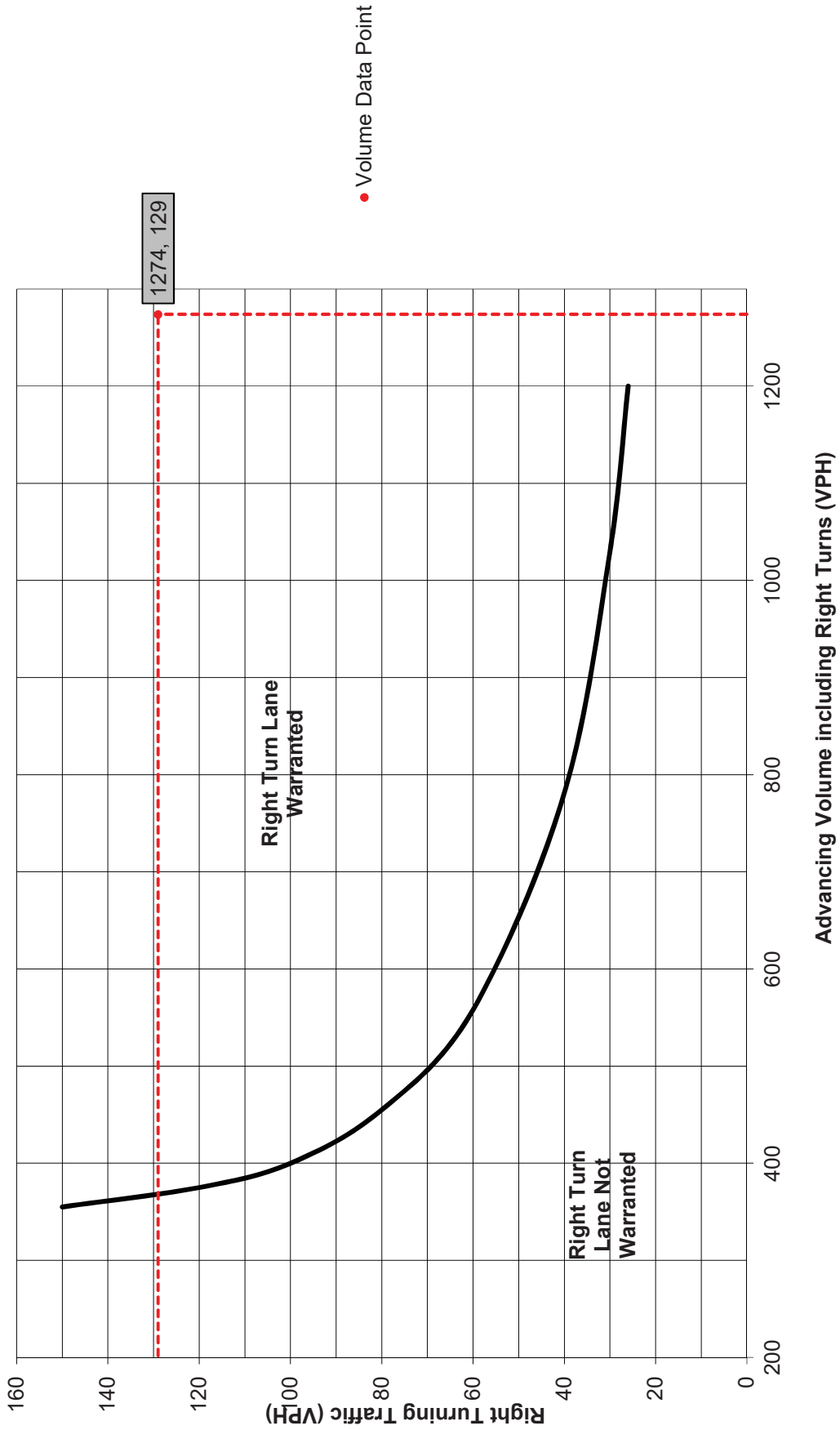
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	Plains Township	Analysis Date:	2/14/2018
County:	Luzerne County	Conducted By:	EJD
PennDOT Engineering District:	4	Checked By:	
		Agency/Company Name:	Borton-Lawson
Intersection & Approach Description: SR 2004 (River Street) & Waterfront Park Drive / Cross Valley Centre Drive Westbound Left			
Analysis Period:	2027 Build	Number of Approach Lanes:	1
Design Hour:	AM Peak Hour	Undivided or Divided Highway:	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25	Type of Analysis	
Type of Terrain:	Rolling	Left or Right-Turn Lane Analysis?:	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	6	0.0%	6
	Through	-	0	0.0%	0
	Right	Yes	3	0.0%	3
Opposing	Left	Yes	35	0.0%	35
	Through	-	1	0.0%	1
	Right	Yes	43	0.0%	43

Advancing Volume:	9
Opposing Volume:	79
Left Turn Volume:	6
% Left Turns in Advancing Volume: 66.67%	

Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	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	Right Turn Lane Warrant Findings
Applicable Warrant Figure: Figure 1	Applicable Warrant Figure: N/A
Warrant Met?: No	Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized	Average # of Vehicles/Cycle:	N/A
Design Hour Volume of Turning Lane:	6		
Cycles Per Hour (Assumed):	Known		
Cycles Per Hour (If Known):	30		

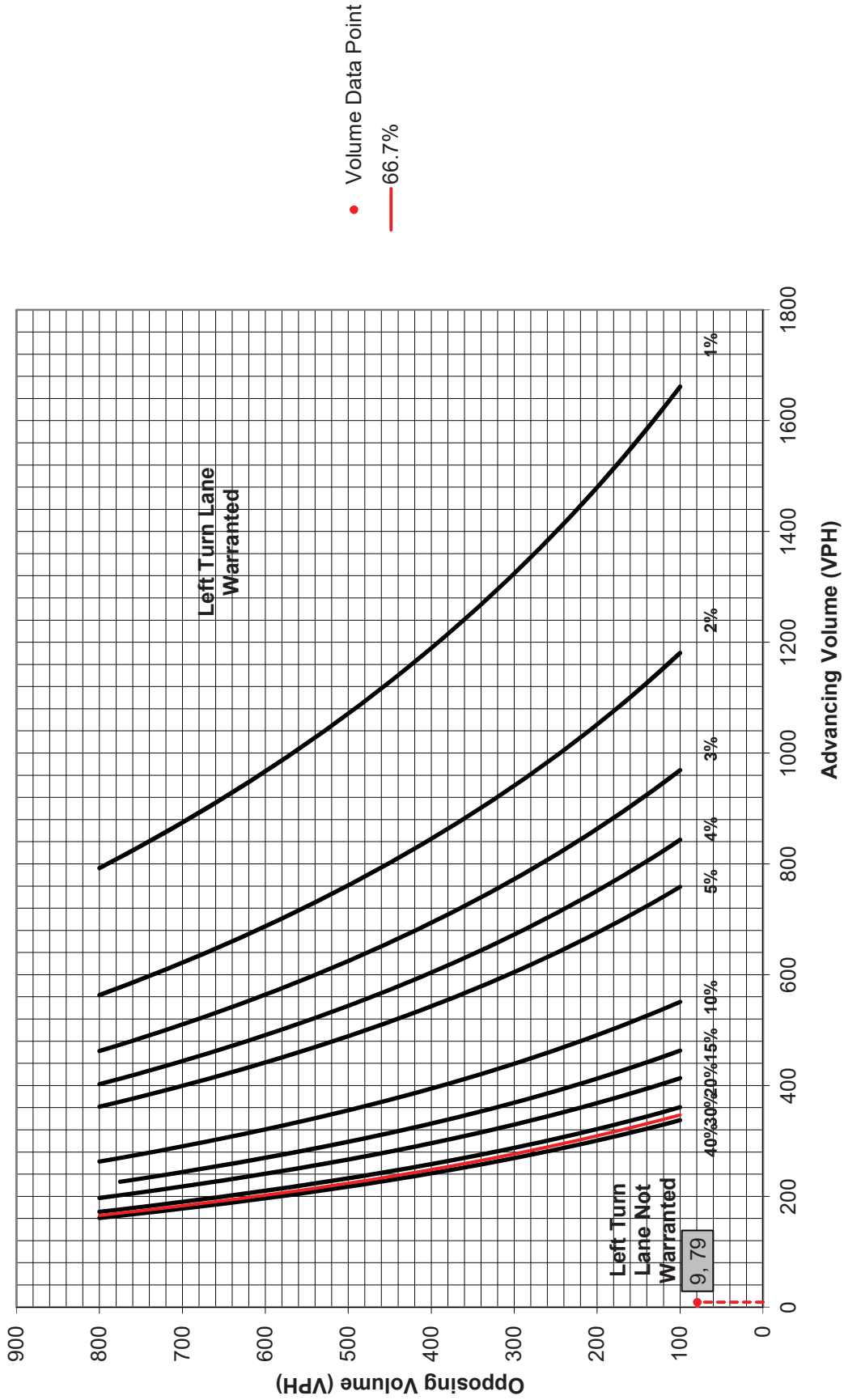
Type of Traffic Control	PennDOT Publication 46, Exhibit 11-6					
	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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: <input type="text" value="Plains Township"/>	Analysis Date: <input type="text" value="3/16/2018"/>
County: <input type="text" value="Luzerne County"/>	Conducted By: <input type="text" value="EJD"/>
PennDOT Engineering District: <input type="text" value="4"/>	Checked By: <input type="text" value="LSS"/>
	Agency/Company Name: <input type="text" value="Borton-Lawson"/>
Intersection & Approach Description: <input type="text" value="SR 2004 (River Street) & Waterfront Park Drive / Cross Valley Centre Drive Westbound Right"/>	
Analysis Period: <input type="text" value="2027 Build"/>	Number of Approach Lanes: <input type="text" value="1"/>
Design Hour: <input type="text" value="AM Peak Hour"/>	Undivided or Divided Highway: <input type="text" value="Undivided"/>
Intersection Control: <input type="text" value="Signalized"/>	
Posted Speed Limit (MPH): <input type="text" value="25"/>	Type of Analysis: <input type="text" value="Right Turn Lane"/>
Type of Terrain: <input type="text" value="Rolling"/>	Left or Right-Turn Lane Analysis?: <input type="text" value="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	Yes	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	0	0.0%	N/A

Advancing Volume:
 Opposing Volume:
 Left Turn Volume:
 % Left Turns in Advancing Volume:

Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	6	0.0%	6
	Through	-	0	0.0%	0
	Right	-	3	0.0%	3

Advancing Volume:
 Right Turn Volume:

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: <input type="text" value="N/A"/>	Applicable Warrant Figure: <input type="text" value="Figure 9"/>
Warrant Met?: <input type="text" value="N/A"/>	Warrant Met?: <input type="text" value="No"/>

TURN LANE LENGTH CALCULATIONS

Intersection Control: <input type="text" value="Signalized"/>	
Design Hour Volume of Turning Lane: <input type="text" value="3"/>	
Cycles Per Hour (Assumed): <input type="text" value="Known"/>	
Cycles Per Hour (If Known): <input type="text" value="30"/>	Average # of Vehicles/Cycle: <input type="text" value="N/A"/>

PennDOT Publication 46, Exhibit 11-6

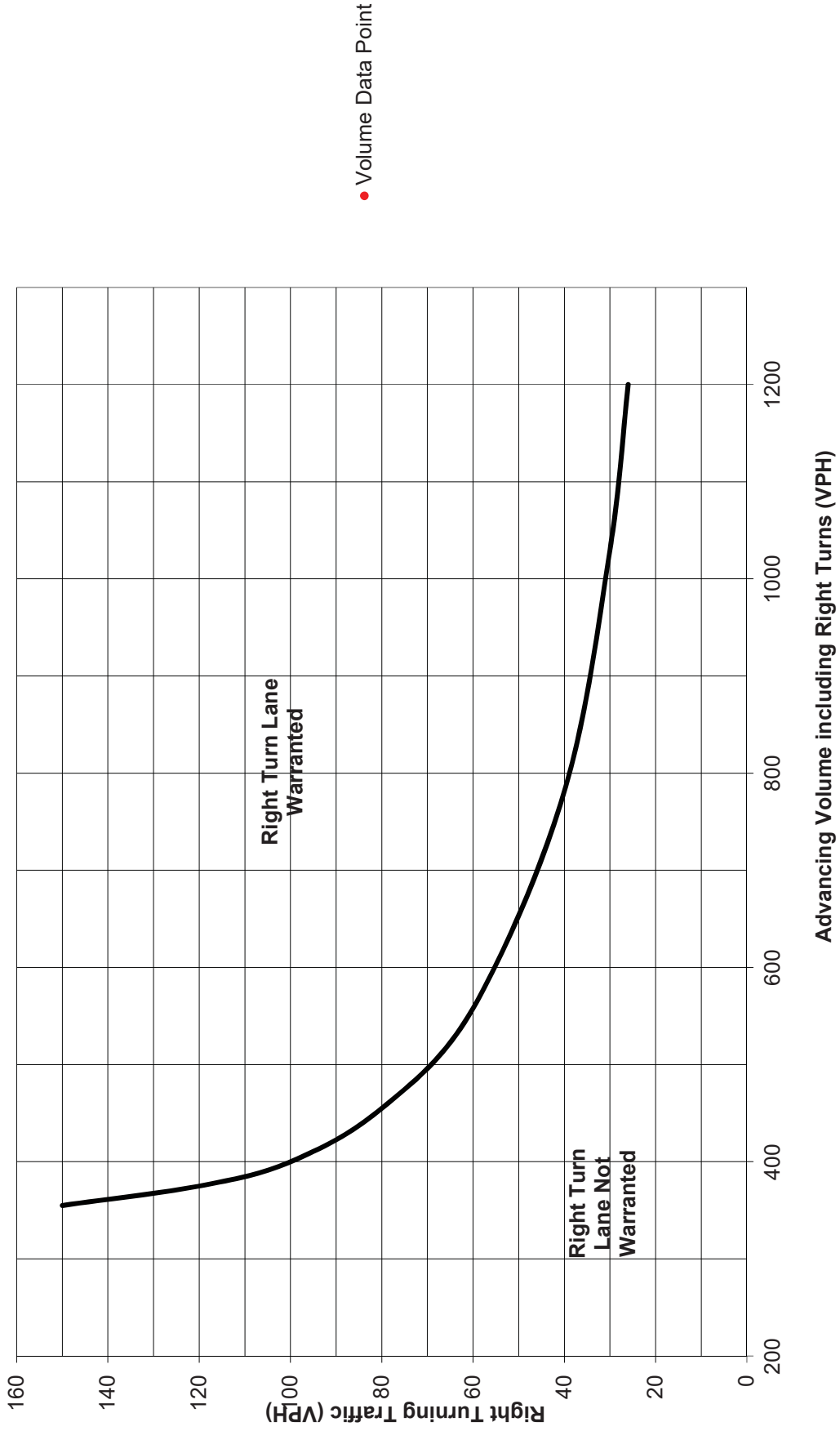
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A: Feet
 Condition B: Feet
 Condition C: Feet
 Required Right Turn Lane Storage Length: Feet

Additional Findings:

Additional Comments / Justifications:

**Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)**



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality: <input type="text" value="Plains Township"/>	Analysis Date: <input type="text" value="2/14/2018"/>
County: <input type="text" value="Luzerne County"/>	Conducted By: <input type="text" value="EJD"/>
PennDOT Engineering District: <input type="text" value="4"/>	Checked By: <input type="text"/>
	Agency/Company Name: <input type="text" value="Borton-Lawson"/>
Intersection & Approach Description: <input type="text" value="SR 2004 (River Street) & Waterfront Park Drive / Cross Valley Centre Drive Eastbound Left"/>	
Analysis Period: <input type="text" value="2027 Build"/>	Number of Approach Lanes: <input type="text" value="1"/>
Design Hour: <input type="text" value="PM Peak Hour"/>	Undivided or Divided Highway: <input type="text" value="Undivided"/>
Intersection Control: <input type="text" value="Signalized"/>	
Posted Speed Limit (MPH): <input type="text" value="25"/>	Type of Analysis: <input type="text" value="Left Turn Lane"/>
Type of Terrain: <input type="text" value="Rolling"/>	Left or Right-Turn Lane Analysis?: <input type="text" value="Left Turn Lane"/>

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	101	0.0%	101
	Through	-	1	0.0%	1
	Right	Yes	45	0.0%	45
Opposing	Left	Yes	8	0.0%	8
	Through	-	4	0.0%	4
	Right	Yes	20	0.0%	20

Advancing Volume:	<input type="text" value="147"/>
Opposing Volume:	<input type="text" value="32"/>
Left Turn Volume:	<input type="text" value="101"/>
% Left Turns in Advancing Volume: <input type="text" value="68.71%"/>	

Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	-	0	0.0%	N/A

Advancing Volume:	<input type="text" value="N/A"/>
Right Turn Volume:	<input type="text" value="N/A"/>

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: <input type="text" value="Figure 1"/>	Applicable Warrant Figure: <input type="text" value="N/A"/>
Warrant Met?: <input type="text" value="No"/>	Warrant Met?: <input type="text" value="N/A"/>

TURN LANE LENGTH CALCULATIONS

Intersection Control: <input type="text" value="Signalized"/>	
Design Hour Volume of Turning Lane: <input type="text" value="101"/>	
Cycles Per Hour (Assumed): <input type="text" value="Known"/>	
Cycles Per Hour (If Known): <input type="text" value="36"/>	Average # of Vehicles/Cycle: <input type="text" value="N/A"/>

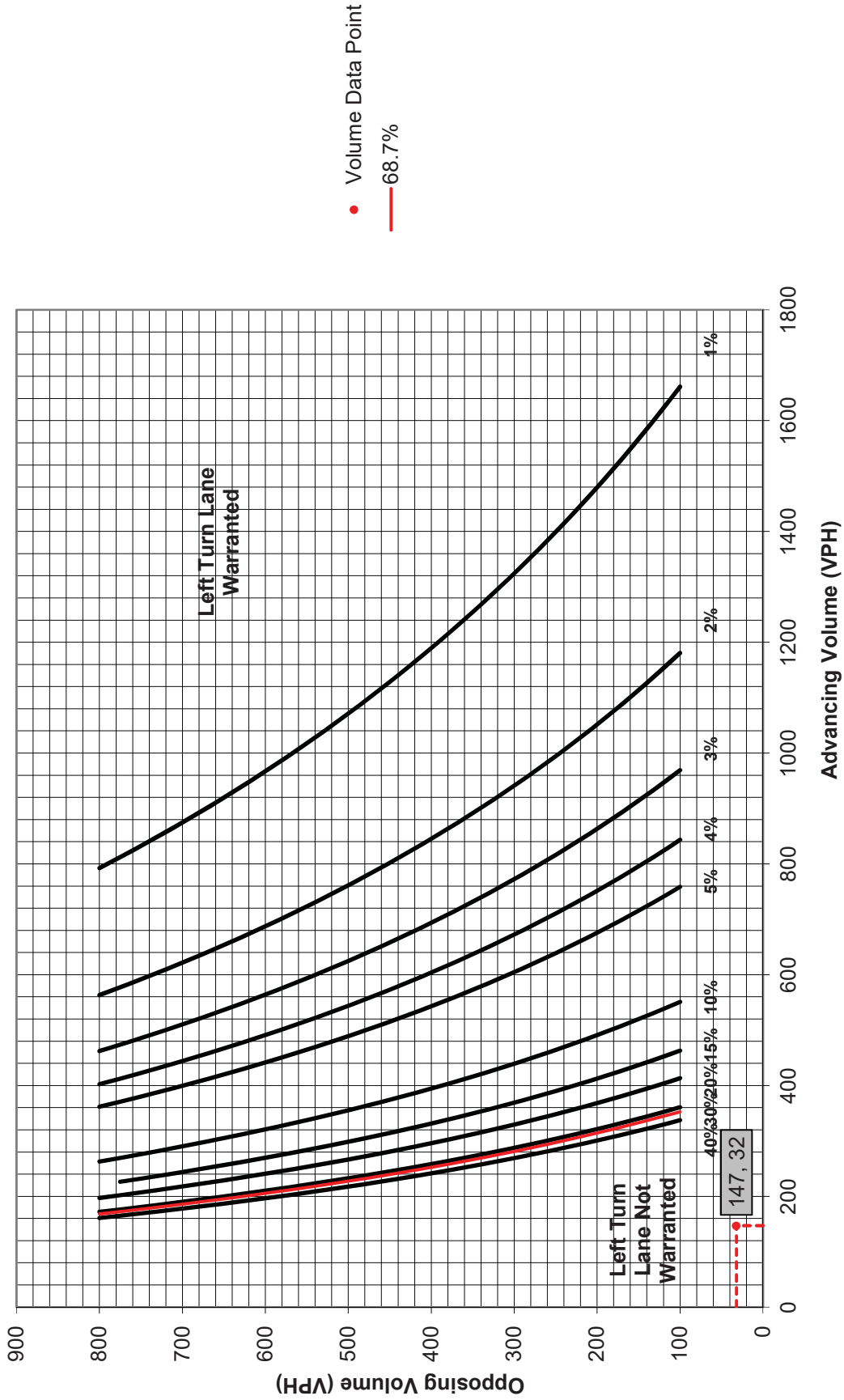
Type of Traffic Control	PennDOT Publication 46, Exhibit 11-6					
	Speed (MPH)					
	25-35		40-45		50-60	
Turn Demand Volume						
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	<input type="text" value="N/A"/>	Feet
Condition B:	<input type="text" value="N/A"/>	Feet
Condition C:	<input type="text" value="N/A"/>	Feet
Required Left Turn Lane Storage Length:	<input type="text" value="N/A"/>	Feet

Additional Findings:

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
 (speeds to 35 mph, unsignalized and signalized intersections)
 (L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality: Plains Township	Analysis Date: 3/16/2018
County: Luzerne County	Conducted By: EJD
PennDOT Engineering District: 4	Checked By: LSS
	Agency/Company Name: Borton-Lawson
Intersection & Approach Description: SR 2004 (River Street) & Waterfront Park Drive / Cross Valley Centre Drive Eastbound Right	
Analysis Period: 2027 Build	Number of Approach Lanes: 1
Design Hour: PM Peak Hour	Undivided or Divided Highway: Undivided
Intersection Control: Signalized	
Posted Speed Limit (MPH): 25	Type of Analysis
Type of Terrain: Rolling	Left or Right-Turn Lane Analysis?: Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	0	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	Yes	101	0.0%	101
	Through	-	1	0.0%	1
	Right	-	45	0.0%	45

Advancing Volume: 147
 Right Turn Volume: 45

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: N/A	Applicable Warrant Figure: Figure 9
Warrant Met?: N/A	Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control: Signalized	Average # of Vehicles/Cycle: N/A
Design Hour Volume of Turning Lane: 45	
Cycles Per Hour (Assumed): Known	
Cycles Per Hour (If Known): 36	

PennDOT Publication 46, Exhibit 11-6

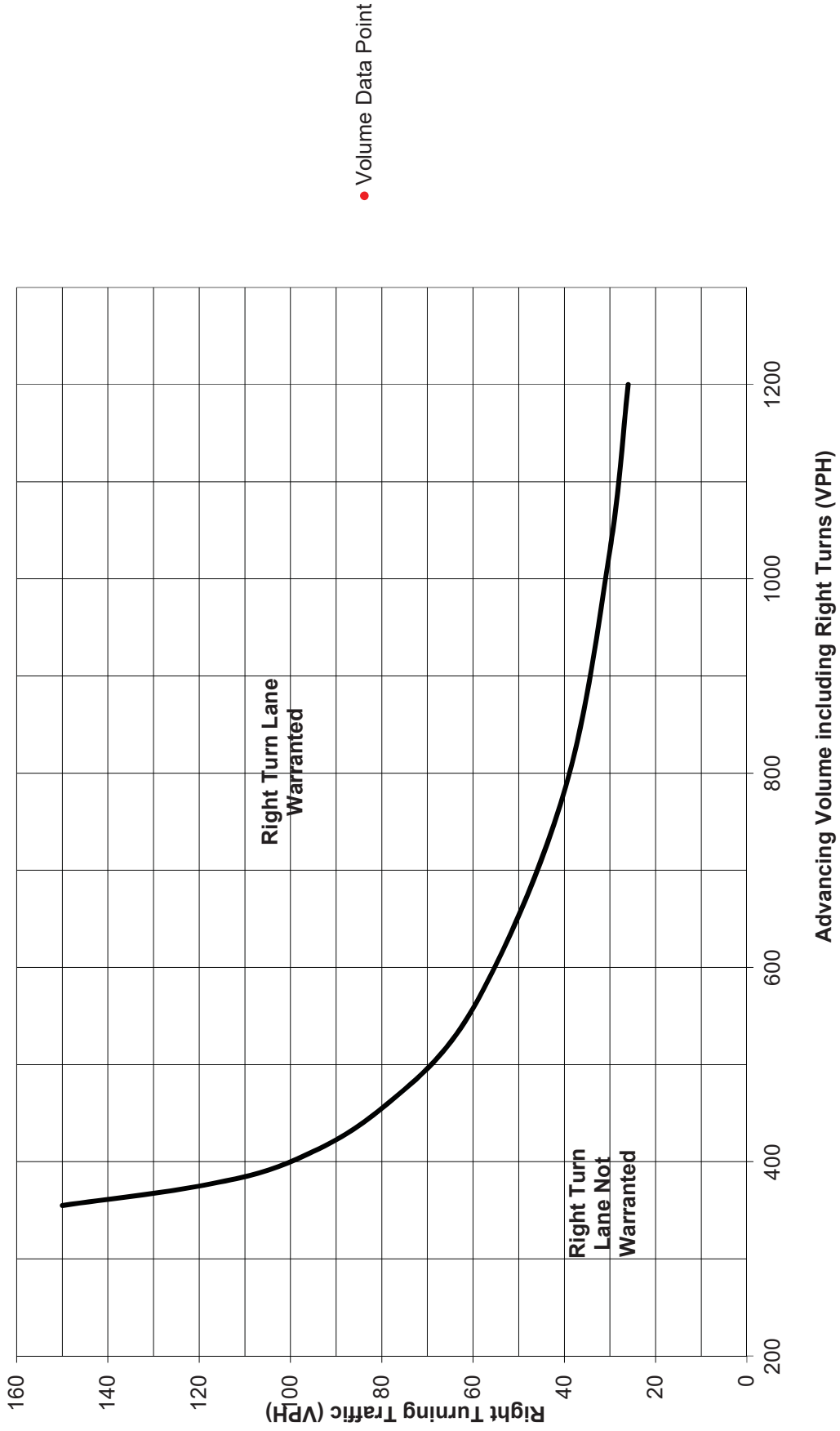
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A: N/A Feet
 Condition B: N/A Feet
 Condition C: N/A Feet
 Required Right Turn Lane Storage Length: N/A Feet

Additional Findings: N/A

Additional Comments / Justifications:

**Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)**



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality: <input type="text" value="Plains Township"/>	Analysis Date: <input type="text" value="2/14/2018"/>
County: <input type="text" value="Luzerne County"/>	Conducted By: <input type="text" value="EJD"/>
PennDOT Engineering District: <input type="text" value="4"/>	Checked By: <input type="text"/>
	Agency/Company Name: <input type="text" value="Borton-Lawson"/>
Intersection & Approach Description: <input type="text" value="SR 2004 (River Street) & Waterfront Park Drive / Cross Valley Centre Drive Northbound Left"/>	
Analysis Period: <input type="text" value="2027 Build"/>	Number of Approach Lanes: <input type="text" value="1"/>
Design Hour: <input type="text" value="PM Peak Hour"/>	Undivided or Divided Highway: <input type="text" value="Undivided"/>
Intersection Control: <input type="text" value="Signalized"/>	
Posted Speed Limit (MPH): <input type="text" value="35"/>	Type of Analysis: <input type="text" value="Left Turn Lane"/>
Type of Terrain: <input type="text" value="Rolling"/>	Left or Right-Turn Lane Analysis?: <input type="text" value="Left Turn Lane"/>

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	23	0.0%	23
	Through	-	1050	1.0%	1066
	Right	Yes	8	0.0%	8
Opposing	Left	Yes	7	0.0%	7
	Through	-	715	2.0%	737
	Right	Yes	57	0.0%	57

Advancing Volume:	<input type="text" value="1097"/>
Opposing Volume:	<input type="text" value="801"/>
Left Turn Volume:	<input type="text" value="23"/>
% Left Turns in Advancing Volume: <input type="text" value="2.10%"/>	

Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	-	0	0.0%	N/A

Advancing Volume:	<input type="text" value="N/A"/>
Right Turn Volume:	<input type="text" value="N/A"/>

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: <input type="text" value="Figure 1"/>	Applicable Warrant Figure: <input type="text" value="N/A"/>
Warrant Met?: <input type="text" value="Yes"/>	Warrant Met?: <input type="text" value="N/A"/>

TURN LANE LENGTH CALCULATIONS

Intersection Control: <input type="text" value="Signalized"/>	
Design Hour Volume of Turning Lane: <input type="text" value="23"/>	
Cycles Per Hour (Assumed): <input type="text" value="Known"/>	
Cycles Per Hour (If Known): <input type="text" value="36"/>	Average # of Vehicles/Cycle: <input type="text" value="1.0"/>

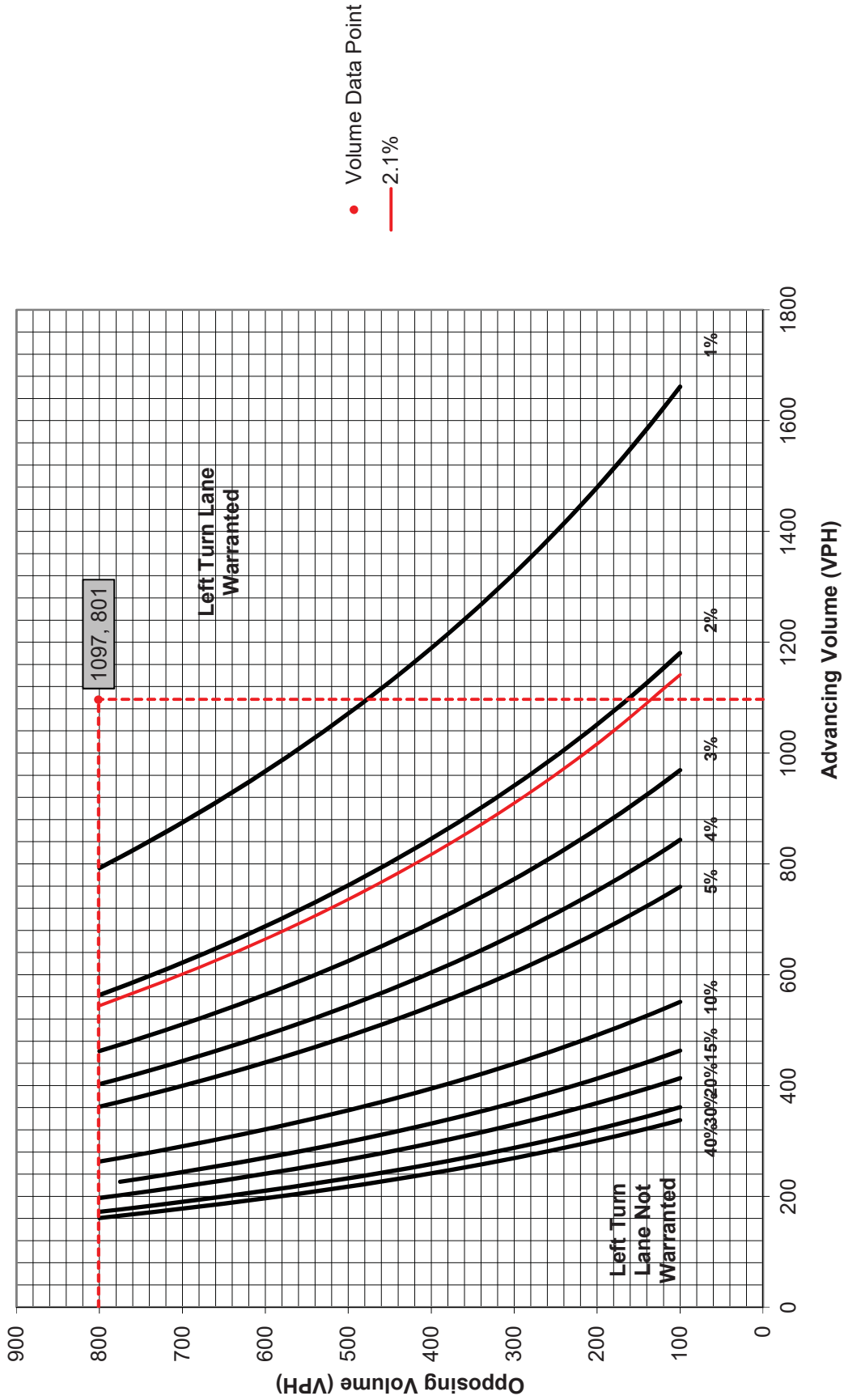
Type of Traffic Control	PennDOT Publication 46, Exhibit 11-6					
	Speed (MPH)					
	25-35		40-45		50-60	
Turn Demand Volume						
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	<input type="text" value="0"/>	Feet
Condition B:	<input type="text" value="N/A"/>	Feet
Condition C:	<input type="text" value="N/A"/>	Feet
Required Left Turn Lane Storage Length:	<input type="text" value="0"/>	Feet

Additional Findings:

Additional Comments / Justifications:

**Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)**
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality: Plains Township	Analysis Date: 3/16/2018
County: Luzerne County	Conducted By: EJD
PennDOT Engineering District: 4	Checked By: LSS
	Agency/Company Name: Borton-Lawson
Intersection & Approach Description: SR 2004 (River Street) & Waterfront Park Drive / Cross Valley Centre Drive Northbound Right	
Analysis Period: 2027 Build	Number of Approach Lanes: 1
Design Hour: PM Peak Hour	Undivided or Divided Highway: Undivided
Intersection Control: Signalized	
Posted Speed Limit (MPH): 35	Type of Analysis
Type of Terrain: Rolling	Left or Right-Turn Lane Analysis?: Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	0	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	Yes	23	0.0%	23
	Through	-	1050	1.0%	1066
	Right	-	8	0.0%	8

Advancing Volume:	1097
Right Turn Volume:	8

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: N/A	Applicable Warrant Figure: Figure 9
Warrant Met?: N/A	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): 36	Average # of Vehicles/Cycle: N/A

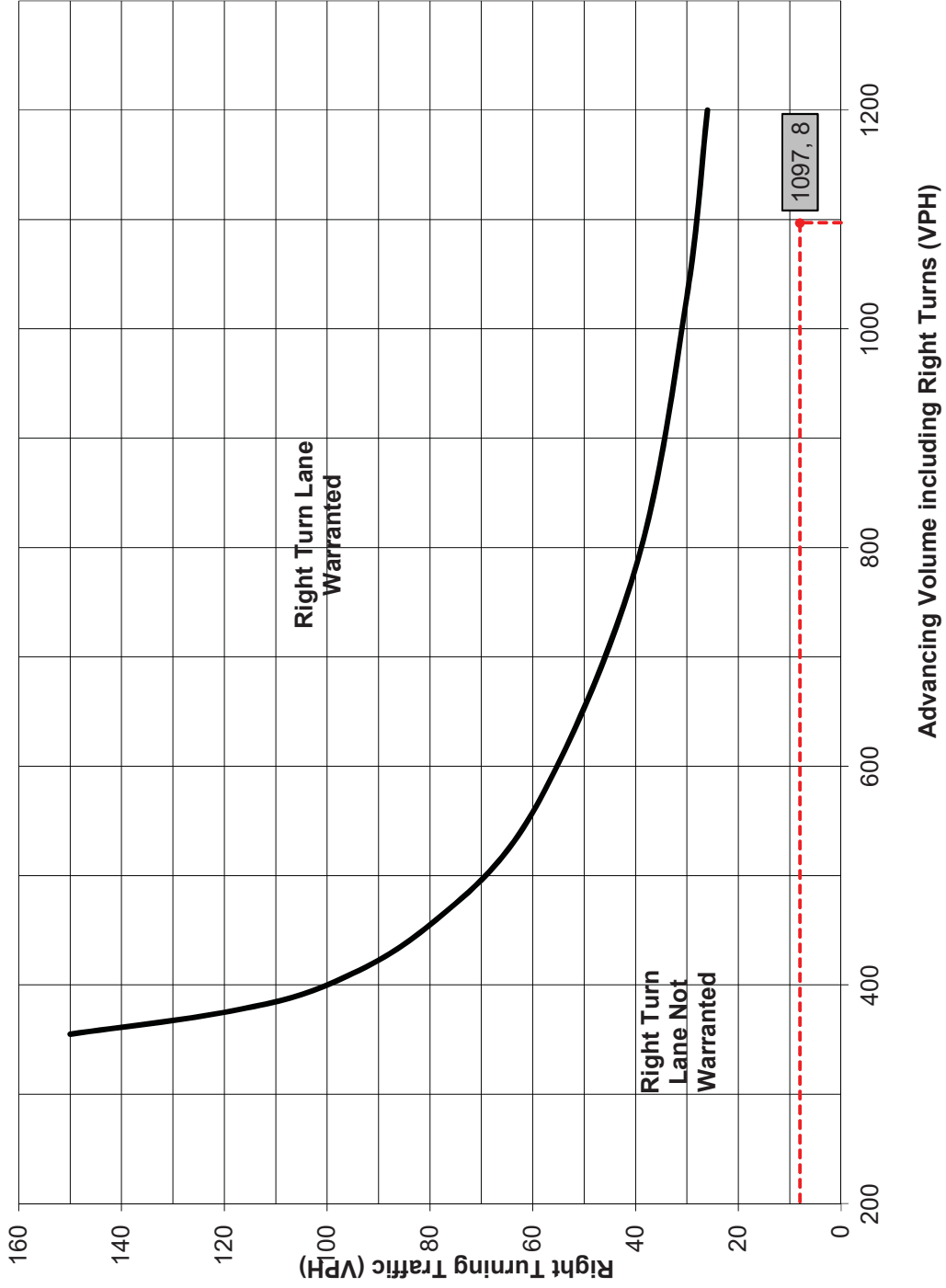
Type of Traffic Control	PennDOT Publication 46, Exhibit 11-6					
	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings:
N/A

Additional Comments / Justifications:

**Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)**



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality: <input type="text" value="Plains Township"/>	Analysis Date: <input type="text" value="2/14/2018"/>
County: <input type="text" value="Luzerne County"/>	Conducted By: <input type="text" value="EJD"/>
PennDOT Engineering District: <input type="text" value="4"/>	Checked By: <input type="text"/>
	Agency/Company Name: <input type="text" value="Borton-Lawson"/>
Intersection & Approach Description: <input type="text" value="SR 2004 (River Street) & Waterfront Park Drive / Cross Valley Centre Drive Southbound Left"/>	
Analysis Period: <input type="text" value="2027 Build"/>	Number of Approach Lanes: <input type="text" value="1"/>
Design Hour: <input type="text" value="PM Peak Hour"/>	Undivided or Divided Highway: <input type="text" value="Undivided"/>
Intersection Control: <input type="text" value="Signalized"/>	
Posted Speed Limit (MPH): <input type="text" value="35"/>	Type of Analysis: <input type="text" value="Left Turn Lane"/>
Type of Terrain: <input type="text" value="Rolling"/>	Left or Right-Turn Lane Analysis?: <input type="text" value="Left Turn Lane"/>

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	7	0.0%	7
	Through	-	715	2.0%	737
	Right	Yes	57	0.0%	57
Opposing	Left	Yes	23	0.0%	23
	Through	-	1050	1.0%	1066
	Right	Yes	8	0.0%	8

Advancing Volume:	<input type="text" value="801"/>
Opposing Volume:	<input type="text" value="1097"/>
Left Turn Volume:	<input type="text" value="7"/>
% Left Turns in Advancing Volume: <input type="text" value="0.87%"/>	

Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	-	0	0.0%	N/A

Advancing Volume:	<input type="text" value="N/A"/>
Right Turn Volume:	<input type="text" value="N/A"/>

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: <input type="text" value="Figure 1"/>	Applicable Warrant Figure: <input type="text" value="N/A"/>
Warrant Met?: <input type="text" value="Yes"/>	Warrant Met?: <input type="text" value="N/A"/>

TURN LANE LENGTH CALCULATIONS

Intersection Control: <input type="text" value="Signalized"/>	
Design Hour Volume of Turning Lane: <input type="text" value="7"/>	
Cycles Per Hour (Assumed): <input type="text" value="Known"/>	
Cycles Per Hour (If Known): <input type="text" value="36"/>	Average # of Vehicles/Cycle: <input type="text" value="1.0"/>

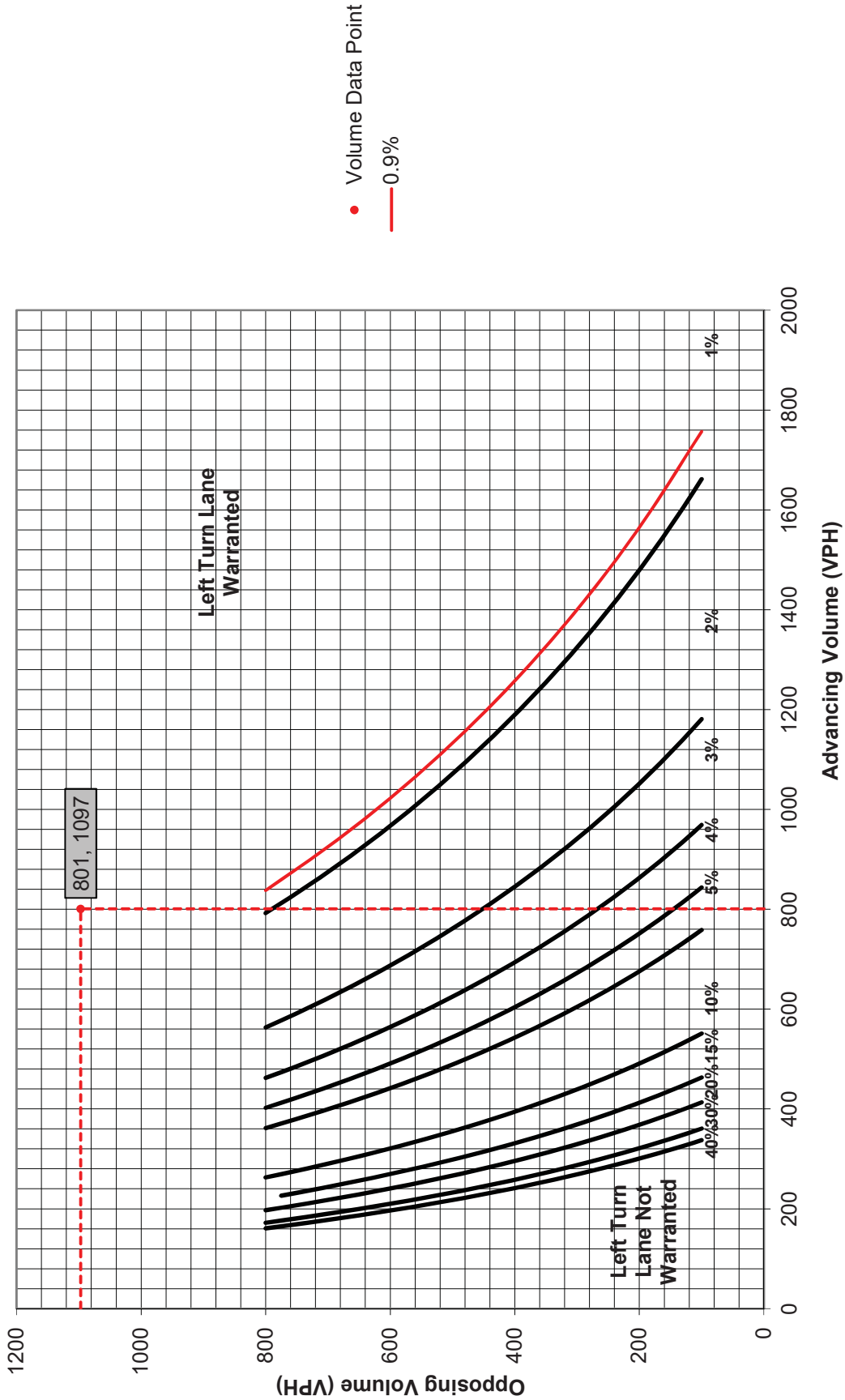
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	<input type="text" value="0"/>	Feet
Condition B:	<input type="text" value="N/A"/>	Feet
Condition C:	<input type="text" value="N/A"/>	Feet
Required Left Turn Lane Storage Length:	<input type="text" value="0"/>	Feet

Additional Findings:

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
 (speeds to 35 mph, unsignalized and signalized intersections)
 (L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality: <input type="text" value="Plains Township"/>	Analysis Date: <input type="text" value="3/16/2018"/>
County: <input type="text" value="Luzerne County"/>	Conducted By: <input type="text" value="EJD"/>
PennDOT Engineering District: <input type="text" value="4"/>	Checked By: <input type="text" value="LSS"/>
	Agency/Company Name: <input type="text" value="Borton-Lawson"/>
Intersection & Approach Description: <input type="text" value="SR 2004 (River Street) & Waterfront Park Drive / Cross Valley Centre Drive Southbound Right"/>	
Analysis Period: <input type="text" value="2027 Build"/>	Number of Approach Lanes: <input type="text" value="1"/>
Design Hour: <input type="text" value="PM Peak Hour"/>	Undivided or Divided Highway: <input type="text" value="Undivided"/>
Intersection Control: <input type="text" value="Signalized"/>	
Posted Speed Limit (MPH): <input type="text" value="35"/>	Type of Analysis: <input type="text" value="Right Turn Lane"/>
Type of Terrain: <input type="text" value="Rolling"/>	Left or Right-Turn Lane Analysis?: <input type="text" value="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	Yes	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	0	0.0%	N/A

Advancing Volume: <input type="text" value="N/A"/>
Opposing Volume: <input type="text" value="N/A"/>
Left Turn Volume: <input type="text" value="N/A"/>
% Left Turns in Advancing Volume: <input type="text" value="N/A"/>

Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	7	0.0%	7
	Through	-	715	2.0%	737
	Right	-	57	0.0%	57

Advancing Volume: <input type="text" value="801"/>
Right Turn Volume: <input type="text" value="57"/>

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: <input type="text" value="N/A"/>	Applicable Warrant Figure: <input type="text" value="Figure 9"/>
Warrant Met?: <input type="text" value="N/A"/>	Warrant Met?: <input type="text" value="Yes"/>

TURN LANE LENGTH CALCULATIONS

Intersection Control: <input type="text" value="Signalized"/>	
Design Hour Volume of Turning Lane: <input type="text" value="57"/>	
Cycles Per Hour (Assumed): <input type="text" value="Known"/>	
Cycles Per Hour (If Known): <input type="text" value="36"/>	Average # of Vehicles/Cycle: <input type="text" value="2.0"/>

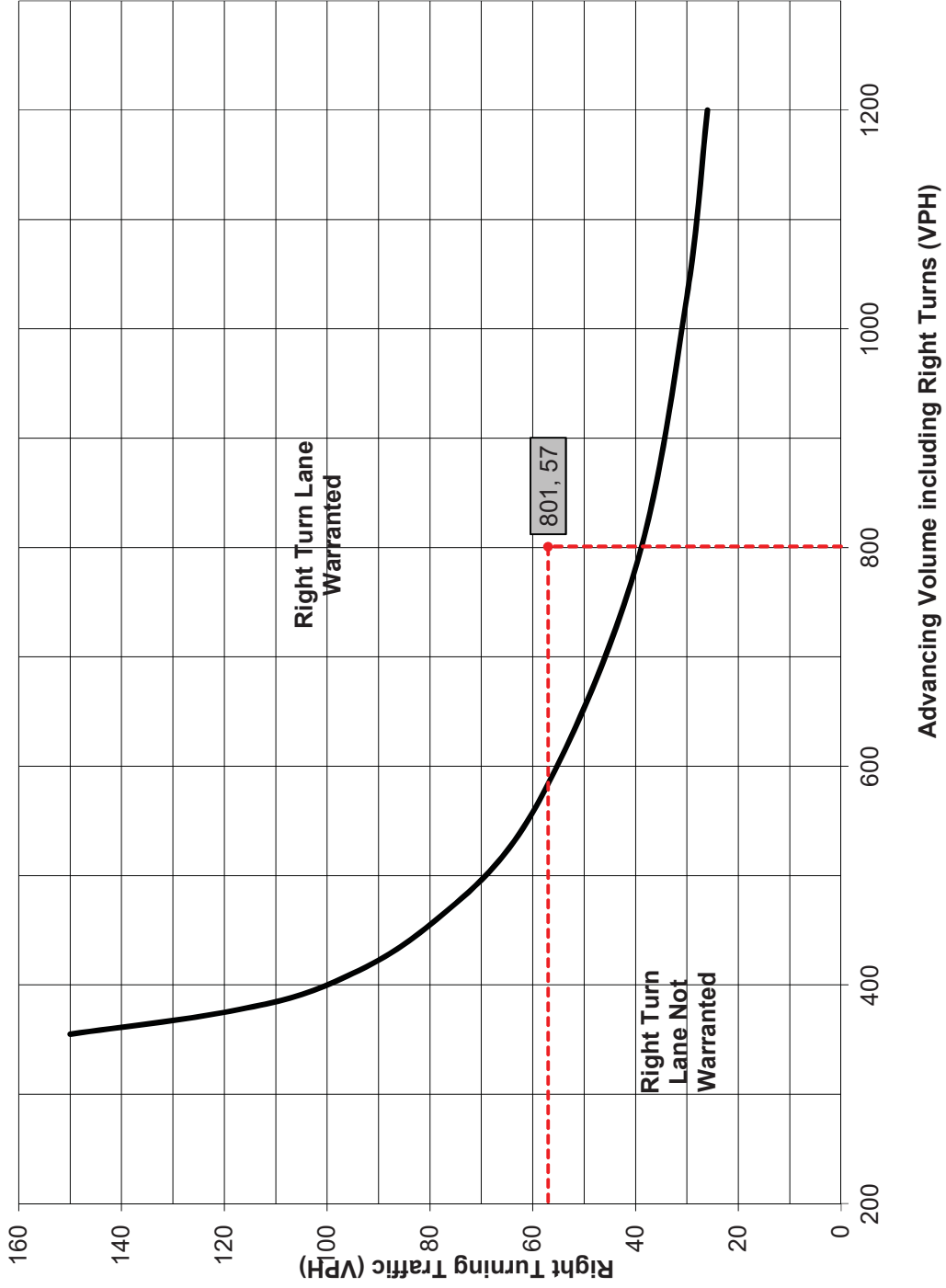
Type of Traffic Control	PennDOT Publication 46, Exhibit 11-6					
	Speed (MPH)					
	25-35		40-45		50-60	
Turn Demand Volume						
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	<input type="text" value="0"/>	Feet
Condition B:	<input type="text" value="N/A"/>	Feet
Condition C:	<input type="text" value="N/A"/>	Feet
Required Right Turn Lane Storage Length:	<input type="text" value="0"/>	Feet

Additional Findings:

Additional Comments / Justifications:

**Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)**



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Plains Township	Analysis Date:	2/14/2018
County:	Luzerne County	Conducted By:	EJD
PennDOT Engineering District:	4	Checked By:	
		Agency/Company Name:	Borton-Lawson
Intersection & Approach Description: SR 2004 (River Street) & Waterfront Park Drive / Cross Valley Centre Drive Westbound Left			
Analysis Period:	2027 Build	Number of Approach Lanes:	1
Design Hour:	PM Peak Hour	Undivided or Divided Highway:	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25	Type of Analysis	
Type of Terrain:	Rolling	Left or Right-Turn Lane Analysis?:	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	8	0.0%	8
	Through	-	4	0.0%	4
	Right	Yes	20	0.0%	20
Opposing	Left	Yes	101	0.0%	101
	Through	-	1	0.0%	1
	Right	Yes	45	0.0%	45

Advancing Volume:	32
Opposing Volume:	147
Left Turn Volume:	8
% Left Turns in Advancing Volume: 25.00%	

Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	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	Right Turn Lane Warrant Findings
Applicable Warrant Figure: Figure 1	Applicable Warrant Figure: N/A
Warrant Met?: No	Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized	Average # of Vehicles/Cycle:	N/A
Design Hour Volume of Turning Lane:	8		
Cycles Per Hour (Assumed):	Known		
Cycles Per Hour (If Known):	36		

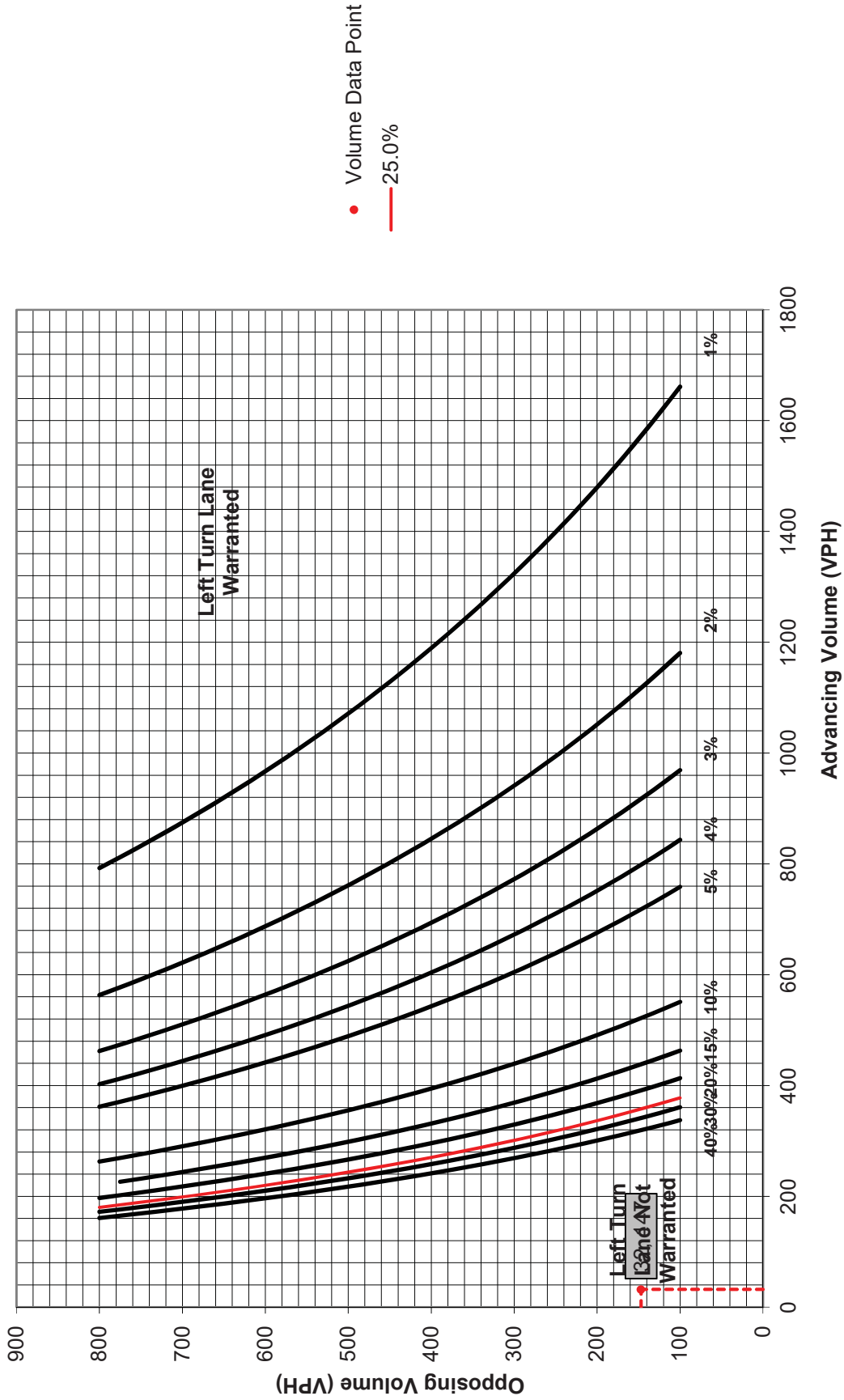
Type of Traffic Control	PennDOT Publication 46, Exhibit 11-6					
	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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: <input type="text" value="Plains Township"/>	Analysis Date: <input type="text" value="3/16/2018"/>
County: <input type="text" value="Luzerne County"/>	Conducted By: <input type="text" value="EJD"/>
PennDOT Engineering District: <input type="text" value="4"/>	Checked By: <input type="text" value="LSS"/>
	Agency/Company Name: <input type="text" value="Borton-Lawson"/>
Intersection & Approach Description: <input type="text" value="SR 2004 (River Street) & Waterfront Park Drive / Cross Valley Centre Drive Westbound Right"/>	
Analysis Period: <input type="text" value="2027 Build"/>	Number of Approach Lanes: <input type="text" value="1"/>
Design Hour: <input type="text" value="PM Peak Hour"/>	Undivided or Divided Highway: <input type="text" value="Undivided"/>
Intersection Control: <input type="text" value="Signalized"/>	
Posted Speed Limit (MPH): <input type="text" value="25"/>	Type of Analysis: <input type="text" value="Right Turn Lane"/>
Type of Terrain: <input type="text" value="Rolling"/>	Left or Right-Turn Lane Analysis?: <input type="text" value="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	Yes	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	0	0.0%	N/A

Advancing Volume:	<input type="text" value="N/A"/>
Opposing Volume:	<input type="text" value="N/A"/>
Left Turn Volume:	<input type="text" value="N/A"/>
% Left Turns in Advancing Volume:	
	<input type="text" value="N/A"/>

Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	8	0.0%	8
	Through	-	4	0.0%	4
	Right	-	20	0.0%	20

Advancing Volume:	<input type="text" value="32"/>
Right Turn Volume:	<input type="text" value="20"/>

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: <input type="text" value="N/A"/>	Applicable Warrant Figure: <input type="text" value="Figure 9"/>
Warrant Met?: <input type="text" value="N/A"/>	Warrant Met?: <input type="text" value="No"/>

TURN LANE LENGTH CALCULATIONS

Intersection Control: <input type="text" value="Signalized"/>	
Design Hour Volume of Turning Lane: <input type="text" value="20"/>	
Cycles Per Hour (Assumed): <input type="text" value="Known"/>	
Cycles Per Hour (If Known): <input type="text" value="36"/>	Average # of Vehicles/Cycle: <input type="text" value="N/A"/>

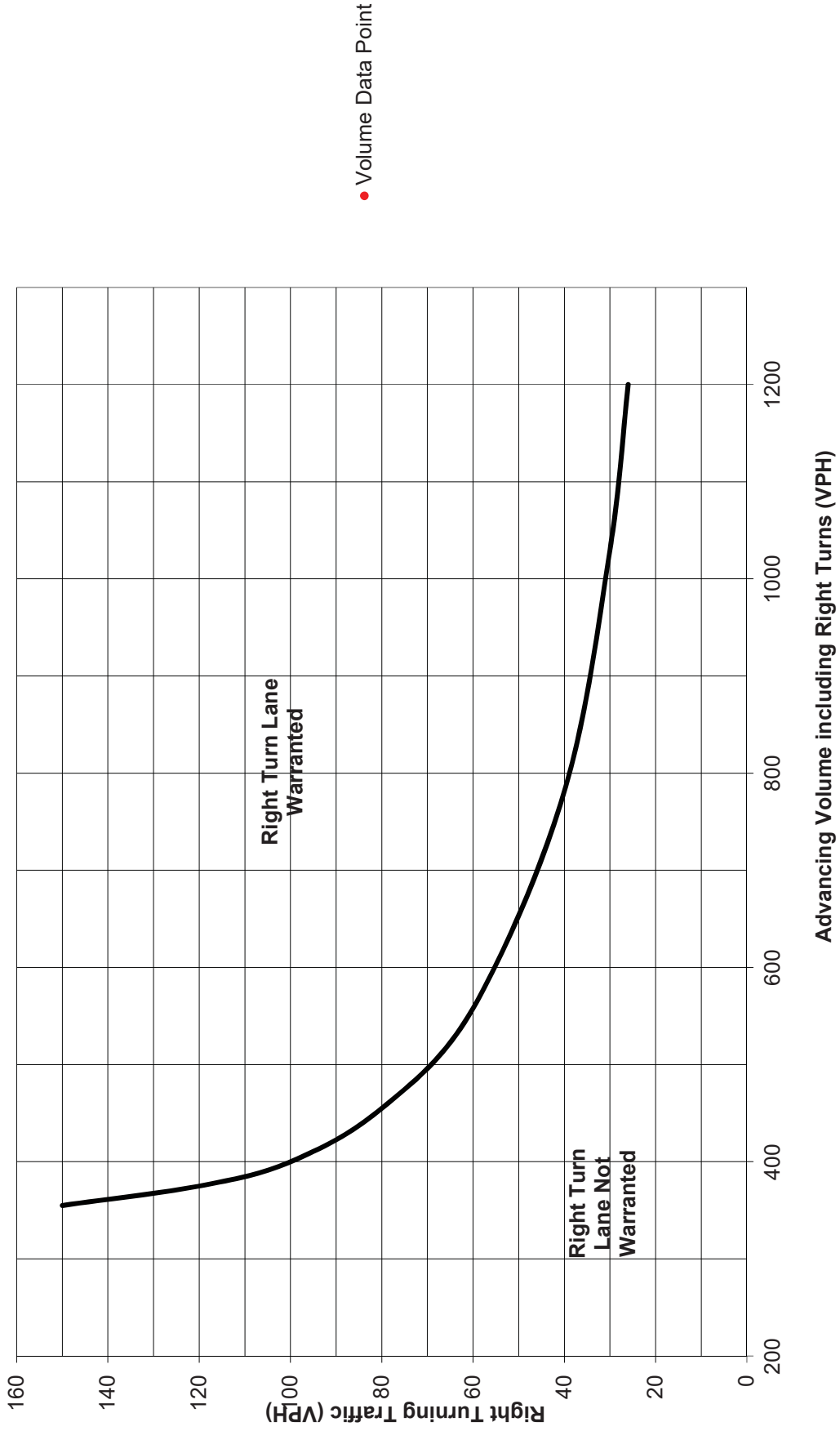
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	<input type="text" value="N/A"/>	Feet
Condition B:	<input type="text" value="N/A"/>	Feet
Condition C:	<input type="text" value="N/A"/>	Feet
Required Right Turn Lane Storage Length:	<input type="text" value="N/A"/>	Feet

Additional Findings:

Additional Comments / Justifications:

**Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)**



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality: <input type="text" value="Plains Township"/>	Analysis Date: <input type="text" value="2/14/2018"/>
County: <input type="text" value="Luzerne County"/>	Conducted By: <input type="text" value="EJD"/>
PennDOT Engineering District: <input type="text" value="4"/>	Checked By: <input type="text"/>
	Agency/Company Name: <input type="text" value="Borton-Lawson"/>
Intersection & Approach Description: <input type="text" value="SR 2004 (River Street) & Ramp AA / Ramp CC Eastbound Left"/>	
Analysis Period: <input type="text" value="2027 Build"/>	Number of Approach Lanes: <input type="text" value="1"/>
Design Hour: <input type="text" value="AM Peak Hour"/>	Undivided or Divided Highway: <input type="text" value="Undivided"/>
Intersection Control: <input type="text" value="Signalized"/>	
Posted Speed Limit (MPH): <input type="text" value="25"/>	Type of Analysis: <input type="text" value="Left Turn Lane"/>
Type of Terrain: <input type="text" value="Rolling"/>	Left or Right-Turn Lane Analysis?: <input type="text" value="Left Turn Lane"/>

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	305	2.0%	315
	Through	-	1	0.0%	1
	Right	Yes	440	1.0%	447
Opposing	Left	Yes	0	0.0%	0
	Through	-	1	0.0%	1
	Right	Yes	0	0.0%	0

Advancing Volume:	<input type="text" value="763"/>
Opposing Volume:	<input type="text" value="1"/>
Left Turn Volume:	<input type="text" value="315"/>
% Left Turns in Advancing Volume: <input type="text" value="41.28%"/>	

Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	-	0	0.0%	N/A

Advancing Volume:	<input type="text" value="N/A"/>
Right Turn Volume:	<input type="text" value="N/A"/>

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: <input type="text" value="Figure 1"/>	Applicable Warrant Figure: <input type="text" value="N/A"/>
Warrant Met?: <input type="text" value="No"/>	Warrant Met?: <input type="text" value="N/A"/>

TURN LANE LENGTH CALCULATIONS

Intersection Control: <input type="text" value="Signalized"/>	
Design Hour Volume of Turning Lane: <input type="text" value="315"/>	
Cycles Per Hour (Assumed): <input type="text" value="Known"/>	
Cycles Per Hour (If Known): <input type="text" value="40"/>	Average # of Vehicles/Cycle: <input type="text" value="N/A"/>

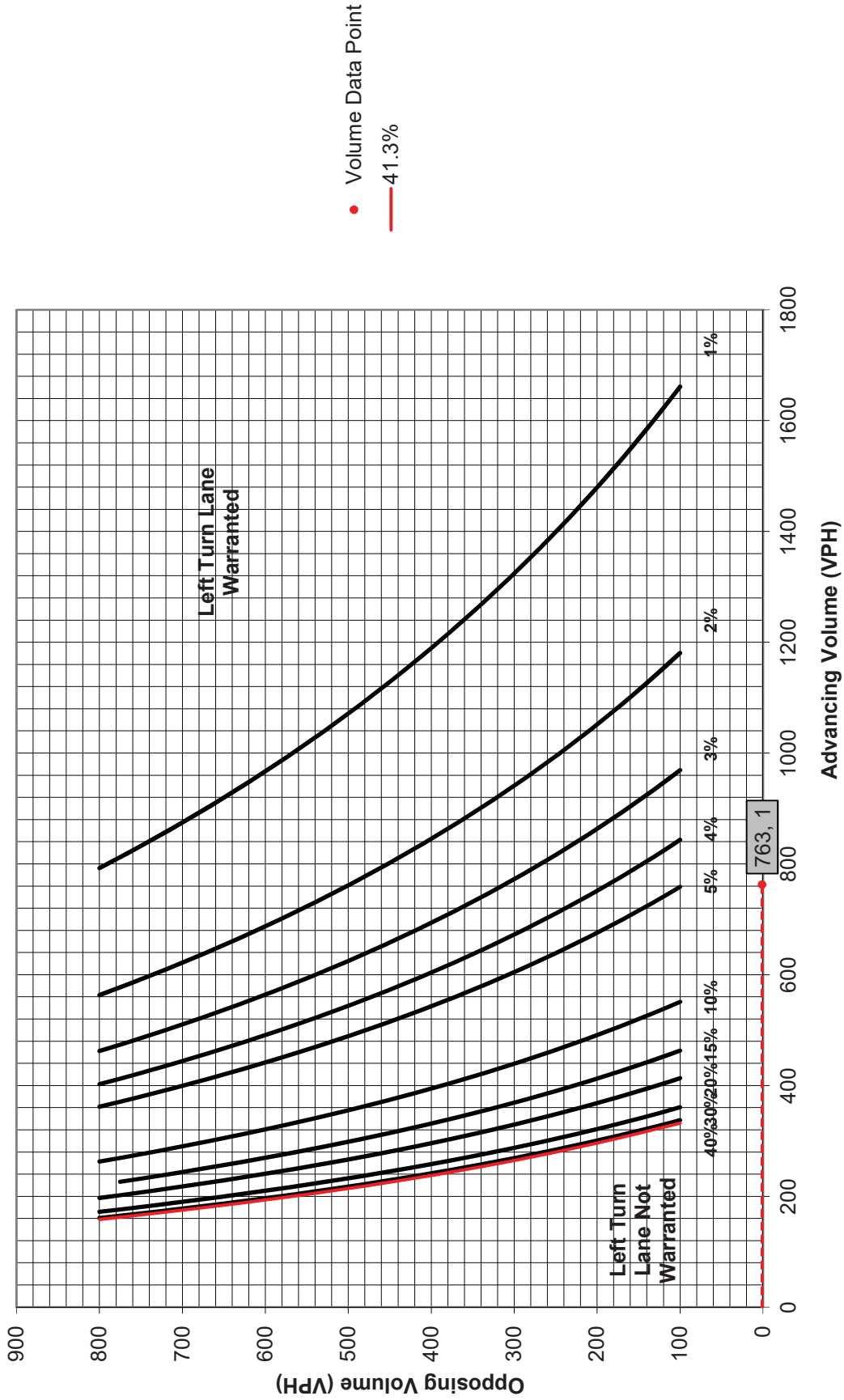
Type of Traffic Control	PennDOT Publication 46, Exhibit 11-6					
	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	<input type="text" value="N/A"/>	Feet
Condition B:	<input type="text" value="N/A"/>	Feet
Condition C:	<input type="text" value="N/A"/>	Feet
Required Left Turn Lane Storage Length:	<input type="text" value="N/A"/>	Feet

Additional Findings:

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
 (speeds to 35 mph, unsignalized and signalized intersections)
 (L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality: <input type="text" value="Plains Township"/>	Analysis Date: <input type="text" value="3/16/2018"/>
County: <input type="text" value="Luzerne County"/>	Conducted By: <input type="text" value="EJD"/>
PennDOT Engineering District: <input type="text" value="4"/>	Checked By: <input type="text" value="LSS"/>
	Agency/Company Name: <input type="text" value="Borton-Lawson"/>
Intersection & Approach Description: <input type="text" value="SR 2004 (River Street) & Ramp AA / Ramp CC
Eastbound Right"/>	
Analysis Period: <input type="text" value="2027 Build"/>	Number of Approach Lanes: <input type="text" value="1"/>
Design Hour: <input type="text" value="PM Peak Hour"/>	Undivided or Divided Highway: <input type="text" value="Undivided"/>
Intersection Control: <input type="text" value="Signalized"/>	
Posted Speed Limit (MPH): <input type="text" value="25"/>	Type of Analysis: <input type="text" value="Right Turn Lane"/>
Type of Terrain: <input type="text" value="Rolling"/>	Left or Right-Turn Lane Analysis?: <input type="text" value="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	Yes	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	0	0.0%	N/A

Advancing Volume:
 Opposing Volume:
 Left Turn Volume:
 % Left Turns in Advancing Volume:

Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	305	2.0%	315
	Through	-	1	0.0%	1
	Right	-	440	1.0%	447

Advancing Volume:
 Right Turn Volume:

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: <input type="text" value="N/A"/>	Applicable Warrant Figure: <input type="text" value="Figure 9"/>
Warrant Met?: <input type="text" value="N/A"/>	Warrant Met?: <input type="text" value="Yes"/>

TURN LANE LENGTH CALCULATIONS

Intersection Control: <input type="text" value="Signalized"/>	
Design Hour Volume of Turning Lane: <input type="text" value="447"/>	
Cycles Per Hour (Assumed): <input type="text" value="Known"/>	
Cycles Per Hour (If Known): <input type="text" value="40"/>	Average # of Vehicles/Cycle: <input type="text" value="11.0"/>

PennDOT Publication 46, Exhibit 11-6

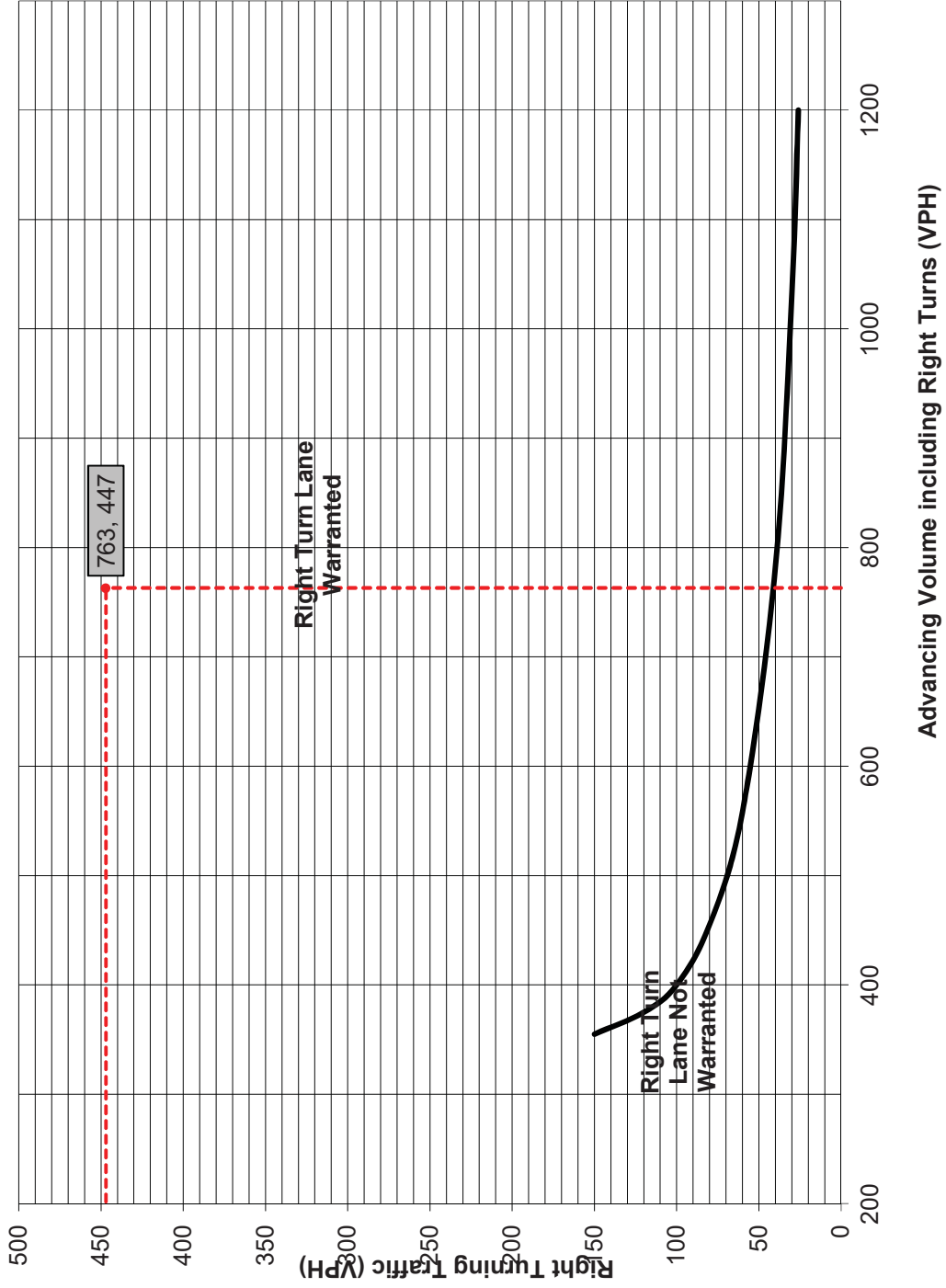
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	<input type="text" value="400"/>	Feet
Condition B:	<input type="text" value="N/A"/>	Feet
Condition C:	<input type="text" value="N/A"/>	Feet
Required Right Turn Lane Storage Length:	<input type="text" value="400"/>	Feet

Additional Findings:

Additional Comments / Justifications:

**Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)**



• Volume Data Point

Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality: Plains Township	Analysis Date: 3/16/2018
County: Luzerne County	Conducted By: EJD
PennDOT Engineering District: 4	Checked By: LSS
	Agency/Company Name: Borton-Lawson
Intersection & Approach Description: SR 2004 (River Street) & Ramp AA / Ramp CC Northbound Right	
Analysis Period: 2027 Build	Number of Approach Lanes: 2
Design Hour: AM Peak Hour	Undivided or Divided Highway: Divided
Intersection Control: Signalized	
Posted Speed Limit (MPH): 35	Type of Analysis
Type of Terrain: Rolling	Left or Right-Turn Lane Analysis?: Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	0	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	Yes	0	0.0%	0
	Through	-	480	5.0%	516
	Right	-	196	2.0%	202

Advancing Volume: 718
 Right Turn Volume: 202

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: N/A	Applicable Warrant Figure: Figure 11
Warrant Met?: N/A	Warrant Met?: Yes

TURN LANE LENGTH CALCULATIONS

Intersection Control: Signalized	Average # of Vehicles/Cycle: 5.0
Design Hour Volume of Turning Lane: 202	
Cycles Per Hour (Assumed): Known	
Cycles Per Hour (If Known): 40	

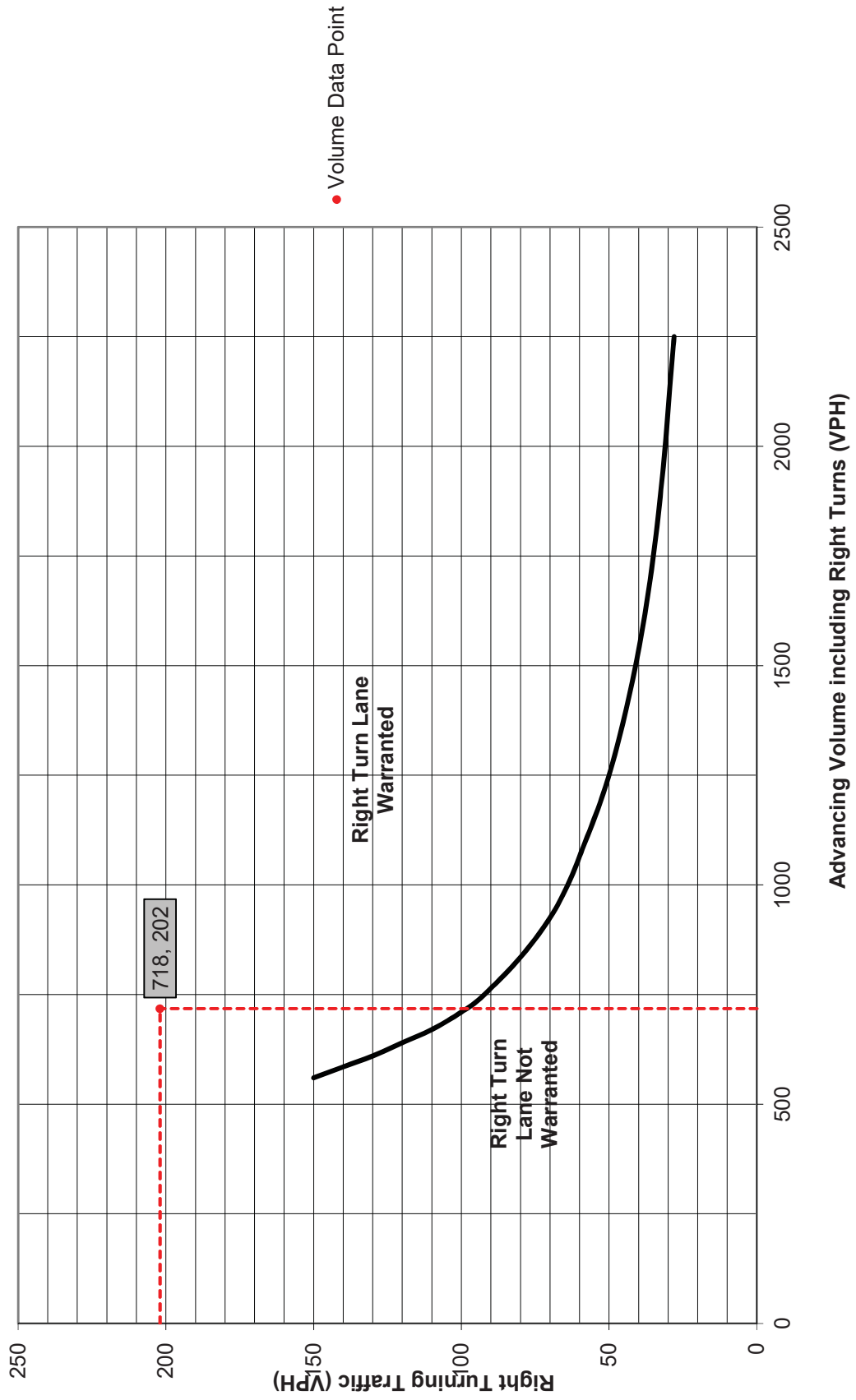
Type of Traffic Control	PennDOT Publication 46, Exhibit 11-6					
	Speed (MPH)					
	25-35		40-45		50-60	
Turn Demand Volume						
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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: Plains Township	Analysis Date: 2/14/2018
County: Luzerne County	Conducted By: EJD
PennDOT Engineering District: 4	Checked By:
	Agency/Company Name: Borton-Lawson
Intersection & Approach Description: SR 2004 (River Street) & Ramp AA / Ramp CC Southbound Left	
Analysis Period: 2027 Build	Number of Approach Lanes: 2
Design Hour: AM Peak Hour	Undivided or Divided Highway: Divided
Intersection Control: Signalized	
Posted Speed Limit (MPH): 35	Type of Analysis
Type of Terrain: Rolling	Left or Right-Turn Lane Analysis?: Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	458	4.0%	486
	Through	-	815	2.0%	840
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	480	5.0%	516
	Right	Yes	196	2.0%	202

Advancing Volume:	1326
Opposing Volume:	718
Left Turn Volume:	486

% Left Turns in Advancing Volume: 36.65%

Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	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	Right Turn Lane Warrant Findings
Applicable Warrant Figure: Figure 8	Applicable Warrant Figure: N/A
Warrant Met?: Yes	Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control: Signalized	
Design Hour Volume of Turning Lane: 486	
Cycles Per Hour (Assumed): Known	
Cycles Per Hour (If Known): 40	Average # of Vehicles/Cycle: 12.0

Type of Traffic Control	PennDOT Publication 46, Exhibit 11-6					
	Speed (MPH)					
	25-35		40-45		50-60	
Turn Demand Volume						
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

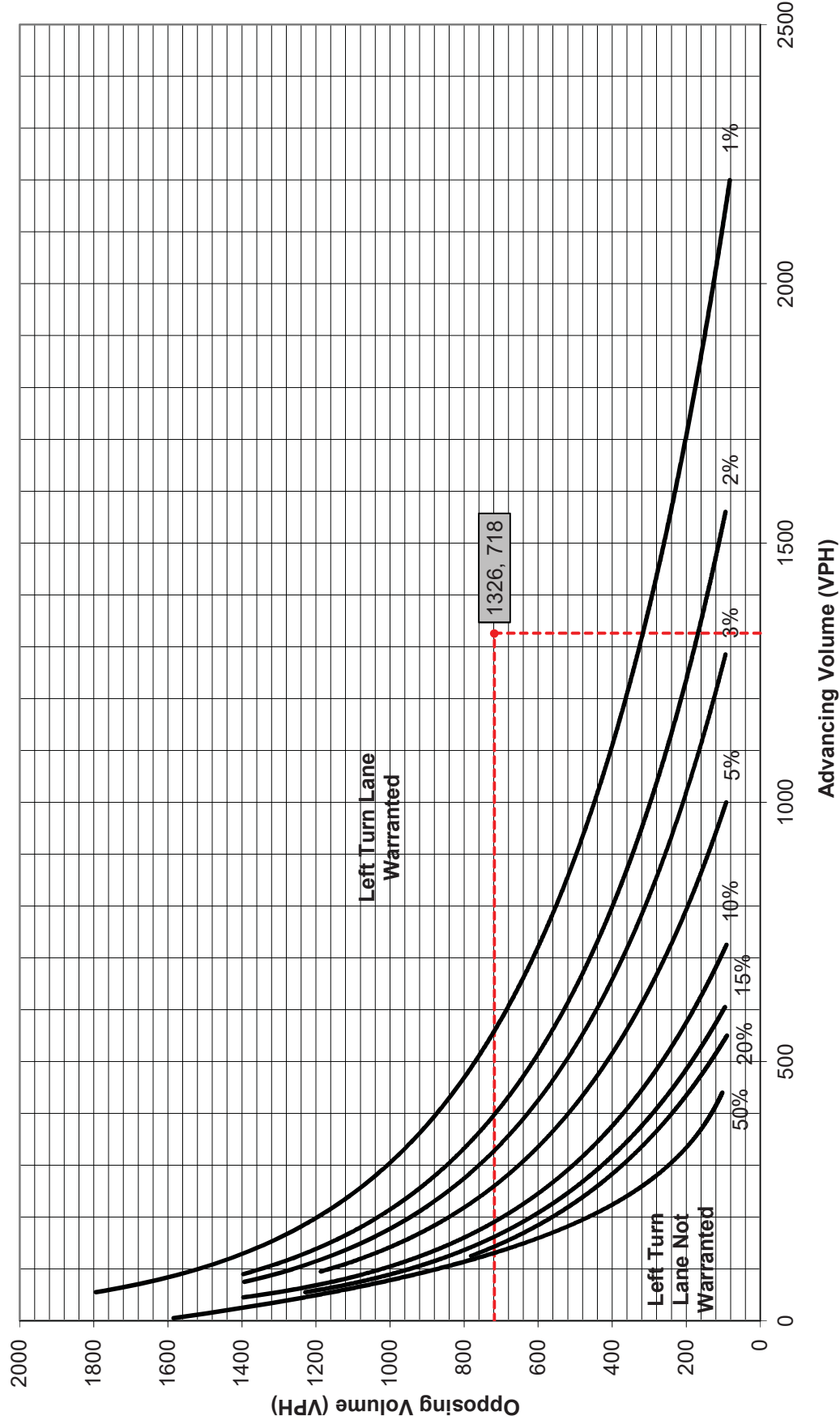
Left Turn Lane Storage Length, Condition A:	450	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	450	Feet

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) ● Volume Data Point



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality: Plains Township	Analysis Date: 3/16/2018
County: Luzerne County	Conducted By: EJD
PennDOT Engineering District: 4	Checked By: LSS
	Agency/Company Name: Borton-Lawson
Intersection & Approach Description: SR 2004 (River Street) & Ramp AA / Ramp CC Eastbound Right	
Analysis Period: 2027 Build	Number of Approach Lanes: 1
Design Hour: PM Peak Hour	Undivided or Divided Highway: Undivided
Intersection Control: Signalized	
Posted Speed Limit (MPH): 25	Type of Analysis
Type of Terrain: Rolling	Left or Right-Turn Lane Analysis?: Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	0	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	Yes	365	1.0%	371
	Through	-	2	0.0%	2
	Right	-	184	1.0%	187

Advancing Volume: 560
 Right Turn Volume: 187

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: N/A	Applicable Warrant Figure: Figure 9
Warrant Met?: N/A	Warrant Met?: Yes

TURN LANE LENGTH CALCULATIONS

Intersection Control: Signalized	
Design Hour Volume of Turning Lane: 187	
Cycles Per Hour (Assumed): Known	
Cycles Per Hour (If Known): 30	Average # of Vehicles/Cycle: 6.0

PennDOT Publication 46, Exhibit 11-6

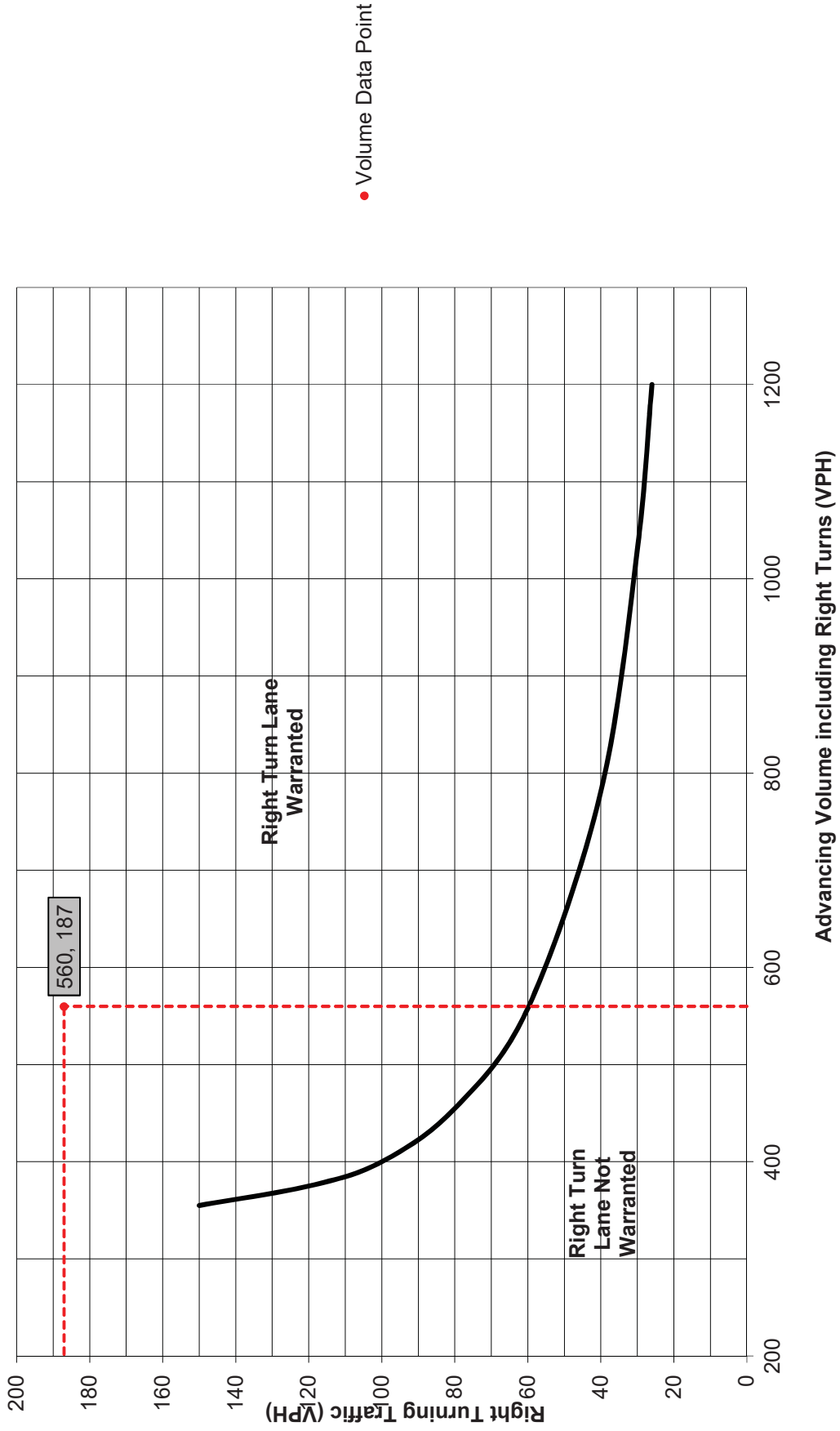
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	250	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	250	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality: <input type="text" value="Plains Township"/>	Analysis Date: <input type="text" value="3/16/2018"/>
County: <input type="text" value="Luzerne County"/>	Conducted By: <input type="text" value="EJD"/>
PennDOT Engineering District: <input type="text" value="4"/>	Checked By: <input type="text" value="LSS"/>
	Agency/Company Name: <input type="text" value="Borton-Lawson"/>
Intersection & Approach Description: <input type="text" value="SR 2004 (River Street) & Ramp AA / Ramp CC Northbound Right"/>	
Analysis Period: <input type="text" value="2027 Build"/>	Number of Approach Lanes: <input type="text" value="2"/>
Design Hour: <input type="text" value="PM Peak Hour"/>	Undivided or Divided Highway: <input type="text" value="Divided"/>
Intersection Control: <input type="text" value="Signalized"/>	
Posted Speed Limit (MPH): <input type="text" value="35"/>	Type of Analysis: <input type="text" value="Right Turn Lane"/>
Type of Terrain: <input type="text" value="Rolling"/>	Left or Right-Turn Lane Analysis?: <input type="text" value="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	Yes	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	0	0.0%	N/A

Advancing Volume:
 Opposing Volume:
 Left Turn Volume:
 % Left Turns in Advancing Volume:

Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	0.0%	0
	Through	-	847	1.0%	860
	Right	-	328	2.0%	338

Advancing Volume:
 Right Turn Volume:

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: <input type="text" value="N/A"/>	Applicable Warrant Figure: <input type="text" value="Figure 11"/>
Warrant Met?: <input type="text" value="N/A"/>	Warrant Met?: <input type="text" value="Yes"/>

TURN LANE LENGTH CALCULATIONS

Intersection Control: <input type="text" value="Signalized"/>	
Design Hour Volume of Turning Lane: <input type="text" value="338"/>	
Cycles Per Hour (Assumed): <input type="text" value="Known"/>	
Cycles Per Hour (If Known): <input type="text" value="30"/>	Average # of Vehicles/Cycle: <input type="text" value="11.0"/>

PennDOT Publication 46, Exhibit 11-6

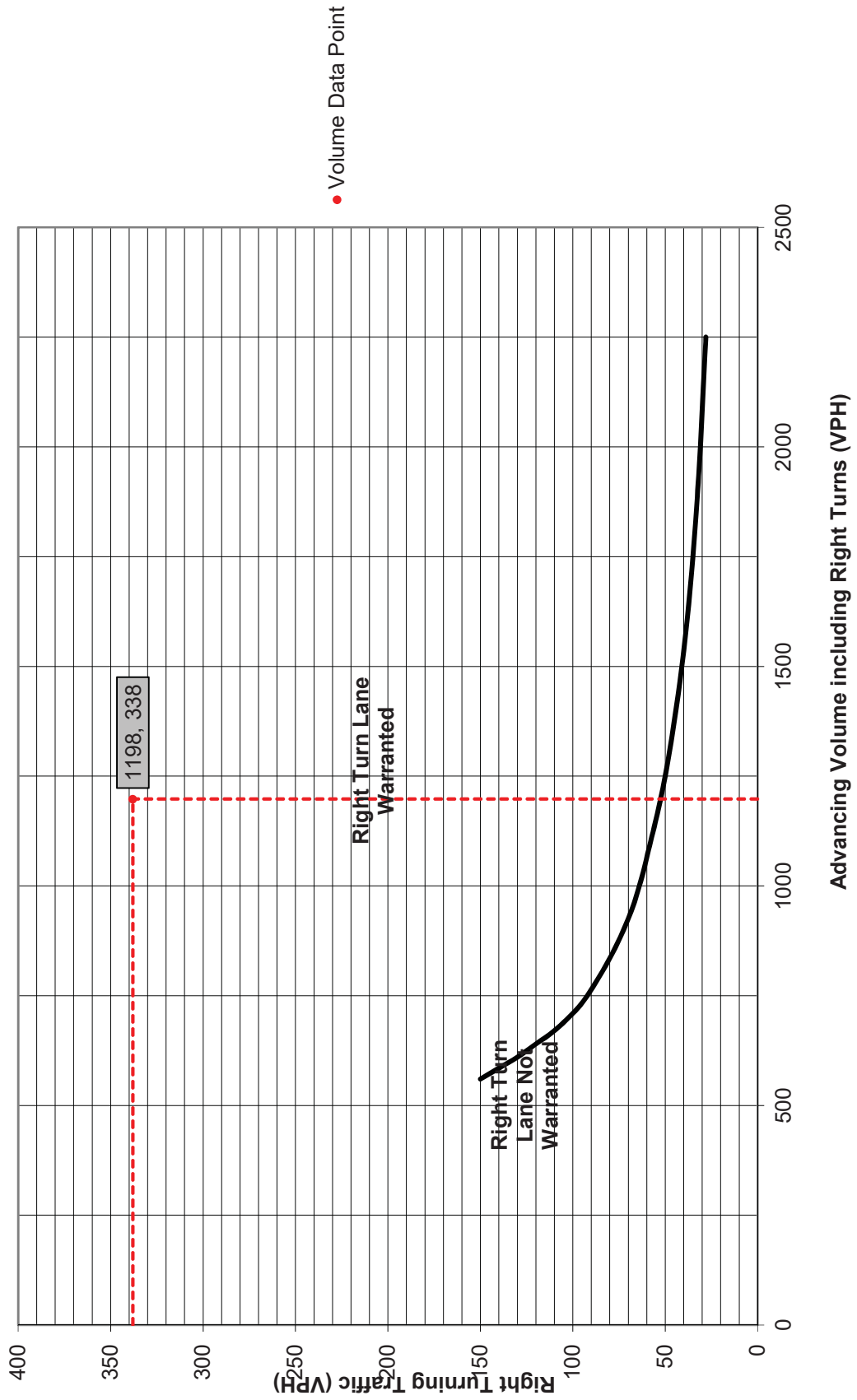
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A: Feet
 Condition B: Feet
 Condition C: Feet
 Required Right Turn Lane Storage Length: Feet

Additional Findings:

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: <input type="text" value="Plains Township"/>	Analysis Date: <input type="text" value="2/14/2018"/>
County: <input type="text" value="Luzerne County"/>	Conducted By: <input type="text" value="EJD"/>
PennDOT Engineering District: <input type="text" value="4"/>	Checked By: <input type="text"/>
	Agency/Company Name: <input type="text" value="Borton-Lawson"/>
Intersection & Approach Description: <input type="text" value="SR 2004 (River Street) & Ramp AA / Ramp CC Southbound Left"/>	
Analysis Period: <input type="text" value="2027 Build"/>	Number of Approach Lanes: <input type="text" value="2"/>
Design Hour: <input type="text" value="PM Peak Hour"/>	Undivided or Divided Highway: <input type="text" value="Divided"/>
Intersection Control: <input type="text" value="Signalized"/>	
Posted Speed Limit (MPH): <input type="text" value="35"/>	Type of Analysis: <input type="text" value="Left Turn Lane"/>
Type of Terrain: <input type="text" value="Rolling"/>	Left or Right-Turn Lane Analysis?: <input type="text" value="Left Turn Lane"/>

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	410	4.0%	435
	Through	-	593	1.0%	602
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	847	1.0%	860
	Right	Yes	328	2.0%	338

Advancing Volume:	<input type="text" value="1037"/>
Opposing Volume:	<input type="text" value="1198"/>
Left Turn Volume:	<input type="text" value="435"/>
% Left Turns in Advancing Volume: <input type="text" value="41.95%"/>	

Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	-	0	0.0%	N/A

Advancing Volume:	<input type="text" value="N/A"/>
Right Turn Volume:	<input type="text" value="N/A"/>

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: <input type="text" value="Figure 8"/>	Applicable Warrant Figure: <input type="text" value="N/A"/>
Warrant Met?: <input type="text" value="Yes"/>	Warrant Met?: <input type="text" value="N/A"/>

TURN LANE LENGTH CALCULATIONS

Intersection Control: <input type="text" value="Signalized"/>	
Design Hour Volume of Turning Lane: <input type="text" value="435"/>	
Cycles Per Hour (Assumed): <input type="text" value="Known"/>	
Cycles Per Hour (If Known): <input type="text" value="30"/>	Average # of Vehicles/Cycle: <input type="text" value="15.0"/>

Type of Traffic Control	PennDOT Publication 46, Exhibit 11-6					
	Speed (MPH)					
	25-35		40-45		50-60	
Turn Demand Volume						
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	<input type="text" value="525"/>	Feet
Condition B:	<input type="text" value="N/A"/>	Feet
Condition C:	<input type="text" value="N/A"/>	Feet
Required Left Turn Lane Storage Length:	<input type="text" value="525"/>	Feet

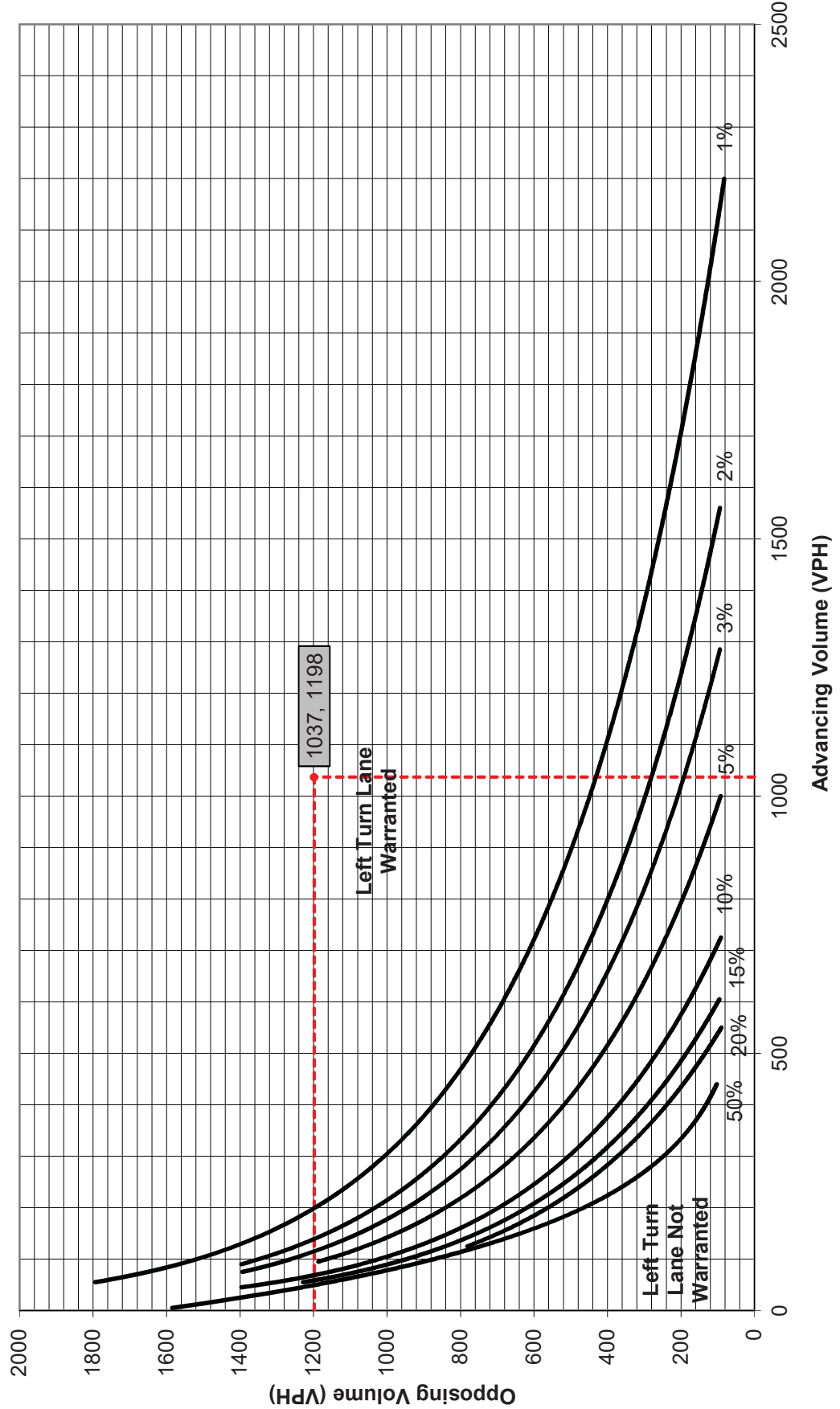
Additional Findings:

Consider Dual Left Turn Lanes and Operational Analyses

Additional Comments / Justifications:

• Volume Data Point

**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: Plains Township	Analysis Date: 2/14/2018
County: Luzerne County	Conducted By: EJD
PennDOT Engineering District: 4	Checked By:
	Agency/Company Name: Borton-Lawson
Intersection & Approach Description: SR 2004 (River Street) & Ramp BB / Ramp DD Northbound Left	
Analysis Period: 2027 Build	Number of Approach Lanes: 2
Design Hour: AM Peak Hour	Undivided or Divided Highway: Divided
Intersection Control: Signalized	
Posted Speed Limit (MPH): 35	Type of Analysis
Type of Terrain: Rolling	Left or Right-Turn Lane Analysis?: Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	120	2.0%	124
	Through	-	326	3.0%	341
	Right	Yes	344	3.0%	360
Opposing	Left	No	0	0.0%	N/A
	Through	-	691	2.0%	712
	Right	Yes	282	3.0%	295

Advancing Volume:	825
Opposing Volume:	1007
Left Turn Volume:	124

% Left Turns in Advancing Volume:	15.03%
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Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	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	Right Turn Lane Warrant Findings
Applicable Warrant Figure: Figure 8	Applicable Warrant Figure: N/A
Warrant Met?: Yes	Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control: Signalized	
Design Hour Volume of Turning Lane: 124	
Cycles Per Hour (Assumed): Known	
Cycles Per Hour (If Known): 40	Average # of Vehicles/Cycle: 3.0

Type of Traffic Control	PennDOT Publication 46, Exhibit 11-6					
	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

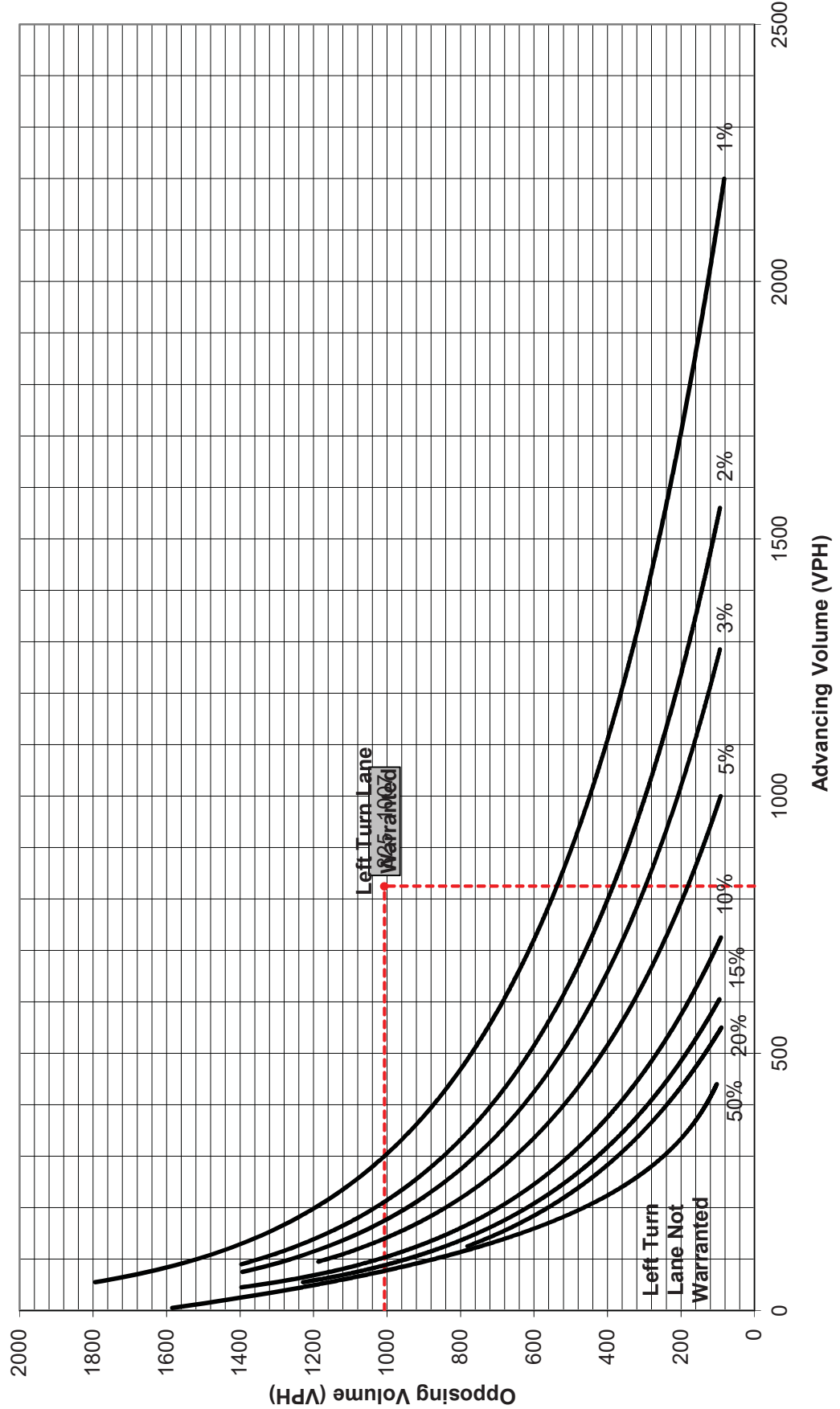
Left Turn Lane Storage Length, Condition A:	150	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	150	Feet

Additional Findings: N/A

Additional Comments / Justifications:

● Volume Data Point

**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: <input type="text" value="Plains Township"/>	Analysis Date: <input type="text" value="3/16/2018"/>
County: <input type="text" value="Luzerne County"/>	Conducted By: <input type="text" value="EJD"/>
PennDOT Engineering District: <input type="text" value="4"/>	Checked By: <input type="text" value="LSS"/>
	Agency/Company Name: <input type="text" value="Borton-Lawson"/>
Intersection & Approach Description: <input type="text" value="SR 2004 (River Street) & Ramp BB / Ramp DD
Northbound Right"/>	
Analysis Period: <input type="text" value="2027 Build"/>	Number of Approach Lanes: <input type="text" value="2"/>
Design Hour: <input type="text" value="AM Peak Hour"/>	Undivided or Divided Highway: <input type="text" value="Divided"/>
Intersection Control: <input type="text" value="Signalized"/>	
Posted Speed Limit (MPH): <input type="text" value="35"/>	Type of Analysis: <input type="text" value="Right Turn Lane"/>
Type of Terrain: <input type="text" value="Rolling"/>	Left or Right-Turn Lane Analysis?: <input type="text" value="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	Yes	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	0	0.0%	N/A

Advancing Volume:
 Opposing Volume:
 Left Turn Volume:
 % Left Turns in Advancing Volume:

Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	120	2.0%	124
	Through	-	326	3.0%	341
	Right	-	344	3.0%	360

Advancing Volume:
 Right Turn Volume:

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: <input type="text" value="N/A"/>	Applicable Warrant Figure: <input type="text" value="Figure 11"/>
Warrant Met?: <input type="text" value="N/A"/>	Warrant Met?: <input type="text" value="Yes"/>

TURN LANE LENGTH CALCULATIONS

Intersection Control: <input type="text" value="Signalized"/>	
Design Hour Volume of Turning Lane: <input type="text" value="360"/>	
Cycles Per Hour (Assumed): <input type="text" value="Known"/>	
Cycles Per Hour (If Known): <input type="text" value="40"/>	Average # of Vehicles/Cycle: <input type="text" value="9.0"/>

PennDOT Publication 46, Exhibit 11-6

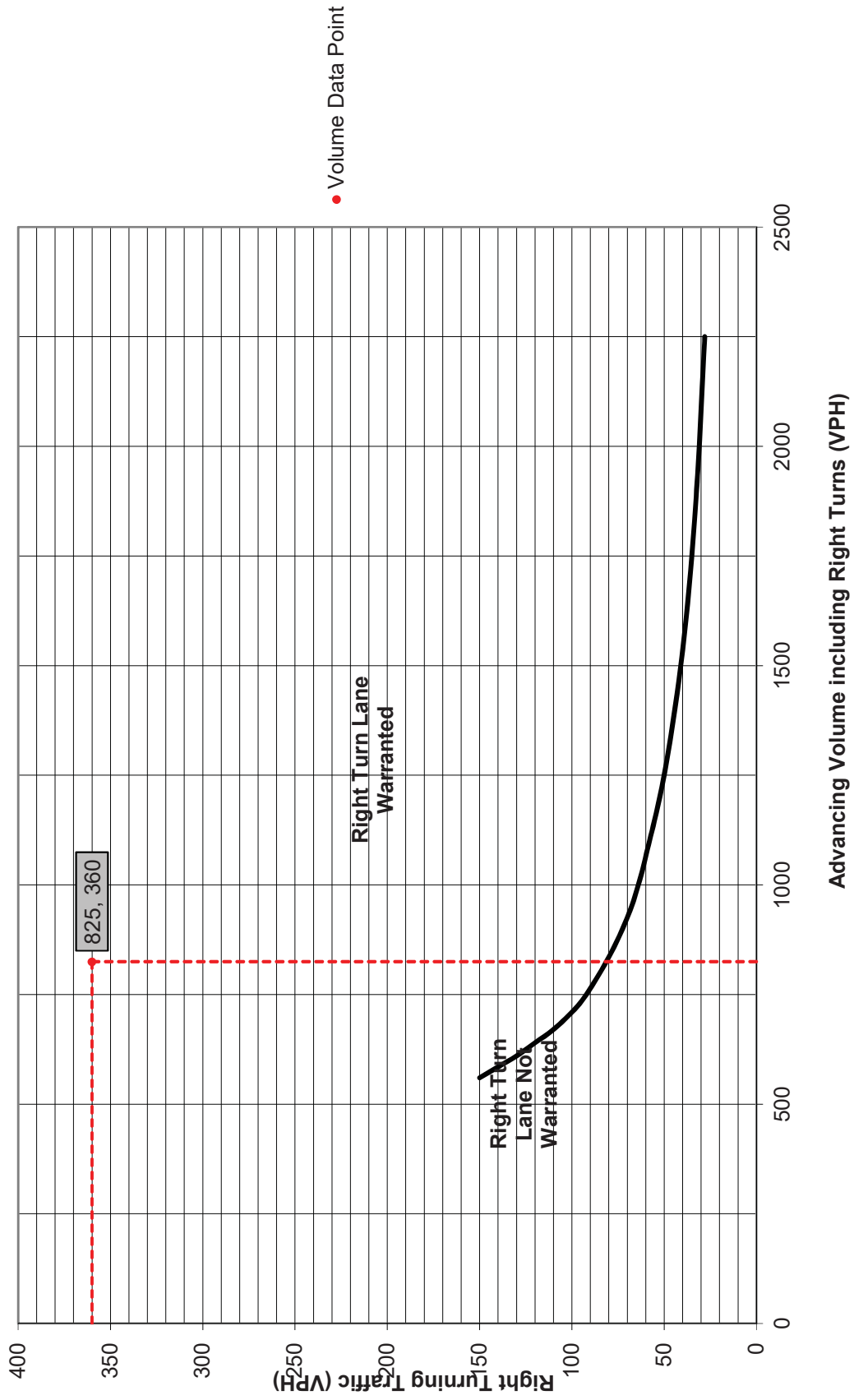
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	<input type="text" value="350"/>	Feet
Condition B:	<input type="text" value="N/A"/>	Feet
Condition C:	<input type="text" value="N/A"/>	Feet
Required Right Turn Lane Storage Length:	<input type="text" value="350"/>	Feet

Additional Findings:

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: Plains Township	Analysis Date: 3/16/2018
County: Luzerne County	Conducted By: EJD
PennDOT Engineering District: 4	Checked By: LSS
	Agency/Company Name: Borton-Lawson
Intersection & Approach Description: SR 2004 (River Street) & Ramp BB / Ramp DD Southbound Right	
Analysis Period: 2027 Build	Number of Approach Lanes: 2
Design Hour: AM Peak Hour	Undivided or Divided Highway: Divided
Intersection Control: Signalized	
Posted Speed Limit (MPH): 35	Type of Analysis
Type of Terrain: Rolling	Left or Right-Turn Lane Analysis?: Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	0	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	0	0.0%	N/A
	Through	-	691	2.0%	712
	Right	-	282	3.0%	295

Advancing Volume: 1007
 Right Turn Volume: 295

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: N/A	Applicable Warrant Figure: Figure 11
Warrant Met?: N/A	Warrant Met?: Yes

TURN LANE LENGTH CALCULATIONS

Intersection Control: Signalized	
Design Hour Volume of Turning Lane: 295	
Cycles Per Hour (Assumed): Known	
Cycles Per Hour (If Known): 40	Average # of Vehicles/Cycle: 7.0

PennDOT Publication 46, Exhibit 11-6

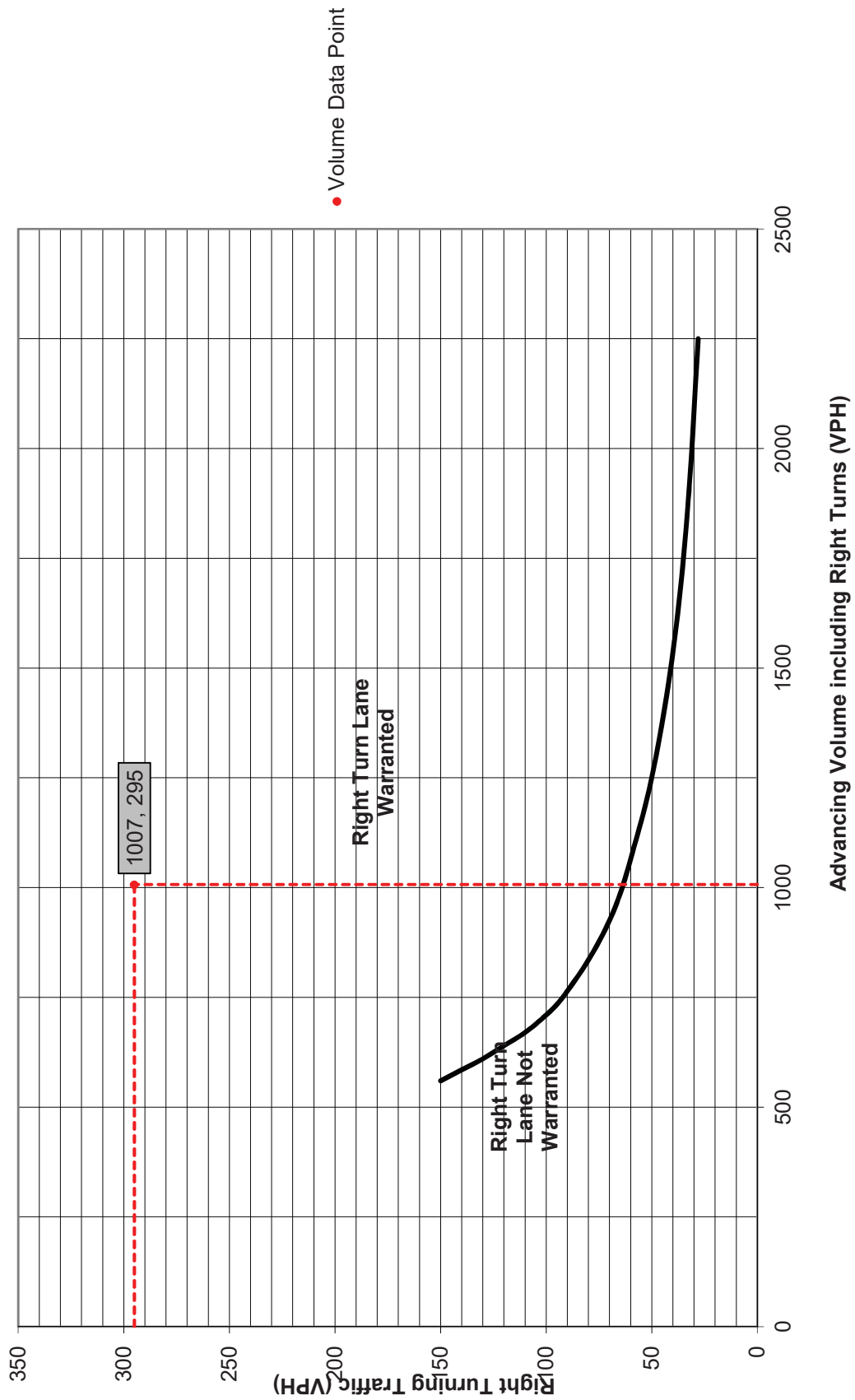
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	275	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	275	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 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: <input type="text" value="Plains Township"/>	Analysis Date: <input type="text" value="3/16/2018"/>
County: <input type="text" value="Luzerne County"/>	Conducted By: <input type="text" value="EJD"/>
PennDOT Engineering District: <input type="text" value="4"/>	Checked By: <input type="text" value="LSS"/>
	Agency/Company Name: <input type="text" value="Borton-Lawson"/>
Intersection & Approach Description: <input type="text" value="SR 2004 (River Street) & Ramp BB / Ramp DD Southwestbound Right"/>	
Analysis Period: <input type="text" value="2027 Build"/>	Number of Approach Lanes: <input type="text" value="1"/>
Design Hour: <input type="text" value="AM Peak Hour"/>	Undivided or Divided Highway: <input type="text" value="Undivided"/>
Intersection Control: <input type="text" value="Signalized"/>	
Posted Speed Limit (MPH): <input type="text" value="35"/>	Type of Analysis: <input type="text" value="Right Turn Lane"/>
Type of Terrain: <input type="text" value="Rolling"/>	Left or Right-Turn Lane Analysis?: <input type="text" value="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	Yes	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	0	0.0%	N/A

Advancing Volume: <input type="text" value="N/A"/>
Opposing Volume: <input type="text" value="N/A"/>
Left Turn Volume: <input type="text" value="N/A"/>
% Left Turns in Advancing Volume: <input type="text" value="N/A"/>

Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	0	0.0%	N/A
	Through	-	279	7.0%	309
	Right	-	22	4.0%	24

Advancing Volume: <input type="text" value="333"/>
Right Turn Volume: <input type="text" value="24"/>

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: <input type="text" value="N/A"/>	Applicable Warrant Figure: <input type="text" value="Figure 9"/>
Warrant Met?: <input type="text" value="N/A"/>	Warrant Met?: <input type="text" value="No"/>

TURN LANE LENGTH CALCULATIONS

Intersection Control: <input type="text" value="Signalized"/>	
Design Hour Volume of Turning Lane: <input type="text" value="24"/>	
Cycles Per Hour (Assumed): <input type="text" value="Known"/>	
Cycles Per Hour (If Known): <input type="text" value="40"/>	Average # of Vehicles/Cycle: <input type="text" value="N/A"/>

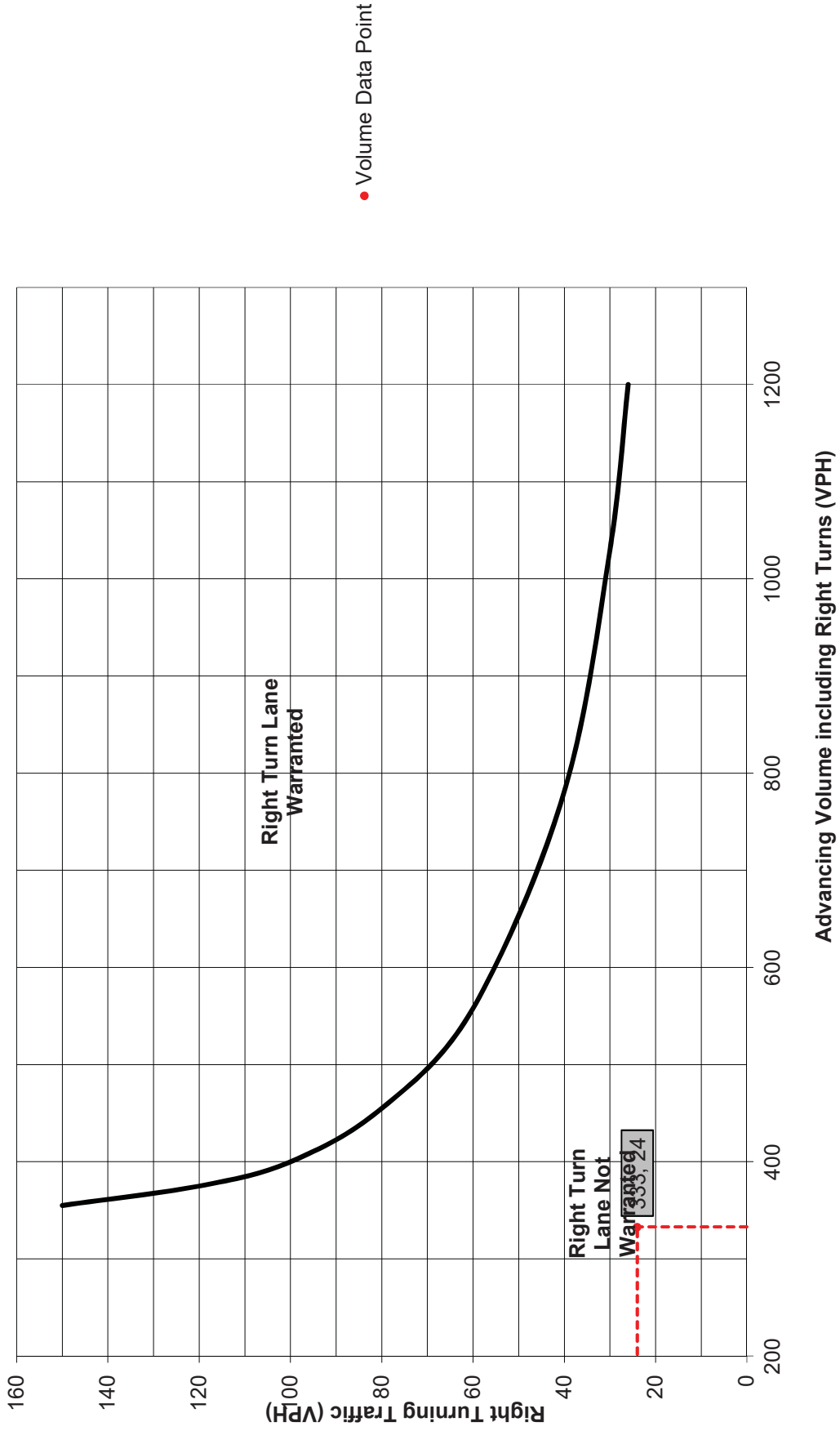
Type of Traffic Control	PennDOT Publication 46, Exhibit 11-6					
	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume			Turn Demand Volume		
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	<input type="text" value="N/A"/>	Feet
Condition B:	<input type="text" value="N/A"/>	Feet
Condition C:	<input type="text" value="N/A"/>	Feet
Required Right Turn Lane Storage Length:	<input type="text" value="N/A"/>	Feet

Additional Findings:

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways (40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Plains Township	Analysis Date:	3/16/2018
County:	Luzerne County	Conducted By:	EJD
PennDOT Engineering District:	4	Checked By:	LSS
		Agency/Company Name:	Borton-Lawson
Intersection & Approach Description: SR 2004 (River Street) & Ramp BB / Ramp DD Westbound Right (onto SR 2004)			
Analysis Period:	2027 Build	Number of Approach Lanes:	2
Design Hour:	AM Peak Hour	Undivided or Divided Highway:	Undivided
Intersection Control:	Signalized	Type of Analysis	
Posted Speed Limit (MPH):	25	Right Turn Lane	
Type of Terrain:	Rolling	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	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	289	2.0%	298
	Through	-	0	0.0%	0
	Right	-	52	7.0%	58

Advancing Volume:	356
Right Turn Volume:	58

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: N/A	Applicable Warrant Figure: Figure 11
Warrant Met?: N/A	Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized		
Design Hour Volume of Turning Lane:	58		
Cycles Per Hour (Assumed):	Known		
Cycles Per Hour (If Known):	40	Average # of Vehicles/Cycle:	N/A

PennDOT Publication 46, Exhibit 11-6

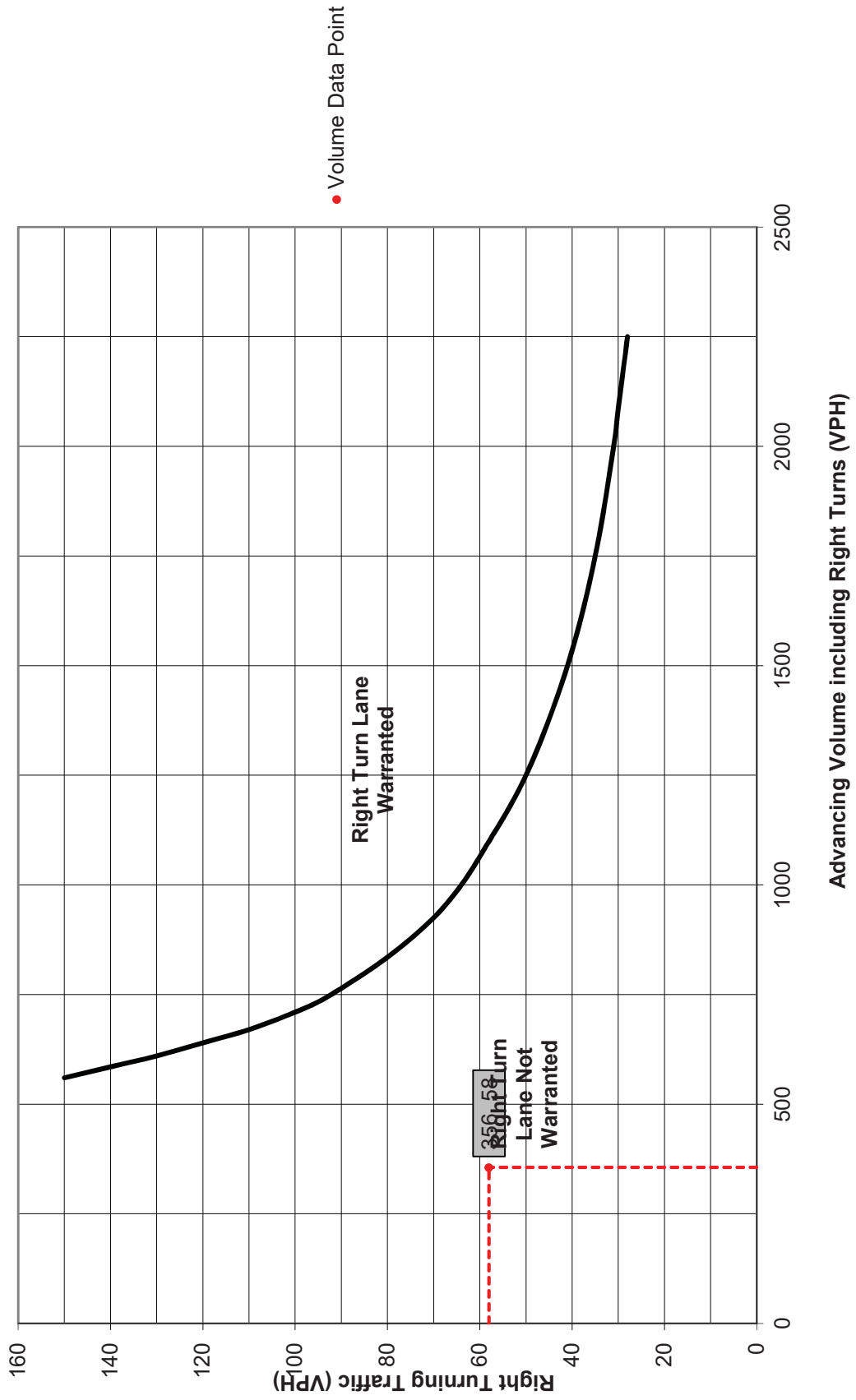
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/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:	Plains Township	Analysis Date:	3/16/2018
County:	Luzerne County	Conducted By:	EJD
PennDOT Engineering District:	4	Checked By:	LSS
		Agency/Company Name:	Borton-Lawson
Intersection & Approach Description: SR 2004 (River Street) & Ramp BB / Ramp DD Westbound Right (onto SR 2024)			
Analysis Period:	2027 Build	Number of Approach Lanes:	2
Design Hour:	AM Peak Hour	Undivided or Divided Highway:	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25	Type of Analysis	
Type of Terrain:	Rolling	Left or Right-Turn Lane Analysis?:	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	0	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	Yes	289	2.0%	298
	Through	-	0	0.0%	0
	Right	-	173	15.0%	212

Advancing Volume:	510
Right Turn Volume:	212

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: N/A	Applicable Warrant Figure: Figure 11
Warrant Met?: N/A	Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized		
Design Hour Volume of Turning Lane:	212		
Cycles Per Hour (Assumed):	Known		
Cycles Per Hour (If Known):	40	Average # of Vehicles/Cycle:	N/A

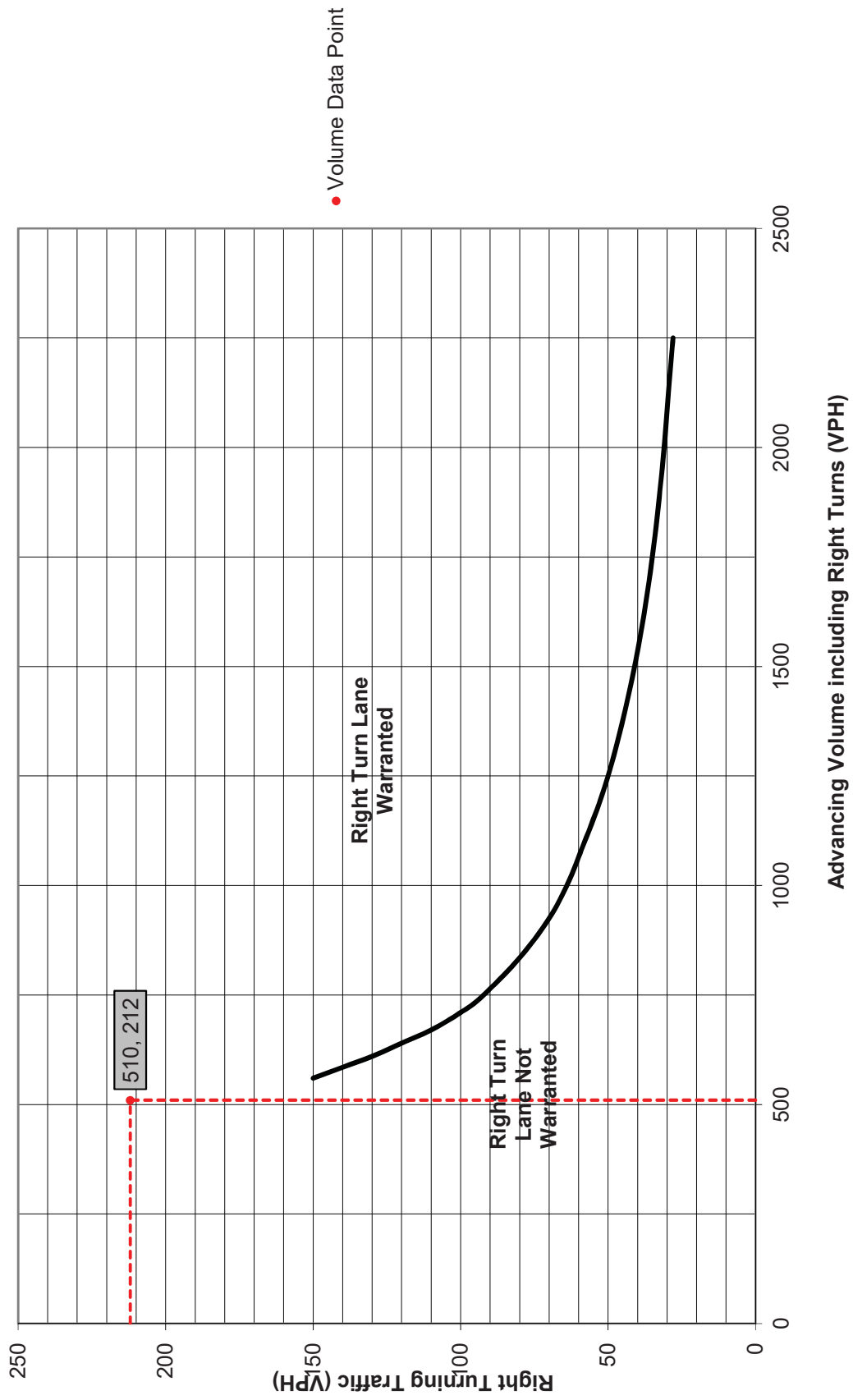
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/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: <input type="text" value="Plains Township"/>	Analysis Date: <input type="text" value="2/14/2018"/>
County: <input type="text" value="Luzerne County"/>	Conducted By: <input type="text" value="EJD"/>
PennDOT Engineering District: <input type="text" value="4"/>	Checked By: <input type="text"/>
	Agency/Company Name: <input type="text" value="Borton-Lawson"/>
Intersection & Approach Description: <input type="text" value="SR 2004 (River Street) & Ramp BB / Ramp DD
Northbound Left"/>	
Analysis Period: <input type="text" value="2027 Build"/>	Number of Approach Lanes: <input type="text" value="2"/>
Design Hour: <input type="text" value="PM Peak Hour"/>	Undivided or Divided Highway: <input type="text" value="Divided"/>
Intersection Control: <input type="text" value="Signalized"/>	
Posted Speed Limit (MPH): <input type="text" value="35"/>	Type of Analysis: <input type="text" value="Left Turn Lane"/>
Type of Terrain: <input type="text" value="Rolling"/>	Left or Right-Turn Lane Analysis?: <input type="text" value="Left Turn Lane"/>

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	339	1.0%	345
	Through	-	518	1.0%	526
	Right	Yes	370	1.0%	376
Opposing	Left	No	0	0.0%	N/A
	Through	-	500	2.0%	515
	Right	Yes	295	2.0%	304

Advancing Volume:	<input type="text" value="1247"/>
Opposing Volume:	<input type="text" value="819"/>
Left Turn Volume:	<input type="text" value="345"/>
% Left Turns in Advancing Volume: <input type="text" value="27.67%"/>	

Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	-	0	0.0%	N/A

Advancing Volume:	<input type="text" value="N/A"/>
Right Turn Volume:	<input type="text" value="N/A"/>

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: <input type="text" value="Figure 8"/>	Applicable Warrant Figure: <input type="text" value="N/A"/>
Warrant Met?: <input type="text" value="Yes"/>	Warrant Met?: <input type="text" value="N/A"/>

TURN LANE LENGTH CALCULATIONS

Intersection Control: <input type="text" value="Signalized"/>	
Design Hour Volume of Turning Lane: <input type="text" value="345"/>	
Cycles Per Hour (Assumed): <input type="text" value="Known"/>	
Cycles Per Hour (If Known): <input type="text" value="30"/>	Average # of Vehicles/Cycle: <input type="text" value="12.0"/>

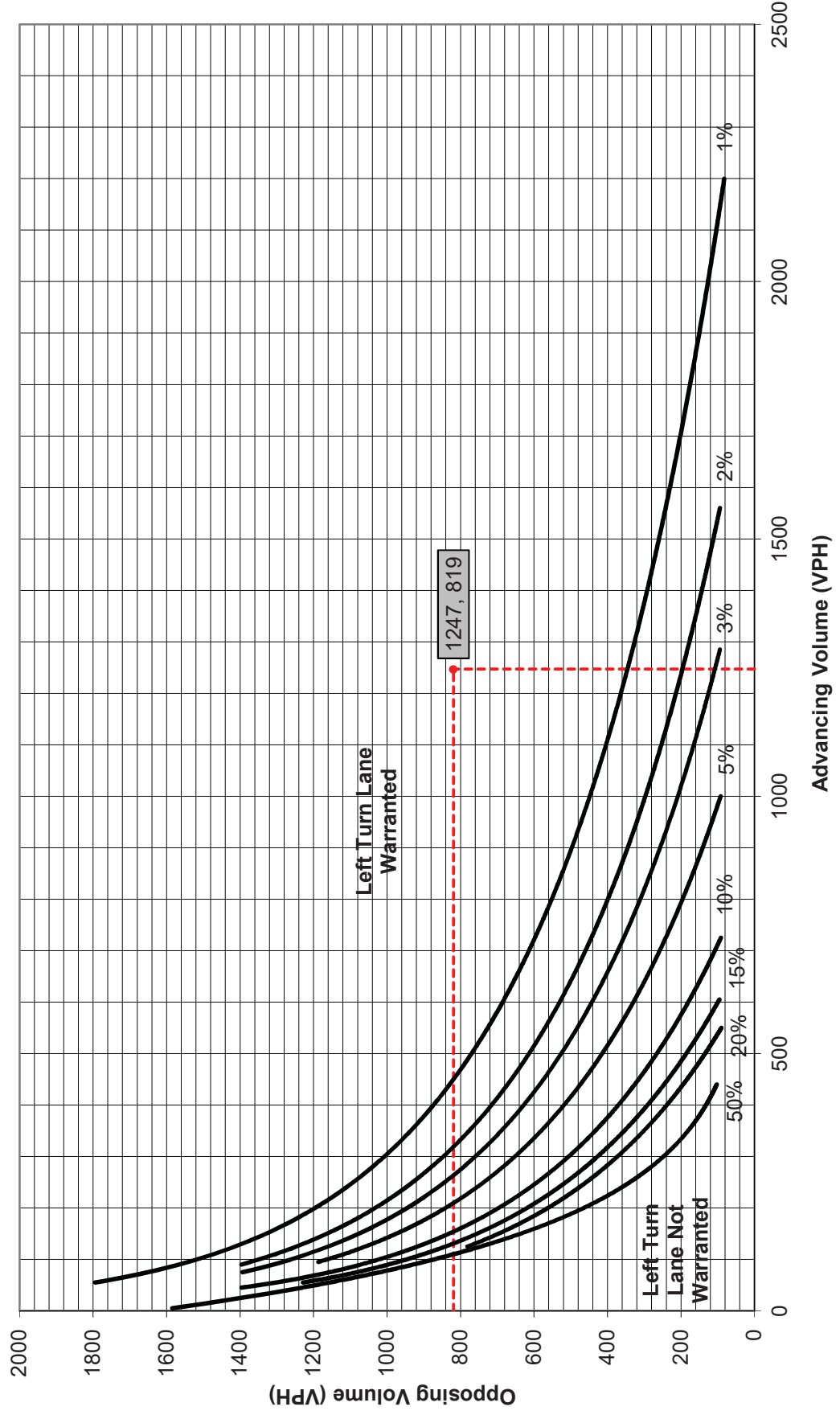
Type of Traffic Control	PennDOT Publication 46, Exhibit 11-6					
	Speed (MPH)					
	25-35		40-45		50-60	
Turn Demand Volume						
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	<input type="text" value="450"/>	Feet
Condition B:	<input type="text" value="N/A"/>	Feet
Condition C:	<input type="text" value="N/A"/>	Feet
Required Left Turn Lane Storage Length:	<input type="text" value="450"/>	Feet

Additional Findings:

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)



• Volume Data Point

Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Plains Township	Analysis Date:	3/16/2018
County:	Luzerne County	Conducted By:	EJD
PennDOT Engineering District:	4	Checked By:	LSS
		Agency/Company Name:	Borton-Lawson
Intersection & Approach Description: SR 2004 (River Street) & Ramp BB / Ramp DD Northbound Right			
Analysis Period:	2027 Build	Number of Approach Lanes:	2
Design Hour:	PM Peak Hour	Undivided or Divided Highway:	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	35	Type of Analysis	
Type of Terrain:	Rolling	Left or Right-Turn Lane Analysis?:	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	0	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	Yes	339	1.0%	345
	Through	-	519	1.0%	527
	Right	-	370	1.0%	376

Advancing Volume: 1248
 Right Turn Volume: 376

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: N/A	Applicable Warrant Figure: Figure 11
Warrant Met?: N/A	Warrant Met?: Yes

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized	
Design Hour Volume of Turning Lane:	376	
Cycles Per Hour (Assumed):	Known	
Cycles Per Hour (If Known):	30	Average # of Vehicles/Cycle: 13.0

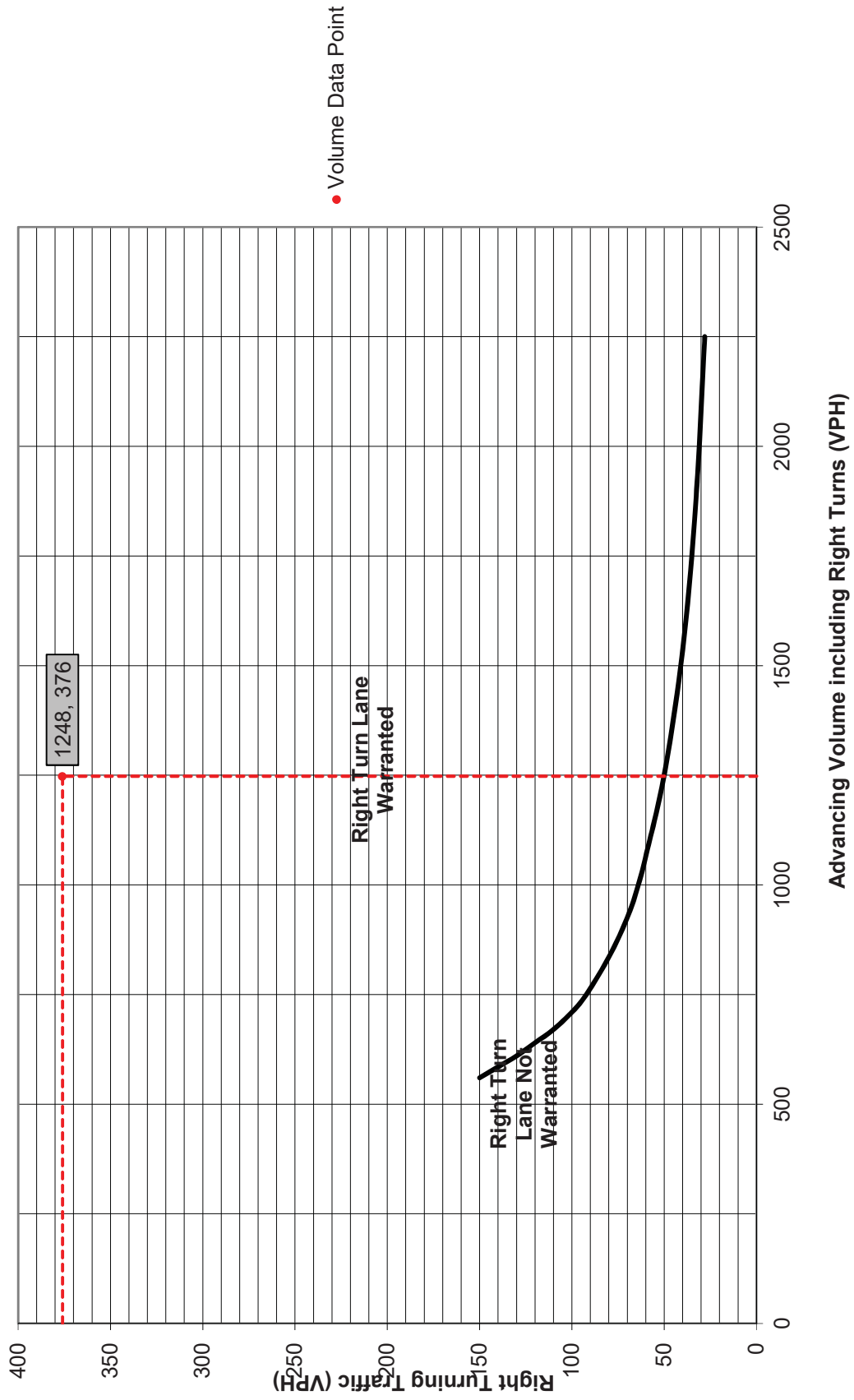
Type of Traffic Control	PennDOT Publication 46, Exhibit 11-6					
	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	475	Feet
Condition B:	N/A	Feet
Condition C:	N/A	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: <input type="text" value="Plains Township"/>	Analysis Date: <input type="text" value="3/16/2018"/>
County: <input type="text" value="Luzerne County"/>	Conducted By: <input type="text" value="EJD"/>
PennDOT Engineering District: <input type="text" value="4"/>	Checked By: <input type="text" value="LSS"/>
	Agency/Company Name: <input type="text" value="Borton-Lawson"/>
Intersection & Approach Description: <input type="text" value="SR 2004 (River Street) & Ramp BB / Ramp DD Southbound Right"/>	
Analysis Period: <input type="text" value="2027 Build"/>	Number of Approach Lanes: <input type="text" value="2"/>
Design Hour: <input type="text" value="PM Peak Hour"/>	Undivided or Divided Highway: <input type="text" value="Divided"/>
Intersection Control: <input type="text" value="Signalized"/>	
Posted Speed Limit (MPH): <input type="text" value="35"/>	Type of Analysis: <input type="text" value="Right Turn Lane"/>
Type of Terrain: <input type="text" value="Rolling"/>	Left or Right-Turn Lane Analysis?: <input type="text" value="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	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	0	0.0%	N/A
	Through	-	500	2.0%	515
	Right	-	295	2.0%	304

Advancing Volume:	819
Right Turn Volume:	304

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: <input style="width: 80%;" type="text" value="N/A"/>	Applicable Warrant Figure: <input style="width: 80%;" type="text" value="Figure 11"/>
Warrant Met?: <input style="width: 80%;" type="text" value="N/A"/>	Warrant Met?: <input style="width: 80%;" type="text" value="Yes"/>

TURN LANE LENGTH CALCULATIONS

Intersection Control: <input type="text" value="Signalized"/>	
Design Hour Volume of Turning Lane: <input type="text" value="304"/>	
Cycles Per Hour (Assumed): <input type="text" value="Known"/>	
Cycles Per Hour (If Known): <input type="text" value="30"/>	Average # of Vehicles/Cycle: <input style="width: 100px;" type="text" value="10.0"/>

PennDOT Publication 46, Exhibit 11-6

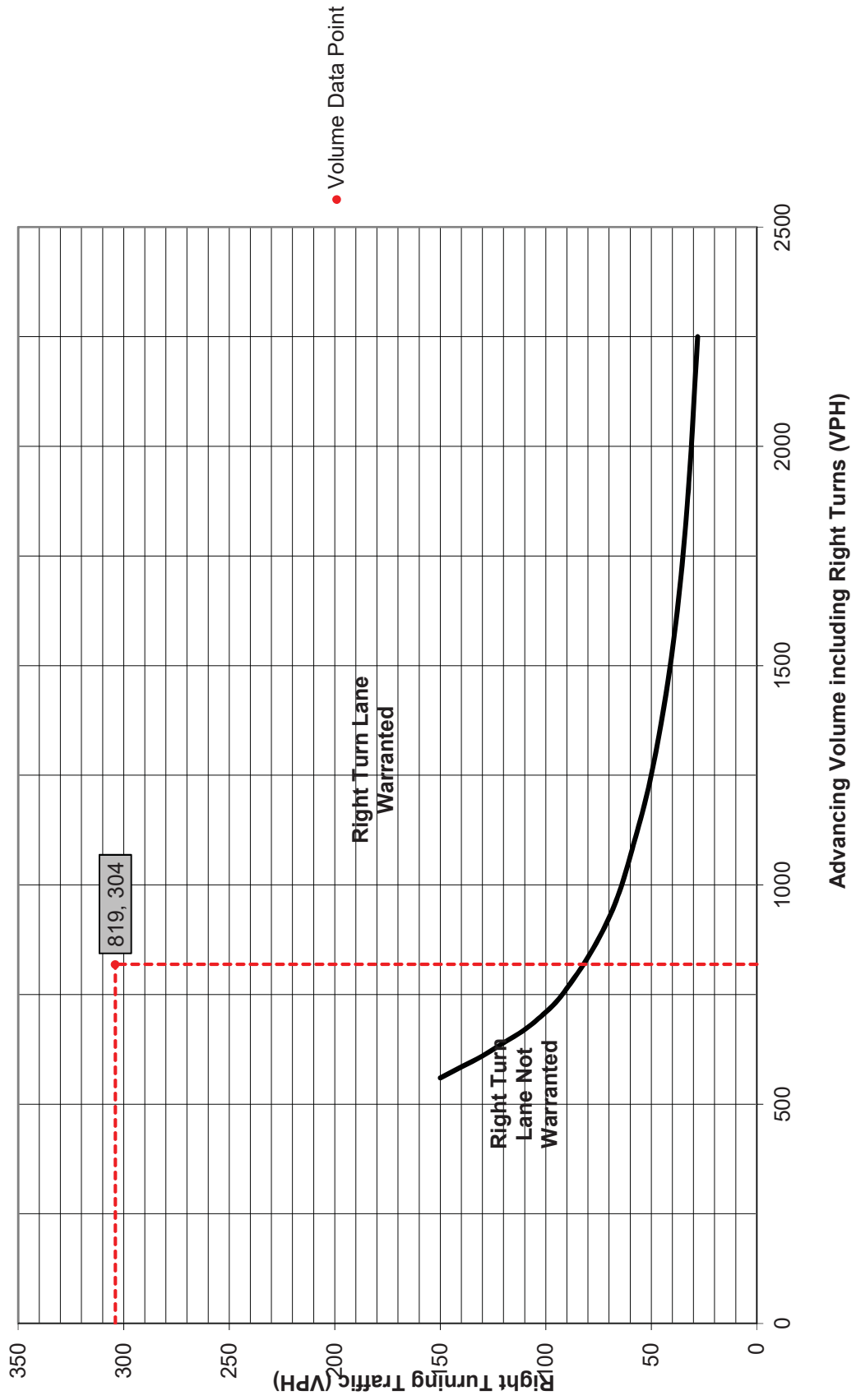
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	375	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	375	Feet

Additional Findings:

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: <input type="text" value="Plains Township"/> County: <input type="text" value="Luzerne County"/> PennDOT Engineering District: <input type="text" value="4"/>	Analysis Date: <input type="text" value="3/16/2018"/> Conducted By: <input type="text" value="EJD"/> Checked By: <input type="text" value="LSS"/> Agency/Company Name: <input type="text" value="Borton-Lawson"/>
Intersection & Approach Description: <input type="text" value="SR 2004 (River Street) & Ramp BB / Ramp DD Southwestbound Right"/>	
Analysis Period: <input type="text" value="2027 Build"/> Design Hour: <input type="text" value="PM Peak Hour"/> Intersection Control: <input type="text" value="Signalized"/> Posted Speed Limit (MPH): <input type="text" value="35"/> Type of Terrain: <input type="text" value="Rolling"/>	Number of Approach Lanes: <input type="text" value="1"/> Undivided or Divided Highway: <input type="text" value="Undivided"/> <div style="border: 1px solid red; padding: 2px; display: inline-block;">Type of Analysis</div> Left or Right-Turn Lane Analysis?: <input type="text" value="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	Yes	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	0	0.0%	N/A

Advancing Volume:	<input type="text" value="N/A"/>	
Opposing Volume:	<input type="text" value="N/A"/>	
Left Turn Volume:	<input type="text" value="N/A"/>	
% Left Turns in Advancing Volume:		<input type="text" value="N/A"/>

Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	0	0.0%	N/A
	Through	-	299	2.0%	308
	Right	-	91	2.0%	94

Advancing Volume:	<input type="text" value="402"/>
Right Turn Volume:	<input type="text" value="94"/>

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: <input style="width: 100px;" type="text" value="N/A"/> Warrant Met?: <input style="width: 100px;" type="text" value="N/A"/>	Applicable Warrant Figure: <input style="width: 100px;" type="text" value="Figure 9"/> Warrant Met?: <input style="width: 100px;" type="text" value="No"/>

TURN LANE LENGTH CALCULATIONS

Intersection Control: <input type="text" value="Signalized"/> Design Hour Volume of Turning Lane: <input type="text" value="94"/> Cycles Per Hour (Assumed): <input type="text" value="Known"/> Cycles Per Hour (If Known): <input type="text" value="30"/>	Average # of Vehicles/Cycle: <input style="width: 100px;" type="text" value="N/A"/>
--	---

PennDOT Publication 46, Exhibit 11-6

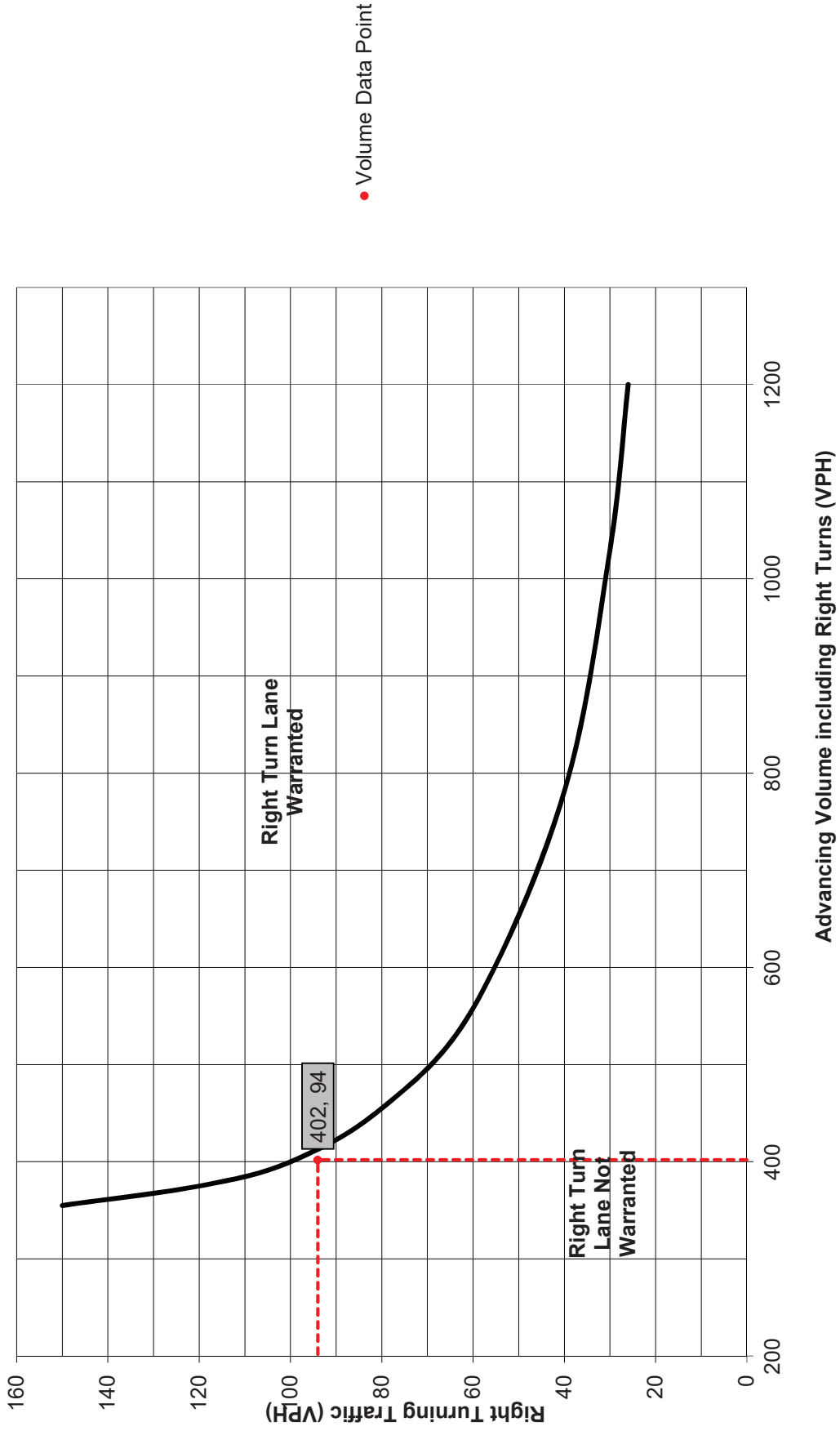
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	<input style="width: 100px;" type="text" value="N/A"/>	Feet
Condition B:	<input style="width: 100px;" type="text" value="N/A"/>	Feet
Condition C:	<input style="width: 100px;" type="text" value="N/A"/>	Feet
Required Right Turn Lane Storage Length:	<input style="width: 100px;" type="text" value="N/A"/>	Feet

Additional Findings:

Additional Comments / Justifications:

**Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)**



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Plains Township	Analysis Date:	3/16/2018
County:	Luzerne County	Conducted By:	EJD
PennDOT Engineering District:	4	Checked By:	LSS
		Agency/Company Name:	Borton-Lawson
Intersection & Approach Description: SR 2004 (River Street) & Ramp BB / Ramp DD Westbound Right (onto SR 2004)			
Analysis Period:	2027 Build	Number of Approach Lanes:	2
Design Hour:	PM Peak Hour	Undivided or Divided Highway:	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25	Type of Analysis:	Right Turn Lane
Type of Terrain:	Rolling	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	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	176	2.0%	182
	Through	-	0	0.0%	0
	Right	-	286	1.0%	291

Advancing Volume: 473
 Right Turn Volume: 291

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: N/A	Applicable Warrant Figure: Figure 11
Warrant Met?: N/A	Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	291
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	30
Average # of Vehicles/Cycle:	N/A

PennDOT Publication 46, Exhibit 11-6

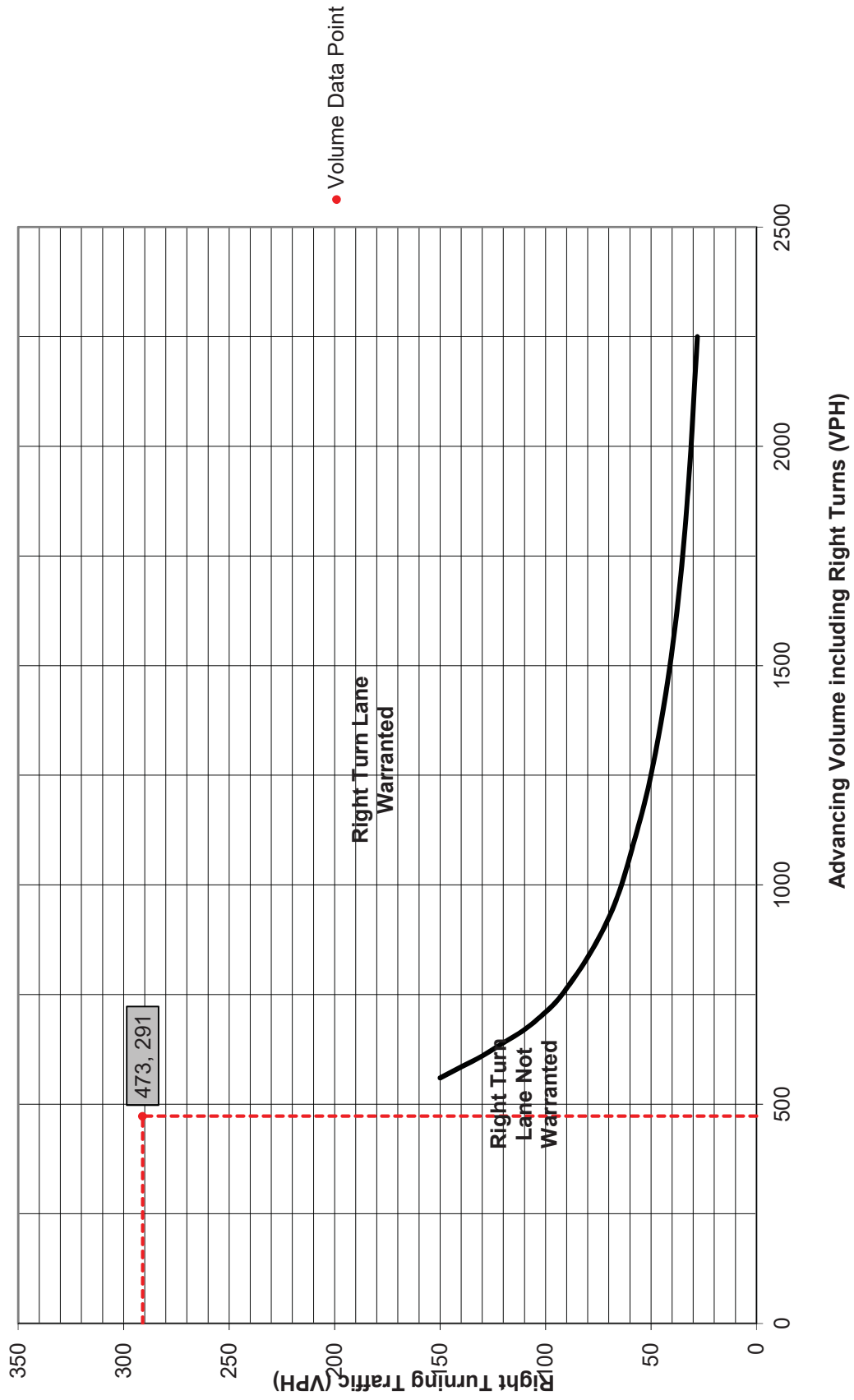
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/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: <input type="text" value="Plains Township"/> County: <input type="text" value="Luzerne County"/> PennDOT Engineering District: <input type="text" value="4"/>	Analysis Date: <input type="text" value="3/16/2018"/> Conducted By: <input type="text" value="EJD"/> Checked By: <input type="text" value="LSS"/> Agency/Company Name: <input type="text" value="Borton-Lawson"/>
Intersection & Approach Description: <input type="text" value="SR 2004 (River Street) & Ramp BB / Ramp DD Westbound Right (onto SR 2024)"/>	
Analysis Period: <input type="text" value="2027 Build"/> Design Hour: <input type="text" value="PM Peak Hour"/> Intersection Control: <input type="text" value="Signalized"/> Posted Speed Limit (MPH): <input type="text" value="25"/> Type of Terrain: <input type="text" value="Rolling"/>	Number of Approach Lanes: <input type="text" value="2"/> Undivided or Divided Highway: <input type="text" value="Undivided"/> <div style="border: 1px solid red; padding: 2px; display: inline-block;">Type of Analysis</div> Left or Right-Turn Lane Analysis?: <input type="text" value="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	Yes	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	0	0.0%	N/A

Advancing Volume:	<input type="text" value="N/A"/>
Opposing Volume:	<input type="text" value="N/A"/>
Left Turn Volume:	<input type="text" value="N/A"/>
% Left Turns in Advancing Volume:	
	<input type="text" value="N/A"/>

Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	176	2.0%	182
	Through	-	0	0.0%	0
	Right	-	177	8.0%	199

Advancing Volume:	<input type="text" value="381"/>
Right Turn Volume:	<input type="text" value="199"/>

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: <input type="text" value="N/A"/> Warrant Met?: <input type="text" value="N/A"/>	Applicable Warrant Figure: <input type="text" value="Figure 11"/> Warrant Met?: <input type="text" value="No"/>

TURN LANE LENGTH CALCULATIONS

Intersection Control: <input type="text" value="Signalized"/> Design Hour Volume of Turning Lane: <input type="text" value="199"/> Cycles Per Hour (Assumed): <input type="text" value="Known"/> Cycles Per Hour (If Known): <input type="text" value="30"/>	Average # of Vehicles/Cycle: <input type="text" value="N/A"/>
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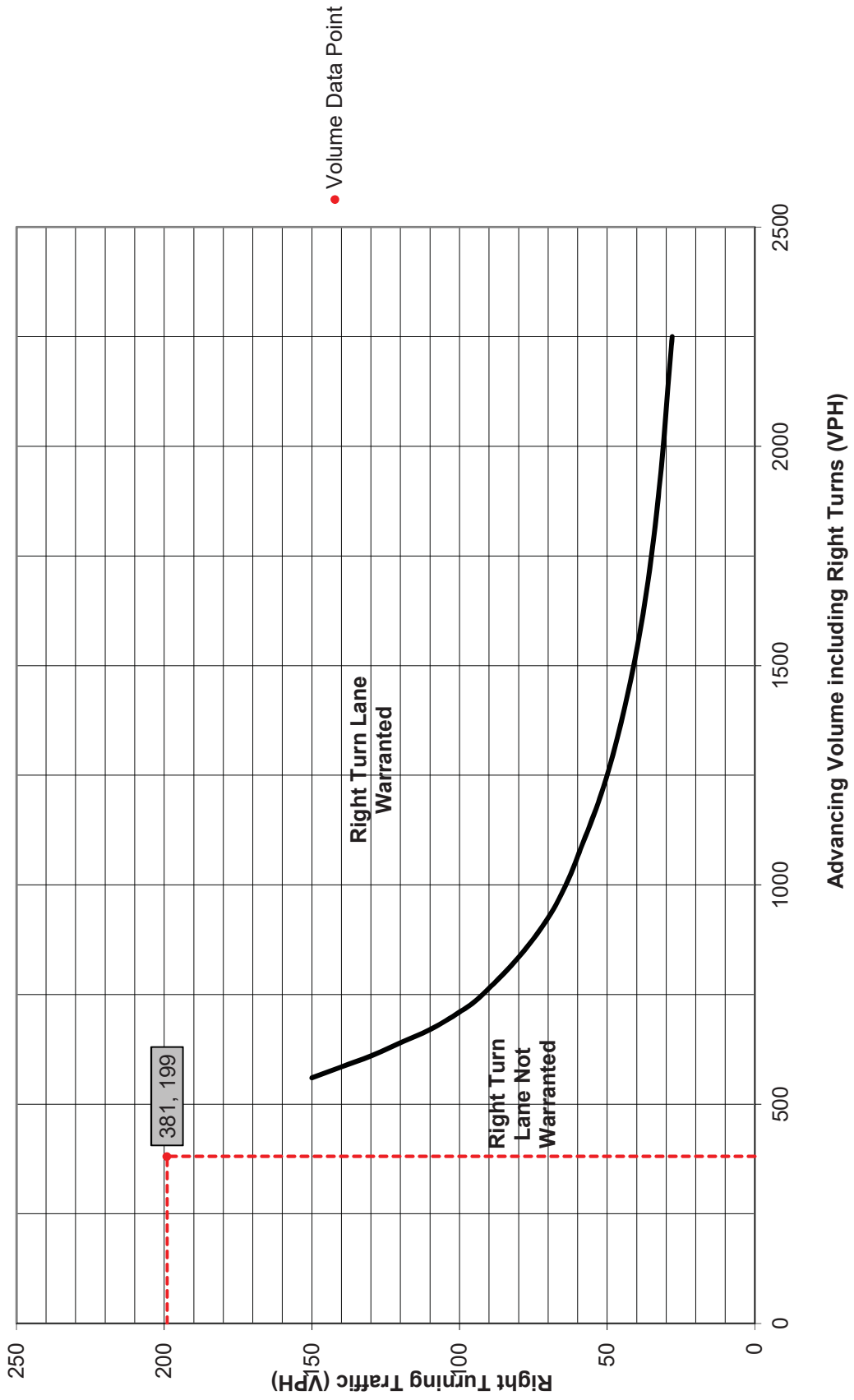
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	<input type="text" value="N/A"/>	Feet
Condition B:	<input type="text" value="N/A"/>	Feet
Condition C:	<input type="text" value="N/A"/>	Feet
Required Right Turn Lane Storage Length:	<input type="text" value="N/A"/>	Feet

Additional Findings:

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: <input type="text" value="Plains Township"/>	Analysis Date: <input type="text" value="3/16/2018"/>
County: <input type="text" value="Luzerne County"/>	Conducted By: <input type="text" value="EJD"/>
PennDOT Engineering District: <input type="text" value="4"/>	Checked By: <input type="text" value="LSS"/>
	Agency/Company Name: <input type="text" value="Borton-Lawson"/>
Intersection & Approach Description: <input type="text" value="SR 2024 (Maffett Street) & Haines Street
Eastbound Right"/>	
Analysis Period: <input type="text" value="2027 Build"/>	Number of Approach Lanes: <input type="text" value="1"/>
Design Hour: <input type="text" value="AM Peak Hour"/>	Undivided or Divided Highway: <input type="text" value="Undivided"/>
Intersection Control: <input type="text" value="Unsignalized"/>	
Posted Speed Limit (MPH): <input type="text" value="25"/>	Type of Analysis: <input type="text" value="Right Turn Lane"/>
Type of Terrain: <input type="text" value="Rolling"/>	Left or Right-Turn Lane Analysis?: <input type="text" value="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	Yes	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	0	0.0%	N/A

Advancing Volume: <input type="text" value="N/A"/>
Opposing Volume: <input type="text" value="N/A"/>
Left Turn Volume: <input type="text" value="N/A"/>
% Left Turns in Advancing Volume: <input type="text" value="N/A"/>

Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	12	0.0%	12
	Through	-	0	0.0%	0
	Right	-	2	0.0%	2

Advancing Volume: <input type="text" value="14"/>
Right Turn Volume: <input type="text" value="2"/>

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: <input type="text" value="N/A"/>	Applicable Warrant Figure: <input type="text" value="Figure 9"/>
Warrant Met?: <input type="text" value="N/A"/>	Warrant Met?: <input type="text" value="No"/>

TURN LANE LENGTH CALCULATIONS

Intersection Control: <input type="text" value="Unsignalized"/>	
Design Hour Volume of Turning Lane: <input type="text" value="2"/>	
Cycles Per Hour (Assumed): <input type="text" value="Known"/>	
Cycles Per Hour (If Known): <input type="text" value="60"/>	Average # of Vehicles/Cycle: <input type="text" value="N/A"/>

PennDOT Publication 46, Exhibit 11-6

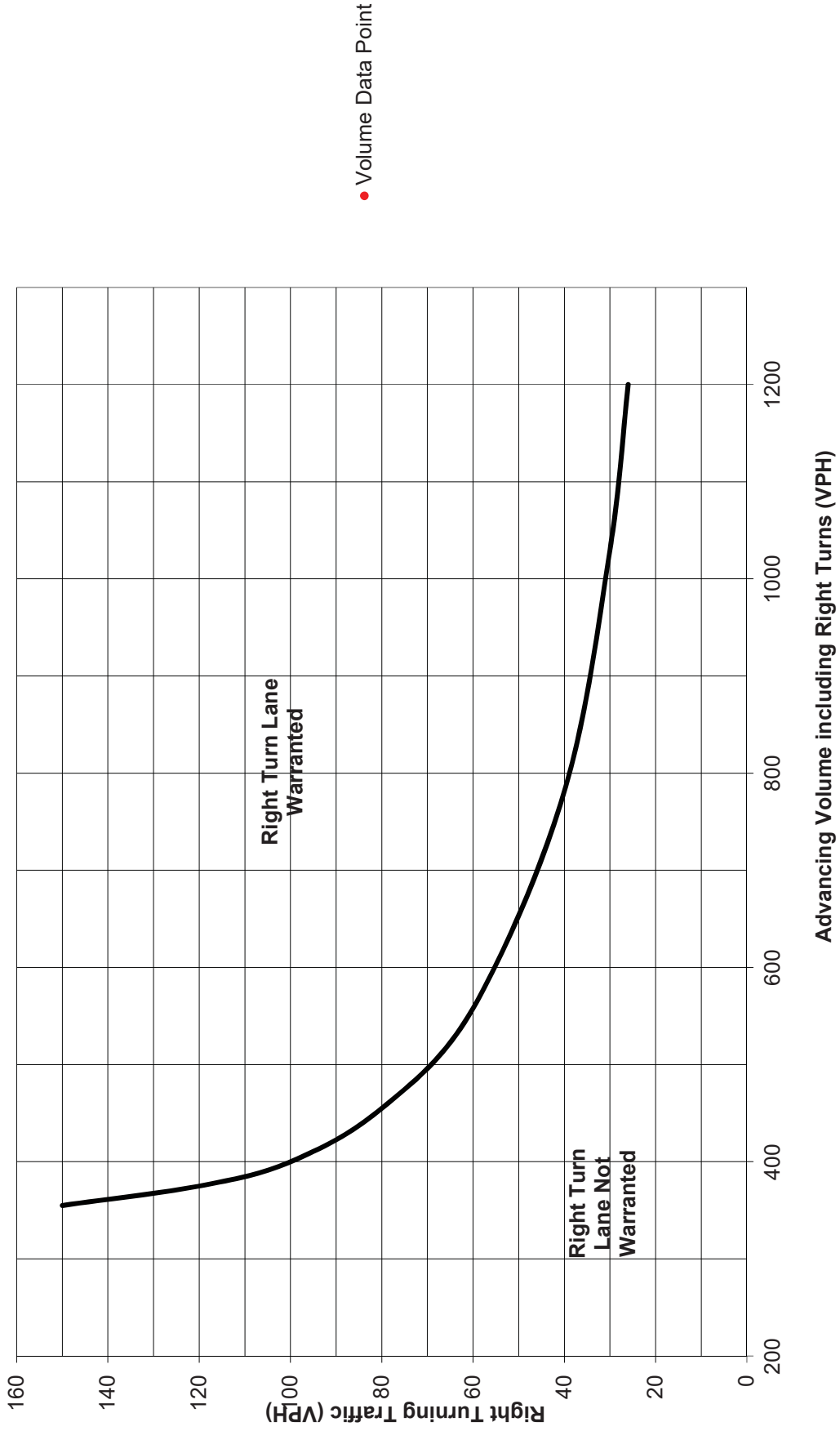
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	<input type="text" value="N/A"/>	Feet
Condition B:	<input type="text" value="N/A"/>	Feet
Condition C:	<input type="text" value="N/A"/>	Feet
Required Right Turn Lane Storage Length:	<input type="text" value="N/A"/>	Feet

Additional Findings:

Additional Comments / Justifications:

**Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)**



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality: <input type="text" value="Plains Township"/>	Analysis Date: <input type="text" value="2/14/2018"/>
County: <input type="text" value="Luzerne County"/>	Conducted By: <input type="text" value="EJD"/>
PennDOT Engineering District: <input type="text" value="4"/>	Checked By: <input type="text"/>
	Agency/Company Name: <input type="text" value="Borton-Lawson"/>
Intersection & Approach Description: <input type="text" value="SR 2024 (Maffett Street) & Haines Street
Northbound Left"/>	
Analysis Period: <input type="text" value="2027 Build"/>	Number of Approach Lanes: <input type="text" value="1"/>
Design Hour: <input type="text" value="AM Peak Hour"/>	Undivided or Divided Highway: <input type="text" value="Undivided"/>
Intersection Control: <input type="text" value="Unsignalized"/>	
Posted Speed Limit (MPH): <input type="text" value="25"/>	Type of Analysis: <input type="text" value="Left Turn Lane"/>
Type of Terrain: <input type="text" value="Rolling"/>	Left or Right-Turn Lane Analysis?: <input type="text" value="Left Turn Lane"/>

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	4	0.0%	4
	Through	-	557	10.0%	641
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	389	6.0%	425
	Right	Yes	16	6.0%	18

Advancing Volume: <input type="text" value="645"/>
Opposing Volume: <input type="text" value="443"/>
Left Turn Volume: <input type="text" value="4"/>
% Left Turns in Advancing Volume: <input type="text" value="0.62%"/>

Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	-	0	0.0%	N/A

Advancing Volume: <input type="text" value="N/A"/>
Right Turn Volume: <input type="text" value="N/A"/>

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: <input type="text" value="Figure 1"/>	Applicable Warrant Figure: <input type="text" value="N/A"/>
Warrant Met?: <input type="text" value="No"/>	Warrant Met?: <input type="text" value="N/A"/>

TURN LANE LENGTH CALCULATIONS

Intersection Control: <input type="text" value="Unsignalized"/>	
Design Hour Volume of Turning Lane: <input type="text" value="4"/>	
Cycles Per Hour (Assumed): <input type="text" value="Known"/>	
Cycles Per Hour (If Known): <input type="text" value="60"/>	Average # of Vehicles/Cycle: <input type="text" value="N/A"/>

PennDOT Publication 46, Exhibit 11-6

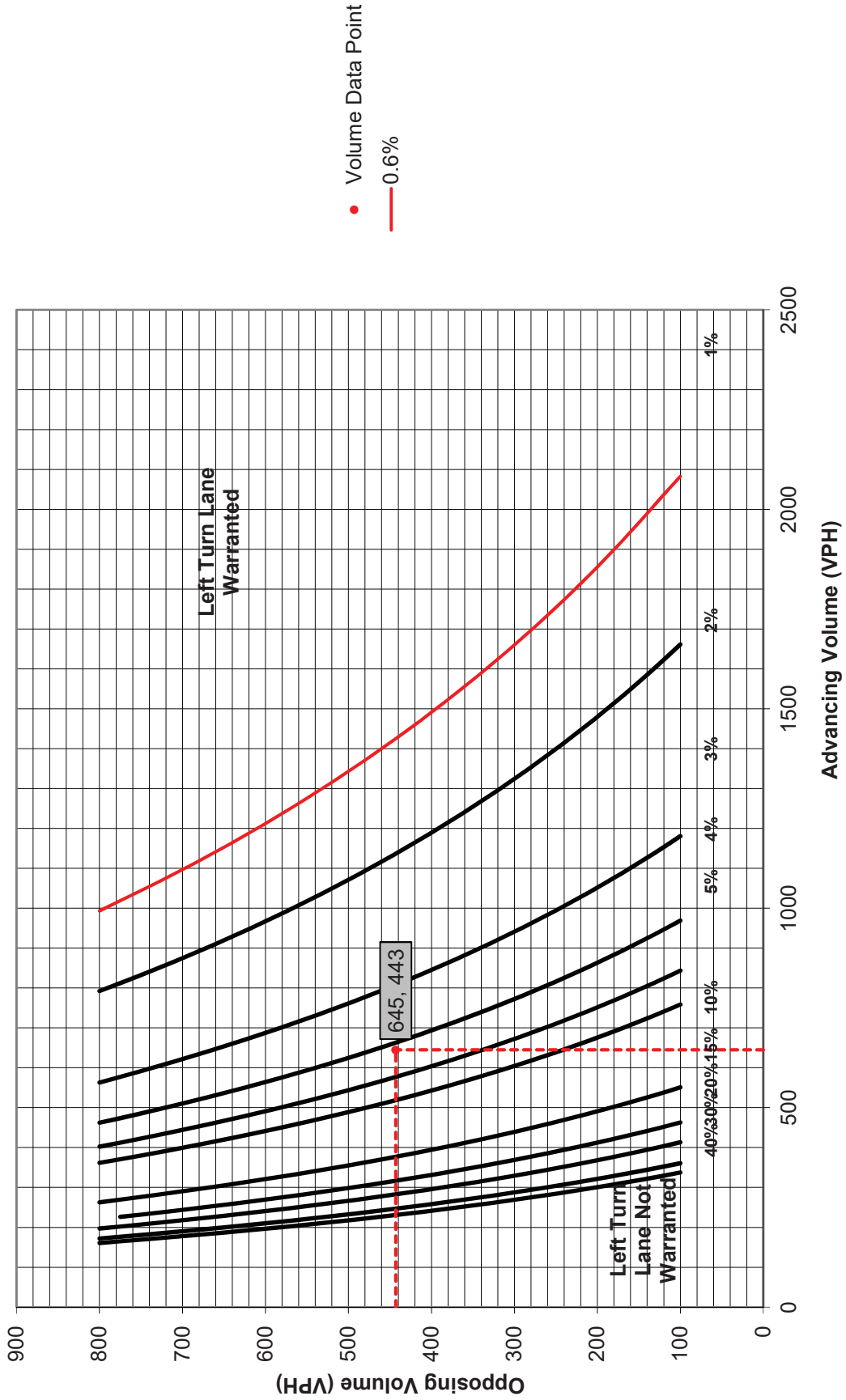
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	<input type="text" value="N/A"/>	Feet
Condition B:	<input type="text" value="N/A"/>	Feet
Condition C:	<input type="text" value="N/A"/>	Feet
Required Left Turn Lane Storage Length:	<input type="text" value="N/A"/>	Feet

Additional Findings:

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
 (speeds to 35 mph, unsignalized and signalized intersections)
 (L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality: Plains Township	Analysis Date: 3/16/2018
County: Luzerne County	Conducted By: EJD
PennDOT Engineering District: 4	Checked By: LSS
	Agency/Company Name: Borton-Lawson
Intersection & Approach Description: SR 2024 (Maffett Street) & Haines Street Southbound Right	
Analysis Period: 2027 Build	Number of Approach Lanes: 1
Design Hour: AM Peak Hour	Undivided or Divided Highway: Undivided
Intersection Control: Unsignalized	
Posted Speed Limit (MPH): 25	Type of Analysis
Type of Terrain: Rolling	Left or Right-Turn Lane Analysis?: Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	0	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	0	0.0%	N/A
	Through	-	389	6.0%	425
	Right	-	16	6.0%	18

Advancing Volume:	443
Right Turn Volume:	18

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: N/A	Applicable Warrant Figure: Figure 9
Warrant Met?: N/A	Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control: Unsignalized	
Design Hour Volume of Turning Lane: 18	
Cycles Per Hour (Assumed): Known	
Cycles Per Hour (If Known): 60	Average # of Vehicles/Cycle: N/A

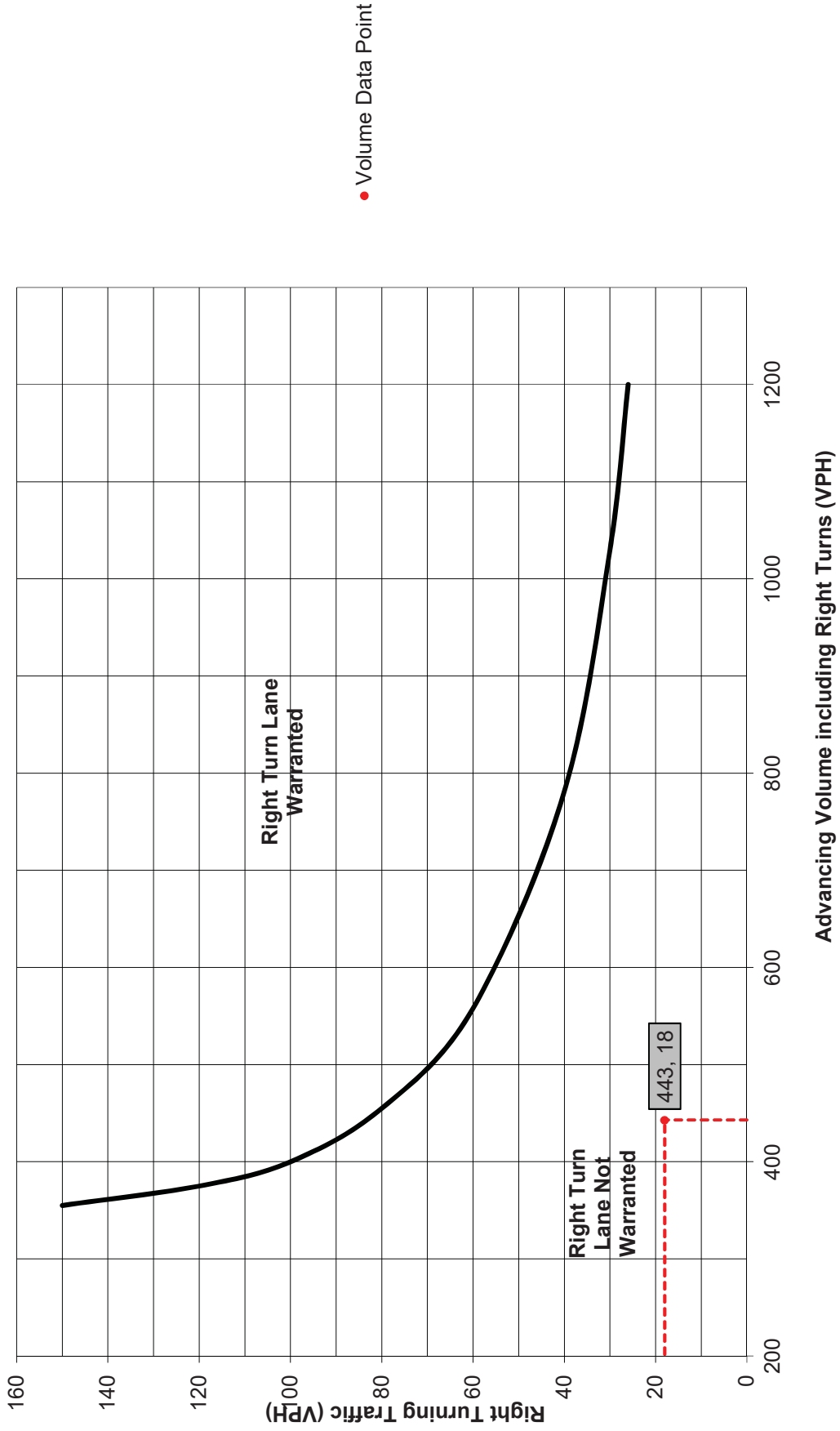
Type of Traffic Control	PennDOT Publication 46, Exhibit 11-6					
	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings:
N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways (40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Plains Township	Analysis Date:	3/16/2018
County:	Luzerne County	Conducted By:	EJD
PennDOT Engineering District:	4	Checked By:	LSS
		Agency/Company Name:	Borton-Lawson
Intersection & Approach Description: SR 2024 (Maffett Street) & Haines Street Eastbound Right			
Analysis Period:	2027 Build	Number of Approach Lanes:	1
Design Hour:	PM Peak Hour	Undivided or Divided Highway:	Undivided
Intersection Control:	Unsignalized	Type of Analysis	
Posted Speed Limit (MPH):	25	Right Turn Lane	
Type of Terrain:	Rolling	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	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	18	6.0%	20
	Through	-	0	0.0%	0
	Right	-	2	0.0%	2

Advancing Volume:	22
Right Turn Volume:	2

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: N/A	Applicable Warrant Figure: Figure 9
Warrant Met?: N/A	Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized	Average # of Vehicles/Cycle:	N/A
Design Hour Volume of Turning Lane:	2		
Cycles Per Hour (Assumed):	Known		
Cycles Per Hour (If Known):	60		

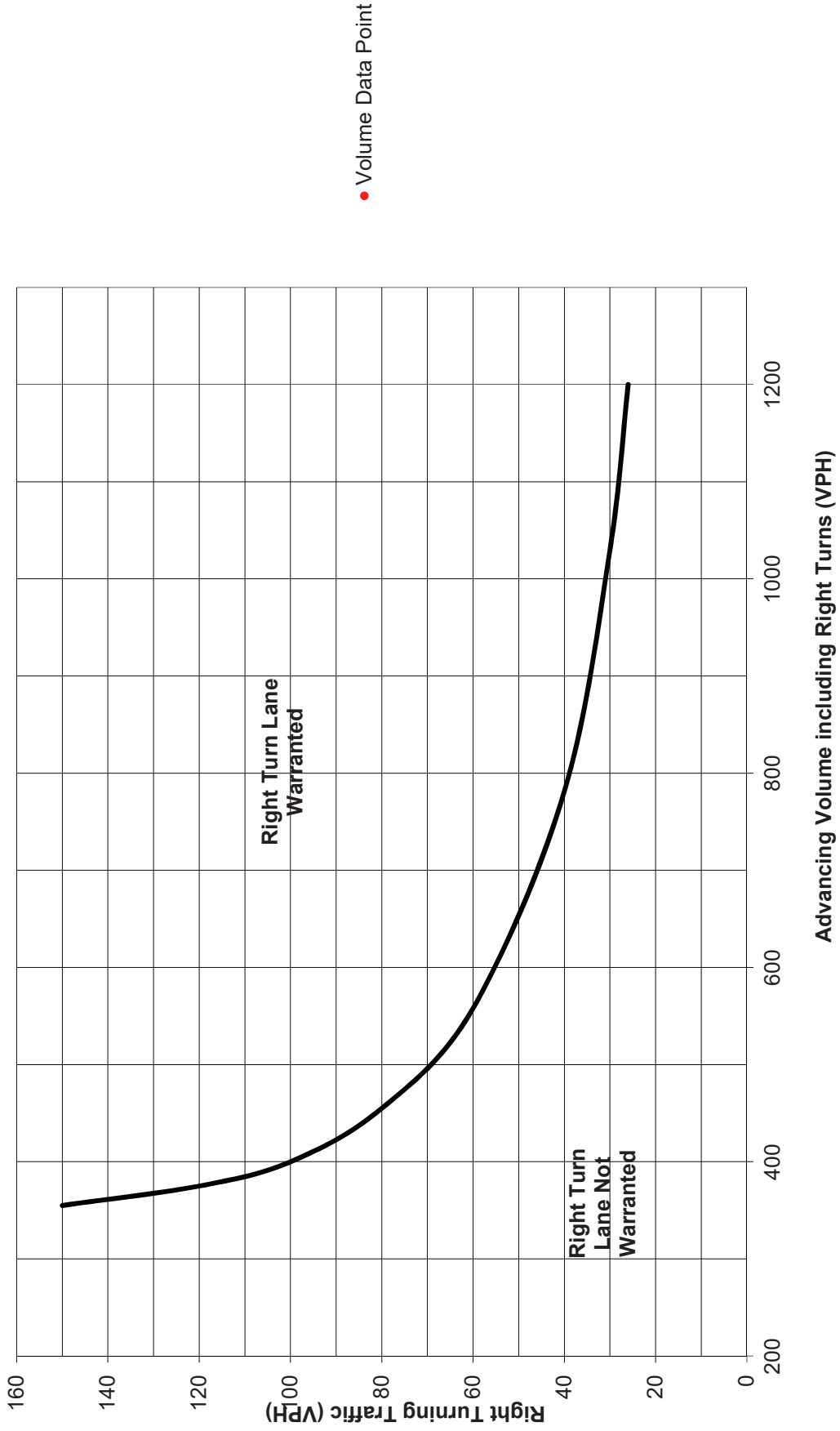
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings:
N/A

Additional Comments / Justifications:

**Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)**



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality: Plains Township	Analysis Date: 2/14/2018
County: Luzerne County	Conducted By: EJD
PennDOT Engineering District: 4	Checked By:
	Agency/Company Name: Borton-Lawson
Intersection & Approach Description: SR 2024 (Maffett Street) & Haines Street Northbound Left	
Analysis Period: 2027 Build	Number of Approach Lanes: 1
Design Hour: PM Peak Hour	Undivided or Divided Highway: Undivided
Intersection Control: Unsignalized	
Posted Speed Limit (MPH): 25	Type of Analysis
Type of Terrain: Rolling	Left or Right-Turn Lane Analysis?: Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	14	0.0%	14
	Through	-	524	3.0%	548
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	437	4.0%	464
	Right	Yes	17	12.0%	21

Advancing Volume:	562
Opposing Volume:	485
Left Turn Volume:	14

% Left Turns in Advancing Volume: 2.49%

Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	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	Right Turn Lane Warrant Findings
Applicable Warrant Figure: Figure 1	Applicable Warrant Figure: N/A
Warrant Met?: No	Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control: Unsignalized	
Design Hour Volume of Turning Lane: 14	
Cycles Per Hour (Assumed): Known	
Cycles Per Hour (If Known): 60	Average # of Vehicles/Cycle: N/A

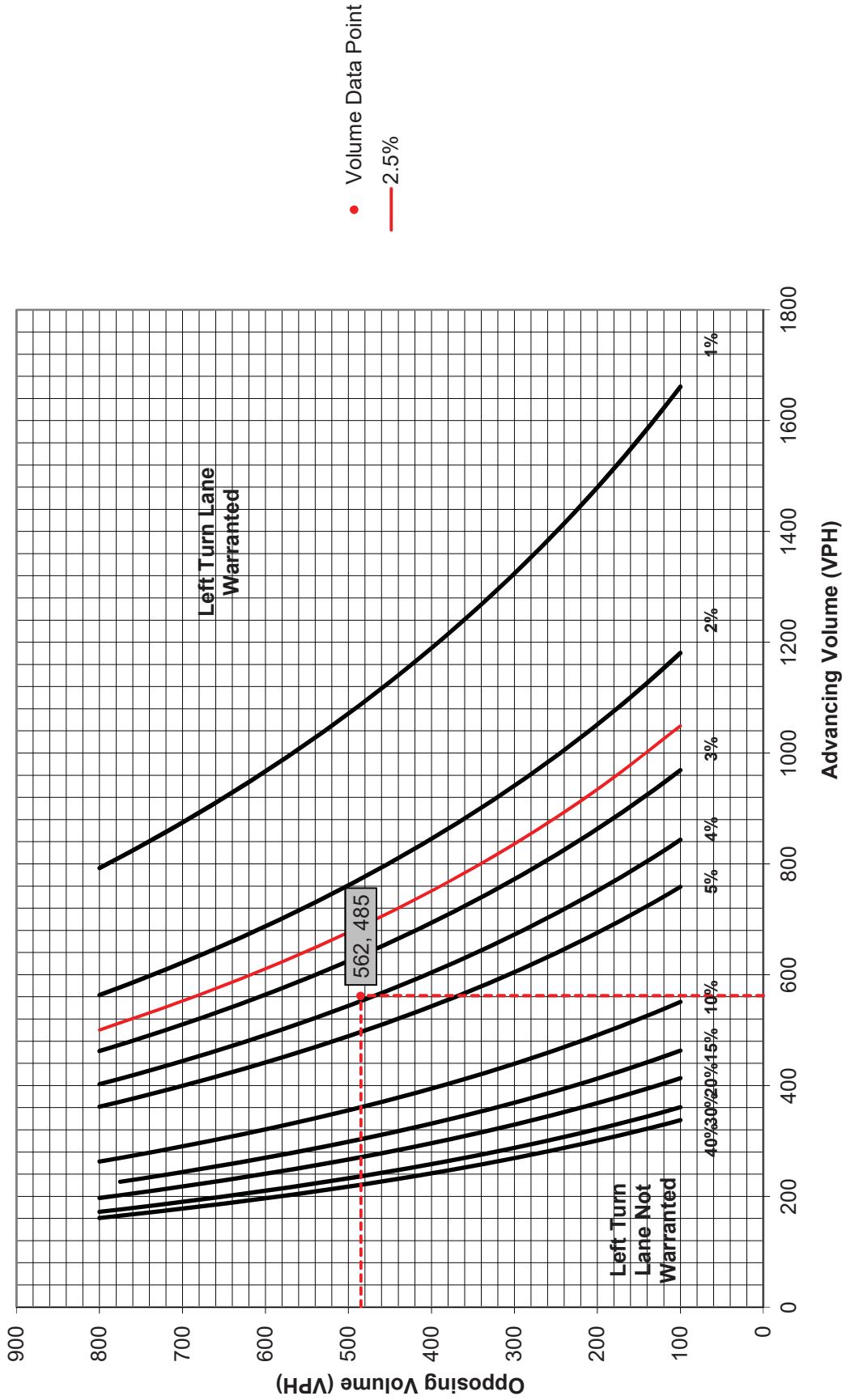
Type of Traffic Control	PennDOT Publication 46, Exhibit 11-6					
	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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: Plains Township	Analysis Date: 3/16/2018
County: Luzerne County	Conducted By: EJD
PennDOT Engineering District: 4	Checked By: LSS
	Agency/Company Name: Borton-Lawson
Intersection & Approach Description: SR 2024 (Maffett Street) & Haines Street Southbound Right	
Analysis Period: 2027 Build	Number of Approach Lanes: 1
Design Hour: PM Peak Hour	Undivided or Divided Highway: Undivided
Intersection Control: Unsignalized	
Posted Speed Limit (MPH): 25	Type of Analysis
Type of Terrain: Rolling	Left or Right-Turn Lane Analysis?: Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	0	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	0	0.0%	N/A
	Through	-	437	6.0%	477
	Right	-	17	6.0%	19

Advancing Volume: 496
 Right Turn Volume: 19

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: N/A	Applicable Warrant Figure: Figure 9
Warrant Met?: N/A	Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control: Unsignalized	Average # of Vehicles/Cycle: N/A
Design Hour Volume of Turning Lane: 19	
Cycles Per Hour (Assumed): Known	
Cycles Per Hour (If Known): 60	

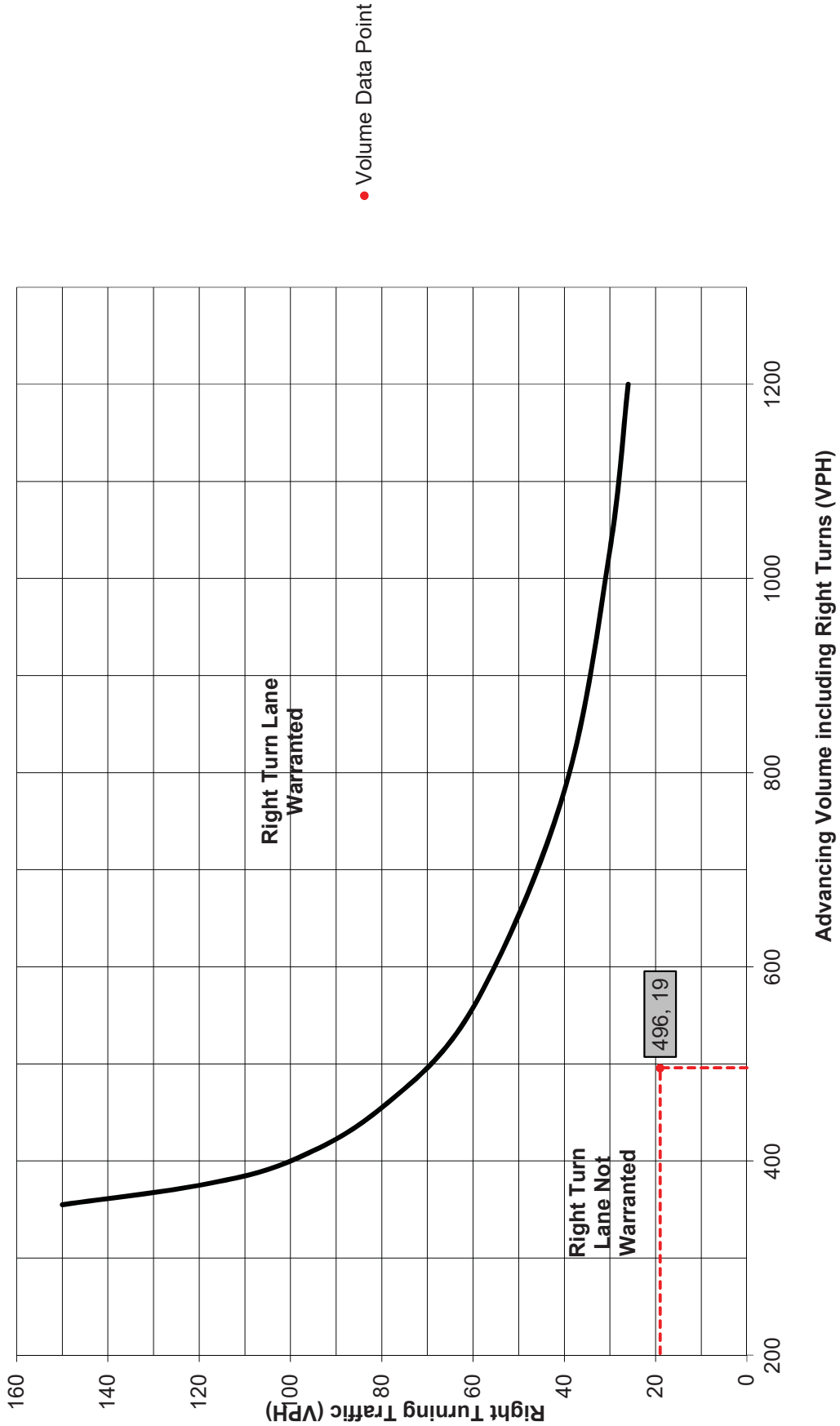
Type of Traffic Control	PennDOT Publication 46, Exhibit 11-6					
	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

**Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)**



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality: Plains Township	Analysis Date: 3/16/2018
County: Luzerne County	Conducted By: EJD
PennDOT Engineering District: 4	Checked By: LSS
	Agency/Company Name: Borton-Lawson
Intersection & Approach Description: SR 2024 (Maffett Street) & Mercer Street Eastbound Right	
Analysis Period: 2027 Build	Number of Approach Lanes: 1
Design Hour: AM Peak Hour	Undivided or Divided Highway: Undivided
Intersection Control: Unsignalized	
Posted Speed Limit (MPH): 25	Type of Analysis
Type of Terrain: Rolling	Left or Right-Turn Lane Analysis?: Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	0	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	Yes	9	0.0%	9
	Through	-	0	0.0%	0
	Right	-	2	0.0%	2

Advancing Volume:	11
Right Turn Volume:	2

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: N/A	Applicable Warrant Figure: Figure 9
Warrant Met?: N/A	Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control: Unsignalized	
Design Hour Volume of Turning Lane: 2	
Cycles Per Hour (Assumed): Known	
Cycles Per Hour (If Known): 60	Average # of Vehicles/Cycle: N/A

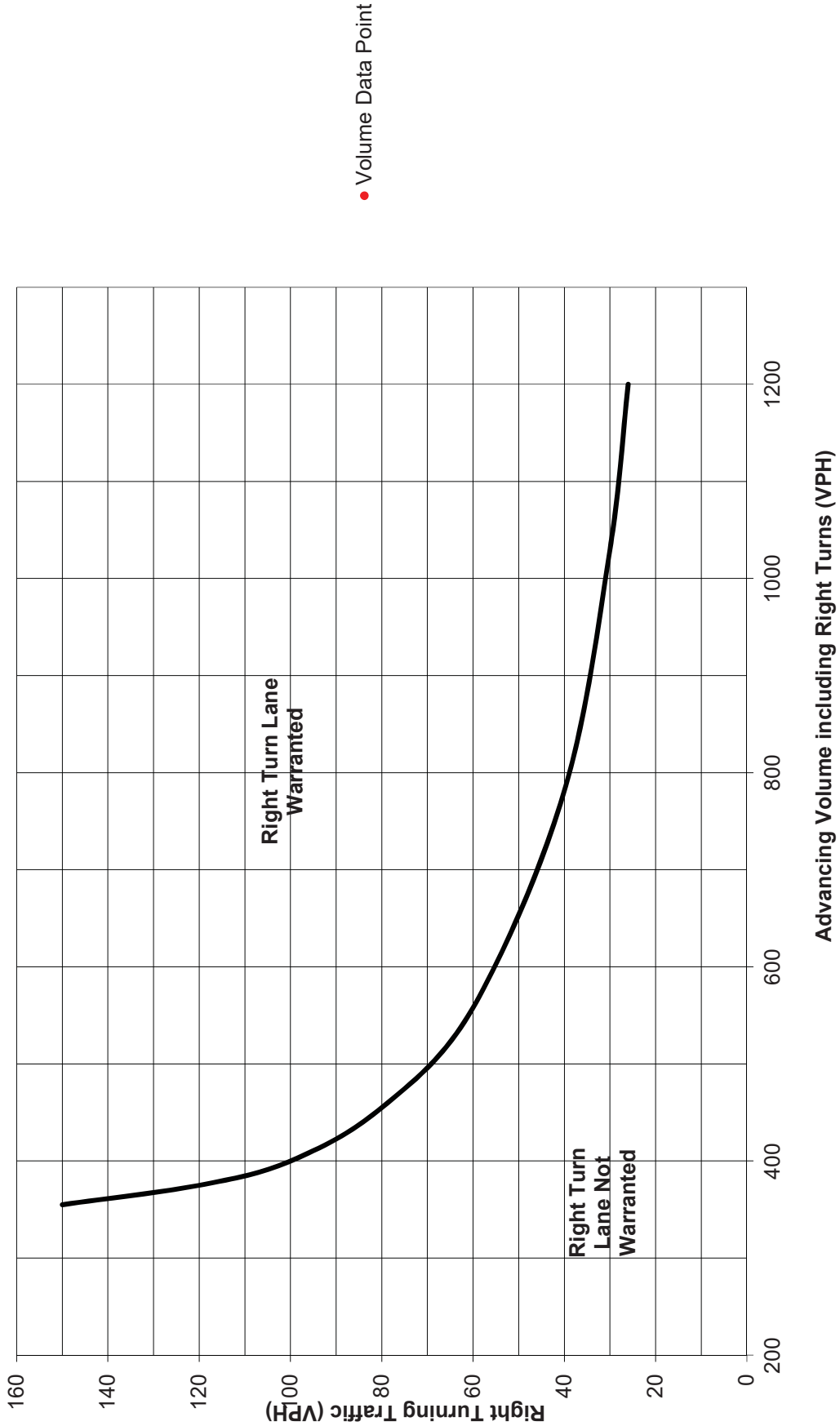
Type of Traffic Control	PennDOT Publication 46, Exhibit 11-6					
	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings:
N/A

Additional Comments / Justifications:

**Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)**



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Plains Township	Analysis Date:	2/14/2018
County:	LuZerne County	Conducted By:	EJD
PennDOT Engineering District:	4	Checked By:	
		Agency/Company Name:	Borton-Lawson
Intersection & Approach Description: SR 2024 (Maffett Street) & Mercer Street Northbound Left			
Analysis Period:	2027 Build	Number of Approach Lanes:	1
Design Hour:	AM Peak Hour	Undivided or Divided Highway:	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	25	Type of Analysis	
Type of Terrain:	Rolling	Left or Right-Turn Lane Analysis?:	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	5	20.0%	7
	Through	-	569	8.0%	638
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	408	6.0%	445
	Right	Yes	2	0.0%	2

Advancing Volume:	645
Opposing Volume:	447
Left Turn Volume:	7

% Left Turns in Advancing Volume: 1.09%

Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	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	Right Turn Lane Warrant Findings
Applicable Warrant Figure: Figure 1	Applicable Warrant Figure: N/A
Warrant Met?: No	Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized	Average # of Vehicles/Cycle:	N/A
Design Hour Volume of Turning Lane:	7		
Cycles Per Hour (Assumed):	Known		
Cycles Per Hour (If Known):	60		

PennDOT Publication 46, Exhibit 11-6

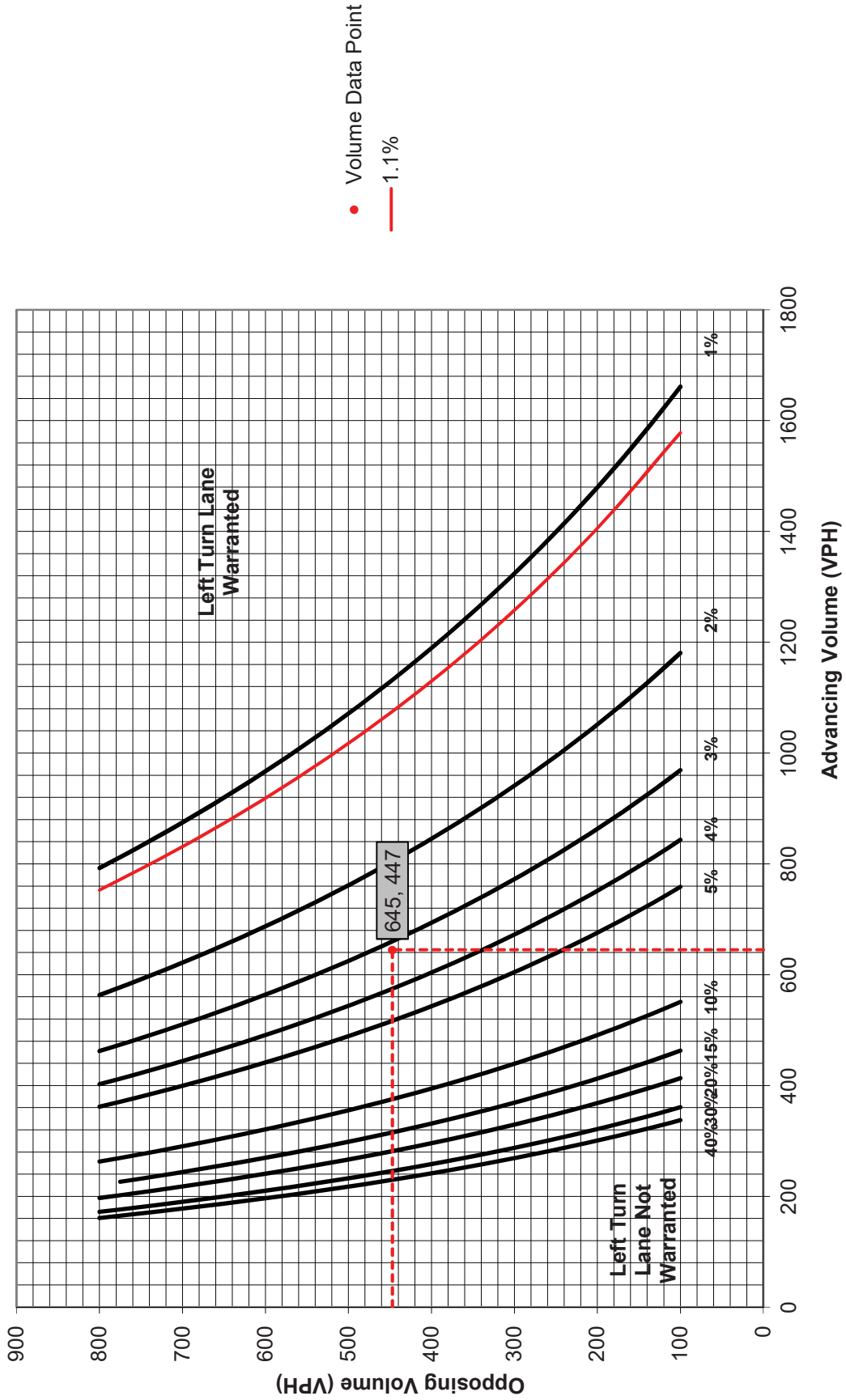
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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: Plains Township	Analysis Date: 3/16/2018
County: Luzerne County	Conducted By: EJD
PennDOT Engineering District: 4	Checked By: LSS
	Agency/Company Name: Borton-Lawson
Intersection & Approach Description: SR 2024 (Maffett Street) & Mercer Street Southbound Right	
Analysis Period: 2027 Build	Number of Approach Lanes: 1
Design Hour: AM Peak Hour	Undivided or Divided Highway: Undivided
Intersection Control: Unsignalized	
Posted Speed Limit (MPH): 25	Type of Analysis
Type of Terrain: Rolling	Left or Right-Turn Lane Analysis?: Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	0	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	0	0.0%	N/A
	Through	-	408	6.0%	445
	Right	-	2	0.0%	2

Advancing Volume: 447
 Right Turn Volume: 2

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: N/A	Applicable Warrant Figure: Figure 9
Warrant Met?: N/A	Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control: Unsignalized	Average # of Vehicles/Cycle: N/A
Design Hour Volume of Turning Lane: 2	
Cycles Per Hour (Assumed): Known	
Cycles Per Hour (If Known): 60	

PennDOT Publication 46, Exhibit 11-6

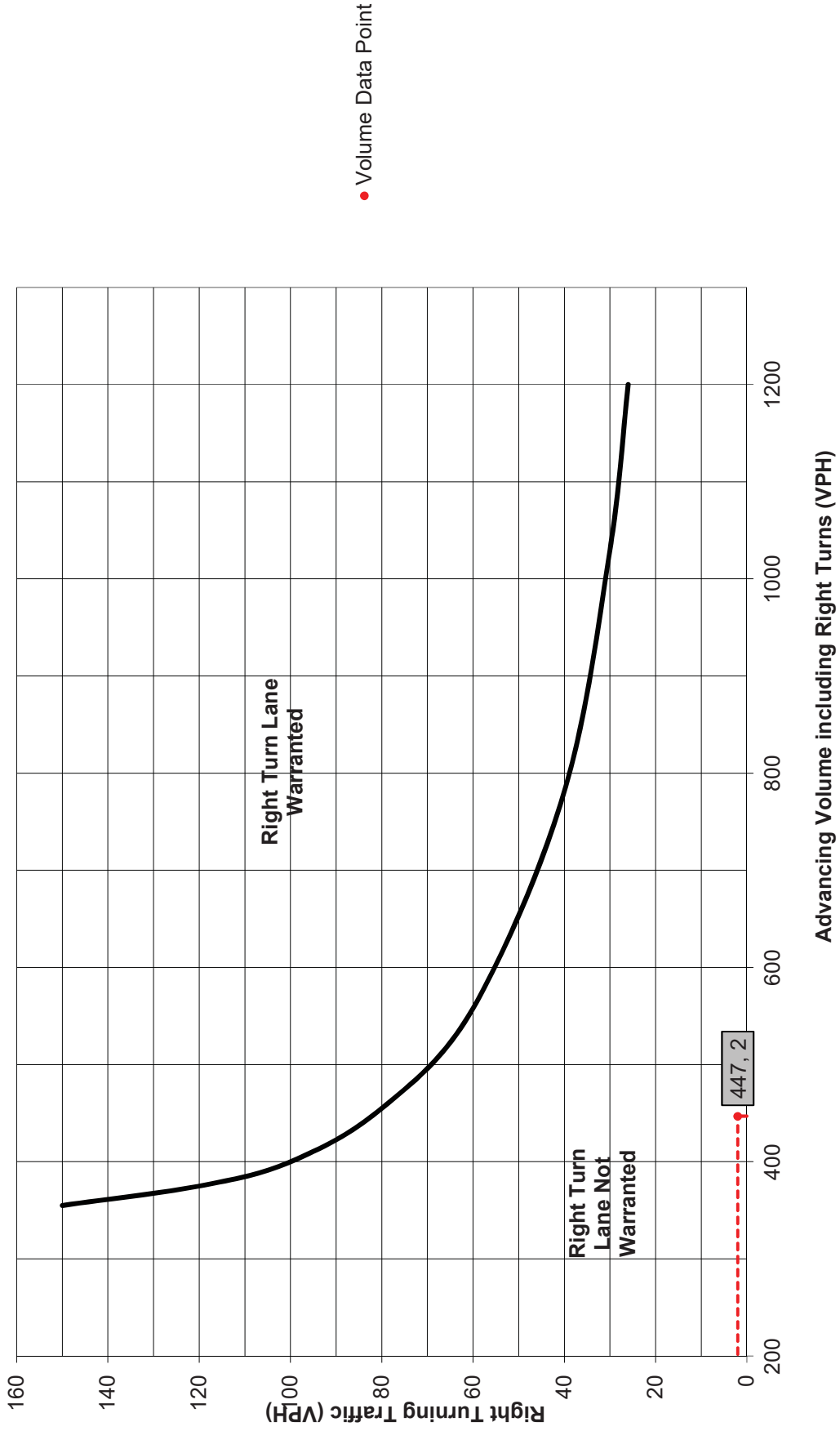
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

**Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)**



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Plains Township	Analysis Date:	3/16/2018
County:	Luzerne County	Conducted By:	EJD
PennDOT Engineering District:	4	Checked By:	LSS
		Agency/Company Name:	Borton-Lawson
Intersection & Approach Description: SR 2024 (Maffett Street) & Mercer Street Eastbound Right			
Analysis Period:	2027 Build	Number of Approach Lanes:	1
Design Hour:	PM Peak Hour	Undivided or Divided Highway:	Undivided
Intersection Control:	Unsignalized	Type of Analysis	
Posted Speed Limit (MPH):	25		
Type of Terrain:	Rolling		
		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	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	5	0.0%	5
	Through	-	0	0.0%	0
	Right	-	5	0.0%	5

Advancing Volume:	10
Right Turn Volume:	5

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: N/A	Applicable Warrant Figure: Figure 9
Warrant Met?: N/A	Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized	
Design Hour Volume of Turning Lane:	5	
Cycles Per Hour (Assumed):	Known	
Cycles Per Hour (If Known):	60	Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

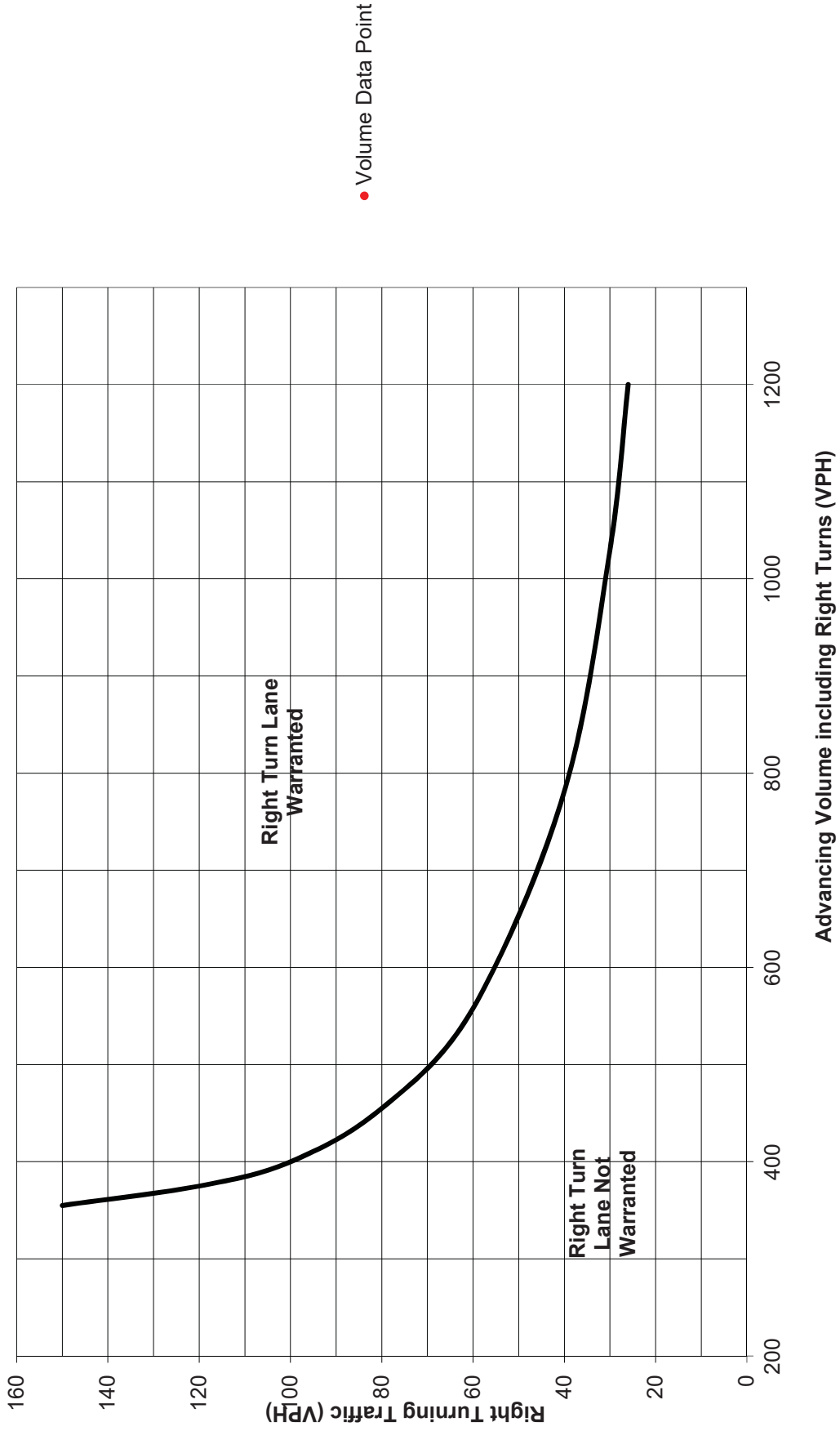
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings:
N/A

Additional Comments / Justifications:

**Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)**



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Plains Township	Analysis Date:	2/14/2018
County:	Luzerne County	Conducted By:	EJD
PennDOT Engineering District:	4	Checked By:	
		Agency/Company Name:	Borton-Lawson
Intersection & Approach Description: SR 2024 (Maffett Street) & Mercer Street Northbound Left			
Analysis Period:	2027 Build	Number of Approach Lanes:	1
Design Hour:	PM Peak Hour	Undivided or Divided Highway:	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	25	Type of Analysis:	Left Turn Lane
Type of Terrain:	Rolling	Left or Right-Turn Lane Analysis?:	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	11	0.0%	11
	Through	-	546	2.0%	563
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	428	3.0%	448
	Right	Yes	7	0.0%	7

Advancing Volume:	574
Opposing Volume:	455
Left Turn Volume:	11

% Left Turns in Advancing Volume: 1.92%

Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	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	Right Turn Lane Warrant Findings
Applicable Warrant Figure: Figure 1	Applicable Warrant Figure: N/A
Warrant Met?: No	Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized	Average # of Vehicles/Cycle:	N/A
Design Hour Volume of Turning Lane:	11		
Cycles Per Hour (Assumed):	Known		
Cycles Per Hour (If Known):	60		

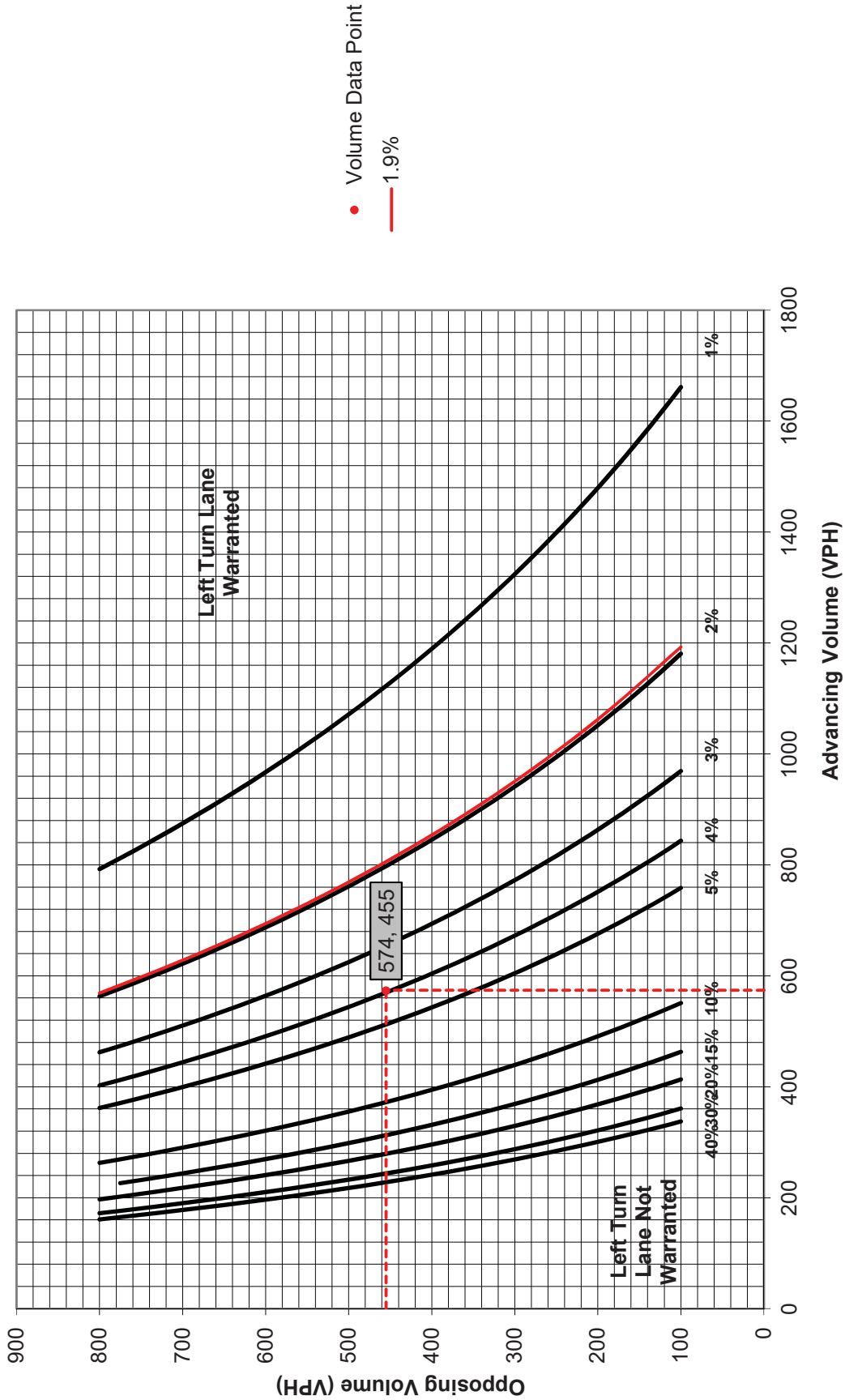
Type of Traffic Control	PennDOT Publication 46, Exhibit 11-6					
	Speed (MPH)					
	25-35		40-45		50-60	
Turn Demand Volume						
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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: Plains Township	Analysis Date: 3/16/2018
County: Luzerne County	Conducted By: EJD
PennDOT Engineering District: 4	Checked By: LSS
	Agency/Company Name: Borton-Lawson
Intersection & Approach Description: SR 2024 (Maffett Street) & Mercer Street Southbound Right	
Analysis Period: 2027 Build	Number of Approach Lanes: 1
Design Hour: PM Peak Hour	Undivided or Divided Highway: Undivided
Intersection Control: Unsignalized	
Posted Speed Limit (MPH): 25	Type of Analysis
Type of Terrain: Rolling	Left or Right-Turn Lane Analysis?: Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	0	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	0	0.0%	N/A
	Through	-	428	3.0%	448
	Right	-	7	0.0%	7

Advancing Volume: 455
 Right Turn Volume: 7

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: N/A	Applicable Warrant Figure: Figure 9
Warrant Met?: N/A	Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control: Unsignalized	Average # of Vehicles/Cycle: N/A
Design Hour Volume of Turning Lane: 7	
Cycles Per Hour (Assumed): Known	
Cycles Per Hour (If Known): 60	

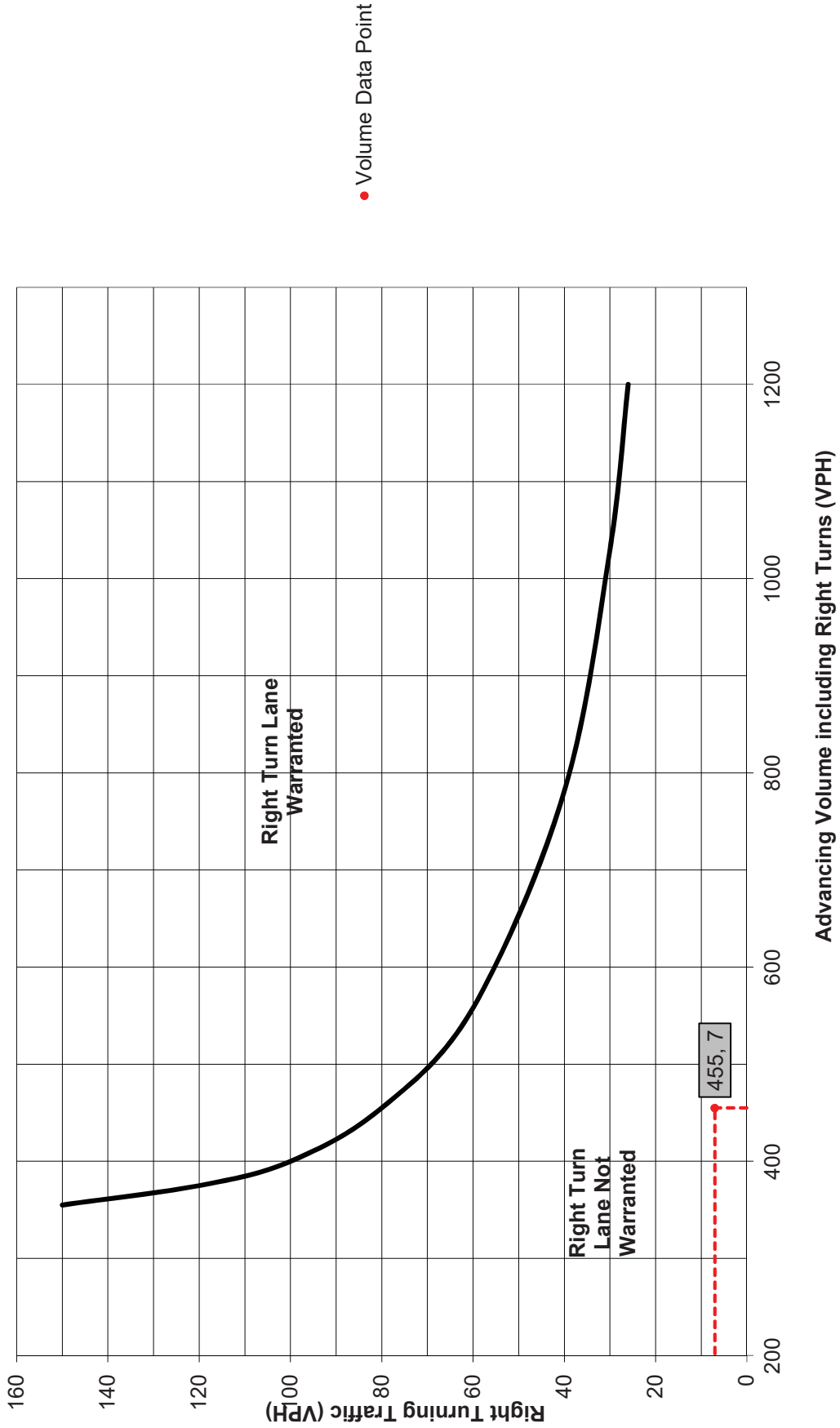
Type of Traffic Control	PennDOT Publication 46, Exhibit 11-6					
	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume		Turn Demand Volume		Turn Demand Volume	
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

**Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)**



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality: Plains Township	Analysis Date: 3/16/2018
County: Luzerne County	Conducted By: EJD
PennDOT Engineering District: 4	Checked By: LSS
	Agency/Company Name: Borton-Lawson
Intersection & Approach Description: SR 2024 (Maffett Street) & SR 2022 (Main Street) / Abbott Street Northbound Right	
Analysis Period: 2027 Build	Number of Approach Lanes: 1
Design Hour: AM Peak Hour	Undivided or Divided Highway: Undivided
Intersection Control: Unsignalized	
Posted Speed Limit (MPH): 25	Type of Analysis
Type of Terrain: Rolling	Left or Right-Turn Lane Analysis?: Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	0	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	0	0.0%	N/A
	Through	-	200	6.0%	218
	Right	-	75	2.0%	78

Advancing Volume: 296

Right Turn Volume: 78

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: N/A	Applicable Warrant Figure: Figure 9
Warrant Met?: N/A	Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control: Unsignalized	
Design Hour Volume of Turning Lane: 78	
Cycles Per Hour (Assumed): Known	
Cycles Per Hour (If Known): 60	Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

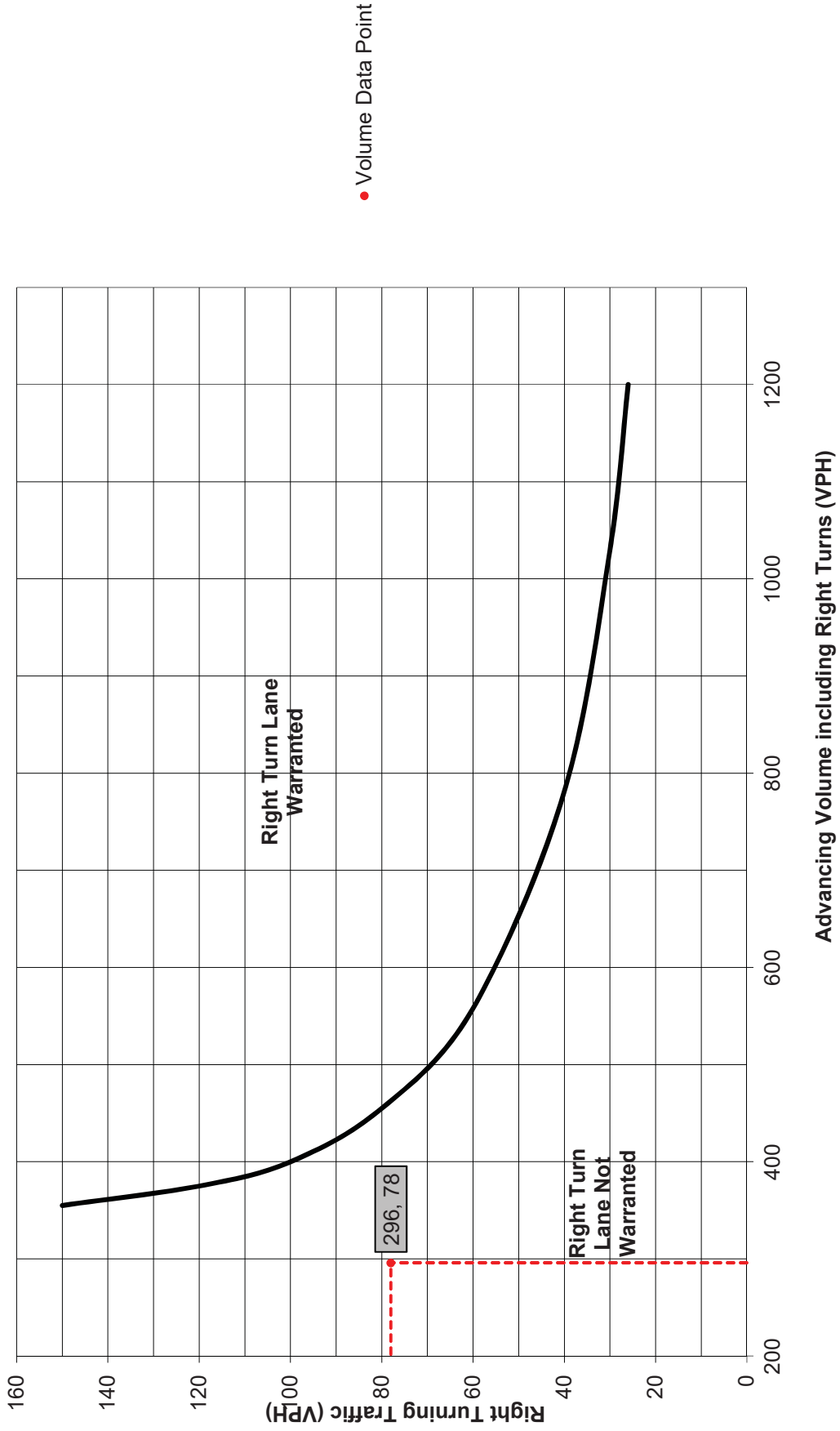
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings:
N/A

Additional Comments / Justifications:

**Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)**



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality: Plains Township	Analysis Date: 3/16/2018
County: Luzerne County	Conducted By: EJD
PennDOT Engineering District: 4	Checked By: LSS
	Agency/Company Name: Borton-Lawson
Intersection & Approach Description: SR 2024 (Maffett Street) & SR 2022 (Main Street) / Abbott Street Northwestbound Right	
Analysis Period: 2027 Build	Number of Approach Lanes: 1
Design Hour: AM Peak Hour	Undivided or Divided Highway: Undivided
Intersection Control: Unsignalized	
Posted Speed Limit (MPH): 25	Type of Analysis
Type of Terrain: Rolling	Left or Right-Turn Lane Analysis?: Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	0	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	0	0.0%	N/A
	Through	-	100	5.0%	108
	Right	-	22	0.0%	22

Advancing Volume: 130
 Right Turn Volume: 22

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: N/A	Applicable Warrant Figure: Figure 9
Warrant Met?: N/A	Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control: Unsignalized	
Design Hour Volume of Turning Lane: 22	
Cycles Per Hour (Assumed): Known	
Cycles Per Hour (If Known): 60	Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

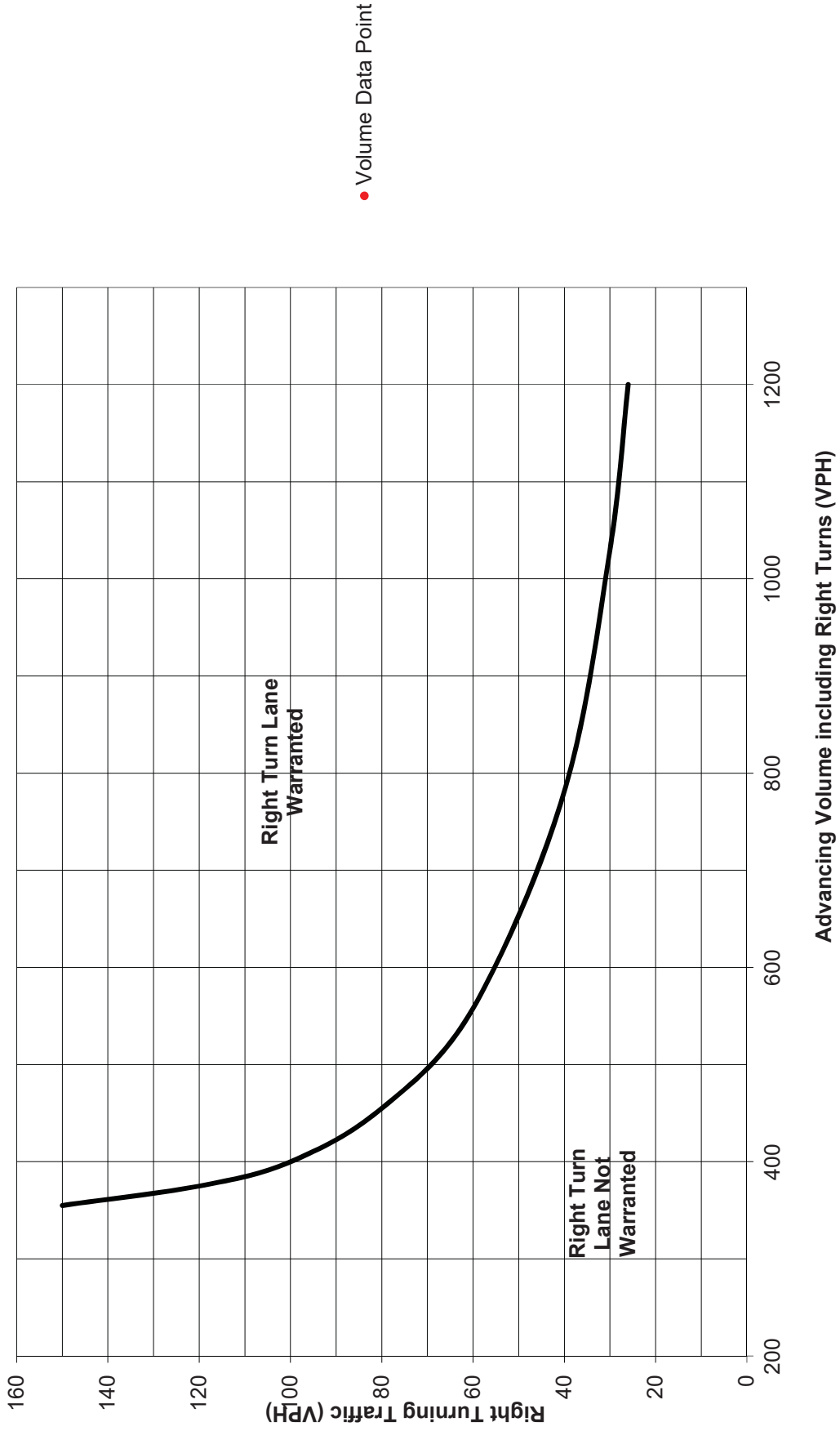
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A: N/A Feet
 Condition B: N/A Feet
 Condition C: N/A Feet
 Required Right Turn Lane Storage Length: N/A Feet

Additional Findings:
N/A

Additional Comments / Justifications:

**Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)**



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality: Plains Township	Analysis Date: 2/14/2018
County: Luzerne County	Conducted By: EJD
PennDOT Engineering District: 4	Checked By:
	Agency/Company Name: Borton-Lawson
Intersection & Approach Description: SR 2024 (Maffett Street) & SR 2022 (Main Street) / Abbott Street Southbound Left	
Analysis Period: 2027 Build	Number of Approach Lanes: 1
Design Hour: AM Peak Hour	Undivided or Divided Highway: Undivided
Intersection Control: Unsignalized	
Posted Speed Limit (MPH): 25	Type of Analysis
Type of Terrain: Rolling	Left or Right-Turn Lane Analysis?: Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	440	3.0%	460
	Through	-	279	3.0%	292
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	200	6.0%	218
	Right	Yes	75	2.0%	78

Advancing Volume:	752
Opposing Volume:	296
Left Turn Volume:	460

% Left Turns in Advancing Volume: 61.17%

Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	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	Right Turn Lane Warrant Findings
Applicable Warrant Figure: Figure 1 Warrant Met?: Yes	Applicable Warrant Figure: N/A Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control: Unsignalized	
Design Hour Volume of Turning Lane: 460	
Cycles Per Hour (Assumed): Known	
Cycles Per Hour (If Known): 60	Average # of Vehicles/Cycle: 8.0

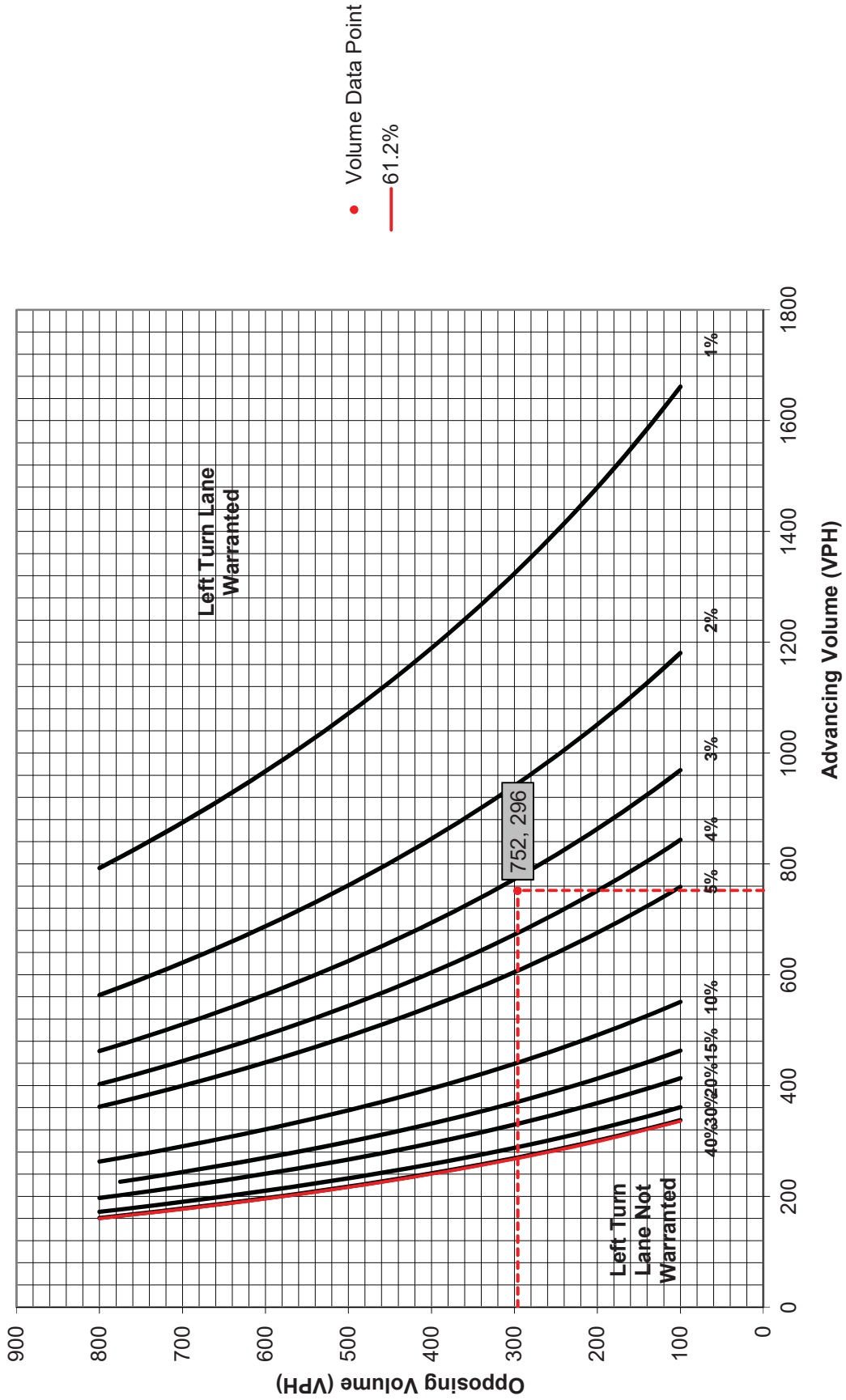
Type of Traffic Control	PennDOT Publication 46, Exhibit 11-6					
	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume		Turn Demand Volume		Turn Demand Volume	
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	325	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	325	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: Plains Township	Analysis Date: 3/16/2018
County: Luzerne County	Conducted By: EJD
PennDOT Engineering District: 4	Checked By: LSS
	Agency/Company Name: Borton-Lawson
Intersection & Approach Description: SR 2024 (Maffett Street) & SR 2022 (Main Street) / Abbott Street Westbound Right	
Analysis Period: 2027 Build	Number of Approach Lanes: 1
Design Hour: AM Peak Hour	Undivided or Divided Highway: Undivided
Intersection Control: Unsignalized	
Posted Speed Limit (MPH): 25	Type of Analysis
Type of Terrain: Rolling	Left or Right-Turn Lane Analysis?: Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	0	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	0	0.0%	N/A
	Through	-	58	0.0%	58
	Right	-	38	0.0%	38

Advancing Volume:	96
Right Turn Volume:	38

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: N/A	Applicable Warrant Figure: Figure 9
Warrant Met?: N/A	Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control: Unsignalized	Average # of Vehicles/Cycle: N/A
Design Hour Volume of Turning Lane: 38	
Cycles Per Hour (Assumed): Known	
Cycles Per Hour (If Known): 60	

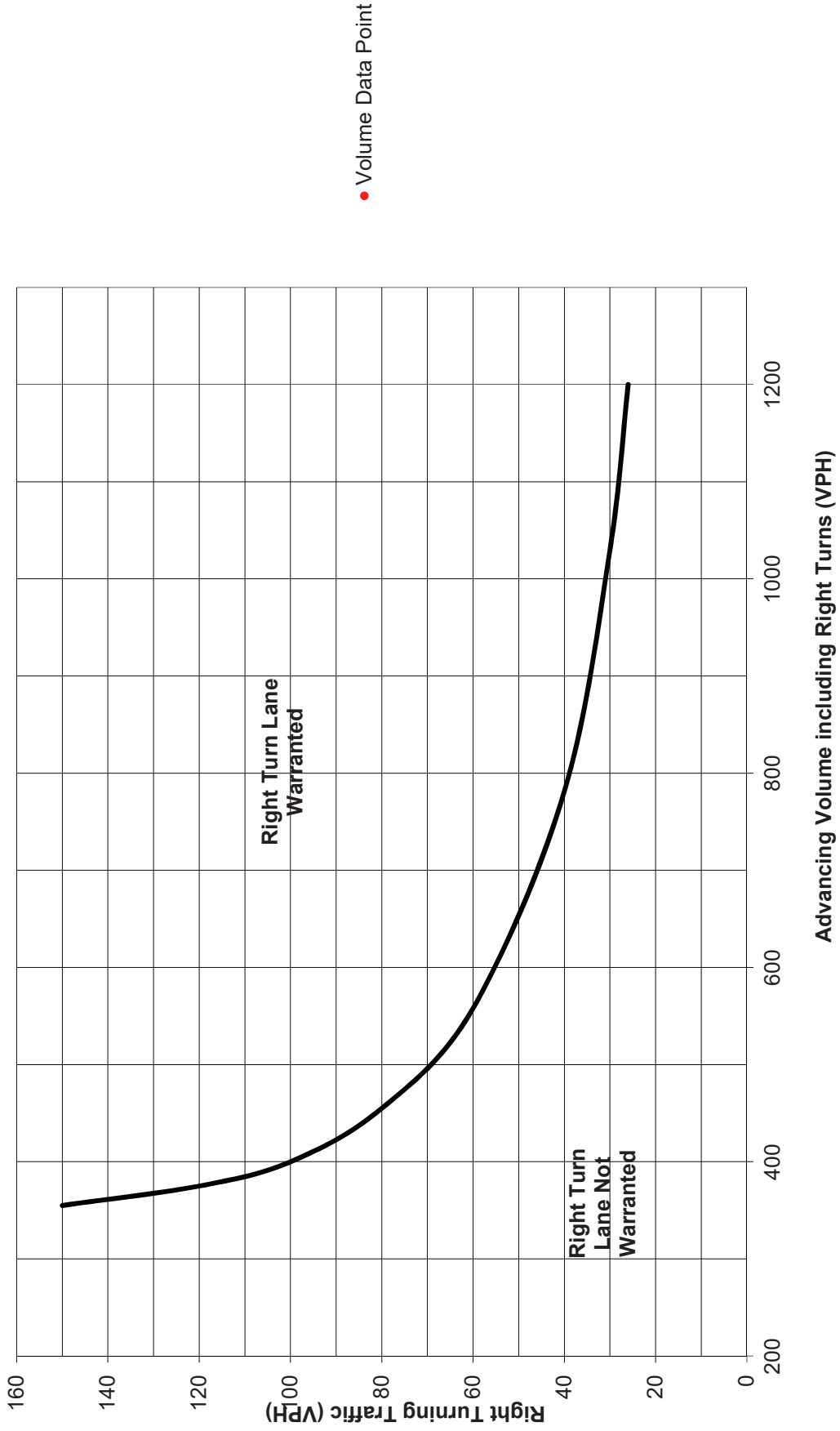
Type of Traffic Control	PennDOT Publication 46, Exhibit 11-6					
	Speed (MPH)					
	25-35		40-45		50-60	
Turn Demand Volume						
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings:
N/A

Additional Comments / Justifications:

**Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)**



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality: <input type="text" value="Plains Township"/>	Analysis Date: <input type="text" value="3/16/2018"/>
County: <input type="text" value="Luzerne County"/>	Conducted By: <input type="text" value="EJD"/>
PennDOT Engineering District: <input type="text" value="4"/>	Checked By: <input type="text" value="LSS"/>
	Agency/Company Name: <input type="text" value="Borton-Lawson"/>
Intersection & Approach Description: <input type="text" value="SR 2024 (Maffett Street) & SR 2022 (Main Street) / Abbott Street Northbound Right"/>	
Analysis Period: <input type="text" value="2027 Build"/>	Number of Approach Lanes: <input type="text" value="1"/>
Design Hour: <input type="text" value="PM Peak Hour"/>	Undivided or Divided Highway: <input type="text" value="Undivided"/>
Intersection Control: <input type="text" value="Unsignalized"/>	
Posted Speed Limit (MPH): <input type="text" value="25"/>	Type of Analysis: <input type="text" value="Right Turn Lane"/>
Type of Terrain: <input type="text" value="Rolling"/>	Left or Right-Turn Lane Analysis?: <input type="text" value="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	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	0	0.0%	N/A
	Through	-	400	2.0%	412
	Right	-	94	2.0%	97

Advancing Volume:	509
Right Turn Volume:	97

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: <input style="width: 80px;" type="text" value="N/A"/>	Applicable Warrant Figure: <input style="width: 80px;" type="text" value="Figure 9"/>
Warrant Met?: <input style="width: 80px;" type="text" value="N/A"/>	Warrant Met?: <input style="width: 80px;" type="text" value="Yes"/>

TURN LANE LENGTH CALCULATIONS

Intersection Control: <input type="text" value="Unsignalized"/>	
Design Hour Volume of Turning Lane: <input type="text" value="97"/>	
Cycles Per Hour (Assumed): <input type="text" value="Known"/>	
Cycles Per Hour (If Known): <input type="text" value="60"/>	Average # of Vehicles/Cycle: <input style="width: 100px;" type="text" value="2.0"/>

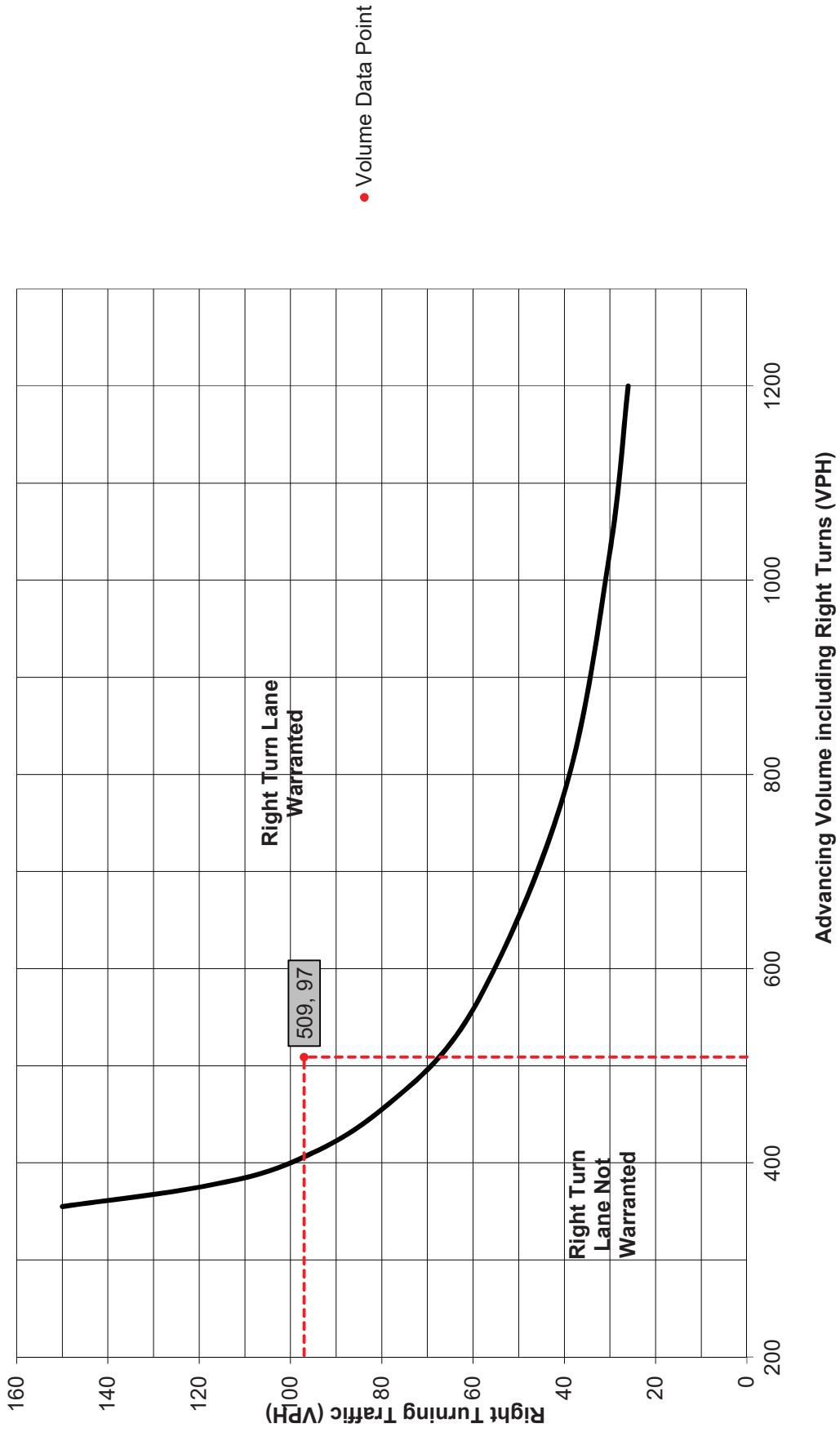
Type of Traffic Control	PennDOT Publication 46, Exhibit 11-6					
	Speed (MPH)					
	25-35		40-45		50-60	
Turn Demand Volume						
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:

Additional Comments / Justifications:

**Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)**



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality: Plains Township	Analysis Date: 3/16/2018
County: Luzerne County	Conducted By: EJD
PennDOT Engineering District: 4	Checked By: LSS
	Agency/Company Name: Borton-Lawson
Intersection & Approach Description: SR 2024 (Maffett Street) & SR 2022 (Main Street) / Abbott Street Northwestbound Right	
Analysis Period: 2027 Build	Number of Approach Lanes: 1
Design Hour: PM Peak Hour	Undivided or Divided Highway: Undivided
Intersection Control: Unsignalized	
Posted Speed Limit (MPH): 25	Type of Analysis
Type of Terrain: Rolling	Left or Right-Turn Lane Analysis?: Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	0	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	Yes	2	0.0%	2
	Through	-	200	1.0%	203
	Right	-	19	0.0%	19

Advancing Volume:	224
Right Turn Volume:	19

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: N/A	Applicable Warrant Figure: Figure 9
Warrant Met?: N/A	Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control: Unsignalized	
Design Hour Volume of Turning Lane: 19	
Cycles Per Hour (Assumed): Known	
Cycles Per Hour (If Known): 60	Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

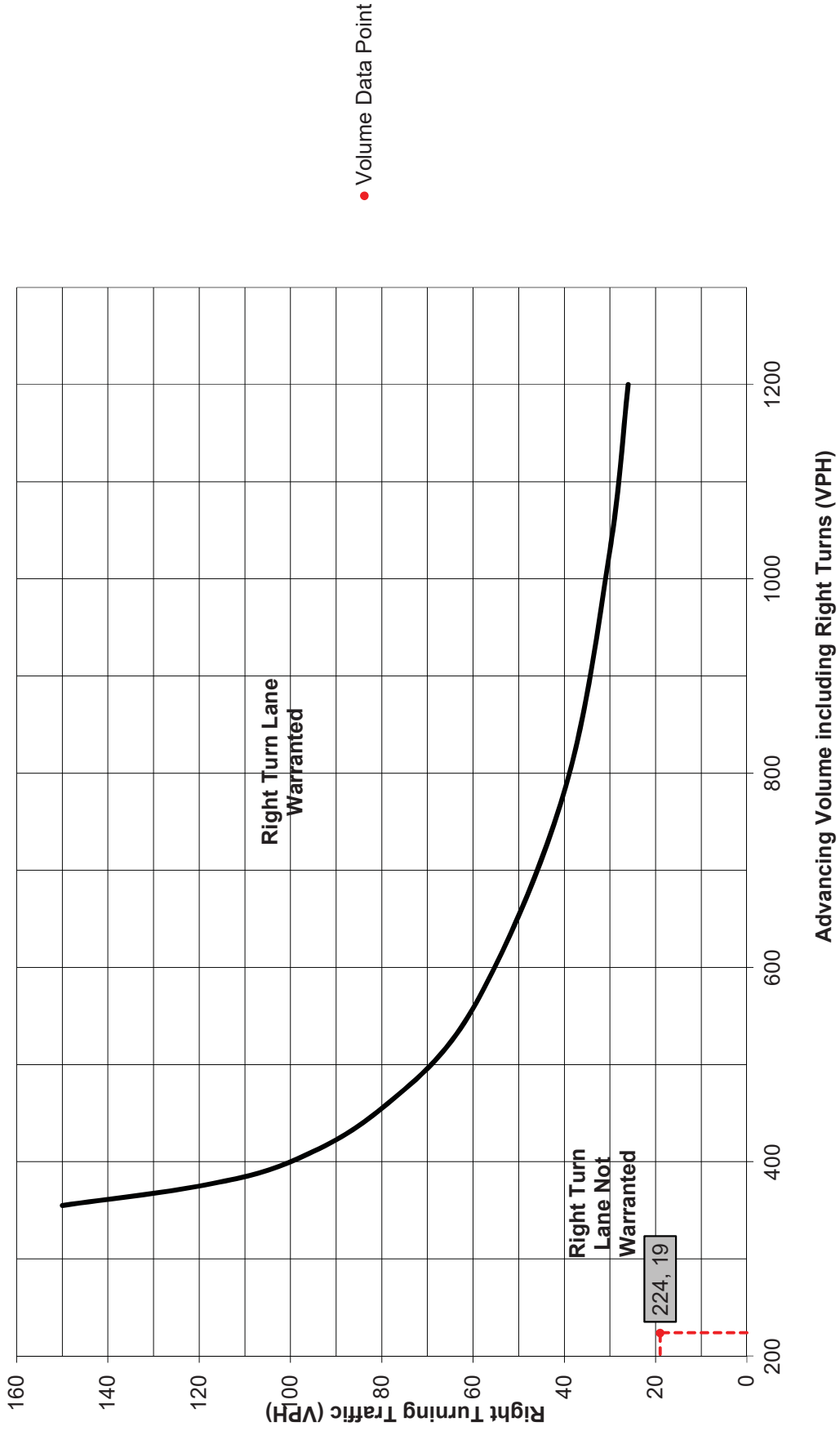
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings:
N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways (40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality: Plains Township	Analysis Date: 2/14/2018
County: Luzerne County	Conducted By: EJD
PennDOT Engineering District: 4	Checked By:
	Agency/Company Name: Borton-Lawson
Intersection & Approach Description: SR 2024 (Maffett Street) & SR 2022 (Main Street) / Abbott Street Southbound Left	
Analysis Period: 2027 Build	Number of Approach Lanes: 1
Design Hour: PM Peak Hour	Undivided or Divided Highway: Undivided
Intersection Control: Unsignalized	
Posted Speed Limit (MPH): 25	Type of Analysis
Type of Terrain: Rolling	Left or Right-Turn Lane Analysis?: Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	252	1.0%	256
	Through	-	197	0.0%	197
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	400	2.0%	412
	Right	Yes	94	2.0%	97

Advancing Volume:	453
Opposing Volume:	509
Left Turn Volume:	256

% Left Turns in Advancing Volume: 56.51%

Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	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	Right Turn Lane Warrant Findings
Applicable Warrant Figure: Figure 1	Applicable Warrant Figure: N/A
Warrant Met?: Yes	Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control: Unsignalized	
Design Hour Volume of Turning Lane: 256	
Cycles Per Hour (Assumed): Known	
Cycles Per Hour (If Known): 60	Average # of Vehicles/Cycle: 4.0

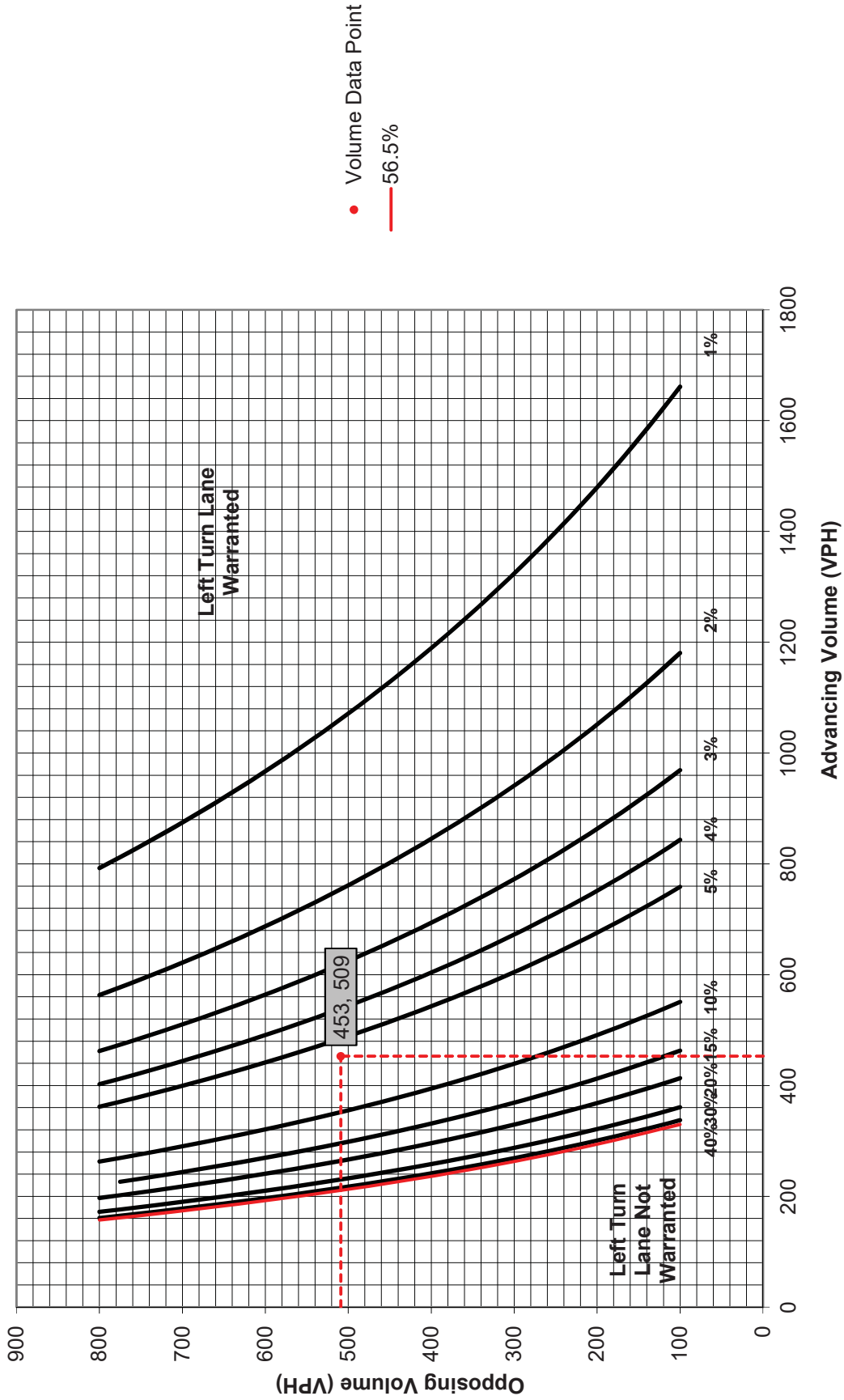
Type of Traffic Control	PennDOT Publication 46, Exhibit 11-6					
	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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: <input type="text" value="Plains Township"/>	Analysis Date: <input type="text" value="3/16/2018"/>
County: <input type="text" value="Luzerne County"/>	Conducted By: <input type="text" value="EJD"/>
PennDOT Engineering District: <input type="text" value="4"/>	Checked By: <input type="text" value="LSS"/>
	Agency/Company Name: <input type="text" value="Borton-Lawson"/>
Intersection & Approach Description: <input type="text" value="SR 2024 (Maffett Street) & SR 2022 (Main Street) / Abbott Street Westbound Right"/>	
Analysis Period: <input type="text" value="2027 Build"/>	Number of Approach Lanes: <input type="text" value="1"/>
Design Hour: <input type="text" value="PM Peak Hour"/>	Undivided or Divided Highway: <input type="text" value="Undivided"/>
Intersection Control: <input type="text" value="Unsignalized"/>	
Posted Speed Limit (MPH): <input type="text" value="25"/>	Type of Analysis: <input type="text" value="Right Turn Lane"/>
Type of Terrain: <input type="text" value="Rolling"/>	Left or Right-Turn Lane Analysis?: <input type="text" value="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	Yes	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	0	0.0%	N/A

Advancing Volume:	<input type="text" value="N/A"/>
Opposing Volume:	<input type="text" value="N/A"/>
Left Turn Volume:	<input type="text" value="N/A"/>
% Left Turns in Advancing Volume:	
	<input type="text" value="N/A"/>

Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	0	0.0%	N/A
	Through	-	29	0.0%	29
	Right	-	28	0.0%	28

Advancing Volume:	<input type="text" value="57"/>
Right Turn Volume:	<input type="text" value="28"/>

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: <input type="text" value="N/A"/>	Applicable Warrant Figure: <input type="text" value="Figure 9"/>
Warrant Met?: <input type="text" value="N/A"/>	Warrant Met?: <input type="text" value="No"/>

TURN LANE LENGTH CALCULATIONS

Intersection Control: <input type="text" value="Unsignalized"/>	
Design Hour Volume of Turning Lane: <input type="text" value="28"/>	
Cycles Per Hour (Assumed): <input type="text" value="Known"/>	
Cycles Per Hour (If Known): <input type="text" value="60"/>	Average # of Vehicles/Cycle: <input type="text" value="N/A"/>

PennDOT Publication 46, Exhibit 11-6

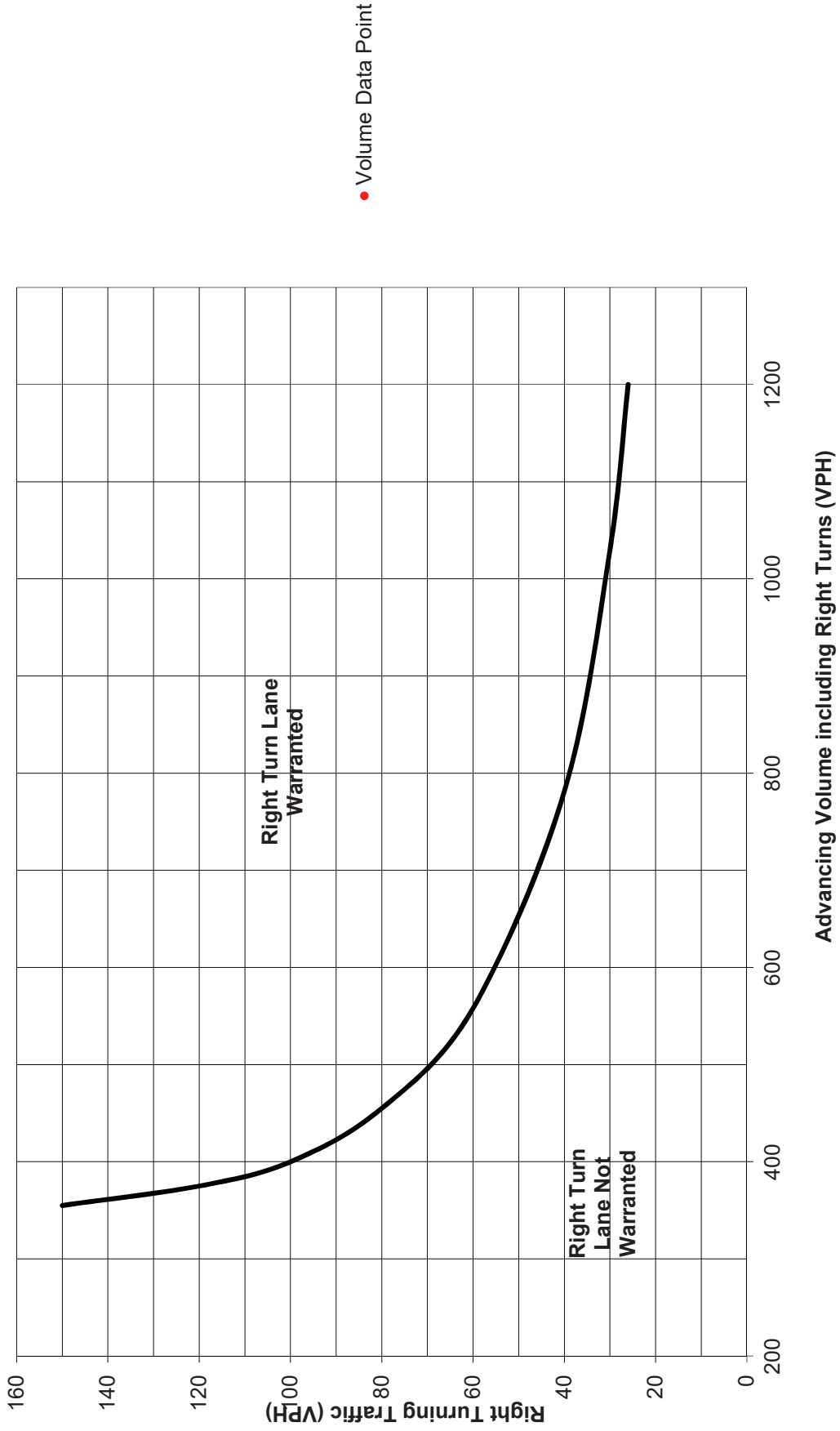
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	<input type="text" value="N/A"/>	Feet
Condition B:	<input type="text" value="N/A"/>	Feet
Condition C:	<input type="text" value="N/A"/>	Feet
Required Right Turn Lane Storage Length:	<input type="text" value="N/A"/>	Feet

Additional Findings:

Additional Comments / Justifications:

**Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)**



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality: Plains Township	Analysis Date: 2/14/2018
County: Luzerne County	Conducted By: EJD
PennDOT Engineering District: 4	Checked By:
	Agency/Company Name: Borton-Lawson
Intersection & Approach Description: SR 2024 (Maffett Street) & Driveway Northbound Right	
Analysis Period: 2027 Build	Number of Approach Lanes: 1
Design Hour: AM Peak Hour	Undivided or Divided Highway: Undivided
Intersection Control: Unsignalized	
Posted Speed Limit (MPH): 25	Type of Analysis
Type of Terrain: Rolling	Left or Right-Turn Lane Analysis?: Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	0	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	0	0.0%	N/A
	Through	-	243	8.0%	273
	Right	-	335	2.0%	346

Advancing Volume:	619
Right Turn Volume:	346

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: N/A	Applicable Warrant Figure: Figure 9
Warrant Met?: N/A	Warrant Met?: Yes

TURN LANE LENGTH CALCULATIONS

Intersection Control: Unsignalized	
Design Hour Volume of Turning Lane: 346	
Cycles Per Hour (Assumed): Known	
Cycles Per Hour (If Known): 40	Average # of Vehicles/Cycle: 9.0

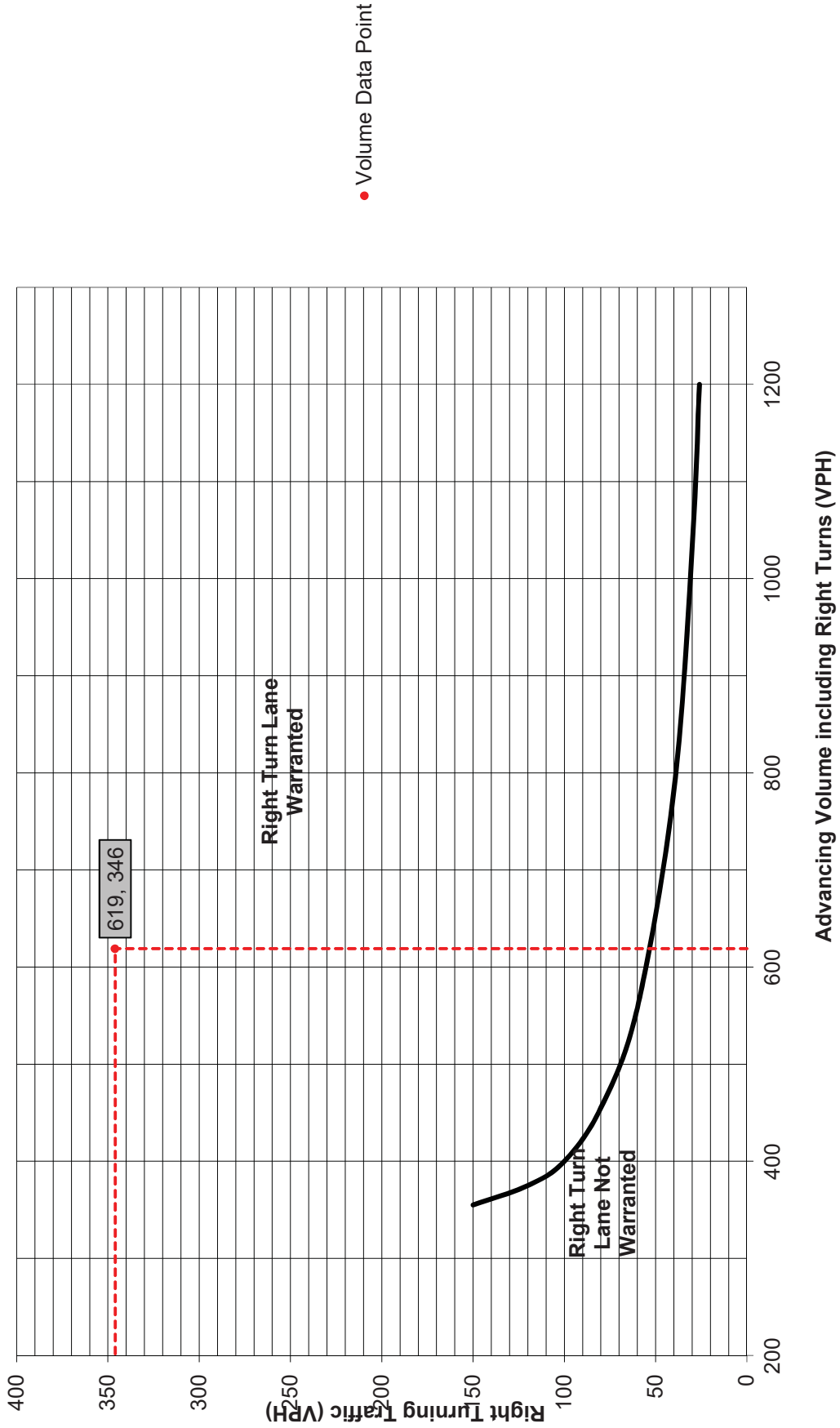
Type of Traffic Control	PennDOT Publication 46, Exhibit 11-6					
	Speed (MPH)					
	25-35		40-45		50-60	
Turn Demand Volume						
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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: Plains Township	Analysis Date: 2/14/2018
County: Luzerne County	Conducted By: EJD
PennDOT Engineering District: 4	Checked By:
	Agency/Company Name: Borton-Lawson
Intersection & Approach Description: SR 2024 (Maffett Street) & Driveway Southbound Left	
Analysis Period: 2027 Build	Number of Approach Lanes: 1
Design Hour: AM Peak Hour	Undivided or Divided Highway: Undivided
Intersection Control: Unsignalized	
Posted Speed Limit (MPH): 25	Type of Analysis
Type of Terrain: Rolling	Left or Right-Turn Lane Analysis?: Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	98	2.0%	101
	Through	-	230	6.0%	251
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	243	8.0%	273
	Right	Yes	335	2.0%	346

Advancing Volume:	352
Opposing Volume:	619
Left Turn Volume:	101

% Left Turns in Advancing Volume: 28.69%

Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	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	Right Turn Lane Warrant Findings
Applicable Warrant Figure: Figure 1 Warrant Met?: Yes	Applicable Warrant Figure: N/A Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control: Unsignalized	
Design Hour Volume of Turning Lane: 101	
Cycles Per Hour (Assumed): Known	
Cycles Per Hour (If Known): 40	Average # of Vehicles/Cycle: 3.0

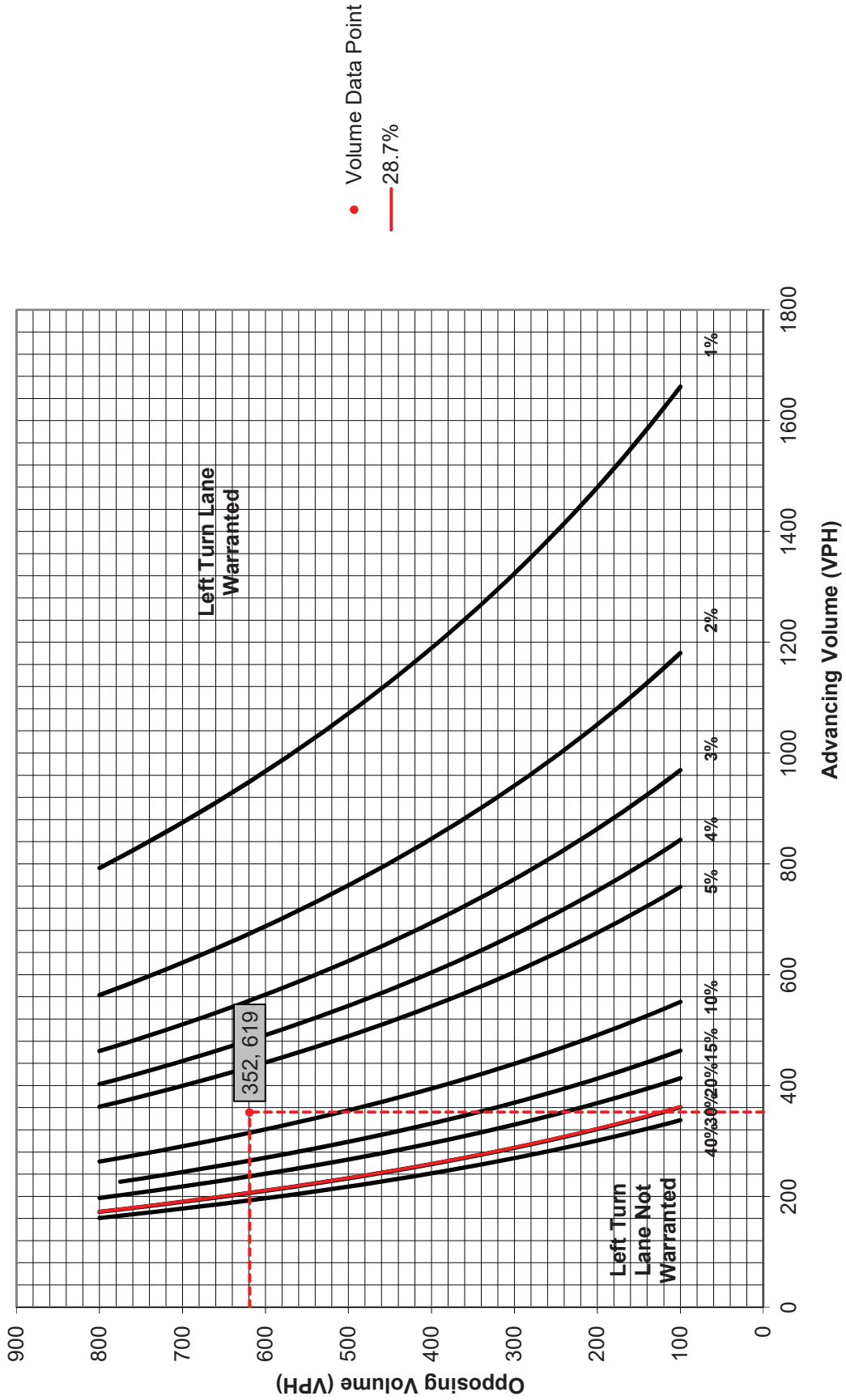
Type of Traffic Control	PennDOT Publication 46, Exhibit 11-6					
	Speed (MPH)					
	25-35		40-45		50-60	
Turn Demand Volume						
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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 1. Warrant for left turn lanes on two-lane roadways
 (speeds to 35 mph, unsignalized and signalized intersections)
 (L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality: Plains Township	Analysis Date: 2/14/2018
County: Luzerne County	Conducted By: EJD
PennDOT Engineering District: 4	Checked By:
	Agency/Company Name: Borton-Lawson
Intersection & Approach Description: SR 2024 (Maffett Street) & Driveway Northbound Right	
Analysis Period: 2027 Build	Number of Approach Lanes: 1
Design Hour: PM Peak Hour	Undivided or Divided Highway: Undivided
Intersection Control: Unsignalized	
Posted Speed Limit (MPH): 25	Type of Analysis
Type of Terrain: Rolling	Left or Right-Turn Lane Analysis?: Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	0	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	0	0.0%	N/A
	Through	-	386	2.0%	398
	Right	-	165	2.0%	170

Advancing Volume:	568
Right Turn Volume:	170

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: N/A	Applicable Warrant Figure: Figure 9
Warrant Met?: N/A	Warrant Met?: Yes

TURN LANE LENGTH CALCULATIONS

Intersection Control: Unsignalized	
Design Hour Volume of Turning Lane: 170	
Cycles Per Hour (Assumed): Known	
Cycles Per Hour (If Known): 40	Average # of Vehicles/Cycle: 4.0

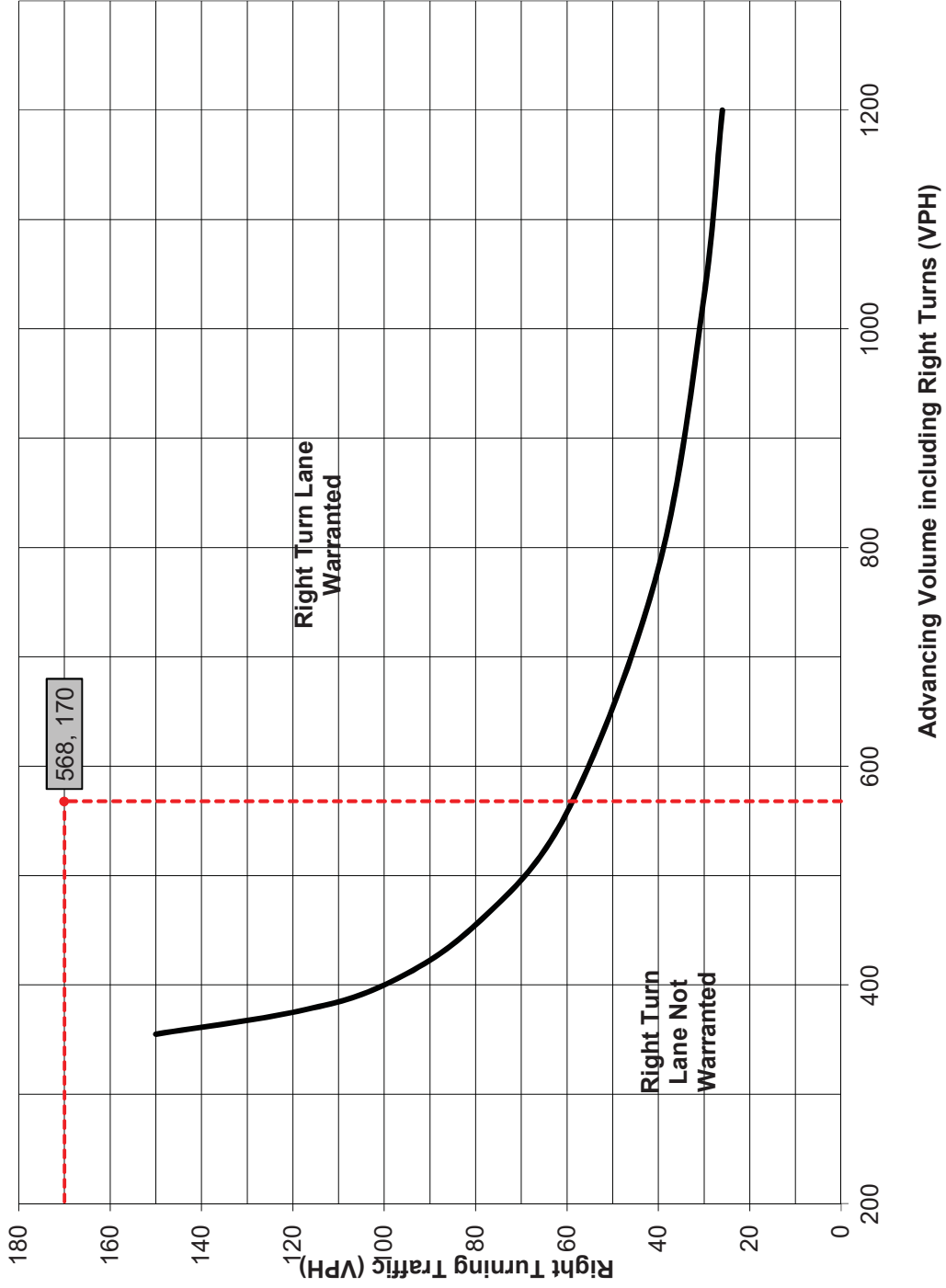
Type of Traffic Control	PennDOT Publication 46, Exhibit 11-6					
	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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: Plains Township	Analysis Date: 2/14/2018
County: Luzerne County	Conducted By: EJD
PennDOT Engineering District: 4	Checked By:
	Agency/Company Name: Borton-Lawson
Intersection & Approach Description: SR 2024 (Maffett Street) & Driveway Southbound Left	
Analysis Period: 2027 Build	Number of Approach Lanes: 1
Design Hour: PM Peak Hour	Undivided or Divided Highway: Undivided
Intersection Control: Unsignalized	
Posted Speed Limit (MPH): 25	Type of Analysis
Type of Terrain: Rolling	Left or Right-Turn Lane Analysis?: Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	47	2.0%	49
	Through	-	232	3.0%	243
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	386	2.0%	398
	Right	Yes	165	2.0%	170

Advancing Volume:	292
Opposing Volume:	568
Left Turn Volume:	49

% Left Turns in Advancing Volume: 16.78%

Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	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	Right Turn Lane Warrant Findings
Applicable Warrant Figure: Figure 1	Applicable Warrant Figure: N/A
Warrant Met?: Yes	Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control: Unsignalized	
Design Hour Volume of Turning Lane: 49	
Cycles Per Hour (Assumed): Known	
Cycles Per Hour (If Known): 40	Average # of Vehicles/Cycle: 1.0

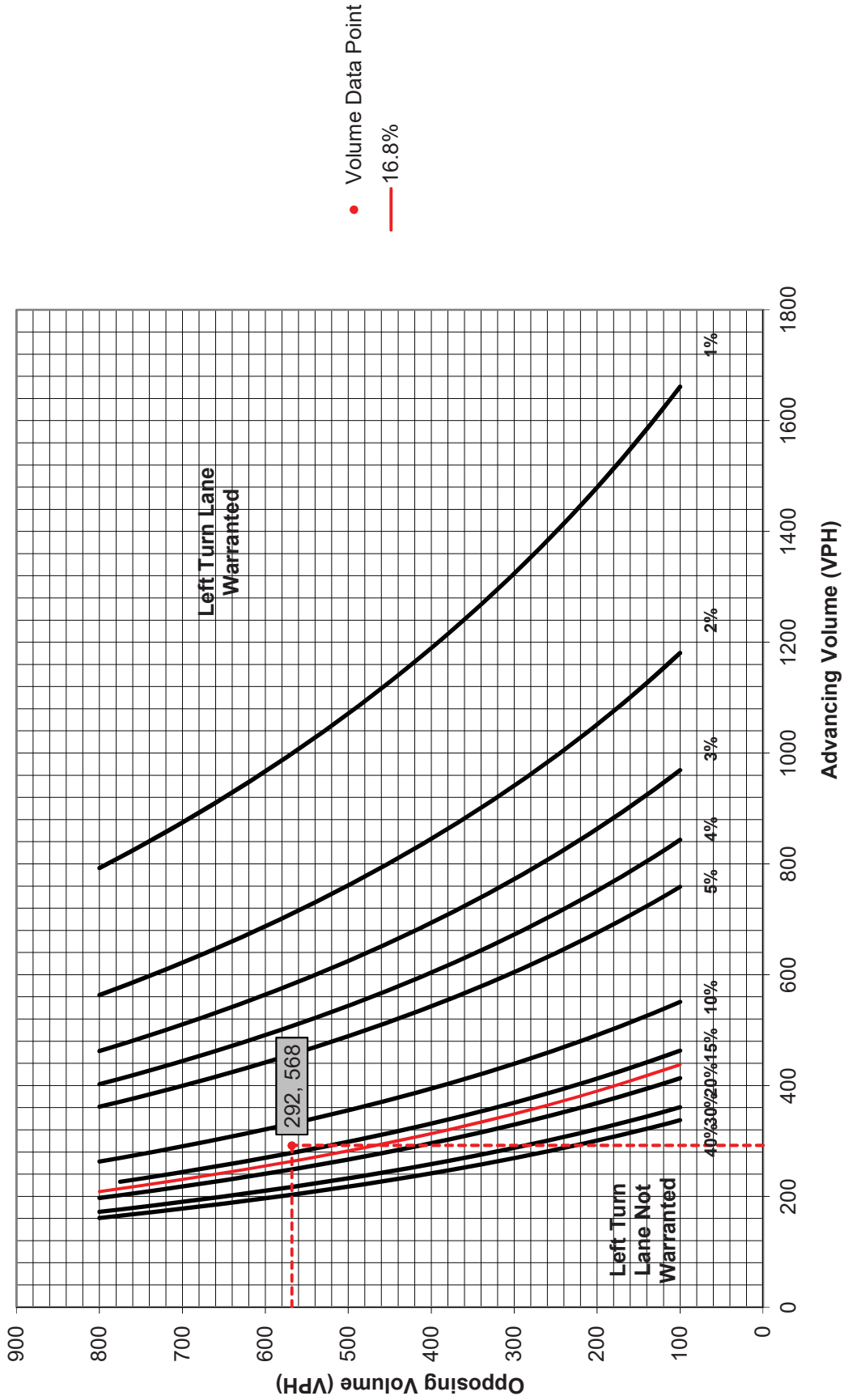
Type of Traffic Control	PennDOT Publication 46, Exhibit 11-6					
	Speed (MPH)					
	25-35		40-45		50-60	
Turn Demand Volume						
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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: <input type="text" value="Plains Township"/>	Analysis Date: <input type="text" value="2/14/2018"/>
County: <input type="text" value="Luzerne County"/>	Conducted By: <input type="text" value="EJD"/>
PennDOT Engineering District: <input type="text" value="4"/>	Checked By: <input type="text"/>
	Agency/Company Name: <input type="text" value="Borton-Lawson"/>
Intersection & Approach Description: <input type="text" value="SR 2022 (Main Street) & Driveway Northbound Left"/>	
Analysis Period: <input type="text" value="2027 Build"/>	Number of Approach Lanes: <input type="text" value="1"/>
Design Hour: <input type="text" value="AM Peak Hour"/>	Undivided or Divided Highway: <input type="text" value="Undivided"/>
Intersection Control: <input type="text" value="Unsignalized"/>	
Posted Speed Limit (MPH): <input type="text" value="25"/>	Type of Analysis: <input type="text" value="Left Turn Lane"/>
Type of Terrain: <input type="text" value="Rolling"/>	Left or Right-Turn Lane Analysis?: <input type="text" value="Left Turn Lane"/>

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	322	2.0%	332
	Through	-	122	4.0%	130
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	379	3.0%	397
	Right	Yes	0	0.0%	0

Advancing Volume: <input type="text" value="462"/>
Opposing Volume: <input type="text" value="397"/>
Left Turn Volume: <input type="text" value="332"/>
% Left Turns in Advancing Volume: <input type="text" value="71.86%"/>

Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	-	0	0.0%	N/A

Advancing Volume: <input type="text" value="N/A"/>
Right Turn Volume: <input type="text" value="N/A"/>

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: <input type="text" value="Figure 1"/>	Applicable Warrant Figure: <input type="text" value="N/A"/>
Warrant Met?: <input type="text" value="Yes"/>	Warrant Met?: <input type="text" value="N/A"/>

TURN LANE LENGTH CALCULATIONS

Intersection Control: <input type="text" value="Unsignalized"/>	
Design Hour Volume of Turning Lane: <input type="text" value="332"/>	
Cycles Per Hour (Assumed): <input type="text" value="Known"/>	
Cycles Per Hour (If Known): <input type="text" value="40"/>	Average # of Vehicles/Cycle: <input type="text" value="8.0"/>

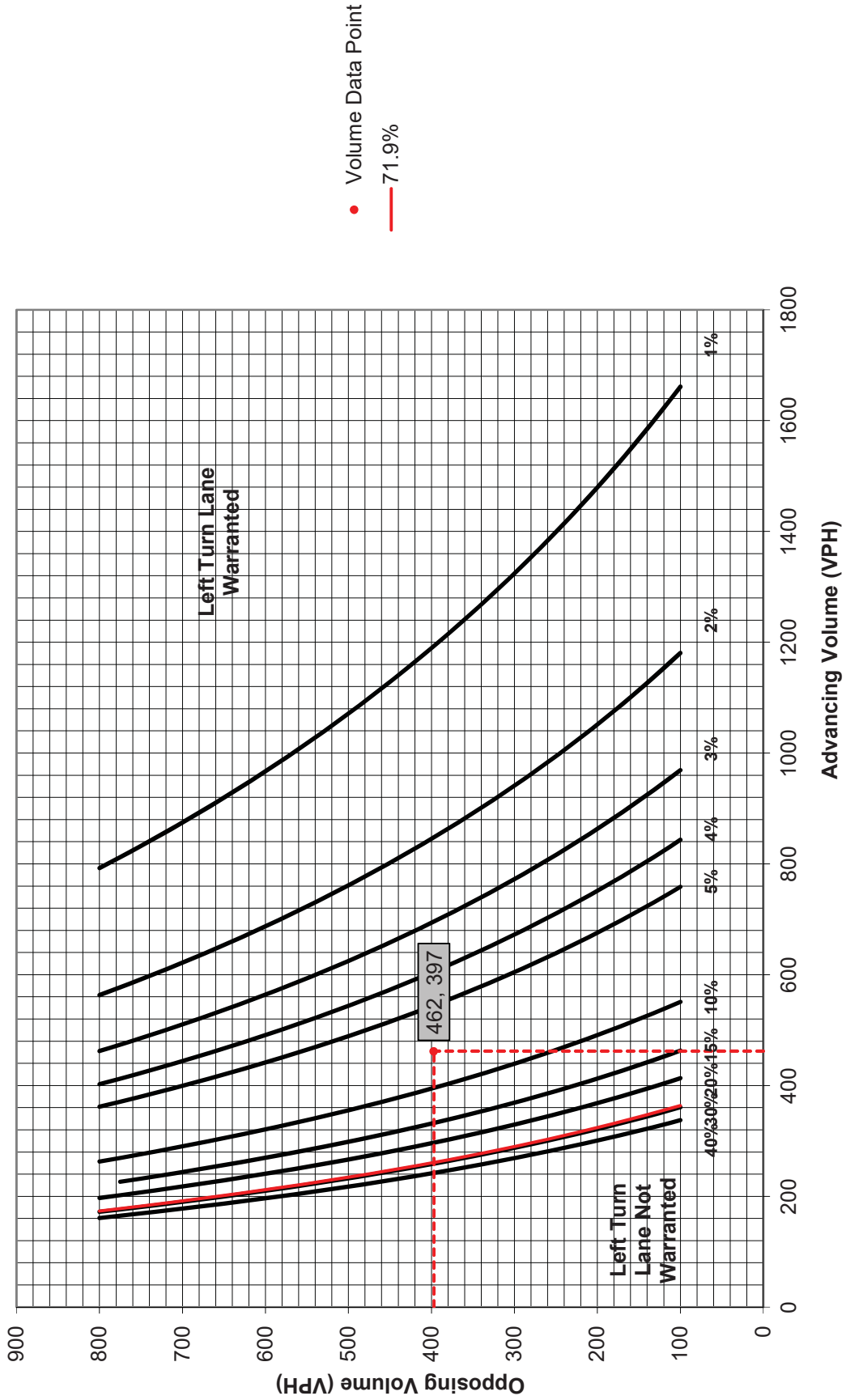
Type of Traffic Control	PennDOT Publication 46, Exhibit 11-6					
	Speed (MPH)					
	25-35		40-45		50-60	
Turn Demand Volume						
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	<input type="text" value="325"/>	Feet
Condition B:	<input type="text" value="N/A"/>	Feet
Condition C:	<input type="text" value="N/A"/>	Feet
Required Left Turn Lane Storage Length:	<input type="text" value="325"/>	Feet

Additional Findings:

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
 (speeds to 35 mph, unsignalized and signalized intersections)
 (L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality: Plains Township	Analysis Date: 2/14/2018
County: Luzerne County	Conducted By: EJD
PennDOT Engineering District: 4	Checked By:
	Agency/Company Name: Borton-Lawson
Intersection & Approach Description: SR 2022 (Main Street) & Driveway Northbound Left	
Analysis Period: 2027 Build	Number of Approach Lanes: 1
Design Hour: PM Peak Hour	Undivided or Divided Highway: Undivided
Intersection Control: Unsignalized	
Posted Speed Limit (MPH): 25	Type of Analysis
Type of Terrain: Rolling	Left or Right-Turn Lane Analysis?: Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	165	2.0%	170
	Through	-	221	1.0%	225
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	162	1.0%	165
	Right	Yes	0	0.0%	0

Advancing Volume:	395
Opposing Volume:	165
Left Turn Volume:	170

% Left Turns in Advancing Volume: 43.04%

Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	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	Right Turn Lane Warrant Findings
Applicable Warrant Figure: Figure 1	Applicable Warrant Figure: N/A
Warrant Met?: Yes	Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control: Unsignalized	
Design Hour Volume of Turning Lane: 170	
Cycles Per Hour (Assumed): Known	
Cycles Per Hour (If Known): 40	Average # of Vehicles/Cycle: 4.0

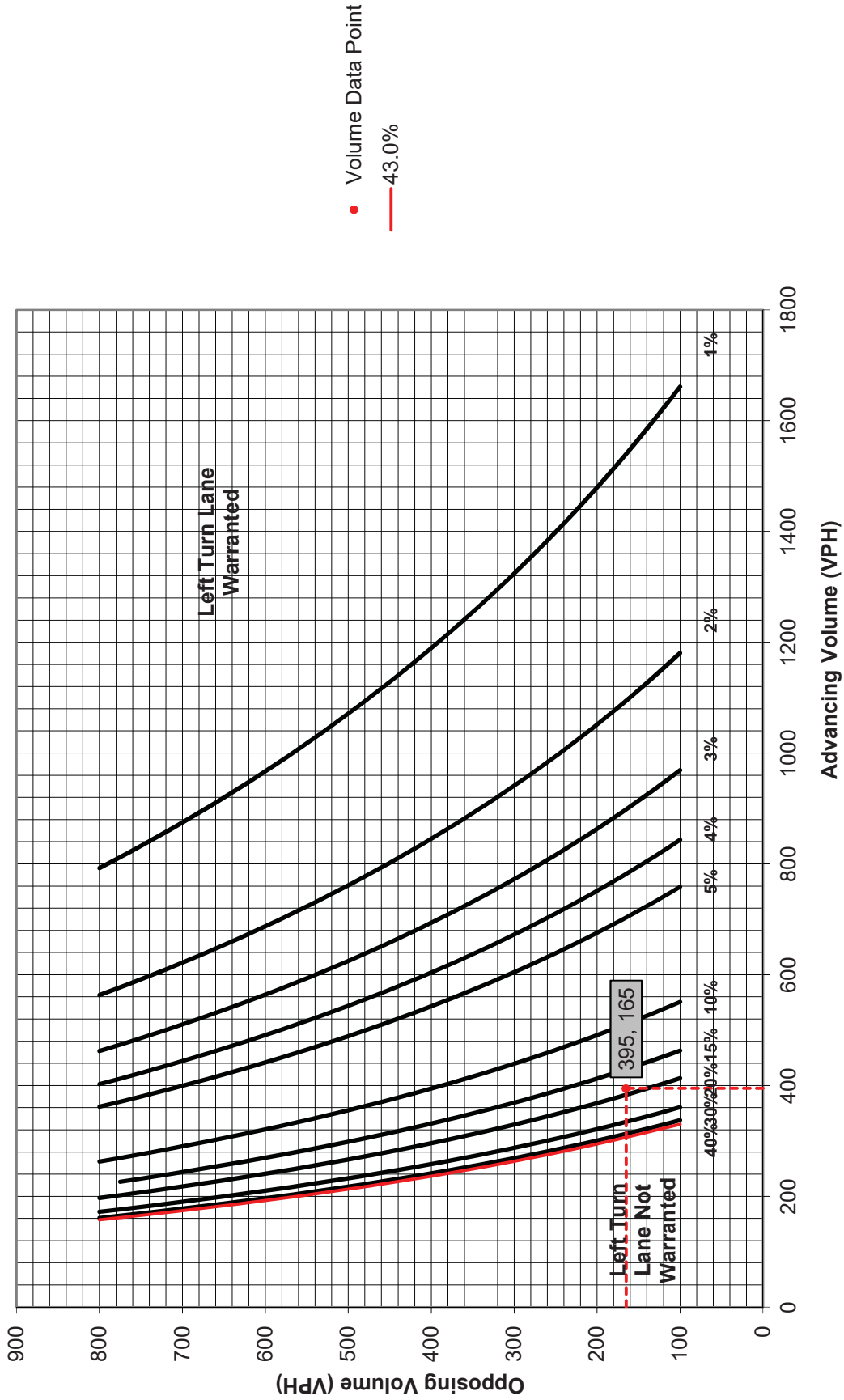
Type of Traffic Control	PennDOT Publication 46, Exhibit 11-6					
	Speed (MPH)					
	25-35		40-45		50-60	
Turn Demand Volume						
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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)



Appendix H

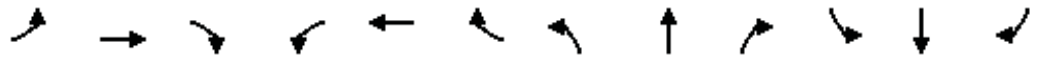
Level of Service Analysis

2017 Existing Conditions

HCM Signalized Intersection Capacity Analysis

1: SR 2004 (River Street) & Courtright Avenue

05/15/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	11	4	4	38	18	23	5	472	13	6	782	62
Future Volume (vph)	11	4	4	38	18	23	5	472	13	6	782	62
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width	16	16	16	14	14	14	14	14	14	14	14	14
Grade (%)		-1%			-2%			-2%			-1%	
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.97			0.96			1.00			0.99	
Flt Protected		0.97			0.98			1.00			1.00	
Satd. Flow (prot)		1754			1799			1853			1893	
Flt Permitted		0.86			0.84			0.99			1.00	
Satd. Flow (perm)		1559			1544			1842			1887	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	12	4	4	41	20	25	5	513	14	7	850	67
RTOR Reduction (vph)	0	4	0	0	22	0	0	1	0	0	3	0
Lane Group Flow (vph)	0	16	0	0	64	0	0	531	0	0	921	0
Heavy Vehicles (%)	9%	25%	0%	0%	0%	4%	20%	4%	8%	0%	1%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		7.7			7.7			52.3			52.3	
Effective Green, g (s)		8.2			8.2			52.8			52.8	
Actuated g/C Ratio		0.12			0.12			0.75			0.75	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		182			180			1389			1423	
v/s Ratio Prot												
v/s Ratio Perm		0.01			c0.04			0.29			c0.49	
v/c Ratio		0.09			0.36			0.38			0.65	
Uniform Delay, d1		27.6			28.5			3.0			4.1	
Progression Factor		1.00			1.00			1.00			0.27	
Incremental Delay, d2		0.2			1.2			0.8			1.8	
Delay (s)		27.8			29.7			3.8			2.9	
Level of Service		C			C			A			A	
Approach Delay (s)		27.8			29.7			3.8			2.9	
Approach LOS		C			C			A			A	
Intersection Summary												
HCM 2000 Control Delay		5.0			HCM 2000 Level of Service			A				
HCM 2000 Volume to Capacity ratio		0.61										
Actuated Cycle Length (s)		70.0			Sum of lost time (s)			9.0				
Intersection Capacity Utilization		64.2%			ICU Level of Service			C				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2: SR 2004 (River Street) & West Maple Street

05/15/2018



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	50	113	512	0	0	832
Future Volume (vph)	50	113	512	0	0	832
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width	14	14	12	12	12	12
Total Lost time (s)	4.5	4.5	4.5			4.5
Lane Util. Factor	1.00	1.00	1.00			1.00
Frt	1.00	0.85	1.00			1.00
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	1689	1569	1731			1782
Flt Permitted	0.95	1.00	1.00			1.00
Satd. Flow (perm)	1689	1569	1731			1782
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	53	120	545	0	0	885
RTOR Reduction (vph)	0	106	0	0	0	0
Lane Group Flow (vph)	53	14	545	0	0	885
Heavy Vehicles (%)	8%	4%	4%	0%	0%	1%
Turn Type	Prot	Perm	NA			NA
Protected Phases	8		2			6
Permitted Phases		8				
Actuated Green, G (s)	7.5	7.5	52.5			52.5
Effective Green, g (s)	8.0	8.0	53.0			53.0
Actuated g/C Ratio	0.11	0.11	0.76			0.76
Clearance Time (s)	5.0	5.0	5.0			5.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	193	179	1310			1349
v/s Ratio Prot	c0.03		0.31			c0.50
v/s Ratio Perm		0.01				
v/c Ratio	0.27	0.08	0.42			0.66
Uniform Delay, d1	28.3	27.7	3.0			4.1
Progression Factor	1.00	1.00	1.49			1.00
Incremental Delay, d2	0.8	0.2	0.9			2.5
Delay (s)	29.1	27.9	5.4			6.6
Level of Service	C	C	A			A
Approach Delay (s)	28.3		5.4			6.6
Approach LOS	C		A			A

Intersection Summary

HCM 2000 Control Delay	8.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	57.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

3: SR 2004 (River Street) & Chestnut Street

05/15/2018



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			↔		↔	↔
Traffic Volume (veh/h)	0	0	521	54	88	954
Future Volume (Veh/h)	0	0	521	54	88	954
Sign Control	Stop		Free			Free
Grade	-2%		2%			0%
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	0	0	585	61	99	1072
Pedestrians	1					
Lane Width (ft)	0.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	0					
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)			734			834
pX, platoon unblocked	0.35	0.91			0.91	
vC, conflicting volume	1886	616			647	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2014	528			562	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			89	
cM capacity (veh/h)	21	504			918	
Direction, Lane #	NB 1	SB 1	SB 2			
Volume Total	646	99	1072			
Volume Left	0	99	0			
Volume Right	61	0	0			
cSH	1700	918	1700			
Volume to Capacity	0.38	0.11	0.63			
Queue Length 95th (ft)	0	9	0			
Control Delay (s)	0.0	9.4	0.0			
Lane LOS		A				
Approach Delay (s)	0.0	0.8				
Approach LOS						
Intersection Summary						
Average Delay			0.5			
Intersection Capacity Utilization			56.3%		ICU Level of Service	B
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

4: SR 2004 (River Street) & Waterfront Park Drive/Cross Valley Centre Drive

05/15/2018



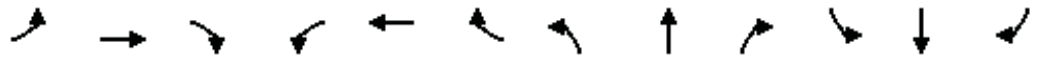
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	1	43	6	0	3	50	466	9	40	1006	127
Future Volume (vph)	35	1	43	6	0	3	50	466	9	40	1006	127
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width	12	11	11	11	11	11	10	12	12	10	12	11
Grade (%)		-2%			3%			2%			-2%	
Total Lost time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.85		1.00	0.85		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1727	1499		1628	1457		1580	1710		1612	1800	1479
Flt Permitted	0.76	1.00		0.73	1.00		0.14	1.00		0.45	1.00	1.00
Satd. Flow (perm)	1374	1499		1244	1457		238	1710		756	1800	1479
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	38	1	47	7	0	3	54	507	10	43	1093	138
RTOR Reduction (vph)	0	44	0	0	3	0	0	0	0	0	0	23
Lane Group Flow (vph)	38	4	0	7	0	0	54	517	0	43	1093	115
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	4%	0%	0%	1%	1%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	6.8	6.8		6.8	6.8		86.4	81.9		84.0	80.7	80.7
Effective Green, g (s)	7.8	7.8		7.8	7.8		88.4	82.9		86.0	81.7	81.7
Actuated g/C Ratio	0.07	0.07		0.07	0.07		0.80	0.75		0.78	0.74	0.74
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	6.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	97	106		88	103		258	1288		624	1336	1098
v/s Ratio Prot		0.00			0.00		c0.01	0.30		0.00	c0.61	
v/s Ratio Perm	c0.03			0.01			0.16			0.05		0.08
v/c Ratio	0.39	0.04		0.08	0.00		0.21	0.40		0.07	0.82	0.10
Uniform Delay, d1	48.8	47.6		47.7	47.5		10.4	4.8		2.8	9.3	3.9
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.0	0.1		0.1	0.0		0.1	0.9		0.0	5.7	0.2
Delay (s)	49.8	47.7		47.9	47.5		10.6	5.7		2.8	14.9	4.1
Level of Service	D	D		D	D		B	A		A	B	A
Approach Delay (s)		48.6			47.8			6.2			13.4	
Approach LOS		D			D			A			B	

Intersection Summary

HCM 2000 Control Delay	13.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	72.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 5: SR 2004 (River Street) & Ramp AA/Ramp CC

05/15/2018

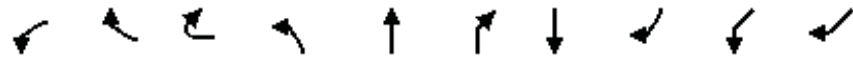


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations	↖	↗	↘					↑↑↑		↖	↗			
Traffic Volume (vph)	305	1	440	0	0	0	0	306	196	382	717	0		
Future Volume (vph)	305	1	440	0	0	0	0	306	196	382	717	0		
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800		
Lane Width	10	10	10	14	14	14	11	12	12	11	12	12		
Grade (%)		-3%			0%			3%			-2%			
Total Lost time (s)	6.0	6.0	4.0					6.0		7.0	6.0			
Lane Util. Factor	0.95	0.95	1.00					0.91		1.00	0.95			
Frt	1.00	1.00	0.85					0.94		1.00	1.00			
Flt Protected	0.95	0.95	1.00					1.00		0.95	1.00			
Satd. Flow (prot)	1509	1513	1435					4389		1605	3386			
Flt Permitted	0.95	0.95	1.00					1.00		0.95	1.00			
Satd. Flow (perm)	1509	1513	1435					4389		1605	3386			
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90		
Adj. Flow (vph)	339	1	489	0	0	0	0	340	218	424	797	0		
RTOR Reduction (vph)	0	0	0	0	0	0	0	144	0	0	0	0		
Lane Group Flow (vph)	169	171	489	0	0	0	0	414	0	424	797	0		
Heavy Vehicles (%)	2%	0%	1%	0%	0%	0%	0%	5%	2%	4%	2%	0%		
Turn Type	Split	NA	Free					NA		Prot	NA			
Protected Phases	3	3						6 7		8 5	2 8 7 5			
Permitted Phases			Free											
Actuated Green, G (s)	11.0	11.0	80.0					19.0		26.0	54.0			
Effective Green, g (s)	11.0	11.0	80.0					19.0		26.0	47.0			
Actuated g/C Ratio	0.14	0.14	1.00					0.24		0.32	0.59			
Clearance Time (s)	6.0	6.0												
Vehicle Extension (s)	3.0	3.0												
Lane Grp Cap (vph)	207	208	1435					1042		521	1989			
v/s Ratio Prot	0.11	c0.11						0.09		c0.26	0.24			
v/s Ratio Perm			c0.34											
v/c Ratio	0.82	0.82	0.34					0.40		0.81	0.40			
Uniform Delay, d1	33.5	33.5	0.0					25.7		24.8	8.9			
Progression Factor	1.00	1.00	1.00					1.00		1.22	1.94			
Incremental Delay, d2	21.4	22.3	0.6					0.3		7.0	0.1			
Delay (s)	54.9	55.8	0.6					25.9		37.2	17.3			
Level of Service	D	E	A					C		D	B			
Approach Delay (s)		23.1			0.0			25.9			24.2			
Approach LOS		C			A			C			C			
Intersection Summary														
HCM 2000 Control Delay			24.2									HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio			0.85											
Actuated Cycle Length (s)			80.0								31.0		Sum of lost time (s)	
Intersection Capacity Utilization			57.2%										ICU Level of Service	B
Analysis Period (min)			15											
c Critical Lane Group														

HCM Signalized Intersection Capacity Analysis

6: SR 2004 (River Street) & Ramp BB/Ramp DD & SR 2024 (Maffett Street)

05/15/2018



Movement	WBL	WBR	WBR2	NBL	NBT	NBR	SBT	SBR	SWL	SWR	
Lane Configurations	↔↔	↔	↔	↔	↕↔		↕↕	↔	↔↔		
Traffic Volume (vph)	289	52	12	120	326	170	691	282	105	22	
Future Volume (vph)	289	52	12	120	326	170	691	282	105	22	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	
Lane Width	11	11	11	11	12	12	12	12	12	12	
Grade (%)					0%		2%		0%		
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0	7.0		
Lane Util. Factor	0.97	1.00	1.00	1.00	0.95		0.95	1.00	1.00		
Frt	1.00	0.85	0.85	1.00	0.95		1.00	0.85	0.98		
Flt Protected	0.95	1.00	1.00	0.95	1.00		1.00	1.00	0.96		
Satd. Flow (prot)	3113	1368	1273	1621	3150		3319	1471	1586		
Flt Permitted	0.95	1.00	1.00	0.29	1.00		1.00	1.00	0.96		
Satd. Flow (perm)	3113	1368	1273	490	3150		3319	1471	1586		
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	
Adj. Flow (vph)	321	58	13	133	362	189	768	313	117	24	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	321	58	13	133	551	0	768	313	141	0	
Heavy Vehicles (%)	2%	7%	15%	2%	3%	3%	2%	3%	7%	4%	
Turn Type	Perm	Perm	Perm	custom	NA		NA	Perm	Prot		
Protected Phases				1	1 3 6		2 3		8		
Permitted Phases	7	7	7	3 6				2 3			
Actuated Green, G (s)	9.0	9.0	9.0	31.0	31.0		30.0	30.0	12.0		
Effective Green, g (s)	9.0	9.0	9.0	31.0	31.0		30.0	30.0	12.0		
Actuated g/C Ratio	0.11	0.11	0.11	0.39	0.39		0.38	0.38	0.15		
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0				7.0		
Vehicle Extension (s)	3.0	3.0	3.0	2.0					3.0		
Lane Grp Cap (vph)	350	153	143	246	1220		1244	551	237		
v/s Ratio Prot				c0.03	0.17		c0.23		c0.09		
v/s Ratio Perm	c0.10	0.04	0.01	0.18				0.21			
v/c Ratio	0.92	0.38	0.09	0.54	0.45		0.62	0.57	0.59		
Uniform Delay, d1	35.1	32.9	31.8	17.0	18.2		20.3	19.9	31.7		
Progression Factor	1.00	1.00	1.00	1.56	1.22		1.00	1.00	1.00		
Incremental Delay, d2	27.9	1.6	0.3	1.0	0.1		0.9	1.3	4.0		
Delay (s)	63.0	34.5	32.1	27.5	22.3		21.3	21.2	35.7		
Level of Service	E	C	C	C	C		C	C	D		
Approach Delay (s)					23.3		21.2		35.7		
Approach LOS					C		C		D		
Intersection Summary											
HCM 2000 Control Delay			29.0		HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.74								
Actuated Cycle Length (s)			80.0		Sum of lost time (s)				31.0		
Intersection Capacity Utilization			62.6%		ICU Level of Service				B		
Analysis Period (min)			15								
c Critical Lane Group											

HCM Unsignalized Intersection Capacity Analysis

7: SR 2024 (Maffett Street) & Haines Street

05/15/2018



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	12	2	4	222	215	16
Future Volume (Veh/h)	12	2	4	222	215	16
Sign Control	Stop			Free	Free	
Grade	-5%			1%	-1%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	13	2	4	244	236	18
Pedestrians	3					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	0					
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)	1189					
pX, platoon unblocked						
vC, conflicting volume	500	248	257			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	500	248	257			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	98	100	100			
cM capacity (veh/h)	532	794	1316			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	15	248	254			
Volume Left	13	4	0			
Volume Right	2	0	18			
cSH	556	1316	1700			
Volume to Capacity	0.03	0.00	0.15			
Queue Length 95th (ft)	2	0	0			
Control Delay (s)	11.7	0.2	0.0			
Lane LOS	B	A				
Approach Delay (s)	11.7	0.2	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay			0.4			
Intersection Capacity Utilization			25.7%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

8: SR 2024 (Maffett Street) & Mercer Street

05/15/2018



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	9	2	5	234	228	2
Future Volume (Veh/h)	9	2	5	234	228	2
Sign Control	Stop			Free	Free	
Grade	-3%			3%	-2%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	10	2	5	257	251	2
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	519	252	253			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	519	252	253			
tC, single (s)	6.4	6.2	4.3			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.4			
p0 queue free %	98	100	100			
cM capacity (veh/h)	519	792	1214			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	12	262	253			
Volume Left	10	5	0			
Volume Right	2	0	2			
cSH	551	1214	1700			
Volume to Capacity	0.02	0.00	0.15			
Queue Length 95th (ft)	2	0	0			
Control Delay (s)	11.7	0.2	0.0			
Lane LOS	B	A				
Approach Delay (s)	11.7	0.2	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay	0.4					
Intersection Capacity Utilization	27.2%			ICU Level of Service	A	
Analysis Period (min)	15					

9: SR 2024 (Maffett Street) & SR 2022 (Main Street) & Abbott Street Performance by lane

Lane	WB	NB	SB	NW	All
Movements Served	<LR	TR>	<LT	LR>	
Denied Del/Veh (s)					0.5
Total Del/Veh (s)	78.8	5.0	7.8	8.6	11.5

HCM Signalized Intersection Capacity Analysis

1: SR 2004 (River Street) & Courtright Avenue

05/15/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	76	17	11	14	11	31	7	781	22	14	545	22
Future Volume (vph)	76	17	11	14	11	31	7	781	22	14	545	22
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width	16	16	16	14	14	14	14	14	14	14	14	14
Grade (%)		-1%			-2%			-2%			-1%	
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.99			0.92			1.00			0.99	
Flt Protected		0.96			0.99			1.00			1.00	
Satd. Flow (prot)		1935			1770			1913			1900	
Flt Permitted		0.77			0.93			1.00			0.98	
Satd. Flow (perm)		1554			1660			1906			1864	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	78	17	11	14	11	32	7	797	22	14	556	22
RTOR Reduction (vph)	0	7	0	0	28	0	0	1	0	0	2	0
Lane Group Flow (vph)	0	99	0	0	29	0	0	825	0	0	590	0
Heavy Vehicles (%)	1%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		8.7			8.7			51.3			51.3	
Effective Green, g (s)		9.2			9.2			51.8			51.8	
Actuated g/C Ratio		0.13			0.13			0.74			0.74	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		204			218			1410			1379	
v/s Ratio Prot												
v/s Ratio Perm		c0.06			0.02			c0.43			0.32	
v/c Ratio		0.49			0.13			0.59			0.43	
Uniform Delay, d1		28.2			26.9			4.2			3.5	
Progression Factor		1.00			1.00			1.00			0.94	
Incremental Delay, d2		1.8			0.3			1.8			0.9	
Delay (s)		30.0			27.2			6.0			4.2	
Level of Service		C			C			A			A	
Approach Delay (s)		30.0			27.2			6.0			4.2	
Approach LOS		C			C			A			A	
Intersection Summary												
HCM 2000 Control Delay			7.7					HCM 2000 Level of Service			A	
HCM 2000 Volume to Capacity ratio			0.57									
Actuated Cycle Length (s)			70.0					Sum of lost time (s)		9.0		
Intersection Capacity Utilization			68.5%					ICU Level of Service			C	
Analysis Period (min)			15									
c	Critical Lane Group											

HCM Signalized Intersection Capacity Analysis
 2: SR 2004 (River Street) & West Maple Street

05/15/2018



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↶	↶	↶			↷
Traffic Volume (vph)	56	153	861	0	0	550
Future Volume (vph)	56	153	861	0	0	550
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width	14	14	12	12	12	12
Total Lost time (s)	4.5	4.5	4.5			4.5
Lane Util. Factor	1.00	1.00	1.00			1.00
Frt	1.00	0.85	1.00			1.00
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	1824	1584	1782			1782
Flt Permitted	0.95	1.00	1.00			1.00
Satd. Flow (perm)	1824	1584	1782			1782
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	58	158	888	0	0	567
RTOR Reduction (vph)	0	137	0	0	0	0
Lane Group Flow (vph)	58	21	888	0	0	567
Heavy Vehicles (%)	0%	3%	1%	0%	0%	1%
Turn Type	Prot	Perm	NA			NA
Protected Phases	8		2			6
Permitted Phases		8				
Actuated Green, G (s)	8.6	8.6	51.4			51.4
Effective Green, g (s)	9.1	9.1	51.9			51.9
Actuated g/C Ratio	0.13	0.13	0.74			0.74
Clearance Time (s)	5.0	5.0	5.0			5.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	237	205	1321			1321
v/s Ratio Prot	c0.03		c0.50			0.32
v/s Ratio Perm		0.01				
v/c Ratio	0.24	0.10	0.67			0.43
Uniform Delay, d1	27.4	26.8	4.7			3.4
Progression Factor	1.00	1.00	0.58			1.00
Incremental Delay, d2	0.5	0.2	2.4			1.0
Delay (s)	27.9	27.1	5.1			4.5
Level of Service	C	C	A			A
Approach Delay (s)	27.3		5.1			4.5
Approach LOS	C		A			A

Intersection Summary				
HCM 2000 Control Delay		7.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio		0.61		
Actuated Cycle Length (s)		70.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization		65.3%	ICU Level of Service	C
Analysis Period (min)		15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

3: SR 2004 (River Street) & Chestnut Street

05/15/2018



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			↩		↩	↩
Traffic Volume (veh/h)	0	0	996	63	56	611
Future Volume (Veh/h)	0	0	996	63	56	611
Sign Control	Stop		Free		Free	
Grade	-2%		2%		0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	0	0	1060	67	60	650
Pedestrians	1					
Lane Width (ft)	0.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	0					
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	734			834		
pX, platoon unblocked	0.74	0.66			0.66	
vC, conflicting volume	1864	1094			1128	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1515	889			940	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			87	
cM capacity (veh/h)	87	229			479	
Direction, Lane #	NB 1	SB 1	SB 2			
Volume Total	1127	60	650			
Volume Left	0	60	0			
Volume Right	67	0	0			
cSH	1700	479	1700			
Volume to Capacity	0.66	0.13	0.38			
Queue Length 95th (ft)	0	11	0			
Control Delay (s)	0.0	13.6	0.0			
Lane LOS			B			
Approach Delay (s)	0.0	1.1				
Approach LOS						
Intersection Summary						
Average Delay			0.4			
Intersection Capacity Utilization			62.7%	ICU Level of Service		B
Analysis Period (min)	15					

HCM Signalized Intersection Capacity Analysis

4: SR 2004 (River Street) & Waterfront Park Drive/Cross Valley Centre Drive

05/15/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	101	1	45	8	4	20	23	968	8	7	605	57
Future Volume (vph)	101	1	45	8	4	20	23	968	8	7	605	57
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width	12	11	11	11	11	11	10	12	12	10	12	11
Grade (%)		-2%			3%			2%			-2%	
Total Lost time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.85		1.00	0.87		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1727	1499		1628	1498		1580	1762		1612	1782	1494
Flt Permitted	0.74	1.00		0.73	1.00		0.35	1.00		0.16	1.00	1.00
Satd. Flow (perm)	1347	1499		1244	1498		584	1762		277	1782	1494
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	105	1	47	8	4	21	24	1008	8	7	630	59
RTOR Reduction (vph)	0	41	0	0	18	0	0	0	0	0	0	18
Lane Group Flow (vph)	105	7	0	8	7	0	24	1016	0	7	630	41
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	2%	0%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	11.0	11.0		11.0	11.0		72.2	70.0		69.8	68.8	68.8
Effective Green, g (s)	12.0	12.0		12.0	12.0		74.2	71.0		71.8	69.8	69.8
Actuated g/C Ratio	0.12	0.12		0.12	0.12		0.74	0.71		0.72	0.70	0.70
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	6.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	161	179		149	179		465	1251		225	1243	1042
v/s Ratio Prot		0.00			0.00		c0.00	c0.58		0.00	0.35	
v/s Ratio Perm	c0.08			0.01			0.04			0.02		0.03
v/c Ratio	0.65	0.04		0.05	0.04		0.05	0.81		0.03	0.51	0.04
Uniform Delay, d1	42.0	38.9		39.0	38.9		4.2	9.9		9.0	7.1	4.7
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	7.0	0.0		0.1	0.0		0.0	5.8		0.0	1.5	0.1
Delay (s)	49.0	38.9		39.0	38.9		4.2	15.7		9.0	8.5	4.8
Level of Service	D	D		D	D		A	B		A	A	A
Approach Delay (s)		45.9			38.9			15.5			8.2	
Approach LOS		D			D			B			A	

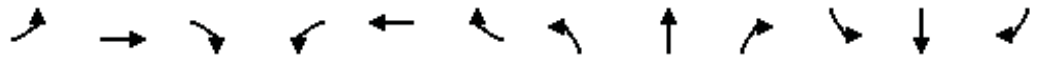
Intersection Summary

HCM 2000 Control Delay	15.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	75.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

5: SR 2004 (River Street) & Ramp AA/Ramp CC

05/15/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↖	↖	↖					↑↑↑		↖	↑↑		
Traffic Volume (vph)	365	2	184	0	0	0	0	765	328	317	483	0	
Future Volume (vph)	365	2	184	0	0	0	0	765	328	317	483	0	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	
Lane Width	10	10	10	14	14	14	11	12	12	11	12	12	
Grade (%)		-3%			0%			3%			-2%		
Total Lost time (s)	6.0	6.0	4.0					6.0		7.0	6.0		
Lane Util. Factor	0.95	0.95	1.00					0.91		1.00	0.95		
Frt	1.00	1.00	0.85					0.95		1.00	1.00		
Flt Protected	0.95	0.95	1.00					1.00		0.95	1.00		
Satd. Flow (prot)	1524	1528	1435					4563		1605	3420		
Flt Permitted	0.95	0.95	1.00					1.00		0.95	1.00		
Satd. Flow (perm)	1524	1528	1435					4563		1605	3420		
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	
Adj. Flow (vph)	380	2	192	0	0	0	0	797	342	330	503	0	
RTOR Reduction (vph)	0	0	0	0	0	0	0	86	0	0	0	0	
Lane Group Flow (vph)	190	192	192	0	0	0	0	1053	0	330	503	0	
Heavy Vehicles (%)	1%	0%	1%	0%	0%	0%	0%	1%	2%	4%	1%	0%	
Turn Type	Split	NA	Free					NA		Prot	NA		
Protected Phases	3	3						6 7		8 5	2 8 7 5		
Permitted Phases			Free										
Actuated Green, G (s)	10.0	10.0	90.0					32.0		24.0	59.0		
Effective Green, g (s)	10.0	10.0	90.0					32.0		24.0	52.0		
Actuated g/C Ratio	0.11	0.11	1.00					0.36		0.27	0.58		
Clearance Time (s)	6.0	6.0											
Vehicle Extension (s)	3.0	3.0											
Lane Grp Cap (vph)	169	169	1435					1622		428	1976		
v/s Ratio Prot	0.12	c0.13						c0.23		c0.21	0.15		
v/s Ratio Perm			c0.13										
v/c Ratio	1.12	1.14	0.13					0.65		0.77	0.25		
Uniform Delay, d1	40.0	40.0	0.0					24.3		30.5	9.4		
Progression Factor	1.00	1.00	1.00					1.00		1.18	2.34		
Incremental Delay, d2	106.5	110.5	0.2					0.9		7.2	0.1		
Delay (s)	146.5	150.5	0.2					25.2		43.3	22.1		
Level of Service	F	F	A					C		D	C		
Approach Delay (s)		98.9			0.0			25.2			30.5		
Approach LOS		F			A			C			C		
Intersection Summary													
HCM 2000 Control Delay			43.5									HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio			0.86										
Actuated Cycle Length (s)			90.0									Sum of lost time (s)	31.0
Intersection Capacity Utilization			67.6%									ICU Level of Service	C
Analysis Period (min)			15										
c Critical Lane Group													

HCM Signalized Intersection Capacity Analysis

6: SR 2004 (River Street) & Ramp BB/Ramp DD & SR 2024 (Maffett Street)

05/15/2018



Movement	WBL	WBR	WBR2	NBL	NBT	NBR	SBT	SBR	SWL	SWR
Lane Configurations										
Traffic Volume (vph)	176	286	94	339	518	288	500	295	95	91
Future Volume (vph)	176	286	94	339	518	288	500	295	95	91
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width	11	11	11	11	12	12	12	12	12	12
Grade (%)					0%		2%		0%	
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0	7.0	
Lane Util. Factor	0.97	1.00	1.00	1.00	0.95		0.95	1.00	1.00	
Frt	1.00	0.85	0.85	1.00	0.95		1.00	0.85	0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00		1.00	1.00	0.98	
Satd. Flow (prot)	3113	1368	1273	1621	3142		3319	1471	1553	
Flt Permitted	0.95	1.00	1.00	0.33	1.00		1.00	1.00	0.98	
Satd. Flow (perm)	3113	1368	1273	560	3142		3319	1471	1553	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	185	301	99	357	545	303	526	311	100	96
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	185	301	99	357	848	0	526	311	196	0
Heavy Vehicles (%)	2%	7%	15%	2%	3%	3%	2%	3%	7%	4%
Turn Type	Perm	Perm	Perm	custom	NA		NA	Perm	Prot	
Protected Phases				1	1 3 6		2 3		8	
Permitted Phases	7	7	7	3 6			2 3			
Actuated Green, G (s)	18.0	18.0	18.0	40.0	40.0		27.0	27.0	10.0	
Effective Green, g (s)	18.0	18.0	18.0	40.0	40.0		27.0	27.0	10.0	
Actuated g/C Ratio	0.20	0.20	0.20	0.44	0.44		0.30	0.30	0.11	
Clearance Time (s)	6.0	6.0	6.0	6.0					7.0	
Vehicle Extension (s)	3.0	3.0	3.0	2.0					3.0	
Lane Grp Cap (vph)	622	273	254	366	1396		995	441	172	
v/s Ratio Prot				c0.11	0.27		0.16		c0.13	
v/s Ratio Perm	0.06	c0.22	0.08	c0.32				0.21		
v/c Ratio	0.30	1.10	0.39	0.98	0.61		0.53	0.71	1.14	
Uniform Delay, d1	30.6	36.0	31.2	21.7	19.0		26.2	28.0	40.0	
Progression Factor	1.00	1.00	1.00	1.45	1.23		1.00	1.00	1.00	
Incremental Delay, d2	0.3	84.8	1.0	29.3	0.3		0.5	5.1	111.1	
Delay (s)	30.9	120.8	32.2	60.9	23.7		26.7	33.0	151.1	
Level of Service	C	F	C	E	C		C	C	F	
Approach Delay (s)					34.7		29.1		151.1	
Approach LOS					C		C		F	
Intersection Summary										
HCM 2000 Control Delay			50.0		HCM 2000 Level of Service				D	
HCM 2000 Volume to Capacity ratio			1.19							
Actuated Cycle Length (s)			90.0		Sum of lost time (s)				31.0	
Intersection Capacity Utilization			70.3%		ICU Level of Service				C	
Analysis Period (min)			15							
c Critical Lane Group										

HCM Unsignalized Intersection Capacity Analysis

7: SR 2024 (Maffett Street) & Haines Street

05/15/2018



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	18	2	14	359	234	17
Future Volume (Veh/h)	18	2	14	359	234	17
Sign Control	Stop			Free	Free	
Grade	-5%			1%	-1%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	20	2	16	399	260	19
Pedestrians	3					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	0					
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)	1189					
pX, platoon unblocked						
vC, conflicting volume	704	272	282			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	704	272	282			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.6	3.3	2.2			
p0 queue free %	95	100	99			
cM capacity (veh/h)	392	769	1288			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	22	415	279			
Volume Left	20	16	0			
Volume Right	2	0	19			
cSH	411	1288	1700			
Volume to Capacity	0.05	0.01	0.16			
Queue Length 95th (ft)	4	1	0			
Control Delay (s)	14.3	0.4	0.0			
Lane LOS	B	A				
Approach Delay (s)	14.3	0.4	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay	0.7					
Intersection Capacity Utilization	41.9%			ICU Level of Service	A	
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis
 8: SR 2024 (Maffett Street) & Mercer Street

05/15/2018



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	5	11	381	225	7
Future Volume (Veh/h)	5	5	11	381	225	7
Sign Control	Stop			Free	Free	
Grade	-3%			3%	-2%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	5	12	414	245	8
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	687	249	253			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	687	249	253			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	99	99			
cM capacity (veh/h)	412	795	1324			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	10	426	253			
Volume Left	5	12	0			
Volume Right	5	0	8			
cSH	543	1324	1700			
Volume to Capacity	0.02	0.01	0.15			
Queue Length 95th (ft)	1	1	0			
Control Delay (s)	11.8	0.3	0.0			
Lane LOS	B	A				
Approach Delay (s)	11.8	0.3	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay	0.4					
Intersection Capacity Utilization	40.5%			ICU Level of Service	A	
Analysis Period (min)	15					

9: SR 2024 (Maffett Street) & SR 2022 (Main Street) & Abbott Street Performance by lane

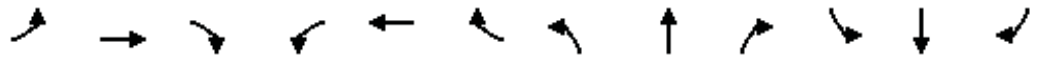
Lane	WB	NB	SB	NW	All
Movements Served	<LR	TR>	<LT	LR>	
Denied Del/Veh (s)					0.3
Total Del/Veh (s)	33.7	5.8	5.8	16.2	9.0

2021 Without Development

HCM Signalized Intersection Capacity Analysis

1: SR 2004 (River Street) & Courtright Avenue

05/16/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	11	4	4	38	18	23	5	472	13	6	782	62
Future Volume (vph)	11	4	4	38	18	23	5	472	13	6	782	62
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width	16	16	16	14	14	14	14	14	14	14	14	14
Grade (%)		-1%			-2%			-2%			-1%	
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.97			0.96			1.00			0.99	
Flt Protected		0.97			0.98			1.00			1.00	
Satd. Flow (prot)		1754			1799			1853			1893	
Flt Permitted		0.86			0.84			0.99			1.00	
Satd. Flow (perm)		1559			1544			1842			1887	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	12	4	4	41	20	25	5	513	14	7	850	67
RTOR Reduction (vph)	0	4	0	0	22	0	0	1	0	0	3	0
Lane Group Flow (vph)	0	16	0	0	64	0	0	531	0	0	921	0
Heavy Vehicles (%)	9%	25%	0%	0%	0%	4%	20%	4%	8%	0%	1%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		7.7			7.7			52.3			52.3	
Effective Green, g (s)		8.2			8.2			52.8			52.8	
Actuated g/C Ratio		0.12			0.12			0.75			0.75	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		182			180			1389			1423	
v/s Ratio Prot												
v/s Ratio Perm		0.01			c0.04			0.29			c0.49	
v/c Ratio		0.09			0.36			0.38			0.65	
Uniform Delay, d1		27.6			28.5			3.0			4.1	
Progression Factor		1.00			1.00			1.00			0.27	
Incremental Delay, d2		0.2			1.2			0.8			1.8	
Delay (s)		27.8			29.7			3.8			2.9	
Level of Service		C			C			A			A	
Approach Delay (s)		27.8			29.7			3.8			2.9	
Approach LOS		C			C			A			A	
Intersection Summary												
HCM 2000 Control Delay		5.0			HCM 2000 Level of Service			A				
HCM 2000 Volume to Capacity ratio		0.61										
Actuated Cycle Length (s)		70.0			Sum of lost time (s)			9.0				
Intersection Capacity Utilization		64.2%			ICU Level of Service			C				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2: SR 2004 (River Street) & West Maple Street

05/16/2018



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↶	↶	↶			↷
Traffic Volume (vph)	50	113	512	0	0	832
Future Volume (vph)	50	113	512	0	0	832
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width	14	14	12	12	12	12
Total Lost time (s)	4.5	4.5	4.5			4.5
Lane Util. Factor	1.00	1.00	1.00			1.00
Frt	1.00	0.85	1.00			1.00
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	1689	1569	1731			1782
Flt Permitted	0.95	1.00	1.00			1.00
Satd. Flow (perm)	1689	1569	1731			1782
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	53	120	545	0	0	885
RTOR Reduction (vph)	0	106	0	0	0	0
Lane Group Flow (vph)	53	14	545	0	0	885
Heavy Vehicles (%)	8%	4%	4%	0%	0%	1%
Turn Type	Prot	Perm	NA			NA
Protected Phases	8		2			6
Permitted Phases		8				
Actuated Green, G (s)	7.5	7.5	52.5			52.5
Effective Green, g (s)	8.0	8.0	53.0			53.0
Actuated g/C Ratio	0.11	0.11	0.76			0.76
Clearance Time (s)	5.0	5.0	5.0			5.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	193	179	1310			1349
v/s Ratio Prot	c0.03		0.31			c0.50
v/s Ratio Perm		0.01				
v/c Ratio	0.27	0.08	0.42			0.66
Uniform Delay, d1	28.3	27.7	3.0			4.1
Progression Factor	1.00	1.00	1.49			1.00
Incremental Delay, d2	0.8	0.2	0.9			2.5
Delay (s)	29.1	27.9	5.4			6.6
Level of Service	C	C	A			A
Approach Delay (s)	28.3		5.4			6.6
Approach LOS	C		A			A

Intersection Summary

HCM 2000 Control Delay	8.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	57.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

3: SR 2004 (River Street) & Chestnut Street

05/16/2018



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			↔		↔	↔
Traffic Volume (veh/h)	0	0	521	54	88	954
Future Volume (Veh/h)	0	0	521	54	88	954
Sign Control	Stop		Free			Free
Grade	-2%		2%			0%
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	0	0	585	61	99	1072
Pedestrians	1					
Lane Width (ft)	0.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	0					
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)			734			834
pX, platoon unblocked	0.35	0.91			0.91	
vC, conflicting volume	1886	616			647	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2014	528			562	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			89	
cM capacity (veh/h)	21	504			918	
Direction, Lane #	NB 1	SB 1	SB 2			
Volume Total	646	99	1072			
Volume Left	0	99	0			
Volume Right	61	0	0			
cSH	1700	918	1700			
Volume to Capacity	0.38	0.11	0.63			
Queue Length 95th (ft)	0	9	0			
Control Delay (s)	0.0	9.4	0.0			
Lane LOS		A				
Approach Delay (s)	0.0	0.8				
Approach LOS						
Intersection Summary						
Average Delay			0.5			
Intersection Capacity Utilization			56.3%		ICU Level of Service	B
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

4: SR 2004 (River Street) & Waterfront Park Drive/Cross Valley Centre Drive

05/16/2018



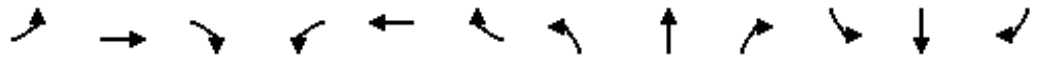
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	↖
Traffic Volume (vph)	35	1	43	6	0	3	50	466	9	40	1006	127
Future Volume (vph)	35	1	43	6	0	3	50	466	9	40	1006	127
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width	12	11	11	11	11	11	10	12	12	10	12	11
Grade (%)		-2%			3%			2%			-2%	
Total Lost time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.85		1.00	0.85		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1727	1499		1628	1457		1580	1710		1612	1800	1479
Flt Permitted	0.76	1.00		0.73	1.00		0.14	1.00		0.45	1.00	1.00
Satd. Flow (perm)	1374	1499		1244	1457		238	1710		756	1800	1479
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	38	1	47	7	0	3	54	507	10	43	1093	138
RTOR Reduction (vph)	0	44	0	0	3	0	0	0	0	0	0	23
Lane Group Flow (vph)	38	4	0	7	0	0	54	517	0	43	1093	115
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	4%	0%	0%	1%	1%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	6.8	6.8		6.8	6.8		86.4	81.9		84.0	80.7	80.7
Effective Green, g (s)	7.8	7.8		7.8	7.8		88.4	82.9		86.0	81.7	81.7
Actuated g/C Ratio	0.07	0.07		0.07	0.07		0.80	0.75		0.78	0.74	0.74
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	6.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	97	106		88	103		258	1288		624	1336	1098
v/s Ratio Prot		0.00			0.00		c0.01	0.30		0.00	c0.61	
v/s Ratio Perm	c0.03			0.01			0.16			0.05		0.08
v/c Ratio	0.39	0.04		0.08	0.00		0.21	0.40		0.07	0.82	0.10
Uniform Delay, d1	48.8	47.6		47.7	47.5		10.4	4.8		2.8	9.3	3.9
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.0	0.1		0.1	0.0		0.1	0.9		0.0	5.7	0.2
Delay (s)	49.8	47.7		47.9	47.5		10.6	5.7		2.8	14.9	4.1
Level of Service	D	D		D	D		B	A		A	B	A
Approach Delay (s)		48.6			47.8			6.2			13.4	
Approach LOS		D			D			A			B	

Intersection Summary

HCM 2000 Control Delay	13.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	72.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 5: SR 2004 (River Street) & Ramp AA/Ramp CC

05/16/2018

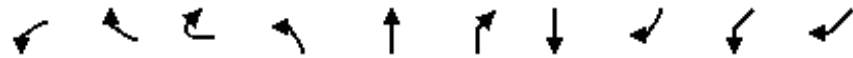


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↖	↖	↖					↑↑↑		↖	↑↑		
Traffic Volume (vph)	305	1	440	0	0	0	0	306	196	382	717	0	
Future Volume (vph)	305	1	440	0	0	0	0	306	196	382	717	0	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	
Lane Width	10	10	10	14	14	14	11	12	12	11	12	12	
Grade (%)		-3%			0%			3%			-2%		
Total Lost time (s)	6.0	6.0	4.0					6.0		7.0	6.0		
Lane Util. Factor	0.95	0.95	1.00					0.91		1.00	0.95		
Frt	1.00	1.00	0.85					0.94		1.00	1.00		
Flt Protected	0.95	0.95	1.00					1.00		0.95	1.00		
Satd. Flow (prot)	1509	1513	1435					4389		1605	3386		
Flt Permitted	0.95	0.95	1.00					1.00		0.95	1.00		
Satd. Flow (perm)	1509	1513	1435					4389		1605	3386		
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	
Adj. Flow (vph)	339	1	489	0	0	0	0	340	218	424	797	0	
RTOR Reduction (vph)	0	0	0	0	0	0	0	144	0	0	0	0	
Lane Group Flow (vph)	169	171	489	0	0	0	0	414	0	424	797	0	
Heavy Vehicles (%)	2%	0%	1%	0%	0%	0%	0%	5%	2%	4%	2%	0%	
Turn Type	Split	NA	Free					NA		Prot	NA		
Protected Phases	3	3						6 7		8 5	2 8 7 5		
Permitted Phases			Free										
Actuated Green, G (s)	11.0	11.0	80.0					19.0		26.0	54.0		
Effective Green, g (s)	11.0	11.0	80.0					19.0		26.0	47.0		
Actuated g/C Ratio	0.14	0.14	1.00					0.24		0.32	0.59		
Clearance Time (s)	6.0	6.0											
Vehicle Extension (s)	3.0	3.0											
Lane Grp Cap (vph)	207	208	1435					1042		521	1989		
v/s Ratio Prot	0.11	c0.11						0.09		c0.26	0.24		
v/s Ratio Perm			c0.34										
v/c Ratio	0.82	0.82	0.34					0.40		0.81	0.40		
Uniform Delay, d1	33.5	33.5	0.0					25.7		24.8	8.9		
Progression Factor	1.00	1.00	1.00					1.00		1.22	1.94		
Incremental Delay, d2	21.4	22.3	0.6					0.3		7.0	0.1		
Delay (s)	54.9	55.8	0.6					25.9		37.2	17.3		
Level of Service	D	E	A					C		D	B		
Approach Delay (s)		23.1			0.0			25.9			24.2		
Approach LOS		C			A			C			C		
Intersection Summary													
HCM 2000 Control Delay			24.2									HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.85										
Actuated Cycle Length (s)			80.0									Sum of lost time (s)	31.0
Intersection Capacity Utilization			57.2%									ICU Level of Service	B
Analysis Period (min)			15										
c Critical Lane Group													

HCM Signalized Intersection Capacity Analysis

6: SR 2004 (River Street) & Ramp BB/Ramp DD & SR 2024 (Maffett Street)

05/16/2018



Movement	WBL	WBR	WBR2	NBL	NBT	NBR	SBT	SBR	SWL	SWR	
Lane Configurations											
Traffic Volume (vph)	289	52	12	120	326	170	691	282	105	22	
Future Volume (vph)	289	52	12	120	326	170	691	282	105	22	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	
Lane Width	11	11	11	11	12	12	12	12	12	12	
Grade (%)					0%		2%		0%		
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0	7.0		
Lane Util. Factor	0.97	1.00	1.00	1.00	0.95		0.95	1.00	1.00		
Frt	1.00	0.85	0.85	1.00	0.95		1.00	0.85	0.98		
Flt Protected	0.95	1.00	1.00	0.95	1.00		1.00	1.00	0.96		
Satd. Flow (prot)	3113	1368	1273	1621	3150		3319	1471	1586		
Flt Permitted	0.95	1.00	1.00	0.29	1.00		1.00	1.00	0.96		
Satd. Flow (perm)	3113	1368	1273	490	3150		3319	1471	1586		
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	
Adj. Flow (vph)	321	58	13	133	362	189	768	313	117	24	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	321	58	13	133	551	0	768	313	141	0	
Heavy Vehicles (%)	2%	7%	15%	2%	3%	3%	2%	3%	7%	4%	
Turn Type	Perm	Perm	Perm	custom	NA		NA	Perm	Prot		
Protected Phases				1	1 3 6		2 3		8		
Permitted Phases	7	7	7	3 6			2 3				
Actuated Green, G (s)	9.0	9.0	9.0	31.0	31.0		30.0	30.0	12.0		
Effective Green, g (s)	9.0	9.0	9.0	31.0	31.0		30.0	30.0	12.0		
Actuated g/C Ratio	0.11	0.11	0.11	0.39	0.39		0.38	0.38	0.15		
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0				7.0		
Vehicle Extension (s)	3.0	3.0	3.0	2.0					3.0		
Lane Grp Cap (vph)	350	153	143	246	1220		1244	551	237		
v/s Ratio Prot				c0.03	0.17		c0.23		c0.09		
v/s Ratio Perm	c0.10	0.04	0.01	0.18				0.21			
v/c Ratio	0.92	0.38	0.09	0.54	0.45		0.62	0.57	0.59		
Uniform Delay, d1	35.1	32.9	31.8	17.0	18.2		20.3	19.9	31.7		
Progression Factor	1.00	1.00	1.00	1.56	1.22		1.00	1.00	1.00		
Incremental Delay, d2	27.9	1.6	0.3	1.0	0.1		0.9	1.3	4.0		
Delay (s)	63.0	34.5	32.1	27.5	22.3		21.3	21.2	35.7		
Level of Service	E	C	C	C	C		C	C	D		
Approach Delay (s)					23.3		21.2		35.7		
Approach LOS					C		C		D		
Intersection Summary											
HCM 2000 Control Delay			29.0		HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.74								
Actuated Cycle Length (s)			80.0		Sum of lost time (s)				31.0		
Intersection Capacity Utilization			62.6%		ICU Level of Service				B		
Analysis Period (min)			15								
c Critical Lane Group											

HCM Unsignalized Intersection Capacity Analysis

7: SR 2024 (Maffett Street) & Haines Street

05/16/2018



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	12	2	4	222	215	16
Future Volume (Veh/h)	12	2	4	222	215	16
Sign Control	Stop			Free	Free	
Grade	-5%			1%	-1%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	13	2	4	244	236	18
Pedestrians	3					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	0					
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)	1189					
pX, platoon unblocked						
vC, conflicting volume	500	248	257			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	500	248	257			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	98	100	100			
cM capacity (veh/h)	532	794	1316			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	15	248	254			
Volume Left	13	4	0			
Volume Right	2	0	18			
cSH	556	1316	1700			
Volume to Capacity	0.03	0.00	0.15			
Queue Length 95th (ft)	2	0	0			
Control Delay (s)	11.7	0.2	0.0			
Lane LOS	B	A				
Approach Delay (s)	11.7	0.2	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay			0.4			
Intersection Capacity Utilization			25.7%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 8: SR 2024 (Maffett Street) & Mercer Street

05/16/2018



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	9	2	5	234	228	2
Future Volume (Veh/h)	9	2	5	234	228	2
Sign Control	Stop			Free	Free	
Grade	-3%			3%	-2%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	10	2	5	257	251	2
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	519	252	253			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	519	252	253			
tC, single (s)	6.4	6.2	4.3			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.4			
p0 queue free %	98	100	100			
cM capacity (veh/h)	519	792	1214			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	12	262	253			
Volume Left	10	5	0			
Volume Right	2	0	2			
cSH	551	1214	1700			
Volume to Capacity	0.02	0.00	0.15			
Queue Length 95th (ft)	2	0	0			
Control Delay (s)	11.7	0.2	0.0			
Lane LOS	B	A				
Approach Delay (s)	11.7	0.2	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay			0.4			
Intersection Capacity Utilization			27.2%	ICU Level of Service	A	
Analysis Period (min)			15			

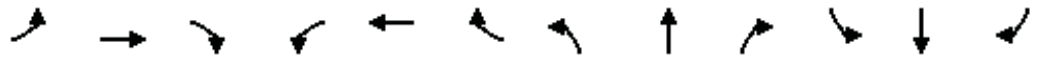
9: SR 2024 (Maffett Street) & SR 2022 (Main Street) & Abbott Street Performance by lane

Lane	WB	NB	SB	NW	All
Movements Served	<LR	TR>	<LT	LR>	
Denied Del/Veh (s)					0.5
Total Del/Veh (s)	78.8	5.0	7.8	8.6	11.5

HCM Signalized Intersection Capacity Analysis

1: SR 2004 (River Street) & Courtright Avenue

05/16/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	76	17	11	14	11	31	7	781	22	14	545	22
Future Volume (vph)	76	17	11	14	11	31	7	781	22	14	545	22
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width	16	16	16	14	14	14	14	14	14	14	14	14
Grade (%)		-1%			-2%			-2%			-1%	
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.99			0.92			1.00			0.99	
Flt Protected		0.96			0.99			1.00			1.00	
Satd. Flow (prot)		1935			1770			1913			1900	
Flt Permitted		0.77			0.93			1.00			0.98	
Satd. Flow (perm)		1554			1660			1906			1864	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	78	17	11	14	11	32	7	797	22	14	556	22
RTOR Reduction (vph)	0	7	0	0	28	0	0	1	0	0	2	0
Lane Group Flow (vph)	0	99	0	0	29	0	0	825	0	0	590	0
Heavy Vehicles (%)	1%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		8.7			8.7			51.3			51.3	
Effective Green, g (s)		9.2			9.2			51.8			51.8	
Actuated g/C Ratio		0.13			0.13			0.74			0.74	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		204			218			1410			1379	
v/s Ratio Prot												
v/s Ratio Perm		c0.06			0.02			c0.43			0.32	
v/c Ratio		0.49			0.13			0.59			0.43	
Uniform Delay, d1		28.2			26.9			4.2			3.5	
Progression Factor		1.00			1.00			1.00			0.94	
Incremental Delay, d2		1.8			0.3			1.8			0.9	
Delay (s)		30.0			27.2			6.0			4.2	
Level of Service		C			C			A			A	
Approach Delay (s)		30.0			27.2			6.0			4.2	
Approach LOS		C			C			A			A	
Intersection Summary												
HCM 2000 Control Delay			7.7					HCM 2000 Level of Service			A	
HCM 2000 Volume to Capacity ratio			0.57									
Actuated Cycle Length (s)			70.0					Sum of lost time (s)		9.0		
Intersection Capacity Utilization			68.5%					ICU Level of Service			C	
Analysis Period (min)			15									
c	Critical Lane Group											

HCM Signalized Intersection Capacity Analysis

2: SR 2004 (River Street) & West Maple Street

05/16/2018



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	56	153	861	0	0	550
Future Volume (vph)	56	153	861	0	0	550
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width	14	14	12	12	12	12
Total Lost time (s)	4.5	4.5	4.5			4.5
Lane Util. Factor	1.00	1.00	1.00			1.00
Frt	1.00	0.85	1.00			1.00
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	1824	1584	1782			1782
Flt Permitted	0.95	1.00	1.00			1.00
Satd. Flow (perm)	1824	1584	1782			1782
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	58	158	888	0	0	567
RTOR Reduction (vph)	0	137	0	0	0	0
Lane Group Flow (vph)	58	21	888	0	0	567
Heavy Vehicles (%)	0%	3%	1%	0%	0%	1%
Turn Type	Prot	Perm	NA			NA
Protected Phases	8		2			6
Permitted Phases		8				
Actuated Green, G (s)	8.6	8.6	51.4			51.4
Effective Green, g (s)	9.1	9.1	51.9			51.9
Actuated g/C Ratio	0.13	0.13	0.74			0.74
Clearance Time (s)	5.0	5.0	5.0			5.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	237	205	1321			1321
v/s Ratio Prot	c0.03		c0.50			0.32
v/s Ratio Perm		0.01				
v/c Ratio	0.24	0.10	0.67			0.43
Uniform Delay, d1	27.4	26.8	4.7			3.4
Progression Factor	1.00	1.00	0.58			1.00
Incremental Delay, d2	0.5	0.2	2.4			1.0
Delay (s)	27.9	27.1	5.1			4.5
Level of Service	C	C	A			A
Approach Delay (s)	27.3		5.1			4.5
Approach LOS	C		A			A

Intersection Summary

HCM 2000 Control Delay	7.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	65.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

3: SR 2004 (River Street) & Chestnut Street

05/16/2018

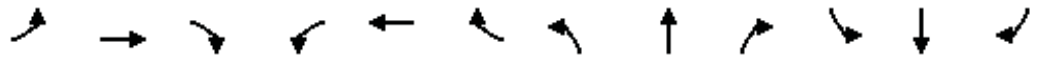


Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			↩		↩	↩
Traffic Volume (veh/h)	0	0	996	63	56	611
Future Volume (Veh/h)	0	0	996	63	56	611
Sign Control	Stop		Free			Free
Grade	-2%		2%			0%
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	0	0	1060	67	60	650
Pedestrians	1					
Lane Width (ft)	0.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	0					
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)			734			834
pX, platoon unblocked	0.74	0.66			0.66	
vC, conflicting volume	1864	1094			1128	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1515	889			940	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			87	
cM capacity (veh/h)	87	229			479	
Direction, Lane #	NB 1	SB 1	SB 2			
Volume Total	1127	60	650			
Volume Left	0	60	0			
Volume Right	67	0	0			
cSH	1700	479	1700			
Volume to Capacity	0.66	0.13	0.38			
Queue Length 95th (ft)	0	11	0			
Control Delay (s)	0.0	13.6	0.0			
Lane LOS		B				
Approach Delay (s)	0.0	1.1				
Approach LOS						
Intersection Summary						
Average Delay			0.4			
Intersection Capacity Utilization			62.7%		ICU Level of Service	B
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

4: SR 2004 (River Street) & Waterfront Park Drive/Cross Valley Centre Drive

05/16/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	↖
Traffic Volume (vph)	101	1	45	8	4	20	23	968	8	7	605	57
Future Volume (vph)	101	1	45	8	4	20	23	968	8	7	605	57
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width	12	11	11	11	11	11	10	12	12	10	12	11
Grade (%)		-2%			3%			2%			-2%	
Total Lost time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.85		1.00	0.87		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1727	1499		1628	1498		1580	1762		1612	1782	1494
Flt Permitted	0.74	1.00		0.73	1.00		0.35	1.00		0.16	1.00	1.00
Satd. Flow (perm)	1347	1499		1244	1498		584	1762		277	1782	1494
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	105	1	47	8	4	21	24	1008	8	7	630	59
RTOR Reduction (vph)	0	41	0	0	18	0	0	0	0	0	0	18
Lane Group Flow (vph)	105	7	0	8	7	0	24	1016	0	7	630	41
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	2%	0%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	11.0	11.0		11.0	11.0		72.2	70.0		69.8	68.8	68.8
Effective Green, g (s)	12.0	12.0		12.0	12.0		74.2	71.0		71.8	69.8	69.8
Actuated g/C Ratio	0.12	0.12		0.12	0.12		0.74	0.71		0.72	0.70	0.70
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	6.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	161	179		149	179		465	1251		225	1243	1042
v/s Ratio Prot		0.00			0.00		c0.00	c0.58		0.00	0.35	
v/s Ratio Perm	c0.08			0.01			0.04			0.02		0.03
v/c Ratio	0.65	0.04		0.05	0.04		0.05	0.81		0.03	0.51	0.04
Uniform Delay, d1	42.0	38.9		39.0	38.9		4.2	9.9		9.0	7.1	4.7
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	7.0	0.0		0.1	0.0		0.0	5.8		0.0	1.5	0.1
Delay (s)	49.0	38.9		39.0	38.9		4.2	15.7		9.0	8.5	4.8
Level of Service	D	D		D	D		A	B		A	A	A
Approach Delay (s)		45.9			38.9			15.5			8.2	
Approach LOS		D			D			B			A	

Intersection Summary		
HCM 2000 Control Delay	15.7	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.77	B
Actuated Cycle Length (s)	100.0	Sum of lost time (s)
Intersection Capacity Utilization	75.2%	15.0
Analysis Period (min)	15	ICU Level of Service
		D
c Critical Lane Group		

HCM Signalized Intersection Capacity Analysis

5: SR 2004 (River Street) & Ramp AA/Ramp CC

05/16/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↖	↖	↖					↑↑↑		↖	↑↑		
Traffic Volume (vph)	365	2	184	0	0	0	0	765	328	317	483	0	
Future Volume (vph)	365	2	184	0	0	0	0	765	328	317	483	0	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	
Lane Width	10	10	10	14	14	14	11	12	12	11	12	12	
Grade (%)		-3%			0%			3%			-2%		
Total Lost time (s)	6.0	6.0	4.0					6.0		7.0	6.0		
Lane Util. Factor	0.95	0.95	1.00					0.91		1.00	0.95		
Frt	1.00	1.00	0.85					0.95		1.00	1.00		
Flt Protected	0.95	0.95	1.00					1.00		0.95	1.00		
Satd. Flow (prot)	1524	1528	1435					4563		1605	3420		
Flt Permitted	0.95	0.95	1.00					1.00		0.95	1.00		
Satd. Flow (perm)	1524	1528	1435					4563		1605	3420		
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	
Adj. Flow (vph)	380	2	192	0	0	0	0	797	342	330	503	0	
RTOR Reduction (vph)	0	0	0	0	0	0	0	86	0	0	0	0	
Lane Group Flow (vph)	190	192	192	0	0	0	0	1053	0	330	503	0	
Heavy Vehicles (%)	1%	0%	1%	0%	0%	0%	0%	1%	2%	4%	1%	0%	
Turn Type	Split	NA	Free					NA		Prot	NA		
Protected Phases	3	3						6 7		8 5	2 8 7 5		
Permitted Phases			Free										
Actuated Green, G (s)	10.0	10.0	90.0					32.0		24.0	59.0		
Effective Green, g (s)	10.0	10.0	90.0					32.0		24.0	52.0		
Actuated g/C Ratio	0.11	0.11	1.00					0.36		0.27	0.58		
Clearance Time (s)	6.0	6.0											
Vehicle Extension (s)	3.0	3.0											
Lane Grp Cap (vph)	169	169	1435					1622		428	1976		
v/s Ratio Prot	0.12	c0.13						c0.23		c0.21	0.15		
v/s Ratio Perm			c0.13										
v/c Ratio	1.12	1.14	0.13					0.65		0.77	0.25		
Uniform Delay, d1	40.0	40.0	0.0					24.3		30.5	9.4		
Progression Factor	1.00	1.00	1.00					1.00		1.18	2.34		
Incremental Delay, d2	106.5	110.5	0.2					0.9		7.2	0.1		
Delay (s)	146.5	150.5	0.2					25.2		43.3	22.1		
Level of Service	F	F	A					C		D	C		
Approach Delay (s)		98.9			0.0			25.2			30.5		
Approach LOS		F			A			C			C		
Intersection Summary													
HCM 2000 Control Delay			43.5									HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio			0.86										
Actuated Cycle Length (s)			90.0									Sum of lost time (s)	31.0
Intersection Capacity Utilization			67.6%									ICU Level of Service	C
Analysis Period (min)			15										
c Critical Lane Group													

HCM Signalized Intersection Capacity Analysis

6: SR 2004 (River Street) & Ramp BB/Ramp DD & SR 2024 (Maffett Street)

05/16/2018



Movement	WBL	WBR	WBR2	NBL	NBT	NBR	SBT	SBR	SWL	SWR
Lane Configurations										
Traffic Volume (vph)	176	286	94	339	518	288	500	295	95	91
Future Volume (vph)	176	286	94	339	518	288	500	295	95	91
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width	11	11	11	11	12	12	12	12	12	12
Grade (%)					0%		2%		0%	
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0	7.0	
Lane Util. Factor	0.97	1.00	1.00	1.00	0.95		0.95	1.00	1.00	
Frt	1.00	0.85	0.85	1.00	0.95		1.00	0.85	0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00		1.00	1.00	0.98	
Satd. Flow (prot)	3113	1368	1273	1621	3142		3319	1471	1553	
Flt Permitted	0.95	1.00	1.00	0.33	1.00		1.00	1.00	0.98	
Satd. Flow (perm)	3113	1368	1273	560	3142		3319	1471	1553	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	185	301	99	357	545	303	526	311	100	96
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	185	301	99	357	848	0	526	311	196	0
Heavy Vehicles (%)	2%	7%	15%	2%	3%	3%	2%	3%	7%	4%
Turn Type	Perm	Perm	Perm	custom	NA		NA	Perm	Prot	
Protected Phases				1	1 3 6		2 3		8	
Permitted Phases	7	7	7	3 6			2 3			
Actuated Green, G (s)	18.0	18.0	18.0	40.0	40.0		27.0	27.0	10.0	
Effective Green, g (s)	18.0	18.0	18.0	40.0	40.0		27.0	27.0	10.0	
Actuated g/C Ratio	0.20	0.20	0.20	0.44	0.44		0.30	0.30	0.11	
Clearance Time (s)	6.0	6.0	6.0	6.0					7.0	
Vehicle Extension (s)	3.0	3.0	3.0	2.0					3.0	
Lane Grp Cap (vph)	622	273	254	366	1396		995	441	172	
v/s Ratio Prot				c0.11	0.27		0.16		c0.13	
v/s Ratio Perm	0.06	c0.22	0.08	c0.32				0.21		
v/c Ratio	0.30	1.10	0.39	0.98	0.61		0.53	0.71	1.14	
Uniform Delay, d1	30.6	36.0	31.2	21.7	19.0		26.2	28.0	40.0	
Progression Factor	1.00	1.00	1.00	1.45	1.23		1.00	1.00	1.00	
Incremental Delay, d2	0.3	84.8	1.0	29.3	0.3		0.5	5.1	111.1	
Delay (s)	30.9	120.8	32.2	60.9	23.7		26.7	33.0	151.1	
Level of Service	C	F	C	E	C		C	C	F	
Approach Delay (s)					34.7		29.1		151.1	
Approach LOS					C		C		F	
Intersection Summary										
HCM 2000 Control Delay			50.0		HCM 2000 Level of Service				D	
HCM 2000 Volume to Capacity ratio			1.19							
Actuated Cycle Length (s)			90.0		Sum of lost time (s)				31.0	
Intersection Capacity Utilization			70.3%		ICU Level of Service				C	
Analysis Period (min)			15							
c Critical Lane Group										

HCM Unsignalized Intersection Capacity Analysis

7: SR 2024 (Maffett Street) & Haines Street

05/16/2018



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	18	2	14	359	234	17
Future Volume (Veh/h)	18	2	14	359	234	17
Sign Control	Stop			Free	Free	
Grade	-5%			1%	-1%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	20	2	16	399	260	19
Pedestrians	3					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	0					
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)	1189					
pX, platoon unblocked						
vC, conflicting volume	704	272	282			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	704	272	282			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.6	3.3	2.2			
p0 queue free %	95	100	99			
cM capacity (veh/h)	392	769	1288			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	22	415	279			
Volume Left	20	16	0			
Volume Right	2	0	19			
cSH	411	1288	1700			
Volume to Capacity	0.05	0.01	0.16			
Queue Length 95th (ft)	4	1	0			
Control Delay (s)	14.3	0.4	0.0			
Lane LOS	B	A				
Approach Delay (s)	14.3	0.4	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay			0.7			
Intersection Capacity Utilization			41.9%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 8: SR 2024 (Maffett Street) & Mercer Street

05/16/2018



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	5	11	381	225	7
Future Volume (Veh/h)	5	5	11	381	225	7
Sign Control	Stop			Free	Free	
Grade	-3%			3%	-2%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	5	12	414	245	8
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	687	249	253			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	687	249	253			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	99	99			
cM capacity (veh/h)	412	795	1324			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	10	426	253			
Volume Left	5	12	0			
Volume Right	5	0	8			
cSH	543	1324	1700			
Volume to Capacity	0.02	0.01	0.15			
Queue Length 95th (ft)	1	1	0			
Control Delay (s)	11.8	0.3	0.0			
Lane LOS	B	A				
Approach Delay (s)	11.8	0.3	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay	0.4					
Intersection Capacity Utilization	40.5%			ICU Level of Service	A	
Analysis Period (min)	15					

9: SR 2024 (Maffett Street) & SR 2022 (Main Street) & Abbott Street Performance by lane

Lane	WB	NB	SB	NW	All
Movements Served	<LR	TR>	<LT	LR>	
Denied Del/Veh (s)					0.3
Total Del/Veh (s)	33.7	5.8	5.8	16.2	9.0

2021 With Development

HCM Signalized Intersection Capacity Analysis

1: SR 2004 (River Street) & Courtright Avenue

05/18/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	11	4	4	38	18	23	5	646	13	6	864	62
Future Volume (vph)	11	4	4	38	18	23	5	646	13	6	864	62
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width	16	16	16	14	14	14	14	14	14	14	14	14
Grade (%)		-1%			-2%			-2%			-1%	
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.97			0.96			1.00			0.99	
Flt Protected		0.97			0.98			1.00			1.00	
Satd. Flow (prot)		1754			1799			1856			1894	
Flt Permitted		0.86			0.84			0.99			1.00	
Satd. Flow (perm)		1559			1544			1847			1887	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	12	4	4	41	20	25	5	702	14	7	939	67
RTOR Reduction (vph)	0	4	0	0	22	0	0	1	0	0	3	0
Lane Group Flow (vph)	0	16	0	0	64	0	0	720	0	0	1010	0
Heavy Vehicles (%)	9%	25%	0%	0%	0%	4%	20%	4%	8%	0%	1%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		7.7			7.7			52.3			52.3	
Effective Green, g (s)		8.2			8.2			52.8			52.8	
Actuated g/C Ratio		0.12			0.12			0.75			0.75	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		182			180			1393			1423	
v/s Ratio Prot												
v/s Ratio Perm		0.01			c0.04			0.39			c0.54	
v/c Ratio		0.09			0.36			0.52			0.71	
Uniform Delay, d1		27.6			28.5			3.5			4.5	
Progression Factor		1.00			1.00			1.00			0.33	
Incremental Delay, d2		0.2			1.2			1.4			2.2	
Delay (s)		27.8			29.7			4.8			3.7	
Level of Service		C			C			A			A	
Approach Delay (s)		27.8			29.7			4.8			3.7	
Approach LOS		C			C			A			A	
Intersection Summary												
HCM 2000 Control Delay		5.6			HCM 2000 Level of Service			A				
HCM 2000 Volume to Capacity ratio		0.66										
Actuated Cycle Length (s)		70.0			Sum of lost time (s)			9.0				
Intersection Capacity Utilization		69.0%			ICU Level of Service			C				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2: SR 2004 (River Street) & West Maple Street

05/18/2018



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	50	113	686	0	0	914
Future Volume (vph)	50	113	686	0	0	914
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width	14	14	12	12	12	12
Total Lost time (s)	4.5	4.5	4.5			4.5
Lane Util. Factor	1.00	1.00	1.00			1.00
Frt	1.00	0.85	1.00			1.00
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	1689	1569	1731			1782
Flt Permitted	0.95	1.00	1.00			1.00
Satd. Flow (perm)	1689	1569	1731			1782
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	53	120	730	0	0	972
RTOR Reduction (vph)	0	106	0	0	0	0
Lane Group Flow (vph)	53	14	730	0	0	972
Heavy Vehicles (%)	8%	4%	4%	0%	0%	1%
Turn Type	Prot	Perm	NA			NA
Protected Phases	8		2			6
Permitted Phases		8				
Actuated Green, G (s)	7.5	7.5	52.5			52.5
Effective Green, g (s)	8.0	8.0	53.0			53.0
Actuated g/C Ratio	0.11	0.11	0.76			0.76
Clearance Time (s)	5.0	5.0	5.0			5.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	193	179	1310			1349
v/s Ratio Prot	c0.03		0.42			c0.55
v/s Ratio Perm		0.01				
v/c Ratio	0.27	0.08	0.56			0.72
Uniform Delay, d1	28.3	27.7	3.6			4.5
Progression Factor	1.00	1.00	1.62			1.00
Incremental Delay, d2	0.8	0.2	1.5			3.4
Delay (s)	29.1	27.9	7.3			7.9
Level of Service	C	C	A			A
Approach Delay (s)	28.3		7.3			7.9
Approach LOS	C		A			A

Intersection Summary

HCM 2000 Control Delay	9.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	61.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

3: SR 2004 (River Street) & Chestnut Street

05/18/2018

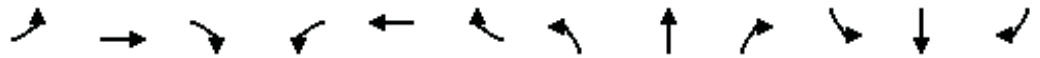


Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			↔		↔	↔
Traffic Volume (veh/h)	0	0	695	54	88	1036
Future Volume (Veh/h)	0	0	695	54	88	1036
Sign Control	Stop		Free		Free	
Grade	-2%		2%		0%	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	0	0	781	61	99	1164
Pedestrians	1					
Lane Width (ft)	0.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	0					
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	734			834		
pX, platoon unblocked	0.38	0.80			0.80	
vC, conflicting volume	2174	812			843	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2123	646			684	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			86	
cM capacity (veh/h)	18	383			732	
Direction, Lane #	NB 1	SB 1	SB 2			
Volume Total	842	99	1164			
Volume Left	0	99	0			
Volume Right	61	0	0			
cSH	1700	732	1700			
Volume to Capacity	0.50	0.14	0.68			
Queue Length 95th (ft)	0	12	0			
Control Delay (s)	0.0	10.7	0.0			
Lane LOS			B			
Approach Delay (s)	0.0	0.8				
Approach LOS						
Intersection Summary						
Average Delay			0.5			
Intersection Capacity Utilization			60.9%	ICU Level of Service		B
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

4: SR 2004 (River Street) & Waterfront Park Drive/Cross Valley Centre Drive

05/18/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	↖
Traffic Volume (vph)	35	1	43	6	0	3	50	640	9	40	1088	127
Future Volume (vph)	35	1	43	6	0	3	50	640	9	40	1088	127
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width	12	11	11	11	11	11	10	12	12	10	12	11
Grade (%)		-2%			3%			2%			-2%	
Total Lost time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.85		1.00	0.85		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1727	1499		1628	1457		1580	1711		1612	1800	1479
Flt Permitted	0.76	1.00		0.73	1.00		0.11	1.00		0.34	1.00	1.00
Satd. Flow (perm)	1374	1499		1244	1457		191	1711		579	1800	1479
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	38	1	47	7	0	3	54	696	10	43	1183	138
RTOR Reduction (vph)	0	44	0	0	3	0	0	0	0	0	0	20
Lane Group Flow (vph)	38	4	0	7	0	0	54	706	0	43	1183	118
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	4%	0%	0%	1%	1%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	7.0	7.0		7.0	7.0		95.4	90.8		94.6	90.4	90.4
Effective Green, g (s)	8.0	8.0		8.0	8.0		97.4	91.8		96.6	91.4	91.4
Actuated g/C Ratio	0.07	0.07		0.07	0.07		0.81	0.76		0.80	0.76	0.76
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	6.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	91	99		82	97		219	1308		510	1371	1126
v/s Ratio Prot		0.00			0.00		c0.01	0.41		0.00	c0.66	
v/s Ratio Perm	c0.03			0.01			0.19			0.06		0.08
v/c Ratio	0.42	0.04		0.09	0.00		0.25	0.54		0.08	0.86	0.11
Uniform Delay, d1	53.8	52.4		52.6	52.3		14.3	5.6		3.1	9.9	3.7
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.1	0.1		0.2	0.0		0.2	1.6		0.0	7.4	0.2
Delay (s)	54.9	52.5		52.7	52.3		14.5	7.2		3.1	17.3	3.9
Level of Service	D	D		D	D		B	A		A	B	A
Approach Delay (s)		53.5			52.6			7.8			15.5	
Approach LOS		D			D			A			B	

Intersection Summary

HCM 2000 Control Delay	14.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	77.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

5: SR 2004 (River Street) & Ramp AA/Ramp CC

05/18/2018

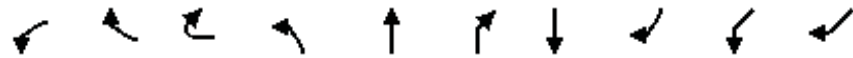


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖	↖					↑↑↑		↖	↑↑	
Traffic Volume (vph)	305	1	440	0	0	0	0	480	196	428	799	0
Future Volume (vph)	305	1	440	0	0	0	0	480	196	428	799	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width	10	10	10	14	14	14	11	12	12	11	12	12
Grade (%)		-3%			0%			3%			-2%	
Total Lost time (s)	6.0	6.0	4.0					6.0		7.0	6.0	
Lane Util. Factor	0.95	0.95	1.00					0.91		1.00	0.95	
Frt	1.00	1.00	0.85					0.96		1.00	1.00	
Flt Protected	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1509	1513	1435					4446		1605	3386	
Flt Permitted	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (perm)	1509	1513	1435					4446		1605	3386	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	339	1	489	0	0	0	0	533	218	476	888	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	82	0	0	0	0
Lane Group Flow (vph)	169	171	489	0	0	0	0	669	0	476	888	0
Heavy Vehicles (%)	2%	0%	1%	0%	0%	0%	0%	5%	2%	4%	2%	0%
Turn Type	Split	NA	Free					NA		Prot	NA	
Protected Phases	3	3						6 7		8 5	2 8 7 5	
Permitted Phases			Free									
Actuated Green, G (s)	11.0	11.0	90.0					24.0		31.0	64.0	
Effective Green, g (s)	11.0	11.0	90.0					24.0		31.0	57.0	
Actuated g/C Ratio	0.12	0.12	1.00					0.27		0.34	0.63	
Clearance Time (s)	6.0	6.0										
Vehicle Extension (s)	3.0	3.0										
Lane Grp Cap (vph)	184	184	1435					1185		552	2144	
v/s Ratio Prot	0.11	c0.11						c0.15		c0.30	c0.26	
v/s Ratio Perm			c0.34									
v/c Ratio	0.92	0.93	0.34					0.56		0.86	0.41	
Uniform Delay, d1	39.1	39.1	0.0					28.5		27.5	8.2	
Progression Factor	1.00	1.00	1.00					1.00		1.13	1.23	
Incremental Delay, d2	43.3	45.9	0.6					0.6		8.8	0.1	
Delay (s)	82.3	85.0	0.6					29.1		39.8	10.2	
Level of Service	F	F	A					C		D	B	
Approach Delay (s)		34.7			0.0			29.1			20.5	
Approach LOS		C			A			C			C	
Intersection Summary												
HCM 2000 Control Delay			26.7									HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio			0.87									
Actuated Cycle Length (s)			90.0							31.0		Sum of lost time (s)
Intersection Capacity Utilization			63.4%									ICU Level of Service B
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

6: SR 2004 (River Street) & Ramp BB/Ramp DD & SR 2024 (Maffett Street)

05/18/2018



Movement	WBL	WBR	WBR2	NBL	NBT	NBR	SBT	SBR	SWL	SWR
Lane Configurations	↖↗	↖	↖	↖	↕↔		↕↕	↖	↖↗	
Traffic Volume (vph)	289	52	110	120	326	344	691	282	233	22
Future Volume (vph)	289	52	110	120	326	344	691	282	233	22
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width	11	11	11	11	12	12	12	12	12	12
Grade (%)					0%		2%		0%	
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0	7.0	
Lane Util. Factor	0.97	1.00	1.00	1.00	0.95		0.95	1.00	1.00	
Frt	1.00	0.85	0.85	1.00	0.92		1.00	0.85	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		1.00	1.00	0.96	
Satd. Flow (prot)	3113	1368	1273	1621	3065		3319	1471	1594	
Flt Permitted	0.95	1.00	1.00	0.28	1.00		1.00	1.00	0.96	
Satd. Flow (perm)	3113	1368	1273	482	3065		3319	1471	1594	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	321	58	122	133	362	382	768	313	259	24
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	321	58	122	133	744	0	768	313	283	0
Heavy Vehicles (%)	2%	7%	15%	2%	3%	3%	2%	3%	7%	4%
Turn Type	Perm	Perm	Perm	custom	NA		NA	Perm	Prot	
Protected Phases				1	1 3 6		2 3		8	
Permitted Phases	7	7	7	3 6				2 3		
Actuated Green, G (s)	9.0	9.0	9.0	36.0	36.0		35.0	35.0	17.0	
Effective Green, g (s)	9.0	9.0	9.0	36.0	36.0		35.0	35.0	17.0	
Actuated g/C Ratio	0.10	0.10	0.10	0.40	0.40		0.39	0.39	0.19	
Clearance Time (s)	6.0	6.0	6.0	6.0					7.0	
Vehicle Extension (s)	3.0	3.0	3.0	2.0					3.0	
Lane Grp Cap (vph)	311	136	127	243	1226		1290	572	301	
v/s Ratio Prot				0.02	c0.24		c0.23		c0.18	
v/s Ratio Perm	c0.10	0.04	0.10	0.19				0.21		
v/c Ratio	1.03	0.43	0.96	0.55	0.61		0.60	0.55	0.94	
Uniform Delay, d1	40.5	38.1	40.3	19.0	21.4		21.9	21.3	36.0	
Progression Factor	1.00	1.00	1.00	1.28	1.07		1.00	1.00	1.00	
Incremental Delay, d2	59.6	2.1	67.4	0.9	0.4		0.7	1.1	36.2	
Delay (s)	100.1	40.2	107.7	25.3	23.3		22.6	22.4	72.2	
Level of Service	F	D	F	C	C		C	C	E	
Approach Delay (s)					23.6		22.6		72.2	
Approach LOS					C		C		E	

Intersection Summary				
HCM 2000 Control Delay		41.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio		0.82		
Actuated Cycle Length (s)		90.0	Sum of lost time (s)	31.0
Intersection Capacity Utilization		70.1%	ICU Level of Service	C
Analysis Period (min)		15		
c Critical Lane Group				

HCM Unsignalized Intersection Capacity Analysis
 7: SR 2024 (Maffett Street) & Haines Street

05/18/2018



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	12	2	4	494	343	16
Future Volume (Veh/h)	12	2	4	494	343	16
Sign Control	Stop			Free	Free	
Grade	-5%			1%	-1%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	13	2	4	543	377	18
Pedestrians	3					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	0					
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)	1189					
pX, platoon unblocked						
vC, conflicting volume	940	389	398			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	940	389	398			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	96	100	100			
cM capacity (veh/h)	294	662	1168			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	15	547	395			
Volume Left	13	4	0			
Volume Right	2	0	18			
cSH	318	1168	1700			
Volume to Capacity	0.05	0.00	0.23			
Queue Length 95th (ft)	4	0	0			
Control Delay (s)	16.9	0.1	0.0			
Lane LOS	C	A				
Approach Delay (s)	16.9	0.1	0.0			
Approach LOS	C					
Intersection Summary						
Average Delay			0.3			
Intersection Capacity Utilization			40.8%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 8: SR 2024 (Maffett Street) & Mercer Street

05/18/2018














Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	9	2	5	506	356	2
Future Volume (Veh/h)	9	2	5	506	356	2
Sign Control	Stop			Free	Free	
Grade	-3%			3%	-2%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	10	2	5	556	391	2
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	958	392	393			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	958	392	393			
tC, single (s)	6.4	6.2	4.3			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.4			
p0 queue free %	97	100	100			
cM capacity (veh/h)	287	661	1074			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	12	561	393			
Volume Left	10	5	0			
Volume Right	2	0	2			
cSH	317	1074	1700			
Volume to Capacity	0.04	0.00	0.23			
Queue Length 95th (ft)	3	0	0			
Control Delay (s)	16.8	0.1	0.0			
Lane LOS	C	A				
Approach Delay (s)	16.8	0.1	0.0			
Approach LOS	C					
Intersection Summary						
Average Delay			0.3			
Intersection Capacity Utilization			42.3%	ICU Level of Service	A	
Analysis Period (min)			15			

9: SR 2024 (Maffett Street) & SR 2022 (Main Street) & Abbott Street Performance by lane

Lane	WB	NB	SB	NW	All
Movements Served	<LR	TR>	<LT	LR>	
Denied Del/Veh (s)					5.5
Total Del/Veh (s)	913.0	3.4	13.1	15.6	80.3

HCM Unsignalized Intersection Capacity Analysis
 10: SR 2024 (Maffett Street) & Driveway

05/18/2018

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	128	46	243	272	98	230
Future Volume (Veh/h)	128	46	243	272	98	230
Sign Control	Stop		Free		Free	
Grade	0%		3%		-2%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	139	50	264	296	107	250
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	728	264			560	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	728	264			560	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	60	94			89	
cM capacity (veh/h)	349	775			1011	
Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	
Volume Total	189	264	296	107	250	
Volume Left	139	0	0	107	0	
Volume Right	50	0	296	0	0	
cSH	408	1700	1700	1011	1700	
Volume to Capacity	0.46	0.16	0.17	0.11	0.15	
Queue Length 95th (ft)	59	0	0	9	0	
Control Delay (s)	21.2	0.0	0.0	9.0	0.0	
Lane LOS	C			A		
Approach Delay (s)	21.2	0.0	2.7			
Approach LOS	C					
Intersection Summary						
Average Delay			4.5			
Intersection Capacity Utilization			39.7%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 11: SR 2022 (Main Street) & Driveway

05/18/2018

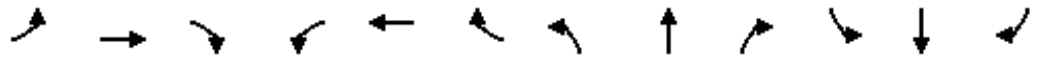


Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	82	174	122	379	0
Future Volume (Veh/h)	0	82	174	122	379	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	89	189	133	412	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	923	412	412			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	923	412	412			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	86	84			
cM capacity (veh/h)	252	640	1147			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1		
Volume Total	89	189	133	412		
Volume Left	0	189	0	0		
Volume Right	89	0	0	0		
cSH	640	1147	1700	1700		
Volume to Capacity	0.14	0.16	0.08	0.24		
Queue Length 95th (ft)	12	15	0	0		
Control Delay (s)	11.5	8.8	0.0	0.0		
Lane LOS	B	A				
Approach Delay (s)	11.5	5.1		0.0		
Approach LOS	B					
Intersection Summary						
Average Delay	3.3					
Intersection Capacity Utilization	46.6%			ICU Level of Service	A	
Analysis Period (min)	15					

HCM Signalized Intersection Capacity Analysis

1: SR 2004 (River Street) & Courtright Avenue

05/18/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	76	17	11	14	11	31	7	879	22	14	655	22
Future Volume (vph)	76	17	11	14	11	31	7	879	22	14	655	22
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width	16	16	16	14	14	14	14	14	14	14	14	14
Grade (%)		-1%			-2%			-2%			-1%	
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.99			0.92			1.00			1.00	
Flt Protected		0.96			0.99			1.00			1.00	
Satd. Flow (prot)		1935			1770			1914			1902	
Flt Permitted		0.77			0.93			1.00			0.98	
Satd. Flow (perm)		1554			1660			1906			1867	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	78	17	11	14	11	32	7	897	22	14	668	22
RTOR Reduction (vph)	0	7	0	0	28	0	0	1	0	0	1	0
Lane Group Flow (vph)	0	99	0	0	29	0	0	925	0	0	703	0
Heavy Vehicles (%)	1%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		8.7			8.7			51.3			51.3	
Effective Green, g (s)		9.2			9.2			51.8			51.8	
Actuated g/C Ratio		0.13			0.13			0.74			0.74	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		204			218			1410			1381	
v/s Ratio Prot												
v/s Ratio Perm		c0.06			0.02			c0.49			0.38	
v/c Ratio		0.49			0.13			0.66			0.51	
Uniform Delay, d1		28.2			26.9			4.6			3.8	
Progression Factor		1.00			1.00			1.00			1.34	
Incremental Delay, d2		1.8			0.3			2.4			1.2	
Delay (s)		30.0			27.2			7.0			6.3	
Level of Service		C			C			A			A	
Approach Delay (s)		30.0			27.2			7.0			6.3	
Approach LOS		C			C			A			A	
Intersection Summary												
HCM 2000 Control Delay			8.7					HCM 2000 Level of Service			A	
HCM 2000 Volume to Capacity ratio			0.63									
Actuated Cycle Length (s)			70.0					Sum of lost time (s)			9.0	
Intersection Capacity Utilization			74.2%					ICU Level of Service			D	
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2: SR 2004 (River Street) & West Maple Street

05/18/2018



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	56	153	959	0	0	660
Future Volume (vph)	56	153	959	0	0	660
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width	14	14	12	12	12	12
Total Lost time (s)	4.5	4.5	4.5			4.5
Lane Util. Factor	1.00	1.00	1.00			1.00
Frt	1.00	0.85	1.00			1.00
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	1824	1584	1782			1782
Flt Permitted	0.95	1.00	1.00			1.00
Satd. Flow (perm)	1824	1584	1782			1782
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	58	158	989	0	0	680
RTOR Reduction (vph)	0	128	0	0	0	0
Lane Group Flow (vph)	58	30	989	0	0	680
Heavy Vehicles (%)	0%	3%	1%	0%	0%	1%
Turn Type	Prot	Perm	NA			NA
Protected Phases	8		2			6
Permitted Phases		8				
Actuated Green, G (s)	8.6	8.6	51.4			51.4
Effective Green, g (s)	9.1	9.1	51.9			51.9
Actuated g/C Ratio	0.13	0.13	0.74			0.74
Clearance Time (s)	5.0	5.0	5.0			5.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	237	205	1321			1321
v/s Ratio Prot	c0.03		c0.55			0.38
v/s Ratio Perm		0.02				
v/c Ratio	0.24	0.15	0.75			0.51
Uniform Delay, d1	27.4	27.0	5.3			3.8
Progression Factor	1.00	1.00	0.45			1.00
Incremental Delay, d2	0.5	0.3	3.2			1.4
Delay (s)	27.9	27.3	5.5			5.2
Level of Service	C	C	A			A
Approach Delay (s)	27.5		5.5			5.2
Approach LOS	C		A			A

Intersection Summary

HCM 2000 Control Delay	7.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	70.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

3: SR 2004 (River Street) & Chestnut Street

05/18/2018

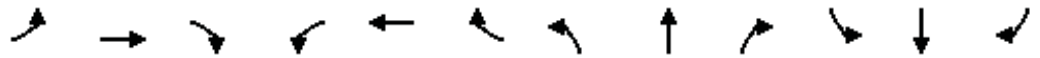


Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			↩		↩	↩
Traffic Volume (veh/h)	0	0	1094	63	56	721
Future Volume (Veh/h)	0	0	1094	63	56	721
Sign Control	Stop		Free			Free
Grade	-2%		2%			0%
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	0	0	1164	67	60	767
Pedestrians	1					
Lane Width (ft)	0.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	0					
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)			734			834
pX, platoon unblocked	0.57	0.45			0.45	
vC, conflicting volume	2086	1198			1232	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1634	835			909	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			82	
cM capacity (veh/h)	52	168			336	
Direction, Lane #	NB 1	SB 1	SB 2			
Volume Total	1231	60	767			
Volume Left	0	60	0			
Volume Right	67	0	0			
cSH	1700	336	1700			
Volume to Capacity	0.72	0.18	0.45			
Queue Length 95th (ft)	0	16	0			
Control Delay (s)	0.0	18.0	0.0			
Lane LOS		C				
Approach Delay (s)	0.0	1.3				
Approach LOS						
Intersection Summary						
Average Delay			0.5			
Intersection Capacity Utilization			68.1%		ICU Level of Service	C
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

4: SR 2004 (River Street) & Waterfront Park Drive/Cross Valley Centre Drive

05/18/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	↖
Traffic Volume (vph)	101	1	45	8	4	20	23	1066	8	7	715	57
Future Volume (vph)	101	1	45	8	4	20	23	1066	8	7	715	57
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width	12	11	11	11	11	11	10	12	12	10	12	11
Grade (%)		-2%			3%			2%			-2%	
Total Lost time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.85		1.00	0.87		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1727	1499		1628	1498		1580	1763		1612	1782	1494
Flt Permitted	0.74	1.00		0.73	1.00		0.29	1.00		0.11	1.00	1.00
Satd. Flow (perm)	1347	1499		1244	1498		479	1763		186	1782	1494
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	105	1	47	8	4	21	24	1110	8	7	745	59
RTOR Reduction (vph)	0	41	0	0	18	0	0	0	0	0	0	18
Lane Group Flow (vph)	105	7	0	8	7	0	24	1118	0	7	745	41
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	2%	0%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	11.0	11.0		11.0	11.0		72.2	70.0		69.8	68.8	68.8
Effective Green, g (s)	12.0	12.0		12.0	12.0		74.2	71.0		71.8	69.8	69.8
Actuated g/C Ratio	0.12	0.12		0.12	0.12		0.74	0.71		0.72	0.70	0.70
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	6.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	161	179		149	179		390	1251		162	1243	1042
v/s Ratio Prot		0.00			0.00		c0.00	c0.63		0.00	0.42	
v/s Ratio Perm	c0.08			0.01			0.04			0.03		0.03
v/c Ratio	0.65	0.04		0.05	0.04		0.06	0.89		0.04	0.60	0.04
Uniform Delay, d1	42.0	38.9		39.0	38.9		5.0	11.5		12.7	7.8	4.7
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	7.0	0.0		0.1	0.0		0.0	10.0		0.0	2.1	0.1
Delay (s)	49.0	38.9		39.0	38.9		5.0	21.5		12.7	10.0	4.8
Level of Service	D	D		D	D		A	C		B	A	A
Approach Delay (s)		45.9			38.9			21.1			9.6	
Approach LOS		D			D			C			A	

Intersection Summary		
HCM 2000 Control Delay	18.8	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.84	B
Actuated Cycle Length (s)	100.0	Sum of lost time (s)
Intersection Capacity Utilization	80.6%	15.0
Analysis Period (min)	15	ICU Level of Service
		D
c Critical Lane Group		

HCM Signalized Intersection Capacity Analysis

5: SR 2004 (River Street) & Ramp AA/Ramp CC

05/18/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↖	↗	↘					↑↑↑		↖	↑↑		
Traffic Volume (vph)	365	2	184	0	0	0	0	863	328	370	593	0	
Future Volume (vph)	365	2	184	0	0	0	0	863	328	370	593	0	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	
Lane Width	10	10	10	14	14	14	11	12	12	11	12	12	
Grade (%)		-3%			0%			3%			-2%		
Total Lost time (s)	6.0	6.0	4.0					6.0		7.0	6.0		
Lane Util. Factor	0.95	0.95	1.00					0.91		1.00	0.95		
Frt	1.00	1.00	0.85					0.96		1.00	1.00		
Flt Protected	0.95	0.95	1.00					1.00		0.95	1.00		
Satd. Flow (prot)	1524	1528	1435					4582		1605	3420		
Flt Permitted	0.95	0.95	1.00					1.00		0.95	1.00		
Satd. Flow (perm)	1524	1528	1435					4582		1605	3420		
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	
Adj. Flow (vph)	380	2	192	0	0	0	0	899	342	385	618	0	
RTOR Reduction (vph)	0	0	0	0	0	0	0	57	0	0	0	0	
Lane Group Flow (vph)	190	192	192	0	0	0	0	1184	0	385	618	0	
Heavy Vehicles (%)	1%	0%	1%	0%	0%	0%	0%	1%	2%	4%	1%	0%	
Turn Type	Split	NA	Free					NA		Prot	NA		
Protected Phases	3	3						6 7		8 5	2 8 7 5		
Permitted Phases			Free										
Actuated Green, G (s)	14.0	14.0	120.0					43.0		39.0	80.0		
Effective Green, g (s)	14.0	14.0	120.0					43.0		39.0	73.0		
Actuated g/C Ratio	0.12	0.12	1.00					0.36		0.32	0.61		
Clearance Time (s)	6.0	6.0											
Vehicle Extension (s)	3.0	3.0											
Lane Grp Cap (vph)	177	178	1435					1641		521	2080		
v/s Ratio Prot	0.12	c0.13						c0.26		c0.24	0.18		
v/s Ratio Perm			0.13										
v/c Ratio	1.07	1.08	0.13					0.72		0.74	0.30		
Uniform Delay, d1	53.0	53.0	0.0					33.3		36.0	11.2		
Progression Factor	1.00	1.00	1.00					1.00		1.04	1.98		
Incremental Delay, d2	88.5	90.0	0.2					1.6		4.1	0.1		
Delay (s)	141.5	143.0	0.2					34.9		41.6	22.3		
Level of Service	F	F	A					C		D	C		
Approach Delay (s)		94.7			0.0			34.9			29.7		
Approach LOS		F			A			C			C		
Intersection Summary													
HCM 2000 Control Delay			45.3									HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio			0.84										
Actuated Cycle Length (s)			120.0									Sum of lost time (s)	31.0
Intersection Capacity Utilization			72.7%									ICU Level of Service	C
Analysis Period (min)			15										
c Critical Lane Group													

HCM Signalized Intersection Capacity Analysis

6: SR 2004 (River Street) & Ramp BB/Ramp DD & SR 2024 (Maffett Street)

05/18/2018



Movement	WBL	WBR	WBR2	NBL	NBT	NBR	SBT	SBR	SWL	SWR	
Lane Configurations	↖↖	↗	↗	↖	↕↕		↕↕	↗	↖↖		
Traffic Volume (vph)	176	286	141	339	518	386	500	295	259	91	
Future Volume (vph)	176	286	141	339	518	386	500	295	259	91	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	
Lane Width	11	11	11	11	12	12	12	12	12	12	
Grade (%)					0%		2%		0%		
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0	7.0		
Lane Util. Factor	0.97	1.00	1.00	1.00	0.95		0.95	1.00	1.00		
Frt	1.00	0.85	0.85	1.00	0.94		1.00	0.85	0.96		
Flt Protected	0.95	1.00	1.00	0.95	1.00		1.00	1.00	0.96		
Satd. Flow (prot)	3113	1450	1356	1637	3169		3319	1485	1642		
Flt Permitted	0.95	1.00	1.00	0.26	1.00		1.00	1.00	0.96		
Satd. Flow (perm)	3113	1450	1356	456	3169		3319	1485	1642		
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
Adj. Flow (vph)	185	301	148	357	545	406	526	311	273	96	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	185	301	148	357	951	0	526	311	369	0	
Heavy Vehicles (%)	2%	1%	8%	1%	1%	1%	2%	2%	2%	2%	
Turn Type	Perm	Perm	Perm	custom	NA		NA	Perm	Prot		
Protected Phases				1	1 3 6		2 3		8		
Permitted Phases	7	7	7	3 6				2 3			
Actuated Green, G (s)	23.0	23.0	23.0	53.0	53.0		32.0	32.0	25.0		
Effective Green, g (s)	23.0	23.0	23.0	53.0	53.0		32.0	32.0	25.0		
Actuated g/C Ratio	0.19	0.19	0.19	0.44	0.44		0.27	0.27	0.21		
Clearance Time (s)	6.0	6.0	6.0	6.0					7.0		
Vehicle Extension (s)	3.0	3.0	3.0	2.0					3.0		
Lane Grp Cap (vph)	596	277	259	349	1399		885	396	342		
v/s Ratio Prot				c0.13	0.30		0.16		c0.22		
v/s Ratio Perm	0.06	c0.21	0.11	c0.32				0.21			
v/c Ratio	0.31	1.09	0.57	1.02	0.68		0.59	0.79	1.08		
Uniform Delay, d1	41.7	48.5	44.0	28.8	26.7		38.3	40.8	47.5		
Progression Factor	1.00	1.00	1.00	1.66	0.95		1.00	1.00	1.00		
Incremental Delay, d2	0.3	79.1	3.0	41.8	0.6		1.1	9.8	71.3		
Delay (s)	42.0	127.6	47.1	89.5	26.1		39.4	50.7	118.8		
Level of Service	D	F	D	F	C		D	D	F		
Approach Delay (s)					43.4		43.6		118.8		
Approach LOS					D		D		F		
Intersection Summary											
HCM 2000 Control Delay			60.4							HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio			1.16								
Actuated Cycle Length (s)			120.0							Sum of lost time (s)	31.0
Intersection Capacity Utilization			79.9%							ICU Level of Service	D
Analysis Period (min)			15								
c Critical Lane Group											

HCM Unsignalized Intersection Capacity Analysis
 7: SR 2024 (Maffett Street) & Haines Street

05/18/2018



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	18	2	14	504	397	17
Future Volume (Veh/h)	18	2	14	504	397	17
Sign Control	Stop			Free	Free	
Grade	-5%			1%	-1%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	20	2	16	560	441	19
Pedestrians	3					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	0					
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)	1189					
pX, platoon unblocked						
vC, conflicting volume	1046	454	463			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1046	454	463			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.6	3.3	2.2			
p0 queue free %	92	100	99			
cM capacity (veh/h)	245	609	1106			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	22	576	460			
Volume Left	20	16	0			
Volume Right	2	0	19			
cSH	259	1106	1700			
Volume to Capacity	0.08	0.01	0.27			
Queue Length 95th (ft)	7	1	0			
Control Delay (s)	20.2	0.4	0.0			
Lane LOS	C	A				
Approach Delay (s)	20.2	0.4	0.0			
Approach LOS	C					
Intersection Summary						
Average Delay			0.6			
Intersection Capacity Utilization			49.9%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 8: SR 2024 (Maffett Street) & Mercer Street

05/18/2018














Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	5	11	526	388	7
Future Volume (Veh/h)	5	5	11	526	388	7
Sign Control	Stop			Free	Free	
Grade	-3%			3%	-2%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	5	12	572	422	8
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1022	426	430			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1022	426	430			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	98	99	99			
cM capacity (veh/h)	261	633	1140			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	10	584	430			
Volume Left	5	12	0			
Volume Right	5	0	8			
cSH	370	1140	1700			
Volume to Capacity	0.03	0.01	0.25			
Queue Length 95th (ft)	2	1	0			
Control Delay (s)	15.0	0.3	0.0			
Lane LOS	B	A				
Approach Delay (s)	15.0	0.3	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay			0.3			
Intersection Capacity Utilization			48.5%	ICU Level of Service	A	
Analysis Period (min)			15			

9: SR 2024 (Maffett Street) & SR 2022 (Main Street) & Abbott Street Performance by lane

Lane	WB	NB	SB	NW	All
Movements Served	<LR	TR>	<LT	LR>	
Denied Del/Veh (s)					0.2
Total Del/Veh (s)	124.9	5.3	9.7	101.3	29.8

HCM Unsignalized Intersection Capacity Analysis
 10: SR 2024 (Maffett Street) & Driveway

05/18/2018

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	163	52	386	145	47	232
Future Volume (Veh/h)	163	52	386	145	47	232
Sign Control	Stop		Free		Free	
Grade	0%		3%		-2%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	177	57	420	158	51	252
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	774	420			578	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	774	420			578	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	49	91			95	
cM capacity (veh/h)	348	633			996	
Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	
Volume Total	234	420	158	51	252	
Volume Left	177	0	0	51	0	
Volume Right	57	0	158	0	0	
cSH	391	1700	1700	996	1700	
Volume to Capacity	0.60	0.25	0.09	0.05	0.15	
Queue Length 95th (ft)	94	0	0	4	0	
Control Delay (s)	27.0	0.0	0.0	8.8	0.0	
Lane LOS	D			A		
Approach Delay (s)	27.0	0.0			1.5	
Approach LOS	D					
Intersection Summary						
Average Delay			6.1			
Intersection Capacity Utilization			47.7%		ICU Level of Service	A
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis

11: SR 2022 (Main Street) & Driveway

05/18/2018



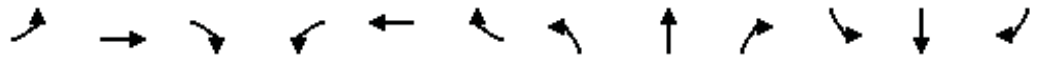
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	97	86	221	162	0
Future Volume (Veh/h)	0	97	86	221	162	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	105	93	240	176	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	602	176	176			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	602	176	176			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	88	93			
cM capacity (veh/h)	435	867	1400			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1		
Volume Total	105	93	240	176		
Volume Left	0	93	0	0		
Volume Right	105	0	0	0		
cSH	867	1400	1700	1700		
Volume to Capacity	0.12	0.07	0.14	0.10		
Queue Length 95th (ft)	10	5	0	0		
Control Delay (s)	9.7	7.8	0.0	0.0		
Lane LOS	A	A				
Approach Delay (s)	9.7	2.2		0.0		
Approach LOS	A					
Intersection Summary						
Average Delay			2.8			
Intersection Capacity Utilization			30.4%	ICU Level of Service	A	
Analysis Period (min)			15			

2021 With Improvements

HCM Signalized Intersection Capacity Analysis

1: SR 2004 (River Street) & Courtright Avenue

06/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↕			↕		↕	↕			↕		
Traffic Volume (vph)	11	4	4	38	18	23	5	646	13	6	864	62	
Future Volume (vph)	11	4	4	38	18	23	5	646	13	6	864	62	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	
Lane Width	16	16	16	14	14	14	14	14	14	14	14	14	
Grade (%)		-1%			-2%			-2%			-1%		
Total Lost time (s)		4.5			4.5		5.0	4.5			4.5		
Lane Util. Factor		1.00			1.00		1.00	1.00			1.00		
Frt		0.97			0.96		1.00	1.00			0.99		
Flt Protected		0.97			0.98		0.95	1.00			1.00		
Satd. Flow (prot)		1754			1799		1535	1858			1894		
Flt Permitted		0.86			0.84		0.30	1.00			1.00		
Satd. Flow (perm)		1559			1544		485	1858			1887		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	12	4	4	41	20	25	5	702	14	7	939	67	
RTOR Reduction (vph)	0	4	0	0	22	0	0	1	0	0	3	0	
Lane Group Flow (vph)	0	16	0	0	64	0	5	715	0	0	1010	0	
Heavy Vehicles (%)	9%	25%	0%	0%	0%	4%	20%	4%	8%	0%	1%	0%	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA		
Protected Phases		4			8			2			6		
Permitted Phases	4			8			2			6			
Actuated Green, G (s)		7.7			7.7		52.3	52.3			52.3		
Effective Green, g (s)		8.2			8.2		52.3	52.8			52.8		
Actuated g/C Ratio		0.12			0.12		0.75	0.75			0.75		
Clearance Time (s)		5.0			5.0		5.0	5.0			5.0		
Vehicle Extension (s)		3.0			3.0		3.0	3.0			3.0		
Lane Grp Cap (vph)		182			180		362	1401			1423		
v/s Ratio Prot								0.39					
v/s Ratio Perm		0.01			c0.04		0.01				c0.54		
v/c Ratio		0.09			0.36		0.01	0.51			0.71		
Uniform Delay, d1		27.6			28.5		2.3	3.4			4.5		
Progression Factor		1.00			1.00		1.00	1.00			0.30		
Incremental Delay, d2		0.2			1.2		0.1	1.3			2.2		
Delay (s)		27.8			29.7		2.3	4.8			3.6		
Level of Service		C			C		A	A			A		
Approach Delay (s)		27.8			29.7			4.8			3.6		
Approach LOS		C			C			A			A		
Intersection Summary													
HCM 2000 Control Delay			5.5									HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.66										
Actuated Cycle Length (s)			70.0									Sum of lost time (s)	9.0
Intersection Capacity Utilization			69.9%									ICU Level of Service	C
Analysis Period (min)			15										
c Critical Lane Group													

HCM Signalized Intersection Capacity Analysis

5: SR 2004 (River Street) & Ramp AA/Ramp CC

06/11/2018

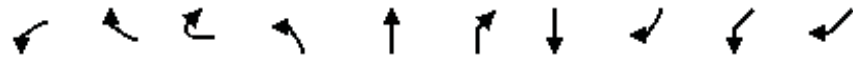


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↘	↙	↗					↑↑↑	↗	↘	↑↑		
Traffic Volume (vph)	305	1	440	0	0	0	0	480	196	428	799	0	
Future Volume (vph)	305	1	440	0	0	0	0	480	196	428	799	0	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	
Lane Width	10	10	10	14	14	14	11	12	12	11	12	12	
Grade (%)		-3%			0%			3%			-2%		
Total Lost time (s)	6.0	6.0	4.0					6.0	4.0	7.0	6.0		
Lane Util. Factor	0.95	0.95	1.00					0.91	1.00	1.00	0.95		
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00		
Flt Protected	0.95	0.95	1.00					1.00	1.00	0.95	1.00		
Satd. Flow (prot)	1509	1513	1435					4610	1477	1605	3386		
Flt Permitted	0.95	0.95	1.00					1.00	1.00	0.95	1.00		
Satd. Flow (perm)	1509	1513	1435					4610	1477	1605	3386		
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	
Adj. Flow (vph)	339	1	489	0	0	0	0	533	218	476	888	0	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	169	171	489	0	0	0	0	533	218	476	888	0	
Heavy Vehicles (%)	2%	0%	1%	0%	0%	0%	0%	5%	2%	4%	2%	0%	
Turn Type	Split	NA	Free					NA	Free	Prot	NA		
Protected Phases	3	3						6 7		8 5	2 8 7 5		
Permitted Phases			Free						Free				
Actuated Green, G (s)	12.0	12.0	90.0					22.0	90.0	32.0	63.0		
Effective Green, g (s)	12.0	12.0	90.0					22.0	90.0	32.0	56.0		
Actuated g/C Ratio	0.13	0.13	1.00					0.24	1.00	0.36	0.62		
Clearance Time (s)	6.0	6.0											
Vehicle Extension (s)	3.0	3.0											
Lane Grp Cap (vph)	201	201	1435					1126	1477	570	2106		
v/s Ratio Prot	0.11	c0.11						0.12		c0.30	c0.26		
v/s Ratio Perm			c0.34						0.15				
v/c Ratio	0.84	0.85	0.34					0.47	0.15	0.84	0.42		
Uniform Delay, d1	38.1	38.1	0.0					29.1	0.0	26.6	8.7		
Progression Factor	1.00	1.00	1.00					1.00	1.00	1.15	1.63		
Incremental Delay, d2	25.9	27.5	0.6					0.3	0.2	6.9	0.1		
Delay (s)	63.9	65.6	0.6					29.4	0.2	37.6	14.3		
Level of Service	E	E	A					C	A	D	B		
Approach Delay (s)		27.0			0.0			20.9			22.4		
Approach LOS		C			A			C			C		
Intersection Summary													
HCM 2000 Control Delay			23.3									HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.84										
Actuated Cycle Length (s)			90.0									Sum of lost time (s)	31.0
Intersection Capacity Utilization			58.8%									ICU Level of Service	B
Analysis Period (min)			15										
c Critical Lane Group													

HCM Signalized Intersection Capacity Analysis

6: SR 2004 (River Street) & Ramp BB/Ramp DD & SR 2024 (Maffett Street)

06/11/2018




















Movement	WBL	WBR	WBR2	NBL	NBT	NBR	SBT	SBR	SWL	SWR	
Lane Configurations	↔↔	↔↔	↔	↔	↕↔		↕↕	↔	↔	↔	
Traffic Volume (vph)	289	52	110	120	326	344	691	282	233	22	
Future Volume (vph)	289	52	110	120	326	344	691	282	233	22	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	
Lane Width	11	11	11	11	12	12	12	12	12	12	
Grade (%)					0%		2%		0%		
Total Lost time (s)	6.0	6.0	4.0	6.0	6.0		6.0	6.0	7.0		
Lane Util. Factor	0.97	0.88	1.00	1.00	0.95		0.95	1.00	1.00		
Frt	1.00	0.85	0.85	1.00	0.92		1.00	0.85	0.99		
Flt Protected	0.95	1.00	1.00	0.95	1.00		1.00	1.00	0.96		
Satd. Flow (prot)	3113	2408	1273	1621	3065		3319	1471	1594		
Flt Permitted	0.95	1.00	1.00	0.27	1.00		1.00	1.00	0.96		
Satd. Flow (perm)	3113	2408	1273	461	3065		3319	1471	1594		
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	
Adj. Flow (vph)	321	58	122	133	362	382	768	313	259	24	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	321	58	122	133	744	0	768	313	283	0	
Heavy Vehicles (%)	2%	7%	15%	2%	3%	3%	2%	3%	7%	4%	
Turn Type	Perm	Perm	Free	custom	NA		NA	Perm	Prot		
Protected Phases				1	1 3 6		2 3		8		
Permitted Phases	7	7	Free	3 6				2 3			
Actuated Green, G (s)	10.0	10.0	90.0	34.0	34.0		33.0	33.0	18.0		
Effective Green, g (s)	10.0	10.0	90.0	34.0	34.0		33.0	33.0	18.0		
Actuated g/C Ratio	0.11	0.11	1.00	0.38	0.38		0.37	0.37	0.20		
Clearance Time (s)	6.0	6.0		6.0					7.0		
Vehicle Extension (s)	3.0	3.0		2.0					3.0		
Lane Grp Cap (vph)	345	267	1273	225	1157		1216	539	318		
v/s Ratio Prot				0.03	c0.24		c0.23		c0.18		
v/s Ratio Perm	c0.10	0.02	0.10	0.20				0.21			
v/c Ratio	0.93	0.22	0.10	0.59	0.64		0.63	0.58	0.89		
Uniform Delay, d1	39.7	36.4	0.0	20.7	23.0		23.5	22.9	35.0		
Progression Factor	1.00	1.00	1.00	1.16	0.94		1.00	1.00	1.00		
Incremental Delay, d2	31.1	0.4	0.1	2.2	0.7		1.1	1.6	24.7		
Delay (s)	70.7	36.8	0.1	26.3	22.5		24.6	24.5	59.7		
Level of Service	E	D	A	C	C		C	C	E		
Approach Delay (s)					23.0		24.6		59.7		
Approach LOS					C		C		E		
Intersection Summary											
HCM 2000 Control Delay			32.3		HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.83								
Actuated Cycle Length (s)			90.0		Sum of lost time (s)				31.0		
Intersection Capacity Utilization			70.1%		ICU Level of Service				C		
Analysis Period (min)			15								
c Critical Lane Group											

HCM Signalized Intersection Capacity Analysis

9: SR 2024 (Maffett Street) & SR 2022 (Main Street) & Abbott Street

06/11/2018

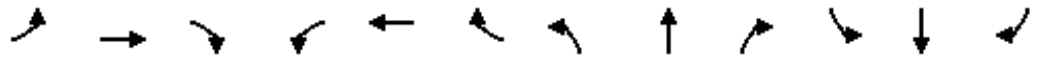
													
Movement	WBL2	WBL	WBR	NBT	NBR	NBR2	SBL2	SBL	SBT	NWL	NWR	NWR2	
Lane Configurations													
Traffic Volume (vph)	3	55	38	200	69	6	70	370	279	0	100	22	
Future Volume (vph)	3	55	38	200	69	6	70	370	279	0	100	22	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	
Lane Width	14	14	14	16	16	16	10	10	10	14	14	14	
Grade (%)		5%		3%					1%	0%			
Total Lost time (s)		5.0		5.0				5.0	5.0	5.0			
Lane Util. Factor		1.00		1.00				1.00	1.00	1.00			
Frbp, ped/bikes		1.00		0.99				1.00	1.00	0.97			
Flpb, ped/bikes		1.00		1.00				1.00	1.00	1.00			
Frt		0.95		0.96				1.00	1.00	0.86			
Flt Protected		0.97		1.00				0.95	1.00	1.00			
Satd. Flow (prot)		1720		1833				1544	1623	1555			
Flt Permitted		0.97		1.00				0.56	1.00	1.00			
Satd. Flow (perm)		1720		1833				907	1623	1555			
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	
Adj. Flow (vph)	3	61	42	222	77	7	78	411	310	0	111	24	
RTOR Reduction (vph)	0	63	0	1	0	0	0	0	0	62	0	0	
Lane Group Flow (vph)	0	43	0	305	0	0	0	489	310	73	0	0	
Confl. Peds. (#/hr)					2		2					2	
Heavy Vehicles (%)	0%	0%	0%	6%	2%	0%	0%	3%	3%	0%	5%	0%	
Turn Type	Prot	Prot		NA				Perm	Perm	NA	Prot		
Protected Phases	8	8		2						6	4		
Permitted Phases							6	6					
Actuated Green, G (s)		8.0		61.8				61.8	61.8	9.8			
Effective Green, g (s)		8.0		61.8				61.8	61.8	9.8			
Actuated g/C Ratio		0.08		0.65				0.65	0.65	0.10			
Clearance Time (s)		5.0		5.0				5.0	5.0	5.0			
Vehicle Extension (s)		3.0		3.0				3.0	3.0	3.0			
Lane Grp Cap (vph)		145		1197				592	1060	161			
v/s Ratio Prot		c0.02		0.17					0.19	c0.05			
v/s Ratio Perm								c0.54					
v/c Ratio		0.30		0.26				0.83	0.29	0.45			
Uniform Delay, d1		40.7		6.8				12.4	7.0	39.9			
Progression Factor		1.00		1.00				1.00	1.00	1.00			
Incremental Delay, d2		1.1		0.1				9.2	0.2	2.0			
Delay (s)		41.8		6.9				21.5	7.2	41.9			
Level of Service		D		A				C	A	D			
Approach Delay (s)		41.8		6.9					16.0	41.9			
Approach LOS		D		A					B	D			
Intersection Summary													
HCM 2000 Control Delay			18.6		HCM 2000 Level of Service					B			
HCM 2000 Volume to Capacity ratio			0.73										
Actuated Cycle Length (s)			94.6		Sum of lost time (s)					15.0			
Intersection Capacity Utilization			72.9%		ICU Level of Service					C			
Analysis Period (min)			15										

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

1: SR 2004 (River Street) & Courtright Avenue

06/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↕			↕		↕	↕			↕		
Traffic Volume (vph)	76	17	11	14	11	31	7	879	22	14	655	22	
Future Volume (vph)	76	17	11	14	11	31	7	879	22	14	655	22	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	
Lane Width	16	16	16	14	14	14	14	14	14	14	14	14	
Grade (%)		-1%			-2%			-2%			-1%		
Total Lost time (s)		4.5			4.5		5.0	4.5			4.5		
Lane Util. Factor		1.00			1.00		1.00	1.00			1.00		
Frt		0.99			0.92		1.00	1.00			1.00		
Flt Protected		0.96			0.99		0.95	1.00			1.00		
Satd. Flow (prot)		1935			1770		1842	1914			1902		
Flt Permitted		0.77			0.93		0.40	1.00			0.98		
Satd. Flow (perm)		1554			1660		784	1914			1867		
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	
Adj. Flow (vph)	78	17	11	14	11	32	7	897	22	14	668	22	
RTOR Reduction (vph)	0	7	0	0	28	0	0	1	0	0	1	0	
Lane Group Flow (vph)	0	99	0	0	29	0	7	918	0	0	703	0	
Heavy Vehicles (%)	1%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA		
Protected Phases		4			8			2			6		
Permitted Phases	4			8			2			6			
Actuated Green, G (s)		8.7			8.7		51.3	51.3			51.3		
Effective Green, g (s)		9.2			9.2		51.3	51.8			51.8		
Actuated g/C Ratio		0.13			0.13		0.73	0.74			0.74		
Clearance Time (s)		5.0			5.0		5.0	5.0			5.0		
Vehicle Extension (s)		3.0			3.0		3.0	3.0			3.0		
Lane Grp Cap (vph)		204			218		574	1416			1381		
v/s Ratio Prot								c0.48					
v/s Ratio Perm		c0.06			0.02		0.01				0.38		
v/c Ratio		0.49			0.13		0.01	0.65			0.51		
Uniform Delay, d1		28.2			26.9		2.5	4.5			3.8		
Progression Factor		1.00			1.00		1.00	1.00			1.29		
Incremental Delay, d2		1.8			0.3		0.0	2.3			1.2		
Delay (s)		30.0			27.2		2.6	6.9			6.1		
Level of Service		C			C		A	A			A		
Approach Delay (s)		30.0			27.2			6.8			6.1		
Approach LOS		C			C			A			A		
Intersection Summary													
HCM 2000 Control Delay			8.5									HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.62										
Actuated Cycle Length (s)			70.0									Sum of lost time (s)	9.0
Intersection Capacity Utilization			70.5%									ICU Level of Service	C
Analysis Period (min)			15										
c Critical Lane Group													

HCM Signalized Intersection Capacity Analysis

5: SR 2004 (River Street) & Ramp AA/Ramp CC

06/11/2018

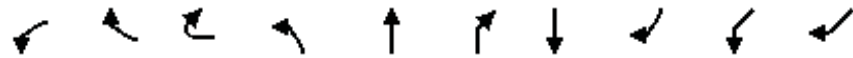


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↘	↙	↗					↑↑↑	↗	↘	↑↑		
Traffic Volume (vph)	365	2	184	0	0	0	0	863	328	370	593	0	
Future Volume (vph)	365	2	184	0	0	0	0	863	328	370	593	0	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	
Lane Width	10	10	10	14	14	14	11	12	12	11	12	12	
Grade (%)		-3%			0%			3%			-2%		
Total Lost time (s)	6.0	6.0	4.0					6.0	4.0	7.0	6.0		
Lane Util. Factor	0.95	0.95	1.00					0.91	1.00	1.00	0.95		
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00		
Flt Protected	0.95	0.95	1.00					1.00	1.00	0.95	1.00		
Satd. Flow (prot)	1524	1528	1435					4792	1477	1605	3420		
Flt Permitted	0.95	0.95	1.00					1.00	1.00	0.95	1.00		
Satd. Flow (perm)	1524	1528	1435					4792	1477	1605	3420		
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	
Adj. Flow (vph)	380	2	192	0	0	0	0	899	342	385	618	0	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	190	192	192	0	0	0	0	899	342	385	618	0	
Heavy Vehicles (%)	1%	0%	1%	0%	0%	0%	0%	1%	2%	4%	1%	0%	
Turn Type	Split	NA	Free					NA	Free	Prot	NA		
Protected Phases	3	3						6 7		8 5	2 8 7 5		
Permitted Phases			Free						Free				
Actuated Green, G (s)	10.0	10.0	90.0					23.0	90.0	33.0	59.0		
Effective Green, g (s)	10.0	10.0	90.0					23.0	90.0	33.0	52.0		
Actuated g/C Ratio	0.11	0.11	1.00					0.26	1.00	0.37	0.58		
Clearance Time (s)	6.0	6.0											
Vehicle Extension (s)	3.0	3.0											
Lane Grp Cap (vph)	169	169	1435					1224	1477	588	1976		
v/s Ratio Prot	0.12	c0.13						c0.19		c0.24	0.18		
v/s Ratio Perm			0.13						c0.23				
v/c Ratio	1.12	1.14	0.13					0.73	0.23	0.65	0.31		
Uniform Delay, d1	40.0	40.0	0.0					30.7	0.0	23.8	9.8		
Progression Factor	1.00	1.00	1.00					1.00	1.00	1.01	2.05		
Incremental Delay, d2	106.5	110.5	0.2					2.3	0.4	1.9	0.1		
Delay (s)	146.5	150.5	0.2					33.0	0.4	26.0	20.2		
Level of Service	F	F	A					C	A	C	C		
Approach Delay (s)		98.9			0.0			24.0			22.4		
Approach LOS		F			A			C			C		
Intersection Summary													
HCM 2000 Control Delay			38.7									HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio			0.85										
Actuated Cycle Length (s)			90.0									Sum of lost time (s)	31.0
Intersection Capacity Utilization			65.0%									ICU Level of Service	C
Analysis Period (min)			15										
c Critical Lane Group													

HCM Signalized Intersection Capacity Analysis

6: SR 2004 (River Street) & Ramp BB/Ramp DD & SR 2024 (Maffett Street)

06/11/2018



Movement	WBL	WBR	WBR2	NBL	NBT	NBR	SBT	SBR	SWL	SWR	
Lane Configurations											
Traffic Volume (vph)	176	286	141	339	518	386	500	295	259	91	
Future Volume (vph)	176	286	141	339	518	386	500	295	259	91	
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	
Lane Width	11	11	11	11	12	12	12	12	12	12	
Grade (%)					0%		2%		0%		
Total Lost time (s)	6.0	6.0	4.0	6.0	6.0		6.0	6.0	7.0		
Lane Util. Factor	0.97	0.88	1.00	1.00	0.95		0.95	1.00	1.00		
Frt	1.00	0.85	0.85	1.00	0.94		1.00	0.85	0.96		
Flt Protected	0.95	1.00	1.00	0.95	1.00		1.00	1.00	0.96		
Satd. Flow (prot)	3113	2551	1356	1637	3169		3319	1485	1642		
Flt Permitted	0.95	1.00	1.00	0.32	1.00		1.00	1.00	0.96		
Satd. Flow (perm)	3113	2551	1356	553	3169		3319	1485	1642		
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
Adj. Flow (vph)	185	301	148	357	545	406	526	311	273	96	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	185	301	148	357	951	0	526	311	369	0	
Heavy Vehicles (%)	2%	1%	8%	1%	1%	1%	2%	2%	2%	2%	
Turn Type	Perm	Perm	Free	custom	NA		NA	Perm	Prot		
Protected Phases				1	1 3 6		2 3		8		
Permitted Phases	7	7	Free	3 6				2 3			
Actuated Green, G (s)	10.0	10.0	90.0	39.0	39.0		26.0	26.0	19.0		
Effective Green, g (s)	10.0	10.0	90.0	39.0	39.0		26.0	26.0	19.0		
Actuated g/C Ratio	0.11	0.11	1.00	0.43	0.43		0.29	0.29	0.21		
Clearance Time (s)	6.0	6.0		6.0					7.0		
Vehicle Extension (s)	3.0	3.0		2.0					3.0		
Lane Grp Cap (vph)	345	283	1356	360	1373		958	429	346		
v/s Ratio Prot				c0.11	0.30		0.16		c0.22		
v/s Ratio Perm	0.06	c0.12	0.11	c0.32				0.21			
v/c Ratio	0.54	1.06	0.11	0.99	0.69		0.55	0.72	1.07		
Uniform Delay, d1	37.8	40.0	0.0	22.6	20.6		27.0	28.8	35.5		
Progression Factor	1.00	1.00	1.00	1.65	1.04		1.00	1.00	1.00		
Incremental Delay, d2	1.6	71.3	0.2	32.1	0.7		0.6	6.0	67.1		
Delay (s)	39.4	111.3	0.2	69.5	22.2		27.7	34.8	102.6		
Level of Service	D	F	A	E	C		C	C	F		
Approach Delay (s)					35.1		30.3		102.6		
Approach LOS					D		C		F		
Intersection Summary											
HCM 2000 Control Delay			47.6		HCM 2000 Level of Service				D		
HCM 2000 Volume to Capacity ratio			1.18								
Actuated Cycle Length (s)			90.0		Sum of lost time (s)				31.0		
Intersection Capacity Utilization			79.9%		ICU Level of Service				D		
Analysis Period (min)			15								
c Critical Lane Group											

HCM Signalized Intersection Capacity Analysis

9: SR 2024 (Maffett Street) & SR 2022 (Main Street) & Abbott Street

06/11/2018



Movement	WBL2	WBL	WBR	NBT	NBR	NBR2	SBL2	SBL	SBT	NWL	NWR	NWR2
Lane Configurations		W		T				T	T	W		
Traffic Volume (vph)	1	28	28	400	88	6	42	155	252	2	200	19
Future Volume (vph)	1	28	28	400	88	6	42	155	252	2	200	19
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width	14	14	14	16	16	16	10	10	10	14	14	14
Grade (%)		5%		3%					1%	0%		
Total Lost time (s)		5.0		5.0				5.0	5.0	5.0		
Lane Util. Factor		1.00		1.00				1.00	1.00	1.00		
Frbp, ped/bikes		1.00		1.00				1.00	1.00	0.98		
Flpb, ped/bikes		1.00		1.00				1.00	1.00	1.00		
Frt		0.93		0.97				1.00	1.00	0.87		
Flt Protected		0.98		1.00				0.95	1.00	1.00		
Satd. Flow (prot)		1640		1911				1586	1655	1608		
Flt Permitted		0.98		1.00				0.38	1.00	1.00		
Satd. Flow (perm)		1640		1911				642	1655	1608		
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	1	30	30	426	94	6	45	165	268	2	213	20
RTOR Reduction (vph)	0	58	0	0	0	0	0	0	0	71	0	0
Lane Group Flow (vph)	0	3	0	526	0	0	0	210	268	164	0	0
Confl. Peds. (#/hr)					2		2					2
Heavy Vehicles (%)	0%	8%	0%	2%	0%	33%	0%	0%	1%	0%	1%	0%
Turn Type	Prot	Prot		NA			Perm	Perm	NA	Prot		
Protected Phases	8	8		2					6	4		
Permitted Phases							6	6				
Actuated Green, G (s)		3.4		42.2				42.2	42.2	12.1		
Effective Green, g (s)		3.4		42.2				42.2	42.2	12.1		
Actuated g/C Ratio		0.05		0.58				0.58	0.58	0.17		
Clearance Time (s)		5.0		5.0				5.0	5.0	5.0		
Vehicle Extension (s)		3.0		3.0				3.0	3.0	3.0		
Lane Grp Cap (vph)		76		1109				372	960	267		
v/s Ratio Prot		c0.00		0.28					0.16	c0.10		
v/s Ratio Perm								c0.33				
v/c Ratio		0.04		0.47				0.56	0.28	0.61		
Uniform Delay, d1		33.1		8.8				9.5	7.6	28.1		
Progression Factor		1.00		1.00				1.00	1.00	1.00		
Incremental Delay, d2		0.2		0.3				2.0	0.2	4.2		
Delay (s)		33.3		9.1				11.5	7.8	32.3		
Level of Service		C		A				B	A	C		
Approach Delay (s)		33.3		9.1					9.4	32.3		
Approach LOS		C		A					A	C		

Intersection Summary		
HCM 2000 Control Delay	14.6	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.54	B
Actuated Cycle Length (s)	72.7	Sum of lost time (s)
Intersection Capacity Utilization	75.3%	15.0
Analysis Period (min)	15	ICU Level of Service
		D

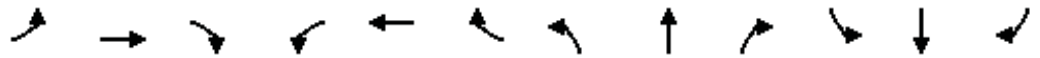
c Critical Lane Group

2022 Without Development

HCM Signalized Intersection Capacity Analysis

1: SR 2004 (River Street) & Courtright Avenue

05/16/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	11	4	4	38	18	23	5	472	13	6	782	62
Future Volume (vph)	11	4	4	38	18	23	5	472	13	6	782	62
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width	16	16	16	14	14	14	14	14	14	14	14	14
Grade (%)		-1%			-2%			-2%			-1%	
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.97			0.96			1.00			0.99	
Flt Protected		0.97			0.98			1.00			1.00	
Satd. Flow (prot)		1754			1799			1853			1893	
Flt Permitted		0.86			0.84			0.99			1.00	
Satd. Flow (perm)		1559			1544			1842			1887	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	12	4	4	41	20	25	5	513	14	7	850	67
RTOR Reduction (vph)	0	4	0	0	22	0	0	1	0	0	3	0
Lane Group Flow (vph)	0	16	0	0	64	0	0	531	0	0	921	0
Heavy Vehicles (%)	9%	25%	0%	0%	0%	4%	20%	4%	8%	0%	1%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		7.7			7.7			52.3			52.3	
Effective Green, g (s)		8.2			8.2			52.8			52.8	
Actuated g/C Ratio		0.12			0.12			0.75			0.75	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		182			180			1389			1423	
v/s Ratio Prot												
v/s Ratio Perm		0.01			c0.04			0.29			c0.49	
v/c Ratio		0.09			0.36			0.38			0.65	
Uniform Delay, d1		27.6			28.5			3.0			4.1	
Progression Factor		1.00			1.00			1.00			0.27	
Incremental Delay, d2		0.2			1.2			0.8			1.8	
Delay (s)		27.8			29.7			3.8			2.9	
Level of Service		C			C			A			A	
Approach Delay (s)		27.8			29.7			3.8			2.9	
Approach LOS		C			C			A			A	
Intersection Summary												
HCM 2000 Control Delay		5.0			HCM 2000 Level of Service			A				
HCM 2000 Volume to Capacity ratio		0.61										
Actuated Cycle Length (s)		70.0			Sum of lost time (s)			9.0				
Intersection Capacity Utilization		64.2%			ICU Level of Service			C				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2: SR 2004 (River Street) & West Maple Street

05/16/2018



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↶	↶	↶			↶
Traffic Volume (vph)	50	113	512	0	0	832
Future Volume (vph)	50	113	512	0	0	832
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width	14	14	12	12	12	12
Total Lost time (s)	4.5	4.5	4.5			4.5
Lane Util. Factor	1.00	1.00	1.00			1.00
Frt	1.00	0.85	1.00			1.00
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	1689	1569	1731			1782
Flt Permitted	0.95	1.00	1.00			1.00
Satd. Flow (perm)	1689	1569	1731			1782
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	53	120	545	0	0	885
RTOR Reduction (vph)	0	106	0	0	0	0
Lane Group Flow (vph)	53	14	545	0	0	885
Heavy Vehicles (%)	8%	4%	4%	0%	0%	1%
Turn Type	Prot	Perm	NA			NA
Protected Phases	8		2			6
Permitted Phases		8				
Actuated Green, G (s)	7.5	7.5	52.5			52.5
Effective Green, g (s)	8.0	8.0	53.0			53.0
Actuated g/C Ratio	0.11	0.11	0.76			0.76
Clearance Time (s)	5.0	5.0	5.0			5.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	193	179	1310			1349
v/s Ratio Prot	c0.03		0.31			c0.50
v/s Ratio Perm		0.01				
v/c Ratio	0.27	0.08	0.42			0.66
Uniform Delay, d1	28.3	27.7	3.0			4.1
Progression Factor	1.00	1.00	1.49			1.00
Incremental Delay, d2	0.8	0.2	0.9			2.5
Delay (s)	29.1	27.9	5.4			6.6
Level of Service	C	C	A			A
Approach Delay (s)	28.3		5.4			6.6
Approach LOS	C		A			A

Intersection Summary

HCM 2000 Control Delay	8.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	57.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

3: SR 2004 (River Street) & Chestnut Street

05/16/2018



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			↔		↔	↔
Traffic Volume (veh/h)	0	0	521	54	88	954
Future Volume (Veh/h)	0	0	521	54	88	954
Sign Control	Stop		Free			Free
Grade	-2%		2%			0%
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	0	0	585	61	99	1072
Pedestrians	1					
Lane Width (ft)	0.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	0					
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)			734			834
pX, platoon unblocked	0.35	0.91			0.91	
vC, conflicting volume	1886	616			647	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2014	528			562	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			89	
cM capacity (veh/h)	21	504			918	
Direction, Lane #	NB 1	SB 1	SB 2			
Volume Total	646	99	1072			
Volume Left	0	99	0			
Volume Right	61	0	0			
cSH	1700	918	1700			
Volume to Capacity	0.38	0.11	0.63			
Queue Length 95th (ft)	0	9	0			
Control Delay (s)	0.0	9.4	0.0			
Lane LOS		A				
Approach Delay (s)	0.0	0.8				
Approach LOS						
Intersection Summary						
Average Delay			0.5			
Intersection Capacity Utilization			56.3%		ICU Level of Service	B
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

4: SR 2004 (River Street) & Waterfront Park Drive/Cross Valley Centre Drive

05/16/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	↖
Traffic Volume (vph)	35	1	43	6	0	3	50	466	9	40	1006	127
Future Volume (vph)	35	1	43	6	0	3	50	466	9	40	1006	127
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width	12	11	11	11	11	11	10	12	12	10	12	11
Grade (%)		-2%			3%			2%			-2%	
Total Lost time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.85		1.00	0.85		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1727	1499		1628	1457		1580	1710		1612	1800	1479
Flt Permitted	0.76	1.00		0.73	1.00		0.14	1.00		0.45	1.00	1.00
Satd. Flow (perm)	1374	1499		1244	1457		238	1710		756	1800	1479
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	38	1	47	7	0	3	54	507	10	43	1093	138
RTOR Reduction (vph)	0	44	0	0	3	0	0	0	0	0	0	23
Lane Group Flow (vph)	38	4	0	7	0	0	54	517	0	43	1093	115
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	4%	0%	0%	1%	1%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	6.8	6.8		6.8	6.8		86.4	81.9		84.0	80.7	80.7
Effective Green, g (s)	7.8	7.8		7.8	7.8		88.4	82.9		86.0	81.7	81.7
Actuated g/C Ratio	0.07	0.07		0.07	0.07		0.80	0.75		0.78	0.74	0.74
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	6.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	97	106		88	103		258	1288		624	1336	1098
v/s Ratio Prot		0.00			0.00		c0.01	0.30		0.00	c0.61	
v/s Ratio Perm	c0.03			0.01			0.16			0.05		0.08
v/c Ratio	0.39	0.04		0.08	0.00		0.21	0.40		0.07	0.82	0.10
Uniform Delay, d1	48.8	47.6		47.7	47.5		10.4	4.8		2.8	9.3	3.9
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.0	0.1		0.1	0.0		0.1	0.9		0.0	5.7	0.2
Delay (s)	49.8	47.7		47.9	47.5		10.6	5.7		2.8	14.9	4.1
Level of Service	D	D		D	D		B	A		A	B	A
Approach Delay (s)		48.6			47.8			6.2			13.4	
Approach LOS		D			D			A			B	

Intersection Summary

HCM 2000 Control Delay	13.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	72.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

5: SR 2004 (River Street) & Ramp AA/Ramp CC

05/16/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖	↖					↑↑↑		↖	↑↑	
Traffic Volume (vph)	305	1	440	0	0	0	0	306	196	382	717	0
Future Volume (vph)	305	1	440	0	0	0	0	306	196	382	717	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width	10	10	10	14	14	14	11	12	12	11	12	12
Grade (%)		-3%			0%			3%			-2%	
Total Lost time (s)	6.0	6.0	4.0					6.0		7.0	6.0	
Lane Util. Factor	0.95	0.95	1.00					0.91		1.00	0.95	
Frt	1.00	1.00	0.85					0.94		1.00	1.00	
Flt Protected	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1509	1513	1435					4389		1605	3386	
Flt Permitted	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (perm)	1509	1513	1435					4389		1605	3386	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	339	1	489	0	0	0	0	340	218	424	797	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	144	0	0	0	0
Lane Group Flow (vph)	169	171	489	0	0	0	0	414	0	424	797	0
Heavy Vehicles (%)	2%	0%	1%	0%	0%	0%	0%	5%	2%	4%	2%	0%
Turn Type	Split	NA	Free					NA		Prot	NA	
Protected Phases	3	3						6 7		8 5	2 8 7 5	
Permitted Phases			Free									
Actuated Green, G (s)	11.0	11.0	80.0					19.0		26.0	54.0	
Effective Green, g (s)	11.0	11.0	80.0					19.0		26.0	47.0	
Actuated g/C Ratio	0.14	0.14	1.00					0.24		0.32	0.59	
Clearance Time (s)	6.0	6.0										
Vehicle Extension (s)	3.0	3.0										
Lane Grp Cap (vph)	207	208	1435					1042		521	1989	
v/s Ratio Prot	0.11	c0.11						0.09		c0.26	0.24	
v/s Ratio Perm			c0.34									
v/c Ratio	0.82	0.82	0.34					0.40		0.81	0.40	
Uniform Delay, d1	33.5	33.5	0.0					25.7		24.8	8.9	
Progression Factor	1.00	1.00	1.00					1.00		1.22	1.94	
Incremental Delay, d2	21.4	22.3	0.6					0.3		7.0	0.1	
Delay (s)	54.9	55.8	0.6					25.9		37.2	17.3	
Level of Service	D	E	A					C		D	B	
Approach Delay (s)		23.1			0.0			25.9			24.2	
Approach LOS		C			A			C			C	
Intersection Summary												
HCM 2000 Control Delay			24.2									HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio			0.85									
Actuated Cycle Length (s)			80.0							31.0		
Intersection Capacity Utilization			57.2%									ICU Level of Service B
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

6: SR 2004 (River Street) & Ramp BB/Ramp DD & SR 2024 (Maffett Street)

05/16/2018



Movement	WBL	WBR	WBR2	NBL	NBT	NBR	SBT	SBR	SWL	SWR	
Lane Configurations	↔↔	↔	↔	↔	↕↔		↕↕	↔	↔	↔	
Traffic Volume (vph)	289	52	12	120	326	170	691	282	105	22	
Future Volume (vph)	289	52	12	120	326	170	691	282	105	22	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	
Lane Width	11	11	11	11	12	12	12	12	12	12	
Grade (%)					0%		2%		0%		
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0	7.0		
Lane Util. Factor	0.97	1.00	1.00	1.00	0.95		0.95	1.00	1.00		
Frt	1.00	0.85	0.85	1.00	0.95		1.00	0.85	0.98		
Flt Protected	0.95	1.00	1.00	0.95	1.00		1.00	1.00	0.96		
Satd. Flow (prot)	3113	1368	1273	1621	3150		3319	1471	1586		
Flt Permitted	0.95	1.00	1.00	0.29	1.00		1.00	1.00	0.96		
Satd. Flow (perm)	3113	1368	1273	490	3150		3319	1471	1586		
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	
Adj. Flow (vph)	321	58	13	133	362	189	768	313	117	24	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	321	58	13	133	551	0	768	313	141	0	
Heavy Vehicles (%)	2%	7%	15%	2%	3%	3%	2%	3%	7%	4%	
Turn Type	Perm	Perm	Perm	custom	NA		NA	Perm	Prot		
Protected Phases				1	1 3 6		2 3		8		
Permitted Phases	7	7	7	3 6				2 3			
Actuated Green, G (s)	9.0	9.0	9.0	31.0	31.0		30.0	30.0	12.0		
Effective Green, g (s)	9.0	9.0	9.0	31.0	31.0		30.0	30.0	12.0		
Actuated g/C Ratio	0.11	0.11	0.11	0.39	0.39		0.38	0.38	0.15		
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0				7.0		
Vehicle Extension (s)	3.0	3.0	3.0	2.0					3.0		
Lane Grp Cap (vph)	350	153	143	246	1220		1244	551	237		
v/s Ratio Prot				c0.03	0.17		c0.23		c0.09		
v/s Ratio Perm	c0.10	0.04	0.01	0.18				0.21			
v/c Ratio	0.92	0.38	0.09	0.54	0.45		0.62	0.57	0.59		
Uniform Delay, d1	35.1	32.9	31.8	17.0	18.2		20.3	19.9	31.7		
Progression Factor	1.00	1.00	1.00	1.56	1.22		1.00	1.00	1.00		
Incremental Delay, d2	27.9	1.6	0.3	1.0	0.1		0.9	1.3	4.0		
Delay (s)	63.0	34.5	32.1	27.5	22.3		21.3	21.2	35.7		
Level of Service	E	C	C	C	C		C	C	D		
Approach Delay (s)					23.3		21.2		35.7		
Approach LOS					C		C		D		
Intersection Summary											
HCM 2000 Control Delay			29.0		HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.74								
Actuated Cycle Length (s)			80.0		Sum of lost time (s)				31.0		
Intersection Capacity Utilization			62.6%		ICU Level of Service				B		
Analysis Period (min)			15								
c Critical Lane Group											

HCM Unsignalized Intersection Capacity Analysis
 7: SR 2024 (Maffett Street) & Haines Street

05/16/2018



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	12	2	4	222	215	16
Future Volume (Veh/h)	12	2	4	222	215	16
Sign Control	Stop			Free	Free	
Grade	-5%			1%	-1%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	13	2	4	244	236	18
Pedestrians	3					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	0					
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)	1189					
pX, platoon unblocked						
vC, conflicting volume	500	248	257			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	500	248	257			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	98	100	100			
cM capacity (veh/h)	532	794	1316			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	15	248	254			
Volume Left	13	4	0			
Volume Right	2	0	18			
cSH	556	1316	1700			
Volume to Capacity	0.03	0.00	0.15			
Queue Length 95th (ft)	2	0	0			
Control Delay (s)	11.7	0.2	0.0			
Lane LOS	B	A				
Approach Delay (s)	11.7	0.2	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay			0.4			
Intersection Capacity Utilization			25.7%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

8: SR 2024 (Maffett Street) & Mercer Street

05/16/2018



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	9	2	5	234	228	2
Future Volume (Veh/h)	9	2	5	234	228	2
Sign Control	Stop			Free	Free	
Grade	-3%			3%	-2%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	10	2	5	257	251	2
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	519	252	253			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	519	252	253			
tC, single (s)	6.4	6.2	4.3			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.4			
p0 queue free %	98	100	100			
cM capacity (veh/h)	519	792	1214			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	12	262	253			
Volume Left	10	5	0			
Volume Right	2	0	2			
cSH	551	1214	1700			
Volume to Capacity	0.02	0.00	0.15			
Queue Length 95th (ft)	2	0	0			
Control Delay (s)	11.7	0.2	0.0			
Lane LOS	B	A				
Approach Delay (s)	11.7	0.2	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay	0.4					
Intersection Capacity Utilization	27.2%			ICU Level of Service	A	
Analysis Period (min)	15					

9: SR 2024 (Maffett Street) & SR 2022 (Main Street) & Abbott Street Performance by lane

Lane	WB	NB	SB	NW	All
Movements Served	<LR	TR>	<LT	LR>	
Denied Del/Veh (s)					0.5
Total Del/Veh (s)	78.8	5.0	7.8	8.6	11.5

HCM Signalized Intersection Capacity Analysis

1: SR 2004 (River Street) & Courtright Avenue

05/16/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (vph)	76	17	11	14	11	31	7	781	22	14	545	22
Future Volume (vph)	76	17	11	14	11	31	7	781	22	14	545	22
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width	16	16	16	14	14	14	14	14	14	14	14	14
Grade (%)		-1%			-2%			-2%			-1%	
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.99			0.92			1.00			0.99	
Flt Protected		0.96			0.99			1.00			1.00	
Satd. Flow (prot)		1935			1770			1913			1900	
Flt Permitted		0.77			0.93			1.00			0.98	
Satd. Flow (perm)		1554			1660			1906			1864	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	78	17	11	14	11	32	7	797	22	14	556	22
RTOR Reduction (vph)	0	7	0	0	28	0	0	1	0	0	2	0
Lane Group Flow (vph)	0	99	0	0	29	0	0	825	0	0	590	0
Heavy Vehicles (%)	1%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		8.7			8.7			51.3			51.3	
Effective Green, g (s)		9.2			9.2			51.8			51.8	
Actuated g/C Ratio		0.13			0.13			0.74			0.74	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		204			218			1410			1379	
v/s Ratio Prot												
v/s Ratio Perm		c0.06			0.02			c0.43			0.32	
v/c Ratio		0.49			0.13			0.59			0.43	
Uniform Delay, d1		28.2			26.9			4.2			3.5	
Progression Factor		1.00			1.00			1.00			0.94	
Incremental Delay, d2		1.8			0.3			1.8			0.9	
Delay (s)		30.0			27.2			6.0			4.2	
Level of Service		C			C			A			A	
Approach Delay (s)		30.0			27.2			6.0			4.2	
Approach LOS		C			C			A			A	
Intersection Summary												
HCM 2000 Control Delay			7.7					HCM 2000 Level of Service			A	
HCM 2000 Volume to Capacity ratio			0.57									
Actuated Cycle Length (s)			70.0					Sum of lost time (s)			9.0	
Intersection Capacity Utilization			68.5%					ICU Level of Service			C	
Analysis Period (min)			15									
c	Critical Lane Group											

HCM Signalized Intersection Capacity Analysis

2: SR 2004 (River Street) & West Maple Street

05/16/2018



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↶	↶	↑			↷
Traffic Volume (vph)	56	153	861	0	0	550
Future Volume (vph)	56	153	861	0	0	550
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width	14	14	12	12	12	12
Total Lost time (s)	4.5	4.5	4.5			4.5
Lane Util. Factor	1.00	1.00	1.00			1.00
Frt	1.00	0.85	1.00			1.00
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	1824	1584	1782			1782
Flt Permitted	0.95	1.00	1.00			1.00
Satd. Flow (perm)	1824	1584	1782			1782
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	58	158	888	0	0	567
RTOR Reduction (vph)	0	137	0	0	0	0
Lane Group Flow (vph)	58	21	888	0	0	567
Heavy Vehicles (%)	0%	3%	1%	0%	0%	1%
Turn Type	Prot	Perm	NA			NA
Protected Phases	8		2			6
Permitted Phases		8				
Actuated Green, G (s)	8.6	8.6	51.4			51.4
Effective Green, g (s)	9.1	9.1	51.9			51.9
Actuated g/C Ratio	0.13	0.13	0.74			0.74
Clearance Time (s)	5.0	5.0	5.0			5.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	237	205	1321			1321
v/s Ratio Prot	c0.03		c0.50			0.32
v/s Ratio Perm		0.01				
v/c Ratio	0.24	0.10	0.67			0.43
Uniform Delay, d1	27.4	26.8	4.7			3.4
Progression Factor	1.00	1.00	0.58			1.00
Incremental Delay, d2	0.5	0.2	2.4			1.0
Delay (s)	27.9	27.1	5.1			4.5
Level of Service	C	C	A			A
Approach Delay (s)	27.3		5.1			4.5
Approach LOS	C		A			A

Intersection Summary

HCM 2000 Control Delay	7.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	65.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

3: SR 2004 (River Street) & Chestnut Street

05/16/2018



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			↩		↩	↩
Traffic Volume (veh/h)	0	0	996	63	56	611
Future Volume (Veh/h)	0	0	996	63	56	611
Sign Control	Stop		Free			Free
Grade	-2%		2%			0%
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	0	0	1060	67	60	650
Pedestrians	1					
Lane Width (ft)	0.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	0					
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)			734			834
pX, platoon unblocked	0.74	0.66			0.66	
vC, conflicting volume	1864	1094			1128	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1515	889			940	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			87	
cM capacity (veh/h)	87	229			479	
Direction, Lane #	NB 1	SB 1	SB 2			
Volume Total	1127	60	650			
Volume Left	0	60	0			
Volume Right	67	0	0			
cSH	1700	479	1700			
Volume to Capacity	0.66	0.13	0.38			
Queue Length 95th (ft)	0	11	0			
Control Delay (s)	0.0	13.6	0.0			
Lane LOS		B				
Approach Delay (s)	0.0	1.1				
Approach LOS						
Intersection Summary						
Average Delay			0.4			
Intersection Capacity Utilization			62.7%		ICU Level of Service	B
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

4: SR 2004 (River Street) & Waterfront Park Drive/Cross Valley Centre Drive

05/16/2018



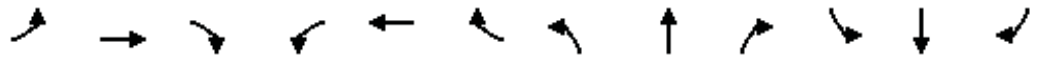
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	↖
Traffic Volume (vph)	101	1	45	8	4	20	23	968	8	7	605	57
Future Volume (vph)	101	1	45	8	4	20	23	968	8	7	605	57
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width	12	11	11	11	11	11	10	12	12	10	12	11
Grade (%)		-2%			3%			2%			-2%	
Total Lost time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.85		1.00	0.87		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1727	1499		1628	1498		1580	1762		1612	1782	1494
Flt Permitted	0.74	1.00		0.73	1.00		0.35	1.00		0.16	1.00	1.00
Satd. Flow (perm)	1347	1499		1244	1498		584	1762		277	1782	1494
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	105	1	47	8	4	21	24	1008	8	7	630	59
RTOR Reduction (vph)	0	41	0	0	18	0	0	0	0	0	0	18
Lane Group Flow (vph)	105	7	0	8	7	0	24	1016	0	7	630	41
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	2%	0%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	11.0	11.0		11.0	11.0		72.2	70.0		69.8	68.8	68.8
Effective Green, g (s)	12.0	12.0		12.0	12.0		74.2	71.0		71.8	69.8	69.8
Actuated g/C Ratio	0.12	0.12		0.12	0.12		0.74	0.71		0.72	0.70	0.70
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	6.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	161	179		149	179		465	1251		225	1243	1042
v/s Ratio Prot		0.00			0.00		c0.00	c0.58		0.00	0.35	
v/s Ratio Perm	c0.08			0.01			0.04			0.02		0.03
v/c Ratio	0.65	0.04		0.05	0.04		0.05	0.81		0.03	0.51	0.04
Uniform Delay, d1	42.0	38.9		39.0	38.9		4.2	9.9		9.0	7.1	4.7
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	7.0	0.0		0.1	0.0		0.0	5.8		0.0	1.5	0.1
Delay (s)	49.0	38.9		39.0	38.9		4.2	15.7		9.0	8.5	4.8
Level of Service	D	D		D	D		A	B		A	A	A
Approach Delay (s)		45.9			38.9			15.5			8.2	
Approach LOS		D			D			B			A	

Intersection Summary

HCM 2000 Control Delay	15.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	75.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 5: SR 2004 (River Street) & Ramp AA/Ramp CC

05/16/2018

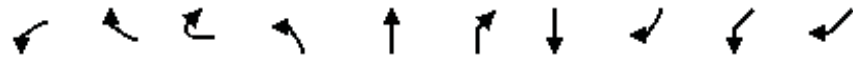


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖	↖					↑↑↑		↖	↑↑	
Traffic Volume (vph)	365	2	184	0	0	0	0	765	328	317	483	0
Future Volume (vph)	365	2	184	0	0	0	0	765	328	317	483	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width	10	10	10	14	14	14	11	12	12	11	12	12
Grade (%)		-3%			0%			3%			-2%	
Total Lost time (s)	6.0	6.0	4.0					6.0		7.0	6.0	
Lane Util. Factor	0.95	0.95	1.00					0.91		1.00	0.95	
Frt	1.00	1.00	0.85					0.95		1.00	1.00	
Flt Protected	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (prot)	1524	1528	1435					4563		1605	3420	
Flt Permitted	0.95	0.95	1.00					1.00		0.95	1.00	
Satd. Flow (perm)	1524	1528	1435					4563		1605	3420	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	380	2	192	0	0	0	0	797	342	330	503	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	86	0	0	0	0
Lane Group Flow (vph)	190	192	192	0	0	0	0	1053	0	330	503	0
Heavy Vehicles (%)	1%	0%	1%	0%	0%	0%	0%	1%	2%	4%	1%	0%
Turn Type	Split	NA	Free					NA		Prot	NA	
Protected Phases	3	3						6 7		8 5	2 8 7 5	
Permitted Phases			Free									
Actuated Green, G (s)	10.0	10.0	90.0					32.0		24.0	59.0	
Effective Green, g (s)	10.0	10.0	90.0					32.0		24.0	52.0	
Actuated g/C Ratio	0.11	0.11	1.00					0.36		0.27	0.58	
Clearance Time (s)	6.0	6.0										
Vehicle Extension (s)	3.0	3.0										
Lane Grp Cap (vph)	169	169	1435					1622		428	1976	
v/s Ratio Prot	0.12	c0.13						c0.23		c0.21	0.15	
v/s Ratio Perm			c0.13									
v/c Ratio	1.12	1.14	0.13					0.65		0.77	0.25	
Uniform Delay, d1	40.0	40.0	0.0					24.3		30.5	9.4	
Progression Factor	1.00	1.00	1.00					1.00		1.18	2.34	
Incremental Delay, d2	106.5	110.5	0.2					0.9		7.2	0.1	
Delay (s)	146.5	150.5	0.2					25.2		43.3	22.1	
Level of Service	F	F	A					C		D	C	
Approach Delay (s)		98.9			0.0			25.2			30.5	
Approach LOS		F			A			C			C	
Intersection Summary												
HCM 2000 Control Delay			43.5					HCM 2000 Level of Service		D		
HCM 2000 Volume to Capacity ratio			0.86									
Actuated Cycle Length (s)			90.0					Sum of lost time (s)		31.0		
Intersection Capacity Utilization			67.6%					ICU Level of Service		C		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

6: SR 2004 (River Street) & Ramp BB/Ramp DD & SR 2024 (Maffett Street)

05/16/2018



Movement	WBL	WBR	WBR2	NBL	NBT	NBR	SBT	SBR	SWL	SWR	
Lane Configurations	↖↗	↖	↖	↖	↕↔		↕↕	↖	↖↗		
Traffic Volume (vph)	176	286	94	339	518	288	500	295	95	91	
Future Volume (vph)	176	286	94	339	518	288	500	295	95	91	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	
Lane Width	11	11	11	11	12	12	12	12	12	12	
Grade (%)					0%		2%		0%		
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0	7.0		
Lane Util. Factor	0.97	1.00	1.00	1.00	0.95		0.95	1.00	1.00		
Frt	1.00	0.85	0.85	1.00	0.95		1.00	0.85	0.93		
Flt Protected	0.95	1.00	1.00	0.95	1.00		1.00	1.00	0.98		
Satd. Flow (prot)	3113	1368	1273	1621	3142		3319	1471	1553		
Flt Permitted	0.95	1.00	1.00	0.33	1.00		1.00	1.00	0.98		
Satd. Flow (perm)	3113	1368	1273	560	3142		3319	1471	1553		
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
Adj. Flow (vph)	185	301	99	357	545	303	526	311	100	96	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	185	301	99	357	848	0	526	311	196	0	
Heavy Vehicles (%)	2%	7%	15%	2%	3%	3%	2%	3%	7%	4%	
Turn Type	Perm	Perm	Perm	custom	NA		NA	Perm	Prot		
Protected Phases				1	1 3 6		2 3		8		
Permitted Phases	7	7	7	3 6			2 3				
Actuated Green, G (s)	18.0	18.0	18.0	40.0	40.0		27.0	27.0	10.0		
Effective Green, g (s)	18.0	18.0	18.0	40.0	40.0		27.0	27.0	10.0		
Actuated g/C Ratio	0.20	0.20	0.20	0.44	0.44		0.30	0.30	0.11		
Clearance Time (s)	6.0	6.0	6.0	6.0					7.0		
Vehicle Extension (s)	3.0	3.0	3.0	2.0					3.0		
Lane Grp Cap (vph)	622	273	254	366	1396		995	441	172		
v/s Ratio Prot				c0.11	0.27		0.16		c0.13		
v/s Ratio Perm	0.06	c0.22	0.08	c0.32				0.21			
v/c Ratio	0.30	1.10	0.39	0.98	0.61		0.53	0.71	1.14		
Uniform Delay, d1	30.6	36.0	31.2	21.7	19.0		26.2	28.0	40.0		
Progression Factor	1.00	1.00	1.00	1.45	1.23		1.00	1.00	1.00		
Incremental Delay, d2	0.3	84.8	1.0	29.3	0.3		0.5	5.1	111.1		
Delay (s)	30.9	120.8	32.2	60.9	23.7		26.7	33.0	151.1		
Level of Service	C	F	C	E	C		C	C	F		
Approach Delay (s)					34.7		29.1		151.1		
Approach LOS					C		C		F		
Intersection Summary											
HCM 2000 Control Delay			50.0		HCM 2000 Level of Service				D		
HCM 2000 Volume to Capacity ratio			1.19								
Actuated Cycle Length (s)			90.0		Sum of lost time (s)				31.0		
Intersection Capacity Utilization			70.3%		ICU Level of Service				C		
Analysis Period (min)			15								
c Critical Lane Group											

HCM Unsignalized Intersection Capacity Analysis

7: SR 2024 (Maffett Street) & Haines Street

05/16/2018



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	18	2	14	359	234	17
Future Volume (Veh/h)	18	2	14	359	234	17
Sign Control	Stop			Free	Free	
Grade	-5%			1%	-1%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	20	2	16	399	260	19
Pedestrians	3					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	0					
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)	1189					
pX, platoon unblocked						
vC, conflicting volume	704	272	282			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	704	272	282			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.6	3.3	2.2			
p0 queue free %	95	100	99			
cM capacity (veh/h)	392	769	1288			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	22	415	279			
Volume Left	20	16	0			
Volume Right	2	0	19			
cSH	411	1288	1700			
Volume to Capacity	0.05	0.01	0.16			
Queue Length 95th (ft)	4	1	0			
Control Delay (s)	14.3	0.4	0.0			
Lane LOS	B	A				
Approach Delay (s)	14.3	0.4	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay			0.7			
Intersection Capacity Utilization			41.9%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 8: SR 2024 (Maffett Street) & Mercer Street

05/16/2018



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	5	11	381	225	7
Future Volume (Veh/h)	5	5	11	381	225	7
Sign Control	Stop			Free	Free	
Grade	-3%			3%	-2%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	5	12	414	245	8
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	687	249	253			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	687	249	253			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	99	99			
cM capacity (veh/h)	412	795	1324			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	10	426	253			
Volume Left	5	12	0			
Volume Right	5	0	8			
cSH	543	1324	1700			
Volume to Capacity	0.02	0.01	0.15			
Queue Length 95th (ft)	1	1	0			
Control Delay (s)	11.8	0.3	0.0			
Lane LOS	B	A				
Approach Delay (s)	11.8	0.3	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay	0.4					
Intersection Capacity Utilization	40.5%			ICU Level of Service	A	
Analysis Period (min)	15					

9: SR 2024 (Maffett Street) & SR 2022 (Main Street) & Abbott Street Performance by lane

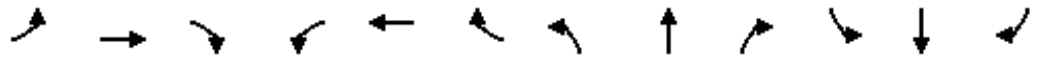
Lane	WB	NB	SB	NW	All
Movements Served	<LR	TR>	<LT	LR>	
Denied Del/Veh (s)					0.3
Total Del/Veh (s)	33.7	5.8	5.8	16.2	9.0

2022 With Development

HCM Signalized Intersection Capacity Analysis

1: SR 2004 (River Street) & Courtright Avenue

05/18/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	11	4	4	38	18	23	5	646	13	6	864	62
Future Volume (vph)	11	4	4	38	18	23	5	646	13	6	864	62
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width	16	16	16	14	14	14	14	14	14	14	14	14
Grade (%)		-1%			-2%			-2%			-1%	
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.97			0.96			1.00			0.99	
Flt Protected		0.97			0.98			1.00			1.00	
Satd. Flow (prot)		1754			1799			1856			1894	
Flt Permitted		0.86			0.84			0.99			1.00	
Satd. Flow (perm)		1559			1544			1847			1887	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	12	4	4	41	20	25	5	702	14	7	939	67
RTOR Reduction (vph)	0	4	0	0	22	0	0	1	0	0	3	0
Lane Group Flow (vph)	0	16	0	0	64	0	0	720	0	0	1010	0
Heavy Vehicles (%)	9%	25%	0%	0%	0%	4%	20%	4%	8%	0%	1%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		7.7			7.7			52.3			52.3	
Effective Green, g (s)		8.2			8.2			52.8			52.8	
Actuated g/C Ratio		0.12			0.12			0.75			0.75	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		182			180			1393			1423	
v/s Ratio Prot												
v/s Ratio Perm		0.01			c0.04			0.39			c0.54	
v/c Ratio		0.09			0.36			0.52			0.71	
Uniform Delay, d1		27.6			28.5			3.5			4.5	
Progression Factor		1.00			1.00			1.00			0.33	
Incremental Delay, d2		0.2			1.2			1.4			2.2	
Delay (s)		27.8			29.7			4.8			3.7	
Level of Service		C			C			A			A	
Approach Delay (s)		27.8			29.7			4.8			3.7	
Approach LOS		C			C			A			A	
Intersection Summary												
HCM 2000 Control Delay		5.6			HCM 2000 Level of Service			A				
HCM 2000 Volume to Capacity ratio		0.66										
Actuated Cycle Length (s)		70.0			Sum of lost time (s)			9.0				
Intersection Capacity Utilization		69.0%			ICU Level of Service			C				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2: SR 2004 (River Street) & West Maple Street

05/18/2018



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	50	113	686	0	0	914
Future Volume (vph)	50	113	686	0	0	914
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width	14	14	12	12	12	12
Total Lost time (s)	4.5	4.5	4.5			4.5
Lane Util. Factor	1.00	1.00	1.00			1.00
Frt	1.00	0.85	1.00			1.00
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	1689	1569	1731			1782
Flt Permitted	0.95	1.00	1.00			1.00
Satd. Flow (perm)	1689	1569	1731			1782
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	53	120	730	0	0	972
RTOR Reduction (vph)	0	106	0	0	0	0
Lane Group Flow (vph)	53	14	730	0	0	972
Heavy Vehicles (%)	8%	4%	4%	0%	0%	1%
Turn Type	Prot	Perm	NA			NA
Protected Phases	8		2			6
Permitted Phases		8				
Actuated Green, G (s)	7.5	7.5	52.5			52.5
Effective Green, g (s)	8.0	8.0	53.0			53.0
Actuated g/C Ratio	0.11	0.11	0.76			0.76
Clearance Time (s)	5.0	5.0	5.0			5.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	193	179	1310			1349
v/s Ratio Prot	c0.03		0.42			c0.55
v/s Ratio Perm		0.01				
v/c Ratio	0.27	0.08	0.56			0.72
Uniform Delay, d1	28.3	27.7	3.6			4.5
Progression Factor	1.00	1.00	1.62			1.00
Incremental Delay, d2	0.8	0.2	1.5			3.4
Delay (s)	29.1	27.9	7.3			7.9
Level of Service	C	C	A			A
Approach Delay (s)	28.3		7.3			7.9
Approach LOS	C		A			A

Intersection Summary

HCM 2000 Control Delay	9.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	61.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis 3: SR 2004 (River Street) & Chestnut Street

05/18/2018



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			↔		↔	↔
Traffic Volume (veh/h)	0	0	695	54	88	1036
Future Volume (Veh/h)	0	0	695	54	88	1036
Sign Control	Stop		Free			Free
Grade	-2%		2%			0%
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	0	0	781	61	99	1164
Pedestrians	1					
Lane Width (ft)	0.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	0					
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)			734			834
pX, platoon unblocked	0.38	0.80			0.80	
vC, conflicting volume	2174	812			843	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2123	646			684	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			86	
cM capacity (veh/h)	18	383			732	
Direction, Lane #	NB 1	SB 1	SB 2			
Volume Total	842	99	1164			
Volume Left	0	99	0			
Volume Right	61	0	0			
cSH	1700	732	1700			
Volume to Capacity	0.50	0.14	0.68			
Queue Length 95th (ft)	0	12	0			
Control Delay (s)	0.0	10.7	0.0			
Lane LOS		B				
Approach Delay (s)	0.0	0.8				
Approach LOS						
Intersection Summary						
Average Delay			0.5			
Intersection Capacity Utilization			60.9%		ICU Level of Service	B
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

4: SR 2004 (River Street) & Waterfront Park Drive/Cross Valley Centre Drive

05/18/2018



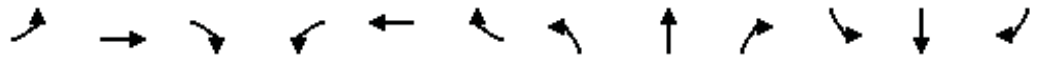
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	↖
Traffic Volume (vph)	35	1	43	6	0	3	50	640	9	40	1088	127
Future Volume (vph)	35	1	43	6	0	3	50	640	9	40	1088	127
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width	12	11	11	11	11	11	10	12	12	10	12	11
Grade (%)		-2%			3%			2%			-2%	
Total Lost time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.85		1.00	0.85		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1727	1499		1628	1457		1580	1711		1612	1800	1479
Flt Permitted	0.76	1.00		0.73	1.00		0.11	1.00		0.34	1.00	1.00
Satd. Flow (perm)	1374	1499		1244	1457		191	1711		579	1800	1479
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	38	1	47	7	0	3	54	696	10	43	1183	138
RTOR Reduction (vph)	0	44	0	0	3	0	0	0	0	0	0	20
Lane Group Flow (vph)	38	4	0	7	0	0	54	706	0	43	1183	118
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	4%	0%	0%	1%	1%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	7.0	7.0		7.0	7.0		95.4	90.8		94.6	90.4	90.4
Effective Green, g (s)	8.0	8.0		8.0	8.0		97.4	91.8		96.6	91.4	91.4
Actuated g/C Ratio	0.07	0.07		0.07	0.07		0.81	0.76		0.80	0.76	0.76
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	6.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	91	99		82	97		219	1308		510	1371	1126
v/s Ratio Prot		0.00			0.00		c0.01	0.41		0.00	c0.66	
v/s Ratio Perm	c0.03			0.01			0.19			0.06		0.08
v/c Ratio	0.42	0.04		0.09	0.00		0.25	0.54		0.08	0.86	0.11
Uniform Delay, d1	53.8	52.4		52.6	52.3		14.3	5.6		3.1	9.9	3.7
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.1	0.1		0.2	0.0		0.2	1.6		0.0	7.4	0.2
Delay (s)	54.9	52.5		52.7	52.3		14.5	7.2		3.1	17.3	3.9
Level of Service	D	D		D	D		B	A		A	B	A
Approach Delay (s)		53.5			52.6			7.8			15.5	
Approach LOS		D			D			A			B	

Intersection Summary

HCM 2000 Control Delay	14.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	77.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 5: SR 2004 (River Street) & Ramp AA/Ramp CC

05/18/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↖	↖	↖					↑↑↑		↖	↑↑		
Traffic Volume (vph)	305	1	440	0	0	0	0	480	196	458	799	0	
Future Volume (vph)	305	1	440	0	0	0	0	480	196	458	799	0	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	
Lane Width	10	10	10	14	14	14	11	12	12	11	12	12	
Grade (%)		-3%			0%			3%			-2%		
Total Lost time (s)	6.0	6.0	4.0					6.0		7.0	6.0		
Lane Util. Factor	0.95	0.95	1.00					0.91		1.00	0.95		
Frt	1.00	1.00	0.85					0.96		1.00	1.00		
Flt Protected	0.95	0.95	1.00					1.00		0.95	1.00		
Satd. Flow (prot)	1509	1513	1435					4446		1605	3386		
Flt Permitted	0.95	0.95	1.00					1.00		0.95	1.00		
Satd. Flow (perm)	1509	1513	1435					4446		1605	3386		
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	
Adj. Flow (vph)	339	1	489	0	0	0	0	533	218	509	888	0	
RTOR Reduction (vph)	0	0	0	0	0	0	0	82	0	0	0	0	
Lane Group Flow (vph)	169	171	489	0	0	0	0	669	0	509	888	0	
Heavy Vehicles (%)	2%	0%	1%	0%	0%	0%	0%	5%	2%	4%	2%	0%	
Turn Type	Split	NA	Free					NA		Prot	NA		
Protected Phases	3	3						6 7		8 5	2 8 7 5		
Permitted Phases			Free										
Actuated Green, G (s)	10.0	10.0	90.0					25.0		31.0	65.0		
Effective Green, g (s)	10.0	10.0	90.0					25.0		31.0	58.0		
Actuated g/C Ratio	0.11	0.11	1.00					0.28		0.34	0.64		
Clearance Time (s)	6.0	6.0											
Vehicle Extension (s)	3.0	3.0											
Lane Grp Cap (vph)	167	168	1435					1235		552	2182		
v/s Ratio Prot	0.11	c0.11						c0.15		c0.32	0.26		
v/s Ratio Perm			c0.34										
v/c Ratio	1.01	1.02	0.34					0.54		0.92	0.41		
Uniform Delay, d1	40.0	40.0	0.0					27.6		28.3	7.7		
Progression Factor	1.00	1.00	1.00					1.00		1.14	1.71		
Incremental Delay, d2	72.8	74.2	0.6					0.5		15.0	0.1		
Delay (s)	112.8	114.2	0.6					28.1		47.2	13.3		
Level of Service	F	F	A					C		D	B		
Approach Delay (s)		46.9			0.0			28.1			25.6		
Approach LOS		D			A			C			C		
Intersection Summary													
HCM 2000 Control Delay			32.2									HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.90										
Actuated Cycle Length (s)			90.0									Sum of lost time (s)	31.0
Intersection Capacity Utilization			65.1%									ICU Level of Service	C
Analysis Period (min)			15										
c Critical Lane Group													

HCM Signalized Intersection Capacity Analysis

6: SR 2004 (River Street) & Ramp BB/Ramp DD & SR 2024 (Maffett Street)

05/18/2018



Movement	WBL	WBR	WBR2	NBL	NBT	NBR	SBT	SBR	SWL	SWR
Lane Configurations	↔↔	↗	↗	↖	↕↔		↕↕	↗	↖↖	
Traffic Volume (vph)	289	52	173	120	326	344	691	282	263	22
Future Volume (vph)	289	52	173	120	326	344	691	282	263	22
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width	11	11	11	11	12	12	12	12	12	12
Grade (%)					0%		2%		0%	
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0	7.0	
Lane Util. Factor	0.97	1.00	1.00	1.00	0.95		0.95	1.00	1.00	
Frt	1.00	0.85	0.85	1.00	0.92		1.00	0.85	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		1.00	1.00	0.96	
Satd. Flow (prot)	3113	1368	1273	1621	3065		3319	1471	1595	
Flt Permitted	0.95	1.00	1.00	0.26	1.00		1.00	1.00	0.96	
Satd. Flow (perm)	3113	1368	1273	437	3065		3319	1471	1595	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	321	58	192	133	362	382	768	313	292	24
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	321	58	192	133	744	0	768	313	316	0
Heavy Vehicles (%)	2%	7%	15%	2%	3%	3%	2%	3%	7%	4%
Turn Type	Perm	Perm	Perm	custom	NA		NA	Perm	Prot	
Protected Phases				1	1 3 6		2 3		8	
Permitted Phases	7	7	7	3 6				2 3		
Actuated Green, G (s)	13.0	13.0	13.0	32.0	32.0		31.0	31.0	17.0	
Effective Green, g (s)	13.0	13.0	13.0	32.0	32.0		31.0	31.0	17.0	
Actuated g/C Ratio	0.14	0.14	0.14	0.36	0.36		0.34	0.34	0.19	
Clearance Time (s)	6.0	6.0	6.0	6.0					7.0	
Vehicle Extension (s)	3.0	3.0	3.0	2.0					3.0	
Lane Grp Cap (vph)	449	197	183	208	1089		1143	506	301	
v/s Ratio Prot				0.03	c0.24		c0.23		c0.20	
v/s Ratio Perm	0.10	0.04	c0.15	0.20				0.21		
v/c Ratio	0.71	0.29	1.05	0.64	0.68		0.67	0.62	1.05	
Uniform Delay, d1	36.7	34.4	38.5	22.5	24.7		25.2	24.6	36.5	
Progression Factor	1.00	1.00	1.00	1.34	1.16		1.00	1.00	1.00	
Incremental Delay, d2	5.3	0.8	80.1	3.1	0.9		1.6	2.3	65.5	
Delay (s)	42.1	35.2	118.6	33.3	29.5		26.7	26.8	102.0	
Level of Service	D	D	F	C	C		C	C	F	
Approach Delay (s)					30.1		26.8		102.0	
Approach LOS					C		C		F	
Intersection Summary										
HCM 2000 Control Delay			44.2		HCM 2000 Level of Service				D	
HCM 2000 Volume to Capacity ratio			0.93							
Actuated Cycle Length (s)			90.0		Sum of lost time (s)				31.0	
Intersection Capacity Utilization			71.8%		ICU Level of Service				C	
Analysis Period (min)			15							
c Critical Lane Group										

HCM Unsignalized Intersection Capacity Analysis
 7: SR 2024 (Maffett Street) & Haines Street

05/18/2018



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	12	2	4	557	373	16
Future Volume (Veh/h)	12	2	4	557	373	16
Sign Control	Stop			Free	Free	
Grade	-5%			1%	-1%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	13	2	4	612	410	18
Pedestrians	3					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	0					
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)	1189					
pX, platoon unblocked						
vC, conflicting volume	1042	422	431			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1042	422	431			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	95	100	100			
cM capacity (veh/h)	256	635	1136			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	15	616	428			
Volume Left	13	4	0			
Volume Right	2	0	18			
cSH	278	1136	1700			
Volume to Capacity	0.05	0.00	0.25			
Queue Length 95th (ft)	4	0	0			
Control Delay (s)	18.7	0.1	0.0			
Lane LOS	C	A				
Approach Delay (s)	18.7	0.1	0.0			
Approach LOS	C					
Intersection Summary						
Average Delay			0.3			
Intersection Capacity Utilization			44.3%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 8: SR 2024 (Maffett Street) & Mercer Street

05/18/2018



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	9	2	5	569	392	2
Future Volume (Veh/h)	9	2	5	569	392	2
Sign Control	Stop			Free	Free	
Grade	-3%			3%	-2%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	10	2	5	625	431	2
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1067	432	433			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1067	432	433			
tC, single (s)	6.4	6.2	4.3			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.4			
p0 queue free %	96	100	100			
cM capacity (veh/h)	247	628	1037			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	12	630	433			
Volume Left	10	5	0			
Volume Right	2	0	2			
cSH	275	1037	1700			
Volume to Capacity	0.04	0.00	0.25			
Queue Length 95th (ft)	3	0	0			
Control Delay (s)	18.7	0.1	0.0			
Lane LOS	C	A				
Approach Delay (s)	18.7	0.1	0.0			
Approach LOS	C					
Intersection Summary						
Average Delay			0.3			
Intersection Capacity Utilization			45.8%	ICU Level of Service	A	
Analysis Period (min)			15			












9: SR 2024 (Maffett Street) & SR 2022 (Main Street) & Abbott Street Performance by lane

Lane	WB	NB	SB	NW	All
Movements Served	<LR	TR>	<LT	LR>	
Denied Del/Veh (s)					51.8
Total Del/Veh (s)	1455.5	3.4	13.7	17.0	110.1

HCM Unsignalized Intersection Capacity Analysis

10: SR 2024 (Maffett Street) & Driveway

05/18/2018

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	158	46	243	335	98	230
Future Volume (Veh/h)	158	46	243	335	98	230
Sign Control	Stop		Free		Free	
Grade	0%		3%		-2%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	172	50	264	364	107	250
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	728	264			628	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	728	264			628	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	50	94			89	
cM capacity (veh/h)	347	775			954	
Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	
Volume Total	222	264	364	107	250	
Volume Left	172	0	0	107	0	
Volume Right	50	0	364	0	0	
cSH	396	1700	1700	954	1700	
Volume to Capacity	0.56	0.16	0.21	0.11	0.15	
Queue Length 95th (ft)	83	0	0	9	0	
Control Delay (s)	25.1	0.0	0.0	9.3	0.0	
Lane LOS	D			A		
Approach Delay (s)	25.1	0.0	2.8			
Approach LOS	D					
Intersection Summary						
Average Delay			5.4			
Intersection Capacity Utilization			41.4%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 11: SR 2022 (Main Street) & Driveway

05/18/2018



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	151	322	122	379	0
Future Volume (Veh/h)	0	151	322	122	379	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	164	350	133	412	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1245	412	412			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1245	412	412			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	74	69			
cM capacity (veh/h)	135	640	1147			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1		
Volume Total	164	350	133	412		
Volume Left	0	350	0	0		
Volume Right	164	0	0	0		
cSH	640	1147	1700	1700		
Volume to Capacity	0.26	0.31	0.08	0.24		
Queue Length 95th (ft)	25	33	0	0		
Control Delay (s)	12.6	9.5	0.0	0.0		
Lane LOS	B	A				
Approach Delay (s)	12.6	6.9		0.0		
Approach LOS	B					
Intersection Summary						
Average Delay			5.1			
Intersection Capacity Utilization			59.8%	ICU Level of Service	B	
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

1: SR 2004 (River Street) & Courtright Avenue

05/18/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↔			↔			↔			↔		
Traffic Volume (vph)	76	17	11	14	11	31	7	879	22	14	655	22	
Future Volume (vph)	76	17	11	14	11	31	7	879	22	14	655	22	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	
Lane Width	16	16	16	14	14	14	14	14	14	14	14	14	
Grade (%)		-1%			-2%			-2%			-1%		
Total Lost time (s)		4.5			4.5			4.5			4.5		
Lane Util. Factor		1.00			1.00			1.00			1.00		
Frt		0.99			0.92			1.00			1.00		
Flt Protected		0.96			0.99			1.00			1.00		
Satd. Flow (prot)		1935			1770			1914			1902		
Flt Permitted		0.77			0.93			1.00			0.98		
Satd. Flow (perm)		1554			1660			1906			1867		
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	
Adj. Flow (vph)	78	17	11	14	11	32	7	897	22	14	668	22	
RTOR Reduction (vph)	0	7	0	0	28	0	0	1	0	0	1	0	
Lane Group Flow (vph)	0	99	0	0	29	0	0	925	0	0	703	0	
Heavy Vehicles (%)	1%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA		
Protected Phases		4			8			2			6		
Permitted Phases	4			8			2			6			
Actuated Green, G (s)		8.7			8.7			51.3			51.3		
Effective Green, g (s)		9.2			9.2			51.8			51.8		
Actuated g/C Ratio		0.13			0.13			0.74			0.74		
Clearance Time (s)		5.0			5.0			5.0			5.0		
Vehicle Extension (s)		3.0			3.0			3.0			3.0		
Lane Grp Cap (vph)		204			218			1410			1381		
v/s Ratio Prot													
v/s Ratio Perm		c0.06			0.02			c0.49			0.38		
v/c Ratio		0.49			0.13			0.66			0.51		
Uniform Delay, d1		28.2			26.9			4.6			3.8		
Progression Factor		1.00			1.00			1.00			1.34		
Incremental Delay, d2		1.8			0.3			2.4			1.2		
Delay (s)		30.0			27.2			7.0			6.3		
Level of Service		C			C			A			A		
Approach Delay (s)		30.0			27.2			7.0			6.3		
Approach LOS		C			C			A			A		
Intersection Summary													
HCM 2000 Control Delay			8.7									HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.63										
Actuated Cycle Length (s)			70.0									Sum of lost time (s)	9.0
Intersection Capacity Utilization			74.2%									ICU Level of Service	D
Analysis Period (min)			15										
c Critical Lane Group													

HCM Signalized Intersection Capacity Analysis

2: SR 2004 (River Street) & West Maple Street

05/18/2018



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	56	153	959	0	0	660
Future Volume (vph)	56	153	959	0	0	660
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width	14	14	12	12	12	12
Total Lost time (s)	4.5	4.5	4.5			4.5
Lane Util. Factor	1.00	1.00	1.00			1.00
Frt	1.00	0.85	1.00			1.00
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	1824	1584	1782			1782
Flt Permitted	0.95	1.00	1.00			1.00
Satd. Flow (perm)	1824	1584	1782			1782
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	58	158	989	0	0	680
RTOR Reduction (vph)	0	128	0	0	0	0
Lane Group Flow (vph)	58	30	989	0	0	680
Heavy Vehicles (%)	0%	3%	1%	0%	0%	1%
Turn Type	Prot	Perm	NA			NA
Protected Phases	8		2			6
Permitted Phases		8				
Actuated Green, G (s)	8.6	8.6	51.4			51.4
Effective Green, g (s)	9.1	9.1	51.9			51.9
Actuated g/C Ratio	0.13	0.13	0.74			0.74
Clearance Time (s)	5.0	5.0	5.0			5.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	237	205	1321			1321
v/s Ratio Prot	c0.03		c0.55			0.38
v/s Ratio Perm		0.02				
v/c Ratio	0.24	0.15	0.75			0.51
Uniform Delay, d1	27.4	27.0	5.3			3.8
Progression Factor	1.00	1.00	0.45			1.00
Incremental Delay, d2	0.5	0.3	3.2			1.4
Delay (s)	27.9	27.3	5.5			5.2
Level of Service	C	C	A			A
Approach Delay (s)	27.5		5.5			5.2
Approach LOS	C		A			A

Intersection Summary				
HCM 2000 Control Delay		7.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio		0.67		
Actuated Cycle Length (s)		70.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization		70.8%	ICU Level of Service	C
Analysis Period (min)		15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

3: SR 2004 (River Street) & Chestnut Street

05/18/2018



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			↔		↔	↔
Traffic Volume (veh/h)	0	0	1094	63	56	721
Future Volume (Veh/h)	0	0	1094	63	56	721
Sign Control	Stop		Free			Free
Grade	-2%		2%			0%
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	0	0	1164	67	60	767
Pedestrians	1					
Lane Width (ft)	0.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	0					
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)			734			834
pX, platoon unblocked	0.57	0.45			0.45	
vC, conflicting volume	2086	1198			1232	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1634	835			909	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			82	
cM capacity (veh/h)	52	168			336	
Direction, Lane #	NB 1	SB 1	SB 2			
Volume Total	1231	60	767			
Volume Left	0	60	0			
Volume Right	67	0	0			
cSH	1700	336	1700			
Volume to Capacity	0.72	0.18	0.45			
Queue Length 95th (ft)	0	16	0			
Control Delay (s)	0.0	18.0	0.0			
Lane LOS		C				
Approach Delay (s)	0.0	1.3				
Approach LOS						
Intersection Summary						
Average Delay			0.5			
Intersection Capacity Utilization			68.1%		ICU Level of Service	C
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

4: SR 2004 (River Street) & Waterfront Park Drive/Cross Valley Centre Drive

05/18/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	↖
Traffic Volume (vph)	101	1	45	8	4	20	23	1066	8	7	715	57
Future Volume (vph)	101	1	45	8	4	20	23	1066	8	7	715	57
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width	12	11	11	11	11	11	10	12	12	10	12	11
Grade (%)		-2%			3%			2%			-2%	
Total Lost time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.85		1.00	0.87		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1727	1499		1628	1498		1580	1763		1612	1782	1494
Flt Permitted	0.74	1.00		0.73	1.00		0.29	1.00		0.11	1.00	1.00
Satd. Flow (perm)	1347	1499		1244	1498		479	1763		186	1782	1494
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	105	1	47	8	4	21	24	1110	8	7	745	59
RTOR Reduction (vph)	0	41	0	0	18	0	0	0	0	0	0	18
Lane Group Flow (vph)	105	7	0	8	7	0	24	1118	0	7	745	41
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	2%	0%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	11.0	11.0		11.0	11.0		72.2	70.0		69.8	68.8	68.8
Effective Green, g (s)	12.0	12.0		12.0	12.0		74.2	71.0		71.8	69.8	69.8
Actuated g/C Ratio	0.12	0.12		0.12	0.12		0.74	0.71		0.72	0.70	0.70
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	6.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	161	179		149	179		390	1251		162	1243	1042
v/s Ratio Prot		0.00			0.00		c0.00	c0.63		0.00	0.42	
v/s Ratio Perm	c0.08			0.01			0.04			0.03		0.03
v/c Ratio	0.65	0.04		0.05	0.04		0.06	0.89		0.04	0.60	0.04
Uniform Delay, d1	42.0	38.9		39.0	38.9		5.0	11.5		12.7	7.8	4.7
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	7.0	0.0		0.1	0.0		0.0	10.0		0.0	2.1	0.1
Delay (s)	49.0	38.9		39.0	38.9		5.0	21.5		12.7	10.0	4.8
Level of Service	D	D		D	D		A	C		B	A	A
Approach Delay (s)		45.9			38.9			21.1			9.6	
Approach LOS		D			D			C			A	

Intersection Summary

HCM 2000 Control Delay	18.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	80.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

5: SR 2004 (River Street) & Ramp AA/Ramp CC

05/18/2018

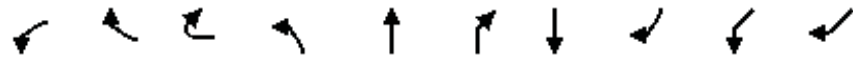


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↖	↖	↖					↑↑↑		↖	↑↑		
Traffic Volume (vph)	365	2	184	0	0	0	0	863	328	410	593	0	
Future Volume (vph)	365	2	184	0	0	0	0	863	328	410	593	0	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	
Lane Width	10	10	10	14	14	14	11	12	12	11	12	12	
Grade (%)		-3%			0%			3%			-2%		
Total Lost time (s)	6.0	6.0	4.0					6.0		7.0	6.0		
Lane Util. Factor	0.95	0.95	1.00					0.91		1.00	0.95		
Frt	1.00	1.00	0.85					0.96		1.00	1.00		
Flt Protected	0.95	0.95	1.00					1.00		0.95	1.00		
Satd. Flow (prot)	1524	1528	1435					4582		1605	3420		
Flt Permitted	0.95	0.95	1.00					1.00		0.95	1.00		
Satd. Flow (perm)	1524	1528	1435					4582		1605	3420		
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	
Adj. Flow (vph)	380	2	192	0	0	0	0	899	342	427	618	0	
RTOR Reduction (vph)	0	0	0	0	0	0	0	57	0	0	0	0	
Lane Group Flow (vph)	190	192	192	0	0	0	0	1184	0	427	618	0	
Heavy Vehicles (%)	1%	0%	1%	0%	0%	0%	0%	1%	2%	4%	1%	0%	
Turn Type	Split	NA	Free					NA		Prot	NA		
Protected Phases	3	3						6 7		8 5	2 8 7 5		
Permitted Phases			Free										
Actuated Green, G (s)	13.0	13.0	120.0					42.0		41.0	81.0		
Effective Green, g (s)	13.0	13.0	120.0					42.0		41.0	74.0		
Actuated g/C Ratio	0.11	0.11	1.00					0.35		0.34	0.62		
Clearance Time (s)	6.0	6.0											
Vehicle Extension (s)	3.0	3.0											
Lane Grp Cap (vph)	165	165	1435					1603		548	2109		
v/s Ratio Prot	0.12	c0.13						c0.26		c0.27	0.18		
v/s Ratio Perm			0.13										
v/c Ratio	1.15	1.16	0.13					0.74		0.78	0.29		
Uniform Delay, d1	53.5	53.5	0.0					34.2		35.4	10.8		
Progression Factor	1.00	1.00	1.00					1.00		1.01	1.91		
Incremental Delay, d2	116.6	120.9	0.2					1.8		4.9	0.1		
Delay (s)	170.1	174.4	0.2					36.0		40.9	20.7		
Level of Service	F	F	A					D		D	C		
Approach Delay (s)		114.7			0.0			36.0			28.9		
Approach LOS		F			A			D			C		
Intersection Summary													
HCM 2000 Control Delay			49.2									HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio			0.88										
Actuated Cycle Length (s)			120.0									Sum of lost time (s)	31.0
Intersection Capacity Utilization			75.0%									ICU Level of Service	D
Analysis Period (min)			15										
c Critical Lane Group													

HCM Signalized Intersection Capacity Analysis

6: SR 2004 (River Street) & Ramp BB/Ramp DD & SR 2024 (Maffett Street)

05/18/2018



Movement	WBL	WBR	WBR2	NBL	NBT	NBR	SBT	SBR	SWL	SWR
Lane Configurations										
Traffic Volume (vph)	176	286	177	339	518	386	500	295	299	91
Future Volume (vph)	176	286	177	339	518	386	500	295	299	91
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width	11	11	11	11	12	12	12	12	12	12
Grade (%)					0%		2%		0%	
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0	7.0	
Lane Util. Factor	0.97	1.00	1.00	1.00	0.95		0.95	1.00	1.00	
Frt	1.00	0.85	0.85	1.00	0.94		1.00	0.85	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00		1.00	1.00	0.96	
Satd. Flow (prot)	3113	1450	1356	1637	3169		3319	1485	1646	
Flt Permitted	0.95	1.00	1.00	0.26	1.00		1.00	1.00	0.96	
Satd. Flow (perm)	3113	1450	1356	443	3169		3319	1485	1646	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	185	301	186	357	545	406	526	311	315	96
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	185	301	186	357	951	0	526	311	411	0
Heavy Vehicles (%)	2%	1%	8%	1%	1%	1%	2%	2%	2%	2%
Turn Type	Perm	Perm	Perm	custom	NA		NA	Perm	Prot	
Protected Phases				1	1 3 6		2 3		8	
Permitted Phases	7	7	7	3 6				2 3		
Actuated Green, G (s)	22.0	22.0	22.0	52.0	52.0		31.0	31.0	27.0	
Effective Green, g (s)	22.0	22.0	22.0	52.0	52.0		31.0	31.0	27.0	
Actuated g/C Ratio	0.18	0.18	0.18	0.43	0.43		0.26	0.26	0.22	
Clearance Time (s)	6.0	6.0	6.0	6.0					7.0	
Vehicle Extension (s)	3.0	3.0	3.0	2.0					3.0	
Lane Grp Cap (vph)	570	265	248	341	1373		857	383	370	
v/s Ratio Prot				c0.13	0.30		0.16		c0.25	
v/s Ratio Perm	0.06	c0.21	0.14	c0.32				0.21		
v/c Ratio	0.32	1.14	0.75	1.05	0.69		0.61	0.81	1.11	
Uniform Delay, d1	42.5	49.0	46.4	29.1	27.5		39.2	41.8	46.5	
Progression Factor	1.00	1.00	1.00	1.70	0.99		1.00	1.00	1.00	
Incremental Delay, d2	0.3	96.9	12.0	47.3	0.6		1.3	12.3	80.2	
Delay (s)	42.9	145.9	58.4	96.9	27.7		40.5	54.1	126.7	
Level of Service	D	F	E	F	C		D	D	F	
Approach Delay (s)					46.6		45.6		126.7	
Approach LOS					D		D		F	

Intersection Summary			
HCM 2000 Control Delay	66.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.20		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	31.0
Intersection Capacity Utilization	82.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis

7: SR 2024 (Maffett Street) & Haines Street

05/18/2018



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	18	2	14	540	437	17
Future Volume (Veh/h)	18	2	14	540	437	17
Sign Control	Stop			Free	Free	
Grade	-5%			1%	-1%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	20	2	16	600	486	19
Pedestrians	3					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	0					
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)	1189					
pX, platoon unblocked						
vC, conflicting volume	1130	498	508			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1130	498	508			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.6	3.3	2.2			
p0 queue free %	91	100	98			
cM capacity (veh/h)	218	575	1064			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	22	616	505			
Volume Left	20	16	0			
Volume Right	2	0	19			
cSH	231	1064	1700			
Volume to Capacity	0.10	0.02	0.30			
Queue Length 95th (ft)	8	1	0			
Control Delay (s)	22.2	0.4	0.0			
Lane LOS	C	A				
Approach Delay (s)	22.2	0.4	0.0			
Approach LOS	C					
Intersection Summary						
Average Delay			0.6			
Intersection Capacity Utilization			51.9%	ICU Level of Service	A	
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis

8: SR 2024 (Maffett Street) & Mercer Street

05/18/2018














Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	5	11	562	428	7
Future Volume (Veh/h)	5	5	11	562	428	7
Sign Control	Stop			Free	Free	
Grade	-3%			3%	-2%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	5	12	611	465	8
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1104	469	473			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1104	469	473			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	98	99	99			
cM capacity (veh/h)	234	599	1099			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	10	623	473			
Volume Left	5	12	0			
Volume Right	5	0	8			
cSH	336	1099	1700			
Volume to Capacity	0.03	0.01	0.28			
Queue Length 95th (ft)	2	1	0			
Control Delay (s)	16.0	0.3	0.0			
Lane LOS	C	A				
Approach Delay (s)	16.0	0.3	0.0			
Approach LOS	C					
Intersection Summary						
Average Delay			0.3			
Intersection Capacity Utilization			50.5%	ICU Level of Service	A	
Analysis Period (min)			15			

9: SR 2024 (Maffett Street) & SR 2022 (Main Street) & Abbott Street Performance by lane

Lane	WB	NB	SB	NW	All
Movements Served	<LR	TR>	<LT	LR>	
Denied Del/Veh (s)					0.2
Total Del/Veh (s)	156.1	5.2	13.8	132.1	39.1

HCM Unsignalized Intersection Capacity Analysis
 10: SR 2024 (Maffett Street) & Driveway

05/18/2018

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	203	52	386	181	47	232
Future Volume (Veh/h)	203	52	386	181	47	232
Sign Control	Stop		Free		Free	
Grade	0%		3%		-2%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	221	57	420	197	51	252
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None		None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	774	420			617	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	774	420			617	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	36	91			95	
cM capacity (veh/h)	347	633			963	
Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	
Volume Total	278	420	197	51	252	
Volume Left	221	0	0	51	0	
Volume Right	57	0	197	0	0	
cSH	383	1700	1700	963	1700	
Volume to Capacity	0.73	0.25	0.12	0.05	0.15	
Queue Length 95th (ft)	139	0	0	4	0	
Control Delay (s)	35.7	0.0	0.0	8.9	0.0	
Lane LOS	E		A			
Approach Delay (s)	35.7	0.0		1.5		
Approach LOS	E					
Intersection Summary						
Average Delay			8.7			
Intersection Capacity Utilization			50.0%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

11: SR 2022 (Main Street) & Driveway

05/18/2018



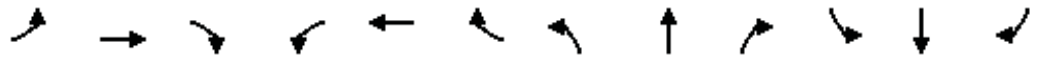
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	191	169	221	162	0
Future Volume (Veh/h)	0	191	169	221	162	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	208	184	240	176	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	784	176	176			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	784	176	176			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	76	87			
cM capacity (veh/h)	317	867	1400			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1		
Volume Total	208	184	240	176		
Volume Left	0	184	0	0		
Volume Right	208	0	0	0		
cSH	867	1400	1700	1700		
Volume to Capacity	0.24	0.13	0.14	0.10		
Queue Length 95th (ft)	23	11	0	0		
Control Delay (s)	10.5	8.0	0.0	0.0		
Lane LOS	B	A				
Approach Delay (s)	10.5	3.5		0.0		
Approach LOS	B					
Intersection Summary						
Average Delay			4.5			
Intersection Capacity Utilization			41.4%		ICU Level of Service	A
Analysis Period (min)			15			

2022 With Improvements

HCM Signalized Intersection Capacity Analysis

1: SR 2004 (River Street) & Courtright Avenue

06/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕			↕	
Traffic Volume (vph)	11	4	4	38	18	23	5	646	13	6	864	62
Future Volume (vph)	11	4	4	38	18	23	5	646	13	6	864	62
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width	16	16	16	14	14	14	14	14	14	14	14	14
Grade (%)		-1%			-2%			-2%			-1%	
Total Lost time (s)		4.5			4.5		5.0	4.5			4.5	
Lane Util. Factor		1.00			1.00		1.00	1.00			1.00	
Frt		0.97			0.96		1.00	1.00			0.99	
Flt Protected		0.97			0.98		0.95	1.00			1.00	
Satd. Flow (prot)		1754			1799		1535	1858			1894	
Flt Permitted		0.86			0.84		0.30	1.00			1.00	
Satd. Flow (perm)		1559			1544		485	1858			1887	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	12	4	4	41	20	25	5	702	14	7	939	67
RTOR Reduction (vph)	0	4	0	0	22	0	0	1	0	0	3	0
Lane Group Flow (vph)	0	16	0	0	64	0	5	715	0	0	1010	0
Heavy Vehicles (%)	9%	25%	0%	0%	0%	4%	20%	4%	8%	0%	1%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		7.7			7.7		52.3	52.3			52.3	
Effective Green, g (s)		8.2			8.2		52.3	52.8			52.8	
Actuated g/C Ratio		0.12			0.12		0.75	0.75			0.75	
Clearance Time (s)		5.0			5.0		5.0	5.0			5.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)		182			180		362	1401			1423	
v/s Ratio Prot								0.39				
v/s Ratio Perm		0.01			c0.04		0.01				c0.54	
v/c Ratio		0.09			0.36		0.01	0.51			0.71	
Uniform Delay, d1		27.6			28.5		2.3	3.4			4.5	
Progression Factor		1.00			1.00		1.00	1.00			0.30	
Incremental Delay, d2		0.2			1.2		0.1	1.3			2.2	
Delay (s)		27.8			29.7		2.3	4.8			3.6	
Level of Service		C			C		A	A			A	
Approach Delay (s)		27.8			29.7			4.8			3.6	
Approach LOS		C			C			A			A	
Intersection Summary												
HCM 2000 Control Delay			5.5									A
HCM 2000 Volume to Capacity ratio			0.66									
Actuated Cycle Length (s)			70.0								9.0	
Intersection Capacity Utilization			69.9%									C
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

5: SR 2004 (River Street) & Ramp AA/Ramp CC

06/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↘	↙	↗					↑↑↑	↗	↘	↑↑		
Traffic Volume (vph)	305	1	440	0	0	0	0	480	196	458	799	0	
Future Volume (vph)	305	1	440	0	0	0	0	480	196	458	799	0	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	
Lane Width	10	10	10	14	14	14	11	12	12	11	12	12	
Grade (%)		-3%			0%			3%			-2%		
Total Lost time (s)	6.0	6.0	4.0					6.0	4.0	7.0	6.0		
Lane Util. Factor	0.95	0.95	1.00					0.91	1.00	1.00	0.95		
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00		
Flt Protected	0.95	0.95	1.00					1.00	1.00	0.95	1.00		
Satd. Flow (prot)	1509	1513	1435					4610	1477	1605	3386		
Flt Permitted	0.95	0.95	1.00					1.00	1.00	0.95	1.00		
Satd. Flow (perm)	1509	1513	1435					4610	1477	1605	3386		
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	
Adj. Flow (vph)	339	1	489	0	0	0	0	533	218	509	888	0	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	169	171	489	0	0	0	0	533	218	509	888	0	
Heavy Vehicles (%)	2%	0%	1%	0%	0%	0%	0%	5%	2%	4%	2%	0%	
Turn Type	Split	NA	Free					NA	Free	Prot	NA		
Protected Phases	3	3						6 7		8 5	2 8 7 5		
Permitted Phases			Free						Free				
Actuated Green, G (s)	11.0	11.0	90.0					22.0	90.0	33.0	64.0		
Effective Green, g (s)	11.0	11.0	90.0					22.0	90.0	33.0	57.0		
Actuated g/C Ratio	0.12	0.12	1.00					0.24	1.00	0.37	0.63		
Clearance Time (s)	6.0	6.0											
Vehicle Extension (s)	3.0	3.0											
Lane Grp Cap (vph)	184	184	1435					1126	1477	588	2144		
v/s Ratio Prot	0.11	c0.11						0.12		c0.32	c0.26		
v/s Ratio Perm			c0.34						0.15				
v/c Ratio	0.92	0.93	0.34					0.47	0.15	0.87	0.41		
Uniform Delay, d1	39.1	39.1	0.0					29.1	0.0	26.4	8.2		
Progression Factor	1.00	1.00	1.00					1.00	1.00	1.13	1.51		
Incremental Delay, d2	43.3	45.9	0.6					0.3	0.2	8.1	0.1		
Delay (s)	82.3	85.0	0.6					29.4	0.2	38.1	12.5		
Level of Service	F	F	A					C	A	D	B		
Approach Delay (s)		34.7			0.0			20.9			21.8		
Approach LOS		C			A			C			C		
Intersection Summary													
HCM 2000 Control Delay			25.2									HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.87										
Actuated Cycle Length (s)			90.0									Sum of lost time (s)	31.0
Intersection Capacity Utilization			60.5%									ICU Level of Service	B
Analysis Period (min)			15										
c Critical Lane Group													

HCM Signalized Intersection Capacity Analysis

6: SR 2004 (River Street) & Ramp BB/Ramp DD & SR 2024 (Maffett Street)

06/11/2018





















Movement	WBL	WBR	WBR2	NBL	NBT	NBR	SBT	SBR	SWL	SWR
Lane Configurations										
Traffic Volume (vph)	289	52	173	120	326	344	691	282	263	22
Future Volume (vph)	289	52	173	120	326	344	691	282	263	22
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width	11	11	11	11	12	12	12	12	12	12
Grade (%)					0%		2%		0%	
Total Lost time (s)	6.0	6.0	4.0	6.0	6.0		6.0	6.0	7.0	
Lane Util. Factor	0.97	0.88	1.00	1.00	0.95		0.95	1.00	1.00	
Frt	1.00	0.85	0.85	1.00	0.92		1.00	0.85	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		1.00	1.00	0.96	
Satd. Flow (prot)	3113	2408	1273	1621	3065		3319	1471	1595	
Flt Permitted	0.95	1.00	1.00	0.27	1.00		1.00	1.00	0.96	
Satd. Flow (perm)	3113	2408	1273	461	3065		3319	1471	1595	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	321	58	192	133	362	382	768	313	292	24
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	321	58	192	133	744	0	768	313	316	0
Heavy Vehicles (%)	2%	7%	15%	2%	3%	3%	2%	3%	7%	4%
Turn Type	Perm	Perm	Free	custom	NA		NA	Perm	Prot	
Protected Phases				1	1 3 6		2 3		8	
Permitted Phases	7	7	Free	3 6				2 3		
Actuated Green, G (s)	9.0	9.0	90.0	34.0	34.0		33.0	33.0	19.0	
Effective Green, g (s)	9.0	9.0	90.0	34.0	34.0		33.0	33.0	19.0	
Actuated g/C Ratio	0.10	0.10	1.00	0.38	0.38		0.37	0.37	0.21	
Clearance Time (s)	6.0	6.0		6.0					7.0	
Vehicle Extension (s)	3.0	3.0		2.0					3.0	
Lane Grp Cap (vph)	311	240	1273	225	1157		1216	539	336	
v/s Ratio Prot				0.03	c0.24		c0.23		c0.20	
v/s Ratio Perm	c0.10	0.02	c0.15	0.20				0.21		
v/c Ratio	1.03	0.24	0.15	0.59	0.64		0.63	0.58	0.94	
Uniform Delay, d1	40.5	37.4	0.0	20.7	23.0		23.5	22.9	34.9	
Progression Factor	1.00	1.00	1.00	1.23	1.02		1.00	1.00	1.00	
Incremental Delay, d2	59.6	0.5	0.3	2.1	0.7		1.1	1.6	33.8	
Delay (s)	100.1	37.9	0.3	27.7	24.2		24.6	24.5	68.8	
Level of Service	F	D	A	C	C		C	C	E	
Approach Delay (s)					24.7		24.6		68.8	
Approach LOS					C		C		E	
Intersection Summary										
HCM 2000 Control Delay			36.7				HCM 2000 Level of Service		D	
HCM 2000 Volume to Capacity ratio			0.86							
Actuated Cycle Length (s)			90.0				Sum of lost time (s)		31.0	
Intersection Capacity Utilization			71.8%				ICU Level of Service		C	
Analysis Period (min)			15							
c Critical Lane Group										

HCM Signalized Intersection Capacity Analysis

9: SR 2024 (Maffett Street) & SR 2022 (Main Street) & Abbott Street

06/11/2018

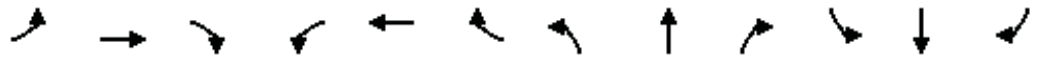
													
Movement	WBL2	WBL	WBR	NBT	NBR	NBR2	SBL2	SBL	SBT	NWL	NWR	NWR2	
Lane Configurations													
Traffic Volume (vph)	3	55	38	200	69	6	70	370	279	0	100	22	
Future Volume (vph)	3	55	38	200	69	6	70	370	279	0	100	22	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	
Lane Width	14	14	14	16	16	16	10	10	10	14	14	14	
Grade (%)		5%		3%					1%	0%			
Total Lost time (s)		5.0		5.0				5.0	5.0	5.0			
Lane Util. Factor		1.00		1.00				1.00	1.00	1.00			
Frbp, ped/bikes		1.00		0.99				1.00	1.00	0.97			
Flpb, ped/bikes		1.00		1.00				1.00	1.00	1.00			
Frt		0.95		0.96				1.00	1.00	0.86			
Flt Protected		0.97		1.00				0.95	1.00	1.00			
Satd. Flow (prot)		1720		1833				1544	1623	1555			
Flt Permitted		0.97		1.00				0.56	1.00	1.00			
Satd. Flow (perm)		1720		1833				907	1623	1555			
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	
Adj. Flow (vph)	3	61	42	222	77	7	78	411	310	0	111	24	
RTOR Reduction (vph)	0	63	0	1	0	0	0	0	0	62	0	0	
Lane Group Flow (vph)	0	43	0	305	0	0	0	489	310	73	0	0	
Confl. Peds. (#/hr)					2		2					2	
Heavy Vehicles (%)	0%	0%	0%	6%	2%	0%	0%	3%	3%	0%	5%	0%	
Turn Type	Prot	Prot		NA				Perm	Perm	NA	Prot		
Protected Phases	8	8		2						6	4		
Permitted Phases							6	6					
Actuated Green, G (s)		8.0		61.8				61.8	61.8	9.8			
Effective Green, g (s)		8.0		61.8				61.8	61.8	9.8			
Actuated g/C Ratio		0.08		0.65				0.65	0.65	0.10			
Clearance Time (s)		5.0		5.0				5.0	5.0	5.0			
Vehicle Extension (s)		3.0		3.0				3.0	3.0	3.0			
Lane Grp Cap (vph)		145		1197				592	1060	161			
v/s Ratio Prot		c0.02		0.17					0.19	c0.05			
v/s Ratio Perm								c0.54					
v/c Ratio		0.30		0.26				0.83	0.29	0.45			
Uniform Delay, d1		40.7		6.8				12.4	7.0	39.9			
Progression Factor		1.00		1.00				1.00	1.00	1.00			
Incremental Delay, d2		1.1		0.1				9.2	0.2	2.0			
Delay (s)		41.8		6.9				21.5	7.2	41.9			
Level of Service		D		A				C	A	D			
Approach Delay (s)		41.8		6.9					16.0	41.9			
Approach LOS		D		A					B	D			
Intersection Summary													
HCM 2000 Control Delay			18.6		HCM 2000 Level of Service					B			
HCM 2000 Volume to Capacity ratio			0.73										
Actuated Cycle Length (s)			94.6		Sum of lost time (s)					15.0			
Intersection Capacity Utilization			72.9%		ICU Level of Service					C			
Analysis Period (min)			15										

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

1: SR 2004 (River Street) & Courtright Avenue

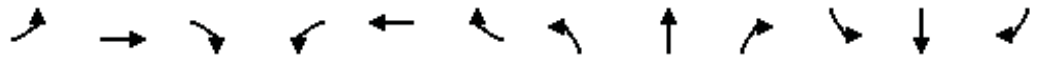
06/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↕			↕		↕	↕			↕		
Traffic Volume (vph)	76	17	11	14	11	31	7	879	22	14	655	22	
Future Volume (vph)	76	17	11	14	11	31	7	879	22	14	655	22	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	
Lane Width	16	16	16	14	14	14	14	14	14	14	14	14	
Grade (%)		-1%			-2%			-2%			-1%		
Total Lost time (s)		4.5			4.5		5.0	4.5			4.5		
Lane Util. Factor		1.00			1.00		1.00	1.00			1.00		
Frt		0.99			0.92		1.00	1.00			1.00		
Flt Protected		0.96			0.99		0.95	1.00			1.00		
Satd. Flow (prot)		1935			1770		1842	1914			1902		
Flt Permitted		0.77			0.93		0.40	1.00			0.98		
Satd. Flow (perm)		1554			1660		784	1914			1867		
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	
Adj. Flow (vph)	78	17	11	14	11	32	7	897	22	14	668	22	
RTOR Reduction (vph)	0	7	0	0	28	0	0	1	0	0	1	0	
Lane Group Flow (vph)	0	99	0	0	29	0	7	918	0	0	703	0	
Heavy Vehicles (%)	1%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA		
Protected Phases		4			8			2			6		
Permitted Phases	4			8			2			6			
Actuated Green, G (s)		8.7			8.7		51.3	51.3			51.3		
Effective Green, g (s)		9.2			9.2		51.3	51.8			51.8		
Actuated g/C Ratio		0.13			0.13		0.73	0.74			0.74		
Clearance Time (s)		5.0			5.0		5.0	5.0			5.0		
Vehicle Extension (s)		3.0			3.0		3.0	3.0			3.0		
Lane Grp Cap (vph)		204			218		574	1416			1381		
v/s Ratio Prot								c0.48					
v/s Ratio Perm		c0.06			0.02		0.01				0.38		
v/c Ratio		0.49			0.13		0.01	0.65			0.51		
Uniform Delay, d1		28.2			26.9		2.5	4.5			3.8		
Progression Factor		1.00			1.00		1.00	1.00			1.29		
Incremental Delay, d2		1.8			0.3		0.0	2.3			1.2		
Delay (s)		30.0			27.2		2.6	6.9			6.1		
Level of Service		C			C		A	A			A		
Approach Delay (s)		30.0			27.2			6.8			6.1		
Approach LOS		C			C			A			A		
Intersection Summary													
HCM 2000 Control Delay			8.5									HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.62										
Actuated Cycle Length (s)			70.0									Sum of lost time (s)	9.0
Intersection Capacity Utilization			70.5%									ICU Level of Service	C
Analysis Period (min)			15										
c Critical Lane Group													

HCM Signalized Intersection Capacity Analysis
 5: SR 2004 (River Street) & Ramp AA/Ramp CC

06/11/2018

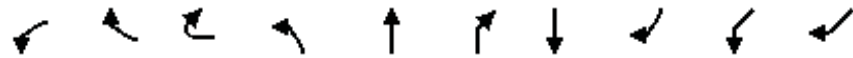


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↙	↗					↑↑↑	↗	↘	↑↑	
Traffic Volume (vph)	365	2	184	0	0	0	0	863	328	410	593	0
Future Volume (vph)	365	2	184	0	0	0	0	863	328	410	593	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width	10	10	10	14	14	14	11	12	12	11	12	12
Grade (%)		-3%			0%			3%			-2%	
Total Lost time (s)	6.0	6.0	4.0					6.0	4.0	7.0	6.0	
Lane Util. Factor	0.95	0.95	1.00					0.91	1.00	1.00	0.95	
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	0.95	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1524	1528	1435					4792	1477	1605	3420	
Flt Permitted	0.95	0.95	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1524	1528	1435					4792	1477	1605	3420	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	380	2	192	0	0	0	0	899	342	427	618	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	190	192	192	0	0	0	0	899	342	427	618	0
Heavy Vehicles (%)	1%	0%	1%	0%	0%	0%	0%	1%	2%	4%	1%	0%
Turn Type	Split	NA	Free					NA	Free	Prot	NA	
Protected Phases	3	3						6 7		8 5	2 8 7 5	
Permitted Phases			Free						Free			
Actuated Green, G (s)	10.0	10.0	90.0					21.0	90.0	35.0	59.0	
Effective Green, g (s)	10.0	10.0	90.0					21.0	90.0	35.0	52.0	
Actuated g/C Ratio	0.11	0.11	1.00					0.23	1.00	0.39	0.58	
Clearance Time (s)	6.0	6.0										
Vehicle Extension (s)	3.0	3.0										
Lane Grp Cap (vph)	169	169	1435					1118	1477	624	1976	
v/s Ratio Prot	0.12	c0.13						c0.19		c0.27	0.18	
v/s Ratio Perm			0.13						c0.23			
v/c Ratio	1.12	1.14	0.13					0.80	0.23	0.68	0.31	
Uniform Delay, d1	40.0	40.0	0.0					32.6	0.0	22.9	9.8	
Progression Factor	1.00	1.00	1.00					1.00	1.00	1.00	2.30	
Incremental Delay, d2	106.5	110.5	0.2					4.3	0.4	2.1	0.1	
Delay (s)	146.5	150.5	0.2					36.8	0.4	24.9	22.6	
Level of Service	F	F	A					D	A	C	C	
Approach Delay (s)		98.9			0.0			26.8			23.6	
Approach LOS		F			A			C			C	
Intersection Summary												
HCM 2000 Control Delay			40.1		HCM 2000 Level of Service				D			
HCM 2000 Volume to Capacity ratio			0.89									
Actuated Cycle Length (s)			90.0		Sum of lost time (s)				31.0			
Intersection Capacity Utilization			67.3%		ICU Level of Service				C			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

6: SR 2004 (River Street) & Ramp BB/Ramp DD & SR 2024 (Maffett Street)

06/11/2018





















Movement	WBL	WBR	WBR2	NBL	NBT	NBR	SBT	SBR	SWL	SWR
Lane Configurations										
Traffic Volume (vph)	176	286	177	339	518	386	500	295	299	91
Future Volume (vph)	176	286	177	339	518	386	500	295	299	91
Ideal Flow (vphp)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width	11	11	11	11	12	12	12	12	12	12
Grade (%)					0%		2%		0%	
Total Lost time (s)	6.0	6.0	4.0	6.0	6.0		6.0	6.0	7.0	
Lane Util. Factor	0.97	0.88	1.00	1.00	0.95		0.95	1.00	1.00	
Frt	1.00	0.85	0.85	1.00	0.94		1.00	0.85	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00		1.00	1.00	0.96	
Satd. Flow (prot)	3113	2551	1356	1637	3169		3319	1485	1646	
Flt Permitted	0.95	1.00	1.00	0.30	1.00		1.00	1.00	0.96	
Satd. Flow (perm)	3113	2551	1356	525	3169		3319	1485	1646	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	185	301	186	357	545	406	526	311	315	96
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	185	301	186	357	951	0	526	311	411	0
Heavy Vehicles (%)	2%	1%	8%	1%	1%	1%	2%	2%	2%	2%
Turn Type	Perm	Perm	Free	custom	NA		NA	Perm	Prot	
Protected Phases				1	1 3 6		2 3		8	
Permitted Phases	7	7	Free	3 6				2 3		
Actuated Green, G (s)	10.0	10.0	90.0	37.0	37.0		24.0	24.0	21.0	
Effective Green, g (s)	10.0	10.0	90.0	37.0	37.0		24.0	24.0	21.0	
Actuated g/C Ratio	0.11	0.11	1.00	0.41	0.41		0.27	0.27	0.23	
Clearance Time (s)	6.0	6.0		6.0					7.0	
Vehicle Extension (s)	3.0	3.0		2.0					3.0	
Lane Grp Cap (vph)	345	283	1356	339	1302		885	396	384	
v/s Ratio Prot				c0.12	0.30		0.16		c0.25	
v/s Ratio Perm	0.06	c0.12	0.14	c0.32				0.21		
v/c Ratio	0.54	1.06	0.14	1.05	0.73		0.59	0.79	1.07	
Uniform Delay, d1	37.8	40.0	0.0	23.7	22.3		28.8	30.6	34.5	
Progression Factor	1.00	1.00	1.00	1.69	1.06		1.00	1.00	1.00	
Incremental Delay, d2	1.6	71.3	0.2	47.6	0.8		1.1	9.8	65.9	
Delay (s)	39.4	111.3	0.2	87.5	24.6		29.8	40.5	100.4	
Level of Service	D	F	A	F	C		C	D	F	
Approach Delay (s)					41.8		33.8		100.4	
Approach LOS					D		C		F	

Intersection Summary				
HCM 2000 Control Delay		51.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio		1.22		
Actuated Cycle Length (s)		90.0	Sum of lost time (s)	31.0
Intersection Capacity Utilization		82.2%	ICU Level of Service	E
Analysis Period (min)		15		
c Critical Lane Group				

HCM Signalized Intersection Capacity Analysis

9: SR 2024 (Maffett Street) & SR 2022 (Main Street) & Abbott Street

06/11/2018

													
Movement	WBL2	WBL	WBR	NBT	NBR	NBR2	SBL2	SBL	SBT	NWL	NWR	NWR2	
Lane Configurations													
Traffic Volume (vph)	1	28	28	400	88	6	42	155	252	2	200	19	
Future Volume (vph)	1	28	28	400	88	6	42	155	252	2	200	19	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	
Lane Width	14	14	14	16	16	16	10	10	10	14	14	14	
Grade (%)		5%		3%					1%	0%			
Total Lost time (s)		5.0		5.0				5.0	5.0	5.0			
Lane Util. Factor		1.00		1.00				1.00	1.00	1.00			
Frbp, ped/bikes		1.00		1.00				1.00	1.00	0.98			
Flpb, ped/bikes		1.00		1.00				1.00	1.00	1.00			
Frt		0.93		0.97				1.00	1.00	0.87			
Flt Protected		0.98		1.00				0.95	1.00	1.00			
Satd. Flow (prot)		1640		1911				1586	1655	1608			
Flt Permitted		0.98		1.00				0.38	1.00	1.00			
Satd. Flow (perm)		1640		1911				642	1655	1608			
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	
Adj. Flow (vph)	1	30	30	426	94	6	45	165	268	2	213	20	
RTOR Reduction (vph)	0	58	0	0	0	0	0	0	0	71	0	0	
Lane Group Flow (vph)	0	3	0	526	0	0	0	210	268	164	0	0	
Confl. Peds. (#/hr)					2		2					2	
Heavy Vehicles (%)	0%	8%	0%	2%	0%	33%	0%	0%	1%	0%	1%	0%	
Turn Type	Prot	Prot		NA			Perm	Perm	NA	Prot			
Protected Phases	8	8		2					6	4			
Permitted Phases							6	6					
Actuated Green, G (s)		3.4		42.2				42.2	42.2	12.1			
Effective Green, g (s)		3.4		42.2				42.2	42.2	12.1			
Actuated g/C Ratio		0.05		0.58				0.58	0.58	0.17			
Clearance Time (s)		5.0		5.0				5.0	5.0	5.0			
Vehicle Extension (s)		3.0		3.0				3.0	3.0	3.0			
Lane Grp Cap (vph)		76		1109				372	960	267			
v/s Ratio Prot		c0.00		0.28					0.16	c0.10			
v/s Ratio Perm							c0.33						
v/c Ratio		0.04		0.47				0.56	0.28	0.61			
Uniform Delay, d1		33.1		8.8				9.5	7.6	28.1			
Progression Factor		1.00		1.00				1.00	1.00	1.00			
Incremental Delay, d2		0.2		0.3				2.0	0.2	4.2			
Delay (s)		33.3		9.1				11.5	7.8	32.3			
Level of Service		C		A				B	A	C			
Approach Delay (s)		33.3		9.1					9.4	32.3			
Approach LOS		C		A					A	C			
Intersection Summary													
HCM 2000 Control Delay			14.6		HCM 2000 Level of Service					B			
HCM 2000 Volume to Capacity ratio			0.54										
Actuated Cycle Length (s)			72.7		Sum of lost time (s)					15.0			
Intersection Capacity Utilization			75.3%		ICU Level of Service					D			
Analysis Period (min)			15										

c Critical Lane Group

2027 Without Development

HCM Signalized Intersection Capacity Analysis

1: SR 2004 (River Street) & Courtright Avenue

05/16/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	11	4	4	38	18	23	5	472	13	6	782	62
Future Volume (vph)	11	4	4	38	18	23	5	472	13	6	782	62
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width	16	16	16	14	14	14	14	14	14	14	14	14
Grade (%)		-1%			-2%			-2%			-1%	
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.97			0.96			1.00			0.99	
Flt Protected		0.97			0.98			1.00			1.00	
Satd. Flow (prot)		1754			1799			1853			1893	
Flt Permitted		0.86			0.84			0.99			1.00	
Satd. Flow (perm)		1559			1544			1842			1887	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	12	4	4	41	20	25	5	513	14	7	850	67
RTOR Reduction (vph)	0	4	0	0	22	0	0	1	0	0	3	0
Lane Group Flow (vph)	0	16	0	0	64	0	0	531	0	0	921	0
Heavy Vehicles (%)	9%	25%	0%	0%	0%	4%	20%	4%	8%	0%	1%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		7.7			7.7			52.3			52.3	
Effective Green, g (s)		8.2			8.2			52.8			52.8	
Actuated g/C Ratio		0.12			0.12			0.75			0.75	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		182			180			1389			1423	
v/s Ratio Prot												
v/s Ratio Perm		0.01			c0.04			0.29			c0.49	
v/c Ratio		0.09			0.36			0.38			0.65	
Uniform Delay, d1		27.6			28.5			3.0			4.1	
Progression Factor		1.00			1.00			1.00			0.27	
Incremental Delay, d2		0.2			1.2			0.8			1.8	
Delay (s)		27.8			29.7			3.8			2.9	
Level of Service		C			C			A			A	
Approach Delay (s)		27.8			29.7			3.8			2.9	
Approach LOS		C			C			A			A	
Intersection Summary												
HCM 2000 Control Delay		5.0			HCM 2000 Level of Service			A				
HCM 2000 Volume to Capacity ratio		0.61										
Actuated Cycle Length (s)		70.0			Sum of lost time (s)			9.0				
Intersection Capacity Utilization		64.2%			ICU Level of Service			C				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2: SR 2004 (River Street) & West Maple Street

05/16/2018



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	50	113	512	0	0	832
Future Volume (vph)	50	113	512	0	0	832
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width	14	14	12	12	12	12
Total Lost time (s)	4.5	4.5	4.5			4.5
Lane Util. Factor	1.00	1.00	1.00			1.00
Frt	1.00	0.85	1.00			1.00
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	1689	1569	1731			1782
Flt Permitted	0.95	1.00	1.00			1.00
Satd. Flow (perm)	1689	1569	1731			1782
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	53	120	545	0	0	885
RTOR Reduction (vph)	0	106	0	0	0	0
Lane Group Flow (vph)	53	14	545	0	0	885
Heavy Vehicles (%)	8%	4%	4%	0%	0%	1%
Turn Type	Prot	Perm	NA			NA
Protected Phases	8		2			6
Permitted Phases		8				
Actuated Green, G (s)	7.5	7.5	52.5			52.5
Effective Green, g (s)	8.0	8.0	53.0			53.0
Actuated g/C Ratio	0.11	0.11	0.76			0.76
Clearance Time (s)	5.0	5.0	5.0			5.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	193	179	1310			1349
v/s Ratio Prot	c0.03		0.31			c0.50
v/s Ratio Perm		0.01				
v/c Ratio	0.27	0.08	0.42			0.66
Uniform Delay, d1	28.3	27.7	3.0			4.1
Progression Factor	1.00	1.00	1.49			1.00
Incremental Delay, d2	0.8	0.2	0.9			2.5
Delay (s)	29.1	27.9	5.4			6.6
Level of Service	C	C	A			A
Approach Delay (s)	28.3		5.4			6.6
Approach LOS	C		A			A

Intersection Summary

HCM 2000 Control Delay	8.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	57.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

3: SR 2004 (River Street) & Chestnut Street

05/16/2018

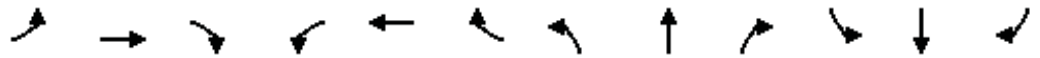


Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			↩		↩	↩
Traffic Volume (veh/h)	0	0	521	54	88	954
Future Volume (Veh/h)	0	0	521	54	88	954
Sign Control	Stop		Free			Free
Grade	-2%		2%			0%
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	0	0	585	61	99	1072
Pedestrians	1					
Lane Width (ft)	0.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	0					
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)			734			834
pX, platoon unblocked	0.35	0.91			0.91	
vC, conflicting volume	1886	616			647	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2014	528			562	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			89	
cM capacity (veh/h)	21	504			918	
Direction, Lane #	NB 1	SB 1	SB 2			
Volume Total	646	99	1072			
Volume Left	0	99	0			
Volume Right	61	0	0			
cSH	1700	918	1700			
Volume to Capacity	0.38	0.11	0.63			
Queue Length 95th (ft)	0	9	0			
Control Delay (s)	0.0	9.4	0.0			
Lane LOS		A				
Approach Delay (s)	0.0	0.8				
Approach LOS						
Intersection Summary						
Average Delay			0.5			
Intersection Capacity Utilization			56.3%		ICU Level of Service	B
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

4: SR 2004 (River Street) & Waterfront Park Drive/Cross Valley Centre Drive

05/16/2018
























Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	↖
Traffic Volume (vph)	35	1	43	6	0	3	50	466	9	40	1006	127
Future Volume (vph)	35	1	43	6	0	3	50	466	9	40	1006	127
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width	12	11	11	11	11	11	10	12	12	10	12	11
Grade (%)		-2%			3%			2%			-2%	
Total Lost time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.85		1.00	0.85		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1727	1499		1628	1457		1580	1710		1612	1800	1479
Flt Permitted	0.76	1.00		0.73	1.00		0.14	1.00		0.45	1.00	1.00
Satd. Flow (perm)	1374	1499		1244	1457		238	1710		756	1800	1479
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	38	1	47	7	0	3	54	507	10	43	1093	138
RTOR Reduction (vph)	0	44	0	0	3	0	0	0	0	0	0	23
Lane Group Flow (vph)	38	4	0	7	0	0	54	517	0	43	1093	115
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	4%	0%	0%	1%	1%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	6.8	6.8		6.8	6.8		86.4	81.9		84.0	80.7	80.7
Effective Green, g (s)	7.8	7.8		7.8	7.8		88.4	82.9		86.0	81.7	81.7
Actuated g/C Ratio	0.07	0.07		0.07	0.07		0.80	0.75		0.78	0.74	0.74
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	6.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	97	106		88	103		258	1288		624	1336	1098
v/s Ratio Prot		0.00			0.00		c0.01	0.30		0.00	c0.61	
v/s Ratio Perm	c0.03			0.01			0.16			0.05		0.08
v/c Ratio	0.39	0.04		0.08	0.00		0.21	0.40		0.07	0.82	0.10
Uniform Delay, d1	48.8	47.6		47.7	47.5		10.4	4.8		2.8	9.3	3.9
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.0	0.1		0.1	0.0		0.1	0.9		0.0	5.7	0.2
Delay (s)	49.8	47.7		47.9	47.5		10.6	5.7		2.8	14.9	4.1
Level of Service	D	D		D	D		B	A		A	B	A
Approach Delay (s)		48.6			47.8			6.2			13.4	
Approach LOS		D			D			A			B	

Intersection Summary		
HCM 2000 Control Delay	13.0	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.75	B
Actuated Cycle Length (s)	110.0	Sum of lost time (s)
Intersection Capacity Utilization	72.9%	15.0
Analysis Period (min)	15	ICU Level of Service
c Critical Lane Group		C

HCM Signalized Intersection Capacity Analysis
5: SR 2004 (River Street) & Ramp AA/Ramp CC

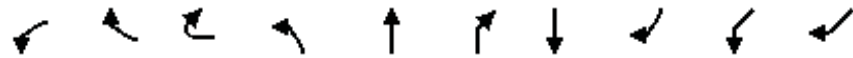
05/16/2018

														
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations								  			 			
Traffic Volume (vph)	305	1	440	0	0	0	0	306	196	382	717	0		
Future Volume (vph)	305	1	440	0	0	0	0	306	196	382	717	0		
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800		
Lane Width	10	10	10	14	14	14	11	12	12	11	12	12		
Grade (%)		-3%			0%			3%			-2%			
Total Lost time (s)	6.0	6.0	4.0					6.0		7.0	6.0			
Lane Util. Factor	0.95	0.95	1.00					0.91		1.00	0.95			
Frt	1.00	1.00	0.85					0.94		1.00	1.00			
Flt Protected	0.95	0.95	1.00					1.00		0.95	1.00			
Satd. Flow (prot)	1509	1513	1435					4389		1605	3386			
Flt Permitted	0.95	0.95	1.00					1.00		0.95	1.00			
Satd. Flow (perm)	1509	1513	1435					4389		1605	3386			
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90		
Adj. Flow (vph)	339	1	489	0	0	0	0	340	218	424	797	0		
RTOR Reduction (vph)	0	0	0	0	0	0	0	144	0	0	0	0		
Lane Group Flow (vph)	169	171	489	0	0	0	0	414	0	424	797	0		
Heavy Vehicles (%)	2%	0%	1%	0%	0%	0%	0%	5%	2%	4%	2%	0%		
Turn Type	Split	NA	Free					NA		Prot	NA			
Protected Phases	3	3						6 7		8 5	2 8 7 5			
Permitted Phases			Free											
Actuated Green, G (s)	11.0	11.0	80.0					19.0		26.0	54.0			
Effective Green, g (s)	11.0	11.0	80.0					19.0		26.0	47.0			
Actuated g/C Ratio	0.14	0.14	1.00					0.24		0.32	0.59			
Clearance Time (s)	6.0	6.0												
Vehicle Extension (s)	3.0	3.0												
Lane Grp Cap (vph)	207	208	1435					1042		521	1989			
v/s Ratio Prot	0.11	c0.11						0.09		c0.26	0.24			
v/s Ratio Perm			c0.34											
v/c Ratio	0.82	0.82	0.34					0.40		0.81	0.40			
Uniform Delay, d1	33.5	33.5	0.0					25.7		24.8	8.9			
Progression Factor	1.00	1.00	1.00					1.00		1.22	1.94			
Incremental Delay, d2	21.4	22.3	0.6					0.3		7.0	0.1			
Delay (s)	54.9	55.8	0.6					25.9		37.2	17.3			
Level of Service	D	E	A					C		D	B			
Approach Delay (s)		23.1			0.0			25.9			24.2			
Approach LOS		C			A			C			C			
Intersection Summary														
HCM 2000 Control Delay			24.2									HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio			0.85											
Actuated Cycle Length (s)			80.0								31.0			
Intersection Capacity Utilization			57.2%										ICU Level of Service	B
Analysis Period (min)			15											
c	Critical Lane Group													

HCM Signalized Intersection Capacity Analysis

6: SR 2004 (River Street) & Ramp BB/Ramp DD & SR 2024 (Maffett Street)

05/16/2018



Movement	WBL	WBR	WBR2	NBL	NBT	NBR	SBT	SBR	SWL	SWR	
Lane Configurations	↖↗	↖	↖	↖	↕↔		↕↕	↖	↖↗		
Traffic Volume (vph)	289	52	12	120	326	170	691	282	105	22	
Future Volume (vph)	289	52	12	120	326	170	691	282	105	22	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	
Lane Width	11	11	11	11	12	12	12	12	12	12	
Grade (%)					0%		2%		0%		
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0	7.0		
Lane Util. Factor	0.97	1.00	1.00	1.00	0.95		0.95	1.00	1.00		
Frt	1.00	0.85	0.85	1.00	0.95		1.00	0.85	0.98		
Flt Protected	0.95	1.00	1.00	0.95	1.00		1.00	1.00	0.96		
Satd. Flow (prot)	3113	1368	1273	1621	3150		3319	1471	1586		
Flt Permitted	0.95	1.00	1.00	0.29	1.00		1.00	1.00	0.96		
Satd. Flow (perm)	3113	1368	1273	490	3150		3319	1471	1586		
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	
Adj. Flow (vph)	321	58	13	133	362	189	768	313	117	24	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	321	58	13	133	551	0	768	313	141	0	
Heavy Vehicles (%)	2%	7%	15%	2%	3%	3%	2%	3%	7%	4%	
Turn Type	Perm	Perm	Perm	custom	NA		NA	Perm	Prot		
Protected Phases				1	1 3 6		2 3		8		
Permitted Phases	7	7	7	3 6				2 3			
Actuated Green, G (s)	9.0	9.0	9.0	31.0	31.0		30.0	30.0	12.0		
Effective Green, g (s)	9.0	9.0	9.0	31.0	31.0		30.0	30.0	12.0		
Actuated g/C Ratio	0.11	0.11	0.11	0.39	0.39		0.38	0.38	0.15		
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0				7.0		
Vehicle Extension (s)	3.0	3.0	3.0	2.0					3.0		
Lane Grp Cap (vph)	350	153	143	246	1220		1244	551	237		
v/s Ratio Prot				c0.03	0.17		c0.23		c0.09		
v/s Ratio Perm	c0.10	0.04	0.01	0.18				0.21			
v/c Ratio	0.92	0.38	0.09	0.54	0.45		0.62	0.57	0.59		
Uniform Delay, d1	35.1	32.9	31.8	17.0	18.2		20.3	19.9	31.7		
Progression Factor	1.00	1.00	1.00	1.56	1.22		1.00	1.00	1.00		
Incremental Delay, d2	27.9	1.6	0.3	1.0	0.1		0.9	1.3	4.0		
Delay (s)	63.0	34.5	32.1	27.5	22.3		21.3	21.2	35.7		
Level of Service	E	C	C	C	C		C	C	D		
Approach Delay (s)					23.3		21.2		35.7		
Approach LOS					C		C		D		
Intersection Summary											
HCM 2000 Control Delay			29.0		HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.74								
Actuated Cycle Length (s)			80.0		Sum of lost time (s)				31.0		
Intersection Capacity Utilization			62.6%		ICU Level of Service				B		
Analysis Period (min)			15								
c Critical Lane Group											

HCM Unsignalized Intersection Capacity Analysis

7: SR 2024 (Maffett Street) & Haines Street

05/16/2018



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	12	2	4	222	215	16
Future Volume (Veh/h)	12	2	4	222	215	16
Sign Control	Stop			Free	Free	
Grade	-5%			1%	-1%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	13	2	4	244	236	18
Pedestrians	3					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	0					
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)	1189					
pX, platoon unblocked						
vC, conflicting volume	500	248	257			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	500	248	257			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	98	100	100			
cM capacity (veh/h)	532	794	1316			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	15	248	254			
Volume Left	13	4	0			
Volume Right	2	0	18			
cSH	556	1316	1700			
Volume to Capacity	0.03	0.00	0.15			
Queue Length 95th (ft)	2	0	0			
Control Delay (s)	11.7	0.2	0.0			
Lane LOS	B	A				
Approach Delay (s)	11.7	0.2	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay			0.4			
Intersection Capacity Utilization			25.7%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

8: SR 2024 (Maffett Street) & Mercer Street

05/16/2018



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	9	2	5	234	228	2
Future Volume (Veh/h)	9	2	5	234	228	2
Sign Control	Stop			Free	Free	
Grade	-3%			3%	-2%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	10	2	5	257	251	2
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	519	252	253			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	519	252	253			
tC, single (s)	6.4	6.2	4.3			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.4			
p0 queue free %	98	100	100			
cM capacity (veh/h)	519	792	1214			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	12	262	253			
Volume Left	10	5	0			
Volume Right	2	0	2			
cSH	551	1214	1700			
Volume to Capacity	0.02	0.00	0.15			
Queue Length 95th (ft)	2	0	0			
Control Delay (s)	11.7	0.2	0.0			
Lane LOS	B	A				
Approach Delay (s)	11.7	0.2	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay	0.4					
Intersection Capacity Utilization	27.2%			ICU Level of Service	A	
Analysis Period (min)	15					

9: SR 2024 (Maffett Street) & SR 2022 (Main Street) & Abbott Street Performance by lane

Lane	WB	NB	SB	NW	All
Movements Served	<LR	TR>	<LT	LR>	
Denied Del/Veh (s)					0.5
Total Del/Veh (s)	78.8	5.0	7.8	8.6	11.5

HCM Signalized Intersection Capacity Analysis

1: SR 2004 (River Street) & Courtright Avenue

05/16/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	76	17	11	14	11	31	7	781	22	14	545	22
Future Volume (vph)	76	17	11	14	11	31	7	781	22	14	545	22
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width	16	16	16	14	14	14	14	14	14	14	14	14
Grade (%)		-1%			-2%			-2%			-1%	
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.99			0.92			1.00			0.99	
Flt Protected		0.96			0.99			1.00			1.00	
Satd. Flow (prot)		1935			1770			1913			1900	
Flt Permitted		0.77			0.93			1.00			0.98	
Satd. Flow (perm)		1554			1660			1906			1864	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	78	17	11	14	11	32	7	797	22	14	556	22
RTOR Reduction (vph)	0	7	0	0	28	0	0	1	0	0	2	0
Lane Group Flow (vph)	0	99	0	0	29	0	0	825	0	0	590	0
Heavy Vehicles (%)	1%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		8.7			8.7			51.3			51.3	
Effective Green, g (s)		9.2			9.2			51.8			51.8	
Actuated g/C Ratio		0.13			0.13			0.74			0.74	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		204			218			1410			1379	
v/s Ratio Prot												
v/s Ratio Perm		c0.06			0.02			c0.43			0.32	
v/c Ratio		0.49			0.13			0.59			0.43	
Uniform Delay, d1		28.2			26.9			4.2			3.5	
Progression Factor		1.00			1.00			1.00			0.94	
Incremental Delay, d2		1.8			0.3			1.8			0.9	
Delay (s)		30.0			27.2			6.0			4.2	
Level of Service		C			C			A			A	
Approach Delay (s)		30.0			27.2			6.0			4.2	
Approach LOS		C			C			A			A	
Intersection Summary												
HCM 2000 Control Delay			7.7					HCM 2000 Level of Service			A	
HCM 2000 Volume to Capacity ratio			0.57									
Actuated Cycle Length (s)			70.0					Sum of lost time (s)		9.0		
Intersection Capacity Utilization			68.5%					ICU Level of Service			C	
Analysis Period (min)			15									
c	Critical Lane Group											

HCM Signalized Intersection Capacity Analysis

2: SR 2004 (River Street) & West Maple Street

05/16/2018



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↶	↶	↶			↷
Traffic Volume (vph)	56	153	861	0	0	550
Future Volume (vph)	56	153	861	0	0	550
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width	14	14	12	12	12	12
Total Lost time (s)	4.5	4.5	4.5			4.5
Lane Util. Factor	1.00	1.00	1.00			1.00
Frt	1.00	0.85	1.00			1.00
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	1824	1584	1782			1782
Flt Permitted	0.95	1.00	1.00			1.00
Satd. Flow (perm)	1824	1584	1782			1782
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	58	158	888	0	0	567
RTOR Reduction (vph)	0	137	0	0	0	0
Lane Group Flow (vph)	58	21	888	0	0	567
Heavy Vehicles (%)	0%	3%	1%	0%	0%	1%
Turn Type	Prot	Perm	NA			NA
Protected Phases	8		2			6
Permitted Phases		8				
Actuated Green, G (s)	8.6	8.6	51.4			51.4
Effective Green, g (s)	9.1	9.1	51.9			51.9
Actuated g/C Ratio	0.13	0.13	0.74			0.74
Clearance Time (s)	5.0	5.0	5.0			5.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	237	205	1321			1321
v/s Ratio Prot	c0.03		c0.50			0.32
v/s Ratio Perm		0.01				
v/c Ratio	0.24	0.10	0.67			0.43
Uniform Delay, d1	27.4	26.8	4.7			3.4
Progression Factor	1.00	1.00	0.58			1.00
Incremental Delay, d2	0.5	0.2	2.4			1.0
Delay (s)	27.9	27.1	5.1			4.5
Level of Service	C	C	A			A
Approach Delay (s)	27.3		5.1			4.5
Approach LOS	C		A			A

Intersection Summary

HCM 2000 Control Delay	7.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	65.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

3: SR 2004 (River Street) & Chestnut Street

05/16/2018



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			↔		↔	↔
Traffic Volume (veh/h)	0	0	996	63	56	611
Future Volume (Veh/h)	0	0	996	63	56	611
Sign Control	Stop		Free			Free
Grade	-2%		2%			0%
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	0	0	1060	67	60	650
Pedestrians	1					
Lane Width (ft)	0.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	0					
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)			734			834
pX, platoon unblocked	0.74	0.66			0.66	
vC, conflicting volume	1864	1094			1128	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1515	889			940	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			87	
cM capacity (veh/h)	87	229			479	
Direction, Lane #	NB 1	SB 1	SB 2			
Volume Total	1127	60	650			
Volume Left	0	60	0			
Volume Right	67	0	0			
cSH	1700	479	1700			
Volume to Capacity	0.66	0.13	0.38			
Queue Length 95th (ft)	0	11	0			
Control Delay (s)	0.0	13.6	0.0			
Lane LOS		B				
Approach Delay (s)	0.0	1.1				
Approach LOS						
Intersection Summary						
Average Delay			0.4			
Intersection Capacity Utilization			62.7%		ICU Level of Service	B
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

4: SR 2004 (River Street) & Waterfront Park Drive/Cross Valley Centre Drive

05/16/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	101	1	45	8	4	20	23	968	8	7	605	57
Future Volume (vph)	101	1	45	8	4	20	23	968	8	7	605	57
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width	12	11	11	11	11	11	10	12	12	10	12	11
Grade (%)		-2%			3%			2%			-2%	
Total Lost time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.85		1.00	0.87		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1727	1499		1628	1498		1580	1762		1612	1782	1494
Flt Permitted	0.74	1.00		0.73	1.00		0.35	1.00		0.16	1.00	1.00
Satd. Flow (perm)	1347	1499		1244	1498		584	1762		277	1782	1494
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	105	1	47	8	4	21	24	1008	8	7	630	59
RTOR Reduction (vph)	0	41	0	0	18	0	0	0	0	0	0	18
Lane Group Flow (vph)	105	7	0	8	7	0	24	1016	0	7	630	41
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	2%	0%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	11.0	11.0		11.0	11.0		72.2	70.0		69.8	68.8	68.8
Effective Green, g (s)	12.0	12.0		12.0	12.0		74.2	71.0		71.8	69.8	69.8
Actuated g/C Ratio	0.12	0.12		0.12	0.12		0.74	0.71		0.72	0.70	0.70
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	6.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	161	179		149	179		465	1251		225	1243	1042
v/s Ratio Prot		0.00			0.00		c0.00	c0.58		0.00	0.35	
v/s Ratio Perm	c0.08			0.01			0.04			0.02		0.03
v/c Ratio	0.65	0.04		0.05	0.04		0.05	0.81		0.03	0.51	0.04
Uniform Delay, d1	42.0	38.9		39.0	38.9		4.2	9.9		9.0	7.1	4.7
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	7.0	0.0		0.1	0.0		0.0	5.8		0.0	1.5	0.1
Delay (s)	49.0	38.9		39.0	38.9		4.2	15.7		9.0	8.5	4.8
Level of Service	D	D		D	D		A	B		A	A	A
Approach Delay (s)		45.9			38.9			15.5			8.2	
Approach LOS		D			D			B			A	

Intersection Summary

HCM 2000 Control Delay	15.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	75.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

5: SR 2004 (River Street) & Ramp AA/Ramp CC

05/16/2018

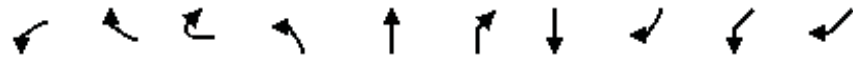


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↘	↖	↗					↑↑↑		↘	↑↑		
Traffic Volume (vph)	365	2	184	0	0	0	0	765	328	317	483	0	
Future Volume (vph)	365	2	184	0	0	0	0	765	328	317	483	0	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	
Lane Width	10	10	10	14	14	14	11	12	12	11	12	12	
Grade (%)		-3%			0%			3%			-2%		
Total Lost time (s)	6.0	6.0	4.0					6.0		7.0	6.0		
Lane Util. Factor	0.95	0.95	1.00					0.91		1.00	0.95		
Frt	1.00	1.00	0.85					0.95		1.00	1.00		
Flt Protected	0.95	0.95	1.00					1.00		0.95	1.00		
Satd. Flow (prot)	1524	1528	1435					4563		1605	3420		
Flt Permitted	0.95	0.95	1.00					1.00		0.95	1.00		
Satd. Flow (perm)	1524	1528	1435					4563		1605	3420		
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	
Adj. Flow (vph)	380	2	192	0	0	0	0	797	342	330	503	0	
RTOR Reduction (vph)	0	0	0	0	0	0	0	86	0	0	0	0	
Lane Group Flow (vph)	190	192	192	0	0	0	0	1053	0	330	503	0	
Heavy Vehicles (%)	1%	0%	1%	0%	0%	0%	0%	1%	2%	4%	1%	0%	
Turn Type	Split	NA	Free					NA		Prot	NA		
Protected Phases	3	3						6 7		8 5	2 8 7 5		
Permitted Phases			Free										
Actuated Green, G (s)	10.0	10.0	90.0					32.0		24.0	59.0		
Effective Green, g (s)	10.0	10.0	90.0					32.0		24.0	52.0		
Actuated g/C Ratio	0.11	0.11	1.00					0.36		0.27	0.58		
Clearance Time (s)	6.0	6.0											
Vehicle Extension (s)	3.0	3.0											
Lane Grp Cap (vph)	169	169	1435					1622		428	1976		
v/s Ratio Prot	0.12	c0.13						c0.23		c0.21	0.15		
v/s Ratio Perm			c0.13										
v/c Ratio	1.12	1.14	0.13					0.65		0.77	0.25		
Uniform Delay, d1	40.0	40.0	0.0					24.3		30.5	9.4		
Progression Factor	1.00	1.00	1.00					1.00		1.18	2.34		
Incremental Delay, d2	106.5	110.5	0.2					0.9		7.2	0.1		
Delay (s)	146.5	150.5	0.2					25.2		43.3	22.1		
Level of Service	F	F	A					C		D	C		
Approach Delay (s)		98.9			0.0			25.2			30.5		
Approach LOS		F			A			C			C		
Intersection Summary													
HCM 2000 Control Delay			43.5									HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio			0.86										
Actuated Cycle Length (s)			90.0									Sum of lost time (s)	31.0
Intersection Capacity Utilization			67.6%									ICU Level of Service	C
Analysis Period (min)			15										
c Critical Lane Group													

HCM Signalized Intersection Capacity Analysis

6: SR 2004 (River Street) & Ramp BB/Ramp DD & SR 2024 (Maffett Street)

05/16/2018



Movement	WBL	WBR	WBR2	NBL	NBT	NBR	SBT	SBR	SWL	SWR
Lane Configurations										
Traffic Volume (vph)	176	286	94	339	518	288	500	295	95	91
Future Volume (vph)	176	286	94	339	518	288	500	295	95	91
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width	11	11	11	11	12	12	12	12	12	12
Grade (%)					0%		2%		0%	
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0	7.0	
Lane Util. Factor	0.97	1.00	1.00	1.00	0.95		0.95	1.00	1.00	
Frt	1.00	0.85	0.85	1.00	0.95		1.00	0.85	0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00		1.00	1.00	0.98	
Satd. Flow (prot)	3113	1368	1273	1621	3142		3319	1471	1553	
Flt Permitted	0.95	1.00	1.00	0.33	1.00		1.00	1.00	0.98	
Satd. Flow (perm)	3113	1368	1273	560	3142		3319	1471	1553	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	185	301	99	357	545	303	526	311	100	96
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	185	301	99	357	848	0	526	311	196	0
Heavy Vehicles (%)	2%	7%	15%	2%	3%	3%	2%	3%	7%	4%
Turn Type	Perm	Perm	Perm	custom	NA		NA	Perm	Prot	
Protected Phases				1	1 3 6		2 3		8	
Permitted Phases	7	7	7	3 6				2 3		
Actuated Green, G (s)	18.0	18.0	18.0	40.0	40.0		27.0	27.0	10.0	
Effective Green, g (s)	18.0	18.0	18.0	40.0	40.0		27.0	27.0	10.0	
Actuated g/C Ratio	0.20	0.20	0.20	0.44	0.44		0.30	0.30	0.11	
Clearance Time (s)	6.0	6.0	6.0	6.0					7.0	
Vehicle Extension (s)	3.0	3.0	3.0	2.0					3.0	
Lane Grp Cap (vph)	622	273	254	366	1396		995	441	172	
v/s Ratio Prot				c0.11	0.27		0.16		c0.13	
v/s Ratio Perm	0.06	c0.22	0.08	c0.32				0.21		
v/c Ratio	0.30	1.10	0.39	0.98	0.61		0.53	0.71	1.14	
Uniform Delay, d1	30.6	36.0	31.2	21.7	19.0		26.2	28.0	40.0	
Progression Factor	1.00	1.00	1.00	1.45	1.23		1.00	1.00	1.00	
Incremental Delay, d2	0.3	84.8	1.0	29.3	0.3		0.5	5.1	111.1	
Delay (s)	30.9	120.8	32.2	60.9	23.7		26.7	33.0	151.1	
Level of Service	C	F	C	E	C		C	C	F	
Approach Delay (s)					34.7		29.1		151.1	
Approach LOS					C		C		F	
Intersection Summary										
HCM 2000 Control Delay			50.0		HCM 2000 Level of Service				D	
HCM 2000 Volume to Capacity ratio			1.19							
Actuated Cycle Length (s)			90.0		Sum of lost time (s)				31.0	
Intersection Capacity Utilization			70.3%		ICU Level of Service				C	
Analysis Period (min)			15							
c Critical Lane Group										

HCM Unsignalized Intersection Capacity Analysis

7: SR 2024 (Maffett Street) & Haines Street

05/16/2018



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	18	2	14	359	234	17
Future Volume (Veh/h)	18	2	14	359	234	17
Sign Control	Stop			Free	Free	
Grade	-5%			1%	-1%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	20	2	16	399	260	19
Pedestrians	3					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	0					
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)	1189					
pX, platoon unblocked						
vC, conflicting volume	704	272	282			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	704	272	282			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.6	3.3	2.2			
p0 queue free %	95	100	99			
cM capacity (veh/h)	392	769	1288			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	22	415	279			
Volume Left	20	16	0			
Volume Right	2	0	19			
cSH	411	1288	1700			
Volume to Capacity	0.05	0.01	0.16			
Queue Length 95th (ft)	4	1	0			
Control Delay (s)	14.3	0.4	0.0			
Lane LOS	B	A				
Approach Delay (s)	14.3	0.4	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay	0.7					
Intersection Capacity Utilization	41.9%			ICU Level of Service	A	
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis

8: SR 2024 (Maffett Street) & Mercer Street

05/16/2018



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	5	11	381	225	7
Future Volume (Veh/h)	5	5	11	381	225	7
Sign Control	Stop			Free	Free	
Grade	-3%			3%	-2%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	5	12	414	245	8
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	687	249	253			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	687	249	253			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	99	99			
cM capacity (veh/h)	412	795	1324			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	10	426	253			
Volume Left	5	12	0			
Volume Right	5	0	8			
cSH	543	1324	1700			
Volume to Capacity	0.02	0.01	0.15			
Queue Length 95th (ft)	1	1	0			
Control Delay (s)	11.8	0.3	0.0			
Lane LOS	B	A				
Approach Delay (s)	11.8	0.3	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay	0.4					
Intersection Capacity Utilization	40.5%			ICU Level of Service	A	
Analysis Period (min)	15					

9: SR 2024 (Maffett Street) & SR 2022 (Main Street) & Abbott Street Performance by lane

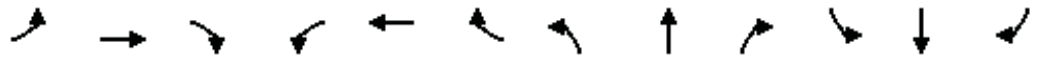
Lane	WB	NB	SB	NW	All
Movements Served	<LR	TR>	<LT	LR>	
Denied Del/Veh (s)					0.3
Total Del/Veh (s)	33.7	5.8	5.8	16.2	9.0

2027 With Development

HCM Signalized Intersection Capacity Analysis

1: SR 2004 (River Street) & Courtright Avenue

05/18/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	11	4	4	38	18	23	5	646	13	6	864	62
Future Volume (vph)	11	4	4	38	18	23	5	646	13	6	864	62
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width	16	16	16	14	14	14	14	14	14	14	14	14
Grade (%)		-1%			-2%			-2%			-1%	
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.97			0.96			1.00			0.99	
Flt Protected		0.97			0.98			1.00			1.00	
Satd. Flow (prot)		1754			1799			1856			1894	
Flt Permitted		0.86			0.84			0.99			1.00	
Satd. Flow (perm)		1559			1544			1847			1887	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	12	4	4	41	20	25	5	702	14	7	939	67
RTOR Reduction (vph)	0	4	0	0	22	0	0	1	0	0	3	0
Lane Group Flow (vph)	0	16	0	0	64	0	0	720	0	0	1010	0
Heavy Vehicles (%)	9%	25%	0%	0%	0%	4%	20%	4%	8%	0%	1%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		7.7			7.7			52.3			52.3	
Effective Green, g (s)		8.2			8.2			52.8			52.8	
Actuated g/C Ratio		0.12			0.12			0.75			0.75	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		182			180			1393			1423	
v/s Ratio Prot												
v/s Ratio Perm		0.01			c0.04			0.39			c0.54	
v/c Ratio		0.09			0.36			0.52			0.71	
Uniform Delay, d1		27.6			28.5			3.5			4.5	
Progression Factor		1.00			1.00			1.00			0.33	
Incremental Delay, d2		0.2			1.2			1.4			2.2	
Delay (s)		27.8			29.7			4.8			3.7	
Level of Service		C			C			A			A	
Approach Delay (s)		27.8			29.7			4.8			3.7	
Approach LOS		C			C			A			A	
Intersection Summary												
HCM 2000 Control Delay			5.6					HCM 2000 Level of Service			A	
HCM 2000 Volume to Capacity ratio			0.66									
Actuated Cycle Length (s)			70.0					Sum of lost time (s)			9.0	
Intersection Capacity Utilization			69.0%					ICU Level of Service			C	
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2: SR 2004 (River Street) & West Maple Street

05/18/2018



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	50	113	686	0	0	914
Future Volume (vph)	50	113	686	0	0	914
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width	14	14	12	12	12	12
Total Lost time (s)	4.5	4.5	4.5			4.5
Lane Util. Factor	1.00	1.00	1.00			1.00
Frt	1.00	0.85	1.00			1.00
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	1689	1569	1731			1782
Flt Permitted	0.95	1.00	1.00			1.00
Satd. Flow (perm)	1689	1569	1731			1782
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	53	120	730	0	0	972
RTOR Reduction (vph)	0	106	0	0	0	0
Lane Group Flow (vph)	53	14	730	0	0	972
Heavy Vehicles (%)	8%	4%	4%	0%	0%	1%
Turn Type	Prot	Perm	NA			NA
Protected Phases	8		2			6
Permitted Phases		8				
Actuated Green, G (s)	7.5	7.5	52.5			52.5
Effective Green, g (s)	8.0	8.0	53.0			53.0
Actuated g/C Ratio	0.11	0.11	0.76			0.76
Clearance Time (s)	5.0	5.0	5.0			5.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	193	179	1310			1349
v/s Ratio Prot	c0.03		0.42			c0.55
v/s Ratio Perm		0.01				
v/c Ratio	0.27	0.08	0.56			0.72
Uniform Delay, d1	28.3	27.7	3.6			4.5
Progression Factor	1.00	1.00	1.62			1.00
Incremental Delay, d2	0.8	0.2	1.5			3.4
Delay (s)	29.1	27.9	7.3			7.9
Level of Service	C	C	A			A
Approach Delay (s)	28.3		7.3			7.9
Approach LOS	C		A			A

Intersection Summary

HCM 2000 Control Delay	9.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	61.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

3: SR 2004 (River Street) & Chestnut Street

05/18/2018

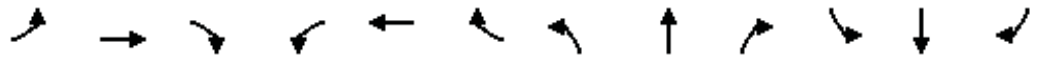


Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			↔		↔	↔
Traffic Volume (veh/h)	0	0	695	54	88	1036
Future Volume (Veh/h)	0	0	695	54	88	1036
Sign Control	Stop		Free		Free	
Grade	-2%		2%		0%	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	0	0	781	61	99	1164
Pedestrians	1					
Lane Width (ft)	0.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	0					
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	734			834		
pX, platoon unblocked	0.38	0.80			0.80	
vC, conflicting volume	2174	812			843	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2123	646			684	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			86	
cM capacity (veh/h)	18	383			732	
Direction, Lane #	NB 1	SB 1	SB 2			
Volume Total	842	99	1164			
Volume Left	0	99	0			
Volume Right	61	0	0			
cSH	1700	732	1700			
Volume to Capacity	0.50	0.14	0.68			
Queue Length 95th (ft)	0	12	0			
Control Delay (s)	0.0	10.7	0.0			
Lane LOS	B					
Approach Delay (s)	0.0	0.8				
Approach LOS						
Intersection Summary						
Average Delay			0.5			
Intersection Capacity Utilization			60.9%	ICU Level of Service		B
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

4: SR 2004 (River Street) & Waterfront Park Drive/Cross Valley Centre Drive

05/18/2018

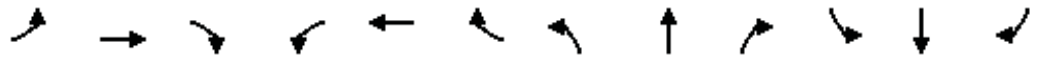


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷		↶	↷		↶	↷		↶	↷	↶
Traffic Volume (vph)	35	1	43	6	0	3	50	640	9	40	1088	127
Future Volume (vph)	35	1	43	6	0	3	50	640	9	40	1088	127
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width	12	11	11	11	11	11	10	12	12	10	12	11
Grade (%)		-2%			3%			2%			-2%	
Total Lost time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.85		1.00	0.85		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1727	1499		1628	1457		1580	1711		1612	1800	1479
Flt Permitted	0.76	1.00		0.73	1.00		0.11	1.00		0.34	1.00	1.00
Satd. Flow (perm)	1374	1499		1244	1457		191	1711		579	1800	1479
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	38	1	47	7	0	3	54	696	10	43	1183	138
RTOR Reduction (vph)	0	44	0	0	3	0	0	0	0	0	0	20
Lane Group Flow (vph)	38	4	0	7	0	0	54	706	0	43	1183	118
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	4%	0%	0%	1%	1%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	7.0	7.0		7.0	7.0		95.4	90.8		94.6	90.4	90.4
Effective Green, g (s)	8.0	8.0		8.0	8.0		97.4	91.8		96.6	91.4	91.4
Actuated g/C Ratio	0.07	0.07		0.07	0.07		0.81	0.76		0.80	0.76	0.76
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	6.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	91	99		82	97		219	1308		510	1371	1126
v/s Ratio Prot		0.00			0.00		c0.01	0.41		0.00	c0.66	
v/s Ratio Perm	c0.03			0.01			0.19			0.06		0.08
v/c Ratio	0.42	0.04		0.09	0.00		0.25	0.54		0.08	0.86	0.11
Uniform Delay, d1	53.8	52.4		52.6	52.3		14.3	5.6		3.1	9.9	3.7
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.1	0.1		0.2	0.0		0.2	1.6		0.0	7.4	0.2
Delay (s)	54.9	52.5		52.7	52.3		14.5	7.2		3.1	17.3	3.9
Level of Service	D	D		D	D		B	A		A	B	A
Approach Delay (s)		53.5			52.6			7.8			15.5	
Approach LOS		D			D			A			B	

Intersection Summary		
HCM 2000 Control Delay	14.5	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.80	B
Actuated Cycle Length (s)	120.0	Sum of lost time (s)
Intersection Capacity Utilization	77.5%	15.0
Analysis Period (min)	15	ICU Level of Service
		D
c Critical Lane Group		

HCM Signalized Intersection Capacity Analysis
5: SR 2004 (River Street) & Ramp AA/Ramp CC

05/18/2018

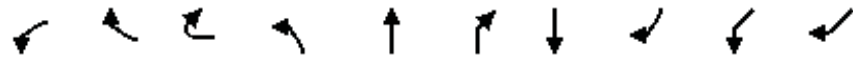


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↗	↖	↗					↑↑↑		↗	↑↑		
Traffic Volume (vph)	305	1	440	0	0	0	0	480	196	458	799	0	
Future Volume (vph)	305	1	440	0	0	0	0	480	196	458	799	0	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	
Lane Width	10	10	10	14	14	14	11	12	12	11	12	12	
Grade (%)		-3%			0%			3%			-2%		
Total Lost time (s)	6.0	6.0	4.0					6.0		7.0	6.0		
Lane Util. Factor	0.95	0.95	1.00					0.91		1.00	0.95		
Frt	1.00	1.00	0.85					0.96		1.00	1.00		
Flt Protected	0.95	0.95	1.00					1.00		0.95	1.00		
Satd. Flow (prot)	1509	1513	1435					4446		1605	3386		
Flt Permitted	0.95	0.95	1.00					1.00		0.95	1.00		
Satd. Flow (perm)	1509	1513	1435					4446		1605	3386		
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	
Adj. Flow (vph)	339	1	489	0	0	0	0	533	218	509	888	0	
RTOR Reduction (vph)	0	0	0	0	0	0	0	82	0	0	0	0	
Lane Group Flow (vph)	169	171	489	0	0	0	0	669	0	509	888	0	
Heavy Vehicles (%)	2%	0%	1%	0%	0%	0%	0%	5%	2%	4%	2%	0%	
Turn Type	Split	NA	Free					NA		Prot	NA		
Protected Phases	3	3						6 7		8 5	2 8 7 5		
Permitted Phases			Free										
Actuated Green, G (s)	10.0	10.0	90.0					25.0		31.0	65.0		
Effective Green, g (s)	10.0	10.0	90.0					25.0		31.0	58.0		
Actuated g/C Ratio	0.11	0.11	1.00					0.28		0.34	0.64		
Clearance Time (s)	6.0	6.0											
Vehicle Extension (s)	3.0	3.0											
Lane Grp Cap (vph)	167	168	1435					1235		552	2182		
v/s Ratio Prot	0.11	c0.11						c0.15		c0.32	0.26		
v/s Ratio Perm			c0.34										
v/c Ratio	1.01	1.02	0.34					0.54		0.92	0.41		
Uniform Delay, d1	40.0	40.0	0.0					27.6		28.3	7.7		
Progression Factor	1.00	1.00	1.00					1.00		1.14	1.71		
Incremental Delay, d2	72.8	74.2	0.6					0.5		15.0	0.1		
Delay (s)	112.8	114.2	0.6					28.1		47.2	13.3		
Level of Service	F	F	A					C		D	B		
Approach Delay (s)		46.9			0.0			28.1			25.6		
Approach LOS		D			A			C			C		
Intersection Summary													
HCM 2000 Control Delay			32.2									HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.90										
Actuated Cycle Length (s)			90.0									Sum of lost time (s)	31.0
Intersection Capacity Utilization			65.1%									ICU Level of Service	C
Analysis Period (min)			15										
c Critical Lane Group													

HCM Signalized Intersection Capacity Analysis

6: SR 2004 (River Street) & Ramp BB/Ramp DD & SR 2024 (Maffett Street)

05/18/2018



Movement	WBL	WBR	WBR2	NBL	NBT	NBR	SBT	SBR	SWL	SWR	
Lane Configurations	↖↗	↖	↖	↖	↕↔		↕↕	↖	↖↗		
Traffic Volume (vph)	289	52	173	120	326	344	691	282	263	22	
Future Volume (vph)	289	52	173	120	326	344	691	282	263	22	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	
Lane Width	11	11	11	11	12	12	12	12	12	12	
Grade (%)					0%		2%		0%		
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0	7.0		
Lane Util. Factor	0.97	1.00	1.00	1.00	0.95		0.95	1.00	1.00		
Frt	1.00	0.85	0.85	1.00	0.92		1.00	0.85	0.99		
Flt Protected	0.95	1.00	1.00	0.95	1.00		1.00	1.00	0.96		
Satd. Flow (prot)	3113	1368	1273	1621	3065		3319	1471	1595		
Flt Permitted	0.95	1.00	1.00	0.26	1.00		1.00	1.00	0.96		
Satd. Flow (perm)	3113	1368	1273	437	3065		3319	1471	1595		
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	
Adj. Flow (vph)	321	58	192	133	362	382	768	313	292	24	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	321	58	192	133	744	0	768	313	316	0	
Heavy Vehicles (%)	2%	7%	15%	2%	3%	3%	2%	3%	7%	4%	
Turn Type	Perm	Perm	Perm	custom	NA		NA	Perm	Prot		
Protected Phases				1	1 3 6		2 3		8		
Permitted Phases	7	7	7	3 6				2 3			
Actuated Green, G (s)	13.0	13.0	13.0	32.0	32.0		31.0	31.0	17.0		
Effective Green, g (s)	13.0	13.0	13.0	32.0	32.0		31.0	31.0	17.0		
Actuated g/C Ratio	0.14	0.14	0.14	0.36	0.36		0.34	0.34	0.19		
Clearance Time (s)	6.0	6.0	6.0	6.0					7.0		
Vehicle Extension (s)	3.0	3.0	3.0	2.0					3.0		
Lane Grp Cap (vph)	449	197	183	208	1089		1143	506	301		
v/s Ratio Prot				0.03	c0.24		c0.23		c0.20		
v/s Ratio Perm	0.10	0.04	c0.15	0.20				0.21			
v/c Ratio	0.71	0.29	1.05	0.64	0.68		0.67	0.62	1.05		
Uniform Delay, d1	36.7	34.4	38.5	22.5	24.7		25.2	24.6	36.5		
Progression Factor	1.00	1.00	1.00	1.34	1.16		1.00	1.00	1.00		
Incremental Delay, d2	5.3	0.8	80.1	3.1	0.9		1.6	2.3	65.5		
Delay (s)	42.1	35.2	118.6	33.3	29.5		26.7	26.8	102.0		
Level of Service	D	D	F	C	C		C	C	F		
Approach Delay (s)					30.1		26.8		102.0		
Approach LOS					C		C		F		
Intersection Summary											
HCM 2000 Control Delay			44.2		HCM 2000 Level of Service				D		
HCM 2000 Volume to Capacity ratio			0.93								
Actuated Cycle Length (s)			90.0		Sum of lost time (s)				31.0		
Intersection Capacity Utilization			71.8%		ICU Level of Service				C		
Analysis Period (min)			15								
c Critical Lane Group											

HCM Unsignalized Intersection Capacity Analysis
 7: SR 2024 (Maffett Street) & Haines Street

05/18/2018



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	12	2	4	557	373	16
Future Volume (Veh/h)	12	2	4	557	373	16
Sign Control	Stop			Free	Free	
Grade	-5%			1%	-1%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	13	2	4	612	410	18
Pedestrians	3					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	0					
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)	1189					
pX, platoon unblocked						
vC, conflicting volume	1042	422	431			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1042	422	431			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	95	100	100			
cM capacity (veh/h)	256	635	1136			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	15	616	428			
Volume Left	13	4	0			
Volume Right	2	0	18			
cSH	278	1136	1700			
Volume to Capacity	0.05	0.00	0.25			
Queue Length 95th (ft)	4	0	0			
Control Delay (s)	18.7	0.1	0.0			
Lane LOS	C	A				
Approach Delay (s)	18.7	0.1	0.0			
Approach LOS	C					
Intersection Summary						
Average Delay			0.3			
Intersection Capacity Utilization			44.3%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 8: SR 2024 (Maffett Street) & Mercer Street

05/18/2018



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	9	2	5	569	392	2
Future Volume (Veh/h)	9	2	5	569	392	2
Sign Control	Stop			Free	Free	
Grade	-3%			3%	-2%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	10	2	5	625	431	2
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1067	432	433			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1067	432	433			
tC, single (s)	6.4	6.2	4.3			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.4			
p0 queue free %	96	100	100			
cM capacity (veh/h)	247	628	1037			
Direction, Lane #						
	EB 1	NB 1	SB 1			
Volume Total	12	630	433			
Volume Left	10	5	0			
Volume Right	2	0	2			
cSH	275	1037	1700			
Volume to Capacity	0.04	0.00	0.25			
Queue Length 95th (ft)	3	0	0			
Control Delay (s)	18.7	0.1	0.0			
Lane LOS	C	A				
Approach Delay (s)	18.7	0.1	0.0			
Approach LOS	C					
Intersection Summary						
Average Delay			0.3			
Intersection Capacity Utilization		45.8%		ICU Level of Service		A
Analysis Period (min)			15			












9: SR 2024 (Maffett Street) & SR 2022 (Main Street) & Abbott Street Performance by lane

Lane	WB	NB	SB	NW	All
Movements Served	<LR	TR>	<LT	LR>	
Denied Del/Veh (s)					51.8
Total Del/Veh (s)	1455.5	3.4	13.7	17.0	110.1

HCM Unsignalized Intersection Capacity Analysis

10: SR 2024 (Maffett Street) & Driveway

05/18/2018

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	158	46	243	335	98	230
Future Volume (Veh/h)	158	46	243	335	98	230
Sign Control	Stop		Free		Free	
Grade	0%		3%		-2%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	172	50	264	364	107	250
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	728	264			628	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	728	264			628	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	50	94			89	
cM capacity (veh/h)	347	775			954	
Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	
Volume Total	222	264	364	107	250	
Volume Left	172	0	0	107	0	
Volume Right	50	0	364	0	0	
cSH	396	1700	1700	954	1700	
Volume to Capacity	0.56	0.16	0.21	0.11	0.15	
Queue Length 95th (ft)	83	0	0	9	0	
Control Delay (s)	25.1	0.0	0.0	9.3	0.0	
Lane LOS	D			A		
Approach Delay (s)	25.1	0.0		2.8		
Approach LOS	D					
Intersection Summary						
Average Delay			5.4			
Intersection Capacity Utilization			41.4%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 11: SR 2022 (Main Street) & Driveway

05/18/2018



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	151	322	122	379	0
Future Volume (Veh/h)	0	151	322	122	379	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	164	350	133	412	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1245	412	412			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1245	412	412			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	74	69			
cM capacity (veh/h)	135	640	1147			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1		
Volume Total	164	350	133	412		
Volume Left	0	350	0	0		
Volume Right	164	0	0	0		
cSH	640	1147	1700	1700		
Volume to Capacity	0.26	0.31	0.08	0.24		
Queue Length 95th (ft)	25	33	0	0		
Control Delay (s)	12.6	9.5	0.0	0.0		
Lane LOS	B	A				
Approach Delay (s)	12.6	6.9	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay	5.1					
Intersection Capacity Utilization	59.8%			ICU Level of Service	B	
Analysis Period (min)	15					

HCM Signalized Intersection Capacity Analysis

1: SR 2004 (River Street) & Courtright Avenue

05/18/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (vph)	76	17	11	14	11	31	7	879	22	14	655	22
Future Volume (vph)	76	17	11	14	11	31	7	879	22	14	655	22
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width	16	16	16	14	14	14	14	14	14	14	14	14
Grade (%)		-1%			-2%			-2%			-1%	
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.99			0.92			1.00			1.00	
Flt Protected		0.96			0.99			1.00			1.00	
Satd. Flow (prot)		1935			1770			1914			1902	
Flt Permitted		0.77			0.93			1.00			0.98	
Satd. Flow (perm)		1554			1660			1906			1867	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	78	17	11	14	11	32	7	897	22	14	668	22
RTOR Reduction (vph)	0	7	0	0	28	0	0	1	0	0	1	0
Lane Group Flow (vph)	0	99	0	0	29	0	0	925	0	0	703	0
Heavy Vehicles (%)	1%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		8.7			8.7			51.3			51.3	
Effective Green, g (s)		9.2			9.2			51.8			51.8	
Actuated g/C Ratio		0.13			0.13			0.74			0.74	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		204			218			1410			1381	
v/s Ratio Prot												
v/s Ratio Perm		c0.06			0.02			c0.49			0.38	
v/c Ratio		0.49			0.13			0.66			0.51	
Uniform Delay, d1		28.2			26.9			4.6			3.8	
Progression Factor		1.00			1.00			1.00			1.34	
Incremental Delay, d2		1.8			0.3			2.4			1.2	
Delay (s)		30.0			27.2			7.0			6.3	
Level of Service		C			C			A			A	
Approach Delay (s)		30.0			27.2			7.0			6.3	
Approach LOS		C			C			A			A	

Intersection Summary

HCM 2000 Control Delay	8.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	74.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

2: SR 2004 (River Street) & West Maple Street

05/18/2018



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	56	153	959	0	0	660
Future Volume (vph)	56	153	959	0	0	660
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width	14	14	12	12	12	12
Total Lost time (s)	4.5	4.5	4.5			4.5
Lane Util. Factor	1.00	1.00	1.00			1.00
Frt	1.00	0.85	1.00			1.00
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	1824	1584	1782			1782
Flt Permitted	0.95	1.00	1.00			1.00
Satd. Flow (perm)	1824	1584	1782			1782
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	58	158	989	0	0	680
RTOR Reduction (vph)	0	128	0	0	0	0
Lane Group Flow (vph)	58	30	989	0	0	680
Heavy Vehicles (%)	0%	3%	1%	0%	0%	1%
Turn Type	Prot	Perm	NA			NA
Protected Phases	8		2			6
Permitted Phases		8				
Actuated Green, G (s)	8.6	8.6	51.4			51.4
Effective Green, g (s)	9.1	9.1	51.9			51.9
Actuated g/C Ratio	0.13	0.13	0.74			0.74
Clearance Time (s)	5.0	5.0	5.0			5.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	237	205	1321			1321
v/s Ratio Prot	c0.03		c0.55			0.38
v/s Ratio Perm		0.02				
v/c Ratio	0.24	0.15	0.75			0.51
Uniform Delay, d1	27.4	27.0	5.3			3.8
Progression Factor	1.00	1.00	0.45			1.00
Incremental Delay, d2	0.5	0.3	3.2			1.4
Delay (s)	27.9	27.3	5.5			5.2
Level of Service	C	C	A			A
Approach Delay (s)	27.5		5.5			5.2
Approach LOS	C		A			A

Intersection Summary

HCM 2000 Control Delay	7.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	70.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

3: SR 2004 (River Street) & Chestnut Street

05/18/2018



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			↩		↩	↩
Traffic Volume (veh/h)	0	0	1094	63	56	721
Future Volume (Veh/h)	0	0	1094	63	56	721
Sign Control	Stop		Free		Free	
Grade	-2%		2%		0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	0	0	1164	67	60	767
Pedestrians	1					
Lane Width (ft)	0.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	0					
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	734			834		
pX, platoon unblocked	0.57	0.45			0.45	
vC, conflicting volume	2086	1198			1232	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1634	835			909	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			82	
cM capacity (veh/h)	52	168			336	
Direction, Lane #	NB 1	SB 1	SB 2			
Volume Total	1231	60	767			
Volume Left	0	60	0			
Volume Right	67	0	0			
cSH	1700	336	1700			
Volume to Capacity	0.72	0.18	0.45			
Queue Length 95th (ft)	0	16	0			
Control Delay (s)	0.0	18.0	0.0			
Lane LOS			C			
Approach Delay (s)	0.0	1.3				
Approach LOS						
Intersection Summary						
Average Delay			0.5			
Intersection Capacity Utilization			68.1%	ICU Level of Service		C
Analysis Period (min)	15					

HCM Signalized Intersection Capacity Analysis

4: SR 2004 (River Street) & Waterfront Park Drive/Cross Valley Centre Drive

05/18/2018



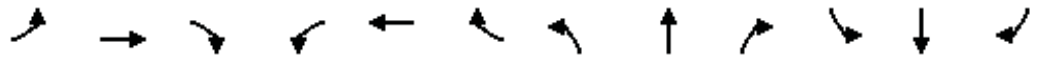
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	101	1	45	8	4	20	23	1066	8	7	715	57
Future Volume (vph)	101	1	45	8	4	20	23	1066	8	7	715	57
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width	12	11	11	11	11	11	10	12	12	10	12	11
Grade (%)		-2%			3%			2%			-2%	
Total Lost time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.85		1.00	0.87		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1727	1499		1628	1498		1580	1763		1612	1782	1494
Flt Permitted	0.74	1.00		0.73	1.00		0.29	1.00		0.11	1.00	1.00
Satd. Flow (perm)	1347	1499		1244	1498		479	1763		186	1782	1494
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	105	1	47	8	4	21	24	1110	8	7	745	59
RTOR Reduction (vph)	0	41	0	0	18	0	0	0	0	0	0	18
Lane Group Flow (vph)	105	7	0	8	7	0	24	1118	0	7	745	41
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	2%	0%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	11.0	11.0		11.0	11.0		72.2	70.0		69.8	68.8	68.8
Effective Green, g (s)	12.0	12.0		12.0	12.0		74.2	71.0		71.8	69.8	69.8
Actuated g/C Ratio	0.12	0.12		0.12	0.12		0.74	0.71		0.72	0.70	0.70
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	6.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	161	179		149	179		390	1251		162	1243	1042
v/s Ratio Prot		0.00			0.00		c0.00	c0.63		0.00	0.42	
v/s Ratio Perm	c0.08			0.01			0.04			0.03		0.03
v/c Ratio	0.65	0.04		0.05	0.04		0.06	0.89		0.04	0.60	0.04
Uniform Delay, d1	42.0	38.9		39.0	38.9		5.0	11.5		12.7	7.8	4.7
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	7.0	0.0		0.1	0.0		0.0	10.0		0.0	2.1	0.1
Delay (s)	49.0	38.9		39.0	38.9		5.0	21.5		12.7	10.0	4.8
Level of Service	D	D		D	D		A	C		B	A	A
Approach Delay (s)		45.9			38.9			21.1			9.6	
Approach LOS		D			D			C			A	

Intersection Summary

HCM 2000 Control Delay	18.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	80.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 5: SR 2004 (River Street) & Ramp AA/Ramp CC

05/18/2018

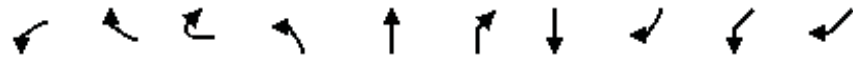


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↘	↙	↗					↑↑↑		↘	↑↑		
Traffic Volume (vph)	365	2	184	0	0	0	0	863	328	410	593	0	
Future Volume (vph)	365	2	184	0	0	0	0	863	328	410	593	0	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	
Lane Width	10	10	10	14	14	14	11	12	12	11	12	12	
Grade (%)		-3%			0%			3%			-2%		
Total Lost time (s)	6.0	6.0	4.0					6.0		7.0	6.0		
Lane Util. Factor	0.95	0.95	1.00					0.91		1.00	0.95		
Frt	1.00	1.00	0.85					0.96		1.00	1.00		
Flt Protected	0.95	0.95	1.00					1.00		0.95	1.00		
Satd. Flow (prot)	1524	1528	1435					4582		1605	3420		
Flt Permitted	0.95	0.95	1.00					1.00		0.95	1.00		
Satd. Flow (perm)	1524	1528	1435					4582		1605	3420		
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	
Adj. Flow (vph)	380	2	192	0	0	0	0	899	342	427	618	0	
RTOR Reduction (vph)	0	0	0	0	0	0	0	57	0	0	0	0	
Lane Group Flow (vph)	190	192	192	0	0	0	0	1184	0	427	618	0	
Heavy Vehicles (%)	1%	0%	1%	0%	0%	0%	0%	1%	2%	4%	1%	0%	
Turn Type	Split	NA	Free					NA		Prot	NA		
Protected Phases	3	3						6 7		8 5	2 8 7 5		
Permitted Phases			Free										
Actuated Green, G (s)	13.0	13.0	120.0					42.0		41.0	81.0		
Effective Green, g (s)	13.0	13.0	120.0					42.0		41.0	74.0		
Actuated g/C Ratio	0.11	0.11	1.00					0.35		0.34	0.62		
Clearance Time (s)	6.0	6.0											
Vehicle Extension (s)	3.0	3.0											
Lane Grp Cap (vph)	165	165	1435					1603		548	2109		
v/s Ratio Prot	0.12	c0.13						c0.26		c0.27	0.18		
v/s Ratio Perm			0.13										
v/c Ratio	1.15	1.16	0.13					0.74		0.78	0.29		
Uniform Delay, d1	53.5	53.5	0.0					34.2		35.4	10.8		
Progression Factor	1.00	1.00	1.00					1.00		1.01	1.91		
Incremental Delay, d2	116.6	120.9	0.2					1.8		4.9	0.1		
Delay (s)	170.1	174.4	0.2					36.0		40.9	20.7		
Level of Service	F	F	A					D		D	C		
Approach Delay (s)		114.7			0.0			36.0			28.9		
Approach LOS		F			A			D			C		
Intersection Summary													
HCM 2000 Control Delay			49.2									HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio			0.88										
Actuated Cycle Length (s)			120.0									Sum of lost time (s)	31.0
Intersection Capacity Utilization			75.0%									ICU Level of Service	D
Analysis Period (min)			15										
c Critical Lane Group													

HCM Signalized Intersection Capacity Analysis

6: SR 2004 (River Street) & Ramp BB/Ramp DD & SR 2024 (Maffett Street)

05/18/2018



Movement	WBL	WBR	WBR2	NBL	NBT	NBR	SBT	SBR	SWL	SWR
Lane Configurations										
Traffic Volume (vph)	176	286	177	339	518	386	500	295	299	91
Future Volume (vph)	176	286	177	339	518	386	500	295	299	91
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width	11	11	11	11	12	12	12	12	12	12
Grade (%)					0%		2%		0%	
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0	7.0	
Lane Util. Factor	0.97	1.00	1.00	1.00	0.95		0.95	1.00	1.00	
Frt	1.00	0.85	0.85	1.00	0.94		1.00	0.85	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00		1.00	1.00	0.96	
Satd. Flow (prot)	3113	1450	1356	1637	3169		3319	1485	1646	
Flt Permitted	0.95	1.00	1.00	0.26	1.00		1.00	1.00	0.96	
Satd. Flow (perm)	3113	1450	1356	443	3169		3319	1485	1646	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	185	301	186	357	545	406	526	311	315	96
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	185	301	186	357	951	0	526	311	411	0
Heavy Vehicles (%)	2%	1%	8%	1%	1%	1%	2%	2%	2%	2%
Turn Type	Perm	Perm	Perm	custom	NA		NA	Perm	Prot	
Protected Phases				1	1 3 6		2 3		8	
Permitted Phases	7	7	7	3 6				2 3		
Actuated Green, G (s)	22.0	22.0	22.0	52.0	52.0		31.0	31.0	27.0	
Effective Green, g (s)	22.0	22.0	22.0	52.0	52.0		31.0	31.0	27.0	
Actuated g/C Ratio	0.18	0.18	0.18	0.43	0.43		0.26	0.26	0.22	
Clearance Time (s)	6.0	6.0	6.0	6.0					7.0	
Vehicle Extension (s)	3.0	3.0	3.0	2.0					3.0	
Lane Grp Cap (vph)	570	265	248	341	1373		857	383	370	
v/s Ratio Prot				c0.13	0.30		0.16		c0.25	
v/s Ratio Perm	0.06	c0.21	0.14	c0.32				0.21		
v/c Ratio	0.32	1.14	0.75	1.05	0.69		0.61	0.81	1.11	
Uniform Delay, d1	42.5	49.0	46.4	29.1	27.5		39.2	41.8	46.5	
Progression Factor	1.00	1.00	1.00	1.70	0.99		1.00	1.00	1.00	
Incremental Delay, d2	0.3	96.9	12.0	47.3	0.6		1.3	12.3	80.2	
Delay (s)	42.9	145.9	58.4	96.9	27.7		40.5	54.1	126.7	
Level of Service	D	F	E	F	C		D	D	F	
Approach Delay (s)					46.6		45.6		126.7	
Approach LOS					D		D		F	

Intersection Summary

HCM 2000 Control Delay	66.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.20		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	31.0
Intersection Capacity Utilization	82.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis

7: SR 2024 (Maffett Street) & Haines Street

05/18/2018



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	18	2	14	540	437	17
Future Volume (Veh/h)	18	2	14	540	437	17
Sign Control	Stop			Free	Free	
Grade	-5%			1%	-1%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	20	2	16	600	486	19
Pedestrians	3					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	0					
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)	1189					
pX, platoon unblocked						
vC, conflicting volume	1130	498	508			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1130	498	508			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.6	3.3	2.2			
p0 queue free %	91	100	98			
cM capacity (veh/h)	218	575	1064			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	22	616	505			
Volume Left	20	16	0			
Volume Right	2	0	19			
cSH	231	1064	1700			
Volume to Capacity	0.10	0.02	0.30			
Queue Length 95th (ft)	8	1	0			
Control Delay (s)	22.2	0.4	0.0			
Lane LOS	C	A				
Approach Delay (s)	22.2	0.4	0.0			
Approach LOS	C					
Intersection Summary						
Average Delay			0.6			
Intersection Capacity Utilization			51.9%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 8: SR 2024 (Maffett Street) & Mercer Street

05/18/2018














Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	5	11	562	428	7
Future Volume (Veh/h)	5	5	11	562	428	7
Sign Control	Stop			Free	Free	
Grade	-3%			3%	-2%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	5	12	611	465	8
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1104	469	473			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1104	469	473			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	98	99	99			
cM capacity (veh/h)	234	599	1099			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	10	623	473			
Volume Left	5	12	0			
Volume Right	5	0	8			
cSH	336	1099	1700			
Volume to Capacity	0.03	0.01	0.28			
Queue Length 95th (ft)	2	1	0			
Control Delay (s)	16.0	0.3	0.0			
Lane LOS	C	A				
Approach Delay (s)	16.0	0.3	0.0			
Approach LOS	C					
Intersection Summary						
Average Delay			0.3			
Intersection Capacity Utilization			50.5%	ICU Level of Service	A	
Analysis Period (min)			15			

9: SR 2024 (Maffett Street) & SR 2022 (Main Street) & Abbott Street Performance by lane

Lane	WB	NB	SB	NW	All
Movements Served	<LR	TR>	<LT	LR>	
Denied Del/Veh (s)					0.2
Total Del/Veh (s)	156.1	5.2	13.8	132.1	39.1

HCM Unsignalized Intersection Capacity Analysis
 10: SR 2024 (Maffett Street) & Driveway

05/18/2018

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	203	52	386	181	47	232
Future Volume (Veh/h)	203	52	386	181	47	232
Sign Control	Stop		Free		Free	
Grade	0%		3%		-2%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	221	57	420	197	51	252
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None		None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	774	420			617	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	774	420			617	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	36	91			95	
cM capacity (veh/h)	347	633			963	
Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	
Volume Total	278	420	197	51	252	
Volume Left	221	0	0	51	0	
Volume Right	57	0	197	0	0	
cSH	383	1700	1700	963	1700	
Volume to Capacity	0.73	0.25	0.12	0.05	0.15	
Queue Length 95th (ft)	139	0	0	4	0	
Control Delay (s)	35.7	0.0	0.0	8.9	0.0	
Lane LOS	E		A			
Approach Delay (s)	35.7	0.0		1.5		
Approach LOS	E					
Intersection Summary						
Average Delay			8.7			
Intersection Capacity Utilization			50.0%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 11: SR 2022 (Main Street) & Driveway

05/18/2018



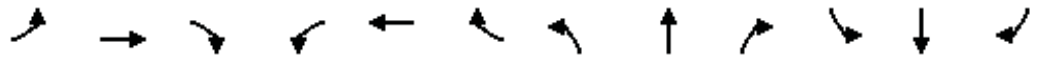
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	191	169	221	162	0
Future Volume (Veh/h)	0	191	169	221	162	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	208	184	240	176	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	784	176	176			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	784	176	176			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	76	87			
cM capacity (veh/h)	317	867	1400			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1		
Volume Total	208	184	240	176		
Volume Left	0	184	0	0		
Volume Right	208	0	0	0		
cSH	867	1400	1700	1700		
Volume to Capacity	0.24	0.13	0.14	0.10		
Queue Length 95th (ft)	23	11	0	0		
Control Delay (s)	10.5	8.0	0.0	0.0		
Lane LOS	B	A				
Approach Delay (s)	10.5	3.5	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay	4.5					
Intersection Capacity Utilization	41.4%			ICU Level of Service	A	
Analysis Period (min)	15					

2027 With Improvements

HCM Signalized Intersection Capacity Analysis

1: SR 2004 (River Street) & Courtright Avenue

06/11/2018

























Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↕			↕		↕	↕			↕		
Traffic Volume (vph)	11	4	4	38	18	23	5	646	13	6	864	62	
Future Volume (vph)	11	4	4	38	18	23	5	646	13	6	864	62	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	
Lane Width	16	16	16	14	14	14	14	14	14	14	14	14	
Grade (%)		-1%			-2%			-2%			-1%		
Total Lost time (s)		4.5			4.5		5.0	4.5			4.5		
Lane Util. Factor		1.00			1.00		1.00	1.00			1.00		
Frt		0.97			0.96		1.00	1.00			0.99		
Flt Protected		0.97			0.98		0.95	1.00			1.00		
Satd. Flow (prot)		1754			1799		1535	1858			1894		
Flt Permitted		0.86			0.84		0.30	1.00			1.00		
Satd. Flow (perm)		1559			1544		485	1858			1887		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	12	4	4	41	20	25	5	702	14	7	939	67	
RTOR Reduction (vph)	0	4	0	0	22	0	0	1	0	0	3	0	
Lane Group Flow (vph)	0	16	0	0	64	0	5	715	0	0	1010	0	
Heavy Vehicles (%)	9%	25%	0%	0%	0%	4%	20%	4%	8%	0%	1%	0%	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA		
Protected Phases		4			8			2			6		
Permitted Phases	4			8			2			6			
Actuated Green, G (s)		7.7			7.7		52.3	52.3			52.3		
Effective Green, g (s)		8.2			8.2		52.3	52.8			52.8		
Actuated g/C Ratio		0.12			0.12		0.75	0.75			0.75		
Clearance Time (s)		5.0			5.0		5.0	5.0			5.0		
Vehicle Extension (s)		3.0			3.0		3.0	3.0			3.0		
Lane Grp Cap (vph)		182			180		362	1401			1423		
v/s Ratio Prot								0.39					
v/s Ratio Perm		0.01			c0.04		0.01				c0.54		
v/c Ratio		0.09			0.36		0.01	0.51			0.71		
Uniform Delay, d1		27.6			28.5		2.3	3.4			4.5		
Progression Factor		1.00			1.00		1.00	1.00			0.30		
Incremental Delay, d2		0.2			1.2		0.1	1.3			2.2		
Delay (s)		27.8			29.7		2.3	4.8			3.6		
Level of Service		C			C		A	A			A		
Approach Delay (s)		27.8			29.7			4.8			3.6		
Approach LOS		C			C			A			A		
Intersection Summary													
HCM 2000 Control Delay			5.5									HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.66										
Actuated Cycle Length (s)			70.0									Sum of lost time (s)	9.0
Intersection Capacity Utilization			69.9%									ICU Level of Service	C
Analysis Period (min)			15										
c Critical Lane Group													

HCM Signalized Intersection Capacity Analysis

5: SR 2004 (River Street) & Ramp AA/Ramp CC

06/11/2018

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations								  			 		
Traffic Volume (vph)	305	1	440	0	0	0	0	480	196	458	799	0	
Future Volume (vph)	305	1	440	0	0	0	0	480	196	458	799	0	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	
Lane Width	10	10	10	14	14	14	11	12	12	11	12	12	
Grade (%)		-3%			0%			3%				-2%	
Total Lost time (s)	6.0	6.0	4.0					6.0	4.0	7.0	6.0		
Lane Util. Factor	0.95	0.95	1.00					0.91	1.00	1.00	0.95		
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00		
Flt Protected	0.95	0.95	1.00					1.00	1.00	0.95	1.00		
Satd. Flow (prot)	1509	1513	1435					4610	1477	1605	3386		
Flt Permitted	0.95	0.95	1.00					1.00	1.00	0.95	1.00		
Satd. Flow (perm)	1509	1513	1435					4610	1477	1605	3386		
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	
Adj. Flow (vph)	339	1	489	0	0	0	0	533	218	509	888	0	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	169	171	489	0	0	0	0	533	218	509	888	0	
Heavy Vehicles (%)	2%	0%	1%	0%	0%	0%	0%	5%	2%	4%	2%	0%	
Turn Type	Split	NA	Free					NA	Free	Prot	NA		
Protected Phases	3	3						6 7		8 5	2 8 7 5		
Permitted Phases			Free						Free				
Actuated Green, G (s)	11.0	11.0	90.0					22.0	90.0	33.0	64.0		
Effective Green, g (s)	11.0	11.0	90.0					22.0	90.0	33.0	57.0		
Actuated g/C Ratio	0.12	0.12	1.00					0.24	1.00	0.37	0.63		
Clearance Time (s)	6.0	6.0											
Vehicle Extension (s)	3.0	3.0											
Lane Grp Cap (vph)	184	184	1435					1126	1477	588	2144		
v/s Ratio Prot	0.11	c0.11						0.12		c0.32	c0.26		
v/s Ratio Perm			c0.34						0.15				
v/c Ratio	0.92	0.93	0.34					0.47	0.15	0.87	0.41		
Uniform Delay, d1	39.1	39.1	0.0					29.1	0.0	26.4	8.2		
Progression Factor	1.00	1.00	1.00					1.00	1.00	1.13	1.51		
Incremental Delay, d2	43.3	45.9	0.6					0.3	0.2	8.1	0.1		
Delay (s)	82.3	85.0	0.6					29.4	0.2	38.1	12.5		
Level of Service	F	F	A					C	A	D	B		
Approach Delay (s)		34.7			0.0			20.9			21.8		
Approach LOS		C			A			C			C		
Intersection Summary													
HCM 2000 Control Delay			25.2									HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.87										
Actuated Cycle Length (s)			90.0									Sum of lost time (s)	31.0
Intersection Capacity Utilization			60.5%									ICU Level of Service	B
Analysis Period (min)			15										
c Critical Lane Group													

HCM Signalized Intersection Capacity Analysis

6: SR 2004 (River Street) & Ramp BB/Ramp DD & SR 2024 (Maffett Street)

06/11/2018



Movement	WBL	WBR	WBR2	NBL	NBT	NBR	SBT	SBR	SWL	SWR
Lane Configurations										
Traffic Volume (vph)	289	52	173	120	326	344	691	282	263	22
Future Volume (vph)	289	52	173	120	326	344	691	282	263	22
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width	11	11	11	11	12	12	12	12	12	12
Grade (%)					0%		2%		0%	
Total Lost time (s)	6.0	6.0	4.0	6.0	6.0		6.0	6.0	7.0	
Lane Util. Factor	0.97	0.88	1.00	1.00	0.95		0.95	1.00	1.00	
Frt	1.00	0.85	0.85	1.00	0.92		1.00	0.85	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		1.00	1.00	0.96	
Satd. Flow (prot)	3113	2408	1273	1621	3065		3319	1471	1595	
Flt Permitted	0.95	1.00	1.00	0.27	1.00		1.00	1.00	0.96	
Satd. Flow (perm)	3113	2408	1273	461	3065		3319	1471	1595	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	321	58	192	133	362	382	768	313	292	24
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	321	58	192	133	744	0	768	313	316	0
Heavy Vehicles (%)	2%	7%	15%	2%	3%	3%	2%	3%	7%	4%
Turn Type	Perm	Perm	Free	custom	NA		NA	Perm	Prot	
Protected Phases				1	1 3 6		2 3		8	
Permitted Phases	7	7	Free	3 6				2 3		
Actuated Green, G (s)	9.0	9.0	90.0	34.0	34.0		33.0	33.0	19.0	
Effective Green, g (s)	9.0	9.0	90.0	34.0	34.0		33.0	33.0	19.0	
Actuated g/C Ratio	0.10	0.10	1.00	0.38	0.38		0.37	0.37	0.21	
Clearance Time (s)	6.0	6.0		6.0					7.0	
Vehicle Extension (s)	3.0	3.0		2.0					3.0	
Lane Grp Cap (vph)	311	240	1273	225	1157		1216	539	336	
v/s Ratio Prot				0.03	c0.24		c0.23		c0.20	
v/s Ratio Perm	c0.10	0.02	c0.15	0.20				0.21		
v/c Ratio	1.03	0.24	0.15	0.59	0.64		0.63	0.58	0.94	
Uniform Delay, d1	40.5	37.4	0.0	20.7	23.0		23.5	22.9	34.9	
Progression Factor	1.00	1.00	1.00	1.23	1.02		1.00	1.00	1.00	
Incremental Delay, d2	59.6	0.5	0.3	2.1	0.7		1.1	1.6	33.8	
Delay (s)	100.1	37.9	0.3	27.7	24.2		24.6	24.5	68.8	
Level of Service	F	D	A	C	C		C	C	E	
Approach Delay (s)					24.7		24.6		68.8	
Approach LOS					C		C		E	
Intersection Summary										
HCM 2000 Control Delay			36.7				HCM 2000 Level of Service		D	
HCM 2000 Volume to Capacity ratio			0.86							
Actuated Cycle Length (s)			90.0				Sum of lost time (s)		31.0	
Intersection Capacity Utilization			71.8%				ICU Level of Service		C	
Analysis Period (min)			15							
c Critical Lane Group										

HCM Signalized Intersection Capacity Analysis

9: SR 2024 (Maffett Street) & SR 2022 (Main Street) & Abbott Street

06/11/2018



Movement	WBL2	WBL	WBR	NBT	NBR	NBR2	SBL2	SBL	SBT	NWL	NWR	NWR2
Lane Configurations		W		T				T	T	W		
Traffic Volume (vph)	3	55	38	200	69	6	70	370	279	0	100	22
Future Volume (vph)	3	55	38	200	69	6	70	370	279	0	100	22
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width	14	14	14	16	16	16	10	10	10	14	14	14
Grade (%)		5%		3%					1%	0%		
Total Lost time (s)		5.0		5.0				5.0	5.0	5.0		
Lane Util. Factor		1.00		1.00				1.00	1.00	1.00		
Frbp, ped/bikes		1.00		0.99				1.00	1.00	0.97		
Flpb, ped/bikes		1.00		1.00				1.00	1.00	1.00		
Frt		0.95		0.96				1.00	1.00	0.86		
Flt Protected		0.97		1.00				0.95	1.00	1.00		
Satd. Flow (prot)		1720		1833				1544	1623	1555		
Flt Permitted		0.97		1.00				0.56	1.00	1.00		
Satd. Flow (perm)		1720		1833				907	1623	1555		
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	3	61	42	222	77	7	78	411	310	0	111	24
RTOR Reduction (vph)	0	63	0	1	0	0	0	0	0	62	0	0
Lane Group Flow (vph)	0	43	0	305	0	0	0	489	310	73	0	0
Confl. Peds. (#/hr)					2		2					2
Heavy Vehicles (%)	0%	0%	0%	6%	2%	0%	0%	3%	3%	0%	5%	0%
Turn Type	Prot	Prot		NA			Perm	Perm	NA	Prot		
Protected Phases	8	8		2					6	4		
Permitted Phases							6	6				
Actuated Green, G (s)		8.0		61.8				61.8	61.8	9.8		
Effective Green, g (s)		8.0		61.8				61.8	61.8	9.8		
Actuated g/C Ratio		0.08		0.65				0.65	0.65	0.10		
Clearance Time (s)		5.0		5.0				5.0	5.0	5.0		
Vehicle Extension (s)		3.0		3.0				3.0	3.0	3.0		
Lane Grp Cap (vph)		145		1197				592	1060	161		
v/s Ratio Prot		c0.02		0.17					0.19	c0.05		
v/s Ratio Perm								c0.54				
v/c Ratio		0.30		0.26				0.83	0.29	0.45		
Uniform Delay, d1		40.7		6.8				12.4	7.0	39.9		
Progression Factor		1.00		1.00				1.00	1.00	1.00		
Incremental Delay, d2		1.1		0.1				9.2	0.2	2.0		
Delay (s)		41.8		6.9				21.5	7.2	41.9		
Level of Service		D		A				C	A	D		
Approach Delay (s)		41.8		6.9					16.0	41.9		
Approach LOS		D		A					B	D		

Intersection Summary

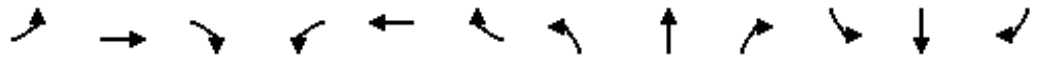
HCM 2000 Control Delay	18.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	94.6	Sum of lost time (s)	15.0
Intersection Capacity Utilization	72.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

1: SR 2004 (River Street) & Courtright Avenue

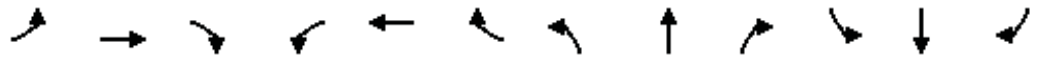
06/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↕			↕		↕	↕			↕		
Traffic Volume (vph)	76	17	11	14	11	31	7	879	22	14	655	22	
Future Volume (vph)	76	17	11	14	11	31	7	879	22	14	655	22	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	
Lane Width	16	16	16	14	14	14	14	14	14	14	14	14	
Grade (%)		-1%			-2%			-2%			-1%		
Total Lost time (s)		4.5			4.5		5.0	4.5			4.5		
Lane Util. Factor		1.00			1.00		1.00	1.00			1.00		
Frt		0.99			0.92		1.00	1.00			1.00		
Flt Protected		0.96			0.99		0.95	1.00			1.00		
Satd. Flow (prot)		1935			1770		1842	1914			1902		
Flt Permitted		0.77			0.93		0.40	1.00			0.98		
Satd. Flow (perm)		1554			1660		784	1914			1867		
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	
Adj. Flow (vph)	78	17	11	14	11	32	7	897	22	14	668	22	
RTOR Reduction (vph)	0	7	0	0	28	0	0	1	0	0	1	0	
Lane Group Flow (vph)	0	99	0	0	29	0	7	918	0	0	703	0	
Heavy Vehicles (%)	1%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA		
Protected Phases		4			8			2			6		
Permitted Phases	4			8			2			6			
Actuated Green, G (s)		8.7			8.7		51.3	51.3			51.3		
Effective Green, g (s)		9.2			9.2		51.3	51.8			51.8		
Actuated g/C Ratio		0.13			0.13		0.73	0.74			0.74		
Clearance Time (s)		5.0			5.0		5.0	5.0			5.0		
Vehicle Extension (s)		3.0			3.0		3.0	3.0			3.0		
Lane Grp Cap (vph)		204			218		574	1416			1381		
v/s Ratio Prot								c0.48					
v/s Ratio Perm		c0.06			0.02		0.01				0.38		
v/c Ratio		0.49			0.13		0.01	0.65			0.51		
Uniform Delay, d1		28.2			26.9		2.5	4.5			3.8		
Progression Factor		1.00			1.00		1.00	1.00			1.29		
Incremental Delay, d2		1.8			0.3		0.0	2.3			1.2		
Delay (s)		30.0			27.2		2.6	6.9			6.1		
Level of Service		C			C		A	A			A		
Approach Delay (s)		30.0			27.2			6.8			6.1		
Approach LOS		C			C			A			A		
Intersection Summary													
HCM 2000 Control Delay			8.5									HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.62										
Actuated Cycle Length (s)			70.0									Sum of lost time (s)	9.0
Intersection Capacity Utilization			70.5%									ICU Level of Service	C
Analysis Period (min)			15										
c Critical Lane Group													

HCM Signalized Intersection Capacity Analysis
 5: SR 2004 (River Street) & Ramp AA/Ramp CC

06/11/2018

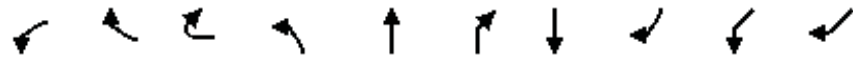


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↘	↙	↗					↑↑↑	↗	↘	↑↑		
Traffic Volume (vph)	365	2	184	0	0	0	0	863	328	410	593	0	
Future Volume (vph)	365	2	184	0	0	0	0	863	328	410	593	0	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	
Lane Width	10	10	10	14	14	14	11	12	12	11	12	12	
Grade (%)		-3%			0%			3%			-2%		
Total Lost time (s)	6.0	6.0	4.0					6.0	4.0	7.0	6.0		
Lane Util. Factor	0.95	0.95	1.00					0.91	1.00	1.00	0.95		
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00		
Flt Protected	0.95	0.95	1.00					1.00	1.00	0.95	1.00		
Satd. Flow (prot)	1524	1528	1435					4792	1477	1605	3420		
Flt Permitted	0.95	0.95	1.00					1.00	1.00	0.95	1.00		
Satd. Flow (perm)	1524	1528	1435					4792	1477	1605	3420		
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	
Adj. Flow (vph)	380	2	192	0	0	0	0	899	342	427	618	0	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	190	192	192	0	0	0	0	899	342	427	618	0	
Heavy Vehicles (%)	1%	0%	1%	0%	0%	0%	0%	1%	2%	4%	1%	0%	
Turn Type	Split	NA	Free					NA	Free	Prot	NA		
Protected Phases	3	3						6 7		8 5	2 8 7 5		
Permitted Phases			Free						Free				
Actuated Green, G (s)	10.0	10.0	90.0					21.0	90.0	35.0	59.0		
Effective Green, g (s)	10.0	10.0	90.0					21.0	90.0	35.0	52.0		
Actuated g/C Ratio	0.11	0.11	1.00					0.23	1.00	0.39	0.58		
Clearance Time (s)	6.0	6.0											
Vehicle Extension (s)	3.0	3.0											
Lane Grp Cap (vph)	169	169	1435					1118	1477	624	1976		
v/s Ratio Prot	0.12	c0.13						c0.19		c0.27	0.18		
v/s Ratio Perm			0.13						c0.23				
v/c Ratio	1.12	1.14	0.13					0.80	0.23	0.68	0.31		
Uniform Delay, d1	40.0	40.0	0.0					32.6	0.0	22.9	9.8		
Progression Factor	1.00	1.00	1.00					1.00	1.00	1.00	2.30		
Incremental Delay, d2	106.5	110.5	0.2					4.3	0.4	2.1	0.1		
Delay (s)	146.5	150.5	0.2					36.8	0.4	24.9	22.6		
Level of Service	F	F	A					D	A	C	C		
Approach Delay (s)		98.9			0.0			26.8			23.6		
Approach LOS		F			A			C			C		
Intersection Summary													
HCM 2000 Control Delay			40.1									HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio			0.89										
Actuated Cycle Length (s)			90.0									Sum of lost time (s)	31.0
Intersection Capacity Utilization			67.3%									ICU Level of Service	C
Analysis Period (min)			15										
c Critical Lane Group													

HCM Signalized Intersection Capacity Analysis

6: SR 2004 (River Street) & Ramp BB/Ramp DD & SR 2024 (Maffett Street)

06/11/2018



Movement	WBL	WBR	WBR2	NBL	NBT	NBR	SBT	SBR	SWL	SWR
Lane Configurations										
Traffic Volume (vph)	176	286	177	339	518	386	500	295	299	91
Future Volume (vph)	176	286	177	339	518	386	500	295	299	91
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width	11	11	11	11	12	12	12	12	12	12
Grade (%)					0%		2%		0%	
Total Lost time (s)	6.0	6.0	4.0	6.0	6.0		6.0	6.0	7.0	
Lane Util. Factor	0.97	0.88	1.00	1.00	0.95		0.95	1.00	1.00	
Frt	1.00	0.85	0.85	1.00	0.94		1.00	0.85	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00		1.00	1.00	0.96	
Satd. Flow (prot)	3113	2551	1356	1637	3169		3319	1485	1646	
Flt Permitted	0.95	1.00	1.00	0.30	1.00		1.00	1.00	0.96	
Satd. Flow (perm)	3113	2551	1356	525	3169		3319	1485	1646	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	185	301	186	357	545	406	526	311	315	96
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	185	301	186	357	951	0	526	311	411	0
Heavy Vehicles (%)	2%	1%	8%	1%	1%	1%	2%	2%	2%	2%
Turn Type	Perm	Perm	Free	custom	NA		NA	Perm	Prot	
Protected Phases				1	1 3 6		2 3		8	
Permitted Phases	7	7	Free	3 6				2 3		
Actuated Green, G (s)	10.0	10.0	90.0	37.0	37.0		24.0	24.0	21.0	
Effective Green, g (s)	10.0	10.0	90.0	37.0	37.0		24.0	24.0	21.0	
Actuated g/C Ratio	0.11	0.11	1.00	0.41	0.41		0.27	0.27	0.23	
Clearance Time (s)	6.0	6.0		6.0					7.0	
Vehicle Extension (s)	3.0	3.0		2.0					3.0	
Lane Grp Cap (vph)	345	283	1356	339	1302		885	396	384	
v/s Ratio Prot				c0.12	0.30		0.16		c0.25	
v/s Ratio Perm	0.06	c0.12	0.14	c0.32				0.21		
v/c Ratio	0.54	1.06	0.14	1.05	0.73		0.59	0.79	1.07	
Uniform Delay, d1	37.8	40.0	0.0	23.7	22.3		28.8	30.6	34.5	
Progression Factor	1.00	1.00	1.00	1.69	1.06		1.00	1.00	1.00	
Incremental Delay, d2	1.6	71.3	0.2	47.6	0.8		1.1	9.8	65.9	
Delay (s)	39.4	111.3	0.2	87.5	24.6		29.8	40.5	100.4	
Level of Service	D	F	A	F	C		C	D	F	
Approach Delay (s)					41.8		33.8		100.4	
Approach LOS					D		C		F	
Intersection Summary										
HCM 2000 Control Delay			51.1		HCM 2000 Level of Service				D	
HCM 2000 Volume to Capacity ratio			1.22							
Actuated Cycle Length (s)			90.0		Sum of lost time (s)				31.0	
Intersection Capacity Utilization			82.2%		ICU Level of Service				E	
Analysis Period (min)			15							
c Critical Lane Group										

HCM Signalized Intersection Capacity Analysis

9: SR 2024 (Maffett Street) & SR 2022 (Main Street) & Abbott Street

06/11/2018



Movement	WBL2	WBL	WBR	NBT	NBR	NBR2	SBL2	SBL	SBT	NWL	NWR	NWR2	
Lane Configurations		W		T				T	T	W			
Traffic Volume (vph)	1	28	28	400	88	6	42	155	252	2	200	19	
Future Volume (vph)	1	28	28	400	88	6	42	155	252	2	200	19	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	
Lane Width	14	14	14	16	16	16	10	10	10	14	14	14	
Grade (%)		5%		3%					1%	0%			
Total Lost time (s)		5.0		5.0				5.0	5.0	5.0			
Lane Util. Factor		1.00		1.00				1.00	1.00	1.00			
Frbp, ped/bikes		1.00		1.00				1.00	1.00	0.98			
Flpb, ped/bikes		1.00		1.00				1.00	1.00	1.00			
Frt		0.93		0.97				1.00	1.00	0.87			
Flt Protected		0.98		1.00				0.95	1.00	1.00			
Satd. Flow (prot)		1640		1911				1586	1655	1608			
Flt Permitted		0.98		1.00				0.38	1.00	1.00			
Satd. Flow (perm)		1640		1911				642	1655	1608			
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	
Adj. Flow (vph)	1	30	30	426	94	6	45	165	268	2	213	20	
RTOR Reduction (vph)	0	58	0	0	0	0	0	0	0	71	0	0	
Lane Group Flow (vph)	0	3	0	526	0	0	0	210	268	164	0	0	
Confl. Peds. (#/hr)					2		2					2	
Heavy Vehicles (%)	0%	8%	0%	2%	0%	33%	0%	0%	1%	0%	1%	0%	
Turn Type	Prot	Prot		NA			Perm	Perm	NA	Prot			
Protected Phases	8	8		2					6	4			
Permitted Phases							6	6					
Actuated Green, G (s)		3.4		42.2				42.2	42.2	12.1			
Effective Green, g (s)		3.4		42.2				42.2	42.2	12.1			
Actuated g/C Ratio		0.05		0.58				0.58	0.58	0.17			
Clearance Time (s)		5.0		5.0				5.0	5.0	5.0			
Vehicle Extension (s)		3.0		3.0				3.0	3.0	3.0			
Lane Grp Cap (vph)		76		1109				372	960	267			
v/s Ratio Prot		c0.00		0.28					0.16	c0.10			
v/s Ratio Perm								c0.33					
v/c Ratio		0.04		0.47				0.56	0.28	0.61			
Uniform Delay, d1		33.1		8.8				9.5	7.6	28.1			
Progression Factor		1.00		1.00				1.00	1.00	1.00			
Incremental Delay, d2		0.2		0.3				2.0	0.2	4.2			
Delay (s)		33.3		9.1				11.5	7.8	32.3			
Level of Service		C		A				B	A	C			
Approach Delay (s)		33.3		9.1					9.4	32.3			
Approach LOS		C		A					A	C			
Intersection Summary													
HCM 2000 Control Delay			14.6		HCM 2000 Level of Service					B			
HCM 2000 Volume to Capacity ratio			0.54										
Actuated Cycle Length (s)			72.7		Sum of lost time (s)					15.0			
Intersection Capacity Utilization			75.3%		ICU Level of Service					D			
Analysis Period (min)			15										

c Critical Lane Group

Appendix I

Queue Analysis

2017 Existing Conditions

Intersection: 1: SR 2004 (River Street) & Courtright Avenue

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	68	95	188	226
Average Queue (ft)	18	45	60	77
95th Queue (ft)	50	83	150	177
Link Distance (ft)	462	582	711	895
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: SR 2004 (River Street) & West Maple Street

Movement	WB	WB	NB	SB
Directions Served	L	R	T	T
Maximum Queue (ft)	85	88	258	217
Average Queue (ft)	36	42	88	86
95th Queue (ft)	72	70	202	179
Link Distance (ft)	423	423	895	675
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: SR 2004 (River Street) & Chestnut Street

Movement	SB
Directions Served	L
Maximum Queue (ft)	70
Average Queue (ft)	28
95th Queue (ft)	59
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	150
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 4: SR 2004 (River Street) & Waterfront Park Drive/Cross Valley Centre Drive

Movement	EB	EB	WB	WB	NB	NB	SB	SB	SB	B19	B10	B10
Directions Served	L	TR	L	TR	L	TR	L	T	R	T	T	T
Maximum Queue (ft)	85	62	33	30	77	219	67	382	100	16	327	222
Average Queue (ft)	28	23	5	3	28	51	15	115	14	1	93	12
95th Queue (ft)	66	49	23	16	59	137	43	285	59	11	314	91
Link Distance (ft)	190	190	175	175		775		1134		143	254	254
Upstream Blk Time (%)											3	0
Queuing Penalty (veh)											11	0
Storage Bay Dist (ft)					75		75		75			
Storage Blk Time (%)					0	2		6	0			
Queuing Penalty (veh)					2	1		10	0			

Intersection: 5: SR 2004 (River Street) & Ramp AA/Ramp CC

Movement	EB	EB	EB	NB	NB	NB	SB	SB	SB
Directions Served	L	LT	R	T	T	TR	L	T	T
Maximum Queue (ft)	175	1093	325	64	124	189	319	238	193
Average Queue (ft)	114	429	152	26	55	76	201	159	68
95th Queue (ft)	227	1002	419	58	99	143	305	230	170
Link Distance (ft)		1244		254	254	254	319	319	319
Upstream Blk Time (%)		3					0		
Queuing Penalty (veh)		0					2		
Storage Bay Dist (ft)	150		300						
Storage Blk Time (%)	0	59	0						
Queuing Penalty (veh)	1	350	1						

Queuing and Blocking Report
2017 Existing

05/24/2018

Intersection: 6: SR 2004 (River Street) & Ramp BB/Ramp DD & SR 2024 (Maffett Street)

Movement	WB	WB	WB	WB	NB	NB	NB	SB	SB	SB	B24	B30
Directions Served	L	L	R	>	L	T	TR	T	T	R	T	T
Maximum Queue (ft)	261	272	441	68	157	187	165	150	338	176	28	10
Average Queue (ft)	119	177	102	14	67	118	88	99	168	78	4	1
95th Queue (ft)	283	307	361	47	121	178	144	180	303	147	38	8
Link Distance (ft)			1657		319	319	319		301	301	69	528
Upstream Blk Time (%)									2		1	
Queuing Penalty (veh)									0		0	
Storage Bay Dist (ft)	250	250		250				125				
Storage Blk Time (%)	2	14	0					1	12			
Queuing Penalty (veh)	1	9	2					3	43			

Intersection: 6: SR 2004 (River Street) & Ramp BB/Ramp DD & SR 2024 (Maffett Street)

Movement	SW
Directions Served	LR
Maximum Queue (ft)	185
Average Queue (ft)	85
95th Queue (ft)	157
Link Distance (ft)	1079
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 7: SR 2024 (Maffett Street) & Haines Street

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	39	6
Average Queue (ft)	11	0
95th Queue (ft)	34	6
Link Distance (ft)	520	1079
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 8: SR 2024 (Maffett Street) & Mercer Street

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	31	42
Average Queue (ft)	9	2
95th Queue (ft)	33	20
Link Distance (ft)	681	290
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 9: SR 2024 (Maffett Street) & SR 2022 (Main Street) & Abbott Street

Movement	WB	NB	SB	NW
Directions Served	<LR	TR>	<LT	LR>
Maximum Queue (ft)	159	37	280	92
Average Queue (ft)	62	3	123	28
95th Queue (ft)	148	20	236	66
Link Distance (ft)	827	2946	520	856
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 435

Intersection: 1: SR 2004 (River Street) & Courtright Avenue

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	117	64	328	305
Average Queue (ft)	58	29	114	100
95th Queue (ft)	102	59	238	223
Link Distance (ft)	462	582	711	895
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: SR 2004 (River Street) & West Maple Street

Movement	WB	WB	NB	SB
Directions Served	L	R	T	T
Maximum Queue (ft)	88	165	295	188
Average Queue (ft)	36	68	137	69
95th Queue (ft)	72	126	270	161
Link Distance (ft)	423	423	895	675
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: SR 2004 (River Street) & Chestnut Street

Movement	NB	SB
Directions Served	TR	L
Maximum Queue (ft)	4	68
Average Queue (ft)	0	28
95th Queue (ft)	3	57
Link Distance (ft)	675	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		150
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: SR 2004 (River Street) & Waterfront Park Drive/Cross Valley Centre Drive

Movement	EB	EB	WB	WB	NB	NB	SB	SB	SB	B10	B10
Directions Served	L	TR	L	TR	L	TR	L	T	R	T	T
Maximum Queue (ft)	157	60	41	57	51	392	39	330	100	207	40
Average Queue (ft)	70	20	7	19	9	126	5	79	11	12	3
95th Queue (ft)	127	46	29	49	34	269	24	211	54	103	41
Link Distance (ft)	190	190	175	175		775		1134		254	254
Upstream Blk Time (%)	0									0	
Queuing Penalty (veh)	0									0	
Storage Bay Dist (ft)					75		75		75		
Storage Blk Time (%)						9		4	0		
Queuing Penalty (veh)						2		3	0		

Intersection: 5: SR 2004 (River Street) & Ramp AA/Ramp CC

Movement	EB	EB	EB	NB	NB	NB	B10	SB	SB	SB
Directions Served	L	LT	R	T	T	TR	T	L	T	T
Maximum Queue (ft)	175	1296	325	162	167	272	15	288	205	183
Average Queue (ft)	152	1120	284	73	88	141	1	188	140	48
95th Queue (ft)	236	1622	461	132	147	245	11	277	204	133
Link Distance (ft)		1244		254	254	254	143	319	319	319
Upstream Blk Time (%)		74				1		1		
Queuing Penalty (veh)		0				3		1		
Storage Bay Dist (ft)	150		300							
Storage Blk Time (%)	2	87	0							
Queuing Penalty (veh)	9	320	1							

Intersection: 6: SR 2004 (River Street) & Ramp BB/Ramp DD & SR 2024 (Maffett Street)

Movement	WB	WB	WB	WB	NB	NB	NB	SB	SB	SB	SW
Directions Served	L	L	R	>	L	T	TR	T	T	R	LR
Maximum Queue (ft)	95	275	1324	275	328	234	231	150	304	255	556
Average Queue (ft)	30	200	979	165	236	163	133	92	131	128	351
95th Queue (ft)	72	376	2040	347	367	232	209	169	249	226	599
Link Distance (ft)			1657		319	319	319		301	301	1079
Upstream Blk Time (%)			29		10				0	0	
Queuing Penalty (veh)			0		38				0	0	
Storage Bay Dist (ft)	250	250		250				125			
Storage Blk Time (%)		0	52	0				2	9		
Queuing Penalty (veh)		0	139	1				5	22		

Intersection: 7: SR 2024 (Maffett Street) & Haines Street

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	42	32
Average Queue (ft)	12	2
95th Queue (ft)	36	19
Link Distance (ft)	520	1079
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 8: SR 2024 (Maffett Street) & Mercer Street

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	40	46
Average Queue (ft)	9	4
95th Queue (ft)	33	23
Link Distance (ft)	681	290
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 9: SR 2024 (Maffett Street) & SR 2022 (Main Street) & Abbott Street

Movement	WB	NB	SB	NW
Directions Served	<LR	TR>	<LT	LR>
Maximum Queue (ft)	125	27	182	148
Average Queue (ft)	36	2	75	60
95th Queue (ft)	86	14	143	125
Link Distance (ft)	827	2946	520	856
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 543

2021 Without Development

Intersection: 1: SR 2004 (River Street) & Courtright Avenue

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	68	95	188	226
Average Queue (ft)	18	45	60	77
95th Queue (ft)	50	83	150	177
Link Distance (ft)	462	582	711	895
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: SR 2004 (River Street) & West Maple Street

Movement	WB	WB	NB	SB
Directions Served	L	R	T	T
Maximum Queue (ft)	85	88	258	217
Average Queue (ft)	36	42	88	86
95th Queue (ft)	72	70	202	179
Link Distance (ft)	423	423	895	675
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: SR 2004 (River Street) & Chestnut Street

Movement	SB
Directions Served	L
Maximum Queue (ft)	70
Average Queue (ft)	28
95th Queue (ft)	59
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	150
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 4: SR 2004 (River Street) & Waterfront Park Drive/Cross Valley Centre Drive

Movement	EB	EB	WB	WB	NB	NB	SB	SB	SB	B19	B10	B10
Directions Served	L	TR	L	TR	L	TR	L	T	R	T	T	T
Maximum Queue (ft)	85	62	33	30	77	219	67	382	100	16	327	222
Average Queue (ft)	28	23	5	3	28	51	15	115	14	1	93	12
95th Queue (ft)	66	49	23	16	59	137	43	285	59	11	314	91
Link Distance (ft)	190	190	175	175		775		1134		143	254	254
Upstream Blk Time (%)											3	0
Queuing Penalty (veh)											11	0
Storage Bay Dist (ft)					75		75		75			
Storage Blk Time (%)					0	2		6	0			
Queuing Penalty (veh)					2	1		10	0			

Intersection: 5: SR 2004 (River Street) & Ramp AA/Ramp CC

Movement	EB	EB	EB	NB	NB	NB	SB	SB	SB
Directions Served	L	LT	R	T	T	TR	L	T	T
Maximum Queue (ft)	175	1093	325	64	124	189	319	238	193
Average Queue (ft)	114	429	152	26	55	76	201	159	68
95th Queue (ft)	227	1002	419	58	99	143	305	230	170
Link Distance (ft)		1244		254	254	254	319	319	319
Upstream Blk Time (%)		3					0		
Queuing Penalty (veh)		0					2		
Storage Bay Dist (ft)	150		300						
Storage Blk Time (%)	0	59	0						
Queuing Penalty (veh)	1	350	1						

Queuing and Blocking Report
2021 without Development

05/24/2018

Intersection: 6: SR 2004 (River Street) & Ramp BB/Ramp DD & SR 2024 (Maffett Street)

Movement	WB	WB	WB	WB	NB	NB	NB	SB	SB	SB	B24	B30
Directions Served	L	L	R	>	L	T	TR	T	T	R	T	T
Maximum Queue (ft)	261	272	441	68	157	187	165	150	338	176	28	10
Average Queue (ft)	119	177	102	14	67	118	88	99	168	78	4	1
95th Queue (ft)	283	307	361	47	121	178	144	180	303	147	38	8
Link Distance (ft)			1657		319	319	319		301	301	69	528
Upstream Blk Time (%)									2		1	
Queuing Penalty (veh)									0		0	
Storage Bay Dist (ft)	250	250		250				125				
Storage Blk Time (%)	2	14	0					1	12			
Queuing Penalty (veh)	1	9	2					3	43			

Intersection: 6: SR 2004 (River Street) & Ramp BB/Ramp DD & SR 2024 (Maffett Street)

Movement	SW
Directions Served	LR
Maximum Queue (ft)	185
Average Queue (ft)	85
95th Queue (ft)	157
Link Distance (ft)	1079
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 7: SR 2024 (Maffett Street) & Haines Street

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	39	6
Average Queue (ft)	11	0
95th Queue (ft)	34	6
Link Distance (ft)	520	1079
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 8: SR 2024 (Maffett Street) & Mercer Street

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	31	42
Average Queue (ft)	9	2
95th Queue (ft)	33	20
Link Distance (ft)	681	290
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 9: SR 2024 (Maffett Street) & SR 2022 (Main Street) & Abbott Street

Movement	WB	NB	SB	NW
Directions Served	<LR	TR>	<LT	LR>
Maximum Queue (ft)	159	37	280	92
Average Queue (ft)	62	3	123	28
95th Queue (ft)	148	20	236	66
Link Distance (ft)	827	2946	520	856
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 435

Intersection: 1: SR 2004 (River Street) & Courtright Avenue

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	117	64	328	305
Average Queue (ft)	58	29	114	100
95th Queue (ft)	102	59	238	223
Link Distance (ft)	462	582	711	895
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: SR 2004 (River Street) & West Maple Street

Movement	WB	WB	NB	SB
Directions Served	L	R	T	T
Maximum Queue (ft)	88	165	295	188
Average Queue (ft)	36	68	137	69
95th Queue (ft)	72	126	270	161
Link Distance (ft)	423	423	895	675
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: SR 2004 (River Street) & Chestnut Street

Movement	NB	SB
Directions Served	TR	L
Maximum Queue (ft)	4	68
Average Queue (ft)	0	28
95th Queue (ft)	3	57
Link Distance (ft)	675	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		150
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: SR 2004 (River Street) & Waterfront Park Drive/Cross Valley Centre Drive

Movement	EB	EB	WB	WB	NB	NB	SB	SB	SB	B10	B10
Directions Served	L	TR	L	TR	L	TR	L	T	R	T	T
Maximum Queue (ft)	157	60	41	57	51	392	39	330	100	207	40
Average Queue (ft)	70	20	7	19	9	126	5	79	11	12	3
95th Queue (ft)	127	46	29	49	34	269	24	211	54	103	41
Link Distance (ft)	190	190	175	175		775		1134		254	254
Upstream Blk Time (%)	0									0	
Queuing Penalty (veh)	0									0	
Storage Bay Dist (ft)					75		75		75		
Storage Blk Time (%)						9		4	0		
Queuing Penalty (veh)						2		3	0		

Intersection: 5: SR 2004 (River Street) & Ramp AA/Ramp CC

Movement	EB	EB	EB	NB	NB	NB	B10	SB	SB	SB
Directions Served	L	LT	R	T	T	TR	T	L	T	T
Maximum Queue (ft)	175	1296	325	162	167	272	15	288	205	183
Average Queue (ft)	152	1120	284	73	88	141	1	188	140	48
95th Queue (ft)	236	1622	461	132	147	245	11	277	204	133
Link Distance (ft)		1244		254	254	254	143	319	319	319
Upstream Blk Time (%)		74				1		1		
Queuing Penalty (veh)		0				3		1		
Storage Bay Dist (ft)	150		300							
Storage Blk Time (%)	2	87	0							
Queuing Penalty (veh)	9	320	1							

Intersection: 6: SR 2004 (River Street) & Ramp BB/Ramp DD & SR 2024 (Maffett Street)

Movement	WB	WB	WB	WB	NB	NB	NB	SB	SB	SB	SW
Directions Served	L	L	R	>	L	T	TR	T	T	R	LR
Maximum Queue (ft)	95	275	1324	275	328	234	231	150	304	255	556
Average Queue (ft)	30	200	979	165	236	163	133	92	131	128	351
95th Queue (ft)	72	376	2040	347	367	232	209	169	249	226	599
Link Distance (ft)			1657		319	319	319		301	301	1079
Upstream Blk Time (%)			29		10				0	0	
Queuing Penalty (veh)			0		38				0	0	
Storage Bay Dist (ft)	250	250		250				125			
Storage Blk Time (%)		0	52	0				2	9		
Queuing Penalty (veh)		0	139	1				5	22		

Intersection: 7: SR 2024 (Maffett Street) & Haines Street

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	42	32
Average Queue (ft)	12	2
95th Queue (ft)	36	19
Link Distance (ft)	520	1079
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 8: SR 2024 (Maffett Street) & Mercer Street

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	40	46
Average Queue (ft)	9	4
95th Queue (ft)	33	23
Link Distance (ft)	681	290
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 9: SR 2024 (Maffett Street) & SR 2022 (Main Street) & Abbott Street

Movement	WB	NB	SB	NW
Directions Served	<LR	TR>	<LT	LR>
Maximum Queue (ft)	125	27	182	148
Average Queue (ft)	36	2	75	60
95th Queue (ft)	86	14	143	125
Link Distance (ft)	827	2946	520	856
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 543

2021 With Development

Intersection: 1: SR 2004 (River Street) & Courtright Avenue

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	66	110	255	252
Average Queue (ft)	22	46	83	89
95th Queue (ft)	56	88	189	189
Link Distance (ft)	462	582	711	895
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: SR 2004 (River Street) & West Maple Street

Movement	WB	WB	NB	SB
Directions Served	L	R	T	T
Maximum Queue (ft)	93	90	310	201
Average Queue (ft)	35	44	117	83
95th Queue (ft)	77	76	250	171
Link Distance (ft)	423	423	895	675
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: SR 2004 (River Street) & Chestnut Street

Movement	SB
Directions Served	L
Maximum Queue (ft)	75
Average Queue (ft)	31
95th Queue (ft)	62
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	150
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 4: SR 2004 (River Street) & Waterfront Park Drive/Cross Valley Centre Drive

Movement	EB	EB	WB	WB	NB	NB	SB	SB	SB	B33	B33	B33
Directions Served	L	TR	L	TR	L	TR	L	T	R	T	T	
Maximum Queue (ft)	84	69	32	30	83	210	59	341	88	329	219	112
Average Queue (ft)	30	23	6	6	28	65	16	97	15	120	26	4
95th Queue (ft)	67	50	24	24	60	154	47	251	60	351	141	58
Link Distance (ft)	190	190	175	175		775		1134		254	254	254
Upstream Blk Time (%)										5	0	0
Queuing Penalty (veh)										21	0	0
Storage Bay Dist (ft)					75		75		75			
Storage Blk Time (%)					1	3		5	0			
Queuing Penalty (veh)					8	2		9	0			

Intersection: 5: SR 2004 (River Street) & Ramp AA/Ramp CC

Movement	EB	EB	EB	NB	NB	NB	B33	SB	SB	SB
Directions Served	L	LT	R	T	T	TR	T	L	T	T
Maximum Queue (ft)	175	1295	325	84	199	299	21	324	222	185
Average Queue (ft)	113	1152	318	32	78	142	1	216	137	53
95th Queue (ft)	237	1515	394	67	150	251	15	318	217	149
Link Distance (ft)		1244		254	254	254	143	319	319	319
Upstream Blk Time (%)		61		0	2			1		
Queuing Penalty (veh)		0		0	6			3		
Storage Bay Dist (ft)	150		300							
Storage Blk Time (%)	0	90	1							
Queuing Penalty (veh)	0	534	2							

Intersection: 6: SR 2004 (River Street) & Ramp BB/Ramp DD & SR 2024 (Maffett Street)

Movement	WB	WB	WB	WB	NB	NB	NB	SB	SB	SB	B24	B30
Directions Served	L	L	R	>	L	T	TR	T	T	R	T	T
Maximum Queue (ft)	262	274	933	238	131	176	210	150	364	216	43	30
Average Queue (ft)	178	214	406	91	62	103	138	102	174	92	3	1
95th Queue (ft)	336	333	1252	180	110	159	198	180	309	175	29	22
Link Distance (ft)			1657		319	319	319		301	301	69	528
Upstream Blk Time (%)			2						1		0	
Queuing Penalty (veh)			0						0		0	
Storage Bay Dist (ft)	250	250		250				125				
Storage Blk Time (%)	2	35	0	0				1	14			
Queuing Penalty (veh)	3	57	2	0				5	48			

Intersection: 6: SR 2004 (River Street) & Ramp BB/Ramp DD & SR 2024 (Maffett Street)

Movement	SW
Directions Served	LR
Maximum Queue (ft)	302
Average Queue (ft)	169
95th Queue (ft)	276
Link Distance (ft)	1079
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 7: SR 2024 (Maffett Street) & Haines Street

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	30	17
Average Queue (ft)	11	1
95th Queue (ft)	34	10
Link Distance (ft)	520	1079
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 8: SR 2024 (Maffett Street) & Mercer Street

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	35	39
Average Queue (ft)	10	2
95th Queue (ft)	34	17
Link Distance (ft)	675	297
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 9: SR 2024 (Maffett Street) & SR 2022 (Main Street) & Abbott Street

Movement	WB	NB	SB	NW
Directions Served	<LR	TR>	<LT	LR>
Maximum Queue (ft)	793	44	420	97
Average Queue (ft)	558	5	169	25
95th Queue (ft)	935	27	334	68
Link Distance (ft)	820	2274	518	2958
Upstream Blk Time (%)	19		0	
Queuing Penalty (veh)	0		0	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 10: SR 2024 (Maffett Street) & Driveway

Movement	WB	NB	SB
Directions Served	LR	R	L
Maximum Queue (ft)	115	39	83
Average Queue (ft)	54	3	30
95th Queue (ft)	92	17	65
Link Distance (ft)	444		
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		350	150
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 11: SR 2022 (Main Street) & Driveway

Movement	EB	NB
Directions Served	LR	L
Maximum Queue (ft)	73	72
Average Queue (ft)	35	30
95th Queue (ft)	61	60
Link Distance (ft)	519	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		325
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 700

Intersection: 1: SR 2004 (River Street) & Courtright Avenue

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	134	73	415	381
Average Queue (ft)	58	32	144	150
95th Queue (ft)	107	61	289	296
Link Distance (ft)	462	582	711	895
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: SR 2004 (River Street) & West Maple Street

Movement	WB	WB	NB	SB
Directions Served	L	R	T	T
Maximum Queue (ft)	89	153	362	227
Average Queue (ft)	36	68	135	90
95th Queue (ft)	71	122	269	190
Link Distance (ft)	423	423	895	675
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: SR 2004 (River Street) & Chestnut Street

Movement	NB	SB
Directions Served	TR	L
Maximum Queue (ft)	4	94
Average Queue (ft)	0	35
95th Queue (ft)	3	77
Link Distance (ft)	675	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		150
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: SR 2004 (River Street) & Waterfront Park Drive/Cross Valley Centre Drive

Movement	EB	EB	WB	WB	NB	NB	SB	SB	SB	B33	B33
Directions Served	L	TR	L	TR	L	TR	L	T	R	T	T
Maximum Queue (ft)	154	54	37	60	85	356	55	340	84	323	143
Average Queue (ft)	73	19	9	19	15	154	5	90	8	32	8
95th Queue (ft)	135	45	31	49	53	292	29	258	47	182	81
Link Distance (ft)	190	190	175	175		775		1134		254	254
Upstream Blk Time (%)	0									1	0
Queuing Penalty (veh)	0									2	0
Storage Bay Dist (ft)					75		75		75		
Storage Blk Time (%)					0	11		5	0		
Queuing Penalty (veh)					0	3		3	0		

Intersection: 5: SR 2004 (River Street) & Ramp AA/Ramp CC

Movement	EB	EB	EB	NB	NB	NB	B33	B33	SB	SB	SB
Directions Served	L	LT	R	T	T	TR	T	T	L	T	T
Maximum Queue (ft)	174	1294	325	239	260	321	11	96	314	237	214
Average Queue (ft)	145	1201	298	118	124	230	1	10	214	160	81
95th Queue (ft)	227	1441	445	236	222	343	8	59	318	228	193
Link Distance (ft)		1244		254	254	254	143	143	319	319	319
Upstream Blk Time (%)		74		1	0	8		0	1		
Queuing Penalty (veh)		0		6	1	33		0	5		
Storage Bay Dist (ft)	150		300								
Storage Blk Time (%)	17	76	0								
Queuing Penalty (veh)	60	280	1								

Intersection: 6: SR 2004 (River Street) & Ramp BB/Ramp DD & SR 2024 (Maffett Street)

Movement	WB	WB	WB	WB	NB	NB	NB	SB	SB	SB	B24	B24
Directions Served	L	L	R	>	L	T	TR	T	T	R	T	T
Maximum Queue (ft)	125	275	1343	275	337	276	277	150	358	352	84	55
Average Queue (ft)	38	196	856	214	259	174	183	113	223	201	10	5
95th Queue (ft)	94	362	1646	358	387	255	252	186	366	345	64	36
Link Distance (ft)			1657		319	319	319		301	301	69	69
Upstream Blk Time (%)			10		25		0		6	5	2	0
Queuing Penalty (veh)			0		101		0		0	0	0	0
Storage Bay Dist (ft)	250	250		250				125				
Storage Blk Time (%)		0	54	1				6	23			
Queuing Penalty (veh)		0	170	5				15	57			

Intersection: 6: SR 2004 (River Street) & Ramp BB/Ramp DD & SR 2024 (Maffett Street)

Movement	B30	SW
Directions Served	T	LR
Maximum Queue (ft)	157	934
Average Queue (ft)	9	593
95th Queue (ft)	91	1038
Link Distance (ft)	528	1079
Upstream Blk Time (%)		6
Queuing Penalty (veh)		22
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 7: SR 2024 (Maffett Street) & Haines Street

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	54	98	179
Average Queue (ft)	15	10	28
95th Queue (ft)	44	54	156
Link Distance (ft)	520	1079	297
Upstream Blk Time (%)			2
Queuing Penalty (veh)			6
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 8: SR 2024 (Maffett Street) & Mercer Street

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	40	94	88
Average Queue (ft)	9	7	8
95th Queue (ft)	33	45	79
Link Distance (ft)	675	297	624
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 9: SR 2024 (Maffett Street) & SR 2022 (Main Street) & Abbott Street

Movement	WB	NB	SB	NW
Directions Served	<LR	TR>	<LT	LR>
Maximum Queue (ft)	165	54	242	355
Average Queue (ft)	69	5	103	177
95th Queue (ft)	179	28	198	469
Link Distance (ft)	820	2274	518	2958
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 10: SR 2024 (Maffett Street) & Driveway

Movement	WB	NB	SB
Directions Served	LR	T	L
Maximum Queue (ft)	140	5	49
Average Queue (ft)	67	0	15
95th Queue (ft)	114	4	43
Link Distance (ft)	444	624	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			150
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 11: SR 2022 (Main Street) & Driveway

Movement	EB	NB
Directions Served	LR	L
Maximum Queue (ft)	73	47
Average Queue (ft)	36	13
95th Queue (ft)	62	40
Link Distance (ft)	519	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		325
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 771

2021 With Improvements

Intersection: 1: SR 2004 (River Street) & Courtright Avenue

Movement	EB	WB	NB	NB	SB
Directions Served	LTR	LTR	L	TR	LTR
Maximum Queue (ft)	59	101	41	188	248
Average Queue (ft)	18	43	5	70	95
95th Queue (ft)	49	80	24	148	196
Link Distance (ft)	455	575		710	896
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			75		
Storage Blk Time (%)			0	4	
Queuing Penalty (veh)			0	0	

Intersection: 5: SR 2004 (River Street) & Ramp AA/Ramp CC

Movement	EB	EB	EB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	LT	R	T	T	T	R	L	T	T
Maximum Queue (ft)	174	1101	325	97	148	152	124	336	280	290
Average Queue (ft)	102	766	237	34	71	82	31	233	169	88
95th Queue (ft)	223	1455	475	77	126	141	94	343	257	220
Link Distance (ft)		1244		254	254	254	254	319	319	319
Upstream Blk Time (%)		15						2	0	0
Queuing Penalty (veh)		0						7	0	0
Storage Bay Dist (ft)	150		300							
Storage Blk Time (%)	0	73	1							
Queuing Penalty (veh)	0	435	2							

Queuing and Blocking Report
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Intersection: 6: SR 2004 (River Street) & Ramp BB/Ramp DD & SR 2024 (Maffett Street)

Movement	WB	WB	WB	WB	WB	NB	NB	NB	SB	SB	SB	B24
Directions Served	L	L	R	R	>	L	T	TR	T	T	R	T
Maximum Queue (ft)	356	365	531	455	29	168	190	220	150	356	219	56
Average Queue (ft)	254	295	264	110	1	67	114	141	107	196	96	6
95th Queue (ft)	513	511	769	518	21	127	171	205	186	345	179	49
Link Distance (ft)			1667			319	319	319		301	301	69
Upstream Blk Time (%)										3		1
Queuing Penalty (veh)										0		0
Storage Bay Dist (ft)	400	400		750	750				125			
Storage Blk Time (%)	3	29	2	0					3	16		
Queuing Penalty (veh)	5	47	9	0					10	58		

Intersection: 6: SR 2004 (River Street) & Ramp BB/Ramp DD & SR 2024 (Maffett Street)

Movement	B30	SW
Directions Served	T	LR
Maximum Queue (ft)	63	342
Average Queue (ft)	3	193
95th Queue (ft)	40	346
Link Distance (ft)	528	1078
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 9: SR 2024 (Maffett Street) & SR 2022 (Main Street) & Abbott Street

Movement	WB	NB	SB	SB	NW
Directions Served	<LR	TR>	<L	T	LR>
Maximum Queue (ft)	150	201	274	546	174
Average Queue (ft)	57	80	196	167	61
95th Queue (ft)	111	159	302	447	136
Link Distance (ft)	820	2274		518	2958
Upstream Blk Time (%)				4	
Queuing Penalty (veh)				0	
Storage Bay Dist (ft)			250		
Storage Blk Time (%)			13	0	
Queuing Penalty (veh)			38	1	

Zone Summary

Zone wide Queuing Penalty: 612

Intersection: 1: SR 2004 (River Street) & Courtright Avenue

Movement	EB	WB	NB	NB	SB
Directions Served	LTR	LTR	L	TR	LTR
Maximum Queue (ft)	117	77	71	309	581
Average Queue (ft)	57	28	8	123	169
95th Queue (ft)	100	60	41	236	424
Link Distance (ft)	455	575		710	896
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			75		
Storage Blk Time (%)				10	
Queuing Penalty (veh)				1	

Intersection: 5: SR 2004 (River Street) & Ramp AA/Ramp CC

Movement	EB	EB	EB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	LT	R	T	T	T	R	L	T	T
Maximum Queue (ft)	175	1283	325	203	194	205	185	266	212	174
Average Queue (ft)	151	1100	289	96	108	108	56	157	147	51
95th Queue (ft)	231	1581	456	166	167	177	141	248	208	136
Link Distance (ft)		1244		254	254	254	254	319	319	319
Upstream Blk Time (%)		64						0		
Queuing Penalty (veh)		0						0		
Storage Bay Dist (ft)	150		300							
Storage Blk Time (%)	6	84	0							
Queuing Penalty (veh)	21	309	1							

Queuing and Blocking Report
2021 with Improvement

06/11/2018

Intersection: 6: SR 2004 (River Street) & Ramp BB/Ramp DD & SR 2024 (Maffett Street)

Movement	WB	WB	WB	WB	WB	NB	NB	NB	SB	SB	SB	B24
Directions Served	L	L	R	R	>	L	T	TR	T	T	R	T
Maximum Queue (ft)	129	425	1722	775	761	326	218	216	150	322	282	44
Average Queue (ft)	31	366	1476	726	113	217	145	136	91	145	128	2
95th Queue (ft)	88	595	2152	928	554	350	202	199	168	272	242	23
Link Distance (ft)			1667			319	319	319		301	301	69
Upstream Blk Time (%)			69			7				1	1	0
Queuing Penalty (veh)			0			27				0	0	0
Storage Bay Dist (ft)	400	400		750	750				125			
Storage Blk Time (%)		0	93	11	0				2	12		
Queuing Penalty (veh)		1	428	35	1				6	29		

Intersection: 6: SR 2004 (River Street) & Ramp BB/Ramp DD & SR 2024 (Maffett Street)

Movement	B24	B30	SW
Directions Served	T	T	LR
Maximum Queue (ft)	8	4	793
Average Queue (ft)	0	0	545
95th Queue (ft)	6	3	1055
Link Distance (ft)	69	528	1078
Upstream Blk Time (%)			4
Queuing Penalty (veh)			14
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 9: SR 2024 (Maffett Street) & SR 2022 (Main Street) & Abbott Street

Movement	WB	NB	SB	SB	NW
Directions Served	<LR	TR>	<L	T	LR>
Maximum Queue (ft)	80	273	228	194	165
Average Queue (ft)	34	125	103	70	72
95th Queue (ft)	70	222	182	140	143
Link Distance (ft)	820	2274		518	2958
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			250		
Storage Blk Time (%)			1		
Queuing Penalty (veh)			2		

Zone Summary

Zone wide Queuing Penalty: 875

2022 Without Development

Intersection: 1: SR 2004 (River Street) & Courtright Avenue

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	68	95	188	226
Average Queue (ft)	18	45	60	77
95th Queue (ft)	50	83	150	177
Link Distance (ft)	462	582	711	895
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: SR 2004 (River Street) & West Maple Street

Movement	WB	WB	NB	SB
Directions Served	L	R	T	T
Maximum Queue (ft)	85	88	258	217
Average Queue (ft)	36	42	88	86
95th Queue (ft)	72	70	202	179
Link Distance (ft)	423	423	895	675
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: SR 2004 (River Street) & Chestnut Street

Movement	SB
Directions Served	L
Maximum Queue (ft)	70
Average Queue (ft)	28
95th Queue (ft)	59
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	150
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 4: SR 2004 (River Street) & Waterfront Park Drive/Cross Valley Centre Drive

Movement	EB	EB	WB	WB	NB	NB	SB	SB	SB	B19	B10	B10
Directions Served	L	TR	L	TR	L	TR	L	T	R	T	T	T
Maximum Queue (ft)	85	62	33	30	77	219	67	382	100	16	327	222
Average Queue (ft)	28	23	5	3	28	51	15	115	14	1	93	12
95th Queue (ft)	66	49	23	16	59	137	43	285	59	11	314	91
Link Distance (ft)	190	190	175	175		775		1134		143	254	254
Upstream Blk Time (%)											3	0
Queuing Penalty (veh)											11	0
Storage Bay Dist (ft)					75		75		75			
Storage Blk Time (%)					0	2		6	0			
Queuing Penalty (veh)					2	1		10	0			

Intersection: 5: SR 2004 (River Street) & Ramp AA/Ramp CC

Movement	EB	EB	EB	NB	NB	NB	SB	SB	SB
Directions Served	L	LT	R	T	T	TR	L	T	T
Maximum Queue (ft)	175	1093	325	64	124	189	319	238	193
Average Queue (ft)	114	429	152	26	55	76	201	159	68
95th Queue (ft)	227	1002	419	58	99	143	305	230	170
Link Distance (ft)		1244		254	254	254	319	319	319
Upstream Blk Time (%)		3					0		
Queuing Penalty (veh)		0					2		
Storage Bay Dist (ft)	150		300						
Storage Blk Time (%)	0	59	0						
Queuing Penalty (veh)	1	350	1						

Intersection: 6: SR 2004 (River Street) & Ramp BB/Ramp DD & SR 2024 (Maffett Street)

Movement	WB	WB	WB	WB	NB	NB	NB	SB	SB	SB	B24	B30
Directions Served	L	L	R	>	L	T	TR	T	T	R	T	T
Maximum Queue (ft)	261	272	441	68	157	187	165	150	338	176	28	10
Average Queue (ft)	119	177	102	14	67	118	88	99	168	78	4	1
95th Queue (ft)	283	307	361	47	121	178	144	180	303	147	38	8
Link Distance (ft)			1657		319	319	319		301	301	69	528
Upstream Blk Time (%)									2		1	
Queuing Penalty (veh)									0		0	
Storage Bay Dist (ft)	250	250		250				125				
Storage Blk Time (%)	2	14	0					1	12			
Queuing Penalty (veh)	1	9	2					3	43			

Intersection: 6: SR 2004 (River Street) & Ramp BB/Ramp DD & SR 2024 (Maffett Street)

Movement	SW
Directions Served	LR
Maximum Queue (ft)	185
Average Queue (ft)	85
95th Queue (ft)	157
Link Distance (ft)	1079
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 7: SR 2024 (Maffett Street) & Haines Street

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	39	6
Average Queue (ft)	11	0
95th Queue (ft)	34	6
Link Distance (ft)	520	1079
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 8: SR 2024 (Maffett Street) & Mercer Street

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	31	42
Average Queue (ft)	9	2
95th Queue (ft)	33	20
Link Distance (ft)	681	290
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 9: SR 2024 (Maffett Street) & SR 2022 (Main Street) & Abbott Street

Movement	WB	NB	SB	NW
Directions Served	<LR	TR>	<LT	LR>
Maximum Queue (ft)	159	37	280	92
Average Queue (ft)	62	3	123	28
95th Queue (ft)	148	20	236	66
Link Distance (ft)	827	2946	520	856
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 435

Intersection: 1: SR 2004 (River Street) & Courtright Avenue

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	117	64	328	305
Average Queue (ft)	58	29	114	100
95th Queue (ft)	102	59	238	223
Link Distance (ft)	462	582	711	895
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: SR 2004 (River Street) & West Maple Street

Movement	WB	WB	NB	SB
Directions Served	L	R	T	T
Maximum Queue (ft)	88	165	295	188
Average Queue (ft)	36	68	137	69
95th Queue (ft)	72	126	270	161
Link Distance (ft)	423	423	895	675
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: SR 2004 (River Street) & Chestnut Street

Movement	NB	SB
Directions Served	TR	L
Maximum Queue (ft)	4	68
Average Queue (ft)	0	28
95th Queue (ft)	3	57
Link Distance (ft)	675	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		150
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: SR 2004 (River Street) & Waterfront Park Drive/Cross Valley Centre Drive

Movement	EB	EB	WB	WB	NB	NB	SB	SB	SB	B10	B10
Directions Served	L	TR	L	TR	L	TR	L	T	R	T	T
Maximum Queue (ft)	157	60	41	57	51	392	39	330	100	207	40
Average Queue (ft)	70	20	7	19	9	126	5	79	11	12	3
95th Queue (ft)	127	46	29	49	34	269	24	211	54	103	41
Link Distance (ft)	190	190	175	175		775		1134		254	254
Upstream Blk Time (%)	0									0	
Queuing Penalty (veh)	0									0	
Storage Bay Dist (ft)					75		75		75		
Storage Blk Time (%)						9		4	0		
Queuing Penalty (veh)						2		3	0		

Intersection: 5: SR 2004 (River Street) & Ramp AA/Ramp CC

Movement	EB	EB	EB	NB	NB	NB	B10	SB	SB	SB
Directions Served	L	LT	R	T	T	TR	T	L	T	T
Maximum Queue (ft)	175	1296	325	162	167	272	15	288	205	183
Average Queue (ft)	152	1120	284	73	88	141	1	188	140	48
95th Queue (ft)	236	1622	461	132	147	245	11	277	204	133
Link Distance (ft)		1244		254	254	254	143	319	319	319
Upstream Blk Time (%)		74				1		1		
Queuing Penalty (veh)		0				3		1		
Storage Bay Dist (ft)	150		300							
Storage Blk Time (%)	2	87	0							
Queuing Penalty (veh)	9	320	1							

Intersection: 6: SR 2004 (River Street) & Ramp BB/Ramp DD & SR 2024 (Maffett Street)

Movement	WB	WB	WB	WB	NB	NB	NB	SB	SB	SB	SW
Directions Served	L	L	R	>	L	T	TR	T	T	R	LR
Maximum Queue (ft)	95	275	1324	275	328	234	231	150	304	255	556
Average Queue (ft)	30	200	979	165	236	163	133	92	131	128	351
95th Queue (ft)	72	376	2040	347	367	232	209	169	249	226	599
Link Distance (ft)			1657		319	319	319		301	301	1079
Upstream Blk Time (%)			29		10				0	0	
Queuing Penalty (veh)			0		38				0	0	
Storage Bay Dist (ft)	250	250		250				125			
Storage Blk Time (%)		0	52	0				2	9		
Queuing Penalty (veh)		0	139	1				5	22		

Intersection: 7: SR 2024 (Maffett Street) & Haines Street

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	42	32
Average Queue (ft)	12	2
95th Queue (ft)	36	19
Link Distance (ft)	520	1079
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 8: SR 2024 (Maffett Street) & Mercer Street

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	40	46
Average Queue (ft)	9	4
95th Queue (ft)	33	23
Link Distance (ft)	681	290
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 9: SR 2024 (Maffett Street) & SR 2022 (Main Street) & Abbott Street

Movement	WB	NB	SB	NW
Directions Served	<LR	TR>	<LT	LR>
Maximum Queue (ft)	125	27	182	148
Average Queue (ft)	36	2	75	60
95th Queue (ft)	86	14	143	125
Link Distance (ft)	827	2946	520	856
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 543

2022 With Development

Intersection: 1: SR 2004 (River Street) & Courtright Avenue

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	67	112	225	343
Average Queue (ft)	20	50	74	96
95th Queue (ft)	51	98	162	271
Link Distance (ft)	462	582	711	895
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: SR 2004 (River Street) & West Maple Street

Movement	WB	WB	NB	SB
Directions Served	L	R	T	T
Maximum Queue (ft)	84	89	300	210
Average Queue (ft)	34	45	121	85
95th Queue (ft)	70	76	251	188
Link Distance (ft)	423	423	895	675
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: SR 2004 (River Street) & Chestnut Street

Movement	NB	SB
Directions Served	TR	L
Maximum Queue (ft)	9	94
Average Queue (ft)	1	33
95th Queue (ft)	8	70
Link Distance (ft)	675	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		150
Storage Blk Time (%)		0
Queuing Penalty (veh)		0

Intersection: 4: SR 2004 (River Street) & Waterfront Park Drive/Cross Valley Centre Drive

Movement	EB	EB	WB	WB	NB	NB	SB	SB	SB	B33	B33	B33
Directions Served	L	TR	L	TR	L	TR	L	T	R	T	T	
Maximum Queue (ft)	99	58	32	37	87	168	74	350	84	323	237	100
Average Queue (ft)	31	20	5	5	32	52	14	101	16	97	21	7
95th Queue (ft)	70	49	23	24	68	129	43	269	62	317	130	74
Link Distance (ft)	190	190	175	175		775		1134		254	254	254
Upstream Blk Time (%)										3	0	0
Queuing Penalty (veh)										12	0	0
Storage Bay Dist (ft)					75		75		75			
Storage Blk Time (%)					2	3		5	0			
Queuing Penalty (veh)					14	1		9	0			

Intersection: 5: SR 2004 (River Street) & Ramp AA/Ramp CC

Movement	EB	EB	EB	NB	NB	NB	B33	SB	SB	SB
Directions Served	L	LT	R	T	T	TR	T	L	T	T
Maximum Queue (ft)	175	1291	325	90	182	274	12	330	215	184
Average Queue (ft)	103	1102	302	33	68	129	1	236	148	57
95th Queue (ft)	235	1636	438	73	132	232	9	340	217	149
Link Distance (ft)		1244		254	254	254	143	319	319	319
Upstream Blk Time (%)		68				1		2		
Queuing Penalty (veh)		0				3		9		
Storage Bay Dist (ft)	150		300							
Storage Blk Time (%)	0	91	1							
Queuing Penalty (veh)	0	538	2							

Intersection: 6: SR 2004 (River Street) & Ramp BB/Ramp DD & SR 2024 (Maffett Street)

Movement	WB	WB	WB	WB	NB	NB	NB	SB	SB	SB	B24	B30
Directions Served	L	L	R	>	L	T	TR	T	T	R	T	T
Maximum Queue (ft)	239	256	598	273	134	199	219	150	345	244	37	45
Average Queue (ft)	73	122	146	185	58	111	141	112	188	100	3	2
95th Queue (ft)	180	225	490	302	107	176	210	182	332	197	32	34
Link Distance (ft)			1657		319	319	319		301	301	69	528
Upstream Blk Time (%)									2		0	
Queuing Penalty (veh)									0		0	
Storage Bay Dist (ft)	250	250		250				125				
Storage Blk Time (%)	0	2	1	15				3	16			
Queuing Penalty (veh)	1	4	4	51				9	55			

Intersection: 6: SR 2004 (River Street) & Ramp BB/Ramp DD & SR 2024 (Maffett Street)

Movement	SW
Directions Served	LR
Maximum Queue (ft)	471
Average Queue (ft)	262
95th Queue (ft)	464
Link Distance (ft)	1079
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 7: SR 2024 (Maffett Street) & Haines Street

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	35	50
Average Queue (ft)	11	3
95th Queue (ft)	35	29
Link Distance (ft)	520	1079
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 8: SR 2024 (Maffett Street) & Mercer Street

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	31	52
Average Queue (ft)	7	4
95th Queue (ft)	28	32
Link Distance (ft)	675	297
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 9: SR 2024 (Maffett Street) & SR 2022 (Main Street) & Abbott Street

Movement	WB	NB	SB	NW
Directions Served	<LR	TR>	<LT	LR>
Maximum Queue (ft)	835	36	441	93
Average Queue (ft)	748	4	185	30
95th Queue (ft)	1005	22	377	76
Link Distance (ft)	820	2274	518	2958
Upstream Blk Time (%)	68		0	
Queuing Penalty (veh)	0		0	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 10: SR 2024 (Maffett Street) & Driveway

Movement	WB	NB	SB
Directions Served	LR	R	L
Maximum Queue (ft)	171	28	70
Average Queue (ft)	66	3	31
95th Queue (ft)	130	18	62
Link Distance (ft)	444		
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		350	150
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 11: SR 2022 (Main Street) & Driveway

Movement	EB	NB
Directions Served	LR	L
Maximum Queue (ft)	76	128
Average Queue (ft)	43	53
95th Queue (ft)	68	97
Link Distance (ft)	519	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		325
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 714

Intersection: 1: SR 2004 (River Street) & Courtright Avenue

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	142	77	350	570
Average Queue (ft)	64	30	142	179
95th Queue (ft)	114	60	278	424
Link Distance (ft)	462	582	711	895
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: SR 2004 (River Street) & West Maple Street

Movement	WB	WB	NB	SB
Directions Served	L	R	T	T
Maximum Queue (ft)	93	149	365	207
Average Queue (ft)	35	70	145	88
95th Queue (ft)	74	126	295	188
Link Distance (ft)	423	423	895	675
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: SR 2004 (River Street) & Chestnut Street

Movement	NB	SB
Directions Served	TR	L
Maximum Queue (ft)	4	89
Average Queue (ft)	0	36
95th Queue (ft)	3	72
Link Distance (ft)	675	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		150
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: SR 2004 (River Street) & Waterfront Park Drive/Cross Valley Centre Drive

Movement	EB	EB	WB	WB	NB	NB	SB	SB	SB	B33	B33
Directions Served	L	TR	L	TR	L	TR	L	T	R	T	T
Maximum Queue (ft)	134	71	28	59	85	317	45	283	66	309	40
Average Queue (ft)	66	22	5	19	14	140	4	71	5	40	1
95th Queue (ft)	117	48	22	48	51	268	24	205	33	202	29
Link Distance (ft)	190	190	175	175		775		1134		254	254
Upstream Blk Time (%)											1
Queuing Penalty (veh)											2
Storage Bay Dist (ft)					75		75		75		
Storage Blk Time (%)						10		4	0		
Queuing Penalty (veh)						2		3	0		

Intersection: 5: SR 2004 (River Street) & Ramp AA/Ramp CC

Movement	EB	EB	EB	NB	NB	NB	B33	B33	B19	SB	SB	SB
Directions Served	L	LT	R	T	T	TR	T	T	T	L	T	T
Maximum Queue (ft)	175	1293	325	180	302	325	95	164	148	332	239	206
Average Queue (ft)	146	1191	295	85	142	244	8	30	11	230	158	64
95th Queue (ft)	231	1467	448	154	258	356	59	133	101	331	227	172
Link Distance (ft)		1244		254	254	254	143	143	1134	319	319	319
Upstream Blk Time (%)		77			1	15	0	3		1		
Queuing Penalty (veh)		0			4	60	0	12		5		
Storage Bay Dist (ft)	150		300									
Storage Blk Time (%)	2	86	0									
Queuing Penalty (veh)	8	317	1									

Intersection: 6: SR 2004 (River Street) & Ramp BB/Ramp DD & SR 2024 (Maffett Street)

Movement	WB	WB	WB	WB	NB	NB	NB	SB	SB	SB	B24	B24
Directions Served	L	L	R	>	L	T	TR	T	T	R	T	T
Maximum Queue (ft)	141	275	1529	275	336	274	275	150	366	328	54	8
Average Queue (ft)	46	187	1023	230	236	178	181	124	215	196	3	1
95th Queue (ft)	113	360	1840	354	358	266	257	183	360	326	29	10
Link Distance (ft)			1657		319	319	319		301	301	69	69
Upstream Blk Time (%)			12		8	0	0		3	3	0	
Queuing Penalty (veh)			0		32	0	0		0	0	0	
Storage Bay Dist (ft)	250	250		250				125				
Storage Blk Time (%)		0	53	6				6	21			
Queuing Penalty (veh)		0	188	29				16	54			

Intersection: 6: SR 2004 (River Street) & Ramp BB/Ramp DD & SR 2024 (Maffett Street)

Movement	B30	SW
Directions Served	T	LR
Maximum Queue (ft)	21	1017
Average Queue (ft)	1	882
95th Queue (ft)	15	1303
Link Distance (ft)	528	1079
Upstream Blk Time (%)		19
Queuing Penalty (veh)		82
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 7: SR 2024 (Maffett Street) & Haines Street

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	61	92	249
Average Queue (ft)	17	7	99
95th Queue (ft)	47	44	313
Link Distance (ft)	520	1079	297
Upstream Blk Time (%)			8
Queuing Penalty (veh)			34
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 8: SR 2024 (Maffett Street) & Mercer Street

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	31	94	191
Average Queue (ft)	9	10	43
95th Queue (ft)	32	49	192
Link Distance (ft)	675	297	624
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 9: SR 2024 (Maffett Street) & SR 2022 (Main Street) & Abbott Street

Movement	WB	NB	SB	NW
Directions Served	<LR	TR>	<LT	LR>
Maximum Queue (ft)	210	53	321	492
Average Queue (ft)	85	6	129	236
95th Queue (ft)	200	30	258	501
Link Distance (ft)	820	2274	518	2958
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 10: SR 2024 (Maffett Street) & Driveway

Movement	WB	NB	NB	SB
Directions Served	LR	T	R	L
Maximum Queue (ft)	169	4	19	61
Average Queue (ft)	76	0	1	18
95th Queue (ft)	135	3	10	49
Link Distance (ft)	444	624		
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			350	150
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 11: SR 2022 (Main Street) & Driveway

Movement	EB	NB
Directions Served	LR	L
Maximum Queue (ft)	79	53
Average Queue (ft)	46	20
95th Queue (ft)	69	49
Link Distance (ft)	519	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		325
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 849

2022 With Improvements

Intersection: 1: SR 2004 (River Street) & Courtright Avenue

Movement	EB	WB	NB	NB	SB
Directions Served	LTR	LTR	L	TR	LTR
Maximum Queue (ft)	59	98	45	205	320
Average Queue (ft)	15	48	4	73	93
95th Queue (ft)	46	88	24	156	253
Link Distance (ft)	455	575		710	896
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			75		
Storage Blk Time (%)			0	4	
Queuing Penalty (veh)			0	0	

Intersection: 5: SR 2004 (River Street) & Ramp AA/Ramp CC

Movement	EB	EB	EB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	LT	R	T	T	T	R	L	T	T
Maximum Queue (ft)	175	1284	325	98	134	160	152	335	268	245
Average Queue (ft)	109	1000	282	39	71	84	32	237	156	66
95th Queue (ft)	236	1646	463	79	120	143	101	339	242	183
Link Distance (ft)		1244		254	254	254	254	319	319	319
Upstream Blk Time (%)		54					0	1	0	0
Queuing Penalty (veh)		0					0	5	0	0
Storage Bay Dist (ft)	150		300							
Storage Blk Time (%)	0	85	1							
Queuing Penalty (veh)	0	503	2							

Intersection: 6: SR 2004 (River Street) & Ramp BB/Ramp DD & SR 2024 (Maffett Street)

Movement	WB	WB	WB	WB	WB	NB	NB	NB	SB	SB	SB	B24
Directions Served	L	L	R	R	>	L	T	TR	T	T	R	T
Maximum Queue (ft)	344	348	312	129	84	178	175	211	150	386	223	99
Average Queue (ft)	165	234	68	8	7	69	107	132	111	191	93	9
95th Queue (ft)	375	401	258	74	67	131	163	200	181	344	186	56
Link Distance (ft)			1667			319	319	319		301	301	69
Upstream Blk Time (%)										3	0	1
Queuing Penalty (veh)										0	0	0
Storage Bay Dist (ft)	400	400		750	750				125			
Storage Blk Time (%)	0	3	0						3	16		
Queuing Penalty (veh)	0	6	0						10	55		

Intersection: 6: SR 2004 (River Street) & Ramp BB/Ramp DD & SR 2024 (Maffett Street)

Movement	B30	SW
Directions Served	T	LR
Maximum Queue (ft)	54	487
Average Queue (ft)	2	234
95th Queue (ft)	29	439
Link Distance (ft)	528	1078
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 9: SR 2024 (Maffett Street) & SR 2022 (Main Street) & Abbott Street

Movement	WB	NB	SB	SB	NW
Directions Served	<LR	TR>	<L	T	LR>
Maximum Queue (ft)	122	164	275	533	141
Average Queue (ft)	54	81	209	198	52
95th Queue (ft)	97	148	317	516	116
Link Distance (ft)	820	2274		518	2958
Upstream Blk Time (%)				8	
Queuing Penalty (veh)				0	
Storage Bay Dist (ft)			250		
Storage Blk Time (%)			21	0	
Queuing Penalty (veh)			60	0	

Zone Summary

Zone wide Queuing Penalty: 642

Intersection: 1: SR 2004 (River Street) & Courtright Avenue

Movement	EB	WB	NB	NB	SB
Directions Served	LTR	LTR	L	TR	LTR
Maximum Queue (ft)	109	78	57	257	485
Average Queue (ft)	60	30	5	122	148
95th Queue (ft)	101	63	28	222	373
Link Distance (ft)	455	575		710	896
Upstream Blk Time (%)					0
Queuing Penalty (veh)					0
Storage Bay Dist (ft)			75		
Storage Blk Time (%)				10	
Queuing Penalty (veh)				1	

Intersection: 5: SR 2004 (River Street) & Ramp AA/Ramp CC

Movement	EB	EB	EB	NB	NB	NB	NB	B33	SB	SB	SB
Directions Served	L	LT	R	T	T	T	R	T	L	T	T
Maximum Queue (ft)	175	1296	325	217	235	219	157	5	279	214	166
Average Queue (ft)	151	1188	298	92	126	113	56	0	164	145	47
95th Queue (ft)	238	1495	445	179	206	183	135	5	266	202	129
Link Distance (ft)		1244		254	254	254	254	143	319	319	319
Upstream Blk Time (%)		73		1	0	0			0		
Queuing Penalty (veh)		0		3	1	0			0		
Storage Bay Dist (ft)	150		300								
Storage Blk Time (%)	2	89	0								
Queuing Penalty (veh)	6	327	1								

Intersection: 6: SR 2004 (River Street) & Ramp BB/Ramp DD & SR 2024 (Maffett Street)

Movement	WB	WB	WB	WB	WB	NB	NB	NB	SB	SB	SB	B24
Directions Served	L	L	R	R	>	L	T	TR	T	T	R	T
Maximum Queue (ft)	187	425	1716	775	762	315	219	215	149	275	343	35
Average Queue (ft)	40	352	1590	752	84	201	156	144	93	134	161	3
95th Queue (ft)	121	604	2040	863	455	322	211	207	169	239	300	33
Link Distance (ft)			1667			319	319	319		301	301	69
Upstream Blk Time (%)			78			2				0	4	1
Queuing Penalty (veh)			0			9				0	0	0
Storage Bay Dist (ft)	400	400		750	750				125			
Storage Blk Time (%)		0	96	7	0				2	10		
Queuing Penalty (veh)		1	475	21	0				6	24		

Intersection: 6: SR 2004 (River Street) & Ramp BB/Ramp DD & SR 2024 (Maffett Street)

Movement	B30	SW
Directions Served	T	LR
Maximum Queue (ft)	7	812
Average Queue (ft)	0	513
95th Queue (ft)	5	951
Link Distance (ft)	528	1078
Upstream Blk Time (%)		1
Queuing Penalty (veh)		6
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 9: SR 2024 (Maffett Street) & SR 2022 (Main Street) & Abbott Street

Movement	WB	NB	SB	SB	NW
Directions Served	<LR	TR>	<L	T	LR>
Maximum Queue (ft)	94	276	247	260	165
Average Queue (ft)	35	133	123	72	72
95th Queue (ft)	68	228	224	173	137
Link Distance (ft)	820	2274		518	2958
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			250		
Storage Blk Time (%)			2		
Queuing Penalty (veh)			5		

Zone Summary

Zone wide Queuing Penalty: 886

2027 Without Development

Intersection: 1: SR 2004 (River Street) & Courtright Avenue

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	68	95	188	226
Average Queue (ft)	18	45	60	77
95th Queue (ft)	50	83	150	177
Link Distance (ft)	462	582	711	895
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: SR 2004 (River Street) & West Maple Street

Movement	WB	WB	NB	SB
Directions Served	L	R	T	T
Maximum Queue (ft)	85	88	258	217
Average Queue (ft)	36	42	88	86
95th Queue (ft)	72	70	202	179
Link Distance (ft)	423	423	895	675
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: SR 2004 (River Street) & Chestnut Street

Movement	SB
Directions Served	L
Maximum Queue (ft)	70
Average Queue (ft)	28
95th Queue (ft)	59
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	150
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 4: SR 2004 (River Street) & Waterfront Park Drive/Cross Valley Centre Drive

Movement	EB	EB	WB	WB	NB	NB	SB	SB	SB	B19	B10	B10
Directions Served	L	TR	L	TR	L	TR	L	T	R	T	T	T
Maximum Queue (ft)	85	62	33	30	77	219	67	382	100	16	327	222
Average Queue (ft)	28	23	5	3	28	51	15	115	14	1	93	12
95th Queue (ft)	66	49	23	16	59	137	43	285	59	11	314	91
Link Distance (ft)	190	190	175	175		775		1134		143	254	254
Upstream Blk Time (%)											3	0
Queuing Penalty (veh)											11	0
Storage Bay Dist (ft)					75		75		75			
Storage Blk Time (%)					0	2		6	0			
Queuing Penalty (veh)					2	1		10	0			

Intersection: 5: SR 2004 (River Street) & Ramp AA/Ramp CC

Movement	EB	EB	EB	NB	NB	NB	SB	SB	SB
Directions Served	L	LT	R	T	T	TR	L	T	T
Maximum Queue (ft)	175	1093	325	64	124	189	319	238	193
Average Queue (ft)	114	429	152	26	55	76	201	159	68
95th Queue (ft)	227	1002	419	58	99	143	305	230	170
Link Distance (ft)		1244		254	254	254	319	319	319
Upstream Blk Time (%)		3					0		
Queuing Penalty (veh)		0					2		
Storage Bay Dist (ft)	150		300						
Storage Blk Time (%)	0	59	0						
Queuing Penalty (veh)	1	350	1						

Intersection: 6: SR 2004 (River Street) & Ramp BB/Ramp DD & SR 2024 (Maffett Street)

Movement	WB	WB	WB	WB	NB	NB	NB	SB	SB	SB	B24	B30
Directions Served	L	L	R	>	L	T	TR	T	T	R	T	T
Maximum Queue (ft)	261	272	441	68	157	187	165	150	338	176	28	10
Average Queue (ft)	119	177	102	14	67	118	88	99	168	78	4	1
95th Queue (ft)	283	307	361	47	121	178	144	180	303	147	38	8
Link Distance (ft)			1657		319	319	319		301	301	69	528
Upstream Blk Time (%)									2		1	
Queuing Penalty (veh)									0		0	
Storage Bay Dist (ft)	250	250		250				125				
Storage Blk Time (%)	2	14	0					1	12			
Queuing Penalty (veh)	1	9	2					3	43			

Intersection: 6: SR 2004 (River Street) & Ramp BB/Ramp DD & SR 2024 (Maffett Street)

Movement	SW
Directions Served	LR
Maximum Queue (ft)	185
Average Queue (ft)	85
95th Queue (ft)	157
Link Distance (ft)	1079
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 7: SR 2024 (Maffett Street) & Haines Street

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	39	6
Average Queue (ft)	11	0
95th Queue (ft)	34	6
Link Distance (ft)	520	1079
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 8: SR 2024 (Maffett Street) & Mercer Street

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	31	42
Average Queue (ft)	9	2
95th Queue (ft)	33	20
Link Distance (ft)	681	290
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 9: SR 2024 (Maffett Street) & SR 2022 (Main Street) & Abbott Street

Movement	WB	NB	SB	NW
Directions Served	<LR	TR>	<LT	LR>
Maximum Queue (ft)	159	37	280	92
Average Queue (ft)	62	3	123	28
95th Queue (ft)	148	20	236	66
Link Distance (ft)	827	2946	520	856
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 435

Intersection: 1: SR 2004 (River Street) & Courtright Avenue

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	117	64	328	305
Average Queue (ft)	58	29	114	100
95th Queue (ft)	102	59	238	223
Link Distance (ft)	462	582	711	895
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: SR 2004 (River Street) & West Maple Street

Movement	WB	WB	NB	SB
Directions Served	L	R	T	T
Maximum Queue (ft)	88	165	295	188
Average Queue (ft)	36	68	137	69
95th Queue (ft)	72	126	270	161
Link Distance (ft)	423	423	895	675
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: SR 2004 (River Street) & Chestnut Street

Movement	NB	SB
Directions Served	TR	L
Maximum Queue (ft)	4	68
Average Queue (ft)	0	28
95th Queue (ft)	3	57
Link Distance (ft)	675	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		150
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: SR 2004 (River Street) & Waterfront Park Drive/Cross Valley Centre Drive

Movement	EB	EB	WB	WB	NB	NB	SB	SB	SB	B10	B10
Directions Served	L	TR	L	TR	L	TR	L	T	R	T	T
Maximum Queue (ft)	157	60	41	57	51	392	39	330	100	207	40
Average Queue (ft)	70	20	7	19	9	126	5	79	11	12	3
95th Queue (ft)	127	46	29	49	34	269	24	211	54	103	41
Link Distance (ft)	190	190	175	175		775		1134		254	254
Upstream Blk Time (%)	0									0	
Queuing Penalty (veh)	0									0	
Storage Bay Dist (ft)					75		75		75		
Storage Blk Time (%)						9		4	0		
Queuing Penalty (veh)						2		3	0		

Intersection: 5: SR 2004 (River Street) & Ramp AA/Ramp CC

Movement	EB	EB	EB	NB	NB	NB	B10	SB	SB	SB
Directions Served	L	LT	R	T	T	TR	T	L	T	T
Maximum Queue (ft)	175	1296	325	162	167	272	15	288	205	183
Average Queue (ft)	152	1120	284	73	88	141	1	188	140	48
95th Queue (ft)	236	1622	461	132	147	245	11	277	204	133
Link Distance (ft)		1244		254	254	254	143	319	319	319
Upstream Blk Time (%)		74				1		1		
Queuing Penalty (veh)		0				3		1		
Storage Bay Dist (ft)	150		300							
Storage Blk Time (%)	2	87	0							
Queuing Penalty (veh)	9	320	1							

Intersection: 6: SR 2004 (River Street) & Ramp BB/Ramp DD & SR 2024 (Maffett Street)

Movement	WB	WB	WB	WB	NB	NB	NB	SB	SB	SB	SW
Directions Served	L	L	R	>	L	T	TR	T	T	R	LR
Maximum Queue (ft)	95	275	1324	275	328	234	231	150	304	255	556
Average Queue (ft)	30	200	979	165	236	163	133	92	131	128	351
95th Queue (ft)	72	376	2040	347	367	232	209	169	249	226	599
Link Distance (ft)			1657		319	319	319		301	301	1079
Upstream Blk Time (%)			29		10				0	0	
Queuing Penalty (veh)			0		38				0	0	
Storage Bay Dist (ft)	250	250		250				125			
Storage Blk Time (%)		0	52	0				2	9		
Queuing Penalty (veh)		0	139	1				5	22		

Intersection: 7: SR 2024 (Maffett Street) & Haines Street

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	42	32
Average Queue (ft)	12	2
95th Queue (ft)	36	19
Link Distance (ft)	520	1079
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 8: SR 2024 (Maffett Street) & Mercer Street

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	40	46
Average Queue (ft)	9	4
95th Queue (ft)	33	23
Link Distance (ft)	681	290
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 9: SR 2024 (Maffett Street) & SR 2022 (Main Street) & Abbott Street

Movement	WB	NB	SB	NW
Directions Served	<LR	TR>	<LT	LR>
Maximum Queue (ft)	125	27	182	148
Average Queue (ft)	36	2	75	60
95th Queue (ft)	86	14	143	125
Link Distance (ft)	827	2946	520	856
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 543

2027 With Development

Intersection: 1: SR 2004 (River Street) & Courtright Avenue

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	67	112	225	343
Average Queue (ft)	20	50	74	96
95th Queue (ft)	51	98	162	271
Link Distance (ft)	462	582	711	895
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: SR 2004 (River Street) & West Maple Street

Movement	WB	WB	NB	SB
Directions Served	L	R	T	T
Maximum Queue (ft)	84	89	300	210
Average Queue (ft)	34	45	121	85
95th Queue (ft)	70	76	251	188
Link Distance (ft)	423	423	895	675
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: SR 2004 (River Street) & Chestnut Street

Movement	NB	SB
Directions Served	TR	L
Maximum Queue (ft)	9	94
Average Queue (ft)	1	33
95th Queue (ft)	8	70
Link Distance (ft)	675	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		150
Storage Blk Time (%)		0
Queuing Penalty (veh)		0

Intersection: 4: SR 2004 (River Street) & Waterfront Park Drive/Cross Valley Centre Drive

Movement	EB	EB	WB	WB	NB	NB	SB	SB	SB	B33	B33	B33
Directions Served	L	TR	L	TR	L	TR	L	T	R	T	T	
Maximum Queue (ft)	99	58	32	37	87	168	74	350	84	323	237	100
Average Queue (ft)	31	20	5	5	32	52	14	101	16	97	21	7
95th Queue (ft)	70	49	23	24	68	129	43	269	62	317	130	74
Link Distance (ft)	190	190	175	175		775		1134		254	254	254
Upstream Blk Time (%)										3	0	0
Queuing Penalty (veh)										12	0	0
Storage Bay Dist (ft)					75		75		75			
Storage Blk Time (%)					2	3		5	0			
Queuing Penalty (veh)					14	1		9	0			

Intersection: 5: SR 2004 (River Street) & Ramp AA/Ramp CC

Movement	EB	EB	EB	NB	NB	NB	B33	SB	SB	SB
Directions Served	L	LT	R	T	T	TR	T	L	T	T
Maximum Queue (ft)	175	1291	325	90	182	274	12	330	215	184
Average Queue (ft)	103	1102	302	33	68	129	1	236	148	57
95th Queue (ft)	235	1636	438	73	132	232	9	340	217	149
Link Distance (ft)		1244		254	254	254	143	319	319	319
Upstream Blk Time (%)		68				1		2		
Queuing Penalty (veh)		0				3		9		
Storage Bay Dist (ft)	150		300							
Storage Blk Time (%)	0	91	1							
Queuing Penalty (veh)	0	538	2							

Intersection: 6: SR 2004 (River Street) & Ramp BB/Ramp DD & SR 2024 (Maffett Street)

Movement	WB	WB	WB	WB	NB	NB	NB	SB	SB	SB	B24	B30
Directions Served	L	L	R	>	L	T	TR	T	T	R	T	T
Maximum Queue (ft)	239	256	598	273	134	199	219	150	345	244	37	45
Average Queue (ft)	73	122	146	185	58	111	141	112	188	100	3	2
95th Queue (ft)	180	225	490	302	107	176	210	182	332	197	32	34
Link Distance (ft)			1657		319	319	319		301	301	69	528
Upstream Blk Time (%)									2		0	
Queuing Penalty (veh)									0		0	
Storage Bay Dist (ft)	250	250		250				125				
Storage Blk Time (%)	0	2	1	15				3	16			
Queuing Penalty (veh)	1	4	4	51				9	55			

Intersection: 6: SR 2004 (River Street) & Ramp BB/Ramp DD & SR 2024 (Maffett Street)

Movement	SW
Directions Served	LR
Maximum Queue (ft)	471
Average Queue (ft)	262
95th Queue (ft)	464
Link Distance (ft)	1079
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 7: SR 2024 (Maffett Street) & Haines Street

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	35	50
Average Queue (ft)	11	3
95th Queue (ft)	35	29
Link Distance (ft)	520	1079
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 8: SR 2024 (Maffett Street) & Mercer Street

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	31	52
Average Queue (ft)	7	4
95th Queue (ft)	28	32
Link Distance (ft)	675	297
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 9: SR 2024 (Maffett Street) & SR 2022 (Main Street) & Abbott Street

Movement	WB	NB	SB	NW
Directions Served	<LR	TR>	<LT	LR>
Maximum Queue (ft)	835	36	441	93
Average Queue (ft)	748	4	185	30
95th Queue (ft)	1005	22	377	76
Link Distance (ft)	820	2274	518	2958
Upstream Blk Time (%)	68		0	
Queuing Penalty (veh)	0		0	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 10: SR 2024 (Maffett Street) & Driveway

Movement	WB	NB	SB
Directions Served	LR	R	L
Maximum Queue (ft)	171	28	70
Average Queue (ft)	66	3	31
95th Queue (ft)	130	18	62
Link Distance (ft)	444		
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		350	150
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 11: SR 2022 (Main Street) & Driveway

Movement	EB	NB
Directions Served	LR	L
Maximum Queue (ft)	76	128
Average Queue (ft)	43	53
95th Queue (ft)	68	97
Link Distance (ft)	519	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		325
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 714

Intersection: 1: SR 2004 (River Street) & Courtright Avenue

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	142	77	350	570
Average Queue (ft)	64	30	142	179
95th Queue (ft)	114	60	278	424
Link Distance (ft)	462	582	711	895
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: SR 2004 (River Street) & West Maple Street

Movement	WB	WB	NB	SB
Directions Served	L	R	T	T
Maximum Queue (ft)	93	149	365	207
Average Queue (ft)	35	70	145	88
95th Queue (ft)	74	126	295	188
Link Distance (ft)	423	423	895	675
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: SR 2004 (River Street) & Chestnut Street

Movement	NB	SB
Directions Served	TR	L
Maximum Queue (ft)	4	89
Average Queue (ft)	0	36
95th Queue (ft)	3	72
Link Distance (ft)	675	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		150
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: SR 2004 (River Street) & Waterfront Park Drive/Cross Valley Centre Drive

Movement	EB	EB	WB	WB	NB	NB	SB	SB	SB	B33	B33
Directions Served	L	TR	L	TR	L	TR	L	T	R	T	T
Maximum Queue (ft)	134	71	28	59	85	317	45	283	66	309	40
Average Queue (ft)	66	22	5	19	14	140	4	71	5	40	1
95th Queue (ft)	117	48	22	48	51	268	24	205	33	202	29
Link Distance (ft)	190	190	175	175		775		1134		254	254
Upstream Blk Time (%)											1
Queuing Penalty (veh)											2
Storage Bay Dist (ft)					75		75		75		
Storage Blk Time (%)						10		4	0		
Queuing Penalty (veh)						2		3	0		

Intersection: 5: SR 2004 (River Street) & Ramp AA/Ramp CC

Movement	EB	EB	EB	NB	NB	NB	B33	B33	B19	SB	SB	SB
Directions Served	L	LT	R	T	T	TR	T	T	T	L	T	T
Maximum Queue (ft)	175	1293	325	180	302	325	95	164	148	332	239	206
Average Queue (ft)	146	1191	295	85	142	244	8	30	11	230	158	64
95th Queue (ft)	231	1467	448	154	258	356	59	133	101	331	227	172
Link Distance (ft)		1244		254	254	254	143	143	1134	319	319	319
Upstream Blk Time (%)		77			1	15	0	3		1		
Queuing Penalty (veh)		0			4	60	0	12		5		
Storage Bay Dist (ft)	150		300									
Storage Blk Time (%)	2	86	0									
Queuing Penalty (veh)	8	317	1									

Intersection: 6: SR 2004 (River Street) & Ramp BB/Ramp DD & SR 2024 (Maffett Street)

Movement	WB	WB	WB	WB	NB	NB	NB	SB	SB	SB	B24	B24
Directions Served	L	L	R	>	L	T	TR	T	T	R	T	T
Maximum Queue (ft)	141	275	1529	275	336	274	275	150	366	328	54	8
Average Queue (ft)	46	187	1023	230	236	178	181	124	215	196	3	1
95th Queue (ft)	113	360	1840	354	358	266	257	183	360	326	29	10
Link Distance (ft)			1657		319	319	319		301	301	69	69
Upstream Blk Time (%)			12		8	0	0		3	3	0	
Queuing Penalty (veh)			0		32	0	0		0	0	0	
Storage Bay Dist (ft)	250	250		250				125				
Storage Blk Time (%)		0	53	6				6	21			
Queuing Penalty (veh)		0	188	29				16	54			

Intersection: 6: SR 2004 (River Street) & Ramp BB/Ramp DD & SR 2024 (Maffett Street)

Movement	B30	SW
Directions Served	T	LR
Maximum Queue (ft)	21	1017
Average Queue (ft)	1	882
95th Queue (ft)	15	1303
Link Distance (ft)	528	1079
Upstream Blk Time (%)		19
Queuing Penalty (veh)		82
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 7: SR 2024 (Maffett Street) & Haines Street

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	61	92	249
Average Queue (ft)	17	7	99
95th Queue (ft)	47	44	313
Link Distance (ft)	520	1079	297
Upstream Blk Time (%)			8
Queuing Penalty (veh)			34
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 8: SR 2024 (Maffett Street) & Mercer Street

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	31	94	191
Average Queue (ft)	9	10	43
95th Queue (ft)	32	49	192
Link Distance (ft)	675	297	624
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 9: SR 2024 (Maffett Street) & SR 2022 (Main Street) & Abbott Street

Movement	WB	NB	SB	NW
Directions Served	<LR	TR>	<LT	LR>
Maximum Queue (ft)	210	53	321	492
Average Queue (ft)	85	6	129	236
95th Queue (ft)	200	30	258	501
Link Distance (ft)	820	2274	518	2958
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 10: SR 2024 (Maffett Street) & Driveway

Movement	WB	NB	NB	SB
Directions Served	LR	T	R	L
Maximum Queue (ft)	169	4	19	61
Average Queue (ft)	76	0	1	18
95th Queue (ft)	135	3	10	49
Link Distance (ft)	444	624		
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			350	150
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 11: SR 2022 (Main Street) & Driveway

Movement	EB	NB
Directions Served	LR	L
Maximum Queue (ft)	79	53
Average Queue (ft)	46	20
95th Queue (ft)	69	49
Link Distance (ft)	519	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		325
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 849

2027 With Improvements

Intersection: 1: SR 2004 (River Street) & Courtright Avenue

Movement	EB	WB	NB	NB	SB
Directions Served	LTR	LTR	L	TR	LTR
Maximum Queue (ft)	59	98	45	205	320
Average Queue (ft)	15	48	4	73	93
95th Queue (ft)	46	88	24	156	253
Link Distance (ft)	455	575		710	896
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			75		
Storage Blk Time (%)			0	4	
Queuing Penalty (veh)			0	0	

Intersection: 5: SR 2004 (River Street) & Ramp AA/Ramp CC

Movement	EB	EB	EB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	LT	R	T	T	T	R	L	T	T
Maximum Queue (ft)	175	1284	325	98	134	160	152	335	268	245
Average Queue (ft)	109	1000	282	39	71	84	32	237	156	66
95th Queue (ft)	236	1646	463	79	120	143	101	339	242	183
Link Distance (ft)		1244		254	254	254	254	319	319	319
Upstream Blk Time (%)		54					0	1	0	0
Queuing Penalty (veh)		0					0	5	0	0
Storage Bay Dist (ft)	150		300							
Storage Blk Time (%)	0	85	1							
Queuing Penalty (veh)	0	503	2							

Queuing and Blocking Report
2027 with Improvement

06/11/2018

Intersection: 6: SR 2004 (River Street) & Ramp BB/Ramp DD & SR 2024 (Maffett Street)

Movement	WB	WB	WB	WB	WB	NB	NB	NB	SB	SB	SB	B24
Directions Served	L	L	R	R	>	L	T	TR	T	T	R	T
Maximum Queue (ft)	344	348	312	129	84	178	175	211	150	386	223	99
Average Queue (ft)	165	234	68	8	7	69	107	132	111	191	93	9
95th Queue (ft)	375	401	258	74	67	131	163	200	181	344	186	56
Link Distance (ft)			1667			319	319	319		301	301	69
Upstream Blk Time (%)										3	0	1
Queuing Penalty (veh)										0	0	0
Storage Bay Dist (ft)	400	400		750	750				125			
Storage Blk Time (%)	0	3	0						3	16		
Queuing Penalty (veh)	0	6	0						10	55		

Intersection: 6: SR 2004 (River Street) & Ramp BB/Ramp DD & SR 2024 (Maffett Street)

Movement	B30	SW
Directions Served	T	LR
Maximum Queue (ft)	54	487
Average Queue (ft)	2	234
95th Queue (ft)	29	439
Link Distance (ft)	528	1078
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 9: SR 2024 (Maffett Street) & SR 2022 (Main Street) & Abbott Street

Movement	WB	NB	SB	SB	NW
Directions Served	<LR	TR>	<L	T	LR>
Maximum Queue (ft)	122	164	275	533	141
Average Queue (ft)	54	81	209	198	52
95th Queue (ft)	97	148	317	516	116
Link Distance (ft)	820	2274		518	2958
Upstream Blk Time (%)				8	
Queuing Penalty (veh)				0	
Storage Bay Dist (ft)			250		
Storage Blk Time (%)			21	0	
Queuing Penalty (veh)			60	0	

Zone Summary

Zone wide Queuing Penalty: 642

Intersection: 1: SR 2004 (River Street) & Courtright Avenue

Movement	EB	WB	NB	NB	SB
Directions Served	LTR	LTR	L	TR	LTR
Maximum Queue (ft)	113	78	57	276	511
Average Queue (ft)	62	30	5	131	152
95th Queue (ft)	105	62	29	239	381
Link Distance (ft)	455	575		710	896
Upstream Blk Time (%)					0
Queuing Penalty (veh)					0
Storage Bay Dist (ft)			75		
Storage Blk Time (%)				11	
Queuing Penalty (veh)				1	

Intersection: 5: SR 2004 (River Street) & Ramp AA/Ramp CC

Movement	EB	EB	EB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	LT	R	T	T	T	R	L	T	T
Maximum Queue (ft)	175	1289	325	198	230	208	190	297	217	162
Average Queue (ft)	153	1204	304	86	119	114	62	167	148	48
95th Queue (ft)	237	1491	434	152	192	175	150	268	203	129
Link Distance (ft)		1244		254	254	254	254	319	319	319
Upstream Blk Time (%)		78		0	0	0	0	0		
Queuing Penalty (veh)		0		0	0	0	0	1		
Storage Bay Dist (ft)	150		300							
Storage Blk Time (%)	2	89	0							
Queuing Penalty (veh)	8	328	1							

Queuing and Blocking Report
2022 with Improvement

06/11/2018

Intersection: 6: SR 2004 (River Street) & Ramp BB/Ramp DD & SR 2024 (Maffett Street)

Movement	WB	WB	WB	WB	WB	NB	NB	NB	SB	SB	SB	B24
Directions Served	L	L	R	R	>	L	T	TR	T	T	R	T
Maximum Queue (ft)	207	425	1714	775	762	328	215	223	150	283	337	25
Average Queue (ft)	42	351	1546	739	84	210	156	145	93	146	151	2
95th Queue (ft)	126	605	2115	925	454	330	214	203	172	269	281	30
Link Distance (ft)			1667			319	319	319		301	301	69
Upstream Blk Time (%)			75			3				2	1	0
Queuing Penalty (veh)			0			12				0	0	0
Storage Bay Dist (ft)	400	400		750	750				125			
Storage Blk Time (%)		0	94	7	0				3	12		
Queuing Penalty (veh)		1	463	23	0				8	30		

Intersection: 6: SR 2004 (River Street) & Ramp BB/Ramp DD & SR 2024 (Maffett Street)

Movement	B24	SW
Directions Served	T	LR
Maximum Queue (ft)	9	906
Average Queue (ft)	1	588
95th Queue (ft)	9	1015
Link Distance (ft)	69	1078
Upstream Blk Time (%)		1
Queuing Penalty (veh)		6
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 9: SR 2024 (Maffett Street) & SR 2022 (Main Street) & Abbott Street

Movement	WB	NB	SB	SB	NW
Directions Served	<LR	TR>	<L	T	LR>
Maximum Queue (ft)	106	286	241	198	174
Average Queue (ft)	37	136	114	69	78
95th Queue (ft)	77	240	210	150	153
Link Distance (ft)	820	2274		518	2958
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			250		
Storage Blk Time (%)			1		
Queuing Penalty (veh)			3		

Zone Summary

Zone wide Queuing Penalty: 885

Appendix J

Correspondence

Transportation Impact Study (TIS) Scoping Meeting Application

Scoping Meeting Date: December 14, 2017
Applicant: Wilkes Barre Area School District
Applicant's Consultant: Borton-Lawson
Terence J. Ostrowski PE
570-821-1999

Applicant's Primary Contact: Terence J. Ostrowski PE

(1) LOCATION OF PROPOSED DEVELOPMENT:

PennDOT Engineering District: 4-0 **County:** Luzerne
Municipality: Plains Township

State Route(s) (SR): SR 2024 and 2022

See Figure 1 for a Site Location Map.

(2) DESCRIPTION OF PROPOSED DEVELOPMENT:

Proposed Site Access: SR 2024 and 2022

Proposed Land Uses: High School and associated sports fields

Community Linkages: None

See Figure 2 for a Site Plan.

(3) DEVELOPMENT SCHEDULE AND STAGING:

Anticipated Opening Date: Spring of 2021

Full Buildout Date: Spring of 2023

Describe Proposed Development Schedule / Staging:

The development will be constructed in 2 stages. Currently, the only anticipated development will be the high school building and one physical education field. There is a possibility that additional sports fields and a football stadium will be constructed within the next 5 years. This will be accounted for in the study.

(4) TRIP GENERATION:

Trip generation for the proposed development will be based on:

ITE Trip Generation Manual

(List proposed development land uses and associated ITE Land Use Codes)

Other Independent Surveys
 (Attach justification for non-ITE methods)

List Land development and trip generation information, as appropriate. If necessary, attach additional sheets to indicate additional land uses or development phases.

Land Use	Size	Daily Trips	AM Peak Hour		PM Peak Hour	
			Enter	Exit	Enter	Exit
High School (530)	2600 Students	3,750	760	358	159	179
Site Total		3,750	760	358	159	179

(5) ESTIMATED DAILY TRIP GENERATION/DRIVEWAY CLASSIFICATION

(a) Estimated Daily Trip Generation of Proposed Development – Assuming One Access Point and Full Build-out/Occupancy of Entire Tract: 3,750 trips/day

(b) Driveway Classification based on Trip Generation and One Access Point

Medium Volume:
 High Volume: X

(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

- SR 2004 (River Street)
 - At Courtright Avenue
 - At W. Maple Street
 - At W. Chestnut Street
 - At Driveways
 - At SR 0309 SB Ramps
 - At SR 0309 NB Ramps / Maffet Street
 - At Haines Street

- SR 2024 (Maffet Street)
 - At Haines Street
 - At Mercer Street
 - At Site Driveway
 - At S. Main Street / Abbott Street
- SR 2022 (S. Main Street)
 - At Site Driveway

Land use context (Refer to Smart Transportation Handbook)

SR 2004 (River Street) is classified as Suburban Corridor, SR 2024 (Maffet Street) is classified as Town/Village Neighborhood, and SR 2022 (S. Main Street) is classified as Town/Village Neighborhood.

Known Congestion Areas

SR 2004 (River Street) and SR 0309 Northbound and Southbound Ramps

Known Safety Concerns

None known at this time.

Known Environmental Constraints

There are wetlands, a pond and a flood plain on site, which have been accounted for in the site layout.

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

The proposed high school will be a pedestrian generator. In addition, the school is located within a residential area.

Transit Review (Current routes/stops)

LCTA has routes along Maffet Street (Route 1) and SR 2004 (Route 16).

(9) STUDY AREA TYPE: Urban X Rural

(10) TIS ANALYSIS PERIODS:

(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.)

- 2017 Existing
- 2021 Opening Year – With and Without Development
- 2026 Design Year – With and Without Development
- AM and PM Peaks

(11) TRAFFIC ADJUSTMENT FACTORS:

(a) Seasonal Adjustment: *(Identify counts requiring adjustment and methodology)*

A seasonal adjustment factor is not anticipated to be required.

(b) Annual Base Traffic Growth:

0.00% for Luzerne County Urban Non-Interstate

(c) Pass-By Trips: *(Attach justification where required)*

Based on the proposed land use, pass-by trips are not anticipated.

(d) Captured Trips for Multi-Use Sites: *(List % and manner of application. Attach justification where required)*

Captured trips are not anticipated.

(e) Modal Split Reductions

This will be discussed during the Scoping Meeting. Since the proposed site is a high school, the majority of students will be bussed in. The number of busses and bus route information has been requested from the School District.

(f) Other Reductions

No other reductions are anticipated.

- (12) OTHER PROJECTS WITHIN STUDY AREA TO BE ADDED TO BASE TRAFFIC:
(Identify proposed developments with issued permits that need to be included.)
This will be discussed at the Scoping Meeting.

- (13) TRIP DISTRIBUTION AND ASSIGNMENT:
(Describe; explain; attach diagram and related information.)
Trip distribution will be based on the School District boundary and bus routes.

(14) APPROVAL OF DATA COLLECTION ELEMENTS AND METHODOLOGIES

<u>Location</u>	<u>Period</u>	<u>Type</u>
SR 2004 & Courtright Ave	AM, PM	TMC
SR 2004 & W. Maple St	AM, PM	TMC
SR 2004 & W. Chestnut St	AM, PM	TMC
SR 2004 & Driveways	AM, PM	TMC
SR 2004 & SR 0309 SB Ramps	AM, PM	TMC
SR 2004 & SR 0309 NB Ramps	AM, PM	TMC
SR 2004 & Haines St	AM, PM	TMC
SR 2024 & Haines St	AM, PM	TMC
SR 2024 & Mercer St	AM, PM	TMC
SR 2024 & SR 2022/Abbott St	AM, PM	TMC
SR 2004 South of SR 0309	24 hour	ATR
SR 2004 North of Haines St	24 hour	ATR
SR 2024 at Site Driveway	24 hour	ATR
SR 2022 at Site Driveway	24 hour	ATR

- (15) **CAPACITY / LOS ANALYSIS:**
Will be performed using Synchro 10.
- (16) **ROADWAY IMPROVEMENTS/MODIFICATIONS BY OTHERS TO BE INCLUDED:**
(Projects programmed for construction or other developments with issued permits.)
- **MPMS 89012 – Bridge Rehabilitation** which includes widening of SR 2004 and SR 0309 ramps and associated traffic signal improvements. The estimated completion date is, at earliest, 2021.
 - The schedule of this project will be discussed and confirmed during the Scoping Meeting.
- (17) **OTHER NEEDED ANALYSIS:**
- (a) Sight Distance Analysis:**
(Required for all site access driveways; identify other locations)
Will be measured at the site driveways.
 - (b) Signal Warrant Analysis:**
Will be performed at the proposed driveways.
 - (c) Required Signal Phasing/Timing Modifications:**
Will be performed where required.
 - (d) Traffic Signal Corridor/Network Analysis:**
Will be performed where required.
 - (e) Analysis for the need for Turning Lanes:**
Will be performed where required, using PennDOT Publication 46 guidelines.
 - (f) Turning Lane Lengths:**
Will be performed where required, using PennDOT Publication 46 guidelines.
 - (g) Left Turn Signal Phasing Analysis:**
Will be performed where required.
 - (h) Queuing Analysis:**
Will be performed as part of the operational analysis.
 - (i) Gap Studies:**
Not anticipated to be required.
 - (j) Crash Analysis:**
Will be performed based on TIS requirements.
 - (k) Weaving Analysis:**
Not anticipated to be required.

(I) Other Required Studies:

No other studies are anticipated to be required.

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

Signature of Applicant's Engineer

Date: _____

Signature of District Traffic PennDOT Representative

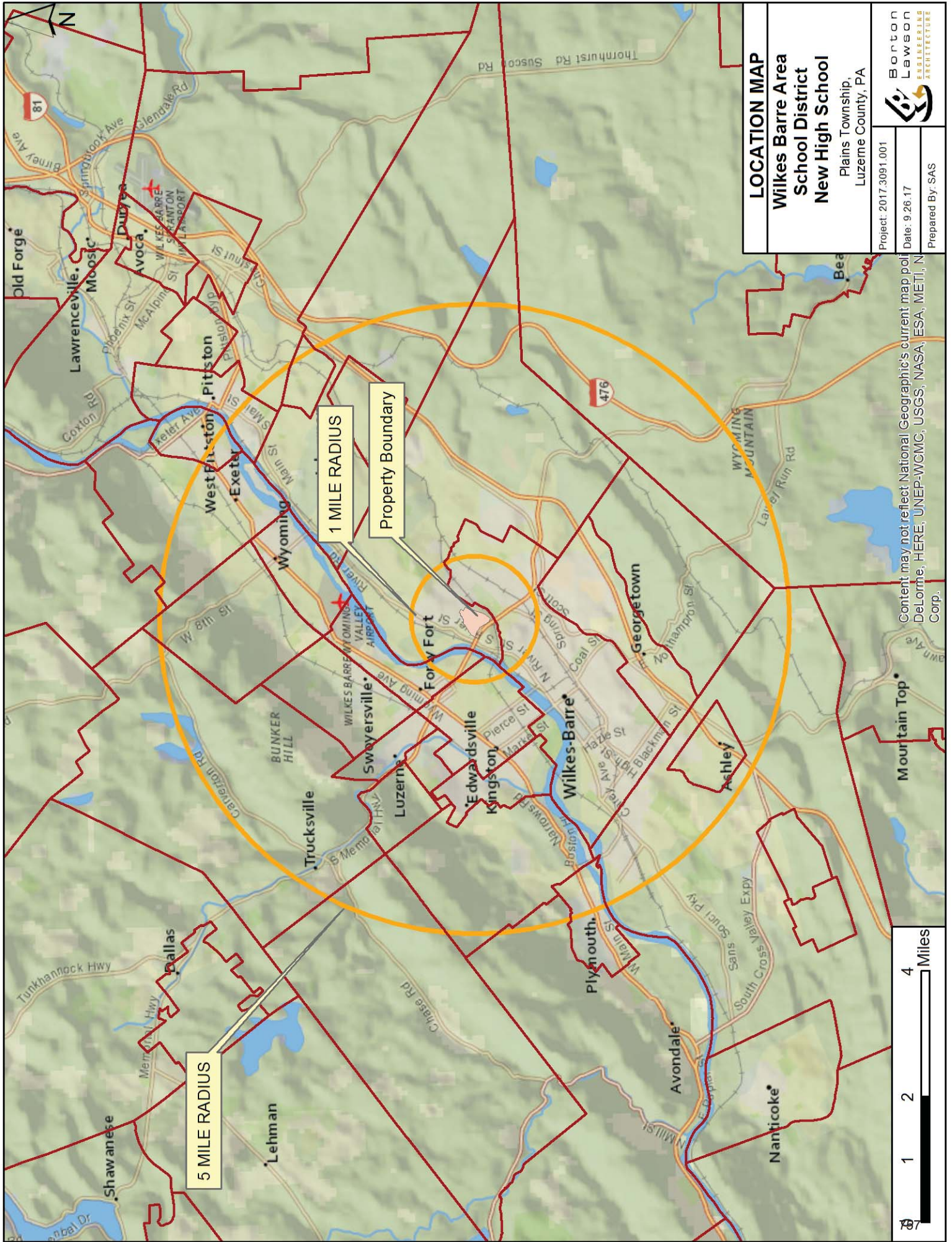
Date: _____

Signature of District Permit PennDOT Representative (if present)

Date: _____

Signature of Municipal Traffic Representative

Date: _____



LOCATION MAP

**Wilkes Barre Area
School District
New High School**

Plains Township,
Luzerne County, PA

Project: 2017.3091.001

Date: 9.26.17

Prepared By: SAS



**Barton
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ENGINEERING
ARCHITECTURE**

Content may not reflect National Geographic's current map pol
Delorme, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, N
Corp.

5 MILE RADIUS

1 MILE RADIUS

Property Boundary



DISCIPLINES

Architecture

Automation

Bridge Design

Drainage Design

Environmental

Electrical Design

Highway Design

Hydraulics & Hydrology

Land Development

Land Surveying

Mechanical Design

Structural Design

Traffic Design

Water & Wastewater Design



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