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Enclosure 2

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Enclosure 3

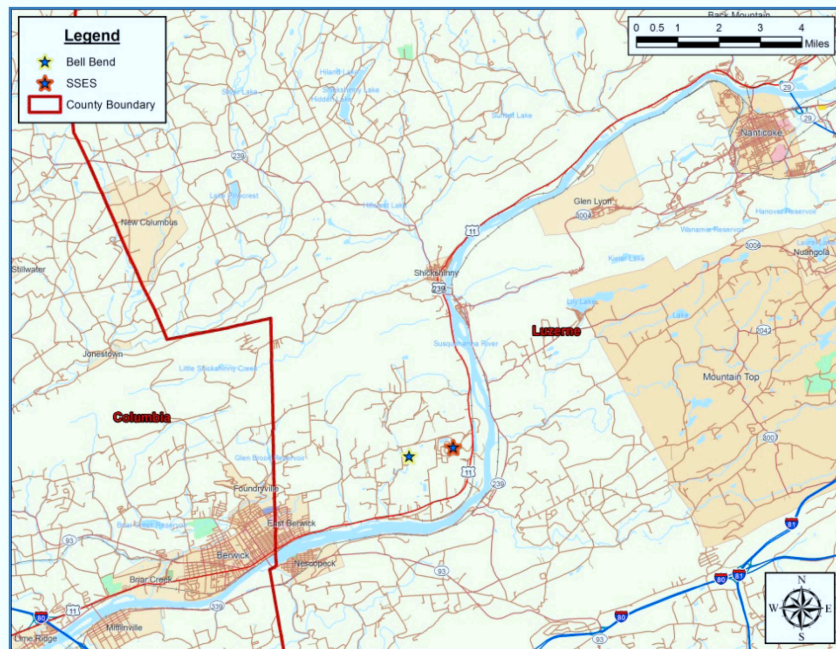
Five (5) Compact Disks of Revision 5 of Traffic Analysis Files

(Included in hard copy Appendix E, G, I, L, M)



Traffic Impact Study Related to the Proposed Construction and Operation of the Bell Bend Nuclear Power Plant

Preliminary Findings Report



Prepared for
AREVA NP, Inc.
400 Donald Lynch Blvd
Marlborough, MA 01752

Date Prepared: October 13, 2011

TR-439
Rev.5



Prepared by
KLD Engineering, P.C.
43 Corporate Drive
Hauppauge, NY 11788

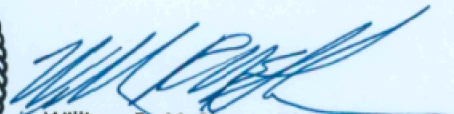

William R. McShane, PhD, PE, PTOE
PE # 075476

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EXECUTIVE SUMMARY

PPL Bell Bend, LLC (PPL) proposes to construct and operate a new nuclear power plant to be designated as Bell Bend Nuclear Power Plant (BBNPP) located west of the existing Susquehanna Steam Electric Station (SSES) site. SSES has two units currently operational. The proposed project is planned for construction over an approximately 7 year period. The new plant is expected to be operational by December 2021.

As part of this effort, a COLA (Combined License Application) has been filed with the Nuclear Regulatory Commission (NRC). This COLA prepared by UniStar Nuclear Energy (UNE) included an Environmental Report (ER). The ER defined the impacts from the proposed expansion including traffic impacts. A traffic study completed by KLD Engineering PC (KLD) in 2008 was incorporated into the ER. As part of the federal application process initial meetings with state and municipal agencies regarding the traffic study and impacts were conducted in the middle of 2008.

In early 2010, the process of initiating state review of the traffic impact began. A Scoping Meeting application was conducted on February 17, 2010. Based on follow up discussions with PennDOT Districts 3-0 and 4-0, the study area was defined (expanded from the 2008 study) and the assumptions discussed.

The project area was identified based upon the dispersal of trips during the major event, namely the construction phase peak. Generally, addition of more than 100 trips would lead to the intersection being a candidate for inclusion, unless PennDOT accepted a rationale for not considering it. The geography and road network dictated that the affected intersections were generally along Route 11, with many of the trips travelling to or from I-80 and I-81.

The study area includes 23 intersections across PennDOT Engineering Districts 3-0 and 4-0, covering the municipalities of South Centre, Briar Creek, Berwick, Nescopeck, Salem Township, Shickshinny, & Nanticoke.

This report addresses the traffic impacts and mitigation alternatives for the "Future Build" and for the "Construction Phase Peak", the latter with concurrent "outages" (the period during which one of the existing units is refueled and maintained, generally occurring once every two years and lasting approximately one month for each event).

This report is a revision of the previous submittal in October 2010 and addresses comments from PennDOT District 3-0 and 4-0. Since the earlier submittal, work has been progressing concurrently with other permit applications both at federal and state level. The planning for this project has been ongoing for some time and given the scale of this project with the passage of time, different elements of the planning are revised on a continual basis.

Three such changes were relevant to the traffic circulation: a) The planned construction schedule has been moved approximately 30 months into the future; b) Design elements have been shifted internally resulting in additional truck shipments per month for two years over the course of plant construction; and c) HOP plans are being prepared for SSES entrance driveways that include changes to intersections. Items a) and c) have been taken into account in this revision. Item b) does not affect the capacity analysis in this study because it is planned that these shipments will be timed such that they do not overlap the peak periods considered in this traffic impact study, nor define a new peak.

In accord with PennDOT procedures, the "Future No-Build (FNB)" (with signals optimized for that traffic) was used as the baseline for the mitigation. That is, the target that should be achieved in the "Future Build (FB)" and the "Construction Phase Peak (CONST)" is a level of service (LOS) that is the same as the "Future No-Build", with mitigation required only if the change in the average vehicle delay is greater than 10 seconds/vehicle.

Growth factors were based upon PennDOT tables, and data collection was done in accord with PennDOT requirements.

The trip distribution for the future operational staff for the new Bell Bend plant was based upon the profile of the origins (by zip code) of workers at the existing SSES units. The trip distribution of the construction workers was based upon the regional concentration of population, using U.S. Census data.

For the FB alternative, it was possible to retain the intersection levels of service for all affected signalized intersections, simply by optimizing the signals for the additional traffic. This was feasible because the total number of workers at the new plant is estimated to be 363 with trip patterns dispersed throughout the day.

For the Construction (CONST) case, both the impact of truck movements and of the workers was considered.

Although there are a very significant number of truck movements over the construction period, the impact on hourly flow is relatively low (typically 1-2 trucks per hour) due to the duration of the construction period. Wide loads are avoided, due to planned movements of larger elements by rail. Concrete is to be made on-site which, among other possible sources, may use materials from a local quarry along Route 11, east of the site. Local requests to minimize truck trips during school start/end hours have been considered in scheduling.

The number and concentration of construction worker trips to and from the site do however add significantly to the traffic loads, and pose substantial challenges for mitigation. The peak period of construction is estimated to generate 3039 trips to the site per day by auto (and another 3039 trips from the site), split over three weekday shifts in a 60-35-5 proportion.

To provide a conservative analysis (that is, maximum impact), this traffic was assigned to the road system as if it all originated from within 40 miles of the site, proportional to the population concentrations shown in census data. Further, the analysis month used included both the peak of construction activity and an “outage” at one of the nearby existing units (i.e. a maintenance and refueling period, with its own significant traffic).

These construction staff trips are estimated to come from the northeast of the site and from west of site in a 48/52 ratio, based upon census data on population concentrations. The arrival/departure times at the busiest times actually shifts the peak hour to the construction schedule.

The duration of the major impact period, when one considers the construction activity profile and the months on either side of it, is estimated to be 18-24 months long. The duration of an outage period is one month per year, generally in March.

The primary measures considered and recommended for the “construction phase peak” plus outage are summarized in Table ES-1.

The values in Table ES-1 are highlighted if one of the following situations arise:

- There is a change in the LOS from the FNB *and* the change in delay is greater than 10 seconds, or
- If a traffic signal is proposed, the estimated intersection LOS is worse than LOS C.

As shown in Table ES-1 there are a total of five instances – two in the AM peak period and three in the PM peak period (with one common intersection) – that do not meet these LOS requirements. These are three intersections in Berwick west of SR 93 (Orange Street) and a fourth at the SSES entrance. Three out of the five situations enumerated above exist only during the Outage periods that occur during the peak construction year(s). That is, for one month in each of (at most) two consecutive years.

SSES is currently in the HOP process of upgrading their driveways including the main entrance along SR 11. The upgrades include a dedicated right turn bay into the site for the RT 11 traffic and conversion of the center lane into a dedicated left turn lane into the site from RT 11. In order to meet the LOS requirements during the peak of the construction, a traffic signal will need to be installed and the southbound right turn lane will need to be extended by approximately 200 feet.

Based on feedback from PennDOT, Table ES-1 does not contain possible beneficial effects of diversion or routing changes due to LOS at these intersections. Thus, the material contained herein is a “worst case” analysis to be considered in the PennDOT decision on whether to allow a special condition at these four intersections, during the peak of the construction period, i.e. LOS D for these intersections.

Table ES-1: Summary of Proposed Mitigation Measures

Int No	PennDOT	County	Municipality	Intersection	Mitigation Measure ¹	AM		PM	
						FNB ²	Const ²	FNB	Const
1			South Center	S.R. 11 and S.R. 2028	Add Thru Lane on RT 11 NB	B (14.9)	B (10.8)	C (23.1)	C (27.5)
2			Briar Creek	S.R. 11 and Briar Creek Plaza Driveways	Add Thru Lane on RT 11 SB	A (6.6)	C (21.5)	C (20.9)	B (16.2)
3				S.R. 11 (Front Street) and Eaton Street	Temporary Traffic Signal		B (11.9)		C (30.4)
4				S.R. 11 (Front Street) and Poplar Street	Restriping on Poplar Street	C (27)	D (36.8)	D (40)	B (17.2)
5				S.R. 11 (Front Street) and Orchard Street		A (6.7)	A (8)	B (17.7)	D (49.1)
6				S.R. 11 (Front Street) and S.R. 93 (Orange Street)		A (5.9)	B (11.5)	B (11)	D (45.7)
7				S.R. 11 (Second Street) and LaSalle Street		B (11.8)	A (8.3)	B (14.1)	B (12.6)
8				S.R. 11 (Second Street) and Oak Street		A (6.2)	A (7.4)	A (8)	A (7.7)
9				S.R. 11 (Second Street) and Mulberry Street		A (4.8)	A (3.4)	A (5.7)	A (6)
10				S.R. 11 (Front Street) and Mulberry Street		A (6.1)	B (12.1)	A (8)	A (8.4)
11				S.R. 1025 (Market Street) and Third Street		A (9.6)	A (8.8)	B (12.8)	B (12.8)
12				S.R. 11 (Second Street) and Market Street		A (9.7)	A (6.3)	B (11.7)	B (14)
13				S.R. 11 (Front Street) and Market Street	Restriping on Market Street	B (14.2)	B (16.3)	B (15.3)	A (8.8)
14				S.R. 11 (Second Street) and Pine Street	Restrict street parking on Front Street	A (6)	A (7.6)	A (8.6)	B (15.9)
15				S.R. 93 (Third Street) and S.R. 339 (Broad Street)		B (14.1)	C (22.6)	B (12.3)	B (16.4)
16			Nescopeck	S.R. 93 (Third Street) and Dewey Street		A (4.6)	A (4.6)	A (3.7)	A (4.3)
17				S.R. 11 and Bell Bend Site Entrance	Proposed Site Access Road		C (20.2)		B (19.6)
18			Salem Township	S.R. 11 and SSES Site Entrance	Temporary Traffic Signal		D (35.2)		D (35.2)
19				S.R. 11 (S. Main Street) and S.R. 239	Add Thru Lane on SB RT 11				
			Shickshinny		Add Thru Lane on NB RT 11	A (7.8)	A (5.6)	A (9.4)	B (10.8)
20				S.R. 11 (Main Street) and S.R. 239 (Union Street)	Add Right turn bay on RT 239 onto RT 11	B (14.7)	B (14.9)	B (15.5)	B (18)
21				S.R. 11 and S.R. 29 (Mill Street)	Restrict Parking on RT 11 SB	C (23.6)	C (29.5)	C (26.3)	C (21.5)
22				S.R. 11 and County Bridge	Modify intersection to provide un-interrupted flow for NB RT 11				
			Nanticoke		Add Thru Lane on RT 11 NB	D (49.5)	B (14.1)	C (24.2)	C (31.1)
					Make RT 11 NB 2 lanes to intersection with RT 29				
23				S.R. 11 (E. Poplar Street) and S.R. 29	Temporary Traffic Signal		C (23.3)		B (16.8)
					Restrict left turn from SB RT 11 onto NB RT 29				

Note 1: Mitigation measures shown are in addition to signal retiming. Details are shown in the text of the report.

Note 2: "FNB" corresponds to the Future Year No-Build Condition and "Const" corresponds to Future Year Construction with proposed mitigation in place.

Note 3: "Delay" is average vehicle delay in (seconds/vehicle)

Note 4: Highlighted cells **D (49.1)** indicate cases in which the proposed mitigation does not fully address the impact.

Note 5: Highlighted cells **Add Thru Lane on SB RT 11** indicate locations that involve no significant infrastructure changes

Note 6: "FNB" and "Const" LOS/Delay values include a concurrent Outage at SSES.

Overall, the analysis leads to the conclusion that specific mitigation is needed, as shown in Table ES-1, at an estimated cost of \$4.0 million (excluding construction at the site access road) as detailed in the text.

With regard to the overall traffic plan, the proposed site includes a parking lot to handle the expected construction traffic demand. The onsite security checkpoints are to be placed such that there is no spillback onto S.R. 11. There are some construction lay down areas east or south of S.R. 11, but these do not affect the impacts described herein.

In the "Future Build" condition, with the new Bell Bend plant operational, all traffic impacts can be mitigated simply by signal optimization.

1. INTRODUCTION

1.1 Project Objective

PPL Bell Bend, LLC proposes to construct and operate a new nuclear power plant to be designated as BBNPP located west of the existing Susquehanna Steam Electric Station (SSES) site. SSES has two units currently operational. The proposed project is planned for construction over an approximately 7 year period. The new plant is expected to be operational by December 2021. Figure 1 presents an overview of the site.

As part of this effort, a COLA (Combined License Application) [1] has been filed with the Nuclear Regulatory Commission (NRC). This COLA prepared by UniStar Nuclear Energy (UNE) included an Environmental Report (ER). The ER defined the impacts from the proposed expansion including traffic impacts. A traffic study completed by KLD Engineering, P.C. (KLD) in 2008 was incorporated into the ER. As part of the federal application process initial meetings with state and municipal agencies regarding the traffic study and impacts were conducted in the middle of 2008.

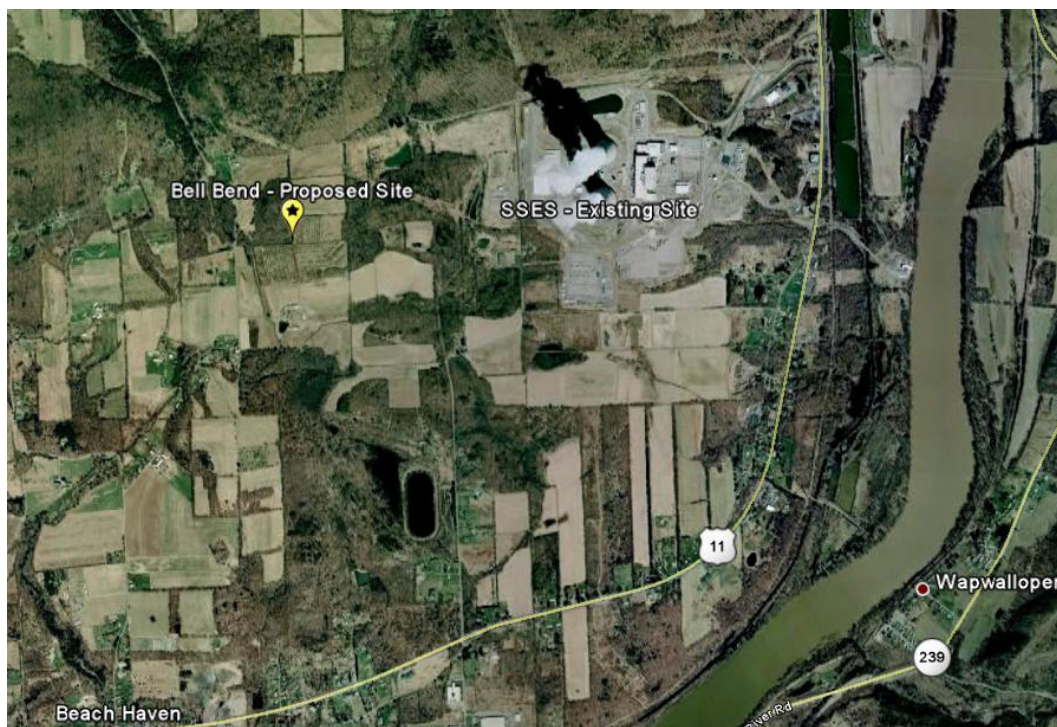


Figure 1 SSES/Bell Bend Site

This report is a revision of the previous submittal in October 2010 and addresses comments from PennDOT District 3-0 and 4-0. The District 3-0 and District 4-0 comments and responses are included in Appendix O and Appendix P respectively. Since the earlier submittal, work has been progressing concurrently with other permit applications both at federal and state level.

The planning for this project has been ongoing for some time and given the scale of this project with the passage of time, different elements of the planning are revised on a continual basis. There have been updates to the study assumptions related to the schedule and other intersection improvements at the SSES driveway. These changes have been incorporated in this report.

1.2 Study Methodology

Traffic impact studies (TIS) are designed to analyze the effects of industrial and commercial activity, and growth on local transportation infrastructure. The goal is to determine whether the infrastructure is capable of handling the incremental traffic added to a highway system during construction or operation of new facilities. It is important to maintain safe traffic operations while maintaining, to the maximum extent possible, the quality of traffic flow in a community. In a typical TIS, the following traffic conditions are analyzed as shown in Figure 2:

- The existing traffic condition, determined by field data collection and standard traffic engineering computations on the field data;
- The future no-build (FNB) condition assumes that the proposed project is not built, and characterizes the future traffic condition based upon the growth of the existing traffic, plus any traffic from approved projects that are not included in the standard growth factors;
- The future build (FB) that includes the proposed project and all the elements included in the FNB.

In addition, given the nature and size of the construction effort required for a nuclear power plant, the study includes analysis of the traffic impact (and mitigation plan) during construction. This is done for the heaviest construction month at the latest date that also includes an outage at the existing unit. This is called the construction + outage condition, and is also shown in Figure 2.

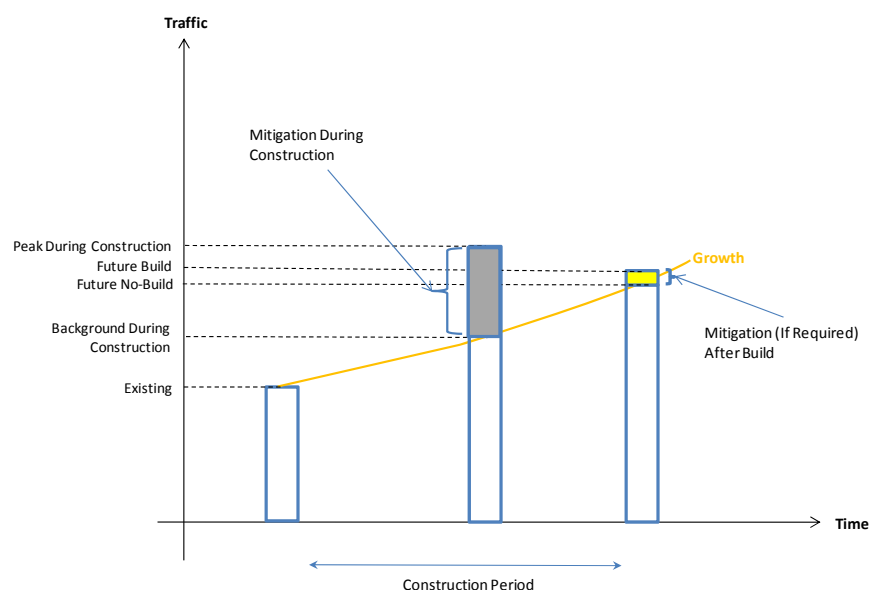


Figure 2 – Traffic Impact Analysis Approach

The first step in the TIS is to define the study area, generally based on the expected site trip generation. This is followed by a field data collection effort to define the existing operating conditions. Considering background growth and other planned developments, the Future No-Build (FNB) condition is defined. This is followed by determining the impacts when the new power plant is operational (Future Build, or FB) and during construction (Future Year Construction Peak) by comparing to the reference condition (Future No-Build, or FNB). The analysis of operating conditions is based on the peak-hour traffic volumes and level of service criteria as defined in the Highway Capacity Manual. The mitigation measures are defined (if needed) for the Future Build and Future year construction conditions such that the resultant change in the level of service with the mitigation, meets the guidelines for acceptable levels of degradation in traffic operations compared to the Future No-Build condition.

1.3 Study Area

The project study area was identified based upon the dispersal of trips during the major event, namely the construction phase peak. The geography and road network dictated that the affected intersections were generally along Route 11, with many of the trips travelling to or from I-80 and I-81.

Based on the location of the site, the major travel routes to/from the site would be the following:

From the North West and North – Route 239 and Route 11

From the North East and East – I-81, Route 29, and Route 11

From the South East, South and South West – I-80, Route 93 and Route 11

From the West – Route 93 and Route 11

The primary travel route in the study area is Route 11. This route is part of the US Highway system and is the responsibility of the State of Pennsylvania Department of Transportation (PennDOT). PennDOT references the highway as State Route 11 or S.R.11 or SR 0011 in their drawings. This naming convention has been adopted in this study and is equivalent to U.S. 11 or Route 11.

The study area intersections were identified as the major intersections that were on route for the operations and construction workforce at the Bell Bend site. The operations workforce for the Bell Bend site is expected to have a spatial distribution similar to the current workforce at SSES. However, the construction workforce for the Bell Bend site is expected to be derived from all areas surrounding the site based on the census block population. That is, the more populated areas such as Wilkes-Barre and Hazleton would have higher contributions to the construction workforce.

In early 2010, the process of initiating state review of the traffic impact began. A Scoping Meeting was conducted on February 17, 2010. Based on follow up discussions with PennDOT Districts 3-0 and 4-0, the study area was defined. Appendix A lists the communications with PennDOT and scoping meeting information.

The list of study area intersections is shown in Table 1 and Figure 3.

The study area includes 23 intersections across PennDOT Engineering Districts 3-0 and 4-0, covering the municipalities of South Centre, Briar Creek, Berwick, Nescopeck, Salem Township, Shickshinny, & Nanticoke.

Table 1 – Study Area Intersections

<i>Int No</i>	<i>PennDOT</i>	<i>County</i>	<i>Municipality</i>	<i>Intersection</i>	<i>Type</i>
1	3-0	Columbia	South Centre	S.R. 11 and S.R. 2028	Signalized
2			Briar Creek	S.R. 11 and Briar Creek Plaza Driveways	Signalized
3			Berwick	S.R. 11 (Front Street) and Eaton Street	Stop Controlled
4				S.R. 11 (Front Street) and Poplar Street	Signalized
5				S.R. 11 (Front Street) and Orchard Street	Signalized
6				S.R. 11 (Front Street) and S.R. 93 (Orange Street)	Signalized
7				S.R. 11 (Second Street) and LaSalle Street	Signalized
8				S.R. 11 (Second Street) and Oak Street	Signalized
9				S.R. 11 (Second Street) and Mulberry Street	Signalized
10				S.R. 11 (Front Street) and Mulberry Street	Signalized
11				S.R. 1025 (Market Street) and Third Street	Signalized
12				S.R. 11 (Second Street) and Market Street	Signalized
13				S.R. 11 (Front Street) and Market Street	Signalized
14				S.R. 11 (Second Street) and Pine Street	Signalized
15	4-0	Luzerne	Nescopeck	S.R. 93 (Third Street) and S.R. 339 (Broad Street)	Signalized
16				S.R. 93 (Third Street) and Dewey Street	Signalized
17			Salem Township	S.R. 11 and Bell Bend Site Entrance	New Intersection
18				S.R. 11 and SSES Site Entrance	Stop Controlled
19			Shickshinny	S.R. 11 (S. Main Street) and S.R. 239	Signalized
20				S.R. 11 (Main Street) and S.R. 239 (Union Street)	Signalized
21			Nanticoke	S.R. 11 and S.R. 29 (Mill Street)	Signalized
22				S.R. 11 and County Bridge	Signalized
23				S.R. 11 (E. Poplar Street) and S.R. 29	Stop Controlled

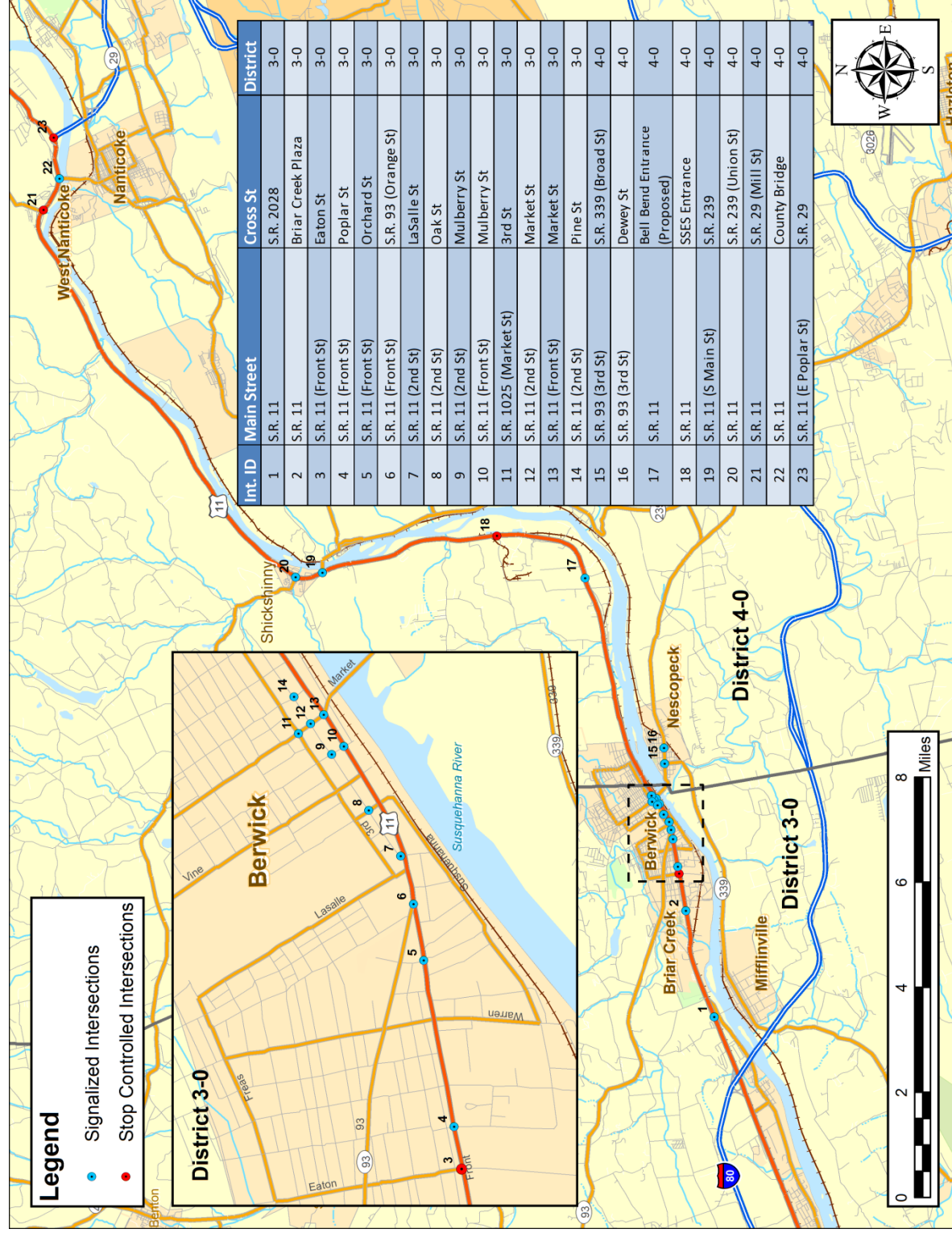


Figure 3 – Study Area Intersections

2. DATA COLLECTION

Table 2 presents the summary of the field data collected. Vehicle turning movement counts were collected manually on weekdays between 6AM and 9AM and, between 3PM and 6PM by field personnel. At each intersection, 2 to 3 people were stationed to record vehicle turning movements. These turning movement counts were used for the analysis of intersection operations. Automatic Traffic Recorders (ATR) were placed along the locations identified in Table 2 to collect hourly traffic flows for a 1 week duration. The ATR data collected along the SSES Entrance was used to develop the daily profile of the traffic entering and leaving the site at the existing power plant. This data was collected during normal operations. This information was used to estimate the arrival and departure patterns across the day for the workforce related to the new power plant and the outage staff at SSES. Appendix B presents all field data collected.

Table 2 – Field Data Collected

<i>Int No</i>	<i>Name</i>	<i>Notes</i>	Traffic Data	
1	S.R. 11 & S.R. 2028	Weekday 6AM – 9AM, 3PM – 6PM (4/2010)	Turning movement counts by vehicle class	
2	S.R. 11 & Briar Creek Plaza Driveways			
3	S.R. 11 (Front St.) & Eaton St.			
4	S.R. (Front St.) & Poplar St.	Weekday 6AM – 9AM, 3PM – 5:30PM (6/2008)		
5	S.R. 11 (Front St.) & Orchard St.	Weekday 6AM – 9AM, 3PM – 6PM (4/2010)		
6	S.R. 11 (Front St.) & S.R. 93 (Orange St.)	Weekday 6AM – 9AM, 3PM – 6PM (6/2008)		
7	S.R. 11 (2 nd St.) & LaSalle St.			
8	S.R. 11 (2 nd St.) & Oak St.	Weekday 6AM – 9AM, 3PM – 6PM (4/2010)		
9	S.R. 11(2 nd St.) & Mulberry St.			
10	S.R. 11 (Front St.) & Mulberry St.			
11	S.R. 93 (Market St.) & 3 rd St.			
12	S.R. 11 (2 nd St.) & Market St.			
13	S.R. 11 (Front St.) & Market St.			
14	S.R. 11 (2 nd St) & Pine St.			
-	S.R. 11 (2 nd St.) & Walnut St.			
-	S.R. 11 (Front St.) & Walnut St.			
15	S.R. 93 (3 rd St.) & S.R. 339 (Broad St.)			
16	S.R. 93 (3 rd St.) & Dewey St.			
18	S.R. 11 & SSES Entrance			
19	S.R. 11 (S. Main St.) and S.R. 239			Weekday 6AM – 9AM, 3PM – 5:30PM (6/2008)
20	S.R. 11 (Main St.) & S.R. 239 (Union St.)			

Table 2 – Field Data Collected

<i>Int No</i>	<i>Name</i>	<i>Notes</i>	Traffic Data
21	S.R. 11 and S.R. 29 (Mill St.) ¹	Weekday 6:30AM – 8:30AM, 3:30PM – 6PM (9/2009)	
22	S.R. 11 (E. Poplar St.) & County Bridge	Weekday 6AM – 9AM, 3PM – 6PM (4/2010)	
23	S.R. 11 (E. Poplar St.) & S.R. 29	Weekday 6AM– 6PM (4/2010)	
-	S.R. 93 between Cooper St. & Berwick	Hourly counts in both directions for 24 Hours for 1 week (4/2010)	ATR Counts
-	S.R. 11 between Confers Ln. & Pinecrest Rd.		
-	S.R. 29/S. Cross Valley Expy. between Sans Souci Pkwy & S.R. 11 interchange		
-	S.R. 11 N./E. Poplar St. between Route 11 divergence & S.R. 29 confluence		

Note 1: Turning movement counts at S.R. 11 and S.R. 29 (Mill St.) were provided by PennDOT

3. EXISTING STUDY AREA CONDITIONS

3.1 Existing Roadway Conditions

Road surveys were conducted to assess roadway geometry and pavement conditions within the study area. These were supplemented with aerial imagery available from Google Earth[®]/Google Maps[®], Microsoft Live Maps[®] and MapQuest[®]. Based on the road surveys, all roadways appear to be in good condition. The roadway condition diagrams are included in Appendix C of this report. These condition diagrams define the posted speed limit, lane assignments and intersection traffic control. The existing traffic control permits for the study area were provided by PennDOT Districts 3-0 and 4-0 for the study area intersections. These plans are included in Appendix D.

3.2 Existing Level of Service (LOS) and Capacity Analysis

Based on the field data collected, the peak hours for the existing traffic are identified based on the sum of the actual traffic volumes on all approaches of the intersection, and presented in Table 3. Due to varying cross street traffic, nearby intersections can actually have slightly different peak hours in the observed data. The volumes in these peak hours are shown in Figures 4 and 5.

Table 3 – Start of Peak Hour: Existing Conditions

Int No	PennDOT	County	Municipality	Intersection	Existing Conditions	
					AM	PM
1	3-0	Columbia	South Centre	S.R. 11 and S.R. 2028	7:30 AM	3:45 PM
2			Briar Creek	S.R. 11 and Briar Creek Plaza Driveways	7:30 AM	3:45 PM
3			Berwick	S.R. 11 (Front Street) and Eaton Street	7:30 AM	3:45 PM
4				S.R. 11 (Front Street) and Poplar Street	7:30 AM	3:45 PM
5				S.R. 11 (Front Street) and Orchard Street	7:30 AM	3:45 PM
6				S.R. 11 (Front Street) and S.R. 93 (Orange Street)	7:30 AM	3:45 PM
7				S.R. 11 (Second Street) and LaSalle Street	7:30 AM	3:45 PM
8				S.R. 11 (Second Street) and Oak Street	7:30 AM	3:45 PM
9				S.R. 11 (Second Street) and Mulberry Street	7:30 AM	3:45 PM
10				S.R. 11 (Front Street) and Mulberry Street	7:30 AM	3:45 PM
11				S.R. 1025 (Market Street) and Third Street	7:30 AM	3:45 PM
12				S.R. 11 (Second Street) and Market Street	7:30 AM	3:45 PM
13				S.R. 11 (Front Street) and Market Street	7:30 AM	3:45 PM
14				S.R. 11 (Second Street) and Pine Street	7:30 AM	3:45 PM
15	4-0	Luzerne	Nescopeck	S.R. 93 (Third Street) and S.R. 339 (Broad Street)	7:30 AM	3:45 PM
16				S.R. 93 (Third Street) and Dewey Street	7:30 AM	3:45 PM
17			Salem Township	S.R. 11 and Bell Bend Site Entrance		
18				S.R. 11 and SSES Site Entrance	6:00 AM	4:45 PM
19			Shickshinny	S.R. 11 (S. Main Street) and S.R. 239	6:00 AM	3:30 PM
20				S.R. 11 (Main Street) and S.R. 239 (Union Street)	7:00 AM	4:30 PM
21			Nanticoke	S.R. 11 and S.R. 29 (Mill Street)	7:00 AM	4:30 PM
22				S.R. 11 and County Bridge	7:00 AM	4:30 PM
23				S.R. 11 (E. Poplar Street) and S.R. 29	7:00 AM	4:30 PM

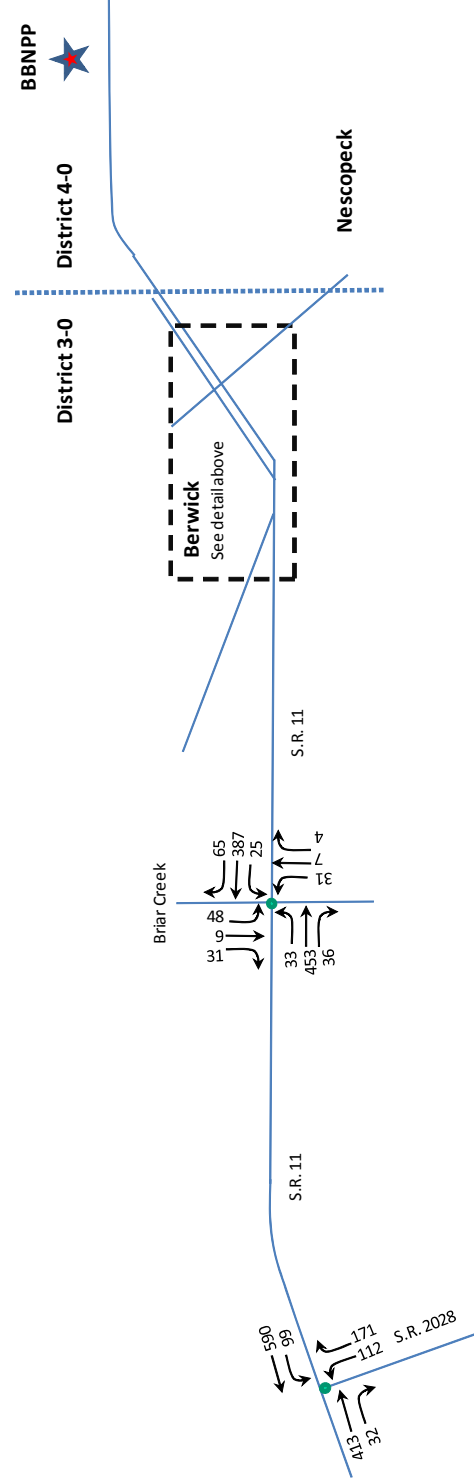
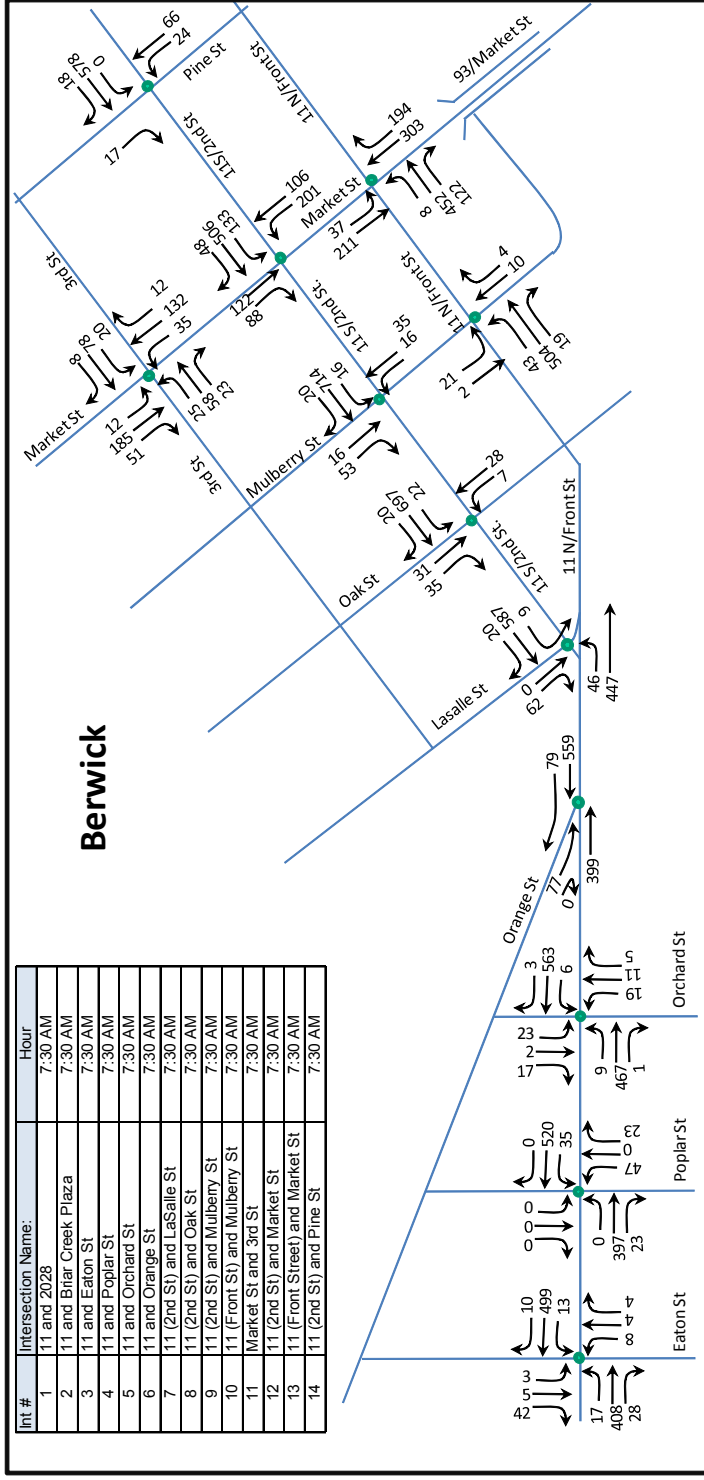


Figure 4 – Weekday AM Peak Hour Volumes: Existing Conditions

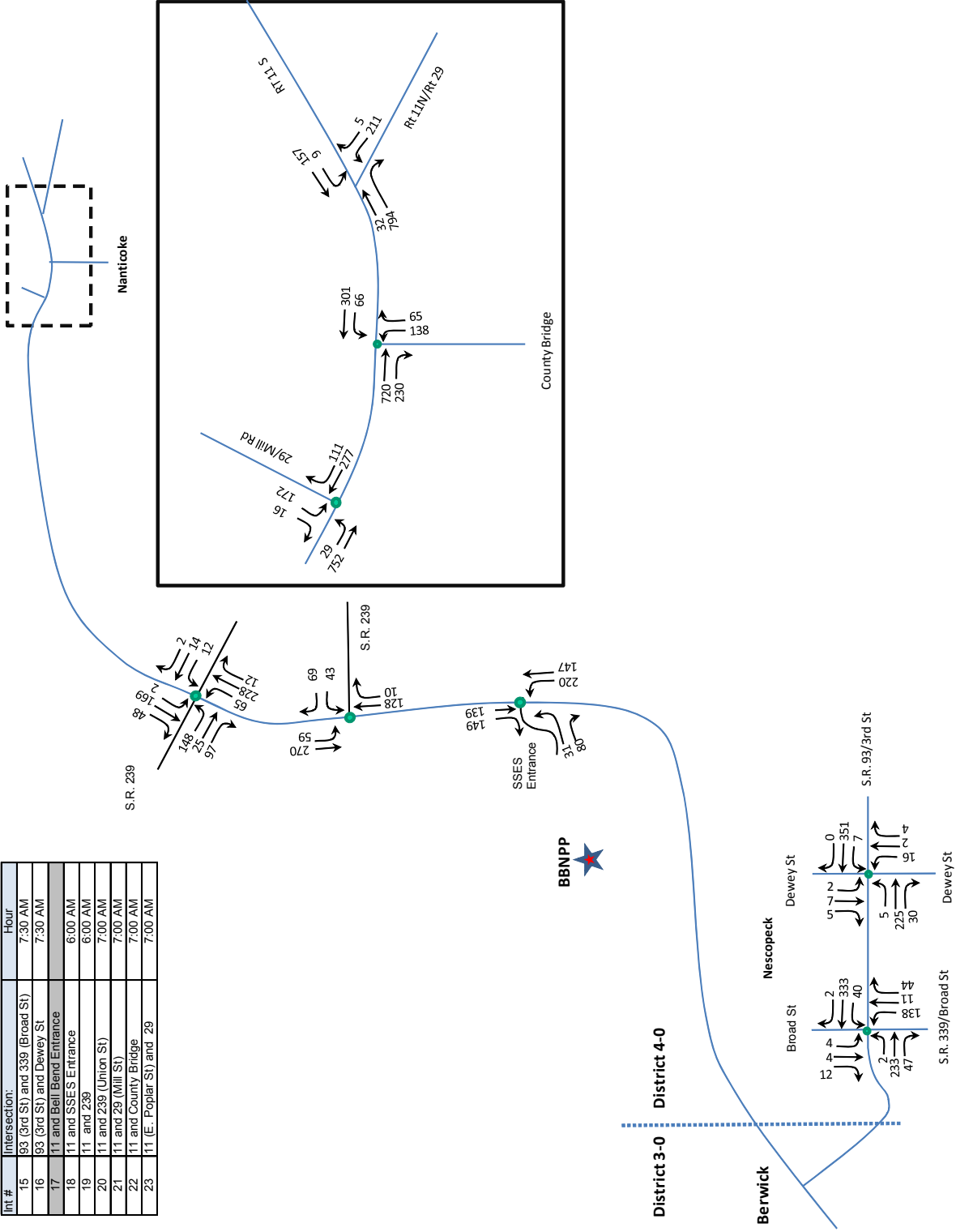


Figure 4 – Weekday AM Peak Hour Volumes: Existing Conditions

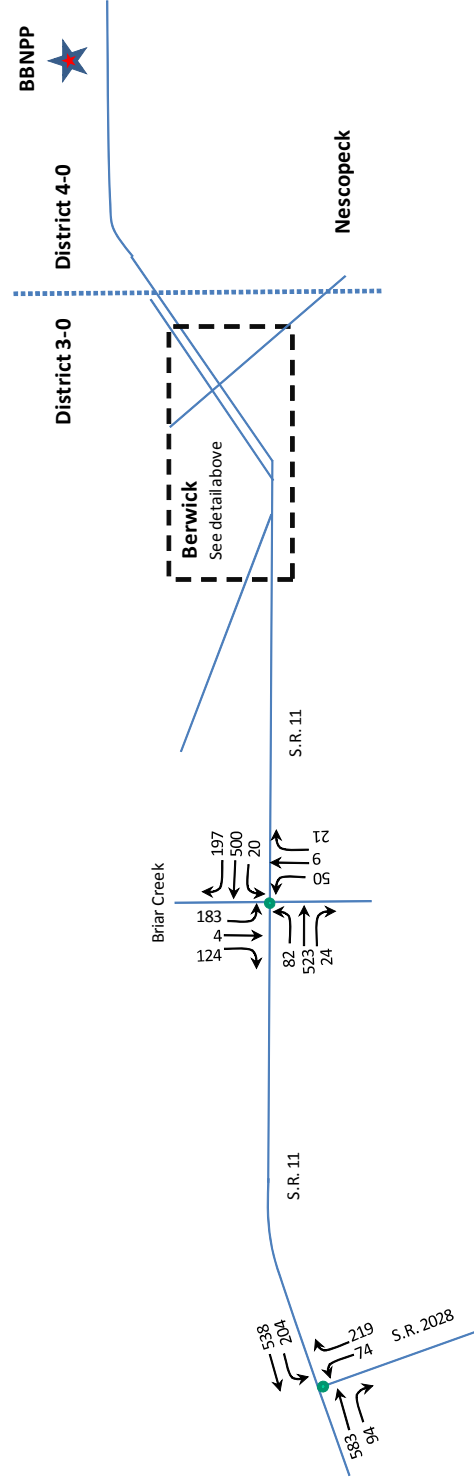
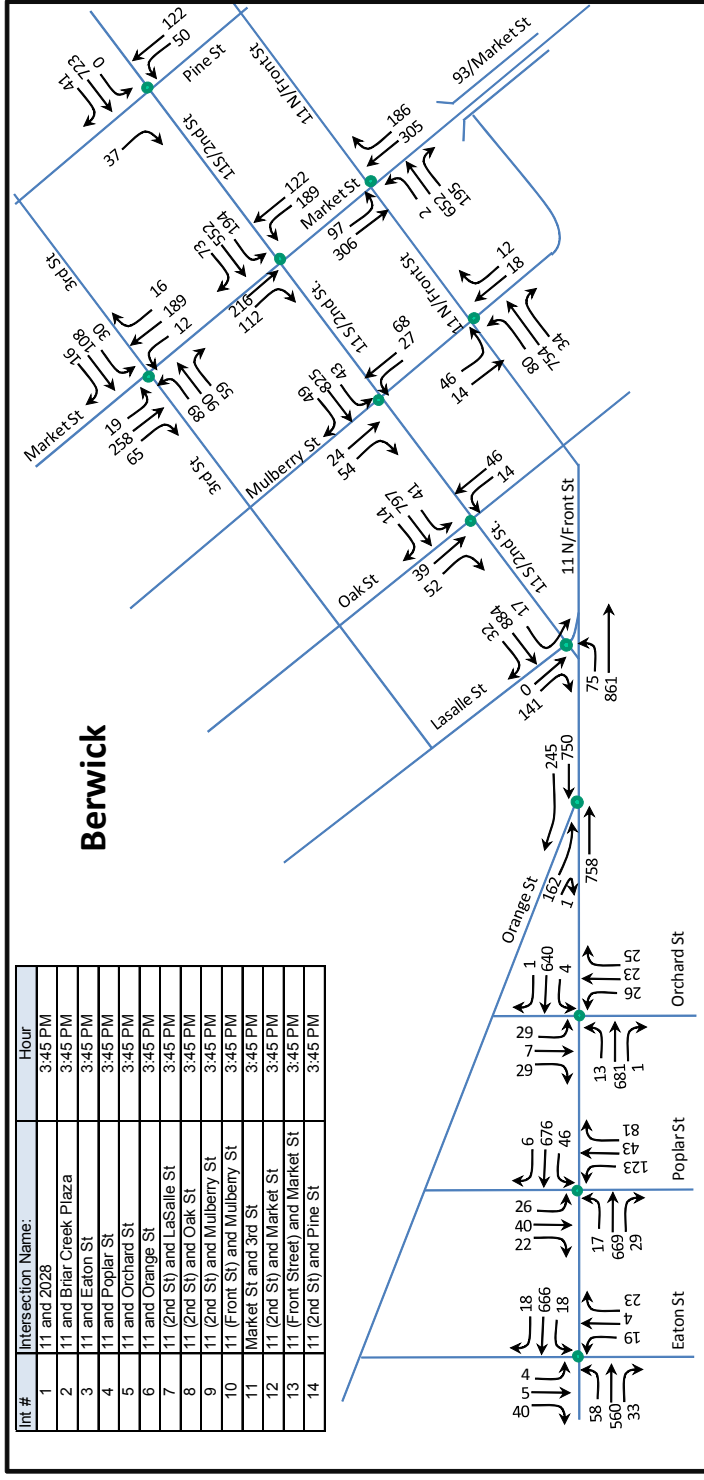
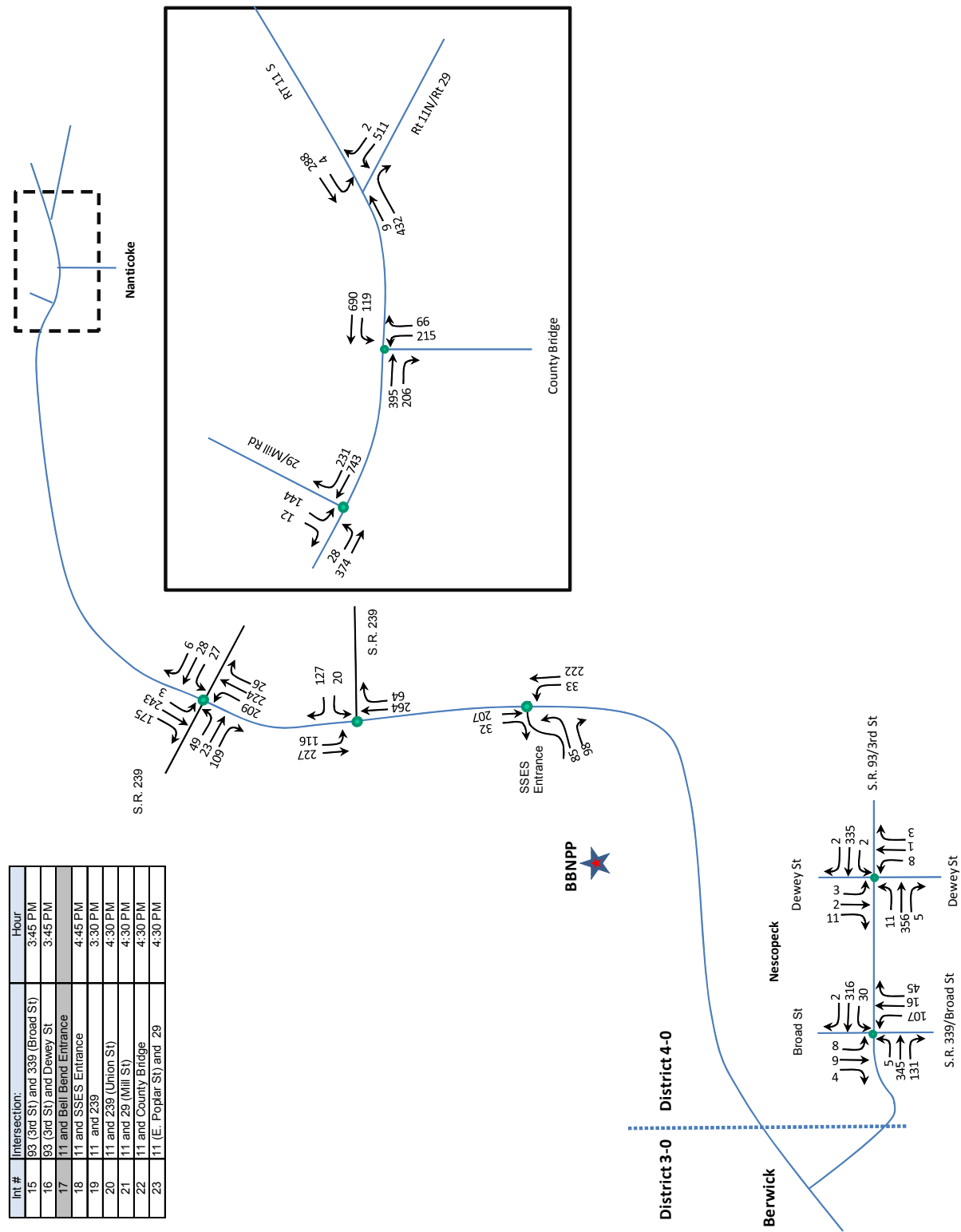


Figure 5 – Weekday PM Peak Hour Volumes: Existing Conditions



The ability of a roadway network to accommodate projected traffic volumes generated by a proposed development during its construction and operation is assessed utilizing techniques to measure capacity and Level of Service (LOS). LOS is an ordinal scale that is defined from A to F with "A" being the best level of service. The different levels are defined in the year 2000 edition of the Highway Capacity Manual (HCM 2000¹) [2], in terms of average delay for intersections and average travel speed for arterials. Typically, the LOS is determined for the peak 1-hour during the identified periods as it represents "worst case" conditions.

The definitions as presented in the HCM 2000 [2] for LOS are the following:

<i>Type of Intersection</i>	<i>LOS</i>	<i>Average Delay (seconds/vehicle)</i>
Signalized Intersections	A	≤ 10
	B	> 10 to 20
	C	> 20 to 35
	D	> 35 to 55
	E	> 55 to 80
	F	≥ 80
Unsignalized Intersection (Two-way Stop Controlled Intersections)	A	≤ 10
	B	> 10 to 15
	C	> 15 to 25
	D	> 25 to 35
	E	> 35 to 50
	F	≥ 50

Based on PennDOT guidance [3] through [8] the HCM LOS output as estimated by SYNCHRO [9] is applied for the analysis throughout this report. Unsignalized intersections (stop controlled) were analyzed using the HCM Methodology as implemented in the HCS+ software [10]. In addition to the reports from SYNCHRO and HCS+, the calculations of the queues in the left turn lanes, the turn lane warrants, and left turn factors have been performed according to PennDOT guidelines.

Table 4 presents the LOS and average delay for the existing conditions. Appendix E presents the worksheets for the LOS computations related to the analysis of the existing conditions.

¹ The PennDOT Strike Off Letter 470-11-07 recommends using HCM 2000 until the PennDOT evaluation of the latest edition of the Highway Capacity Manual (HCM 2010) is complete.

Table 4 – LOS and Average Delay (sec/veh): Existing Conditions

<i>Int No</i>	<i>PennDOT</i>	<i>County</i>	<i>Municipality</i>	<i>Intersection</i>	<i>Existing LOS (Delay)</i>	
					<i>AM</i>	<i>PM</i>
1	3-0	Columbia	South Centre	S.R. 11 and S.R. 2028	B (14.2)	B (17.5)
2			Briar Creek	S.R. 11 and Briar Creek Plaza Driveways	A (7.6)	B (15.5)
3			Berwick	S.R. 11 (Front Street) and Eaton Street*	A (1.0)	A (1.6)
4				S.R. 11 (Front Street) and Poplar Street	C (23.6)	F (86.8)
5				S.R. 11 (Front Street) and Orchard Street	B (15.2)	C (24.6)
6				S.R. 11 (Front Street) and S.R. 93 (Orange Street)	B (10.6)	B (18.7)
7				S.R. 11 (Second Street) and LaSalle Street	A (9.7)	B (11)
8				S.R. 11 (Second Street) and Oak Street	A (6.4)	A (7.7)
9				S.R. 11 (Second Street) and Mulberry Street	B (11.5)	A (7.5)
10				S.R. 11 (Front Street) and Mulberry Street	A (6.6)	B (11.6)
11				S.R. 1025 (Market Street) and Third Street	B (14.8)	B (14.1)
12				S.R. 11 (Second Street) and Market Street	C (23.3)	B (18)
13				S.R. 11 (Front Street) and Market Street	B (18.5)	C (20.8)
14				S.R. 11 (Second Street) and Pine Street	A (6.8)	B (10.5)
15	4-0	Luzerne	Nescopeck	S.R. 93 (Third Street) and S.R. 339 (Broad Street)	B (13.2)	B (11.8)
16				S.R. 93 (Third Street) and Dewey Street	A (4.7)	A (3.7)
17			Salem Township	S.R. 11 and Bell Bend Site Entrance*		
18				S.R. 11 and SSES Site Entrance*	A (4.2)	A (3.3)
19			Shickshinny	S.R. 11 (S. Main Street) and S.R. 239	A (8.7)	B (11)
20				S.R. 11 (Main Street) and S.R. 239 (Union Street)	B (15)	B (15.8)
21			Nanticoke	S.R. 11 and S.R. 29 (Mill Street)	C (21.5)	C (24.5)
22				S.R. 11 and County Bridge	C (32.4)	C (20)
23				S.R. 11 (E. Poplar Street) and S.R. 29*	A (2.6)	C (19.5)

Note 1: * implies this is a stop controlled intersection. The intersection LOS was calculated based on the weighted average of approach delays as specified in Reference [3].

Note 2: The cells with LOS D or worse are highlighted.

Based on the values in Table 4, except at the signalized intersections of SR 11 & Poplar in Berwick, the intersections appear to be operating acceptably, LOS C or better. The intersection of SR 11 and SR 29 (Mill Street) is currently being upgraded to a signalized intersection and hence has been analyzed as a signalized intersection. As seen in the discussion in the following section, signal retiming improves the LOS at SR 11 (Front Street) and Poplar Street in Berwick.

4. FUTURE YEAR NO-BUILD CONDITIONS

4.1 Regional Growth and Other Developments

The proposed project is planned for construction over an approximately 7 year period. The new plant is expected to be operational by December 2021. This year was selected for the analysis of the Future Build (FB) and Future No-Build (FNB) conditions.

Based on guidance from PennDOT (growth factor tables) this report uses a compounded growth factor of 0.42% and 0.77% for urban non-interstate roads in Luzerne County and Columbia County respectively. The growth rate table is shown in Appendix F. Using these growth factors and the existing traffic volumes, the future traffic volumes are calculated. These volumes were used for the LOS and capacity analyses. The future no-build results assume that the signals settings were optimized using SYNCHRO.

There are two planned changes to the existing highway network: a) traffic signal that is being installed at S.R.11 and S.R.29 (Mill Street) in Nanticoke and b) the proposed upgrades to the SSES driveways. Besides these, there are no major highway development/improvement projects planned within the study area to influence the capacity of the roadway system. The forecasted volumes were analyzed using the existing highway network and the aforementioned two items. The LOS analysis is presented in Table 5.

The resulting peak hour volumes during the weekday AM and PM peak hours are shown in Figures 6 and 7. The LOS computations and capacity analysis are presented in Appendix G.

As seen in Table 5, there are three intersections that operate at LOS D or worse. They are signalized intersections of SR 11 & County Bridge in Nanticoke, SR 11 & Poplar Street in Berwick, and the stop controlled intersection of SR 11 and SR 29 also in Nanticoke.

These LOS values will be the reference to determine the required mitigation for the Future Build conditions.

Table 5 – LOS and Average Delay (sec/veh): Future No-Build Conditions

<i>Int No</i>	<i>PennDOT</i>	<i>County</i>	<i>Municipality</i>	<i>Intersection</i>	<i>FNB LOS (Delay)</i>	
					<i>AM</i>	<i>PM</i>
1	3-0	Columbia	South Centre	S.R. 11 and S.R. 2028	B (14.2)	B (19.4)
2			Briar Creek	S.R. 11 and Briar Creek Plaza Driveways	A (6.6)	B (14.2)
3			Berwick	S.R. 11 (Front Street) and Eaton Street*	A (1.1)	A (1.8)
4				S.R. 11 (Front Street) and Poplar Street	C (20)	D (38.9)
5				S.R. 11 (Front Street) and Orchard Street	A (6.5)	B (15.1)
6				S.R. 11 (Front Street) and S.R. 93 (Orange Street)	A (5.8)	A (9.9)
7				S.R. 11 (Second Street) and LaSalle Street	B (11.7)	B (13.6)
8				S.R. 11 (Second Street) and Oak Street	A (6.2)	A (8)
9				S.R. 11 (Second Street) and Mulberry Street	A (4.8)	A (5.7)
10				S.R. 11 (Front Street) and Mulberry Street	A (6)	A (7.9)
11				S.R. 1025 (Market Street) and Third Street	A (9.6)	B (12.9)
12				S.R. 11 (Second Street) and Market Street	A (9.5)	B (11.6)
13				S.R. 11 (Front Street) and Market Street	B (13.7)	B (15.3)
14				S.R. 11 (Second Street) and Pine Street	A (6)	A (8.7)
15	4-0	Luzerne	Nescopeck	S.R. 93 (Third Street) and S.R. 339 (Broad Street)	B (13.9)	B (12.2)
16				S.R. 93 (Third Street) and Dewey Street	A (4.6)	A (3.7)
17			Salem Township	S.R. 11 and Bell Bend Site Entrance*		
18				S.R. 11 and SSES Site Entrance*	A (4.4)	A (3.8)
19			Shickshinny	S.R. 11 (S. Main Street) and S.R. 239	A (8.1)	A (9.1)
20				S.R. 11 (Main Street) and S.R. 239 (Union Street)	B (13.6)	B (15.3)
21			Nanticoke	S.R. 11 and S.R. 29 (Mill Street)	C (23.4)	C (25.8)
22				S.R. 11 and County Bridge	D (48.9)	C (23.6)
23				S.R. 11 (E. Poplar Street) and S.R. 29*	A (2.7)	D (27.7)

Note 1: * implies this is a stop controlled intersection. The intersection LOS was calculated based on the weighted average of approach delays as specified in Reference [3].

Note 2: The cells with LOS D or worse are highlighted.



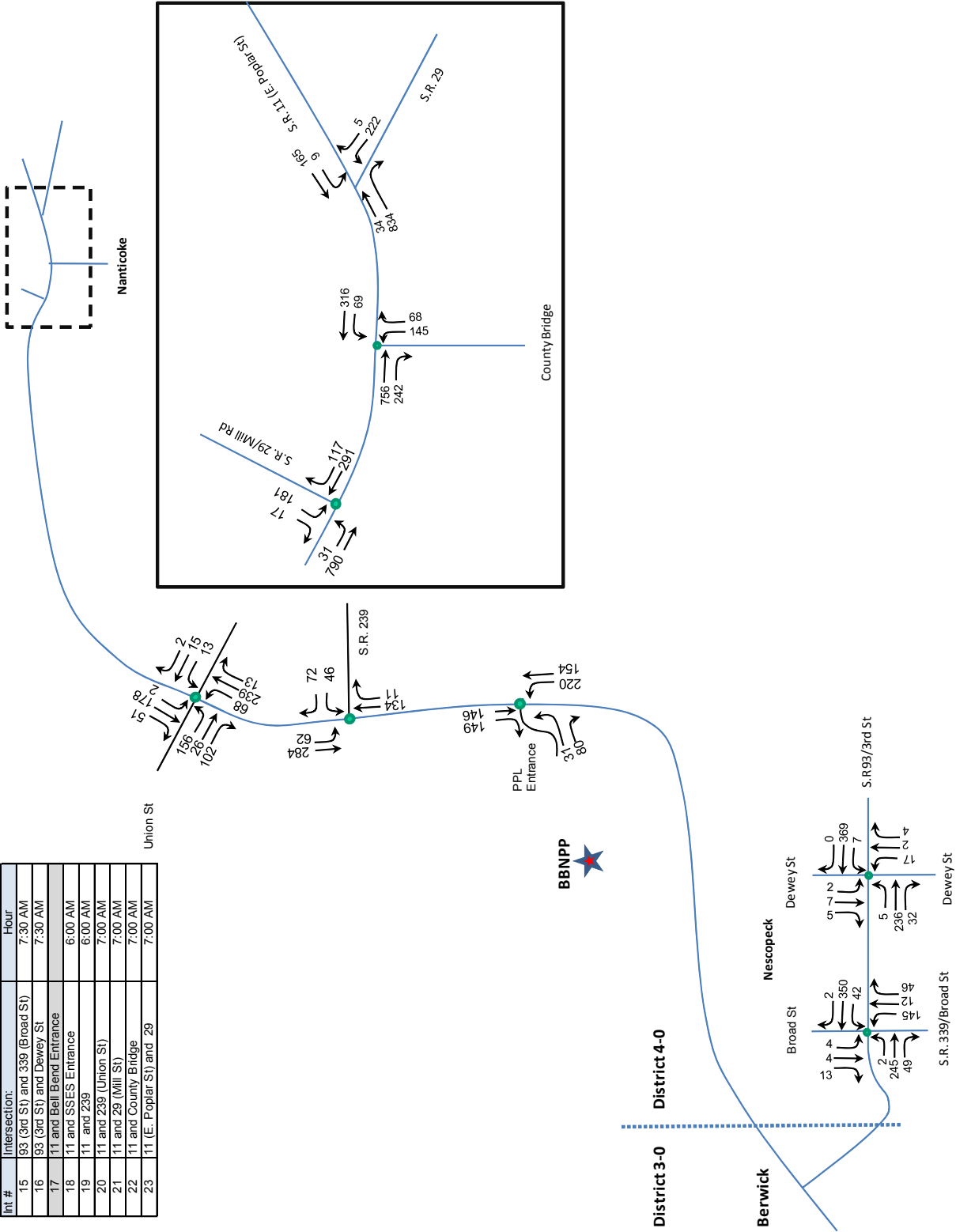


Figure 6 – Weekday AM Peak Hour Volumes: Future No-Build Conditions

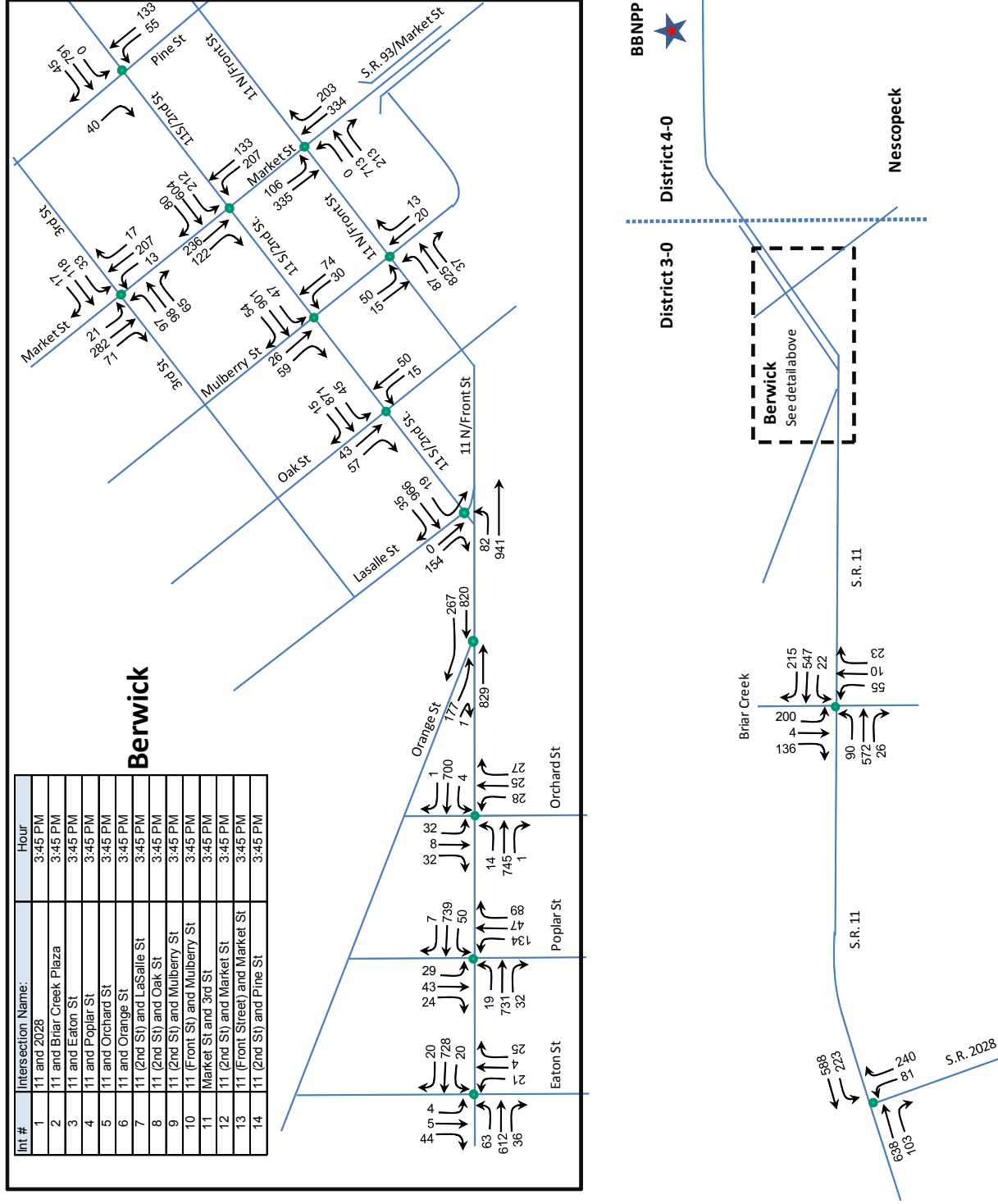


Figure 7 – Weekday PM Peak Hour Volumes: Future No-Build Conditions

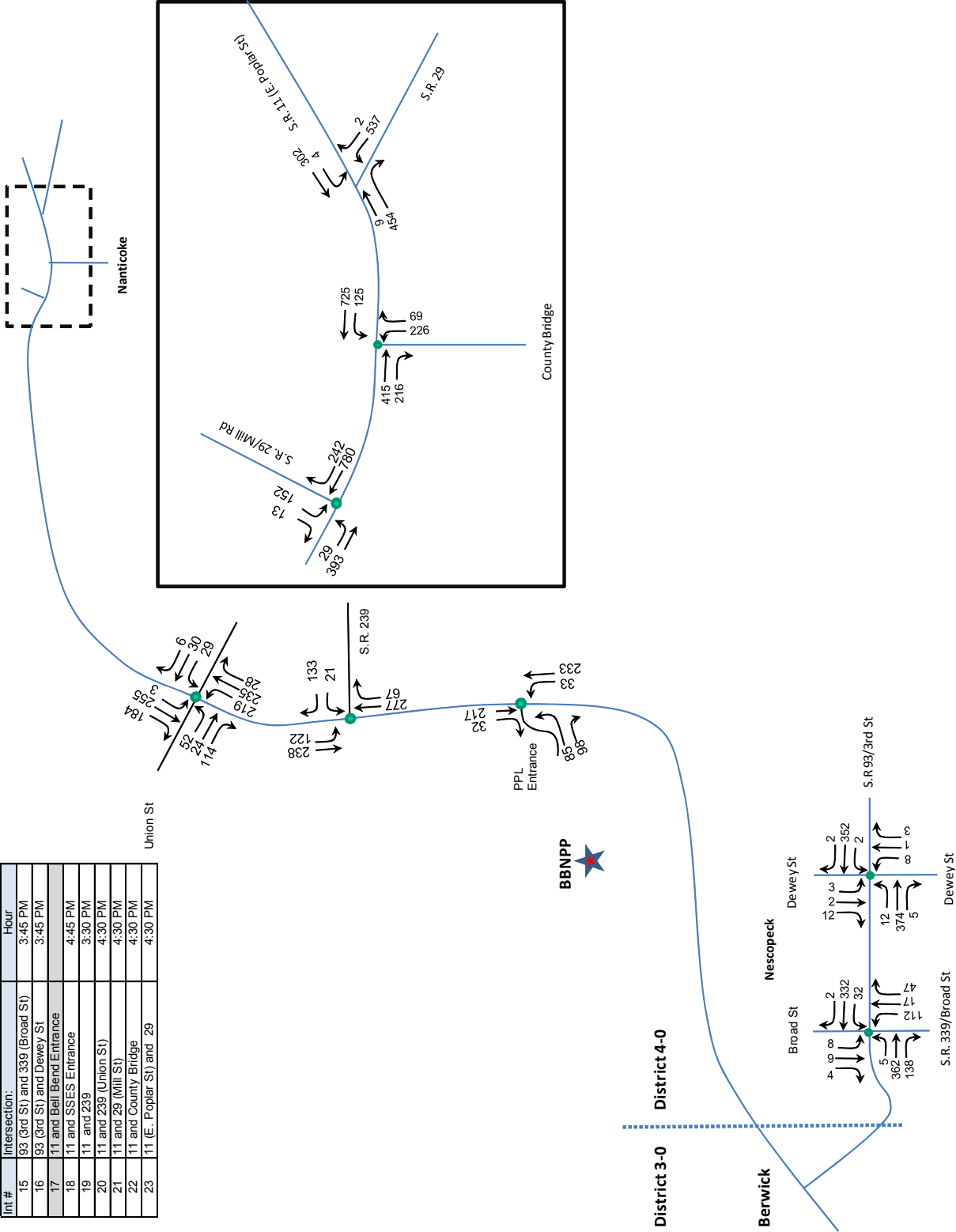


Figure 7 – Weekday PM Peak Hour Volumes: Future No-Build Conditions

5. DESCRIPTION OF DEVELOPMENT

5.1 Site Access

A new intersection along SR 11 is proposed for the Bell Bend Plant. This is approximately 1.5 miles south of the existing entrance for SSES along SR 11. The site entrance is proposed to be located immediately due east of the existing transmission line right-of-way (ROW) which crosses SR 11. Figure 8 shows the location of the planned site access intersection and site access roadway. The site plan is included as part of Appendix M on page M-78. Based on the estimated flows during construction this will be designated as a high volume driveway.

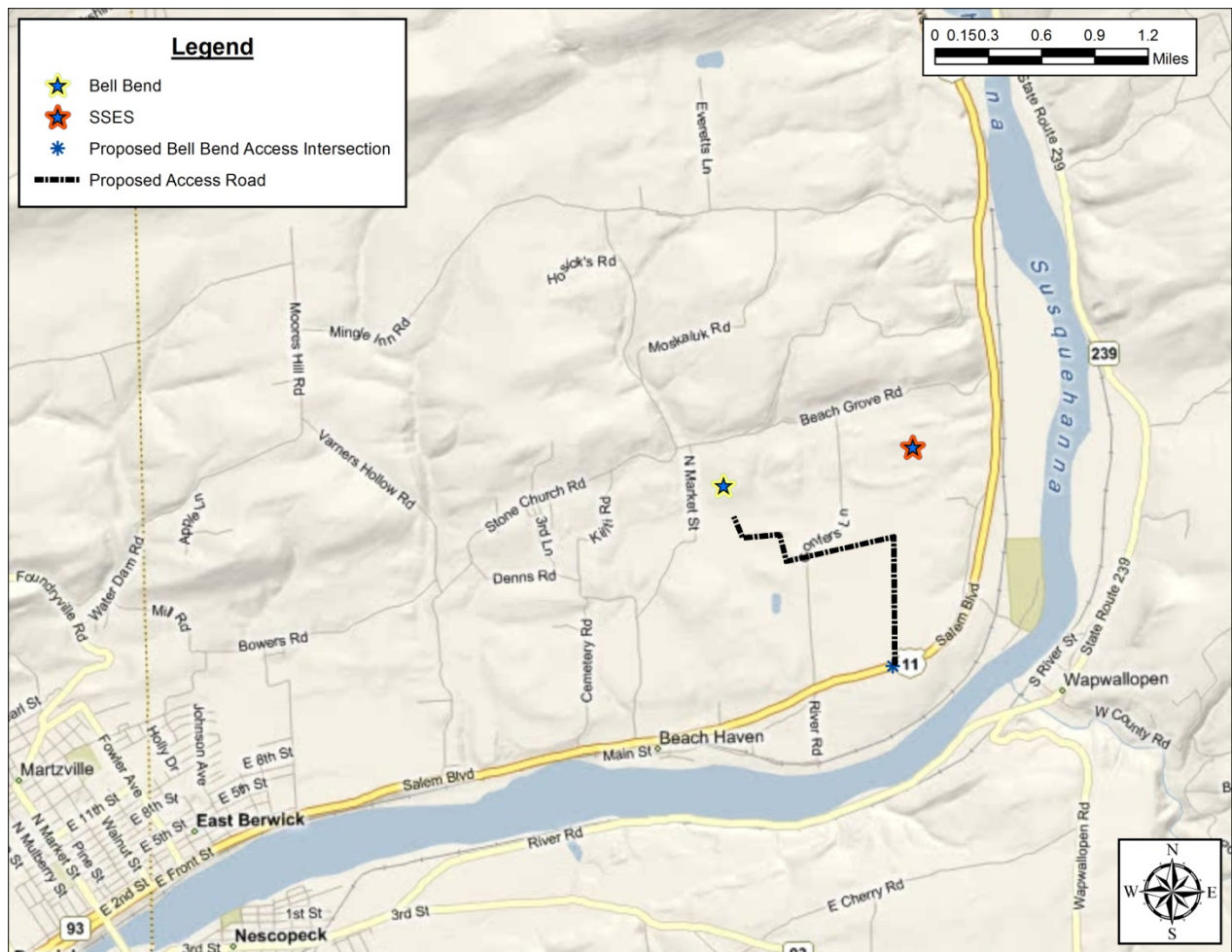


Figure 8 – Location of Proposed Bell Bend Site Access Road

5.2 Site Trip Generation

The standard reference to estimate trip generation rates by type of development is the Institute of Transportation Engineers (ITE) Trip Generation Manual [11]. The construction/operation of a

Nuclear Power Plant is not listed under those tables. Instead, data provided by UniStar Nuclear Energy² (UNE) and traffic data collected at the SSES entrance, is applied to estimate the trip generation expected on site from the new plant.

It is anticipated that when the new plant is operational, it will require a maximum of 363 additional employees on site.

UNE estimates that the average vehicle occupancy for these employees is 1.0 implying that the new plant will generate $2(363) = 726$ additional trips per day, counting arrivals and departures. These additional employees are assigned the same demographics as those on site and working on the existing SSES units.

5.3 Site Trip Distribution and Assignment

The staff size for the existing 2 units is approximately 1000 employees (822 full-time and 178 contractors).

Figure 9 represents the arrival and departure distribution across the workday of the power plant employees at the SSES Entrance along SR 11. These are derived from the ATR counts collected at the SSES Entrance.

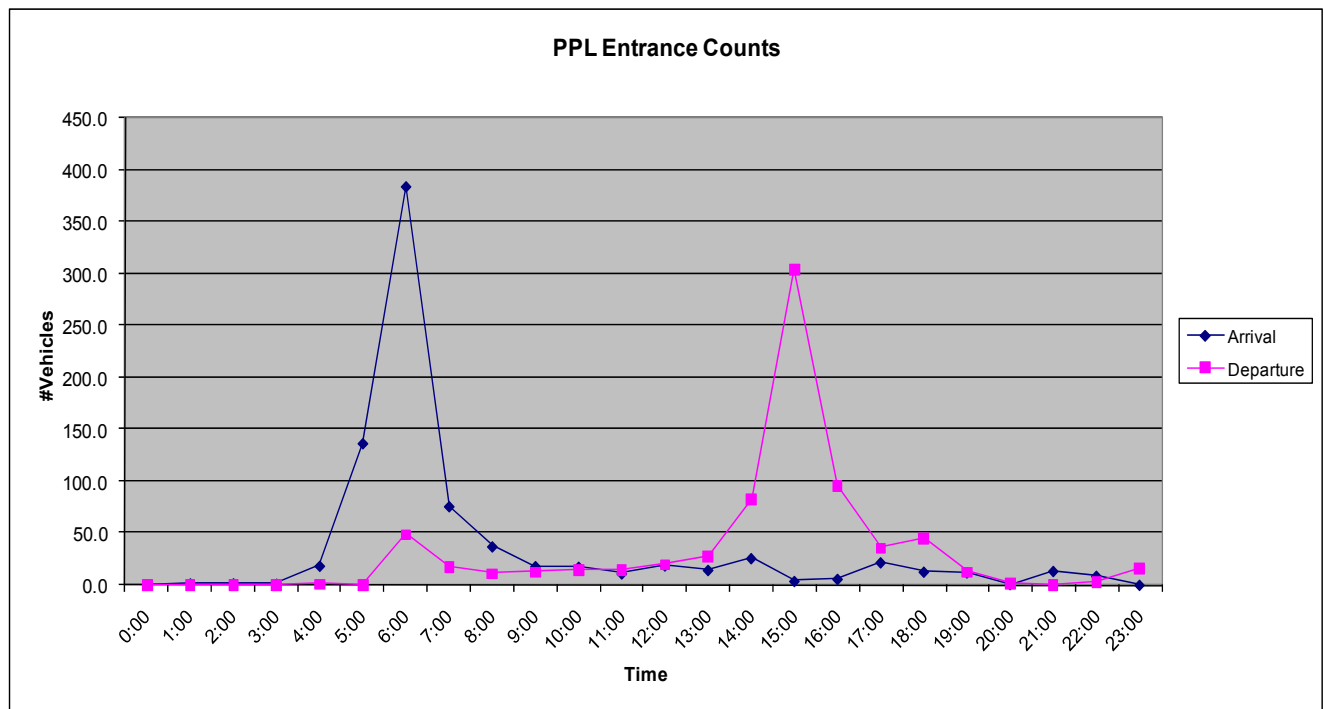


Figure 9 – Temporal Distribution of Power Plant Employees

² UNE prepared the combined operating license (COL) application for Bell Bend

It is anticipated that the new employees at the Bell Bend site will use the proposed access road east of Confers Lane along Route 11. Therefore, the new trips anticipated on site will be assigned onto the Bell Bend access road based on the temporal distribution shown in Figure 9.

The resulting trip generation of the operations staff at the new plant during the peak hours is the following:

AM Peak Hour (veh/hour): IN = 165, OUT = 24

PM Peak Hour (veh/hour): IN = 2, OUT = 142

The traffic to/from the site is assigned as follows. Using the employee zip codes the spatial distribution of the workers on site is shown in Table 5. The spatial analysis was performed using ArcGIS³ [12]. As shown in Table 6, most of the current operations workforce is drawn from the west (Berwick). Using this distribution and the available routes, the operations traffic leaving the site is assigned as shown in Figure 9.

Table 6 – Spatial Distribution of Current Employment on Site

Direction	No. of Workers	Distribution
N	77	6.19%
NW	60	4.83%
<i>W</i>	<i>582</i>	<i>46.82%</i>
SW	134	10.78%
S	31	2.49%
SE	105	8.45%
E	119	9.57%
NE	135	10.86%

The same distribution is applied to the operations staff arriving on site. The calculations to derive these percentages are shown in Appendix H.

³ ArcGIS is a GIS analysis tool developed by ESRI, Redlands, CA.

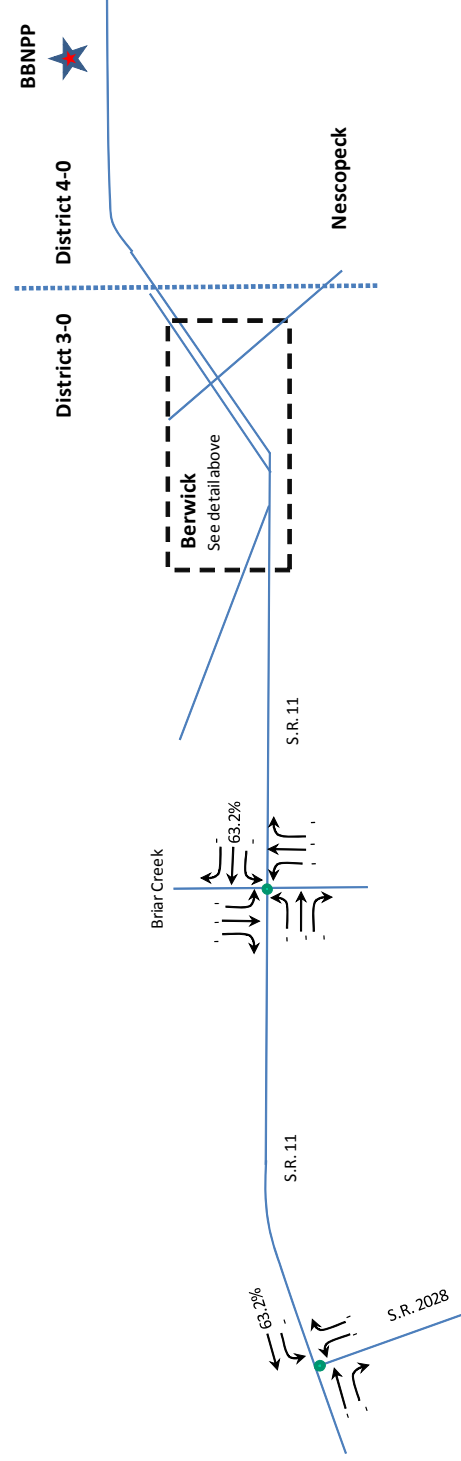
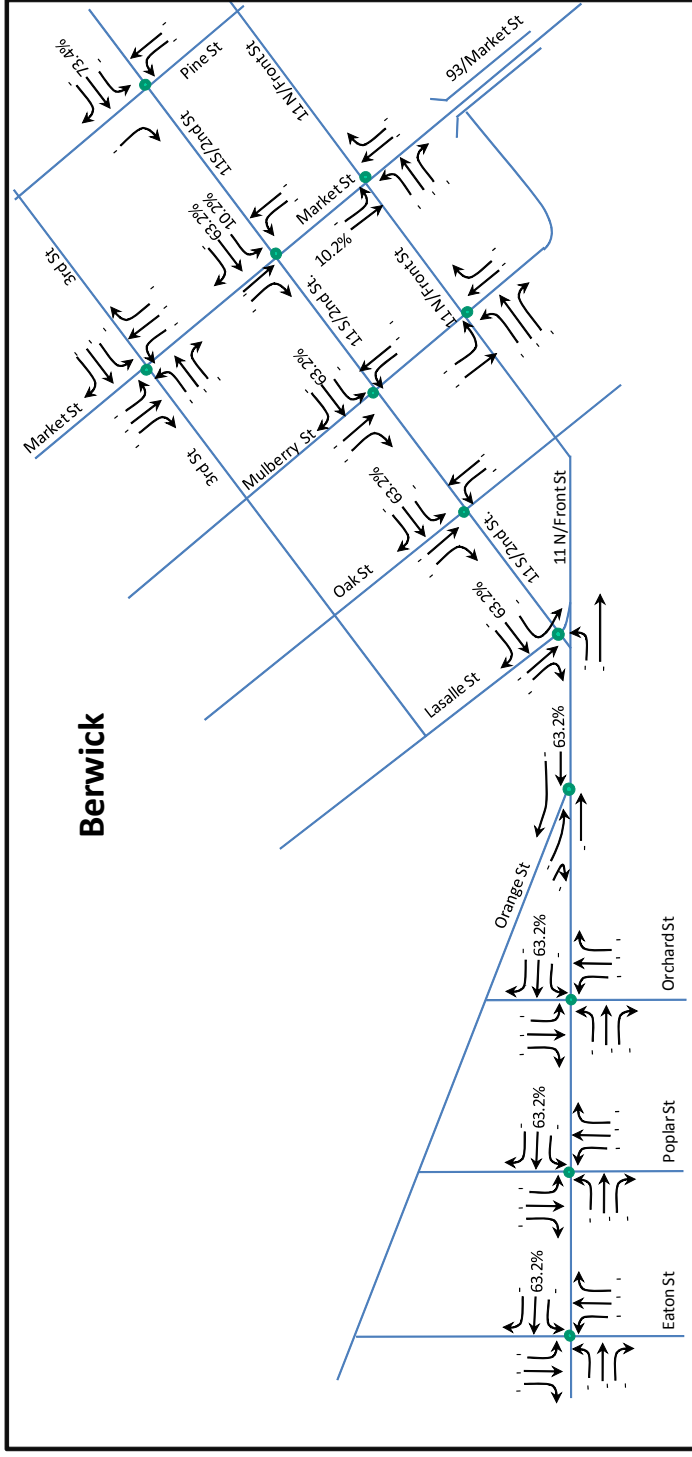


Figure 10 – Trip Assignment (%) of Bell Bend Power Plant Operations Staff

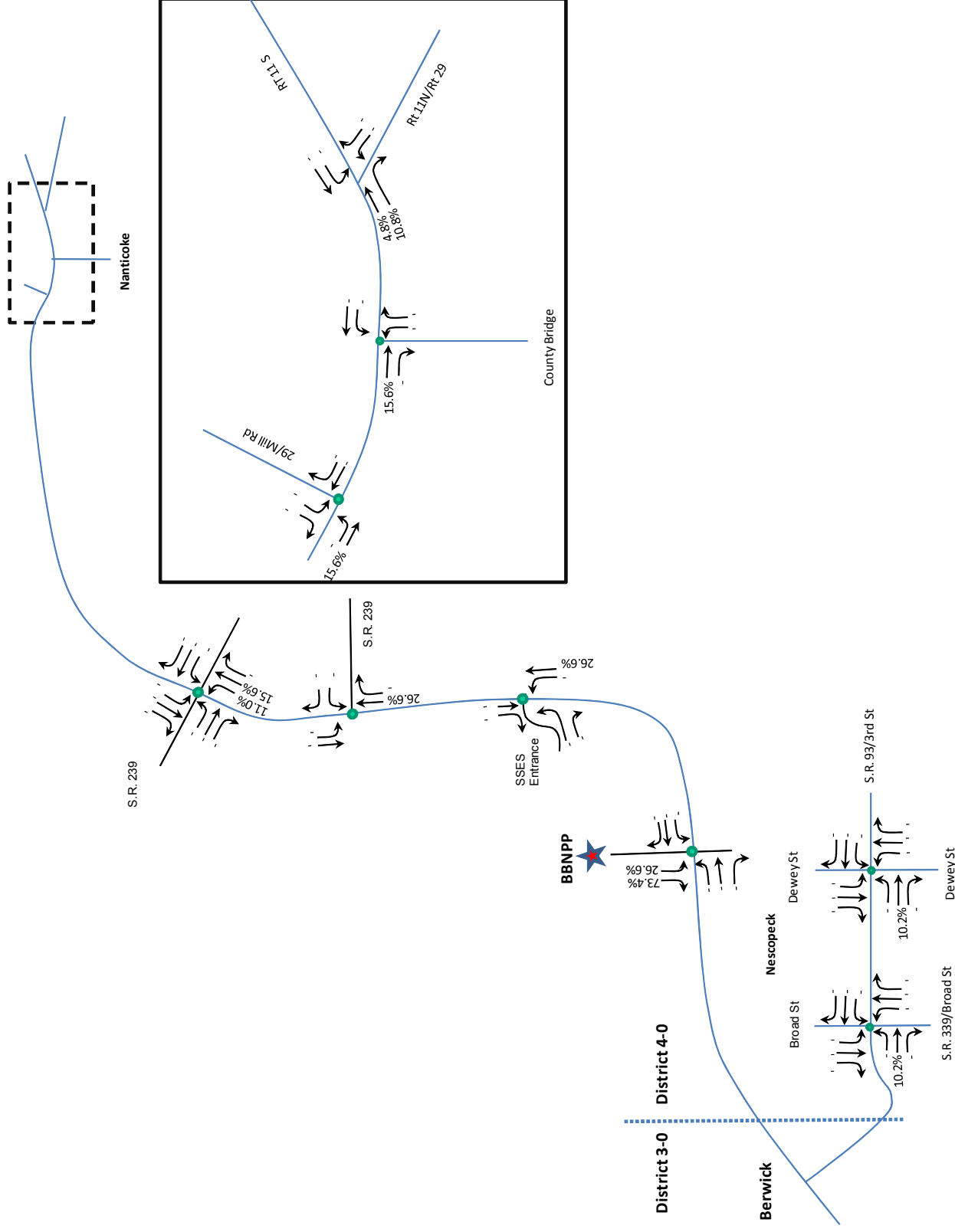


Figure 10 – Trip Assignment (%) of Bell Bend Power Plant Operations Staff

6. FUTURE YEAR BUILD CONDITIONS

6.1 Analysis of Future Build (FB) Conditions

With the additional traffic, the operating LOS is expected to change and deteriorate. PennDOT provides the following guidelines (as extracted from the PennDOT guidance [4]) regarding mitigation needed to address the LOS deterioration:

10-second variance

If evaluation of the Future Build to the Future No-Build indicates that the overall intersection LOS has dropped, the applicant will be required to mitigate the LOS if the increase in overall intersection delay is greater than 10-seconds.

If the overall intersection delay increase is less than or equal to 10-seconds, mitigation of the intersection will not be required. If the intersection LOS meets the level of service requirements, applicants may still be required to provide mitigation to address critical lanes or approaches.

For locations where the level of service of the Future No-Build is LOS F, the remedies shall provide an estimated delay which will be no worse than the delay for the Future No-Build.

LOS Requirements

Following are LOS Requirements for the TIS:

Existing Signalized Intersections

Future Build overall intersection LOS should be no worse than Future No-Build overall intersection LOS, except as noted previously. Critical movements and approaches shall be evaluated and queues shall be evaluated to ensure that available storage exists for critical movements.

Existing Unsignalized Intersections

The evaluation of the performance of unsignalized/stop controlled intersections should include more than just the LOS and delay. Measures of effectiveness such as v/c ratios for individual movements and queue length shall be considered by applicants and presented in the TIS regardless of whether the following LOS requirements are met.

Following are LOS requirements for unsignalized intersections:

- Overall intersection LOS for Future Build scenarios should be no worse than Future No-Build scenarios. If lane movement LOS drops occur, the toolbox for unsignalized evaluation should be considered.

- If signalization is the preferred alternative for mitigation, overall intersection LOS C in rural areas and LOS D in urban areas is acceptable.
- If a drop in LOS occurs but the intersection does NOT satisfy warrants that justify a traffic signal or roundabout, other options should be explored to mitigate as discussed below, Mitigation Analysis.
- If other mitigation measures are not applicable, municipal input is required to seek Department approval for an unsignalized intersection Design (LOS) Waiver.

New Driveways

New signalized or unsignalized intersection established to serve as access to the development shall be designed to operate at minimum LOS C for rural areas, and minimum LOS D for urban areas.

Mitigation Analysis

1. If the LOS requirements are not met, the Applicant is responsible to construct improvements that will mitigate the LOS drop.
2. If the LOS requirements are not met, and the improvements are determined to be impractical or infeasible, there are three opportunities available for the applicant to pursue:
 - a. Local Land Use Transportation Plan with Marginal LOS Degradation
 - b. Alternative Transportation Plan with Significant LOS Degradation
 - c. Design Waiver – LOS

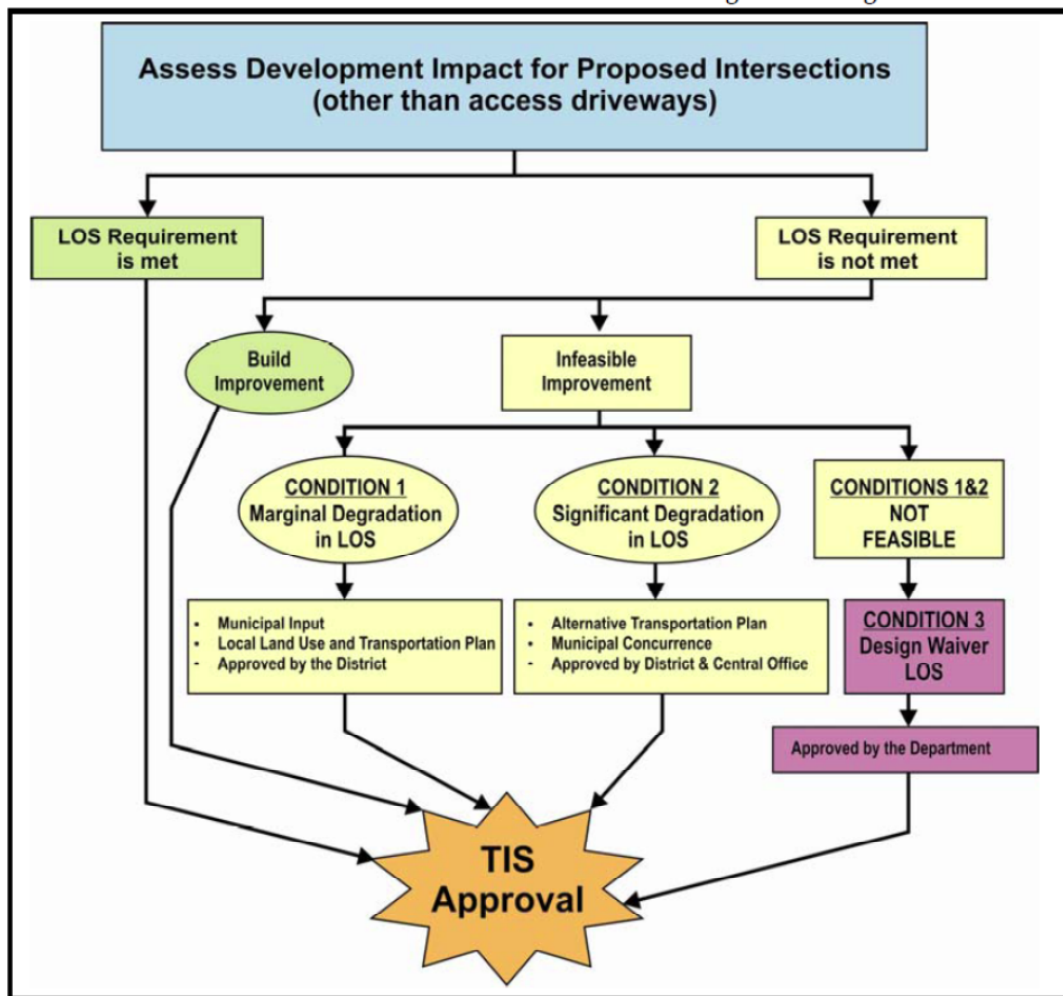
Figure 11, is an excerpt from Reference [3] that illustrates the three options (a) through (c).

Condition 1: Marginal LOS Degradation, Local Land Use and Transportation Plan

If the LOS requirements are not met and improvements required to mitigate the impacts are impractical or infeasible, the applicant may evaluate the use of the Marginal LOS Degradation condition. Marginal Degradation is defined as overall intersection LOS within LOS range of LOS B to LOS C for rural areas, and LOS B to LOS D for urban areas.

The Department will consider accepting the Marginal LOS Degradation based on municipal input and review of the Municipal Land Use and Transportation Plan to ensure congestion and delay are managed in the study area. The Municipal Land Use and Transportation Plan and correspondence from the municipality should be provided as part of the TIS submission.

Figure 6: Mitigation Procedure



Source: [3]

Figure 11 – Mitigation in TIS, Guidance as provided by PennDOTCondition 2: Significant LOS Degradation, Alternative Transportation Plan

If the LOS requirements are not met and improvements required to mitigate the impacts are impractical or infeasible, the applicant may evaluate the use of the Significant LOS Degradation condition.

Significant Degradation is defined as overall intersection LOS below LOS range of C in rural areas and D in urban areas. A significant degradation may be acceptable if:

1. The Department concurs that improvements are demonstrated to be infeasible AND
2. The Department concurs that foregoing the improvements will jeopardize neither public safety nor the highway/bridge infrastructure; AND
3. The degradation to overall intersection is acceptable to the municipality; AND

4. The Applicant prepares an Alternative Transportation Plan to address improvements to the transportation network which are accepted by the municipality and Department. The implementation of the Alternative Transportation Plan may not always completely mitigate LOS drops, as its purpose is to improve congestion and delay in the transportation network by promoting other transportation strategies.

Alternative Transportation Plan

An Alternative Transportation Plan (ATP) should encompass a wide range of strategies that will enable the future improvement of conditions for motorists, pedestrians, bicyclists, and transit users within the study area. It extends beyond mitigation strategies that can be implemented by the applicant directly, to encompass strategies that should be implemented by public agencies.

Condition 3: Design Waiver – LOS

In the event that Conditions 1 or 2 are unachievable, a Design Waiver - LOS may be applied for as outlined in Department Publication 282 - Highway Occupancy Permit Guidelines. Due to the variety of alternative mitigation options available to applicants, a very small percentage of waivers are anticipated to be granted by the Department.

6.2 Total Traffic Volumes and Projected LOS During Future Build Conditions

Using the estimated traffic in the Future No-Build conditions and the site trip generation as discussed in Section 5.2, Figure 12 and Figure 13 present the peak hour volumes estimated during the Future Build condition with the existing roadway system.

The LOS corresponding to the peak hour volumes are presented in Table 7. Appendix I presents the worksheets for the LOS computations related to the analysis of the Future Build Conditions, with the existing roadways.

As presented in Table 7, the change in average intersection delay is less than the acceptable threshold of 10 seconds for all intersections between the FB and FNB. Hence no mitigation is required for the FB.

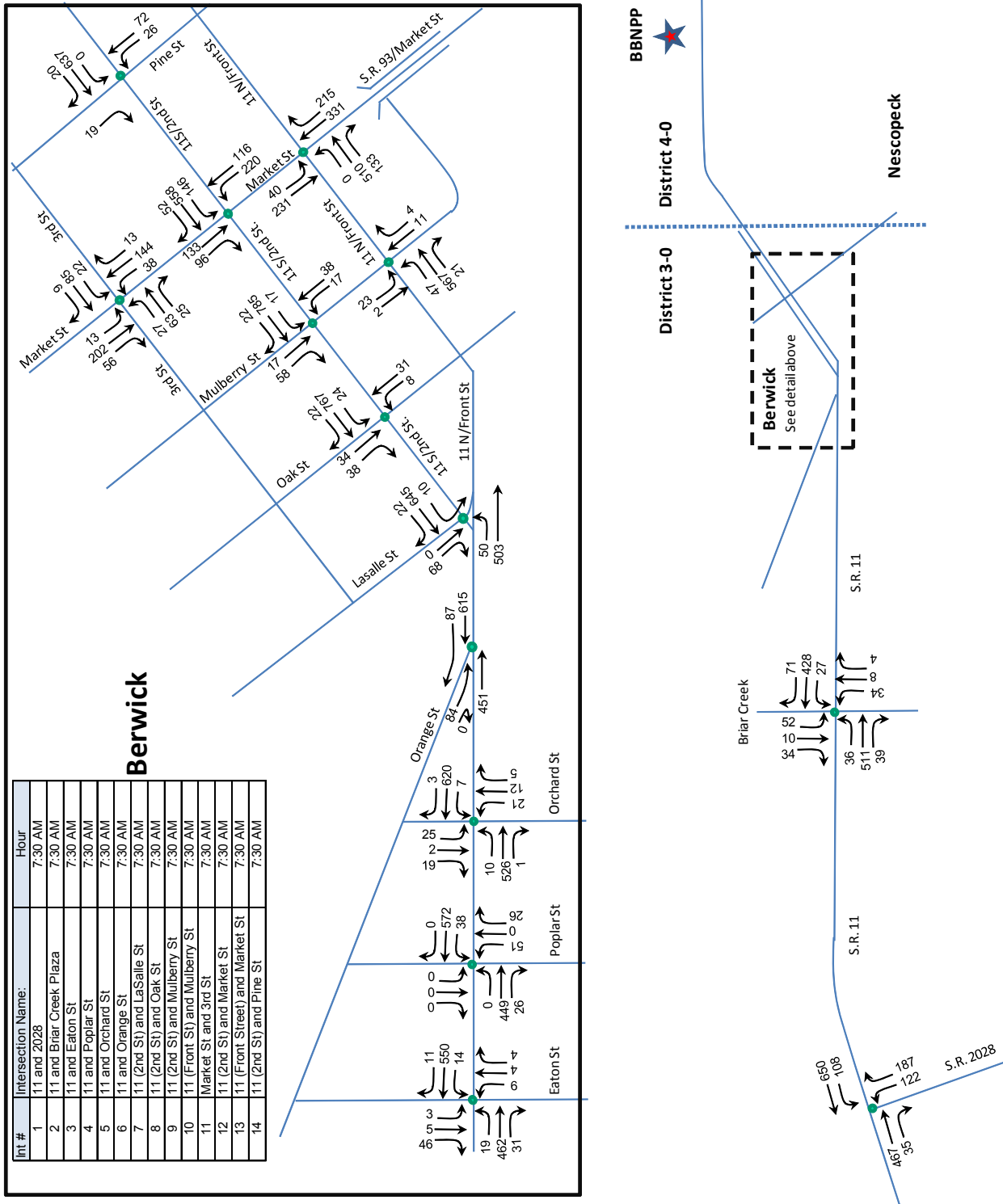
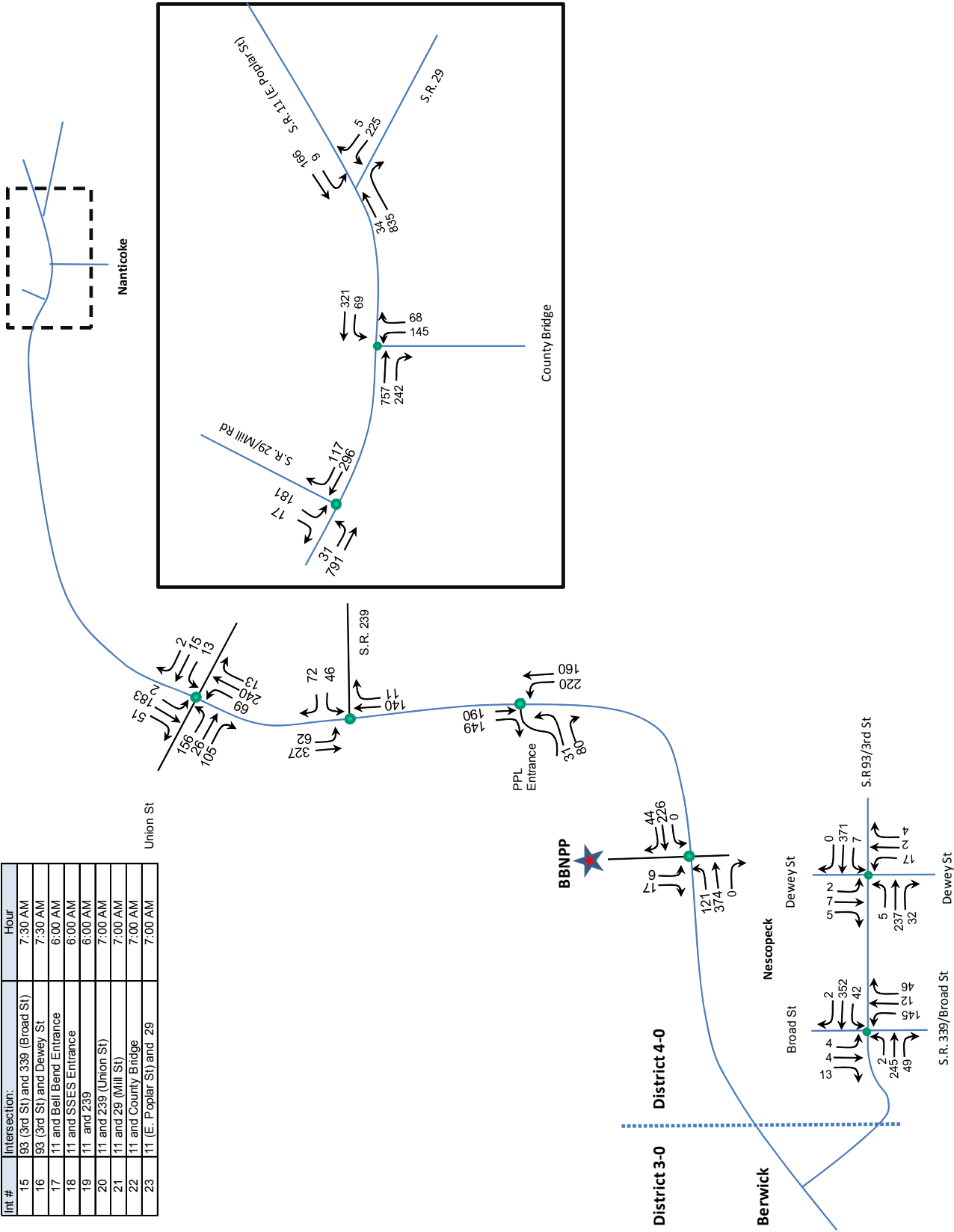


Figure 12 – Weekday AM Peak Hour Volumes: Future Build Conditions



Int #	Intersection:	Hour
15	93 (3rd St) and 339 (Broad St)	7:30 AM
16	93 (3rd St) and Dewey St	7:30 AM
17	11 and Bell Bend Entrance	6:00 AM
18	11 and SSES Entrance	6:00 AM
19	11 and 239	6:00 AM
20	11 and 239 (Union St)	7:00 AM
21	11 and 29 (Mill St)	7:00 AM
22	11 and County Bridge	7:00 AM
23	11 (E. Poplar St) and 29	7:00 AM

Figure 12 – Weekday AM Peak Hour Volumes: Future Build Conditions

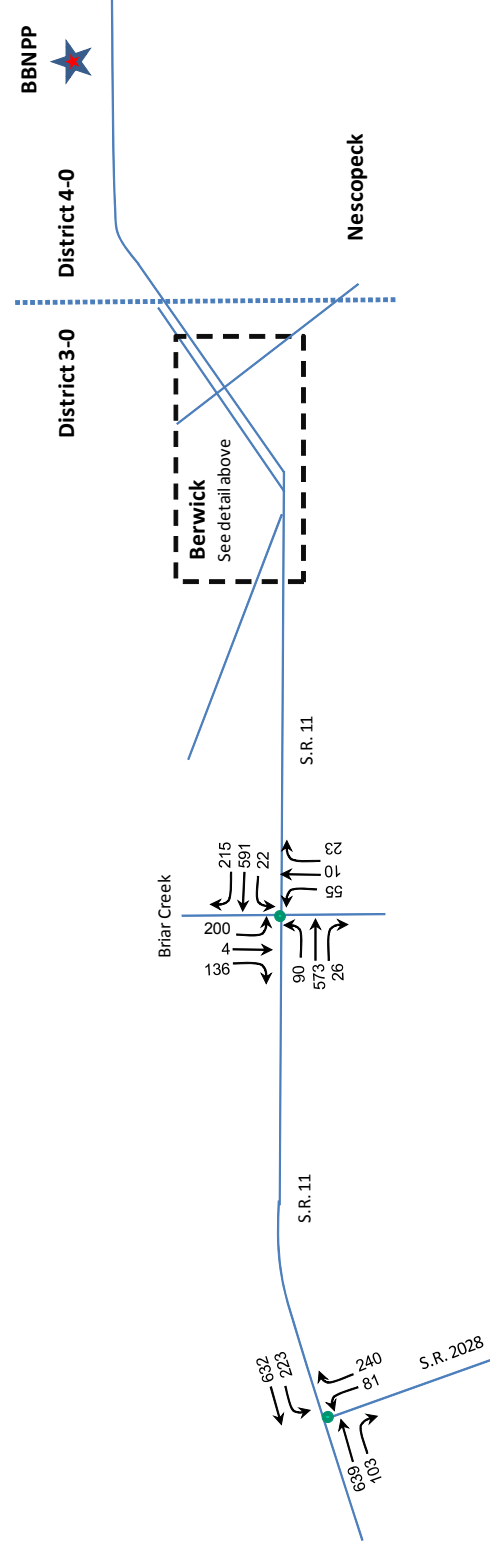
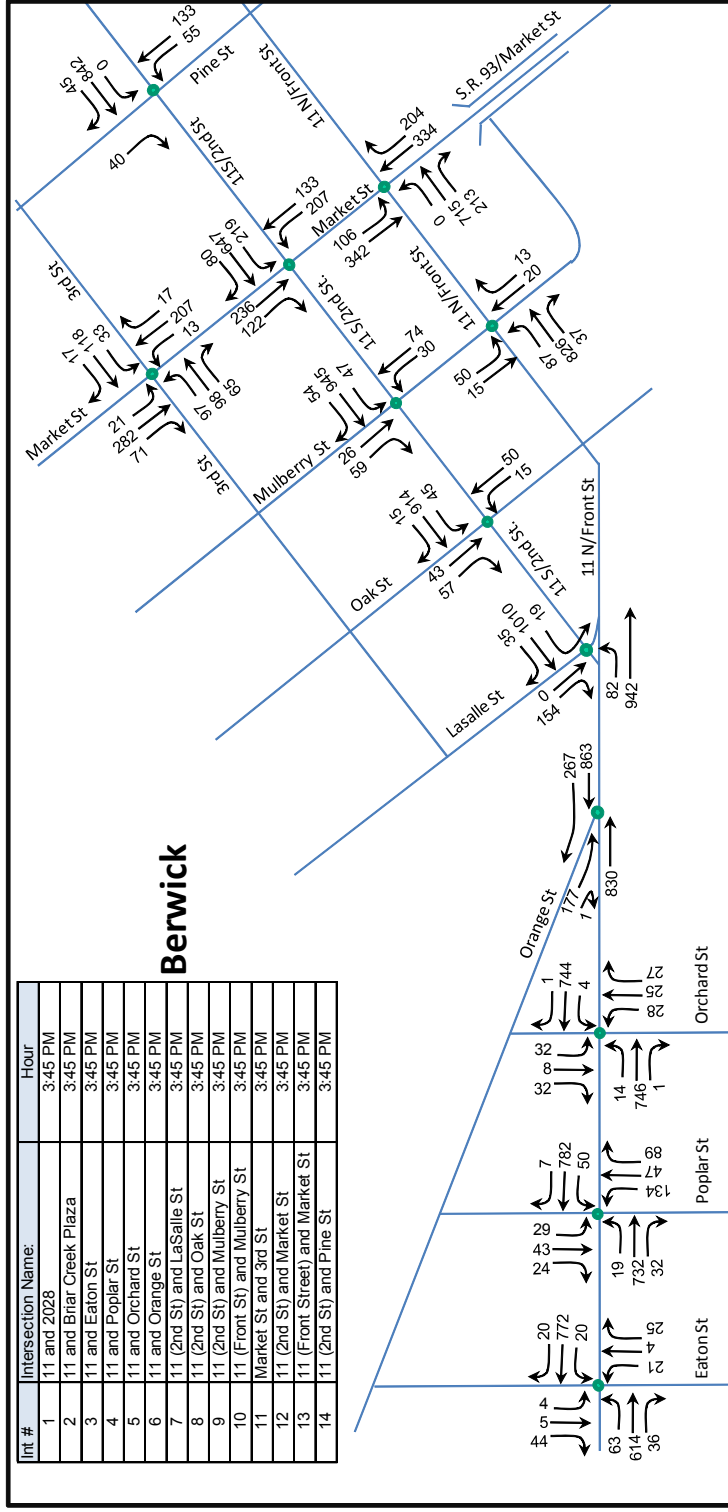


Figure 13 – Weekday PM Peak Hour Volumes: Future Build Conditions

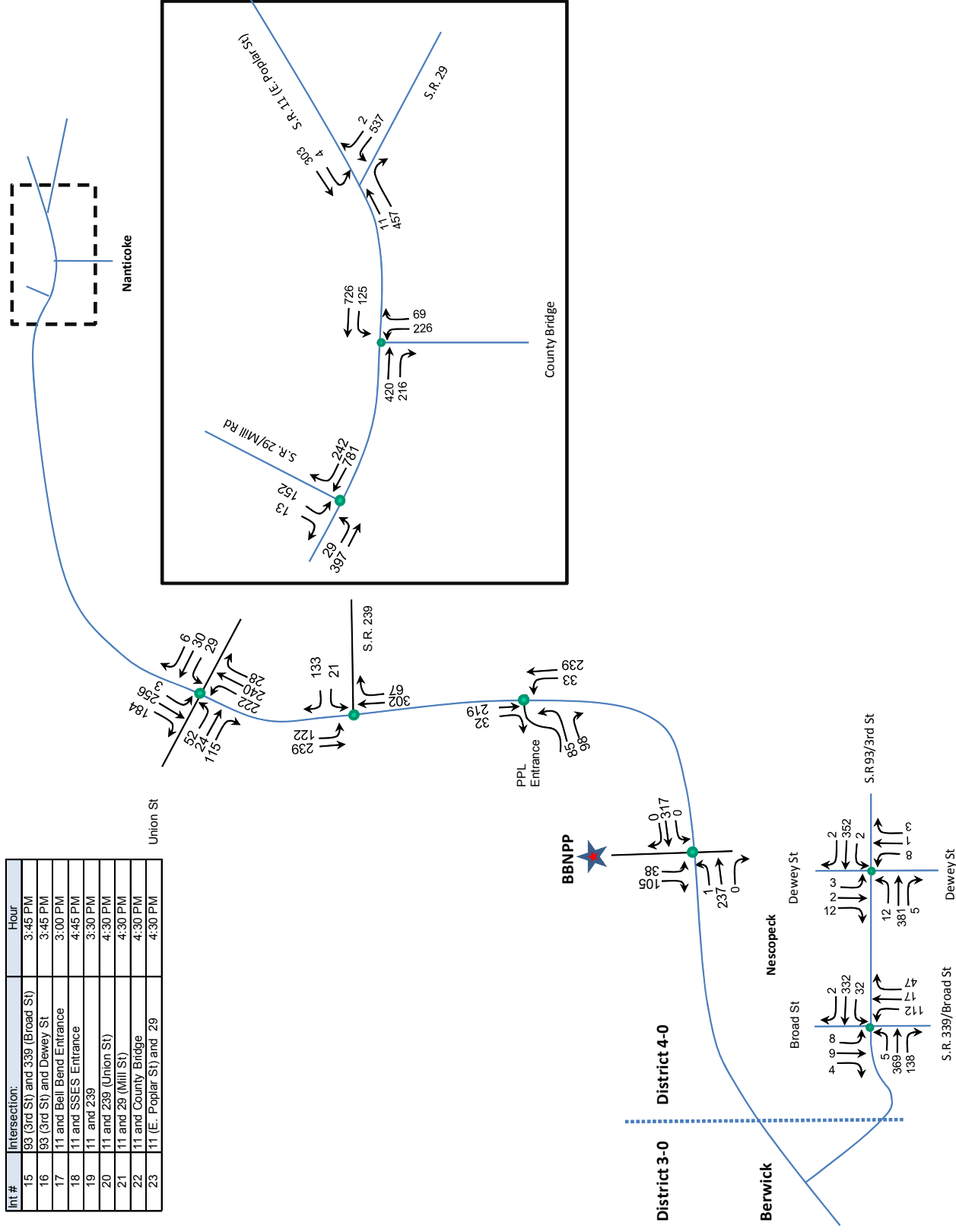


Table 7 – LOS and Average Delay (sec/veh): Future Build Conditions

Int No	PennDOT	County	Municipality	Intersection	FNB AM ¹	FB AM ¹	FNB PM ¹	FB PM ¹
1	3-0	Columbia	South Centre	S.R. 11 and S.R. 2028	B (14.2)	B (14.4)	B (19.4)	B (19.4)
2			Briar Creek	S.R. 11 and Briar Creek Plaza Driveways	A (6.6)	A (6.6)	B (14.2)	B (15.2)
3			Berwick	S.R. 11 (Front Street) and Eaton Street*	A (1.1)	A (1.1)	A (1.8)	A (1.8)
4				S.R. 11 (Front Street) and Poplar Street	C (20)	C (21.3)	D (38.9)	D (39)
5				S.R. 11 (Front Street) and Orchard Street	A (6.5)	A (6.6)	B (15.1)	B (15.2)
6				S.R. 11 (Front Street) and S.R. 93 (Orange Street)	A (5.8)	A (5.8)	A (9.9)	B (10.1)
7				S.R. 11 (Second Street) and LaSalle Street	B (11.7)	B (11.7)	B (13.6)	B (13.7)
8				S.R. 11 (Second Street) and Oak Street	A (6.2)	A (6.2)	A (8)	A (8)
9				S.R. 11 (Second Street) and Mulberry Street	A (4.8)	A (4.8)	A (5.7)	A (5.6)
10				S.R. 11 (Front Street) and Mulberry Street	A (6)	A (6)	A (7.9)	A (7.9)
11				S.R. 1025 (Market Street) and Third Street	A (9.6)	A (9.6)	B (12.9)	B (12.9)
12				S.R. 11 (Second Street) and Market Street	A (9.5)	A (9.6)	B (11.6)	B (11.6)
13				S.R. 11 (Front Street) and Market Street	B (13.7)	B (13.8)	B (15.3)	B (15.3)
14				S.R. 11 (Second Street) and Pine Street	A (6)	A (6)	A (8.7)	A (8.7)
15	4-0	Luzerne	Nescopeck	S.R. 93 (Third Street) and S.R. 339 (Broad Street)	B (13.9)	B (13.9)	B (12.2)	B (12.3)
16				S.R. 93 (Third Street) and Dewey Street	A (4.6)	A (4.6)	A (3.7)	A (3.7)
17			Salem Township	S.R. 11 and Bell Bend Site Entrance*		A (1.6)		A (1.7)
18				S.R. 11 and SSES Site Entrance*	A (4.4)	A (4.3)	A (3.8)	A (3.7)
19			Shickshinny	S.R. 11 (S. Main Street) and S.R. 239	A (8.1)	A (7.9)	A (9.1)	A (9.1)
20				S.R. 11 (Main Street) and S.R. 239 (Union Street)	B (13.6)	B (14.2)	B (15.3)	B (15.3)
21			Nanticoke	S.R. 11 and S.R. 29 (Mill Street)	C (23.4)	C (23.5)	C (25.8)	C (25.7)
22				S.R. 11 and County Bridge	D (48.9)	D (48.9)	C (23.6)	C (24)
23				S.R. 11 (E. Poplar Street) and S.R. 29*	A (2.7)	A (2.7)	D (27.7)	D (28.6)

Note 1: "FNB" corresponds to the Future Year No-Build Condition and "FB" corresponds to Future Build Condition with no mitigation

Note 2: * implies this is a stop controlled intersection. The intersection LOS was calculated based on the weighted average of approach delays as specified in Reference [3].

Note 3: The cells with LOS D or worse are highlighted.

7. FUTURE YEAR CONSTRUCTION CONDITIONS

The construction is planned over approximately 7 year duration. The expected time line for construction is mid 2014 through mid 2021. The work is expected to be distributed over 3 shifts a day, 5 days a week. The shift timings are the following:

- Shift 1: 7:30 AM to 4:00 PM
- Shift 2: 4:00 PM to 12:00 AM
- Shift 3: 12:00 AM to 7:30 AM

7.1 Site Trip Generation and Access

The additional traffic expected on site during construction can be grouped into 3 major categories:

- Operational Staff for Bell Bend
- Heavy Vehicles to haul in materials, and
- Construction Staff

This traffic will be impacted by the “bi-annual” outage at the existing SSES units, the duration of which is typically one month (March). The construction staff and heavy vehicle shipments and the operations staff expected on site will access the site using the proposed site access road for Bell Bend (east of Confers Lane along Route 11). The SSES outage staff (refueling) will access the site using the SSES site access as they will be plant employees and will use the existing parking lot on site.

7.1.1 Operational Staff for Bell Bend

The new plant will require 363 additional personnel upon completion and it is estimated that some of the operational and other staff will be required onsite for testing before completion. Using this information, a conservative assumption is made that the number of new plant personnel on site during the peak construction month will be 363. Assuming an average vehicle occupancy of 1.0 for these employees, the number of trips expected to be generated are 726 (2*363) trips daily in the peak construction month.

7.1.2 Outage Staff for SSES

The existing 2 units currently operate on a 24-month outage schedule, with each unit staggered by year. Table 8 presents the outage schedule for the next 4 outages. During each outage it is expected to have an outage workforce of 1400 personnel on site. These personnel work on the same shift schedule as the existing employees (2 shifts 6AM-6PM, 6PM-6AM) and will be distributed across the day and directionally assigned similar to the operational staff (Table 6). The calculations to derive the assignment are shown in Appendix H.

Table 8 – Outage Schedule

Unit	Outage 1	Outage 2	Outage 3	Outage 4
<i>Unit 1</i>	March 2011	March 2013	March 2015	March 2017
<i>Unit 2</i>	March 2012	March 2014	March 2016	March 2018

Assuming average vehicle occupancy of 1.0 for these employees also, 2800 trips are expected to be generated each month shown in Table 8.

7.1.3 Heavy Vehicles

It is expected that the heavy permanent plant equipment loads to include the Turbine Generator, Diesel Generators, Large Transformer, and Nuclear Steam Supply will be brought to the site by rail, the backfill and excavation will occur on site and all other plant material will arrive by road. The breakdown of the materials arriving on site is presented in Appendix J. There are construction lay down areas south and east of the proposed site access road, along S.R.11. Access to these lay down areas is restricted during shift change to minimize impacts.

Based on the data provided by UNE, it is expected that a total of 67,879 15-ton-shipments will arrive through the construction schedule. Of these shipments, 56,557 are expected to arrive in all the shifts, over the first 60 months, 6 days a week (Monday-Saturday) and the remaining are expected to arrive over the first 60 months only during the day shift. The set of 56,557 will be referred to as *Concrete Material Shipments* and the 11,322 will be referred to as *Other Shipments*. It is assumed that each 15-ton shipment will arrive on separate tractor-trailers leading to an average of 39 trucks and 8 trucks per day for the *Concrete Material Shipments* and *Other Shipments*, respectively. The spatial distribution of the heavy vehicles is discussed in the next section along with the construction staffing.

In addition to these shipments, UNE estimates that there is a need for 0.5 Million-yd³ of engineered fill material, 0.2 Million-yd³ of lean concrete material, and 0.8 Million-yd³ of cohesive fill material. Using a 15 yd³ per truck shipment, this translates to 2000 to 5200 truck shipments per month for up to 24 months in the middle of the construction period. The number of truck trips per hour will vary depending on the month and will be restricted during the shift change periods to minimize traffic impacts.

7.1.4 Construction Staffing

The construction is planned over a period of approximately 7 years. The workforce expected on site will vary through this period with a maximum of 3950 workers/day on site. The work is

expected to be distributed over 3 shifts a day, 5 days a week. The shift timings are presented in Table 9.

Table 9 – Shift Times for the Construction Period

Shift	Start Time	End Time	% Workforce
1	7:30am	4:00pm	60%
2	4:00pm	12:00am	35%
3	12:00am	7:30am	5%

It is expected that the average vehicle occupancy for these workers will be 1.30, based upon expert guidance from a construction contractor (via UNE) from their experience in its large construction projects. This is reasonable for a concentration of workers at such an extended-duration job; using the year 2000 journey to work census data, the average vehicle occupancy for the construction workers in the vicinity of Bell Bend, is estimated to be between 1.09 and 1.17 (Appendix K). Also, this value of 1.3 has been applied to similar traffic impact studies at sites in Maryland, New York, and New Jersey. This was one of the assumptions discussed at the scoping meeting with PennDOT.

Based on the census block data the major population centers would be logical sources for the construction staff. Using the 2000 census data within 40-miles of the site, Table 10 presents the spatial distribution of the construction workers.

Table 10 – Spatial Distribution of Census Block Population

Direction	2000 Census Block Population*	Distribution
N	38,458	3.8%
NW	19,451	1.9%
W	117,235	11.5%
SW	87,884	8.6%
S	121,621	11.9%
SE	158,518	15.5%
E	96,586	9.8%
NE	380,169	37.3%

Note: * - The spatial analysis of the census block data was performed using ArcGIS

It appears from Table 10 that most of the traffic will come from the North East (NE) and South East (SE) directions. These correspond to the Wilkes-Barre/Scranton region and Hazleton areas respectively. Using these percentages and the available routes to the site the construction and heavy vehicle traffic departing the site is assigned to the study area intersections as shown in Figure 14. A similar distribution is assumed for the traffic arriving on site and shown in Figure 15. The calculations to derive these percentages are shown in Appendix H.



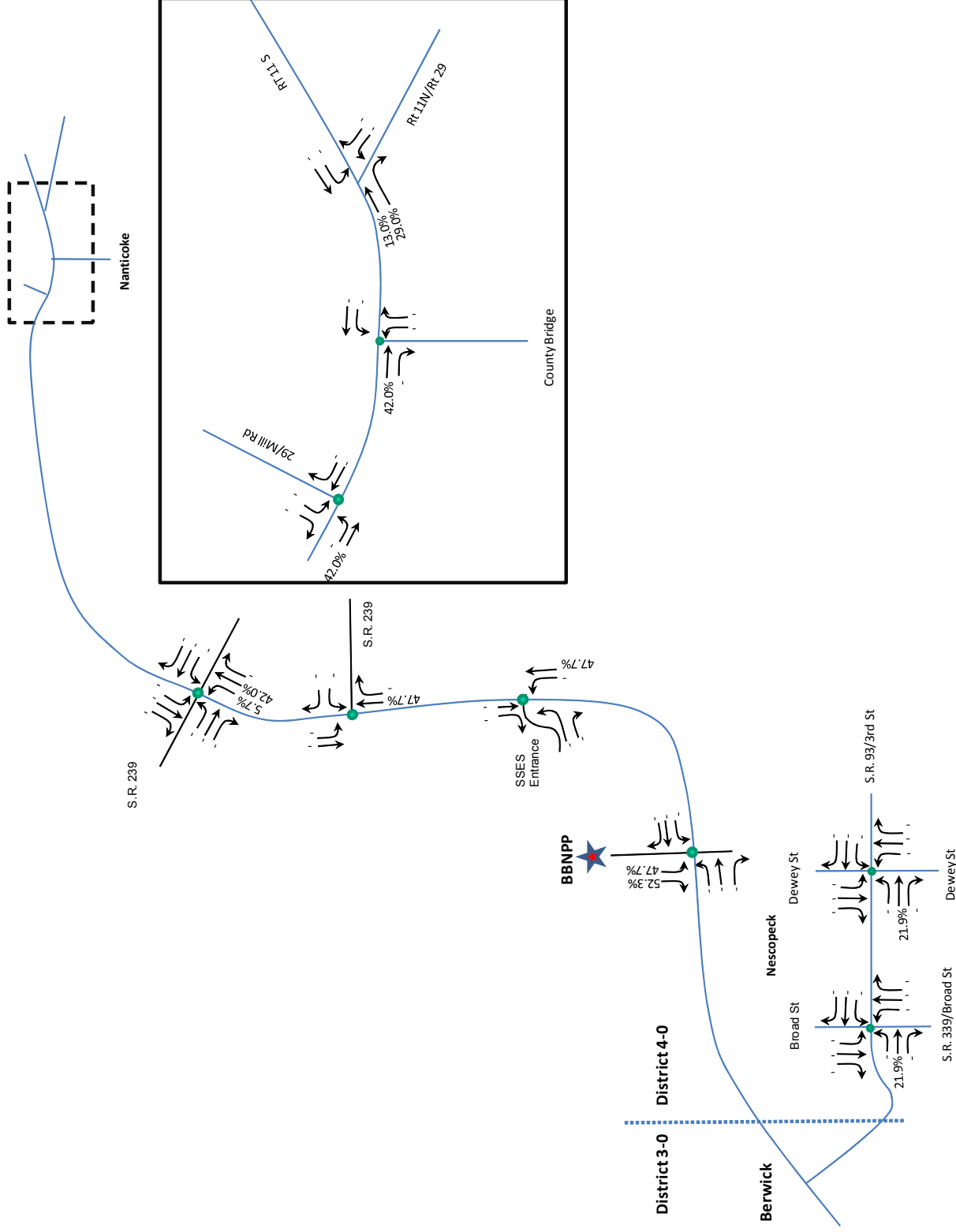


Figure 14 – Traffic Assignment – Construction Traffic (%) Leaving Site

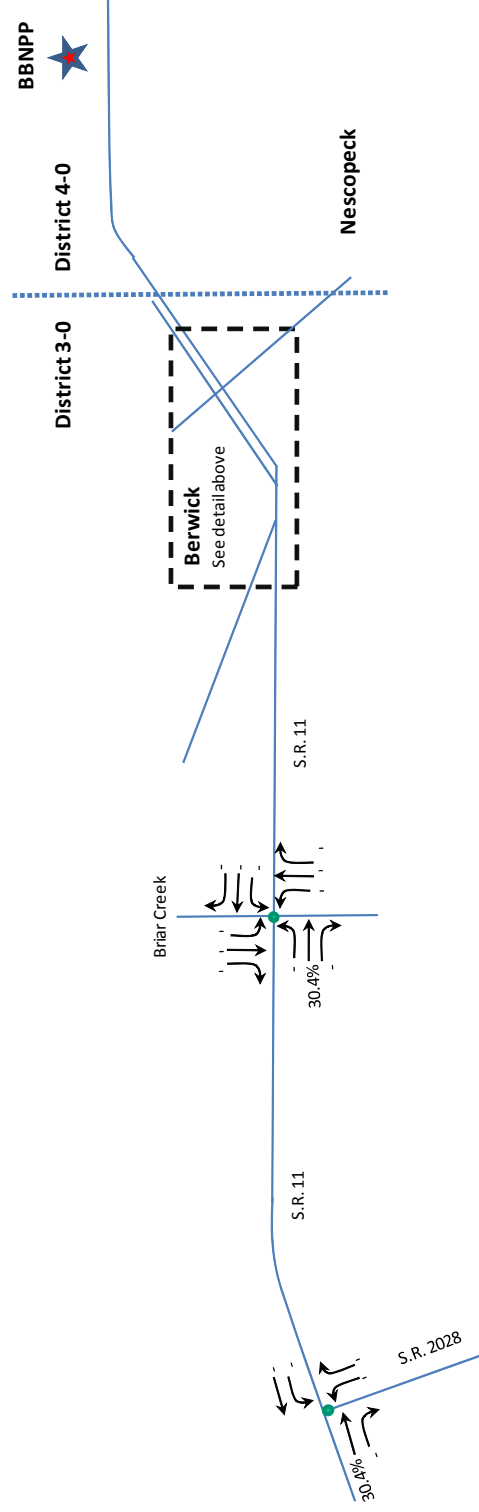
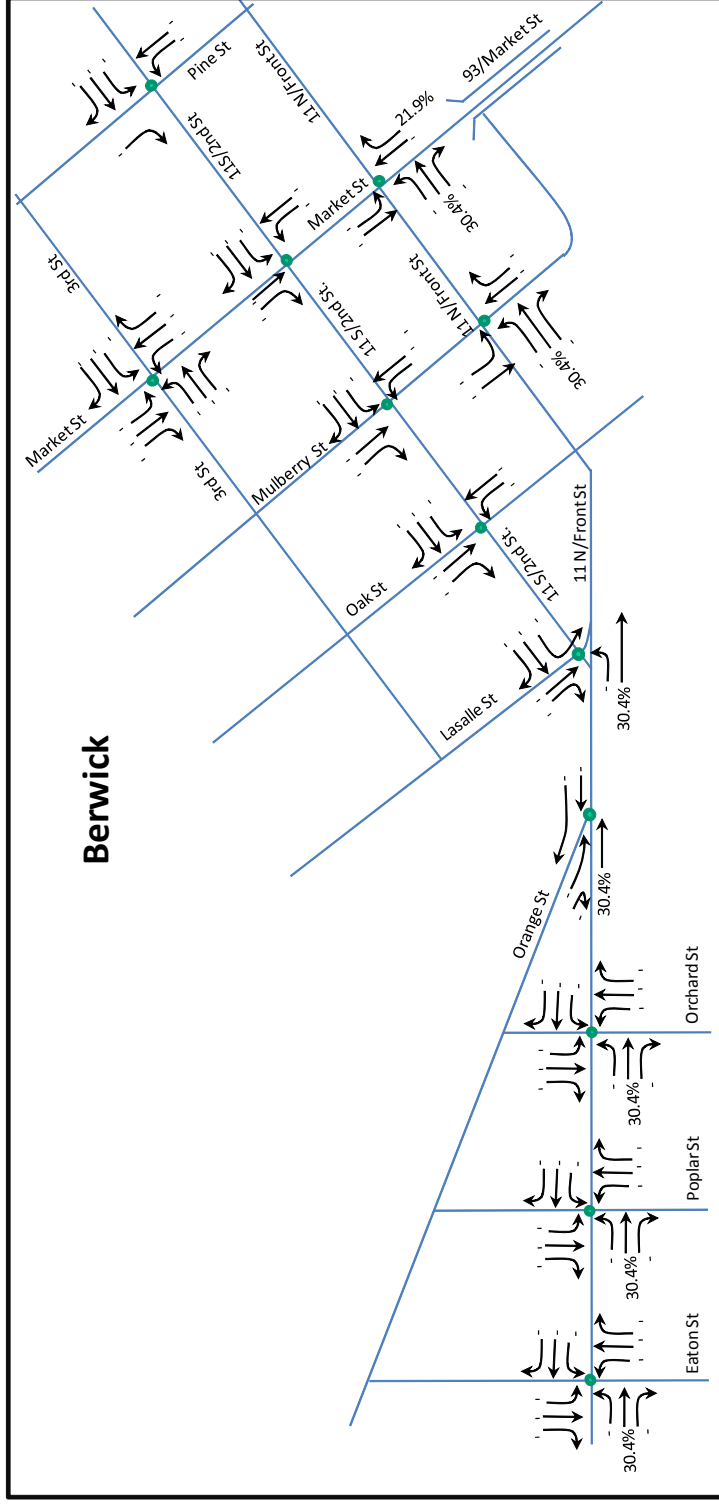


Figure 15 – Traffic Assignment – Construction Traffic (%) Arriving at Site

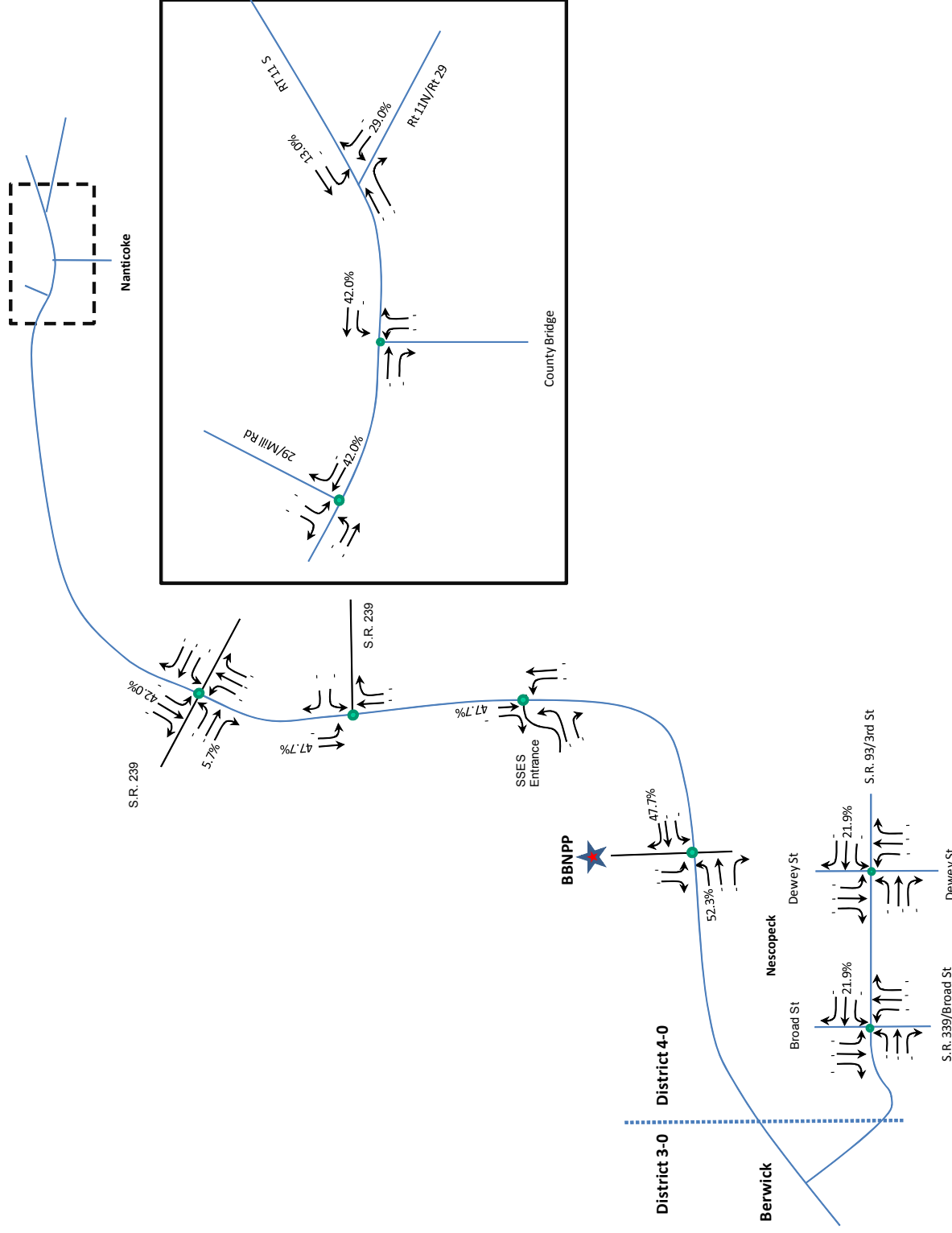
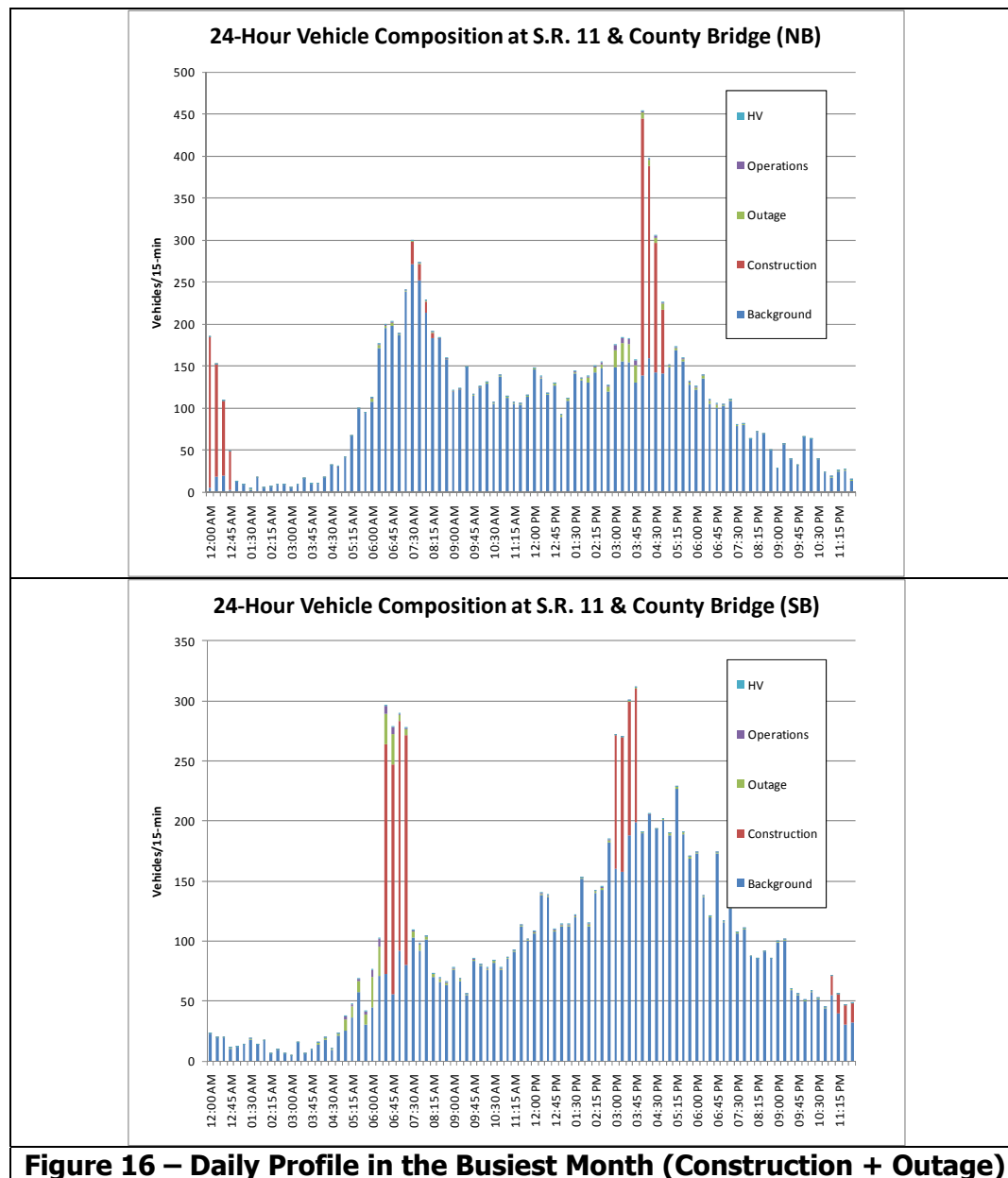


Figure 15 – Traffic Assignment – Construction Traffic (%) Arriving at Site

7.2 Site Trip Distribution and Assignment

The construction is over an approximately 7 year period. During this time, the background traffic continues to grow each year in accordance with PennDOT's projected growth factors, and outages (maintenance and refueling) occur at the existing units. As a result, for a conservative analysis, the month of the outage coincident with this duration of maximum construction activity was identified as the month at which the maximum impact occurs. Figure 16 shows a representative daily profile in the selected month, at S.R.11 and County Bridge in Nanticoke.



Note that the construction traffic actually causes the peak hour to shift. The resulting peak periods are shown in Table 11.

Table 11 – Peak Hours Identified for Construction Traffic

Peak	Peak Hour
AM	6:30 – 7:30
PM	3:45 – 4:45

These hours are used in the analysis for this section of the report. The total traffic generated on site is the total of the 4 categories discussed in Sections 7.1. The number of trips during the construction peak hour is presented in Table 12.

Table 12 – Site Trip Generation During Construction Peak Hour (vehicles/hour)

<i>Trip Type</i>	<i>AM (6:30 – 7:30)</i>		<i>PM (3:45 – 4:45)</i>	
	<i>In</i>	<i>Out</i>	<i>In</i>	<i>Out</i>
Construction Staff	1,823	0	266	1641
New Plant Staff	99	16	2	69
Outage Staff	381	60	9	267
Heavy Vehicles	2	2	2	2
Total	2,304	78	279	1979
Note: Outage at SSES is shown as part of trip generation for completeness. However this is part of the background traffic condition as it occurs at the existing SSES units. This is used to determine the baseline traffic flows under the Future No-Build condition.				

The trips in Table 12 are assigned to the study area based on the spatial distribution of the construction workforce, operations, outage, and heavy vehicles and paths to the Bell Bend site, as discussed in section 7.1. The resulting flows are shown in Figures 17 and 18.

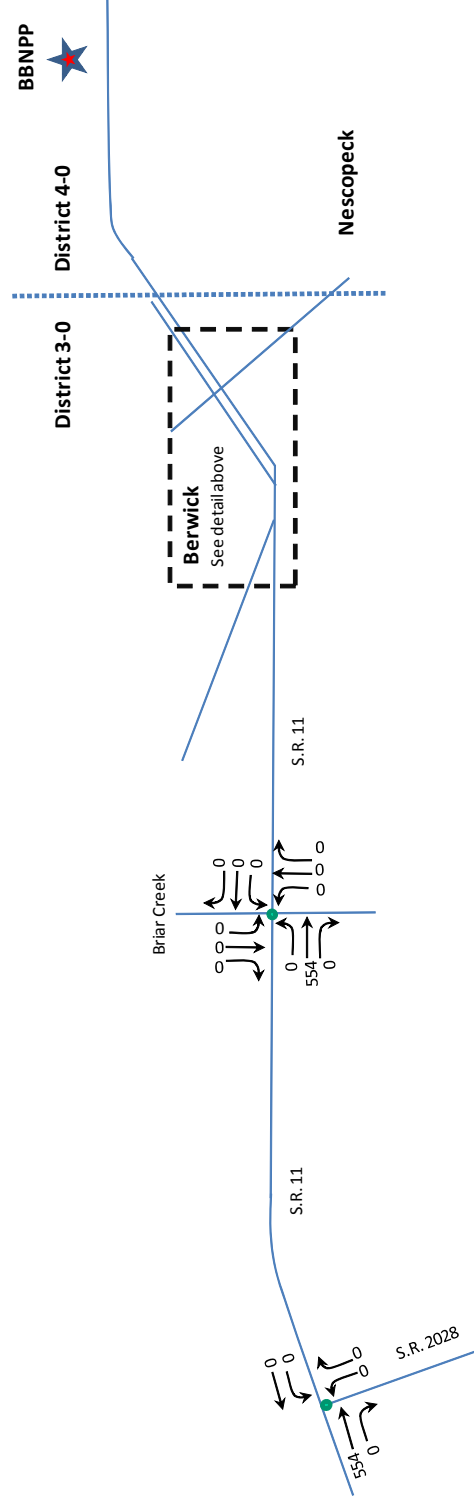
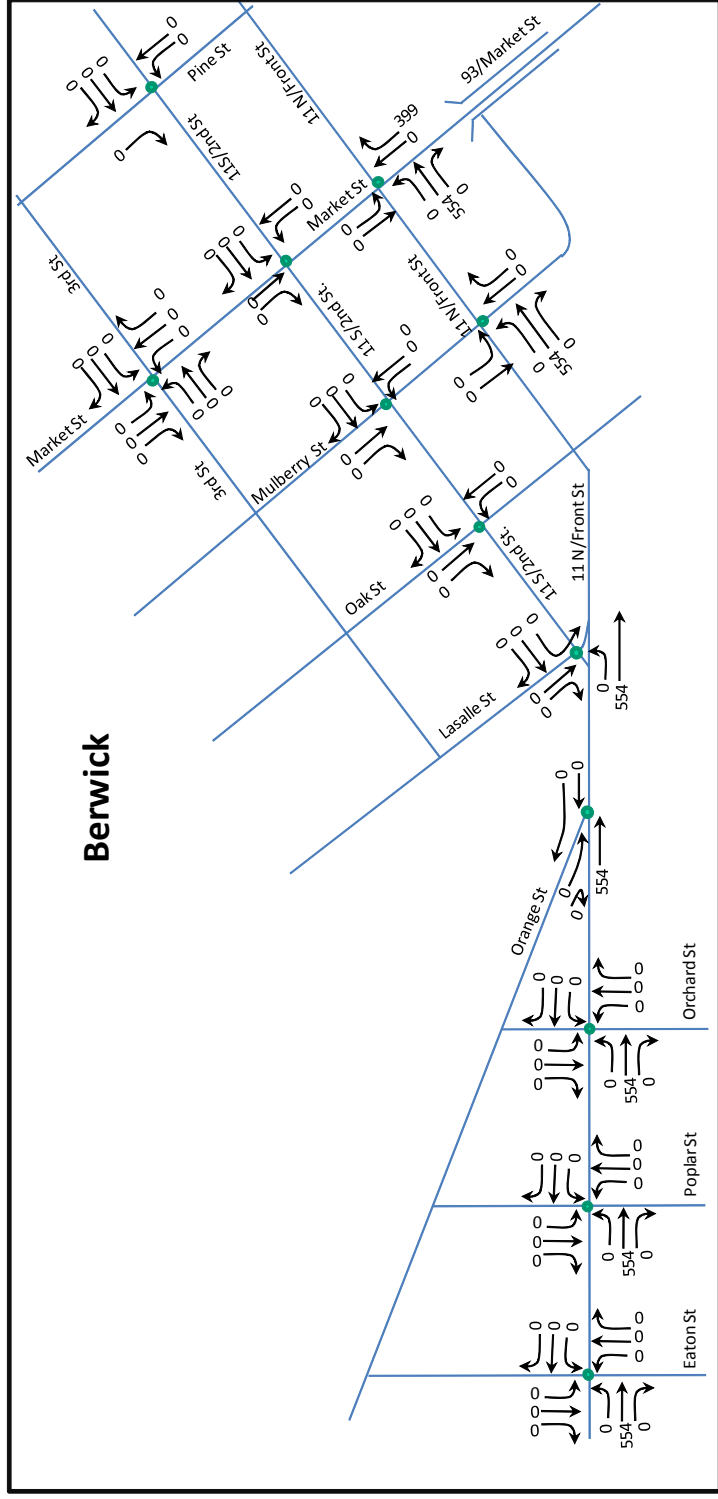


Figure 17 – Weekday AM Peak Hour Volumes (6:30-7:30): Construction Traffic only During Peak Construction

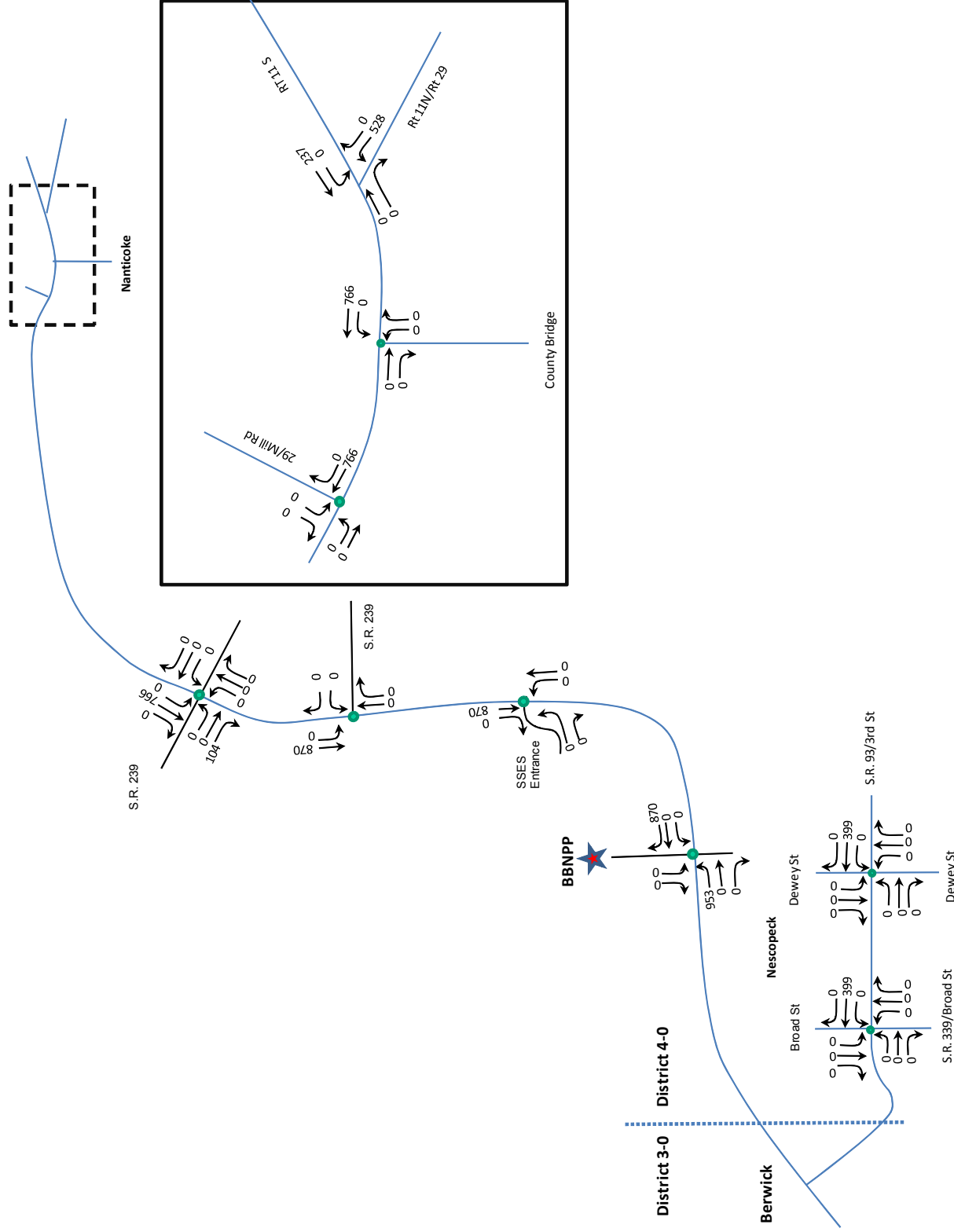


Figure 17 – Weekday AM Peak Hour Volumes (6:30-7:30): Construction Traffic only During Peak Construction

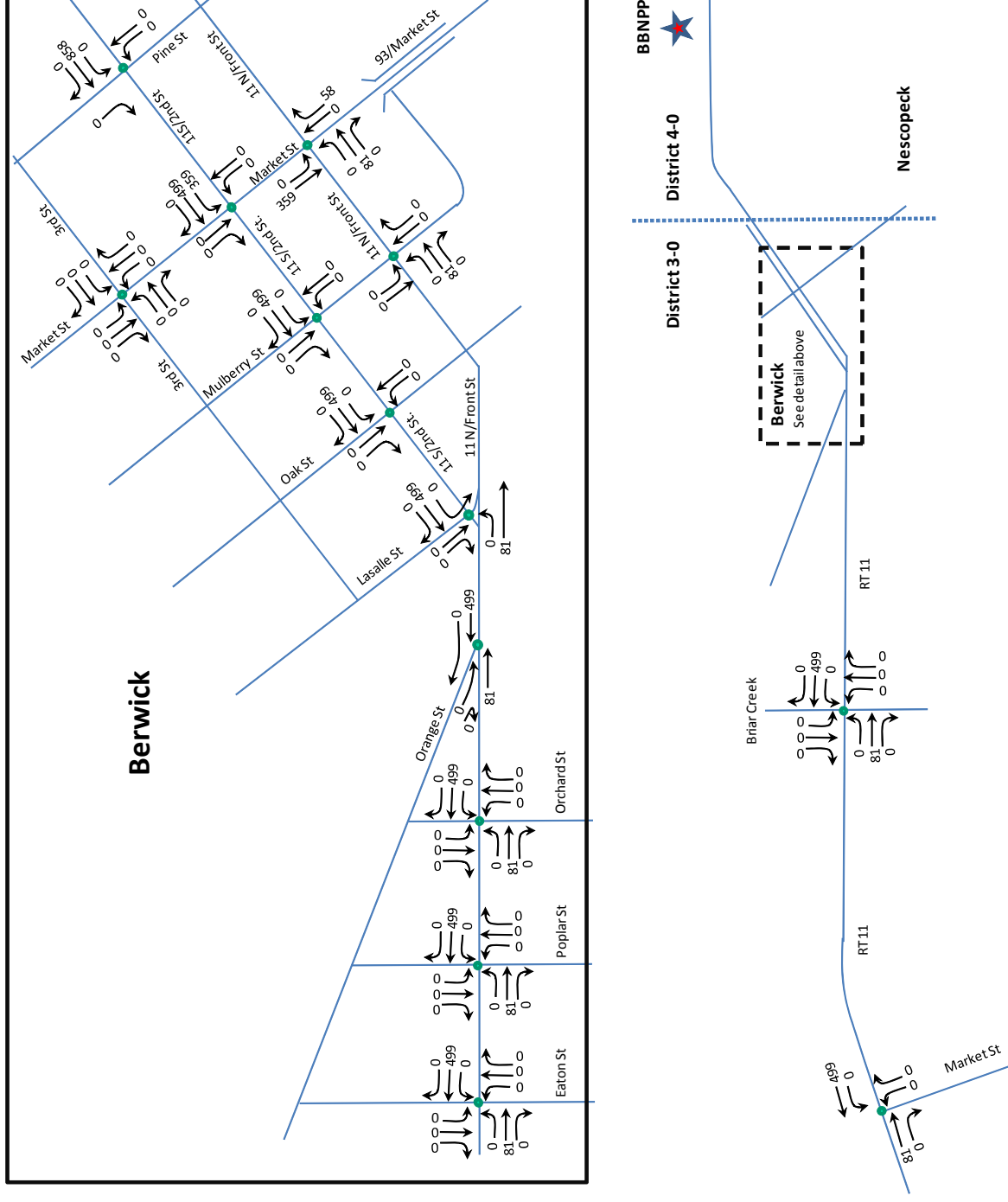
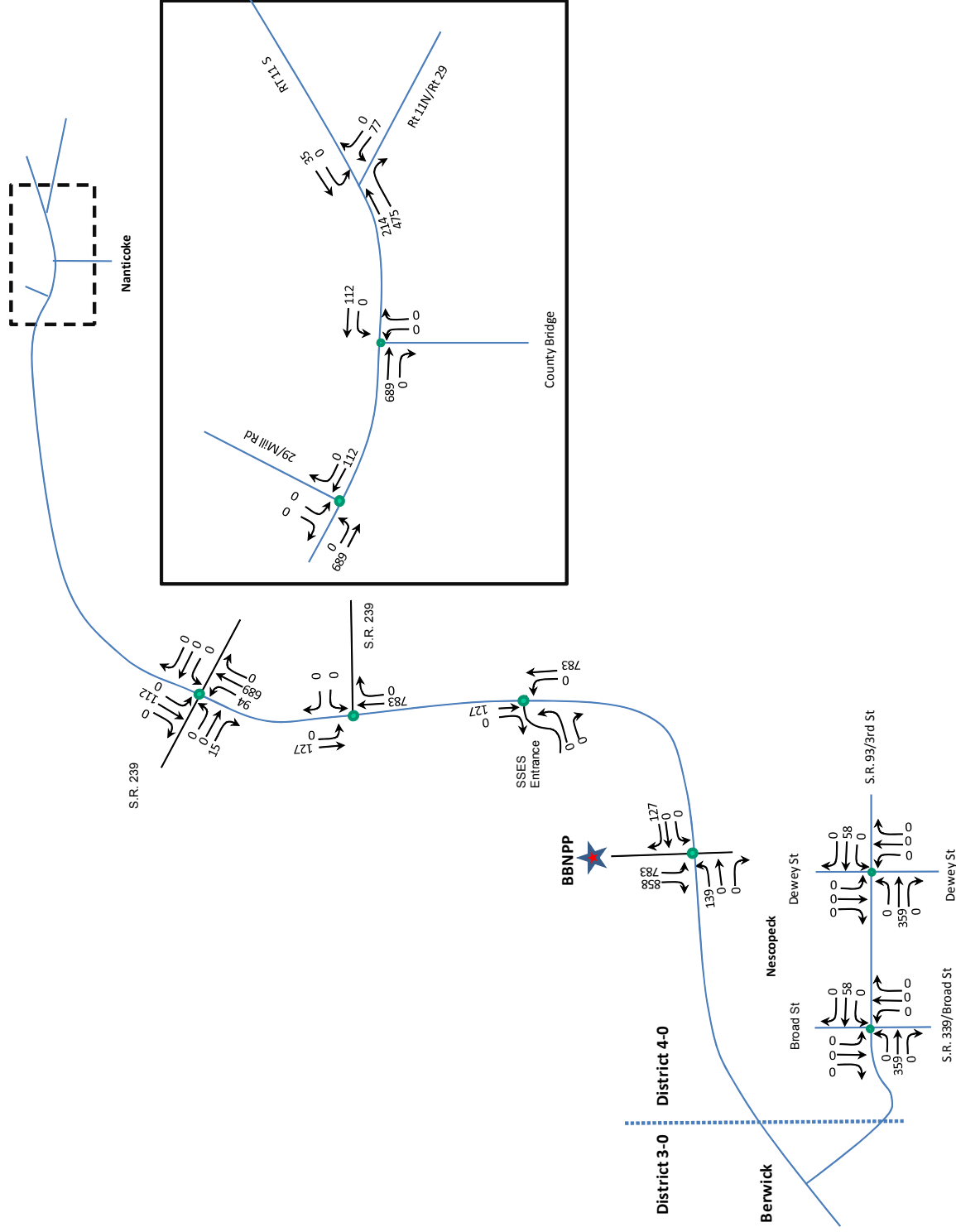


Figure 18 – Weekday PM Peak Hour Volumes (3:45-4:45): Construction Traffic only During Peak Construction



7.3 Total Traffic Volumes and Projected LOS During Future Year Construction Conditions

There are two planned changes to the existing highway network: a) traffic signal that is being installed at S.R.11 and S.R.29 (Mill Street) in Nanticoke and b) the proposed upgrades to the SSES driveways. Besides these, there are no major highway development/improvement projects planned within the study area to influence the capacity of the roadway system.

As discussed earlier, the outage occurring at SSES will affect the traffic arriving at the Bell Bend site. The trip generation for the outage traffic as discussed in the preceding sections is used to define the background conditions No-Build condition for the construction cases. The existing traffic is forecasted to the year 2022 (first occurrence of the outage after completion of construction) and then added to the outage related traffic. This corresponds to the LOS values shown under FNB in Table 13.

Using this as the baseline, the construction year conditions are analyzed. The traffic generated by the construction staff, operations staff and heavy vehicles as shown in Table 12 used to estimate the flows under the future year construction conditions.

Figure 19 and Figure 20 present the peak hour volumes estimated during the Future Year Construction Condition with the existing roadway system.

The LOS corresponding to the peak hour volumes are presented in Table 13. Appendix L presents the worksheets for the LOS computations related to the analysis of the Future Year Construction Conditions, with the existing roadways, and optimized traffic signal settings.

As seen in Table 13, almost all of the intersections require further mitigation and improvements. The following section discusses mitigation proposed for each intersection.

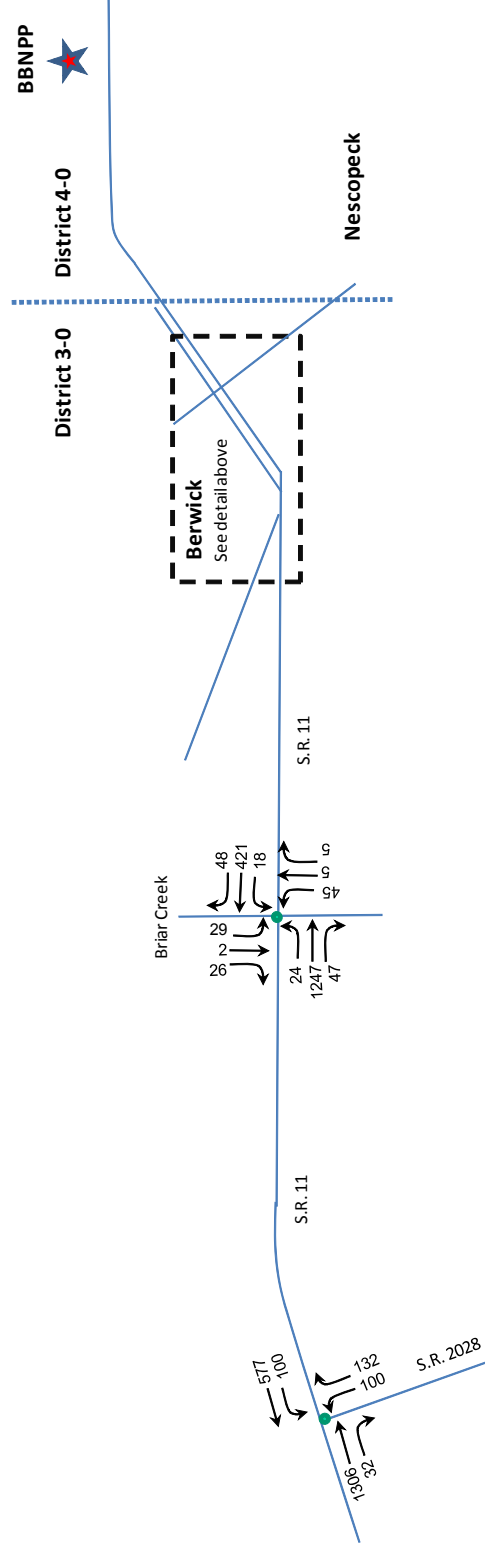
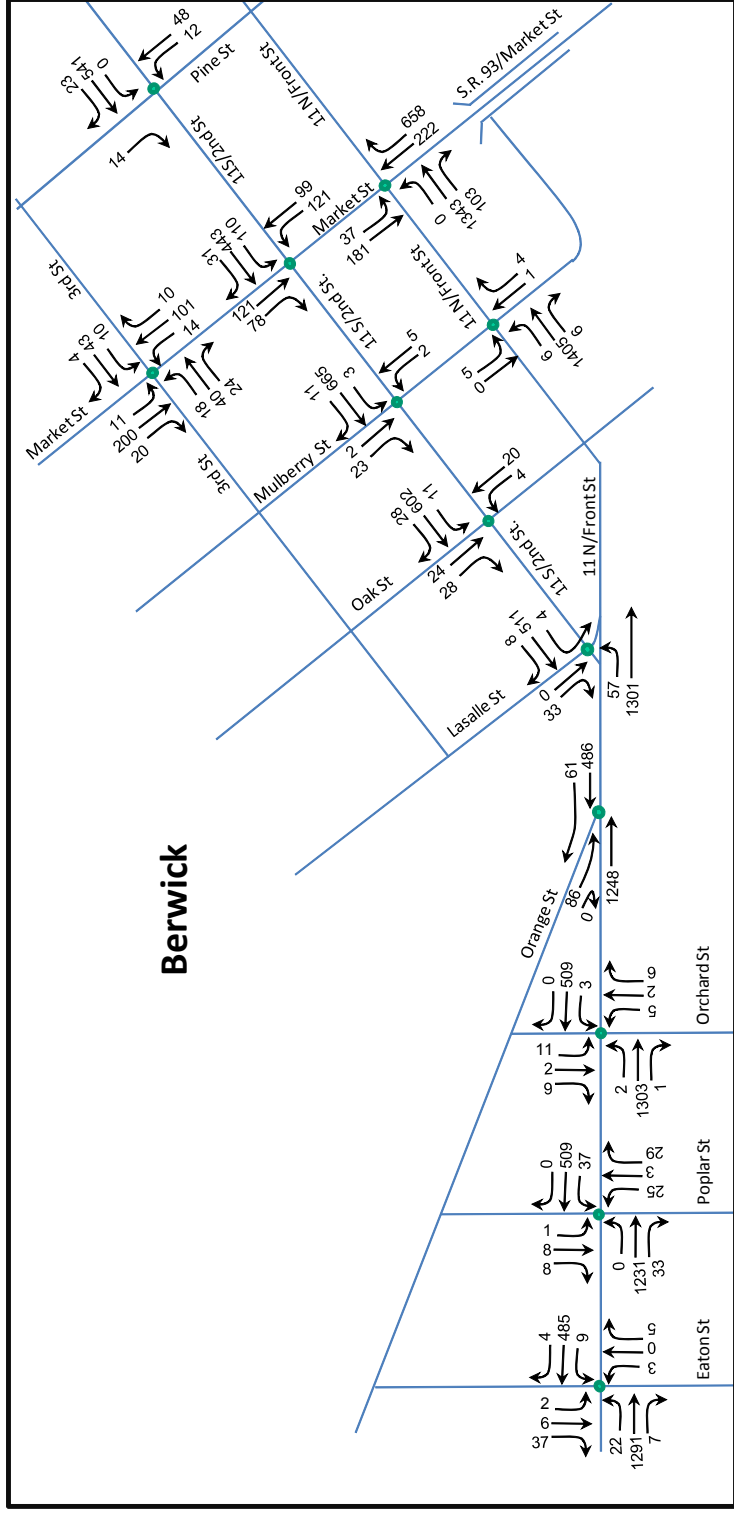


Figure 19 – Weekday AM Peak Hour Volumes (6:30-7:30): During Construction

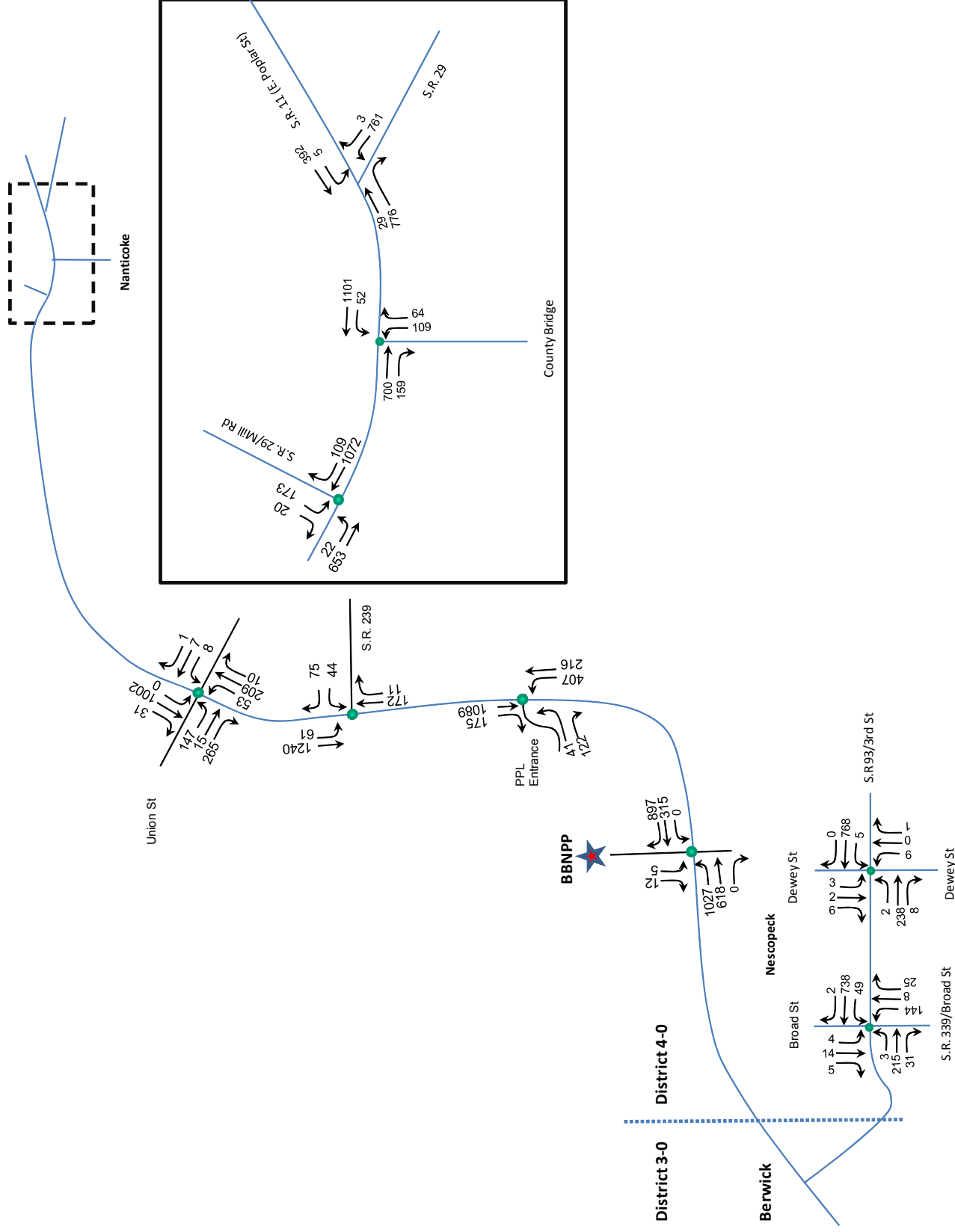


Figure 19 – Weekday AM Peak Hour Volumes (6:30-7:30): During Construction

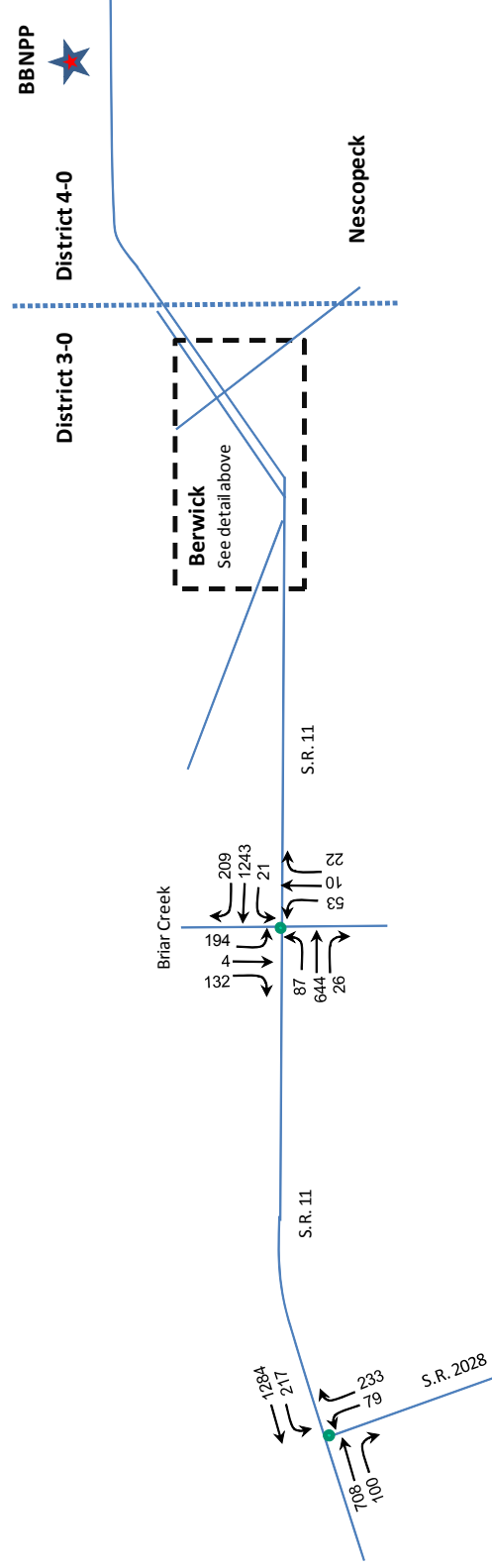
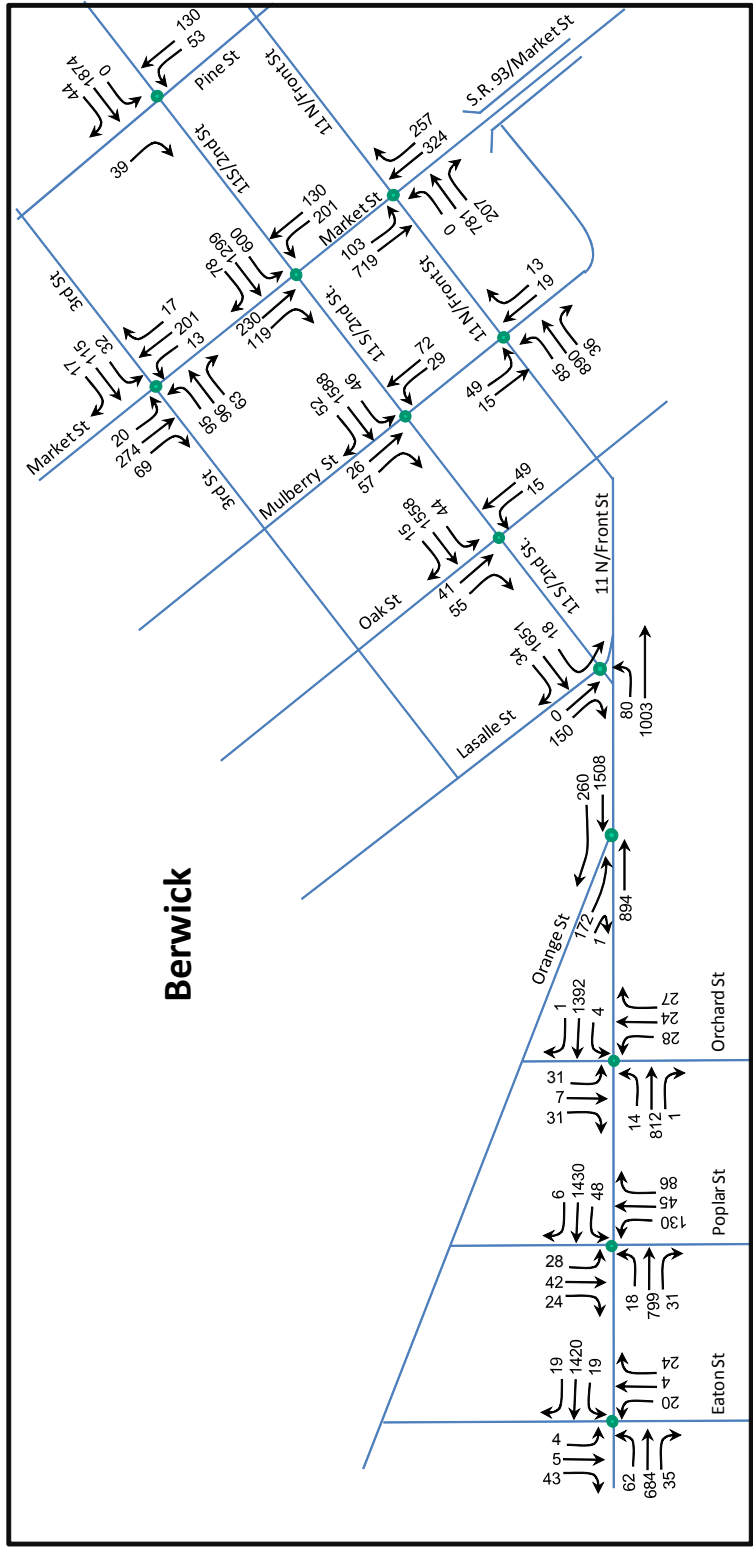


Figure 20 – Weekday PM Peak Hour Volumes (3:45-4:45): During Construction

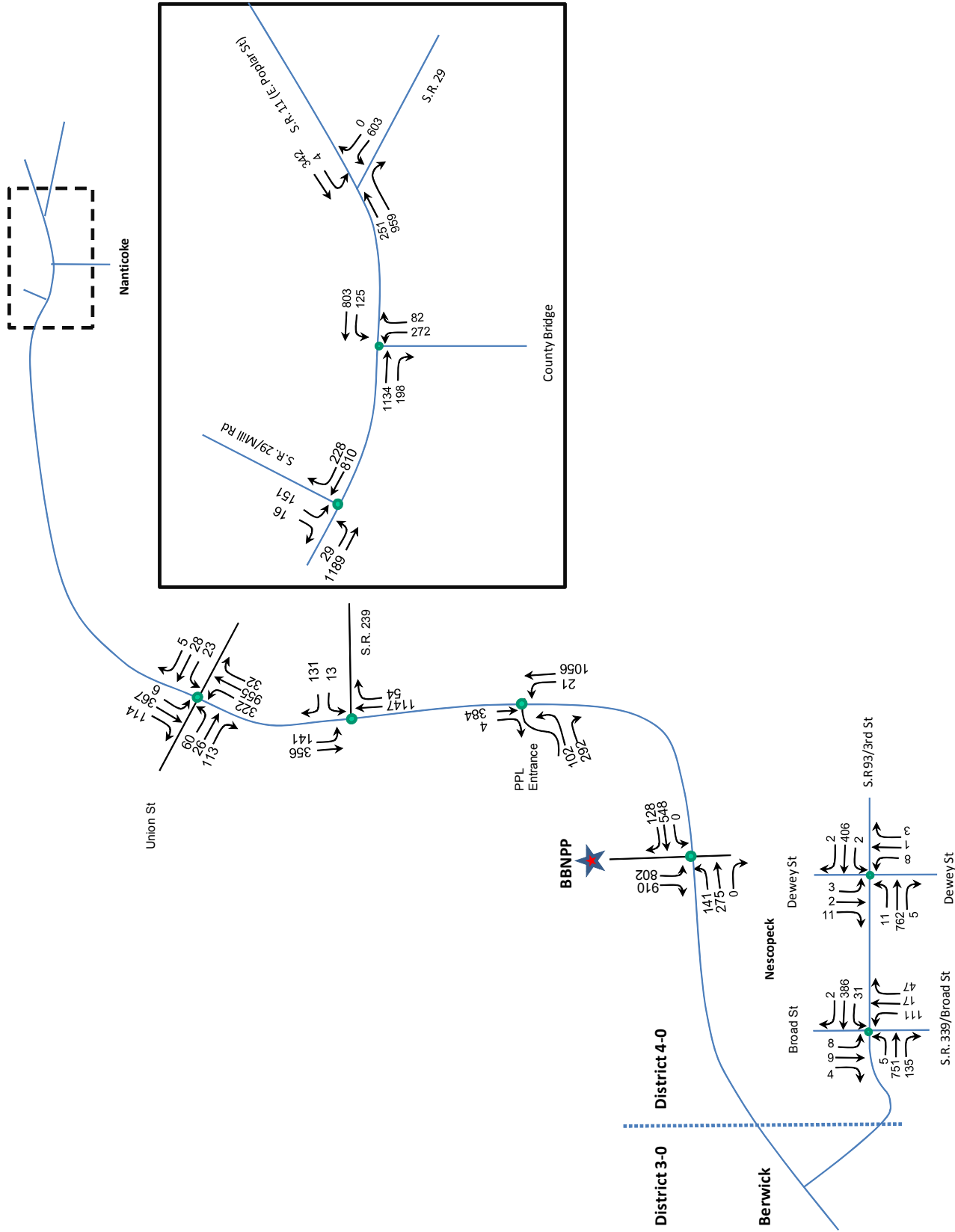


Figure 20 – Weekday PM Peak Hour Volumes (3:45-4:45): During Construction

Table 13 – LOS and Average Delay (sec/veh): Future Year Construction Conditions

<i>Int No</i>	<i>PennDOT</i>	<i>County</i>	<i>Municipality</i>	<i>Intersection</i>	<i>FNB AM^t</i>	<i>Const AM^t</i>	<i>FNB PM^t</i>	<i>Const PM^t</i>
1	3-0	Columbia	South Centre	S.R. 11 and S.R. 2028	B (14.9)	E (59.8)	C (23.1)	E (62.1)
2			Briar Creek	S.R. 11 and Briar Creek Plaza Driveways	A (6.6)	C (21.4)	C (20.9)	E (61.2)
3			Berwick	S.R. 11 (Front Street) and Eaton Street	A (1.1)	A (0.8)	A (2.3)	F (No-Gap)
4				S.R. 11 (Front Street) and Poplar Street	C (27)	F (176.3)	D (40)	F (144.9)
5				S.R. 11 (Front Street) and Orchard Street	A (6.7)	B (16.9)	B (17.7)	D (48.6)
6				S.R. 11 (Front Street) and S.R. 93 (Orange Street)	A (5.9)	B (11.1)	B (11)	D (51.7)
7				S.R. 11 (Second Street) and LaSalle Street	B (11.8)	B (11.4)	B (14.1)	C (22.9)
8				S.R. 11 (Second Street) and Oak Street	A (6.2)	A (5.5)	A (8)	B (10.7)
9				S.R. 11 (Second Street) and Mulberry Street	A (4.8)	A (3.1)	A (5.7)	A (6.3)
10				S.R. 11 (Front Street) and Mulberry Street	A (6.1)	A (2.1)	A (8)	B (10.4)
11				S.R. 1025 (Market Street) and Third Street	A (9.6)	A (8)	B (12.8)	B (15.2)
12				S.R. 11 (Second Street) and Market Street	A (9.7)	B (19.8)	B (11.7)	B (18.1)
13				S.R. 11 (Front Street) and Market Street	B (14.2)	E (63)	B (15.3)	C (30.6)
14				S.R. 11 (Second Street) and Pine Street	A (6)	A (5)	A (8.6)	B (16.6)
15	4-0	Luzerne	Nescopeck	S.R. 93 (Third Street) and S.R. 339 (Broad Street)	B (14.1)	C (23.3)	B (12.3)	C (22.3)
16				S.R. 93 (Third Street) and Dewey Street	A (4.6)	A (4.4)	A (3.7)	A (5.3)
17			Salem Township	S.R. 11 and Bell Bend Site Entrance		F (No-Gap)		F (No-Gap)
18				S.R. 11 and SSES Site Entrance	E (47.1)	F (No-Gap)	A (5.2)	F (129.3)
19			Shickshinny	S.R. 11 (S. Main Street) and S.R. 239	A (7.8)	C (22.5)	A (9.4)	E (69.3)
20				S.R. 11 (Main Street) and S.R. 239 (Union Street)	B (14.7)	F (110.8)	B (15.5)	F (108.9)
21			Nanticoke	S.R. 11 and S.R. 29 (Mill Street)	C (23.6)	D (36)	C (26.3)	F (270.8)
22				S.R. 11 and County Bridge	D (49.5)	C (22.6)	C (24.2)	F (155.3)
23				S.R. 11 (E. Poplar Street) and S.R. 29	A (2.9)	F (108.9)	D (30.3)	F (325.1)

Note 1: "FNB" corresponds to Future Year No-Build Condition and "Const" corresponds to Future Year Construction without any mitigation.

Note 2: **Highlighted cells** indicate cases in which the change in LOS is higher than the acceptable level of LOS degradation.

Note 3: "FNB" and "Const" LOS/Delay values include a concurrent Outage at SSES.

8. MITIGATION

8.1 Overview of Mitigation Issues

The mitigation measures proposed generally include the following items:

- a) Traffic Signalization/Signal Retiming
- b) Addition of turn bays
- c) Lane add/drop over short sections for critical movements
- d) Intersection redesign

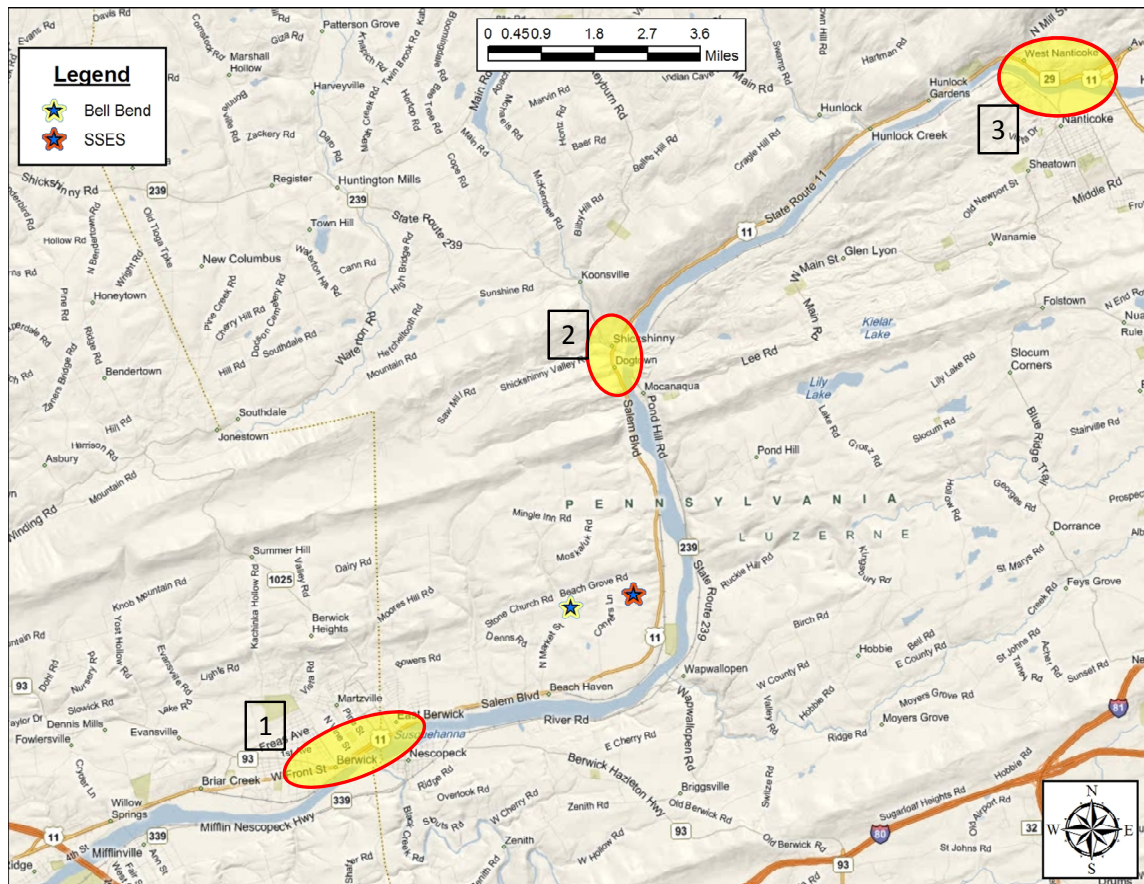
The goal of the above measures is to minimize delay experienced by vehicles driving through the intersection and meet the requirements for allowable change to intersection delay. The addition of turn bays and lane add/drop do not change the number of lanes on the arterial being used, but increase storage and discharge capacity at the intersection approaches, thereby reducing overall delay experienced by vehicles. However, it is important to note that the practicality of items b) through d) is influenced by available real estate/right of way.

The study area includes intersections in the following municipalities – South Centre, Briar Creek, Berwick, Nescopeck, Salem Township, Shickshinny, and Nanticoke. The roadway conditions in Berwick, Nescopeck, and Shickshinny are such that, in most cases, it is impractical to suggest roadway improvements beyond traffic signalization/signal retiming. This is related to the fact that there are no shoulders and very limited room to add travel lanes. However, in the other three municipalities (South Centre, Briar Creek and Salem Township), there is the possibility of adding lanes/turn bays along SR 11.

Figure 21 shows the following key considerations that have to be addressed in the development of the traffic mitigation plan:

- **Consideration 1 - Berwick:** SR 11 through Berwick is a critical capacity constraint in both the AM and PM peak periods. There are three key items:
 - The single lane along NB SR 11 (Front Street) downstream of the merge with SR 93 (Market Street), limits the traffic load that can arrive to the site from the south/west.
 - The single lane on SR 11 SB (2nd Street) past Walnut Street, and the split between SR 93 (Orange Street) and SR 11, limits the traffic load in the SB direction on SR 11.
 - There is insufficient room to add lanes/turn bays along SR 11 in Berwick; the only feasible alternative to increase intersection capacity is to restrict street parking in the vicinity of the intersection during certain times of day (shift change etc.)
- **Consideration 2 – Shickshinny:** Similar to the Borough of Berwick, there is insufficient room to add lanes/turn bays along SR 11; the only feasible alternative to increase

intersection capacity is to restrict street parking in the vicinity of the intersection during certain times of day (shift change etc.) or temporary use of shoulders.



Note: Items 1-3 are discussed in the text as considerations to be taken into account

Figure 21 – Considerations for Traffic Mitigation

- **Consideration 3 - Nanticoke:** There are two key items:
 - The stop controlled intersection of SR 11 (E. Poplar Street) and SR 29, is a capacity constraint that needs to be addressed if the construction workforce can arrive on site, efficiently. This intersection needs improvement, possibly a redesign with a traffic signal, to handle the forecasted traffic loads.
 - The intersection of County Bridge and SR 11 is currently operating at LOS D and is forecasted to operate at LOS E in the future year No-Build conditions.

Taking in account the above discussion, mitigation was determined for each intersection and analyzed.

8.2 Proposed Mitigation

The following two sections discuss the mitigation measures proposed at each intersection within the study area for each of the two PennDOT districts. There is a subsection devoted to each intersection which provides both an illustrative figure and a table containing the LOS and delay during the Future No-Build and the Construction Phase peak with a concurrent outage both before and after mitigation. Highlighted cells in the tables represent a condition where average delay after mitigation has been implemented exceeds the Future No-Build by greater than 10 seconds/vehicle. The LOS computations and worksheets for each of the following intersections are presented in Appendix M. Also, for each intersection where left turn lanes are recommended or modified left turn warrants, left turn storage requirements and left turn conflict factors/phasing were computed using the PennDOT guidance [8], where applicable.

The analysis of these measures was supplemented with traffic visualization generated by SimTraffic⁴ [9], the companion tool to SYNCHRO. This tool helps to gain insights into traffic operations and related queuing. In addition to the static analysis in the HCM of determining the LOS for the peak hour based on the peak 15-min volumes, this tool allows the analysis of the peak hour with the individual traffic loads in 15-min increments.

8.3 Proposed Mitigation: PennDOT District 3-0

8.3.1 S.R. 11 and S.R. 2028

This intersection located in South Centre, is currently signalized. Heavy flows on S.R. 11 NB during the AM peak require the addition of a through lane. This is achieved with a lane add and subsequent drop further north as shown in Figure 22. The lane add/drop was analyzed to ensure that the lane drop downstream of the intersection did not result in any spill back. This allows the intersection to function at acceptable levels in both the AM and PM peak periods as shown in Table 14. The storage provided for the left turn bay meets PennDOT requirements. Appendix M presents the related calculations. Also the signal phasing recommended is Protected/Permitted which is based on PennDOT guidance.

Table 14- Intersection LOS (Delay) at S.R. 11 and S.R. 2028

Time	FNB (Target)	Construction + Outage	
		Before Mitigation	After Mitigation
AM	B (14.9)	E (59.8)	B (10.8)
PM	C (23.1)	E (62.1)	C (27.5)

⁴ SimTraffic – This is a microscopic traffic simulation tool, developed by Trafficware the developers of SYNCHRO.

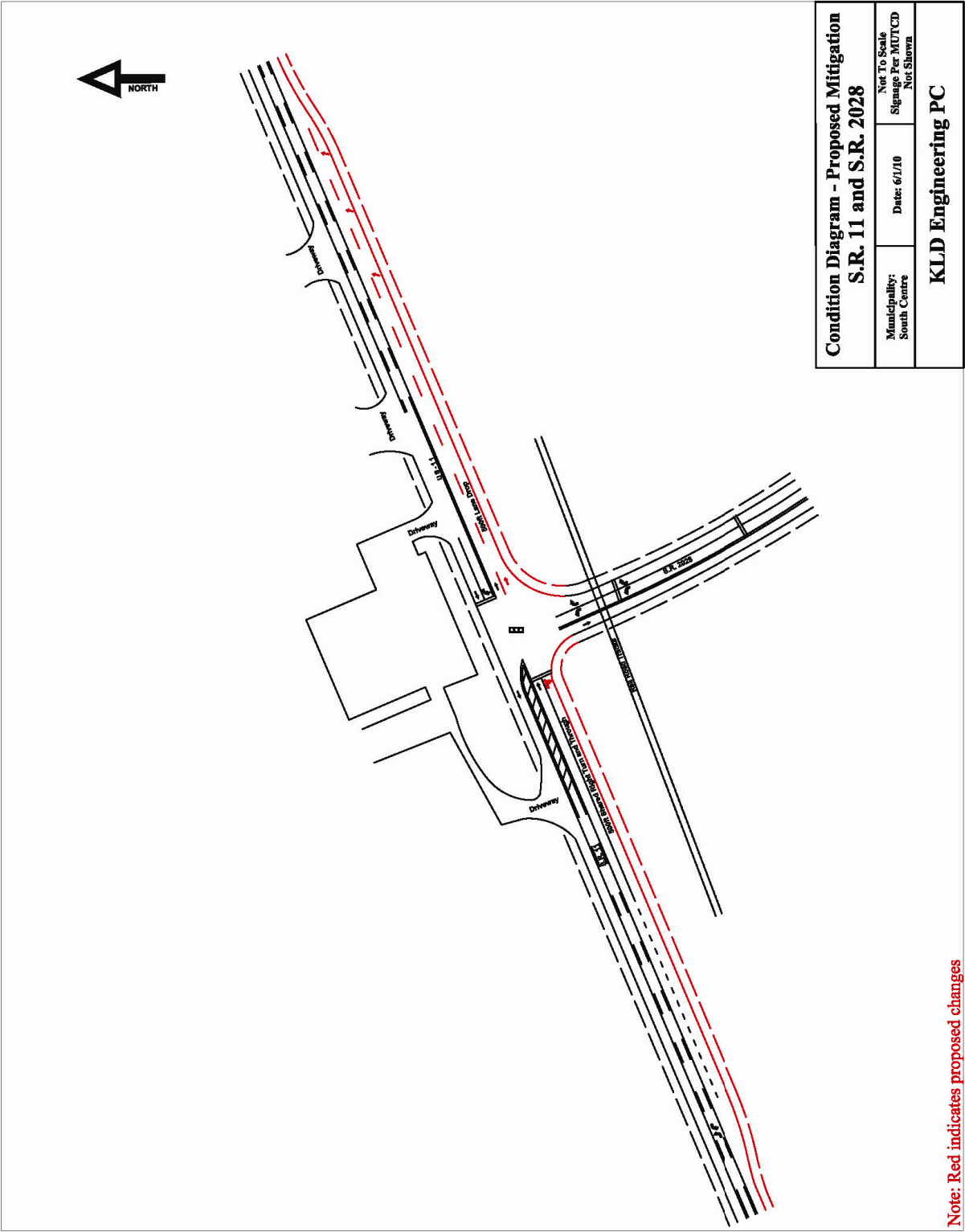


Figure 22 – Mitigation at S.R. 11 and S.R. 2028

8.3.2 S.R. 11 and Briar Creek Plaza Driveways

This signalized intersection is located in Briar Creek, at the entrance to the Briar Creek Plaza. Heavy flows on S.R. 11 SB during the PM peak require the addition of a through lane servicing this movement. The proposed improvement is similar to SR 11 and SR 2028, as shown in Figure 23. This improvement results in acceptable levels in the PM as shown in Table 15. *However it does not meet the 10 sec maximum allowable change requirement during the AM, and needs to be a discussion item with PennDOT.* It must be noted that this condition only exists during the outage which corresponds to one month in each of (at most) two consecutive years. Also, the turn bay storage recommended meets PennDOT requirements. Appendix M presents the related calculations.

Table 15 – Intersection LOS (Delay) at S.R. 11 and Briar Creek Plaza Driveways

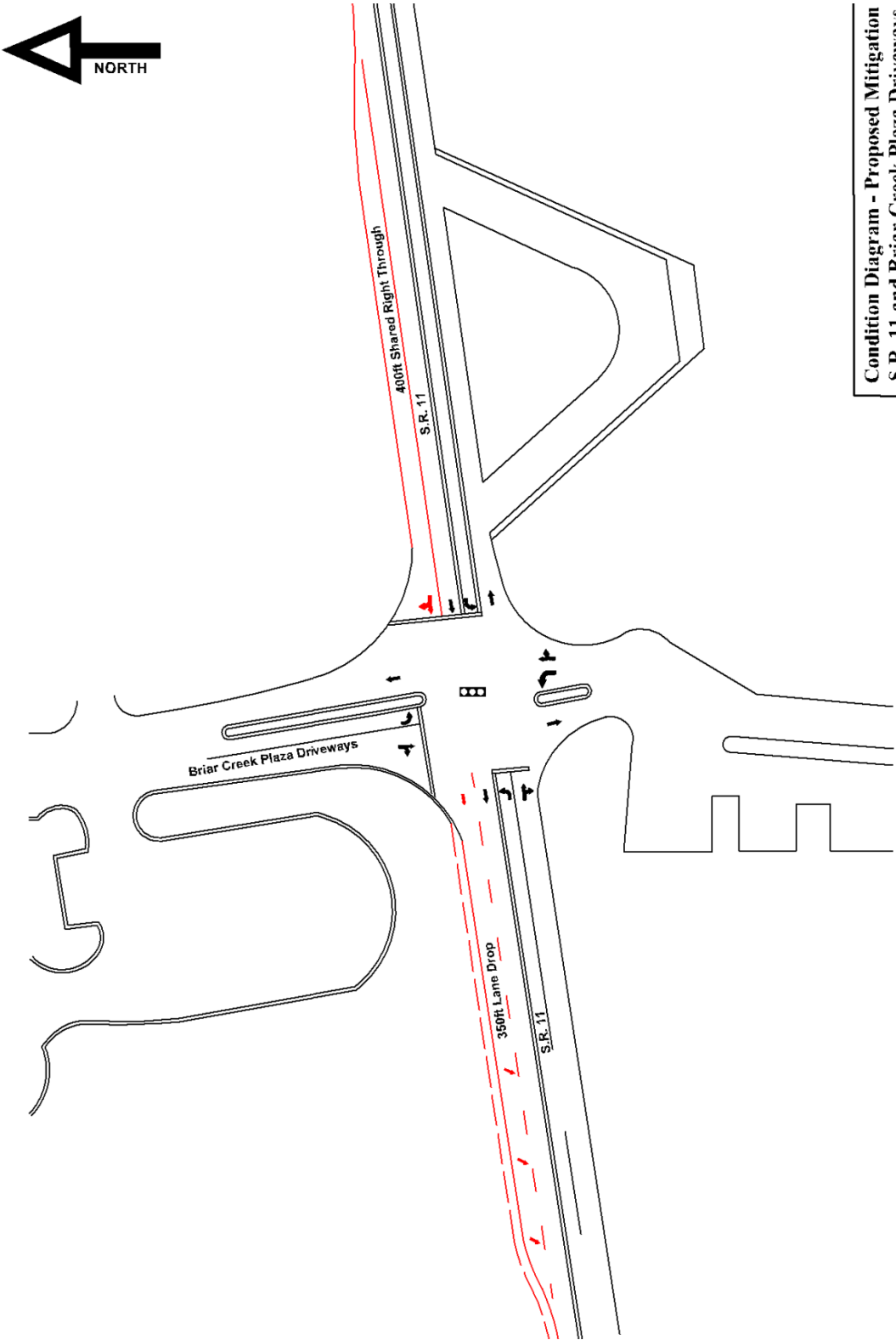
Time	FNB (Target)	Construction + Outage		No Outage	
		Before Mitigation	After Mitigation	FNB (Target)	Construction With Mitigation
AM	A (6.6)	C (21.4)	C (21.5)	A (6.6)	A (9.8)
PM	C (20.9)	E (55.5)	B (16.2)	B (14.2)	B (15.4)

8.3.3 S.R. 11 (Front Street) and Eaton Street

Eaton Street, presently a two way stop controlled intersection in Berwick, experiences an increase in delay for the side street approaches that are well in excess of 10 seconds as shown in Table 16. Appendix M also includes a traffic signal warrant analysis for this intersection that shows that the traffic signal warrants [12] are not satisfied for the Existing, Future No-Build, or Construction Conditions. However, if a traffic light is installed during the construction period, the delays for the Eaton Street will be reduced. When analyzed as a signalized intersection during the construction period, the intersection performs at LOS C or better which meets the PennDOT requirement. The turn bay storage recommended meets PennDOT requirements. Appendix M presents the related computations.

Table 16 – Intersection LOS (Delay) at S.R. 11 (Front Street) and Eaton Street

Time	FNB (Target)	Construction + Outage	
		Before Mitigation (Unsignalized)	After Mitigation
AM	A (1.1)	A (0.8)	B (11.9)
PM	A (2.3)	F (No-Gap)	C (30.4)



Condition Diagram - Proposed Mitigation S.R. 11 and Briar Creek Plaza Driveways		
Municipality: Briar Creek	Date: 6/1/10	Not To Scale Signage Per MUTCD Not Shown
KLD Engineering PC		

Figure 23 – Mitigation at S.R. 11 and Briar Creek Plaza Driveways

Note: Red indicates proposed changes

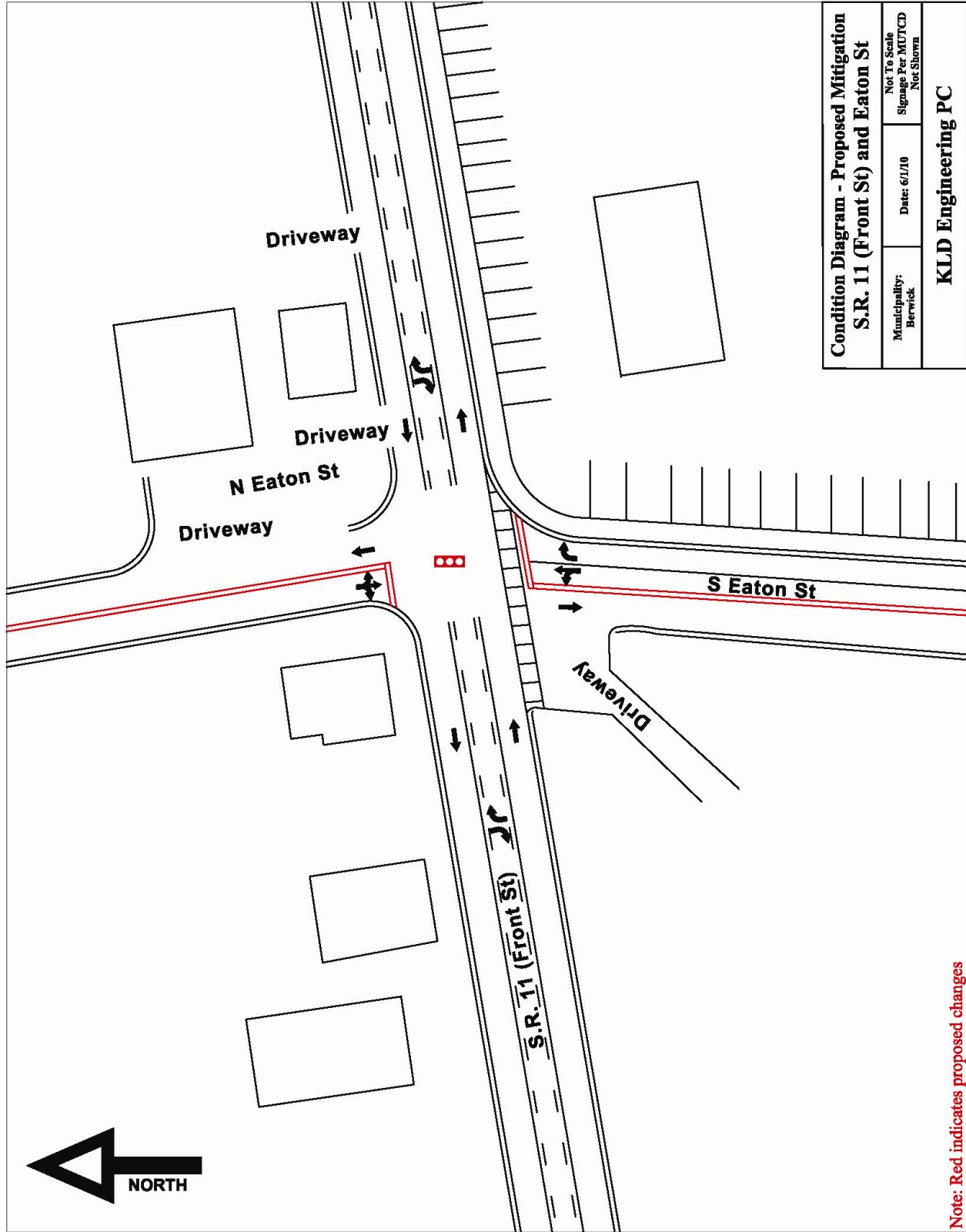


Figure 24 – Mitigation at S.R. 11 (Front Street) and Eaton Street

8.3.4 S.R. 11 (Front Street) and Poplar Street

This is a signalized intersection in Berwick. There is limited room for intersection capacity improvements because there is no shoulder; refer to in Figure 25. However, signal optimization improves the LOS of this intersection compared to the unmitigated case as shown in Table 17 and results in acceptable levels of the LOS. The recommended permitted left turn phasing and recommended turn bay storage meet PennDOT requirements. Appendix M presents the related calculations.

Table 17 – Intersection LOS (Delay) at S.R. (Front Street) and Poplar Street

Time	FNB (Target)	Construction + Outage	
		Before Mitigation	After Mitigation
AM	C (27)	F (176.3)	D (36.8)
PM	D (40)	F (144.9)	B (17.2)

8.3.5 S.R. 11 (Front Street) and Orchard Street

This intersection is approximately 0.5 miles east of Poplar Street in Berwick and the two streets share some characteristics in that there is limited room for intersection capacity improvements as shown in Figure 26. Signal optimization and restriping on Poplar Street results in acceptable LOS during the PM peak period as shown in Table 18. *However it does not meet the 10 sec maximum allowable change requirement, and needs to be a discussion item with PennDOT.* The resulting LOS D would be acceptable under a special condition from PennDOT and input from the Borough of Berwick as it is an urban area, and will be part of the discussion with PennDOT. The recommended turn bay storage meets PennDOT requirements. Appendix M presents the related computations.

Table 18 – Intersection LOS (Delay) at S.R. 11 (Front Street) and Orchard Street

Time	FNB (Target)	Construction + Outage	
		Before Mitigation	After Mitigation
AM	A (6.7)	B (16.9)	A (8)
PM	B (17.7)	D (48.6)	D (49.1)

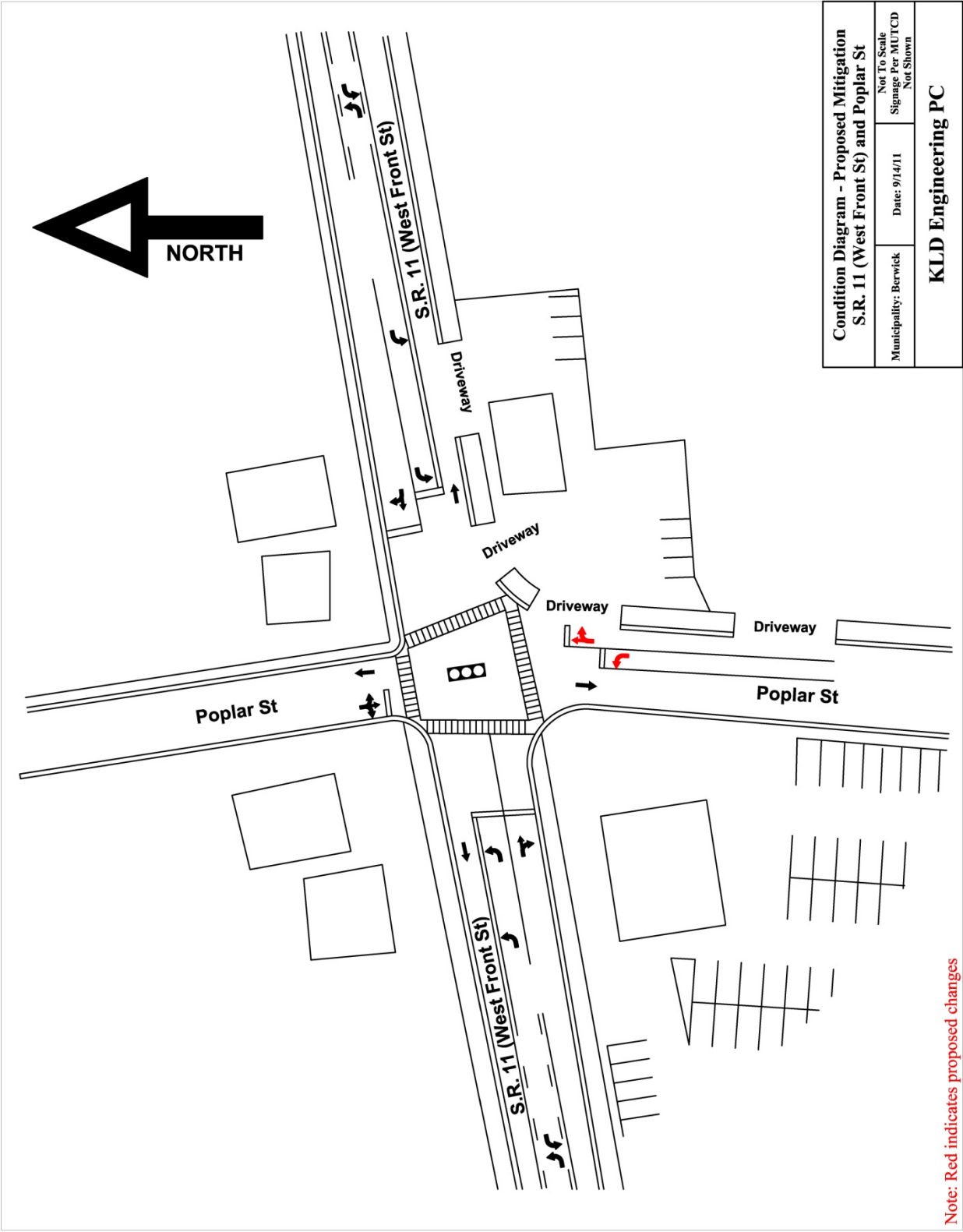


Figure 25 – S.R. 11 (Front Street) and Poplar Street

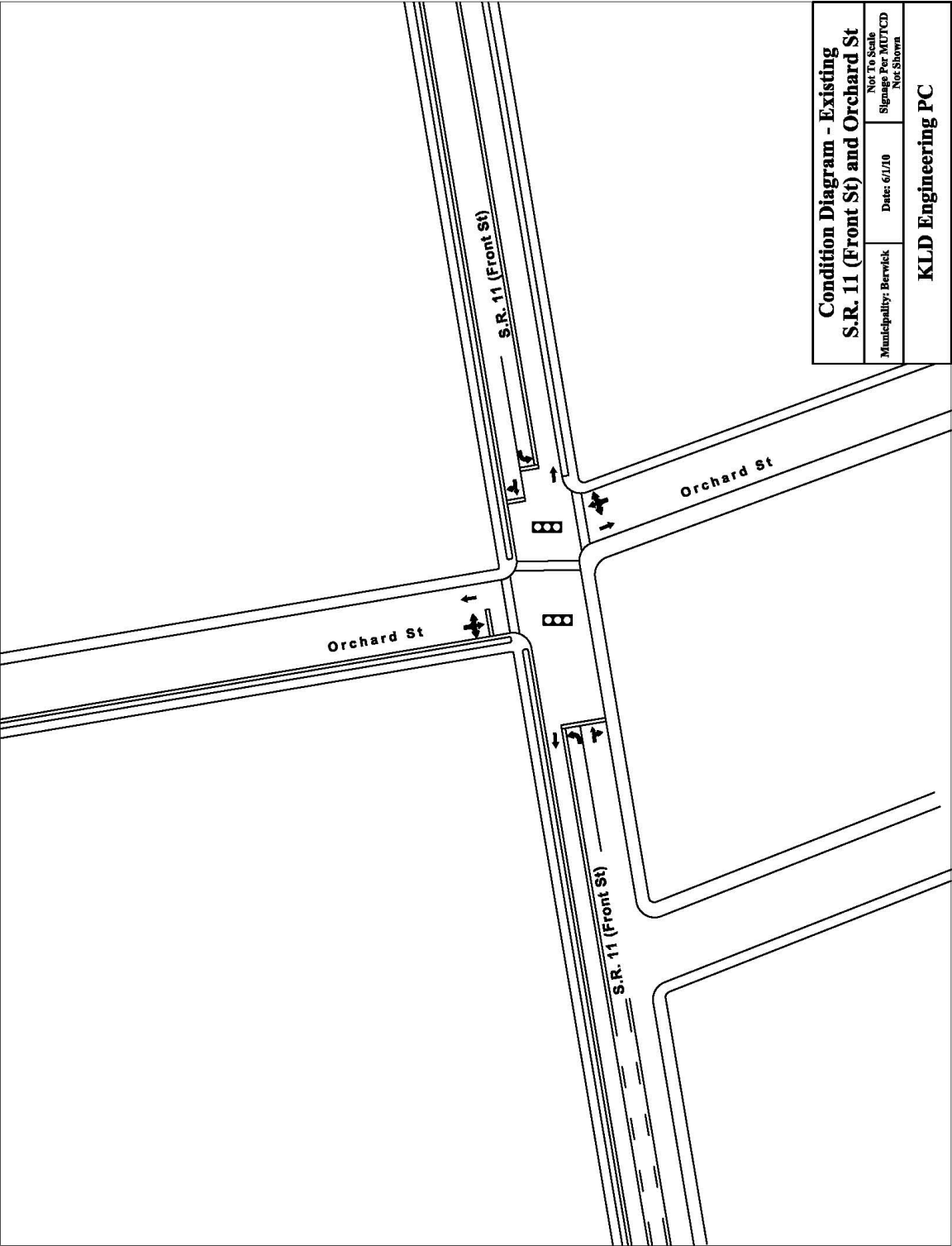


Figure 26 – S.R. 11 (Front Street) and Orchard Street

8.3.6 S.R. 11 (Front Street) and S.R. 93 (Orange Street)

This signalized intersection in Berwick is constrained in terms of increasing the capacity by widening or adding to the intersection (see Figure 27). At this intersection, signal optimization improves the level of service marginally, as shown in Table 19. *However, it does not meet the 10 sec maximum allowable change requirement, and needs to be a discussion item with PennDOT.* The resulting LOS D would be acceptable under a special condition from PennDOT and input from the Borough of Berwick as it is an urban area, and will be part of the discussion with PennDOT.

The recommended turn bay storage does not meet PennDOT requirements. Appendix M presents the related computations. However the SimTraffic visualizations suggest that the queues resulting from the turn bay insufficiency will not lead to a system wide problem on SR 11 and is limited to this intersection. The companion disk to this report provides the SimTraffic files to support this observation.

Table 19 – Intersection LOS at S.R. 11 (Front Street) and S.R. 93 (Orange Street)

Time	FNB (Target)	Construction + Outage	
		Before Mitigation	After Mitigation
AM	A (5.9)	B (11.1)	B (11.5)
PM	B (11)	D (51.7)	D (45.7)

8.3.7 S.R. 11 (Second Street) and Market Street/S.R. 11 (Front Street) and Market Street

This is the one way pair for S.R. 11 at the S.R. 93 (Market Street) bridge in Berwick. Signal optimization and retiming at Second Street mitigates all impacts as shown in Table 20. However, at Front Street, the traffic is heavy along EB S.R. 93 and NB S.R. 11 and requires restriping as shown in Figure 28. Restricting street parking along S.R. 11 and providing a shared through/right turn lane improves the capacity to service traffic NB on S.R. 11. Similarly, along S.R. 93 towards the bridge, an additional through lane is added.

Traffic headed to the site from SR 11 and SR 93 merge onto the single lane approximately 0.6 miles from this intersection. Inspecting the SimTraffic visualization, it was observed that there is queuing from the intersection with Walnut Street, but the spillback does not occur into this intersection.

The recommended permitted left turn phasing meets PennDOT requirements but the recommended turn bay storage does not meet PennDOT requirements. Appendix M presents the related computations. However, the SimTraffic visualization suggest that the queues resulting from the turn bay insufficiency will not lead to a system wide problem on SR 11 and is limited to this intersection. The companion disk to this report provides the SimTraffic files to support this observation.

Table 20 – Intersection LOS at S.R. 11 (Second Street) and Market Street/S.R. 11 (Front Street) and Market Street

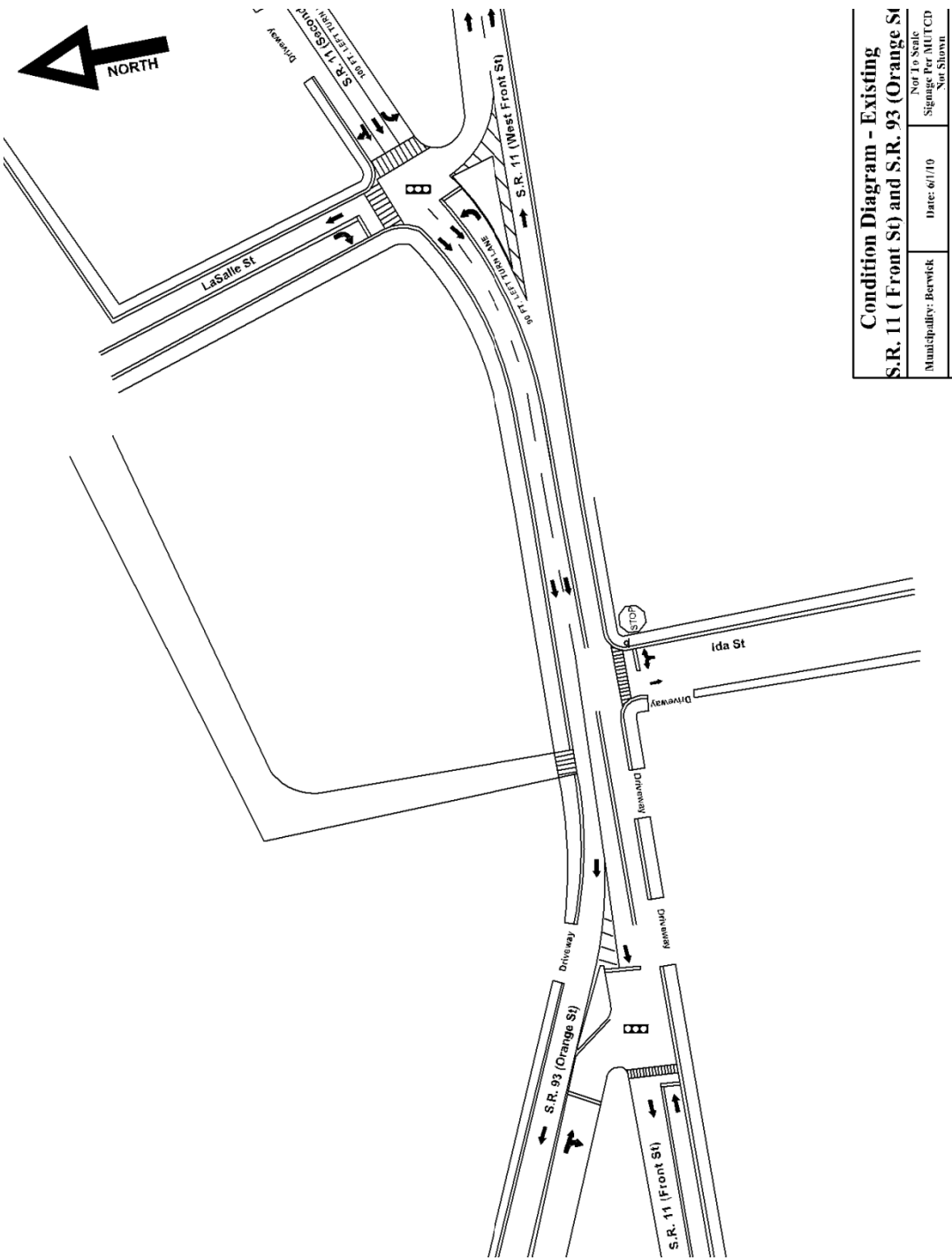
S.R. 11 (Front Street) and Market Street

Time	FNB (Target)	Construction + Outage	
		Before Mitigation	After Mitigation
AM	B (17.2)	E (63)	B (16.3)
PM	B (19.3)	C (23.9)	A (8.8)

S.R. 11 (Second Street) and Market Street

Time	FNB (Target)	Construction + Outage	
		Before Mitigation	After Mitigation
AM	B (11.9)	B (19.8)	A (6.3)
PM	B (14)	B (17.4)	B (14.0)

Traffic on SR 11 (Second Street) arrives through Walnut Street, which is the start of the one-way pair of SR 11 Front Street/Second Street in Berwick. This short section along Walnut Street needs improvements (lane restriping) to handle the increased loads during the future year construction conditions. Appendix M provides the details of this improvement.



Condition Diagram - Existing		
S.R. 11 (Front St) and S.R. 93 (Orange St)		
Municipality: Berwick	Date: 6/1/10	Not To Scale Signage Per MUTCD Not Shown
KLD Engineering PC		

Figure 27 – S.R. 93 (Orange Street)/ S.R. 11 (Second Street) and LaSalle Street

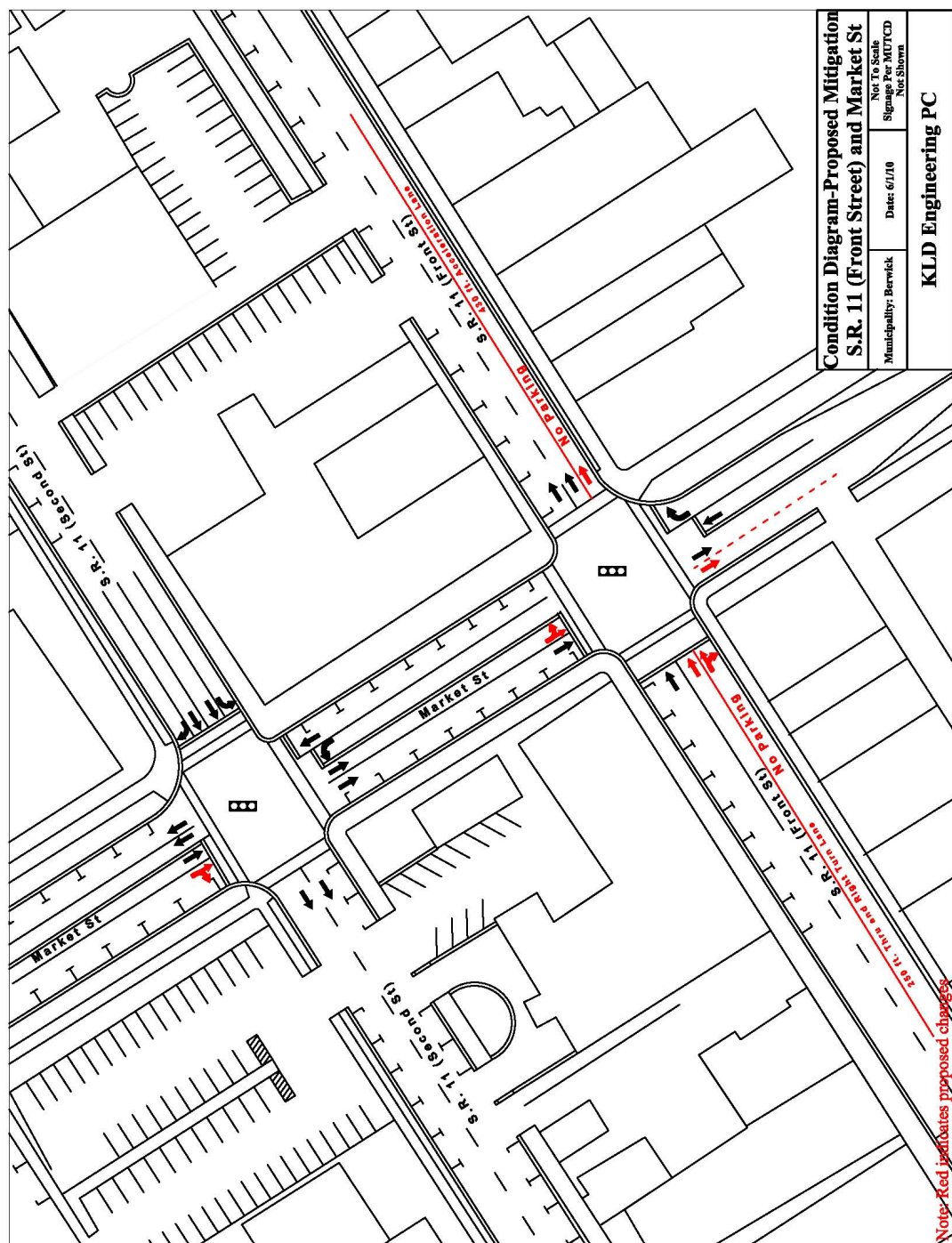


Figure 28 – Mitigation at S.R. 11 (Second Street) and Market Street/S.R. 11 (Front Street) and Market Street

8.4 Proposed Mitigation: PennDOT District 4-0

8.4.1 S.R. 11 and Bell Bend Site Access

The design of the site access road is included under the mitigation section, because it is related to the impacts and operating level of service at nearby intersections. The proposed site access road would require a fully actuated signal to provide efficient service to the traffic demand. Signalization would be temporary only for the duration of construction (traffic signal warrant analysis, provided in Appendix M shows that the traffic signal warrants are not satisfied).

Two NB left turn bays will be provided to assist the main shift arriving from the south and west in the AM. In the PM, the main shift exodus is heavy and as discussed earlier, is relatively even split, in both directions along S.R. 11. As such, two left turn lanes and two right turn lanes are needed to assist these flows. Given the high volume in and out of the site during the AM and PM respectively, it is recommended that the site access road be flared as a four lane road with two lanes given to each direction in the vicinity of the intersection. The layout is shown in Figure 29. Also, based on discussions with PennDOT District 3-0, for the traffic exiting the site RTOR (Right Turn On Red) is prohibited at this intersection.

There is direct access to a laydown area south of S.R. 11 from this intersection. This area is not expected to generate large volumes of traffic so the approach is defined with 1 lane in each direction. Also, during the construction phase peak hour, trips in/out from this lay down area will be restricted, so that the intersection may operate efficiently to handle flows in/out of the Bell Bend site. The resulting LOS is C or better in both the AM and PM periods.

The recommended turn bay storage does not meet PennDOT requirements. Appendix M presents the related computations. However the SimTraffic visualization suggest that the queues resulting from the turn bay insufficiency will not lead to a system wide problem on SR 11 and is limited to this intersection. The companion disk to this report provides the SimTraffic files to support this observation.

8.4.2 S.R. 11 and SSES Site Entrance

The existing plant entrance is presently an unsignalized intersection. SSES is currently in the HOP process of upgrading their driveways including the main entrance along SR 11. The upgrades include a dedicated right turn bay into the site for the RT 11 traffic and conversion of the center lane into a dedicated left turn lane into the site from RT 11. In order to meet the LOS requirements during the peak of the construction, a traffic signal will need to be installed and the

southbound right turn lane will need to be extended by approximately 200 feet as shown in Figure 30. The traffic light is recommended to be installed during the construction period in order to reduce delays (Appendix M includes the traffic signal warrant analysis that shows the warrants are satisfied in the existing, future no-build conditions). When analyzed as a signalized intersection during the construction period, the intersection performs at LOS D, as shown in Table 21. However, for period other than the outage, the LOS is acceptable at LOS C or better. *This needs to be a discussion item with PennDOT.*

The recommended turn bay storage does not meet PennDOT requirements. Appendix M presents the related computations. However the SimTraffic visualization suggest that the queues resulting from the turn bay insufficiency will not lead to a system wide problem on SR 11 and is limited to this intersection. The companion disk to this report provides the SimTraffic files to support this observation.

Table 21 - Intersection LOS (Delay) at S.R. 11 and SSES Site Entrance

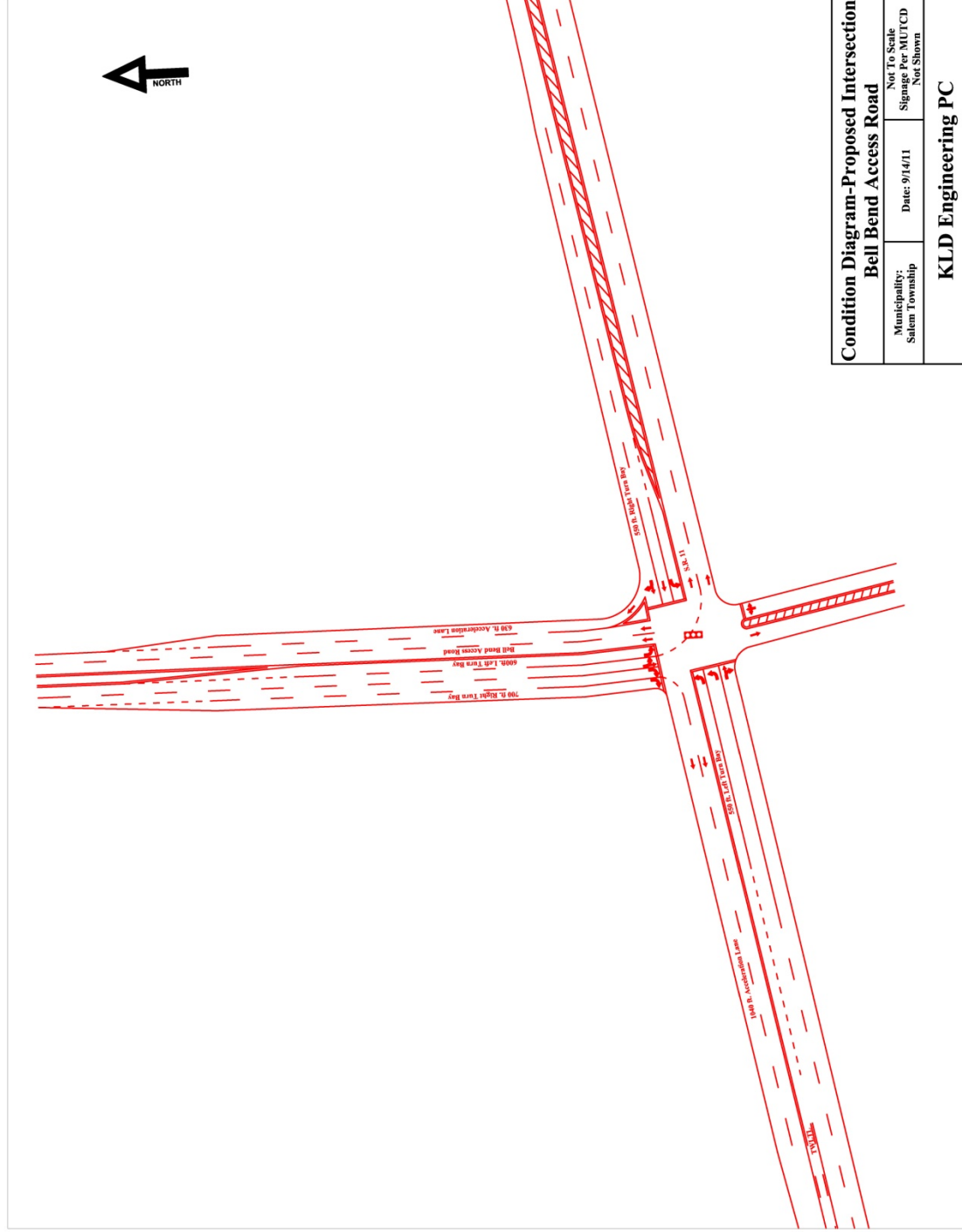
Time	With Outage			No Outage	
	FNB (Target)	Construction Before Mitigation	Construction With Mitigation	FNB (Target)	Construction With Mitigation
AM	E (47.1)	F (No-Gap)	D (35.2)	A (4.4)	B (11.6)
PM	A (5.2)	F (129.3)	D (35.2)	A (3.8)	C (24.4)

8.4.3 S.R. 11 (S. Main Street) and S.R. 239

At this signalized intersection in Shickshinny, restriping the lanes along S.R. 11 NB and SB S.R. 11 results in LOS A and LOS B during both AM and PM peaks respectively, as shown in Table 22. The restriping would include converting SB S.R. 11 as two through lanes with a shared left turn lane, converting the NB S.R. 11 to two through lanes with a shared right turn lane and repurposing the large shoulder along S.R. 239 as a right turn bay, as shown in Figure 31.

Table 22 – Intersection LOS at S.R. 11 (S. Main Street) and S.R. 239

Time	FNB (Target)	Construction + Outage	
		Before Mitigation	After Mitigation
AM	A (7.8)	C (22.5)	A (5.6)
PM	A (9.4)	E (69.3)	B (10.8)



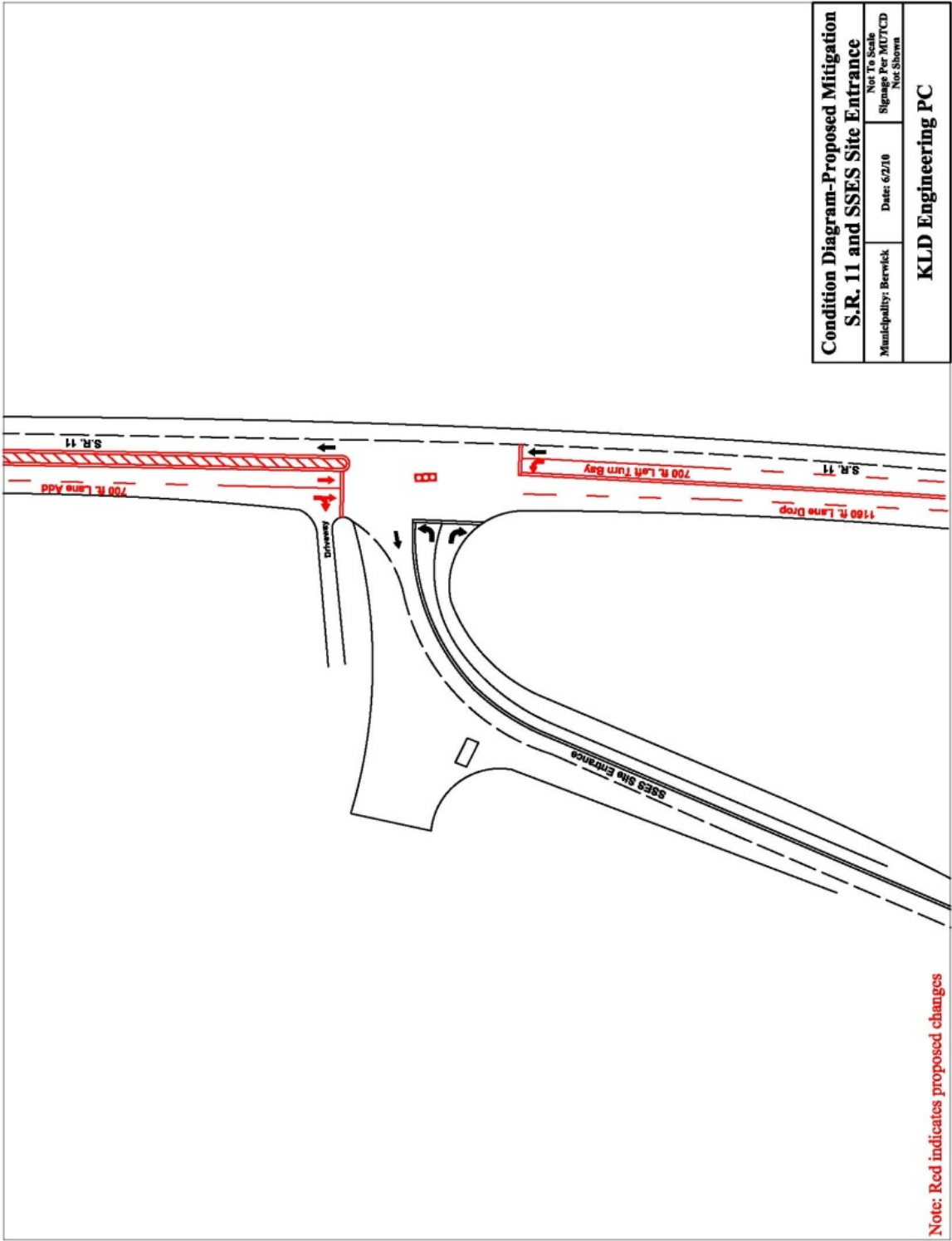


Figure 30 – Mitigation at S.R. 11 and SSES Site Entrance

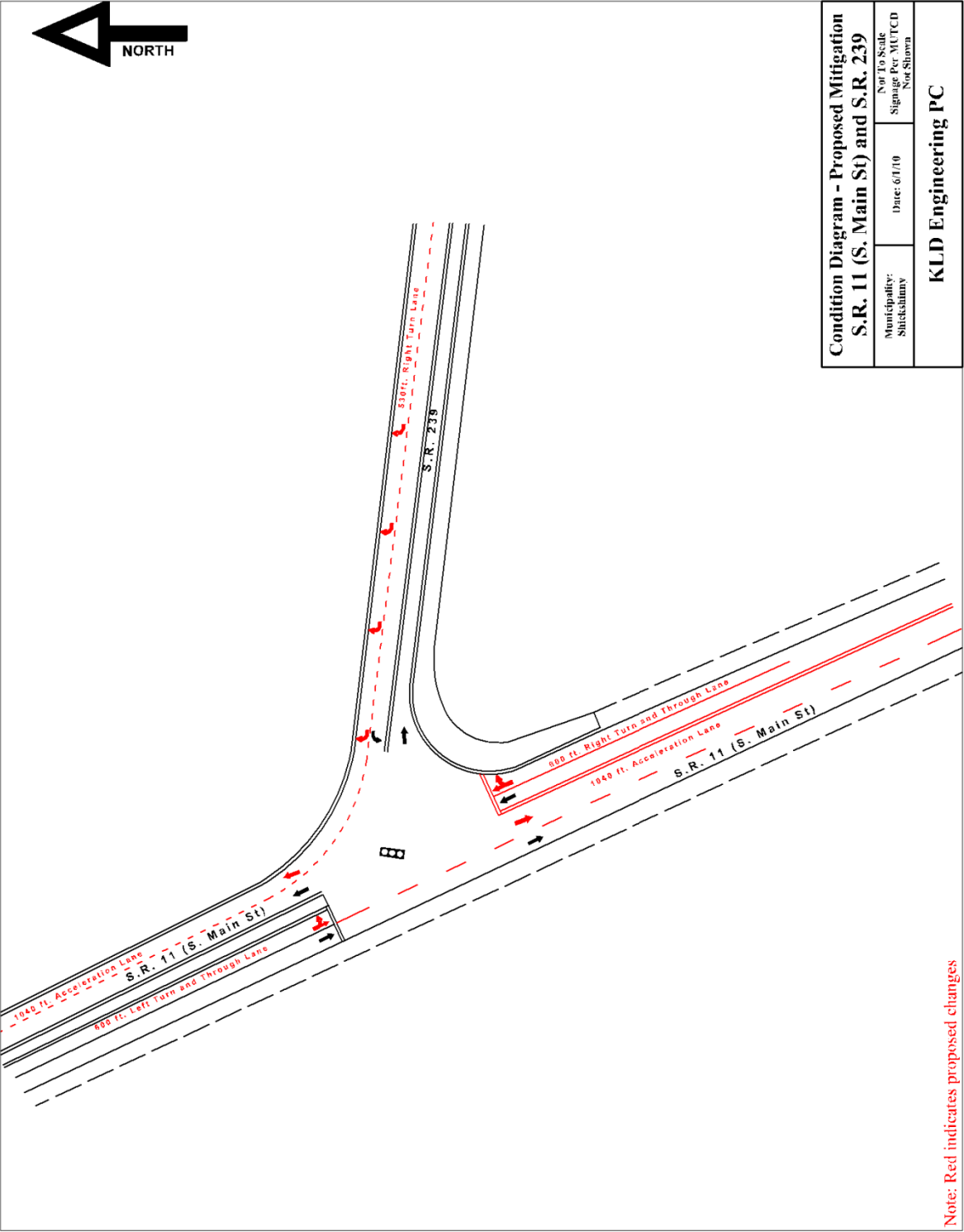


Figure 31 – Mitigation at S.R. 11 (S. Main Street) and S.R. 239

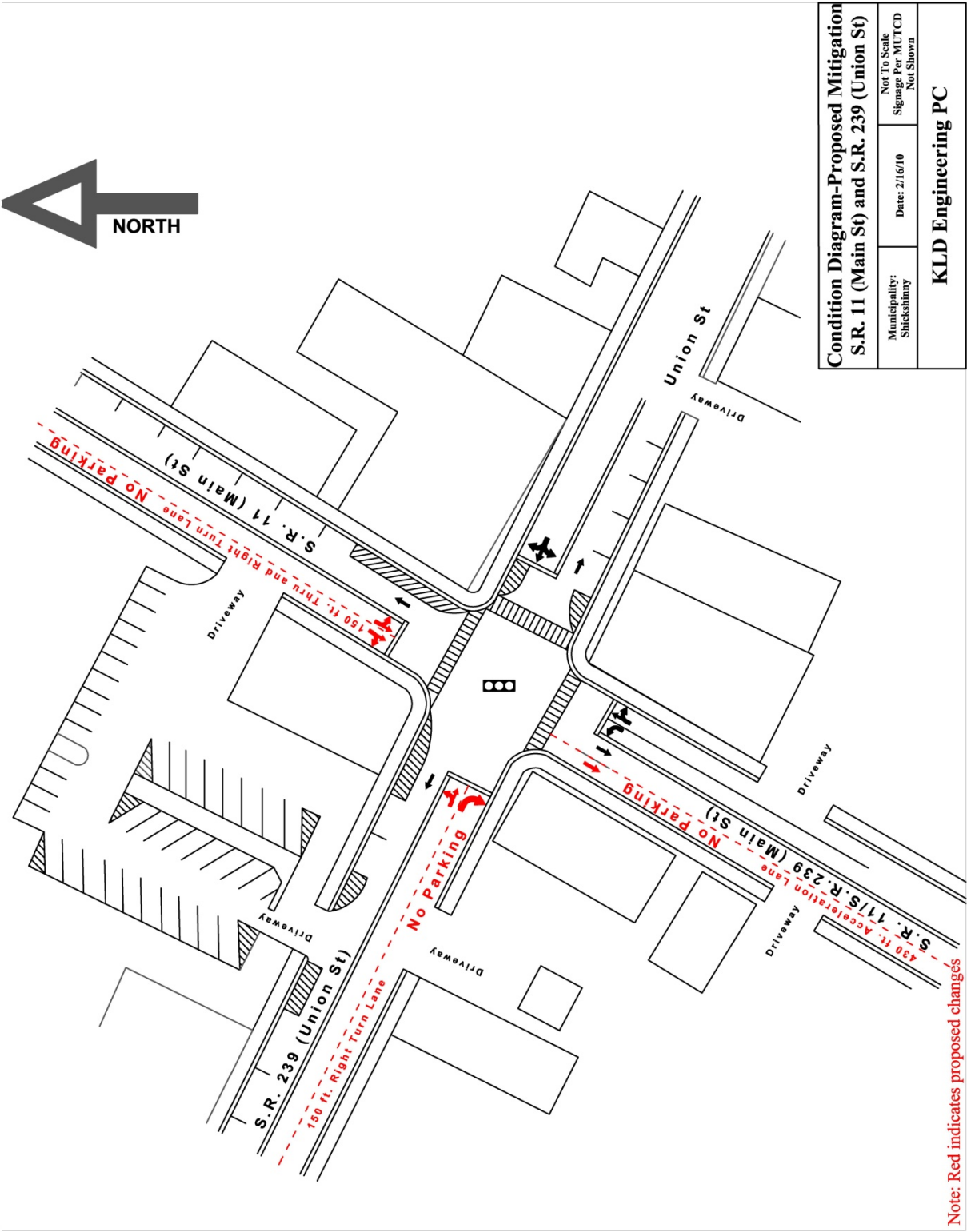


Figure 32 – Mitigation at S.R. 11(Main Street) and S.R. 239 (Union Street)

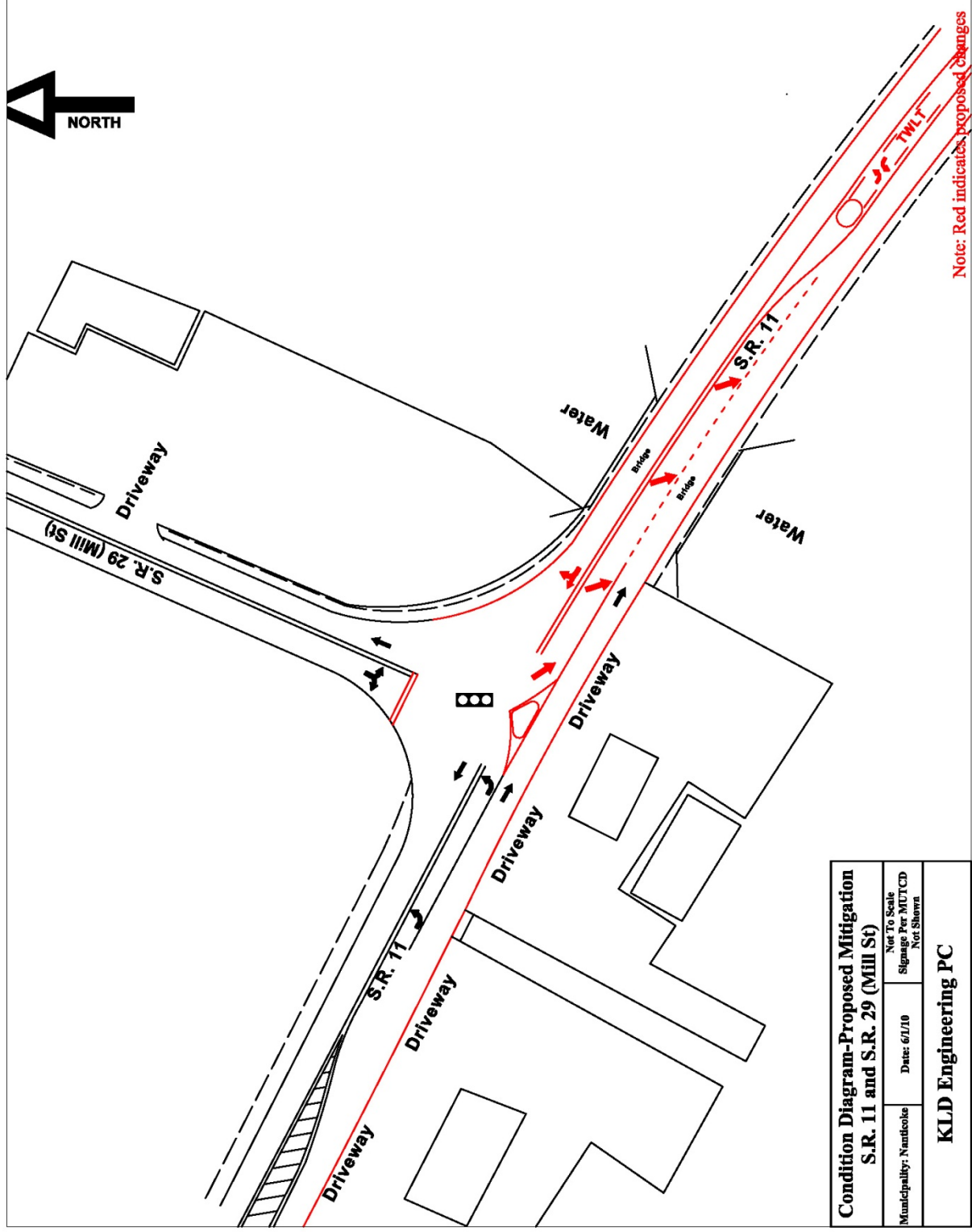


Figure 33 – Mitigation at S.R. 11 and S.R. 29 (Mill Street)

8.4.4 S.R. 11(Main Street) and S.R. 239 (Union Street)

At this signalized intersection in Shickshinny, signal optimization results in an intersection level of service comparable to the Future No-Build conditions during the PM peak periods (as shown in Table 23). However, during the AM peak period, there is heavy demand in the EB and SB directions and the volumes are high for the single lane approaches. By using the parking lane for the right turns from S.R. 239 (Union Street) going from EB onto S.R. 11 SB, and using the parking lane along SB S.R. 11 as shown in Figure 32, the intersection will operate at LOS B.

Table 23 – Intersection LOS (Delay) at S.R. 11 and S.R. 239 (Union Street)

Time	FNB (Target)	Construction + Outage	
		Before Mitigation	After Mitigation
AM	B (14.7)	F (110.8)	B (14.9)
PM	B (15.5)	F (108.9)	B (18)

8.4.5 S.R. 11 and S.R. 29 (Mill Street)

Mill Street, in Nanticoke, is most heavily impacted during the PM peak. There is not enough capacity in the existing intersection to service all of the movements as well as the predominant NB flow on S.R. 11. There is very little room to expand the intersection due to surrounding development, topology and an adjacent bridge directly east of the intersection which prevents widening. As a result, a modified T-intersection with a free NB movement uncontrolled by the signal is recommended as shown in Figure 33. The EB left turn coming from Mill Street is channeled into a central acceleration lane and subsequent merging section over the bridge in an area currently occupied by the TWLTL (Two-way Left Turn Lane). The resulting LOS is within acceptable levels as shown in Table 24, with these proposed changes. The recommended turn bay storage meets PennDOT requirements. Appendix M presents the related computations.

Table 24 - Intersection LOS (Delay) at S.R. 11 and S.R. 29 (Mill Street)

Time	FNB (Target)	Construction + Outage	
		Before Mitigation	After Mitigation
AM	C (23.6)	D (36)	C (29.5)
PM	C (26.3)	F (270.8)	C (21.5)

8.4.6 S.R. 11 and County Bridge

This signalized intersection in Nanticoke is also heavily impacted during the PM peak. There is not enough capacity in the existing intersection to service all of the movements as well as the predominant NB flow on S.R. 11. Similar to Mill Street, there is limited room to expand the intersection due to surrounding development, topology and an adjacent bridge directly south of the intersection. The proposed design (Figure 34) repurposes the TWLTL on S.R. 11 NB to create a second through lane. The relatively flat and open area in the intersection's south east corner is used to add a receiving lane. The two lanes continue to join with the existing two lane section of S.R. 11. A raised island is used to channelize vehicles through the intersection. The resulting LOS is within acceptable levels as shown in Table 24, with these proposed changes. The recommended turn bay storage meets PennDOT requirements. Appendix M presents the related computations.

Table 25 - Intersection LOS (Delay) at S.R. 11 and County Bridge

Time	FNB (Target)	Construction + Outage	
		Before Mitigation	After Mitigation
AM	D (49.5)	C (22.6)	B (14.1)
PM	C (24.2)	F (155.3)	C (31.1)

8.4.7 S.R. 11 (E. Poplar Street) and S.R. 29

This intersection in Nanticoke is currently unsignalized. It is recommended that a traffic signal be installed during the construction period for an efficient route to access the site for the construction workforce (the traffic signal warrant analysis in Appendix M shows that traffic signal warrants are satisfied in the existing and future no-build conditions). The recommended configuration is shown in Figure 35. This includes restricting the left turn from SB SR 11. This displaces up to 4 vehicles per hour onto a redundant path to S.R. 29 south located on the opposite side of the interchange. Prohibiting this left turn combined with signalization will create a safer intersection. The resulting intersection LOS is C, as shown in Table 26. The recommended turn bay storage meets PennDOT requirements. Appendix M presents the related computations.

Table 26 - Intersection LOS (Delay) at S.R. 11 (E. Poplar Street) and S.R. 29

Time	FNB (Target)	Construction + Outage	
		Before Mitigation(Unsignalized)	After Mitigation
AM	A (2.9)	F (108.9)	C (23.3)
PM	D (30.3)	F (325.1)	B (16.8)

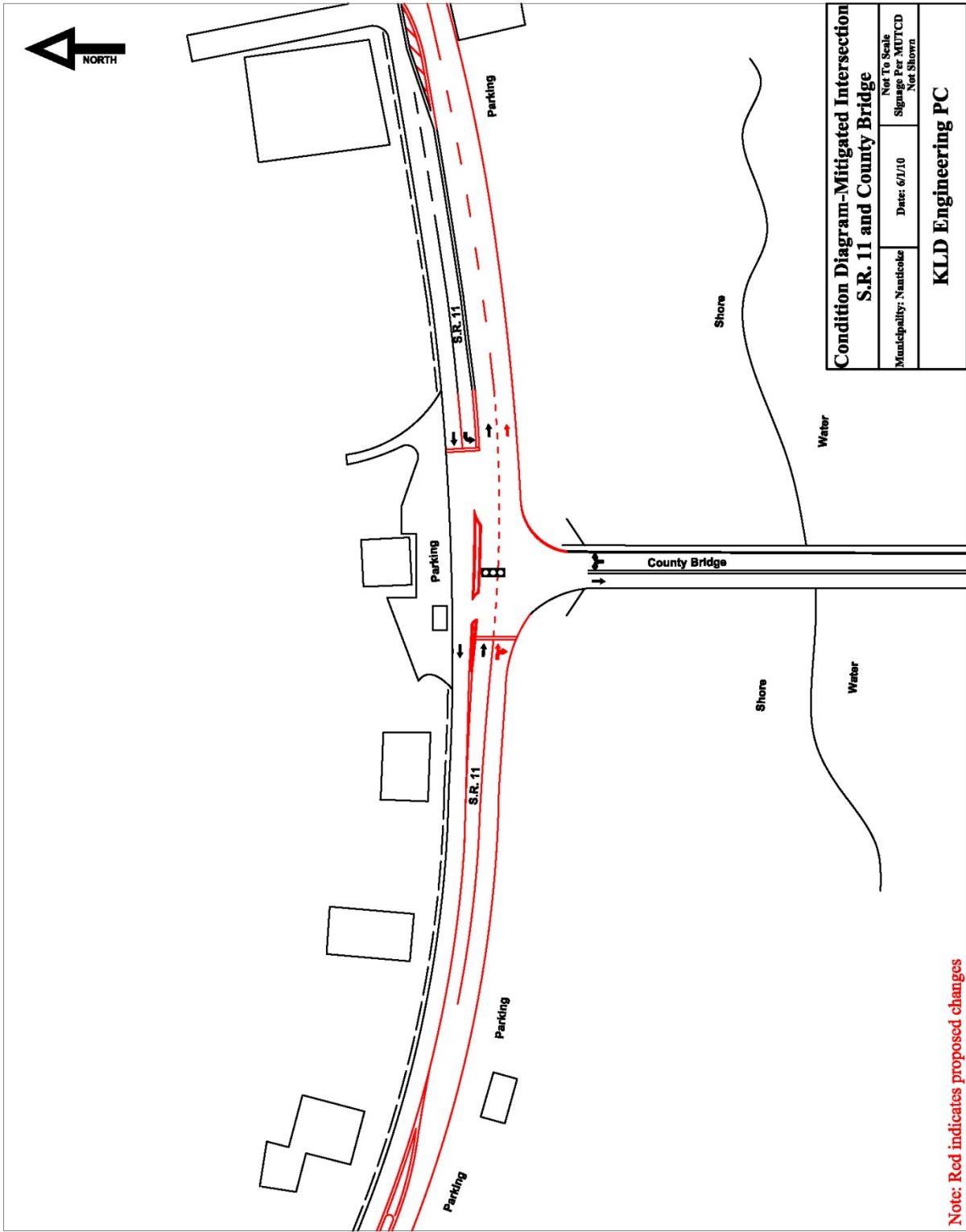
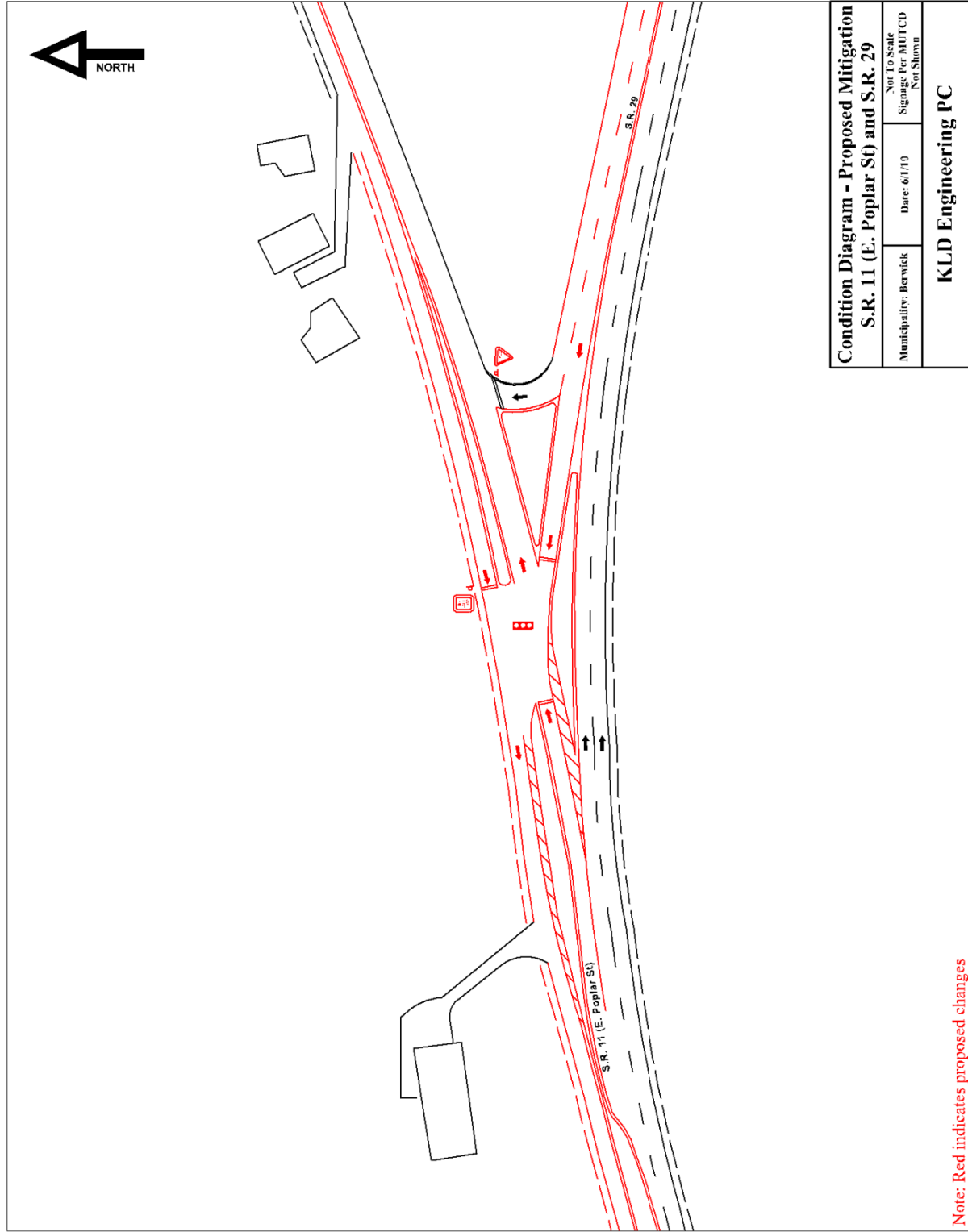


Figure 34 – Mitigation at S.R. 11 and County Bridge



8.5 Construction Cost for Proposed Mitigation

The following section provides approximate cost estimates for the proposed mitigation. Table 27 and Table 28 present the unit costs and the cost summary of the proposed mitigation, respectively. No cost is assumed for the mitigation measure of traffic signal retiming.

Table 27 – Unit Costs

Item	Cost (\$)	Units
Build Travel Lane	\$ 350	Per linear foot of 12-feet wide pavement
Build Shoulder	\$ 200	Per linear foot of 12-feet wide pavement
Resurface Shoulder	\$ 150	Per linear foot of 12-feet wide pavement
Restrict Parking	\$ 10,000	Per block of street parking
Lane Restriping	\$ 25,000	per intersection approach
Traffic Signal	\$ 250,000	per intersection
Rearrange Signal Heads	\$ 75,000	per intersection
Acquire Property	\$ 250,000	per location

The cost of building the site access intersection is excluded as part of this table. Excluding this item, the approximate cost of the proposed roadway improvements is \$ 4.0 Million.

Also, based on PennDOT recommendation, discussions were conducted with the Berwick Signal Contractor. The existing condition of the signal hardware (controller and detectors) is such it would require upgrades/replacements to support the recommend signal settings as part of mitigation. This has been added as a separate cost item in the estimation.

Table 28 – Proposed Mitigation: Cost Summary

Int No	Dist	County	Municipality	Intersection	Mitigation Measure ¹	Cost (\$)
1	3-0	Columbia	South Center	S.R. 11 and S.R. 2028	Add Thru Lane on RT 11 NB	\$651,000
2			Briar Creek	S.R. 11 and Briar Creek Plaza Driveways	Add Thru Lane on RT 11 SB	\$453,250
3			Berwick	S.R. 11 (Front Street) and Eaton Street	New Traffic Signal	\$250,000
4				S.R. 11 (Front Street) and Poplar Street	Restriping on Poplar Street	\$25,000
5				S.R. 11 (Front Street) and Orchard Street		
6				S.R. 11 (Front Street) and S.R. 93 (Orange Street)		
7				S.R. 11 (Second Street) and LaSalle Street		
8				S.R. 11 (Second Street) and Oak Street		
9				S.R. 11 (Second Street) and Mulberry Street		
10				S.R. 11 (Front Street) and Mulberry Street		
11				S.R. 1025 (Market Street) and Third Street		
12				S.R. 11 (Second Street) and Market Street	Restriping on Market Street	\$25,000
13				S.R. 11 (Front Street) and Market Street	Restrict street parking on Front Street	\$55,000
14				S.R. 11 (Second Street) and Pine Street		
-	Various	Upgrade signal hardware in Berwick	\$150,000			
15	4-0	Luzerne	Nescopeck	S.R. 93 (Third Street) and S.R. 339 (Broad Street)		
16				S.R. 93 (Third Street) and Dewey Street		
17			Salem Township	S.R. 11 and Bell Bend Site Entrance	Proposed Site Access Road	Not estimated
18				S.R. 11 and SSES Site Entrance	Temporary Traffic Signal Add Thru Lane on SB RT 11	\$926,000
19			Shickshinny	S.R. 11 (S. Main Street) and S.R. 239	Add Thru Lane on SB RT 11 Add Thru Lane on NB RT 11 Add Right turn bay on RT 239 onto RT 11	\$239,500
20				S.R. 11 (Main Street) and S.R. 239 (Union Street)	Restrict Parking on RT 11 SB Modify intersection to provide un-interrupted flow for NB RT 11	\$55,000
21			Nanticoke	S.R. 11 and S.R. 29 (Mill Street)	Add Thru Lane on RT 11 NB Make RT 11 NB 2 lanes to intersection with RT 29	\$375,000
22				S.R. 11 and County Bridge	Temporary Traffic Signal Restrict left turn from SB RT 11 onto NB RT 29	\$475,000
23				S.R. 11 (E. Poplar Street) and S.R. 29		\$285,000
Total (Roadway improvements excluding site access roadway)						\$4.0 Million

Table 29 –Summary of Proposed Mitigation Measures

Int No	PennDOT	County	Municipality	Intersection	Mitigation Measure ¹	AM		PM	
						FNB ²	Const ²	FNB	Const
1			South Center	S.R. 11 and S.R. 2028	Add Thru Lane on RT 11 NB	B (14.9)	B (10.8)	C (23.1)	C (27.5)
2			Briar Creek	S.R. 11 and Briar Creek Plaza Driveways	Add Thru Lane on RT 11 SB	A (6.6)	C (21.5)	C (20.9)	B (16.2)
3				S.R. 11 (Front Street) and Eaton Street	Temporary Traffic Signal		B (11.9)		C (30.4)
4				S.R. 11 (Front Street) and Poplar Street	Restriping on Poplar Street	C (27)	D (36.8)	D (40)	B (17.2)
5				S.R. 11 (Front Street) and Orchard Street		A (6.7)	A (8)	B (17.7)	D (49.1)
6				S.R. 11 (Front Street) and S.R. 93 (Orange Street)		A (5.9)	B (11.5)	B (11)	D (45.7)
7				S.R. 11 (Second Street) and LaSalle Street		B (11.8)	A (8.3)	B (14.1)	B (12.6)
8				S.R. 11 (Second Street) and Oak Street		A (6.2)	A (7.4)	A (8)	A (7.7)
9				S.R. 11 (Second Street) and Mulberry Street		A (4.8)	A (3.4)	A (5.7)	A (6)
10				S.R. 11 (Front Street) and Mulberry Street		A (6.1)	B (12.1)	A (8)	A (8.4)
11				S.R. 1025 (Market Street) and Third Street		A (9.6)	A (8.8)	B (12.8)	B (12.8)
12				S.R. 11 (Second Street) and Market Street		A (9.7)	A (6.3)	B (11.7)	B (14)
13				S.R. 11 (Front Street) and Market Street	Restriping on Market Street	B (14.2)	B (16.3)	B (15.3)	A (8.8)
14				S.R. 11 (Second Street) and Pine Street	Restrict street parking on Front Street	A (6)	A (7.6)	A (8.6)	B (15.9)
15				S.R. 93 (Third Street) and S.R. 339 (Broad Street)		B (14.1)	C (22.6)	B (12.3)	B (16.4)
16			Nescopeck	S.R. 93 (Third Street) and Dewey Street		A (4.6)	A (4.6)	A (3.7)	A (4.3)
17				S.R. 11 and Bell Bend Site Entrance	Proposed Site Access Road		C (20.2)		B (19.6)
18			Salem Township	S.R. 11 and SSES Site Entrance	Temporary Traffic Signal				
19				S.R. 11 (S. Main Street) and S.R. 239	Add Thru Lane on SB RT 11		D (35.2)		D (35.2)
20			Shickshinny		Add Thru Lane on SB RT 11				
21				S.R. 11 (Main Street) and S.R. 239 (Union Street)	Add Thru Lane on NB RT 11	A (7.8)	A (5.6)	A (9.4)	B (10.8)
22				S.R. 11 and S.R. 29 (Mill Street)	Add Right turn bay on RT 239 onto RT 11				
23				S.R. 11 and County Bridge	Restrict Parking on RT 11 SB	B (14.7)	B (14.9)	B (15.5)	B (18)
				S.R. 11 and S.R. 29 (Mill Street)	Modify intersection to provide un-interrupted flow for NB RT 11	C (23.6)	C (29.5)	C (26.3)	C (21.5)
				S.R. 11 and County Bridge	Add Thru Lane on RT 11 NB				
				S.R. 11 and S.R. 29 (Mill Street)	Make RT 11 NB 2 lanes to intersection with RT 29	D (49.5)	B (14.1)	C (24.2)	C (31.1)
			Nanticoke	S.R. 11 and S.R. 29 (Mill Street)	Temporary Traffic Signal				
				S.R. 11 (E. Poplar Street) and S.R. 29	Restrict left turn from SB RT 11 onto NB RT 29		C (23.3)		B (16.8)

Note 1: Mitigation measures shown are in addition to signal retiming.

Note 2: "FNB" corresponds to the Future Year No-Build Condition and "Const" corresponds to Future Year Construction with proposed mitigation in place.

Note 3: "Delay" is average vehicle delay in (seconds/vehicle)

Note 4: Highlighted cells **B (18.3)** indicate cases in which the proposed mitigation does not fully address the impact

Note 5: Highlighted cells **Add Thru Lane on SB RT 11** indicate locations that involve no significant infrastructure changes

Note 6: "FNB" and "Const" LOS/Delay values include a concurrent Outage at SSES.

8.6 Summary of Mitigation

The primary measures considered and recommended for the “construction phase peak” plus outage are summarized in Table 29.

The values in Table 29 are highlighted if one of the following situations arise:

- There is a change in the LOS from the FNB *and* the change in delay is greater than 10 seconds, or
- If a traffic signal is proposed, the estimated intersection LOS is worse than LOS C.

As shown in Table 29 there are a total of five instances – two in the AM peak period and three in the PM peak period (with one common intersection) – that do not meet these LOS requirements. These are three intersections in Berwick west of SR 93 (Orange Street) and a fourth at the SSES entrance. Three out of the five situations enumerated above exist only during the Outage periods that occur during the peak construction year(s). That is, for one month in each of (at most) two consecutive years.

SSES is currently in the HOP process of upgrading their driveways including the main entrance along SR 11. The upgrades include a dedicated right turn bay into the site for the RT 11 traffic and conversion of the center lane into a dedicated left turn lane into the site from RT 11. In order to meet the LOS requirements during the peak of the construction, a traffic signal will need to be installed and the southbound right turn lane will need to be extended by approximately 200 feet.

Based on feedback from PennDOT, Table 29 does not contain possible beneficial effects of diversion or routing changes due to LOS at these intersections. Thus, the material contained herein is a “worst case” analysis to be considered in the PennDOT decision on whether to allow a special condition at these four intersections, during the peak of the construction period, i.e. LOS D for these intersections.

Overall, the analysis leads to the conclusion that specific mitigation is needed, as shown in Table ES-1, at an estimated cost of \$4.0 million (excluding construction at the site access road) as detailed in the text.

With regard to the overall traffic plan, the proposed site includes a parking lot to handle the expected construction traffic demand. The onsite security checkpoints are to be placed such that there is no spillback onto S.R. 11. There are some construction lay down areas east or south of S.R. 11, but these do not affect the impacts described herein.

In the “Future Build” condition, with the new Bell Bend plant operational, all traffic impacts can be mitigated simply by signal optimization.

The details and cost of decommissioning mitigation measures applied for the construction phase are not shown in this document. It may be that PennDOT would choose to leave some of these in place.

9. REFERENCES

- [1] <http://www.nrc.gov/reactors/new-reactors/col.html>
- [2] HCM 2000, Highway Capacity Manual, Transportation Research Board, Washington DC, July 2005
- [3] PennDOT, POLICIES AND PROCEDURES FOR TRANSPORTATION IMPACT STUDIES, Jan 2009.
- [4] PennDOT, District 4-0 Policy Traffic Impact Study Requirements, Jan 2008
- [5] PennDOT, Highway Occupancy Permits Guidelines, Publication 282, April 2004.
- [6] PennDOT, Design Manual Part 2, Highway Design, Publication 13M August 2009 Edition
- [7] PennDOT, Traffic Engineering Manual, Publication 46, March 2008.
- [8] PennDOT, Publication 46, Chapter 11, Traffic Studies, September 2008.
- [9] SYNCHRO Studio 7, User Manual, Trafficware Ltd., Sugarland, TX, June 2006
- [10] McTrans Centre at University of Florida, (<http://mctrans.ce.ufl.edu>), HCS+ User Manual.
- [11] Trip Generation Handbook, 2nd ed.: An ITE Recommended Practice, Institute of Transportation Engineers, Washington DC, November 2003.
- [12] ArcGIS 9.3 User Manual, ESRI, Redland, CA
- [13] MUTCD, Manual on Uniform Traffic Control Devices 2003 Edition, Rev.2, December 2007, US Federal Highway Administration, Washington, DC

Appendix A

Scoping Meeting Application and Related Documentation

Appendix A

This appendix presents the following:

- Scoping Meeting Application
- Meeting Minutes
- All Follow up Communication/Correspondence

T. L. Harpster
VP-Bell Bend Project-Development

PPL Bell Bend, LLC
38 Bomboy Lane, Suite 2
Berwick, PA 18603
Tel. 570.802.8111 FAX 570.802.8119
tlharpster@pplweb.com



January 15, 2010

Joseph Pilosi District Permits Manager
PA Department of Transportation
Engineering District 4-0
55 Keystone Industrial Park
Dunmore PA 18512
Phone: 570.963.4067

**BELL BEND NUCLEAR POWER PLANT
TRAFFIC SCOPING MEETING APPLICATION
BNP-2010-013**

References: 1) Bell Bend Nuclear Power Plant Traffic Impact Study

As you are probably aware, PPL Nuclear Development LLC is proposing to build a new nuclear power plant (BBNPP) near the existing Susquehanna Steam Electric Station (SSES) in Berwick, PA. The federal application process is ongoing and as part of it initial meetings with PennDOT District 4-0 and 3-0 were conducted in the middle of 2008.

We are now in the process of initiating state review of the traffic impact study. As a first step, please find attached the Scoping Meeting Application for the Traffic Impact Study (TIS) related to this proposed power plant, for your review.

Please feel free to contact myself or Vince Kelly (610.774.7611) for any questions.

We look forward to meeting with you in the near future to discuss this project.

Thank you

Respectfully,

Terry L. Harpster

TLH/kw

cc: Gerald Wertz, PennDOT Dist 3-0
Vince Kelly, PPL
William R. McShane, KLD Engineering PC
Joe Mullen, Pennoni Associates
Joseph Scopelliti, PPL Community Relations Manager

Enclosure 1

BELL BEND NUCLEAR POWER PLANT TRANSPORTATION IMPACT
STUDY (TIS) SCOPING MEETING APPLICATION

BELL BEND NUCLEAR POWER PLANT TRANSPORTATION IMPACT STUDY (TIS) SCOPING MEETING APPLICATION

Scoping Meeting Date: To be determined

Applicant: PPL Nuclear Development, LLC

Applicant's Consultant: KLD Engineering, PC

Applicant's Primary Contact: Terry Harpster

(1) LOCATION OF PROPOSED DEVELOPMENT

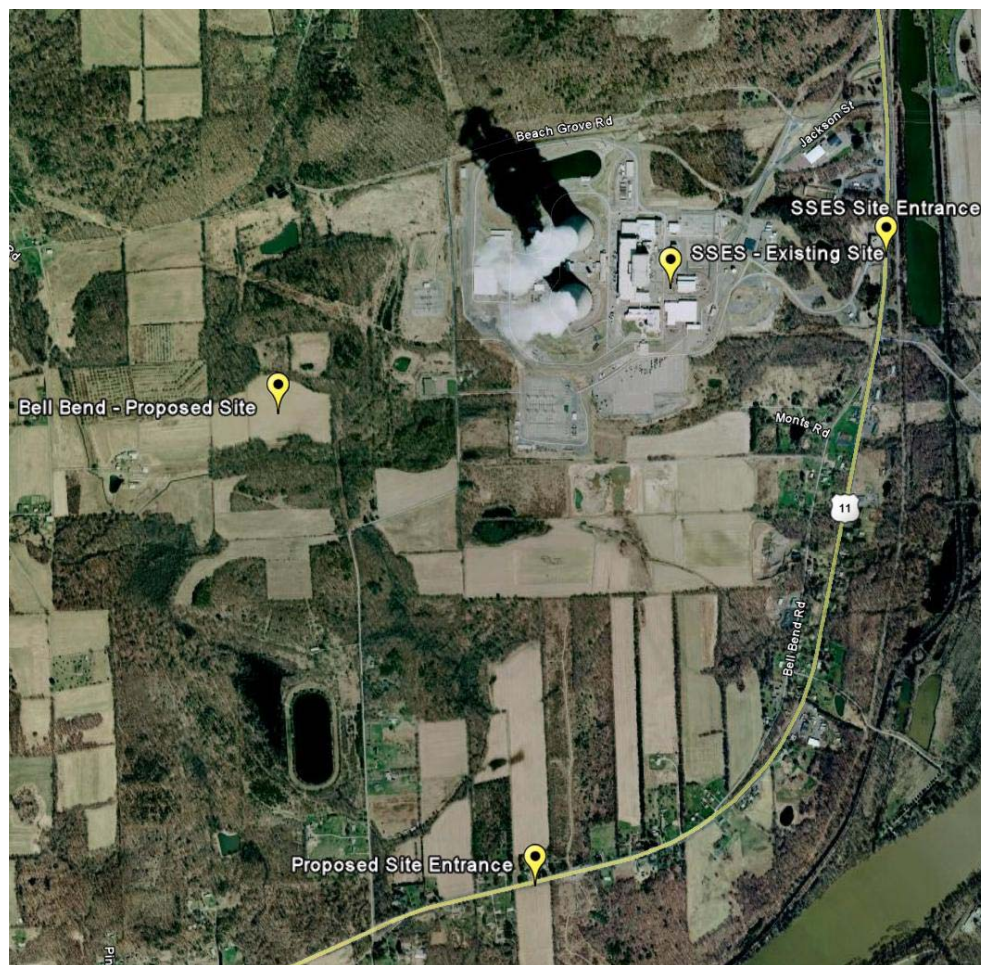


Figure 1 – Location of Proposed Development

(1a) PennDOT Engineering District:

PennDOT Engineering District 4-0

(1b) County:

Luzerne County

(1c) Municipality:

Salem Township

(1d) State Route:

State Route 11

(1e) Segment:

0080

(1f) Offset:

1436 feet (approximate location)

(2) DESCRIPTION OF PROPOSED DEVELOPMENT**(2a) Proposed Site Access:**

See Figure 1 for proposed site access location. The proposed site access is on State Route 11 south of the existing driveway for SSES.

(2b) Proposed Land Uses:

Power Generation

(2c) Community Linkages:

Community linkages are not applicable to this development.

(3) DEVELOPMENT SCHEDULE AND STAGING**(3a) Anticipated Opening Date:**

Commercial operation of the new unit in 2018

(3b) Full Build-out Date:

Same as commercial operation date

(3c) Describe Proposed Development Schedule/Staging:

Construction is expected to last five to seven years. Early site work is slated to begin in late 2011 with the power plant fully operational in 2018. The first stage is construction of the site access road, and connection to Route 11 at a new intersection.

(4) TRIP GENERATION:

The ITE Trip Generation Manual does not have rates for this specialty construction and operations (i.e. nuclear power plant).

Trip generation for the proposed development is based on discussions with contractors and power plant officials, and similar planned construction projects at such sites. Tables 1 and 2 summarize the trip generation rates.

Table 1 – Trip Generation for Construction Peak Hour (veh/hr)

Trip Type	AM (6:30 – 7:30)		PM (4:00 – 5:00)		Daily Trips
	In	Out	In	Out	
Construction Staff	1,823	0	0	1,823	3,039
New Plant Staff	99	16	3	45	363
Outage Staff	381	60	10	173	1,400
Heavy Vehicles	2	2	2	2	47
Total	2,305	78	15	2,043	4,849

Table 2 – Trip Generation for Future Build Peak Hour (veh/hr)

Trip Type	AM (6:00 – 7:00)		PM (3:00 – 4:00)		Daily Trips
	In	Out	In	Out	
New Plant Staff	165	24	2	142	363

(5) ESTIMATED DAILY TRIP GENERATION/DRIVEWAY CLASSIFICATION**(5a) Estimated Daily Trip Generation of Proposed Development:**

4,849 trips per day during the peak period of construction and 363 trips per day during the operation of the new power plant.

(5b) Driveway Classification Based on Trip Generation and One Access Point:

High volume driveway based on a daily traffic volume greater than 1,500 vehicles.

(6) TRANSPORTATION IMPACT STUDY REQUIRED?

Yes, based on:

1. 3,000 or more vehicle trips/day generated, and
2. During any one-hour time period, 100 or more new (added) vehicle trips generated entering the development or 100 or more new (added) vehicle trips generated exiting the development.

(7) TRAFFIC IMPACT ASSESSMENT REQUIRED?

No.

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



pennsylvania

DEPARTMENT OF TRANSPORTATION

ENGINEERING DISTRICT 4-0

55 Keystone Industrial Park

Dunmore, PA. 18512

Phone (570) 963-4067

Fax (570) 963-3325

February 3 2010

RECEIVED FEB 08 2010

PPL Bell Bend Study
S.R. 0011
Luzerne County, Salem Township

PPL Bell Bend, LLC
Mr. Terry Harpster
38 Bomboy Lane, Suite 2
Berwick, PA 18603

Dear Applicant:

The Department has completed the review of your Traffic Impact Study Scoping submission for PPL Bell Bend project and has attached comments from our Traffic Unit.

Please call me at the number above to schedule a meeting to discuss your project.

If you have any questions concerning the above, please contact Mr. Mark Adams, Traffic Control Technician, at 570-963-4018.

Very truly yours,

A handwritten signature in black ink, reading "Joseph A. Pilosi".

Joseph A. Pilosi
DISTRICT PERMITS MANAGER

**pennsylvania**

DEPARTMENT OF TRANSPORTATION

www.dot.state.pa.us

MEMO**DATE:** January 25, 2010**SUBJECT:** Luzerne County
Salem Township
PPL Bell Bend Study
Scoping Application**TO:** Joseph Pilosi
DISTRICT PERMITS MANAGER
FROM: Tom Pichiarella, PE
ASSISTANT TRAFFIC ENGINEER-SIGNALS

Due to the scope of the project and the increase in traffic volumes from the construction phase, a scoping meeting should be held to discuss congestion areas, trip origins and destinations, scope of study, and temporary and permanent improvements to intersections in the study.

If you have any questions or comments please feel free to contact John Pfeiffer of our office at 570-963-4018.

CC:
Kevin Miluszusky (3)

CIRC: G. Roberts
D. Giordano
K. Williams
T. Pichiarella
J. Perri
M. Adams
J. Bartos
J. Pfeiffer (Destroy)

HOP FILE: 2066

T. L. Harpster
VP-Bell Bend Project-Development

PPL Bell Bend, LLC
38 Bomboy Lane, Suite 2
Berwick, PA 18603
Tel. 570.802.8111 FAX 570.802.8119
tlharpster@pplweb.com



March 23, 2010

Joseph Pilosi, District Permits Manager
PA Department of Transportation
Engineering District 4-0
55 Keystone Industrial Park
Dunmore, PA 18512

**BELL BEND NUCLEAR POWER PLANT
TRAFFIC IMPACT STUDY (TIS)
BNP-2010-081**

Reference: PPL Bell Bend, LLC Letter BNP-2010-013, "Bell Bend Nuclear Power Plant Traffic Scoping Meeting Application," dated January 15, 2010.

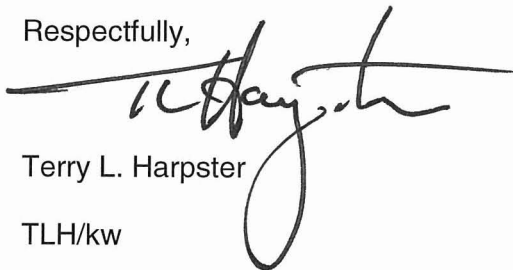
Dear Mr. Pilosi:

The purpose of this letter is to forward minutes of the February 17, 2009 TIS Scoping Meeting for the proposed Bell Bend Nuclear Power Plant. The meeting minutes include the agenda and attendees list. We would like to thank the staff from both district offices for their feedback and participation. Please confirm that these minutes reflect the content of the Scoping Meeting.

The Scoping Meeting Application, forwarded on January 15, 2010, in conjunction with the enclosed TIS Scoping Meeting minutes establish the basis for developing the TIS. We expect to be working with Pennsylvania Department of Transportation Districts 3-0 and 4-0 closely in the next couple of months to address items discussed at this meeting, and to proceed towards preparing a draft TIS for your review. We estimate that we will submit a draft TIS to your office for review and comment by the middle of May 2010.

Please contact Vince Kelly, 610.774.7611, of our staff with any questions.

Respectfully,



Terry L. Harpster

TLH/kw

Enclosure: February 17, 2010 Bell Bend Nuclear Power Plant Traffic Impact Study (TIS)
Scoping Meeting Minutes

cc: Gerald Wertz, PennDOT Dist 3-0
Vince Kelly, PPL
Dimitri Lutchenkov, UNE
William R. McShane, KLD Engineering PC
Joe Mullen, Pennoni Associates
Joseph Scopelliti, PPL Community Relations Manager
Robert M. Pearse, Chairman, Salem Township Supervisors
Shane Pepe, Borough of Berwick

Enclosure

**February 17, 2010
Bell Bend Nuclear Power Plant
Traffic Impact Study (TIS) Scoping Meeting Minutes**

Meeting Minutes

Bell Bend Traffic Impact Study (TIS) Scoping Meeting

February 17, 2010

10:00 am - 12:00 pm

Susquehanna Information Center – Berwick, PA

Attendees

See attached sign-in sheet.

Meeting Objective

- Provide scope and assumptions/basis of Traffic Impact Study
- Stakeholders provide input to PennDOT and PPL on the project
- Schedule going forward
- Communication paths
- Alignment on action items going forward

The meeting agenda is attached to the meeting minutes.

Meeting Summary

1. An introduction to the project and the objective for the current meeting was provided by Terry Harpster, Vice President of PPL Bell Bend Project Development
2. Dimitri Lutchenkov of UniStar provided an overview of the licensing process vis-à-vis the traffic impact study (TIS)
 - a. Federal application for the combined operation and licensing (COLA) have been filed;
 - b. As part of the COLA, the Environmental Report (ER) was provided;
 - c. A TIS was conducted to provide input to the ER;
 - d. As part of that process, meetings were held with PennDOT Districts 4-0 and 3-0 in the Spring of 2008, with representatives from Luzerne County, Columbia County, Berwick Borough and Salem Township attending. The project area used in the ER was discussed;
 - e. The formal local review now being timely, the TIS Scoping Meeting Application was submitted in January of 2010 in the format now required. The present meeting is the scoping meeting.
3. All attendees introduced themselves and identified the agencies they represented.

4. KLD provided an overview of the study area selected and assumptions in the TIS. This led to a detailed discussion, with the following results:
- a. While the proposed project area is generally acceptable, PennDOT wishes to be provided with a list of all signalized intersections along the principal routes approaching the site that have a peak hour flow increase of 100 vph (vehicle per hour) or more due to the proposed project, with an assessment of whether or not these intersections should be included in the project area. The assessment can be that inclusion in the project area is recommended, or that while the volume does increase, there is a rationale for not including the specific intersection. PennDOT will review the assessment, and concur or provide feedback.
 - b. The trip generation rates were acceptable to PennDOT. A written description of how they were obtained, including other places they were used, was requested. This will be included in the TIS.
 - c. The average vehicle occupancy of 1.30 for the construction workforce was acceptable to PennDOT. A written description of how it was obtained, including other places the number was used, was requested. This will be included in the TIS.

These three items will be provided to PennDOT within two weeks. PennDOT review is needed on only item "a".

5. Further information on the KLD presentation includes the following:

- a. Site Access:
 - i. The issue of the single entry/point of access was discussed. The current plan involves a single point of access for the construction work force at Bell Bend due to security reasons. All workers have to access the site through a single check point. The proposed site access intersection along RT 11, south of the existing intersection for the existing SSES (Susquehanna Steam Electric Station) will serve as the single point of entry and will be used in the traffic assignment.
 - ii. PennDOT asserted that the permit covering the existing SSES entrance has been revoked, because the work defined in the permit was never completed. PPL will pursue with PennDOT and resolve separate from the Bell Bend TIS.
- b. Trip Generation during construction
 - i. Construction Staff

PennDOT requested clarification on the arrival and departure patterns during the shift change. KLD stated that there is no overlap in the shift times. Based on discussions with construction contractors at similar sites, the arriving traffic was loaded in the hour preceding the start of shift and departing traffic was loaded in the hour following the end of shift. This results in no overlap of traffic on the highway network. The TIS will clearly state the following:

- a. The actual breakdown of traffic during these hours in 15-min increments for arrivals and departures at shift change;
- b. The peak hour for analysis, based on the highest set of four consecutive 15-min intervals during this 2-hour period of arrivals and departures.

ii. New Plant Staff

KLD explained that the trip generation rates are based on the estimated number of new employees at Bell Bend (363) distributed over the day based on actual traffic counts collected at the SSES entrance.

iii. Outage Staff

1. KLD explained that using the estimated maximum number of additional workers expected on site during an outage at SSES, and traffic counts at the site entrance, the trip generation was estimated for the outage staff.
2. It was added that the outage was an annual event lasting a month. The TIS was using the outage month that was coincident with the duration of peak construction activity for the analysis to determine maximum impacts.

iv. Heavy Vehicles

1. KLD stated that based on discussions with the construction contractor it was determined that the heavy vehicle shipments would arrive round the clock on site. Given the duration of construction (5-7 years), this would result in a small hourly flow. PennDOT requested the documentation of this be included in the TIS.
2. KLD stated that the "heavy-heavy" shipments were expected to be arriving on site by rail. Also, the planned payload per truck was 15-tons, which would fit on regular tractor-trailers. PennDOT mentioned that along RT 11 there is a section north of the site (and south of I-81) that has a weight restriction due to a bridge and would need to be taken into account in the analysis. KLD noted that if the weight

restriction were an issue, the trucks use I-80 and RT-11 and the TIS would reflect that.

c. Trip Generation during Operation

New Plant Staff: This was presented as the basis for the analysis of the Future Build condition, when the plant would be operational.

d. Trip Distribution and Assignment

KLD provided an overview of the main routes into the site. Using these routes and the separate estimates of the population centers/sources the trips were assigned for the TIS

1. Construction workers: Using Census data, the main population centers were identified and were spatially loaded on the main routes. This resulted in approximately an even split for traffic entering the site at the new intersection from both north and south on RT 11;
2. Operations and Outage workers: Using the employee zip codes at SSES, the spatial assignment was performed;
3. Heavy Vehicles: These were loaded onto RT 11 from I-80 and the alternate route from RT 93 through Nescopeck was not used. PennDOT did raise the issue of lane widths on RT 11 through Berwick. Given the assumption that the oversize loads were being brought on site through rail, and tractor trailers currently use these sections of RT 11, it was considered to be not an issue.

e. Study Area

Refer to Item 4.a.

f. Analysis tool

The software product SYNCHRO (version 7) was identified as the analysis tool for the TIS

g. Analysis periods

KLD presented the typical periods that would be analyzed in the TIS

1. Existing Condition, 2010
2. Future No Build Condition (If Bell Bend were not built)
3. Future Build Condition (the first year when Bell Bend is operational) – Future Year Construction

The month coincident with an outage at SSES and the duration of peak construction activity in the 5 to 7 year construction period

h. Growth rates

KLD provided the latest growth rates as published by PennDOT (July 2009 to July 2010). These will be used in the TIS submittal.

- i. Municipal and Other Local Involvement
 - i. The question arose as to how local government assures that it is involved in the process. PennDOT pointed out that a signoff is required by the local jurisdiction when a HOP for a new signal is issued. The local jurisdiction can also make formal written application to PennDOT for involvement.
 - ii. It was suggested that early outreach be done to all possible affected local jurisdictions, to elicit comment on the draft TIS. This generated some conversation on the risk of expanding the scope of the TIS beyond what PennDOT requires as part of its review process. It was agreed that the TIS will focus on the PennDOT requirements. PPL will use its standard channels to engage and communicate with and keep in touch with the various local jurisdictions.
- j. Not discussed at the meeting, but to be included in the TIS: there are some laydown areas external to the site (for instance, near the rail line) that will generate some truck traffic in proximity to the site access road.

Action Items

The meeting resulted in the following action items:

1. Finalize Study Area/Intersections for TIS, in accord with Item 4.a of "Meeting Summary". KLD to provide list to PPL through standard channels for transmittal to PennDOT, after touching base with PennDOT Districts 3-0 and 4-0 for initial comment.
2. PPL will coordinate with PennDOT on the issue of the revoked permit for the existing plant entrance.

The following assumptions were agreed to at this meeting:

No	Type	Description																
1	Analysis Years	The following periods were selected for analysis: Existing, Future No Build, Future Build and Future Year Construction. The Future Build year will be the first year when Bell Bend is operational.																
2	Growth rates	<div>The TIS will include the following growth rates as published by PennDOT for intersections along RT 11:</div> <table><tr><td>County</td><td>Class</td><td>Area</td><td>Type</td><td>Annual Growth (%)</td></tr><tr><td>Columbia</td><td>Other Principal Arterial Highway</td><td>Small Urban Area</td><td>Urban, Non-Interstate</td><td>0.77</td></tr><tr><td>Luzern</td><td>Minor Arterial</td><td>Non-Urban</td><td>Rural, Non-Interstate</td><td>0.42</td></tr></table>	County	Class	Area	Type	Annual Growth (%)	Columbia	Other Principal Arterial Highway	Small Urban Area	Urban, Non-Interstate	0.77	Luzern	Minor Arterial	Non-Urban	Rural, Non-Interstate	0.42	
County	Class	Area	Type	Annual Growth (%)														
Columbia	Other Principal Arterial Highway	Small Urban Area	Urban, Non-Interstate	0.77														
Luzern	Minor Arterial	Non-Urban	Rural, Non-Interstate	0.42														
3	Analysis Tool	SYNCHRO/SimTraffic 7.0 and the HCM LOS (Level of Service) as estimated by SYNCHRO																
4	Trip Distribution and Assignment	<div>Construction Workforce – census data</div> <div>Operations and Outage Workforce – SSES employee data</div>																
5	Trip Generation	<div>Construction workforce – based on shift times and shift splits</div> <div>Operations, Outage workforce – based on traffic counts at SSES entrance</div> <div>Heavy vehicles – based on planned material arrivals on site</div> <div>The average vehicle occupancy for the trip types will be as follows: Construction workforce (1.3 persons/vehicle), Operations and Outage (1.0 persons/vehicle).</div> <div>The resulting trip generation is as follows for the Future Build:</div> <table><tr><th rowspan="2">Trip Type</th><th colspan="2">AM (6:00 – 7:00)</th><th colspan="2">PM (3:00 – 4:00)</th><th rowspan="2">Daily Volume Trips</th></tr><tr><th>In</th><th>Out</th><th>In</th><th>Out</th></tr><tr><td>New Plant Staff</td><td>165</td><td>24</td><td>2</td><td>142</td><td>726</td></tr></table>	Trip Type	AM (6:00 – 7:00)		PM (3:00 – 4:00)		Daily Volume Trips	In	Out	In	Out	New Plant Staff	165	24	2	142	726
Trip Type	AM (6:00 – 7:00)			PM (3:00 – 4:00)		Daily Volume Trips												
	In	Out	In	Out														
New Plant Staff	165	24	2	142	726													

No	Type	Description					
		(at Bell Bend)					
		The resulting trip generation is as follows for the Future Year Construction:					
		Trip Type	AM (6:30 – 7:30)		PM (4:00 – 5:00)		Daily Vehicle Trips
			In	Out	In	Out	
		Construction Staff	1,823	0	0	1,823	6,078
		New Plant Staff (at Bell Bend)	99	16	3	45	726
		Outage Staff (at SSES)	381	60	10	173	2,800
		Heavy Vehicles	2	2	2	2	74
		Total	2,305	78	280	1,705	9,678

Bell Bend Irrigation Impact Study
Scoping Meeting
February 17, 2010

Page 1

NAME	Organization	Contact Information
Dimitri LUTCHENKOV	UNE	dimitri.lutchenkov@UNISTARNUCLEAR.COM
VINCE KELLY	PPL	VKelly@PPLWEB.COM, 610-774-7611
SATYA MUTHUSWAMY	KLD	Satya@kldcompanies.com, 651-617-5650
BILL McSHANE	KLD	bmshane@kldcompanies.com, 651-617-5650
DANE MOLINARO	Pennoni	dmolinaro@Pennoni.com 570-929-2200
JEFF MULLEN	"	jmulle@Pennoni.com 510-524-2200
Bob PLATZ	THORNTON LUCERNE CO. PLANNING COMMISSION	RPLATZ@thorntonlucerne.com 570-436-5589
ADRIAN MERELLI	THORNTON LUCERNE CO. PLANNING COMMISSION	ADRIAN.MERELLI@LUCERNE COUNTY.ORG 570-825-1500
JOE PILOSI	PA DOT	JPILOSI@STATE.PA.US 570-963-4067
KEVIN MILUSZUSKY	PennDOT PERMITS	KMILUSZUSKY@STATE.PA.US 570-963-3311
Keith Williams	PA DOT	Keithwilliam@state.pa.us 570-963-4819
PETER GLUCKER	AREVA	peter.glucker@areva.com 508-573-6582
*Tom Pichiarillo	PennDOT-4	TPichiarillo@state.pa.us 570-963-3187
John Pfeiffer	PA DOT	jopfeiffer@state.pa.us 570-963-4018
MARIA JOHNSON	PA DOT	marc-johnson@state.pa.us 570-963-4244
Lauren Maitz	Borough of Berwick	lauren@berwick-pa.com 570-752-2773
Shane Pope	Borough of Berwick	Shane@berwick-pa.com 570-752-2773
*Joe Gibbons	Lucerne County	joe.gibbons@luzernecounty.org 820-6347
*Gerald Watz	PennDOT-3	570-963-4377
Nancy Bishop	PPL	nnbishop@pplweb.com
Joe Scoppelliti	PPL	jscoppelliti@pplweb.com
Terry Harpster	PPL	tharpster@pplweb.com

Illegible text on this page is not pertinent to the technical objectives of this document.

PROPOSED AGENDA
Bell Bend Traffic Impact Study (TIS)
Scoping Meeting

February 17, 2010
10:00 am - 12:00 pm
Susquehanna Information Center – Berwick, PA

TOPIC (Content)	WHO (Leader)	TIME (Minutes)
Greetings — Safety moment	Terry Harpster	10
Introduction — Round table introduction — Review meeting purpose and desired outcomes o Scope and assumptions/basis of Traffic Impact Study o Schedule going forward o Communication paths o Alignment on action items going forward	Dimitri Lutchenkov	15
Overview of Studies, Reviews & Permitting — Background — Study Area — Trip Generation — Analysis Years — Next Steps	KLD	45
Open Discussion/Q&A	Dimitri Lutchenkov	45
Review Action Items	Dimitri Lutchenkov	15

Satya Muthuswamy

From: Satya Muthuswamy [satya@kldcompanies.com]
Sent: Friday, March 26, 2010 8:54 AM
To: 'Stille, Shawn B'
Cc: 'William R McShane'
Subject: RE: Permit drawing for SR 11 at the Giant/Sheetz intersection at Briar Creek Township
Attachments: BNP-2010-081.pdf; BB TIS Intersection List- For Discussion - 03-26-2010 vo.pdf

Hi Shawn

Attached is a list of intersections (signalized) along RT 11 and RT 93 within the extents that was discussed at the Scoping Meeting.

I would like to chat with you about this list and get your feedback before we finalize the list and start our field data collection.

Please let me know if there a convenient time for you today or early next week?

I am also attaching a copy of the Meeting Minutes from our Scoping Meeting in February. I believe these were mailed earlier this week, but I am not sure of the exact date of when you will get the official copy.

Thank you
Satya

Satya Muthuswamy, P.E.(OH), PTOE
Senior Traffic Engineer
KLD
43 Corporate Drive
Hauppauge, NY 11788
Tel: (631) 617-5650 x 216
Fax: (631) 617-5649
<http://www.kldcompanies.com>



Eco-Tip: Please consider the environment, before printing this email.

From: Stille, Shawn B [mailto:sstille@state.pa.us]
Sent: Monday, February 22, 2010 2:01 PM
To: 'satya@kldcompanies.com'
Cc: Wertz, Gerald C.; Swartz, Matthew A.; 'William R McShane'; Johnson, Mara
Subject: RE: Permit drawing for SR 11 at the Giant/Sheetz intersection at Briar Creek Township

Satya,
I will be handling this in anticipation of Mara's future absence. Please see response below to your questions.

Shawn Stille | Civil Engineer-Transportation
PA Department of Transportation
Engineering District 3-0 | Traffic Unit
P.O. Box 218 | 715 Jordan Avenue | Montoursville, PA 17754
Phone: 570.368.4349
Fax: 570.368.4343
www.dot.state.pa.us

From: Satya Muthuswamy [mailto:satya@kldcompanies.com]
Sent: Monday, February 22, 2010 1:04 PM
To: Johnson, Mara
Cc: Wertz, Gerald C.; Swartz, Matthew A.; Stille, Shawn B; 'William R McShane'
Subject: RE: Permit drawing for SR 11 at the Giant/Sheetz intersection at Briar Creek Township

Hi Mara

Thank you for the signal file and other documents that you provided at the meeting.

We are preparing our meeting minutes and will have a copy to you shortly.

I do have a couple of quick questions/clarifications:

1. At the meeting you had provided a map that identified sections along RT 11 in Berwick that have planned roadwork scheduled to end in 2011. Will there be any change to roadway capacity after construction is complete?

The construction project will be a mill and resurface project from the Briar Creek Borough line to Luzerne County line and from State Route 93 Bridge to Second Street (S.R. 11 Southbound). As a result, there will be no changes to capacity.

2. Can we get a copy of the signal file for the intersection of RT 11 (New Berwick Highway) and Market Street? The Market Street Bridge leads into Mifflinville

See attached. Existing field conditions will need to be field verified.

Thank you
Satya

From: Johnson, Mara [mailto:marajohnso@state.pa.us]
Sent: Thursday, February 18, 2010 7:30 AM
To: 'satya@kldassociates.com'
Cc: Wertz, Gerald C.; Swartz, Matthew A.; Stille, Shawn B
Subject: RE: Permit drawing for SR 11 at the Giant/Sheetz intersection at Briar Creek Township

Good Morning Satya,

I attached the wrong signal file in my previous e-mail. Please disregard that e-mail and use the attachment above.

Thank you,

Mara J. Johnson | Civil Engineer
PA Department of Transportation
Engineering District 3-0 | Traffic Unit
P.O. Box 218 | 715 Jordan Avenue | Montoursville PA 17754
Phone: 570.368.4246 | Fax: 570.368.4343
<http://www.dot.state.pa.us>

From: Johnson, Mara
Sent: Wednesday, February 17, 2010 4:46 PM
To: 'satya@kldassociates.com'
Cc: Wertz, Gerald C.; Swartz, Matthew A.; Stille, Shawn B
Subject: Permit drawing for SR 11 at the Giant/Sheetz intersection at Briar Creek Township

Hello Satya,

The attached files are our most up to date permit for SR 11 and the Giant/Sheetz intersection in Briar Creek Township. Please use this for reference.

Please let me know if you have any questions or concerns,
Thank you,

Mara J. Johnson | Civil Engineer
PA Department of Transportation
Engineering District 3-0 | Traffic Unit
P.O. Box 218 | 715 Jordan Avenue | Montoursville PA 17754
Phone: 570.368.4246 | Fax: 570.368.4343
<http://www.dot.state.pa.us>

Satya Muthuswamy

From: Satya Muthuswamy [satya@kldcompanies.com]
Sent: Friday, March 26, 2010 8:49 AM
To: 'Pfeiffer, John E'
Cc: 'William R McShane'
Subject: Bell Bend TIS
Attachments: BB TIS Intersection List- For Discussion - 03-26-2010 vo.pdf

Hi John

Attached is a list of intersections (signalized) along RT 11 and RT 93 within the extents that we discussed at the Scoping Meeting.

I would like to chat with you about this list and get your feedback before we finalize the list and start our field data collection.

Please let me know if there a convenient time for you today or early next week?

I am also attaching a copy of the Meeting Minutes from our Scoping Meeting in February. I believe these were mailed earlier this week, but I am not sure of the exact date of when you will get the official copy.

Thank you
Satya

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Sent: Friday, March 26, 2010 8:53 AM
To: 'Pfeiffer, John E'
Cc: 'William R McShane'
Subject: RE: Bell Bend TIS
Attachments: BNP-2010-081.pdf

Oops! Missed the attachment with the Minutes

Satya

From: Satya Muthuswamy [mailto:satya@kldcompanies.com]
Sent: Friday, March 26, 2010 8:49 AM
To: 'Pfeiffer, John E'
Cc: 'William R McShane'
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Thank you
Satya

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<http://www.kldcompanies.com>



Eco-Tip: Please consider the environment, before printing this email.

Satya Muthuswamy

From: Satya Muthuswamy [satya@kldcompanies.com]
Sent: Tuesday, April 13, 2010 7:48 AM
To: 'Johnson, Mara'; 'Wertz, Gerald C.'; 'Stille, Shawn B'; alakeller@state.pa.us; 'Bill McShane'; bdamiani@kldcompanies.com
Cc: 'Kelly, J Vincent'; 'Lutchenkov, Dimitri'; 'GLUCKLER Peter E (AREVA NP INC)'
Subject: Bell Bend TIS Discussion with PennDOT District 3-0
Attachments: BB TIS Intersection List - 04-12-2010 v0.pdf

All,

Thank you for your time yesterday morning. I am sending a summary of our discussion as we perceived it, for your own additions and clarification.

We discussed the following items:

1. Scope of the study area

Following the Feb 17, 2010 meeting, we identified intersections (signalized) between I-80 and RT-29 (Cross Valley Expressway) on RT 11, and on RT-93 between I-80 and RT 11. The discussion today was geared to get agreement on the scope of the study area. District 3-0 suggested that the list presented to them was acceptable. However, Berwick borough had requested that the un-signalized intersection at RT 11 and N Easton/S Easton Street (this intersection is West of the intersection at RT 11 and Poplar Street) also be included in the Study area. Attached is the revised study area that shows the intersections that will be included as part of the TIS.

District 3-0 also noted that the study area used for the construction scenario would be excessive for the Future Build analysis given the trip generation rates. They suggested that as part of the TIS, only the intersections that will be expected to handle 100 or more, additional trips/hour, be identified and included in the Future Build Analysis of the TIS.

We had a similar conversation with District 4-0 on April 7, 2010. They agreed to the scope of the study area as presented, within their District.

2. Historical Data

The availability of historical data in the study area was discussed. Apparently there was a recent traffic study completed at the intersection of RT 11 and Briar Creek Plaza. District 3-0 will provide the contact information of the traffic engineering firm that conducted the study. This is the only recent data available within the study area in District 3-0.

3. TIS Review – Coordination with PennDOT District 4-0

The possibilities related to a coordinated review of the TIS between District 3-0 and District 4-0 was discussed because the study area included intersections in both districts. District 3-0 stated that they preferred an independent review of the TIS and proposed mitigations in their district. It was agreed that the TIS would be submitted to both districts and comments provided separately. Each District would comment on the relevant mitigation in their respective districts.

Agreement to the assumptions embedded in the TIS (trip generation and distribution) between both districts was also discussed. District 3-0 mentioned that they would like to see the underlying premise for the assumptions; this is in accord with the agreement reached at the scoping meeting and reflected in those minutes. KLD noted that the trip generation was based on a combination of similar traffic studies and discussions with constructions contractors/utilities. The trip distribution for the operations workforce will be based on existing employee data at SSES (Susquehanna Steam

Electric Station), and trip distribution for construction workforce will be based on the census data. These assumptions would be noted in the TIS.

District 3-0 requested a timeline for the submission of the draft TIS. KLD responded that the field data collection is planned in the coming weeks and a draft TIS should be ready for PennDOT review in middle of May 2010.

4. Other Items

- District 3-0 wanted clarification with regard to the design of the planned site access driveway. Specifically the right turns out of the site onto RT 11 (heading towards Berwick). KLD stated that currently, there is an acceleration lane being planned for the right turns out of the site that would be allowed to make right turns on red. District 3-0 suggested that the RTOR (right turn on red) be prohibited. This was to ensure that the vehicles waiting to make a right turn would be queued up on site, rather than on RT 11 heading towards Berwick. Given the volumes expected to be travelling RT 11 through Berwick, this was suggested as a mitigation measure to alleviate congestion in downtown Berwick.
- The material shipments arriving on site were also discussed. KLD clarified that there will be concrete and other material arriving on site by road and the heavy equipment by rail. District 3-0 requested that the details be provided in the TIS. Agreed.

5. Data Requests

- a) From District 3-0: Information of the traffic engineering firm that performed the traffic study at the intersection of Briar Creek Plaza and RT 11

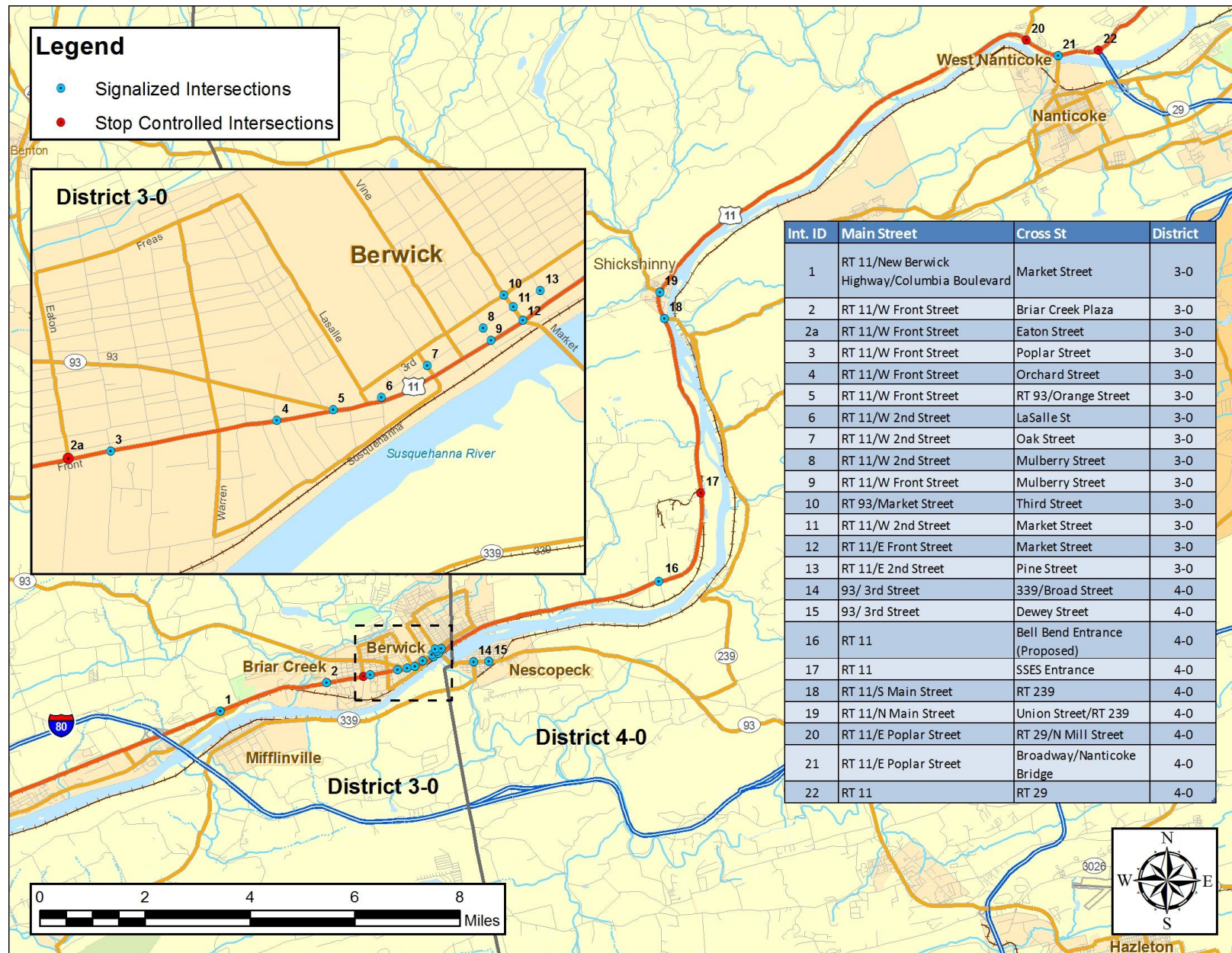
Kindly let us know if you have any questions or comments.

Thank you
Satya

Satya Muthuswamy, P.E.(OH), PTOE
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Fax: (631) 617-5649
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Eco-Tip: Please consider the environment, before printing this email.



Satya Muthuswamy

From: Satya Muthuswamy [satya@kldcompanies.com]
Sent: Tuesday, April 13, 2010 7:54 AM
To: 'Pfeiffer, John E'; 'Williams, Keith D (PennDOT)'; 'Pichiarella, Thomas'; kmiluszusky@state.pa.us; bdamiani@kldcompanies.com
Cc: 'Bill McShane'; 'Kelly, J Vincent'; 'Lutchenkov, Dimitri'
Subject: Bell Bend TIS Discussion with PennDOT District 4-0
Attachments: BB TIS Intersection List - 04-12-2010 v0.pdf

All,

Thank you for your time on Wednesday, April 7, 2010 to discuss the TIS for the proposed expansion at the PPL site in Berwick, PA. I am sending a summary of our discussion as we perceived it, for your own additions and clarification.

We discussed the following items:

1. Scope of the study area

Following the Feb 17, 2010 meeting, we identified intersections (signalized) between I-80 and RT-29 (Cross Valley Expressway) on RT 11, and on RT-93 between I-80 and RT 11. The discussion was geared to get agreement on the scope of the study area. District 4-0 indicated that the list presented to them was acceptable.

We had a similar conversation with District 3-0 yesterday. They recommended adding one more intersection in Berwick to the study area. Please find attached the revised study area.

District 3-0 also noted that the study area used for the construction scenario would be excessive for the Future Build analysis given the trip generation rates. They suggested that as part of the TIS, only the intersections that will be expected to handle 100 or more, additional trips/hour, be identified and included in the Future Build Analysis of the TIS.

2. Historical Data

The availability of historical data in the study area was discussed. The intersection of RT 29 and RT 11 in Nanticoke is currently being upgraded from a stop-sign to a signalized intersection. District 4-0 agreed to provide the condition diagrams for this intersection and the traffic data (turn movements) associated with the signal warrant analysis. This is the only recent data available within the study area in District 4-0.

3. TIS Review – Coordination with PennDOT District 3-0

The possibilities related to a coordinated review of the TIS between District 3-0 and District 4-0 was discussed because the study area included intersections in both districts. District 4-0 suggested that we submit copies of the TIS to both districts and District 4-0 can internally coordinate and provide a combined set of comments.

Based on our conversations with District 3-0 yesterday, they stated that they preferred an independent review of the TIS and proposed mitigations in their district. They suggested that the TIS be submitted to both districts and comments provided separately. Each District would comment on the relevant mitigation in their respective districts.

Based on the above, it appears that we will adopt the following approach:

- Provide the Draft TIS to both districts for review simultaneously
- Receive comments separately from each district
- Provide responses to comments from both districts and submit the revised TIS to both districts

4. Other Items

At the Feb 17 2010 meeting the possible tolling of I-80 was identified as an external impact to the study. District 4-0 stated that I-80 tolling project had been recently rejected by FHWA and hence does not have to be considered as part of the analysis.

5. Data Requests

- a) From District 4-0: Traffic data (turning movement data) at the proposed signal on RT 11 and RT 29/Mills Street in Nanticoke
- b) From District 4-0: Condition Diagrams for the intersections in Nanticoke:
 - 1. Proposed signal at RT 11 and RT 29/Mills St in Nanticoke
 - 2. Signal at RT 11/E Poplar Avenue and Broadway/Nanticoke Bridge
- c) From District 4-0: Condition Diagrams for the intersections in Nescopeck:
 - 1. Signal at RT 93/3rd Street and RT 339/Broad Street
 - 2. Signal at RT 93/3rd Street and Dewey Street

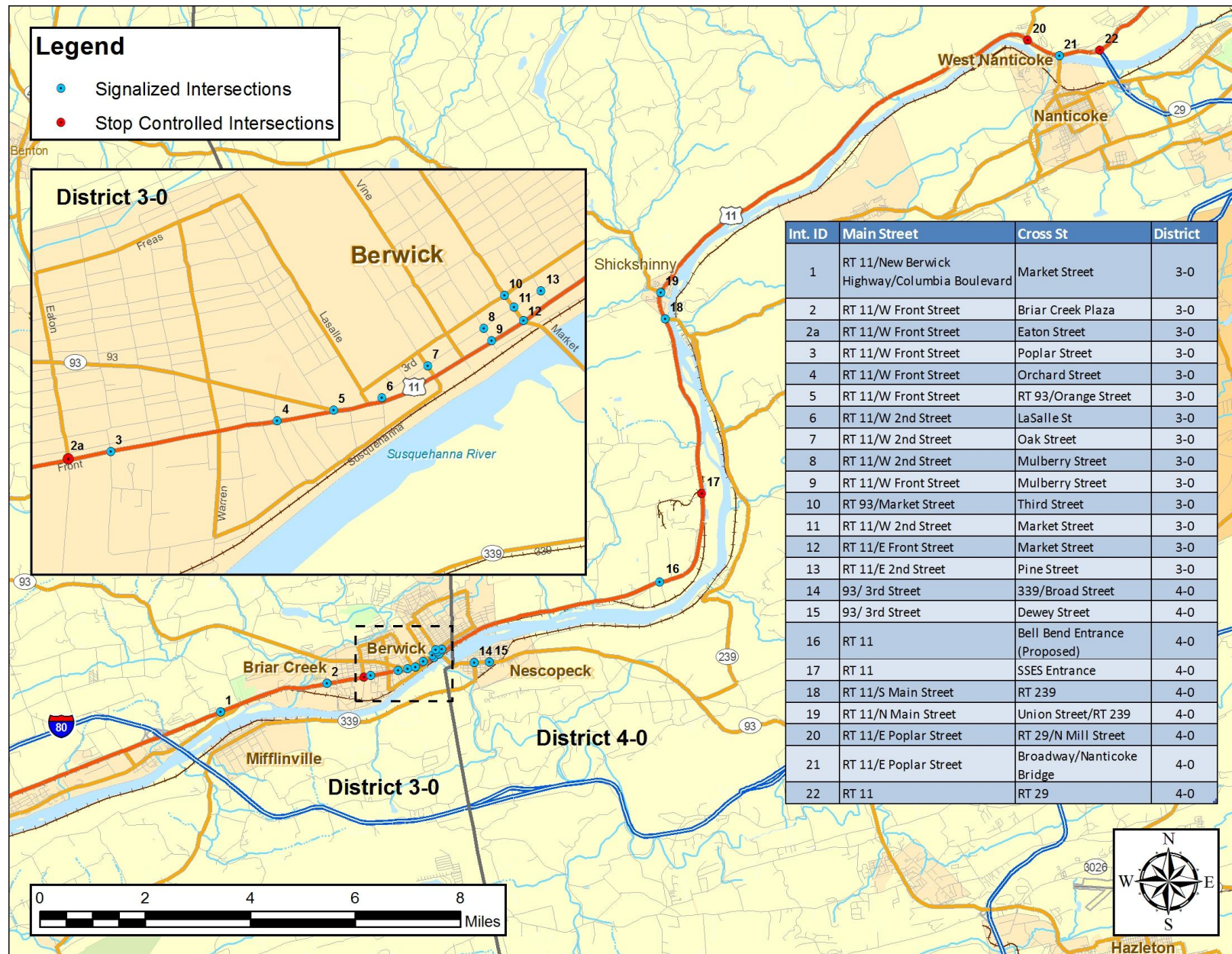
Kindly let us know if you have any questions or comments.

Thank you
Satya

Satya Muthuswamy, P.E.(OH), PTOE
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Eco-Tip: Please consider the environment, before printing this email.



Satya Muthuswamy

From: Johnson, Mara [marajohnso@state.pa.us]
Sent: Friday, April 16, 2010 3:22 PM
To: 'satya@kldassociates.com'
Cc: Keller, Alan W.; Wertz, Gerald C.; Stille, Shawn B
Subject: Scoping meeting minutes
Attachments: Meeting minutes 4-12-10.docx

Good Afternoon Satya,

Please see the attached meeting minutes from the PPL Bell Bend TIS conference call on April 12, 2010. Please contact Shawn Stille with any questions or concerns regarding these minutes. All other correspondence should be handled through Gerald Wertz.

Thank you and have a great day!

Mara J. Johnson | Civil Engineer
PA Department of Transportation
Engineering District 3-0 | Traffic Unit
P.O. Box 218 | 715 Jordan Avenue | Montoursville PA 17754
Phone: 570.368.4246 | Fax: 570.368.4343
<http://www.dot.state.pa.us>



Traffic Unit - MEETING MINUTES

DATE: April 12, 2010

PROJECT: SR 11 PPL Transportation Impact Study

ATTENDEES:

Satya Muthuswamy- KLD – satya@kldcompanies.com, 631-617-5650

Bill McShane – KLD – bmcshane@kldcompanies.com, 631-617-5650

Brian Damiani – KLD

Gerald Wertz – District 3 Permits Manager, 570-368-4277

Alan Keller – District 3 Traffic Engineer

Shawn Stille – District 3 Traffic Unit, Civil Engineer Trans, 570-368-4246

Mara Johnson – District 3 Traffic Unit, 570-368-4246

Mara started off the conversation with the three items to be discussed.

Item 1: Is the study area sufficient as provided in the e-mail dated March 26, 2010 to Shawn Stille?

Item 2: Is there any recent traffic count data the district can provide?

Item 3: How are the two districts going to coordinate the transportation impact study (TIS) review?

1. The study area provided in the March e-mail is sufficient to PennDOT district 3 for the construction analysis phase. After having discussions with Berwick Boro they would like to include the unsignalized intersection of S.R. 11 (Front Street) and Eaton Street. For the permanent build condition the study area may be reduced, only including intersections affected by 100 additional vehicles or more. This may greatly reduce the size of the study area. Satya will justify the study area for build condition in the TIS.
2. A Transportation Impact Analysis was just completed and included the intersection of S.R. 11 and Briar Creek Plaza in Briar Creek Township. Gerald will forward the HOP engineer's contact information for count data. No other intersections within this study area have recent data.
3. KLD will simultaneously submit the TIS to both districts. District 3 will compile comments and submit directly to KLD. District 4 will be the lead in approving the TIS once both agencies are satisfied.

Other Questions:

1. How will concrete, gravel, sand, rebar and such be shipped to the site, since there will be an on-site concrete plant?

April 26, 2010

Page 2

The heavy heavy material will be shipped via the railroad. All other material such as the concrete material will be shipped in with trucks. Approximately 1.5 trucks per hour around the clock. All trucks will be 15 tons or less.

Note: District 4 stated at the February meeting that there are bridges leading up to the site that have a 10 ton weight restriction. These restrictions could increase the amount of truck percentage in District 3.

2. Alan asked how the right turning vehicles from the site will be controlled while entering onto S.R. 11.
Satya stated that the right turn traffic will be turning into their own lane on S.R. 11. Alan pointed out the concern of this traffic overwhelming the system on S.R. 11 in Berwick considering no dispersion points are between the access and Berwick. Alan suggested that this intersection be modeled two different ways. One way showing the right turn traffic free flowing into their own lane on S.R. 11. The other way would show the right turn traffic being controlled by the signal. This second proposal will introduce metering of traffic into Berwick.
3. Alan asked when the TIS is proposed to be submitted. Satya stated that the TIS should be submitted in May.

Mara concluded stating that Shawn Stille will be the main contact regarding the TIS.

All correspondence should be routed through Gerald Wertz.

Satya Muthuswamy

From: Pfeiffer, John E [jopfeiffer@state.pa.us]
Sent: Monday, April 26, 2010 8:09 AM
To: 'satya@kldcompanies.com'
Cc: Pichiarella, Thomas; Williams, Keith D (PennDOT)
Subject: RE: Bell Bend TIS Discussion with PennDOT District 4-0

Satya

I apologize; I guess I did not put it in writing. The proposed study area includes the intersections that we wanted. If you have any other questions, please let us know.

Thanks!

John

John Pfeiffer | Civil Engineer-Transportation
PA Department of Transportation
District Office 4-0 | Traffic
55 Keystone Industrial Park | Dunmore PA 18512
Phone: 570.963.4018 | Fax: 570.963.4245
www.dot.state.pa.us

From: Satya Muthuswamy [mailto:satya@kldcompanies.com]
Sent: Monday, April 26, 2010 7:46 AM
To: Williams, Keith D (PennDOT); Pichiarella, Thomas
Cc: Pfeiffer, John E; 'Bill McShane'
Subject: RE: Bell Bend TIS Discussion with PennDOT District 4-0

Gentlemen,

Can you send a confirmation email that you agree with the scope of the study area as discussed in our conversation from earlier in the month.

I have attached the map with the intersections that will be included as part of the traffic study and the email with the summary of our discussion is shown below.

I would like to add your acknowledgement to the file, as official acceptance of the scope.

Thank you
Satya

From: Pfeiffer, John E [mailto:jopfeiffer@state.pa.us]
Sent: Tuesday, April 13, 2010 8:08 AM
To: 'satya@kldcompanies.com'
Subject: RE: Bell Bend TIS Discussion with PennDOT District 4-0

Thank you for the notes Satya. I am going to work on your plan requests today.

Any questions please let me know,

Thank you,

John

John Pfeiffer | Civil Engineer-Transportation
PA Department of Transportation
District Office 4-0 | Traffic
55 Keystone Industrial Park | Dunmore PA 18512
Phone: 570.963.4018 | Fax: 570.963.4245
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Kindly let us know if you have any questions or comments.

Thank you
Satya

Satya Muthuswamy, P.E.(OH), PTOE
Senior Traffic Engineer
KLD
43 Corporate Drive
Hauppauge, NY 11788
Tel: (631) 617-5650 x 216
Fax: (631) 617-5649
<http://www.kldcompanies.com>



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Appendix B

Traffic Data Collected in Field

Table B-2 – Field Data Collected

<i>Int No</i>	<i>Page No</i>	<i>Name</i>	<i>Notes</i>	Traffic Data
1	B-3	S.R. 11 & S.R. 2028	Weekday 6AM – 9AM, 3PM – 6PM (4/2010)	Turning movement counts by vehicle class
2	B-7	S.R. 11 & Briar Creek Plaza Driveways		
3	B-11	S.R. 11 (Front St.) & Eaton St.		
4	B-15	S.R. (Front St.) & Poplar St.	Weekday 6AM – 9AM, 3PM – 5:30PM (6/2008)	
5	B-19	S.R. 11 (Front St.) & Orchard St.	Weekday 6AM – 9AM, 3PM – 6PM (4/2010)	
6	B-23	S.R. 11 (Front St.) & S.R. 93 (Orange St.)	Weekday 6AM – 9AM, 3PM – 6PM (6/2008)	
7	B-27	S.R. 11 (2 nd St.) & LaSalle St.		
8	B-31	S.R. 11 (2 nd St.) & Oak St.	Weekday 6AM – 9AM, 3PM – 6PM (4/2010)	
9	B-35	S.R. 11(2 nd St.) & Mulberry St.		
10	B-39	S.R. 11 (Front St.) & Mulberry St.		
11	B-43	S.R. 93 (Market St.) & 3 rd St.		
12	B-47	S.R. 11 (2 nd St.) & Market St.		
13	B-51	S.R. 11 (Front St.) & Market St.		
14	B-55	S.R. 11 (2 nd St) & Pine St.		
-	B-59	S.R. 11 (2 nd St.) & Walnut St.		
-	B-63	S.R. 11 (Front St.) & Walnut St.		
15	B-67	S.R. 93 (3 rd St.) & S.R. 339 (Broad St.)		
16	B-71	S.R. 93 (3 rd St.) & Dewey St.		
18	B-75	S.R. 11 & SSES Entrance		
19	B-79	S.R. 11 (S. Main St.) and S.R. 239	Weekday 6AM – 9AM, 3PM – 5:30PM (6/2008)	
20	B-83	S.R. 11 (Main St.) & S.R. 239 (Union St.)		
21	B-87	S.R. 11 and S.R. 29 (Mill St.)	Weekday 6:30AM – 8:30AM, 3:30PM – 6PM (9/2009)	
22	B-89	S.R. 11 (E. Poplar St.) & County Bridge	Weekday 6AM – 9AM, 3PM – 6PM (4/2010)	
23	B-93	S.R. 11 (E. Poplar St.) & S.R. 29	Weekday 6AM– 6PM (4/2010)	
-	B-98	S.R. 93 between Cooper St. & Berwick	Hourly counts in both directions for 24 Hours for 1 week (4/2010)	ATR Counts
-	B-100	S.R. 11 between Confers Ln. & Pinecrest Rd.		
-	B-104	S.R. 29/S. Cross Valley Expy. between Sans Souci Pkwy & S.R. 11 interchange		
-	B-108	S.R. 11 N./E. Poplar St. between Route 11 divergence & S.R. 29 confluence		

Note 1: * Turning movement counts at S.R. 11 and S.R. 29 (Mill St.) were provided by PennDOT

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Tri-State Traffic Data, Inc.

610-466-1469
www.TSTData.com

Location: Columbia County, PA
Intersection: Market St / Rt 11
Date: Wednesday, April 14, 2010
Counter: RZ

File Name : SM0414-1
Site Code : 00000000
Start Date : 4/14/2010
Page No : 1

Groups Printed- Cars - Heavy Vehicles - RTOR

Start Time	RTE 11 Southbound				MARKET ST Westbound				RTE 11 Northbound				Int. Total
	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	
06:00 AM	48	11	0	59	11	9	0	20	6	68	0	74	153
06:15 AM	92	16	0	108	30	14	0	44	5	68	0	73	225
06:30 AM	135	25	0	160	31	21	0	52	6	122	0	128	340
06:45 AM	116	14	0	130	36	30	0	66	1	86	0	87	283
Total	391	66	0	457	108	74	0	182	18	344	0	362	1001
07:00 AM	105	26	0	131	31	21	0	52	8	100	0	108	291
07:15 AM	141	29	0	170	26	22	0	48	15	114	0	129	347
07:30 AM	190	32	0	222	39	32	0	71	3	122	0	125	418
07:45 AM	150	23	0	173	51	33	0	84	7	92	0	99	356
Total	586	110	0	696	147	108	0	255	33	428	0	461	1412
08:00 AM	141	22	0	163	40	26	0	66	8	106	0	114	343
08:15 AM	109	22	0	131	41	21	0	62	14	93	0	107	300
08:30 AM	117	27	0	144	24	20	0	44	16	81	0	97	285
08:45 AM	115	37	0	152	39	18	0	57	14	96	0	110	319
Total	482	108	0	590	144	85	0	229	52	376	0	428	1247
*** BREAK ***													
03:00 PM	136	46	0	182	57	13	0	70	24	153	0	177	429
03:15 PM	125	42	0	167	38	13	0	51	22	179	0	201	419
03:30 PM	149	52	0	201	37	25	1	63	29	182	0	211	475
03:45 PM	147	50	0	197	51	10	0	61	24	155	0	179	437
Total	557	190	0	747	183	61	1	245	99	669	0	768	1760
04:00 PM	145	51	0	196	61	17	0	78	20	162	0	182	456
04:15 PM	107	55	0	162	56	24	0	80	20	115	0	135	377
04:30 PM	139	48	0	187	51	23	0	74	30	151	0	181	442
04:45 PM	149	46	0	195	56	27	0	83	19	162	0	181	459
Total	540	200	0	740	224	91	0	315	89	590	0	679	1734
05:00 PM	130	55	0	185	44	13	0	57	25	197	0	222	464
05:15 PM	130	41	0	171	44	24	0	68	24	147	0	171	410
05:30 PM	111	39	0	150	56	22	0	78	26	149	0	175	403
05:45 PM	110	36	0	146	50	19	0	69	21	126	0	147	362
Total	481	171	0	652	194	78	0	272	96	619	0	715	1639
Grand Total	3037	845	0	3882	1000	497	1	1498	387	3026	0	3413	8793
Apprch %	78.2	21.8	0		66.8	33.2	0.1		11.3	88.7	0		
Total %	34.5	9.6	0	44.1	11.4	5.7	0	17	4.4	34.4	0	38.8	
Cars	2916	813	0	3729	979	487	1	1467	272	2897	0	3169	8365
% Cars	96	96.2	0	96.1	97.9	98	100	97.9	70.3	95.7	0	92.9	95.1
Heavy Vehicles	121	32	0	153	21	9	0	30	13	129	0	142	325
% Heavy Vehicles	4	3.8	0	3.9	2.1	1.8	0	2	3.4	4.3	0	4.2	3.7
RTOR	0	0	0	0	0	1	0	1	102	0	0	102	103
% RTOR	0	0	0	0	0	0.2	0	0.1	26.4	0	0	3	1.2

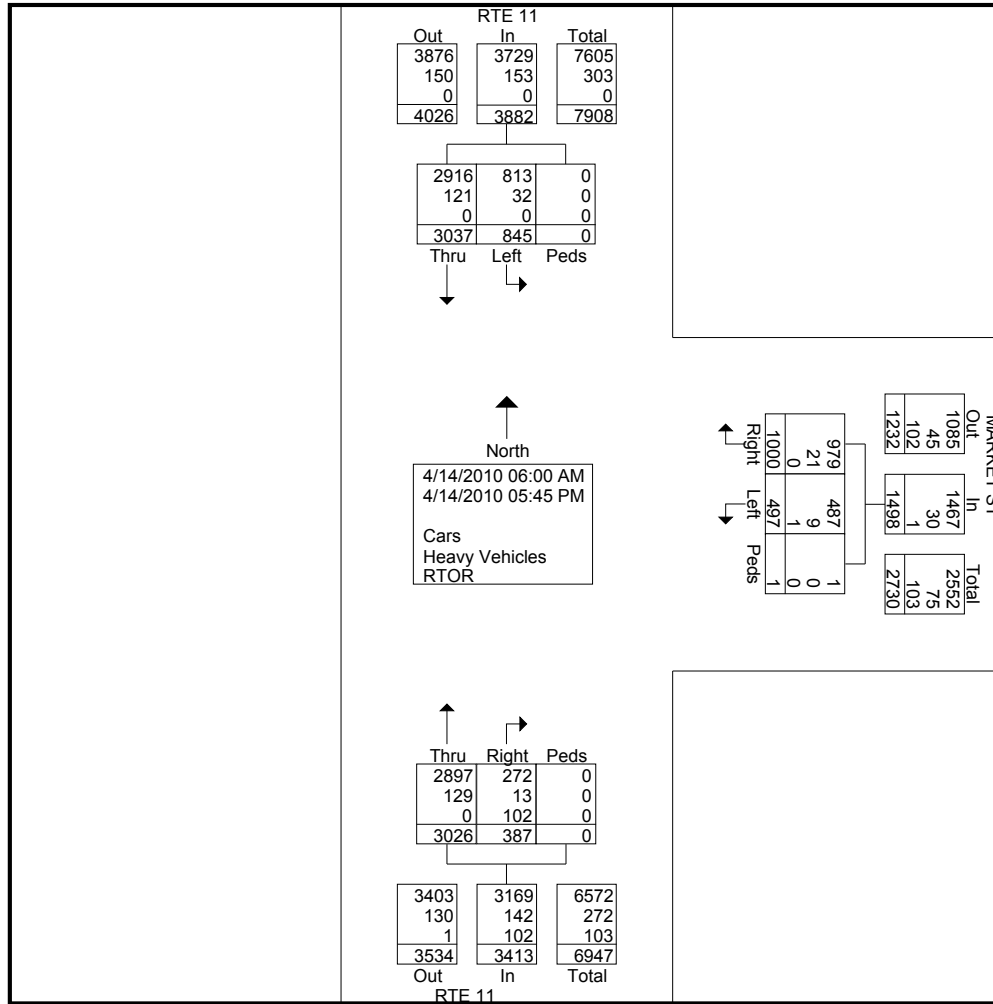
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Tri-State Traffic Data, Inc.

610-466-1469
www.TSTData.com

Location: Columbia County, PA
Intersection: Market St / Rt 11
Date: Wednesday, April 14, 2010
Counter:RZ

File Name : SM0414-1
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Page No : 2



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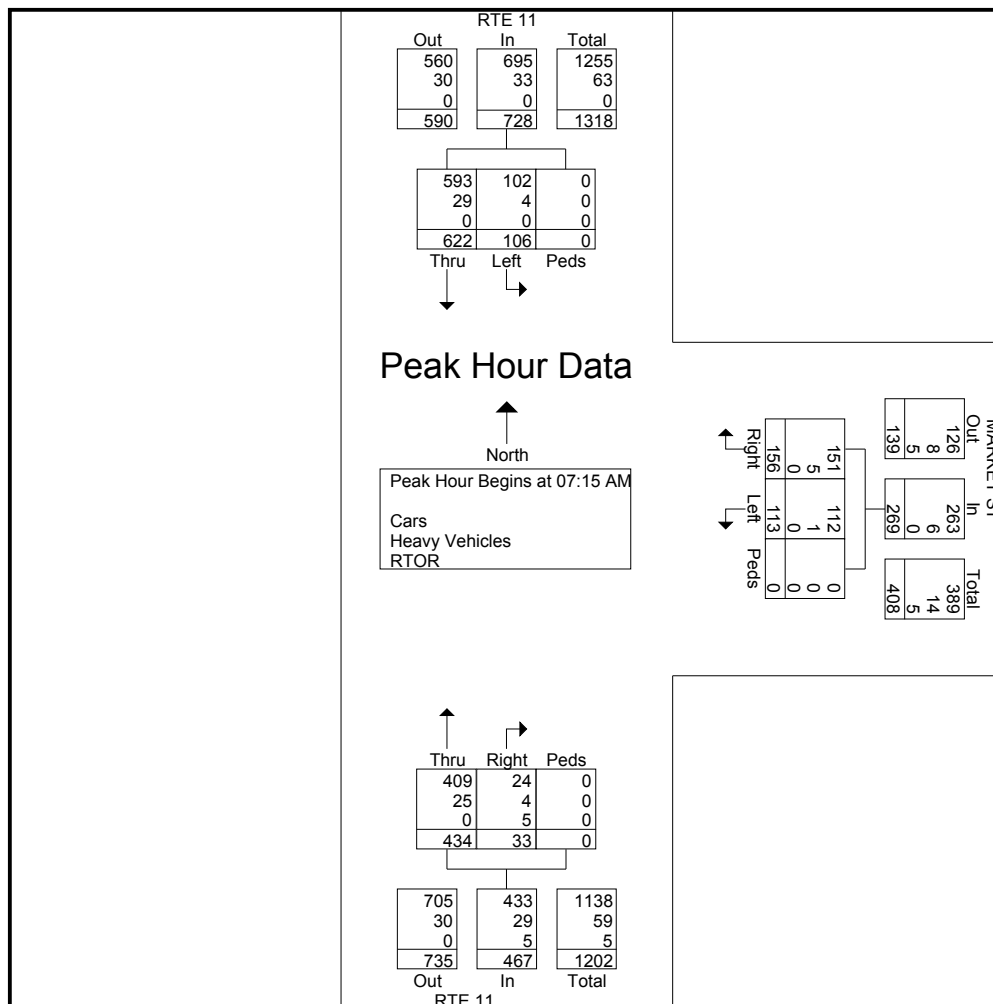
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	RTE 11 Southbound				MARKET ST Westbound				RTE 11 Northbound				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:15 AM													
07:15 AM	141	29	0	170	26	22	0	48	15	114	0	129	347
07:30 AM	190	32	0	222	39	32	0	71	3	122	0	125	418
07:45 AM	150	23	0	173	51	33	0	84	7	92	0	99	356
08:00 AM	141	22	0	163	40	26	0	66	8	106	0	114	343
Total Volume	622	106	0	728	156	113	0	269	33	434	0	467	1464
% App. Total	85.4	14.6	0		58	42	0		7.1	92.9	0		
PHF	.818	.828	.000	.820	.765	.856	.000	.801	.550	.889	.000	.905	.876
Cars	593	102	0	695	151	112	0	263	24	409	0	433	1391
% Cars	95.3	96.2	0	95.5	96.8	99.1	0	97.8	72.7	94.2	0	92.7	95.0
Heavy Vehicles	29	4	0	33	5	1	0	6	4	25	0	29	68
% Heavy Vehicles	4.7	3.8	0	4.5	3.2	0.9	0	2.2	12.1	5.8	0	6.2	4.6
RTOR	0	0	0	0	0	0	0	0	5	0	0	5	5
% RTOR	0	0	0	0	0	0	0	0	15.2	0	0	1.1	0.3



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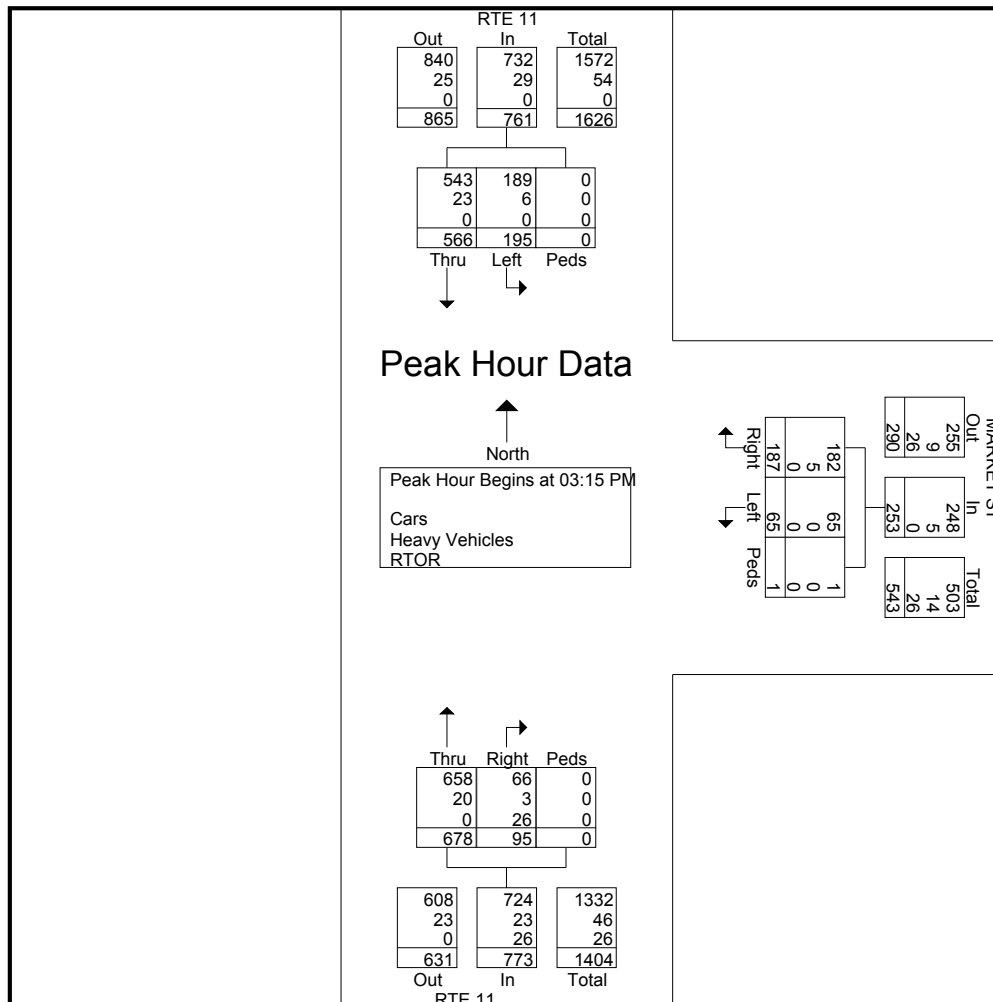
Tri-State Traffic Data, Inc.

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www.TSTData.com

Location: Columbia County, PA
Intersection: Market St / Rt 11
Date: Wednesday, April 14, 2010
Counter: RZ

File Name : SM0414-1
Site Code : 00000000
Start Date : 4/14/2010
Page No : 4

	RTE 11 Southbound				MARKET ST Westbound				RTE 11 Northbound				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 03:15 PM													
03:15 PM	125	42	0	167	38	13	0	51	22	179	0	201	419
03:30 PM	149	52	0	201	37	25	1	63	29	182	0	211	475
03:45 PM	147	50	0	197	51	10	0	61	24	155	0	179	437
04:00 PM	145	51	0	196	61	17	0	78	20	162	0	182	456
Total Volume	566	195	0	761	187	65	1	253	95	678	0	773	1787
% App. Total	74.4	25.6	0		73.9	25.7	0.4		12.3	87.7	0		
PHF	.950	.938	.000	.947	.766	.650	.250	.811	.819	.931	.000	.916	.941
Cars	543	189	0	732	182	65	1	248	66	658	0	724	1704
% Cars	95.9	96.9	0	96.2	97.3	100	100	98.0	69.5	97.1	0	93.7	95.4
Heavy Vehicles	23	6	0	29	5	0	0	5	3	20	0	23	57
% Heavy Vehicles	4.1	3.1	0	3.8	2.7	0	0	2.0	3.2	2.9	0	3.0	3.2
RTOR	0	0	0	0	0	0	0	0	26	0	0	26	26
% RTOR	0	0	0	0	0	0	0	0	27.4	0	0	3.4	1.5



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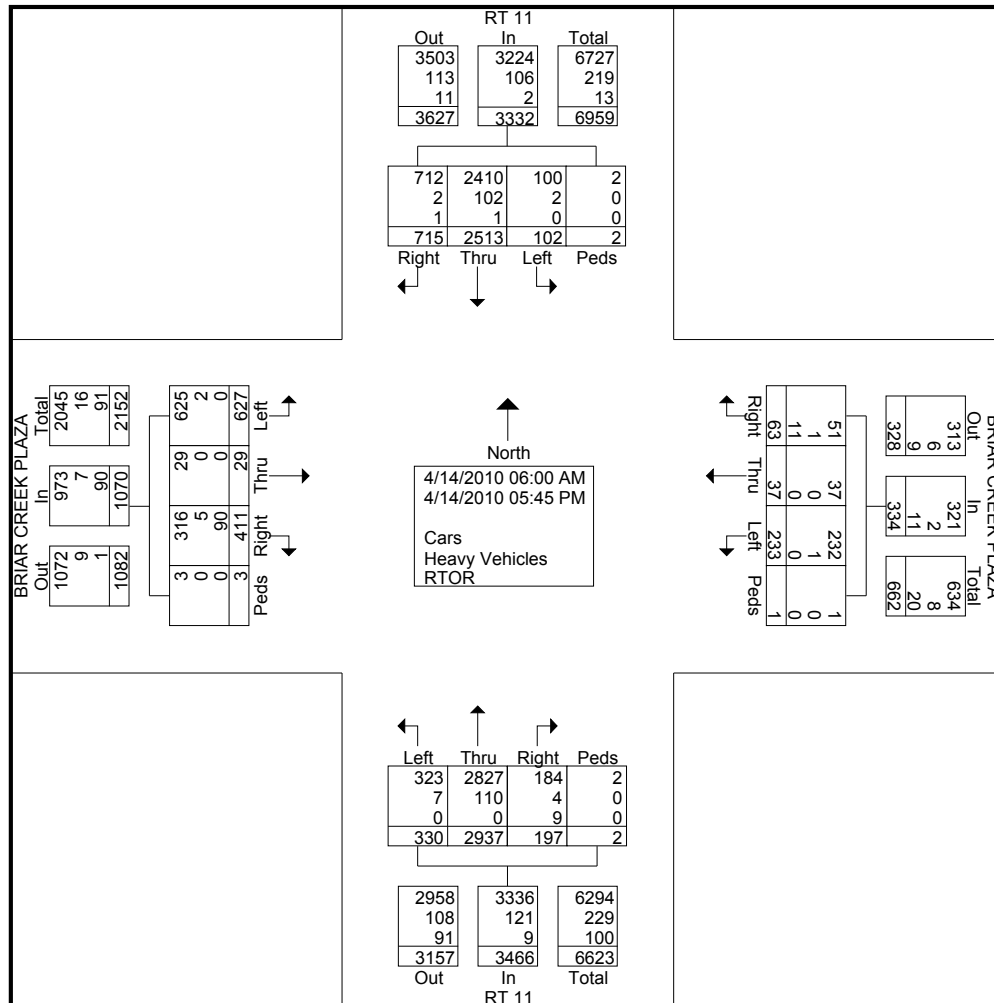
Location: Columbia County, PA
Intersection: RT 11/Briar Creek Plaza
Date: Wednesday, April 14, 2010
Counter: CMK

File Name : SM0414-2
Site Code : 00000000
Start Date : 4/14/2010
Page No : 1

Groups Printed- Cars - Heavy Vehicles - RTOR

	RT 11 Southbound					BRIAR CREEK PLAZA Westbound					RT 11 Northbound					BRIAR CREEK PLAZA Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:00 AM	10	38	0	0	48	1	1	5	0	7	7	50	3	0	60	5	0	1	0	6	121
06:15 AM	6	67	1	0	74	1	1	4	0	6	5	81	4	0	90	2	2	7	0	11	181
06:30 AM	6	89	0	0	95	0	1	15	0	16	12	97	4	0	113	1	0	3	2	6	230
06:45 AM	16	77	3	0	96	2	0	8	0	10	10	98	4	0	112	7	0	7	0	14	232
Total	38	271	4	0	313	4	3	32	0	39	34	326	15	0	375	15	2	18	2	37	764
07:00 AM	11	84	7	0	102	2	1	6	0	9	13	85	11	0	109	10	2	10	0	22	242
07:15 AM	12	100	7	0	119	1	3	13	0	17	9	86	4	0	99	6	0	7	0	13	248
07:30 AM	13	103	2	0	118	1	0	10	0	11	10	120	13	0	143	10	2	9	1	22	294
07:45 AM	22	116	3	0	141	1	2	5	0	8	10	121	7	0	138	6	2	7	0	15	302
Total	58	403	19	0	480	5	6	34	0	45	42	412	35	0	489	32	6	33	1	72	1086
08:00 AM	12	94	5	0	111	0	1	5	0	6	8	103	5	0	116	9	1	15	0	25	258
08:15 AM	18	74	15	0	107	2	4	11	0	17	8	109	8	0	125	6	4	17	0	27	276
08:30 AM	21	98	9	0	128	4	1	3	0	8	6	101	1	0	108	12	0	8	0	20	264
08:45 AM	18	77	9	0	104	2	2	15	0	19	11	115	8	0	134	9	1	6	0	16	273
Total	69	343	38	0	450	8	8	34	0	50	33	428	22	0	483	36	6	46	0	88	1071
*** BREAK ***																					
03:00 PM	35	115	4	2	156	3	0	14	0	17	10	145	19	2	176	22	2	41	0	65	414
03:15 PM	47	115	5	0	167	4	1	8	0	13	2	135	15	0	152	15	2	30	0	47	379
03:30 PM	53	128	3	0	184	3	1	8	0	12	10	167	25	0	202	33	3	38	0	74	472
03:45 PM	47	134	7	0	188	2	3	14	1	20	5	137	29	0	171	30	2	57	0	89	468
Total	182	492	19	2	695	12	5	44	1	62	27	584	88	2	701	100	9	166	0	275	1733
04:00 PM	48	113	5	0	166	8	1	18	0	27	8	128	12	0	148	45	1	47	0	93	434
04:15 PM	50	121	4	0	175	6	4	11	0	21	7	123	22	0	152	26	0	40	0	66	414
04:30 PM	52	132	4	0	188	5	1	7	0	13	4	135	19	0	158	23	1	39	0	63	422
04:45 PM	35	136	2	0	173	3	1	12	0	16	10	159	23	0	192	24	1	50	0	75	456
Total	185	502	15	0	702	22	7	48	0	77	29	545	76	0	650	118	3	176	0	297	1726
05:00 PM	59	158	3	0	220	5	2	11	0	18	8	171	29	0	208	31	0	51	0	82	528
05:15 PM	39	128	1	0	168	3	4	10	0	17	11	168	17	0	196	26	1	52	0	79	460
05:30 PM	43	97	0	0	140	4	2	11	0	17	8	166	29	0	203	35	1	38	0	74	434
05:45 PM	42	119	3	0	164	0	0	9	0	9	5	137	19	0	161	18	1	47	0	66	400
Total	183	502	7	0	692	12	8	41	0	61	32	642	94	0	768	110	3	188	0	301	1822
Grand Total	715	2513	102	2	3332	63	37	233	1	334	197	2937	330	2	3466	411	29	627	3	1070	8202
Apprch %	21.5	75.4	3.1	0.1		18.9	11.1	69.8	0.3		5.7	84.7	9.5	0.1		38.4	2.7	58.6	0.3		
Total %	8.7	30.6	1.2	0	40.6	0.8	0.5	2.8	0	4.1	2.4	35.8	4	0	42.3	5	0.4	7.6	0	13	
Cars	712	2410	100	2	3224	51	37	232	1	321	184	2827	323	2	3336	316	29	625	3	973	7854
% Cars	99.6	95.9	98	100	96.8	81	100	99.6	100	96.1	93.4	96.3	97.9	100	96.2	76.9	100	99.7	100	90.9	95.8
Heavy Vehicles	2	102	2	0	106	1	0	1	0	2	4	110	7	0	121	5	0	2	0	7	236
% Heavy Vehicles	0.3	4.1	2	0	3.2	1.6	0	0.4	0	0.6	2	3.7	2.1	0	3.5	1.2	0	0.3	0	0.7	2.9
RTOR	1	1	0	0	2	11	0	0	0	11	9	0	0	0	9	90	0	0	0	90	112
% RTOR	0.1	0	0	0	0.1	17.5	0	0	0	3.3	4.6	0	0	0	0.3	21.9	0	0	0	8.4	1.4

File Name : SM0414-2
Site Code : 00000000
Start Date : 4/14/2010
Page No : 2



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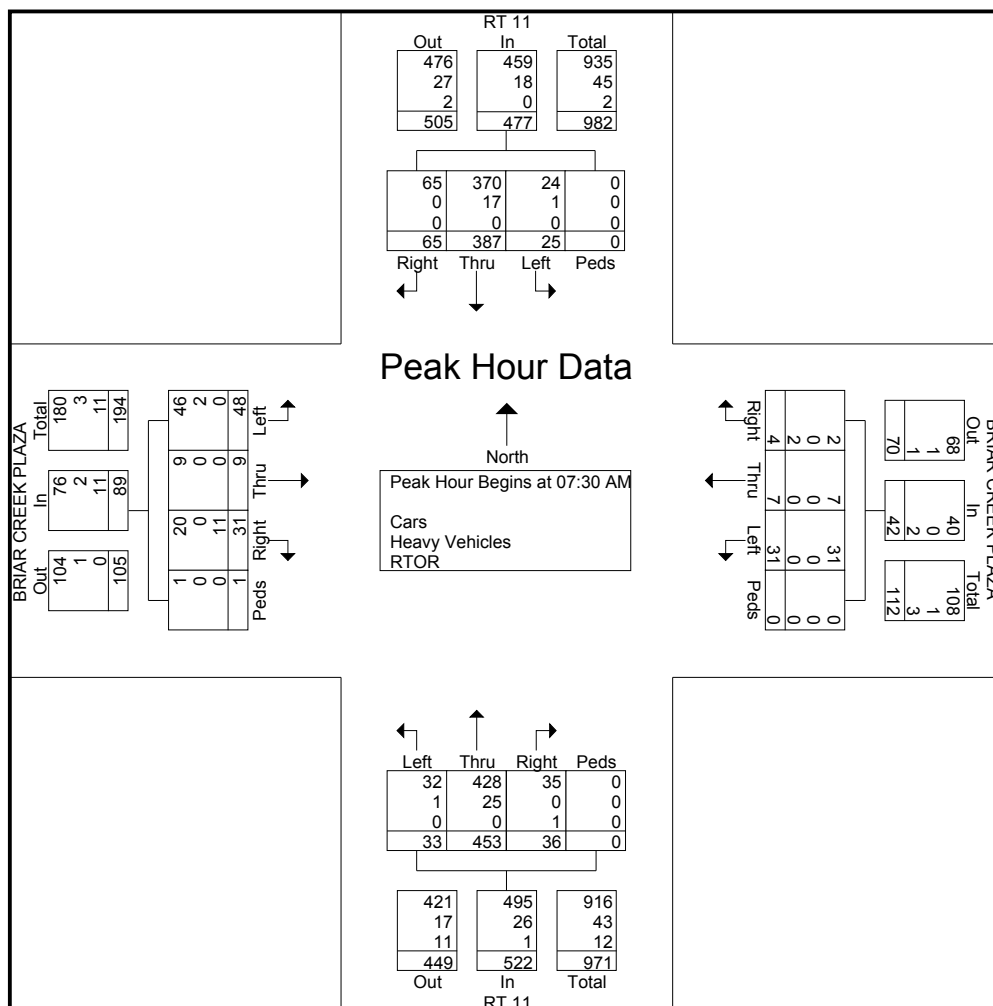
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Location: Columbia County, PA
Intersection: RT 11/Briar Creek Plaza
Date: Wednesday, April 14, 2010
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File Name : SM0414-2
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	RT 11 Southbound					BRIAR CREEK PLAZA Westbound					RT 11 Northbound					BRIAR CREEK PLAZA Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	13	103	2	0	118	1	0	10	0	11	10	120	13	0	143	10	2	9	1	22	294
07:45 AM	22	116	3	0	141	1	2	5	0	8	10	121	7	0	138	6	2	7	0	15	302
08:00 AM	12	94	5	0	111	0	1	5	0	6	8	103	5	0	116	9	1	15	0	25	258
08:15 AM	18	74	15	0	107	2	4	11	0	17	8	109	8	0	125	6	4	17	0	27	276
Total Volume	65	387	25	0	477	4	7	31	0	42	36	453	33	0	522	31	9	48	1	89	1130
% App. Total	13.6	81.1	5.2	0		9.5	16.7	73.8	0		6.9	86.8	6.3	0		34.8	10.1	53.9	1.1		
PHF	.739	.834	.417	.000	.846	.500	.438	.705	.000	.618	.900	.936	.635	.000	.913	.775	.563	.706	.250	.824	.935
Cars	65	370	24	0	459	2	7	31	0	40	35	428	32	0	495	20	9	46	1	76	1070
% Cars	100	95.6	96.0	0	96.2	50.0	100	100	0	95.2	97.2	94.5	97.0	0	94.8	64.5	100	95.8	100	85.4	94.7
Heavy Vehicles																					
Heavy Vehicles	0	4.4	4.0	0	3.8	0	0	0	0	0	0	5.5	3.0	0	5.0	0	0	4.2	0	2.2	4.1
RTOR	0	0	0	0	0	2	0	0	0	2	1	0	0	0	1	11	0	0	0	11	14
% RTOR	0	0	0	0	0	50.0	0	0	0	4.8	2.8	0	0	0	0.2	35.5	0	0	0	12.4	1.2



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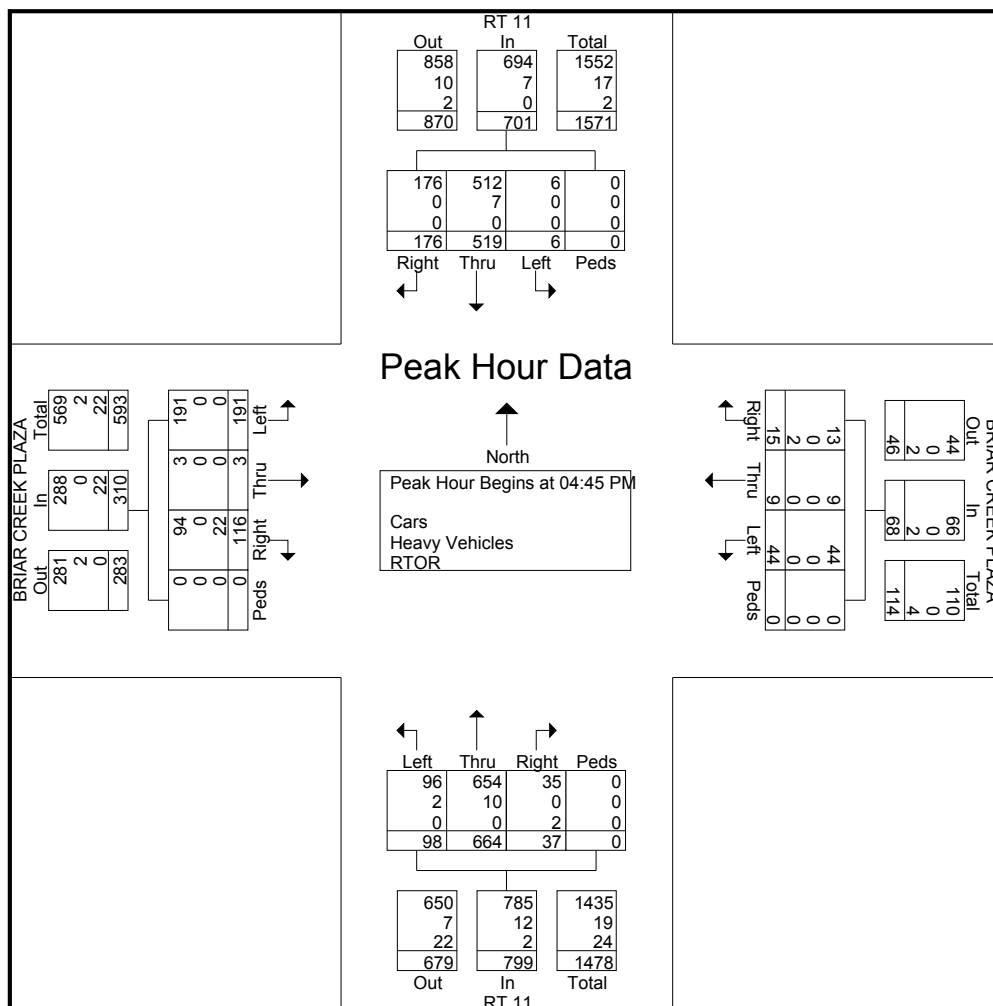
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	RT 11 Southbound					BRIAR CREEK PLAZA Westbound					RT 11 Northbound					BRIAR CREEK PLAZA Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	35	136	2	0	173	3	1	12	0	16	10	159	23	0	192	24	1	50	0	75	456
05:00 PM	59	158	3	0	220	5	2	11	0	18	8	171	29	0	208	31	0	51	0	82	528
05:15 PM	39	128	1	0	168	3	4	10	0	17	11	168	17	0	196	26	1	52	0	79	460
05:30 PM	43	97	0	0	140	4	2	11	0	17	8	166	29	0	203	35	1	38	0	74	434
Total Volume	176	519	6	0	701	15	9	44	0	68	37	664	98	0	799	116	3	191	0	310	1878
% App. Total	25.1	74	0.9	0		22.1	13.2	64.7	0		4.6	83.1	12.3	0		37.4	1	61.6	0		
PHF	.746	.821	.500	.000	.797	.750	.563	.917	.000	.944	.841	.971	.845	.000	.960	.829	.750	.918	.000	.945	.889
Cars	176	512	6	0	694	13	9	44	0	66	35	654	96	0	785	94	3	191	0	288	1833
% Cars	100	98.7	100	0	99.0	86.7	100	100	0	97.1	94.6	98.5	98.0	0	98.2	81.0	100	100	0	92.9	97.6
Heavy Vehicles																					
% Heavy Vehicles	0	1.3	0	0	1.0	0	0	0	0	0	0	1.5	2.0	0	1.5	0	0	0	0	0	1.0
RTOR	0	0	0	0	0	2	0	0	0	2	2	0	0	0	2	22	0	0	0	22	26
% RTOR	0	0	0	0	0	13.3	0	0	0	2.9	5.4	0	0	0	0.3	19.0	0	0	0	7.1	1.4



Controlled Document Tri-State Traffic Data, Inc.

610-466-1469
www.TSTData.com

Location: Columbia County, PA
Intersection: Rt 11/Easton St
Date: Thursday, April 15, 2010
Counter: JF

File Name : SM0415-2A
Site Code : 00000000
Start Date : 4/15/2010
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Rt 11 Southbound					Eaton St Westbound					Rt 11 Northbound					Eaton St Eastbound					
Start Time					App. Total					App. Total					App. Total					App. Total	Int. Total
06:00 AM	0	65	0	0	65	0	0	2	0	2	1	61	5	0	67	6	0	0	0	6	140
06:15 AM	0	73	1	0	74	0	0	0	0	0	1	86	1	0	88	4	0	3	0	7	169
06:30 AM	0	116	3	0	119	0	0	0	0	0	2	98	5	0	105	8	2	0	0	10	234
06:45 AM	1	89	2	0	92	0	0	0	0	0	4	106	2	0	112	4	1	2	0	7	211
Total	1	343	6	0	350	0	0	2	0	2	8	351	13	0	372	22	3	5	0	30	754
07:00 AM	1	96	1	0	98	3	0	0	0	3	1	89	4	0	94	12	1	0	0	13	208
07:15 AM	2	110	2	0	114	2	0	3	0	5	0	115	10	0	125	11	2	0	0	13	257
07:30 AM	3	133	2	0	138	2	1	0	0	3	3	104	4	0	111	9	0	1	0	10	262
07:45 AM	0	123	5	0	128	2	1	2	0	5	11	107	5	0	123	8	0	0	0	8	264
Total	6	462	10	0	478	9	2	5	0	16	15	415	23	0	453	40	3	1	0	44	991
08:00 AM	2	129	4	0	135	0	2	2	0	4	5	101	3	0	109	15	3	1	0	19	267
08:15 AM	5	114	2	0	121	0	0	4	0	4	9	96	5	0	110	10	2	1	0	13	248
08:30 AM	1	146	2	0	149	1	0	0	0	1	6	87	4	0	97	5	2	0	0	7	254
08:45 AM	2	137	3	0	142	2	0	6	0	8	7	109	2	0	118	16	3	1	0	20	288
Total	10	526	11	0	547	3	2	12	0	17	27	393	14	0	434	46	10	3	0	59	1057
*** BREAK ***																					
03:00 PM	4	153	4	0	161	4	1	1	0	6	9	173	13	0	195	11	0	1	0	12	374
03:15 PM	4	171	6	0	181	1	3	2	0	6	16	167	17	0	200	12	0	2	0	14	401
03:30 PM	2	188	2	0	192	8	0	6	0	14	16	167	12	0	195	7	1	0	0	8	409
03:45 PM	3	158	3	0	164	4	1	5	0	10	12	156	17	0	185	9	0	1	0	10	369
Total	13	670	15	0	698	17	5	14	0	36	53	663	59	0	775	39	1	4	0	44	1553
04:00 PM	6	179	2	0	187	3	0	7	0	10	6	140	14	0	160	12	1	1	0	14	371
04:15 PM	5	161	6	0	172	2	1	1	0	4	8	124	11	0	143	14	2	1	0	17	336
04:30 PM	4	168	7	0	179	14	2	6	0	22	7	140	16	0	163	5	2	1	0	8	372
04:45 PM	0	162	9	0	171	5	2	1	0	8	8	134	9	0	151	13	1	1	0	15	345
Total	15	670	24	0	709	24	5	15	0	44	29	538	50	0	617	44	6	4	0	54	1424
05:00 PM	6	166	9	0	181	19	5	5	0	29	6	178	11	0	195	12	1	4	0	17	422
05:15 PM	4	153	3	0	160	3	0	7	0	10	12	168	12	0	192	10	2	1	0	13	375
05:30 PM	3	155	15	0	173	13	1	1	0	15	13	153	9	0	175	11	7	0	0	18	381
05:45 PM	7	123	31	0	161	10	5	6	0	21	17	121	6	0	144	14	3	0	0	17	343
Total	20	597	58	0	675	45	11	19	0	75	48	620	38	0	706	47	13	5	0	65	1521
Grand Total	65	3268	124	0	3457	98	25	67	0	190	180	2980	197	0	3357	238	36	22	0	296	7300
Apprch %	1.9	94.5	3.6	0		51.6	13.2	35.3	0		5.4	88.8	5.9	0		80.4	12.2	7.4	0		
Total %	0.9	44.8	1.7	0	47.4	1.3	0.3	0.9	0	2.6	2.5	40.8	2.7	0	46	3.3	0.5	0.3	0	4.1	
Cars	65	3177	119	0	3361	97	24	59	0	180	170	2884	197	0	3251	236	36	21	0	293	7085
% Cars	100	97.2	96	0	97.2	99	96	88.1	0	94.7	94.4	96.8	100	0	96.8	99.2	100	95.5	0	99	97.1
Heavy Vehicles	0	91	5	0	96	1	1	8	0	10	10	96	0	0	106	2	0	1	0	3	215
% Heavy Vehicles	0	2.8	4	0	2.8	1	4	11.9	0	5.3	5.6	3.2	0	0	3.2	0.8	0	4.5	0	1	2.9

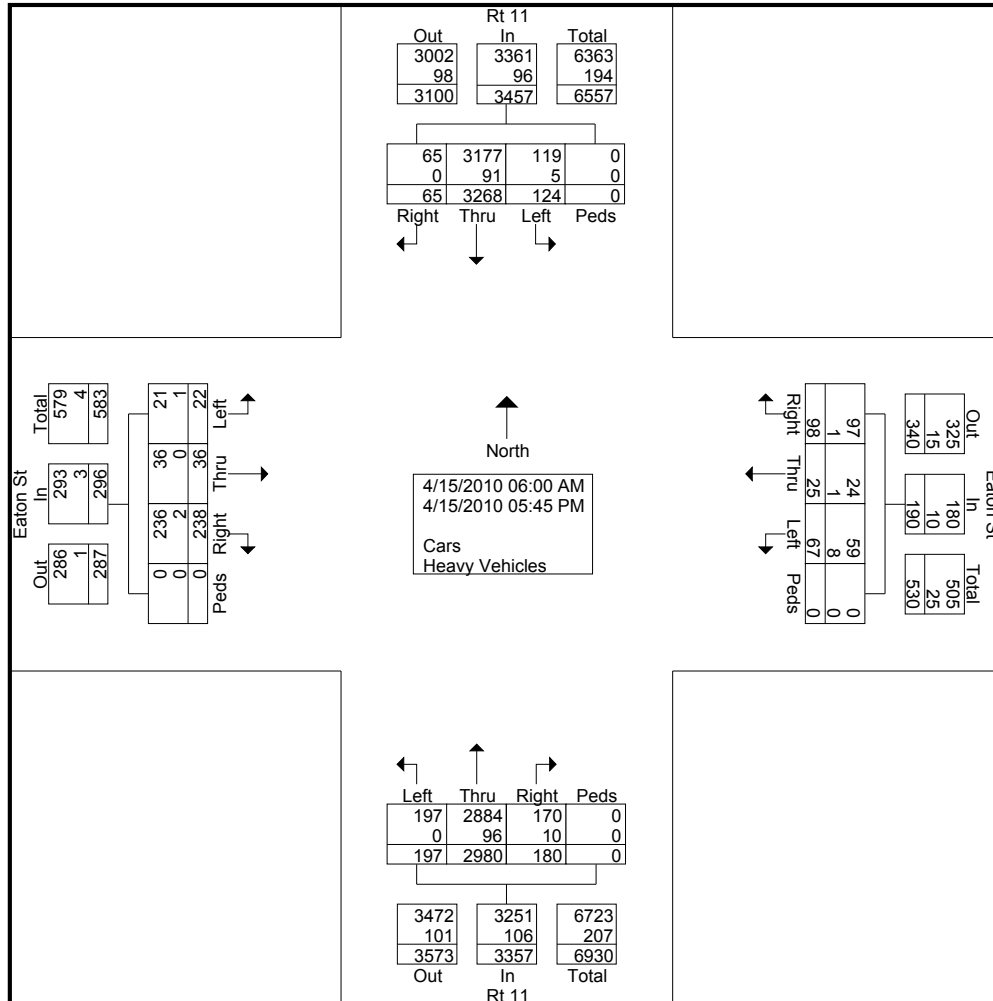
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Tri-State Traffic Data, Inc.

610-466-1469
www.TSTData.com

Location: Columbia County, PA
Intersection: Rt 11/Easton St
Date: Thursday, April 15, 2010
Counter: JF

File Name : SM0415-2A
Site Code : 00000000
Start Date : 4/15/2010
Page No : 2



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Tri-State Traffic Data, Inc.

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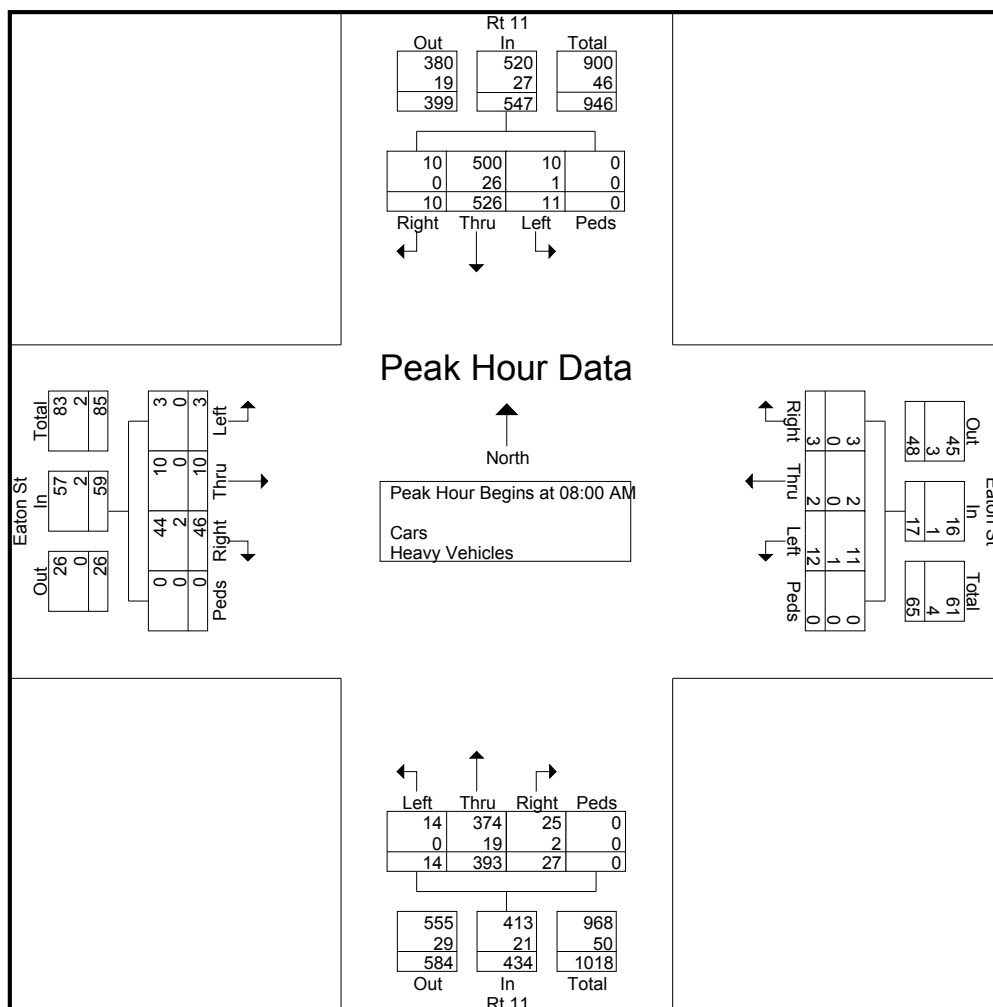
File Name : SM0415-2A
Site Code : 00000000
Start Date : 4/15/2010
Page No : 3

	Rt 11 Southbound					Eaton St Westbound					Rt 11 Northbound					Eaton St Eastbound					
Start Time					App. Total					App. Total					App. Total					App. Total	Int. Total

Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 08:00 AM

08:00 AM	2	129	4	0	135	0	2	2	0	4	5	101	3	0	109	15	3	1	0	19	267
08:15 AM	5	114	2	0	121	0	0	4	0	4	9	96	5	0	110	10	2	1	0	13	248
08:30 AM	1	146	2	0	149	1	0	0	0	1	6	87	4	0	97	5	2	0	0	7	254
08:45 AM	2	137	3	0	142	2	0	6	0	8	7	109	2	0	118	16	3	1	0	20	288
Total Volume	10	526	11	0	547	3	2	12	0	17	27	393	14	0	434	46	10	3	0	59	1057
% App. Total	1.8	96.2	2	0		17.6	11.8	70.6	0		6.2	90.6	3.2	0		78	16.9	5.1	0		
PHF	.500	.901	.688	.000	.918	.375	.250	.500	.000	.531	.750	.901	.700	.000	.919	.719	.833	.750	.000	.738	.918
Cars	10	500	10	0	520	3	2	11	0	16	25	374	14	0	413	44	10	3	0	57	1006
% Cars	100	95.1	90.9	0	95.1	100	100	91.7	0	94.1	92.6	95.2	100	0	95.2	95.7	100	100	0	96.6	95.2
Heavy Vehicles																					
% Heavy Vehicles	0	4.9	9.1	0	4.9	0	0	8.3	0	5.9	7.4	4.8	0	0	4.8	4.3	0	0	0	3.4	4.8



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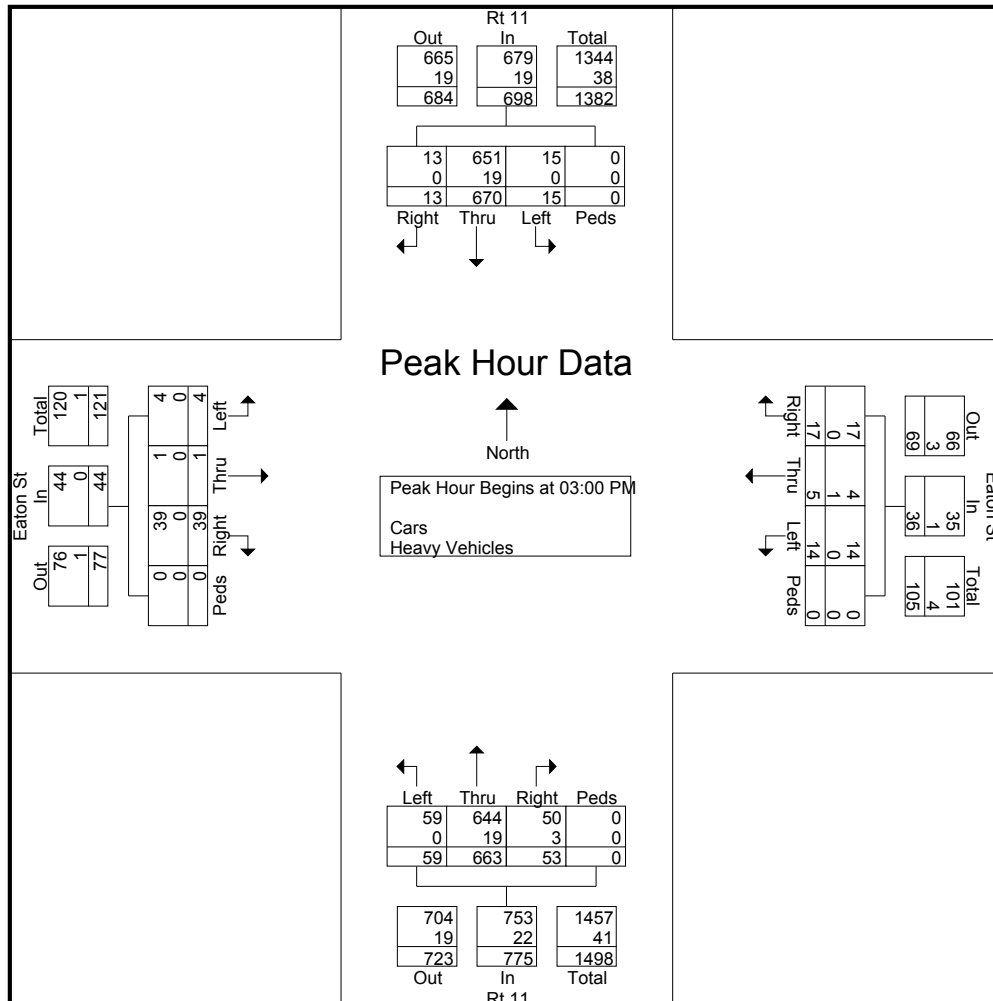
Tri-State Traffic Data, Inc.

610-466-1469
www.TSTData.com

Location: Columbia County, PA
Intersection: Rt 11/Easton St
Date: Thursday, April 15, 2010
Counter: JF

File Name : SM0415-2A
Site Code : 00000000
Start Date : 4/15/2010
Page No : 4

	Rt 11 Southbound					Eaton St Westbound					Rt 11 Northbound					Eaton St Eastbound					
Start Time					App. Total					App. Total					App. Total					App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 03:00 PM																					
03:00 PM	4	153	4	0	161	4	1	1	0	6	9	173	13	0	195	11	0	1	0	12	374
03:15 PM	4	171	6	0	181	1	3	2	0	6	16	167	17	0	200	12	0	2	0	14	401
03:30 PM	2	188	2	0	192	8	0	6	0	14	16	167	12	0	195	7	1	0	0	8	409
03:45 PM	3	158	3	0	164	4	1	5	0	10	12	156	17	0	185	9	0	1	0	10	369
Total Volume	13	670	15	0	698	17	5	14	0	36	53	663	59	0	775	39	1	4	0	44	1553
% App. Total	1.9	96	2.1	0		47.2	13.9	38.9	0		6.8	85.5	7.6	0		88.6	2.3	9.1	0		
PHF	.813	.891	.625	.000	.909	.531	.417	.583	.000	.643	.828	.958	.868	.000	.969	.813	.250	.500	.000	.786	.949
Cars	13	651	15	0	679	17	4	14	0	35	50	644	59	0	753	39	1	4	0	44	1511
% Cars	100	97.2	100	0	97.3	100	80.0	100	0	97.2	94.3	97.1	100	0	97.2	100	100	100	0	100	97.3
Heavy Vehicles																					
% Heavy Vehicles	0	2.8	0	0	2.7	0	20.0	0	0	2.8	5.7	2.9	0	0	2.8	0	0	0	0	0	2.7



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Tri-State Traffic Data, Inc.

610-466-1469
www.TSTData.com

Location: Columbia County, PA
Intersection: Poplar St/ US 11
Date: Wednesday, June, 11, 2008
Tech. RZ

File Name : SM0611-3
Site Code : 00000000
Start Date : 6/11/2008
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	RTE 11 Southbound					POPLAR ST Westbound					RTE 11 Northbound					POPLAR ST Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:00 AM	0	67	3	0	70	2	1	4	0	7	7	88	0	0	95	1	2	1	0	4	176
06:15 AM	0	98	3	0	101	3	1	2	0	6	2	98	0	0	100	4	1	1	1	7	214
06:30 AM	0	116	5	1	122	5	1	6	0	12	7	118	0	0	125	2	2	1	1	6	265
06:45 AM	0	107	9	0	116	1	2	5	0	8	8	69	0	0	77	5	5	0	1	11	212
Total	0	388	20	1	409	11	5	17	0	33	24	373	0	0	397	12	10	3	3	28	867
07:00 AM	0	100	5	2	107	9	0	9	0	18	8	75	0	0	83	0	0	0	0	0	208
07:15 AM	0	104	15	0	119	12	0	3	0	15	8	84	0	0	92	0	0	0	0	0	226
07:30 AM	0	146	9	0	155	6	0	3	1	10	9	107	0	0	116	0	0	0	0	0	281
07:45 AM	0	115	12	0	127	3	0	10	0	13	7	115	0	0	122	0	0	0	0	0	262
Total	0	465	41	2	508	30	0	25	1	56	32	381	0	0	413	0	0	0	0	0	977
08:00 AM	0	133	9	0	142	5	0	20	0	25	4	72	0	0	76	0	0	0	0	0	243
08:15 AM	0	118	4	0	122	9	0	13	0	22	3	97	0	0	100	0	0	0	0	0	244
08:30 AM	0	127	7	0	134	14	0	12	0	26	5	110	0	0	115	0	0	0	1	1	276
08:45 AM	0	130	13	0	143	11	0	6	2	19	4	95	0	1	100	0	0	0	2	2	264
Total	0	508	33	0	541	39	0	51	2	92	16	374	0	1	391	0	0	0	3	3	1027
*** BREAK ***																					
02:30 PM	1	137	17	0	155	16	5	13	0	34	8	146	1	1	156	6	3	1	0	10	355
02:45 PM	2	141	14	1	158	12	6	17	0	35	9	125	5	3	142	2	7	7	1	17	352
Total	3	278	31	1	313	28	11	30	0	69	17	271	6	4	298	8	10	8	1	27	707
03:00 PM	1	143	12	2	158	24	10	14	1	49	10	145	3	0	158	5	13	7	0	25	390
03:15 PM	3	146	16	1	166	14	4	19	0	37	7	158	1	0	166	5	6	8	0	19	388
03:30 PM	1	159	19	0	179	26	9	21	2	58	9	159	3	0	171	9	9	5	1	24	432
03:45 PM	0	169	15	0	184	17	7	23	1	48	9	176	2	0	187	9	11	8	3	31	450
Total	5	617	62	3	687	81	30	77	4	192	35	638	9	0	682	28	39	28	4	99	1660
04:00 PM	4	140	7	1	152	17	10	44	0	71	6	136	7	0	149	3	10	6	2	21	393
04:15 PM	2	153	15	0	170	24	9	27	0	60	7	155	2	0	164	4	11	8	0	23	417
04:30 PM	0	204	8	0	212	22	16	27	0	65	7	192	6	0	205	6	7	4	0	17	499
04:45 PM	2	149	19	0	170	14	8	27	0	49	8	142	6	0	156	2	11	11	0	24	399
Total	8	646	49	1	704	77	43	125	0	245	28	625	21	0	674	15	39	29	2	85	1708
05:00 PM	3	147	4	0	154	20	16	38	0	74	3	181	5	1	190	8	8	6	0	22	440
05:15 PM	0	155	8	0	163	9	2	24	0	35	3	156	1	0	160	4	7	8	0	19	377
Grand Total	19	3204	248	8	3479	295	107	387	7	796	158	2999	42	6	3205	75	113	82	13	283	7763
Apprch %	0.5	92.1	7.1	0.2		37.1	13.4	48.6	0.9		4.9	93.6	1.3	0.2		26.5	39.9	29	4.6		
Total %	0.2	41.3	3.2	0.1	44.8	3.8	1.4	5	0.1	10.3	2	38.6	0.5	0.1	41.3	1	1.5	1.1	0.2	3.6	
Cars	19	3102	224	8	3353	279	107	376	7	769	149	2894	42	6	3091	74	113	82	13	282	7495
% Cars	100	96.8	90.3	100	96.4	94.6	100	97.2	100	96.6	94.3	96.5	100	100	96.4	98.7	100	100	100	99.6	96.5
Heavy Vehicles	0	102	24	0	126	16	0	11	0	27	9	105	0	0	114	1	0	0	0	1	268
% Heavy Vehicles	0	3.2	9.7	0	3.6	5.4	0	2.8	0	3.4	5.7	3.5	0	0	3.6	1.3	0	0	0	0.4	3.5

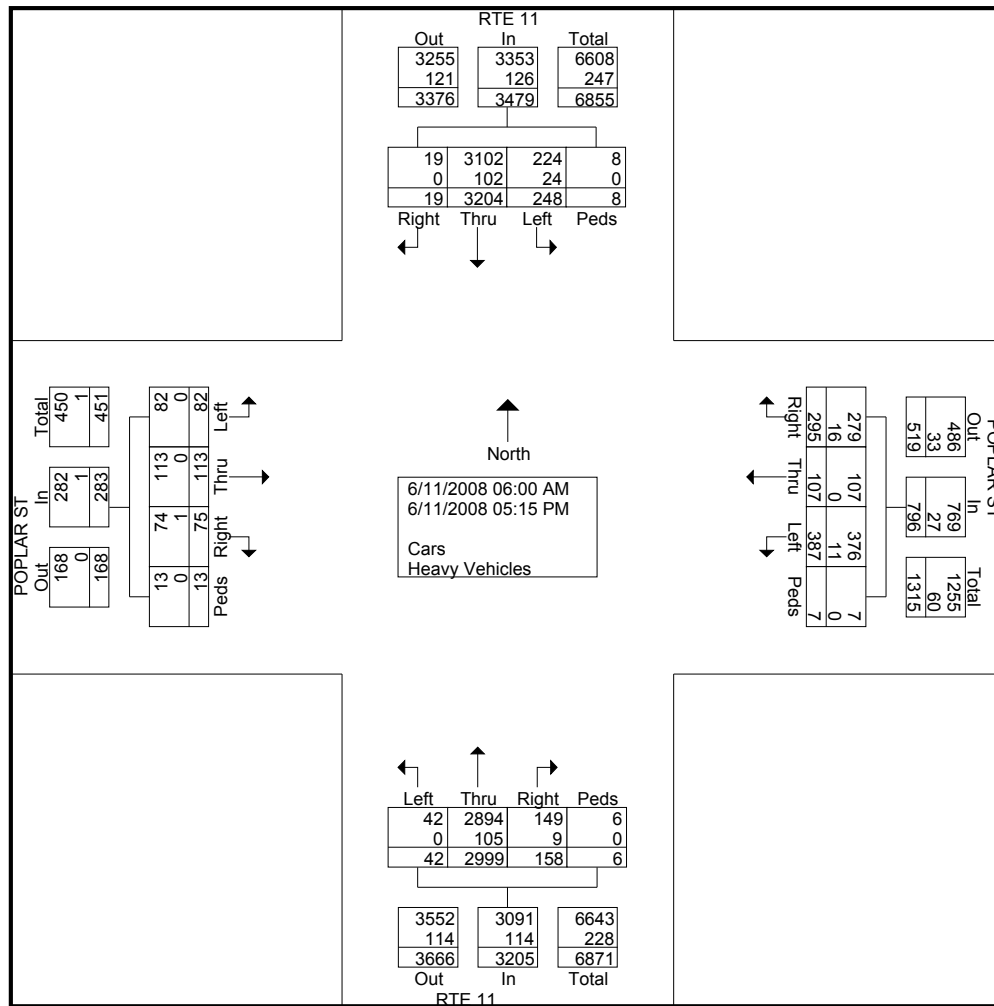
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Tri-State Traffic Data, Inc.

610-466-1469
www.TSTData.com

Location: Columbia County, PA
Intersection: Poplar St/ US 11
Date: Wednesday, June, 11, 2008
Tech. RZ

File Name : SM0611-3
Site Code : 00000000
Start Date : 6/11/2008
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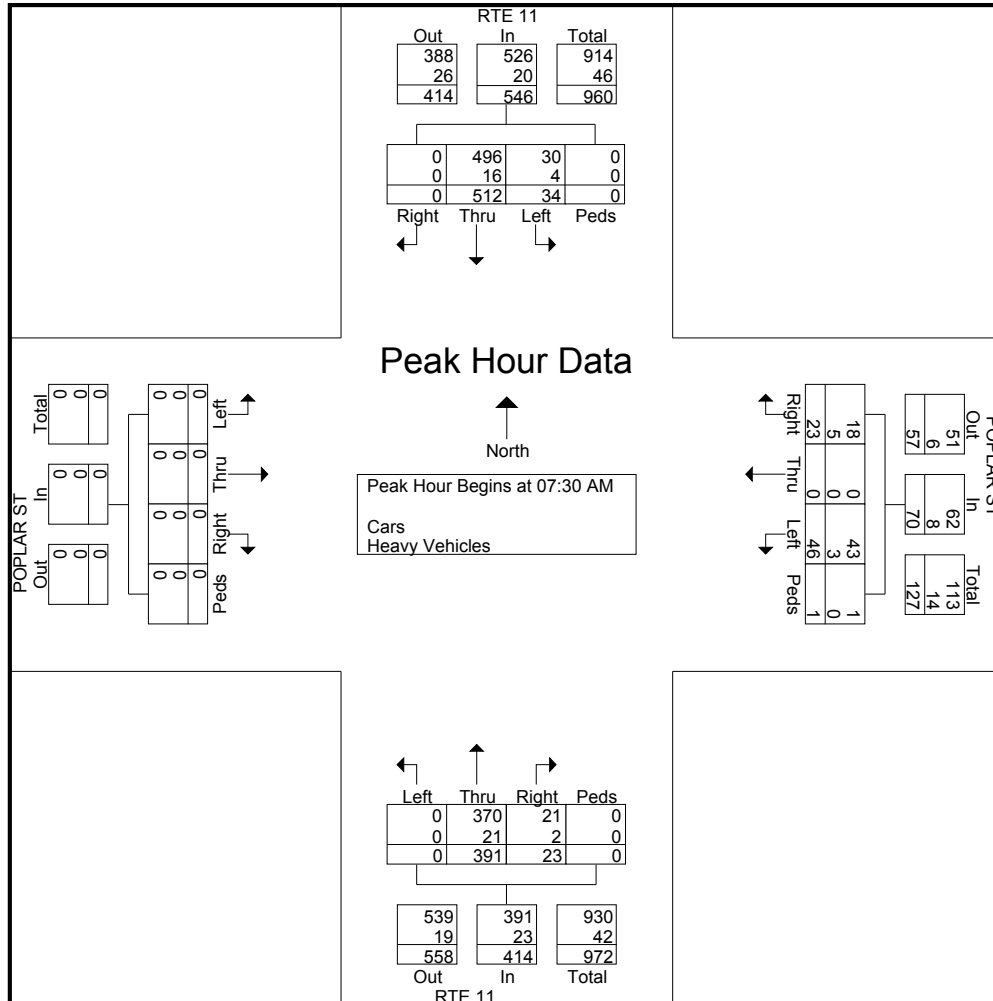
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Location: Columbia County, PA
Intersection: Poplar St/ US 11
Date: Wednesday, June, 11, 2008
Tech. RZ

File Name : SM0611-3
Site Code : 00000000
Start Date : 6/11/2008
Page No : 3

	RTE 11 Southbound					POPLAR ST Westbound					RTE 11 Northbound					POPLAR ST Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	0	146	9	0	155	6	0	3	1	10	9	107	0	0	116	0	0	0	0	0	281
07:45 AM	0	115	12	0	127	3	0	10	0	13	7	115	0	0	122	0	0	0	0	0	262
08:00 AM	0	133	9	0	142	5	0	20	0	25	4	72	0	0	76	0	0	0	0	0	243
08:15 AM	0	118	4	0	122	9	0	13	0	22	3	97	0	0	100	0	0	0	0	0	244
Total Volume	0	512	34	0	546	23	0	46	1	70	23	391	0	0	414	0	0	0	0	0	1030
% App. Total	0	93.8	6.2	0		32.9	0	65.7	1.4		5.6	94.4	0	0		0	0	0	0		
PHF	.000	.877	.708	.000	.881	.639	.000	.575	.250	.700	.639	.850	.000	.000	.848	.000	.000	.000	.000	.000	.916
Cars	0	496	30	0	526	18	0	43	1	62	21	370	0	0	391	0	0	0	0	0	979
% Cars	0	96.9	88.2	0	96.3	78.3	0	93.5	100	88.6	91.3	94.6	0	0	94.4	0	0	0	0	0	95.0
Heavy Vehicles																					
% Heavy Vehicles	0	3.1	11.8	0	3.7	21.7	0	6.5	0	11.4	8.7	5.4	0	0	5.6	0	0	0	0	0	5.0



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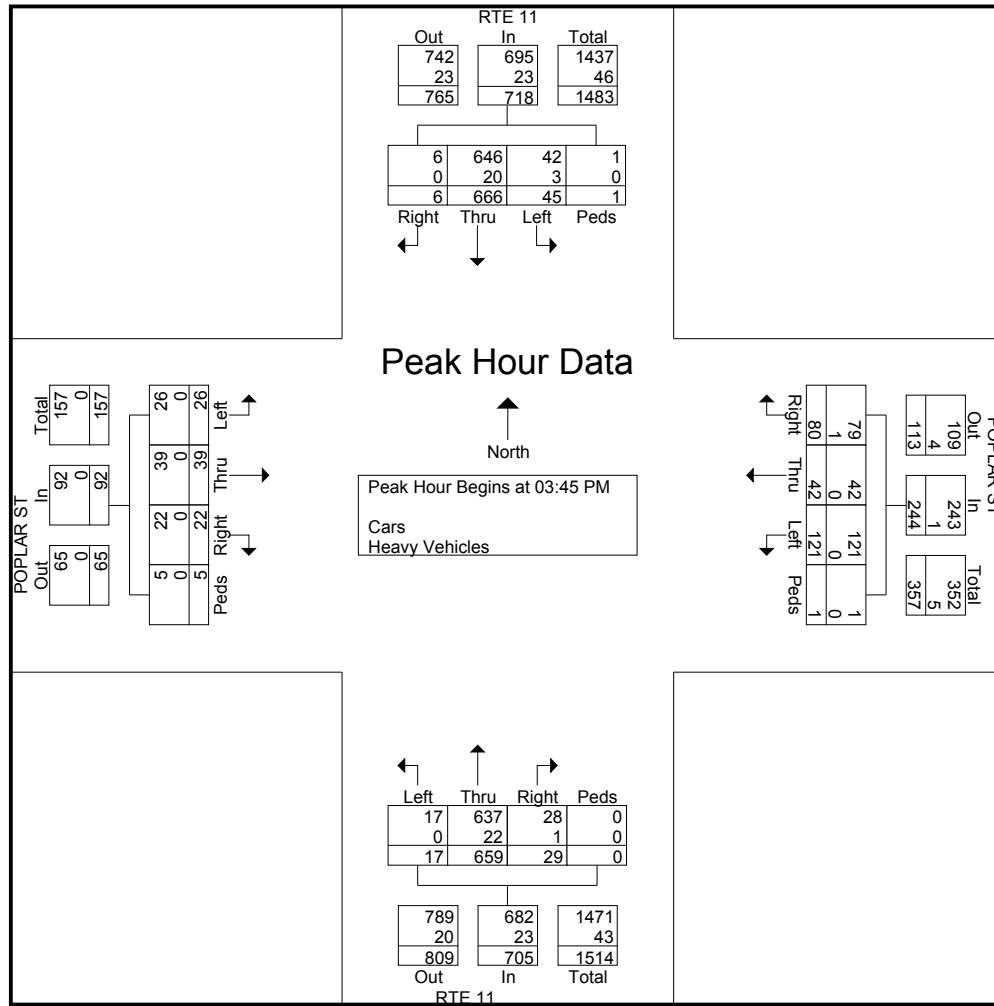
Tri-State Traffic Data, Inc.

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Location: Columbia County, PA
Intersection: Poplar St/ US 11
Date: Wednesday, June, 11, 2008
Tech. RZ

File Name : SM0611-3
Site Code : 00000000
Start Date : 6/11/2008
Page No : 4

	RTE 11 Southbound					POPLAR ST Westbound					RTE 11 Northbound					POPLAR ST Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 03:45 PM																					
03:45 PM	0	169	15	0	184	17	7	23	1	48	9	176	2	0	187	9	11	8	3	31	450
04:00 PM	4	140	7	1	152	17	10	44	0	71	6	136	7	0	149	3	10	6	2	21	393
04:15 PM	2	153	15	0	170	24	9	27	0	60	7	155	2	0	164	4	11	8	0	23	417
04:30 PM	0	204	8	0	212	22	16	27	0	65	7	192	6	0	205	6	7	4	0	17	499
Total Volume	6	666	45	1	718	80	42	121	1	244	29	659	17	0	705	22	39	26	5	92	1759
% App. Total	0.8	92.8	6.3	0.1		32.8	17.2	49.6	0.4		4.1	93.5	2.4	0		23.9	42.4	28.3	5.4		
PHF	.375	.816	.750	.250	.847	.833	.656	.688	.250	.859	.806	.858	.607	.000	.860	.611	.886	.813	.417	.742	.881
Cars	6	646	42	1	695	79	42	121	1	243	28	637	17	0	682	22	39	26	5	92	1712
% Cars	100	97.0	93.3	100	96.8	98.8	100	100	100	99.6	96.6	96.7	100	0	96.7	100	100	100	100	100	97.3
Heavy Vehicles																					
% Heavy Vehicles	0	3.0	6.7	0	3.2	1.3	0	0	0	0.4	3.4	3.3	0	0	3.3	0	0	0	0	0	2.7



Tri-State Traffic Data, Inc.

610-466-1469
www.TSTData.com

Location: Columbia County, PA
Intersection: Front St./ Orchard St.
Date: Wednesday: April 14, 2010
Counter: Ji

File Name : SM0414-3
Site Code : 00000000
Start Date : 4/14/2010
Page No : 1

Groups Printed- Car - Heavy Vehicles - RTOR

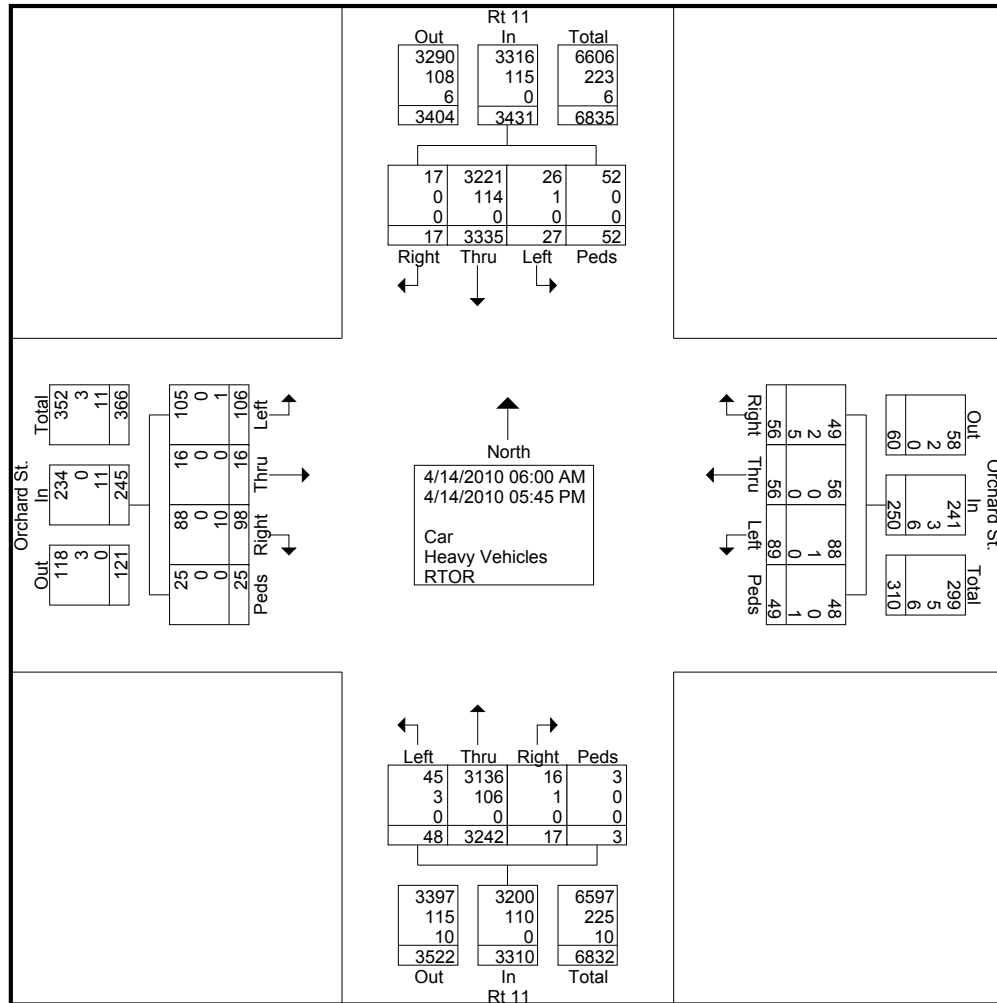
Start Time	Rt 11 Southbound					Orchard St. Westbound					Rt 11 Northbound					Orchard St. Eastbound					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
06:00 AM	1	52	0	0	53	0	1	2	0	3	0	50	1	0	51	1	0	1	2	4	111
06:15 AM	0	70	0	0	70	1	0	2	1	4	0	77	0	0	77	4	0	0	2	6	157
06:30 AM	0	99	0	1	100	1	0	1	1	3	1	101	0	0	102	3	0	0	0	3	208
06:45 AM	0	102	0	0	102	0	0	0	2	2	0	98	1	0	99	1	1	1	1	4	207
Total	1	323	0	1	325	2	1	5	4	12	1	326	2	0	329	9	1	2	5	17	683
07:00 AM	0	95	2	0	97	3	0	2	0	5	0	102	0	0	102	1	1	5	1	8	212
07:15 AM	0	137	1	0	138	2	2	2	1	7	0	118	1	2	121	3	0	4	0	7	273
07:30 AM	0	144	1	1	146	0	0	7	0	7	0	127	1	0	128	5	0	3	0	8	289
07:45 AM	2	172	4	5	183	0	1	2	3	6	0	107	2	0	109	4	0	1	1	6	304
Total	2	548	8	6	564	5	3	13	4	25	0	454	4	2	460	13	1	13	2	29	1078
08:00 AM	0	120	0	4	124	2	4	4	4	14	1	111	2	0	114	2	0	8	0	10	262
08:15 AM	1	127	1	5	134	3	6	6	0	15	0	122	4	0	126	6	2	11	0	19	294
08:30 AM	1	162	0	0	163	0	3	5	0	8	0	115	3	1	119	1	0	5	1	7	297
08:45 AM	2	114	2	0	118	1	3	2	0	6	0	82	1	0	83	0	1	1	0	2	209
Total	4	523	3	9	539	6	16	17	4	43	1	430	10	1	442	9	3	25	1	38	1062
03:00 PM	2	176	0	2	180	1	1	2	7	11	2	150	0	0	152	6	1	4	0	11	354
03:15 PM	0	171	2	18	191	1	4	3	1	9	2	149	3	0	154	7	1	9	0	17	371
03:30 PM	2	185	2	3	192	2	1	1	2	6	3	185	3	0	191	12	2	5	0	19	408
03:45 PM	0	178	1	1	180	1	7	4	1	13	1	168	1	0	170	11	2	7	0	20	383
Total	4	710	5	24	743	5	13	10	11	39	8	652	7	0	667	36	6	25	0	67	1516
04:00 PM	0	149	1	2	152	15	6	10	1	32	0	173	4	0	177	5	4	5	2	16	377
04:15 PM	1	154	1	0	156	2	1	1	4	8	0	162	4	0	166	6	1	7	3	17	347
04:30 PM	0	159	1	0	160	7	9	11	3	30	0	178	4	0	182	7	0	10	2	19	391
04:45 PM	3	155	2	5	165	4	3	5	10	22	3	161	1	0	165	2	0	3	0	5	357
Total	4	617	5	7	633	28	19	27	18	92	3	674	13	0	690	20	5	25	7	57	1472
05:00 PM	1	164	4	0	169	1	1	7	0	9	2	194	1	0	197	3	0	6	2	11	386
05:15 PM	0	152	1	2	155	3	0	2	1	6	0	183	3	0	186	3	0	5	2	10	357
05:30 PM	0	146	1	0	147	4	1	6	3	14	1	174	4	0	179	1	0	4	0	5	345
05:45 PM	1	152	0	3	156	2	2	2	4	10	1	155	4	0	160	4	0	1	6	11	337
Total	2	614	6	5	627	10	4	17	8	39	4	706	12	0	722	11	0	16	10	37	1425
Grand Total	17	3335	27	52	3431	56	56	89	49	250	17	3242	48	3	3310	98	16	106	25	245	7236
Apprch %	0.5	97.2	0.8	1.5		22.4	22.4	35.6	19.6		0.5	97.9	1.5	0.1		40	6.5	43.3	10.2		
Total %	0.2	46.1	0.4	0.7	47.4	0.8	0.8	1.2	0.7	3.5	0.2	44.8	0.7	0	45.7	1.4	0.2	1.5	0.3	3.4	
Car	17	3221									3136										
% Car	100	96.6	96.3	100	96.6	87.5	100	98.9	98	96.4	94.1	96.7	93.8	100	96.7	89.8	100	99.1	100	95.5	96.6
Heavy Vehicles																					
% Heavy Vehicles	0	3.4	3.7	0	3.4	3.6	0	1.1	0	1.2	5.9	3.3	6.2	0	3.3	0	0	0	0	0	3.2
RTOR	0	0	0	0	0	5	0	0	1	6	0	0	0	0	0	10	0	1	0	11	17
% RTOR	0	0	0	0	0	8.9	0	0	2	2.4	0	0	0	0	0	10.2	0	0.9	0	4.5	0.2

Tri-State Traffic Data, Inc.

610-466-1469
www.TSTData.com

Location: Columbia County, PA
Intersection: Front St./ Orchard St.
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File Name : SM0414-3
Site Code : 00000000
Start Date : 4/14/2010
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Tri-State Traffic Data, Inc.

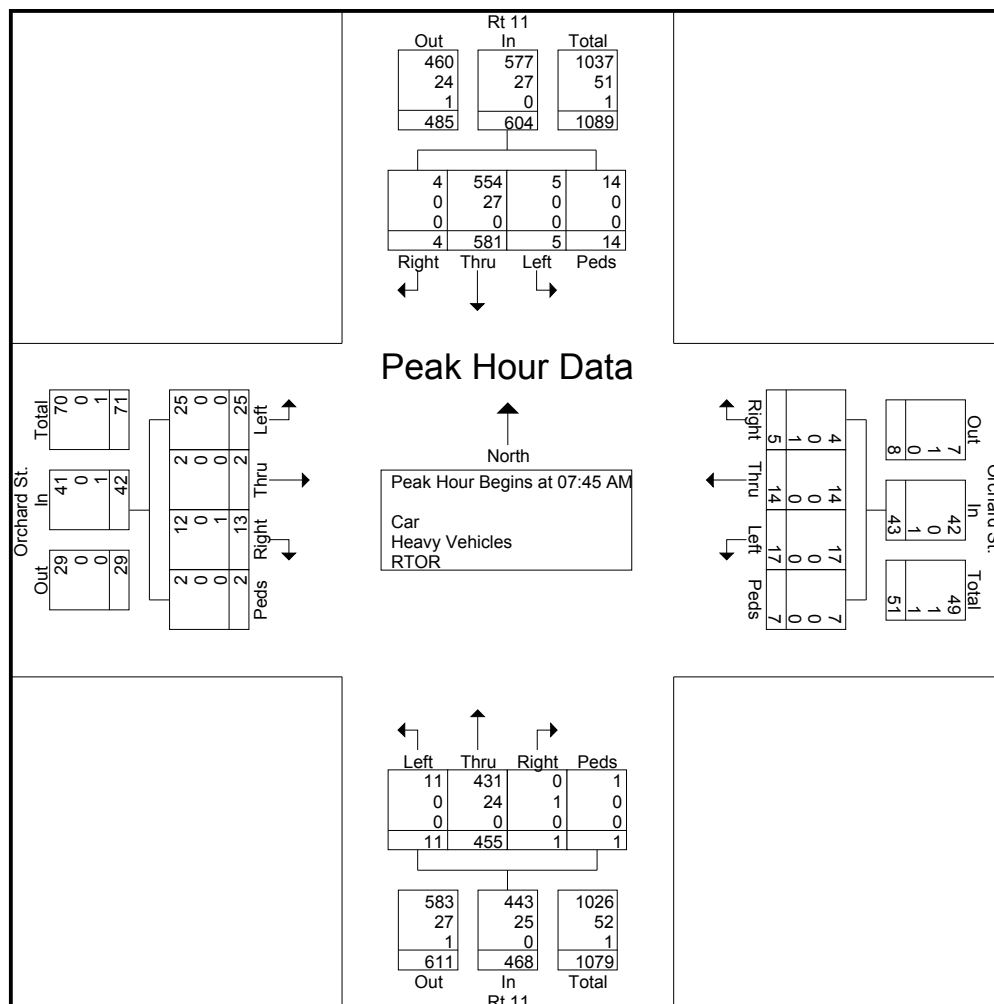
610-466-1469

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Location: Columbia County, PA
 Intersection: Front St./ Orchard St.
 Date: Wednesday: April 14, 2010
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File Name : SM0414-3
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 Start Date : 4/14/2010
 Page No : 3

	Rt 11 Southbound					Orchard St. Westbound					Rt 11 Northbound					Orchard St. Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	2	172	4	5	183	0	1	2	3	6	0	107	2	0	109	4	0	1	1	6	304
08:00 AM	0	120	0	4	124	2	4	4	4	14	1	111	2	0	114	2	0	8	0	10	262
08:15 AM	1	127	1	5	134	3	6	6	0	15	0	122	4	0	126	6	2	11	0	19	294
08:30 AM	1	162	0	0	163	0	3	5	0	8	0	115	3	1	119	1	0	5	1	7	297
Total Volume	4	581	5	14	604	5	14	17	7	43	1	455	11	1	468	13	2	25	2	42	1157
% App. Total	0.7	96.2	0.8	2.3		11.6	32.6	39.5	16.3		0.2	97.2	2.4	0.2		31	4.8	59.5	4.8		
PHF	.500	.844	.313	.700	.825	.417	.583	.708	.438	.717	.250	.932	.688	.250	.929	.542	.250	.568	.500	.553	.951
Car	4	554	5	14	577	4	14	17	7	42	0	431	11	1	443	12	2	25	2	41	1103
% Car	100	95.4	100	100	95.5	80.0	100	100	100	97.7	0	94.7	100	100	94.7	92.3	100	100	100	97.6	95.3
Heavy Vehicles																					
% Heavy Vehicles	0	4.6	0	0	4.5	0	0	0	0	0	100	5.3	0	0	5.3	0	0	0	0	0	4.5
RTOR	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1	0	0	0	1	2
% RTOR	0	0	0	0	0	20.0	0	0	0	2.3	0	0	0	0	0	7.7	0	0	0	2.4	0.2



Tri-State Traffic Data, Inc.

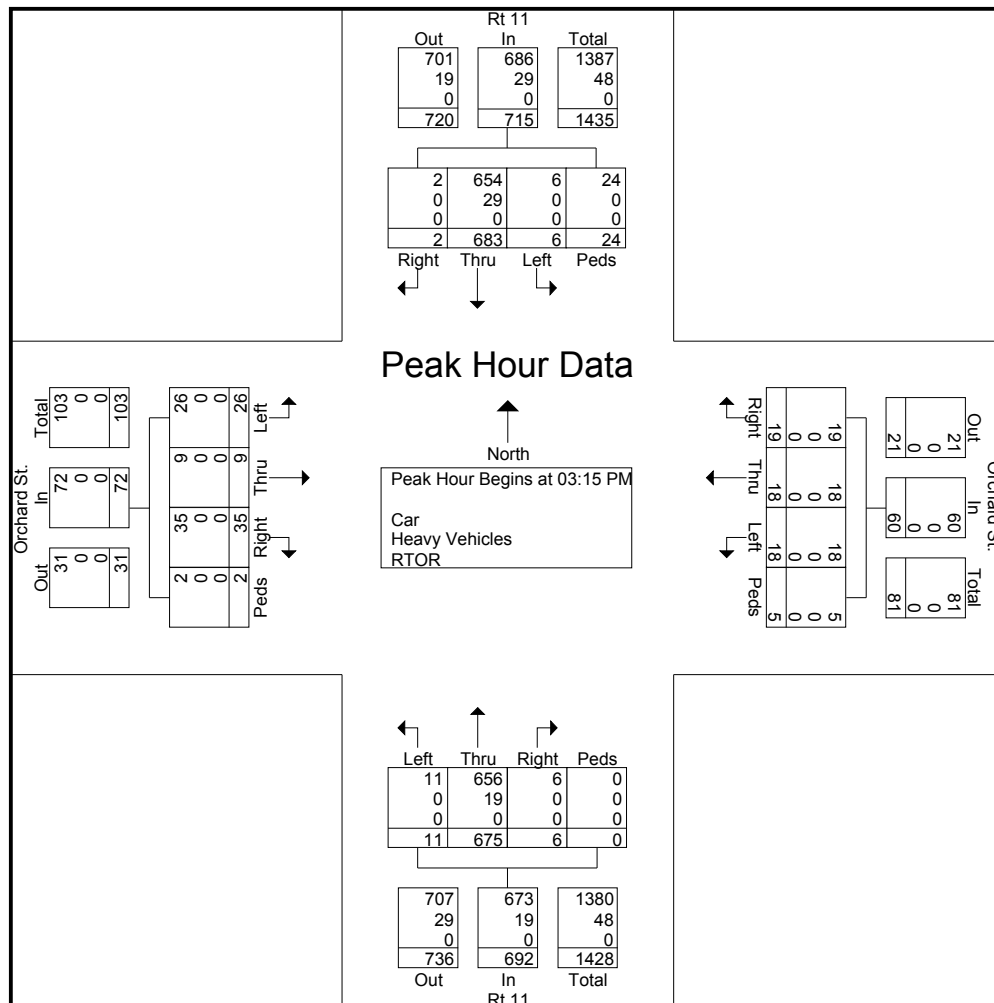
610-466-1469

www.TSTData.com

Location: Columbia County, PA
 Intersection: Front St./ Orchard St.
 Date: Wednesday: April 14, 2010
 Counter: Ji

File Name : SM0414-3
 Site Code : 00000000
 Start Date : 4/14/2010
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	Rt 11 Southbound					Orchard St. Westbound					Rt 11 Northbound					Orchard St. Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 03:15 PM																					
03:15 PM	0	171	2	18	191	1	4	3	1	9	2	149	3	0	154	7	1	9	0	17	371
03:30 PM	2	185	2	3	192	2	1	1	2	6	3	185	3	0	191	12	2	5	0	19	408
03:45 PM	0	178	1	1	180	1	7	4	1	13	1	168	1	0	170	11	2	7	0	20	383
04:00 PM	0	149	1	2	152	15	6	10	1	32	0	173	4	0	177	5	4	5	2	16	377
Total Volume	2	683	6	24	715	19	18	18	5	60	6	675	11	0	692	35	9	26	2	72	1539
% App. Total	0.3	95.5	0.8	3.4		31.7	30	30	8.3		0.9	97.5	1.6	0		48.6	12.5	36.1	2.8		
PHF	.250	.923	.750	.333	.931	.317	.643	.450	.625	.469	.500	.912	.688	.000	.906	.729	.563	.722	.250	.900	.943
Car	2	654	6	24	686	19	18	18	5	60	6	656	11	0	673	35	9	26	2	72	1491
% Car	100	95.8	100	100	95.9	100	100	100	100	100	100	97.2	100	0	97.3	100	100	100	100	100	96.9
Heavy Vehicles																					
% Heavy Vehicles	0	4.2	0	0	4.1	0	0	0	0	0	0	2.8	0	0	2.7	0	0	0	0	0	3.1
RTOR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% RTOR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



Tri-State Traffic Data, Inc.

610-466-1469
www.TSTData.comLocation: Columbia County, PA
Intersection: US 11 / Orange St.
Date: Thursday, June 12, 2008
Counter: JIFile Name : SM0612-4A
Site Code : 00000000
Start Date : 6/12/2008
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Groups Printed- Cars - Heavy Vehicles

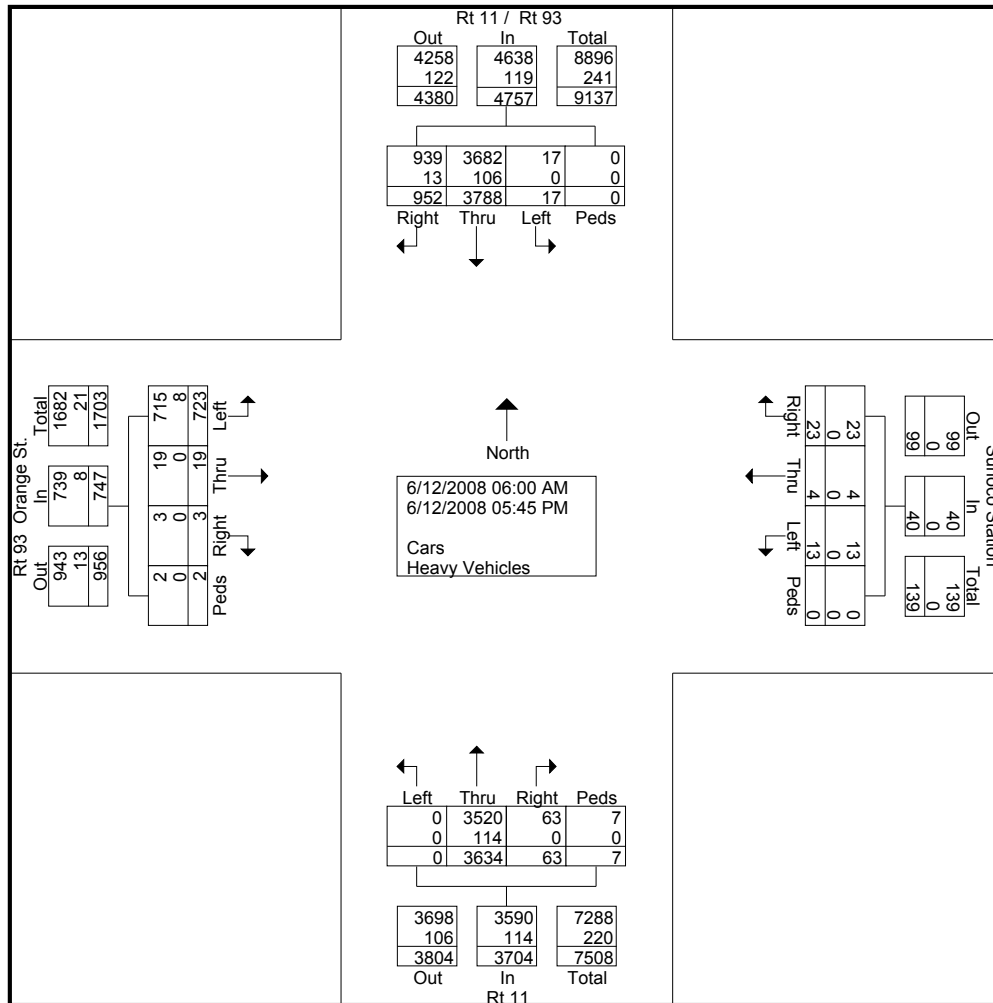
Start Time	Rt 11 / Rt 93 Southbound					Sunoco Station Westbound					Rt 11 Northbound					Rt 93 Orange St. Eastbound					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
06:00 AM	8	70	0	0	78	0	0	0	0	0	2	89	0	0	91	0	0	11	0	11	180
06:15 AM	10	90	1	0	101	0	0	0	0	0	2	86	0	0	88	0	1	14	0	15	204
06:30 AM	9	117	0	0	126	1	0	0	0	1	4	109	0	0	113	0	0	18	0	18	258
06:45 AM	14	88	3	0	105	3	0	2	0	5	3	78	0	0	81	0	2	18	0	20	211
Total	41	365	4	0	410	4	0	2	0	6	11	362	0	0	373	0	3	61	0	64	853
07:00 AM	19	98	0	0	117	0	0	0	0	0	3	77	0	0	80	0	0	16	0	16	213
07:15 AM	15	103	0	0	118	1	0	1	0	2	1	98	0	0	99	0	2	28	0	30	249
07:30 AM	15	148	1	0	164	0	2	0	0	2	2	83	0	0	85	0	1	18	0	19	270
07:45 AM	27	164	0	0	191	0	0	2	0	2	1	91	0	0	92	0	0	12	0	12	297
Total	76	513	1	0	590	1	2	3	0	6	7	349	0	0	356	0	3	74	0	77	1029
08:00 AM	16	108	0	0	124	0	0	0	0	0	2	108	0	0	110	0	0	18	0	18	252
08:15 AM	20	131	2	0	153	1	0	1	0	2	1	111	0	0	112	0	1	28	0	29	296
08:30 AM	20	116	0	0	136	1	1	0	0	2	2	105	0	2	109	1	3	20	1	25	272
08:45 AM	31	109	2	0	142	2	0	1	0	3	3	121	0	0	124	0	2	20	0	22	291
Total	87	464	4	0	555	4	1	2	0	7	8	445	0	2	455	1	6	86	1	94	1111
02:30 PM	41	166	0	0	207	0	1	0	0	1	0	162	0	0	162	0	1	29	0	30	400
02:45 PM	43	137	2	0	182	1	0	1	0	2	3	151	0	0	154	1	1	28	0	30	368
Total	84	303	2	0	389	1	1	1	0	3	3	313	0	0	316	1	2	57	0	60	768
03:00 PM	52	204	3	0	259	1	0	2	0	3	4	178	0	0	182	0	0	22	0	22	466
03:15 PM	52	200	0	0	252	0	0	0	0	0	2	176	0	2	180	0	1	37	0	38	470
03:30 PM	73	180	0	0	253	0	0	0	0	0	1	185	0	0	186	0	1	34	0	35	474
03:45 PM	49	168	0	0	217	5	0	0	0	5	7	190	0	0	197	0	0	43	0	43	462
Total	226	752	3	0	981	6	0	2	0	8	14	729	0	2	745	0	2	136	0	138	1872
04:00 PM	67	173	1	0	241	3	0	0	0	3	7	183	0	0	190	1	1	29	0	31	465
04:15 PM	59	184	1	0	244	0	0	1	0	1	2	160	0	0	162	0	1	48	1	50	457
04:30 PM	66	214	0	0	280	0	0	0	0	0	1	214	0	3	218	0	0	40	0	40	538
04:45 PM	54	174	0	0	228	1	0	1	0	2	5	177	0	0	182	0	0	31	0	31	443
Total	246	745	2	0	993	4	0	2	0	6	15	734	0	3	752	1	2	148	1	152	1903
05:00 PM	64	166	1	0	231	0	0	0	0	0	5	215	0	0	220	0	0	33	0	33	484
05:15 PM	47	162	0	0	209	2	0	0	0	2	0	169	0	0	169	0	0	47	0	47	427
05:30 PM	42	164	0	0	206	0	0	0	0	0	0	163	0	0	163	0	0	42	0	42	411
05:45 PM	39	154	0	0	193	1	0	1	0	2	0	155	0	0	155	0	1	39	0	40	390
Total	192	646	1	0	839	3	0	1	0	4	5	702	0	0	707	0	1	161	0	162	1712
Grand Total	952	3788	17	0	4757	23	4	13	0	40	63	3634	0	7	3704	3	19	723	2	747	9248
Apprch %	20	79.6	0.4	0		57.5	10	32.5	0		1.7	98.1	0	0.2		0.4	2.5	96.8	0.3		
Total %	10.3	41	0.2	0	51.4	0.2	0	0.1	0	0.4	0.7	39.3	0	0.1	40.1	0	0.2	7.8	0	8.1	
Cars	939	3682									3520										
% Cars	98.6	97.2	100	0	97.5	100	100	100	0	100	100	96.9	0	100	96.9	100	100	98.9	100	98.9	97.4
Heavy Vehicles																					
% Heavy Vehicles	1.4	2.8	0	0	2.5	0	0	0	0	0	0	3.1	0	0	3.1	0	0	1.1	0	1.1	2.6

Tri-State Traffic Data, Inc.

610-466-1469
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Location: Columbia County, PA
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File Name : SM0612-4A
Site Code : 00000000
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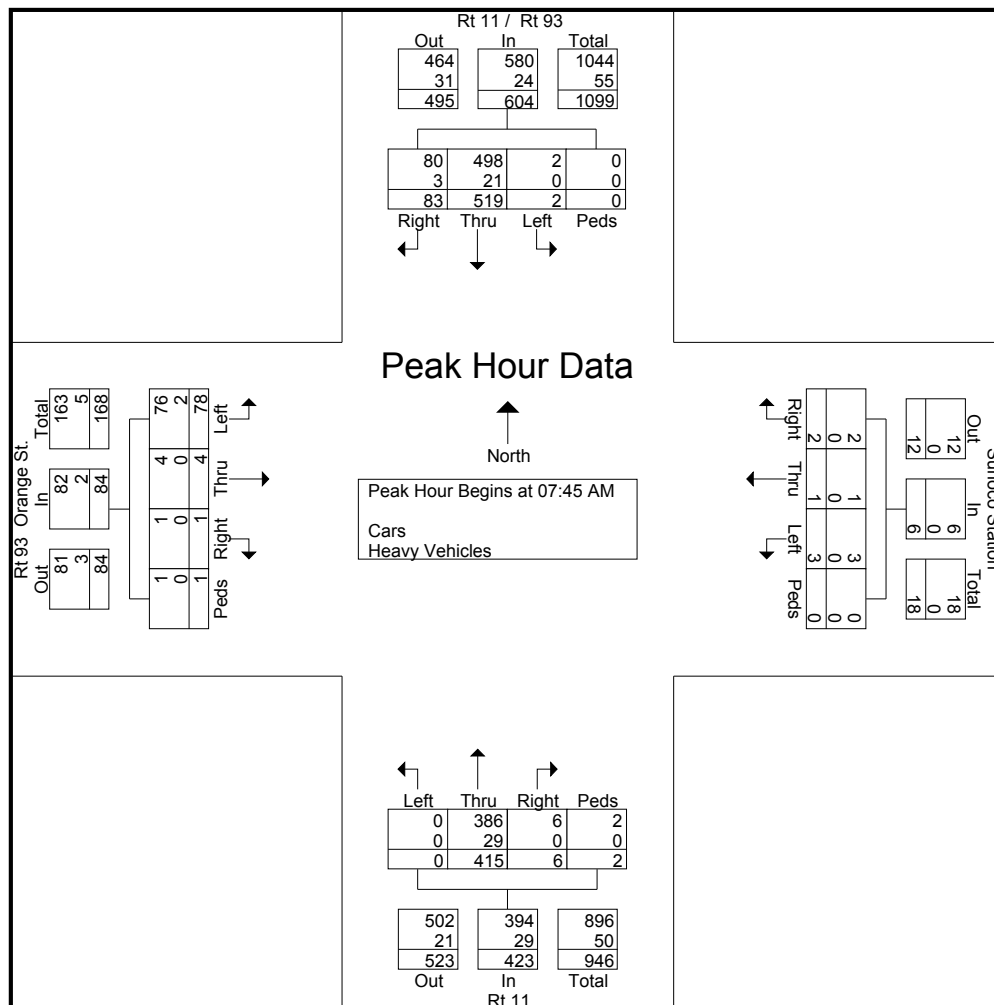
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	Rt 11 / Rt 93 Southbound					Sunoco Station Westbound					Rt 11 Northbound					Rt 93 Orange St. Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	27	164	0	0	191	0	0	2	0	2	1	91	0	0	92	0	0	12	0	12	297
08:00 AM	16	108	0	0	124	0	0	0	0	0	2	108	0	0	110	0	0	18	0	18	252
08:15 AM	20	131	2	0	153	1	0	1	0	2	1	111	0	0	112	0	1	28	0	29	296
08:30 AM	20	116	0	0	136	1	1	0	0	2	2	105	0	2	109	1	3	20	1	25	272
Total Volume	83	519	2	0	604	2	1	3	0	6	6	415	0	2	423	1	4	78	1	84	1117
% App. Total	13.7	85.9	0.3	0		33.3	16.7	50	0		1.4	98.1	0	0.5		1.2	4.8	92.9	1.2		
PHF	.769	.791	.250	.000	.791	.500	.250	.375	.000	.750	.750	.935	.000	.250	.944	.250	.333	.696	.250	.724	.940
Cars	80	498	2	0	580	2	1	3	0	6	6	386	0	2	394	1	4	76	1	82	1062
% Cars	96.4	96.0	100	0	96.0	100	100	100	0	100	100	93.0	0	100	93.1	100	100	97.4	100	97.6	95.1
Heavy Vehicles																					
% Heavy Vehicles	3.6	4.0	0	0	4.0	0	0	0	0	0	0	7.0	0	0	6.9	0	0	2.6	0	2.4	4.9



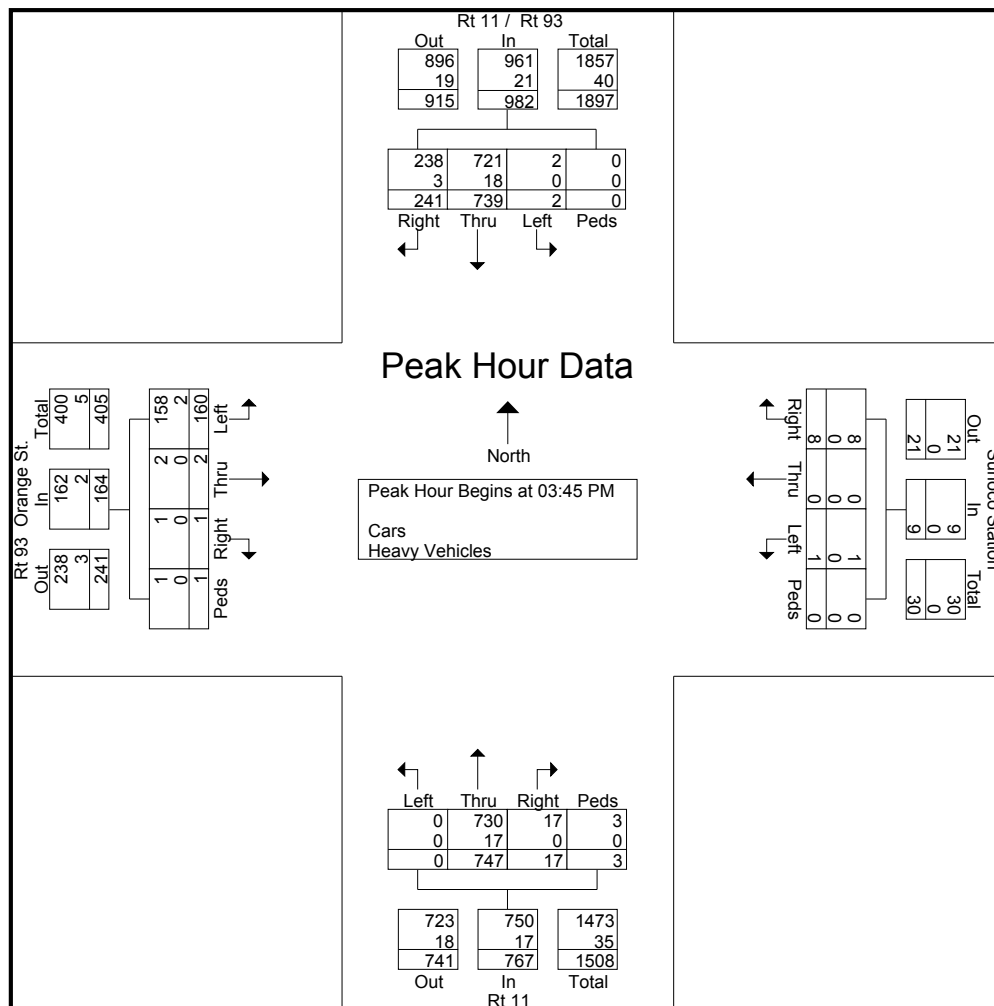
Tri-State Traffic Data, Inc.

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File Name : SM0612-4A
Site Code : 00000000
Start Date : 6/12/2008
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	Rt 11 / Rt 93 Southbound					Sunoco Station Westbound					Rt 11 Northbound					Rt 93 Orange St. Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 03:45 PM																					
03:45 PM	49	168	0	0	217	5	0	0	0	5	7	190	0	0	197	0	0	43	0	43	462
04:00 PM	67	173	1	0	241	3	0	0	0	3	7	183	0	0	190	1	1	29	0	31	465
04:15 PM	59	184	1	0	244	0	0	1	0	1	2	160	0	0	162	0	1	48	1	50	457
04:30 PM	66	214	0	0	280	0	0	0	0	0	1	214	0	3	218	0	0	40	0	40	538
Total Volume	241	739	2	0	982	8	0	1	0	9	17	747	0	3	767	1	2	160	1	164	1922
% App. Total	24.5	75.3	0.2	0		88.9	0	11.1	0		2.2	97.4	0	0.4		0.6	1.2	97.6	0.6		
PHF	.899	.863	.500	.000	.877	.400	.000	.250	.000	.450	.607	.873	.000	.250	.880	.250	.500	.833	.250	.820	.893
Cars	238	721	2	0	961	8	0	1	0	9	17	730	0	3	750	1	2	158	1	162	1882
% Cars	98.8	97.6	100	0	97.9	100	0	100	0	100	100	97.7	0	100	97.8	100	100	98.8	100	98.8	97.9
Heavy Vehicles																					
% Heavy Vehicles	1.2	2.4	0	0	2.1	0	0	0	0	0	0	2.3	0	0	2.2	0	0	1.3	0	1.2	2.1



Controlled Document

Tri-State Traffic Data, Inc.

610-466-1469
www.TSTData.com

Location: Columbia County, PA
Intersection: US 11 / Lasalle St
Date: Thursday, June 12 2008
Tech. RZ

File Name : SM0612-4C
Site Code : 00000000
Start Date : 6/12/2008
Page No : 1

Groups Printed- Cars - Heavy Vehicles - RTOR

Start Time	RTE 11 Southbound					RTE 11 Northbound					LASALLE ST Eastbound					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
06:00 AM	4	76	1	0	81	0	88	8	0	96	6	0	0	0	6	183
06:15 AM	0	86	0	0	86	0	101	9	0	110	8	0	0	0	8	204
06:30 AM	0	115	1	0	116	0	116	16	0	132	11	0	0	0	11	259
06:45 AM	2	106	0	0	108	0	83	20	0	103	4	0	0	0	4	215
Total	6	383	2	0	391	0	388	53	0	441	29	0	0	0	29	861
07:00 AM	1	99	0	0	100	0	89	9	0	98	14	0	0	0	14	212
07:15 AM	4	109	3	0	116	0	124	8	0	132	8	0	0	1	9	257
07:30 AM	3	149	2	0	154	0	96	11	0	107	20	0	0	0	20	281
07:45 AM	6	172	3	1	182	0	80	21	1	102	19	0	0	2	21	305
Total	14	529	8	1	552	0	389	49	1	439	61	0	0	3	64	1055
08:00 AM	9	117	2	1	129	0	126	9	0	135	11	0	0	0	11	275
08:15 AM	2	140	2	0	144	0	138	4	0	142	15	0	0	0	15	301
08:30 AM	4	115	0	0	119	0	118	6	1	125	10	0	0	2	12	256
08:45 AM	4	131	0	0	135	0	133	11	0	144	10	0	0	1	11	290
Total	19	503	4	1	527	0	515	30	1	546	46	0	0	3	49	1122
*** BREAK ***																
02:30 PM	8	180	1	0	189	0	184	19	0	203	26	0	0	0	26	418
02:45 PM	8	164	4	1	177	0	152	21	0	173	28	0	0	1	29	379
Total	16	344	5	1	366	0	336	40	0	376	54	0	0	1	55	797
03:00 PM	13	223	4	0	240	0	189	9	0	198	43	0	0	0	43	481
03:15 PM	7	218	1	3	229	0	204	16	1	221	31	0	0	2	33	483
03:30 PM	8	225	5	0	238	0	197	22	1	220	38	0	0	1	39	497
03:45 PM	10	187	3	2	202	0	221	20	0	241	30	0	0	0	30	473
Total	38	853	13	5	909	0	811	67	2	880	142	0	0	3	145	1934
04:00 PM	8	224	1	0	233	0	210	16	0	226	39	0	0	2	41	500
04:15 PM	11	223	7	1	242	0	188	17	0	205	21	0	0	1	22	469
04:30 PM	3	237	6	0	246	0	229	21	0	250	56	0	0	2	58	554
04:45 PM	7	195	1	4	207	0	193	22	0	215	24	0	0	1	25	447
Total	29	879	15	5	928	0	820	76	0	896	140	0	0	6	146	1970
05:00 PM	11	214	4	0	229	0	234	9	0	243	32	0	0	1	33	505
05:15 PM	5	180	6	0	191	0	214	33	0	247	30	1	0	2	33	471
Grand Total	138	3885	57	13	4093	0	3707	357	4	4068	534	1	0	19	554	8715
Apprch %	3.4	94.9	1.4	0.3		0	91.1	8.8	0.1		96.4	0.2	0	3.4		
Total %	1.6	44.6	0.7	0.1	47	0	42.5	4.1	0	46.7	6.1	0	0	0.2	6.4	
Cars	138	3797	57	13	4005	0	3616	357	4	3977	499	1	0	19	519	8501
% Cars	100	97.7	100	100	97.8	0	97.5	100	100	97.8	93.4	100	0	100	93.7	97.5
Heavy Vehicles	0	88	0	0	88	0	90	0	0	90	3	0	0	0	3	181
% Heavy Vehicles	0	2.3	0	0	2.2	0	2.4	0	0	2.2	0.6	0	0	0	0.5	2.1
RTOR	0	0	0	0	0	0	1	0	0	1	32	0	0	0	32	33
% RTOR	0	0	0	0	0	0	0	0	0	0	6	0	0	0	5.8	0.4

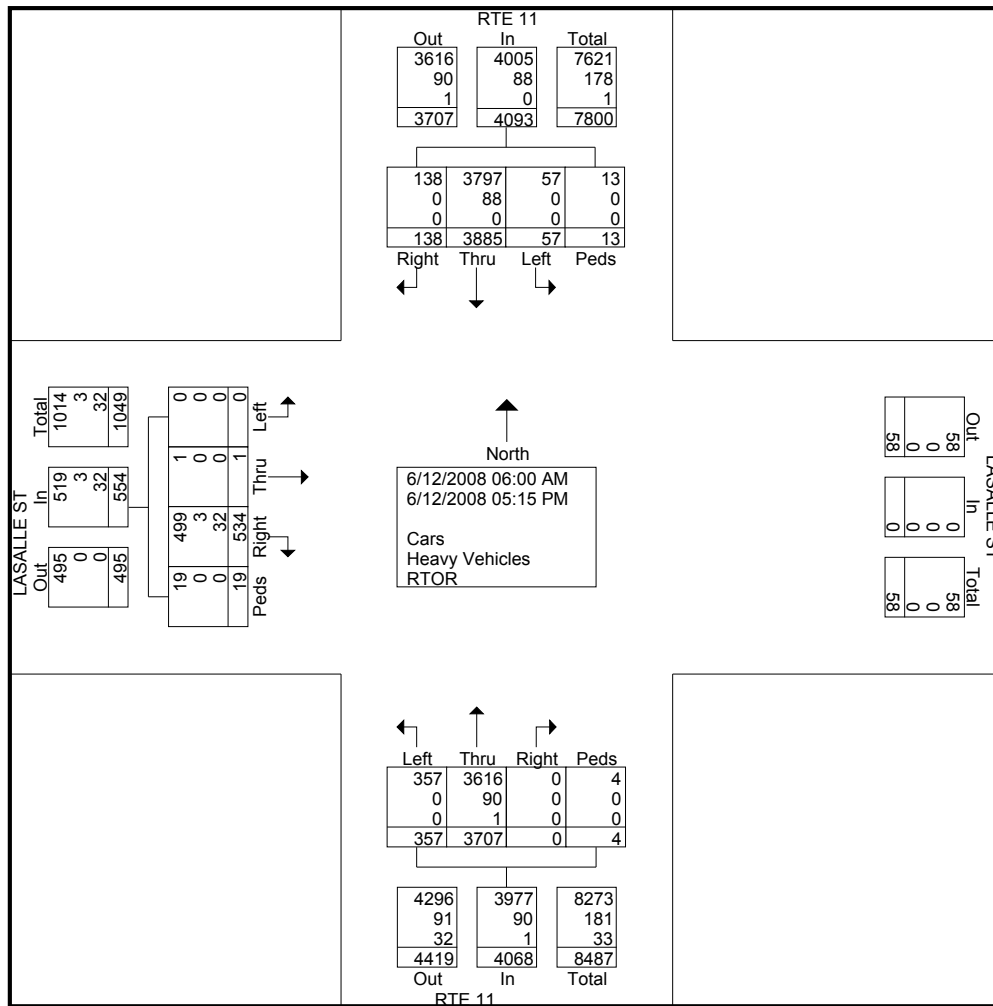
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Tri-State Traffic Data, Inc.

610-466-1469
www.TSTData.com

Location: Columbia County, PA
Intersection: US 11 / Lasalle St
Date: Thursday, June 12 2008
Tech. RZ

File Name : SM0612-4C
Site Code : 00000000
Start Date : 6/12/2008
Page No : 2



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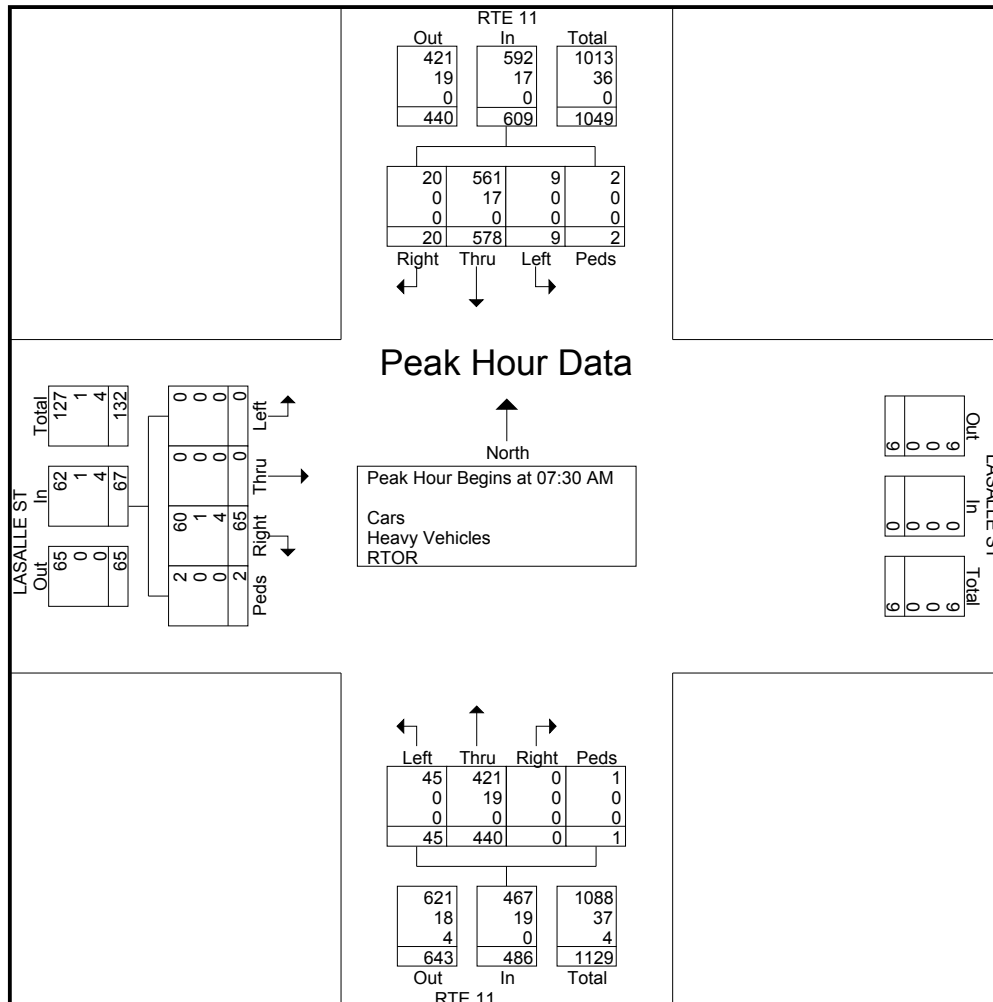
Tri-State Traffic Data, Inc.

610-466-1469
www.TSTData.com

Location: Columbia County, PA
Intersection: US 11 / Lasalle St
Date: Thursday, June 12 2008
Tech. RZ

File Name : SM0612-4C
Site Code : 00000000
Start Date : 6/12/2008
Page No : 3

	RTE 11 Southbound					RTE 11 Northbound					LASALLE ST Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1																
Peak Hour for Entire Intersection Begins at 07:30 AM																
07:30 AM	3	149	2	0	154	0	96	11	0	107	20	0	0	0	20	281
07:45 AM	6	172	3	1	182	0	80	21	1	102	19	0	0	2	21	305
08:00 AM	9	117	2	1	129	0	126	9	0	135	11	0	0	0	11	275
08:15 AM	2	140	2	0	144	0	138	4	0	142	15	0	0	0	15	301
Total Volume	20	578	9	2	609	0	440	45	1	486	65	0	0	2	67	1162
% App. Total	3.3	94.9	1.5	0.3		0	90.5	9.3	0.2		97	0	0	3		
PHF	.556	.840	.750	.500	.837	.000	.797	.536	.250	.856	.813	.000	.000	.250	.798	.952
Cars	20	561	9	2	592	0	421	45	1	467	60	0	0	2	62	1121
% Cars	100	97.1	100	100	97.2	0	95.7	100	100	96.1	92.3	0	0	100	92.5	96.5
Heavy Vehicles	0	17	0	0	17	0	19	0	0	19	1	0	0	0	1	37
% Heavy Vehicles	0	2.9	0	0	2.8	0	4.3	0	0	3.9	1.5	0	0	0	1.5	3.2
RTOR	0	0	0	0	0	0	0	0	0	0	4	0	0	0	4	4
% RTOR	0	0	0	0	0	0	0	0	0	0	6.2	0	0	0	6.0	0.3



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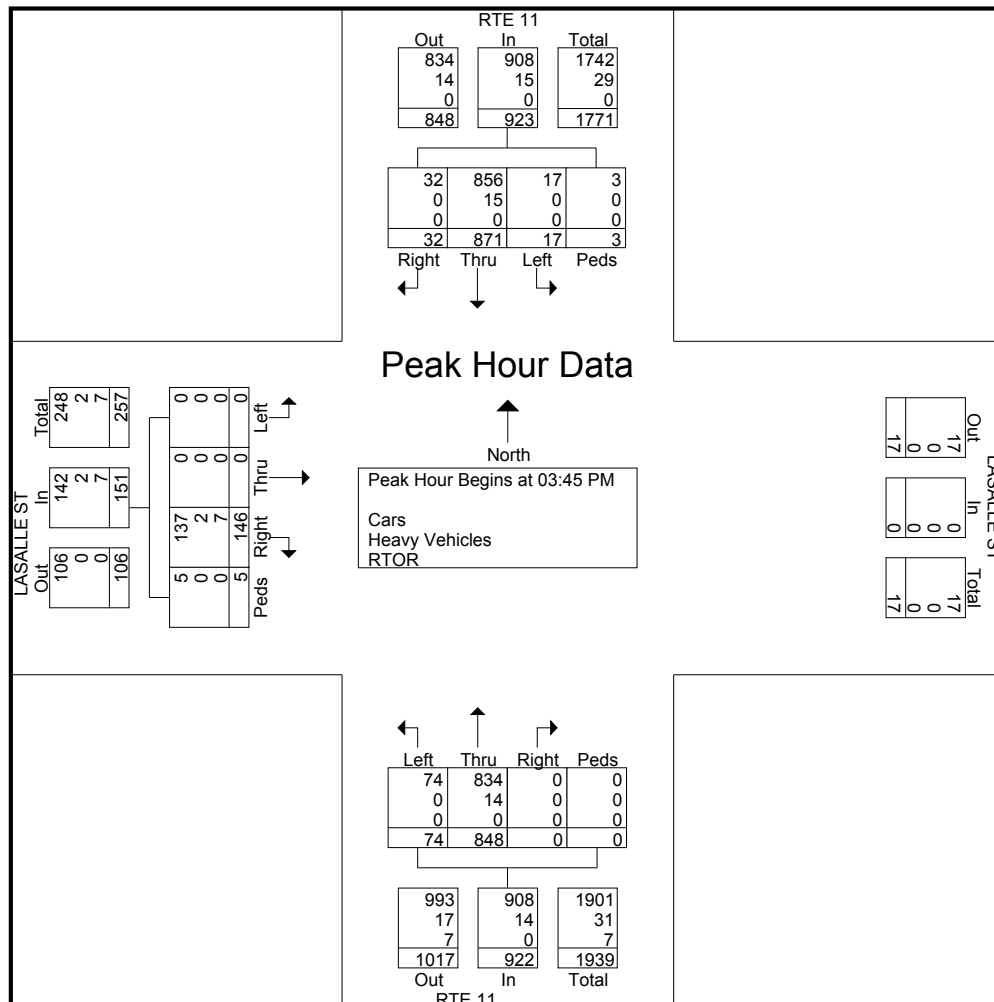
Tri-State Traffic Data, Inc.

610-466-1469
www.TSTData.com

Location: Columbia County, PA
Intersection: US 11 / Lasalle St
Date: Thursday, June 12 2008
Tech. RZ

File Name : SM0612-4C
Site Code : 00000000
Start Date : 6/12/2008
Page No : 4

	RTE 11 Southbound					RTE 11 Northbound					LASALLE ST Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:15 PM - Peak 1 of 1																
Peak Hour for Entire Intersection Begins at 03:45 PM																
03:45 PM	10	187	3	2	202	0	221	20	0	241	30	0	0	0	30	473
04:00 PM	8	224	1	0	233	0	210	16	0	226	39	0	0	2	41	500
04:15 PM	11	223	7	1	242	0	188	17	0	205	21	0	0	1	22	469
04:30 PM	3	237	6	0	246	0	229	21	0	250	56	0	0	2	58	554
Total Volume	32	871	17	3	923	0	848	74	0	922	146	0	0	5	151	1996
% App. Total	3.5	94.4	1.8	0.3		0	92	8	0		96.7	0	0	3.3		
PHF	.727	.919	.607	.375	.938	.000	.926	.881	.000	.922	.652	.000	.000	.625	.651	.901
Cars	32	856	17	3	908	0	834	74	0	908	137	0	0	5	142	1958
% Cars	100	98.3	100	100	98.4	0	98.3	100	0	98.5	93.8	0	0	100	94.0	98.1
Heavy Vehicles	0	15	0	0	15	0	14	0	0	14	2	0	0	0	2	31
% Heavy Vehicles	0	1.7	0	0	1.6	0	1.7	0	0	1.5	1.4	0	0	0	1.3	1.6
RTOR	0	0	0	0	0	0	0	0	0	0	7	0	0	0	7	7
% RTOR	0	0	0	0	0	0	0	0	0	0	4.8	0	0	0	4.6	0.4



Controlled Document

Tri-State Traffic Data, Inc.

610-466-1469
www.TSTData.com

Location: Columbia County, PA
Intersection: US 11 / Oak Street
Date: Wednesday, April 14, 2010
Counter: pb

File Name : SM0414-4
Site Code : 00000000
Start Date : 4/14/2010
Page No : 1

Groups Printed- Cars - Heavy Vehicles - RTOR

	Second St Southbound					OAK STREET Westbound					Second St Northbound					OAK STREET Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:00 AM	3	61	0	1	65	0	2	1	0	3	0	0	0	0	0	3	4	0	0	7	75
06:15 AM	7	76	0	0	83	0	0	1	0	1	1	0	0	0	1	3	0	0	0	3	88
06:30 AM	9	102	1	0	112	0	4	1	0	5	0	0	0	1	1	3	9	0	1	13	131
06:45 AM	11	128	1	0	140	0	5	0	0	5	0	0	0	0	0	7	3	0	0	10	155
Total	30	367	2	1	400	0	11	3	0	14	1	0	0	1	2	16	16	0	1	33	449
07:00 AM	3	132	3	0	138	0	7	2	0	9	0	0	0	0	0	7	6	0	0	13	160
07:15 AM	3	159	5	0	167	0	3	1	0	4	0	0	0	0	0	9	5	0	0	14	185
07:30 AM	5	202	8	0	215	0	2	2	0	4	0	0	0	0	0	8	6	0	0	14	233
07:45 AM	6	199	7	1	213	0	6	0	0	6	0	0	0	0	0	8	8	0	0	16	235
Total	17	692	23	1	733	0	18	5	0	23	0	0	0	0	0	32	25	0	0	57	813
08:00 AM	6	135	4	0	145	0	10	1	0	11	0	0	0	0	0	9	5	0	0	14	170
08:15 AM	3	161	3	3	170	0	10	4	0	14	0	0	0	0	0	10	12	0	2	24	208
08:30 AM	5	179	4	0	188	0	14	1	0	15	0	0	0	0	0	18	5	0	0	23	226
08:45 AM	1	137	11	0	149	0	9	0	0	9	0	0	0	1	1	14	10	0	0	24	183
Total	15	612	22	3	652	0	43	6	0	49	0	0	0	1	1	51	32	0	2	85	787
*** BREAK ***																					
03:00 PM	1	222	8	1	232	0	12	6	0	18	0	0	0	2	2	23	8	0	2	33	285
03:15 PM	5	233	14	1	253	0	12	8	0	20	0	0	0	5	5	15	16	0	3	34	312
03:30 PM	3	225	12	0	240	0	16	4	0	20	0	0	0	1	1	15	22	0	0	37	298
03:45 PM	3	181	15	2	201	0	6	3	1	10	0	0	0	3	3	13	14	0	1	28	242
Total	12	861	49	4	926	0	46	21	1	68	0	0	0	11	11	66	60	0	6	132	1137
04:00 PM	4	195	6	1	206	0	18	8	0	26	0	0	0	0	0	15	10	0	0	25	257
04:15 PM	4	207	8	0	219	0	15	2	1	18	0	0	0	1	1	10	3	0	3	16	254
04:30 PM	3	213	12	3	231	0	7	1	2	10	0	0	0	0	0	14	12	0	4	30	271
04:45 PM	1	218	8	4	231	0	11	4	1	16	0	0	0	0	0	13	7	0	2	22	269
Total	12	833	34	8	887	0	51	15	4	70	0	0	0	1	1	52	32	0	9	93	1051
05:00 PM	3	239	10	2	254	0	11	1	0	12	0	0	0	0	0	15	10	0	0	25	291
05:15 PM	4	185	11	1	201	0	8	1	0	9	0	0	0	2	2	9	4	0	1	14	226
05:30 PM	2	190	7	0	199	0	4	0	0	4	0	0	0	1	1	8	6	0	0	14	218
05:45 PM	2	189	5	1	197	0	11	4	0	15	0	0	0	1	1	18	13	0	0	31	244
Total	11	803	33	4	851	0	34	6	0	40	0	0	0	4	4	50	33	0	1	84	979
Grand Total	97	4168	163	21	4449	0	203	56	5	264	1	0	0	18	19	267	198	0	19	484	5216
Apprch %	2.2	93.7	3.7	0.5		0	76.9	21.2	1.9		5.3	0	0	94.7		55.2	40.9	0	3.9		
Total %	1.9	79.9	3.1	0.4	85.3	0	3.9	1.1	0.1	5.1	0	0	0	0.3	0.4	5.1	3.8	0	0.4	9.3	
Cars	87	4065	162	21	4335	0	187	56	5	248	1	0	0	18	19	214	188	0	19	421	5023
% Cars	89.7	97.5	99.4	100	97.4	0	92.1	100	100	93.9	100	0	0	100	100	80.1	94.9	0	100	87	96.3
Heavy Vehicles	8	103	1	0	112	0	16	0	0	16	0	0	0	0	0	18	9	0	0	27	155
% Heavy Vehicles	8.2	2.5	0.6	0	2.5	0	7.9	0	0	6.1	0	0	0	0	0	6.7	4.5	0	0	5.6	3
RTOR	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	35	1	0	0	36	38
% RTOR	2.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13.1	0.5	0	0	7.4	0.7

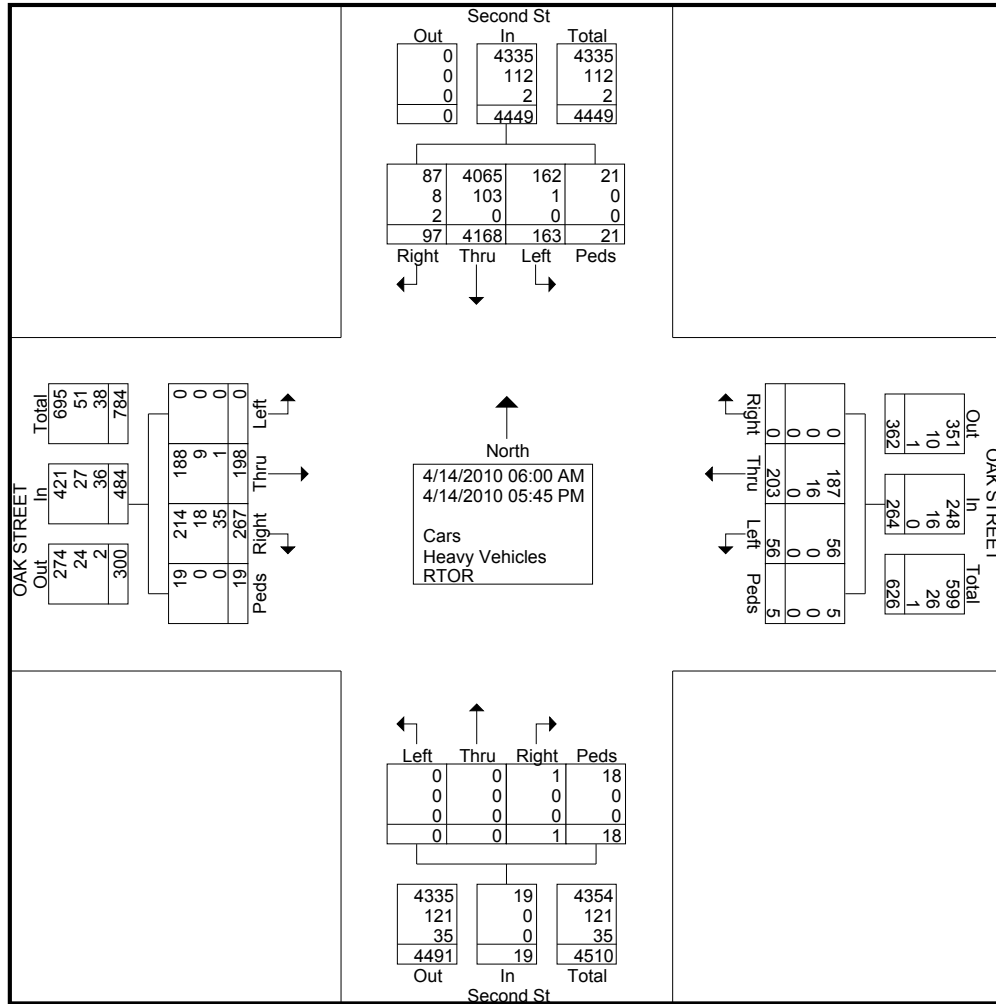
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Tri-State Traffic Data, Inc.

610-466-1469
www.TSTData.com

Location: Columbia County, PA
Intersection: US 11 / Oak Street
Date: Wednesday, April 14, 2010
Counter: pb

File Name : SM0414-4
Site Code : 00000000
Start Date : 4/14/2010
Page No : 2



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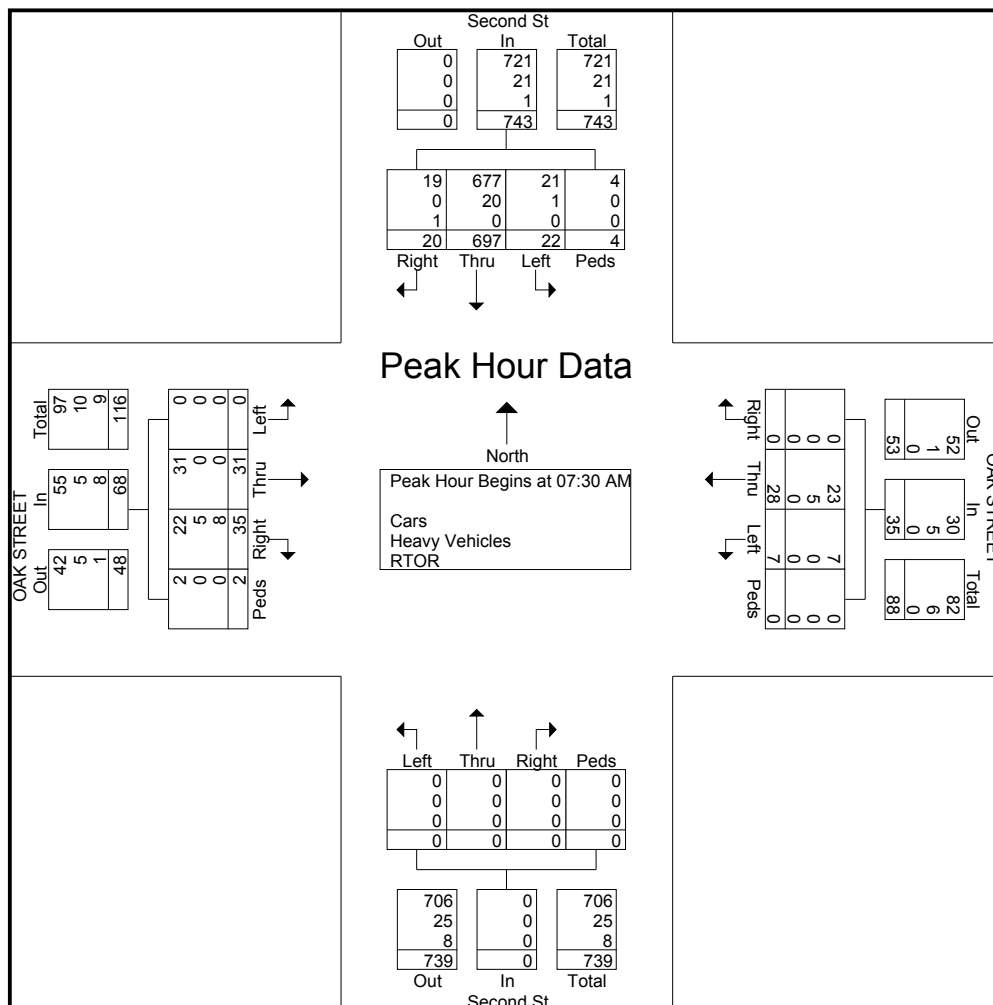
Tri-State Traffic Data, Inc.

610-466-1469
www.TSTData.com

Location: Columbia County, PA
Intersection: US 11 / Oak Street
Date: Wednesday, April 14, 2010
Counter: pb

File Name : SM0414-4
Site Code : 00000000
Start Date : 4/14/2010
Page No : 3

	Second St Southbound					OAK STREET Westbound					Second St Northbound					OAK STREET Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	5	202	8	0	215	0	2	2	0	4	0	0	0	0	0	8	6	0	0	14	233
07:45 AM	6	199	7	1	213	0	6	0	0	6	0	0	0	0	0	8	8	0	0	16	235
08:00 AM	6	135	4	0	145	0	10	1	0	11	0	0	0	0	0	9	5	0	0	14	170
08:15 AM	3	161	3	3	170	0	10	4	0	14	0	0	0	0	0	10	12	0	2	24	208
Total Volume	20	697	22	4	743	0	28	7	0	35	0	0	0	0	0	35	31	0	2	68	846
% App. Total	2.7	93.8	3	0.5		0	80	20	0		0	0	0	0		51.5	45.6	0	2.9		
PHF	.833	.863	.688	.333	.864	.000	.700	.438	.000	.625	.000	.000	.000	.000	.000	.875	.646	.000	.250	.708	.900
Cars	19	677	21	4	721	0	23	7	0	30	0	0	0	0	0	22	31	0	2	55	806
% Cars	95.0	97.1	95.5	100	97.0	0	82.1	100	0	85.7	0	0	0	0	0	62.9	100	0	100	80.9	95.3
Heavy Vehicles																					
% Heavy Vehicles	0	2.9	4.5	0	2.8	0	17.9	0	0	14.3	0	0	0	0	0	14.3	0	0	0	7.4	3.7
RTOR	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	8	0	0	0	8	9
% RTOR	5.0	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	22.9	0	0	0	11.8	1.1



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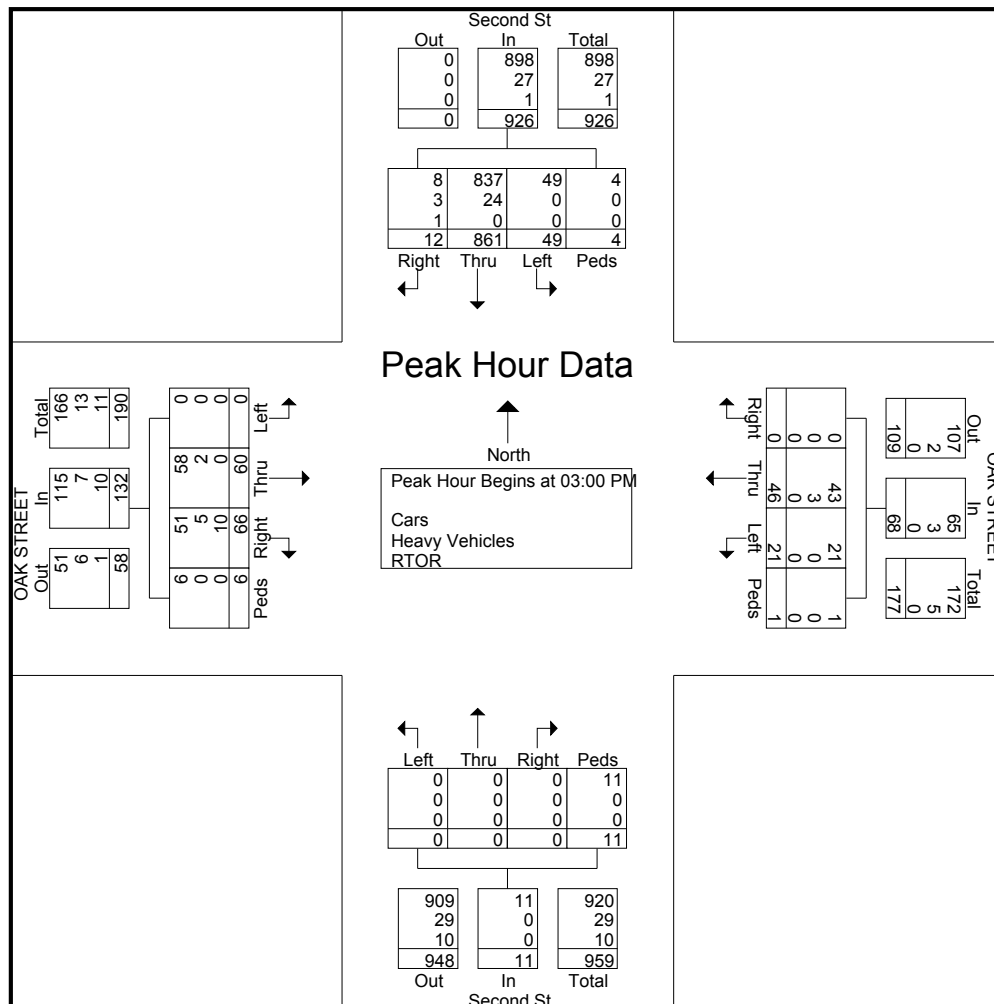
Tri-State Traffic Data, Inc.

610-466-1469
www.TSTData.com

Location: Columbia County, PA
Intersection: US 11 / Oak Street
Date: Wednesday, April 14, 2010
Counter: pb

File Name : SM0414-4
Site Code : 00000000
Start Date : 4/14/2010
Page No : 4

	Second St Southbound					OAK STREET Westbound					Second St Northbound					OAK STREET Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 03:00 PM																					
03:00 PM	1	222	8	1	232	0	12	6	0	18	0	0	0	2	2	23	8	0	2	33	285
03:15 PM	5	233	14	1	253	0	12	8	0	20	0	0	0	5	5	15	16	0	3	34	312
03:30 PM	3	225	12	0	240	0	16	4	0	20	0	0	0	1	1	15	22	0	0	37	298
03:45 PM	3	181	15	2	201	0	6	3	1	10	0	0	0	3	3	13	14	0	1	28	242
Total Volume	12	861	49	4	926	0	46	21	1	68	0	0	0	11	11	66	60	0	6	132	1137
% App. Total	1.3	93	5.3	0.4		0	67.6	30.9	1.5		0	0	0	100		50	45.5	0	4.5		
PHF	.600	.924	.817	.500	.915	.000	.719	.656	.250	.850	.000	.000	.000	.550	.550	.717	.682	.000	.500	.892	.911
Cars	8	837	49	4	898	0	43	21	1	65	0	0	0	11	11	51	58	0	6	115	1089
% Cars	66.7	97.2	100	100	97.0	0	93.5	100	100	95.6	0	0	0	100	100	77.3	96.7	0	100	87.1	95.8
Heavy Vehicles																					
% Heavy Vehicles	25.0	2.8	0	0	2.9	0	6.5	0	0	4.4	0	0	0	0	0	7.6	3.3	0	0	5.3	3.3
RTOR	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	10	0	0	0	10	11
% RTOR	8.3	0	0	0	0.1	0	0	0	0	0	0	0	0	0	0	15.2	0	0	0	7.6	1.0



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Tri-State Traffic Data, Inc.

610-466-1469
www.TSTData.com

Location: Columbia County, PA
Intersection: Front / Mulberry
Date: Thursday, April 15, 2010
Counter: ET

File Name : SM0415-6
Site Code : 00000000
Start Date : 4/15/2010
Page No : 1

Groups Printed- Cars - Heavy Vehicles - RTOR

	Front Street Southbound					Mulberry Street Westbound					Front Street Northbound					Mulberry Street Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:00 AM	0	0	0	0	0	0	0	0	0	0	3	88	0	0	91	0	0	0	0	0	91
06:15 AM	0	0	0	0	0	0	0	0	0	0	0	106	0	0	106	0	0	0	1	1	107
06:30 AM	0	0	0	0	0	0	0	0	0	0	1	114	0	0	115	0	0	0	0	0	115
06:45 AM	0	0	0	0	0	3	0	0	0	3	0	122	0	0	122	0	0	0	2	2	127
Total	0	0	0	0	0	3	0	0	0	3	4	430	0	0	434	0	0	0	3	3	440
07:00 AM	0	0	0	0	0	1	0	0	1	2	2	127	0	0	129	0	0	1	0	1	132
07:15 AM	0	0	0	1	1	0	1	0	0	1	3	152	6	0	161	0	0	4	2	6	169
07:30 AM	0	0	0	1	1	2	3	0	1	6	5	134	7	0	146	0	0	7	1	8	161
07:45 AM	0	0	0	0	0	1	2	0	0	3	6	121	9	0	136	0	1	4	2	7	146
Total	0	0	0	2	2	4	6	0	2	12	16	534	22	0	572	0	1	16	5	22	608
08:00 AM	0	0	0	0	0	1	1	0	0	2	1	111	12	0	124	0	0	2	0	2	128
08:15 AM	0	0	0	0	0	0	4	0	0	4	7	138	15	0	160	0	1	8	0	9	173
08:30 AM	0	0	0	0	0	0	3	0	0	3	5	116	19	0	140	0	1	6	1	8	151
08:45 AM	0	0	0	0	0	3	3	0	0	6	11	132	12	0	155	0	4	5	0	9	170
Total	0	0	0	0	0	4	11	0	0	15	24	497	58	0	579	0	6	21	1	28	622
*** BREAK ***																					
03:00 PM	0	0	0	1	1	6	4	0	5	15	3	173	20	1	197	0	4	12	3	19	232
03:15 PM	0	0	0	0	0	2	6	1	2	11	4	212	25	0	241	0	3	21	4	28	280
03:30 PM	0	0	0	0	0	4	6	0	1	11	7	217	19	0	243	1	3	5	7	16	270
03:45 PM	0	0	0	0	0	1	1	0	8	10	5	189	20	1	215	0	5	17	13	35	260
Total	0	0	0	1	1	13	17	1	16	47	19	791	84	2	896	1	15	55	27	98	1042
04:00 PM	0	0	0	0	0	6	8	0	1	15	11	218	20	1	250	0	3	12	11	26	291
04:15 PM	0	0	0	0	0	2	3	0	6	11	12	172	21	5	210	0	1	8	5	14	235
04:30 PM	0	0	0	0	0	3	6	0	2	11	6	175	19	0	200	0	5	9	4	18	229
04:45 PM	0	0	0	0	0	2	12	0	3	17	15	166	17	0	198	0	4	5	5	14	229
Total	0	0	0	0	0	13	29	0	12	54	44	731	77	6	858	0	13	34	25	72	984
05:00 PM	0	0	0	0	0	6	10	0	2	18	8	194	19	0	221	0	2	10	7	19	258
05:15 PM	0	0	0	0	0	0	8	0	1	9	9	208	19	0	236	0	6	7	7	20	265
05:30 PM	0	0	0	0	0	0	7	0	2	9	17	192	30	0	239	0	6	10	2	18	266
05:45 PM	0	0	0	0	0	6	9	0	1	16	13	181	15	0	209	0	5	8	13	26	251
Total	0	0	0	0	0	12	34	0	6	52	47	775	83	0	905	0	19	35	29	83	1040
Grand Total	0	0	0	3	3	49	97	1	36	183	154	3758	324	8	4244	1	54	161	90	306	4736
Apprch %	0	0	0	100		26.8	53	0.5	19.7		3.6	88.5	7.6	0.2		0.3	17.6	52.6	29.4		
Total %	0	0	0	0.1	0.1	1	2	0	0.8	3.9	3.3	79.3	6.8	0.2	89.6	0	1.1	3.4	1.9	6.5	
Cars	0	0	0	3	3	36	96	1	36	169	150	3676	321	8	4155	1	53	159	90	303	4630
% Cars	0	0	0	100	100	73.5	99	100	100	92.3	97.4	97.8	99.1	100	97.9	100	98.1	98.8	100	99	97.8
Heavy Vehicles	0	0	0	0	0	0	1	0	0	1	0	82	3	0	85	0	1	0	0	1	87
% Heavy Vehicles	0	0	0	0	0	0	1	0	0	0.5	0	2.2	0.9	0	2	0	1.9	0	0	0.3	1.8
RTOR	0	0	0	0	0	13	0	0	0	13	4	0	0	0	4	0	0	2	0	2	19
% RTOR	0	0	0	0	0	26.5	0	0	0	7.1	2.6	0	0	0	0.1	0	0	1.2	0	0.7	0.4

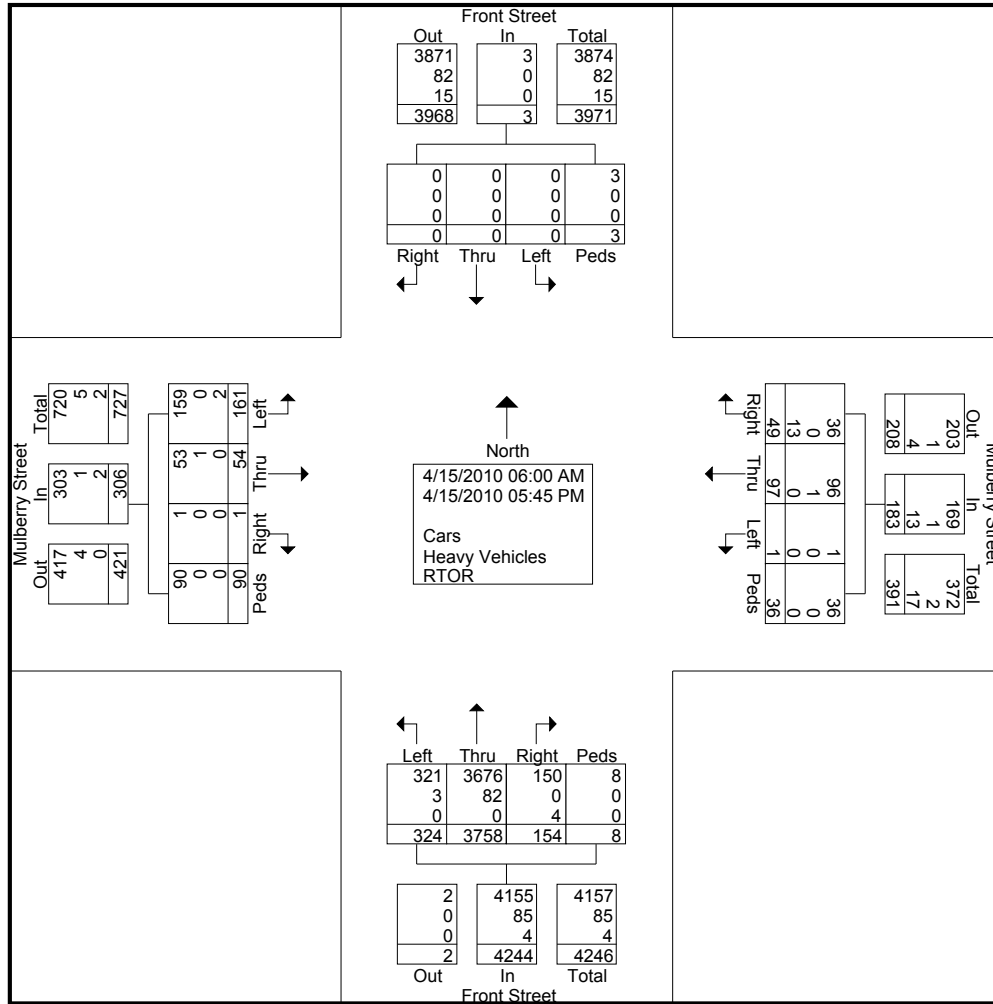
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Tri-State Traffic Data, Inc.

610-466-1469
www.TSTData.com

Location: Columbia County, PA
Intersection: Front / Mulberry
Date: Thursday, April 15, 2010
Counter: ET

File Name : SM0415-6
Site Code : 00000000
Start Date : 4/15/2010
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Tri-State Traffic Data, Inc.

610-466-1469

www.TSTData.com

Location: Columbia County, PA

Intersection: Front / Mulberry

Date: Thursday, April 15, 2010

Counter: ET

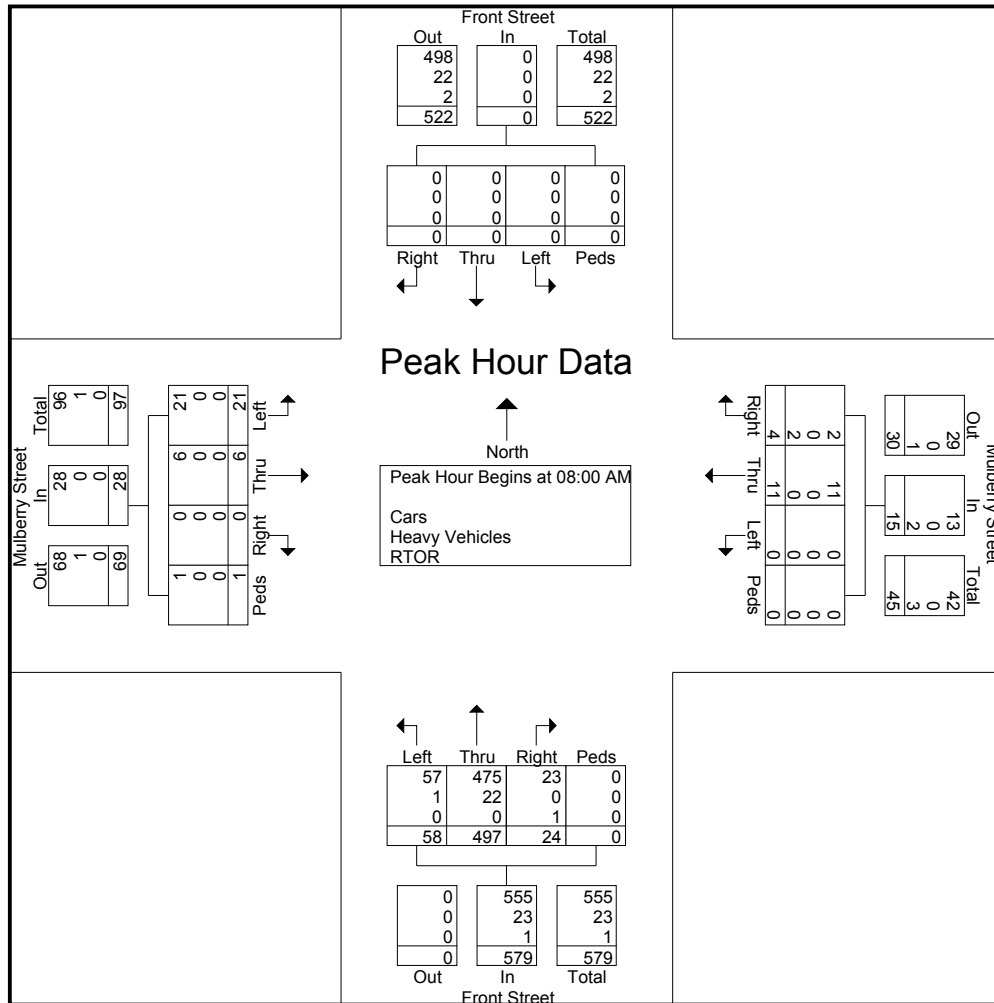
File Name : SM0415-6

Site Code : 00000000

Start Date : 4/15/2010

Page No : 3

	Front Street Southbound					Mulberry Street Westbound					Front Street Northbound					Mulberry Street Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	0	0	0	0	0	1	1	0	0	2	1	111	12	0	124	0	0	2	0	2	128
08:15 AM	0	0	0	0	0	0	4	0	0	4	7	138	15	0	160	0	1	8	0	9	173
08:30 AM	0	0	0	0	0	0	3	0	0	3	5	116	19	0	140	0	1	6	1	8	151
08:45 AM	0	0	0	0	0	3	3	0	0	6	11	132	12	0	155	0	4	5	0	9	170
Total Volume	0	0	0	0	0	4	11	0	0	15	24	497	58	0	579	0	6	21	1	28	622
% App. Total	0	0	0	0		26.7	73.3	0	0		4.1	85.8	10	0		0	21.4	75	3.6		
PHF	.000	.000	.000	.000	.000	.333	.688	.000	.000	.625	.545	.900	.763	.000	.905	.000	.375	.656	.250	.778	.899
Cars	0	0	0	0	0	2	11	0	0	13	23	475	57	0	555	0	6	21	1	28	596
% Cars	0	0	0	0	0	50.0	100	0	0	86.7	95.8	95.6	98.3	0	95.9	0	100	100	100	100	95.8
Heavy Vehicles																					
% Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	4.4	1.7	0	4.0	0	0	0	0	0	3.7
RTOR	0	0	0	0	0	2	0	0	0	2	1	0	0	0	1	0	0	0	0	0	3
% RTOR	0	0	0	0	0	50.0	0	0	0	13.3	4.2	0	0	0	0.2	0	0	0	0	0	0.5



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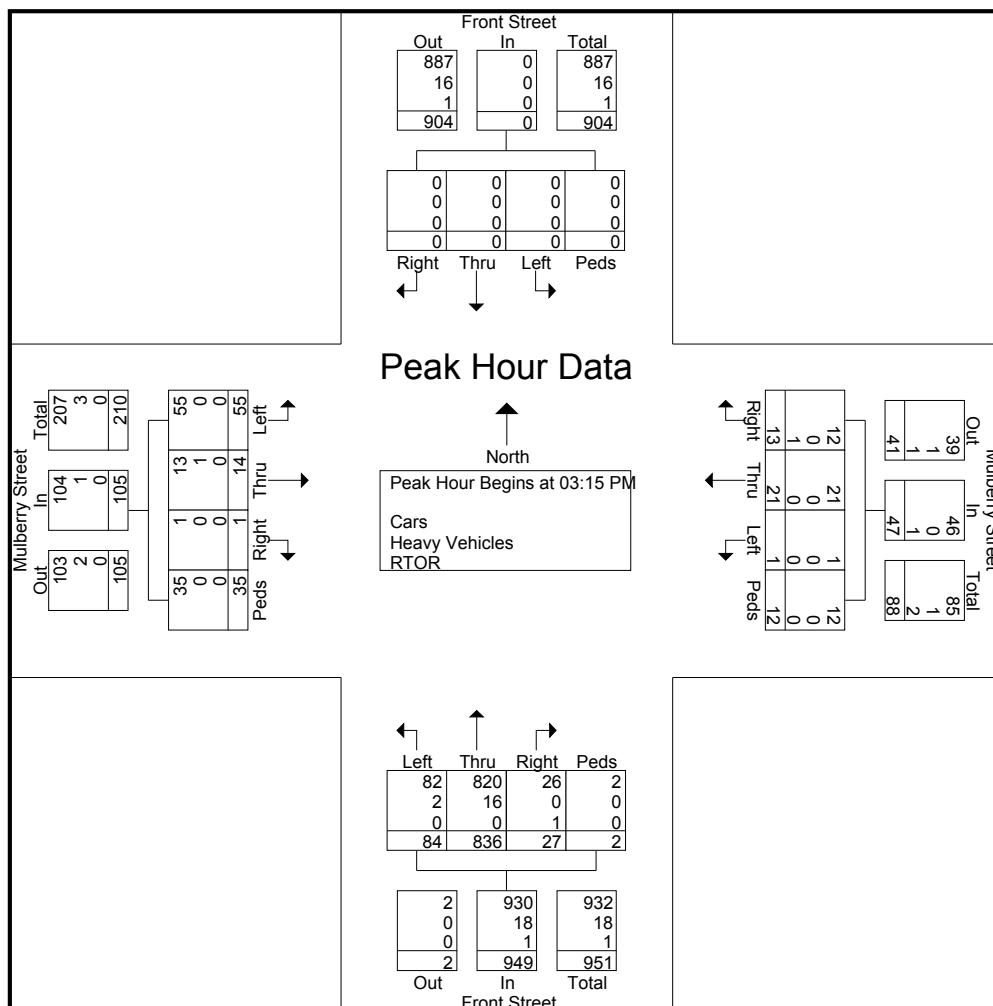
Tri-State Traffic Data, Inc.

610-466-1469
www.TSTData.com

Location: Columbia County, PA
Intersection: Front / Mulberry
Date: Thursday, April 15, 2010
Counter: ET

File Name : SM0415-6
Site Code : 00000000
Start Date : 4/15/2010
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	Front Street Southbound					Mulberry Street Westbound					Front Street Northbound					Mulberry Street Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 03:15 PM																					
03:15 PM	0	0	0	0	0	2	6	1	2	11	4	212	25	0	241	0	3	21	4	28	280
03:30 PM	0	0	0	0	0	4	6	0	1	11	7	217	19	0	243	1	3	5	7	16	270
03:45 PM	0	0	0	0	0	1	1	0	8	10	5	189	20	1	215	0	5	17	13	35	260
04:00 PM	0	0	0	0	0	6	8	0	1	15	11	218	20	1	250	0	3	12	11	26	291
Total Volume	0	0	0	0	0	13	21	1	12	47	27	836	84	2	949	1	14	55	35	105	1101
% App. Total	0	0	0	0	0	27.7	44.7	2.1	25.5		2.8	88.1	8.9	0.2		1	13.3	52.4	33.3		
PHF	.000	.000	.000	.000	.000	.542	.656	.250	.375	.783	.614	.959	.840	.500	.949	.250	.700	.655	.673	.750	.946
Cars	0	0	0	0	0	12	21	1	12	46	26	820	82	2	930	1	13	55	35	104	1080
% Cars	0	0	0	0	0	92.3	100	100	100	97.9	96.3	98.1	97.6	100	98.0	100	92.9	100	100	99.0	98.1
Heavy Vehicles																					
% Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	1.9	2.4	0	1.9	0	7.1	0	0	1.0	1.7
RTOR	0	0	0	0	0	1	0	0	0	1	1	0	0	0	1	0	0	0	0	0	2
% RTOR	0	0	0	0	0	7.7	0	0	0	2.1	3.7	0	0	0	0.1	0	0	0	0	0	0.2



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Tri-State Traffic Data, Inc.

610-466-1469
www.TSTData.com

Location: Columbia County, PA
Intersection: 2nd / Mulberry
Date: Thursday, April 15, 2010
Counter: JT

File Name : SM0415-5
Site Code : 00000000
Start Date : 4/15/2010
Page No : 1

Groups Printed- Cars - Heavy Vehicles - RTOR

	2nd Street Southbound					Mulberry Street Westbound					2nd Street Northbound					Mulberry Street Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:00 AM	0	68	0	1	69	0	0	0	0	0	0	0	0	0	0	7	0	0	0	7	76
06:15 AM	3	79	0	0	82	0	0	0	0	0	0	0	0	0	0	4	0	0	0	4	86
06:30 AM	3	126	0	2	131	0	0	0	0	0	0	0	0	0	0	6	0	0	0	6	137
06:45 AM	2	140	0	3	145	0	0	0	0	0	0	0	0	0	0	4	0	0	1	5	150
Total	8	413	0	6	427	0	0	0	0	0	0	0	0	0	0	21	0	0	1	22	449
07:00 AM	2	156	1	1	160	0	0	0	0	0	0	0	0	0	0	7	0	0	0	7	167
07:15 AM	3	158	2	0	163	0	5	2	0	7	0	0	0	0	0	5	2	0	0	7	177
07:30 AM	3	230	6	0	239	0	6	5	0	11	0	0	0	0	0	15	3	0	0	18	268
07:45 AM	4	192	1	2	199	0	5	4	0	9	0	0	0	0	0	7	6	0	0	13	221
Total	12	736	10	3	761	0	16	11	0	27	0	0	0	0	0	34	11	0	0	45	833
08:00 AM	5	143	1	0	149	0	12	3	0	15	0	0	0	0	0	12	3	0	0	15	179
08:15 AM	8	149	8	0	165	0	12	4	0	16	0	0	0	0	0	19	4	0	0	23	204
08:30 AM	12	147	6	1	166	0	17	6	1	24	0	0	0	0	0	13	7	0	0	20	210
08:45 AM	8	160	3	0	171	0	11	2	0	13	0	0	0	0	0	19	8	0	0	27	211
Total	33	599	18	1	651	0	52	15	1	68	0	0	0	0	0	63	22	0	0	85	804
*** BREAK ***																					
03:00 PM	11	200	9	2	222	0	15	5	2	22	0	0	0	4	4	14	14	0	1	29	277
03:15 PM	9	220	18	2	249	0	20	13	2	35	0	0	0	0	0	18	17	0	5	40	324
03:30 PM	8	213	12	1	234	0	22	5	1	28	0	0	0	3	3	13	7	0	2	22	287
03:45 PM	12	202	17	0	231	0	14	3	3	20	0	0	0	0	0	7	7	0	1	15	266
Total	40	835	56	5	936	0	71	26	8	105	0	0	0	7	7	52	45	0	9	106	1154
04:00 PM	11	192	10	5	218	0	18	12	0	30	0	0	0	4	4	18	6	0	2	26	278
04:15 PM	11	220	8	0	239	0	18	6	2	26	0	0	0	8	8	15	5	0	6	26	299
04:30 PM	15	210	8	1	234	0	18	6	3	27	0	0	0	2	2	14	6	0	3	23	286
04:45 PM	8	195	5	3	211	0	17	10	4	31	0	0	0	5	5	13	5	0	1	19	266
Total	45	817	31	9	902	0	71	34	9	114	0	0	0	19	19	60	22	0	12	94	1129
05:00 PM	11	220	7	0	238	0	19	12	0	31	0	0	0	2	2	25	9	0	0	34	305
05:15 PM	3	204	9	1	217	0	17	12	4	33	0	0	0	0	0	17	4	0	0	21	271
05:30 PM	3	204	11	0	218	0	27	8	0	35	0	0	0	0	0	19	6	0	2	27	280
05:45 PM	6	181	8	1	196	0	13	12	1	26	0	0	0	3	3	16	6	0	3	25	250
Total	23	809	35	2	869	0	76	44	5	125	0	0	0	5	5	77	25	0	5	107	1106
Grand Total	161	4209	150	26	4546	0	286	130	23	439	0	0	0	31	31	307	125	0	27	459	5475
Apprch %	3.5	92.6	3.3	0.6		0	65.1	29.6	5.2		0	0	0	100		66.9	27.2	0	5.9		
Total %	2.9	76.9	2.7	0.5	83	0	5.2	2.4	0.4	8	0	0	0	0.6	0.6	5.6	2.3	0	0.5	8.4	
Cars	159	4137	150	26	4472	0	285	128	23	436	0	0	0	31	31	247	124	0	26	397	5336
% Cars	98.8	98.3	100	100	98.4	0	99.7	98.5	100	99.3	0	0	0	100	100	80.5	99.2	0	96.3	86.5	97.5
Heavy Vehicles	0	72	0	0	72	0	1	2	0	3	0	0	0	0	0	1	1	0	0	2	77
% Heavy Vehicles	0	1.7	0	0	1.6	0	0.3	1.5	0	0.7	0	0	0	0	0	0.3	0.8	0	0	0.4	1.4
RTOR	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	59	0	0	1	60	62
% RTOR	1.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19.2	0	0	3.7	13.1	1.1

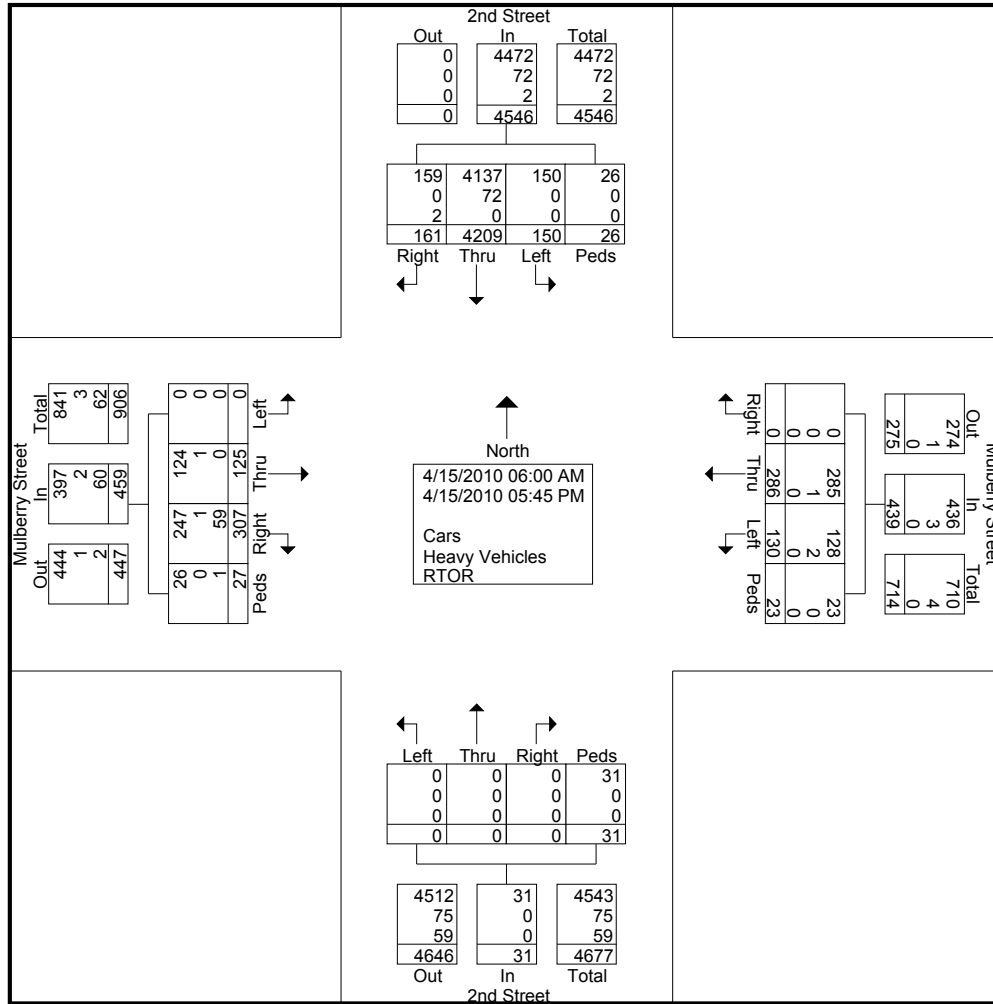
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Tri-State Traffic Data, Inc.

610-466-1469
www.TSTData.com

Location: Columbia County, PA
Intersection: 2nd / Mulberry
Date: Thursday, April 15, 2010
Counter: JT

File Name : SM0415-5
Site Code : 00000000
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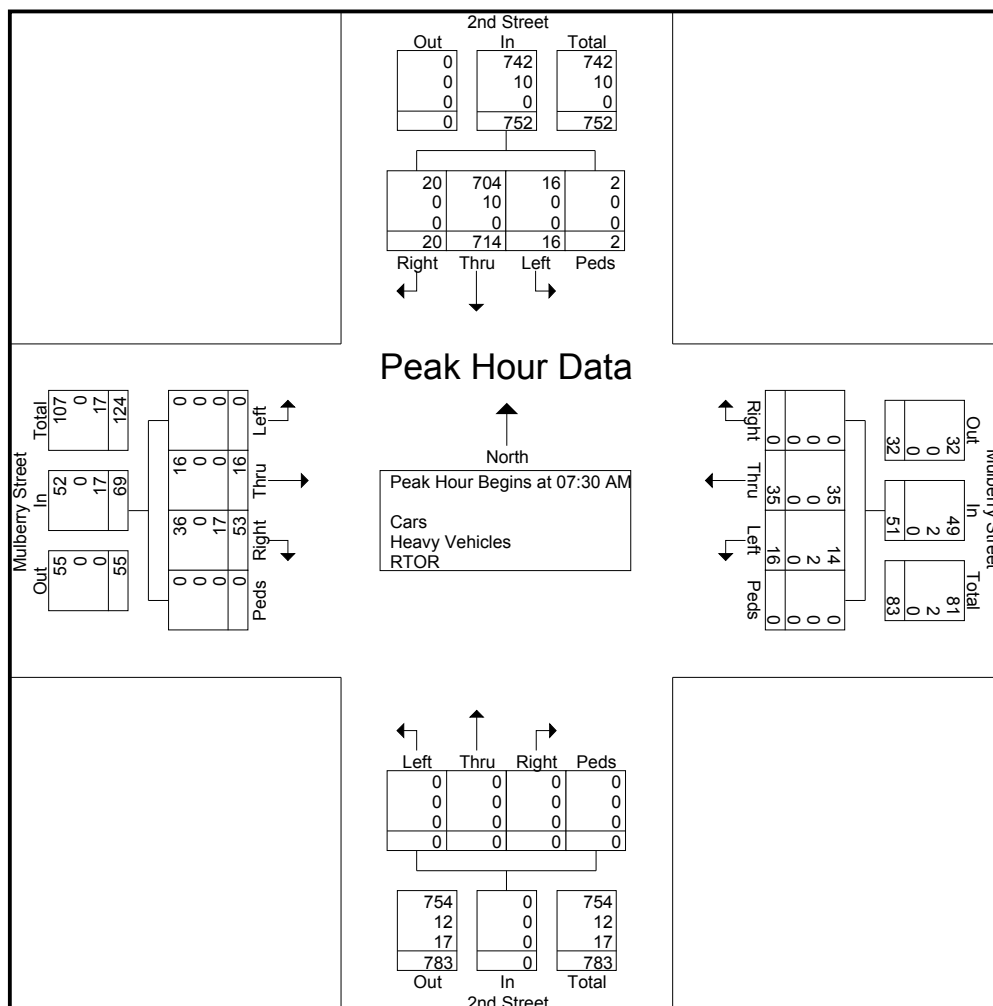
Tri-State Traffic Data, Inc.

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Location: Columbia County, PA
Intersection: 2nd / Mulberry
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Counter: JT

File Name : SM0415-5
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Start Date : 4/15/2010
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	2nd Street Southbound					Mulberry Street Westbound					2nd Street Northbound					Mulberry Street Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	3	230	6	0	239	0	6	5	0	11	0	0	0	0	0	15	3	0	0	18	268
07:45 AM	4	192	1	2	199	0	5	4	0	9	0	0	0	0	0	7	6	0	0	13	221
08:00 AM	5	143	1	0	149	0	12	3	0	15	0	0	0	0	0	12	3	0	0	15	179
08:15 AM	8	149	8	0	165	0	12	4	0	16	0	0	0	0	0	19	4	0	0	23	204
Total Volume	20	714	16	2	752	0	35	16	0	51	0	0	0	0	0	53	16	0	0	69	872
% App. Total	2.7	94.9	2.1	0.3		0	68.6	31.4	0		0	0	0	0	0	76.8	23.2	0	0		
PHF	.625	.776	.500	.250	.787	.000	.729	.800	.000	.797	.000	.000	.000	.000	.000	.697	.667	.000	.000	.750	.813
Cars	20	704	16	2	742	0	35	14	0	49	0	0	0	0	0	36	16	0	0	52	843
% Cars	100	98.6	100	100	98.7	0	100	87.5	0	96.1	0	0	0	0	0	67.9	100	0	0	75.4	96.7
Heavy Vehicles																					
% Heavy Vehicles	0	1.4	0	0	1.3	0	0	12.5	0	3.9	0	0	0	0	0	0	0	0	0	0	1.4
RTOR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	17	0	0	0	17	17
% RTOR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	32.1	0	0	0	24.6	1.9



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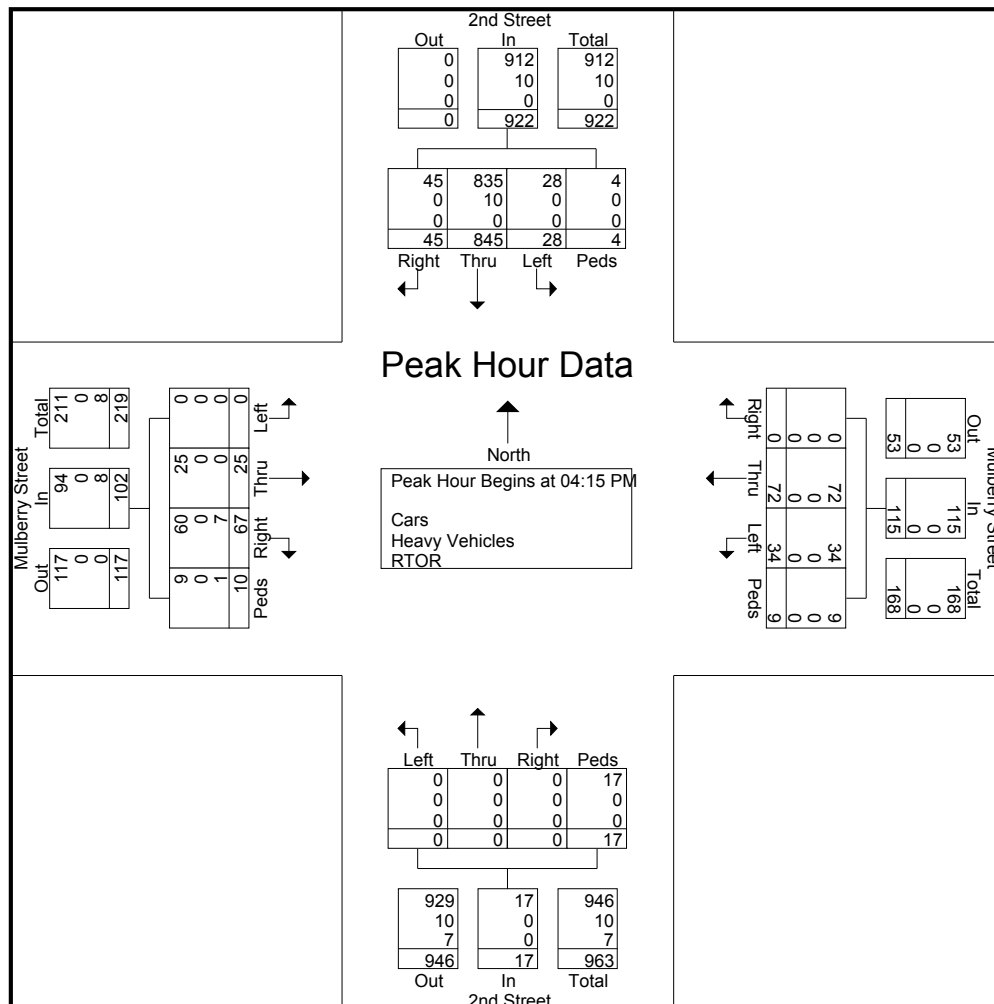
Tri-State Traffic Data, Inc.

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Intersection: 2nd / Mulberry
Date: Thursday, April 15, 2010
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File Name : SM0415-5
Site Code : 00000000
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Page No : 4

	2nd Street Southbound					Mulberry Street Westbound					2nd Street Northbound					Mulberry Street Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:15 PM																					
04:15 PM	11	220	8	0	239	0	18	6	2	26	0	0	0	8	8	15	5	0	6	26	299
04:30 PM	15	210	8	1	234	0	18	6	3	27	0	0	0	2	2	14	6	0	3	23	286
04:45 PM	8	195	5	3	211	0	17	10	4	31	0	0	0	5	5	13	5	0	1	19	266
05:00 PM	11	220	7	0	238	0	19	12	0	31	0	0	0	2	2	25	9	0	0	34	305
Total Volume	45	845	28	4	922	0	72	34	9	115	0	0	0	17	17	67	25	0	10	102	1156
% App. Total	4.9	91.6	3	0.4		0	62.6	29.6	7.8		0	0	0	100		65.7	24.5	0	9.8		
PHF	.750	.960	.875	.333	.964	.000	.947	.708	.563	.927	.000	.000	.000	.531	.531	.670	.694	.000	.417	.750	.948
Cars	45	835	28	4	912	0	72	34	9	115	0	0	0	17	17	60	25	0	9	94	1138
% Cars	100	98.8	100	100	98.9	0	100	100	100	100	0	0	0	100	100	89.6	100	0	90.0	92.2	98.4
Heavy Vehicles																					
% Heavy Vehicles	0	1.2	0	0	1.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.9
RTOR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	1	8	8
% RTOR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10.4	0	0	10.0	7.8	0.7



Tri-State Traffic Data, Inc.

610-466-1469
www.TSTData.com

Location: Columbia County, PA
Intersection: 3rd St./ Market St
Date: Thursday; April 15, 2010
Counter: JI

File Name : SM0415-7
Site Code : 00000000
Start Date : 4/15/2010
Page No : 1

Groups Printed- Cars - Heavy Vehicles - RTOR

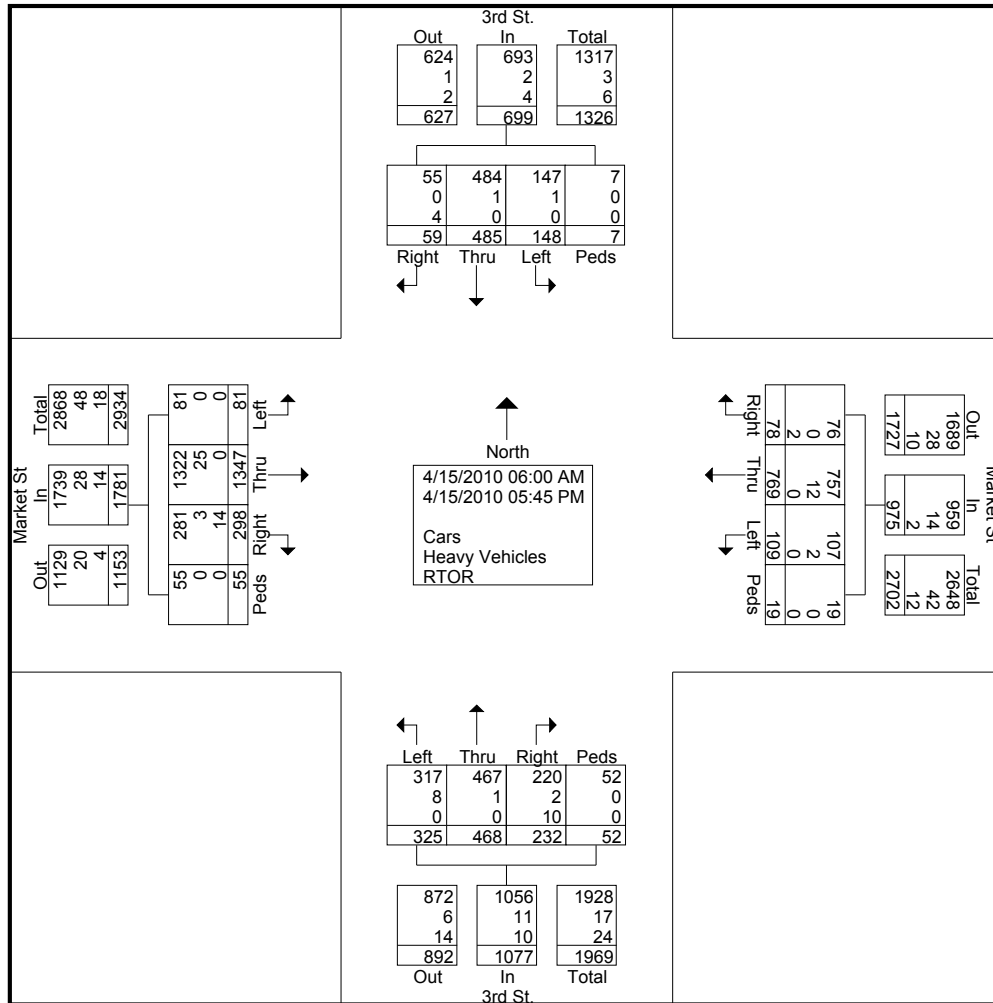
Start Time	3rd St. Southbound					Market St Westbound					3rd St. Northbound					Market St Eastbound					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
06:00 AM	0	2	0	0	2	1	3	2	0	6	1	0	2	0	3	8	32	0	0	40	51
06:15 AM	1	10	2	0	13	4	11	0	0	15	2	5	2	0	9	5	32	1	0	38	75
06:30 AM	0	13	3	2	18	3	22	5	0	30	10	4	3	0	17	8	31	1	2	42	107
06:45 AM	2	8	4	0	14	2	24	2	1	29	7	8	3	1	19	2	47	1	1	51	113
Total	3	33	9	2	47	10	60	9	1	80	20	17	10	1	48	23	142	3	3	171	346
07:00 AM	0	8	1	1	10	2	31	3	1	37	4	12	5	1	22	3	54	5	1	63	132
07:15 AM	2	11	1	0	14	2	18	3	2	25	2	14	6	0	22	6	56	3	2	67	128
07:30 AM	1	25	5	0	31	1	35	8	0	44	7	14	5	1	27	10	47	2	0	59	161
07:45 AM	3	20	1	1	25	3	31	11	0	45	3	15	5	1	24	15	36	2	1	54	148
Total	6	64	8	2	80	8	115	25	3	151	16	55	21	3	95	34	193	12	4	243	569
08:00 AM	2	13	6	0	21	3	23	11	0	37	5	13	8	0	26	11	41	2	1	55	139
08:15 AM	2	20	8	1	31	5	43	5	0	53	8	16	7	0	31	15	61	6	2	84	199
08:30 AM	1	18	4	0	23	2	20	9	2	33	6	20	7	1	34	15	57	2	0	74	164
08:45 AM	1	20	3	0	24	2	33	11	0	46	10	19	9	0	38	13	56	3	1	73	181
Total	6	71	21	1	99	12	119	36	2	169	29	68	31	1	129	54	215	13	4	286	683
03:00 PM	8	32	13	0	53	3	23	2	1	29	17	28	29	1	75	15	58	7	1	81	238
03:15 PM	4	30	12	0	46	9	38	1	1	49	14	36	18	4	72	18	66	6	2	92	259
03:30 PM	5	33	11	0	49	3	45	2	0	50	13	35	17	3	68	15	61	7	6	89	256
03:45 PM	2	24	9	0	35	3	40	3	1	47	19	27	22	1	69	17	71	3	4	95	246
Total	19	119	45	0	183	18	146	8	3	175	63	126	86	9	284	65	256	23	13	357	999
04:00 PM	6	31	6	0	43	4	50	0	1	55	12	19	22	5	58	18	54	4	5	81	237
04:15 PM	3	24	8	0	35	4	45	3	0	52	9	22	20	2	53	8	66	9	3	86	226
04:30 PM	5	29	7	0	41	5	54	6	0	65	19	22	25	8	74	22	67	3	8	100	280
04:45 PM	2	21	11	0	34	3	32	5	2	42	10	28	27	5	70	17	60	2	6	85	231
Total	16	105	32	0	153	16	181	14	3	214	50	91	94	20	255	65	247	18	22	352	974
05:00 PM	0	35	6	1	42	6	43	4	2	55	19	34	30	3	86	11	76	3	0	90	273
05:15 PM	1	18	11	0	30	4	37	10	0	51	12	27	20	5	64	18	77	0	4	99	244
05:30 PM	5	18	8	0	31	4	34	1	3	42	9	20	18	6	53	8	71	2	2	83	209
05:45 PM	3	22	8	1	34	0	34	2	2	38	14	30	15	4	63	20	70	7	3	100	235
Total	9	93	33	2	137	14	148	17	7	186	54	111	83	18	266	57	294	12	9	372	961
Grand Total	59	485	148	7	699	78	769	109	19	975	232	468	325	52	1077	298	1347	81	55	1781	4532
Apprch %	8.4	69.4	21.2	1		8	78.9	11.2	1.9		21.5	43.5	30.2	4.8		16.7	75.6	4.5	3.1		
Total %	1.3	10.7	3.3	0.2	15.4	1.7	17	2.4	0.4	21.5	5.1	10.3	7.2	1.1	23.8	6.6	29.7	1.8	1.2	39.3	
Cars	55	484	147	7	693	76	757	107	19	959	220	467	317	52	1056	281	1322				
% Cars	93.2	99.8	99.3	100	99.1	97.4	98.4	98.2	100	98.4	94.8	99.8	97.5	100	98.1	94.3	98.1	100	100	97.6	98.1
Heavy Vehicles																					
% Heavy Vehicles	0	0.2	0.7	0	0.3	0	1.6	1.8	0	1.4	0.9	0.2	2.5	0	1	1	1.9	0	0	1.6	1.2
RTOR	4	0	0	0	4	2	0	0	0	2	10	0	0	0	10	14	0	0	0	14	30
% RTOR	6.8	0	0	0	0.6	2.6	0	0	0	0.2	4.3	0	0	0	0.9	4.7	0	0	0	0.8	0.7

Tri-State Traffic Data, Inc.

610-466-1469
www.TSTData.com

Location: Columbia County, PA
Intersection: 3rd St./ Market St
Date: Thursday; April 15, 2010
Counter: JI

File Name : SM0415-7
Site Code : 00000000
Start Date : 4/15/2010
Page No : 2



Tri-State Traffic Data, Inc.

610-466-1469

www.TSTData.com

Location: Columbia County, PA

Intersection: 3rd St./ Market St

Date: Thursday; April 15, 2010

Counter: JI

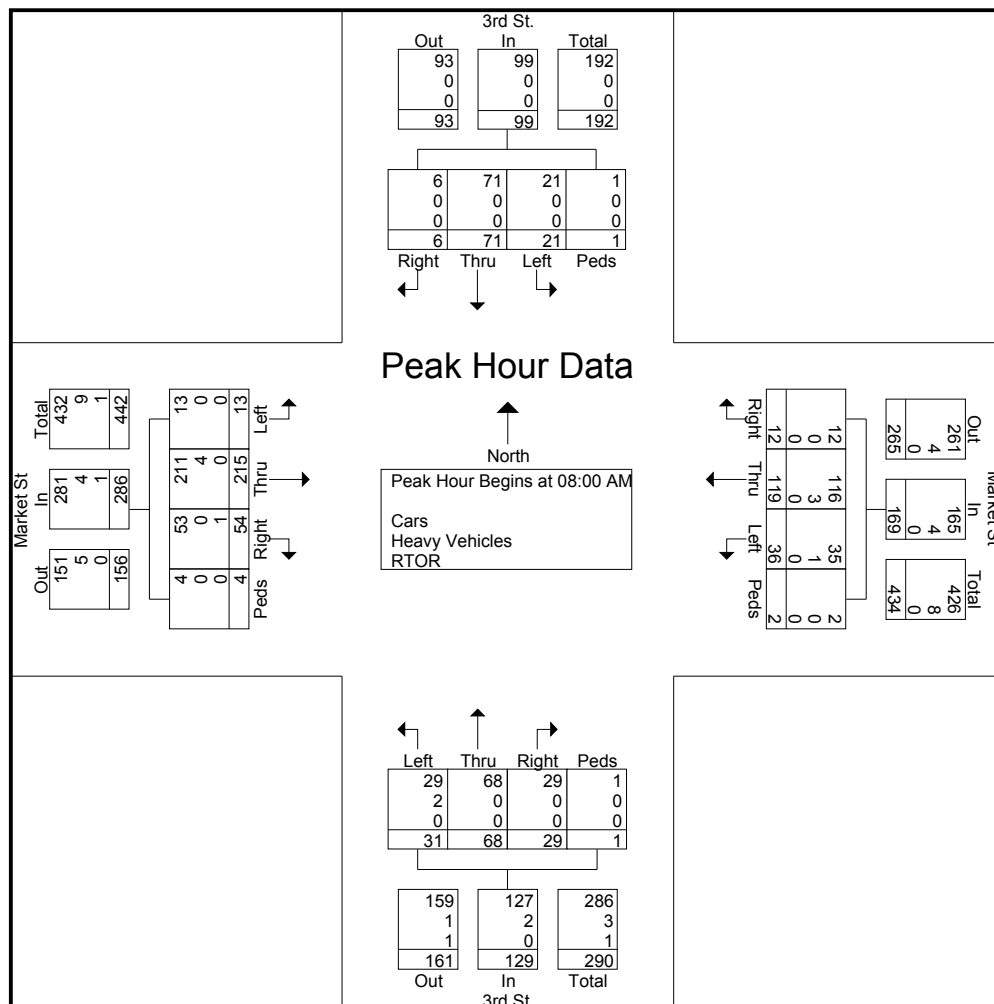
File Name : SM0415-7

Site Code : 00000000

Start Date : 4/15/2010

Page No : 3

	3rd St. Southbound					Market St Westbound					3rd St. Northbound					Market St Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	2	13	6	0	21	3	23	11	0	37	5	13	8	0	26	11	41	2	1	55	139
08:15 AM	2	20	8	1	31	5	43	5	0	53	8	16	7	0	31	15	61	6	2	84	199
08:30 AM	1	18	4	0	23	2	20	9	2	33	6	20	7	1	34	15	57	2	0	74	164
08:45 AM	1	20	3	0	24	2	33	11	0	46	10	19	9	0	38	13	56	3	1	73	181
Total Volume	6	71	21	1	99	12	119	36	2	169	29	68	31	1	129	54	215	13	4	286	683
% App. Total	6.1	71.7	21.2	1		7.1	70.4	21.3	1.2		22.5	52.7	24	0.8		18.9	75.2	4.5	1.4		
PHF	.750	.888	.656	.250	.798	.600	.692	.818	.250	.797	.725	.850	.861	.250	.849	.900	.881	.542	.500	.851	.858
Cars	6	71	21	1	99	12	116	35	2	165	29	68	29	1	127	53	211	13	4	281	672
% Cars	100	100	100	100	100	100	97.5	97.2	100	97.6	100	100	93.5	100	98.4	98.1	98.1	100	100	98.3	98.4
Heavy Vehicles																					
% Heavy Vehicles	0	0	0	0	0	0	2.5	2.8	0	2.4	0	0	6.5	0	1.6	0	1.9	0	0	1.4	1.5
RTOR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
% RTOR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.9	0	0	0	0.3	0.1



Tri-State Traffic Data, Inc.

610-466-1469

www.TSTData.com

Location: Columbia County, PA

Intersection: 3rd St./ Market St

Date: Thursday; April 15, 2010

Counter: JI

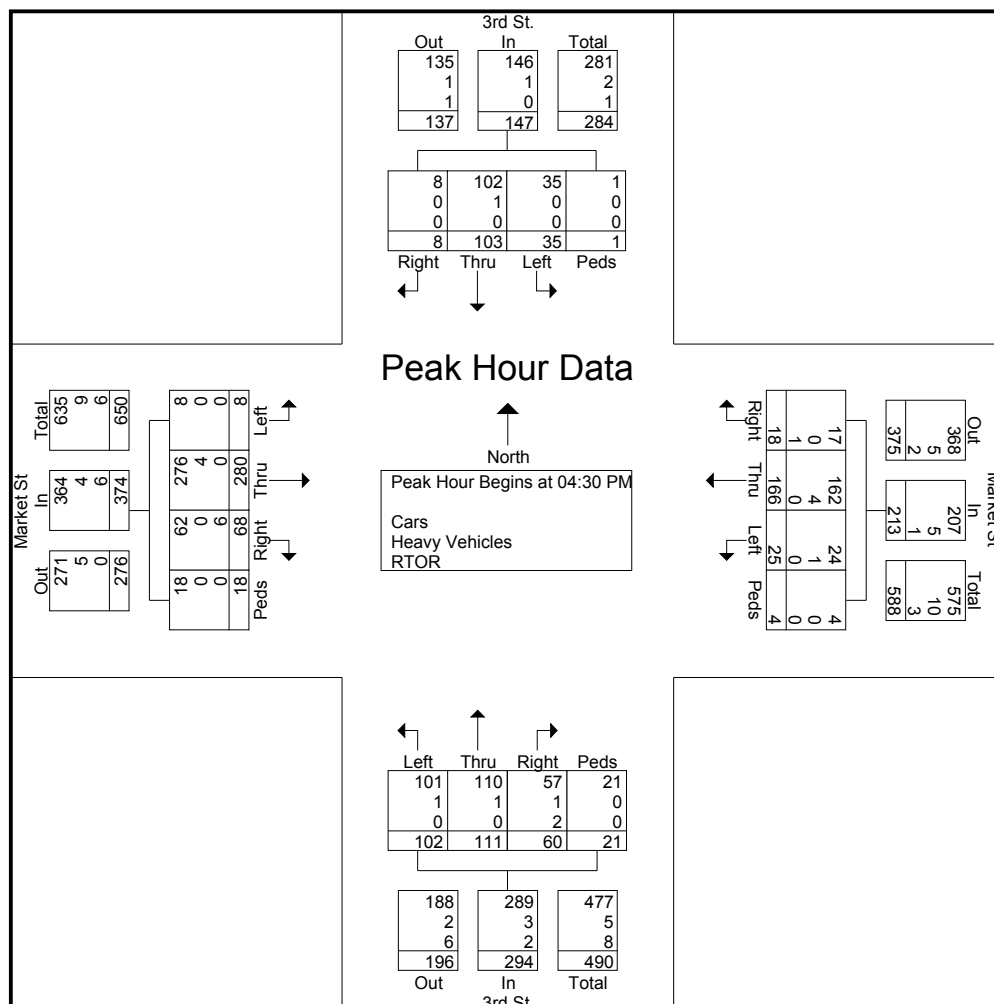
File Name : SM0415-7

Site Code : 00000000

Start Date : 4/15/2010

Page No : 4

	3rd St. Southbound					Market St Westbound					3rd St. Northbound					Market St Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	5	29	7	0	41	5	54	6	0	65	19	22	25	8	74	22	67	3	8	100	280
04:45 PM	2	21	11	0	34	3	32	5	2	42	10	28	27	5	70	17	60	2	6	85	231
05:00 PM	0	35	6	1	42	6	43	4	2	55	19	34	30	3	86	11	76	3	0	90	273
05:15 PM	1	18	11	0	30	4	37	10	0	51	12	27	20	5	64	18	77	0	4	99	244
Total Volume	8	103	35	1	147	18	166	25	4	213	60	111	102	21	294	68	280	8	18	374	1028
% App. Total	5.4	70.1	23.8	0.7		8.5	77.9	11.7	1.9		20.4	37.8	34.7	7.1		18.2	74.9	2.1	4.8		
PHF	.400	.736	.795	.250	.875	.750	.769	.625	.500	.819	.789	.816	.850	.656	.855	.773	.909	.667	.563	.935	.918
Cars	8	102	35	1	146	17	162	24	4	207	57	110	101	21	289	62	276	8	18	364	1006
% Cars	100	99.0	100	100	99.3	94.4	97.6	96.0	100	97.2	95.0	99.1	99.0	100	98.3	91.2	98.6	100	100	97.3	97.9
Heavy Vehicles																					
% Heavy Vehicles	0	1.0	0	0	0.7	0	2.4	4.0	0	2.3	1.7	0.9	1.0	0	1.0	0	1.4	0	0	1.1	1.3
RTOR	0	0	0	0	0	1	0	0	0	1	2	0	0	0	2	6	0	0	0	6	9
% RTOR	0	0	0	0	0	5.6	0	0	0	0.5	3.3	0	0	0	0.7	8.8	0	0	0	1.6	0.9



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Tri-State Traffic Data, Inc.

610-466-1469
www.TSTData.com

Location: Columbia County, PA
Intersection: 2nd / Market
Date: Wednesday, April 14, 2010
Counter: JT

File Name : SM0414-8
Site Code : 00000000
Start Date : 4/14/2010
Page No : 1

Groups Printed- Cars - Heavy Vehicles - Right Turn On Red

	2nd Street Southbound					Market Street Westbound					2nd Street Northbound					Market Street Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:00 AM	1	39	17	0	57	0	6	22	0	28	0	0	0	0	0	8	31	0	0	39	124
06:15 AM	5	58	22	0	85	0	9	20	0	29	0	0	0	0	0	13	28	0	0	41	155
06:30 AM	6	75	18	0	99	0	27	19	0	46	0	0	0	0	0	17	21	0	0	38	183
06:45 AM	10	92	24	1	127	0	22	33	0	55	0	0	0	0	0	17	28	0	1	46	228
Total	22	264	81	1	368	0	64	94	0	158	0	0	0	0	0	55	108	0	1	164	690
07:00 AM	6	86	30	0	122	0	20	27	0	47	0	0	0	0	0	19	33	0	0	52	221
07:15 AM	7	118	24	0	149	0	24	35	0	59	0	0	0	0	0	20	32	0	0	52	260
07:30 AM	11	162	40	0	213	0	23	44	0	67	0	0	0	0	0	21	34	0	0	55	335
07:45 AM	15	140	31	0	186	0	38	61	0	99	0	0	0	0	0	24	32	0	0	56	341
Total	39	506	125	0	670	0	105	167	0	272	0	0	0	0	0	84	131	0	0	215	1157
08:00 AM	10	88	31	2	131	0	17	41	0	58	0	0	0	0	0	18	31	0	1	50	239
08:15 AM	12	116	31	0	159	0	28	55	1	84	0	0	0	0	0	25	25	0	0	50	293
08:30 AM	14	120	23	1	158	0	18	54	0	72	0	0	0	0	0	26	33	0	0	59	289
08:45 AM	5	108	24	0	137	0	27	36	0	63	0	0	0	0	0	32	34	0	2	68	268
Total	41	432	109	3	585	0	90	186	1	277	0	0	0	0	0	101	123	0	3	227	1089
*** BREAK ***																					
03:00 PM	17	168	51	5	241	0	17	47	1	65	0	0	0	0	0	32	40	0	2	74	380
03:15 PM	15	143	47	2	207	0	28	63	3	94	0	0	0	0	0	34	51	0	3	88	389
03:30 PM	14	167	59	0	240	0	15	57	0	72	0	0	0	0	0	25	55	0	1	81	393
03:45 PM	13	110	42	0	165	0	43	60	3	106	0	0	0	0	0	24	42	0	0	66	337
Total	59	588	199	7	853	0	103	227	7	337	0	0	0	0	0	115	188	0	6	309	1499
04:00 PM	14	152	47	2	215	0	35	42	0	77	0	0	0	0	0	32	65	0	1	98	390
04:15 PM	25	134	53	1	213	0	21	39	1	61	0	0	0	0	0	33	48	0	0	81	355
04:30 PM	21	156	52	4	233	0	23	48	1	72	0	0	0	0	0	23	61	0	4	88	393
04:45 PM	17	126	60	5	208	0	35	58	0	93	0	0	0	0	0	36	57	0	1	94	395
Total	77	568	212	12	869	0	114	187	2	303	0	0	0	0	0	124	231	0	6	361	1533
05:00 PM	17	153	46	1	217	0	32	50	0	82	0	0	0	0	0	20	67	0	1	88	387
05:15 PM	16	127	51	1	195	0	32	48	0	80	0	0	0	0	0	28	52	0	2	82	357
05:30 PM	13	123	34	0	170	0	23	43	0	66	0	0	0	0	0	29	51	0	0	80	316
05:45 PM	24	146	47	1	218	0	31	54	0	85	0	0	0	0	0	24	45	0	1	70	373
Total	70	549	178	3	800	0	118	195	0	313	0	0	0	0	0	101	215	0	4	320	1433
Grand Total	308	2907	904	26	4145	0	594	1056	10	1660	0	0	0	0	0	580	996	0	20	1596	7401
Apprch %	7.4	70.1	21.8	0.6		0	35.8	63.6	0.6		0	0	0	0		36.3	62.4	0	1.3		
Total %	4.2	39.3	12.2	0.4	56	0	8	14.3	0.1	22.4	0	0	0	0	0	7.8	13.5	0	0.3	21.6	
Cars	271	2836	885	26	4018	0	582	1029	9	1620	0	0	0	0	0	511	975	0	20	1506	7144
% Cars	88	97.6	97.9	100	96.9	0	98	97.4	90	97.6	0	0	0	0	0	88.1	97.9	0	100	94.4	96.5
Heavy Vehicles	3	71	19	0	93	0	12	27	1	40	0	0	0	0	0	8	21	0	0	29	162
% Heavy Vehicles	1	2.4	2.1	0	2.2	0	2	2.6	10	2.4	0	0	0	0	0	1.4	2.1	0	0	1.8	2.2
Right Turn On Red	34	0	0	0	34	0	0	0	0	0	0	0	0	0	0	61	0	0	0	61	95
% Right Turn On Red	11	0	0	0	0.8	0	0	0	0	0	0	0	0	0	0	10.5	0	0	0	3.8	1.3

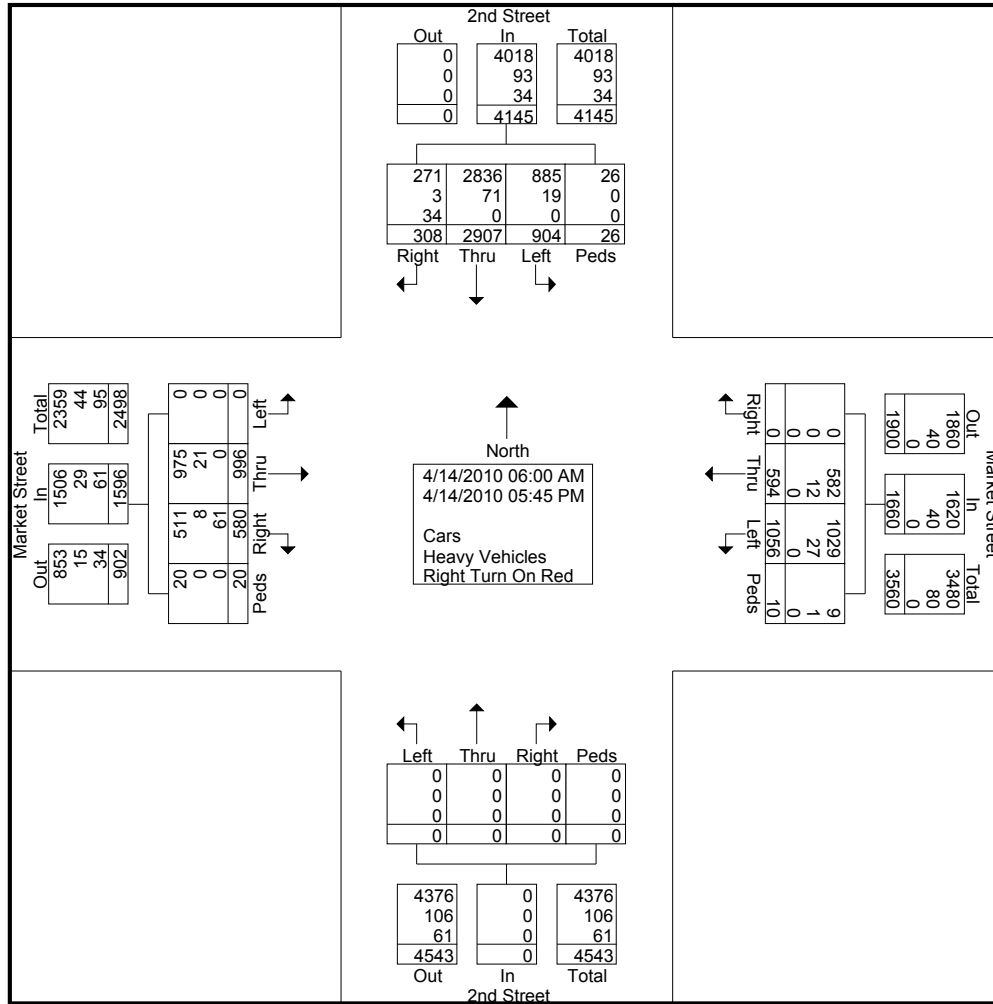
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Tri-State Traffic Data, Inc.

610-466-1469
www.TSTData.com

Location: Columbia County, PA
Intersection: 2nd / Market
Date: Wednesday, April 14, 2010
Counter: JT

File Name : SM0414-8
Site Code : 00000000
Start Date : 4/14/2010
Page No : 2



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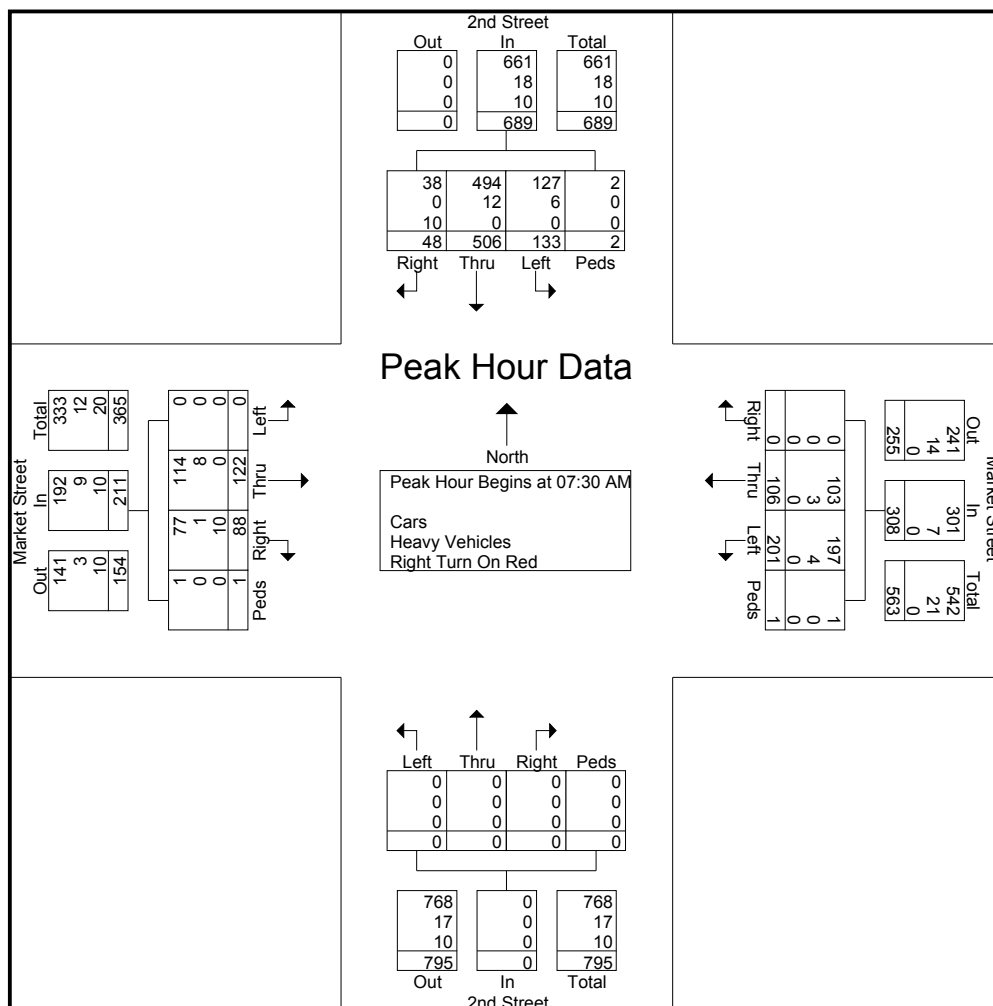
Tri-State Traffic Data, Inc.

610-466-1469
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Location: Columbia County, PA
Intersection: 2nd / Market
Date: Wednesday, April 14, 2010
Counter: JT

File Name : SM0414-8
Site Code : 00000000
Start Date : 4/14/2010
Page No : 3

	2nd Street Southbound					Market Street Westbound					2nd Street Northbound					Market Street Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	11	162	40	0	213	0	23	44	0	67	0	0	0	0	0	21	34	0	0	55	335
07:45 AM	15	140	31	0	186	0	38	61	0	99	0	0	0	0	0	24	32	0	0	56	341
08:00 AM	10	88	31	2	131	0	17	41	0	58	0	0	0	0	0	18	31	0	1	50	239
08:15 AM	12	116	31	0	159	0	28	55	1	84	0	0	0	0	0	25	25	0	0	50	293
Total Volume	48	506	133	2	689	0	106	201	1	308	0	0	0	0	0	88	122	0	1	211	1208
% App. Total	7	73.4	19.3	0.3		0	34.4	65.3	0.3		0	0	0	0	0	41.7	57.8	0	0.5		
PHF	.800	.781	.831	.250	.809	.000	.697	.824	.250	.778	.000	.000	.000	.000	.000	.880	.897	.000	.250	.942	.886
Cars	38	494	127	2	661	0	103	197	1	301	0	0	0	0	0	77	114	0	1	192	1154
% Cars	79.2	97.6	95.5	100	95.9	0	97.2	98.0	100	97.7	0	0	0	0	0	87.5	93.4	0	100	91.0	95.5
Heavy Vehicles	0	2.4	4.5	0	2.6	0	2.8	2.0	0	2.3	0	0	0	0	0	1.1	6.6	0	0	4.3	2.8
Right Turn On Red	10	0	0	0	10	0	0	0	0	0	0	0	0	0	0	10	0	0	0	10	20
% Right Turn On Red	20.8	0	0	0	1.5	0	0	0	0	0	0	0	0	0	0	11.4	0	0	0	4.7	1.7



Controlled Document

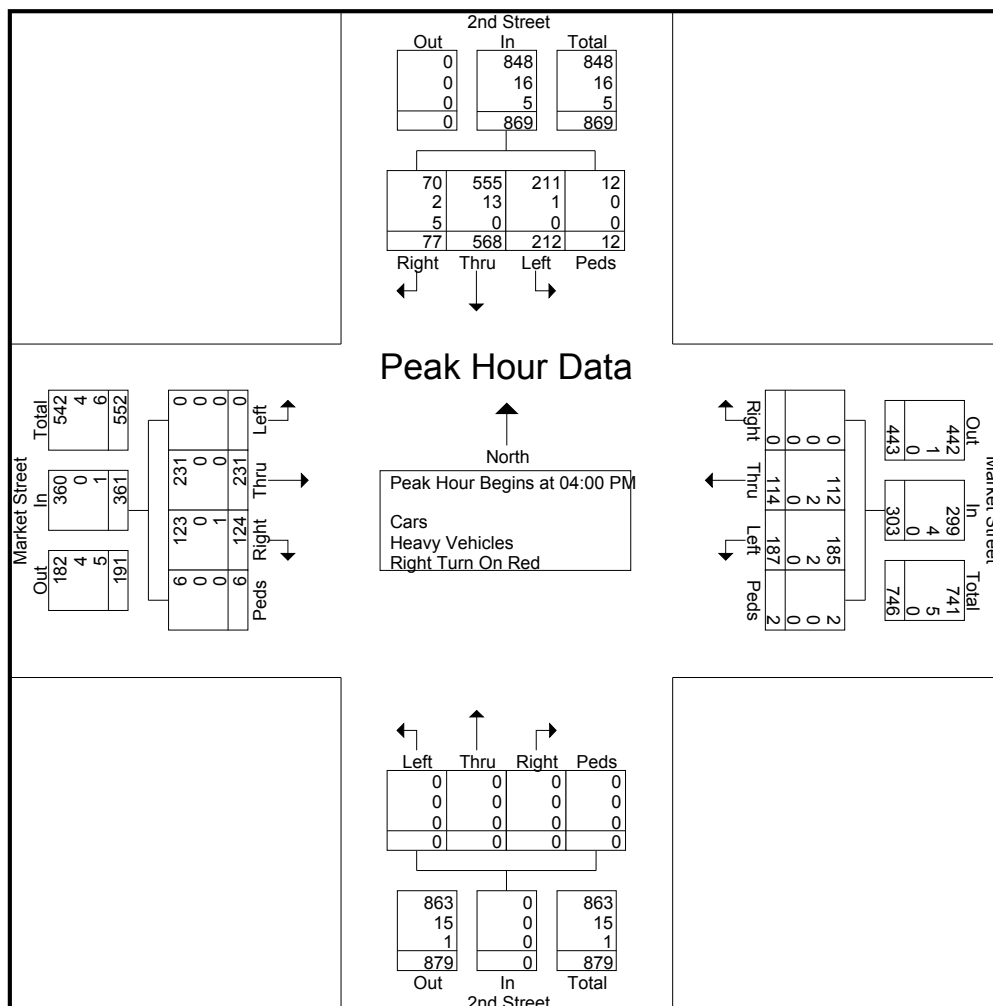
Tri-State Traffic Data, Inc.

610-466-1469
www.TSTData.com

Location: Columbia County, PA
Intersection: 2nd / Market
Date: Wednesday, April 14, 2010
Counter: JT

File Name : SM0414-8
Site Code : 00000000
Start Date : 4/14/2010
Page No : 4

	2nd Street Southbound					Market Street Westbound					2nd Street Northbound					Market Street Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	14	152	47	2	215	0	35	42	0	77	0	0	0	0	0	32	65	0	1	98	390
04:15 PM	25	134	53	1	213	0	21	39	1	61	0	0	0	0	0	33	48	0	0	81	355
04:30 PM	21	156	52	4	233	0	23	48	1	72	0	0	0	0	0	23	61	0	4	88	393
04:45 PM	17	126	60	5	208	0	35	58	0	93	0	0	0	0	0	36	57	0	1	94	395
Total Volume	77	568	212	12	869	0	114	187	2	303	0	0	0	0	0	124	231	0	6	361	1533
% App. Total	8.9	65.4	24.4	1.4		0	37.6	61.7	0.7		0	0	0	0	0	34.3	64	0	1.7		
PHF	.770	.910	.883	.600	.932	.000	.814	.806	.500	.815	.000	.000	.000	.000	.000	.861	.888	.000	.375	.921	.970
Cars	70	555	211	12	848	0	112	185	2	299	0	0	0	0	0	123	231	0	6	360	1507
% Cars	90.9	97.7	99.5	100	97.6	0	98.2	98.9	100	98.7	0	0	0	0	0	99.2	100	0	100	99.7	98.3
Heavy Vehicles																					
% Heavy Vehicles	2.6	2.3	0.5	0	1.8	0	1.8	1.1	0	1.3	0	0	0	0	0	0	0	0	0	0	1.3
Right Turn On Red	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	6
% Right Turn On Red	6.5	0	0	0	0.6	0	0	0	0	0	0	0	0	0	0	0.8	0	0	0	0.3	0.4



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Tri-State Traffic Data, Inc.

610-466-1469
www.TSTData.com

Location: Columbia County, PA
Intersection: Front / Market
Date: Wednesday, April 14, 2010
Counter: ET

File Name : SM0414-9
Site Code : 00000000
Start Date : 4/14/2010
Page No : 1

Groups Printed- Cars - Heavy Vehicles - Right Turn On Red

	Front Street Southbound					Market Street Westbound					Front Street Northbound					Market Street Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:00 AM	0	0	0	0	0	30	29	0	0	59	16	60	0	0	76	0	38	10	0	48	183
06:15 AM	0	0	0	0	0	31	29	0	0	60	21	71	1	0	93	0	44	5	0	49	202
06:30 AM	0	0	0	0	0	39	46	0	0	85	29	94	0	3	126	0	30	8	2	40	251
06:45 AM	0	0	0	0	0	42	53	0	1	96	14	117	1	0	132	0	35	11	0	46	274
Total	0	0	0	0	0	142	157	0	1	300	80	342	2	3	427	0	147	34	2	183	910
07:00 AM	0	0	0	0	0	37	48	0	0	85	29	107	0	0	136	0	55	10	0	65	286
07:15 AM	0	0	0	0	0	79	62	0	1	142	25	139	3	0	167	0	43	6	0	49	358
07:30 AM	0	0	0	0	0	74	68	0	0	142	35	124	0	0	159	0	66	10	2	78	379
07:45 AM	0	0	0	0	0	48	97	0	0	145	27	123	2	0	152	0	56	5	0	61	358
Total	0	0	0	0	0	238	275	0	1	514	116	493	5	0	614	0	220	31	2	253	1381
08:00 AM	0	0	0	0	0	32	58	0	1	91	30	94	1	0	125	0	48	10	0	58	274
08:15 AM	0	0	0	0	0	40	80	0	2	122	30	111	5	1	147	0	41	12	3	56	325
08:30 AM	0	0	0	0	0	29	68	0	1	98	45	96	4	0	145	0	43	15	6	64	307
08:45 AM	0	0	0	0	0	39	68	0	2	109	29	79	3	0	111	0	47	11	1	59	279
Total	0	0	0	0	0	140	274	0	6	420	134	380	13	1	528	0	179	48	10	237	1185
*** BREAK ***																					
03:00 PM	0	0	0	0	0	35	60	0	10	105	30	168	2	1	201	0	77	13	3	93	399
03:15 PM	0	0	0	0	0	35	85	0	2	122	37	146	4	1	188	0	86	15	3	104	414
03:30 PM	0	0	0	0	0	35	80	0	0	115	54	164	1	0	219	0	97	20	5	122	456
03:45 PM	0	0	0	0	0	32	95	0	2	129	43	158	0	0	201	0	71	14	0	85	415
Total	0	0	0	0	0	137	320	0	14	471	164	636	7	2	809	0	331	62	11	404	1684
04:00 PM	0	0	0	0	0	50	71	0	2	123	53	173	1	6	233	0	72	30	5	107	463
04:15 PM	0	0	0	0	0	57	60	0	4	121	47	158	1	0	206	0	85	19	0	104	431
04:30 PM	0	0	0	0	0	47	79	0	0	126	52	163	0	2	217	0	78	34	3	115	458
04:45 PM	0	0	0	0	0	45	88	0	5	138	57	163	0	4	224	0	102	17	2	121	483
Total	0	0	0	0	0	199	298	0	11	508	209	657	2	12	880	0	337	100	10	447	1835
05:00 PM	0	0	0	0	0	42	80	0	7	129	56	170	0	5	231	2	90	15	2	109	469
05:15 PM	0	0	0	0	0	48	88	0	2	138	59	173	0	0	232	0	88	21	1	110	480
05:30 PM	0	0	0	0	0	40	71	0	0	111	49	154	0	2	205	2	71	15	4	92	408
05:45 PM	0	0	0	0	0	28	80	0	0	108	39	158	0	4	201	0	70	18	2	90	399
Total	0	0	0	0	0	158	319	0	9	486	203	655	0	11	869	4	319	69	9	401	1756
Grand Total	0	0	0	0	0	1014	1643	0	42	2699	906	3163	29	29	4127	4	1533	344	44	1925	8751
Apprch %	0	0	0	0		37.6	60.9	0	1.6		22	76.6	0.7	0.7		0.2	79.6	17.9	2.3		
Total %	0	0	0	0	0	11.6	18.8	0	0.5	30.8	10.4	36.1	0.3	0.3	47.2	0	17.5	3.9	0.5	22	
Cars	0	0	0	0	0	745	1604	0	41	2390	823	3085	28	29	3965	4	1499	337	44	1884	8239
% Cars	0	0	0	0	0	73.5	97.6	0	97.6	88.6	90.8	97.5	96.6	100	96.1	100	97.8	98	100	97.9	94.1
Heavy Vehicles	0	0	0	0	0	15	39	0	1	55	17	78	1	0	96	0	31	7	0	38	189
% Heavy Vehicles	0	0	0	0	0	1.5	2.4	0	2.4	2	1.9	2.5	3.4	0	2.3	0	2	2	0	2	2.2
Right Turn On Red	0	0	0	0	0	254	0	0	0	254	66	0	0	0	66	0	3	0	0	3	323
% Right Turn On Red	0	0	0	0	0	25	0	0	0	9.4	7.3	0	0	0	1.6	0	0.2	0	0	0.2	3.7

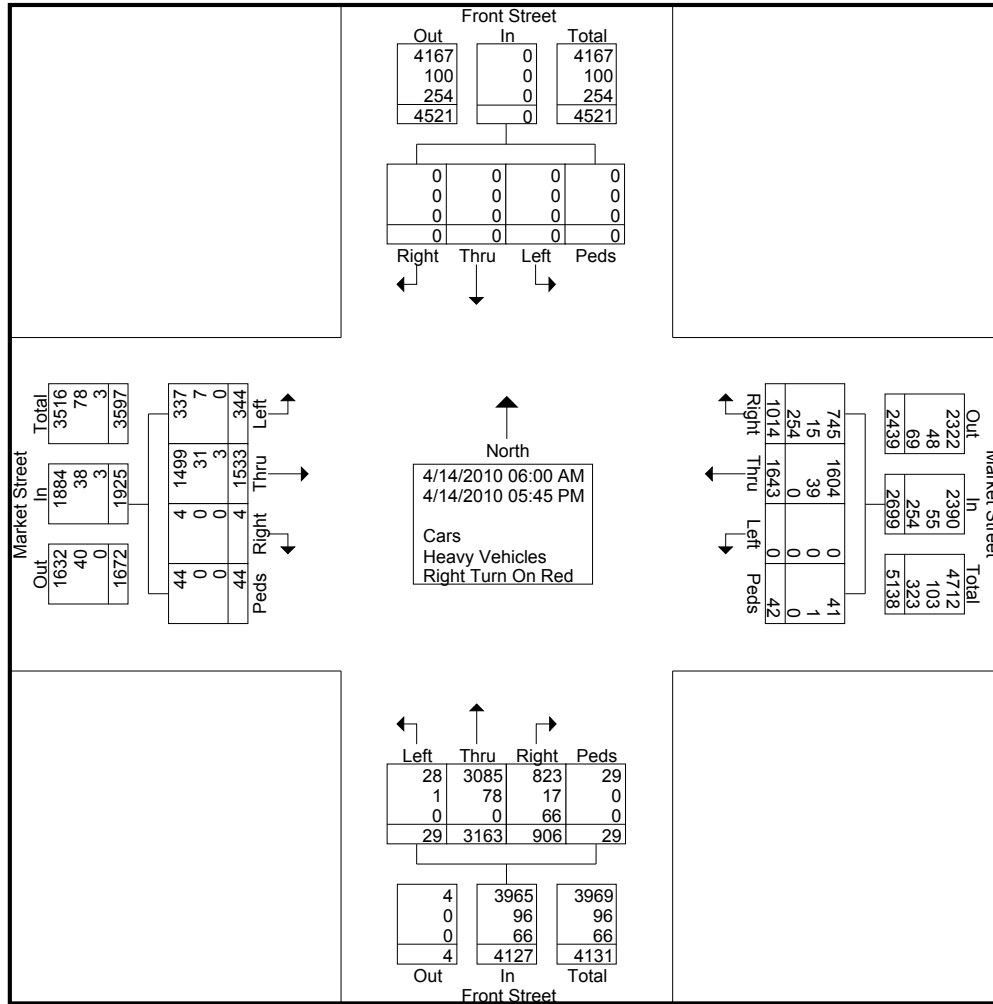
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Tri-State Traffic Data, Inc.

610-466-1469
www.TSTData.com

Location: Columbia County, PA
Intersection: Front / Market
Date: Wednesday, April 14, 2010
Counter: ET

File Name : SM0414-9
Site Code : 00000000
Start Date : 4/14/2010
Page No : 2



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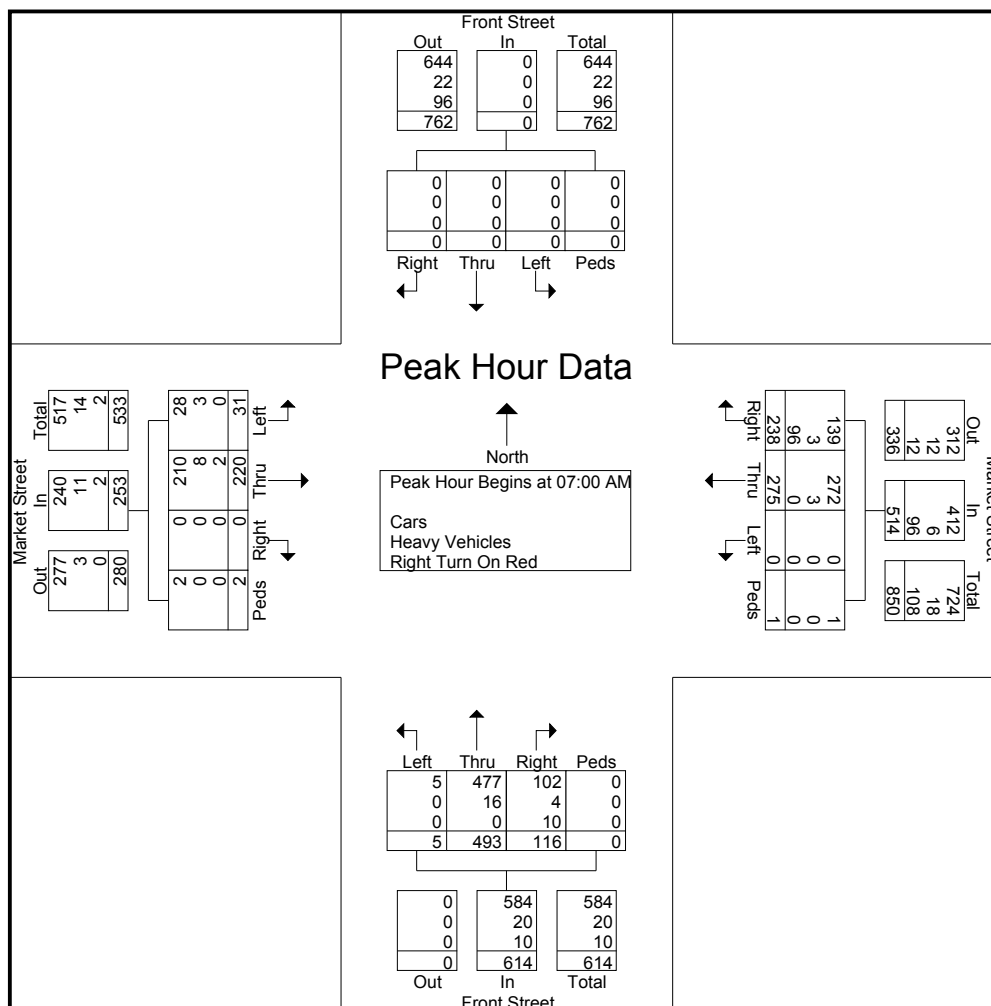
Tri-State Traffic Data, Inc.

610-466-1469
www.TSTData.com

Location: Columbia County, PA
Intersection: Front / Market
Date: Wednesday, April 14, 2010
Counter: ET

File Name : SM0414-9
Site Code : 00000000
Start Date : 4/14/2010
Page No : 3

	Front Street Southbound					Market Street Westbound					Front Street Northbound					Market Street Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	0	0	0	0	0	37	48	0	0	85	29	107	0	0	136	0	55	10	0	65	286
07:15 AM	0	0	0	0	0	79	62	0	1	142	25	139	3	0	167	0	43	6	0	49	358
07:30 AM	0	0	0	0	0	74	68	0	0	142	35	124	0	0	159	0	66	10	2	78	379
07:45 AM	0	0	0	0	0	48	97	0	0	145	27	123	2	0	152	0	56	5	0	61	358
Total Volume	0	0	0	0	0	238	275	0	1	514	116	493	5	0	614	0	220	31	2	253	1381
% App. Total	0	0	0	0	0	46.3	53.5	0	0.2		18.9	80.3	0.8	0		0	87	12.3	0.8		
PHF	.000	.000	.000	.000	.000	.753	.709	.000	.250	.886	.829	.887	.417	.000	.919	.000	.833	.775	.250	.811	.911
Cars	0	0	0	0	0	139	272	0	1	412	102	477	5	0	584	0	210	28	2	240	1236
% Cars	0	0	0	0	0	58.4	98.9	0	100	80.2	87.9	96.8	100	0	95.1	0	95.5	90.3	100	94.9	89.5
Heavy Vehicles																					
% Heavy Vehicles	0	0	0	0	0	1.3	1.1	0	0	1.2	3.4	3.2	0	0	3.3	0	3.6	9.7	0	4.3	2.7
Right Turn On Red	0	0	0	0	0	96	0	0	0	96	10	0	0	0	10	0	2	0	0	2	108
% Right Turn On Red	0	0	0	0	0	40.3	0	0	0	18.7	8.6	0	0	0	1.6	0	0.9	0	0	0.8	7.8



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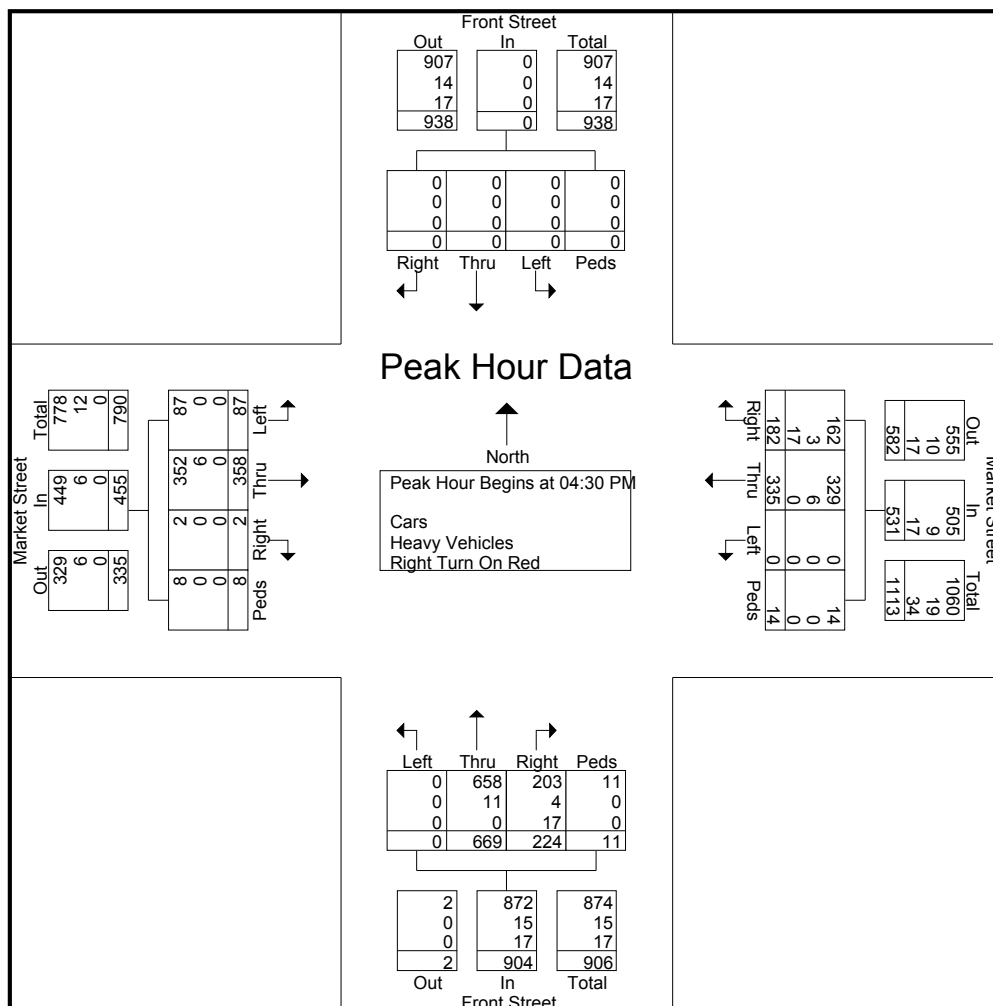
Tri-State Traffic Data, Inc.

610-466-1469
www.TSTData.com

Location: Columbia County, PA
Intersection: Front / Market
Date: Wednesday, April 14, 2010
Counter: ET

File Name : SM0414-9
Site Code : 00000000
Start Date : 4/14/2010
Page No : 4

	Front Street Southbound					Market Street Westbound					Front Street Northbound					Market Street Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	0	0	0	0	0	47	79	0	0	126	52	163	0	2	217	0	78	34	3	115	458
04:45 PM	0	0	0	0	0	45	88	0	5	138	57	163	0	4	224	0	102	17	2	121	483
05:00 PM	0	0	0	0	0	42	80	0	7	129	56	170	0	5	231	2	90	15	2	109	469
05:15 PM	0	0	0	0	0	48	88	0	2	138	59	173	0	0	232	0	88	21	1	110	480
Total Volume	0	0	0	0	0	182	335	0	14	531	224	669	0	11	904	2	358	87	8	455	1890
% App. Total	0	0	0	0	0	34.3	63.1	0	2.6		24.8	74	0	1.2		0.4	78.7	19.1	1.8		
PHF	.000	.000	.000	.000	.000	.948	.952	.000	.500	.962	.949	.967	.000	.550	.974	.250	.877	.640	.667	.940	.978
Cars	0	0	0	0	0	162	329	0	14	505	203	658	0	11	872	2	352	87	8	449	1826
% Cars	0	0	0	0	0	89.0	98.2	0	100	95.1	90.6	98.4	0	100	96.5	100	98.3	100	100	98.7	96.6
Heavy Vehicles																					
% Heavy Vehicles	0	0	0	0	0	1.6	1.8	0	0	1.7	1.8	1.6	0	0	1.7	0	1.7	0	0	1.3	1.6
Right Turn On Red	0	0	0	0	0	17	0	0	0	17	17	0	0	0	17	0	0	0	0	0	34
% Right Turn On Red	0	0	0	0	0	9.3	0	0	0	3.2	7.6	0	0	0	1.9	0	0	0	0	0	1.8



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Tri-State Traffic Data, Inc.

610-466-1469
www.TSTData.com

Location: Columbia County, PA
Intersection: 2nd St / Pine St
Date: Thursday, April 15, 2010
Counter: RZ

File Name : SM0415-10
Site Code : 00000000
Start Date : 4/15/2010
Page No : 1

Groups Printed- Cars - Heavy Vehicles - RTOR

	2ND ST Southbound					PINE ST Westbound					2ND ST Northbound					PINE ST Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:00 AM	3	58	0	0	61	0	4	1	0	5	0	0	0	0	0	0	0	0	0	0	66
06:15 AM	3	85	0	0	88	0	6	1	0	7	0	0	0	0	0	1	0	0	0	1	96
06:30 AM	3	70	0	0	73	0	8	3	0	11	0	0	0	0	0	1	0	0	0	1	85
06:45 AM	4	110	0	0	114	0	7	3	0	10	0	0	0	1	1	3	0	0	0	3	128
Total	13	323	0	0	336	0	25	8	0	33	0	0	0	1	1	5	0	0	0	5	375
07:00 AM	10	134	0	0	144	0	14	3	0	17	0	0	0	0	0	4	0	0	0	4	165
07:15 AM	5	142	0	2	149	0	16	2	0	18	0	0	0	3	3	5	0	0	0	5	175
07:30 AM	6	200	0	0	206	0	21	6	0	27	0	0	0	2	2	3	0	0	0	3	238
07:45 AM	4	151	0	1	156	0	19	9	0	28	0	0	0	0	0	5	0	0	0	5	189
Total	25	627	0	3	655	0	70	20	0	90	0	0	0	5	5	17	0	0	0	17	767
08:00 AM	1	96	0	0	97	0	10	6	0	16	1	0	0	0	1	6	1	0	0	7	121
08:15 AM	7	131	0	1	139	0	16	3	1	20	0	0	0	0	0	3	0	0	0	3	162
08:30 AM	6	135	0	0	141	0	21	4	0	25	0	0	0	0	0	6	0	0	0	6	172
08:45 AM	4	130	0	1	135	0	26	8	0	34	0	1	4	0	5	8	0	0	0	8	182
Total	18	492	0	2	512	0	73	21	1	95	1	1	4	0	6	23	1	0	0	24	637
*** BREAK ***																					
03:00 PM	11	179	0	0	190	0	30	10	0	40	0	0	0	3	3	18	0	0	2	20	253
03:15 PM	10	169	0	5	184	0	34	17	2	53	0	0	0	0	0	18	0	0	2	20	257
03:30 PM	13	191	0	3	207	0	33	14	0	47	0	0	0	0	0	10	1	0	0	11	265
03:45 PM	6	159	0	0	165	0	41	14	2	57	0	0	0	0	0	6	0	0	2	8	230
Total	40	698	0	8	746	0	138	55	4	197	0	0	0	3	3	52	1	0	6	59	1005
04:00 PM	16	209	0	1	226	0	26	16	0	42	0	0	0	3	3	7	0	0	1	8	279
04:15 PM	9	182	0	1	192	0	30	9	0	39	0	0	0	0	0	13	1	0	1	15	246
04:30 PM	10	173	0	1	184	0	25	11	0	36	0	0	0	1	1	11	0	0	0	11	232
04:45 PM	6	163	0	0	169	0	29	9	0	38	0	0	0	1	1	13	0	0	0	13	221
Total	41	727	0	3	771	0	110	45	0	155	0	0	0	5	5	44	1	0	2	47	978
05:00 PM	7	173	8	1	189	0	34	13	1	48	0	0	0	0	0	8	0	0	0	8	245
05:15 PM	5	158	0	2	165	0	32	7	1	40	0	0	0	0	0	10	0	0	1	11	216
05:30 PM	8	156	0	1	165	0	18	4	0	22	0	0	0	2	2	16	0	0	0	16	205
05:45 PM	4	151	0	0	155	0	16	4	0	20	0	3	0	2	5	5	0	0	0	5	185
Total	24	638	8	4	674	0	100	28	2	130	0	3	0	4	7	39	0	0	1	40	851
Grand Total	161	3505	8	20	3694	0	516	177	7	700	1	4	4	18	27	180	3	0	9	192	4613
Apprch %	4.4	94.9	0.2	0.5		0	73.7	25.3	1		3.7	14.8	14.8	66.7		93.8	1.6	0	4.7		
Total %	3.5	76	0.2	0.4	80.1	0	11.2	3.8	0.2	15.2	0	0.1	0.1	0.4	0.6	3.9	0.1	0	0.2	4.2	
Cars	154	3431	8	20	3613	0	513	177	7	697	1	4	4	18	27	167	3	0	9	179	4516
% Cars	95.7	97.9	100	100	97.8	0	99.4	100	100	99.6	100	100	100	100	100	92.8	100	0	100	93.2	97.9
Heavy Vehicles	1	74	0	0	75	0	3	0	0	3	0	0	0	0	0	3	0	0	0	3	81
% Heavy Vehicles	0.6	2.1	0	0	2	0	0.6	0	0	0.4	0	0	0	0	0	1.7	0	0	0	1.6	1.8
RTOR	6	0	0	0	6	0	0	0	0	0	0	0	0	0	0	10	0	0	0	10	16
% RTOR	3.7	0	0	0	0.2	0	0	0	0	0	0	0	0	0	0	5.6	0	0	0	5.2	0.3

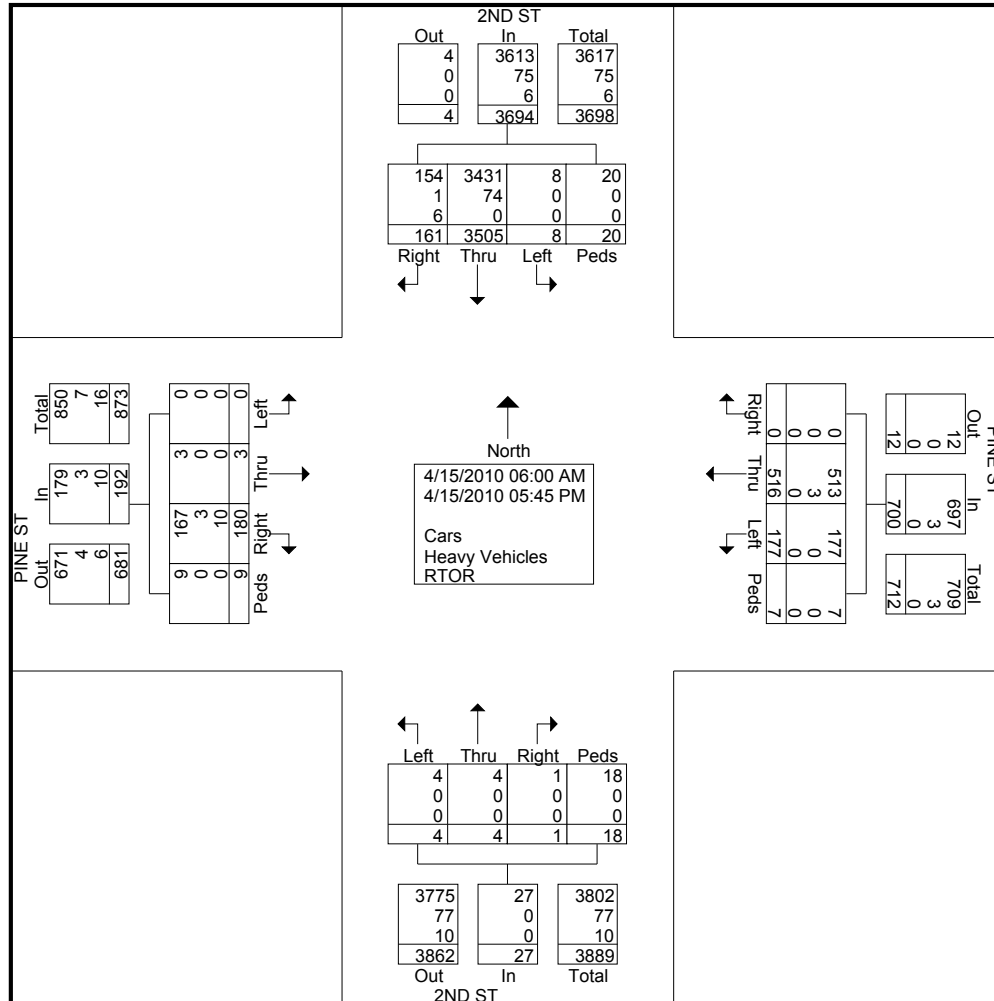
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Tri-State Traffic Data, Inc.

610-466-1469
www.TSTData.com

Location: Columbia County, PA
Intersection: 2nd St / Pine St
Date: Thursday, April 15, 2010
Counter: RZ

File Name : SM0415-10
Site Code : 00000000
Start Date : 4/15/2010
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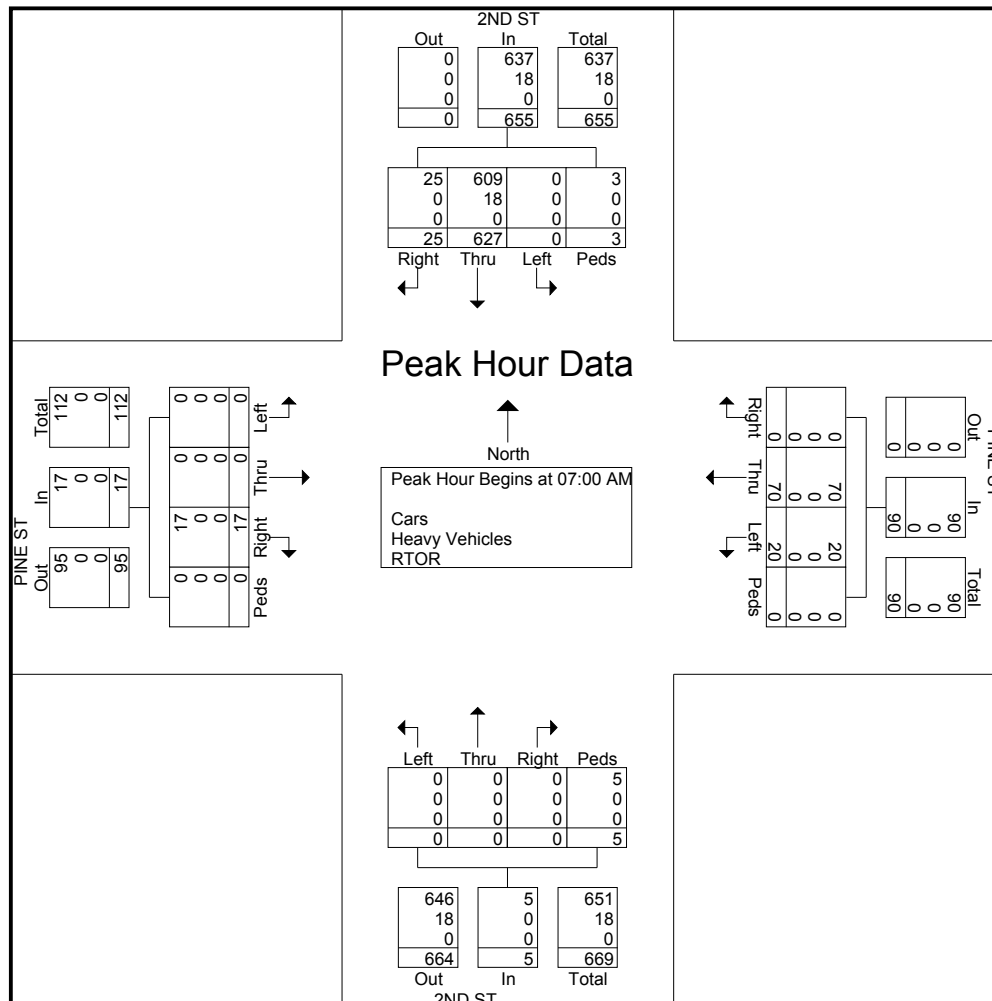
Tri-State Traffic Data, Inc.

610-466-1469
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Location: Columbia County, PA
Intersection: 2nd St / Pine St
Date: Thursday, April 15, 2010
Counter: RZ

File Name : SM0415-10
Site Code : 00000000
Start Date : 4/15/2010
Page No : 3

	2ND ST Southbound					PINE ST Westbound					2ND ST Northbound					PINE ST Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	10	134	0	0	144	0	14	3	0	17	0	0	0	0	0	4	0	0	0	4	165
07:15 AM	5	142	0	2	149	0	16	2	0	18	0	0	0	3	3	5	0	0	0	5	175
07:30 AM	6	200	0	0	206	0	21	6	0	27	0	0	0	2	2	3	0	0	0	3	238
07:45 AM	4	151	0	1	156	0	19	9	0	28	0	0	0	0	0	5	0	0	0	5	189
Total Volume	25	627	0	3	655	0	70	20	0	90	0	0	0	5	5	17	0	0	0	17	767
% App. Total	3.8	95.7	0	0.5		0	77.8	22.2	0		0	0	0	100		100	0	0	0		
PHF	.625	.784	.000	.375	.795	.000	.833	.556	.000	.804	.000	.000	.000	.417	.417	.850	.000	.000	.000	.850	.806
Cars	25	609	0	3	637	0	70	20	0	90	0	0	0	5	5	17	0	0	0	17	749
% Cars	100	97.1	0	100	97.3	0	100	100	0	100	0	0	0	100	100	100	0	0	0	100	97.7
Heavy Vehicles																					
% Heavy Vehicles	0	2.9	0	0	2.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.3
RTOR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% RTOR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



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Tri-State Traffic Data, Inc.

610-466-1469
www.TSTData.com

Location: Columbia County, PA
Intersection: 2nd St / Pine St
Date: Thursday, April 15, 2010
Counter: RZ

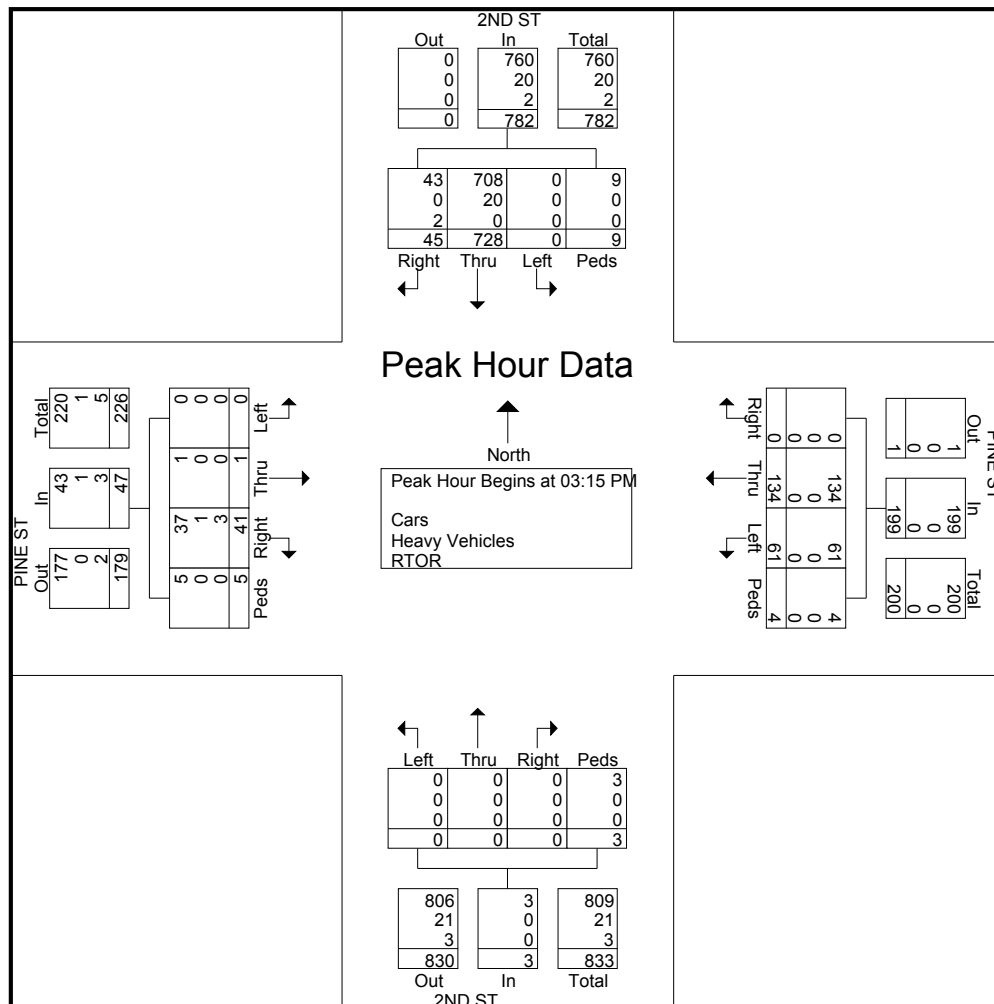
File Name : SM0415-10
Site Code : 00000000
Start Date : 4/15/2010
Page No : 4

	2ND ST Southbound					PINE ST Westbound					2ND ST Northbound					PINE ST Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total

Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 03:15 PM

03:15 PM	10	169	0	5	184	0	34	17	2	53	0	0	0	0	0	18	0	0	2	20	257
03:30 PM	13	191	0	3	207	0	33	14	0	47	0	0	0	0	0	10	1	0	0	11	265
03:45 PM	6	159	0	0	165	0	41	14	2	57	0	0	0	0	0	6	0	0	2	8	230
04:00 PM	16	209	0	1	226	0	26	16	0	42	0	0	0	3	3	7	0	0	1	8	279
Total Volume	45	728	0	9	782	0	134	61	4	199	0	0	0	3	3	41	1	0	5	47	1031
% App. Total	5.8	93.1	0	1.2		0	67.3	30.7	2		0	0	0	100		87.2	2.1	0	10.6		
PHF	.703	.871	.000	.450	.865	.000	.817	.897	.500	.873	.000	.000	.000	.250	.250	.569	.250	.000	.625	.588	.924
Cars	43	708	0	9	760	0	134	61	4	199	0	0	0	3	3	37	1	0	5	43	1005
% Cars	95.6	97.3	0	100	97.2	0	100	100	100	100	0	0	0	100	100	90.2	100	0	100	91.5	97.5
Heavy Vehicles																					
% Heavy Vehicles	0	2.7	0	0	2.6	0	0	0	0	0	0	0	0	0	0	2.4	0	0	0	2.1	2.0
RTOR	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3	5
% RTOR	4.4	0	0	0	0.3	0	0	0	0	0	0	0	0	0	0	7.3	0	0	0	6.4	0.5



Controlled Document

Tri-State Traffic Data, Inc.

610-466-1469
www.TSTData.com

Location: Columbia, PA
Intersection: 2nd St/Walnut, St
Date: Thursday, April 15, 2010
Counter: CMK

File Name : SM0415-11
Site Code : 00000000
Start Date : 4/15/2010
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	2ND ST Southbound					WALNUT ST Westbound					2ND ST Northbound					WALNUT ST Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:00 AM	1	5	0	0	6	2	2	38	0	42	0	0	0	0	0	9	0	14	1	24	72
06:15 AM	0	5	0	0	5	0	8	71	0	79	0	0	0	0	0	10	0	0	0	10	94
06:30 AM	0	16	0	1	17	0	7	76	0	83	0	0	0	0	0	19	0	1	1	21	121
06:45 AM	0	15	0	3	18	4	9	82	1	96	0	0	0	0	0	6	0	0	0	6	120
Total	1	41	0	4	46	6	26	267	1	300	0	0	0	0	0	44	0	15	2	61	407
07:00 AM	1	40	0	0	41	1	6	98	0	105	0	0	0	1	1	12	0	2	0	14	161
07:15 AM	1	42	0	3	46	3	27	79	0	109	0	0	0	0	0	23	0	5	0	28	183
07:30 AM	2	71	0	0	73	7	21	112	0	140	0	0	0	1	1	27	0	5	0	32	246
07:45 AM	0	41	0	0	41	1	17	83	0	101	0	0	0	0	0	15	0	3	1	19	161
Total	4	194	0	3	201	12	71	372	0	455	0	0	0	2	2	77	0	15	1	93	751
08:00 AM	1	25	0	0	26	2	13	62	0	77	0	0	0	0	0	12	0	1	0	13	116
08:15 AM	2	60	0	0	62	0	14	69	0	83	0	0	0	0	0	24	0	3	1	28	173
08:30 AM	0	51	0	2	53	1	12	55	0	68	0	0	0	0	0	15	0	3	0	18	139
08:45 AM	1	41	0	0	42	1	9	80	0	90	0	0	0	0	0	12	0	3	0	15	147
Total	4	177	0	2	183	4	48	266	0	318	0	0	0	0	0	63	0	10	1	74	575
*** BREAK ***																					
03:00 PM	1	68	0	0	69	3	21	114	0	138	0	0	0	2	2	22	0	6	5	33	242
03:15 PM	1	44	0	0	45	3	23	102	0	128	0	0	0	0	0	15	0	4	0	19	192
03:30 PM	3	83	0	0	86	3	27	116	0	146	0	0	0	0	0	28	0	10	3	41	273
03:45 PM	1	51	0	0	52	3	26	121	1	151	0	0	0	0	0	14	0	1	5	20	223
Total	6	246	0	0	252	12	97	453	1	563	0	0	0	2	2	79	0	21	13	113	930
04:00 PM	1	63	0	2	66	2	34	139	1	176	0	0	0	0	0	24	0	7	0	31	273
04:15 PM	1	52	0	0	53	3	31	111	0	145	0	0	0	0	0	30	0	8	1	39	237
04:30 PM	2	55	0	0	57	1	20	111	1	133	0	0	0	0	0	23	0	4	0	27	217
04:45 PM	3	59	0	1	63	5	20	89	0	114	0	0	0	0	0	22	0	2	1	25	202
Total	7	229	0	3	239	11	105	450	2	568	0	0	0	0	0	99	0	21	2	122	929
05:00 PM	1	47	0	1	49	3	24	121	1	149	0	0	0	3	3	22	0	8	4	34	235
05:15 PM	2	42	0	0	44	1	24	95	0	120	0	0	0	0	0	27	0	6	2	35	199
05:30 PM	2	55	0	0	57	3	30	93	0	126	0	0	0	3	3	18	0	2	0	20	206
05:45 PM	1	47	0	0	48	5	32	91	1	129	0	0	0	0	0	25	0	4	1	30	207
Total	6	191	0	1	198	12	110	400	2	524	0	0	0	6	6	92	0	20	7	119	847
Grand Total	28	1078	0	13	1119	57	457	2208	6	2728	0	0	0	10	10	454	0	102	26	582	4439
Apprch %	2.5	96.3	0	1.2		2.1	16.8	80.9	0.2		0	0	0	100		78	0	17.5	4.5		
Total %	0.6	24.3	0	0.3	25.2	1.3	10.3	49.7	0.1	61.5	0	0	0	0.2	0.2	10.2	0	2.3	0.6	13.1	
Cars	28	1066	0	13	1107	57	453	2148	6	2664	0	0	0	10	10	454	0	101	26	581	4362
% Cars	100	98.9	0	100	98.9	100	99.1	97.3	100	97.7	0	0	0	100	100	100	0	99	100	99.8	98.3
Heavy Vehicles	0	12	0	0	12	0	4	60	0	64	0	0	0	0	0	0	0	1	0	1	77
% Heavy Vehicles	0	1.1	0	0	1.1	0	0.9	2.7	0	2.3	0	0	0	0	0	0	0	1	0	0.2	1.7

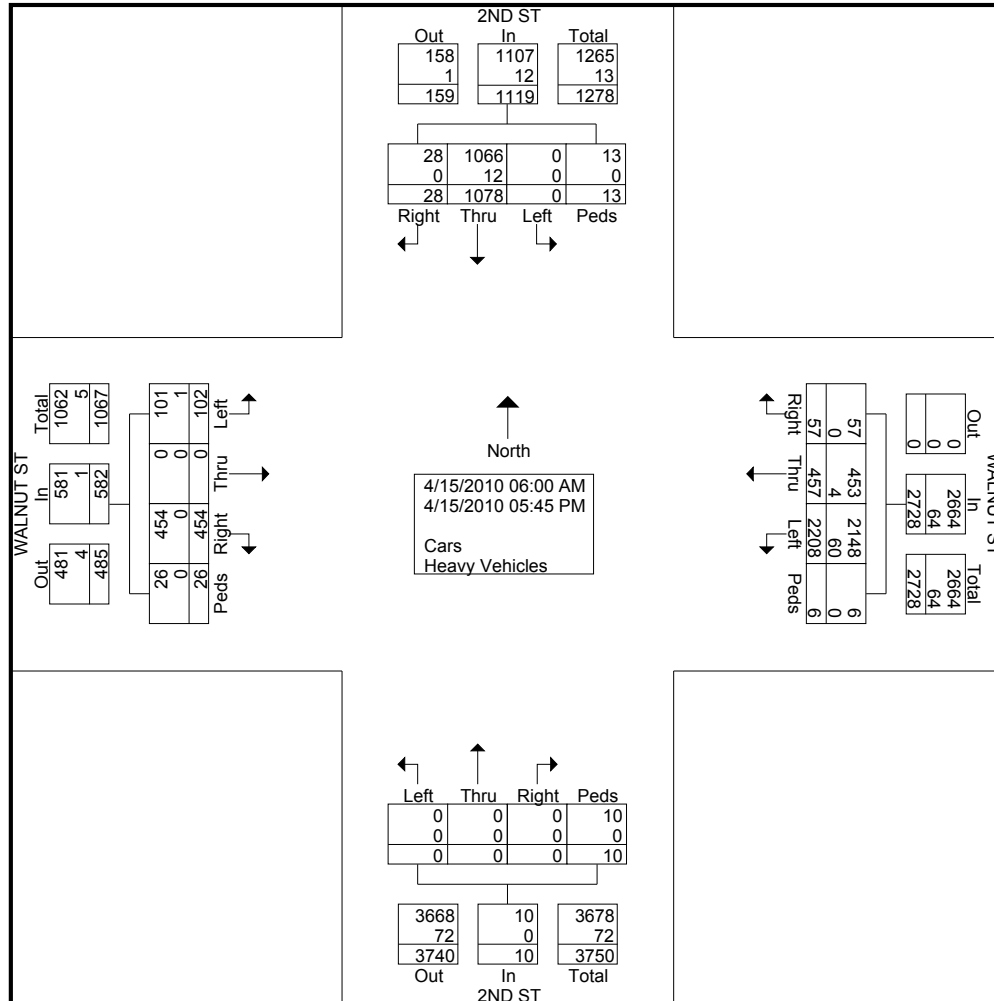
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Tri-State Traffic Data, Inc.

610-466-1469
www.TSTData.com

Location: Columbia, PA
Intersection: 2nd St/Walnut, St
Date: Thursday, April 15, 2010
Counter: CMK

File Name : SM0415-11
Site Code : 00000000
Start Date : 4/15/2010
Page No : 2



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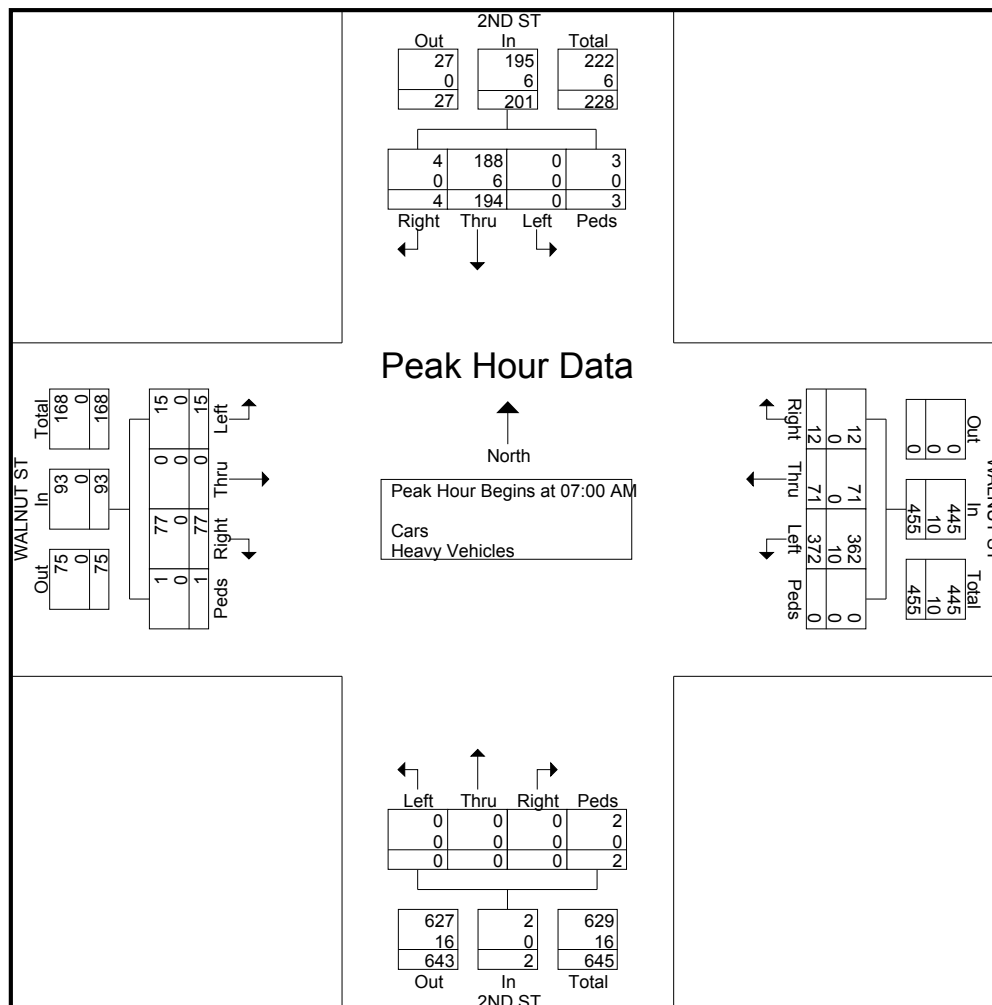
Tri-State Traffic Data, Inc.

610-466-1469
www.TSTData.com

Location: Columbia, PA
Intersection: 2nd St/Walnut, St
Date: Thursday, April 15, 2010
Counter: CMK

File Name : SM0415-11
Site Code : 00000000
Start Date : 4/15/2010
Page No : 3

	2ND ST Southbound					WALNUT ST Westbound					2ND ST Northbound					WALNUT ST Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	1	40	0	0	41	1	6	98	0	105	0	0	0	1	1	12	0	2	0	14	161
07:15 AM	1	42	0	3	46	3	27	79	0	109	0	0	0	0	0	23	0	5	0	28	183
07:30 AM	2	71	0	0	73	7	21	112	0	140	0	0	0	1	1	27	0	5	0	32	246
07:45 AM	0	41	0	0	41	1	17	83	0	101	0	0	0	0	0	15	0	3	1	19	161
Total Volume	4	194	0	3	201	12	71	372	0	455	0	0	0	2	2	77	0	15	1	93	751
% App. Total	2	96.5	0	1.5		2.6	15.6	81.8	0		0	0	0	100		82.8	0	16.1	1.1		
PHF	.500	.683	.000	.250	.688	.429	.657	.830	.000	.813	.000	.000	.000	.500	.500	.713	.000	.750	.250	.727	.763
Cars	4	188	0	3	195	12	71	362	0	445	0	0	0	2	2	77	0	15	1	93	735
% Cars	100	96.9	0	100	97.0	100	100	97.3	0	97.8	0	0	0	100	100	100	0	100	100	100	97.9
Heavy Vehicles																					
% Heavy Vehicles	0	3.1	0	0	3.0	0	0	2.7	0	2.2	0	0	0	0	0	0	0	0	0	0	2.1



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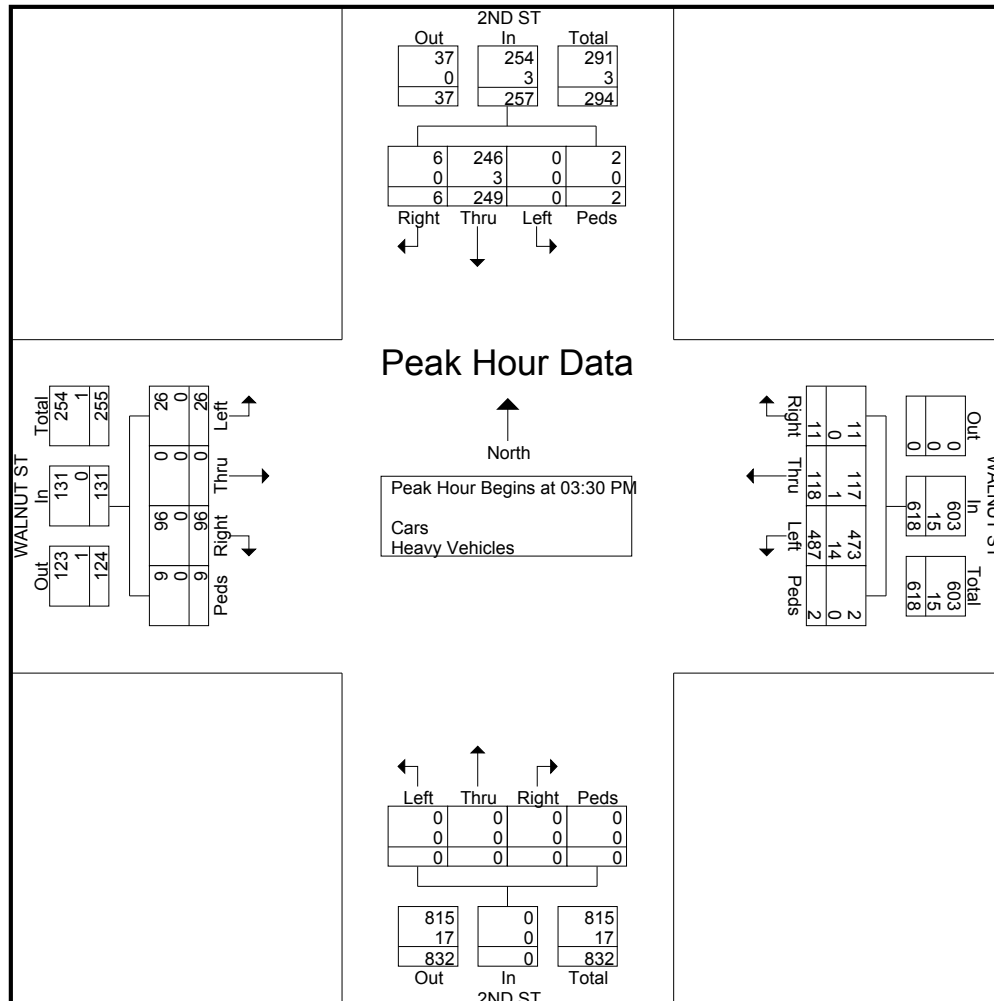
Tri-State Traffic Data, Inc.

610-466-1469
www.TSTData.com

Location: Columbia, PA
Intersection: 2nd St/Walnut, St
Date: Thursday, April 15, 2010
Counter: CMK

File Name : SM0415-11
Site Code : 00000000
Start Date : 4/15/2010
Page No : 4

	2ND ST Southbound					WALNUT ST Westbound					2ND ST Northbound					WALNUT ST Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 03:30 PM																					
03:30 PM	3	83	0	0	86	3	27	116	0	146	0	0	0	0	0	28	0	10	3	41	273
03:45 PM	1	51	0	0	52	3	26	121	1	151	0	0	0	0	0	14	0	1	5	20	223
04:00 PM	1	63	0	2	66	2	34	139	1	176	0	0	0	0	0	24	0	7	0	31	273
04:15 PM	1	52	0	0	53	3	31	111	0	145	0	0	0	0	0	30	0	8	1	39	237
Total Volume	6	249	0	2	257	11	118	487	2	618	0	0	0	0	0	96	0	26	9	131	1006
% App. Total	2.3	96.9	0	0.8		1.8	19.1	78.8	0.3		0	0	0	0	0	73.3	0	19.8	6.9		
PHF	.500	.750	.000	.250	.747	.917	.868	.876	.500	.878	.000	.000	.000	.000	.000	.800	.000	.650	.450	.799	.921
Cars	6	246	0	2	254	11	117	473	2	603	0	0	0	0	0	96	0	26	9	131	988
% Cars	100	98.8	0	100	98.8	100	99.2	97.1	100	97.6	0	0	0	0	0	100	0	100	100	100	98.2
Heavy Vehicles																					
% Heavy Vehicles	0	1.2	0	0	1.2	0	0.8	2.9	0	2.4	0	0	0	0	0	0	0	0	0	0	1.8



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Tri-State Traffic Data, Inc.

610-466-1469
www.TSTData.com

Location: Columbia County, PA
Intersection: Front St/ Walnut Street
Date: Thursday, April 15, 2010
Counter: pb

File Name : SM0415-12
Site Code : 00000000
Start Date : 4/15/2010
Page No : 1

Groups Printed- Cars - Heavy Vehicles

Start Time	Front St Southbound				Front St Northbound				Walnut St Eastbound				Int. Total
	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	
06:00 AM	48	0	0	48	93	1	0	94	0	0	0	0	142
06:15 AM	68	0	0	68	116	5	0	121	0	0	0	0	189
06:30 AM	76	0	0	76	131	8	0	139	0	0	0	0	215
06:45 AM	71	0	1	72	139	10	0	149	0	0	0	0	221
Total	263	0	1	264	479	24	0	503	0	0	0	0	767
07:00 AM	105	0	0	105	142	6	0	148	0	0	0	0	253
07:15 AM	84	0	0	84	168	31	0	199	0	0	0	0	283
07:30 AM	109	0	0	109	153	30	0	183	0	0	0	0	292
07:45 AM	91	0	0	91	118	17	0	135	0	0	0	0	226
Total	389	0	0	389	581	84	0	665	0	0	0	0	1054
08:00 AM	51	0	0	51	88	17	0	105	0	0	0	0	156
08:15 AM	72	0	0	72	126	13	0	139	0	0	0	0	211
08:30 AM	59	0	0	59	93	11	0	104	0	0	0	0	163
08:45 AM	79	0	0	79	84	7	0	91	0	0	0	0	170
Total	261	0	0	261	391	48	0	439	0	0	0	0	700
*** BREAK ***													
03:00 PM	112	2	0	114	132	23	0	155	0	0	0	0	269
03:15 PM	110	0	0	110	118	27	0	145	0	0	0	0	255
03:30 PM	124	0	0	124	153	26	0	179	0	0	0	0	303
03:45 PM	122	0	0	122	124	24	0	148	0	0	0	0	270
Total	468	2	0	470	527	100	0	627	0	0	0	0	1097
04:00 PM	146	0	0	146	155	32	0	187	0	0	0	0	333
04:15 PM	111	0	0	111	114	29	0	143	0	0	0	0	254
04:30 PM	111	0	1	112	138	16	0	154	0	0	0	0	266
04:45 PM	94	0	0	94	137	22	0	159	0	0	0	0	253
Total	462	0	1	463	544	99	0	643	0	0	0	0	1106
05:00 PM	123	0	1	124	130	23	0	153	0	0	0	0	277
05:15 PM	91	0	0	91	144	28	0	172	0	0	0	0	263
05:30 PM	103	0	0	103	134	27	0	161	0	0	0	0	264
05:45 PM	81	0	0	81	170	38	0	208	0	0	0	0	289
Total	398	0	1	399	578	116	0	694	0	0	0	0	1093
Grand Total	2241	2	3	2246	3100	471	0	3571	0	0	0	0	5817
Apprch %	99.8	0.1	0.1		86.8	13.2	0		0	0	0		
Total %	38.5	0	0.1	38.6	53.3	8.1	0	61.4	0	0	0	0	
Cars	2181	2	3	2186	3013	467	0	3480	0	0	0	0	5666
% Cars	97.3	100	100	97.3	97.2	99.2	0	97.5	0	0	0	0	97.4
Heavy Vehicles	60	0	0	60	87	4	0	91	0	0	0	0	151
% Heavy Vehicles	2.7	0	0	2.7	2.8	0.8	0	2.5	0	0	0	0	2.6

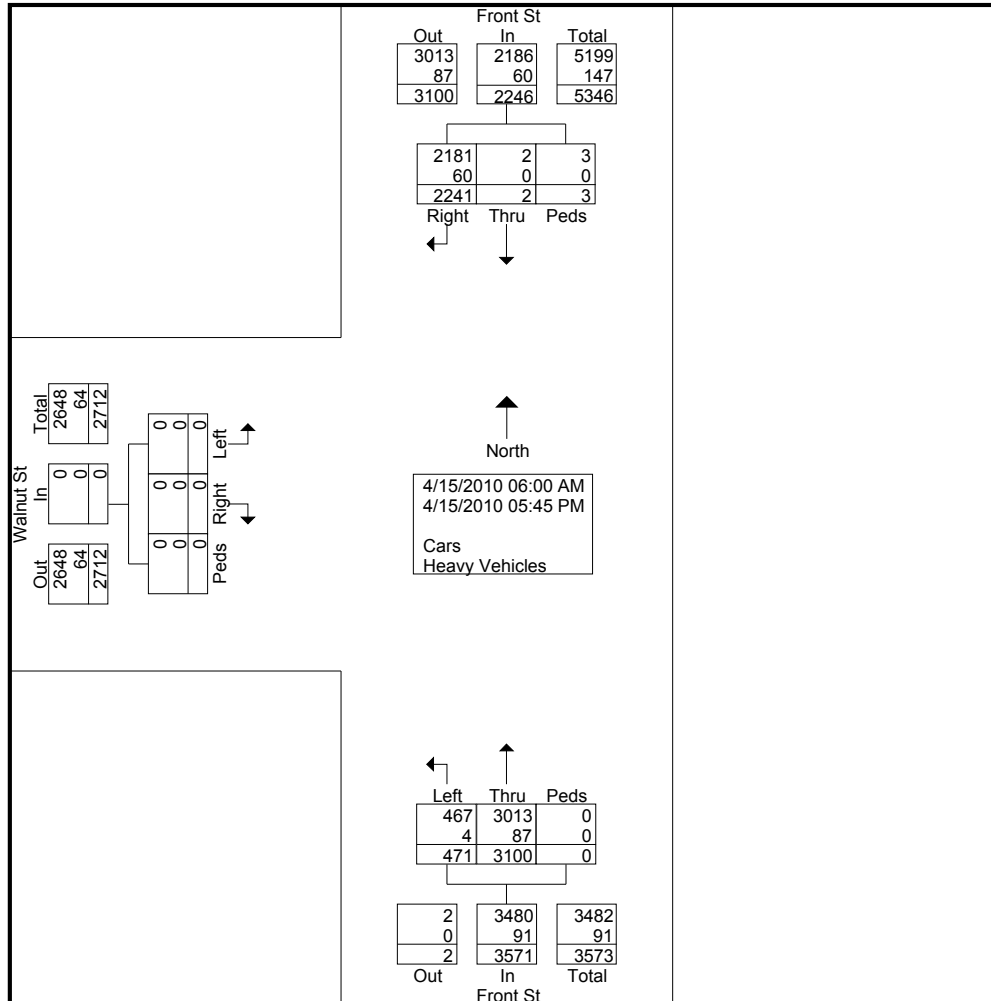
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Tri-State Traffic Data, Inc.

610-466-1469
www.TSTData.com

Location: Columbia County, PA
Intersection: Front St/ Walnut Street
Date: Thursday, April 15, 2010
Counter: pb

File Name : SM0415-12
Site Code : 00000000
Start Date : 4/15/2010
Page No : 2



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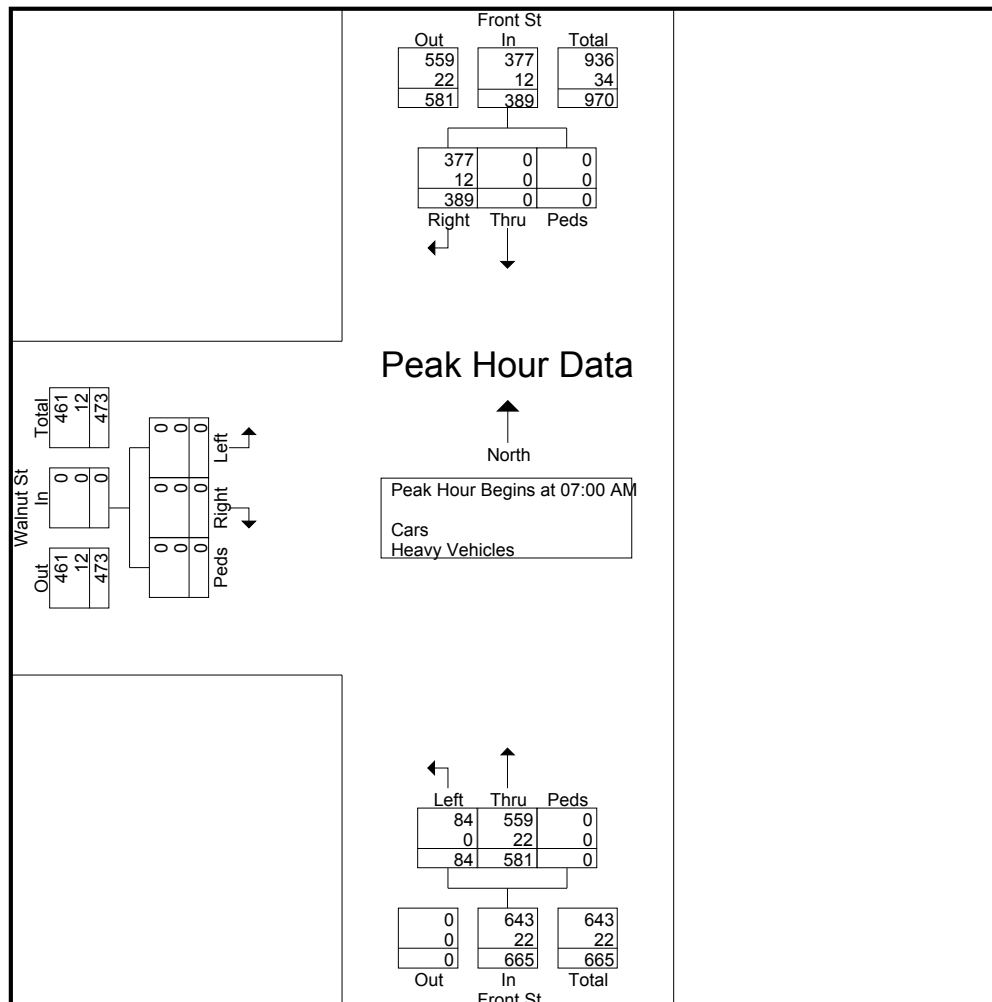
Tri-State Traffic Data, Inc.

610-466-1469
www.TSTData.com

Location: Columbia County, PA
Intersection: Front St/ Walnut Street
Date: Thursday, April 15, 2010
Counter: pb

File Name : SM0415-12
Site Code : 00000000
Start Date : 4/15/2010
Page No : 3

	Front St Southbound				Front St Northbound				Walnut St Eastbound				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:00 AM													
07:00 AM	105	0	0	105	142	6	0	148	0	0	0	0	253
07:15 AM	84	0	0	84	168	31	0	199	0	0	0	0	283
07:30 AM	109	0	0	109	153	30	0	183	0	0	0	0	292
07:45 AM	91	0	0	91	118	17	0	135	0	0	0	0	226
Total Volume	389	0	0	389	581	84	0	665	0	0	0	0	1054
% App. Total	100	0	0		87.4	12.6	0		0	0	0		
PHF	.892	.000	.000	.892	.865	.677	.000	.835	.000	.000	.000	.000	.902
Cars	377	0	0	377	559	84	0	643	0	0	0	0	1020
% Cars	96.9	0	0	96.9	96.2	100	0	96.7	0	0	0	0	96.8
Heavy Vehicles	12	0	0	12	22	0	0	22	0	0	0	0	34
% Heavy Vehicles	3.1	0	0	3.1	3.8	0	0	3.3	0	0	0	0	3.2



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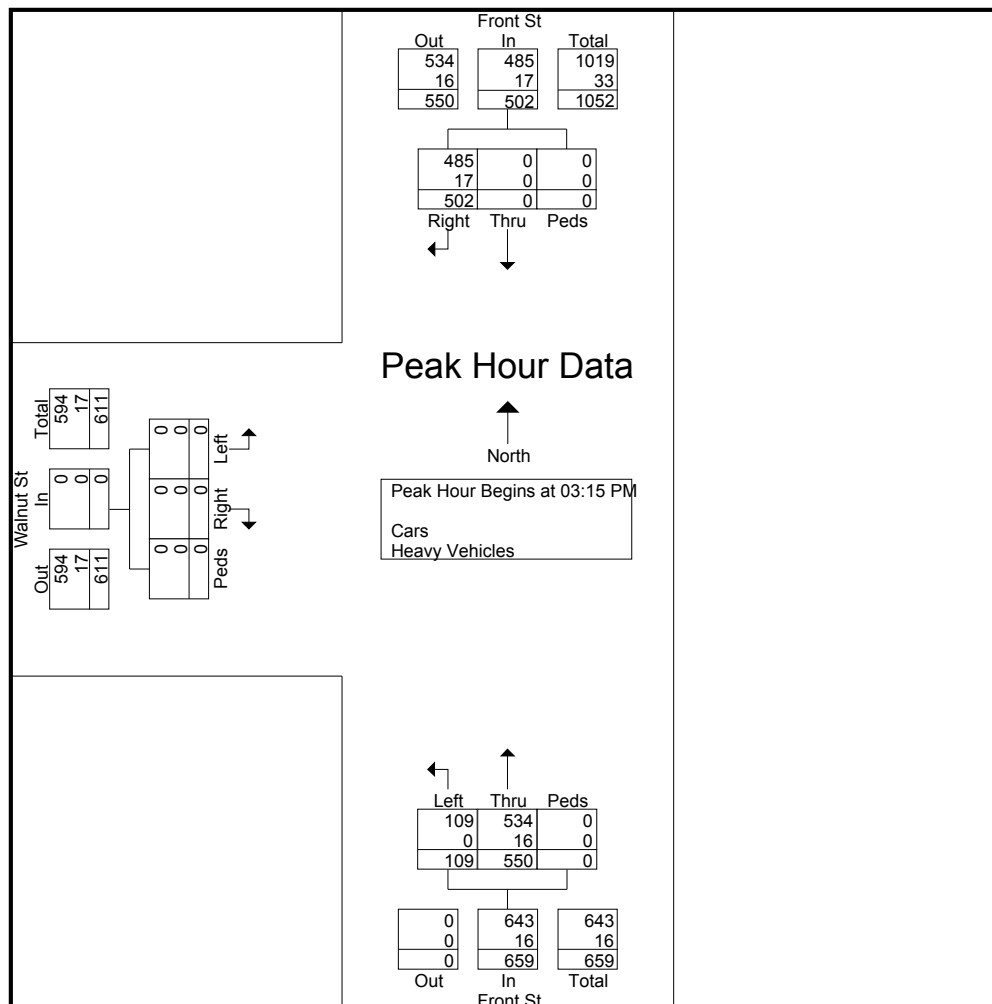
Tri-State Traffic Data, Inc.

610-466-1469
www.TSTData.com

Location: Columbia County, PA
Intersection: Front St/ Walnut Street
Date: Thursday, April 15, 2010
Counter: pb

File Name : SM0415-12
Site Code : 00000000
Start Date : 4/15/2010
Page No : 4

	Front St Southbound				Front St Northbound				Walnut St Eastbound				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 03:15 PM													
03:15 PM	110	0	0	110	118	27	0	145	0	0	0	0	255
03:30 PM	124	0	0	124	153	26	0	179	0	0	0	0	303
03:45 PM	122	0	0	122	124	24	0	148	0	0	0	0	270
04:00 PM	146	0	0	146	155	32	0	187	0	0	0	0	333
Total Volume	502	0	0	502	550	109	0	659	0	0	0	0	1161
% App. Total	100	0	0		83.5	16.5	0		0	0	0		
PHF	.860	.000	.000	.860	.887	.852	.000	.881	.000	.000	.000	.000	.872
Cars	485	0	0	485	534	109	0	643	0	0	0	0	1128
% Cars	96.6	0	0	96.6	97.1	100	0	97.6	0	0	0	0	97.2
Heavy Vehicles	17	0	0	17	16	0	0	16	0	0	0	0	33
% Heavy Vehicles	3.4	0	0	3.4	2.9	0	0	2.4	0	0	0	0	2.8



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Tri-State Traffic Data, Inc.

610-466-1469
www.TSTData.com

Location: Columbia County, PA
Intersection: 3rd St / Broad St
Date: Tuesday, April 13, 2010
Counter: RZ

File Name : SM0413-13
Site Code : 00000000
Start Date : 4/13/2010
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	BROAD ST Southbound					3RD ST Westbound					BROAD ST Northbound					3RD ST Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:00 AM	1	1	2	0	4	0	38	7	0	45	0	1	21	0	22	0	41	0	0	41	112
06:15 AM	1	1	0	0	2	0	42	6	0	48	0	0	25	0	25	3	39	0	0	42	117
06:30 AM	2	1	0	0	3	0	58	11	0	69	2	1	27	0	30	8	52	0	0	60	162
06:45 AM	1	4	2	0	7	2	58	9	0	69	4	3	36	0	43	12	40	0	0	52	171
Total	5	7	4	0	16	2	196	33	0	231	6	5	109	0	120	23	172	0	0	195	562
07:00 AM	1	5	0	2	8	0	61	8	2	71	9	1	26	2	38	7	57	3	0	67	184
07:15 AM	1	4	2	0	7	0	103	19	0	122	9	3	50	0	62	3	51	0	0	54	245
07:30 AM	3	1	1	0	5	0	93	11	0	104	7	1	35	0	43	14	62	0	0	76	228
07:45 AM	4	2	0	0	6	1	112	15	0	128	14	4	33	0	51	11	58	0	0	69	254
Total	9	12	3	2	26	1	369	53	2	425	39	9	144	2	194	35	228	3	0	266	911
08:00 AM	4	1	1	0	6	0	61	10	0	71	12	2	29	0	43	4	55	0	0	59	179
08:15 AM	1	0	2	0	3	1	67	4	0	72	11	4	41	0	56	18	58	2	0	78	209
08:30 AM	1	1	1	0	3	0	71	10	0	81	5	0	20	0	25	7	56	2	0	65	174
08:45 AM	3	2	2	0	7	2	67	12	0	81	3	0	26	3	32	9	42	0	0	51	171
Total	9	4	6	0	19	3	266	36	0	305	31	6	116	3	156	38	211	4	0	253	733
*** BREAK ***																					
03:00 PM	2	4	2	0	8	1	66	4	0	71	15	2	19	1	37	38	74	0	2	114	230
03:15 PM	2	5	2	0	9	2	83	7	0	92	14	3	31	0	48	33	71	3	0	107	256
03:30 PM	3	2	1	3	9	1	84	3	0	88	15	3	35	0	53	26	83	1	0	110	260
03:45 PM	1	4	1	1	7	1	89	8	0	98	11	10	30	1	52	36	61	1	0	98	255
Total	8	15	6	4	33	5	322	22	0	349	55	18	115	2	190	133	289	5	2	429	1001
04:00 PM	1	1	5	0	7	0	68	7	4	79	12	2	21	4	39	32	86	0	2	120	245
04:15 PM	2	2	2	0	6	1	74	6	2	83	11	1	26	1	39	31	102	3	0	136	264
04:30 PM	0	2	0	0	2	0	85	9	0	94	11	3	30	1	45	32	96	1	0	129	270
04:45 PM	1	1	1	0	3	0	89	5	0	94	18	3	23	2	46	20	98	3	0	121	264
Total	4	6	8	0	18	1	316	27	6	350	52	9	100	8	169	115	382	7	2	506	1043
05:00 PM	2	2	0	0	4	2	74	9	0	85	15	3	20	1	39	34	102	1	0	137	265
05:15 PM	1	1	0	0	2	1	106	7	0	114	15	3	28	0	46	29	84	0	0	113	275
05:30 PM	1	4	0	0	5	0	91	9	0	100	17	2	29	0	48	17	76	1	2	96	249
05:45 PM	2	0	5	3	10	0	74	7	1	82	13	0	24	0	37	22	81	0	2	105	234
Total	6	7	5	3	21	3	345	32	1	381	60	8	101	1	170	102	343	2	4	451	1023
Grand Total	41	51	32	9	133	15	1814	203	9	2041	243	55	685	16	999	446	1625	21	8	2100	5273
Apprch %	30.8	38.3	24.1	6.8		0.7	88.9	9.9	0.4		24.3	5.5	68.6	1.6		21.2	77.4	1	0.4		
Total %	0.8	1	0.6	0.2	2.5	0.3	34.4	3.8	0.2	38.7	4.6	1	13	0.3	18.9	8.5	30.8	0.4	0.2	39.8	
Cars	41	51	32	9	133	13	1773	195	9	1990	229	55	674	16	974	442	1581	21	8	2052	5149
% Cars	100	100	100	100	100	86.7	97.7	96.1	100	97.5	94.2	100	98.4	100	97.5	99.1	97.3	100	100	97.7	97.6
Heavy Vehicles	0	0	0	0	0	2	41	8	0	51	14	0	11	0	25	4	44	0	0	48	124
% Heavy Vehicles	0	0	0	0	0	13.3	2.3	3.9	0	2.5	5.8	0	1.6	0	2.5	0.9	2.7	0	0	2.3	2.4

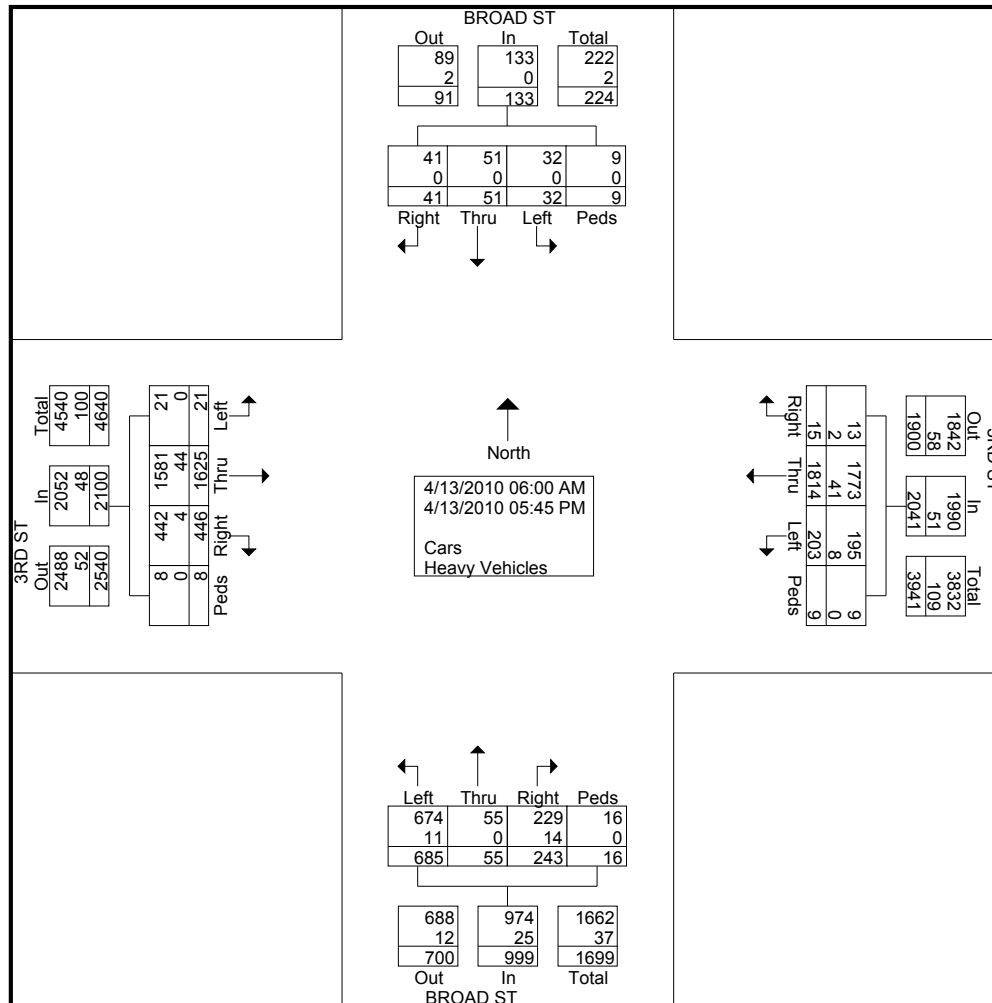
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Tri-State Traffic Data, Inc.

610-466-1469
www.TSTData.com

Location: Columbia County, PA
Intersection: 3rd St / Broad St
Date: Tuesday, April 13, 2010
Counter: RZ

File Name : SM0413-13
Site Code : 00000000
Start Date : 4/13/2010
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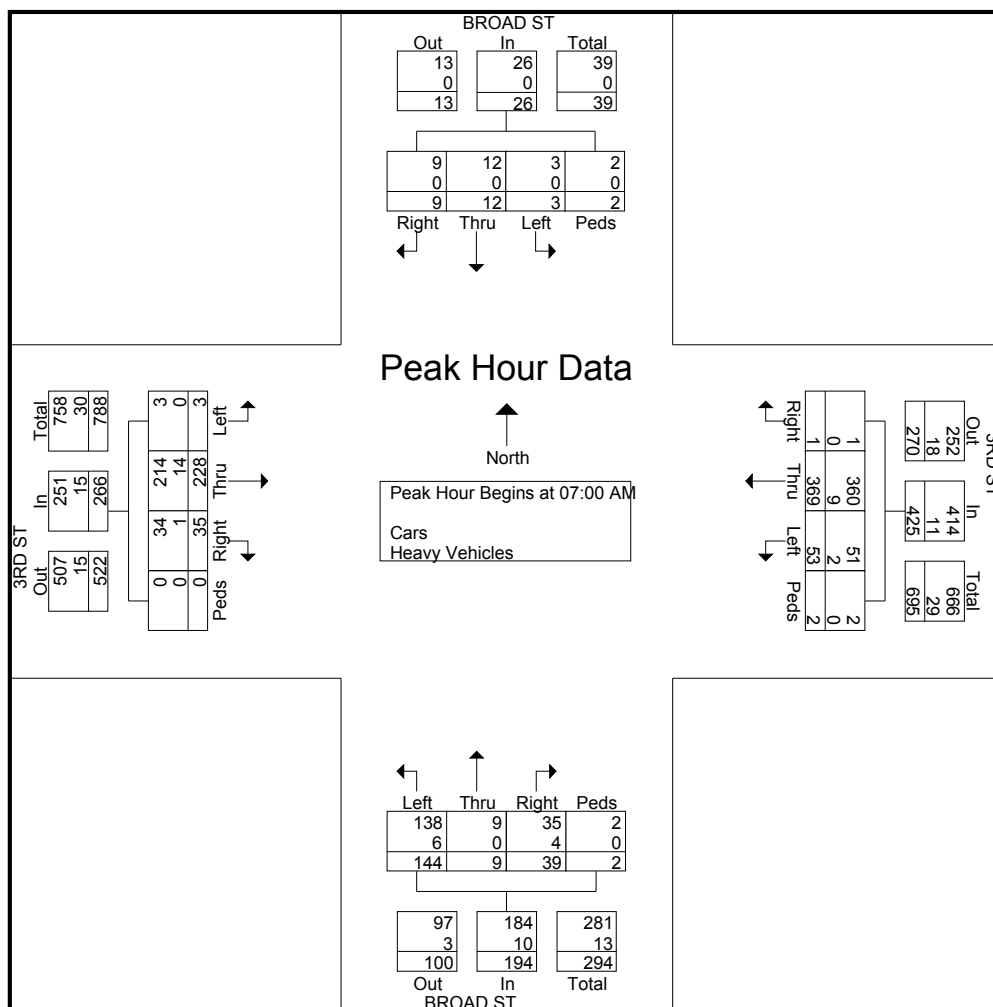
Tri-State Traffic Data, Inc.

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Location: Columbia County, PA
Intersection: 3rd St / Broad St
Date: Tuesday, April 13, 2010
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File Name : SM0413-13
Site Code : 00000000
Start Date : 4/13/2010
Page No : 3

	BROAD ST Southbound					3RD ST Westbound					BROAD ST Northbound					3RD ST Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	1	5	0	2	8	0	61	8	2	71	9	1	26	2	38	7	57	3	0	67	184
07:15 AM	1	4	2	0	7	0	103	19	0	122	9	3	50	0	62	3	51	0	0	54	245
07:30 AM	3	1	1	0	5	0	93	11	0	104	7	1	35	0	43	14	62	0	0	76	228
07:45 AM	4	2	0	0	6	1	112	15	0	128	14	4	33	0	51	11	58	0	0	69	254
Total Volume	9	12	3	2	26	1	369	53	2	425	39	9	144	2	194	35	228	3	0	266	911
% App. Total	34.6	46.2	11.5	7.7		0.2	86.8	12.5	0.5		20.1	4.6	74.2	1		13.2	85.7	1.1	0		
PHF	.563	.600	.375	.250	.813	.250	.824	.697	.250	.830	.696	.563	.720	.250	.782	.625	.919	.250	.000	.875	.897
Cars	9	12	3	2	26	1	360	51	2	414	35	9	138	2	184	34	214	3	0	251	875
% Cars	100	100	100	100	100	100	97.6	96.2	100	97.4	89.7	100	95.8	100	94.8	97.1	93.9	100	0	94.4	96.0
Heavy Vehicles																					
% Heavy Vehicles	0	0	0	0	0	0	2.4	3.8	0	2.6	10.3	0	4.2	0	5.2	2.9	6.1	0	0	5.6	4.0



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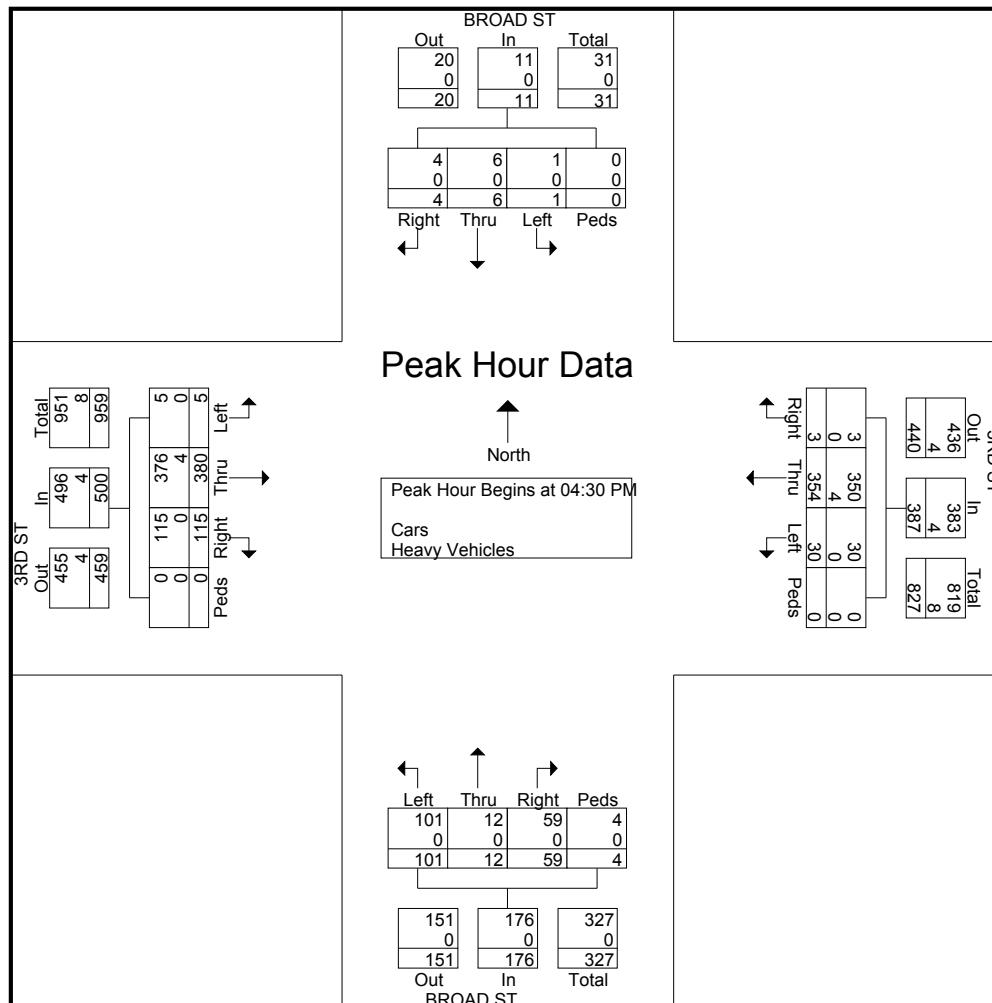
Tri-State Traffic Data, Inc.

610-466-1469
www.TSTData.com

Location: Columbia County, PA
Intersection: 3rd St / Broad St
Date: Tuesday, April 13, 2010
Counter: RZ

File Name : SM0413-13
Site Code : 00000000
Start Date : 4/13/2010
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	BROAD ST Southbound					3RD ST Westbound					BROAD ST Northbound					3RD ST Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	0	2	0	0	2	0	85	9	0	94	11	3	30	1	45	32	96	1	0	129	270
04:45 PM	1	1	1	0	3	0	89	5	0	94	18	3	23	2	46	20	98	3	0	121	264
05:00 PM	2	2	0	0	4	2	74	9	0	85	15	3	20	1	39	34	102	1	0	137	265
05:15 PM	1	1	0	0	2	1	106	7	0	114	15	3	28	0	46	29	84	0	0	113	275
Total Volume	4	6	1	0	11	3	354	30	0	387	59	12	101	4	176	115	380	5	0	500	1074
% App. Total	36.4	54.5	9.1	0		0.8	91.5	7.8	0		33.5	6.8	57.4	2.3		23	76	1	0		
PHF	.500	.750	.250	.000	.688	.375	.835	.833	.000	.849	.819	1.00	.842	.500	.957	.846	.931	.417	.000	.912	.976
Cars	4	6	1	0	11	3	350	30	0	383	59	12	101	4	176	115	376	5	0	496	1066
% Cars	100	100	100	0	100	100	98.9	100	0	99.0	100	100	100	100	100	100	98.9	100	0	99.2	99.3
Heavy Vehicles																					
% Heavy Vehicles	0	0	0	0	0	0	1.1	0	0	1.0	0	0	0	0	0	0	1.1	0	0	0.8	0.7



Tri-State Traffic Data, Inc.

610-466-1469
www.TSTData.com

Location: Columbia County, PA
Intersection: Rt 93 / Dewey St.
Date: Tuesday: April 13, 2010
Counter:JL

File Name : SM0413-14
Site Code : 00000000
Start Date : 4/13/2010
Page No : 1

Groups Printed- Cars - Heavy Vehicles

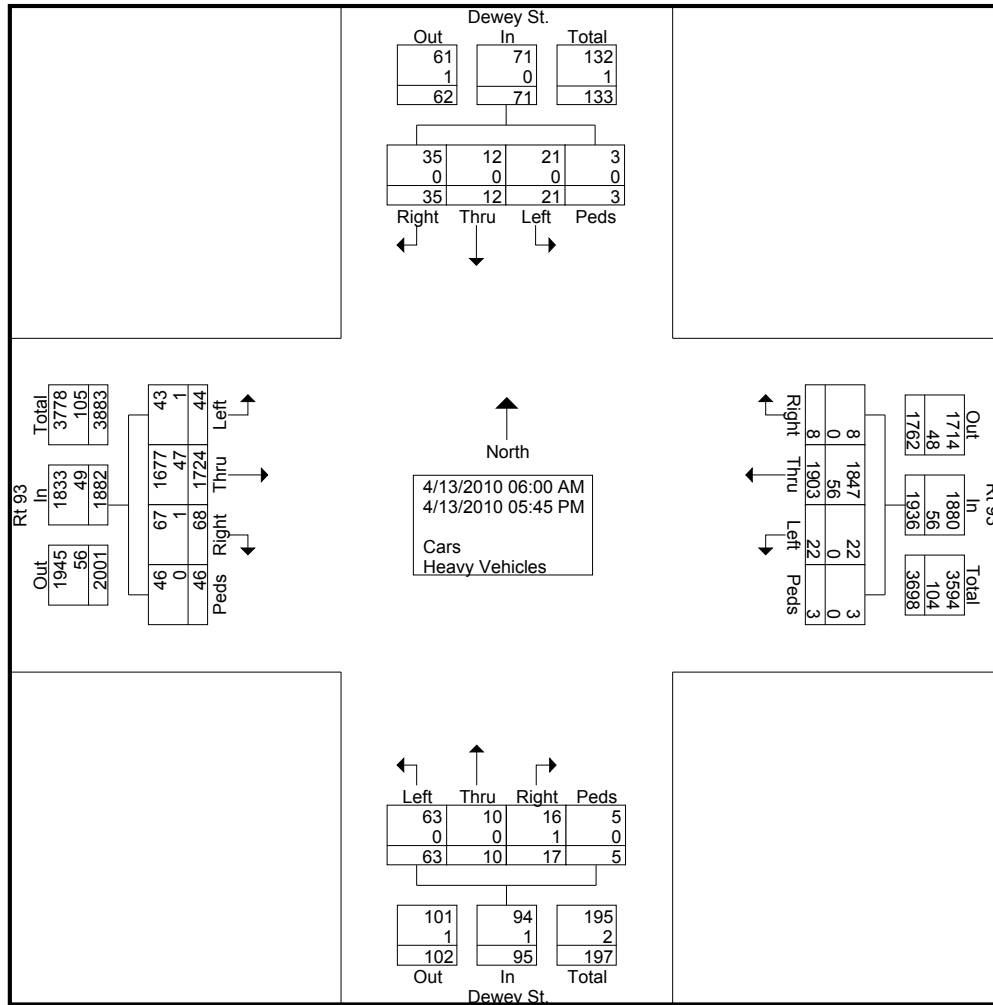
Start Time	Dewey St. Southbound					Rt 93 Westbound					Dewey St. Northbound					Rt 93 Eastbound					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
06:00 AM	0	0	2	0	2	0	49	0	0	49	1	0	2	0	3	1	50	0	0	51	105
06:15 AM	0	0	2	0	2	0	68	0	0	68	0	0	0	0	0	0	59	0	0	59	129
06:30 AM	0	0	1	0	1	0	65	0	0	65	0	0	1	0	1	1	44	0	0	45	112
06:45 AM	1	0	0	0	1	0	65	0	0	65	0	0	0	0	0	0	58	0	0	58	124
Total	1	0	5	0	6	0	247	0	0	247	1	0	3	0	4	2	211	0	0	213	470
07:00 AM	3	0	1	0	4	0	70	1	1	72	0	0	4	0	4	0	58	1	8	67	147
07:15 AM	2	2	1	0	5	0	109	4	0	113	1	0	4	0	5	7	62	1	6	76	199
07:30 AM	2	0	1	0	3	0	105	0	0	105	1	0	6	0	7	5	55	2	0	62	177
07:45 AM	1	0	0	0	1	0	115	0	0	115	0	0	1	0	1	3	56	0	0	59	176
Total	8	2	3	0	13	0	399	5	1	405	2	0	15	0	17	15	231	4	14	264	699
08:00 AM	0	2	0	0	2	0	64	4	0	68	0	0	6	0	6	7	57	0	4	68	144
08:15 AM	2	5	1	0	8	0	67	3	0	70	3	2	3	0	8	15	57	3	0	75	161
08:30 AM	4	0	1	0	5	0	65	0	0	65	0	1	1	0	2	3	55	1	0	59	131
08:45 AM	1	0	0	3	4	0	66	0	0	66	2	0	0	0	2	0	43	1	0	44	116
Total	7	7	2	3	19	0	262	7	0	269	5	3	10	0	18	25	212	5	4	246	552
03:00 PM	0	1	2	0	3	1	61	2	0	64	0	1	6	0	7	3	73	4	3	83	157
03:15 PM	1	0	1	0	2	0	76	3	0	79	2	1	5	1	9	6	76	6	20	108	198
03:30 PM	1	0	1	0	2	1	80	1	0	82	1	0	5	1	7	4	93	3	5	105	196
03:45 PM	3	0	0	0	3	0	93	2	0	95	0	0	1	0	1	2	66	3	0	71	170
Total	5	1	4	0	10	2	310	8	0	320	3	2	17	2	24	15	308	16	28	367	721
04:00 PM	1	0	0	0	1	1	74	0	0	75	1	0	2	0	3	2	90	2	0	94	173
04:15 PM	3	2	2	0	7	1	76	0	0	77	1	0	3	0	4	0	104	3	0	107	195
04:30 PM	4	0	1	0	5	0	92	0	0	92	1	1	2	0	4	1	96	3	0	100	201
04:45 PM	2	0	2	0	4	2	95	0	0	97	1	1	2	0	4	0	102	2	0	104	209
Total	10	2	5	0	17	4	337	0	0	341	4	2	9	0	15	3	392	10	0	405	778
05:00 PM	0	0	1	0	1	1	88	0	0	89	0	1	1	0	2	1	107	2	0	110	202
05:15 PM	0	0	0	0	0	0	102	1	0	103	1	2	4	1	8	3	93	1	0	97	208
05:30 PM	2	0	1	0	3	1	89	1	1	92	1	0	2	1	4	1	91	3	0	95	194
05:45 PM	2	0	0	0	2	0	69	0	1	70	0	0	2	1	3	3	79	3	0	85	160
Total	4	0	2	0	6	2	348	2	2	354	2	3	9	3	17	8	370	9	0	387	764
Grand Total	35	12	21	3	71	8	1903	22	3	1936	17	10	63	5	95	68	1724	44	46	1882	3984
Apprch %	49.3	16.9	29.6	4.2		0.4	98.3	1.1	0.2		17.9	10.5	66.3	5.3		3.6	91.6	2.3	2.4		
Total %	0.9	0.3	0.5	0.1	1.8	0.2	47.8	0.6	0.1	48.6	0.4	0.3	1.6	0.1	2.4	1.7	43.3	1.1	1.2	47.2	
Cars	35	12	21	3	71	8	1847									1677					
% Cars	100	100	100	100	100	100	97.1	100	100	97.1	94.1	100	100	100	98.9	98.5	97.3	97.7	100	97.4	97.3
Heavy Vehicles																					
% Heavy Vehicles	0	0	0	0	0	0	2.9	0	0	2.9	5.9	0	0	0	1.1	1.5	2.7	2.3	0	2.6	2.7

Tri-State Traffic Data, Inc.

610-466-1469
www.TSTData.com

Location: Columbia County, PA
Intersection: Rt 93 / Dewey St.
Date: Tuesday: April 13, 2010
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File Name : SM0413-14
Site Code : 00000000
Start Date : 4/13/2010
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Tri-State Traffic Data, Inc.

610-466-1469

www.TSTData.com

Location: Columbia County, PA

Intersection: Rt 93 / Dewey St.

Date: Tuesday: April 13, 2010

Counter:JL

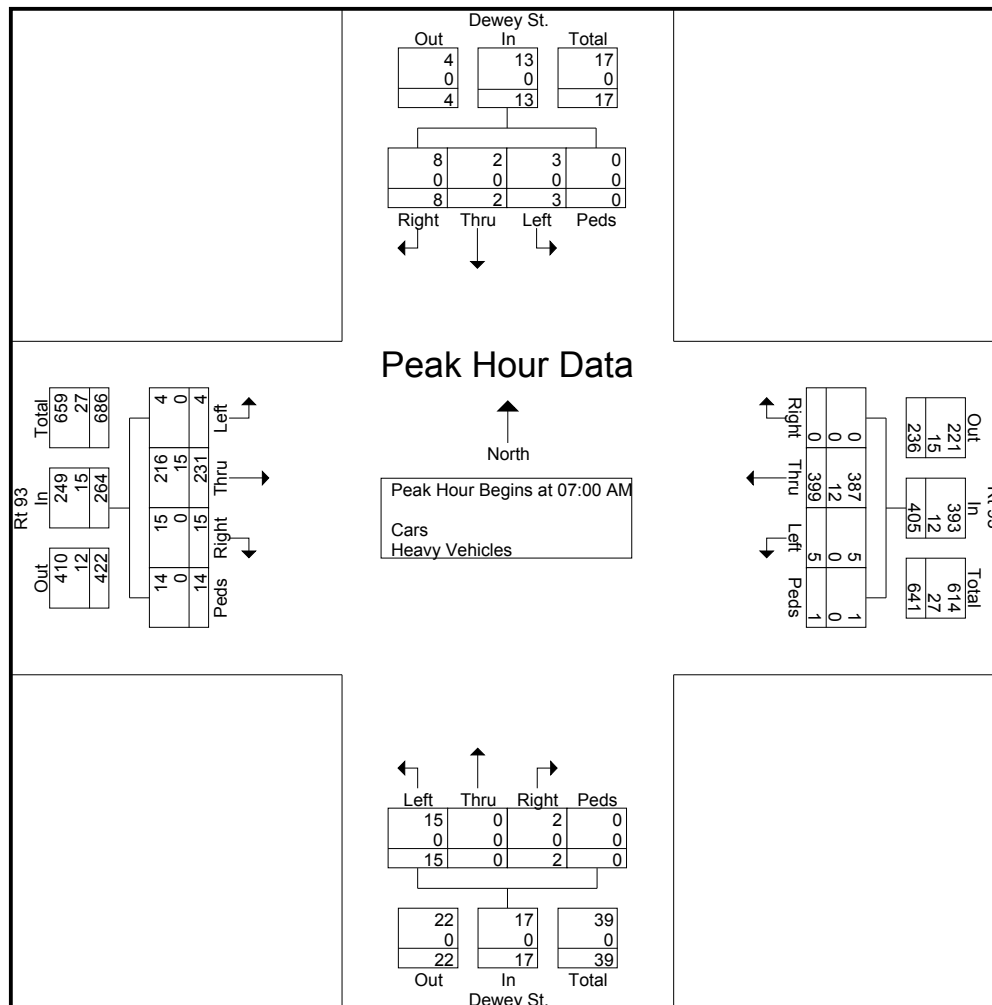
File Name : SM0413-14

Site Code : 00000000

Start Date : 4/13/2010

Page No : 3

	Dewey St. Southbound					Rt 93 Westbound					Dewey St. Northbound					Rt 93 Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	3	0	1	0	4	0	70	1	1	72	0	0	4	0	4	0	58	1	8	67	147
07:15 AM	2	2	1	0	5	0	109	4	0	113	1	0	4	0	5	7	62	1	6	76	199
07:30 AM	2	0	1	0	3	0	105	0	0	105	1	0	6	0	7	5	55	2	0	62	177
07:45 AM	1	0	0	0	1	0	115	0	0	115	0	0	1	0	1	3	56	0	0	59	176
Total Volume	8	2	3	0	13	0	399	5	1	405	2	0	15	0	17	15	231	4	14	264	699
% App. Total	61.5	15.4	23.1	0		0	98.5	1.2	0.2		11.8	0	88.2	0		5.7	87.5	1.5	5.3		
PHF	.667	.250	.750	.000	.650	.000	.867	.313	.250	.880	.500	.000	.625	.000	.607	.536	.931	.500	.438	.868	.878
Cars	8	2	3	0	13	0	387	5	1	393	2	0	15	0	17	15	216	4	14	249	672
% Cars	100	100	100	0	100	0	97.0	100	100	97.0	100	0	100	0	100	100	93.5	100	100	94.3	96.1
Heavy Vehicles																					
% Heavy Vehicles	0	0	0	0	0	0	3.0	0	0	3.0	0	0	0	0	0	0	6.5	0	0	5.7	3.9



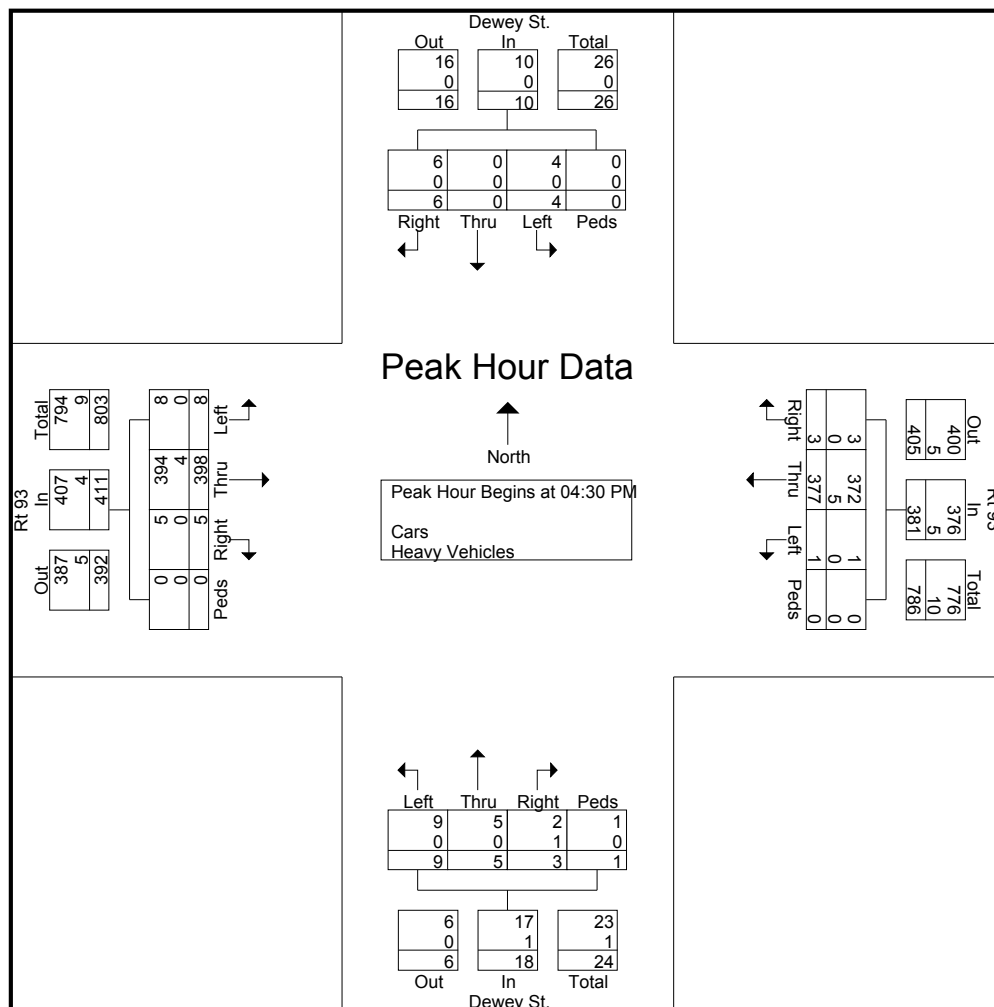
Tri-State Traffic Data, Inc.

610-466-1469
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Location: Columbia County, PA
Intersection: Rt 93 / Dewey St.
Date: Tuesday: April 13, 2010
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File Name : SM0413-14
Site Code : 00000000
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	Dewey St. Southbound					Rt 93 Westbound					Dewey St. Northbound					Rt 93 Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	4	0	1	0	5	0	92	0	0	92	1	1	2	0	4	1	96	3	0	100	201
04:45 PM	2	0	2	0	4	2	95	0	0	97	1	1	2	0	4	0	102	2	0	104	209
05:00 PM	0	0	1	0	1	1	88	0	0	89	0	1	1	0	2	1	107	2	0	110	202
05:15 PM	0	0	0	0	0	0	102	1	0	103	1	2	4	1	8	3	93	1	0	97	208
Total Volume	6	0	4	0	10	3	377	1	0	381	3	5	9	1	18	5	398	8	0	411	820
% App. Total	60	0	40	0		0.8	99	0.3	0		16.7	27.8	50	5.6		1.2	96.8	1.9	0		
PHF	.375	.000	.500	.000	.500	.375	.924	.250	.000	.925	.750	.625	.563	.250	.563	.417	.930	.667	.000	.934	.981
Cars	6	0	4	0	10	3	372	1	0	376	2	5	9	1	17	5	394	8	0	407	810
% Cars	100	0	100	0	100	100	98.7	100	0	98.7	66.7	100	100	100	94.4	100	99.0	100	0	99.0	98.8
Heavy Vehicles																					
% Heavy Vehicles	0	0	0	0	0	0	1.3	0	0	1.3	33.3	0	0	0	5.6	0	1.0	0	0	1.0	1.2



Controlled Document

Tri-State Traffic Data, Inc.

610-466-1469
www.TSTData.com

Location: Columbia County, PA
Intersection: RT 11/SSES Entrance
Date: Tuesday, April 13, 2010
Counter: CMK

File Name : SM0413-15
Site Code : 00000000
Start Date : 4/13/2010
Page No : 1

Groups Printed- Cars - Heavy Vehicles

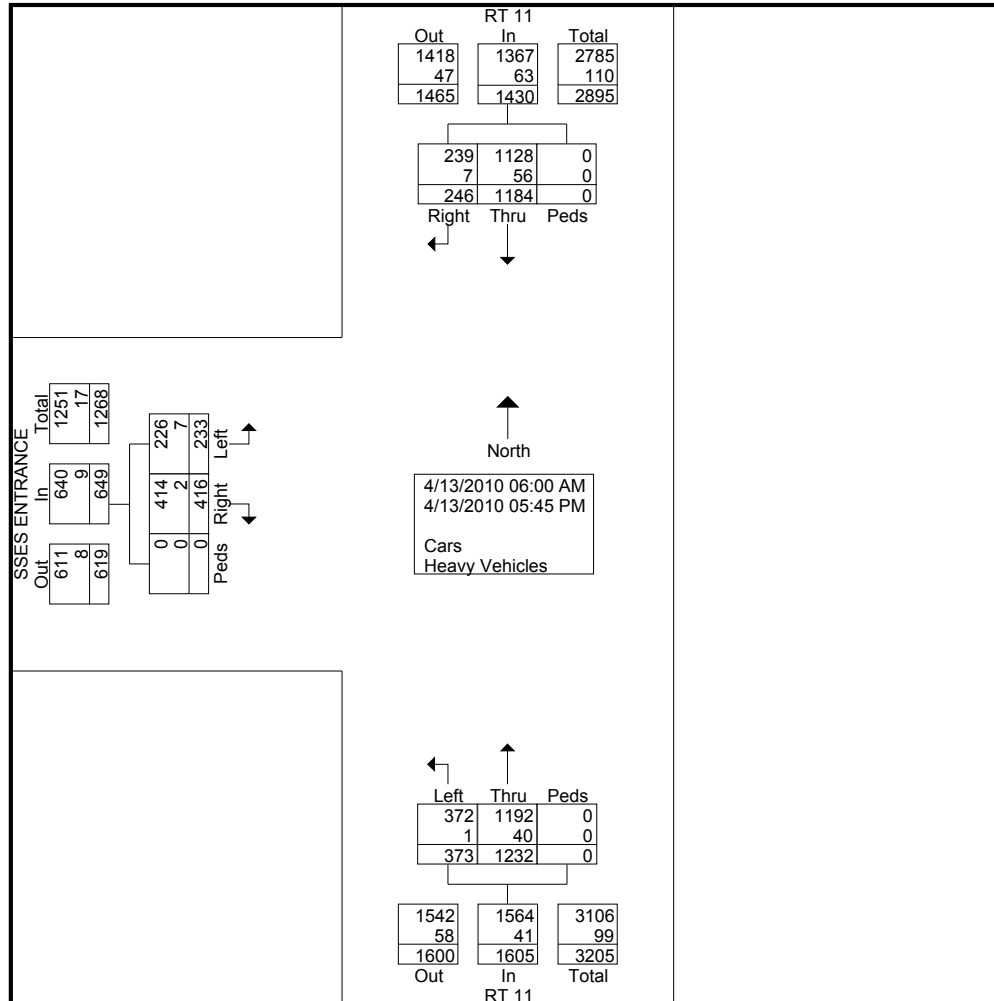
Start Time	RT 11 Southbound				RT 11 Northbound				SSES ENTRANCE Eastbound				Int. Total
	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	
06:00 AM	48	27	0	75	36	60	0	96	24	7	0	31	202
06:15 AM	44	30	0	74	29	63	0	92	6	7	0	13	179
06:30 AM	37	38	0	75	43	54	0	97	14	4	0	18	190
06:45 AM	20	44	0	64	39	43	0	82	36	13	0	49	195
Total	149	139	0	288	147	220	0	367	80	31	0	111	766
07:00 AM	7	50	0	57	45	10	0	55	27	6	0	33	145
07:15 AM	10	54	0	64	77	21	0	98	1	2	0	3	165
07:30 AM	4	77	0	81	77	17	0	94	1	1	0	2	177
07:45 AM	6	54	0	60	37	8	0	45	2	6	0	8	113
Total	27	235	0	262	236	56	0	292	31	15	0	46	600
08:00 AM	5	54	0	59	46	9	0	55	1	2	0	3	117
08:15 AM	4	36	0	40	49	6	0	55	2	3	0	5	100
08:30 AM	5	35	0	40	32	12	0	44	2	1	0	3	87
08:45 AM	7	44	0	51	56	1	0	57	1	3	0	4	112
Total	21	169	0	190	183	28	0	211	6	9	0	15	416
*** BREAK ***													
03:00 PM	2	52	0	54	52	2	0	54	32	22	0	54	162
03:15 PM	2	47	0	49	52	2	0	54	23	15	0	38	141
03:30 PM	4	41	0	45	50	3	0	53	32	14	0	46	144
03:45 PM	0	62	0	62	61	4	0	65	18	7	0	25	152
Total	8	202	0	210	215	11	0	226	105	58	0	163	599
04:00 PM	0	72	0	72	44	2	0	46	49	10	0	59	177
04:15 PM	1	48	0	49	76	1	0	77	12	6	0	18	144
04:30 PM	1	65	0	66	65	7	0	72	17	8	0	25	163
04:45 PM	5	47	0	52	58	6	0	64	20	17	0	37	153
Total	7	232	0	239	243	16	0	259	98	41	0	139	637
05:00 PM	5	49	0	54	48	5	0	53	31	27	0	58	165
05:15 PM	11	55	0	66	70	10	0	80	27	20	0	47	193
05:30 PM	11	56	0	67	46	12	0	58	20	21	0	41	166
05:45 PM	7	47	0	54	44	15	0	59	18	11	0	29	142
Total	34	207	0	241	208	42	0	250	96	79	0	175	666
Grand Total	246	1184	0	1430	1232	373	0	1605	416	233	0	649	3684
Apprch %	17.2	82.8	0		76.8	23.2	0		64.1	35.9	0		
Total %	6.7	32.1	0	38.8	33.4	10.1	0	43.6	11.3	6.3	0	17.6	
Cars	239	1128	0	1367	1192	372	0	1564	414	226	0	640	3571
% Cars	97.2	95.3	0	95.6	96.8	99.7	0	97.4	99.5	97	0	98.6	96.9
Heavy Vehicles	7	56	0	63	40	1	0	41	2	7	0	9	113
% Heavy Vehicles	2.8	4.7	0	4.4	3.2	0.3	0	2.6	0.5	3	0	1.4	3.1

Controlled Document
Tri-State Traffic Data, Inc.

610-466-1469
 www.TSTData.com

Location: Columbia County, PA
 Intersection: RT 11/SSSES Entrance
 Date: Tuesday, April 13, 2010
 Counter: CMK

File Name : SM0413-15
 Site Code : 00000000
 Start Date : 4/13/2010
 Page No : 2



Controlled Document

Tri-State Traffic Data, Inc.

610-466-1469
www.TSTData.com

Location: Columbia County, PA
Intersection: RT 11/SSES Entrance
Date: Tuesday, April 13, 2010
Counter: CMK

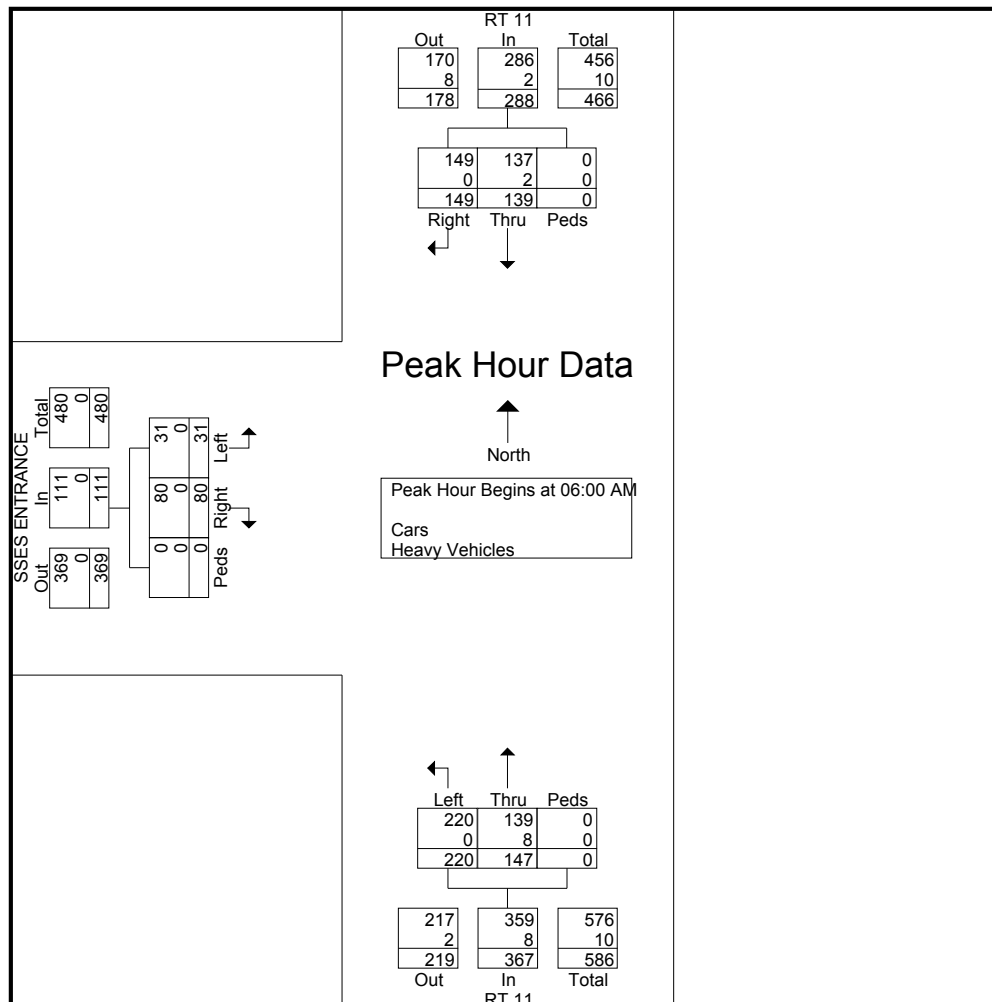
File Name : SM0413-15
Site Code : 00000000
Start Date : 4/13/2010
Page No : 3

Start Time	RT 11 Southbound			App. Total	RT 11 Northbound			App. Total	SSES ENTRANCE Eastbound			App. Total	Int. Total
	Right	Thru	Peds		Thru	Left	Peds		Right	Left	Peds		

Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 06:00 AM

06:00 AM	48	27	0	75	36	60	0	96	24	7	0	31	202
06:15 AM	44	30	0	74	29	63	0	92	6	7	0	13	179
06:30 AM	37	38	0	75	43	54	0	97	14	4	0	18	190
06:45 AM	20	44	0	64	39	43	0	82	36	13	0	49	195
Total Volume	149	139	0	288	147	220	0	367	80	31	0	111	766
% App. Total	51.7	48.3	0		40.1	59.9	0		72.1	27.9	0		
PHF	.776	.790	.000	.960	.855	.873	.000	.946	.556	.596	.000	.566	.948
Cars	149	137	0	286	139	220	0	359	80	31	0	111	756
% Cars	100	98.6	0	99.3	94.6	100	0	97.8	100	100	0	100	98.7
Heavy Vehicles	0	2	0	2	8	0	0	8	0	0	0	0	10
% Heavy Vehicles	0	1.4	0	0.7	5.4	0	0	2.2	0	0	0	0	1.3



Controlled Document

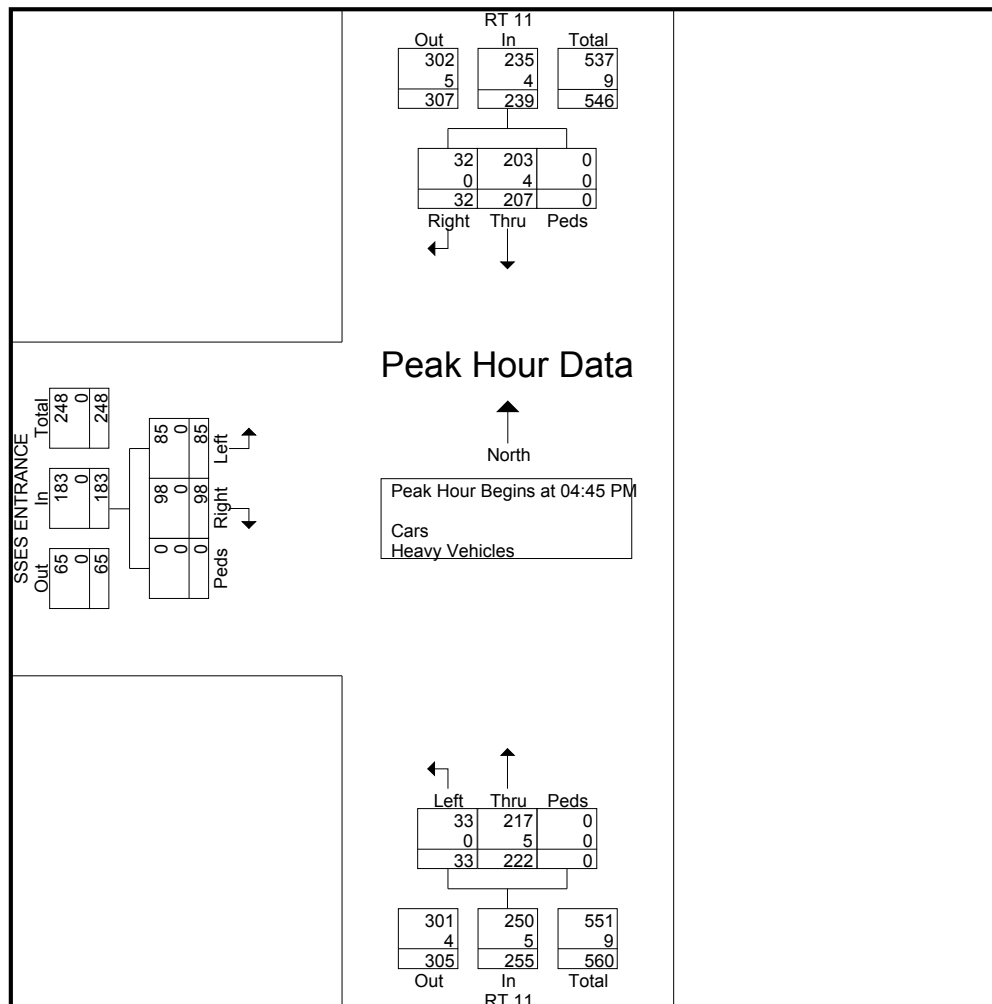
Tri-State Traffic Data, Inc.

610-466-1469
www.TSTData.com

Location: Columbia County, PA
Intersection: RT 11/SSS Entrance
Date: Tuesday, April 13, 2010
Counter: CMK

File Name : SM0413-15
Site Code : 00000000
Start Date : 4/13/2010
Page No : 4

	RT 11 Southbound				RT 11 Northbound				SSS ENTRANCE Eastbound				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:45 PM													
04:45 PM	5	47	0	52	58	6	0	64	20	17	0	37	153
05:00 PM	5	49	0	54	48	5	0	53	31	27	0	58	165
05:15 PM	11	55	0	66	70	10	0	80	27	20	0	47	193
05:30 PM	11	56	0	67	46	12	0	58	20	21	0	41	166
Total Volume	32	207	0	239	222	33	0	255	98	85	0	183	677
% App. Total	13.4	86.6	0		87.1	12.9	0		53.6	46.4	0		
PHF	.727	.924	.000	.892	.793	.688	.000	.797	.790	.787	.000	.789	.877
Cars	32	203	0	235	217	33	0	250	98	85	0	183	668
% Cars	100	98.1	0	98.3	97.7	100	0	98.0	100	100	0	100	98.7
Heavy Vehicles	0	4	0	4	5	0	0	5	0	0	0	0	9
% Heavy Vehicles	0	1.9	0	1.7	2.3	0	0	2.0	0	0	0	0	1.3



Tri-State Traffic Data, Inc.

610-466-1469
www.TSTData.comLocation: Columbia County, PA
Intersection: US 11/Main St
Date: Wednesday: June 11, 2008
Counter: JIFile Name : SM0611-6
Site Code : 00000000
Start Date : 6/11/2008
Page No : 1

Groups Printed- Cars - Heavy Vehicles - RTOR

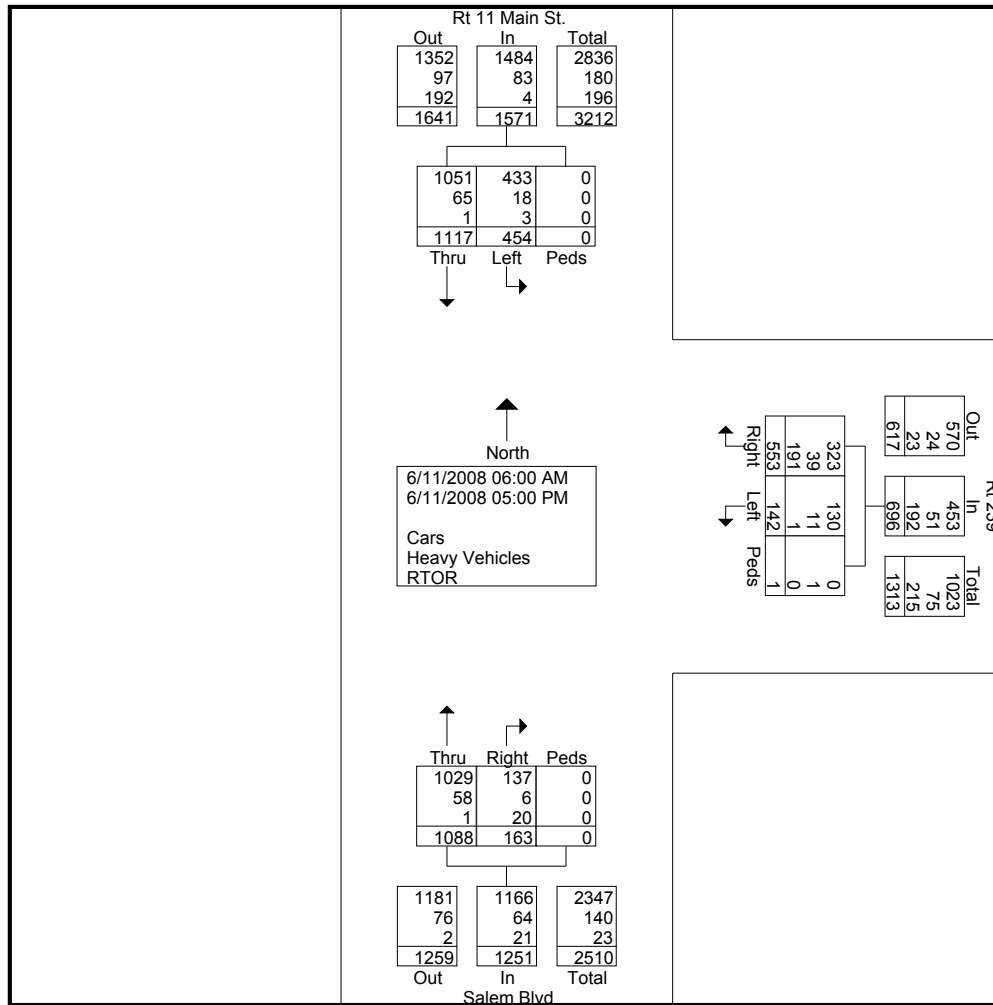
	Rt 11 Main St. Southbound				Rt 239 Westbound				Salem Blvd Northbound				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. Total
06:00 AM	48	9	0	57	13	9	0	22	3	25	0	28	107
06:15 AM	80	20	0	100	16	8	0	24	4	37	0	41	165
06:30 AM	86	14	0	100	19	19	0	38	1	35	0	36	174
06:45 AM	54	16	0	70	20	7	0	27	2	30	0	32	129
Total	268	59	0	327	68	43	0	111	10	127	0	137	575
07:00 AM	42	12	0	54	17	7	0	24	5	37	0	42	120
07:15 AM	50	17	0	67	16	9	0	25	3	43	0	46	138
07:30 AM	50	12	0	62	27	7	0	34	1	40	0	41	137
07:45 AM	51	14	0	65	21	7	0	28	4	38	0	42	135
Total	193	55	0	248	81	30	0	111	13	158	0	171	530
08:00 AM	45	18	0	63	18	3	0	21	5	24	0	29	113
08:15 AM	40	15	0	55	18	4	0	22	2	29	0	31	108
08:30 AM	40	17	0	57	21	5	0	26	5	32	0	37	120
08:45 AM	26	10	0	36	21	1	1	23	4	33	0	37	96
Total	151	60	0	211	78	13	1	92	16	118	0	134	437
02:30 PM	45	16	0	61	24	7	0	31	8	50	0	58	150
02:45 PM	34	19	0	53	28	12	0	40	7	60	0	67	160
Total	79	35	0	114	52	19	0	71	15	110	0	125	310
03:00 PM	35	23	0	58	30	3	0	33	11	64	0	75	166
03:15 PM	38	21	0	59	23	6	0	29	13	61	0	74	162
03:30 PM	48	20	0	68	23	9	0	32	20	64	0	84	184
03:45 PM	60	26	0	86	37	5	0	42	18	55	0	73	201
Total	181	90	0	271	113	23	0	136	62	244	0	306	713
04:00 PM	61	31	0	92	34	2	0	36	11	63	0	74	202
04:15 PM	56	38	0	94	32	4	0	36	14	80	0	94	224
04:30 PM	39	40	0	79	23	1	0	24	9	65	0	74	177
04:45 PM	52	25	0	77	38	5	0	43	8	71	0	79	199
Total	208	134	0	342	127	12	0	139	42	279	0	321	802
05:00 PM	37	21	0	58	34	2	0	36	5	52	0	57	151
Grand Total	1117	454	0	1571	553	142	1	696	163	1088	0	1251	3518
Apprch %	71.1	28.9	0		79.5	20.4	0.1		13	87	0		
Total %	31.8	12.9	0	44.7	15.7	4	0	19.8	4.6	30.9	0	35.6	
Cars	1051	433	0	1484	323	130	0	453	137	1029	0	1166	3103
% Cars	94.1	95.4	0	94.5	58.4	91.5	0	65.1	84	94.6	0	93.2	88.2
Heavy Vehicles	65	18	0	83	39	11	1	51	6	58	0	64	198
% Heavy Vehicles	5.8	4	0	5.3	7.1	7.7	100	7.3	3.7	5.3	0	5.1	5.6
RTOR	1	3	0	4	191	1	0	192	20	1	0	21	217
% RTOR	0.1	0.7	0	0.3	34.5	0.7	0	27.6	12.3	0.1	0	1.7	6.2

Tri-State Traffic Data, Inc.

610-466-1469
www.TSTData.com

Location: Columbia County, PA
Intersection: US 11/Main St
Date: Wednesday: June 11, 2008
Counter: JI

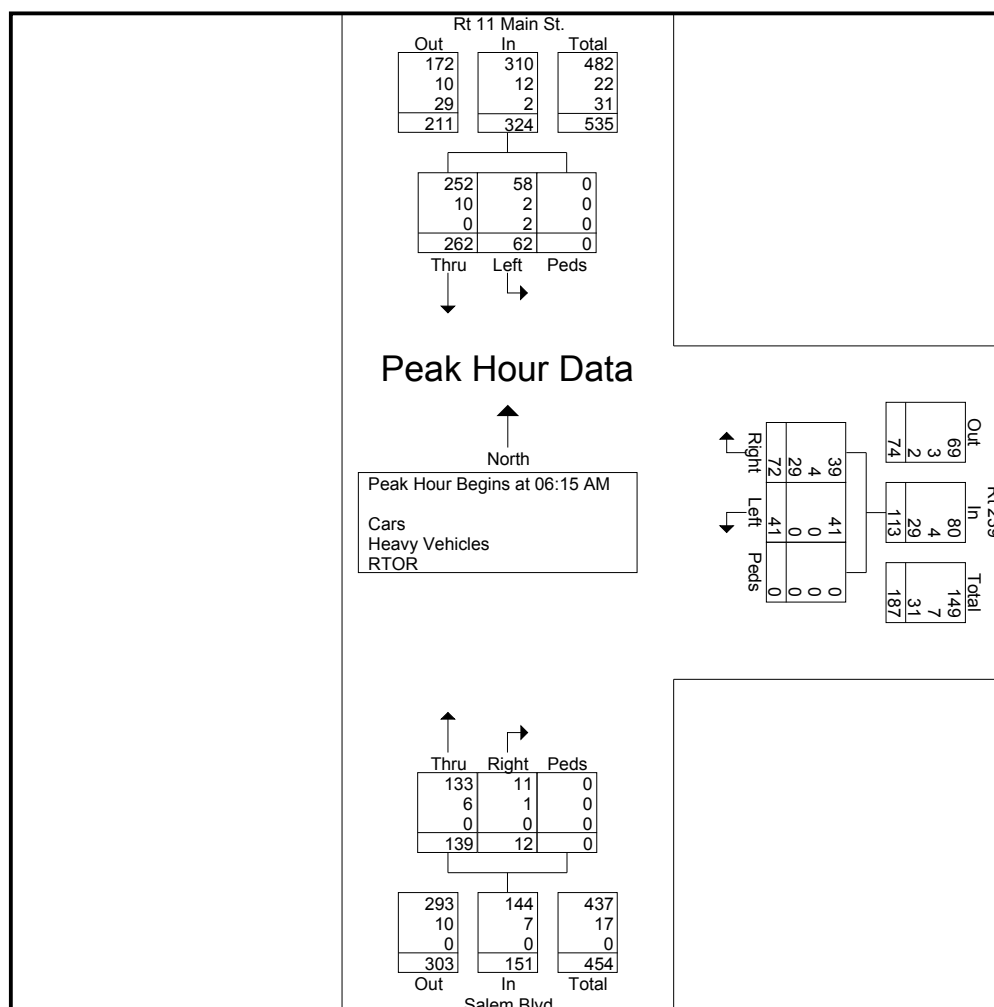
File Name : SM0611-6
Site Code : 00000000
Start Date : 6/11/2008
Page No : 2



Tri-State Traffic Data, Inc.

610-466-1469
www.TSTData.comLocation: Columbia County, PA
Intersection: US 11/Main St
Date: Wednesday: June 11, 2008
Counter: JIFile Name : SM0611-6
Site Code : 00000000
Start Date : 6/11/2008
Page No : 3

	Rt 11 Main St. Southbound				Rt 239 Westbound				Salem Blvd Northbound				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 06:15 AM													
06:15 AM	80	20	0	100	16	8	0	24	4	37	0	41	165
06:30 AM	86	14	0	100	19	19	0	38	1	35	0	36	174
06:45 AM	54	16	0	70	20	7	0	27	2	30	0	32	129
07:00 AM	42	12	0	54	17	7	0	24	5	37	0	42	120
Total Volume	262	62	0	324	72	41	0	113	12	139	0	151	588
% App. Total	80.9	19.1	0		63.7	36.3	0		7.9	92.1	0		
PHF	.762	.775	.000	.810	.900	.539	.000	.743	.600	.939	.000	.899	.845
Cars	252	58	0	310	39	41	0	80	11	133	0	144	534
% Cars	96.2	93.5	0	95.7	54.2	100	0	70.8	91.7	95.7	0	95.4	90.8
Heavy Vehicles	10	2	0	12	4	0	0	4	1	6	0	7	23
% Heavy Vehicles	3.8	3.2	0	3.7	5.6	0	0	3.5	8.3	4.3	0	4.6	3.9
RTOR	0	2	0	2	29	0	0	29	0	0	0	0	31
% RTOR	0	3.2	0	0.6	40.3	0	0	25.7	0	0	0	0	5.3



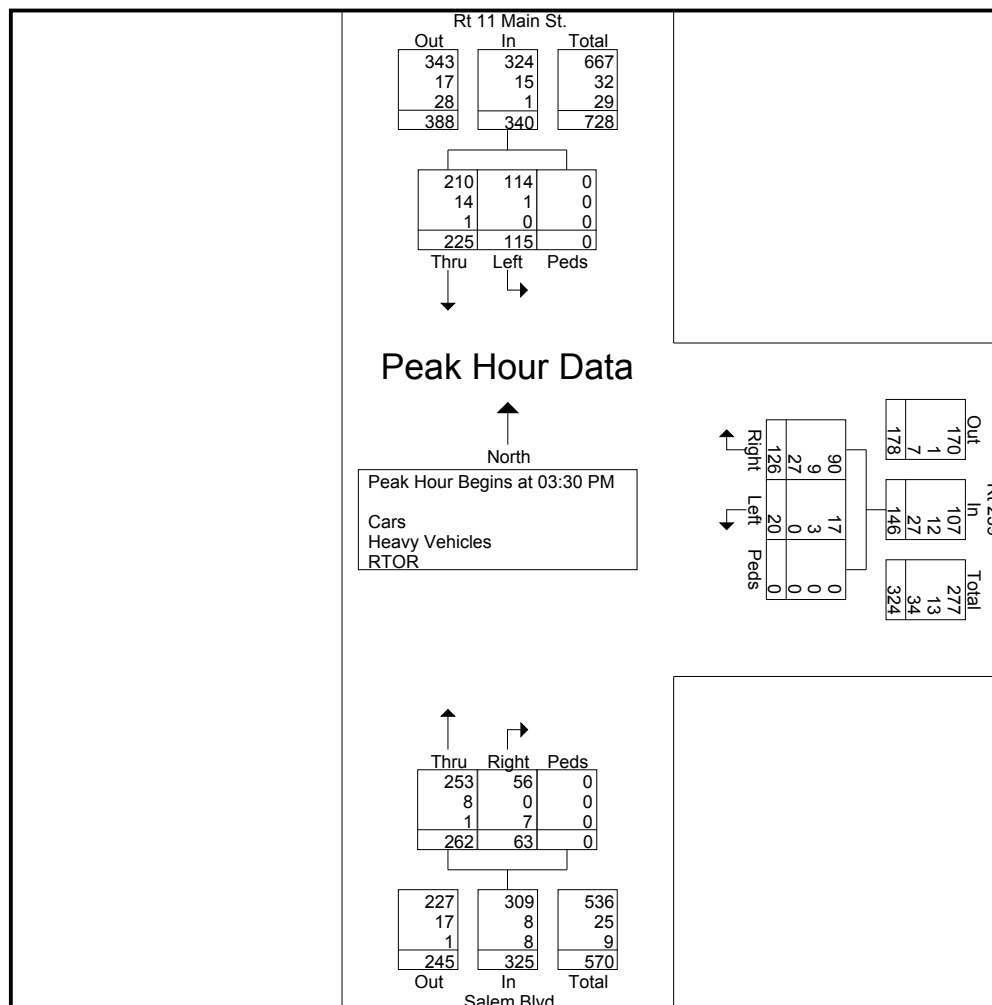
Tri-State Traffic Data, Inc.

610-466-1469
www.TSTData.com

Location: Columbia County, PA
Intersection: US 11/Main St
Date: Wednesday: June 11, 2008
Counter: JI

File Name : SM0611-6
Site Code : 00000000
Start Date : 6/11/2008
Page No : 4

	Rt 11 Main St. Southbound				Rt 239 Westbound				Salem Blvd Northbound				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:00 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 03:30 PM													
03:30 PM	48	20	0	68	23	9	0	32	20	64	0	84	184
03:45 PM	60	26	0	86	37	5	0	42	18	55	0	73	201
04:00 PM	61	31	0	92	34	2	0	36	11	63	0	74	202
04:15 PM	56	38	0	94	32	4	0	36	14	80	0	94	224
Total Volume	225	115	0	340	126	20	0	146	63	262	0	325	811
% App. Total	66.2	33.8	0		86.3	13.7	0		19.4	80.6	0		
PHF	.922	.757	.000	.904	.851	.556	.000	.869	.788	.819	.000	.864	.905
Cars	210	114	0	324	90	17	0	107	56	253	0	309	740
% Cars	93.3	99.1	0	95.3	71.4	85.0	0	73.3	88.9	96.6	0	95.1	91.2
Heavy Vehicles	14	1	0	15	9	3	0	12	0	8	0	8	35
% Heavy Vehicles	6.2	0.9	0	4.4	7.1	15.0	0	8.2	0	3.1	0	2.5	4.3
RTOR	1	0	0	1	27	0	0	27	7	1	0	8	36
% RTOR	0.4	0	0	0.3	21.4	0	0	18.5	11.1	0.4	0	2.5	4.4



Controlled Document

Tri-State Traffic Data, Inc.

610-466-1469
www.TSTData.com

Location: Columbia County, PA
Intersection: US 11/Union St.
Date: Thursday, June 12, 2008
Counter: pb

File Name : SM0612-5
Site Code : 00000000
Start Date : 6/12/2008
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	US 11 Southbound					UNION STREET Westbound					US 11 Northbound					UNION STREET Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:00 AM	2	31	0	0	33	1	2	1	0	4	1	32	5	0	38	31	4	28	0	63	138
06:15 AM	12	53	0	0	65	2	1	2	0	5	5	58	7	0	70	41	2	28	0	71	211
06:30 AM	5	47	0	0	52	1	1	2	0	4	1	42	10	0	53	37	2	37	0	76	185
06:45 AM	8	27	0	1	36	0	0	1	0	1	3	40	9	0	52	21	4	26	0	51	140
Total	27	158	0	1	186	4	4	6	0	14	10	172	31	0	213	130	12	119	0	261	674
07:00 AM	7	43	0	0	50	0	3	2	0	5	1	56	11	0	68	23	4	38	0	65	188
07:15 AM	10	37	0	0	47	0	3	3	0	6	5	50	13	0	68	23	4	40	0	67	188
07:30 AM	23	41	0	1	65	0	4	4	0	8	3	52	25	0	80	25	9	32	0	66	219
07:45 AM	8	47	2	0	57	2	4	3	0	9	3	68	15	2	88	25	8	37	0	70	224
Total	48	168	2	1	219	2	14	12	0	28	12	226	64	2	304	96	25	147	0	268	819
08:00 AM	14	37	2	0	53	0	7	4	0	11	3	34	14	1	52	17	8	16	0	41	157
08:15 AM	9	36	1	0	46	1	4	6	0	11	5	43	20	1	69	8	3	7	0	18	144
08:30 AM	9	40	1	0	50	1	4	9	0	14	7	48	21	0	76	31	9	33	2	75	215
08:45 AM	8	32	2	2	44	0	3	8	1	12	3	31	20	0	54	28	10	24	1	63	173
Total	40	145	6	2	193	2	18	27	1	48	18	156	75	2	251	84	30	80	3	197	689
*** BREAK ***																					
02:30 PM	13	42	1	1	57	5	8	8	1	22	4	49	32	0	85	24	5	16	0	45	209
02:45 PM	16	36	2	3	57	3	7	2	2	14	7	49	35	1	92	25	8	10	0	43	206
Total	29	78	3	4	114	8	15	10	3	36	11	98	67	1	177	49	13	26	0	88	415
03:00 PM	17	45	2	0	64	3	8	9	0	20	8	44	45	0	97	24	8	11	0	43	224
03:15 PM	18	40	2	0	60	4	6	12	0	22	8	60	29	0	97	26	6	24	1	57	236
03:30 PM	18	48	2	1	69	0	11	6	2	19	10	77	48	6	141	27	13	26	0	66	295
03:45 PM	29	53	3	1	86	0	8	6	1	15	14	52	38	1	105	29	7	11	0	47	253
Total	82	186	9	2	279	7	33	33	3	76	40	233	160	7	440	106	34	72	1	213	1008
04:00 PM	30	57	0	0	87	1	8	3	3	15	6	39	45	0	90	21	2	14	0	37	229
04:15 PM	21	72	3	0	96	1	5	6	2	14	3	57	62	0	122	28	5	20	0	53	285
04:30 PM	29	61	0	1	91	3	6	7	2	18	8	56	39	1	104	15	11	13	0	39	252
04:45 PM	41	54	1	2	98	3	13	9	4	29	4	50	58	0	112	30	4	11	0	45	284
Total	121	244	4	3	372	8	32	25	11	76	21	202	204	1	428	94	22	58	0	174	1050
05:00 PM	48	61	1	1	111	0	6	5	2	13	6	55	47	4	112	20	4	12	0	36	272
05:15 PM	56	65	1	1	123	0	3	6	1	10	8	61	63	4	136	43	4	13	0	60	329
Grand Total	451	1105	26	15	1597	31	125	124	21	301	126	1203	711	21	2061	622	144	527	4	1297	5256
Apprch %	28.2	69.2	1.6	0.9		10.3	41.5	41.2	7		6.1	58.4	34.5	1		48	11.1	40.6	0.3		
Total %	8.6	21	0.5	0.3	30.4	0.6	2.4	2.4	0.4	5.7	2.4	22.9	13.5	0.4	39.2	11.8	2.7	10	0.1	24.7	
Cars	441	1041	26	15	1523	31	123	123	21	298	124	1148	700	21	1993	611	141	514	4	1270	5084
% Cars	97.8	94.2	100	100	95.4	100	98.4	99.2	100	99	98.4	95.4	98.5	100	96.7	98.2	97.9	97.5	100	97.9	96.7
Heavy Vehicles	10	64	0	0	74	0	2	1	0	3	2	55	11	0	68	11	3	13	0	27	172
% Heavy Vehicles	2.2	5.8	0	0	4.6	0	1.6	0.8	0	1	1.6	4.6	1.5	0	3.3	1.8	2.1	2.5	0	2.1	3.3

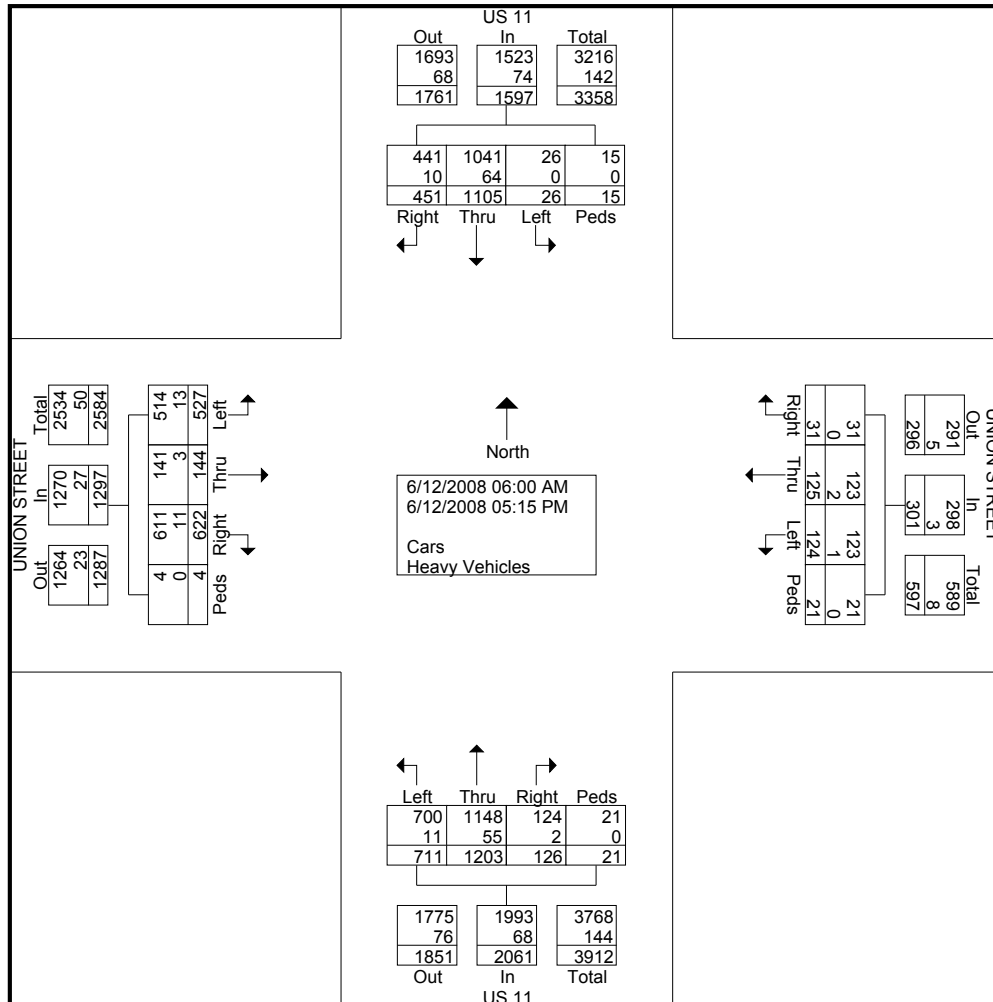
Controlled Document

Tri-State Traffic Data, Inc.

610-466-1469
www.TSTData.com

Location: Columbia County, PA
Intersection: US 11/Union St.
Date: Thursday, June 12, 2008
Counter: pb

File Name : SM0612-5
Site Code : 00000000
Start Date : 6/12/2008
Page No : 2



Controlled Document

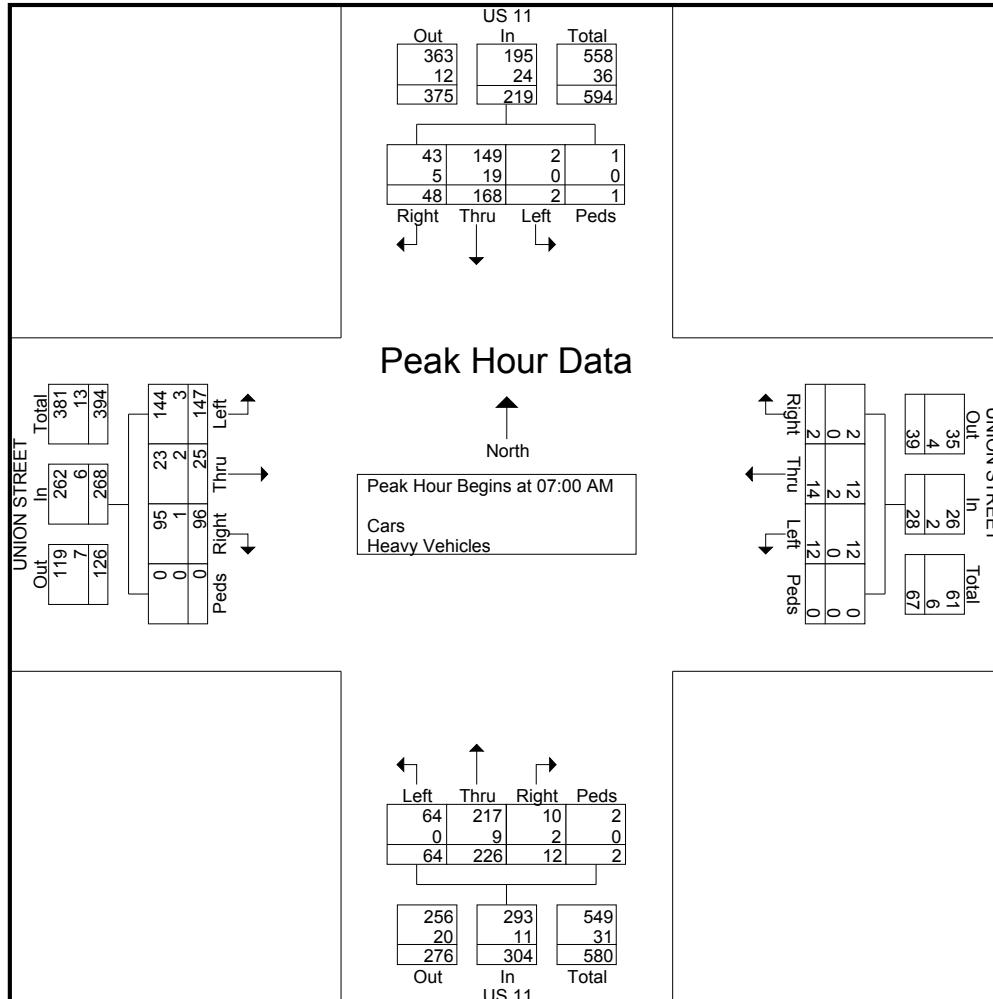
Tri-State Traffic Data, Inc.

610-466-1469
www.TSTData.com

Location: Columbia County, PA
Intersection: US 11/Union St.
Date: Thursday, June 12, 2008
Counter: pb

File Name : SM0612-5
Site Code : 00000000
Start Date : 6/12/2008
Page No : 3

	US 11 Southbound					UNION STREET Westbound					US 11 Northbound					UNION STREET Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	7	43	0	0	50	0	3	2	0	5	1	56	11	0	68	23	4	38	0	65	188
07:15 AM	10	37	0	0	47	0	3	3	0	6	5	50	13	0	68	23	4	40	0	67	188
07:30 AM	23	41	0	1	65	0	4	4	0	8	3	52	25	0	80	25	9	32	0	66	219
07:45 AM	8	47	2	0	57	2	4	3	0	9	3	68	15	2	88	25	8	37	0	70	224
Total Volume	48	168	2	1	219	2	14	12	0	28	12	226	64	2	304	96	25	147	0	268	819
% App. Total	21.9	76.7	0.9	0.5		7.1	50	42.9	0		3.9	74.3	21.1	0.7		35.8	9.3	54.9	0		
PHF	.522	.894	.250	.250	.842	.250	.875	.750	.000	.778	.600	.831	.640	.250	.864	.960	.694	.919	.000	.957	.914
Cars	43	149	2	1	195	2	12	12	0	26	10	217	64	2	293	95	23	144	0	262	776
% Cars	89.6	88.7	100	100	89.0	100	85.7	100	0	92.9	83.3	96.0	100	100	96.4	99.0	92.0	98.0	0	97.8	94.7
Heavy Vehicles																					
% Heavy Vehicles	10.4	11.3	0	0	11.0	0	14.3	0	0	7.1	16.7	4.0	0	0	3.6	1.0	8.0	2.0	0	2.2	5.3



Controlled Document

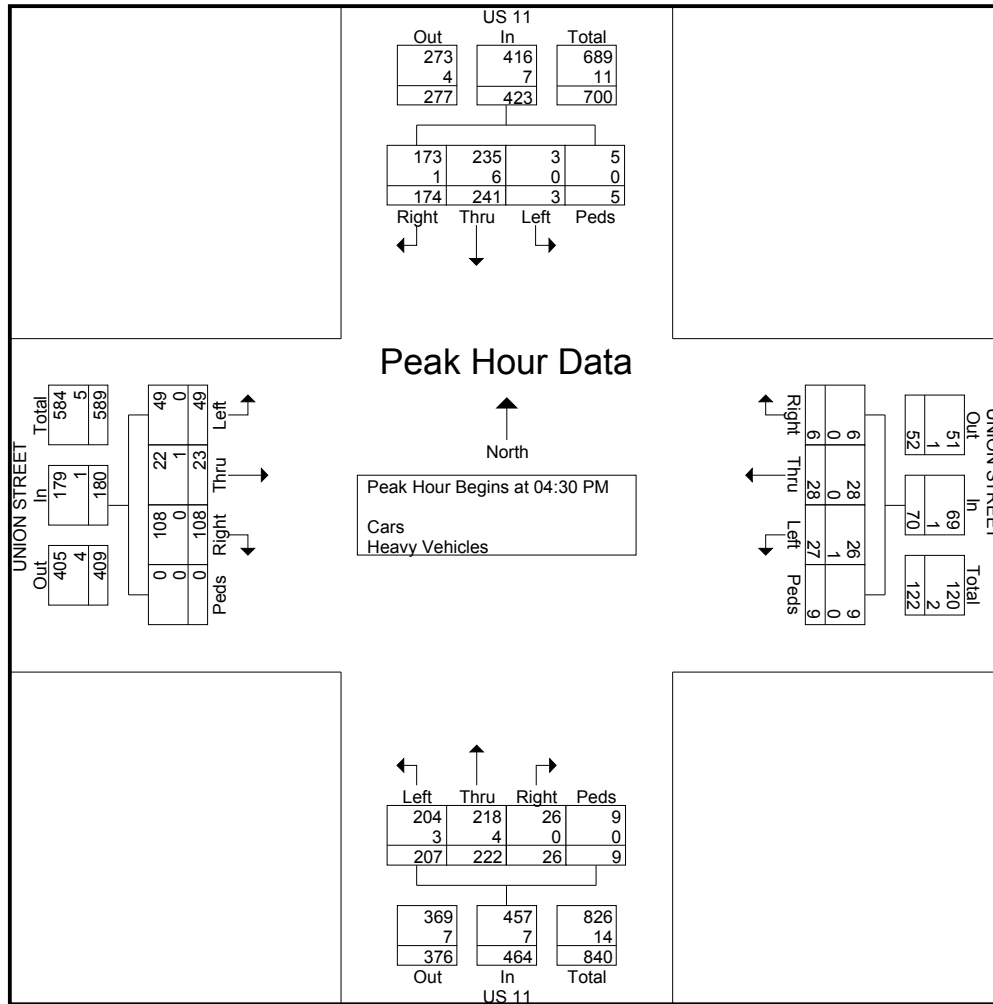
Tri-State Traffic Data, Inc.

610-466-1469
www.TSTData.com

Location: Columbia County, PA
Intersection: US 11/Union St.
Date: Thursday, June 12, 2008
Counter: pb

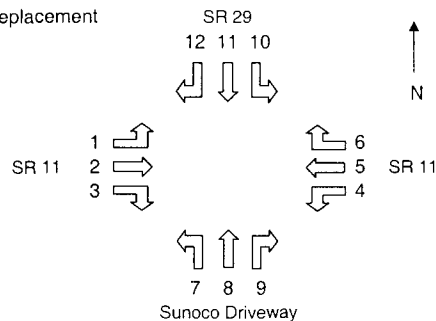
File Name : SM0612-5
Site Code : 00000000
Start Date : 6/12/2008
Page No : 4

	US 11 Southbound					UNION STREET Westbound					US 11 Northbound					UNION STREET Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	29	61	0	1	91	3	6	7	2	18	8	56	39	1	104	15	11	13	0	39	252
04:45 PM	41	54	1	2	98	3	13	9	4	29	4	50	58	0	112	30	4	11	0	45	284
05:00 PM	48	61	1	1	111	0	6	5	2	13	6	55	47	4	112	20	4	12	0	36	272
05:15 PM	56	65	1	1	123	0	3	6	1	10	8	61	63	4	136	43	4	13	0	60	329
Total Volume	174	241	3	5	423	6	28	27	9	70	26	222	207	9	464	108	23	49	0	180	1137
% App. Total	41.1	57	0.7	1.2		8.6	40	38.6	12.9		5.6	47.8	44.6	1.9		60	12.8	27.2	0		
PHF	.777	.927	.750	.625	.860	.500	.538	.750	.563	.603	.813	.910	.821	.563	.853	.628	.523	.942	.000	.750	.864
Cars	173	235	3	5	416	6	28	26	9	69	26	218	204	9	457	108	22	49	0	179	1121
% Cars	99.4	97.5	100	100	98.3	100	100	96.3	100	98.6	100	98.2	98.6	100	98.5	100	95.7	100	0	99.4	98.6
Heavy Vehicles																					
% Heavy Vehicles	0.6	2.5	0	0	1.7	0	0	3.7	0	1.4	0	1.8	1.4	0	1.5	0	4.3	0	0	0.6	1.4



PROJECT NAME: PennDOT 8899 - SR 11 Bridge Replacement
PROJECT NUMBER: CECO0902

INTERSECTION: SR 11 and SR 29
Plymouth Township
Luzerne County



DATE COUNTED: 9/1/09
DAY OF WEEK: Tuesday
WEATHER: Sunny/Dry
COUNTED BY: JDL/JMV

Canal Street Volumes:

AM Peak 0
Midday 1 left in / 1 right out
PM Peak 1 left out

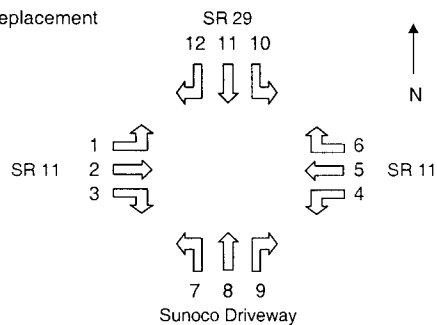
15 MINUTE COUNT DATA

Time Begin	1	2	3	4	5	6	7	8	9	10	11	12	Intersection Total
6:30	5	131	8	2	45	31	0	1	13	39	2	6	283
6:45	3	146	2	1	54	26	0	0	5	34	2	4	277
7:00	6	155	8	2	47	21	1	0	6	40	0	5	291
7:15	7	186	11	0	77	27	2	0	9	54	2	4	379
7:30	8	218	6	3	77	35	2	0	11	36	0	1	397
7:45	8	191	3	2	75	28	1	1	3	42	1	6	361
8:00	3	122	3	2	58	20	1	0	3	32	0	5	249
8:15	5	127	4	3	79	16	0	0	3	31	0	7	275
11:15	3	92	7	1	67	25	0	1	4	31	1	2	234
11:30	4	75	2	4	74	28	1	1	2	22	0	7	220
11:45	1	68	2	1	83	25	2	1	2	33	2	4	224
12:00	1	89	1	2	71	32	3	0	2	23	0	6	230
12:15	5	88	1	1	93	27	2	0	2	22	2	3	246
12:30	2	71	3	1	82	27	3	1	3	34	0	0	227
12:45	4	75	2	4	75	27	3	0	1	27	1	8	227
3:30	10	95	4	2	150	52	2	0	4	28	1	7	355
3:45	7	112	5	1	161	58	4	3	1	39	3	5	399
4:00	6	101	4	1	147	55	4	0	1	43	0	3	365
4:15	5	112	3	0	186	44	1	0	0	24	1	6	382
4:30	10	106	4	4	177	63	3	0	4	40	0	1	412
4:45	3	88	2	1	174	57	3	0	0	34	2	3	367
5:00	4	90	2	1	190	63	1	0	0	36	1	5	393
5:15	11	89	3	2	200	47	4	1	4	34	1	3	399
5:30	12	102	2	2	145	51	0	3	4	29	3	10	363
5:45	6	78	3	4	147	51	3	0	2	27	1	5	327

PEAK HOURS

	1	2	3	4	5	6	7	8	9	10	11	12	Intersection Total
A.M.													
7:00	29	750	28	7	276	111	6	1	29	172	3	16	1428
PHF	0.91	0.86	0.64	0.58	0.90	0.79	0.75	0.25	0.66	0.80	0.38	0.67	
Vol. HV	6	18	2	1	21	3	2	0	2	2	0	1	
% HV	20.7%	2.4%	7.1%	14.3%	7.6%	2.7%	33.3%	0.0%	6.9%	1.2%	0.0%	6.3%	
Midday													
12:00	12	323	7	8	321	113	11	1	8	106	3	17	930
PHF	0.60	0.91	0.58	0.50	0.86	0.88	0.92	0.25	0.67	0.78	0.38	0.53	
Vol. HV	2	20	0	0	27	8	0	0	1	9	0	2	
% HV	16.7%	6.2%	0.0%	0.0%	8.4%	7.1%	0.0%	0.0%	12.5%	8.5%	0.0%	11.8%	
P.M.													
4:30	28	373	11	8	741	230	11	1	8	144	4	12	1571
PHF	0.64	0.88	0.69	0.50	0.93	0.91	0.69	0.25	0.50	0.90	0.50	0.60	
Vol. HV	0	10	0	1	20	4	0	0	0	5	0	2	
% HV	0.0%	2.7%	0.0%	12.5%	2.7%	1.7%	0.0%	0.0%	0.0%	3.5%	0.0%	16.7%	

PROJECT NAME: PennDOT 8899 - SR 11 Bridge Replacement
PROJECT NUMBER: CECO0902
INTERSECTION: SR 11 and SR 29
 Plymouth Township
 Luzerne County



DATE COUNTED: 9/12/09
DAY OF WEEK: Saturday
WEATHER: Cloudy/
 Drizzle
COUNTED BY: JDL/JMV

Canal Street Volumes:
 Midday 1 left out

15 MINUTE COUNT DATA

Time Begin	Movement												Intersection Total
	1	2	3	4	5	6	7	8	9	10	11	12	
11:30	2	105	9	1	91	35	0	0	8	34	1	2	288
11:45	3	100	8	2	92	33	1	1	7	34	1	4	286
12:00	1	83	8	1	118	26	3	0	10	28	3	3	284
12:15	0	58	6	2	87	25	2	4	2	27	1	3	217
12:30	7	84	6	2	85	32	1	0	6	38	2	2	265
12:45	1	89	3	4	84	32	2	1	10	29	5	8	268
1:00	0	72	2	5	94	42	4	0	7	25	1	1	253
1:15	6	90	1	4	98	45	2	0	4	40	0	2	292
1:30	5	88	3	3	84	56	0	0	2	30	0	3	274
1:45	3	80	6	2	105	25	1	1	3	28	0	3	257

PEAK HOURS

	Movement												Intersection Total
	1	2	3	4	5	6	7	8	9	10	11	12	
Midday													
12:45	12	339	9	16	360	175	8	1	23	124	6	14	1087
PHF	0.50	0.94	0.75	0.80	0.92	0.78	0.50	0.25	0.58	0.78	0.30	0.44	
Vol. HV	0	5	0	1	4	1	0	0	1	0	0	0	
% HV	0.0%	1.5%	0.0%	6.3%	1.1%	0.6%	0.0%	0.0%	4.3%	0.0%	0.0%	0.0%	

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Tri-State Traffic Data, Inc.

610-466-1469
www.TSTData.com

Location: Luzerne County, PA
Intersection: Rt. 11/Nanticoke Bridge
Date: Tuesday, April 13, 2010
Counter: pb

File Name : SM0413-16
Site Code : 00000000
Start Date : 4/13/2010
Page No : 1

Groups Printed- Cars - Heavy Vehicles - turns

Start Time	ROUTE 11 Southbound				NANTICOKE BRIDGE Westbound				ROUTE 11 Northbound				Int. Total
	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	
06:00 AM	38	7	0	45	6	18	0	24	12	96	0	108	177
06:15 AM	61	10	0	71	17	15	0	32	16	156	0	172	275
06:30 AM	55	18	0	73	11	21	0	32	25	170	0	195	300
06:45 AM	42	14	0	56	17	23	0	40	46	152	0	198	294
Total	196	49	0	245	51	77	0	128	99	574	0	673	1046
07:00 AM	82	10	0	92	16	22	1	39	37	150	0	187	318
07:15 AM	72	8	0	80	18	39	0	57	46	193	0	239	376
07:30 AM	82	21	0	103	19	51	0	70	74	198	0	272	445
07:45 AM	65	27	0	92	12	26	0	38	73	179	0	252	382
Total	301	66	0	367	65	138	1	204	230	720	0	950	1521
08:00 AM	74	27	0	101	20	27	0	47	45	169	0	214	362
08:15 AM	54	16	0	70	23	34	0	57	57	126	0	183	310
08:30 AM	54	12	0	66	23	26	0	49	46	136	0	182	297
08:45 AM	39	24	0	63	16	24	0	40	54	104	0	158	261
Total	221	79	0	300	82	111	0	193	202	535	0	737	1230
*** BREAK ***													
03:00 PM	128	32	0	160	18	54	0	72	39	109	0	148	380
03:15 PM	132	26	0	158	18	64	0	82	58	98	0	156	396
03:30 PM	169	19	2	190	22	70	0	92	45	110	0	155	437
03:45 PM	164	35	0	199	17	71	0	88	43	87	0	130	417
Total	593	112	2	707	75	259	0	334	185	404	0	589	1630
04:00 PM	159	31	0	190	24	72	0	96	49	90	0	139	425
04:15 PM	176	29	0	205	26	60	0	86	52	107	0	159	450
04:30 PM	167	26	0	193	12	60	0	72	48	95	0	143	408
04:45 PM	170	31	0	201	14	56	0	70	46	95	0	141	412
Total	672	117	0	789	76	248	0	324	195	387	0	582	1695
05:00 PM	159	29	0	188	20	65	0	85	47	101	0	148	421
05:15 PM	194	33	0	227	20	34	0	54	65	104	0	169	450
05:30 PM	161	28	0	189	26	58	0	84	59	97	0	156	429
05:45 PM	134	35	0	169	29	34	0	63	55	73	0	128	360
Total	648	125	0	773	95	191	0	286	226	375	0	601	1660
Grand Total	2631	548	2	3181	444	1024	1	1469	1137	2995	0	4132	8782
Apprch %	82.7	17.2	0.1		30.2	69.7	0.1		27.5	72.5	0		
Total %	30	6.2	0	36.2	5.1	11.7	0	16.7	12.9	34.1	0	47.1	
Cars	2571	546	2	3119	392	1016	1	1409	1083	2956	0	4039	8567
% Cars	97.7	99.6	100	98.1	88.3	99.2	100	95.9	95.3	98.7	0	97.7	97.6
Heavy Vehicles	60	2	0	62	6	7	0	13	10	39	0	49	124
% Heavy Vehicles	2.3	0.4	0	1.9	1.4	0.7	0	0.9	0.9	1.3	0	1.2	1.4
Rights on Red/U-turns	0	0	0	0	46	1	0	47	44	0	0	44	91
% Rights on Red/U-turns	0	0	0	0	10.4	0.1	0	3.2	3.9	0	0	1.1	1

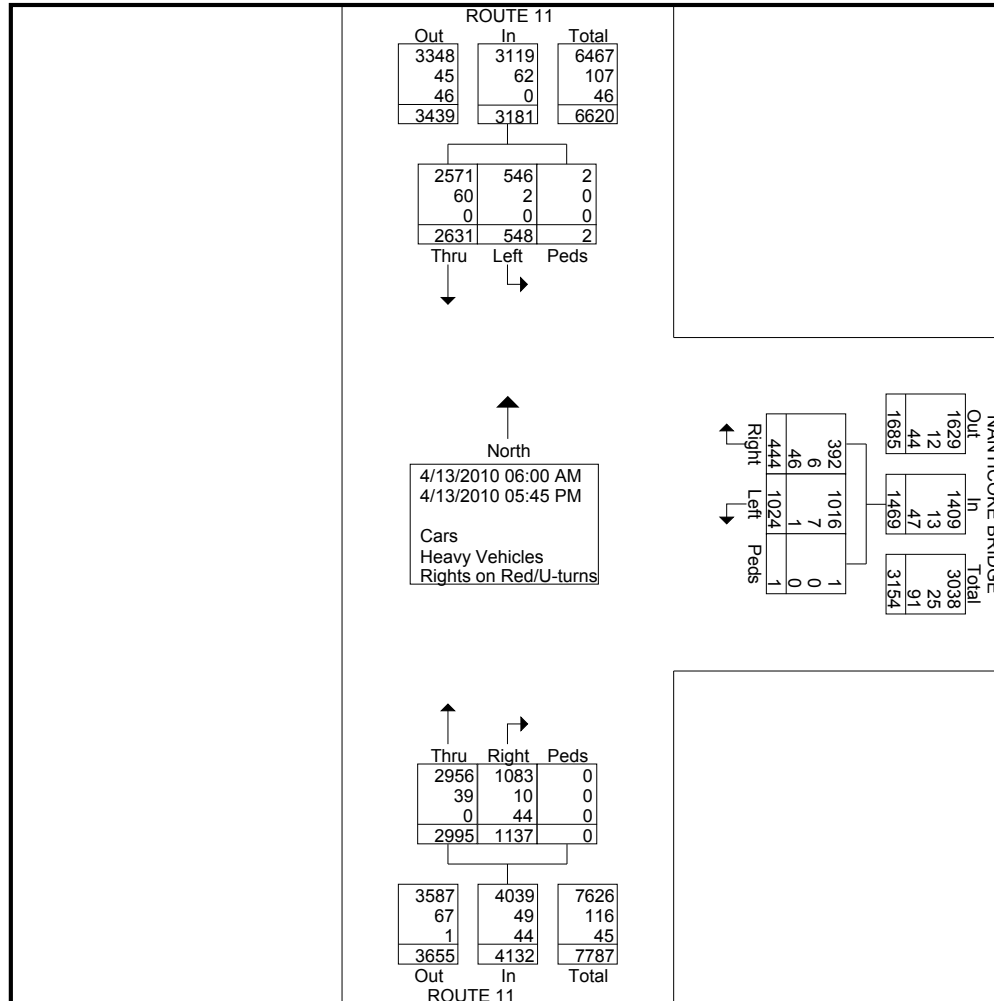
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Tri-State Traffic Data, Inc.

610-466-1469
www.TSTData.com

Location: Luzerne County, PA
Intersection: Rt. 11/Nanticoke Bridge
Date: Tuesday, April 13, 2010
Counter: pb

File Name : SM0413-16
Site Code : 00000000
Start Date : 4/13/2010
Page No : 2



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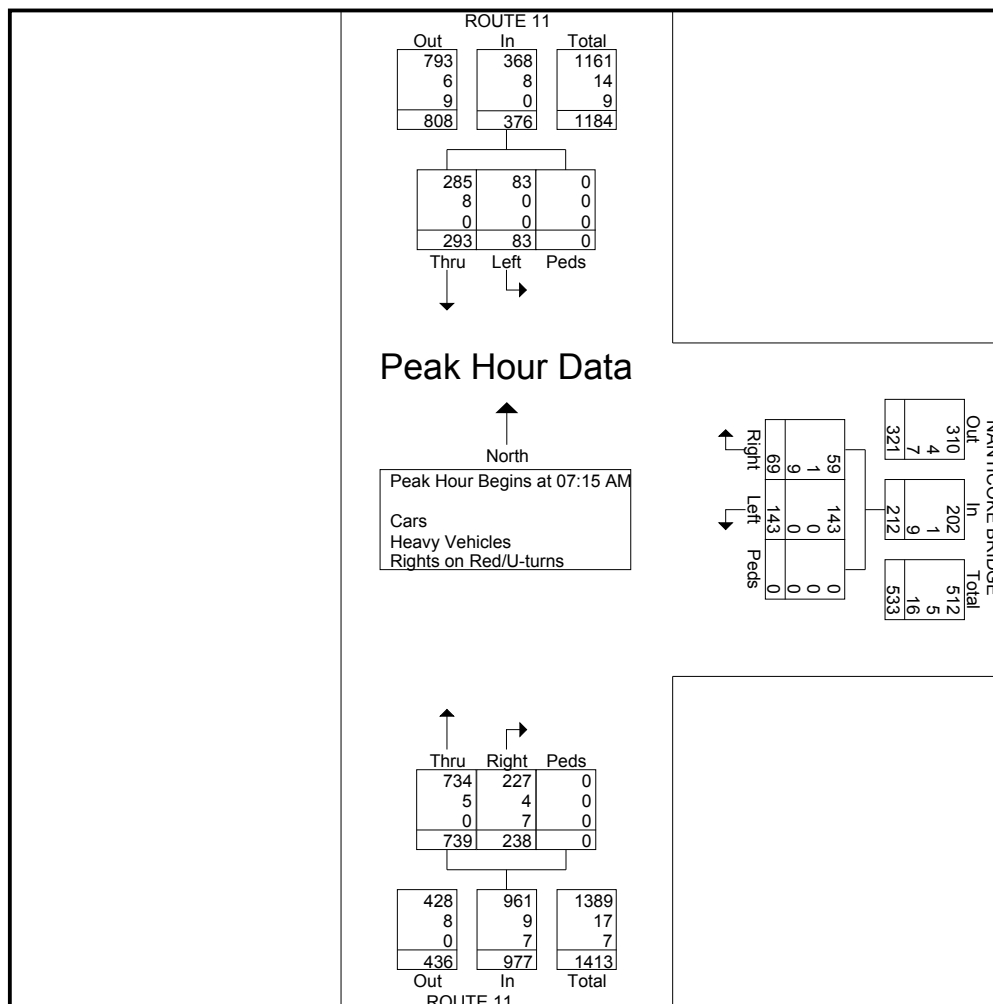
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Location: Luzerne County, PA
Intersection: Rt. 11/Nanticoke Bridge
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Counter: pb

File Name : SM0413-16
Site Code : 00000000
Start Date : 4/13/2010
Page No : 3

	ROUTE 11 Southbound				NANTICOKE BRIDGE Westbound				ROUTE 11 Northbound				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:15 AM													
07:15 AM	72	8	0	80	18	39	0	57	46	193	0	239	376
07:30 AM	82	21	0	103	19	51	0	70	74	198	0	272	445
07:45 AM	65	27	0	92	12	26	0	38	73	179	0	252	382
08:00 AM	74	27	0	101	20	27	0	47	45	169	0	214	362
Total Volume	293	83	0	376	69	143	0	212	238	739	0	977	1565
% App. Total	77.9	22.1	0		32.5	67.5	0		24.4	75.6	0		
PHF	.893	.769	.000	.913	.863	.701	.000	.757	.804	.933	.000	.898	.879
Cars	285	83	0	368	59	143	0	202	227	734	0	961	1531
% Cars	97.3	100	0	97.9	85.5	100	0	95.3	95.4	99.3	0	98.4	97.8
Heavy Vehicles	8	0	0	8	1	0	0	1	4	5	0	9	18
% Heavy Vehicles	2.7	0	0	2.1	1.4	0	0	0.5	1.7	0.7	0	0.9	1.2
Rights on Red/U-turns	0	0	0	0	9	0	0	9	7	0	0	7	16
% Rights on Red/U-turns	0	0	0	0	13.0	0	0	4.2	2.9	0	0	0.7	1.0



Controlled Document

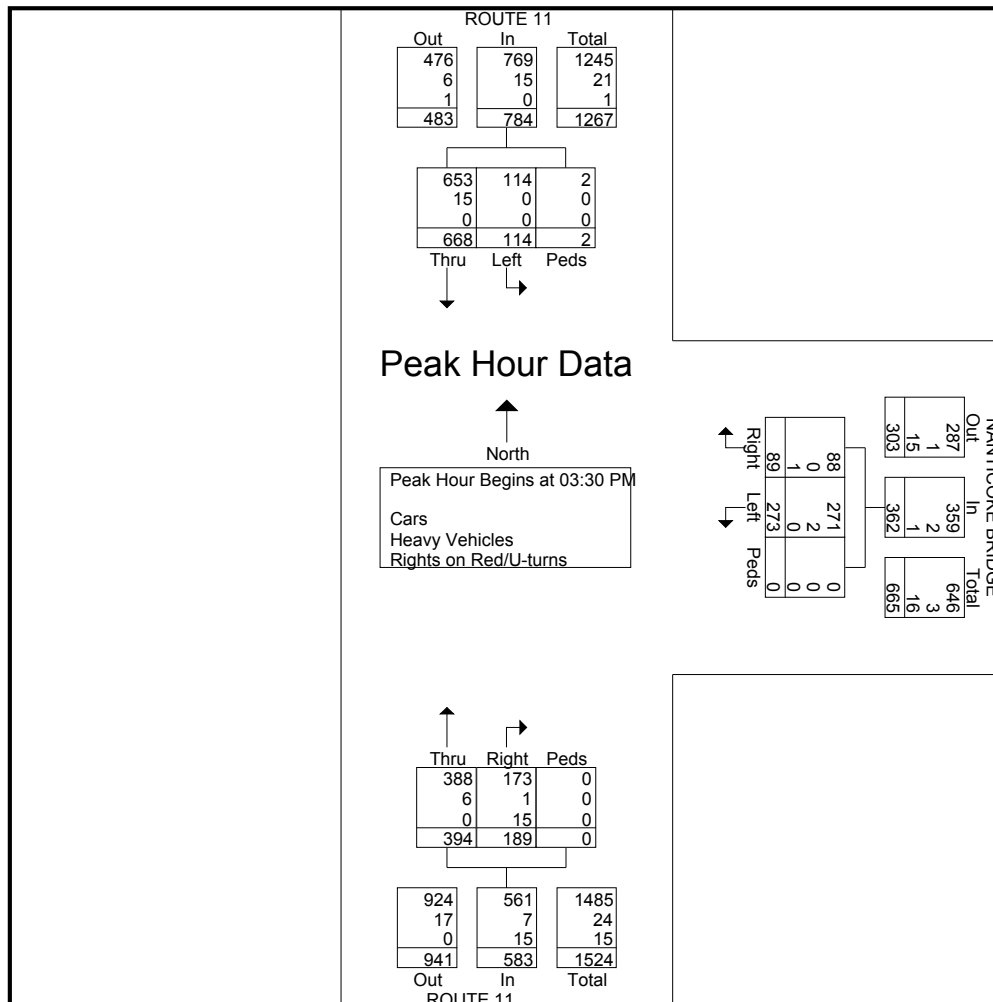
Tri-State Traffic Data, Inc.

610-466-1469
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Location: Luzerne County, PA
Intersection: Rt. 11/Nanticoke Bridge
Date: Tuesday, April 13, 2010
Counter: pb

File Name : SM0413-16
Site Code : 00000000
Start Date : 4/13/2010
Page No : 4

	ROUTE 11 Southbound				NANTICOKE BRIDGE Westbound				ROUTE 11 Northbound				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 03:30 PM													
03:30 PM	169	19	2	190	22	70	0	92	45	110	0	155	437
03:45 PM	164	35	0	199	17	71	0	88	43	87	0	130	417
04:00 PM	159	31	0	190	24	72	0	96	49	90	0	139	425
04:15 PM	176	29	0	205	26	60	0	86	52	107	0	159	450
Total Volume	668	114	2	784	89	273	0	362	189	394	0	583	1729
% App. Total	85.2	14.5	0.3		24.6	75.4	0		32.4	67.6	0		
PHF	.949	.814	.250	.956	.856	.948	.000	.943	.909	.895	.000	.917	.961
Cars	653	114	2	769	88	271	0	359	173	388	0	561	1689
% Cars	97.8	100	100	98.1	98.9	99.3	0	99.2	91.5	98.5	0	96.2	97.7
Heavy Vehicles	15	0	0	15	0	2	0	2	1	6	0	7	24
% Heavy Vehicles	2.2	0	0	1.9	0	0.7	0	0.6	0.5	1.5	0	1.2	1.4
Rights on Red/U-turns	0	0	0	0	1	0	0	1	15	0	0	15	16
% Rights on Red/U-turns	0	0	0	0	1.1	0	0	0.3	7.9	0	0	2.6	0.9



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Tri-State Traffic Data, Inc.

610-466-1469
www.TSTData.com

Location: Luzerne County, PA
Intersection: Rt. 11 / Rt. 29
Date: Tuesday, April 13, 2010
Counter: ET / JT

File Name : SM0413-17
Site Code : 00000000
Start Date : 4/13/2010
Page No : 1

Groups Printed- Cars - Heavy Vehicles

Start Time	Route 11 Southbound				Route 11/29 Westbound				Route 11/29 Northbound				Int. Total
	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	
06:00 AM	23	0	0	23	0	22	0	22	91	11	0	102	147
06:15 AM	30	1	0	31	1	42	0	43	166	7	0	173	247
06:30 AM	31	1	0	32	1	42	0	43	190	2	0	192	267
06:45 AM	25	1	0	26	0	31	0	31	172	1	0	173	230
Total	109	3	0	112	2	137	0	139	619	21	0	640	891
07:00 AM	36	2	0	38	2	56	0	58	152	14	0	166	262
07:15 AM	35	1	0	36	0	46	0	46	228	7	0	235	317
07:30 AM	36	2	0	38	0	67	0	67	212	7	0	219	324
07:45 AM	50	4	0	54	3	42	0	45	202	4	0	206	305
Total	157	9	0	166	5	211	0	216	794	32	0	826	1208
08:00 AM	52	1	0	53	1	49	0	50	180	0	0	180	283
08:15 AM	44	3	0	47	0	26	0	26	145	4	0	149	222
08:30 AM	37	2	0	39	1	29	0	30	157	3	0	160	229
08:45 AM	33	0	0	33	1	31	0	32	125	0	0	125	190
Total	166	6	0	172	3	135	0	138	607	7	0	614	924
09:00 AM	35	3	0	38	2	33	0	35	116	1	0	117	190
09:15 AM	39	2	0	41	0	41	0	41	115	0	0	115	197
09:30 AM	42	2	0	44	0	58	0	58	95	3	0	98	200
09:45 AM	43	3	0	46	1	48	0	49	126	2	0	128	223
Total	159	10	0	169	3	180	0	183	452	6	0	458	810
10:00 AM	37	0	0	37	3	39	0	42	87	3	0	90	169
10:15 AM	35	2	0	37	0	52	0	52	91	1	0	92	181
10:30 AM	44	0	0	44	1	41	0	42	88	2	0	90	176
10:45 AM	45	2	0	47	0	44	0	44	93	1	0	94	185
Total	161	4	0	165	4	176	0	180	359	7	0	366	711
11:00 AM	36	1	0	37	3	52	0	55	94	3	0	97	189
11:15 AM	48	1	0	49	0	58	0	58	115	2	0	117	224
11:30 AM	39	5	0	44	0	53	0	53	92	5	0	97	194
11:45 AM	51	3	0	54	1	40	0	41	86	2	0	88	183
Total	174	10	0	184	4	203	0	207	387	12	0	399	790
12:00 PM	49	2	0	51	2	51	0	53	95	1	0	96	200
12:15 PM	37	2	0	39	2	63	0	65	87	1	0	88	192
12:30 PM	55	1	0	56	1	51	0	52	116	2	0	118	226
12:45 PM	58	1	0	59	0	46	0	46	82	4	0	86	191
Total	199	6	0	205	5	211	0	216	380	8	0	388	809
01:00 PM	36	0	0	36	1	49	0	50	87	5	0	92	178
01:15 PM	49	2	0	51	1	71	0	72	104	4	0	108	231
01:30 PM	52	1	0	53	1	67	0	68	62	6	0	68	189
01:45 PM	42	3	0	45	0	44	0	44	108	4	0	112	201
Total	179	6	0	185	3	231	0	234	361	19	0	380	799
02:00 PM	52	2	0	54	1	57	0	58	90	4	0	94	206
02:15 PM	54	4	0	58	1	54	0	55	122	2	0	124	237
02:30 PM	58	2	0	60	1	86	0	87	108	3	0	111	258
02:45 PM	73	2	0	75	0	60	0	60	109	3	0	112	247
Total	237	10	0	247	3	257	0	260	429	12	0	441	948
03:00 PM	66	2	0	68	1	88	0	89	114	4	0	118	275
03:15 PM	55	4	0	59	2	112	0	114	107	3	0	110	283
03:30 PM	65	0	0	65	0	142	0	142	124	5	0	129	336
03:45 PM	79	1	0	80	0	118	0	118	100	5	0	105	303
Total	265	7	0	272	3	460	0	463	445	17	0	462	1197

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Tri-State Traffic Data, Inc.

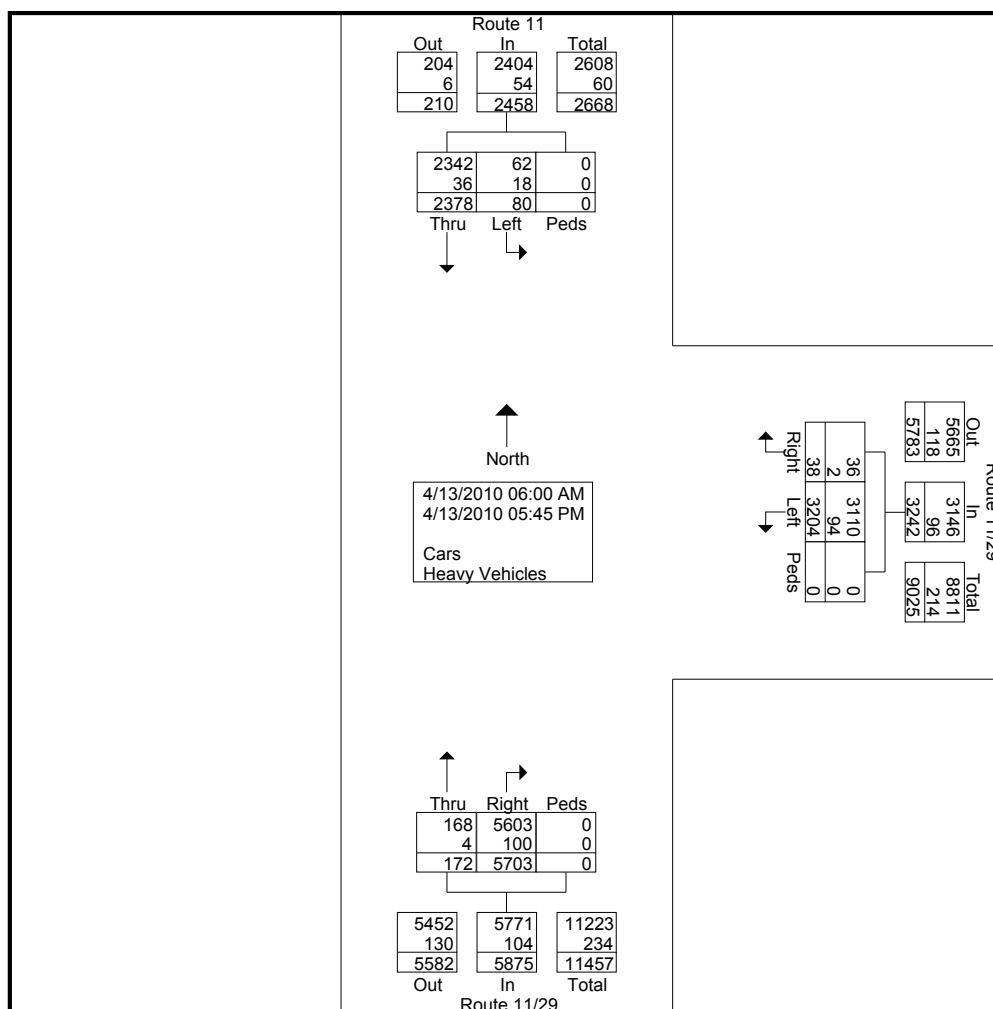
610-466-1469
www.TSTData.com

Location: Luzerne County, PA
Intersection: Rt. 11 / Rt. 29
Date: Tuesday, April 13, 2010
Counter: ET / JT

File Name : SM0413-17
Site Code : 00000000
Start Date : 4/13/2010
Page No : 2

Groups Printed- Cars - Heavy Vehicles

Start Time	Route 11 Southbound				Route 11/29 Westbound				Route 11/29 Northbound				Int. Total
	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	
04:00 PM	73	2	0	75	0	141	0	141	104	7	0	111	327
04:15 PM	71	0	0	71	0	129	0	129	123	4	0	127	327
04:30 PM	74	1	0	75	0	119	0	119	105	4	0	109	303
04:45 PM	71	1	0	72	0	119	0	119	108	1	0	109	300
Total	289	4	0	293	0	508	0	508	440	16	0	456	1257
05:00 PM	63	1	0	64	1	126	0	127	105	3	0	108	299
05:15 PM	80	1	0	81	1	147	0	148	114	1	0	115	344
05:30 PM	75	3	0	78	0	127	0	127	118	2	0	120	325
05:45 PM	65	0	0	65	1	95	0	96	93	9	0	102	263
Total	283	5	0	288	3	495	0	498	430	15	0	445	1231
Grand Total	2378	80	0	2458	38	3204	0	3242	5703	172	0	5875	11575
Apprch %	96.7	3.3	0		1.2	98.8	0		97.1	2.9	0		
Total %	20.5	0.7	0	21.2	0.3	27.7	0	28	49.3	1.5	0	50.8	
Cars	2342	62	0	2404	36	3110	0	3146	5603	168	0	5771	11321
% Cars	98.5	77.5	0	97.8	94.7	97.1	0	97	98.2	97.7	0	98.2	97.8
Heavy Vehicles	36	18	0	54	2	94	0	96	100	4	0	104	254
% Heavy Vehicles	1.5	22.5	0	2.2	5.3	2.9	0	3	1.8	2.3	0	1.8	2.2



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Tri-State Traffic Data, Inc.

610-466-1469
www.TSTData.com

Location: Luzerne County, PA
Intersection: Rt. 11 / Rt. 29
Date: Tuesday, April 13, 2010
Counter: ET / JT

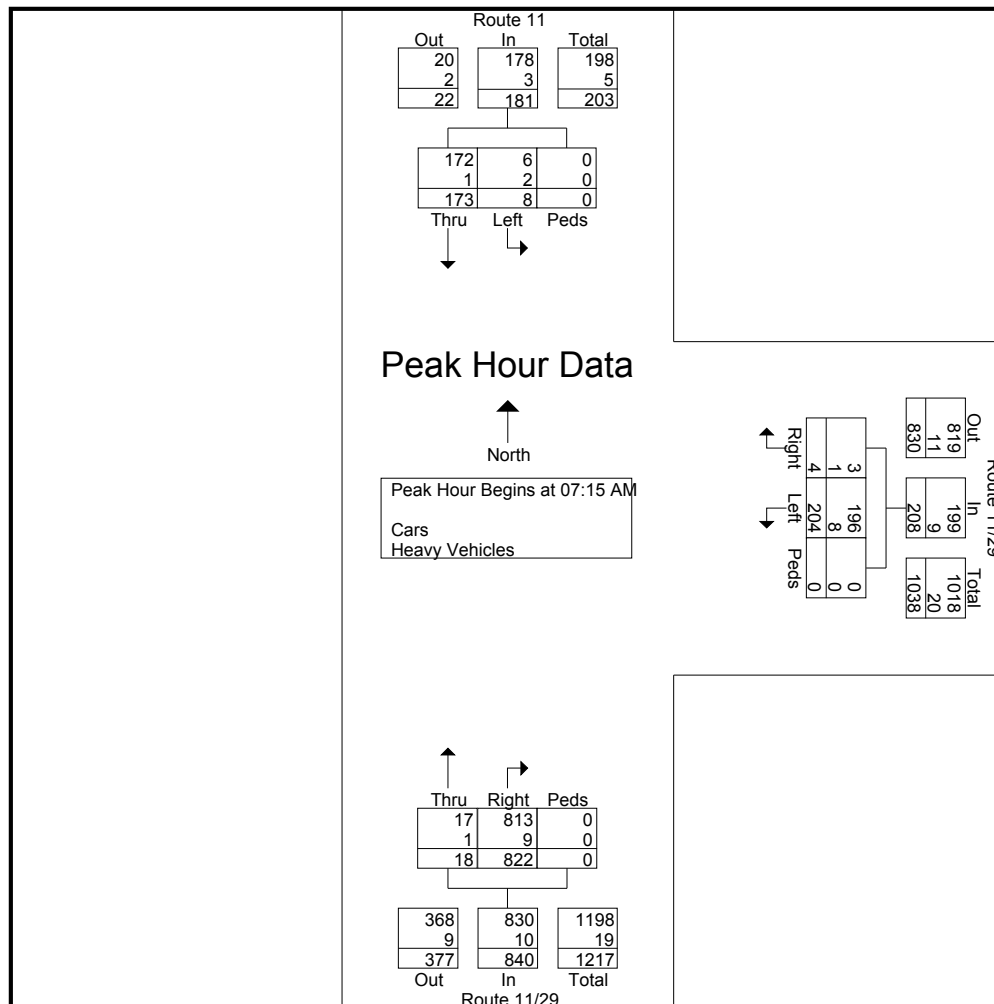
File Name : SM0413-17
Site Code : 00000000
Start Date : 4/13/2010
Page No : 3

Start Time	Route 11 Southbound				Route 11/29 Westbound				Route 11/29 Northbound				Int. Total
	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	

Peak Hour Analysis From 06:00 AM to 09:45 AM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 07:15 AM

07:15 AM	35	1	0	36	0	46	0	46	228	7	0	235	317
07:30 AM	36	2	0	38	0	67	0	67	212	7	0	219	324
07:45 AM	50	4	0	54	3	42	0	45	202	4	0	206	305
08:00 AM	52	1	0	53	1	49	0	50	180	0	0	180	283
Total Volume	173	8	0	181	4	204	0	208	822	18	0	840	1229
% App. Total	95.6	4.4	0		1.9	98.1	0		97.9	2.1	0		
PHF	.832	.500	.000	.838	.333	.761	.000	.776	.901	.643	.000	.894	.948
Cars	172	6	0	178	3	196	0	199	813	17	0	830	1207
% Cars	99.4	75.0	0	98.3	75.0	96.1	0	95.7	98.9	94.4	0	98.8	98.2
Heavy Vehicles	1	2	0	3	1	8	0	9	9	1	0	10	22
% Heavy Vehicles	0.6	25.0	0	1.7	25.0	3.9	0	4.3	1.1	5.6	0	1.2	1.8



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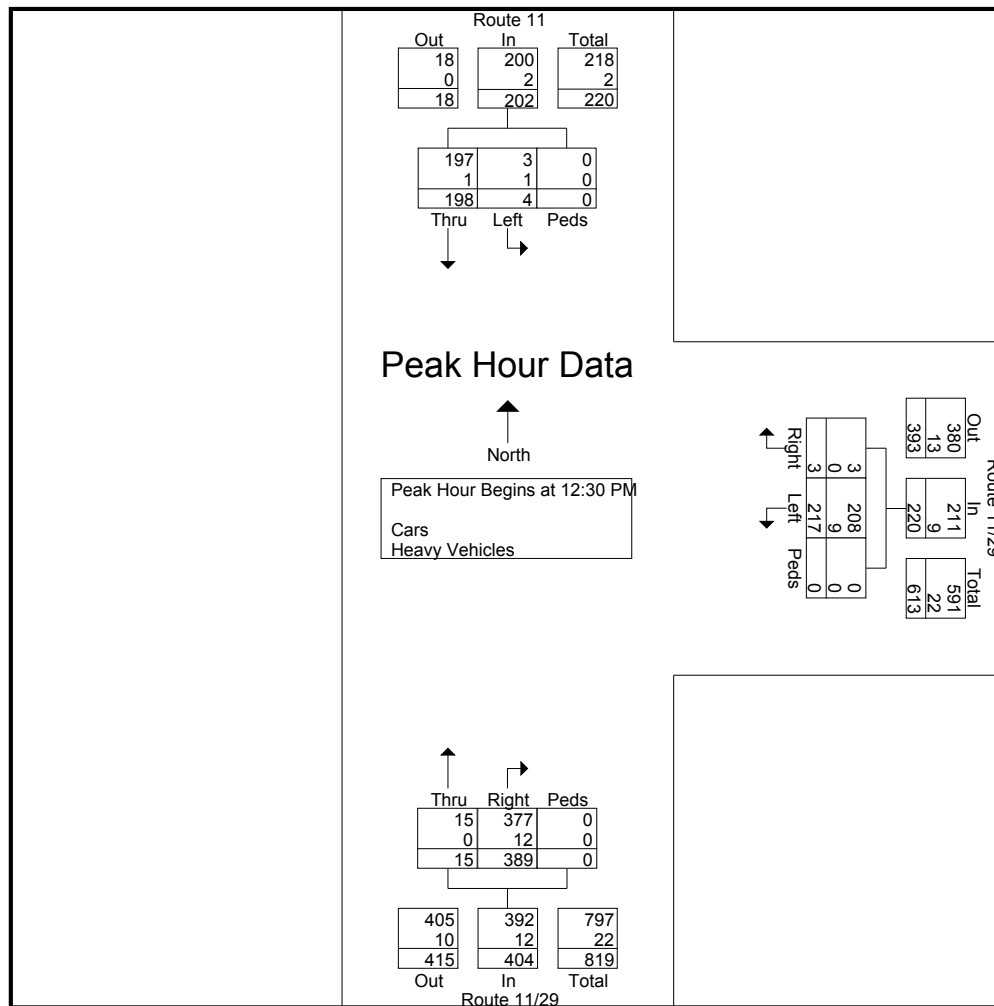
Tri-State Traffic Data, Inc.

610-466-1469
www.TSTData.com

Location: Luzerne County, PA
Intersection: Rt. 11 / Rt. 29
Date: Tuesday, April 13, 2010
Counter: ET / JT

File Name : SM0413-17
Site Code : 00000000
Start Date : 4/13/2010
Page No : 4

	Route 11 Southbound				Route 11/29 Westbound				Route 11/29 Northbound				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. Total
Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 12:30 PM													
12:30 PM	55	1	0	56	1	51	0	52	116	2	0	118	226
12:45 PM	58	1	0	59	0	46	0	46	82	4	0	86	191
01:00 PM	36	0	0	36	1	49	0	50	87	5	0	92	178
01:15 PM	49	2	0	51	1	71	0	72	104	4	0	108	231
Total Volume	198	4	0	202	3	217	0	220	389	15	0	404	826
% App. Total	98	2	0		1.4	98.6	0		96.3	3.7	0		
PHF	.853	.500	.000	.856	.750	.764	.000	.764	.838	.750	.000	.856	.894
Cars	197	3	0	200	3	208	0	211	377	15	0	392	803
% Cars	99.5	75.0	0	99.0	100	95.9	0	95.9	96.9	100	0	97.0	97.2
Heavy Vehicles	1	1	0	2	0	9	0	9	12	0	0	12	23
% Heavy Vehicles	0.5	25.0	0	1.0	0	4.1	0	4.1	3.1	0	0	3.0	2.8



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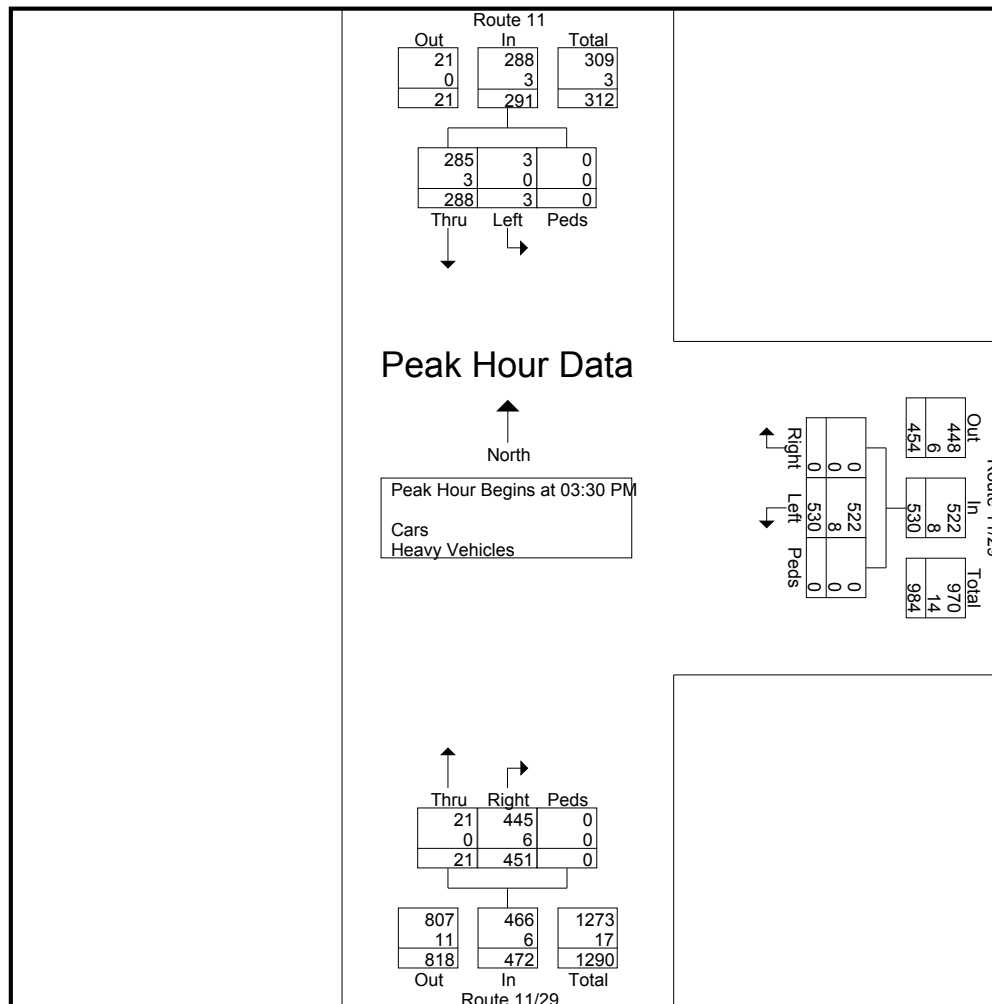
Tri-State Traffic Data, Inc.

610-466-1469
www.TSTData.com

Location: Luzerne County, PA
Intersection: Rt. 11 / Rt. 29
Date: Tuesday, April 13, 2010
Counter: ET / JT

File Name : SM0413-17
Site Code : 00000000
Start Date : 4/13/2010
Page No : 5

	Route 11 Southbound				Route 11/29 Westbound				Route 11/29 Northbound				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. Total
Peak Hour Analysis From 02:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 03:30 PM													
03:30 PM	65	0	0	65	0	142	0	142	124	5	0	129	336
03:45 PM	79	1	0	80	0	118	0	118	100	5	0	105	303
04:00 PM	73	2	0	75	0	141	0	141	104	7	0	111	327
04:15 PM	71	0	0	71	0	129	0	129	123	4	0	127	327
Total Volume	288	3	0	291	0	530	0	530	451	21	0	472	1293
% App. Total	99	1	0		0	100	0		95.6	4.4	0		
PHF	.911	.375	.000	.909	.000	.933	.000	.933	.909	.750	.000	.915	.962
Cars	285	3	0	288	0	522	0	522	445	21	0	466	1276
% Cars	99.0	100	0	99.0	0	98.5	0	98.5	98.7	100	0	98.7	98.7
Heavy Vehicles	3	0	0	3	0	8	0	8	6	0	0	6	17
% Heavy Vehicles	1.0	0	0	1.0	0	1.5	0	1.5	1.3	0	0	1.3	1.3



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Tri-State Traffic Data, Inc.








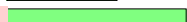








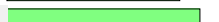
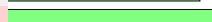






610-466-1469
www.TSTData.com

Page 1

Road: Rt 93 NB
Location: Between Cooper and Berwick
Weather: Clear
Counter: TSTD

Site Code: 00001 NB
Station ID:

Longitude: 0' 0.000 Undefined
Latitude: 0' 0.000 Undefined

Start Time	Mon 12-Apr-10	Tue 13-Apr-10	Wed 14-Apr-10	Thu 15-Apr-10	Fri 16-Apr-10	Average Day	Sat 17-Apr-10	Sun 18-Apr-10	Week Average
12:00 AM	*	*	25	46	51	41	70	49	48 
01:00	*	*	17	12	27	19	41	35	26 
02:00	*	*	23	16	18	19	40	32	26 
03:00	*	*	19	15	16	17	22	15	17 
04:00	*	*	46	45	40	44	31	25	37 
05:00	*	*	180	173	149	167	92	61	131 
06:00	*	*	313	326	338	326	146	97	244 
07:00	*	*	531	544	562	546	228	118	397 
08:00	*	*	436	474	473	461	286	182	370 
09:00	*	*	322	311	364	332	341	254	318 
10:00	*	*	308	326	365	333	387	302	338 
11:00	*	*	336	376	388	367	382	306	358 
12:00 PM	*	*	364	379	407	383	373	393	383 
01:00	*	*	365	401	424	397	352	357	380 
02:00	*	*	419	404	423	415	367	302	383 
03:00	*	*	464	474	546	495	348	302	427 
04:00	*	496	523	537	523	520	354	338	462 
05:00	*	507	495	492	562	514	336	339	455 
06:00	*	363	425	395	471	414	340	291	381 
07:00	*	252	297	326	271	286	245	242	272 
08:00	*	190	256	272	246	241	186	183	222 
09:00	*	112	123	150	186	143	161	142	146 
10:00	*	102	112	101	164	120	134	90	117 
11:00	*	83	74	95	97	87	90	49	81 
Day Total	0	2105	6473	6690	7111	6687	5352	4504	6019
% Avg. WkDay	0.0%	31.5%	96.8%	100.0%	106.3%				
% Avg. Week	0.0%	35.0%	107.5%	111.1%	118.1%	111.1%	88.9%	74.8%	
AM Peak			07:00	07:00	07:00	07:00	10:00	11:00	07:00
Vol.			531	544	562	546	387	306	397
PM Peak		17:00	16:00	16:00	17:00	16:00	12:00	12:00	16:00
Vol.		507	523	537	562	520	373	393	462

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Tri-State Traffic Data, Inc.

























610-466-1469
www.TSTData.com

Page 2

Road: Rt 93 NB
Location: Between Cooper and Berwick
Weather: Clear
Counter: TSTD

Site Code: 00001 NB
Station ID:

Longitude: 0' 0.000 Undefined
Latitude: 0' 0.000 Undefined

Start Time	Mon 19-Apr-10	Tue 20-Apr-10	Wed 21-Apr-10	Thu 22-Apr-10	Fri 23-Apr-10	Average Day	Sat 24-Apr-10	Sun 25-Apr-10	Week Average
12:00 AM	36	38	36	29	*	35	*	*	35 
01:00	25	18	18	12	*	18	*	*	18 
02:00	17	28	27	26	*	24	*	*	24 
03:00	11	15	15	19	*	15	*	*	15 
04:00	49	39	35	41	*	41	*	*	41 
05:00	170	168	148	160	*	162	*	*	162 
06:00	347	354	341	342	*	346	*	*	346 
07:00	556	553	585	558	*	563	*	*	563 
08:00	442	448	444	348	*	420	*	*	420 
09:00	292	340	355	*	*	329	*	*	329 
10:00	308	324	300	*	*	311	*	*	311 
11:00	333	331	320	*	*	328	*	*	328 
12:00 PM	360	330	359	*	*	350	*	*	350 
01:00	389	356	358	*	*	368	*	*	368 
02:00	430	376	408	*	*	405	*	*	405 
03:00	461	496	490	*	*	482	*	*	482 
04:00	507	521	544	*	*	524	*	*	524 
05:00	480	495	496	*	*	490	*	*	490 
06:00	375	342	357	*	*	358	*	*	358 
07:00	268	300	325	*	*	298	*	*	298 
08:00	195	218	236	*	*	216	*	*	216 
09:00	134	141	154	*	*	143	*	*	143 
10:00	120	103	96	*	*	106	*	*	106 
11:00	82	93	92	*	*	89	*	*	89 
Day Total	6387	6427	6539	1535	0	6421	0	0	6421
% Avg. WkDay	99.5%	100.1%	101.8%	23.9%	0.0%				
% Avg. Week	99.5%	100.1%	101.8%	23.9%	0.0%	100.0%	0.0%	0.0%	
AM Peak	07:00	07:00	07:00	07:00		07:00			07:00
Vol.	556	553	585	558		563			563
PM Peak	16:00	16:00	16:00			16:00			16:00
Vol.	507	521	544			524			524
Grand Total	6387	8532	13012	8225	7111	13108	5352	4504	12440
ADT		ADT 6,185			AADT 6,185				

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Tri-State Traffic Data, Inc.

























Page 1

610-466-1469
www.TSTData.com

Road: Rt 93 SB
Location: Between Cooper and Berwick
Weather: Clear
Counter: TSTD

Site Code: 00001 SB
Station ID:

Longitude: 0' 0.000 Undefined
Latitude: 0' 0.000 Undefined

Start Time	Mon 12-Apr-10	Tue 13-Apr-10	Wed 14-Apr-10	Thu 15-Apr-10	Fri 16-Apr-10	Average Day	Sat 17-Apr-10	Sun 18-Apr-10	Week Average
12:00 AM	*	*	48	58	55	54	77	62	60 
01:00	*	*	35	32	47	38	31	33	36 
02:00	*	*	34	29	31	31	24	37	31 
03:00	*	*	54	55	62	57	24	24	44 
04:00	*	*	73	58	52	61	25	19	45 
05:00	*	*	149	145	129	141	56	31	102 
06:00	*	*	237	246	224	236	103	82	178 
07:00	*	*	339	314	326	326	152	80	242 
08:00	*	*	310	346	329	328	226	154	273 
09:00	*	*	265	304	384	318	306	213	294 
10:00	*	*	311	310	343	321	366	284	323 
11:00	*	*	359	347	417	374	423	333	376 
12:00 PM	*	*	344	402	402	383	442	414	401 
01:00	*	*	396	388	438	407	396	401	404 
02:00	*	*	421	429	452	434	426	338	413 
03:00	*	*	532	539	581	551	375	349	475 
04:00	*	610	589	568	581	587	378	369	516 
05:00	*	549	530	540	507	532	330	348	467 
06:00	*	400	404	452	456	428	305	283	383 
07:00	*	332	352	420	299	351	245	284	322 
08:00	*	244	309	287	232	268	229	223	254 
09:00	*	147	189	157	200	173	159	123	162 
10:00	*	99	83	82	156	105	134	80	106 
11:00	*	66	87	70	98	80	82	64	78 
Day Total	0	2447	6450	6578	6801	6584	5314	4628	5985
% Avg. WkDay	0.0%	37.2%	98.0%	99.9%	103.3%				
% Avg. Week	0.0%	40.9%	107.8%	109.9%	113.6%	110.0%	88.8%	77.3%	
AM Peak			11:00	11:00	11:00	11:00	11:00	11:00	11:00
Vol.			359	347	417	374	423	333	376
PM Peak		16:00	16:00	16:00	15:00	16:00	12:00	12:00	16:00
Vol.		610	589	568	581	587	442	414	516

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
Tri-State Traffic Data, Inc.

610-466-1469
www.TSTData.com

Road: Rt 93 SB
Location: Between Cooper and Berwick
Weather: Clear
Counter: TSTD

Site Code: 00001 SB
Station ID:

Longitude: 0' 0.000 Undefined
Latitude: 0' 0.000 Undefined

Start Time	Mon 19-Apr-10	Tue 20-Apr-10	Wed 21-Apr-10	Thu 22-Apr-10	Fri 23-Apr-10	Average Day	Sat 24-Apr-10	Sun 25-Apr-10	Week Average
12:00 AM	37	60	55	54	*	52	*	*	52 
01:00	41	26	33	33	*	33	*	*	33 
02:00	29	25	46	32	*	33	*	*	33 
03:00	53	42	40	53	*	47	*	*	47 
04:00	65	74	52	61	*	63	*	*	63 
05:00	154	161	158	164	*	159	*	*	159 
06:00	262	252	266	246	*	256	*	*	256 
07:00	341	326	311	297	*	319	*	*	319 
08:00	293	293	330	228	*	286	*	*	286 
09:00	335	305	324	*	*	321	*	*	321 
10:00	287	298	320	*	*	302	*	*	302 
11:00	345	379	392	*	*	372	*	*	372 
12:00 PM	371	324	368	*	*	354	*	*	354 
01:00	364	355	386	*	*	368	*	*	368 
02:00	378	412	369	*	*	386	*	*	386 
03:00	591	555	543	*	*	563	*	*	563 
04:00	560	588	624	*	*	591	*	*	591 
05:00	559	509	519	*	*	529	*	*	529 
06:00	347	378	427	*	*	384	*	*	384 
07:00	339	364	347	*	*	350	*	*	350 
08:00	258	285	309	*	*	284	*	*	284 
09:00	159	167	137	*	*	154	*	*	154 
10:00	67	88	85	*	*	80	*	*	80 
11:00	70	88	82	*	*	80	*	*	80 
Day Total	6305	6354	6523	1168	0	6366	0	0	6366
% Avg. WkDay	99.0%	99.8%	102.5%	18.3%	0.0%				
% Avg. Week	99.0%	99.8%	102.5%	18.3%	0.0%	100.0%	0.0%	0.0%	
AM Peak	11:00	11:00	11:00	07:00		11:00			11:00
Vol.	345	379	392	297		372			372
PM Peak	15:00	16:00	16:00			16:00			16:00
Vol.	591	588	624			591			591
Grand Total	6305	8801	12973	7746	6801	12950	5314	4628	12351
ADT	ADT 6,119		AADT 6,119						

Tri-State Traffic Data, Inc.

610-466-1469
www.TSTData.com

Page 1

Road: Rt 11
Location: North of Rt 29/11 Split
Weather: Clear
Counter: TSTD

Site Code: 00004
Station ID: 00004

Longitude: 0' 0.000 Undefined
Latitude: 0' 0.000 Undefined

Start Time	12-Apr-10		Tue		Wed		Thu		Fri		Weekday Average		Sat		Sun	
	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB
12:00 AM	*	*	*	*	4	43	10	52	14	73	9	56	18	107	20	96
01:00	*	*	*	*	4	32	16	30	10	54	10	39	6	52	26	84
02:00	*	*	*	*	0	26	0	30	0	28	0	28	2	44	2	81
03:00	*	*	*	*	0	22	0	12	4	14	1	16	0	14	0	20
04:00	*	*	*	*	0	18	0	32	0	27	0	26	2	32	0	34
05:00	*	*	*	*	0	93	0	99	2	96	1	96	0	103	2	107
06:00	*	*	*	*	2	248	2	284	2	254	2	262	2	187	4	142
07:00	*	*	*	*	10	343	14	325	14	324	13	331	6	217	6	178
08:00	*	*	*	*	14	350	16	339	18	320	16	336	17	282	14	322
09:00	*	*	*	*	90	291	10	306	19	341	40	313	127	258	20	290
10:00	*	*	*	*	48	341	20	340	93	352	54	344	30	348	32	338
11:00	*	*	*	*	21	399	41	387	20	432	27	406	28	449	22	396
12:00 PM	*	*	*	*	32	420	14	410	177	299	74	376	42	390	48	434
01:00	*	*	*	*	28	478	45	484	34	549	36	504	26	485	26	460
02:00	*	*	*	*	44	457	36	462	43	529	41	483	34	467	28	389
03:00	*	*	38	565	46	607	47	602	42	581	43	589	34	460	18	392
04:00	*	*	32	579	31	644	50	621	49	537	40	595	16	379	24	403
05:00	*	*	38	574	55	617	50	635	18	608	40	608	29	435	25	431
06:00	*	*	35	438	47	445	54	490	24	476	40	462	34	379	27	384
07:00	*	*	24	322	35	361	52	400	20	401	33	371	16	313	26	306
08:00	*	*	21	288	36	343	26	372	26	284	27	322	36	206	22	249
09:00	*	*	16	220	18	256	10	256	20	259	16	248	8	226	18	154
10:00	*	*	2	122	18	120	28	128	8	170	14	135	24	140	4	120
11:00	*	*	4	84	6	125	20	90	12	121	10	105	20	110	4	56
Total	0	0	210	3192	589	7079	561	7186	669	7129	587	7051	557	6083	418	5866
Day	0	0	3402		7668		7747		7798		7638		6640		6284	
AM Peak					09:00	11:00	11:00	11:00	10:00	11:00	10:00	11:00	09:00	11:00	10:00	11:00
Vol.					90	399	41	387	93	432	54	406	127	449	32	396
PM Peak			15:00	16:00	17:00	16:00	18:00	17:00	12:00	17:00	12:00	17:00	12:00	13:00	12:00	13:00
Vol.			38	579	55	644	54	635	177	608	74	608	42	485	48	460

Tri-State Traffic Data, Inc.

610-466-1469
www.TSTData.com

Road: Rt 11
Location: North of Rt 29/11 Split
Weather: Clear
Counter: TSTD

Site Code: 00004
Station ID: 00004

Longitude: 0' 0.000 Undefined
Latitude: 0' 0.000 Undefined

Start Time	19-Apr-10		Tue		Wed		Thu		Fri		Weekday Average		Sat		Sun	
	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB
12:00 AM	4	44	0	54	4	81	10	64	*	*	4	61	*	*	*	*
01:00	2	26	8	34	4	34	6	34	*	*	5	32	*	*	*	*
02:00	0	22	0	18	0	24	0	38	*	*	0	26	*	*	*	*
03:00	2	10	0	13	2	24	0	17	*	*	1	16	*	*	*	*
04:00	6	33	0	14	2	29	0	24	*	*	2	25	*	*	*	*
05:00	0	98	0	111	0	95	2	105	*	*	0	102	*	*	*	*
06:00	8	279	4	294	2	261	10	279	*	*	6	278	*	*	*	*
07:00	16	350	16	337	18	340	30	236	*	*	20	316	*	*	*	*
08:00	16	332	18	349	49	366	*	*	*	*	28	349	*	*	*	*
09:00	9	293	10	366	16	389	*	*	*	*	12	349	*	*	*	*
10:00	22	372	33	319	26	364	*	*	*	*	27	352	*	*	*	*
11:00	18	355	47	416	18	417	*	*	*	*	28	396	*	*	*	*
12:00 PM	18	450	57	404	14	450	*	*	*	*	30	435	*	*	*	*
01:00	26	421	32	457	36	408	*	*	*	*	31	429	*	*	*	*
02:00	55	446	46	481	41	472	*	*	*	*	47	466	*	*	*	*
03:00	37	589	46	612	70	554	*	*	*	*	51	585	*	*	*	*
04:00	47	577	36	635	36	665	*	*	*	*	40	626	*	*	*	*
05:00	47	659	44	585	48	648	*	*	*	*	46	631	*	*	*	*
06:00	26	422	51	475	98	420	*	*	*	*	58	439	*	*	*	*
07:00	26	373	30	372	30	351	*	*	*	*	29	365	*	*	*	*
08:00	14	250	22	292	20	296	*	*	*	*	19	279	*	*	*	*
09:00	10	204	26	243	12	241	*	*	*	*	16	229	*	*	*	*
10:00	18	128	22	170	20	124	*	*	*	*	20	141	*	*	*	*
11:00	6	86	8	98	6	99	*	*	*	*	7	94	*	*	*	*
Total	433	6819	556	7149	572	7152	58	797	0	0	527	7021	0	0	0	0
Day	7252		7705		7724		855		0		7548		0		0	
AM Peak	10:00	10:00	11:00	11:00	08:00	11:00	07:00	06:00			08:00	11:00				
Vol.	22	372	47	416	49	417	30	279			28	396				
PM Peak	14:00	17:00	12:00	16:00	18:00	16:00					18:00	17:00				
Vol.	55	659	57	635	98	665					58	631				

Comb. Total	7252	11107	15392	8602	7798	15186	6640	6284
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ADT	ADT 7,352	AADT 7,352						
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












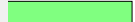

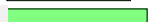
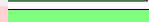






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www.TSTData.com

Page 1

Road: Rt 11 NB
Location: Between Confers and Pinecrest
Weather: Clear
Counter: TSTD

Site Code: 00002 NB
Station ID:

Longitude: 0' 0.000 Undefined
Latitude: 0' 0.000 Undefined

Start Time	Mon 12-Apr-10	Tue 13-Apr-10	Wed 14-Apr-10	Thu 15-Apr-10	Fri 16-Apr-10	Average Day	Sat 17-Apr-10	Sun 18-Apr-10	Week Average
12:00 AM	*	*	46	39	37	41	50	16	38 
01:00	*	*	13	13	15	14	4	16	12 
02:00	*	*	18	8	16	14	11	13	13 
03:00	*	*	16	22	23	20	8	12	16 
04:00	*	*	63	63	52	59	38	20	47 
05:00	*	*	270	279	242	264	119	84	199 
06:00	*	*	382	399	394	392	176	134	297 
07:00	*	*	294	290	308	297	136	75	221 
08:00	*	*	206	223	238	222	122	87	175 
09:00	*	*	198	204	200	201	122	110	167 
10:00	*	*	189	182	185	185	194	119	174 
11:00	*	*	208	230	213	217	192	158	200 
12:00 PM	*	*	240	220	230	230	229	203	224 
01:00	*	*	225	240	233	233	187	209	219 
02:00	*	*	243	235	240	239	190	170	216 
03:00	*	*	262	318	301	294	173	173	245 
04:00	*	237	327	323	352	310	233	194	278 
05:00	*	264	292	309	279	286	178	152	246 
06:00	*	232	238	257	247	244	172	179	221 
07:00	*	110	111	135	125	120	107	118	118 
08:00	*	95	104	118	88	101	96	98	100 
09:00	*	55	91	79	89	78	69	64	74 
10:00	*	37	51	50	66	51	51	45	50 
11:00	*	50	55	49	52	52	36	22	44 
Day Total	0	1080	4142	4285	4225	4164	2893	2471	3594
% Avg. WkDay	0.0%	25.9%	99.5%	102.9%	101.5%				
% Avg. Week	0.0%	30.1%	115.2%	119.2%	117.6%	115.9%	80.5%	68.8%	
AM Peak			06:00	06:00	06:00	06:00	10:00	11:00	06:00
Vol.			382	399	394	392	194	158	297
PM Peak		17:00	16:00	16:00	16:00	16:00	16:00	13:00	16:00
Vol.		264	327	323	352	310	233	209	278

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Tri-State Traffic Data, Inc.

























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www.TSTData.com

Road: Rt 11 NB
Location: Between Confers and Pinecrest
Weather: Clear
Counter: TSTD

Site Code: 00002 NB
Station ID:

Longitude: 0' 0.000 Undefined
Latitude: 0' 0.000 Undefined

Start Time	Mon 19-Apr-10	Tue 20-Apr-10	Wed 21-Apr-10	Thu 22-Apr-10	Fri 23-Apr-10	Average Day	Sat 24-Apr-10	Sun 25-Apr-10	Week Average
12:00 AM	24	40	42	37	*	36	*	*	36 
01:00	20	11	14	18	*	16	*	*	16 
02:00	16	21	15	14	*	16	*	*	16 
03:00	28	28	22	16	*	24	*	*	24 
04:00	57	51	52	58	*	54	*	*	54 
05:00	198	213	201	198	*	202	*	*	202 
06:00	438	433	446	458	*	444	*	*	444 
07:00	301	319	304	304	*	307	*	*	307 
08:00	219	238	208	*	*	222	*	*	222 
09:00	192	196	218	*	*	202	*	*	202 
10:00	214	197	183	*	*	198	*	*	198 
11:00	231	203	173	*	*	202	*	*	202 
12:00 PM	208	213	215	*	*	212	*	*	212 
01:00	209	218	224	*	*	217	*	*	217 
02:00	203	196	212	*	*	204	*	*	204 
03:00	265	282	310	*	*	286	*	*	286 
04:00	321	329	315	*	*	322	*	*	322 
05:00	309	279	270	*	*	286	*	*	286 
06:00	178	204	207	*	*	196	*	*	196 
07:00	86	119	104	*	*	103	*	*	103 
08:00	90	105	98	*	*	98	*	*	98 
09:00	73	79	67	*	*	73	*	*	73 
10:00	69	59	75	*	*	68	*	*	68 
11:00	45	40	59	*	*	48	*	*	48 
Day Total	3994	4073	4034	1103	0	4036	0	0	4036
% Avg. WkDay	99.0%	100.9%	100.0%	27.3%	0.0%				
% Avg. Week	99.0%	100.9%	100.0%	27.3%	0.0%	100.0%	0.0%	0.0%	
AM Peak	06:00	06:00	06:00	06:00		06:00			06:00
Vol.	438	433	446	458		444			444
PM Peak	16:00	16:00	16:00			16:00			16:00
Vol.	321	329	315			322			322
Grand Total	3994	5153	8176	5388	4225	8200	2893	2471	7630
ADT		ADT 3,765			AADT 3,765				

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www.TSTData.com

Page 1

Road: Rt 11 SB
Location: Between Confers and Pinecrest
Weather: Clear
Counter: TSTD

Site Code: 00002 SB
Station ID:

Longitude: 0' 0.000 Undefined
Latitude: 0' 0.000 Undefined

Start Time	Mon 12-Apr-10	Tue 13-Apr-10	Wed 14-Apr-10	Thu 15-Apr-10	Fri 16-Apr-10	Average Day	Sat 17-Apr-10	Sun 18-Apr-10	Week Average
12:00 AM	*	*	56	61	52	56	48	29	49 
01:00	*	*	43	43	49	45	48	21	41 
02:00	*	*	27	21	24	24	31	23	25 
03:00	*	*	34	23	32	30	20	11	24 
04:00	*	*	55	48	46	50	27	15	38 
05:00	*	*	85	86	72	81	41	22	61 
06:00	*	*	208	227	217	217	106	72	166 
07:00	*	*	254	281	276	270	119	71	200 
08:00	*	*	212	202	190	201	131	91	165 
09:00	*	*	180	198	195	191	172	127	174 
10:00	*	*	204	201	204	203	166	126	180 
11:00	*	*	205	213	227	215	215	158	204 
12:00 PM	*	*	211	178	248	212	220	174	206 
01:00	*	*	223	229	238	230	186	165	208 
02:00	*	*	296	296	381	324	181	180	267 
03:00	*	*	384	427	460	424	227	197	339 
04:00	*	*	370	432	466	423	187	167	324 
05:00	*	332	355	315	316	330	189	179	281 
06:00	*	240	253	250	287	258	188	198	236 
07:00	*	137	171	139	190	159	149	146	155 
08:00	*	105	130	99	129	116	90	107	110 
09:00	*	68	76	101	102	87	92	64	84 
10:00	*	62	69	70	77	70	73	58	68 
11:00	*	63	63	52	65	61	69	39	58 
Day Total	0	1007	4164	4192	4543	4277	2975	2440	3663
% Avg. WkDay	0.0%	23.5%	97.4%	98.0%	106.2%				
% Avg. Week	0.0%	27.5%	113.7%	114.4%	124.0%	116.8%	81.2%	66.6%	
AM Peak			07:00	07:00	07:00	07:00	11:00	11:00	11:00
Vol.			254	281	276	270	215	158	204
PM Peak		17:00	15:00	16:00	16:00	15:00	15:00	18:00	15:00
Vol.		332	384	432	466	424	227	198	339

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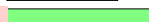





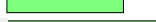










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www.TSTData.com

Page 2

Road: Rt 11 SB
Location: Between Confers and Pinecrest
Weather: Clear
Counter: TSTD

Site Code: 00002 SB
Station ID:

Longitude: 0' 0.000 Undefined
Latitude: 0' 0.000 Undefined

Start Time	Mon 19-Apr-10	Tue 20-Apr-10	Wed 21-Apr-10	Thu 22-Apr-10	Fri 23-Apr-10	Average Day	Sat 24-Apr-10	Sun 25-Apr-10	Week Average
12:00 AM	13	49	40	38	*	35	*	*	35 
01:00	14	31	41	55	*	35	*	*	35 
02:00	16	28	27	24	*	24	*	*	24 
03:00	31	29	25	30	*	29	*	*	29 
04:00	42	34	44	41	*	40	*	*	40 
05:00	84	86	83	82	*	84	*	*	84 
06:00	185	194	194	214	*	197	*	*	197 
07:00	258	276	244	243	*	255	*	*	255 
08:00	230	214	195	*	*	213	*	*	213 
09:00	219	179	183	*	*	194	*	*	194 
10:00	222	210	205	*	*	212	*	*	212 
11:00	191	248	184	*	*	208	*	*	208 
12:00 PM	218	176	228	*	*	207	*	*	207 
01:00	273	278	248	*	*	266	*	*	266 
02:00	289	303	307	*	*	300	*	*	300 
03:00	470	458	424	*	*	451	*	*	451 
04:00	378	403	379	*	*	387	*	*	387 
05:00	307	280	299	*	*	295	*	*	295 
06:00	203	220	239	*	*	221	*	*	221 
07:00	120	153	155	*	*	143	*	*	143 
08:00	88	110	88	*	*	95	*	*	95 
09:00	90	82	91	*	*	88	*	*	88 
10:00	86	71	90	*	*	82	*	*	82 
11:00	64	68	56	*	*	63	*	*	63 
Day Total	4091	4180	4069	727	0	4124	0	0	4124
% Avg. WkDay	99.2%	101.4%	98.7%	17.6%	0.0%				
% Avg. Week	99.2%	101.4%	98.7%	17.6%	0.0%	100.0%	0.0%	0.0%	
AM Peak	07:00	07:00	07:00	07:00		07:00			07:00
Vol.	258	276	244	243		255			255
PM Peak	15:00	15:00	15:00			15:00			15:00
Vol.	470	458	424			451			451
Grand Total	4091	5187	8233	4919	4543	8401	2975	2440	7787
ADT		ADT 3,832			AADT 3,832				

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






















Page 1

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www.TSTData.com

Road: Rt 29 NB
Location: North of Split
Weather: Clear
Counter: TSTD

Site Code: 00003 11N\29S
Station ID:

Longitude: 0' 0.000 Undefined
Latitude: 0' 0.000 Undefined

Start Time	Mon 12-Apr-10	Tue 13-Apr-10	Wed 14-Apr-10	Thu 15-Apr-10	Fri 16-Apr-10	Average Day	Sat 17-Apr-10	Sun 18-Apr-10	Week Average
12:00 AM	*	*	*	41	34	38	63	58	49 
01:00	*	*	*	37	33	35	26	48	36 
02:00	*	*	*	27	33	30	27	35	30 
03:00	*	*	*	36	39	38	27	20	30 
04:00	*	*	*	78	62	70	30	17	47 
05:00	*	*	*	262	272	267	100	54	172 
06:00	*	*	*	622	583	602	236	135	394 
07:00	*	*	*	809	789	799	279	217	524 
08:00	*	*	*	601	659	630	327	281	467 
09:00	*	*	*	439	487	463	480	412	454 
10:00	*	*	*	433	478	456	555	501	492 
11:00	*	*	*	380	439	410	553	523	474 
12:00 PM	*	*	*	457	470	464	559	582	517 
01:00	*	*	*	412	458	435	475	532	469 
02:00	*	*	*	470	525	498	478	498	493 
03:00	*	*	*	552	574	563	488	402	504 
04:00	*	*	484	536	548	523	442	377	477 
05:00	*	*	458	480	439	459	434	342	431 
06:00	*	*	370	404	436	403	372	321	381 
07:00	*	*	296	324	300	307	275	288	297 
08:00	*	*	219	220	189	209	201	209	208 
09:00	*	*	170	136	175	160	148	126	151 
10:00	*	*	151	166	171	163	180	127	159 
11:00	*	*	82	70	88	80	131	106	95 
Day Total	0	0	2230	7992	8281	8102	6886	6211	7351
% Avg. WkDay	0.0%	0.0%	27.5%	98.6%	102.2%				
% Avg. Week	0.0%	0.0%	30.3%	108.7%	112.7%	110.2%	93.7%	84.5%	
AM Peak				07:00	07:00	07:00	10:00	11:00	07:00
Vol.				809	789	799	555	523	524
PM Peak			16:00	15:00	15:00	15:00	12:00	12:00	12:00
Vol.			484	552	574	563	559	582	517

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




610-466-1469
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Page 2

Road: Rt 29 NB
Location: North of Split
Weather: Clear
Counter: TSTD

Site Code: 00003 11N\29S
Station ID:

Longitude: 0' 0.000 Undefined
Latitude: 0' 0.000 Undefined

Start Time	Mon 19-Apr-10	Tue 20-Apr-10	Wed 21-Apr-10	Thu 22-Apr-10	Fri 23-Apr-10	Average Day	Sat 24-Apr-10	Sun 25-Apr-10	Week Average
12:00 AM	33	46	47	56	*	46	*	*	46 
01:00	19	21	36	21	*	24	*	*	24 
02:00	35	24	26	28	*	28	*	*	28 
03:00	37	45	51	42	*	44	*	*	44 
04:00	75	73	68	72	*	72	*	*	72 
05:00	260	275	280	261	*	269	*	*	269 
06:00	601	610	670	634	*	629	*	*	629 
07:00	817	830	849	627	*	781	*	*	781 
08:00	607	641	603	*	*	617	*	*	617 
09:00	457	482	466	*	*	468	*	*	468 
10:00	380	395	429	*	*	401	*	*	401 
11:00	432	404	426	*	*	421	*	*	421 
12:00 PM	427	363	430	*	*	407	*	*	407 
01:00	422	458	451	*	*	444	*	*	444 
02:00	484	478	455	*	*	472	*	*	472 
03:00	525	498	581	*	*	535	*	*	535 
04:00	480	517	518	*	*	505	*	*	505 
05:00	441	388	432	*	*	420	*	*	420 
06:00	347	405	369	*	*	374	*	*	374 
07:00	233	301	281	*	*	272	*	*	272 
08:00	196	228	224	*	*	216	*	*	216 
09:00	122	139	177	*	*	146	*	*	146 
10:00	129	138	137	*	*	135	*	*	135 
11:00	63	79	84	*	*	75	*	*	75 
Day Total	7622	7838	8090	1741	0	7801	0	0	7801
% Avg. WkDay	97.7%	100.5%	103.7%	22.3%	0.0%				
% Avg. Week	97.7%	100.5%	103.7%	22.3%	0.0%	100.0%	0.0%	0.0%	
AM Peak	07:00	07:00	07:00	06:00		07:00			07:00
Vol.	817	830	849	634		781			781
PM Peak	15:00	16:00	15:00			15:00			15:00
Vol.	525	517	581			535			535
Grand Total	7622	7838	10320	9733	8281	15903	6886	6211	15152
ADT	ADT 7,560		AADT 7,560						

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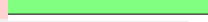







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Page 1

Road: Rt 29 SB
Location: North of Split
Weather: Clear
Counter: TSTD

Site Code: 000000000003
Station ID:

Longitude: 0' 0.000 Undefined
Latitude: 0' 0.000 Undefined

Start Time	Mon 12-Apr-10	Tue 13-Apr-10	Wed 14-Apr-10	Thu 15-Apr-10	Fri 16-Apr-10	Average Day	Sat 17-Apr-10	Sun 18-Apr-10	Week Average
12:00 AM	*	*	*	48	48	48	60	52	52 
01:00	*	*	*	38	38	38	48	51	44 
02:00	*	*	*	12	25	18	39	25	25 
03:00	*	*	*	17	23	20	21	27	22 
04:00	*	*	*	28	41	34	36	30	34 
05:00	*	*	*	96	99	98	53	58	76 
06:00	*	*	*	168	124	146	90	85	117 
07:00	*	*	*	187	205	196	135	145	168 
08:00	*	*	*	189	155	172	147	171	166 
09:00	*	*	*	192	185	188	153	172	176 
10:00	*	*	*	203	206	204	214	203	206 
11:00	*	*	*	230	256	243	259	198	236 
12:00 PM	*	*	*	221	322	272	320	253	279 
01:00	*	*	*	294	327	310	356	246	306 
02:00	*	*	*	313	380	346	316	242	313 
03:00	*	*	*	502	541	522	332	279	414 
04:00	*	*	579	557	566	567	330	274	461 
05:00	*	*	530	468	502	500	283	269	410 
06:00	*	*	300	321	397	339	244	242	301 
07:00	*	*	254	252	302	269	238	235	256 
08:00	*	*	199	220	229	216	196	142	197 
09:00	*	*	153	168	206	176	176	117	164 
10:00	*	*	88	110	134	111	115	47	99 
11:00	*	*	87	68	103	86	119	31	82 
Day Total	0	0	2190	4902	5414	5119	4280	3594	4604
% Avg. WkDay	0.0%	0.0%	42.8%	95.8%	105.8%				
% Avg. Week	0.0%	0.0%	47.6%	106.5%	117.6%	111.2%	93.0%	78.1%	
AM Peak				11:00	11:00	11:00	11:00	10:00	11:00
Vol.				230	256	243	259	203	236
PM Peak			16:00	16:00	16:00	16:00	13:00	15:00	16:00
Vol.			579	557	566	567	356	279	461

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Page 2

Road: Rt 29 SB
Location: North of Split
Weather: Clear
Counter: TSTD

Site Code: 000000000003
Station ID:

Longitude: 0' 0.000 Undefined
Latitude: 0' 0.000 Undefined

Start Time	Mon 19-Apr-10	Tue 20-Apr-10	Wed 21-Apr-10	Thu 22-Apr-10	Fri 23-Apr-10	Average Day	Sat 24-Apr-10	Sun 25-Apr-10	Week Average
12:00 AM	23	43	46	55	*	42	*	*	42 
01:00	16	33	30	45	*	31	*	*	31 
02:00	10	16	10	14	*	12	*	*	12 
03:00	14	16	19	21	*	18	*	*	18 
04:00	23	33	31	35	*	30	*	*	30 
05:00	85	115	100	87	*	97	*	*	97 
06:00	120	157	168	162	*	152	*	*	152 
07:00	233	215	212	164	*	206	*	*	206 
08:00	178	196	214	*	*	196	*	*	196 
09:00	192	160	190	*	*	181	*	*	181 
10:00	172	194	191	*	*	186	*	*	186 
11:00	201	201	201	*	*	201	*	*	201 
12:00 PM	273	255	247	*	*	258	*	*	258 
01:00	241	280	251	*	*	257	*	*	257 
02:00	356	284	321	*	*	320	*	*	320 
03:00	490	496	505	*	*	497	*	*	497 
04:00	563	590	576	*	*	576	*	*	576 
05:00	452	497	547	*	*	499	*	*	499 
06:00	270	300	314	*	*	295	*	*	295 
07:00	215	243	207	*	*	222	*	*	222 
08:00	183	205	190	*	*	193	*	*	193 
09:00	162	152	161	*	*	158	*	*	158 
10:00	88	88	76	*	*	84	*	*	84 
11:00	88	74	72	*	*	78	*	*	78 
Day Total	4648	4843	4879	583	0	4789	0	0	4789
% Avg. WkDay	97.1%	101.1%	101.9%	12.2%	0.0%				
% Avg. Week	97.1%	101.1%	101.9%	12.2%	0.0%	100.0%	0.0%	0.0%	
AM Peak	07:00	07:00	08:00	07:00		07:00			07:00
Vol.	233	215	214	164		206			206
PM Peak	16:00	16:00	16:00			16:00			16:00
Vol.	563	590	576			576			576
Grand Total	4648	4843	7069	5485	5414	9908	4280	3594	9393
ADT		ADT 4,651			AADT 4,651				

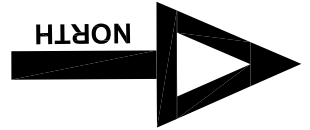
Appendix C

Existing Field Conditions

Appendix C

This appendix contains condition diagrams of the following intersections:

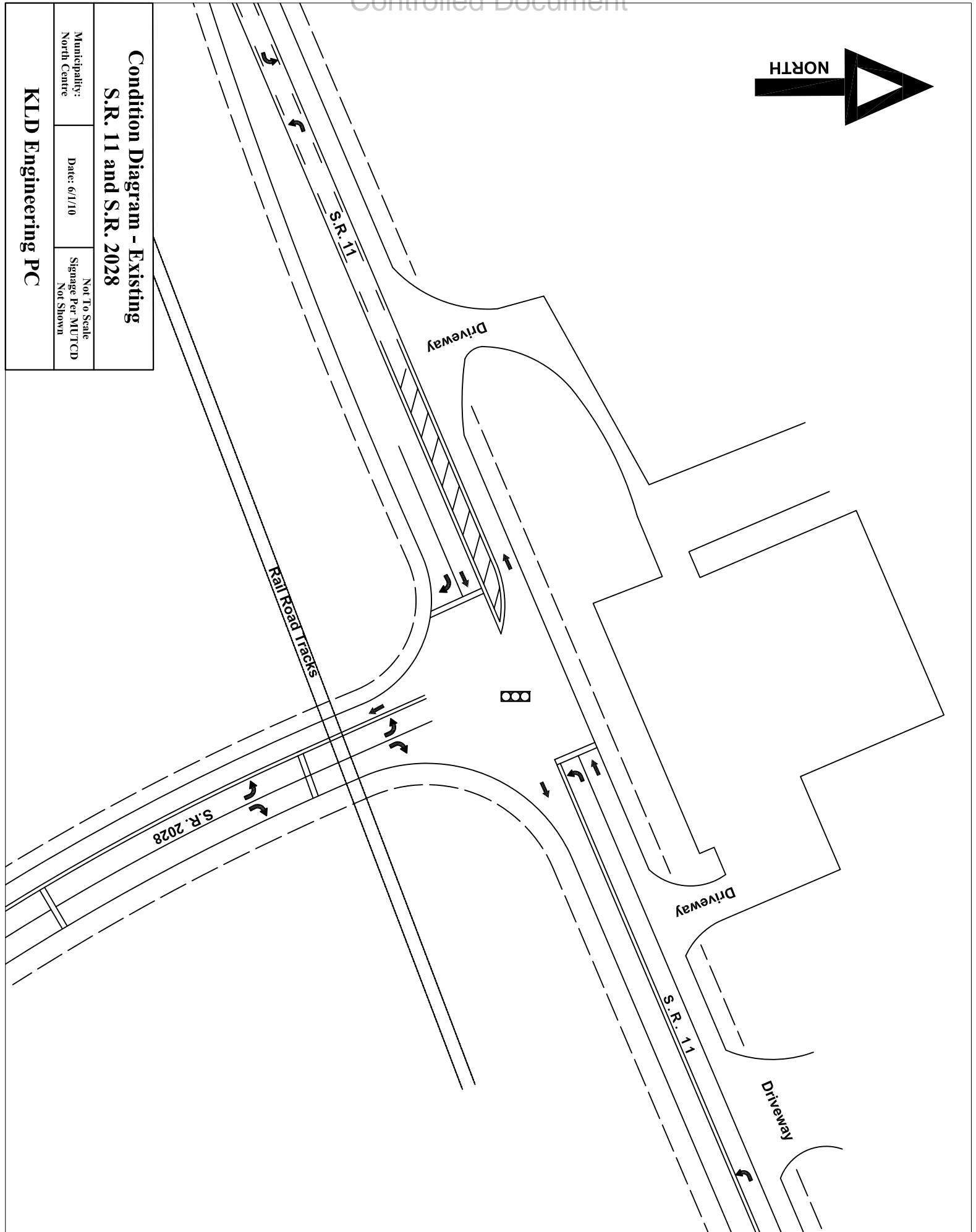
- S.R. 11 and S.R. 2028
- S.R. 11 and Briar Creek Plaza Driveways
- S.R. 11 (Front Street) and Eaton Street
- S.R. 11 (Front Street) and Poplar Street
- S.R. 11 (Front Street) and Orchard Street
- S.R. 11 (Front Street) and S.R. 93 (Orange Street)
- S.R. 11 (Second Street) and LaSalle Street
- S.R. 11 (Second Street) and Oak Street
- S.R. 11 (Second Street) and Mulberry Street
- S.R. 11 (Front Street) and Mulberry Street
- S.R. 1025 (Market Street) and Third Street
- S.R. 11 (Second Street) and Market Street
- S.R. 11 (Front Street) and Market Street
- S.R. 11 (Front Street) and Walnut Street
- S.R. 11 (Second Street) and Pine Street
- S.R. 93 (Third Street) and S.R. 339 (Broad Street)
- S.R. 93 (Third Street) and Dewey Street
- S.R. 11 and Bell Bend Site Entrance
- S.R. 11 and SSES Site Entrance
- S.R. 11 (S. Main Street) and S.R. 239
- S.R. 11 (Main Street) and S.R. 239 (Union Street)
- S.R. 11 and S.R. 29 (Mill Street)
- S.R. 11 and County Bridge
- S.R. 11 (E. Poplar Street) and S.R. 29



**Condition Diagram - Existing
S.R. 11 and S.R. 2028**

Municipality: North Centre	Date: 6/1/10	Not To Scale Signage Per MUTCD Not Shown
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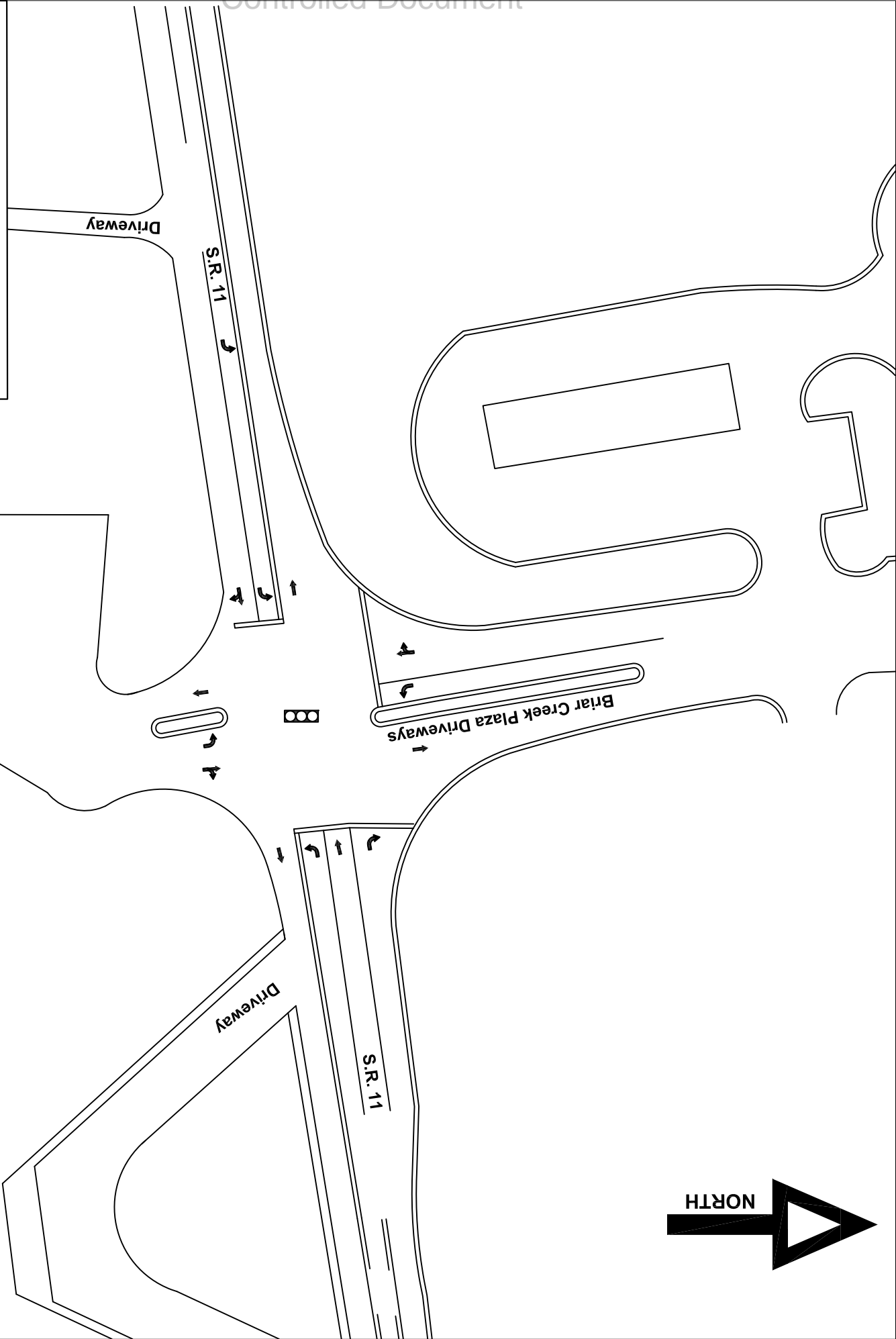
KLD Engineering PC

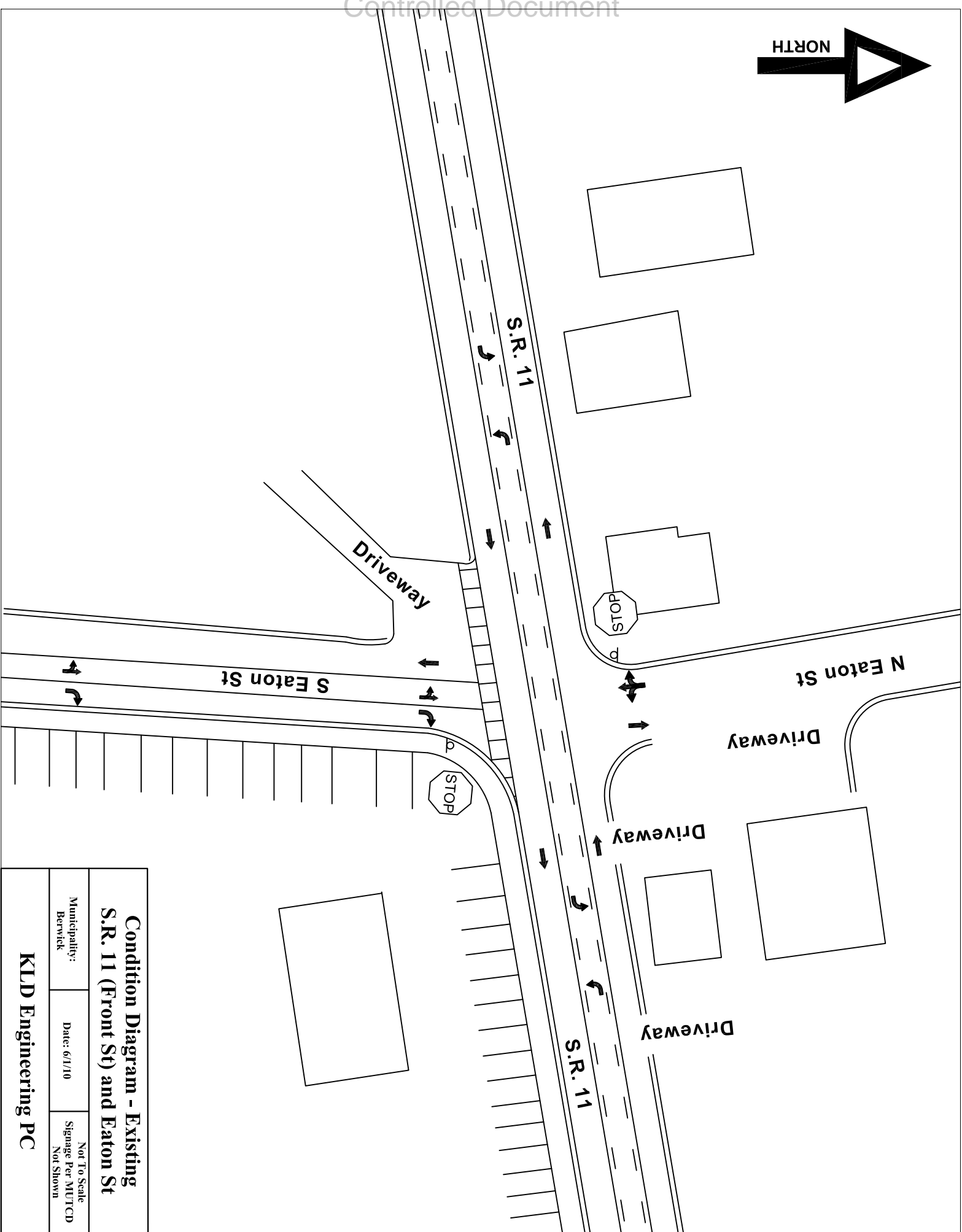
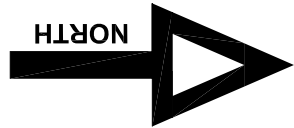


Condition Diagram - Existing
S.R. 11 and Briar Creek Plaza Driveways

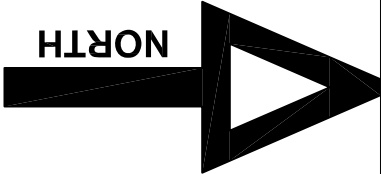
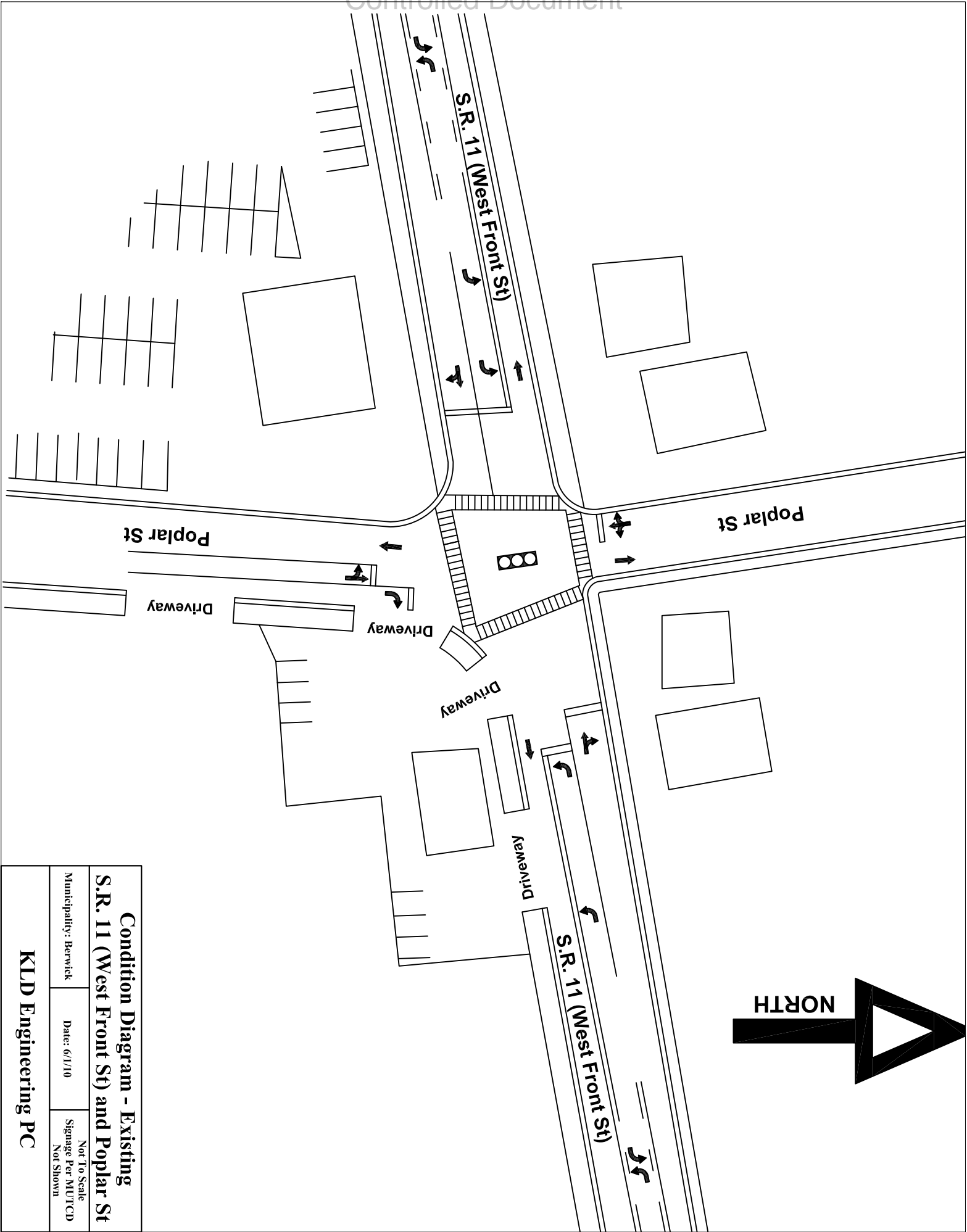
Municipality: Briar Creek	Date: 6/1/10	Not To Scale Signage Per MUTCD Not Shown
------------------------------	--------------	--

KLD Engineering PC

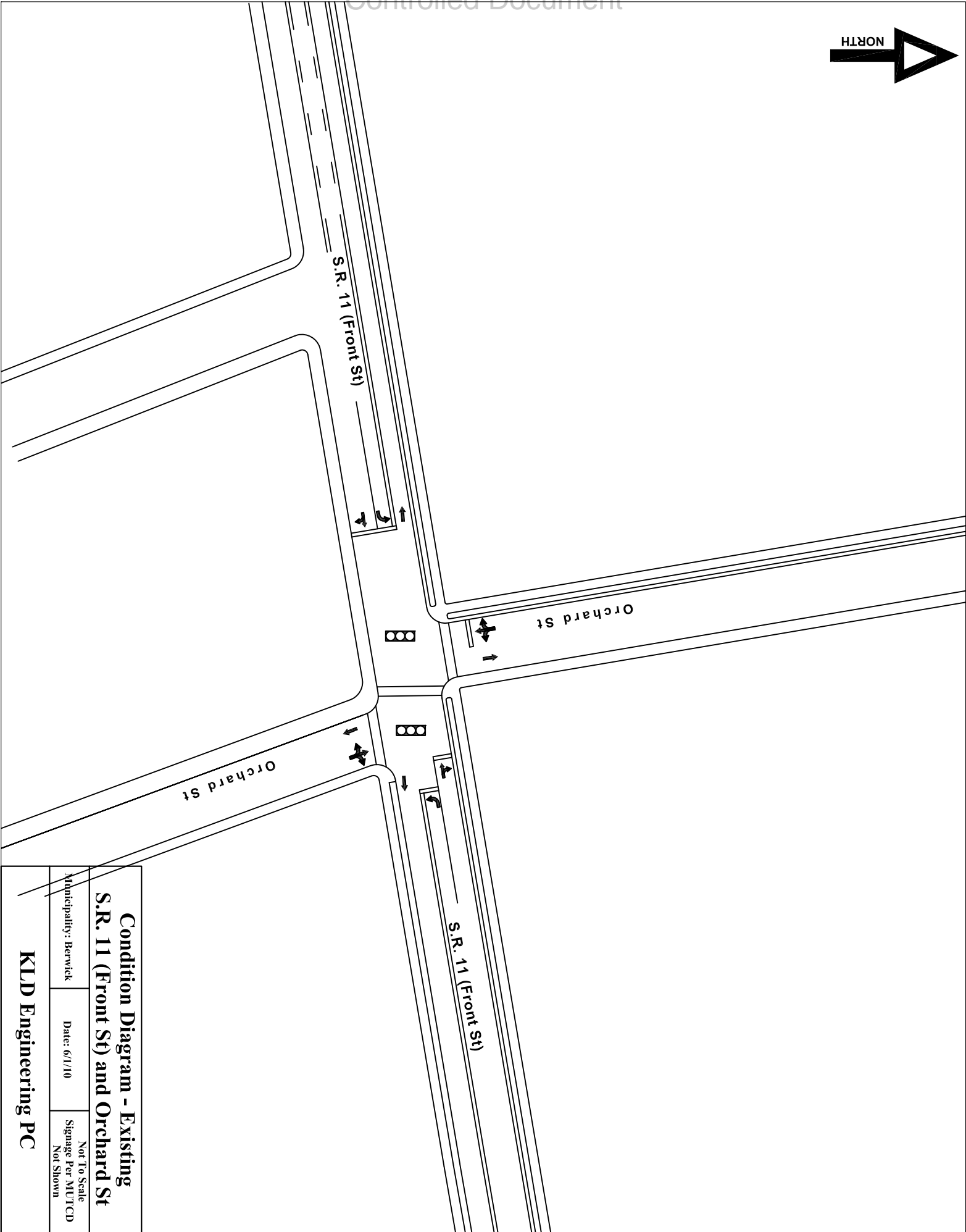
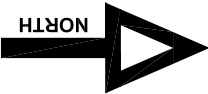




Condition Diagram - Existing		
S.R. 11 (Front St) and Eaton St		
Municipality: Berkwick	Date: 6/1/10	Not To Scale Signage Per MUTCD Not Shown
KLD Engineering PC		



Condition Diagram - Existing S.R. 11 (West Front St) and Poplar St		
Municipality: Berwick	Date: 6/1/10	Not To Scale Signage Per MUTCD Not Shown
KLD Engineering PC		



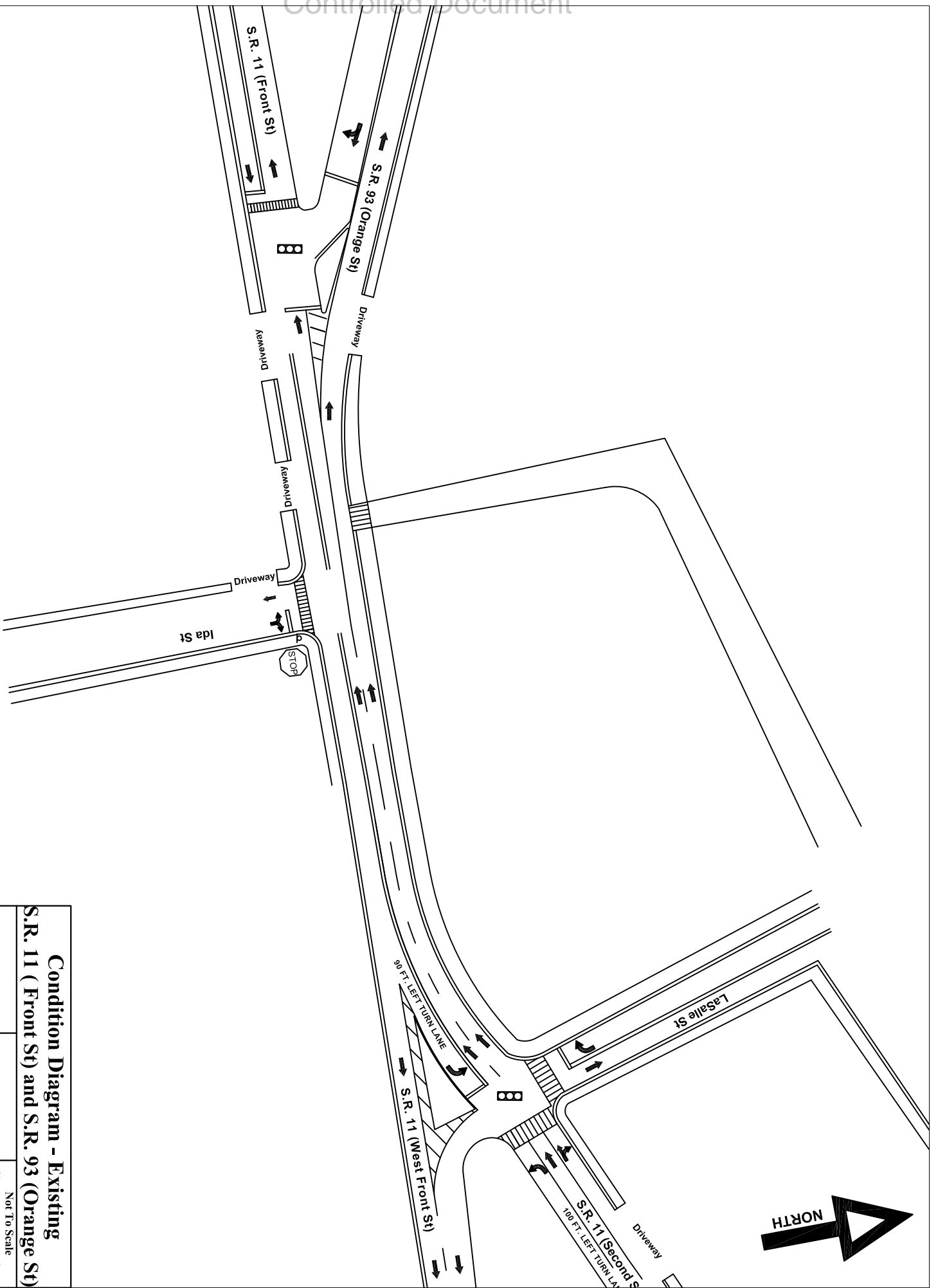
**Condition Diagram - Existing
S.R. 11 (Front St) and Orchard St**

Municipality: Berwick

Date: 6/1/10

Not To Scale
Signage Per MUTCD
Not Shown

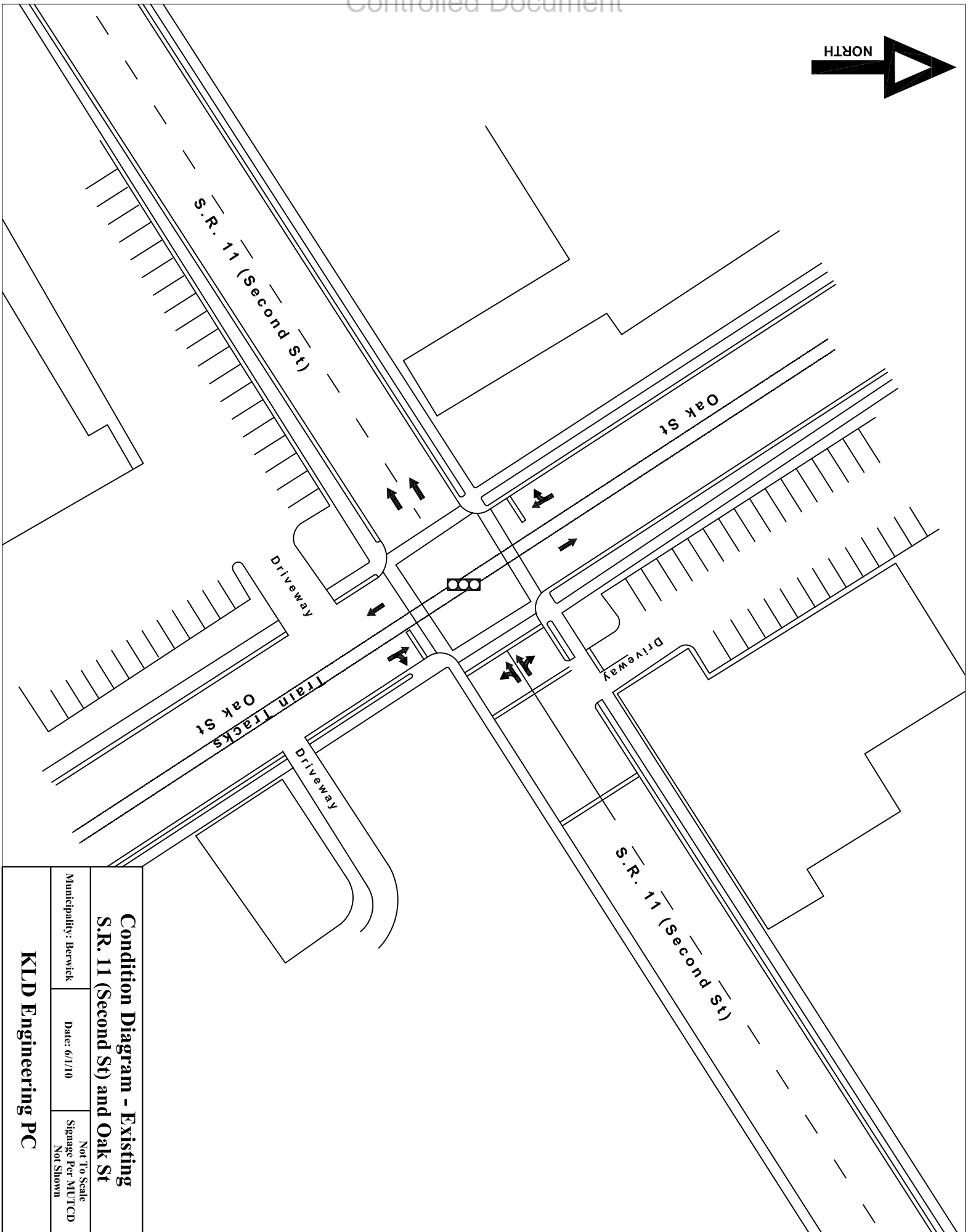
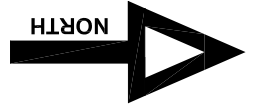
KLD Engineering PC



Condition Diagram - Existing
S.R. 11 (Front St) and S.R. 93 (Orange St)

Municipality: Berwick	Date: 6/1/10	Not To Scale Signage Per MUTCD Not Shown
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KLD Engineering PC



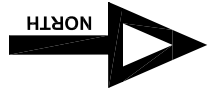
**Condition Diagram - Existing
S.R. 11 (Second St) and Oak St**

KLD Engineering PC

Municipality: Berwick

Date: 6/1/10

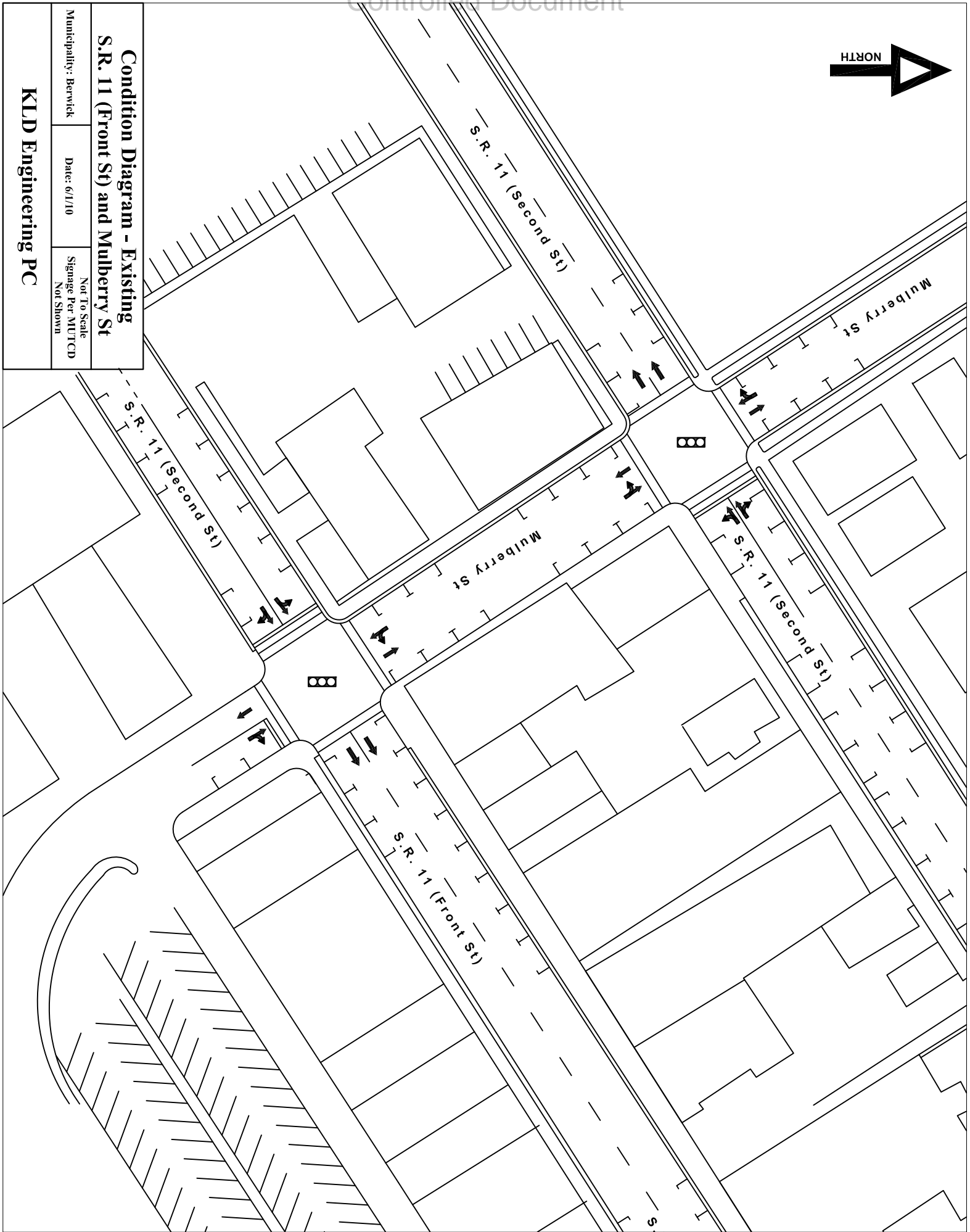
Not To Scale
Signage Per MUTCD
Not Shown

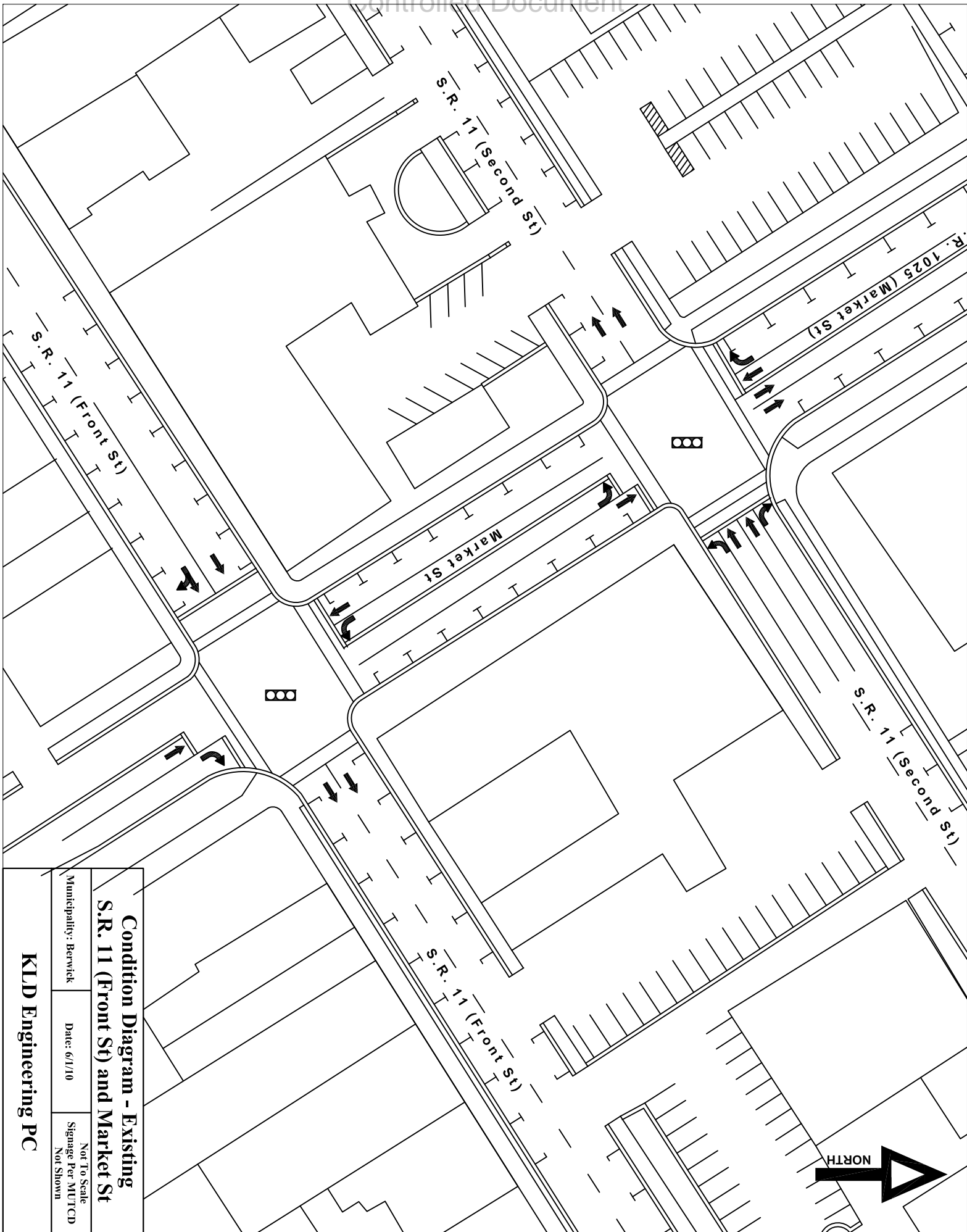


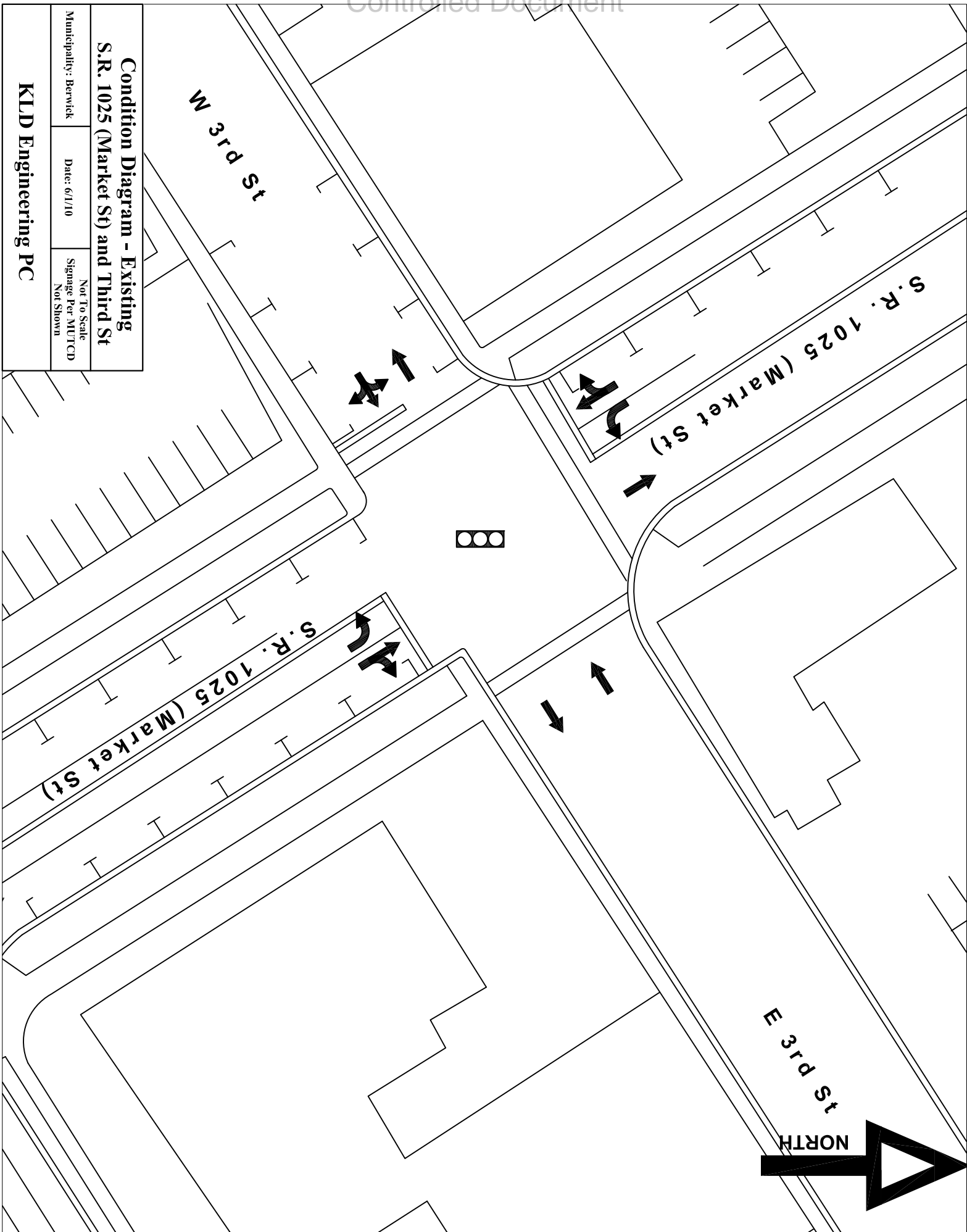
Condition Diagram - Existing
S.R. 11 (Front St) and Mulberry St

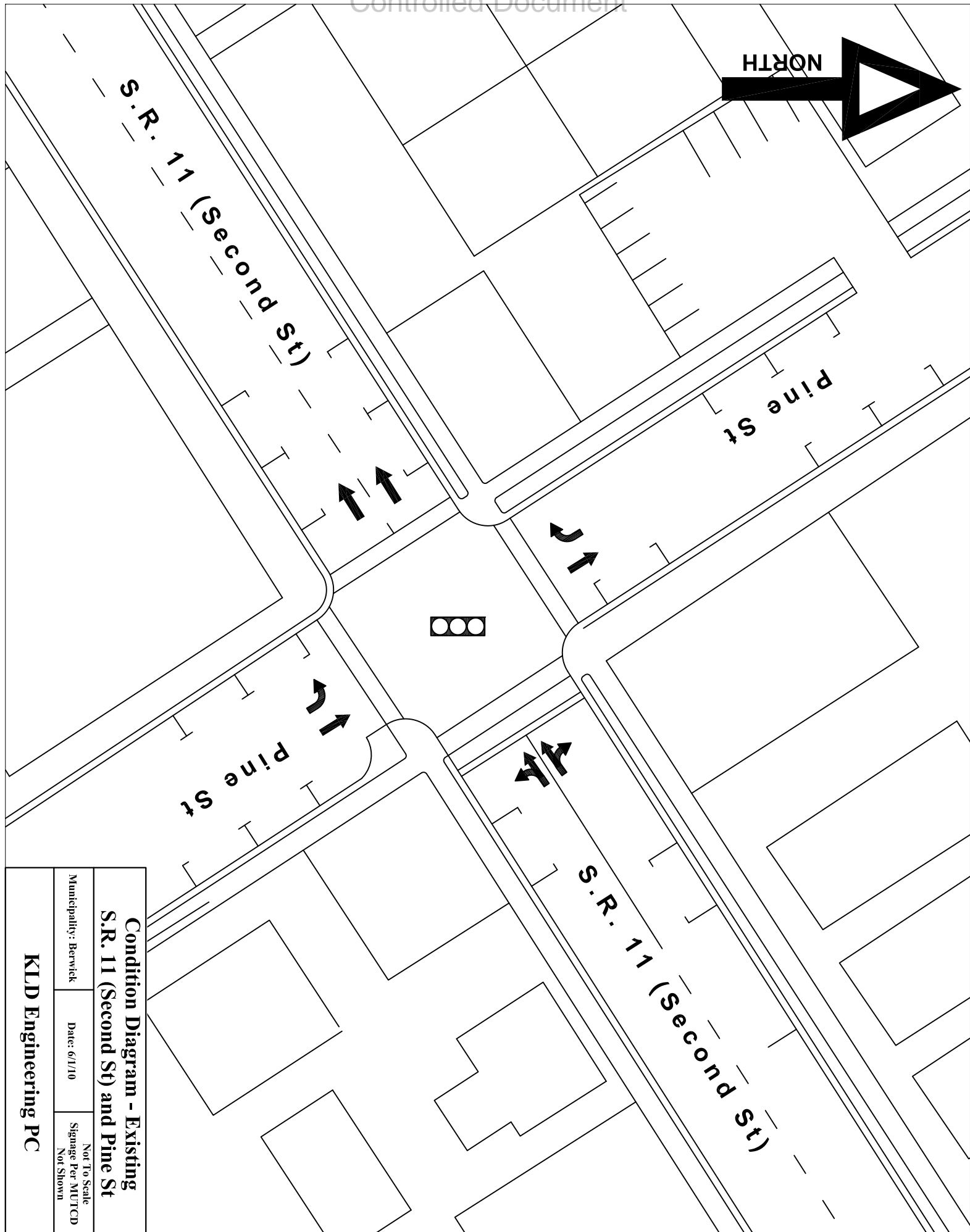
Municipality: Berwick	Date: 6/1/10	Not To Scale Signage Per MUTCD Not Shown
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KLD Engineering PC









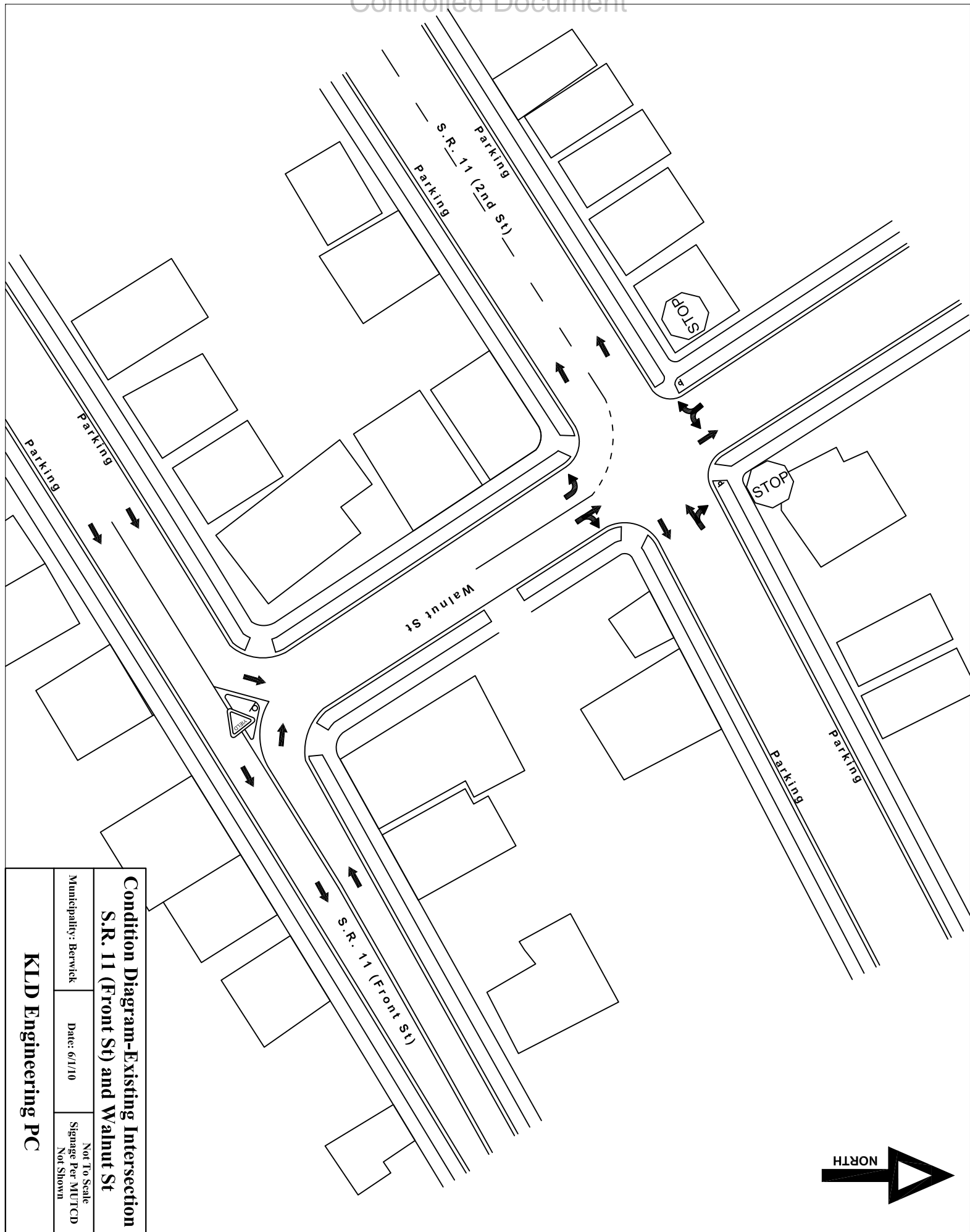
**Condition Diagram - Existing
S.R. 11 (Second St) and Pine St**

Municipality: Berwick

Date: 6/1/10

Not To Scale
Signage Per MUTCD
Not Shown

KLD Engineering PC



**Condition Diagram-Existing Intersection
S.R. 11 (Front St) and Walnut St**

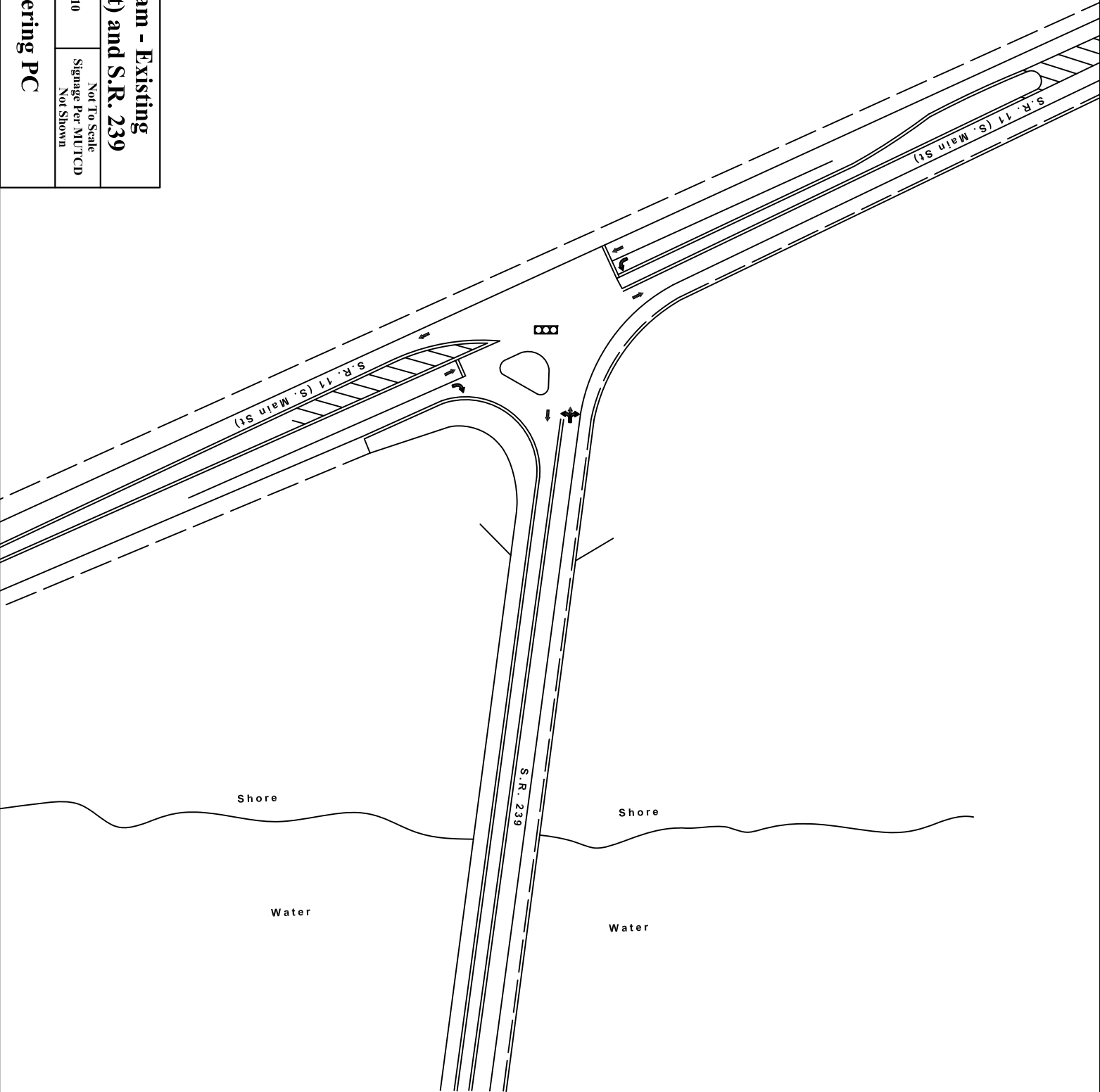
Municipality: Berwick

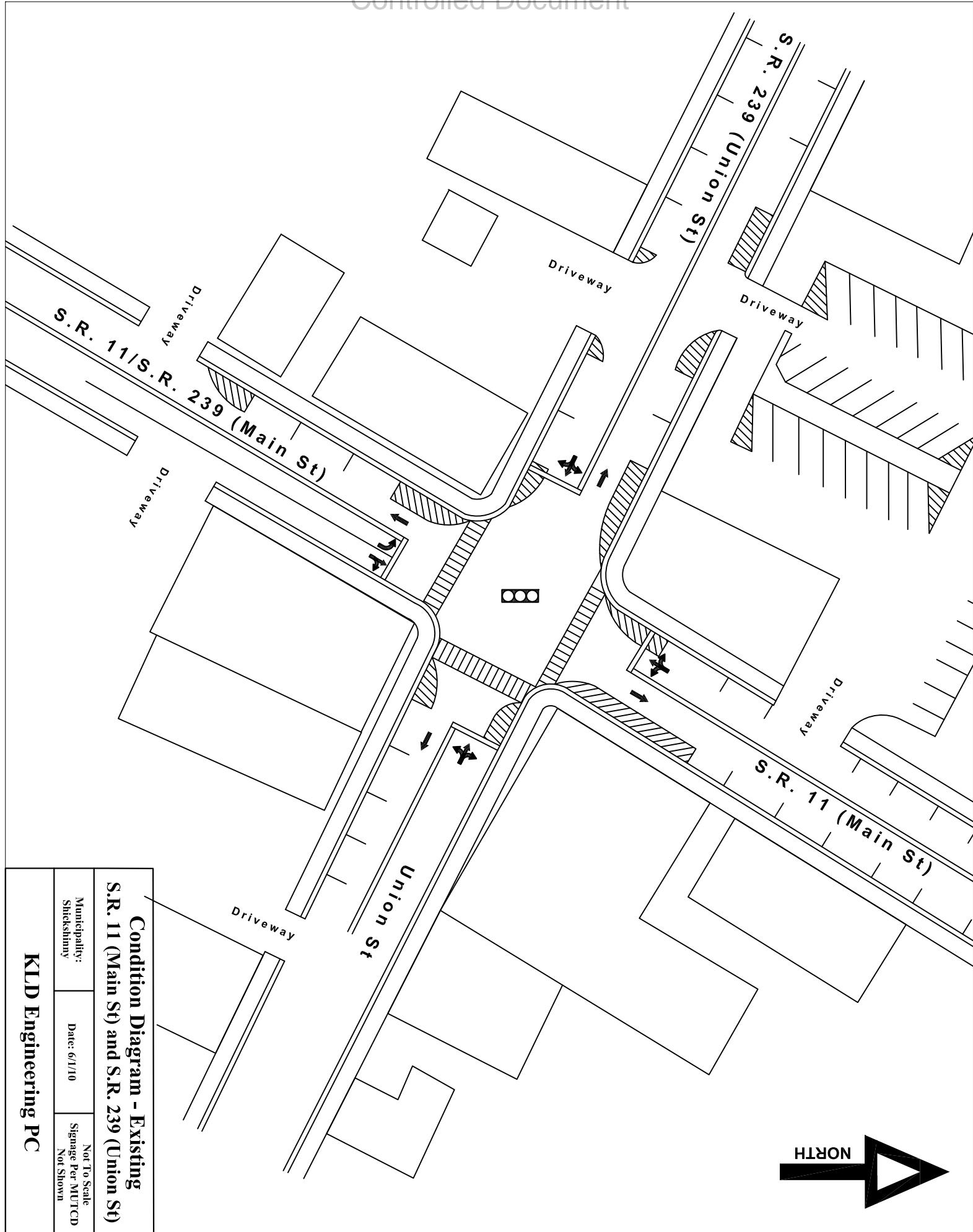
Date: 6/1/10

Not To Scale
Signage Per MUTCD
Not Shown

KLD Engineering PC

Condition Diagram - Existing		
S.R. 11 (S. Main St) and S.R. 239		
Municipality: Shickshiny	Date: 6/1/10	Not To Scale Signage Per MUTCD Not Shown
KLD Engineering PC		





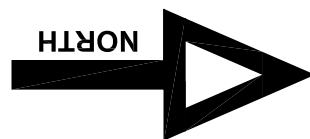
Condition Diagram - Existing
S.R. 11 (Main St) and S.R. 239 (Union St)

Municipality:
Shickshinny

Date: 6/1/10

Not To Scale
Signage Per MUTCD
Not Shown

KLD Engineering PC



S.R. 339 Broad Street

S.R. 93 (Third St)

S.R. 93 (Third St)

S.R. 339 (Broad St)

Condition Diagram - Existing

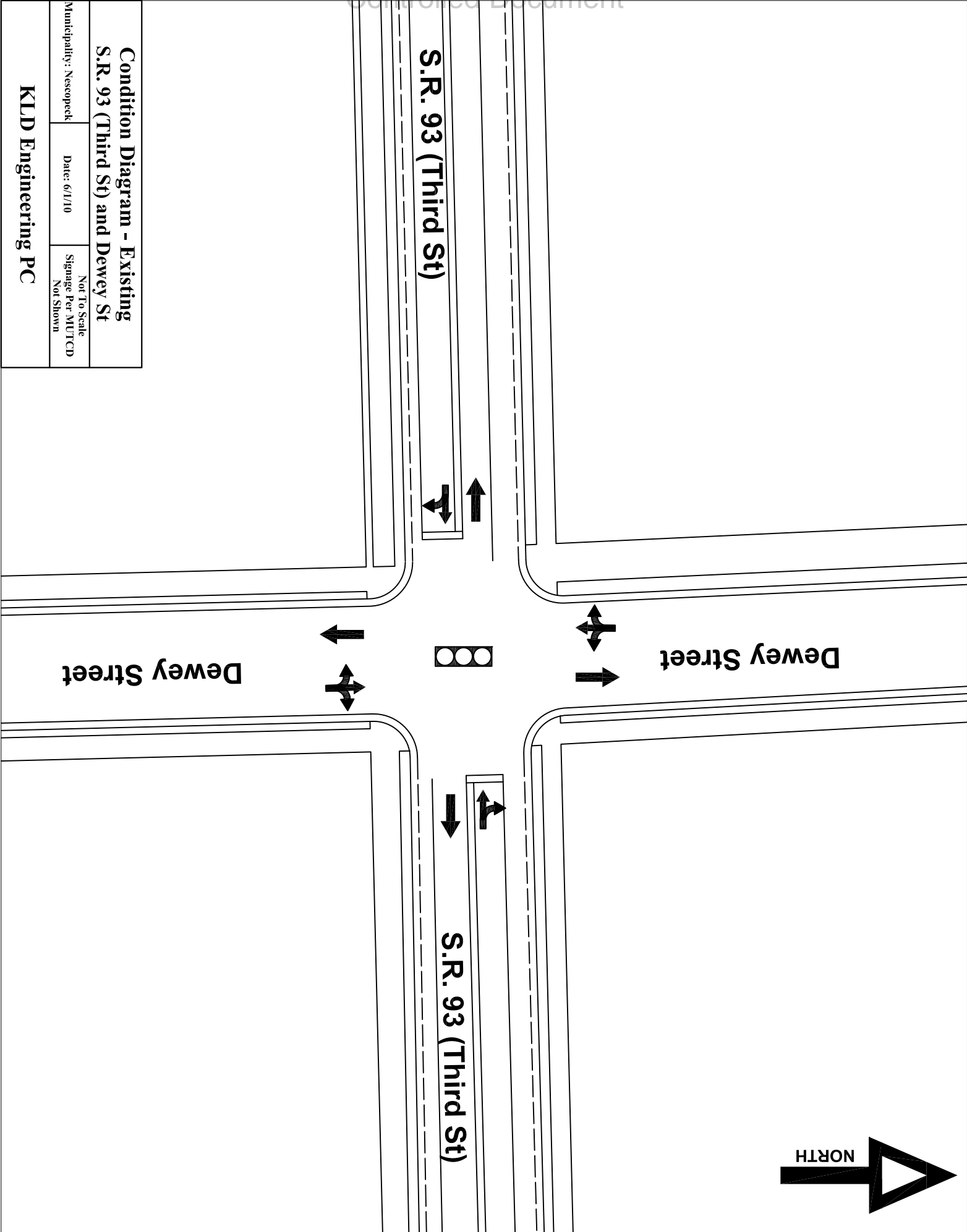
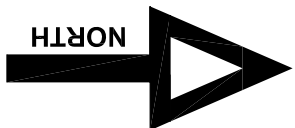
S.R. 93 (Third St) and S.R. 339 Broad St

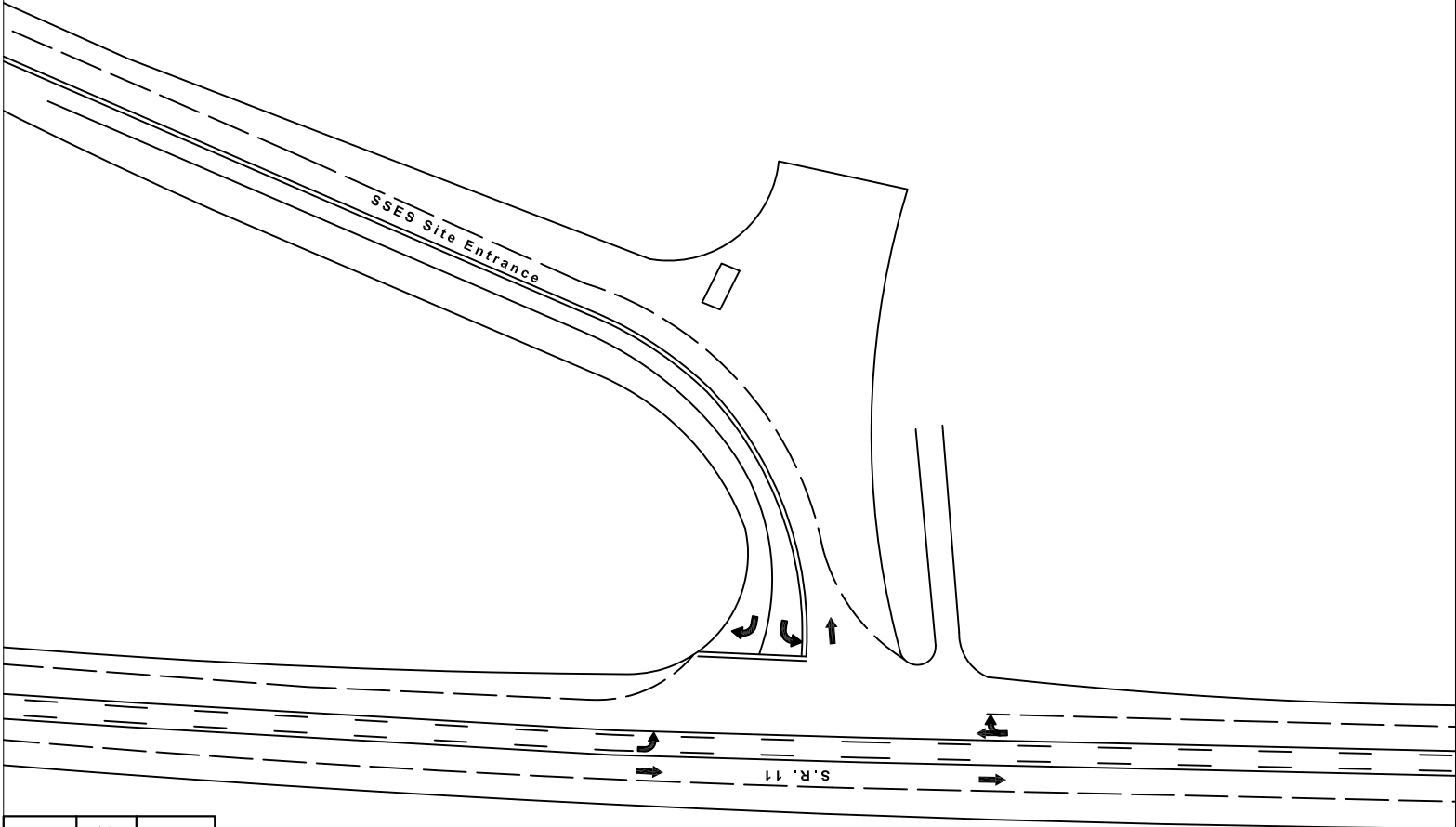
Municipality: Nescopack

Date: 6/1/10

Not To Scale
Signage Per MUTCD
Not Shown

KLD Engineering PC





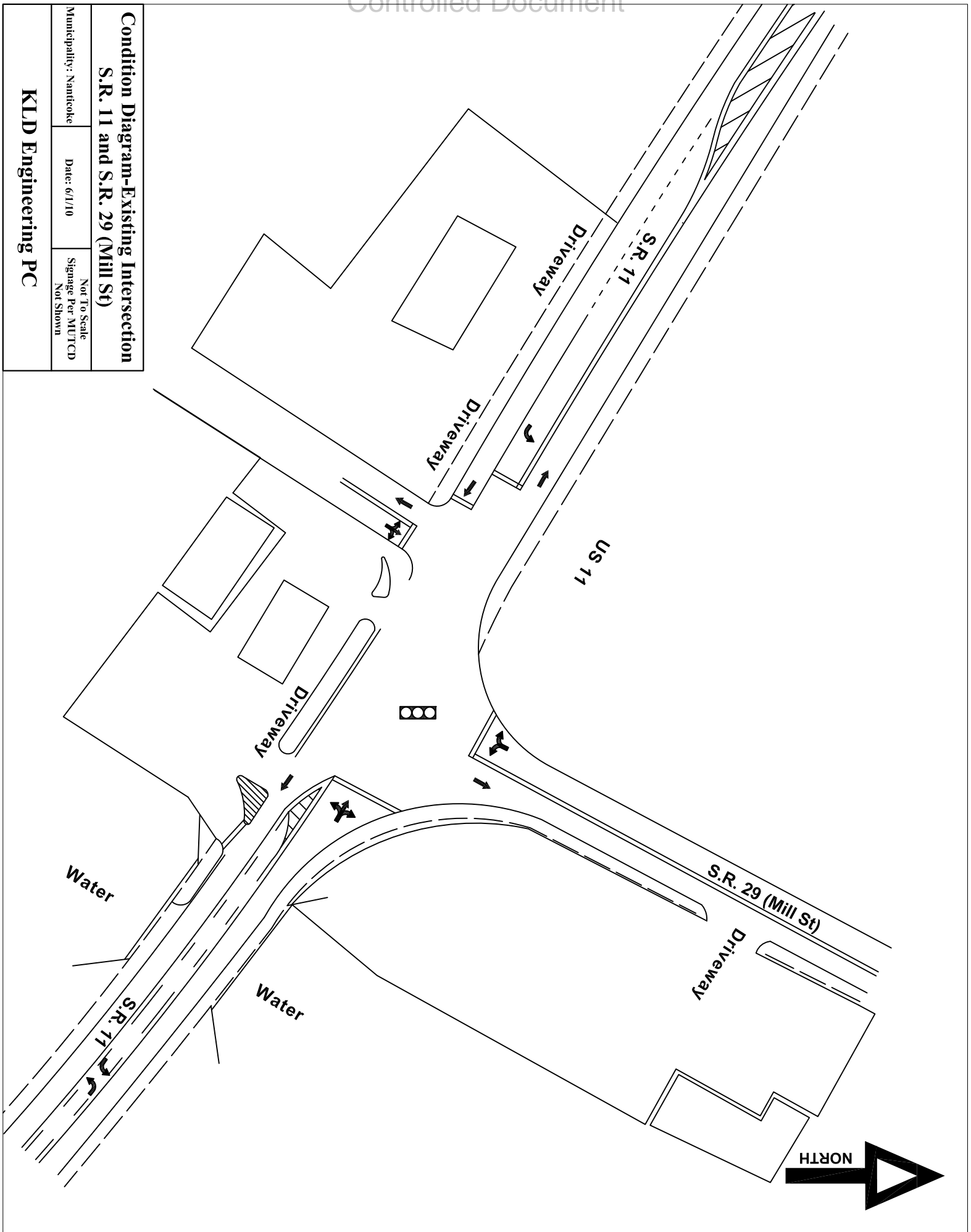
Condition Diagram - Existing		
S.R. 11 and SSES Site Entrance		
Municipality: Berwick	Date: 6/1/10	Not To Scale Signage Per MUTCD Not Shown
KLD Engineering PC		

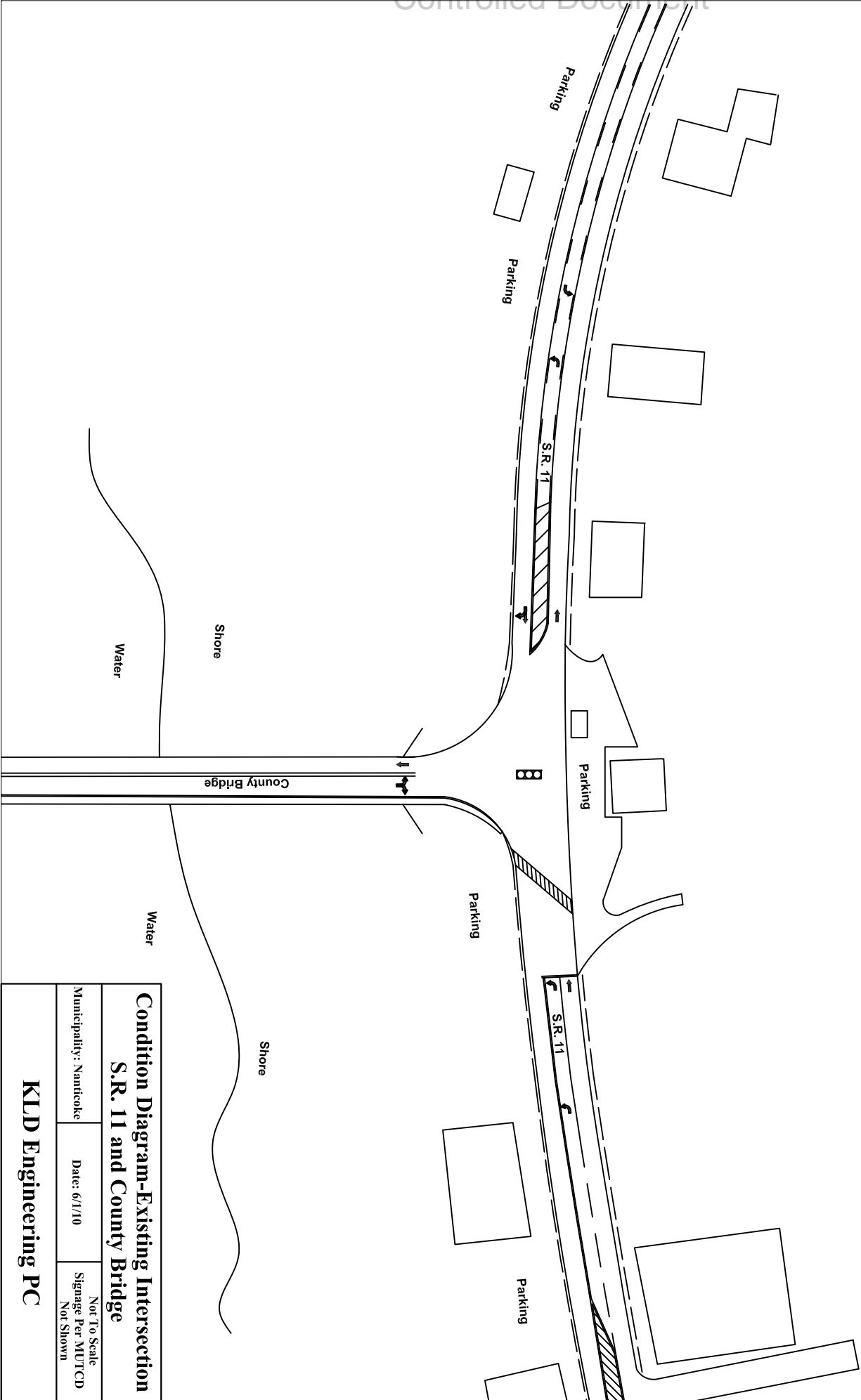
Condition Diagram-Existing Intersection

S.R. 11 and S.R. 29 (Mill St)

Municipality: Nanticoke	Date: 6/1/10	Not To Scale Signage Per MUTCD Not Shown
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KLD Engineering PC

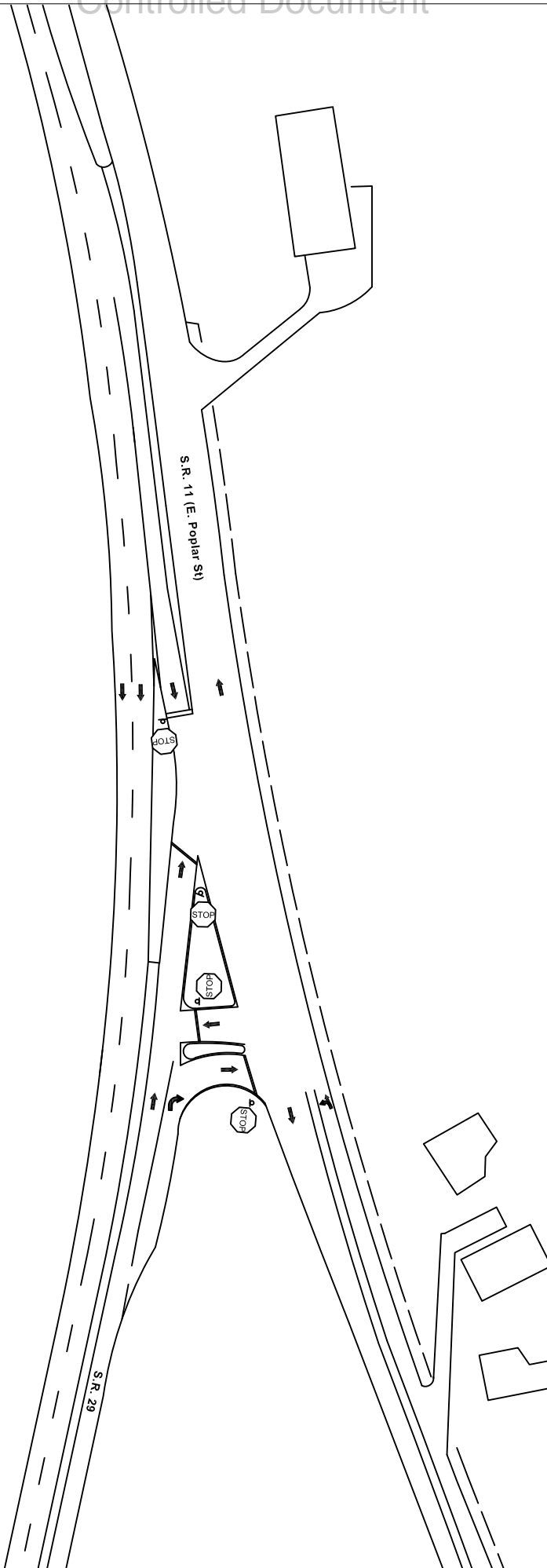




**Condition Diagram-Existing Intersection
S.R. 11 and County Bridge**

Municipality: Nanticoke	Date: 6/1/10	Not To Scale Signage Per MUTCD Not Shown
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KLD Engineering PC



**Condition Diagram-Existing Intersection
S.R. 11 (E. Poplar St) and S.R. 29**

Municipality: Berwick	Date: 6/1/10	Not To Scale Signage Per MUTCD Not Shown
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KLD Engineering PC

Appendix D

Traffic Signal Permit Plans

Appendix D

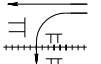
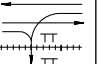

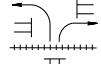
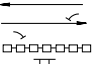
This appendix contains the signal permit plans for the following intersections:

Intersection Name	Permit No.
S.R. 11 and S.R. 2028	TS190-031
S.R. 11 and Briar Creek Plaza Driveways	TS225-031
S.R. 11 (Front Street) and Poplar Street	TS150-031
S.R. 11 (Front Street) and Orchard Street	TS52-031
S.R. 11 (Front Street) and S.R. 93 (Orange Street)	TS31-031
S.R. 11 (Second Street) and LaSalle Street	TS30-031
S.R. 11 (Second Street) and Oak Street	TS237-031
S.R. 11 (Second Street) and Mulberry Street	TS55-031
S.R. 11 (Front Street) and Mulberry Street	TS53-031
S.R. 1025 (Market Street) and Third Street	TS58-031
S.R. 11 (Second Street) and Market Street	T256-031
S.R. 11 (Front Street) and Market Street	TS54-031
S.R. 11 (Second Street) and Pine Street	TS57-031
S.R. 93 (Third Street) and S.R. 339 (Broad Street)	4166
S.R. 93 (Third Street) and Dewey Street	4155
S.R. 11 (S. Main Street) and S.R. 239	40130
S.R. 11 (Main Street) and S.R. 239 (Union Street)	5691
S.R. 11 and S.R. 29 (Mill Street)	40305
S.R. 11 and County Bridge	40141

D-9012 CADD (02-90) REVISED (05-97)

PLATTEN UTWAK-2010 07553

PERMIT NO. TS190-031	SHEET 3 OF 3
DATE ISSUED: 12/3/1993	
DATE REVISED	REASON/COMMENTS
12/6/1994	REVISED RAILROAD PREEMPT
02-18-05	COMPUTERIZED DRAWING

	PHASE 1			PHASE 2			PHASE 4					PHASE TRACK CL.			PHASE RR			EMERGENCY FLASHING
																		
	INTERVAL			INTERVAL			INTERVAL					INTERVAL			INTERVAL			
SIGNAL	1	2	3	1	2	3	1	2	3	4	5	1	2	3	1	2	3	
①	G	Y	R	G	Y	R	R	R	R	R	R	R	R	R	G	Y	R	
②	G	Y	R	G	Y	R	R	R	R	R	R	R	R	R	G	Y	R	
③④	R	R	R	G	Y	R	R	R	R	R	R	R	R	R	G	Y	R	
⑤⑥	R	R	R	R	R	R	G	G	G	Y	R	G	Y	R	R	R	R	
⑦⑧	R	R	R	R	R	R	G	Y	R	R	R	R	R	R	R	R	R	
⑨⑩	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON	ON	ON	ON	OFF	OFF	
FIXED		3.5	0.1		4	2			3.5	0.1	3.5	1	9	3.5	1	*	4	
MINIMUM	2			12			2											
ADDED INITIAL				2.5														
MAX. INITIAL				42														
PASSAGE	3			6			3											
TIME TO REDUCE				20														
BEFORE REDUCTION				42														
MIN. GAP				6														
MAXIMUM	20			67			30											
MEMORY	NL			MN			NL											

*VARIABLE

NOTES:

1. G/→Y- IF FOLLOWED BY PHASE 2.
2. G IF FOLLOWED BY PHASE 2.
3. G IF FOLLOWED BY PHASE 1.

SIGNS

SIGN	STANDARD	DESCRIPTION	SIZE	QTY.
⑩	R3-1	NO RIGHT TURN SIGN-FOLDING	30"X30"	1
⑪	R3-2	NO LEFT TURN SIGN-FOLDING	30"X30"	1
⑫	R3-7L	LEFT LANE MUST TURN LEFT	30"X30"	3
⑬	R3-7R	RIGHT LANE MUST TURN RIGHT	30"X30"	3
⑭	R3-5L	LEFT TURN SIGN	30"X36"	1
⑮	R3-5R	RIGHT TURN SIGN	30"X36"	1
⑯	R9-3A	NO PEDESTRIAN CROSSING	18"X18"	6
⑰	R10-6L	STOP HERE ON RED	24"X30"	1
⑱	R10-11	NO TURN ON RED SIGN	30"X36"	1
⑲	R8-B *	DO NOT STOP ON TRACKS	24"X30"	1

* PENNDOT RESPONSIBILITY

PREEMPTION NOTES

PHASE 1, INTERVAL 1: TERMINATE THE GREENS AND GREEN ARROW IMMEDIATELY; FOLLOWED BY INTERVAL 2, INTERVAL 3 AND TRACK CLEAR INTERVAL 1.

INTERVAL 2: ALLOW THE INTERVAL TO TIME OUT; FOLLOWED BY INTERVAL 3 AND TRACK CLEAR INTERVAL 1.

INTERVAL 3: ALLOW THE INTERVAL TO TIME OUT; FOLLOWED BY TRACK CLEAR INTERVAL 1.

PHASE 2, INTERVAL 1: TERMINATE THE GREENS IMMEDIATELY; FOLLOWED BY INTERVAL 2, INTERVAL 3 AND TRACK CLEAR INTERVAL 1.

INTERVAL 2: ALLOW THE INTERVAL TO TIME OUT; FOLLOWED BY INTERVAL 3 AND TRACK CLEAR INTERVAL 1.

INTERVAL 3: ALLOW THE INTERVAL TO TIME OUT; FOLLOWED BY TRACK CLEAR INTERVAL 1.

PHASE 4, INTERVAL 1: TERMINATE THE GREENS IMMEDIATELY; FOLLOWED BY INTERVAL 2, INTERVAL 3 AND TRACK CLEAR INTERVAL 1.

INTERVAL 2: ALLOW THE INTERVAL TO TIME OUT; FOLLOWED BY INTERVAL 3 AND TRACK CLEAR INTERVAL 1.

INTERVAL 3: ALLOW THE INTERVAL TO TIME OUT; FOLLOWED BY TRACK CLEAR INTERVAL 1.

INTERVAL 4: ALLOW THE INTERVAL TO TIME OUT; FOLLOWED BY INTERVAL 5 AND TRACK CLEAR INTERVAL 1.

INTERVAL 5: ALLOW THE INTERVAL TO TIME OUT; FOLLOWED BY TRACK CLEAR INTERVAL 1.

PHASE TRACK CLEAR, THE CONTROLLER SHOULD ALLOW THE PHASE TO TIME OUT AND PROCEED TO PHASE RR.

PHASE RR, INTERVAL 1: ALLOW THE CONTROLLER TO CONTINUE IN INTERVAL 1.

INTERVAL 2: ALLOW THE INTERVAL TO TIME OUT; FOLLOWED BY INTERVAL 3 AND PHASE TRACK CLEAR INTERVAL 1.

INTERVAL 3: ALLOW THE INTERVAL TO TIME OUT; FOLLOWED BY PHASE TRACK CLEAR INTERVAL 1.

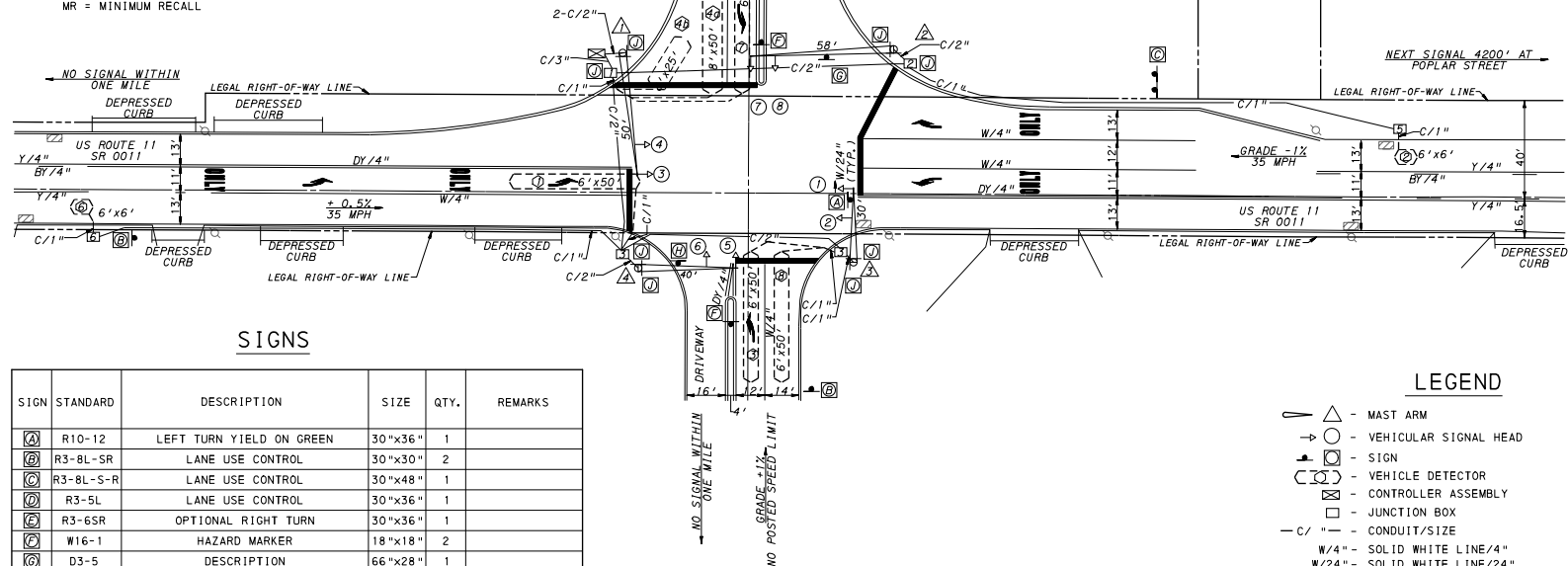
EMERGENCY FLASH, THE CONTROLLER SHOULD REMAIN IN FLASH AND SIGNS ⑩ AND ⑪ SHOULD OPEN (ON).

UPON COMPLETION OF PREEMPTION, A CALL SHOULD BE PLACED TO ALL PHASES NOT SERVICED DURING PREEMPTION.

COUNTY :	COLUMBIA
MUNICIPALITY :	SOUTH CENTRE TOWNSHIP
INTERSECTION :	S.R. 11 AND S.R. 2028
REVIEWED :	
MUNICIPAL OFFICIAL	DATE
RECOMMENDED :	
DISTRICT TRAFFIC ENGINEER	DATE

	PHASE 1+6 ③			PHASE 2+6			PHASE 4+8			
										FLASHING
	INTERVAL			INTERVAL			INTERVAL			
SIGNAL	1	2	3	4	5	6	7	8	9	
①	G	Y①	R②	G	Y	R	R	R	R	Y
②	G	Y②	R③	G	Y	R	R	R	R	Y
③④	R	R	R	G	Y	R	R	R	R	Y
⑤⑥	R	R	R	R	R	R	G	Y	R	R
⑦⑧	R	R	R	R	R	R	G	Y	R	R
FIXED		3.0	0.5		3.7	1.6		3.0	2.2	
MINIMUM	3			15			3			
SEC/ ACT				2.0						
MAX INT				27						
PASSAGE	3			6			3			
TBR				20						
TTR				20						
MIN GAP				3.5						
MAXIMUM	15			40			30			
MEMORY	NL			MR			NL			

- NOTES:
- 1) G/ Y IF FOLLOWED BY PHASE 2+6
 - 2) G IF FOLLOWED BY PHASE 2+6
 - 3) PHASE 1+6 FOLLOWS PHASE 4+8 ONLY
- NL = NON LOCKING
MR = MINIMUM RECALL



SIGNS

SIGN	STANDARD	DESCRIPTION	SIZE	QTY.	REMARKS
①	R10-12	LEFT TURN YIELD ON GREEN	30"x36"	1	
②	R3-8L-SR	LANE USE CONTROL	30"x30"	2	
③	R3-8L-S-R	LANE USE CONTROL	30"x48"	1	
④	R3-5L	LANE USE CONTROL	30"x36"	1	
⑤	R3-6SR	OPTIONAL RIGHT TURN	30"x36"	1	
⑥	W16-1	HAZARD MARKER	18"x18"	2	
⑦	D3-5	DESCRIPTION	66"x28"	1	
⑧	D3-5	DESCRIPTION	66"x28"	1	
⑨	R9-3A	NO PED CROSSING	18"x18"	8	

DETECTOR NOTES

- 1) DETECTOR 1 CALLS AND EXTENDS PHASE 1
- 2) DETECTOR 2 CALLS AND EXTENDS PHASE 2
- 3) DETECTORS 3 AND 8 CALL AND EXTEND PHASE 8
- 4) DETECTORS 4a, 4b AND 7 CALL AND EXTEND PHASE 4
- 5) DETECTOR 6 CALLS AND EXTENDS PHASE 6
- 6) DETECTORS 1, 3, 4a, 4b AND 8 HAVE DELAY TIMER

LEGEND

- MAST ARM
- VEHICULAR SIGNAL HEAD
- SIGN
- VEHICLE DETECTOR
- CONTROLLER ASSEMBLY
- JUNCTION BOX
- CONDUIT/SIZE
- W/4" - SOLID WHITE LINE/4"
- W/24" - SOLID WHITE LINE/24"
- Y/4" - SOLID YELLOW LINE/4"
- BY/4" - BROKEN YELLOW LINE/4"
- DY/4" - DOUBLE SOLID YELLOW LINE/4"

PERMIT NO. TS225-031 SHEET 2 OF 2
DATE ISSUED: 10/5/1998

DATE REVISED	REASON/COMMENTS
6/21/1999	TIMING CHANGES
4/28/2005	COMPUTERIZED DRAWING

GENERAL NOTES

- INSTALL, OPERATE AND MAINTAIN THIS TRAFFIC SIGNAL IN ACCORDANCE WITH ALL PENNSYLVANIA DEPARTMENT OF TRANSPORTATION REGULATIONS, SPECIFICATIONS, AND STANDARD DRAWINGS.
- NO MODIFICATION OF THIS INSTALLATION IS PERMITTED UNLESS PRIOR APPROVAL IS GRANTED, IN WRITING, BY THE DEPARTMENT.
- ALL MAINTENANCE NECESSARY FOR PROPER VISIBILITY OF THE SIGNALS, INCLUDING TRIMMING TREES, IS THE RESPONSIBILITY OF THE PERMITTEE.
- THE PERMITTEE INSTALLS AND MAINTAINS ALL SIGNS AND PAVEMENT MARKINGS INDICATED ON THIS DRAWING WHICH ARE CONSIDERED PART OF THE PERMIT, UNLESS OTHERWISE INDICATED. THE DEPARTMENT MAINTAINS THE LONGITUDINAL PAVEMENT MARKINGS ON STATE HIGHWAYS.
- INSTALL POST MOUNTED SIGNALS WITH THE SIGNAL HEADS A MINIMUM OF 2 FEET BEHIND THE FACE OF THE CURB OR EDGE OF THE SHOULDER. ALSO, INSTALL SUPPORT POLES FOR OVERHEAD SIGNALS WITH A MINIMUM HORIZONTAL CLEARANCE OF 2 FEET.
- INSTALL SIGNAL HEADS AND SIGNS ERECTED OVER THE ROADWAY WITH THE BOTTOMS NOT LESS THAN 15 FEET NOR MORE THAN 19 FEET ABOVE THE ROADWAY.
- INSTALL POST MOUNTED SIGNAL HEADS WITH BOTTOMS NOT LESS THAN 8 FEET NOR MORE THAN 15 FEET ABOVE THE SIDEWALK OR PAVEMENT GRADE.
- INSTALL SIGNAL HEADS WITH A MINIMUM HORIZONTAL DISTANCE OF 8 FEET BETWEEN THE HEADS AS MEASURED AT RIGHT ANGLES TO THE APPROACH.
- IN ADDITION TO THIS SIGNAL PERMIT, THE PERMITTEE MUST OBTAIN A HIGHWAY OCCUPANCY PERMIT PRIOR TO ANY OPENINGS BEING MADE IN OR UNDER ANY PORTION OF A STATE HIGHWAY.
- THREE WORKING DAYS PRIOR TO EXCAVATION THE PERMITTEE MUST CONTACT THE ONE-CALL SYSTEM INC., PHONE 1-800-242-1776.

COUNTY : COLUMBIA
MUNICIPALITY : BRIAR CREEK BOROUGH
INTERSECTION : US ROUTE 11 AND
BRIAR CREEK PLAZA DRIVeways

REVIEWED :
MUNICIPAL OFFICIAL DATE
RECOMMENDED :
DISTRICT TRAFFIC ENGINEER DATE

SCALE : 0 25 50 75

DATE ISSUED: 12-10-1987

DATE REVISED REASON/COMMENTS

3-29-2005 COMPUTERIZED DRAWING

9-8-2006 NEW PERMIT SHEET SIZE

GENERAL NOTES

INSTALL, OPERATE AND MAINTAIN THIS TRAFFIC SIGNAL IN ACCORDANCE WITH ALL PENNSYLVANIA DEPARTMENT OF TRANSPORTATION REGULATIONS, SPECIFICATIONS, AND STANDARD DRAWINGS.

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

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

THE PERMITTEE INSTALLS AND MAINTAINS ALL SIGNS AND PAYEMENT MARKINGS INDICATED ON THIS DRAWING WHICH ARE CONSIDERED PART OF THE PERMIT, UNLESS OTHERWISE INDICATED. THE DEPARTMENT MAINTAINS THE LONGITUDINAL PAYEMENT MARKINGS ON STATE HIGHWAYS.

INSTALL POST MOUNTED SIGNALS WITH THE SIGNAL HEADS A MINIMUM OF 2 FEET BEHIND THE FACE OF THE CURB OR EDGE OF THE SHOULDER. ALSO, INSTALL SUPPORT POLES FOR OVERHEAD SIGNALS WITH A MINIMUM HORIZONTAL CLEARANCE OF 2 FEET.

INSTALL SIGNAL HEADS AND SIGNS ERECTED OVER THE ROADWAY WITH THE BOTTOMS NOT LESS THAN 15 FEET NOR MORE THAN 19 FEET ABOVE THE ROADWAY.

INSTALL POST MOUNTED SIGNAL HEADS WITH BOTTOMS NOT LESS THAN 8 FEET NOR MORE THAN 15 FEET ABOVE THE SIDEWALK OR PAYEMENT GRADE.

INSTALL SIGNAL HEADS WITH A MINIMUM HORIZONTAL DISTANCE OF 8 FEET BETWEEN THE HEADS AS MEASURED AT RIGHT ANGLES TO THE APPROACH.

IN ADDITION TO THIS SIGNAL PERMIT, THE PERMITTEE MUST OBTAIN A HIGHWAY OCCUPANCY PERMIT PRIOR TO ANY OPENING, WORK MADE IN OR UNDER ANY PORTION OF A STATE HIGHWAY.

THREE WORKING DAYS PRIOR TO EXCAVATION THE PERMITTEE MUST CONTACT THE ONE-CALL SYSTEM INC., PHONE 1-800-242-1776.

CONDUIT INSTALLED IN BITUMINOUS ROADWAY LESS THAN 5 YEARS OLD, OR CONCRETE ROADWAY REGARDLESS OF AGE MUST BE BORED OR JACKED UNDER THE ROADWAY. INSTALL IN ACCORDANCE WITH TRAFFIC SIGNAL STANDARDS TC-7800 SERIES.

COUNTY: COLUMBIA

MUNICIPALITY: BOROUGH OF BERWICK

INTERSECTION: S.R. 11 (FRONT STREET) AND

POPLAR STREET

REVIEWED:

MUNICIPAL OFFICIAL DATE

RECOMMENDED:

DISTRICT TRAFFIC ENGINEER DATE

SCALE: 0' 25' 50' 75'

WEEKLY PROGRAM CHART							PROG. NO.	REMARKS
EVENT	WEEK	DAY	HOUR	MINUTE	SECOND			
1	1-52	1	01	00	00	4	FLASH	
2			05	00	00	3	FREE	
3		2-6	01	00	00	4	FLASH	
4			05	00	00	2	50 SEC.	
5			06	30	30	1	70 SEC.	
6			10	00	00	3	FREE	
7			14	00	00	1	70 SEC.	
8			18	00	00	2	50 SEC.	
9			21	30	30	3	FREE	
10		7	01	00	00	4	FLASH	
11			05	00	00	3	FREE	

*DAY NO. 1 IS SUNDAY

PROGRAMS						
PROGRAM NUMBER	CYCLE LENGTH	POPLAR	ORCHARD	ORANGE	LASALLE	OFFSET
1	70 SEC.	10 SEC.	26 SEC.	5 SEC.	0 SEC.	
2	50 SEC.	30 SEC.	30 SEC.	10 SEC.	0 SEC.	
3	FREE					
4	FLASH	1-5 AM	1-5 AM	1-5 AM	1-5 AM	

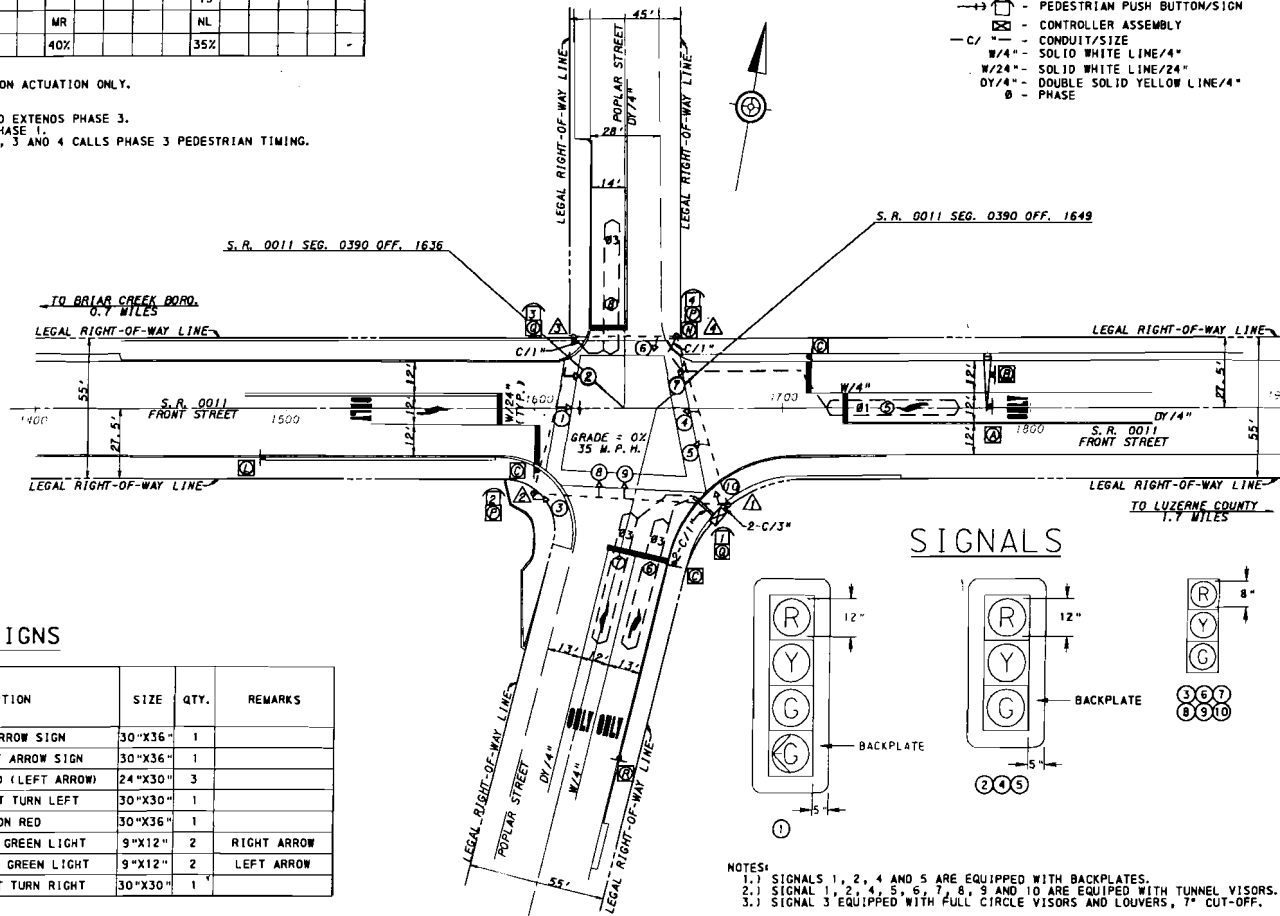
MASTER CONTROLLER LOCATED AT LASALLE STREET

LEGEND

- △ - MAST ARM
- - ○ - ○ - STRAIN POLE/MESSENGER CABLE
- - VEHICULAR SIGNAL HEAD
- - SIGN
- - VEHICLE DETECTOR
- - PEDESTRIAN PUSH BUTTON/SIGN
- - CONTROLLER ASSEMBLY
- C/ - CONDUIT/SIZE
- W/4" - SOLID WHITE LINE/4"
- W/24" - SOLID WHITE LINE/24"
- DY/4" - DOUBLE SOLID YELLOW LINE/4"
- Ø - PHASE

SIGNAL	PHASE 1			PHASE 2			PHASE 3			FLASHING
	1	2		1	2	3	1	2	3	
1	G			G	Y	R	R	R	R	Y
2	G	G		G	Y	R	R	R	R	Y
3	R	R		G	Y	R	R	R	R	Y
4,5	R	R		G	Y	R	R	R	R	Y
6,7,8,9,10	R	R		R	R	R	G	Y	R	R
FIXED	3			3	2		3	1		
MINIMUM	4			25			2			
PASSAGE	3						4			
MAXIMUM	15						35			
PEDESTRIAN *							15			
MEMORY	NL			MR			NL			
SPLIT % AGE	25%			40%			35%			

- NOTES:
- 1.) * UPON PEDESTRIAN PUSHBUTTON ACTUATION ONLY.
 - 2.) MR - MINIMUM RECALL
 - 3.) NL - NON-LOCKING
 - 4.) LOOPS 6, 7, AND 8 CALLS AND EXTENDS PHASE 3.
 - 5.) LOOP 5 CALLS AND EXTENDS PHASE 1.
 - 6.) PEDESTRIAN PUSHBUTTON 1, 2, 3 AND 4 CALLS PHASE 3 PEDESTRIAN TIMING.



SIGNS

SIGN	STANDARD	DESCRIPTION	SIZE	QTY.	REMARKS
1	R3-5L	LEFT TURN ARROW SIGN	30"X36"	1	
2	R3-6SR	STRAIGHT-RIGHT ARROW SIGN	30"X36"	1	
3	R10-6L	STOP HERE ON RED (LEFT ARROW)	24"X30"	3	
4	R3-7L	LEFT LANE MUST TURN LEFT	30"X30"	1	
5	R10-11	NO TURN ON RED	30"X36"	1	
6	R10-4	PUSH BUTTON FOR GREEN LIGHT	9"X12"	2	RIGHT ARROW
7	R10-4	PUSH BUTTON FOR GREEN LIGHT	9"X12"	2	LEFT ARROW
8	R3-7R	RIGHT LANE MUST TURN RIGHT	30"X30"	1	

- NOTES:
- 1.) SIGNALS 1, 2, 4 AND 5 ARE EQUIPPED WITH BACKPLATES.
 - 2.) SIGNAL 1, 2, 4, 5, 6, 7, 8, 9 AND 10 ARE EQUIPPED WITH TUNNEL VISORS.
 - 3.) SIGNAL 3 EQUIPPED WITH FULL CIRCLE VISORS AND LOUVERS, 7" CUT-OFF.

GENERAL NOTES

INSTALL, OPERATE AND MAINTAIN THIS TRAFFIC SIGNAL IN ACCORDANCE WITH ALL PENNSYLVANIA DEPARTMENT OF TRANSPORTATION REGULATIONS, SPECIFICATIONS, AND STANDARD DRAWINGS.

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

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

THE PERMITTEE INSTALLS AND MAINTAINS ALL SIGNS AND PAVEMENT MARKINGS INDICATED ON THIS DRAWING WHICH ARE CONSIDERED PART OF THE PERMIT, UNLESS OTHERWISE INDICATED. THE DEPARTMENT MAINTAINS THE LONGITUDINAL PAVEMENT MARKINGS ON STATE HIGHWAYS.

INSTALL POST MOUNTED SIGNALS WITH THE SIGNAL HEADS A MINIMUM OF 2 FEET BEHIND THE FACE OF THE CURB OR EDGE OF THE SHOULDER. ALSO, INSTALL SUPPORT POLES FOR OVERHEAD SIGNALS WITH A MINIMUM HORIZONTAL CLEARANCE OF 2 FEET.

INSTALL SIGNAL HEADS AND SIGNS ERECTED OVER THE ROADWAY WITH THE BOTTOMS NOT LESS THAN 15 FEET NOR MORE THAN 19 FEET ABOVE THE ROADWAY.

INSTALL POST MOUNTED SIGNAL HEADS WITH BOTTOMS NOT LESS THAN 8 FEET NOR MORE THAN 15 FEET ABOVE THE SIDEWALK OR PAVEMENT GRADE.

INSTALL SIGNAL HEADS WITH A MINIMUM HORIZONTAL DISTANCE OF 8 FEET BETWEEN THE HEADS AS MEASURED AT RIGHT ANGLES TO THE APPROACH.

IN ADDITION TO THIS SIGNAL PERMIT, THE PERMITTEE MUST OBTAIN A HIGHWAY OCCUPANCY PERMIT PRIOR TO ANY OPENINGS BEING MADE IN OR UNDER ANY PORTION OF A STATE HIGHWAY.

THREE WORKING DAYS PRIOR TO EXCAVATION THE PERMITTEE MUST CONTACT THE ONE-CALL SYSTEM INC., PHONE 1-800-242-1776.

CONDUIT INSTALLED IN BITUMINOUS ROADWAY LESS THAN 5 YEARS OLD, OR CONCRETE ROADWAY REGARDLESS OF AGE MUST BE BORED OR JACKED UNDER THE ROADWAY. INSTALL IN ACCORDANCE WITH TRAFFIC SIGNAL STANDARDS TC-7800 SERIES.

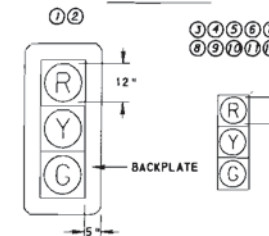
COUNTY: COLUMBIA
MUNICIPALITY: BOROUGH OF BERWICK
INTERSECTION: S.R. 11 (SECOND STREET) AND OAK STREET




REVIEWED: _____
MUNICIPAL OFFICIAL: _____ DATE: _____

RECOMMENDED: _____
DISTRICT TRAFFIC ENGINEER: _____ DATE: _____

SCALE: 0' 25' 50' 75'

SIGNALS



	PHASE 1						PHASE 2						PHASE TRK CLR						PHASE RR						FLASHING
													SEE NOTES												
	INTERVAL						INTERVAL						INTERVAL						INTERVAL						
SIGNAL	1	2	3				1	2	3							1	2	3							
①②③④⑤⑥	G	Y	R				R	R	R							R	R	R			Y				
⑦⑧⑨⑩⑪⑫	R	R	R				G	Y	R							G	Y	R			R				
FOLDING SIGNS	CL	CL	CL				CL	CL	CL							OP	OP	CL			CL				
FIXED	4.0 2.0						4.0 1.0												4.0 1.0						
MINIMUM	30						4																		
PASSAGE							4																		
MAXIMUM							25																		
PEDESTRIAN *							15																		
MEMORY							NL																		

NOTES:
FLASHING FROM 10:00 P.M. TO 5:30 A.M.

• UPON PEDESTRIAN ACTUATION ONLY

• DURATION OF TRAIN

OP-OPEN

CL-CLOSED

NL - NON-LOCKING

PREEMPTION NOTES

IF TRAIN PREEMPTION OCCURS DURING:

PHASE 1, INTERVAL 1: TERMINATE THE GREENS AND GREEN ARROW IMMEDIATELY FOLLOWED BY INTERVAL 2, INTERVAL 3 AND PHASE RR INTERVAL 1.

INTERVAL 2: ALLOW THE INTERVAL TO TIME OUT FOLLOWED BY INTERVAL 3 AND PHASE RR INTERVAL 1.

INTERVAL 3: ALLOW THE INTERVAL TO TIME OUT FOLLOWED BY PHASE RR INTERVAL 1.

PHASE 2, INTERVAL 1: IMMEDIATELY ADVANCE TO PHASE RR INTERVAL 1.

INTERVAL 2: ALLOW THE INTERVAL TO TIME OUT FOLLOWED BY INTERVAL 3 AND PHASE RR INTERVAL 1.

INTERVAL 3: ALLOW THE INTERVAL TO TIME OUT FOLLOWED BY PHASE RR INTERVAL 1.

PHASE RR, INTERVAL 1: ALLOW THE CONTROLLER TO CONTINUE IN INTERVAL 1.

INTERVAL 2: ALLOW THE INTERVAL TO TIME OUT FOLLOWED BY INTERVAL 3 AND PHASE RR, INTERVAL 1.

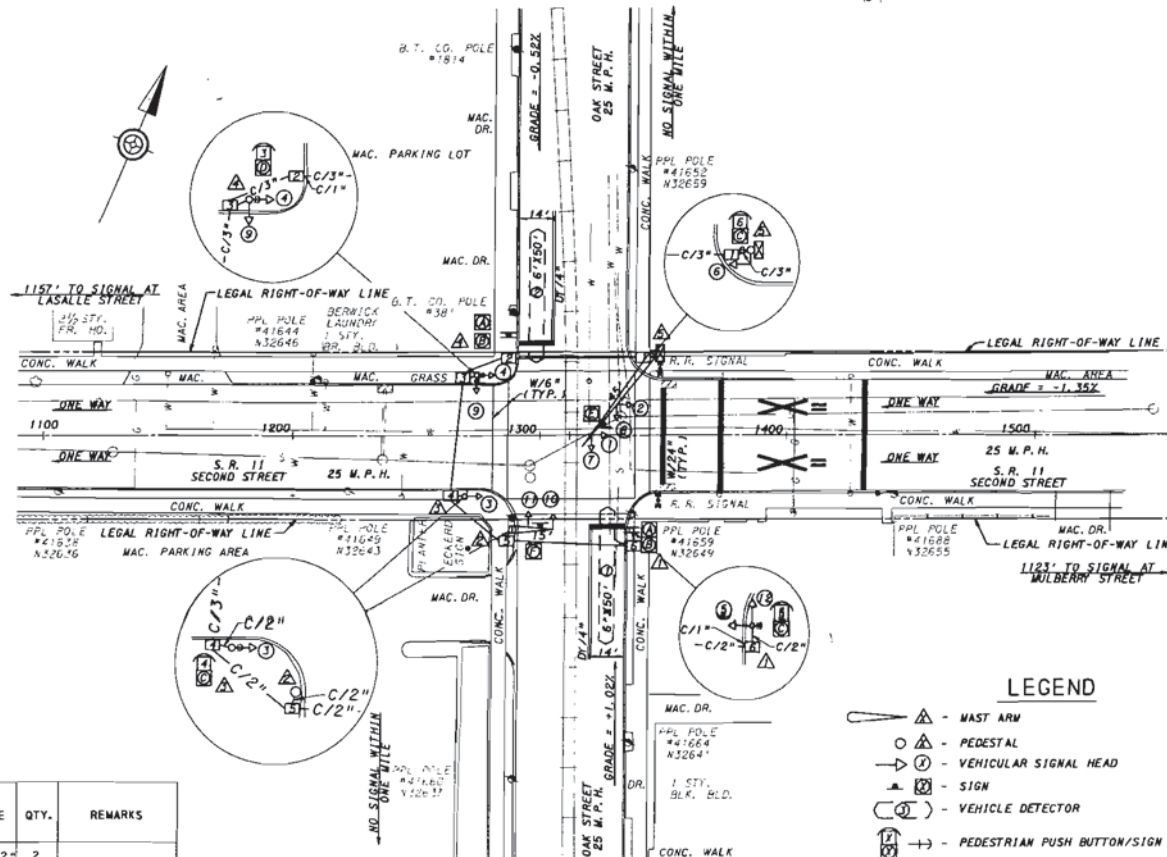
INTERVAL 3: ALLOW THE INTERVAL TO TIME OUT FOLLOWED BY PHASE RR INTERVAL 1.

EMERGENCY FLASH, THE CONTROLLER SHOULD REMAIN IN FLASH AND SIGN (ON) SHOULD OPEN (ON).

UPON COMPLETION OF PREEMPTION, CONTROLLER SHOULD RETURN TO NORMAL OPERATION.

SIGNS



SIGN	STANDARD	DESCRIPTION	SIZE	QTY.	REMARKS
①	R6-1R	HORIZONTAL RIGHT ONE WAY	36"x12"	2	
②	R6-1L	HORIZONTAL LEFT ONE WAY	36"x12"	2	
③	R10-3	PUSH BUTTON FOR GREEN LIGHT	9"x12"	3	RIGHT ARROW
④	R10-3	PUSH BUTTON FOR GREEN LIGHT	9"x12"	1	LEFT ARROW
⑤	R6-2L	VERTICAL LEFT ONE WAY	24"x30"	1	CHANGEABLE MESSAGE
⑥	R3-2	NO LEFT TURN	24"x24"	1	FOLDING SIGN
⑦	R6-2R	VERTICAL RIGHT ONE WAY	24"x30"	1	



LEGEND

- ▲ - WEST ARM
- - PEDESTAL
- - VEHICULAR SIGNAL HEAD
- ▲ - SIGN
- - VEHICLE DETECTOR
- ➔ - PEDESTRIAN PUSH BUTTON/SIGN
- ☒ - CONTROLLER ASSEMBLY
- ☒ - JUNCTION BOX
- C/X - CONDUIT/SIZE
- W/6" - SOLID WHITE LINE/6"
- W/24" - SOLID WHITE LINE/24"
- DY/4" - DOUBLE SOLID YELLOW LINE/4"

OPERATOR: FILE NAME: L:\PROJECTS\19-UNSIONED PERMITS ON NEW SHEETS\TS30-031-SR 11 (FRONT AND SECOND STREETS) AND SR 1023(LASALLE STREET).COP
PLOTTER: 16-FEB-2010 12:33
D:\012 CAD\132-NO-REVISED 11-0-04

PHASE 1					PHASE 2					FLASHING
										
INTERVAL					INTERVAL					
1	2	3	4	5	1	2	3	4	5	
G	G	G	Y	R	R	R	R	R	R	Y
R	R	R	R	R	G	G	G	Y	R	R
R	R	R	R	R	C	-	-	-	-	R
FL W	FL W	DW	DW	DW	DW	DW	DW	DW	DW	OFF
DW	DW	DW	DW	DW	FL W	FL W	DW	DW	DW	OFF
			3	1				3	1	
25					2					
					4					
45					25					
7	8	1			7	8	1			
MR					NL					

* UPON PEDESTRIAN ACTUATION ONLY
MASTER CONTROLLER - TO BE INTERCONNECTED
WITH ADJACENT SIGNALS ALONG FRONT STREET.

PROGRAMS				
PROGRAM NUMBER	CYCLE LENGTH	POPLAR	ORCHARD	LASALLE
1	70 SEC.	10 SEC.	25 SEC.	5 SEC.
2	50 SEC.	10 SEC.	10 SEC.	0 SEC.
3	FREE	1-5 AM	1-5 AM	1-5 AM
4	FLASH	1-5 AM	1-5 AM	1-5 AM

MASTER CONTROLLER AT LASALLE STREET

WEEKLY PROGRAM CHART										
EVENT	WEEK	DAY	HOUR	MINUTE	SECOND	CYCLE NO.	SPLIT NO.	REMARKS		
1	1-52	1-5	00	00	01			FREE		
2	1-52	1-5	01	00	00			FLASH		
3	1-52	1-5	05	00	00	1	1	70 SEC.		
4	1-52	1-5	20	00	00	2	1	50 SEC.		
5	1-52	1-5	22	00	00			FREE		
6	1-52	6-7	00	00	01			FREE		
7	1-52	6-7	01	00	00			FLASH		
8	1-52	6-7	08	00	00	2	1			
9	1-52	6-7	10	00	00	1	1			
10	1-52	6-7	16	00	00	2	1			
11	1-52	6-7	18	00	00			FREE		

*DAY NO. 1 IS MONDAY

SPLITS (SECONDS)										
PHASE	1	2	3	4	5	6	7	8	CYCLE LENGTH	OFFSET
1	1	45	25							0
2	1	35	15							0
FREE	25	15								0

REFERENCE TO END OF PHASE 1 GREEN.

- LEGEND
- △ - MAST ARM
 - - PEDESTAL
 - - VEHICULAR SIGNAL HEAD
 - - PEDESTRIAN SIGNAL HEAD
 - - SIGN
 - - VEHICLE DETECTOR
 - - PEDESTRIAN PUSH BUTTON/SIGN
 - - CONTROLLER ASSEMBLY
 - - JUNCTION BOX
 - C/ - CONDUIT/SIZE
 - W/24" - SOLID WHITE LINE/24"
 - Ø - PHASE

PERMIT NO. TS30-031	SHEET 2 OF 3
DATE ISSUED: 5-26-1982	
DATE REVISED	REASON/COMMENTS
7-11-1995	REMOVED NO TURN ON RED RESTRICTION
3-23-2005	COMPUTERIZED DRAWING

GENERAL NOTES

INSTALL, OPERATE AND MAINTAIN THIS TRAFFIC SIGNAL IN ACCORDANCE WITH ALL PENNSYLVANIA DEPARTMENT OF TRANSPORTATION REGULATIONS, SPECIFICATIONS, AND STANDARD DRAWINGS.

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INSTALL POST MOUNTED SIGNALS WITH THE SIGNAL HEADS A MINIMUM OF 2 FEET BEHIND THE FACE OF THE CURB OR EDGE OF THE SHOULDER. ALSO, INSTALL SUPPORT POLES FOR OVERHEAD SIGNALS WITH A MINIMUM HORIZONTAL CLEARANCE OF 2 FEET.

INSTALL SIGNAL HEADS AND SIGNS ERECTED OVER THE ROADWAY WITH THE BOTTOMS NOT LESS THAN 15 FEET NOR MORE THAN 19 FEET ABOVE THE ROADWAY.

INSTALL POST MOUNTED SIGNAL HEADS WITH BOTTOMS NOT LESS THAN 8 FEET NOR MORE THAN 15 FEET ABOVE THE SIDEWALK OR PAVEMENT GRADE.

INSTALL SIGNAL HEADS WITH A MINIMUM HORIZONTAL DISTANCE OF 8 FEET BETWEEN THE HEADS AS MEASURED AT RIGHT ANGLES TO THE APPROACH.

IN ADDITION TO THIS SIGNAL PERMIT, THE PERMITTEE MUST OBTAIN A HIGHWAY OCCUPANCY PERMIT PRIOR TO ANY OPENINGS BEING MADE IN OR UNDER ANY PORTION OF A STATE HIGHWAY.

THREE WORKING DAYS PRIOR TO EXCAVATION THE PERMITTEE MUST CONTACT THE ONE-CALL SYSTEM INC., PHONE 1-800-242-1776.

CONDUIT INSTALLED IN BITUMINOUS ROADWAY LESS THAN 5 YEARS OLD, OR CONCRETE ROADWAY REGARDLESS OF AGE MUST BE BORED OR JACKED UNDER THE ROADWAY. INSTALL IN ACCORDANCE WITH TRAFFIC SIGNAL STANDARDS TC-7800 SERIES.

COUNTY : COLUMBIA

MUNICIPALITY : BOROUGH OF BERNICK

INTERSECTION : S.R. 1023 (LASALLE STREET) AND
S.R. 11 (SECOND AND FRONT STREETS)

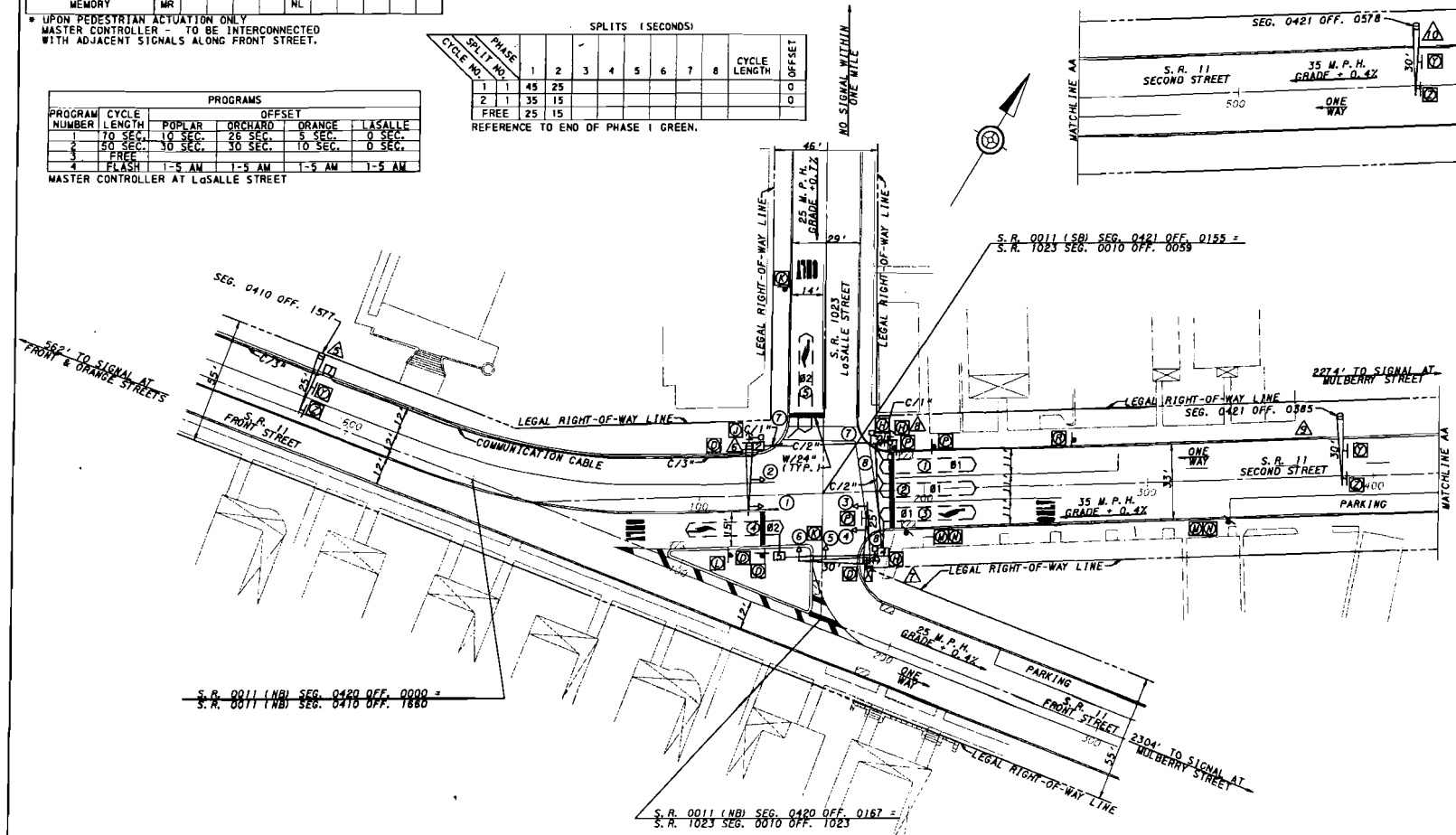
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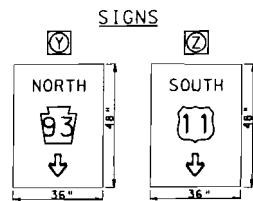
MUNICIPAL OFFICIAL _____ DATE _____

RECOMMENDED : _____

DISTRICT TRAFFIC ENGINEER _____ DATE _____

SCALE : 0' 25' 50' 75'

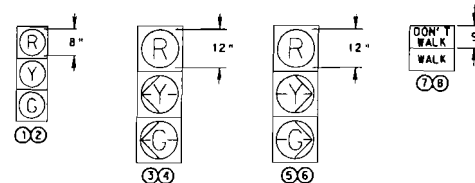




SIGNS

SIGN	STANDARD	DESCRIPTION	SIZE	QTY.	REMARKS
	R10-6L	STOP HERE ON RED	24"x30"	4	
	R9-3	NO PEDESTRIAN CROSSING	18"x18"	4	
	R10-4	PUSH BUTTON FOR WALK SIGNAL	9"x12"	3	RIGHT ARROW
	R10-4	PUSH BUTTON FOR WALK SIGNAL	9"x12"	1	LEFT ARROW
	R3-7-1R	ALL TRAFFIC MUST TURN RIGHT	30"x30"	2	
	R3-7-1L	ALL TRAFFIC MUST TURN LEFT	30"x30"	1	
	R7-1	NO PARKING SYMBOL	12"x12"	2	
	R7-7	NO PARKING ARROW	12"x6"	2	
	R5-1	DO NOT ENTER	30"x30"	2	
	R5-9	WRONG WAY	36"x24"	1	
	SPECIAL	SEE SIGN DETAIL	36"x48"	3	TO BE SUPPLIED BY THE DEPT.
	SPECIAL	SEE SIGN DETAIL	36"x48"	3	

SIGNALS



COUNTY : COLUMBIA

MUNICIPALITY : BOROUGH OF BERWICK

INTERSECTION : S.R. 1023 (LOSALLE STREET) AND
S.R. 11 (SECOND AND FRONT STREETS)

REVIEWED : _____

MUNICIPAL OFFICIAL _____ DATE _____

RECOMMENDED : _____

DISTRICT TRAFFIC ENGINEER _____ DATE _____

DATE ISSUED: 5-26-1982

DATE REVISED: REASON/COMMENTS

8-02-1982 CWP

5-05-1994 CWP

3-23-2005 COMPUTERIZED DRAWING

GENERAL NOTES

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COUNTY: COLUMBIA

MUNICIPALITY: BOROUGH OF BERWICK

INTERSECTION: S.R. 11 (FRONT STREET) AND

S.R. 93 (ORANGE STREET)

REVIEWED:

MUNICIPAL OFFICIAL DATE

RECOMMENDED:

DISTRICT TRAFFIC ENGINEER DATE

SCALE: 0' 25' 50' 75'

PROGRAMS		OFFSET			
PROGRAM NUMBER	CYCLE LENGTH	POPLAR	ORCHARD	ORANGE	LASALLE
1	70 SEC.	10 SEC.	26 SEC.	5 SEC.	0 SEC.
2	50 SEC.	30 SEC.	30 SEC.	10 SEC.	0 SEC.
4	FLASH	1-5 AM	1-5 AM	1-5 AM	1-5 AM

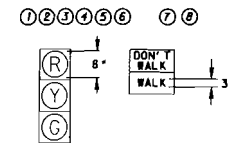
SPLITS (SECONDS)		CYCLE LENGTH							
PHASE	SPLIT NO.	1	2	3	4	5	6	7	8
1	1	45	25						
2	1	35	15						
FREE	25	15							

*REFERENCED TO END OF PHASE 1 GREEN

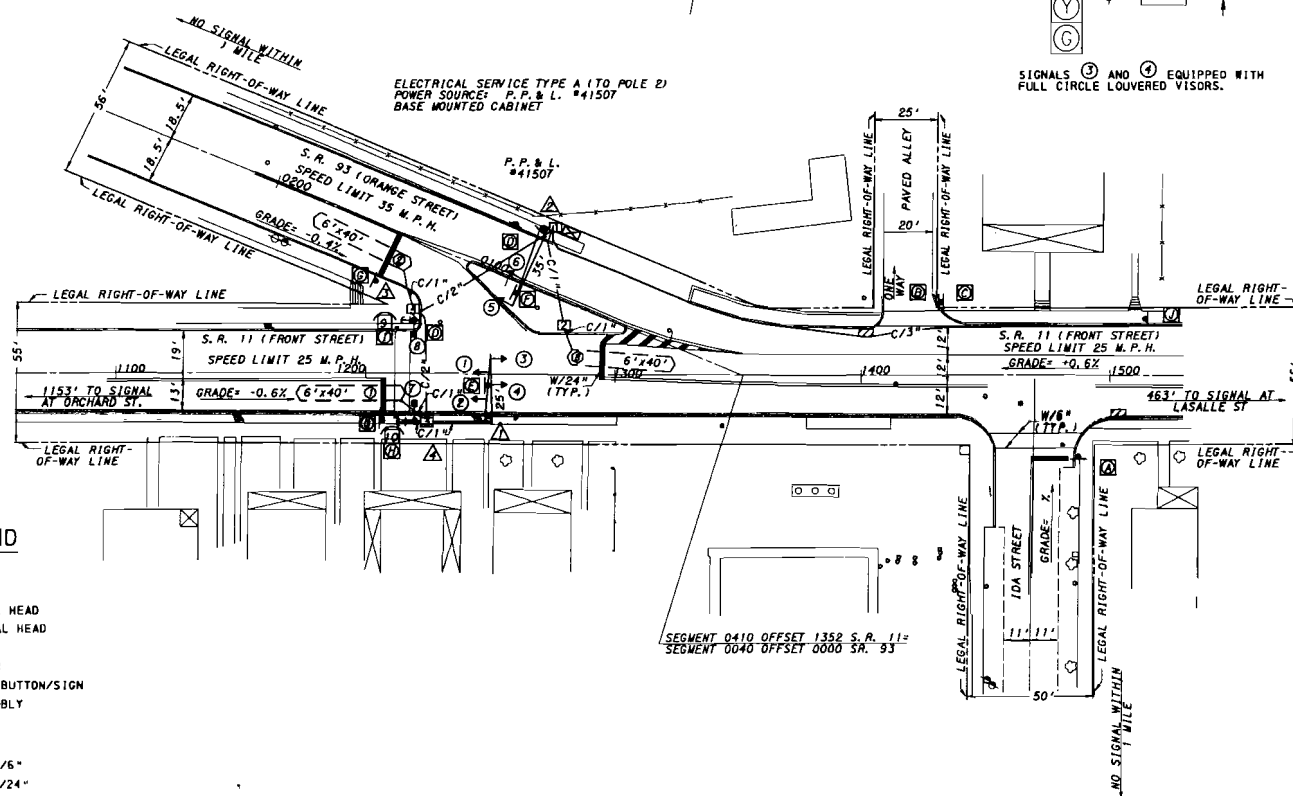
WEEKLY PROGRAM CHART									
EVENT	WEEK	DAY	HOUR	MINUTE	SECOND	CYCLE NO.	SPLIT NO.	REMARKS	
1	1-52	1-5	00	00	01	-	-	FREE	
2	1-52	1-5	01	00	00	-	-	FLASH	
3	1-52	1-5	05	00	00	1	1	70 SEC.	
4	1-52	1-5	20	00	00	2	1	50 SEC.	
5	1-52	1-5	22	00	00	-	-	FREE	
6	1-52	6-7	00	00	01	-	-	FREE	
7	1-52	6-7	01	00	00	-	-	FLASH	
8	1-52	6-7	08	00	00	2	1		
9	1-52	6-7	10	00	00	1	1		
10	1-52	6-7	16	00	00	2	1		
11	1-52	6-7	18	00	00	-	-	FREE	

*DAY NO. 1 IS MONDAY

SIGNALS













SIGNALS ③ AND ④ EQUIPPED WITH FULL CIRCLE LOUVERED VISORS.



LEGEND

- △ - MAST ARM
- - PEDESTAL
- - VEHICULAR SIGNAL HEAD
- - PEDESTRIAN SIGNAL HEAD
- - SIGN
- - VEHICLE DETECTOR
- - PEDESTRIAN PUSH BUTTON/SIGN
- - CONTROLLER ASSEMBLY
- - JUNCTION BOX
- C/ - CONDUIT/SIZE
- W/6" - SOLID WHITE LINE/6"
- W/24" - SOLID WHITE LINE/24"

SIGNS

SIGN	STANDARD	DESCRIPTION	SIZE	QTY.	REMARKS
	R1-1	STOP	30"X30"	1	
	R6-1L	LEFT ONE WAY	36"X12"	1	
	R6-1R	RIGHT ONE WAY	36"X12"	1	
	R9-3A	NO PEDESTRIAN CROSSING	18"X18"	2	
	R3-2	NO LEFT TURN	30"X30"	1	
	R3-1	NO RIGHT TURN	30"X30"	1	
	R10-6L	STOP HERE ON RED	24"X30"	2	
	R10-4	PUSH BUTTON FOR WALK SIGNAL	9"X12"	1	LEFT ARROW
	R10-4	PUSH BUTTON FOR WALK SIGNAL	9"X12"	1	RIGHT ARROW
	R3-7R	RIGHT LANE MUST TURN RIGHT	30"X30"	1	

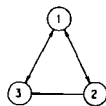
COUNTY : COLUMBIAMUNICIPALITY : BOROUGH OF BERWICKINTERSECTION : S.R. 11 (FRONT STREET) ANDS.R. 93 (ORANGE STREET)

REVIEWED :

MUNICIPAL OFFICIAL _____ DATE _____

RECOMMENDED :

DISTRICT TRAFFIC ENGINEER _____ DATE _____



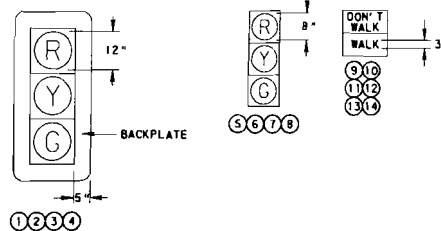
	PHASE 1				PHASE 2				PHASE 3				
													FLASHING
SIGNAL	1	2	3	4	1	2	3		1	2	3	4	
1234	G	G	Y	R	R	R	R		R	R	R	R	Y
56	R	R	R	R	R	R	R		G	G	Y	R	R
78	R	R	R	R	G	Y	R		R	R	R	R	R
9101112	FL	FL	FL	DW	DW	DW	DW		DW	DW	DW	DW	OFF
1314	W	DW	DW	DW	DW	DW	DW		W	DW	DW	DW	OFF
FIXED	4	3	2		3	2			4	3	2		
MINIMUM					2				2				
PASSAGE					3				3				
MAXIMUM					20				20				
PEDESTRIAN *	7								7				
MEMORY	MR				NL				NL				
SPLIT % AGE	50%				25%				25%				

- NOTES:
- 1.) * UPON PEDESTRIAN PUSHBUTTON ACTUATION ONLY.
 - 2.) MR - MINIMUM RECALL
 - 3.) NL - NON-LOCKING
 - 4.) LOOP ONE CALLS AND EXTENDS PHASE 2.
 - 5.) LOOP TWO CALLS AND EXTENDS PHASE 3.
 - 6.) PEDESTRIAN PUSHBUTTON 7 AND 8 CALL PHASE 3 PEDESTRIAN TIMING.
 - 7.) PEDESTRIAN PUSHBUTTONS 3, 4, 5 AND 6 CALL PHASE 1 PEDESTRIAN TIMING.

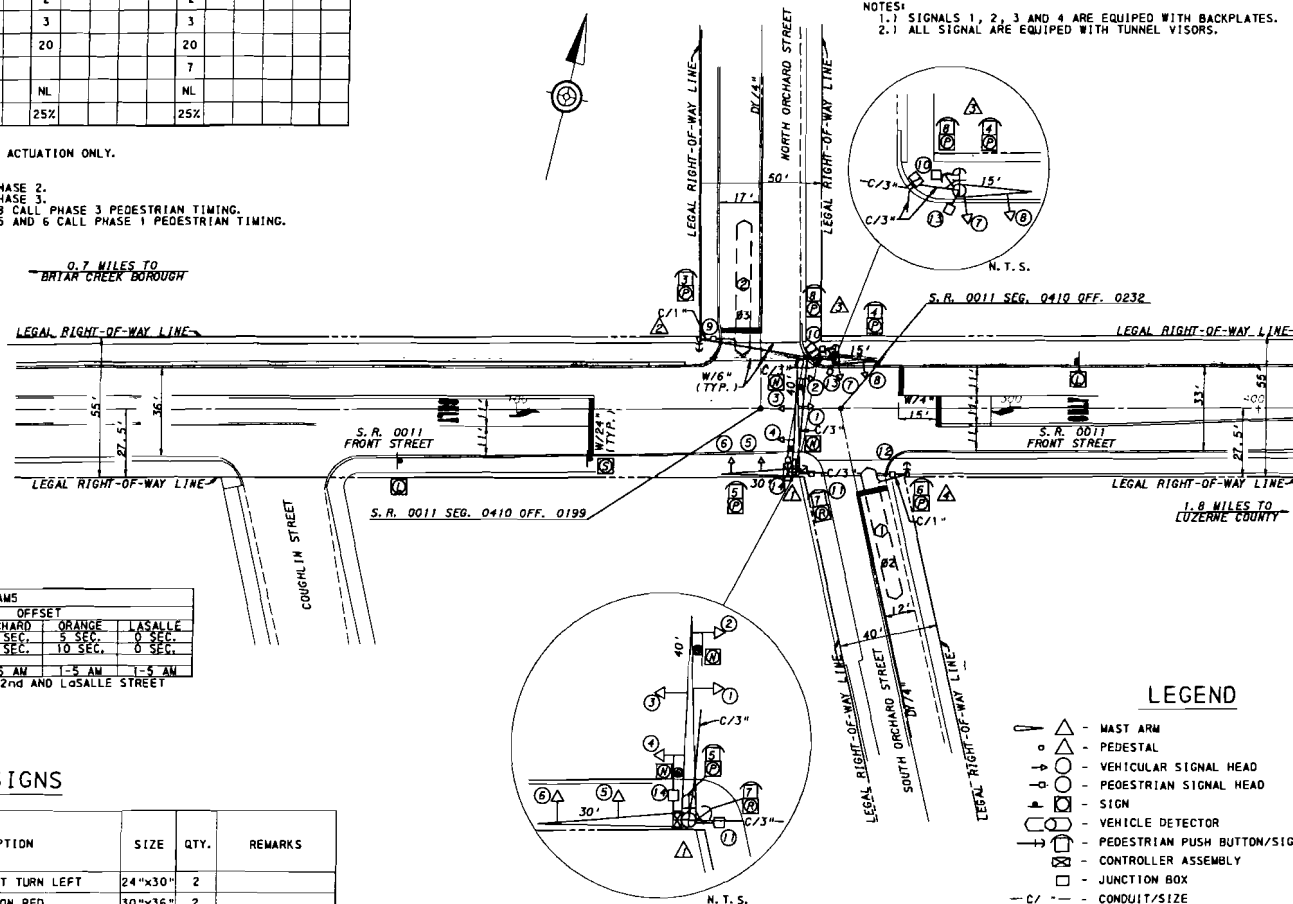
WEEKLY PROGRAM CHART									
EVENT	WEEK	DAY	HOUR	MINUTE	SECOND	PROG. NO.	REMARKS		
1	1-52	1	01	00	00	4	FLASH		
2			05	00	00	3	FREE		
3		2-6	01	00	00	4	FLASH		
4			05	00	00	2	50 SEC.		
5			06	30	30	1	70 SEC.		
6			10	00	00	3	FREE		
7			14	00	00	1	70 SEC.		
8			18	00	00	2	50 SEC.		
9			21	30	30	3	FREE		
10		7	01	00	00	4	FLASH		
11			05	00	00	3	FREE		

*DAY NO. 1 IS SUNDAY

SIGNALS



- NOTES:
- 1.) SIGNALS 1, 2, 3 AND 4 ARE EQUIPPED WITH BACKPLATES.
 - 2.) ALL SIGNAL ARE EQUIPPED WITH TUNNEL VISORS.



PROGRAMS					
PROGRAM NUMBER	CYCLE LENGTH	POPLAR	ORCHARD	ORANGE	LASALLE
1	70 SEC.	10 SEC.	26 SEC.	5 SEC.	0 SEC.
2	50 SEC.	30 SEC.	30 SEC.	10 SEC.	0 SEC.
3	FREE	1-5 AM	1-5 AM	1-5 AM	1-5 AM
4	FLASH	1-5 AM	1-5 AM	1-5 AM	1-5 AM

MASTER CONTROLLER LOCATED AT 2nd AND LASALLE STREET

SIGNS

SIGN	STANDARD	DESCRIPTION	SIZE	QTY.	REMARKS
1	R3-7L	LEFT LANE MUST TURN LEFT	24"x30"	2	
2	R10-11	NO TURN ON RED	30"x36"	2	
3	R10-4	PUSH BUTTON FOR WALK SIGNAL	9"x12"	5	RIGHT ARROW
4	R10-4	PUSH BUTTON FOR WALK SIGNAL	9"x12"	1	LEFT ARROW
5	R10-6L	STOP HERE ON RED	24"x30"	1	

LEGEND

- △ - MAST ARM
- - PEDESTAL
- - VEHICULAR SIGNAL HEAD
- - PEDESTRIAN SIGNAL HEAD
- - SIGN
- - VEHICLE DETECTOR
- - PEDESTRIAN PUSH BUTTON/SIGN
- - CONTROLLER ASSEMBLY
- - JUNCTION BOX
- - CONDUIT/SIZE
- W/4" - SOLID WHITE LINE/4"
- W/24" - SOLID WHITE LINE/24"
- QY/4" - DOUBLE SOLID YELLOW LINE/4"
- N.T.S. - NOT TO SCALE
- Φ - PHASE

PERMIT NO. TS52-031 SHEET 2 OF 2

DATE ISSUED: 12-10-1987

DATE REVISED	REASON/COMMENTS
3-11-2005	COMPUTERIZED DRAWING
8-31-2006	NEW PERMIT SHEET SIZE



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5. INSTALL POST MOUNTED SIGNALS WITH THE SIGNAL HEADS A MINIMUM OF 2 FEET BEHIND THE FACE OF THE CURB OR EDGE OF THE SHOULDER. ALSO, INSTALL SUPPORT POLES FOR OVERHEAD SIGNALS WITH A MINIMUM HORIZONTAL CLEARANCE OF 2 FEET.
6. INSTALL SIGNAL HEADS AND SIGNS ERECTED OVER THE ROADWAY WITH THE BOTTOMS NOT LESS THAN 15 FEET NOR MORE THAN 19 FEET ABOVE THE ROADWAY.
7. INSTALL POST MOUNTED SIGNAL HEADS WITH BOTTOMS NOT LESS THAN 8 FEET NOR MORE THAN 15 FEET ABOVE THE SIDEWALK OR PAVEMENT GRADE.
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COUNTY : COLUMBIA
 MUNICIPALITY : BOROUGH OF BERWICK
 INTERSECTION : S.R. 11 (FRONT STREET) AND ORCHARD STREET

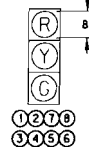
REVIEWED :
 MUNICIPAL OFFICIAL : DATE
 RECOMMENDED :
 DISTRICT TRAFFIC ENGINEER : DATE

SCALE : 0' 25' 50' 75'

FRONT STREET AND MULBERRY STREET	PHASE 1			PHASE 2			FLASHING
							
	INTERVAL			INTERVAL			
SIGNAL	1	2	3	4	5	6	
①②⑦⑧	G	Y	R	R	R	R	Y
③④⑤⑥	R	R	R	G	Y	R	R
PROGRAM #1							
TIME	46	3	1	11	3	1	65 SECONDS
PROGRAM #2							
TIME	51	3	1	16	3	1	75 SECONDS
PROGRAM #3							
TIME	43	3	1	19	3	1	70 SECONDS
PROGRAM #4							
TIME	47	3	1	25	3	1	80 SECONDS

TIME BASED COORDINATOR PROGRAMMING DATA									
PROGRAMS									
PROGRAM NUMBER	CYCLE LENGTH	FRT / MFT	MUL / MFT	SEC / PING	SEC / MFT	SEC / MFT	MUL / MFT	THD / MFT	MFT
1	65 SEC	9	12	24	27	33	33	33	33
2	75 SEC	9	12	24	27	33	33	33	33
3	70 SEC	9	12	24	27	33	33	33	33
4	80 SEC	9	12	24	27	33	33	33	33
5	FLASH								

SIGNALS



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INSTALL POST MOUNTED SIGNALS WITH THE SIGNAL HEADS A MINIMUM OF 2 FEET BEHIND THE FACE OF THE CURB OR EDGE OF THE SHOULDER. ALSO, INSTALL SUPPORT POLES FOR OVERHEAD SIGNALS WITH A MINIMUM HORIZONTAL CLEARANCE OF 2 FEET.

INSTALL SIGNAL HEADS AND SIGNS ERECTED OVER THE ROADWAY WITH THE BOTTOMS NOT LESS THAN 15 FEET NOR MORE THAN 19 FEET ABOVE THE ROADWAY.

INSTALL POST MOUNTED SIGNAL HEADS WITH BOTTOMS NOT LESS THAN 8 FEET NOR MORE THAN 15 FEET ABOVE THE SIDEWALK OR PAVEMENT GRADE.

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THREE WORKING DAYS PRIOR TO EXCAVATION THE PERMITTEE MUST CONTACT THE ONE-CALL SYSTEM INC., PHONE 1-800-242-1776.

CONDUIT INSTALLED IN BITUMINOUS ROADWAY LESS THAN 5 YEARS OLD, OR CONCRETE ROADWAY REGARDLESS OF AGE MUST BE BORED OR JACKED UNDER THE ROADWAY. INSTALL IN ACCORDANCE WITH TRAFFIC SIGNAL STANDARDS TC-7800 SERIES.

COUNTY : COLUMBIA

MUNICIPALITY : BOROUGH OF BERWICK

INTERSECTION : S.R. 11 (FRONT STREET) AND
MULBERRY STREET

REVIEWED :

MUNICIPAL OFFICIAL DATE

RECOMMENDED :

DISTRICT TRAFFIC ENGINEER DATE

SCALE : 0' 25' 50' 75'

SIGNS

SIGN	STANDARD	DESCRIPTION	SIZE	QTY.	REMARKS
Ⓢ	R6-1L	HORIZONTAL LEFT ONE-WAY	36"x12"	2	
Ⓡ	R6-1R	HORIZONTAL RIGHT ONE-WAY	36"x12"	2	

LEGEND

- △ - MAST ARM
- - PEDESTAL
- - VEHICULAR SIGNAL HEAD
- ⊠ - CONTROLLER ASSEMBLY
- - - CONDUIT/SIZE
- W/4" - SOLID WHITE LINE/4"
- W/24" - SOLID WHITE LINE/24"
- BW/4" - BROKEN WHITE LINE/4"
- - LIGHTING LUMINAIRE WITH SUPPORT

DATE REVISED	REASON/COMMENTS
11-9-1984	REMOVED NIGHT TIME FLASH
4-18-2005	COMPUTERIZED DRAWING
8-31-2006	NEW PERMIT SHEET SIZE

GENERAL NOTES

INSTALL, OPERATE AND MAINTAIN THIS TRAFFIC SIGNAL IN ACCORDANCE WITH ALL PENNSYLVANIA DEPARTMENT OF TRANSPORTATION REGULATIONS, SPECIFICATIONS, AND STANDARD DRAWINGS.

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INSTALL POST MOUNTED SIGNAL HEADS WITH BOTTOMS NOT LESS THAN 8 FEET NOR MORE THAN 15 FEET ABOVE THE SIDEWALK OR PAVEMENT GRADE.

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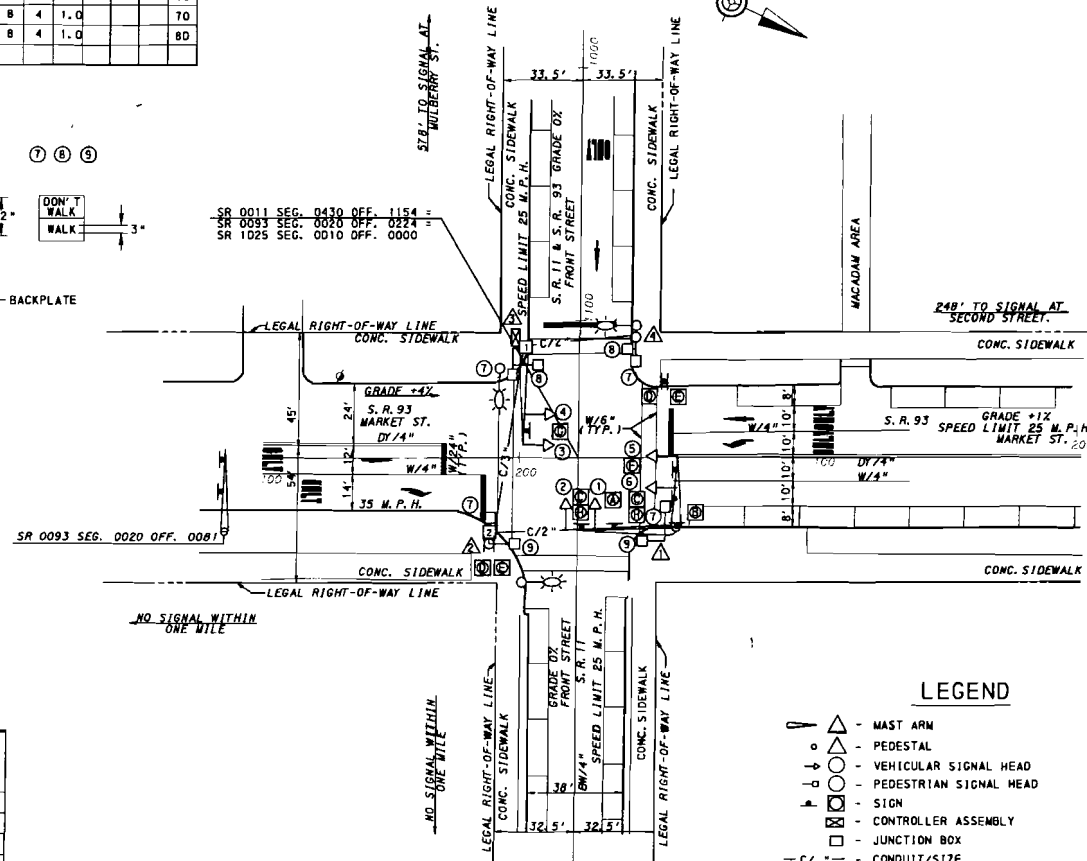
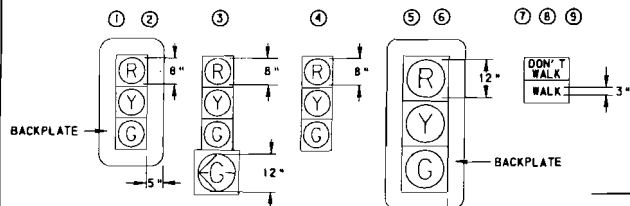
COUNTY :	COLUMBIA
MUNICIPALITY :	BOROUGH OF BERRICK
INTERSECTION :	S.R. 11 (FRONT ST.) , S.R. 93 (MARKET ST.) , AND S.R. 1025 (MARKET ST.)
REVIEWED :	
MUNICIPAL OFFICIAL	DATE
RECOMMENDED :	
DISTRICT TRAFFIC ENGINEER	DATE
SCALE :	0' 25' 50' 75'

PROGRAM NO.	CYCLE LENGTH	OFFSET/YIELD POINT					
		FRT/MUL	FRT/MUL	SEC/PIN	SEC/MKT	SEC/MUL	TWD/MKT
1	65 SEC	0 SEC	9	12	24	33	39
2	75 SEC	0 SEC	9	21	65	29	55
3	70 SEC	10 SEC	21	24	27	33	53
4	80 SEC	5 SEC	4	9	18	27	54
5	FLASH						

FRONT AND MULBERRY STREETS - MASTER OFFSET REFERENCE LOCATION
ALL OFFSETS ARE REFERENCED TO THE START OF INTERVAL NO. 1 AT THIS SIGNAL

SIGNAL	PHASE 1				PHASE 2				PHASE 3				FLASHING	OFFSET	CYCLE LENGTH
	1	2	3	4	1	2	3	4	1	2	3	4			
①	G	G	Y	R	R	R			R	R	R	R	Y		
②	R	R	R	R	G	G			G	G	Y	R	R		
③	R	R	R	R	G	G			G	G	Y	R	R		
④	R	R	R	R	G	G			G	G	Y	R	R		
⑤	R	R	R	R	G	G			G	G	Y	R	R		
⑥	W	FD	OW	DW	OW	OW			OW	OW	DW	DW	OFF		
⑦	DW	DW	DW	DW	W	W			W	FD	DW	DW	OFF		
⑧	DW	DW	DW	DW	W	W			W	FD	DW	DW	OFF		
⑨	DW	DW	DW	DW	W	W			W	FD	DW	DW	OFF		
PROGRAM #1-TIME	13	11	3.25	1.75	7	3			13	8	4	1.0			65
PROGRAM #2-TIME	23	11	3.25	1.75	7	3			13	8	4	1.0			75
PROGRAM #3-TIME	18	11	3.25	1.75	7	3			13	8	4	1.0			70
PROGRAM #4-TIME	18	11	3.25	1.75	7	3			23	8	4	1.0			80

SIGNALS





LEGEND

- △ - MAST ARM
- - PEDESTAL
- - VEHICULAR SIGNAL HEAD
- - PEDESTRIAN SIGNAL HEAD
- - SIGN
- - CONTROLLER ASSEMBLY
- - JUNCTION BOX
- C/ - CONDUIT/SIZE
- W/4" - SOLID WHITE LINE/4"
- W/6" - SOLID WHITE LINE/6"
- W/24" - SOLID WHITE LINE/24"
- BW/4" - BROKEN WHITE LINE/4"
- DY/4" - DOUBLE SOLID YELLOW LINE/4"
- - LIGHTING LUMINAIRE WITH SUPPORT

SIGNS

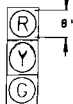
SIGN	STANDARD	DESCRIPTION	SIZE	QTY.
①	R3-2	NO LEFT TURN	30"X30"	1
②	R3-2	NO LEFT TURN	24"X24"	1
③	R10-11	NO TURN ON RED	30"X36"	2
④	R6-1R	HORIZONTAL RIGHT ONE WAY	36"X12"	2
⑤	R6-1L	HORIZONTAL LEFT ONE WAY	36"X12"	2
⑥	R6-2R	VERTICAL RIGHT ONE WAY	30"X36"	1
⑦	R6-2L	VERTICAL LEFT ONE WAY	30"X36"	1
⑧	R3-20	RESTRICTED HOURS PANEL 9AM TO 5PM	30"X24"	2

ACTUATED	PHASE 1			PHASE 2			FLASHING
							
SIGNAL	INTERVAL			INTERVAL			
①②③④	G	Y	R	R	R	R	Y
⑤⑥⑦⑧	R	R	R	G	Y	R	R
FIXED	X	3	1	X	3	1	
MINIMUM	24			1			
PASSAGE				4			
MAXIMUM				20			
PEDESTRIAN •				15			
MEMORY				NL			

• UPON PEDESTRIAN ACTUATION ONLY
NL-NON LOCKING

SIGNALS

①②③④
⑤⑥⑦⑧

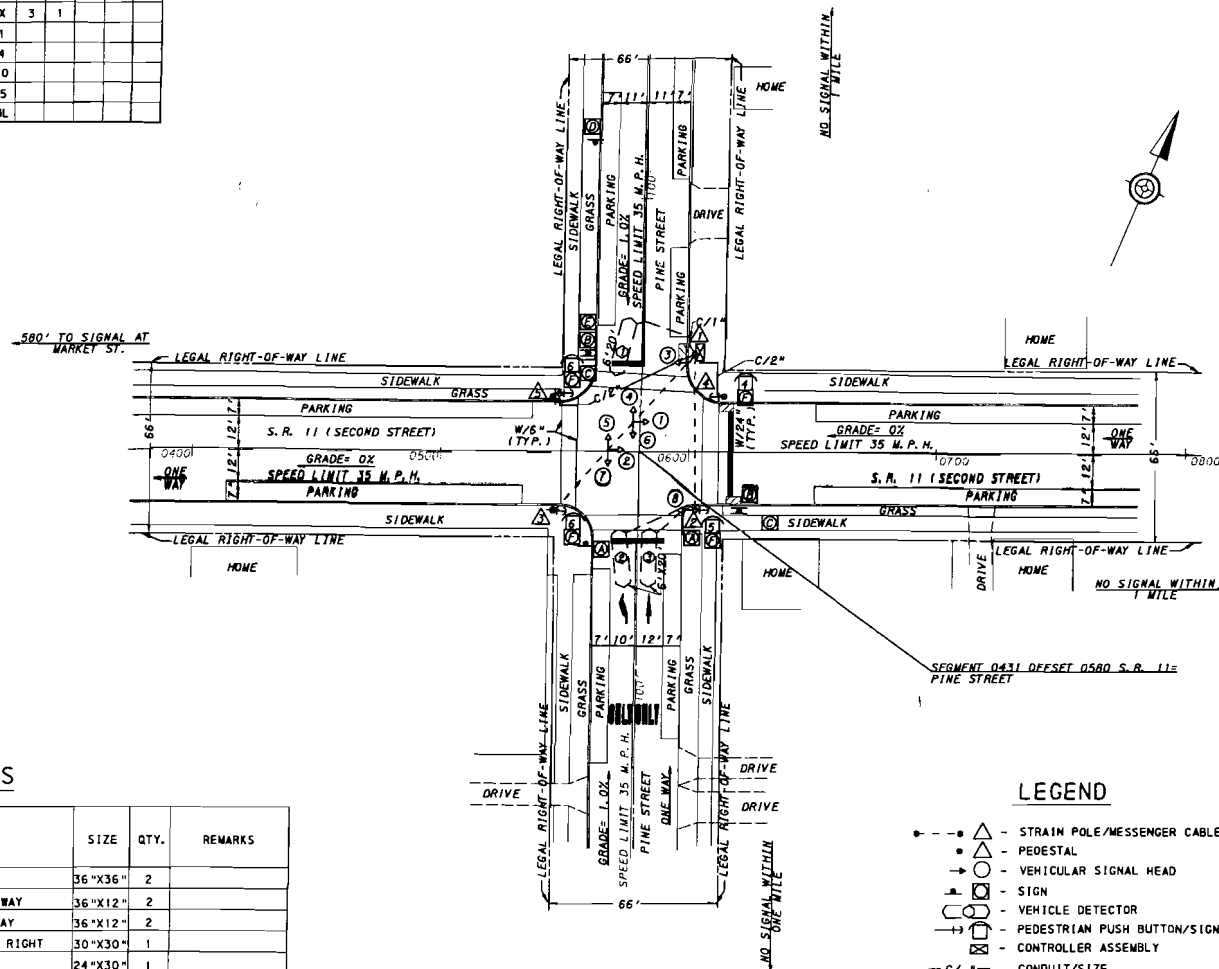


SIGNS

SIGN	STANDARD	DESCRIPTION	SIZE	QTY.	REMARKS
Ⓡ	RS-1	DO NOT ENTER	36"X36"	2	
Ⓡ	R6-1R	HORIZONTAL RIGHT ONE-WAY	36"X12"	2	
Ⓡ	R6-1L	HORIZONTAL LEFT ONE-WAY	36"X12"	2	
Ⓡ	R3-71R	ALL TRAFFIC MUST TURN RIGHT	30"X30"	1	
Ⓡ	R10-11	NO TURN ON RED	24"X30"	1	
Ⓡ	R10-3	PUSH BUTTON FOR GREEN LIGHT	9"X12"	3	RIGHT ARROW
Ⓡ	R10-3	PUSH BUTTON FOR GREEN LIGHT	9"X12"	1	LEFT ARROW

PROGRAM NUMBER	CYCLE LENGTH	PROGRAMS				
		OFFSET (SECONDS)				
		FRT/MUL	FRT/MKT	SEC/PINE	SEC/MKT	SEC/MUL
1	65 SEC.	0 SEC.	9	12	24	33
2	75 SEC.	0 SEC.	9	21	65	28
3	70 SEC.	10 SEC.	21	24	27	33
4	80 SEC.	5 SEC.	4	8	18	27
5	FLASH					54

FRONT AND MULBERRY STREETS-MASTER OFFSET REFERENCE LOCATION
ALL OFFSETS ARE REFERENCED TO THE START OF INTERVAL NO. 1 AT THIS SIGNAL



LEGEND

- △ - STRAIN POLE/MESSENGER CABLE
- - PEDESTAL
- - VEHICULAR SIGNAL HEAD
- Ⓡ - SIGN
- Ⓡ - VEHICLE DETECTOR
- Ⓡ - PEDESTRIAN PUSH BUTTON/SIGN
- Ⓡ - CONTROLLER ASSEMBLY
- C/ - CONDUIT/SIZE
- W/6" - SOLID WHITE LINE/6"
- W/24" - SOLID WHITE LINE/24"

PERMIT NO. T557-031 SHEET 2 OF 2

DATE ISSUED: 4-26-1984

DATE REVISED	REASON/COMMENTS
11-9-1984	NIGHT TIME FLASH REMOVED
4-21-2005	COMPUTERIZED DRAWING
8-31-2006	NEW PERMIT SHEET SIZE

GENERAL NOTES

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COUNTY: COLUMBIA

MUNICIPALITY: BOROUGH OF BERWICK

INTERSECTION: S.R. 11 (SECOND STREET) AND PINE STREET

REVIEWED:

MUNICIPAL OFFICIAL: DATE:

RECOMMENDED:

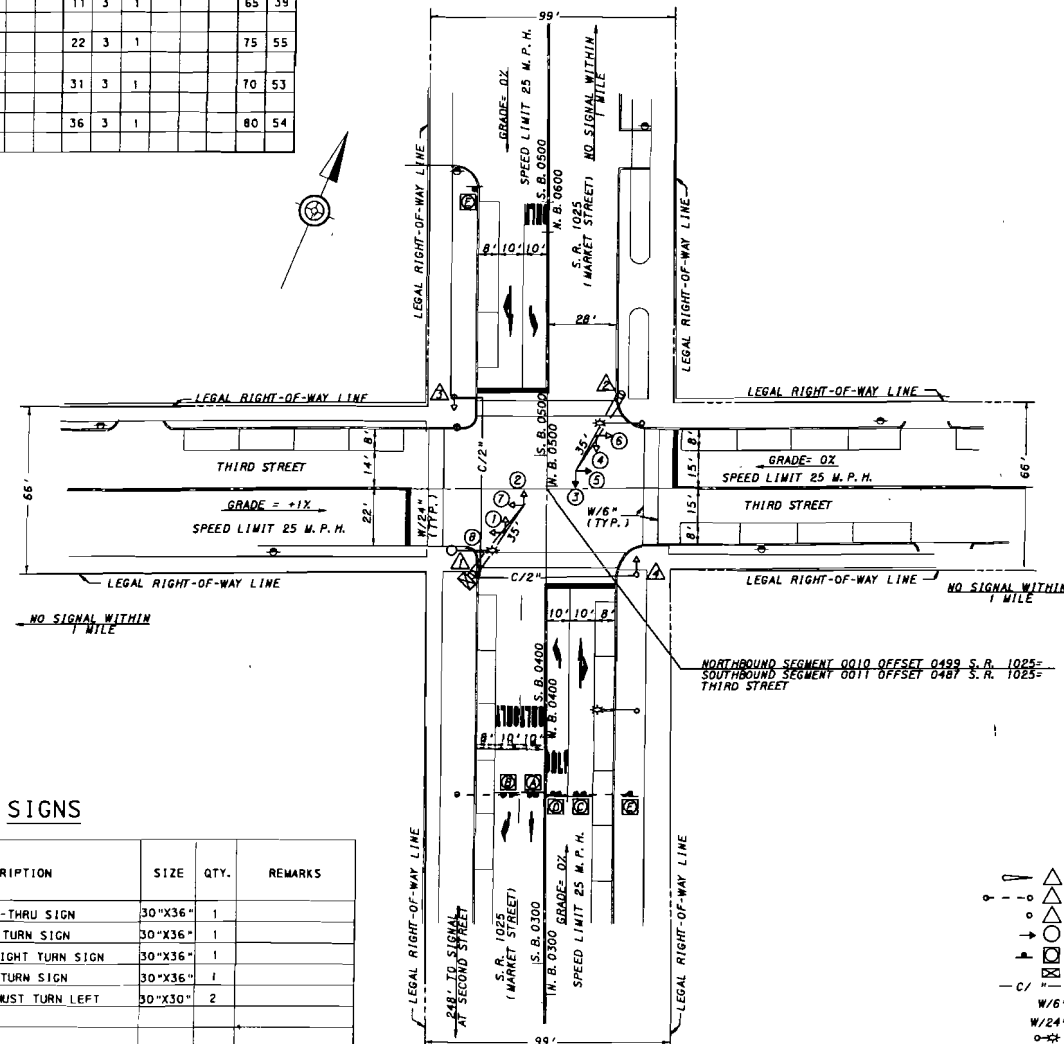
DISTRICT TRAFFIC ENGINEER: DATE:

SCALE: 0' 25' 50' 75'

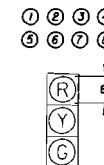
SIGNAL	PHASE 1			PHASE 2			FLASHING	CYCLE LENGTH	OFFSET
	1	2	3	4	5	6			
1 2 3 4 5 6	G	Y	R	R	R	R	Y		
5 6 7 8	R	R	R	G	Y	R	R		
PROGRAM #1									
TIME	46	3	1	11	3	1		65	39
PROGRAM #2									
TIME	45	3	1	22	3	1		75	55
PROGRAM #3									
TIME	31	3	1	31	3	1		70	53
PROGRAM #4									
TIME	36	3	1	36	3	1		80	54

PROGRAM NUMBER	CYCLE LENGTH	PROGRAMS					
		OFFSET (YIELD POINT)					
		FRT/MUL	FRT/MKT	SEC/P/INE	SEC/MKT	SEC/MUL	THO/MKT
1	65 SEC.	0 SECONDS	9	12	24	33	39
2	75 SEC.	0 SECONDS	9	21	65	28	55
3	70 SEC.	10 SECONDS	21	24	27	33	53
4	80 SEC.	5 SECONDS	4	8	18	27	54
5	FLASH						

FRONT AND MULBERRY STREETS - MASTER OFFSET REFERENCE LOCATION
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SIGNALS



SIGNS

SIGN	STANDARD	DESCRIPTION	SIZE	QTY.	REMARKS
R3-5S		STRAIGHT-THRU SIGN	30"X36"	1	
R3-5R		RIGHT TURN SIGN	30"X36"	1	
R3-6SR		OPTIONAL RIGHT TURN SIGN	30"X36"	1	
R3-5L		LEFT TURN SIGN	30"X36"	1	
R3-7L		LEFT LANE MUST TURN LEFT	30"X30"	2	

LEGEND

- △ - WAST ARM
- - STRAIN POLE/MESSENGER CABLE
- - PEDESTAL
- - VEHICULAR SIGNAL HEAD
- - SIGN
- - CONTROLLER ASSEMBLY
- C/ - CONDUIT/SIZE
- W/6" - SOLID WHITE LINE/6"
- W/24" - SOLID WHITE LINE/24"
- - LIGHTING LUMINAIRE WITH SUPPORT

DATE REVISED	REASON/COMMENTS
11-9-1984	NIGHT TIME FLASH REMOVED
4-21-2005	COMPUTERIZED DRAWING
9-5-2006	NEW PERMIT SHEET SIZE

GENERAL NOTES

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COUNTY: COLUMBIA

MUNICIPALITY: BOROUGH OF BERWICK

INTERSECTION: S.R. 1025 (MARKET STREET) AND THIRD STREET

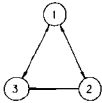


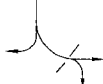
REVIEWED:

MUNICIPAL OFFICIAL: DATE:

RECOMMENDED:

DISTRICT TRAFFIC ENGINEER: DATE:

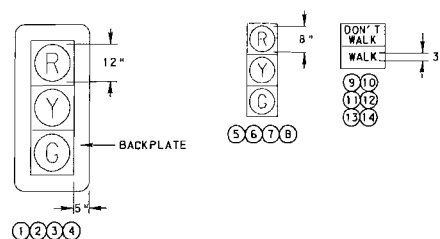
SCALE: 0' 25' 50' 75'

	PHASE 1				PHASE 2				PHASE 3				FLASHING		
															
	INTERVAL				INTERVAL				INTERVAL						
SIGNAL	1	2	3	4		1	2	3			1	2	3	4	
①②③④	G	G	Y	R		R	R	R			R	R	R	R	Y
⑤⑥	R	R	R	R		R	R	R			G	G	Y	R	R
⑦⑧	R	R	R	R		G	Y	R			R	R	R	R	R
⑨⑩⑪⑫	FL	FL	FL	DW		DW	DW	DW			DW	DW	DW	DW	OFF
⑬⑭	DW	DW	DW	DW		DW	DW	DW			FL	FL	FL	FL	OFF
FIXED		DW	4	3	2		3	2				4	3	2	
MINIMUM						2					2				
PASSAGE						3					3				
MAXIMUM						20					20				
PEDESTRIAN *	7										7				
MEMORY	MR					NL					NL				
SPLIT % AGE	50%					25%					25%				

WEEKLY PROGRAM CHART									
EVENT	WEEK	DAY	HOUR	MINUTE	SECOND	PROG. NO.	REMARKS		
1	1-52	1	01	00	00	4	FLASH		
2			05	00	00	3	FREE		
3		2-6	01	00	00	4	FLASH		
4			05	00	00	2	50 SEC.		
5			06	30	30	1	70 SEC.		
6			10	00	00	3	FREE		
7			14	00	00	1	70 SEC.		
8			18	00	00	2	50 SEC.		
9			21	30	30	3	FREE		
10		7	01	00	00	4	FLASH		
11			05	00	00	3	FREE		

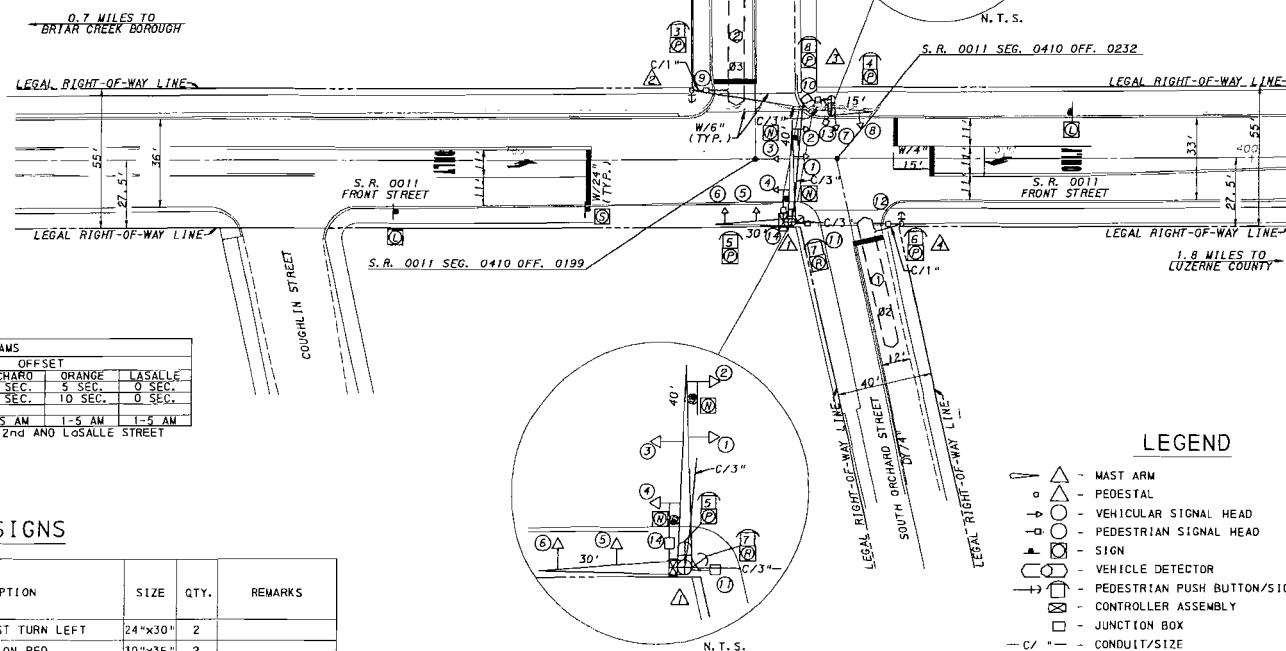
*DAY NO. 1 IS SUNDAY

SIGNALS



NOTES:
 1.) SIGNALS 1, 2, 3 AND 4 ARE EQUIPPED WITH BACKPLATES.
 2.) ALL SIGNAL ARE EQUIPPED WITH TUNNEL VISORS.

- NOTES:
 1.) * UPON PEDESTRIAN PUSHBUTTON ACTUATION ONLY.
 2.) MR - MINIMUM RECALL
 3.) NL - NON-LOCKING
 4.) LOOP ONE CALLS AND EXTENDS PHASE 2.
 5.) LOOP TWO CALLS AND EXTENDS PHASE 3.
 6.) PEDESTRIAN PUSHBUTTON 7 AND 8 CALL PHASE 3 PEDESTRIAN TIMING.
 7.) PEDESTRIAN PUSHBUTTONS 3, 4, 5 AND 6 CALL PHASE 1 PEDESTRIAN TIMING.



PROGRAMS				
PROGRAM NUMBER	CYCLE LENGTH	POPLAR	ORCHARD	OSANGE LASALLE
1	70 SEC.	10 SEC.	26 SEC.	5 SEC.
2	50 SEC.	30 SEC.	30 SEC.	10 SEC.
3	FREE			0 SEC.
4	FLASH	1-5 AM	1-5 AM	1-5 AM

MASTER CONTROLLER LOCATED AT 2ND AND LOSALLE STREET

SIGNS

SIGN	STANDARD	DESCRIPTION	SIZE	QTY.	REMARKS
①	R3-7L	LEFT LANE MUST TURN LEFT	24"x30"	2	
②	R10-11	NO TURN ON RED	30"x36"	2	
③	R10-4	PUSH BUTTON FOR WALK SIGNAL	9"x12"	5	RIGHT ARROW
④	R10-4	PUSH BUTTON FOR WALK SIGNAL	9"x12"	1	LEFT ARROW
⑤	R10-6L	STOP HERE ON RED	24"x30"	1	

LEGEND

- ▲ - MAST ARM
- - PEDESTAL
- - VEHICULAR SIGNAL HEAD
- - PEDESTRIAN SIGNAL HEAD
- - SIGN
- - VEHICLE DETECTOR
- - PEDESTRIAN PUSH BUTTON/SIGN
- - CONTROLLER ASSEMBLY
- - JUNCTION BOX
- - CONDUIT/SIZE
- W/4" - SOLID WHITE LINE/4"
- W/24" - SOLID WHITE LINE/24"
- OY/4" - DOUBLE SOLID YELLOW LINE/4"
- N.T.S. - NOT TO SCALE
- Ø - PHASE

PERMIT NO. T552-031 SHEET 2 OF 2

DATE ISSUED: 12-10-1987

DATE REVISED REASON/COMMENTS

3-11-2005 COMPUTERIZED DRAWING
 8-31-2006 NEW PERMIT SHEET SIZE

GENERAL NOTES

INSTALL, OPERATE AND MAINTAIN THIS TRAFFIC SIGNAL IN ACCORDANCE WITH ALL PENNSYLVANIA DEPARTMENT OF TRANSPORTATION REGULATIONS, SPECIFICATIONS, AND STANDARD DRAWINGS.

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

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

THE PERMITTEE INSTALLS AND MAINTAINS ALL SIGNS AND PAVEMENT MARKINGS INDICATED ON THIS DRAWING WHICH ARE CONSIDERED PART OF THE PERMIT, UNLESS OTHERWISE INDICATED. THE DEPARTMENT MAINTAINS THE LONGITUDINAL PAVEMENT MARKINGS ON STATE HIGHWAYS.

INSTALL POST MOUNTED SIGNALS WITH THE SIGNAL HEADS A MINIMUM OF 2 FEET BEHIND THE FACE OF THE CURB OR EDGE OF THE SHOULDER. ALSO, INSTALL SUPPORT POLES FOR OVERHEAD SIGNALS WITH A MINIMUM HORIZONTAL CLEARANCE OF 2 FEET.

INSTALL SIGNAL HEADS AND SIGNS ERECTED OVER THE ROADWAY WITH THE BOTTOMS NOT LESS THAN 15 FEET NOR MORE THAN 19 FEET ABOVE THE ROADWAY.

INSTALL POST MOUNTED SIGNAL HEADS WITH BOTTOMS NOT LESS THAN 8 FEET NOR MORE THAN 15 FEET ABOVE THE SIDEWALK OR PAVEMENT GRADE.

INSTALL SIGNAL HEADS WITH A MINIMUM HORIZONTAL DISTANCE OF 8 FEET BETWEEN THE HEADS AS MEASURED AT RIGHT ANGLES TO THE APPROACH.

IN ADDITION TO THIS SIGNAL PERMIT, THE PERMITTEE MUST OBTAIN A HIGHWAY OCCUPANCY PERMIT PRIOR TO ANY OPENINGS BEING MADE IN OR UNDER ANY PORTION OF A STATE HIGHWAY.

THREE WORKING DAYS PRIOR TO EXCAVATION THE PERMITTEE MUST CONTACT THE ONE-CALL SYSTEM INC., PHONE 1-800-242-1776.

CONDUIT INSTALLED IN BITUMINOUS ROADWAY LESS THAN 5 YEARS OLD, OR CONCRETE ROADWAY REGARDLESS OF AGE MUST BE BORED OR JACKED UNDER THE ROADWAY. INSTALL IN ACCORDANCE WITH TRAFFIC SIGNAL STANDARDS TC-1800 SERIES.

COUNTY: COLUMBIA

MUNICIPALITY: BOROUGH OF BERWICK

INTERSECTION: S.R. 11 (FRONT STREET) AND
 ORCHARD STREET

REVIEWED:

MUNICIPAL OFFICIAL DATE

RECOMMENDED:

DISTRICT TRAFFIC ENGINEER DATE

SCALE: 0' 25' 50' 75'

D- CADD (12-87)

SIGNAL	PHASE 2+6					PHASE 3					FLASHING
	1	2	3			1	2	3	4	5	
①②③④	G	Y	R			R	R	R	R	R	Y
⑤⑥	R	R	R			G	G	G	Y	R	R
⑦⑧	DW	DW	DW			W	FL	DW	DW	DW	OFF
FIXED	X	3	1			X	X	X	3	1	
MINIMUM	25					2					
PASSAGE						4					
MAXIMUM	45					15					
PEDESTRIAN *						7	8	1			
MEMORY	MR					NL					

* UPON PEDESTRIAN ACTUATION ONLY

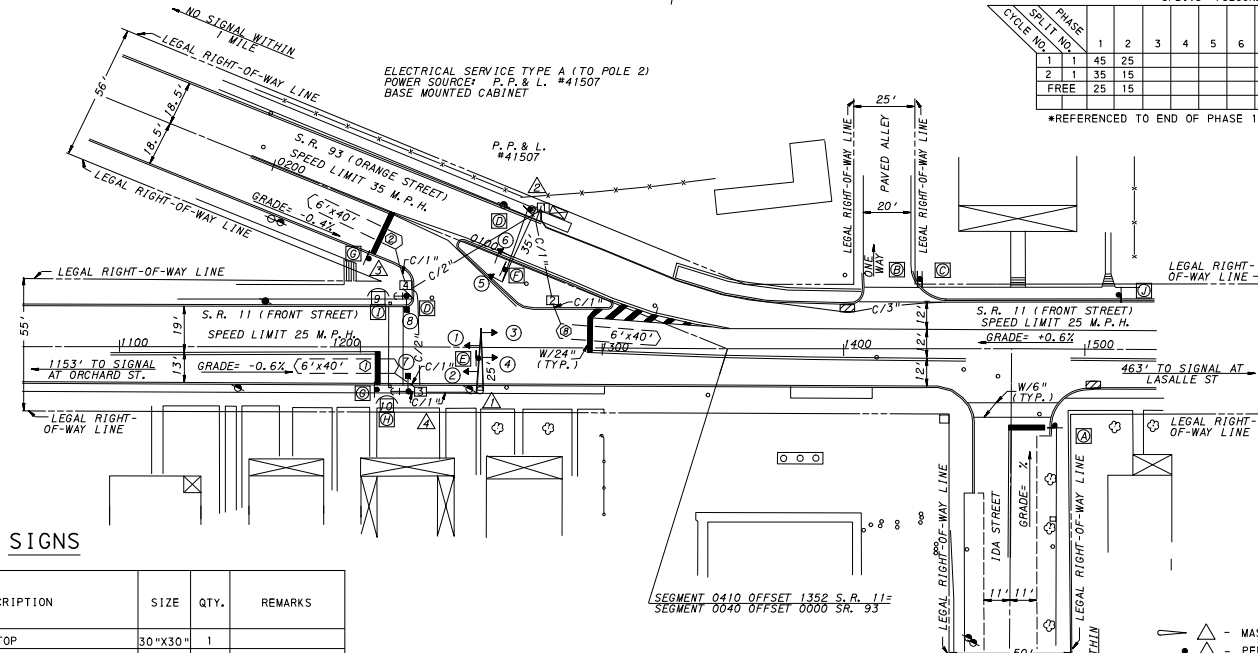
PROGRAM NUMBER	CYCLE LENGTH	PROGRAMS			
		POPLAR	ORCHARD	ORANGE	LASALLE
1	70 SEC.	10 SEC.	26 SEC.	5 SEC.	0 SEC.
2	50 SEC.	30 SEC.	30 SEC.	10 SEC.	0 SEC.
3	FREE				
4	FLASH	1-5 AM	1-5 AM	1-5 AM	1-5 AM

WEEKLY PROGRAM CHART									
EVENT	WEEK	DAY	HOUR	MINUTE	SECOND	CYCLE NO.	SPLIT NO.	REMARKS	
1	1-52	1-5	00	00	01	-	-	FREE	
2	1-52	1-5	01	00	00	-	-	FLASH	
3	1-52	1-5	05	00	00	1	1	70 SEC.	
4	1-52	1-5	20	00	00	2	1	50 SEC.	
5	1-52	1-5	22	00	00	-	-	FREE	
6	1-52	6-7	00	00	01	-	-	FREE	
7	1-52	6-7	01	00	00	-	-	FLASH	
8	1-52	6-7	08	00	00	2	1		
9	1-52	6-7	10	00	00	1	1		
10	1-52	6-7	16	00	00	2	1		
11	1-52	6-7	18	00	00	-	-	FREE	

*DAY NO. 1 IS MONDAY

PHASE CYCLE NO.	SPLITS (SECONDS)								CYCLE LENGTH	OFFSET
	1	2	3	4	5	6	7	8		
1	1	45	25						15	
2	1	35	15						10	
FREE	25	15								

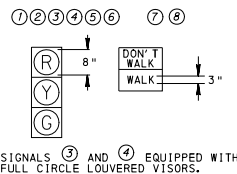
*REFERENCED TO END OF PHASE 1 GREEN



SIGNS

SIGN	STANDARD	DESCRIPTION	SIZE	QTY.	REMARKS
Ⓡ	R1-1	STOP	30"x30"	1	
Ⓛ	R6-1L	LEFT ONE WAY	36"x12"	1	
Ⓡ	R6-1R	RIGHT ONE WAY	36"x12"	1	
Ⓛ	R9-3A	NO PEDESTRIAN CROSSING	18"x18"	2	
Ⓡ	R3-2	NO LEFT TURN	30"x30"	1	
Ⓡ	R3-1	NO RIGHT TURN	30"x30"	1	
Ⓡ	R10-6L	STOP HERE ON RED	24"x30"	2	
Ⓡ	R10-4	PUSH BUTTON FOR WALK SIGNAL	9"x12"	1	LEFT ARROW
Ⓡ	R10-4	PUSH BUTTON FOR WALK SIGNAL	9"x12"	1	RIGHT ARROW
Ⓡ	R3-7R	RIGHT LANE MUST TURN RIGHT	30"x30"	1	

SIGNALS



SIGNALS ③ AND ④ EQUIPPED WITH FULL CIRCLE LOUVERED VISORS.

LEGEND

- △ - MAST ARM
- - PEDESTAL
- - VEHICULAR SIGNAL HEAD
- - PEDESTRIAN SIGNAL HEAD
- Ⓡ - SIGN
- Ⓛ - VEHICLE DETECTOR
- Ⓡ - PEDESTRIAN PUSH BUTTON/SIGN
- Ⓡ - CONTROLLER ASSEMBLY
- - JUNCTION BOX
- C/ - CONDUIT/SIZE
- W/6" - SOLID WHITE LINE/6"
- W/24" - SOLID WHITE LINE/24"

 PERMIT NO. TS31-031 SHEET 2 OF 2
 DATE ISSUED 5/26/82

DATE REVISED	REASON/COMMENTS
8/2/82	CWP
5/5/84	CWP
	COMPUTERIZED DRAWING

GENERAL NOTES

INSTALL, OPERATE AND MAINTAIN THIS TRAFFIC SIGNAL IN ACCORDANCE WITH ALL PENNSYLVANIA DEPARTMENT OF TRANSPORTATION REGULATIONS, SPECIFICATIONS, AND STANDARD DRAWINGS.

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

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

THE PERMITTEE INSTALLS AND MAINTAINS ALL SIGNS AND PAVEMENT MARKINGS INDICATED ON THIS DRAWING WHICH ARE CONSIDERED PART OF THE PERMIT, UNLESS OTHERWISE INDICATED. THE DEPARTMENT MAINTAINS THE LONGITUDINAL PAVEMENT MARKINGS ON STATE HIGHWAYS.

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THREE WORKING DAYS PRIOR TO EXCAVATION THE PERMITTEE MUST CONTACT THE ONE CALL SYSTEM INC., PHONE 1-800-242-1776.

 COUNTY : COLUMBIA
 MUNICIPALITY : BOROUGH OF BERWICK
 INTERSECTION : S.R. 11 (FRONT STREET) AND S.R. 93 (ORANGE STREET)

 REVIEWED :
 MUNICIPAL OFFICIAL :
 DATE :
 RECOMMENDED :
 DISTRICT TRAFFIC ENGINEER :
 DATE :

SCALE : 0' 25' 50' 75'

GENERAL NOTES

1. INSTALLATION, OPERATION AND MAINTENANCE OF THESE TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH THE PENNSYLVANIA DEPARTMENT OF TRANSPORTATION REGULATIONS GOVERNING THE DESIGN, LOCATION AND OPERATION OF SIGNS, SIGNALS AND MARKINGS.

2. THIS PROJECT SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE DEPARTMENT'S SPECIFICATIONS, FORM 408, DATED 1976.

3. CONSTRUCTION DETAILS, OTHER THAN THOSE ON THIS DRAWING SHALL CONFORM TO THE DEPARTMENT'S PUBLICATION 148, TRAFFIC STANDARDS SIGNALS.

4. NO MODIFICATIONS OF THIS INSTALLATION ARE PERMITTED UNLESS PRIOR APPROVAL IS GRANTED, IN WRITING, BY THE SECRETARY OF TRANSPORTATION.

5. THIS DRAWING CANNOT BE USED AS A CONSTRUCTION DRAWING UNLESS THE PERMITTEE COMPLIES WITH THE PROVISIONS OF ACT 287, PREVENTION OF DAMAGE TO UNDERGROUND UTILITIES, EFFECTIVE APRIL 10, 1975.

6. IN ADDITION TO THE SIGNAL PERMIT, THE PERMITTEE SHALL OBTAIN A HIGHWAY OCCUPANCY PERMIT PRIOR TO ANY OPENINGS BEING MADE IN OR UNDER ANY PORTION OF A STATE HIGHWAY.

7. PRIOR TO INSTALLATION, THE CONTRACTOR SHALL CONSULT WITH THE LOCAL OFFICIALS, AND UTILITY COMPANIES TO RESOLVE ANY PROBLEMS WHICH MAY BE CREATED DUE TO THE LOCATION OF ANY UTILITY LINES.

8. ALL MAINTENANCE WORK, INCLUDING TREE TRIMMING, NECESSARY FOR PROPER VISIBILITY AND OPERATION OF THE SIGNALS IS THE RESPONSIBILITY OF PERMITTEE.

9. ALL SIGNS INDICATED ON THIS DRAWING ARE CONSIDERED PART OF THE PERMIT AND SHALL BE MAINTAINED ACCORDINGLY BY THE MUNICIPALITY.

10. EXACT LOCATION OF TRAFFIC SIGNAL SUPPORTS AND DETECTORS, SHALL BE DETERMINED PRIOR TO INSTALLATION BY A REPRESENTATIVE OF THE DEPARTMENT.

11. ALL OVERHEAD SIGNS AND/OR SIGNALS SHALL BE RIGID MOUNTED.

12. CONTROLLER SHALL BE CAPABLE OF AND EQUIPPED FOR MANUAL OPERATION.

13. CONTROLLER SHALL BE EQUIPPED WITH A TIME CLOCK TO PROVIDE FOR NIGHTTIME FLASHING OPERATION.

SIGNS *

Std	Description	Size	Qty	Remarks
(D) R9-3	NO PEDESTRIAN CROSSING sign	18" x 18"	4	
(H) R10-4	PUSH BUTTON FOR WALK SIGNAL sign	9" x 12"	4	3' left arrow 1' right arrow
(K) R3-7L	LEFT LANE MUST TURN LEFT sign	30" x 30"	2	Pole no 7
(L) R3-7R	ALL TRAFFIC MUST TURN RIGHT sign	30" x 30"	2	Pole no 7
(M) R3-7L	ALL TRAFFIC MUST TURN LEFT sign	30" x 30"	1	
(N) R7-1	NO PARKING SYMBOL sign	12" x 12"	2	
(P) R5-1	DO NOT ENTER sign	30" x 30"	2	Pole no 7
(R) R5-9	WRONG WAY sign	36" x 24"	1	
(S) R10-11	NO TURN ON RED sign	30" x 36"	3	
(T) Special	See Below	36" x 48"	3	to be supplied by the Dept
(U) Special	See Below	36" x 48"	3	to be supplied by the Dept

* this sheet only
* furnished with pedestrian pushbuttons

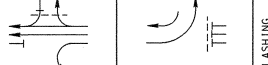
Electric Service Type A (to pole no 6)
Power Source PPEL 41551
Base Mounted Cabinet

SPLITS (SECONDS)

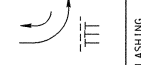
PHASE	1	2	3	4	5	6	7	8	CYCLE LENGTH
1	1	45	25						0
2	1	35	15						0
FREE	25	15							

* REFERENCE TO END OF PHASE 1 GREEN

PHASE A



PHASE B



INTERVAL

1	2	3	4	5	1	2	3	4	5
G	G	G	Y	R	R	R	R	R	Y
R	R	R	R	R	G	G	G	G	R
R	R	R	R	R	G	G	G	G	R

FIXED

25					2				
----	--	--	--	--	---	--	--	--	--

MINIMUM

4									
---	--	--	--	--	--	--	--	--	--

PASSAGE

45					25				
----	--	--	--	--	----	--	--	--	--

MAXIMUM

7	8	1			7	8	1		
---	---	---	--	--	---	---	---	--	--

PEDESTRIAN *

MR					NL				
----	--	--	--	--	----	--	--	--	--

MEMORY

* UPON PEDESTRIAN ACTUATION ONLY
MASTER CONTROLLER

DISTRICT COUNTY ROUTE SECTION SHEET
3-0 COLUMBIA 4 18N 2 of 5

BERWICK BOROUGH

REVISION NUMBER REVISIONS DATE BY

Permit No. TS30-081 Sheet 2 of 2
Date Issued 5-26-82 Date Revised

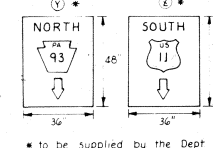
WEEKLY PROGRAM CHART

EVENT	WEEK	DAY	HOUR	MINUTE	SECOND	CYCLE NO.	SPLIT NO.	REMARKS
1	1-52	1-5	00	00	01	-	-	FREE
2	1-52	1-5	01	00	00	-	-	FLASH
3	1-52	1-5	05	00	00	1	1	70 SEC.
4	1-52	1-5	20	00	00	2	1	50 SEC.
5	1-52	1-5	22	00	00	-	-	FREE
6	1-52	6-7	00	00	01	-	-	FLASH
7	1-52	6-7	01	00	00	-	-	FLASH
8	1-52	6-7	08	00	00	2	1	
9	1-52	6-7	10	00	00	1	1	
10	1-52	6-7	16	00	00	2	1	
11	1-52	6-7	18	00	00	-	-	FREE
12								

* DAY NO. 1 IS MONDAY

FLOW DIAGRAM
1981
PEAK HOUR
3:30 - 4:30 PM

14. THE MUNICIPALITY SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF THE FOLLOWING PAVEMENT MARKINGS: ARROWS, LIMIT LINES AND CROSS WALKS.
15. CONTROLLER SHALL HAVE THE NON-LOCKING MEMORY FEATURE.
16. DETECTORS SHALL BE EQUIPPED WITH DELAY TIMERS ADJUSTABLE FROM 0 TO 30 SECONDS.
17. EXISTING TRAFFIC SIGNAL EQUIPMENT SHALL BE REMOVED AND REMAIN THE PROPERTY OF THE BOROUGH OF BERWICK.
18. THE HEIGHT TO OVERHEAD SIGNS AND SIGNALS SHALL BE 16.5'.
19. THE HEIGHT TO POST MOUNTED SIGNS SHALL BE 70'.
20. THE HEIGHT TO POST MOUNTED "DON'T WALK" WALK SIGNALS SHALL BE 8.0'.
21. LOOP DETECTOR TESTING - THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONDUCTING TWO TESTS:
1. DURING INSTALLATION AT THE JUNCTION BOX, PRIOR TO SAW CUT SEALING.
2. AFTER SEALING, AT THE CONTROLLER CABINET.
THE TESTS SHALL MEASURE CONTINUITY, LEAKAGE RESISTANCE AND INDUCTANCE WITH LOOP UNOCCUPIED AND LOOP OCCUPIED. THE RESULTS SHALL BE DOCUMENTED BY THE INSPECTOR.
THE RESULTS SHALL BE:
CONTINUITY - LESS THAN 1 OHM; LEAKAGE RESISTANCE - INFINITY; INDUCTANCE - 50 TO 400 MICROHENRIES. THE CHANGE BETWEEN UNOCCUPIED AND OCCUPIED READINGS SHALL BE IN A RANGE FROM .002% TO 4%.






* to be supplied by the Dept

SCALE
0' 25' 50'

PENNSYLVANIA DEPARTMENT OF TRANSPORTATION
DISTRICT 3-0 TRAFFIC UNIT
L R 4 Par (TR 11), Second Street
and
L R 1045 - LaSalle Street
COUNTY - COLUMBIA
MUNICIPALITY - BOROUGH OF BERWICK
DRAWN BY DATE
REVIEWED *James R. Patten* DATE *5/1/81*
Borough Engineer
MUNICIPALITY
RECOMMENDED *Pa Dept of Trans* DATE *5-11-81*
James E. Sapill
DISTRICT TRAFFIC ENGINEER

FILE NAME: L3-NV-11-PROJECTS; 9-UNLOADED PERMITS ON NEW SHEETS: TS237-031-SR 11 (SECOND STREET) AND OAK STREET-001
 PLOTTER: 15-FEB-2010 13:22
 0-NV1 CAD0 02-390 REVISED 10-541

	PHASE 1						PHASE 2						PHASE TRK CLR						PHASE RR						FLASHING
													SEE NOTES												
	INTERVAL						INTERVAL						INTERVAL						INTERVAL						
SIGNAL	1	2	3				1	2	3							1	2	3				Y			
① ② ③ ④ ⑤ ⑥	G	Y	R				R	R	R							R	R	R							
⑦ ⑧ ⑨ ⑩ ⑪ ⑫	R	R	R				G	Y	R							G	Y	R				R			
FOLDING SIGNS ⑬	CL	CL	CL				CL	CL	CL							OP	OP	CL				CL			
FIXED		4.0	2.0					4.0	1.0							**	4.0	1.0							
MINIMUM	30						4																		
PASSAGE							4																		
MAXIMUM							25																		
PEDESTRIAN *							15																		
MEMORY							NL																		

NOTES:
 FLASHING FROM 10:00 P.M. TO 5:30 A.M.
 * UPON PEDESTRIAN ACTUATION ONLY
 ** DURATION OF TRAIN
 OP-OPEN
 CL-CLOSED
 NL - NON-LOCKING

PREEMPTION NOTES

IF TRAIN PREEMPTION OCCURS DURING:

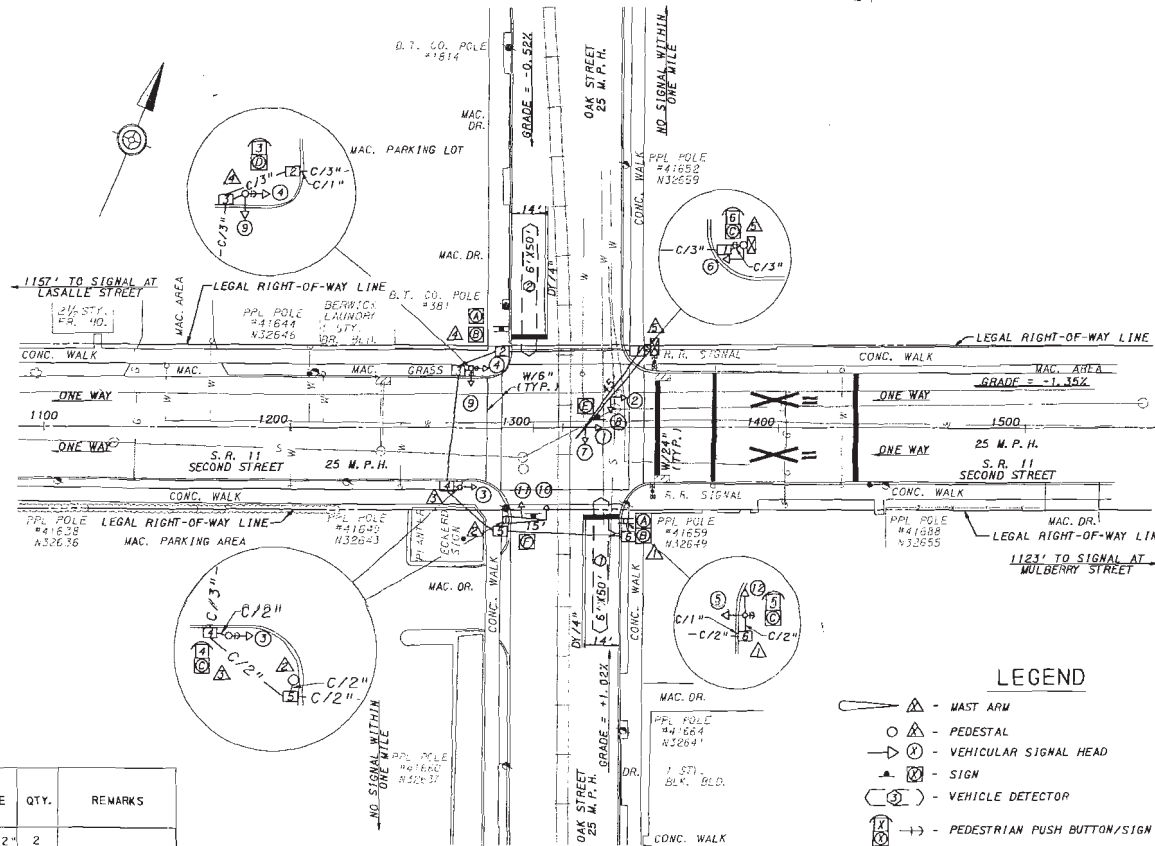
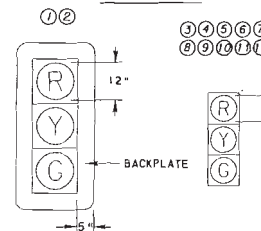
- PHASE 1, INTERVAL 1: TERMINATE THE GREENS AND GREEN ARROW IMMEDIATELY FOLLOWED BY INTERVAL 2, INTERVAL 3 AND PHASE RR INTERVAL 1.
- INTERVAL 2: ALLOW THE INTERVAL TO TIME OUT; FOLLOWED BY INTERVAL 3 AND PHASE RR INTERVAL 1.
- INTERVAL 3: ALLOW THE INTERVAL TO TIME OUT; FOLLOWED BY PHASE RR INTERVAL 1.
- PHASE 2, INTERVAL 1: IMMEDIATELY ADVANCE TO PHASE RR INTERVAL 1.
- INTERVAL 2: ALLOW THE INTERVAL TO TIME OUT; FOLLOWED BY INTERVAL 3 AND PHASE RR INTERVAL 1.
- INTERVAL 3: ALLOW THE INTERVAL TO TIME OUT; FOLLOWED BY PHASE RR INTERVAL 1.
- PHASE RR, INTERVAL 1: ALLOW THE CONTROLLER TO CONTINUE IN INTERVAL 1.
- INTERVAL 2: ALLOW THE INTERVAL TO TIME OUT; FOLLOWED BY INTERVAL 3 AND PHASE RR, INTERVAL 1.
- INTERVAL 3: ALLOW THE INTERVAL TO TIME OUT; FOLLOWED BY PHASE RR INTERVAL 1.

EMERGENCY FLASH, THE CONTROLLER SHOULD REMAIN IN FLASH AND SIGN ⑩ SHOULD OPEN (ON).
 UPON COMPLETION OF PREEMPTION, CONTROLLER SHOULD RETURN TO NORMAL OPERATION.

SIGNS

SIGN	STANDARD	DESCRIPTION	SIZE	QTY.	REMARKS
⑩	R6-1R	HORIZONTAL RIGHT ONE WAY	36"x12"	2	
⑪	R6-1L	HORIZONTAL LEFT ONE WAY	36"x12"	2	
⑫	R10-3	PUSH BUTTON FOR GREEN LIGHT	9"x12"	3	RIGHT ARROW
⑬	R10-3	PUSH BUTTON FOR GREEN LIGHT	9"x12"	1	LEFT ARROW
⑭	R6-2L	VERTICAL LEFT ONE WAY	24"x30"	1	CHANGEABLE MESSAGE
⑮	R3-2	NO LEFT TURN	24"x24"	1	FOLDING SIGN
⑯	R6-2R	VERTICAL RIGHT ONE WAY	24"x30"	1	

SIGNALS



LEGEND

- △ - MAST ARM
- - PEDESTAL
- ⊙ - VEHICULAR SIGNAL HEAD
- ⊙ - SIGN
- ⊙ - VEHICLE DETECTOR
- ⊙ - PEDESTRIAN PUSH BUTTON/SIGN
- ⊙ - CONTROLLER ASSEMBLY
- ⊙ - JUNCTION BOX
- C/X - CONDUIT/SIZE
- W/6" - SOLID WHITE LINE/6"
- W/24" - SOLID WHITE LINE/24"
- DY/4" - DOUBLE SOLID YELLOW LINE/4"

PERMIT NO. TS237-031 SHEET 2 OF 2

DATE ISSUED: 12-01-2000

DATE REVISED	REASON/COMMENTS
9-12-2006	NEW PERMIT SHEET SIZE

GENERAL NOTES

INSTALL, OPERATE AND MAINTAIN THIS TRAFFIC SIGNAL IN ACCORDANCE WITH ALL PENNSYLVANIA DEPARTMENT OF TRANSPORTATION REGULATIONS, SPECIFICATIONS, AND STANDARD DRAWINGS.

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INSTALL POST MOUNTED SIGNALS WITH THE SIGNAL HEADS A MINIMUM OF 2 FEET BEHIND THE FACE OF THE CURB OR EDGE OF THE SHOULDER. ALSO, INSTALL SUPPORT POLES FOR OVERHEAD SIGNALS WITH A MINIMUM HORIZONTAL CLEARANCE OF 2 FEET.

INSTALL SIGNAL HEADS AND SIGNS ERECTED OVER THE ROADWAY WITH THE BOTTOMS NOT LESS THAN 15 FEET NOR MORE THAN 19 FEET ABOVE THE ROADWAY.

INSTALL POST MOUNTED SIGNAL HEADS WITH BOTTOMS NOT LESS THAN 8 FEET NOR MORE THAN 15 FEET ABOVE THE SIDEWALK OR PAVEMENT GRADE.

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CONDUIT MUST BE BITUMINOUS ROADWAY LESS THAN 5 YEARS OLD, OR CONCRETE ROADWAY REGARDLESS OF AGE MUST BE BORED OR JACKED UNDER THE ROADWAY. INSTALL IN ACCORDANCE WITH TRAFFIC SIGNAL STANDARDS TC-1800 SERIES.

COUNTY: COLUMBIA

MUNICIPALITY: BOROUGH OF BERWICK

INTERSECTION: S.R. 11 (SECOND STREET) AND OAK STREET

REVIEWED:

MUNICIPAL OFFICIAL: DATE:

RECOMMENDED:

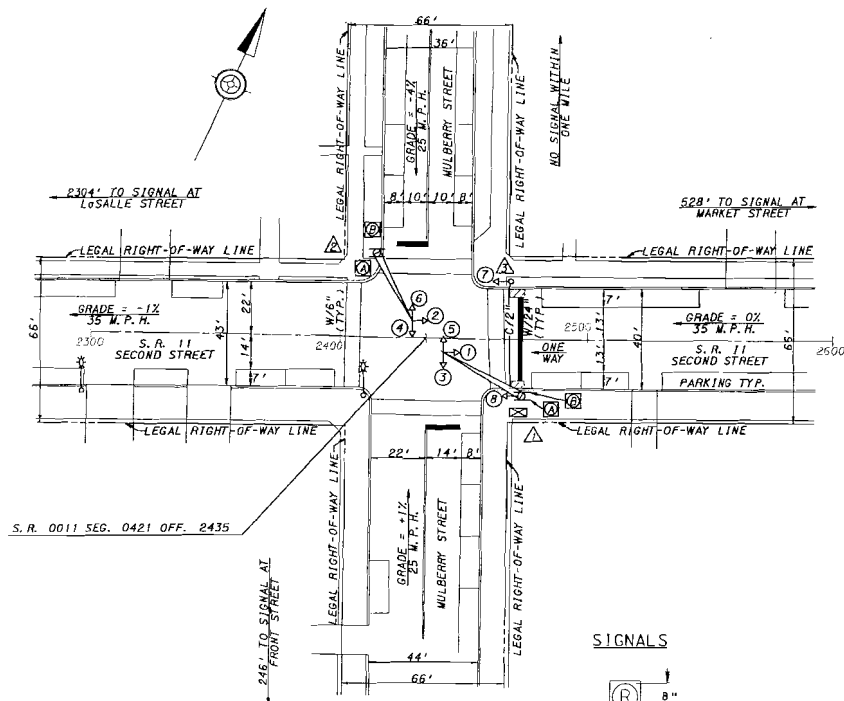
DISTRICT TRAFFIC ENGINEER: DATE:

SCALE: 0' 25' 50' 75'

PHASE 1				PHASE 2				FLASHING
INTERVAL				INTERVAL				
SIGNAL	1	2	3	4	5	6		
①②⑦⑧	G	Y	R	R	R	R		Y
③④⑤⑥	R	R	R	G	Y	R		R
PROGRAM #1								
TIME	35	3	1	22	3	1	65 SECONDS	
PROGRAM #2								
TIME	53	3	1	14	3	1	75 SECONDS	
PROGRAM #3								
TIME	43	3	1	19	3	1	70 SECONDS	
PROGRAM #4								
TIME	53	3	1	19	3	1	80 SECONDS	

TIME BASED COORDINATOR PROGRAMMING DATA									
PROGRAMS									
PROGRAM NUMBER	CYCLE LENGTH	RTY / MWT SEC	MUL / MWT SEC	RTY / MWT SEC	PIN / SEC	MWT / SEC	MUL / THD / MWT		
1	65 SEC	10 SECONDS	9	12	24	28	33		
2	75 SEC	10 SECONDS	9	21	24	28	33		
3	70 SEC	10 SECONDS	21	24	27	33	53		
4	80 SEC	5 SECONDS	4	8	18	27	54		
5	FLASH								

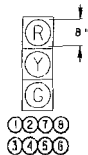
FRONT AND MULBERRY STREETS - MASTER OFFSET REFERENCE LOCATION
ALL OFFSETS ARE REFERENCE TO THE START OF INTERVAL NUMBER 1 AT THIS SIGNAL



SIGNS

SIGN	STANDARD	DESCRIPTION	SIZE	QTY.	REMARKS
R6-1L		HORIZONTAL LEFT ONE-WAY SIGN	36"x12"	2	
R6-1R		HORIZONTAL RIGHT ONE-WAY SIGN	36"x12"	2	

SIGNALS



LEGEND

- MAST ARM
- PEDESTAL
- VEHICULAR SIGNAL HEAD
- SIGNAL
- CONTROLLER ASSEMBLY
- CONDUIT/SIZE
- SOLID WHITE LINE/6"
- SOLID WHITE LINE/24"
- LIGHTING LUMINAIRE WITH SUPPORT

PERMIT NO. T555-031 SHEET 2 OF 2

DATE ISSUED: 4-26-1984

DATE REVISED	REASON/COMMENTS
4-21-2005	COMPUTERIZED DRAWING
8-31-2006	NEW PERMIT SHEET SIZE

GENERAL NOTES

INSTALL, OPERATE AND MAINTAIN THIS TRAFFIC SIGNAL IN ACCORDANCE WITH ALL PENNSYLVANIA DEPARTMENT OF TRANSPORTATION REGULATIONS, SPECIFICATIONS, AND STANDARD DRAWINGS.

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

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

THE PERMITTEE INSTALLS AND MAINTAINS ALL SIGNS AND PAVEMENT MARKINGS INDICATED ON THIS DRAWING WHICH ARE CONSIDERED PART OF THE PERMIT, UNLESS OTHERWISE INDICATED. THE DEPARTMENT MAINTAINS THE LONGITUDINAL PAVEMENT MARKINGS ON STATE HIGHWAYS.

INSTALL POST MOUNTED SIGNALS WITH THE SIGNAL HEADS A MINIMUM OF 2 FEET BEHIND THE FACE OF THE CURB OR EDGE OF THE SHOULDER. ALSO, INSTALL SUPPORT POLES FOR OVERHEAD SIGNALS WITH A MINIMUM HORIZONTAL CLEARANCE OF 2 FEET.

INSTALL SIGNAL HEADS AND SIGNS ERECTED OVER THE ROADWAY WITH THE BOTTOMS NOT LESS THAN 15 FEET NOR MORE THAN 19 FEET ABOVE THE ROADWAY.

INSTALL POST MOUNTED SIGNAL HEADS WITH BOTTOMS NOT LESS THAN 8 FEET NOR MORE THAN 15 FEET ABOVE THE SIDEWALK OR PAVEMENT GRADE.

INSTALL SIGNAL HEADS WITH A MINIMUM HORIZONTAL DISTANCE OF 8 FEET BETWEEN THE HEADS AS MEASURED AT RIGHT ANGLES TO THE APPROACH.

IN ADDITION TO THIS SIGNAL PERMIT, THE PERMITTEE MUST OBTAIN A HIGHWAY OCCUPANCY PERMIT PRIOR TO ANY OPENINGS BEING MADE IN OR UNDER ANY PORTION OF A STATE HIGHWAY.

THREE WORKING DAYS PRIOR TO EXCAVATION THE PERMITTEE MUST CONTACT THE ONE-CALL SYSTEM INC., PHONE 1-800-242-1776.

CONDUIT INSTALLED IN BITUMINOUS ROADWAY LESS THAN 5 YEARS OLD, OR CONCRETE ROADWAY REGARDLESS OF AGE MUST BE BORED OR JACKED UNDER THE ROADWAY. INSTALL IN ACCORDANCE WITH TRAFFIC SIGNAL STANDARDS TC-7800 SERIES.

COUNTY : COLUMBIA

MUNICIPALITY : BOROUGH OF BERWICK

INTERSECTION : S.R. 11 (SECOND STREET) AND MULBERRY STREET



REVIEWED :

MUNICIPAL OFFICIAL DATE

RECOMMENDED :

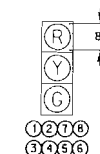
DISTRICT TRAFFIC ENGINEER DATE

SCALE : 0' 25' 50' 75'

FRONT STREET AND MULBERRY STREET	PHASE 1			PHASE 2			FLASHING
							
	INTERVAL			INTERVAL			
SIGNAL	1	2	3	4	5	6	
①②③④	G	Y	R	R	R	R	Y
③④⑤⑥	R	R	R	G	Y	R	R
PROGRAM #1							
TIME	46	3	1	11	3	1	65 SECONDS
PROGRAM #2							
TIME	51	3	1	16	3	1	75 SECONDS
PROGRAM #3							
TIME	43	3	1	19	3	1	70 SECONDS
PROGRAM #4							
TIME	47	3	1	25	3	1	80 SECONDS

TIME BASED COORDINATOR PROGRAMMING DATA									
PROGRAMS									
PROGRAM NUMBER	CYCLE LENGTH	FRY / MUL	FRY / MUL	OFFSET / YIELD POINT	FRY / MUL	FRY / MUL	FRY / MUL	FRY / MUL	FRY / MUL
1	65 SEC. 0 SECONDS	3	12	24	33	39			
2	75 SEC. 0 SECONDS	3	21	24	28	35			
3	70 SEC. 10 SECONDS	2	24	27	33	53			
4	80 SEC. 5 SECONDS	4	8	18	27	54			
5	FLASH								

SIGNALS



GENERAL NOTES

INSTALL, OPERATE AND MAINTAIN THIS TRAFFIC SIGNAL IN ACCORDANCE WITH ALL PENNSYLVANIA DEPARTMENT OF TRANSPORTATION REGULATIONS, SPECIFICATIONS, AND STANDARD DRAWINGS.

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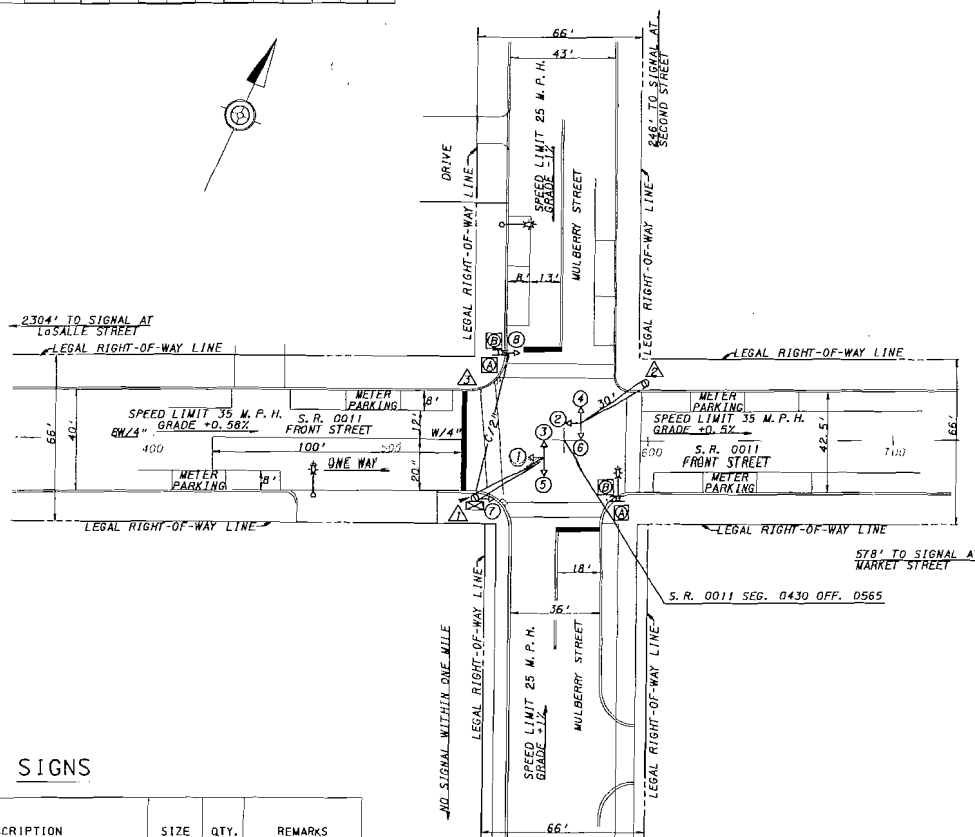
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SIGNS

SIGN	STANDARD	DESCRIPTION	SIZE	QTY.	REMARKS
①	R6-1L	HORIZONTAL LEFT ONE-WAY	36"x12"	2	
②	R6-1R	HORIZONTAL RIGHT ONE-WAY	36"x12"	2	

LEGEND

- △ - MAST ARM
- - PEDESTAL
- - VEHICULAR SIGNAL HEAD
- ⊗ - CONTROLLER ASSEMBLY
- C/ - CONDUIT/SIZE
- W/4" - SOLID WHITE LINE/4"
- W/24" - SOLID WHITE LINE/24"
- BW/4" - BROKEN WHITE LINE/4"
- - LIGHTING LUMINAIRE WITH SUPPORT

COUNTY : COLUMBIA

MUNICIPALITY : BOROUGH OF BERWICK

INTERSECTION : S.R. 11 (FRONT STREET) AND MULBERRY STREET

REVIEWED : _____

MUNICIPAL OFFICIAL _____ DATE _____

RECOMMENDED : _____

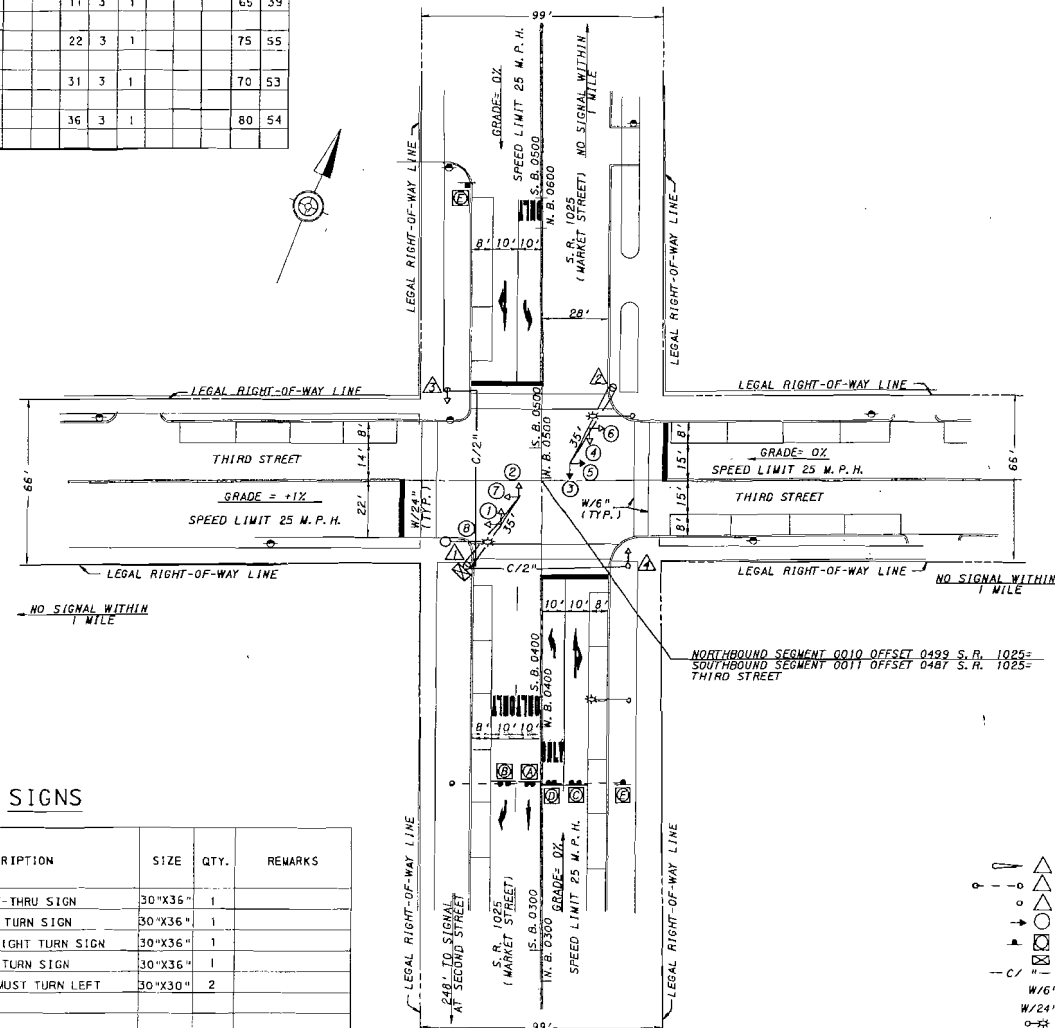
DISTRICT TRAFFIC ENGINEER _____ DATE _____

SCALE : 0' 25' 50' 75'

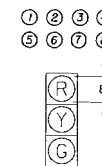
SIGNAL	PHASE 1			PHASE 2			FLASHING	CYCLE LENGTH	OFFSET
	1	2	3	4	5	6			
① ② ③ ④ ⑤ ⑥ ⑦ ⑧	G	Y	R	R	R	R	Y		
⑤ ⑥ ⑦ ⑧	R	R	R	G	Y	R	R		
PROGRAM #1									
TIME	46	3	1		11	3	1	65	39
PROGRAM #2									
TIME	45	3	1		22	3	1	75	55
PROGRAM #3									
TIME	31	3	1		31	3	1	70	53
PROGRAM #4									
TIME	36	3	1		36	3	1	80	54

PROGRAM NUMBER	CYCLE LENGTH	PROGRAMS					
		OFFSET (YIELD POINT)					
		FRT/MUL	FRT/MKT	SEC/PINE	SEC/MKT	SEC/MUL	THD/MKT
1	65 SEC.	0 SECONDS	9	12	24	33	39
2	75 SEC.	0 SECONDS	9	21	65	28	55
3	70 SEC.	10 SECONDS	21	24	27	33	53
4	80 SEC.	5 SECONDS	4	8	18	27	54
5	FLASH						

FRONT AND MULBERRY STREETS - MASTER OFFSET REFERENCE LOCATION
ALL OFFSETS ARE REFERENCED TO THE START OF INTERVAL NO. 1 AT THIS SIGNAL



SIGNALS



SIGNS

SIGN	STANDARD	DESCRIPTION	SIZE	QTY.	REMARKS
①	R3-5S	STRAIGHT-THRU SIGN	30"x36"	1	
②	R3-5R	RIGHT TURN SIGN	30"x36"	1	
③	R3-6SR	OPTIONAL RIGHT TURN SIGN	30"x36"	1	
④	R3-5L	LEFT TURN SIGN	30"x36"	1	
⑤	R3-7L	LEFT LANE MUST TURN LEFT	30"x30"	2	

LEGEND

- △ - WAST ARM
- - STRAIN POLE/MESSENGER CABLE
- - PEDESTAL
- - VEHICULAR SIGNAL HEAD
- △ - SIGN
- - CONTROLLER ASSEMBLY
- C - CONDUIT/SIZE
- W/6" - SOLID WHITE LINE/6"
- W/24" - SOLID WHITE LINE/24"
- - LIGHTING LUMINAIRE WITH SUPPORT

PERMIT NO. TS58-031 SHEET 2 OF 2

DATE ISSUED: 4-26-1984

DATE REVISED	REASON/COMMENTS
11-9-1984	NIGHT TIME FLASH REMOVED
4-21-2005	COMPUTERIZED DRAWING
9-5-2006	NEW PERMIT SHEET SIZE

GENERAL NOTES

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COUNTY: COLUMBIA

MUNICIPALITY: BOROUGH OF BERWICK

INTERSECTION: S.R. 1025 (MARKET STREET) AND
THIRD STREET

REVIEWED:

MUNICIPAL OFFICIAL DATE

RECOMMENDED:

DISTRICT TRAFFIC ENGINEER DATE

SCALE: 0' 25' 50' 75'

9- CAD0 (12-87)

	PHASE 2			PHASE 3			PHASE 4			PHASE 8 *			FLASHING	
	INTERVAL			INTERVAL			INTERVAL			INTERVAL				
SIGNAL	1	2	3	4	5		6	7	8	9	10	11	12	
①	G	Y	R	R	R		R	R	R	R	R	R	R	Y
②	R	R	R	R	R		G	G	Y	R	R	R	R	R
③	R	R	R	R	R		G	G	Y	R	R	R	R	R
⑤	R	R	R	R	R		G	G	Y	R	R	R	R	R
⑥	R	R	R	R	R		G	G	Y	R	R	R	R	R
⑦⑧⑨⑩⑪⑫	DW	DW	DW		DW	DW		DW	DW	DW	DW		DW	OFF
⑬⑭	DW	DW	DW		W	W		W	FLO	DW	DW	FL	DW	OFF
PROGRAM #1	65 SECOND CYCLE													
TIME	20	3.5	1.5	7	3		19	6.5	3.5	1.0				
TIME-PEDS *	12	3.5	1.5	7	3		9	6.5	3.5	1.0	7	10	1	
PROGRAM #2	75 SECOND CYCLE													
TIME	30	3.5	1.5	7	3		19	6.5	3.5	1.0				
TIME-PEDS *	19	3.5	1.5	7	3		12	6.5	3.5	1.0	7	10	1	
PROGRAM #3	70 SECOND CYCLE													
TIME	23	3.5	1.5	7	3		21	6.5	3.5	1.0				
TIME-PEDS *	16	3.5	1.5	7	3		10	6.5	3.5	1.0	7	10	1	
PROGRAM #4	80 SECOND CYCLE													
TIME	28	3.5	1.5	14	3		19	6.5	3.5	1.0				
TIME-PEDS *	19	3.5	1.5	14	3		10	6.5	3.5	1.5	7	10	1	

* UPON PEDESTRIAN PUSHBUTTON ACTUATION.

① REMAINS "WALK" IF FOLLOWED BY PHASE 8.

PROGRAMS									
PROGRAM NO.	CYCLE LENGTH	OFFSET/YIELD POINT							
		FRT/MUL	FRT/MKT	SEC/PIN	SEC/MUL	SEC/MUL	THD/MKT	THD/MKT	THD/MKT
1	65 SEC.	0 SEC.	9	12	24	33	39		
2	75 SEC.	0 SEC.	9	21	65	28	55		
3	70 SEC.	10 SEC.	21	24	27	33	53		
4	80 SEC.	5 SEC.	4	8	18	27	54		
5	FLASH								

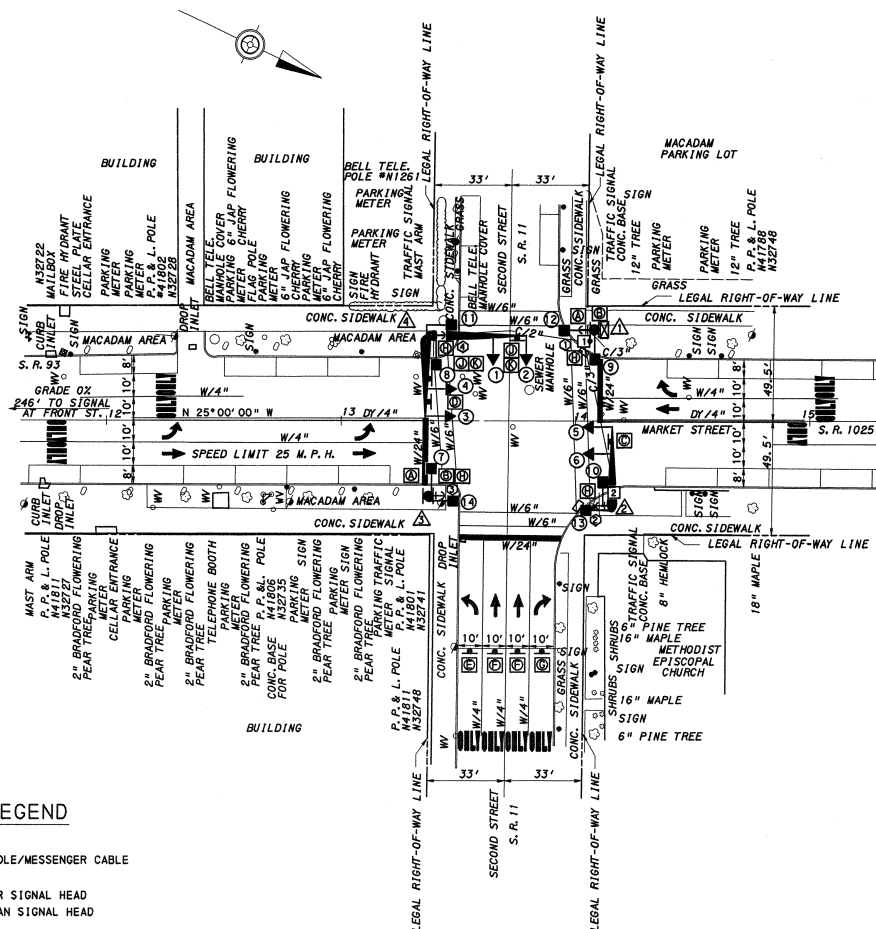
FRONT AND MULBERRY STREETS- MASTER OFFSET REFERENCE LOCATION
ALL OFFSETS ARE REFERENCED TO THE START OF INTERVAL NO. 1 AT THIS SIGNAL

LEGEND

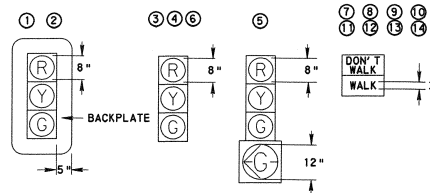
- MAST ARM
- STRAIN POLE/MESSENGER CABLE
- PEDESTAL
- VEHICULAR SIGNAL HEAD
- PEDESTRIAN SIGNAL HEAD
- SIGN
- VEHICLE DETECTOR
- PEDESTRIAN PUSH BUTTON/SIGN
- CONTROLLER ASSEMBLY
- JUNCTION BOX
- CONDUIT/PIPE
- W/4" - SOLID WHITE LINE/4"
- W/6" - SOLID WHITE LINE/6"
- W/24" - SOLID WHITE LINE/24"
- BW/4" - BROKEN WHITE LINE/4"
- Y/4" - SOLID YELLOW LINE/4"
- BY/4" - BROKEN YELLOW LINE/4"
- DY/4" - DOUBLE SOLID YELLOW LINE/4"
- LIGHTING LUMINAIRE WITH SUPPORT

SIGNS (FOR INFORMATION ONLY)

SIGN	STANDARD	DESCRIPTION	SIZE	QTY.
Ⓡ	R6-1L	HORIZONTAL LEFT ONE WAY	36"x12"	2
Ⓡ	R6-1R	HORIZONTAL RIGHT ONE WAY	36"x12"	2
Ⓡ	R6-2L	VERTICAL LEFT ONE WAY	30"x36"	1
Ⓡ	R6-2R	VERTICAL RIGHT ONE WAY	30"x36"	1
Ⓡ	R3-5L	LEFT TURN SIGN	30"x36"	1
Ⓡ	R3-5S	STRAIGHT THROUGH SIGN	30"x36"	2
Ⓡ	R3-5R	RIGHT TURN SIGN	30"x36"	1
Ⓡ	R10-4	PUSH BUTTON FOR WALK SIGNAL	9"x12"	4
Ⓡ	R10-11	NO TURN ON RED	30"x36"	2
Ⓡ	R3-20	RESTRICTED HOURS PANEL 9 AM TO 5 PM	30"x24"	2



SIGNALS


 PERMIT NO. T256-031 SHEET 2 OF 2
 DATE ISSUED 4-26-84 DATE REVISED

GENERAL NOTES

INSTALL, OPERATE AND MAINTAIN THIS TRAFFIC SIGNAL IN ACCORDANCE WITH PENNSYLVANIA DEPARTMENT OF TRANSPORTATION REGULATIONS ON OFFICIAL TRAFFIC CONTROL DEVICES.

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THIS DRAWING CANNOT BE USED AS A CONSTRUCTION DRAWING UNLESS THE PERMITTEE COMPLIES WITH THE PROVISIONS OF ACT 287. PREVENTION OF DAMAGE TO UNDERGROUND UTILITIES. PRIOR TO CONSTRUCTION CONSULT WITH UTILITY COMPANIES TO RESOLVE ANY PROBLEMS WHICH MAY BE CREATED DUE TO THE LOCATION OF UTILITIES.

DRAWING REVISED 2-13-95

COUNTY : COLUMBIA

MUNICIPALITY : BERWICK BOROUGH

INTERSECTION : MARKET ST. AND SECOND ST.

REVIEWED :



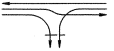
 [Signature] 10 MAY 1990
 MUNICIPAL OFFICIAL DATE

RECOMMENDED :

 [Signature] May 11, 1990
 DISTRICT TRAFFIC ENGINEER DATE

SCALE : 0' 25' 50' 75'

B- CAD0 (12-87)

															PHASE 1				PHASE 2				PHASE 3				FLASHING OFFSET		CYCLE LENGTH	
																														
SIGNAL		INTERVAL				INTERVAL				INTERVAL				<div>①</div> <div>③</div> <div>④</div> <div>⑤</div> <div>⑥</div> <div>⑦</div>		OFF		OFF		OFF										
1	2	3	4	1	2					1	2	3	4																	
①	G	G	Y	R	R	R				R	R	R	R									Y								
③	R	R	R	R	G	G				G	G	Y	R									R								
④	R	R	R	R	G	G				G	G	Y	R									R								
⑤	R	R	R	R	R	R				G	G	Y	R									R								
⑥	W	FD	DW	DW	DW	DW				DW	DW	DW	DW									OFF								
⑦	DW	DW	DW	DW	W	W				W	FD	DW	DW	OFF																
⑦	DW	DW	DW	DW	DW	DW				W	FD	DW	DW	OFF																
PROGRAM #1-TIME		13	11	3.25	1.75	7	3				13	8	4	1.0			65													
PROGRAM #2-TIME		23	11	3.25	1.75	7	3				13	8	4	1.0			75													
PROGRAM #3-TIME		18	11	3.25	1.75	7	3				13	8	4	1.0			70													
PROGRAM #4-TIME		18	11	3.25	1.75	7	3				23	8	4	1.0			80													

PROGRAM NO.	CYCLE LENGTH	OFFSETS/YIELD POINT					
		FRT/MUL	FRT/MUL	SEC/PIN	SEC/MUL	THD/MUL	THD/MUL
1	65 SEC. 0 SEC.	9	12	24	33	39	
2	75 SEC. 0 SEC.	9	21	65	28	55	
3	70 SEC. 10 SEC.	21	24	27	33	53	
4	80 SEC. 5 SEC.	4	8	18	27	54	
5	FLASH						

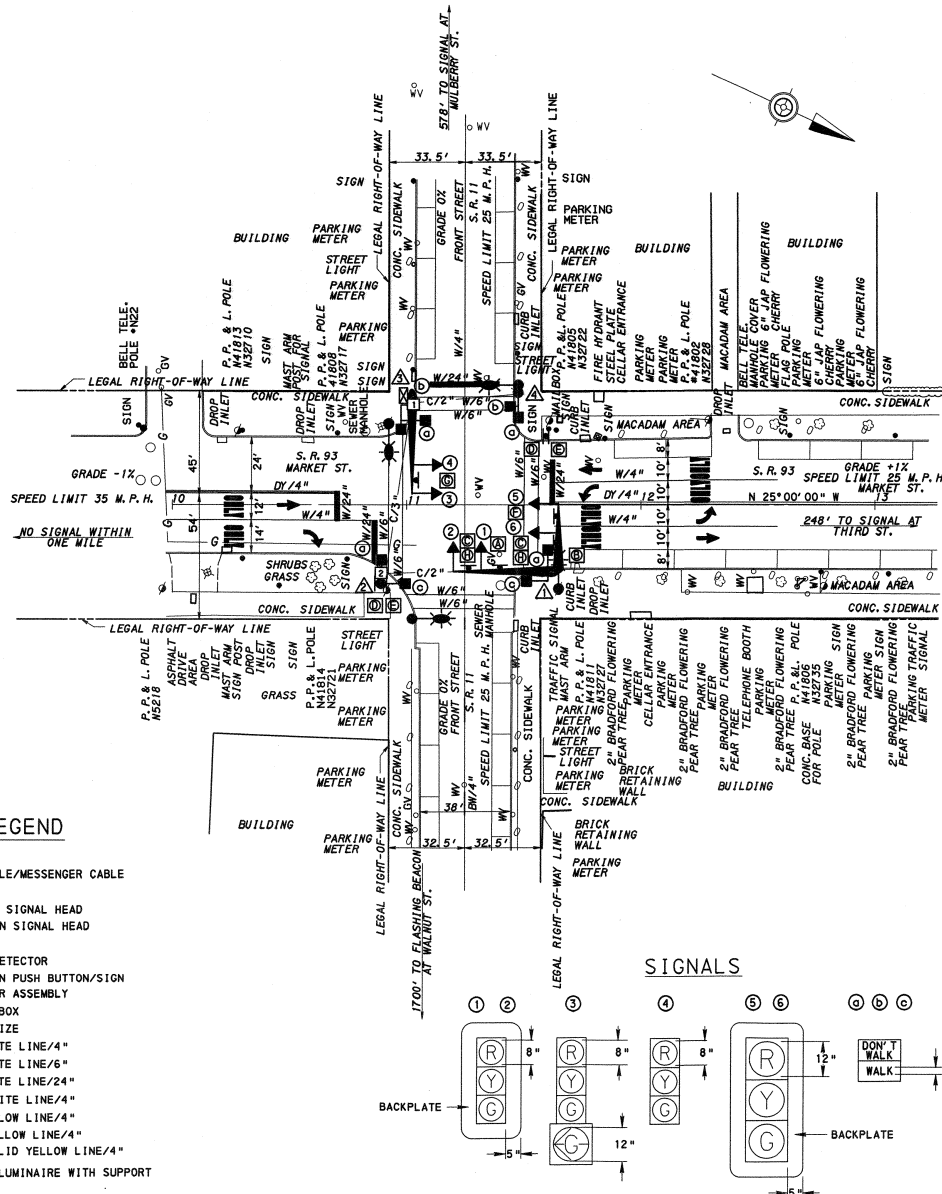
FRONT AND MULBERRY STREETS- MASTER OFFSET REFERENCE LOCATION
ALL OFFSETS ARE REFERENCED TO THE START OF INTERVAL NO. 1 AT THIS SIGNAL

LEGEND

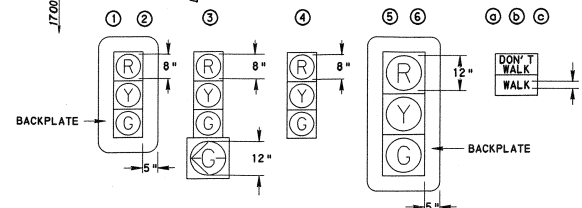
- ▲ - MAST ARM
- - STRAIN POLE/MESSENGER CABLE
- - PEDESTAL
- - VEHICULAR SIGNAL HEAD
- - PEDESTRIAN SIGNAL HEAD
- - SIGN
- - VEHICLE DETECTOR
- - PEDESTRIAN PUSH BUTTON/SIGN
- - CONTROLLER ASSEMBLY
- - JUNCTION BOX
- - CONDUIT/SIZE
- W/4" - SOLID WHITE LINE/4"
- W/6" - SOLID WHITE LINE/6"
- W/24" - SOLID WHITE LINE/24"
- BW/4" - BROKEN WHITE LINE/4"
- Y/4" - SOLID YELLOW LINE/4"
- BY/4" - BROKEN YELLOW LINE/4"
- DY/4" - DOUBLE SOLID YELLOW LINE/4"
- - LIGHTING LUMINAIRE WITH SUPPORT

SIGNS

SIGN	STANDARD	DESCRIPTION	SIZE	QTY.
Ⓡ	R3-2	NO LEFT TURN	30"x30"	1
Ⓡ	R3-2	NO LEFT TURN	24"x24"	1
Ⓡ	R10-11	NO TURN ON RED	30"x36"	2
Ⓡ	R6-1R	HORIZONTAL RIGHT ONE WAY	36"x12"	2
Ⓡ	R6-1L	HORIZONTAL LEFT ONE WAY	36"x12"	2
Ⓡ	R6-2R	VERTICAL RIGHT ONE WAY	30"x36"	1
Ⓡ	R6-2L	VERTICAL LEFT ONE WAY	30"x36"	1
Ⓡ	R3-20	RESTRICTED LEFT ONE WAY SAM TO SPN	30"x24"	2



SIGNALS



PERMIT NO. TS54-031 SHEET 2 OF 2
DATE ISSUED 4-26-84 DATE REVISED

GENERAL NOTES

INSTALL, OPERATE AND MAINTAIN THIS TRAFFIC SIGNAL IN ACCORDANCE WITH PENNSYLVANIA DEPARTMENT OF TRANSPORTATION REGULATIONS ON OFFICIAL TRAFFIC CONTROL DEVICES.

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

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

THE PERMITTEE INSTALLS AND MAINTAINS ALL SIGNS AND PAVEMENT MARKINGS INDICATED ON THIS DRAWING WHICH ARE CONSIDERED PART OF THE PERMIT, UNLESS OTHERWISE INDICATED. THE DEPARTMENT MAINTAINS THE LONGITUDINAL PAVEMENT MARKINGS ON STATE HIGHWAYS.

INSTALL POST MOUNTED SIGNALS WITH THE SIGNAL HEADS A MINIMUM OF 2 FEET BEHIND THE FACE OF THE CURB OR EDGE OF THE SHOULDER. ALSO, INSTALL SUPPORT POLES FOR OVERHEAD SIGNALS WITH A MINIMUM HORIZONTAL CLEARANCE OF 2 FEET.

INSTALL SIGNAL HEADS AND SIGNS ERECTED OVER THE ROADWAY WITH THE BOTTOMS NOT LESS THAN 15 FEET NOR MORE THAN 19 FEET ABOVE THE ROADWAY.

INSTALL POST MOUNTED SIGNAL HEADS WITH BOTTOMS NOT LESS THAN 8 FEET NOR MORE THAN 15 FEET ABOVE THE SIDEWALK OR PAVEMENT GRADE.

INSTALL SIGNAL HEADS WITH A MINIMUM HORIZONTAL DISTANCE OF 8 FEET BETWEEN THE HEADS AS MEASURED AT RIGHT ANGLES TO THE APPROACH.

IN ADDITION TO THIS SIGNAL PERMIT, THE PERMITTEE MUST OBTAIN A HIGHWAY OCCUPANCY PERMIT PRIOR TO ANY OPENINGS BEING MADE IN OR UNDER ANY PORTION OF A STATE HIGHWAY.

THIS DRAWING CANNOT BE USED AS A CONSTRUCTION DRAWING UNLESS THE PERMITTEE COMPLIES WITH THE PROVISIONS OF ACT 287, PREVENTION OF DAMAGE TO UNDERGROUND UTILITIES. PRIOR TO CONSTRUCTION CONSULT WITH UTILITY COMPANIES TO RESOLVE ANY PROBLEMS WHICH MAY BE CREATED DUE TO THE LOCATION OF UTILITIES.

COUNTY : COLUMBIA
MUNICIPALITY : BERWICK BOROUGH
INTERSECTION : FRONT ST. AND MARKET ST.

REVIEWED : *[Signature]* 9-4-90
MUNICIPAL OFFICIAL DATE

RECOMMENDED : *[Signature]* 9-4-90
DISTRICT TRAFFIC ENGINEER DATE

SCALE : 0' 25' 50' 75'

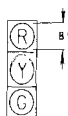
ACTUATED	PHASE 1			PHASE 2			FLASHING
	SIGNAL	INTERVAL	INTERVAL	SIGNAL	INTERVAL	INTERVAL	
1	① ② ③ ④	1	2	3	1	2	3
2	④ ⑤ ⑥ ⑦	G	Y	R	R	R	Y
3		R	R	R	G	Y	R
4							
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PROGRAM NUMBER	CYCLE LENGTH	PROGRAMS					
		OFFSET (SECONDS)					
		FRT/MUL	FRT/MKT	SEC/P/NE	SEC/MKT	SEC/MUL	THD/MKT
1	65 SEC.	0 SEC.	9	12	24	33	39
2	75 SEC.	0 SEC.	9	21	65	28	55
3	70 SEC.	10 SEC.	21	24	27	33	53
4	80 SEC.	5 SEC.	4	8	18	27	54
5	FLASH						

FRONT AND MULBERRY STREETS-MASTER OFFSET REFERENCE LOCATION
ALL OFFSETS ARE REFERENCED TO THE START OF INTERVAL NO. 1 AT THIS SIGNAL

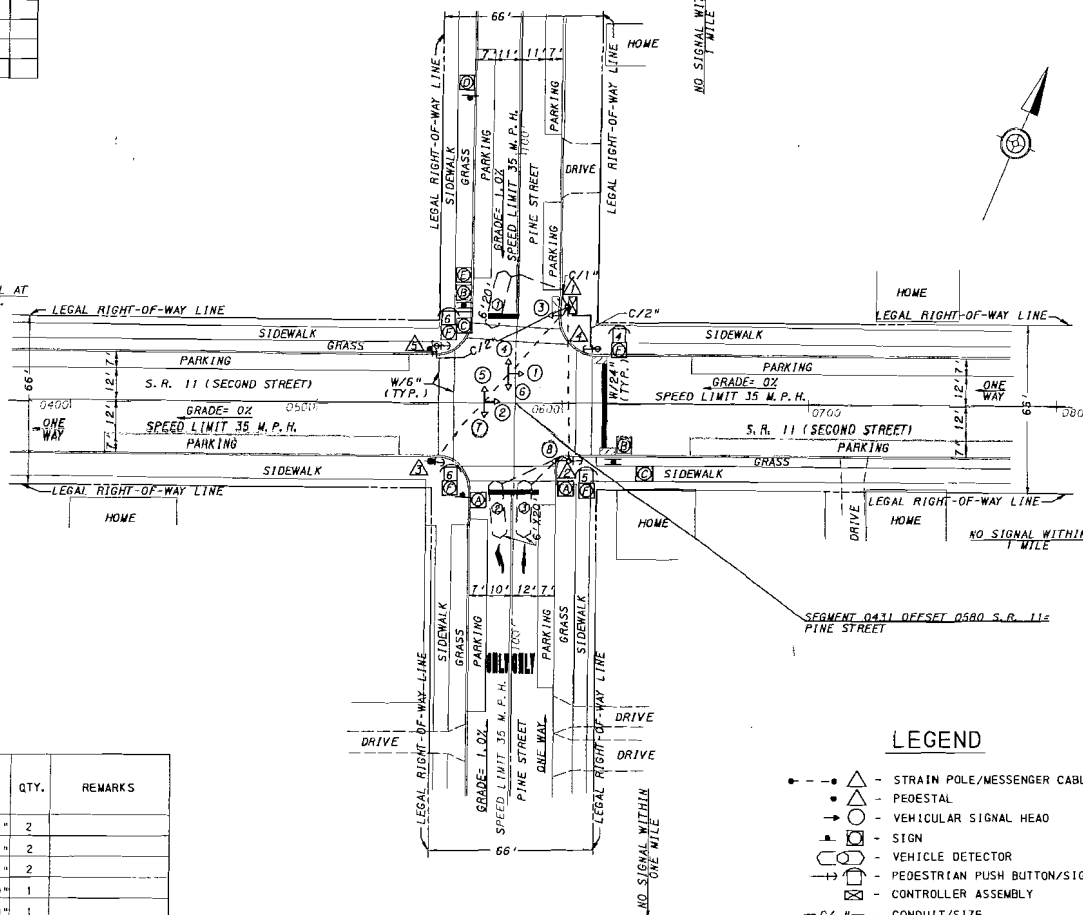
SIGNALS

① ② ③ ④
⑤ ⑥ ⑦ ⑧



SIGNS

SIGN	STANDARD	DESCRIPTION	SIZE	QTY.	REMARKS
①	R5-1	DO NOT ENTER	36"x36"	2	
②	R6-1R	HORIZONTAL RIGHT ONE-WAY	36"x12"	2	
③	R6-1L	HORIZONTAL LEFT ONE-WAY	36"x12"	2	
④	R3-71R	ALL TRAFFIC MUST TURN RIGHT	30"x30"	1	
⑤	R10-11	NO TURN ON RED	24"x30"	1	
⑥	R10-3	PUSH BUTTON FOR GREEN LIGHT	9"x12"	3	RIGHT ARROW
⑦	R10-3	PUSH BUTTON FOR GREEN LIGHT	9"x12"	1	LEFT ARROW



LEGEND

- △ - STRAIN POLE/MESSENGER CABLE
- - PEDESTAL
- - VEHICULAR SIGNAL HEAD
- - SIGN
- - VEHICLE DETECTOR
- - PEDESTRIAN PUSH BUTTON/SIGN
- - CONTROLLER ASSEMBLY
- C/ - CONDUIT/SIZE
- W/6" - SOLID WHITE LINE/6"
- W/24" - SOLID WHITE LINE/24"

PERMIT NO.	TS57-031	SHEET	2	OF	2
DATE ISSUED:	4-26-1984				
DATE REVISED		REASON/COMMENTS			
11-9-1984		NIGHT TIME FLASH REMOVED			
4-21-2005		COMPUTERIZED DRAWING			
8-31-2006		NEW PERMIT SHEET SIZE			

GENERAL NOTES

- INSTALL, OPERATE AND MAINTAIN THIS TRAFFIC SIGNAL IN ACCORDANCE WITH ALL PENNSYLVANIA DEPARTMENT OF TRANSPORTATION REGULATIONS, SPECIFICATIONS, AND STANDARD DRAWINGS.
- NO MODIFICATION OF THIS INSTALLATION IS PERMITTED UNLESS PRIOR APPROVAL IS GRANTED, IN WRITING, BY THE DEPARTMENT.
- ALL MAINTENANCE NECESSARY FOR PROPER VISIBILITY OF THE SIGNALS, INCLUDING TRIMMING TREES, IS THE RESPONSIBILITY OF THE PERMITTEE.
- THE PERMITTEE INSTALLS AND MAINTAINS ALL SIGNS AND PAVEMENT MARKINGS INDICATED ON THIS DRAWING WHICH ARE CONSIDERED PART OF THE PERMIT. UNLESS OTHERWISE INDICATED, THE DEPARTMENT MAINTAINS THE LONGITUDINAL PAVEMENT MARKINGS ON STATE HIGHWAYS.
- INSTALL POST MOUNTED SIGNALS WITH THE SIGNAL HEADS A MINIMUM OF 2 FEET BEHIND THE FACE OF THE CURB OR EDGE OF THE SHOULDER. ALSO, INSTALL SUPPORT POLES FOR OVERHEAD SIGNALS WITH A MINIMUM HORIZONTAL CLEARANCE OF 2 FEET.
- INSTALL SIGNAL HEADS AND SIGNS ERECTED OVER THE ROADWAY WITH THE BOTTOMS NOT LESS THAN 15 FEET NOR MORE THAN 19 FEET ABOVE THE ROADWAY.
- INSTALL POST MOUNTED SIGNAL HEADS WITH BOTTOMS NOT LESS THAN 8 FEET NOR MORE THAN 15 FEET ABOVE THE SIDEWALK OR PAVEMENT GRADE.
- INSTALL SIGNAL HEADS WITH A MINIMUM HORIZONTAL DISTANCE OF 8 FEET BETWEEN THE HEADS AS MEASURED AT RIGHT ANGLES TO THE APPROACH.
- IN ADDITION TO THIS SIGNAL PERMIT, THE PERMITTEE MUST OBTAIN A HIGHWAY OCCUPANCY PERMIT PRIOR TO ANY OPENINGS BEING MADE IN OR UNDER ANY PORTION OF A STATE HIGHWAY.
- THREE WORKING DAYS PRIOR TO EXCAVATION THE PERMITTEE MUST CONTACT THE ONE-CALL SYSTEM INC., PHONE 1-800-242-1776.
- CONDUIT INSTALLED IN BITUMINOUS ROADWAY LESS THAN 5 YEARS OLD, OR CONCRETE ROADWAY REGARDLESS OF AGE MUST BE BORED OR JACKED UNDER THE ROADWAY. INSTALL IN ACCORDANCE WITH TRAFFIC SIGNAL STANDARDS TC-7800 SERIES.

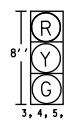
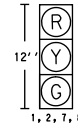
COUNTY :	COLUMBIA
MUNICIPALITY :	BOROUGH OF BERWICK
INTERSECTION :	S.R. 11 (SECOND STREET) AND PINE STREET
REVIEWED :	
MUNICIPAL OFFICIAL	DATE
RECOMMENDED :	
DISTRICT TRAFFIC ENGINEER	DATE
SCALE :	0' 25' 50' 75'

1. Installation, operation and maintenance of these signals shall be in accordance with Pennsylvania Department of Transportation Regulations governing the design, location and operation of signs, signals and markings.
2. No modifications of this installation are permitted unless prior approval is granted, in writing by the Secretary of Transportation.
3. All maintenance work, including trim trees, necessary for proper visibility of the signals is the responsibility of the permittee.
4. All signs and pavement markings indicated on this drawing are considered part of the permit, and shall be installed and maintained accordingly.
5. Post mounted signals shall be installed with the signal heads a minimum of 2 feet behind the face of the curb or edge of the shoulder. Support poles for overhead signal shall also have a minimum horizontal clearance of 2 feet.
6. Signals erected over the roadway shall have a minimum clearance of 16 feet above the roadway. Post mounted signals shall be a minimum of 8 feet above the sidewalk or pavement grade.
7. The minimum horizontal distance between signals, measured at right angles to the approach, shall be 8 feet.
8. Exact location of detectors shall be determined prior to installation by a representative of the Department.
9. Prior to installation, the contractor shall consult with the local officials and utility companies to resolve any problem which may be created due to the location of utility lines.
10. In addition to this signal permit, the permittee shall obtain a Highway Occupancy Permit prior to any openings being made in or under any portion of a State Highway.

Contractor shall inform Dist. Trk. Eng. of
Date of Transportation of data of start of
construction prior to work.

Municipality shall supply Dist. Trk. Eng.
with copy of specifications for installation
prior to letting for bid.

SIGNAL LENS ASSEMBLY

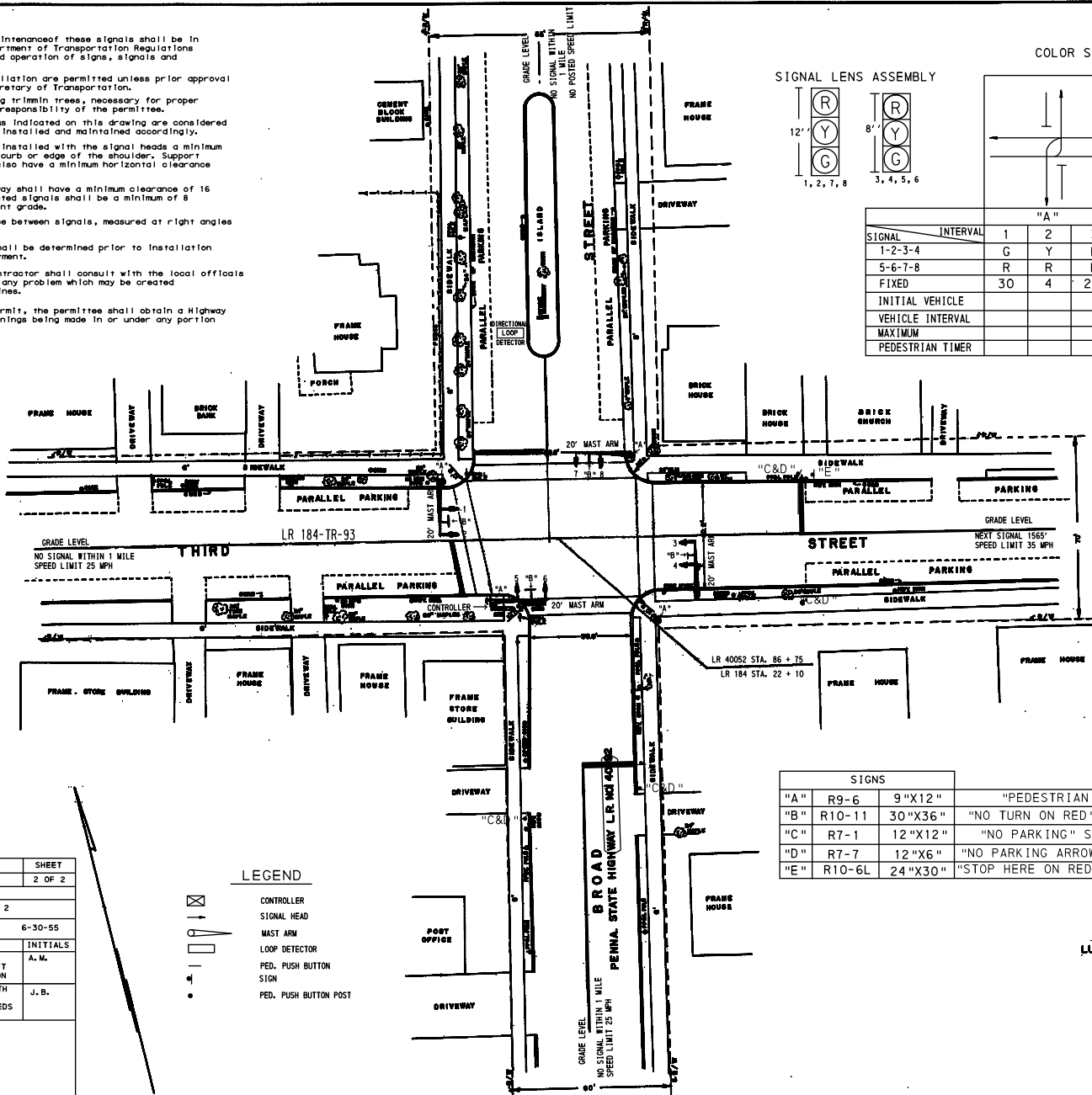
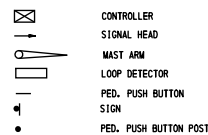


COLOR SEQUENCE & MOVEMENT CHART

SIGNAL	INTERVAL	"A"			"B" (ACT.)			FLASHING
		1	2	3	4	5	6	
1-2-3-4		G	Y	R	R	R	R	Y
5-6-7-8		R	R	R	G	Y	R	R
FIXED		30	4	2.5		3	3	
INITIAL VEHICLE					6			
VEHICLE INTERVAL					3			
MAXIMUM					20			
PEDESTRIAN TIMER					15			

DISTRICT	COUNTY	INTERSECTION	SHEET
4-0	LUZERNE	SR 93 (THIRD ST)	2 OF 2
BOROUGH OF NESCOPECK			
PERMIT NO. 4166		SHEET 2 OF 2	
		DATE ISSUED	6-30-55
DATE REVISED	REMARKS	INITIALS	
8-5-96	RELOCATE MAST ARM WITH SIGNAL HEADS 3 & 4 15 FT BACK ADD PED PUSH BUTTON	A.M.	
8-3-06	MOVED EAST SIDE AND SOUTH SIDE STOP BARS BACK. READJUSTED TIMING FOR REDS AND YELLOWS	J.B.	

LEGEND



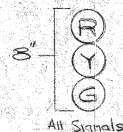
SIGNS		
"A"	R9-6 9"x12"	"PEDESTRIAN PUSH BUTTON" SIGN
"B"	R10-11 30"x36"	"NO TURN ON RED" SIGN (ADD 2 NEW SIGNS)
"C"	R7-1 12"x12"	"NO PARKING" SIGN (ADD 2 NEW SIGNS)
"D"	R7-7 12"x6"	"NO PARKING ARROW" SIGN (ADD 2 NEW SIGNS)
"E"	R10-6L 24"x30"	"STOP HERE ON RED" SIGN (ADD 2 NEW SIGNS)

BOROUGH OF NESCOPECK
LUZERNE COUNTY, PENNSYLVANIA
 SCALE 1 IN. = 20 FT., MAY 20, 1960
 T. BRYCE JAMES, BORO. ENG.



Sheet 2 of 2
Permit 4165
Rev 5/31/93

SIGNAL LENS ASSEMBLY



Phase	A			B (Act)			Flashing
	1	2	3	4	5	6	
Signal	1-2-3-4	5	Y	R	5	R	RY
Fixed	5-6-7-8	R	R	R	Y	RY	RY
Initial	Vehicle	30	3	2	6	3	2
Vehicle	Interval				6		
Maximum					30		
Selection Timer					15		

SIGNS
A R9-6 (9"x12")

1. Installation, operation and maintenance of these signals shall be in accordance with Pennsylvania's Department of Transportation Regulations governing the design, location and operation of signs, signals and markings.
2. No modifications of this installation are permitted unless prior approval is granted, in writing, by the Secretary of Transportation.
3. All maintenance work, including training, repair, necessary for proper visibility of the signals is the responsibility of the permittee.
4. All signs and pavement markings indicated on this drawing are considered part of the permit, and shall be installed and maintained accordingly.
5. Post mounted signals shall be installed with the signal heads a minimum of 2 feet behind the face of the curb or edge of the shoulder. Support poles for overhead signals shall also have a minimum horizontal clearance of 2 feet.
6. Signals erected over the roadway shall have a minimum clearance of 16 feet above the roadway. Post mounted signals shall be a minimum of 8 feet above the sidewalks or pavement grade.
7. The minimum horizontal distance between signals, measured in right angles to the approach, shall be 8 feet.
8. Exact location of detectors shall be determined prior to installation by a representative of the Department.
9. Prior to installation, the contractor shall consult with the local utility and utility companies to resolve any problems which may be created due to the location of utility lines.
10. In addition to this signal permit, the permittee shall obtain a Highway Occupancy Permit prior to any occupancy being made in or under any portion of a State Highway.

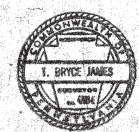
Contractor shall obtain Dist. Traffic Engineer's Permit of Hours of date of start of construction prior to starting construction.

Municipality shall supply District Traffic Engineer with a copy of specifications for installation prior to letting for bid.

LEGEND

- ☒ CONTROLLER
- ➔ SIGNAL HEAD
- ➔ MAST ARM
- LOOP DETECTOR
- ➔ PED. PUSH BUTTON
- ➔ SIGN

BOROUGH OF NESCOPECK
LUZERNE COUNTY, PENNSYLVANIA
SCALE: 1" = 20 FT., MAY 20, 1969
T. BRYCE JAMES, BORO. ENG.

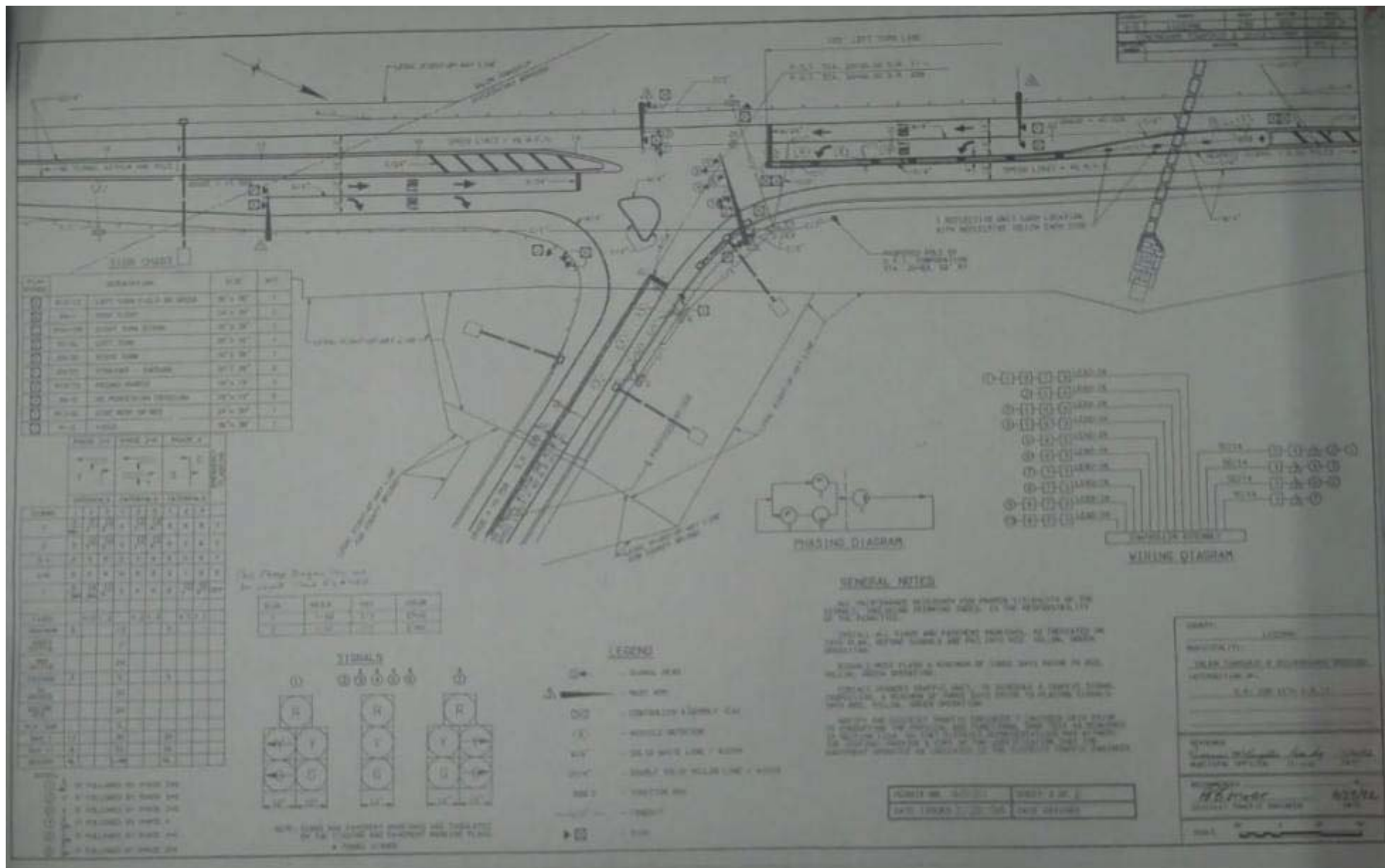


KLD Engineering, P.C.
Bell Bend TIS

D-28

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TR-439
Rev. 5

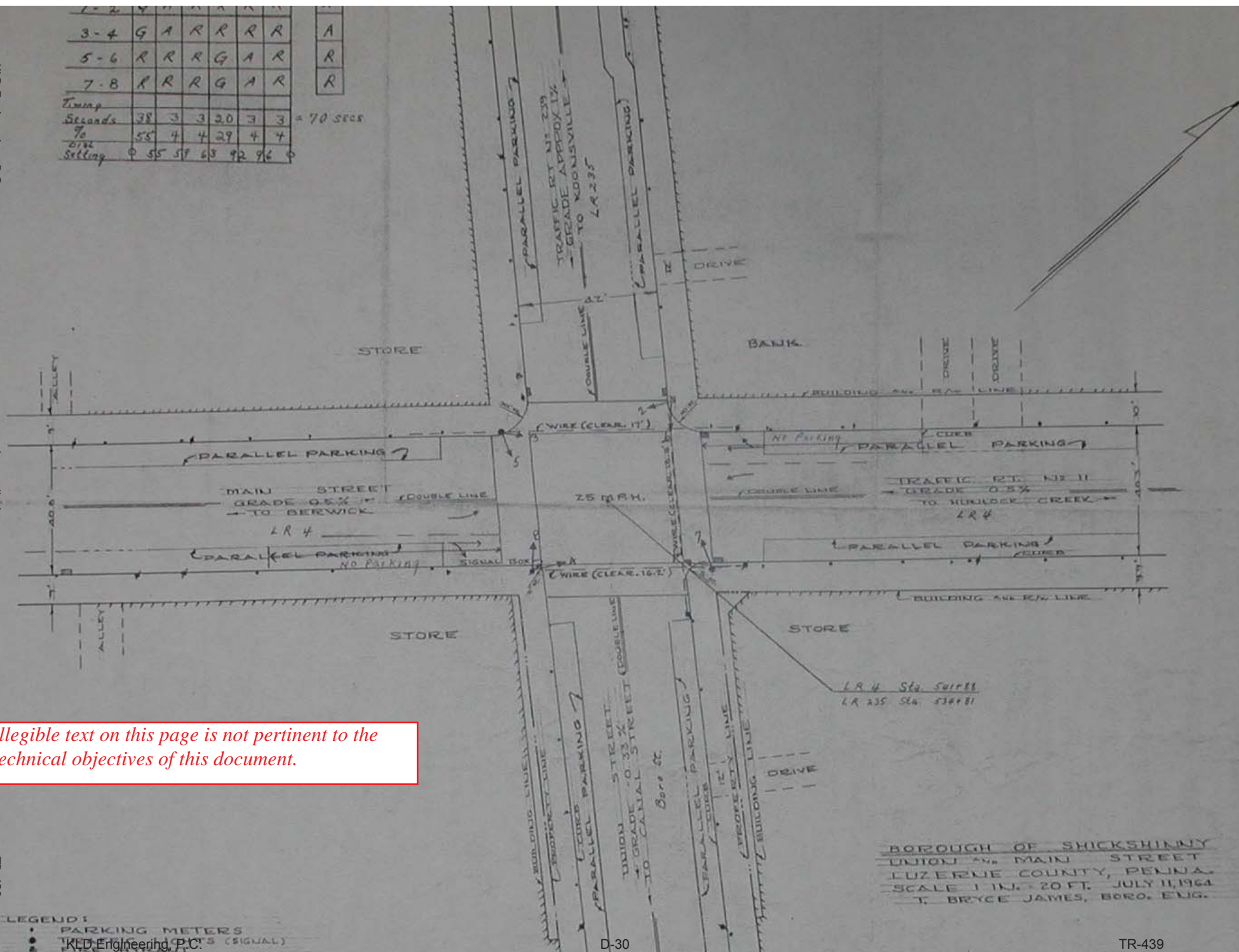


Illegible text on this page is not pertinent to the technical objectives of this document.

KLD Engineering, P.C.
Bell Bend Traffic Study

Appendix A
71

1-2	4	7	8	9	10	11		
3-4	G	A	R	R	R	R		A
5-6	R	R	R	G	A	R		R
7-8	R	R	R	G	A	R		R
Timeup								
Seconds	38	3	3	20	3	3		= 70 secs
%	55	4	4	29	4	4		
Time Selling	55	58	63	92	96			



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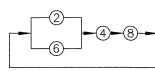
TR-439
Rev. 2

PHASING, TIMING AND SEQUENCE CHART

PHASE	INTERVAL	1	2	3	4	5	6	7	8	9	10	11	12	EMERGENCY FLASHING OPERATION
1,2	G	G	Y	R	R	R	R	R	R	R	R	R	Y	
3,4	G	G	Y	R	R	R	R	R	R	R	R	R	Y	
5	R	R	R	R	G	G	Y	R	R	R	R	R	R	
6	R	R	R	R	G	G	Y	R	R	R	R	R	R	
7	R	R	R	R	R	R	R	G	G	Y	R	R	R	
8	R	R	R	R	R	R	R	G	G	Y	R	R	R	
9,10,11,12	M	FH	H	H	H	H	H	H	H	H	H	H	OFF	
13,14	H	H	H	H	M	FH	H	H	M	FH	H	H	OFF	
FIXED				3.6	2.4					3.7	2.3			
MINIMUM		4				4						4		
PASSAGE		2				2						2		
MAX 1		53				13						7		
MAX 2		27				9						7		
MAX 3		53				13						7		
MAX 4		28				8						7		
PEDESTRIAN*		7	19			7	15			7	15			
MEMORY														
		MIN	RECALL			NON-LOCKING				NON-LOCKING				

*UPON ACTUATION ONLY, OTHERWISE H AT ALL TIMES

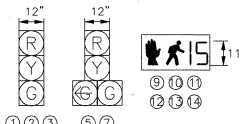
NEMA DIAGRAM



DETECTOR NOTES

1. PROGRAM LOOP 2 FOR A 3 SECOND EXTENSION.
2. PROGRAM LOOP 6 FOR A 3 SECOND EXTENSION.
3. PROGRAM PHASE 8 FOR A 5 SECOND DELAY.

SIGNAL INDICATIONS



ALL SIGNALS ARE L.E.D.

WEEKLY PROGRAM CHART

EVENT	DAY	W	T	F	S	S	HR	MIN	SEC	COMMENTS
MAX 1	X	X	X	X	X		06	00	00	AM PEAK
MAX 2	X	X	X	X	X		10	00	00	OFF PEAK
MAX 3	X	X	X	X	X		14	00	00	PM PEAK
MAX 2	X	X	X	X	X		19	00	00	OFF PEAK
MAX 4	X	X	X	X	X		07	00	00	WEEKEND

GENERAL NOTES (CONTINUED)

THIS DRAWING CANNOT BE USED AS A CONSTRUCTION DRAWING, UNLESS THE CONTRACTOR COMPLIES WITH THE PROVISIONS OF ACT 121, AS AMENDED, PREVENTION OF DAMAGE TO UNDERGROUND UTILITIES. PRIOR TO CONSTRUCTION CONSULT WITH UTILITY COMPANIES TO RESOLVE ANY CONFLICTS.

THE PERMITEE IS RESPONSIBLE FOR COORDINATING ANY RELOCATION OF OVERHEAD UTILITIES THAT MAY INTERFERE WITH CLEAR VISION OF THE SIGNAL HEADS.

INSTALL SIGNAL HEADS AND SIGNS WITH BOTTOMS NOT LESS THAN 16 FEET NOR MORE THAN 17 FEET ABOVE THE ROADWAY.

INSTALL SIGNAL SUPPORTS AND POST MOUNTED SIGNAL HEADS A MINIMUM OF 2 FEET BEHIND THE FACE OF CURB.

INSTALL ALL SIGNS AND PAVEMENT MARKINGS, AS INDICATED ON THIS PLAN, BEFORE SIGNALS ARE PUT INTO RED, YELLOW, GREEN OPERATION.

CONTACT PENNDOT TRAFFIC UNIT, TO SCHEDULE A TRAFFIC SIGNAL INSPECTION, A MINIMUM OF THREE DAYS PRIOR TO RED, YELLOW, GREEN OPERATION.

NOTIFY THE DISTRICT TRAFFIC ENGINEER SEVEN 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.

SIGNALS MUST FLASH A MINIMUM OF THREE DAYS PRIOR TO RED, YELLOW, GREEN OPERATION.

GENERAL NOTES

INSTALL, OPERATE AND MAINTAIN THIS TRAFFIC SIGNAL IN ACCORDANCE WITH PENNSYLVANIA DEPARTMENT OF TRANSPORTATION REGULATIONS ON OFFICIAL TRAFFIC CONTROL DEVICES, SPECIFICATIONS (PUB 408), TRAFFIC CONTROL STANDARDS AND TRAFFIC SIGNAL DESIGN HANDBOOK (PUB 149).

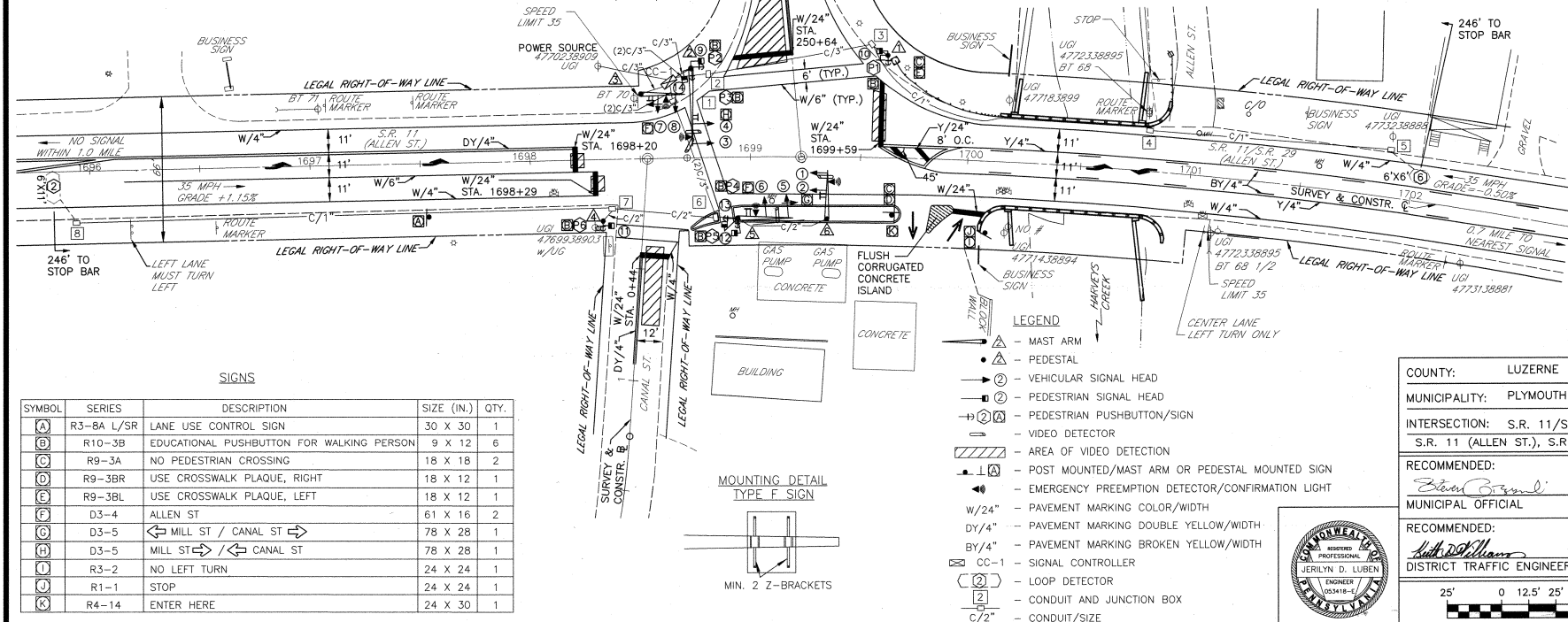
NO MODIFICATION OF THIS INSTALLATION IS PERMITTED UNLESS PRIOR APPROVAL IS GRANTED IN WRITING BY THE DISTRICT TRAFFIC ENGINEER.

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

THE PERMITEE INSTALLS AND MAINTAINS ALL SIGNS IN THE SIGN BLOCK AND ALL PAVEMENT MARKINGS INDICATED ON THIS DRAWING, WHICH ARE CONSIDERED PART OF THE PERMIT, UNLESS OTHERWISE INDICATED. THE DEPARTMENT MAINTAINS ALL LONGITUDINAL PAVEMENT MARKING ON STATE HIGHWAYS.

EACH LOOP MUST BE ASSIGNED TO A SEPARATE DETECTOR INPUT IN THE CONTROLLER TIMER WHICH WILL PROVIDE THE CAPABILITY OF EXTENSIONS AND DELAYS TO ALL INDIVIDUAL LOOPS.

CARD RACK TO BE NEMA TYPE 7-T.



COUNTY:	LUZERNE
MUNICIPALITY:	PLYMOUTH TOWNSHIP
INTERSECTION:	S.R. 11/S.R. 29 (ALLEN ST.), S.R. 11 (ALLEN ST.), S.R. 29 (MILL ST.) AND CANAL ST.
RECOMMENDED:	<i>Blair Bernal</i> 2/1/0
MUNICIPAL OFFICIAL	DATE
RECOMMENDED:	<i>Keith Williams</i> 02-04-2010
DISTRICT TRAFFIC ENGINEER	DATE
25'	0 12.5' 25' 50' 100'

13-APR-2010 08:43

B- CADD (12-91)

PHASING DIAGRAM

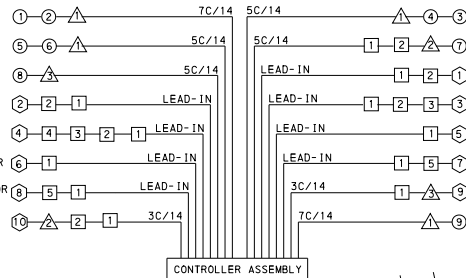
SIGNAL	PHASE 1				PHASE 2				PHASE 4				EMERGENCY FLASHING	CYCLE LENGTH
	1	2	3	4	1	2	3	4	1	2	3	4		
1	G	Y	R		G	Y	R		R	R	R	R	Y	
2	G	Y	R		G	Y	R		R	R	R	R	Y	
3-4	R	R	R		G	Y	R		R	R	R	R	Y	
5-6	R	R	R		R	R	R		G	G	Y	R	R	
*7-8	DW	DW	DW		DW	DW	DW		W	FDW	DW	DW	OFF	
9	R	Y	R		R	R	R		G	G	Y	R	OFF	
FIXED	4	3			4	3			4	3				
MINIMUM	2.5				20				1.5					
PASSAGE	3				3									
MAX 1	7				99				21				148	
MAX 11	7				58				22				108	
*PEDESTRIAN									10	11				
MEMORY	NON-LOCKING				MIN. RECALL				NON-LOCKING					

MAX I = 600 TO 1200
MAX II = 1200 TO 600

CONTROLLER NOTES

1. PROGRAM LOOPS 3 AND 7 FOR A 4.50 SEC. EXTENSION
2. PROGRAM LOOPS 4 AND 8 FOR A .50 SEC. EXTENSION
3. PROGRAM LOOPS 1, 2, 5 AND 6 FOR A 3.0 SEC. DELAY.

WIRING DIAGRAM



△ - SIGNAL SUPPORT ○ - SIGNAL HEAD
□ - JUNCTION BOX ○ - DETECTOR
SC/14 - CABLE (NO. OF CONDUCTORS/SIZE AWG.)

GENERAL NOTES

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

THE CONTRACTOR INSTALLS ALL SIGNS AND PAVEMENT MARKINGS INDICATED ON THIS DRAWING WHICH ARE CONSIDERED PART OF THE PERMIT, UNLESS OTHERWISE INDICATED. THE DEPARTMENT MAINTAINS THE LONGITUDINAL MARKINGS ON STATE HIGHWAYS.

INSTALL SIGNAL HEADS AND SIGNS ERECTED OVER THE ROADWAY WITH BOTTOMS NOT LESS THAN 16 FEET, NOR MORE THAN 17 FEET ABOVE THE ROADWAY.

ALL INPUTS AND OUTPUTS OF THE CONTROLLER ASSEMBLY INCLUDING THE CARD RACK ASSEMBLY SHALL BE WIRED TO THE APPROPRIATE CONNECTORS AND HARNESSSES.

EACH LOOP WILL BE ASSIGNED TO A SEPARATE DETECTOR INPUT WHICH PROVIDES: SWITCHING, EXTENSION TIMER, AND A DELAY TIMER.

THIS DRAWING CANNOT BE USED AS A CONSTRUCTION DRAWING, UNLESS THE CONTRACTOR COMPLETES WITH THE PROVISIONS OF ACT 172, PREVENTION OF DAMAGE TO UNDERGROUND UTILITIES. PRIOR TO CONSTRUCTION CONSULT WITH UTILITY COMPANIES TO RESOLVE ANY PROBLEMS WHICH MAY BE CREATED DUE TO THE LOCATION OF UTILITIES.

INSTALL ALL SIGNS AND PAVEMENT MARKINGS, AS INDICATED ON THE PLAN BEFORE SIGNALS ARE PUT INTO RED, YELLOW, GREEN OPERATION.

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
4-0	LUZERNE	0011		1 OF 1
TOWNSHIP OF PLYMOUTH				
PERMIT NO.	40141	SHEET	2	OF 2
DATE ISSUED	10-03-95	DATE REVISED	*	
DATE REVISED	REMARKS		INITIALS	
*10-12-99	CONDITION DIA. ONLY		JF	

GENERAL NOTES

CONTACT PENNDOT TRAFFIC UNIT, TO SCHEDULE A TRAFFIC SIGNAL INSPECTION, A MINIMUM OF THREE DAYS PRIOR TO PLACING SIGNALS INTO RED, YELLOW, GREEN OPERATION.

NOTIFY THE DISTRICT TRAFFIC ENGINEER 7 CALENDAR DAYS PRIOR TO CONDUCTING A PHYSICAL AND FUNCTIONAL SHOP TEST AS REQUIRED IN SECTION 1104 (PUB 408), SO THAT DISTRICT REPRESENTATIVES MAY WITNESS THE TESTING. PROVIDE A COPY OF THE CERTIFICATION THAT THE EQUIPMENT OPERATES AS INDICATED TO THE DISTRICT TRAFFIC ENGINEER.

ALL PAVEMENT MARKINGS SHALL BE HOT THERMOPLASTIC ON EXISTING SURFACES, AND INLAID ON NEW SURFACES.

TRAFFIC SIGNAL SUPPORTS TO BE PLACED A MINIMUM OF 2 FT BEHIND THE FACE OF CURB. IN AREAS WHERE CURBING DOES NOT EXIST, THE SUPPORT IS TO BE PLACED 2 FEET FROM THE EDGE OF SHOULDER, OR 10 FEET FROM THE EDGE OF TRAVELWAY, WHICHEVER IS GREATER.

PROVIDE A COPY OF THE CERTIFICATION THAT THE EQUIPMENT OPERATES AS INDICATED TO THE DISTRICT TRAFFIC ENGINEER.

CARD RACK ASSEMBLY TO BE NEMA TYPE 7T.

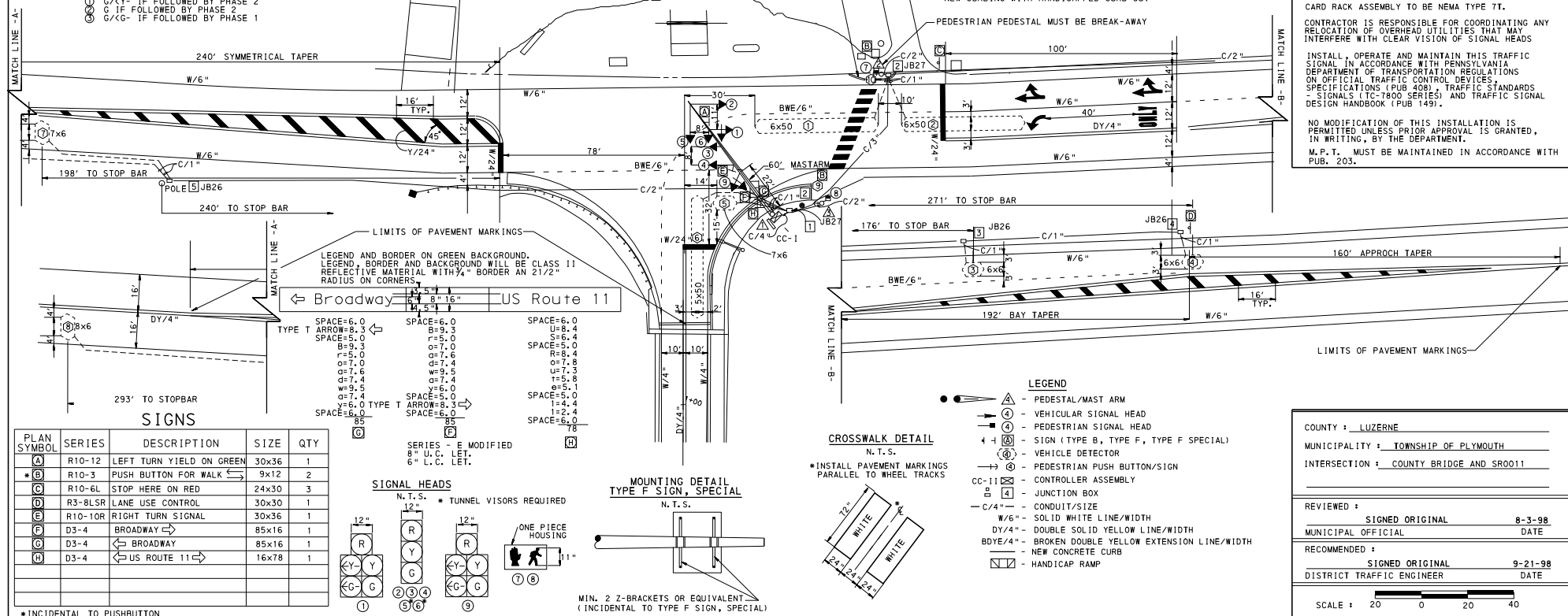
CONTRACTOR IS RESPONSIBLE FOR COORDINATING ANY RELOCATION OF OVERHEAD UTILITIES THAT MAY INTERFERE WITH CLEAR VISION OF SIGNAL HEADS

INSTALL, OPERATE AND MAINTAIN THIS TRAFFIC SIGNAL IN ACCORDANCE WITH PENNSYLVANIA DEPARTMENT OF TRANSPORTATION REGULATIONS ON OFFICIAL TRAFFIC CONTROL DEVICES.

SIGNALS (TC-7000 SERIES) AND TRAFFIC SIGNAL DESIGN HANDBOOK (PUB 149).

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

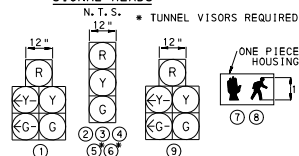
M.P.T. MUST BE MAINTAINED IN ACCORDANCE WITH PUB. 203.



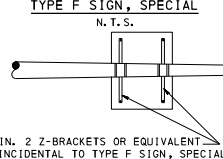
PLAN SYMBOL	SERIES	DESCRIPTION	SIZE	QTY
(A)	R10-12	LEFT TURN YIELD ON GREEN	30x36	1
(B)	R10-3	PUSH BUTTON FOR WALK	9x12	2
(C)	R10-6L	STOP HERE ON RED	24x30	3
(D)	R3-8LSR	LANE USE CONTROL	30x30	1
(E)	R10-10R	RIGHT TURN SIGNAL	30x36	1
(F)	D3-4	BROADWAY	85x16	1
(G)	D3-4	BROADWAY	85x16	1
(H)	D3-4	US ROUTE 11	16x78	1

*INCIDENTAL TO PUSHBUTTON

SIGNAL HEADS

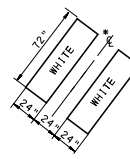


MOUNTING DETAIL TYPE F SIGN, SPECIAL



CROSSWALK DETAIL

N. T. S.
*INSTALL PAVEMENT MARKINGS PARALLEL TO WHEEL TRACKS



LEGEND

- △ - PEDESTAL/MAST ARM
- - VEHICULAR SIGNAL HEAD
- - PEDESTRIAN SIGNAL HEAD
- 4 - 4 - SIGN (TYPE B, TYPE F, TYPE F SPECIAL)
- ④ - VEHICLE DETECTOR
- - PEDESTRIAN PUSH BUTTON/SIGN
- CC-11 - CONTROLLER ASSEMBLY
- ④ - JUNCTION BOX
- C/4" - CONDUIT/SIZE
- W/6" - SOLID WHITE LINE/WIDTH
- DY/4" - DOUBLE SOLID YELLOW LINE/WIDTH
- BDYE/4" - BROKEN DOUBLE YELLOW EXTENSION LINE/WIDTH
- NEW CONCRETE CURB
- - HANDICAP RAMP

COUNTY :	LUZERNE
MUNICIPALITY :	TOWNSHIP OF PLYMOUTH
INTERSECTION :	COUNTY BRIDGE AND SR0011
REVIEWED :	SIGNED ORIGINAL 8-3-98
MUNICIPAL OFFICIAL	DATE
RECOMMENDED :	SIGNED ORIGINAL 9-21-98
DISTRICT TRAFFIC ENGINEER	DATE
SCALE :	20 0 20 40

Appendix E
Existing Conditions – Capacity Analysis

Appendix E

This appendix contains all supporting worksheets and materials relating to capacity analysis for the existing conditions. Table E-1 summarizes the LOS and delay at each intersection. Stick diagrams depicting the volumes used as inputs for the capacity analysis are provided in Figures E-1 and E-2. Synchro HCM signalized reports are given to support calculations at signalized intersections and HCS+ reports are given for all unsignalized intersections.

Queue storage calculations employing the PennDOT method are provided. The volumes shown in these worksheets are PCE (Passenger Car Equivalent) volumes which are factored up to account for the presence of heavy vehicles. The maximum hourly left turn volumes were used to determine the necessary storage.

Table E-1 – LOS and Average Delay (sec/veh): Existing Conditions

Int No	PennDOT	County	Municipality	Intersection	Existing LOS (Delay)	
					AM	PM
1	3-0	Columbia	South Centre	S.R. 11 and S.R. 2028	B (14.2)	B (17.5)
2			Briar Creek	S.R. 11 and Briar Creek Plaza Driveways	A (7.6)	B (15.5)
3			Berwick	S.R. 11 (Front Street) and Eaton Street*	A (1.0)	A (1.6)
4				S.R. 11 (Front Street) and Poplar Street	C (23.6)	F (86.8)
5				S.R. 11 (Front Street) and Orchard Street	B (15.2)	C (24.6)
6				S.R. 11 (Front Street) and S.R. 93 (Orange Street)	B (10.6)	B (18.7)
7				S.R. 11 (Second Street) and LaSalle Street	A (9.7)	B (11)
8				S.R. 11 (Second Street) and Oak Street	A (6.4)	A (7.7)
9				S.R. 11 (Second Street) and Mulberry Street	B (11.5)	A (7.5)
10				S.R. 11 (Front Street) and Mulberry Street	A (6.6)	B (11.6)
11				S.R. 1025 (Market Street) and Third Street	B (14.8)	B (14.1)
12				S.R. 11 (Second Street) and Market Street	C (23.3)	B (18)
13				S.R. 11 (Front Street) and Market Street	B (18.5)	C (20.8)
14				S.R. 11 (Second Street) and Pine Street	A (6.8)	B (10.5)
15	4-0	Luzerne	Nescopeck	S.R. 93 (Third Street) and S.R. 339 (Broad Street)	B (13.2)	B (11.8)
16				S.R. 93 (Third Street) and Dewey Street	A (4.7)	A (3.7)
17			Salem Township	S.R. 11 and Bell Bend Site Entrance*		
18				S.R. 11 and SSES Site Entrance*	A (4.2)	A (3.3)
19			Shickshinny	S.R. 11 (S. Main Street) and S.R. 239	A (8.7)	B (11)
20				S.R. 11 (Main Street) and S.R. 239 (Union Street)	B (15)	B (15.8)
21			Nanticoke	S.R. 11 and S.R. 29 (Mill Street)	C (21.5)	C (24.5)
22				S.R. 11 and County Bridge	C (32.4)	C (20)
23				S.R. 11 (E. Poplar Street) and S.R. 29*	A (2.6)	C (19.5)

Note 1: * implies this is a stop controlled intersection. The intersection LOS was calculated based on the weighted average of approach delays as specified in Reference [3].

Note 2: The cells with LOS D or worse are highlighted.

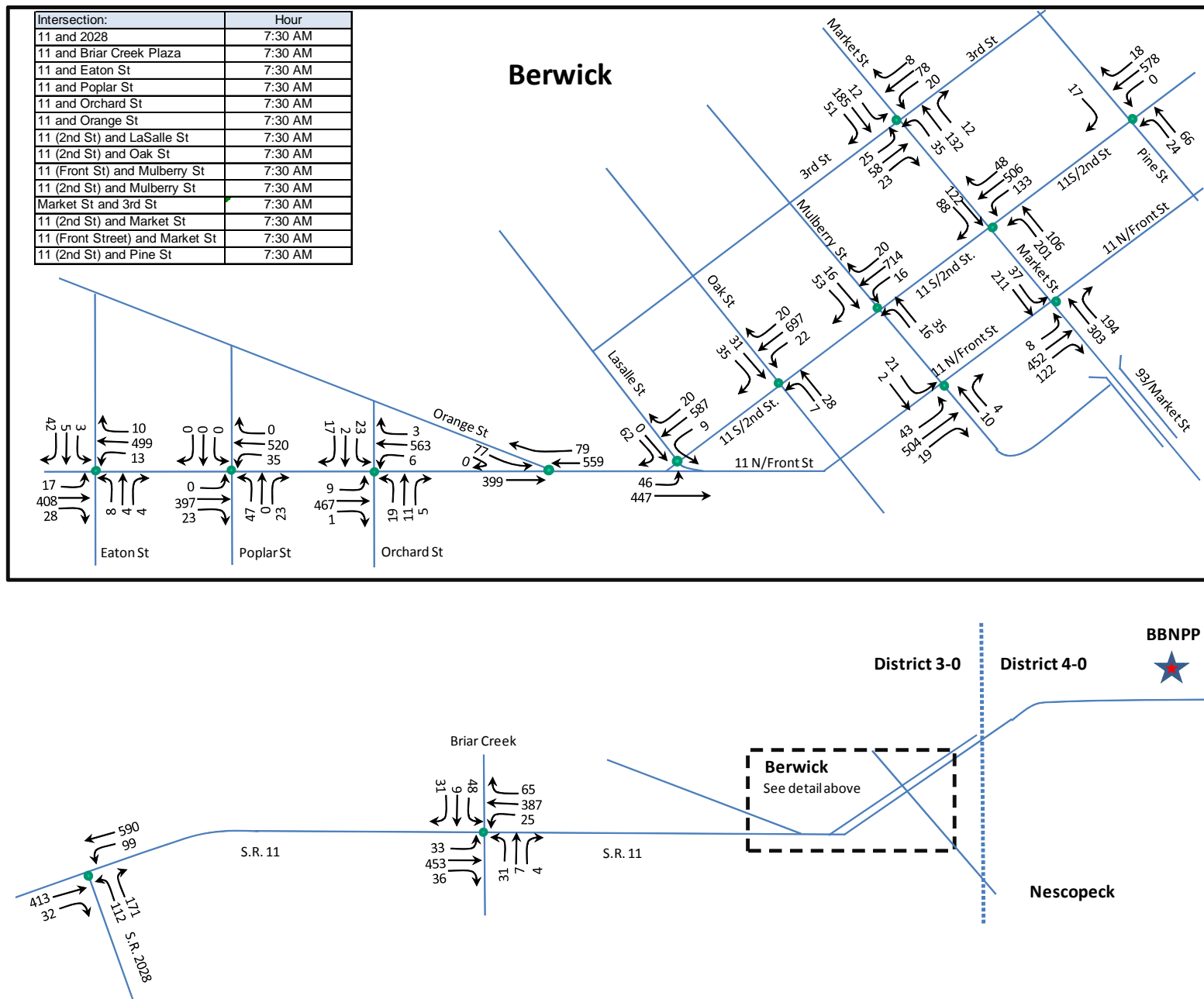


Figure E-1 – Existing AM Peak Hour Volumes

Intersection:	Hour
93 (3rd St) and 339 (Broad St)	7:30 AM
93 (3rd St) and Dewey St	7:30 AM
11 and Bell Bend Entrance	
11 and SSES Entrance	6:00 AM
11 and 239	6:00 AM
11 and 239 (Union St)	7:00 AM
11 and 29 (Mill St)	7:00 AM
11 and County Bridge	7:00 AM
11 (E. Poplar St) and 29	7:00 AM

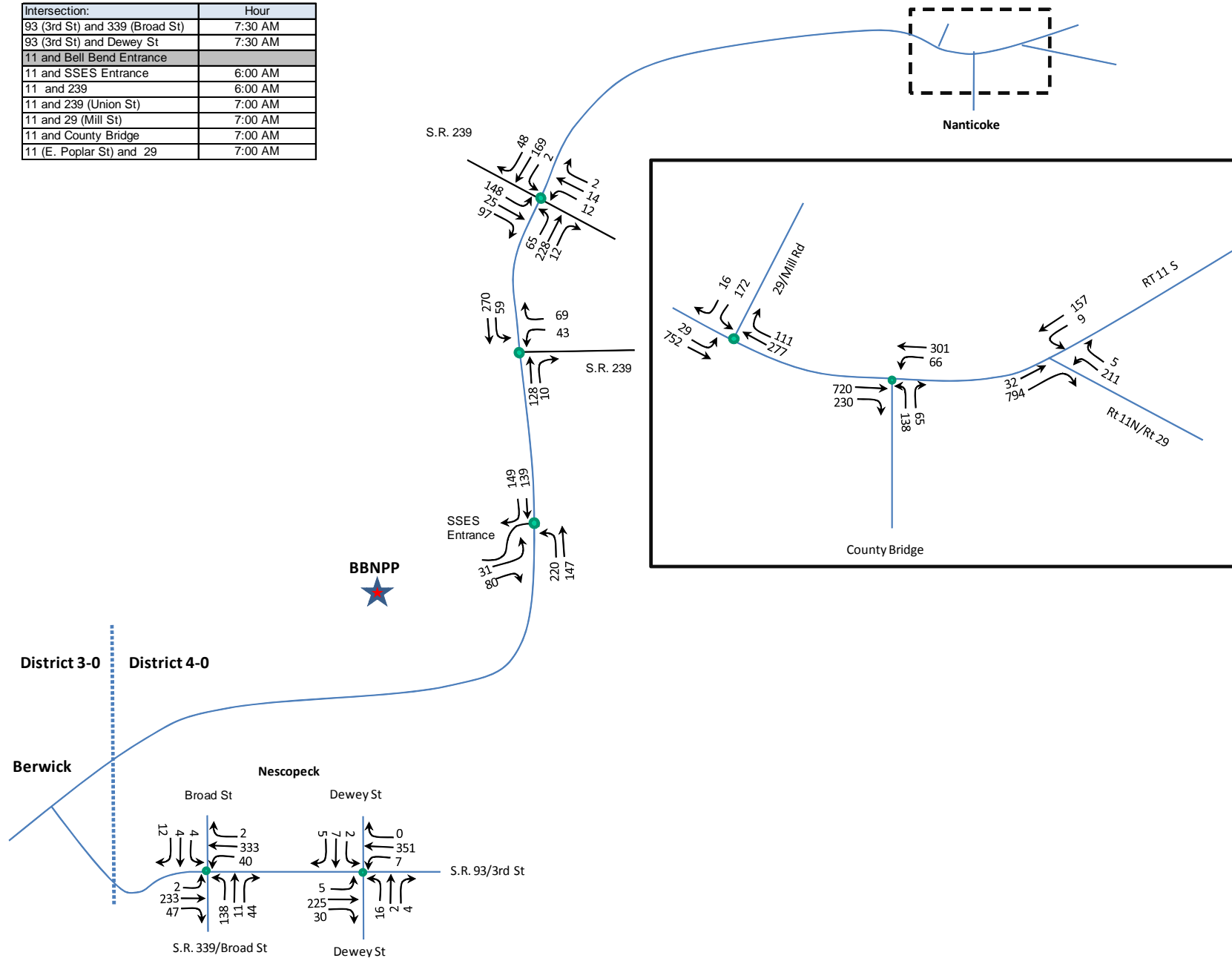


Figure E-1 – Existing AM Peak Hour Volumes

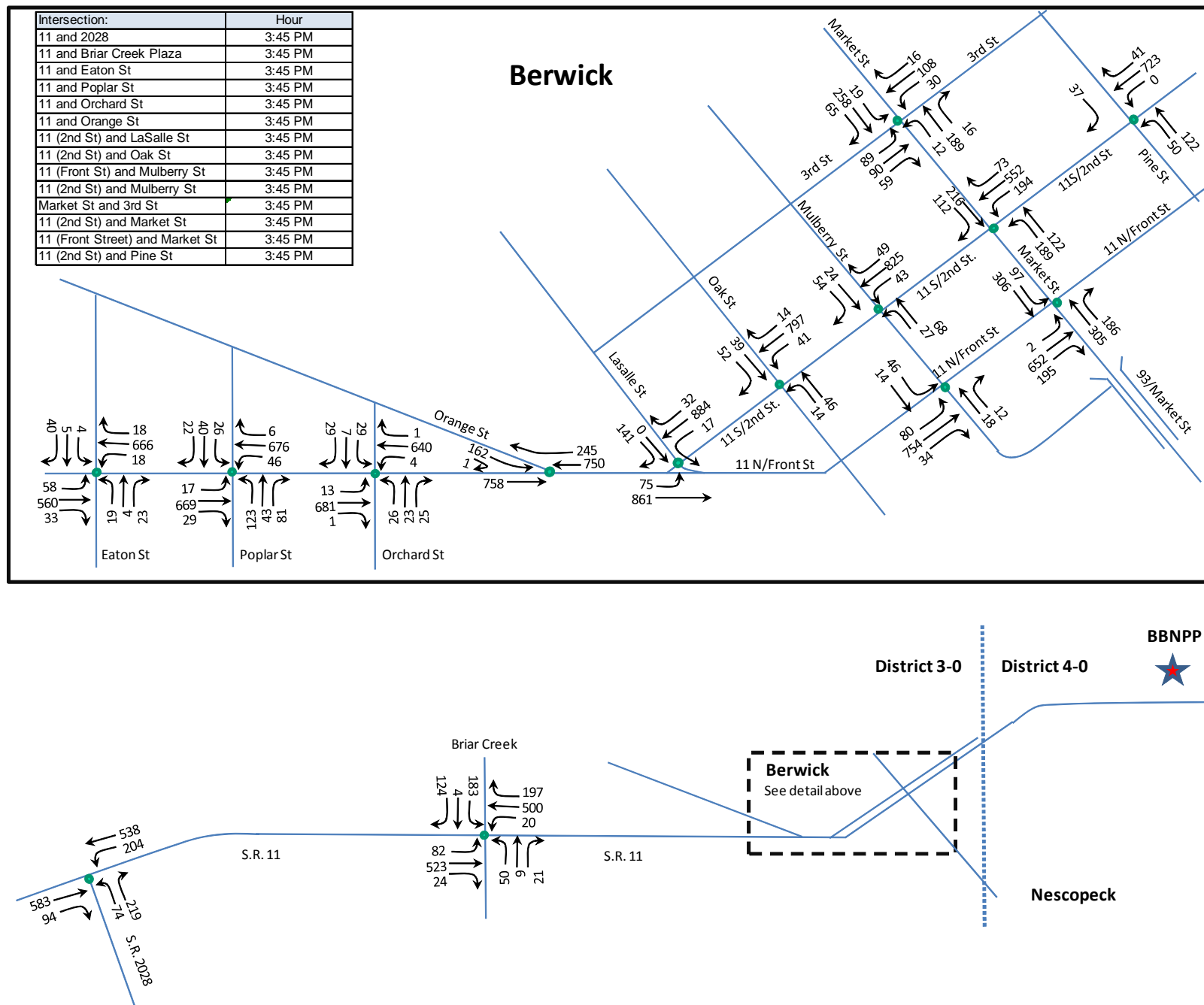


Figure E-2 – Existing PM Peak Hour Volumes

Intersection:	Hour
93 (3rd St) and 339 (Broad St)	3:45 PM
93 (3rd St) and Dewey St	3:45 PM
11 and Bell Bend Entrance	
11 and SSES Entrance	4:45 PM
11 and 239	3:30 PM
11 and 239 (Union St)	4:30 PM
11 and 29 (Mill St)	4:30 PM
11 and County Bridge	4:30 PM
11 (E. Poplar St) and 29	4:30 PM

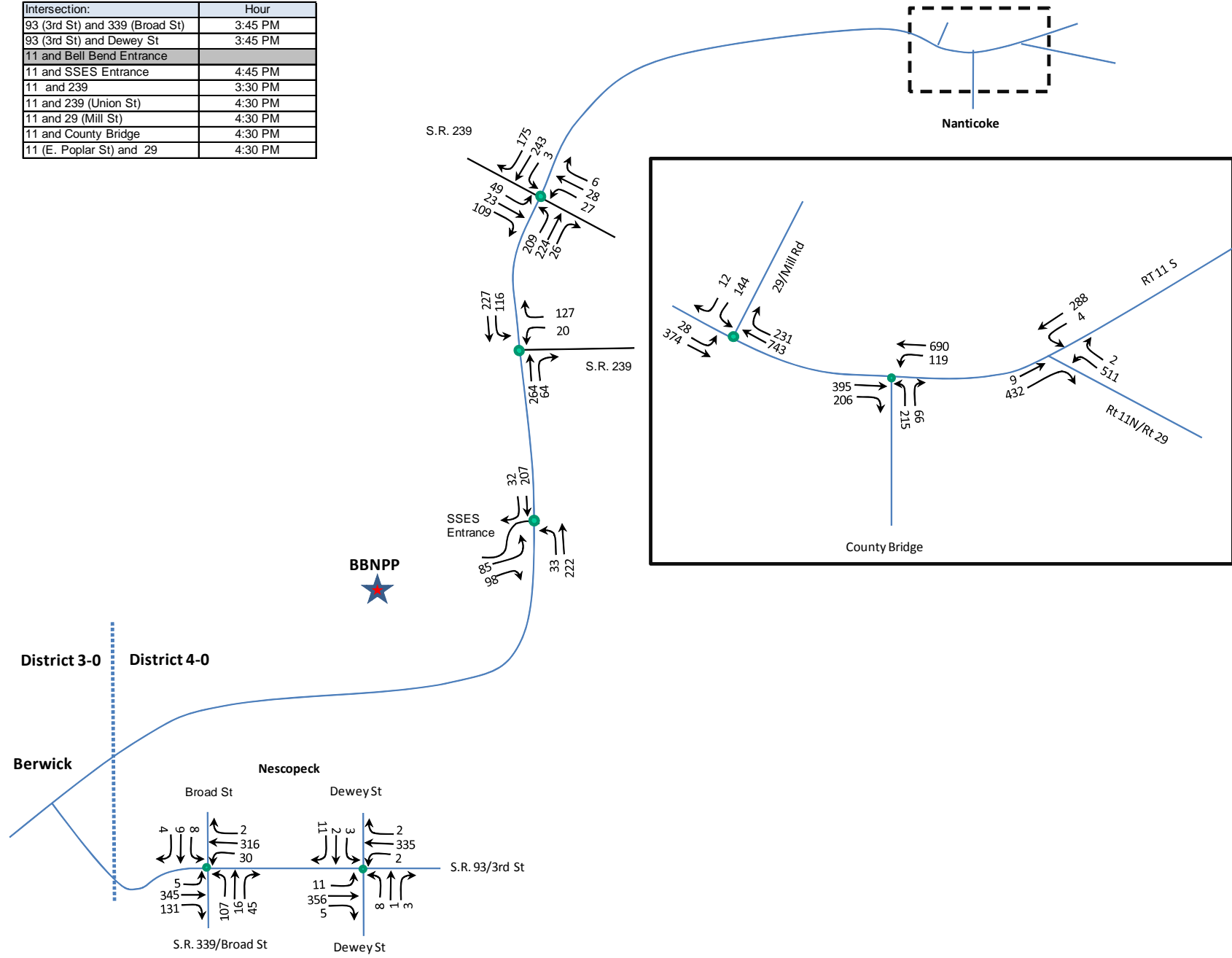


Figure E-2 – Existing PM Peak Hour Volumes

PennDOT Turn Lane Storage Length Calculations

Location: S.R. 11 and S.R. 2028

Scenario: 2010, Existing

Mitigation: Unmitigated

Control: Signalized

Movement	Peak Hour	Max LT Volume	Approach Volume	LT%	Cycle Length (sec)	Vehicles/Cycle	Condition A (X)	Condition B	Condition C1 (Y)	Condition C (X+Y)	Storage Length Needed	Storage Available
SBL	AM	122	735	17%	135	4.6	200	125	75	275	275	165
SBL	PM	217	1194	18%	135	8.1	350	125	75	425	425	165
Speed (MPH)	45			>10%		Condition:	B or C*					

WBL	AM	117	295	39%	135	4.4	200	#N/A	#N/A	#N/A	200	275
WBL	PM	94	323	29%	135	3.5	175	#N/A	#N/A	#N/A	175	275
Speed (MPH)	35			>10%		Condition:	A					

Condition B	
MPH	Length
40	75
45	125
50	175
55	235
60	295

Condition C1	
MPH	Length
40	61
45	75
50	93
55	114
60	131

Speed (MPH)	25-35	25-35	40-45	40-45	50-60	50-60
	LT %	LT %	LT %	LT %	LT %	LT %
Signalized	>10%	<=10%	>10%	<=10%	>10%	<=10%
Unsignalized	A	A	B or C*	B or C*	B or C*	B or C*
	A	A	B or C*	B or C*	B or C*	B

Notes: Storage needed exceeds available amount

* Whichever is greater

PennDOT Turn Lane Storage Length Calculations

Location: S.R. 11 and Briar Creek Plaza Driveways
 Scenario: 2010, Existing
 Mitigation: Unmitigated
 Control: Signalized

Movement	Peak Hour	Max LT Volume	Approach Volume	LT%	Cycle Length (sec)	Vehicles/Cycle	Condition A (X)	Condition B	Condition C1 (Y)	Condition C (X+Y)	Storage Length Needed	Storage Available
NBL	AM	38	518	7%	99	1.0	100	#N/A	#N/A	#N/A	100	175
NBL	PM	101	818	12%	99	2.8	150	#N/A	#N/A	#N/A	150	175
Speed (MPH)	35			>10%		Condition: A						

SBL	AM	40	483	8%	99	1.1	100	#N/A	#N/A	#N/A	100	135
SBL	PM	20	744	3%	99	0.5	75	#N/A	#N/A	#N/A	75	135
Speed (MPH)	35			<=10%		Condition: A						

EBL	AM	51	91	56%	99	1.4	100	#N/A	#N/A	#N/A	100	175
EBL	PM	192	299	64%	99	5.3	250	#N/A	#N/A	#N/A	250	175
Speed (MPH)	30			>10%		Condition: A						

WBL	AM	42	54	79%	99	1.1	100	#N/A	#N/A	#N/A	100	75
WBL	PM	51	79	65%	99	1.4	100	#N/A	#N/A	#N/A	100	75
Speed (MPH)	30			>10%		Condition: A						

Condition B	
MPH	Length
40	75
45	125
50	175
55	235
60	295

Condition C1	
MPH	Length
40	61
45	75
50	93
55	114
60	131

Speed (MPH)	25-35	25-35	40-45	40-45	50-60	50-60
	LT %	LT %	LT %	LT %	LT %	LT %
LT %	>10%	<=10%	>10%	<=10%	>10%	<=10%
Signalized	A	A	B or C*	B or C*	B or C*	B or C*
Unsignalized	A	A	B or C*	B or C*	B or C*	B

Notes: Storage needed exceeds available amount

* Whichever is greater

PennDOT Turn Lane Storage Length Calculations

Location: S.R. 11 (Front Street) and Eaton Street
 Scenario: 2010, Existing
 Mitigation: Unmitigated
 Control: Unsignalized

Movement	Peak Hour	Max LT Volume	Approach Volume	LT%	Cycle Length (sec)	Vehicles/Cycle	Condition A (X)	Condition B	Condition C1 (Y)	Condition C (X+Y)	Storage Length Needed	Storage Available
NBL	AM	23	480	5%	60	0.4	75	#N/A	#N/A	#N/A	75	150
NBL	PM	60	772	8%	60	1.0	100	#N/A	#N/A	#N/A	100	150
Speed (MPH)	35			<=10%		Condition: A						

SBL	AM	13	545	2%	60	0.2	75	#N/A	#N/A	#N/A	75	150
SBL	PM	60	692	9%	60	1.0	75	#N/A	#N/A	#N/A	75	150
Speed (MPH)	35			<=10%		Condition: A						

Condition B	
MPH	Length
40	75
45	125
50	175
55	235
60	295

Condition C2	
MPH	Length
40	61
45	75
50	93
55	114
60	131

Speed (MPH)	25-35	25-35	40-45	40-45	50-60	50-60
	LT %	LT %	LT %	LT %	LT %	LT %
Signalized	>10%	<=10%	>10%	<=10%	>10%	<=10%
Unsignalized	A	A	B or C*	B or C*	B or C*	B or C*
	A	A	B or C*	B or C*	B or C*	B

Notes: Storage needed exceeds available amount
 * Whichever is greater

PennDOT Turn Lane Storage Length Calculations

Location: S.R. 11 (Front Street) and Poplar Street

Scenario: 2010, Existing

Mitigation: Unmitigated

Control: Signalized

Movement	Peak Hour	Max LT Volume	Approach Volume	LT%	Cycle Length (sec)	Vehicles/Cycle	Condition A (X)	Condition B	Condition C1 (Y)	Condition C (X+Y)	Storage Length Needed	Storage Available
NBL	AM	0	0	#DIV/0!	70	0.0	75	#N/A	#N/A	#N/A	75	75
NBL	PM	21	711	3%	70	0.4	75	#N/A	#N/A	#N/A	75	75
Speed (MPH)	35			<=10%		Condition: A						

SBL	AM	53	581	9%	70	1.0	100	#N/A	#N/A	#N/A	100	105
SBL	PM	71	735	10%	70	1.4	100	#N/A	#N/A	#N/A	100	105
Speed (MPH)	35			<=10%		Condition: A						

WBL	AM	62	101	61%	70	1.2	100	#N/A	#N/A	#N/A	100	250
WBL	PM	128	252	51%	70	2.5	150	#N/A	#N/A	#N/A	150	250
Speed (MPH)	30			>10%		Condition: A						

Condition B	
MPH	Length
40	75
45	125
50	175
55	235
60	295

Condition C2	
MPH	Length
40	61
45	75
50	93
55	114
60	131

Speed (MPH)

LT %

Signalized

Unsignalized

25-35	25-35	40-45	40-45	50-60	50-60
>10%	<=10%	>10%	<=10%	>10%	<=10%
A	A	B or C*	B or C*	B or C*	B or C*
A	A	B or C*	B or C*	B or C*	B

Notes: Storage needed exceeds available amount

* Whichever is greater

PennDOT Turn Lane Storage Length Calculations

Location: S.R. 11 (Front Street) and Orchard Street
 Scenario: 2010, Existing
 Mitigation: Unmitigated
 Control: Signalized

Movement	Peak Hour	Max LT Volume	Approach Volume	LT%	Cycle Length (sec)	Vehicles/Cycle	Condition A (X)	Condition B	Condition C1 (Y)	Condition C (X+Y)	Storage Length Needed	Storage Available
NBL	AM	11	505	2%	70	0.2	75	#N/A	#N/A	#N/A	75	75
NBL	PM	15	719	2%	70	0.3	75	#N/A	#N/A	#N/A	75	75
Speed (MPH)	35			<=10%		Condition: A						

SBL	AM	8	584	1%	70	0.2	75	#N/A	#N/A	#N/A	75	75
SBL	PM	10	671	1%	70	0.2	75	#N/A	#N/A	#N/A	75	75
Speed (MPH)	35			<=10%		Condition: A						

Condition B	
MPH	Length
40	75
45	125
50	175
55	235
60	295

Condition C2	
MPH	Length
40	61
45	75
50	93
55	114
60	131

Speed (MPH)	25-35	25-35	40-45	40-45	50-60	50-60
	LT %	LT %	LT %	LT %	LT %	LT %
Signalized	>10%	<=10%	>10%	<=10%	>10%	<=10%
Unsignalized	A	A	B or C*	B or C*	B or C*	B or C*
	A	A	B or C*	B or C*	B or C*	B

Notes: Storage needed exceeds available amount
 * Whichever is greater

PennDOT Turn Lane Storage Length Calculations

Location: S.R. 11 (Second Street) and LaSalle Street

Scenario: 2010, Existing

Mitigation: Unmitigated

Control: Signalized

Movement	Peak Hour	Max LT Volume	Approach Volume	LT%	Cycle Length (sec)	Vehicles/Cycle	Condition A (X)	Condition B	Condition C1 (Y)	Condition C (X+Y)	Storage Length Needed	Storage Available
NBL	AM	55	473	12%	70	1.1	100	#N/A	#N/A	#N/A	100	100
NBL	PM	86	980	9%	70	1.7	100	#N/A	#N/A	#N/A	100	100
Speed (MPH)	35			<=10%		Condition: A						

SBL	AM	10	613	2%	70	0.2	75	#N/A	#N/A	#N/A	75	100
SBL	PM	18	948	2%	70	0.4	75	#N/A	#N/A	#N/A	75	100
Speed (MPH)	35			<=10%		Condition: A						

Condition B	
MPH	Length
40	75
45	125
50	175
55	235
60	295

Condition C2	
MPH	Length
40	61
45	75
50	93
55	114
60	131

Speed (MPH)	25-35	25-35	40-45	40-45	50-60	50-60
	LT %	LT %	LT %	LT %	LT %	LT %
Signalized	>10%	<=10%	>10%	<=10%	>10%	<=10%
Unsignalized	A	A	B or C*	B or C*	B or C*	B or C*
	A	A	B or C*	B or C*	B or C*	B

Notes: Storage needed exceeds available amount

* Whichever is greater

PennDOT Turn Lane Storage Length Calculations

Location: S.R. 1025 (Market Street) and Third Street
 Scenario: 2010, Existing
 Mitigation: Unmitigated
 Control: Signalized

Movement	Peak Hour	Max LT Volume	Approach Volume	LT%	Cycle Length (sec)	Vehicles/Cycle	Condition A (X)	Condition B	Condition C1 (Y)	Condition C (X+Y)	Storage Length Needed	Storage Available
EBL	AM	13	288	5%	75	0.3	75	#N/A	#N/A	#N/A	75	90
EBL	PM	23	352	7%	80	0.5	75	#N/A	#N/A	#N/A	75	90
Speed (MPH)	25			<=10%		Condition: A						

WBL	AM	38	173	22%	75	0.8	75	#N/A	#N/A	#N/A	75	175
WBL	PM	27	217	12%	80	0.6	75	#N/A	#N/A	#N/A	75	175
Speed (MPH)	25			>10%		Condition: A						

Condition B	
MPH	Length
40	75
45	125
50	175
55	235
60	295

Condition C2	
MPH	Length
40	61
45	75
50	93
55	114
60	131

Speed (MPH)	25-35		40-45		50-60	
	LT %	Signalized	LT %	Signalized	LT %	Signalized
25-35	>10%	A	<=10%	A	>10%	B or C*
40-45	>10%	B or C*	<=10%	B or C*	>10%	B or C*
50-60	>10%	B or C*	<=10%	B or C*	>10%	B or C*
50-60	>10%	B	<=10%	B	>10%	B

Notes: Storage needed exceeds available amount
 * Whichever is greater

PennDOT Turn Lane Storage Length Calculations

Location: S.R. 11 (Second Street) and Market Street

Scenario: 2010, Existing

Mitigation: Unmitigated

Control: Signalized

Movement	Peak Hour	Max LT Volume	Approach Volume	LT%	Cycle Length (sec)	Vehicles/Cycle	Condition A (X)	Condition B	Condition C1 (Y)	Condition C (X+Y)	Storage Length Needed	Storage Available
SBL	AM	142	714	20%	75	3.0	150	#N/A	#N/A	#N/A	150	100
SBL	PM	214	882	24%	80	4.7	200	#N/A	#N/A	#N/A	200	100
Speed (MPH)	35			>10%		Condition: A						

WBL	AM	220	324	68%	75	4.6	200	#N/A	#N/A	#N/A	200	170
WBL	PM	241	345	70%	80	5.3	250	#N/A	#N/A	#N/A	250	170
Speed (MPH)	25			>10%		Condition: A						

Condition B	
MPH	Length
40	75
45	125
50	175
55	235
60	295

Condition C2	
MPH	Length
40	61
45	75
50	93
55	114
60	131

Speed (MPH)	25-35	25-35	40-45	40-45	50-60	50-60
	LT %	LT %	LT %	LT %	LT %	LT %
Signalized	>10%	<=10%	>10%	<=10%	>10%	<=10%
Unsignalized	A	A	B or C*	B or C*	B or C*	B or C*
	A	A	B or C*	B or C*	B or C*	B

Notes: Storage needed exceeds available amount

* Whichever is greater

PennDOT Turn Lane Storage Length Calculations

Location: S.R. 11 (Second Street) and Pine Street
 Scenario: 2010, Existing
 Mitigation: Unmitigated
 Control: Signalized

Movement	Peak Hour	Max LT Volume	Approach Volume	LT%	Cycle Length (sec)	Vehicles/Cycle	Condition A (X)	Condition B	Condition C1 (Y)	Condition C (X+Y)	Storage Length Needed	Storage Available
WBL	AM	24	92	26%	75	0.5	75	#N/A	#N/A	#N/A	75	175
WBL	PM	61	195	31%	80	1.4	100	#N/A	#N/A	#N/A	100	175
Speed (MPH)	35			>10%		Condition:	A					

Condition B	
MPH	Length
40	75
45	125
50	175
55	235
60	295

Condition C2	
MPH	Length
40	61
45	75
50	93
55	114
60	131

	25-35	25-35	40-45	40-45	50-60	50-60
Speed (MPH)	25-35	25-35	40-45	40-45	50-60	50-60
LT %	>10%	<=10%	>10%	<=10%	>10%	<=10%
Signalized	A	A	B or C*	B or C*	B or C*	B or C*
Unsignalized	A	A	B or C*	B or C*	B or C*	B

Notes: Storage needed exceeds available amount

* Whichever is greater

PennDOT Turn Lane Storage Length Calculations

Location: S.R. 11 and SSES Site Entrance

Scenario: 2010, Existing

Mitigation: Unmitigated

Control: Unsignalized

Movement	Peak Hour	Max LT Volume	Approach Volume	LT%	Cycle Length (sec)	Vehicles/Cycle	Condition A (X)	Condition B	Condition C1 (Y)	Condition C (X+Y)	Storage Length Needed	Storage Available
NBL	AM	220	388	57%	90	5.5	250	235	114	364	364	200
NBL	PM	42	531	8%	90	1.1	100	235	114	214	235	200
Speed (MPH)	55			>10%		Condition:	B or C*					

EBL	AM	31	111	28%	90	0.8	75	#N/A	#N/A	#N/A	75	450
EBL	PM	85	183	46%	90	2.1	150	#N/A	#N/A	#N/A	150	450
Speed (MPH)	35			>10%		Condition:	A					

Condition B	
MPH	Length
40	75
45	125
50	175
55	235
60	295

Condition C2	
MPH	Length
40	61
45	75
50	93
55	114
60	131

	25-35	25-35	40-45	40-45	50-60	50-60
Speed (MPH)	25-35	25-35	40-45	40-45	50-60	50-60
LT %	>10%	<=10%	>10%	<=10%	>10%	<=10%
Signalized	A	A	B or C*	B or C*	B or C*	B or C*
Unsignalized	A	A	B or C*	B or C*	B or C*	B

Notes: Storage needed exceeds available amount

* Whichever is greater

PennDOT Turn Lane Storage Length Calculations

Location: S.R. 11 (Main Street) and S.R. 239 (Union Street)

Scenario: 2010, Existing

Mitigation: Unmitigated

Control: Signalized

Movement	Peak Hour	Max LT Volume	Approach Volume	LT%	Cycle Length (sec)	Vehicles/Cycle	Condition A (X)	Condition B	Condition C1 (Y)	Condition C (X+Y)	Storage Length Needed	Storage Available
NBL	AM	83	275	30%	75	1.7	100	#N/A	#N/A	#N/A	100	150
NBL	PM	214	464	46%	75	4.5	200	#N/A	#N/A	#N/A	200	150
Speed (MPH)	25			>10%		Condition: A						

Condition B	
MPH	Length
40	75
45	125
50	175
55	235
60	295

Condition C2	
MPH	Length
40	61
45	75
50	93
55	114
60	131

	25-35	25-35	40-45	40-45	50-60	50-60
Speed (MPH)	25-35	25-35	40-45	40-45	50-60	50-60
LT %	>10%	<=10%	>10%	<=10%	>10%	<=10%
Signalized	A	A	B or C*	B or C*	B or C*	B or C*
Unsignalized	A	A	B or C*	B or C*	B or C*	B

Notes: Storage needed exceeds available amount

* Whichever is greater

PennDOT Turn Lane Storage Length Calculations

Location: S.R. 11 and S.R. 29 (Mill Street)
 Scenario: 2010, Existing
 Mitigation: Unmitigated
 Control: Signalized

Movement	Peak Hour	Max LT Volume	Approach Volume	LT%	Cycle Length (sec)	Vehicles/ Cycle	Condition A (X)	Condition B	Condition C1 (Y)	Condition C (X+Y)	Storage Length Needed	Storage Available
NBL	AM	38	848	4%	90	1.0	75	#N/A	#N/A	#N/A	75	100
NBL	PM	30	424	7%	90	0.8	75	#N/A	#N/A	#N/A	75	100
Speed (MPH)	35			<=10%		Condition:	A					

Condition B	
MPH	Length
40	75
45	125
50	175
55	235
60	295

Condition C2	
MPH	Length
40	61
45	75
50	93
55	114
60	131

	25-35	25-35	40-45	40-45	50-60	50-60
Speed (MPH)	25-35	25-35	40-45	40-45	50-60	50-60
LT %	>10%	<=10%	>10%	<=10%	>10%	<=10%
Signalized	A	A	B or C*	B or C*	B or C*	B or C*
Unsignalized	A	A	B or C*	B or C*	B or C*	B

Notes: Storage needed exceeds available amount
 * Whichever is greater

PennDOT Turn Lane Storage Length Calculations

Location: S.R. 11 and County Bridge
 Scenario: 2010, Existing
 Mitigation: Unmitigated
 Control: Signalized

Movement	Peak Hour	Max LT Volume	Approach Volume	LT%	Cycle Length (sec)	Vehicles/Cycle	Condition A (X)	Condition B	Condition C1 (Y)	Condition C (X+Y)	Storage Length Needed	Storage Available
SBL	AM	91	384	24%	148	3.7	175	#N/A	#N/A	#N/A	175	200
SBL	PM	127	793	16%	108	3.8	175	#N/A	#N/A	#N/A	175	200
Speed (MPH)	35			>10%		Condition: A						

Condition B	
MPH	Length
40	75
45	125
50	175
55	235
60	295

Condition C2	
MPH	Length
40	61
45	75
50	93
55	114
60	131

	25-35	25-35	40-45	40-45	50-60	50-60
Speed (MPH)	25-35	25-35	40-45	40-45	50-60	50-60
LT %	>10%	<=10%	>10%	<=10%	>10%	<=10%
Signalized	A	A	B or C*	B or C*	B or C*	B or C*
Unsignalized	A	A	B or C*	B or C*	B or C*	B

Notes: Storage needed exceeds available amount

* Whichever is greater

PennDOT Turn Lane Storage Length Calculations

Location: S.R. 11 (E. Poplar Street) and S.R. 29
 Scenario: 2010, Existing
 Mitigation: Unmitigated
 Control: Unsignalized

Movement	Peak Hour	Max LT Volume	Approach Volume	LT%	Cycle Length (sec)	Vehicles/Cycle	Condition A (X)	Condition B	Condition C1 (Y)	Condition C (X+Y)	Storage Length Needed	Storage Available
NBL	AM	35	846	4%	90	0.9	75	#N/A	#N/A	#N/A	75	300
NBL	PM	21	481	4%	90	0.5	75	#N/A	#N/A	#N/A	75	300
Speed (MPH)	35			<=10%		Condition: A						

WBL	AM	220	227	97%	90	5.5	250	#N/A	#N/A	#N/A	250	300
WBL	PM	542	542	100%	90	13.6	500	#N/A	#N/A	#N/A	500	300
Speed (MPH)	35			>10%		Condition: A						

Condition B	
MPH	Length
40	75
45	125
50	175
55	235
60	295

Condition C2	
MPH	Length
40	61
45	75
50	93
55	114
60	131

Speed (MPH)	25-35		40-45		50-60	
	LT %	Signalized	LT %	Signalized	LT %	Signalized
25-35	>10%	A	<=10%	A	>10%	B or C*
40-45	>10%	B or C*	<=10%	B or C*	>10%	B or C*
50-60	>10%	B or C*	<=10%	B or C*	>10%	B or C*
50-60	<=10%	B				

Notes: Storage needed exceeds available amount
 * Whichever is greater

TWO-WAY STOP CONTROL SUMMARY

Analyst: KLD Engineering, P.C.
 Agency/Co.:
 Date Performed:
 Analysis Time Period: 7:30 AM
 Intersection: S.R. 11 and Eaton St.
 Jurisdiction: Berwick, PA
 Units: U. S. Customary
 Analysis Year: 2010
 Project ID: 2010, Existing, AM
 East/West Street: Eaton St.
 North/South Street: S.R. 11
 Intersection Orientation: NS

Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach Movement	Northbound			Southbound		
		1	2	3	4	5	6
		L	T	R	L	T	R
Volume		17	408	28	13	499	10
Peak-Hour Factor, PHF		0.85	0.95	0.64	0.65	0.94	0.50
Hourly Flow Rate, HFR		19	429	43	20	530	20
Percent Heavy Vehicles		0	--	--	0	--	--
Median Type/Storage		TWLTL			/ 9		
RT Channelized?							
Lanes		1	1	0	1	1	0
Configuration		L		TR	L		TR
Upstream Signal?			No			No	

Minor Street:	Approach Movement	Westbound			Eastbound		
		7	8	9	10	11	12
		L	T	R	L	T	R
Volume		8	4	4	3	5	42
Peak Hour Factor, PHF		0.50	0.50	0.50	0.75	0.42	0.70
Hourly Flow Rate, HFR		16	8	8	4	11	60
Percent Heavy Vehicles		0	0	0	0	0	0
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage				No	/		/
Lanes		0	1	0	0	1	1
Configuration			LTR		LT		R

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L	L		LTR		LT		R
v (vph)	19	20		32		15		60
C(m) (vph)	1030	1100		447		469		546
v/c	0.02	0.02		0.07		0.03		0.11
95% queue length	0.06	0.06		0.23		0.10		0.37
Control Delay	8.6	8.3		13.7		12.9		12.4
LOS	A	A		B		B		B
Approach Delay				13.7			12.5	
Approach LOS				B			B	

TWO-WAY STOP CONTROL SUMMARY

Analyst: KLD Engineering, P.C
 Agency/Co.:
 Date Performed:
 Analysis Time Period: 3:45 PM
 Intersection: S.R. 11 and Eaton St.
 Jurisdiction: Berwick, PA
 Units: U. S. Customary
 Analysis Year: 2010
 Project ID: 2010, Existing, PM
 East/West Street: Eaton St.
 North/South Street: S.R. 11
 Intersection Orientation: NS

Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach Movement	Northbound			Southbound		
		1	2	3	4	5	6
		L	T	R	L	T	R
Volume		58	560	33	18	666	18
Peak-Hour Factor, PHF		0.85	0.90	0.69	0.64	0.93	0.75
Hourly Flow Rate, HFR		68	622	47	28	716	24
Percent Heavy Vehicles		0	--	--	0	--	--
Median Type/Storage		TWLTL			/ 9		
RT Channelized?							
Lanes		1	1	0	1	1	0
Configuration		L		TR	L		TR
Upstream Signal?			No			No	

Minor Street:	Approach Movement	Westbound			Eastbound		
		7	8	9	10	11	12
		L	T	R	L	T	R
Volume		19	4	23	4	5	40
Peak Hour Factor, PHF		0.68	0.50	0.41	1.00	0.63	0.71
Hourly Flow Rate, HFR		27	8	56	4	7	56
Percent Heavy Vehicles		0	0	0	0	0	0
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage				No	/		/
Lanes		0	1	0	0	1	1
Configuration			LTR		LT		R

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L	L		LTR		LT		R
v (vph)	68	28		91		11		56
C(m) (vph)	876	931		356		304		427
v/c	0.08	0.03		0.26		0.04		0.13
95% queue length	0.25	0.09		1.00		0.11		0.45
Control Delay	9.5	9.0		18.5		17.3		14.7
LOS	A	A		C		C		B
Approach Delay				18.5			15.1	
Approach LOS				C			C	

TWO-WAY STOP CONTROL SUMMARY

Analyst: KLD Engineering, P.C
 Agency/Co.:
 Date Performed:
 Analysis Time Period: 6:00 AM
 Intersection: S.R. 11 and SSES Entrance
 Jurisdiction: Berwick, PA
 Units: U. S. Customary
 Analysis Year: 2010
 Project ID: 2010, Existing, AM
 East/West Street: SSES Entrance
 North/South Street: S.R. 11
 Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach	Northbound			Southbound		
	Movement	1	2	3	4	5	6
		L	T	R	L	T	R
Volume		220	147			139	149
Peak-Hour Factor, PHF		0.87	1.00			0.79	0.78
Hourly Flow Rate, HFR		252	147			175	191
Percent Heavy Vehicles		0	--	--		--	--
Median Type/Storage		TWLTL			/ 9		
RT Channelized?							
Lanes		1	1			1	0
Configuration		L	T			TR	
Upstream Signal?			No			No	

Minor Street:	Approach	Westbound			Eastbound		
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume					31		80
Peak Hour Factor, PHF					0.60		0.56
Hourly Flow Rate, HFR					51		142
Percent Heavy Vehicles					0		0
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage					/		
Lanes					1	1	
Configuration					L	R	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L					L		R
v (vph)	252					51		142
C(m) (vph)	1204					411		774
v/c	0.21					0.12		0.18
95% queue length	0.79					0.42		0.67
Control Delay	8.8					15.0-		10.7
LOS	A					B		B
Approach Delay							11.8	
Approach LOS							B	

TWO-WAY STOP CONTROL SUMMARY

Analyst: KLD Engineering, P.C.
 Agency/Co.:
 Date Performed:
 Analysis Time Period: 4:45 PM
 Intersection: S.R. 11 and SSES Entrance
 Jurisdiction: Berwick, PA
 Units: U. S. Customary
 Analysis Year: 2010
 Project ID: 2010, Existing, PM
 East/West Street: SSES Entrance
 North/South Street: S.R. 11
 Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach Movement	Northbound			Southbound		
		1	2	3	4	5	6
		L	T	R	L	T	R
Volume		33	222			207	32
Peak-Hour Factor, PHF		0.69	0.79			0.92	0.73
Hourly Flow Rate, HFR		47	281			224	43
Percent Heavy Vehicles		0	--	--		--	--
Median Type/Storage		TWLTL			/ 9		
RT Channelized?							
Lanes		1	1			1	0
Configuration		L	T			TR	
Upstream Signal?			No			No	

Minor Street:	Approach Movement	Westbound			Eastbound		
		7	8	9	10	11	12
		L	T	R	L	T	R
Volume					85		98
Peak Hour Factor, PHF					0.78		0.79
Hourly Flow Rate, HFR					108		124
Percent Heavy Vehicles					0		0
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage					/		
Lanes					1	1	
Configuration					L	R	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L					L		R
v (vph)	47					108		124
C(m) (vph)	1308					668		798
v/c	0.04					0.16		0.16
95% queue length	0.11					0.57		0.55
Control Delay	7.9					11.4		10.3
LOS	A					B		B
Approach Delay							10.8	
Approach LOS							B	

TWO-WAY STOP CONTROL SUMMARY

Analyst: KLD Engineering, P.C.
 Agency/Co.:
 Date Performed:
 Analysis Time Period: 7:00 AM
 Intersection: S.R. 11 and S.R. 29
 Jurisdiction: Nanticoke, PA
 Units: U. S. Customary
 Analysis Year: 2010
 Project ID: 2010, Existing, AM
 East/West Street: S.R. 29
 North/South Street: S.R. 11 (Poplar St.)
 Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach	Northbound			Southbound		
	Movement	1	2	3	4	5	6
		L	T	R	L	T	R
Volume						0	
Peak-Hour Factor, PHF						1.00	
Hourly Flow Rate, HFR						0	
Percent Heavy Vehicles		--	--			--	--
Median Type/Storage		Undivided			/		
RT Channelized?							
Lanes						1	
Configuration						T	
Upstream Signal?			No			No	

Minor Street:	Approach	Westbound			Eastbound		
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume				32		211	
Peak Hour Factor, PHF				0.58		0.79	
Hourly Flow Rate, HFR				55		267	
Percent Heavy Vehicles				0		0	
Percent Grade (%)		0				0	
Flared Approach: Exists?/Storage					/		/
Lanes			1			1	
Configuration			R			L	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config					R	L		
v (vph)					55	267		
C(m) (vph)					1091	937		
v/c					0.05	0.28		
95% queue length					0.16	1.18		
Control Delay					8.5	10.4		
LOS					A	B		
Approach Delay				8.5			10.4	
Approach LOS				A			B	

TWO-WAY STOP CONTROL SUMMARY

Analyst: KLD Engineering, P.C.
 Agency/Co.:
 Date Performed:
 Analysis Time Period: 4:30 PM
 Intersection: S.R. 11 and S.R. 29
 Jurisdiction: Nanticoke, PA
 Units: U. S. Customary
 Analysis Year: 2010
 Project ID: 2010, Existing, PM
 East/West Street: S.R. 29
 North/South Street: S.R. 11 (Poplar St.)
 Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach	Northbound			Southbound		
	Movement	1	2	3	4	5	6
		L	T	R	L	T	R
Volume						288	
Peak-Hour Factor, PHF						0.90	
Hourly Flow Rate, HFR						320	
Percent Heavy Vehicles		--	--			--	--
Median Type/Storage		Undivided			/		
RT Channelized?							
Lanes						1	
Configuration						T	
Upstream Signal?			No			No	

Minor Street:	Approach	Westbound			Eastbound		
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume				9	511		
Peak Hour Factor, PHF				0.56	0.87		
Hourly Flow Rate, HFR				16	587		
Percent Heavy Vehicles				0	0		
Percent Grade (%)		0			0		
Flared Approach: Exists?/Storage					/		/
Lanes			1		1		
Configuration			R		L		

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config					R	L		
v (vph)					16	587		
C(m) (vph)					1091	620		
v/c					0.01	0.95		
95% queue length					0.04	12.92		
Control Delay					8.3	50.0-		
LOS					A	E		
Approach Delay			8.3				50.0-	
Approach LOS			A				E	

HCM Signalized Intersection Capacity Analysis

7: Market St. & S.R. 11 (Second St.)

2010, Existing
AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	1	1	1	1	0	0	0	0	1	2	1
Volume (vph)	0	122	88	201	106	0	0	0	0	133	506	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5	3.0	4.5					5.0	5.0	5.0
Lane Util. Factor		1.00	1.00	1.00	1.00					1.00	0.95	1.00
Frt		1.00	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	1.00	1.00
Satd. Flow (prot)		1792	1599	1787	1863					1736	3539	1615
Flt Permitted		1.00	1.00	0.60	1.00					0.95	1.00	1.00
Satd. Flow (perm)		1792	1599	1128	1863					1736	3539	1615
Peak-hour factor, PHF	1.00	0.90	0.88	0.82	0.70	1.00	1.00	1.00	1.00	0.83	0.78	0.80
Adj. Flow (vph)	0	136	100	245	151	0	0	0	0	160	649	60
RTOR Reduction (vph)	0	0	66	0	0	0	0	0	0	0	0	36
Lane Group Flow (vph)	0	136	34	245	151	0	0	0	0	160	649	24
Heavy Vehicles (%)	0%	6%	1%	1%	2%	0%	0%	0%	0%	4%	2%	0%
Turn Type			Perm	pm+pt						Split		Prot
Protected Phases		4		3	8					2	2	2
Permitted Phases			4	8								
Actuated Green, G (s)		25.5	25.5	35.5	35.5					30.0	30.0	30.0
Effective Green, g (s)		25.5	25.5	35.5	35.5					30.0	30.0	30.0
Actuated g/C Ratio		0.34	0.34	0.47	0.47					0.40	0.40	0.40
Clearance Time (s)		4.5	4.5	3.0	4.5					5.0	5.0	5.0
Lane Grp Cap (vph)		609	544	595	882					694	1416	646
v/s Ratio Prot		0.08		c0.04	0.08					0.09	c0.18	0.01
v/s Ratio Perm			0.02	c0.16								
v/c Ratio		0.22	0.06	0.41	0.17					0.23	0.46	0.04
Uniform Delay, d1		17.7	16.7	12.1	11.3					14.9	16.5	13.7
Progression Factor		1.55	3.05	2.93	2.67					0.82	0.84	0.68
Incremental Delay, d2		0.8	0.2	1.4	0.3					0.8	1.0	0.1
Delay (s)		28.2	51.2	37.0	30.5					13.0	14.9	9.5
Level of Service		C	D	D	C					B	B	A
Approach Delay (s)		37.9			34.5			0.0			14.2	
Approach LOS		D			C			A			B	
Intersection Summary												
HCM Average Control Delay			23.3		HCM Level of Service				C			
HCM Volume to Capacity ratio			0.42									
Actuated Cycle Length (s)			75.0		Sum of lost time (s)				8.0			
Intersection Capacity Utilization			59.7%		ICU Level of Service				B			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

8: S.R. 11 (Front St.) & Market St.

2010, Existing
AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	2>	0	0	0	0	0	1	1	1	1	0
Volume (vph)	0	452	122	0	0	0	0	303	194	37	211	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			-1%			1%	
Total Lost time (s)		5.0						5.0	5.0	3.0	5.0	
Lane Util. Factor		0.95						1.00	1.00	1.00	1.00	
Frt		0.97						1.00	0.85	1.00	1.00	
Flt Protected		1.00						1.00	1.00	0.95	1.00	
Satd. Flow (prot)		3408						1872	1607	1633	1835	
Flt Permitted		1.00						1.00	1.00	0.28	1.00	
Satd. Flow (perm)		3408						1872	1607	486	1835	
Peak-hour factor, PHF	1.00	0.91	0.87	1.00	1.00	1.00	1.00	0.78	0.66	0.77	0.80	1.00
Adj. Flow (vph)	0	497	140	0	0	0	0	388	294	48	264	0
RTOR Reduction (vph)	0	34	0	0	0	0	0	0	182	0	0	0
Lane Group Flow (vph)	0	603	0	0	0	0	0	388	112	48	264	0
Heavy Vehicles (%)	0%	2%	4%	0%	0%	0%	0%	2%	1%	10%	3%	0%
Turn Type									Perm	D.P+P		
Protected Phases		1						3		2	4	
Permitted Phases									3	3		
Actuated Green, G (s)		34.0						21.0	21.0	28.0	31.0	
Effective Green, g (s)		34.0						21.0	21.0	28.0	31.0	
Actuated g/C Ratio		0.45						0.28	0.28	0.37	0.41	
Clearance Time (s)		5.0						5.0	5.0	3.0	5.0	
Lane Grp Cap (vph)		1545						524	450	288	758	
v/s Ratio Prot		c0.18						c0.21		0.02	c0.14	
v/s Ratio Perm									0.07	0.05		
v/c Ratio		0.39						0.74	0.25	0.17	0.35	
Uniform Delay, d1		13.6						24.5	20.9	15.9	15.1	
Progression Factor		0.74						1.00	1.00	0.67	0.71	
Incremental Delay, d2		0.7						9.1	1.3	1.2	1.2	
Delay (s)		10.8						33.6	22.2	11.8	11.9	
Level of Service		B						C	C	B	B	
Approach Delay (s)		10.8			0.0			28.7			11.9	
Approach LOS		B			A			C			B	
Intersection Summary												
HCM Average Control Delay			18.5		HCM Level of Service					B		
HCM Volume to Capacity ratio			0.52									
Actuated Cycle Length (s)			75.0		Sum of lost time (s)					15.0		
Intersection Capacity Utilization			59.7%		ICU Level of Service					B		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

32: S.R. 239 & S.R. 11 (S. Main St.)

2010, Existing
AM

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	1>	0	1	1	1	1
Volume (vph)	43	68	128	10	59	270
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%		0%			-1%
Total Lost time (s)	5.2		5.4	5.4	5.4	5.4
Lane Util. Factor	1.00		1.00	1.00	1.00	1.00
Frt	0.93		1.00	0.85	1.00	1.00
Flt Protected	0.98		1.00	1.00	0.95	1.00
Satd. Flow (prot)	1682		1845	1615	1761	1854
Flt Permitted	0.98		1.00	1.00	0.50	1.00
Satd. Flow (perm)	1682		1845	1615	929	1854
Peak-hour factor, PHF	0.57	0.85	0.86	0.62	0.74	0.78
Adj. Flow (vph)	75	80	149	16	80	346
RTOR Reduction (vph)	48	0	0	10	0	0
Lane Group Flow (vph)	107	0	149	6	80	346
Heavy Vehicles (%)	0%	5%	3%	0%	3%	3%
Turn Type				Perm	pm+pt	
Protected Phases	4		6		5	2
Permitted Phases				6	2	
Actuated Green, G (s)	8.2		16.8	16.8	26.3	26.3
Effective Green, g (s)	8.2		16.8	16.8	26.3	26.3
Actuated g/C Ratio	0.18		0.37	0.37	0.58	0.58
Clearance Time (s)	5.2		5.4	5.4	5.4	5.4
Vehicle Extension (s)	5.0		5.0	5.0	3.0	5.0
Lane Grp Cap (vph)	306		687	602	617	1081
v/s Ratio Prot	c0.06		0.08		0.01	c0.19
v/s Ratio Perm				0.00	0.06	
v/c Ratio	0.35		0.22	0.01	0.13	0.32
Uniform Delay, d1	16.1		9.7	8.9	4.5	4.8
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	1.4		0.3	0.0	0.1	0.4
Delay (s)	17.6		10.0	8.9	4.5	5.2
Level of Service	B		A	A	A	A
Approach Delay (s)	17.6		9.9			5.1
Approach LOS	B		A			A
Intersection Summary						
HCM Average Control Delay			8.7		HCM Level of Service	A
HCM Volume to Capacity ratio			0.33			
Actuated Cycle Length (s)			45.1		Sum of lost time (s)	10.6
Intersection Capacity Utilization			34.1%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

37: S.R. 239 (Union St.) & S.R. 11 (Main St.)

2010, Existing
AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	<1>	0	0	<1>	0	1	1>	0	0	<1>	0
Volume (vph)	148	25	96	12	14	2	64	227	12	2	169	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			0%			1%			1%	
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	
Frt		0.95			0.97		1.00	0.99			0.96	
Flt Protected		0.97			0.98		0.95	1.00			1.00	
Satd. Flow (prot)		1544			1545		1616	1621			1473	
Flt Permitted		0.81			0.84		0.41	1.00			0.99	
Satd. Flow (perm)		1283			1330		700	1621			1458	
Peak-hour factor, PHF	0.92	0.69	0.96	0.75	0.88	0.25	0.64	0.83	0.60	0.25	0.89	0.52
Adj. Flow (vph)	161	36	100	16	16	8	100	273	20	8	190	92
RTOR Reduction (vph)	0	24	0	0	6	0	0	4	0	0	25	0
Lane Group Flow (vph)	0	273	0	0	34	0	100	289	0	0	265	0
Heavy Vehicles (%)	2%	8%	1%	0%	14%	0%	0%	3%	16%	0%	11%	10%
Turn Type	Perm			Perm			pm+pt			Perm		
Protected Phases		4			8		1	6			2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)		16.4			16.4		27.6	27.6			17.1	
Effective Green, g (s)		16.4			16.4		27.6	27.6			17.1	
Actuated g/C Ratio		0.30			0.30		0.51	0.51			0.32	
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)		390			404		451	829			462	
v/s Ratio Prot							0.02	c0.18				
v/s Ratio Perm		c0.21			0.03		0.09				c0.18	
v/c Ratio		0.70			0.09		0.22	0.35			0.57	
Uniform Delay, d1		16.6			13.4		7.9	7.9			15.4	
Progression Factor		1.00			1.00		1.00	1.00			1.00	
Incremental Delay, d2		5.6			0.1		0.2	0.3			1.7	
Delay (s)		22.2			13.5		8.2	8.1			17.1	
Level of Service		C			B		A	A			B	
Approach Delay (s)		22.2			13.5			8.1			17.1	
Approach LOS		C			B			A			B	

Intersection Summary

HCM Average Control Delay	15.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	54.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	63.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

44: S.R. 11 & Poplar St.

2010, Existing
AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1	1>	0	1	1>	0	0	<1	1	0	<1>	0
Volume (vph)	0	396	23	34	519	0	46	0	23	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		3.0	5.0			4.0	4.0			
Lane Util. Factor		1.00		1.00	1.00			1.00	1.00			
Frpb, ped/bikes		1.00		1.00	1.00			1.00	1.00			
Flpb, ped/bikes		1.00		1.00	1.00			0.99	1.00			
Frt		0.99		1.00	1.00			1.00	0.85			
Flt Protected		1.00		0.95	1.00			0.95	1.00			
Satd. Flow (prot)		1786		1626	1845			1694	1335			
Flt Permitted		1.00		0.95	1.00			0.76	1.00			
Satd. Flow (perm)		1786		1626	1845			1350	1335			
Peak-hour factor, PHF	1.00	0.85	0.64	0.71	0.88	1.00	0.57	1.00	0.64	1.00	1.00	1.00
Adj. Flow (vph)	0	466	36	48	590	0	81	0	36	0	0	0
RTOR Reduction (vph)	0	4	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	498	0	48	590	0	0	81	36	0	0	0
Confl. Peds. (#/hr)							3					
Heavy Vehicles (%)	0%	5%	8%	11%	3%	0%	6%	0%	21%	0%	0%	0%
Turn Type	Perm			Prot			Perm		Perm	Perm		
Protected Phases		2		1	6			8			4	
Permitted Phases	2						8		8	4		
Actuated Green, G (s)		23.0		14.5	40.5			20.5	20.5			
Effective Green, g (s)		23.0		14.5	40.5			20.5	20.5			
Actuated g/C Ratio		0.33		0.21	0.58			0.29	0.29			
Clearance Time (s)		5.0		3.0	5.0			4.0	4.0			
Lane Grp Cap (vph)		587		337	1067			395	391			
v/s Ratio Prot		c0.28		0.03	c0.32							
v/s Ratio Perm								c0.06	0.03			
v/c Ratio		0.85		0.14	0.55			0.21	0.09			
Uniform Delay, d1		21.9		22.7	9.1			18.6	18.0			
Progression Factor		1.00		0.37	1.52			1.00	1.00			
Incremental Delay, d2		14.2		0.5	1.1			1.2	0.5			
Delay (s)		36.1		8.7	15.0			19.8	18.5			
Level of Service		D		A	B			B	B			
Approach Delay (s)		36.1			14.5			19.4			0.0	
Approach LOS		D			B			B			A	
Intersection Summary												
HCM Average Control Delay			23.6			HCM Level of Service			C			
HCM Volume to Capacity ratio			0.57									
Actuated Cycle Length (s)			70.0			Sum of lost time (s)			14.0			
Intersection Capacity Utilization			52.4%			ICU Level of Service			A			
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

48: S.R. 11 & S.R. 93 (Orange St.)

2010, Existing
AM

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	0	1	1	0	1	0
Volume (vph)	0	398	559	0	77	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		-1%	0%		0%	
Total Lost time (s)		4.0	4.0		4.0	
Lane Util. Factor		1.00	1.00		1.00	
Frt		1.00	1.00		1.00	
Flt Protected		1.00	1.00		0.95	
Satd. Flow (prot)		1801	1845		1787	
Flt Permitted		1.00	1.00		0.95	
Satd. Flow (perm)		1801	1845		1787	
Peak-hour factor, PHF	1.00	0.89	0.84	0.93	0.68	1.00
Adj. Flow (vph)	0	447	665	0	113	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	447	665	0	113	0
Heavy Vehicles (%)	0%	6%	3%	2%	1%	0%
Turn Type						
Protected Phases		2	6		8	
Permitted Phases						
Actuated Green, G (s)		41.0	41.0		21.0	
Effective Green, g (s)		41.0	41.0		21.0	
Actuated g/C Ratio		0.59	0.59		0.30	
Clearance Time (s)		4.0	4.0		4.0	
Lane Grp Cap (vph)		1055	1081		536	
v/s Ratio Prot		0.25	c0.36		c0.06	
v/s Ratio Perm						
v/c Ratio		0.42	0.62		0.21	
Uniform Delay, d1		8.0	9.4		18.3	
Progression Factor		1.55	0.51		1.00	
Incremental Delay, d2		1.0	2.5		0.9	
Delay (s)		13.4	7.3		19.2	
Level of Service		B	A		B	
Approach Delay (s)		13.4	7.3		19.2	
Approach LOS		B	A		B	
Intersection Summary						
HCM Average Control Delay			10.6		HCM Level of Service	B
HCM Volume to Capacity ratio			0.48			
Actuated Cycle Length (s)			70.0		Sum of lost time (s)	8.0
Intersection Capacity Utilization			40.4%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

51: S.R. 11 (Second St.) & LaSalle St.

2010, Existing
AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	NWL	NWR
Lane Configurations	1	0	0	1	2>	0	0	1	0	0
Volume (vph)	45	0	0	9	586	20	0	61	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0	4.0			4.0		
Lane Util. Factor	1.00			1.00	0.95			1.00		
Frt	1.00			1.00	0.99			0.86		
Flt Protected	0.95			0.95	1.00			1.00		
Satd. Flow (prot)	1805			1805	3517			1627		
Flt Permitted	0.95			0.95	1.00			1.00		
Satd. Flow (perm)	1805			1805	3517			1627		
Peak-hour factor, PHF	0.54	0.90	1.00	0.75	0.84	0.56	1.00	0.76	0.92	0.92
Adj. Flow (vph)	83	0	0	12	698	36	0	80	0	0
RTOR Reduction (vph)	0	0	0	5	5	0	0	56	0	0
Lane Group Flow (vph)	83	0	0	7	729	0	0	24	0	0
Heavy Vehicles (%)	0%	2%	0%	0%	2%	0%	0%	1%	2%	2%
Turn Type	Prot			custom				custom		
Protected Phases	8			1	1			8		
Permitted Phases				1				8		
Actuated Green, G (s)	21.0			41.0	41.0			21.0		
Effective Green, g (s)	21.0			41.0	41.0			21.0		
Actuated g/C Ratio	0.30			0.59	0.59			0.30		
Clearance Time (s)	4.0			4.0	4.0			4.0		
Lane Grp Cap (vph)	542			1057	2060			488		
v/s Ratio Prot	c0.05			0.00	c0.21			0.01		
v/s Ratio Perm										
v/c Ratio	0.15			0.01	0.35			0.05		
Uniform Delay, d1	18.0			6.0	7.6			17.4		
Progression Factor	0.89			1.00	1.00			1.00		
Incremental Delay, d2	0.6			0.0	0.5			0.2		
Delay (s)	16.6			6.0	8.1			17.6		
Level of Service	B			A	A			B		
Approach Delay (s)		16.6			8.0		17.6		0.0	
Approach LOS		B			A		B		A	
Intersection Summary										
HCM Average Control Delay			9.7		HCM Level of Service				A	
HCM Volume to Capacity ratio			0.29							
Actuated Cycle Length (s)			70.0		Sum of lost time (s)				8.0	
Intersection Capacity Utilization			27.3%		ICU Level of Service				A	
Analysis Period (min)			15							
c Critical Lane Group										

HCM Signalized Intersection Capacity Analysis

67: S.R. 11 (Second St.) & Pine St.

2010, Existing
AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	0	0	0	2>	0	1	1	0	0	0	1
Volume (vph)	0	0	0	0	578	18	24	66	0	0	0	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)	0%				0%			1%		1%		
Total Lost time (s)					4.0			4.0		4.0		
Lane Util. Factor					0.95			1.00		1.00		
Frt					0.99			1.00		1.00		
Flt Protected					1.00			0.95		1.00		
Satd. Flow (prot)					3491			1796		1872		
Flt Permitted					1.00			0.95		1.00		
Satd. Flow (perm)					3491			1796		1872		
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	0.72	0.64	0.67	0.79	1.00	1.00	1.00	0.71
Adj. Flow (vph)	0	0	0	0	803	28	36	84	0	0	0	24
RTOR Reduction (vph)	0	0	0	0	2	0	32	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	829	0	4	84	0	0	0	24
Heavy Vehicles (%)	0%	0%	0%	0%	3%	0%	0%	1%	0%	0%	0%	0%
Turn Type							Perm			custom		
Protected Phases							1			2		
Permitted Phases							2			2		
Actuated Green, G (s)					59.4			7.6		7.6		
Effective Green, g (s)					59.4			7.6		7.6		
Actuated g/C Ratio					0.79			0.10		0.10		
Clearance Time (s)					4.0			4.0		4.0		
Vehicle Extension (s)					3.0			3.0		3.0		
Lane Grp Cap (vph)					2765			182		190		
v/s Ratio Prot					c0.24			c0.04				
v/s Ratio Perm								0.00		0.01		
v/c Ratio					0.30			0.02		0.44		
Uniform Delay, d1					2.1			30.3		31.7		
Progression Factor					0.98			1.00		1.00		
Incremental Delay, d2					0.3			0.0		1.6		
Delay (s)					2.4			30.4		33.3		
Level of Service					A			C		C		
Approach Delay (s)	0.0				2.4			32.5		31.1		
Approach LOS	A				A			C		C		
Intersection Summary												
HCM Average Control Delay			6.8		HCM Level of Service				A			
HCM Volume to Capacity ratio			0.32									
Actuated Cycle Length (s)			75.0		Sum of lost time (s)				8.0			
Intersection Capacity Utilization			33.2%		ICU Level of Service				A			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

68: S.R. 11 & Orchard St.

2010, Existing
AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1	1	0	1	1	0	0	<1>	0	0	<1>	0
Volume (vph)	9	467	1	6	563	3	19	11	5	23	2	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	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	
Frt	1.00	1.00		1.00	1.00			0.97			0.96	
Flt Protected	0.95	1.00		0.95	1.00			0.98			0.97	
Satd. Flow (prot)	1805	1795		1805	1842			1812			1768	
Flt Permitted	0.13	1.00		0.30	1.00			0.98			0.97	
Satd. Flow (perm)	253	1795		574	1842			1812			1768	
Peak-hour factor, PHF	0.56	0.92	0.25	0.38	0.82	0.38	0.68	0.46	0.42	0.52	0.25	0.71
Adj. Flow (vph)	16	508	4	16	687	8	28	24	12	44	8	24
RTOR Reduction (vph)	0	0	0	0	0	0	0	10	0	0	20	0
Lane Group Flow (vph)	16	512	0	16	695	0	0	54	0	0	56	0
Heavy Vehicles (%)	0%	5%	100%	0%	3%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm			Perm			Split			Split		
Protected Phases		2			6		3	3		4	4	
Permitted Phases	2			6								
Actuated Green, G (s)	30.0	30.0		30.0	30.0			12.5			12.5	
Effective Green, g (s)	30.0	30.0		30.0	30.0			12.5			12.5	
Actuated g/C Ratio	0.43	0.43		0.43	0.43			0.18			0.18	
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Lane Grp Cap (vph)	108	769		246	789			324			316	
v/s Ratio Prot		0.29			c0.38			c0.03			c0.03	
v/s Ratio Perm	0.06			0.03								
v/c Ratio	0.15	0.67		0.07	0.88			0.17			0.18	
Uniform Delay, d1	12.2	16.0		11.8	18.4			24.3			24.4	
Progression Factor	0.28	0.28		0.45	0.43			1.00			1.00	
Incremental Delay, d2	1.8	2.9		0.4	11.4			1.1			1.2	
Delay (s)	5.2	7.3		5.7	19.3			25.5			25.6	
Level of Service	A	A		A	B			C			C	
Approach Delay (s)		7.3			19.0			25.5			25.6	
Approach LOS		A			B			C			C	
Intersection Summary												
HCM Average Control Delay			15.2		HCM Level of Service				B			
HCM Volume to Capacity ratio			0.56									
Actuated Cycle Length (s)			70.0		Sum of lost time (s)			15.0				
Intersection Capacity Utilization			43.1%		ICU Level of Service			A				
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2010, Existing

71: S.R. 11 (Second St.) & Oak St.

AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	0	0	0	<2>	0	0	<1	0	0	1>	0
Volume (vph)	0	0	0	22	697	20	7	28	0	0	31	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)	0%				-1%				1%			
Total Lost time (s)					6.0				5.0			
Lane Util. Factor					0.95				1.00			
Frt					1.00				1.00			
Flt Protected					1.00				0.99			
Satd. Flow (prot)					3535				1662			
Flt Permitted					1.00				0.87			
Satd. Flow (perm)					3535				1471			
Peak-hour factor, PHF	1.00	1.00	1.00	0.69	0.86	0.83	0.44	0.70	1.00	1.00	0.65	0.88
Adj. Flow (vph)	0	0	0	32	810	24	16	40	0	0	48	40
RTOR Reduction (vph)	0	0	0	0	2	0	0	0	0	0	35	0
Lane Group Flow (vph)	0	0	0	0	864	0	0	56	0	0	53	0
Heavy Vehicles (%)	0%	0%	0%	4%	2%	0%	0%	17%	0%	0%	0%	14%
Turn Type	Perm						Perm					
Protected Phases					1						2	
Permitted Phases					1						2	
Actuated Green, G (s)					32.9						6.2	
Effective Green, g (s)					32.9						6.2	
Actuated g/C Ratio					0.66						0.12	
Clearance Time (s)					6.0						5.0	
Vehicle Extension (s)					3.0						3.0	
Lane Grp Cap (vph)					2321						182	
v/s Ratio Prot												
v/s Ratio Perm					0.24						c0.04	
v/c Ratio					0.37						0.31	
Uniform Delay, d1					3.9						20.0	
Progression Factor					1.00						1.00	
Incremental Delay, d2					0.1						1.0	
Delay (s)					4.0						21.0	
Level of Service					A						C	
Approach Delay (s)	0.0				4.0		21.0				20.5	
Approach LOS	A				A		C				C	

Intersection Summary

HCM Average Control Delay	6.4	HCM Level of Service	A
HCM Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	50.1	Sum of lost time (s)	11.0
Intersection Capacity Utilization	41.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

74: Third St. & S.R. 1025 (Market St.)

2010, Existing
AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	<1>	0	0	<1>	0	1	1>	0	1	1>	0
Volume (vph)	25	58	23	20	78	8	35	132	12	12	185	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			0%			0%			0%	
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.97			0.99		1.00	0.98		1.00	0.97	
Flt Protected		0.99			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1786			1858		1805	1854		1805	1844	
Flt Permitted		0.91			0.92		0.55	1.00		0.64	1.00	
Satd. Flow (perm)		1650			1736		1043	1854		1211	1844	
Peak-hour factor, PHF	0.78	0.91	0.72	0.62	0.78	0.67	0.80	0.77	0.60	0.50	0.76	0.85
Adj. Flow (vph)	32	64	32	32	100	12	44	171	20	24	243	60
RTOR Reduction (vph)	0	16	0	0	4	0	0	6	0	0	12	0
Lane Group Flow (vph)	0	112	0	0	140	0	44	185	0	24	291	0
Heavy Vehicles (%)	4%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			1			1	
Permitted Phases	2			2	2		1			1	1	
Actuated Green, G (s)		22.0			22.0		45.0	45.0		45.0	45.0	
Effective Green, g (s)		22.0			22.0		45.0	45.0		45.0	45.0	
Actuated g/C Ratio		0.29			0.29		0.60	0.60		0.60	0.60	
Clearance Time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)		484			509		626	1112		727	1106	
v/s Ratio Prot								0.10			c0.16	
v/s Ratio Perm		0.07			c0.08		0.04			0.02		
v/c Ratio		0.23			0.27		0.07	0.17		0.03	0.26	
Uniform Delay, d1		20.1			20.4		6.3	6.7		6.1	7.1	
Progression Factor		1.00			1.00		2.37	2.57		1.00	1.00	
Incremental Delay, d2		1.1			1.3		0.2	0.3		0.1	0.6	
Delay (s)		21.2			21.7		15.1	17.5		6.2	7.7	
Level of Service		C			C		B	B		A	A	
Approach Delay (s)		21.2			21.7			17.0			7.6	
Approach LOS		C			C			B			A	
Intersection Summary												
HCM Average Control Delay			14.8			HCM Level of Service			B			
HCM Volume to Capacity ratio			0.27									
Actuated Cycle Length (s)			75.0			Sum of lost time (s)			8.0			
Intersection Capacity Utilization			34.7%			ICU Level of Service			A			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

77: S.R. 11 (Second St.) & Mulberry St.

2010, Existing
AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	0	0	0	<2>	0	0	<1	0	0	1>	0
Volume (vph)	0	0	0	16	714	20	16	35	0	0	16	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)	1%				0%				1%			
Total Lost time (s)					4.0				4.0			
Lane Util. Factor					0.95				1.00			
Frt					1.00				1.00			
Flt Protected					1.00				0.99			
Satd. Flow (prot)					3553				1800			
Flt Permitted					1.00				0.91			
Satd. Flow (perm)					3553				1659			
Peak-hour factor, PHF	1.00	1.00	1.00	0.50	0.78	0.62	0.80	0.73	1.00	1.00	0.67	0.70
Adj. Flow (vph)	0	0	0	32	915	32	20	48	0	0	24	76
RTOR Reduction (vph)	0	0	0	0	3	0	0	0	0	0	62	0
Lane Group Flow (vph)	0	0	0	0	976	0	0	68	0	0	38	0
Heavy Vehicles (%)	0%	0%	0%	0%	1%	0%	12%	0%	0%	0%	0%	0%
Turn Type				Split				Perm				
Protected Phases				1		1		2			2	
Permitted Phases							2					
Actuated Green, G (s)							53.0			14.0		
Effective Green, g (s)							53.0			14.0		
Actuated g/C Ratio							0.71			0.19		
Clearance Time (s)							4.0			4.0		
Lane Grp Cap (vph)							2511			310		
v/s Ratio Prot							c0.27			0.02		
v/s Ratio Perm										c0.04		
v/c Ratio							0.39			0.22		
Uniform Delay, d1							4.4			25.9		
Progression Factor							1.97			0.84		
Incremental Delay, d2							0.4			1.6		
Delay (s)							9.2			23.4		
Level of Service							A			C		
Approach Delay (s)	0.0						9.2			23.4		
Approach LOS	A						A			C		
Intersection Summary												
HCM Average Control Delay			11.5		HCM Level of Service				B			
HCM Volume to Capacity ratio			0.35									
Actuated Cycle Length (s)			75.0		Sum of lost time (s)				8.0			
Intersection Capacity Utilization			36.9%		ICU Level of Service				A			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

78: S.R. 11 (Front St.) & Mulberry St.

2010, Existing
AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	<2>	0	0	0	0	0	1>	0	0	<1	0
Volume (vph)	43	504	19	0	0	0	0	10	4	21	2	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-1%			1%			-1%	
Total Lost time (s)		4.0						4.0			4.0	
Lane Util. Factor		0.95						1.00			1.00	
Frt		0.99						0.95			1.00	
Flt Protected		1.00						1.00			0.96	
Satd. Flow (prot)		3427						1693			1828	
Flt Permitted		1.00						1.00			0.80	
Satd. Flow (perm)		3427						1693			1533	
Peak-hour factor, PHF	0.72	0.91	0.68	1.00	1.00	1.00	1.00	0.62	0.50	0.66	0.50	1.00
Adj. Flow (vph)	60	554	28	0	0	0	0	16	8	32	4	0
RTOR Reduction (vph)	0	4	0	0	0	0	0	6	0	0	0	0
Lane Group Flow (vph)	0	638	0	0	0	0	0	18	0	0	36	0
Heavy Vehicles (%)	2%	4%	0%	0%	0%	0%	0%	10%	0%	0%	0%	0%
Turn Type	Split					Perm						
Protected Phases	1	1						2			2	
Permitted Phases										2		
Actuated Green, G (s)		51.0						16.0			16.0	
Effective Green, g (s)		51.0						16.0			16.0	
Actuated g/C Ratio		0.68						0.21			0.21	
Clearance Time (s)		4.0						4.0			4.0	
Lane Grp Cap (vph)		2330						361			327	
v/s Ratio Prot		c0.19						0.01				
v/s Ratio Perm											c0.02	
v/c Ratio		0.27						0.05			0.11	
Uniform Delay, d1		4.7						23.5			23.8	
Progression Factor		1.00						1.00			1.00	
Incremental Delay, d2		0.3						0.3			0.7	
Delay (s)		5.0						23.7			24.3	
Level of Service		A						C			C	
Approach Delay (s)		5.0			0.0			23.7			24.3	
Approach LOS		A			A			C			C	
Intersection Summary												
HCM Average Control Delay			6.6								A	
HCM Volume to Capacity ratio			0.23									
Actuated Cycle Length (s)			75.0								8.0	
Intersection Capacity Utilization			30.4%								A	
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

85: S.R. 11 & S.R. 2028

2010, Existing
AM

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	1	1	1	1	1	1
Volume (vph)	413	32	99	590	112	171
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	3.6	6.0	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1792	1404	1736	1827	1770	1583
Flt Permitted	1.00	1.00	0.29	1.00	0.95	1.00
Satd. Flow (perm)	1792	1404	538	1827	1770	1583
Peak-hour factor, PHF	0.85	0.57	0.77	0.78	0.85	0.84
Adj. Flow (vph)	486	56	129	756	132	204
RTOR Reduction (vph)	0	26	0	0	0	0
Lane Group Flow (vph)	486	30	129	756	132	204
Heavy Vehicles (%)	6%	15%	4%	4%	2%	2%
Turn Type	Perm		pm+pt		Prot	
Protected Phases	4		3	8	2	2
Permitted Phases		4	8			
Actuated Green, G (s)	24.1	24.1	35.3	35.3	14.3	14.3
Effective Green, g (s)	24.1	24.1	35.3	35.3	14.3	14.3
Actuated g/C Ratio	0.40	0.40	0.59	0.59	0.24	0.24
Clearance Time (s)	6.0	6.0	3.6	6.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	719	563	467	1073	421	377
v/s Ratio Prot	0.27		0.03	c0.41	0.07	c0.13
v/s Ratio Perm		0.02	0.13			
v/c Ratio	0.68	0.05	0.28	0.70	0.31	0.54
Uniform Delay, d1	14.8	11.0	6.7	8.7	18.9	20.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.5	0.0	0.3	2.1	0.4	1.6
Delay (s)	17.3	11.1	7.0	10.9	19.3	21.6
Level of Service	B	B	A	B	B	C
Approach Delay (s)	16.7			10.3	20.7	
Approach LOS	B			B	C	
Intersection Summary						
HCM Average Control Delay			14.2		HCM Level of Service	B
HCM Volume to Capacity ratio			0.66			
Actuated Cycle Length (s)			60.1		Sum of lost time (s)	10.5
Intersection Capacity Utilization			46.0%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

103: S.R. 93 (Third St.) & S.R. 339 (Broad St.)

2010, Existing
AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	<1	0	0	<1>	0	0	<1>	0	0	<1>	0
Volume (vph)	2	233	47	40	333	2	138	11	44	4	4	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			-1%			0%			0%	
Total Lost time (s)		6.5			6.5			6.0			6.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.97			1.00			0.97			0.93	
Flt Protected		1.00			0.99			0.97			0.99	
Satd. Flow (prot)		1772			1837			1709			1750	
Flt Permitted		0.99			0.92			0.77			0.90	
Satd. Flow (perm)		1751			1707			1367			1588	
Peak-hour factor, PHF	0.25	0.94	0.65	0.67	0.74	0.50	0.84	0.69	0.79	0.50	0.50	0.75
Adj. Flow (vph)	8	248	72	60	450	4	164	16	56	8	8	16
RTOR Reduction (vph)	0	14	0	0	0	0	0	20	0	0	12	0
Lane Group Flow (vph)	0	314	0	0	514	0	0	216	0	0	20	0
Heavy Vehicles (%)	0%	4%	4%	5%	3%	0%	2%	0%	11%	0%	0%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)		30.2			30.2			13.6			13.6	
Effective Green, g (s)		30.2			30.2			13.6			13.6	
Actuated g/C Ratio		0.54			0.54			0.24			0.24	
Clearance Time (s)		6.5			6.5			6.0			6.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		939			916			330			384	
v/s Ratio Prot												
v/s Ratio Perm		0.18			c0.30			c0.16			0.01	
v/c Ratio		0.33			0.56			0.66			0.05	
Uniform Delay, d1		7.4			8.7			19.2			16.4	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		1.0			2.5			4.6			0.1	
Delay (s)		8.3			11.1			23.9			16.5	
Level of Service		A			B			C			B	
Approach Delay (s)		8.3			11.1			23.9			16.5	
Approach LOS		A			B			C			B	
Intersection Summary												
HCM Average Control Delay			13.2				HCM Level of Service			B		
HCM Volume to Capacity ratio			0.59									
Actuated Cycle Length (s)			56.3				Sum of lost time (s)		12.5			
Intersection Capacity Utilization			68.5%				ICU Level of Service		C			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

106: S.R. 93 (Third St.) & Dewey St.

2010, Existing
AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	<1>	0	0	<1>	0	0	<1>	0	0	<1>	0
Volume (vph)	5	225	30	7	351	0	16	2	4	2	7	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			0%			0%			0%	
Total Lost time (s)		5.0			5.0			5.0			5.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.97			1.00			0.96			0.97	
Flt Protected		1.00			1.00			0.97			0.99	
Satd. Flow (prot)		1782			1826			1781			1824	
Flt Permitted		0.98			0.99			1.00			0.95	
Satd. Flow (perm)		1753			1807			1830			1740	
Peak-hour factor, PHF	0.42	0.99	0.50	0.44	0.76	1.00	0.67	0.25	0.33	0.50	0.35	0.62
Adj. Flow (vph)	12	227	60	16	462	0	24	8	12	4	20	8
RTOR Reduction (vph)	0	8	0	0	0	0	0	11	0	0	8	0
Lane Group Flow (vph)	0	291	0	0	478	0	0	33	0	0	24	0
Heavy Vehicles (%)	0%	4%	0%	0%	4%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)		36.1			36.1			3.0			3.0	
Effective Green, g (s)		36.1			36.1			3.0			3.0	
Actuated g/C Ratio		0.74			0.74			0.06			0.06	
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)		1289			1329			112			106	
v/s Ratio Prot												
v/s Ratio Perm		0.17			0.26			0.02			0.01	
v/c Ratio		0.23			0.36			0.29			0.23	
Uniform Delay, d1		2.1			2.3			22.0			22.0	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.4			0.8			1.5			1.1	
Delay (s)		2.5			3.1			23.5			23.1	
Level of Service		A			A			C			C	
Approach Delay (s)		2.5			3.1			23.5			23.1	
Approach LOS		A			A			C			C	

Intersection Summary

HCM Average Control Delay	4.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	49.1	Sum of lost time (s)	10.0
Intersection Capacity Utilization	35.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

112: S.R. 11 & Briar Creek Plaza Driveways

2010, Existing
AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1	1>	0	1	1	1	1	1>	0	1	1	1
Volume (vph)	33	453	36	25	387	65	31	7	4	48	9	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	16	16
Grade (%)		1%			-1%			1%			2%	
Total Lost time (s)	3.5	5.3		5.3	5.3	5.3	5.2	5.2		5.2	5.2	5.2
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Fr't	1.00	0.99		1.00	1.00	0.85	1.00	0.95		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1744	1786		1744	1836	1623	1796	1796		1718	2132	1812
Flt Permitted	0.39	1.00		0.47	1.00	1.00	0.82	1.00		0.82	1.00	1.00
Satd. Flow (perm)	717	1786		864	1836	1623	1543	1796		1476	2132	1812
Peak-hour factor, PHF	0.63	0.94	0.90	0.42	0.83	0.74	0.70	0.44	0.50	0.71	0.56	0.78
Adj. Flow (vph)	52	482	40	60	466	88	44	16	8	68	16	40
RTOR Reduction (vph)	0	2	0	0	0	34	0	7	0	0	0	36
Lane Group Flow (vph)	52	520	0	60	466	54	44	17	0	68	16	4
Heavy Vehicles (%)	3%	5%	0%	4%	4%	0%	0%	0%	0%	4%	0%	0%
Turn Type	pm+pt			Perm		Perm	Perm			Perm		Perm
Protected Phases	5	2			6			4			8	
Permitted Phases	2			6		6	4			8		8
Actuated Green, G (s)	32.8	32.8		25.5	25.5	25.5	4.9	4.9		4.9	4.9	4.9
Effective Green, g (s)	32.8	32.8		25.5	25.5	25.5	4.9	4.9		4.9	4.9	4.9
Actuated g/C Ratio	0.68	0.68		0.53	0.53	0.53	0.10	0.10		0.10	0.10	0.10
Clearance Time (s)	3.5	5.3		5.3	5.3	5.3	5.2	5.2		5.2	5.2	5.2
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	569	1215		457	971	859	157	183		150	217	184
v/s Ratio Prot	0.01	c0.29			c0.25			0.01			0.01	
v/s Ratio Perm	0.05			0.07		0.03	0.03			c0.05		0.00
v/c Ratio	0.09	0.43		0.13	0.48	0.06	0.28	0.09		0.45	0.07	0.02
Uniform Delay, d1	2.9	3.5		5.7	7.2	5.5	20.0	19.6		20.4	19.6	19.5
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.1	0.2		0.1	0.4	0.0	1.0	0.2		2.2	0.1	0.0
Delay (s)	3.0	3.7		5.9	7.5	5.6	21.0	19.9		22.6	19.7	19.5
Level of Service	A	A		A	A	A	C	B		C	B	B
Approach Delay (s)		3.7			7.1			20.6			21.2	
Approach LOS		A			A			C			C	

Intersection Summary

HCM Average Control Delay	7.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	48.2	Sum of lost time (s)	15.8
Intersection Capacity Utilization	45.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

120: S.R. 11 & S.R. 29 (Mill St.)

2010, Existing
AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1	1>	0	0	1>	0	0	<1>	0	0	<1	1
Volume (vph)	29	752	28	7	276	111	6	1	29	172	3	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-1%			0%			-1%	
Total Lost time (s)	6.0	6.0			6.0			5.2			6.0	6.0
Lane Util. Factor	1.00	1.00			1.00			1.00			1.00	1.00
Frt	1.00	0.99			0.96			0.89			1.00	0.85
Flt Protected	0.95	1.00			1.00			0.99			0.95	1.00
Satd. Flow (prot)	1497	1836			1730			1541			1804	1531
Flt Permitted	0.48	1.00			0.92			0.99			0.95	1.00
Satd. Flow (perm)	761	1836			1593			1541			1804	1531
Peak-hour factor, PHF	0.91	0.86	0.64	0.58	0.90	0.79	0.75	0.25	0.66	0.80	0.38	0.67
Adj. Flow (vph)	32	874	44	12	307	141	8	4	44	215	8	24
RTOR Reduction (vph)	0	2	0	0	18	0	0	42	0	0	0	13
Lane Group Flow (vph)	32	916	0	0	442	0	0	14	0	0	223	11
Heavy Vehicles (%)	20%	2%	7%	14%	7%	2%	33%	0%	6%	1%	0%	6%
Turn Type	Perm			Perm			Split			Split		Perm
Protected Phases		2			6		8	8		4	4	
Permitted Phases	2	2		6								4
Actuated Green, G (s)	47.0	47.0			47.0			3.6			12.8	12.8
Effective Green, g (s)	47.0	47.0			47.0			3.6			12.8	12.8
Actuated g/C Ratio	0.58	0.58			0.58			0.04			0.16	0.16
Clearance Time (s)	6.0	6.0			6.0			5.2			6.0	6.0
Vehicle Extension (s)	3.0	3.0			3.0			3.0			3.0	3.0
Lane Grp Cap (vph)	444	1071			929			69			286	243
v/s Ratio Prot		c0.50						c0.01			c0.12	
v/s Ratio Perm	0.04				0.28							0.01
v/c Ratio	0.07	0.86			0.48			0.20			0.78	0.05
Uniform Delay, d1	7.3	14.0			9.7			37.1			32.5	28.7
Progression Factor	1.00	1.00			1.00			1.00			1.00	1.00
Incremental Delay, d2	0.1	6.8			0.4			1.5			12.6	0.1
Delay (s)	7.4	20.8			10.1			38.6			45.2	28.8
Level of Service	A	C			B			D			D	C
Approach Delay (s)		20.3			10.1			38.6			43.6	
Approach LOS		C			B			D			D	

Intersection Summary

HCM Average Control Delay	21.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	80.6	Sum of lost time (s)	17.2
Intersection Capacity Utilization	67.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

128: S.R. 11 & County Bridge

2010, Existing
AM

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	1>	0	1	1	1	1
Volume (vph)	720	230	66	301	138	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	1%			-2%	0%	
Total Lost time (s)	7.0		7.0	7.0	7.0	7.0
Lane Util. Factor	1.00		1.00	1.00	1.00	1.00
Frt	0.96		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	1798		1823	1881	1805	1599
Flt Permitted	1.00		0.06	1.00	0.95	1.00
Satd. Flow (perm)	1798		121	1881	1805	1599
Peak-hour factor, PHF	0.91	0.78	0.61	0.92	0.68	0.86
Adj. Flow (vph)	791	295	108	327	203	76
RTOR Reduction (vph)	10	0	0	0	0	0
Lane Group Flow (vph)	1076	0	108	327	203	76
Heavy Vehicles (%)	1%	2%	0%	2%	0%	1%
Turn Type			pm+pt		pt+ov	
Protected Phases	4		3	8	2	2 3
Permitted Phases			8			
Actuated Green, G (s)	84.3		98.3	98.3	18.4	32.4
Effective Green, g (s)	84.3		98.3	98.3	18.4	32.4
Actuated g/C Ratio	0.64		0.75	0.75	0.14	0.25
Clearance Time (s)	7.0		7.0	7.0	7.0	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	1160		182	1415	254	396
v/s Ratio Prot	c0.60		c0.03	0.17	c0.11	0.05
v/s Ratio Perm			0.41			
v/c Ratio	0.93		0.59	0.23	0.80	0.19
Uniform Delay, d1	20.5		28.2	4.9	54.4	38.8
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	12.6		5.1	0.1	16.0	0.2
Delay (s)	33.1		33.3	4.9	70.3	39.0
Level of Service	C		C	A	E	D
Approach Delay (s)	33.1			12.0	61.8	
Approach LOS	C			B	E	
Intersection Summary						
HCM Average Control Delay			32.4		HCM Level of Service	C
HCM Volume to Capacity ratio			0.89			
Actuated Cycle Length (s)			130.7		Sum of lost time (s)	21.0
Intersection Capacity Utilization			74.2%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

7: Market St. & S.R. 11 (Second St.)

2010, Existing
PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	1	1	1	1	0	0	0	0	1	2	1
Volume (vph)	0	216	112	189	122	0	0	0	0	194	552	73
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5	3.0	4.5					5.0	5.0	5.0
Lane Util. Factor		1.00	1.00	1.00	1.00					1.00	0.95	1.00
Frt		1.00	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	1.00	1.00
Satd. Flow (prot)		1900	1599	1787	1900					1805	3539	1583
Flt Permitted		1.00	1.00	0.44	1.00					0.95	1.00	1.00
Satd. Flow (perm)		1900	1599	822	1900					1805	3539	1583
Peak-hour factor, PHF	1.00	0.83	0.85	0.79	0.71	1.00	1.00	1.00	1.00	0.92	0.88	0.73
Adj. Flow (vph)	0	260	132	239	172	0	0	0	0	211	627	100
RTOR Reduction (vph)	0	0	90	0	0	0	0	0	0	0	0	65
Lane Group Flow (vph)	0	260	42	239	172	0	0	0	0	211	627	35
Heavy Vehicles (%)	0%	0%	1%	1%	0%	0%	0%	0%	0%	0%	2%	2%
Turn Type			Perm	pm+pt						Split		Prot
Protected Phases		4		3	8					2	2	2
Permitted Phases			4	8								
Actuated Green, G (s)		25.5	25.5	42.5	42.5					28.0	28.0	28.0
Effective Green, g (s)		25.5	25.5	42.5	42.5					28.0	28.0	28.0
Actuated g/C Ratio		0.32	0.32	0.53	0.53					0.35	0.35	0.35
Clearance Time (s)		4.5	4.5	3.0	4.5					5.0	5.0	5.0
Lane Grp Cap (vph)		606	510	606	1009					632	1239	554
v/s Ratio Prot		0.14		c0.07	0.09					0.12	c0.18	0.02
v/s Ratio Perm			0.03	c0.14								
v/c Ratio		0.43	0.08	0.39	0.17					0.33	0.51	0.06
Uniform Delay, d1		21.5	19.1	10.6	9.7					19.1	20.5	17.3
Progression Factor		0.76	0.53	0.10	0.07					1.15	1.17	1.99
Incremental Delay, d2		2.0	0.3	1.7	0.3					1.4	1.4	0.2
Delay (s)		18.5	10.5	2.7	1.0					23.3	25.4	34.6
Level of Service		B	B	A	A					C	C	C
Approach Delay (s)		15.8			2.0			0.0			25.9	
Approach LOS		B			A			A			C	
Intersection Summary												
HCM Average Control Delay			18.0		HCM Level of Service				B			
HCM Volume to Capacity ratio			0.43									
Actuated Cycle Length (s)			80.0		Sum of lost time (s)			8.0				
Intersection Capacity Utilization			73.8%		ICU Level of Service			D				
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

8: S.R. 11 (Front St.) & Market St.

2010, Existing
PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	2>	0	0	0	0	0	1	1	1	1	0
Volume (vph)	0	652	195	0	0	0	0	305	186	97	306	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			-1%			1%	
Total Lost time (s)		5.0						5.0	5.0	3.0	5.0	
Lane Util. Factor		0.95						1.00	1.00	1.00	1.00	
Frt		0.96						1.00	0.85	1.00	1.00	
Flt Protected		1.00						1.00	1.00	0.95	1.00	
Satd. Flow (prot)		3457						1910	1591	1796	1890	
Flt Permitted		1.00						1.00	1.00	0.39	1.00	
Satd. Flow (perm)		3457						1910	1591	746	1890	
Peak-hour factor, PHF	1.00	0.94	0.92	1.00	1.00	1.00	1.00	0.80	0.82	0.71	0.90	1.00
Adj. Flow (vph)	0	694	212	0	0	0	0	381	227	137	340	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	906	0	0	0	0	0	381	227	137	340	0
Heavy Vehicles (%)	0%	1%	0%	0%	0%	0%	0%	0%	2%	0%	0%	0%
Turn Type									Perm	D.P+P		
Protected Phases		1						3		2	4	
Permitted Phases									3	3		
Actuated Green, G (s)		29.0						31.0	31.0	38.0	41.0	
Effective Green, g (s)		29.0						31.0	31.0	38.0	41.0	
Actuated g/C Ratio		0.36						0.39	0.39	0.48	0.51	
Clearance Time (s)		5.0						5.0	5.0	3.0	5.0	
Lane Grp Cap (vph)		1253						740	617	446	969	
v/s Ratio Prot		c0.26						c0.20		0.03	c0.18	
v/s Ratio Perm									0.14	0.12		
v/c Ratio		0.72						0.51	0.37	0.31	0.35	
Uniform Delay, d1		22.0						18.7	17.5	12.4	11.6	
Progression Factor		0.87						1.00	1.00	1.32	1.48	
Incremental Delay, d2		3.3						2.6	1.7	1.7	0.9	
Delay (s)		22.4						21.3	19.2	18.0	18.1	
Level of Service		C						C	B	B	B	
Approach Delay (s)		22.4			0.0			20.5			18.1	
Approach LOS		C			A			C			B	
Intersection Summary												
HCM Average Control Delay			20.8		HCM Level of Service					C		
HCM Volume to Capacity ratio			0.61									
Actuated Cycle Length (s)			80.0		Sum of lost time (s)					15.0		
Intersection Capacity Utilization			73.8%		ICU Level of Service					D		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

32: S.R. 239 & S.R. 11 (S. Main St.)

2010, Existing
PM

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	1>	0	1	1	1	1
Volume (vph)	20	127	264	63	115	226
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%		0%			-1%
Total Lost time (s)	5.2		5.4	5.4	5.4	5.4
Lane Util. Factor	1.00		1.00	1.00	1.00	1.00
Frt	0.89		1.00	0.85	1.00	1.00
Flt Protected	0.99		1.00	1.00	0.95	1.00
Satd. Flow (prot)	1545		1845	1615	1814	1801
Flt Permitted	0.99		1.00	1.00	0.39	1.00
Satd. Flow (perm)	1545		1845	1615	748	1801
Peak-hour factor, PHF	0.56	0.85	0.82	0.79	0.76	0.92
Adj. Flow (vph)	36	149	322	80	151	246
RTOR Reduction (vph)	121	0	0	52	0	0
Lane Group Flow (vph)	64	0	322	28	151	246
Heavy Vehicles (%)	15%	7%	3%	0%	0%	6%
Turn Type				Perm	pm+pt	
Protected Phases	4		6		5	2
Permitted Phases				6	2	
Actuated Green, G (s)	9.6		17.9	17.9	30.6	30.6
Effective Green, g (s)	9.6		17.9	17.9	30.6	30.6
Actuated g/C Ratio	0.19		0.35	0.35	0.60	0.60
Clearance Time (s)	5.2		5.4	5.4	5.4	5.4
Vehicle Extension (s)	5.0		5.0	5.0	3.0	5.0
Lane Grp Cap (vph)	292		650	569	604	1085
v/s Ratio Prot	c0.04		c0.17		0.04	c0.14
v/s Ratio Perm				0.02	0.11	
v/c Ratio	0.22		0.50	0.05	0.25	0.23
Uniform Delay, d1	17.4		12.9	10.8	5.0	4.7
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.8		1.2	0.1	0.2	0.2
Delay (s)	18.2		14.2	10.9	5.2	4.9
Level of Service	B		B	B	A	A
Approach Delay (s)	18.2		13.5			5.0
Approach LOS	B		B			A
Intersection Summary						
HCM Average Control Delay			11.0		HCM Level of Service	B
HCM Volume to Capacity ratio			0.38			
Actuated Cycle Length (s)			50.8		Sum of lost time (s)	16.0
Intersection Capacity Utilization			42.5%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

37: S.R. 239 (Union St.) & S.R. 11 (Main St.)

2010, Existing
PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	<1>	0	0	<1>	0	1	1>	0	0	<1>	0
Volume (vph)	49	23	108	27	28	6	208	223	26	3	242	175
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			0%			1%			1%	
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	
Frt		0.91			0.98		1.00	0.98			0.94	
Flt Protected		0.99			0.98		0.95	1.00			1.00	
Satd. Flow (prot)		1529			1635		1600	1657			1579	
Flt Permitted		0.91			0.79		0.30	1.00			1.00	
Satd. Flow (perm)		1408			1310		502	1657			1575	
Peak-hour factor, PHF	0.94	0.52	0.63	0.75	0.54	0.50	0.82	0.91	0.81	0.75	0.93	0.78
Adj. Flow (vph)	52	44	171	36	52	12	254	245	32	4	260	224
RTOR Reduction (vph)	0	95	0	0	7	0	0	6	0	0	43	0
Lane Group Flow (vph)	0	172	0	0	93	0	254	271	0	0	445	0
Heavy Vehicles (%)	0%	4%	0%	3%	0%	0%	1%	1%	0%	0%	2%	0%
Turn Type	Perm			Perm			pm+pt			Perm		
Protected Phases		4			8		1	6			2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)		12.0			12.0		33.6	33.6			20.6	
Effective Green, g (s)		12.0			12.0		33.6	33.6			20.6	
Actuated g/C Ratio		0.22			0.22		0.60	0.60			0.37	
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)		304			283		461	1001			584	
v/s Ratio Prot							c0.08	0.16				
v/s Ratio Perm		c0.12			0.07		0.25				c0.28	
v/c Ratio		0.57			0.33		0.55	0.27			0.76	
Uniform Delay, d1		19.5			18.4		7.5	5.2			15.4	
Progression Factor		1.00			1.00		1.00	1.00			1.00	
Incremental Delay, d2		2.4			0.7		1.4	0.1			5.8	
Delay (s)		21.9			19.1		8.9	5.4			21.2	
Level of Service		C			B		A	A			C	
Approach Delay (s)		21.9			19.1			7.1			21.2	
Approach LOS		C			B			A			C	

Intersection Summary

HCM Average Control Delay	15.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	55.6	Sum of lost time (s)	15.0
Intersection Capacity Utilization	66.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

44: S.R. 11 & Poplar St.

2010, Existing
PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1	1>	0	1	1>	0	0	<1	1	0	<1>	0
Volume (vph)	17	668	29	45	675	6	122	42	81	26	39	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		3.0	5.0			4.0	4.0		4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00		1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00		1.00	
Frt	1.00	0.99		1.00	1.00			1.00	0.85		0.96	
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00		0.99	
Satd. Flow (prot)	1805	1832		1703	1840			1827	1599		1792	
Flt Permitted	0.30	1.00		0.95	1.00			0.74	1.00		0.88	
Satd. Flow (perm)	572	1832		1703	1840			1397	1599		1599	
Peak-hour factor, PHF	0.61	0.86	0.81	0.75	0.82	0.38	0.69	0.66	0.83	0.81	0.89	0.61
Adj. Flow (vph)	28	777	36	60	823	16	177	64	98	32	44	36
RTOR Reduction (vph)	0	3	0	0	0	0	0	0	0	0	24	0
Lane Group Flow (vph)	28	810	0	60	839	0	0	241	98	0	88	0
Confl. Peds. (#/hr)							3					
Heavy Vehicles (%)	0%	3%	3%	6%	3%	0%	0%	0%	1%	0%	0%	0%
Turn Type	Perm			Prot			Perm		Perm	Perm		
Protected Phases		2		1	6			8			4	
Permitted Phases	2						8		8	4		
Actuated Green, G (s)	23.0	23.0		14.5	40.5			20.5	20.5		20.5	
Effective Green, g (s)	23.0	23.0		14.5	40.5			20.5	20.5		20.5	
Actuated g/C Ratio	0.33	0.33		0.21	0.58			0.29	0.29		0.29	
Clearance Time (s)	5.0	5.0		3.0	5.0			4.0	4.0		4.0	
Lane Grp Cap (vph)	188	602		353	1065			409	468		468	
v/s Ratio Prot		c0.44		0.04	c0.46							
v/s Ratio Perm	0.05							c0.17	0.06		0.06	
v/c Ratio	0.15	1.35		0.17	0.79			0.59	0.21		0.19	
Uniform Delay, d1	16.6	23.5		22.8	11.4			21.2	18.6		18.5	
Progression Factor	1.00	1.00		0.86	2.08			1.00	1.00		1.00	
Incremental Delay, d2	1.7	166.6		0.7	3.9			6.1	1.0		0.9	
Delay (s)	18.3	190.1		20.3	27.6			27.3	19.7		19.4	
Level of Service	B	F		C	C			C	B		B	
Approach Delay (s)		184.4			27.2			25.1			19.4	
Approach LOS		F			C			C			B	

Intersection Summary

HCM Average Control Delay	86.8	HCM Level of Service	F
HCM Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	81.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

48: S.R. 11 & S.R. 93 (Orange St.)

2010, Existing
PM

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	0	1	1	0	1	0
Volume (vph)	0	758	749	0	162	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		-1%	0%		0%	
Total Lost time (s)		4.0	4.0		4.0	
Lane Util. Factor		1.00	1.00		1.00	
Frt		1.00	1.00		1.00	
Flt Protected		1.00	1.00		0.95	
Satd. Flow (prot)		1872	1863		1789	
Flt Permitted		1.00	1.00		0.95	
Satd. Flow (perm)		1872	1863		1789	
Peak-hour factor, PHF	1.00	0.87	0.86	0.93	0.83	0.25
Adj. Flow (vph)	0	871	871	0	195	4
RTOR Reduction (vph)	0	0	0	0	1	0
Lane Group Flow (vph)	0	871	871	0	198	0
Heavy Vehicles (%)	0%	2%	2%	2%	1%	0%
Turn Type						
Protected Phases		2	6		8	
Permitted Phases						
Actuated Green, G (s)		41.0	41.0		21.0	
Effective Green, g (s)		41.0	41.0		21.0	
Actuated g/C Ratio		0.59	0.59		0.30	
Clearance Time (s)		4.0	4.0		4.0	
Lane Grp Cap (vph)		1096	1091		537	
v/s Ratio Prot		0.47	c0.47		c0.11	
v/s Ratio Perm						
v/c Ratio		0.79	0.80		0.37	
Uniform Delay, d1		11.2	11.3		19.3	
Progression Factor		1.67	0.77		1.00	
Incremental Delay, d2		3.8	5.7		1.9	
Delay (s)		22.6	14.3		21.2	
Level of Service		C	B		C	
Approach Delay (s)		22.6	14.3		21.2	
Approach LOS		C	B		C	
Intersection Summary						
HCM Average Control Delay			18.7		HCM Level of Service	B
HCM Volume to Capacity ratio			0.65			
Actuated Cycle Length (s)			70.0		Sum of lost time (s)	8.0
Intersection Capacity Utilization			55.6%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

2010, Existing

51: S.R. 11 (Second St.) & LaSalle St.

PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	NWL	NWR
Lane Configurations	1	0	0	1	2>	0	0	1	0	0
Volume (vph)	75	0	0	17	883	32	0	141	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0	4.0			4.0		
Lane Util. Factor	1.00			1.00	0.95			1.00		
Frt	1.00			1.00	0.99			0.86		
Flt Protected	0.95			0.95	1.00			1.00		
Satd. Flow (prot)	1805			1805	3552			1627		
Flt Permitted	0.95			0.95	1.00			1.00		
Satd. Flow (perm)	1805			1805	3552			1627		
Peak-hour factor, PHF	0.88	0.90	1.00	0.61	0.92	0.73	1.00	0.67	0.92	0.92
Adj. Flow (vph)	85	0	0	28	960	44	0	210	0	0
RTOR Reduction (vph)	0	0	0	12	5	0	0	88	0	0
Lane Group Flow (vph)	85	0	0	16	999	0	0	123	0	0
Heavy Vehicles (%)	0%	2%	0%	0%	1%	0%	0%	1%	2%	2%
Turn Type	Prot			custom				custom		
Protected Phases	8			1	1			8		
Permitted Phases				1				8		
Actuated Green, G (s)	21.0			41.0	41.0			21.0		
Effective Green, g (s)	21.0			41.0	41.0			21.0		
Actuated g/C Ratio	0.30			0.59	0.59			0.30		
Clearance Time (s)	4.0			4.0	4.0			4.0		
Lane Grp Cap (vph)	542			1057	2080			488		
v/s Ratio Prot	0.05			0.01	c0.28			c0.08		
v/s Ratio Perm										
v/c Ratio	0.16			0.02	0.48			0.25		
Uniform Delay, d1	18.0			6.1	8.4			18.5		
Progression Factor	0.69			1.00	1.00			1.00		
Incremental Delay, d2	0.5			0.0	0.8			1.2		
Delay (s)	12.9			6.1	9.2			19.8		
Level of Service	B			A	A			B		
Approach Delay (s)		12.9			9.1		19.8		0.0	
Approach LOS		B			A		B		A	
Intersection Summary										
HCM Average Control Delay			11.0		HCM Level of Service				B	
HCM Volume to Capacity ratio			0.40							
Actuated Cycle Length (s)			70.0		Sum of lost time (s)				8.0	
Intersection Capacity Utilization			40.8%		ICU Level of Service				A	
Analysis Period (min)			15							
c Critical Lane Group										

HCM Signalized Intersection Capacity Analysis

67: S.R. 11 (Second St.) & Pine St.

2010, Existing
PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	0	0	0	2>	0	1	1	0	0	0	1
Volume (vph)	0	0	0	0	723	41	50	122	0	0	0	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)	0%				0%			1%		1%		
Total Lost time (s)					4.0			4.0		4.0		
Lane Util. Factor					0.95			1.00		1.00		
Frt					0.99			1.00		1.00		
Flt Protected					1.00			0.95		1.00		
Satd. Flow (prot)					3539			1796		1890		
Flt Permitted					1.00			0.95		1.00		
Satd. Flow (perm)					3539			1796		1890		
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	0.86	0.64	0.78	0.74	1.00	1.00	1.00	0.71
Adj. Flow (vph)	0	0	0	0	841	64	64	165	0	0	0	52
RTOR Reduction (vph)	0	0	0	0	6	0	54	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	899	0	10	165	0	0	0	52
Heavy Vehicles (%)	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Turn Type							Perm			custom		
Protected Phases							1			2		
Permitted Phases							2			2		
Actuated Green, G (s)					59.9			12.1		12.1		
Effective Green, g (s)					59.9			12.1		12.1		
Actuated g/C Ratio					0.75			0.15		0.15		
Clearance Time (s)					4.0			4.0		4.0		
Vehicle Extension (s)					3.0			3.0		3.0		
Lane Grp Cap (vph)					2650			272		286		
v/s Ratio Prot					c0.25			c0.09				
v/s Ratio Perm								0.01		0.03		
v/c Ratio					0.34			0.04		0.58		
Uniform Delay, d1					3.4			29.0		31.6		
Progression Factor					0.97			1.00		1.00		
Incremental Delay, d2					0.3			0.1		2.8		
Delay (s)					3.6			29.0		34.4		
Level of Service					A			C		C		
Approach Delay (s)	0.0				3.6			32.9		30.2		
Approach LOS	A				A			C		C		
Intersection Summary												
HCM Average Control Delay			10.5		HCM Level of Service				B			
HCM Volume to Capacity ratio			0.38									
Actuated Cycle Length (s)			80.0		Sum of lost time (s)				8.0			
Intersection Capacity Utilization			38.0%		ICU Level of Service				A			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

68: S.R. 11 & Orchard St.

2010, Existing
PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1	1	0	1	1	0	0	<1>	0	0	<1>	0
Volume (vph)	13	681	1	4	640	1	26	23	25	29	7	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	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	
Frt	1.00	1.00		1.00	1.00			0.94			0.94	
Flt Protected	0.95	1.00		0.95	1.00			0.98			0.98	
Satd. Flow (prot)	1687	1861		1805	1843			1762			1752	
Flt Permitted	0.13	1.00		0.13	1.00			0.98			0.98	
Satd. Flow (perm)	237	1861		253	1843			1762			1752	
Peak-hour factor, PHF	0.81	0.96	0.25	1.00	0.90	0.25	0.59	0.64	0.42	0.72	0.44	0.66
Adj. Flow (vph)	16	709	4	4	711	4	44	36	60	40	16	44
RTOR Reduction (vph)	0	0	0	0	0	0	0	39	0	0	36	0
Lane Group Flow (vph)	16	713	0	4	715	0	0	101	0	0	64	0
Heavy Vehicles (%)	7%	2%	0%	0%	3%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm			Perm			Split			Split		
Protected Phases	2			6			3			4		
Permitted Phases	2			6								
Actuated Green, G (s)	30.0	30.0		30.0	30.0			12.5			12.5	
Effective Green, g (s)	30.0	30.0		30.0	30.0			12.5			12.5	
Actuated g/C Ratio	0.43	0.43		0.43	0.43			0.18			0.18	
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Lane Grp Cap (vph)	102	798		108	790			315			313	
v/s Ratio Prot		0.38			c0.39			c0.06			c0.04	
v/s Ratio Perm	0.07			0.02								
v/c Ratio	0.16	0.89		0.04	0.91			0.32			0.20	
Uniform Delay, d1	12.3	18.5		11.6	18.7			25.1			24.5	
Progression Factor	1.72	1.51		0.72	0.46			1.00			1.00	
Incremental Delay, d2	0.3	1.6		0.4	10.2			2.7			1.5	
Delay (s)	21.4	29.7		8.7	18.8			27.7			26.0	
Level of Service	C	C		A	B			C			C	
Approach Delay (s)		29.5			18.8			27.7			26.0	
Approach LOS		C			B			C			C	
Intersection Summary												
HCM Average Control Delay			24.6			HCM Level of Service			C			
HCM Volume to Capacity ratio			0.61									
Actuated Cycle Length (s)			70.0			Sum of lost time (s)			15.0			
Intersection Capacity Utilization			49.7%			ICU Level of Service			A			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2010, Existing

71: S.R. 11 (Second St.) & Oak St.

PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	0	0	0	<2>	0	0	<1	0	0	1>	0
Volume (vph)	0	0	0	41	796	14	14	46	0	0	39	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)	0%				-1%				1%			
Total Lost time (s)					6.0				5.0			
Lane Util. Factor					0.95				1.00			
Frt					1.00				1.00			
Flt Protected					1.00				0.98			
Satd. Flow (prot)					3538				1741			
Flt Permitted					1.00				0.85			
Satd. Flow (perm)					3538				1510			
Peak-hour factor, PHF	1.00	1.00	1.00	0.68	0.93	0.88	0.44	0.64	1.00	1.00	0.70	0.87
Adj. Flow (vph)	0	0	0	60	856	16	32	72	0	0	56	60
RTOR Reduction (vph)	0	0	0	0	1	0	0	0	0	0	51	0
Lane Group Flow (vph)	0	0	0	0	931	0	0	104	0	0	65	0
Heavy Vehicles (%)	0%	0%	0%	0%	2%	7%	0%	10%	0%	0%	5%	0%
Turn Type	Perm						Perm					
Protected Phases					1						2	
Permitted Phases					1						2	
Actuated Green, G (s)					33.0						7.4	
Effective Green, g (s)					33.0						7.4	
Actuated g/C Ratio					0.64						0.14	
Clearance Time (s)					6.0						5.0	
Vehicle Extension (s)					3.0						3.0	
Lane Grp Cap (vph)					2271						217	
v/s Ratio Prot											0.04	
v/s Ratio Perm					0.26						c0.07	
v/c Ratio					0.41						0.48	
Uniform Delay, d1					4.5						20.2	
Progression Factor					1.00						1.00	
Incremental Delay, d2					0.1						1.7	
Delay (s)					4.6						21.9	
Level of Service					A						C	
Approach Delay (s)	0.0				4.6						21.9	
Approach LOS	A				A						C	

Intersection Summary

HCM Average Control Delay	7.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	51.4	Sum of lost time (s)	11.0
Intersection Capacity Utilization	44.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

74: Third St. & S.R. 1025 (Market St.)

2010, Existing
PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	<1>	0	0	<1>	0	1	1>	0	1	1>	0
Volume (vph)	89	90	59	30	108	16	12	189	16	19	258	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			0%			0%			0%	
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.96			0.98		1.00	0.99		1.00	0.96	
Flt Protected		0.98			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1778			1848		1805	1876		1805	1819	
Flt Permitted		0.83			0.91		0.43	1.00		0.57	1.00	
Satd. Flow (perm)		1509			1697		814	1876		1079	1819	
Peak-hour factor, PHF	0.89	0.83	0.78	0.83	0.87	0.67	0.50	0.88	0.80	0.53	0.91	0.74
Adj. Flow (vph)	100	108	76	36	124	24	24	215	20	36	284	88
RTOR Reduction (vph)	0	17	0	0	7	0	0	4	0	0	14	0
Lane Group Flow (vph)	0	268	0	0	177	0	24	231	0	36	358	0
Heavy Vehicles (%)	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			1			1	
Permitted Phases	2			2	2		1			1	1	
Actuated Green, G (s)		36.0			36.0		36.0	36.0		36.0	36.0	
Effective Green, g (s)		36.0			36.0		36.0	36.0		36.0	36.0	
Actuated g/C Ratio		0.45			0.45		0.45	0.45		0.45	0.45	
Clearance Time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)		679			764		366	844		486	819	
v/s Ratio Prot								0.12			c0.20	
v/s Ratio Perm		c0.18			0.10		0.03			0.03		
v/c Ratio		0.39			0.23		0.07	0.27		0.07	0.44	
Uniform Delay, d1		14.7			13.5		12.5	13.8		12.5	15.1	
Progression Factor		1.00			1.00		0.59	0.50		1.00	1.00	
Incremental Delay, d2		1.7			0.7		0.3	0.8		0.3	1.7	
Delay (s)		16.4			14.2		7.7	7.7		12.8	16.8	
Level of Service		B			B		A	A		B	B	
Approach Delay (s)		16.4			14.2			7.7			16.4	
Approach LOS		B			B			A			B	
Intersection Summary												
HCM Average Control Delay			14.1			HCM Level of Service			B			
HCM Volume to Capacity ratio			0.42									
Actuated Cycle Length (s)			80.0			Sum of lost time (s)			8.0			
Intersection Capacity Utilization			48.1%			ICU Level of Service			A			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2010, Existing

77: S.R. 11 (Second St.) & Mulberry St.

PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	0	0	0	<2>	0	0	<1	0	0	1>	0
Volume (vph)	0	0	0	43	824	49	27	68	0	0	24	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)	1%				0%				1%			
Total Lost time (s)					4.0				4.0			
Lane Util. Factor					0.95				1.00			
Frt					0.99				1.00			
Flt Protected					1.00				0.98			
Satd. Flow (prot)					3535				1853			
Flt Permitted					1.00				0.86			
Satd. Flow (perm)					3535				1625			
Peak-hour factor, PHF	1.00	1.00	1.00	0.63	0.94	0.82	0.56	0.94	1.00	1.00	0.86	0.75
Adj. Flow (vph)	0	0	0	68	877	60	48	72	0	0	28	72
RTOR Reduction (vph)	0	0	0	0	6	0	0	0	0	0	55	0
Lane Group Flow (vph)	0	0	0	0	999	0	0	120	0	0	45	0
Heavy Vehicles (%)	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	4%	0%
Turn Type					Split				Perm			
Protected Phases					1				2			
Permitted Phases									2			
Actuated Green, G (s)					53.0				19.0			
Effective Green, g (s)					53.0				19.0			
Actuated g/C Ratio					0.66				0.24			
Clearance Time (s)					4.0				4.0			
Lane Grp Cap (vph)					2342				386			
v/s Ratio Prot					c0.28							
v/s Ratio Perm									c0.07			
v/c Ratio					0.43				0.31			
Uniform Delay, d1					6.4				25.1			
Progression Factor					0.50				0.94			
Incremental Delay, d2					0.5				2.0			
Delay (s)					3.7				25.6			
Level of Service					A				C			
Approach Delay (s)	0.0				3.7				25.6			
Approach LOS	A				A				C			

Intersection Summary

HCM Average Control Delay	7.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	44.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

78: S.R. 11 (Front St.) & Mulberry St.

2010, Existing
PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	<2>	0	0	0	0	0	1>	0	0	<1	0
Volume (vph)	80	754	34	0	0	0	0	18	12	46	14	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-1%			1%			-1%	
Total Lost time (s)		4.0						4.0			4.0	
Lane Util. Factor		0.95						1.00			1.00	
Frt		0.99						0.94			1.00	
Flt Protected		1.00						1.00			0.96	
Satd. Flow (prot)		3521						1781			1810	
Flt Permitted		1.00						1.00			0.78	
Satd. Flow (perm)		3521						1781			1469	
Peak-hour factor, PHF	0.95	0.86	0.71	1.00	1.00	1.00	1.00	0.56	0.50	0.68	0.70	1.00
Adj. Flow (vph)	84	877	48	0	0	0	0	32	24	68	20	0
RTOR Reduction (vph)	0	5	0	0	0	0	0	17	0	0	0	0
Lane Group Flow (vph)	0	1004	0	0	0	0	0	40	0	0	88	0
Heavy Vehicles (%)	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	7%	0%
Turn Type	Split					Perm						
Protected Phases	1	1						2			2	
Permitted Phases										2		
Actuated Green, G (s)		47.0						25.0			25.0	
Effective Green, g (s)		47.0						25.0			25.0	
Actuated g/C Ratio		0.59						0.31			0.31	
Clearance Time (s)		4.0						4.0			4.0	
Lane Grp Cap (vph)		2069						557			459	
v/s Ratio Prot		c0.29						0.02				
v/s Ratio Perm											c0.06	
v/c Ratio		0.49						0.07			0.19	
Uniform Delay, d1		9.5						19.3			20.1	
Progression Factor		1.00						1.00			0.98	
Incremental Delay, d2		0.8						0.2			0.9	
Delay (s)		10.3						19.6			20.5	
Level of Service		B						B			C	
Approach Delay (s)		10.3			0.0			19.6			20.5	
Approach LOS		B			A			B			C	
Intersection Summary												
HCM Average Control Delay			11.6		HCM Level of Service					B		
HCM Volume to Capacity ratio			0.38									
Actuated Cycle Length (s)			80.0		Sum of lost time (s)					8.0		
Intersection Capacity Utilization			40.9%		ICU Level of Service					A		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

85: S.R. 11 & S.R. 2028

2010, Existing
PM

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	1	1	1	1	1	1
Volume (vph)	583	94	204	538	74	219
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	3.6	6.0	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1845	1599	1752	1845	1787	1583
Flt Permitted	1.00	1.00	0.19	1.00	0.95	1.00
Satd. Flow (perm)	1845	1599	347	1845	1787	1583
Peak-hour factor, PHF	0.90	0.78	0.93	0.91	0.77	0.90
Adj. Flow (vph)	648	121	219	591	96	243
RTOR Reduction (vph)	0	38	0	0	0	0
Lane Group Flow (vph)	648	83	219	591	96	243
Heavy Vehicles (%)	3%	1%	3%	3%	1%	2%
Turn Type	Perm		pm+pt		Prot	
Protected Phases	4		3	8	2	2
Permitted Phases		4	8			
Actuated Green, G (s)	36.5	36.5	50.1	50.1	19.4	19.4
Effective Green, g (s)	36.5	36.5	50.1	50.1	19.4	19.4
Actuated g/C Ratio	0.46	0.46	0.63	0.63	0.24	0.24
Clearance Time (s)	6.0	6.0	3.6	6.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	842	730	393	1155	433	384
v/s Ratio Prot	c0.35		c0.07	0.32	0.05	c0.15
v/s Ratio Perm		0.05	0.28			
v/c Ratio	0.77	0.11	0.56	0.51	0.22	0.63
Uniform Delay, d1	18.2	12.5	10.6	8.2	24.3	27.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.3	0.1	1.7	0.4	0.3	3.4
Delay (s)	22.5	12.5	12.3	8.6	24.5	30.5
Level of Service	C	B	B	A	C	C
Approach Delay (s)	20.9			9.6	28.8	
Approach LOS	C			A	C	
Intersection Summary						
HCM Average Control Delay			17.5		HCM Level of Service	B
HCM Volume to Capacity ratio			0.70			
Actuated Cycle Length (s)			80.0		Sum of lost time (s)	14.1
Intersection Capacity Utilization			58.7%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

103: S.R. 93 (Third St.) & S.R. 339 (Broad St.)

2010, Existing
PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	<1	0	0	<1>	0	0	<1>	0	0	<1>	0
Volume (vph)	5	345	131	30	316	2	107	16	45	8	9	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			-1%			0%			0%	
Total Lost time (s)		6.5			6.5			6.0			6.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.97			1.00			0.97			0.98	
Flt Protected		1.00			1.00			0.97			0.98	
Satd. Flow (prot)		1832			1855			1781			1812	
Flt Permitted		0.99			0.92			0.80			0.84	
Satd. Flow (perm)		1815			1721			1460			1549	
Peak-hour factor, PHF	0.42	0.85	0.91	0.83	0.89	0.50	0.89	0.40	0.94	0.40	0.56	0.50
Adj. Flow (vph)	12	406	144	36	355	4	120	40	48	20	16	8
RTOR Reduction (vph)	0	17	0	0	0	0	0	19	0	0	6	0
Lane Group Flow (vph)	0	545	0	0	395	0	0	189	0	0	38	0
Heavy Vehicles (%)	0%	0%	0%	0%	2%	50%	0%	0%	2%	0%	0%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)		30.2			30.2			12.1			12.1	
Effective Green, g (s)		30.2			30.2			12.1			12.1	
Actuated g/C Ratio		0.55			0.55			0.22			0.22	
Clearance Time (s)		6.5			6.5			6.0			6.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		1000			948			322			342	
v/s Ratio Prot												
v/s Ratio Perm		c0.30			0.23			c0.13			0.02	
v/c Ratio		0.54			0.42			0.59			0.11	
Uniform Delay, d1		7.9			7.2			19.1			17.1	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		2.1			1.3			2.7			0.1	
Delay (s)		10.0			8.5			21.8			17.2	
Level of Service		B			A			C			B	
Approach Delay (s)		10.0			8.5			21.8			17.2	
Approach LOS		B			A			C			B	
Intersection Summary												
HCM Average Control Delay			11.8			HCM Level of Service			B			
HCM Volume to Capacity ratio			0.56									
Actuated Cycle Length (s)			54.8			Sum of lost time (s)			12.5			
Intersection Capacity Utilization			62.4%			ICU Level of Service			B			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

106: S.R. 93 (Third St.) & Dewey St.

2010, Existing
PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	<1>	0	0	<1>	0	0	<1>	0	0	<1>	0
Volume (vph)	11	356	5	2	335	2	8	1	3	3	2	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			0%			0%			0%	
Total Lost time (s)		5.0			5.0			5.0			5.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		1.00			1.00			0.97			0.93	
Flt Protected		1.00			1.00			0.97			0.99	
Satd. Flow (prot)		1865			1859			1795			1750	
Flt Permitted		0.99			0.99			1.00			1.00	
Satd. Flow (perm)		1848			1847			1849			1772	
Peak-hour factor, PHF	0.92	0.86	0.62	0.25	0.90	0.50	0.67	0.25	0.75	0.38	0.25	0.69
Adj. Flow (vph)	12	414	8	8	372	4	12	4	4	8	8	16
RTOR Reduction (vph)	0	0	0	0	0	0	0	4	0	0	16	0
Lane Group Flow (vph)	0	434	0	0	384	0	0	16	0	0	16	0
Heavy Vehicles (%)	0%	1%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)		39.0			39.0			1.5			1.5	
Effective Green, g (s)		39.0			39.0			1.5			1.5	
Actuated g/C Ratio		0.77			0.77			0.03			0.03	
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)		1427			1426			55			53	
v/s Ratio Prot												
v/s Ratio Perm		c0.23			0.21			0.01			c0.01	
v/c Ratio		0.30			0.27			0.29			0.31	
Uniform Delay, d1		1.7			1.7			24.0			24.0	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.5			0.5			3.0			3.3	
Delay (s)		2.3			2.1			26.9			27.3	
Level of Service		A			A			C			C	
Approach Delay (s)		2.3			2.1			26.9			27.3	
Approach LOS		A			A			C			C	
Intersection Summary												
HCM Average Control Delay			3.7			HCM Level of Service			A			
HCM Volume to Capacity ratio			0.30									
Actuated Cycle Length (s)			50.5			Sum of lost time (s)			10.0			
Intersection Capacity Utilization			40.0%			ICU Level of Service			A			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

112: S.R. 11 & Briar Creek Plaza Driveways

2010, Existing
PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1	1>	0	1	1	1	1	1>	0	1	1	1
Volume (vph)	82	523	24	20	500	197	50	9	21	183	4	124
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	16	16
Grade (%)		1%			-1%			1%			2%	
Total Lost time (s)	3.5	5.3		5.3	5.3	5.3	5.2	5.2		5.2	5.2	5.2
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Fr't	1.00	0.99		1.00	1.00	0.85	1.00	0.90		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1796	1807		1814	1854	1623	1796	1701		1787	2132	1812
Flt Permitted	0.24	1.00		0.44	1.00	1.00	0.75	1.00		0.73	1.00	1.00
Satd. Flow (perm)	446	1807		849	1854	1623	1422	1701		1365	2132	1812
Peak-hour factor, PHF	0.71	0.95	0.75	0.71	0.93	0.95	0.69	0.56	0.66	0.80	0.50	0.69
Adj. Flow (vph)	115	551	32	28	538	207	72	16	32	229	8	180
RTOR Reduction (vph)	0	2	0	0	0	87	0	23	0	0	0	131
Lane Group Flow (vph)	115	581	0	28	538	120	72	25	0	229	8	49
Heavy Vehicles (%)	0%	4%	0%	0%	3%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt			Perm		Perm	Perm			Perm		Perm
Protected Phases	5	2			6			4			8	
Permitted Phases	2			6		6	4			8		8
Actuated Green, G (s)	37.2	37.2		26.7	26.7	26.7	18.0	18.0		18.0	18.0	18.0
Effective Green, g (s)	37.2	37.2		26.7	26.7	26.7	18.0	18.0		18.0	18.0	18.0
Actuated g/C Ratio	0.57	0.57		0.41	0.41	0.41	0.27	0.27		0.27	0.27	0.27
Clearance Time (s)	3.5	5.3		5.3	5.3	5.3	5.2	5.2		5.2	5.2	5.2
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	396	1023		345	753	660	390	466		374	584	496
v/s Ratio Prot	0.03	c0.32			c0.29			0.01			0.00	
v/s Ratio Perm	0.13			0.03		0.07	0.05			c0.17		0.03
v/c Ratio	0.29	0.57		0.08	0.71	0.18	0.18	0.05		0.61	0.01	0.10
Uniform Delay, d1	8.5	9.1		12.0	16.3	12.5	18.2	17.6		20.8	17.4	17.8
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.4	0.7		0.1	3.2	0.1	0.2	0.0		3.0	0.0	0.1
Delay (s)	8.9	9.8		12.1	19.5	12.6	18.5	17.6		23.8	17.4	17.9
Level of Service	A	A		B	B	B	B	B		C	B	B
Approach Delay (s)		9.7			17.4			18.1			21.1	
Approach LOS		A			B			B			C	

Intersection Summary

HCM Average Control Delay	15.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	65.7	Sum of lost time (s)	15.8
Intersection Capacity Utilization	71.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

120: S.R. 11 & S.R. 29 (Mill St.)

2010, Existing
PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1	1>	0	0	1>	0	0	<1>	0	0	<1	1
Volume (vph)	28	374	11	8	743	230	11	1	8	144	4	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-1%			0%			-1%	
Total Lost time (s)	6.0	6.0			6.0			5.2			6.0	6.0
Lane Util. Factor	1.00	1.00			1.00			1.00			1.00	1.00
Frt	1.00	0.99			0.97			0.94			1.00	0.85
Flt Protected	0.95	1.00			1.00			0.98			0.95	1.00
Satd. Flow (prot)	1796	1845			1812			1747			1772	1399
Flt Permitted	0.25	1.00			0.99			0.98			0.95	1.00
Satd. Flow (perm)	464	1845			1798			1747			1772	1399
Peak-hour factor, PHF	0.64	0.88	0.69	0.50	0.93	0.91	0.69	0.25	0.50	0.90	0.50	0.60
Adj. Flow (vph)	44	425	16	16	799	253	16	4	16	160	8	20
RTOR Reduction (vph)	0	1	0	0	11	0	0	15	0	0	0	15
Lane Group Flow (vph)	44	440	0	0	1057	0	0	21	0	0	168	5
Heavy Vehicles (%)	0%	2%	0%	12%	2%	1%	0%	0%	0%	3%	0%	16%
Turn Type	Perm			Perm			Split			Split		Perm
Protected Phases		2			6		8	8		4	4	
Permitted Phases	2	2		6								4
Actuated Green, G (s)	56.9	56.9			56.9			4.0			11.8	11.8
Effective Green, g (s)	56.9	56.9			56.9			4.0			11.8	11.8
Actuated g/C Ratio	0.63	0.63			0.63			0.04			0.13	0.13
Clearance Time (s)	6.0	6.0			6.0			5.2			6.0	6.0
Vehicle Extension (s)	3.0	3.0			3.0			3.0			3.0	3.0
Lane Grp Cap (vph)	294	1168			1138			78			233	184
v/s Ratio Prot		0.24						c0.01			c0.09	
v/s Ratio Perm	0.09				c0.59							0.00
v/c Ratio	0.15	0.38			0.93			0.27			0.72	0.03
Uniform Delay, d1	6.7	8.0			14.7			41.5			37.5	34.1
Progression Factor	1.00	1.00			1.00			1.00			1.00	1.00
Incremental Delay, d2	0.2	0.2			12.8			1.8			10.5	0.1
Delay (s)	6.9	8.2			27.5			43.4			47.9	34.1
Level of Service	A	A			C			D			D	C
Approach Delay (s)		8.0			27.5			43.4			46.5	
Approach LOS		A			C			D			D	

Intersection Summary

HCM Average Control Delay	24.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	89.9	Sum of lost time (s)	17.2
Intersection Capacity Utilization	82.8%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

128: S.R. 11 & County Bridge

2010, Existing
PM

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	1>	0	1	1	1	1
Volume (vph)	395	206	119	690	215	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	1%			-2%	0%	
Total Lost time (s)	7.0		7.0	7.0	7.0	7.0
Lane Util. Factor	1.00		1.00	1.00	1.00	1.00
Frt	0.95		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	1770		1823	1900	1805	1615
Flt Permitted	1.00		0.16	1.00	0.95	1.00
Satd. Flow (perm)	1770		299	1900	1805	1615
Peak-hour factor, PHF	0.95	0.79	0.90	0.89	0.83	0.82
Adj. Flow (vph)	416	261	132	775	259	80
RTOR Reduction (vph)	25	0	0	0	0	0
Lane Group Flow (vph)	652	0	132	775	259	80
Heavy Vehicles (%)	2%	0%	0%	1%	0%	0%
Turn Type			pm+pt		pt+ov	
Protected Phases	4		3	8	2	2 3
Permitted Phases			8			
Actuated Green, G (s)	36.5		50.6	50.6	16.5	30.6
Effective Green, g (s)	36.5		50.6	50.6	16.5	30.6
Actuated g/C Ratio	0.45		0.62	0.62	0.20	0.38
Clearance Time (s)	7.0		7.0	7.0	7.0	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	797		320	1185	367	609
v/s Ratio Prot	c0.37		0.04	c0.41	c0.14	0.05
v/s Ratio Perm			0.22			
v/c Ratio	0.82		0.41	0.65	0.71	0.13
Uniform Delay, d1	19.4		11.5	9.7	30.0	16.5
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	6.6		0.9	1.3	6.1	0.1
Delay (s)	26.0		12.4	11.0	36.1	16.6
Level of Service	C		B	B	D	B
Approach Delay (s)	26.0			11.2	31.5	
Approach LOS	C			B	C	
Intersection Summary						
HCM Average Control Delay			20.0		HCM Level of Service	B
HCM Volume to Capacity ratio			0.82			
Actuated Cycle Length (s)			81.1		Sum of lost time (s)	21.0
Intersection Capacity Utilization			69.4%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						

Appendix F

PennDOT Growth Rate Tables

Growth Factors for July 2009 to July 2010

County	Urban Interstate	Rural Interstate	Urban Non-Interstate	Rural Non-Interstate
ADAMS	*	*	1.99	0.86
ALLEGHENY	1.36	*	0.00	0.58
ARMSTRONG	1.56	*	0.73	0.63
BEAVER	1.51	2.32	0.29	0.64
BEDFORD	*	2.37	*	0.64
BERKS	1.54	2.19	0.68	0.65
BLAIR	0.86	1.65	0.00	0.40
BRADFORD	1.34	*	0.38	0.51
BUCKS	2.31	2.40	2.24	0.87
BUTLER	2.39	2.54	2.34	0.92
CAMBRIA	0.01	*	0.00	0.08
CAMERON	*	*	*	0.26
CARBON	1.92	2.89	0.48	0.80
CENTRE	2.46	2.84	2.07	0.97
CHESTER	2.43	2.76	2.05	0.94
CLARION	1.92	2.41	1.02	0.73
CLEARFIELD	*	2.74	0.94	0.82
CLINTON	0.88	1.44	0.09	0.37
COLUMBIA	1.47	1.96	0.77	0.60
CRAWFORD	0.86	1.73	0.00	0.40
CUMBERLAND	2.80	2.71	3.20	1.06
DAUPHIN	1.74	2.35	0.84	0.71
DELAWARE	1.37	*	0.21	0.56
ELK	*	*	0.10	0.49
ERIE	1.28	2.02	0.20	0.55
FAYETTE	1.48	*	0.33	0.63
FOREST	*	*	*	0.59
FRANKLIN	2.01	2.01	1.94	0.73
FULTON	*	2.54	*	0.78
GREENE	1.30	1.91	0.37	0.54
HUNTINGDON	*	2.44	0.49	0.69
INDIANA	1.64	*	0.51	0.61
JEFFERSON	*	1.87	0.42	.5
JUNIATA	*	*	*	0.72
LACKAWANNA	1.11	1.85	0.00	0.47
LANCASTER	2.04	2.37	1.54	0.79
LAWRENCE	1.35	1.96	0.39	0.55
LEBANON	*	2.05	1.15	0.66
LEHIGH	1.75	2.32	0.94	0.71
LUZERNE	0.95	1.68	0.00	0.42
LYCOMING	1.22	1.95	0.04	0.51
MCKEAN	1.10	*	0.00	0.46
MERCER	0.83	1.54	0.00	0.36
MIFFLIN	1.23	*	0.17	0.53
MONROE	2.75	2.96	3.00	1.11
MONTGOMERY	1.55	2.00	0.89	0.62
MONTOUR	*	2.57	1.38	0.82
NORTHAMPTON	1.88	*	1.50	0.76
NORTHUMBERLAND	0.77	1.49	0.00	0.34
PERRY	*	*	2.57	0.81
PHILADELPHIA	0.82	*	0.00	*
PIKE	*	3.16	*	1.16
POTTER	*	*	*	0.69
SCHUYLKILL	*	1.58	0.02	0.41
SNYDER	1.73	*	1.24	0.70
SOMERSET	1.19	1.86	0.15	0.50
SULLIVAN	*	*	*	0.64
SUSQUEHANNA	1.67	2.16	0.88	0.66
TIOGA	*	*	*	0.50
UNION	*	2.47	1.88	0.85
VENANGO	1.08	1.74	0.00	0.44
WARREN	*	*	0.16	0.47
WASHINGTON	1.59	2.33	0.41	0.65
WAYNE	*	2.56	1.98	0.89
WESTMORELAND	1.45	2.24	0.16	0.60
WYOMING	*	*	0.41	0.42
YORK	2.12	2.47	1.69	0.83

* = Functional Class Doesn't Exist in County

Questions? Please contact Joe Piper at the Bureau of Planning and Research, 717-214-8687 or josephpipe@state.pa.us

NOTE: The projected growth factors are derived using historical VMT (Vehicle Miles Traveled) data (1996 to 2007), as well as Woods and Poole demographic and economic data. 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.



pennsylvania
DEPARTMENT OF TRANSPORTATION

Appendix G

Capacity Analysis – Future No-Build Conditions

Appendix G

This appendix contains all supporting worksheets and materials relating to capacity analysis for the future no-build conditions. Table G-1 summarizes the LOS and delay at each intersection. Stick diagrams depicting the volumes used as inputs for the capacity analysis are provided in Figures G-1 and G-2. HCM signalized reports are given to support calculations at signalized intersections and HCS+ reports are given for all unsignalized intersections.

Queue storage calculations employing the PennDOT method are provided. The volumes shown in these worksheets are PCE (Passenger Car Equivalent) volumes which are factored up to account for the presence of heavy vehicles. The maximum hourly left turn volumes were used to determine the necessary storage.

Table G-1 – Future No-Build LOS (Delay)

Int No	PennDOT	County	Municipality	Intersection	Without Outage		With Outage	
					AM	PM	AM	PM
1	3-0	Columbia	South Center	S.R. 11 and S.R. 2028	B (14.2)	B (19.4)	B (14.9)	C (23.1)
2			Briar Creek	S.R. 11 and Briar Creek Plaza Driveways	A (6.6)	B (14.2)	A (6.6)	C (20.9)
3			Berwick	S.R. 11 (Front Street) and Eaton Street	A (1.1)	A (1.8)	A (1.1)	A (2.3)
4				S.R. 11 (Front Street) and Poplar Street	C (20)	D (38.9)	C (27)	D (40)
5				S.R. 11 (Front Street) and Orchard Street	A (6.5)	B (15.1)	A (6.7)	B (17.7)
6				S.R. 11 (Front Street) and S.R. 93 (Orange Street)	A (5.8)	A (9.9)	A (5.9)	B (11)
7				S.R. 11 (Second Street) and LaSalle Street	B (11.7)	B (13.6)	B (11.8)	B (14.1)
8				S.R. 11 (Second Street) and Oak Street	A (6.2)	A (8)	A (6.2)	A (8)
9				S.R. 11 (Second Street) and Mulberry Street	A (4.8)	A (5.7)	A (4.8)	A (5.7)
10				S.R. 11 (Front Street) and Mulberry Street	A (6)	A (7.9)	A (6.1)	A (8)
11				S.R. 1025 (Market Street) and Third Street	A (9.6)	B (12.9)	A (9.6)	B (12.8)
12				S.R. 11 (Second Street) and Market Street	A (9.5)	B (11.6)	A (9.7)	B (11.7)
13				S.R. 11 (Front Street) and Market Street	B (13.7)	B (15.3)	B (14.2)	B (15.3)
14				S.R. 11 (Second Street) and Pine Street	A (6)	A (8.7)	A (6)	A (8.6)
15	4-0	Luzerne	Nescopeck	S.R. 93 (Third Street) and S.R. 339 (Broad Street)	B (13.9)	B (12.2)	B (14.1)	B (12.3)
16				S.R. 93 (Third Street) and Dewey Street	A (4.6)	A (3.7)	A (4.6)	A (3.7)
17			Salem Township	S.R. 11 and Bell Bend Site Entrance				
18				S.R. 11 and SSES Site Entrance	A (4.4)	A (3.8)	E (47.1)	A (5.2)
19			Shickshinny	S.R. 11 (S. Main Street) and S.R. 239	A (8.1)	A (9.1)	A (7.8)	A (9.4)
20				S.R. 11 (Main Street) and S.R. 239 (Union Street)	B (13.6)	B (15.3)	B (14.7)	B (15.5)
21			Nanticoke	S.R. 11 and S.R. 29 (Mill Street)	C (23.4)	C (25.8)	C (23.6)	C (26.3)
22				S.R. 11 and County Bridge	D (48.9)	C (23.6)	D (49.5)	C (24.2)
23				S.R. 11 (E. Poplar Street) and S.R. 29	A (2.7)	D (27.7)	A (2.9)	D (30.3)

Note 1: The cells with LOS D or worse are highlighted.

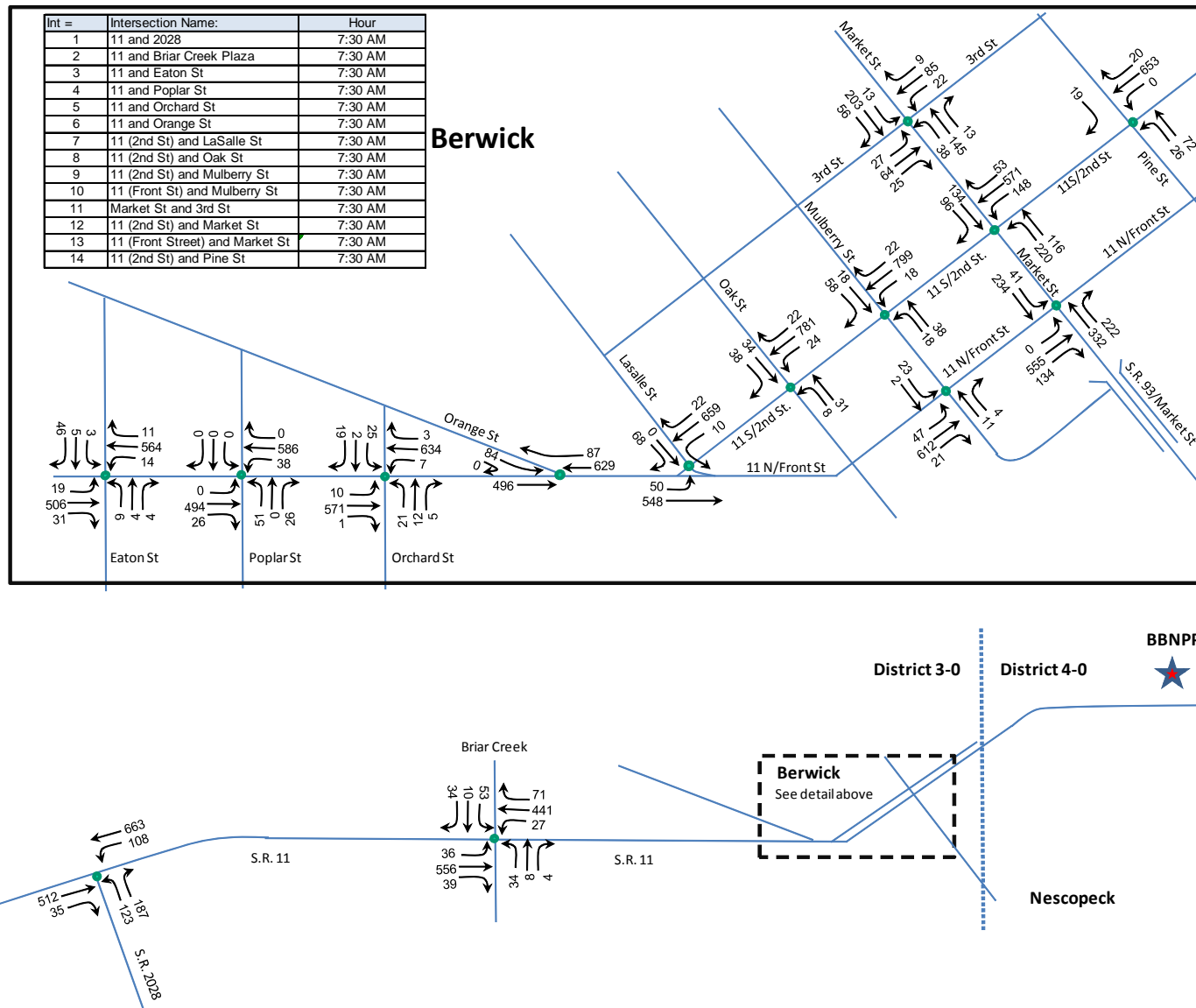


Figure G-1 – Future No-Build, 2022 (with Outage) AM Peak Hour Volumes

Int #	Intersection:	Hour
15	93 (3rd St) and 339 (Broad St)	7:30 AM
16	93 (3rd St) and Dewey St	7:30 AM
17	11 and Bell Bend Entrance	
18	11 and SSES Entrance	6:00 AM
19	11 and 239	6:00 AM
20	11 and 239 (Union St)	7:00 AM
21	11 and 29 (Mill St)	7:00 AM
22	11 and County Bridge	7:00 AM
23	11 (E. Poplar St) and 29	7:00 AM

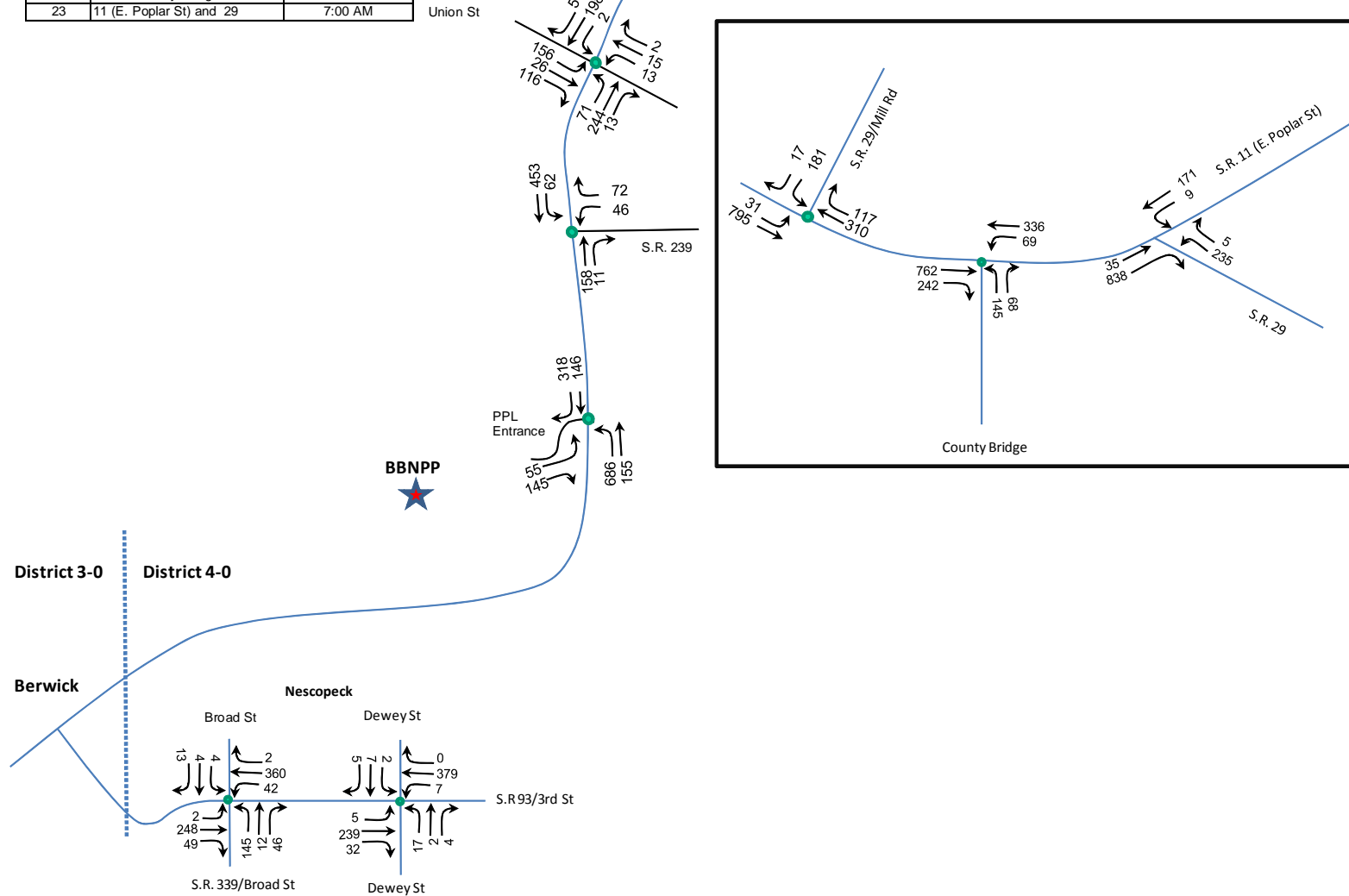


Figure G-1 – Future No-Build, 2022 (with Outage) AM Peak Hour Volumes

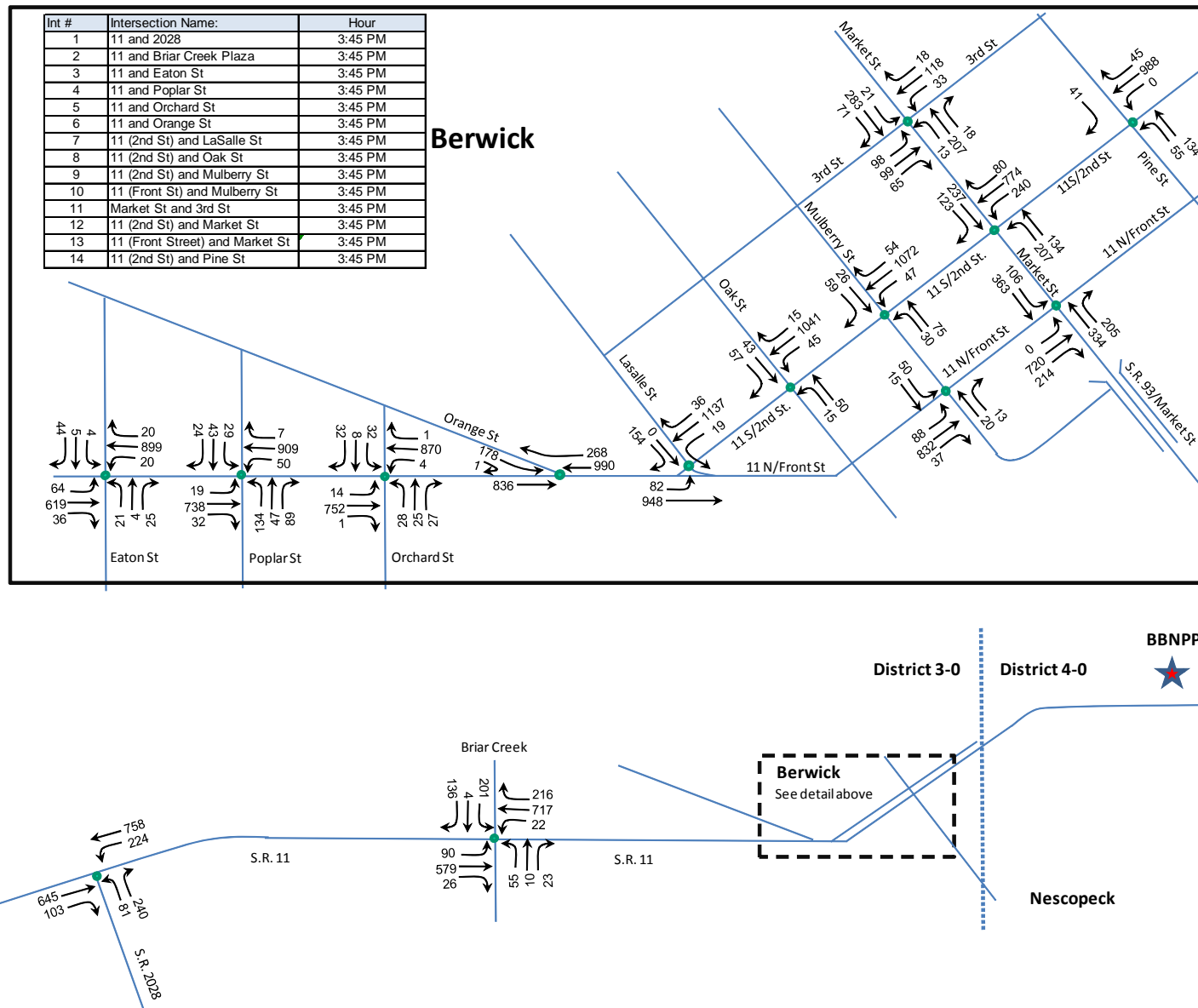


Figure G-2 – Future No-Build, 2022 (with Outage) PM Peak Hour Volumes

Int #	Intersection:	Hour
15	93 (3rd St) and 339 (Broad St)	3:45 PM
16	93 (3rd St) and Dewey St	3:45 PM
17	11 and Bell Bend Entrance	
18	11 and SSES Entrance	4:45 PM
19	11 and 239	3:30 PM
20	11 and 239 (Union St)	4:30 PM
21	11 and 29 (Mill St)	4:30 PM
22	11 and County Bridge	4:30 PM
23	11 (E. Poplar St) and 29	4:30 PM

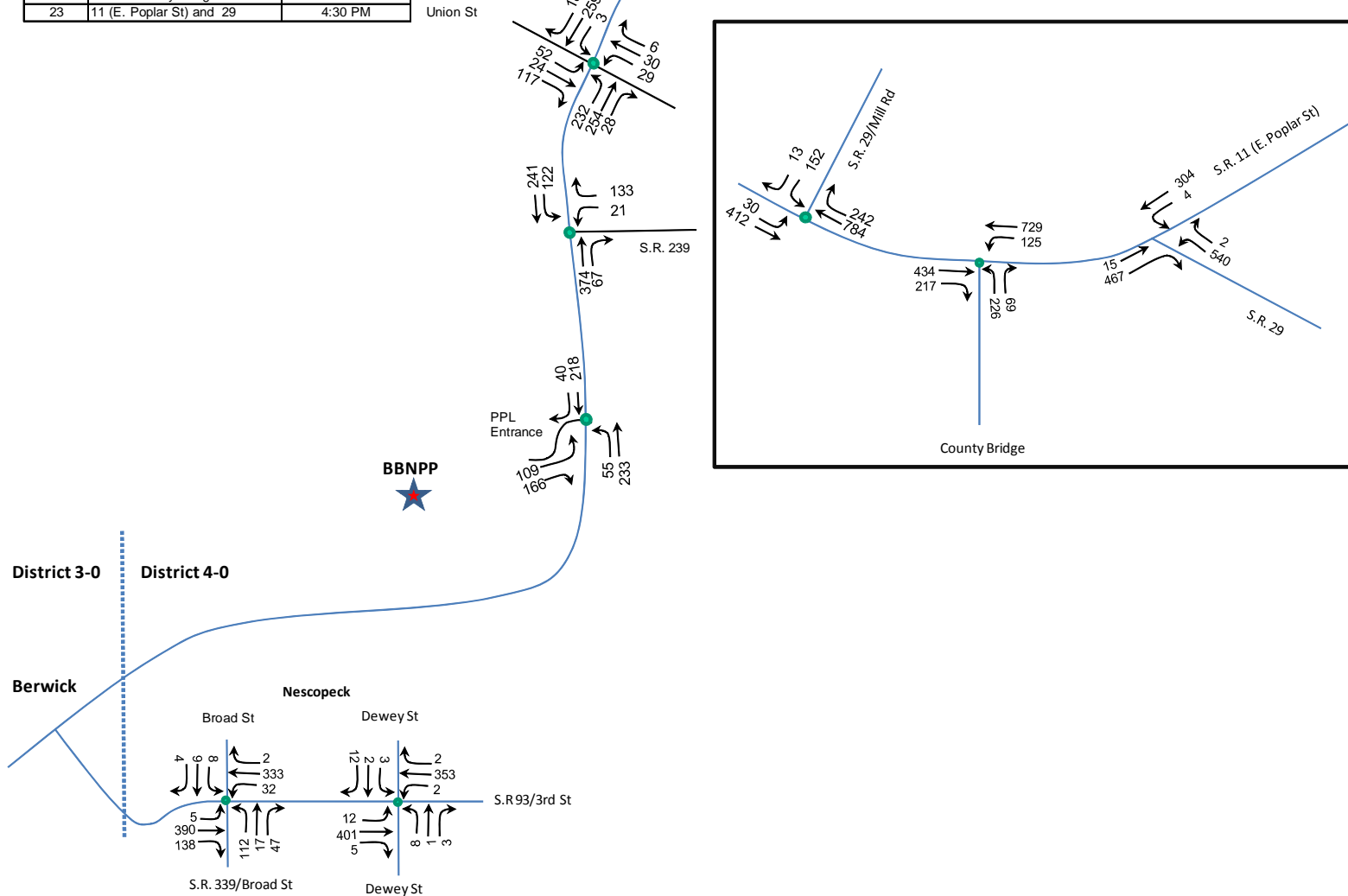


Figure G-2 – Future No-Build, 2022 (with Outage) PM Peak Hour Volumes

PennDOT Turn Lane Storage Length Calculations

Location: S.R. 11 and S.R. 2028

Scenario: 2021, No-Build

Mitigation: Unmitigated

Control: Signalized

Movement	Peak Hour	Max LT Volume	Approach Volume	LT%	Cycle Length (sec)	Vehicles/Cycle	Condition A (X)	Condition B	Condition C1 (Y)	Condition C (X+Y)	Storage Length Needed	Storage Available
SBL	AM	133	803	17%	60	2.2	150	125	75	225	225	165
SBL	PM	237	1305	18%	60	4.0	175	125	75	250	250	165
Speed (MPH)	45			>10%		Condition:	B or C*					

WBL	AM	127	323	39%	60	2.1	150	#N/A	#N/A	#N/A	150	275
WBL	PM	103	353	29%	60	1.7	100	#N/A	#N/A	#N/A	100	275
Speed (MPH)	35			>10%		Condition:	A					

Condition B	
MPH	Length
40	75
45	125
50	175
55	235
60	295

Condition C1	
MPH	Length
40	61
45	75
50	93
55	114
60	131

Speed (MPH)	25-35	25-35	40-45	40-45	50-60	50-60
	LT %	LT %	LT %	LT %	LT %	LT %
Signalized	>10%	<=10%	>10%	<=10%	>10%	<=10%
Unsignalized	A	A	B or C*	B or C*	B or C*	B or C*
	A	A	B or C*	B or C*	B or C*	B

Notes: Storage needed exceeds available amount
 * Whichever is greater

PennDOT Turn Lane Storage Length Calculations

Location: S.R. 11 and Briar Creek Plaza Driveways
 Scenario: 2021, No-Build
 Mitigation: Unmitigated
 Control: Signalized

Movement	Peak Hour	Max LT Volume	Approach Volume	LT%	Cycle Length (sec)	Vehicles/Cycle	Condition A (X)	Condition B	Condition C1 (Y)	Condition C (X+Y)	Storage Length Needed	Storage Available
NBL	AM	42	566	7%	45	0.5	75	#N/A	#N/A	#N/A	75	175
NBL	PM	110	893	12%	80	2.5	150	#N/A	#N/A	#N/A	150	175
Speed (MPH)	35			>10%		Condition: A						

SBL	AM	43	528	8%	45	0.5	75	#N/A	#N/A	#N/A	75	135
SBL	PM	22	814	3%	80	0.5	75	#N/A	#N/A	#N/A	75	135
Speed (MPH)	35			<=10%		Condition: A						

EBL	AM	56	100	56%	45	0.7	75	#N/A	#N/A	#N/A	75	175
EBL	PM	210	327	64%	80	4.7	200	#N/A	#N/A	#N/A	200	175
Speed (MPH)	30			>10%		Condition: A						

WBL	AM	46	59	79%	45	0.6	75	#N/A	#N/A	#N/A	75	75
WBL	PM	56	86	65%	80	1.2	100	#N/A	#N/A	#N/A	100	75
Speed (MPH)	30			>10%		Condition: A						

Condition B	
MPH	Length
40	75
45	125
50	175
55	235
60	295

Condition C1	
MPH	Length
40	61
45	75
50	93
55	114
60	131

Speed (MPH)

LT %

Signalized

Unsignalized

25-35	25-35	40-45	40-45	50-60	50-60
>10%	<=10%	>10%	<=10%	>10%	<=10%
A	A	B or C*	B or C*	B or C*	B or C*
A	A	B or C*	B or C*	B or C*	B

Notes: Storage needed exceeds available amount

* Whichever is greater

PennDOT Turn Lane Storage Length Calculations

Location: S.R. 11 (Front Street) and Eaton Street
 Scenario: 2021, No-Build
 Mitigation: Unmitigated
 Control: Unsignalized

Movement	Peak Hour	Max LT Volume	Approach Volume	LT%	Cycle Length (sec)	Vehicles/Cycle	Condition A (X)	Condition B	Condition C1 (Y)	Condition C (X+Y)	Storage Length Needed	Storage Available
NBL	AM	25	525	5%	60	0.4	75	#N/A	#N/A	#N/A	75	150
NBL	PM	66	844	8%	60	1.1	100	#N/A	#N/A	#N/A	100	150
Speed (MPH)	35			<=10%		Condition: A						

SBL	AM	14	619	2%	60	0.2	75	#N/A	#N/A	#N/A	75	150
SBL	PM	65	756	9%	60	1.1	100	#N/A	#N/A	#N/A	100	150
Speed (MPH)	35			<=10%		Condition: A						

Condition B	
MPH	Length
40	75
45	125
50	175
55	235
60	295

Condition C1	
MPH	Length
40	61
45	75
50	93
55	114
60	131

Speed (MPH)	25-35		40-45		50-60	
	LT %	Signalized	LT %	Signalized	LT %	Signalized
25-35	>10%	A	25-35	<=10%	>10%	<=10%
40-45	A	B or C*	40-45	B or C*	B or C*	B or C*
50-60	A	B	50-60	B or C*	B or C*	B

Notes: Storage needed exceeds available amount
 * Whichever is greater

PennDOT Turn Lane Storage Length Calculations

Location: S.R. 11 (Front Street) and Poplar Street
 Scenario: 2021, No-Build
 Mitigation: Unmitigated
 Control: Signalized

Movement	Peak Hour	Max LT Volume	Approach Volume	LT%	Cycle Length (sec)	Vehicles/Cycle	Condition A (X)	Condition B	Condition C1 (Y)	Condition C (X+Y)	Storage Length Needed	Storage Available
NBL	AM	0	0	#DIV/0!	75	0.0	75	#N/A	#N/A	#N/A	75	75
NBL	PM	23	777	3%	90	0.6	75	#N/A	#N/A	#N/A	75	75
Speed (MPH)	35			<=10%		Condition: A						

SBL	AM	58	636	9%	75	1.2	100	#N/A	#N/A	#N/A	100	105
SBL	PM	77	804	10%	90	1.9	100	#N/A	#N/A	#N/A	100	105
Speed (MPH)	35			<=10%		Condition: A						

WBL	AM	68	110	61%	75	1.4	100	#N/A	#N/A	#N/A	100	250
WBL	PM	140	275	51%	90	3.5	175	#N/A	#N/A	#N/A	175	250
Speed (MPH)	30			>10%		Condition: A						

Condition B	
MPH	Length
40	75
45	125
50	175
55	235
60	295

Condition C1	
MPH	Length
40	61
45	75
50	93
55	114
60	131

	25-35	25-35	40-45	40-45	50-60	50-60
Speed (MPH)	25-35	25-35	40-45	40-45	50-60	50-60
LT %	>10%	<=10%	>10%	<=10%	>10%	<=10%
Signalized	A	A	B or C*	B or C*	B or C*	B or C*
Unsignalized	A	A	B or C*	B or C*	B or C*	B

Notes: Storage needed exceeds available amount
 * Whichever is greater

PennDOT Turn Lane Storage Length Calculations

Location: S.R. 11 (Front Street) and Orchard Street

Scenario: 2021, No-Build

Mitigation: Unmitigated

Control: Signalized

Movement	Peak Hour	Max LT Volume	Approach Volume	LT%	Cycle Length (sec)	Vehicles/Cycle	Condition A (X)	Condition B	Condition C1 (Y)	Condition C (X+Y)	Storage Length Needed	Storage Available
NBL	AM	12	552	2%	75	0.3	75	#N/A	#N/A	#N/A	75	75
NBL	PM	16	795	2%	90	0.4	75	#N/A	#N/A	#N/A	75	75
Speed (MPH)	35			<=10%		Condition: A						

SBL	AM	9	638	1%	75	0.2	75	#N/A	#N/A	#N/A	75	75
SBL	PM	10	733	1%	90	0.3	75	#N/A	#N/A	#N/A	75	75
Speed (MPH)	35			<=10%		Condition: A						

Condition B	
MPH	Length
40	75
45	125
50	175
55	235
60	295

Condition C1	
MPH	Length
40	61
45	75
50	93
55	114
60	131

Speed (MPH)	25-35		40-45		50-60	
	LT %		LT %		LT %	
Signalized	>10%	<=10%	>10%	<=10%	>10%	<=10%
Unsignalized	A	A	B or C*	B or C*	B or C*	B or C*
	A	A	B or C*	B or C*	B or C*	B

Notes: Storage needed exceeds available amount

* Whichever is greater

PennDOT Turn Lane Storage Length Calculations

Location: S.R. 11 (Second Street) and LaSalle Street
 Scenario: 2021, No-Build
 Mitigation: Unmitigated
 Control: Signalized

Movement	Peak Hour	Max LT Volume	Approach Volume	LT%	Cycle Length (sec)	Vehicles/Cycle	Condition A (X)	Condition B	Condition C1 (Y)	Condition C (X+Y)	Storage Length Needed	Storage Available
NBL	AM	60	517	12%	65	1.1	100	#N/A	#N/A	#N/A	100	100
NBL	PM	94	1071	9%	90	2.4	150	#N/A	#N/A	#N/A	150	100
Speed (MPH)	35			<=10%		Condition: A						

SBL	AM	11	670	2%	65	0.2	75	#N/A	#N/A	#N/A	75	100
SBL	PM	20	1036	2%	90	0.5	75	#N/A	#N/A	#N/A	75	100
Speed (MPH)	35			<=10%		Condition: A						

Condition B	
MPH	Length
40	75
45	125
50	175
55	235
60	295

Condition C1	
MPH	Length
40	61
45	75
50	93
55	114
60	131

	25-35	25-35	40-45	40-45	50-60	50-60
Speed (MPH)	25-35	25-35	40-45	40-45	50-60	50-60
LT %	>10%	<=10%	>10%	<=10%	>10%	<=10%
Signalized	A	A	B or C*	B or C*	B or C*	B or C*
Unsignalized	A	A	B or C*	B or C*	B or C*	B

Notes: Storage needed exceeds available amount
 * Whichever is greater

PennDOT Turn Lane Storage Length Calculations

Location: S.R. 1025 (Market Street) and Third Street
 Scenario: 2021, No-Build
 Mitigation: Unmitigated
 Control: Signalized

Movement	Peak Hour	Max LT Volume	Approach Volume	LT%	Cycle Length (sec)	Vehicles/Cycle	Condition A (X)	Condition B	Condition C1 (Y)	Condition C (X+Y)	Storage Length Needed	Storage Available
EBL	AM	14	315	5%	60	0.2	75	#N/A	#N/A	#N/A	75	90
EBL	PM	25	384	7%	60	0.4	75	#N/A	#N/A	#N/A	75	90
Speed (MPH)	25			<=10%		Condition: A						

WBL	AM	41	189	22%	60	0.7	75	#N/A	#N/A	#N/A	75	175
WBL	PM	29	237	12%	60	0.5	75	#N/A	#N/A	#N/A	75	175
Speed (MPH)	25			>10%		Condition: A						

Condition B	
MPH	Length
40	75
45	125
50	175
55	235
60	295

Condition C1	
MPH	Length
40	61
45	75
50	93
55	114
60	131

Speed (MPH)	25-35		40-45		50-60	
	25-35	<=10%	>10%	<=10%	>10%	<=10%
LT %	>10%	<=10%	>10%	<=10%	>10%	<=10%
Signalized	A	A	B or C*	B or C*	B or C*	B or C*
Unsignalized	A	A	B or C*	B or C*	B or C*	B

Notes: Storage needed exceeds available amount
 * Whichever is greater

PennDOT Turn Lane Storage Length Calculations

Location: S.R. 11 (Second Street) and Market Street

Scenario: 2021, No-Build

Mitigation: Unmitigated

Control: Signalized

Movement	Peak Hour	Max LT Volume	Approach Volume	LT%	Cycle Length (sec)	Vehicles/Cycle	Condition A (X)	Condition B	Condition C1 (Y)	Condition C (X+Y)	Storage Length Needed	Storage Available
SBL	AM	155	781	20%	60	2.6	150	#N/A	#N/A	#N/A	150	100
SBL	PM	233	963	24%	60	3.9	175	#N/A	#N/A	#N/A	175	100
Speed (MPH)	35			>10%		Condition: A						

WBL	AM	241	354	68%	60	4.0	200	#N/A	#N/A	#N/A	200	170
WBL	PM	263	377	70%	60	4.4	200	#N/A	#N/A	#N/A	200	170
Speed (MPH)	25			>10%		Condition: A						

Condition B	
MPH	Length
40	75
45	125
50	175
55	235
60	295

Condition C1	
MPH	Length
40	61
45	75
50	93
55	114
60	131

	25-35	25-35	40-45	40-45	50-60	50-60
Speed (MPH)	25-35	25-35	40-45	40-45	50-60	50-60
LT %	>10%	<=10%	>10%	<=10%	>10%	<=10%
Signalized	A	A	B or C*	B or C*	B or C*	B or C*
Unsignalized	A	A	B or C*	B or C*	B or C*	B

Notes: Storage needed exceeds available amount

* Whichever is greater

PennDOT Turn Lane Storage Length Calculations

Location: S.R. 11 (Second Street) and Pine Street

Scenario: 2021, No-Build

Mitigation: Unmitigated

Control: Signalized

Movement	Peak Hour	Max LT Volume	Approach Volume	LT%	Cycle Length (sec)	Vehicles/Cycle	Condition A (X)	Condition B	Condition C1 (Y)	Condition C (X+Y)	Storage Length Needed	Storage Available
WBL	AM	26	100	26%	60	0.4	75	#N/A	#N/A	#N/A	75	175
WBL	PM	67	213	31%	60	1.1	100	#N/A	#N/A	#N/A	100	175
Speed (MPH)	35			>10%		Condition: A						

Condition B	
MPH	Length
40	75
45	125
50	175
55	235
60	295

Condition C1	
MPH	Length
40	61
45	75
50	93
55	114
60	131

	25-35	25-35	40-45	40-45	50-60	50-60
Speed (MPH)	25-35	25-35	40-45	40-45	50-60	50-60
LT %	>10%	<=10%	>10%	<=10%	>10%	<=10%
Signalized	A	A	B or C*	B or C*	B or C*	B or C*
Unsignalized	A	A	B or C*	B or C*	B or C*	B

Notes: Storage needed exceeds available amount

* Whichever is greater

PennDOT Turn Lane Storage Length Calculations

Location: S.R. 11 and SSES Site Entrance

Scenario: 2021, No-Build

Mitigation: Unmitigated

Control: Unsignalized

Movement	Peak Hour	Max LT Volume	Approach Volume	LT%	Cycle Length (sec)	Vehicles/Cycle	Condition A (X)	Condition B	Condition C1 (Y)	Condition C (X+Y)	Storage Length Needed	Storage Available
NBL	AM	220	396	55%	90	5.5	250	235	114	364	364	200
NBL	PM	42	555	8%	90	1.1	100	235	114	214	235	200
Speed (MPH)	55			>10%		Condition:	B or C*					

EBL	AM	31	111	28%	90	0.8	75	#N/A	#N/A	#N/A	75	450
EBL	PM	85	183	46%	90	2.1	150	#N/A	#N/A	#N/A	150	450
Speed (MPH)	35			>10%		Condition:	A					

Condition B	
MPH	Length
40	75
45	125
50	175
55	235
60	295

Condition C1	
MPH	Length
40	61
45	75
50	93
55	114
60	131

Speed (MPH)	25-35		40-45		50-60	
	25-35	25-35	40-45	40-45	50-60	50-60
LT %	>10%	<=10%	>10%	<=10%	>10%	<=10%
Signalized	A	A	B or C*	B or C*	B or C*	B or C*
Unsignalized	A	A	B or C*	B or C*	B or C*	B

Notes: Storage needed exceeds available amount

* Whichever is greater

PennDOT Turn Lane Storage Length Calculations

Location: S.R. 11 (Main Street) and S.R. 239 (Union Street)

Scenario: 2021, No-Build

Mitigation: Unmitigated

Control: Signalized

Movement	Peak Hour	Max LT Volume	Approach Volume	LT%	Cycle Length (sec)	Vehicles/Cycle	Condition A (X)	Condition B	Condition C1 (Y)	Condition C (X+Y)	Storage Length Needed	Storage Available
NBL	AM	87	289	30%	55	1.3	100	#N/A	#N/A	#N/A	100	150
NBL	PM	224	487	46%	60	3.7	175	#N/A	#N/A	#N/A	175	150
Speed (MPH)	25			>10%		Condition: A						

Condition B	
MPH	Length
40	75
45	125
50	175
55	235
60	295

Condition C1	
MPH	Length
40	61
45	75
50	93
55	114
60	131

	25-35	25-35	40-45	40-45	50-60	50-60
Speed (MPH)	25-35	25-35	40-45	40-45	50-60	50-60
LT %	>10%	<=10%	>10%	<=10%	>10%	<=10%
Signalized	A	A	B or C*	B or C*	B or C*	B or C*
Unsignalized	A	A	B or C*	B or C*	B or C*	B

Notes: Storage needed exceeds available amount

* Whichever is greater

PennDOT Turn Lane Storage Length Calculations

Location: S.R. 11 and S.R. 29 (Mill Street)

Scenario: 2021, No-Build

Mitigation: Unmitigated

Control: Signalized

Movement	Peak Hour	Max LT Volume	Approach Volume	LT%	Cycle Length (sec)	Vehicles/Cycle	Condition A (X)	Condition B	Condition C1 (Y)	Condition C (X+Y)	Storage Length Needed	Storage Available
NBL	AM	40	891	4%	80	0.9	75	#N/A	#N/A	#N/A	75	100
NBL	PM	32	445	7%	90	0.8	75	#N/A	#N/A	#N/A	75	100
Speed (MPH)	35			<=10%		Condition: A						

Condition B	
MPH	Length
40	75
45	125
50	175
55	235
60	295

Condition C1	
MPH	Length
40	61
45	75
50	93
55	114
60	131

	25-35	25-35	40-45	40-45	50-60	50-60
Speed (MPH)	25-35	25-35	40-45	40-45	50-60	50-60
LT %	>10%	<=10%	>10%	<=10%	>10%	<=10%
Signalized	A	A	B or C*	B or C*	B or C*	B or C*
Unsignalized	A	A	B or C*	B or C*	B or C*	B

Notes: Storage needed exceeds available amount

* Whichever is greater

PennDOT Turn Lane Storage Length Calculations

Location: S.R. 11 and County Bridge
 Scenario: 2021, No-Build
 Mitigation: Unmitigated
 Control: Signalized

Movement	Peak Hour	Max LT Volume	Approach Volume	LT%	Cycle Length (sec)	Vehicles/ Cycle	Condition A (X)	Condition B	Condition C1 (Y)	Condition C (X+Y)	Storage Length Needed	Storage Available
SBL	AM	96	403	24%	100	2.7	150	#N/A	#N/A	#N/A	150	200
SBL	PM	133	832	16%	70	2.6	150	#N/A	#N/A	#N/A	150	200
Speed (MPH)	35			>10%		Condition: A						

Condition B	
MPH	Length
40	75
45	125
50	175
55	235
60	295

Condition C1	
MPH	Length
40	61
45	75
50	93
55	114
60	131

	25-35	25-35	40-45	40-45	50-60	50-60
Speed (MPH)	25-35	25-35	40-45	40-45	50-60	50-60
LT %	>10%	<=10%	>10%	<=10%	>10%	<=10%
Signalized	A	A	B or C*	B or C*	B or C*	B or C*
Unsignalized	A	A	B or C*	B or C*	B or C*	B

Notes: Storage needed exceeds available amount
 * Whichever is greater

PennDOT Turn Lane Storage Length Calculations

Location: S.R. 11 (E. Poplar Street) and S.R. 29
 Scenario: 2021, No-Build
 Mitigation: Unmitigated
 Control: Unsignalized

Movement	Peak Hour	Max LT Volume	Approach Volume	LT%	Cycle Length (sec)	Vehicles/Cycle	Condition A (X)	Condition B	Condition C1 (Y)	Condition C (X+Y)	Storage Length Needed	Storage Available
NBL	AM	37	888	4%	90	0.9	75	#N/A	#N/A	#N/A	75	300
NBL	PM	22	505	4%	90	0.6	75	#N/A	#N/A	#N/A	75	300
Speed (MPH)	35			<=10%		Condition: A						

WBL	AM	231	238	97%	90	5.8	250	#N/A	#N/A	#N/A	250	300
WBL	PM	569	569	100%	90	14.2	525	#N/A	#N/A	#N/A	525	300
Speed (MPH)	35			>10%		Condition: A						

Condition B	
MPH	Length
40	75
45	125
50	175
55	235
60	295

Condition C1	
MPH	Length
40	61
45	75
50	93
55	114
60	131

Speed (MPH)	25-35		40-45		50-60	
	25-35	<=10%	40-45	<=10%	50-60	<=10%
LT %	>10%	<=10%	>10%	<=10%	>10%	<=10%
Signalized	A	A	B or C*	B or C*	B or C*	B or C*
Unsignalized	A	A	B or C*	B or C*	B or C*	B

Notes: Storage needed exceeds available amount
 * Whichever is greater

PennDOT Turn Lane Storage Length Calculations

Location: S.R. 11 and S.R. 2028
 Scenario: 2022, No-Build, with Outage
 Mitigation: Unmitigated
 Control: Signalized

Movement	Peak Hour	Max LT Volume	Approach Volume	LT%	Cycle Length (sec)	Vehicles/Cycle	Condition A (X)	Condition B	Condition C1 (Y)	Condition C (X+Y)	Storage Length Needed	Storage Available
SBL	AM	133	818	16%	60	2.2	150	125	75	225	225	165
SBL	PM	238	1536	15%	60	4.0	175	125	75	250	250	165
Speed (MPH)	45			>10%		Condition:	B or C*					

WBL	AM	128	323	39%	60	2.1	150	#N/A	#N/A	#N/A	150	275
WBL	PM	103	353	29%	60	1.7	100	#N/A	#N/A	#N/A	100	275
Speed (MPH)	35			>10%		Condition:	A					

Condition B	
MPH	Length
40	75
45	125
50	175
55	235
60	295

Condition C1	
MPH	Length
40	61
45	75
50	93
55	114
60	131

Speed (MPH)	25-35	25-35	40-45	40-45	50-60	50-60
	LT %	LT %	LT %	LT %	LT %	LT %
Signalized	>10%	<=10%	>10%	<=10%	>10%	<=10%
Unsignalized	A	A	B or C*	B or C*	B or C*	B or C*
	A	A	B or C*	B or C*	B or C*	B

Notes: Storage needed exceeds available amount
 * Whichever is greater

PennDOT Turn Lane Storage Length Calculations

Location: S.R. 11 and Briar Creek Plaza Driveways
 Scenario: 2022, No-Build, with Outage
 Mitigation: Unmitigated
 Control: Signalized

Movement	Peak Hour	Max LT Volume	Approach Volume	LT%	Cycle Length (sec)	Vehicles/Cycle	Condition A (X)	Condition B	Condition C1 (Y)	Condition C (X+Y)	Storage Length Needed	Storage Available
NBL	AM	42	647	6%	45	0.5	75	#N/A	#N/A	#N/A	75	175
NBL	PM	111	914	12%	80	2.5	150	#N/A	#N/A	#N/A	150	175
Speed (MPH)	35			>10%		Condition: A						

SBL	AM	43	543	8%	45	0.5	75	#N/A	#N/A	#N/A	75	135
SBL	PM	22	1103	2%	80	0.5	75	#N/A	#N/A	#N/A	75	135
Speed (MPH)	35			<=10%		Condition: A						

EBL	AM	56	100	56%	45	0.7	75	#N/A	#N/A	#N/A	75	175
EBL	PM	210	328	64%	80	4.7	200	#N/A	#N/A	#N/A	200	175
Speed (MPH)	30			>10%		Condition: A						

WBL	AM	46	59	79%	45	0.6	75	#N/A	#N/A	#N/A	75	75
WBL	PM	56	87	65%	80	1.2	100	#N/A	#N/A	#N/A	100	75
Speed (MPH)	30			>10%		Condition: A						

Condition B	
MPH	Length
40	75
45	125
50	175
55	235
60	295

Condition C1	
MPH	Length
40	61
45	75
50	93
55	114
60	131

Speed (MPH)

LT %

Signalized

Unsignalized

25-35	25-35	40-45	40-45	50-60	50-60
>10%	<=10%	>10%	<=10%	>10%	<=10%
A	A	B or C*	B or C*	B or C*	B or C*
A	A	B or C*	B or C*	B or C*	B

Notes: Storage needed exceeds available amount

* Whichever is greater

PennDOT Turn Lane Storage Length Calculations

Location: S.R. 11 (Front Street) and Eaton Street
 Scenario: 2022, No-Build, with Outage
 Mitigation: Unmitigated
 Control: Unsignalized

Movement	Peak Hour	Max LT Volume	Approach Volume	LT%	Cycle Length (sec)	Vehicles/Cycle	Condition A (X)	Condition B	Condition C1 (Y)	Condition C (X+Y)	Storage Length Needed	Storage Available
NBL	AM	25	605	4%	60	0.4	75	#N/A	#N/A	#N/A	75	150
NBL	PM	66	850	8%	60	1.1	100	#N/A	#N/A	#N/A	100	150
Speed (MPH)	35			<=10%		Condition: A						

SBL	AM	14	601	2%	60	0.2	75	#N/A	#N/A	#N/A	75	150
SBL	PM	65	799	8%	60	1.1	100	#N/A	#N/A	#N/A	100	150
Speed (MPH)	35			<=10%		Condition: A						

Condition B	
MPH	Length
40	75
45	125
50	175
55	235
60	295

Condition C1	
MPH	Length
40	61
45	75
50	93
55	114
60	131

	25-35	25-35	40-45	40-45	50-60	50-60
Speed (MPH)	25-35	25-35	40-45	40-45	50-60	50-60
LT %	>10%	<=10%	>10%	<=10%	>10%	<=10%
Signalized	A	A	B or C*	B or C*	B or C*	B or C*
Unsignalized	A	A	B or C*	B or C*	B or C*	B

Notes: Storage needed exceeds available amount
 * Whichever is greater

PennDOT Turn Lane Storage Length Calculations

Location: S.R. 11 (Front Street) and Poplar Street
 Scenario: 2022, No-Build, with Outage
 Mitigation: Unmitigated
 Control: Signalized

Movement	Peak Hour	Max LT Volume	Approach Volume	LT%	Cycle Length (sec)	Vehicles/Cycle	Condition A (X)	Condition B	Condition C1 (Y)	Condition C (X+Y)	Storage Length Needed	Storage Available
NBL	AM	0	143	0%	75	0.0	75	#N/A	#N/A	#N/A	75	75
NBL	PM	23	785	3%	90	0.6	75	#N/A	#N/A	#N/A	75	75
Speed (MPH)	35			<=10%		Condition: A						

SBL	AM	58	655	9%	75	1.2	100	#N/A	#N/A	#N/A	100	105
SBL	PM	77	1152	7%	90	1.9	100	#N/A	#N/A	#N/A	100	105
Speed (MPH)	35			<=10%		Condition: A						

WBL	AM	68	111	61%	75	1.4	100	#N/A	#N/A	#N/A	100	250
WBL	PM	141	276	51%	90	3.5	175	#N/A	#N/A	#N/A	175	250
Speed (MPH)	30			>10%		Condition: A						

Condition B	
MPH	Length
40	75
45	125
50	175
55	235
60	295

Condition C1	
MPH	Length
40	61
45	75
50	93
55	114
60	131

Speed (MPH)	25-35	25-35	40-45	40-45	50-60	50-60
LT %	>10%	<=10%	>10%	<=10%	>10%	<=10%
Signalized	A	A	B or C*	B or C*	B or C*	B or C*
Unsignalized	A	A	B or C*	B or C*	B or C*	B

Notes: Storage needed exceeds available amount
 * Whichever is greater

PennDOT Turn Lane Storage Length Calculations

Location: S.R. 11 (Front Street) and Orchard Street

Scenario: 2022, No-Build, with Outage

Mitigation: Unmitigated

Control: Signalized

Movement	Peak Hour	Max LT Volume	Approach Volume	LT%	Cycle Length (sec)	Vehicles/Cycle	Condition A (X)	Condition B	Condition C1 (Y)	Condition C (X+Y)	Storage Length Needed	Storage Available
NBL	AM	12	602	2%	75	0.3	75	#N/A	#N/A	#N/A	75	75
NBL	PM	16	802	2%	90	0.4	75	#N/A	#N/A	#N/A	75	75
Speed (MPH)	35			<=10%		Condition: A						

SBL	AM	9	660	1%	75	0.2	75	#N/A	#N/A	#N/A	75	75
SBL	PM	10	827	1%	90	0.3	75	#N/A	#N/A	#N/A	75	75
Speed (MPH)	35			<=10%		Condition: A						

Condition B	
MPH	Length
40	75
45	125
50	175
55	235
60	295

Condition C1	
MPH	Length
40	61
45	75
50	93
55	114
60	131

Speed (MPH)						
	25-35	25-35	40-45	40-45	50-60	50-60
LT %	>10%	<=10%	>10%	<=10%	>10%	<=10%
Signalized	A	A	B or C*	B or C*	B or C*	B or C*
Unsignalized	A	A	B or C*	B or C*	B or C*	B

Notes: Storage needed exceeds available amount

* Whichever is greater

PennDOT Turn Lane Storage Length Calculations

Location: S.R. 11 (Second Street) and LaSalle Street
 Scenario: 2022, No-Build, with Outage
 Mitigation: Unmitigated
 Control: Signalized

Movement	Peak Hour	Max LT Volume	Approach Volume	LT%	Cycle Length (sec)	Vehicles/Cycle	Condition A (X)	Condition B	Condition C1 (Y)	Condition C (X+Y)	Storage Length Needed	Storage Available
NBL	AM	60	839	7%	65	1.1	100	#N/A	#N/A	#N/A	100	100
NBL	PM	94	1088	9%	90	2.4	150	#N/A	#N/A	#N/A	150	100
Speed (MPH)	35			<=10%		Condition: A						

SBL	AM	11	690	2%	65	0.2	75	#N/A	#N/A	#N/A	75	100
SBL	PM	20	1130	2%	90	0.5	75	#N/A	#N/A	#N/A	75	100
Speed (MPH)	35			<=10%		Condition: A						

Condition B	
MPH	Length
40	75
45	125
50	175
55	235
60	295

Condition C1	
MPH	Length
40	61
45	75
50	93
55	114
60	131

Speed (MPH)	25-35		40-45		50-60	
	LT %	Signalized	LT %	Signalized	LT %	Signalized
25-35	>10%	A	<=10%	A	>10%	B or C*
40-45	>10%	B or C*	<=10%	B or C*	>10%	B or C*
50-60	>10%	B or C*	<=10%	B or C*	>10%	B or C*
50-60	<=10%	B				

Notes: Storage needed exceeds available amount
 * Whichever is greater

PennDOT Turn Lane Storage Length Calculations

Location: S.R. 1025 (Market Street) and Third Street

Scenario: 2022, No-Build, with Outage

Mitigation: Unmitigated

Control: Signalized

Movement	Peak Hour	Max LT Volume	Approach Volume	LT%	Cycle Length (sec)	Vehicles/Cycle	Condition A (X)	Condition B	Condition C1 (Y)	Condition C (X+Y)	Storage Length Needed	Storage Available
EBL	AM	14	316	5%	60	0.2	75	#N/A	#N/A	#N/A	75	90
EBL	PM	25	385	7%	60	0.4	75	#N/A	#N/A	#N/A	75	90
Speed (MPH)	25			<=10%		Condition: A						

WBL	AM	41	190	22%	60	0.7	75	#N/A	#N/A	#N/A	75	175
WBL	PM	29	237	12%	60	0.5	75	#N/A	#N/A	#N/A	75	175
Speed (MPH)	25			>10%		Condition: A						

Condition B	
MPH	Length
40	75
45	125
50	175
55	235
60	295

Condition C1	
MPH	Length
40	61
45	75
50	93
55	114
60	131

Speed (MPH)						
	25-35	25-35	40-45	40-45	50-60	50-60
LT %	>10%	<=10%	>10%	<=10%	>10%	<=10%
Signalized	A	A	B or C*	B or C*	B or C*	B or C*
Unsignalized	A	A	B or C*	B or C*	B or C*	B

Notes: Storage needed exceeds available amount

* Whichever is greater

PennDOT Turn Lane Storage Length Calculations

Location: S.R. 11 (Second Street) and Market Street
 Scenario: 2022, No-Build, with Outage
 Mitigation: Unmitigated
 Control: Signalized

Movement	Peak Hour	Max LT Volume	Approach Volume	LT%	Cycle Length (sec)	Vehicles/Cycle	Condition A (X)	Condition B	Condition C1 (Y)	Condition C (X+Y)	Storage Length Needed	Storage Available
SBL	AM	158	802	20%	60	2.6	150	#N/A	#N/A	#N/A	150	100
SBL	PM	281	1357	21%	60	4.7	200	#N/A	#N/A	#N/A	200	100
Speed (MPH)	35			>10%		Condition: A						

WBL	AM	241	355	68%	60	4.0	200	#N/A	#N/A	#N/A	200	170
WBL	PM	264	378	70%	60	4.4	200	#N/A	#N/A	#N/A	200	170
Speed (MPH)	25			>10%		Condition: A						

Condition B	
MPH	Length
40	75
45	125
50	175
55	235
60	295

Condition C1	
MPH	Length
40	61
45	75
50	93
55	114
60	131

Speed (MPH)	25-35		40-45		50-60	
	LT %	Signalized	LT %	Signalized	LT %	Signalized
25-35	>10%	A	25-35	<=10%	40-45	>10%
40-45	<=10%	B or C*	40-45	<=10%	50-60	>10%
50-60	>10%	B or C*	50-60	<=10%	50-60	<=10%
50-60	<=10%	B				

Notes: Storage needed exceeds available amount
 * Whichever is greater

PennDOT Turn Lane Storage Length Calculations

Location: S.R. 11 (Second Street) and Pine Street
 Scenario: 2022, No-Build, with Outage
 Mitigation: Unmitigated
 Control: Signalized

Movement	Peak Hour	Max LT Volume	Approach Volume	LT%	Cycle Length (sec)	Vehicles/Cycle	Condition A (X)	Condition B	Condition C1 (Y)	Condition C (X+Y)	Storage Length Needed	Storage Available
WBL	AM	26	100	26%	60	0.4	75	#N/A	#N/A	#N/A	75	175
WBL	PM	67	214	31%	60	1.1	100	#N/A	#N/A	#N/A	100	175
Speed (MPH)	35			>10%		Condition: A						

Condition B	
MPH	Length
40	75
45	125
50	175
55	235
60	295

Condition C1	
MPH	Length
40	61
45	75
50	93
55	114
60	131

	25-35	25-35	40-45	40-45	50-60	50-60
Speed (MPH)	25-35	25-35	40-45	40-45	50-60	50-60
LT %	>10%	<=10%	>10%	<=10%	>10%	<=10%
Signalized	A	A	B or C*	B or C*	B or C*	B or C*
Unsignalized	A	A	B or C*	B or C*	B or C*	B

Notes: Storage needed exceeds available amount
 * Whichever is greater

PennDOT Turn Lane Storage Length Calculations

Location: S.R. 11 and SSES Site Entrance
 Scenario: 2022, No-Build, with Outage
 Mitigation: Unmitigated
 Control: Unsignalized

Movement	Peak Hour	Max LT Volume	Approach Volume	LT%	Cycle Length (sec)	Vehicles/Cycle	Condition A (X)	Condition B	Condition C1 (Y)	Condition C (X+Y)	Storage Length Needed	Storage Available
NBL	AM	686	863	80%	90	17.2	625	235	114	739	739	200
NBL	PM	69	582	12%	90	1.7	100	235	114	214	235	200
Speed (MPH)	55			>10%		Condition:	B or C*					

EBL	AM	55	199	27%	90	1.4	100	#N/A	#N/A	#N/A	100	450
EBL	PM	204	714	29%	90	5.1	250	#N/A	#N/A	#N/A	250	450
Speed (MPH)	35			>10%		Condition:	A					

Condition B	
MPH	Length
40	75
45	125
50	175
55	235
60	295

Condition C1	
MPH	Length
40	61
45	75
50	93
55	114
60	131

Speed (MPH)						
	25-35	25-35	40-45	40-45	50-60	50-60
LT %	>10%	<=10%	>10%	<=10%	>10%	<=10%
Signalized	A	A	B or C*	B or C*	B or C*	B or C*
Unsignalized	A	A	B or C*	B or C*	B or C*	B

Notes: Storage needed exceeds available amount
 * Whichever is greater

PennDOT Turn Lane Storage Length Calculations

Location: S.R. 11 (Main Street) and S.R. 239 (Union Street)

Scenario: 2022, No-Build, with Outage

Mitigation: Unmitigated

Control: Signalized

Movement	Peak Hour	Max LT Volume	Approach Volume	LT%	Cycle Length (sec)	Vehicles/Cycle	Condition A (X)	Condition B	Condition C1 (Y)	Condition C (X+Y)	Storage Length Needed	Storage Available
NBL	AM	90	295	30%	55	1.4	100	#N/A	#N/A	#N/A	100	150
NBL	PM	246	591	42%	60	4.1	200	#N/A	#N/A	#N/A	200	150
Speed (MPH)	25			>10%		Condition: A						

Condition B	
MPH	Length
40	75
45	125
50	175
55	235
60	295

Condition C1	
MPH	Length
40	61
45	75
50	93
55	114
60	131

	25-35	25-35	40-45	40-45	50-60	50-60
Speed (MPH)	25-35	25-35	40-45	40-45	50-60	50-60
LT %	>10%	<=10%	>10%	<=10%	>10%	<=10%
Signalized	A	A	B or C*	B or C*	B or C*	B or C*
Unsignalized	A	A	B or C*	B or C*	B or C*	B

Notes: Storage needed exceeds available amount

* Whichever is greater

PennDOT Turn Lane Storage Length Calculations

Location: S.R. 11 and S.R. 29 (Mill Street)
 Scenario: 2022, No-Build, with Outage
 Mitigation: Unmitigated
 Control: Signalized

Movement	Peak Hour	Max LT Volume	Approach Volume	LT%	Cycle Length (sec)	Vehicles/Cycle	Condition A (X)	Condition B	Condition C1 (Y)	Condition C (X+Y)	Storage Length Needed	Storage Available
NBL	AM	40	897	4%	80	0.9	75	#N/A	#N/A	#N/A	75	100
NBL	PM	32	460	7%	90	0.8	75	#N/A	#N/A	#N/A	75	100
Speed (MPH)	35			<=10%		Condition:	A					

Condition B	
MPH	Length
40	75
45	125
50	175
55	235
60	295

Condition C1	
MPH	Length
40	61
45	75
50	93
55	114
60	131

	25-35	25-35	40-45	40-45	50-60	50-60
Speed (MPH)	25-35	25-35	40-45	40-45	50-60	50-60
LT %	>10%	<=10%	>10%	<=10%	>10%	<=10%
Signalized	A	A	B or C*	B or C*	B or C*	B or C*
Unsignalized	A	A	B or C*	B or C*	B or C*	B

Notes: Storage needed exceeds available amount

* Whichever is greater

PennDOT Turn Lane Storage Length Calculations

Location: S.R. 11 and County Bridge
 Scenario: 2022, No-Build, with Outage
 Mitigation: Unmitigated
 Control: Signalized

Movement	Peak Hour	Max LT Volume	Approach Volume	LT%	Cycle Length (sec)	Vehicles/Cycle	Condition A (X)	Condition B	Condition C1 (Y)	Condition C (X+Y)	Storage Length Needed	Storage Available
SBL	AM	96	418	23%	100	2.7	150	#N/A	#N/A	#N/A	150	200
SBL	PM	133	839	16%	70	2.6	150	#N/A	#N/A	#N/A	150	200
Speed (MPH)	35			>10%		Condition: A						

Condition B	
MPH	Length
40	75
45	125
50	175
55	235
60	295

Condition C1	
MPH	Length
40	61
45	75
50	93
55	114
60	131

	25-35	25-35	40-45	40-45	50-60	50-60
Speed (MPH)	25-35	25-35	40-45	40-45	50-60	50-60
LT %	>10%	<=10%	>10%	<=10%	>10%	<=10%
Signalized	A	A	B or C*	B or C*	B or C*	B or C*
Unsignalized	A	A	B or C*	B or C*	B or C*	B

Notes: Storage needed exceeds available amount
 * Whichever is greater

PennDOT Turn Lane Storage Length Calculations

Location: S.R. 11 (E. Poplar Street) and S.R. 29
 Scenario: 2022, No-Build, with Outage
 Mitigation: Unmitigated
 Control: Unsignalized

Movement	Peak Hour	Max LT Volume	Approach Volume	LT%	Cycle Length (sec)	Vehicles/Cycle	Condition A (X)	Condition B	Condition C1 (Y)	Condition C (X+Y)	Storage Length Needed	Storage Available
NBL	AM	38	894	4%	90	1.0	75	#N/A	#N/A	#N/A	75	300
NBL	PM	44	581	8%	90	1.1	100	#N/A	#N/A	#N/A	100	300
Speed (MPH)	35			<=10%		Condition: A						

WBL	AM	245	252	97%	90	6.1	275	#N/A	#N/A	#N/A	275	300
WBL	PM	571	571	100%	90	14.3	525	#N/A	#N/A	#N/A	525	300
Speed (MPH)	35			>10%		Condition: A						

Condition B	
MPH	Length
40	75
45	125
50	175
55	235
60	295

Condition C1	
MPH	Length
40	61
45	75
50	93
55	114
60	131

Speed (MPH)	25-35		40-45		50-60	
	LT %		LT %		LT %	
Signalized	>10%	<=10%	>10%	<=10%	>10%	<=10%
Unsignalized	A	A	B or C*	B or C*	B or C*	B or C*

Notes: Storage needed exceeds available amount
 * Whichever is greater

TWO-WAY STOP CONTROL SUMMARY

Analyst: KLD Engineering, P.C
 Agency/Co.:
 Date Performed:
 Analysis Time Period: 7:30 AM
 Intersection: S.R. 11 and Eaton St.
 Jurisdiction: Berwick, PA
 Units: U. S. Customary
 Analysis Year: 2021
 Project ID: 2021, No-Build, AM
 East/West Street: Eaton St.
 North/South Street: S.R. 11
 Intersection Orientation: NS

Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach Movement	Northbound			Southbound		
		1	2	3	4	5	6
		L	T	R	L	T	R
Volume		19	446	31	14	546	11
Peak-Hour Factor, PHF		0.85	0.95	0.64	0.65	1.00	0.50
Hourly Flow Rate, HFR		22	469	48	21	546	22
Percent Heavy Vehicles		0	--	--	0	--	--
Median Type/Storage		TWLTL			/ 9		
RT Channelized?							
Lanes		1	1	0	1	1	0
Configuration		L		TR	L		TR
Upstream Signal?			No			No	

Minor Street:	Approach Movement	Westbound			Eastbound		
		7	8	9	10	11	12
		L	T	R	L	T	R
Volume		9	4	4	3	5	46
Peak Hour Factor, PHF		0.50	0.50	0.50	0.75	0.42	0.70
Hourly Flow Rate, HFR		18	8	8	4	11	65
Percent Heavy Vehicles		25	0	0	0	0	5
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage				No	/		/
Lanes		0	1	0	0	1	1
Configuration			LTR		LT		R

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L	L		LTR		LT		R
v (vph)	22	21		34		15		65
C(m) (vph)	1014	1059		397		449		524
v/c	0.02	0.02		0.09		0.03		0.12
95% queue length	0.07	0.06		0.28		0.10		0.42
Control Delay	8.6	8.5		14.9		13.3		12.8
LOS	A	A		B		B		B
Approach Delay				14.9			12.9	
Approach LOS				B			B	

TWO-WAY STOP CONTROL SUMMARY

Analyst: KLD Engineering, P.C
 Agency/Co.:
 Date Performed:
 Analysis Time Period: 3:45 PM
 Intersection: S.R. 11 and Eaton St.
 Jurisdiction: Berwick, PA
 Units: U. S. Customary
 Analysis Year: 2021
 Project ID: 2021, No-Build, PM
 East/West Street: Eaton St.
 North/South Street: S.R. 11
 Intersection Orientation: NS

Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach Movement	Northbound			Southbound		
		1	2	3	4	5	6
		L	T	R	L	T	R
Volume		64	612	36	20	728	20
Peak-Hour Factor, PHF		0.85	0.90	0.69	0.64	1.00	0.75
Hourly Flow Rate, HFR		75	680	52	31	728	26
Percent Heavy Vehicles		0	--	--	0	--	--
Median Type/Storage		TWLTL			/ 9		
RT Channelized?							
Lanes		1	1	0	1	1	0
Configuration		L		TR	L		TR
Upstream Signal?			No			No	

Minor Street:	Approach Movement	Westbound			Eastbound		
		7	8	9	10	11	12
		L	T	R	L	T	R
Volume		21	4	25	4	5	44
Peak Hour Factor, PHF		0.68	0.50	0.41	1.00	0.63	0.71
Hourly Flow Rate, HFR		30	8	60	4	7	61
Percent Heavy Vehicles		5	0	0	25	0	0
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage				No	/		/
Lanes		0	1	0	0	1	1
Configuration			LTR		LT		R

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L	L		LTR		LT		R
v (vph)	75	31		98		11		61
C(m) (vph)	865	882		321		255		420
v/c	0.09	0.04		0.31		0.04		0.15
95% queue length	0.28	0.11		1.26		0.13		0.50
Control Delay	9.6	9.2		21.1		19.8		15.0+
LOS	A	A		C		C		C
Approach Delay				21.1			15.7	
Approach LOS				C			C	

TWO-WAY STOP CONTROL SUMMARY

Analyst: KLD Engineering, P.C.
 Agency/Co.:
 Date Performed:
 Analysis Time Period: 6:00 AM
 Intersection: S.R. 11 and SSES Entrance
 Jurisdiction: Berwick, PA
 Units: U. S. Customary
 Analysis Year: 2021
 Project ID: 2021, No-Build, AM
 East/West Street: SSES Entrance
 North/South Street: S.R. 11
 Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach	Northbound			Southbound		
	Movement	1	2	3	4	5	6
		L	T	R	L	T	R
Volume		220	154			146	149
Peak-Hour Factor, PHF		0.87	0.85			0.79	0.78
Hourly Flow Rate, HFR		252	181			184	191
Percent Heavy Vehicles		0	--	--		--	--
Median Type/Storage		Undivided			/		
RT Channelized?							No
Lanes		1	1			1	1
Configuration		L	T			T	R
Upstream Signal?			No			No	

Minor Street:	Approach	Westbound			Eastbound		
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume					31		80
Peak Hour Factor, PHF					0.60		0.56
Hourly Flow Rate, HFR					51		142
Percent Heavy Vehicles					0		0
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage					/		
Lanes					1	1	
Configuration					L	R	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L					L		R
v (vph)	252					51		142
C(m) (vph)	1195					256		864
v/c	0.21					0.20		0.16
95% queue length	0.80					0.73		0.59
Control Delay	8.8					22.5		10.0-
LOS	A					C		A
Approach Delay							13.3	
Approach LOS							B	

TWO-WAY STOP CONTROL SUMMARY

Analyst: KLD Engineering, P.C.
 Agency/Co.:
 Date Performed: 5/31/2010
 Analysis Time Period: 4:45 PM
 Intersection: S.R. 11 and SSES Entrance
 Jurisdiction: Berwick, PA
 Units: U. S. Customary
 Analysis Year: 2021
 Project ID: 2021, No-Build, PM
 East/West Street: SSES Entrance
 North/South Street: S.R. 11
 Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach	Northbound			Southbound		
	Movement	1	2	3	4	5	6
		L	T	R	L	T	R
Volume		33	233			217	32
Peak-Hour Factor, PHF		0.69	0.79			0.92	1.00
Hourly Flow Rate, HFR		47	294			235	32
Percent Heavy Vehicles		0	--	--		--	--
Median Type/Storage		Undivided			/		
RT Channelized?							No
Lanes		1	1			1	1
Configuration		L	T			T	R
Upstream Signal?			No			No	

Minor Street:	Approach	Westbound			Eastbound		
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume					85		98
Peak Hour Factor, PHF					0.79		0.79
Hourly Flow Rate, HFR					107		124
Percent Heavy Vehicles					0		0
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage					/		
Lanes					1	1	
Configuration					L	R	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L					L		R
v (vph)	47					107		124
C(m) (vph)	1308					437		809
v/c	0.04					0.24		0.15
95% queue length	0.11					0.95		0.54
Control Delay	7.9					15.9		10.3
LOS	A					C		B
Approach Delay							12.9	
Approach LOS							B	

TWO-WAY STOP CONTROL SUMMARY

Analyst: KLD Engineering, P.C.
 Agency/Co.:
 Date Performed:
 Analysis Time Period: 7:00 AM
 Intersection: S.R. 11 and S.R. 29
 Jurisdiction: Nanticoke, PA
 Units: U. S. Customary
 Analysis Year: 2021
 Project ID: 2021, No-Build, AM
 East/West Street: S.R. 29
 North/South Street: S.R. 11 (Poplar St.)
 Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach	Northbound			Southbound		
	Movement	1	2	3	4	5	6
		L	T	R	L	T	R
Volume						165	
Peak-Hour Factor, PHF						0.79	
Hourly Flow Rate, HFR						208	
Percent Heavy Vehicles		--	--			--	--
Median Type/Storage		Undivided			/		
RT Channelized?							
Lanes						1	
Configuration						T	
Upstream Signal?			No			No	

Minor Street:	Approach	Westbound			Eastbound		
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume				34	222		
Peak Hour Factor, PHF				0.57	0.79		
Hourly Flow Rate, HFR				59	281		
Percent Heavy Vehicles				0	3		
Percent Grade (%)		0				0	
Flared Approach: Exists?/Storage					/		/
Lanes			1		1		
Configuration			R		L		

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config					R	L		
v (vph)					59	281		
C(m) (vph)					1091	675		
v/c					0.05	0.42		
95% queue length					0.17	2.05		
Control Delay					8.5	14.1		
LOS					A	B		
Approach Delay				8.5			14.1	
Approach LOS				A			B	

TWO-WAY STOP CONTROL SUMMARY

Analyst: KLD Engineering, P.C.
 Agency/Co.:
 Date Performed:
 Analysis Time Period: 4:30 PM
 Intersection: S.R. 11 and S.R. 29
 Jurisdiction: Nanticoke, PA
 Units: U. S. Customary
 Analysis Year: 2021
 Project ID: 2021, No-Build, PM
 East/West Street: S.R. 29
 North/South Street: S.R. 11 (Poplar St.)
 Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach	Northbound			Southbound		
	Movement	1	2	3	4	5	6
		L	T	R	L	T	R
Volume						302	
Peak-Hour Factor, PHF						0.90	
Hourly Flow Rate, HFR						335	
Percent Heavy Vehicles		--	--			--	--
Median Type/Storage		Undivided			/		
RT Channelized?							
Lanes						1	
Configuration						T	
Upstream Signal?			No			No	

Minor Street:	Approach	Westbound			Eastbound		
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume				9	537		
Peak Hour Factor, PHF				0.56	0.87		
Hourly Flow Rate, HFR				16	617		
Percent Heavy Vehicles				0	0		
Percent Grade (%)		0			0		
Flared Approach: Exists?/Storage					/		/
Lanes			1		1		
Configuration			R		L		

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config					R	L		
v (vph)					16	617		
C(m) (vph)					1091	606		
v/c					0.01	1.02		
95% queue length					0.04	15.91		
Control Delay					8.3	67.4		
LOS					A	F		
Approach Delay				8.3			67.4	
Approach LOS				A			F	

TWO-WAY STOP CONTROL SUMMARY

Analyst: KLD Engineering, P.C
 Agency/Co.:
 Date Performed:
 Analysis Time Period: 7:30 AM
 Intersection: S.R. 11 and Eaton St.
 Jurisdiction: Berwick, PA
 Units: U. S. Customary
 Analysis Year: 2022
 Project ID: 2022, No-Build, with Outage, AM
 East/West Street: Eaton St.
 North/South Street: S.R. 11
 Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach Movement	Northbound			Southbound		
		1	2	3	4	5	6
		L	T	R	L	T	R
Volume		19	506	31	14	564	11
Peak-Hour Factor, PHF		0.85	0.92	0.64	0.65	0.93	0.50
Hourly Flow Rate, HFR		22	549	48	21	606	22
Percent Heavy Vehicles		0	--	--	0	--	--
Median Type/Storage		TWLTL			/ 9		
RT Channelized?							
Lanes		1	1	0	1	1	0
Configuration		L		TR	L		TR
Upstream Signal?			No			No	

Minor Street:	Approach Movement	Westbound			Eastbound		
		7	8	9	10	11	12
		L	T	R	L	T	R
Volume		9	4	4	3	5	46
Peak Hour Factor, PHF		0.50	0.50	0.50	0.75	0.42	0.70
Hourly Flow Rate, HFR		18	8	8	4	11	65
Percent Heavy Vehicles		25	0	0	0	0	5
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage				No	/		/
Lanes		0	1	0	0	1	1
Configuration			LTR		LT		R

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L	L		LTR		LT		R
v (vph)	22	21		34		15		65
C(m) (vph)	964	989		361		412		484
v/c	0.02	0.02		0.09		0.04		0.13
95% queue length	0.07	0.07		0.31		0.11		0.46
Control Delay	8.8	8.7		16.0		14.1		13.6
LOS	A	A		C		B		B
Approach Delay				16.0			13.7	
Approach LOS				C			B	

TWO-WAY STOP CONTROL SUMMARY

Analyst: KLD Engineering, P.C
 Agency/Co.:
 Date Performed:
 Analysis Time Period: 3:45 PM
 Intersection: S.R. 11 and Eaton St.
 Jurisdiction: Berwick, PA
 Units: U. S. Customary
 Analysis Year: 2022
 Project ID: 2022, No-Build, with Outage, PM
 East/West Street: Eaton St.
 North/South Street: S.R. 11
 Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach Movement	Northbound			Southbound		
		1	2	3	4	5	6
		L	T	R	L	T	R
Volume		64	619	36	20	899	20
Peak-Hour Factor, PHF		0.85	0.90	0.69	0.64	0.86	0.75
Hourly Flow Rate, HFR		75	687	52	31	1045	26
Percent Heavy Vehicles		0	--	--	0	--	--
Median Type/Storage		TWLTL			/ 9		
RT Channelized?							
Lanes		1	1	0	1	1	0
Configuration		L		TR	L		TR
Upstream Signal?			No			No	

Minor Street:	Approach Movement	Westbound			Eastbound		
		7	8	9	10	11	12
		L	T	R	L	T	R
Volume		21	4	25	4	5	44
Peak Hour Factor, PHF		0.68	0.50	0.41	1.00	0.63	0.71
Hourly Flow Rate, HFR		30	8	60	4	7	61
Percent Heavy Vehicles		5	0	0	25	0	0
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage				No	/		/
Lanes		0	1	0	0	1	1
Configuration			LTR		LT		R

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L	L		LTR		LT		R
v (vph)	75	31		98		11		61
C(m) (vph)	658	876		202		226		276
v/c	0.11	0.04		0.49		0.05		0.22
95% queue length	0.38	0.11		2.39		0.15		0.83
Control Delay	11.2	9.3		38.5		21.7		21.7
LOS	B	A		E		C		C
Approach Delay				38.5			21.7	
Approach LOS				E			C	

TWO-WAY STOP CONTROL SUMMARY

Analyst: KLD Engineering, P.C.
 Agency/Co.:
 Date Performed:
 Analysis Time Period: 7:00 AM
 Intersection: S.R. 11 and SSES Entrance
 Jurisdiction: Berwick, PA
 Units: U. S. Customary
 Analysis Year: 2022
 Project ID: 2022, No-Build, with Outage, AM
 East/West Street: SSES Entrance
 North/South Street: S.R. 11
 Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach	Northbound			Southbound		
	Movement	1	2	3	4	5	6
		L	T	R	L	T	R
Volume		686	155			146	318
Peak-Hour Factor, PHF		0.96	0.85			0.79	1.00
Hourly Flow Rate, HFR		714	182			184	318
Percent Heavy Vehicles		0	--	--		--	--
Median Type/Storage		Undivided			/		
RT Channelized?							No
Lanes		1	1			1	1
Configuration		L	T			T	R
Upstream Signal?			No			No	

Minor Street:	Approach	Westbound			Eastbound		
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume					55		145
Peak Hour Factor, PHF					0.72		0.69
Hourly Flow Rate, HFR					76		210
Percent Heavy Vehicles					0		0
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage					/		
Lanes					1	1	
Configuration					L	R	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L					L		R
v (vph)	714					76		210
C(m) (vph)	1073					30		864
v/c	0.67					2.53		0.24
95% queue length	5.33					8.94		0.95
Control Delay	14.8					975.8		10.5
LOS	B					F		B
Approach Delay							267.0	
Approach LOS							F	

TWO-WAY STOP CONTROL SUMMARY

Analyst: KLD Engineering, P.C.
 Agency/Co.:
 Date Performed: 5/31/2010
 Analysis Time Period: 4:45 PM
 Intersection: S.R. 11 and SSES Entrance
 Jurisdiction: Berwick, PA
 Units: U. S. Customary
 Analysis Year: 2022
 Project ID: 2022, No-Build, with Outage, PM
 East/West Street: SSES Entrance
 North/South Street: S.R. 11
 Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach	Northbound			Southbound		
	Movement	1	2	3	4	5	6
		L	T	R	L	T	R
Volume		55	233			218	40
Peak-Hour Factor, PHF		0.73	0.79			0.92	1.00
Hourly Flow Rate, HFR		75	294			236	40
Percent Heavy Vehicles		0	--	--		--	--
Median Type/Storage		Undivided			/		
RT Channelized?							No
Lanes		1	1			1	1
Configuration		L	T			T	R
Upstream Signal?			No			No	

Minor Street:	Approach	Westbound			Eastbound		
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume					109		166
Peak Hour Factor, PHF					0.87		0.80
Hourly Flow Rate, HFR					125		207
Percent Heavy Vehicles					0		0
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage					/		
Lanes					1	1	
Configuration					L	R	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L					L		R
v (vph)	75					125		207
C(m) (vph)	1299					396		808
v/c	0.06					0.32		0.26
95% queue length	0.18					1.33		1.02
Control Delay	7.9					18.2		11.0
LOS	A					C		B
Approach Delay							13.7	
Approach LOS							B	

TWO-WAY STOP CONTROL SUMMARY

Analyst: KLD Engineering, P.C.
 Agency/Co.:
 Date Performed:
 Analysis Time Period: 7:00 AM
 Intersection: S.R. 11 and S.R. 29
 Jurisdiction: Nanticoke, PA
 Units: U. S. Customary
 Analysis Year: 2022
 Project ID: 2022, No-Build, with Outage, AM
 East/West Street: S.R. 29
 North/South Street: S.R. 11 (Poplar St.)
 Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach	Northbound			Southbound		
	Movement	1	2	3	4	5	6
		L	T	R	L	T	R
Volume						171	
Peak-Hour Factor, PHF						0.79	
Hourly Flow Rate, HFR						216	
Percent Heavy Vehicles		--	--			--	--
Median Type/Storage		Undivided			/		
RT Channelized?							
Lanes						1	
Configuration						T	
Upstream Signal?			No			No	

Minor Street:	Approach	Westbound			Eastbound		
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume				35	235		
Peak Hour Factor, PHF				0.58	0.80		
Hourly Flow Rate, HFR				60	293		
Percent Heavy Vehicles				0	3		
Percent Grade (%)		0				0	
Flared Approach: Exists?/Storage					/		/
Lanes			1		1		
Configuration			R		L		

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config					R	L		
v (vph)					60	293		
C(m) (vph)					1091	667		
v/c					0.05	0.44		
95% queue length					0.17	2.24		
Control Delay					8.5	14.6		
LOS					A	B		
Approach Delay				8.5			14.6	
Approach LOS				A			B	

TWO-WAY STOP CONTROL SUMMARY

Analyst: KLD Engineering, P.C.
 Agency/Co.:
 Date Performed:
 Analysis Time Period: 4:30 PM
 Intersection: S.R. 11 and S.R. 29
 Jurisdiction: Nanticoke, PA
 Units: U. S. Customary
 Analysis Year: 2022
 Project ID: 2022, No-Build, with Outage, PM
 East/West Street: S.R. 29
 North/South Street: S.R. 11 (Poplar St.)
 Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach	Northbound			Southbound		
	Movement	1	2	3	4	5	6
		L	T	R	L	T	R
Volume						304	
Peak-Hour Factor, PHF						0.90	
Hourly Flow Rate, HFR						337	
Percent Heavy Vehicles		--	--			--	--
Median Type/Storage	Undivided				/		
RT Channelized?							
Lanes						1	
Configuration						T	
Upstream Signal?			No			No	

Minor Street:	Approach	Westbound			Eastbound		
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume				15	540		
Peak Hour Factor, PHF				0.60	0.87		
Hourly Flow Rate, HFR				24	620		
Percent Heavy Vehicles				0	0		
Percent Grade (%)		0				0	
Flared Approach: Exists?/Storage					/		/
Lanes			1		1		
Configuration			R		L		

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config					R	L		
v (vph)					24	620		
C(m) (vph)					1091	596		
v/c					0.02	1.04		
95% queue length					0.07	16.82		
Control Delay					8.4	74.0		
LOS					A	F		
Approach Delay				8.4			74.0	
Approach LOS				A			F	

HCM Signalized Intersection Capacity Analysis

No-Build, 2021

7: Market St. & S.R. 11 (Second St.)

AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	1	1	1	1	0	0	0	0	1	2	1
Volume (vph)	0	133	96	219	115	0	0	0	0	145	553	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5	3.0	4.5					5.0	5.0	5.0
Lane Util. Factor		1.00	1.00	1.00	1.00					1.00	0.95	1.00
Frt		1.00	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	1.00	1.00
Satd. Flow (prot)		1792	1599	1787	1863					1736	3539	1615
Flt Permitted		1.00	1.00	0.66	1.00					0.95	1.00	1.00
Satd. Flow (perm)		1792	1599	1247	1863					1736	3539	1615
Peak-hour factor, PHF	1.00	0.90	0.88	0.82	0.70	1.00	1.00	1.00	1.00	0.83	0.78	0.80
Adj. Flow (vph)	0	148	109	267	164	0	0	0	0	175	709	65
RTOR Reduction (vph)	0	0	79	0	0	0	0	0	0	0	0	41
Lane Group Flow (vph)	0	148	30	267	164	0	0	0	0	175	709	24
Heavy Vehicles (%)	0%	6%	1%	1%	2%	0%	0%	0%	0%	4%	2%	0%
Turn Type			Perm	pm+pt						Split		Prot
Protected Phases		4		3	8					2	2	2
Permitted Phases			4	8								
Actuated Green, G (s)		16.5	16.5	30.0	28.5					22.0	22.0	22.0
Effective Green, g (s)		16.5	16.5	30.0	28.5					22.0	22.0	22.0
Actuated g/C Ratio		0.28	0.28	0.50	0.48					0.37	0.37	0.37
Clearance Time (s)		4.5	4.5	3.0	4.5					5.0	5.0	5.0
Lane Grp Cap (vph)		493	440	705	885					637	1298	592
v/s Ratio Prot		0.08		c0.06	0.09					0.10	c0.20	0.01
v/s Ratio Perm			0.02	c0.13								
v/c Ratio		0.30	0.07	0.38	0.19					0.27	0.55	0.04
Uniform Delay, d1		17.2	16.1	9.5	9.1					13.4	15.0	12.2
Progression Factor		0.75	0.45	0.02	0.02					0.79	0.80	0.65
Incremental Delay, d2		1.5	0.3	1.2	0.4					1.0	1.6	0.1
Delay (s)		14.3	7.5	1.4	0.5					11.6	13.6	8.1
Level of Service		B	A	A	A					B	B	A
Approach Delay (s)		11.4			1.0			0.0			12.8	
Approach LOS		B			A			A			B	
Intersection Summary												
HCM Average Control Delay			9.5		HCM Level of Service				A			
HCM Volume to Capacity ratio			0.44									
Actuated Cycle Length (s)			60.0		Sum of lost time (s)			8.0				
Intersection Capacity Utilization			64.5%		ICU Level of Service			C				
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

No-Build, 2021

8: S.R. 11 (Front St.) & Market St.

AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	2>	0	0	0	0	0	1	1	1	1	0
Volume (vph)	0	494	133	0	0	0	0	331	212	40	230	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			-1%			1%	
Total Lost time (s)		5.0						5.0	5.0	3.0	5.0	
Lane Util. Factor		0.95						1.00	1.00	1.00	1.00	
Frt		0.97						1.00	0.85	1.00	1.00	
Flt Protected		1.00						1.00	1.00	0.95	1.00	
Satd. Flow (prot)		3408						1872	1607	1633	1835	
Flt Permitted		1.00						1.00	1.00	0.36	1.00	
Satd. Flow (perm)		3408						1872	1607	615	1835	
Peak-hour factor, PHF	1.00	0.91	0.87	1.00	1.00	1.00	1.00	0.78	0.66	0.77	0.80	1.00
Adj. Flow (vph)	0	543	153	0	0	0	0	424	321	52	288	0
RTOR Reduction (vph)	0	43	0	0	0	0	0	0	146	0	0	0
Lane Group Flow (vph)	0	653	0	0	0	0	0	424	175	52	288	0
Heavy Vehicles (%)	0%	2%	4%	0%	0%	0%	0%	2%	1%	10%	3%	0%
Turn Type									Perm	D.P+P		
Protected Phases		1						3		2	4	
Permitted Phases									3	3		
Actuated Green, G (s)		22.0						22.0	22.0	25.0	28.0	
Effective Green, g (s)		22.0						22.0	22.0	25.0	28.0	
Actuated g/C Ratio		0.37						0.37	0.37	0.42	0.47	
Clearance Time (s)		5.0						5.0	5.0	3.0	5.0	
Lane Grp Cap (vph)		1250						686	589	307	856	
v/s Ratio Prot		c0.19						c0.23		0.01	c0.16	
v/s Ratio Perm									0.11	0.06		
v/c Ratio		0.52						0.62	0.30	0.17	0.34	
Uniform Delay, d1		14.9						15.6	13.5	10.9	10.1	
Progression Factor		0.74						1.00	1.00	0.67	0.64	
Incremental Delay, d2		1.5						4.1	1.3	1.2	1.0	
Delay (s)		12.5						19.7	14.8	8.5	7.5	
Level of Service		B						B	B	A	A	
Approach Delay (s)		12.5			0.0			17.6			7.7	
Approach LOS		B			A			B			A	
Intersection Summary												
HCM Average Control Delay			13.7	HCM Level of Service			B					
HCM Volume to Capacity ratio			0.58									
Actuated Cycle Length (s)			60.0	Sum of lost time (s)			15.0					
Intersection Capacity Utilization			64.5%	ICU Level of Service			C					
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

32: S.R. 239 & S.R. 11 (S. Main St.)

No-Build, 2021

AM

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	1>	0	1	1	1	1
Volume (vph)	45	71	134	10	62	283
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%		0%			-1%
Total Lost time (s)	5.2		5.4	5.4	5.4	5.4
Lane Util. Factor	1.00		1.00	1.00	1.00	1.00
Frt	0.93		1.00	0.85	1.00	1.00
Flt Protected	0.98		1.00	1.00	0.95	1.00
Satd. Flow (prot)	1683		1845	1615	1761	1854
Flt Permitted	0.98		1.00	1.00	0.49	1.00
Satd. Flow (perm)	1683		1845	1615	913	1854
Peak-hour factor, PHF	0.57	0.85	0.86	0.62	0.74	0.78
Adj. Flow (vph)	79	84	156	16	84	363
RTOR Reduction (vph)	74	0	0	9	0	0
Lane Group Flow (vph)	89	0	156	7	84	363
Heavy Vehicles (%)	0%	5%	3%	0%	3%	3%
Turn Type				Perm	pm+pt	
Protected Phases	4		6		5	2
Permitted Phases				6	2	
Actuated Green, G (s)	4.6		16.1	16.1	24.3	24.3
Effective Green, g (s)	4.6		16.1	16.1	24.3	24.3
Actuated g/C Ratio	0.12		0.41	0.41	0.62	0.62
Clearance Time (s)	5.2		5.4	5.4	5.4	5.4
Vehicle Extension (s)	5.0		5.0	5.0	3.0	5.0
Lane Grp Cap (vph)	196		752	658	622	1141
v/s Ratio Prot	c0.05		0.08		0.01	c0.20
v/s Ratio Perm				0.00	0.07	
v/c Ratio	0.45		0.21	0.01	0.14	0.32
Uniform Delay, d1	16.3		7.6	7.0	3.5	3.6
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	3.4		0.3	0.0	0.1	0.3
Delay (s)	19.7		7.9	7.0	3.6	4.0
Level of Service	B		A	A	A	A
Approach Delay (s)	19.7		7.8			3.9
Approach LOS	B		A			A
Intersection Summary						
HCM Average Control Delay			8.1		HCM Level of Service	A
HCM Volume to Capacity ratio			0.34			
Actuated Cycle Length (s)			39.5		Sum of lost time (s)	10.6
Intersection Capacity Utilization			34.4%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

37: S.R. 239 (Union St.) & S.R. 11 (Main St.)

No-Build, 2021

AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	<1>	0	0	<1>	0	1	1>	0	0	<1>	0
Volume (vph)	155	26	101	12	14	2	67	239	12	2	177	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			0%			1%			1%	
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	
Frt		0.95			0.97		1.00	0.99			0.96	
Flt Protected		0.97			0.98		0.95	1.00			1.00	
Satd. Flow (prot)		1544			1545		1616	1623			1473	
Flt Permitted		0.81			0.83		0.42	1.00			0.99	
Satd. Flow (perm)		1284			1313		718	1623			1458	
Peak-hour factor, PHF	0.92	0.69	0.96	0.75	0.88	0.25	0.64	0.83	0.60	0.25	0.89	0.52
Adj. Flow (vph)	168	38	105	16	16	8	105	288	20	8	199	96
RTOR Reduction (vph)	0	35	0	0	6	0	0	5	0	0	30	0
Lane Group Flow (vph)	0	276	0	0	34	0	105	303	0	0	273	0
Heavy Vehicles (%)	2%	8%	1%	0%	14%	0%	0%	3%	16%	0%	11%	10%
Turn Type	Perm			Perm			pm+pt			Perm		
Protected Phases		4			8		1	6			2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)		14.1			14.1		22.7	22.7			15.6	
Effective Green, g (s)		14.1			14.1		22.7	22.7			15.6	
Actuated g/C Ratio		0.30			0.30		0.49	0.49			0.33	
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)		387			396		389	787			486	
v/s Ratio Prot							0.01	c0.19				
v/s Ratio Perm		c0.22			0.03		0.12				c0.19	
v/c Ratio		0.71			0.09		0.27	0.39			0.56	
Uniform Delay, d1		14.6			11.7		7.6	7.6			12.8	
Progression Factor		1.00			1.00		1.00	1.00			1.00	
Incremental Delay, d2		6.1			0.1		0.4	0.3			1.5	
Delay (s)		20.7			11.8		8.0	7.9			14.3	
Level of Service		C			B		A	A			B	
Approach Delay (s)		20.7			11.8			8.0			14.3	
Approach LOS		C			B			A			B	

Intersection Summary

HCM Average Control Delay	13.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	46.8	Sum of lost time (s)	15.0
Intersection Capacity Utilization	65.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

44: S.R. 11 & Poplar St.

No-Build, 2021
AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1	1>	0	1	1>	0	0	<1	1	0	<1>	0
Volume (vph)	0	433	25	37	567	0	51	0	25	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		3.0	5.0			4.0	4.0			
Lane Util. Factor		1.00		1.00	1.00			1.00	1.00			
Frpb, ped/bikes		1.00		1.00	1.00			1.00	1.00			
Flpb, ped/bikes		1.00		1.00	1.00			0.99	1.00			
Frt		0.99		1.00	1.00			1.00	0.85			
Flt Protected		1.00		0.95	1.00			0.95	1.00			
Satd. Flow (prot)		1787		1626	1845			1693	1335			
Flt Permitted		1.00		0.95	1.00			0.76	1.00			
Satd. Flow (perm)		1787		1626	1845			1350	1335			
Peak-hour factor, PHF	1.00	0.85	0.64	0.71	0.88	1.00	0.57	1.00	0.64	1.00	1.00	1.00
Adj. Flow (vph)	0	509	39	52	644	0	89	0	39	0	0	0
RTOR Reduction (vph)	0	4	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	544	0	52	644	0	0	89	39	0	0	0
Confl. Peds. (#/hr)							3					
Heavy Vehicles (%)	0%	5%	8%	11%	3%	0%	6%	0%	21%	0%	0%	0%
Turn Type	Perm			Prot			Perm		Perm	Perm		
Protected Phases		2		1	6			8			4	
Permitted Phases	2						8		8	4		
Actuated Green, G (s)		27.0		16.0	46.0			20.0	20.0			
Effective Green, g (s)		27.0		16.0	46.0			20.0	20.0			
Actuated g/C Ratio		0.36		0.21	0.61			0.27	0.27			
Clearance Time (s)		5.0		3.0	5.0			4.0	4.0			
Lane Grp Cap (vph)		643		347	1132			360	356			
v/s Ratio Prot		c0.30		0.03	c0.35							
v/s Ratio Perm								c0.07	0.03			
v/c Ratio		0.85		0.15	0.57			0.25	0.11			
Uniform Delay, d1		22.1		24.0	8.6			21.6	20.8			
Progression Factor		1.00		0.64	0.62			1.00	1.00			
Incremental Delay, d2		13.0		0.7	1.6			1.6	0.6			
Delay (s)		35.1		16.1	6.9			23.2	21.4			
Level of Service		D		B	A			C	C			
Approach Delay (s)		35.1			7.6			22.7			0.0	
Approach LOS		D			A			C			A	
Intersection Summary												
HCM Average Control Delay			20.0			HCM Level of Service			B			
HCM Volume to Capacity ratio			0.56									
Actuated Cycle Length (s)			75.0			Sum of lost time (s)			9.0			
Intersection Capacity Utilization			54.9%			ICU Level of Service			A			
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

48: S.R. 11 & S.R. 93 (Orange St.)

No-Build, 2021

AM

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	0	1	1	0	1	0
Volume (vph)	0	435	611	0	84	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		-1%	0%		0%	
Total Lost time (s)		4.0	4.0		4.0	
Lane Util. Factor		1.00	1.00		1.00	
Frt		1.00	1.00		1.00	
Flt Protected		1.00	1.00		0.95	
Satd. Flow (prot)		1801	1845		1787	
Flt Permitted		1.00	1.00		0.95	
Satd. Flow (perm)		1801	1845		1787	
Peak-hour factor, PHF	1.00	0.89	0.84	0.93	0.68	1.00
Adj. Flow (vph)	0	489	727	0	124	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	489	727	0	124	0
Heavy Vehicles (%)	0%	6%	3%	2%	1%	0%
Turn Type						
Protected Phases		2	6		8	
Permitted Phases						
Actuated Green, G (s)		54.0	54.0		13.0	
Effective Green, g (s)		54.0	54.0		13.0	
Actuated g/C Ratio		0.72	0.72		0.17	
Clearance Time (s)		4.0	4.0		4.0	
Lane Grp Cap (vph)		1297	1328		310	
v/s Ratio Prot		0.27	c0.39		c0.07	
v/s Ratio Perm						
v/c Ratio		0.38	0.55		0.40	
Uniform Delay, d1		4.0	4.9		27.5	
Progression Factor		0.35	0.49		1.00	
Incremental Delay, d2		0.7	1.5		3.8	
Delay (s)		2.1	3.9		31.4	
Level of Service		A	A		C	
Approach Delay (s)		2.1	3.9		31.4	
Approach LOS		A	A		C	
Intersection Summary						
HCM Average Control Delay			5.8		HCM Level of Service	A
HCM Volume to Capacity ratio			0.52			
Actuated Cycle Length (s)			75.0		Sum of lost time (s)	8.0
Intersection Capacity Utilization			43.5%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

No-Build, 2021

51: S.R. 11 (Second St.) & LaSalle St.

AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	NWL	NWR
Lane Configurations	1	0	0	1	2>	0	0	1	0	0
Volume (vph)	49	0	0	9	641	22	0	67	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0	4.0			4.0		
Lane Util. Factor	1.00			1.00	0.95			1.00		
Frt	1.00			1.00	0.99			0.86		
Flt Protected	0.95			0.95	1.00			1.00		
Satd. Flow (prot)	1805			1805	3517			1627		
Flt Permitted	0.95			0.95	1.00			1.00		
Satd. Flow (perm)	1805			1805	3517			1627		
Peak-hour factor, PHF	0.54	0.90	1.00	0.75	0.84	0.56	1.00	0.76	0.92	0.92
Adj. Flow (vph)	91	0	0	12	763	39	0	88	0	0
RTOR Reduction (vph)	0	0	0	5	5	0	0	59	0	0
Lane Group Flow (vph)	91	0	0	7	797	0	0	29	0	0
Heavy Vehicles (%)	0%	2%	0%	0%	2%	0%	0%	1%	2%	2%
Turn Type	Prot			custom				custom		
Protected Phases	8			1	1			8		
Permitted Phases				1				8		
Actuated Green, G (s)	25.0			42.0	42.0			25.0		
Effective Green, g (s)	25.0			42.0	42.0			25.0		
Actuated g/C Ratio	0.33			0.56	0.56			0.33		
Clearance Time (s)	4.0			4.0	4.0			4.0		
Lane Grp Cap (vph)	602			1011	1970			542		
v/s Ratio Prot	c0.05			0.00	c0.23			0.02		
v/s Ratio Perm										
v/c Ratio	0.15			0.01	0.40			0.05		
Uniform Delay, d1	17.6			7.3	9.4			17.0		
Progression Factor	1.22			1.00	1.00			1.00		
Incremental Delay, d2	0.5			0.0	0.6			0.2		
Delay (s)	21.9			7.3	10.0			17.2		
Level of Service	C			A	B			B		
Approach Delay (s)		21.9			10.0		17.2		0.0	
Approach LOS		C			A		B		A	
Intersection Summary										
HCM Average Control Delay			11.7		HCM Level of Service				B	
HCM Volume to Capacity ratio			0.31							
Actuated Cycle Length (s)			75.0		Sum of lost time (s)				8.0	
Intersection Capacity Utilization			29.2%		ICU Level of Service				A	
Analysis Period (min)			15							
c Critical Lane Group										

HCM Signalized Intersection Capacity Analysis

No-Build, 2021

67: S.R. 11 (Second St.) & Pine St.

AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	0	0	0	2>	0	1	1	0	0	0	1
Volume (vph)	0	0	0	0	632	19	26	72	0	0	0	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)	0%				0%			1%		1%		
Total Lost time (s)					4.0			4.0		4.0		
Lane Util. Factor					0.95			1.00		1.00		
Frt					1.00			1.00		1.00		
Flt Protected					1.00			0.95		1.00		
Satd. Flow (prot)					3491			1796		1872		
Flt Permitted					1.00			0.95		1.00		
Satd. Flow (perm)					3491			1796		1872		
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	0.72	0.64	0.67	0.79	1.00	1.00	1.00	0.71
Adj. Flow (vph)	0	0	0	0	878	30	39	91	0	0	0	25
RTOR Reduction (vph)	0	0	0	0	3	0	34	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	905	0	5	91	0	0	0	25
Heavy Vehicles (%)	0%	0%	0%	0%	3%	0%	0%	1%	0%	0%	0%	0%
Turn Type							Perm			custom		
Protected Phases							1			2		
Permitted Phases							2			2		
Actuated Green, G (s)					44.8			7.2		7.2		
Effective Green, g (s)					44.8			7.2		7.2		
Actuated g/C Ratio					0.75			0.12		0.12		
Clearance Time (s)					4.0			4.0		4.0		
Vehicle Extension (s)					3.0			3.0		3.0		
Lane Grp Cap (vph)					2607			216		225		
v/s Ratio Prot					c0.26			c0.05				
v/s Ratio Perm								0.00			0.02	
v/c Ratio					0.35			0.02		0.40		
Uniform Delay, d1					2.6			23.3		24.4		
Progression Factor					0.96			1.00		1.00		
Incremental Delay, d2					0.4			0.0		1.2		
Delay (s)					2.9			23.3		25.6		
Level of Service					A			C		C		
Approach Delay (s)	0.0				2.9			24.9		23.9		
Approach LOS	A				A			C		C		
Intersection Summary												
HCM Average Control Delay			6.0		HCM Level of Service				A			
HCM Volume to Capacity ratio			0.36									
Actuated Cycle Length (s)			60.0		Sum of lost time (s)				8.0			
Intersection Capacity Utilization			34.7%		ICU Level of Service				A			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

68: S.R. 11 & Orchard St.

No-Build, 2021

AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1	1	0	1	1	0	0	<1>	0	0	<1>	0
Volume (vph)	9	510	1	6	615	3	20	12	5	25	2	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	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	
Frt	1.00	1.00		1.00	1.00			0.98			0.96	
Flt Protected	0.95	1.00		0.95	1.00			0.98			0.97	
Satd. Flow (prot)	1805	1796		1805	1842			1815			1768	
Flt Permitted	0.27	1.00		0.39	1.00			0.98			0.97	
Satd. Flow (perm)	514	1796		747	1842			1815			1768	
Peak-hour factor, PHF	0.56	0.92	0.25	0.38	0.82	0.38	0.68	0.46	0.42	0.52	0.25	0.71
Adj. Flow (vph)	16	554	4	16	750	8	29	26	12	48	8	25
RTOR Reduction (vph)	0	0	0	0	0	0	0	10	0	0	21	0
Lane Group Flow (vph)	16	558	0	16	758	0	0	57	0	0	60	0
Heavy Vehicles (%)	0%	5%	100%	0%	3%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm			Perm			Split			Split		
Protected Phases		2			6		3	3		4	4	
Permitted Phases	2			6								
Actuated Green, G (s)	49.0	49.0		49.0	49.0			5.0			6.0	
Effective Green, g (s)	49.0	49.0		49.0	49.0			5.0			6.0	
Actuated g/C Ratio	0.65	0.65		0.65	0.65			0.07			0.08	
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Lane Grp Cap (vph)	336	1173		488	1203			121			141	
v/s Ratio Prot		0.31			c0.41			c0.03			c0.03	
v/s Ratio Perm	0.03			0.02								
v/c Ratio	0.05	0.48		0.03	0.63			0.47			0.42	
Uniform Delay, d1	4.7	6.5		4.6	7.7			33.7			32.9	
Progression Factor	0.05	0.15		0.13	0.10			1.00			1.00	
Incremental Delay, d2	0.2	0.9		0.1	2.2			12.5			9.1	
Delay (s)	0.4	1.8		0.7	3.0			46.2			41.9	
Level of Service	A	A		A	A			D			D	
Approach Delay (s)		1.8			2.9			46.2			41.9	
Approach LOS		A			A			D			D	
Intersection Summary												
HCM Average Control Delay			6.5		HCM Level of Service				A			
HCM Volume to Capacity ratio			0.60									
Actuated Cycle Length (s)			75.0		Sum of lost time (s)			15.0				
Intersection Capacity Utilization			45.9%		ICU Level of Service			A				
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

No-Build, 2021

71: S.R. 11 (Second St.) & Oak St.

AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	0	0	0	<2>	0	0	<1	0	0	1>	0
Volume (vph)	0	0	0	24	762	21	7	30	0	0	33	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)	0%				-1%				1%			
Total Lost time (s)					6.0				5.0			
Lane Util. Factor					0.95				1.00			
Frt					1.00				1.00			
Flt Protected					1.00				0.99			
Satd. Flow (prot)					3536				1660			
Flt Permitted					1.00				0.88			
Satd. Flow (perm)					3536				1474			
Peak-hour factor, PHF	1.00	1.00	1.00	0.69	0.86	0.83	0.44	0.70	1.00	1.00	0.65	0.88
Adj. Flow (vph)	0	0	0	35	886	25	16	43	0	0	51	43
RTOR Reduction (vph)	0	0	0	0	4	0	0	0	0	0	40	0
Lane Group Flow (vph)	0	0	0	0	942	0	0	59	0	0	54	0
Heavy Vehicles (%)	0%	0%	0%	4%	2%	0%	0%	17%	0%	0%	0%	14%
Turn Type				Perm			Perm					
Protected Phases				1			2			2		
Permitted Phases				1			2					
Actuated Green, G (s)				32.8			3.3			3.3		
Effective Green, g (s)				32.8			3.3			3.3		
Actuated g/C Ratio				0.70			0.07			0.07		
Clearance Time (s)				6.0			5.0			5.0		
Vehicle Extension (s)				3.0			3.0			3.0		
Lane Grp Cap (vph)				2462			103			118		
v/s Ratio Prot										0.03		
v/s Ratio Perm				0.27			c0.04					
v/c Ratio				0.38			0.57			0.46		
Uniform Delay, d1				3.0			21.2			21.0		
Progression Factor				1.00			1.00			1.00		
Incremental Delay, d2				0.1			7.5			2.8		
Delay (s)				3.1			28.7			23.8		
Level of Service				A			C			C		
Approach Delay (s)	0.0				3.1		28.7				23.8	
Approach LOS	A				A		C				C	
Intersection Summary												
HCM Average Control Delay			6.2		HCM Level of Service				A			
HCM Volume to Capacity ratio			0.40									
Actuated Cycle Length (s)			47.1		Sum of lost time (s)				11.0			
Intersection Capacity Utilization			41.8%		ICU Level of Service				A			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

74: Third St. & S.R. 1025 (Market St.)

No-Build, 2021

AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	<1>	0	0	<1>	0	1	1>	0	1	1>	0
Volume (vph)	27	63	25	21	85	8	38	144	13	13	202	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			0%			0%			0%	
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.97			0.99		1.00	0.98		1.00	0.97	
Flt Protected		0.99			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1786			1860		1805	1853		1805	1844	
Flt Permitted		0.91			0.92		0.52	1.00		0.63	1.00	
Satd. Flow (perm)		1647			1739		989	1853		1191	1844	
Peak-hour factor, PHF	0.78	0.91	0.72	0.62	0.78	0.67	0.80	0.77	0.60	0.50	0.76	0.85
Adj. Flow (vph)	35	69	35	34	109	12	48	187	22	26	266	65
RTOR Reduction (vph)	0	20	0	0	5	0	0	7	0	0	14	0
Lane Group Flow (vph)	0	119	0	0	150	0	48	202	0	26	317	0
Heavy Vehicles (%)	4%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			1			1	
Permitted Phases	2			2	2		1			1	1	
Actuated Green, G (s)		20.0			20.0		32.0	32.0		32.0	32.0	
Effective Green, g (s)		20.0			20.0		32.0	32.0		32.0	32.0	
Actuated g/C Ratio		0.33			0.33		0.53	0.53		0.53	0.53	
Clearance Time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)		549			580		527	988		635	983	
v/s Ratio Prot								0.11			c0.17	
v/s Ratio Perm		0.07			c0.09		0.05			0.02		
v/c Ratio		0.22			0.26		0.09	0.20		0.04	0.32	
Uniform Delay, d1		14.4			14.6		6.9	7.3		6.7	7.9	
Progression Factor		1.00			1.00		0.58	0.54		1.00	1.00	
Incremental Delay, d2		0.9			1.1		0.3	0.5		0.1	0.9	
Delay (s)		15.3			15.7		4.3	4.4		6.8	8.8	
Level of Service		B			B		A	A		A	A	
Approach Delay (s)		15.3			15.7			4.4			8.6	
Approach LOS		B			B			A			A	
Intersection Summary												
HCM Average Control Delay			9.6			HCM Level of Service			A			
HCM Volume to Capacity ratio			0.30									
Actuated Cycle Length (s)			60.0			Sum of lost time (s)			8.0			
Intersection Capacity Utilization			36.6%			ICU Level of Service			A			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

No-Build, 2021

77: S.R. 11 (Second St.) & Mulberry St.

AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	0	0	0	<2>	0	0	<1	0	0	1>	0
Volume (vph)	0	0	0	17	780	21	17	38	0	0	17	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)	1%				0%				1%			
Total Lost time (s)					4.0				4.0			
Lane Util. Factor					0.95				1.00			
Frt					1.00				1.00			
Flt Protected					1.00				0.99			
Satd. Flow (prot)					3554				1802			
Flt Permitted					1.00				0.91			
Satd. Flow (perm)					3554				1664			
Peak-hour factor, PHF	1.00	1.00	1.00	0.50	0.78	0.62	0.80	0.73	1.00	1.00	0.67	0.70
Adj. Flow (vph)	0	0	0	34	1000	34	21	52	0	0	25	81
RTOR Reduction (vph)	0	0	0	0	4	0	0	0	0	0	63	0
Lane Group Flow (vph)	0	0	0	0	1064	0	0	73	0	0	43	0
Heavy Vehicles (%)	0%	0%	0%	0%	1%	0%	12%	0%	0%	0%	0%	0%
Turn Type				Split			Perm					
Protected Phases				1		1		2			2	
Permitted Phases							2					
Actuated Green, G (s)							39.0			13.0		
Effective Green, g (s)							39.0			13.0		
Actuated g/C Ratio							0.65			0.22		
Clearance Time (s)							4.0			4.0		
Lane Grp Cap (vph)							2310			361		
v/s Ratio Prot							c0.30			0.02		
v/s Ratio Perm										c0.04		
v/c Ratio							0.46			0.20		
Uniform Delay, d1							5.2			19.3		
Progression Factor							0.37			0.82		
Incremental Delay, d2							0.6			1.2		
Delay (s)							2.5			17.0		
Level of Service							A			B		
Approach Delay (s)	0.0						2.5			17.0		
Approach LOS	A						A			B		
Intersection Summary												
HCM Average Control Delay			4.8		HCM Level of Service				A			
HCM Volume to Capacity ratio			0.40									
Actuated Cycle Length (s)			60.0		Sum of lost time (s)				8.0			
Intersection Capacity Utilization			39.0%		ICU Level of Service				A			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

78: S.R. 11 (Front St.) & Mulberry St.

No-Build, 2021

AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	<2>	0	0	0	0	0	1>	0	0	<1	0
Volume (vph)	47	551	20	0	0	0	0	10	4	22	2	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-1%			1%			-1%	
Total Lost time (s)		4.0						4.0			4.0	
Lane Util. Factor		0.95						1.00			1.00	
Frt		0.99						0.95			1.00	
Flt Protected		1.00						1.00			0.96	
Satd. Flow (prot)		3428						1693			1828	
Flt Permitted		1.00						1.00			0.80	
Satd. Flow (perm)		3428						1693			1524	
Peak-hour factor, PHF	0.72	0.91	0.68	1.00	1.00	1.00	1.00	0.62	0.50	0.66	0.50	1.00
Adj. Flow (vph)	65	605	29	0	0	0	0	16	8	33	4	0
RTOR Reduction (vph)	0	5	0	0	0	0	0	6	0	0	0	0
Lane Group Flow (vph)	0	694	0	0	0	0	0	18	0	0	37	0
Heavy Vehicles (%)	2%	4%	0%	0%	0%	0%	0%	10%	0%	0%	0%	0%
Turn Type	Split					Perm						
Protected Phases	1	1						2			2	
Permitted Phases										2		
Actuated Green, G (s)		39.0						13.0			13.0	
Effective Green, g (s)		39.0						13.0			13.0	
Actuated g/C Ratio		0.65						0.22			0.22	
Clearance Time (s)		4.0						4.0			4.0	
Lane Grp Cap (vph)		2228						367			330	
v/s Ratio Prot		c0.20						0.01				
v/s Ratio Perm											c0.02	
v/c Ratio		0.31						0.05			0.11	
Uniform Delay, d1		4.6						18.6			18.9	
Progression Factor		1.00						1.00			0.89	
Incremental Delay, d2		0.4						0.2			0.7	
Delay (s)		5.0						18.9			17.4	
Level of Service		A						B			B	
Approach Delay (s)		5.0			0.0			18.9			17.4	
Approach LOS		A			A			B			B	
Intersection Summary												
HCM Average Control Delay			6.0								A	
HCM Volume to Capacity ratio			0.26									
Actuated Cycle Length (s)			60.0								8.0	
Intersection Capacity Utilization			31.9%								A	
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

85: S.R. 11 & S.R. 2028

No-Build, 2021
AM

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	1	1	1	1	1	1
Volume (vph)	451	34	108	645	122	187
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	3.6	6.0	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1792	1404	1736	1827	1770	1583
Flt Permitted	1.00	1.00	0.29	1.00	0.95	1.00
Satd. Flow (perm)	1792	1404	524	1827	1770	1583
Peak-hour factor, PHF	0.85	0.57	0.77	0.78	0.85	0.84
Adj. Flow (vph)	531	60	140	827	144	223
RTOR Reduction (vph)	0	34	0	0	0	0
Lane Group Flow (vph)	531	26	140	827	144	223
Heavy Vehicles (%)	6%	15%	4%	4%	2%	2%
Turn Type	Perm		pm+pt		Prot	
Protected Phases	4		3	8	2	2
Permitted Phases		4	8			
Actuated Green, G (s)	21.7	21.7	28.6	28.6	11.6	11.6
Effective Green, g (s)	21.7	21.7	28.6	28.6	11.6	11.6
Actuated g/C Ratio	0.43	0.43	0.56	0.56	0.23	0.23
Clearance Time (s)	6.0	6.0	3.6	6.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	767	601	374	1031	405	362
v/s Ratio Prot	0.30		0.02	c0.45	0.08	c0.14
v/s Ratio Perm		0.02	0.19			
v/c Ratio	0.69	0.04	0.37	0.80	0.36	0.62
Uniform Delay, d1	11.8	8.4	6.4	8.8	16.4	17.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.7	0.0	0.6	4.6	0.5	3.1
Delay (s)	14.5	8.5	7.0	13.4	17.0	20.7
Level of Service	B	A	A	B	B	C
Approach Delay (s)	13.9			12.5	19.2	
Approach LOS	B			B	B	
Intersection Summary						
HCM Average Control Delay			14.2		HCM Level of Service	B
HCM Volume to Capacity ratio			0.75			
Actuated Cycle Length (s)			50.7		Sum of lost time (s)	10.5
Intersection Capacity Utilization			49.5%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

103: S.R. 93 (Third St.) & S.R. 339 (Broad St.)

No-Build, 2021
AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	<1	0	0	<1>	0	0	<1>	0	0	<1>	0
Volume (vph)	2	244	49	42	349	2	144	11	46	4	4	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			-1%			0%			0%	
Total Lost time (s)		6.5			6.5			6.0			6.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.97			1.00			0.97			0.93	
Flt Protected		1.00			0.99			0.97			0.99	
Satd. Flow (prot)		1773			1837			1709			1750	
Flt Permitted		0.99			0.92			0.77			0.90	
Satd. Flow (perm)		1751			1701			1365			1588	
Peak-hour factor, PHF	0.25	0.94	0.65	0.67	0.74	0.50	0.84	0.69	0.79	0.50	0.50	0.75
Adj. Flow (vph)	8	260	75	63	472	4	171	16	58	8	8	16
RTOR Reduction (vph)	0	16	0	0	0	0	0	19	0	0	12	0
Lane Group Flow (vph)	0	327	0	0	539	0	0	226	0	0	20	0
Heavy Vehicles (%)	0%	4%	4%	5%	3%	0%	2%	0%	11%	0%	0%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)		31.6			31.6			13.2			13.2	
Effective Green, g (s)		31.6			31.6			13.2			13.2	
Actuated g/C Ratio		0.55			0.55			0.23			0.23	
Clearance Time (s)		6.5			6.5			6.0			6.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		966			938			314			366	
v/s Ratio Prot												
v/s Ratio Perm		0.19			0.32			0.17			0.01	
v/c Ratio		0.34			0.57			0.72			0.05	
Uniform Delay, d1		7.1			8.4			20.3			17.2	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		1.0			2.6			7.7			0.1	
Delay (s)		8.0			11.0			28.0			17.2	
Level of Service		A			B			C			B	
Approach Delay (s)		8.0			11.0			28.0			17.2	
Approach LOS		A			B			C			B	

Intersection Summary

HCM Average Control Delay	13.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	57.3	Sum of lost time (s)	12.5
Intersection Capacity Utilization	70.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

106: S.R. 93 (Third St.) & Dewey St.

No-Build, 2021

AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	<1>	0	0	<1>	0	0	<1>	0	0	<1>	0
Volume (vph)	5	236	31	7	368	0	16	2	4	2	7	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			0%			0%			0%	
Total Lost time (s)		5.0			5.0			5.0			5.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.97			1.00			0.96			0.97	
Flt Protected		1.00			1.00			0.97			0.99	
Satd. Flow (prot)		1782			1826			1781			1824	
Flt Permitted		0.98			0.99			1.00			0.95	
Satd. Flow (perm)		1753			1808			1830			1740	
Peak-hour factor, PHF	0.42	0.99	0.50	0.44	0.76	1.00	0.67	0.25	0.33	0.50	0.35	0.62
Adj. Flow (vph)	12	238	62	16	484	0	24	8	12	4	20	8
RTOR Reduction (vph)	0	13	0	0	0	0	0	11	0	0	8	0
Lane Group Flow (vph)	0	299	0	0	500	0	0	33	0	0	24	0
Heavy Vehicles (%)	0%	4%	0%	0%	4%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)		40.0			40.0			2.4			2.4	
Effective Green, g (s)		40.0			40.0			2.4			2.4	
Actuated g/C Ratio		0.76			0.76			0.05			0.05	
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)		1338			1380			84			80	
v/s Ratio Prot												
v/s Ratio Perm		0.17			0.28			0.02			0.01	
v/c Ratio		0.22			0.36			0.39			0.30	
Uniform Delay, d1		1.8			2.0			24.3			24.2	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.4			0.7			3.0			2.2	
Delay (s)		2.2			2.8			27.2			26.3	
Level of Service		A			A			C			C	
Approach Delay (s)		2.2			2.8			27.2			26.3	
Approach LOS		A			A			C			C	
Intersection Summary												
HCM Average Control Delay			4.6			HCM Level of Service			A			
HCM Volume to Capacity ratio			0.36									
Actuated Cycle Length (s)			52.4			Sum of lost time (s)			10.0			
Intersection Capacity Utilization			36.3%			ICU Level of Service			A			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

112: S.R. 11 & Briar Creek Plaza Driveways

No-Build, 2021

AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1	1>	0	1	1	1	1	1>	0	1	1	1
Volume (vph)	36	495	39	27	423	71	33	7	4	52	9	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	16	16
Grade (%)		1%			-1%			1%			2%	
Total Lost time (s)	3.5	5.3		5.3	5.3	5.3	5.2	5.2		5.2	5.2	5.2
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Fr't	1.00	0.99		1.00	1.00	0.85	1.00	0.95		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1744	1787		1744	1836	1623	1796	1796		1718	2132	1812
Flt Permitted	0.38	1.00		0.45	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Satd. Flow (perm)	699	1787		826	1836	1623	1890	1796		1809	2132	1812
Peak-hour factor, PHF	0.63	0.94	0.90	0.42	0.83	0.74	0.70	0.44	0.50	0.71	0.56	0.78
Adj. Flow (vph)	57	527	43	64	510	96	47	16	8	73	16	42
RTOR Reduction (vph)	0	6	0	0	0	42	0	7	0	0	0	39
Lane Group Flow (vph)	57	564	0	64	510	54	47	17	0	73	16	3
Heavy Vehicles (%)	3%	5%	0%	4%	4%	0%	0%	0%	0%	4%	0%	0%
Turn Type	pm+pt			Perm		Perm	Perm			Perm		Perm
Protected Phases	5	2			6			4			8	
Permitted Phases	2			6		6	4			8		8
Actuated Green, G (s)	28.5	28.5		24.0	24.0	24.0	3.4	3.4		3.4	3.4	3.4
Effective Green, g (s)	28.5	28.5		24.0	24.0	24.0	3.4	3.4		3.4	3.4	3.4
Actuated g/C Ratio	0.67	0.67		0.57	0.57	0.57	0.08	0.08		0.08	0.08	0.08
Clearance Time (s)	3.5	5.3		5.3	5.3	5.3	5.2	5.2		5.2	5.2	5.2
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	494	1201		468	1039	919	152	144		145	171	145
v/s Ratio Prot	0.00	c0.32			0.28			0.01			0.01	
v/s Ratio Perm	0.07			0.08		0.03	0.02			c0.04		0.00
v/c Ratio	0.12	0.47		0.14	0.49	0.06	0.31	0.12		0.50	0.09	0.02
Uniform Delay, d1	2.7	3.3		4.3	5.5	4.1	18.4	18.1		18.7	18.1	18.0
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.1	0.3		0.1	0.4	0.0	1.2	0.4		2.7	0.2	0.1
Delay (s)	2.8	3.6		4.5	5.9	4.2	19.6	18.5		21.4	18.3	18.0
Level of Service	A	A		A	A	A	B	B		C	B	B
Approach Delay (s)		3.6			5.5			19.2			20.0	
Approach LOS		A			A			B			B	

Intersection Summary

HCM Average Control Delay	6.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	42.4	Sum of lost time (s)	10.5
Intersection Capacity Utilization	48.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

120: S.R. 11 & S.R. 29 (Mill St.)

No-Build, 2021

AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1	1>	0	0	1>	0	0	<1>	0	0	<1	1
Volume (vph)	30	789	29	7	290	116	6	1	30	181	3	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-1%			0%			-1%	
Total Lost time (s)	6.0	6.0			6.0			5.2			6.0	6.0
Lane Util. Factor	1.00	1.00			1.00			1.00			1.00	1.00
Frt	1.00	0.99			0.96			0.89			1.00	0.85
Flt Protected	0.95	1.00			1.00			0.99			0.95	1.00
Satd. Flow (prot)	1497	1836			1731			1541			1804	1531
Flt Permitted	0.48	1.00			0.87			0.99			0.95	1.00
Satd. Flow (perm)	754	1836			1514			1541			1804	1531
Peak-hour factor, PHF	0.91	0.86	0.64	0.58	0.90	0.79	0.75	0.25	0.66	0.80	0.38	0.67
Adj. Flow (vph)	33	917	45	12	322	147	8	4	45	226	8	24
RTOR Reduction (vph)	0	2	0	0	20	0	0	44	0	0	0	14
Lane Group Flow (vph)	33	960	0	0	461	0	0	13	0	0	234	10
Heavy Vehicles (%)	20%	2%	7%	14%	7%	2%	33%	0%	6%	1%	0%	6%
Turn Type	Perm			Perm			Split			Split		Perm
Protected Phases		2			6		8	8		4	4	
Permitted Phases	2	2		6								4
Actuated Green, G (s)	43.6	43.6			43.6			2.2			11.2	11.2
Effective Green, g (s)	43.6	43.6			43.6			2.2			11.2	11.2
Actuated g/C Ratio	0.59	0.59			0.59			0.03			0.15	0.15
Clearance Time (s)	6.0	6.0			6.0			5.2			6.0	6.0
Vehicle Extension (s)	3.0	3.0			3.0			3.0			3.0	3.0
Lane Grp Cap (vph)	443	1079			890			46			272	231
v/s Ratio Prot		c0.52						c0.01			c0.13	
v/s Ratio Perm	0.04				0.30							0.01
v/c Ratio	0.07	0.89			0.52			0.29			0.86	0.05
Uniform Delay, d1	6.6	13.2			9.1			35.2			30.7	26.9
Progression Factor	1.00	1.00			1.00			1.00			1.00	1.00
Incremental Delay, d2	0.1	9.2			0.5			3.5			23.1	0.1
Delay (s)	6.7	22.4			9.6			38.7			53.9	27.0
Level of Service	A	C			A			D			D	C
Approach Delay (s)		21.9			9.6			38.7			51.4	
Approach LOS		C			A			D			D	

Intersection Summary

HCM Average Control Delay	23.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	74.2	Sum of lost time (s)	17.2
Intersection Capacity Utilization	70.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

128: S.R. 11 & County Bridge

No-Build, 2021
AM




















Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	1>	0	1	1	1	1
Volume (vph)	756	241	69	316	144	68
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	1%			-2%	0%	
Total Lost time (s)	7.0		7.0	7.0	7.0	7.0
Lane Util. Factor	1.00		1.00	1.00	1.00	1.00
Frt	0.96		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	1798		1823	1881	1805	1599
Flt Permitted	1.00		0.06	1.00	0.95	1.00
Satd. Flow (perm)	1798		115	1881	1805	1599
Peak-hour factor, PHF	0.91	0.78	0.61	0.92	0.68	0.86
Adj. Flow (vph)	831	309	113	343	212	79
RTOR Reduction (vph)	13	0	0	0	0	0
Lane Group Flow (vph)	1127	0	113	343	212	79
Heavy Vehicles (%)	1%	2%	0%	2%	0%	1%
Turn Type			pm+pt		pt+ov	
Protected Phases	4		3	8	2	2 3
Permitted Phases			8			
Actuated Green, G (s)	60.0		73.2	73.2	12.8	26.0
Effective Green, g (s)	60.0		73.2	73.2	12.8	26.0
Actuated g/C Ratio	0.60		0.73	0.73	0.13	0.26
Clearance Time (s)	7.0		7.0	7.0	7.0	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	1079		190	1377	231	416
v/s Ratio Prot	c0.63		c0.04	0.18	c0.12	0.05
v/s Ratio Perm			0.40			
v/c Ratio	1.04		0.59	0.25	0.92	0.19
Uniform Delay, d1	20.0		24.9	4.4	43.1	28.8
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	39.7		4.9	0.1	37.1	0.2
Delay (s)	59.7		29.8	4.5	80.2	29.0
Level of Service	E		C	A	F	C
Approach Delay (s)	59.7			10.8	66.3	
Approach LOS	E			B	E	
Intersection Summary						
HCM Average Control Delay			48.9		HCM Level of Service	D
HCM Volume to Capacity ratio			0.99			
Actuated Cycle Length (s)			100.0		Sum of lost time (s)	21.0
Intersection Capacity Utilization			77.0%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

No-Build, 2021

7: Market St. & S.R. 11 (Second St.)

PM


















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	236	122	206	133	0	0	0	0	212	603	79
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5	3.0	4.5					5.0	5.0	5.0
Lane Util. Factor		1.00	1.00	1.00	1.00					1.00	0.95	1.00
Frt		1.00	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	1.00	1.00
Satd. Flow (prot)		1900	1599	1787	1900					1805	3539	1583
Flt Permitted		1.00	1.00	0.48	1.00					0.95	1.00	1.00
Satd. Flow (perm)		1900	1599	910	1900					1805	3539	1583
Peak-hour factor, PHF	1.00	0.83	0.85	0.79	0.71	1.00	1.00	1.00	1.00	0.92	0.88	0.73
Adj. Flow (vph)	0	284	144	261	187	0	0	0	0	230	685	108
RTOR Reduction (vph)	0	0	104	0	0	0	0	0	0	0	0	68
Lane Group Flow (vph)	0	284	40	261	187	0	0	0	0	230	685	40
Heavy Vehicles (%)	0%	0%	1%	1%	0%	0%	0%	0%	0%	0%	2%	2%
Turn Type		Perm		pm+pt						Split		Prot
Protected Phases		4		3	8					2	2	2
Permitted Phases			4	8								
Actuated Green, G (s)		16.5	16.5	30.0	28.5					22.0	22.0	22.0
Effective Green, g (s)		16.5	16.5	30.0	28.5					22.0	22.0	22.0
Actuated g/C Ratio		0.28	0.28	0.50	0.48					0.37	0.37	0.37
Clearance Time (s)		4.5	4.5	3.0	4.5					5.0	5.0	5.0
Lane Grp Cap (vph)		523	440	587	903					662	1298	580
v/s Ratio Prot		c0.15		c0.07	0.10					0.13	c0.19	0.03
v/s Ratio Perm			0.02	0.16								
v/c Ratio		0.54	0.09	0.44	0.21					0.35	0.53	0.07
Uniform Delay, d1		18.5	16.2	12.4	9.2					13.8	14.9	12.3
Progression Factor		0.79	0.82	0.17	0.06					0.80	0.85	0.77
Incremental Delay, d2		3.6	0.4	1.9	0.4					1.4	1.5	0.2
Delay (s)		18.2	13.7	3.9	1.0					12.4	14.2	9.7
Level of Service		B	B	A	A					B	B	A
Approach Delay (s)		16.7			2.7			0.0			13.3	
Approach LOS		B			A			A			B	
Intersection Summary												
HCM Average Control Delay			11.6			HCM Level of Service				B		
HCM Volume to Capacity ratio			0.50									
Actuated Cycle Length (s)			60.0			Sum of lost time (s)				9.5		
Intersection Capacity Utilization			80.0%			ICU Level of Service				D		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

No-Build, 2021

8: S.R. 11 (Front St.) & Market St.

PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	713	213	0	0	0	0	333	203	106	334	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			-1%			1%	
Total Lost time (s)		5.0						5.0	5.0	3.0	5.0	
Lane Util. Factor		0.95						1.00	1.00	1.00	1.00	
Frt		0.96						1.00	0.85	1.00	1.00	
Flt Protected		1.00						1.00	1.00	0.95	1.00	
Satd. Flow (prot)		3457						1910	1591	1796	1890	
Flt Permitted		1.00						1.00	1.00	0.32	1.00	
Satd. Flow (perm)		3457						1910	1591	603	1890	
Peak-hour factor, PHF	1.00	0.94	0.92	1.00	1.00	1.00	1.00	0.80	0.82	0.71	0.90	1.00
Adj. Flow (vph)	0	759	232	0	0	0	0	416	248	149	371	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	991	0	0	0	0	0	416	248	149	371	0
Heavy Vehicles (%)	0%	1%	0%	0%	0%	0%	0%	0%	2%	0%	0%	0%
Turn Type									Perm	D.P+P		
Protected Phases		1						3		2	4	
Permitted Phases									3	3		
Actuated Green, G (s)		24.0						19.0	19.0	23.0	26.0	
Effective Green, g (s)		24.0						19.0	19.0	23.0	26.0	
Actuated g/C Ratio		0.40						0.32	0.32	0.38	0.43	
Clearance Time (s)		5.0						5.0	5.0	3.0	5.0	
Lane Grp Cap (vph)		1383						605	504	311	819	
v/s Ratio Prot		c0.29						c0.22		0.03	c0.20	
v/s Ratio Perm									0.16	0.15		
v/c Ratio		0.72						0.69	0.49	0.48	0.45	
Uniform Delay, d1		15.1						17.9	16.6	13.0	12.0	
Progression Factor		0.70						1.00	1.00	0.53	0.55	
Incremental Delay, d2		2.9						6.3	3.4	4.7	1.6	
Delay (s)		13.6						24.2	20.0	11.6	8.2	
Level of Service		B						C	C	B	A	
Approach Delay (s)		13.6			0.0			22.6			9.2	
Approach LOS		B			A			C			A	
Intersection Summary												
HCM Average Control Delay		15.3										
HCM Volume to Capacity ratio		0.72										
Actuated Cycle Length (s)		60.0										
Intersection Capacity Utilization		80.0%										
Analysis Period (min)		15										

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

32: S.R. 239 & S.R. 11 (S. Main St.)

No-Build, 2021

PM




















Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	21	133	277	66	121	238
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%		0%			-1%
Total Lost time (s)	5.2		5.4	5.4	5.4	5.4
Lane Util. Factor	1.00		1.00	1.00	1.00	1.00
Frt	0.89		1.00	0.85	1.00	1.00
Flt Protected	0.99		1.00	1.00	0.95	1.00
Satd. Flow (prot)	1545		1845	1615	1814	1801
Flt Permitted	0.99		1.00	1.00	0.42	1.00
Satd. Flow (perm)	1545		1845	1615	806	1801
Peak-hour factor, PHF	0.56	0.85	0.82	0.79	0.76	0.92
Adj. Flow (vph)	38	156	338	84	159	259
RTOR Reduction (vph)	136	0	0	48	0	0
Lane Group Flow (vph)	58	0	338	36	159	259
Heavy Vehicles (%)	15%	7%	3%	0%	0%	6%
Turn Type			Perm	pm+pt		
Protected Phases	4		6	5	2	
Permitted Phases			6	2		
Actuated Green, G (s)	5.8		19.4	19.4	29.0	29.0
Effective Green, g (s)	5.8		19.4	19.4	29.0	29.0
Actuated g/C Ratio	0.13		0.43	0.43	0.64	0.64
Clearance Time (s)	5.2		5.4	5.4	5.4	5.4
Vehicle Extension (s)	5.0		5.0	5.0	3.0	5.0
Lane Grp Cap (vph)	197		788	690	608	1150
v/s Ratio Prot	c0.04		c0.18		0.02	c0.14
v/s Ratio Perm				0.02	0.14	
v/c Ratio	0.29		0.43	0.05	0.26	0.23
Uniform Delay, d1	17.9		9.1	7.6	3.7	3.5
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	1.7		0.8	0.1	0.2	0.2
Delay (s)	19.7		9.9	7.7	3.9	3.7
Level of Service	B		A	A	A	A
Approach Delay (s)	19.7		9.5			3.8
Approach LOS	B		A			A
Intersection Summary						
HCM Average Control Delay			9.1		HCM Level of Service	A
HCM Volume to Capacity ratio			0.40			
Actuated Cycle Length (s)			45.4		Sum of lost time (s)	16.0
Intersection Capacity Utilization			44.0%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

37: S.R. 239 (Union St.) & S.R. 11 (Main St.)

No-Build, 2021

PM





















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	51	24	114	28	29	6	219	234	27	3	255	184
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			0%			1%			1%	
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	
Frt		0.91			0.98		1.00	0.98			0.94	
Flt Protected		0.99			0.98		0.95	1.00			1.00	
Satd. Flow (prot)		1529			1636		1600	1658			1579	
Flt Permitted		0.91			0.74		0.29	1.00			1.00	
Satd. Flow (perm)		1406			1226		496	1658			1575	
Peak-hour factor, PHF	0.94	0.52	0.63	0.75	0.54	0.50	0.82	0.91	0.81	0.75	0.93	0.78
Adj. Flow (vph)	54	46	181	37	54	12	267	257	33	4	274	236
RTOR Reduction (vph)	0	109	0	0	8	0	0	8	0	0	58	0
Lane Group Flow (vph)	0	172	0	0	95	0	267	282	0	0	456	0
Heavy Vehicles (%)	0%	4%	0%	3%	0%	0%	1%	1%	0%	0%	2%	0%
Turn Type	Perm			Perm			pm+pt			Perm		
Protected Phases		4			8		1	6			2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)		9.9			9.9		30.1	30.1			18.9	
Effective Green, g (s)		9.9			9.9		30.1	30.1			18.9	
Actuated g/C Ratio		0.20			0.20		0.60	0.60			0.38	
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)		278			243		435	998			595	
v/s Ratio Prot							c0.08	0.17				
v/s Ratio Perm		c0.12			0.08		0.29				c0.29	
v/c Ratio		0.62			0.39		0.61	0.28			0.77	
Uniform Delay, d1		18.3			17.4		7.1	4.8			13.6	
Progression Factor		1.00			1.00		1.00	1.00			1.00	
Incremental Delay, d2		4.1			1.0		2.6	0.2			5.9	
Delay (s)		22.4			18.5		9.7	4.9			19.5	
Level of Service		C			B		A	A			B	
Approach Delay (s)		22.4			18.5			7.2			19.5	
Approach LOS		C			B			A			B	
Intersection Summary												
HCM Average Control Delay			15.3			HCM Level of Service			B			
HCM Volume to Capacity ratio			0.71									
Actuated Cycle Length (s)			50.0			Sum of lost time (s)			15.0			
Intersection Capacity Utilization			69.3%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

No-Build, 2021

44: S.R. 11 & Poplar St.

PM

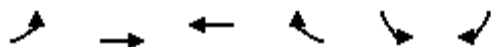
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	18	730	32	49	738	6	134	46	88	28	43	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		3.0	5.0			4.0	4.0		4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00		1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00		1.00	
Frt	1.00	0.99		1.00	1.00			1.00	0.85		0.96	
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00		0.99	
Satd. Flow (prot)	1805	1832		1703	1841			1826	1599		1792	
Flt Permitted	0.27	1.00		0.95	1.00			0.68	1.00		0.74	
Satd. Flow (perm)	518	1832		1703	1841			1283	1599		1343	
Peak-hour factor, PHF	0.61	0.86	0.81	0.75	0.82	0.38	0.69	0.66	0.83	0.81	0.89	0.61
Adj. Flow (vph)	30	849	40	65	900	16	194	70	106	35	48	39
RTOR Reduction (vph)	0	2	0	0	0	0	0	0	0	0	19	0
Lane Group Flow (vph)	30	887	0	65	916	0	0	264	106	0	103	0
Confl. Peds. (#/hr)							3					
Heavy Vehicles (%)	0%	3%	3%	6%	3%	0%	0%	0%	1%	0%	0%	0%
Turn Type	Perm			Prot			Perm			Perm	Perm	
Protected Phases	2			1			8			8	4	
Permitted Phases	2						8			8	4	
Actuated Green, G (s)	43.0	43.0		15.0	61.0			20.0	20.0		20.0	
Effective Green, g (s)	43.0	43.0		15.0	61.0			20.0	20.0		20.0	
Actuated g/C Ratio	0.48	0.48		0.17	0.68			0.22	0.22		0.22	
Clearance Time (s)	5.0	5.0		3.0	5.0			4.0	4.0		4.0	
Lane Grp Cap (vph)	247	875		284	1248			285	355		298	
v/s Ratio Prot		c0.48		0.04	c0.50							
v/s Ratio Perm	0.06							c0.21	0.07		0.08	
v/c Ratio	0.12	1.01		0.23	0.73			0.93	0.30		0.35	
Uniform Delay, d1	13.0	23.5		32.5	9.3			34.3	29.2		29.5	
Progression Factor	1.00	1.00		0.79	1.27			1.00	1.00		1.00	
Incremental Delay, d2	1.0	33.8		1.6	3.2			37.3	2.1		3.2	
Delay (s)	14.0	57.3		27.2	15.0			71.6	31.3		32.7	
Level of Service	B	E		C	B			E	C		C	
Approach Delay (s)		55.9			15.8			60.1			32.7	
Approach LOS		E			B			E			C	
Intersection Summary												
HCM Average Control Delay			38.9			HCM Level of Service			D			
HCM Volume to Capacity ratio			0.97									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)			14.0			
Intersection Capacity Utilization			84.5%			ICU Level of Service			E			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

48: S.R. 11 & S.R. 93 (Orange St.)

No-Build, 2021

PM



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		↙	
Volume (vph)	0	828	819	0	177	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		-1%	0%		0%	
Total Lost time (s)		4.0	4.0		4.0	
Lane Util. Factor		1.00	1.00		1.00	
Frt		1.00	1.00		1.00	
Flt Protected		1.00	1.00		0.95	
Satd. Flow (prot)		1872	1863		1789	
Flt Permitted		1.00	1.00		0.95	
Satd. Flow (perm)		1872	1863		1789	
Peak-hour factor, PHF	1.00	0.87	0.86	0.93	0.83	0.25
Adj. Flow (vph)	0	952	952	0	213	4
RTOR Reduction (vph)	0	0	0	0	1	0
Lane Group Flow (vph)	0	952	952	0	216	0
Heavy Vehicles (%)	0%	2%	2%	2%	1%	0%
Turn Type						
Protected Phases		2	6		8	
Permitted Phases						
Actuated Green, G (s)		67.0	67.0		15.0	
Effective Green, g (s)		67.0	67.0		15.0	
Actuated g/C Ratio		0.74	0.74		0.17	
Clearance Time (s)		4.0	4.0		4.0	
Lane Grp Cap (vph)		1394	1387		298	
v/s Ratio Prot		0.51	c0.51		c0.12	
v/s Ratio Perm						
v/c Ratio		0.68	0.69		0.73	
Uniform Delay, d1		6.0	6.0		35.5	
Progression Factor		0.40	0.59		1.00	
Incremental Delay, d2		2.2	2.5		14.3	
Delay (s)		4.6	6.1		49.8	
Level of Service		A	A		D	
Approach Delay (s)		4.6	6.1		49.8	
Approach LOS		A	A		D	
Intersection Summary						
HCM Average Control Delay			9.9		HCM Level of Service	A
HCM Volume to Capacity ratio			0.69			
Actuated Cycle Length (s)			90.0		Sum of lost time (s)	8.0
Intersection Capacity Utilization			60.1%		ICU Level of Service	B
Analysis Period (min)			15			

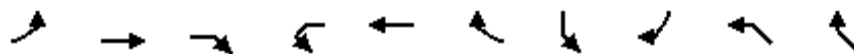
c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

No-Build, 2021

51: S.R. 11 (Second St.) & LaSalle St.

PM



















Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	NWL	NWR
Lane Configurations										
Volume (vph)	82	0	0	18	966	35	0	154	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0	4.0			4.0		
Lane Util. Factor	1.00			1.00	0.95			1.00		
Frt	1.00			1.00	0.99			0.86		
Flt Protected	0.95			0.95	1.00			1.00		
Satd. Flow (prot)	1805			1805	3552			1627		
Flt Permitted	0.95			0.95	1.00			1.00		
Satd. Flow (perm)	1805			1805	3552			1627		
Peak-hour factor, PHF	0.88	0.90	1.00	0.61	0.92	0.73	1.00	0.67	0.92	0.92
Adj. Flow (vph)	93	0	0	30	1050	48	0	230	0	0
RTOR Reduction (vph)	0	0	0	12	4	0	0	78	0	0
Lane Group Flow (vph)	93	0	0	18	1095	0	0	152	0	0
Heavy Vehicles (%)	0%	2%	0%	0%	1%	0%	0%	1%	2%	2%
Turn Type	Prot			custom				custom		
Protected Phases	8			1	1			8		
Permitted Phases				1				8		
Actuated Green, G (s)	27.0			55.0	55.0			27.0		
Effective Green, g (s)	27.0			55.0	55.0			27.0		
Actuated g/C Ratio	0.30			0.61	0.61			0.30		
Clearance Time (s)	4.0			4.0	4.0			4.0		
Lane Grp Cap (vph)	542			1103	2171			488		
v/s Ratio Prot	0.05			0.01	c0.31			c0.09		
v/s Ratio Perm										
v/c Ratio	0.17			0.02	0.50			0.31		
Uniform Delay, d1	23.2			6.9	9.8			24.3		
Progression Factor	0.84			1.00	1.00			1.00		
Incremental Delay, d2	0.5			0.0	0.8			1.7		
Delay (s)	20.1			6.9	10.7			26.0		
Level of Service	C			A	B			C		
Approach Delay (s)		20.1			10.6		26.0		0.0	
Approach LOS		C			B		C		A	
Intersection Summary										
HCM Average Control Delay			13.6			HCM Level of Service			B	
HCM Volume to Capacity ratio			0.44							
Actuated Cycle Length (s)			90.0			Sum of lost time (s)			8.0	
Intersection Capacity Utilization			44.0%			ICU Level of Service			A	
Analysis Period (min)			15							
c Critical Lane Group										

HCM Signalized Intersection Capacity Analysis

No-Build, 2021

67: S.R. 11 (Second St.) & Pine St.



















PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	0	790	44	54	133	0	0	0	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			1%			1%	
Total Lost time (s)					4.0		4.0	4.0				4.0
Lane Util. Factor					0.95		1.00	1.00				1.00
Frt					0.99		1.00	1.00				0.86
Flt Protected					1.00		0.95	1.00				1.00
Satd. Flow (prot)					3539		1796	1890				1635
Flt Permitted					1.00		0.95	1.00				1.00
Satd. Flow (perm)					3539		1796	1890				1635
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	0.86	0.64	0.78	0.74	1.00	1.00	1.00	0.71
Adj. Flow (vph)	0	0	0	0	919	69	69	180	0	0	0	56
RTOR Reduction (vph)	0	0	0	0	7	0	56	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	981	0	13	180	0	0	0	56
Heavy Vehicles (%)	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Turn Type							Perm					custom
Protected Phases					1			2				
Permitted Phases							2					2
Actuated Green, G (s)					40.9		11.1	11.1				11.1
Effective Green, g (s)					40.9		11.1	11.1				11.1
Actuated g/C Ratio					0.68		0.18	0.18				0.18
Clearance Time (s)					4.0		4.0	4.0				4.0
Vehicle Extension (s)					3.0		3.0	3.0				3.0
Lane Grp Cap (vph)					2412		332	350				302
v/s Ratio Prot					c0.28			c0.10				
v/s Ratio Perm							0.01					0.03
v/c Ratio					0.41		0.04	0.51				0.19
Uniform Delay, d1					4.2		20.1	22.0				20.6
Progression Factor					0.95		1.00	1.00				1.00
Incremental Delay, d2					0.5		0.0	1.3				0.3
Delay (s)					4.5		20.1	23.3				20.9
Level of Service					A		C	C				C
Approach Delay (s)		0.0			4.5			22.4			20.9	
Approach LOS		A			A			C			C	
Intersection Summary												
HCM Average Control Delay			8.7				HCM Level of Service			A		
HCM Volume to Capacity ratio			0.43									
Actuated Cycle Length (s)			60.0				Sum of lost time (s)			8.0		
Intersection Capacity Utilization			39.9%				ICU Level of Service			A		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

68: S.R. 11 & Orchard St.

No-Build, 2021
PM
















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	14	744	1	4	699	1	28	25	27	31	7	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	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	
Frt	1.00	1.00		1.00	1.00			0.94			0.94	
Flt Protected	0.95	1.00		0.95	1.00			0.98			0.98	
Satd. Flow (prot)	1687	1861		1805	1844			1763			1751	
Flt Permitted	0.27	1.00		0.27	1.00			0.98			0.98	
Satd. Flow (perm)	482	1861		518	1844			1763			1751	
Peak-hour factor, PHF	0.81	0.96	0.25	1.00	0.90	0.25	0.59	0.64	0.42	0.72	0.44	0.66
Adj. Flow (vph)	17	775	4	4	777	4	47	39	64	43	16	47
RTOR Reduction (vph)	0	0	0	0	0	0	0	30	0	0	32	0
Lane Group Flow (vph)	17	779	0	4	781	0	0	120	0	0	74	0
Heavy Vehicles (%)	7%	2%	0%	0%	3%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm			Perm			Split			Split		
Protected Phases		2			6		3	3		4	4	
Permitted Phases	2			6								
Actuated Green, G (s)	62.0	62.0		62.0	62.0			7.0			6.0	
Effective Green, g (s)	62.0	62.0		62.0	62.0			7.0			6.0	
Actuated g/C Ratio	0.69	0.69		0.69	0.69			0.08			0.07	
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Lane Grp Cap (vph)	332	1282		357	1270			137			117	
v/s Ratio Prot		0.42			c0.42			c0.07			c0.04	
v/s Ratio Perm	0.04			0.01								
v/c Ratio	0.05	0.61		0.01	0.61			0.88			0.63	
Uniform Delay, d1	4.5	7.5		4.4	7.6			41.1			40.9	
Progression Factor	0.05	0.04		1.23	0.87			1.00			1.00	
Incremental Delay, d2	0.1	0.8		0.0	1.6			49.9			23.4	
Delay (s)	0.4	1.1		5.5	8.2			91.0			64.3	
Level of Service	A	A		A	A			F			E	
Approach Delay (s)		1.1			8.2			91.0			64.3	
Approach LOS		A			A			F			E	
Intersection Summary												
HCM Average Control Delay			15.1			HCM Level of Service				B		
HCM Volume to Capacity ratio			0.64									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)			15.0			
Intersection Capacity Utilization			53.3%			ICU Level of Service			A			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

No-Build, 2021

71: S.R. 11 (Second St.) & Oak St.

PM



















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	44	870	15	15	50	0	0	42	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			-1%			1%			-1%	
Total Lost time (s)					6.0			5.0			5.0	
Lane Util. Factor					0.95			1.00			1.00	
Frt					1.00			1.00			0.93	
Flt Protected					1.00			0.99			1.00	
Satd. Flow (prot)					3538			1741			1734	
Flt Permitted					1.00			0.85			1.00	
Satd. Flow (perm)					3538			1507			1734	
Peak-hour factor, PHF	1.00	1.00	1.00	0.68	0.93	0.88	0.44	0.64	1.00	1.00	0.70	0.87
Adj. Flow (vph)	0	0	0	65	935	17	34	78	0	0	60	64
RTOR Reduction (vph)	0	0	0	0	1	0	0	0	0	0	54	0
Lane Group Flow (vph)	0	0	0	0	1016	0	0	112	0	0	70	0
Heavy Vehicles (%)	0%	0%	0%	0%	2%	7%	0%	10%	0%	0%	5%	0%
Turn Type				Perm			Perm					
Protected Phases					1			2			2	
Permitted Phases				1			2					
Actuated Green, G (s)					33.7			8.0			8.0	
Effective Green, g (s)					33.7			8.0			8.0	
Actuated g/C Ratio					0.64			0.15			0.15	
Clearance Time (s)					6.0			5.0			5.0	
Vehicle Extension (s)					3.0			3.0			3.0	
Lane Grp Cap (vph)					2262			229			263	
v/s Ratio Prot											0.04	
v/s Ratio Perm					0.29			c0.07				
v/c Ratio					0.45			0.49			0.27	
Uniform Delay, d1					4.8			20.5			19.8	
Progression Factor					1.00			1.00			1.00	
Incremental Delay, d2					0.1			1.6			0.5	
Delay (s)					4.9			22.1			20.3	
Level of Service					A			C			C	
Approach Delay (s)		0.0			4.9			22.1			20.3	
Approach LOS		A			A			C			C	
Intersection Summary												
HCM Average Control Delay			8.0			HCM Level of Service			A			
HCM Volume to Capacity ratio			0.46									
Actuated Cycle Length (s)			52.7			Sum of lost time (s)			11.0			
Intersection Capacity Utilization			45.1%			ICU Level of Service			A			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

No-Build, 2021

74: Third St. & S.R. 1025 (Market St.)

PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	97	98	64	32	118	17	13	206	17	20	282	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			0%			0%			0%	
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.96			0.98		1.00	0.99		1.00	0.96	
Flt Protected		0.98			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1779			1850		1805	1877		1805	1819	
Flt Permitted		0.83			0.90		0.41	1.00		0.57	1.00	
Satd. Flow (perm)		1497			1689		788	1877		1081	1819	
Peak-hour factor, PHF	0.89	0.83	0.78	0.83	0.87	0.67	0.50	0.88	0.80	0.53	0.91	0.74
Adj. Flow (vph)	109	118	82	39	136	25	26	234	21	38	310	96
RTOR Reduction (vph)	0	22	0	0	9	0	0	6	0	0	19	0
Lane Group Flow (vph)	0	287	0	0	191	0	26	250	0	38	387	0
Heavy Vehicles (%)	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			1			1	
Permitted Phases	2			2	2		1			1	1	
Actuated Green, G (s)		25.0			25.0		27.0	27.0		27.0	27.0	
Effective Green, g (s)		25.0			25.0		27.0	27.0		27.0	27.0	
Actuated g/C Ratio		0.42			0.42		0.45	0.45		0.45	0.45	
Clearance Time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)		624			704		355	845		486	819	
v/s Ratio Prot								0.13			c0.21	
v/s Ratio Perm		c0.19			0.11		0.03			0.04		
v/c Ratio		0.46			0.27		0.07	0.30		0.08	0.47	
Uniform Delay, d1		12.6			11.5		9.4	10.5		9.4	11.5	
Progression Factor		1.00			1.00		1.07	0.93		1.00	1.00	
Incremental Delay, d2		2.4			1.0		0.4	0.9		0.3	2.0	
Delay (s)		15.1			12.5		10.4	10.6		9.7	13.5	
Level of Service		B			B		B	B		A	B	
Approach Delay (s)		15.1			12.5			10.6			13.2	
Approach LOS		B			B			B			B	
Intersection Summary												
HCM Average Control Delay			12.9			HCM Level of Service				B		
HCM Volume to Capacity ratio			0.47									
Actuated Cycle Length (s)			60.0			Sum of lost time (s)				8.0		
Intersection Capacity Utilization			52.1%			ICU Level of Service				A		
Analysis Period (min)			15									
















c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

No-Build, 2021

77: S.R. 11 (Second St.) & Mulberry St.

PM
















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	47	901	53	29	74	0	0	26	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			0%			1%			-4%	
Total Lost time (s)					4.0			4.0			4.0	
Lane Util. Factor					0.95			1.00			1.00	
Frt					0.99			1.00			0.90	
Flt Protected					1.00			0.98			1.00	
Satd. Flow (prot)					3535			1854			1729	
Flt Permitted					1.00			0.85			1.00	
Satd. Flow (perm)					3535			1604			1729	
Peak-hour factor, PHF	1.00	1.00	1.00	0.63	0.94	0.82	0.56	0.94	1.00	1.00	0.86	0.75
Adj. Flow (vph)	0	0	0	75	959	65	52	79	0	0	30	79
RTOR Reduction (vph)	0	0	0	0	8	0	0	0	0	0	62	0
Lane Group Flow (vph)	0	0	0	0	1091	0	0	131	0	0	47	0
Heavy Vehicles (%)	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	4%	0%
Turn Type				Split			Perm					
Protected Phases				1	1			2			2	
Permitted Phases							2					
Actuated Green, G (s)					39.0			13.0			13.0	
Effective Green, g (s)					39.0			13.0			13.0	
Actuated g/C Ratio					0.65			0.22			0.22	
Clearance Time (s)					4.0			4.0			4.0	
Lane Grp Cap (vph)					2298			348			375	
v/s Ratio Prot					c0.31						0.03	
v/s Ratio Perm								c0.08				
v/c Ratio					0.47			0.38			0.13	
Uniform Delay, d1					5.3			20.0			18.9	
Progression Factor					0.32			0.94			1.00	
Incremental Delay, d2					0.6			2.9			0.7	
Delay (s)					2.4			21.7			19.6	
Level of Service					A			C			B	
Approach Delay (s)		0.0			2.4			21.7			19.6	
Approach LOS		A			A			C			B	
Intersection Summary												
HCM Average Control Delay			5.7		HCM Level of Service						A	
HCM Volume to Capacity ratio			0.45									
Actuated Cycle Length (s)			60.0		Sum of lost time (s)						8.0	
Intersection Capacity Utilization			46.8%		ICU Level of Service						A	
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

No-Build, 2021

78: S.R. 11 (Front St.) & Mulberry St.













PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	87	824	37	0	0	0	0	19	13	50	15	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-1%			1%			-1%	
Total Lost time (s)		4.0						4.0			4.0	
Lane Util. Factor		0.95						1.00			1.00	
Frt		0.99						0.94			1.00	
Flt Protected		1.00						1.00			0.96	
Satd. Flow (prot)		3521						1780			1810	
Flt Permitted		1.00						1.00			0.76	
Satd. Flow (perm)		3521						1780			1424	
Peak-hour factor, PHF	0.95	0.86	0.71	1.00	1.00	1.00	1.00	0.56	0.50	0.68	0.70	1.00
Adj. Flow (vph)	92	958	52	0	0	0	0	34	26	74	21	0
RTOR Reduction (vph)	0	6	0	0	0	0	0	20	0	0	0	0
Lane Group Flow (vph)	0	1096	0	0	0	0	0	40	0	0	95	0
Heavy Vehicles (%)	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	7%	0%
Turn Type	Split						Perm					
Protected Phases	1	1						2			2	
Permitted Phases										2		
Actuated Green, G (s)		38.0						14.0			14.0	
Effective Green, g (s)		38.0						14.0			14.0	
Actuated g/C Ratio		0.63						0.23			0.23	
Clearance Time (s)		4.0						4.0			4.0	
Lane Grp Cap (vph)		2230						415			332	
v/s Ratio Prot		c0.31						0.02				
v/s Ratio Perm											c0.07	
v/c Ratio		0.49						0.10			0.29	
Uniform Delay, d1		5.9						18.0			18.9	
Progression Factor		1.00						1.00			0.71	
Incremental Delay, d2		0.8						0.5			2.0	
Delay (s)		6.6						18.5			15.5	
Level of Service		A						B			B	
Approach Delay (s)		6.6			0.0			18.5			15.5	
Approach LOS		A			A			B			B	
Intersection Summary												
HCM Average Control Delay			7.9				HCM Level of Service			A		
HCM Volume to Capacity ratio			0.44									
Actuated Cycle Length (s)			60.0				Sum of lost time (s)			8.0		
Intersection Capacity Utilization			43.4%				ICU Level of Service			A		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

85: S.R. 11 & S.R. 2028

No-Build, 2021
PM

















						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	637	102	223	588	80	239
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	3.6	6.0	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1845	1599	1752	1845	1787	1583
Flt Permitted	1.00	1.00	0.14	1.00	0.95	1.00
Satd. Flow (perm)	1845	1599	262	1845	1787	1583
Peak-hour factor, PHF	0.90	0.78	0.93	0.91	0.77	0.90
Adj. Flow (vph)	708	131	240	646	104	266
RTOR Reduction (vph)	0	74	0	0	0	0
Lane Group Flow (vph)	708	57	240	646	104	266
Heavy Vehicles (%)	3%	1%	3%	3%	1%	2%
Turn Type	Perm		pm+pt		Prot	
Protected Phases	4		3	8	2	2
Permitted Phases		4	8			
Actuated Green, G (s)	24.6	24.6	33.7	33.7	12.5	12.5
Effective Green, g (s)	24.6	24.6	33.7	33.7	12.5	12.5
Actuated g/C Ratio	0.43	0.43	0.59	0.59	0.22	0.22
Clearance Time (s)	6.0	6.0	3.6	6.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	800	694	300	1097	394	349
v/s Ratio Prot	c0.38		c0.08	0.35	0.06	c0.17
v/s Ratio Perm		0.04	0.40			
v/c Ratio	0.89	0.08	0.80	0.59	0.26	0.76
Uniform Delay, d1	14.8	9.4	9.8	7.2	18.3	20.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	11.5	0.1	14.1	0.8	0.4	9.5
Delay (s)	26.2	9.5	23.9	8.0	18.7	30.2
Level of Service	C	A	C	A	B	C
Approach Delay (s)	23.6			12.3	26.9	
Approach LOS	C			B	C	
Intersection Summary						
HCM Average Control Delay			19.4		HCM Level of Service	B
HCM Volume to Capacity ratio			0.84			
Actuated Cycle Length (s)			56.7		Sum of lost time (s)	14.1
Intersection Capacity Utilization			62.6%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

103: S.R. 93 (Third St.) & S.R. 339 (Broad St.)

No-Build, 2021

PM

















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	362	137	31	331	2	112	16	47	8	9	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			-1%			0%			0%	
Total Lost time (s)		6.5			6.5			6.0			6.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.97			1.00			0.97			0.98	
Flt Protected		1.00			1.00			0.97			0.98	
Satd. Flow (prot)		1832			1856			1780			1812	
Flt Permitted		0.99			0.92			0.80			0.81	
Satd. Flow (perm)		1816			1719			1457			1510	
Peak-hour factor, PHF	0.42	0.85	0.91	0.83	0.89	0.50	0.89	0.40	0.94	0.40	0.56	0.50
Adj. Flow (vph)	12	426	151	37	372	4	126	40	50	20	16	8
RTOR Reduction (vph)	0	22	0	0	0	0	0	20	0	0	6	0
Lane Group Flow (vph)	0	567	0	0	413	0	0	196	0	0	38	0
Heavy Vehicles (%)	0%	0%	0%	0%	2%	50%	0%	0%	2%	0%	0%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)		31.5			31.5			10.2			10.2	
Effective Green, g (s)		31.5			31.5			10.2			10.2	
Actuated g/C Ratio		0.58			0.58			0.19			0.19	
Clearance Time (s)		6.5			6.5			6.0			6.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		1055			999			274			284	
v/s Ratio Prot												
v/s Ratio Perm		c0.31			0.24			c0.13			0.02	
v/c Ratio		0.54			0.41			0.71			0.13	
Uniform Delay, d1		6.9			6.3			20.6			18.3	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		2.0			1.3			8.5			0.2	
Delay (s)		8.9			7.5			29.2			18.5	
Level of Service		A			A			C			B	
Approach Delay (s)		8.9			7.5			29.2			18.5	
Approach LOS		A			A			C			B	
Intersection Summary												
HCM Average Control Delay			12.2			HCM Level of Service				B		
HCM Volume to Capacity ratio			0.58									
Actuated Cycle Length (s)			54.2			Sum of lost time (s)			12.5			
Intersection Capacity Utilization			64.7%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

106: S.R. 93 (Third St.) & Dewey St.

No-Build, 2021

PM























												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	11	373	5	2	351	2	8	1	3	3	2	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			0%			0%			0%	
Total Lost time (s)		5.0			5.0			5.0			5.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		1.00			1.00			0.97			0.93	
Flt Protected		1.00			1.00			0.97			0.99	
Satd. Flow (prot)		1866			1859			1795			1750	
Flt Permitted		0.99			0.99			1.00			1.00	
Satd. Flow (perm)		1849			1847			1849			1772	
Peak-hour factor, PHF	0.92	0.86	0.62	0.25	0.90	0.50	0.67	0.25	0.75	0.38	0.25	0.69
Adj. Flow (vph)	12	434	8	8	390	4	12	4	4	8	8	16
RTOR Reduction (vph)	0	0	0	0	0	0	0	4	0	0	16	0
Lane Group Flow (vph)	0	454	0	0	402	0	0	16	0	0	16	0
Heavy Vehicles (%)	0%	1%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)		39.0			39.0			1.5			1.5	
Effective Green, g (s)		39.0			39.0			1.5			1.5	
Actuated g/C Ratio		0.77			0.77			0.03			0.03	
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)		1428			1426			55			53	
v/s Ratio Prot												
v/s Ratio Perm		c0.25			0.22			0.01			c0.01	
v/c Ratio		0.32			0.28			0.29			0.31	
Uniform Delay, d1		1.7			1.7			24.0			24.0	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.6			0.5			3.0			3.3	
Delay (s)		2.3			2.2			26.9			27.3	
Level of Service		A			A			C			C	
Approach Delay (s)		2.3			2.2			26.9			27.3	
Approach LOS		A			A			C			C	
Intersection Summary												
HCM Average Control Delay		3.7			HCM Level of Service			A				
HCM Volume to Capacity ratio		0.32										
Actuated Cycle Length (s)		50.5			Sum of lost time (s)			10.0				
Intersection Capacity Utilization		40.9%			ICU Level of Service			A				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

112: S.R. 11 & Briar Creek Plaza Driveways

No-Build, 2021

PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	89	571	26	21	546	215	54	9	22	200	4	135
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	16	16
Grade (%)		1%			-1%			1%			2%	
Total Lost time (s)	3.5	5.3		5.3	5.3	5.3	5.2	5.2		5.2	5.2	5.2
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.90		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1796	1807		1814	1854	1623	1796	1700		1787	2132	1812
Flt Permitted	0.23	1.00		0.38	1.00	1.00	0.75	1.00		0.73	1.00	1.00
Satd. Flow (perm)	441	1807		719	1854	1623	1422	1700		1364	2132	1812
Peak-hour factor, PHF	0.71	0.95	0.75	0.71	0.93	0.95	0.69	0.56	0.66	0.80	0.50	0.69
Adj. Flow (vph)	125	601	35	30	587	226	78	16	33	250	8	196
RTOR Reduction (vph)	0	4	0	0	0	126	0	24	0	0	0	143
Lane Group Flow (vph)	125	632	0	30	587	100	78	25	0	250	8	53
Heavy Vehicles (%)	0%	4%	0%	0%	3%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt			Perm		Perm	Perm			Perm		Perm
Protected Phases	5	2			6			4			8	
Permitted Phases	2			6		6	4			8		8
Actuated Green, G (s)	31.6	31.6		25.5	25.5	25.5	15.5	15.5		15.5	15.5	15.5
Effective Green, g (s)	31.6	31.6		25.5	25.5	25.5	15.5	15.5		15.5	15.5	15.5
Actuated g/C Ratio	0.55	0.55		0.44	0.44	0.44	0.27	0.27		0.27	0.27	0.27
Clearance Time (s)	3.5	5.3		5.3	5.3	5.3	5.2	5.2		5.2	5.2	5.2
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	303	991		318	821	719	383	457		367	574	488
v/s Ratio Prot	0.02	c0.35			c0.32			0.01			0.00	
v/s Ratio Perm	0.21			0.04		0.06	0.05			c0.18		0.03
v/c Ratio	0.41	0.64		0.09	0.71	0.14	0.20	0.05		0.68	0.01	0.11
Uniform Delay, d1	8.2	9.0		9.3	13.1	9.5	16.3	15.6		18.8	15.4	15.8
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.9	1.4		0.1	3.0	0.1	0.3	0.0		5.1	0.0	0.1
Delay (s)	9.1	10.4		9.5	16.1	9.6	16.5	15.7		24.0	15.5	15.9
Level of Service	A	B		A	B	A	B	B		C	B	B
Approach Delay (s)		10.2			14.1			16.2			20.4	
Approach LOS		B			B			B			C	

Intersection Summary

HCM Average Control Delay	14.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	57.6	Sum of lost time (s)	15.8
Intersection Capacity Utilization	75.0%	ICU Level of Service	D
Analysis Period (min)	15		



















c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

120: S.R. 11 & S.R. 29 (Mill St.)

No-Build, 2021

PM












												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	29	392	11	8	780	242	11	1	8	151	4	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-1%			0%			-1%	
Total Lost time (s)	6.0	6.0			6.0			5.2			6.0	6.0
Lane Util. Factor	1.00	1.00			1.00			1.00			1.00	1.00
Frt	1.00	0.99			0.97			0.94			1.00	0.85
Flt Protected	0.95	1.00			1.00			0.98			0.95	1.00
Satd. Flow (prot)	1796	1845			1812			1747			1772	1399
Flt Permitted	0.24	1.00			0.99			0.98			0.95	1.00
Satd. Flow (perm)	462	1845			1799			1747			1772	1399
Peak-hour factor, PHF	0.64	0.88	0.69	0.50	0.93	0.91	0.69	0.25	0.50	0.90	0.50	0.60
Adj. Flow (vph)	45	445	16	16	839	266	16	4	16	168	8	20
RTOR Reduction (vph)	0	1	0	0	12	0	0	16	0	0	0	13
Lane Group Flow (vph)	45	460	0	0	1109	0	0	20	0	0	176	7
Heavy Vehicles (%)	0%	2%	0%	12%	2%	1%	0%	0%	0%	3%	0%	16%
Turn Type	Perm			Perm			Split			Split		Perm
Protected Phases		2			6		8	8		4	4	
Permitted Phases	2	2		6								4
Actuated Green, G (s)	56.6	56.6			56.6			2.2			9.1	9.1
Effective Green, g (s)	56.6	56.6			56.6			2.2			9.1	9.1
Actuated g/C Ratio	0.67	0.67			0.67			0.03			0.11	0.11
Clearance Time (s)	6.0	6.0			6.0			5.2			6.0	6.0
Vehicle Extension (s)	3.0	3.0			3.0			3.0			3.0	3.0
Lane Grp Cap (vph)	307	1227			1197			45			189	150
v/s Ratio Prot		0.25						c0.01			c0.10	
v/s Ratio Perm	0.10				c0.62							0.00
v/c Ratio	0.15	0.37			0.93			0.45			0.93	0.04
Uniform Delay, d1	5.3	6.4			12.4			40.9			37.7	34.1
Progression Factor	1.00	1.00			1.00			1.00			1.00	1.00
Incremental Delay, d2	0.2	0.2			12.1			7.1			46.0	0.1
Delay (s)	5.5	6.5			24.5			48.0			83.7	34.2
Level of Service	A	A			C			D			F	C
Approach Delay (s)		6.5			24.5			48.0			78.7	
Approach LOS		A			C			D			E	
Intersection Summary												
HCM Average Control Delay			25.8			HCM Level of Service			C			
HCM Volume to Capacity ratio			0.91									
Actuated Cycle Length (s)			85.1			Sum of lost time (s)			17.2			
Intersection Capacity Utilization			86.1%			ICU Level of Service			E			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

128: S.R. 11 & County Bridge

No-Build, 2021

PM

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	414	216	124	724	225	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	1%			-2%	0%	
Total Lost time (s)	7.0		7.0	7.0	7.0	7.0
Lane Util. Factor	1.00		1.00	1.00	1.00	1.00
Frt	0.95		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	1770		1823	1900	1805	1615
Flt Permitted	1.00		0.12	1.00	0.95	1.00
Satd. Flow (perm)	1770		223	1900	1805	1615
Peak-hour factor, PHF	0.95	0.79	0.90	0.89	0.83	0.82
Adj. Flow (vph)	436	273	138	813	271	84
RTOR Reduction (vph)	32	0	0	0	0	0
Lane Group Flow (vph)	677	0	138	813	271	84
Heavy Vehicles (%)	2%	0%	0%	1%	0%	0%
Turn Type			pm+pt		pt+ov	
Protected Phases	4		3	8	2	2 3
Permitted Phases			8			
Actuated Green, G (s)	27.4		39.6	39.6	12.4	24.6
Effective Green, g (s)	27.4		39.6	39.6	12.4	24.6
Actuated g/C Ratio	0.42		0.60	0.60	0.19	0.37
Clearance Time (s)	7.0		7.0	7.0	7.0	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	735		260	1140	339	602
v/s Ratio Prot	c0.38		0.04	c0.43	c0.15	0.05
v/s Ratio Perm			0.28			
v/c Ratio	0.92		0.53	0.71	0.80	0.14
Uniform Delay, d1	18.3		11.4	9.2	25.6	13.7
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	16.9		2.1	2.1	12.4	0.1
Delay (s)	35.1		13.5	11.4	38.0	13.8
Level of Service	D		B	B	D	B
Approach Delay (s)	35.1			11.7	32.3	
Approach LOS	D			B	C	
Intersection Summary						
HCM Average Control Delay			23.6		HCM Level of Service	C
HCM Volume to Capacity ratio			0.93			
Actuated Cycle Length (s)			66.0		Sum of lost time (s)	21.0
Intersection Capacity Utilization			71.8%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

7: Market St. & S.R. 11 (Second St.)

2022, No-Build, with Outage
AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	1	1	1	1	0	0	0	0	1	2	1
Volume (vph)	0	133	96	220	116	0	0	0	0	148	571	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5	3.0	4.5					5.0	5.0	5.0
Lane Util. Factor		1.00	1.00	1.00	1.00					1.00	0.95	1.00
Frt		1.00	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	1.00	1.00
Satd. Flow (prot)		1792	1599	1787	1863					1736	3539	1615
Flt Permitted		1.00	1.00	0.66	1.00					0.95	1.00	1.00
Satd. Flow (perm)		1792	1599	1247	1863					1736	3539	1615
Peak-hour factor, PHF	1.00	0.90	0.88	0.82	0.70	1.00	1.00	1.00	1.00	0.83	0.78	0.80
Adj. Flow (vph)	0	148	109	268	166	0	0	0	0	178	732	65
RTOR Reduction (vph)	0	0	79	0	0	0	0	0	0	0	0	41
Lane Group Flow (vph)	0	148	30	268	166	0	0	0	0	178	732	24
Heavy Vehicles (%)	0%	6%	1%	1%	2%	0%	0%	0%	0%	4%	2%	0%
Turn Type			Perm	pm+pt						Split		Prot
Protected Phases		4		3	8					2	2	2
Permitted Phases			4	8								
Actuated Green, G (s)		16.5	16.5	30.0	28.5					22.0	22.0	22.0
Effective Green, g (s)		16.5	16.5	30.0	28.5					22.0	22.0	22.0
Actuated g/C Ratio		0.28	0.28	0.50	0.48					0.37	0.37	0.37
Clearance Time (s)		4.5	4.5	3.0	4.5					5.0	5.0	5.0
Lane Grp Cap (vph)		493	440	705	885					637	1298	592
v/s Ratio Prot		0.08		c0.06	0.09					0.10	c0.21	0.01
v/s Ratio Perm			0.02	c0.13								
v/c Ratio		0.30	0.07	0.38	0.19					0.28	0.56	0.04
Uniform Delay, d1		17.2	16.1	9.6	9.1					13.4	15.2	12.2
Progression Factor		0.75	0.45	0.02	0.02					0.79	0.80	0.67
Incremental Delay, d2		1.5	0.3	1.2	0.4					1.1	1.7	0.1
Delay (s)		14.3	7.5	1.4	0.5					11.7	13.9	8.3
Level of Service		B	A	A	A					B	B	A
Approach Delay (s)		11.4			1.1			0.0			13.1	
Approach LOS		B			A			A			B	
Intersection Summary												
HCM Average Control Delay			9.7		HCM Level of Service				A			
HCM Volume to Capacity ratio			0.45									
Actuated Cycle Length (s)			60.0		Sum of lost time (s)			8.0				
Intersection Capacity Utilization			66.7%		ICU Level of Service			C				
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

8: S.R. 11 (Front St.) & Market St.

2022, No-Build, with Outage
AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	2>	0	0	0	0	0	1	1	1	1	0
Volume (vph)	0	554	133	0	0	0	0	332	222	40	233	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			-1%			1%	
Total Lost time (s)		5.0						5.0	5.0	3.0	5.0	
Lane Util. Factor		0.95						1.00	1.00	1.00	1.00	
Frt		0.97						1.00	0.85	1.00	1.00	
Flt Protected		1.00						1.00	1.00	0.95	1.00	
Satd. Flow (prot)		3421						1872	1607	1633	1835	
Flt Permitted		1.00						1.00	1.00	0.36	1.00	
Satd. Flow (perm)		3421						1872	1607	611	1835	
Peak-hour factor, PHF	1.00	0.89	0.87	1.00	1.00	1.00	1.00	0.78	0.66	0.77	0.80	1.00
Adj. Flow (vph)	0	622	153	0	0	0	0	426	336	52	291	0
RTOR Reduction (vph)	0	36	0	0	0	0	0	0	124	0	0	0
Lane Group Flow (vph)	0	739	0	0	0	0	0	426	212	52	291	0
Heavy Vehicles (%)	0%	2%	4%	0%	0%	0%	0%	2%	1%	10%	3%	0%
Turn Type									Perm	D.P+P		
Protected Phases		1						3		2	4	
Permitted Phases									3	3		
Actuated Green, G (s)		22.0						22.0	22.0	25.0	28.0	
Effective Green, g (s)		22.0						22.0	22.0	25.0	28.0	
Actuated g/C Ratio		0.37						0.37	0.37	0.42	0.47	
Clearance Time (s)		5.0						5.0	5.0	3.0	5.0	
Lane Grp Cap (vph)		1254						686	589	306	856	
v/s Ratio Prot		c0.22						c0.23		0.01	c0.16	
v/s Ratio Perm									0.13	0.06		
v/c Ratio		0.59						0.62	0.36	0.17	0.34	
Uniform Delay, d1		15.3						15.6	13.9	11.0	10.1	
Progression Factor		0.75						1.00	1.00	0.68	0.65	
Incremental Delay, d2		2.0						4.2	1.7	1.2	1.1	
Delay (s)		13.5						19.8	15.6	8.6	7.6	
Level of Service		B						B	B	A	A	
Approach Delay (s)		13.5			0.0			17.9			7.8	
Approach LOS		B			A			B			A	
Intersection Summary												
HCM Average Control Delay			14.2							B		
HCM Volume to Capacity ratio			0.62									
Actuated Cycle Length (s)			60.0							15.0		
Intersection Capacity Utilization			66.7%							C		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

32: S.R. 239 & S.R. 11 (S. Main St.)

2022, No-Build, with Outage
AM

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	1>	0	1	1	1	1
Volume (vph)	45	72	158	10	62	452
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%		0%			-1%
Total Lost time (s)	5.2		5.4	5.4	5.4	5.4
Lane Util. Factor	1.00		1.00	1.00	1.00	1.00
Frt	0.93		1.00	0.85	1.00	1.00
Flt Protected	0.98		1.00	1.00	0.95	1.00
Satd. Flow (prot)	1682		1863	1615	1761	1872
Flt Permitted	0.98		1.00	1.00	0.48	1.00
Satd. Flow (perm)	1682		1863	1615	895	1872
Peak-hour factor, PHF	0.57	0.85	0.88	0.62	0.74	0.85
Adj. Flow (vph)	79	85	180	16	84	532
RTOR Reduction (vph)	75	0	0	9	0	0
Lane Group Flow (vph)	89	0	180	7	84	532
Heavy Vehicles (%)	0%	5%	2%	0%	3%	2%
Turn Type				Perm	pm+pt	
Protected Phases	4		6		5	2
Permitted Phases				6	2	
Actuated Green, G (s)	4.6		16.2	16.2	24.4	24.4
Effective Green, g (s)	4.6		16.2	16.2	24.4	24.4
Actuated g/C Ratio	0.12		0.41	0.41	0.62	0.62
Clearance Time (s)	5.2		5.4	5.4	5.4	5.4
Vehicle Extension (s)	5.0		5.0	5.0	3.0	5.0
Lane Grp Cap (vph)	195		762	661	613	1153
v/s Ratio Prot	c0.05		0.10		0.01	c0.28
v/s Ratio Perm				0.00	0.07	
v/c Ratio	0.46		0.24	0.01	0.14	0.46
Uniform Delay, d1	16.3		7.7	6.9	3.5	4.1
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	3.5		0.3	0.0	0.1	0.6
Delay (s)	19.8		8.0	7.0	3.6	4.7
Level of Service	B		A	A	A	A
Approach Delay (s)	19.8		7.9			4.5
Approach LOS	B		A			A
Intersection Summary						
HCM Average Control Delay			7.8		HCM Level of Service	A
HCM Volume to Capacity ratio			0.46			
Actuated Cycle Length (s)			39.6		Sum of lost time (s)	10.6
Intersection Capacity Utilization			39.5%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

37: S.R. 239 (Union St.) & S.R. 11 (Main St.)

2022, No-Build, with Outage
AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	<1>	0	0	<1>	0	1	1>	0	0	<1>	0
Volume (vph)	155	26	115	12	14	2	71	244	12	2	197	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			0%			1%			1%	
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	
Frt		0.95			0.97		1.00	0.99			0.96	
Flt Protected		0.97			0.98		0.95	1.00			1.00	
Satd. Flow (prot)		1546			1545		1616	1623			1486	
Flt Permitted		0.82			0.83		0.40	1.00			0.99	
Satd. Flow (perm)		1295			1312		674	1623			1471	
Peak-hour factor, PHF	0.92	0.69	0.96	0.75	0.88	0.25	0.65	0.83	0.60	0.25	0.90	0.52
Adj. Flow (vph)	168	38	120	16	16	8	109	294	20	8	219	96
RTOR Reduction (vph)	0	40	0	0	6	0	0	5	0	0	28	0
Lane Group Flow (vph)	0	286	0	0	34	0	109	309	0	0	295	0
Heavy Vehicles (%)	2%	8%	0%	0%	14%	0%	0%	3%	16%	0%	10%	10%
Turn Type	Perm			Perm			pm+pt			Perm		
Protected Phases		4			8		1	6			2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)		14.3			14.3		23.6	23.6			15.6	
Effective Green, g (s)		14.3			14.3		23.6	23.6			15.6	
Actuated g/C Ratio		0.30			0.30		0.49	0.49			0.33	
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)		387			392		391	800			479	
v/s Ratio Prot							0.02	c0.19				
v/s Ratio Perm		c0.22			0.03		0.12				c0.20	
v/c Ratio		0.74			0.09		0.28	0.39			0.62	
Uniform Delay, d1		15.1			12.1		7.7	7.6			13.6	
Progression Factor		1.00			1.00		1.00	1.00			1.00	
Incremental Delay, d2		7.2			0.1		0.4	0.3			2.4	
Delay (s)		22.3			12.2		8.1	7.9			16.0	
Level of Service		C			B		A	A			B	
Approach Delay (s)		22.3			12.2			8.0			16.0	
Approach LOS		C			B			A			B	

Intersection Summary

HCM Average Control Delay	14.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	47.9	Sum of lost time (s)	15.0
Intersection Capacity Utilization	68.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

44: S.R. 11 & Poplar St.

2022, No-Build, with Outage
AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1	1>	0	1	1>	0	0	<1	1	0	<1>	0
Volume (vph)	0	493	25	37	585	0	51	0	25	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		3.0	5.0			4.0	4.0			
Lane Util. Factor		1.00		1.00	1.00			1.00	1.00			
Frpb, ped/bikes		1.00		1.00	1.00			1.00	1.00			
Flpb, ped/bikes		1.00		1.00	1.00			0.99	1.00			
Frt		0.99		1.00	1.00			1.00	0.85			
Flt Protected		1.00		0.95	1.00			0.95	1.00			
Satd. Flow (prot)		1806		1626	1845			1693	1335			
Flt Permitted		1.00		0.95	1.00			0.76	1.00			
Satd. Flow (perm)		1806		1626	1845			1350	1335			
Peak-hour factor, PHF	1.00	0.84	0.64	0.71	0.88	1.00	0.57	1.00	0.64	1.00	1.00	1.00
Adj. Flow (vph)	0	587	39	52	665	0	89	0	39	0	0	0
RTOR Reduction (vph)	0	3	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	623	0	52	665	0	0	89	39	0	0	0
Confl. Peds. (#/hr)							3					
Heavy Vehicles (%)	0%	4%	8%	11%	3%	0%	6%	0%	21%	0%	0%	0%
Turn Type	Perm			Prot			Perm		Perm	Perm		
Protected Phases		2		1	6			8			4	
Permitted Phases	2						8		8	4		
Actuated Green, G (s)		27.0		16.0	46.0			20.0	20.0			
Effective Green, g (s)		27.0		16.0	46.0			20.0	20.0			
Actuated g/C Ratio		0.36		0.21	0.61			0.27	0.27			
Clearance Time (s)		5.0		3.0	5.0			4.0	4.0			
Lane Grp Cap (vph)		650		347	1132			360	356			
v/s Ratio Prot		c0.34		0.03	c0.36							
v/s Ratio Perm								c0.07	0.03			
v/c Ratio		0.96		0.15	0.59			0.25	0.11			
Uniform Delay, d1		23.4		24.0	8.8			21.6	20.8			
Progression Factor		1.00		0.65	0.63			1.00	1.00			
Incremental Delay, d2		26.4		0.7	1.7			1.6	0.6			
Delay (s)		49.8		16.3	7.2			23.2	21.4			
Level of Service		D		B	A			C	C			
Approach Delay (s)		49.8			7.9			22.7			0.0	
Approach LOS		D			A			C			A	

Intersection Summary

HCM Average Control Delay	27.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	55.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

48: S.R. 11 & S.R. 93 (Orange St.)

2022, No-Build, with Outage
AM

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	0	1	1	0	1	0
Volume (vph)	0	495	629	0	84	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		-1%	0%		0%	
Total Lost time (s)		4.0	4.0		4.0	
Lane Util. Factor		1.00	1.00		1.00	
Frt		1.00	1.00		1.00	
Flt Protected		1.00	1.00		0.95	
Satd. Flow (prot)		1819	1845		1787	
Flt Permitted		1.00	1.00		0.95	
Satd. Flow (perm)		1819	1845		1787	
Peak-hour factor, PHF	1.00	0.93	0.84	0.93	0.68	1.00
Adj. Flow (vph)	0	532	749	0	124	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	532	749	0	124	0
Heavy Vehicles (%)	0%	5%	3%	2%	1%	0%
Turn Type						
Protected Phases		2	6		8	
Permitted Phases						
Actuated Green, G (s)		54.0	54.0		13.0	
Effective Green, g (s)		54.0	54.0		13.0	
Actuated g/C Ratio		0.72	0.72		0.17	
Clearance Time (s)		4.0	4.0		4.0	
Lane Grp Cap (vph)		1310	1328		310	
v/s Ratio Prot		0.29	c0.41		c0.07	
v/s Ratio Perm						
v/c Ratio		0.41	0.56		0.40	
Uniform Delay, d1		4.2	5.0		27.5	
Progression Factor		0.39	0.52		1.00	
Incremental Delay, d2		0.8	1.6		3.8	
Delay (s)		2.4	4.2		31.4	
Level of Service		A	A		C	
Approach Delay (s)		2.4	4.2		31.4	
Approach LOS		A	A		C	
Intersection Summary						
HCM Average Control Delay			5.9		HCM Level of Service	A
HCM Volume to Capacity ratio			0.53			
Actuated Cycle Length (s)			75.0		Sum of lost time (s)	8.0
Intersection Capacity Utilization			44.4%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

51: S.R. 11 (Second St.) & LaSalle St.

2022, No-Build, with Outage
AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	NWL	NWR
Lane Configurations	1	0	0	1	2>	0	0	1	0	0
Volume (vph)	50	0	0	10	659	22	0	67	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0	4.0			4.0		
Lane Util. Factor	1.00			1.00	0.95			1.00		
Frt	1.00			1.00	0.99			0.86		
Flt Protected	0.95			0.95	1.00			1.00		
Satd. Flow (prot)	1805			1805	3517			1627		
Flt Permitted	0.95			0.95	1.00			1.00		
Satd. Flow (perm)	1805			1805	3517			1627		
Peak-hour factor, PHF	0.54	0.90	1.00	0.75	0.84	0.56	1.00	0.76	0.92	0.92
Adj. Flow (vph)	93	0	0	13	785	39	0	88	0	0
RTOR Reduction (vph)	0	0	0	6	5	0	0	59	0	0
Lane Group Flow (vph)	93	0	0	7	819	0	0	29	0	0
Heavy Vehicles (%)	0%	2%	0%	0%	2%	0%	0%	1%	2%	2%
Turn Type	Prot			custom				custom		
Protected Phases	8			1	1			8		
Permitted Phases				1				8		
Actuated Green, G (s)	25.0			42.0	42.0			25.0		
Effective Green, g (s)	25.0			42.0	42.0			25.0		
Actuated g/C Ratio	0.33			0.56	0.56			0.33		
Clearance Time (s)	4.0			4.0	4.0			4.0		
Lane Grp Cap (vph)	602			1011	1970			542		
v/s Ratio Prot	c0.05			0.00	c0.23			0.02		
v/s Ratio Perm										
v/c Ratio	0.15			0.01	0.42			0.05		
Uniform Delay, d1	17.6			7.3	9.5			17.0		
Progression Factor	1.21			1.00	1.00			1.00		
Incremental Delay, d2	0.5			0.0	0.6			0.2		
Delay (s)	21.8			7.3	10.1			17.2		
Level of Service	C			A	B			B		
Approach Delay (s)		21.8			10.1		17.2		0.0	
Approach LOS		C			B		B		A	
Intersection Summary										
HCM Average Control Delay			11.8		HCM Level of Service				B	
HCM Volume to Capacity ratio			0.32							
Actuated Cycle Length (s)			75.0		Sum of lost time (s)				8.0	
Intersection Capacity Utilization			29.7%		ICU Level of Service				A	
Analysis Period (min)			15							
c Critical Lane Group										

HCM Signalized Intersection Capacity Analysis

67: S.R. 11 (Second St.) & Pine St.

2022, No-Build, with Outage
AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	0	0	0	2>	0	1	1	0	0	0	1
Volume (vph)	0	0	0	0	652	19	26	72	0	0	0	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)	0%				0%			1%		1%		
Total Lost time (s)					4.0			4.0		4.0		
Lane Util. Factor					0.95			1.00		1.00		
Frt					1.00			1.00		1.00		
Flt Protected					1.00			0.95		1.00		
Satd. Flow (prot)					3491			1796		1872		
Flt Permitted					1.00			0.95		1.00		
Satd. Flow (perm)					3491			1796		1872		
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	0.73	0.64	0.67	0.79	1.00	1.00	1.00	0.71
Adj. Flow (vph)	0	0	0	0	893	30	39	91	0	0	0	25
RTOR Reduction (vph)	0	0	0	0	3	0	34	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	920	0	5	91	0	0	0	25
Heavy Vehicles (%)	0%	0%	0%	0%	3%	0%	0%	1%	0%	0%	0%	0%
Turn Type							Perm			custom		
Protected Phases							1			2		
Permitted Phases							2			2		
Actuated Green, G (s)					44.8			7.2		7.2		
Effective Green, g (s)					44.8			7.2		7.2		
Actuated g/C Ratio					0.75			0.12		0.12		
Clearance Time (s)					4.0			4.0		4.0		
Vehicle Extension (s)					3.0			3.0		3.0		
Lane Grp Cap (vph)					2607			216		225		
v/s Ratio Prot					c0.26			c0.05				
v/s Ratio Perm								0.00			0.02	
v/c Ratio					0.35			0.02		0.40		
Uniform Delay, d1					2.6			23.3		24.4		
Progression Factor					0.96			1.00		1.00		
Incremental Delay, d2					0.4			0.0		1.2		
Delay (s)					2.9			23.3		25.6		
Level of Service					A			C		C		
Approach Delay (s)	0.0				2.9			24.9		23.9		
Approach LOS	A				A			C		C		
Intersection Summary												
HCM Average Control Delay			6.0		HCM Level of Service				A			
HCM Volume to Capacity ratio			0.36									
Actuated Cycle Length (s)			60.0		Sum of lost time (s)				8.0			
Intersection Capacity Utilization			35.3%		ICU Level of Service				A			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

68: S.R. 11 & Orchard St.

2022, No-Build, with Outage
AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1	1	0	1	1	0	0	<1>	0	0	<1>	0
Volume (vph)	9	570	1	6	633	3	20	12	5	25	2	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	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	
Frt	1.00	1.00		1.00	1.00			0.98			0.96	
Flt Protected	0.95	1.00		0.95	1.00			0.98			0.97	
Satd. Flow (prot)	1805	1815		1805	1842			1815			1768	
Flt Permitted	0.26	1.00		0.34	1.00			0.98			0.97	
Satd. Flow (perm)	490	1815		652	1842			1815			1768	
Peak-hour factor, PHF	0.56	0.90	0.25	0.38	0.82	0.38	0.68	0.46	0.42	0.52	0.25	0.71
Adj. Flow (vph)	16	633	4	16	772	8	29	26	12	48	8	25
RTOR Reduction (vph)	0	0	0	0	0	0	0	10	0	0	21	0
Lane Group Flow (vph)	16	637	0	16	780	0	0	57	0	0	60	0
Heavy Vehicles (%)	0%	4%	100%	0%	3%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm			Perm			Split			Split		
Protected Phases		2			6		3	3		4	4	
Permitted Phases	2			6								
Actuated Green, G (s)	49.0	49.0		49.0	49.0			5.0			6.0	
Effective Green, g (s)	49.0	49.0		49.0	49.0			5.0			6.0	
Actuated g/C Ratio	0.65	0.65		0.65	0.65			0.07			0.08	
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Lane Grp Cap (vph)	320	1186		426	1203			121			141	
v/s Ratio Prot		0.35			c0.42			c0.03			c0.03	
v/s Ratio Perm	0.03			0.02								
v/c Ratio	0.05	0.54		0.04	0.65			0.47			0.42	
Uniform Delay, d1	4.7	6.9		4.6	7.8			33.7			32.9	
Progression Factor	0.05	0.30		0.13	0.09			1.00			1.00	
Incremental Delay, d2	0.1	0.8		0.1	2.3			12.5			9.1	
Delay (s)	0.4	2.9		0.7	3.0			46.2			41.9	
Level of Service	A	A		A	A			D			D	
Approach Delay (s)		2.9			3.0			46.2			41.9	
Approach LOS		A			A			D			D	
Intersection Summary												
HCM Average Control Delay			6.7		HCM Level of Service				A			
HCM Volume to Capacity ratio			0.61									
Actuated Cycle Length (s)			75.0		Sum of lost time (s)			15.0				
Intersection Capacity Utilization			46.8%		ICU Level of Service			A				
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2022, No-Build, with Outage

71: S.R. 11 (Second St.) & Oak St.

AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	0	0	0	<2>	0	0	<1	0	0	1>	0
Volume (vph)	0	0	0	24	780	21	7	30	0	0	33	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)	0%				-1%				1%			
Total Lost time (s)					6.0				5.0			
Lane Util. Factor					0.95				1.00			
Frt					1.00				1.00			
Flt Protected					1.00				0.99			
Satd. Flow (prot)					3536				1660			
Flt Permitted					1.00				0.88			
Satd. Flow (perm)					3536				1474			
Peak-hour factor, PHF	1.00	1.00	1.00	0.69	0.86	0.83	0.44	0.70	1.00	1.00	0.65	0.88
Adj. Flow (vph)	0	0	0	35	907	25	16	43	0	0	51	43
RTOR Reduction (vph)	0	0	0	0	4	0	0	0	0	0	40	0
Lane Group Flow (vph)	0	0	0	0	963	0	0	59	0	0	54	0
Heavy Vehicles (%)	0%	0%	0%	4%	2%	0%	0%	17%	0%	0%	0%	14%
Turn Type	Perm						Perm					
Protected Phases	1						2					
Permitted Phases	1						2					
Actuated Green, G (s)	32.8						3.3					
Effective Green, g (s)	32.8						3.3					
Actuated g/C Ratio	0.70						0.07					
Clearance Time (s)	6.0						5.0					
Vehicle Extension (s)	3.0						3.0					
Lane Grp Cap (vph)	2462						103					
v/s Ratio Prot							0.03					
v/s Ratio Perm	0.27						c0.04					
v/c Ratio	0.39						0.57					
Uniform Delay, d1	3.0						21.2					
Progression Factor	1.00						1.00					
Incremental Delay, d2	0.1						7.5					
Delay (s)	3.1						28.7					
Level of Service	A						C					
Approach Delay (s)	0.0				3.1				28.7			
Approach LOS	A				A				C			
Intersection Summary												
HCM Average Control Delay			6.2		HCM Level of Service				A			
HCM Volume to Capacity ratio			0.41									
Actuated Cycle Length (s)			47.1		Sum of lost time (s)				11.0			
Intersection Capacity Utilization			41.8%		ICU Level of Service				A			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

74: Third St. & S.R. 1025 (Market St.)

2022, No-Build, with Outage
AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	<1>	0	0	<1>	0	1	1>	0	1	1>	0
Volume (vph)	27	63	25	21	85	8	38	144	13	13	202	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			0%			0%			0%	
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.97			0.99		1.00	0.98		1.00	0.97	
Flt Protected		0.99			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1786			1860		1805	1853		1805	1844	
Flt Permitted		0.91			0.92		0.52	1.00		0.63	1.00	
Satd. Flow (perm)		1647			1739		989	1853		1191	1844	
Peak-hour factor, PHF	0.78	0.91	0.72	0.62	0.78	0.67	0.80	0.77	0.60	0.50	0.76	0.85
Adj. Flow (vph)	35	69	35	34	109	12	48	187	22	26	266	65
RTOR Reduction (vph)	0	20	0	0	5	0	0	7	0	0	14	0
Lane Group Flow (vph)	0	119	0	0	150	0	48	202	0	26	317	0
Heavy Vehicles (%)	4%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			1			1	
Permitted Phases	2			2	2		1			1	1	
Actuated Green, G (s)		20.0			20.0		32.0	32.0		32.0	32.0	
Effective Green, g (s)		20.0			20.0		32.0	32.0		32.0	32.0	
Actuated g/C Ratio		0.33			0.33		0.53	0.53		0.53	0.53	
Clearance Time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)		549			580		527	988		635	983	
v/s Ratio Prot								0.11			c0.17	
v/s Ratio Perm		0.07			c0.09		0.05			0.02		
v/c Ratio		0.22			0.26		0.09	0.20		0.04	0.32	
Uniform Delay, d1		14.4			14.6		6.9	7.3		6.7	7.9	
Progression Factor		1.00			1.00		0.58	0.53		1.00	1.00	
Incremental Delay, d2		0.9			1.1		0.3	0.5		0.1	0.9	
Delay (s)		15.3			15.7		4.3	4.3		6.8	8.8	
Level of Service		B			B		A	A		A	A	
Approach Delay (s)		15.3			15.7			4.3			8.6	
Approach LOS		B			B			A			A	
Intersection Summary												
HCM Average Control Delay			9.6			HCM Level of Service			A			
HCM Volume to Capacity ratio			0.30									
Actuated Cycle Length (s)			60.0			Sum of lost time (s)			8.0			
Intersection Capacity Utilization			36.6%			ICU Level of Service			A			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

77: S.R. 11 (Second St.) & Mulberry St.

2022, No-Build, with Outage
AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	0	0	0	<2>	0	0	<1	0	0	1>	0
Volume (vph)	0	0	0	17	799	21	17	38	0	0	17	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)	1%				0%				1%			
Total Lost time (s)					4.0				4.0			
Lane Util. Factor					0.95				1.00			
Frt					1.00				1.00			
Flt Protected					1.00				0.99			
Satd. Flow (prot)					3554				1802			
Flt Permitted					1.00				0.91			
Satd. Flow (perm)					3554				1663			
Peak-hour factor, PHF	1.00	1.00	1.00	0.50	0.78	0.62	0.80	0.73	1.00	1.00	0.67	0.70
Adj. Flow (vph)	0	0	0	34	1024	34	21	52	0	0	25	83
RTOR Reduction (vph)	0	0	0	0	4	0	0	0	0	0	65	0
Lane Group Flow (vph)	0	0	0	0	1088	0	0	73	0	0	43	0
Heavy Vehicles (%)	0%	0%	0%	0%	1%	0%	12%	0%	0%	0%	0%	0%
Turn Type				Split			Perm					
Protected Phases				1			1			2		
Permitted Phases							2					
Actuated Green, G (s)							39.0			13.0		
Effective Green, g (s)							39.0			13.0		
Actuated g/C Ratio							0.65			0.22		
Clearance Time (s)							4.0			4.0		
Lane Grp Cap (vph)							2310			360		
v/s Ratio Prot							c0.31			0.02		
v/s Ratio Perm										c0.04		
v/c Ratio							0.47			0.20		
Uniform Delay, d1							5.3			19.3		
Progression Factor							0.36			0.82		
Incremental Delay, d2							0.6			1.2		
Delay (s)							2.5			17.0		
Level of Service							A			B		
Approach Delay (s)	0.0						2.5			17.0		
Approach LOS	A						A			B		
Intersection Summary												
HCM Average Control Delay			4.8			HCM Level of Service			A			
HCM Volume to Capacity ratio			0.40									
Actuated Cycle Length (s)			60.0			Sum of lost time (s)			8.0			
Intersection Capacity Utilization			39.5%			ICU Level of Service			A			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

78: S.R. 11 (Front St.) & Mulberry St.

2022, No-Build, with Outage
AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	<2>	0	0	0	0	0	1>	0	0	<1	0
Volume (vph)	47	611	20	0	0	0	0	10	4	23	2	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-1%			1%			-1%	
Total Lost time (s)		4.0						4.0			4.0	
Lane Util. Factor		0.95						1.00			1.00	
Frt		0.99						0.95			1.00	
Flt Protected		1.00						1.00			0.96	
Satd. Flow (prot)		3459						1693			1827	
Flt Permitted		1.00						1.00			0.79	
Satd. Flow (perm)		3459						1693			1515	
Peak-hour factor, PHF	0.72	0.92	0.68	1.00	1.00	1.00	1.00	0.62	0.50	0.66	0.50	1.00
Adj. Flow (vph)	65	664	29	0	0	0	0	16	8	35	4	0
RTOR Reduction (vph)	0	5	0	0	0	0	0	6	0	0	0	0
Lane Group Flow (vph)	0	753	0	0	0	0	0	18	0	0	39	0
Heavy Vehicles (%)	2%	3%	0%	0%	0%	0%	0%	10%	0%	0%	0%	0%
Turn Type	Split						Perm					
Protected Phases	1	1						2			2	
Permitted Phases										2		
Actuated Green, G (s)		39.0						13.0			13.0	
Effective Green, g (s)		39.0						13.0			13.0	
Actuated g/C Ratio		0.65						0.22			0.22	
Clearance Time (s)		4.0						4.0			4.0	
Lane Grp Cap (vph)		2248						367			328	
v/s Ratio Prot		c0.22						0.01				
v/s Ratio Perm											c0.03	
v/c Ratio		0.34						0.05			0.12	
Uniform Delay, d1		4.7						18.6			18.9	
Progression Factor		1.00						1.00			0.89	
Incremental Delay, d2		0.4						0.2			0.7	
Delay (s)		5.1						18.9			17.4	
Level of Service		A						B			B	
Approach Delay (s)		5.1			0.0			18.9			17.4	
Approach LOS		A			A			B			B	
Intersection Summary												
HCM Average Control Delay			6.1		HCM Level of Service					A		
HCM Volume to Capacity ratio			0.28									
Actuated Cycle Length (s)			60.0		Sum of lost time (s)					8.0		
Intersection Capacity Utilization			33.6%		ICU Level of Service					A		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

85: S.R. 11 & S.R. 2028

2022, No-Build, with Outage
AM

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	1	1	1	1	1	1
Volume (vph)	511	35	108	663	122	187
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	3.6	6.0	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1810	1404	1736	1845	1770	1583
Flt Permitted	1.00	1.00	0.23	1.00	0.95	1.00
Satd. Flow (perm)	1810	1404	415	1845	1770	1583
Peak-hour factor, PHF	0.83	0.57	0.77	0.78	0.85	0.84
Adj. Flow (vph)	616	61	140	850	144	223
RTOR Reduction (vph)	0	34	0	0	0	0
Lane Group Flow (vph)	616	27	140	850	144	223
Heavy Vehicles (%)	5%	15%	4%	3%	2%	2%
Turn Type	Perm		pm+pt		Prot	
Protected Phases	4		3	8	2	2
Permitted Phases		4	8			
Actuated Green, G (s)	23.3	23.3	30.2	30.2	11.7	11.7
Effective Green, g (s)	23.3	23.3	30.2	30.2	11.7	11.7
Actuated g/C Ratio	0.44	0.44	0.58	0.58	0.22	0.22
Clearance Time (s)	6.0	6.0	3.6	6.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	805	624	322	1063	395	353
v/s Ratio Prot	0.34		0.03	c0.46	0.08	c0.14
v/s Ratio Perm		0.02	0.22			
v/c Ratio	0.77	0.04	0.43	0.80	0.36	0.63
Uniform Delay, d1	12.2	8.2	7.0	8.7	17.2	18.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.4	0.0	0.9	4.3	0.6	3.7
Delay (s)	16.6	8.3	7.9	13.0	17.8	22.1
Level of Service	B	A	A	B	B	C
Approach Delay (s)	15.9			12.3	20.4	
Approach LOS	B			B	C	
Intersection Summary						
HCM Average Control Delay			14.9		HCM Level of Service	B
HCM Volume to Capacity ratio			0.75			
Actuated Cycle Length (s)			52.4		Sum of lost time (s)	10.5
Intersection Capacity Utilization			51.7%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

103: S.R. 93 (Third St.) & S.R. 339 (Broad St.)

2022, No-Build, with Outage
AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	<1	0	0	<1>	0	0	<1>	0	0	<1>	0
Volume (vph)	2	247	49	42	359	2	145	11	46	4	4	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			-1%			0%			0%	
Total Lost time (s)		6.5			6.5			6.0			6.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.97			1.00			0.97			0.93	
Flt Protected		1.00			0.99			0.97			0.99	
Satd. Flow (prot)		1773			1838			1709			1750	
Flt Permitted		0.99			0.92			0.77			0.90	
Satd. Flow (perm)		1752			1704			1365			1587	
Peak-hour factor, PHF	0.25	0.94	0.65	0.67	0.74	0.50	0.84	0.69	0.79	0.50	0.50	0.75
Adj. Flow (vph)	8	263	75	63	485	4	173	16	58	8	8	16
RTOR Reduction (vph)	0	16	0	0	0	0	0	19	0	0	12	0
Lane Group Flow (vph)	0	330	0	0	552	0	0	228	0	0	20	0
Heavy Vehicles (%)	0%	4%	4%	5%	3%	0%	2%	0%	11%	0%	0%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)		31.6			31.6			13.3			13.3	
Effective Green, g (s)		31.6			31.6			13.3			13.3	
Actuated g/C Ratio		0.55			0.55			0.23			0.23	
Clearance Time (s)		6.5			6.5			6.0			6.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		965			938			316			368	
v/s Ratio Prot												
v/s Ratio Perm		0.19			0.32			0.17			0.01	
v/c Ratio		0.34			0.59			0.72			0.05	
Uniform Delay, d1		7.1			8.6			20.3			17.2	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		1.0			2.7			7.9			0.1	
Delay (s)		8.1			11.3			28.2			17.2	
Level of Service		A			B			C			B	
Approach Delay (s)		8.1			11.3			28.2			17.2	
Approach LOS		A			B			C			B	
Intersection Summary												
HCM Average Control Delay			14.1			HCM Level of Service			B			
HCM Volume to Capacity ratio			0.63									
Actuated Cycle Length (s)			57.4			Sum of lost time (s)			12.5			
Intersection Capacity Utilization			71.3%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

106: S.R. 93 (Third St.) & Dewey St.

2022, No-Build, with Outage
AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	<1>	0	0	<1>	0	0	<1>	0	0	<1>	0
Volume (vph)	5	239	31	7	378	0	16	2	4	2	7	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			0%			0%			0%	
Total Lost time (s)		5.0			5.0			5.0			5.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.97			1.00			0.96			0.97	
Flt Protected		1.00			1.00			0.97			0.99	
Satd. Flow (prot)		1782			1826			1781			1824	
Flt Permitted		0.98			0.99			1.00			0.95	
Satd. Flow (perm)		1753			1808			1830			1740	
Peak-hour factor, PHF	0.42	0.99	0.50	0.44	0.76	1.00	0.67	0.25	0.33	0.50	0.35	0.62
Adj. Flow (vph)	12	241	62	16	497	0	24	8	12	4	20	8
RTOR Reduction (vph)	0	13	0	0	0	0	0	11	0	0	8	0
Lane Group Flow (vph)	0	302	0	0	513	0	0	33	0	0	24	0
Heavy Vehicles (%)	0%	4%	0%	0%	4%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)		40.0			40.0			2.4			2.4	
Effective Green, g (s)		40.0			40.0			2.4			2.4	
Actuated g/C Ratio		0.76			0.76			0.05			0.05	
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)		1338			1380			84			80	
v/s Ratio Prot												
v/s Ratio Perm		0.17			0.28			0.02			0.01	
v/c Ratio		0.23			0.37			0.39			0.30	
Uniform Delay, d1		1.8			2.0			24.3			24.2	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.4			0.8			3.0			2.2	
Delay (s)		2.2			2.8			27.2			26.3	
Level of Service		A			A			C			C	
Approach Delay (s)		2.2			2.8			27.2			26.3	
Approach LOS		A			A			C			C	
Intersection Summary												
HCM Average Control Delay			4.6			HCM Level of Service			A			
HCM Volume to Capacity ratio			0.37									
Actuated Cycle Length (s)			52.4			Sum of lost time (s)			10.0			
Intersection Capacity Utilization			36.9%			ICU Level of Service			A			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

112: S.R. 11 & Briar Creek Plaza Driveways

2022, No-Build, with Outage
AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1	1>	0	1	1	1	1	1>	0	1	1	1
Volume (vph)	36	555	39	27	440	71	33	7	4	52	9	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	16	16
Grade (%)		1%			-1%			1%			2%	
Total Lost time (s)	3.5	5.3		5.3	5.3	5.3	5.2	5.2		5.2	5.2	5.2
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Fr't	1.00	0.99		1.00	1.00	0.85	1.00	0.95		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1744	1804		1744	1836	1623	1796	1796		1718	2132	1812
Flt Permitted	0.37	1.00		0.42	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Satd. Flow (perm)	679	1804		765	1836	1623	1890	1796		1809	2132	1812
Peak-hour factor, PHF	0.63	0.91	0.90	0.42	0.83	0.74	0.70	0.44	0.50	0.71	0.56	0.78
Adj. Flow (vph)	57	610	43	64	530	96	47	16	8	73	16	42
RTOR Reduction (vph)	0	5	0	0	0	41	0	7	0	0	0	39
Lane Group Flow (vph)	57	648	0	64	530	55	47	17	0	73	16	3
Heavy Vehicles (%)	3%	4%	0%	4%	4%	0%	0%	0%	0%	4%	0%	0%
Turn Type	pm+pt			Perm		Perm	Perm			Perm		Perm
Protected Phases	5	2			6			4			8	
Permitted Phases	2			6		6	4			8		8
Actuated Green, G (s)	29.1	29.1		24.6	24.6	24.6	3.3	3.3		3.3	3.3	3.3
Effective Green, g (s)	29.1	29.1		24.6	24.6	24.6	3.3	3.3		3.3	3.3	3.3
Actuated g/C Ratio	0.68	0.68		0.57	0.57	0.57	0.08	0.08		0.08	0.08	0.08
Clearance Time (s)	3.5	5.3		5.3	5.3	5.3	5.2	5.2		5.2	5.2	5.2
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	485	1224		439	1053	931	145	138		139	164	139
v/s Ratio Prot	0.00	c0.36			0.29			0.01			0.01	
v/s Ratio Perm	0.08			0.08		0.03	0.02			c0.04		0.00
v/c Ratio	0.12	0.53		0.15	0.50	0.06	0.32	0.12		0.53	0.10	0.02
Uniform Delay, d1	2.7	3.5		4.3	5.5	4.0	18.7	18.4		19.0	18.4	18.3
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.1	0.4		0.2	0.4	0.0	1.3	0.4		3.6	0.3	0.1
Delay (s)	2.8	3.9		4.4	5.9	4.1	20.0	18.8		22.6	18.7	18.4
Level of Service	A	A		A	A	A	C	B		C	B	B
Approach Delay (s)		3.8			5.5			19.6			20.8	
Approach LOS		A			A			B			C	

Intersection Summary

HCM Average Control Delay	6.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	42.9	Sum of lost time (s)	10.5
Intersection Capacity Utilization	49.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

120: S.R. 11 & S.R. 29 (Mill St.)

2022, No-Build, with Outage
AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1	1>	0	0	1>	0	0	<1>	0	0	<1	1
Volume (vph)	30	795	29	7	310	116	6	1	30	181	3	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-1%			0%			-1%	
Total Lost time (s)	6.0	6.0			6.0			5.2			6.0	6.0
Lane Util. Factor	1.00	1.00			1.00			1.00			1.00	1.00
Frt	1.00	0.99			0.96			0.89			1.00	0.85
Flt Protected	0.95	1.00			1.00			0.99			0.95	1.00
Satd. Flow (prot)	1497	1836			1733			1541			1804	1531
Flt Permitted	0.47	1.00			0.87			0.99			0.95	1.00
Satd. Flow (perm)	734	1836			1505			1541			1804	1531
Peak-hour factor, PHF	0.91	0.86	0.64	0.58	0.90	0.79	0.75	0.25	0.66	0.80	0.38	0.67
Adj. Flow (vph)	33	924	45	12	344	147	8	4	45	226	8	24
RTOR Reduction (vph)	0	2	0	0	19	0	0	44	0	0	0	14
Lane Group Flow (vph)	33	967	0	0	484	0	0	13	0	0	234	10
Heavy Vehicles (%)	20%	2%	7%	14%	7%	2%	33%	0%	6%	1%	0%	6%
Turn Type	Perm			Perm			Split			Split		Perm
Protected Phases		2			6		8	8		4	4	
Permitted Phases	2	2		6								4
Actuated Green, G (s)	43.9	43.9			43.9			2.2			11.2	11.2
Effective Green, g (s)	43.9	43.9			43.9			2.2			11.2	11.2
Actuated g/C Ratio	0.59	0.59			0.59			0.03			0.15	0.15
Clearance Time (s)	6.0	6.0			6.0			5.2			6.0	6.0
Vehicle Extension (s)	3.0	3.0			3.0			3.0			3.0	3.0
Lane Grp Cap (vph)	433	1082			887			46			271	230
v/s Ratio Prot		c0.53						c0.01			c0.13	
v/s Ratio Perm	0.04				0.32							0.01
v/c Ratio	0.08	0.89			0.55			0.29			0.86	0.05
Uniform Delay, d1	6.6	13.3			9.3			35.4			30.9	27.1
Progression Factor	1.00	1.00			1.00			1.00			1.00	1.00
Incremental Delay, d2	0.1	9.6			0.7			3.5			23.6	0.1
Delay (s)	6.7	22.9			10.0			38.9			54.5	27.2
Level of Service	A	C			A			D			D	C
Approach Delay (s)		22.3			10.0			38.9			51.9	
Approach LOS		C			A			D			D	

Intersection Summary

HCM Average Control Delay	23.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	74.5	Sum of lost time (s)	17.2
Intersection Capacity Utilization	70.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

128: S.R. 11 & County Bridge

2022, No-Build, with Outage
AM

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	1>	0	1	1	1	1
Volume (vph)	761	241	69	336	145	68
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	1%			-2%	0%	
Total Lost time (s)	7.0		7.0	7.0	7.0	7.0
Lane Util. Factor	1.00		1.00	1.00	1.00	1.00
Frt	0.96		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	1799		1823	1881	1805	1599
Flt Permitted	1.00		0.06	1.00	0.95	1.00
Satd. Flow (perm)	1799		115	1881	1805	1599
Peak-hour factor, PHF	0.91	0.78	0.61	0.92	0.68	0.86
Adj. Flow (vph)	836	309	113	365	213	79
RTOR Reduction (vph)	13	0	0	0	0	0
Lane Group Flow (vph)	1132	0	113	365	213	79
Heavy Vehicles (%)	1%	2%	0%	2%	0%	1%
Turn Type			pm+pt			pt+ov
Protected Phases	4		3	8	2	2 3
Permitted Phases			8			
Actuated Green, G (s)	60.0		73.2	73.2	12.8	26.0
Effective Green, g (s)	60.0		73.2	73.2	12.8	26.0
Actuated g/C Ratio	0.60		0.73	0.73	0.13	0.26
Clearance Time (s)	7.0		7.0	7.0	7.0	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	1079		190	1377	231	416
v/s Ratio Prot	c0.63		c0.04	0.19	c0.12	0.05
v/s Ratio Perm			0.40			
v/c Ratio	1.05		0.59	0.27	0.92	0.19
Uniform Delay, d1	20.0		24.9	4.5	43.1	28.8
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	41.2		4.9	0.1	38.4	0.2
Delay (s)	61.2		29.8	4.6	81.5	29.0
Level of Service	E		C	A	F	C
Approach Delay (s)	61.2			10.5	67.3	
Approach LOS	E			B	E	
Intersection Summary						
HCM Average Control Delay			49.5		HCM Level of Service	D
HCM Volume to Capacity ratio			0.99			
Actuated Cycle Length (s)			100.0		Sum of lost time (s)	21.0
Intersection Capacity Utilization			77.0%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

7: Market St. & S.R. 11 (Second St.)

2022, No-Build, with Outage
PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	1	1	1	1	0	0	0	0	1	2	1
Volume (vph)	0	236	122	207	133	0	0	0	0	239	773	79
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5	3.0	4.5					5.0	5.0	5.0
Lane Util. Factor		1.00	1.00	1.00	1.00					1.00	0.95	1.00
Frt		1.00	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	1.00	1.00
Satd. Flow (prot)		1900	1599	1787	1900					1805	3539	1583
Flt Permitted		1.00	1.00	0.48	1.00					0.95	1.00	1.00
Satd. Flow (perm)		1900	1599	910	1900					1805	3539	1583
Peak-hour factor, PHF	1.00	0.83	0.85	0.79	0.71	1.00	1.00	1.00	1.00	0.96	0.93	0.73
Adj. Flow (vph)	0	284	144	262	187	0	0	0	0	249	831	108
RTOR Reduction (vph)	0	0	100	0	0	0	0	0	0	0	0	68
Lane Group Flow (vph)	0	284	44	262	187	0	0	0	0	249	831	40
Heavy Vehicles (%)	0%	0%	1%	1%	0%	0%	0%	0%	0%	0%	2%	2%
Turn Type			Perm	pm+pt						Split		Prot
Protected Phases		4		3	8					2	2	2
Permitted Phases			4	8								
Actuated Green, G (s)		16.5	16.5	30.0	28.5					22.0	22.0	22.0
Effective Green, g (s)		16.5	16.5	30.0	28.5					22.0	22.0	22.0
Actuated g/C Ratio		0.28	0.28	0.50	0.48					0.37	0.37	0.37
Clearance Time (s)		4.5	4.5	3.0	4.5					5.0	5.0	5.0
Lane Grp Cap (vph)		523	440	587	903					662	1298	580
v/s Ratio Prot		c0.15		c0.07	0.10					0.14	c0.23	0.03
v/s Ratio Perm			0.03	0.16								
v/c Ratio		0.54	0.10	0.45	0.21					0.38	0.64	0.07
Uniform Delay, d1		18.5	16.2	12.4	9.2					14.0	15.7	12.3
Progression Factor		0.79	0.79	0.17	0.06					0.73	0.77	0.66
Incremental Delay, d2		3.6	0.4	1.9	0.4					1.5	2.2	0.2
Delay (s)		18.2	13.3	3.9	1.0					11.7	14.4	8.4
Level of Service		B	B	A	A					B	B	A
Approach Delay (s)		16.5			2.7			0.0			13.3	
Approach LOS		B			A			A			B	
Intersection Summary												
HCM Average Control Delay			11.7		HCM Level of Service				B			
HCM Volume to Capacity ratio			0.55									
Actuated Cycle Length (s)			60.0		Sum of lost time (s)			9.5				
Intersection Capacity Utilization			85.0%		ICU Level of Service			E				
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

8: S.R. 11 (Front St.) & Market St.

2022, No-Build, with Outage
PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	2>	0	0	0	0	0	1	1	1	1	0
Volume (vph)	0	720	213	0	0	0	0	334	204	106	362	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			-1%			1%	
Total Lost time (s)		5.0						5.0	5.0	3.0	5.0	
Lane Util. Factor		0.95						1.00	1.00	1.00	1.00	
Frt		0.97						1.00	0.85	1.00	1.00	
Flt Protected		1.00						1.00	1.00	0.95	1.00	
Satd. Flow (prot)		3458						1910	1591	1796	1890	
Flt Permitted		1.00						1.00	1.00	0.32	1.00	
Satd. Flow (perm)		3458						1910	1591	598	1890	
Peak-hour factor, PHF	1.00	0.94	0.92	1.00	1.00	1.00	1.00	0.80	0.82	0.71	0.93	1.00
Adj. Flow (vph)	0	766	232	0	0	0	0	418	249	149	389	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	998	0	0	0	0	0	418	249	149	389	0
Heavy Vehicles (%)	0%	1%	0%	0%	0%	0%	0%	0%	2%	0%	0%	0%
Turn Type									Perm	D.P+P		
Protected Phases		1						3		2	4	
Permitted Phases									3	3		
Actuated Green, G (s)		24.0						19.0	19.0	23.0	26.0	
Effective Green, g (s)		24.0						19.0	19.0	23.0	26.0	
Actuated g/C Ratio		0.40						0.32	0.32	0.38	0.43	
Clearance Time (s)		5.0						5.0	5.0	3.0	5.0	
Lane Grp Cap (vph)		1383						605	504	309	819	
v/s Ratio Prot		c0.29						c0.22		0.03	c0.21	
v/s Ratio Perm									0.16	0.15		
v/c Ratio		0.72						0.69	0.49	0.48	0.47	
Uniform Delay, d1		15.2						17.9	16.6	13.0	12.1	
Progression Factor		0.71						1.00	1.00	0.51	0.54	
Incremental Delay, d2		3.0						6.4	3.4	4.8	1.8	
Delay (s)		13.7						24.3	20.0	11.4	8.3	
Level of Service		B						C	C	B	A	
Approach Delay (s)		13.7			0.0			22.7			9.2	
Approach LOS		B			A			C			A	
Intersection Summary												
HCM Average Control Delay			15.3		HCM Level of Service					B		
HCM Volume to Capacity ratio			0.72									
Actuated Cycle Length (s)			60.0		Sum of lost time (s)					15.0		
Intersection Capacity Utilization			85.0%		ICU Level of Service					E		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

32: S.R. 239 & S.R. 11 (S. Main St.)

2022, No-Build, with Outage
PM

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	1>	0	1	1	1	1
Volume (vph)	21	133	373	66	121	240
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%		0%			-1%
Total Lost time (s)	5.2		5.4	5.4	5.4	5.4
Lane Util. Factor	1.00		1.00	1.00	1.00	1.00
Frt	0.89		1.00	0.85	1.00	1.00
Flt Protected	0.99		1.00	1.00	0.95	1.00
Satd. Flow (prot)	1545		1863	1615	1814	1801
Flt Permitted	0.99		1.00	1.00	0.37	1.00
Satd. Flow (perm)	1545		1863	1615	701	1801
Peak-hour factor, PHF	0.56	0.85	0.90	0.79	0.76	0.92
Adj. Flow (vph)	38	156	414	84	159	261
RTOR Reduction (vph)	137	0	0	46	0	0
Lane Group Flow (vph)	57	0	414	38	159	261
Heavy Vehicles (%)	15%	7%	2%	0%	0%	6%
Turn Type				Perm	pm+pt	
Protected Phases	4		6		5	2
Permitted Phases				6	2	
Actuated Green, G (s)	5.8		21.0	21.0	30.6	30.6
Effective Green, g (s)	5.8		21.0	21.0	30.6	30.6
Actuated g/C Ratio	0.12		0.45	0.45	0.65	0.65
Clearance Time (s)	5.2		5.4	5.4	5.4	5.4
Vehicle Extension (s)	5.0		5.0	5.0	3.0	5.0
Lane Grp Cap (vph)	191		832	722	556	1173
v/s Ratio Prot	c0.04		c0.22		0.03	c0.14
v/s Ratio Perm				0.02	0.16	
v/c Ratio	0.30		0.50	0.05	0.29	0.22
Uniform Delay, d1	18.8		9.2	7.4	3.9	3.3
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	1.8		1.0	0.1	0.3	0.2
Delay (s)	20.6		10.2	7.4	4.2	3.5
Level of Service	C		B	A	A	A
Approach Delay (s)	20.6		9.8			3.8
Approach LOS	C		A			A
Intersection Summary						
HCM Average Control Delay			9.4		HCM Level of Service	A
HCM Volume to Capacity ratio			0.44			
Actuated Cycle Length (s)			47.0		Sum of lost time (s)	16.0
Intersection Capacity Utilization			49.0%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

37: S.R. 239 (Union St.) & S.R. 11 (Main St.)

2022, No-Build, with Outage
PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	<1>	0	0	<1>	0	1	1>	0	0	<1>	0
Volume (vph)	51	24	116	28	29	6	232	253	27	3	258	184
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			0%			1%			1%	
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	
Frt		0.91			0.98		1.00	0.98			0.94	
Flt Protected		0.99			0.98		0.95	1.00			1.00	
Satd. Flow (prot)		1528			1636		1600	1659			1580	
Flt Permitted		0.91			0.73		0.29	1.00			1.00	
Satd. Flow (perm)		1408			1220		494	1659			1576	
Peak-hour factor, PHF	0.94	0.52	0.63	0.75	0.54	0.50	0.85	0.94	0.81	0.75	0.92	0.78
Adj. Flow (vph)	54	46	184	37	54	12	273	269	33	4	280	236
RTOR Reduction (vph)	0	111	0	0	8	0	0	8	0	0	56	0
Lane Group Flow (vph)	0	173	0	0	95	0	273	294	0	0	464	0
Heavy Vehicles (%)	0%	4%	0%	3%	0%	0%	1%	1%	0%	0%	2%	0%
Turn Type	Perm			Perm			pm+pt			Perm		
Protected Phases		4			8		1	6			2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)		10.0			10.0		30.4	30.4			19.2	
Effective Green, g (s)		10.0			10.0		30.4	30.4			19.2	
Actuated g/C Ratio		0.20			0.20		0.60	0.60			0.38	
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)		279			242		434	1001			600	
v/s Ratio Prot							c0.08	0.18				
v/s Ratio Perm		c0.12			0.08		0.30				c0.29	
v/c Ratio		0.62			0.39		0.63	0.29			0.77	
Uniform Delay, d1		18.5			17.6		7.2	4.8			13.7	
Progression Factor		1.00			1.00		1.00	1.00			1.00	
Incremental Delay, d2		4.3			1.1		2.8	0.2			6.1	
Delay (s)		22.7			18.6		10.0	5.0			19.8	
Level of Service		C			B		B	A			B	
Approach Delay (s)		22.7			18.6			7.4			19.8	
Approach LOS		C			B			A			B	

Intersection Summary

HCM Average Control Delay	15.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	50.4	Sum of lost time (s)	15.0
Intersection Capacity Utilization	70.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

44: S.R. 11 & Poplar St.

2022, No-Build, with Outage
PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1	1>	0	1	1>	0	0	<1	1	0	<1>	0
Volume (vph)	18	738	32	50	908	6	134	46	88	28	43	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		3.0	5.0			4.0	4.0		4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00		1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00		1.00	
Frt	1.00	0.99		1.00	1.00			1.00	0.85		0.96	
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00		0.99	
Satd. Flow (prot)	1805	1832		1703	1859			1826	1599		1792	
Flt Permitted	0.12	1.00		0.95	1.00			0.68	1.00		0.74	
Satd. Flow (perm)	232	1832		1703	1859			1283	1599		1343	
Peak-hour factor, PHF	0.61	0.86	0.81	0.75	0.83	0.38	0.69	0.66	0.83	0.81	0.89	0.61
Adj. Flow (vph)	30	858	40	67	1094	16	194	70	106	35	48	39
RTOR Reduction (vph)	0	2	0	0	0	0	0	0	0	0	19	0
Lane Group Flow (vph)	30	896	0	67	1110	0	0	264	106	0	103	0
Confl. Peds. (#/hr)							3					
Heavy Vehicles (%)	0%	3%	3%	6%	2%	0%	0%	0%	1%	0%	0%	0%
Turn Type	Perm			Prot			Perm		Perm	Perm		
Protected Phases		2		1	6			8			4	
Permitted Phases	2						8		8	4		
Actuated Green, G (s)	43.0	43.0		15.0	61.0			20.0	20.0		20.0	
Effective Green, g (s)	43.0	43.0		15.0	61.0			20.0	20.0		20.0	
Actuated g/C Ratio	0.48	0.48		0.17	0.68			0.22	0.22		0.22	
Clearance Time (s)	5.0	5.0		3.0	5.0			4.0	4.0		4.0	
Lane Grp Cap (vph)	111	875		284	1260			285	355		298	
v/s Ratio Prot		c0.49		0.04	c0.60							
v/s Ratio Perm	0.13							c0.21	0.07		0.08	
v/c Ratio	0.27	1.02		0.24	0.88			0.93	0.30		0.35	
Uniform Delay, d1	14.1	23.5		32.5	11.6			34.3	29.2		29.5	
Progression Factor	1.00	1.00		0.73	1.28			1.00	1.00		1.00	
Incremental Delay, d2	5.9	36.6		0.9	4.4			37.3	2.1		3.2	
Delay (s)	20.0	60.1		24.7	19.2			71.6	31.3		32.7	
Level of Service	B	E		C	B			E	C		C	
Approach Delay (s)		58.8			19.6			60.1			32.7	
Approach LOS		E			B			E			C	
Intersection Summary												
HCM Average Control Delay			40.0			HCM Level of Service				D		
HCM Volume to Capacity ratio			1.00									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)			14.0			
Intersection Capacity Utilization			84.9%			ICU Level of Service			E			
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

48: S.R. 11 & S.R. 93 (Orange St.)

2022, No-Build, with Outage
PM

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	0	1	1	0	1	0
Volume (vph)	0	835	990	0	177	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		-1%	0%		0%	
Total Lost time (s)		4.0	4.0		4.0	
Lane Util. Factor		1.00	1.00		1.00	
Frt		1.00	1.00		1.00	
Flt Protected		1.00	1.00		0.95	
Satd. Flow (prot)		1872	1863		1789	
Flt Permitted		1.00	1.00		0.95	
Satd. Flow (perm)		1872	1863		1789	
Peak-hour factor, PHF	1.00	0.87	0.91	0.93	0.83	0.25
Adj. Flow (vph)	0	960	1088	0	213	4
RTOR Reduction (vph)	0	0	0	0	1	0
Lane Group Flow (vph)	0	960	1088	0	216	0
Heavy Vehicles (%)	0%	2%	2%	2%	1%	0%
Turn Type						
Protected Phases		2	6		8	
Permitted Phases						
Actuated Green, G (s)		67.0	67.0		15.0	
Effective Green, g (s)		67.0	67.0		15.0	
Actuated g/C Ratio		0.74	0.74		0.17	
Clearance Time (s)		4.0	4.0		4.0	
Lane Grp Cap (vph)		1394	1387		298	
v/s Ratio Prot		0.51	c0.58		c0.12	
v/s Ratio Perm						
v/c Ratio		0.69	0.78		0.73	
Uniform Delay, d1		6.0	7.1		35.5	
Progression Factor		0.41	0.69		1.00	
Incremental Delay, d2		2.3	3.9		14.3	
Delay (s)		4.7	8.8		49.8	
Level of Service		A	A		D	
Approach Delay (s)		4.7	8.8		49.8	
Approach LOS		A	A		D	
Intersection Summary						
HCM Average Control Delay			11.0		HCM Level of Service	B
HCM Volume to Capacity ratio			0.77			
Actuated Cycle Length (s)			90.0		Sum of lost time (s)	8.0
Intersection Capacity Utilization			68.6%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

51: S.R. 11 (Second St.) & LaSalle St.

2022, No-Build, with Outage
PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	NWL	NWR
Lane Configurations	1	0	0	1	2>	0	0	1	0	0
Volume (vph)	82	0	0	18	1136	35	0	154	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0	4.0			4.0		
Lane Util. Factor	1.00			1.00	0.95			1.00		
Frt	1.00			1.00	0.99			0.86		
Flt Protected	0.95			0.95	1.00			1.00		
Satd. Flow (prot)	1805			1805	3555			1627		
Flt Permitted	0.95			0.95	1.00			1.00		
Satd. Flow (perm)	1805			1805	3555			1627		
Peak-hour factor, PHF	0.88	0.90	1.00	0.61	0.96	0.73	1.00	0.67	0.92	0.92
Adj. Flow (vph)	93	0	0	30	1183	48	0	230	0	0
RTOR Reduction (vph)	0	0	0	11	3	0	0	58	0	0
Lane Group Flow (vph)	93	0	0	19	1228	0	0	172	0	0
Heavy Vehicles (%)	0%	2%	0%	0%	1%	0%	0%	1%	2%	2%
Turn Type	Prot			custom				custom		
Protected Phases	8			1	1			8		
Permitted Phases				1				8		
Actuated Green, G (s)	27.0			55.0	55.0			27.0		
Effective Green, g (s)	27.0			55.0	55.0			27.0		
Actuated g/C Ratio	0.30			0.61	0.61			0.30		
Clearance Time (s)	4.0			4.0	4.0			4.0		
Lane Grp Cap (vph)	542			1103	2173			488		
v/s Ratio Prot	0.05			0.01	c0.35			c0.11		
v/s Ratio Perm										
v/c Ratio	0.17			0.02	0.57			0.35		
Uniform Delay, d1	23.2			6.9	10.4			24.7		
Progression Factor	0.84			1.00	1.00			1.00		
Incremental Delay, d2	0.5			0.0	1.1			2.0		
Delay (s)	20.1			6.9	11.5			26.6		
Level of Service	C			A	B			C		
Approach Delay (s)		20.1			11.4		26.6		0.0	
Approach LOS		C			B		C		A	
Intersection Summary										
HCM Average Control Delay			14.1		HCM Level of Service				B	
HCM Volume to Capacity ratio			0.50							
Actuated Cycle Length (s)			90.0		Sum of lost time (s)				8.0	
Intersection Capacity Utilization			48.7%		ICU Level of Service				A	
Analysis Period (min)			15							
c Critical Lane Group										

HCM Signalized Intersection Capacity Analysis

67: S.R. 11 (Second St.) & Pine St.

2022, No-Build, with Outage
PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	0	0	0	2>	0	1	1	0	0	0	1
Volume (vph)	0	0	0	0	988	44	54	133	0	0	0	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)	0%					0%		1%		1%		
Total Lost time (s)					4.0		4.0		4.0		4.0	
Lane Util. Factor					0.95		1.00		1.00		1.00	
Frt					0.99		1.00		1.00		0.86	
Flt Protected					1.00		0.95		1.00		1.00	
Satd. Flow (prot)					3545		1796		1890		1635	
Flt Permitted					1.00		0.95		1.00		1.00	
Satd. Flow (perm)					3545		1796		1890		1635	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	0.90	0.64	0.78	0.74	1.00	1.00	1.00	0.71
Adj. Flow (vph)	0	0	0	0	1098	69	69	180	0	0	0	56
RTOR Reduction (vph)	0	0	0	0	6	0	56	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	1161	0	13	180	0	0	0	56
Heavy Vehicles (%)	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Turn Type							Perm			custom		
Protected Phases					1		2					
Permitted Phases							2					
Actuated Green, G (s)					40.9		11.1		11.1		11.1	
Effective Green, g (s)					40.9		11.1		11.1		11.1	
Actuated g/C Ratio					0.68		0.18		0.18		0.18	
Clearance Time (s)					4.0		4.0		4.0		4.0	
Vehicle Extension (s)					3.0		3.0		3.0		3.0	
Lane Grp Cap (vph)					2417		332		350		302	
v/s Ratio Prot					c0.33		c0.10					
v/s Ratio Perm							0.01		0.03			
v/c Ratio					0.48		0.04		0.51		0.19	
Uniform Delay, d1					4.5		20.1		22.0		20.6	
Progression Factor					0.97		1.00		1.00		1.00	
Incremental Delay, d2					0.7		0.0		1.3		0.3	
Delay (s)					5.1		20.1		23.3		20.9	
Level of Service					A		C		C		C	
Approach Delay (s)	0.0					5.1		22.4		20.9		
Approach LOS	A					A		C		C		
Intersection Summary												
HCM Average Control Delay			8.6		HCM Level of Service				A			
HCM Volume to Capacity ratio			0.49									
Actuated Cycle Length (s)			60.0		Sum of lost time (s)				8.0			
Intersection Capacity Utilization			45.4%		ICU Level of Service				A			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

68: S.R. 11 & Orchard St.

2022, No-Build, with Outage
PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1	1	0	1	1	0	0	<1>	0	0	<1>	0
Volume (vph)	14	751	1	4	870	1	28	25	27	31	7	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	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	
Frt	1.00	1.00		1.00	1.00			0.94			0.94	
Flt Protected	0.95	1.00		0.95	1.00			0.98			0.98	
Satd. Flow (prot)	1687	1862		1805	1862			1763			1751	
Flt Permitted	0.08	1.00		0.27	1.00			0.98			0.98	
Satd. Flow (perm)	147	1862		511	1862			1763			1751	
Peak-hour factor, PHF	0.81	0.96	0.25	1.00	0.77	0.25	0.59	0.64	0.42	0.72	0.44	0.66
Adj. Flow (vph)	17	782	4	4	1130	4	47	39	64	43	16	47
RTOR Reduction (vph)	0	0	0	0	0	0	0	30	0	0	32	0
Lane Group Flow (vph)	17	786	0	4	1134	0	0	120	0	0	74	0
Heavy Vehicles (%)	7%	2%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm			Perm			Split			Split		
Protected Phases	2			6			3			4		
Permitted Phases	2			6								
Actuated Green, G (s)	62.0	62.0		62.0	62.0			7.0			6.0	
Effective Green, g (s)	62.0	62.0		62.0	62.0			7.0			6.0	
Actuated g/C Ratio	0.69	0.69		0.69	0.69			0.08			0.07	
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Lane Grp Cap (vph)	101	1283		352	1283			137			117	
v/s Ratio Prot		0.42			c0.61			c0.07			c0.04	
v/s Ratio Perm	0.12			0.01								
v/c Ratio	0.17	0.61		0.01	0.88			0.88			0.63	
Uniform Delay, d1	4.9	7.5		4.4	11.1			41.1			40.9	
Progression Factor	0.04	0.04		1.34	0.84			1.00			1.00	
Incremental Delay, d2	1.3	0.8		0.0	6.1			49.9			23.4	
Delay (s)	1.5	1.1		5.9	15.5			91.0			64.3	
Level of Service	A	A		A	B			F			E	
Approach Delay (s)		1.1			15.4			91.0			64.3	
Approach LOS		A			B			F			E	
Intersection Summary												
HCM Average Control Delay			17.7			HCM Level of Service			B			
HCM Volume to Capacity ratio			0.86									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)			15.0			
Intersection Capacity Utilization			60.0%			ICU Level of Service			B			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

71: S.R. 11 (Second St.) & Oak St.

2022, No-Build, with Outage
PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	0	0	0	<2>	0	0	<1	0	0	1>	0
Volume (vph)	0	0	0	44	1041	15	15	50	0	0	42	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)	0%				-1%				1%			
Total Lost time (s)					6.0				5.0			
Lane Util. Factor					0.95				1.00			
Frt					1.00				1.00			
Flt Protected					1.00				0.99			
Satd. Flow (prot)					3574				1741			
Flt Permitted					1.00				0.85			
Satd. Flow (perm)					3574				1507			
Peak-hour factor, PHF	1.00	1.00	1.00	0.68	0.91	0.88	0.44	0.64	1.00	1.00	0.70	0.87
Adj. Flow (vph)	0	0	0	65	1144	17	34	78	0	0	60	64
RTOR Reduction (vph)	0	0	0	0	1	0	0	0	0	0	54	0
Lane Group Flow (vph)	0	0	0	0	1225	0	0	112	0	0	70	0
Heavy Vehicles (%)	0%	0%	0%	0%	1%	7%	0%	10%	0%	0%	5%	0%
Turn Type				Perm				Perm				
Protected Phases				1				2				
Permitted Phases				1				2				
Actuated Green, G (s)				35.3				8.1				
Effective Green, g (s)				35.3				8.1				
Actuated g/C Ratio				0.65				0.15				
Clearance Time (s)				6.0				5.0				
Vehicle Extension (s)				3.0				3.0				
Lane Grp Cap (vph)				2319				224				
v/s Ratio Prot								0.04				
v/s Ratio Perm				0.34				c0.07				
v/c Ratio				0.53				0.50				
Uniform Delay, d1				5.1				21.3				
Progression Factor				1.00				1.00				
Incremental Delay, d2				0.2				1.8				
Delay (s)				5.3				23.0				
Level of Service				A				C				
Approach Delay (s)	0.0			5.3				23.0				
Approach LOS	A			A				C				
Intersection Summary												
HCM Average Control Delay			8.0		HCM Level of Service				A			
HCM Volume to Capacity ratio			0.52									
Actuated Cycle Length (s)			54.4		Sum of lost time (s)				11.0			
Intersection Capacity Utilization			49.8%		ICU Level of Service				A			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

74: Third St. & S.R. 1025 (Market St.)

2022, No-Build, with Outage
PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	<1>	0	0	<1>	0	1	1>	0	1	1>	0
Volume (vph)	97	98	64	32	118	17	13	207	17	20	282	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			0%			0%			0%	
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.96			0.98		1.00	0.99		1.00	0.96	
Flt Protected		0.98			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1779			1850		1805	1877		1805	1819	
Flt Permitted		0.83			0.90		0.41	1.00		0.57	1.00	
Satd. Flow (perm)		1497			1689		788	1877		1079	1819	
Peak-hour factor, PHF	0.89	0.83	0.78	0.83	0.87	0.67	0.50	0.88	0.80	0.53	0.91	0.74
Adj. Flow (vph)	109	118	82	39	136	25	26	235	21	38	310	96
RTOR Reduction (vph)	0	22	0	0	9	0	0	6	0	0	19	0
Lane Group Flow (vph)	0	287	0	0	191	0	26	251	0	38	387	0
Heavy Vehicles (%)	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			1			1	
Permitted Phases	2			2	2		1			1	1	
Actuated Green, G (s)		25.0			25.0		27.0	27.0		27.0	27.0	
Effective Green, g (s)		25.0			25.0		27.0	27.0		27.0	27.0	
Actuated g/C Ratio		0.42			0.42		0.45	0.45		0.45	0.45	
Clearance Time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)		624			704		355	845		486	819	
v/s Ratio Prot								0.13			c0.21	
v/s Ratio Perm		c0.19			0.11		0.03			0.04		
v/c Ratio		0.46			0.27		0.07	0.30		0.08	0.47	
Uniform Delay, d1		12.6			11.5		9.4	10.5		9.4	11.5	
Progression Factor		1.00			1.00		0.99	0.88		1.00	1.00	
Incremental Delay, d2		2.4			1.0		0.4	0.9		0.3	2.0	
Delay (s)		15.1			12.5		9.7	10.1		9.7	13.5	
Level of Service		B			B		A	B		A	B	
Approach Delay (s)		15.1			12.5			10.0			13.2	
Approach LOS		B			B			B			B	
Intersection Summary												
HCM Average Control Delay			12.8			HCM Level of Service				B		
HCM Volume to Capacity ratio			0.47									
Actuated Cycle Length (s)			60.0			Sum of lost time (s)				8.0		
Intersection Capacity Utilization			52.1%			ICU Level of Service				A		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

77: S.R. 11 (Second St.) & Mulberry St.

2022, No-Build, with Outage
PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	0	0	0	<2>	0	0	<1	0	0	1>	0
Volume (vph)	0	0	0	47	1071	53	29	74	0	0	26	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)	1%				0%				1%			
Total Lost time (s)					4.0				4.0			
Lane Util. Factor					0.95				1.00			
Frt					0.99				1.00			
Flt Protected					1.00				0.98			
Satd. Flow (prot)					3543				1854			
Flt Permitted					1.00				0.85			
Satd. Flow (perm)					3543				1604			
Peak-hour factor, PHF	1.00	1.00	1.00	0.63	0.87	0.82	0.56	0.94	1.00	1.00	0.86	0.75
Adj. Flow (vph)	0	0	0	75	1231	65	52	79	0	0	30	79
RTOR Reduction (vph)	0	0	0	0	6	0	0	0	0	0	62	0
Lane Group Flow (vph)	0	0	0	0	1365	0	0	131	0	0	47	0
Heavy Vehicles (%)	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	4%	0%
Turn Type				Split				Perm				
Protected Phases				1		1		2			2	
Permitted Phases							2					
Actuated Green, G (s)							39.0			13.0		
Effective Green, g (s)							39.0			13.0		
Actuated g/C Ratio							0.65			0.22		
Clearance Time (s)							4.0			4.0		
Lane Grp Cap (vph)							2303			348		
v/s Ratio Prot							c0.39			0.03		
v/s Ratio Perm										c0.08		
v/c Ratio							0.59			0.38		
Uniform Delay, d1							6.0			20.0		
Progression Factor							0.34			0.94		
Incremental Delay, d2							1.0			2.9		
Delay (s)							3.1			21.7		
Level of Service							A			C		
Approach Delay (s)	0.0						3.1			21.7		
Approach LOS	A						A			C		
Intersection Summary												
HCM Average Control Delay			5.7		HCM Level of Service				A			
HCM Volume to Capacity ratio			0.54									
Actuated Cycle Length (s)			60.0		Sum of lost time (s)				8.0			
Intersection Capacity Utilization			51.5%		ICU Level of Service				A			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

78: S.R. 11 (Front St.) & Mulberry St.

2022, No-Build, with Outage
PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	<2>	0	0	0	0	0	1>	0	0	<1	0
Volume (vph)	87	831	37	0	0	0	0	19	13	50	15	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-1%			1%			-1%	
Total Lost time (s)		4.0						4.0			4.0	
Lane Util. Factor		0.95						1.00			1.00	
Frt		0.99						0.94			1.00	
Flt Protected		1.00						1.00			0.96	
Satd. Flow (prot)		3521						1780			1810	
Flt Permitted		1.00						1.00			0.76	
Satd. Flow (perm)		3521						1780			1424	
Peak-hour factor, PHF	0.95	0.87	0.71	1.00	1.00	1.00	1.00	0.56	0.50	0.68	0.70	1.00
Adj. Flow (vph)	92	955	52	0	0	0	0	34	26	74	21	0
RTOR Reduction (vph)	0	6	0	0	0	0	0	20	0	0	0	0
Lane Group Flow (vph)	0	1093	0	0	0	0	0	40	0	0	95	0
Heavy Vehicles (%)	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	7%	0%
Turn Type	Split					Perm						
Protected Phases	1	1						2			2	
Permitted Phases										2		
Actuated Green, G (s)		38.0						14.0			14.0	
Effective Green, g (s)		38.0						14.0			14.0	
Actuated g/C Ratio		0.63						0.23			0.23	
Clearance Time (s)		4.0						4.0			4.0	
Lane Grp Cap (vph)		2230						415			332	
v/s Ratio Prot		c0.31						0.02				
v/s Ratio Perm											c0.07	
v/c Ratio		0.49						0.10			0.29	
Uniform Delay, d1		5.8						18.0			18.9	
Progression Factor		1.00						1.00			0.78	
Incremental Delay, d2		0.8						0.5			1.9	
Delay (s)		6.6						18.5			16.7	
Level of Service		A						B			B	
Approach Delay (s)		6.6			0.0			18.5			16.7	
Approach LOS		A			A			B			B	
Intersection Summary												
HCM Average Control Delay			8.0		HCM Level of Service					A		
HCM Volume to Capacity ratio			0.44									
Actuated Cycle Length (s)			60.0		Sum of lost time (s)					8.0		
Intersection Capacity Utilization			43.6%		ICU Level of Service					A		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

85: S.R. 11 & S.R. 2028

2022, No-Build, with Outage
PM

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	1	1	1	1	1	1
Volume (vph)	644	102	223	758	81	239
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	3.6	6.0	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1845	1599	1752	1845	1787	1583
Flt Permitted	1.00	1.00	0.14	1.00	0.95	1.00
Satd. Flow (perm)	1845	1599	259	1845	1787	1583
Peak-hour factor, PHF	0.90	0.78	0.93	0.76	0.77	0.90
Adj. Flow (vph)	716	131	240	997	105	266
RTOR Reduction (vph)	0	74	0	0	0	0
Lane Group Flow (vph)	716	57	240	997	105	266
Heavy Vehicles (%)	3%	1%	3%	3%	1%	2%
Turn Type	Perm		pm+pt		Prot	
Protected Phases	4		3	8	2	2
Permitted Phases		4	8			
Actuated Green, G (s)	24.9	24.9	34.0	34.0	12.5	12.5
Effective Green, g (s)	24.9	24.9	34.0	34.0	12.5	12.5
Actuated g/C Ratio	0.44	0.44	0.60	0.60	0.22	0.22
Clearance Time (s)	6.0	6.0	3.6	6.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	806	699	299	1101	392	347
v/s Ratio Prot	0.39		0.08	c0.54	0.06	c0.17
v/s Ratio Perm		0.04	0.40			
v/c Ratio	0.89	0.08	0.80	0.91	0.27	0.77
Uniform Delay, d1	14.8	9.4	9.9	10.1	18.5	20.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	11.7	0.1	14.3	10.5	0.4	9.7
Delay (s)	26.4	9.4	24.2	20.6	18.8	30.6
Level of Service	C	A	C	C	B	C
Approach Delay (s)	23.8			21.3	27.3	
Approach LOS	C			C	C	
Intersection Summary						
HCM Average Control Delay			23.1		HCM Level of Service	C
HCM Volume to Capacity ratio			0.87			
Actuated Cycle Length (s)			57.0		Sum of lost time (s)	10.5
Intersection Capacity Utilization			63.0%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

103: S.R. 93 (Third St.) & S.R. 339 (Broad St.)

2022, No-Build, with Outage
PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	<1	0	0	<1>	0	0	<1>	0	0	<1>	0
Volume (vph)	5	389	137	31	333	2	112	16	47	8	9	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			-1%			0%			0%	
Total Lost time (s)		6.5			6.5			6.0			6.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.97			1.00			0.97			0.98	
Flt Protected		1.00			1.00			0.97			0.98	
Satd. Flow (prot)		1835			1856			1780			1812	
Flt Permitted		0.99			0.92			0.80			0.81	
Satd. Flow (perm)		1818			1715			1457			1510	
Peak-hour factor, PHF	0.42	0.87	0.91	0.83	0.89	0.50	0.89	0.40	0.94	0.40	0.56	0.50
Adj. Flow (vph)	12	447	151	37	374	4	126	40	50	20	16	8
RTOR Reduction (vph)	0	21	0	0	0	0	0	20	0	0	6	0
Lane Group Flow (vph)	0	589	0	0	415	0	0	196	0	0	38	0
Heavy Vehicles (%)	0%	0%	0%	0%	2%	50%	0%	0%	2%	0%	0%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)		31.5			31.5			10.2			10.2	
Effective Green, g (s)		31.5			31.5			10.2			10.2	
Actuated g/C Ratio		0.58			0.58			0.19			0.19	
Clearance Time (s)		6.5			6.5			6.0			6.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		1057			997			274			284	
v/s Ratio Prot												
v/s Ratio Perm		c0.32			0.24			c0.13			0.02	
v/c Ratio		0.56			0.42			0.71			0.13	
Uniform Delay, d1		7.0			6.3			20.6			18.3	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		2.1			1.3			8.5			0.2	
Delay (s)		9.2			7.5			29.2			18.5	
Level of Service		A			A			C			B	
Approach Delay (s)		9.2			7.5			29.2			18.5	
Approach LOS		A			A			C			B	
Intersection Summary												
HCM Average Control Delay			12.3			HCM Level of Service			B			
HCM Volume to Capacity ratio			0.60									
Actuated Cycle Length (s)			54.2			Sum of lost time (s)			12.5			
Intersection Capacity Utilization			65.0%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

106: S.R. 93 (Third St.) & Dewey St.

2022, No-Build, with Outage
PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	<1>	0	0	<1>	0	0	<1>	0	0	<1>	0
Volume (vph)	11	401	5	2	353	2	8	1	3	3	2	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			0%			0%			0%	
Total Lost time (s)		5.0			5.0			5.0			5.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		1.00			1.00			0.97			0.93	
Flt Protected		1.00			1.00			0.97			0.99	
Satd. Flow (prot)		1866			1859			1795			1750	
Flt Permitted		0.99			0.99			1.00			1.00	
Satd. Flow (perm)		1850			1847			1849			1772	
Peak-hour factor, PHF	0.92	0.88	0.62	0.25	0.90	0.50	0.67	0.25	0.75	0.38	0.25	0.69
Adj. Flow (vph)	12	456	8	8	392	4	12	4	4	8	8	16
RTOR Reduction (vph)	0	0	0	0	0	0	0	4	0	0	16	0
Lane Group Flow (vph)	0	476	0	0	404	0	0	16	0	0	16	0
Heavy Vehicles (%)	0%	1%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)		39.0			39.0			1.5			1.5	
Effective Green, g (s)		39.0			39.0			1.5			1.5	
Actuated g/C Ratio		0.77			0.77			0.03			0.03	
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)		1429			1426			55			53	
v/s Ratio Prot												
v/s Ratio Perm		c0.26			0.22			0.01			c0.01	
v/c Ratio		0.33			0.28			0.29			0.31	
Uniform Delay, d1		1.8			1.7			24.0			24.0	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.6			0.5			3.0			3.3	
Delay (s)		2.4			2.2			26.9			27.3	
Level of Service		A			A			C			C	
Approach Delay (s)		2.4			2.2			26.9			27.3	
Approach LOS		A			A			C			C	
Intersection Summary												
HCM Average Control Delay			3.7			HCM Level of Service			A			
HCM Volume to Capacity ratio			0.33									
Actuated Cycle Length (s)			50.5			Sum of lost time (s)			10.0			
Intersection Capacity Utilization			42.4%			ICU Level of Service			A			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

112: S.R. 11 & Briar Creek Plaza Driveways

2022, No-Build, with Outage
PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1	1>	0	1	1	1	1	1>	0	1	1	1
Volume (vph)	89	578	26	21	716	215	54	9	23	200	4	135
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	16	16
Grade (%)		1%			-1%			1%			2%	
Total Lost time (s)	3.5	5.3		5.3	5.3	5.3	5.2	5.2		5.2	5.2	5.2
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Fr't	1.00	0.99		1.00	1.00	0.85	1.00	0.90		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1796	1807		1814	1872	1623	1796	1696		1787	2132	1812
Flt Permitted	0.09	1.00		0.39	1.00	1.00	0.75	1.00		0.72	1.00	1.00
Satd. Flow (perm)	169	1807		746	1872	1623	1422	1696		1361	2132	1812
Peak-hour factor, PHF	0.71	0.96	0.75	0.71	0.77	0.95	0.69	0.56	0.66	0.80	0.50	0.69
Adj. Flow (vph)	125	602	35	30	930	226	78	16	35	250	8	196
RTOR Reduction (vph)	0	3	0	0	0	70	0	27	0	0	0	153
Lane Group Flow (vph)	125	634	0	30	930	156	78	24	0	250	8	43
Heavy Vehicles (%)	0%	4%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt			Perm		Perm	Perm			Perm		Perm
Protected Phases	5	2			6			4			8	
Permitted Phases	2			6		6	4			8		8
Actuated Green, G (s)	47.3	47.3		41.2	41.2	41.2	16.1	16.1		16.1	16.1	16.1
Effective Green, g (s)	47.3	47.3		41.2	41.2	41.2	16.1	16.1		16.1	16.1	16.1
Actuated g/C Ratio	0.64	0.64		0.56	0.56	0.56	0.22	0.22		0.22	0.22	0.22
Clearance Time (s)	3.5	5.3		5.3	5.3	5.3	5.2	5.2		5.2	5.2	5.2
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	165	1157		416	1044	905	310	369		297	464	395
v/s Ratio Prot	c0.03	0.35			c0.50			0.01			0.00	
v/s Ratio Perm	0.46			0.04		0.10	0.05			c0.18		0.02
v/c Ratio	0.76	0.55		0.07	0.89	0.17	0.25	0.06		0.84	0.02	0.11
Uniform Delay, d1	14.3	7.4		7.5	14.4	8.0	23.9	22.9		27.7	22.7	23.1
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	17.9	0.5		0.1	9.7	0.1	0.4	0.1		18.9	0.0	0.1
Delay (s)	32.2	7.9		7.6	24.1	8.1	24.3	23.0		46.6	22.7	23.3
Level of Service	C	A		A	C	A	C	C		D	C	C
Approach Delay (s)		11.9			20.6			23.8			36.1	
Approach LOS		B			C			C			D	

Intersection Summary

HCM Average Control Delay	20.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	73.9	Sum of lost time (s)	14.0
Intersection Capacity Utilization	75.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

120: S.R. 11 & S.R. 29 (Mill St.)

2022, No-Build, with Outage
PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1	1>	0	0	1>	0	0	<1>	0	0	<1	1
Volume (vph)	29	411	11	8	784	242	11	1	8	151	4	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-1%			0%			-1%	
Total Lost time (s)	6.0	6.0			6.0			5.2			6.0	6.0
Lane Util. Factor	1.00	1.00			1.00			1.00			1.00	1.00
Frt	1.00	1.00			0.97			0.94			1.00	0.85
Flt Protected	0.95	1.00			1.00			0.98			0.95	1.00
Satd. Flow (prot)	1796	1846			1813			1747			1772	1399
Flt Permitted	0.24	1.00			0.99			0.98			0.95	1.00
Satd. Flow (perm)	457	1846			1799			1747			1772	1399
Peak-hour factor, PHF	0.64	0.87	0.69	0.50	0.92	0.91	0.69	0.25	0.50	0.90	0.50	0.60
Adj. Flow (vph)	45	472	16	16	852	266	16	4	16	168	8	20
RTOR Reduction (vph)	0	1	0	0	12	0	0	16	0	0	0	13
Lane Group Flow (vph)	45	487	0	0	1122	0	0	20	0	0	176	7
Heavy Vehicles (%)	0%	2%	0%	12%	2%	1%	0%	0%	0%	3%	0%	16%
Turn Type	Perm			Perm			Split			Split		Perm
Protected Phases		2			6		8	8		4	4	
Permitted Phases	2	2		6								4
Actuated Green, G (s)	57.6	57.6			57.6			2.2			9.1	9.1
Effective Green, g (s)	57.6	57.6			57.6			2.2			9.1	9.1
Actuated g/C Ratio	0.67	0.67			0.67			0.03			0.11	0.11
Clearance Time (s)	6.0	6.0			6.0			5.2			6.0	6.0
Vehicle Extension (s)	3.0	3.0			3.0			3.0			3.0	3.0
Lane Grp Cap (vph)	306	1235			1204			45			187	148
v/s Ratio Prot		0.26						c0.01			c0.10	
v/s Ratio Perm	0.10				c0.62							0.00
v/c Ratio	0.15	0.39			0.93			0.45			0.94	0.04
Uniform Delay, d1	5.2	6.4			12.5			41.4			38.2	34.6
Progression Factor	1.00	1.00			1.00			1.00			1.00	1.00
Incremental Delay, d2	0.2	0.2			12.8			7.1			48.9	0.1
Delay (s)	5.5	6.6			25.3			48.5			87.1	34.7
Level of Service	A	A			C			D			F	C
Approach Delay (s)		6.5			25.3			48.5			81.8	
Approach LOS		A			C			D			F	

Intersection Summary

HCM Average Control Delay	26.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	86.1	Sum of lost time (s)	17.2
Intersection Capacity Utilization	86.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

128: S.R. 11 & County Bridge

2022, No-Build, with Outage
PM

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	1>	0	1	1	1	1
Volume (vph)	433	216	125	728	226	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	1%			-2%	0%	
Total Lost time (s)	7.0		7.0	7.0	7.0	7.0
Lane Util. Factor	1.00		1.00	1.00	1.00	1.00
Frt	0.95		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	1783		1823	1900	1805	1615
Flt Permitted	1.00		0.12	1.00	0.95	1.00
Satd. Flow (perm)	1783		223	1900	1805	1615
Peak-hour factor, PHF	0.97	0.79	0.90	0.89	0.83	0.82
Adj. Flow (vph)	446	273	139	818	272	84
RTOR Reduction (vph)	32	0	0	0	0	0
Lane Group Flow (vph)	687	0	139	818	272	84
Heavy Vehicles (%)	1%	0%	0%	1%	0%	0%
Turn Type			pm+pt		pt+ov	
Protected Phases	4		3	8	2	2 3
Permitted Phases			8			
Actuated Green, G (s)	27.4		39.6	39.6	12.5	24.7
Effective Green, g (s)	27.4		39.6	39.6	12.5	24.7
Actuated g/C Ratio	0.41		0.60	0.60	0.19	0.37
Clearance Time (s)	7.0		7.0	7.0	7.0	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	739		259	1138	341	603
v/s Ratio Prot	c0.39		0.04	c0.43	c0.15	0.05
v/s Ratio Perm			0.28			
v/c Ratio	0.93		0.54	0.72	0.80	0.14
Uniform Delay, d1	18.4		11.7	9.3	25.6	13.7
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	18.2		2.1	2.2	12.2	0.1
Delay (s)	36.7		13.8	11.5	37.8	13.8
Level of Service	D		B	B	D	B
Approach Delay (s)	36.7			11.9	32.1	
Approach LOS	D			B	C	
Intersection Summary						
HCM Average Control Delay			24.2		HCM Level of Service	C
HCM Volume to Capacity ratio			0.94			
Actuated Cycle Length (s)			66.1		Sum of lost time (s)	21.0
Intersection Capacity Utilization			72.9%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						

Appendix H Traffic Assignment

APPENDIX H – TRAFFIC ASSIGNMENT

The traffic expected to arrive/depart on site is assigned to the study area intersections based on the spatial location of the trip origins/destinations. The region surrounding the site is divided into 8 directional sectors relative to the site: (North, North East, East, South East, South, South West, West and North West). For each of these directions, potential routes are identified and traffic is then assigned to the study area intersections based on their locations along these potential routes. The following section defines these routes and the resulting assignment.

Site Location and Access Routes

Based on the site location the major access routes to the site from different directions would be the following:

Table H-1 Direction and Potential Routes

<i>From</i>	<i>Path 1</i>	<i>Path 2</i>	<i>Comments</i>
North (N), North-West (NW)	Route 239, Route 11		
North-East (NE)	Route 11	Route 29, Route 11	Path 2 is twice as likely as Path 1
East (E)	I-80, Route 93, Route 11	I-81, Route 29, Route 11	Each of the 2 paths is equally likely
South-East (SE), South (S), South-West (SW)	I-80, Route 93, Route 11	I-80, Route 11	Path 2 is twice as likely as Path 1
West (W)	I-80, Route 11		

These routes are shown in Figure H-1. Using these routes traffic from each direction (relative to the new site at Bell Bend) is assigned as follows:

North and North West

The traffic related to this direction is assigned through the following intersections

- SR 11 and SR 239 (Union Street)
 - Traffic heading to the site will make a *right* from EB RT 239 onto SB SR 11
 - Traffic coming from the site will make a *left* from NB SR 11 onto WB RT 239
- SR 11 (S Main Street) and SR 239
 - Traffic heading to the site will continue *through* along SB SR 11
 - Traffic coming from the site will continue *through* along NB SR 11
- SR 11 and SSES Entrance
 - Traffic heading to the site will continue *through* along SB SR 11
 - Traffic coming from the site will continue *through* along NB SR 11
- SR 11 and Bell Bend Entrance
 - Traffic heading to the site will make a *right* from SB SR 11
 - Traffic coming from the site will make a *left* onto NB SR 11

North East

This direction related traffic is assigned through the following intersections:

Approximately two-thirds of the traffic related to this direction is assigned through the following intersections assuming they took Cross Valley Expressway (SR 29) to SR 11:

- SR 11 (E Poplar Avenue) and SR 29
 - Traffic heading to the site will make a *left* along SR 29
 - Traffic heading from the site will make a *right* along SR 29

The remaining traffic related to this direction is assigned through the following intersections assuming they took SR 11:

- SR 11 (E Poplar Avenue) and SR 29
 - Traffic heading to the site will continue *through* along SR 11
 - Traffic leaving the site will continue *through* along SR 11

All the traffic related to this direction is assigned through the following intersections:

- SR 11 and SR 29 (Mill Street)
 - Traffic heading to the site will continue *through* along SB SR 11
 - Traffic coming from the site will continue *through* along NB SR 11
- SR 11 and SR 239 (Union Street)
 - Traffic heading to the site will continue *through* along SB SR 11
 - Traffic coming from the site will continue *through* along NB SR 11
- SR 11 (S Main Street) and SR 239
 - Traffic heading to the site will continue *through* along SB SR 11
 - Traffic coming from the site will continue *through* along NB SR 11
- SR 11 and SSES Entrance
 - Traffic heading to the site will continue *through* along SB SR 11
 - Traffic coming from the site will continue *through* along NB SR 11
- SR 11 and Bell Bend Entrance
 - Traffic heading to the site will make a *right* from SB SR 11
 - Traffic coming from the site will make a *left* onto NB SR 11

East

Half (50%) of the traffic related to this direction is assigned through the following intersections assuming they took I-81 to RT 29 to SR 11

- SR 11 (E Poplar Avenue) and SR 29
 - Traffic heading to the site will make a *left* along SR 29
 - Traffic heading from the site will make a *right* along SR 29
- SR 11 and SR 29 (Mill Street)
 - Traffic heading to the site will continue *through* along SB SR 11
 - Traffic coming from the site will continue *through* along NB SR 11

- SR 11 and SR 239 (Union Street)
 - Traffic heading to the site will continue *through* along SB SR 11
 - Traffic coming from the site will continue *through* along NB SR 11
- SR 11 (S Main Street) and SR 239
 - Traffic heading to the site will continue *through* along SB SR 11
 - Traffic coming from the site will continue *through* along NB SR 11
- SR 11 and SSES Entrance
 - Traffic heading to the site will continue *through* along SB SR 11
 - Traffic coming from the site will continue *through* along NB SR 11
- SR 11 and Bell Bend Entrance
 - Traffic heading to the site will make a *right* from SB SR 11
 - Traffic coming from the site will make a *left* onto NB SR 11

The other half is of the traffic related to this direction is assigned to through the following intersections assuming they took I-80 to RT 93 onto SR 11:

- SR 11 (2nd Street, Front Street) and RT 93 (Market Street)
 - Traffic heading to the site will make a *right* from RT 93 onto SR 11 going NB
 - Traffic coming from the site will make a *left* from SR 11 SB onto RT 93
- SR 11 and Bell Bend Entrance
 - Traffic heading to the site will make a *left* from NB SR 11
 - Traffic coming from the site will make a *right* onto SB SR 11

South-East

Two-third (66%) of the traffic related to this direction is assigned to through the following intersections assuming they took I-80 onto SR 11:

- SR 11 and SR 2028
 - Traffic heading to the site will continue *through* along NB SR 11
 - Traffic coming from the site will continue *through* along SB SR 11
- SR 11 and Briar Creek Plaza
 - Traffic heading to the site will continue *through* along NB SR 11
 - Traffic coming from the site will continue *through* along SB SR 11
- SR 11 and Eaton Street
 - Traffic heading to the site will continue *through* along NB SR 11
 - Traffic coming from the site will continue *through* along SB SR 11
- SR 11 and Poplar Street
 - Traffic heading to the site will continue *through* along NB SR 11
 - Traffic coming from the site will continue *through* along SB SR 11
- SR 11 and Orchard Street
 - Traffic heading to the site will continue *through* along NB SR 11
 - Traffic coming from the site will continue *through* along SB SR 11
- SR 11 (Front Street) and RT 93 (Orange Street)
 - Traffic heading to the site will continue *through* along NB SR 11
 - Traffic coming from the site will continue *through* along SB SR 11

- SR 11 (2nd Street) and LaSalle Street
 - Traffic coming from the site will continue *through* along SB SR 11
- SR 11 (2nd Street, Front Street) and Mulberry Street
 - Traffic heading to the site will continue *through* along NB SR 11
 - Traffic coming from the site will continue *through* along SB SR 11
- SR 11 (2nd Street, Front Street) and RT 93 (Market Street)
 - Traffic heading to the site will continue *through* along NB SR 11
 - Traffic coming from the site will continue *through* along SB SR 11
- SR 11 (2nd Street) and Oak Street
 - Traffic coming from the site will continue *through* along SB SR 11
- SR 11 and Bell Bend Entrance
 - Traffic heading to the site will make a *left* from NB SR 11
 - Traffic coming from the site will make a *right* onto SB SR 11

The remaining one-third of the traffic related to this direction is assigned to through the following intersections assuming they took I-80 to Route 93 onto SR 11:

- SR 93 (3rd Street) and Dewey Street
 - Traffic heading to the site will continue *through* along NB SR 93
 - Traffic coming from the site will continue *through* along SB SR 93
- SR 93 (3rd Street) and SR 339 (Broad Street)
 - Traffic heading to the site will continue *through* along NB SR 93
 - Traffic coming from the site will continue *through* along SB SR 93
- SR 11 (2nd Street, Front Street) and RT 93 (Market Street)
 - Traffic heading to the site will make a *right* turn from RT 93 onto SR 11 going NB
 - Traffic coming from the site will make a *left* turn from SR 11 SB onto RT 93
- SR 11 and Bell Bend Entrance
 - Traffic heading to the site will make a *left* from NB SR 11
 - Traffic coming from the site will make a *right* onto SB SR 11

South

All traffic related to this direction is assumed to use Route 93 onto SR 11 through these intersections:

- SR 93 (3rd Street) and Dewey Street
 - Traffic heading to the site will continue *through* along NB SR 93
 - Traffic coming from the site will continue *through* along SB SR 93
- SR 93 (3rd Street) and SR 339 (Broad Street)
 - Traffic heading to the site will continue *through* along NB SR 93
 - Traffic coming from the site will continue *through* along SB SR 93
- SR 11 (2nd Street, Front Street) and RT 93 (Market Street)
 - Traffic heading to the site will make a *right* turn from RT 93 onto SR 11 going NB
 - Traffic coming from the site will make a *left* turn from SR 11 SB onto RT 93

- SR 11 and Bell Bend Entrance
 - Traffic heading to the site will make a *left* from NB SR 11
 - Traffic coming from the site will make a *right* onto SB SR 11

South-West & West

All traffic related to this direction is assumed to use I80 onto SR 11 through these intersections:

- SR 11 and SR 2028
 - Traffic heading to the site will continue *through* along NB SR 11
 - Traffic coming from the site will continue *through* along SB SR 11
- SR 11 and Briar Creek Plaza
 - Traffic heading to the site will continue *through* along NB SR 11
 - Traffic coming from the site will continue *through* along SB SR 11
- SR 11 and Eaton Street
 - Traffic heading to the site will continue *through* along NB SR 11
 - Traffic coming from the site will continue *through* along SB SR 11
- SR 11 and Poplar Street
 - Traffic heading to the site will continue *through* along NB SR 11
 - Traffic coming from the site will continue *through* along SB SR 11
- SR 11 and Orchard Street
 - Traffic heading to the site will continue *through* along NB SR 11
 - Traffic coming from the site will continue *through* along SB SR 11
- SR 11 (Front Street) and RT 93 (Orange Street)
 - Traffic heading to the site will continue *through* along NB SR 11
 - Traffic coming from the site will continue *through* along SB SR 11
- SR 11 (2nd Street) and LaSalle Street
 - Traffic coming from the site will continue *through* along SB SR 11
- SR 11 (2nd Street, Front Street) and Mulberry Street
 - Traffic heading to the site will continue *through* along NB SR 11
 - Traffic coming from the site will continue *through* along SB SR 11
- SR 11 (2nd Street, Front Street) and RT 93 (Market Street)
 - Traffic heading to the site will continue *through* along NB SR 11
 - Traffic coming from the site will continue *through* along SB SR 11
- SR 11 (2nd Street) and Oak Street
 - Traffic coming from the site will continue *through* along SB SR 11
- SR 11 and Bell Bend Entrance
 - Traffic heading to the site will make a *left* from NB SR 11
 - Traffic coming from the site will make a *right* onto SB SR 11

Using these as a guide, the traffic from each direction is individually assigned to each intersection and the sum total of all directions by intersection is summarized in the next section.

Spatial Distribution of the Construction Work Force

The construction workforce is estimated to be drawn from the major population centers around the site. Using the census data within 40 miles as a starting point, the spatial distribution of the population into 8 directions was identified as shown in Table H-2.

Table H-2 Spatial Distribution of Census Block Population

Direction	2000 Census Block Population *	Distribution (%)
N	38,458	3.8
NW	19,451	1.9
W	117,235	11.5
SW	87,884	8.6
S	121,621	11.9
SE	158,518	15.5
E	96,586	9.8
NE	380,169	37.3

It appears from Table H-2 that most of the traffic will come from the North East (NE) and South East (SE) directions. These correspond to the Wilkes-Barre/Scranton region and Hazleton areas respectively. Using Table H-2 and the available routes, the construction and heavy vehicle traffic leaving the site and arriving on site, is assigned as shown in Figure H-2.

Spatial Distribution of the Operations/Outage Work Force

Using the employee zip codes the spatial distribution of the workers on site is shown in Table H-3. As shown in Table H-3, most of the current operations workforce is drawn from the west (Berwick). Using this distribution and the available routes, the operations traffic leaving the site is assigned as shown in Figure H-3. The same distribution is applied for the outage workforce.

Table H-3: Spatial Distribution of Current Employment on Site

Direction	No. of Workers	Distribution (%)
N	77	6.19
NW	60	4.83
W	582	46.82
SW	134	10.78
S	31	2.49
SE	105	8.45
E	119	9.57
NE	135	10.86

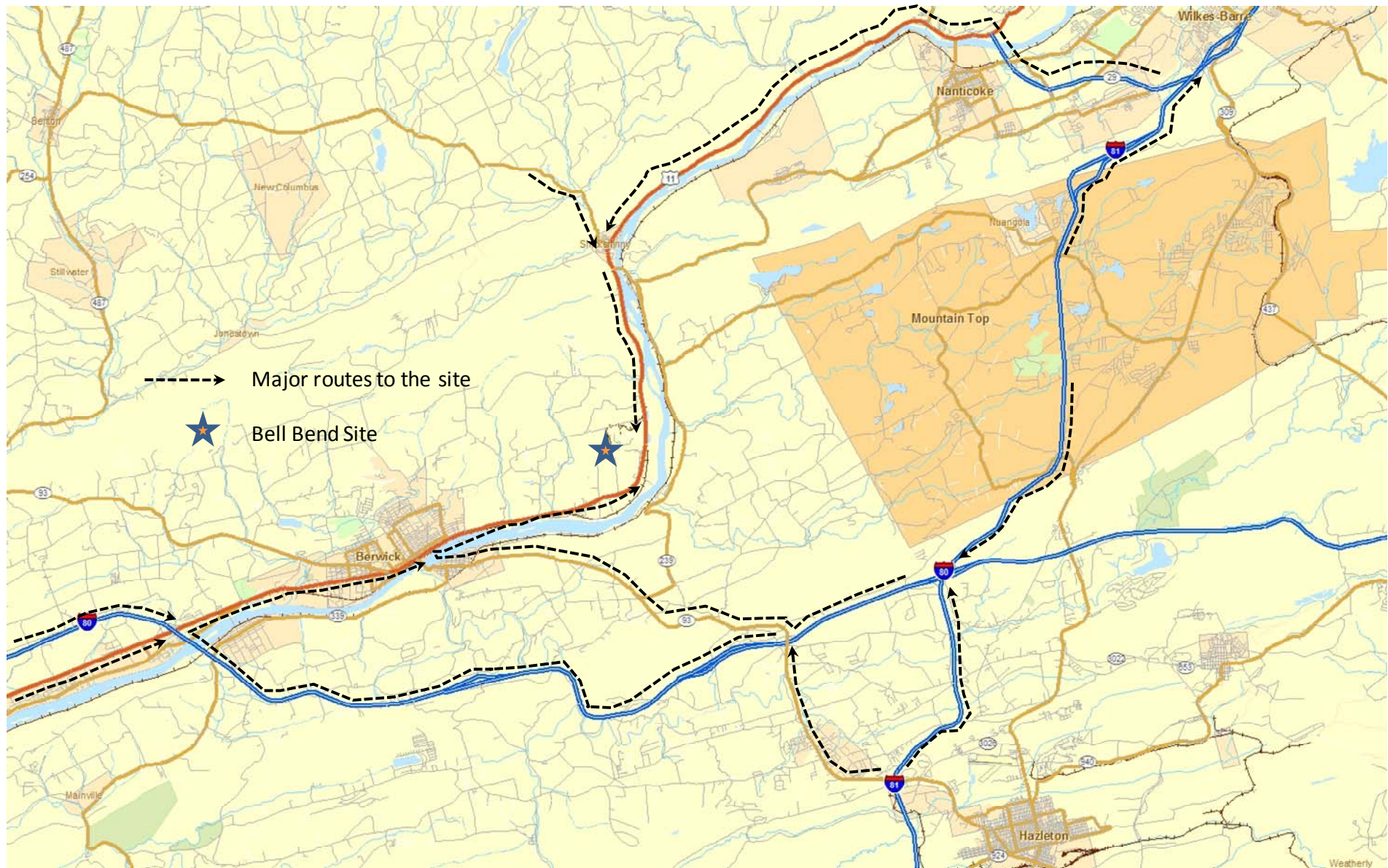


Figure H-1 – Site Location and Access Routes

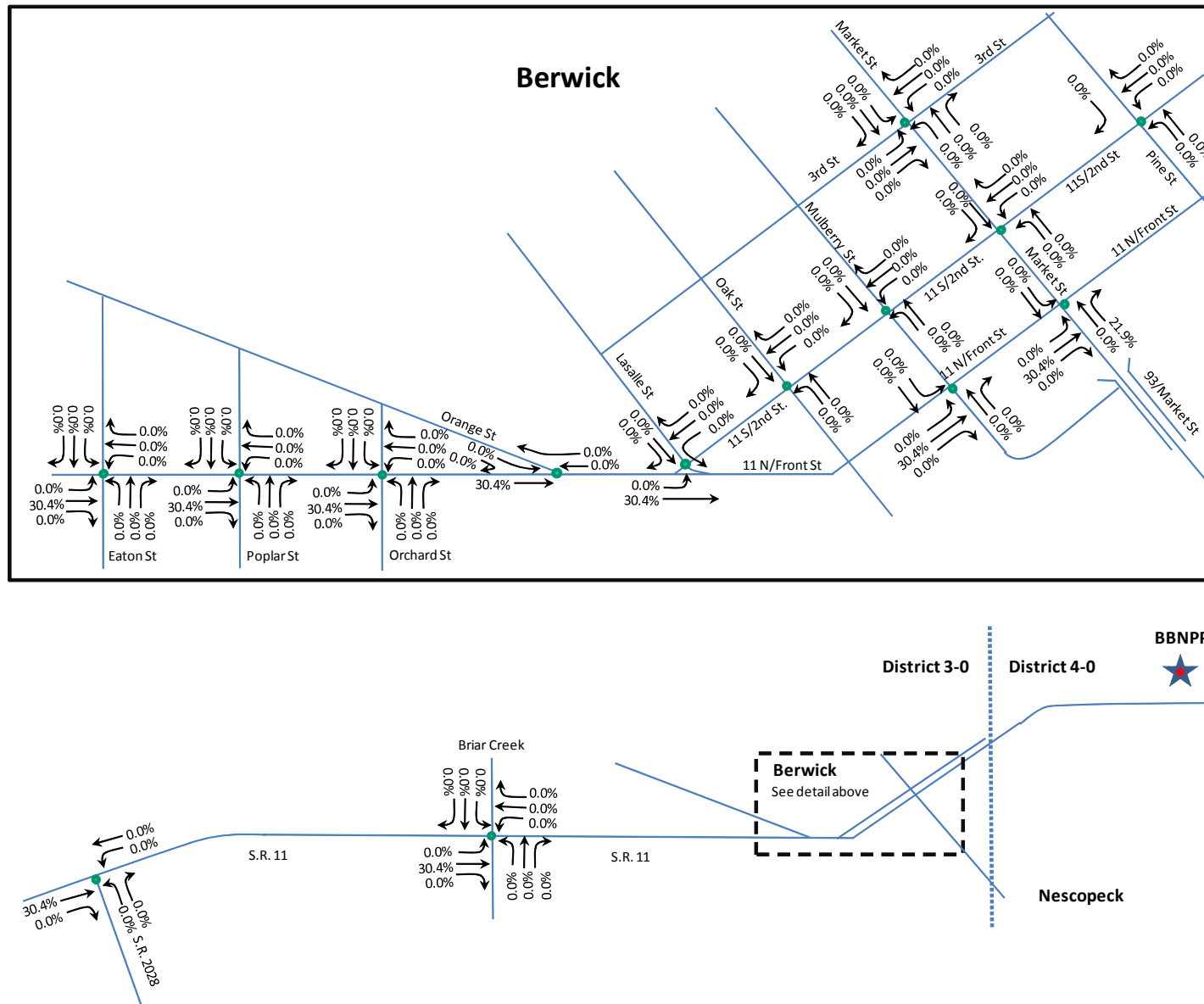
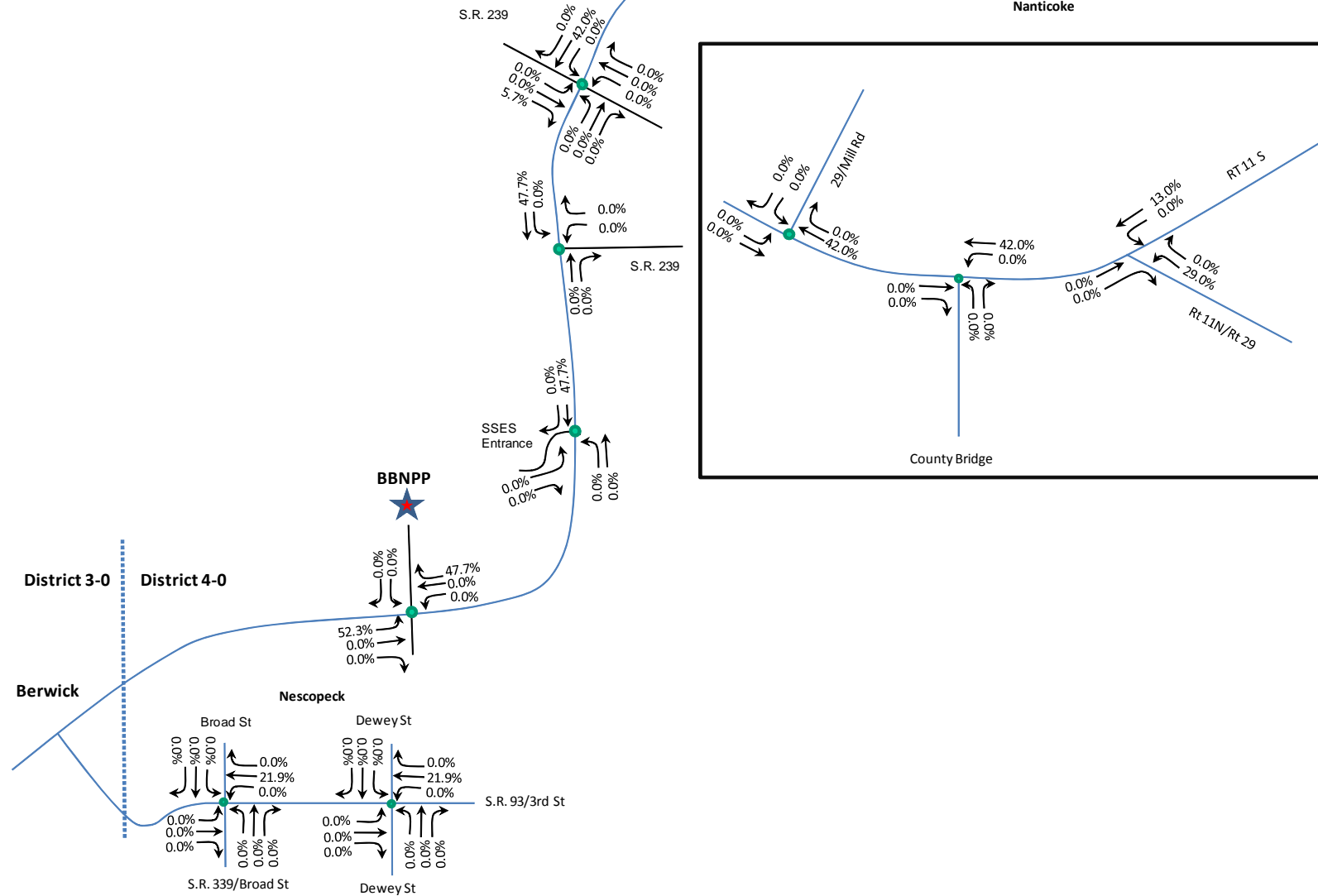


Figure H-2 Construction Traffic Assignment Arriving to Site (%)



KLD Engineering, P.C.
Bell Bend TIS

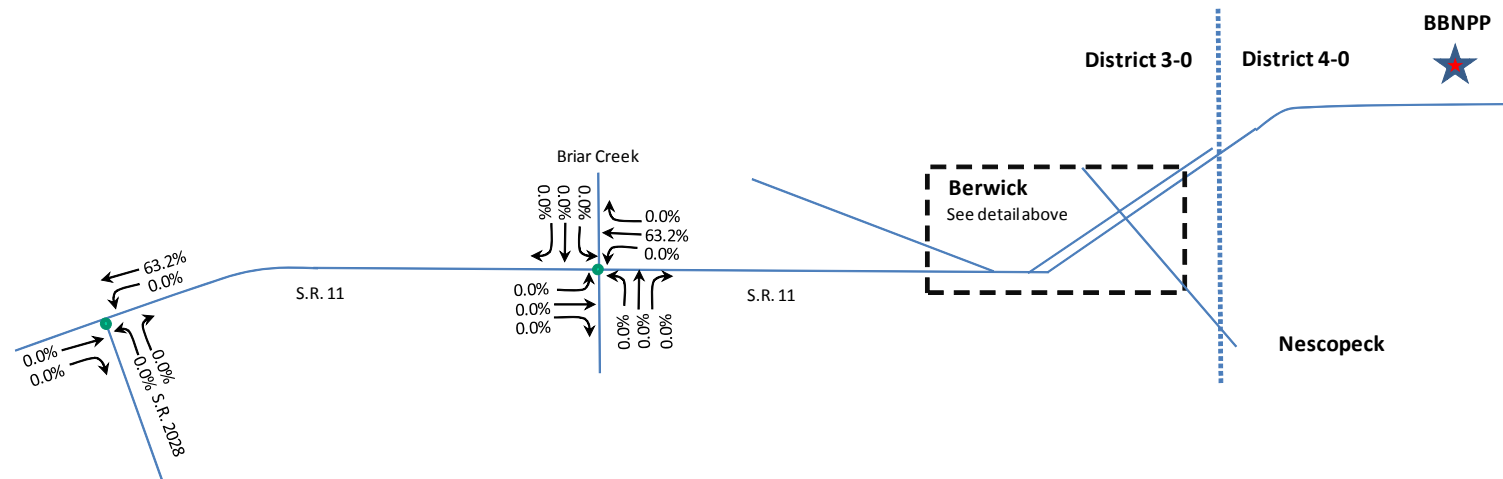
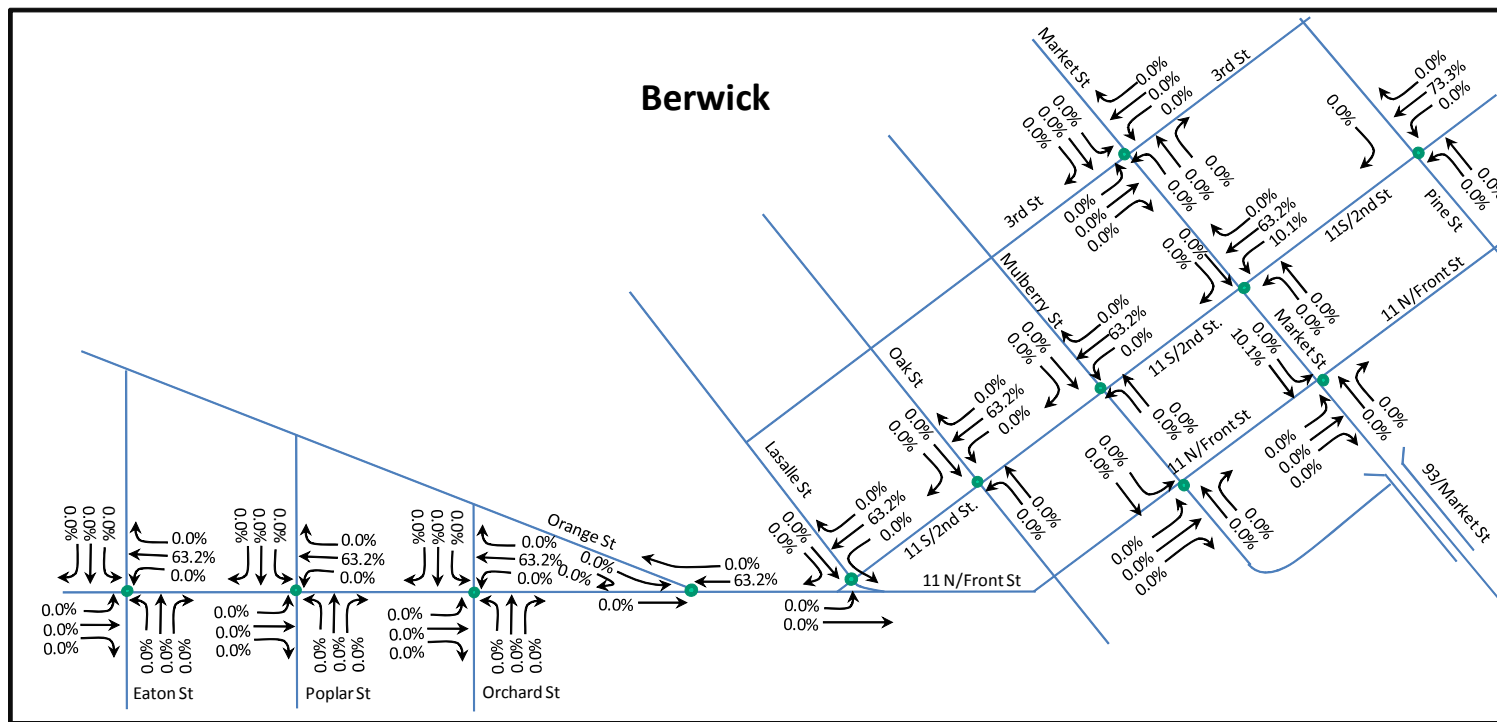


Figure H-3 Operations Traffic Assignment Arriving to Site (%)

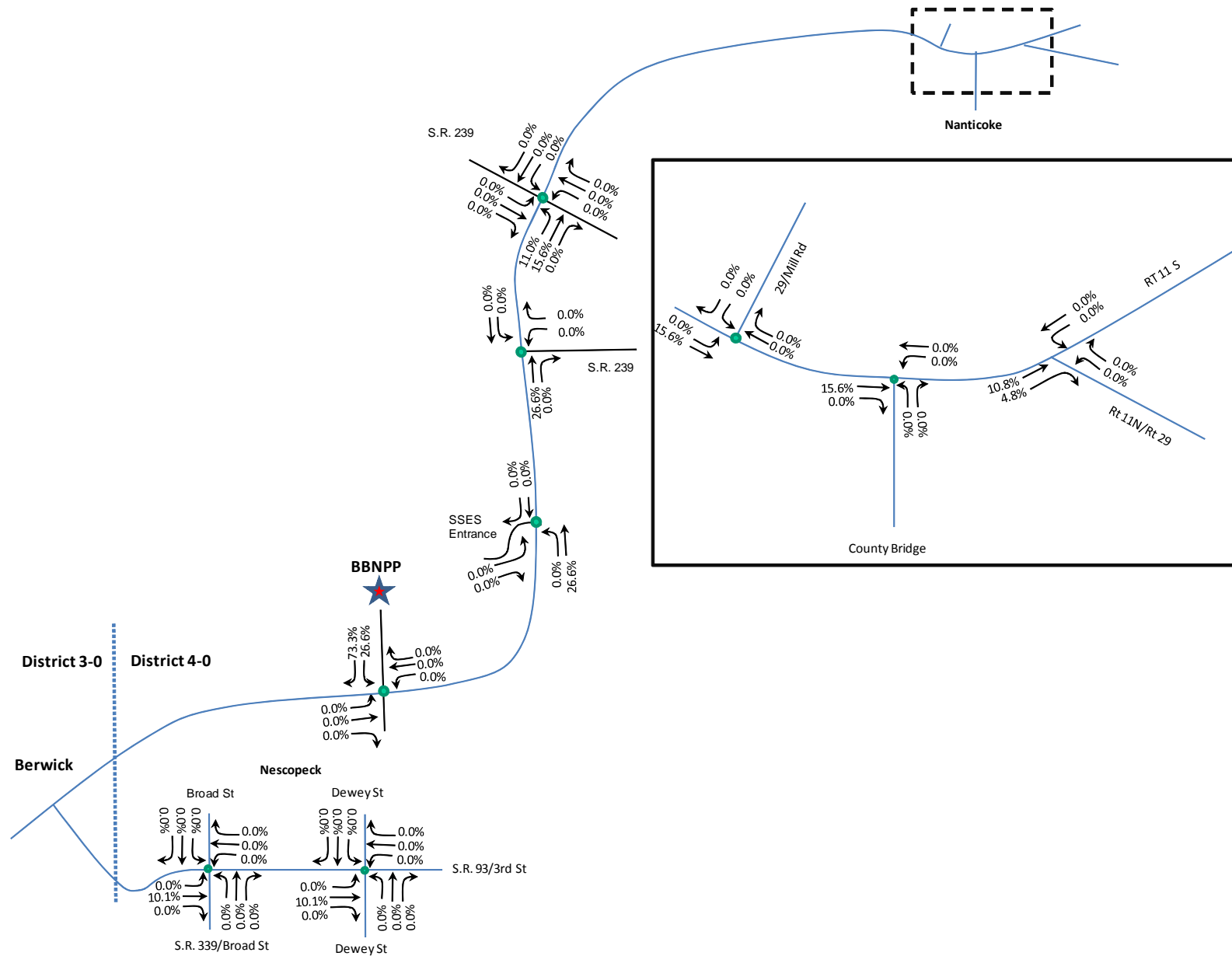


Figure H-3 Operations Traffic Assignment Arriving to Site (%)

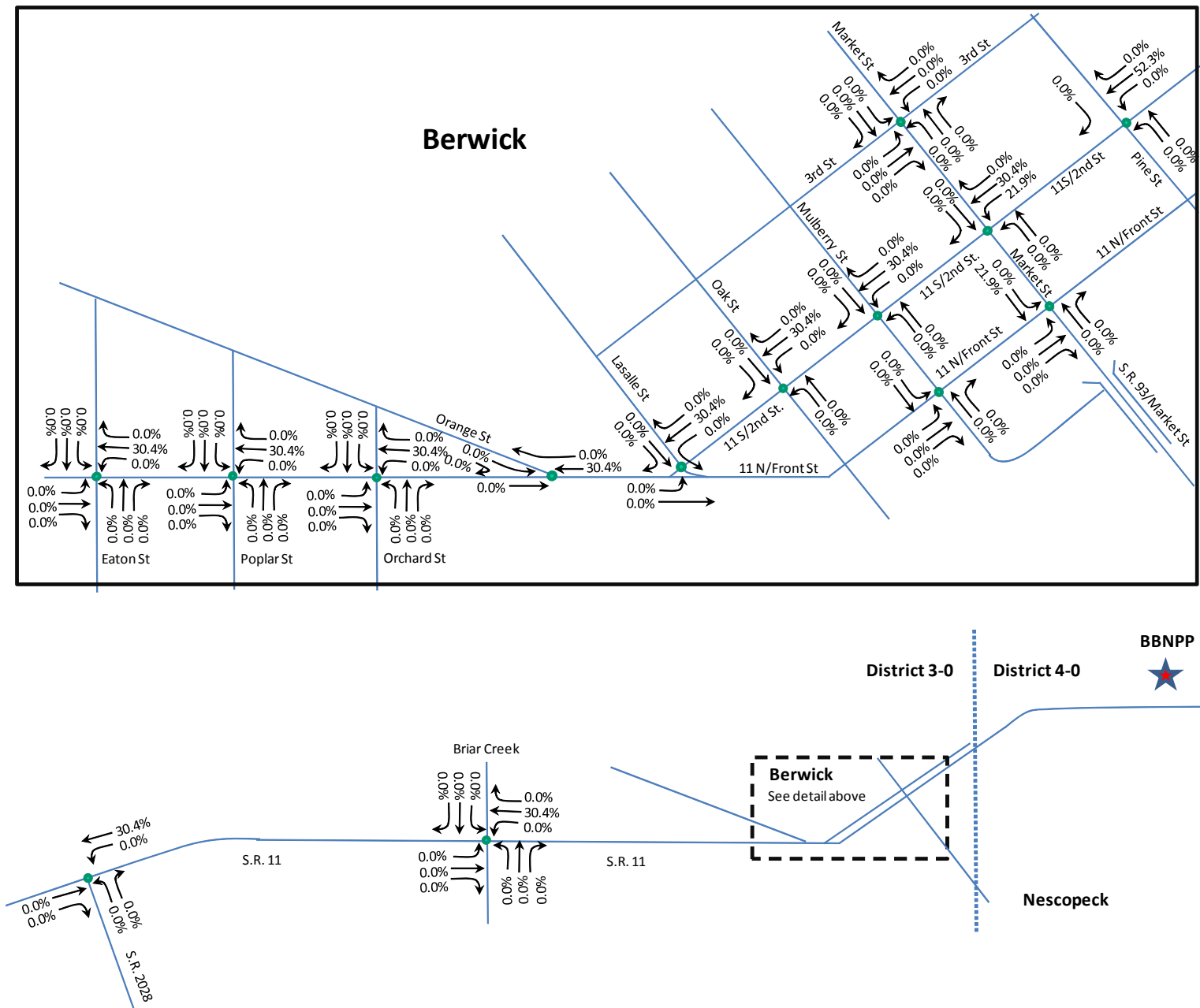
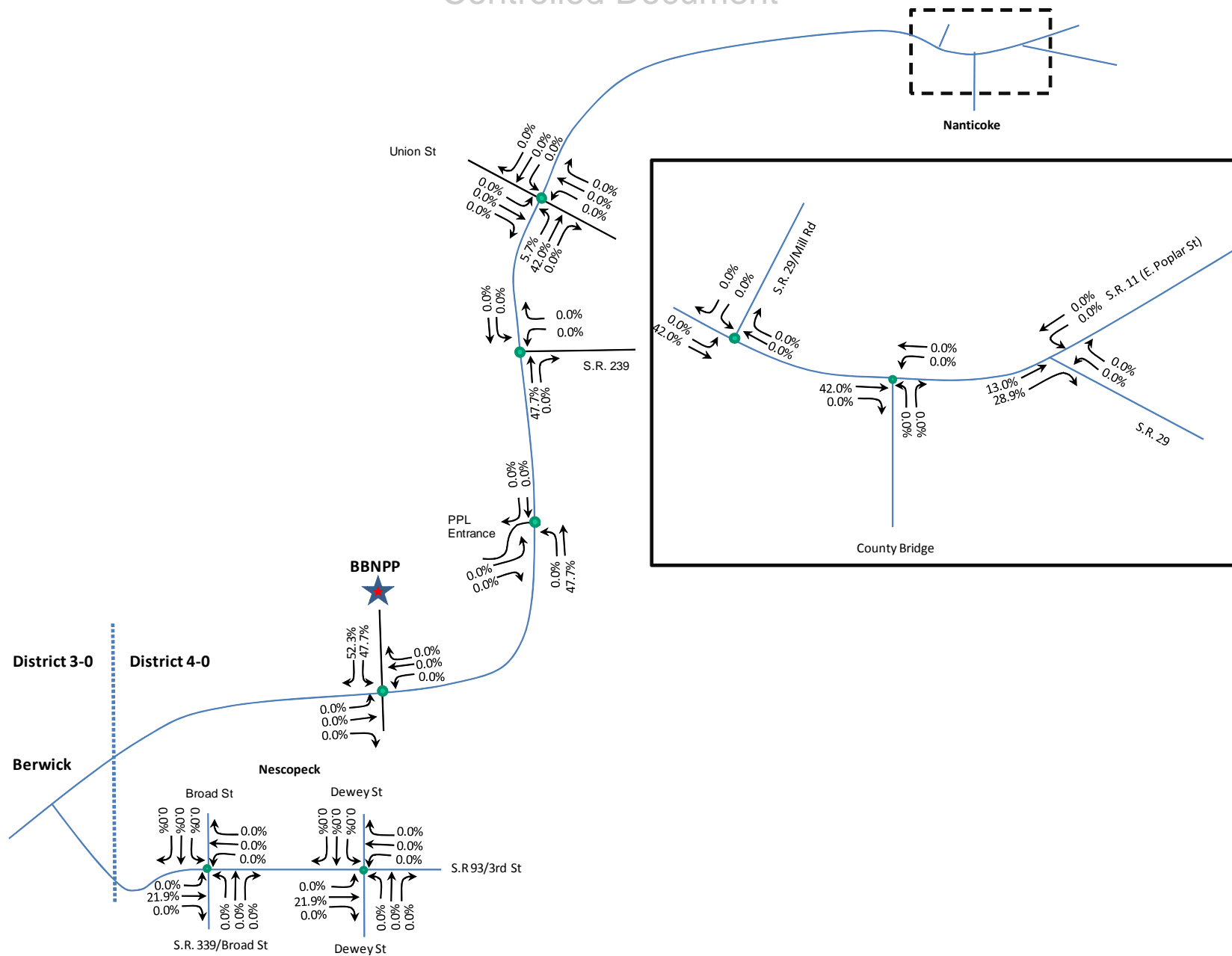
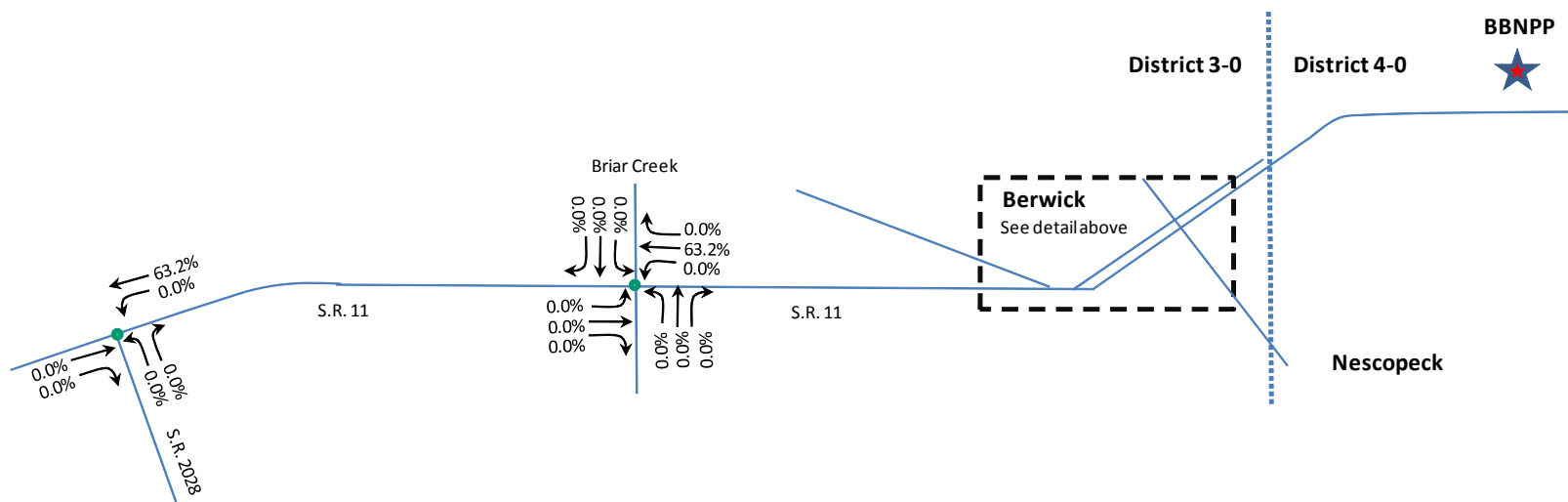


Figure H-4 Construction Traffic Assignment Departing from the Site (%)





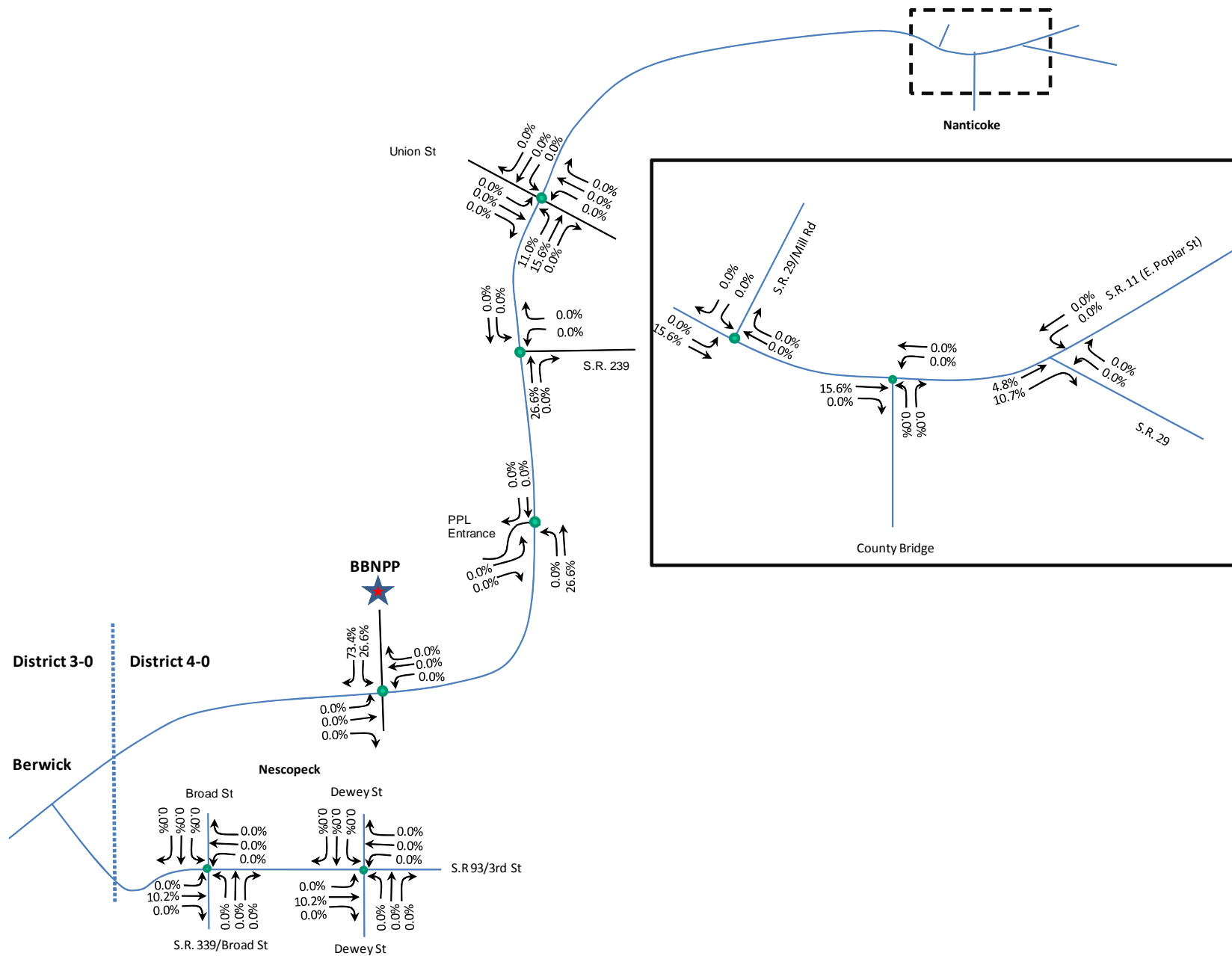


Figure H-5 Operations Traffic Assignment Departing from the Site (%)

Appendix I

Capacity Analysis – Future Build Conditions

Appendix I

This appendix contains all supporting worksheets and materials relating to capacity analysis for the Future Build scenario. Table I-1 summarizes the LOS and delay at each intersection. Stick diagrams depicting the volumes used as inputs are again provided. Synchro HCM signalized reports are given to support calculations at signalized intersections and HCS+ reports are given for all unsignalized intersections.

Queue storage calculations employing the PennDOT method are provided. The volumes shown in these worksheets are PCE (Passenger Car Equivalent) volumes which are factored up to account for the presence of heavy vehicles. The maximum hourly left turn volumes were used to determine the necessary storage.

Table I-2 – LOS and Average Delay (sec/veh): Future Build Conditions without Outage

<i>Int No</i>	<i>PennDOT</i>	<i>County</i>	<i>Municipality</i>	<i>Intersection</i>	<i>FNB AM¹</i>	<i>FB AM¹</i>	<i>FNB PM¹</i>	<i>FB PM¹</i>
1	3-0	Columbia	South Centre	S.R. 11 and S.R. 2028	B (14.2)	B (14.4)	B (19.4)	B (19.4)
2			Briar Creek	S.R. 11 and Briar Creek Plaza Driveways	A (6.6)	A (6.6)	B (14.2)	B (15.2)
3			Berwick	S.R. 11 (Front Street) and Eaton Street*	A (1.1)	A (1.1)	A (1.8)	A (1.8)
4				S.R. 11 (Front Street) and Poplar Street	C (20)	C (21.3)	D (38.9)	D (39)
5				S.R. 11 (Front Street) and Orchard Street	A (6.5)	A (6.6)	B (15.1)	B (15.2)
6				S.R. 11 (Front Street) and S.R. 93 (Orange Street)	A (5.8)	A (5.8)	A (9.9)	B (10.1)
7				S.R. 11 (Second Street) and LaSalle Street	B (11.7)	B (11.7)	B (13.6)	B (13.7)
8				S.R. 11 (Second Street) and Oak Street	A (6.2)	A (6.2)	A (8)	A (8)
9				S.R. 11 (Second Street) and Mulberry Street	A (4.8)	A (4.8)	A (5.7)	A (5.6)
10				S.R. 11 (Front Street) and Mulberry Street	A (6)	A (6)	A (7.9)	A (7.9)
11				S.R. 1025 (Market Street) and Third Street	A (9.6)	A (9.6)	B (12.9)	B (12.9)
12				S.R. 11 (Second Street) and Market Street	A (9.5)	A (9.6)	B (11.6)	B (11.6)
13				S.R. 11 (Front Street) and Market Street	B (13.7)	B (13.8)	B (15.3)	B (15.3)
14				S.R. 11 (Second Street) and Pine Street	A (6)	A (6)	A (8.7)	A (8.7)
15	4-0	Luzerne	Nescopeck	S.R. 93 (Third Street) and S.R. 339 (Broad Street)	B (13.9)	B (13.9)	B (12.2)	B (12.3)
16				S.R. 93 (Third Street) and Dewey Street	A (4.6)	A (4.6)	A (3.7)	A (3.7)
17			Salem Township	S.R. 11 and Bell Bend Site Entrance*		A (1.6)		A (1.7)
18				S.R. 11 and SSES Site Entrance*	A (4.4)	A (4.3)	A (3.8)	A (3.7)
19			Shickshinny	S.R. 11 (S. Main Street) and S.R. 239	A (8.1)	A (7.9)	A (9.1)	A (9.1)
20				S.R. 11 (Main Street) and S.R. 239 (Union Street)	B (13.6)	B (14.2)	B (15.3)	B (15.3)
21			Nanticoke	S.R. 11 and S.R. 29 (Mill Street)	C (23.4)	C (23.5)	C (25.8)	C (25.7)
22				S.R. 11 and County Bridge	D (48.9)	D (48.9)	C (23.6)	C (24)
23				S.R. 11 (E. Poplar Street) and S.R. 29*	A (2.7)	A (2.7)	D (27.7)	D (28.6)

Note 1: "FNB" corresponds to the Future Year No-Build Condition and "FB" corresponds to Future Build Condition with no mitigation

Note 2: * implies this is a stop controlled intersection. The intersection LOS was calculated based on the weighted average of approach delays as specified in Reference [3].

Note 3: The cells with LOS D or worse are highlighted.

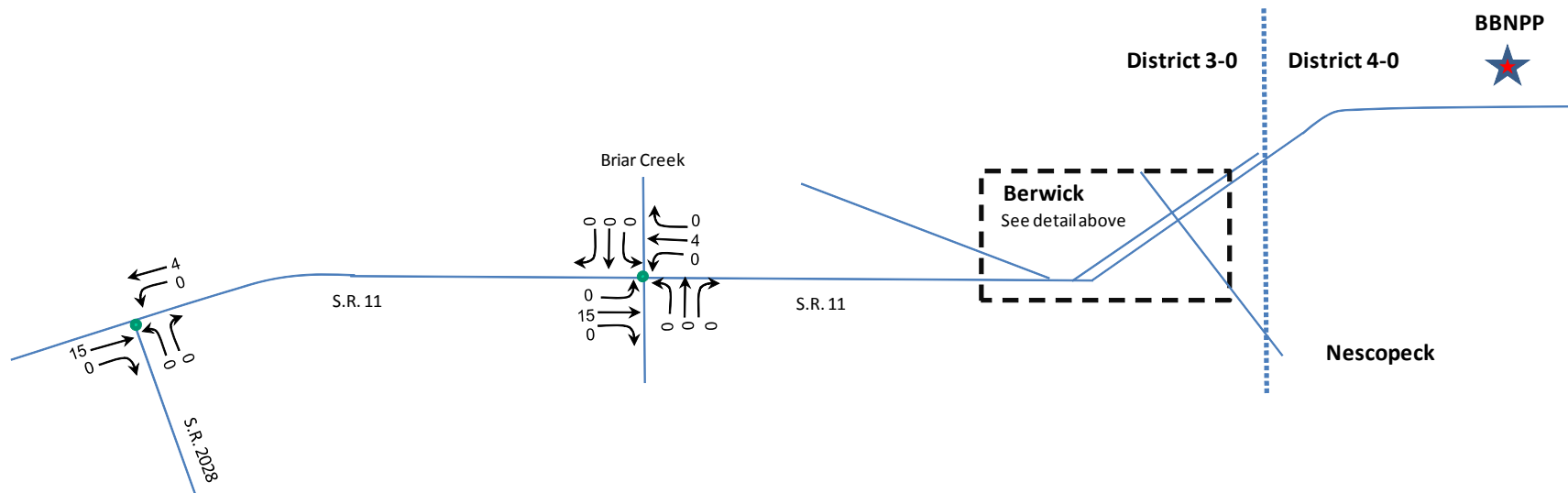
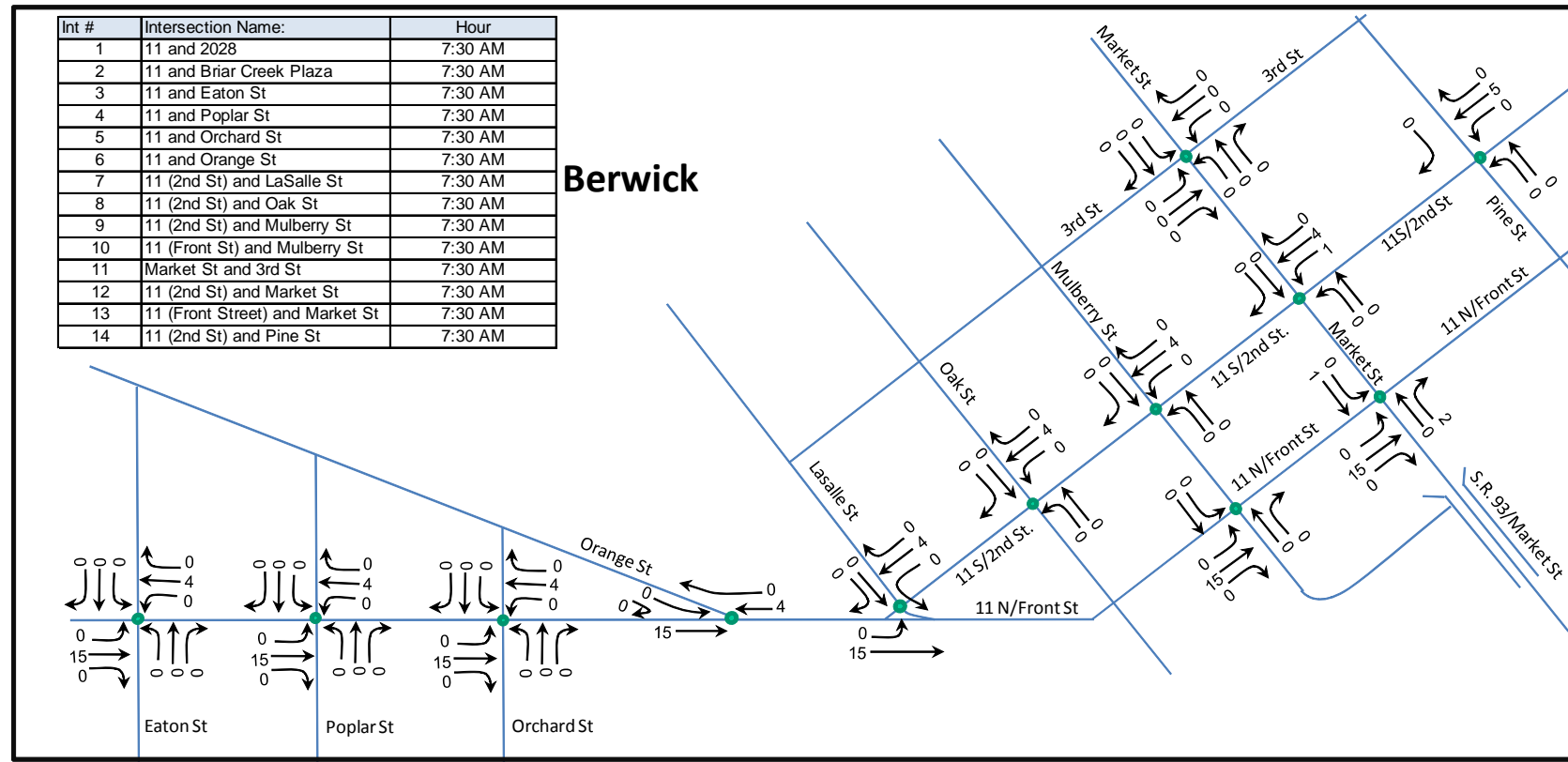


Figure I-1 - Future Build AM Additional Operations Traffic Only

Int #	Intersection:	Hour
15	93 (3rd St) and 339 (Broad St)	7:30 AM
16	93 (3rd St) and Dewey St	7:30 AM
17	11 and Bell Bend Entrance	6:00 AM
18	11 and SSES Entrance	6:00 AM
19	11 and 239	6:00 AM
20	11 and 239 (Union St)	7:00 AM
21	11 and 29 (Mill St)	7:00 AM
22	11 and County Bridge	7:00 AM
23	11 (E. Poplar St) and 29	7:00 AM

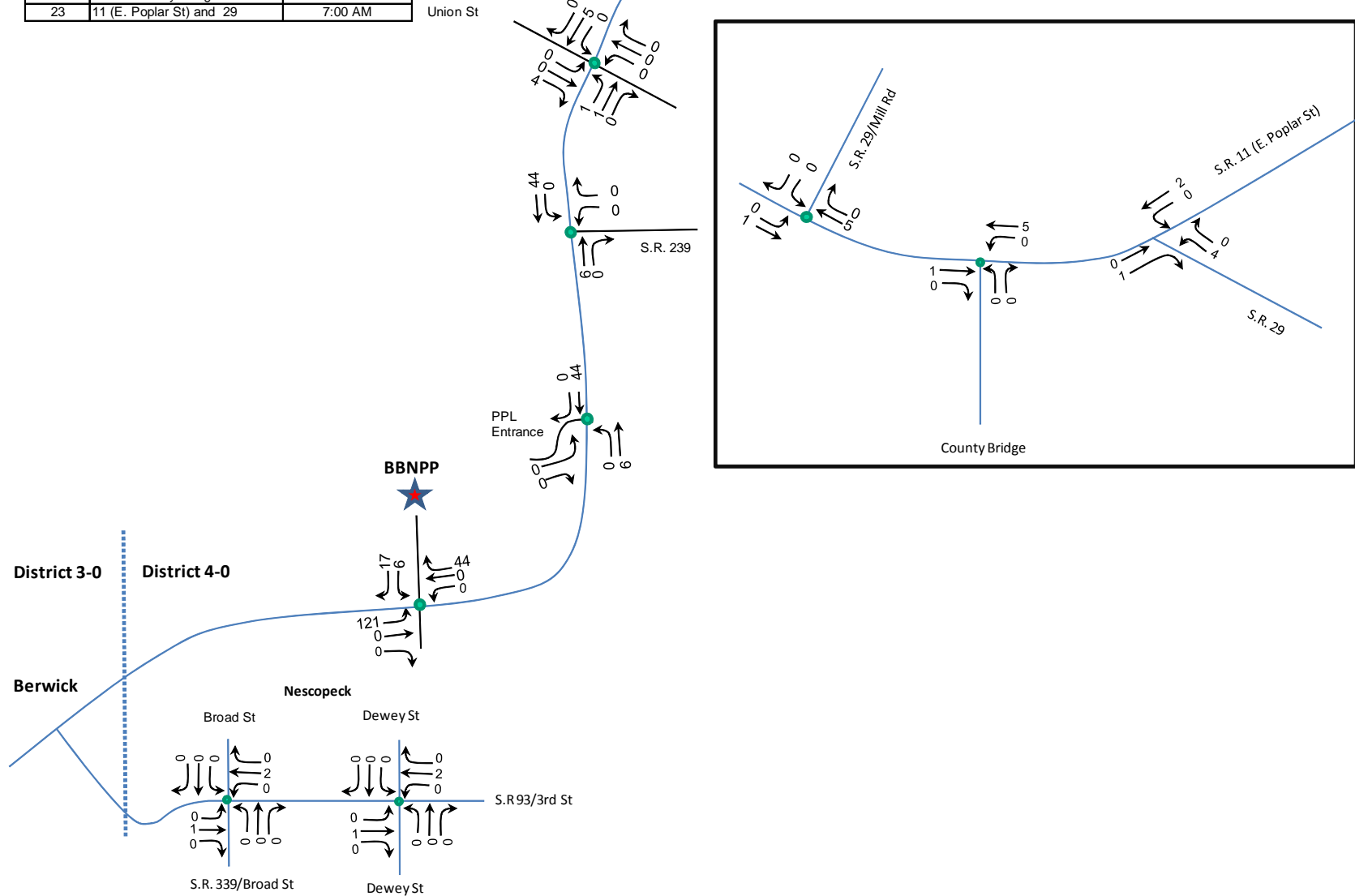


Figure I-1 - Future Build AM Additional Operations Traffic Only

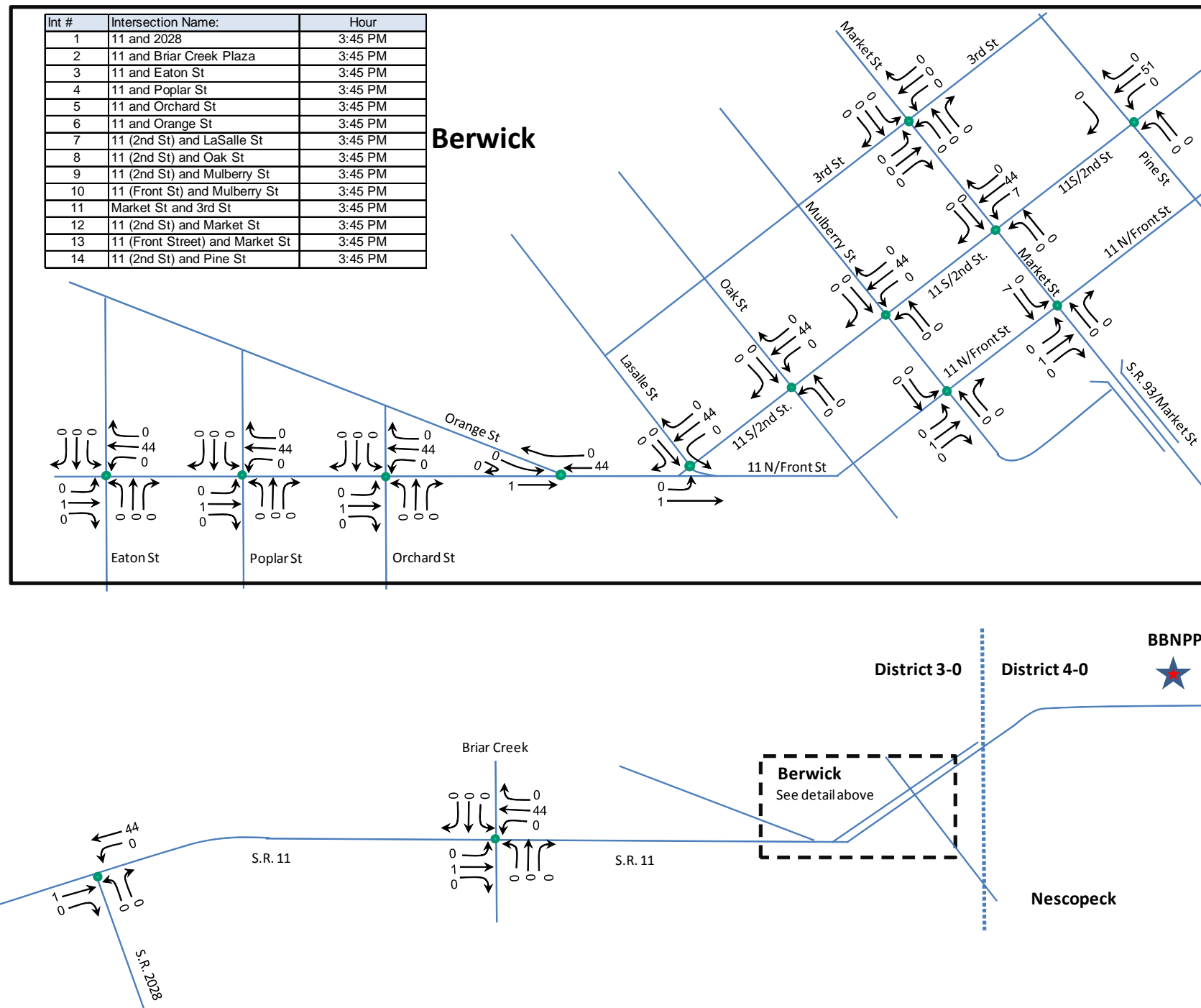


Figure I-2 - Future Build PM Additional Operations Traffic Only

Intersection:	Hour
93 (3rd St) and 339 (Broad St)	3:45 PM
93 (3rd St) and Dewey St	3:45 PM
11 and Bell Bend Entrance	3:00 PM
11 and SSES Entrance	4:45 PM
11 and 239	3:30 PM
11 and 239 (Union St)	4:30 PM
11 and 29 (Mill St)	4:30 PM
11 and County Bridge	4:30 PM
11 (E. Poplar St) and 29	4:30 PM

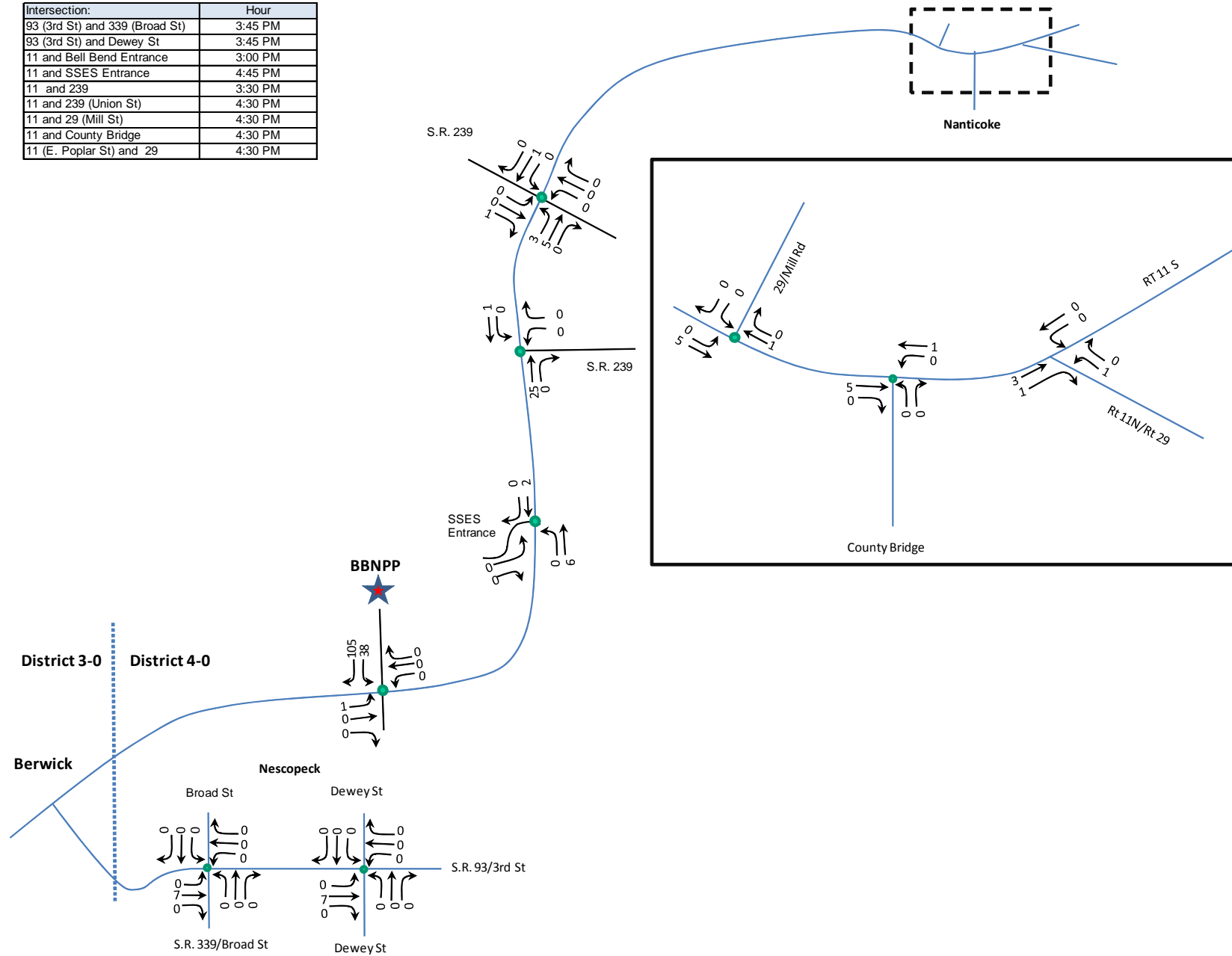
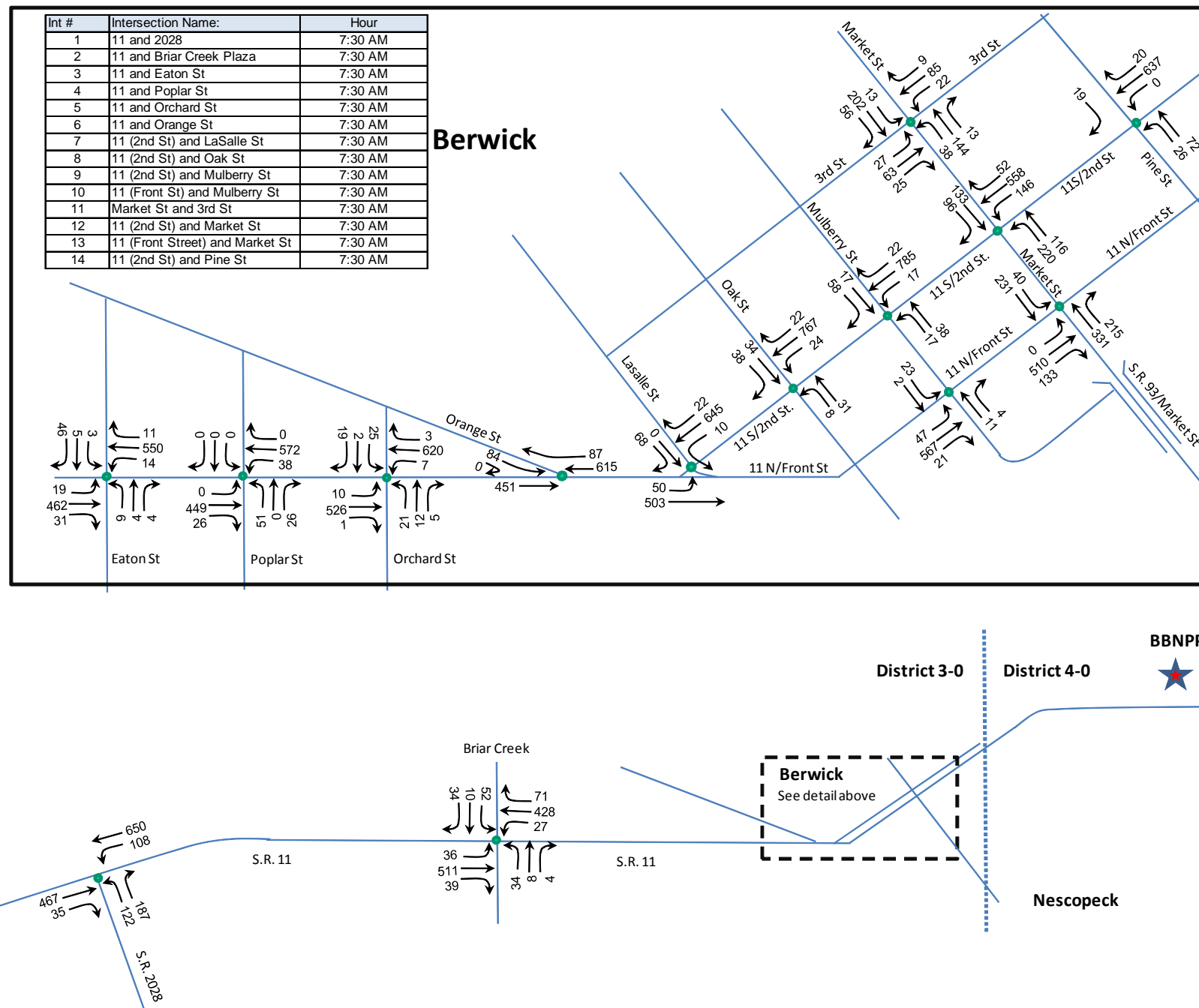


Figure I-2 - Future Build PM Additional Operations Traffic Only



Int #	Intersection:	Hour
15	93 (3rd St) and 339 (Broad St)	7:30 AM
16	93 (3rd St) and Dewey St	7:30 AM
17	11 and Bell Bend Entrance	6:00 AM
18	11 and SSES Entrance	6:00 AM
19	11 and 239	6:00 AM
20	11 and 239 (Union St)	7:00 AM
21	11 and 29 (Mill St)	7:00 AM
22	11 and County Bridge	7:00 AM
23	11 (E. Poplar St) and 29	7:00 AM

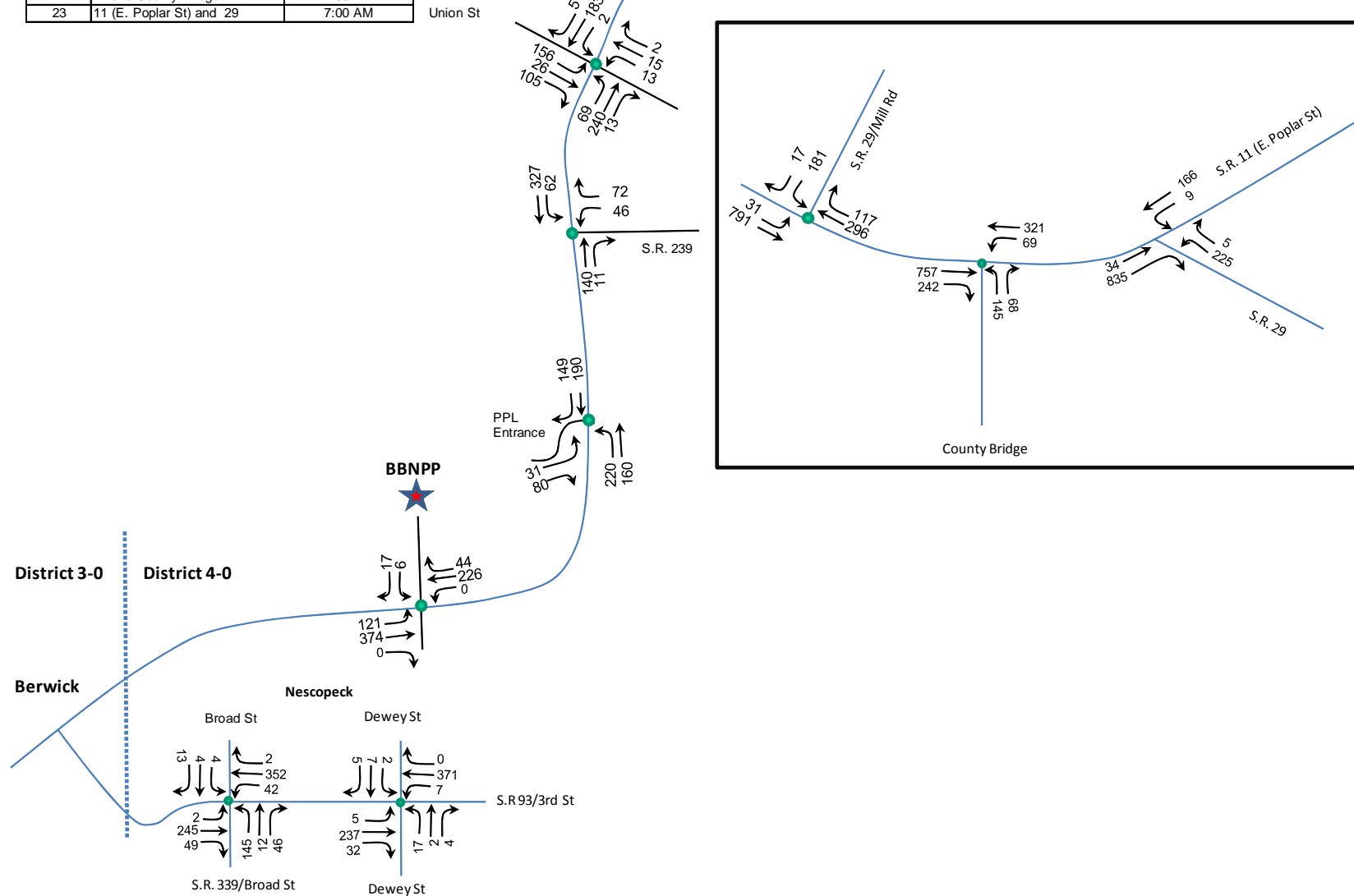


Figure I-3 - Future Build AM Peak Hour Volumes

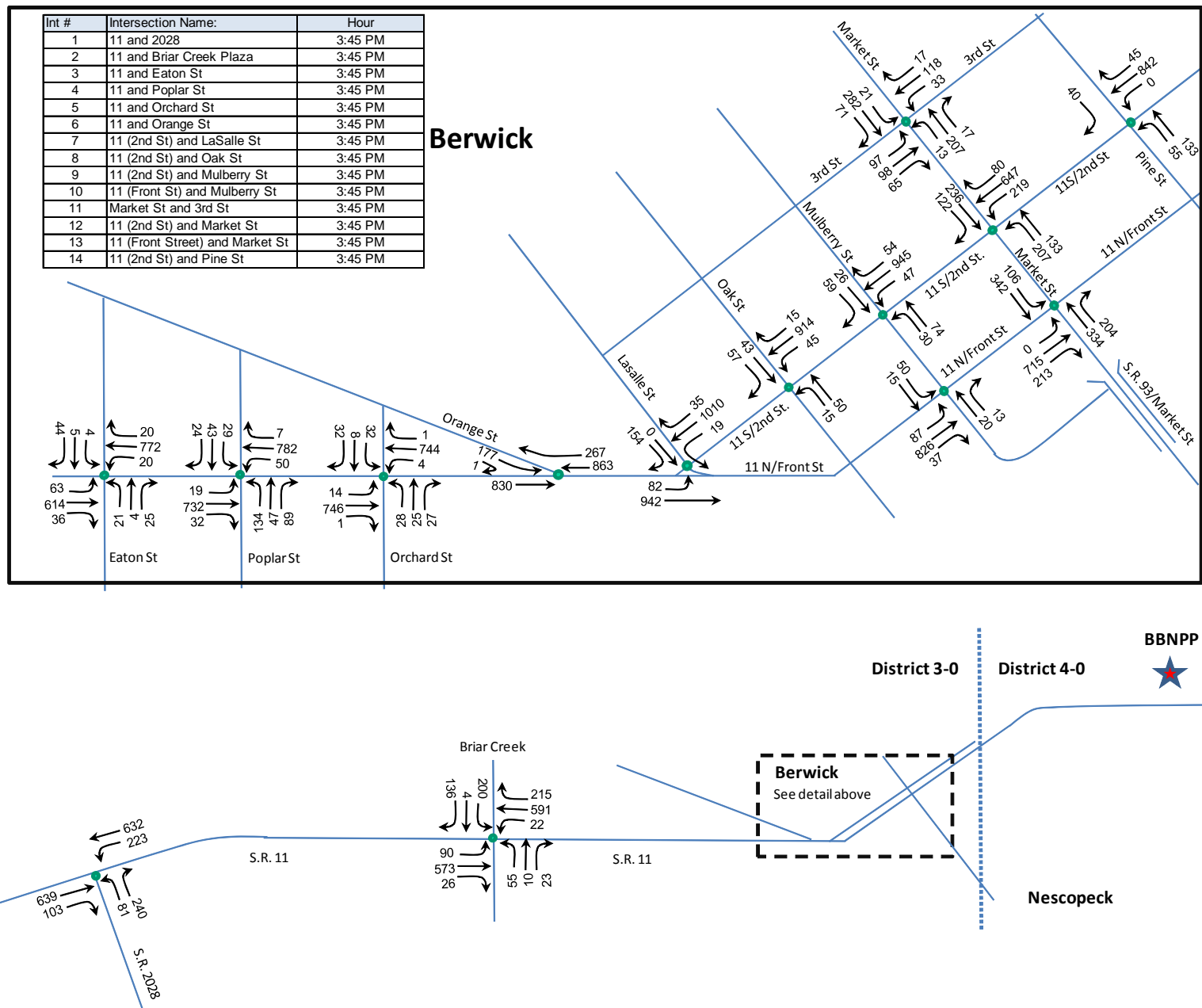


Figure I-4 - Future Build PM Peak Hour Volumes

Int #	Intersection:	Hour
15	93 (3rd St) and 339 (Broad St)	3:45 PM
16	93 (3rd St) and Dewey St	3:45 PM
17	11 and Bell Bend Entrance	3:00 PM
18	11 and SSES Entrance	4:45 PM
19	11 and 239	3:30 PM
20	11 and 239 (Union St)	4:30 PM
21	11 and 29 (Mill St)	4:30 PM
22	11 and County Bridge	4:30 PM
23	11 (E. Poplar St) and 29	4:30 PM

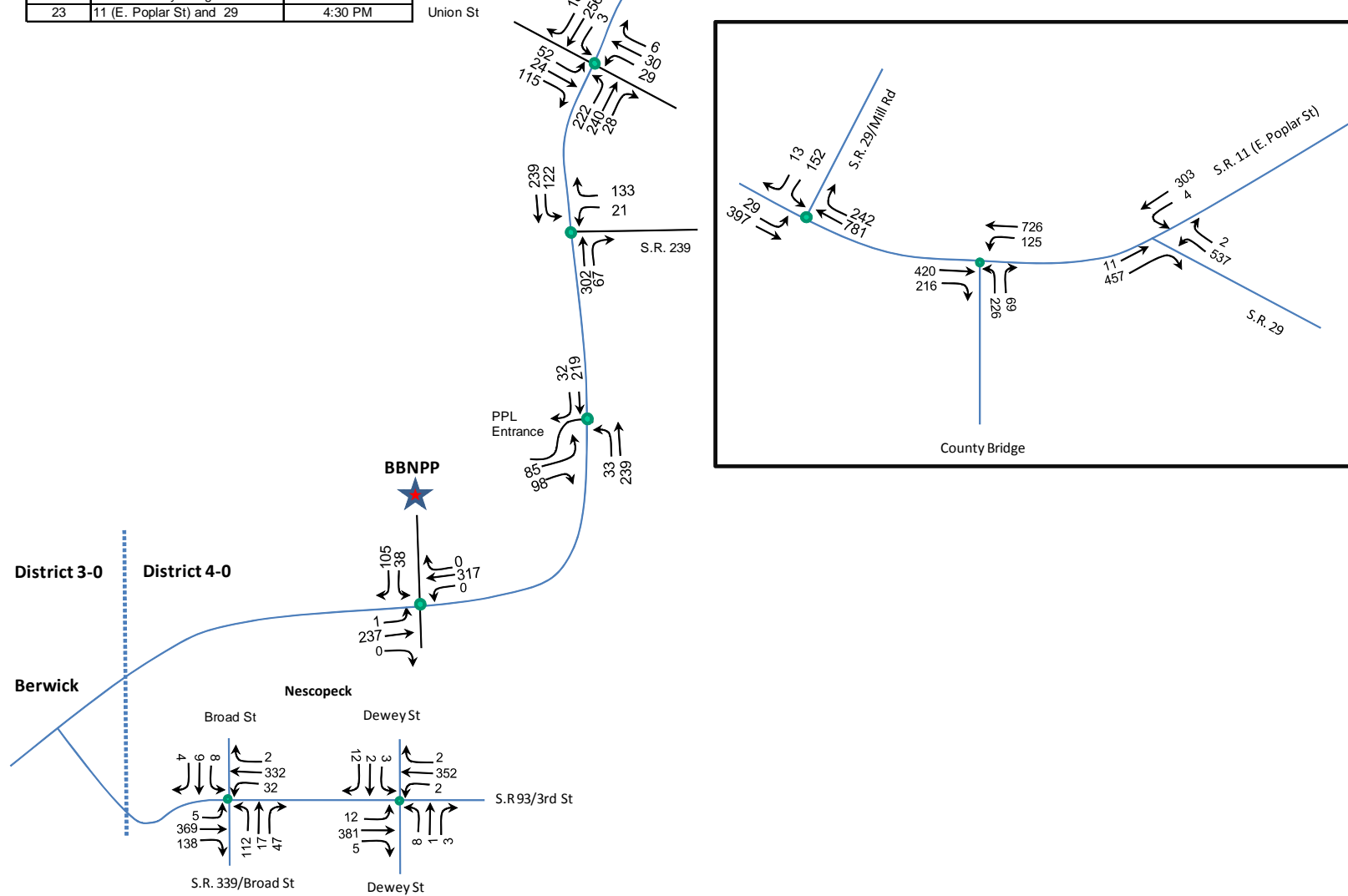


Figure I-4 - Future Build PM Peak Hour Volumes

PennDOT Turn Lane Storage Length Calculations

Location: S.R. 11 and S.R. 2028

Scenario: 2021, Future Build

Mitigation: Unmitigated

Control: Signalized

Movement	Peak Hour	Max LT Volume	Approach Volume	LT%	Cycle Length (sec)	Vehicles/Cycle	Condition A (X)	Condition B	Condition C1 (Y)	Condition C (X+Y)	Storage Length Needed	Storage Available
SBL	AM	133	807	16%	60	2.2	150	125	75	225	225	165
SBL	PM	237	1364	17%	60	4.0	175	125	75	250	250	165
Speed (MPH)	45			>10%		Condition:	B or C*					

WBL	AM	127	323	39%	60	2.1	150	#N/A	#N/A	#N/A	150	275
WBL	PM	103	353	29%	60	1.7	100	#N/A	#N/A	#N/A	100	275
Speed (MPH)	35			>10%		Condition:	A					

Condition B	
MPH	Length
40	75
45	125
50	175
55	235
60	295

Condition C1	
MPH	Length
40	61
45	75
50	93
55	114
60	131

Speed (MPH)	25-35		40-45		50-60	
	25-35	<=10%	40-45	<=10%	50-60	<=10%
LT %	>10%	<=10%	>10%	<=10%	>10%	<=10%
Signalized	A	A	B or C*	B or C*	B or C*	B or C*
Unsignalized	A	A	B or C*	B or C*	B or C*	B

Notes: Storage needed exceeds available amount

* Whichever is greater

PennDOT Turn Lane Storage Length Calculations

Location: S.R. 11 and Briar Creek Plaza Driveways
 Scenario: 2021, Future Build
 Mitigation: Unmitigated
 Control: Signalized

Movement	Peak Hour	Max LT Volume	Approach Volume	LT%	Cycle Length (sec)	Vehicles/Cycle	Condition A (X)	Condition B	Condition C1 (Y)	Condition C (X+Y)	Storage Length Needed	Storage Available
NBL	AM	42	587	7%	45	0.5	75	#N/A	#N/A	#N/A	75	175
NBL	PM	110	898	12%	80	2.5	150	#N/A	#N/A	#N/A	150	175
Speed (MPH)	35			>10%		Condition: A						

SBL	AM	43	532	8%	45	0.5	75	#N/A	#N/A	#N/A	75	135
SBL	PM	22	888	2%	80	0.5	75	#N/A	#N/A	#N/A	75	135
Speed (MPH)	35			<=10%		Condition: A						

EBL	AM	56	100	56%	45	0.7	75	#N/A	#N/A	#N/A	75	175
EBL	PM	210	327	64%	80	4.7	200	#N/A	#N/A	#N/A	200	175
Speed (MPH)	30			>10%		Condition: A						

WBL	AM	46	59	79%	45	0.6	75	#N/A	#N/A	#N/A	75	75
WBL	PM	56	86	65%	80	1.2	100	#N/A	#N/A	#N/A	100	75
Speed (MPH)	30			>10%		Condition: A						

Condition B	
MPH	Length
40	75
45	125
50	175
55	235
60	295

Condition C1	
MPH	Length
40	61
45	75
50	93
55	114
60	131

Speed (MPH)

LT %

Signalized

Unsignalized

25-35	25-35	40-45	40-45	50-60	50-60
>10%	<=10%	>10%	<=10%	>10%	<=10%
A	A	B or C*	B or C*	B or C*	B or C*
A	A	B or C*	B or C*	B or C*	B

Notes: Storage needed exceeds available amount

* Whichever is greater

PennDOT Turn Lane Storage Length Calculations

Location: S.R. 11 (Front Street) and Eaton Street
 Scenario: 2021, Future Build
 Mitigation: Unmitigated
 Control: Unsignalized

Movement	Peak Hour	Max LT Volume	Approach Volume	LT%	Cycle Length (sec)	Vehicles/Cycle	Condition A (X)	Condition B	Condition C1 (Y)	Condition C (X+Y)	Storage Length Needed	Storage Available
NBL	AM	25	546	5%	60	0.4	75	#N/A	#N/A	#N/A	75	150
NBL	PM	66	845	8%	60	1.1	100	#N/A	#N/A	#N/A	100	150
Speed (MPH)	35			<=10%		Condition: A						

SBL	AM	14	623	2%	60	0.2	75	#N/A	#N/A	#N/A	75	150
SBL	PM	65	767	8%	60	1.1	100	#N/A	#N/A	#N/A	100	150
Speed (MPH)	35			<=10%		Condition: A						

Condition B	
MPH	Length
40	75
45	125
50	175
55	235
60	295

Condition C2	
MPH	Length
40	61
45	75
50	93
55	114
60	131

Speed (MPH)	25-35	25-35	40-45	40-45	50-60	50-60
	LT %	LT %	LT %	LT %	LT %	LT %
Signalized	>10%	<=10%	>10%	<=10%	>10%	<=10%
Unsignalized	A	A	B or C*	B or C*	B or C*	B or C*
	A	A	B or C*	B or C*	B or C*	B

Notes: Storage needed exceeds available amount
 * Whichever is greater

PennDOT Turn Lane Storage Length Calculations

Location: S.R. 11 (Front Street) and Poplar Street
 Scenario: 2021, Future Build
 Mitigation: Unmitigated
 Control: Signalized

Movement	Peak Hour	Max LT Volume	Approach Volume	LT%	Cycle Length (sec)	Vehicles/Cycle	Condition A (X)	Condition B	Condition C1 (Y)	Condition C (X+Y)	Storage Length Needed	Storage Available
NBL	AM	0	37	0%	75	0.0	75	#N/A	#N/A	#N/A	75	75
NBL	PM	23	779	3%	90	0.6	75	#N/A	#N/A	#N/A	75	75
Speed (MPH)	35			<=10%		Condition: A						

SBL	AM	58	640	9%	75	1.2	100	#N/A	#N/A	#N/A	100	105
SBL	PM	77	894	9%	90	1.9	100	#N/A	#N/A	#N/A	100	105
Speed (MPH)	35			<=10%		Condition: A						

WBL	AM	68	110	61%	75	1.4	100	#N/A	#N/A	#N/A	100	250
WBL	PM	140	275	51%	90	3.5	175	#N/A	#N/A	#N/A	175	250
Speed (MPH)	30			>10%		Condition: A						

Condition B	
MPH	Length
40	75
45	125
50	175
55	235
60	295

Condition C2	
MPH	Length
40	61
45	75
50	93
55	114
60	131

Speed (MPH)	25-35	25-35	40-45	40-45	50-60	50-60
LT %	>10%	<=10%	>10%	<=10%	>10%	<=10%
Signalized	A	A	B or C*	B or C*	B or C*	B or C*
Unsignalized	A	A	B or C*	B or C*	B or C*	B

Notes: Storage needed exceeds available amount
 * Whichever is greater

PennDOT Turn Lane Storage Length Calculations

Location: S.R. 11 (Front Street) and Orchard Street

Scenario: 2021, Future Build

Mitigation: Unmitigated

Control: Signalized

Movement	Peak Hour	Max LT Volume	Approach Volume	LT%	Cycle Length (sec)	Vehicles/Cycle	Condition A (X)	Condition B	Condition C1 (Y)	Condition C (X+Y)	Storage Length Needed	Storage Available
NBL	AM	12	564	2%	75	0.3	75	#N/A	#N/A	#N/A	75	75
NBL	PM	16	796	2%	90	0.4	75	#N/A	#N/A	#N/A	75	75
Speed (MPH)	35			<=10%		Condition: A						

SBL	AM	9	643	1%	75	0.2	75	#N/A	#N/A	#N/A	75	75
SBL	PM	10	757	1%	90	0.3	75	#N/A	#N/A	#N/A	75	75
Speed (MPH)	35			<=10%		Condition: A						

Condition B	
MPH	Length
40	75
45	125
50	175
55	235
60	295

Condition C2	
MPH	Length
40	61
45	75
50	93
55	114
60	131

Speed (MPH)	25-35		40-45		50-60	
	25-35	<=10%	>10%	<=10%	>10%	<=10%
LT %	>10%	<=10%	>10%	<=10%	>10%	<=10%
Signalized	A	A	B or C*	B or C*	B or C*	B or C*
Unsignalized	A	A	B or C*	B or C*	B or C*	B

Notes: Storage needed exceeds available amount

* Whichever is greater

PennDOT Turn Lane Storage Length Calculations

Location: S.R. 11 (Second Street) and LaSalle Street
 Scenario: 2021, Future Build
 Mitigation: Unmitigated
 Control: Signalized

Movement	Peak Hour	Max LT Volume	Approach Volume	LT%	Cycle Length (sec)	Vehicles/Cycle	Condition A (X)	Condition B	Condition C1 (Y)	Condition C (X+Y)	Storage Length Needed	Storage Available
NBL	AM	60	600	10%	65	1.1	100	#N/A	#N/A	#N/A	100	100
NBL	PM	94	1075	9%	90	2.4	150	#N/A	#N/A	#N/A	150	100
Speed (MPH)	35			<=10%		Condition: A						

SBL	AM	11	675	2%	65	0.2	75	#N/A	#N/A	#N/A	75	100
SBL	PM	20	1060	2%	90	0.5	75	#N/A	#N/A	#N/A	75	100
Speed (MPH)	35			<=10%		Condition: A						

Condition B	
MPH	Length
40	75
45	125
50	175
55	235
60	295

Condition C2	
MPH	Length
40	61
45	75
50	93
55	114
60	131

Speed (MPH)						
	25-35	25-35	40-45	40-45	50-60	50-60
LT %	>10%	<=10%	>10%	<=10%	>10%	<=10%
Signalized	A	A	B or C*	B or C*	B or C*	B or C*
Unsignalized	A	A	B or C*	B or C*	B or C*	B

Notes: Storage needed exceeds available amount
 * Whichever is greater

PennDOT Turn Lane Storage Length Calculations

Location: S.R. 1025 (Market Street) and Third Street
 Scenario: 2021, Future Build
 Mitigation: Unmitigated
 Control: Signalized

Movement	Peak Hour	Max LT Volume	Approach Volume	LT%	Cycle Length (sec)	Vehicles/Cycle	Condition A (X)	Condition B	Condition C1 (Y)	Condition C (X+Y)	Storage Length Needed	Storage Available
EBL	AM	14	315	5%	60	0.2	75	#N/A	#N/A	#N/A	75	90
EBL	PM	25	384	7%	60	0.4	75	#N/A	#N/A	#N/A	75	90
Speed (MPH)	25			<=10%		Condition: A						

WBL	AM	41	189	22%	60	0.7	75	#N/A	#N/A	#N/A	75	175
WBL	PM	29	237	12%	60	0.5	75	#N/A	#N/A	#N/A	75	175
Speed (MPH)	25			>10%		Condition: A						

Condition B	
MPH	Length
40	75
45	125
50	175
55	235
60	295

Condition C2	
MPH	Length
40	61
45	75
50	93
55	114
60	131

Speed (MPH) LT % Signalized Unsignalized						
	25-35	25-35	40-45	40-45	50-60	50-60
	>10%	<=10%	>10%	<=10%	>10%	<=10%
	A	A	B or C*	B or C*	B or C*	B or C*
	A	A	B or C*	B or C*	B or C*	B

Notes: Storage needed exceeds available amount
 * Whichever is greater

PennDOT Turn Lane Storage Length Calculations

Location: S.R. 11 (Second Street) and Market Street
 Scenario: 2021, Future Build
 Mitigation: Unmitigated
 Control: Signalized

Movement	Peak Hour	Max LT Volume	Approach Volume	LT%	Cycle Length (sec)	Vehicles/Cycle	Condition A (X)	Condition B	Condition C1 (Y)	Condition C (X+Y)	Storage Length Needed	Storage Available
SBL	AM	156	786	20%	60	2.6	150	#N/A	#N/A	#N/A	150	100
SBL	PM	239	1056	23%	60	4.0	175	#N/A	#N/A	#N/A	175	100
Speed (MPH)	35			>10%		Condition: A						

WBL	AM	241	354	68%	60	4.0	200	#N/A	#N/A	#N/A	200	170
WBL	PM	263	377	70%	60	4.4	200	#N/A	#N/A	#N/A	200	170
Speed (MPH)	25			>10%		Condition: A						

Condition B	
MPH	Length
40	75
45	125
50	175
55	235
60	295

Condition C2	
MPH	Length
40	61
45	75
50	93
55	114
60	131

Speed (MPH)	25-35		40-45		50-60	
	25-35	<=10%	>10%	<=10%	>10%	<=10%
LT %						
Signalized	A	A	B or C*	B or C*	B or C*	B or C*
Unsignalized	A	A	B or C*	B or C*	B or C*	B

Notes: Storage needed exceeds available amount
 * Whichever is greater

PennDOT Turn Lane Storage Length Calculations

Location: S.R. 11 (Second Street) and Pine Street
 Scenario: 2021, Future Build
 Mitigation: Unmitigated
 Control: Signalized

Movement	Peak Hour	Max LT Volume	Approach Volume	LT%	Cycle Length (sec)	Vehicles/Cycle	Condition A (X)	Condition B	Condition C1 (Y)	Condition C (X+Y)	Storage Length Needed	Storage Available
WBL	AM	26	100	26%	60	0.4	75	#N/A	#N/A	#N/A	75	175
WBL	PM	67	213	31%	60	1.1	100	#N/A	#N/A	#N/A	100	175
Speed (MPH)	35			>10%		Condition:	A					

Condition B	
MPH	Length
40	75
45	125
50	175
55	235
60	295

Condition C2	
MPH	Length
40	61
45	75
50	93
55	114
60	131

	25-35	25-35	40-45	40-45	50-60	50-60
Speed (MPH)	25-35	25-35	40-45	40-45	50-60	50-60
LT %	>10%	<=10%	>10%	<=10%	>10%	<=10%
Signalized	A	A	B or C*	B or C*	B or C*	B or C*
Unsignalized	A	A	B or C*	B or C*	B or C*	B

Notes: Storage needed exceeds available amount
 * Whichever is greater

PennDOT Turn Lane Storage Length Calculations

Location: S.R. 11 and SSES Site Entrance
 Scenario: 2021, Future Build
 Mitigation: Unmitigated
 Control: Unsignalized

Movement	Peak Hour	Max LT Volume	Approach Volume	LT%	Cycle Length (sec)	Vehicles/Cycle	Condition A (X)	Condition B	Condition C1 (Y)	Condition C (X+Y)	Storage Length Needed	Storage Available
NBL	AM	220	403	55%	90	5.5	250	235	114	364	364	200
NBL	PM	42	559	8%	90	1.1	100	235	114	214	235	200
Speed (MPH)	55			>10%		Condition:	B or C*					

EBL	AM	31	111	28%	90	0.8	75	#N/A	#N/A	#N/A	75	450
EBL	PM	85	183	46%	90	2.1	150	#N/A	#N/A	#N/A	150	450
Speed (MPH)	35			>10%		Condition:	A					

Condition B	
MPH	Length
40	75
45	125
50	175
55	235
60	295

Condition C2	
MPH	Length
40	61
45	75
50	93
55	114
60	131

Speed (MPH)	25-35		40-45		50-60	
	LT %	Signalized	LT %	Signalized	LT %	Signalized
25-35	>10%	A	25-35	<=10%	40-45	>10%
40-45	<=10%	B or C*	40-45	<=10%	50-60	>10%
50-60	>10%	B or C*	50-60	<=10%	50-60	<=10%
50-60	<=10%	B				

Notes: Storage needed exceeds available amount
 * Whichever is greater

PennDOT Turn Lane Storage Length Calculations

Location: S.R. 11 (Main Street) and S.R. 239 (Union Street)

Scenario: 2021, Future Build

Mitigation: Unmitigated

Control: Signalized

Movement	Peak Hour	Max LT Volume	Approach Volume	LT%	Cycle Length (sec)	Vehicles/Cycle	Condition A (X)	Condition B	Condition C1 (Y)	Condition C (X+Y)	Storage Length Needed	Storage Available
NBL	AM	88	290	30%	55	1.3	100	#N/A	#N/A	#N/A	100	150
NBL	PM	229	497	46%	60	3.8	175	#N/A	#N/A	#N/A	175	150
Speed (MPH)	25			>10%		Condition: A						

Condition B	
MPH	Length
40	75
45	125
50	175
55	235
60	295

Condition C2	
MPH	Length
40	61
45	75
50	93
55	114
60	131

	25-35	25-35	40-45	40-45	50-60	50-60
Speed (MPH)	25-35	25-35	40-45	40-45	50-60	50-60
LT %	>10%	<=10%	>10%	<=10%	>10%	<=10%
Signalized	A	A	B or C*	B or C*	B or C*	B or C*
Unsignalized	A	A	B or C*	B or C*	B or C*	B

Notes: Storage needed exceeds available amount

* Whichever is greater

PennDOT Turn Lane Storage Length Calculations

Location: S.R. 11 and S.R. 29 (Mill Street)
 Scenario: 2021, Future Build
 Mitigation: Unmitigated
 Control: Signalized

Movement	Peak Hour	Max LT Volume	Approach Volume	LT%	Cycle Length (sec)	Vehicles/Cycle	Condition A (X)	Condition B	Condition C1 (Y)	Condition C (X+Y)	Storage Length Needed	Storage Available
NBL	AM	40	892	4%	80	0.9	75	#N/A	#N/A	#N/A	75	100
NBL	PM	32	449	7%	90	0.8	75	#N/A	#N/A	#N/A	75	100
Speed (MPH)	35			<=10%		Condition:	A					

Condition B	
MPH	Length
40	75
45	125
50	175
55	235
60	295

Condition C2	
MPH	Length
40	61
45	75
50	93
55	114
60	131

	25-35	25-35	40-45	40-45	50-60	50-60
Speed (MPH)	25-35	25-35	40-45	40-45	50-60	50-60
LT %	>10%	<=10%	>10%	<=10%	>10%	<=10%
Signalized	A	A	B or C*	B or C*	B or C*	B or C*
Unsignalized	A	A	B or C*	B or C*	B or C*	B

Notes: Storage needed exceeds available amount
 * Whichever is greater

PennDOT Turn Lane Storage Length Calculations

Location: S.R. 11 and County Bridge
 Scenario: 2021, Future Build
 Mitigation: Unmitigated
 Control: Signalized

Movement	Peak Hour	Max LT Volume	Approach Volume	LT%	Cycle Length (sec)	Vehicles/Cycle	Condition A (X)	Condition B	Condition C1 (Y)	Condition C (X+Y)	Storage Length Needed	Storage Available
SBL	AM	96	407	23%	100	2.7	150	#N/A	#N/A	#N/A	150	200
SBL	PM	133	834	16%	70	2.6	150	#N/A	#N/A	#N/A	150	200
Speed (MPH)	35			>10%		Condition: A						

Condition B	
MPH	Length
40	75
45	125
50	175
55	235
60	295

Condition C2	
MPH	Length
40	61
45	75
50	93
55	114
60	131

	25-35	25-35	40-45	40-45	50-60	50-60
Speed (MPH)	25-35	25-35	40-45	40-45	50-60	50-60
LT %	>10%	<=10%	>10%	<=10%	>10%	<=10%
Signalized	A	A	B or C*	B or C*	B or C*	B or C*
Unsignalized	A	A	B or C*	B or C*	B or C*	B

Notes: Storage needed exceeds available amount

* Whichever is greater

PennDOT Turn Lane Storage Length Calculations

Location: S.R. 11 (E. Poplar Street) and S.R. 29
 Scenario: 2021, Future Build
 Mitigation: Unmitigated
 Control: Unsignalized

Movement	Peak Hour	Max LT Volume	Approach Volume	LT%	Cycle Length (sec)	Vehicles/Cycle	Condition A (X)	Condition B	Condition C1 (Y)	Condition C (X+Y)	Storage Length Needed	Storage Available
NBL	AM	37	889	4%	90	0.9	75	#N/A	#N/A	#N/A	75	300
NBL	PM	27	504	5%	90	0.7	75	#N/A	#N/A	#N/A	75	300
Speed (MPH)	35			<=10%		Condition: A						

WBL	AM	235	241	97%	90	5.9	250	#N/A	#N/A	#N/A	250	300
WBL	PM	569	569	100%	90	14.2	525	#N/A	#N/A	#N/A	525	300
Speed (MPH)	35			>10%		Condition: A						

Condition B	
MPH	Length
40	75
45	125
50	175
55	235
60	295

Condition C2	
MPH	Length
40	61
45	75
50	93
55	114
60	131

Speed (MPH)	25-35		40-45		50-60	
	LT %	Signalized	LT %	Signalized	LT %	Signalized
25-35	>10%	A	<=10%	A	>10%	B or C*
40-45	>10%	B or C*	<=10%	B or C*	>10%	B or C*
50-60	>10%	B or C*	<=10%	B or C*	>10%	B or C*
50-60	<=10%	B				

Notes: Storage needed exceeds available amount
 * Whichever is greater

TWO-WAY STOP CONTROL SUMMARY

Analyst: KLD Engineering, P.C
 Agency/Co.:
 Date Performed:
 Analysis Time Period: 7:30 AM
 Intersection: S.R. 11 and Eaton St.
 Jurisdiction: Berwick, PA
 Units: U. S. Customary
 Analysis Year: 2021
 Project ID: 2021, Future Build, AM
 East/West Street: Eaton St.
 North/South Street: S.R. 11
 Intersection Orientation: NS

Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach	Northbound			Southbound		
	Movement	1	2	3	4	5	6
		L	T	R	L	T	R
Volume		19	462	31	14	550	11
Peak-Hour Factor, PHF		0.85	0.94	0.64	0.65	0.94	0.50
Hourly Flow Rate, HFR		22	491	48	21	585	22
Percent Heavy Vehicles		0	--	--	0	--	--
Median Type/Storage		TWLTL			/ 9		
RT Channelized?							
Lanes		1	1	0	1	1	0
Configuration		L		TR	L		TR
Upstream Signal?			No			No	

Minor Street:	Approach	Westbound			Eastbound		
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume		9	4	4	3	5	46
Peak Hour Factor, PHF		0.50	0.50	0.50	0.75	0.42	0.70
Hourly Flow Rate, HFR		18	8	8	4	11	65
Percent Heavy Vehicles		25	0	0	0	0	5
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage				No	/		/
Lanes		0	1	0	0	1	1
Configuration			LTR		LT		R

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L	L		LTR		LT		R
v (vph)	22	21		34		15		65
C(m) (vph)	981	1040		377		433		498
v/c	0.02	0.02		0.09		0.03		0.13
95% queue length	0.07	0.06		0.30		0.11		0.45
Control Delay	8.8	8.5		15.5		13.6		13.3
LOS	A	A		C		B		B
Approach Delay				15.5			13.4	
Approach LOS				C			B	

TWO-WAY STOP CONTROL SUMMARY

Analyst: KLD Engineering, P.C
 Agency/Co.:
 Date Performed:
 Analysis Time Period: 3:45 PM
 Intersection: S.R. 11 and Eaton St.
 Jurisdiction: Berwick, PA
 Units: U. S. Customary
 Analysis Year: 2021
 Project ID: 2021, Future Build, PM
 East/West Street: Eaton St.
 North/South Street:
 Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach Movement	Northbound			Southbound		
		1	2	3	4	5	6
		L	T	R	L	T	R
Volume		63	614	36	20	772	20
Peak-Hour Factor, PHF		0.85	0.90	0.69	0.64	1.00	0.75
Hourly Flow Rate, HFR		74	682	52	31	772	26
Percent Heavy Vehicles		0	--	--	0	--	--
Median Type/Storage		TWLTL			/ 9		
RT Channelized?							
Lanes		1	1	0	1	1	0
Configuration		L		TR	L		TR
Upstream Signal?			No			No	

Minor Street:	Approach Movement	Westbound			Eastbound		
		7	8	9	10	11	12
		L	T	R	L	T	R
Volume		21	4	25	4	5	44
Peak Hour Factor, PHF		0.68	0.50	0.41	1.00	0.63	0.71
Hourly Flow Rate, HFR		30	8	60	4	7	61
Percent Heavy Vehicles		5	0	0	25	0	0
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage				No	/		/
Lanes		0	1	0	0	1	1
Configuration			LTR		LT		R

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L	L		LTR		LT		R
v (vph)	74	31		98		11		61
C(m) (vph)	833	880		306		254		396
v/c	0.09	0.04		0.32		0.04		0.15
95% queue length	0.29	0.11		1.34		0.14		0.54
Control Delay	9.7	9.2		22.2		19.8		15.7
LOS	A	A		C		C		C
Approach Delay				22.2			16.4	
Approach LOS				C			C	

TWO-WAY STOP CONTROL SUMMARY

Analyst: KLD Engineering, P.C.
 Agency/Co.:
 Date Performed:
 Analysis Time Period: 6:00 AM
 Intersection: S.R. 11 and Bell Bend Entrance
 Jurisdiction: Berwick, PA
 Units: U. S. Customary
 Analysis Year: 2021
 Project ID: 2021, Future Build, AM
 East/West Street: Bell Bend Site Entrance
 North/South Street: S.R. 11
 Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach	Northbound			Southbound		
	Movement	1	2	3	4	5	6
		L	T	R	L	T	R
Volume		121	374			266	44
Peak-Hour Factor, PHF		1.00	0.94			1.00	1.00
Hourly Flow Rate, HFR		121	397			266	44
Percent Heavy Vehicles		0	--	--		--	--
Median Type/Storage		TWLTL			/ 9		
RT Channelized?							
Lanes		1	1			1	0
Configuration		L	T			TR	
Upstream Signal?			No			No	

Minor Street:	Approach	Westbound			Eastbound		
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume					6		17
Peak Hour Factor, PHF					1.00		1.00
Hourly Flow Rate, HFR					6		17
Percent Heavy Vehicles					0		0
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage					/		
Lanes					1	1	
Configuration					L	R	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L					L		R
v (vph)	121					6		17
C(m) (vph)	1262					476		756
v/c	0.10					0.01		0.02
95% queue length	0.32					0.04		0.07
Control Delay	8.2					12.7		9.9
LOS	A					B		A
Approach Delay							10.6	
Approach LOS							B	

TWO-WAY STOP CONTROL SUMMARY

Analyst: KLD Engineering, P.C.
 Agency/Co.:
 Date Performed:
 Analysis Time Period: 3:00 PM
 Intersection: S.R. 11 and Bell Bend Entrance
 Jurisdiction: Berwick, PA
 Units: U. S. Customary
 Analysis Year: 2021
 Project ID: 2021, Future Build, PM
 East/West Street: Bell Bend Site Entrance
 North/South Street: S.R. 11
 Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach	Northbound			Southbound		
	Movement	1	2	3	4	5	6
		L	T	R	L	T	R
Volume		1	237			317	0
Peak-Hour Factor, PHF		1.00	0.87			0.92	1.00
Hourly Flow Rate, HFR		1	272			344	0
Percent Heavy Vehicles		0	--	--		--	--
Median Type/Storage		TWLTL			/ 9		
RT Channelized?							
Lanes		1	1			1	0
Configuration		L	T			TR	
Upstream Signal?			No			No	

Minor Street:	Approach	Westbound			Eastbound		
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume					38		105
Peak Hour Factor, PHF					1.00		1.00
Hourly Flow Rate, HFR					38		105
Percent Heavy Vehicles					0		0
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage					/		
Lanes					1	1	
Configuration					L	R	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L					L		R
v (vph)	1					38		105
C(m) (vph)	1226					707		703
v/c	0.00					0.05		0.15
95% queue length	0.00					0.17		0.52
Control Delay	7.9					10.4		11.0
LOS	A					B		B
Approach Delay							10.8	
Approach LOS							B	

TWO-WAY STOP CONTROL SUMMARY

Analyst: KLD Engineering, P.C.
 Agency/Co.:
 Date Performed:
 Analysis Time Period: 6:00 AM
 Intersection: S.R. 11 and SSES Entrance
 Jurisdiction: Berwick, PA
 Units: U. S. Customary
 Analysis Year: 2021
 Project ID: 2021, Future Build, AM
 East/West Street: SSES Entrance
 North/South Street: S.R. 11
 Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach	Northbound			Southbound		
	Movement	1	2	3	4	5	6
		L	T	R	L	T	R
Volume		220	160			190	149
Peak-Hour Factor, PHF		0.87	0.86			0.83	0.78
Hourly Flow Rate, HFR		252	186			228	191
Percent Heavy Vehicles		0	--	--		--	--
Median Type/Storage		Undivided			/		
RT Channelized?							No
Lanes		1	1			1	1
Configuration		L	T			T	R
Upstream Signal?			No			No	

Minor Street:	Approach	Westbound			Eastbound		
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume					31		80
Peak Hour Factor, PHF					0.60		0.56
Hourly Flow Rate, HFR					51		142
Percent Heavy Vehicles					0		0
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage					/		
Lanes					1	1	
Configuration					L	R	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L					L		R
v (vph)	252					51		142
C(m) (vph)	1151					237		816
v/c	0.22					0.22		0.17
95% queue length	0.83					0.80		0.63
Control Delay	9.0					24.3		10.3
LOS	A					C		B
Approach Delay							14.0	
Approach LOS							B	

TWO-WAY STOP CONTROL SUMMARY

Analyst: KLD Engineering, P.C.
 Agency/Co.:
 Date Performed:
 Analysis Time Period: 4:45 PM
 Intersection: S.R. 11 and SSES Entrance
 Jurisdiction: Berwick, PA
 Units: U. S. Customary
 Analysis Year: 2021
 Project ID: 2021, Future Build, PM
 East/West Street: SSES Entrance
 North/South Street: S.R. 11
 Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach	Northbound			Southbound		
	Movement	1	2	3	4	5	6
		L	T	R	L	T	R
Volume		33	239			219	32
Peak-Hour Factor, PHF		0.69	0.80			0.92	1.00
Hourly Flow Rate, HFR		47	298			238	32
Percent Heavy Vehicles		0	--	--		--	--
Median Type/Storage		Undivided			/		
RT Channelized?							No
Lanes		1	1			1	1
Configuration		L	T			T	R
Upstream Signal?			No			No	

Minor Street:	Approach	Westbound			Eastbound		
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume					85		98
Peak Hour Factor, PHF					0.79		0.79
Hourly Flow Rate, HFR					107		124
Percent Heavy Vehicles					0		0
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage					/		
Lanes					1	1	
Configuration					L	R	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L					L		R
v (vph)	47					107		124
C(m) (vph)	1305					433		806
v/c	0.04					0.25		0.15
95% queue length	0.11					0.96		0.54
Control Delay	7.9					16.0		10.3
LOS	A					C		B
Approach Delay							12.9	
Approach LOS							B	

TWO-WAY STOP CONTROL SUMMARY

Analyst: KLD Engineering, P.C.
 Agency/Co.:
 Date Performed:
 Analysis Time Period: 7:00 AM
 Intersection: S.R. 11 and S.R. 29
 Jurisdiction: Nanticoke, PA
 Units: U. S. Customary
 Analysis Year: 2021
 Project ID: 2021, Future Build, AM
 East/West Street: S.R. 29
 North/South Street: S.R. 11 (Poplar St.)
 Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach	Northbound			Southbound		
	Movement	1	2	3	4	5	6
		L	T	R	L	T	R
Volume						166	
Peak-Hour Factor, PHF						0.79	
Hourly Flow Rate, HFR						210	
Percent Heavy Vehicles		--	--			--	--
Median Type/Storage		Undivided			/		
RT Channelized?							
Lanes						1	
Configuration						T	
Upstream Signal?			No			No	

Minor Street:	Approach	Westbound			Eastbound		
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume				34	225		
Peak Hour Factor, PHF				0.57	0.79		
Hourly Flow Rate, HFR				59	284		
Percent Heavy Vehicles				6	3		
Percent Grade (%)		0				0	
Flared Approach: Exists?/Storage					/		/
Lanes			1		1		
Configuration			R		L		

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config					R	L		
v (vph)					59	284		
C(m) (vph)					1073	673		
v/c					0.05	0.42		
95% queue length					0.17	2.10		
Control Delay					8.6	14.2		
LOS					A	B		
Approach Delay			8.6				14.2	
Approach LOS			A				B	

TWO-WAY STOP CONTROL SUMMARY

Analyst: KLD Engineering, P.C.
 Agency/Co.:
 Date Performed:
 Analysis Time Period: 4:30 PM
 Intersection: S.R. 11 and S.R. 29
 Jurisdiction: Nanticoke, PA
 Units: U. S. Customary
 Analysis Year: 2021
 Project ID: 2021, Future Build, PM
 East/West Street: S.R. 29
 North/South Street: S.R. 11 (Poplar St.)
 Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach	Northbound			Southbound		
	Movement	1	2	3	4	5	6
		L	T	R	L	T	R
Volume						303	
Peak-Hour Factor, PHF						0.90	
Hourly Flow Rate, HFR						336	
Percent Heavy Vehicles		--	--			--	--
Median Type/Storage		Undivided			/		
RT Channelized?							
Lanes						1	
Configuration						T	
Upstream Signal?			No			No	

Minor Street:	Approach	Westbound			Eastbound		
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume				11	537		
Peak Hour Factor, PHF				1.00	0.87		
Hourly Flow Rate, HFR				11	617		
Percent Heavy Vehicles				0	1		
Percent Grade (%)		0				0	
Flared Approach: Exists?/Storage					/		/
Lanes			1		1		
Configuration			R		L		

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config					R	L		
v (vph)					11	617		
C(m) (vph)					1091	608		
v/c					0.01	1.01		
95% queue length					0.03	15.78		
Control Delay					8.3	66.4		
LOS					A	F		
Approach Delay				8.3			66.4	
Approach LOS				A			F	

HCM Signalized Intersection Capacity Analysis

2021, Future Build

7: Market St. & S.R. 11 (Second St.)

AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	1	1	1	1	0	0	0	0	1	2	1
Volume (vph)	0	133	96	219	115	0	0	0	0	146	557	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5	3.0	4.5					5.0	5.0	5.0
Lane Util. Factor		1.00	1.00	1.00	1.00					1.00	0.95	1.00
Frt		1.00	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	1.00	1.00
Satd. Flow (prot)		1792	1599	1787	1863					1736	3539	1615
Flt Permitted		1.00	1.00	0.66	1.00					0.95	1.00	1.00
Satd. Flow (perm)		1792	1599	1247	1863					1736	3539	1615
Peak-hour factor, PHF	1.00	0.90	0.88	0.82	0.70	1.00	1.00	1.00	1.00	0.83	0.78	0.80
Adj. Flow (vph)	0	148	109	267	164	0	0	0	0	176	714	65
RTOR Reduction (vph)	0	0	79	0	0	0	0	0	0	0	0	41
Lane Group Flow (vph)	0	148	30	267	164	0	0	0	0	176	714	24
Heavy Vehicles (%)	0%	6%	1%	1%	2%	0%	0%	0%	0%	4%	2%	0%
Turn Type			Perm	pm+pt						Split		Prot
Protected Phases		4		3	8					2	2	2
Permitted Phases			4	8								
Actuated Green, G (s)		16.5	16.5	30.0	28.5					22.0	22.0	22.0
Effective Green, g (s)		16.5	16.5	30.0	28.5					22.0	22.0	22.0
Actuated g/C Ratio		0.28	0.28	0.50	0.48					0.37	0.37	0.37
Clearance Time (s)		4.5	4.5	3.0	4.5					5.0	5.0	5.0
Lane Grp Cap (vph)		493	440	705	885					637	1298	592
v/s Ratio Prot		0.08		c0.06	0.09					0.10	c0.20	0.01
v/s Ratio Perm			0.02	c0.13								
v/c Ratio		0.30	0.07	0.38	0.19					0.28	0.55	0.04
Uniform Delay, d1		17.2	16.1	9.5	9.1					13.4	15.1	12.2
Progression Factor		0.75	0.45	0.02	0.02					0.79	0.80	0.66
Incremental Delay, d2		1.5	0.3	1.2	0.4					1.0	1.6	0.1
Delay (s)		14.3	7.5	1.4	0.5					11.6	13.6	8.2
Level of Service		B	A	A	A					B	B	A
Approach Delay (s)		11.4			1.0			0.0			12.9	
Approach LOS		B			A			A			B	
Intersection Summary												
HCM Average Control Delay			9.6		HCM Level of Service				A			
HCM Volume to Capacity ratio			0.45									
Actuated Cycle Length (s)			60.0		Sum of lost time (s)			8.0				
Intersection Capacity Utilization			65.1%		ICU Level of Service			C				
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

8: S.R. 11 (Front St.) & Market St.

2021, Future Build

AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	2>	0	0	0	0	0	1	1	1	1	0
Volume (vph)	0	509	133	0	0	0	0	331	214	40	231	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			-1%			1%	
Total Lost time (s)		5.0						5.0	5.0	3.0	5.0	
Lane Util. Factor		0.95						1.00	1.00	1.00	1.00	
Frt		0.97						1.00	0.85	1.00	1.00	
Flt Protected		1.00						1.00	1.00	0.95	1.00	
Satd. Flow (prot)		3411						1872	1607	1633	1835	
Flt Permitted		1.00						1.00	1.00	0.36	1.00	
Satd. Flow (perm)		3411						1872	1607	615	1835	
Peak-hour factor, PHF	1.00	0.91	0.87	1.00	1.00	1.00	1.00	0.78	0.66	0.77	0.80	1.00
Adj. Flow (vph)	0	559	153	0	0	0	0	424	324	52	289	0
RTOR Reduction (vph)	0	41	0	0	0	0	0	0	141	0	0	0
Lane Group Flow (vph)	0	671	0	0	0	0	0	424	183	52	289	0
Heavy Vehicles (%)	0%	2%	4%	0%	0%	0%	0%	2%	1%	10%	3%	0%
Turn Type									Perm	D.P+P		
Protected Phases		1						3		2	4	
Permitted Phases									3	3		
Actuated Green, G (s)		22.0						22.0	22.0	25.0	28.0	
Effective Green, g (s)		22.0						22.0	22.0	25.0	28.0	
Actuated g/C Ratio		0.37						0.37	0.37	0.42	0.47	
Clearance Time (s)		5.0						5.0	5.0	3.0	5.0	
Lane Grp Cap (vph)		1251						686	589	307	856	
v/s Ratio Prot		c0.20						c0.23		0.01	c0.16	
v/s Ratio Perm									0.11	0.06		
v/c Ratio		0.54						0.62	0.31	0.17	0.34	
Uniform Delay, d1		15.0						15.6	13.6	10.9	10.1	
Progression Factor		0.74						1.00	1.00	0.67	0.64	
Incremental Delay, d2		1.6						4.1	1.4	1.2	1.0	
Delay (s)		12.7						19.7	14.9	8.5	7.6	
Level of Service		B						B	B	A	A	
Approach Delay (s)		12.7			0.0			17.6			7.7	
Approach LOS		B			A			B			A	
Intersection Summary												
HCM Average Control Delay			13.8		HCM Level of Service					B		
HCM Volume to Capacity ratio			0.59									
Actuated Cycle Length (s)			60.0		Sum of lost time (s)					15.0		
Intersection Capacity Utilization			65.1%		ICU Level of Service					C		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

32: S.R. 239 & S.R. 11 (S. Main St.)

2021, Future Build

AM

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	1>	0	1	1	1	1
Volume (vph)	45	71	140	10	62	327
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%		0%			-1%
Total Lost time (s)	5.2		5.4	5.4	5.4	5.4
Lane Util. Factor	1.00		1.00	1.00	1.00	1.00
Frt	0.93		1.00	0.85	1.00	1.00
Flt Protected	0.98		1.00	1.00	0.95	1.00
Satd. Flow (prot)	1683		1845	1615	1761	1872
Flt Permitted	0.98		1.00	1.00	0.49	1.00
Satd. Flow (perm)	1683		1845	1615	908	1872
Peak-hour factor, PHF	0.57	0.85	0.86	0.62	0.74	0.80
Adj. Flow (vph)	79	84	163	16	84	409
RTOR Reduction (vph)	74	0	0	9	0	0
Lane Group Flow (vph)	89	0	163	7	84	409
Heavy Vehicles (%)	0%	5%	3%	0%	3%	2%
Turn Type				Perm	pm+pt	
Protected Phases	4		6		5	2
Permitted Phases				6	2	
Actuated Green, G (s)	4.6		16.1	16.1	24.3	24.3
Effective Green, g (s)	4.6		16.1	16.1	24.3	24.3
Actuated g/C Ratio	0.12		0.41	0.41	0.62	0.62
Clearance Time (s)	5.2		5.4	5.4	5.4	5.4
Vehicle Extension (s)	5.0		5.0	5.0	3.0	5.0
Lane Grp Cap (vph)	196		752	658	619	1152
v/s Ratio Prot	c0.05		0.09		0.01	c0.22
v/s Ratio Perm				0.00	0.07	
v/c Ratio	0.45		0.22	0.01	0.14	0.36
Uniform Delay, d1	16.3		7.6	7.0	3.5	3.7
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	3.4		0.3	0.0	0.1	0.4
Delay (s)	19.7		7.9	7.0	3.6	4.1
Level of Service	B		A	A	A	A
Approach Delay (s)	19.7		7.8			4.0
Approach LOS	B		A			A
Intersection Summary						
HCM Average Control Delay			7.9		HCM Level of Service	A
HCM Volume to Capacity ratio			0.37			
Actuated Cycle Length (s)			39.5		Sum of lost time (s)	10.6
Intersection Capacity Utilization			34.4%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

37: S.R. 239 (Union St.) & S.R. 11 (Main St.)

2021, Future Build

AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	<1>	0	0	<1>	0	1	1>	0	0	<1>	0
Volume (vph)	155	26	105	12	14	2	68	240	12	2	182	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			0%			1%			1%	
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	
Frt		0.95			0.97		1.00	0.99			0.96	
Flt Protected		0.97			0.98		0.95	1.00			1.00	
Satd. Flow (prot)		1543			1545		1616	1623			1483	
Flt Permitted		0.81			0.83		0.41	1.00			0.99	
Satd. Flow (perm)		1286			1310		701	1623			1467	
Peak-hour factor, PHF	0.92	0.69	0.96	0.75	0.88	0.25	0.64	0.83	0.60	0.25	0.90	0.52
Adj. Flow (vph)	168	38	109	16	16	8	106	289	20	8	202	96
RTOR Reduction (vph)	0	36	0	0	6	0	0	5	0	0	30	0
Lane Group Flow (vph)	0	279	0	0	34	0	106	304	0	0	276	0
Heavy Vehicles (%)	2%	8%	1%	0%	14%	0%	0%	3%	16%	0%	10%	10%
Turn Type	Perm			Perm			pm+pt			Perm		
Protected Phases		4			8		1	6			2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)		14.1			14.1		23.5	23.5			15.5	
Effective Green, g (s)		14.1			14.1		23.5	23.5			15.5	
Actuated g/C Ratio		0.30			0.30		0.49	0.49			0.33	
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)		381			388		404	801			478	
v/s Ratio Prot							0.02	c0.19				
v/s Ratio Perm		c0.22			0.03		0.11				c0.19	
v/c Ratio		0.73			0.09		0.26	0.38			0.58	
Uniform Delay, d1		15.1			12.1		7.5	7.5			13.3	
Progression Factor		1.00			1.00		1.00	1.00			1.00	
Incremental Delay, d2		7.1			0.1		0.3	0.3			1.7	
Delay (s)		22.2			12.2		7.9	7.8			15.0	
Level of Service		C			B		A	A			B	
Approach Delay (s)		22.2			12.2			7.8			15.0	
Approach LOS		C			B			A			B	

Intersection Summary

HCM Average Control Delay	14.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	47.6	Sum of lost time (s)	15.0
Intersection Capacity Utilization	66.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

44: S.R. 11 & Poplar St.

2021, Future Build

AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1	1>	0	1	1>	0	0	<1	1	0	<1>	0
Volume (vph)	0	449	25	37	572	0	51	0	25	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		3.0	5.0			4.0	4.0			
Lane Util. Factor		1.00		1.00	1.00			1.00	1.00			
Frpb, ped/bikes		1.00		1.00	1.00			1.00	1.00			
Flpb, ped/bikes		1.00		1.00	1.00			0.99	1.00			
Frt		0.99		1.00	1.00			1.00	0.85			
Flt Protected		1.00		0.95	1.00			0.95	1.00			
Satd. Flow (prot)		1787		1626	1845			1693	1335			
Flt Permitted		1.00		0.95	1.00			0.76	1.00			
Satd. Flow (perm)		1787		1626	1845			1350	1335			
Peak-hour factor, PHF	1.00	0.85	0.64	0.71	0.88	1.00	0.57	1.00	0.64	1.00	1.00	1.00
Adj. Flow (vph)	0	528	39	52	650	0	89	0	39	0	0	0
RTOR Reduction (vph)	0	4	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	563	0	52	650	0	0	89	39	0	0	0
Confl. Peds. (#/hr)							3					
Heavy Vehicles (%)	0%	5%	8%	11%	3%	0%	6%	0%	21%	0%	0%	0%
Turn Type	Perm			Prot			Perm		Perm	Perm		
Protected Phases		2		1	6			8			4	
Permitted Phases	2						8		8	4		
Actuated Green, G (s)		27.0		16.0	46.0			20.0	20.0			
Effective Green, g (s)		27.0		16.0	46.0			20.0	20.0			
Actuated g/C Ratio		0.36		0.21	0.61			0.27	0.27			
Clearance Time (s)		5.0		3.0	5.0			4.0	4.0			
Lane Grp Cap (vph)		643		347	1132			360	356			
v/s Ratio Prot		c0.32		0.03	c0.35							
v/s Ratio Perm								c0.07	0.03			
v/c Ratio		0.88		0.15	0.57			0.25	0.11			
Uniform Delay, d1		22.4		24.0	8.7			21.6	20.8			
Progression Factor		1.00		0.65	0.62			1.00	1.00			
Incremental Delay, d2		15.5		0.7	1.7			1.6	0.6			
Delay (s)		37.9		16.2	7.0			23.2	21.4			
Level of Service		D		B	A			C	C			
Approach Delay (s)		37.9			7.7			22.7			0.0	
Approach LOS		D			A			C			A	
Intersection Summary												
HCM Average Control Delay			21.3			HCM Level of Service			C			
HCM Volume to Capacity ratio			0.58									
Actuated Cycle Length (s)			75.0			Sum of lost time (s)			9.0			
Intersection Capacity Utilization			54.9%			ICU Level of Service			A			
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

48: S.R. 11 & S.R. 93 (Orange St.)

2021, Future Build

AM

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	0	1	1	0	1	0
Volume (vph)	0	451	615	0	84	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		-1%	0%		0%	
Total Lost time (s)		4.0	4.0		4.0	
Lane Util. Factor		1.00	1.00		1.00	
Frt		1.00	1.00		1.00	
Flt Protected		1.00	1.00		0.95	
Satd. Flow (prot)		1819	1845		1787	
Flt Permitted		1.00	1.00		0.95	
Satd. Flow (perm)		1819	1845		1787	
Peak-hour factor, PHF	1.00	0.90	0.84	0.93	0.68	1.00
Adj. Flow (vph)	0	501	732	0	124	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	501	732	0	124	0
Heavy Vehicles (%)	0%	5%	3%	2%	1%	0%
Turn Type						
Protected Phases		2	6		8	
Permitted Phases						
Actuated Green, G (s)		54.0	54.0		13.0	
Effective Green, g (s)		54.0	54.0		13.0	
Actuated g/C Ratio		0.72	0.72		0.17	
Clearance Time (s)		4.0	4.0		4.0	
Lane Grp Cap (vph)		1310	1328		310	
v/s Ratio Prot		0.28	c0.40		c0.07	
v/s Ratio Perm						
v/c Ratio		0.38	0.55		0.40	
Uniform Delay, d1		4.1	4.9		27.5	
Progression Factor		0.37	0.50		1.00	
Incremental Delay, d2		0.8	1.6		3.8	
Delay (s)		2.2	4.0		31.4	
Level of Service		A	A		C	
Approach Delay (s)		2.2	4.0		31.4	
Approach LOS		A	A		C	
Intersection Summary						
HCM Average Control Delay			5.8		HCM Level of Service	A
HCM Volume to Capacity ratio			0.52			
Actuated Cycle Length (s)			75.0		Sum of lost time (s)	8.0
Intersection Capacity Utilization			43.7%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

2021, Future Build

51: S.R. 11 (Second St.) & LaSalle St.

AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	NWL	NWR
Lane Configurations	1	0	0	1	2>	0	0	1	0	0
Volume (vph)	49	0	0	9	645	22	0	67	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0	4.0			4.0		
Lane Util. Factor	1.00			1.00	0.95			1.00		
Frt	1.00			1.00	0.99			0.86		
Flt Protected	0.95			0.95	1.00			1.00		
Satd. Flow (prot)	1805			1805	3517			1627		
Flt Permitted	0.95			0.95	1.00			1.00		
Satd. Flow (perm)	1805			1805	3517			1627		
Peak-hour factor, PHF	0.54	0.90	1.00	0.75	0.84	0.56	1.00	0.76	0.92	0.92
Adj. Flow (vph)	91	0	0	12	768	39	0	88	0	0
RTOR Reduction (vph)	0	0	0	5	5	0	0	59	0	0
Lane Group Flow (vph)	91	0	0	7	802	0	0	29	0	0
Heavy Vehicles (%)	0%	2%	0%	0%	2%	0%	0%	1%	2%	2%
Turn Type	Prot			custom				custom		
Protected Phases	8			1	1			8		
Permitted Phases				1				8		
Actuated Green, G (s)	25.0			42.0	42.0			25.0		
Effective Green, g (s)	25.0			42.0	42.0			25.0		
Actuated g/C Ratio	0.33			0.56	0.56			0.33		
Clearance Time (s)	4.0			4.0	4.0			4.0		
Lane Grp Cap (vph)	602			1011	1970			542		
v/s Ratio Prot	c0.05			0.00	c0.23			0.02		
v/s Ratio Perm										
v/c Ratio	0.15			0.01	0.41			0.05		
Uniform Delay, d1	17.6			7.3	9.4			17.0		
Progression Factor	1.22			1.00	1.00			1.00		
Incremental Delay, d2	0.5			0.0	0.6			0.2		
Delay (s)	21.8			7.3	10.0			17.2		
Level of Service	C			A	B			B		
Approach Delay (s)		21.8			10.0		17.2		0.0	
Approach LOS		C			A		B		A	
Intersection Summary										
HCM Average Control Delay			11.7		HCM Level of Service				B	
HCM Volume to Capacity ratio			0.31							
Actuated Cycle Length (s)			75.0		Sum of lost time (s)				8.0	
Intersection Capacity Utilization			29.3%		ICU Level of Service				A	
Analysis Period (min)			15							
c Critical Lane Group										

HCM Signalized Intersection Capacity Analysis

67: S.R. 11 (Second St.) & Pine St.

2021, Future Build

AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	0	0	0	2>	0	1	1	0	0	0	1
Volume (vph)	0	0	0	0	637	19	26	72	0	0	0	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)	0%				0%			1%		1%		
Total Lost time (s)					4.0			4.0		4.0		
Lane Util. Factor					0.95			1.00		1.00		
Frt					1.00			1.00		1.00		
Flt Protected					1.00			0.95		1.00		
Satd. Flow (prot)					3491			1796		1872		
Flt Permitted					1.00			0.95		1.00		
Satd. Flow (perm)					3491			1796		1872		
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	0.72	0.64	0.67	0.79	1.00	1.00	1.00	0.71
Adj. Flow (vph)	0	0	0	0	885	30	39	91	0	0	0	25
RTOR Reduction (vph)	0	0	0	0	3	0	34	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	912	0	5	91	0	0	0	25
Heavy Vehicles (%)	0%	0%	0%	0%	3%	0%	0%	1%	0%	0%	0%	0%
Turn Type							Perm			custom		
Protected Phases							1			2		
Permitted Phases							2			2		
Actuated Green, G (s)					44.8			7.2		7.2		
Effective Green, g (s)					44.8			7.2		7.2		
Actuated g/C Ratio					0.75			0.12		0.12		
Clearance Time (s)					4.0			4.0		4.0		
Vehicle Extension (s)					3.0			3.0		3.0		
Lane Grp Cap (vph)					2607			216		225		
v/s Ratio Prot					c0.26			c0.05				
v/s Ratio Perm								0.00			0.02	
v/c Ratio					0.35			0.02		0.40		
Uniform Delay, d1					2.6			23.3		24.4		
Progression Factor					0.96			1.00		1.00		
Incremental Delay, d2					0.4			0.0		1.2		
Delay (s)					2.9			23.3		25.6		
Level of Service					A			C		C		
Approach Delay (s)	0.0				2.9			24.9		23.9		
Approach LOS	A				A			C		C		
Intersection Summary												
HCM Average Control Delay			6.0		HCM Level of Service				A			
HCM Volume to Capacity ratio			0.36									
Actuated Cycle Length (s)			60.0		Sum of lost time (s)				8.0			
Intersection Capacity Utilization			34.9%		ICU Level of Service				A			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

68: S.R. 11 & Orchard St.

2021, Future Build

AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1	1	0	1	1	0	0	<1>	0	0	<1>	0
Volume (vph)	9	526	1	6	620	3	20	12	5	25	2	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	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	
Frt	1.00	1.00		1.00	1.00			0.98			0.96	
Flt Protected	0.95	1.00		0.95	1.00			0.98			0.97	
Satd. Flow (prot)	1805	1814		1805	1842			1815			1768	
Flt Permitted	0.27	1.00		0.38	1.00			0.98			0.97	
Satd. Flow (perm)	508	1814		718	1842			1815			1768	
Peak-hour factor, PHF	0.56	0.91	0.25	0.38	0.82	0.38	0.68	0.46	0.42	0.52	0.25	0.71
Adj. Flow (vph)	16	578	4	16	756	8	29	26	12	48	8	25
RTOR Reduction (vph)	0	0	0	0	0	0	0	10	0	0	21	0
Lane Group Flow (vph)	16	582	0	16	764	0	0	57	0	0	60	0
Heavy Vehicles (%)	0%	4%	100%	0%	3%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm			Perm			Split			Split		
Protected Phases		2			6		3	3		4	4	
Permitted Phases	2			6								
Actuated Green, G (s)	49.0	49.0		49.0	49.0			5.0			6.0	
Effective Green, g (s)	49.0	49.0		49.0	49.0			5.0			6.0	
Actuated g/C Ratio	0.65	0.65		0.65	0.65			0.07			0.08	
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Lane Grp Cap (vph)	332	1185		469	1203			121			141	
v/s Ratio Prot		0.32			c0.41			c0.03			c0.03	
v/s Ratio Perm	0.03			0.02								
v/c Ratio	0.05	0.49		0.03	0.64			0.47			0.42	
Uniform Delay, d1	4.7	6.6		4.6	7.7			33.7			32.9	
Progression Factor	0.07	0.18		0.13	0.10			1.00			1.00	
Incremental Delay, d2	0.2	0.9		0.1	2.2			12.5			9.1	
Delay (s)	0.5	2.1		0.7	3.0			46.2			41.9	
Level of Service	A	A		A	A			D			D	
Approach Delay (s)		2.0			3.0			46.2			41.9	
Approach LOS		A			A			D			D	
Intersection Summary												
HCM Average Control Delay			6.6			HCM Level of Service			A			
HCM Volume to Capacity ratio			0.60									
Actuated Cycle Length (s)			75.0			Sum of lost time (s)			15.0			
Intersection Capacity Utilization			46.1%			ICU Level of Service			A			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2021, Future Build

71: S.R. 11 (Second St.) & Oak St.

AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	0	0	0	<2>	0	0	<1	0	0	1>	0
Volume (vph)	0	0	0	24	766	21	7	30	0	0	33	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)	0%				-1%				1%			
Total Lost time (s)					6.0				5.0			
Lane Util. Factor					0.95				1.00			
Frt					1.00				1.00			
Flt Protected					1.00				0.99			
Satd. Flow (prot)					3536				1660			
Flt Permitted					1.00				0.88			
Satd. Flow (perm)					3536				1474			
Peak-hour factor, PHF	1.00	1.00	1.00	0.69	0.86	0.83	0.44	0.70	1.00	1.00	0.65	0.88
Adj. Flow (vph)	0	0	0	35	891	25	16	43	0	0	51	43
RTOR Reduction (vph)	0	0	0	0	4	0	0	0	0	0	40	0
Lane Group Flow (vph)	0	0	0	0	947	0	0	59	0	0	54	0
Heavy Vehicles (%)	0%	0%	0%	4%	2%	0%	0%	17%	0%	0%	0%	14%
Turn Type				Perm			Perm					
Protected Phases				1			2			2		
Permitted Phases				1			2					
Actuated Green, G (s)				32.8			3.3			3.3		
Effective Green, g (s)				32.8			3.3			3.3		
Actuated g/C Ratio				0.70			0.07			0.07		
Clearance Time (s)				6.0			5.0			5.0		
Vehicle Extension (s)				3.0			3.0			3.0		
Lane Grp Cap (vph)				2462			103			118		
v/s Ratio Prot										0.03		
v/s Ratio Perm				0.27			c0.04					
v/c Ratio				0.38			0.57			0.46		
Uniform Delay, d1				3.0			21.2			21.0		
Progression Factor				1.00			1.00			1.00		
Incremental Delay, d2				0.1			7.5			2.8		
Delay (s)				3.1			28.7			23.8		
Level of Service				A			C			C		
Approach Delay (s)	0.0				3.1		28.7				23.8	
Approach LOS	A				A		C				C	
Intersection Summary												
HCM Average Control Delay			6.2		HCM Level of Service				A			
HCM Volume to Capacity ratio			0.40									
Actuated Cycle Length (s)			47.1		Sum of lost time (s)				11.0			
Intersection Capacity Utilization			41.8%		ICU Level of Service				A			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

74: Third St. & S.R. 1025 (Market St.)

2021, Future Build

AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	<1>	0	0	<1>	0	1	1>	0	1	1>	0
Volume (vph)	27	63	25	21	85	8	38	144	13	13	202	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			0%			0%			0%	
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.97			0.99		1.00	0.98		1.00	0.97	
Flt Protected		0.99			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1786			1860		1805	1853		1805	1844	
Flt Permitted		0.91			0.92		0.52	1.00		0.63	1.00	
Satd. Flow (perm)		1647			1739		989	1853		1191	1844	
Peak-hour factor, PHF	0.78	0.91	0.72	0.62	0.78	0.67	0.80	0.77	0.60	0.50	0.76	0.85
Adj. Flow (vph)	35	69	35	34	109	12	48	187	22	26	266	65
RTOR Reduction (vph)	0	20	0	0	5	0	0	7	0	0	14	0
Lane Group Flow (vph)	0	119	0	0	150	0	48	202	0	26	317	0
Heavy Vehicles (%)	4%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			1			1	
Permitted Phases	2			2	2		1			1	1	
Actuated Green, G (s)		20.0			20.0		32.0	32.0		32.0	32.0	
Effective Green, g (s)		20.0			20.0		32.0	32.0		32.0	32.0	
Actuated g/C Ratio		0.33			0.33		0.53	0.53		0.53	0.53	
Clearance Time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)		549			580		527	988		635	983	
v/s Ratio Prot								0.11			c0.17	
v/s Ratio Perm		0.07			c0.09		0.05			0.02		
v/c Ratio		0.22			0.26		0.09	0.20		0.04	0.32	
Uniform Delay, d1		14.4			14.6		6.9	7.3		6.7	7.9	
Progression Factor		1.00			1.00		0.58	0.53		1.00	1.00	
Incremental Delay, d2		0.9			1.1		0.3	0.5		0.1	0.9	
Delay (s)		15.3			15.7		4.3	4.4		6.8	8.8	
Level of Service		B			B		A	A		A	A	
Approach Delay (s)		15.3			15.7			4.4			8.6	
Approach LOS		B			B			A			A	
Intersection Summary												
HCM Average Control Delay			9.6			HCM Level of Service			A			
HCM Volume to Capacity ratio			0.30									
Actuated Cycle Length (s)			60.0			Sum of lost time (s)			8.0			
Intersection Capacity Utilization			36.6%			ICU Level of Service			A			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2021, Future Build

77: S.R. 11 (Second St.) & Mulberry St.

AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	0	0	0	<2>	0	0	<1	0	0	1>	0
Volume (vph)	0	0	0	17	785	21	17	38	0	0	17	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)	1%				0%				1%			
Total Lost time (s)					4.0				4.0			
Lane Util. Factor					0.95				1.00			
Frt					1.00				1.00			
Flt Protected					1.00				0.99			
Satd. Flow (prot)					3554				1802			
Flt Permitted					1.00				0.91			
Satd. Flow (perm)					3554				1664			
Peak-hour factor, PHF	1.00	1.00	1.00	0.50	0.78	0.62	0.80	0.73	1.00	1.00	0.67	0.70
Adj. Flow (vph)	0	0	0	34	1006	34	21	52	0	0	25	81
RTOR Reduction (vph)	0	0	0	0	4	0	0	0	0	0	63	0
Lane Group Flow (vph)	0	0	0	0	1070	0	0	73	0	0	43	0
Heavy Vehicles (%)	0%	0%	0%	0%	1%	0%	12%	0%	0%	0%	0%	0%
Turn Type				Split		Perm						
Protected Phases				1		1		2			2	
Permitted Phases								2				
Actuated Green, G (s)						39.0		13.0			13.0	
Effective Green, g (s)						39.0		13.0			13.0	
Actuated g/C Ratio						0.65		0.22			0.22	
Clearance Time (s)						4.0		4.0			4.0	
Lane Grp Cap (vph)						2310		361			377	
v/s Ratio Prot						c0.30					0.02	
v/s Ratio Perm								c0.04				
v/c Ratio						0.46		0.20			0.11	
Uniform Delay, d1						5.3		19.3			18.9	
Progression Factor						0.37		0.82			1.00	
Incremental Delay, d2						0.6		1.2			0.6	
Delay (s)						2.5		17.0			19.5	
Level of Service						A		B			B	
Approach Delay (s)	0.0					2.5		17.0			19.5	
Approach LOS	A					A		B			B	
Intersection Summary												
HCM Average Control Delay			4.8		HCM Level of Service				A			
HCM Volume to Capacity ratio			0.40									
Actuated Cycle Length (s)			60.0		Sum of lost time (s)				8.0			
Intersection Capacity Utilization			39.1%		ICU Level of Service				A			
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

78: S.R. 11 (Front St.) & Mulberry St.

2021, Future Build

AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	<2>	0	0	0	0	0	1>	0	0	<1	0
Volume (vph)	47	566	20	0	0	0	0	10	4	22	2	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-1%			1%			-1%	
Total Lost time (s)		4.0						4.0			4.0	
Lane Util. Factor		0.95						1.00			1.00	
Frt		0.99						0.95			1.00	
Flt Protected		1.00						1.00			0.96	
Satd. Flow (prot)		3428						1693			1828	
Flt Permitted		1.00						1.00			0.80	
Satd. Flow (perm)		3428						1693			1524	
Peak-hour factor, PHF	0.72	0.92	0.68	1.00	1.00	1.00	1.00	0.62	0.50	0.66	0.50	1.00
Adj. Flow (vph)	65	615	29	0	0	0	0	16	8	33	4	0
RTOR Reduction (vph)	0	5	0	0	0	0	0	6	0	0	0	0
Lane Group Flow (vph)	0	704	0	0	0	0	0	18	0	0	37	0
Heavy Vehicles (%)	2%	4%	0%	0%	0%	0%	0%	10%	0%	0%	0%	0%
Turn Type	Split					Perm						
Protected Phases	1	1						2			2	
Permitted Phases										2		
Actuated Green, G (s)		39.0						13.0			13.0	
Effective Green, g (s)		39.0						13.0			13.0	
Actuated g/C Ratio		0.65						0.22			0.22	
Clearance Time (s)		4.0						4.0			4.0	
Lane Grp Cap (vph)		2228						367			330	
v/s Ratio Prot		c0.21						0.01				
v/s Ratio Perm											c0.02	
v/c Ratio		0.32						0.05			0.11	
Uniform Delay, d1		4.6						18.6			18.9	
Progression Factor		1.00						1.00			0.89	
Incremental Delay, d2		0.4						0.2			0.7	
Delay (s)		5.0						18.9			17.4	
Level of Service		A						B			B	
Approach Delay (s)		5.0			0.0			18.9			17.4	
Approach LOS		A			A			B			B	
Intersection Summary												
HCM Average Control Delay			6.0		HCM Level of Service					A		
HCM Volume to Capacity ratio			0.27									
Actuated Cycle Length (s)			60.0		Sum of lost time (s)					8.0		
Intersection Capacity Utilization			32.3%		ICU Level of Service					A		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

85: S.R. 11 & S.R. 2028

2021, Future Build

AM

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	1	1	1	1	1	1
Volume (vph)	467	34	108	649	122	187
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	3.6	6.0	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1792	1404	1736	1827	1770	1583
Flt Permitted	1.00	1.00	0.27	1.00	0.95	1.00
Satd. Flow (perm)	1792	1404	489	1827	1770	1583
Peak-hour factor, PHF	0.84	0.57	0.77	0.78	0.85	0.84
Adj. Flow (vph)	556	60	140	832	144	223
RTOR Reduction (vph)	0	34	0	0	0	0
Lane Group Flow (vph)	556	26	140	832	144	223
Heavy Vehicles (%)	6%	15%	4%	4%	2%	2%
Turn Type	Perm		pm+pt		Prot	
Protected Phases	4		3	8	2	2
Permitted Phases		4	8			
Actuated Green, G (s)	22.0	22.0	28.9	28.9	11.6	11.6
Effective Green, g (s)	22.0	22.0	28.9	28.9	11.6	11.6
Actuated g/C Ratio	0.43	0.43	0.57	0.57	0.23	0.23
Clearance Time (s)	6.0	6.0	3.6	6.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	773	606	358	1035	403	360
v/s Ratio Prot	0.31		0.03	c0.46	0.08	c0.14
v/s Ratio Perm		0.02	0.20			
v/c Ratio	0.72	0.04	0.39	0.80	0.36	0.62
Uniform Delay, d1	12.0	8.4	6.5	8.8	16.6	17.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.2	0.0	0.7	4.6	0.5	3.2
Delay (s)	15.2	8.4	7.2	13.4	17.1	20.9
Level of Service	B	A	A	B	B	C
Approach Delay (s)	14.5			12.5	19.4	
Approach LOS	B			B	B	
Intersection Summary						
HCM Average Control Delay			14.4		HCM Level of Service	B
HCM Volume to Capacity ratio			0.75			
Actuated Cycle Length (s)			51.0		Sum of lost time (s)	10.5
Intersection Capacity Utilization			49.7%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

103: S.R. 93 (Third St.) & S.R. 339 (Broad St.)

2021, Future Build

AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	<1	0	0	<1>	0	0	<1>	0	0	<1>	0
Volume (vph)	2	245	49	42	352	2	144	11	46	4	4	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			-1%			0%			0%	
Total Lost time (s)		6.5			6.5			6.0			6.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.97			1.00			0.97			0.93	
Flt Protected		1.00			0.99			0.97			0.99	
Satd. Flow (prot)		1773			1838			1709			1750	
Flt Permitted		0.99			0.92			0.77			0.90	
Satd. Flow (perm)		1752			1702			1365			1588	
Peak-hour factor, PHF	0.25	0.94	0.65	0.67	0.74	0.50	0.84	0.69	0.79	0.50	0.50	0.75
Adj. Flow (vph)	8	261	75	63	476	4	171	16	58	8	8	16
RTOR Reduction (vph)	0	16	0	0	0	0	0	19	0	0	12	0
Lane Group Flow (vph)	0	328	0	0	543	0	0	226	0	0	20	0
Heavy Vehicles (%)	0%	4%	4%	5%	3%	0%	2%	0%	11%	0%	0%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)		31.6			31.6			13.2			13.2	
Effective Green, g (s)		31.6			31.6			13.2			13.2	
Actuated g/C Ratio		0.55			0.55			0.23			0.23	
Clearance Time (s)		6.5			6.5			6.0			6.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		966			939			314			366	
v/s Ratio Prot												
v/s Ratio Perm		0.19			0.32			0.17			0.01	
v/c Ratio		0.34			0.58			0.72			0.05	
Uniform Delay, d1		7.1			8.5			20.3			17.2	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		1.0			2.6			7.7			0.1	
Delay (s)		8.0			11.0			28.0			17.2	
Level of Service		A			B			C			B	
Approach Delay (s)		8.0			11.0			28.0			17.2	
Approach LOS		A			B			C			B	

Intersection Summary

HCM Average Control Delay	13.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	57.3	Sum of lost time (s)	12.5
Intersection Capacity Utilization	70.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

106: S.R. 93 (Third St.) & Dewey St.

2021, Future Build

AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	<1>	0	0	<1>	0	0	<1>	0	0	<1>	0
Volume (vph)	5	236	31	7	371	0	16	2	4	2	7	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			0%			0%			0%	
Total Lost time (s)		5.0			5.0			5.0			5.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.97			1.00			0.96			0.97	
Flt Protected		1.00			1.00			0.97			0.99	
Satd. Flow (prot)		1782			1826			1781			1824	
Flt Permitted		0.98			0.99			1.00			0.95	
Satd. Flow (perm)		1753			1808			1830			1740	
Peak-hour factor, PHF	0.42	0.99	0.50	0.44	0.76	1.00	0.67	0.25	0.33	0.50	0.35	0.62
Adj. Flow (vph)	12	238	62	16	488	0	24	8	12	4	20	8
RTOR Reduction (vph)	0	13	0	0	0	0	0	11	0	0	8	0
Lane Group Flow (vph)	0	299	0	0	504	0	0	33	0	0	24	0
Heavy Vehicles (%)	0%	4%	0%	0%	4%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)		40.0			40.0			2.4			2.4	
Effective Green, g (s)		40.0			40.0			2.4			2.4	
Actuated g/C Ratio		0.76			0.76			0.05			0.05	
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)		1338			1380			84			80	
v/s Ratio Prot												
v/s Ratio Perm		0.17			0.28			0.02			0.01	
v/c Ratio		0.22			0.37			0.39			0.30	
Uniform Delay, d1		1.8			2.0			24.3			24.2	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.4			0.7			3.0			2.2	
Delay (s)		2.2			2.8			27.2			26.3	
Level of Service		A			A			C			C	
Approach Delay (s)		2.2			2.8			27.2			26.3	
Approach LOS		A			A			C			C	
Intersection Summary												
HCM Average Control Delay			4.6			HCM Level of Service			A			
HCM Volume to Capacity ratio			0.37									
Actuated Cycle Length (s)			52.4			Sum of lost time (s)			10.0			
Intersection Capacity Utilization			36.5%			ICU Level of Service			A			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

112: S.R. 11 & Briar Creek Plaza Driveways

2021, Future Build

AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1	1>	0	1	1	1	1	1>	0	1	1	1
Volume (vph)	36	510	39	27	427	71	33	7	4	52	9	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	16	16
Grade (%)		1%			-1%			1%			2%	
Total Lost time (s)	3.5	5.3		5.3	5.3	5.3	5.2	5.2		5.2	5.2	5.2
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Fr't	1.00	0.99		1.00	1.00	0.85	1.00	0.95		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1744	1787		1744	1836	1623	1796	1796		1718	2132	1812
Flt Permitted	0.38	1.00		0.44	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Satd. Flow (perm)	695	1787		810	1836	1623	1890	1796		1809	2132	1812
Peak-hour factor, PHF	0.63	0.93	0.90	0.42	0.83	0.74	0.70	0.44	0.50	0.71	0.56	0.78
Adj. Flow (vph)	57	548	43	64	514	96	47	16	8	73	16	42
RTOR Reduction (vph)	0	6	0	0	0	42	0	7	0	0	0	39
Lane Group Flow (vph)	57	585	0	64	514	54	47	17	0	73	16	3
Heavy Vehicles (%)	3%	5%	0%	4%	4%	0%	0%	0%	0%	4%	0%	0%
Turn Type	pm+pt			Perm		Perm	Perm			Perm		Perm
Protected Phases	5	2			6			4			8	
Permitted Phases	2			6		6	4			8		8
Actuated Green, G (s)	28.6	28.6		24.1	24.1	24.1	3.4	3.4		3.4	3.4	3.4
Effective Green, g (s)	28.6	28.6		24.1	24.1	24.1	3.4	3.4		3.4	3.4	3.4
Actuated g/C Ratio	0.67	0.67		0.57	0.57	0.57	0.08	0.08		0.08	0.08	0.08
Clearance Time (s)	3.5	5.3		5.3	5.3	5.3	5.2	5.2		5.2	5.2	5.2
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	492	1203		459	1041	920	151	144		145	171	145
v/s Ratio Prot	0.00	c0.33			0.28			0.01			0.01	
v/s Ratio Perm	0.08			0.08		0.03	0.02			c0.04		0.00
v/c Ratio	0.12	0.49		0.14	0.49	0.06	0.31	0.12		0.50	0.09	0.02
Uniform Delay, d1	2.7	3.4		4.3	5.5	4.1	18.4	18.2		18.7	18.1	18.0
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.1	0.3		0.1	0.4	0.0	1.2	0.4		2.7	0.2	0.1
Delay (s)	2.8	3.7		4.5	5.9	4.1	19.6	18.5		21.5	18.4	18.1
Level of Service	A	A		A	A	A	B	B		C	B	B
Approach Delay (s)		3.6			5.5			19.2			20.0	
Approach LOS		A			A			B			C	

Intersection Summary

HCM Average Control Delay	6.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	42.5	Sum of lost time (s)	10.5
Intersection Capacity Utilization	48.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

120: S.R. 11 & S.R. 29 (Mill St.)

2021, Future Build

AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1	1>	0	0	1>	0	0	<1>	0	0	<1	1
Volume (vph)	30	790	29	7	295	116	6	1	30	181	3	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-1%			0%			-1%	
Total Lost time (s)	6.0	6.0			6.0			5.2			6.0	6.0
Lane Util. Factor	1.00	1.00			1.00			1.00			1.00	1.00
Frt	1.00	0.99			0.96			0.89			1.00	0.85
Flt Protected	0.95	1.00			1.00			0.99			0.95	1.00
Satd. Flow (prot)	1497	1836			1731			1541			1804	1531
Flt Permitted	0.47	1.00			0.87			0.99			0.95	1.00
Satd. Flow (perm)	748	1836			1509			1541			1804	1531
Peak-hour factor, PHF	0.91	0.86	0.64	0.58	0.90	0.79	0.75	0.25	0.66	0.80	0.38	0.67
Adj. Flow (vph)	33	919	45	12	328	147	8	4	45	226	8	24
RTOR Reduction (vph)	0	2	0	0	20	0	0	44	0	0	0	14
Lane Group Flow (vph)	33	962	0	0	467	0	0	13	0	0	234	10
Heavy Vehicles (%)	20%	2%	7%	14%	7%	2%	33%	0%	6%	1%	0%	6%
Turn Type	Perm			Perm			Split			Split		Perm
Protected Phases		2			6		8	8		4	4	
Permitted Phases	2	2		6								4
Actuated Green, G (s)	43.6	43.6			43.6			2.2			11.2	11.2
Effective Green, g (s)	43.6	43.6			43.6			2.2			11.2	11.2
Actuated g/C Ratio	0.59	0.59			0.59			0.03			0.15	0.15
Clearance Time (s)	6.0	6.0			6.0			5.2			6.0	6.0
Vehicle Extension (s)	3.0	3.0			3.0			3.0			3.0	3.0
Lane Grp Cap (vph)	440	1079			887			46			272	231
v/s Ratio Prot		c0.52						c0.01			c0.13	
v/s Ratio Perm	0.04				0.31							0.01
v/c Ratio	0.07	0.89			0.53			0.29			0.86	0.05
Uniform Delay, d1	6.6	13.3			9.1			35.2			30.7	26.9
Progression Factor	1.00	1.00			1.00			1.00			1.00	1.00
Incremental Delay, d2	0.1	9.5			0.6			3.5			23.1	0.1
Delay (s)	6.7	22.7			9.7			38.7			53.9	27.0
Level of Service	A	C			A			D			D	C
Approach Delay (s)		22.2			9.7			38.7			51.4	
Approach LOS		C			A			D			D	

Intersection Summary

HCM Average Control Delay	23.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	74.2	Sum of lost time (s)	17.2
Intersection Capacity Utilization	70.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

128: S.R. 11 & County Bridge

2021, Future Build

AM

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	1>	0	1	1	1	1
Volume (vph)	757	241	69	321	144	68
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	1%			-2%	0%	
Total Lost time (s)	7.0		7.0	7.0	7.0	7.0
Lane Util. Factor	1.00		1.00	1.00	1.00	1.00
Frt	0.96		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	1799		1823	1881	1805	1599
Flt Permitted	1.00		0.06	1.00	0.95	1.00
Satd. Flow (perm)	1799		115	1881	1805	1599
Peak-hour factor, PHF	0.91	0.78	0.61	0.92	0.68	0.86
Adj. Flow (vph)	832	309	113	349	212	79
RTOR Reduction (vph)	13	0	0	0	0	0
Lane Group Flow (vph)	1128	0	113	349	212	79
Heavy Vehicles (%)	1%	2%	0%	2%	0%	1%
Turn Type			pm+pt			pt+ov
Protected Phases	4		3	8	2	2 3
Permitted Phases			8			
Actuated Green, G (s)	60.0		73.2	73.2	12.8	26.0
Effective Green, g (s)	60.0		73.2	73.2	12.8	26.0
Actuated g/C Ratio	0.60		0.73	0.73	0.13	0.26
Clearance Time (s)	7.0		7.0	7.0	7.0	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	1079		190	1377	231	416
v/s Ratio Prot	c0.63		c0.04	0.19	c0.12	0.05
v/s Ratio Perm			0.40			
v/c Ratio	1.05		0.59	0.25	0.92	0.19
Uniform Delay, d1	20.0		24.9	4.4	43.1	28.8
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	40.0		4.9	0.1	37.1	0.2
Delay (s)	60.0		29.8	4.5	80.2	29.0
Level of Service	E		C	A	F	C
Approach Delay (s)	60.0			10.7	66.3	
Approach LOS	E			B	E	
Intersection Summary						
HCM Average Control Delay			48.9		HCM Level of Service	D
HCM Volume to Capacity ratio			0.99			
Actuated Cycle Length (s)			100.0		Sum of lost time (s)	21.0
Intersection Capacity Utilization			77.0%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

2021, Future Build

7: Market St. & S.R. 11 (Second St.)

PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	1	1	1	1	0	0	0	0	1	2	1
Volume (vph)	0	236	122	206	133	0	0	0	0	219	647	79
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5	3.0	4.5					5.0	5.0	5.0
Lane Util. Factor		1.00	1.00	1.00	1.00					1.00	0.95	1.00
Frt		1.00	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	1.00	1.00
Satd. Flow (prot)		1900	1599	1787	1900					1805	3539	1583
Flt Permitted		1.00	1.00	0.48	1.00					0.95	1.00	1.00
Satd. Flow (perm)		1900	1599	910	1900					1805	3539	1583
Peak-hour factor, PHF	1.00	0.83	0.85	0.79	0.71	1.00	1.00	1.00	1.00	0.93	0.91	0.73
Adj. Flow (vph)	0	284	144	261	187	0	0	0	0	235	711	108
RTOR Reduction (vph)	0	0	104	0	0	0	0	0	0	0	0	68
Lane Group Flow (vph)	0	284	40	261	187	0	0	0	0	235	711	40
Heavy Vehicles (%)	0%	0%	1%	1%	0%	0%	0%	0%	0%	0%	2%	2%
Turn Type			Perm	pm+pt						Split		Prot
Protected Phases		4		3	8					2	2	2
Permitted Phases			4	8								
Actuated Green, G (s)		16.5	16.5	30.0	28.5					22.0	22.0	22.0
Effective Green, g (s)		16.5	16.5	30.0	28.5					22.0	22.0	22.0
Actuated g/C Ratio		0.28	0.28	0.50	0.48					0.37	0.37	0.37
Clearance Time (s)		4.5	4.5	3.0	4.5					5.0	5.0	5.0
Lane Grp Cap (vph)		523	440	587	903					662	1298	580
v/s Ratio Prot		c0.15		c0.07	0.10					0.13	c0.20	0.03
v/s Ratio Perm			0.02	0.16								
v/c Ratio		0.54	0.09	0.44	0.21					0.35	0.55	0.07
Uniform Delay, d1		18.5	16.2	12.4	9.2					13.8	15.1	12.3
Progression Factor		0.79	0.82	0.17	0.06					0.78	0.84	0.73
Incremental Delay, d2		3.6	0.4	1.9	0.4					1.4	1.6	0.2
Delay (s)		18.2	13.7	3.9	1.0					12.2	14.2	9.3
Level of Service		B	B	A	A					B	B	A
Approach Delay (s)		16.7			2.7			0.0			13.2	
Approach LOS		B			A			A			B	
Intersection Summary												
HCM Average Control Delay			11.6		HCM Level of Service				B			
HCM Volume to Capacity ratio			0.51									
Actuated Cycle Length (s)			60.0		Sum of lost time (s)			9.5				
Intersection Capacity Utilization			81.3%		ICU Level of Service			D				
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

8: S.R. 11 (Front St.) & Market St.

2021, Future Build

PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	2>	0	0	0	0	0	1	1	1	1	0
Volume (vph)	0	714	213	0	0	0	0	333	203	106	341	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			-1%			1%	
Total Lost time (s)		5.0						5.0	5.0	3.0	5.0	
Lane Util. Factor		0.95						1.00	1.00	1.00	1.00	
Frt		0.96						1.00	0.85	1.00	1.00	
Flt Protected		1.00						1.00	1.00	0.95	1.00	
Satd. Flow (prot)		3457						1910	1591	1796	1890	
Flt Permitted		1.00						1.00	1.00	0.32	1.00	
Satd. Flow (perm)		3457						1910	1591	603	1890	
Peak-hour factor, PHF	1.00	0.94	0.92	1.00	1.00	1.00	1.00	0.80	0.82	0.71	0.91	1.00
Adj. Flow (vph)	0	760	232	0	0	0	0	416	248	149	375	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	992	0	0	0	0	0	416	248	149	375	0
Heavy Vehicles (%)	0%	1%	0%	0%	0%	0%	0%	0%	2%	0%	0%	0%
Turn Type									Perm	D.P+P		
Protected Phases		1						3		2	4	
Permitted Phases									3	3		
Actuated Green, G (s)		24.0						19.0	19.0	23.0	26.0	
Effective Green, g (s)		24.0						19.0	19.0	23.0	26.0	
Actuated g/C Ratio		0.40						0.32	0.32	0.38	0.43	
Clearance Time (s)		5.0						5.0	5.0	3.0	5.0	
Lane Grp Cap (vph)		1383						605	504	311	819	
v/s Ratio Prot		c0.29						c0.22		0.03	c0.20	
v/s Ratio Perm									0.16	0.15		
v/c Ratio		0.72						0.69	0.49	0.48	0.46	
Uniform Delay, d1		15.1						17.9	16.6	13.0	12.0	
Progression Factor		0.70						1.00	1.00	0.53	0.55	
Incremental Delay, d2		2.9						6.3	3.4	4.7	1.7	
Delay (s)		13.6						24.2	20.0	11.6	8.3	
Level of Service		B						C	C	B	A	
Approach Delay (s)		13.6			0.0			22.6			9.2	
Approach LOS		B			A			C			A	
Intersection Summary												
HCM Average Control Delay			15.3		HCM Level of Service					B		
HCM Volume to Capacity ratio			0.72									
Actuated Cycle Length (s)			60.0		Sum of lost time (s)					15.0		
Intersection Capacity Utilization			81.3%		ICU Level of Service					D		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

32: S.R. 239 & S.R. 11 (S. Main St.)

2021, Future Build

PM

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	1>	0	1	1	1	1
Volume (vph)	21	133	302	66	121	238
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%		0%			-1%
Total Lost time (s)	5.2		5.4	5.4	5.4	5.4
Lane Util. Factor	1.00		1.00	1.00	1.00	1.00
Frt	0.89		1.00	0.85	1.00	1.00
Flt Protected	0.99		1.00	1.00	0.95	1.00
Satd. Flow (prot)	1545		1863	1615	1814	1801
Flt Permitted	0.99		1.00	1.00	0.41	1.00
Satd. Flow (perm)	1545		1863	1615	789	1801
Peak-hour factor, PHF	0.56	0.85	0.86	0.79	0.76	0.92
Adj. Flow (vph)	38	156	351	84	159	259
RTOR Reduction (vph)	136	0	0	48	0	0
Lane Group Flow (vph)	58	0	351	36	159	259
Heavy Vehicles (%)	15%	7%	2%	0%	0%	6%
Turn Type				Perm	pm+pt	
Protected Phases	4		6		5	2
Permitted Phases				6	2	
Actuated Green, G (s)	5.8		19.8	19.8	29.4	29.4
Effective Green, g (s)	5.8		19.8	19.8	29.4	29.4
Actuated g/C Ratio	0.13		0.43	0.43	0.64	0.64
Clearance Time (s)	5.2		5.4	5.4	5.4	5.4
Vehicle Extension (s)	5.0		5.0	5.0	3.0	5.0
Lane Grp Cap (vph)	196		805	698	600	1156
v/s Ratio Prot	c0.04		c0.19		0.02	c0.14
v/s Ratio Perm				0.02	0.15	
v/c Ratio	0.29		0.44	0.05	0.27	0.22
Uniform Delay, d1	18.1		9.1	7.5	3.7	3.4
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	1.8		0.8	0.1	0.2	0.2
Delay (s)	19.9		9.9	7.6	4.0	3.6
Level of Service	B		A	A	A	A
Approach Delay (s)	19.9		9.4			3.8
Approach LOS	B		A			A
Intersection Summary						
HCM Average Control Delay			9.1		HCM Level of Service	A
HCM Volume to Capacity ratio			0.40			
Actuated Cycle Length (s)			45.8		Sum of lost time (s)	16.0
Intersection Capacity Utilization			45.3%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

37: S.R. 239 (Union St.) & S.R. 11 (Main St.)

2021, Future Build

PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	<1>	0	0	<1>	0	1	1>	0	0	<1>	0
Volume (vph)	51	24	114	28	29	6	222	239	27	3	255	184
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			0%			1%			1%	
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	
Frt		0.91			0.98		1.00	0.98			0.94	
Flt Protected		0.99			0.98		0.95	1.00			1.00	
Satd. Flow (prot)		1529			1636		1600	1658			1579	
Flt Permitted		0.91			0.74		0.29	1.00			1.00	
Satd. Flow (perm)		1406			1226		496	1658			1575	
Peak-hour factor, PHF	0.94	0.52	0.63	0.75	0.54	0.50	0.83	0.92	0.81	0.75	0.93	0.78
Adj. Flow (vph)	54	46	181	37	54	12	267	260	33	4	274	236
RTOR Reduction (vph)	0	109	0	0	8	0	0	8	0	0	58	0
Lane Group Flow (vph)	0	172	0	0	95	0	267	285	0	0	456	0
Heavy Vehicles (%)	0%	4%	0%	3%	0%	0%	1%	1%	0%	0%	2%	0%
Turn Type	Perm			Perm			pm+pt			Perm		
Protected Phases		4			8		1	6			2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)		9.9			9.9		30.1	30.1			18.9	
Effective Green, g (s)		9.9			9.9		30.1	30.1			18.9	
Actuated g/C Ratio		0.20			0.20		0.60	0.60			0.38	
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)		278			243		435	998			595	
v/s Ratio Prot							c0.08	0.17				
v/s Ratio Perm		c0.12			0.08		0.29				c0.29	
v/c Ratio		0.62			0.39		0.61	0.29			0.77	
Uniform Delay, d1		18.3			17.4		7.1	4.8			13.6	
Progression Factor		1.00			1.00		1.00	1.00			1.00	
Incremental Delay, d2		4.1			1.0		2.6	0.2			5.9	
Delay (s)		22.4			18.5		9.7	4.9			19.5	
Level of Service		C			B		A	A			B	
Approach Delay (s)		22.4			18.5			7.2			19.5	
Approach LOS		C			B			A			B	

Intersection Summary

HCM Average Control Delay	15.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	50.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	69.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

44: S.R. 11 & Poplar St.

2021, Future Build

PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1	1>	0	1	1>	0	0	<1	1	0	<1>	0
Volume (vph)	18	732	32	49	782	6	134	46	88	28	43	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		3.0	5.0			4.0	4.0		4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00		1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00		1.00	
Frt	1.00	0.99		1.00	1.00			1.00	0.85		0.96	
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00		0.99	
Satd. Flow (prot)	1805	1832		1703	1859			1826	1599		1792	
Flt Permitted	0.25	1.00		0.95	1.00			0.68	1.00		0.74	
Satd. Flow (perm)	473	1832		1703	1859			1283	1599		1343	
Peak-hour factor, PHF	0.61	0.86	0.81	0.75	0.84	0.38	0.69	0.66	0.83	0.81	0.89	0.61
Adj. Flow (vph)	30	851	40	65	931	16	194	70	106	35	48	39
RTOR Reduction (vph)	0	2	0	0	0	0	0	0	0	0	19	0
Lane Group Flow (vph)	30	889	0	65	947	0	0	264	106	0	103	0
Confl. Peds. (#/hr)							3					
Heavy Vehicles (%)	0%	3%	3%	6%	2%	0%	0%	0%	1%	0%	0%	0%
Turn Type	Perm			Prot			Perm		Perm	Perm		
Protected Phases		2		1	6			8			4	
Permitted Phases	2						8		8	4		
Actuated Green, G (s)	43.0	43.0		15.0	61.0			20.0	20.0		20.0	
Effective Green, g (s)	43.0	43.0		15.0	61.0			20.0	20.0		20.0	
Actuated g/C Ratio	0.48	0.48		0.17	0.68			0.22	0.22		0.22	
Clearance Time (s)	5.0	5.0		3.0	5.0			4.0	4.0		4.0	
Lane Grp Cap (vph)	226	875		284	1260			285	355		298	
v/s Ratio Prot		c0.49		0.04	c0.51							
v/s Ratio Perm	0.06							c0.21	0.07		0.08	
v/c Ratio	0.13	1.02		0.23	0.75			0.93	0.30		0.35	
Uniform Delay, d1	13.1	23.5		32.5	9.5			34.3	29.2		29.5	
Progression Factor	1.00	1.00		0.77	1.29			1.00	1.00		1.00	
Incremental Delay, d2	1.2	34.5		1.4	3.1			37.3	2.1		3.2	
Delay (s)	14.3	58.0		26.3	15.4			71.6	31.3		32.7	
Level of Service	B	E		C	B			E	C		C	
Approach Delay (s)		56.5			16.1			60.1			32.7	
Approach LOS		E			B			E			C	
Intersection Summary												
HCM Average Control Delay			39.0			HCM Level of Service				D		
HCM Volume to Capacity ratio			0.97									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)			14.0			
Intersection Capacity Utilization			84.6%			ICU Level of Service			E			
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

48: S.R. 11 & S.R. 93 (Orange St.)

2021, Future Build

PM

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	0	1	1	0	1	0
Volume (vph)	0	829	863	0	177	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		-1%	0%		0%	
Total Lost time (s)		4.0	4.0		4.0	
Lane Util. Factor		1.00	1.00		1.00	
Frt		1.00	1.00		1.00	
Flt Protected		1.00	1.00		0.95	
Satd. Flow (prot)		1872	1863		1789	
Flt Permitted		1.00	1.00		0.95	
Satd. Flow (perm)		1872	1863		1789	
Peak-hour factor, PHF	1.00	0.87	0.88	0.93	0.83	0.25
Adj. Flow (vph)	0	953	981	0	213	4
RTOR Reduction (vph)	0	0	0	0	1	0
Lane Group Flow (vph)	0	953	981	0	216	0
Heavy Vehicles (%)	0%	2%	2%	2%	1%	0%
Turn Type						
Protected Phases		2	6		8	
Permitted Phases						
Actuated Green, G (s)		67.0	67.0		15.0	
Effective Green, g (s)		67.0	67.0		15.0	
Actuated g/C Ratio		0.74	0.74		0.17	
Clearance Time (s)		4.0	4.0		4.0	
Lane Grp Cap (vph)		1394	1387		298	
v/s Ratio Prot		0.51	c0.53		c0.12	
v/s Ratio Perm						
v/c Ratio		0.68	0.71		0.73	
Uniform Delay, d1		6.0	6.2		35.5	
Progression Factor		0.40	0.62		1.00	
Incremental Delay, d2		2.2	2.8		14.3	
Delay (s)		4.6	6.6		49.8	
Level of Service		A	A		D	
Approach Delay (s)		4.6	6.6		49.8	
Approach LOS		A	A		D	
Intersection Summary						
HCM Average Control Delay			10.1		HCM Level of Service	B
HCM Volume to Capacity ratio			0.71			
Actuated Cycle Length (s)			90.0		Sum of lost time (s)	8.0
Intersection Capacity Utilization			62.0%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

2021, Future Build

51: S.R. 11 (Second St.) & LaSalle St.

PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	NWL	NWR
Lane Configurations	1	0	0	1	2>	0	0	1	0	0
Volume (vph)	82	0	0	18	1009	35	0	154	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0	4.0			4.0		
Lane Util. Factor	1.00			1.00	0.95			1.00		
Frt	1.00			1.00	0.99			0.86		
Flt Protected	0.95			0.95	1.00			1.00		
Satd. Flow (prot)	1805			1805	3553			1627		
Flt Permitted	0.95			0.95	1.00			1.00		
Satd. Flow (perm)	1805			1805	3553			1627		
Peak-hour factor, PHF	0.88	0.90	1.00	0.61	0.94	0.73	1.00	0.67	0.92	0.92
Adj. Flow (vph)	93	0	0	30	1073	48	0	230	0	0
RTOR Reduction (vph)	0	0	0	12	4	0	0	75	0	0
Lane Group Flow (vph)	93	0	0	18	1118	0	0	155	0	0
Heavy Vehicles (%)	0%	2%	0%	0%	1%	0%	0%	1%	2%	2%
Turn Type	Prot			custom				custom		
Protected Phases	8			1	1			8		
Permitted Phases				1				8		
Actuated Green, G (s)	27.0			55.0	55.0			27.0		
Effective Green, g (s)	27.0			55.0	55.0			27.0		
Actuated g/C Ratio	0.30			0.61	0.61			0.30		
Clearance Time (s)	4.0			4.0	4.0			4.0		
Lane Grp Cap (vph)	542			1103	2171			488		
v/s Ratio Prot	0.05			0.01	c0.31			c0.10		
v/s Ratio Perm										
v/c Ratio	0.17			0.02	0.51			0.32		
Uniform Delay, d1	23.2			6.9	9.9			24.4		
Progression Factor	0.84			1.00	1.00			1.00		
Incremental Delay, d2	0.5			0.0	0.9			1.7		
Delay (s)	20.1			6.9	10.8			26.1		
Level of Service	C			A	B			C		
Approach Delay (s)		20.1			10.7		26.1		0.0	
Approach LOS		C			B		C		A	
Intersection Summary										
HCM Average Control Delay			13.7		HCM Level of Service				B	
HCM Volume to Capacity ratio			0.45							
Actuated Cycle Length (s)			90.0		Sum of lost time (s)				8.0	
Intersection Capacity Utilization			45.2%		ICU Level of Service				A	
Analysis Period (min)			15							
c Critical Lane Group										

HCM Signalized Intersection Capacity Analysis

67: S.R. 11 (Second St.) & Pine St.

2021, Future Build

PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	0	0	0	2>	0	1	1	0	0	0	1
Volume (vph)	0	0	0	0	841	44	54	133	0	0	0	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)	0%				0%			1%		1%		
Total Lost time (s)					4.0			4.0		4.0		
Lane Util. Factor					0.95			1.00		1.00		
Frt					0.99			1.00		0.88		
Flt Protected					1.00			0.95		1.00		
Satd. Flow (prot)					3540			1796		1890		
Flt Permitted					1.00			0.95		1.00		
Satd. Flow (perm)					3540			1796		1890		
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	0.89	0.64	0.78	0.74	1.00	1.00	1.00	0.71
Adj. Flow (vph)	0	0	0	0	945	69	69	180	0	0	0	56
RTOR Reduction (vph)	0	0	0	0	7	0	56	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	1007	0	13	180	0	0	0	56
Heavy Vehicles (%)	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Turn Type							Perm		custom			
Protected Phases					1			2				
Permitted Phases								2		2		
Actuated Green, G (s)					40.9			11.1		11.1		
Effective Green, g (s)					40.9			11.1		11.1		
Actuated g/C Ratio					0.68			0.18		0.18		
Clearance Time (s)					4.0			4.0		4.0		
Vehicle Extension (s)					3.0			3.0		3.0		
Lane Grp Cap (vph)					2413			332		350		
v/s Ratio Prot					c0.28			c0.10				
v/s Ratio Perm								0.01		0.03		
v/c Ratio					0.42			0.04		0.51		
Uniform Delay, d1					4.2			20.1		22.0		
Progression Factor					0.96			1.00		1.00		
Incremental Delay, d2					0.5			0.0		1.3		
Delay (s)					4.6			20.1		23.3		
Level of Service					A			C		C		
Approach Delay (s)	0.0				4.6			22.4		20.9		
Approach LOS	A				A			C		C		
Intersection Summary												
HCM Average Control Delay			8.7		HCM Level of Service			A				
HCM Volume to Capacity ratio			0.44									
Actuated Cycle Length (s)			60.0		Sum of lost time (s)			8.0				
Intersection Capacity Utilization			41.3%		ICU Level of Service			A				
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

68: S.R. 11 & Orchard St.

2021, Future Build

PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1	1	0	1	1	0	0	<1>	0	0	<1>	0
Volume (vph)	14	746	1	4	743	1	28	25	27	31	7	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	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	
Frt	1.00	1.00		1.00	1.00			0.94			0.94	
Flt Protected	0.95	1.00		0.95	1.00			0.98			0.98	
Satd. Flow (prot)	1687	1862		1805	1844			1763			1751	
Flt Permitted	0.23	1.00		0.27	1.00			0.98			0.98	
Satd. Flow (perm)	400	1862		516	1844			1763			1751	
Peak-hour factor, PHF	0.81	0.96	0.25	1.00	0.86	0.25	0.59	0.64	0.42	0.72	0.44	0.66
Adj. Flow (vph)	17	777	4	4	864	4	47	39	64	43	16	47
RTOR Reduction (vph)	0	0	0	0	0	0	0	30	0	0	32	0
Lane Group Flow (vph)	17	781	0	4	868	0	0	120	0	0	74	0
Heavy Vehicles (%)	7%	2%	0%	0%	3%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm			Perm			Split			Split		
Protected Phases	2			6			3			4		
Permitted Phases	2			6								
Actuated Green, G (s)	62.0	62.0		62.0	62.0			7.0			6.0	
Effective Green, g (s)	62.0	62.0		62.0	62.0			7.0			6.0	
Actuated g/C Ratio	0.69	0.69		0.69	0.69			0.08			0.07	
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Lane Grp Cap (vph)	276	1283		355	1270			137			117	
v/s Ratio Prot		0.42			c0.47			c0.07			c0.04	
v/s Ratio Perm	0.04			0.01								
v/c Ratio	0.06	0.61		0.01	0.68			0.88			0.63	
Uniform Delay, d1	4.5	7.5		4.4	8.2			41.1			40.9	
Progression Factor	0.05	0.04		1.28	0.85			1.00			1.00	
Incremental Delay, d2	0.2	0.8		0.0	2.1			49.9			23.4	
Delay (s)	0.4	1.1		5.7	9.1			91.0			64.3	
Level of Service	A	A		A	A			F			E	
Approach Delay (s)		1.1			9.1			91.0			64.3	
Approach LOS		A			A			F			E	
Intersection Summary												
HCM Average Control Delay			15.2			HCM Level of Service				B		
HCM Volume to Capacity ratio			0.70									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)			15.0			
Intersection Capacity Utilization			53.4%			ICU Level of Service			A			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2021, Future Build

71: S.R. 11 (Second St.) & Oak St.

PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	0	0	0	0	<2>	0	0	<1	0	0	1>	0	
Volume (vph)	0	0	0	44	914	15	15	50	0	0	42	56	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Grade (%)	0%				-1%				1%				-1%
Total Lost time (s)					6.0				5.0				5.0
Lane Util. Factor					0.95				1.00				1.00
Frt					1.00				1.00				0.93
Flt Protected					1.00				0.99				1.00
Satd. Flow (prot)					3539				1741				1734
Flt Permitted					1.00				0.85				1.00
Satd. Flow (perm)					3539				1507				1734
Peak-hour factor, PHF	1.00	1.00	1.00	0.68	0.95	0.88	0.44	0.64	1.00	1.00	0.70	0.87	
Adj. Flow (vph)	0	0	0	65	962	17	34	78	0	0	60	64	
RTOR Reduction (vph)	0	0	0	0	1	0	0	0	0	0	54	0	
Lane Group Flow (vph)	0	0	0	0	1043	0	0	112	0	0	70	0	
Heavy Vehicles (%)	0%	0%	0%	0%	2%	7%	0%	10%	0%	0%	5%	0%	
Turn Type				Perm			Perm						
Protected Phases				1			2			2			
Permitted Phases				1			2						
Actuated Green, G (s)				33.9			8.0			8.0			
Effective Green, g (s)				33.9			8.0			8.0			
Actuated g/C Ratio				0.64			0.15			0.15			
Clearance Time (s)				6.0			5.0			5.0			
Vehicle Extension (s)				3.0			3.0			3.0			
Lane Grp Cap (vph)				2268			228			262			
v/s Ratio Prot										0.04			
v/s Ratio Perm				0.29			c0.07						
v/c Ratio				0.46			0.49			0.27			
Uniform Delay, d1				4.8			20.6			19.9			
Progression Factor				1.00			1.00			1.00			
Incremental Delay, d2				0.1			1.7			0.5			
Delay (s)				5.0			22.2			20.4			
Level of Service				A			C			C			
Approach Delay (s)	0.0				5.0		22.2				20.4		
Approach LOS	A				A		C				C		
Intersection Summary													
HCM Average Control Delay			8.0		HCM Level of Service				A				
HCM Volume to Capacity ratio			0.47										
Actuated Cycle Length (s)			52.9		Sum of lost time (s)				11.0				
Intersection Capacity Utilization			46.3%		ICU Level of Service				A				
Analysis Period (min)			15										
c Critical Lane Group													

HCM Signalized Intersection Capacity Analysis

74: Third St. & S.R. 1025 (Market St.)

2021, Future Build

PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	<1>	0	0	<1>	0	1	1>	0	1	1>	0
Volume (vph)	97	98	64	32	118	17	13	206	17	20	282	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			0%			0%			0%	
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.96			0.98		1.00	0.99		1.00	0.96	
Flt Protected		0.98			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1779			1850		1805	1877		1805	1819	
Flt Permitted		0.83			0.90		0.41	1.00		0.57	1.00	
Satd. Flow (perm)		1497			1689		788	1877		1081	1819	
Peak-hour factor, PHF	0.89	0.83	0.78	0.83	0.87	0.67	0.50	0.88	0.80	0.53	0.91	0.74
Adj. Flow (vph)	109	118	82	39	136	25	26	234	21	38	310	96
RTOR Reduction (vph)	0	22	0	0	9	0	0	6	0	0	19	0
Lane Group Flow (vph)	0	287	0	0	191	0	26	250	0	38	387	0
Heavy Vehicles (%)	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			1			1	
Permitted Phases	2			2	2		1			1	1	
Actuated Green, G (s)		25.0			25.0		27.0	27.0		27.0	27.0	
Effective Green, g (s)		25.0			25.0		27.0	27.0		27.0	27.0	
Actuated g/C Ratio		0.42			0.42		0.45	0.45		0.45	0.45	
Clearance Time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)		624			704		355	845		486	819	
v/s Ratio Prot								0.13			c0.21	
v/s Ratio Perm		c0.19			0.11		0.03			0.04		
v/c Ratio		0.46			0.27		0.07	0.30		0.08	0.47	
Uniform Delay, d1		12.6			11.5		9.4	10.5		9.4	11.5	
Progression Factor		1.00			1.00		1.06	0.92		1.00	1.00	
Incremental Delay, d2		2.4			1.0		0.4	0.9		0.3	2.0	
Delay (s)		15.1			12.5		10.3	10.5		9.7	13.5	
Level of Service		B			B		B	B		A	B	
Approach Delay (s)		15.1			12.5			10.5			13.2	
Approach LOS		B			B			B			B	
Intersection Summary												
HCM Average Control Delay			12.9			HCM Level of Service				B		
HCM Volume to Capacity ratio			0.47									
Actuated Cycle Length (s)			60.0			Sum of lost time (s)			8.0			
Intersection Capacity Utilization			52.1%			ICU Level of Service			A			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2021, Future Build

77: S.R. 11 (Second St.) & Mulberry St.

PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	0	0	0	0	<2>	0	0	<1	0	0	1>	0	
Volume (vph)	0	0	0	47	944	53	29	74	0	0	26	59	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Grade (%)	1%				0%				1%				-4%
Total Lost time (s)					4.0				4.0				4.0
Lane Util. Factor					0.95				1.00				1.00
Frt					0.99				1.00				0.90
Flt Protected					1.00				0.98				1.00
Satd. Flow (prot)					3536				1854				1729
Flt Permitted					1.00				0.85				1.00
Satd. Flow (perm)					3536				1604				1729
Peak-hour factor, PHF	1.00	1.00	1.00	0.63	0.95	0.82	0.56	0.94	1.00	1.00	0.86	0.75	
Adj. Flow (vph)	0	0	0	75	994	65	52	79	0	0	30	79	
RTOR Reduction (vph)	0	0	0	0	7	0	0	0	0	0	62	0	
Lane Group Flow (vph)	0	0	0	0	1127	0	0	131	0	0	47	0	
Heavy Vehicles (%)	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	4%	0%	
Turn Type				Split				Perm					
Protected Phases				1		1		2			2		
Permitted Phases							2						
Actuated Green, G (s)				39.0			13.0			13.0			
Effective Green, g (s)				39.0			13.0			13.0			
Actuated g/C Ratio				0.65			0.22			0.22			
Clearance Time (s)				4.0			4.0			4.0			
Lane Grp Cap (vph)				2298			348			375			
v/s Ratio Prot				c0.32						0.03			
v/s Ratio Perm							c0.08						
v/c Ratio				0.49			0.38			0.13			
Uniform Delay, d1				5.4			20.0			18.9			
Progression Factor				0.32			0.94			1.00			
Incremental Delay, d2				0.7			2.9			0.7			
Delay (s)				2.4			21.7			19.6			
Level of Service				A			C			B			
Approach Delay (s)	0.0			2.4			21.7			19.6			
Approach LOS	A			A			C			B			
Intersection Summary													
HCM Average Control Delay			5.6		HCM Level of Service				A				
HCM Volume to Capacity ratio			0.46										
Actuated Cycle Length (s)			60.0		Sum of lost time (s)				8.0				
Intersection Capacity Utilization			48.0%		ICU Level of Service				A				
Analysis Period (min)			15										
c Critical Lane Group													

HCM Signalized Intersection Capacity Analysis

78: S.R. 11 (Front St.) & Mulberry St.

2021, Future Build

PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	<2>	0	0	0	0	0	1>	0	0	<1	0
Volume (vph)	87	826	37	0	0	0	0	19	13	50	15	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-1%			1%			-1%	
Total Lost time (s)		4.0						4.0			4.0	
Lane Util. Factor		0.95						1.00			1.00	
Frt		0.99						0.94			1.00	
Flt Protected		1.00						1.00			0.96	
Satd. Flow (prot)		3521						1780			1810	
Flt Permitted		1.00						1.00			0.76	
Satd. Flow (perm)		3521						1780			1424	
Peak-hour factor, PHF	0.95	0.86	0.71	1.00	1.00	1.00	1.00	0.56	0.50	0.68	0.70	1.00
Adj. Flow (vph)	92	960	52	0	0	0	0	34	26	74	21	0
RTOR Reduction (vph)	0	6	0	0	0	0	0	20	0	0	0	0
Lane Group Flow (vph)	0	1098	0	0	0	0	0	40	0	0	95	0
Heavy Vehicles (%)	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	7%	0%
Turn Type	Split					Perm						
Protected Phases	1	1						2			2	
Permitted Phases										2		
Actuated Green, G (s)		38.0						14.0			14.0	
Effective Green, g (s)		38.0						14.0			14.0	
Actuated g/C Ratio		0.63						0.23			0.23	
Clearance Time (s)		4.0						4.0			4.0	
Lane Grp Cap (vph)		2230						415			332	
v/s Ratio Prot		c0.31						0.02				
v/s Ratio Perm											c0.07	
v/c Ratio		0.49						0.10			0.29	
Uniform Delay, d1		5.9						18.0			18.9	
Progression Factor		1.00						1.00			0.72	
Incremental Delay, d2		0.8						0.5			2.0	
Delay (s)		6.6						18.5			15.6	
Level of Service		A						B			B	
Approach Delay (s)		6.6			0.0			18.5			15.6	
Approach LOS		A			A			B			B	
Intersection Summary												
HCM Average Control Delay			7.9								A	
HCM Volume to Capacity ratio			0.44									
Actuated Cycle Length (s)			60.0								8.0	
Intersection Capacity Utilization			43.4%								A	
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

85: S.R. 11 & S.R. 2028

2021, Future Build

PM

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	1	1	1	1	1	1
Volume (vph)	639	102	223	632	80	239
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	3.6	6.0	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1845	1599	1752	1845	1787	1583
Flt Permitted	1.00	1.00	0.14	1.00	0.95	1.00
Satd. Flow (perm)	1845	1599	261	1845	1787	1583
Peak-hour factor, PHF	0.90	0.78	0.93	0.86	0.77	0.90
Adj. Flow (vph)	710	131	240	735	104	266
RTOR Reduction (vph)	0	74	0	0	0	0
Lane Group Flow (vph)	710	57	240	735	104	266
Heavy Vehicles (%)	3%	1%	3%	3%	1%	2%
Turn Type	Perm		pm+pt		Prot	
Protected Phases	4		3	8	2	2
Permitted Phases		4	8			
Actuated Green, G (s)	24.7	24.7	33.8	33.8	12.5	12.5
Effective Green, g (s)	24.7	24.7	33.8	33.8	12.5	12.5
Actuated g/C Ratio	0.43	0.43	0.60	0.60	0.22	0.22
Clearance Time (s)	6.0	6.0	3.6	6.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	802	695	300	1098	393	348
v/s Ratio Prot	c0.38		c0.08	0.40	0.06	c0.17
v/s Ratio Perm		0.04	0.40			
v/c Ratio	0.89	0.08	0.80	0.67	0.26	0.76
Uniform Delay, d1	14.7	9.4	9.8	7.7	18.3	20.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	11.5	0.1	14.1	1.6	0.4	9.6
Delay (s)	26.2	9.5	23.9	9.3	18.7	30.4
Level of Service	C	A	C	A	B	C
Approach Delay (s)	23.6			12.9	27.1	
Approach LOS	C			B	C	
Intersection Summary						
HCM Average Control Delay			19.4		HCM Level of Service	B
HCM Volume to Capacity ratio			0.84			
Actuated Cycle Length (s)			56.8		Sum of lost time (s)	14.1
Intersection Capacity Utilization			62.7%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

103: S.R. 93 (Third St.) & S.R. 339 (Broad St.)

2021, Future Build

PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	<1	0	0	<1>	0	0	<1>	0	0	<1>	0
Volume (vph)	5	369	137	31	332	2	112	16	47	8	9	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			-1%			0%			0%	
Total Lost time (s)		6.5			6.5			6.0			6.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.97			1.00			0.97			0.98	
Flt Protected		1.00			1.00			0.97			0.98	
Satd. Flow (prot)		1833			1856			1780			1812	
Flt Permitted		0.99			0.92			0.80			0.81	
Satd. Flow (perm)		1817			1718			1457			1510	
Peak-hour factor, PHF	0.42	0.85	0.91	0.83	0.89	0.50	0.89	0.40	0.94	0.40	0.56	0.50
Adj. Flow (vph)	12	434	151	37	373	4	126	40	50	20	16	8
RTOR Reduction (vph)	0	22	0	0	0	0	0	20	0	0	6	0
Lane Group Flow (vph)	0	575	0	0	414	0	0	196	0	0	38	0
Heavy Vehicles (%)	0%	0%	0%	0%	2%	50%	0%	0%	2%	0%	0%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)		31.5			31.5			10.2			10.2	
Effective Green, g (s)		31.5			31.5			10.2			10.2	
Actuated g/C Ratio		0.58			0.58			0.19			0.19	
Clearance Time (s)		6.5			6.5			6.0			6.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		1056			998			274			284	
v/s Ratio Prot												
v/s Ratio Perm		c0.32			0.24			c0.13			0.02	
v/c Ratio		0.54			0.41			0.71			0.13	
Uniform Delay, d1		7.0			6.3			20.6			18.3	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		2.0			1.3			8.5			0.2	
Delay (s)		9.0			7.5			29.2			18.5	
Level of Service		A			A			C			B	
Approach Delay (s)		9.0			7.5			29.2			18.5	
Approach LOS		A			A			C			B	
Intersection Summary												
HCM Average Control Delay			12.3				HCM Level of Service			B		
HCM Volume to Capacity ratio			0.59									
Actuated Cycle Length (s)			54.2				Sum of lost time (s)		12.5			
Intersection Capacity Utilization			64.8%				ICU Level of Service		C			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

106: S.R. 93 (Third St.) & Dewey St.

2021, Future Build

PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	<1>	0	0	<1>	0	0	<1>	0	0	<1>	0
Volume (vph)	11	380	5	2	352	2	8	1	3	3	2	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			0%			0%			0%	
Total Lost time (s)		5.0			5.0			5.0			5.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		1.00			1.00			0.97			0.93	
Flt Protected		1.00			1.00			0.97			0.99	
Satd. Flow (prot)		1866			1859			1795			1750	
Flt Permitted		0.99			0.99			1.00			1.00	
Satd. Flow (perm)		1849			1847			1849			1772	
Peak-hour factor, PHF	0.92	0.86	0.62	0.25	0.90	0.50	0.67	0.25	0.75	0.38	0.25	0.69
Adj. Flow (vph)	12	442	8	8	391	4	12	4	4	8	8	16
RTOR Reduction (vph)	0	0	0	0	0	0	0	4	0	0	16	0
Lane Group Flow (vph)	0	462	0	0	403	0	0	16	0	0	16	0
Heavy Vehicles (%)	0%	1%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)		39.0			39.0			1.5			1.5	
Effective Green, g (s)		39.0			39.0			1.5			1.5	
Actuated g/C Ratio		0.77			0.77			0.03			0.03	
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)		1428			1426			55			53	
v/s Ratio Prot												
v/s Ratio Perm		c0.25			0.22			0.01			c0.01	
v/c Ratio		0.32			0.28			0.29			0.31	
Uniform Delay, d1		1.7			1.7			24.0			24.0	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.6			0.5			3.0			3.3	
Delay (s)		2.3			2.2			26.9			27.3	
Level of Service		A			A			C			C	
Approach Delay (s)		2.3			2.2			26.9			27.3	
Approach LOS		A			A			C			C	
Intersection Summary												
HCM Average Control Delay			3.7			HCM Level of Service			A			
HCM Volume to Capacity ratio			0.32									
Actuated Cycle Length (s)			50.5			Sum of lost time (s)			10.0			
Intersection Capacity Utilization			41.3%			ICU Level of Service			A			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

112: S.R. 11 & Briar Creek Plaza Driveways

2021, Future Build

PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1	1>	0	1	1	1	1	1>	0	1	1	1
Volume (vph)	89	573	26	21	590	215	54	9	22	200	4	135
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	16	16
Grade (%)		1%			-1%			1%			2%	
Total Lost time (s)	3.5	5.3		5.3	5.3	5.3	5.2	5.2		5.2	5.2	5.2
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Fr't	1.00	0.99		1.00	1.00	0.85	1.00	0.90		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1796	1807		1814	1854	1623	1796	1700		1787	2132	1812
Flt Permitted	0.19	1.00		0.38	1.00	1.00	0.75	1.00		0.73	1.00	1.00
Satd. Flow (perm)	355	1807		732	1854	1623	1422	1700		1364	2132	1812
Peak-hour factor, PHF	0.71	0.96	0.75	0.71	0.87	0.95	0.69	0.56	0.66	0.80	0.50	0.69
Adj. Flow (vph)	125	597	35	30	678	226	78	16	33	250	8	196
RTOR Reduction (vph)	0	3	0	0	0	114	0	25	0	0	0	146
Lane Group Flow (vph)	125	629	0	30	678	112	78	24	0	250	8	50
Heavy Vehicles (%)	0%	4%	0%	0%	3%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt			Perm		Perm	Perm			Perm		Perm
Protected Phases	5	2			6			4			8	
Permitted Phases	2			6		6	4			8		8
Actuated Green, G (s)	35.7	35.7		29.6	29.6	29.6	15.9	15.9		15.9	15.9	15.9
Effective Green, g (s)	35.7	35.7		29.6	29.6	29.6	15.9	15.9		15.9	15.9	15.9
Actuated g/C Ratio	0.57	0.57		0.48	0.48	0.48	0.26	0.26		0.26	0.26	0.26
Clearance Time (s)	3.5	5.3		5.3	5.3	5.3	5.2	5.2		5.2	5.2	5.2
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	264	1039		349	884	774	364	435		349	546	464
v/s Ratio Prot	0.02	c0.35			c0.37			0.01			0.00	
v/s Ratio Perm	0.25			0.04		0.07	0.05			c0.18		0.03
v/c Ratio	0.47	0.61		0.09	0.77	0.15	0.21	0.06		0.72	0.01	0.11
Uniform Delay, d1	9.1	8.6		8.9	13.4	9.1	18.2	17.4		21.0	17.3	17.7
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.3	1.0		0.1	4.0	0.1	0.3	0.1		6.8	0.0	0.1
Delay (s)	10.4	9.6		9.0	17.4	9.2	18.5	17.5		27.9	17.3	17.8
Level of Service	B	A		A	B	A	B	B		C	B	B
Approach Delay (s)		9.7			15.2			18.1			23.3	
Approach LOS		A			B			B			C	

Intersection Summary

HCM Average Control Delay	15.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	62.1	Sum of lost time (s)	15.8
Intersection Capacity Utilization	75.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

120: S.R. 11 & S.R. 29 (Mill St.)

2021, Future Build

PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1	1>	0	0	1>	0	0	<1>	0	0	<1	1
Volume (vph)	29	397	11	8	780	242	11	1	8	151	4	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-1%			0%			-1%	
Total Lost time (s)	6.0	6.0			6.0			5.2			6.0	6.0
Lane Util. Factor	1.00	1.00			1.00			1.00			1.00	1.00
Frt	1.00	0.99			0.97			0.94			1.00	0.85
Flt Protected	0.95	1.00			1.00			0.98			0.95	1.00
Satd. Flow (prot)	1796	1845			1812			1747			1772	1399
Flt Permitted	0.24	1.00			0.99			0.98			0.95	1.00
Satd. Flow (perm)	462	1845			1799			1747			1772	1399
Peak-hour factor, PHF	0.64	0.88	0.69	0.50	0.93	0.91	0.69	0.25	0.50	0.90	0.50	0.60
Adj. Flow (vph)	45	451	16	16	839	266	16	4	16	168	8	20
RTOR Reduction (vph)	0	1	0	0	12	0	0	16	0	0	0	13
Lane Group Flow (vph)	45	466	0	0	1109	0	0	20	0	0	176	7
Heavy Vehicles (%)	0%	2%	0%	12%	2%	1%	0%	0%	0%	3%	0%	16%
Turn Type	Perm			Perm			Split			Split		Perm
Protected Phases		2			6		8	8		4	4	
Permitted Phases	2	2		6								4
Actuated Green, G (s)	56.6	56.6			56.6			2.2			9.1	9.1
Effective Green, g (s)	56.6	56.6			56.6			2.2			9.1	9.1
Actuated g/C Ratio	0.67	0.67			0.67			0.03			0.11	0.11
Clearance Time (s)	6.0	6.0			6.0			5.2			6.0	6.0
Vehicle Extension (s)	3.0	3.0			3.0			3.0			3.0	3.0
Lane Grp Cap (vph)	307	1227			1197			45			189	150
v/s Ratio Prot		0.25						c0.01			c0.10	
v/s Ratio Perm	0.10				c0.62							0.00
v/c Ratio	0.15	0.38			0.93			0.45			0.93	0.04
Uniform Delay, d1	5.3	6.4			12.4			40.9			37.7	34.1
Progression Factor	1.00	1.00			1.00			1.00			1.00	1.00
Incremental Delay, d2	0.2	0.2			12.1			7.1			46.0	0.1
Delay (s)	5.5	6.6			24.5			48.0			83.7	34.2
Level of Service	A	A			C			D			F	C
Approach Delay (s)		6.5			24.5			48.0			78.7	
Approach LOS		A			C			D			E	

Intersection Summary

HCM Average Control Delay	25.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	85.1	Sum of lost time (s)	17.2
Intersection Capacity Utilization	86.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

128: S.R. 11 & County Bridge

2021, Future Build

PM

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	1>	0	1	1	1	1
Volume (vph)	419	216	124	725	225	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	1%			-2%	0%	
Total Lost time (s)	7.0		7.0	7.0	7.0	7.0
Lane Util. Factor	1.00		1.00	1.00	1.00	1.00
Frt	0.95		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	1771		1823	1900	1805	1615
Flt Permitted	1.00		0.12	1.00	0.95	1.00
Satd. Flow (perm)	1771		223	1900	1805	1615
Peak-hour factor, PHF	0.95	0.79	0.90	0.89	0.83	0.82
Adj. Flow (vph)	441	273	138	815	271	84
RTOR Reduction (vph)	32	0	0	0	0	0
Lane Group Flow (vph)	682	0	138	815	271	84
Heavy Vehicles (%)	2%	0%	0%	1%	0%	0%
Turn Type			pm+pt		pt+ov	
Protected Phases	4		3	8	2	2 3
Permitted Phases			8			
Actuated Green, G (s)	27.4		39.6	39.6	12.4	24.6
Effective Green, g (s)	27.4		39.6	39.6	12.4	24.6
Actuated g/C Ratio	0.42		0.60	0.60	0.19	0.37
Clearance Time (s)	7.0		7.0	7.0	7.0	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	735		260	1140	339	602
v/s Ratio Prot	c0.39		0.04	c0.43	c0.15	0.05
v/s Ratio Perm			0.28			
v/c Ratio	0.93		0.53	0.71	0.80	0.14
Uniform Delay, d1	18.4		11.5	9.2	25.6	13.7
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	17.8		2.1	2.2	12.4	0.1
Delay (s)	36.2		13.6	11.4	38.0	13.8
Level of Service	D		B	B	D	B
Approach Delay (s)	36.2			11.7	32.3	
Approach LOS	D			B	C	
Intersection Summary						
HCM Average Control Delay			24.0		HCM Level of Service	C
HCM Volume to Capacity ratio			0.94			
Actuated Cycle Length (s)			66.0		Sum of lost time (s)	21.0
Intersection Capacity Utilization			72.1%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						

Appendix J

Material Shipment Arrivals

<i>Civil Material</i>			
Construction Equipment	500 on+500 off	1,000	shipments
Concrete Material	8,48,362 tons / 15 tons per shipment	56,558	shipments
Formwork	2393 tons/15 tons per shipment	160	shipments
Rebar	55,331 tons/15 tons per shipment	3,689	shipments
Structural Steel	6,261 tons/15 tons per shipment	418	shipments
Misc. Steel	1,016 tons/15 tons per shipment	68	shipments
Mod Steel	225 tons/15 tons per shipment	15	shipments
Steel Liner	1,412 tons/15 tons per shipment	94	shipments
Embedded Steel	1,903 tons/15 tons per shipment	127	shipments
Siding & Roofing	2,056 tons/15 tons per shipment	137	shipments
Pre engineered building	60 tons/15 tons per shipment	4	shipments
Construction Debris	12,000 tons/15 tons per shipment	800	shipments
<i>Piping and Mechanical Material</i>			
Large and Small bore pipe	7,500 tons/15 tons per shipment	500	shipments
Large bore hangers	2,788 tons/15 tons per shipment	186	shipments
Nuclear Island EM package Equipment	15,377 tons/15 tons per shipment	1,025	shipments
Turbine Island and BOP Mechanical Equipment		1,000	shipments
Consumables		1,000	shipments
<i>Electrical Equipment</i>			
Conduit	1,356 tons/15 tons per shipment	90	shipments
Cable Tray	73 tons/15 tons per shipment	5	shipments
Power & Control wire	4,406 tons/15 tons per shipment	294	shipments
NI Electrical Equipment	5,000 ton/15 tons per shipment	333	shipments
TI Electrical Equipment	5,000 ton/15 tons per shipment	333	shipments
<i>Grand Total</i>		67,879	shipments

Appendix K Census Data

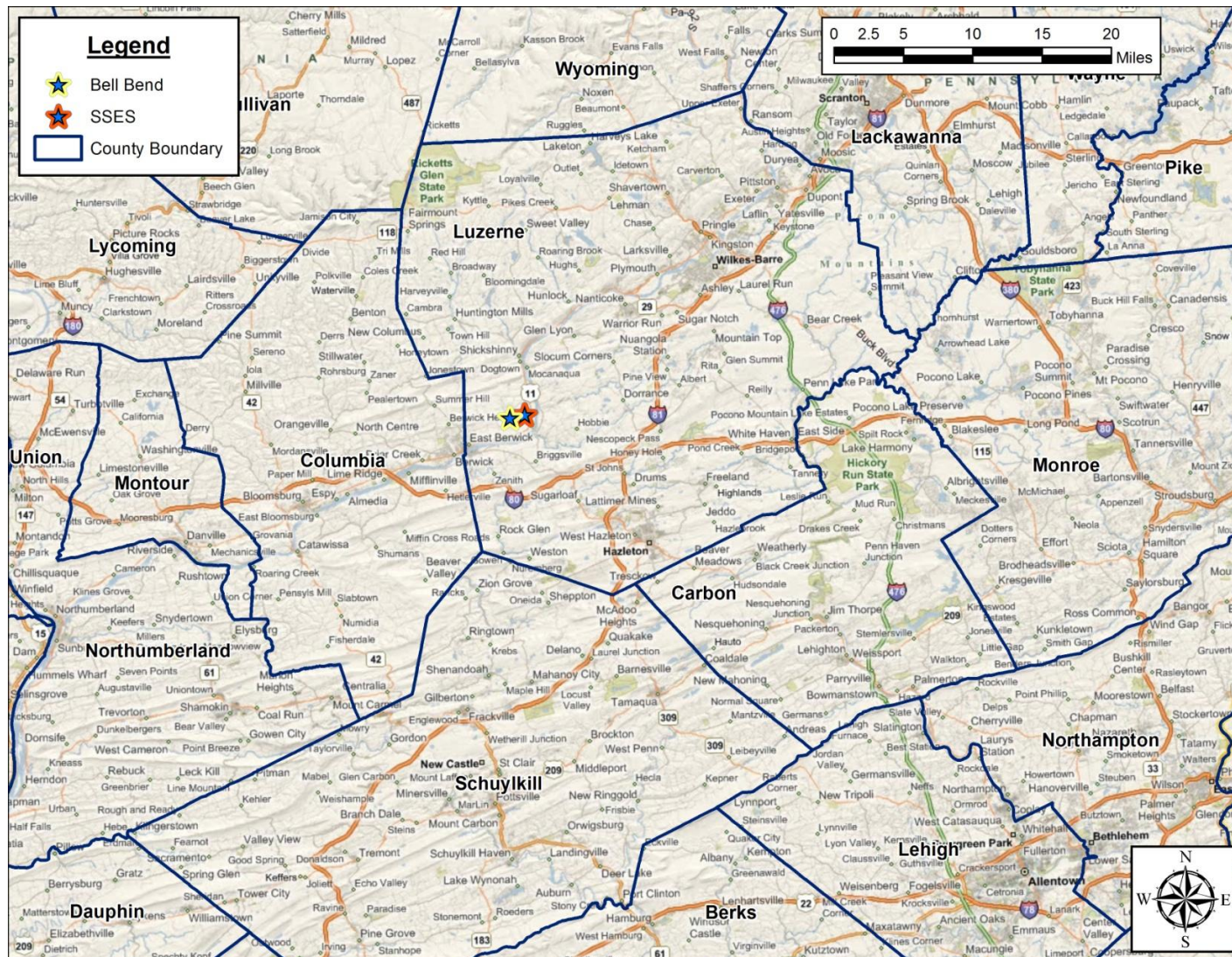


Figure K-1 – Areas Surrounding the Bell Bend Location

Appendix K – Census Data

This Appendix contains the following information:

- Census data related to housing in the vicinity of the Bell Bend site. This data set is derived from the 2000 census and was analyzed in ArcGIS, and
- Journey to Work Census data sets, which was analyzed to determine the Average Vehicle Occupancy for construction workers

Table K- 1 – Census Data

Area Description	Area Number	Housing Units	Vacant Housing Units	Owner Occupied Housing Units	Renter Occupied Housing Units	Population (2000)	Population 2007
Berwick Area	1	6187	441	3794	1952	13539	13515
Between Plant and Mill Rd	2	2950	338	2179	433	6680	6947
Commuter Shed E. on 239	3	4831	663	2943	1225	10657	11725
Rest of Columbia County	4	22090	2335	14688	5067	51938	54363
Rest of Luzerne County	5	136109	12942	86207	36960	300191	294976
	Grand Total	172167	16719	109811	45637	383005	381526

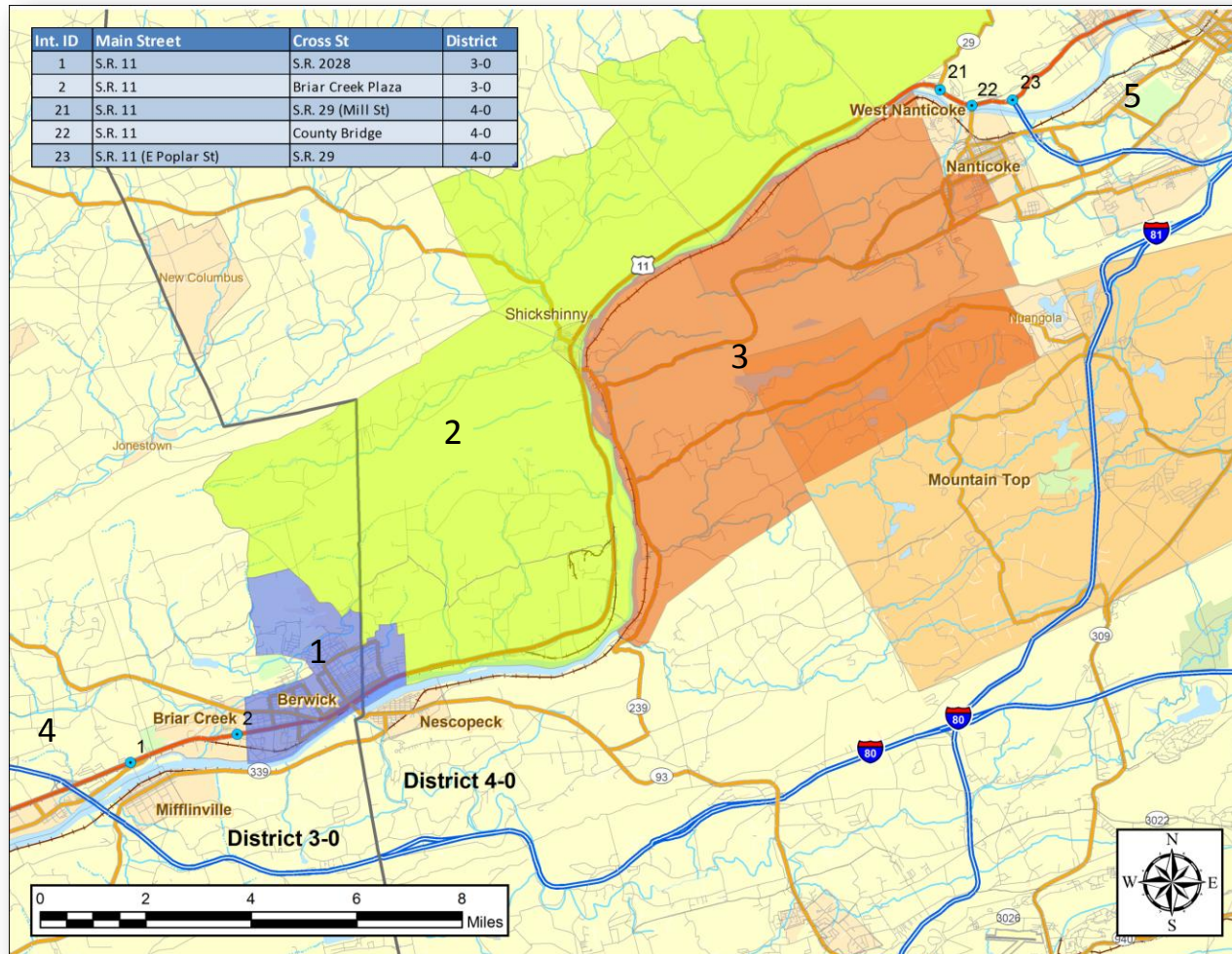


Figure K-2- Map of Census Areas Analyzed for Housing

Construction Workers Automobile Usage

From the Journey-To-Work Census Data (2000)

CTPP 2000: Part 2 Table 9: Occupation by Means of transportation to work – For the state of Pennsylvania

TAB9X221	All workers; having Construction and excavation occupations; For All 11 Categories of Means of transportation to work	271060
TAB9X222	All workers; having Construction and excavation occupations; who drove alone	203045
TAB9X223	All workers; having Construction and excavation occupations; who travel to work by 2-person carpool	39330
TAB9X224	All workers; having Construction and excavation occupations; who travel to work by 3-person carpool	8075
TAB9X225	All workers; having Construction and excavation occupations; who travel to work by 4-or-more-person carpool	4460
TAB9X226	All workers; having Construction and excavation occupations; who travel to work by Bus or trolley bus	3545
TAB9X227	All workers; having Construction and excavation occupations; who travel to work by Streetcar, trolley car, subway, or elevated	1050
TAB9X228	All workers; having Construction and excavation occupations; who travel to work by Railroad or ferryboat	475
TAB9X229	All workers; having Construction and excavation occupations; who travel to work by Bicycle or walked	5170
TAB9X230	All workers; having Construction and excavation occupations; who travel to work by Taxicab, motorcycle or other means	2270
TAB9X231	All workers; having Construction and excavation occupations; who worked at home	3635

(Data Source: http://www.transtats.bts.gov/DL_SelectFields.asp?Table_ID=1344&DB_Short_Name=CTPP%202000)

Based on the table above, considering the automobile mode of travel

Workers	Vehicle Occupancy	Vehicles
203045	1	203045
39330	2	19665
8075	3	2692
4460	4	1115
Total	254910	226517

Average Vehicle Occupancy = No.OfWorkers/No.OfVehicles = $254910/226517 = \underline{\underline{1.13}}$

Construction Workers Automobile Usage

From the Journey-To-Work Census Data (2000)

CTPP 2000: Part 2 Table 9: Occupation by Means of transportation to work – For Columbia County (FIPS 037), Pennsylvania

TAB9X221	All workers; having Construction and excavation occupations; For All 11 Categories of Means of transportation to work	1450
TAB9X222	All workers; having Construction and excavation occupations; who drove alone	1150
TAB9X223	All workers; having Construction and excavation occupations; who travel to work by 2-person carpool	170
TAB9X224	All workers; having Construction and excavation occupations; who travel to work by 3-person carpool	35
TAB9X225	All workers; having Construction and excavation occupations; who travel to work by 4-or-more-person carpool	10
TAB9X226	All workers; having Construction and excavation occupations; who travel to work by Bus or trolley bus	0
TAB9X227	All workers; having Construction and excavation occupations; who travel to work by Streetcar, trolley car, subway, or elevated	0
TAB9X228	All workers; having Construction and excavation occupations; who travel to work by Railroad or ferryboat	0
TAB9X229	All workers; having Construction and excavation occupations; who travel to work by Bicycle or walked	70
TAB9X230	All workers; having Construction and excavation occupations; who travel to work by Taxicab, motorcycle or other means	4
TAB9X231	All workers; having Construction and excavation occupations; who worked at home	15

(Data Source: http://www.transtats.bts.gov/DL_SelectFields.asp?Table_ID=1344&DB_Short_Name=CTPP%202000)

Based on the table above, considering the automobile mode of travel

Workers	Vehicle Occupancy	Vehicles
1150	1	1150
170	2	85
35	3	12
10	4	3
Total	1365	1250

Average Vehicle Occupancy = No.OfWorkers/No.OfVehicles = $1365/1250 = \underline{\underline{1.09}}$

Construction Workers Automobile Usage

From the Journey-To-Work Census Data (2000)

CTPP 2000: Part 2 Table 9: Occupation by Means of transportation to work – For Luzerne County (FIPS 079), Pennsylvania

TAB9X221	All workers; having Construction and excavation occupations; For All 11 Categories of Means of transportation to work	6660
TAB9X222	All workers; having Construction and excavation occupations; who drove alone	5245
TAB9X223	All workers; having Construction and excavation occupations; who travel to work by 2-person carpool	900
TAB9X224	All workers; having Construction and excavation occupations; who travel to work by 3-person carpool	180
TAB9X225	All workers; having Construction and excavation occupations; who travel to work by 4-or-more-person carpool	85
TAB9X226	All workers; having Construction and excavation occupations; who travel to work by Bus or trolley bus	25
TAB9X227	All workers; having Construction and excavation occupations; who travel to work by Streetcar, trolley car, subway, or elevated	0
TAB9X228	All workers; having Construction and excavation occupations; who travel to work by Railroad or ferryboat	0
TAB9X229	All workers; having Construction and excavation occupations; who travel to work by Bicycle or walked	115
TAB9X230	All workers; having Construction and excavation occupations; who travel to work by Taxicab, motorcycle or other means	45
TAB9X231	All workers; having Construction and excavation occupations; who worked at home	65

(Data Source: http://www.transtats.bts.gov/DL_SelectFields.asp?Table_ID=1344&DB_Short_Name=CTPP%202000)

Based on the table above, considering the automobile mode of travel

Workers	Vehicle Occupancy	Vehicles
5245	1	5245
900	2	450
180	3	60
85	4	21
Total	6410	5776

Average Vehicle Occupancy = No.OfWorkers/No.OfVehicles = $6410/5776 = \underline{\underline{1.11}}$

Construction Workers Automobile Usage

From the Journey-To-Work Census Data (2000)

CTPP 2000: Part 2 Table 9: Occupation by Means of transportation to work – For Schuylkill County (FIPS 107), Pennsylvania

TAB9X221	All workers; having Construction and excavation occupations; For All 11 Categories of Means of transportation to work	3005
TAB9X222	All workers; having Construction and excavation occupations; who drove alone	2350
TAB9X223	All workers; having Construction and excavation occupations; who travel to work by 2-person carpool	425
TAB9X224	All workers; having Construction and excavation occupations; who travel to work by 3-person carpool	55
TAB9X225	All workers; having Construction and excavation occupations; who travel to work by 4-or-more-person carpool	40
TAB9X226	All workers; having Construction and excavation occupations; who travel to work by Bus or trolley bus	0
TAB9X227	All workers; having Construction and excavation occupations; who travel to work by Streetcar, trolley car, subway, or elevated	0
TAB9X228	All workers; having Construction and excavation occupations; who travel to work by Railroad or ferryboat	0
TAB9X229	All workers; having Construction and excavation occupations; who travel to work by Bicycle or walked	85
TAB9X230	All workers; having Construction and excavation occupations; who travel to work by Taxicab, motorcycle or other means	30
TAB9X231	All workers; having Construction and excavation occupations; who worked at home	20

(Data Source: http://www.transtats.bts.gov/DL_SelectFields.asp?Table_ID=1344&DB_Short_Name=CTPP%202000)

Based on the table above, considering the automobile mode of travel

Workers	Vehicle Occupancy	Vehicles
2350	1	2350
425	2	213
55	3	18
40	4	10
Total	2870	2591

Average Vehicle Occupancy = No.OfWorkers/No.OfVehicles = $2870/2591 = \underline{\underline{1.11}}$

Construction Workers Automobile Usage

From the Journey-To-Work Census Data (2000)

CTPP 2000: Part 2 Table 9: Occupation by Means of transportation to work – For Carbon County (FIPS 025), Pennsylvania

TAB9X221	All workers; having Construction and excavation occupations; For All 11 Categories of Means of transportation to work	955
TAB9X222	All workers; having Construction and excavation occupations; who drove alone	670
TAB9X223	All workers; having Construction and excavation occupations; who travel to work by 2-person carpool	165
TAB9X224	All workers; having Construction and excavation occupations; who travel to work by 3-person carpool	40
TAB9X225	All workers; having Construction and excavation occupations; who travel to work by 4-or-more-person carpool	30
TAB9X226	All workers; having Construction and excavation occupations; who travel to work by Bus or trolley bus	0
TAB9X227	All workers; having Construction and excavation occupations; who travel to work by Streetcar, trolley car, subway, or elevated	0
TAB9X228	All workers; having Construction and excavation occupations; who travel to work by Railroad or ferryboat	0
TAB9X229	All workers; having Construction and excavation occupations; who travel to work by Bicycle or walked	15
TAB9X230	All workers; having Construction and excavation occupations; who travel to work by Taxicab, motorcycle or other means	10
TAB9X231	All workers; having Construction and excavation occupations; who worked at home	25

(Data Source: http://www.transtats.bts.gov/DL_SelectFields.asp?Table_ID=1344&DB_Short_Name=CTPP%202000)

Based on the table above, considering the automobile mode of travel

Workers	Vehicle Occupancy	Vehicles
670	1	670
165	2	83
40	3	13
30	4	8
Total 905		774

Average Vehicle Occupancy = No.OfWorkers/No.OfVehicles = $905/774 = \underline{\underline{1.17}}$

Construction Workers Automobile Usage

From the Journey-To-Work Census Data (2000)

CTPP 2000: Part 2 Table 9: Occupation by Means of transportation to work – For Monroe County (FIPS 089), Pennsylvania

TAB9X221	All workers; having Construction and excavation occupations; For All 11 Categories of Means of transportation to work	3500
TAB9X222	All workers; having Construction and excavation occupations; who drove alone	2535
TAB9X223	All workers; having Construction and excavation occupations; who travel to work by 2-person carpool	630
TAB9X224	All workers; having Construction and excavation occupations; who travel to work by 3-person carpool	165
TAB9X225	All workers; having Construction and excavation occupations; who travel to work by 4-or-more-person carpool	70
TAB9X226	All workers; having Construction and excavation occupations; who travel to work by Bus or trolley bus	15
TAB9X227	All workers; having Construction and excavation occupations; who travel to work by Streetcar, trolley car, subway, or elevated	0
TAB9X228	All workers; having Construction and excavation occupations; who travel to work by Railroad or ferryboat	0
TAB9X229	All workers; having Construction and excavation occupations; who travel to work by Bicycle or walked	25
TAB9X230	All workers; having Construction and excavation occupations; who travel to work by Taxicab, motorcycle or other means	20
TAB9X231	All workers; having Construction and excavation occupations; who worked at home	40

(Data Source: http://www.transtats.bts.gov/DL_SelectFields.asp?Table_ID=1344&DB_Short_Name=CTPP%202000)

Based on the table above, considering the automobile mode of travel

Workers	Vehicle Occupancy	Vehicles
2535	1	2535
630	2	315
165	3	55
70	4	18
Total	3400	2923

Average Vehicle Occupancy = No.OfWorkers/No.OfVehicles = $3400/2923 = \underline{\underline{1.16}}$

Construction Workers Automobile Usage

From the Journey-To-Work Census Data (2000)

CTPP 2000: Part 2 Table 9: Occupation by Means of transportation to work – For Lakawanna County (FIPS 069), Pennsylvania

TAB9X221	All workers; having Construction and excavation occupations; For All 11 Categories of Means of transportation to work	4550
TAB9X222	All workers; having Construction and excavation occupations; who drove alone	3630
TAB9X223	All workers; having Construction and excavation occupations; who travel to work by 2-person carpool	655
TAB9X224	All workers; having Construction and excavation occupations; who travel to work by 3-person carpool	105
TAB9X225	All workers; having Construction and excavation occupations; who travel to work by 4-or-more-person carpool	80
TAB9X226	All workers; having Construction and excavation occupations; who travel to work by Bus or trolley bus	4
TAB9X227	All workers; having Construction and excavation occupations; who travel to work by Streetcar, trolley car, subway, or elevated	0
TAB9X228	All workers; having Construction and excavation occupations; who travel to work by Railroad or ferryboat	0
TAB9X229	All workers; having Construction and excavation occupations; who travel to work by Bicycle or walked	25
TAB9X230	All workers; having Construction and excavation occupations; who travel to work by Taxicab, motorcycle or other means	10
TAB9X231	All workers; having Construction and excavation occupations; who worked at home	35

(Data Source: http://www.transtats.bts.gov/DL_SelectFields.asp?Table_ID=1344&DB_Short_Name=CTPP%202000)

Based on the table above, considering the automobile mode of travel

Workers	Vehicle Occupancy	Vehicles
3630	1	3630
655	2	328
105	3	35
80	4	20
Total	4470	4013

Average Vehicle Occupancy = No.OfWorkers/No.OfVehicles = $4470/4013 = \underline{\underline{1.11}}$

Appendix L
Capacity Analysis – Future Year Construction Conditions

Appendix L

This appendix contains all supporting worksheets and materials relating to capacity analysis for the Future Build scenario. Table L-1 summarizes the LOS and delay at each intersection. Stick diagrams depicting the volumes used as inputs are again provided. Synchro HCM signalized reports are given to support calculations at signalized intersections and HCS+ reports are given for all unsignalized intersections.

Queue storage calculations employing the PennDOT method are provided. The volumes shown in these worksheets are PCE (Passenger Car Equivalent) volumes which are factored up to account for the presence of heavy vehicles. The maximum hourly left turn volumes were used to determine the necessary storage.

Table L-1 – LOS and Average Delay (sec/veh): Future Year Construction Conditions

<i>Int No</i>	<i>PennDOT</i>	<i>County</i>	<i>Municipality</i>	<i>Intersection</i>	<i>FNB AM¹</i>	<i>Const AM¹</i>	<i>FNB PM¹</i>	<i>Const PM¹</i>
1	3-0	Columbia	South Centre	S.R. 11 and S.R. 2028	B (14.9)	E (59.8)	C (23.1)	E (62.1)
2			Briar Creek	S.R. 11 and Briar Creek Plaza Driveways	A (6.6)	C (21.4)	C (20.9)	E (61.2)
3			Berwick	S.R. 11 (Front Street) and Eaton Street	A (1.1)	A (0.8)	A (2.3)	F (No-Gap)
4				S.R. 11 (Front Street) and Poplar Street	C (27)	F (176.3)	D (40)	F (144.9)
5				S.R. 11 (Front Street) and Orchard Street	A (6.7)	B (16.9)	B (17.7)	D (48.6)
6				S.R. 11 (Front Street) and S.R. 93 (Orange Street)	A (5.9)	B (11.1)	B (11)	D (51.7)
7				S.R. 11 (Second Street) and LaSalle Street	B (11.8)	B (11.4)	B (14.1)	C (22.9)
8				S.R. 11 (Second Street) and Oak Street	A (6.2)	A (5.5)	A (8)	B (10.7)
9				S.R. 11 (Second Street) and Mulberry Street	A (4.8)	A (3.1)	A (5.7)	A (6.3)
10				S.R. 11 (Front Street) and Mulberry Street	A (6.1)	A (2.1)	A (8)	B (10.4)
11				S.R. 1025 (Market Street) and Third Street	A (9.6)	A (8)	B (12.8)	B (15.2)
12				S.R. 11 (Second Street) and Market Street	A (9.7)	B (19.8)	B (11.7)	B (18.1)
13				S.R. 11 (Front Street) and Market Street	B (14.2)	E (63)	B (15.3)	C (30.6)
14				S.R. 11 (Second Street) and Pine Street	A (6)	A (5)	A (8.6)	B (16.6)
15	4-0	Luzerne	Nescopeck	S.R. 93 (Third Street) and S.R. 339 (Broad Street)	B (14.1)	C (23.3)	B (12.3)	C (22.3)
16				S.R. 93 (Third Street) and Dewey Street	A (4.6)	A (4.4)	A (3.7)	A (5.3)
17			Salem Township	S.R. 11 and Bell Bend Site Entrance		F (No-Gap)		F (No-Gap)
18				S.R. 11 and SSES Site Entrance	E (47.1)	F (No-Gap)	A (5.2)	F (129.3)
19			Shickshinny	S.R. 11 (S. Main Street) and S.R. 239	A (7.8)	C (22.5)	A (9.4)	E (69.3)
20				S.R. 11 (Main Street) and S.R. 239 (Union Street)	B (14.7)	F (110.8)	B (15.5)	F (108.9)
21			Nanticoke	S.R. 11 and S.R. 29 (Mill Street)	C (23.6)	D (36)	C (26.3)	F (270.8)
22				S.R. 11 and County Bridge	D (49.5)	C (22.6)	C (24.2)	F (155.3)
23				S.R. 11 (E. Poplar Street) and S.R. 29	A (2.9)	F (108.9)	D (30.3)	F (325.1)

Note 1: "FNB" corresponds to Future Year No-Build Condition and "Const" corresponds to Future Year Construction without any mitigation.

Note 2: Highlighted cells indicate cases in which the change in LOS is higher than the acceptable level of LOS degradation.

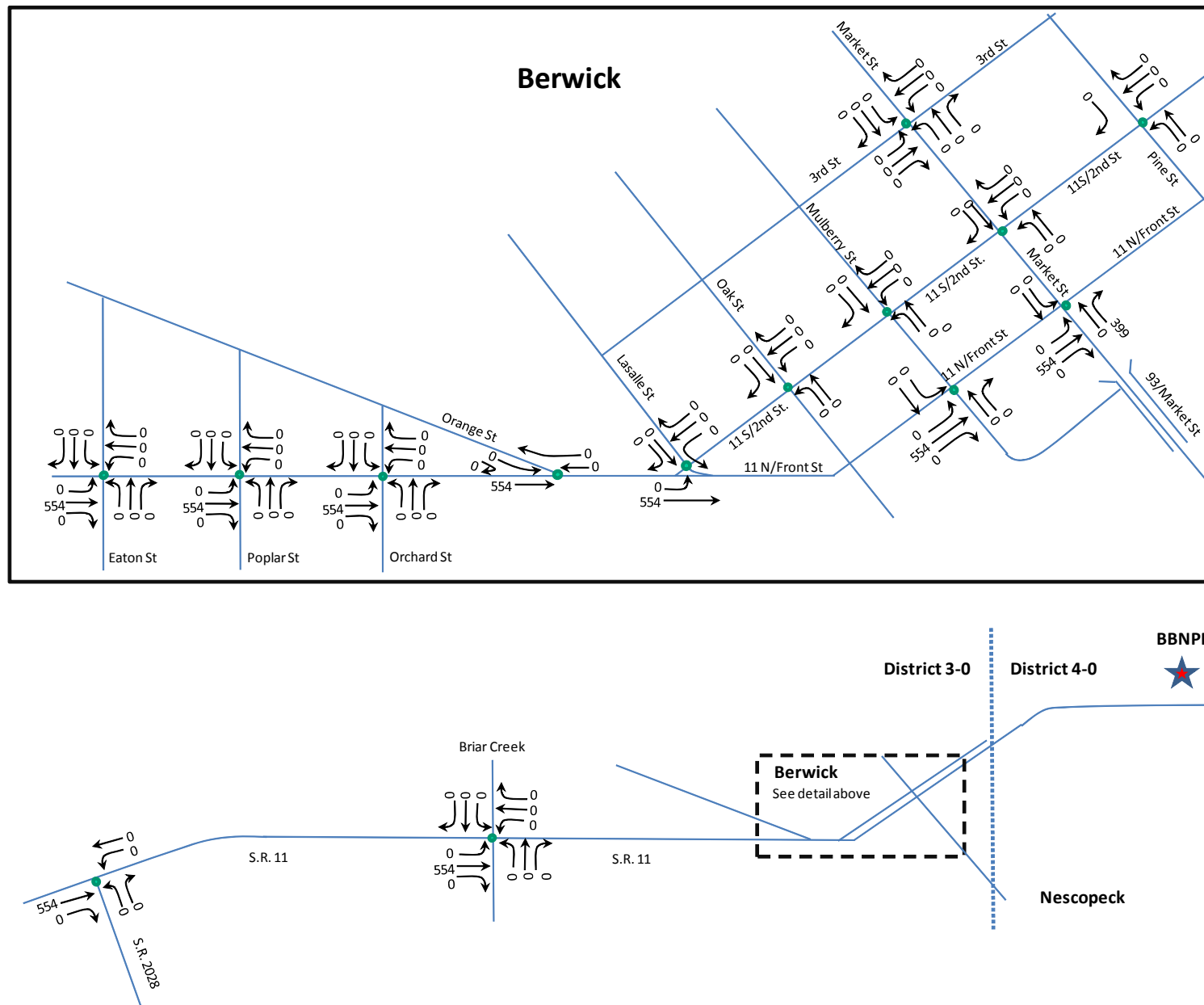


Figure L-1 - Weekday AM Peak Hour Volumes (6:30-7:30): Construction Traffic only During Peak Construction

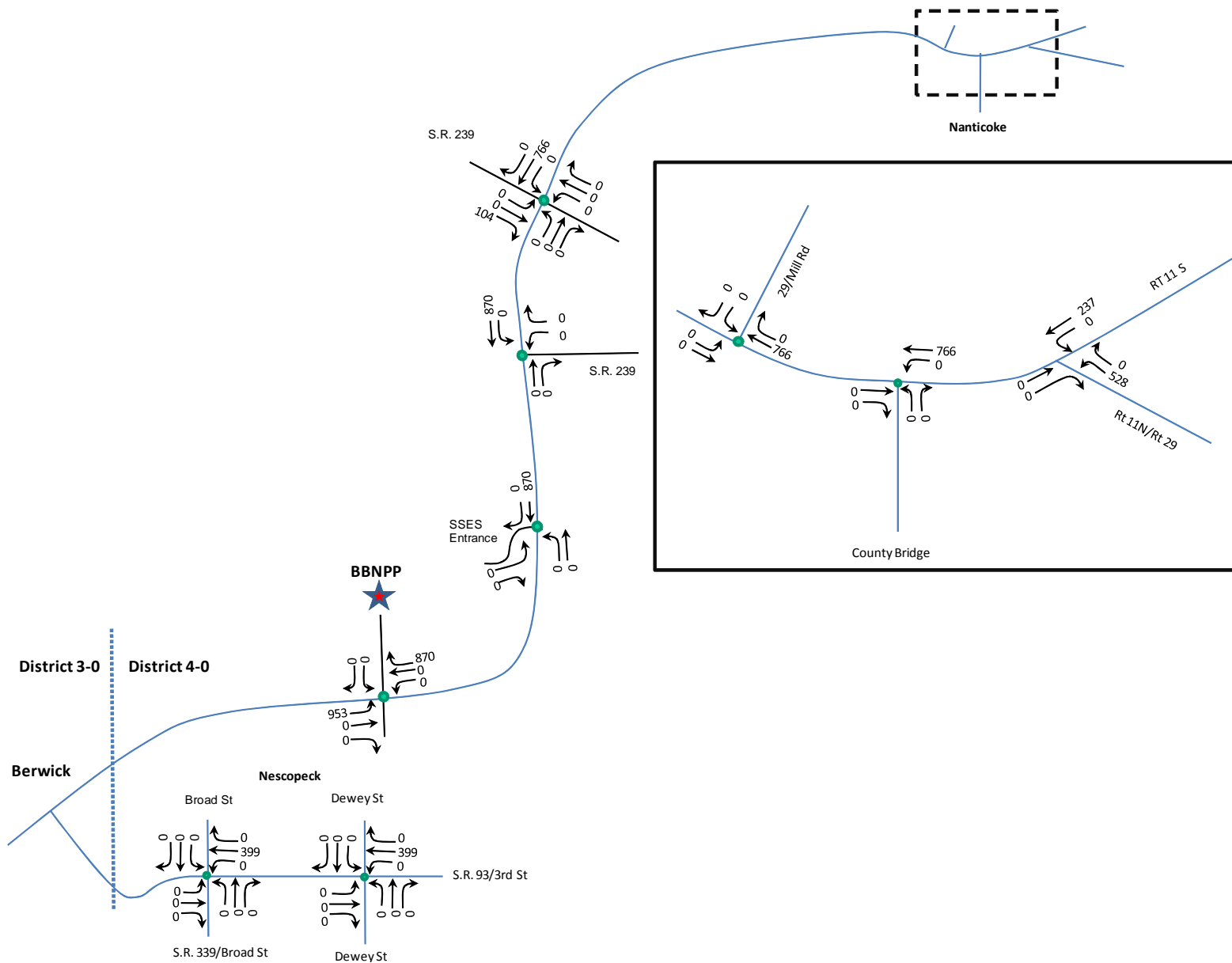
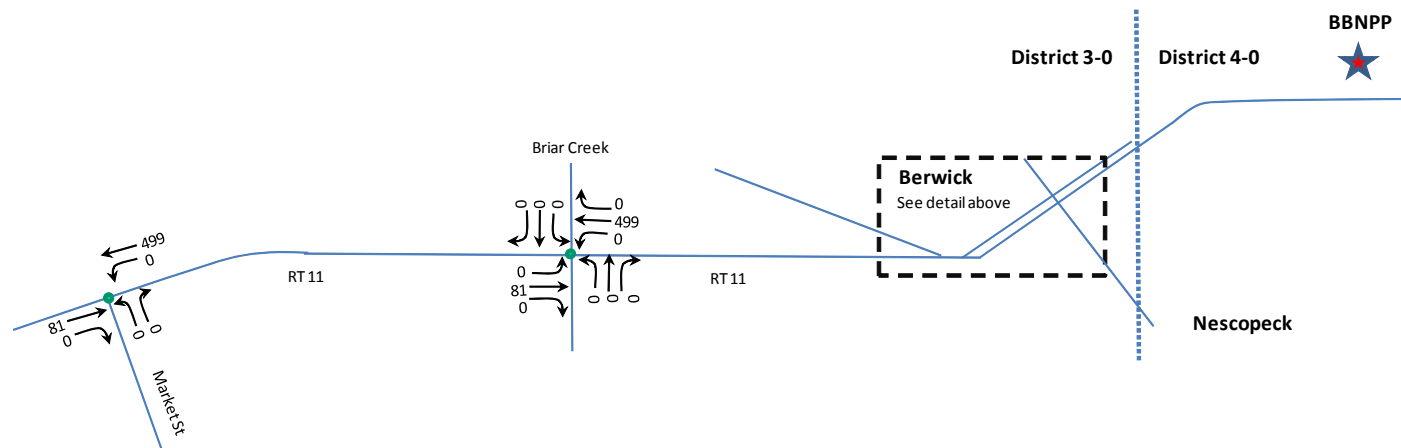


Figure L-1 - Weekday AM Peak Hour Volumes (6:30-7:30): Construction Traffic only During Peak Construction



KLD Engineering, P.C.
Bell Bend TIS

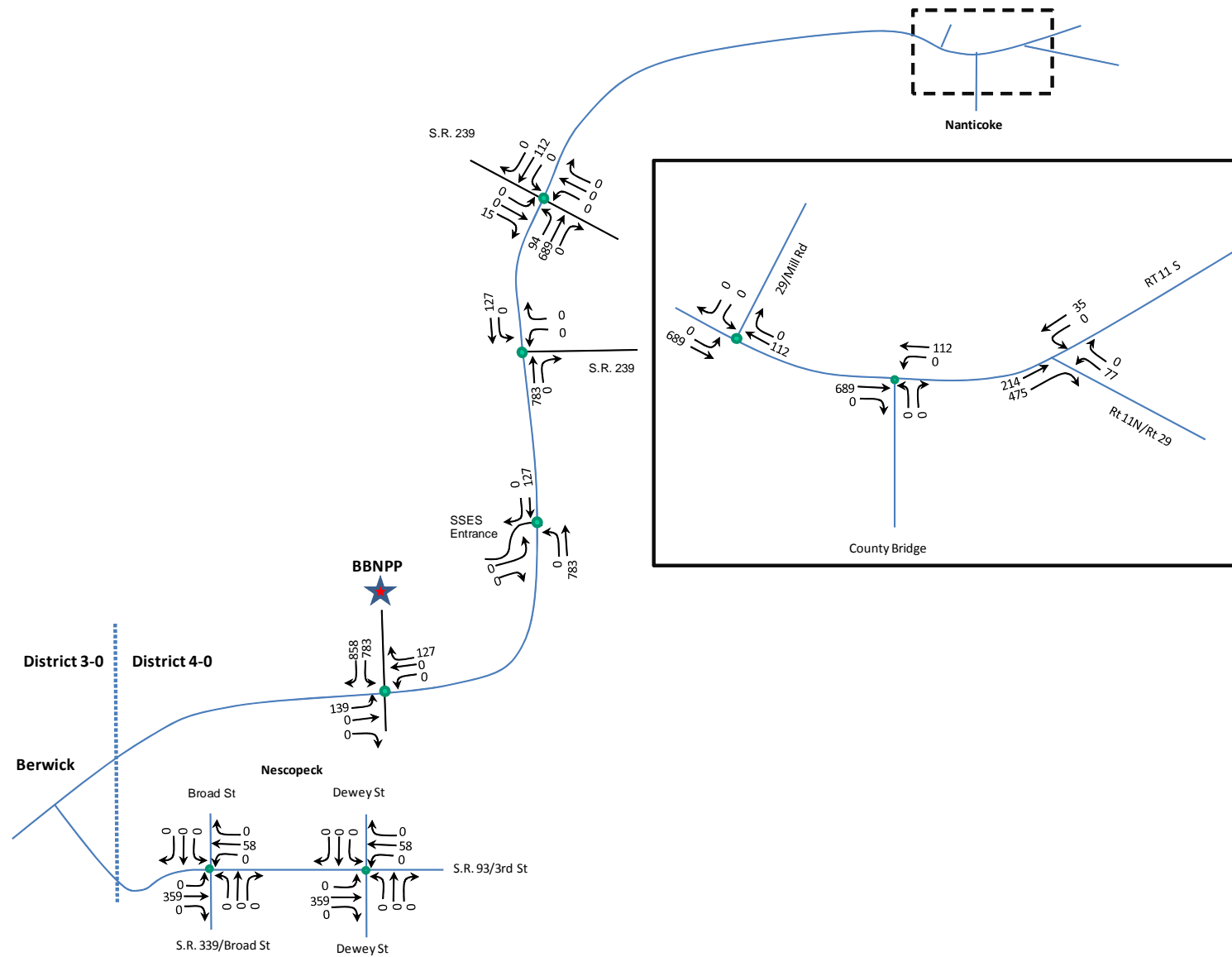
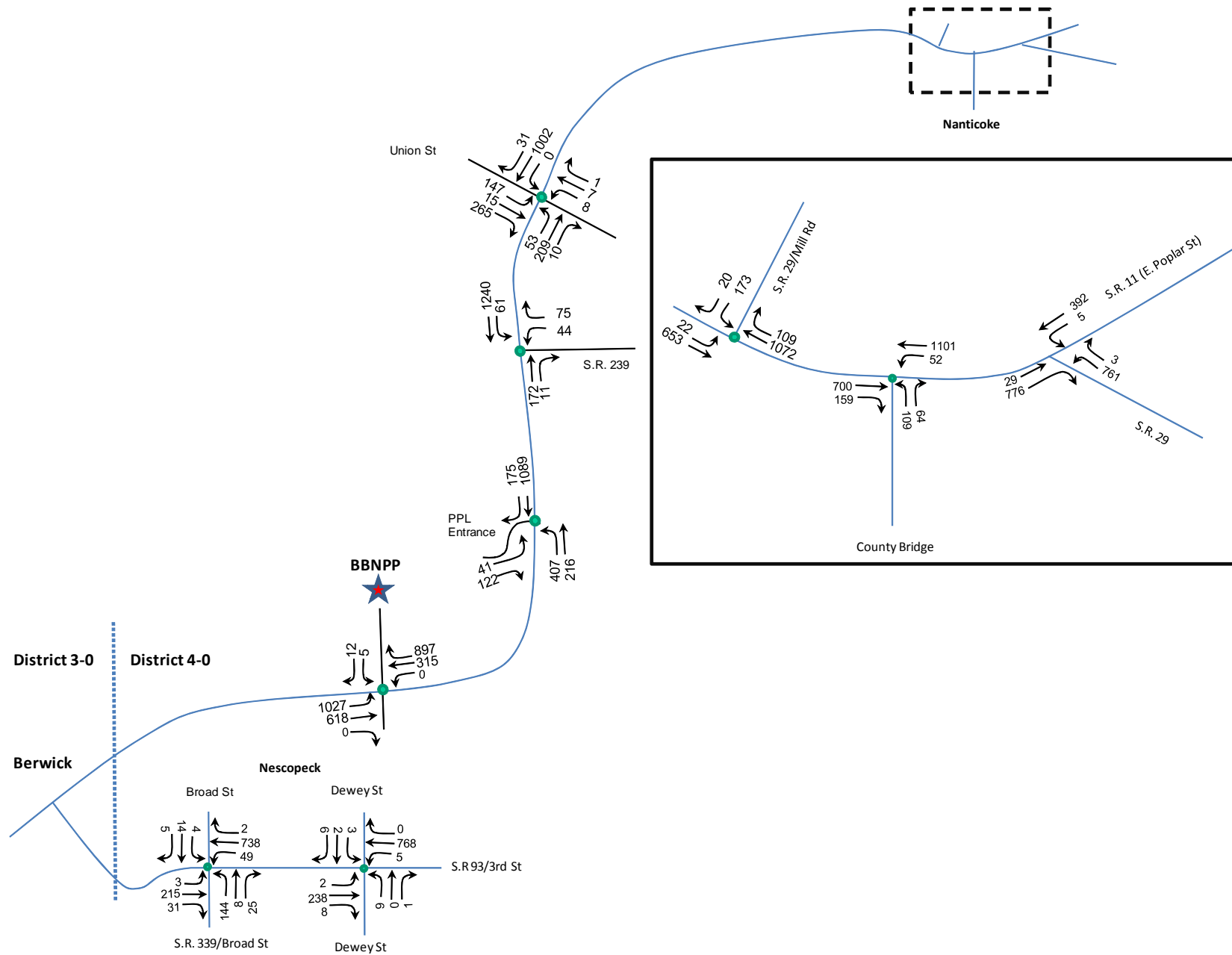


Figure L-2 - Weekday PM Peak Hour Volumes (3:45-4:45): Construction Traffic only During Peak Construction





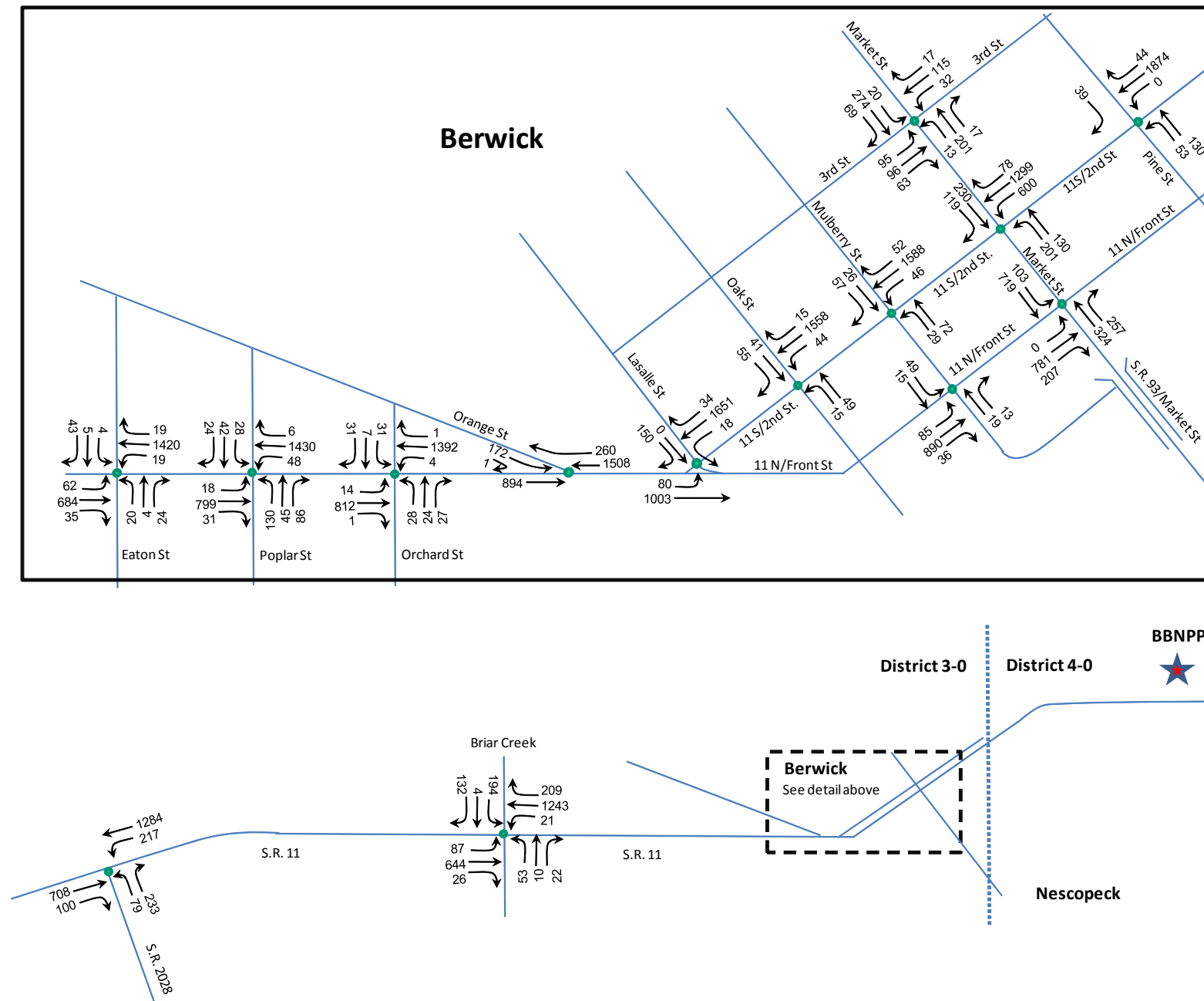


Figure L-4 - Weekday PM Peak Hour Volumes (3:45-4:45): During Construction

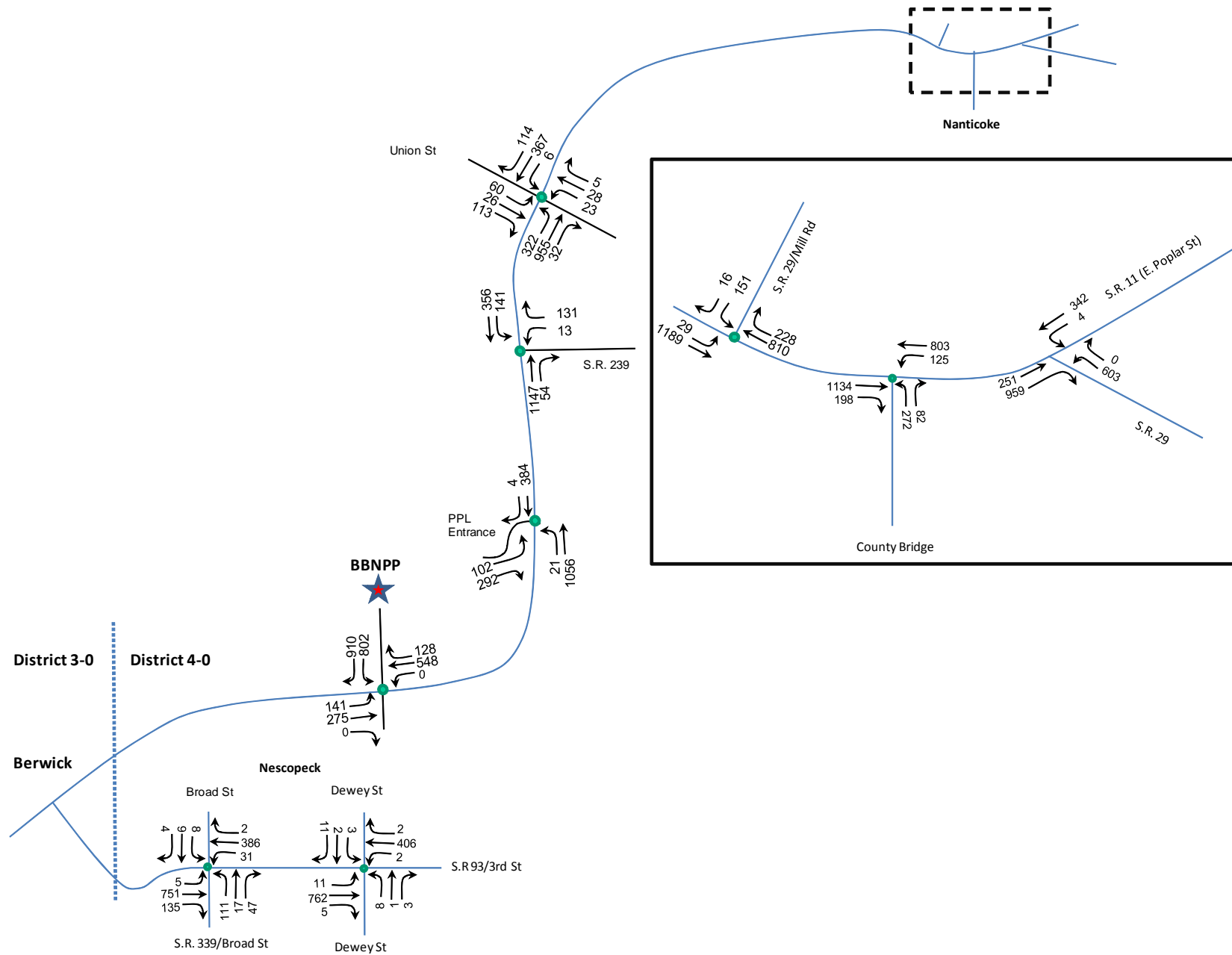


Figure L-4 - Weekday PM Peak Hour Volumes (3:45-4:45): During Construction

PennDOT Turn Lane Storage Length Calculations

Location: S.R. 11 and S.R. 2028
 Scenario: 2018, Construction, with Outage
 Mitigation: Unmitigated
 Control: Signalized

Movement	Peak Hour	Max LT Volume	Approach Volume	LT%	Cycle Length (sec)	Vehicles/Cycle	Condition A (X)	Condition B	Condition C1 (Y)	Condition C (X+Y)	Storage Length Needed	Storage Available
SBL	AM	129	813	16%	150	5.4	250	125	75	325	325	165
SBL	PM	231	1945	12%	150	9.6	375	125	75	450	450	165
Speed (MPH)	45			>10%		Condition:	B or C*					

WBL	AM	124	313	39%	150	5.2	250	#N/A	#N/A	#N/A	250	275
WBL	PM	100	343	29%	150	4.2	200	#N/A	#N/A	#N/A	200	275
Speed (MPH)	35			>10%		Condition:	A					

Condition B	
MPH	Length
40	75
45	125
50	175
55	235
60	295

Condition C1	
MPH	Length
40	61
45	75
50	93
55	114
60	131

Speed (MPH)	25-35	25-35	40-45	40-45	50-60	50-60
	LT %	LT %	LT %	LT %	LT %	LT %
Signalized	>10%	<=10%	>10%	<=10%	>10%	<=10%
Unsignalized	A	A	B or C*	B or C*	B or C*	B or C*
	A	A	B or C*	B or C*	B or C*	B

Notes: Storage needed exceeds available amount
 * Whichever is greater

PennDOT Turn Lane Storage Length Calculations

Location: S.R. 11 and Briar Creek Plaza Driveways
 Scenario: 2018, Construction, with Outage
 Mitigation: Unmitigated
 Control: Signalized

Movement	Peak Hour	Max LT Volume	Approach Volume	LT%	Cycle Length (sec)	Vehicles/Cycle	Condition A (X)	Condition B	Condition C1 (Y)	Condition C (X+Y)	Storage Length Needed	Storage Available
NBL	AM	40	929	4%	90	1.0	100	#N/A	#N/A	#N/A	100	175
NBL	PM	107	893	12%	140	4.2	200	#N/A	#N/A	#N/A	200	175
Speed (MPH)	35			>10%		Condition: A						

SBL	AM	42	545	8%	90	1.0	100	#N/A	#N/A	#N/A	100	135
SBL	PM	21	1376	2%	140	0.8	75	#N/A	#N/A	#N/A	75	135
Speed (MPH)	35			<=10%		Condition: A						

EBL	AM	54	97	56%	90	1.4	100	#N/A	#N/A	#N/A	100	175
EBL	PM	204	318	64%	140	7.9	325	#N/A	#N/A	#N/A	325	175
Speed (MPH)	30			>10%		Condition: A						

WBL	AM	45	57	79%	90	1.1	100	#N/A	#N/A	#N/A	100	75
WBL	PM	54	84	65%	140	2.1	150	#N/A	#N/A	#N/A	150	75
Speed (MPH)	30			>10%		Condition: A						

Condition B	
MPH	Length
40	75
45	125
50	175
55	235
60	295

Condition C1	
MPH	Length
40	61
45	75
50	93
55	114
60	131

Speed (MPH)	25-35	25-35	40-45	40-45	50-60	50-60
	LT %	LT %	LT %	LT %	LT %	LT %
LT %	>10%	<=10%	>10%	<=10%	>10%	<=10%
Signalized	A	A	B or C*	B or C*	B or C*	B or C*
Unsignalized	A	A	B or C*	B or C*	B or C*	B

Notes: Storage needed exceeds available amount

* Whichever is greater

PennDOT Turn Lane Storage Length Calculations

Location: S.R. 11 (Front Street) and Eaton Street
 Scenario: 2018, Construction, with Outage
 Mitigation: Unmitigated
 Control: Unsignalized

Movement	Peak Hour	Max LT Volume	Approach Volume	LT%	Cycle Length (sec)	Vehicles/Cycle	Condition A (X)	Condition B	Condition C1 (Y)	Condition C (X+Y)	Storage Length Needed	Storage Available
NBL	AM	24	889	3%	60	0.4	75	#N/A	#N/A	#N/A	75	150
NBL	PM	64	1070	6%	60	1.1	100	#N/A	#N/A	#N/A	100	150
Speed (MPH)	35			<=10%		Condition: A						

SBL	AM	14	631	2%	60	0.2	75	#N/A	#N/A	#N/A	75	150
SBL	PM	63	788	8%	60	1.1	100	#N/A	#N/A	#N/A	100	150
Speed (MPH)	35			<=10%		Condition: A						

Condition B	
MPH	Length
40	75
45	125
50	175
55	235
60	295

Condition C1	
MPH	Length
40	61
45	75
50	93
55	114
60	131

	25-35	25-35	40-45	40-45	50-60	50-60
Speed (MPH)	25-35	25-35	40-45	40-45	50-60	50-60
LT %	>10%	<=10%	>10%	<=10%	>10%	<=10%
Signalized	A	A	B or C*	B or C*	B or C*	B or C*
Unsignalized	A	A	B or C*	B or C*	B or C*	B

Notes: Storage needed exceeds available amount
 * Whichever is greater

PennDOT Turn Lane Storage Length Calculations

Location: S.R. 11 (Front Street) and Poplar Street
 Scenario: 2018, Construction, with Outage
 Mitigation: Unmitigated
 Control: Signalized

Movement	Peak Hour	Max LT Volume	Approach Volume	LT%	Cycle Length (sec)	Vehicles/Cycle	Condition A (X)	Condition B	Condition C1 (Y)	Condition C (X+Y)	Storage Length Needed	Storage Available
NBL	AM	0	181	0%	110	0.0	75	#N/A	#N/A	#N/A	75	75
NBL	PM	23	765	3%	90	0.6	75	#N/A	#N/A	#N/A	75	75
Speed (MPH)	35			<=10%		Condition: A						

SBL	AM	57	684	8%	110	1.7	100	#N/A	#N/A	#N/A	100	105
SBL	PM	75	1220	6%	90	1.9	100	#N/A	#N/A	#N/A	100	105
Speed (MPH)	35			<=10%		Condition: A						

WBL	AM	66	107	61%	110	2.0	150	#N/A	#N/A	#N/A	150	250
WBL	PM	136	267	51%	90	3.4	175	#N/A	#N/A	#N/A	175	250
Speed (MPH)	30			>10%		Condition: A						

Condition B	
MPH	Length
40	75
45	125
50	175
55	235
60	295

Condition C1	
MPH	Length
40	61
45	75
50	93
55	114
60	131

	25-35	25-35	40-45	40-45	50-60	50-60
Speed (MPH)	25-35	25-35	40-45	40-45	50-60	50-60
LT %	>10%	<=10%	>10%	<=10%	>10%	<=10%
Signalized	A	A	B or C*	B or C*	B or C*	B or C*
Unsignalized	A	A	B or C*	B or C*	B or C*	B

Notes: Storage needed exceeds available amount
 * Whichever is greater

PennDOT Turn Lane Storage Length Calculations

Location: S.R. 11 (Front Street) and Orchard Street
 Scenario: 2018, Construction, with Outage
 Mitigation: Unmitigated
 Control: Signalized

Movement	Peak Hour	Max LT Volume	Approach Volume	LT%	Cycle Length (sec)	Vehicles/Cycle	Condition A (X)	Condition B	Condition C1 (Y)	Condition C (X+Y)	Storage Length Needed	Storage Available
NBL	AM	12	599	2%	110	0.4	75	#N/A	#N/A	#N/A	75	75
NBL	PM	15	862	2%	180	0.8	75	#N/A	#N/A	#N/A	75	75
Speed (MPH)	35			<=10%		Condition: A						

SBL	AM	9	680	1%	110	0.3	75	#N/A	#N/A	#N/A	75	75
SBL	PM	10	1163	1%	180	0.5	75	#N/A	#N/A	#N/A	75	75
Speed (MPH)	35			<=10%		Condition: A						

Condition B	
MPH	Length
40	75
45	125
50	175
55	235
60	295

Condition C1	
MPH	Length
40	61
45	75
50	93
55	114
60	131

Speed (MPH)	25-35		40-45		50-60	
	LT %		LT %		LT %	
Signalized	>10%	<=10%	>10%	<=10%	>10%	<=10%
Unsignalized	A	A	B or C*	B or C*	B or C*	B or C*
	A	A	B or C*	B or C*	B or C*	B

Notes: Storage needed exceeds available amount
 * Whichever is greater

PennDOT Turn Lane Storage Length Calculations

Location: S.R. 11 (Second Street) and LaSalle Street
 Scenario: 2018, Construction, with Outage
 Mitigation: Unmitigated
 Control: Signalized

Movement	Peak Hour	Max LT Volume	Approach Volume	LT%	Cycle Length (sec)	Vehicles/Cycle	Condition A (X)	Condition B	Condition C1 (Y)	Condition C (X+Y)	Storage Length Needed	Storage Available
NBL	AM	58	1324	4%	60	1.0	75	#N/A	#N/A	#N/A	75	100
NBL	PM	92	1060	9%	180	4.6	200	#N/A	#N/A	#N/A	200	100
Speed (MPH)	35			<=10%		Condition: A						

SBL	AM	11	718	2%	60	0.2	75	#N/A	#N/A	#N/A	75	100
SBL	PM	19	1457	1%	180	1.0	75	#N/A	#N/A	#N/A	75	100
Speed (MPH)	35			<=10%		Condition: A						

Condition B	
MPH	Length
40	75
45	125
50	175
55	235
60	295

Condition C1	
MPH	Length
40	61
45	75
50	93
55	114
60	131

Speed (MPH)	25-35		40-45		50-60	
	LT %	Signalized	LT %	Signalized	LT %	Signalized
25-35	>10%	A	>10%	B or C*	>10%	B or C*
40-45	<=10%	A	<=10%	B or C*	<=10%	B or C*
50-60	>10%	A	>10%	B or C*	>10%	B
50-60	<=10%	A	<=10%	B or C*	<=10%	B

Notes: Storage needed exceeds available amount
 * Whichever is greater

PennDOT Turn Lane Storage Length Calculations

Location: S.R. 1025 (Market Street) and Third Street
 Scenario: 2018, Construction, with Outage
 Mitigation: Unmitigated
 Control: Signalized

Movement	Peak Hour	Max LT Volume	Approach Volume	LT%	Cycle Length (sec)	Vehicles/Cycle	Condition A (X)	Condition B	Condition C1 (Y)	Condition C (X+Y)	Storage Length Needed	Storage Available
EBL	AM	14	306	5%	55	0.2	75	#N/A	#N/A	#N/A	75	90
EBL	PM	24	374	7%	90	0.6	75	#N/A	#N/A	#N/A	75	90
Speed (MPH)	25			<=10%		Condition: A						

WBL	AM	40	184	22%	55	0.6	75	#N/A	#N/A	#N/A	75	175
WBL	PM	28	230	12%	90	0.7	75	#N/A	#N/A	#N/A	75	175
Speed (MPH)	25			>10%		Condition: A						

Condition B	
MPH	Length
40	75
45	125
50	175
55	235
60	295

Condition C1	
MPH	Length
40	61
45	75
50	93
55	114
60	131

Speed (MPH) LT % Signalized Unsignalized						
	25-35	25-35	40-45	40-45	50-60	50-60
	>10%	<=10%	>10%	<=10%	>10%	<=10%
	A	A	B or C*	B or C*	B or C*	B or C*
	A	A	B or C*	B or C*	B or C*	B

Notes: Storage needed exceeds available amount
 * Whichever is greater

PennDOT Turn Lane Storage Length Calculations

Location: S.R. 11 (Second Street) and Market Street
 Scenario: 2018, Construction, with Outage
 Mitigation: Unmitigated
 Control: Signalized

Movement	Peak Hour	Max LT Volume	Approach Volume	LT%	Cycle Length (sec)	Vehicles/Cycle	Condition A (X)	Condition B	Condition C1 (Y)	Condition C (X+Y)	Storage Length Needed	Storage Available
SBL	AM	189	865	22%	110	5.8	250	#N/A	#N/A	#N/A	250	100
SBL	PM	649	2052	32%	90	16.2	600	#N/A	#N/A	#N/A	600	100
Speed (MPH)	35			>10%		Condition: A						

WBL	AM	234	344	68%	110	7.1	325	#N/A	#N/A	#N/A	325	170
WBL	PM	256	367	70%	90	6.4	275	#N/A	#N/A	#N/A	275	170
Speed (MPH)	25			>10%		Condition: A						

Condition B	
MPH	Length
40	75
45	125
50	175
55	235
60	295

Condition C1	
MPH	Length
40	61
45	75
50	93
55	114
60	131

Speed (MPH) LT % Signalized Unsignalized						
	25-35	25-35	40-45	40-45	50-60	50-60
	>10%	<=10%	>10%	<=10%	>10%	<=10%
	A	A	B or C*	B or C*	B or C*	B or C*
	A	A	B or C*	B or C*	B or C*	B

Notes: Storage needed exceeds available amount
 * Whichever is greater

PennDOT Turn Lane Storage Length Calculations

Location: S.R. 11 (Second Street) and Pine Street
 Scenario: 2018, Construction, with Outage
 Mitigation: Unmitigated
 Control: Signalized

Movement	Peak Hour	Max LT Volume	Approach Volume	LT%	Cycle Length (sec)	Vehicles/Cycle	Condition A (X)	Condition B	Condition C1 (Y)	Condition C (X+Y)	Storage Length Needed	Storage Available
WBL	AM	26	97	26%	60	0.4	75	#N/A	#N/A	#N/A	75	175
WBL	PM	65	207	31%	90	1.6	100	#N/A	#N/A	#N/A	100	175
Speed (MPH)	35			>10%		Condition:	A					

Condition B	
MPH	Length
40	75
45	125
50	175
55	235
60	295

Condition C1	
MPH	Length
40	61
45	75
50	93
55	114
60	131

	25-35	25-35	40-45	40-45	50-60	50-60
Speed (MPH)	25-35	25-35	40-45	40-45	50-60	50-60
LT %	>10%	<=10%	>10%	<=10%	>10%	<=10%
Signalized	A	A	B or C*	B or C*	B or C*	B or C*
Unsignalized	A	A	B or C*	B or C*	B or C*	B

Notes: Storage needed exceeds available amount

* Whichever is greater

PennDOT Turn Lane Storage Length Calculations

Location: S.R. 11 and SSES Site Entrance
 Scenario: 2018, Construction, with Outage
 Mitigation: Unmitigated
 Control: Unsignalized

Movement	Peak Hour	Max LT Volume	Approach Volume	LT%	Cycle Length (sec)	Vehicles/Cycle	Condition A (X)	Condition B	Condition C1 (Y)	Condition C (X+Y)	Storage Length Needed	Storage Available
NBL	AM	686	869	79%	90	17.2	625	235	114	739	739	200
NBL	PM	69	581	12%	90	1.7	100	235	114	214	235	200
Speed (MPH)	55			>10%		Condition:	B or C*					

EBL	AM	55	199	27%	90	1.4	100	#N/A	#N/A	#N/A	100	450
EBL	PM	204	714	29%	90	5.1	250	#N/A	#N/A	#N/A	250	450
Speed (MPH)	35			>10%		Condition:	A					

Condition B	
MPH	Length
40	75
45	125
50	175
55	235
60	295

Condition C1	
MPH	Length
40	61
45	75
50	93
55	114
60	131

Speed (MPH)	25-35		40-45		50-60	
	25-35	25-35	40-45	40-45	50-60	50-60
LT %	>10%	<=10%	>10%	<=10%	>10%	<=10%
Signalized	A	A	B or C*	B or C*	B or C*	B or C*
Unsignalized	A	A	B or C*	B or C*	B or C*	B

Notes: Storage needed exceeds available amount

* Whichever is greater

PennDOT Turn Lane Storage Length Calculations

Location: S.R. 11 (Main Street) and S.R. 239 (Union Street)

Scenario: 2018, Construction, with Outage

Mitigation: Unmitigated

Control: Signalized

Movement	Peak Hour	Max LT Volume	Approach Volume	LT%	Cycle Length (sec)	Vehicles/Cycle	Condition A (X)	Condition B	Condition C1 (Y)	Condition C (X+Y)	Storage Length Needed	Storage Available
NBL	AM	93	407	23%	150	3.9	175	#N/A	#N/A	#N/A	175	150
NBL	PM	345	1389	25%	120	11.5	450	#N/A	#N/A	#N/A	450	150
Speed (MPH)	25			>10%		Condition: A						

Condition B	
MPH	Length
40	75
45	125
50	175
55	235
60	295

Condition C1	
MPH	Length
40	61
45	75
50	93
55	114
60	131

	25-35	25-35	40-45	40-45	50-60	50-60
Speed (MPH)	25-35	25-35	40-45	40-45	50-60	50-60
LT %	>10%	<=10%	>10%	<=10%	>10%	<=10%
Signalized	A	A	B or C*	B or C*	B or C*	B or C*
Unsignalized	A	A	B or C*	B or C*	B or C*	B

Notes: Storage needed exceeds available amount

* Whichever is greater

PennDOT Turn Lane Storage Length Calculations

Location: S.R. 11 and S.R. 29 (Mill Street)
 Scenario: 2018, Construction, with Outage
 Mitigation: Unmitigated
 Control: Signalized

Movement	Peak Hour	Max LT Volume	Approach Volume	LT%	Cycle Length (sec)	Vehicles/Cycle	Condition A (X)	Condition B	Condition C1 (Y)	Condition C (X+Y)	Storage Length Needed	Storage Available
NBL	AM	39	930	4%	110	1.2	100	#N/A	#N/A	#N/A	100	100
NBL	PM	31	535	6%	140	1.2	100	#N/A	#N/A	#N/A	100	100
Speed (MPH)	35			<=10%		Condition: A						

Condition B	
MPH	Length
40	75
45	125
50	175
55	235
60	295

Condition C1	
MPH	Length
40	61
45	75
50	93
55	114
60	131

	25-35	25-35	40-45	40-45	50-60	50-60
Speed (MPH)	25-35	25-35	40-45	40-45	50-60	50-60
LT %	>10%	<=10%	>10%	<=10%	>10%	<=10%
Signalized	A	A	B or C*	B or C*	B or C*	B or C*
Unsignalized	A	A	B or C*	B or C*	B or C*	B

Notes: Storage needed exceeds available amount

* Whichever is greater

PennDOT Turn Lane Storage Length Calculations

Location: S.R. 11 and County Bridge
 Scenario: 2018, Construction, with Outage
 Mitigation: Unmitigated
 Control: Signalized

Movement	Peak Hour	Max LT Volume	Approach Volume	LT%	Cycle Length (sec)	Vehicles/Cycle	Condition A (X)	Condition B	Condition C1 (Y)	Condition C (X+Y)	Storage Length Needed	Storage Available
SBL	AM	94	417	23%	90	2.4	150	#N/A	#N/A	#N/A	150	200
SBL	PM	131	828	16%	150	5.4	250	#N/A	#N/A	#N/A	250	200
Speed (MPH)	35			>10%		Condition: A						

Condition B	
MPH	Length
40	75
45	125
50	175
55	235
60	295

Condition C1	
MPH	Length
40	61
45	75
50	93
55	114
60	131

	25-35	25-35	40-45	40-45	50-60	50-60
Speed (MPH)	25-35	25-35	40-45	40-45	50-60	50-60
LT %	>10%	<=10%	>10%	<=10%	>10%	<=10%
Signalized	A	A	B or C*	B or C*	B or C*	B or C*
Unsignalized	A	A	B or C*	B or C*	B or C*	B

Notes: Storage needed exceeds available amount

* Whichever is greater

PennDOT Turn Lane Storage Length Calculations

Location: S.R. 11 (E. Poplar Street) and S.R. 29
 Scenario: 2018, Construction, with Outage
 Mitigation: Unmitigated
 Control: Unsignalized

Movement	Peak Hour	Max LT Volume	Approach Volume	LT%	Cycle Length (sec)	Vehicles/Cycle	Condition A (X)	Condition B	Condition C1 (Y)	Condition C (X+Y)	Storage Length Needed	Storage Available
NBL	AM	53	927	6%	90	1.3	100	#N/A	#N/A	#N/A	100	300
NBL	PM	265	1281	21%	90	6.6	275	#N/A	#N/A	#N/A	275	300
Speed (MPH)	35			>10%		Condition: A						

WBL	AM	772	775	100%	90	19.3	675	#N/A	#N/A	#N/A	675	300
WBL	PM	803	806	100%	90	20.1	725	#N/A	#N/A	#N/A	725	300
Speed (MPH)	35			>10%		Condition: A						

Condition B	
MPH	Length
40	75
45	125
50	175
55	235
60	295

Condition C1	
MPH	Length
40	61
45	75
50	93
55	114
60	131

Speed (MPH)	25-35		40-45		50-60	
	25-35	<=10%	>10%	<=10%	>10%	<=10%
LT %	>10%	<=10%	>10%	<=10%	>10%	<=10%
Signalized	A	A	B or C*	B or C*	B or C*	B or C*
Unsignalized	A	A	B or C*	B or C*	B or C*	B

Notes: Storage needed exceeds available amount
 * Whichever is greater

TWO-WAY STOP CONTROL SUMMARY

Analyst: KLD Engineering, P.C
 Agency/Co.:
 Date Performed:
 Analysis Time Period: 6:30 AM
 Intersection: S.R. 11 and Eaton St.
 Jurisdiction: Berwick, PA
 Units: U. S. Customary
 Analysis Year: 2018
 Project ID: 2018, Construction, with Outage, AM
 East/West Street: Eaton St.
 North/South Street: S.R. 11
 Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach Movement	Northbound			Southbound		
		1	2	3	4	5	6
		L	T	R	L	T	R
Volume		22	1291	7	8	485	4
Peak-Hour Factor, PHF		0.53	0.85	0.44	0.67	0.86	0.50
Hourly Flow Rate, HFR		41	1518	15	11	563	8
Percent Heavy Vehicles		0	--	--	0	--	--
Median Type/Storage		TWLTL			/ 9		
RT Channelized?							
Lanes		1	1	0	1	1	0
Configuration		L		TR	L		TR
Upstream Signal?			No			No	

Minor Street:	Approach Movement	Westbound			Eastbound		
		7	8	9	10	11	12
		L	T	R	L	T	R
Volume		3	0	5	2	6	37
Peak Hour Factor, PHF		0.25	1.00	0.42	0.25	0.75	0.73
Hourly Flow Rate, HFR		12	0	11	8	8	50
Percent Heavy Vehicles		33	0	0	0	0	0
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage				No	/		/
Lanes		0	1	0	0	1	1
Configuration			LTR		LT		R

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L	L		LTR		LT		R
v (vph)	41	11		23		16		50
C(m) (vph)	1012	440		122		122		527
v/c	0.04	0.03		0.19		0.13		0.09
95% queue length	0.13	0.08		0.66		0.44		0.31
Control Delay	8.7	13.4		41.2		38.9		12.5
LOS	A	B		E		E		B
Approach Delay				41.2			18.9	
Approach LOS				E			C	

TWO-WAY STOP CONTROL SUMMARY

Analyst: KLD Engineering, P.C
 Agency/Co.:
 Date Performed:
 Analysis Time Period: 3:45 PM
 Intersection: S.R. 11 and Eaton St.
 Jurisdiction: Berwick, PA
 Units: U. S. Customary
 Analysis Year: 2018
 Project ID: 2018, Construction, with Outage, PM
 East/West Street: S.R. 11
 North/South Street: Eaton St.
 Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach Movement	Northbound			Southbound		
		1	2	3	4	5	6
		L	T	R	L	T	R
Volume		62	684	35	19	1420	19
Peak-Hour Factor, PHF		0.85	0.69	0.69	0.64	0.79	0.75
Hourly Flow Rate, HFR		72	991	50	29	1797	25
Percent Heavy Vehicles		0	--	--	17	--	--
Median Type/Storage		TWLTL			/ 9		
RT Channelized?							
Lanes		1	1	0	1	1	0
Configuration		L		TR	L		TR
Upstream Signal?			No			No	

Minor Street:	Approach Movement	Westbound			Eastbound		
		7	8	9	10	11	12
		L	T	R	L	T	R
Volume		20	4	24	4	5	43
Peak Hour Factor, PHF		0.68	0.50	0.41	1.00	0.63	0.71
Hourly Flow Rate, HFR		29	8	58	4	7	60
Percent Heavy Vehicles		5	0	0	25	0	0
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage				No	/		/
Lanes		0	1	0	0	1	1
Configuration			LTR		LT		R

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L	L		LTR		LT		R
v (vph)	72	29		95		11		60
C(m) (vph)	341	614		0		96		99
v/c	0.21	0.05				0.11		0.61
95% queue length	0.78	0.15				0.38		2.90
Control Delay	18.4	11.2				47.3		86.0
LOS	C	B		F		E		F
Approach Delay							80.0	
Approach LOS							F	

TWO-WAY STOP CONTROL SUMMARY

Analyst: KLD Engineering, P.C.
 Agency/Co.:
 Date Performed:
 Analysis Time Period: 6:30 AM
 Intersection: S.R. 11 and Bell Bend Entrance
 Jurisdiction: Berwick, PA
 Units: U. S. Customary
 Analysis Year: 2018
 Project ID: 2018, Construction, with Outage, AM
 East/West Street: Bell Bend Site Entrance
 North/South Street: S.R. 11
 Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach	Northbound			Southbound		
	Movement	1	2	3	4	5	6
		L	T	R	L	T	R
Volume		1027	618			315	897
Peak-Hour Factor, PHF		0.95	0.72			1.00	0.98
Hourly Flow Rate, HFR		1081	858			315	915
Percent Heavy Vehicles		0	--	--		--	--
Median Type/Storage		TWLTL			/ 9		
RT Channelized?							
Lanes		1	1			1	0
Configuration		L	T			TR	
Upstream Signal?			No			No	

Minor Street:	Approach	Westbound			Eastbound		
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume					5		12
Peak Hour Factor, PHF					0.72		0.70
Hourly Flow Rate, HFR					6		17
Percent Heavy Vehicles					0		0
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage					/		
Lanes					1	1	
Configuration					L	R	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L					L		R
v (vph)	1081					6		17
C(m) (vph)	574							403
v/c	1.88							0.04
95% queue length	69.23							0.13
Control Delay	421.7							14.3
LOS	F							B
Approach Delay								
Approach LOS								

TWO-WAY STOP CONTROL SUMMARY

Analyst: KLD Engineering, P.C.
 Agency/Co.:
 Date Performed:
 Analysis Time Period: 3:45 PM
 Intersection: S.R. 11 and Bell Bend Entrance
 Jurisdiction: Berwick, PA
 Units: U. S. Customary
 Analysis Year: 2018
 Project ID: 2018, Construction, with Outage, PM
 East/West Street: Bell Bend Site Entrance
 North/South Street: S.R. 11
 Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach	Northbound			Southbound		
	Movement	1	2	3	4	5	6
		L	T	R	L	T	R
Volume		141	275			548	128
Peak-Hour Factor, PHF		0.25	0.84			0.75	0.25
Hourly Flow Rate, HFR		564	327			730	512
Percent Heavy Vehicles		0	--	--		--	--
Median Type/Storage		TWLTL			/ 9		
RT Channelized?							
Lanes		1	1			1	0
Configuration		L	T			TR	
Upstream Signal?			No			No	

Minor Street:	Approach	Westbound			Eastbound		
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume					802		910
Peak Hour Factor, PHF					0.57		0.58
Hourly Flow Rate, HFR					1407		1568
Percent Heavy Vehicles					0		0
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage					/		
Lanes					1	1	
Configuration					L	R	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L					L		R
v (vph)	564					1407		1568
C(m) (vph)	568					2		303
v/c	0.99					703.50		5.17
95% queue length	14.30					178.58		161.76
Control Delay	63.0							1910
LOS	F					F		F
Approach Delay								
Approach LOS							F	

TWO-WAY STOP CONTROL SUMMARY

Analyst: KLD Engineering, P.C.
 Agency/Co.:
 Date Performed:
 Analysis Time Period: 6:30 AM
 Intersection: S.R. 11 and SSES Entrance
 Jurisdiction: Berwick, PA
 Units: U. S. Customary
 Analysis Year: 2018
 Project ID: 2018, Construction, with Outage, AM
 East/West Street: SSES Entrance
 North/South Street: S.R. 11
 Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach	Northbound			Southbound		
	Movement	1	2	3	4	5	6
		L	T	R	L	T	R
Volume		407	216			1087	175
Peak-Hour Factor, PHF		0.60	0.67			0.99	0.55
Hourly Flow Rate, HFR		678	322			1097	318
Percent Heavy Vehicles		0	--	--		--	--
Median Type/Storage		Undivided			/		
RT Channelized?							No
Lanes		1	1			1	1
Configuration		L	T			T	R
Upstream Signal?			No			No	

Minor Street:	Approach	Westbound			Eastbound		
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume					41		122
Peak Hour Factor, PHF					0.54		1.00
Hourly Flow Rate, HFR					75		122
Percent Heavy Vehicles					0		0
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage					/		
Lanes					1	1	
Configuration					L	R	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L					L		R
v (vph)	678					75		122
C(m) (vph)	488					0		262
v/c	1.39							0.47
95% queue length	31.76							2.31
Control Delay	210.8							30.2
LOS	F					F		D
Approach Delay								
Approach LOS								

TWO-WAY STOP CONTROL SUMMARY

Analyst: KLD Engineering, P.C.
 Agency/Co.:
 Date Performed:
 Analysis Time Period: 3:45 PM
 Intersection: S.R. 11 and SSES Entrance
 Jurisdiction: Berwick, PA
 Units: U. S. Customary
 Analysis Year: 2018
 Project ID: 2018, Construction, with Outage, PM
 East/West Street: SSES Entrance
 North/South Street: S.R. 11
 Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach	Northbound			Southbound		
	Movement	1	2	3	4	5	6
		L	T	R	L	T	R
Volume		21	1056			384	4
Peak-Hour Factor, PHF		0.59	0.67			0.50	0.66
Hourly Flow Rate, HFR		35	1576			768	6
Percent Heavy Vehicles		0	--	--		--	--
Median Type/Storage		Undivided			/		
RT Channelized?							No
Lanes		1	1			1	1
Configuration		L	T			T	R
Upstream Signal?			No			No	

Minor Street:	Approach	Westbound			Eastbound		
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume					102		292
Peak Hour Factor, PHF					0.59		0.62
Hourly Flow Rate, HFR					172		470
Percent Heavy Vehicles					0		0
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage					/		
Lanes					1	1	
Configuration					L	R	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L					L		R
v (vph)	35					172		470
C(m) (vph)	851					35		405
v/c	0.04					4.91		1.16
95% queue length	0.13					20.30		17.95
Control Delay	9.4					1990		127.1
LOS	A					F		F
Approach Delay							626.2	
Approach LOS							F	

TWO-WAY STOP CONTROL SUMMARY

Analyst: KLD Engineering, P.C.
 Agency/Co.:
 Date Performed:
 Analysis Time Period: 6:30 AM
 Intersection: S.R. 11 and S.R. 29
 Jurisdiction: Nanticoke, PA
 Units: U. S. Customary
 Analysis Year: 2018
 Project ID: 2018, Construction, with Outage, AM
 East/West Street: S.R. 29
 North/South Street: S.R. 11 (Poplar St.)
 Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach	Northbound			Southbound		
	Movement	1	2	3	4	5	6
		L	T	R	L	T	R
Volume						392	
Peak-Hour Factor, PHF						0.97	
Hourly Flow Rate, HFR						404	
Percent Heavy Vehicles		--	--			--	--
Median Type/Storage		Undivided			/		
RT Channelized?							
Lanes						1	
Configuration						T	
Upstream Signal?			No			No	

Minor Street:	Approach	Westbound			Eastbound		
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume				29		761	
Peak Hour Factor, PHF				0.48		0.97	
Hourly Flow Rate, HFR				60		784	
Percent Heavy Vehicles				0		1	
Percent Grade (%)		0				0	
Flared Approach: Exists?/Storage					/		/
Lanes			1			1	
Configuration			R			L	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config					R	L		
v (vph)					60	784		
C(m) (vph)					1091	505		
v/c					0.05	1.55		
95% queue length					0.17	41.89		
Control Delay					8.5	279.4		
LOS					A	F		
Approach Delay				8.5			279.4	
Approach LOS				A			F	

TWO-WAY STOP CONTROL SUMMARY

Analyst: KLD Engineering, P.C.
 Agency/Co.:
 Date Performed:
 Analysis Time Period: 3:45 PM
 Intersection: S.R. 11 and S.R. 29
 Jurisdiction: Nanticoke, PA
 Units: U. S. Customary
 Analysis Year: 2018
 Project ID: 2018, Construction, with Outage, PM
 East/West Street: S.R. 29
 North/South Street: S.R. 11 (Poplar St.)
 Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach	Northbound			Southbound		
	Movement	1	2	3	4	5	6
		L	T	R	L	T	R
Volume						342	
Peak-Hour Factor, PHF						0.74	
Hourly Flow Rate, HFR						462	
Percent Heavy Vehicles		--	--			--	--
Median Type/Storage		Undivided			/		
RT Channelized?							
Lanes						1	
Configuration						T	
Upstream Signal?			No			No	

Minor Street:	Approach	Westbound			Eastbound		
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume				251	603		
Peak Hour Factor, PHF				0.60	0.76		
Hourly Flow Rate, HFR				418	793		
Percent Heavy Vehicles				0	0		
Percent Grade (%)		0				0	
Flared Approach: Exists?/Storage					/		/
Lanes			1		1		
Configuration			R		L		

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config					R	L		
v (vph)					418	793		
C(m) (vph)					1091	230		
v/c					0.38	3.45		
95% queue length					1.82	74.37		
Control Delay					10.3	1144		
LOS					B	F		
Approach Delay				10.3			1144	
Approach LOS				B			F	

HCM Signalized Intersection Capacity Analysis

7: Market St. & S.R. 11 (Second St.)

2018, Construction, with Outage
AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	1	1	1	1	0	0	0	0	1	2	1
Volume (vph)	0	121	77	121	98	0	0	0	0	110	442	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5	3.0	4.5					5.0	5.0	5.0
Lane Util. Factor		1.00	1.00	1.00	1.00					1.00	0.95	1.00
Frt		1.00	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	1.00	1.00
Satd. Flow (prot)		1792	1583	1787	1881					1752	3505	1615
Flt Permitted		1.00	1.00	0.57	1.00					0.95	1.00	1.00
Satd. Flow (perm)		1792	1583	1067	1881					1752	3505	1615
Peak-hour factor, PHF	1.00	0.86	0.91	0.81	0.86	1.00	1.00	1.00	1.00	0.83	0.84	0.72
Adj. Flow (vph)	0	141	85	149	114	0	0	0	0	133	526	42
RTOR Reduction (vph)	0	0	61	0	0	0	0	0	0	0	0	24
Lane Group Flow (vph)	0	141	24	149	114	0	0	0	0	133	526	18
Heavy Vehicles (%)	0%	6%	2%	1%	1%	0%	0%	0%	0%	3%	3%	0%
Turn Type			Perm	pm+pt						Split		Prot
Protected Phases		4		3	8					2	2	2
Permitted Phases			4	8								
Actuated Green, G (s)		31.5	31.5	53.5	53.5					47.0	47.0	47.0
Effective Green, g (s)		31.5	31.5	53.5	53.5					47.0	47.0	47.0
Actuated g/C Ratio		0.29	0.29	0.49	0.49					0.43	0.43	0.43
Clearance Time (s)		4.5	4.5	3.0	4.5					5.0	5.0	5.0
Lane Grp Cap (vph)		513	453	643	915					749	1498	690
v/s Ratio Prot		c0.08		c0.04	0.06					0.08	c0.15	0.01
v/s Ratio Perm			0.02	0.07								
v/c Ratio		0.27	0.05	0.23	0.12					0.18	0.35	0.03
Uniform Delay, d1		30.4	28.4	16.0	15.4					19.5	21.2	18.2
Progression Factor		0.89	0.95	0.67	0.67					0.95	0.96	0.91
Incremental Delay, d2		1.3	0.2	0.8	0.3					0.5	0.6	0.1
Delay (s)		28.2	27.2	11.4	10.7					19.1	21.1	16.7
Level of Service		C	C	B	B					B	C	B
Approach Delay (s)		27.8			11.1			0.0			20.5	
Approach LOS		C			B			A			C	
Intersection Summary												
HCM Average Control Delay			19.8		HCM Level of Service				B			
HCM Volume to Capacity ratio			0.30									
Actuated Cycle Length (s)			110.0		Sum of lost time (s)			12.5				
Intersection Capacity Utilization			106.6%		ICU Level of Service			G				
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

8: S.R. 11 (Front St.) & Market St.

2018, Construction, with Outage
AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	2>	0	0	0	0	0	1	1	1	1	0
Volume (vph)	0	1343	103	0	0	0	0	222	657	37	181	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			-1%			1%	
Total Lost time (s)		5.0						5.0	5.0	3.0	5.0	
Lane Util. Factor		0.95						1.00	1.00	1.00	1.00	
Frt		0.99						1.00	0.85	1.00	1.00	
Flt Protected		1.00						1.00	1.00	0.95	1.00	
Satd. Flow (prot)		3535						1891	1623	1663	1835	
Flt Permitted		1.00						1.00	1.00	0.51	1.00	
Satd. Flow (perm)		3535						1891	1623	901	1835	
Peak-hour factor, PHF	1.00	0.86	0.84	1.00	1.00	1.00	1.00	0.84	0.88	0.80	0.76	1.00
Adj. Flow (vph)	0	1562	123	0	0	0	0	264	747	46	238	0
RTOR Reduction (vph)	0	6	0	0	0	0	0	0	34	0	0	0
Lane Group Flow (vph)	0	1679	0	0	0	0	0	264	713	46	238	0
Heavy Vehicles (%)	0%	1%	1%	0%	0%	0%	0%	1%	0%	8%	3%	0%
Turn Type									Perm	D.P+P		
Protected Phases		1						3		2	4	
Permitted Phases									3	3		
Actuated Green, G (s)		49.0						45.0	45.0	48.0	51.0	
Effective Green, g (s)		49.0						45.0	45.0	48.0	51.0	
Actuated g/C Ratio		0.45						0.41	0.41	0.44	0.46	
Clearance Time (s)		5.0						5.0	5.0	3.0	5.0	
Lane Grp Cap (vph)		1575						774	664	414	851	
v/s Ratio Prot		c0.48						0.14		0.00	c0.13	
v/s Ratio Perm									c0.44	0.05		
v/c Ratio		1.07						0.34	1.07	0.11	0.28	
Uniform Delay, d1		30.5						22.3	32.5	18.2	18.2	
Progression Factor		0.84						1.00	1.00	0.39	0.37	
Incremental Delay, d2		41.5						1.2	56.3	0.5	0.8	
Delay (s)		67.1						23.5	88.8	7.5	7.5	
Level of Service		E						C	F	A	A	
Approach Delay (s)		67.1			0.0			71.7			7.5	
Approach LOS		E			A			E			A	
Intersection Summary												
HCM Average Control Delay			63.0									HCM Level of Service E
HCM Volume to Capacity ratio			1.07									
Actuated Cycle Length (s)			110.0							15.0		
Intersection Capacity Utilization			106.6%							G		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

32: S.R. 239 & S.R. 11 (S. Main St.)

2018, Construction, with Outage
AM

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	1>	0	1	1	1	1
Volume (vph)	43	75	172	11	61	1239
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%		0%			-1%
Total Lost time (s)	5.2		5.4	5.4	5.4	5.4
Lane Util. Factor	1.00		1.00	1.00	1.00	1.00
Frt	0.93		1.00	0.85	1.00	1.00
Flt Protected	0.98		1.00	1.00	0.95	1.00
Satd. Flow (prot)	1659		1827	1482	1761	1910
Flt Permitted	0.98		1.00	1.00	0.59	1.00
Satd. Flow (perm)	1659		1827	1482	1089	1910
Peak-hour factor, PHF	0.55	0.90	0.90	0.55	0.87	0.86
Adj. Flow (vph)	78	83	191	20	70	1441
RTOR Reduction (vph)	43	0	0	6	0	0
Lane Group Flow (vph)	118	0	191	14	70	1441
Heavy Vehicles (%)	2%	6%	4%	9%	3%	0%
Turn Type				Perm	pm+pt	
Protected Phases	4		6		5	2
Permitted Phases				6	2	
Actuated Green, G (s)	7.8		63.3	63.3	72.8	72.8
Effective Green, g (s)	7.8		63.3	63.3	72.8	72.8
Actuated g/C Ratio	0.09		0.69	0.69	0.80	0.80
Clearance Time (s)	5.2		5.4	5.4	5.4	5.4
Vehicle Extension (s)	5.0		5.0	5.0	3.0	5.0
Lane Grp Cap (vph)	142		1268	1029	900	1525
v/s Ratio Prot	c0.07		0.10		0.00	c0.75
v/s Ratio Perm				0.01	0.06	
v/c Ratio	0.83		0.15	0.01	0.08	0.94
Uniform Delay, d1	41.1		4.8	4.3	2.1	7.6
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	34.9		0.1	0.0	0.0	12.6
Delay (s)	75.9		4.9	4.3	2.1	20.2
Level of Service	E		A	A	A	C
Approach Delay (s)	75.9		4.8			19.3
Approach LOS	E		A			B
Intersection Summary						
HCM Average Control Delay			22.5		HCM Level of Service	C
HCM Volume to Capacity ratio			0.93			
Actuated Cycle Length (s)			91.2		Sum of lost time (s)	10.6
Intersection Capacity Utilization			81.0%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

37: S.R. 239 (Union St.) & S.R. 11 (Main St.)

2018, Construction, with Outage
AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	<1>	0	0	<1>	0	1	1>	0	0	<1>	0
Volume (vph)	146	14	265	8	7	1	53	208	10	0	1001	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			0%			1%			1%	
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	
Frt		0.91			0.98		1.00	0.99			1.00	
Flt Protected		0.98			0.98		0.95	1.00			1.00	
Satd. Flow (prot)		1518			1642		1616	1636			1673	
Flt Permitted		0.88			0.79		0.04	1.00			1.00	
Satd. Flow (perm)		1362			1321		74	1636			1673	
Peak-hour factor, PHF	0.88	0.88	0.77	0.67	0.58	0.25	0.91	0.87	0.50	1.00	0.92	0.75
Adj. Flow (vph)	166	16	344	12	12	4	58	239	20	0	1088	41
RTOR Reduction (vph)	0	45	0	0	3	0	0	2	0	0	1	0
Lane Group Flow (vph)	0	481	0	0	25	0	58	257	0	0	1128	0
Heavy Vehicles (%)	2%	0%	0%	0%	0%	0%	0%	3%	0%	0%	1%	6%
Turn Type	Perm			Perm			pm+pt			Perm		
Protected Phases		4			8		1	6			2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)		44.0			44.0		95.3	95.3			87.1	
Effective Green, g (s)		44.0			44.0		95.3	95.3			87.1	
Actuated g/C Ratio		0.29			0.29		0.64	0.64			0.58	
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)		401			389		80	1044			976	
v/s Ratio Prot							c0.02	0.16			c0.67	
v/s Ratio Perm		c0.35			0.02		0.45					
v/c Ratio		1.20			0.06		0.72	0.25			1.16	
Uniform Delay, d1		52.7			37.9		37.0	11.6			31.1	
Progression Factor		1.00			1.00		1.00	1.00			1.00	
Incremental Delay, d2		111.4			0.1		27.6	0.1			81.9	
Delay (s)		164.0			37.9		64.6	11.7			113.0	
Level of Service		F			D		E	B			F	
Approach Delay (s)		164.0			37.9			21.4			113.0	
Approach LOS		F			D			C			F	

Intersection Summary

HCM Average Control Delay	110.8	HCM Level of Service	F
HCM Volume to Capacity ratio	1.16		
Actuated Cycle Length (s)	149.3	Sum of lost time (s)	15.0
Intersection Capacity Utilization	100.3%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

44: S.R. 11 & Poplar St.

2018, Construction, with Outage
AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1	1>	0	1	1>	0	0	<1	1	0	<1>	0
Volume (vph)	0	1230	33	36	508	0	24	3	29	1	7	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		3.0	5.0			4.0	4.0		4.0	
Lane Util. Factor		1.00		1.00	1.00			1.00	1.00		1.00	
Frpb, ped/bikes		1.00		1.00	1.00			1.00	1.00		1.00	
Flpb, ped/bikes		1.00		1.00	1.00			0.99	1.00		1.00	
Frt		1.00		1.00	1.00			1.00	0.85		0.94	
Flt Protected		1.00		0.95	1.00			0.96	1.00		1.00	
Satd. Flow (prot)		1873		1671	1863			1755	1324		1775	
Flt Permitted		1.00		0.95	1.00			0.78	1.00		0.98	
Satd. Flow (perm)		1873		1671	1863			1431	1324		1755	
Peak-hour factor, PHF	1.00	0.78	0.97	0.57	0.89	1.00	0.64	0.38	0.56	0.25	0.35	0.35
Adj. Flow (vph)	0	1577	34	63	571	0	38	8	52	4	20	20
RTOR Reduction (vph)	0	1	0	0	0	0	0	0	0	0	16	0
Lane Group Flow (vph)	0	1610	0	63	571	0	0	46	52	0	28	0
Confl. Peds. (#/hr)							3					
Heavy Vehicles (%)	0%	1%	6%	8%	2%	0%	4%	0%	22%	0%	0%	0%
Turn Type	Perm			Prot			Perm		Perm	Perm		
Protected Phases		2		1	6			8			4	
Permitted Phases	2						8		8	4		
Actuated Green, G (s)		63.0		15.0	81.0			20.0	20.0		20.0	
Effective Green, g (s)		63.0		15.0	81.0			20.0	20.0		20.0	
Actuated g/C Ratio		0.57		0.14	0.74			0.18	0.18		0.18	
Clearance Time (s)		5.0		3.0	5.0			4.0	4.0		4.0	
Lane Grp Cap (vph)		1073		228	1372			260	241		319	
v/s Ratio Prot		c0.86		0.04	c0.31							
v/s Ratio Perm								0.03	c0.04		0.02	
v/c Ratio		1.50		0.28	0.42			0.18	0.22		0.09	
Uniform Delay, d1		23.5		42.6	5.5			38.0	38.3		37.4	
Progression Factor		1.00		1.24	0.84			1.00	1.00		1.00	
Incremental Delay, d2		230.2		2.8	0.9			1.5	2.0		0.5	
Delay (s)		253.7		55.8	5.5			39.5	40.4		37.9	
Level of Service		F		E	A			D	D		D	
Approach Delay (s)		253.7			10.5			40.0			37.9	
Approach LOS		F			B			D			D	

Intersection Summary

HCM Average Control Delay	176.3	HCM Level of Service	F
HCM Volume to Capacity ratio	1.10		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	110.9%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

48: S.R. 11 & S.R. 93 (Orange St.)

2018, Construction, with Outage
AM

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	0	1	1	0	1	0
Volume (vph)	0	1247	486	0	86	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		-1%	0%		0%	
Total Lost time (s)		4.0	4.0		4.0	
Lane Util. Factor		1.00	1.00		1.00	
Frt		1.00	1.00		1.00	
Flt Protected		1.00	1.00		0.95	
Satd. Flow (prot)		1872	1845		1805	
Flt Permitted		1.00	1.00		0.95	
Satd. Flow (perm)		1872	1845		1805	
Peak-hour factor, PHF	1.00	0.82	0.85	0.93	0.71	1.00
Adj. Flow (vph)	0	1521	572	0	121	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	1521	572	0	121	0
Heavy Vehicles (%)	0%	2%	3%	2%	0%	0%
Turn Type						
Protected Phases		2	6		8	
Permitted Phases						
Actuated Green, G (s)		94.0	94.0		8.0	
Effective Green, g (s)		94.0	94.0		8.0	
Actuated g/C Ratio		0.85	0.85		0.07	
Clearance Time (s)		4.0	4.0		4.0	
Lane Grp Cap (vph)		1600	1577		131	
v/s Ratio Prot		c0.81	0.31		c0.07	
v/s Ratio Perm						
v/c Ratio		0.95	0.36		0.92	
Uniform Delay, d1		6.2	1.7		50.7	
Progression Factor		0.35	1.00		1.00	
Incremental Delay, d2		4.3	0.6		60.3	
Delay (s)		6.5	2.3		111.0	
Level of Service		A	A		F	
Approach Delay (s)		6.5	2.3		111.0	
Approach LOS		A	A		F	
Intersection Summary						
HCM Average Control Delay			11.1		HCM Level of Service	B
HCM Volume to Capacity ratio			0.95			
Actuated Cycle Length (s)			110.0		Sum of lost time (s)	8.0
Intersection Capacity Utilization			77.1%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

51: S.R. 11 (Second St.) & LaSalle St.

2018, Construction, with Outage
AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	NWL	NWR
Lane Configurations	1	0	0	1	2>	0	0	1	0	0
Volume (vph)	57	0	0	4	510	7	0	33	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0	4.0			4.0		
Lane Util. Factor	1.00			1.00	0.95			1.00		
Frt	1.00			1.00	1.00			0.86		
Flt Protected	0.95			0.95	1.00			1.00		
Satd. Flow (prot)	1805			1805	3493			1644		
Flt Permitted	0.95			0.95	1.00			1.00		
Satd. Flow (perm)	1805			1805	3493			1644		
Peak-hour factor, PHF	0.66	0.90	1.00	0.33	0.90	0.44	1.00	0.70	0.92	0.92
Adj. Flow (vph)	86	0	0	12	567	16	0	47	0	0
RTOR Reduction (vph)	0	0	0	8	5	0	0	25	0	0
Lane Group Flow (vph)	86	0	0	4	578	0	0	22	0	0
Heavy Vehicles (%)	0%	2%	0%	0%	3%	0%	0%	0%	2%	2%
Turn Type	Prot			custom				custom		
Protected Phases	8			1	1			8		
Permitted Phases				1				8		
Actuated Green, G (s)	21.0			16.0	16.0			21.0		
Effective Green, g (s)	21.0			16.0	16.0			21.0		
Actuated g/C Ratio	0.47			0.36	0.36			0.47		
Clearance Time (s)	4.0			4.0	4.0			4.0		
Lane Grp Cap (vph)	842			642	1242			767		
v/s Ratio Prot	c0.05			0.00	c0.17			0.01		
v/s Ratio Perm										
v/c Ratio	0.10			0.01	0.47			0.03		
Uniform Delay, d1	6.7			9.4	11.2			6.5		
Progression Factor	1.00			1.00	1.00			1.00		
Incremental Delay, d2	0.2			0.0	1.3			0.1		
Delay (s)	7.0			9.4	12.5			6.6		
Level of Service	A			A	B			A		
Approach Delay (s)		7.0			12.4		6.6		0.0	
Approach LOS		A			B		A		A	
Intersection Summary										
HCM Average Control Delay			11.4		HCM Level of Service				B	
HCM Volume to Capacity ratio			0.26							
Actuated Cycle Length (s)			45.0		Sum of lost time (s)				8.0	
Intersection Capacity Utilization			24.3%		ICU Level of Service				A	
Analysis Period (min)			15							
c Critical Lane Group										

HCM Signalized Intersection Capacity Analysis

67: S.R. 11 (Second St.) & Pine St.

2018, Construction, with Outage
AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	0	0	0	2>	0	1	1	0	0	0	1
Volume (vph)	0	0	0	0	541	23	11	47	0	0	0	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)	0%					0%		1%		1%		
Total Lost time (s)					4.0		4.0				4.0	
Lane Util. Factor					0.95		1.00		1.00		1.00	
Frt					0.99		1.00		1.00		0.86	
Flt Protected					1.00		0.95		1.00		1.00	
Satd. Flow (prot)					3543		1796		1890		1635	
Flt Permitted					1.00		0.95		1.00		1.00	
Satd. Flow (perm)					3543		1796		1890		1635	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	0.85	0.55	0.92	0.70	1.00	1.00	1.00	0.65
Adj. Flow (vph)	0	0	0	0	636	42	12	67	0	0	0	20
RTOR Reduction (vph)	0	0	0	0	6	0	11	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	672	0	1	67	0	0	0	20
Heavy Vehicles (%)	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Turn Type							Perm			custom		
Protected Phases					1		2					
Permitted Phases							2		2			
Actuated Green, G (s)					41.9		5.1		5.1		5.1	
Effective Green, g (s)					41.9		5.1		5.1		5.1	
Actuated g/C Ratio					0.76		0.09		0.09		0.09	
Clearance Time (s)					4.0		4.0		4.0		4.0	
Vehicle Extension (s)					3.0		3.0		3.0		3.0	
Lane Grp Cap (vph)					2699		167		175		152	
v/s Ratio Prot					c0.19				c0.04			
v/s Ratio Perm							0.00				0.01	
v/c Ratio					0.25		0.01		0.38		0.13	
Uniform Delay, d1					1.9		22.7		23.5		22.9	
Progression Factor					1.00		1.00		1.00		1.00	
Incremental Delay, d2					0.2		0.0		1.4		0.4	
Delay (s)					2.2		22.7		24.9		23.3	
Level of Service					A		C		C		C	
Approach Delay (s)	0.0					2.2		24.5		23.3		
Approach LOS	A					A		C		C		
Intersection Summary												
HCM Average Control Delay			5.0		HCM Level of Service				A			
HCM Volume to Capacity ratio			0.26									
Actuated Cycle Length (s)			55.0		Sum of lost time (s)				8.0			
Intersection Capacity Utilization			32.4%		ICU Level of Service				A			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

68: S.R. 11 & Orchard St.

2018, Construction, with Outage
AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1	1	0	1	1	0	0	<1>	0	0	<1>	0
Volume (vph)	2	1302	1	3	508	0	5	2	6	10	2	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	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	
Frt	1.00	1.00		1.00	1.00			0.94			0.95	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.97	
Satd. Flow (prot)	1805	1880		1805	1845			1765			1765	
Flt Permitted	0.40	1.00		0.05	1.00			0.99			0.97	
Satd. Flow (perm)	765	1880		87	1845			1765			1765	
Peak-hour factor, PHF	0.50	0.87	0.25	0.38	0.84	1.00	0.62	0.25	0.50	0.50	0.50	0.67
Adj. Flow (vph)	4	1497	4	8	605	0	8	8	12	20	4	12
RTOR Reduction (vph)	0	0	0	0	0	0	0	12	0	0	11	0
Lane Group Flow (vph)	4	1501	0	8	605	0	0	16	0	0	25	0
Heavy Vehicles (%)	0%	1%	0%	0%	3%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm			Perm			Split			Split		
Protected Phases		2			6		3	3		4	4	
Permitted Phases	2			6								
Actuated Green, G (s)	87.0	87.0		87.0	87.0			2.0			6.0	
Effective Green, g (s)	87.0	87.0		87.0	87.0			2.0			6.0	
Actuated g/C Ratio	0.79	0.79		0.79	0.79			0.02			0.05	
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Lane Grp Cap (vph)	605	1487		69	1459			32			96	
v/s Ratio Prot		c0.80			0.33			c0.01			c0.01	
v/s Ratio Perm	0.01			0.09								
v/c Ratio	0.01	1.01		0.12	0.41			0.51			0.26	
Uniform Delay, d1	2.4	11.5		2.6	3.6			53.5			49.9	
Progression Factor	0.00	0.88		1.00	1.01			1.00			1.00	
Incremental Delay, d2	0.0	9.5		3.2	0.8			47.6			6.4	
Delay (s)	0.0	19.6		5.9	4.4			101.1			56.2	
Level of Service	A	B		A	A			F			E	
Approach Delay (s)		19.5			4.5			101.1			56.2	
Approach LOS		B			A			F			E	
Intersection Summary												
HCM Average Control Delay			16.9			HCM Level of Service			B			
HCM Volume to Capacity ratio			0.95									
Actuated Cycle Length (s)			110.0			Sum of lost time (s)			15.0			
Intersection Capacity Utilization			81.9%			ICU Level of Service			D			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

71: S.R. 11 (Second St.) & Oak St.

2018, Construction, with Outage
AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	0	0	0	<2>	0	0	<1	0	0	1>	0
Volume (vph)	0	0	0	10	602	27	4	20	0	0	24	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)	0%				-1%				1%			
Total Lost time (s)					6.0				5.0			
Lane Util. Factor					0.95				1.00			
Frt					0.99				1.00			
Flt Protected					1.00				0.99			
Satd. Flow (prot)					3495				1734			
Flt Permitted					1.00				0.97			
Satd. Flow (perm)					3495				1706			
Peak-hour factor, PHF	1.00	1.00	1.00	0.50	0.86	0.59	0.50	0.68	1.00	1.00	0.64	0.72
Adj. Flow (vph)	0	0	0	20	700	46	8	29	0	0	38	38
RTOR Reduction (vph)	0	0	0	0	9	0	0	0	0	0	36	0
Lane Group Flow (vph)	0	0	0	0	757	0	0	37	0	0	40	0
Heavy Vehicles (%)	0%	0%	0%	0%	3%	0%	0%	10%	0%	0%	4%	11%
Turn Type	Perm				Perm							
Protected Phases					1				2			
Permitted Phases					1				2			
Actuated Green, G (s)					35.7				2.5			
Effective Green, g (s)					35.7				2.5			
Actuated g/C Ratio					0.73				0.05			
Clearance Time (s)					6.0				5.0			
Vehicle Extension (s)					3.0				3.0			
Lane Grp Cap (vph)					2536				87			
v/s Ratio Prot									c0.02			
v/s Ratio Perm					0.22				0.02			
v/c Ratio					0.30				0.43			
Uniform Delay, d1					2.4				22.7			
Progression Factor					1.00				1.00			
Incremental Delay, d2					0.1				3.3			
Delay (s)					2.4				26.0			
Level of Service					A				C			
Approach Delay (s)	0.0				2.4				26.0			
Approach LOS	A				A				C			
Intersection Summary												
HCM Average Control Delay			5.5		HCM Level of Service			A				
HCM Volume to Capacity ratio			0.31									
Actuated Cycle Length (s)			49.2		Sum of lost time (s)			11.0				
Intersection Capacity Utilization			38.6%		ICU Level of Service			A				
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

74: Third St. & S.R. 1025 (Market St.)

2018, Construction, with Outage
AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	<1>	0	0	<1>	0	1	1>	0	1	1>	0
Volume (vph)	18	40	24	9	42	4	13	100	9	10	199	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			0%			0%			0%	
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.95			0.99		1.00	0.99		1.00	0.98	
Flt Protected		0.99			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1788			1815		1805	1876		1805	1817	
Flt Permitted		0.95			0.95		0.58	1.00		0.67	1.00	
Satd. Flow (perm)		1709			1734		1102	1876		1266	1817	
Peak-hour factor, PHF	0.71	0.68	0.57	0.56	0.77	0.50	0.65	0.77	0.75	0.50	0.84	0.59
Adj. Flow (vph)	25	59	42	16	55	8	20	130	12	20	237	34
RTOR Reduction (vph)	0	28	0	0	5	0	0	6	0	0	9	0
Lane Group Flow (vph)	0	98	0	0	74	0	20	136	0	20	262	0
Heavy Vehicles (%)	0%	0%	0%	11%	0%	0%	0%	0%	0%	0%	3%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			1			1	
Permitted Phases	2			2	2		1			1	1	
Actuated Green, G (s)		18.0			18.0		29.0	29.0		29.0	29.0	
Effective Green, g (s)		18.0			18.0		29.0	29.0		29.0	29.0	
Actuated g/C Ratio		0.33			0.33		0.53	0.53		0.53	0.53	
Clearance Time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)		559			567		581	989		668	958	
v/s Ratio Prot								0.07			c0.14	
v/s Ratio Perm		c0.06			0.04		0.02			0.02		
v/c Ratio		0.17			0.13		0.03	0.14		0.03	0.27	
Uniform Delay, d1		13.2			13.0		6.3	6.6		6.2	7.2	
Progression Factor		1.00			1.00		0.21	0.15		1.00	1.00	
Incremental Delay, d2		0.7			0.5		0.1	0.3		0.1	0.7	
Delay (s)		13.9			13.5		1.4	1.3		6.3	7.9	
Level of Service		B			B		A	A		A	A	
Approach Delay (s)		13.9			13.5			1.3			7.8	
Approach LOS		B			B			A			A	
Intersection Summary												
HCM Average Control Delay			8.0			HCM Level of Service			A			
HCM Volume to Capacity ratio			0.24									
Actuated Cycle Length (s)			55.0			Sum of lost time (s)			8.0			
Intersection Capacity Utilization			25.2%			ICU Level of Service			A			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

77: S.R. 11 (Second St.) & Mulberry St.

2018, Construction, with Outage
AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	0	0	0	<2>	0	0	<1	0	0	1>	0
Volume (vph)	0	0	0	3	664	10	2	5	0	0	2	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)	1%				0%				1%			
Total Lost time (s)					4.0				4.0			
Lane Util. Factor					0.95				1.00			
Frt					1.00				1.00			
Flt Protected					1.00				0.99			
Satd. Flow (prot)					3564				1864			
Flt Permitted					1.00				0.94			
Satd. Flow (perm)					3564				1773			
Peak-hour factor, PHF	1.00	1.00	1.00	0.38	0.95	0.83	0.25	0.25	1.00	1.00	0.25	0.79
Adj. Flow (vph)	0	0	0	8	699	12	8	20	0	0	8	29
RTOR Reduction (vph)	0	0	0	0	2	0	0	0	0	0	23	0
Lane Group Flow (vph)	0	0	0	0	717	0	0	28	0	0	14	0
Heavy Vehicles (%)	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Turn Type				Split				Perm				
Protected Phases				1		1		2			2	
Permitted Phases							2					
Actuated Green, G (s)							36.0			11.0		
Effective Green, g (s)							36.0			11.0		
Actuated g/C Ratio							0.65			0.20		
Clearance Time (s)							4.0			4.0		
Lane Grp Cap (vph)							2333			355		
v/s Ratio Prot							c0.20			0.01		
v/s Ratio Perm										c0.02		
v/c Ratio							0.31			0.08		
Uniform Delay, d1							4.1			17.9		
Progression Factor							0.35			0.98		
Incremental Delay, d2							0.3			0.4		
Delay (s)							1.8			17.9		
Level of Service							A			B		
Approach Delay (s)				0.0			1.8			17.9		
Approach LOS				A			A			B		
Intersection Summary												
HCM Average Control Delay			3.1		HCM Level of Service				A			
HCM Volume to Capacity ratio			0.25									
Actuated Cycle Length (s)			55.0		Sum of lost time (s)				8.0			
Intersection Capacity Utilization			28.8%		ICU Level of Service				A			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

78: S.R. 11 (Front St.) & Mulberry St.

2018, Construction, with Outage
AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	<2>	0	0	0	0	0	1>	0	0	<1	0
Volume (vph)	6	1404	6	0	0	0	0	1	4	5	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-1%			1%			-1%	
Total Lost time (s)		4.0						4.0			4.0	
Lane Util. Factor		0.95						1.00			1.00	
Frt		1.00						0.90			1.00	
Flt Protected		1.00						1.00			0.95	
Satd. Flow (prot)		3585						1699			1814	
Flt Permitted		1.00						1.00			0.75	
Satd. Flow (perm)		3585						1699			1426	
Peak-hour factor, PHF	0.25	0.89	0.50	1.00	1.00	1.00	1.00	0.25	0.33	0.31	1.00	1.00
Adj. Flow (vph)	24	1578	12	0	0	0	0	4	12	16	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	11	0	0	0	0
Lane Group Flow (vph)	0	1614	0	0	0	0	0	5	0	0	16	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Split					Perm						
Protected Phases	1	1						2			2	
Permitted Phases										2		
Actuated Green, G (s)		94.0						8.0			8.0	
Effective Green, g (s)		94.0						8.0			8.0	
Actuated g/C Ratio		0.85						0.07			0.07	
Clearance Time (s)		4.0						4.0			4.0	
Lane Grp Cap (vph)		3064						124			104	
v/s Ratio Prot		c0.45						0.00				
v/s Ratio Perm											c0.01	
v/c Ratio		0.53						0.04			0.15	
Uniform Delay, d1		2.1						47.4			47.8	
Progression Factor		0.44						1.00			0.89	
Incremental Delay, d2		0.3						0.6			3.1	
Delay (s)		1.2						48.0			45.8	
Level of Service		A						D			D	
Approach Delay (s)		1.2			0.0			48.0			45.8	
Approach LOS		A			A			D			D	
Intersection Summary												
HCM Average Control Delay		2.1									A	
HCM Volume to Capacity ratio		0.50										
Actuated Cycle Length (s)		110.0								8.0		
Intersection Capacity Utilization		50.0%								A		
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

85: S.R. 11 & S.R. 2028

2018, Construction, with Outage
AM

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	1	1	1	1	1	1
Volume (vph)	1306	31	99	576	99	131
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	3.6	6.0	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1881	1568	1752	1827	1770	1583
Flt Permitted	1.00	1.00	0.03	1.00	0.95	1.00
Satd. Flow (perm)	1881	1568	62	1827	1770	1583
Peak-hour factor, PHF	0.83	0.50	0.81	0.89	0.78	0.86
Adj. Flow (vph)	1573	62	122	647	127	152
RTOR Reduction (vph)	0	7	0	0	0	0
Lane Group Flow (vph)	1573	55	122	647	127	152
Heavy Vehicles (%)	1%	3%	3%	4%	2%	2%
Turn Type	Perm		pm+pt		Prot	
Protected Phases	4		3	8	2	2
Permitted Phases		4	8			
Actuated Green, G (s)	115.0	115.0	125.0	125.0	14.5	14.5
Effective Green, g (s)	115.0	115.0	125.0	125.0	14.5	14.5
Actuated g/C Ratio	0.77	0.77	0.83	0.83	0.10	0.10
Clearance Time (s)	6.0	6.0	3.6	6.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1442	1202	124	1523	171	153
v/s Ratio Prot	c0.84		c0.04	0.35	0.07	c0.10
v/s Ratio Perm		0.04	0.78			
v/c Ratio	1.09	0.05	0.98	0.42	0.74	0.99
Uniform Delay, d1	17.5	4.2	59.6	3.2	65.9	67.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	52.5	0.0	75.3	0.2	15.9	70.5
Delay (s)	70.0	4.2	134.9	3.4	81.9	138.2
Level of Service	E	A	F	A	F	F
Approach Delay (s)	67.5			24.3	112.5	
Approach LOS	E			C	F	
Intersection Summary						
HCM Average Control Delay			59.8		HCM Level of Service	E
HCM Volume to Capacity ratio			1.08			
Actuated Cycle Length (s)			150.0		Sum of lost time (s)	14.1
Intersection Capacity Utilization			91.8%		ICU Level of Service	F
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

103: S.R. 93 (Third St.) & S.R. 339 (Broad St.)

2018, Construction, with Outage
AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	<1	0	0	<1>	0	0	<1>	0	0	<1>	0
Volume (vph)	3	214	31	48	738	2	143	8	24	4	14	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			-1%			0%			0%	
Total Lost time (s)		6.5			6.5			6.0			6.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.98			1.00			0.98			0.97	
Flt Protected		1.00			1.00			0.96			0.99	
Satd. Flow (prot)		1775			1865			1734			1823	
Flt Permitted		0.96			0.94			0.74			0.92	
Satd. Flow (perm)		1708			1767			1338			1703	
Peak-hour factor, PHF	0.25	0.89	0.62	0.62	0.88	0.25	0.69	0.67	0.67	0.50	0.70	0.62
Adj. Flow (vph)	12	240	50	77	839	8	207	12	36	8	20	8
RTOR Reduction (vph)	0	10	0	0	0	0	0	9	0	0	6	0
Lane Group Flow (vph)	0	292	0	0	924	0	0	246	0	0	30	0
Heavy Vehicles (%)	0%	5%	3%	6%	1%	50%	2%	0%	12%	0%	0%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)		43.5			43.5			14.0			14.0	
Effective Green, g (s)		43.5			43.5			14.0			14.0	
Actuated g/C Ratio		0.62			0.62			0.20			0.20	
Clearance Time (s)		6.5			6.5			6.0			6.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		1061			1098			268			341	
v/s Ratio Prot												
v/s Ratio Perm		0.17			0.52			0.18			0.02	
v/c Ratio		0.28			0.84			0.92			0.09	
Uniform Delay, d1		6.0			10.5			27.4			22.8	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.6			7.8			33.8			0.1	
Delay (s)		6.7			18.3			61.2			22.9	
Level of Service		A			B			E			C	
Approach Delay (s)		6.7			18.3			61.2			22.9	
Approach LOS		A			B			E			C	
Intersection Summary												
HCM Average Control Delay			23.3			HCM Level of Service				C		
HCM Volume to Capacity ratio			0.86									
Actuated Cycle Length (s)			70.0			Sum of lost time (s)			12.5			
Intersection Capacity Utilization			87.2%			ICU Level of Service			E			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

106: S.R. 93 (Third St.) & Dewey St.

2018, Construction, with Outage
AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	<1>	0	0	<1>	0	0	<1>	0	0	<1>	0
Volume (vph)	2	237	8	5	767	0	9	0	1	3	2	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			0%			0%			0%	
Total Lost time (s)		5.0			5.0			5.0			5.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.99			1.00			0.97			0.93	
Flt Protected		1.00			1.00			0.96			0.99	
Satd. Flow (prot)		1766			1880			1778			1757	
Flt Permitted		0.99			0.99			1.00			1.00	
Satd. Flow (perm)		1753			1869			1849			1772	
Peak-hour factor, PHF	0.50	0.91	0.29	0.31	0.89	1.00	0.56	1.00	0.25	0.75	0.25	0.50
Adj. Flow (vph)	4	260	28	16	862	0	16	0	4	4	8	12
RTOR Reduction (vph)	0	5	0	0	0	0	0	4	0	0	12	0
Lane Group Flow (vph)	0	287	0	0	878	0	0	16	0	0	12	0
Heavy Vehicles (%)	0%	5%	12%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)		42.9			42.9			1.2			1.2	
Effective Green, g (s)		42.9			42.9			1.2			1.2	
Actuated g/C Ratio		0.79			0.79			0.02			0.02	
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)		1390			1482			41			39	
v/s Ratio Prot												
v/s Ratio Perm		0.16			0.47			0.01			0.01	
v/c Ratio		0.21			0.59			0.39			0.31	
Uniform Delay, d1		1.4			2.2			26.1			26.0	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.3			1.7			6.1			4.6	
Delay (s)		1.7			3.9			32.2			30.6	
Level of Service		A			A			C			C	
Approach Delay (s)		1.7			3.9			32.2			30.6	
Approach LOS		A			A			C			C	
Intersection Summary												
HCM Average Control Delay			4.4				HCM Level of Service			A		
HCM Volume to Capacity ratio			0.59									
Actuated Cycle Length (s)			54.1				Sum of lost time (s)		10.0			
Intersection Capacity Utilization			56.9%				ICU Level of Service		B			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

112: S.R. 11 & Briar Creek Plaza Driveways

2018, Construction, with Outage
AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1	1>	0	1	1	1	1	1>	0	1	1	1
Volume (vph)	24	1246	46	18	420	47	44	5	5	28	2	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	16	16
Grade (%)		1%			-1%			1%			2%	
Total Lost time (s)	3.5	5.3		5.3	5.3	5.3	5.2	5.2		5.2	5.2	5.2
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Fr't	1.00	0.99		1.00	1.00	0.85	1.00	0.94		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1663	1859		1728	1836	1591	1796	1645		1787	2132	1678
Flt Permitted	0.47	1.00		0.05	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	822	1859		99	1836	1591	1800	1645		1791	2132	1678
Peak-hour factor, PHF	0.52	0.84	0.85	0.61	0.93	0.70	0.70	0.42	0.62	0.68	0.25	0.60
Adj. Flow (vph)	46	1483	54	30	452	67	63	12	8	41	8	42
RTOR Reduction (vph)	0	1	0	0	0	14	0	8	0	0	0	40
Lane Group Flow (vph)	46	1536	0	30	452	53	63	12	0	41	8	2
Heavy Vehicles (%)	8%	1%	6%	5%	4%	2%	0%	0%	20%	0%	0%	8%
Turn Type	pm+pt			Perm		Perm	Perm			Perm		Perm
Protected Phases	5	2			6			4			8	
Permitted Phases	2			6		6	4			8		8
Actuated Green, G (s)	79.2	79.2		73.7	73.7	73.7	4.2	4.2		4.2	4.2	4.2
Effective Green, g (s)	79.2	79.2		73.7	73.7	73.7	4.2	4.2		4.2	4.2	4.2
Actuated g/C Ratio	0.84	0.84		0.78	0.78	0.78	0.04	0.04		0.04	0.04	0.04
Clearance Time (s)	3.5	5.3		5.3	5.3	5.3	5.2	5.2		5.2	5.2	5.2
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	711	1568		78	1441	1249	81	74		80	95	75
v/s Ratio Prot	0.00	c0.83			0.25			0.01			0.00	
v/s Ratio Perm	0.05			0.30		0.03	c0.03			0.02		0.00
v/c Ratio	0.06	0.98		0.38	0.31	0.04	0.78	0.17		0.51	0.08	0.03
Uniform Delay, d1	1.3	6.6		3.1	2.9	2.2	44.4	43.2		43.8	43.0	42.9
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.0	17.8		3.1	0.1	0.0	36.4	1.1		5.4	0.4	0.1
Delay (s)	1.4	24.4		6.2	3.0	2.3	80.8	44.2		49.3	43.4	43.0
Level of Service	A	C		A	A	A	F	D		D	D	D
Approach Delay (s)		23.7			3.1			72.0			45.9	
Approach LOS		C			A			E			D	

Intersection Summary

HCM Average Control Delay	21.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	93.9	Sum of lost time (s)	10.5
Intersection Capacity Utilization	86.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

120: S.R. 11 & S.R. 29 (Mill St.)

2018, Construction, with Outage
AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1	1>	0	0	1>	0	0	<1>	0	0	<1	1
Volume (vph)	21	653	30	5	1072	108	3	1	34	173	6	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-1%			0%			-1%	
Total Lost time (s)	6.0	6.0			6.0			5.2			6.0	6.0
Lane Util. Factor	1.00	1.00			1.00			1.00			1.00	1.00
Frt	1.00	0.99			0.99			0.89			1.00	0.85
Flt Protected	0.95	1.00			1.00			0.99			0.95	1.00
Satd. Flow (prot)	1497	1833			1861			1543			1804	1531
Flt Permitted	0.21	1.00			0.99			0.99			0.95	1.00
Satd. Flow (perm)	334	1833			1852			1543			1804	1531
Peak-hour factor, PHF	0.75	0.84	0.66	0.62	0.96	0.85	0.38	0.25	0.63	0.77	0.75	0.79
Adj. Flow (vph)	28	777	45	8	1117	127	8	4	54	225	8	24
RTOR Reduction (vph)	0	2	0	0	4	0	0	52	0	0	0	10
Lane Group Flow (vph)	28	820	0	0	1248	0	0	14	0	0	233	14
Heavy Vehicles (%)	20%	2%	7%	14%	1%	2%	33%	0%	6%	1%	0%	6%
Turn Type	Perm			Perm			Split			Split		Perm
Protected Phases		2			6		8	8		4	4	
Permitted Phases	2	2		6								4
Actuated Green, G (s)	74.7	74.7			74.7			3.1			13.0	13.0
Effective Green, g (s)	74.7	74.7			74.7			3.1			13.0	13.0
Actuated g/C Ratio	0.69	0.69			0.69			0.03			0.12	0.12
Clearance Time (s)	6.0	6.0			6.0			5.2			6.0	6.0
Vehicle Extension (s)	3.0	3.0			3.0			3.0			3.0	3.0
Lane Grp Cap (vph)	231	1268			1281			44			217	184
v/s Ratio Prot		0.45						c0.01			c0.13	
v/s Ratio Perm	0.08				c0.67							0.01
v/c Ratio	0.12	0.65			0.97			0.31			1.07	0.08
Uniform Delay, d1	5.6	9.3			15.7			51.4			47.5	42.2
Progression Factor	1.00	1.00			1.00			1.00			1.00	1.00
Incremental Delay, d2	0.2	1.1			19.1			4.0			82.0	0.2
Delay (s)	5.8	10.4			34.9			55.4			129.5	42.4
Level of Service	A	B			C			E			F	D
Approach Delay (s)		10.3			34.9			55.4			121.4	
Approach LOS		B			C			E			F	

Intersection Summary

HCM Average Control Delay	36.0	HCM Level of Service	D
HCM Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	108.0	Sum of lost time (s)	17.2
Intersection Capacity Utilization	93.6%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

128: S.R. 11 & County Bridge

2018, Construction, with Outage
AM

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	1>	0	1	1	1	1
Volume (vph)	700	159	51	1100	108	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	1%			-2%	0%	
Total Lost time (s)	7.0		7.0	7.0	7.0	7.0
Lane Util. Factor	1.00		1.00	1.00	1.00	1.00
Frt	0.97		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	1824		1787	1919	1787	1599
Flt Permitted	1.00		0.07	1.00	0.95	1.00
Satd. Flow (perm)	1824		132	1919	1787	1599
Peak-hour factor, PHF	0.87	0.84	0.69	0.97	0.67	0.86
Adj. Flow (vph)	805	189	74	1134	161	74
RTOR Reduction (vph)	9	0	0	0	0	0
Lane Group Flow (vph)	985	0	74	1134	161	74
Heavy Vehicles (%)	1%	1%	2%	0%	1%	1%
Turn Type			pm+pt		pt+ov	
Protected Phases	4		3	8	2	2 3
Permitted Phases			8			
Actuated Green, G (s)	50.2		62.2	62.2	9.9	21.9
Effective Green, g (s)	50.2		62.2	62.2	9.9	21.9
Actuated g/C Ratio	0.58		0.72	0.72	0.11	0.25
Clearance Time (s)	7.0		7.0	7.0	7.0	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	1063		191	1386	205	407
v/s Ratio Prot	c0.54		0.02	c0.59	c0.09	0.05
v/s Ratio Perm			0.26			
v/c Ratio	0.93		0.39	0.82	0.79	0.18
Uniform Delay, d1	16.3		16.5	8.1	37.1	25.1
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	13.3		1.3	3.9	17.7	0.2
Delay (s)	29.6		17.8	12.0	54.8	25.3
Level of Service	C		B	B	D	C
Approach Delay (s)	29.6			12.4	45.5	
Approach LOS	C			B	D	
Intersection Summary						
HCM Average Control Delay			22.6		HCM Level of Service	C
HCM Volume to Capacity ratio			0.95			
Actuated Cycle Length (s)			86.1		Sum of lost time (s)	21.0
Intersection Capacity Utilization			75.5%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

7: Market St. & S.R. 11 (Second St.)

2018, Construction, with Outage
PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	1	1	1	1	0	0	0	0	1	2	1
Volume (vph)	0	229	119	200	129	0	0	0	0	600	1298	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5	3.0	4.5					5.0	5.0	5.0
Lane Util. Factor		1.00	1.00	1.00	1.00					1.00	0.95	1.00
Frt		1.00	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	1.00	1.00
Satd. Flow (prot)		1900	1599	1787	1900					1805	3574	1583
Flt Permitted		1.00	1.00	0.23	1.00					0.95	1.00	1.00
Satd. Flow (perm)		1900	1599	438	1900					1805	3574	1583
Peak-hour factor, PHF	1.00	0.83	0.85	0.79	0.71	1.00	1.00	1.00	1.00	0.70	0.78	0.73
Adj. Flow (vph)	0	276	140	253	182	0	0	0	0	857	1664	105
RTOR Reduction (vph)	0	0	34	0	0	0	0	0	0	0	0	32
Lane Group Flow (vph)	0	276	106	253	182	0	0	0	0	857	1664	73
Heavy Vehicles (%)	0%	0%	1%	1%	0%	0%	0%	0%	0%	0%	1%	2%
Turn Type			Perm	pm+pt						Split		Prot
Protected Phases		4		3	8					2	2	2
Permitted Phases			4	8								
Actuated Green, G (s)		16.5	16.5	29.5	29.5					51.0	51.0	51.0
Effective Green, g (s)		16.5	16.5	29.5	29.5					51.0	51.0	51.0
Actuated g/C Ratio		0.18	0.18	0.33	0.33					0.57	0.57	0.57
Clearance Time (s)		4.5	4.5	3.0	4.5					5.0	5.0	5.0
Lane Grp Cap (vph)		348	293	293	623					1023	2025	897
v/s Ratio Prot		0.15		c0.10	0.10					c0.47	0.47	0.05
v/s Ratio Perm			0.07	c0.19								
v/c Ratio		0.79	0.36	0.86	0.29					0.84	0.82	0.08
Uniform Delay, d1		35.1	32.1	24.7	22.5					16.1	15.8	8.9
Progression Factor		0.74	0.62	1.00	0.88					0.65	0.64	0.44
Incremental Delay, d2		15.6	3.2	23.6	1.0					3.7	1.7	0.1
Delay (s)		41.6	23.1	48.2	20.7					14.1	11.9	4.0
Level of Service		D	C	D	C					B	B	A
Approach Delay (s)		35.3			36.7			0.0			12.3	
Approach LOS		D			D			A			B	
Intersection Summary												
HCM Average Control Delay			18.1		HCM Level of Service				B			
HCM Volume to Capacity ratio			0.83									
Actuated Cycle Length (s)			90.0		Sum of lost time (s)				8.0			
Intersection Capacity Utilization			100.1%		ICU Level of Service				G			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

8: S.R. 11 (Front St.) & Market St.

2018, Construction, with Outage
PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	2>	0	0	0	0	0	1	1	1	1	0
Volume (vph)	0	781	207	0	0	0	0	324	257	103	719	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			-1%			1%	
Total Lost time (s)		5.0						5.0	5.0	3.0	5.0	
Lane Util. Factor		0.95						1.00	1.00	1.00	1.00	
Frt		0.97						1.00	0.85	1.00	1.00	
Flt Protected		1.00						1.00	1.00	0.95	1.00	
Satd. Flow (prot)		3482						1910	1607	1796	1890	
Flt Permitted		1.00						1.00	1.00	0.33	1.00	
Satd. Flow (perm)		3482						1910	1607	624	1890	
Peak-hour factor, PHF	1.00	0.78	0.92	1.00	1.00	1.00	1.00	0.80	0.70	0.71	0.74	1.00
Adj. Flow (vph)	0	1001	225	0	0	0	0	405	367	145	972	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1226	0	0	0	0	0	405	367	145	972	0
Heavy Vehicles (%)	0%	1%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%
Turn Type									Perm	D.P+P		
Protected Phases		1						3		2	4	
Permitted Phases									3	3		
Actuated Green, G (s)		33.0						32.0	32.0	44.0	47.0	
Effective Green, g (s)		33.0						32.0	32.0	44.0	47.0	
Actuated g/C Ratio		0.37						0.36	0.36	0.49	0.52	
Clearance Time (s)		5.0						5.0	5.0	3.0	5.0	
Lane Grp Cap (vph)		1277						679	571	461	987	
v/s Ratio Prot		c0.35						0.21		0.04	c0.51	
v/s Ratio Perm									0.23	0.11		
v/c Ratio		0.96						0.60	0.64	0.31	0.98	
Uniform Delay, d1		27.9						23.7	24.2	13.7	21.1	
Progression Factor		0.66						1.00	1.00	0.47	0.62	
Incremental Delay, d2		16.0						3.8	5.5	1.0	17.6	
Delay (s)		34.4						27.6	29.7	7.4	30.8	
Level of Service		C						C	C	A	C	
Approach Delay (s)		34.4			0.0			28.6			27.7	
Approach LOS		C			A			C			C	
Intersection Summary												
HCM Average Control Delay			30.6							C		
HCM Volume to Capacity ratio			0.97									
Actuated Cycle Length (s)			90.0							10.0		
Intersection Capacity Utilization			100.1%							G		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

32: S.R. 239 & S.R. 11 (S. Main St.)

2018, Construction, with Outage
PM

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	1>	0	1	1	1	1
Volume (vph)	12	131	1147	54	140	355
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%		0%			-1%
Total Lost time (s)	5.2		5.4	5.4	5.4	5.4
Lane Util. Factor	1.00		1.00	1.00	1.00	1.00
Frt	0.88		1.00	0.85	1.00	1.00
Flt Protected	0.99		1.00	1.00	0.95	1.00
Satd. Flow (prot)	1576		1900	1615	1814	1854
Flt Permitted	0.99		1.00	1.00	0.03	1.00
Satd. Flow (perm)	1576		1900	1615	60	1854
Peak-hour factor, PHF	0.60	0.85	0.67	0.72	0.84	0.47
Adj. Flow (vph)	20	154	1712	75	167	755
RTOR Reduction (vph)	113	0	0	9	0	0
Lane Group Flow (vph)	61	0	1712	66	167	755
Heavy Vehicles (%)	25%	3%	0%	0%	0%	3%
Turn Type				Perm	pm+pt	
Protected Phases	4		6		5	2
Permitted Phases				6	2	
Actuated Green, G (s)	5.8		121.6	121.6	133.6	133.6
Effective Green, g (s)	5.8		121.6	121.6	133.6	133.6
Actuated g/C Ratio	0.04		0.81	0.81	0.89	0.89
Clearance Time (s)	5.2		5.4	5.4	5.4	5.4
Vehicle Extension (s)	5.0		5.0	5.0	3.0	5.0
Lane Grp Cap (vph)	61		1540	1309	131	1651
v/s Ratio Prot	c0.04		0.90		c0.06	0.41
v/s Ratio Perm				0.04	c1.08	
v/c Ratio	0.99		1.11	0.05	1.27	0.46
Uniform Delay, d1	72.1		14.2	2.8	63.3	1.5
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	112.6		60.0	0.0	170.0	0.4
Delay (s)	184.7		74.2	2.8	233.3	1.9
Level of Service	F		E	A	F	A
Approach Delay (s)	184.7		71.2			43.8
Approach LOS	F		E			D
Intersection Summary						
HCM Average Control Delay			69.3		HCM Level of Service	E
HCM Volume to Capacity ratio			1.24			
Actuated Cycle Length (s)			150.0		Sum of lost time (s)	10.6
Intersection Capacity Utilization			90.2%		ICU Level of Service	E
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

37: S.R. 239 (Union St.) & S.R. 11 (Main St.)

2018, Construction, with Outage
PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	<1>	0	0	<1>	0	1	1>	0	0	<1>	0
Volume (vph)	60	26	113	22	28	5	322	954	32	6	367	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			0%			1%			1%	
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	
Frt		0.92			0.98		1.00	0.99			0.98	
Flt Protected		0.99			0.98		0.95	1.00			1.00	
Satd. Flow (prot)		1525			1616		1616	1675			1638	
Flt Permitted		0.89			0.59		0.32	1.00			0.56	
Satd. Flow (perm)		1370			970		544	1675			914	
Peak-hour factor, PHF	0.72	0.57	0.62	0.79	0.84	0.42	0.79	0.67	0.55	0.50	0.55	0.91
Adj. Flow (vph)	83	46	182	28	33	12	408	1424	58	12	667	124
RTOR Reduction (vph)	0	42	0	0	6	0	0	1	0	0	6	0
Lane Group Flow (vph)	0	269	0	0	67	0	408	1481	0	0	797	0
Heavy Vehicles (%)	3%	4%	0%	4%	0%	0%	0%	1%	0%	0%	2%	0%
Turn Type	Perm			Perm			pm+pt			Perm		
Protected Phases		4			8		1	6			2	
Permitted Phases	4			8			6			2		
Actuated Green, G (s)		16.0			16.0		94.0	94.0			85.0	
Effective Green, g (s)		16.0			16.0		94.0	94.0			85.0	
Actuated g/C Ratio		0.13			0.13		0.78	0.78			0.71	
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)		183			129		462	1312			647	
v/s Ratio Prot							0.03	c0.88				
v/s Ratio Perm		c0.20			0.07		0.66				c0.87	
v/c Ratio		1.47			0.52		0.88	1.13			1.23	
Uniform Delay, d1		52.0			48.4		12.7	13.0			17.5	
Progression Factor		1.00			1.00		1.00	1.00			1.00	
Incremental Delay, d2		237.7			3.5		17.8	68.1			117.8	
Delay (s)		289.7			51.9		30.5	81.1			135.3	
Level of Service		F			D		C	F			F	
Approach Delay (s)		289.7			51.9			70.2			135.3	
Approach LOS		F			D			E			F	

Intersection Summary

HCM Average Control Delay	108.9	HCM Level of Service	F
HCM Volume to Capacity ratio	1.29		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	115.2%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

44: S.R. 11 & Poplar St.

2018, Construction, with Outage
PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1	1>	0	1	1>	0	0	<1	1	0	<1>	0
Volume (vph)	18	798	31	48	1429	6	130	45	86	28	42	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		3.0	5.0			4.0	4.0		4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00		1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00		1.00	
Frt	1.00	0.99		1.00	1.00			1.00	0.85		0.96	
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00		0.99	
Satd. Flow (prot)	1805	1835		1703	1879			1826	1599		1793	
Flt Permitted	0.10	1.00		0.95	1.00			0.68	1.00		0.76	
Satd. Flow (perm)	185	1835		1703	1879			1290	1599		1375	
Peak-hour factor, PHF	0.61	0.73	0.81	0.75	0.88	0.38	0.69	0.66	0.83	0.81	0.89	0.61
Adj. Flow (vph)	30	1093	38	64	1624	16	188	68	104	35	47	38
RTOR Reduction (vph)	0	2	0	0	0	0	0	0	0	0	19	0
Lane Group Flow (vph)	30	1129	0	64	1640	0	0	256	104	0	101	0
Confl. Peds. (#/hr)							3					
Heavy Vehicles (%)	0%	3%	3%	6%	1%	0%	0%	0%	1%	0%	0%	0%
Turn Type	Perm			Prot			Perm		Perm	Perm		
Protected Phases		2		1	6			8			4	
Permitted Phases	2						8		8	4		
Actuated Green, G (s)	41.0	41.0		17.0	61.0			20.0	20.0		20.0	
Effective Green, g (s)	41.0	41.0		17.0	61.0			20.0	20.0		20.0	
Actuated g/C Ratio	0.46	0.46		0.19	0.68			0.22	0.22		0.22	
Clearance Time (s)	5.0	5.0		3.0	5.0			4.0	4.0		4.0	
Lane Grp Cap (vph)	84	836		322	1274			287	355		306	
v/s Ratio Prot		0.62		0.04	c0.87							
v/s Ratio Perm	0.16							c0.20	0.07		0.07	
v/c Ratio	0.36	1.35		0.20	1.29			0.89	0.29		0.33	
Uniform Delay, d1	15.9	24.5		30.8	14.5			34.0	29.1		29.4	
Progression Factor	1.00	1.00		1.12	1.24			1.00	1.00		1.00	
Incremental Delay, d2	11.5	165.8		0.1	129.8			31.4	2.1		2.9	
Delay (s)	27.4	190.3		34.5	147.8			65.4	31.2		32.3	
Level of Service	C	F		C	F			E	C		C	
Approach Delay (s)		186.1			143.6			55.5			32.3	
Approach LOS		F			F			E			C	

Intersection Summary

HCM Average Control Delay	144.9	HCM Level of Service	F
HCM Volume to Capacity ratio	1.19		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	99.7%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

48: S.R. 11 & S.R. 93 (Orange St.)

2018, Construction, with Outage
PM

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	0	1	1	0	1	0
Volume (vph)	0	893	1508	0	172	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		-1%	0%		0%	
Total Lost time (s)		4.0	4.0		4.0	
Lane Util. Factor		1.00	1.00		1.00	
Frt		1.00	1.00		1.00	
Flt Protected		1.00	1.00		0.95	
Satd. Flow (prot)		1872	1881		1789	
Flt Permitted		1.00	1.00		0.95	
Satd. Flow (perm)		1872	1881		1789	
Peak-hour factor, PHF	1.00	0.78	0.85	0.93	0.83	0.25
Adj. Flow (vph)	0	1145	1774	0	207	4
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	1145	1774	0	211	0
Heavy Vehicles (%)	0%	2%	1%	2%	1%	0%
Turn Type						
Protected Phases		2	6		8	
Permitted Phases						
Actuated Green, G (s)		153.0	153.0		19.0	
Effective Green, g (s)		153.0	153.0		19.0	
Actuated g/C Ratio		0.85	0.85		0.11	
Clearance Time (s)		4.0	4.0		4.0	
Lane Grp Cap (vph)		1591	1599		189	
v/s Ratio Prot		0.61	c0.94		c0.12	
v/s Ratio Perm						
v/c Ratio		0.72	1.11		1.12	
Uniform Delay, d1		5.2	13.5		80.5	
Progression Factor		0.03	0.94		1.00	
Incremental Delay, d2		1.9	55.7		100.2	
Delay (s)		2.0	68.4		180.7	
Level of Service		A	E		F	
Approach Delay (s)		2.0	68.4		180.7	
Approach LOS		A	E		F	
Intersection Summary						
HCM Average Control Delay			51.7		HCM Level of Service	D
HCM Volume to Capacity ratio			1.11			
Actuated Cycle Length (s)			180.0		Sum of lost time (s)	8.0
Intersection Capacity Utilization			95.6%		ICU Level of Service	F
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

51: S.R. 11 (Second St.) & LaSalle St.

2018, Construction, with Outage
PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	NWL	NWR
Lane Configurations	1	0	0	1	2>	0	0	1	0	0
Volume (vph)	79	0	0	18	1650	34	0	149	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0	4.0			4.0		
Lane Util. Factor	1.00			1.00	0.95			1.00		
Frt	1.00			1.00	1.00			0.86		
Flt Protected	0.95			0.95	1.00			1.00		
Satd. Flow (prot)	1805			1805	3563			1627		
Flt Permitted	0.95			0.95	1.00			1.00		
Satd. Flow (perm)	1805			1805	3563			1627		
Peak-hour factor, PHF	0.88	0.90	1.00	0.61	0.83	0.73	1.00	0.67	0.92	0.92
Adj. Flow (vph)	90	0	0	30	1988	47	0	222	0	0
RTOR Reduction (vph)	0	0	0	3	1	0	0	23	0	0
Lane Group Flow (vph)	90	0	0	27	2034	0	0	199	0	0
Heavy Vehicles (%)	0%	2%	0%	0%	1%	0%	0%	1%	2%	2%
Turn Type	Prot			custom				custom		
Protected Phases	8			1	1			8		
Permitted Phases				1				8		
Actuated Green, G (s)	39.0			133.0	133.0			39.0		
Effective Green, g (s)	39.0			133.0	133.0			39.0		
Actuated g/C Ratio	0.22			0.74	0.74			0.22		
Clearance Time (s)	4.0			4.0	4.0			4.0		
Lane Grp Cap (vph)	391			1334	2633			353		
v/s Ratio Prot	0.05			0.01	c0.57			c0.12		
v/s Ratio Perm										
v/c Ratio	0.23			0.02	0.77			0.56		
Uniform Delay, d1	58.1			6.2	14.3			62.9		
Progression Factor	0.98			1.00	1.00			1.00		
Incremental Delay, d2	0.9			0.0	2.3			6.4		
Delay (s)	57.6			6.3	16.6			69.3		
Level of Service	E			A	B			E		
Approach Delay (s)		57.6			16.4		69.3		0.0	
Approach LOS		E			B		E		A	
Intersection Summary										
HCM Average Control Delay			22.9		HCM Level of Service				C	
HCM Volume to Capacity ratio			0.73							
Actuated Cycle Length (s)			180.0		Sum of lost time (s)				8.0	
Intersection Capacity Utilization			62.6%		ICU Level of Service				B	
Analysis Period (min)			15							
c Critical Lane Group										

HCM Signalized Intersection Capacity Analysis

67: S.R. 11 (Second St.) & Pine St.

2018, Construction, with Outage
PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	0	0	0	2>	0	1	1	0	0	0	1
Volume (vph)	0	0	0	0	1874	43	53	129	0	0	0	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)	0%		0%				1%		1%			
Total Lost time (s)					4.0		4.0		4.0			
Lane Util. Factor					0.95		1.00		1.00			
Frt					1.00		1.00		1.00			
Flt Protected					1.00		0.95		1.00			
Satd. Flow (prot)					3596		1796		1890			
Flt Permitted					1.00		0.95		1.00			
Satd. Flow (perm)					3596		1796		1890			
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	0.73	0.64	0.78	0.74	1.00	1.00	1.00	0.71
Adj. Flow (vph)	0	0	0	0	2567	67	68	174	0	0	0	55
RTOR Reduction (vph)	0	0	0	0	2	0	11	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	2632	0	57	174	0	0	0	55
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type							Perm			custom		
Protected Phases					1		2					
Permitted Phases							2		2			
Actuated Green, G (s)					71.4		10.6		10.6		10.6	
Effective Green, g (s)					71.4		10.6		10.6		10.6	
Actuated g/C Ratio					0.79		0.12		0.12		0.12	
Clearance Time (s)					4.0		4.0		4.0		4.0	
Vehicle Extension (s)					3.0		3.0		3.0		3.0	
Lane Grp Cap (vph)					2853		212		223		193	
v/s Ratio Prot					c0.73		c0.09					
v/s Ratio Perm							0.03		0.03			
v/c Ratio					0.92		0.27		0.78		0.28	
Uniform Delay, d1					7.2		36.2		38.6		36.2	
Progression Factor					0.95		1.00		1.00		1.00	
Incremental Delay, d2					6.4		0.7		16.1		0.8	
Delay (s)					13.2		36.8		54.6		37.1	
Level of Service					B		D		D		D	
Approach Delay (s)	0.0				13.2		49.6				37.1	
Approach LOS	A				B		D				D	
Intersection Summary												
HCM Average Control Delay			16.6		HCM Level of Service				B			
HCM Volume to Capacity ratio			0.90									
Actuated Cycle Length (s)			90.0		Sum of lost time (s)				8.0			
Intersection Capacity Utilization			69.8%		ICU Level of Service				C			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

68: S.R. 11 & Orchard St.

2018, Construction, with Outage
PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1	1	0	1	1	0	0	<1>	0	0	<1>	0
Volume (vph)	13	812	1	4	1392	1	27	24	26	30	7	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	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	
Frt	1.00	1.00		1.00	1.00			0.94			0.94	
Flt Protected	0.95	1.00		0.95	1.00			0.98			0.98	
Satd. Flow (prot)	1687	1862		1805	1881			1763			1752	
Flt Permitted	0.03	1.00		0.21	1.00			0.98			0.98	
Satd. Flow (perm)	48	1862		397	1881			1763			1752	
Peak-hour factor, PHF	0.81	0.78	0.25	1.00	0.84	0.25	0.59	0.64	0.42	0.72	0.44	0.66
Adj. Flow (vph)	16	1041	4	4	1657	4	46	38	62	42	16	45
RTOR Reduction (vph)	0	0	0	0	0	0	0	15	0	0	15	0
Lane Group Flow (vph)	16	1045	0	4	1661	0	0	131	0	0	88	0
Heavy Vehicles (%)	7%	2%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm			Perm			Split			Split		
Protected Phases		2			6		3	3		4	4	
Permitted Phases	2			6								
Actuated Green, G (s)	147.0	147.0		147.0	147.0			11.0			7.0	
Effective Green, g (s)	147.0	147.0		147.0	147.0			11.0			7.0	
Actuated g/C Ratio	0.82	0.82		0.82	0.82			0.06			0.04	
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Lane Grp Cap (vph)	39	1521		324	1536			108			68	
v/s Ratio Prot		0.56			c0.88			c0.07			c0.05	
v/s Ratio Perm	0.33			0.01								
v/c Ratio	0.41	0.69		0.01	1.08			1.21			1.29	
Uniform Delay, d1	4.5	6.9		3.1	16.5			84.5			86.5	
Progression Factor	1.79	1.61		0.05	0.17			1.00			1.00	
Incremental Delay, d2	2.9	0.2		0.0	38.0			154.6			204.8	
Delay (s)	11.0	11.3		0.1	40.7			239.1			291.3	
Level of Service	B	B		A	D			F			F	
Approach Delay (s)		11.3			40.6			239.1			291.3	
Approach LOS		B			D			F			F	
Intersection Summary												
HCM Average Control Delay			48.6		HCM Level of Service				D			
HCM Volume to Capacity ratio			1.10									
Actuated Cycle Length (s)			180.0		Sum of lost time (s)			15.0				
Intersection Capacity Utilization			87.3%		ICU Level of Service			E				
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

71: S.R. 11 (Second St.) & Oak St.

2018, Construction, with Outage
PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	0	0	0	<2>	0	0	<1	0	0	1>	0
Volume (vph)	0	0	0	43	1557	14	14	48	0	0	41	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)	0%				-1%				1%			
Total Lost time (s)					6.0				5.0			
Lane Util. Factor					0.95				1.00			
Frt					1.00				1.00			
Flt Protected					1.00				0.99			
Satd. Flow (prot)					3581				1741			
Flt Permitted					1.00				0.86			
Satd. Flow (perm)					3581				1511			
Peak-hour factor, PHF	1.00	1.00	1.00	0.68	0.84	0.88	0.44	0.64	1.00	1.00	0.70	0.87
Adj. Flow (vph)	0	0	0	63	1854	16	32	75	0	0	59	63
RTOR Reduction (vph)	0	0	0	0	1	0	0	0	0	0	23	0
Lane Group Flow (vph)	0	0	0	0	1932	0	0	107	0	0	99	0
Heavy Vehicles (%)	0%	0%	0%	0%	1%	7%	0%	10%	0%	0%	5%	0%
Turn Type	Perm				Perm							
Protected Phases					1				2			
Permitted Phases					1				2			
Actuated Green, G (s)					32.8				4.1			
Effective Green, g (s)					32.8				4.1			
Actuated g/C Ratio					0.68				0.09			
Clearance Time (s)					6.0				5.0			
Vehicle Extension (s)					3.0				3.0			
Lane Grp Cap (vph)					2452				129			
v/s Ratio Prot									0.06			
v/s Ratio Perm					0.54				c0.07			
v/c Ratio					0.79				0.83			
Uniform Delay, d1					5.2				21.6			
Progression Factor					1.00				1.00			
Incremental Delay, d2					1.7				33.6			
Delay (s)					6.9				55.2			
Level of Service					A				E			
Approach Delay (s)	0.0				6.9				55.2			
Approach LOS	A				A				E			
Intersection Summary												
HCM Average Control Delay	10.7				HCM Level of Service				B			
HCM Volume to Capacity ratio	0.79											
Actuated Cycle Length (s)	47.9				Sum of lost time (s)				11.0			
Intersection Capacity Utilization	63.9%				ICU Level of Service				B			
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

74: Third St. & S.R. 1025 (Market St.)

2018, Construction, with Outage
PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	<1>	0	0	<1>	0	1	1>	0	1	1>	0
Volume (vph)	94	95	62	31	114	17	12	200	17	20	274	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			0%			0%			0%	
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.96			0.98		1.00	0.99		1.00	0.96	
Flt Protected		0.98			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1779			1849		1805	1876		1805	1819	
Flt Permitted		0.83			0.90		0.42	1.00		0.56	1.00	
Satd. Flow (perm)		1511			1689		791	1876		1056	1819	
Peak-hour factor, PHF	0.89	0.83	0.78	0.83	0.87	0.67	0.50	0.88	0.80	0.53	0.91	0.74
Adj. Flow (vph)	106	114	79	37	131	25	24	227	21	38	301	93
RTOR Reduction (vph)	0	14	0	0	6	0	0	4	0	0	13	0
Lane Group Flow (vph)	0	285	0	0	187	0	24	244	0	38	381	0
Heavy Vehicles (%)	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			1			1	
Permitted Phases	2			2	2		1			1	1	
Actuated Green, G (s)		39.0			39.0		43.0	43.0		43.0	43.0	
Effective Green, g (s)		39.0			39.0		43.0	43.0		43.0	43.0	
Actuated g/C Ratio		0.43			0.43		0.48	0.48		0.48	0.48	
Clearance Time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)		655			732		378	896		505	869	
v/s Ratio Prot								0.13			c0.21	
v/s Ratio Perm		c0.19			0.11		0.03			0.04		
v/c Ratio		0.43			0.26		0.06	0.27		0.08	0.44	
Uniform Delay, d1		17.8			16.2		12.7	14.1		12.7	15.5	
Progression Factor		1.00			1.00		0.43	0.39		1.00	1.00	
Incremental Delay, d2		2.1			0.8		0.3	0.7		0.3	1.6	
Delay (s)		19.9			17.1		5.8	6.2		13.0	17.1	
Level of Service		B			B		A	A		B	B	
Approach Delay (s)		19.9			17.1			6.2			16.8	
Approach LOS		B			B			A			B	
Intersection Summary												
HCM Average Control Delay			15.2			HCM Level of Service				B		
HCM Volume to Capacity ratio			0.44									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)			8.0			
Intersection Capacity Utilization			50.7%			ICU Level of Service			A			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

77: S.R. 11 (Second St.) & Mulberry St.

2018, Construction, with Outage
PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	0	0	0	<2>	0	0	<1	0	0	1>	0
Volume (vph)	0	0	0	45	1587	52	28	72	0	0	25	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)	1%			0%			1%			-4%		
Total Lost time (s)				4.0			4.0			4.0		
Lane Util. Factor				0.95			1.00			1.00		
Frt				1.00			1.00			0.90		
Flt Protected				1.00			0.98			1.00		
Satd. Flow (prot)				3586			1854			1730		
Flt Permitted				1.00			0.84			1.00		
Satd. Flow (perm)				3586			1589			1730		
Peak-hour factor, PHF	1.00	1.00	1.00	0.63	0.86	0.82	0.56	0.94	1.00	1.00	0.86	0.75
Adj. Flow (vph)	0	0	0	71	1845	63	50	77	0	0	29	76
RTOR Reduction (vph)	0	0	0	0	3	0	0	0	0	0	35	0
Lane Group Flow (vph)	0	0	0	0	1976	0	0	127	0	0	70	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%	0%
Turn Type				Split			Perm					
Protected Phases				1			1			2		
Permitted Phases							2					
Actuated Green, G (s)				68.0			14.0			14.0		
Effective Green, g (s)				68.0			14.0			14.0		
Actuated g/C Ratio				0.76			0.16			0.16		
Clearance Time (s)				4.0			4.0			4.0		
Lane Grp Cap (vph)				2709			247			269		
v/s Ratio Prot				c0.55						0.04		
v/s Ratio Perm							c0.08					
v/c Ratio				0.73			0.51			0.26		
Uniform Delay, d1				6.0			34.9			33.5		
Progression Factor				0.32			0.78			1.00		
Incremental Delay, d2				1.0			7.0			2.4		
Delay (s)				2.9			34.2			35.8		
Level of Service				A			C			D		
Approach Delay (s)	0.0			2.9			34.2			35.8		
Approach LOS	A			A			C			D		
Intersection Summary												
HCM Average Control Delay			6.3		HCM Level of Service				A			
HCM Volume to Capacity ratio			0.69									
Actuated Cycle Length (s)			90.0		Sum of lost time (s)				8.0			
Intersection Capacity Utilization			65.5%		ICU Level of Service				C			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

78: S.R. 11 (Front St.) & Mulberry St.

2018, Construction, with Outage
PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	<2>	0	0	0	0	0	1>	0	0	<1	0
Volume (vph)	85	889	36	0	0	0	0	19	12	48	14	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-1%			1%			-1%	
Total Lost time (s)		4.0						4.0			4.0	
Lane Util. Factor		0.95						1.00			1.00	
Frt		0.99						0.94			1.00	
Flt Protected		1.00						1.00			0.96	
Satd. Flow (prot)		3526						1785			1810	
Flt Permitted		1.00						1.00			0.75	
Satd. Flow (perm)		3526						1785			1416	
Peak-hour factor, PHF	0.95	0.79	0.71	1.00	1.00	1.00	1.00	0.56	0.50	0.68	0.70	1.00
Adj. Flow (vph)	89	1125	51	0	0	0	0	34	24	71	20	0
RTOR Reduction (vph)	0	3	0	0	0	0	0	19	0	0	0	0
Lane Group Flow (vph)	0	1262	0	0	0	0	0	39	0	0	91	0
Heavy Vehicles (%)	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	7%	0%
Turn Type	Split					Perm						
Protected Phases	1	1						2			2	
Permitted Phases										2		
Actuated Green, G (s)		64.0						18.0			18.0	
Effective Green, g (s)		64.0						18.0			18.0	
Actuated g/C Ratio		0.71						0.20			0.20	
Clearance Time (s)		4.0						4.0			4.0	
Lane Grp Cap (vph)		2507						357			283	
v/s Ratio Prot		c0.36						0.02				
v/s Ratio Perm											c0.06	
v/c Ratio		0.50						0.11			0.32	
Uniform Delay, d1		5.8						29.4			30.8	
Progression Factor		1.28						1.00			0.94	
Incremental Delay, d2		0.5						0.6			2.4	
Delay (s)		8.0						30.1			31.4	
Level of Service		A						C			C	
Approach Delay (s)		8.0			0.0			30.1			31.4	
Approach LOS		A			A			C			C	
Intersection Summary												
HCM Average Control Delay			10.4				HCM Level of Service			B		
HCM Volume to Capacity ratio			0.46									
Actuated Cycle Length (s)			90.0				Sum of lost time (s)		8.0			
Intersection Capacity Utilization			44.9%				ICU Level of Service		A			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

85: S.R. 11 & S.R. 2028

2018, Construction, with Outage
PM

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	1	1	1	1	1	1
Volume (vph)	708	99	216	1283	78	232
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	3.6	6.0	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1845	1599	1752	1881	1787	1583
Flt Permitted	1.00	1.00	0.14	1.00	0.95	1.00
Satd. Flow (perm)	1845	1599	264	1881	1787	1583
Peak-hour factor, PHF	0.72	0.78	0.93	0.78	0.77	0.90
Adj. Flow (vph)	983	127	232	1645	101	258
RTOR Reduction (vph)	0	21	0	0	0	0
Lane Group Flow (vph)	983	106	232	1645	101	258
Heavy Vehicles (%)	3%	1%	3%	1%	1%	2%
Turn Type	Perm		pm+pt		Prot	
Protected Phases	4		3	8	2	2
Permitted Phases		4	8			
Actuated Green, G (s)	101.5	101.5	116.0	116.0	23.5	23.5
Effective Green, g (s)	101.5	101.5	116.0	116.0	23.5	23.5
Actuated g/C Ratio	0.68	0.68	0.77	0.77	0.16	0.16
Clearance Time (s)	6.0	6.0	3.6	6.0	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1248	1082	312	1455	280	248
v/s Ratio Prot	0.53		0.05	c0.87	0.06	c0.16
v/s Ratio Perm		0.07	0.52			
v/c Ratio	0.79	0.10	0.74	1.13	0.36	1.04
Uniform Delay, d1	16.8	8.4	22.2	17.0	56.5	63.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.4	0.0	9.2	68.0	0.8	68.1
Delay (s)	20.2	8.4	31.4	85.0	57.3	131.3
Level of Service	C	A	C	F	E	F
Approach Delay (s)	18.8			78.4	110.5	
Approach LOS	B			E	F	
Intersection Summary						
HCM Average Control Delay			62.1		HCM Level of Service	E
HCM Volume to Capacity ratio			1.12			
Actuated Cycle Length (s)			150.0		Sum of lost time (s)	10.5
Intersection Capacity Utilization			80.9%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

103: S.R. 93 (Third St.) & S.R. 339 (Broad St.)

2018, Construction, with Outage
PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	<1	0	0	<1>	0	0	<1>	0	0	<1>	0
Volume (vph)	5	750	135	31	386	2	110	16	46	8	9	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			-1%			0%			0%	
Total Lost time (s)		6.5			6.5			6.0			6.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.98			1.00			0.97			0.98	
Flt Protected		1.00			1.00			0.97			0.98	
Satd. Flow (prot)		1867			1862			1781			1812	
Flt Permitted		0.99			0.89			0.80			0.79	
Satd. Flow (perm)		1854			1666			1458			1466	
Peak-hour factor, PHF	0.42	0.74	0.91	0.83	0.64	0.50	0.89	0.40	0.94	0.40	0.56	0.50
Adj. Flow (vph)	12	1014	148	37	603	4	124	40	49	20	16	8
RTOR Reduction (vph)	0	6	0	0	0	0	0	12	0	0	7	0
Lane Group Flow (vph)	0	1168	0	0	644	0	0	201	0	0	37	0
Heavy Vehicles (%)	0%	0%	0%	0%	2%	50%	0%	0%	2%	0%	0%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)		64.5			64.5			13.0			13.0	
Effective Green, g (s)		64.5			64.5			13.0			13.0	
Actuated g/C Ratio		0.72			0.72			0.14			0.14	
Clearance Time (s)		6.5			6.5			6.0			6.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		1329			1194			211			212	
v/s Ratio Prot												
v/s Ratio Perm		c0.63			0.39			c0.14			0.03	
v/c Ratio		0.88			0.54			0.95			0.18	
Uniform Delay, d1		9.8			5.9			38.2			33.8	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		8.5			1.7			48.3			0.4	
Delay (s)		18.3			7.6			86.5			34.2	
Level of Service		B			A			F			C	
Approach Delay (s)		18.3			7.6			86.5			34.2	
Approach LOS		B			A			F			C	
Intersection Summary												
HCM Average Control Delay			22.3				HCM Level of Service			C		
HCM Volume to Capacity ratio			0.89									
Actuated Cycle Length (s)			90.0				Sum of lost time (s)		12.5			
Intersection Capacity Utilization			75.6%				ICU Level of Service		D			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

106: S.R. 93 (Third St.) & Dewey St.

2018, Construction, with Outage
PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	<1>	0	0	<1>	0	0	<1>	0	0	<1>	0
Volume (vph)	11	762	5	2	406	2	8	1	3	3	2	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			0%			0%			0%	
Total Lost time (s)		5.0			5.0			5.0			5.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		1.00			1.00			0.97			0.93	
Flt Protected		1.00			1.00			0.97			0.99	
Satd. Flow (prot)		1887			1879			1795			1750	
Flt Permitted		0.99			0.99			1.00			1.00	
Satd. Flow (perm)		1876			1858			1849			1772	
Peak-hour factor, PHF	0.92	0.74	0.62	0.25	0.66	0.50	0.67	0.25	0.75	0.38	0.25	0.69
Adj. Flow (vph)	12	1030	8	8	615	4	12	4	4	8	8	16
RTOR Reduction (vph)	0	0	0	0	0	0	0	4	0	0	15	0
Lane Group Flow (vph)	0	1050	0	0	627	0	0	16	0	0	17	0
Heavy Vehicles (%)	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)		50.2			50.2			2.4			2.4	
Effective Green, g (s)		50.2			50.2			2.4			2.4	
Actuated g/C Ratio		0.80			0.80			0.04			0.04	
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)		1504			1490			71			68	
v/s Ratio Prot												
v/s Ratio Perm		c0.56			0.34			0.01			c0.01	
v/c Ratio		0.70			0.42			0.23			0.24	
Uniform Delay, d1		2.8			1.9			29.2			29.2	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		2.7			0.9			1.6			1.9	
Delay (s)		5.5			2.7			30.8			31.1	
Level of Service		A			A			C			C	
Approach Delay (s)		5.5			2.7			30.8			31.1	
Approach LOS		A			A			C			C	
Intersection Summary												
HCM Average Control Delay			5.3									
HCM Volume to Capacity ratio			0.68									
Actuated Cycle Length (s)			62.6									
Intersection Capacity Utilization			61.4%									
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

112: S.R. 11 & Briar Creek Plaza Driveways

2018, Construction, with Outage
PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1	1>	0	1	1	1	1	1>	0	1	1	1
Volume (vph)	87	644	25	21	1243	209	53	9	22	194	4	131
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	16	16
Grade (%)		1%			-1%			1%			2%	
Total Lost time (s)	3.5	5.3		5.3	5.3	5.3	5.2	5.2		5.2	5.2	5.2
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Fr't	1.00	0.99		1.00	1.00	0.85	1.00	0.90		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1796	1828		1814	1891	1623	1796	1700		1787	2132	1812
Flt Permitted	0.04	1.00		0.25	1.00	1.00	0.75	1.00		0.73	1.00	1.00
Satd. Flow (perm)	73	1828		482	1891	1623	1422	1700		1364	2132	1812
Peak-hour factor, PHF	0.71	0.71	0.75	0.71	0.83	0.95	0.69	0.56	0.66	0.80	0.50	0.69
Adj. Flow (vph)	123	907	33	30	1498	220	77	16	33	242	8	190
RTOR Reduction (vph)	0	1	0	0	0	23	0	28	0	0	0	95
Lane Group Flow (vph)	123	939	0	30	1498	197	77	21	0	242	8	95
Heavy Vehicles (%)	0%	3%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt			Perm		Perm	Perm			Perm		Perm
Protected Phases	5	2			6			4			8	
Permitted Phases	2			6		6	4			8		8
Actuated Green, G (s)	108.7	108.7		100.7	100.7	100.7	20.8	20.8		20.8	20.8	20.8
Effective Green, g (s)	108.7	108.7		100.7	100.7	100.7	20.8	20.8		20.8	20.8	20.8
Actuated g/C Ratio	0.78	0.78		0.72	0.72	0.72	0.15	0.15		0.15	0.15	0.15
Clearance Time (s)	3.5	5.3		5.3	5.3	5.3	5.2	5.2		5.2	5.2	5.2
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	112	1419		347	1360	1167	211	253		203	317	269
v/s Ratio Prot	c0.04	0.51			0.79			0.01			0.00	
v/s Ratio Perm	c0.82			0.06		0.12	0.05			c0.18		0.05
v/c Ratio	1.10	0.66		0.09	1.10	0.17	0.36	0.08		1.19	0.03	0.35
Uniform Delay, d1	50.6	7.2		5.9	19.6	6.3	53.7	51.4		59.6	50.9	53.6
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	113.9	1.2		0.1	57.1	0.1	1.1	0.1		124.6	0.0	0.8
Delay (s)	164.5	8.4		6.0	76.8	6.3	54.7	51.5		184.2	51.0	54.4
Level of Service	F	A		A	E	A	D	D		F	D	D
Approach Delay (s)		26.4			66.7			53.5			125.7	
Approach LOS		C			E			D			F	

Intersection Summary

HCM Average Control Delay	61.2	HCM Level of Service	E
HCM Volume to Capacity ratio	1.09		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	8.7
Intersection Capacity Utilization	98.5%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

120: S.R. 11 & S.R. 29 (Mill St.)

2018, Construction, with Outage
PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1	1>	0	0	1>	0	0	<1>	0	0	<1	1
Volume (vph)	29	1189	16	6	809	227	12	3	6	151	4	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-1%			0%			-1%	
Total Lost time (s)	6.0	6.0			6.0			5.2			6.0	6.0
Lane Util. Factor	1.00	1.00			1.00			1.00			1.00	1.00
Frt	1.00	1.00			0.97			0.95			1.00	0.85
Flt Protected	0.95	1.00			1.00			0.98			0.96	1.00
Satd. Flow (prot)	1796	1869			1825			1774			1774	1399
Flt Permitted	0.20	1.00			0.47			0.98			0.96	1.00
Satd. Flow (perm)	376	1869			865			1774			1774	1399
Peak-hour factor, PHF	0.70	0.71	0.80	0.38	0.73	0.87	0.75	0.25	0.38	0.85	0.33	0.62
Adj. Flow (vph)	41	1675	20	16	1108	261	16	12	16	178	12	24
RTOR Reduction (vph)	0	0	0	0	6	0	0	15	0	0	0	10
Lane Group Flow (vph)	41	1695	0	0	1379	0	0	29	0	0	190	14
Heavy Vehicles (%)	0%	1%	0%	12%	2%	1%	0%	0%	0%	3%	0%	16%
Turn Type	Perm			Perm			Split			Split		Perm
Protected Phases		2			6		8	8		4	4	
Permitted Phases	2	2		6								4
Actuated Green, G (s)	107.9	107.9			107.9			3.2			11.0	11.0
Effective Green, g (s)	107.9	107.9			107.9			3.2			11.0	11.0
Actuated g/C Ratio	0.77	0.77			0.77			0.02			0.08	0.08
Clearance Time (s)	6.0	6.0			6.0			5.2			6.0	6.0
Vehicle Extension (s)	3.0	3.0			3.0			3.0			3.0	3.0
Lane Grp Cap (vph)	291	1448			670			41			140	110
v/s Ratio Prot		0.91						c0.02			c0.11	
v/s Ratio Perm	0.11				c1.59							0.01
v/c Ratio	0.14	1.17			2.06			0.72			1.36	0.13
Uniform Delay, d1	4.0	15.7			15.7			67.6			64.2	59.7
Progression Factor	1.00	1.00			1.00			1.00			1.00	1.00
Incremental Delay, d2	0.2	84.4			481.5			45.2			200.0	0.5
Delay (s)	4.2	100.1			497.2			112.8			264.1	60.2
Level of Service	A	F			F			F			F	E
Approach Delay (s)		97.9			497.2			112.8			241.3	
Approach LOS		F			F			F			F	

Intersection Summary

HCM Average Control Delay	270.8	HCM Level of Service	F
HCM Volume to Capacity ratio	1.96		
Actuated Cycle Length (s)	139.3	Sum of lost time (s)	17.2
Intersection Capacity Utilization	86.8%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

128: S.R. 11 & County Bridge

2018, Construction, with Outage
PM

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	1>	0	1	1	1	1
Volume (vph)	1134	198	125	802	271	81
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	1%			-2%	0%	
Total Lost time (s)	7.0		7.0	7.0	7.0	7.0
Lane Util. Factor	1.00		1.00	1.00	1.00	1.00
Frt	0.98		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	1859		1823	1900	1805	1615
Flt Permitted	1.00		0.04	1.00	0.95	1.00
Satd. Flow (perm)	1859		70	1900	1805	1615
Peak-hour factor, PHF	0.69	0.92	0.86	0.71	0.91	0.76
Adj. Flow (vph)	1643	215	145	1130	298	107
RTOR Reduction (vph)	3	0	0	0	0	0
Lane Group Flow (vph)	1855	0	145	1130	298	107
Heavy Vehicles (%)	0%	1%	0%	1%	0%	0%
Turn Type			pm+pt		pt+ov	
Protected Phases	4		3	8	2	2 3
Permitted Phases			8			
Actuated Green, G (s)	103.0		119.0	119.0	17.0	33.0
Effective Green, g (s)	103.0		119.0	119.0	17.0	33.0
Actuated g/C Ratio	0.69		0.79	0.79	0.11	0.22
Clearance Time (s)	7.0		7.0	7.0	7.0	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	1277		161	1507	205	355
v/s Ratio Prot	c1.00		0.05	c0.59	c0.17	0.07
v/s Ratio Perm			0.66			
v/c Ratio	1.45		0.90	0.75	1.45	0.30
Uniform Delay, d1	23.5		56.9	7.9	66.5	48.9
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	208.1		43.3	2.1	229.2	0.5
Delay (s)	231.6		100.1	10.0	295.7	49.4
Level of Service	F		F	B	F	D
Approach Delay (s)	231.6			20.3	230.6	
Approach LOS	F			C	F	
Intersection Summary						
HCM Average Control Delay			155.3		HCM Level of Service	F
HCM Volume to Capacity ratio			1.43			
Actuated Cycle Length (s)			150.0		Sum of lost time (s)	21.0
Intersection Capacity Utilization			111.1%		ICU Level of Service	H
Analysis Period (min)			15			
c Critical Lane Group						

Appendix M

Mitigation Measures and Capacity Analysis

Appendix M

This appendix contains the following with regard to the construction scenario with mitigation measures in place:

	Page
• LOS/delay summary table comparing FNB and Construction phase peak	M-3 M-4
• Discussion relating to the 15 Minute volume adjustment for the PM peak	M-5
• Stick diagrams depicting volumes used as inputs for analysis	M-6
• Signal Warrant Analysis	M-14
• SYNCHRO HCM Signalized Reports	M-19
• Mitigated Intersection Condition Diagrams	M-65
• Bell Bend Site Plan	M-78
• Driveway Plan	M-79
• Left Turn bay storage length calculations	M-82
• Left turn bay warrant analysis	M-97
• Left turn conflict factors and phasing computations	M-105

Left turn warrants are provided for all approaches in the study area which satisfy both of the following conditions:

- a) The approach experiences an increase in advancing or opposing volume due to construction activity
- b) A left turn bay is not currently provided or is added/removed as a result of mitigation

Table M-2 – LOS and Average Delay (sec/veh): Construction with Mitigation

Int No	PennDOT	County	Municipality	Intersection	Mitigation Measure ¹	AM LOS(delay ³)		PM LOS(delay ³)	
						FNB ²	Const ²	FNB	Const
1	3-0	Columbia	South Center	S.R. 11 and S.R. 2028	Add Thru Lane on RT 11 NB	B (14.9)	B (10.8)	C (23.1)	C (27.5)
2			Briar Creek	S.R. 11 and Briar Creek Plaza Driveways	Add Thru Lane on RT 11 SB	A (6.6)	C (21.5)	C (20.9)	B (16.2)
3			Berwick	S.R. 11 (Front Street) and Eaton Street	Temporary Traffic Signal		B (11.9)		C (30.4)
4				S.R. 11 (Front Street) and Poplar Street	Restriping on Poplar Street	C (27)	D (36.8)	D (40)	B (17.2)
5				S.R. 11 (Front Street) and Orchard Street		A (6.7)	A (8)	B (17.7)	D (49.1)
6				S.R. 11 (Front Street) and S.R. 93 (Orange Street)		A (5.9)	B (11.5)	B (11)	D (45.7)
7				S.R. 11 (Second Street) and LaSalle Street		B (11.8)	A (8.3)	B (14.1)	B (12.6)
8				S.R. 11 (Second Street) and Oak Street		A (6.2)	A (7.4)	A (8)	A (7.7)
9				S.R. 11 (Second Street) and Mulberry Street		A (4.8)	A (3.4)	A (5.7)	A (6)
10				S.R. 11 (Front Street) and Mulberry Street		A (6.1)	B (12.1)	A (8)	A (8.4)
11				S.R. 1025 (Market Street) and Third Street		A (9.6)	A (8.8)	B (12.8)	B (12.8)
12				S.R. 11 (Second Street) and Market Street	Restriping on Market Street	A (9.7)	A (6.3)	B (11.7)	B (14)
13				S.R. 11 (Front Street) and Market Street	Restrict street parking on Front Street	B (14.2)	B (16.3)	B (15.3)	A (8.8)
14				S.R. 11 (Second Street) and Pine Street		A (6)	A (7.6)	A (8.6)	B (15.9)
15	4-0	Luzerne	Nescopeck	S.R. 93 (Third Street) and S.R. 339 (Broad Street)		B (14.1)	C (22.6)	B (12.3)	B (16.4)
16				S.R. 93 (Third Street) and Dewey Street		A (4.6)	A (4.6)	A (3.7)	A (4.3)
17			Salem Township	S.R. 11 and Bell Bend Site Entrance	Proposed Site Access Road		C (20.2)		B (19.6)
18				S.R. 11 and SSES Site Entrance	Temporary Traffic Signal		D (35.2)		D (35.2)
19			Shickshinny	S.R. 11 (S. Main Street) and S.R. 239	Add Thru Lane on SB RT 11	A (7.8)	A (5.6)	A (9.4)	B (10.8)
					Add Thru Lane on NB RT 11				
					Add Right turn bay on RT 239 onto RT 11				
20				S.R. 11 (Main Street) and S.R. 239 (Union Street)	Restrict Parking on RT 11 SB	B (14.7)	B (14.9)	B (15.5)	B (18)
21			Nanticoke	S.R. 11 and S.R. 29 (Mill Street)	Modify intersection to provide un-interrupted flow for NB RT 11	C (23.6)	C (29.5)	C (26.3)	C (21.5)
22				S.R. 11 and County Bridge	Add Thru Lane on RT 11 NB	D (49.5)	B (14.1)	C (24.2)	C (31.1)
					Make RT 11 NB 2 lanes to intersection with RT 29				
23				S.R. 11 (E. Poplar Street) and S.R. 29	Temporary Traffic Signal				
					Restrict left turn from SB RT 11 onto NB RT 29		C (23.3)		B (16.8)

Note 1: Mitigation measures shown are in addition to signal retiming.

Note 2: “FNB” corresponds to the Future Year No-Build Condition and “Const” corresponds to Future Year Construction with proposed mitigation in place.

Note 3: “Delay” is average vehicle delay in (seconds/vehicle)

Note 4: Highlighted cells **B (18.3)** indicate cases in which the proposed mitigation does not fully address the impact

Note 5: Highlighted cells **Add Thru Lane on SB RT 11** indicate locations that involve no significant infrastructure changes

15 Minute Volume Adjustment for HCM Analysis During Construction Phase PM Peak

Two considerations in determining the applicable peak hour factor were considered:

- 1) Based upon available data, the PM peak hour is estimated to occur at 3:45pm to 4:45pm;
- 2) At the same time, there is a rigid boundary within this period, namely the start of a new shift at 4:00pm. The time preceding this is characterized by arrival flow (for the next shift), on certain approaches; the time following this is characterized by departure flow (from the earlier shift), on different approaches¹.

To model this realistically, the flow was modeled by sequential 15-min periods, in both Synchro and SIMTraffic. This is consistent with the strong HCM guidance to benefit from local data when available. Refer to Table M-3, which shows the sequence of 15-minute flows and the very substantial shift from inbound (i.e. NB, SB) to outbound (i.e. EB) at the shift boundary. Table M-4 shows the busiest 15-min from each pattern expressed in terms of hourly flow rates.

Table M-3 – Non-uniform Arrivals and Departures at Bell Bend Site Entrance During PM Peak Hour and Associated PHF Adjustment

ACTUAL 15 MINUTE VOLUMES										
	NB			SB			EB			Total
	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	
3:45:00 PM	140	0	68	0	127	183	10	26	0	554
4:00:00 PM	1	0	49	0	0	155	351	390	0	947
4:15:00 PM	1	0	81	0	0	93	264	294	0	734
4:30:00 PM	1	0	76	0	0	116	177	199	0	569
Hrly. Total	141	0	275	0	128	548	802	910	0	2804

PHF ADJUSTED										
	NB			SB			EB			Total
	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	
Hrly. Total	558	0	326	0	508	732	1404	1559	0	5088

Table M-4 – Analysis Time Period Volume Calculation for Static HCM Assignment During Construction Phase PM Peak Hour

ANALYSIS TIME PERIOD (4:00:-4:15PM Volume X4)										
	NB			SB			EB			Total
	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	
3:45:00 PM	558	0	273	0	508	732	39	105	0	2216
4:00:00 PM	3	0	197	0	1	621	1404	1559	0	3786
4:15:00 PM	3	0	326	0	1	374	1056	1178	0	2938
4:30:00 PM	3	0	304	0	1	464	708	797	0	2278

¹ This is analogous to arrival/departures at a Church parking lot on a Sunday morning, when there are closely spaced consecutive services. Attention focuses on arrivals, and then switches quickly to focus on departures (from the earlier service), taking into account pass-by traffic in both cases.

This method was applied to all of the calculations for the PM construction phase peak throughout this appendix and is reflected in the LOS/delay calculations regarding the construction phase peak with mitigation presented throughout this report.

Additionally, this peak hour was analyzed using SimTraffic with the four individual 15 minute volumes for each approach. This traffic visualization in SimTraffic was used to aid in the analysis of traffic operations with mitigation, and in the development of appropriate signal timings.

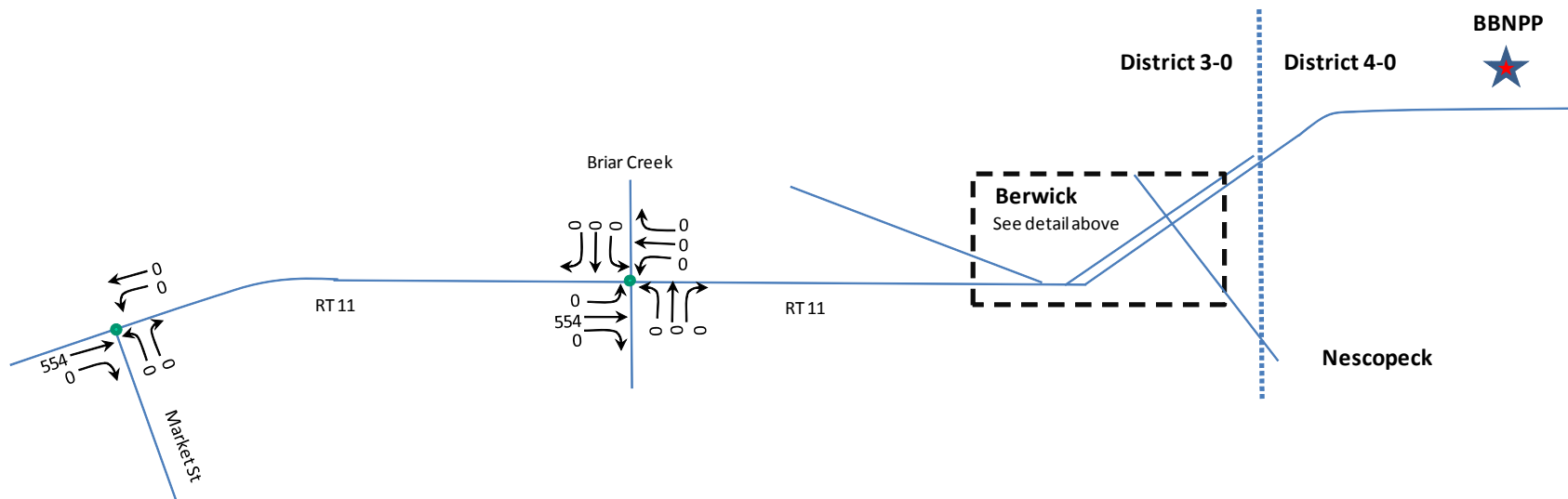


Figure M-1 - Construction Phase AM Peak (6:30-7:30) Additional Construction Traffic Only

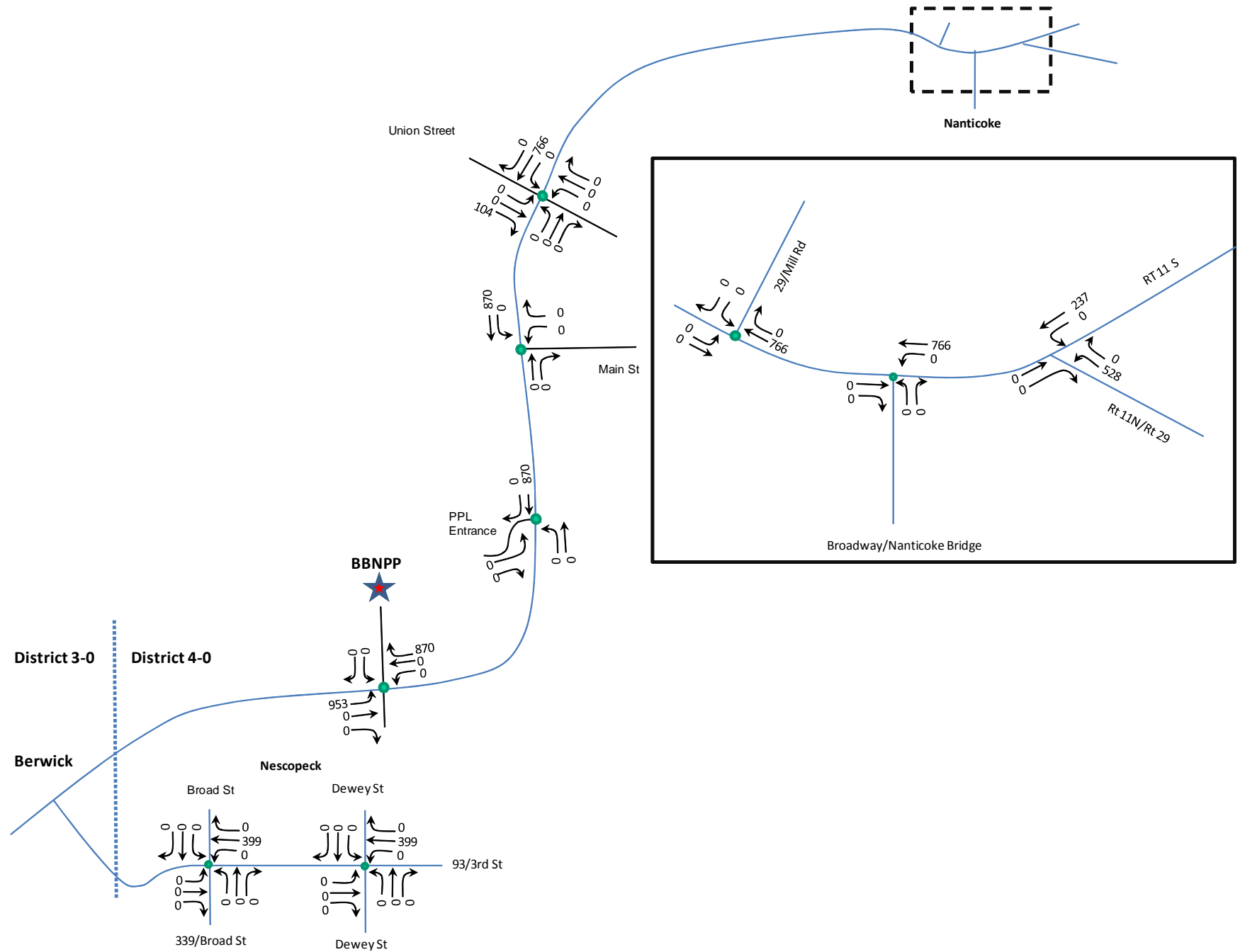
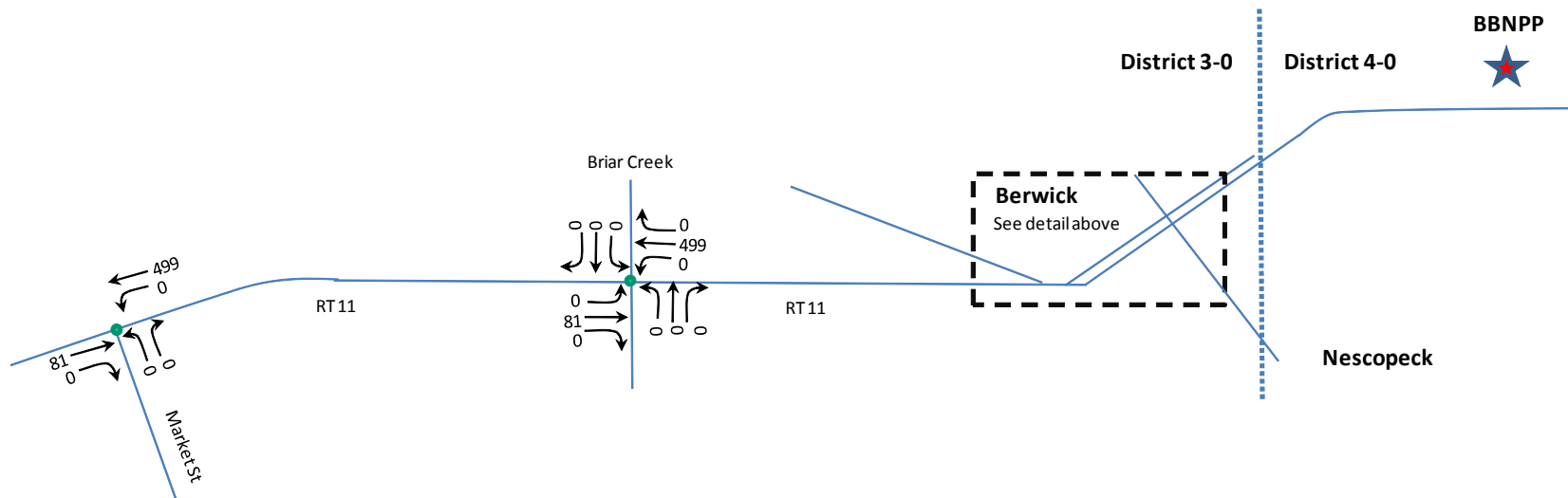


Figure M-1 - Construction Phase AM Peak (6:30-7:30) Additional Construction Traffic Only



KLD Engineering, P.C.
Bell Bend TIS

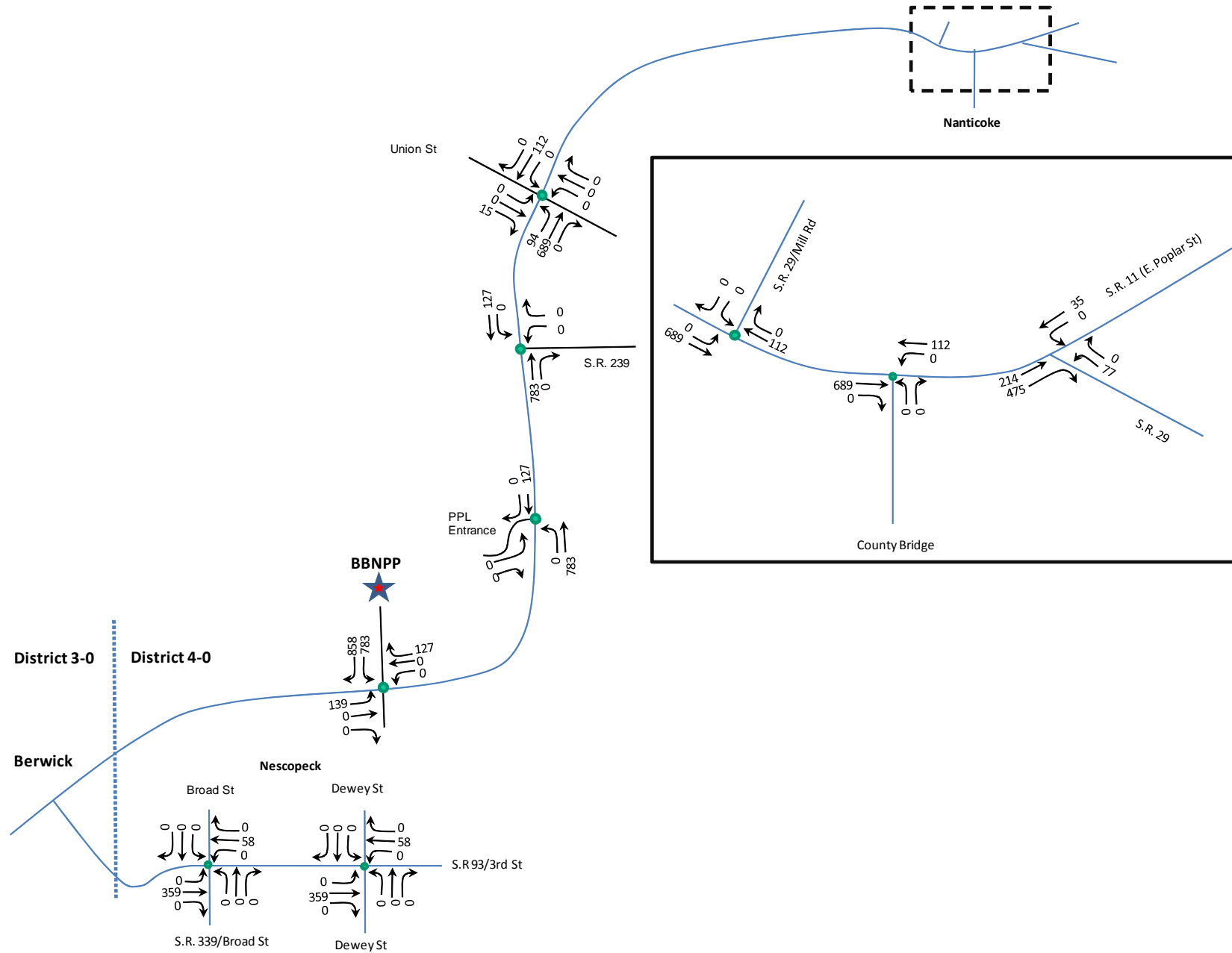


Figure M-2 - Construction Phase PM Peak (3:45-4:45) Additional Construction Traffic Only

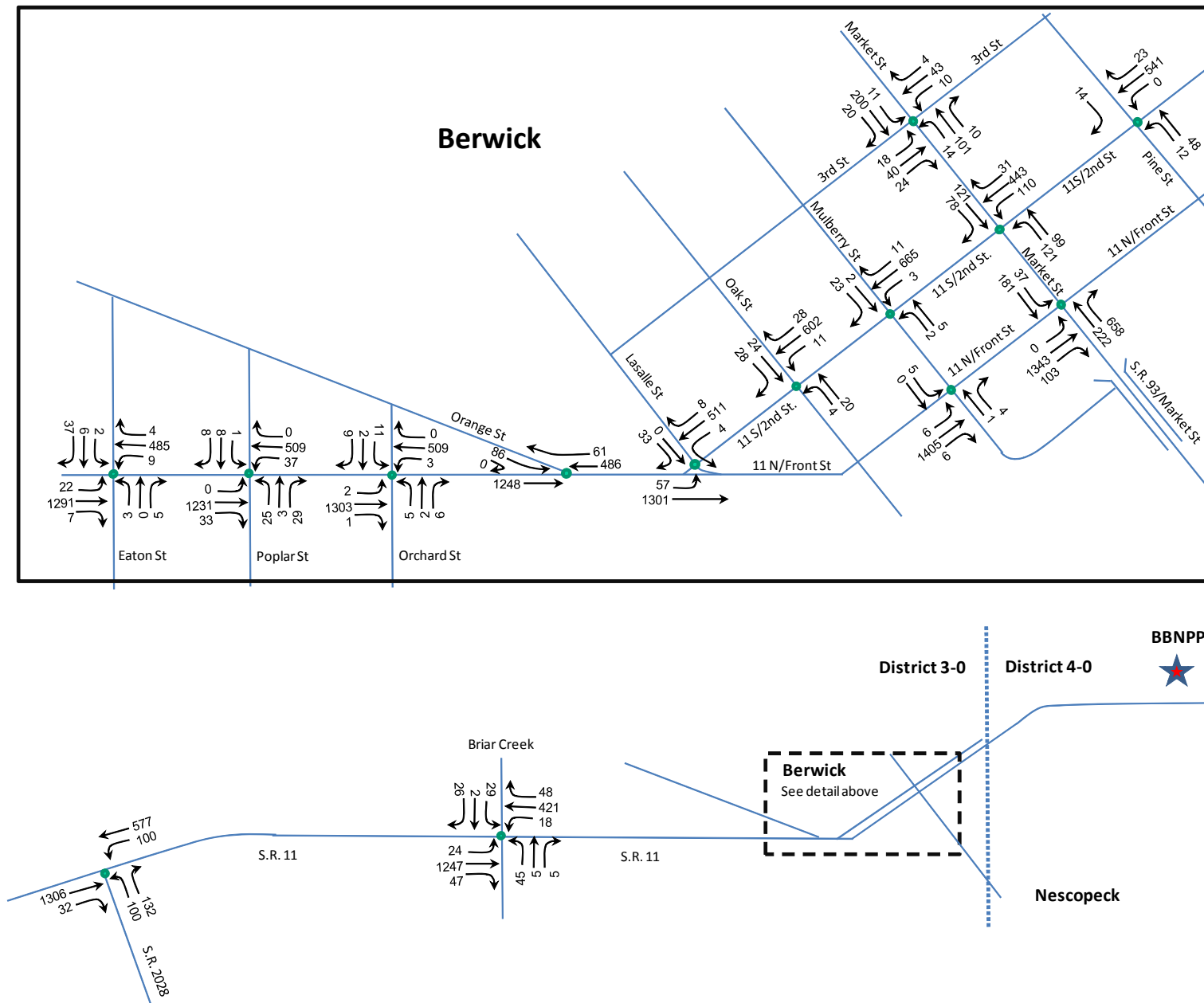


Figure M-3 - Construction Phase AM Peak Hour Volumes (6:30-7:30)

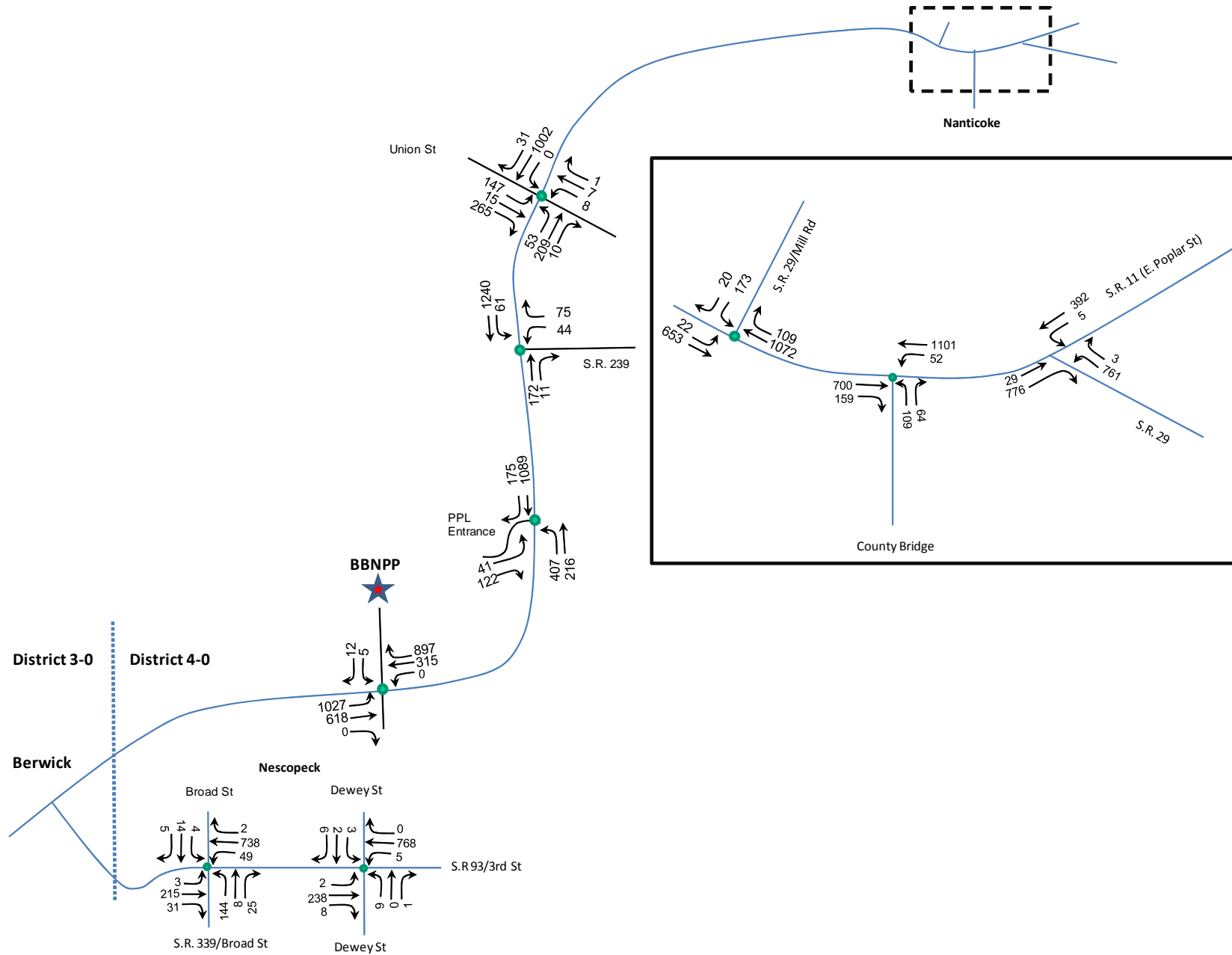
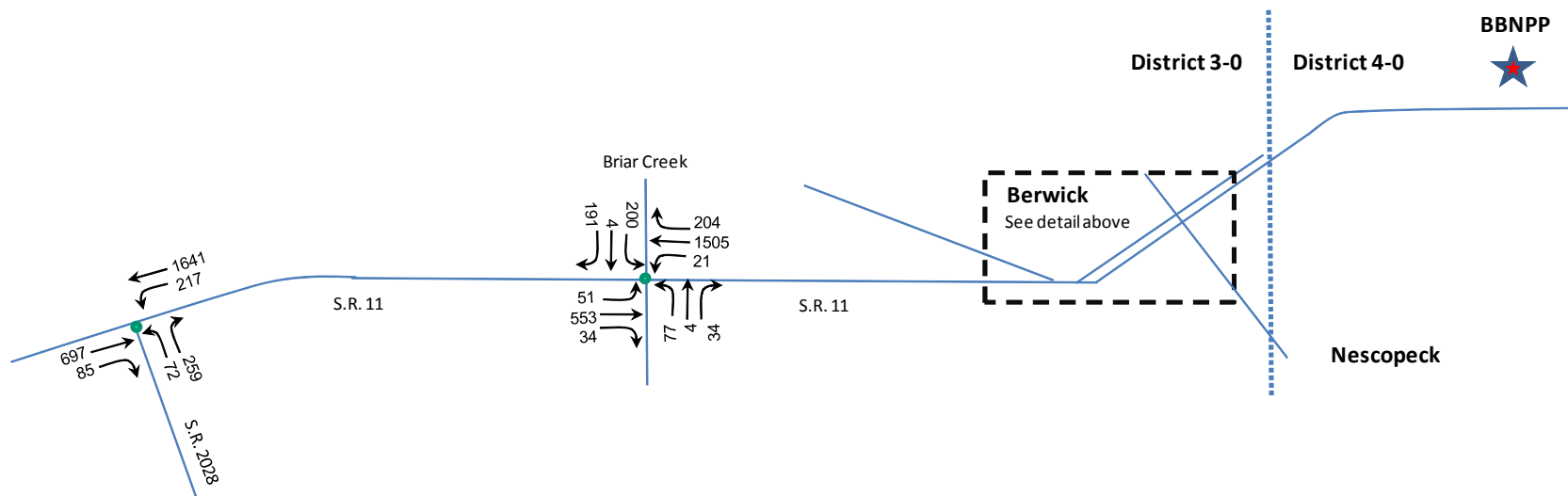


Figure M-3 - Construction Phase AM Peak Hour Volumes (6:30-7:30)



M-12

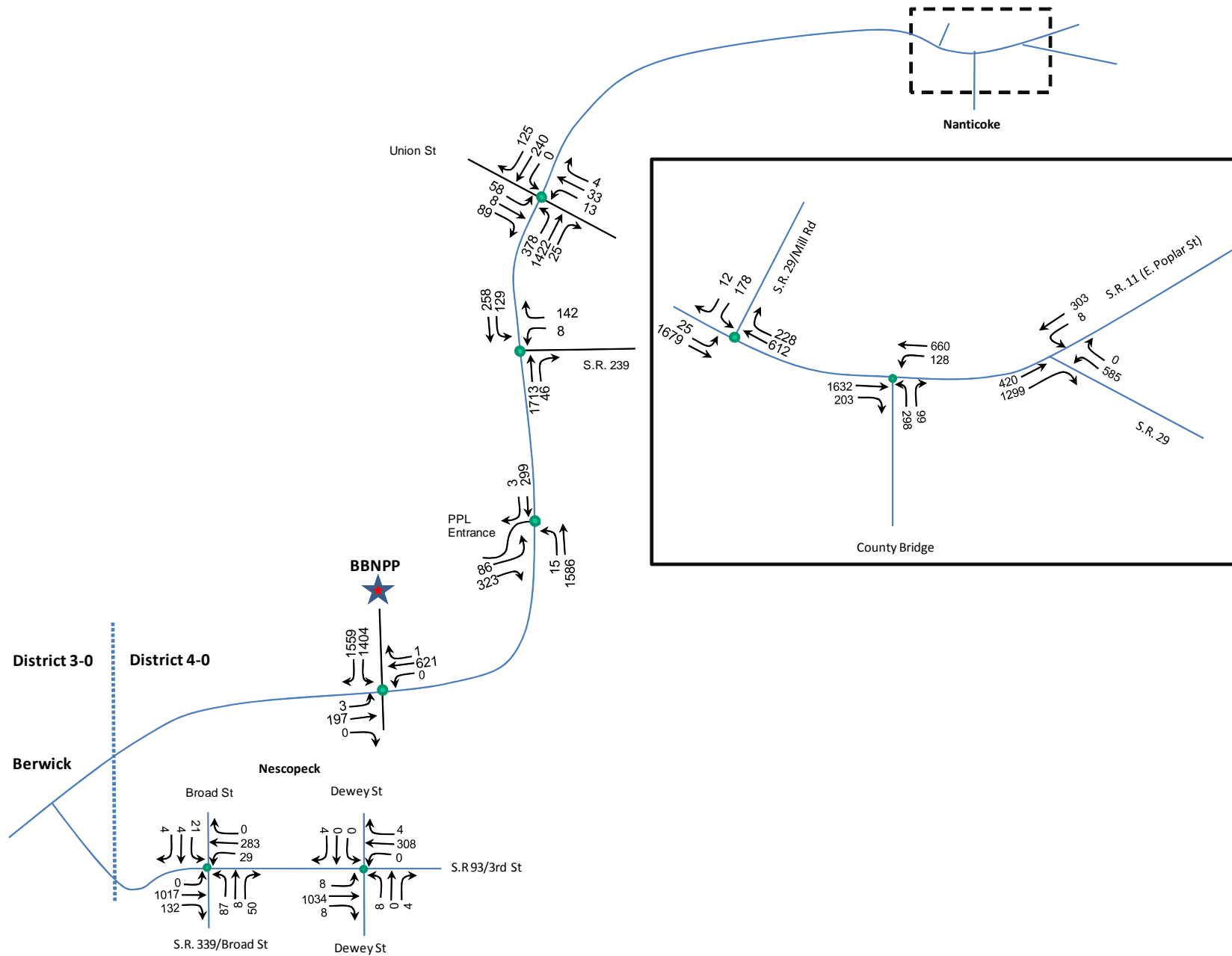


Figure M-4 - Construction Phase PM Peak Hour Volumes (3:45-4:45)

MUTCD TRAFFIC SIGNAL WARRANT ANALYSIS AT FOUR PRESENTLY UNSIGNALIZED INTERSECTIONS

This appendix contains the analysis of four intersections,

- Bell Bend Site Entrance & S.R. 11 (Front Street)
- Eaton Street & S.R. 11 (Front Street)
- SSES Site Entrance & S.R. 11 (Front Street)
- S.R. 29 & S.R. 11 (East Poplar Street)

The data used in support of this analysis, in particular the hourly traffic volumes for the existing, future no-build, future build and construction future cases is detailed in the text of this report. For all intersections, with the exception of Eaton Street & S.R. 11 (Front Street) Warrant Two (Four Hour) or Warrant Three (Peak Hour) are satisfied.

Warrant One is not considered given that eight hours of traffic volumes are not available. Warrants Four through Eight are not considered for all intersection due to lack of data or the fact that they are not applicable.

Bell Bend Site Entrance & S.R. 11 (Front Street)

Refer to Figure M-5 which shows the traffic volumes for the existing, future build and construction cases. No data exist for the future no-build case as this intersection does not exist for that case. The 70% Factor is applied at this intersection given that the speed limit is greater than 40 MPH. Based upon the available data, no warrants are satisfied for the existing and future build cases. In the construction case, only Warrant 3 is triggered. Given the significantly high single peak hour volume during the construction case, a detailed engineering study to assess the installation of a temporary traffic signal during construction is justified.

FUTURE BUILD		
	S.R. 11	BB Entrance
	Total of Two Directions	Greater of Two Minor Approaches
5:00 AM - 6:00 AM	226	0
6:00 AM - 7:00 AM	1297	23
7:00 AM - 8:00 AM	731	8
3:00 PM - 4:00 PM	964	142
4:00 PM - 5:00 PM	750	45
5:00 PM - 6:00 PM	658	17
Warrant 2 (Four Hour)		
Not Satisfied		
Warrant 3A (Peak Hour)		
Not Satisfied		

CONSTRUCTION		
	S.R. 11	BB Entrance
	Total of Two Directions	Greater of Two Minor Approaches
5:00 AM - 6:00 AM	228	2
6:00 AM - 7:00 AM	2205	25
7:00 AM - 8:00 AM	1636	116
3:00 PM - 4:00 PM	2022	144
4:00 PM - 5:00 PM	744	1870
5:00 PM - 6:00 PM	653	19
Warrant 2 (Four Hour)		
Not Satisfied		
Warrant 3A (Peak Hour)		
Satisfied, 70% Factor, 1 Hour		

Figure M-5: Bell Bend Site Entrance & S.R. 11 (Front Street)

Eaton Street & S.R. 11 (Front Street)

Refer to Figure M-6 which shows the traffic volumes for the existing, future no-build, future build and construction cases. Based upon the available data, no warrants are satisfied at this intersection for all cases. Given the extensive delays encountered on Eaton Street during construction, a detailed engineering study to assess a traffic signal installation is justified.

EXISTING		
	S.R. 11	Eaton Street
	Total of Two Directions	Greater of Two Minor Approaches
5:00 AM - 6:00 AM	0	0
6:00 AM - 7:00 AM	722	30
7:00 AM - 8:00 AM	932	44
3:00 PM - 4:00 PM	1474	44
4:00 PM - 5:00 PM	1327	54
5:00 PM - 6:00 PM	1382	65
Warrant 2 (Four Hour)		
Not Satisfied		
Warrant 3A (Peak Hour)		
Not Satisfied		

FUTURE NO-BUILD		
	S.R. 11	Eaton Street
	Total of Two Directions	Greater of Two Minor Approaches
5:00 AM - 6:00 AM	144	0
6:00 AM - 7:00 AM	1249	33
7:00 AM - 8:00 AM	1120	48
3:00 PM - 4:00 PM	1965	48
4:00 PM - 5:00 PM	1569	59
5:00 PM - 6:00 PM	1577	71
Warrant 2 (Four Hour)		
Not Satisfied		
Warrant 3A (Peak Hour)		
Not Satisfied		

FUTURE BUILD		
	S.R. 11	Eaton Street
	Total of Two Directions	Greater of Two Minor Approaches
5:00 AM - 6:00 AM	181	0
6:00 AM - 7:00 AM	1367	33
7:00 AM - 8:00 AM	1146	48
3:00 PM - 4:00 PM	2057	48
4:00 PM - 5:00 PM	1599	59
5:00 PM - 6:00 PM	1594	71
Warrant 2 (Four Hour)		
Not Satisfied		
Warrant 3A (Peak Hour)		
Not Satisfied		

CONSTRUCTION		
	S.R. 11	Eaton Street
	Total of Two Directions	Greater of Two Minor Approaches
5:00 AM - 6:00 AM	183	0
6:00 AM - 7:00 AM	1622	32
7:00 AM - 8:00 AM	1426	47
3:00 PM - 4:00 PM	2332	47
4:00 PM - 5:00 PM	2110	57
5:00 PM - 6:00 PM	1549	69
Warrant 2 (Four Hour)		
Not Satisfied		
Warrant 3A (Peak Hour)		
Not Satisfied		

Figure M-6: Eaton Street & S.R. 11 (Front Street)

SSES Site Entrance & S.R. 11 (Front Street)

Refer to Figure M-7 which shows the traffic volumes for the existing, future no-build, future build and construction cases. The 70% Factor is applied at this intersection given that the speed limit is greater than 40 MPH. Based upon the available data, Warrant Two is satisfied at this intersection for all cases, as is Warrant Three during the Construction case. Therefore, a detailed engineering study to assess a traffic signal installation is justified.

EXISTING		
	S.R. 11	SSES Entrance
	Total of Two Directions	Greater of Two Minor Approaches
5:00 AM - 6:00 AM	0	0
6:00 AM - 7:00 AM	655	111
7:00 AM - 8:00 AM	554	46
3:00 PM - 4:00 PM	436	163
4:00 PM - 5:00 PM	498	139
5:00 PM - 6:00 PM	491	175
Warrant 2 (Four Hour)		
Satisfied, 70% Factor, 4 Hours		
Warrant 3A (Peak Hour)		
Not Satisfied		

FUTURE NO-BUILD		
	S.R. 11	SSES Entrance
	Total of Two Directions	Greater of Two Minor Approaches
5:00 AM - 6:00 AM	0	0
6:00 AM - 7:00 AM	666	111
7:00 AM - 8:00 AM	573	46
3:00 PM - 4:00 PM	452	163
4:00 PM - 5:00 PM	517	139
5:00 PM - 6:00 PM	507	175
Warrant 2 (Four Hour)		
Satisfied, 70% Factor, 4 Hours		
Warrant 3A (Peak Hour)		
Not Satisfied		

FUTURE BUILD		
	S.R. 11	SSES Entrance
	Total of Two Directions	Greater of Two Minor Approaches
5:00 AM - 6:00 AM	0	0
6:00 AM - 7:00 AM	716	111
7:00 AM - 8:00 AM	584	46
3:00 PM - 4:00 PM	491	163
4:00 PM - 5:00 PM	529	139
5:00 PM - 6:00 PM	514	175
Warrant 2 (Four Hour)		
Satisfied, 70% Factor, 4 Hours		
Warrant 3A (Peak Hour)		
Not Satisfied		

CONSTRUCTION		
	S.R. 11	SSES Entrance
	Total of Two Directions	Greater of Two Minor Approaches
5:00 AM - 6:00 AM	0	0
6:00 AM - 7:00 AM	1784	199
7:00 AM - 8:00 AM	1190	78
3:00 PM - 4:00 PM	1001	712
4:00 PM - 5:00 PM	1404	312
5:00 PM - 6:00 PM	547	240
Warrant 2 (Four Hour)		
Satisfied, 70% Factor, 5 Hours		
Warrant 3A (Peak Hour)		
Satisfied, 70% Factor, 5 Hours		

Figure M-7: SSES Site Entrance & S.R. 11 (Front Street)

S.R. 29 & S.R. 11 (East Poplar Street)

Refer to Figure M-8 which shows the traffic volumes for the existing, future no-build, future build and construction cases. The 70% Factor is applied at this intersection given that the speed limit is greater than 40 MPH. Based upon the available data, Warrant One, Warrant Two and Warrant Three are satisfied at this intersection for all cases. As such, a detailed engineering study to assess a traffic signal installation is justified.

EXISTING		
	S.R. 11	S.R. 29
	Total of Two Directions	Greater of Two Minor Approaches
6:00 AM - 7:00 AM	752	137
7:00 AM - 8:00 AM	992	211
8:00 AM - 9:00 AM	786	135
2:00 PM - 3:00 PM	0	0
3:00 PM - 4:00 PM	734	460
4:00 PM - 5:00 PM	749	508
5:00 PM - 6:00 PM	733	495
Warrant 2 (Four Hour)		
Satisfied, 70% Factor, 5 Hours		
Warrant 3A (Peak Hour)		
Satisfied, 70% Factor, 5 Hours		

FUTURE NO-BUILD		
	S.R. 11	S.R. 29
	Total of Two Directions	Greater of Two Minor Approaches
6:00 AM - 7:00 AM	835	212
7:00 AM - 8:00 AM	1054	235
8:00 AM - 9:00 AM	833	149
2:00 PM - 3:00 PM	0	0
3:00 PM - 4:00 PM	858	484
4:00 PM - 5:00 PM	815	535
5:00 PM - 6:00 PM	782	524
Warrant 2 (Four Hour)		
Satisfied, 70% Factor, 6 Hours		
Warrant 3A (Peak Hour)		
Satisfied, 70% Factor, 5 Hours		

FUTURE BUILD		
	S.R. 11	S.R. 29
	Total of Two Directions	Greater of Two Minor Approaches
6:00 AM - 7:00 AM	847	230
7:00 AM - 8:00 AM	1057	239
8:00 AM - 9:00 AM	834	150
3:00 PM - 4:00 PM	880	484
4:00 PM - 5:00 PM	822	535
5:00 PM - 6:00 PM	786	525
Warrant 2 (Four Hour)		
Satisfied, 70% Factor, 6 Hours		
Warrant 3A (Peak Hour)		
Satisfied, 70% Factor, 5 Hours		

CONSTRUCTION		
	S.R. 11	S.R. 29
	Total of Two Directions	Greater of Two Minor Approaches
6:00 AM - 7:00 AM	953	492
7:00 AM - 8:00 AM	1204	500
8:00 AM - 9:00 AM	841	149
3:00 PM - 4:00 PM	1007	785
4:00 PM - 5:00 PM	1576	527
5:00 PM - 6:00 PM	774	517
Warrant 2 (Four Hour)		
Satisfied, 70% Factor, 6 Hours		
Warrant 3A (Peak Hour)		
Satisfied, 70% Factor, 5 Hours		

Figure M-8: S.R. 29 & S.R. 11 (East Poplar Street)

HCM Signalized Intersection Capacity Analysis

7: Market St. & S.R. 11 (Second St.)

2018, Construction, with Outage
AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	2>	0	1	1	0	0	0	0	1	2	1
Volume (vph)	0	121	77	121	98	0	0	0	0	110	442	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5		2.0	3.5					4.0	4.0	4.0
Lane Util. Factor		0.95		1.00	1.00					1.00	0.95	1.00
Frt		0.94		1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00		0.95	1.00					0.95	1.00	1.00
Satd. Flow (prot)		3260		1787	1881					1752	3505	1615
Flt Permitted		1.00		0.53	1.00					0.95	1.00	1.00
Satd. Flow (perm)		3260		990	1881					1752	3505	1615
Peak-hour factor, PHF	1.00	0.86	0.91	0.81	0.86	1.00	1.00	1.00	1.00	0.83	0.84	0.72
Adj. Flow (vph)	0	141	85	149	114	0	0	0	0	133	526	42
RTOR Reduction (vph)	0	67	0	0	0	0	0	0	0	0	0	23
Lane Group Flow (vph)	0	159	0	149	114	0	0	0	0	133	526	19
Heavy Vehicles (%)	0%	6%	2%	1%	1%	0%	0%	0%	0%	3%	3%	0%
Turn Type				pm+pt						Split		Prot
Protected Phases		4		3	8					2	2	2
Permitted Phases				8								
Actuated Green, G (s)		11.5		24.5	24.5					26.0	26.0	26.0
Effective Green, g (s)		12.5		25.5	25.5					27.0	27.0	27.0
Actuated g/C Ratio		0.21		0.42	0.42					0.45	0.45	0.45
Clearance Time (s)		4.5		3.0	4.5					5.0	5.0	5.0
Lane Grp Cap (vph)		679		567	799					788	1577	727
v/s Ratio Prot		c0.05		c0.05	0.06					0.08	c0.15	0.01
v/s Ratio Perm				0.06								
v/c Ratio		0.23		0.26	0.14					0.17	0.33	0.03
Uniform Delay, d1		19.8		10.9	10.6					9.8	10.7	9.2
Progression Factor		0.60		0.12	0.18					0.48	0.52	0.28
Incremental Delay, d2		0.8		1.1	0.4					0.5	0.6	0.1
Delay (s)		12.6		2.4	2.3					5.2	6.2	2.6
Level of Service		B		A	A					A	A	A
Approach Delay (s)		12.6			2.3			0.0			5.8	
Approach LOS		B			A			A			A	
Intersection Summary												
HCM Average Control Delay			6.3		HCM Level of Service					A		
HCM Volume to Capacity ratio			0.29									
Actuated Cycle Length (s)			60.0		Sum of lost time (s)					9.5		
Intersection Capacity Utilization			34.7%		ICU Level of Service					A		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

8: S.R. 11 (Front St.) & Market St.

2018, Construction, with Outage
AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	3>	0	0	0	0	0	1	1	0	<2	0
Volume (vph)	0	1343	103	0	0	0	0	222	657	37	181	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			-1%			1%	
Total Lost time (s)		4.0						4.0	4.0		4.0	
Lane Util. Factor		0.91						1.00	1.00		0.95	
Frt		0.99						1.00	0.85		1.00	
Flt Protected		1.00						1.00	1.00		0.99	
Satd. Flow (prot)		5079						1891	1623		3432	
Flt Permitted		1.00						1.00	1.00		0.88	
Satd. Flow (perm)		5079						1891	1623		3046	
Peak-hour factor, PHF	1.00	0.86	0.84	1.00	1.00	1.00	1.00	0.84	0.88	0.80	0.76	1.00
Adj. Flow (vph)	0	1562	123	0	0	0	0	264	747	46	238	0
RTOR Reduction (vph)	0	15	0	0	0	0	0	0	2	0	0	0
Lane Group Flow (vph)	0	1670	0	0	0	0	0	264	746	0	284	0
Heavy Vehicles (%)	0%	1%	1%	0%	0%	0%	0%	1%	0%	8%	3%	0%
Turn Type									Perm		Perm	
Protected Phases		4						2			6	
Permitted Phases									2		6	
Actuated Green, G (s)		21.0						29.0	29.0		29.0	
Effective Green, g (s)		22.0						30.0	30.0		30.0	
Actuated g/C Ratio		0.37						0.50	0.50		0.50	
Clearance Time (s)		5.0						5.0	5.0		5.0	
Lane Grp Cap (vph)		1862						946	812		1523	
v/s Ratio Prot		c0.33						0.14				
v/s Ratio Perm									c0.46		0.09	
v/c Ratio		0.90						0.28	0.92		0.19	
Uniform Delay, d1		17.9						8.7	13.9		8.3	
Progression Factor		0.41						1.00	1.00		1.17	
Incremental Delay, d2		4.7						0.7	17.0		0.3	
Delay (s)		12.0						9.5	30.9		10.0	
Level of Service		B						A	C		A	
Approach Delay (s)		12.0			0.0			25.3			10.0	
Approach LOS		B			A			C			A	
Intersection Summary												
HCM Average Control Delay			16.3									HCM Level of Service B
HCM Volume to Capacity ratio			0.91									
Actuated Cycle Length (s)			60.0									Sum of lost time (s) 8.0
Intersection Capacity Utilization			85.0%									ICU Level of Service E
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

32: S.R. 239 & S.R. 11 (S. Main St.)

2018, Construction, with Outage
AM

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	1	1	2>	0	0	<2
Volume (vph)	43	75	172	11	61	1239
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%		0%			-1%
Total Lost time (s)	3.8	5.2	4.0			4.0
Lane Util. Factor	1.00	1.00	0.95			0.95
Frt	1.00	0.85	0.99			1.00
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	1770	1524	3406			3615
Flt Permitted	0.95	1.00	1.00			0.93
Satd. Flow (perm)	1770	1524	3406			3375
Peak-hour factor, PHF	0.55	0.90	0.90	0.55	0.87	0.86
Adj. Flow (vph)	78	83	191	20	70	1441
RTOR Reduction (vph)	0	62	9	0	0	0
Lane Group Flow (vph)	78	21	202	0	0	1511
Heavy Vehicles (%)	2%	6%	4%	9%	3%	0%
Turn Type	pt+ov		pm+pt			
Protected Phases	4	4 5	6		5	2
Permitted Phases					2	
Actuated Green, G (s)	5.5	13.3	27.3			35.3
Effective Green, g (s)	6.9	13.3	28.7			36.7
Actuated g/C Ratio	0.13	0.26	0.56			0.71
Clearance Time (s)	5.2		5.4			5.4
Vehicle Extension (s)	5.0		5.0			5.0
Lane Grp Cap (vph)	238	394	1902			2428
v/s Ratio Prot	c0.04	0.01	0.06			c0.05
v/s Ratio Perm						c0.40
v/c Ratio	0.33	0.05	0.11			0.62
Uniform Delay, d1	20.1	14.3	5.3			3.8
Progression Factor	1.00	1.00	1.00			1.00
Incremental Delay, d2	1.7	0.1	0.1			0.5
Delay (s)	21.8	14.4	5.4			4.3
Level of Service	C	B	A			A
Approach Delay (s)	18.0		5.4			4.3
Approach LOS	B		A			A
Intersection Summary						
HCM Average Control Delay			5.6		HCM Level of Service	A
HCM Volume to Capacity ratio			0.57			
Actuated Cycle Length (s)			51.4		Sum of lost time (s)	7.8
Intersection Capacity Utilization			60.2%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

37: S.R. 11 (Union St.) & S.R. 11 (Main St.)

2018, Construction, with Outage
AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	<1	1	0	<1>	0	1	1>	0	0	<2>	0
Volume (vph)	146	14	265	8	7	1	53	208	10	0	1001	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			0%			1%			1%	
Total Lost time (s)		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			0.95	
Frt		1.00	0.85		0.98		1.00	0.99			0.99	
Flt Protected		0.96	1.00		0.98		0.95	1.00			1.00	
Satd. Flow (prot)		1776	1607		1824		1796	1818			3531	
Flt Permitted		0.72	1.00		0.85		0.15	1.00			1.00	
Satd. Flow (perm)		1345	1607		1580		279	1818			3531	
Peak-hour factor, PHF	0.88	0.88	0.77	0.67	0.58	0.25	0.91	0.87	0.50	1.00	0.92	0.75
Adj. Flow (vph)	166	16	344	12	12	4	58	239	20	0	1088	41
RTOR Reduction (vph)	0	0	142	0	3	0	0	0	0	0	4	0
Lane Group Flow (vph)	0	182	202	0	25	0	58	259	0	0	1125	0
Heavy Vehicles (%)	2%	0%	0%	0%	0%	0%	0%	3%	0%	0%	1%	6%
Turn Type	Perm		Perm	Perm			pm+pt			Perm		
Protected Phases		4			8		1	6			2	
Permitted Phases	4		4	8			6			2		
Actuated Green, G (s)		12.0	12.0		12.0		37.2	37.2			29.9	
Effective Green, g (s)		12.0	12.0		12.0		37.2	37.2			29.9	
Actuated g/C Ratio		0.20	0.20		0.20		0.63	0.63			0.51	
Clearance Time (s)		5.0	5.0		5.0		5.0	5.0			5.0	
Vehicle Extension (s)		3.0	3.0		3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)		273	326		320		234	1142			1783	
v/s Ratio Prot							0.01	c0.14			c0.32	
v/s Ratio Perm		c0.14	0.13		0.02		0.15					
v/c Ratio		0.67	0.62		0.08		0.25	0.23			0.63	
Uniform Delay, d1		21.8	21.5		19.1		6.2	4.8			10.6	
Progression Factor		1.00	1.00		1.00		1.00	1.00			1.00	
Incremental Delay, d2		6.0	3.5		0.1		0.6	0.5			1.7	
Delay (s)		27.8	25.0		19.2		6.8	5.2			12.4	
Level of Service		C	C		B		A	A			B	
Approach Delay (s)		26.0			19.2			5.5			12.4	
Approach LOS		C			B			A			B	

Intersection Summary

HCM Average Control Delay	14.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	59.2	Sum of lost time (s)	15.0
Intersection Capacity Utilization	67.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

40: SSES Site Entrance & S.R. 11

2018, Construction, with Outage
AM

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	1	1	1	1	2>	0
Volume (vph)	41	122	407	216	1089	175
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%			1%	0%	
Total Lost time (s)	4.5	4.5	3.5	5.5	5.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	
Frt	1.00	0.85	1.00	1.00	0.97	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1805	1615	1796	1818	3489	
Flt Permitted	0.95	1.00	0.09	1.00	1.00	
Satd. Flow (perm)	1805	1615	178	1818	3489	
Peak-hour factor, PHF	0.54	0.59	0.60	0.67	0.99	0.55
Adj. Flow (vph)	76	207	678	322	1100	318
RTOR Reduction (vph)	0	192	0	0	30	0
Lane Group Flow (vph)	76	15	678	322	1388	0
Heavy Vehicles (%)	0%	0%	0%	4%	0%	0%
Turn Type		Perm	pm+pt			
Protected Phases	4		5	2	6	
Permitted Phases		4	2			
Actuated Green, G (s)	6.5	6.5	73.3	73.3	39.1	
Effective Green, g (s)	6.5	6.5	73.3	73.3	39.1	
Actuated g/C Ratio	0.07	0.07	0.82	0.82	0.44	
Clearance Time (s)	4.5	4.5	3.5	5.5	5.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	131	117	698	1484	1519	
v/s Ratio Prot	c0.04		c0.33	0.18	0.40	
v/s Ratio Perm		0.01	c0.46			
v/c Ratio	0.58	0.13	0.97	0.22	0.91	
Uniform Delay, d1	40.3	39.0	24.6	1.8	23.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	6.4	0.5	26.9	0.1	10.0	
Delay (s)	46.7	39.5	51.6	1.9	33.8	
Level of Service	D	D	D	A	C	
Approach Delay (s)	41.4			35.6	33.8	
Approach LOS	D			D	C	
Intersection Summary						
HCM Average Control Delay			35.2		HCM Level of Service	D
HCM Volume to Capacity ratio			0.91			
Actuated Cycle Length (s)			89.8		Sum of lost time (s)	8.0
Intersection Capacity Utilization			73.2%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

44: S.R. 11 & Poplar St.

2018, Construction, with Outage
AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1	1>	0	1	1>	0	1	1>	0	0	<1>	0
Volume (vph)	0	1230	33	36	508	0	24	3	29	1	7	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		3.0	5.0		4.0	4.0			4.0	
Lane Util. Factor		1.00		1.00	1.00		1.00	1.00			1.00	
Frpb, ped/bikes		1.00		1.00	1.00		1.00	1.00			1.00	
Flpb, ped/bikes		1.00		1.00	1.00		0.97	1.00			1.00	
Frt		1.00		1.00	1.00		1.00	0.87			0.94	
Flt Protected		1.00		0.95	1.00		0.95	1.00			1.00	
Satd. Flow (prot)		1873		1671	1863		1684	1388			1775	
Flt Permitted		1.00		0.95	1.00		1.00	1.00			0.96	
Satd. Flow (perm)		1873		1671	1863		1773	1388			1711	
Peak-hour factor, PHF	1.00	0.78	0.97	0.57	0.89	1.00	0.64	0.38	0.56	0.25	0.35	0.35
Adj. Flow (vph)	0	1577	34	63	571	0	38	8	52	4	20	20
RTOR Reduction (vph)	0	1	0	0	0	0	0	0	0	0	19	0
Lane Group Flow (vph)	0	1610	0	63	571	0	38	60	0	0	25	0
Confl. Peds. (#/hr)							3					
Heavy Vehicles (%)	0%	1%	6%	8%	2%	0%	4%	0%	22%	0%	0%	0%
Turn Type	Perm			Prot			Perm			Perm		
Protected Phases		2		1	6			8			4	
Permitted Phases	2						8			4		
Actuated Green, G (s)		99.0		5.0	107.0		4.0	4.0			4.0	
Effective Green, g (s)		99.0		5.0	107.0		4.0	4.0			4.0	
Actuated g/C Ratio		0.82		0.04	0.89		0.03	0.03			0.03	
Clearance Time (s)		5.0		3.0	5.0		4.0	4.0			4.0	
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)		1545		70	1661		59	46			57	
v/s Ratio Prot		c0.86		c0.04	0.31			c0.04				
v/s Ratio Perm							0.02				0.01	
v/c Ratio		1.04		0.90	0.34		0.64	1.30			0.43	
Uniform Delay, d1		10.5		57.3	1.0		57.3	58.0			56.9	
Progression Factor		0.57		1.11	0.19		1.00	1.00			1.00	
Incremental Delay, d2		28.5		71.1	0.5		21.6	234.8			5.2	
Delay (s)		34.5		134.8	0.7		78.9	292.8			62.1	
Level of Service		C		F	A		E	F			E	
Approach Delay (s)		34.5			14.1			209.8			62.1	
Approach LOS		C			B			F			E	
Intersection Summary												
HCM Average Control Delay			36.8			HCM Level of Service			D			
HCM Volume to Capacity ratio			1.05									
Actuated Cycle Length (s)			120.0			Sum of lost time (s)			12.0			
Intersection Capacity Utilization			82.2%			ICU Level of Service			E			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

48: S.R. 11 & Orange St.

2018, Construction, with Outage
AM

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	0	1	1	0	1	0
Volume (vph)	0	1247	486	0	86	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		-1%	0%		0%	
Total Lost time (s)		4.0	4.0		4.0	
Lane Util. Factor		1.00	1.00		1.00	
Frt		1.00	1.00		1.00	
Flt Protected		1.00	1.00		0.95	
Satd. Flow (prot)		1872	1845		1805	
Flt Permitted		1.00	1.00		0.95	
Satd. Flow (perm)		1872	1845		1805	
Peak-hour factor, PHF	1.00	0.82	0.85	0.93	0.71	1.00
Adj. Flow (vph)	0	1521	572	0	121	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	1521	572	0	121	0
Heavy Vehicles (%)	0%	2%	3%	2%	0%	0%
Turn Type						
Protected Phases		2	6		8	
Permitted Phases						
Actuated Green, G (s)		103.0	103.0		9.0	
Effective Green, g (s)		103.0	103.0		9.0	
Actuated g/C Ratio		0.86	0.86		0.08	
Clearance Time (s)		4.0	4.0		4.0	
Lane Grp Cap (vph)		1607	1584		135	
v/s Ratio Prot		c0.81	0.31		c0.07	
v/s Ratio Perm						
v/c Ratio		0.95	0.36		0.90	
Uniform Delay, d1		6.4	1.7		55.0	
Progression Factor		0.15	1.00		1.00	
Incremental Delay, d2		6.3	0.6		53.6	
Delay (s)		7.2	2.4		108.7	
Level of Service		A	A		F	
Approach Delay (s)		7.2	2.4		108.7	
Approach LOS		A	A		F	
Intersection Summary						
HCM Average Control Delay			11.5		HCM Level of Service	B
HCM Volume to Capacity ratio			0.94			
Actuated Cycle Length (s)			120.0		Sum of lost time (s)	8.0
Intersection Capacity Utilization			77.1%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

51: S.R. 11 (Second St.) & LaSalle St.

2018, Construction, with Outage
AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	NWL	NWR
Lane Configurations	1	0	0	1	2>	0	0	1	0	0
Volume (vph)	57	0	0	4	510	7	0	33	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0	4.0			4.0		
Lane Util. Factor	1.00			1.00	0.95			1.00		
Frt	1.00			1.00	1.00			0.86		
Flt Protected	0.95			0.95	1.00			1.00		
Satd. Flow (prot)	1805			1805	3493			1644		
Flt Permitted	0.95			0.95	1.00			1.00		
Satd. Flow (perm)	1805			1805	3493			1644		
Peak-hour factor, PHF	0.66	0.90	1.00	0.33	0.90	0.44	1.00	0.70	0.92	0.92
Adj. Flow (vph)	86	0	0	12	567	16	0	47	0	0
RTOR Reduction (vph)	0	0	0	5	3	0	0	34	0	0
Lane Group Flow (vph)	86	0	0	7	580	0	0	13	0	0
Heavy Vehicles (%)	0%	2%	0%	0%	3%	0%	0%	0%	2%	2%
Turn Type	Prot			Split				Over		
Protected Phases	8			1	1			8		
Permitted Phases										
Actuated Green, G (s)	17.0			35.0	35.0			17.0		
Effective Green, g (s)	17.0			35.0	35.0			17.0		
Actuated g/C Ratio	0.28			0.58	0.58			0.28		
Clearance Time (s)	4.0			4.0	4.0			4.0		
Lane Grp Cap (vph)	511			1053	2038			466		
v/s Ratio Prot	c0.05			0.00	c0.17			0.01		
v/s Ratio Perm										
v/c Ratio	0.17			0.01	0.28			0.03		
Uniform Delay, d1	16.2			5.2	6.2			15.5		
Progression Factor	1.00			1.00	1.00			1.00		
Incremental Delay, d2	0.3			0.0	0.4			0.1		
Delay (s)	16.5			5.2	6.6			15.6		
Level of Service	B			A	A			B		
Approach Delay (s)		16.5			6.6		15.6		0.0	
Approach LOS		B			A		B		A	
Intersection Summary										
HCM Average Control Delay			8.3		HCM Level of Service				A	
HCM Volume to Capacity ratio			0.25							
Actuated Cycle Length (s)			60.0		Sum of lost time (s)				8.0	
Intersection Capacity Utilization			24.3%		ICU Level of Service				A	
Analysis Period (min)			15							
c Critical Lane Group										

HCM Signalized Intersection Capacity Analysis

55: S.R. 11 & Bell Bend Site Entrance

2018, Construction, with Outage
AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	2	1	0	1	2>	0	0	<1>	0	2	0	2
Volume (vph)	1026	618	0	0	314	896	0	0	0	4	0	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			2%			0%			0%	
Total Lost time (s)	5.5	5.5			5.5					4.5		4.5
Lane Util. Factor	0.97	1.00			0.95					0.97		0.88
Frt	1.00	1.00			0.89					1.00		0.85
Flt Protected	0.95	1.00			1.00					0.95		1.00
Satd. Flow (prot)	3467	1881			3198					3019		2656
Flt Permitted	0.95	1.00			1.00					0.95		1.00
Satd. Flow (perm)	3467	1881			3198					3019		2656
Peak-hour factor, PHF	0.95	0.72	0.92	0.92	0.81	0.98	0.92	0.92	0.92	0.72	0.92	0.70
Adj. Flow (vph)	1080	858	0	0	388	914	0	0	0	6	0	17
RTOR Reduction (vph)	0	0	0	0	154	0	0	0	0	0	0	0
Lane Group Flow (vph)	1080	858	0	0	1148	0	0	0	0	6	0	17
Heavy Vehicles (%)	0%	0%	2%	2%	0%	0%	2%	2%	2%	16%	2%	7%
Turn Type	Prot			Perm			Split			Prot		custom
Protected Phases	6	1			5		7	7		8		8 6
Permitted Phases				5								
Actuated Green, G (s)	25.9	61.8			30.4					0.9		31.3
Effective Green, g (s)	25.9	61.8			30.4					0.9		31.3
Actuated g/C Ratio	0.36	0.85			0.42					0.01		0.43
Clearance Time (s)	5.5	5.5			5.5					4.5		
Vehicle Extension (s)	3.0	3.0			3.0					3.0		
Lane Grp Cap (vph)	1235	1599			1337					37		1144
v/s Ratio Prot	c0.31	0.46			c0.36					c0.00		0.01
v/s Ratio Perm												
v/c Ratio	0.87	0.54			1.08dr					0.16		0.01
Uniform Delay, d1	21.9	1.5			19.2					35.5		11.9
Progression Factor	1.00	1.00			1.00					1.00		1.00
Incremental Delay, d2	7.1	0.3			5.7					2.1		0.0
Delay (s)	29.0	1.9			24.9					37.6		11.9
Level of Service	C	A			C					D		B
Approach Delay (s)		17.0			24.9			0.0			18.6	
Approach LOS		B			C			A			B	

Intersection Summary

HCM Average Control Delay	20.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	72.7	Sum of lost time (s)	15.5
Intersection Capacity Utilization	82.7%	ICU Level of Service	E
Analysis Period (min)	15		

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

67: S.R. 11 (Second St.) & Pine St.

2018, Construction, with Outage
AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	0	0	0	2>	0	1	1	0	0	1>	0
Volume (vph)	0	0	0	0	541	23	11	47	0	0	0	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)	0%				0%			1%		1%		
Total Lost time (s)					4.0			4.0		4.0		
Lane Util. Factor					0.95			1.00		1.00		
Frt					0.99			1.00		0.86		
Flt Protected					1.00			0.95		1.00		
Satd. Flow (prot)					3543			1796		1890		
Flt Permitted					1.00			0.74		1.00		
Satd. Flow (perm)					3543			1407		1890		
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	0.85	0.55	0.92	0.70	1.00	1.00	1.00	0.65
Adj. Flow (vph)	0	0	0	0	636	42	12	67	0	0	0	20
RTOR Reduction (vph)	0	0	0	0	8	0	0	0	0	0	15	0
Lane Group Flow (vph)	0	0	0	0	670	0	12	67	0	0	5	0
Heavy Vehicles (%)	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm											
Protected Phases					8			2		6		
Permitted Phases								2				
Actuated Green, G (s)					36.0			16.0		16.0		
Effective Green, g (s)					36.0			16.0		16.0		
Actuated g/C Ratio					0.60			0.27		0.27		
Clearance Time (s)					4.0			4.0		4.0		
Lane Grp Cap (vph)					2126			375		504		
v/s Ratio Prot					c0.19			c0.04		0.00		
v/s Ratio Perm								0.01				
v/c Ratio					0.32			0.03		0.13		
Uniform Delay, d1					5.9			16.3		16.7		
Progression Factor					0.98			1.00		1.00		
Incremental Delay, d2					0.4			0.2		0.5		
Delay (s)					6.2			16.4		17.3		
Level of Service					A			B		B		
Approach Delay (s)	0.0				6.2			17.1		16.2		
Approach LOS	A				A			B		B		
Intersection Summary												
HCM Average Control Delay			7.6		HCM Level of Service				A			
HCM Volume to Capacity ratio			0.26									
Actuated Cycle Length (s)			60.0		Sum of lost time (s)				8.0			
Intersection Capacity Utilization			29.6%		ICU Level of Service				A			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

68: S.R. 11 & Orchard St.

2018, Construction, with Outage
AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1	1>	0	1	1>	0	0	<1>	0	0	<1>	0
Volume (vph)	2	1302	1	3	508	0	5	2	6	10	2	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	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	
Frt	1.00	1.00		1.00	1.00			0.94			0.95	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.97	
Satd. Flow (prot)	1805	1880		1805	1845			1765			1765	
Flt Permitted	0.42	1.00		0.04	1.00			0.99			0.97	
Satd. Flow (perm)	790	1880		75	1845			1765			1765	
Peak-hour factor, PHF	0.50	0.87	0.25	0.38	0.84	1.00	0.62	0.25	0.50	0.50	0.50	0.67
Adj. Flow (vph)	4	1497	4	8	605	0	8	8	12	20	4	12
RTOR Reduction (vph)	0	0	0	0	0	0	0	12	0	0	12	0
Lane Group Flow (vph)	4	1501	0	8	605	0	0	16	0	0	24	0
Heavy Vehicles (%)	0%	1%	0%	0%	3%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm			Perm			Split			Split		
Protected Phases		2			6		3	3		4	4	
Permitted Phases	2			6								
Actuated Green, G (s)	101.0	101.0		101.0	101.0			1.6			2.4	
Effective Green, g (s)	101.0	101.0		101.0	101.0			1.6			2.4	
Actuated g/C Ratio	0.84	0.84		0.84	0.84			0.01			0.02	
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	665	1582		63	1553			24			35	
v/s Ratio Prot		c0.80			0.33			c0.01			c0.01	
v/s Ratio Perm	0.01			0.11								
v/c Ratio	0.01	0.95		0.13	0.39			0.67			0.69	
Uniform Delay, d1	1.5	7.5		1.7	2.2			58.9			58.4	
Progression Factor	0.18	0.61		0.31	0.47			1.00			1.00	
Incremental Delay, d2	0.0	1.8		3.9	0.7			55.3			45.6	
Delay (s)	0.3	6.3		4.5	1.8			114.2			104.1	
Level of Service	A	A		A	A			F			F	
Approach Delay (s)		6.3			1.8			114.2			104.1	
Approach LOS		A			A			F			F	
Intersection Summary												
HCM Average Control Delay			8.0			HCM Level of Service				A		
HCM Volume to Capacity ratio			0.94									
Actuated Cycle Length (s)			120.0			Sum of lost time (s)			15.0			
Intersection Capacity Utilization			80.3%			ICU Level of Service			D			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

71: S.R. 11 (Second St.) & Oak St.

2018, Construction, with Outage
AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	0	0	0	<2>	0	0	<1	0	0	1>	0
Volume (vph)	0	0	0	10	602	27	4	20	0	0	24	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)	0%				-1%				1%			
Total Lost time (s)					6.0				5.0			
Lane Util. Factor					0.95				1.00			
Frt					0.99				1.00			
Flt Protected					1.00				0.99			
Satd. Flow (prot)					3495				1734			
Flt Permitted					1.00				0.92			
Satd. Flow (perm)					3495				1619			
Peak-hour factor, PHF	1.00	1.00	1.00	0.50	0.86	0.59	0.50	0.68	1.00	1.00	0.64	0.72
Adj. Flow (vph)	0	0	0	20	700	46	8	29	0	0	38	38
RTOR Reduction (vph)	0	0	0	0	11	0	0	0	0	0	30	0
Lane Group Flow (vph)	0	0	0	0	755	0	0	37	0	0	46	0
Heavy Vehicles (%)	0%	0%	0%	0%	3%	0%	0%	10%	0%	0%	4%	11%
Turn Type	Perm				Perm							
Protected Phases					1				2			
Permitted Phases					1				2			
Actuated Green, G (s)					21.0				8.0			
Effective Green, g (s)					21.0				8.0			
Actuated g/C Ratio					0.52				0.20			
Clearance Time (s)					6.0				5.0			
Lane Grp Cap (vph)					1835				324			
v/s Ratio Prot									c0.03			
v/s Ratio Perm					0.22				0.02			
v/c Ratio					0.41				0.11			
Uniform Delay, d1					5.8				13.1			
Progression Factor					1.00				1.00			
Incremental Delay, d2					0.7				0.7			
Delay (s)					6.4				13.8			
Level of Service					A				B			
Approach Delay (s)	0.0				6.4				13.8			
Approach LOS	A				A				B			
Intersection Summary												
HCM Average Control Delay			7.4		HCM Level of Service				A			
HCM Volume to Capacity ratio			0.34									
Actuated Cycle Length (s)			40.0		Sum of lost time (s)				11.0			
Intersection Capacity Utilization			31.4%		ICU Level of Service				A			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

74: Third St. & Market St.

2018, Construction, with Outage
AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	<1>	0	0	<1>	0	1	1>	0	1	1>	0
Volume (vph)	18	40	24	9	42	4	13	100	9	10	199	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			0%			0%			0%	
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.95			0.99		1.00	0.99		1.00	0.98	
Flt Protected		0.99			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1788			1815		1805	1876		1805	1817	
Flt Permitted		0.95			0.95		0.57	1.00		0.67	1.00	
Satd. Flow (perm)		1710			1736		1092	1876		1266	1817	
Peak-hour factor, PHF	0.71	0.68	0.57	0.56	0.77	0.50	0.65	0.77	0.75	0.50	0.84	0.59
Adj. Flow (vph)	25	59	42	16	55	8	20	130	12	20	237	34
RTOR Reduction (vph)	0	28	0	0	5	0	0	6	0	0	8	0
Lane Group Flow (vph)	0	98	0	0	74	0	20	136	0	20	263	0
Heavy Vehicles (%)	0%	0%	0%	11%	0%	0%	0%	0%	0%	0%	3%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			1			1	
Permitted Phases	2			2			1			1		
Actuated Green, G (s)		20.0			20.0		32.0	32.0		32.0	32.0	
Effective Green, g (s)		20.0			20.0		32.0	32.0		32.0	32.0	
Actuated g/C Ratio		0.33			0.33		0.53	0.53		0.53	0.53	
Clearance Time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)		570			579		582	1001		675	969	
v/s Ratio Prot								0.07			c0.14	
v/s Ratio Perm		c0.06			0.04		0.02			0.02		
v/c Ratio		0.17			0.13		0.03	0.14		0.03	0.27	
Uniform Delay, d1		14.1			13.9		6.7	7.0		6.6	7.6	
Progression Factor		1.00			1.00		0.36	0.28		1.00	1.00	
Incremental Delay, d2		0.7			0.5		0.1	0.3		0.1	0.7	
Delay (s)		14.8			14.4		2.5	2.3		6.7	8.3	
Level of Service		B			B		A	A		A	A	
Approach Delay (s)		14.8			14.4			2.3			8.2	
Approach LOS		B			B			A			A	
Intersection Summary												
HCM Average Control Delay			8.8			HCM Level of Service			A			
HCM Volume to Capacity ratio			0.23									
Actuated Cycle Length (s)			60.0			Sum of lost time (s)			8.0			
Intersection Capacity Utilization			25.2%			ICU Level of Service			A			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

77: S.R. 11 (Second St.) & Mulberry St.

2018, Construction, with Outage
AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	0	0	0	<2>	0	0	<1	0	0	1>	0
Volume (vph)	0	0	0	3	664	10	2	5	0	0	2	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)	1%				0%				1%			
Total Lost time (s)					4.0				4.0			
Lane Util. Factor					0.95				1.00			
Frt					1.00				1.00			
Flt Protected					1.00				0.99			
Satd. Flow (prot)					3564				1864			
Flt Permitted					1.00				0.94			
Satd. Flow (perm)					3564				1782			
Peak-hour factor, PHF	1.00	1.00	1.00	0.38	0.95	0.83	0.25	0.25	1.00	1.00	0.25	0.79
Adj. Flow (vph)	0	0	0	8	699	12	8	20	0	0	8	29
RTOR Reduction (vph)	0	0	0	0	2	0	0	0	0	0	23	0
Lane Group Flow (vph)	0	0	0	0	717	0	0	28	0	0	14	0
Heavy Vehicles (%)	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Turn Type				Split				Perm				
Protected Phases				1		1		2			2	
Permitted Phases							2					
Actuated Green, G (s)							39.0			13.0		
Effective Green, g (s)							39.0			13.0		
Actuated g/C Ratio							0.65			0.22		
Clearance Time (s)							4.0			4.0		
Lane Grp Cap (vph)							2317			386		
v/s Ratio Prot							c0.20			0.01		
v/s Ratio Perm										c0.02		
v/c Ratio							0.31			0.07		
Uniform Delay, d1							4.6			18.7		
Progression Factor							0.41			0.67		
Incremental Delay, d2							0.3			0.3		
Delay (s)							2.2			12.9		
Level of Service							A			B		
Approach Delay (s)	0.0						2.2			12.9		
Approach LOS	A						A			B		
Intersection Summary												
HCM Average Control Delay			3.4		HCM Level of Service				A			
HCM Volume to Capacity ratio			0.25									
Actuated Cycle Length (s)			60.0		Sum of lost time (s)				8.0			
Intersection Capacity Utilization			28.8%		ICU Level of Service				A			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

78: S.R. 11 (Front St.) & Mulberry St.

2018, Construction, with Outage
AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	<2>	0	0	0	0	0	1>	0	0	<1	0
Volume (vph)	6	1404	6	0	0	0	0	1	4	5	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-1%			1%			-1%	
Total Lost time (s)		4.0						4.0			4.0	
Lane Util. Factor		0.95						1.00			1.00	
Frt		1.00						0.90			1.00	
Flt Protected		1.00						1.00			0.95	
Satd. Flow (prot)		3585						1699			1814	
Flt Permitted		1.00						1.00			0.75	
Satd. Flow (perm)		3585						1699			1426	
Peak-hour factor, PHF	0.25	0.89	0.50	1.00	1.00	1.00	1.00	0.25	0.33	0.31	1.00	1.00
Adj. Flow (vph)	24	1578	12	0	0	0	0	4	12	16	0	0
RTOR Reduction (vph)	0	1	0	0	0	0	0	8	0	0	0	0
Lane Group Flow (vph)	0	1613	0	0	0	0	0	8	0	0	16	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Split						Perm					
Protected Phases	1	1						2			2	
Permitted Phases										2		
Actuated Green, G (s)		33.0						19.0			19.0	
Effective Green, g (s)		33.0						19.0			19.0	
Actuated g/C Ratio		0.55						0.32			0.32	
Clearance Time (s)		4.0						4.0			4.0	
Lane Grp Cap (vph)		1972						538			452	
v/s Ratio Prot		c0.45						0.00				
v/s Ratio Perm											c0.01	
v/c Ratio		0.82						0.01			0.04	
Uniform Delay, d1		11.0						14.1			14.2	
Progression Factor		0.94						1.00			0.74	
Incremental Delay, d2		1.7						0.0			0.1	
Delay (s)		12.1						14.1			10.6	
Level of Service		B						B			B	
Approach Delay (s)		12.1			0.0			14.1			10.6	
Approach LOS		B			A			B			B	
Intersection Summary												
HCM Average Control Delay			12.1				HCM Level of Service			B		
HCM Volume to Capacity ratio			0.53									
Actuated Cycle Length (s)			60.0				Sum of lost time (s)		8.0			
Intersection Capacity Utilization			50.0%				ICU Level of Service		A			
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

85: S.R. 11 & S.R. 2028

2018, Construction, with Outage
AM

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	2>	0	1	1	1	1
Volume (vph)	1306	31	99	576	99	131
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0		3.6	6.0	4.0	4.0
Lane Util. Factor	0.95		1.00	1.00	1.00	1.00
Frt	0.99		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3551		1752	1827	1770	1583
Flt Permitted	1.00		0.12	1.00	0.95	1.00
Satd. Flow (perm)	3551		213	1827	1770	1583
Peak-hour factor, PHF	0.83	0.50	0.81	0.89	0.78	0.86
Adj. Flow (vph)	1573	62	122	647	127	152
RTOR Reduction (vph)	5	0	0	0	0	0
Lane Group Flow (vph)	1630	0	122	647	127	152
Heavy Vehicles (%)	1%	3%	3%	4%	2%	2%
Turn Type			pm+pt		pt+ov	
Protected Phases	4		3	8	2	2 3
Permitted Phases			8			
Actuated Green, G (s)	31.0		36.6	36.6	5.7	11.7
Effective Green, g (s)	31.0		36.6	36.6	5.7	11.7
Actuated g/C Ratio	0.59		0.70	0.70	0.11	0.22
Clearance Time (s)	6.0		3.6	6.0	4.0	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	2105		208	1279	193	354
v/s Ratio Prot	c0.46		0.02	0.35	c0.07	c0.10
v/s Ratio Perm			0.39			
v/c Ratio	0.77		0.59	0.51	0.66	0.43
Uniform Delay, d1	8.0		6.5	3.6	22.4	17.4
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	2.9		4.2	1.4	7.9	0.8
Delay (s)	10.9		10.6	5.1	30.2	18.3
Level of Service	B		B	A	C	B
Approach Delay (s)	10.9			6.0	23.7	
Approach LOS	B			A	C	
Intersection Summary						
HCM Average Control Delay			10.8		HCM Level of Service	B
HCM Volume to Capacity ratio			0.70			
Actuated Cycle Length (s)			52.3		Sum of lost time (s)	10.0
Intersection Capacity Utilization			59.7%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

103: S.R. 93 (Third St.) & S.R. 339 (Broad St.)

2018, Construction, with Outage
AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	<1	0	0	<1>	0	0	<1>	0	0	<1>	0
Volume (vph)	3	214	31	48	738	2	143	8	24	4	14	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			-1%			0%			0%	
Total Lost time (s)		6.5			6.5			6.0			6.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.98			1.00			0.98			0.97	
Flt Protected		1.00			1.00			0.96			0.99	
Satd. Flow (prot)		1775			1865			1734			1823	
Flt Permitted		0.96			0.94			0.74			0.92	
Satd. Flow (perm)		1707			1767			1338			1698	
Peak-hour factor, PHF	0.25	0.89	0.62	0.62	0.88	0.25	0.69	0.67	0.67	0.50	0.70	0.62
Adj. Flow (vph)	12	240	50	77	839	8	207	12	36	8	20	8
RTOR Reduction (vph)	0	10	0	0	0	0	0	9	0	0	6	0
Lane Group Flow (vph)	0	292	0	0	924	0	0	246	0	0	30	0
Heavy Vehicles (%)	0%	5%	3%	6%	1%	50%	2%	0%	12%	0%	0%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		41.5			41.5			15.1			15.1	
Effective Green, g (s)		41.5			41.5			15.1			15.1	
Actuated g/C Ratio		0.60			0.60			0.22			0.22	
Clearance Time (s)		6.5			6.5			6.0			6.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		1025			1061			292			371	
v/s Ratio Prot												
v/s Ratio Perm		0.17			0.52			0.18			0.02	
v/c Ratio		0.28			0.87			0.84			0.08	
Uniform Delay, d1		6.6			11.6			25.9			21.5	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.7			9.8			19.4			0.1	
Delay (s)		7.3			21.3			45.3			21.6	
Level of Service		A			C			D			C	
Approach Delay (s)		7.3			21.3			45.3			21.6	
Approach LOS		A			C			D			C	
Intersection Summary												
HCM Average Control Delay			22.6			HCM Level of Service				C		
HCM Volume to Capacity ratio			0.86									
Actuated Cycle Length (s)			69.1			Sum of lost time (s)			12.5			
Intersection Capacity Utilization			87.2%			ICU Level of Service			E			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

106: S.R. 93 (Third St.) & Dewey St.

2018, Construction, with Outage
AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	<1>	0	0	<1>	0	0	<1>	0	0	<1>	0
Volume (vph)	2	237	8	5	767	0	9	1	1	3	2	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			0%			0%			0%	
Total Lost time (s)		5.0			5.0			5.0			5.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.99			1.00			0.97			0.93	
Flt Protected		1.00			1.00			0.96			0.99	
Satd. Flow (prot)		1766			1880			1783			1757	
Flt Permitted		0.99			0.99			1.00			1.00	
Satd. Flow (perm)		1753			1869			1851			1772	
Peak-hour factor, PHF	0.50	0.91	0.29	0.31	0.89	1.00	0.56	1.00	0.25	0.75	0.25	0.50
Adj. Flow (vph)	4	260	28	16	862	0	16	1	4	4	8	12
RTOR Reduction (vph)	0	5	0	0	0	0	0	4	0	0	12	0
Lane Group Flow (vph)	0	287	0	0	878	0	0	17	0	0	12	0
Heavy Vehicles (%)	0%	5%	12%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		37.9			37.9			1.2			1.2	
Effective Green, g (s)		37.9			37.9			1.2			1.2	
Actuated g/C Ratio		0.77			0.77			0.02			0.02	
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)		1353			1443			45			43	
v/s Ratio Prot												
v/s Ratio Perm		0.16			0.47			0.01			0.01	
v/c Ratio		0.21			0.61			0.38			0.29	
Uniform Delay, d1		1.5			2.4			23.6			23.5	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.4			1.9			5.3			3.6	
Delay (s)		1.9			4.3			28.9			27.2	
Level of Service		A			A			C			C	
Approach Delay (s)		1.9			4.3			28.9			27.2	
Approach LOS		A			A			C			C	
Intersection Summary												
HCM Average Control Delay			4.6			HCM Level of Service			A			
HCM Volume to Capacity ratio			0.60									
Actuated Cycle Length (s)			49.1			Sum of lost time (s)			10.0			
Intersection Capacity Utilization			56.9%			ICU Level of Service			B			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

112: S.R. 11 & Briar Creek Plaza Driveways

2018, Construction, with Outage
AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1	1>	0	1	2>	0	1	1>	0	1	1	1
Volume (vph)	24	1246	46	18	420	47	44	5	5	28	2	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	16	16
Grade (%)		1%			-1%			1%			2%	
Total Lost time (s)	3.5	5.3		5.3	5.3		5.2	5.2		5.2	5.2	5.2
Lane Util. Factor	1.00	1.00		1.00	0.95		1.00	1.00		1.00	1.00	1.00
Fr't	1.00	0.99		1.00	0.98		1.00	0.94		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)	1663	1859		1728	3429		1796	1645		1787	2132	1678
Flt Permitted	0.44	1.00		0.05	1.00		1.00	1.00		1.00	1.00	1.00
Satd. Flow (perm)	769	1859		98	3429		1890	1645		1881	2132	1678
Peak-hour factor, PHF	0.52	0.84	0.85	0.61	0.93	0.70	0.70	0.42	0.62	0.68	0.25	0.60
Adj. Flow (vph)	46	1483	54	30	452	67	63	12	8	41	8	42
RTOR Reduction (vph)	0	1	0	0	11	0	0	8	0	0	0	40
Lane Group Flow (vph)	46	1536	0	30	508	0	63	12	0	41	8	2
Heavy Vehicles (%)	8%	1%	6%	5%	4%	2%	0%	0%	20%	0%	0%	8%
Turn Type	pm+pt			Perm			Perm			Perm		Perm
Protected Phases	5	2			6			8			8	
Permitted Phases	2			6			8			8		8
Actuated Green, G (s)	79.0	79.0		74.1	74.1		3.9	3.9		3.9	3.9	3.9
Effective Green, g (s)	79.0	79.0		74.1	74.1		3.9	3.9		3.9	3.9	3.9
Actuated g/C Ratio	0.85	0.85		0.79	0.79		0.04	0.04		0.04	0.04	0.04
Clearance Time (s)	3.5	5.3		5.3	5.3		5.2	5.2		5.2	5.2	5.2
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	664	1572		78	2720		79	69		79	89	70
v/s Ratio Prot	0.00	c0.83			0.15			0.01			0.00	
v/s Ratio Perm	0.06			0.31			c0.03			0.02		0.00
v/c Ratio	0.07	0.98		0.38	0.19		0.80	0.18		0.52	0.09	0.03
Uniform Delay, d1	1.2	6.4		2.9	2.3		44.4	43.2		43.8	43.0	42.9
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.0	17.8		13.7	0.2		41.2	1.2		5.7	0.4	0.1
Delay (s)	1.3	24.2		16.6	2.5		85.5	44.4		49.5	43.5	43.1
Level of Service	A	C		B	A		F	D		D	D	D
Approach Delay (s)		23.5			3.3			75.6			46.0	
Approach LOS		C			A			E			D	

Intersection Summary

HCM Average Control Delay	21.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	93.4	Sum of lost time (s)	10.5
Intersection Capacity Utilization	86.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

115: S.R. 11 & Eaton St.

2018, Construction, with Outage
AM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1	1>	0	1	1>	0	0	<1	1	0	<1>	0
Volume (vph)	22	1291	7	8	485	4	3	0	5	2	6	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0			4.0	4.0		4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	
Frt	1.00	1.00		1.00	1.00			1.00	0.85		0.90	
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00		0.99	
Satd. Flow (prot)	1805	1876		1805	1859			1357	1615		1695	
Flt Permitted	0.44	1.00		0.06	1.00			1.00	1.00		0.96	
Satd. Flow (perm)	845	1876		118	1859			1429	1615		1628	
Peak-hour factor, PHF	0.53	0.85	0.44	0.67	0.86	0.50	0.25	1.00	0.42	0.25	0.75	0.73
Adj. Flow (vph)	42	1519	16	12	564	8	12	0	12	8	8	51
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	12	0	49	0
Lane Group Flow (vph)	42	1535	0	12	572	0	0	12	0	0	18	0
Heavy Vehicles (%)	0%	1%	14%	0%	2%	0%	33%	0%	0%	0%	0%	0%
Turn Type	Perm			Perm			Perm			Perm		Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	107.0	107.0		107.0	107.0			4.0	4.0		4.0	
Effective Green, g (s)	107.0	107.0		107.0	107.0			4.0	4.0		4.0	
Actuated g/C Ratio	0.89	0.89		0.89	0.89			0.03	0.03		0.03	
Clearance Time (s)	5.0	5.0		5.0	5.0			4.0	4.0		4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)	753	1673		105	1658			48	54		54	
v/s Ratio Prot		c0.82			0.31							
v/s Ratio Perm	0.05			0.10				0.01	0.00		c0.01	
v/c Ratio	0.06	0.92		0.11	0.34			0.25	0.01		0.33	
Uniform Delay, d1	0.7	3.9		0.8	1.0			56.5	56.1		56.7	
Progression Factor	1.00	1.00		0.71	0.68			1.00	1.00		1.00	
Incremental Delay, d2	0.1	9.5		2.1	0.5			2.7	0.1		3.5	
Delay (s)	0.9	13.4		2.6	1.2			59.3	56.1		60.2	
Level of Service	A	B		A	A			E	E		E	
Approach Delay (s)		13.0			1.3			57.7			60.2	
Approach LOS		B			A			E			E	

Intersection Summary

HCM Average Control Delay	11.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	85.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

128: S.R. 11 & County Bridge

2018, Construction, with Outage
AM

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	2>	0	1	1	1	1
Volume (vph)	700	159	51	1100	108	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	1%			-2%	0%	
Total Lost time (s)	7.0		7.0	7.0	7.0	7.0
Lane Util. Factor	0.95		1.00	1.00	1.00	1.00
Frt	0.97		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3455		1787	1919	1787	1599
Flt Permitted	1.00		0.19	1.00	0.95	1.00
Satd. Flow (perm)	3455		351	1919	1787	1599
Peak-hour factor, PHF	0.87	0.84	0.69	0.97	0.67	0.86
Adj. Flow (vph)	805	189	74	1134	161	74
RTOR Reduction (vph)	33	0	0	0	0	53
Lane Group Flow (vph)	961	0	74	1134	161	21
Heavy Vehicles (%)	1%	1%	2%	0%	1%	1%
Turn Type			pm+pt		pt+ov	
Protected Phases	4		3	8	2	2 3
Permitted Phases			8			
Actuated Green, G (s)	29.0		40.0	40.0	6.0	17.0
Effective Green, g (s)	29.0		40.0	40.0	6.0	17.0
Actuated g/C Ratio	0.48		0.67	0.67	0.10	0.28
Clearance Time (s)	7.0		7.0	7.0	7.0	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	1670		330	1279	179	453
v/s Ratio Prot	0.28		0.01	c0.59	c0.09	0.01
v/s Ratio Perm			0.13			
v/c Ratio	0.58		0.22	0.89	0.90	0.05
Uniform Delay, d1	11.1		5.0	8.2	26.7	15.6
Progression Factor	0.71		0.78	0.65	1.00	1.00
Incremental Delay, d2	1.4		0.2	6.2	39.5	0.0
Delay (s)	9.3		4.1	11.5	66.3	15.7
Level of Service	A		A	B	E	B
Approach Delay (s)	9.3			11.0	50.3	
Approach LOS	A			B	D	
Intersection Summary						
HCM Average Control Delay			14.1		HCM Level of Service	B
HCM Volume to Capacity ratio			0.89			
Actuated Cycle Length (s)			60.0		Sum of lost time (s)	14.0
Intersection Capacity Utilization			75.5%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

990: S.R. 11 & S.R. 29 Mill St.

2018, Construction, with Outage
AM

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	1	0	1>	0	1	1
Volume (vph)	21	0	1072	108	173	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		1%	-1%		-1%	
Total Lost time (s)	5.0		5.0		5.0	5.0
Lane Util. Factor	1.00		1.00		1.00	1.00
Frt	1.00		0.99		1.00	0.85
Flt Protected	0.95		1.00		0.95	1.00
Satd. Flow (prot)	1497		1863		1796	1531
Flt Permitted	0.95		1.00		0.95	1.00
Satd. Flow (perm)	1497		1863		1796	1531
Peak-hour factor, PHF	0.75	1.00	0.96	0.85	0.77	0.79
Adj. Flow (vph)	28	0	1117	127	225	24
RTOR Reduction (vph)	0	0	3	0	0	9
Lane Group Flow (vph)	28	0	1241	0	225	15
Heavy Vehicles (%)	20%	0%	1%	2%	1%	6%
Turn Type	Prot					Prot
Protected Phases	2		1		3	3
Permitted Phases						
Actuated Green, G (s)	3.0		84.9		17.1	17.1
Effective Green, g (s)	3.0		84.9		17.1	17.1
Actuated g/C Ratio	0.02		0.71		0.14	0.14
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)	37		1318		256	218
v/s Ratio Prot	c0.02		c0.67		c0.13	0.01
v/s Ratio Perm						
v/c Ratio	0.76		0.94		0.88	0.07
Uniform Delay, d1	58.1		15.4		50.4	44.5
Progression Factor	1.00		0.70		1.00	1.00
Incremental Delay, d2	59.7		7.7		27.0	0.1
Delay (s)	117.9		18.5		77.5	44.7
Level of Service	F		B		E	D
Approach Delay (s)		117.9	18.5		74.3	
Approach LOS		F	B		E	
Intersection Summary						
HCM Average Control Delay			29.5		HCM Level of Service	C
HCM Volume to Capacity ratio			0.93			
Actuated Cycle Length (s)			120.0		Sum of lost time (s)	15.0
Intersection Capacity Utilization			80.9%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

999: S.R. 11 (E. Poplar St.) & S.R. 29

2018, Construction, with Outage
AM

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	1	0	0	1	1	1
Volume (vph)	28	0	0	392	761	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5			5.5	5.5	4.0
Lane Util. Factor	1.00			1.00	1.00	1.00
Frt	1.00			1.00	1.00	0.85
Flt Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	1827			1900	1805	1615
Flt Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	1827			1900	1805	1615
Peak-hour factor, PHF	0.48	0.92	0.62	0.97	0.97	0.38
Adj. Flow (vph)	58	0	0	404	785	8
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	58	0	0	404	785	8
Heavy Vehicles (%)	4%	2%	20%	0%	0%	0%
Turn Type						Free
Protected Phases	4			8	2	
Permitted Phases						Free
Actuated Green, G (s)	19.5			19.5	29.5	60.0
Effective Green, g (s)	19.5			19.5	29.5	60.0
Actuated g/C Ratio	0.32			0.32	0.49	1.00
Clearance Time (s)	5.5			5.5	5.5	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	594			618	887	1615
v/s Ratio Prot	0.03			c0.21	c0.43	
v/s Ratio Perm						0.00
v/c Ratio	0.10			0.65	0.89	0.00
Uniform Delay, d1	14.1			17.4	13.7	0.0
Progression Factor	1.31			1.00	1.00	1.00
Incremental Delay, d2	0.1			5.3	10.5	0.0
Delay (s)	18.6			22.7	24.2	0.0
Level of Service	B			C	C	A
Approach Delay (s)	18.6			22.7	24.0	
Approach LOS	B			C	C	
Intersection Summary						
HCM Average Control Delay			23.3		HCM Level of Service	C
HCM Volume to Capacity ratio			0.79			
Actuated Cycle Length (s)			60.0		Sum of lost time (s)	11.0
Intersection Capacity Utilization			72.0%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

7: Market St. & S.R. 11 (Second St.)

2018, Construction (15X4), with Outage
PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	2>	0	1	1	0	0	0	0	1	2	1
Volume (vph)	0	276	136	179	149	0	0	0	0	861	1671	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5		2.0	3.5					4.0	4.0	4.0
Lane Util. Factor		0.95		1.00	1.00					1.00	0.95	1.00
Frt		0.95		1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00		0.95	1.00					0.95	1.00	1.00
Satd. Flow (prot)		3431		1770	1863					1805	3574	1509
Flt Permitted		1.00		0.36	1.00					0.95	1.00	1.00
Satd. Flow (perm)		3431		673	1863					1805	3574	1509
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	276	136	179	149	0	0	0	0	861	1671	60
RTOR Reduction (vph)	0	34	0	0	0	0	0	0	0	0	0	17
Lane Group Flow (vph)	0	378	0	179	149	0	0	0	0	861	1671	43
Heavy Vehicles (%)	0%	0%	0%	2%	2%	0%	0%	0%	0%	0%	1%	7%
Turn Type				pm+pt						Split		Prot
Protected Phases		4		3	8					2	2	2
Permitted Phases				8								
Actuated Green, G (s)		16.5		23.5	23.5					37.0	37.0	37.0
Effective Green, g (s)		17.5		24.5	24.5					38.0	38.0	38.0
Actuated g/C Ratio		0.25		0.35	0.35					0.54	0.54	0.54
Clearance Time (s)		4.5		3.0	4.5					5.0	5.0	5.0
Lane Grp Cap (vph)		858		314	652					980	1940	819
v/s Ratio Prot		c0.11		c0.04	0.08					c0.48	0.47	0.03
v/s Ratio Perm				0.16								
v/c Ratio		0.44		0.57	0.23					0.88	0.86	0.05
Uniform Delay, d1		22.1		16.8	16.1					14.0	13.7	7.5
Progression Factor		0.67		1.58	1.45					0.64	0.64	0.43
Incremental Delay, d2		1.5		7.2	0.8					4.8	2.2	0.0
Delay (s)		16.4		33.8	24.1					13.7	10.9	3.3
Level of Service		B		C	C					B	B	A
Approach Delay (s)		16.4			29.4			0.0			11.7	
Approach LOS		B			C			A			B	
Intersection Summary												
HCM Average Control Delay			14.0		HCM Level of Service				B			
HCM Volume to Capacity ratio			0.72									
Actuated Cycle Length (s)			70.0		Sum of lost time (s)				9.5			
Intersection Capacity Utilization			79.6%		ICU Level of Service				D			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

8: S.R. 11 (Front St.) & Market St.

2018, Construction (15X4), with Outage
PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	3>	0	0	0	0	0	1	1	0	<2	0
Volume (vph)	0	744	225	0	0	0	0	302	214	128	968	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			-1%			1%	
Total Lost time (s)		4.0						4.0	4.0		4.0	
Lane Util. Factor		0.91						1.00	1.00		0.95	
Frt		0.97						1.00	0.85		1.00	
Flt Protected		1.00						1.00	1.00		0.99	
Satd. Flow (prot)		4931						1872	1561		3571	
Flt Permitted		1.00						1.00	1.00		0.86	
Satd. Flow (perm)		4931						1872	1561		3093	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	744	225	0	0	0	0	302	214	128	968	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	969	0	0	0	0	0	302	214	0	1096	0
Heavy Vehicles (%)	0%	2%	0%	0%	0%	0%	0%	2%	4%	0%	0%	0%
Turn Type									Perm		Perm	
Protected Phases		4						2			6	
Permitted Phases									2		6	
Actuated Green, G (s)		20.0						40.0	40.0		40.0	
Effective Green, g (s)		21.0						41.0	41.0		41.0	
Actuated g/C Ratio		0.30						0.59	0.59		0.59	
Clearance Time (s)		5.0						5.0	5.0		5.0	
Lane Grp Cap (vph)		1479						1096	914		1812	
v/s Ratio Prot		c0.20						0.16				
v/s Ratio Perm									0.14		c0.35	
v/c Ratio		0.66						0.28	0.23		0.60	
Uniform Delay, d1		21.3						7.2	7.0		9.3	
Progression Factor		0.56						1.00	1.00		0.41	
Incremental Delay, d2		2.0						0.6	0.6		0.9	
Delay (s)		13.9						7.8	7.6		4.7	
Level of Service		B						A	A		A	
Approach Delay (s)		13.9			0.0			7.7			4.7	
Approach LOS		B			A			A			A	
Intersection Summary												
HCM Average Control Delay			8.8							A		
HCM Volume to Capacity ratio			0.62									
Actuated Cycle Length (s)			70.0							8.0		
Intersection Capacity Utilization			75.8%							D		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

32: S.R. 239 & S.R. 11 (S. Main St.)

2018, Construction (15X4), with Outage
PM

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	1	1	2>	0	0	<2
Volume (vph)	8	142	1713	46	129	258
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%		0%			-1%
Total Lost time (s)	3.8	5.4	4.0			4.0
Lane Util. Factor	1.00	1.00	0.95			0.95
Frt	1.00	0.85	1.00			1.00
Flt Protected	0.95	1.00	1.00			0.98
Satd. Flow (prot)	1805	1495	3596			3453
Flt Permitted	0.95	1.00	1.00			0.55
Satd. Flow (perm)	1805	1495	3596			1925
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	8	142	1713	46	129	258
RTOR Reduction (vph)	0	9	2	0	0	0
Lane Group Flow (vph)	8	133	1757	0	0	387
Heavy Vehicles (%)	0%	8%	0%	0%	0%	5%
Turn Type	pm+ov		pm+pt			
Protected Phases	4	5	6		5	2
Permitted Phases		4			2	
Actuated Green, G (s)	1.1	8.9	38.5			51.7
Effective Green, g (s)	2.5	8.9	39.9			53.1
Actuated g/C Ratio	0.04	0.14	0.63			0.84
Clearance Time (s)	5.2	5.4	5.4			5.4
Vehicle Extension (s)	5.0	3.0	5.0			5.0
Lane Grp Cap (vph)	71	210	2263			1834
v/s Ratio Prot	0.00	c0.08	c0.49			0.03
v/s Ratio Perm		0.01				0.15
v/c Ratio	0.11	0.64	0.78			0.21
Uniform Delay, d1	29.4	25.7	8.5			1.0
Progression Factor	1.00	1.00	1.00			1.00
Incremental Delay, d2	1.5	6.2	2.7			0.1
Delay (s)	30.9	31.9	11.2			1.1
Level of Service	C	C	B			A
Approach Delay (s)	31.8		11.2			1.1
Approach LOS	C		B			A
Intersection Summary						
HCM Average Control Delay			10.8		HCM Level of Service	B
HCM Volume to Capacity ratio			0.75			
Actuated Cycle Length (s)			63.4		Sum of lost time (s)	14.8
Intersection Capacity Utilization			77.1%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

37: S.R. 11 (Union St.) & S.R. 11 (Main St.)

2018, Construction (15X4), with Outage
PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	<1	1	0	<1>	0	1	1>	0	0	<2>	0
Volume (vph)	58	8	89	13	33	4	378	1422	25	0	240	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			0%			1%			1%	
Total Lost time (s)		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			0.95	
Frt		1.00	0.85		0.99		1.00	1.00			0.95	
Flt Protected		0.96	1.00		0.99		0.95	1.00			1.00	
Satd. Flow (prot)		1706	1607		1855		1796	1886			3266	
Flt Permitted		0.83	1.00		0.89		0.49	1.00			1.00	
Satd. Flow (perm)		1479	1607		1673		927	1886			3266	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	58	8	89	13	33	4	378	1422	25	0	240	125
RTOR Reduction (vph)	0	0	82	0	4	0	0	0	0	0	45	0
Lane Group Flow (vph)	0	66	7	0	46	0	378	1447	0	0	320	0
Heavy Vehicles (%)	7%	0%	0%	0%	0%	0%	0%	0%	0%	0%	5%	3%
Turn Type	Perm		Perm	Perm			pm+pt			Perm		
Protected Phases		4			8		1	6			2	
Permitted Phases	4		4	8			6			2		
Actuated Green, G (s)		7.2	7.2		7.2		70.4	70.4			56.0	
Effective Green, g (s)		7.2	7.2		7.2		70.4	70.4			56.0	
Actuated g/C Ratio		0.08	0.08		0.08		0.80	0.80			0.64	
Clearance Time (s)		5.0	5.0		5.0		5.0	5.0			5.0	
Vehicle Extension (s)		3.0	3.0		3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)		122	132		138		838	1516			2088	
v/s Ratio Prot							0.05	c0.77			0.10	
v/s Ratio Perm		c0.04	0.00		0.03		0.31					
v/c Ratio		0.54	0.06		0.34		0.45	0.95			0.15	
Uniform Delay, d1		38.6	37.1		37.9		2.4	7.2			6.3	
Progression Factor		1.00	1.00		1.00		1.00	1.00			1.00	
Incremental Delay, d2		4.8	0.2		1.4		0.4	14.6			0.2	
Delay (s)		43.4	37.2		39.4		2.8	21.8			6.5	
Level of Service		D	D		D		A	C			A	
Approach Delay (s)		39.9			39.4			17.9			6.5	
Approach LOS		D			D			B			A	

Intersection Summary

HCM Average Control Delay	18.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	87.6	Sum of lost time (s)	10.0
Intersection Capacity Utilization	109.5%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

40: SSES Site Entrance & S.R. 11

2018, Construction (15X4), with Outage
PM

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	1	1	1	1	2>	0
Volume (vph)	86	323	15	1586	299	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%			1%	0%	
Total Lost time (s)	4.5	4.5	3.5	5.5	5.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	
Frt	1.00	0.85	1.00	1.00	1.00	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1805	1599	1796	1890	3467	
Flt Permitted	0.95	1.00	0.55	1.00	1.00	
Satd. Flow (perm)	1805	1599	1031	1890	3467	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	86	323	15	1586	299	3
RTOR Reduction (vph)	0	295	0	0	0	0
Lane Group Flow (vph)	86	28	15	1586	302	0
Heavy Vehicles (%)	0%	1%	0%	0%	4%	0%
Turn Type		Perm	pm+pt			
Protected Phases	4		5	2	6	
Permitted Phases		4	2			
Actuated Green, G (s)	9.7	9.7	90.7	90.7	85.0	
Effective Green, g (s)	9.7	9.7	90.7	90.7	85.0	
Actuated g/C Ratio	0.09	0.09	0.82	0.82	0.77	
Clearance Time (s)	4.5	4.5	3.5	5.5	5.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	159	140	862	1553	2669	
v/s Ratio Prot	c0.05		0.00	c0.84	0.09	
v/s Ratio Perm		0.02	0.01			
v/c Ratio	0.54	0.20	0.02	1.02	0.11	
Uniform Delay, d1	48.2	46.8	1.8	9.9	3.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	3.7	0.7	0.0	28.4	0.1	
Delay (s)	51.9	47.5	1.8	38.2	3.3	
Level of Service	D	D	A	D	A	
Approach Delay (s)	48.4			37.9	3.3	
Approach LOS	D			D	A	
Intersection Summary						
HCM Average Control Delay			35.2		HCM Level of Service	D
HCM Volume to Capacity ratio			0.98			
Actuated Cycle Length (s)			110.4		Sum of lost time (s)	10.0
Intersection Capacity Utilization			96.6%		ICU Level of Service	F
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

44: S.R. 11 & Poplar St.

2018, Construction (15X4), with Outage
PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1	1>	0	1	1>	0	1	1>	0	0	<1>	0
Volume (vph)	26	836	30	34	1461	0	116	69	95	17	30	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		3.0	5.0		4.0	4.0			4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00			1.00	
Frt	1.00	0.99		1.00	1.00		1.00	0.91			0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.99	
Satd. Flow (prot)	1805	1854		1805	1881		1789	1735			1788	
Flt Permitted	0.04	1.00		0.95	1.00		0.64	1.00			0.79	
Satd. Flow (perm)	75	1854		1805	1881		1197	1735			1427	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	26	836	30	34	1461	0	116	69	95	17	30	26
RTOR Reduction (vph)	0	1	0	0	0	0	0	0	0	0	16	0
Lane Group Flow (vph)	26	865	0	34	1461	0	116	164	0	0	57	0
Confl. Peds. (#/hr)							3					
Heavy Vehicles (%)	0%	2%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm			Prot			Perm			Perm		
Protected Phases		2		1	6			8			4	
Permitted Phases	2						8			4		
Actuated Green, G (s)	101.4	101.4		8.0	112.4		18.6	18.6			18.6	
Effective Green, g (s)	101.4	101.4		8.0	112.4		18.6	18.6			18.6	
Actuated g/C Ratio	0.72	0.72		0.06	0.80		0.13	0.13			0.13	
Clearance Time (s)	5.0	5.0		3.0	5.0		4.0	4.0			4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	54	1343		103	1510		159	231			190	
v/s Ratio Prot		0.47		0.02	c0.78			0.09				
v/s Ratio Perm	0.35						c0.10				0.04	
v/c Ratio	0.48	0.64		0.33	0.97		0.73	0.71			0.30	
Uniform Delay, d1	8.2	10.0		63.4	12.2		58.3	58.1			54.8	
Progression Factor	0.96	0.97		1.14	0.32		1.00	1.00			1.00	
Incremental Delay, d2	27.2	2.3		0.2	2.7		15.4	9.6			0.9	
Delay (s)	35.0	12.0		72.5	6.6		73.7	67.7			55.7	
Level of Service	D	B		E	A		E	E			E	
Approach Delay (s)		12.7			8.1			70.2			55.7	
Approach LOS		B			A			E			E	

Intersection Summary

HCM Average Control Delay	17.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	101.3%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

48: S.R. 11 & Orange St.

2018, Construction (15X4), with Outage
PM

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	0	1	1	0	1	0
Volume (vph)	0	797	1771	0	125	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		-1%	0%		0%	
Total Lost time (s)		4.0	4.0		4.0	
Lane Util. Factor		1.00	1.00		1.00	
Frt		1.00	1.00		1.00	
Flt Protected		1.00	1.00		0.95	
Satd. Flow (prot)		1891	1900		1805	
Flt Permitted		1.00	1.00		0.95	
Satd. Flow (perm)		1891	1900		1805	
Peak-hour factor, PHF	1.00	1.00	1.00	0.93	1.00	1.00
Adj. Flow (vph)	0	797	1771	0	125	4
RTOR Reduction (vph)	0	0	0	0	1	0
Lane Group Flow (vph)	0	797	1771	0	128	0
Heavy Vehicles (%)	0%	1%	0%	2%	0%	0%
Turn Type						
Protected Phases		2	6		8	
Permitted Phases						
Actuated Green, G (s)		123.0	123.0		9.0	
Effective Green, g (s)		123.0	123.0		9.0	
Actuated g/C Ratio		0.88	0.88		0.06	
Clearance Time (s)		4.0	4.0		4.0	
Vehicle Extension (s)		3.0	3.0		3.0	
Lane Grp Cap (vph)		1661	1669		116	
v/s Ratio Prot		0.42	c0.93		c0.07	
v/s Ratio Perm						
v/c Ratio		0.48	1.06		1.10	
Uniform Delay, d1		1.8	8.5		65.5	
Progression Factor		0.57	2.13		1.00	
Incremental Delay, d2		0.8	37.6		114.3	
Delay (s)		1.8	55.7		179.8	
Level of Service		A	E		F	
Approach Delay (s)		1.8	55.7		179.8	
Approach LOS		A	E		F	
Intersection Summary						
HCM Average Control Delay			45.7		HCM Level of Service	D
HCM Volume to Capacity ratio			1.06			
Actuated Cycle Length (s)			140.0		Sum of lost time (s)	8.0
Intersection Capacity Utilization			107.0%		ICU Level of Service	G
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

51: S.R. 11 (Second St.) & LaSalle St.

2018, Construction (15X4), with Outage
PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	NWL	NWR
Lane Configurations	1	0	0	1	2>	0	0	1	0	0
Volume (vph)	69	0	0	4	1991	34	0	168	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0	4.0			4.0		
Lane Util. Factor	1.00			1.00	0.95			1.00		
Frt	1.00			1.00	1.00			0.86		
Flt Protected	0.95			0.95	1.00			1.00		
Satd. Flow (prot)	1805			1805	3601			1644		
Flt Permitted	0.95			0.95	1.00			1.00		
Satd. Flow (perm)	1805			1805	3601			1644		
Peak-hour factor, PHF	1.00	0.90	1.00	1.00	1.00	1.00	1.00	1.00	0.92	0.92
Adj. Flow (vph)	69	0	0	4	1991	34	0	168	0	0
RTOR Reduction (vph)	0	0	0	0	1	0	0	29	0	0
Lane Group Flow (vph)	69	0	0	4	2024	0	0	139	0	0
Heavy Vehicles (%)	0%	2%	0%	0%	0%	0%	0%	0%	2%	2%
Turn Type	Prot			Split				Over		
Protected Phases	8			1	1			8		
Permitted Phases										
Actuated Green, G (s)	17.0			115.0	115.0			17.0		
Effective Green, g (s)	17.0			115.0	115.0			17.0		
Actuated g/C Ratio	0.12			0.82	0.82			0.12		
Clearance Time (s)	4.0			4.0	4.0			4.0		
Vehicle Extension (s)	3.0			3.0	3.0			3.0		
Lane Grp Cap (vph)	219			1483	2958			200		
v/s Ratio Prot	0.04			0.00	c0.56			c0.08		
v/s Ratio Perm										
v/c Ratio	0.32			0.00	0.68			0.70		
Uniform Delay, d1	56.2			2.2	5.1			59.0		
Progression Factor	0.96			1.44	1.12			1.00		
Incremental Delay, d2	0.7			0.0	0.7			10.0		
Delay (s)	54.8			3.2	6.5			69.0		
Level of Service	D			A	A			E		
Approach Delay (s)		54.8			6.4		69.0		0.0	
Approach LOS		D			A		E		A	
Intersection Summary										
HCM Average Control Delay			12.6			HCM Level of Service			B	
HCM Volume to Capacity ratio			0.69							
Actuated Cycle Length (s)			140.0			Sum of lost time (s)			8.0	
Intersection Capacity Utilization			73.2%			ICU Level of Service			D	
Analysis Period (min)			15							
c Critical Lane Group										

HCM Signalized Intersection Capacity Analysis

55: S.R. 11 & Bell Bend Site Entrance

2018, Construction (15X4), with Outage
PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	2	1	0	1	2>	0	0	<1>	0	2	0	2
Volume (vph)	3	197	0	0	621	1	0	0	0	1404	0	1559
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			2%			0%			0%	
Total Lost time (s)	5.5	5.5			5.5					4.5		4.5
Lane Util. Factor	0.97	1.00			0.95					0.97		0.88
Frt	1.00	1.00			1.00					1.00		0.85
Flt Protected	0.95	1.00			1.00					0.95		1.00
Satd. Flow (prot)	2730	1881			3570					3502		2842
Flt Permitted	0.95	1.00			1.00					0.95		1.00
Satd. Flow (perm)	2730	1881			3570					3502		2842
Peak-hour factor, PHF	1.00	1.00	0.92	0.92	1.00	1.00	0.92	0.92	0.92	1.00	0.92	1.00
Adj. Flow (vph)	3	197	0	0	621	1	0	0	0	1404	0	1559
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	3	197	0	0	622	0	0	0	0	1404	0	1559
Heavy Vehicles (%)	27%	0%	2%	2%	0%	49%	2%	2%	2%	0%	2%	0%
Turn Type	Prot			Perm			Split			Prot		custom
Protected Phases	6	1			5		7	7		8		8 6
Permitted Phases				5								
Actuated Green, G (s)	6.0	28.6			17.1					41.3		51.8
Effective Green, g (s)	6.0	28.6			17.1					41.3		51.8
Actuated g/C Ratio	0.08	0.36			0.21					0.52		0.65
Clearance Time (s)	5.5	5.5			5.5					4.5		
Vehicle Extension (s)	3.0	3.0			3.0					3.0		
Lane Grp Cap (vph)	205	673			764					1810		1842
v/s Ratio Prot	0.00	0.10			c0.17					0.40		c0.55
v/s Ratio Perm												
v/c Ratio	0.01	0.29			0.81					0.78		0.85
Uniform Delay, d1	34.2	18.4			29.9					15.6		10.9
Progression Factor	1.00	1.00			1.00					1.00		1.00
Incremental Delay, d2	0.0	0.2			6.7					2.1		3.8
Delay (s)	34.2	18.6			36.5					17.7		14.7
Level of Service	C	B			D					B		B
Approach Delay (s)		18.9			36.5			0.0			16.2	
Approach LOS		B			D			A			B	

Intersection Summary

HCM Average Control Delay	19.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	79.9	Sum of lost time (s)	10.0
Intersection Capacity Utilization	80.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

67: S.R. 11 (Second St.) & Pine St.

2018, Construction (15X4), with Outage
PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	0	0	0	2>	0	1	1	0	0	1>	0
Volume (vph)	0	0	0	0	2575	68	68	111	0	0	0	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)	0%				0%			1%		1%		
Total Lost time (s)					4.0			4.0		4.0		
Lane Util. Factor					0.95			1.00		1.00		
Frt					1.00			1.00		0.86		
Flt Protected					1.00			0.95		1.00		
Satd. Flow (prot)					3596			1796		1890		
Flt Permitted					1.00			0.74		1.00		
Satd. Flow (perm)					3596			1394		1890		
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	0	2575	68	68	111	0	0	0	30
RTOR Reduction (vph)	0	0	0	0	3	0	0	0	0	0	11	0
Lane Group Flow (vph)	0	0	0	0	2640	0	68	111	0	0	19	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm											
Protected Phases					8			2		6		
Permitted Phases								2				
Actuated Green, G (s)					55.0			7.0		7.0		
Effective Green, g (s)					55.0			7.0		7.0		
Actuated g/C Ratio					0.79			0.10		0.10		
Clearance Time (s)					4.0			4.0		4.0		
Lane Grp Cap (vph)					2825			139		189		
v/s Ratio Prot					c0.73			c0.06		0.01		
v/s Ratio Perm								0.05				
v/c Ratio					0.93			0.49		0.59		
Uniform Delay, d1					6.1			29.8		30.1		
Progression Factor					1.09			1.00		1.00		
Incremental Delay, d2					7.3			11.8		12.7		
Delay (s)					13.9			41.6		42.8		
Level of Service					B			D		D		
Approach Delay (s)	0.0				13.9			42.3		30.1		
Approach LOS	A				B			D		C		
Intersection Summary												
HCM Average Control Delay			15.9		HCM Level of Service				B			
HCM Volume to Capacity ratio			0.90									
Actuated Cycle Length (s)			70.0		Sum of lost time (s)				8.0			
Intersection Capacity Utilization			90.4%		ICU Level of Service				E			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

68: S.R. 11 & Orchard St.

2018, Construction (15X4), with Outage
PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1	1>	0	1	1>	0	0	<1>	0	0	<1>	0
Volume (vph)	17	744	0	4	1658	0	43	26	64	21	17	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	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	
Frt	1.00	1.00		1.00	1.00			0.94			0.95	
Flt Protected	0.95	1.00		0.95	1.00			0.98			0.98	
Satd. Flow (prot)	1805	1845		1805	1881			1748			1777	
Flt Permitted	0.04	1.00		0.34	1.00			0.98			0.98	
Satd. Flow (perm)	67	1845		644	1881			1748			1777	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	17	744	0	4	1658	0	43	26	64	21	17	21
RTOR Reduction (vph)	0	0	0	0	0	0	0	24	0	0	14	0
Lane Group Flow (vph)	17	744	0	4	1658	0	0	109	0	0	45	0
Heavy Vehicles (%)	0%	3%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm			Perm			Split			Split		
Protected Phases		2			6		3	3		4	4	
Permitted Phases	2			6								
Actuated Green, G (s)	114.2	114.2		114.2	114.2			6.0			4.8	
Effective Green, g (s)	114.2	114.2		114.2	114.2			6.0			4.8	
Actuated g/C Ratio	0.82	0.82		0.82	0.82			0.04			0.03	
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	55	1505		525	1534			75			61	
v/s Ratio Prot		0.40			c0.88			c0.06			c0.03	
v/s Ratio Perm	0.26			0.01								
v/c Ratio	0.31	0.49		0.01	1.08			1.45			0.73	
Uniform Delay, d1	3.2	4.0		2.4	12.9			67.0			67.0	
Progression Factor	1.59	1.75		0.54	0.45			1.00			1.00	
Incremental Delay, d2	11.1	0.9		0.0	37.7			263.9			35.1	
Delay (s)	16.2	7.9		1.3	43.5			330.9			102.1	
Level of Service	B	A		A	D			F			F	
Approach Delay (s)		8.1			43.4			330.9			102.1	
Approach LOS		A			D			F			F	

Intersection Summary

HCM Average Control Delay	49.1	HCM Level of Service	D
HCM Volume to Capacity ratio	1.09		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	105.3%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

71: S.R. 11 (Second St.) & Oak St.

2018, Construction (15X4), with Outage
PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	0	0	0	<2>	0	0	<1	0	0	1>	0
Volume (vph)	0	0	0	26	1854	17	34	77	0	0	43	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)	0%				-1%				1%			
Total Lost time (s)					6.0				5.0			
Lane Util. Factor					0.95				1.00			
Frt					1.00				1.00			
Flt Protected					1.00				0.98			
Satd. Flow (prot)					3578				1800			
Flt Permitted					1.00				0.89			
Satd. Flow (perm)					3578				1620			
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	26	1854	17	34	77	0	0	43	64
RTOR Reduction (vph)	0	0	0	0	1	0	0	0	0	0	14	0
Lane Group Flow (vph)	0	0	0	0	1896	0	0	111	0	0	93	0
Heavy Vehicles (%)	0%	0%	0%	0%	1%	25%	0%	5%	0%	0%	0%	0%
Turn Type	Perm				Perm							
Protected Phases					1				2			
Permitted Phases					1				2			
Actuated Green, G (s)					43.0				16.0			
Effective Green, g (s)					43.0				16.0			
Actuated g/C Ratio					0.61				0.23			
Clearance Time (s)					6.0				5.0			
Lane Grp Cap (vph)					2198				370			
v/s Ratio Prot									0.05			
v/s Ratio Perm					0.53				c0.07			
v/c Ratio					0.86				0.30			
Uniform Delay, d1					11.1				22.4			
Progression Factor					0.26				1.00			
Incremental Delay, d2					2.9				2.1			
Delay (s)					5.9				24.4			
Level of Service					A				C			
Approach Delay (s)	0.0				5.9				24.4			
Approach LOS	A				A				C			
Intersection Summary												
HCM Average Control Delay	7.7				HCM Level of Service				A			
HCM Volume to Capacity ratio	0.71											
Actuated Cycle Length (s)	70.0				Sum of lost time (s)				11.0			
Intersection Capacity Utilization	74.3%				ICU Level of Service				D			
Analysis Period (min)	15											
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

74: Third St. & Market St.

2018, Construction (15X4), with Outage
PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	<1>	0	0	<1>	0	1	1>	0	1	1>	0
Volume (vph)	106	94	81	30	123	21	26	230	21	13	285	94
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			0%			0%			0%	
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.96			0.98		1.00	0.99		1.00	0.96	
Flt Protected		0.98			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1783			1853		1805	1876		1805	1829	
Flt Permitted		0.83			0.92		0.43	1.00		0.56	1.00	
Satd. Flow (perm)		1503			1728		824	1876		1069	1829	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	106	94	81	30	123	21	26	230	21	13	285	94
RTOR Reduction (vph)	0	21	0	0	7	0	0	5	0	0	17	0
Lane Group Flow (vph)	0	260	0	0	167	0	26	246	0	13	362	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			1			1	
Permitted Phases	2			2			1			1		
Actuated Green, G (s)		30.0			30.0		32.0	32.0		32.0	32.0	
Effective Green, g (s)		30.0			30.0		32.0	32.0		32.0	32.0	
Actuated g/C Ratio		0.43			0.43		0.46	0.46		0.46	0.46	
Clearance Time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)		644			741		377	858		489	836	
v/s Ratio Prot								0.13			c0.20	
v/s Ratio Perm		c0.17			0.10		0.03			0.01		
v/c Ratio		0.40			0.23		0.07	0.29		0.03	0.43	
Uniform Delay, d1		13.8			12.7		10.7	11.9		10.4	12.9	
Progression Factor		1.00			1.00		0.63	0.56		1.00	1.00	
Incremental Delay, d2		1.9			0.7		0.4	0.8		0.1	1.6	
Delay (s)		15.7			13.4		7.0	7.4		10.5	14.5	
Level of Service		B			B		A	A		B	B	
Approach Delay (s)		15.7			13.4			7.4			14.4	
Approach LOS		B			B			A			B	
Intersection Summary												
HCM Average Control Delay			12.8			HCM Level of Service				B		
HCM Volume to Capacity ratio			0.42									
Actuated Cycle Length (s)			70.0			Sum of lost time (s)			8.0			
Intersection Capacity Utilization			56.8%			ICU Level of Service			B			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

77: S.R. 11 (Second St.) & Mulberry St.

2018, Construction (15X4), with Outage
PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	0	0	0	<2>	0	0	<1	0	0	1>	0
Volume (vph)	0	0	0	43	1841	47	51	77	0	0	26	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)	1%				0%				1%			
Total Lost time (s)					4.0				4.0			
Lane Util. Factor					0.95				1.00			
Frt					1.00				1.00			
Flt Protected					1.00				0.98			
Satd. Flow (prot)					3593				1854			
Flt Permitted					1.00				0.86			
Satd. Flow (perm)					3593				1617			
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	43	1841	47	51	77	0	0	26	77
RTOR Reduction (vph)	0	0	0	0	2	0	0	0	0	0	19	0
Lane Group Flow (vph)	0	0	0	0	1929	0	0	128	0	0	84	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	16%	0%
Turn Type				Split			Perm					
Protected Phases				1			1			2		
Permitted Phases							2					
Actuated Green, G (s)							46.0			16.0		
Effective Green, g (s)							46.0			16.0		
Actuated g/C Ratio							0.66			0.23		
Clearance Time (s)							4.0			4.0		
Lane Grp Cap (vph)							2361			370		
v/s Ratio Prot							c0.54			0.05		
v/s Ratio Perm										c0.08		
v/c Ratio							0.82			0.35		
Uniform Delay, d1							8.9			22.6		
Progression Factor							0.26			0.75		
Incremental Delay, d2							1.9			2.4		
Delay (s)							4.2			19.4		
Level of Service							A			B		
Approach Delay (s)	0.0						4.2			19.4		
Approach LOS	A						A			B		
Intersection Summary												
HCM Average Control Delay			6.0			HCM Level of Service			A			
HCM Volume to Capacity ratio			0.70									
Actuated Cycle Length (s)			70.0			Sum of lost time (s)			8.0			
Intersection Capacity Utilization			73.8%			ICU Level of Service			D			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

78: S.R. 11 (Front St.) & Mulberry St.

2018, Construction (15X4), with Outage
PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	<2>	0	0	0	0	0	1>	0	0	<1	0
Volume (vph)	85	1132	21	0	0	0	0	4	4	72	21	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-1%			1%			-1%	
Total Lost time (s)		4.0						4.0			4.0	
Lane Util. Factor		0.95						1.00			1.00	
Frt		1.00						0.93			1.00	
Flt Protected		1.00						1.00			0.96	
Satd. Flow (prot)		3538						1763			1838	
Flt Permitted		1.00						1.00			0.80	
Satd. Flow (perm)		3538						1763			1524	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	85	1132	21	0	0	0	0	4	4	72	21	0
RTOR Reduction (vph)	0	2	0	0	0	0	0	3	0	0	0	0
Lane Group Flow (vph)	0	1236	0	0	0	0	0	5	0	0	93	0
Heavy Vehicles (%)	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Split					Perm						
Protected Phases	1	1						2			2	
Permitted Phases										2		
Actuated Green, G (s)		44.0						18.0			18.0	
Effective Green, g (s)		44.0						18.0			18.0	
Actuated g/C Ratio		0.63						0.26			0.26	
Clearance Time (s)		4.0						4.0			4.0	
Lane Grp Cap (vph)		2224						453			392	
v/s Ratio Prot		c0.35						0.00				
v/s Ratio Perm											c0.06	
v/c Ratio		0.56						0.01			0.24	
Uniform Delay, d1		7.4						19.4			20.6	
Progression Factor		0.84						1.00			1.07	
Incremental Delay, d2		1.0						0.0			1.3	
Delay (s)		7.2						19.4			23.3	
Level of Service		A						B			C	
Approach Delay (s)		7.2			0.0			19.4			23.3	
Approach LOS		A			A			B			C	
Intersection Summary												
HCM Average Control Delay			8.4		HCM Level of Service					A		
HCM Volume to Capacity ratio			0.46									
Actuated Cycle Length (s)			70.0		Sum of lost time (s)					8.0		
Intersection Capacity Utilization			52.9%		ICU Level of Service					A		
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

85: S.R. 11 & S.R. 2028

2018, Construction (15X4), with Outage
PM

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	2>	0	1	1	1	1
Volume (vph)	697	85	217	1641	72	259
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0		3.6	6.0	4.0	4.0
Lane Util. Factor	0.95		1.00	1.00	1.00	1.00
Frt	0.98		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3440		1787	1881	1805	1615
Flt Permitted	1.00		0.32	1.00	0.95	1.00
Satd. Flow (perm)	3440		600	1881	1805	1615
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	697	85	217	1641	72	259
RTOR Reduction (vph)	9	0	0	0	0	0
Lane Group Flow (vph)	773	0	217	1641	72	259
Heavy Vehicles (%)	3%	5%	1%	1%	0%	0%
Turn Type			pm+pt		pt+ov	
Protected Phases	4		3	8	2	2 3
Permitted Phases			8			
Actuated Green, G (s)	67.3		86.0	86.0	4.0	23.1
Effective Green, g (s)	67.3		86.0	86.0	4.0	23.1
Actuated g/C Ratio	0.67		0.86	0.86	0.04	0.23
Clearance Time (s)	6.0		3.6	6.0	4.0	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	2315		695	1618	72	373
v/s Ratio Prot	0.22		0.05	c0.87	c0.04	0.16
v/s Ratio Perm			0.22			
v/c Ratio	0.33		0.31	1.01	1.00	0.69
Uniform Delay, d1	6.9		1.5	7.0	48.0	35.2
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4		0.3	26.0	106.1	5.5
Delay (s)	7.3		1.8	33.0	154.1	40.7
Level of Service	A		A	C	F	D
Approach Delay (s)	7.3			29.3	65.4	
Approach LOS	A			C	E	
Intersection Summary						
HCM Average Control Delay			27.5		HCM Level of Service	C
HCM Volume to Capacity ratio			1.01			
Actuated Cycle Length (s)			100.0		Sum of lost time (s)	10.0
Intersection Capacity Utilization			98.7%		ICU Level of Service	F
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

103: S.R. 93 (Third St.) & S.R. 339 (Broad St.)

2018, Construction (15X4), with Outage
PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	<1	0	0	<1>	0	0	<1>	0	0	<1>	0
Volume (vph)	0	1017	132	29	283	0	87	8	50	21	4	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			-1%			0%			0%	
Total Lost time (s)		6.5			6.5			6.0			6.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.98			1.00			0.95			0.98	
Flt Protected		1.00			1.00			0.97			0.97	
Satd. Flow (prot)		1854			1818			1712			1799	
Flt Permitted		1.00			0.75			0.80			0.74	
Satd. Flow (perm)		1854			1376			1409			1376	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	1017	132	29	283	0	87	8	50	21	4	4
RTOR Reduction (vph)	0	6	0	0	0	0	0	28	0	0	4	0
Lane Group Flow (vph)	0	1143	0	0	312	0	0	117	0	0	25	0
Heavy Vehicles (%)	0%	1%	0%	0%	5%	0%	0%	0%	8%	0%	0%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		52.3			52.3			7.8			7.8	
Effective Green, g (s)		52.3			52.3			7.8			7.8	
Actuated g/C Ratio		0.72			0.72			0.11			0.11	
Clearance Time (s)		6.5			6.5			6.0			6.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		1336			991			151			148	
v/s Ratio Prot		c0.62										
v/s Ratio Perm					0.23			c0.08			0.02	
v/c Ratio		0.86			0.31			0.78			0.17	
Uniform Delay, d1		7.4			3.7			31.6			29.5	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		7.2			0.8			21.8			0.6	
Delay (s)		14.6			4.5			53.3			30.0	
Level of Service		B			A			D			C	
Approach Delay (s)		14.6			4.5			53.3			30.0	
Approach LOS		B			A			D			C	
Intersection Summary												
HCM Average Control Delay			16.4			HCM Level of Service			B			
HCM Volume to Capacity ratio			0.85									
Actuated Cycle Length (s)			72.6			Sum of lost time (s)			12.5			
Intersection Capacity Utilization			80.9%			ICU Level of Service			D			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

106: S.R. 93 (Third St.) & Dewey St.

2018, Construction (15X4), with Outage
PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	0	<1>	0	0	<1>	0	0	<1>	0	0	<1>	0
Volume (vph)	8	1034	8	0	308	4	8	1	4	0	1	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			0%			0%			0%	
Total Lost time (s)		5.0			5.0			5.0			5.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		1.00			1.00			0.96			0.89	
Flt Protected		1.00			1.00			0.97			1.00	
Satd. Flow (prot)		1888			1860			1767			1695	
Flt Permitted		1.00			1.00			1.00			1.00	
Satd. Flow (perm)		1884			1860			1821			1695	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	8	1034	8	0	308	4	8	1	4	0	1	4
RTOR Reduction (vph)	0	0	0	0	1	0	0	4	0	0	4	0
Lane Group Flow (vph)	0	1050	0	0	311	0	0	9	0	0	1	0
Heavy Vehicles (%)	0%	0%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		54.6			54.6			1.4			1.4	
Effective Green, g (s)		54.6			54.6			1.4			1.4	
Actuated g/C Ratio		0.83			0.83			0.02			0.02	
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)		1559			1539			39			36	
v/s Ratio Prot					0.17						0.00	
v/s Ratio Perm		c0.56						c0.00				
v/c Ratio		0.67			0.20			0.23			0.03	
Uniform Delay, d1		2.2			1.2			31.8			31.6	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		2.3			0.3			3.1			0.3	
Delay (s)		4.6			1.5			34.8			32.0	
Level of Service		A			A			C			C	
Approach Delay (s)		4.6			1.5			34.8			32.0	
Approach LOS		A			A			C			C	
Intersection Summary												
HCM Average Control Delay			4.3								A	
HCM Volume to Capacity ratio			0.66									
Actuated Cycle Length (s)			66.0							10.0		
Intersection Capacity Utilization			77.0%								D	
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

112: S.R. 11 & Briar Creek Plaza Driveways

2018, Construction (15X4), with Outage
PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1	1>	0	1	2>	0	1	1>	0	1	1	1
Volume (vph)	51	553	34	21	1505	204	77	4	34	200	4	191
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	16	16
Grade (%)		1%			-1%			1%			2%	
Total Lost time (s)	3.5	5.3		5.3	5.3		5.2	5.2		5.2	5.2	5.2
Lane Util. Factor	1.00	1.00		1.00	0.95		1.00	1.00		1.00	1.00	1.00
Fr't	1.00	0.99		1.00	0.98		1.00	0.87		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)	1796	1806		1814	3532		1796	1637		1787	2132	1812
Flt Permitted	0.10	1.00		0.44	1.00		0.76	1.00		0.73	1.00	1.00
Satd. Flow (perm)	180	1806		844	3532		1428	1637		1377	2132	1812
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	51	553	34	21	1505	204	77	4	34	200	4	191
RTOR Reduction (vph)	0	3	0	0	15	0	0	28	0	0	0	92
Lane Group Flow (vph)	51	584	0	21	1694	0	77	10	0	200	4	99
Heavy Vehicles (%)	0%	4%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt			Perm			Perm			Perm		Perm
Protected Phases	5	2			6			8			8	
Permitted Phases	2			6			8			8		8
Actuated Green, G (s)	43.7	43.7		38.4	38.4		11.6	11.6		11.6	11.6	11.6
Effective Green, g (s)	43.7	43.7		38.4	38.4		11.6	11.6		11.6	11.6	11.6
Actuated g/C Ratio	0.66	0.66		0.58	0.58		0.18	0.18		0.18	0.18	0.18
Clearance Time (s)	3.5	5.3		5.3	5.3		5.2	5.2		5.2	5.2	5.2
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	164	1199		493	2061		252	289		243	376	319
v/s Ratio Prot	0.01	c0.32			c0.48			0.01			0.00	
v/s Ratio Perm	0.20			0.02			0.05			c0.15		0.05
v/c Ratio	0.31	0.49		0.04	0.82		0.31	0.03		0.82	0.01	0.31
Uniform Delay, d1	9.4	5.5		5.9	11.0		23.6	22.5		26.1	22.4	23.6
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	1.4		0.2	3.8		0.7	0.0		19.7	0.0	0.6
Delay (s)	10.5	6.9		6.0	14.8		24.3	22.5		45.8	22.4	24.2
Level of Service	B	A		A	B		C	C		D	C	C
Approach Delay (s)		7.2			14.7			23.7			35.1	
Approach LOS		A			B			C			D	

Intersection Summary

HCM Average Control Delay	16.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	65.8	Sum of lost time (s)	15.8
Intersection Capacity Utilization	77.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

115: S.R. 11 & Eaton St.

2018, Construction (15X4), with Outage
PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1	1>	0	1	1>	0	0	<1	1	0	<1>	0
Volume (vph)	60	604	26	9	1786	26	30	0	13	4	4	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0			4.0	4.0		4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	
Frt	1.00	0.99		1.00	1.00			1.00	0.85		0.88	
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00		1.00	
Satd. Flow (prot)	1805	1853		1805	1896			1805	1615		1566	
Flt Permitted	0.03	1.00		0.42	1.00			1.00	1.00		0.97	
Satd. Flow (perm)	59	1853		802	1896			1900	1615		1528	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	60	604	26	9	1786	26	30	0	13	4	4	51
RTOR Reduction (vph)	0	1	0	0	0	0	0	0	13	0	50	0
Lane Group Flow (vph)	60	629	0	9	1812	0	0	30	0	0	9	0
Heavy Vehicles (%)	0%	2%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%
Turn Type	Perm			Perm			Perm			Perm		Perm
Protected Phases	4			8			2			6		
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	128.6	128.6		128.6	128.6			2.4	2.4		2.4	
Effective Green, g (s)	128.6	128.6		128.6	128.6			2.4	2.4		2.4	
Actuated g/C Ratio	0.92	0.92		0.92	0.92			0.02	0.02		0.02	
Clearance Time (s)	5.0	5.0		5.0	5.0			4.0	4.0		4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)	54	1702		737	1742			33	28		26	
v/s Ratio Prot		0.34			0.96							
v/s Ratio Perm	c1.02			0.01				c0.02	0.00		0.01	
v/c Ratio	1.11	0.37		0.01	1.04			0.91	0.01		0.34	
Uniform Delay, d1	5.7	0.7		0.5	5.7			68.7	67.6		68.0	
Progression Factor	1.00	1.00		0.40	0.73			1.00	1.00		1.00	
Incremental Delay, d2	156.5	0.6		0.0	27.8			118.0	0.1		7.7	
Delay (s)	162.2	1.3		0.2	31.9			186.7	67.7		75.7	
Level of Service	F	A		A	C			F	E		E	
Approach Delay (s)		15.3			31.8			150.7			75.7	
Approach LOS		B			C			F			E	

Intersection Summary

HCM Average Control Delay	30.4	HCM Level of Service	C
HCM Volume to Capacity ratio	1.10		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	111.4%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

128: S.R. 11 & County Bridge

2018, Construction (15X4), with Outage
PM

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	2>	0	1	1	1	1
Volume (vph)	1632	203	128	660	298	99
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	1%			-2%	0%	
Total Lost time (s)	7.0		7.0	7.0	7.0	7.0
Lane Util. Factor	0.95		1.00	1.00	1.00	1.00
Frt	0.98		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3532		1823	1900	1805	1615
Flt Permitted	1.00		0.07	1.00	0.95	1.00
Satd. Flow (perm)	3532		128	1900	1805	1615
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	1632	203	128	660	298	99
RTOR Reduction (vph)	9	0	0	0	0	10
Lane Group Flow (vph)	1826	0	128	660	298	89
Heavy Vehicles (%)	0%	0%	0%	1%	0%	0%
Turn Type			pm+pt			pt+ov
Protected Phases	4		3	8	2	2 3
Permitted Phases			8			
Actuated Green, G (s)	53.1		67.0	67.0	19.0	32.9
Effective Green, g (s)	53.1		67.0	67.0	19.0	32.9
Actuated g/C Ratio	0.53		0.67	0.67	0.19	0.33
Clearance Time (s)	7.0		7.0	7.0	7.0	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	1875		203	1273	343	531
v/s Ratio Prot	c0.52		0.04	c0.35	c0.17	0.06
v/s Ratio Perm			0.38			
v/c Ratio	0.97		0.63	0.52	0.87	0.17
Uniform Delay, d1	22.8		22.2	8.3	39.3	23.8
Progression Factor	0.86		1.19	0.85	1.00	1.00
Incremental Delay, d2	15.4		5.0	1.2	20.1	0.1
Delay (s)	35.1		31.5	8.3	59.4	24.0
Level of Service	D		C	A	E	C
Approach Delay (s)	35.1			12.1	50.6	
Approach LOS	D			B	D	
Intersection Summary						
HCM Average Control Delay			31.1		HCM Level of Service	C
HCM Volume to Capacity ratio			0.94			
Actuated Cycle Length (s)			100.0		Sum of lost time (s)	21.0
Intersection Capacity Utilization			92.7%		ICU Level of Service	F
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

990: S.R. 11 & S.R. 29 Mill St.

2018, Construction (15X4), with Outage
PM

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	1	0	1>	0	1	1
Volume (vph)	25	0	612	228	178	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)		1%	-1%		-1%	
Total Lost time (s)	5.0		6.0		5.0	5.0
Lane Util. Factor	1.00		1.00		1.00	1.00
Frt	1.00		0.96		1.00	0.85
Flt Protected	0.95		1.00		0.95	1.00
Satd. Flow (prot)	1796		1808		1761	1399
Flt Permitted	0.95		1.00		0.95	1.00
Satd. Flow (perm)	1796		1808		1761	1399
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	25	0	612	228	178	12
RTOR Reduction (vph)	0	0	11	0	0	8
Lane Group Flow (vph)	25	0	829	0	178	4
Heavy Vehicles (%)	0%	0%	2%	1%	3%	16%
Turn Type	Prot					Prot
Protected Phases	2		1		3	3
Permitted Phases						
Actuated Green, G (s)	2.0		67.6		14.4	14.4
Effective Green, g (s)	2.0		67.6		14.4	14.4
Actuated g/C Ratio	0.02		0.68		0.14	0.14
Clearance Time (s)	5.0		6.0		5.0	5.0
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Lane Grp Cap (vph)	36		1222		254	201
v/s Ratio Prot	c0.01		c0.46		c0.10	0.00
v/s Ratio Perm						
v/c Ratio	0.69		0.68		0.70	0.02
Uniform Delay, d1	48.7		9.7		40.7	36.7
Progression Factor	1.00		1.12		1.00	1.00
Incremental Delay, d2	44.9		2.4		8.4	0.0
Delay (s)	93.6		13.3		49.2	36.8
Level of Service	F		B		D	D
Approach Delay (s)		93.6	13.3		48.4	
Approach LOS		F	B		D	
Intersection Summary						
HCM Average Control Delay			21.5		HCM Level of Service	C
HCM Volume to Capacity ratio			0.68			
Actuated Cycle Length (s)			100.0		Sum of lost time (s)	16.0
Intersection Capacity Utilization			65.1%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						

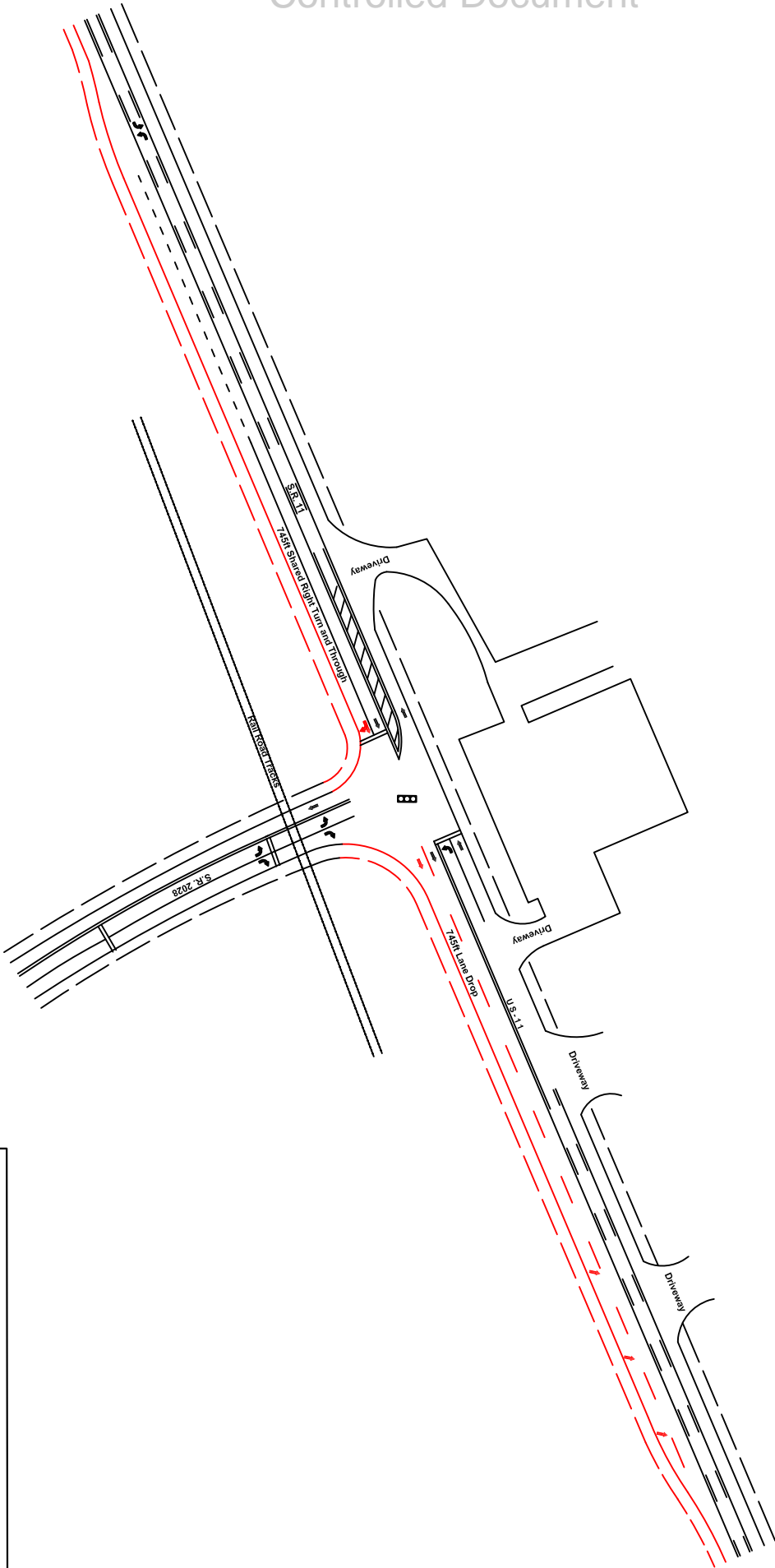
HCM Signalized Intersection Capacity Analysis

999: S.R. 11 (E. Poplar St.) & S.R. 29

2018, Construction (15X4), with Outage
PM

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	1	0	0	1	1	1
Volume (vph)	420	0	0	303	585	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5			5.5	5.5	
Lane Util. Factor	1.00			1.00	1.00	
Frt	1.00			1.00	1.00	
Flt Protected	1.00			1.00	0.95	
Satd. Flow (prot)	1900			1881	1805	
Flt Permitted	1.00			1.00	0.95	
Satd. Flow (perm)	1900			1881	1805	
Peak-hour factor, PHF	1.00	0.92	0.62	1.00	1.00	1.00
Adj. Flow (vph)	420	0	0	303	585	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	420	0	0	303	585	0
Heavy Vehicles (%)	0%	2%	20%	1%	0%	0%
Turn Type						Free
Protected Phases	4			8	2	
Permitted Phases						Free
Actuated Green, G (s)	14.7			14.7	24.3	
Effective Green, g (s)	14.7			14.7	24.3	
Actuated g/C Ratio	0.29			0.29	0.49	
Clearance Time (s)	5.5			5.5	5.5	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	559			553	877	
v/s Ratio Prot	c0.22			0.16	c0.32	
v/s Ratio Perm						
v/c Ratio	0.75			0.55	0.67	
Uniform Delay, d1	16.0			14.9	9.8	
Progression Factor	1.22			1.00	1.00	
Incremental Delay, d2	2.1			1.1	4.0	
Delay (s)	21.6			16.0	13.8	
Level of Service	C			B	B	
Approach Delay (s)	21.6			16.0	13.8	
Approach LOS	C			B	B	
Intersection Summary						
HCM Average Control Delay			16.8		HCM Level of Service	B
HCM Volume to Capacity ratio			0.70			
Actuated Cycle Length (s)			50.0		Sum of lost time (s)	11.0
Intersection Capacity Utilization			63.7%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

Note: Red indicates proposed changes

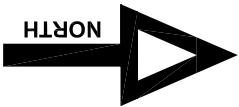
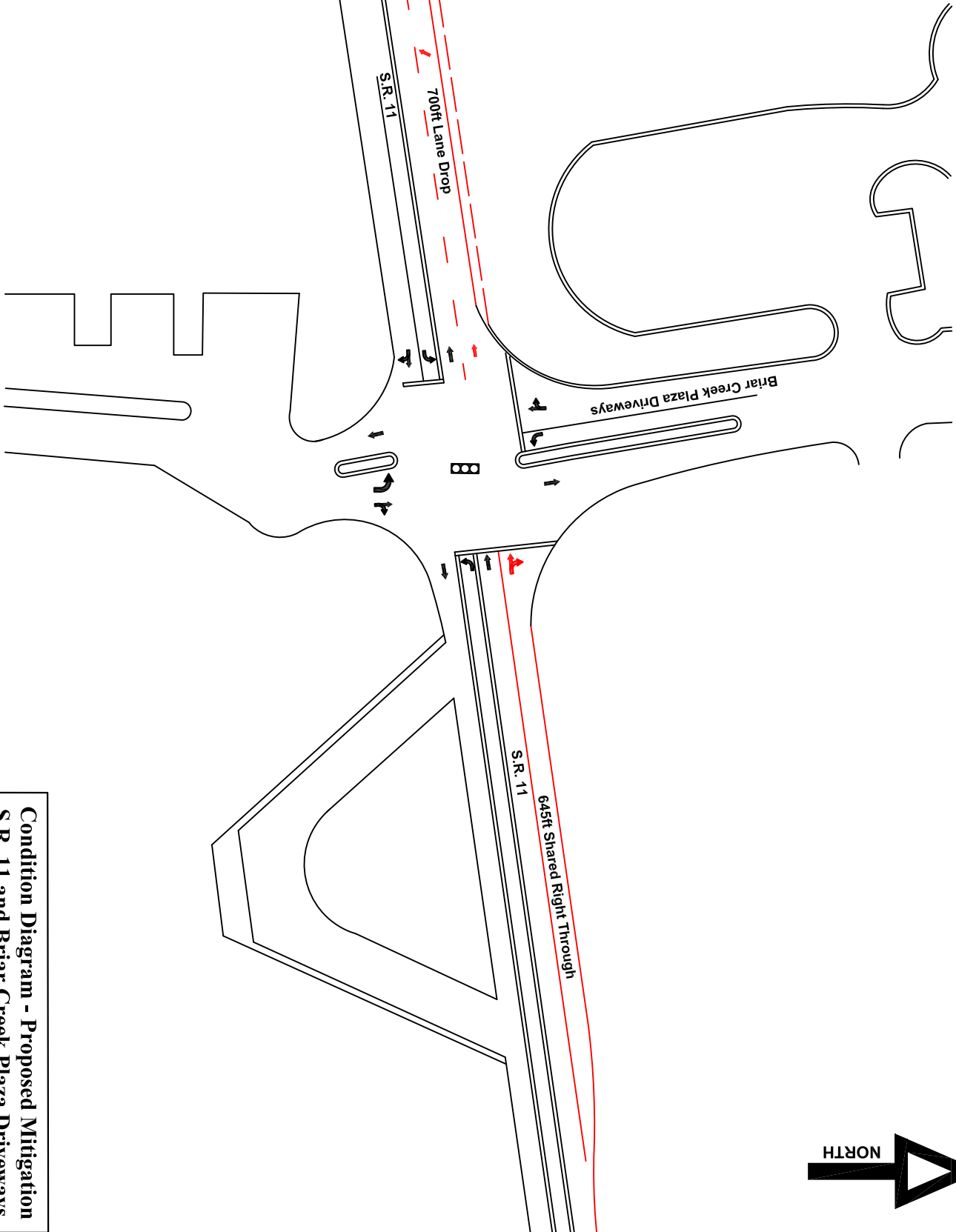


**Condition Diagram - Proposed Mitigation
S.R. 11 and S.R. 2028**

Municipality: South Centre	Date: 6/1/10	Not To Scale Signage Per MUTCD Not Shown
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KLD Engineering PC

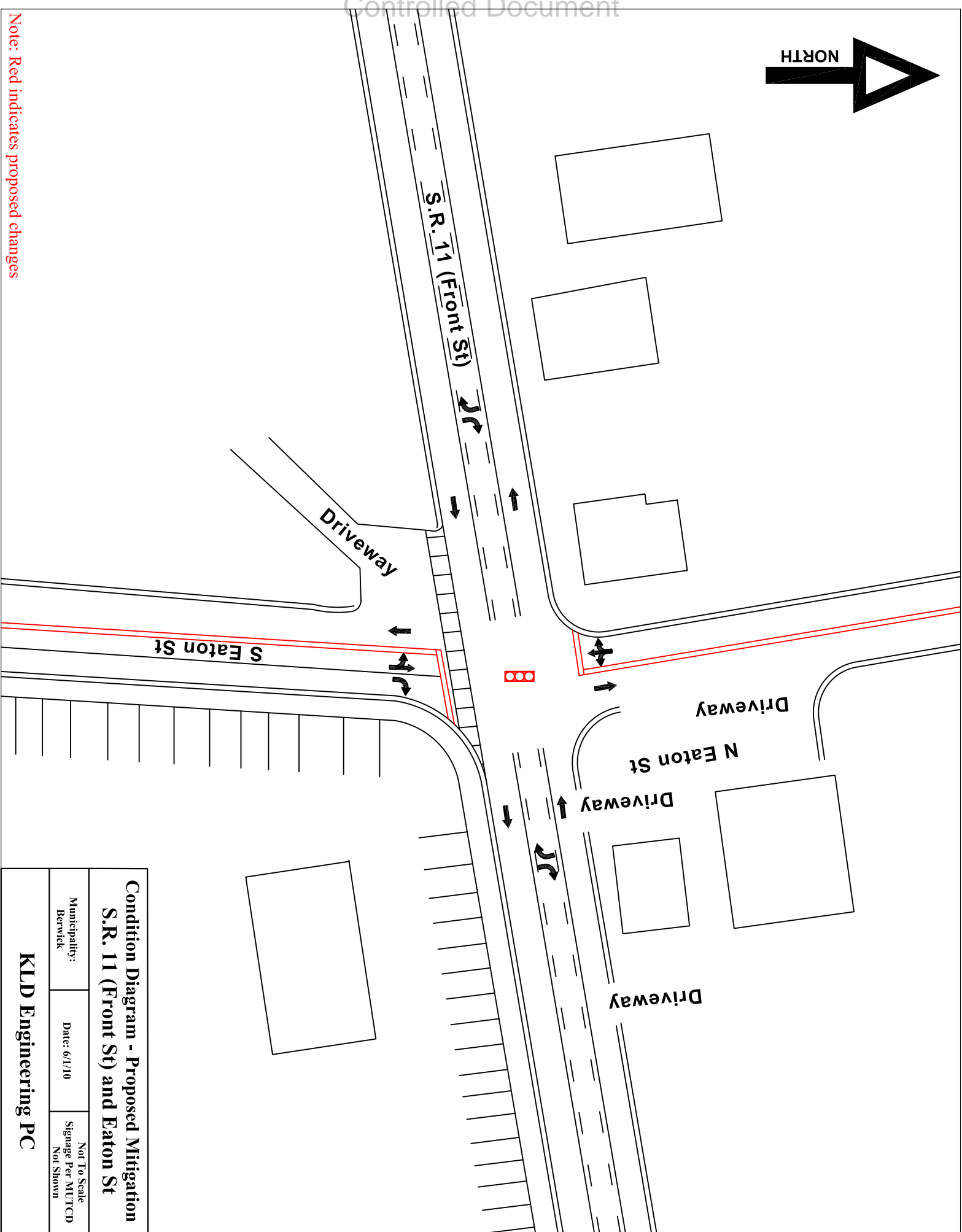
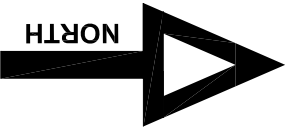
Note: Red indicates proposed changes



Condition Diagram - Proposed Mitigation
S.R. 11 and Briar Creek Plaza Driveways

Municipality: Briar Creek	Date: 6/1/10	Not To Scale Signage Per MUTCD Not Shown
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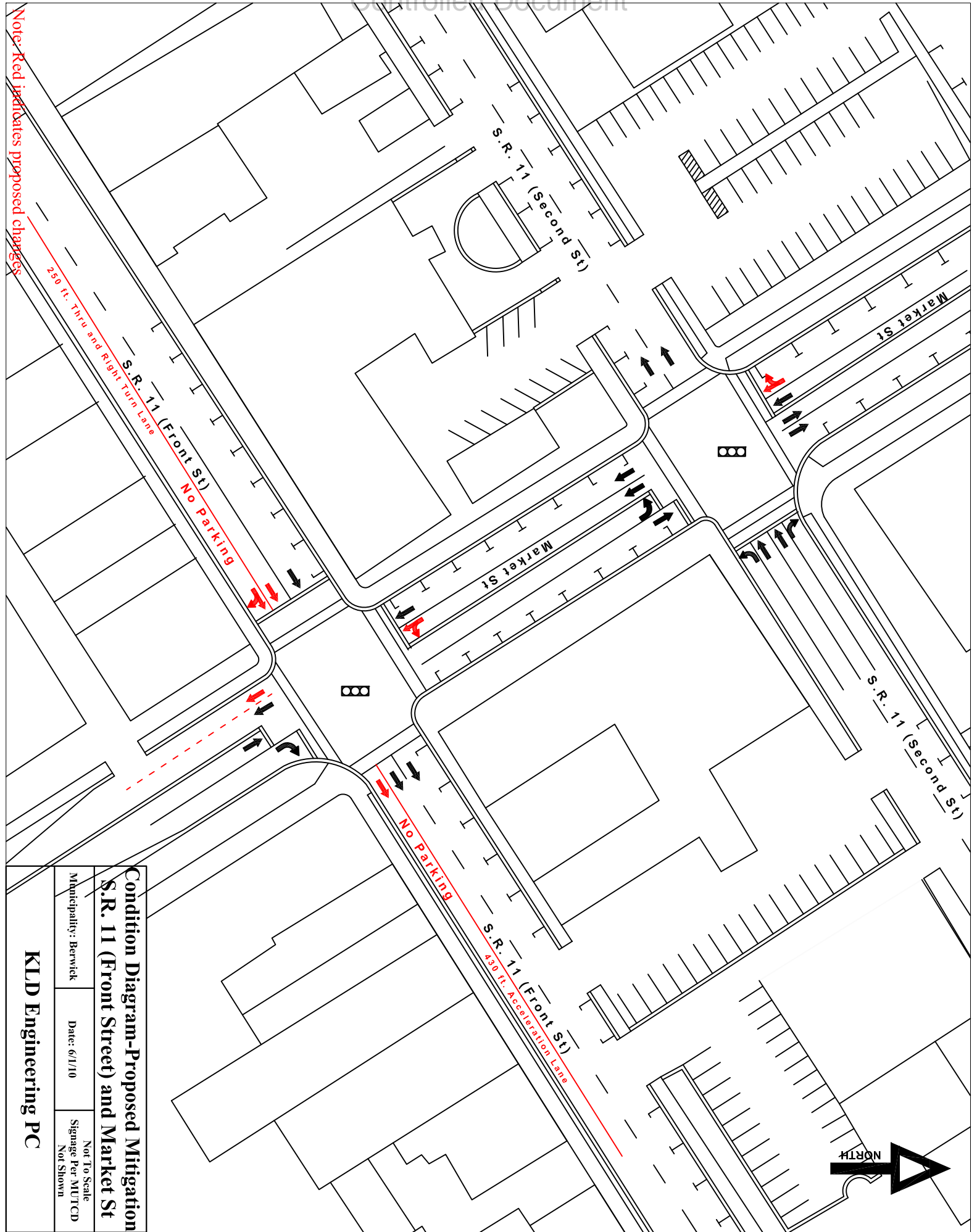
KLD Engineering PC



Note: Red indicates proposed changes

Condition Diagram - Proposed Mitigation		
S.R. 11 (Front St) and Eaton St		
Municipality: Berkwick	Date: 6/1/10	Not To Scale Signage Per MUTCD Not Shown
KLD Engineering PC		

Note: Red indicates proposed changes

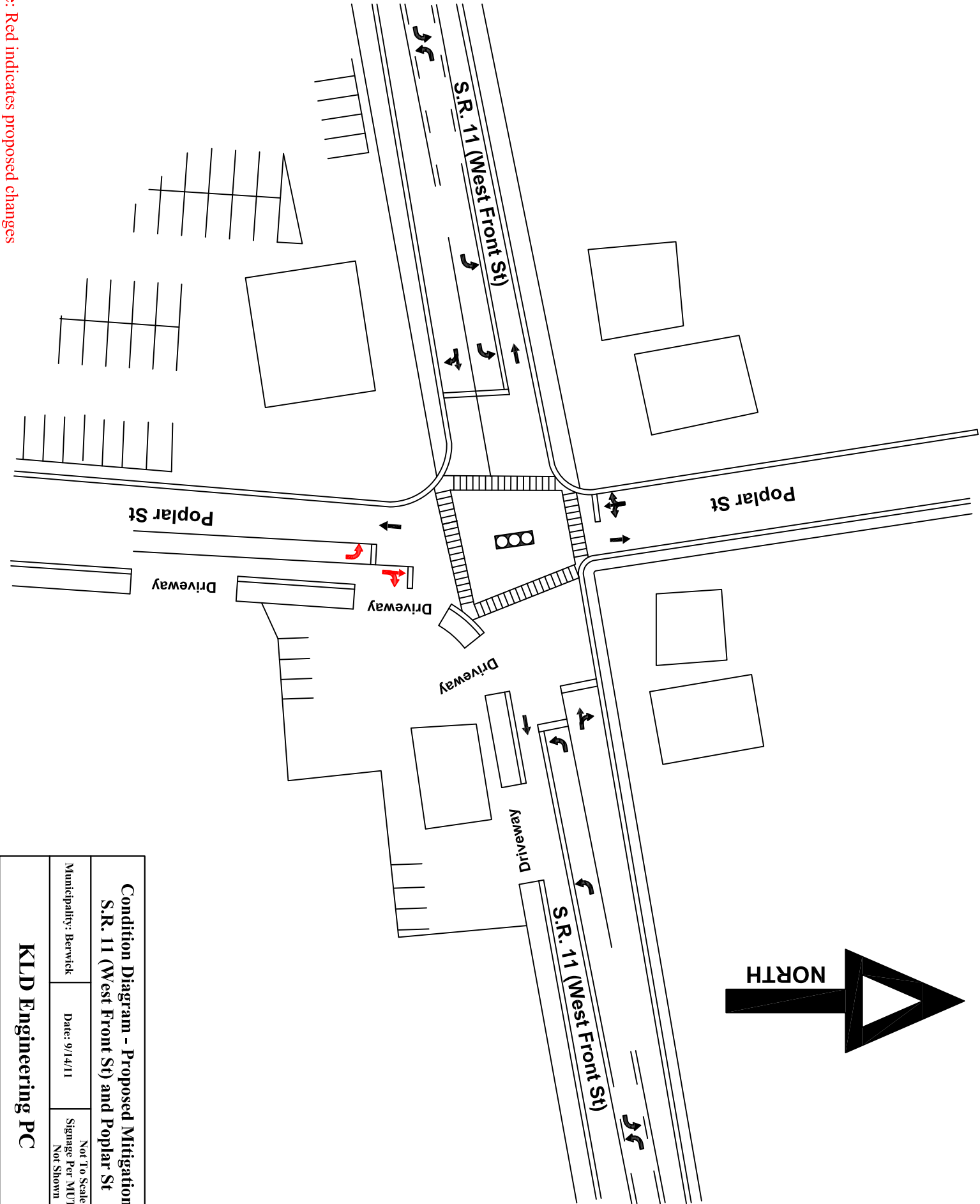


**Condition Diagram-Proposed Mitigation
S.R. 11 (Front Street) and Market St**

Municipality: Berwick	Date: 6/1/10	Not To Scale Signage Per MUTCD Not Shown
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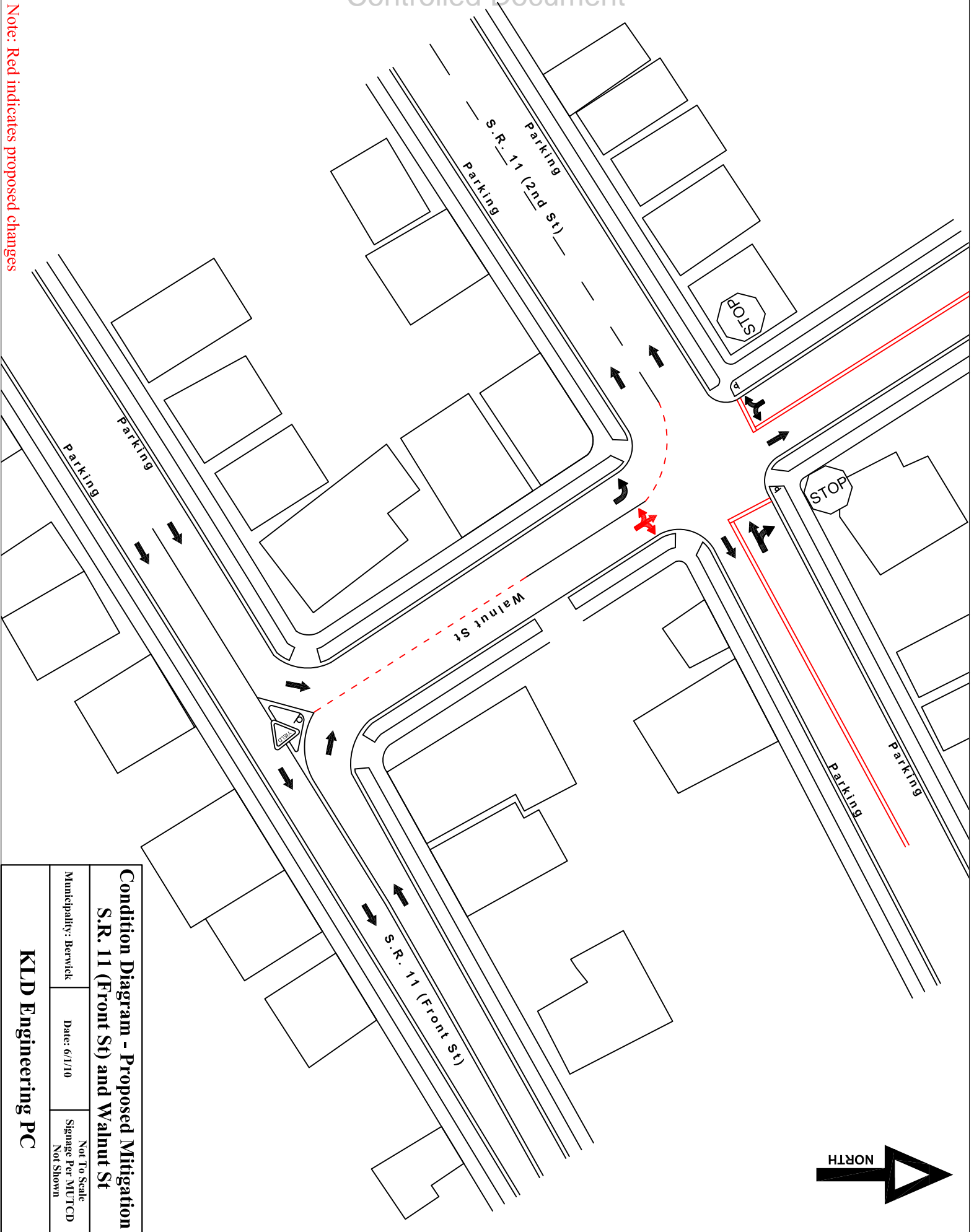
KLD Engineering PC

Note: Red indicates proposed changes

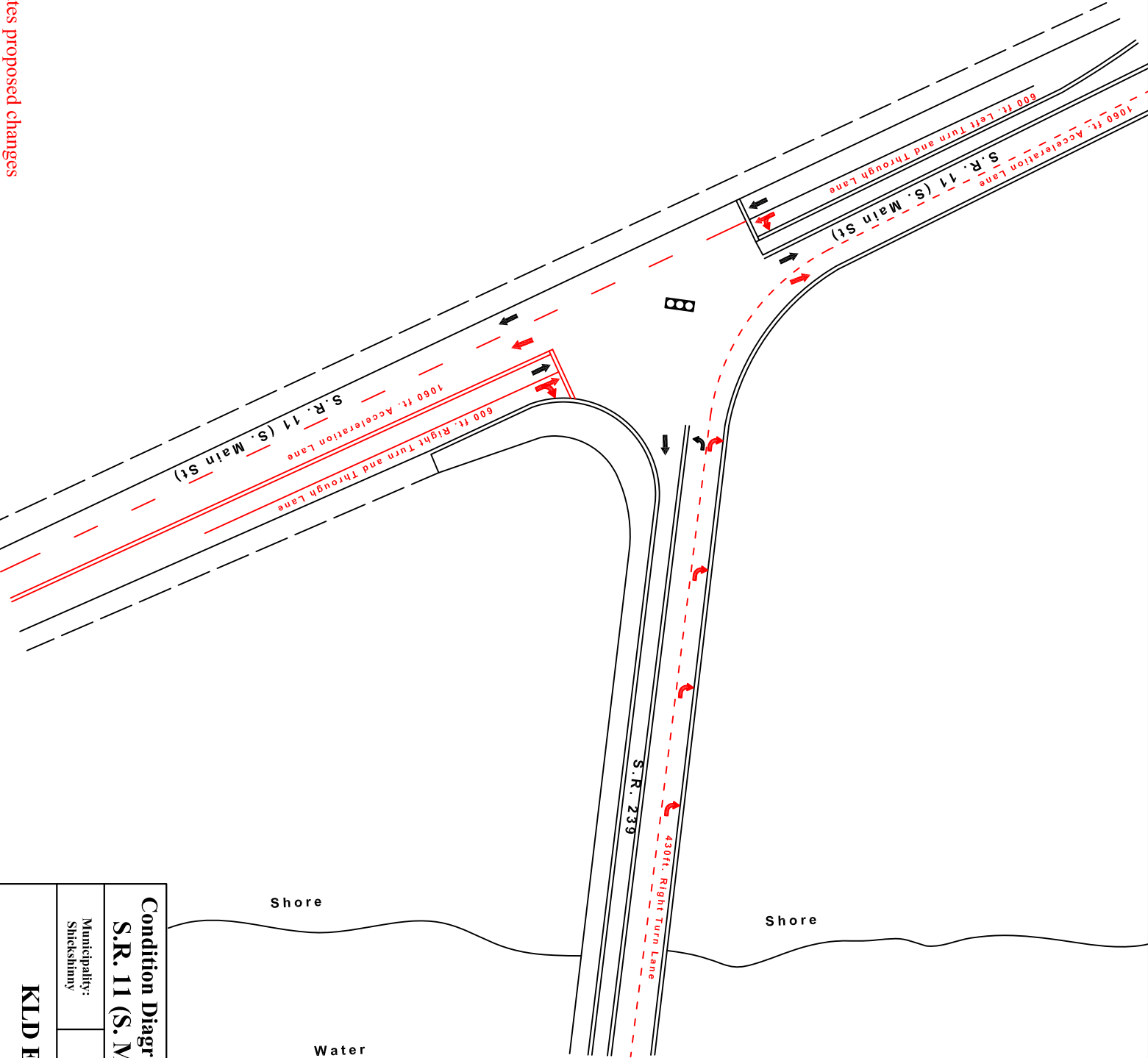


Condition Diagram - Proposed Mitigation S.R. 11 (West Front St) and Poplar St		
Municipality: Berwick	Date: 9/14/11	Not To Scale Signage Per MUTCD Not Shown
KLD Engineering PC		

Note: Red indicates proposed changes



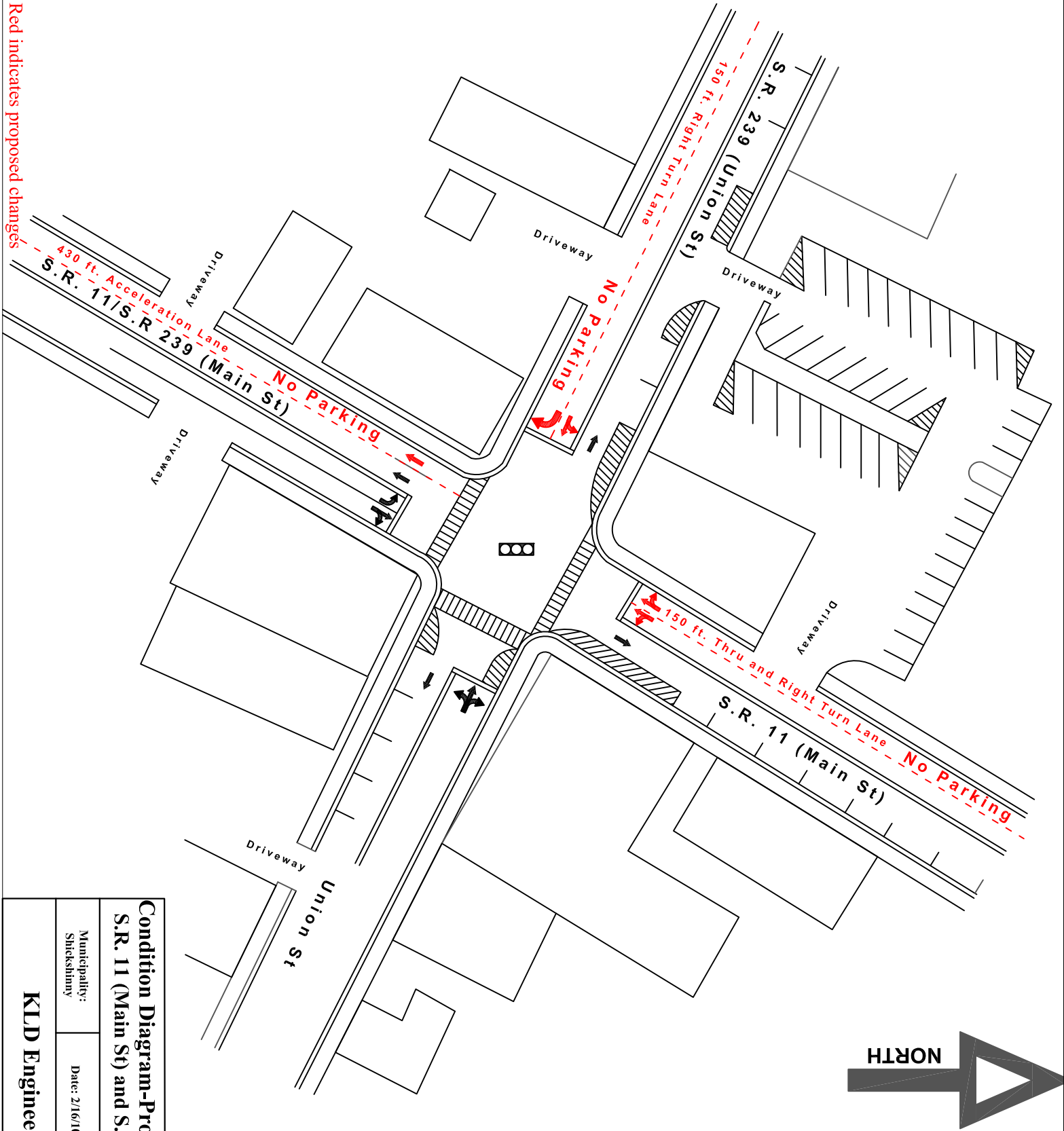
Note: Red indicates proposed changes



Condition Diagram - Proposed Mitigation		
S.R. 11 (S. Main St) and S.R. 239		
Municipality: Shickshinny	Date: 6/1/10	Not To Scale Signage Per MUTCD Not Shown
KLD Engineering PC		



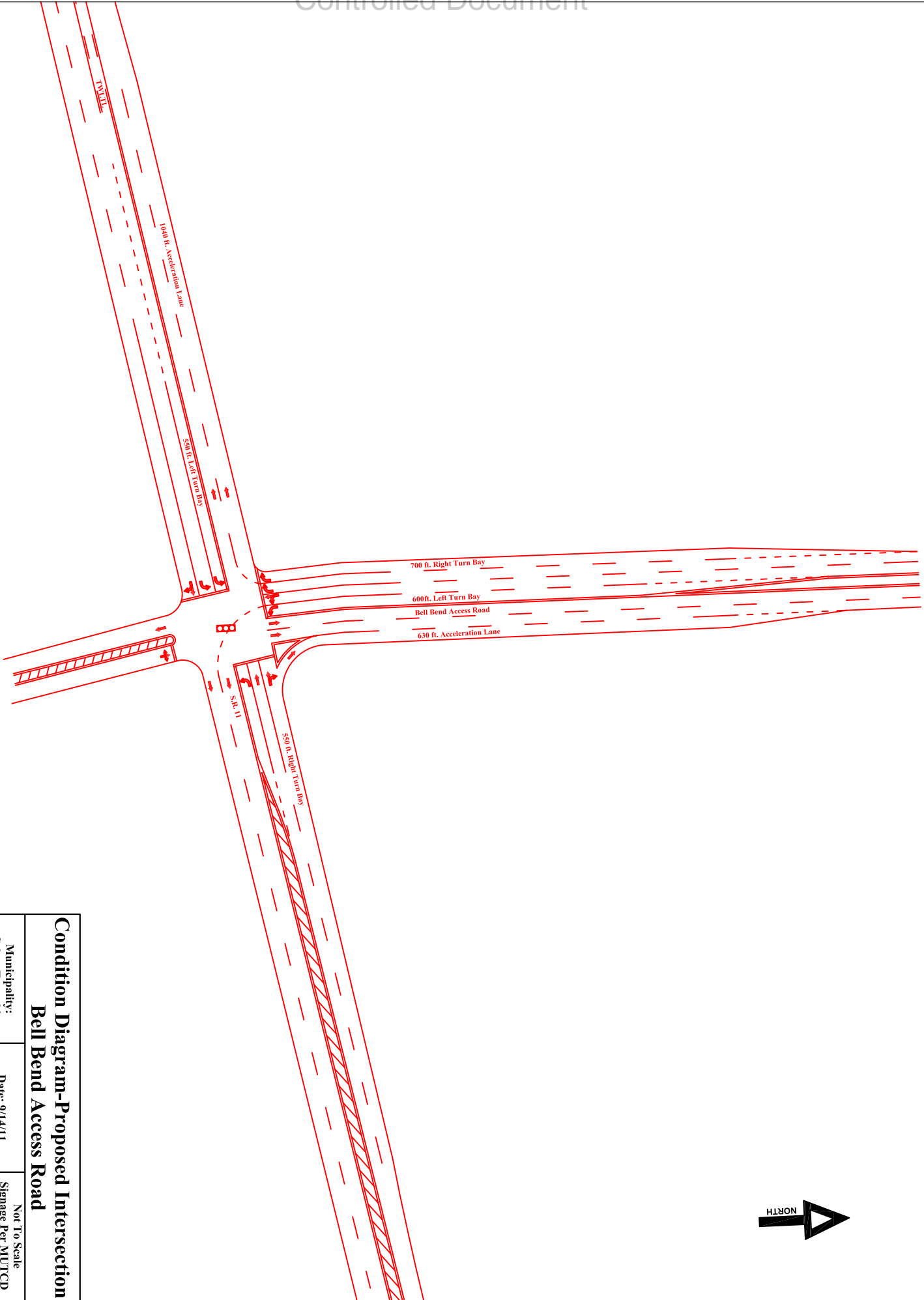
Note: Red indicates proposed changes



Condition Diagram-Proposed Mitigation
S.R. 11 (Main St) and S.R. 239 (Union St)

Municipality: Shickshinny	Date: 2/16/10	Not To Scale Signage Per MUTCD Not Shown
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KLD Engineering PC

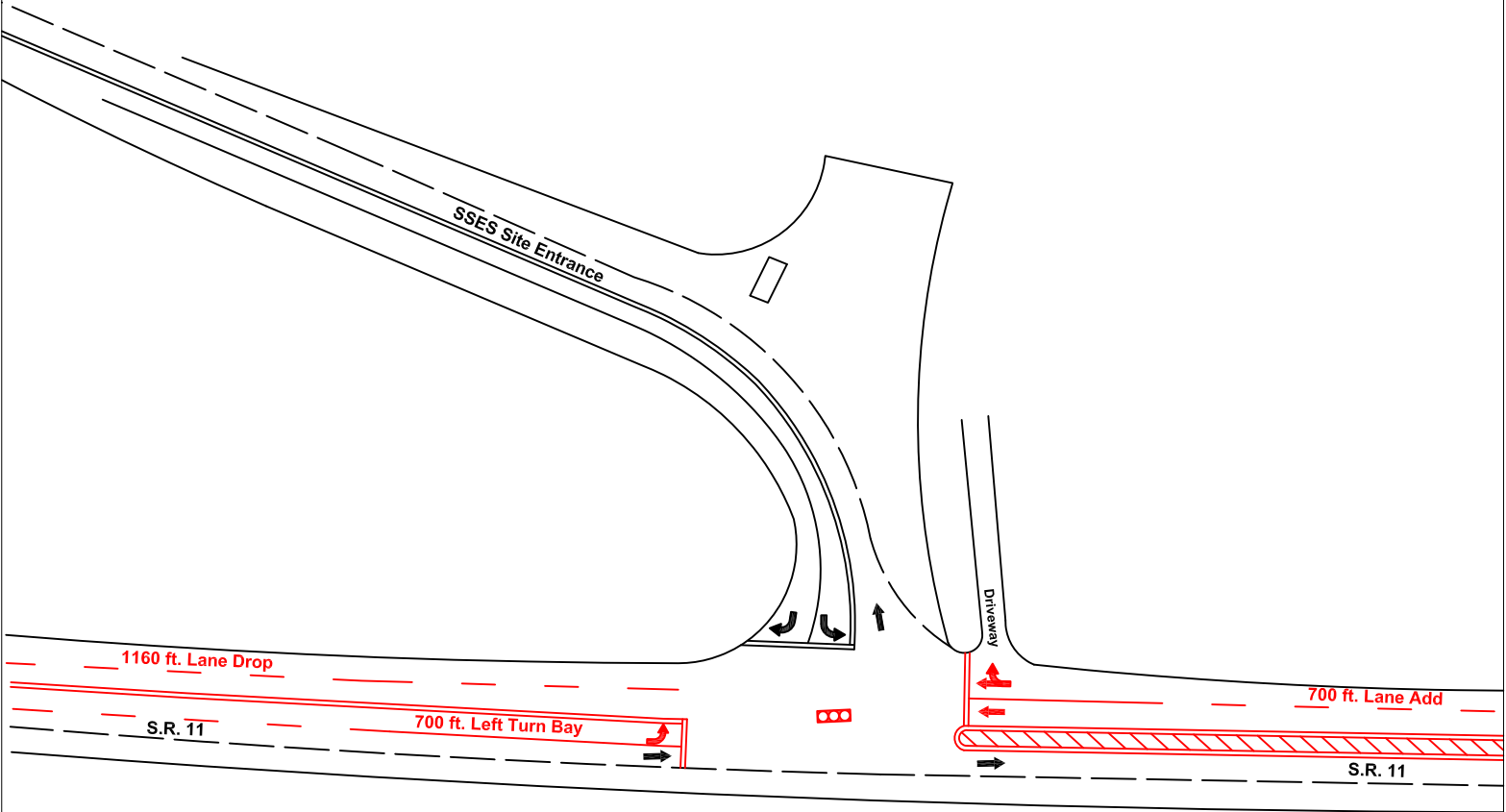


Condition Diagram-Proposed Intersection
Bell Bend Access Road

Municipality: Salem Township	Date: 9/14/11	Not To Scale Signage Per MUTCD Not Shown
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KLD Engineering PC

Note: Red indicates proposed changes



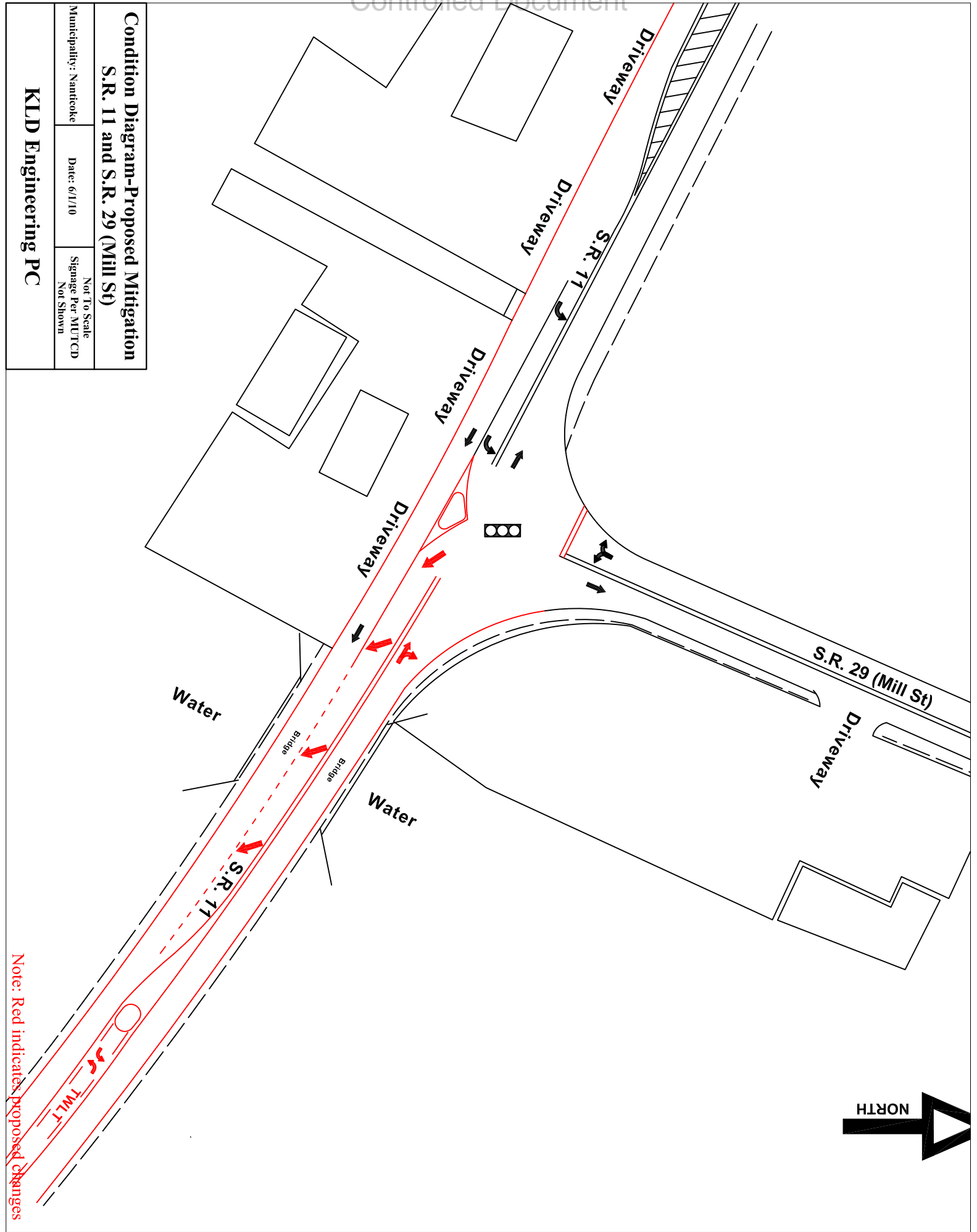
Condition Diagram-Proposed Mitigation		
S.R. 11 and SSES Site Entrance		
Municipality: Berwick	Date: 6/2/10	Not To Scale Signage Per MUTCD Not Shown

KLD Engineering PC

Condition Diagram-Proposed Mitigation
S.R. 11 and S.R. 29 (Mill St)

Municipality: Nanticoke	Date: 6/1/10	Not To Scale Signage Per MUTCD Not Shown
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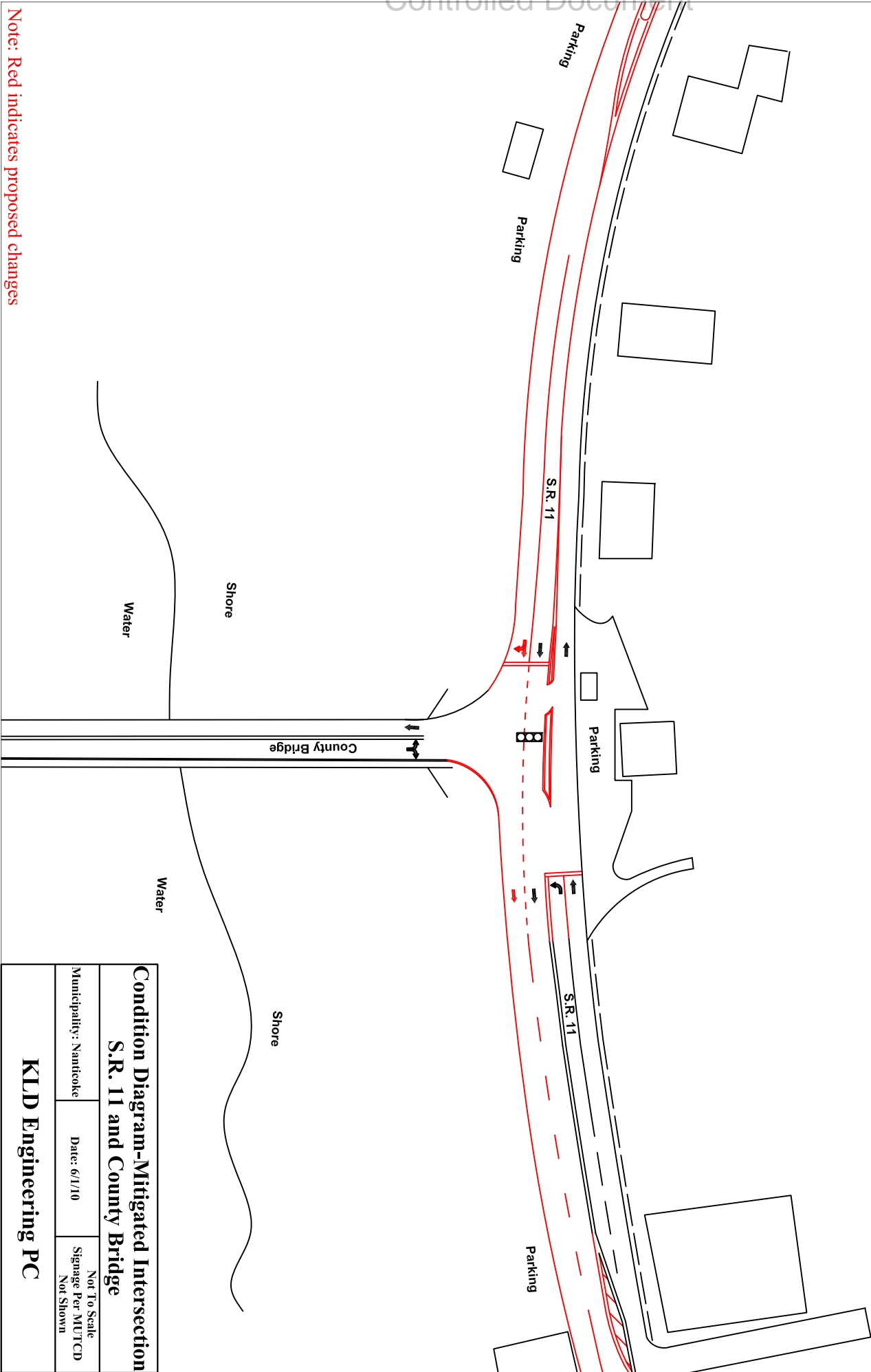
KLD Engineering PC



Note: Red indicates proposed changes



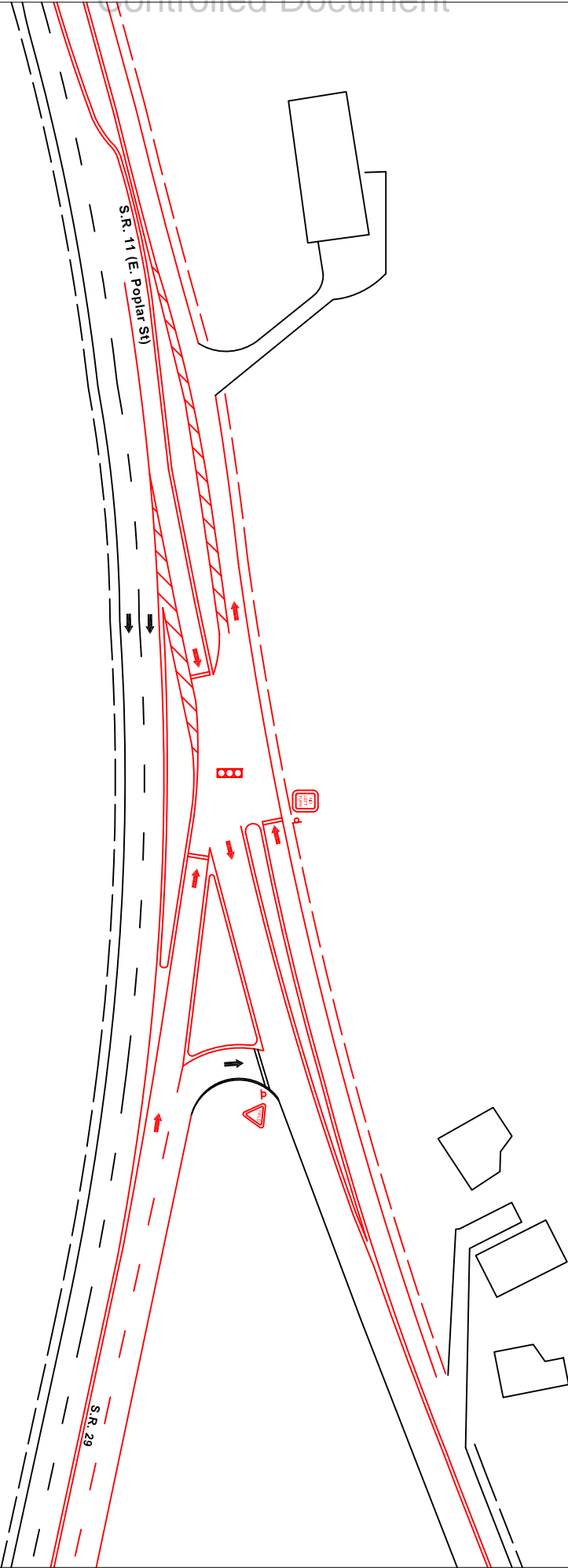
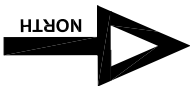
Note: Red indicates proposed changes



**Condition Diagram-Mitigated Intersection
S.R. 11 and County Bridge**

Municipality: Nanticoke	Date: 6/1/10	Not To Scale Signage Per MUTCD Not Shown
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KLD Engineering PC



Note: Red indicates proposed changes

Condition Diagram - Proposed Mitigation
S.R. 11 (E. Poplar St) and S.R. 29

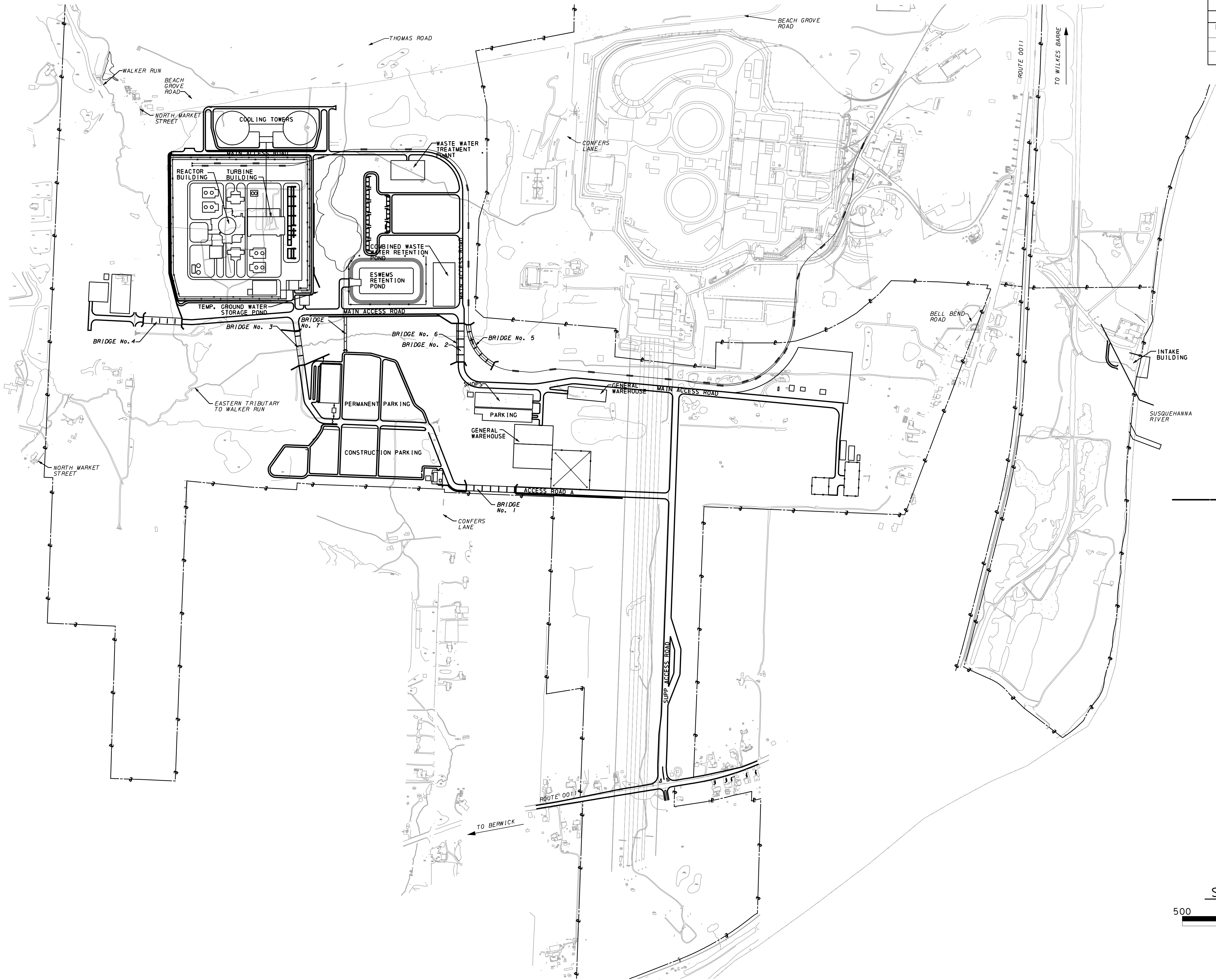
Municipality: Berwick	Date: 6/1/10	Not To Scale Signage Per MUTCD Not Shown
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KLD Engineering PC

OPERATOR: 1: \PROJECTS\PLS\PLS0502-Bell Bend Land Development\DESIGN\CT\HOP 1\CONST\CT-0201.dgn

3/22/2011
PLOTTED:

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
4-0	LUZERNE	0011		2 OF 31
SALEM TOWNSHIP				
REVISION NUMBER	REVISIONS		DATE	BY



SITE PLAN

PRELIMINARY
PLANS
03/23/2011

PHASING, TIMING, AND COLOR SEQUENCE CHART

																									EMERGENCY FLASHING	
	INTERVALS				INTERVALS				INTERVALS				INTERVALS				INTERVALS									
SIGNALS	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4		
1,2	⬅	⬅	⬅	⬅	⬅	⬅	⬅	➡	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
3,4	R	R	R	R	G	G	G	⬅	R	R	R	R	G	G	Y	R	R	R	R	R	R	R	R	R	R	Y
5	⬅	⬅	⬅	⬅	R	R	R	R	R	G	G	G	⬅	R	R	R	R	R	R	R	R	R	R	R	R	Y
6	R	R	R	R	R	R	R	R	R	G	G	G	Y	R	R	R	R	R	R	R	R	R	R	R	R	Y
7,8	⬅	⬅	⬅	⬅	⬅	⬅	⬅	➡	R	R	R	R	R	R	R	R	⬅	⬅	⬅	➡	R	R	R	R	R	R
9	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	G	G	Y	➡	R	R	R	R	R
10	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	G	G	G	⬅	R	R	R	R	R	R
11	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	⬅	⬅	⬅	➡	R	R	R	R	R	R
12,13	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	G	G	Y	R	R	R
14,15	H	H	H	H	M	FH	H	H	H	H	H	H	M	FH	H	H	H	H	H	H	H	H	H	H	H	OFF
16,17	H	H	H	H	H	H	H	H	M	FH	H	H	M	FH	H	H	H	H	H	H	H	H	H	H	H	OFF
18,19	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	M	FH	H	H	H	H	H	H	H	H	OFF
20,21	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	M	FH	H	H	H	M	FH	H	H	H	OFF

FIXED																										
MINIMUM																										
PASSAGE																										
MAXIMUM 1																										
MAXIMUM 2																										
MAXIMUM 3																										
PEDESTRIAN																										
MEMORY	NL								NL				mR				NL									

mR = MINIMUM RECALL

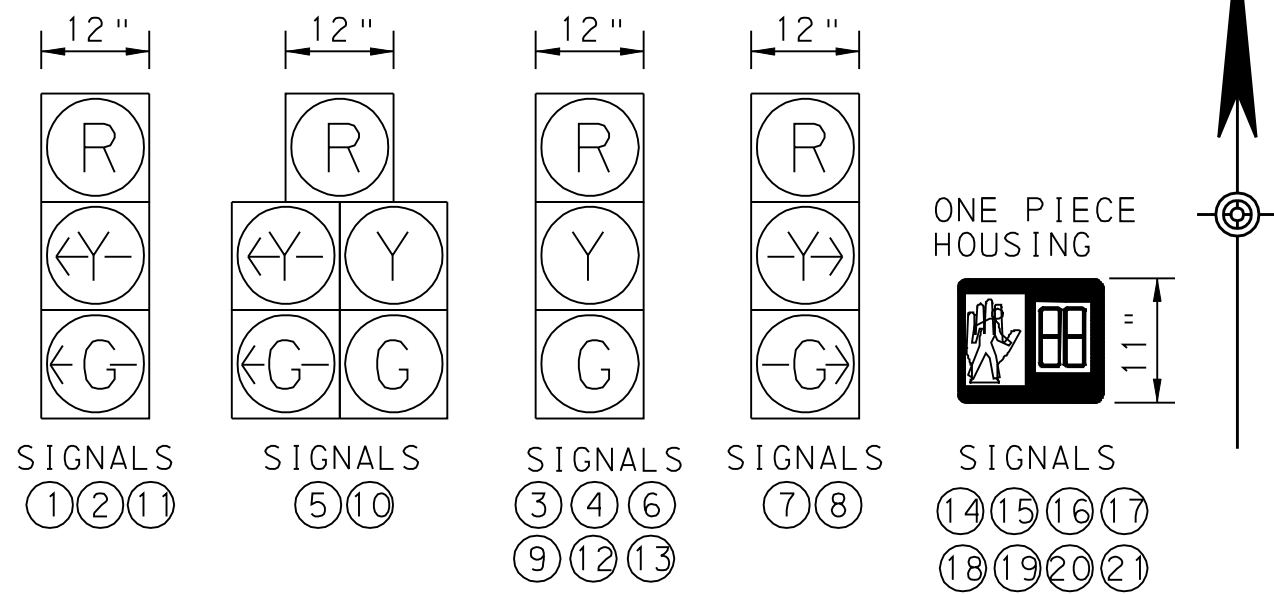
NL = NON-LOCKING

OPERATION NOTES

- ① ⊖ IF FOLLOWED BY 1+6
② G IF FOLLOWED BY 2+6
③ R/⊖ IF FOLLOWED BY 1+6
④ G/⊖ IF FOLLOWED BY 2+6
⑤ ⊖ IF FOLLOWED BY 1+6

SEE MATCHLINE C-C, SHEET 3

SIGNAL INDICATIONS



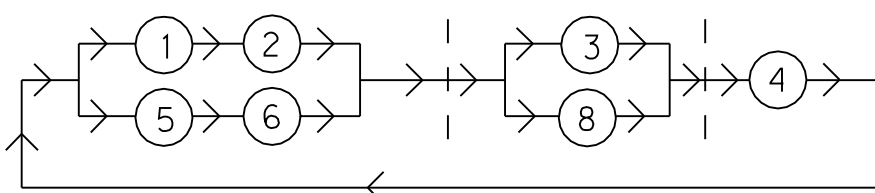
ALL SIGNALS SHALL HAVE LED'S
ALL SIGNALS SHALL HAVE BACKPLATES

WEEKLY PROGRAM CHART

EVENT	DAY*	HOOR	PROGRAM
1	1 TO 7	0600	MAX. 1
2	1 TO 7	0900	MAX. 3
3	1 TO 7	1400	MAX. 2
4	1 TO 7	1800	MAX. 3

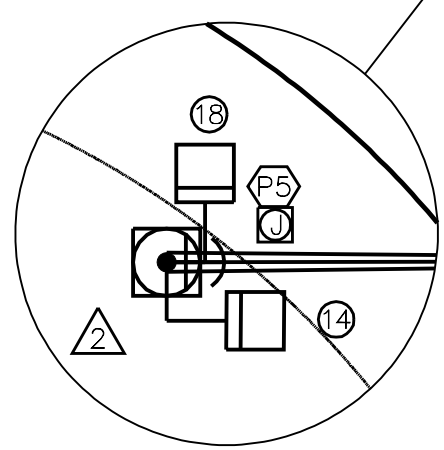
* DAY 1 = SUNDAY

NEMA PHASING



SIGN TABULATION

SYMBOL	SERIES	DESCRIPTION	SIZE	QTY.
⊖	R10-11	NO TURN ON RED	24"x30"	2
⊖	R10-10L	LEFT TURN SIGNAL	24"x30"	3
⊖	R10-12	LEFT TURN YIELD ON GREEN	30"x36"	1
⊖	R3-5L	LEFT TURN	30"x36"	4
⊖	R3-5R	RIGHT TURN	30"x36"	2
⊖	R3-5S	STRAIGHT THROUGH	30"x36"	1
⊖	R3-6SR	OPTIONAL RIGHT TURN SIGN	30"x36"	2
⊖	R3-6LS	OPTIONAL LEFT TURN SIGN	30"x36"	1
⊖	R10-3E	PUSH BUTTON WITH COUNTDOWN TIMER	9"x15"	8
⊖	W11-2	PEDESTRIAN CROSSING	36"x12"	2
⊖	W16-7P	DIAGONAL DOWNWARD POINTING ARROW	24"x12"	2
⊖	R4-7	KEEP RIGHT	24"x30"	2
⊖	OM1-3	OBJECT MARKER	18"x18"	2
⊖	D3-4	SR 0011	*	2
⊖	D3-5	SUPP ACCESS RD LAYDOWN ENTRANCE	*	1
⊖	D3-5	LAYDOWN ENTRANCE SUPP ACCESS RD	*	1



LAY DOWN ENTRANCE

NO SIGNAL WITHIN 1 MILE

SHOULDER

W/24" (TYP.)

DY/4"

W/4"

SHOULDER

W/4"

SHOULDER

W/4"

SHOULDER

W/4"

SHOULDER

W/4"

SHOULDER

W/4"

SHOULDER

W/4"

SHOULDER

W/4"

SHOULDER

W/4"

SHOULDER

W/4"

SHOULDER

W/4"

SHOULDER

W/4"

SHOULDER

W/4"

SHOULDER

W/4"

LEGEND

- 20' MAST ARM / LENGTH
4' HIGH PEDESTRIAN POLE
④ VEHICULAR SIGNAL HEAD
⊖ SIGN
⊖ PEDESTRIAN PUSH BUTTON
⊖ PEDESTRIAN SIGNAL HEAD
⊖ VEHICULAR DETECTOR
⊖ JUNCTION BOX
⊖ CONTROLLER ASSEMBLY
C/4" CONDUIT / WIDTH
W/4" SOLID WHITE LINE/WIDTH
Y/4" SOLID YELLOW LINE/WIDTH
DY/4" DOUBLE YELLOW LINE/WIDTH
BW/4" BROKEN WHITE LINE/WIDTH
DWE/6" DOTTED WHITE EXT. LINE/WIDTH

PRELIMINARY
PLANS
03/23/2011

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
4-0	LUZERNE	SR 0011	XX	1 OF 3
SALEM TOWNSHIP				
PERMIT NO. _____ SHEET 2 OF 4				
DATE ISSUED _____ DATE REVISED _____				
DATE	REVISION			BY

GENERAL NOTES

INSTALL, OPERATE AND MAINTAIN THIS TRAFFIC SIGNAL IN ACCORDANCE WITH PENNSYLVANIA DEPARTMENT OF TRANSPORTATION REGULATIONS ON OFFICIAL TRAFFIC CONTROL DEVICES, SPECIFICATIONS (PUB 408), TRAFFIC CONTROL STANDARDS AND TRAFFIC SIGNAL DESIGN HANDBOOK (PUB 149).

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

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

THE PERMITTEE INSTALLS AND MAINTAINS ALL SIGNS IN THE SIGN BLOCK AND ALL PAVEMENT MARKINGS INDICATED ON THIS DRAWING, WHICH ARE CONSIDERED PART OF THE PERMIT, UNLESS OTHERWISE INDICATED.

EACH LOOP MUST BE ASSIGNED TO A SEPARATE DETECTOR INPUT IN THE CONTROLLER TIMER WHICH WILL PROVIDE THE CAPABILITY OF EXTENSIONS AND DELAYS TO ALL INDIVIDUAL LOOPS.

CARD RACK TO BE NEMA TYPE 7-T.

THIS DRAWING CANNOT BE USED AS A CONSTRUCTION DRAWING, UNLESS THE PERMITTEE COMPLIES WITH THE PROVISIONS OF ACT 121, AS AMENDED, PREVENTION OF DAMAGE TO UNDERGROUND UTILITIES. PRIOR TO CONSTRUCTION, CONSULT WITH UTILITY COMPANIES TO RESOLVE ANY CONFLICTS.

THE PERMITTEE IS RESPONSIBLE FOR COORDINATING ANY RELOCATION OF OVERHEAD UTILITIES THAT MAY INTERFERE WITH CLEAR VISION OF THE SIGNAL HEADS.

INSTALL SIGNAL HEADS AND SIGNS WITH BOTTOMS NOT LESS THAN 16 FEET NOR MORE THAN 17 FEET ABOVE THE ROADWAY.

INSTALL SIGNAL SUPPORTS AND POST MOUNTED SIGNAL HEADS A MINIMUM OF 2 FEET BEHIND THE FACE OF CURB.

INSTALL ALL SIGNS AND PAVEMENT MARKINGS, AS INDICATED ON THIS PLAN, BEFORE SIGNALS CAN BE PUT INTO RED, YELLOW, GREEN OPERATION.

CONTACT PENNDOT TRAFFIC UNIT TO SCHEDULE A TRAFFIC SIGNAL INSPECTION A MINIMUM OF THREE DAYS PRIOR TO PLACING THE SIGNALS INTO RED, YELLOW, GREEN OPERATION.

NOTIFY THE DISTRICT TRAFFIC ENGINEER SEVEN CALENDAR DAYS PRIOR TO CONDUCTING A PHYSICAL AND FUNCTIONAL SHOP TEST AS REQUIRED IN SECTION 1104 (PUB 408), SO THAT DISTRICT REPRESENTATIVES MAY WITNESS THE TESTING.

SIGNALS MUST FLASH A MINIMUM OF THREE DAYS PRIOR TO RED, YELLOW, GREEN OPERATION.

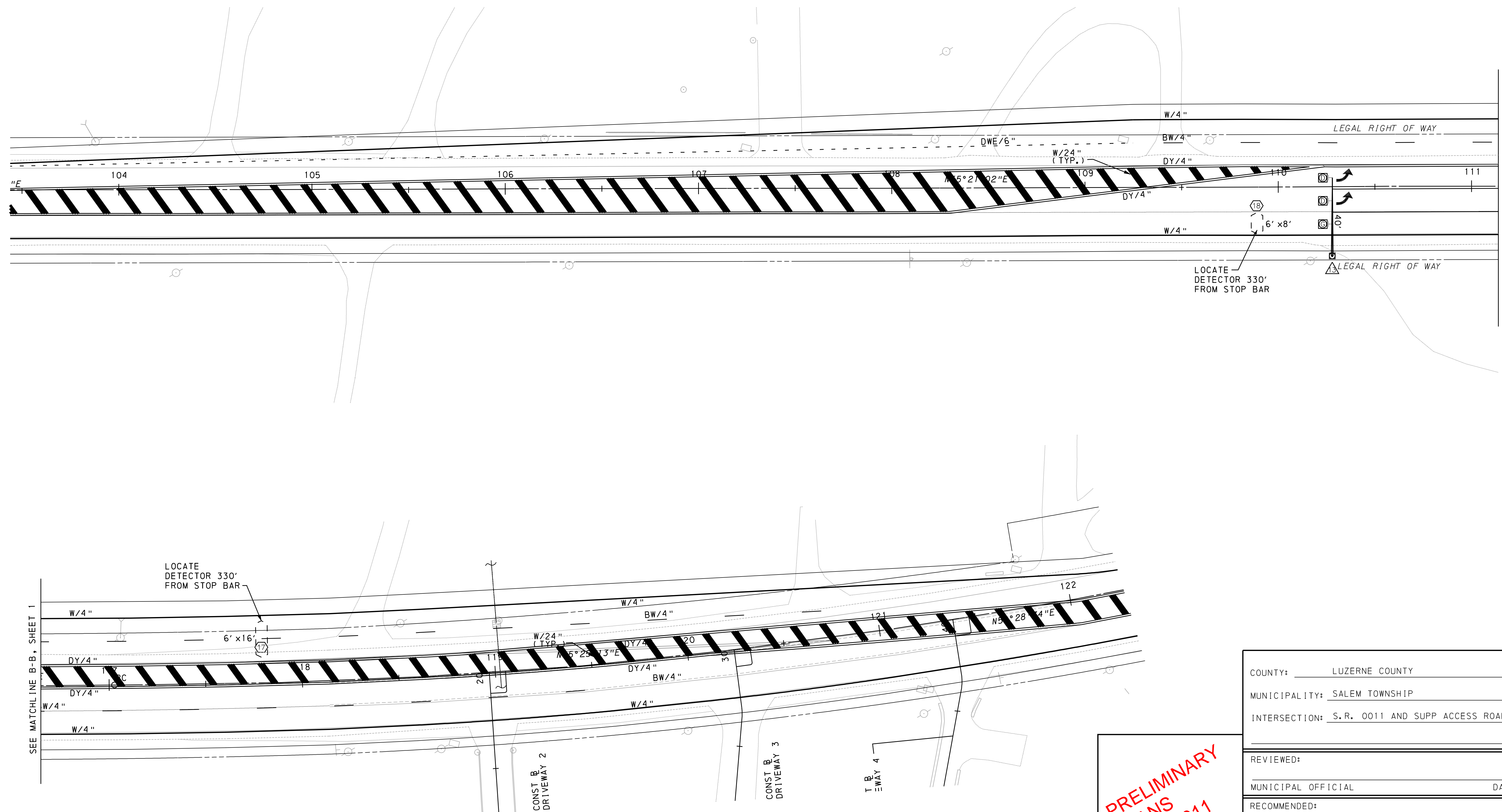
ALL PAVEMENT MARKINGS TO BE HOT THERMOPLASTIC.

COUNTY:	LUZERNE COUNTY
MUNICIPALITY:	SALEM TOWNSHIP
INTERSECTION:	S.R. 0011 AND SUPP ACCESS ROAD

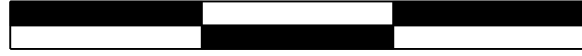
REVIEWED:	
MUNICIPAL OFFICIAL	DATE
RECOMMENDED:	
DISTRICT TRAFFIC ENGINEER	DATE

SCALE:	0 25 50 75
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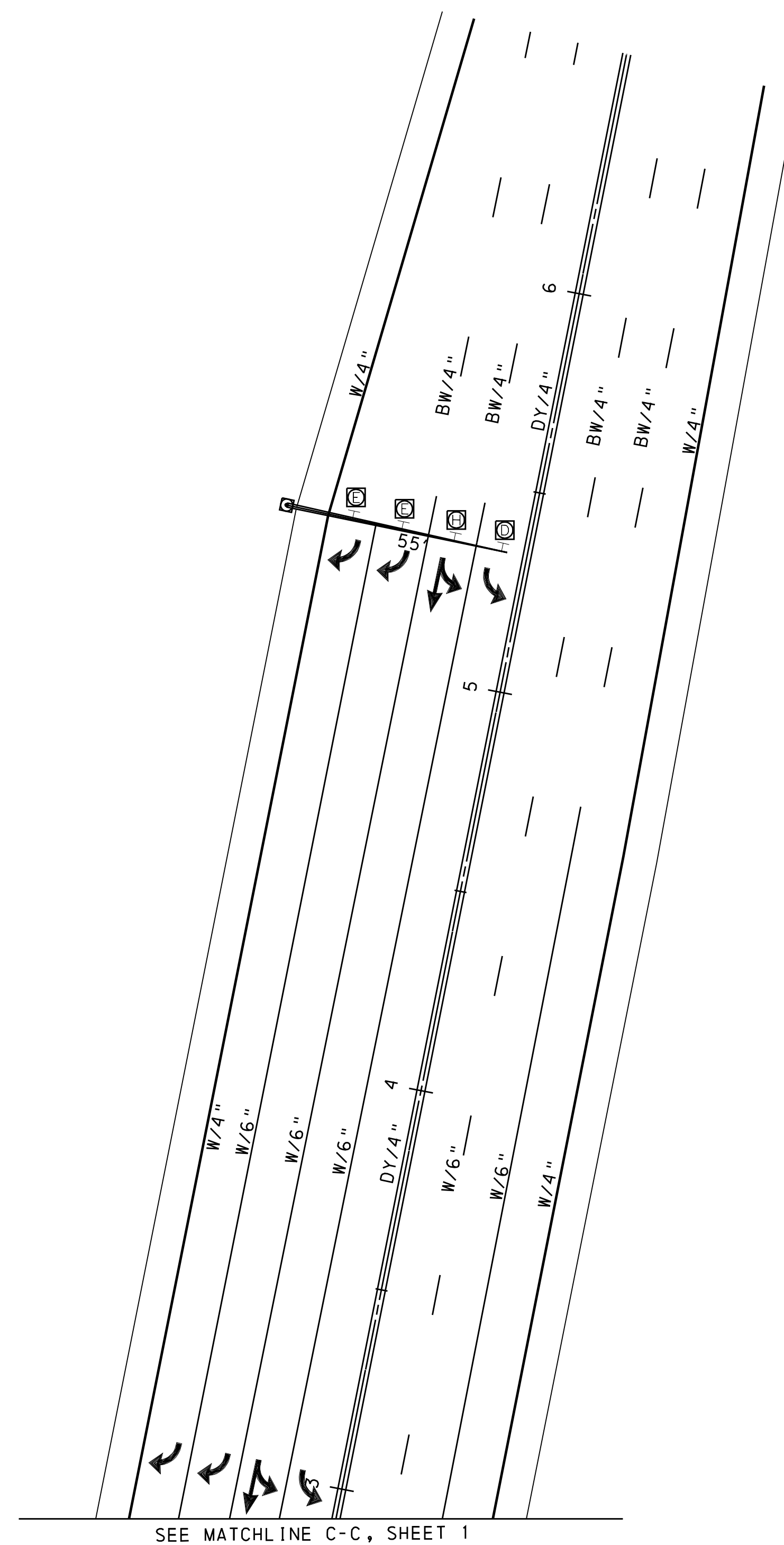
DISTRICT	COUNTY	ROUTE	SECTION	SHEET
4-0	LUZERNE	SR 0011	XX	2 OF 3
SALEM TOWNSHIP				
PERMIT NO. _____ SHEET <u>3</u> OF <u>4</u>				
DATE ISSUED _____ DATE REVISED _____				
DATE	REVISION			BY




PRELIMINARY
PLANS
03/23/2011

COUNTY:	LUZERNE COUNTY
MUNICIPALITY:	SALEM TOWNSHIP
INTERSECTION:	S.R. 0011 AND SUPP ACCESS ROAD
REVIEWED:	
MUNICIPAL OFFICIAL	DATE
RECOMMENDED:	
DISTRICT TRAFFIC ENGINEER	DATE
SCALE: 	

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
4-0	LUZERNE	SR 0011	XX	3 OF 3
SALEM TOWNSHIP				
PERMIT NO. _____ SHEET <u>4</u> OF <u>4</u>				
DATE ISSUED _____ DATE REVISED _____				
DATE	REVISION			BY



COUNTY:	LUZERNE COUNTY
MUNICIPALITY:	SALEM TOWNSHIP
INTERSECTION:	S.R. 0011 AND SUPP ACCESS ROAD
REVIEWED:	
MUNICIPAL OFFICIAL	DATE
RECOMMENDED:	
DISTRICT TRAFFIC ENGINEER	DATE
SCALE: 	

PRELIMINARY
PLANS
03/23/2011

PennDOT Turn Lane Storage Length Calculations

Location: S.R. 11 and S.R. 2028
 Scenario: 2018, Construction, with Outage
 Mitigation: Mitigated
 Control: Signalized

Movement	Peak Hour	Max LT Volume	Approach Volume	LT%	Cycle Length (sec)	Vehicles/Cycle	Condition A (X)	Condition B	Condition C1 (Y)	Condition C (X+Y)	Storage Length Needed	Storage Available
SBL	AM	129	813	16%	50	1.8	100	125	75	175	175	350
SBL	PM	231	1945	12%	100	6.4	275	125	75	350	350	350
Speed (MPH)	45			>10%		Condition:	B or C*					

WBL	AM	124	313	39%	50	1.7	100	#N/A	#N/A	#N/A	100	275
WBL	PM	100	343	29%	100	2.8	150	#N/A	#N/A	#N/A	150	275
Speed (MPH)	35			>10%		Condition:	A					

Condition B	
MPH	Length
40	75
45	125
50	175
55	235
60	295

Condition C1	
MPH	Length
40	61
45	75
50	93
55	114
60	131

Speed (MPH) LT % Signalized Unsignalized						
	25-35	25-35	40-45	40-45	50-60	50-60
	>10%	<=10%	>10%	<=10%	>10%	<=10%
	A	A	B or C*	B or C*	B or C*	B or C*
	A	A	B or C*	B or C*	B or C*	B

Notes: Storage needed exceeds available amount
 * Whichever is greater

PennDOT Turn Lane Storage Length Calculations

Location: S.R. 11 and Briar Creek Plaza Driveways
 Scenario: 2018, Construction, with Outage
 Mitigation: Mitigated
 Control: Signalized

Movement	Peak Hour	Max LT Volume	Approach Volume	LT%	Cycle Length (sec)	Vehicles/Cycle	Condition A (X)	Condition B	Condition C1 (Y)	Condition C (X+Y)	Storage Length Needed	Storage Available
NBL	AM	40	929	4%	90	1.0	100	#N/A	#N/A	#N/A	100	175
NBL	PM	107	893	12%	65	1.9	100	#N/A	#N/A	#N/A	100	175
Speed (MPH)	35			>10%		Condition:	A					

SBL	AM	42	545	8%	90	1.0	100	#N/A	#N/A	#N/A	100	135
SBL	PM	21	1376	2%	65	0.4	75	#N/A	#N/A	#N/A	75	135
Speed (MPH)	35			<=10%		Condition:	A					

EBL	AM	54	97	56%	90	1.4	100	#N/A	#N/A	#N/A	100	175
EBL	PM	204	318	64%	65	3.7	175	#N/A	#N/A	#N/A	175	175
Speed (MPH)	30			>10%		Condition:	A					

Condition B	
MPH	Length
40	75
45	125
50	175
55	235
60	295

Condition C1	
MPH	Length
40	61
45	75
50	93
55	114
60	131

	25-35	25-35	40-45	40-45	50-60	50-60
Speed (MPH)	25-35	25-35	40-45	40-45	50-60	50-60
LT %	>10%	<=10%	>10%	<=10%	>10%	<=10%
Signalized	A	A	B or C*	B or C*	B or C*	B or C*
Unsignalized	A	A	B or C*	B or C*	B or C*	B

Notes: Storage needed exceeds available amount

* Whichever is greater

PennDOT Turn Lane Storage Length Calculations

Location: S.R. 11 (Front Street) and Eaton Street
 Scenario: 2018, Construction, with Outage
 Mitigation: Mitigated
 Control: Signalized

Movement	Peak Hour	Max LT Volume	Approach Volume	LT%	Cycle Length (sec)	Vehicles/Cycle	Condition A (X)	Condition B	Condition C1 (Y)	Condition C (X+Y)	Storage Length Needed	Storage Available
NBL	AM	24	889	3%	120	0.8	75	#N/A	#N/A	#N/A	75	150
NBL	PM	64	1070	6%	140	2.5	150	#N/A	#N/A	#N/A	150	150
Speed (MPH)	35			<=10%		Condition:	A					

SBL	AM	14	631	2%	120	0.5	75	#N/A	#N/A	#N/A	75	150
SBL	PM	63	788	8%	140	2.5	150	#N/A	#N/A	#N/A	150	150
Speed (MPH)	35			<=10%		Condition:	A					

Condition B	
MPH	Length
40	75
45	125
50	175
55	235
60	295

Condition C1	
MPH	Length
40	61
45	75
50	93
55	114
60	131

	25-35	25-35	40-45	40-45	50-60	50-60
Speed (MPH)	>10%	<=10%	>10%	<=10%	>10%	<=10%
LT %						
Signalized	A	A	B or C*	B or C*	B or C*	B or C*
Unsignalized	A	A	B or C*	B or C*	B or C*	B

Notes: Storage needed exceeds available amount
 * Whichever is greater

PennDOT Turn Lane Storage Length Calculations

Location: S.R. 11 (Front Street) and Poplar Street
 Scenario: 2018, Construction, with Outage
 Mitigation: Mitigated
 Control: Signalized

Movement	Peak Hour	Max LT Volume	Approach Volume	LT%	Cycle Length (sec)	Vehicles/Cycle	Condition A (X)	Condition B	Condition C1 (Y)	Condition C (X+Y)	Storage Length Needed	Storage Available
NBL	AM	0	181	0%	120	0.0	75	#N/A	#N/A	#N/A	75	75
NBL	PM	23	765	3%	140	0.9	75	#N/A	#N/A	#N/A	75	75
Speed (MPH)	35			<=10%		Condition:	A					

SBL	AM	57	684	8%	120	1.9	100	#N/A	#N/A	#N/A	100	150
SBL	PM	75	1220	6%	140	2.9	150	#N/A	#N/A	#N/A	150	150
Speed (MPH)	35			<=10%		Condition:	A					

WBL	AM	66	107	61%	120	2.2	150	#N/A	#N/A	#N/A	150	250
WBL	PM	136	267	51%	140	5.3	250	#N/A	#N/A	#N/A	250	250
Speed (MPH)	30			>10%		Condition:	A					

Condition B	
MPH	Length
40	75
45	125
50	175
55	235
60	295

Condition C1	
MPH	Length
40	61
45	75
50	93
55	114
60	131

	25-35	25-35	40-45	40-45	50-60	50-60
Speed (MPH)	25-35	25-35	40-45	40-45	50-60	50-60
LT %	>10%	<=10%	>10%	<=10%	>10%	<=10%
Signalized	A	A	B or C*	B or C*	B or C*	B or C*
Unsignalized	A	A	B or C*	B or C*	B or C*	B

Notes: Storage needed exceeds available amount

* Whichever is greater

PennDOT Turn Lane Storage Length Calculations

Location: S.R. 11 (Front Street) and Orchard Street
 Scenario: 2018, Construction, with Outage
 Mitigation: Mitigated
 Control: Signalized

Movement	Peak Hour	Max LT Volume	Approach Volume	LT%	Cycle Length (sec)	Vehicles/Cycle	Condition A (X)	Condition B	Condition C1 (Y)	Condition C (X+Y)	Storage Length Needed	Storage Available
NBL	AM	12	599	2%	120	0.4	75	#N/A	#N/A	#N/A	75	75
NBL	PM	15	862	2%	140	0.6	75	#N/A	#N/A	#N/A	75	75
Speed (MPH)	35			<=10%		Condition:	A					

SBL	AM	9	680	1%	120	0.3	75	#N/A	#N/A	#N/A	75	75
SBL	PM	10	1163	1%	140	0.4	75	#N/A	#N/A	#N/A	75	75
Speed (MPH)	35			<=10%		Condition:	A					

Condition B	
MPH	Length
40	75
45	125
50	175
55	235
60	295

Condition C1	
MPH	Length
40	61
45	75
50	93
55	114
60	131

	25-35	25-35	40-45	40-45	50-60	50-60
Speed (MPH)	>10%	<=10%	>10%	<=10%	>10%	<=10%
LT %						
Signalized	A	A	B or C*	B or C*	B or C*	B or C*
Unsignalized	A	A	B or C*	B or C*	B or C*	B

Notes: Storage needed exceeds available amount
 * Whichever is greater

PennDOT Turn Lane Storage Length Calculations

Location: S.R. 11 (Second Street) and LaSalle Street
 Scenario: 2018, Construction, with Outage
 Mitigation: Mitigated
 Control: Signalized

Movement	Peak Hour	Max LT Volume	Approach Volume	LT%	Cycle Length (sec)	Vehicles/Cycle	Condition A (X)	Condition B	Condition C1 (Y)	Condition C (X+Y)	Storage Length Needed	Storage Available
NBL	AM	58	1324	4%	60	1.0	75	#N/A	#N/A	#N/A	75	100
NBL	PM	92	1060	9%	140	3.6	175	#N/A	#N/A	#N/A	175	100
Speed (MPH)	35			<=10%		Condition:	A					

SBL	AM	11	718	2%	60	0.2	75	#N/A	#N/A	#N/A	75	100
SBL	PM	19	1457	1%	140	0.8	75	#N/A	#N/A	#N/A	75	100
Speed (MPH)	35			<=10%		Condition:	A					

Condition B	
MPH	Length
40	75
45	125
50	175
55	235
60	295

Condition C1	
MPH	Length
40	61
45	75
50	93
55	114
60	131

	25-35	25-35	40-45	40-45	50-60	50-60
Speed (MPH)	>10%	<=10%	>10%	<=10%	>10%	<=10%
LT %	A	A	B or C*	B or C*	B or C*	B or C*
Signalized	A	A	B or C*	B or C*	B or C*	B
Unsignalized						

Notes: Storage needed exceeds available amount
 * Whichever is greater

PennDOT Turn Lane Storage Length Calculations

Location: S.R. 1025 (Market Street) and Third Street
 Scenario: 2018, Construction, with Outage
 Mitigation: Mitigated
 Control: Signalized

Movement	Peak Hour	Max LT Volume	Approach Volume	LT%	Cycle Length (sec)	Vehicles/Cycle	Condition A (X)	Condition B	Condition C1 (Y)	Condition C (X+Y)	Storage Length Needed	Storage Available
EBL	AM	14	306	5%	60	0.2	75	#N/A	#N/A	#N/A	75	90
EBL	PM	24	374	7%	70	0.5	75	#N/A	#N/A	#N/A	75	90
Speed (MPH)	25			<=10%		Condition:	A					

WBL	AM	40	184	22%	60	0.7	75	#N/A	#N/A	#N/A	75	175
WBL	PM	28	230	12%	70	0.5	75	#N/A	#N/A	#N/A	75	175
Speed (MPH)	25			>10%		Condition:	A					

Condition B	
MPH	Length
40	75
45	125
50	175
55	235
60	295

Condition C1	
MPH	Length
40	61
45	75
50	93
55	114
60	131

	25-35	25-35	40-45	40-45	50-60	50-60
Speed (MPH)	>10%	<=10%	>10%	<=10%	>10%	<=10%
LT %						
Signalized	A	A	B or C*	B or C*	B or C*	B or C*
Unsignalized	A	A	B or C*	B or C*	B or C*	B

Notes: Storage needed exceeds available amount

* Whichever is greater

PennDOT Turn Lane Storage Length Calculations

Location: S.R. 11 (Second Street) and Market Street
 Scenario: 2018, Construction, with Outage
 Mitigation: Mitigated
 Control: Signalized

Movement	Peak Hour	Max LT Volume	Approach Volume	LT%	Cycle Length (sec)	Vehicles/Cycle	Condition A (X)	Condition B	Condition C1 (Y)	Condition C (X+Y)	Storage Length Needed	Storage Available
WBL	AM	234	344	68%	60	3.9	175	#N/A	#N/A	#N/A	175	170
WBL	PM	256	367	70%	70	5.0	200	#N/A	#N/A	#N/A	200	170
Speed (MPH)	25			>10%		Condition:	A					

Condition B	
MPH	Length
40	75
45	125
50	175
55	235
60	295

Condition C1	
MPH	Length
40	61
45	75
50	93
55	114
60	131

	25-35	25-35	40-45	40-45	50-60	50-60
Speed (MPH)	25-35	25-35	40-45	40-45	50-60	50-60
LT %	>10%	<=10%	>10%	<=10%	>10%	<=10%
Signalized	A	A	B or C*	B or C*	B or C*	B or C*
Unsignalized	A	A	B or C*	B or C*	B or C*	B

Notes: Storage needed exceeds available amount

* Whichever is greater

PennDOT Turn Lane Storage Length Calculations

Location: S.R. 11 (Second Street) and Pine Street
 Scenario: 2018, Construction, with Outage
 Mitigation: Mitigated
 Control: Signalized

Movement	Peak Hour	Max LT Volume	Approach Volume	LT%	Cycle Length (sec)	Vehicles/Cycle	Condition A (X)	Condition B	Condition C1 (Y)	Condition C (X+Y)	Storage Length Needed	Storage Available
WBL	AM	26	97	26%	60	0.4	75	#N/A	#N/A	#N/A	75	175
WBL	PM	65	207	31%	70	1.3	100	#N/A	#N/A	#N/A	100	175
Speed (MPH)	35			>10%		Condition: A						

Condition B	
MPH	Length
40	75
45	125
50	175
55	235
60	295

Condition C1	
MPH	Length
40	61
45	75
50	93
55	114
60	131

	25-35	25-35	40-45	40-45	50-60	50-60
Speed (MPH)						
LT %	>10%	<=10%	>10%	<=10%	>10%	<=10%
Signalized	A	A	B or C*	B or C*	B or C*	B or C*
Unsignalized	A	A	B or C*	B or C*	B or C*	B

Notes: Storage needed exceeds available amount

* Whichever is greater

PennDOT Turn Lane Storage Length Calculations

Location: S.R. 11 and Bell Bend Site Entrance
 Scenario: 2018, Construction, with Outage
 Mitigation: Mitigated
 Control: Signalized

Movement	Peak Hour	Max LT Volume	Approach Volume	LT%	Cycle Length (sec)	Vehicles/Cycle	Condition A (X)	Condition B	Condition C1 (Y)	Condition C (X+Y)	Storage Length Needed	Storage Available
NBL	AM	1028	1647	62%	90	25.7	975	125	75	1050	1050	700
NBL	PM	559	798	70%	90	14.0	500	125	75	575	575	700
Speed (MPH)	45			>10%		Condition:	B or C*					

SBL	AM	0	19	2%	90	0.0	75	125	75	150	150	150
SBL	PM	0	1227	0%	90	0.0	75	125	75	150	150	150
Speed (MPH)	45			<=10%		Condition:	B or C*					

Condition B	
MPH	Length
40	75
45	125
50	175
55	235
60	295

Condition C1	
MPH	Length
40	61
45	75
50	93
55	114
60	131

Speed (MPH)	25-35		40-45		50-60	
	LT %	<=10%	>10%	<=10%	>10%	<=10%
Signalized	A	A	B or C*	B or C*	B or C*	B or C*
Unsignalized	A	A	B or C*	B or C*	B or C*	B

Notes: Storage needed exceeds available amount
 * Whichever is greater

PennDOT Turn Lane Storage Length Calculations

Location: S.R. 11 and SSES Site Entrance
 Scenario: 2018, Construction, with Outage
 Mitigation: Mitigated
 Control: Signalized

Movement	Peak Hour	Max LT Volume	Approach Volume	LT%	Cycle Length (sec)	Vehicles/Cycle	Condition A (X)	Condition B	Condition C1 (Y)	Condition C (X+Y)	Storage Length Needed	Storage Available
NBL	AM	686	869	79%	90	17.2	625	235	114	739	739	500
NBL	PM	69	581	12%	110	2.1	150	235	114	264	264	500
Speed (MPH)	55			>10%		Condition:	B or C*					

EBL	AM	55	199	27%	90	1.4	100	#N/A	#N/A	#N/A	100	450
EBL	PM	204	714	29%	110	6.2	275	#N/A	#N/A	#N/A	275	450
Speed (MPH)	35			>10%		Condition:	A					

Condition B	
MPH	Length
40	75
45	125
50	175
55	235
60	295

Condition C1	
MPH	Length
40	61
45	75
50	93
55	114
60	131

Speed (MPH)	25-35		40-45		50-60	
	LT %		LT %		LT %	
LT %	>10%	<=10%	>10%	<=10%	>10%	<=10%
Signalized	A	A	B or C*	B or C*	B or C*	B or C*
Unsignalized	A	A	B or C*	B or C*	B or C*	B

Notes: Storage needed exceeds available amount
 * Whichever is greater

PennDOT Turn Lane Storage Length Calculations

Location: S.R. 11 (Main Street) and S.R. 239 (Union Street)
 Scenario: 2018, Construction, with Outage
 Mitigation: Mitigated
 Control: Signalized

Movement	Peak Hour	Max LT Volume	Approach Volume	LT%	Cycle Length (sec)	Vehicles/Cycle	Condition A (X)	Condition B	Condition C1 (Y)	Condition C (X+Y)	Storage Length Needed	Storage Available
NBL	AM	93	407	23%	60	1.5	100	#N/A	#N/A	#N/A	100	150
NBL	PM	345	1389	25%	90	8.6	350	#N/A	#N/A	#N/A	350	150
Speed (MPH)	25			>10%		Condition: A						

Condition B	
MPH	Length
40	75
45	125
50	175
55	235
60	295

Condition C1	
MPH	Length
40	61
45	75
50	93
55	114
60	131

	25-35	25-35	40-45	40-45	50-60	50-60
Speed (MPH)	25-35	25-35	40-45	40-45	50-60	50-60
LT %	>10%	<=10%	>10%	<=10%	>10%	<=10%
Signalized	A	A	B or C*	B or C*	B or C*	B or C*
Unsignalized	A	A	B or C*	B or C*	B or C*	B

Notes: Storage needed exceeds available amount

* Whichever is greater

PennDOT Turn Lane Storage Length Calculations

Location: S.R. 11 and S.R. 29 (Mill Street)
 Scenario: 2018, Construction, with Outage
 Mitigation: Mitigated
 Control: Signalized

Movement	Peak Hour	Max LT Volume	Approach Volume	LT%	Cycle Length (sec)	Vehicles/Cycle	Condition A (X)	Condition B	Condition C1 (Y)	Condition C (X+Y)	Storage Length Needed	Storage Available
NBL	AM	39	930	4%	180	2.0	100	#N/A	#N/A	#N/A	100	100
NBL	PM	31	535	6%	100	0.9	75	#N/A	#N/A	#N/A	75	100
Speed (MPH)	35			<=10%		Condition: A						

Condition B	
MPH	Length
40	75
45	125
50	175
55	235
60	295

Condition C1	
MPH	Length
40	61
45	75
50	93
55	114
60	131

	25-35	25-35	40-45	40-45	50-60	50-60
Speed (MPH)						
LT %	>10%	<=10%	>10%	<=10%	>10%	<=10%
Signalized	A	A	B or C*	B or C*	B or C*	B or C*
Unsignalized	A	A	B or C*	B or C*	B or C*	B

Notes: Storage needed exceeds available amount

* Whichever is greater

PennDOT Turn Lane Storage Length Calculations

Location: S.R. 11 and County Bridge
 Scenario: 2018, Construction, with Outage
 Mitigation: Mitigated
 Control: Signalized

Movement	Peak Hour	Max LT Volume	Approach Volume	LT%	Cycle Length (sec)	Vehicles/Cycle	Condition A (X)	Condition B	Condition C1 (Y)	Condition C (X+Y)	Storage Length Needed	Storage Available
SBL	AM	94	417	23%	90	2.4	150	#N/A	#N/A	#N/A	150	200
SBL	PM	131	828	16%	100	3.6	175	#N/A	#N/A	#N/A	175	200
Speed (MPH)	35			>10%		Condition:	A					

Condition B	
MPH	Length
40	75
45	125
50	175
55	235
60	295

Condition C1	
MPH	Length
40	61
45	75
50	93
55	114
60	131

	25-35	25-35	40-45	40-45	50-60	50-60
Speed (MPH)	25-35	25-35	40-45	40-45	50-60	50-60
LT %	>10%	<=10%	>10%	<=10%	>10%	<=10%
Signalized	A	A	B or C*	B or C*	B or C*	B or C*
Unsignalized	A	A	B or C*	B or C*	B or C*	B

Notes: Storage needed exceeds available amount

* Whichever is greater

PennDOT Turn Lane Storage Length Calculations

Location: S.R. 11 (E. Poplar Street) and S.R. 29
 Scenario: 2018, Construction, with Outage
 Mitigation: Mitigated
 Control: Signalized

Movement	Peak Hour	Max LT Volume	Approach Volume	LT%	Cycle Length (sec)	Vehicles/Cycle	Condition A (X)	Condition B	Condition C1 (Y)	Condition C (X+Y)	Storage Length Needed	Storage Available
NBL	AM	53	927	6%	90	1.3	100	#N/A	#N/A	#N/A	100	300
NBL	PM	265	1281	21%	50	3.7	175	#N/A	#N/A	#N/A	175	300
Speed (MPH)	35			>10%		Condition:	A					

Condition B	
MPH	Length
40	75
45	125
50	175
55	235
60	295

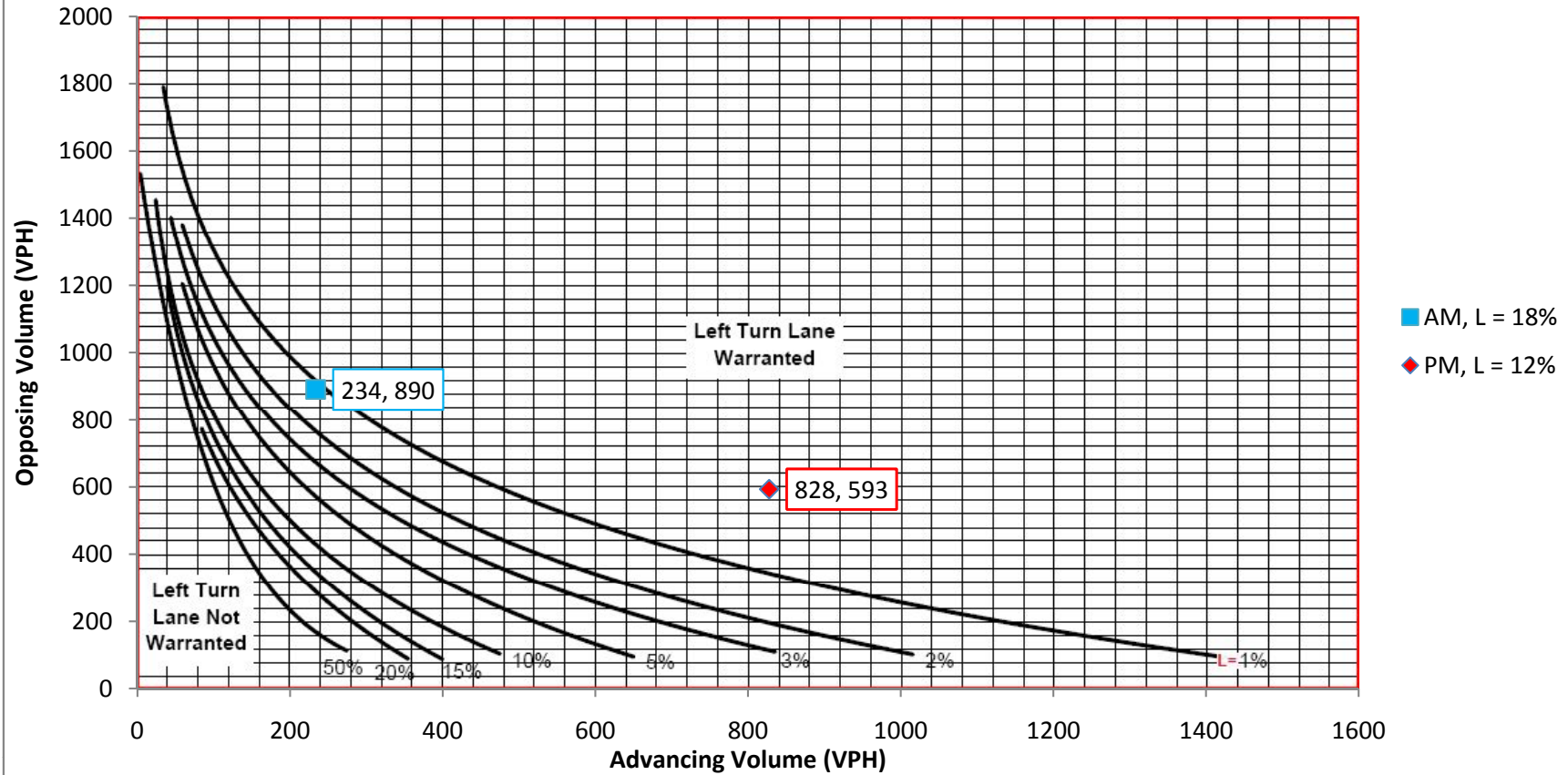
Condition C1	
MPH	Length
40	61
45	75
50	93
55	114
60	131

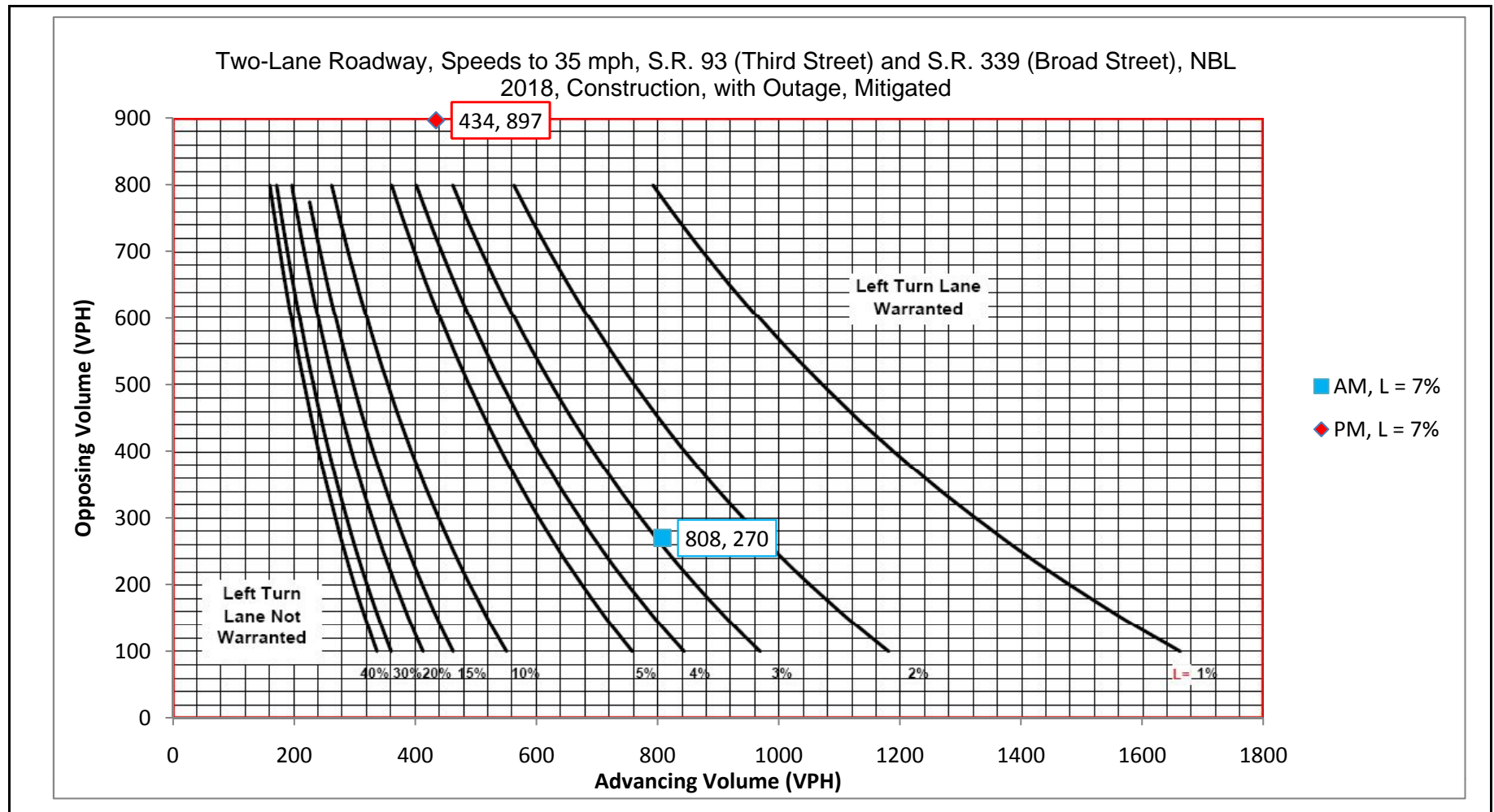
	25-35	25-35	40-45	40-45	50-60	50-60
Speed (MPH)	25-35	25-35	40-45	40-45	50-60	50-60
LT %	>10%	<=10%	>10%	<=10%	>10%	<=10%
Signalized	A	A	B or C*	B or C*	B or C*	B or C*
Unsignalized	A	A	B or C*	B or C*	B or C*	B

Notes: Storage needed exceeds available amount

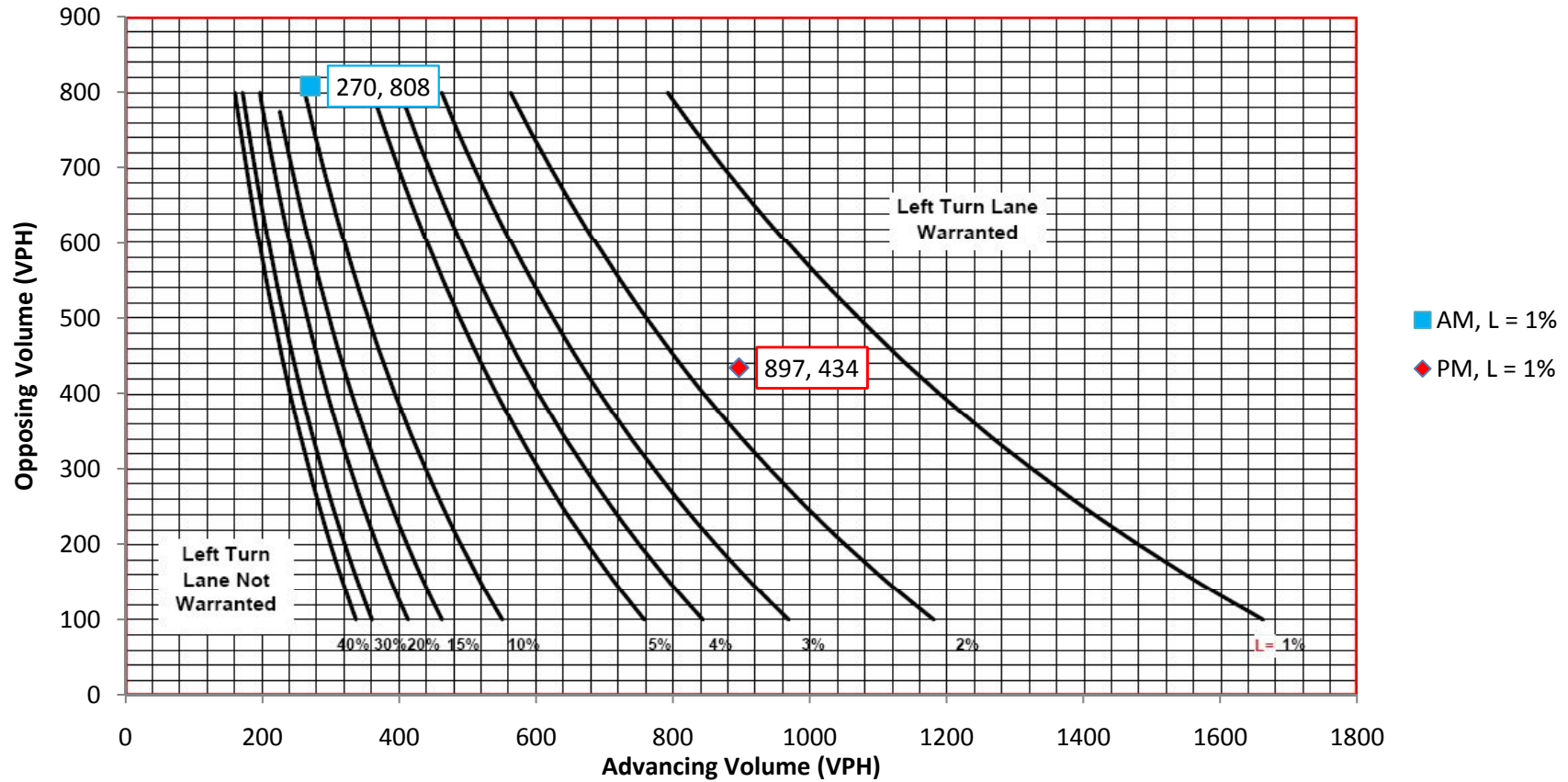
* Whichever is greater

Four-Lane Roadway, S.R. 11 (Front Street) and Market Street, EBL
2018, Construction, with Outage, Mitigated

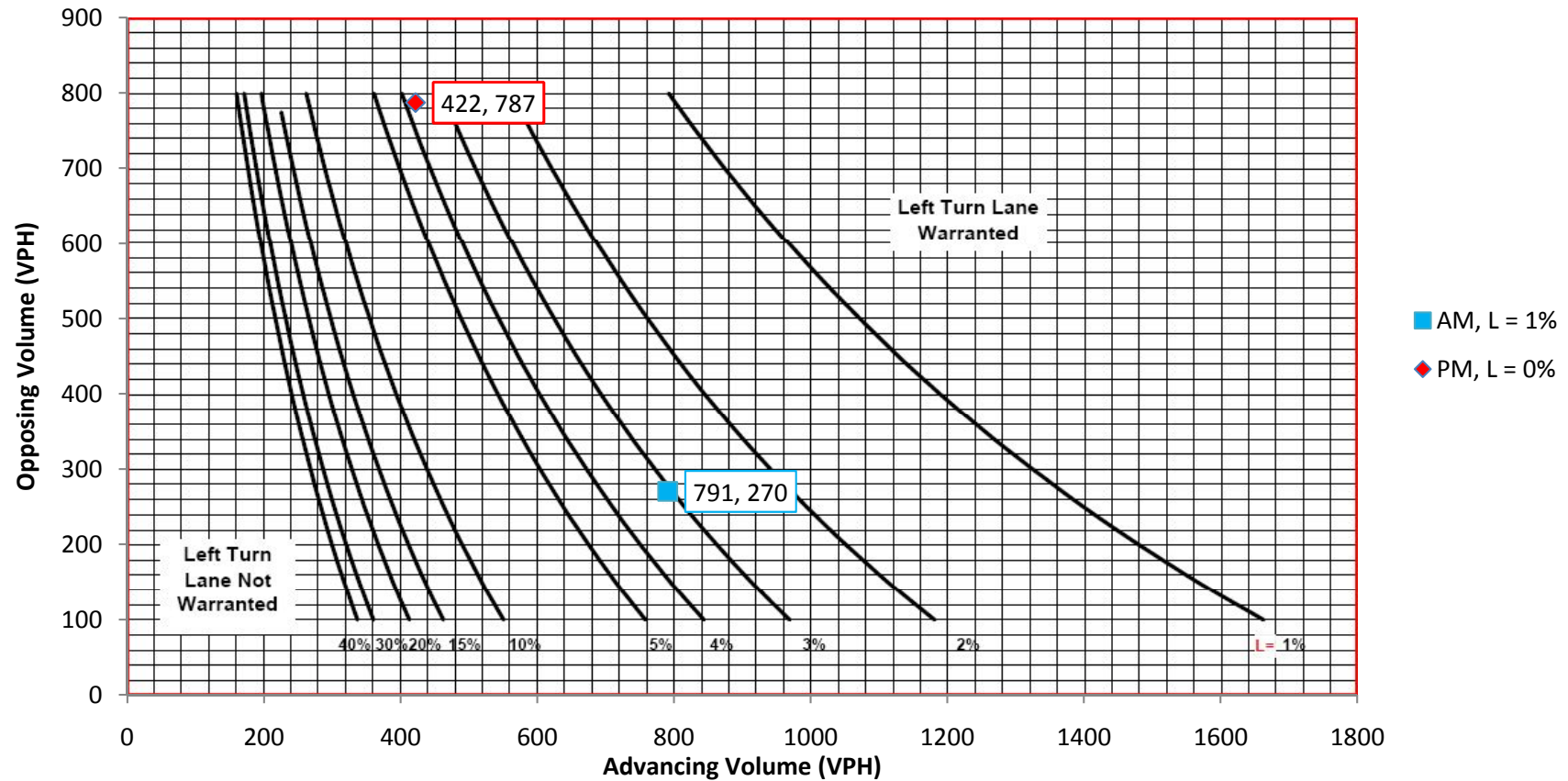




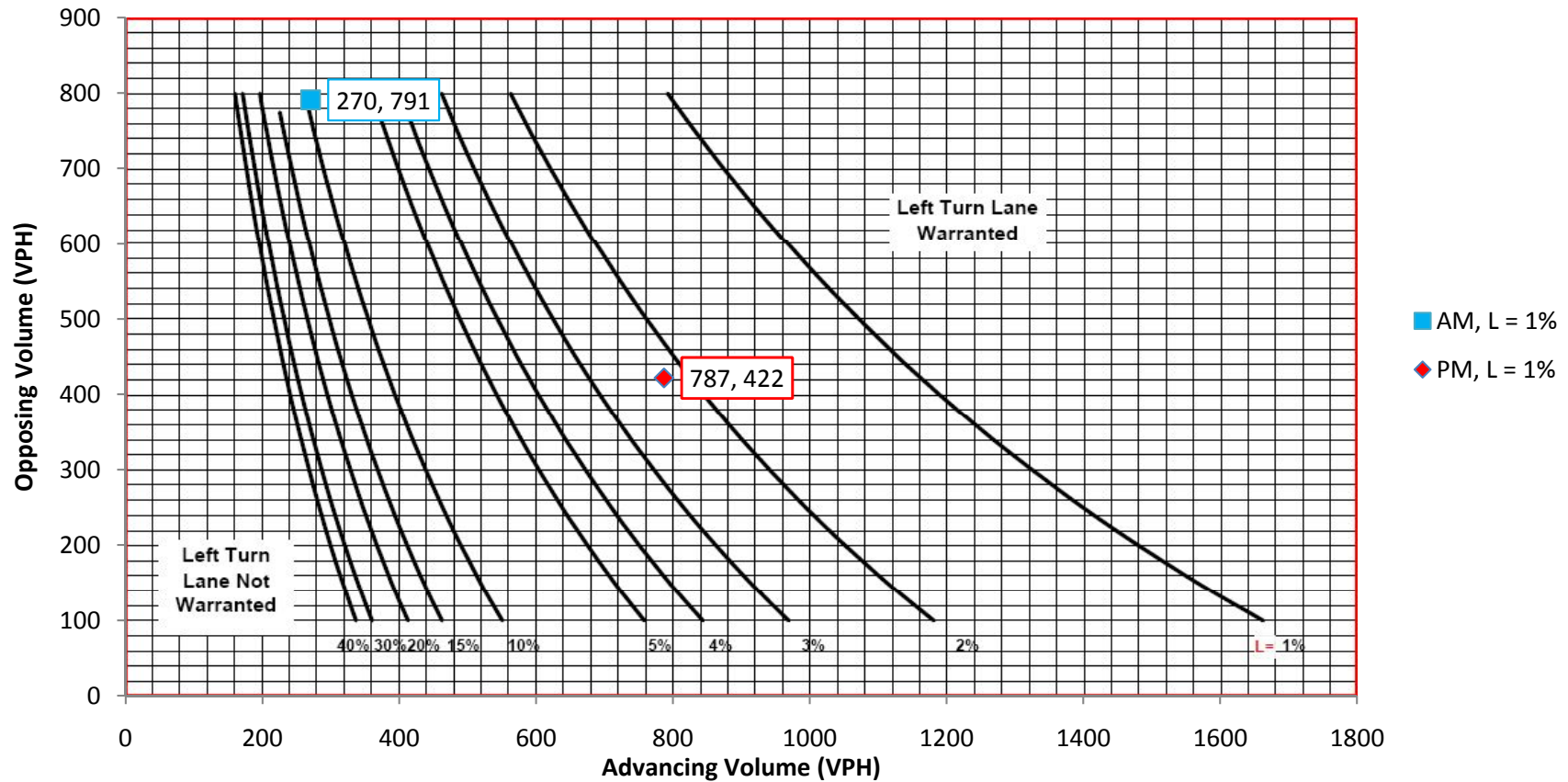
Two-Lane Roadway, Speeds to 35 mph, S.R. 93 (Third Street) and S.R. 339 (Broad Street), SBL
2018, Construction, with Outage, Mitigated



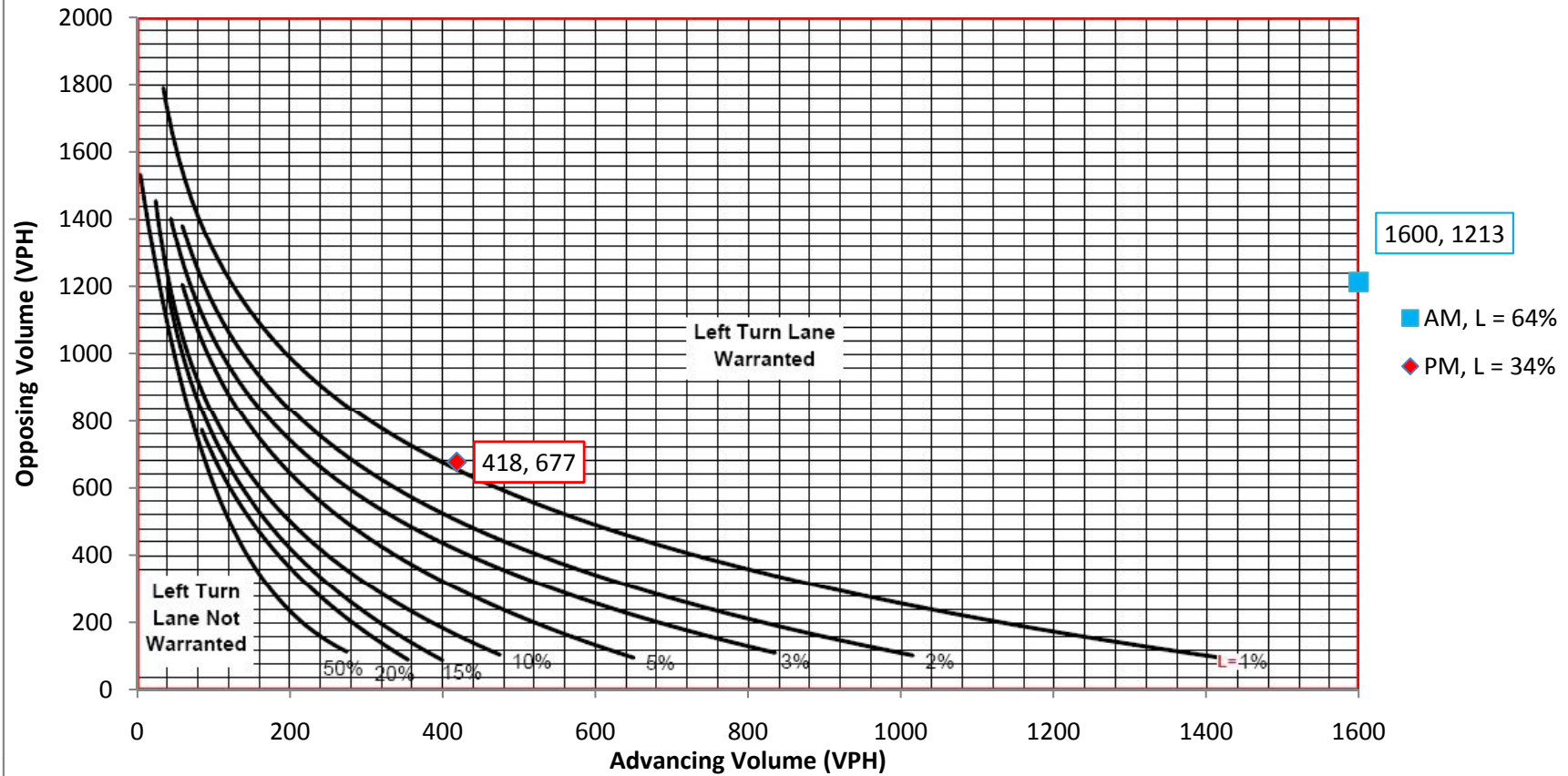
Two-Lane Roadway, Speeds to 35 mph, S.R. 93 (Third Street) and Dewey Street, NBL
2018, Construction, with Outage, Mitigated



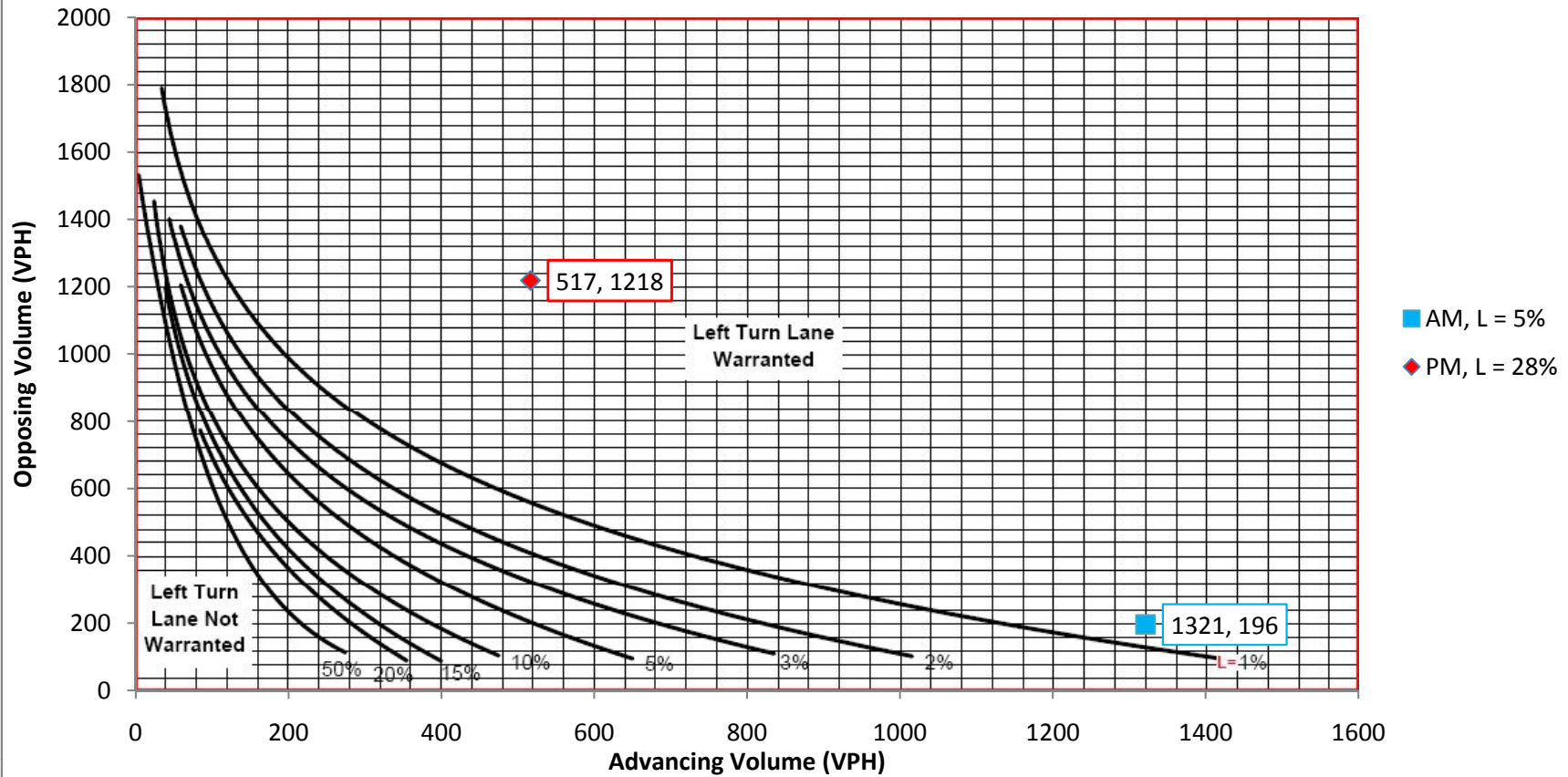
Two-Lane Roadway, Speeds to 35 mph, S.R. 93 (Third Street) and Dewey Street, SBL
2018, Construction, with Outage, Mitigated



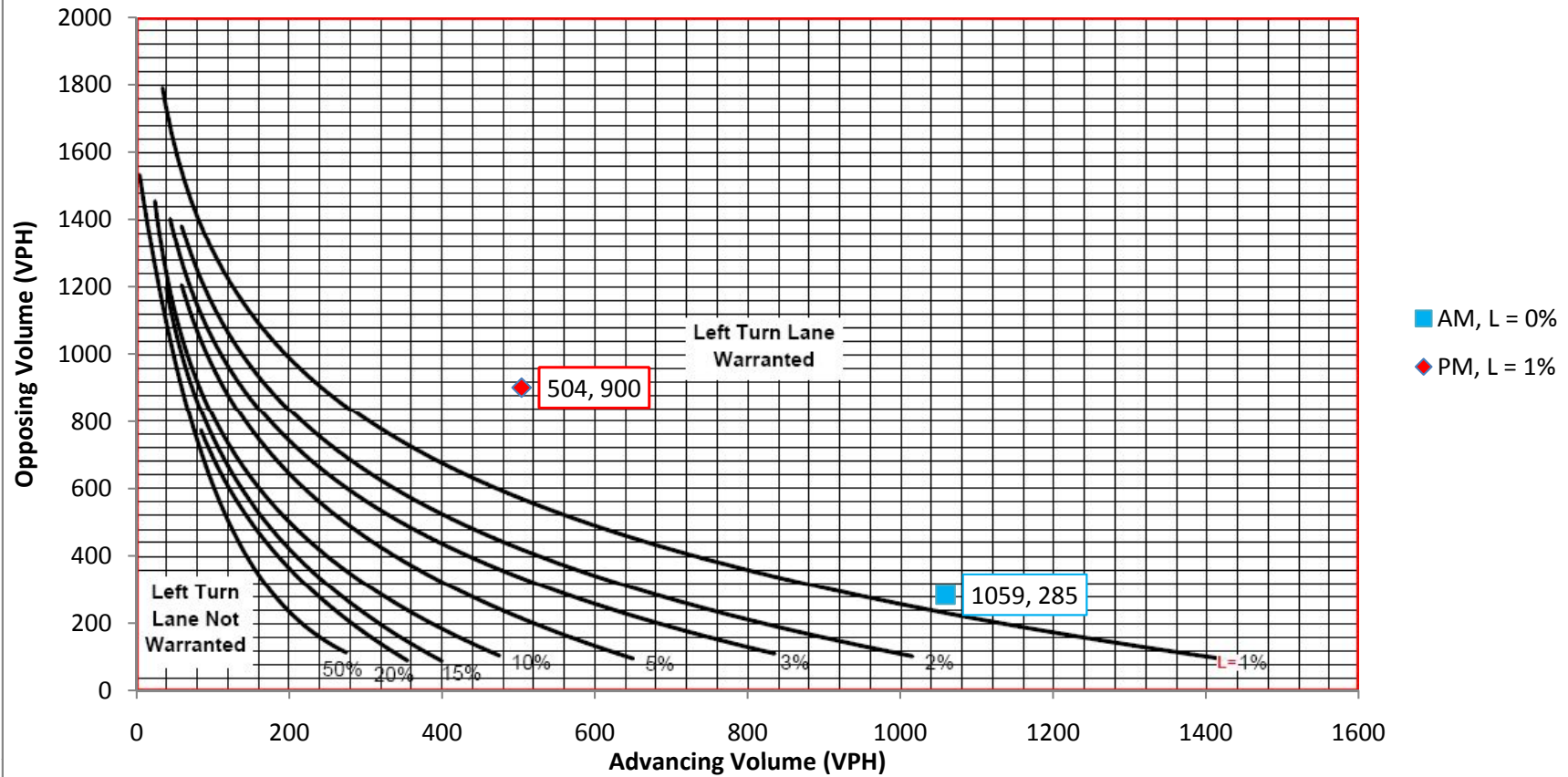
Four-Lane Roadway, S.R. 11 and Bell Bend Site Entrance, NBL
2018, Construction, with Outage, Mitigated



Four-Lane Roadway, S.R. 11 (S. Main Street) and S.R. 239, SBL
2018, Construction, with Outage, Mitigated



Four-Lane Roadway, S.R. 11 (Main Street) and S.R. 239 (Union Street), SBL
2018, Construction, with Outage, Mitigated



PennDOT Left Turn Conflict Factors & Phasing

Location: S.R. 11 and S.R. 2028
 Scenario: 2018, Construction, with Outage
 Mitigation: Mitigated

Movement #Lanes Lane Type
 SBL 1 Dedicated Turning Lane(s)
 NBT 2 Opposing Lane(s)

AM	Turning Volume	Opposing Volume	Conflict Factor
5:00 AM	0	181	0
5:15 AM	12	340	3974
5:30 AM	29	498	14300
5:45 AM	57	862	49027
6:00 AM	73	1179	86412
6:15 AM	89	1254	111974
6:30 AM	105	1341	140307
6:45 AM	111	1089	120389
7:00 AM	123	865	106666
7:15 AM	119	728	86691
7:30 AM	112	558	62259
7:45 AM	113	506	57049
8:00 AM	129	493	63679

PM	Turning Volume	Opposing Volume	Conflict Factor
3:00 PM	210	1076	225813
3:15 PM	217	1002	217250
3:30 PM	231	849	195825
3:45 PM	228	743	169243
4:00 PM	222	667	148044
4:15 PM	226	711	160848
4:30 PM	208	753	156853
4:45 PM	199	755	149959
5:00 PM	191	725	138646
5:15 PM	131	503	66011
5:30 PM	88	334	29305
5:45 PM	43	163	7033
6:00 PM	0	19	0

Consider Phasing If CF > # 15 Minute Periods

Prot./Perm.	65000	6
Protected	90000	4

Total Hours >= 2 Hrs?

Prot./Perm.	4	Yes
Prot./Prohib.	3.25	Yes

Consider Phasing If CF > # 15 Minute Periods

Prot./Perm.	65000	10
Protected	90000	9

Recommended Phasing: **Prot./Prohib.**

PennDOT Left Turn Conflict Factors & Phasing

Location: S.R. 11 and Briar Creek Plaza Driveways
 Scenario: 2018, Construction, with Outage
 Mitigation: Mitigated

Movement #Lanes Lane Type
 NBL 1 Dedicated Turning Lane(s)
 SBT 2 Opposing Lane(s)

AM	Turning Volume	Opposing Volume	Conflict Factor
5:00 AM	0	3	0
5:15 AM	5	61	289
5:30 AM	9	157	1417
5:45 AM	13	273	3633
6:00 AM	19	376	7186
6:15 AM	26	428	11138
6:30 AM	28	452	12481
6:45 AM	39	474	18384
7:00 AM	40	526	21245
7:15 AM	34	536	18217
7:30 AM	37	507	18597
7:45 AM	22	486	10845
8:00 AM	25	430	10738

PM	Turning Volume	Opposing Volume	Conflict Factor
3:00 PM	94	998	93342
3:15 PM	86	1146	98645
3:30 PM	94	1242	116163
3:45 PM	87	1275	111054
4:00 PM	81	1251	101014
4:15 PM	99	1047	103512
4:30 PM	94	866	80933
4:45 PM	107	693	74348
5:00 PM	103	601	61939
5:15 PM	72	436	31523
5:30 PM	54	296	16015
5:45 PM	20	196	3950
6:00 PM	0	66	0

Consider Phasing If CF > # 15 Minute Periods

Prot./Perm.	65000	0
Protected	90000	0

Total Hours >= 2 Hrs?

Prot./Perm.	2	Yes
Prot./Prohib.	1.5	No

Consider Phasing If CF > # 15 Minute Periods

Prot./Perm.	65000	8
Protected	90000	6

Recommended Phasing: **Prot./Perm.**

PennDOT Left Turn Conflict Factors & Phasing

Location: S.R. 11 and Briar Creek Plaza Driveways
 Scenario: 2018, Construction, with Outage
 Mitigation: Mitigated

Movement #Lanes Lane Type
 SBL 1 Dedicated Turning Lane(s)
 NBT 1 Opposing Lane(s)

AM	Turning Volume	Opposing Volume	Conflict Factor
5:00 AM	0	181	0
5:15 AM	0	321	0
5:30 AM	1	492	522
5:45 AM	1	823	874
6:00 AM	6	1158	6767
6:15 AM	13	1239	16451
6:30 AM	20	1283	25214
6:45 AM	22	1062	23140
7:00 AM	20	844	17031
7:15 AM	20	718	14111
7:30 AM	28	597	16820
7:45 AM	36	569	20261
8:00 AM	42	550	23088

PM	Turning Volume	Opposing Volume	Conflict Factor
3:00 PM	20	978	19739
3:15 PM	21	883	18758
3:30 PM	20	788	15912
3:45 PM	21	680	14459
4:00 PM	16	616	9812
4:15 PM	14	665	9186
4:30 PM	11	712	7562
4:45 PM	6	747	4761
5:00 PM	7	735	5467
5:15 PM	4	542	2305
5:30 PM	3	359	1145
5:45 PM	3	175	558
6:00 PM	0	19	0

Consider Phasing If CF > # 15 Minute Periods

Prot./Perm.	50000	0
Protected	67500	0

Total Hours >= 2 Hrs?

Prot./Perm.	0	No
Prot./Prohib.	0	No

Consider Phasing If CF > # 15 Minute Periods

Prot./Perm.	50000	0
Protected	67500	0

Recommended Phasing: **Permitted**

PennDOT Left Turn Conflict Factors & Phasing

Location: S.R. 11 (Front Street) and Eaton Street
 Scenario: 2018, Construction, with Outage
 Mitigation: Mitigated

Movement #Lanes Lane Type
 NBL 1 Dedicated Turning Lane(s)
 SBT 1 Opposing Lane(s)

AM	Turning Volume	Opposing Volume	Conflict Factor
5:00 AM	0	3	0
5:15 AM	5	96	508
5:30 AM	6	195	1244
5:45 AM	12	337	3942
6:00 AM	14	455	6291
6:15 AM	13	477	6085
6:30 AM	22	502	11207
6:45 AM	21	528	11214
7:00 AM	24	570	13923
7:15 AM	23	610	14263
7:30 AM	18	623	11256
7:45 AM	18	627	11332
8:00 AM	15	632	9409

PM	Turning Volume	Opposing Volume	Conflict Factor
3:00 PM	63	1181	74040
3:15 PM	64	1352	86214
3:30 PM	57	1428	81952
3:45 PM	62	1449	89323
4:00 PM	53	1425	75687
4:15 PM	50	1166	58230
4:30 PM	51	973	49619
4:45 PM	44	820	35736
5:00 PM	40	703	28405
5:15 PM	29	529	15169
5:30 PM	16	361	5760
5:45 PM	6	197	1254
6:00 PM	0	66	0

Consider Phasing If CF > # 15 Minute Periods

Prot./Perm.	50000	0
Protected	67500	0

Total Hours >= 2 Hrs?

Prot./Perm.	1.5	No
Prot./Prohib.	1.25	No

Consider Phasing If CF > # 15 Minute Periods

Prot./Perm.	50000	6
Protected	67500	5

Recommended Phasing: **Permitted**

PennDOT Left Turn Conflict Factors & Phasing

Location: S.R. 11 (Front Street) and Eaton Street
 Scenario: 2018, Construction, with Outage
 Mitigation: Mitigated

Movement #Lanes Lane Type
 SBL 1 Dedicated Turning Lane(s)
 NBT 1 Opposing Lane(s)

AM	Turning Volume	Opposing Volume	Conflict Factor
5:00 AM	0	181	0
5:15 AM	0	329	0
5:30 AM	1	507	539
5:45 AM	4	839	3566
6:00 AM	6	1176	7501
6:15 AM	7	1245	9260
6:30 AM	9	1316	11188
6:45 AM	7	1079	8028
7:00 AM	11	847	8998
7:15 AM	14	716	9894
7:30 AM	14	545	7525
7:45 AM	14	514	7099
8:00 AM	13	499	6622

PM	Turning Volume	Opposing Volume	Conflict Factor
3:00 PM	16	1065	16973
3:15 PM	14	948	13096
3:30 PM	17	832	14141
3:45 PM	24	723	17283
4:00 PM	30	615	18611
4:15 PM	39	662	26019
4:30 PM	33	707	23303
4:45 PM	40	715	28505
5:00 PM	63	702	44386
5:15 PM	52	504	26218
5:30 PM	49	317	15509
5:45 PM	33	150	4946
6:00 PM	0	19	0

Consider Phasing If CF > # 15 Minute Periods

Prot./Perm.	50000	0
Protected	67500	0

Total Hours >= 2 Hrs?

Prot./Perm.	0	No
Prot./Prohib.	0	No

Consider Phasing If CF > # 15 Minute Periods

Prot./Perm.	50000	0
Protected	67500	0

Recommended Phasing: **Permitted**

PennDOT Left Turn Conflict Factors & Phasing

Location: S.R. 11 (Front Street) and Poplar Street
 Scenario: 2018, Construction, with Outage
 Mitigation: Mitigated

Movement #Lanes Lane Type
 NBL 1 Dedicated Turning Lane(s)
 SBT 1 Opposing Lane(s)

AM	Turning Volume	Opposing Volume	Conflict Factor
5:00 AM	0	3	0
5:15 AM	0	99	0
5:30 AM	0	226	0
5:45 AM	0	375	0
6:00 AM	0	513	0
6:15 AM	0	534	0
6:30 AM	0	529	0
6:45 AM	0	567	0
7:00 AM	0	582	0
7:15 AM	0	628	0
7:30 AM	0	647	0
7:45 AM	0	610	0
8:00 AM	0	612	0

PM	Turning Volume	Opposing Volume	Conflict Factor
3:00 PM	10	1139	11049
3:15 PM	14	1289	18062
3:30 PM	15	1379	20798
3:45 PM	18	1463	26802
4:00 PM	23	1419	32107
4:15 PM	20	1170	23959
4:30 PM	19	985	19097
4:45 PM	13	626	8093
5:00 PM	6	387	2500
5:15 PM	1	228	246
5:30 PM	0	60	0
5:45 PM	0	63	0
6:00 PM	0	66	0

Consider Phasing If CF > # 15 Minute Periods

Prot./Perm.	50000	0
Protected	67500	0

Total Hours >= 2 Hrs?

Prot./Perm.	0	No
Prot./Prohib.	0	No

Consider Phasing If CF > # 15 Minute Periods

Prot./Perm.	50000	0
Protected	67500	0

Recommended Phasing: **Permitted**

PennDOT Left Turn Conflict Factors & Phasing

Location: S.R. 11 (Front Street) and Poplar Street
 Scenario: 2018, Construction, with Outage
 Mitigation: Mitigated

Movement #Lanes Lane Type
 SBL 1 Dedicated Turning Lane(s)
 NBT 1 Opposing Lane(s)

AM	Turning Volume	Opposing Volume	Conflict Factor
5:00 AM	0	181	0
5:15 AM	3	361	1167
5:30 AM	6	548	3544
5:45 AM	12	908	10765
6:00 AM	22	1202	25917
6:15 AM	25	1230	31161
6:30 AM	41	1256	52100
6:45 AM	47	997	47296
7:00 AM	52	814	42520
7:15 AM	57	662	37467
7:30 AM	43	531	22908
7:45 AM	39	524	20593
8:00 AM	47	492	23087

PM	Turning Volume	Opposing Volume	Conflict Factor
3:00 PM	75	1048	78515
3:15 PM	70	962	66845
3:30 PM	68	878	60101
3:45 PM	53	835	44558
4:00 PM	56	710	39809
4:15 PM	53	759	40096
4:30 PM	42	761	31976
4:45 PM	33	553	18464
5:00 PM	13	403	5216
5:15 PM	9	197	1700
5:30 PM	0	25	0
5:45 PM	0	22	0
6:00 PM	0	19	0

Consider Phasing If CF > # 15 Minute Periods

Prot./Perm.	50000	1
Protected	67500	0

Total Hours >= 2 Hrs?

Prot./Perm.	1	No
Prot./Prohib.	0.25	No

Consider Phasing If CF > # 15 Minute Periods

Prot./Perm.	50000	3
Protected	67500	1

Recommended Phasing: **Permitted**

PennDOT Left Turn Conflict Factors & Phasing

Location: S.R. 11 (Front Street) and Orchard Street
 Scenario: 2018, Construction, with Outage
 Mitigation: Mitigated

Movement #Lanes Lane Type
 NBL 1 Dedicated Turning Lane(s)
 SBT 1 Opposing Lane(s)

AM	Turning Volume	Opposing Volume	Conflict Factor
5:00 AM	0	3	0
5:15 AM	3	79	209
5:30 AM	3	175	465
5:45 AM	3	302	803
6:00 AM	4	436	1621
6:15 AM	1	474	503
6:30 AM	2	535	1137
6:45 AM	3	590	1882
7:00 AM	4	669	2844
7:15 AM	6	703	4479
7:30 AM	10	699	6686
7:45 AM	12	709	8283
8:00 AM	11	629	6687

PM	Turning Volume	Opposing Volume	Conflict Factor
3:00 PM	7	1238	9207
3:15 PM	12	1358	15868
3:30 PM	14	1425	20435
3:45 PM	15	1430	22028
4:00 PM	15	1378	21229
4:15 PM	12	1147	14020
4:30 PM	10	957	9156
4:45 PM	11	805	8980
5:00 PM	14	725	10396
5:15 PM	13	547	7270
5:30 PM	10	381	3847
5:45 PM	4	229	974
6:00 PM	0	66	0

Consider Phasing If CF > # 15 Minute Periods

Prot./Perm.	50000	0
Protected	67500	0

Total Hours >= 2 Hrs?

Prot./Perm.	0	No
Prot./Prohib.	0	No

Consider Phasing If CF > # 15 Minute Periods

Prot./Perm.	50000	0
Protected	67500	0

Recommended Phasing: **Permitted**

PennDOT Left Turn Conflict Factors & Phasing

Location: S.R. 11 (Front Street) and Orchard Street
 Scenario: 2018, Construction, with Outage
 Mitigation: Mitigated

Movement #Lanes Lane Type
 SBL 1 Dedicated Turning Lane(s)
 NBT 1 Opposing Lane(s)

AM	Turning Volume	Opposing Volume	Conflict Factor
5:00 AM	0	181	0
5:15 AM	0	318	0
5:30 AM	0	489	0
5:45 AM	0	821	0
6:00 AM	0	1159	0
6:15 AM	2	1257	2671
6:30 AM	3	1331	4243
6:45 AM	4	1122	4768
7:00 AM	9	882	7496
7:15 AM	6	746	4759
7:30 AM	6	611	3893
7:45 AM	5	585	3109
8:00 AM	3	554	1765

PM	Turning Volume	Opposing Volume	Conflict Factor
3:00 PM	5	1048	5570
3:15 PM	6	997	6359
3:30 PM	5	929	4938
3:45 PM	4	845	3592
4:00 PM	7	754	5210
4:15 PM	10	779	7860
4:30 PM	10	805	8123
4:45 PM	10	801	8085
5:00 PM	6	800	5099
5:15 PM	2	584	1242
5:30 PM	1	384	408
5:45 PM	0	193	0
6:00 PM	0	19	0

Consider Phasing If CF > # 15 Minute Periods

Prot./Perm.	50000	0
Protected	67500	0

Total Hours >= 2 Hrs?

Prot./Perm.	0	No
Prot./Prohib.	0	No

Consider Phasing If CF > # 15 Minute Periods

Prot./Perm.	50000	0
Protected	67500	0

Recommended Phasing: **Permitted**

PennDOT Left Turn Conflict Factors & Phasing

Location: S.R. 11 (Second Street) and LaSalle Street Movement #Lanes Lane Type
 Scenario: 2018, Construction, with Outage NBL 1 Dedicated Turning Lane(s)
 Mitigation: Mitigated SBT 2 Opposing Lane(s)

AM	Turning Volume	Opposing Volume	Conflict Factor
5:00 AM	0	3	0
5:15 AM	9	109	935
5:30 AM	18	220	4031
5:45 AM	36	371	13189
6:00 AM	57	507	28968
6:15 AM	58	519	30216
6:30 AM	57	536	30621
6:45 AM	52	577	29841
7:00 AM	53	656	34619
7:15 AM	53	684	36096
7:30 AM	48	719	34883
7:45 AM	43	664	28603
8:00 AM	32	608	19659

PM	Turning Volume	Opposing Volume	Conflict Factor
3:00 PM	72	1379	99568
3:15 PM	80	1529	121894
3:30 PM	81	1625	131363
3:45 PM	80	1676	133640
4:00 PM	82	1662	136101
4:15 PM	74	1403	104318
4:30 PM	92	1169	107061
4:45 PM	69	773	53308
5:00 PM	45	484	21916
5:15 PM	36	257	9133
5:30 PM	0	60	0
5:45 PM	0	63	0
6:00 PM	0	66	0

Consider Phasing If CF > # 15 Minute Periods

Prot./Perm.	65000	0
Protected	90000	0

Total Hours >= 2 Hrs?

Prot./Perm.	1.75	No
Prot./Prohib.	1.75	No

Consider Phasing If CF > # 15 Minute Periods

Prot./Perm.	65000	7
Protected	90000	7

Recommended Phasing: **Permitted**

PennDOT Left Turn Conflict Factors & Phasing

Location: S.R. 1025 (Market Street) and Third Street
 Scenario: 2018, Construction, with Outage
 Mitigation: Mitigated

Movement #Lanes Lane Type
 EBL 1 Dedicated Turning Lane(s)
 WBT 1 Opposing Lane(s)

AM	Turning Volume	Opposing Volume	Conflict Factor
5:00 AM	0	0	0
5:15 AM	0	3	0
5:30 AM	1	15	16
5:45 AM	2	38	81
6:00 AM	3	64	203
6:15 AM	9	94	795
6:30 AM	11	101	1073
6:45 AM	12	116	1360
7:00 AM	13	124	1579
7:15 AM	10	117	1118
7:30 AM	13	143	1829
7:45 AM	13	126	1606
8:00 AM	14	131	1813

PM	Turning Volume	Opposing Volume	Conflict Factor
3:00 PM	24	162	3947
3:15 PM	21	190	4042
3:30 PM	24	193	4714
3:45 PM	20	202	4087
4:00 PM	19	194	3709
4:15 PM	18	188	3398
4:30 PM	9	183	1554
4:45 PM	7	162	1201
5:00 PM	13	162	2066
5:15 PM	10	115	1098
5:30 PM	10	72	691
5:45 PM	7	36	269
6:00 PM	0	0	0

Consider Phasing If CF > # 15 Minute Periods

Prot./Perm.	50000	0
Protected	67500	0

Total Hours >= 2 Hrs?

Prot./Perm.	0	No
Prot./Prohib.	0	No

Consider Phasing If CF > # 15 Minute Periods

Prot./Perm.	50000	0
Protected	67500	0

Recommended Phasing: **Permitted**

PennDOT Left Turn Conflict Factors & Phasing

Location: S.R. 1025 (Market Street) and Third Street
 Scenario: 2018, Construction, with Outage
 Mitigation: Mitigated

Movement #Lanes Lane Type
 WBL 1 Dedicated Turning Lane(s)
 EBT 1 Opposing Lane(s)

AM	Turning Volume	Opposing Volume	Conflict Factor
5:00 AM	0	0	0
5:15 AM	2	40	86
5:30 AM	2	74	158
5:45 AM	7	107	798
6:00 AM	10	160	1534
6:15 AM	11	182	1936
6:30 AM	14	209	2892
6:45 AM	17	226	3848
7:00 AM	27	211	5617
7:15 AM	35	193	6763
7:30 AM	37	198	7370
7:45 AM	38	210	8048
8:00 AM	40	235	9358

PM	Turning Volume	Opposing Volume	Conflict Factor
3:00 PM	9	277	2353
3:15 PM	6	276	1758
3:30 PM	9	273	2317
3:45 PM	13	279	3557
4:00 PM	15	267	3976
4:15 PM	19	287	5498
4:30 PM	28	304	8558
4:45 PM	23	308	7040
5:00 PM	20	320	6298
5:15 PM	15	240	3692
5:30 PM	3	151	483
5:45 PM	2	76	161
6:00 PM	0	0	0

Consider Phasing If CF > # 15 Minute Periods

Prot./Perm.	50000	0
Protected	67500	0

Total Hours >= 2 Hrs?

Prot./Perm.	0	No
Prot./Prohib.	0	No

Consider Phasing If CF > # 15 Minute Periods

Prot./Perm.	50000	0
Protected	67500	0

Recommended Phasing: **Permitted**

PennDOT Left Turn Conflict Factors & Phasing

Location: S.R. 11 (Second Street) and Market Street
 Scenario: 2018, Construction, with Outage
 Mitigation: Mitigated

Movement #Lanes Lane Type
 WBL 1 Dedicated Turning Lane(s)
 EBT 2 Opposing Lane(s)

AM	Turning Volume	Opposing Volume	Conflict Factor
5:00 AM	0	0	0
5:15 AM	23	35	807
5:30 AM	46	64	2972
5:45 AM	66	88	5857
6:00 AM	103	118	12157
6:15 AM	110	126	13907
6:30 AM	124	132	16448
6:45 AM	151	145	21806
7:00 AM	179	152	27207
7:15 AM	196	147	28671
7:30 AM	220	142	31320
7:45 AM	234	141	33038
8:00 AM	214	142	30299

PM	Turning Volume	Opposing Volume	Conflict Factor
3:00 PM	256	205	52275
3:15 PM	247	231	57099
3:30 PM	217	225	48718
3:45 PM	204	230	46827
4:00 PM	202	245	49558
4:15 PM	212	249	52824
4:30 PM	222	253	56149
4:45 PM	215	243	52117
5:00 PM	212	230	48769
5:15 PM	156	157	24482
5:30 PM	105	102	10677
5:45 PM	59	48	2820
6:00 PM	0	0	0

Consider Phasing If CF > # 15 Minute Periods

Prot./Perm.	65000	0
Protected	90000	0

Total Hours >= 2 Hrs?

Prot./Perm.	0	No
Prot./Prohib.	0	No

Consider Phasing If CF > # 15 Minute Periods

Prot./Perm.	65000	0
Protected	90000	0

Recommended Phasing: **Permitted**

PennDOT Left Turn Conflict Factors & Phasing

Location: S.R. 11 (Front Street) and Market Street
 Scenario: 2018, Construction, with Outage
 Mitigation: Mitigated

Movement #Lanes Lane Type
 EBL 0 Dedicated Turning Lane(s)
 WBT 1 Opposing Lane(s)

AM	Turning Volume	Opposing Volume	Conflict Factor
5:00 AM	0	0	0
5:15 AM	11	31	327
5:30 AM	16	63	1008
5:45 AM	24	112	2740
6:00 AM	38	172	6474
6:15 AM	41	193	7912
6:30 AM	42	227	9522
6:45 AM	46	252	11507
7:00 AM	38	297	11204
7:15 AM	38	308	11604
7:30 AM	46	333	15221
7:45 AM	49	335	16539
8:00 AM	56	312	17399

PM	Turning Volume	Opposing Volume	Conflict Factor
3:00 PM	66	356	23452
3:15 PM	84	366	30730
3:30 PM	88	335	29521
3:45 PM	103	329	33898
4:00 PM	106	323	34326
4:15 PM	90	334	30185
4:30 PM	92	366	33793
4:45 PM	72	355	25683
5:00 PM	73	349	25555
5:15 PM	57	259	14847
5:30 PM	35	164	5738
5:45 PM	19	88	1687
6:00 PM	0	0	0

Consider Phasing If CF > # 15 Minute Periods

Prot./Perm.	35000	0
Protected	N/A	0

Total Hours >= 2 Hrs?

Prot./Perm.	0	No
Prot./Prohib.	0	No

Consider Phasing If CF > # 15 Minute Periods

Prot./Perm.	35000	0
Protected	N/A	0

Recommended Phasing: **Permitted**

PennDOT Left Turn Conflict Factors & Phasing

Location: S.R. 93 (Third Street) and S.R. 339 (Broad St Movement #Lanes Lane Type
 Scenario: 2018, Construction, with Outage NBL 0 Dedicated Turning Lane(s)
 Mitigation: Mitigated SBT 1 Opposing Lane(s)

AM	Turning Volume	Opposing Volume	Conflict Factor
5:00 AM	0	1	0
5:15 AM	7	46	336
5:30 AM	13	90	1204
5:45 AM	26	149	3933
6:00 AM	37	196	7310
6:15 AM	38	216	8255
6:30 AM	53	234	12467
6:45 AM	53	262	13961
7:00 AM	58	286	16552
7:15 AM	62	289	17751
7:30 AM	44	296	13144
7:45 AM	42	267	11158
8:00 AM	40	246	9911

PM	Turning Volume	Opposing Volume	Conflict Factor
3:00 PM	26	384	9933
3:15 PM	29	546	15801
3:30 PM	25	678	16819
3:45 PM	31	756	23445
4:00 PM	28	825	23032
4:15 PM	30	675	20249
4:30 PM	31	535	16596
4:45 PM	31	431	13371
5:00 PM	33	369	12194
5:15 PM	24	262	6233
5:30 PM	17	174	2883
5:45 PM	7	96	697
6:00 PM	0	11	0

Consider Phasing If CF > # 15 Minute Periods

Prot./Perm.	35000	0
Protected	N/A	0

Total Hours >= 2 Hrs?

Prot./Perm.	0	No
Prot./Prohib.	0	No

Consider Phasing If CF > # 15 Minute Periods

Prot./Perm.	35000	0
Protected	N/A	0

Recommended Phasing: **Permitted**

PennDOT Left Turn Conflict Factors & Phasing

Location: S.R. 93 (Third Street) and S.R. 339 (Broad St Movement #Lanes Lane Type
 Scenario: 2018, Construction, with Outage SBL 0 Dedicated Turning Lane(s)
 Mitigation: Mitigated NBT 1 Opposing Lane(s)

AM	Turning Volume	Opposing Volume	Conflict Factor
5:00 AM	0	30	0
5:15 AM	0	83	0
5:30 AM	0	139	0
5:45 AM	0	315	0
6:00 AM	0	490	0
6:15 AM	3	600	1860
6:30 AM	3	751	2329
6:45 AM	3	671	2081
7:00 AM	3	612	1899
7:15 AM	0	518	0
7:30 AM	2	378	780
7:45 AM	4	351	1452
8:00 AM	4	303	1251

PM	Turning Volume	Opposing Volume	Conflict Factor
3:00 PM	5	574	2966
3:15 PM	5	522	2701
3:30 PM	5	455	2352
3:45 PM	5	400	2065
4:00 PM	7	341	2470
4:15 PM	8	344	2843
4:30 PM	5	376	1944
4:45 PM	5	385	1989
5:00 PM	2	370	765
5:15 PM	1	292	301
5:30 PM	1	180	186
5:45 PM	0	81	0
6:00 PM	0	4	0

Consider Phasing If CF > # 15 Minute Periods

Prot./Perm.	35000	0
Protected	N/A	0

Total Hours >= 2 Hrs?

Prot./Perm.	0	No
Prot./Prohib.	0	No

Consider Phasing If CF > # 15 Minute Periods

Prot./Perm.	35000	0
Protected	N/A	0

Recommended Phasing: **Permitted**

PennDOT Left Turn Conflict Factors & Phasing

Location: S.R. 93 (Third Street) and Dewey Street
 Scenario: 2018, Construction, with Outage
 Mitigation: Mitigated

Movement #Lanes Lane Type
 NBL 0 Dedicated Turning Lane(s)
 SBT 1 Opposing Lane(s)

AM	Turning Volume	Opposing Volume	Conflict Factor
5:00 AM	0	1	0
5:15 AM	0	57	0
5:30 AM	0	121	0
5:45 AM	0	171	0
6:00 AM	0	238	0
6:15 AM	1	251	259
6:30 AM	5	258	1336
6:45 AM	5	286	1478
7:00 AM	5	291	1502
7:15 AM	8	291	2408
7:30 AM	7	286	2069
7:45 AM	7	269	1947
8:00 AM	7	250	1809

PM	Turning Volume	Opposing Volume	Conflict Factor
3:00 PM	8	399	3302
3:15 PM	6	565	3501
3:30 PM	3	701	2174
3:45 PM	2	770	1593
4:00 PM	0	837	0
4:15 PM	0	688	0
4:30 PM	1	554	572
4:45 PM	2	465	962
5:00 PM	2	398	823
5:15 PM	2	288	595
5:30 PM	1	189	196
5:45 PM	0	96	0
6:00 PM	0	11	0

Consider Phasing If CF > # 15 Minute Periods

Prot./Perm.	35000	0
Protected	N/A	0

Total Hours >= 2 Hrs?

Prot./Perm.	0	No
Prot./Prohib.	0	No

Consider Phasing If CF > # 15 Minute Periods

Prot./Perm.	35000	0
Protected	N/A	0

Recommended Phasing: **Permitted**

PennDOT Left Turn Conflict Factors & Phasing

Location: S.R. 93 (Third Street) and Dewey Street
 Scenario: 2018, Construction, with Outage
 Mitigation: Mitigated

Movement #Lanes Lane Type
 SBL 0 Dedicated Turning Lane(s)
 NBT 1 Opposing Lane(s)

AM	Turning Volume	Opposing Volume	Conflict Factor
5:00 AM	0	30	0
5:15 AM	0	95	0
5:30 AM	0	180	0
5:45 AM	0	364	0
6:00 AM	0	550	0
6:15 AM	1	658	681
6:30 AM	2	786	1624
6:45 AM	4	714	2952
7:00 AM	4	648	2679
7:15 AM	3	546	1693
7:30 AM	5	399	2063
7:45 AM	4	356	1471
8:00 AM	5	305	1575

PM	Turning Volume	Opposing Volume	Conflict Factor
3:00 PM	18	563	10185
3:15 PM	14	518	7502
3:30 PM	11	459	5216
3:45 PM	11	418	4749
4:00 PM	10	362	3738
4:15 PM	10	375	3880
4:30 PM	8	402	3321
4:45 PM	8	404	3340
5:00 PM	9	378	3516
5:15 PM	7	285	2062
5:30 PM	6	177	1100
5:45 PM	3	76	235
6:00 PM	0	4	0

Consider Phasing If CF > # 15 Minute Periods

Prot./Perm.	35000	0
Protected	N/A	0

Total Hours >= 2 Hrs?

Prot./Perm.	0	No
Prot./Prohib.	0	No

Consider Phasing If CF > # 15 Minute Periods

Prot./Perm.	35000	0
Protected	N/A	0

Recommended Phasing: **Permitted**

PennDOT Left Turn Conflict Factors & Phasing

Location: S.R. 11 and Bell Bend Site Entrance
 Scenario: 2018, Construction, with Outage
 Mitigation: Mitigated

Movement #Lanes Lane Type
 NBL 2 Dedicated Turning Lane(s)
 SBT 2 Opposing Lane(s)

AM	Turning Volume	Opposing Volume	Conflict Factor
5:00 AM	45	2	74
5:15 AM	64	69	4467
5:30 AM	84	122	10251
5:45 AM	342	192	65427
6:00 AM	599	289	173177
6:15 AM	814	305	248470
6:30 AM	1028	315	323677
6:45 AM	765	332	254016
7:00 AM	502	298	149780
7:15 AM	261	274	71563
7:30 AM	20	254	4998
7:45 AM	17	210	3485
8:00 AM	14	196	2663

PM	Turning Volume	Opposing Volume	Conflict Factor
3:00 PM	559	717	401218
3:15 PM	420	686	288385
3:30 PM	281	607	170859
3:45 PM	143	548	78102
4:00 PM	4	465	1715
4:15 PM	5	404	1997
4:30 PM	6	406	2520
4:45 PM	7	380	2836
5:00 PM	9	358	3124
5:15 PM	8	279	2239
5:30 PM	7	198	1450
5:45 PM	7	124	815
6:00 PM	6	60	353

Consider Phasing If CF > # 15 Minute Periods

Prot./Perm.	0	13
Protected	0	13

Total Hours >= 2 Hrs?

Prot./Perm.	6.5	Yes
Prot./Prohib.	6.5	Yes

Consider Phasing If CF > # 15 Minute Periods

Prot./Perm.	0	13
Protected	0	13

Recommended Phasing: **Prot./Prohib.**

PennDOT Left Turn Conflict Factors & Phasing

Location: S.R. 11 and Bell Bend Site Entrance
 Scenario: 2018, Construction, with Outage
 Mitigation: Mitigated

Movement #Lanes Lane Type
 SBL 1 Dedicated Turning Lane(s)
 NBT 1 Opposing Lane(s)

AM	Turning Volume	Opposing Volume	Conflict Factor
5:00 AM	0	166	65
5:15 AM	0	339	132
5:30 AM	0	507	197
5:45 AM	0	680	265
6:00 AM	0	839	326
6:15 AM	0	704	274
6:30 AM	0	619	241
6:45 AM	0	523	203
7:00 AM	0	393	153
7:15 AM	0	381	148
7:30 AM	0	325	126
7:45 AM	0	262	102
8:00 AM	0	263	102

PM	Turning Volume	Opposing Volume	Conflict Factor
3:00 PM	0	238	93
3:15 PM	0	231	90
3:30 PM	0	255	99
3:45 PM	0	275	107
4:00 PM	0	275	107
4:15 PM	0	287	112
4:30 PM	0	294	115
4:45 PM	0	285	111
5:00 PM	0	284	110
5:15 PM	0	227	88
5:30 PM	0	142	55
5:45 PM	0	79	31
6:00 PM	0	16	6

Consider Phasing If CF > # 15 Minute Periods

Prot./Perm.	50000	0
Protected	67500	0

Total Hours >= 2 Hrs?

Prot./Perm.	0	No
Prot./Prohib.	0	No

Consider Phasing If CF > # 15 Minute Periods

Prot./Perm.	50000	0
Protected	67500	0

Recommended Phasing: **Permitted**

PennDOT Left Turn Conflict Factors & Phasing

Location: S.R. 11 and SSES Site Entrance
 Scenario: 2018, Construction, with Outage
 Mitigation: Mitigated

Movement #Lanes Lane Type
 NBL 1 Dedicated Turning Lane(s)
 SBT 2 Opposing Lane(s)

AM	Turning Volume	Opposing Volume	Conflict Factor
5:00 AM	166	18	2985
5:15 AM	301	56	16877
5:30 AM	439	94	41339
5:45 AM	568	358	203380
6:00 AM	686	628	430943
6:15 AM	544	860	468333
6:30 AM	409	1098	449106
6:45 AM	278	915	254868
7:00 AM	150	701	105084
7:15 AM	136	488	66210
7:30 AM	109	248	27007
7:45 AM	92	210	19324
8:00 AM	73	205	15007

PM	Turning Volume	Opposing Volume	Conflict Factor
3:00 PM	16	739	11721
3:15 PM	16	633	10423
3:30 PM	16	507	8153
3:45 PM	21	408	8446
4:00 PM	23	257	5982
4:15 PM	31	232	7225
4:30 PM	45	235	10577
4:45 PM	55	225	12324
5:00 PM	69	233	16001
5:15 PM	61	179	10906
5:30 PM	48	122	5873
5:45 PM	34	60	2027
6:00 PM	16	4	61

Consider Phasing If CF > # 15 Minute Periods

Prot./Perm.	65000	7
Protected	90000	6

Total Hours >= 2 Hrs?

Prot./Perm.	1.75	No
Prot./Prohib.	1.5	No

Consider Phasing If CF > # 15 Minute Periods

Prot./Perm.	65000	0
Protected	90000	0

Recommended Phasing: **Permitted**

PennDOT Left Turn Conflict Factors & Phasing

Location: S.R. 11 (S. Main Street) and S.R. 239
 Scenario: 2018, Construction, with Outage
 Mitigation: Mitigated

Movement #Lanes Lane Type
 SBL 0 Dedicated Turning Lane(s)
 NBT 2 Opposing Lane(s)

AM	Turning Volume	Opposing Volume	Conflict Factor
5:00 AM	0	3	0
5:15 AM	9	36	340
5:30 AM	32	85	2706
5:45 AM	46	132	6119
6:00 AM	65	171	11012
6:15 AM	68	181	12286
6:30 AM	65	183	11820
6:45 AM	64	213	13616
7:00 AM	64	246	15615
7:15 AM	70	247	17260
7:30 AM	69	241	16665
7:45 AM	76	202	15383
8:00 AM	70	170	11932

PM	Turning Volume	Opposing Volume	Conflict Factor
3:00 PM	102	456	46335
3:15 PM	105	767	80677
3:30 PM	121	1018	123486
3:45 PM	142	1164	165528
4:00 PM	140	1242	173435
4:15 PM	129	873	112708
4:30 PM	90	515	46099
4:45 PM	48	258	12345
5:00 PM	22	80	1746
5:15 PM	0	25	0
5:30 PM	0	27	0
5:45 PM	0	28	0
6:00 PM	0	30	0

Consider Phasing If CF > # 15 Minute Periods

Prot./Perm.	45000	0
Protected	N/A	0

Total Hours >= 2 Hrs?

Prot./Perm.	1.75	No
Prot./Prohib.	0	No

Consider Phasing If CF > # 15 Minute Periods

Prot./Perm.	45000	7
Protected	N/A	0

Recommended Phasing: **Permitted**

PennDOT Left Turn Conflict Factors & Phasing

Location: S.R. 11 (Main Street) and S.R. 239 (Union Str Movement #Lanes Lane Type
 Scenario: 2018, Construction, with Outage NBL 1 Dedicated Turning Lane(s)
 Mitigation: Mitigated SBT 2 Opposing Lane(s)

AM	Turning Volume	Opposing Volume	Conflict Factor
5:00 AM	1	47	25
5:15 AM	9	99	864
5:30 AM	19	177	3374
5:45 AM	32	441	14305
6:00 AM	45	682	30571
6:15 AM	49	867	42610
6:30 AM	53	1025	54771
6:45 AM	71	804	56739
7:00 AM	78	614	47616
7:15 AM	84	410	34281
7:30 AM	93	212	19654
7:45 AM	86	211	18194
8:00 AM	92	189	17310

PM	Turning Volume	Opposing Volume	Conflict Factor
3:00 PM	245	655	160162
3:15 PM	272	556	150933
3:30 PM	326	482	157058
3:45 PM	324	383	124024
4:00 PM	345	269	92955
4:15 PM	304	273	82926
4:30 PM	268	267	71641
4:45 PM	203	203	41281
5:00 PM	125	148	18600
5:15 PM	75	81	6105
5:30 PM	10	8	81
5:45 PM	11	7	77
6:00 PM	12	6	73

Consider Phasing If CF > # 15 Minute Periods

Prot./Perm.	65000	0
Protected	90000	0

Total Hours >= 2 Hrs?

Prot./Perm.	1.75	No
Prot./Prohib.	1.25	No

Consider Phasing If CF > # 15 Minute Periods

Prot./Perm.	65000	7
Protected	90000	5

Recommended Phasing: **Permitted**

PennDOT Left Turn Conflict Factors & Phasing

Location: S.R. 11 (Main Street) and S.R. 239 (Union Str Movement #Lanes Lane Type
 Scenario: 2018, Construction, with Outage SBL 0 Dedicated Turning Lane(s)
 Mitigation: Mitigated NBT 1 Opposing Lane(s)

AM	Turning Volume	Opposing Volume	Conflict Factor
5:00 AM	0	2	0
5:15 AM	0	42	0
5:30 AM	0	111	0
5:45 AM	0	164	0
6:00 AM	0	211	0
6:15 AM	0	235	0
6:30 AM	0	221	0
6:45 AM	0	254	0
7:00 AM	2	303	630
7:15 AM	4	293	1223
7:30 AM	5	297	1545
7:45 AM	6	263	1646
8:00 AM	6	205	1282

PM	Turning Volume	Opposing Volume	Conflict Factor
3:00 PM	9	373	3497
3:15 PM	7	654	4769
3:30 PM	8	859	7159
3:45 PM	6	970	6064
4:00 PM	4	1022	4257
4:15 PM	5	727	3785
4:30 PM	3	493	1540
4:45 PM	3	274	857
5:00 PM	2	140	292
5:15 PM	1	79	82
5:30 PM	0	16	0
5:45 PM	0	17	0
6:00 PM	0	18	0

Consider Phasing If CF > # 15 Minute Periods

Prot./Perm.	35000	0
Protected	N/A	0

Total Hours >= 2 Hrs?

Prot./Perm.	0	No
Prot./Prohib.	0	No

Consider Phasing If CF > # 15 Minute Periods

Prot./Perm.	35000	0
Protected	N/A	0

Recommended Phasing: **Permitted**

PennDOT Left Turn Conflict Factors & Phasing

Location: S.R. 11 and S.R. 29 (Mill Street)
 Scenario: 2018, Construction, with Outage
 Mitigation: Mitigated

Movement #Lanes Lane Type
 NBL 0 Dedicated Turning Lane(s)
 SBT 1 Opposing Lane(s)

AM	Turning Volume	Opposing Volume	Conflict Factor
5:00 AM	0	47	0
5:15 AM	0	67	0
5:30 AM	0	87	0
5:45 AM	7	350	2378
6:00 AM	11	624	6780
6:15 AM	19	845	16060
6:30 AM	29	1100	31370
6:45 AM	33	920	30000
7:00 AM	39	728	28680
7:15 AM	35	546	19292
7:30 AM	33	354	11542
7:45 AM	22	262	5695
8:00 AM	11	172	1873

PM	Turning Volume	Opposing Volume	Conflict Factor
3:00 PM	18	785	13835
3:15 PM	24	832	19839
3:30 PM	29	921	26735
3:45 PM	29	839	24345
4:00 PM	25	742	18442
4:15 PM	23	789	17992
4:30 PM	29	806	23375
4:45 PM	31	772	24012
5:00 PM	28	586	16398
5:15 PM	24	380	9069
5:30 PM	12	164	2041
5:45 PM	0	7	0
6:00 PM	0	6	0

Consider Phasing If CF > # 15 Minute Periods

Prot./Perm.	35000	0
Protected	N/A	0

Total Hours >= 2 Hrs?

Prot./Perm.	0	No
Prot./Prohib.	0	No

Consider Phasing If CF > # 15 Minute Periods

Prot./Perm.	35000	0
Protected	N/A	0

Recommended Phasing: **Permitted**

PennDOT Left Turn Conflict Factors & Phasing

Location: S.R. 11 and County Bridge
 Scenario: 2018, Construction, with Outage
 Mitigation: Mitigated

Movement #Lanes Lane Type
 SBL 1 Dedicated Turning Lane(s)
 NBT 2 Opposing Lane(s)

AM	Turning Volume	Opposing Volume	Conflict Factor
5:00 AM	0	2	0
5:15 AM	7	109	789
5:30 AM	18	275	4825
5:45 AM	36	456	16501
6:00 AM	52	622	32476
6:15 AM	55	678	37512
6:30 AM	53	718	38248
6:45 AM	56	769	43302
7:00 AM	68	811	55357
7:15 AM	86	837	71815
7:30 AM	94	769	72331
7:45 AM	85	679	57534
8:00 AM	82	583	47615

PM	Turning Volume	Opposing Volume	Conflict Factor
3:00 PM	116	538	62346
3:15 PM	115	804	92203
3:30 PM	118	1026	120866
3:45 PM	125	1143	142997
4:00 PM	121	1210	146296
4:15 PM	119	909	108105
4:30 PM	125	676	84193
4:45 PM	127	523	66180
5:00 PM	131	416	54456
5:15 PM	101	311	31373
5:30 PM	65	198	12918
5:45 PM	36	93	3353
6:00 PM	0	18	0

Consider Phasing If CF > # 15 Minute Periods

Prot./Perm.	65000	2
Protected	90000	0

Total Hours >= 2 Hrs?

Prot./Perm.	2.25	Yes
Prot./Prohib.	1.25	No

Consider Phasing If CF > # 15 Minute Periods

Prot./Perm.	65000	7
Protected	90000	5

Recommended Phasing: **Prot./Perm.**

Appendix N

Crash Analysis

Growth rate		0.42%				
		AADT				
	Section	1	2	3	Growth factor	Crashes/MVMT
Year	2003	5999	8654	6982	0.983374929	1.072
	2004	6024	8690	7011	0.987505104	0.854
	2005	6049	8727	7041	0.991652625	0.638
	2006	6074	8763	7070	0.995817566	2.118
	2007	6100	8800	7100	1	1.476
					23511084	1.233 Total
Length (miles)		0.69	0.53	0.58		

2007 Pennsylvania Averages (Crashes/MVM)

State Highway Interstate	0.44
State Highway Other	1.29
Turnpike	0.45
Local Road	2.00

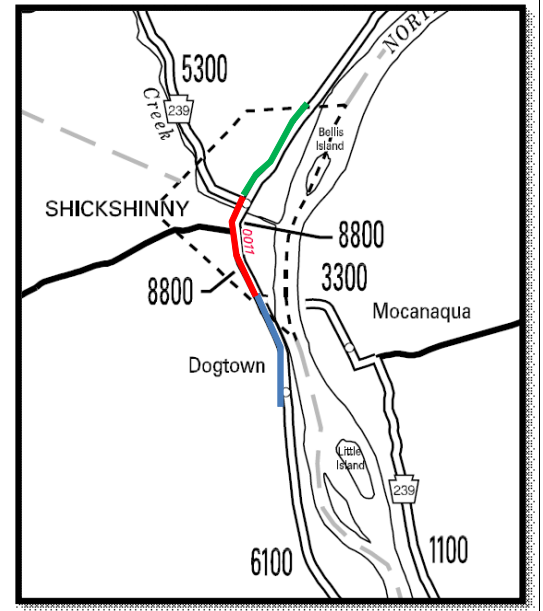


Figure N-2 – Crash Rate Calculation (Shickshinny Area)

Crash Diagrams

Crash statistics were compiled and mapped by location. The resulting diagrams for the Berwick area (Figure N-3) and Shickshinny (Figure N-4) can be seen below. Analysis of the diagrams results in the following conclusions:

1. S.R. 11 and Poplar Street has the highest share of crashes in the study area with 12 occurring over the past 5 years. The majority of these incidents are rear end collisions involving vehicles traveling SB on S.R. 11. Poor visibility resulting from vegetation blocking this signal head in months where foliage is lush is a potential contributing factor.
 - Recommendation: Consider trimming back and/or removing trees in the north east corner of the intersection of S.R. 11 and Poplar St.
2. One fatality occurred as a vehicle attempting to make a WB left turn from S.R. 239 was struck by a truck headed NB on S.R. 11. It is possible that this was partially due to the fact that the territory of vehicles making this WB left turn movement is not clearly defined.
 - Recommendation: Consider improving lane markings and stop line delineation at the intersection of S.R. 11 (S. Main Street) and S.R. 239 as is shown in the mitigated design for this intersection in Figure 32 in the main body of this report.

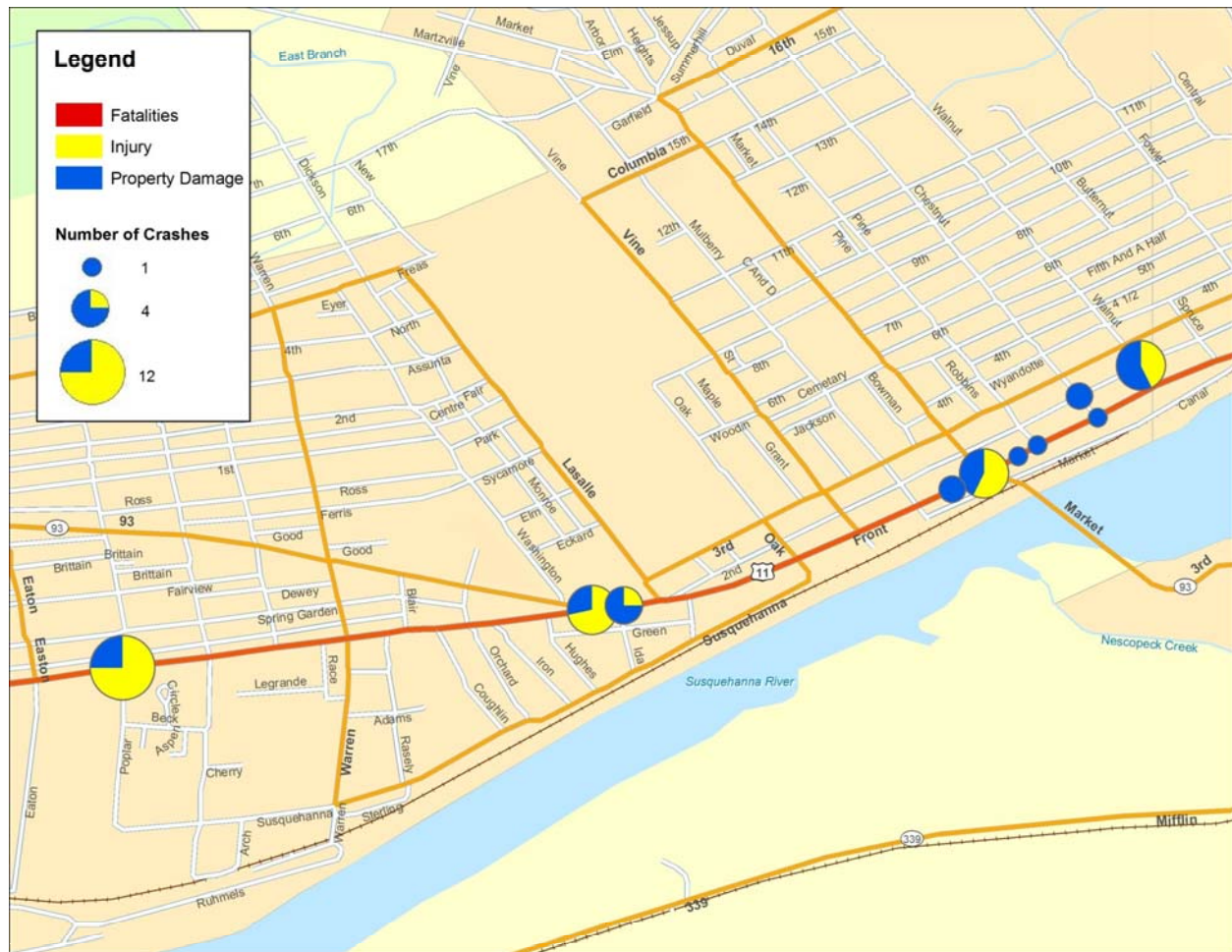


Figure N-3 - Crash Diagram 2003-2007 (Berwick Area)



Figure N-4 – Crash Diagram 2003-2007 (Shickshinny Area)

																	Vehicle 1			
Case	(CO) County	State Route/Segment/Offset	Date of Accident	Day	Time	Lighting	Road Surface	Weather	Fatality	Injury	Pedestrian	Vehicle	Max Severity	Manner of Collision	Environmental Roadway Factors		Vehicle 1	Direction of Travel	Pre-Accident Action	Vehicle Events
2003087942	40	0011.0200/2474, VINE ST	3/14/2003	FRI	7:37	DAYLIGHT	DRY	CLEAR	0	1	0	2	MINOR INJURY	HEAD-ON	GLARE	4WAY	AUTOMOBILE	TRAVELING EAST IN RIGHT LANE	TURNING RIGHT	HIT UNIT 02
2004024020	40	0011.0200/1392	9/3/2003	WED	17:28	DAYLIGHT	DRY	CLEAR	0	2	0	2	UNKNOWN SEVERITY	REAR-END	NONE	MIDB	AUTOMOBILE	TRAVELING SOUTH IN RIGHT LANE	GOING STRAIGHT	HIT UNIT 02
2004036636	40	0011.0200/2587	10/20/2003	MON	15:50	DAYLIGHT	DRY	CLEAR	0	0	0	3	PROPERTY DAMAGE ONLY	ANGLE	NONE	4WAY	SMALL TRUCK	TRAVELING NORTH IN RIGHT LANE	CHANGING LANES OR MERGING	HIT UNIT 02
2004047610	40	0011.0200/0064	11/27/2003	THR	22:35	DARK	WET	RAIN	0	0	0	2	PROPERTY DAMAGE ONLY	REAR-END	NONE	MIDB	AUTOMOBILE	TRAVELING SOUTH IN RIGHT LANE	GOING STRAIGHT	HIT UNIT 02
2004078757	40	0011.0210/0000, 0239/0190/0000, E UNION ST	12/23/2003	TUES	17:30	DUSK	DRY	CLEAR	0	0	0	2	PROPERTY DAMAGE ONLY	ANGLE	NONE	4WAY	SMALL TRUCK	TRAVELING NORTH IN LEFT TURN LANE	TURNING LEFT	HIT UNIT 02
TOTAL ACCIDENTS 2003: 5			FATAL ACCIDENTS 2003: 0			PERSONAL INJURY ACCIDENTS 2003: 2			PROPERTY DAMAGE ONLY 2003: 0											
2005060201	40	0011.0210/0235	2/17/2004	TUES	18:10	STREET LT	DRY	CLEAR	0	0	0	1	PROPERTY DAMAGE ONLY	HIT FIXED OBJECT	NONE	MIDB	AUTOMOBILE	TRAVELING NORTH IN RIGHT LANE	GOING STRAIGHT	HIT SNOW BANK
2005077808	40	0011.0200/2166	2/19/2004	THR	7:30	DAYLIGHT	DRY	CLEAR	0	0	0	1	PROPERTY DAMAGE ONLY	HIT FIXED OBJECT	NONE	MIDB	AUTOMOBILE	TRAVELING SOUTH IN RIGHT LANE	NEGOTIATING CURVE - LEFT	HIT CURB
2004043785	40	0011.0200/1753, GRANT ST	3/4/2004	THR	3:50	STREET LT	WET	RAIN	0	0	0	1	PROPERTY DAMAGE ONLY	HIT FIXED OBJECT	NONE	Y-INT	LARGE TRUCK	TRAVELING NORTH IN RIGHT LANE	NEGOTIATING CURVE - RIGHT	HIT CURB, HIT UTILITY POLE
2005028631	40	0011.0200/2474, VINE ST	4/3/2004	SAT	20:16	STREET LT	DRY	CLEAR	0	1	0	2	MINOR INJURY	SAME DIR SIDESWIPE	NONE	4WAY	VAN	TRAVELING NORTH IN SHOULDER RIGHT	PASSING/OVERTAKING VEH	HIT UNIT 02
TOTAL ACCIDENTS 2004: 4			FATAL ACCIDENTS 2004: 0			PERSONAL INJURY ACCIDENTS 2004: 1			PROPERTY DAMAGE ONLY 2004: 3											
2005200178	40	0011.0200/1918, 4004/0100/2245, BUTLER ST	1/30/2005	SUN	20:30	STREET LT	DRY	CLEAR	0	1	0	2	MODERATE INJURY	ANGLE	NONE	T-INT	AUTOMOBILE	TRAVELING NORTH IN RIGHT LANE	GOING STRAIGHT	HIT UNIT 02
2005172554	40	0011.0200/1918, 4004/0100/2245, BUTLER ST	6/2/2005	THR	15:02	DAYLIGHT	DRY	CLEAR	0	3	0	2	MINOR INJURY	HEAD-ON	NONE	4WAY	AUTOMOBILE	TRAVELING SOUTH IN RIGHT LANE	GOING STRAIGHT	HIT UNIT 02
200609483	40	0011.0200/2553	12/21/2005	SAT	14:00	DAYLIGHT	SNOW	SNOW	0	0	0	2	PROPERTY DAMAGE ONLY	ANGLE	SLIPPERY ROAD (ICE/S	MIDB	AUTOMOBILE	TRAVELING NORTH IN LEFT LANE	GOING STRAIGHT	HIT UNIT 02
TOTAL ACCIDENTS 2005: 3			FATAL ACCIDENTS 2005: 0			PERSONAL INJURY ACCIDENTS 2005: 2			PROPERTY DAMAGE ONLY 2005: 1											
2006017586	40	0011.0190/3041	1/3/2006	TUES	7:05	DAYLIGHT	SLUSH	RAIN	0	1	0	1	UNKNOWN SEVERITY	HIT FIXED OBJECT	SLIPPERY ROAD (ICE/S	MIDB	AUTOMOBILE	TRAVELING NORTH IN NOT APPLICABLE	GOING STRAIGHT	HIT TREE OR SHRUBBERY
2006044874	40	00239/0188/0205	3/11/2006	SAT	9:55	DAYLIGHT	DRY	CLEAR	0	1	0	2	MINOR INJURY	REAR-END	NONE	T-INT	SMALL TRUCK	TRAVELING NORTH IN RIGHT LANE	TURNING RIGHT ON RED	HIT UNIT 02
2006072314	40	00239/0188/0205	5/12/2006	FRI	21:42	STREET LT	DRY	CLEAR	1	2	0	3	FATAL	ANGLE	NONE	T-INT	AUTOMOBILE	TRAVELING WEST IN LEFT TURN LANE	TURNING LEFT	HIT UNIT 02, HIT UNIT 03
2006054735	40	0011.0210/0000, 0239/0190/0000, E UNION ST	5/12/2006	FRI	21:52	DARK	DRY	CLEAR	0	2	0	2	UNKNOWN SEVERITY	ANGLE	NONE	4WAY	AUTOMOBILE	TRAVELING NORTH IN ONCOMING TRAFFIC LANE	TURNING LEFT	HIT UNIT 02
2006095305	40	0011.0200/2447	8/19/2006	SAT	20:41	DARK	WET	RAIN	0	1	1	1	MODERATE INJURY	PEDESTRIAN	SUDDEN WEATHER CO	MIDB	AUTOMOBILE	TRAVELING NORTH IN RIGHT LANE	GOING STRAIGHT	HIT UNIT 02
2006109830	40	0011.0200/2389	9/14/2006	THR	6:10	DAWN	WET	RAIN	0	1	0	1	MINOR INJURY	HIT FIXED OBJECT	NONE	MIDB	SUV	TRAVELING SOUTH IN RIGHT LANE	GOING STRAIGHT	HIT TREE OR SHRUBBERY
2006130636	40	0011.0200/0000, 0239/0188/0205	11/20/2006	MON	19:26	STREET LT	DRY	CLEAR	0	2	0	2	UNKNOWN SEVERITY	ANGLE	UNKNOWN	T-INT	SMALL TRUCK	TRAVELING NORTH IN RIGHT LANE	GOING STRAIGHT	HIT UNIT 02
2007013200	40	0011.0200/2474, VINE ST	12/16/2006	SAT	18:00	STREET LT	DRY	CLEAR	0	0	0	2	PROPERTY DAMAGE ONLY	REAR-END	NONE	4WAY	AUTOMOBILE	TRAVELING WEST IN RIGHT LANE	GOING STRAIGHT	HIT UNIT 02
2007013549	40	0011.0200/1353	12/8/2006	FRI	23:35	STREET LT	DRY	CLEAR	0	1	0	1	MINOR INJURY	HEAD-ON	NONE	MIDB	SMALL TRUCK	TRAVELING SOUTH IN RIGHT LANE	GOING STRAIGHT	HIT UNIT 02
TOTAL ACCIDENTS 2006: 9			FATAL ACCIDENTS 2006: 1			PERSONAL INJURY ACCIDENTS 2006: 8			PROPERTY DAMAGE ONLY 2006: 1											
2007017584	40	0011.0200/1105	1/4/2007	THR	0:05	STREET LT	DRY	CLEAR	0	1	0	1	MODERATE INJURY	HIT FIXED OBJECT	NONE	MIDB	SUV	TRAVELING NORTH IN RIGHT LANE	NEGOTIATING CURVE - RIGHT	HIT TREE OR SHRUBBERY
2007035556	40	0011.0200/0204	2/15/2007	THR	12:15	DAYLIGHT	DRY	CLEAR	0	0	0	2	PROPERTY DAMAGE ONLY	SAME DIR SIDESWIPE	NONE	MIDB	AUTOMOBILE	TRAVELING NORTH IN RIGHT LANE	GOING STRAIGHT	STRUCK BY UNIT 01
2007035558	40	0011.0210/0000, 0239/0190/0000, E UNION ST	2/18/2007	SUN	18:57	STREET LT	DRY	CLEAR	0	3	0	2	MINOR INJURY	HEAD-ON	NONE	T-INT	AUTOMOBILE	TRAVELING SOUTH IN ONCOMING TRAFFIC LANE	TURNING LEFT	HIT UNIT 02
2007038973	40	0011.0190/2814	3/3/2007	SAT	4:30	STREET LT	ICE PATCH	CLEAR	0	0	0	1	PROPERTY DAMAGE ONLY	HIT FIXED OBJECT	OBSTACLE ON ROADW	MIDB	VAN	TRAVELING SOUTH IN RIGHT LANE	GOING STRAIGHT	HIT BOULDER/OBST IN ROADWAY OVERTURN/ROLL OVER
2007044458	40	0011.0200/2474, VINE ST	3/15/2007	THR	15:23	DAYLIGHT	WET	RAIN	0	2	0	3	MINOR INJURY	REAR-END	NONE, OTHER WEATHER CONDITIONS	T-INT	VAN	TRAVELING SOUTH IN OTHER FWD MOVING LANE	STOPPED IN TRAFFIC	STRUCK BY UNIT 02
2007076539	40	0011.0200/1918, 4004/0100/2245, BUTLER ST	6/19/2007	TUES	18:20	DAYLIGHT	WET	RAIN	0	2	0	2	MINOR INJURY	ANGLE	NONE	4WAY	SMALL TRUCK	TRAVELING WEST IN OTHER	GOING STRAIGHT	STRUCK BY UNIT 02
2007100424	40	0011.0210/0440	8/29/2007	WED	4:30	STREET LT	DRY	CLEAR	0	0	0	1	PROPERTY DAMAGE ONLY	REAR-END	NONE	MIDB	SMALL TRUCK	TRAVELING SOUTH IN RIGHT LANE	GOING STRAIGHT	HIT UNIT 02
TOTAL ACCIDENTS 2007: 7			FATAL ACCIDENTS 2007: 0			PERSONAL INJURY ACCIDENTS 2007: 4			PROPERTY DAMAGE ONLY 2007: 3											
2004030153	40	0239/0190/0535, UNKNOWN RD	9/30/2003	TUES	15:50	DAYLIGHT	DRY	CLEAR	0	1	0	1	MINOR INJURY	ANGLE	NONE	T-INT	PEDALCYCLE	TRAVELING SOUTH IN OTHER	GOING STRAIGHT	HIT UNIT 02
2004078757	40	0011.0210/0000, 0239/0190/0000, E UNION ST	12/23/2003	TUES	17:30	DUSK	DRY	CLEAR	0	0	0	2	PROPERTY DAMAGE ONLY	ANGLE	NONE	4WAY	SMALL TRUCK	TRAVELING NORTH IN LEFT TURN LANE	TURNING LEFT	HIT UNIT 02
TOTAL ACCIDENTS 2003: 2			FATAL ACCIDENTS 2003: 0			PERSONAL INJURY ACCIDENTS 2003: 1			PROPERTY DAMAGE ONLY 2003: 1											
2005058734	40	0239/0190/0594	6/20/2004	SUN	2:10	STREET LT	DRY	CLEAR	0	0	0	1	PROPERTY DAMAGE ONLY	HIT FIXED OBJECT	NONE	MIDB	SUV	TRAVELING SOUTH IN RIGHT LANE	GOING STRAIGHT	HIT UTILITY POLE
2005078349	40	0239/0190/0929	11/23/2004	TUES	18:30	DARK	DRY	CLEAR	0	1	0	2	MINOR INJURY	ANGLE	NONE	MIDB	AUTOMOBILE	TRAVELING NORTH IN SHOULDER RIGHT	TURNING LEFT	HIT UNIT 02
TOTAL ACCIDENTS 2004: 2			FATAL ACCIDENTS 2004: 0			PERSONAL INJURY ACCIDENTS 2004: 1			PROPERTY DAMAGE ONLY 2004: 1											
2005180792	40	0239 UNION ST	3/18/2005	FRI	18:11	DAYLIGHT	DRY	CLEAR	0	0	0	3	PROPERTY DAMAGE ONLY	REAR-END	NONE	MIDB	SUV	TRAVELING EAST IN RIGHT LANE	GOING STRAIGHT	HIT UNIT 02
TOTAL ACCIDENTS 2005: 1			FATAL ACCIDENTS 2005: 0			PERSONAL INJURY ACCIDENTS 2005: 0			PROPERTY DAMAGE ONLY 2005: 1											
2006044874	40	0011.0200/0000, 0239/0188/0205	3/11/2006	SAT	9:55	DAYLIGHT	DRY	CLEAR	0	1	0	2	MINOR INJURY	REAR-END	NONE	T-INT	SMALL TRUCK	TRAVELING NORTH IN RIGHT LANE	TURNING RIGHT ON RED	HIT UNIT 02
2006054735	40	0011.0210/0000, 0239/0190/0000, E UNION ST	5/12/2006	FRI	21:52	DARK	DRY	CLEAR	0	2	0	2	UNKNOWN SEVERITY	ANGLE	NONE	4WAY	AUTOMOBILE	TRAVELING NORTH IN ONCOMING TRAFFIC LANE	TURNING LEFT	HIT UNIT 02
2006072314	40	0011.0200/0000, 0239/0188/0205	5/12/2006	FRI	21:42	STREET LT	DRY	CLEAR	1	2	0	3	FATAL	ANGLE	NONE	T-INT	AUTOMOBILE	TRAVELING WEST IN LEFT TURN LANE	TURNING LEFT	HIT UNIT 02, HIT UNIT 03
2006130636	40	0011.0200/0000, 0239/0188/0205	11/20/2006	MON	19:26	STREET LT	DRY	CLEAR	0	2	0	2	UNKNOWN SEVERITY	ANGLE	UNKNOWN	T-INT	SMALL TRUCK	TRAVELING NORTH IN RIGHT LANE	GOING STRAIGHT	HIT UNIT 02
TOTAL ACCIDENTS 2006: 4			FATAL ACCIDENTS 2006: 1			PERSONAL INJURY ACCIDENTS 2006: 4			PROPERTY DAMAGE ONLY 2006: 0											
2007035558	40	0011.0210/0000, 0239/0190/0000, E UNION ST	2/18/2007	SUN	18:57	STREET LT	DRY	CLEAR	0	3	0	2	MINOR INJURY	HEAD-ON	NONE	T-INT	AUTOMOBILE	TRAVELING SOUTH IN ONCOMING TRAFFIC LANE	TURNING LEFT	HIT UNIT 02
TOTAL ACCIDENTS 2007: 1			FATAL ACCIDENTS 2007: 0			PERSONAL INJURY ACCIDENTS 2007: 1			PROPERTY DAMAGE ONLY 2007: 0											

Driver Actions	Vehicle 2					Vehicle 3				
	Vehicle 2	Direction of Travel	Pre-Accident Action	Vehicle Events	Driver Actions	Vehicle 3	Direction of Travel	Pre-Accident Action	Vehicle Events	Driver Actions
NO CONTRIBUTING ACTION TOO FAST FOR CONDITIONS, OTHER IMPROPER DRIV ACTIONS	LARGE TRUCK	TRAVELING WEST IN LEFT LANE	STOPPED IN TRAFFIC LANE	STRUCK BY UNIT 01	TURNING FROM WRONG LANE, DRIVING WRONG SIDE OF ROAD					
CARELESS PASS OR LANE CHANGE	AUTOMOBILE	TRAVELING SOUTH IN RIGHT LANE	STOPPED IN TRAFFIC LANE	STRUCK BY UNIT 01	NO CONTRIBUTING ACTION					
TAILGATING, TOO FAST FOR CONDITIONS	AUTOMOBILE	TRAVELING EAST IN OTHER	GOING STRAIGHT	STRUCK BY UNIT 01	NO CONTRIBUTING ACTION	AUTOMOBILE	TRAVELING WEST IN RIGHT LANE	PASSING/OVERTAK	STRUCK BY UNIT 02	NO CONTRIBUTING ACTION
	LARGE TRUCK	TRAVELING SOUTH IN RIGHT LANE	SLOWING OR STOPPING IN LANE	STRUCK BY UNIT 01	RUNNING STOP SIGN					
IMPROPER/CARELESS TURN	SUV	TRAVELING SOUTH IN RIGHT LANE	GOING STRAIGHT	STRUCK BY UNIT 01	NO CONTRIBUTING ACTION					
OTHER IMPROPER DRIV ACTIONS, ALCOHOL TEST:30 DRIVER WAS DISTRACTED										
TOO FAST FOR CONDITIONS, OTHER IMPROPER DRIV ACTIONS, ALCOHOL TEST:95										
CARELESS PASS OR LANE CHANGE	VAN	TRAVELING NORTH IN RIGHT LANE	TURNING RIGHT	STRUCK BY UNIT 01	NO CONTRIBUTING ACTION					
OTHER IMPROPER DRIV ACTIONS	AUTOMOBILE	TRAVELING WEST IN RIGHT LANE	GOING STRAIGHT	STRUCK BY UNIT 01	NO CONTRIBUTING ACTION					
USING HAND-HELD PHONE	AUTOMOBILE	TRAVELING NORTH IN LEFT LANE	TURNING LEFT	HIT UNIT 01	IMPROPER/CARELESS TURN					
TOO FAST FOR CONDITIONS	AUTOMOBILE	TRAVELING SOUTH IN RIGHT LANE	GOING STRAIGHT	STRUCK BY UNIT 01	NO CONTRIBUTING ACTION					
TOO FAST FOR CONDITIONS IMPROPER/CARELESS TURN, USING HAND- HELD PHONE	AUTOMOBILE	TRAVELING NORTH IN RIGHT LANE	TURNING RIGHT ON RED	STRUCK BY UNIT 01	SUDDEN SLOWING-STOPPING					
IMPROPER/CARELESS TURN, ALCOHOL TEST:25	SMALL TRUCK	TRAVELING NORTH IN RIGHT LANE	GOING STRAIGHT	HIT UNIT 01, HIT FENCE OR WALL	NO CONTRIBUTING ACTION	SMALL TRUCK	TRAVELING SOUTH IN LEFT TURN LANE	STOPPED IN TRAFFIC	STRUCK BY UNIT 01	NO CONTRIBUTING ACTION
IMPROPER/CARELESS TURN	AUTOMOBILE	TRAVELING SOUTH IN RIGHT LANE	GOING STRAIGHT	HIT UNIT 01	NO CONTRIBUTING ACTION					
NO CONTRIBUTING ACTION AFFECTED BY PHYSICAL COND										
NO CONTRIBUTING ACTION	AUTOMOBILE	TRAVELING SOUTH IN LEFT TURN LANE	TURNING LEFT	STRUCK BY UNIT 01	IMPROPER/CARELESS TURN, DRIVER INEXPERIENCE, FAILURE TO RESPOND TO TCD					
TAILGATING AFFECTED BY PHYSICAL COND	SMALL TRUCK	TRAVELING WEST IN RIGHT LANE	GOING STRAIGHT	STRUCK BY UNIT 01	NO CONTRIBUTING ACTION					
AFFECTED BY PHYSICAL COND NO CONTRIBUTING ACTION										
IMPROPER/CARELESS TURN	AUTOMOBILE	TRAVELING SOUTH IN RIGHT LANE	GOING STRAIGHT	STRUCK BY UNIT 01	NO CONTRIBUTING ACTION					
NO CONTRIBUTING ACTION										
NO CONTRIBUTING ACTION	SUV	TRAVELING SOUTH IN OTHER FWD MOVING LANE	STOPPED IN TRAFFIC LANE	STRUCK BY UNIT 03	NO CONTRIBUTING ACTION	AUTOMOBILE	TRAVELING SOUTH IN OTHER FWD MOVING LANE	GOING STRAIGHT	HIT UNIT 02, HIT UNIT 01	DRIVER WAS DISTRACTED, UNKNOWN, OTHER IMPROPER DRIV ACTIONS
RUNNING STOP SIGN, IMPROPER ENTRANCE TO HIGHWAY DRIVER WAS DISTRACTED	AUTOMOBILE	TRAVELING SOUTH IN RIGHT LANE	GOING STRAIGHT	HIT UNIT 01	TOO FAST FOR CONDITIONS, DRIVER WAS DISTRACTED					
OTHER IMPROPER DRIV ACTIONS	AUTOMOBILE	TRAVELING EAST IN RIGHT LANE	SLOWING OR STOPPING IN LANE	STRUCK BY UNIT 01	NO CONTRIBUTING ACTION					
IMPROPER/CARELESS TURN	SUV	TRAVELING SOUTH IN RIGHT LANE	GOING STRAIGHT	STRUCK BY UNIT 01	NO CONTRIBUTING ACTION					
OTHER IMPROPER DRIV ACTIONS										
OTHER IMPROPER DRIV ACTIONS	AUTOMOBILE	TRAVELING EAST IN RIGHT LANE	GOING STRAIGHT	STRUCK BY UNIT 01	NO CONTRIBUTING ACTION					
NO CONTRIBUTING ACTION	AUTOMOBILE	TRAVELING EAST IN RIGHT LANE	STOPPED IN TRAFFIC LANE	STRUCK BY UNIT 01, HIT UNIT 03	NO CONTRIBUTING ACTION	AUTOMOBILE	TRAVELING EAST IN RIGHT LANE	STOPPED IN TRAFFIC	STRUCK BY UNIT 02	NO CONTRIBUTING ACTION
IMPROPER/CARELESS TURN, USING HAND- HELD PHONE	AUTOMOBILE	TRAVELING NORTH IN RIGHT LANE	TURNING RIGHT ON RED	STRUCK BY UNIT 01	SUDDEN SLOWING-STOPPING					
IMPROPER/CARELESS TURN	AUTOMOBILE	TRAVELING SOUTH IN RIGHT LANE	GOING STRAIGHT	HIT UNIT 01	NO CONTRIBUTING ACTION					
IMPROPER/CARELESS TURN, ALCOHOL TEST:25	SMALL TRUCK	TRAVELING NORTH IN RIGHT LANE	GOING STRAIGHT	HIT UNIT 01, HIT FENCE OR WALL	NO CONTRIBUTING ACTION	SMALL TRUCK	TRAVELING SOUTH IN LEFT TURN LANE	STOPPED IN TRAFFIC	STRUCK BY UNIT 01	NO CONTRIBUTING ACTION
NO CONTRIBUTING ACTION	AUTOMOBILE	TRAVELING SOUTH IN LEFT TURN LANE	TURNING LEFT	STRUCK BY UNIT 01	IMPROPER/CARELESS TURN, DRIVER INEXPERIENCE, FAILURE TO RESPOND TO TCD					
IMPROPER/CARELESS TURN	AUTOMOBILE	TRAVELING NORTH IN RIGHT LANE	GOING STRAIGHT	STRUCK BY UNIT 01	NO CONTRIBUTING ACTION					

Case	(CO) County	State Route/Segment/Offset	Date of Accident	Day	Time	Lighting	Road Surface	Weather	Fatality	Injury	Pedestrian	Vehicle	Max Severity	Manner of Collision	Environmental Roadway	
	19	0011/0430/1154 0093/0020/0224 1025/0010/0000 1025/0011/0000	4/20/2003	SUN	19:26	DAYLIGHT	DRY	CLEAR	0	1	0	2	MODERATE INJURY	REAR-END	NONE	4WAY
	19	0011/0430/1154 0093/0020/0224 1025/0010/0000 1025/0011/0000	11/14/2003	FRI	13:05	DAYLIGHT	DRY	CLEAR	0	0	0	2	PROPERTY DAMAGE ONLY	ANGLE	NONE	4WAY
	19	0011/0430/1154 0093/0020/0224 1025/0010/0000 1025/0011/0000	7/15/2004	THUR	20:15	DAYLIGHT	DRY	CLEAR	0	2	0	2	MINOR INJURY	ANGLE	NONE	4WAY
	19	0011/0430/1154 0093/0020/0224 1025/0010/0000	12/26/2004	TUES	12:10	DAYLIGHT	DRY	CLEAR	0	1	0	2	MINOR INJURY	REAR-END	NONE	4WAY
	19	0011/0430/1154 0093/0020/0224 1025/0010/0000 1025/0011/0000	11/25/2006	SAT	12:32	DAYLIGHT	UNK	UNK	0	0	0	2	UNK IF INJURED	REAR-END	NONE	4WAY
	19	0011/0430/1154 0093/0020/0224 1025/0010/0000 1025/0011/0000	10/4/2007	THUR	13:29	DAYLIGHT	DRY	CLEAR	0	2	0	2	MINOR INJURY	REAR-END	NONE	4WAY
	19	0011/0430/1154 0093/0020/0224 1025/0010/0000 1025/0011/0000	11/29/2007	THR	22:53	STREET LT	DRY	CLEAR	0	0	0	2	PROP DMG ONLY	ANGLE	NONE	4WAY
	19	0011/0430/1179	12/11/2003	THR	20:01	STREET LT	DRY	CLEAR	0	0	1	1	UNK IF INJURED	PEDESTRIAN	NONE	MIDB
	19	0011/0430/1179	8/1/2003	MON	15:40	UNKNOWN	UNK	UNK	0	0	0	2	PROP DMG ONLY	REAR-END	NONE	MIDB
	19	0011/0430/1279	9/16/2003	TUES	10:30	DAYLIGHT	DRY	CLEAR	0	0	1	1	PROP DMG ONLY	ANGLE	NONE	MIDB
	19	0011/0430/1739	12/7/2004	TUES	12:22	DAYLIGHT	WET	RAIN	0	0	0	2	PROP DMG ONLY	ANGLE	NONE	4WAY
	19	0011/0430/2291	8/15/2005	MON	22:49	DARK	DRY	CLEAR	0	0	0	2	PROP DMG ONLY	ANGLE	NONE	4WAY
	19	0011/0431/1144 CHESTNUT ST	10/15/2003	WED	7:35	DAYLIGHT	DRY	CLEAR	0	1	0	2	MINOR INJURY	ANGLE	NONE	4WAY
	19	0011/0431/1144 CHESTNUT ST	11/20/2007	TUES	12:20	DAYLIGHT	WET	RAIN	0	0	0	2	PROP DMG ONLY	ANGLE	NONE	4WAY
	19	0011/0431/1607	5/5/2006	FRI	16:10	DAYLIGHT	DRY	CLEAR	0	0	0	2	PROP DMG ONLY	REAR-END	NONE	MIDB
	19	0011/0431/1687	8/9/2004	MON	16:50	DAYLIGHT	DRY	CLEAR	0	1	0	1	MAJOR INJURY	REAR-END	NONE	MIDB
	19	0011/0431/1697	1/31/2005	MON	15:05	DAYLIGHT	DRY	CLEAR	0	0	0	1	UNK IF INJURED	HIT FIXED OBJECT	NONE	MIDB
	19	0011/0431/1707 SECOND ST WALNUT ST	7/1/2003	TUES	10:06	DAYLIGHT	DRY	CLEAR	0	0	0	3	PROP DMG ONLY	ANGLE	NONE	4WAY
	19	0011/0431/1707 SECOND ST WALNUT ST	10/5/2003	SUN	2:31	STREET LT	WET	FOG	0	3	0	1	MODERATE INJURY	HIT FIXED OBJECT	NONE	T-INT
	19	0011/0431/1707 SECOND ST WALNUT ST	12/4/2005	SUN	2:48	STREET LT	SNOW	SNOW	0	0	0	1	PROP DMG ONLY	UNKNOWN	NONE	T-INT
	19	0011/0431/1707 WALNUT ST	12/4/2005	SUN	13:55	DAYLIGHT	WET	RAIN	0	1	0	2	MINOR INJURY	ANGLE	NONE	4WAY
	19	0011/0410/1252	12/9/2004	THUR	16:15	DAYLIGHT	WET	RAIN	0	1	2	1	MODERATE INJURY	PEDESTRIAN	UNKNOWN	MIDB
	19	0011/0410/1252	10/8/2003	WED	8:51	DAYLIGHT	DRY	FOG	0	0	0	2	PROP DMG ONLY	REAR-END	NONE	MIDB
	19	0011/0410/1302	8/28/2003	THUR	7:37	DAYLIGHT	DRY	CLEAR	0	1	0	2	UNK IF INJURED	PEDESTRIAN	UNKNOWN	MIDB
	19	0011/0410/1352	6/7/2005	SUN	20:42	STREET LT	DRY	CLEAR	0	1	0	2	MODERATE INJURY	HIT FIXED OBJECT	UNKNOWN	MIDB
	19	0011/0410/1362 0093/0040/0000	2/16/2006	THUR	15:40	UNKNOWN	UNK	UNK	0	10	0	2	MINOR INJURY	REAR-END	NONE	Y-INT
	19	0011/0410/1352 0093/0040/0000	3/8/2007	THUR	16:20	DAYLIGHT	DRY	CLEAR	0	1	0	3	MINOR INJURY	REAR-END	NONE	4WAY
	19	0011/0410/1394	12/31/2005	SAT	14:30	DAYLIGHT	DRY	CLEAR	0	1	0	2	MODERATE INJURY	HEAD-ON	NONE	MIDB
	19	0011/0410/1480 IDA ST	3/25/2005	FIR	17:01	DAYLIGHT	DRY	CLEAR	0	0	0	3	PROP DMG ONLY	ANGLE	NONE	4WAY
	19	0011/0410/1480 IDA ST	9/6/2005	TUES	10:37	DAYLIGHT	DRY	CLEAR	0	1	0	1	MODERATE INJURY	NON-COLLISION	NONE	T-INT
	19	0011/0410/1480 IDA ST	4/3/2007	TUES	21:20	DAYLIGHT	DRY	CLEAR	0	0	0	2	PROPERTY DAMAGE ONLY	ANGLE	NONE	T-INT
	19	0011/0410/1480 IDA ST	10/21/2007	SUN	0:31	STREET LT	DRY	CLEAR	0	2	0	2	UNK SEVERITY	HIT FIXED OBJECT	NONE	T-INT
	19	0011/0420/0187	11/8/2004	MON	12:10	DAYLIGHT	DRY	CLEAR	0	0	0	2	PROP DMG ONLY	REAR-END	NONE	MIDB
	19	0011/0420/0217	11/11/2007	SUN	2:38	STREET LT	WET	RAIN/FOG	0	0	0	1	PROP DMG ONLY	HIT FIXED OBJECT	NONE	MIDB
	19	0011/0390/1536	3/24/2003	MON	10:48	DAYLIGHT	DRY	CLEAR	0	1	0	4	MINOR INJURY	REAR-END	NONE	MIDB
	19	0011/0390/1586	5/22/2004	SAT	15:00	DAYLIGHT	DRY	CLEAR	0	1	0	2	MINOR INJURY	REAR-END	NONE	MIDB
	19	0011/0390/1636 POPLAR ST	1/29/2003	WED	21:00	STREET LAT	DRY	CLEAR	0	1	0	2	PROP DMG ONLY	ANGLE	NONE	4WAY
	19	0011/0390/1636 POPLAR ST	2/1/2004	SUN	10:08	DAYLIGHT	DRY	CLEAR	0	4	0	2	MINOR INJURY	REAR-END	NONE	4WAY
	19	0011/0390/1636 POPLAR ST	7/21/2005	THUR	8:37	DAYLIGHT	DRY	CLEAR	0	1	0	4	MINOR INJURY	REAR-END	NONE	4WAY
	19	0011/0390/1636 POPLAR ST	10/12/2006	THUR	8:38	DAWN	DRY	CLEAR	0	1	0	3	MODERATE INJURY	ANGLE	NONE	4WAY
	19	0011/0390/1636 POPLAR ST	2/19/2007	MON	12:01	DAYLIGHT	DRY	CLEAR	0	2	0	2	MODERATE INJURY	ANGLE	NONE	4WAY
	19	0011/0390/1636 POPLAR ST	5/16/2007	WED	8:50	DAYLIGHT	DRY	CLEAR	0	1	0	2	MODERATE INJURY	ANGLE	NONE	4WAY
	19	0011/0390/1636 POPLAR ST	10/11/2007	THUR	14:56	DAYLIGHT	WET	RAIN	0	1	0	2	MINOR INJURY	ANGLE	NONE	4WAY
	19	0011/0390/1649 POPLAR ST	11/26/2006	SUN	17:07	STREET LT	DRY	CLEAR	0	0	0	2	UNK IF INJURED	ANGLE	NONE	4WAY
	19	0011/0390/1656	12/15/2004	WED	17:27	STREET LT	DRY	CLEAR	0	1	0	2	MINOR INJURY	REAR-END	NONE	MIDB
	19	0011/0390/1736	4/12/2003	SAT	14:10	DAYLIGHT	DRY	CLEAR	0	0	0	2	PROP DMG ONLY	REAR-END	NONE	MIDB

Vehicle 1					
Vehicle 1	Direction of Travel	Pre-Accident Action	Vehicle Events	Driver Actions	Vehicle 2
SUV	TRAVELING EAST IN RIGHT LANE	GOING STRAIGHT	STRUCK BY UNIT 02	PROCEED W/O CLEARANCE	AUTOMOBILE
SUV	TRAVELING NORTH IN RIGHT LANE	GOING STRAIGHT	HIT UNIT 02	RUNNING RED LIGHT	SUV
SMALL TRUCK	TRAVELING SOUTH IN RIGHT LANE	GOING STRAIGHT	HIT UNIT 2	RUNNING RED LIGHT	AUTOMOBILE
AUTOMOBILE	TRAVELING EAST IN RIGHT LANE	GOING STRAIGHT	HIT UNIT 02	OTHER IMPROPER DRIVING ACTIONS	VAN
AUTOMOBILE	TRAVELING EAST IN RIGHT LANE	GOING STRAIGHT	HIT UNIT 02	TAILGATING	AUTOMOBILE
AUTOMOBILE	TRAVELING EAST IN RIGHT LANE	GOING STRAIGHT	HIT UNIT 02	DRIVER WAS DISTRACTED	AUTOMOBILE
SMALL TRUCK	TRAVELING EAST IN RIGHT LANE	GOING STRAIGHT	STRUCK BY UNIT 02	RUNNING RED LIGHT	SMALL TRUCK
OTHER VEHICLE	TRAVELING NORTH IN UNKNOWN	UNKNOWN	HIT UNIT 02	NO CONTRIBUTING ACTION	
VAN	TRAVELING EAST IN RIGHT LANE	GOING STRAIGHT	HIT UNIT 02	OTHER IMPROPER DRIVING ACTIONS	AUTOMOBILE
AUTOMOBILE	TRAVELING NORTH IN RIGHT LANE	BACKING UP	HIT UNIT 02	OTHER IMPROPER DRIVING ACTIONS CARELESS/ILLEGAL BACKING UP	
AUTOMOBILE	TRAVELING EAST IN RIGHT LANE	GOING STRAIGHT	STRUCK BY UNIT 02	PROCEED W/O CLEARANCE	AUTOMOBILE
AUTOMOBILE	TRAVELING NORTH IN RIGHT LANE	GOING STRAIGHT	HIT UNIT 02	PROCEED W/O CLEARANCE	AUTOMOBILE
AUTOMOBILE	TRAVELING SOUTH IN RIGHT LANE	GOING STRAIGHT	HIT UNIT 02	PROCEED W/O CLEARANCE	SMALL TRUCK
AUTOMOBILE	TRAVELING SOUTH IN RIGHT LANE	GOING STRAIGHT	STRUCK BY UNIT 02	PROCEED W/O CLEARANCE	LARGE TRUCK
AUTOMOBILE	TRAVELING WEST IN RIGHT LANE	GOING STRAIGHT	HIT UNIT 02	TAILGATING	AUTOMOBILE
OTHER PEDALCYCLE	TRAVELING WEST IN RIGHT LANE	GOING STRAIGHT	HIT UNIT 02	TAILGATING	AUTOMOBILE
AUTOMOBILE	TRAVELING WEST IN RIGHT LANE	GOING STRAIGHT	HIT CONCRETE/LONGIT BARRIER	DRIVING WRONG WAY ON 1-WAY	
AUTOMOBILE	TRAVELING WEST IN RIGHT LANE	GOING STRAIGHT	HIT UNIT 02 STRUCK BY UNIT 02	RUNNING STOP SIGN	AUTOMOBILE
AUTOMOBILE	TRAVELING WEST IN RIGHT TURN LANE	TURNING RIGHT	HIT CURB HIT BUILDING	IMPROPER/CARELESS TURN	
AUTOMOBILE	TRAVELING EAST IN RIGHT LANE	GOING STRAIGHT	HIT UNIT 02	AFFECTED BY PHYSICAL COND	
AUTOMOBILE	TRAVELING SOUTH IN RIGHT LANE	GOING STRAIGHT	STRUCK BY UNIT 02	RUNNING STOP SIGN	AUTOMOBILE
AUTOMOBILE	TRAVELING WEST IN RIGHT LANE	GOING STRAIGHT	HIT UNIT 02	NO CONTRIBUTING ACTION	
AUTOMOBILE	TRAVELING SOUTH IN RIGHT LANE	GOING STRAIGHT	HIT UNIT 02	OTHER IMPROPER DRIVING ACTIONS	VAN
AUTOMOBILE	TRAVELING WEST IN RIGHT LANE	GOING STRAIGHT	HIT UNIT 02	NO CONTRIBUTING ACTION	
AUTOMOBILE	TRAVELING WEST IN RIGHT LANE	GOING STRAIGHT	HIT FENCE OR WALL	OTHER IMPROPER DRIVING ACTIONS	AUTOMOBILE
AUTOMOBILE	TRAVELING WEST IN RIGHT LANE	GOING STRAIGHT	HIT UNIT 02	OTHER IMPROPER DRIVING ACTIONS	AUTOMOBILE
SMALL TRUCK	TRAVELING WEST IN RIGHT LANE	GOING STRAIGHT	HIT UNIT 02	TAILGATING	SMALL TRUCK
AUTOMOBILE	TRAVELING EAST IN RIGHT LANE	TURNING LEFT	STRUCK BY UNIT 02	IMPROPER/CARELESS TURN	AUTOMOBILE
AUTOMOBILE	TRAVELING EAST IN RIGHT LANE	TURNING LEFT	STRUCK BY UNIT 02 HIT UNIT 03	PROCEED W/O CLEARANCE	SUV
MOTORCYCLE	TRAVELING WEST IN RIGHT LANE	GOING STRAIGHT	OTHER NON-COLLISION	OTHER IMPROPER DRIVER ACTIONS	
AUTOMOBILE	TRAVELING WEST IN RIGHT LANE	TURNING LEFT	HIT UNIT 02	IMPROPER/CARELESS TURN	AUTOMOBILE
AUTOMOBILE	TRAVELING WEST IN ONCOMING TRAFFIC	NEGOTIATING CURVE - RIGHT	HIT UTILITY POLE HIT UNIT 02	SPEEDING	SUV
AUTOMOBILE	TRAVELING WEST IN RIGHT LANE	GOING STRAIGHT	HIT UNIT 02	OTHER IMPROPER DRIVER ACTIONS	LARGE TRUCK
AUTOMOBILE	TRAVELING EAST IN ONCOMING TRAFFIC	GOING STRAIGHT	HIT OTHER FIXED OBJECT	AFFECTED BY PHYSICAL COND	
AUTOMOBILE	TRAVELING WEST IN RIGHT LANE	GOING STRAIGHT	STRUCK BY UNIT 02	NO CONTRIBUTING ACTION	SUV
AUTOMOBILE	TRAVELING WEST IN RIGHT LANE	GOING STRAIGHT	HIT UNIT 02	OTHER IMPROPER DRIVING ACTIONS	AUTOMOBILE
AUTOMOBILE	TRAVELING WEST IN RIGHT LANE	GOING STRAIGHT	HIT UNIT 02	DRIVER WAS DISTRACTED	AUTOMOBILE
AUTOMOBILE	TRAVELING WEST IN RIGHT LANE	GOING STRAIGHT	HIT UNIT 02	PROCEED W/O CLEARANCE	AUTOMOBILE
AUTOMOBILE	TRAVELING WEST IN RIGHT LANE	GOING STRAIGHT	HIT UNIT 02	OTHER IMPROPER DRIVER ACTIONS	AUTOMOBILE
AUTOMOBILE	TRAVELING EAST IN RIGHT LANE	GOING STRAIGHT	HIT UNIT 02	RUNNING RED LIGHT	SMALL TRUCK
AUTOMOBILE	TRAVELING WEST IN RIGHT LANE	GOING STRAIGHT	HIT UNIT 02	OTHER IMPROPER DRIVER ACTIONS	AUTOMOBILE
SMALL TRUCK	TRAVELING WEST IN RIGHT LANE	GOING STRAIGHT	HIT UNIT 02	PROCEED W/O CLEARANCE	AUTOMOBILE
SMALL TRUCK	TRAVELING WEST IN RIGHT LANE	GOING STRAIGHT	HIT UNIT 02	RUNNING RED LIGHT	VAN
AUTOMOBILE	TRAVELING WEST IN RIGHT LANE	GOING STRAIGHT	HIT UNIT 02	RUNNING RED LIGHT	AUTOMOBILE
AUTOMOBILE	TRAVELING EAST IN RIGHT LANE	GOING STRAIGHT	HIT UNIT 02	TAILGATING	SUV
SMALL TRUCK	TRAVELING WEST IN RIGHT LANE	GOING STRAIGHT	STRUCK BY UNIT 02	IMPROPER/CARELESS TURN	VAN

Vehicle 2				Vehicle 3		
Direction of Travel	Pre-Accident Action	Vehicle Events	Driver Actions	Vehicle 3	Direction of Travel	Pre-Accident Action
TRAVELING EAST IN RIGHT LANE	GOING STRAIGHT	HIT UNIT 01	NO CONTRIBUTING ACTION			
TRAVELING NORTH IN NOT APPLICABLE	GOING STRAIGHT	STRUCK BY UNIT 01	NO CONTRIBUTING ACTION			
TRAVELING EAST IN RIGHT LANE	GOING STRAIGHT	STRUCK BY UNIT 01	NO CONTRIBUTING ACTION			
TRAVELING EAST IN RIGHT LANE	GOING STRAIGHT	STRUCK BY UNIT 01	NO CONTRIBUTING ACTION			
TRAVELING EAST IN RIGHT LANE	GOING STRAIGHT	STRUCK BY UNIT 01	NO CONTRIBUTING ACTION			
TRAVELING EAST IN RIGHT LANE	SLOWING OR STOPPING IN LANE	STRUCK BY UNIT 01	NO CONTRIBUTING ACTION			
TRAVELING NORTH IN RIGHT LANE	GOING STRAIGHT	HIT UNIT 01	NO CONTRIBUTING ACTION			
TRAVELING NORTH IN RIGHT LANE	GOING STRAIGHT	STRUCK BY UNIT 01	NO CONTRIBUTING ACTION			
TRAVELING NORTH IN RIGHT LANE	GOING STRAIGHT	HIT UNIT 01	NO CONTRIBUTING ACTION			
TRAVELING EAST IN RIGHT LANE	GOING STRAIGHT	STRUCK BY UNIT 01	NO CONTRIBUTING ACTION			
TRAVELING SOUTH IN UNKNOWN	GOING STRAIGHT	STRUCK BY UNIT 01	NO CONTRIBUTING ACTION			
TRAVELING WEST IN RIGHT LANE	GOING STRAIGHT	HIT UNIT 01	NO CONTRIBUTING ACTION			
TRAVELING WEST IN RIGHT LANE	SLOWING OR STOPPING IN LANE	STRUCK BY UNIT 01	NO CONTRIBUTING ACTION			
TRAVELING WEST IN RIGHT LANE	SLOWING OR STOPPING IN LANE	STRUCK BY UNIT 01	NO CONTRIBUTING ACTION			
TRAVELING NORTH IN RIGHT LANE	GOING STRAIGHT	STRUCK BY UNIT 01 HIT UNIT 01	NO CONTRIBUTING ACTION	AUTOMOBILE	TRAVELING SOUTH IN RIGHT LANE	STOPPED IN TRAFFIC LANE
TRAVELING EAST IN RIGHT LANE	TURNING RIGHT	HIT UNIT 01	NO CONTRIBUTING ACTION			
TRAVELING SOUTH IN RIGHT LANE	STOPPED IN TRAFFIC LANE	STRUCK BY UNIT 01	NO CONTRIBUTING ACTION			
TRAVELING WEST IN RIGHT LANE	GOING STRAIGHT	OTHER NON-COLLISION	NO CONTRIBUTING ACTION			
TRAVELING WEST IN RIGHT LANE	STOPPED IN TRAFFIC LANE	STRUCK BY UNIT 01	NO CONTRIBUTING ACTION			
TRAVELING WEST IN RIGHT LANE	STOPPED IN TRAFFIC LANE	STRUCK BY UNIT 01 HIT UNIT 03	NO CONTRIBUTING ACTION	AUTOMOBILE	TRAVELING WEST IN RIGHT LANE	STOPPED IN TRAFFIC LANE
TRAVELING EAST IN RIGHT LANE	GOING STRAIGHT	HIT UNIT 01	NO CONTRIBUTING ACTION			
TRAVELING WEST IN RIGHT LANE	GOING STRAIGHT	HIT UNIT 01	NO CONTRIBUTING ACTION	VAN	TRAVELING WEST IN RIGHT LANE	STOPPED IN TRAFFIC LANE
TRAVELING EAST IN RIGHT LANE	GOING STRAIGHT	STRUCK BY UNIT 01	NO CONTRIBUTING ACTION			
TRAVELING EAST IN RIGHT LANE	GOING STRAIGHT	STRUCK BY UNIT 01	NO CONTRIBUTING ACTION			
TRAVELING WEST IN RIGHT LANE	GOING STRAIGHT	STRUCK BY UNIT 01	NO CONTRIBUTING ACTION			
TRAVELING WEST IN RIGHT LANE	GOING STRAIGHT	STRUCK BY UNIT 03 HIT UNIT 01	NO CONTRIBUTING ACTION	SUV	TRAVELING WEST IN RIGHT LANE	GOING STRAIGHT
TRAVELING WEST IN RIGHT LANE	GOING STRAIGHT	STRUCK BY UNIT 01	NO CONTRIBUTING ACTION			
TRAVELING WEST IN RIGHT LANE	GOING STRAIGHT	STRUCK BY UNIT 01	NO CONTRIBUTING ACTION			
TRAVELING EAST IN RIGHT LANE	GOING STRAIGHT	STRUCK BY UNIT 01	NO CONTRIBUTING ACTION			
TRAVELING WEST IN RIGHT LANE	STOPPED IN TRAFFIC LANE	STRUCK BY UNIT 01 HIT UNIT 03	NO CONTRIBUTING ACTION	AUTOMOBILE	TRAVELING WEST IN RIGHT LANE	STOPPED IN TRAFFIC LANE
TRAVELING SOUTH IN RIGHT LANE	GOING STRAIGHT	STRUCK BY UNIT 01 HIT OTHER FIXED OBJECT	RUNNING RED LIGHT	AUTOMOBILE	TRAVELING EAST IN NOT APPLICABLE	STOPPED IN TRAFFIC LANE
TRAVELING SOUTH IN RIGHT LANE	GOING STRAIGHT	STRUCK BY UNIT 01	NO CONTRIBUTING ACTION			
TRAVELING SOUTH IN RIGHT LANE	TURNING RIGHT	STRUCK BY UNIT 01	NO CONTRIBUTING ACTION			
TRAVELING SOUTH IN RIGHT LANE	GOING STRAIGHT	STRUCK BY UNIT 01	NO CONTRIBUTING ACTION			
TRAVELING NORTH IN RIGHT LANE	TURNING LEFT	STRUCK BY UNIT 01	NO CONTRIBUTING ACTION			
TRAVELING EAST IN RIGHT LANE	GOING STRAIGHT	STRUCK BY UNIT 01	NO CONTRIBUTING ACTION			
TRAVELING WEST IN RIGHT LANE	GOING STRAIGHT	HIT UNIT 01	NO CONTRIBUTING ACTION			

[illegible]

Appendix O
PennDOT District 3-0 Comments and Responses

District 3-0 Comments – Received December 10, 2010		
No	Comment	Resolution
1	The trip generation rates and trip distribution and assignment rates are based on information provided by the adjacent SSES site and are considered acceptable.	Acknowledged
2	The executive summary discusses the possibility of some percentage of traffic rerouting for various reasons. There is no calculation of how these percentages were obtained. Without calculations to back up these numbers, it is recommended that the more conservative numbers be used for the analysis.	Based on discussion with district, this approach will be clarified in the text. However, the district stated their preference for the “conservative estimate” and the TIS will be updated accordingly. The results are presented without rerouting/dispersion as a “worst case” condition.
3	There are several instances where SimTraffic suggests that traffic is behaving in a certain manner. Have these intersections been field verified to ensure Synchro is modeling the real traffic behavior.	Yes, to the extent possible, namely existing conditions. Some of the observations correspond to future year conditions with higher traffic volumes, which could not be observed. SimTraffic is used to predict traffic conditions for these conditions and based on our experience with this tool and engineering judgment, we hold that this are reasonable representations.
4	There are several intersections in which it is assumed that the traffic will reroute. One such intersection is S.R. 11 and S.R. 93 in which it is thought that traffic heading towards interstate 80 using S.R. 11 might find alternate routes alone 93 attractive. It is highly unlikely that those vehicles will take S.R. 93, then have to find a gap in opposing traffic on S.R. 93 to make a left onto a local road and then make a right back onto S.R. 11 to continue to Interstate 80. Although they may find alternate routes. For this reason it is recommended that the analysis focus on the traffic utilizing the main roadways and be updated accordingly.	Understood. See comment # 2

District 3-0 Comments – Received December 10, 2010		
No	Comment	Resolution
5	The submission states that a traffic signal is warranted in the existing and future no-build conditions for the intersection of S.R. 11 and Eaton Street. Table 29, Summary of Mitigation Measures indicates a temporary traffic signal for this intersection. It is recommended that this be upgraded to a permanent signal due to existing condition volumes and the construction duration. However this is contingent upon the municipality agreeing to own, operate, and maintain the signal upon completion of the project. Coordination with the Borough of Berwick needs to occur.	Understood. PPL met with Berwick Borough officials in late 2010 and briefed them on the expected traffic impacts and mitigation actions. During HOP permitting phase PPL will coordinate closely with the Borough as required
6	The restriction of parking in several areas as mitigation may be a concern for the Borough of Berwick as that is a central business district. Coordination with the borough is required. Please provide proof that coordination is occurring.	Understood. See resolution of Comment #5 above.
7	Although the optimization of the traffic signals in Berwick is agreeable to the department, obtaining the desired level of optimization may be a challenge due to the age/condition of the existing signal equipment at most of the intersections. Many of the intersections are not fully actuated and those that are may have broken loop detectors. Video detection would be an option to overcome this challenge; however, the controller cabinets may not be able to accommodate video detection. It is recommended that the operating capabilities of the signal equipment be verified prior to developing a mitigation plan. This will also require coordination with the Borough of Berwick.	Done. Spoke with the signal contractor and assessed the general condition of the signal hardware. The assessment indicated that the proposed mitigation plan is feasible but would require an investment of approximately \$150,000 in repairs/upgrades to the signal hardware in the Borough of Berwick. This has been factored into the construction cost estimate provided in Table 28.

Appendix P
PennDOT District 4-0 Comments and Responses

District 4-0 Comments – Received December 10, 2010		
No	Comment	Resolution
1	Provide driveway designation as low, medium, or high volume for the proposed Bell Bend Driveway. Also, provide a driveway plan.	Done. The driveway will have a designation of “high” during construction. The driveway plan is included in Appendix M.
2	Provide an overall site plan showing the entire property with all accesses existing and proposed.	Done, it is included in Appendix M and referenced in the text.
3	Provide the Synchro file and HCS on disk for our review. Also, signalized intersections must be optimized. All design year analyses with recommended improvements will be simulated using five runs of SimTraffic with ten minute seeding, four fifteen minute analysis periods, and with peak hour factor adjust set to “yes” to determine the overall operations adequacy. Do not model pedestrian timing in the Synchro unless there is a significant number of pedestrians in the peak hour expected to use the intersection and thereby drive the signal timing.	Done. The companion disk is included with the submittal.
4	For existing analysis, geometry, phasing, clearance intervals, and right turn on red restrictions must match the existing signal permit.	Done. The signal permit plans have been reviewed and checked for consistency with the analysis.
5	Provide left turn phasing conflict factors for each intersection that was studied; also provide left turn lane warrant analysis.	Done.
6	Provide conflict factor calculations for left turn phases, District 4-0 policy is to provide for left turn protected permitted lefts unless left turn crashes support the installation of the protected prohibited phase, or sight distance can’t be obtained. Also, dual (or more) left turn lanes shall operate as protected prohibited.	Done.
7	Provide a recommendations section in the T.I.S., showing all proposed recommendations for each intersection.	Done. Table 29 presents the recommendations by intersection.

District 4-0 Comments – Received December 10, 2010		
No	Comment	Resolution
8	Upon acceptance of the T.I.S., submit the study on disk.	Will do.
9	Any revisions to existing signal permit plans, or additions of a new signalized intersection require an application and resolution from the respective municipalities.	Understood. PPL has been meeting with Borough officials in late 2010 and briefing them on the expected traffic impacts and mitigation actions. During HOP permitting phase PPL will coordinate closely with the Boroughs as required.
10	Any revisions to existing signal permit plans; including timing revisions must be sealed by a professional engineer registered in Pennsylvania	Understood.
11	For the proposed signal modifications at the Bell Bend driveway, provide a separate sealed study for all opening day timing, clearance interval, and phasing calculations. Also provide a separate disk of the Synchro analysis for the opening day timing. This may be submitted simultaneously with the highway occupancy permit plans.	Will do. Will create a separate document for the site access intersection as part of the HOP application.
12	For the next submission, break down the T.I.S. to only provide the information needed for District 4-0, to help alleviate confusion with the District 3-0 information.	Will do. Agreed to keep the TIS as a single document, though. Section 8 that discusses mitigation by intersection is divided into two parts corresponding to each District.