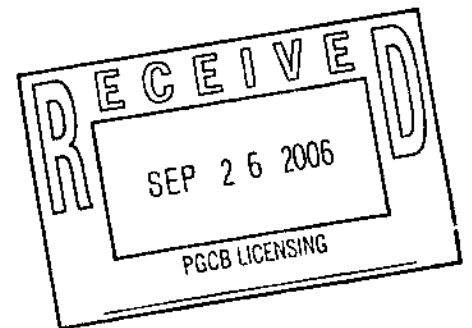


PENNSYLVANIA GAMING CONTROL BOARD  
TROPICANA PENNSYLVANIA, LLC  
CATEGORY 2 – APPLICATION & DISCLOSURE  
INFORMATION FORM  
SUPPLEMENTAL INFORMATION  
SEPTEMBER 2006

APPENDIX #31

Updated Traffic Study attached. – originally dated April 25, 2006 and revised September 7, 2006.



*MA*



# TRAFFIC PLANNING AND DESIGN, INC.

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[www.trafficpd.com](http://www.trafficpd.com)

**ALLENTOWN TROPICANA  
TRAFFIC IMPACT STUDY**  
*City of Allentown, Lehigh County, PA*

*For Submission To:*

**CITY OF ALLENTOWN**

- **Transportation Planning**
- **Highway Design**
- **Bridge Design**
- **Closed Loop Traffic Signal Design**
- **Municipal Design and Review Services**
- **Noise and Air Quality Studies**
- **Environmental Services**

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**Pottstown, PA**  
**(610) 326-3100**

**Harrisburg, PA**  
**(717) 234-1430**

**Lehigh Valley, PA**  
**(610) 625-4242**

**Maryland**  
**(410) 658-3844**

**ALLENTOWN TROPICANA  
TRAFFIC IMPACT STUDY**  
*City of Allentown, Lehigh County, PA*

*For Submission To:*

**CITY OF ALLENTOWN**

**TPD # TROP.A.00001**  
**April 25, 2006**  
*Revised September 7, 2006*

**Prepared by:**  
**Traffic Planning and Design, Inc.**  
**4647 Saucon Creek Road**  
**Suite 201**  
**Center Valley, Pennsylvania 18034**

**Phone: (610) 625-4242**  
**Fax: (610) 625-4250**  
**E-mail: [TrafficExperts@TrafficPD.com](mailto:TrafficExperts@TrafficPD.com)**  
**Web Site: [www.trafficpd.com](http://www.trafficpd.com)**

Respectfully submitted,  
**TRAFFIC PLANNING AND DESIGN, INC.**



**Matthew T. Hammond, P.E.**  
**Executive Vice President**  
**Pennsylvania P.E. No. 071037**

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## EXECUTIVE SUMMARY

The purpose of this study is to examine the traffic impact that the construction of the proposed Tropicana entertainment facility may have on the surrounding road system in the City of Allentown, Lehigh County, Pennsylvania. The following off-site intersections were included in the study:

- Airport Road (SR 1003) and the EB Route 22 Off-Ramp/Catasauqua Road;
- Airport Road (SR 1003) and Steel Stone Drive/BJ's Access;
- Airport Road (SR 1003) and Lloyd Street;
- Airport Road (SR 1003) and American Parkway;
- American Parkway and Irving Street;
- American Parkway and Agere Systems Access.

Upon completion of the traffic impact study, the following conclusions have been determined:

1. The proposed Tropicana entertainment facility, at full build-out, will consist of a 500-room hotel, a 5,000 slot machine parlor, an executive conference center and associated facilities. The site is located to the south of American Parkway, directly across from Agere Systems, Inc. Access is proposed via three full access driveway locations and one right-in/right-out driveway location; one full-access drive to American Parkway located directly opposite the existing Agere Systems access (this is to serve as the main access), one right-in/right-out driveway to American Parkway located approximately 775 feet east of the main access driveway, one full-access drive to Fenwick Street and one full-access drive to Godfrey Street opposite East Fairmont Street.
2. The development is anticipated to generate 193 weekday AM peak hour trips and 674 weekday PM peak hour trips, at full build-out.
3. Roadway improvements are proposed at some of the study locations in conjunction with the Airport Center Retail Development located to the west of Airport Road opposite BJ's shopping center and the Airport Road Restaurant Development located to the east of Airport Road between the BJ's Access Drive and Lloyd Street. The improvements consist of the following:

### *Airport Road & the EB Route 22 Off-Ramp/Catasauqua Road*

- Construction of a second 225-foot long westbound right turn lane on Catasauqua Road;
- Traffic signal timing modifications.

### *Airport Road & Steel Stone Drive/BJ's Driveway*

- Widen the northbound approach of Airport Road to provide two 275-foot long exclusive left turn lanes and three through lanes;
- Widen the eastbound approach of Steel Stone Drive to provide two 275-foot long exclusive left turn lanes, a through lane and a 225-foot long right turn lane;

- Widen the westbound approach of the BJ's Driveway to provide an exclusive 75-foot long left turn lane, a through lane and a 125-foot long right turn lane;
- Provide traffic signal timing and phasing revisions including eastbound/westbound and northbound/southbound protected only left turn phases and right turn overlap phases for the eastbound, westbound and southbound approaches.

*Airport Road & Lloyd Street*

- Widen the eastbound approach of Lloyd Street to provide a 75-foot long exclusive left turn lane and a shared through/right turn lane;
- Widen the westbound approach of Lloyd Street to provide a 125-foot long exclusive left turn lane and a shared through/right turn lane;
- Provide traffic signal timing and phasing revisions including a southbound advance phase.

*Airport Road and American Parkway*

- Widen the eastbound approach of American Parkway to provide a 125-foot long exclusive right turn lane.

Additionally, the Airport Road Restaurant Development, which is proposed to the west of Airport Road opposite the Airport Centers Retail Development, consisting of two high-turnover sit-down restaurants, plans the following improvements, which also have been incorporated accordingly into this study:

*Airport Road and the EB Route 22 Off-Ramp/Catasauqua Road*

- Provide traffic signal modifications to increase the existing traffic signal cycle length from a 100 second cycle to a 110 second cycle during the PM peak hour.

*Airport Road and Steel Stone Drive/BJ's Driveway*

- Provide traffic signal modifications to increase the existing traffic signal cycle length from a 100 second cycle to a 110 second cycle during the PM peak hour.

*Airport Road and Lloyd Street*

- Provide traffic signal timing adjustments.
4. The City is also planning on constructing a bridge which would connect American Parkway across the Lehigh River to the west of the proposed development. This connection was analyzed under 2018 conditions.
  5. The signalized driveway located directly opposite the existing Agere Systems access (this is to serve as the main access) will also serve the planned Lehigh County Minor League Ballpark. Given that the traffic generated by the baseball stadium is an event phenomenon and will not occur on a daily basis, TPD performed capacity analyses for the PM peak

hour with and without the baseball stadium traffic for the Projected Conditions. It should be noted that the "Projected Conditions with Ballpark" scenarios depict a worst-case (highest volume) scenario due to the fact that the baseball stadium peak hour traffic was included with the street peak hour traffic volumes for purposes of analysis. In reality, the baseball stadium peak hour will occur outside the normal street peak hour; thus, volumes will likely be significantly less than those used for purposes of this analysis. Furthermore, it is anticipated that during a baseball event, either a separate event program will be developed for the traffic signal or this intersection will be police-controlled. The TIS prepared by The Pidcock Company recommends that temporary traffic control be utilized to convert one of the eastbound through lanes on American Parkway at the site driveway to an additional left turn lane during events to accommodate dual left turn ingress to the ballpark.

6. Roadway improvements to be constructed in conjunction with the full build-out of the Tropicana development consist of the following improvements:

American Parkway & the Agere Systems Access/Site Driveway

2008

- Construct a 295-foot long eastbound right turn/deceleration lane along American Parkway;
- Widen the site driveway to provide two ingress lanes in order to accommodate westbound dual left turn ingress movements from American Parkway during ballpark events;
- Provide traffic signal timing adjustments.

2018

- Construct a northbound left turn lane along the site driveway with the construction of the American Parkway Lehigh River crossing;
- Construct an additional westbound left turn lane with the construction of the American Parkway Lehigh River crossing;
- Provide traffic signal timing adjustments.

American Parkway & the Eastern Site Driveway

- Erect a stop sign (PennDOT designation R1-1) to control exiting traffic;
- Grade back the existing embankment to the west of the proposed driveway to ensure adequate sight distance is available for exiting traffic.

American Parkway & Irving Street

- Remove the northbound lead phase.

The levels of service for the study area intersections and their associated delays have been summarized in a matrix form. Table I details the levels of service for each lane group at all study area intersections. The summary has been prepared outlining the following conditions:

- Existing Conditions;
- 2008 Base Conditions - Future year without development (the "no-build" scenario);
- 2008 Projected Conditions - Future year with development;
- 2018 Base Conditions - Future year without development (the "no-build" scenario);
- 2018 Base Conditions - Future year without development (the "no-build scenario) with the American Parkway bridge connection to the west;
- 2018 Projected Conditions - Future year with development;
- 2018 Projected Conditions - Future year with development with the American Parkway bridge connection to the west.



TABLE I  
LEVEL OF SERVICE (DELAY) SUMMARY

Intersection	Existing	AM Peak Hour				2018 Proj.				
		2008 Base	2008 Projected	2008 Proj w/Imp.	2018 Base	2018 Projected	2018 Proj w/Imp.	2018 Base w/AP cont	2018 Proj w/AP cont	
Airport Road & Rte 22 Ramp/Cassaraus Rd	Eastbound Through	D	D	D	C	C	E	E	E	
	Westbound Left	D	D	D	C	C	E	E	E	
	Westbound Right	B	B	B	B	B	D	D	D	
	Northbound Through	C	C	C	C	C	B	B	B	
	Northbound Right	D	D	D	A	A	A	A	A	
	Southbound Left	D	D	D	D	D	D	D	D	
	Southbound Through	B	B	B	B	B	A	A	A	
	Overall Intersection	C	C	C	C	C	C	C	C	
	Airport Rd & Sird Stone Dr/RJ's Driveway	Eastbound Left	D	D	D	D	D	D	D	D
		Eastbound Through/Right	D	D	D	D	D	D	D	D
Eastbound Right		-	D	D	D	D	D	D	D	
Westbound Left		D	D	D	D	D	E	E	E	
Westbound Through/Right		D	D	D	E	E	E	E	E	
Westbound Right		-	D	D	D	D	D	D	D	
Northbound Left		A	A	A	D	D	D	D	D	
Northbound Through/Right		A	A	A	B	B	B	B	B	
Southbound Left		B	B	B	D	D	C	C	C	
Overall Intersection		A	A	A	C	C	A	A	A	
Airport Road & Lloyd Street	Eastbound Left	-	D	D	D	D	F(194.3)	F(194.3)	F(194.3)	
	Eastbound Left/Through/Right	E	D	D	C	C	D	D	D	
	Westbound Left	-	D	D	D	D	F(137.2)	F(137.2)	F(137.2)	
	Westbound Left/Through/Right	F(82.1)	D	D	D	D	D	D	D	
	Northbound Left	A	A	A	A	A	A	A	A	
	Northbound Through/Right	A	A	A	B	B	F(113.6)	F(113.6)	F(113.6)	
	Southbound Left	A	A	A	C	C	D	D	D	
	Southbound Through/Right	A	A	A	A	A	A	A	A	
	Overall Intersection	A	A	A	C	C	C	C	C	
	American Parkway & Irving Street	Eastbound Left	E	C	C	C	C	F(116.3)	F(116.3)	F(116.3)
Eastbound Through/Right		B	C	C	C	C	A	A	A	
Eastbound Right		-	B	B	B	B	A	A	A	
Westbound Left		D	D	D	D	D	D	D	D	
Westbound Through/Right		D	D	D	D	D	F(432.5)	F(432.5)	F(432.5)	
Northbound Left		A	A	A	B	B	F(25.0)	F(25.0)	F(25.0)	
Northbound Through/Right		C	C	C	C	C	F(110.9)	F(110.9)	F(110.9)	
Southbound Left		B	B	B	B	B	F(87.5)	F(87.5)	F(87.5)	
Southbound Through		C	C	C	B	B	F(84.7)	F(84.7)	F(84.7)	
Overall Intersection		A	A	A	A	A	A	A	A	
American Parkway & Agter/Tropicana Drives	Eastbound Left	B	B	B	B	B	A	A	A	
	Eastbound Through/Right	C	C	C	C	C	B	B	B	
	Eastbound Right	-	-	-	-	-	-	-	-	
	Westbound Left	B	B	B	B	B	D	D	D	
	Westbound Through	C	C	C	C	C	A	A	A	
	Westbound Right	C	C	C	C	C	A	A	A	
	Northbound Left	-	-	-	-	-	-	-	-	
	Northbound Left/Through	C	C	C	C	C	D	D	D	
	Northbound Right	C	C	C	C	C	D	D	D	
	Southbound Left	C	C	C	C	C	D	D	D	
American Parkway & Eastern Driveway	Overall Intersection	C	C	C	C	C	B	B	B	
	Northbound Right	-	A	A	A	A	-	-	-	



## INTRODUCTION

The following is a traffic impact study prepared to address traffic conditions with the construction of the proposed Tropicana entertainment facility, located in the City of Allentown, Lehigh County, Pennsylvania. As shown in **Figure 1**, the site for the development is located to the south of American Parkway, directly across from Agere Systems, Inc. The proposed development, at full build-out, will consist of a 500-room hotel, a 5,000 slot machine parlor, an executive conference center and associated facilities. The development can be seen in **Figure 2**. Access is proposed via three full access driveway locations and one right-in/right-out driveway location; one full-access drive to American Parkway located directly opposite the existing Agere Systems access (this is to serve as the main access), one right-in/right-out driveway to American Parkway located approximately 775 feet east of the main access driveway, one full-access drive to Fenwick Street and one full-access drive to Godfrey Street opposite East Fairmont Street.

## EXISTING ROAD NETWORK

A survey of the existing roadway system in the study area is as follows:

Airport Road (S.R. 1003) and the Eastbound Route 22 (S.R. 0022) Off-Ramp/Catasauqua Road form a four-way, signalized intersection. The northbound approach of Airport Road consists of three 12-foot wide through lanes and one 14-foot wide right turn lane. Left turns are prohibited on this approach of the intersection. The southbound approach of Airport Road provides two 12-foot wide exclusive left turn lanes and two 12-foot wide through lanes with a paved shoulder. Right turns are prohibited on this approach of the intersection. The eastbound approach of the Eastbound Route 22 Off-Ramp provides two 12-foot wide through lanes and one 16-foot wide channelized right turn lane with paved shoulders. Left turns are prohibited on this approach of the intersection. The westbound approach of Catasauqua Road provides two 12-foot wide exclusive left turn lanes and one 12-foot wide right turn lane with a paved shoulder. The pavement and lane markings are in good condition on all approaches to the intersection. The posted speed limit on Airport Road is 45 mph. The posted speed limit on Catasauqua Road is 35 mph and the posted speed limit on the Route 22 off-ramp is 30 mph.

Airport Road (S.R. 1003) and Steel Stone Drive/BJ's Driveway forms a four-way, signalized intersection. Both the northbound and southbound approaches of Airport Road consist of one 12-foot wide exclusive left turn lane, one 12-foot wide through lane and one 12-foot wide shared through/right lane with a paved shoulder. The eastbound approach of Steel Stone Drive provides one 12-foot wide exclusive left turn lane and one 14-foot wide shared through/right lane. The westbound approach of the BJ's Driveway provides one 12-foot wide exclusive left turn lane and one 14-foot wide shared through/right lane. The pavement and lane markings are in good condition on all approaches to the intersection. No posted speed limit was observed on the Steel Stone Drive or the BJ's Driveway.

Airport Road (S.R. 1003) and Lloyd Street form a four-way, signalized intersection. Both the northbound and southbound approaches of Airport Road consist of one 12-foot wide exclusive left turn lane, one 13-foot wide through lane and one 14-foot wide shared through/right lane. The eastbound approach of Lloyd Street provides one 11-foot wide lane to accommodate all movements.

The westbound approach of Lloyd Street provides one 12-foot wide lane to accommodate all movements with a channelized right. The pavement and lane markings are in good condition on all approaches to the intersection. The posted speed limit on Lloyd Street is 25 mph.

Airport Road (S.R. 1003) and American Parkway form a four-way, signalized intersection. The northbound approach of Airport Road consists of one 12-foot wide exclusive left turn lane, one 16-foot wide through lane and one 16-foot wide shared through/right lane. The southbound approach of Airport Road consists of one 12-foot wide exclusive left turn lane, two 13-foot wide through lanes and one 14-foot wide channelized right. The eastbound approach of American Parkway provides two 12-foot wide exclusive left turn lanes and one 14-foot wide shared through/right lane. The westbound approach of American Parkway provides one 12-foot wide exclusive left turn lane and one 12-foot wide shared through/right lane. The pavement and lane markings are in good condition on all approaches to the intersection. The posted speed limit on American Parkway is 40 mph.

American Parkway and Irving Street form a four-way, signalized intersection. Both the eastbound and westbound approaches of American Parkway provide one 12-foot wide exclusive left turn lane, one 12-foot wide through lane and one 14-foot wide shared through/right lane. Both the northbound and southbound approaches of Irving Street consist of one 11-foot wide exclusive left turn lane and one 13-foot wide shared through/right lane. The pavement and lane markings are in good condition on all approaches to the intersection. The posted speed limit on Irving Street is 40 mph.

American Parkway and the Agere Systems Access form a four-way, signalized intersection. The eastbound approach of American Parkway consists of one 12-foot wide exclusive left turn lane, one 12-foot wide through lane and one 14-foot wide shared through/right lane with a channelized right turn. The westbound approach of American Parkway consists of one 12-foot wide exclusive left turn lane, two 12-foot wide through lanes and one 14-foot wide exclusive channelized right turn lane. The northbound approach of the Agere Systems Access provides one 16-foot wide shared left/through lane and one 21-foot wide exclusive channelized right turn lane. The southbound approach of the Agere Systems Access provides one 13-foot wide exclusive left turn lane, one 13-foot wide through lane and one 20-foot wide exclusive channelized right turn lane. The pavement and lane markings are in good condition on all approaches to the intersection. The posted speed limit on the Agere Systems Access is 15 mph.

Photographs of the study area intersections are contained in **Appendix A**.

## EXISTING TRAFFIC VOLUMES

Manual traffic counts were conducted during the weekday morning (7:00-9:00 AM) and weekday afternoon (4:00-6:00 PM) peak hours of adjacent street traffic at the following intersections:

- Airport Road (SR 1003) and the EB Route 22 Off-Ramp/Catasauqua Road;
- Airport Road (SR 1003) and Steel Stone Drive/BJ's Access;
- Airport Road (SR 1003) and Lloyd Street;
- Airport Road (SR 1003) and American Parkway;
- American Parkway and Irving Street;
- American Parkway and Agere Systems Access.

The counts were taken at fifteen-minute intervals on the following days:

- Wednesday, March 8, 2006;
- Thursday, March 23, 2006;
- Friday, March 24, 2006

The existing condition traffic volumes for the weekday AM and weekday PM peak hours are shown in **Figures 3 and 4**, respectively. The manual traffic count printouts are included in **Appendix B**.

## BASE CONDITIONS

### Annual Background Growth

A background growth factor for the roadways in the study area was developed based on information supplied by the PennDOT Bureau of Planning and Research (BPR). According to the BPR, growth values were determined utilizing an average of the last 9 years of growth information and comparing it to an average calculated from 9 years of historical growth. Based on the calculations, the PennDOT BPR recommends utilizing a background growth trend factor of 1.024 (2.4% per year) in Lehigh County for Functional Class Groups (FCG) 3 and 5, pertaining to urban principal arterials, and urban collectors or local roads, respectively.

### Nearby Proposed Developments

Base (future no-build) traffic conditions may also include traffic volumes from proposed developments which, though not operating at this time, may be operating by the time the proposed development is constructed in the year 2010. It was determined that the following developments that may impact traffic conditions at the study locations:

The Lehigh County Minor League Baseball Stadium, located to the south of American Parkway adjacent to the Tropicana site, consisting of a 10,000 seat stadium, was identified. Trip generation and distribution calculations for the development were obtained from the Traffic Impact Study prepared by The Pidcock Company, dated June 8, 2006. This information is included in **Appendix C**.

The Airport Centers Retail Development, located to the west of Airport Road, north of Lloyd Street, consisting of 477,000 SF of retail space, was included in the Base Condition projections. Trip generation and distribution calculations for the development, as well as information pertaining to planned roadway improvements, were obtained from the Traffic Impact Study prepared by Gannett Fleming, dated August 2004. This information is contained in **Appendix C**.

The Airport Road Restaurant Development, located to the east of Airport Road opposite the Airport Centers Retail Development, will consist of a 5,800 SF high turnover (sit-down) restaurant and a 5,664 SF high turnover (sit-down) restaurant. The trip generation and distribution calculations were obtained from the Traffic Impact Study prepared by TPD, dated January 20, 2005. Trip generation information for the Airport Road Restaurant Development is contained in **Appendix C**.

#### Year 2008 Base Conditions

2008 Base Condition traffic volumes (assuming a no-build scenario) were developed by adjusting the existing traffic volumes using a background growth factor of 1.049 (2.4% per year, compounded annually for 2 years) and traffic associated with the nearby developments previously discussed. The 2008 Base Condition traffic volumes for the weekday AM and weekday PM peak hours are shown in **Figures 5 and 6**, respectively.

#### Design Year (2018) Base Conditions

2018 Base Condition traffic volumes (assuming a no-build scenario) were developed by adjusting the existing traffic volumes using a background growth factor of 1.329 (2.4% per year, compounded annually for 12 years) and traffic associated with the nearby developments previously discussed. The 2018 Base Condition traffic volumes for the weekday AM and weekday PM peak hours are shown in **Figures 7 and 9**, respectively.

#### Design Year (2018) Base Conditions with American Parkway Bridge

2018 Base Condition traffic volumes with American Parkway Bridge (assuming no-build scenario) were developed from the City of Allentown's 2010 and 2030 Future Weekday A.M. and P.M Peak Hour Traffic Volumes, which are included in **Appendix D**. The 2010 and 2030 traffic volumes were compared to determine an average growth percentage to be used in converting the 2010 traffic volumes to 2018. The growth percentage was determined to be 0.5% compounded per year for twenty years. A background growth factor of 1.041 (0.5% per year, compounded annually for 8 years) was applied to the City's 2010 forecasted through movements along American Parkway. The 2018 Base Condition with the American Parkway Bridge connection traffic volumes are shown on **Figures 8 and 10**, for the A.M. and P.M peak hours, respectively.

#### Planned Roadway Improvements

As outlined in the TIS prepared in conjunction with the Airport Centers Retail Development, the following roadway improvements are proposed for the study intersections:

Airport Road & the EB Route 22 Off-Ramp/Catasauqua Road

- Construction of a second 225-foot long westbound right turn lane on Catasauqua Road;
- Traffic signal timing modifications.

Airport Road & Steel Stone Drive/BJ's Driveway

- Widen the northbound approach of Airport Road to provide two 275-foot long exclusive left turn lanes and three through lanes;
- Widen the eastbound approach of Steel Stone Drive to provide two 275-foot long exclusive left turn lanes, a through lane and a 225-foot long right turn lane;
- Widen the westbound approach of the BJ's Driveway to provide an exclusive 75-foot long left turn lane, a through lane and a 125-foot long right turn lane;
- Provide traffic signal timing and phasing revisions including eastbound/westbound and northbound/southbound protected only left turn phases and right turn overlap phases for the eastbound, westbound and southbound approaches.

Airport Road & Lloyd Street

- Widen the eastbound approach of Lloyd Street to provide a 75-foot long exclusive left turn lane and a shared through/right turn lane;
- Widen the westbound approach of Lloyd Street to provide a 125-foot long exclusive left turn lane and a shared through/right turn lane;
- Provide traffic signal timing and phasing revisions including a southbound advance phase.

Airport Road and American Parkway

- Widen the eastbound approach of American Parkway to provide a 125-foot long exclusive right turn lane.

As outlined in the TIS prepared in conjunction with the Airport Road Restaurant Development, the following roadway improvements are proposed for the study intersections:

Airport Road and the EB Route 22 Off-Ramp/Catasauqua Road

- Provide traffic signal modifications to increase the existing traffic signal cycle length from a 100 second cycle to a 110 second cycle during the PM peak hour.

Airport Road and Steel Stone Drive/BJ's Driveway

- Provide traffic signal modifications to increase the existing traffic signal cycle length from a 100 second cycle to a 110 second cycle during the PM peak hour.

Airport Road and Lloyd Street

- Provide traffic signal timing adjustments.

The City is also planning on constructing a bridge which would connect American Parkway across the Lehigh River to the west of the proposed development. This connection was analyzed under 2018 conditions.

PROPOSED SITE ACCESS

As previously mentioned, access is proposed via three full access driveway locations and one right-in/right-out driveway location; one full-access drive to American Parkway located directly opposite the existing Agere Systems access (this is to serve as the main access), one right-in/right-out driveway to American Parkway located approximately 775 feet east of the main access driveway, one full-access drive to Fenwick Street and one full-access drive to Godfrey Street opposite East Fairmont Street. TPD reviewed the access locations for the proposed development and has made appropriate recommendations concerning their operation. It should be noted that the main access consists of an existing signalized high-volume driveway.

Sight Distance Analysis

A sight distance analysis was performed for the proposed driveway locations. In general, recommended safe sight distances depend upon the posted speed limit, roadway grades, and the number of travel lanes. The existing sight distances at the proposed driveway locations were measured and compared to the desirable sight distance standards as specified in *Title 67 of the PA Code*, Chapter 441, "Access to and Occupancy of Highways by Driveways and Local Roads," August, 1996. The measured available sight distances were also compared to PennDOT's safe stopping sight distance (SSSD) standard as calculated by the following equation:

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

SSSD = safe stopping sight distance (acceptable sight distance)

V = 85th Percentile Speed

T = Perception Reaction Time of Driver (2.5 seconds)

f = Coefficient of Friction for Wet Pavements (average of 0.30)

g = Percent of Roadway Grade Divided by 100

PennDOT's desirable and safe stopping sight distance standards both exceed the stopping sight distance requirements as specified in *A Policy on Geometric Design of Highways and Streets*, of the American Association of State Highway and Transportation Officials (AASHTO), Chapter III, "Elements of Design," 1994.

As shown in **Table 1**, the existing sight distances at the proposed access locations will exceed PennDOT's desirable sight distance requirements for all movements where applicable with the regrading of the onsite embankment to the west of the proposed eastern driveway along American Parkway.



**TABLE 1  
SIGHT DISTANCE ANALYSIS**

<i>Eastern American Parkway Driveway</i>		<i>Sight Distances (feet)</i>				
	<i>Direction</i>	Posted Speed (mph)	Grade <sup>1</sup> (%)	DES	ACC	EXIST
<i>Exiting Movements</i>	<i>To the left</i>	40	+1%	400	319	500+*
<i>North Godfrey Street Driveway</i>		<i>Sight Distances (feet)</i>				
	<i>Direction</i>	Posted Speed (mph)	Grade <sup>1</sup> (%)	DES	ACC	EXIST
<i>Exiting Movements</i>	<i>To the left</i>	25	-2%	250	166	450
	<i>To the right</i>	25	-1%	195	164	450
<i>Entering LT Movements</i>	<i>Approaching same direction</i>	25	-1%	190	148	450
	<i>Approaching opposite direction</i>	25	-2%	190	150	450

DES = PennDOT Desirable Sight Distance  
 ACC = PennDOT Acceptable Sight Distance  
 EXIS = Existing (measured) Sight Distance  
<sup>1</sup> Roadway Grade Approaching Driveway  
 \* With regrading of embankment.

**TRIP GENERATION**

Trips were generated for the proposed Tropicana Casino site based on trip generation rates calculated from existing data. The existing data was provided by Aztar Corporation from an existing operation in Evansville, Indiana. The Evansville facility is a similar operation to that proposed for the Allentown site. TPD was provided with count data from the Evansville site (similar site in terms of amenities), based on entering daily traffic volumes (summarized hourly) for a period of one week between Monday, September 13, 2004 and Monday, September 20, 2004. It should be noted that the Institute of Transportation Engineers (ITE) *Trip Generation* manual, 7<sup>th</sup> edition, 2003, does not provide data for casino facilities.

The peak hour count data relative to the roadway peak hours was reviewed and the average peak hour entering volume from Tuesday, Wednesday and Thursday was utilized to develop the peak hour trip generation for the Allentown facility. It should be noted that the PM peak hour based on the count data was found to be from 6-7 PM, outside of the roadway peak period (4:00- 6:00 PM). In order to provide a conservative (highest volume) scenario, TPD utilized the average traffic volumes entering the facility between 6-7 PM in developing the PM peak hour trip generation for the Allentown facility.

The average entering volumes were used as the entering trip generation during the weekday AM and PM peak hours. In order to develop exiting volumes during the peak periods, TPD assumed an

average "stay time" for the facility in order to capture the entering volumes from a previous time period. Based on information provided by Aztar Corporation, the average "stay time" for the Evansville facility is five (5) hours. Based on this premise, the number of peak hour exiting trips is equal to the number of entering trips from a period 5 hours earlier than the entering peak hour. For the AM peak period (7-9 AM), the number of exiting trips was assumed to be equal to the number of peak hour entering trips from the period between 2-4 AM. Likewise, for the PM peak period (6-7 PM), the number of exiting trips was assumed to be equal to the number of peak hour entering trips from the period between 1-2 PM.

Table 2 summarizes the trip generation of the Evansville Tropicana on a Tuesday, Wednesday and Thursday during the AM peak hour and the PM peak hour of the generator. As previously discussed, the exiting trips are based on the trips entering from a period 5 hours earlier than the entering peak hour. A summary of the Evansville traffic counts and trip generation calculations are included in Appendix E.

**TABLE 2  
EVANSVILLE TROPICANA - EXISTING TRIP GENERATION**

	AM Peak Hour		PM Peak Hour	
	Enter	Exit	Enter	Exit
Tuesday	57	10	184	99
Wednesday	73	7	213	94
Thursday	104	7	189	120
<b>Average</b>	<b>78</b>	<b>8</b>	<b>196</b>	<b>105</b>

Based on information provided by Aztar Corporation, the Evansville site accommodates 1,552,137 visitors per year. The projections for the Allentown site anticipates 3,470,656 visitors per year. Based on this information, an adjustment factor was developed to calculate the trip generation for the Allentown Tropicana. It was determined that the Allentown facility is anticipated to realize 224% more patrons than the Evansville facility or an adjustment factor of 2.24. Table 3 summarizes the adjusted number of entering and exiting trips that will be generated by the proposed development, during the weekday AM and weekday PM peak hours.

**TABLE 3  
ALLENTOWN TROPICANA - TRIP GENERATION**

	<i>Trips Entering Site</i>	<i>Trips Exiting Site</i>	<i>Total Trips</i>
AM Peak Hour	175	18	193
PM Peak Hour	439	235	674

## TRIP DISTRIBUTION

Figure 11 indicates the trip distribution percentages for the proposed site. Figures 12 and 13 indicate the assignment of the site-generated trips during the weekday AM and weekday PM peak hours, respectively. Trips for the proposed development were distributed to the local roadway network based on anticipated origins of the patrons for the facility as outlined in data provided to TPD by Aztar Corporation. Given the likely travel patterns of the visitors based on their origins, it was determined that the majority of the traffic will access the site via Route 22. The traffic using Airport Road from the south, Airport Road from the north (north of Route 22), American Parkway from the west and other local streets will likely be limited to a small portion of Lehigh and Northampton County residents. Comparing the proportion of visitors using these routes with total anticipated visitors results in less than 2% of the traffic using each of these routes. A minimum of 2% was assigned to Airport Road to/from both the north and south, and a minimum of 1% was assigned to American Parkway to/from the west and the other local roads. New trips were distributed to the roadways according to the percentages shown in Table 4. Information pertaining to the trip distribution percentage calculations is contained in Appendix E.

**TABLE 4  
TRIP DISTRIBUTION PERCENTAGES**

To/From	Percentage
East via Route 22	49%
West via Route 22	45%
North via Airport Road	2%
South via Airport Road	2%
West via American Parkway	1%
South via Fenwick Street/Godfrey Street	1%

## PROJECTED CONDITION TRAFFIC VOLUMES

In developing the Projected Condition traffic volumes, the site-generated trips were added to the year 2008 and 2018 Base Condition traffic volumes to develop year 2008 and 2018 Projected Condition traffic volumes for the weekday AM and weekday PM peak hours. The year 2008 and 2018 Projected Condition volumes are shown in Figures 14 through 22.

## LEVELS OF SERVICE (LOS) FOR AN INTERSECTION

For analysis of intersections, level of service is defined in terms of delay, which is a measure of driver discomfort and frustration, fuel consumption, and lost travel time. Level of service criteria is stated in terms of control delay per vehicle for a one-hour analysis period. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. The criteria are shown in Table 5. Delay, as it relates to level of service, is a complex measure and is dependent upon a number of variables. For signalized intersections, these variables include the quality of vehicle progression, the cycle length, the green time ratio, and the volume/capacity ratio for the lane group in question. For unsignalized intersections, delay is related to the availability of gaps in the flow of traffic on the major street and the driver's discretion in selecting an appropriate gap for a particular movement from the minor street (straight across, left or right turn).

**TABLE 5  
LEVEL OF SERVICE CRITERIA\***

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

\* Obtained from the Transportation Research Board's *Highway Capacity Manual*, 2000 Edition

### CAPACITY ANALYSIS METHODOLOGY

Capacity analyses were conducted for the weekday AM and weekday PM peak hours of the proposed development at the following intersections:

- Airport Road (SR 1003) and the EB Route 22 Off-Ramp/Catasauqua Road;
- Airport Road (SR 1003) and Steel Stone Drive/BJ's Access;
- Airport Road (SR 1003) and Lloyd Street;
- Airport Road (SR 1003) and American Parkway;
- American Parkway and Irving Street;
- American Parkway and Eastern Site Entrance (right-in/right-out)
- American Parkway and Agere Systems Access.

These analyses were conducted according to the methodologies contained in the 2000 *Highway Capacity Manual (HCM)* for the following conditions:

- Existing Conditions;
- 2008 Base Conditions - Future year without development (the "no-build" scenario);
- 2008 Projected Conditions - Future year with development;
- 2018 Base Conditions - Future year without development (the "no-build" scenario);
- 2018 Base Conditions - Future year without development (the "no-build" scenario) with the American Parkway Bridge connection to the west;
- 2018 Projected Conditions - Future year with development;
- 2018 Projected Conditions - Future year with development with the American Parkway Bridge connection to the west.

The capacity analysis worksheets are presented in **Appendix F**.

### LEVELS OF SERVICE IN THE STUDY AREA

The levels of service for all scenarios analyzed are summarized in **Table 6**. Additionally, the levels of service are presented in **Figures 23 through 39**.

The analyses prepared in conjunction with this study accounted for two future (projected) conditions; one analyzing conditions with the traffic associated with the casino only and one analyzing conditions with the casino traffic, as well as the traffic associated with the baseball stadium. It is important to note that the second scenario (including baseball traffic) was performed for the PM peak hour only, given that games will not occur during the morning time periods.

As outlined in the Traffic Impact Study for the Lehigh County Minor League Ballpark prepared by The Pidcock Company, dated June 8, 2006, the peak entering hour for the baseball stadium will occur between 6:00 PM and 7:00 PM. Approximately 75% of all ballpark traffic will arrive during this hour. However, for purposes of this analysis, the PM peak hour of adjacent street traffic between the hours of 4:00 PM and 6:00 PM (the typical "rush hour") was utilized with the inclusion of the baseball stadium traffic accounting for a worst-case (highest volume) scenario. The adjacent street traffic during the ballpark peak hour will actually be much lower than that used in this analysis. Furthermore, the traffic volume exiting the site opposite the ballpark and proposed casino is primarily employees who will have left prior to the ballpark peak hour, thus, the left turn egress from the driveway opposite the site driveway will be significantly lower during the actual baseball peak hour.

It is anticipated that during a baseball event, either a separate event program will be developed for the traffic signal or this intersection will be police-controlled. The TIS prepared by The Pidcock Company recommends that temporary traffic control be utilized to convert one of the eastbound through lanes on American Parkway at the site driveway to an additional left turn lane during events to accommodate left turn ingress to the ballpark. Therefore, the Projected Conditions with Improvement analysis with ballpark traffic accounts for the westbound through lane conversion to provide dual left entering movements. In order to accommodate this dual left turn movement, TPD recommends that the site driveway ingress be widened to accommodate dual left turns into the site.

#### QUEUE LENGTH STUDY

Queue lengths were analyzed using the Synchro software to determine the 95<sup>th</sup> percentile queue (the queue that may be exceeded 5% of the time) at the intersections in the study area. The results of the queue analysis are shown in Table 7. The queue worksheets are presented in Appendix F.

TABLE 6  
LEVEL OF SERVICE (DELAY) SUMMARY

Intersection	Existing	AM Peak Hour				2018 Base	2018 Proj.	2018 Proj.	2018 Proj.	2018 Proj.	
		2005 Base	2008 Projected	2008 Proj. w/Imp.	2018 Base						2018 Projected
Airport Road & Rte 72 Ramp/Cassanuga Rd	Eastbound Through	D	D	D	-	C	C	-	E	E	-
	Westbound Left	D	D	D	-	C	C	-	E	E	-
	Westbound Right	B	B	B	-	B	B	-	D	D	-
	Northbound Through	C	C	C	-	C	C	-	A	A	-
	Northbound Right	D	D	D	-	A	A	-	B	B	-
	Southbound Left	D	D	D	-	D	D	-	D	D	-
	Southbound Through	B	B	B	-	B	B	-	A	A	-
	Southbound Right	C	C	C	-	C	C	-	C	C	-
	Overall Intersection	C	C	C	-	C	C	-	C	C	-
	Overall Intersection	D	D	D	-	D	D	-	D	D	-
Airport Rd & Steel Stone Drive's Driveway	Eastbound Left	D	D	D	-	D	D	-	D	D	-
	Eastbound Through/Right	D	D	D	-	D	D	-	D	D	-
	Eastbound Right	-	D	D	-	D	D	-	D	D	-
	Westbound Left	D	D	D	-	D	D	-	D	D	-
	Westbound Through/Right	D	D	D	-	D	D	-	D	D	-
	Westbound Right	D	D	D	-	D	D	-	E	E	-
	Northbound Through/Right	D	D	D	-	D	D	-	E	E	-
	Northbound Left	A	D	D	-	D	D	-	D	D	-
	Southbound Through/Right	A	D	D	-	D	D	-	D	D	-
	Southbound Left	A	B	B	-	B	B	-	B	B	-
Airport Road & Lloyd Street	Overall Intersection	A	A	A	-	C	C	-	C	C	-
	Overall Intersection	A	B	B	-	A	A	-	A	A	-
	Eastbound Left	-	D	D	-	D	D	-	F(194.3)	F(194.3)	-
	Eastbound Left/Through/Right	E	D	D	-	D	D	-	D	D	-
	Westbound Left	-	D	D	-	D	D	-	F(137.2)	F(137.2)	-
	Westbound Left/Through/Right	F(42.1)	D	D	-	D	D	-	D	D	-
	Northbound Left	A	A	A	-	A	A	-	A	A	-
	Northbound Through/Right	A	A	A	-	B	B	-	F(113.6)	F(166.7)	-
	Southbound Left	A	A	A	-	C	C	-	D	D	-
	Southbound Through/Right	A	A	A	-	A	A	-	B	B	-
Airport Road & American Parkway	Overall Intersection	B	B	B	-	B	B	-	E	E	-
	Overall Intersection	A	A	A	-	A	A	-	F(97.0)	F(98.2)	-
	Eastbound Left	E	C	C	-	C	C	-	F(116.3)	F(120.4)	-
	Eastbound Through/Right	B	C	C	-	C	C	-	A	A	-
	Eastbound Right	-	B	B	-	B	B	-	A	A	-
	Westbound Left	D	D	D	-	D	D	-	D	D	-
	Westbound Through/Right	D	D	D	-	D	D	-	F(437.5)	F(461.2)	-
	Northbound Left	A	A	A	-	B	B	-	F(93.0)	F(126.1)	-
	Northbound Through/Right	C	C	C	-	C	C	-	F(110.9)	F(110.9)	-
	Southbound Left	B	B	B	-	C	C	-	F(87.5)	F(82.7)	-
American Parkway & Irving Street	Southbound Through	C	B	B	-	B	B	-	F(84.7)	F(84.7)	-
	Southbound Right	A	A	A	-	A	A	-	A	A	-
	Overall Intersection	C	C	C	-	C	C	-	F(97.0)	F(98.2)	-
	Overall Intersection	C	C	C	-	C	C	-	A	A	-
	Eastbound Left	B	B	B	-	C	C	-	B	B	-
	Eastbound Through/Right	C	C	C	-	C	C	-	A	A	-
	Eastbound Right	-	C	C	-	C	C	-	B	B	-
	Westbound Left	B	B	B	-	B	B	-	D	D	-
	Westbound Through	C	C	C	-	C	C	-	A	A	-
	Westbound Right	C	C	C	-	C	C	-	A	A	-
American Parkway & Agere/Tripitans Drive	Northbound Left	-	-	-	-	-	-	-	A	A	-
	Northbound Left/Through	C	C	C	-	C	C	-	D	D	-
	Northbound Right	C	C	C	-	C	C	-	D	D	-
	Southbound Left	C	C	C	-	C	C	-	D	D	-
	Southbound Through	C	C	C	-	C	C	-	D	D	-
	Southbound Right	C	C	C	-	C	C	-	D	D	-
	Overall Intersection	C	C	C	-	C	C	-	D	D	-
	Overall Intersection	C	C	C	-	C	C	-	B	B	-
	Overall Intersection	C	C	C	-	C	C	-	C	C	-
	Overall Intersection	C	C	C	-	C	C	-	C	C	-
American Parkway & Eastern Driveway	Northbound Right	-	-	A	-	A	A	-	B	B	-

TABLE 6 (CONTINUED)  
LEVEL OF SERVICE (DELAY) SUMMARY

Intersection	Existing	PM Peak Hour										
		2004	2008	2010	2011 Proj.	2012 Proj.	2013 Proj.	2014 Proj.	2015 Proj.	2016 Proj.	2017 Proj.	2018 Proj.
		Base	Projected	2010	2011 Proj.	2012 Proj.	2013 Proj.	2014 Proj.	2015 Proj.	2016 Proj.	2017 Proj.	2018 Proj.
				Rate	Projected w/Imp.	2010 Proj. w/ Balpark Imp.	2011 Proj. w/ Balpark Imp.	2012 Proj. w/ Balpark Imp.	2013 Proj. w/ Balpark Imp.	2014 Proj. w/ Balpark Imp.	2015 Proj. w/ Balpark Imp.	2016 Proj. w/ Balpark Imp.
Airport Road & Bir 11 Ramp/Carriageway Rd	C	D	D	D	D	D	D	D	F(174.3)	F(174.3)	F(174.3)	F(174.3)
Eastbound Through	D	E	E	F(105.7)	F(105.7)	F(105.7)	F(105.7)	F(105.7)	F(105.7)	F(105.7)	F(105.7)	F(105.7)
Westbound Left	B	B	B	C	C	C	C	C	D	D	D	D
Westbound Right	D	D	E	F(121.6)	F(121.6)	F(121.6)	F(121.6)	F(121.6)	F(121.6)	F(121.6)	F(121.6)	F(121.6)
Northbound Through	B	A	A	A	A	A	A	A	A	A	A	A
Northbound Right	D	E	E	F(104.4)	F(104.4)	F(104.4)	F(104.4)	F(104.4)	F(104.4)	F(104.4)	F(104.4)	F(104.4)
Southbound Left	B	B	B	B	B	B	B	B	B	B	B	B
Southbound Through	C	C	D	E	F(98.3)	F(98.3)	F(98.3)	F(98.3)	F(98.3)	F(98.3)	F(98.3)	F(98.3)
Southbound Right	D	D	D	F(109.1)	F(109.1)	F(109.1)	F(109.1)	F(109.1)	F(109.1)	F(109.1)	F(109.1)	F(109.1)
Overall Intersection	D	D	D	D	D	D	D	D	D	D	D	D
Alphabet Rd & Steel Stone Dr/RT 70 Driveway	D	D	D	D	D	D	D	D	F(136.5)	F(136.5)	F(136.5)	F(136.5)
Eastbound Left	C	C	C	C	C	C	C	C	C	C	C	C
Eastbound Through/Right	D	D	D	D	D	D	D	D	D	D	D	D
Eastbound Right	C	C	C	C	C	C	C	C	C	C	C	C
Westbound Left	C	D	D	D	D	D	D	D	D	D	D	D
Westbound Through/Right	C	D	D	D	D	D	D	D	D	D	D	D
Westbound Right	C	D	D	D	D	D	D	D	D	D	D	D
Northbound Left	B	D	D	D	D	D	D	D	D	D	D	D
Northbound Through/Right	C	C	D	D	D	D	D	D	D	D	D	D
Northbound Right	C	D	D	D	D	D	D	D	D	D	D	D
Southbound Left	B	C	F(123.1)	F(123.1)	F(123.1)	F(123.1)	F(123.1)	F(123.1)	F(123.1)	F(123.1)	F(123.1)	F(123.1)
Southbound Through/Right	B	C	F(123.1)	F(123.1)	F(123.1)	F(123.1)	F(123.1)	F(123.1)	F(123.1)	F(123.1)	F(123.1)	F(123.1)
Southbound Right	C	C	E	F(102.2)	F(102.2)	F(102.2)	F(102.2)	F(102.2)	F(102.2)	F(102.2)	F(102.2)	F(102.2)
Overall Intersection	C	C	E	F(102.2)	F(102.2)	F(102.2)	F(102.2)	F(102.2)	F(102.2)	F(102.2)	F(102.2)	F(102.2)
Airport Road & Liberty Street	D	D	D	D	D	D	D	D	F(121.3)	F(121.3)	F(121.3)	F(121.3)
Eastbound Left	D	D	D	D	D	D	D	D	D	D	D	D
Eastbound Through/Right	E	D	D	D	D	D	D	D	D	D	D	D
Eastbound Right	D	D	D	D	D	D	D	D	D	D	D	D
Westbound Left	A	B	B	B	B	B	B	B	B	B	B	B
Westbound Through/Right	C	C	C	C	C	C	C	C	C	C	C	C
Westbound Right	B	D	D	D	D	D	D	D	D	D	D	D
Northbound Left	B	D	F(101.1)	F(101.1)	F(101.1)	F(101.1)	F(101.1)	F(101.1)	F(101.1)	F(101.1)	F(101.1)	F(101.1)
Northbound Through/Right	B	D	F(101.1)	F(101.1)	F(101.1)	F(101.1)	F(101.1)	F(101.1)	F(101.1)	F(101.1)	F(101.1)	F(101.1)
Northbound Right	A	A	A	A	A	A	A	A	A	A	A	A
Southbound Left	C	B	C	F(123.9)	F(123.9)	F(123.9)	F(123.9)	F(123.9)	F(123.9)	F(123.9)	F(123.9)	F(123.9)
Southbound Through/Right	C	B	C	F(123.9)	F(123.9)	F(123.9)	F(123.9)	F(123.9)	F(123.9)	F(123.9)	F(123.9)	F(123.9)
Southbound Right	C	C	C	C	C	C	C	C	C	C	C	C
Overall Intersection	C	C	C	C	C	C	C	C	C	C	C	C
Airport Road & American Parkway	D	C	C	C	C	C	C	C	C	C	C	C
Eastbound Left	B	B	B	B	B	B	B	B	B	B	B	B
Eastbound Through/Right	B	B	B	B	B	B	B	B	B	B	B	B
Eastbound Right	A	A	A	A	A	A	A	A	A	A	A	A
Westbound Left	D	D	D	D	D	D	D	D	D	D	D	D
Westbound Through/Right	D	D	E	F(126.9)	F(126.9)	F(126.9)	F(126.9)	F(126.9)	F(126.9)	F(126.9)	F(126.9)	F(126.9)
Westbound Right	B	C	C	C	C	C	C	C	C	C	C	C
Northbound Left	D	D	D	D	D	D	D	D	D	D	D	D
Northbound Through/Right	B	C	C	C	C	C	C	C	C	C	C	C
Northbound Right	B	D	D	D	D	D	D	D	D	D	D	D
Southbound Left	B	C	C	C	C	C	C	C	C	C	C	C
Southbound Through/Right	B	C	C	C	C	C	C	C	C	C	C	C
Southbound Right	D	D	D	D	D	D	D	D	D	D	D	D
Overall Intersection	A	A	A	A	A	A	A	A	A	A	A	A
American Parkway & Irving Street	C	D	C	F(121.1)	F(121.1)	F(121.1)	F(121.1)	F(121.1)	F(121.1)	F(121.1)	F(121.1)	F(121.1)
Eastbound Left	B	B	B	B	B	B	B	B	B	B	B	B
Eastbound Through/Right	B	B	B	B	B	B	B	B	B	B	B	B
Eastbound Right	A	A	A	A	A	A	A	A	A	A	A	A
Westbound Left	D	D	D	D	D	D	D	D	D	D	D	D
Westbound Through/Right	D	D	E	F(126.9)	F(126.9)	F(126.9)	F(126.9)	F(126.9)	F(126.9)	F(126.9)	F(126.9)	F(126.9)
Westbound Right	B	C	C	C	C	C	C	C	C	C	C	C
Northbound Left	D	D	D	D	D	D	D	D	D	D	D	D
Northbound Through/Right	B	C	C	C	C	C	C	C	C	C	C	C
Northbound Right	B	D	D	D	D	D	D	D	D	D	D	D
Southbound Left	C	C	C	C	C	C	C	C	C	C	C	C
Southbound Through/Right	C	C	C	C	C	C	C	C	C	C	C	C
Southbound Right	B	C	C	C	C	C	C	C	C	C	C	C
Overall Intersection	B	C	C	C	C	C	C	C	C	C	C	C
American Parkway & Agave/Trinidad Driveway	C	C	C	C	C	C	C	C	C	C	C	C
Eastbound Left	C	C	C	C	C	C	C	C	C	C	C	C
Eastbound Through/Right	D	C	C	C	C	C	C	C	C	C	C	C
Eastbound Right	D	D	D	D	D	D	D	D	D	D	D	D
Westbound Left	C	C	E	F(124.9)	F(124.9)	F(124.9)	F(124.9)	F(124.9)	F(124.9)	F(124.9)	F(124.9)	F(124.9)
Westbound Through/Right	D	C	C	C	C	C	C	C	C	C	C	C
Westbound Right	C	C	B	B	B	B	B	B	B	B	B	B
Northbound Left	C	C	B	B	B	B	B	B	B	B	B	B
Northbound Through/Right	C	C	D	D	D	D	D	D	D	D	D	D
Northbound Right	C	C	D	D	D	D	D	D	D	D	D	D
Southbound Left	B	C	C	C	C	C	C	C	C	C	C	C
Southbound Through/Right	B	C	C	C	C	C	C	C	C	C	C	C
Southbound Right	P	C	C	C	C	C	C	C	C	C	C	C
Overall Intersection	C	C	C	C	C	C	C	C	C	C	C	C
American Parkway & Zanders Driveway	C	C	D	C	F(156.6)	F(156.6)	F(156.6)	F(156.6)	F(156.6)	F(156.6)	F(156.6)	F(156.6)
Northbound Right	C	C	D	C	F(156.6)	F(156.6)	F(156.6)	F(156.6)	F(156.6)	F(156.6)	F(156.6)	F(156.6)

**TABLE 7  
95TH PERCENTILE QUEUE LENGTH (FEET) SUMMARY**

AM Peak Hour											
Intersection	Capacity	Existing	2008 Base	2008 Projected	2008 Proj. w/ Imp.	2018 Base	2018 Projected	2018 Proj. w/ Imp.	2018 Base w/AP conn	2018 Proj. w/AP conn	2018 Proj. w/imp w/AP conn
<b>Alrport Road &amp; Rte 22 Ramp/Catasaugus Rd</b>											
Eastbound Through	--	114	120	120	--	118	118	--	186	186	--
Westbound Left	350	106	122	122	--	108	108	--	161	161	--
Westbound Right	225*	357	158	159	--	222	222	--	386	386	--
Northbound Through	--	326	377	386	--	354	354	--	688	709	--
Northbound Right	500	73	57	55	--	22	22	--	19	20	--
Southbound Left	350	108	113	113	--	113	113	--	136	136	--
Southbound Through	--	270	308	351	--	251	284	--	220	210	--
<b>Alrport Rd &amp; Steel Stone Dr/BJ's Driveway</b>											
Eastbound Left	275*	35	56	56	--	56	56	--	57	57	--
Eastbound Through/Right	--	20	6	6	--	6	6	--	6	6	--
Eastbound Right	225*	--	32	32	--	32	32	--	59	61	--
Westbound Left	75*	34	45	45	--	45	45	--	45	45	--
Westbound Through/Right	--	35	16	16	--	16	16	--	16	16	--
Westbound Right	125*	--	24	24	--	24	24	--	48	48	--
Northbound Left	130 (275*)	12	65	65	--	65	65	--	37	36	--
Northbound Through/Right	--	287	299	305	--	421	429	--	213	213	--
Southbound Left	250	82	204	205	--	206	206	--	331	130	--
Southbound Through/Right	--	254	470	548	--	922	1067	--	1037	1152	--
Southbound Right	--	--	9	15	--	24	26	--	6	7	--
<b>Alrport Road &amp; Lloyd Street</b>											
Eastbound Left	75*	--	87	87	--	110	110	--	171	171	--
Eastbound Left/Through/Right	--	135	29	29	--	32	32	--	37	37	--
Westbound Left	115*	--	97	97	--	116	116	--	171	171	--
Westbound Left/Through/Right	--	166	42	42	--	46	46	--	76	76	--
Northbound Left	60	4	1	1	--	3	3	--	3	3	--
Northbound Through/Right	--	168	44	234	--	730	747	--	968	924	--
Southbound Left	75	26	34	37	--	66	66	--	30	27	--
Southbound Through/Right	--	168	303	375	--	500	623	--	599	601	--
<b>Alrport Road &amp; American Parkway</b>											
Eastbound Left	475	78	52	56	--	61	71	--	593	606	--
Eastbound Through/Right	--	10	21	20	--	23	22	--	13	13	--
Eastbound Right	125*	--	3	3	--	4	4	--	22	24	--
Westbound Left	205	5	5	5	--	5	5	--	5	5	--
Westbound Through/Right	--	38	39	39	--	41	41	--	285	300	--
Northbound Left	--	29	30	31	--	36	37	--	238	289	--
Northbound Through/Right	--	306	377	377	--	519	519	--	713	713	--
Southbound Left	100	56	62	56	--	88	78	--	75	60	--
Southbound Through	--	271	153	150	--	270	304	--	592	577	--
Southbound Right	400	0	0	0	--	0	0	--	0	0	--
<b>American Parkway &amp; Irving Street</b>											
Eastbound Left	757	62	65	70	65	87	101	81	23	23	21
Eastbound Through/Right	--	47	50	55	52	61	66	56	116	120	117
Westbound Left	75	48	44	41	36	53	48	36	98	70	49
Westbound Through/Right	--	134	132	178	156	166	210	154	224	298	137
Northbound Left	75	25	25	25	28	30	30	37	42	42	51
Northbound Through/Right	--	98	102	102	108	129	129	150	180	180	196
Southbound Left	75	36	38	38	33	46	46	44	58	58	58
Southbound Through/Right	--	170	179	179	153	229	229	214	327	327	278
<b>American Pkwy &amp; Agere/Trepleans Drives</b>											
Eastbound Left	200	35	35	35	42	34	34	42	15	15	13
Eastbound Through/Right	--	74	77	78	92	96	97	115	387	456	372
Eastbound Right	275*	--	--	--	10	--	--	9	--	--	4
Westbound Left	350*	29	29	127	81	28	125	153	20	211	125
Westbound Through	--	66	74	74	88	117	117	141	114	126	117
Westbound Right	450	55	55	55	60	52	52	59	6	14	13
Northbound Left	--	--	--	--	--	--	--	--	--	--	6
Northbound Left/Through	--	18	18	18	19	19	19	20	28	28	26
Northbound Right	--	31	11	15	16	11	16	16	16	23	23
Southbound Left	--	10	10	10	11	11	11	12	16	16	14
Southbound Through	--	7	7	7	8	7	7	8	11	11	10
Southbound Right	--	2	2	2	2	2	2	2	3	3	3
<b>American Parkway &amp; Eastern Driveway</b>											
Northbound Right	--	--	--	1	--	--	1	--	--	2	--

\* = Proposed storage length



TABLE 7 (CONTINUED)  
95TH PERCENTILE QUEUE LENGTH (FEET) SUMMARY

Intersection	Capacity	Existing Base	2000 Proposed	2000 Proj. of Bldg./sq. ft.	2010 Base	2010 Proj. of Bldg./sq. ft.	2010 Proj. of Bldg./sq. ft.	2010 Proj. of Bldg./sq. ft.	2010 Proj. of Bldg./sq. ft.	2015 Proj.		2020 Proj.		2035 Proj.		
										Base	Proposed	Base	Proposed	Base	Proposed	Base
Alphabet Road at Rte 21, Emergency/Centerpoint Rd																
Eastbound Through	125	158	158	158	199	199	199	199	199	323	323	323	323	323	323	323
Westbound Left	258	127	178	178	236	236	236	236	236	295	295	295	295	295	295	295
Westbound Right	225*	249	206	206	276	276	276	276	276	397	397	397	397	397	397	397
Northbound Through	422	347	323	323	724	819	808	808	808	994	1125	1125	1125	1071	1071	1071
Northbound Right	500	129	80	73	92	74	98	98	98	137	129	129	129	230	230	230
Southbound Left	334	157	293	293	283	283	283	283	283	354	354	354	354	354	354	354
Southbound Through	203	222	201	201	297	396	396	396	396	491	596	596	596	1394	1394	1394
Alphabet Road at Rte 21, Emergency/Centerpoint Rd																
Northbound Left	275*	66	227	227	271	271	271	271	271	339	339	339	339	386	386	386
Northbound Through	16	8	8	8	8	8	8	8	8	10	10	10	10	10	10	10
Northbound Right	225*	69	76	76	164	169	169	169	169	415	418	418	418	497	497	497
Westbound Left	78*	33	55	55	55	55	55	55	55	66	66	66	66	66	66	66
Westbound Through	102	18	18	18	18	18	18	18	18	20	20	20	20	20	20	20
Westbound Right	155*	194	194	194	203	204	199	199	199	255	256	256	256	256	256	256
Northbound Left	131	16	155	135	131	130	106	106	106	154	145	145	145	137	137	137
Northbound Through	422	473	532	532	303	313	529	529	529	350	356	356	356	406	406	406
Northbound Right	350	194	245	290	290	295	211	211	211	356	330	330	330	260	260	260
Southbound Left	412	490	876	876	1780	1062	2040	2040	2040	1153	1509	1509	1509	2316	2316	2316
Southbound Through	39	39	23	23	35	23	46	46	46	58	69	69	69	57	57	57
Southbound Right	141	141	141	141	224	224	224	224	224	284	284	284	284	298	298	298
Alphabet Road at Rte 21, Emergency/Centerpoint Rd																
Eastbound Left	154	30	30	30	37	39	50	50	50	48	54	54	54	60	60	60
Eastbound Through	141	141	141	141	188	188	188	188	188	242	243	243	243	251	251	251
Eastbound Right	167	46	46	46	58	58	58	58	58	72	73	73	73	87	87	87
Westbound Left	60	11	18	23	25	33	33	33	33	6	6	6	6	4	4	4
Westbound Through	645	835	1046	1046	1183	1172	1180	1180	1180	1336	1320	1320	1320	1319	1319	1319
Westbound Right	64	13	6	6	17	10	3	3	3	28	23	23	23	12	12	12
Northbound Left	222	101	90	90	691	723	75	75	75	640	640	640	640	1025	1025	1025
Northbound Through	478	198	130	130	125	162	252	252	252	850	902	902	902	870	870	870
Northbound Right	58	22	18	17	25	20	29	29	29	15	15	15	15	16	16	16
Southbound Left	135*	2	3	3	3	3	8	8	8	21	19	19	19	34	34	34
Southbound Through	16	17	17	17	20	20	20	20	20	23	23	23	23	23	23	23
Southbound Right	69	125	179	179	275	304	304	304	304	412	432	432	432	432	432	432
Alphabet Road at Rte 21, Emergency/Centerpoint Rd																
Eastbound Left	42	44	50	50	53	58	58	58	58	214	267	267	267	267	267	267
Eastbound Through	382	555	555	555	784	764	764	764	764	978	928	928	928	928	928	928
Eastbound Right	180	116	108	108	187	187	187	187	187	174	127	127	127	66	66	66
Westbound Left	376	532	532	532	738	718	738	738	738	915	735	735	735	381	381	381
Westbound Through	0	0	0	0	0	0	605	605	605	0	0	0	0	844	844	844
Westbound Right	400	0	0	0	691	723	75	75	75	640	640	640	640	1025	1025	1025
Alphabet Road at Rte 21, Emergency/Centerpoint Rd																
Eastbound Left	32	34	37	37	40	46	50	50	50	24	29	29	29	45	45	45
Eastbound Through	123	131	211	211	172	218	218	218	218	275	493	493	493	622	622	622
Eastbound Right	20	24	22	23	29	28	30	30	30	22	17	17	17	7	7	7
Westbound Left	78	77	213	221	644	556	672	672	672	310	500	500	500	650	650	650
Westbound Through	18	19	19	19	30	22	27	27	27	39	30	30	30	35	35	35
Westbound Right	104	108	109	104	143	143	130	177	198	207	207	207	207	242	242	242
Alphabet Road at Rte 21, Emergency/Centerpoint Rd																
Eastbound Left	47	50	50	39	42	42	47	47	47	77	77	77	77	90	107	107
Eastbound Through	205	213	213	162	248	244	204	382	312	360	360	360	360	472	464	464
Eastbound Right	15	11	11	9	11	10	9	10	9	9	9	9	9	12	10	10
Westbound Left	91	79	96	122	94	124	126	154	188	374	518	434	434	754	647	647
Westbound Through	7	5	268	289	2162	932	5	216	228	2220	936	1	445	2486	1018	1018
Westbound Right	140	114	112	100	112	199	143	142	124	142	251	195	151	169	164	105
Alphabet Road at Rte 21, Emergency/Centerpoint Rd																
Eastbound Left	23	17	22	29	22	29	24	29	24	29	24	29	24	32	18	18
Eastbound Through	19	16	25	29	25	29	26	29	26	29	26	29	26	31	31	31
Eastbound Right	203	215	245	239	245	348	230	282	282	344	303	385	384	482	439	439
Westbound Left	14	16	17	19	17	31	19	20	19	22	21	23	20	24	24	24
Westbound Through	24	28	31	32	31	35	29	32	32	36	33	36	31	39	34	34
Westbound Right	22	22	22	22	24	24	24	24	24	24	24	24	24	24	24	24

\* Proposed average length

## RECOMMENDATIONS

*The following recommendations are outlined in conjunction with the construction of the Lehigh County Minor League Ballpark, as outlined in the Traffic Impact Study prepared by The Pidcock Company, dated June 8, 2006:*

### American Parkway & the Agere Systems Access/Site Driveway

- *Utilize temporary traffic control to convert one of the eastbound through lanes on American Parkway at the site driveway to an additional left turn lane during events to accommodate left turn ingress to the ballpark;*
- *Develop a separate event program for this traffic signal or employ police control at this intersection during ballpark events.*

*The following recommendations are outlined in conjunction with the construction of the proposed development:*

### American Parkway & the Agere Systems Access/Site Driveway

#### 2008

- *Construct a 295-foot long eastbound right turn/deceleration lane along American Parkway;*
- *Widen the site driveway to provide two ingress lanes in order to accommodate westbound dual left turn ingress movements from American Parkway during ballpark events;*
- *Provide traffic signal timing adjustments.*

#### 2018

- *Construct a northbound left turn lane along the site driveway with the construction of the American Parkway Lehigh River crossing;*
- *Construct an additional westbound left turn lane with the construction of the American Parkway Lehigh River crossing;*
- *Provide traffic signal timing adjustments.*

### American Parkway & the Eastern Site Driveway

- *Erect a stop sign (PennDOT designation R1-1) to control exiting traffic;*
- *Grade back the existing embankment to the west of the proposed driveway to ensure adequate sight distance is available for exiting traffic.*

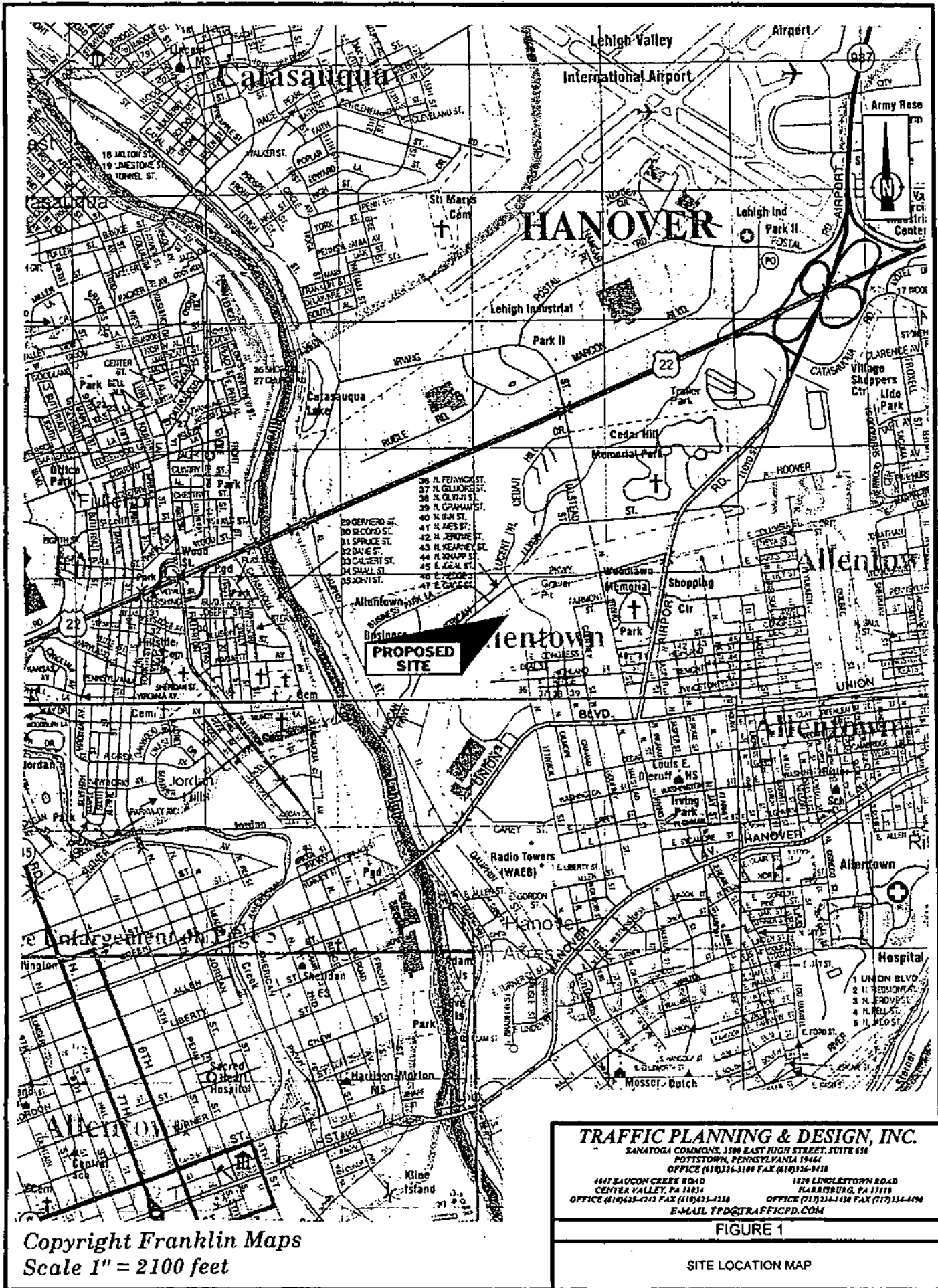
### American Parkway & Irving Street

- *Remove the northbound lead phase.*

- *Complete an updated/revised Traffic Impact Study once the following are constructed and open for operation to determine more exact traffic volumes/flows as they relate to possible modifications to access, traffic signal timings, etc.:*
  - *Phase I of the proposed Casino (3,000 slot machines);*
  - *Baseball Stadium;*
  - *American Parkway Bridge over the Lehigh River.*

### CONCLUSIONS

In conclusion, it is our opinion that the construction of the proposed Tropicana casino and resort development in the City of Allentown will not adversely impact the health, safety and welfare of the community from a traffic engineering perspective if the recommended improvements are implemented.

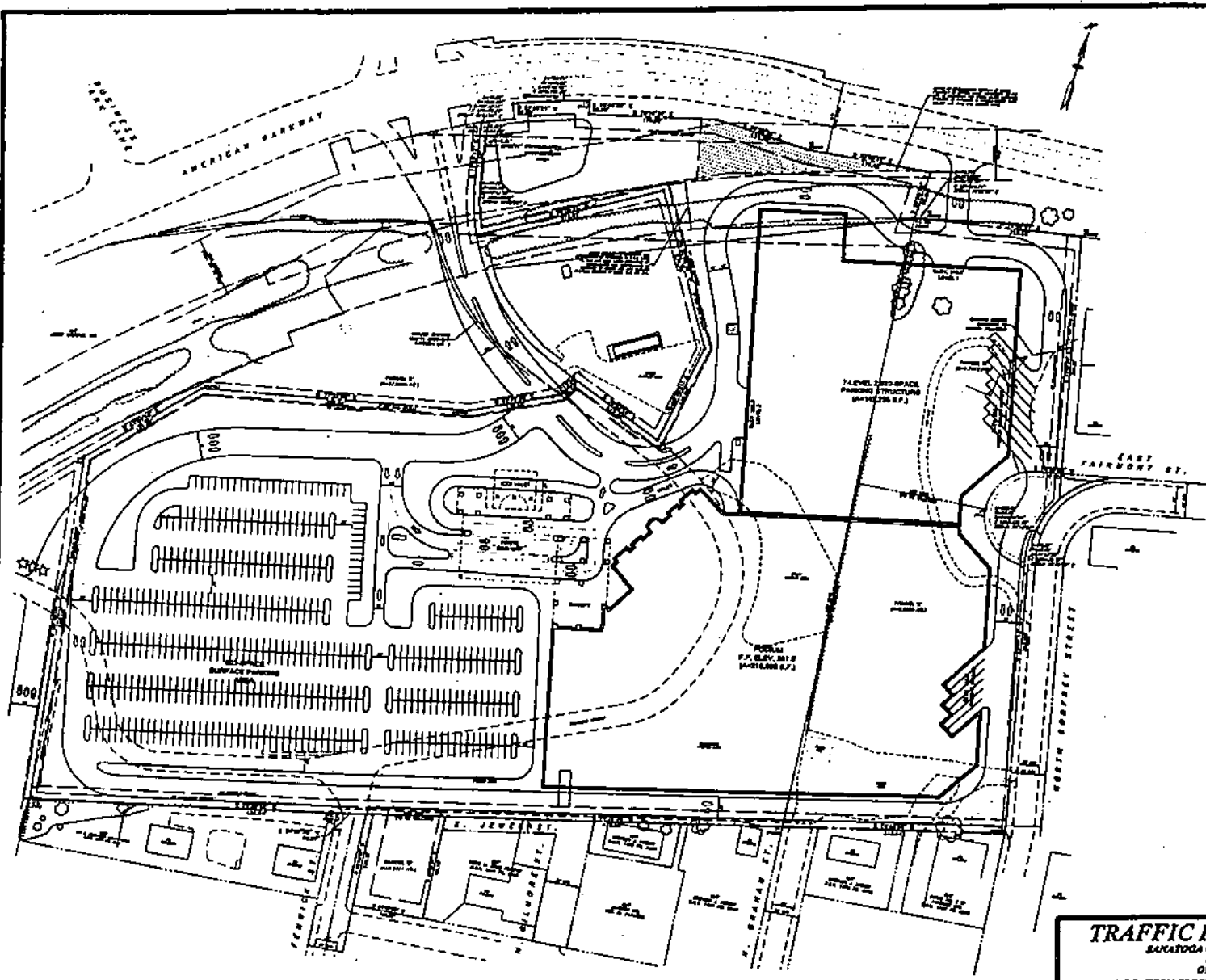


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 Scale 1" = 2100 feet

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 OFFICE (610)413-0413 FAX (610)413-1316  
 1828 LINGLESTOWN ROAD HARRISBURG, PA 17110  
 OFFICE (717)314-1138 FAX (717)314-1198  
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FIGURE 1

SITE LOCATION MAP



DWD. NO. 08-06-041  
 SCALE: 1" = 50'  
 DWG. BY: JCM  
 DATE: JULY 11, 2008  
 SHEET X OF X

**RECORD PLAN**  
 LEHIGH VALLEY TROPICANA  
 ENTERTAINMENT COMPLEX  
 CITY OF ALLENTOWN, LEHIGH COUNTY, PENNSYLVANIA

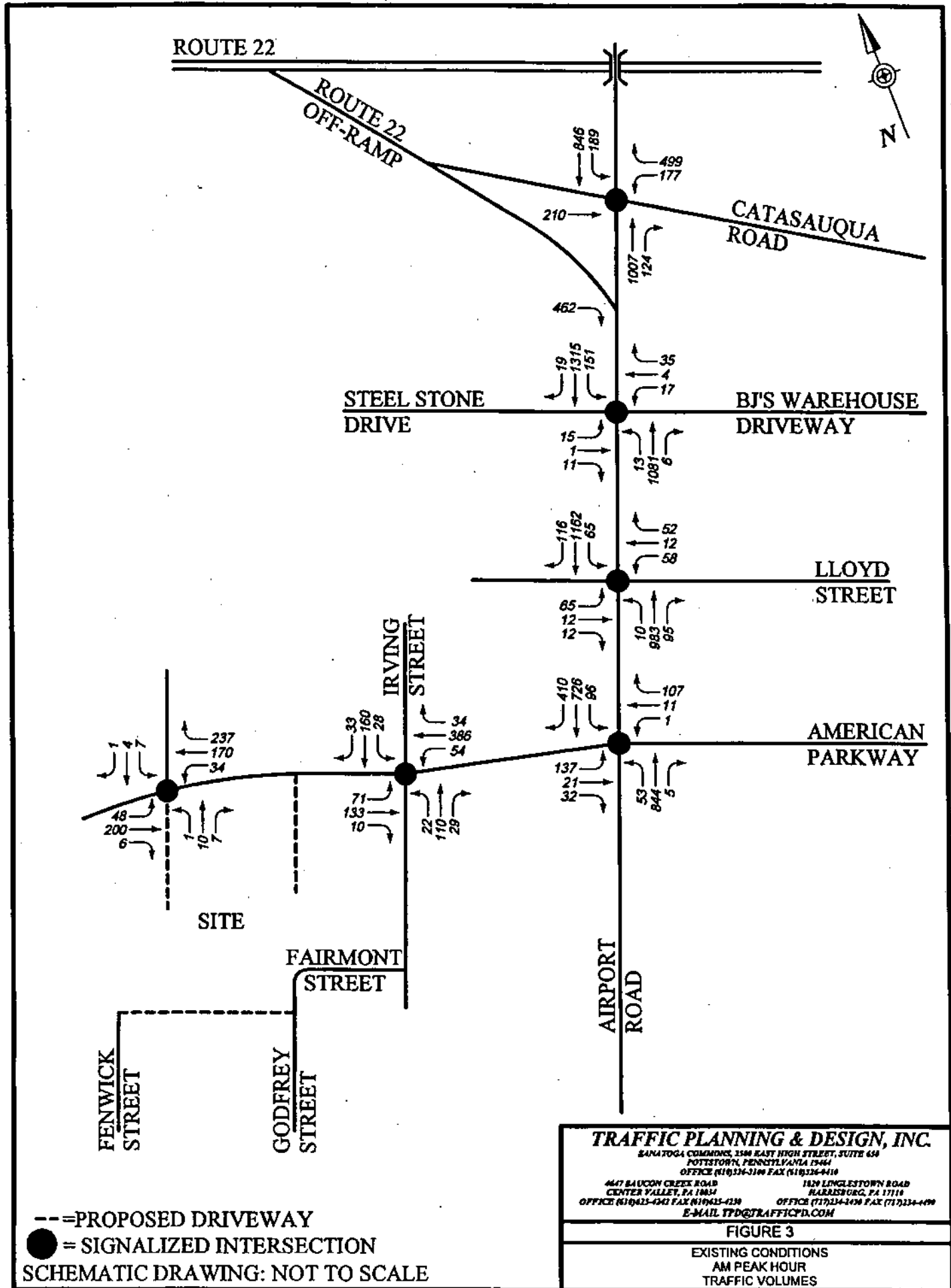
**KCE**  
 keystone  
 consulting  
 engineers  
 inc.

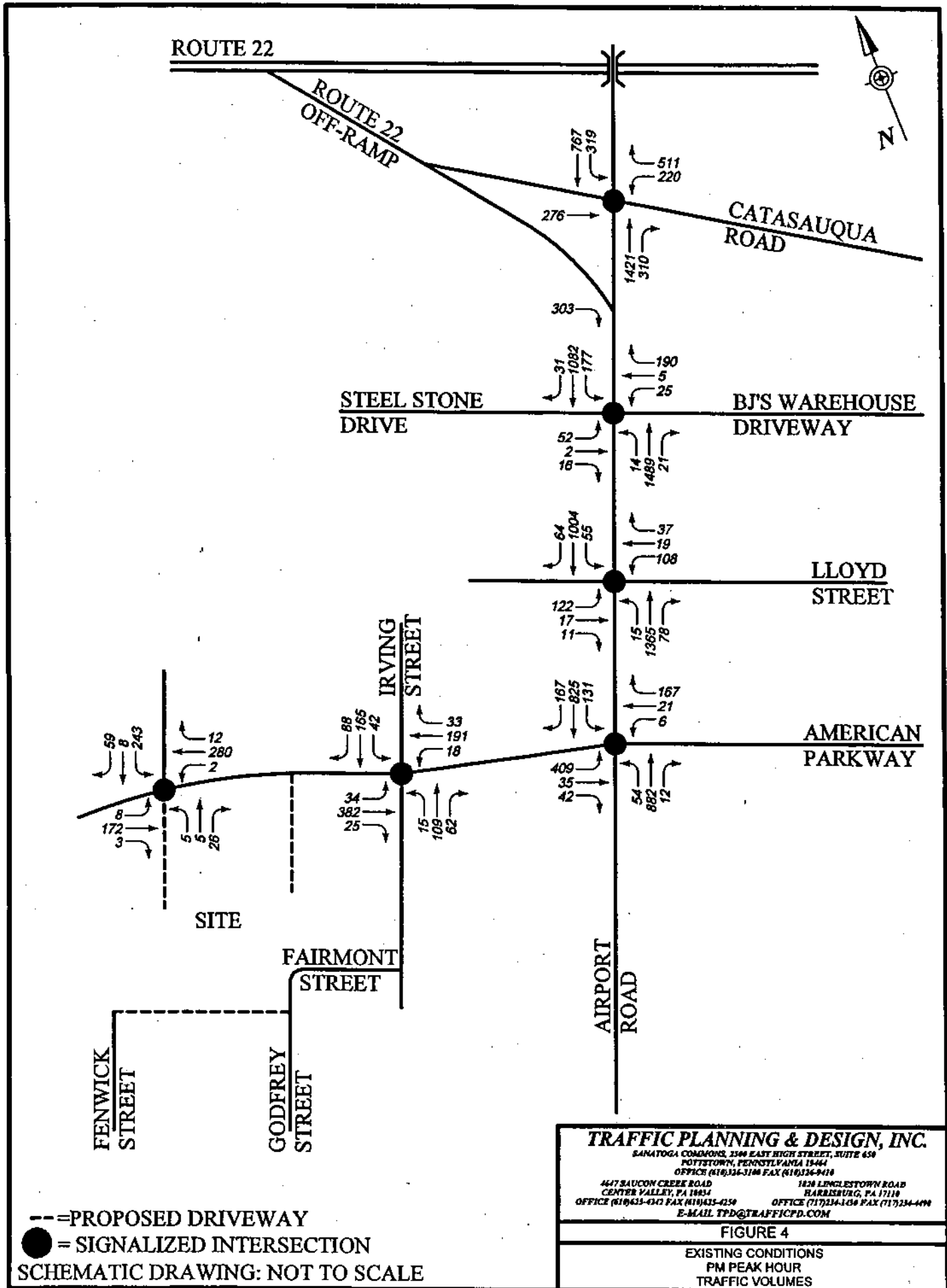
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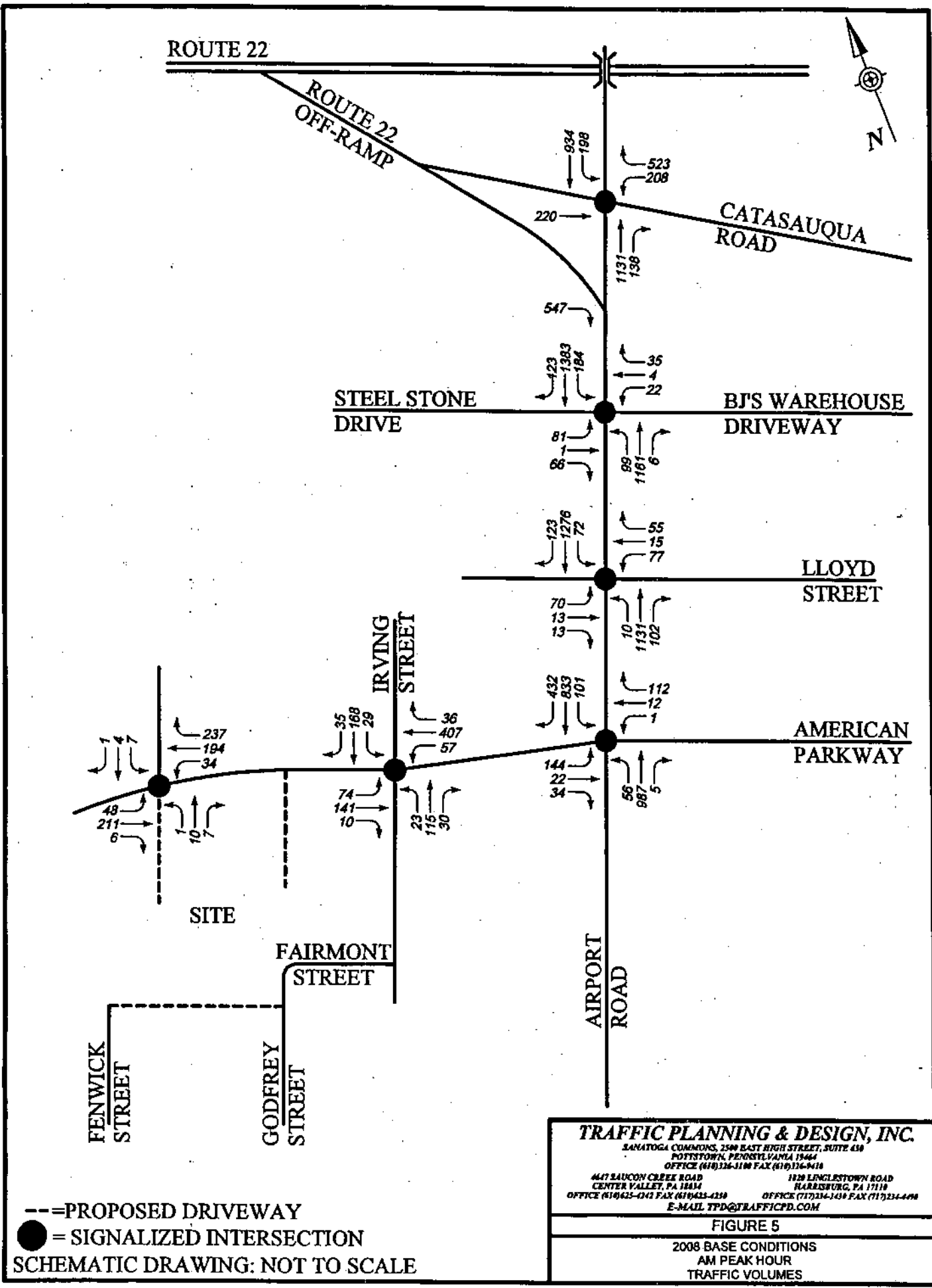
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 OFFICE (610)923-1143 FAX (610)923-4210 OFFICE (717)334-1338 FAX (717)334-4778  
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**FIGURE 2**  
**SITE PLAN**

NOT TO SCALE



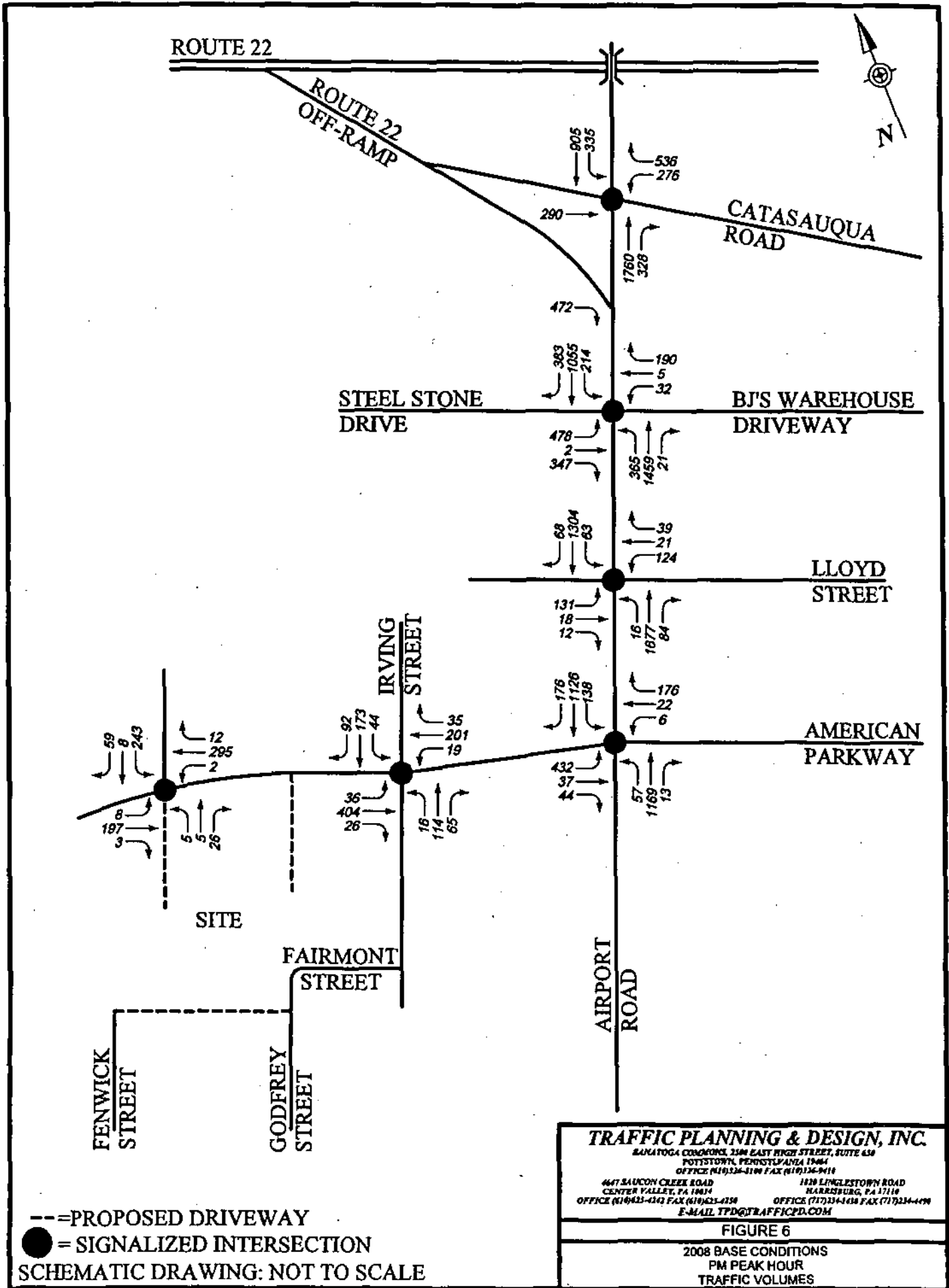




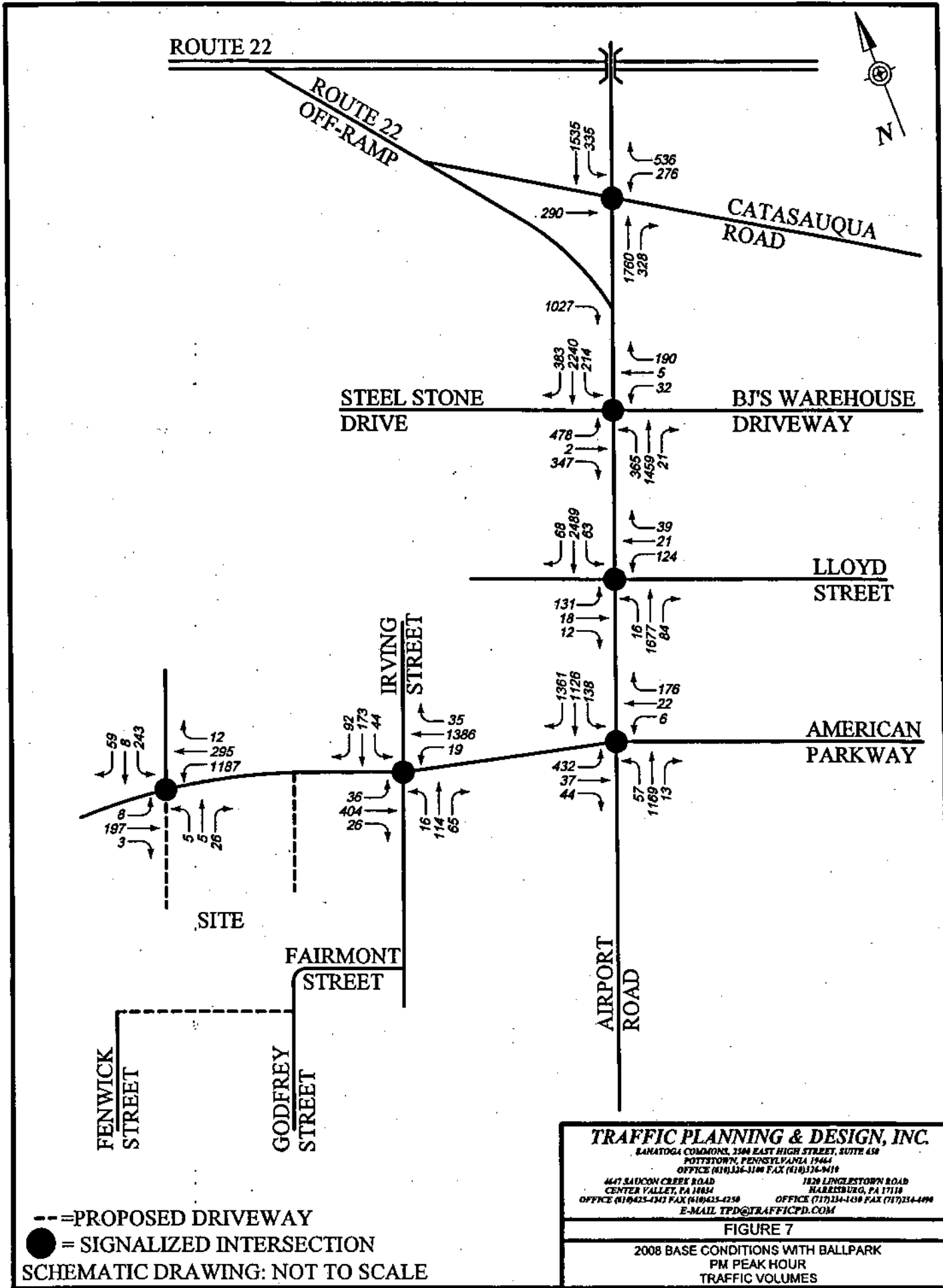
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 ● = SIGNALIZED INTERSECTION  
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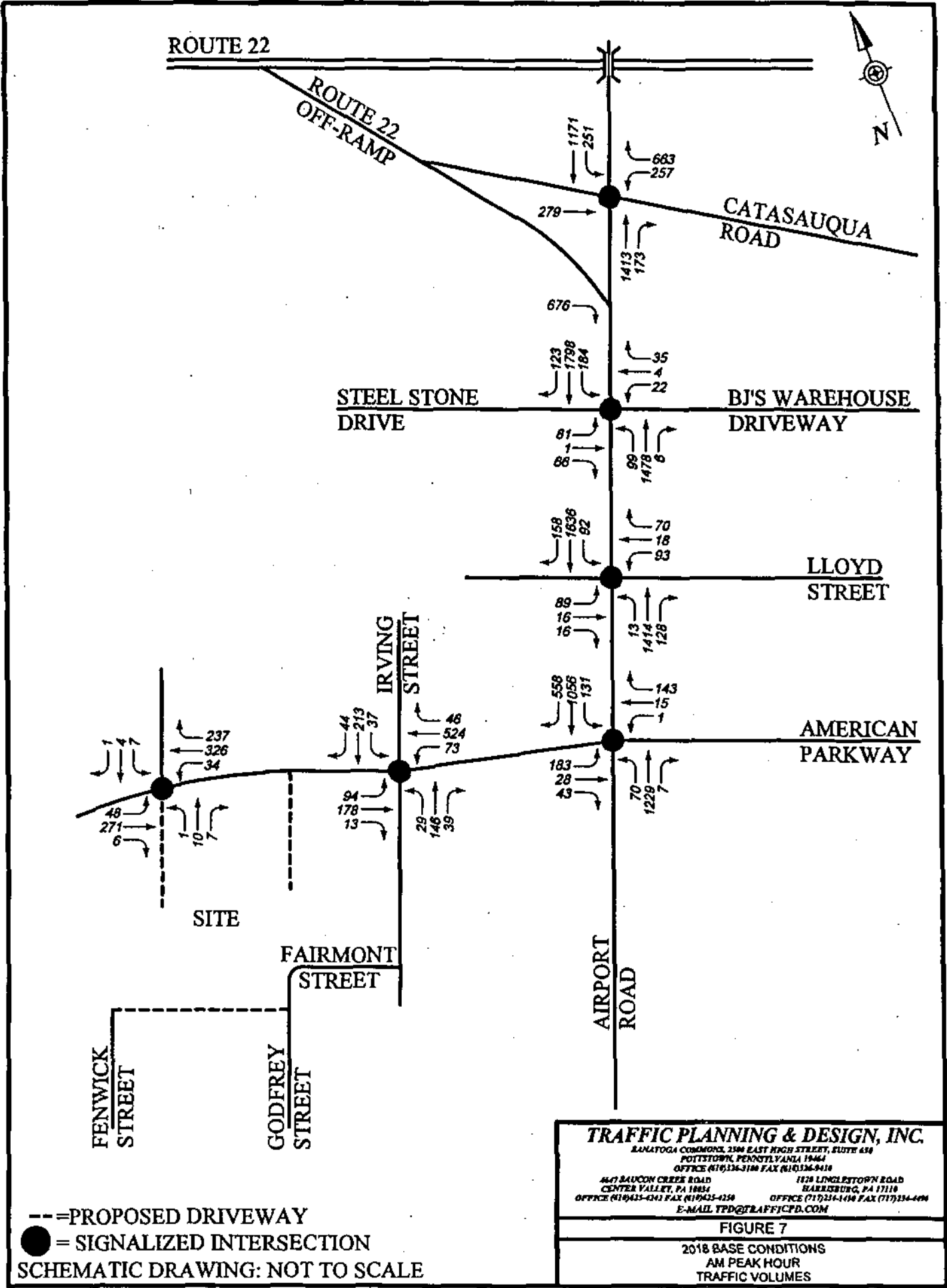
**FIGURE 5**  
 2008 BASE CONDITIONS  
 AM PEAK HOUR  
 TRAFFIC VOLUMES





---=PROPOSED DRIVEWAY  
 ● = SIGNALIZED INTERSECTION  
 SCHEMATIC DRAWING: NOT TO SCALE





ROUTE 22

ROUTE 22  
OFF-RAMP

CATASAUQUA  
ROAD

STEEL STONE  
DRIVE

BJ'S WAREHOUSE  
DRIVEWAY

LLOYD  
STREET

IRVING  
STREET

AMERICAN  
PARKWAY

AIRPORT  
ROAD

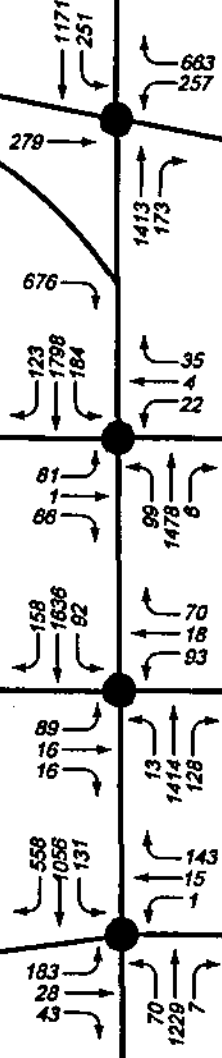
FAIRMONT  
STREET

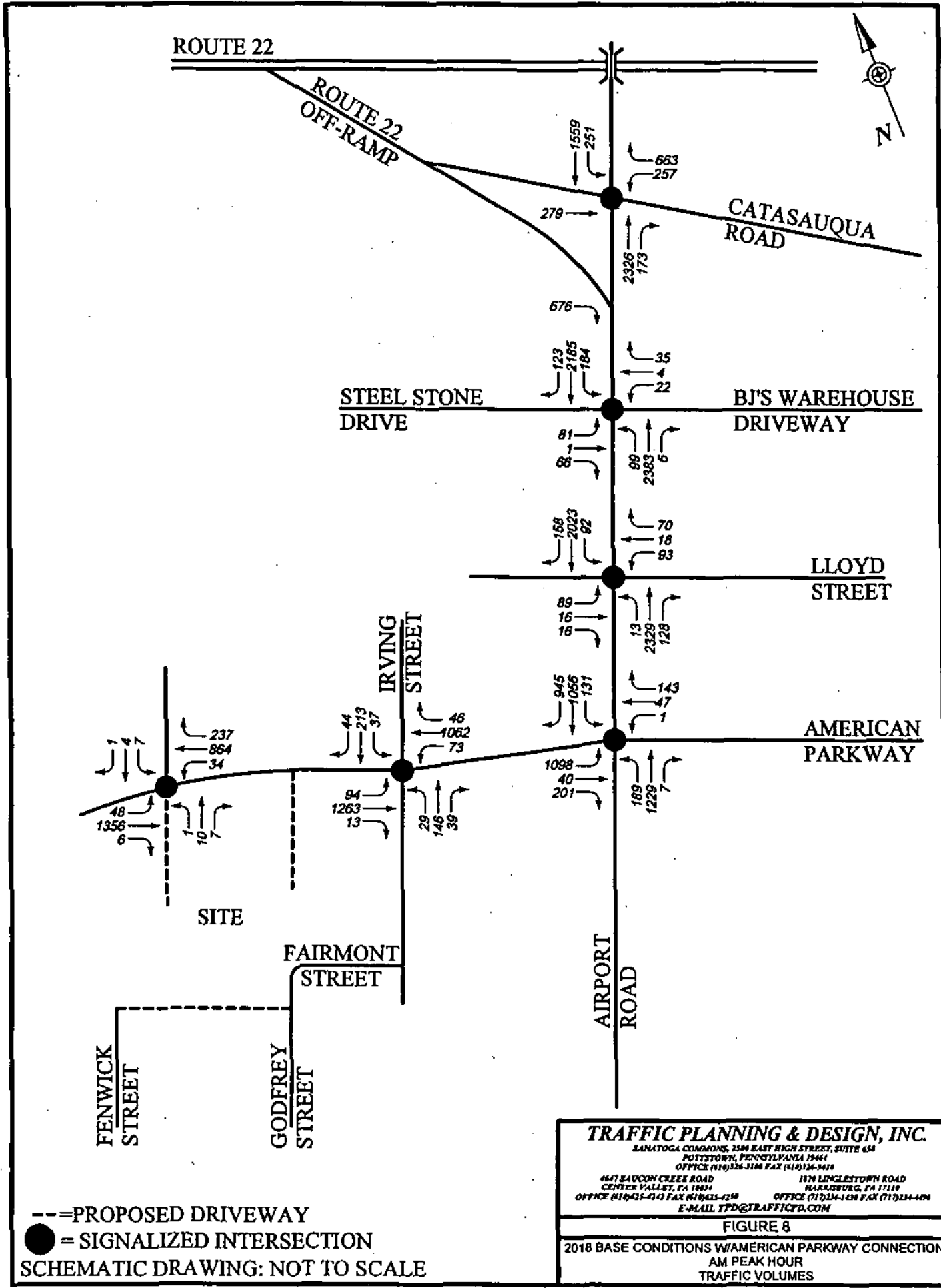
FENWICK  
STREET

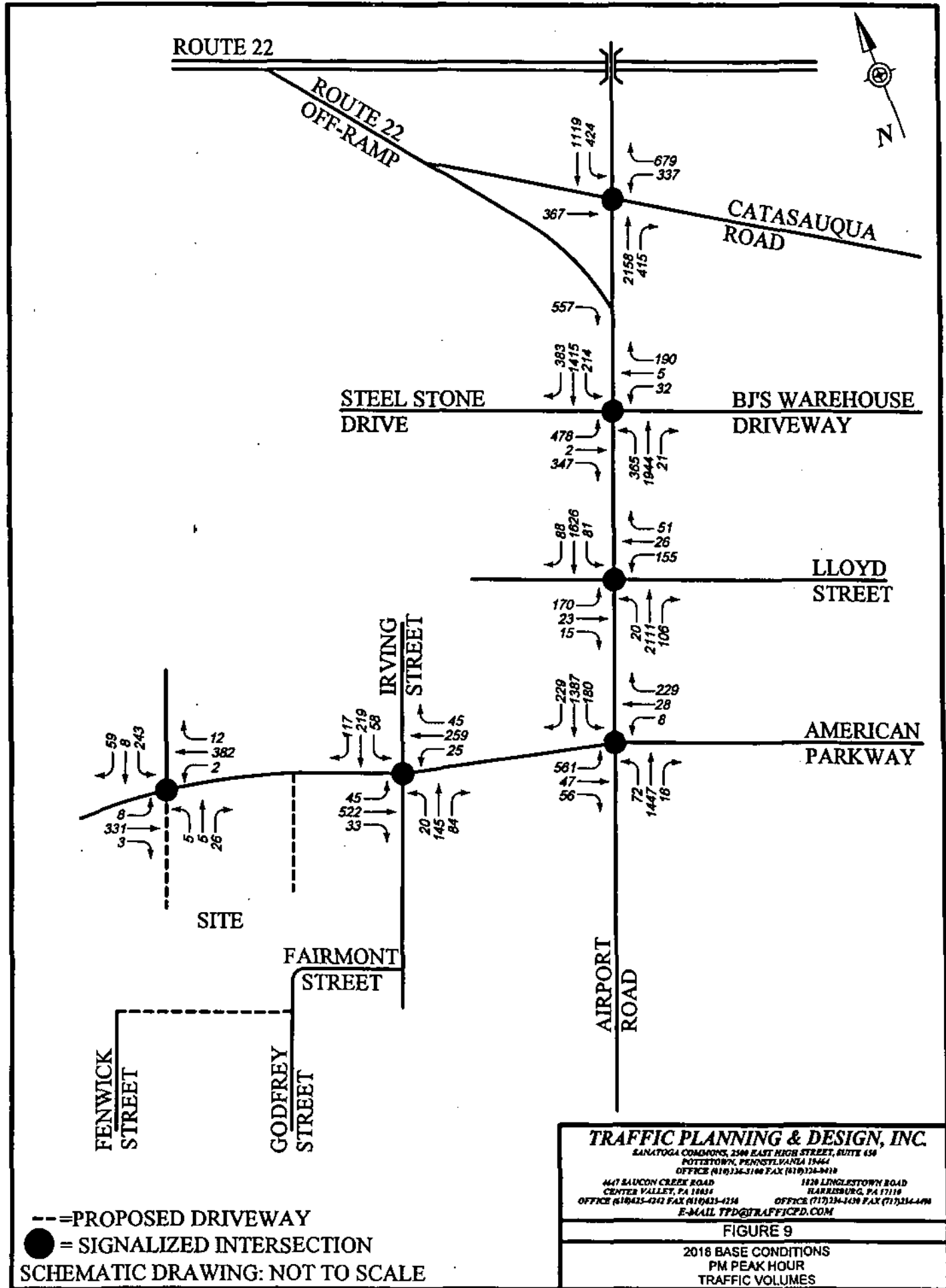
GODFREY  
STREET

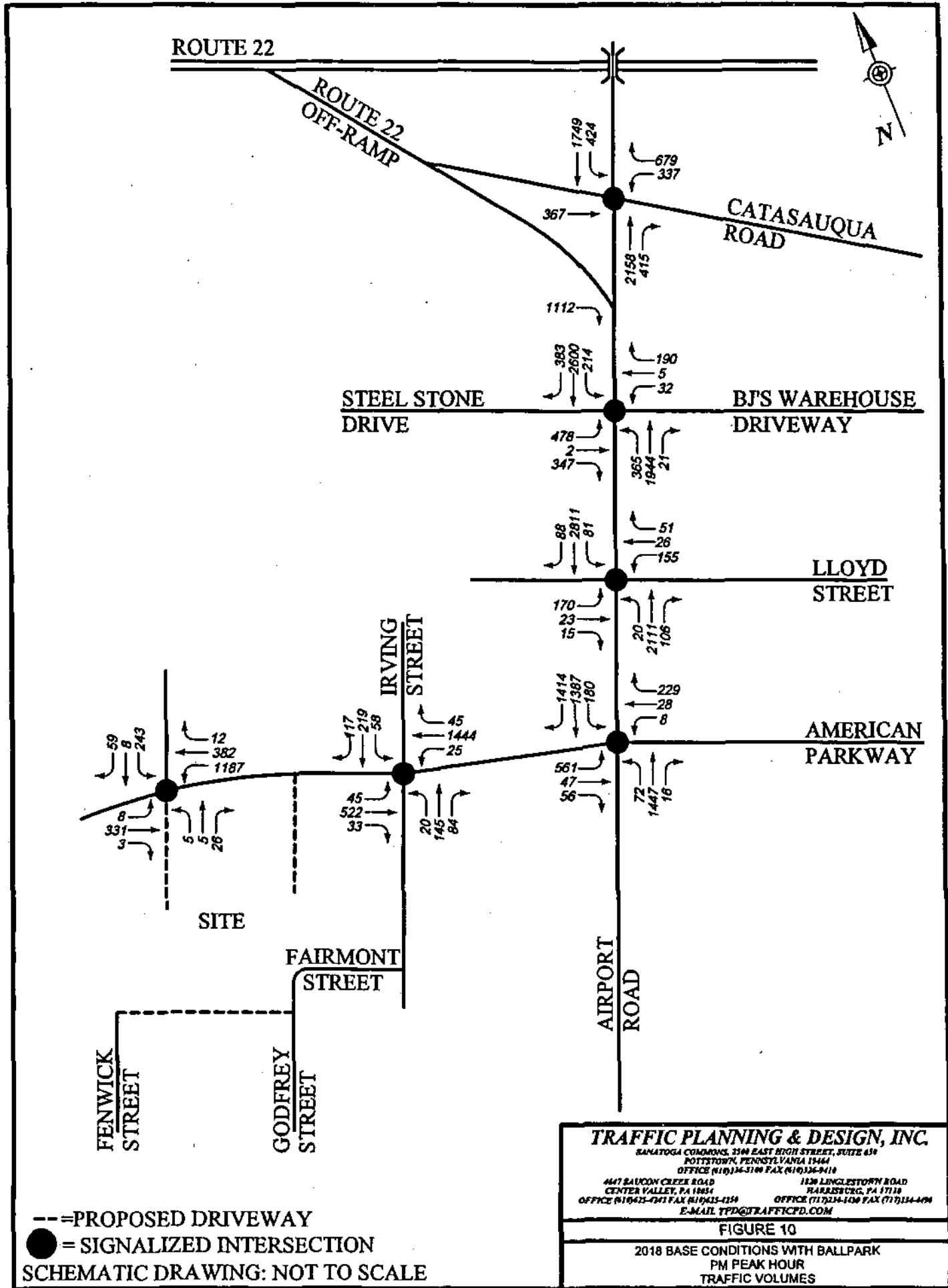
SITE

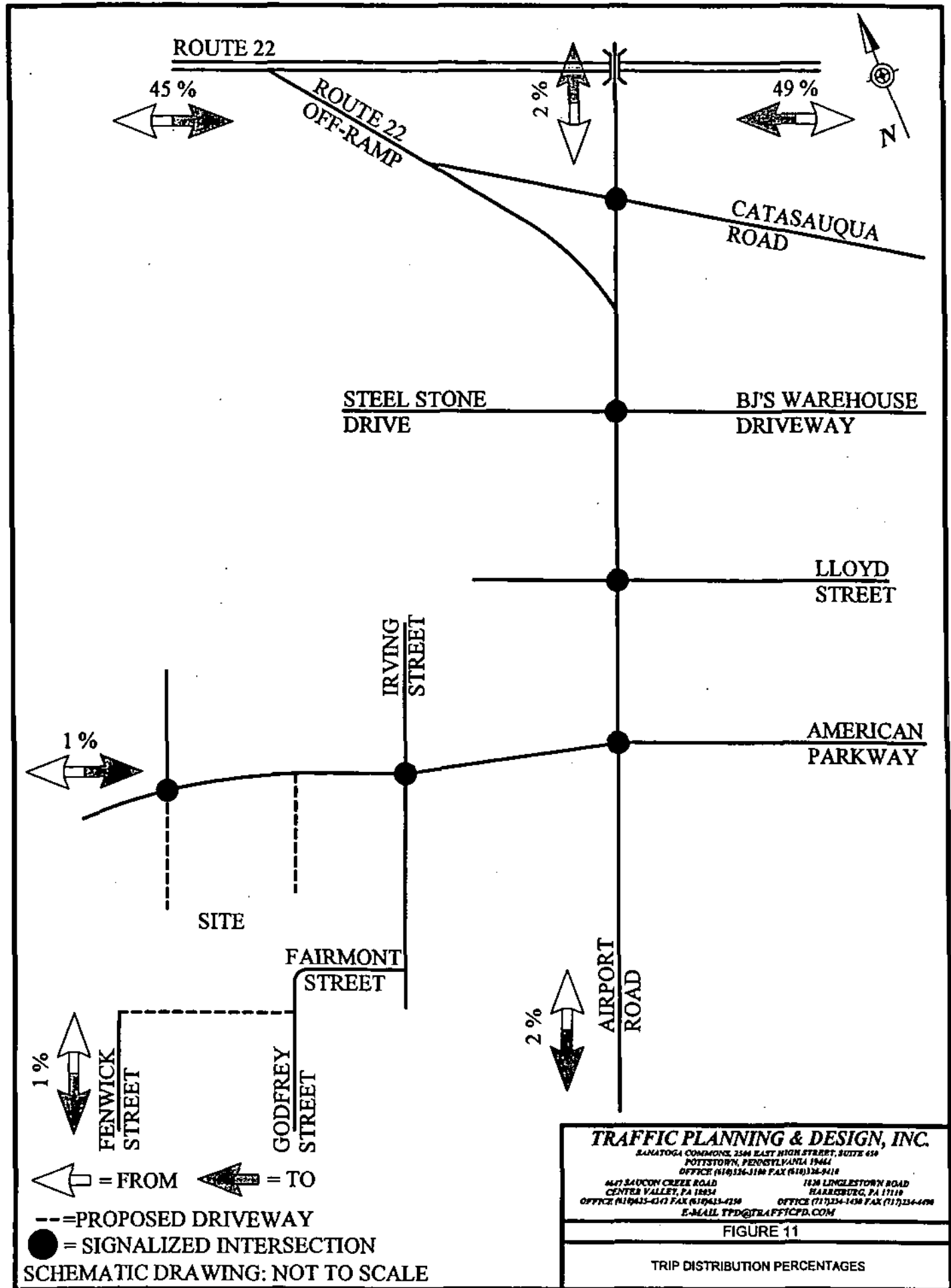
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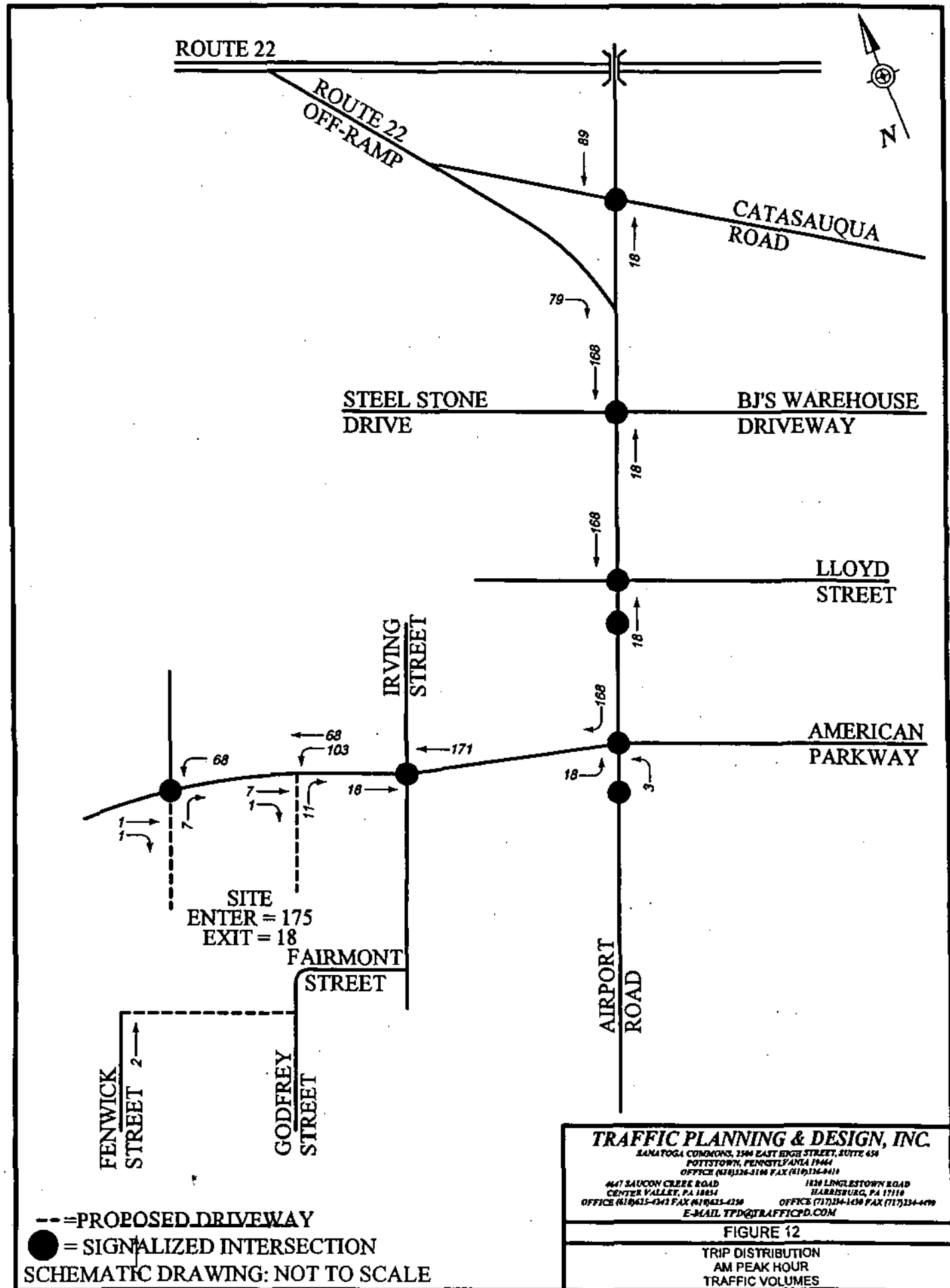










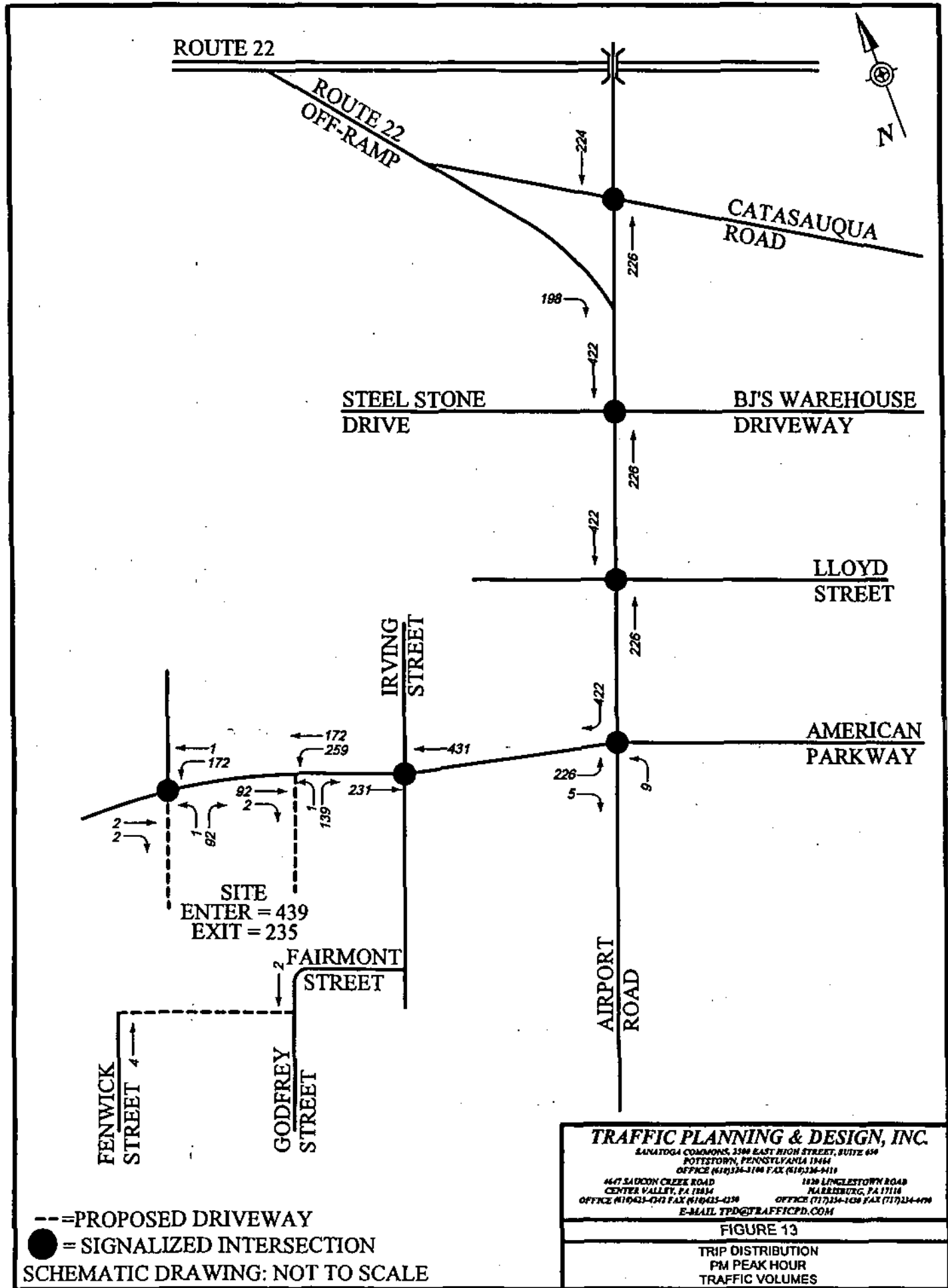


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 447 SAUCON CREEK ROAD  
 CENTER VALLEY, PA 16834  
 OFFICE (717)324-4443 FAX (717)324-4120  
 1826 LINGLESTOWN ROAD  
 HARRISBURG, PA 17110  
 OFFICE (717)324-1000 FAX (717)324-4000  
 E-MAIL: TPD@TRAFFICPD.COM

**FIGURE 12**

TRIP DISTRIBUTION  
 AM PEAK HOUR  
 TRAFFIC VOLUMES





ROUTE 22

ROUTE 22  
OFF-RAMP

CATASAUQUA  
ROAD

STEEL STONE  
DRIVE

BJ'S WAREHOUSE  
DRIVEWAY

LLOYD  
STREET

IRVING  
STREET

AMERICAN  
PARKWAY

AIRPORT  
ROAD

FAIRMONT  
STREET

FENWICK  
STREET

GODFREY  
STREET

SITE  
ENTER = 439  
EXIT = 235

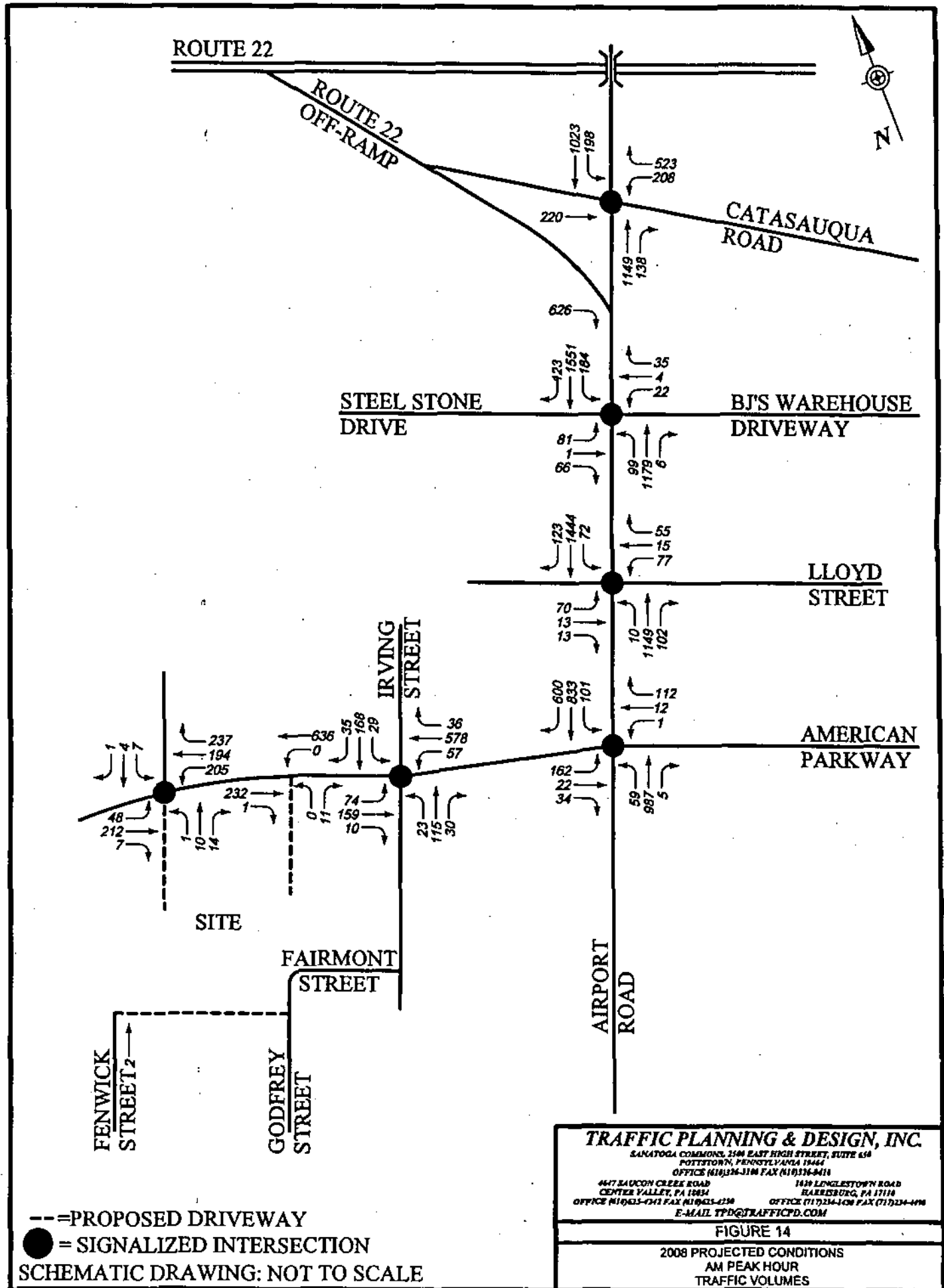
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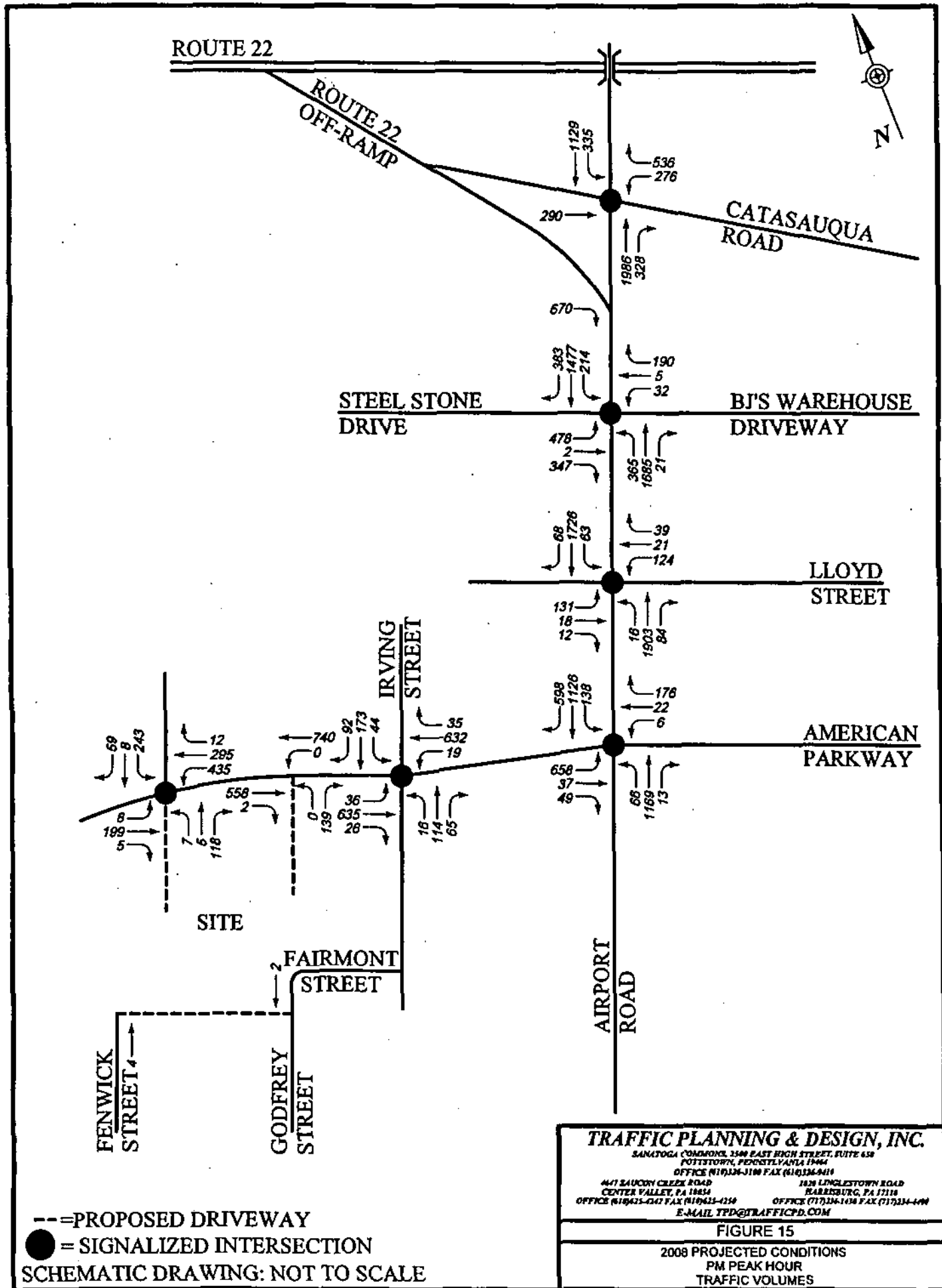
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 4617 SADDON CREEK ROAD  
 CENTER VALLEY, PA 17004  
 OFFICE (717) 334-4339 FAX (717) 334-4339  
 100 LINGESTOWN ROAD  
 HARRISBURG, PA 17110  
 OFFICE (717) 334-1000 FAX (717) 334-4000  
 E-MAIL TPD@TRAFFICPD.COM

FIGURE 13

TRIP DISTRIBUTION  
 PM PEAK HOUR  
 TRAFFIC VOLUMES



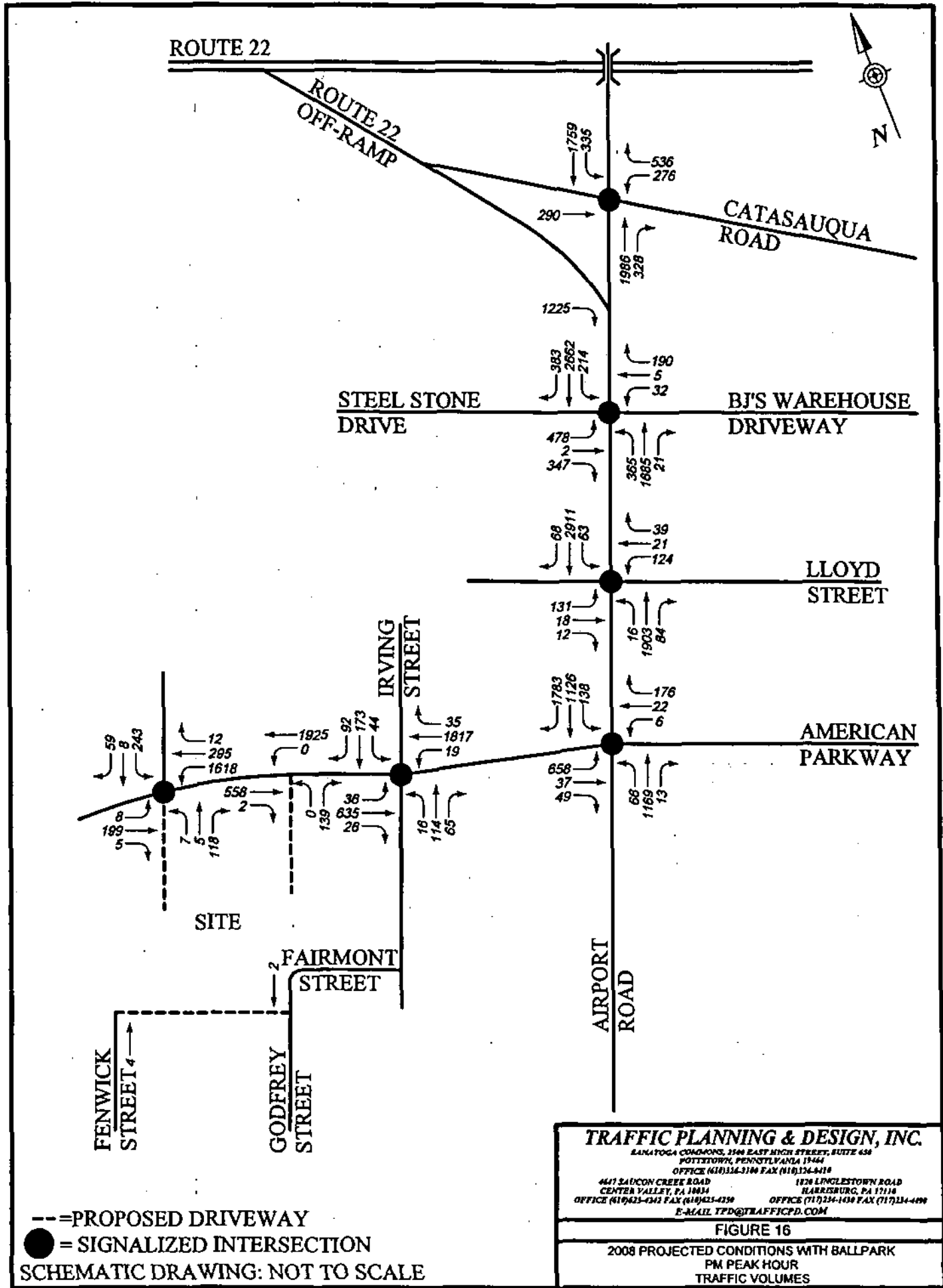


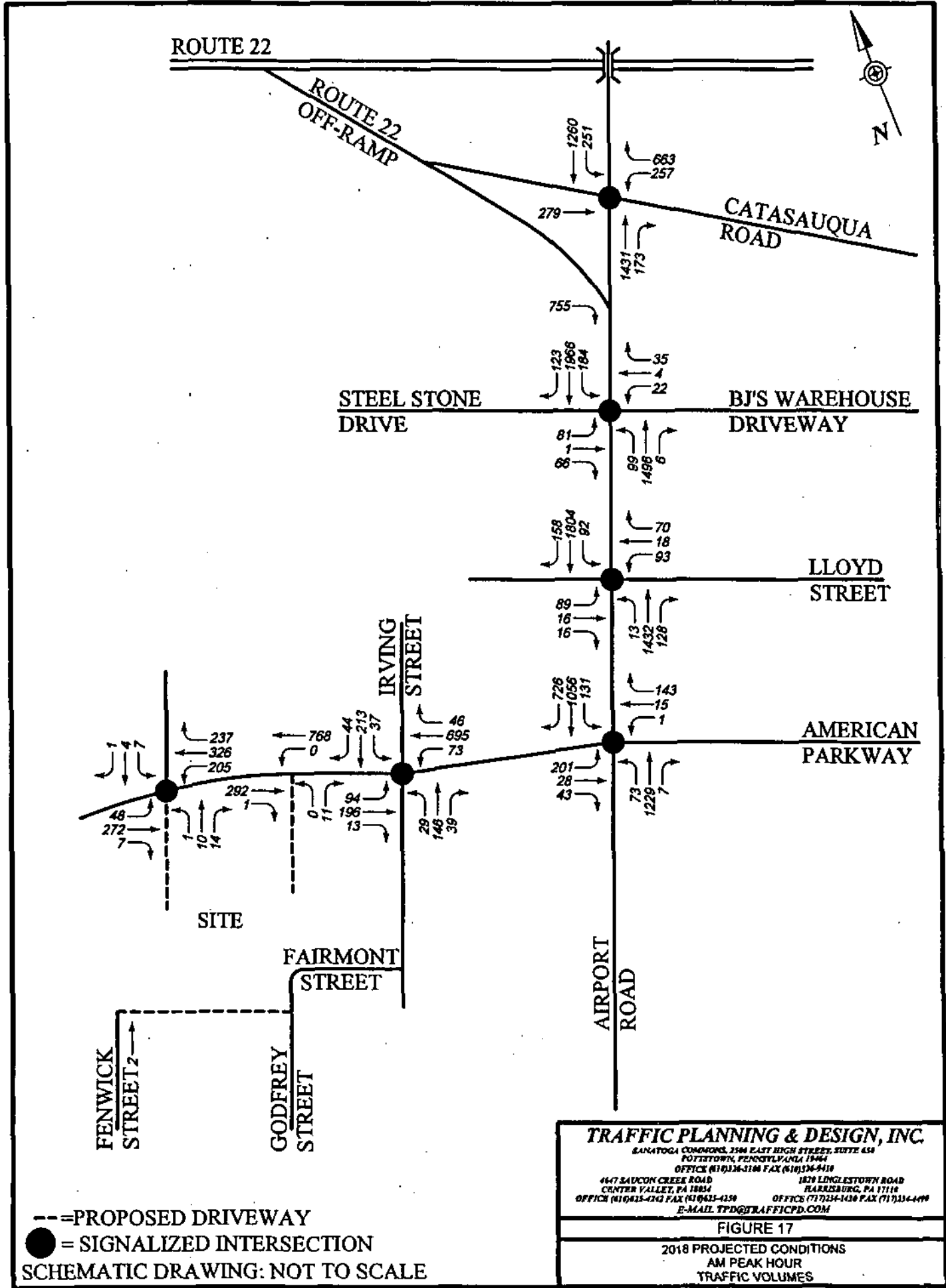
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 4471 SAUCONY CREEK ROAD 1425 LINGLESTOWN ROAD  
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 OFFICE (717) 236-1037 FAX (717) 236-1038 OFFICE (717) 236-1400  
 E-MAIL TPD@TRAFFICPD.COM

FIGURE 15

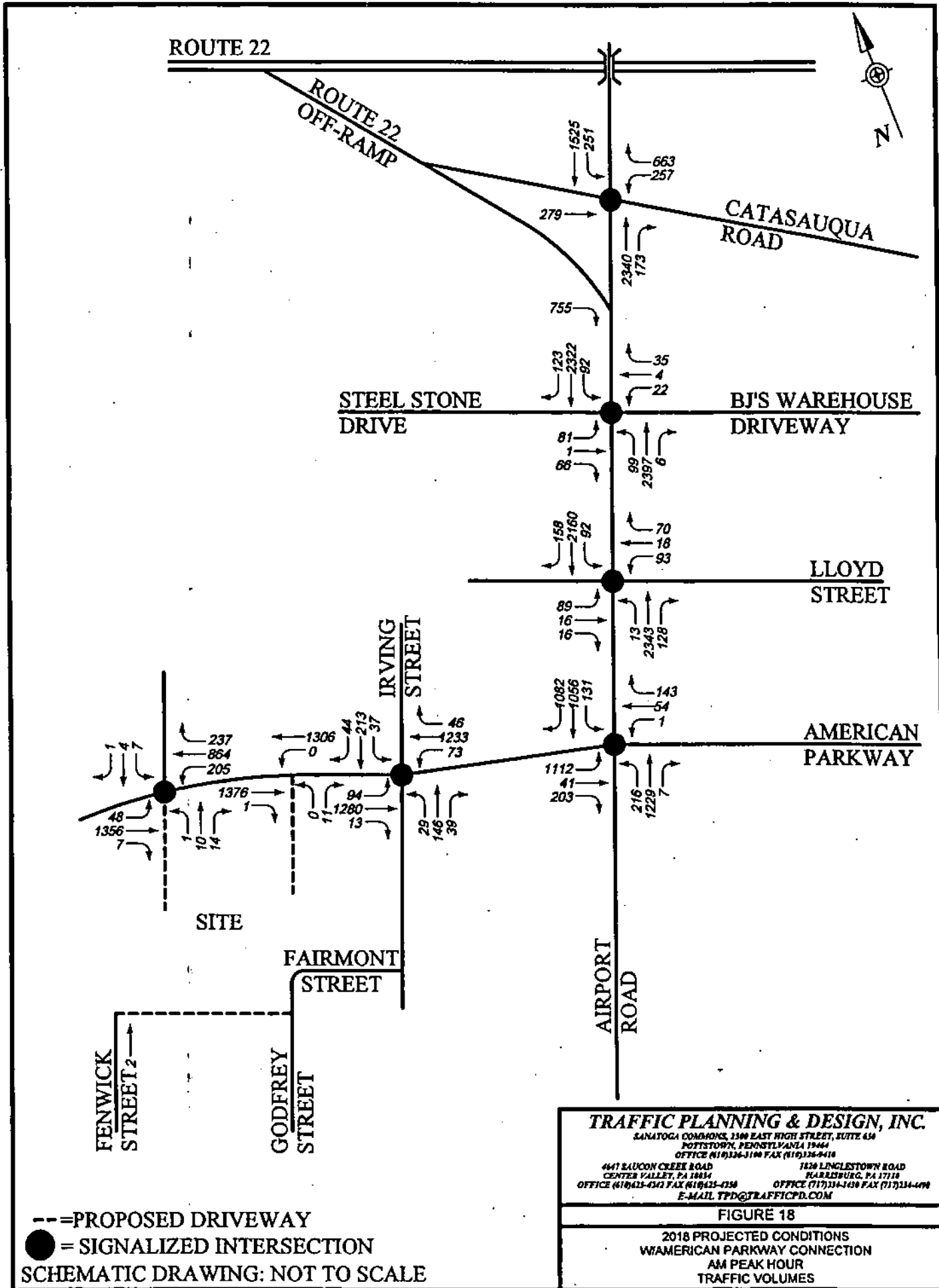
2008 PROJECTED CONDITIONS  
 PM PEAK HOUR  
 TRAFFIC VOLUMES

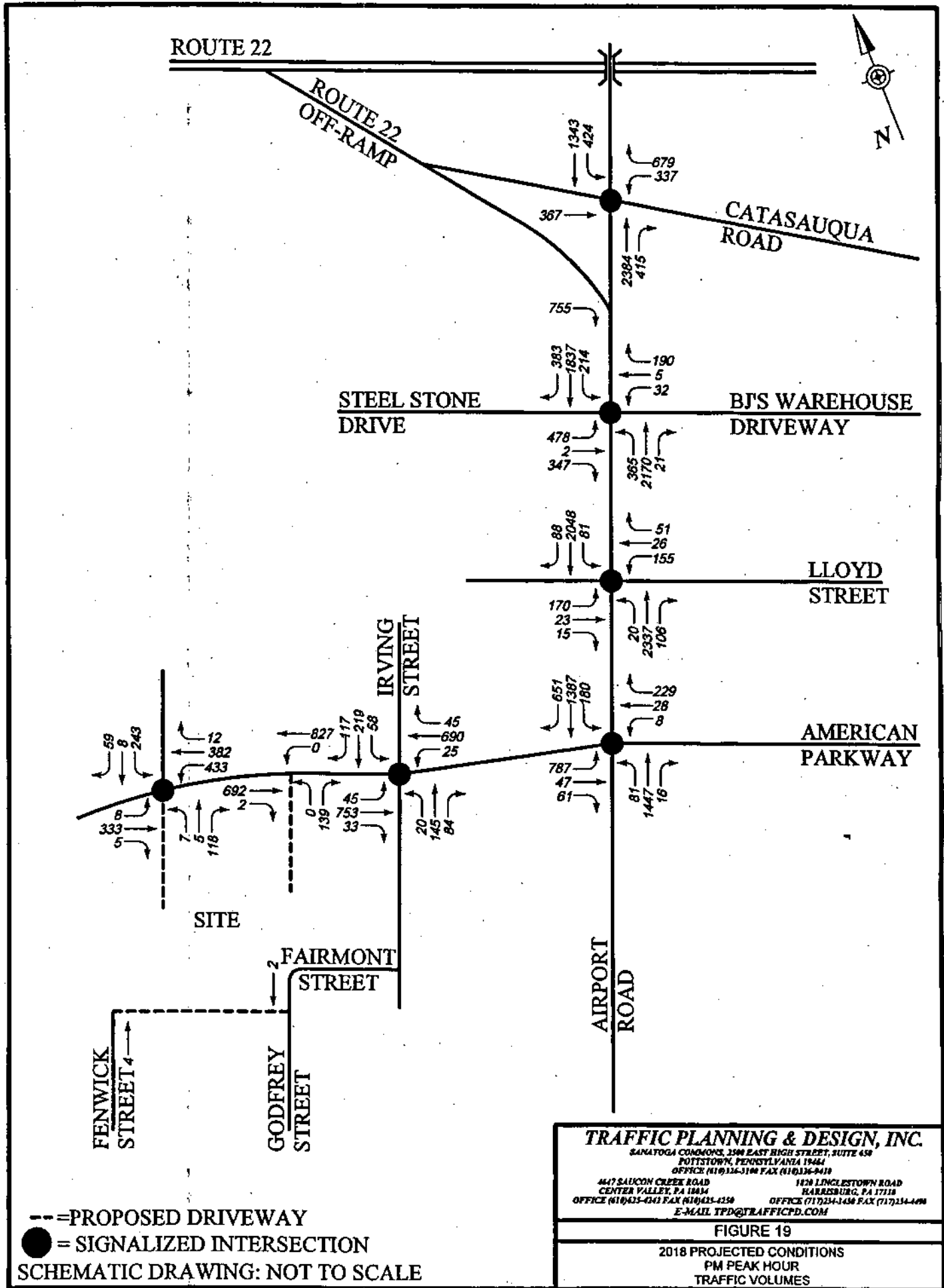


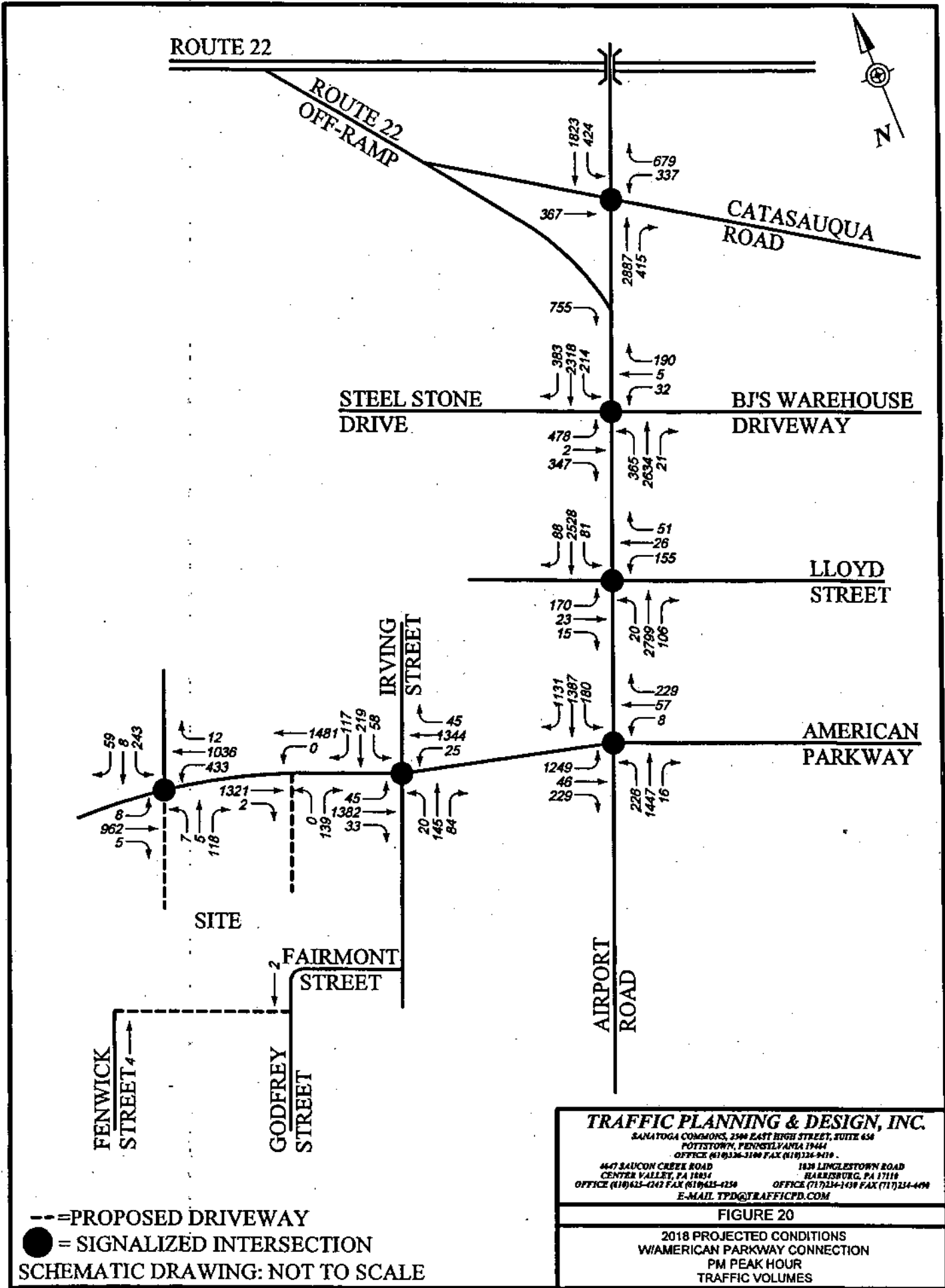


---=PROPOSED DRIVEWAY  
 ● = SIGNALIZED INTERSECTION  
 SCHEMATIC DRAWING: NOT TO SCALE

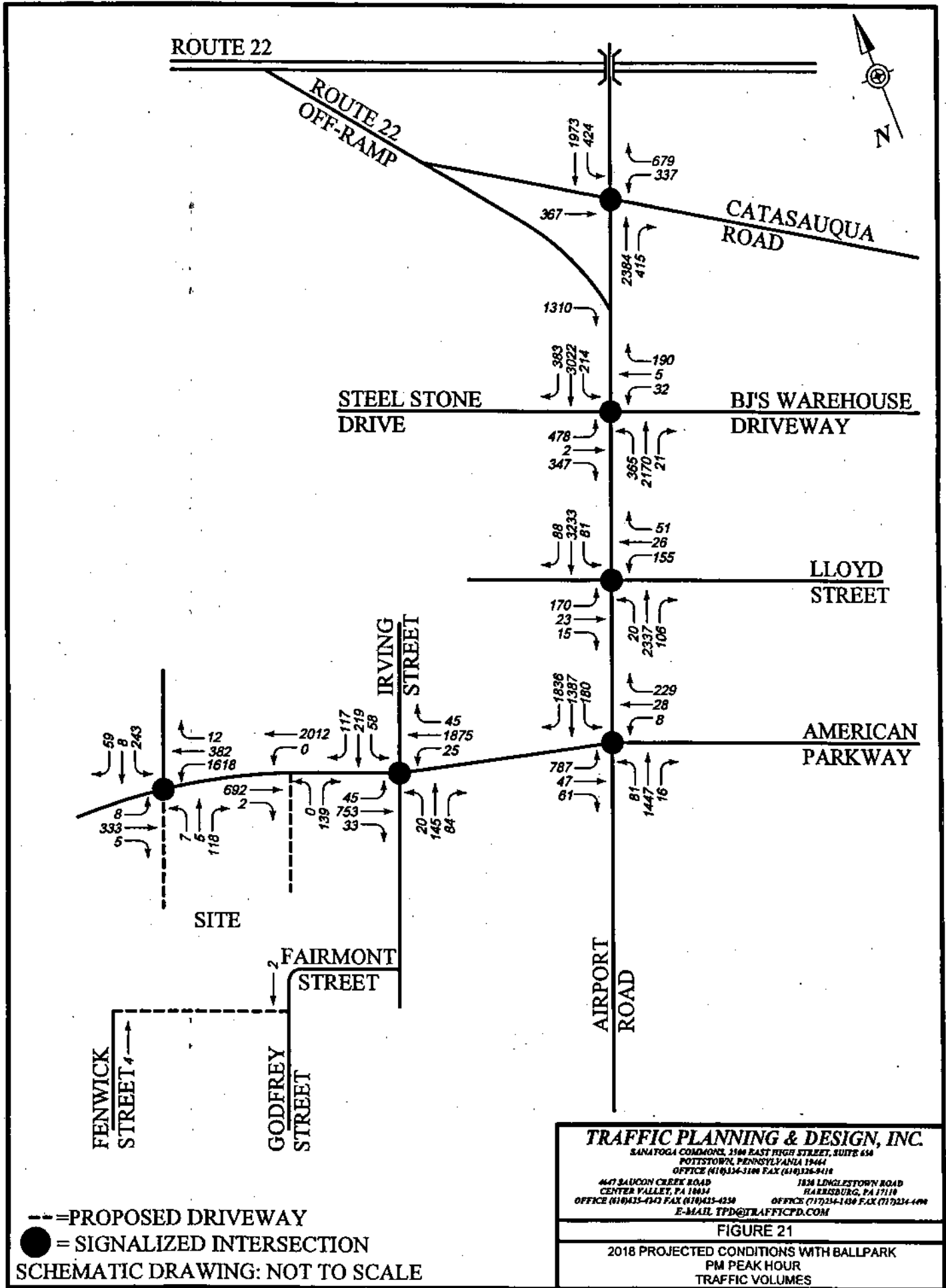
**FIGURE 17**  
 2018 PROJECTED CONDITIONS  
 AM PEAK HOUR  
 TRAFFIC VOLUMES

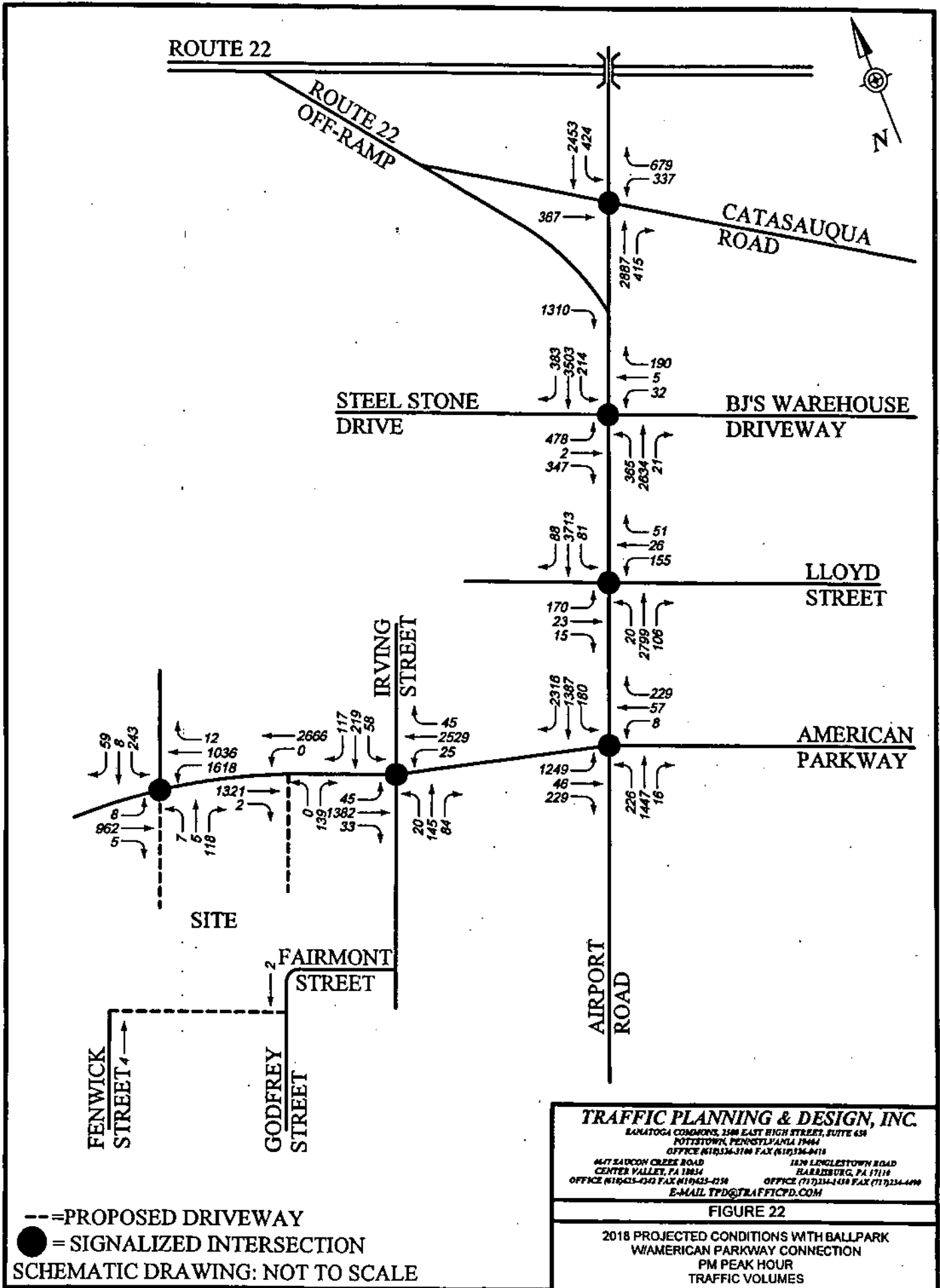


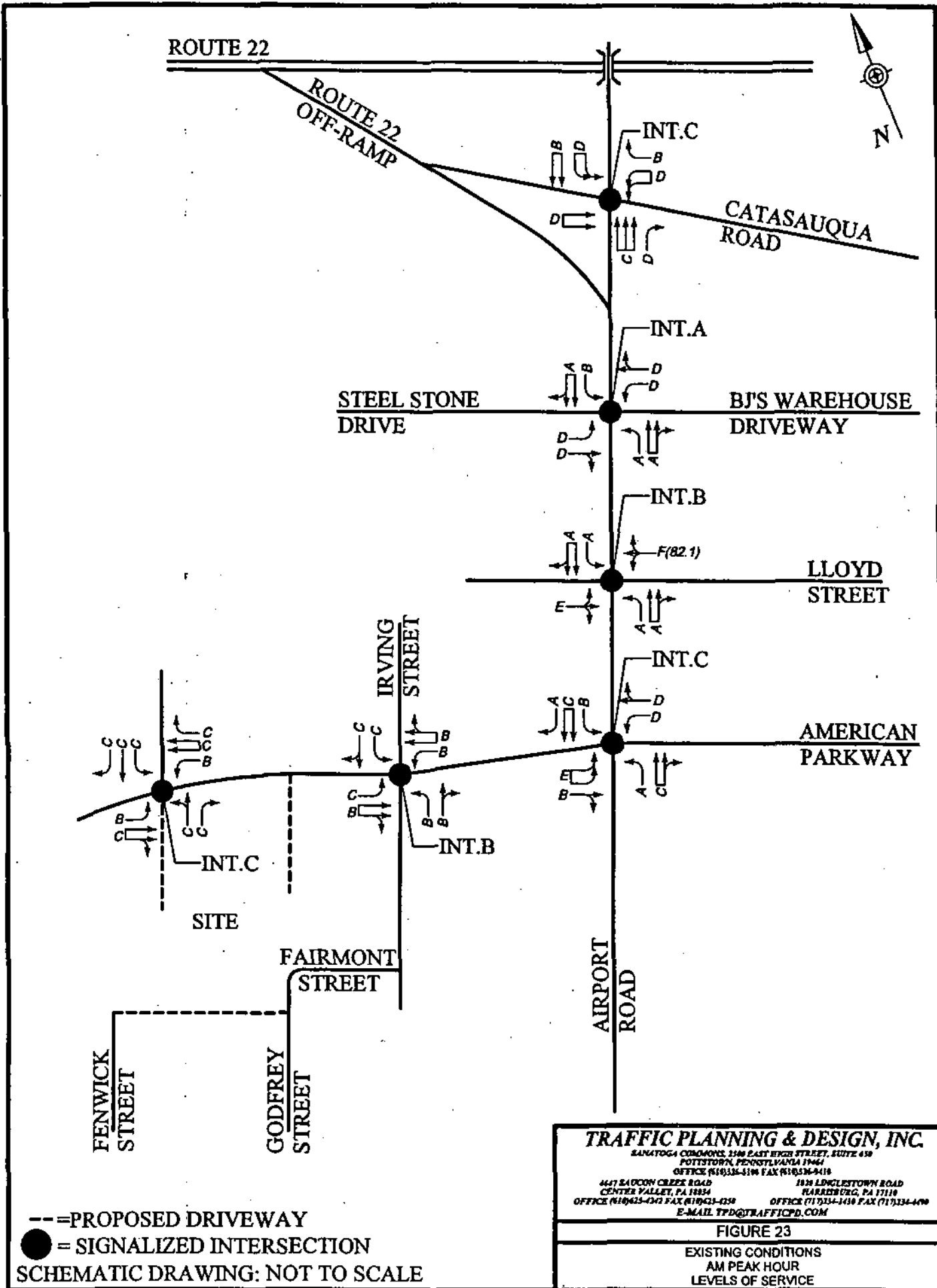








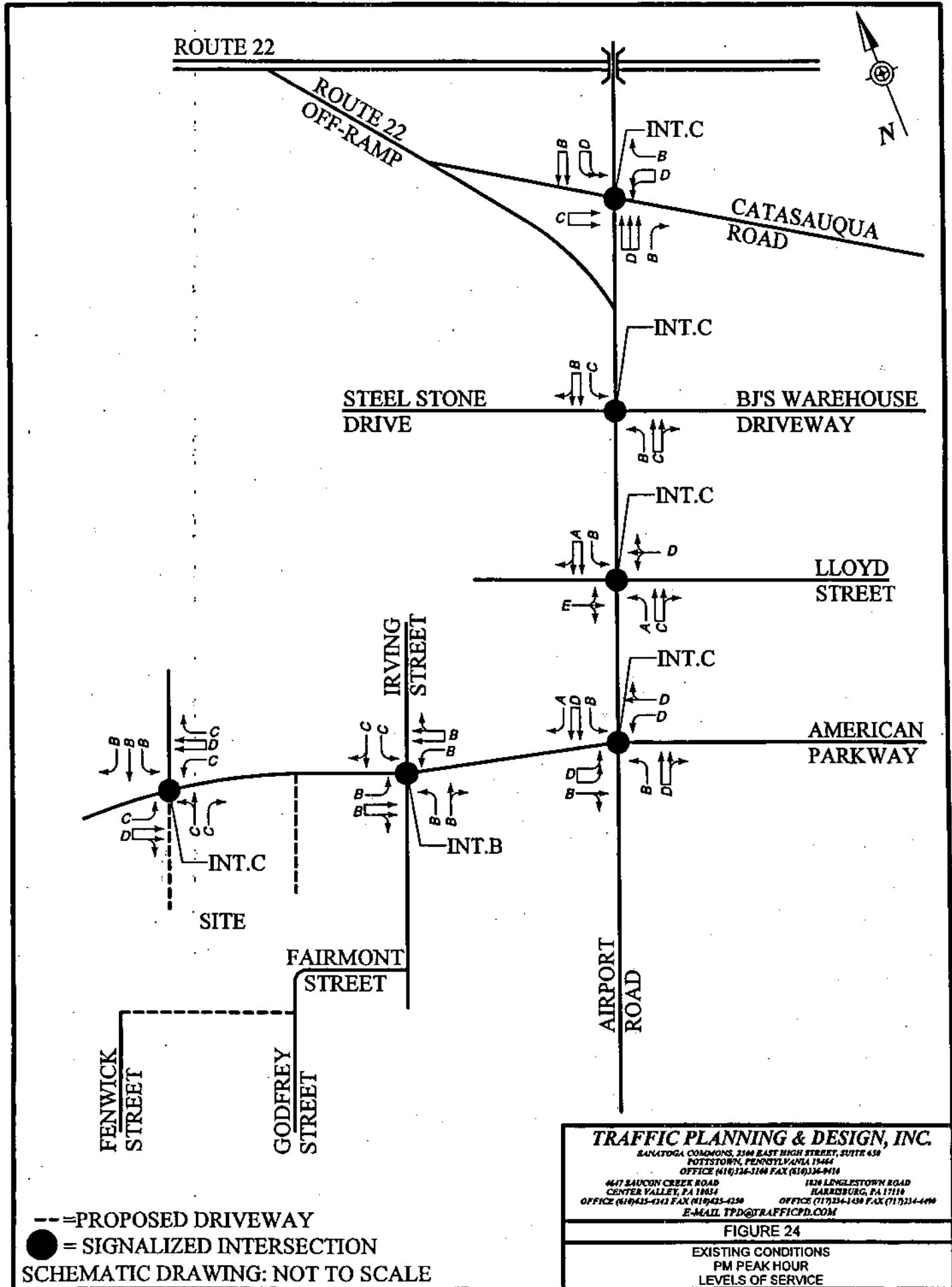




-- = PROPOSED DRIVEWAY  
 ● = SIGNALIZED INTERSECTION  
 SCHEMATIC DRAWING: NOT TO SCALE

**TRAFFIC PLANNING & DESIGN, INC.**  
 LANATOGA COMMONS, 1100 EAST HICKS STREET, SUITE 410  
 POTTSVILLE, PENNSYLVANIA 17854  
 OFFICE (610)334-4100 FAX (610)334-4110  
 4617 SAUCON CREEK ROAD, 1830 LINGLESTOWN ROAD  
 CENTER VALLEY, PA 17004 HARRISBURG, PA 17110  
 OFFICE (610)625-0342 FAX (610)625-0350 OFFICE (717)334-1410 FAX (717)334-4400  
 E-MAIL: TPD@TRAFFICPD.COM

**FIGURE 23**  
 EXISTING CONDITIONS  
 AM PEAK HOUR  
 LEVELS OF SERVICE

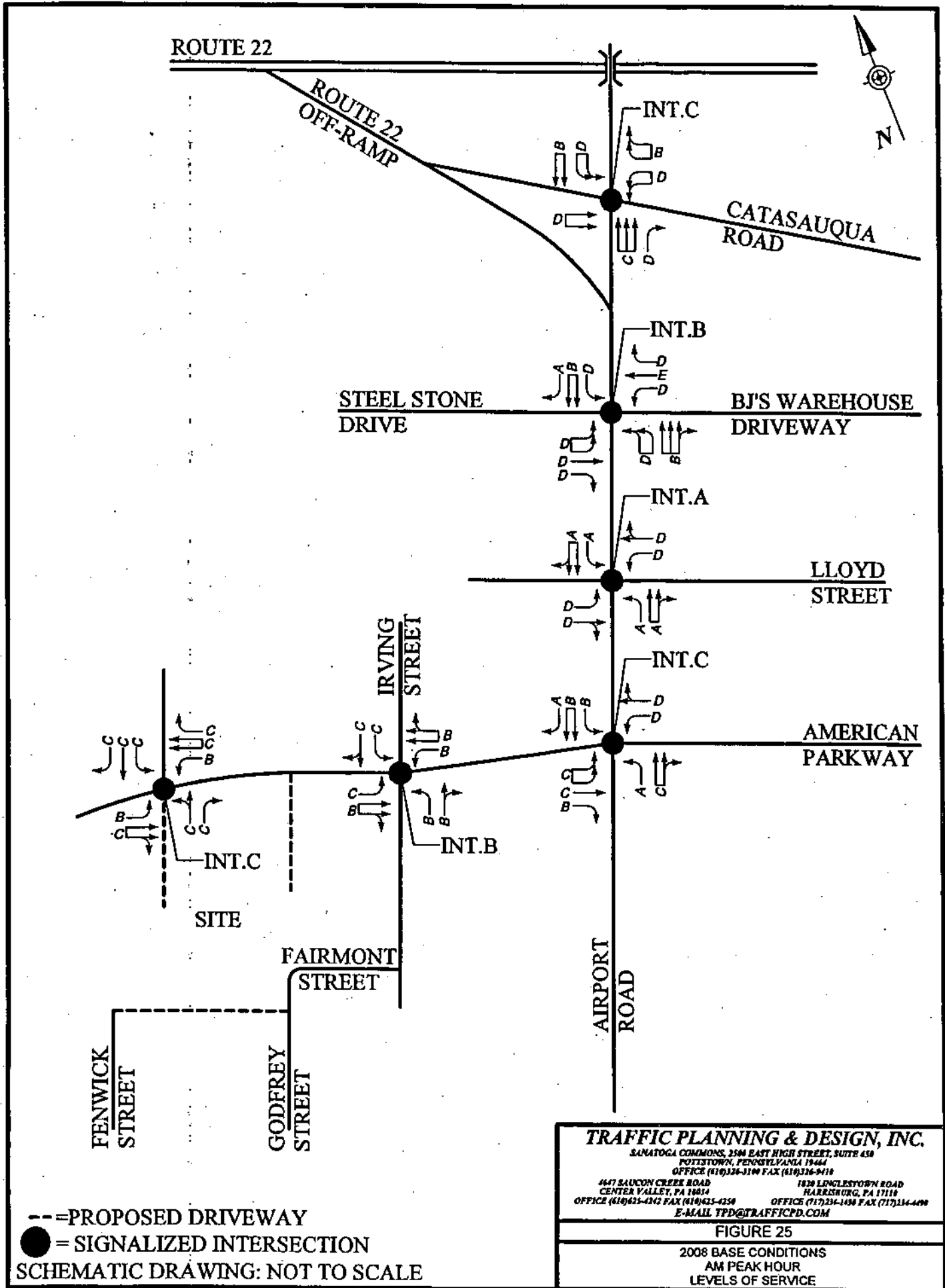


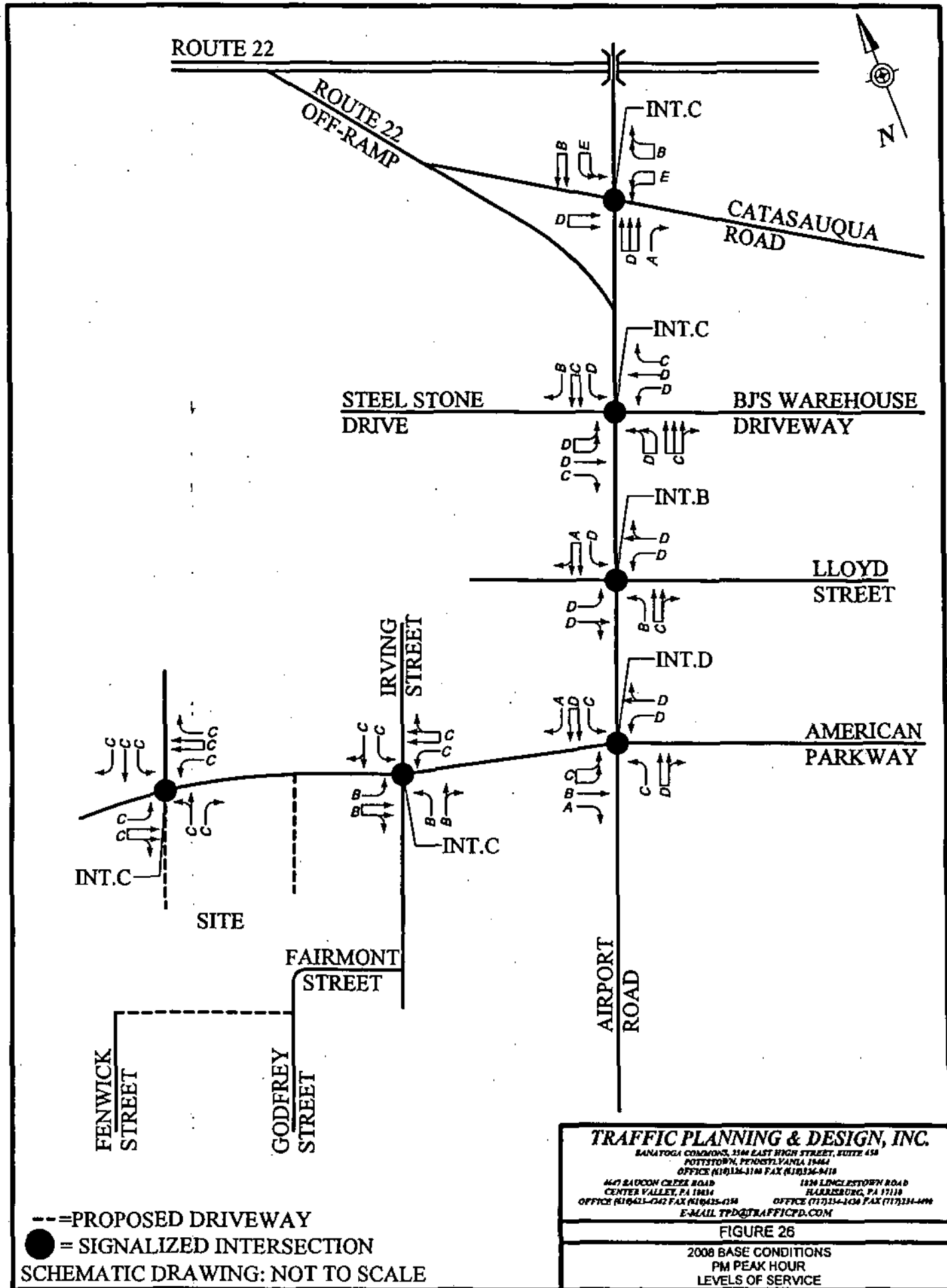
-- = PROPOSED DRIVEWAY  
 ● = SIGNALIZED INTERSECTION  
 SCHEMATIC DRAWING: NOT TO SCALE

**TRAFFIC PLANNING & DESIGN, INC.**  
 SANATOGA COMMONS, 2144 EAST HIGH STREET, SUITE 438  
 POTTSTOWN, PENNSYLVANIA 19444  
 OFFICE (610)334-3100 FAX (610)334-9414  
 4417 SAUCON CREEK ROAD 1828 LINGLESTOWN ROAD  
 CENTER VALLEY, PA 16834 HARRISBURG, PA 17110  
 OFFICE (610)425-4252 FAX (610)425-4250 OFFICE (717)234-1438 FAX (717)234-4400  
 E-MAIL TPD@TRAFFICPD.COM

FIGURE 24

EXISTING CONDITIONS  
 PM PEAK HOUR  
 LEVELS OF SERVICE



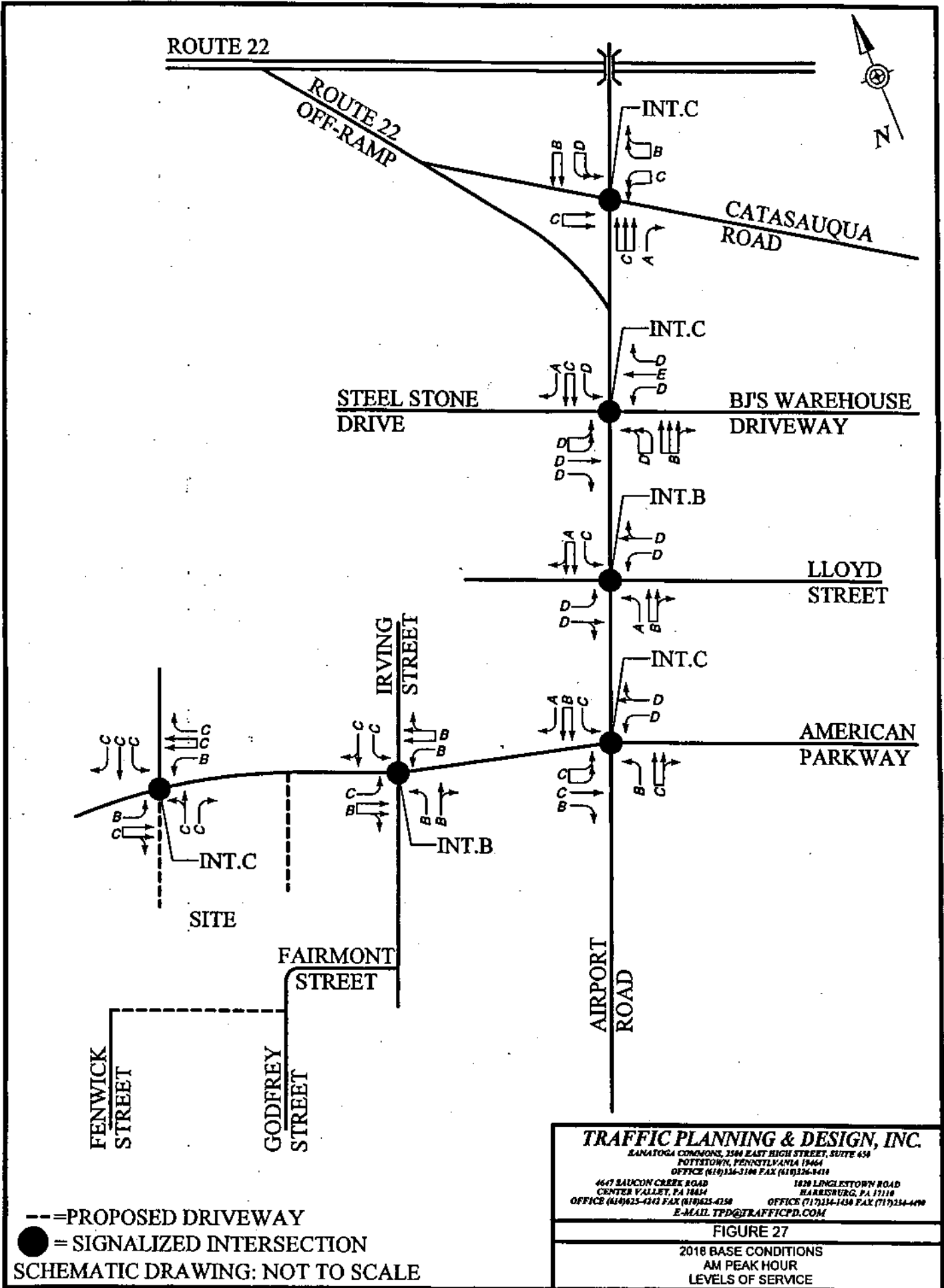


---=PROPOSED DRIVEWAY  
 ● = SIGNALIZED INTERSECTION  
 SCHEMATIC DRAWING: NOT TO SCALE

**TRAFFIC PLANNING & DESIGN, INC.**  
 LANATOGA COMMONS, 334 EAST HIGH STREET, SUITE 454  
 POTTSTOWN, PENNSYLVANIA 19444  
 OFFICE (610)334-3100 FAX (610)334-9418  
 467 SAUOON CREEK ROAD 1826 LINGLESTOWN ROAD  
 CENTER VALLEY, PA 17014 HARRISBURG, PA 17110  
 OFFICE (610)421-0422 FAX (610)421-0134 OFFICE (717)334-1430 FAX (717)334-4499  
 E-MAIL TP@TRAFFICD.COM

FIGURE 26

2008 BASE CONDITIONS  
 PM PEAK HOUR  
 LEVELS OF SERVICE

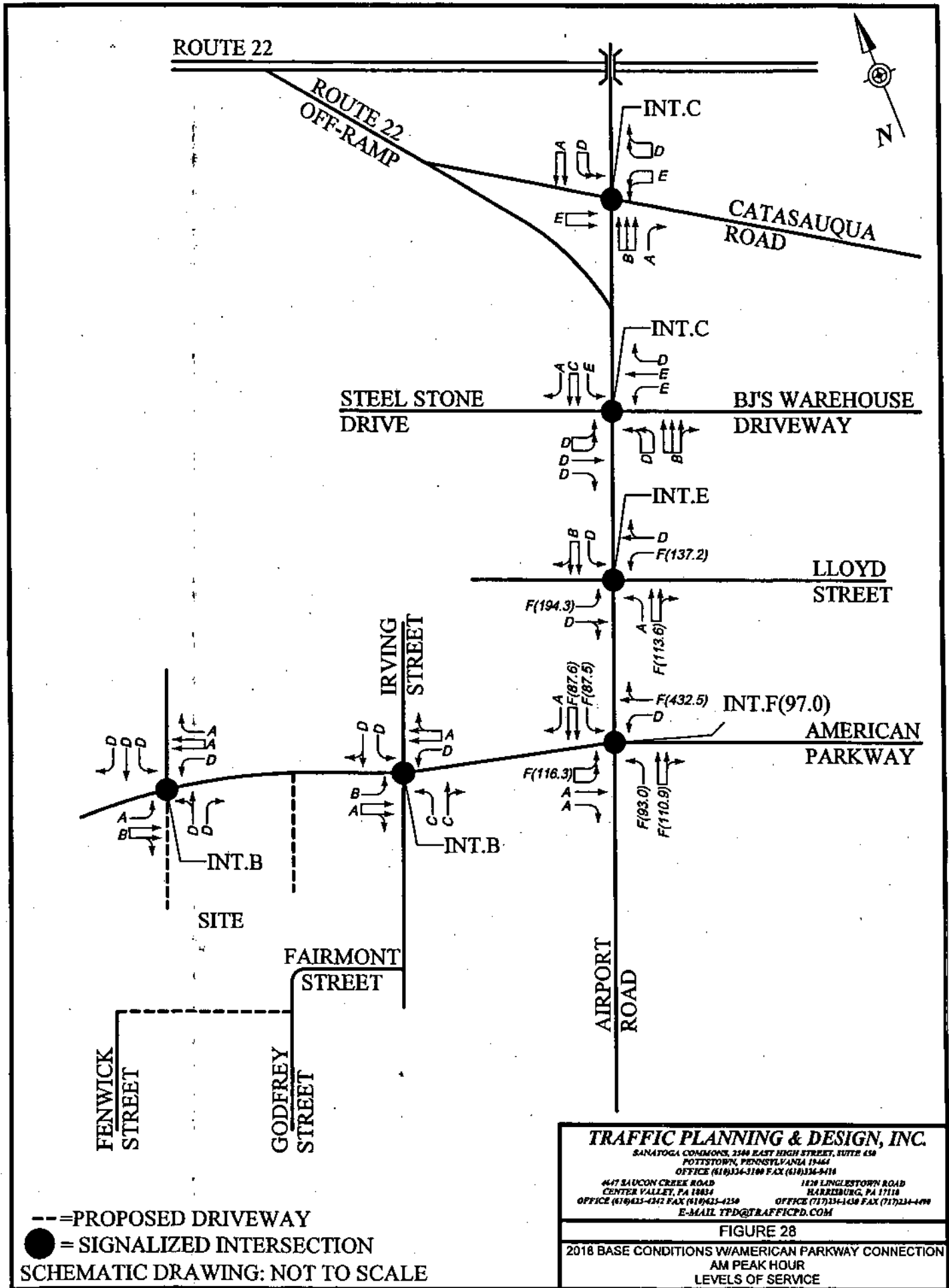


---=PROPOSED DRIVEWAY  
 ● = SIGNALIZED INTERSECTION  
 SCHEMATIC DRAWING: NOT TO SCALE

**TRAFFIC PLANNING & DESIGN, INC.**  
 LANATOGA COMMONS, 3500 EAST HIGH STREET, SUITE 634  
 POTTSTOWN, PENNSYLVANIA 19464  
 OFFICE (610)336-3100 FAX (610)326-9418  
 4647 SAUCON CREEK ROAD 1620 LINGLESTOWN ROAD  
 CENTER VALLEY, PA 16844 HARRISBURG, PA 17118  
 OFFICE (610)625-4343 FAX (610)625-4158 OFFICE (717)334-1438 FAX (717)334-4498  
 E-MAIL: TPD@TRAFFICPD.COM

FIGURE 27

2018 BASE CONDITIONS  
 AM PEAK HOUR  
 LEVELS OF SERVICE

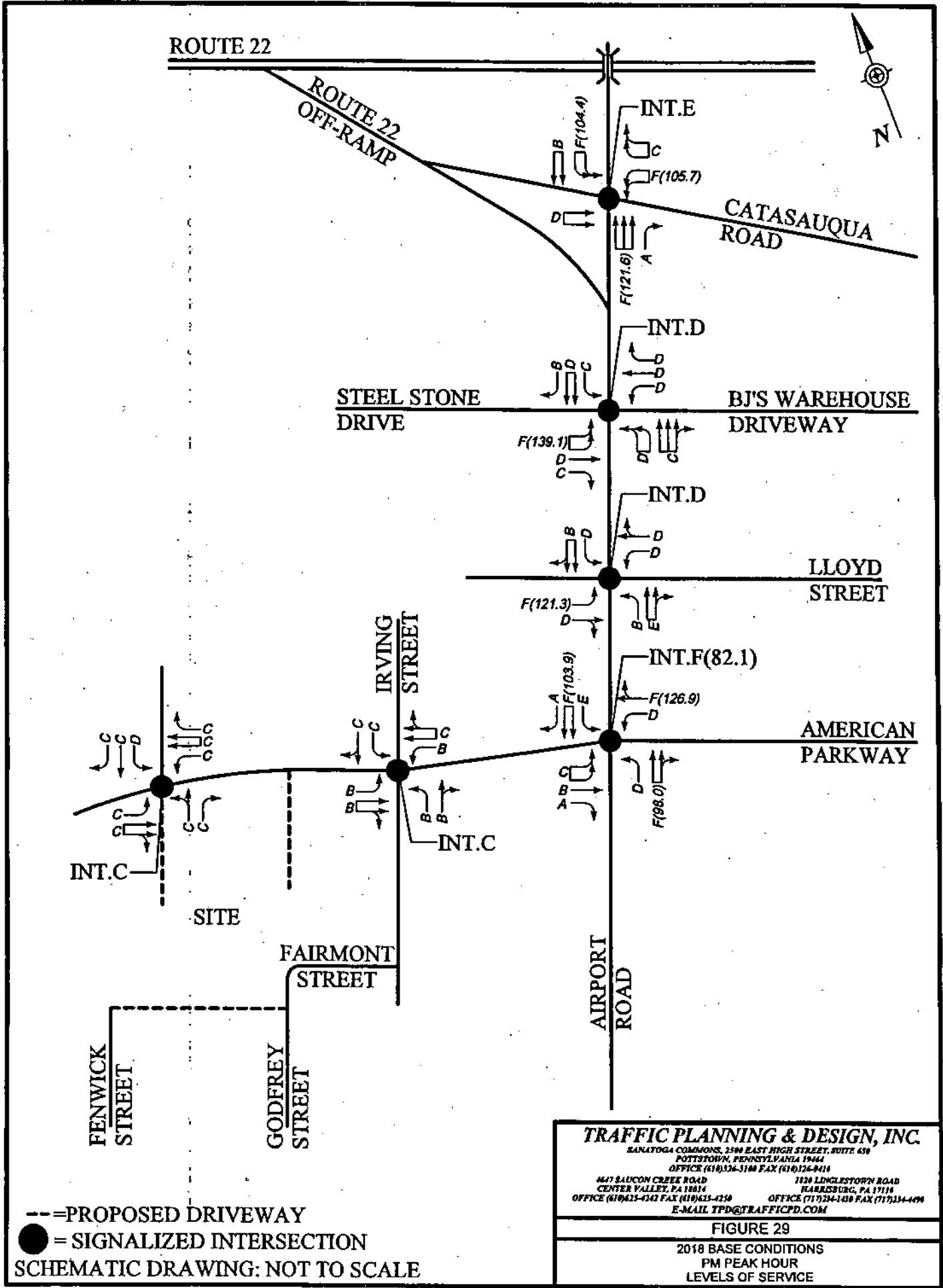


--=PROPOSED DRIVEWAY  
 ● = SIGNALIZED INTERSECTION  
 SCHEMATIC DRAWING: NOT TO SCALE

**TRAFFIC PLANNING & DESIGN, INC.**  
 SANATOGA COMMONS, 2540 EAST HIGH STREET, SUITE 430  
 POTTSTOWN, PENNSYLVANIA 19464  
 OFFICE (610)334-3100 FAX (610)334-5418  
 417 SAUCON CREEK ROAD 128 LINGLESTOWN ROAD  
 CENTER VALLEY, PA 17024 HARRISBURG, PA 17118  
 OFFICE (610)425-4312 FAX (610)425-4250 OFFICE (717)334-1430 FAX (717)234-4099  
 E-MAIL TPD@TRAFFICPD.COM

FIGURE 28  
 2018 BASE CONDITIONS W/AMERICAN PARKWAY CONNECTION  
 AM PEAK HOUR  
 LEVELS OF SERVICE

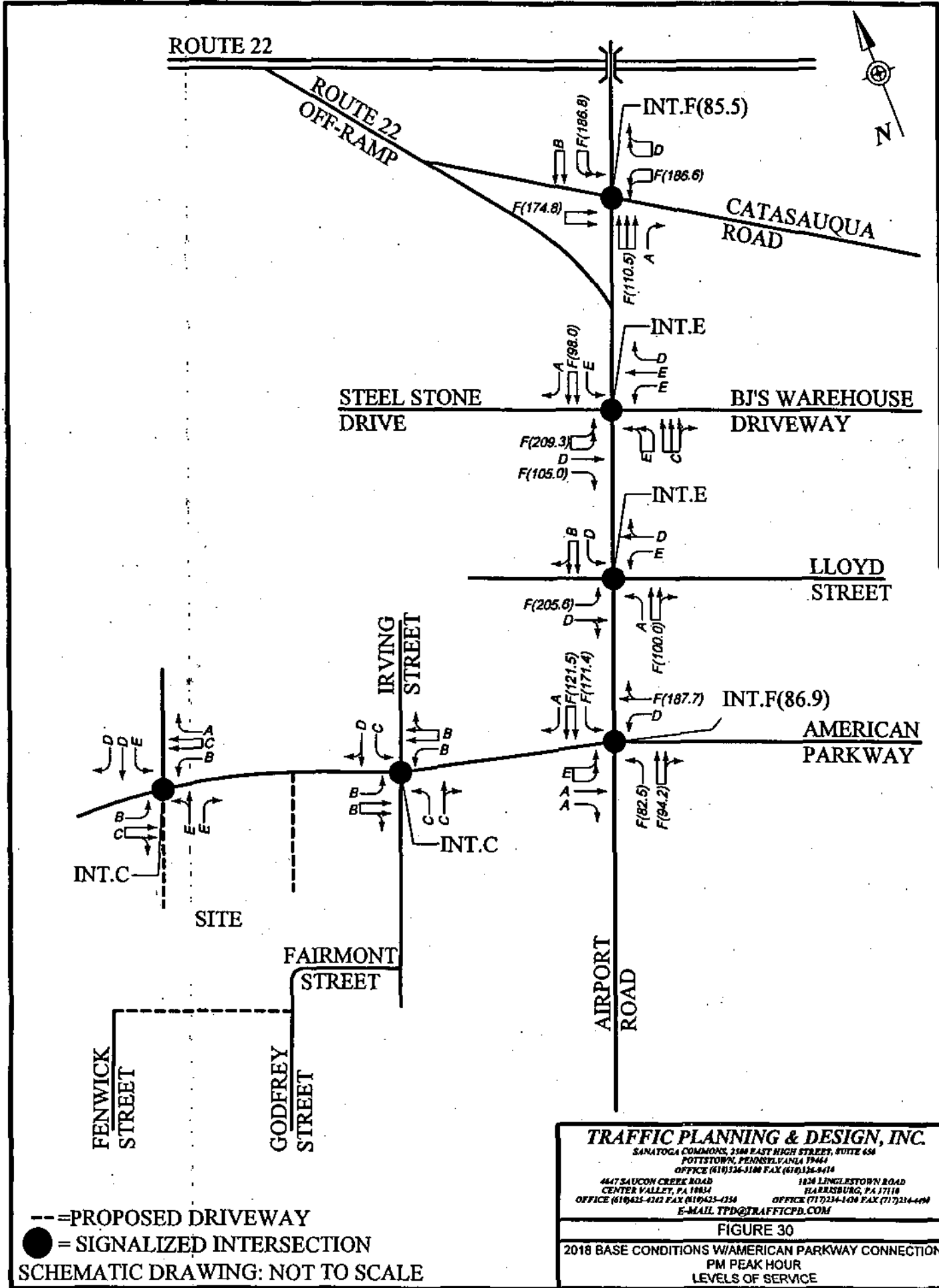




---=PROPOSED DRIVEWAY  
 ● = SIGNALIZED INTERSECTION  
 SCHEMATIC DRAWING: NOT TO SCALE

**TRAFFIC PLANNING & DESIGN, INC.**  
 SANATOGA COMMONS, 1590 EAST HIGH STREET, SUITE 409  
 POTTSTOWN, PENNSYLVANIA 19464  
 OFFICE (610)326-5144 FAX (610)326-4114  
 467 SAUCON CREEK ROAD 1126 LINGLESTOWN ROAD  
 CENTER VALLEY, PA 17014 HARRISBURG, PA 17114  
 OFFICE (610)625-4242 FAX (610)625-4250 OFFICE (717)334-1330 FAX (717)334-4499  
 E-MAIL TPD@TRAFFICPD.COM

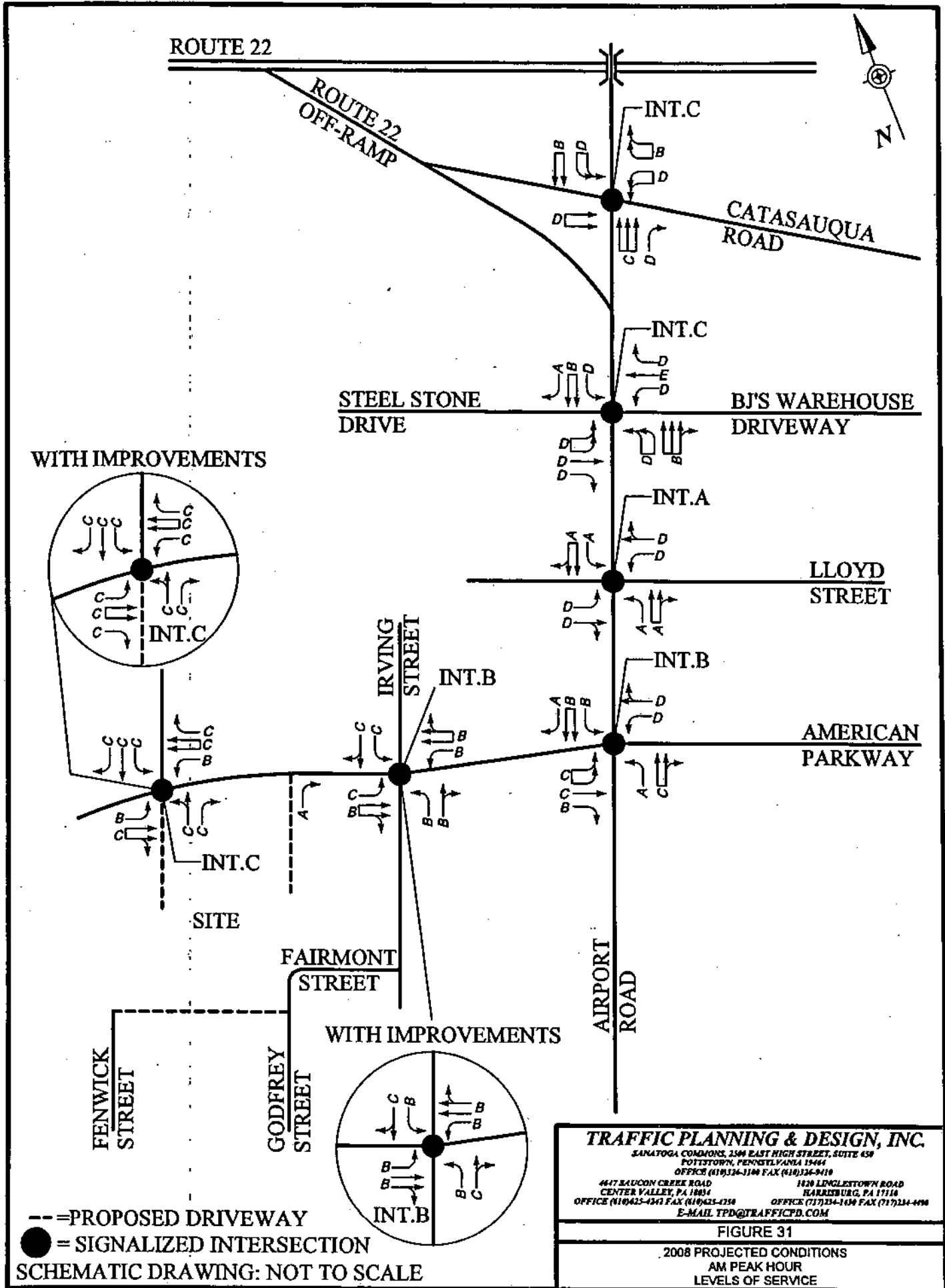
**FIGURE 29**  
 2018 BASE CONDITIONS  
 PM PEAK HOUR  
 LEVELS OF SERVICE



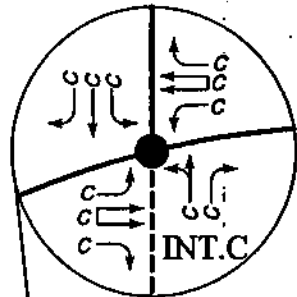
**TRAFFIC PLANNING & DESIGN, INC.**  
 SANATOGA COMMONS, 2100 EAST HIGH STREET, SUITE 604  
 POTTSTOWN, PENNSYLVANIA 19664  
 OFFICE (610)326-3100 FAX (610)326-9410  
 4647 SAUCON CREEK ROAD 1624 LINGLESTOWN ROAD  
 CENTER VALLEY, PA 18034 HARRISBURG, PA 17110  
 OFFICE (610)425-4242 FAX (610)425-4334 OFFICE (717)234-1000 FAX (717)234-6400  
 E-MAIL TPD@TRAFFICPD.COM

FIGURE 30

2018 BASE CONDITIONS W/AMERICAN PARKWAY CONNECTION  
 PM PEAK HOUR  
 LEVELS OF SERVICE

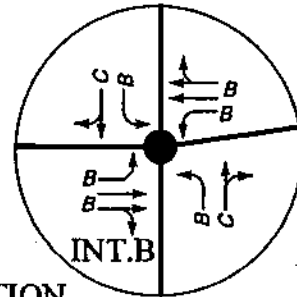


WITH IMPROVEMENTS



SITE

WITH IMPROVEMENTS

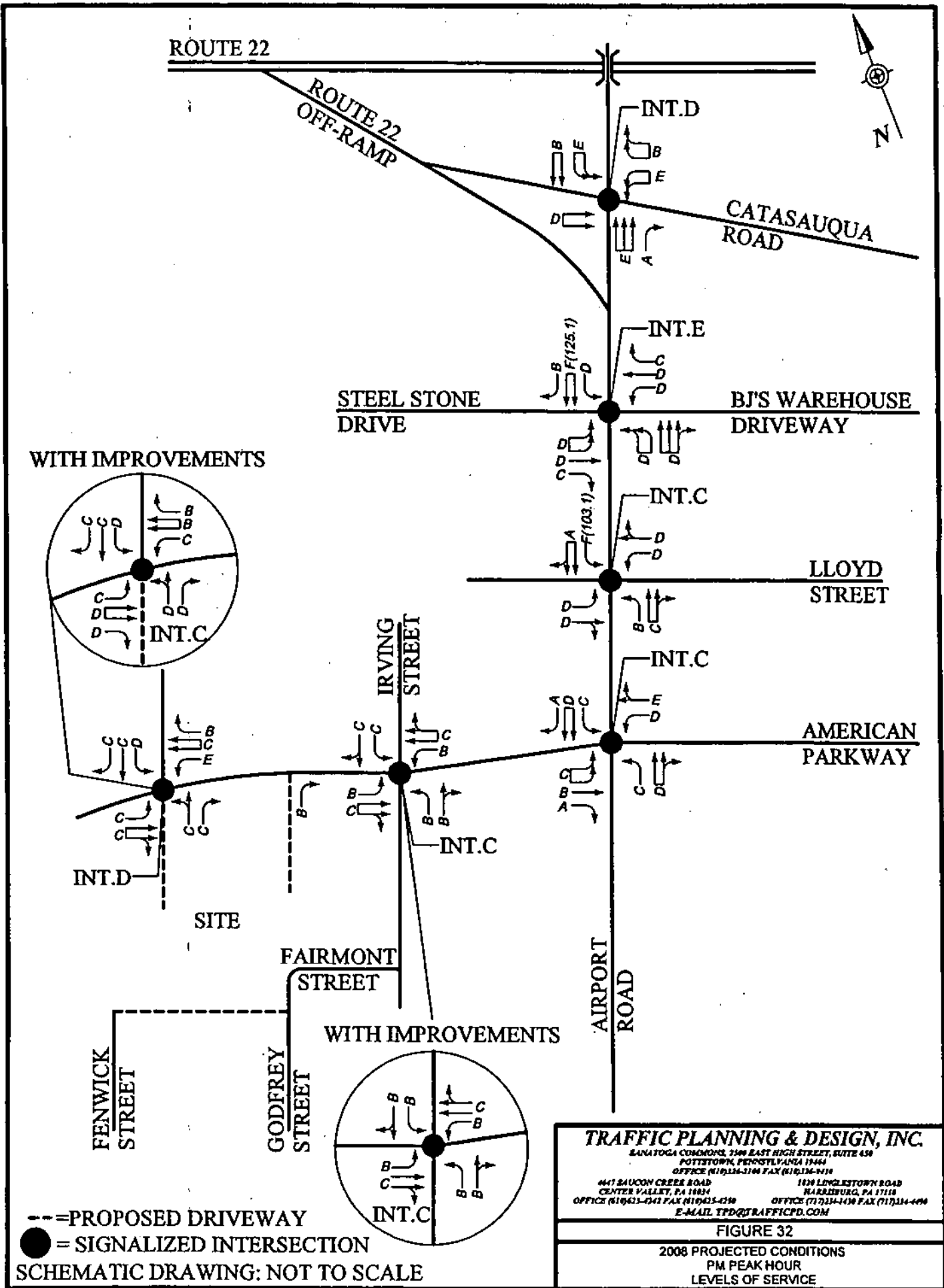


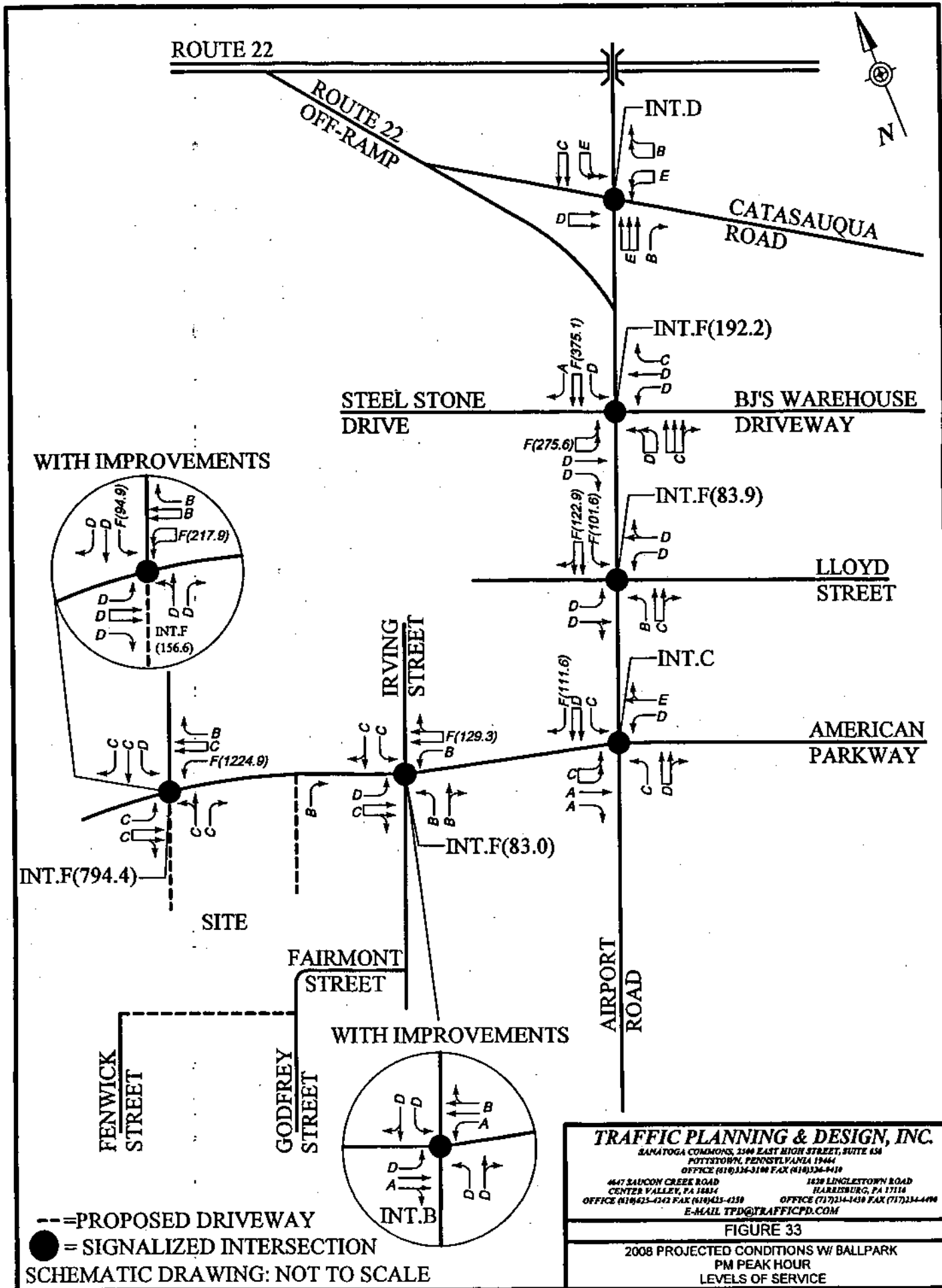
-- = PROPOSED DRIVEWAY  
 ● = SIGNALIZED INTERSECTION  
 SCHEMATIC DRAWING: NOT TO SCALE

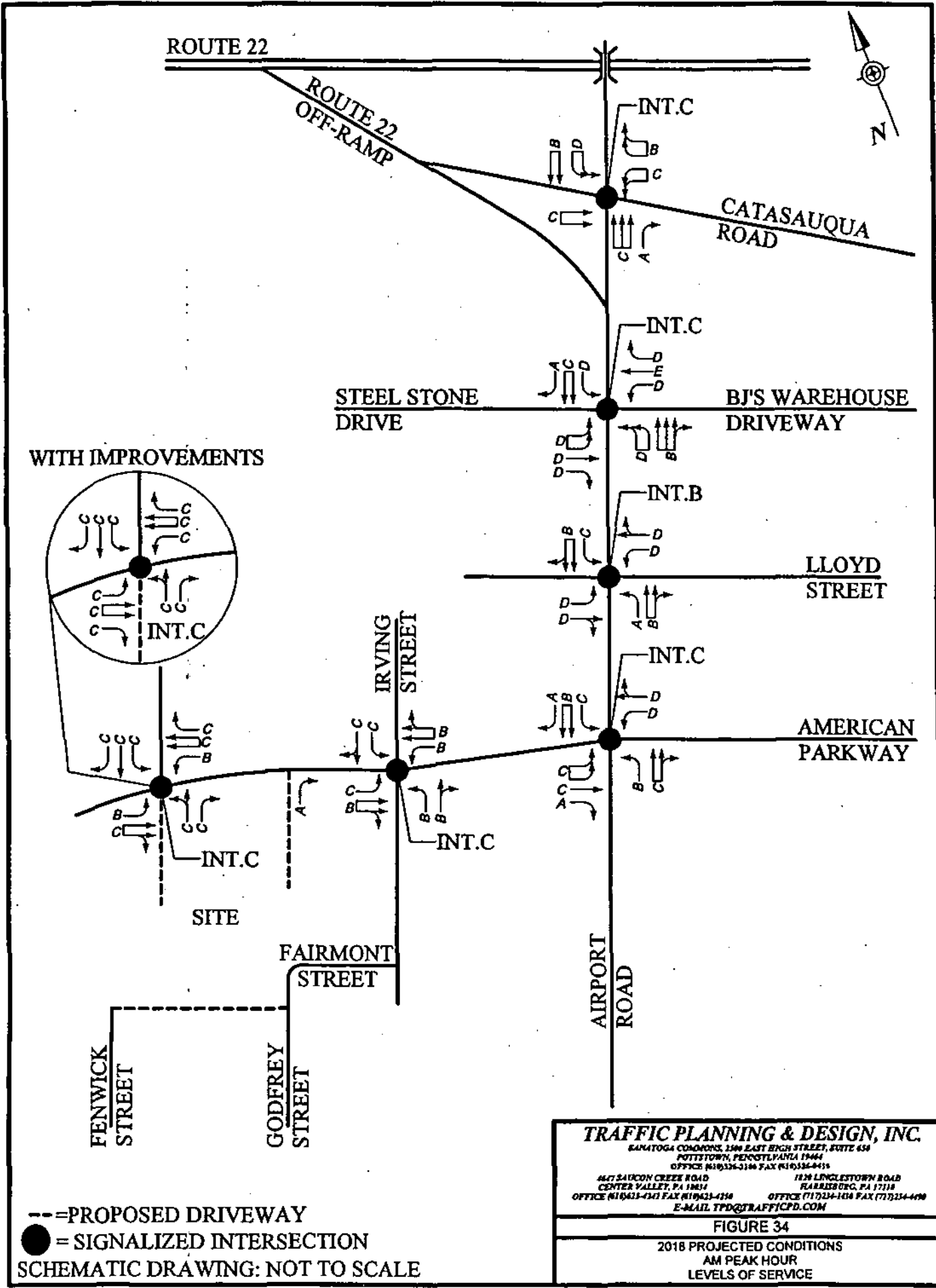
**TRAFFIC PLANNING & DESIGN, INC.**  
 LANYOGA COMMONS, 1500 EAST HIGH STREET, SUITE 430  
 POTTSTOWN, PENNSYLVANIA 19464  
 OFFICE (610)326-3100 FAX (610)326-9410  
 4417 BAUCON CREEK ROAD 1220 LINGLESTOWN ROAD  
 CENTER VALLEY, PA 16834 HARRISBURG, PA 17110  
 OFFICE (610)425-4343 FAX (610)425-4258 OFFICE (717)234-1000 FAX (717)234-4496  
 E-MAIL TPD@TRAFFICPD.COM

FIGURE 31

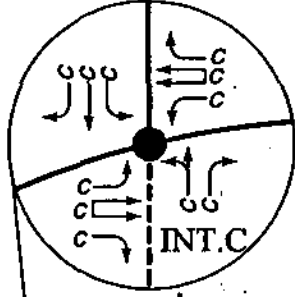
2008 PROJECTED CONDITIONS  
 AM PEAK HOUR  
 LEVELS OF SERVICE







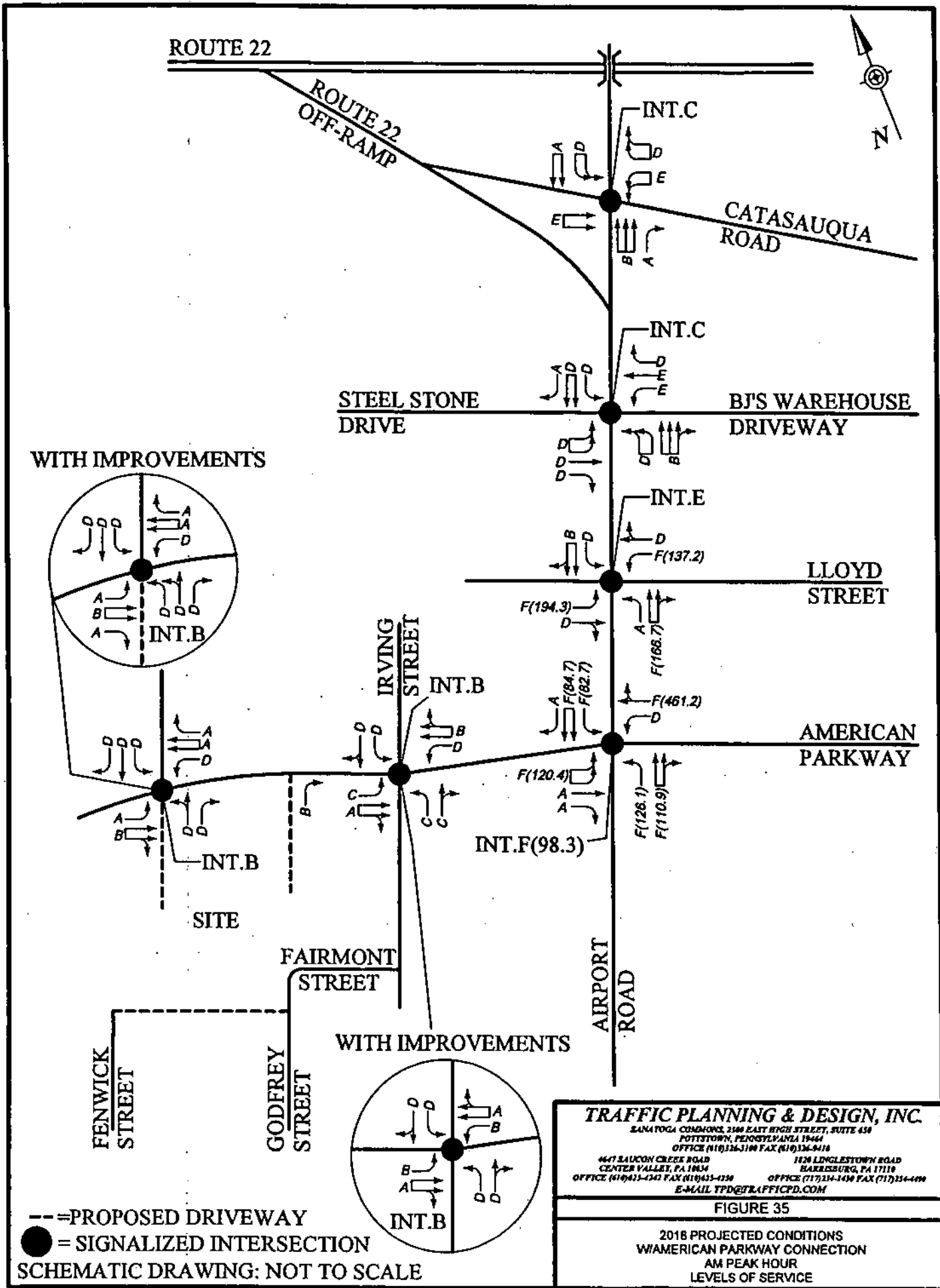
WITH IMPROVEMENTS



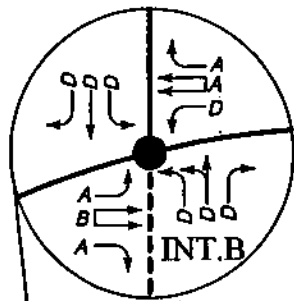
--=PROPOSED DRIVEWAY  
 ● = SIGNALIZED INTERSECTION  
 SCHEMATIC DRAWING: NOT TO SCALE

**TRAFFIC PLANNING & DESIGN, INC.**  
 KANATOGA COMMONS, 190 EAST HIGH STREET, SUITE 430  
 PITTSBURGH, PENNSYLVANIA 15222  
 OFFICE (412) 234-3100 FAX (412) 234-2155  
 447 SAUCON CREEK ROAD 1126 LINGLESTOWN ROAD  
 CENTER VALLEY, PA 15844 HARRISBURG, PA 17110  
 OFFICE (717) 234-4313 FAX (717) 234-4154 OFFICE (717) 234-1600 FAX (717) 234-4600  
 E-MAIL: TPD@TRAFFICPD.COM

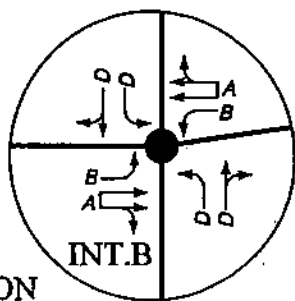
FIGURE 34  
 2018 PROJECTED CONDITIONS  
 AM PEAK HOUR  
 LEVELS OF SERVICE



WITH IMPROVEMENTS



WITH IMPROVEMENTS

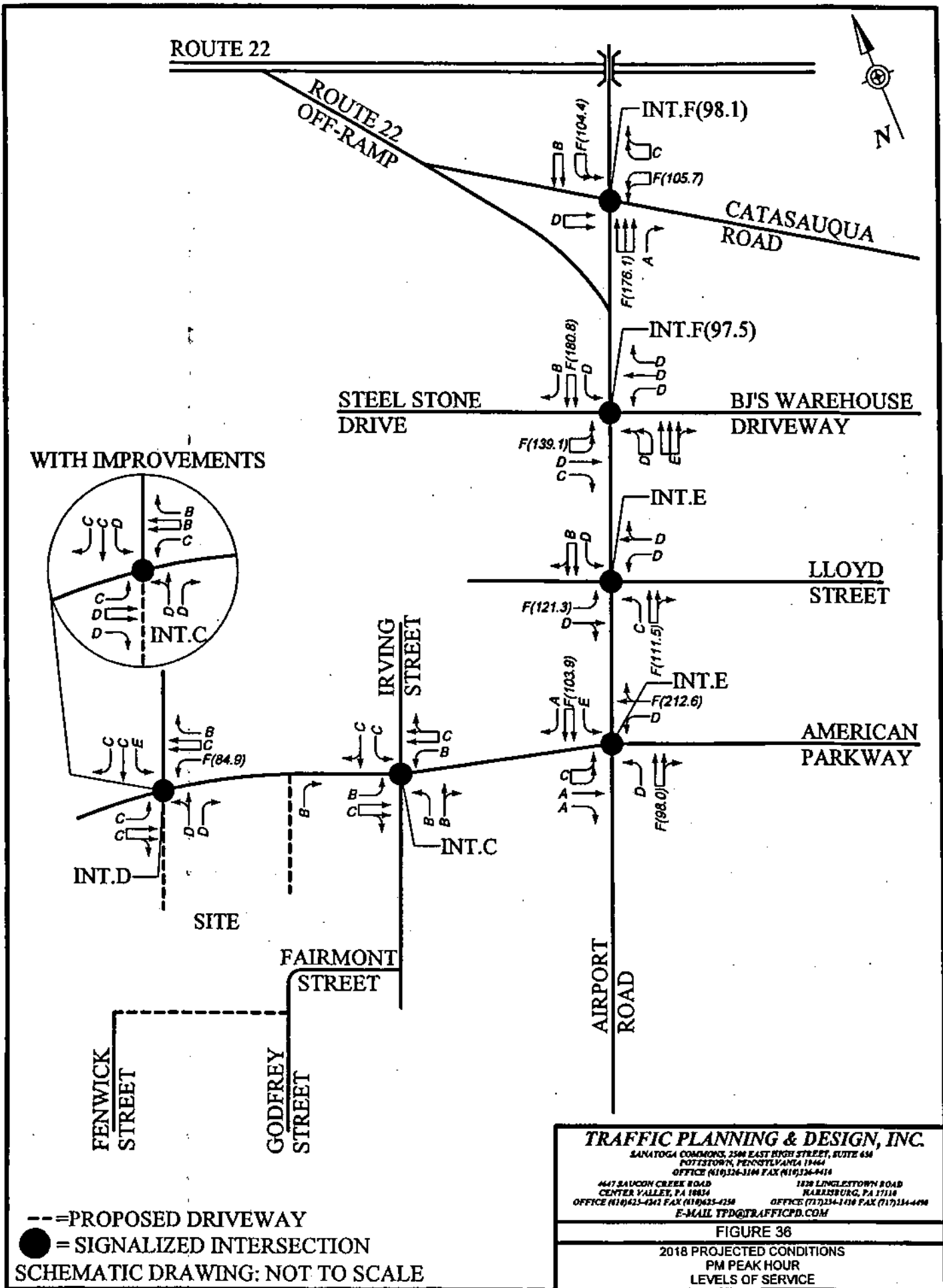


-- = PROPOSED DRIVEWAY  
 ● = SIGNALIZED INTERSECTION  
 SCHEMATIC DRAWING: NOT TO SCALE

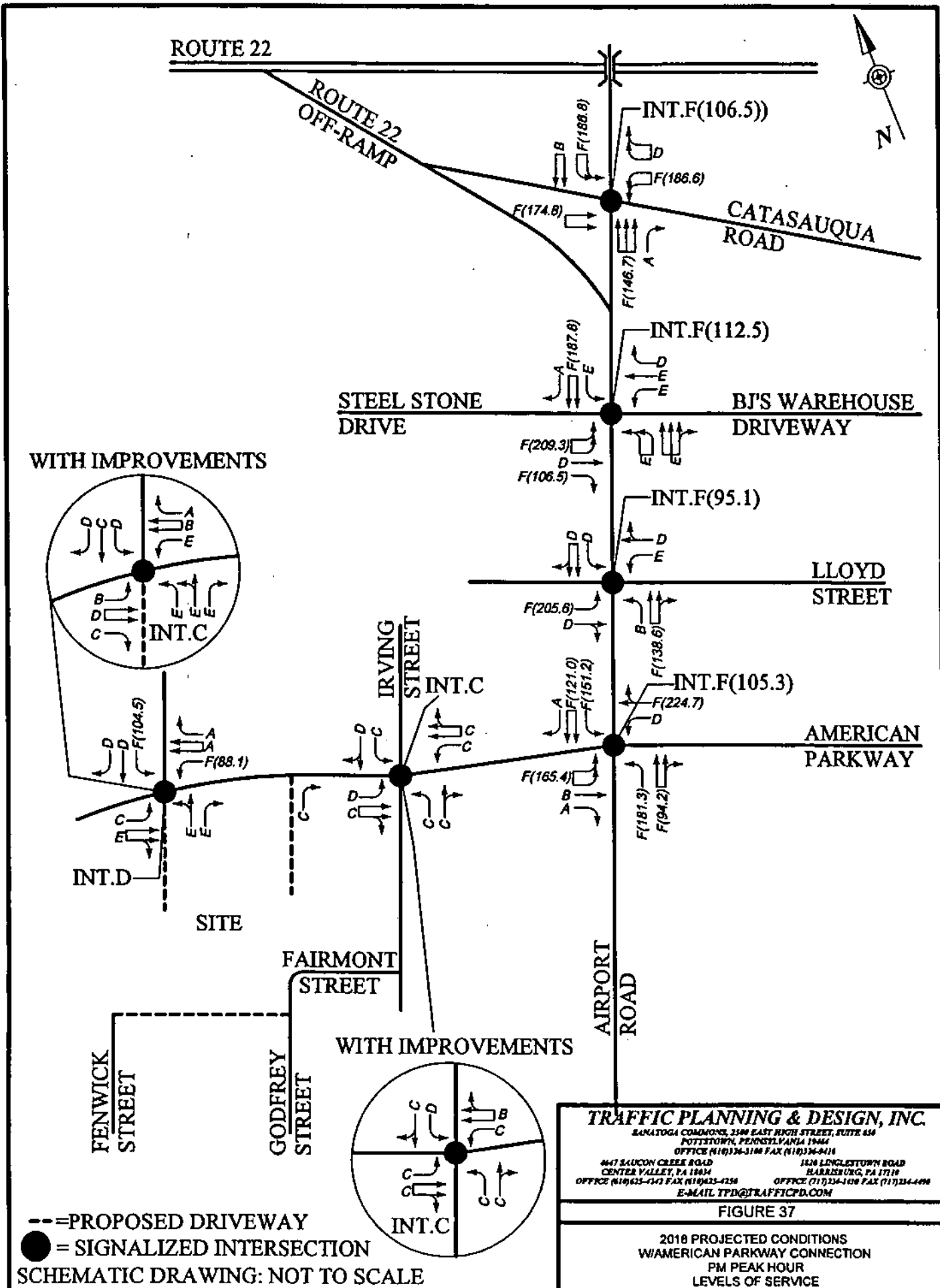
**TRAFFIC PLANNING & DESIGN, INC.**  
 SANATOGA COMMONS, 2100 EAST HIGH STREET, SUITE 450  
 POTTSTOWN, PENNSYLVANIA 19464  
 OFFICE (610)326-3100 FAX (610)326-9410  
 447 SAUCON CREEK ROAD 1028 LINGLESTOWN ROAD  
 CENTER VALLEY, PA 17034 HARRISBURG, PA 17110  
 OFFICE (610)433-4342 FAX (610)433-4338 OFFICE (717)326-1450 FAX (717)326-4490  
 E-MAIL TPD@TRAFFICPD.COM

FIGURE 35

2018 PROJECTED CONDITIONS  
 WAMERICAN PARKWAY CONNECTION  
 AM PEAK HOUR  
 LEVELS OF SERVICE







WITH IMPROVEMENTS

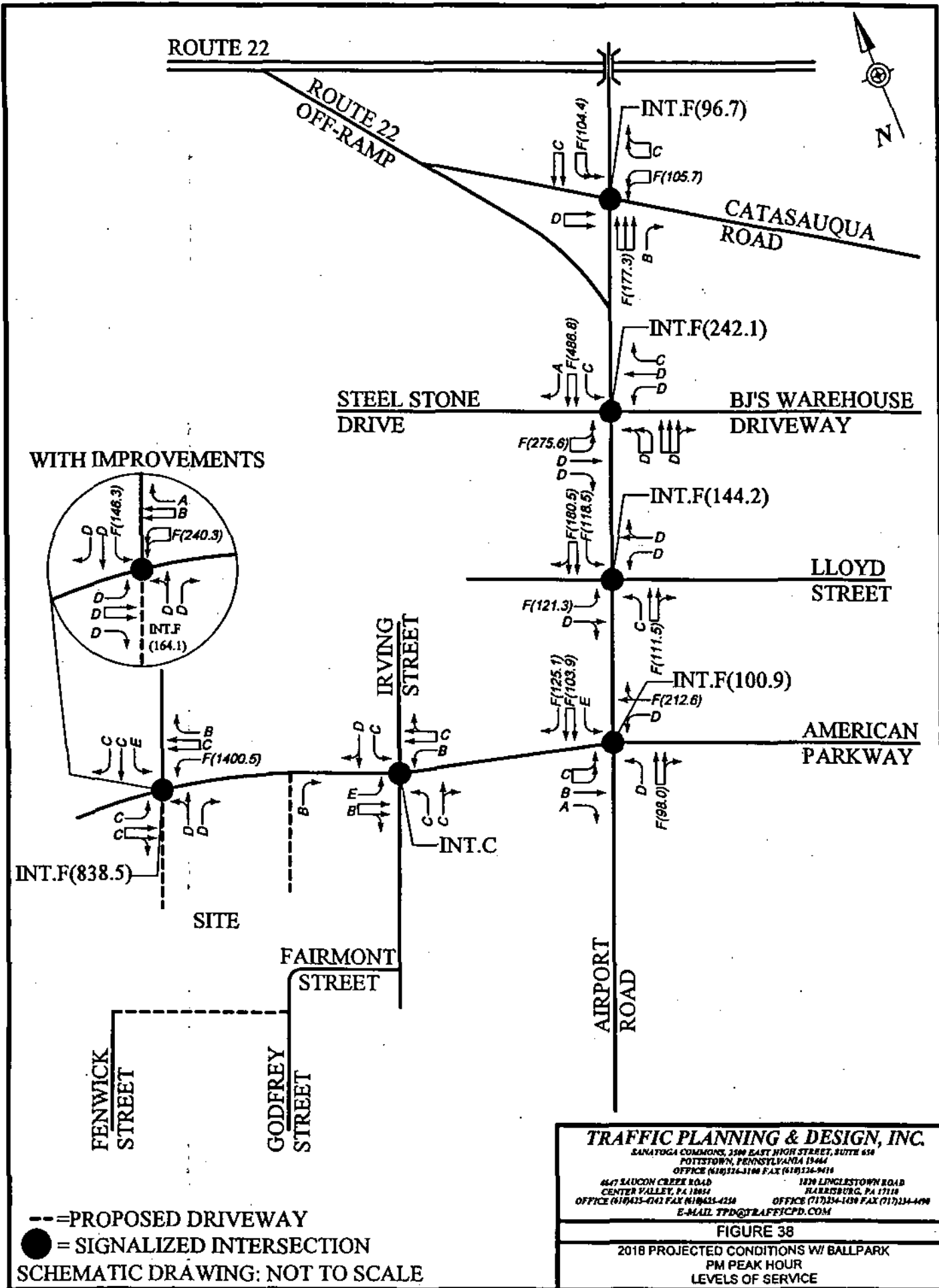
WITH IMPROVEMENTS

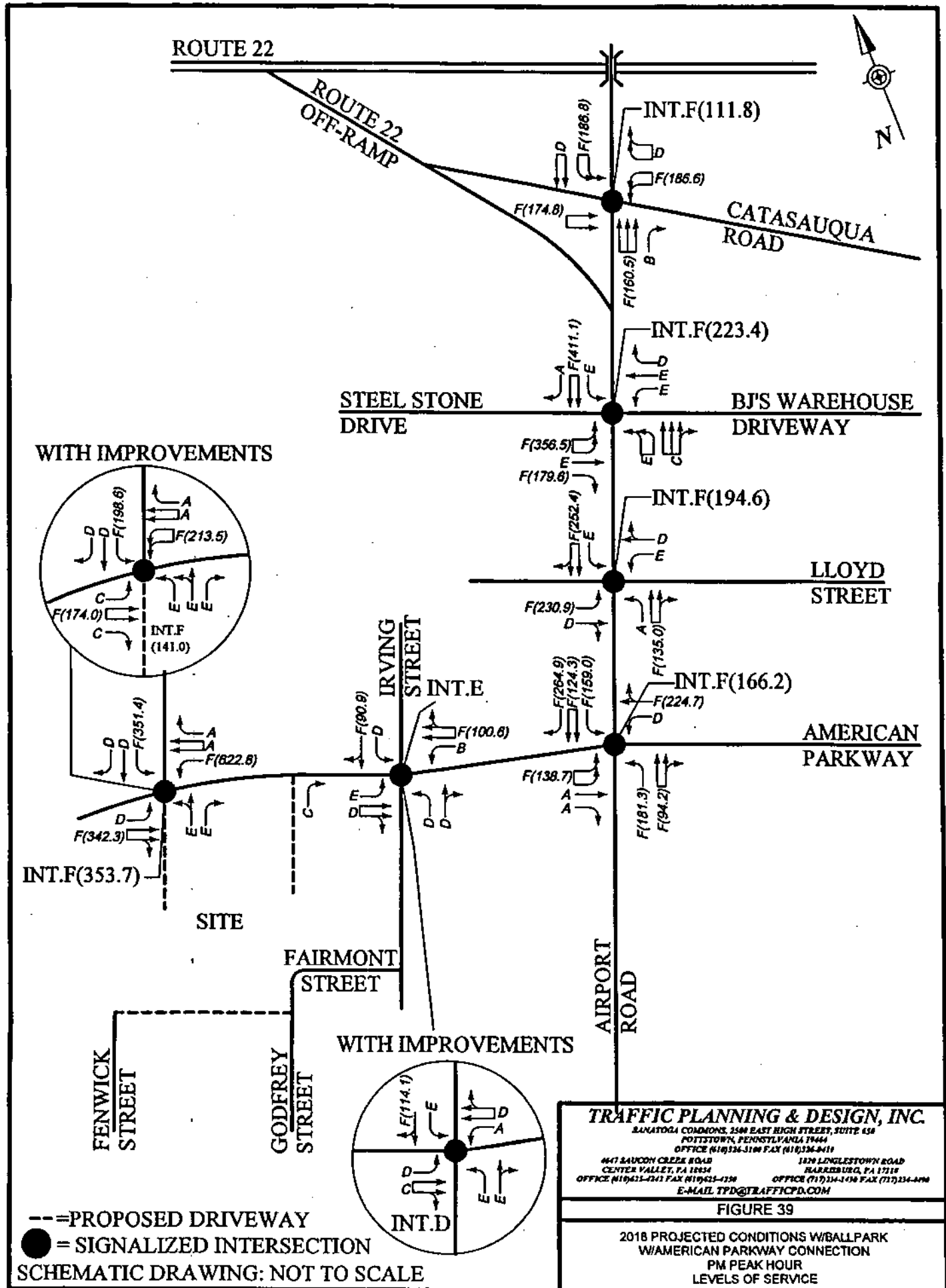
-- = PROPOSED DRIVEWAY  
 ● = SIGNALIZED INTERSECTION  
 SCHEMATIC DRAWING: NOT TO SCALE

**TRAFFIC PLANNING & DESIGN, INC.**  
 SANATOGA COMMONS, 2340 EAST BIRCH STREET, SUITE 450  
 POTTSTOWN, PENNSYLVANIA 19444  
 OFFICE (610) 336-3100 FAX (610) 336-9418  
 847 SAUCON CREEK ROAD 1228 LONGLESTOWN ROAD  
 CENTER VALLEY, PA 17004 HARRISBURG, PA 17110  
 OFFICE (610) 635-4143 FAX (610) 635-4256 OFFICE (717) 234-1608 FAX (717) 234-1498  
 E-MAIL: TPD@TRAFFICPD.COM

FIGURE 37

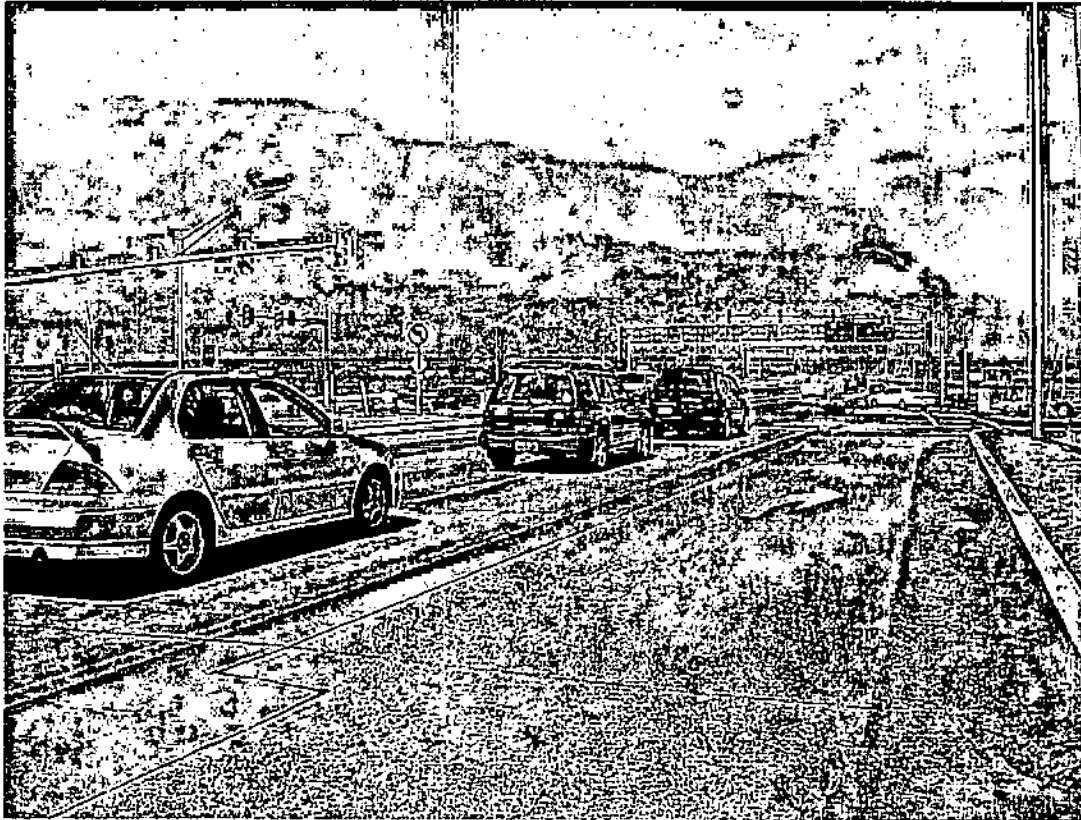
2018 PROJECTED CONDITIONS  
 WAMERICAN PARKWAY CONNECTION  
 PM PEAK HOUR  
 LEVELS OF SERVICE





**APPENDIX A**  
*PHOTOGRAPHS*





Direction / Road: Northbound (Airport Road)  
Approach / Departure: Approach

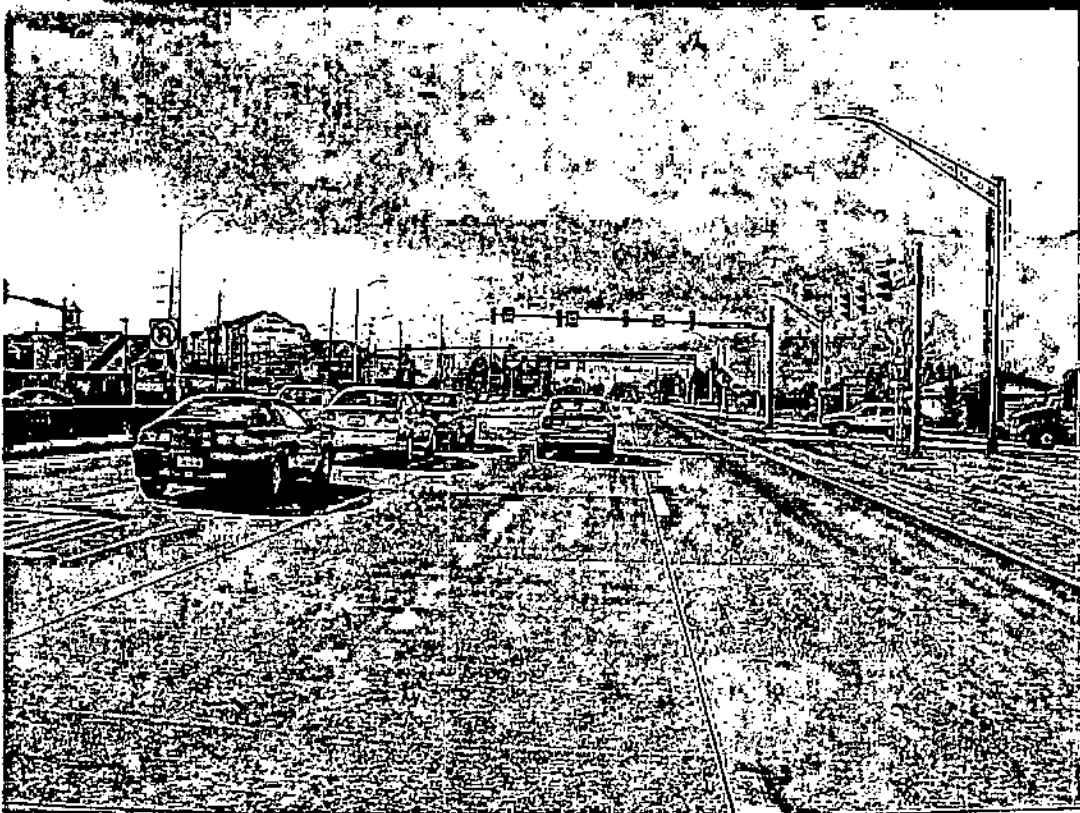
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Direction / Road: Eastbound (Route 22 EB Off-Ramp)  
Approach / Departure: Approach

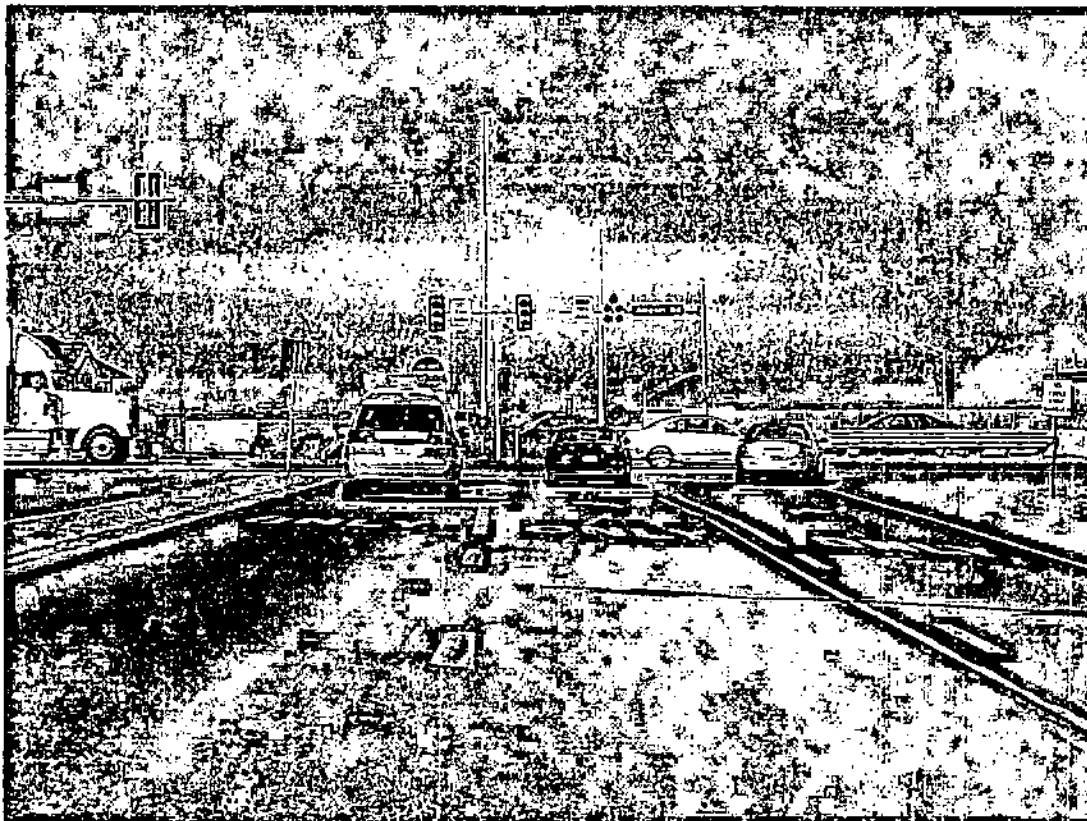
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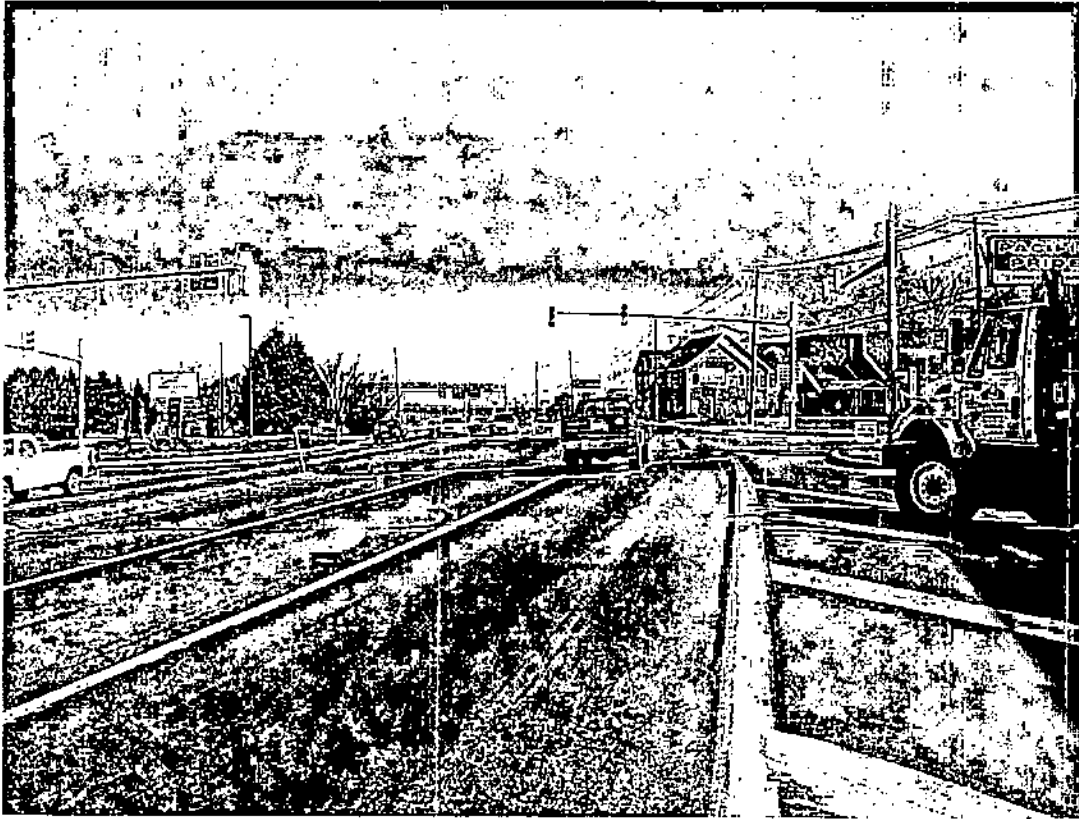
Direction / Road: Southbound (Airport Road)  
Approach / Departure: Approach

---

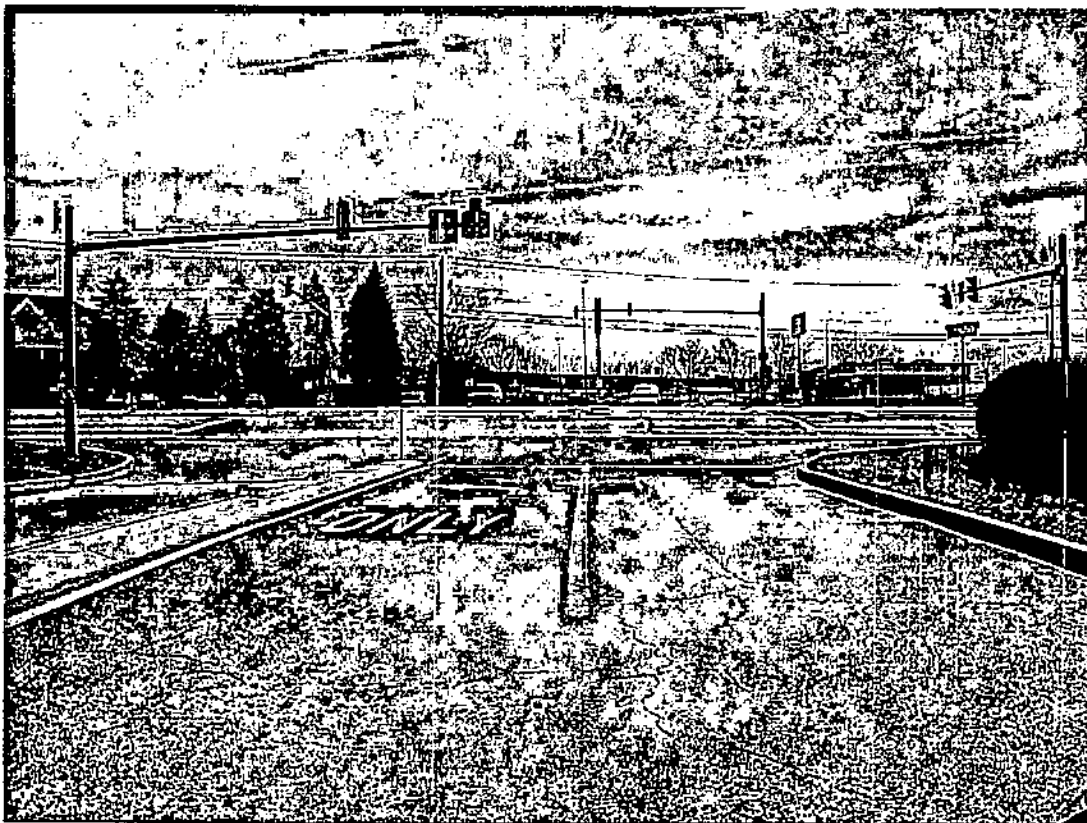


Direction / Road: Westbound (Catasauqua Road)  
Approach / Departure: Approach

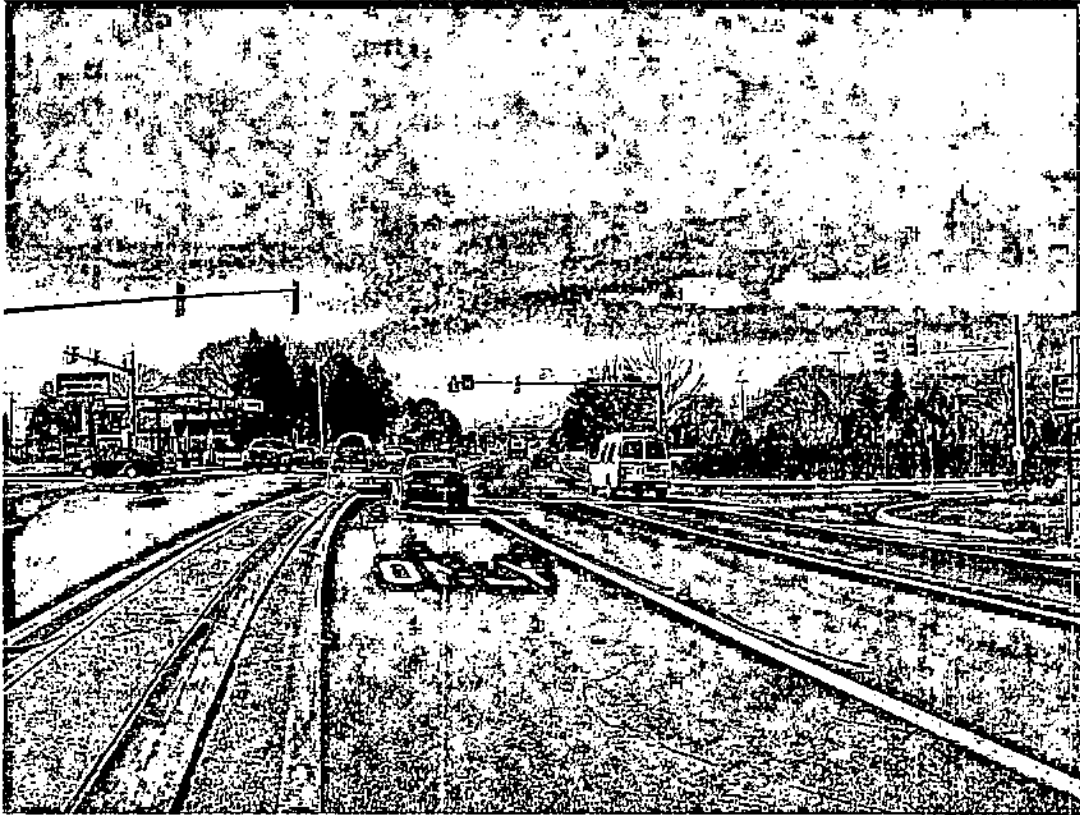
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Direction / Road: Northbound (Airport Road)  
Approach / Departure: Approach

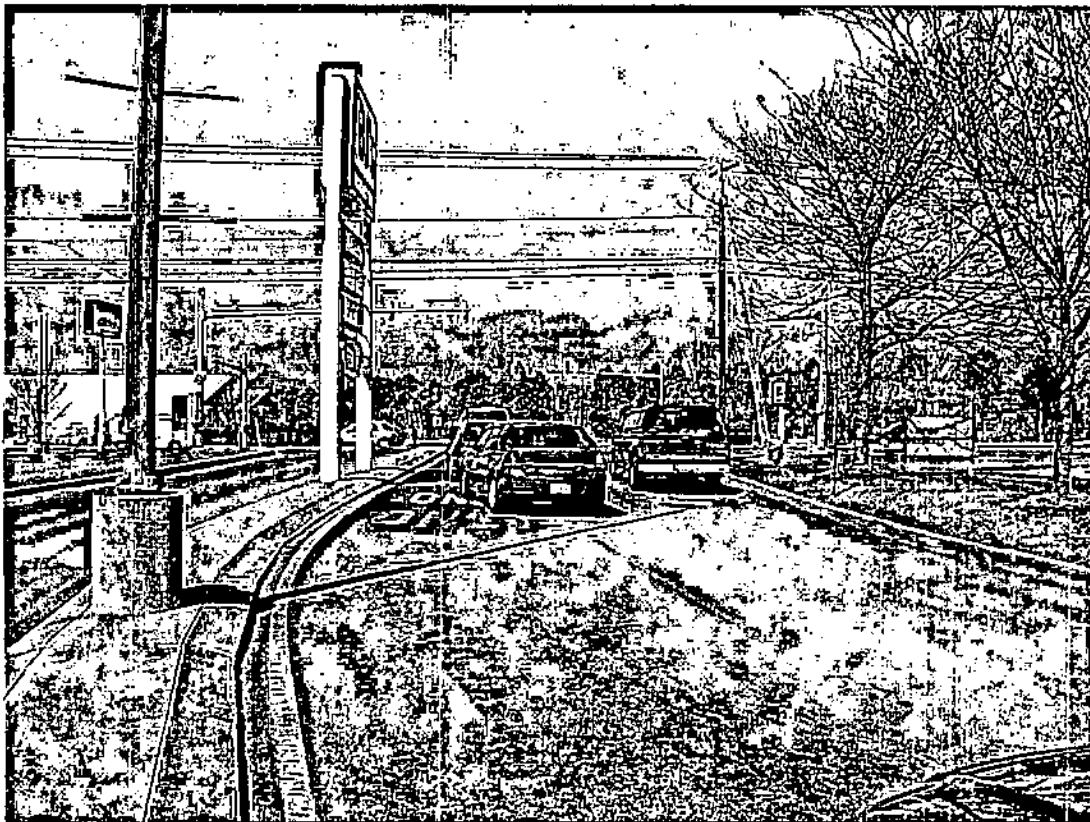


Direction / Road: Eastbound (Steel Stone Drive)  
Approach / Departure: Approach



Direction / Road: Southbound (Airport Road)  
Approach / Departure: Approach

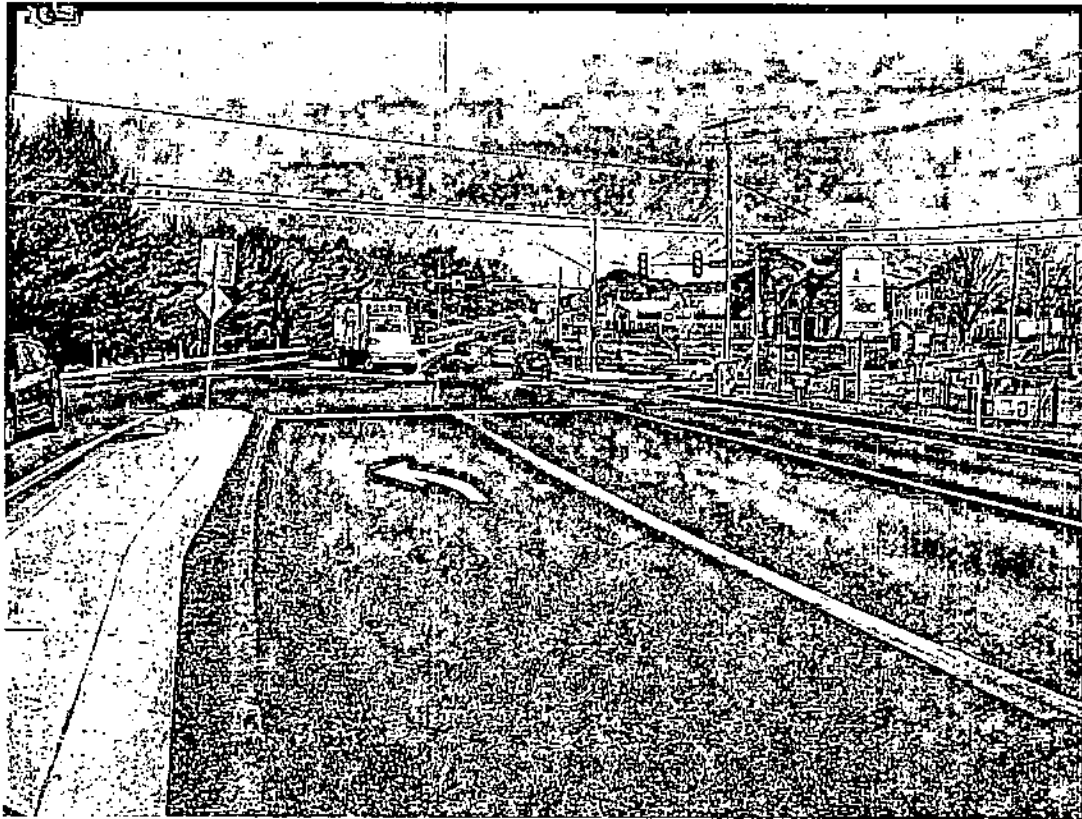
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Direction / Road: Westbound (BJ's Driveway)  
Approach / Departure: Approach

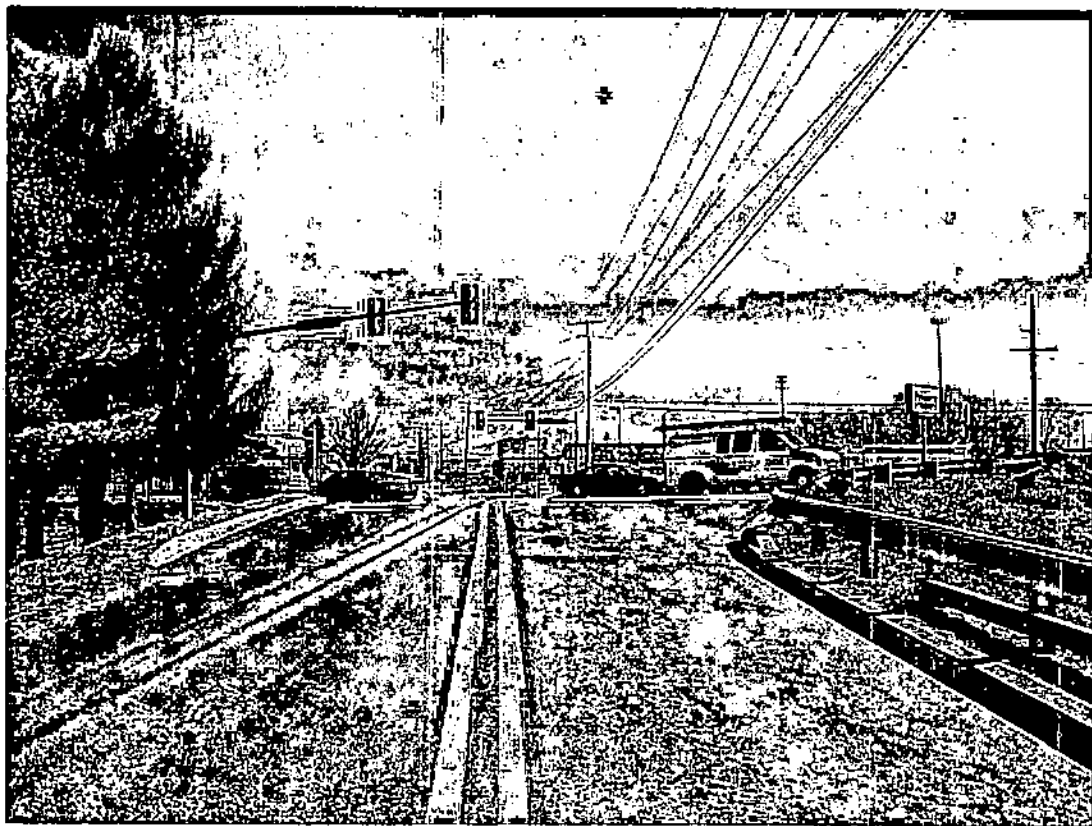
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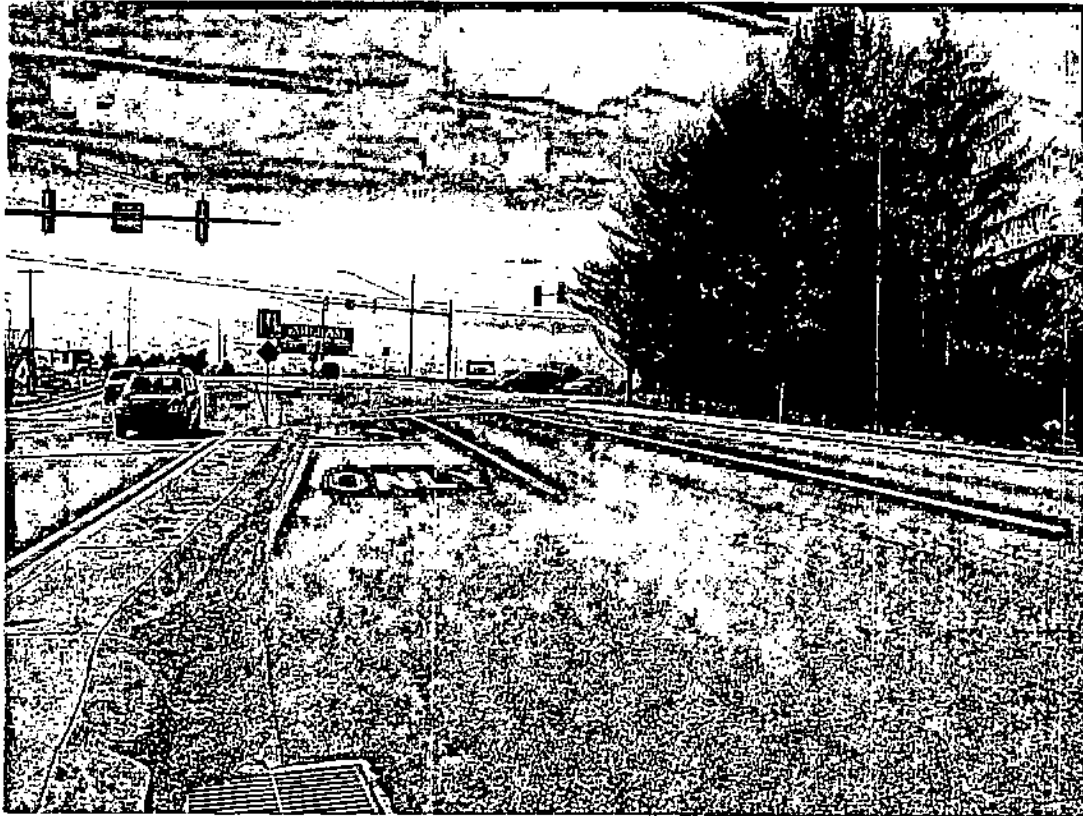
Direction / Road: Northbound (Airport Road)

Approach / Departure: Approach



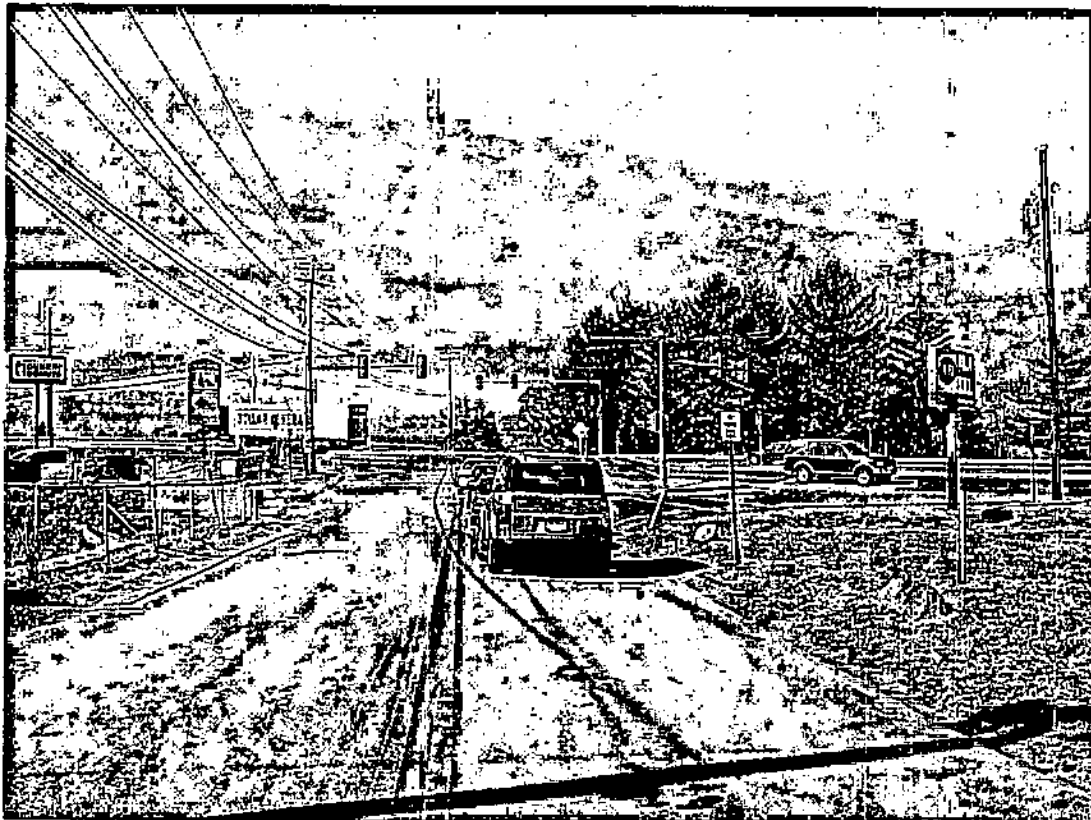
Direction / Road: Eastbound (Lloyd Street)

Approach / Departure: Approach



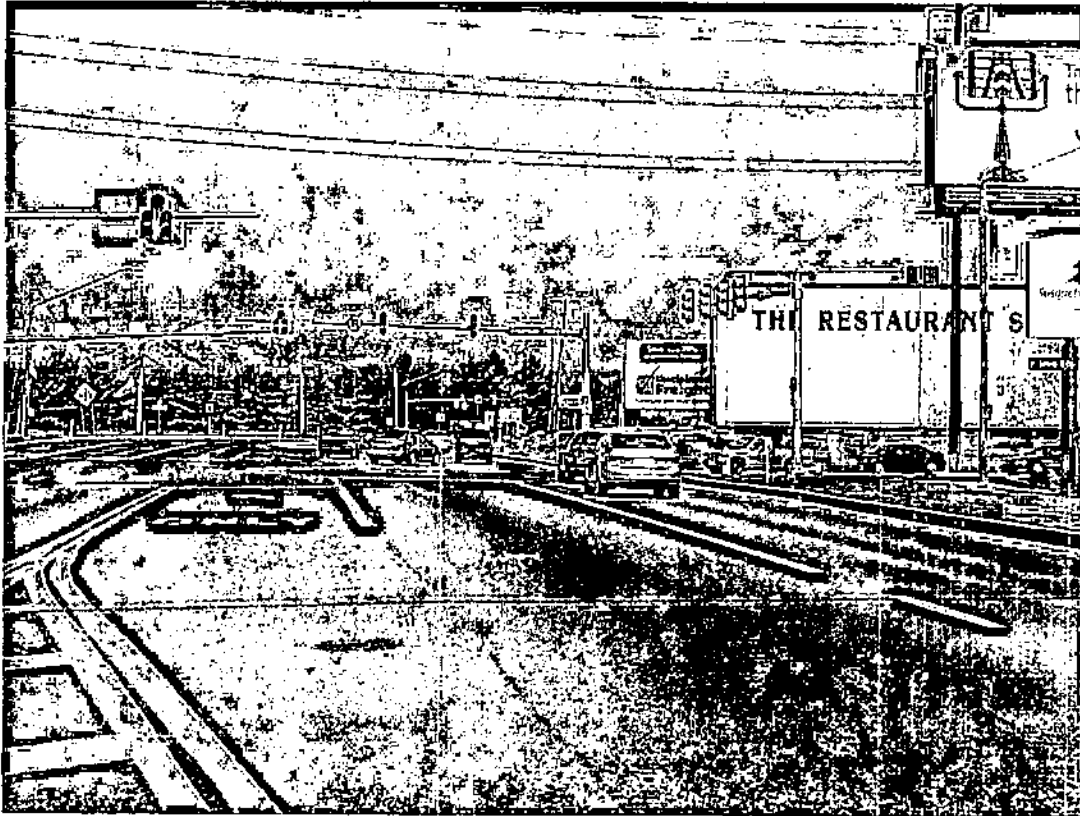
Direction / Road: Southbound (Airport Road)

Approach / Departure: Approach



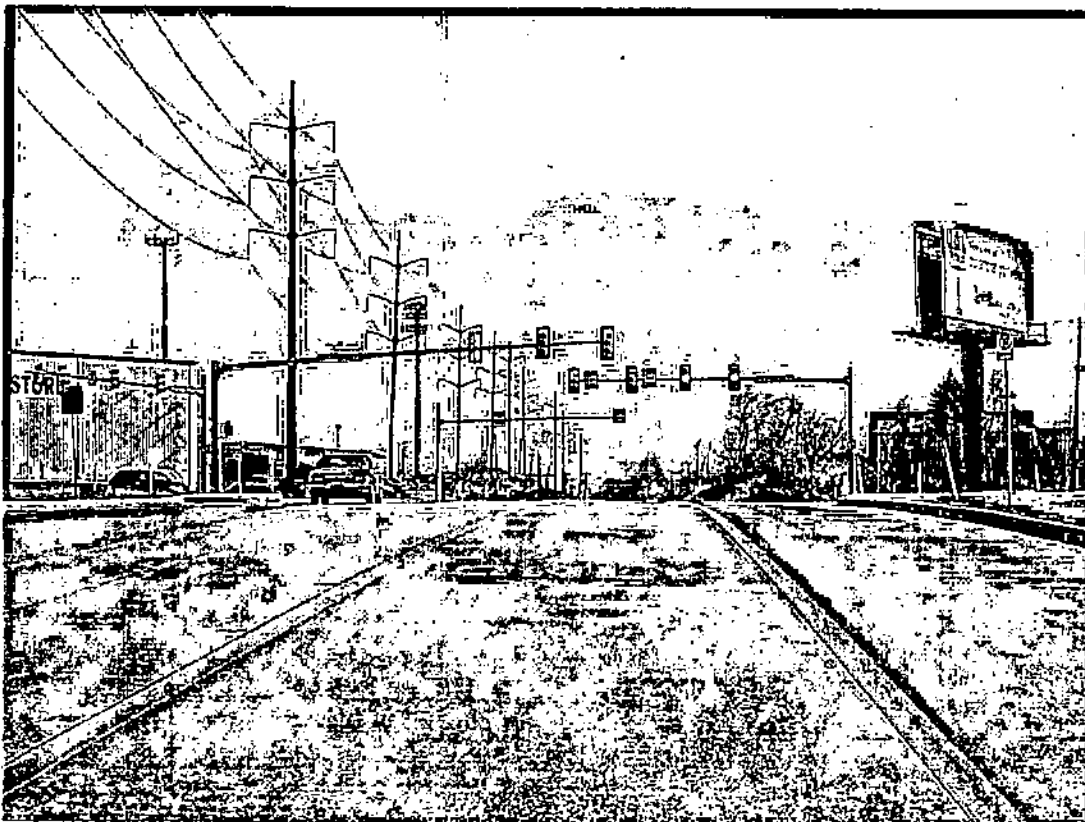
Direction / Road: Westbound (Lloyd Street)

Approach / Departure: Approach



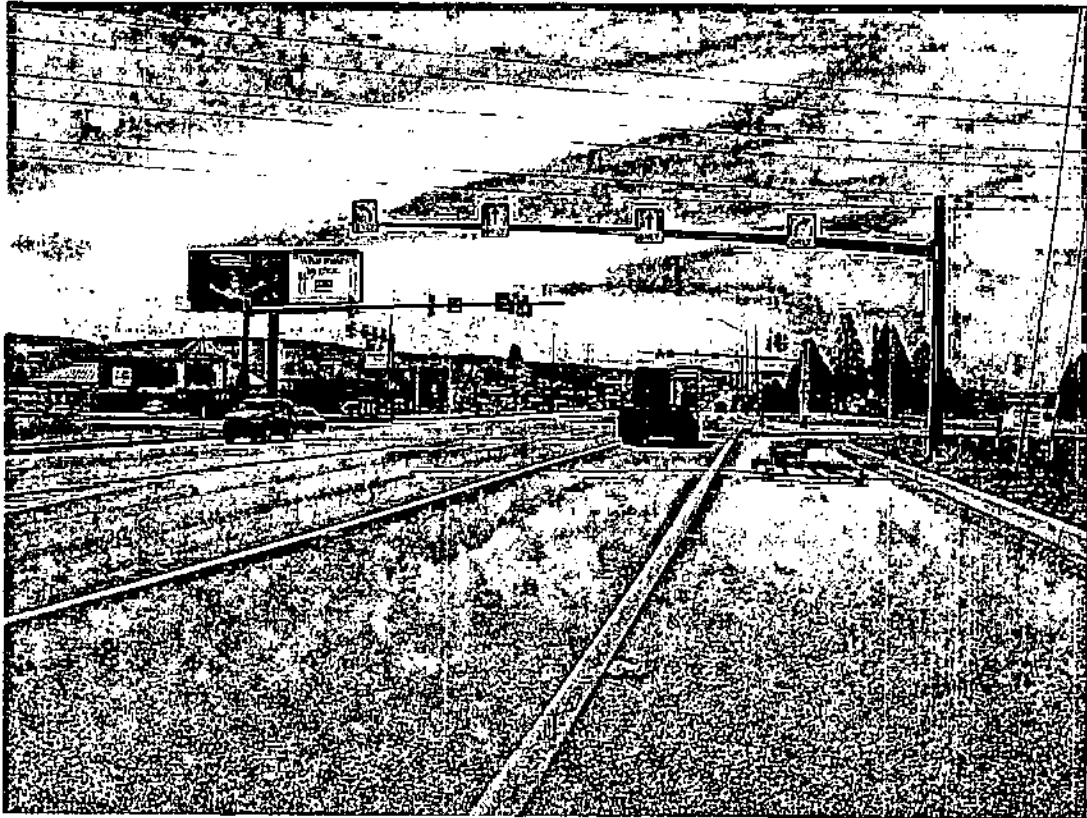
Direction / Road: Northbound (Airport Road)

Approach / Departure: Approach



Direction / Road: Eastbound (American Parkway)

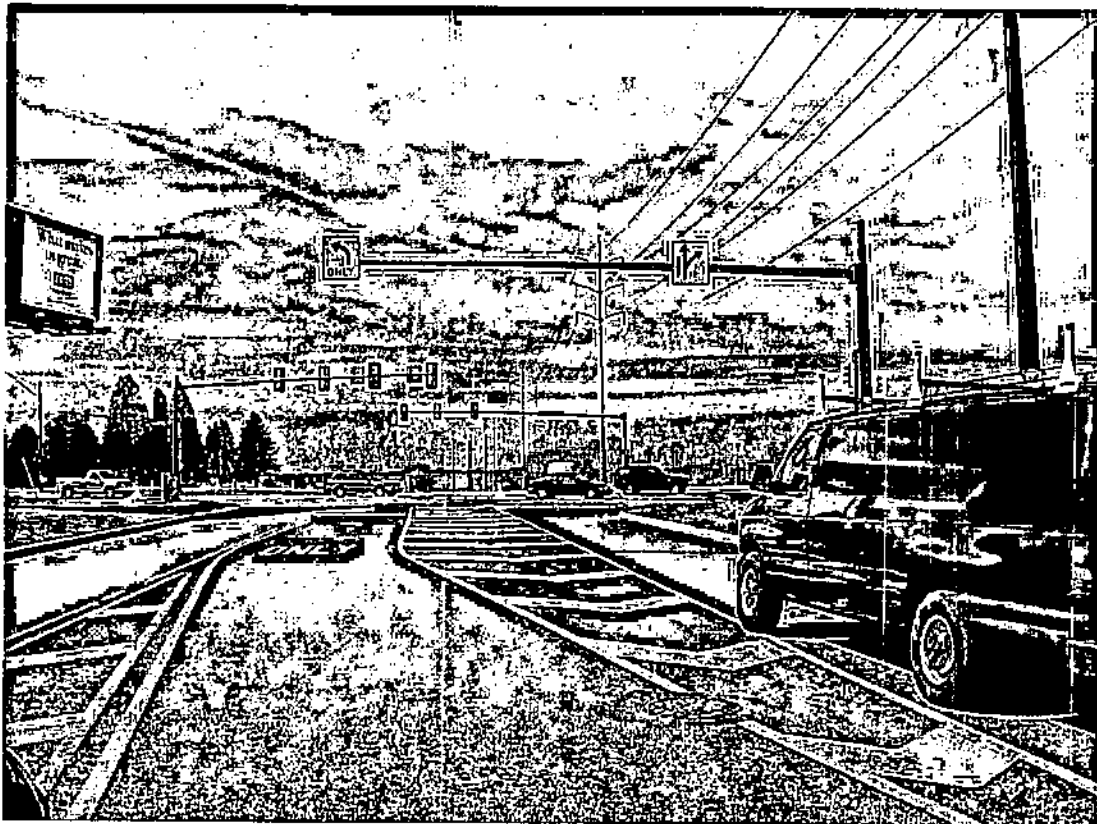
Approach / Departure: Approach



Direction / Road: Southbound (Airport Road)

Approach / Departure: Approach

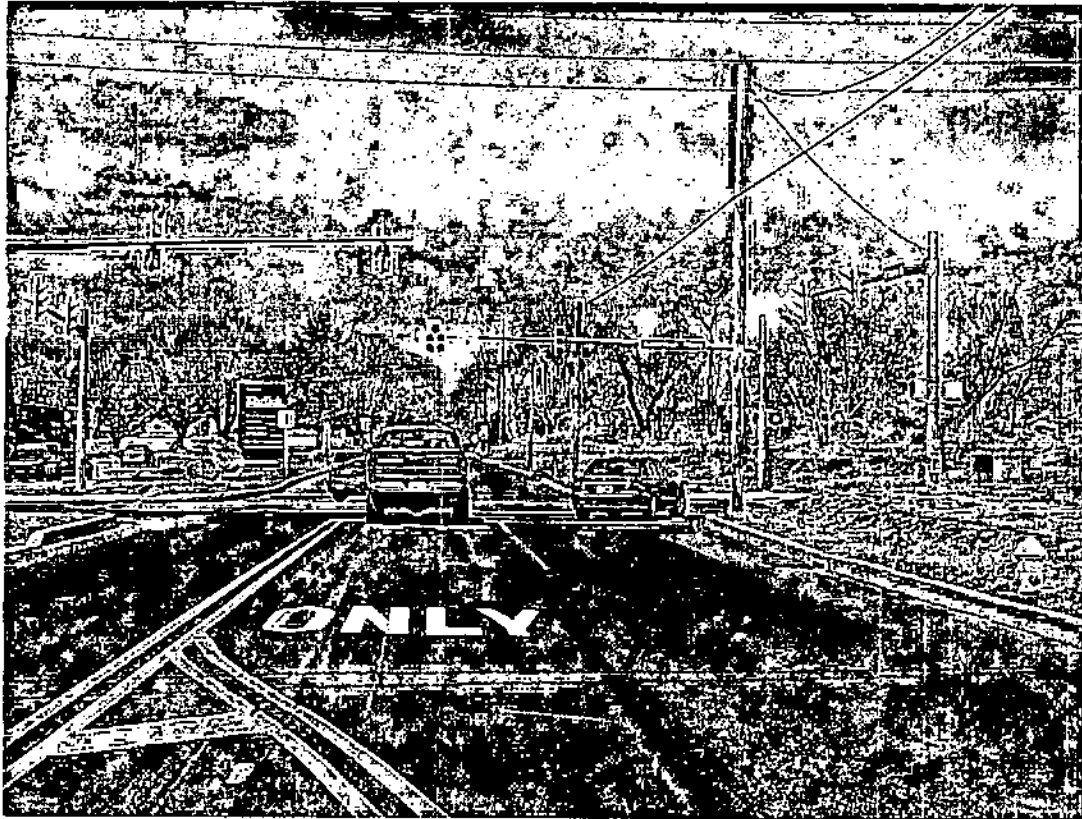
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Direction / Road: Westbound (American Parkway)

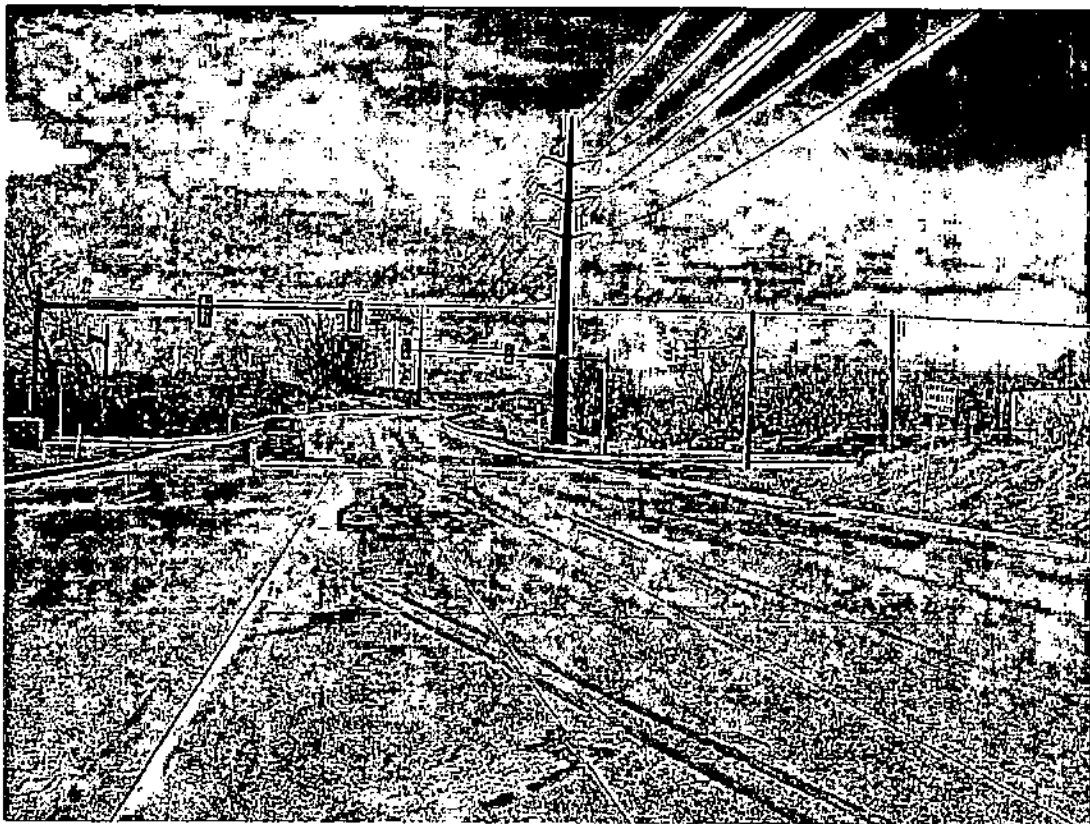
Approach / Departure: Approach

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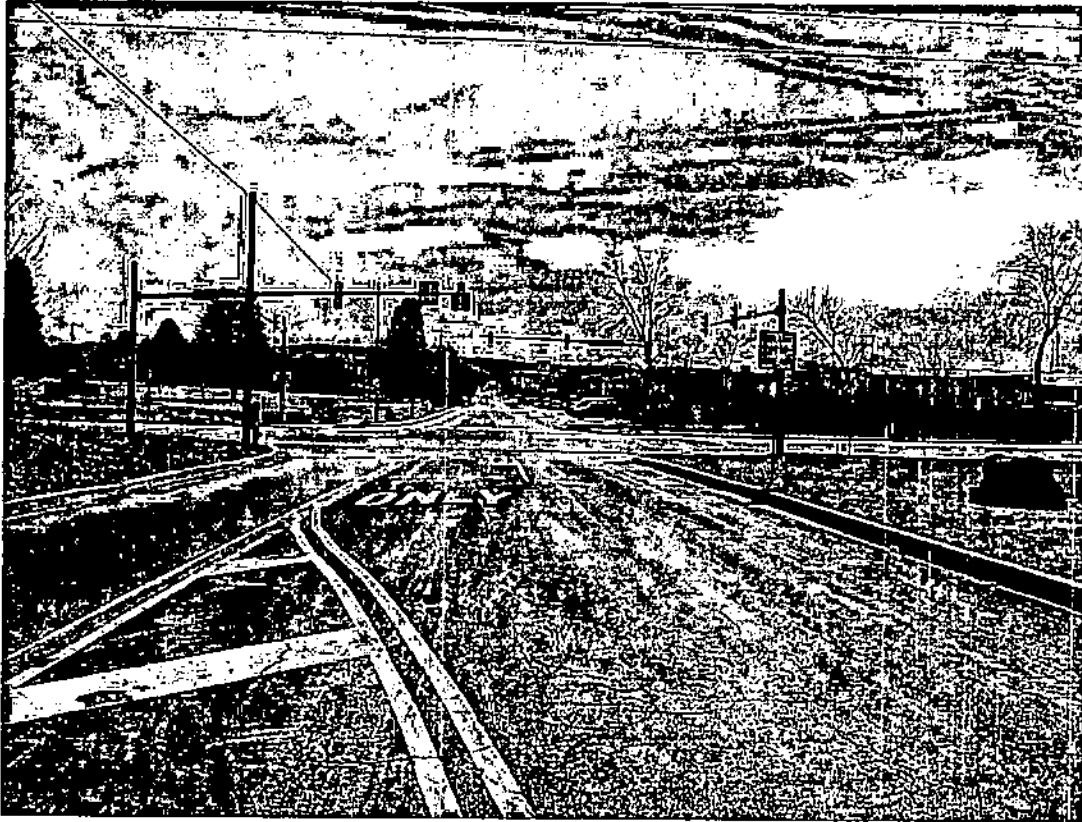
Direction / Road: Northbound (Irving Street)  
Approach / Departure: Approach

---



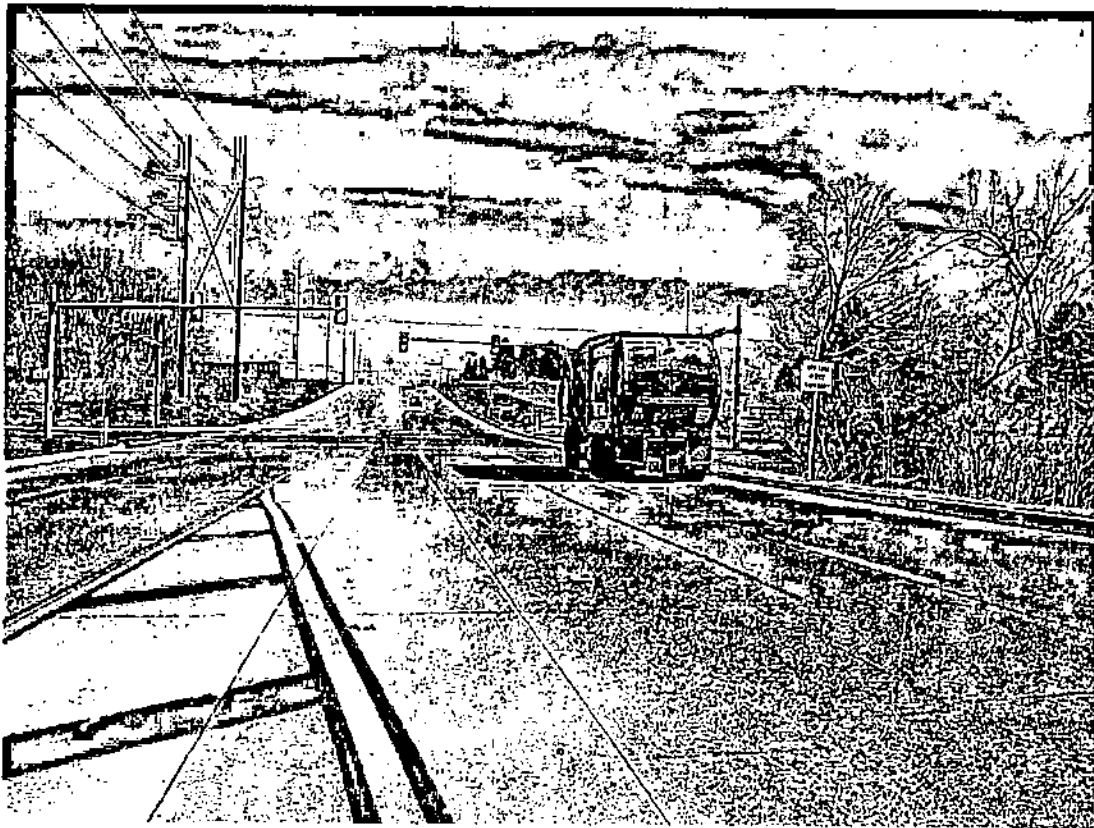
Direction / Road: Westbound (American Parkway)  
Approach / Departure: Approach

---



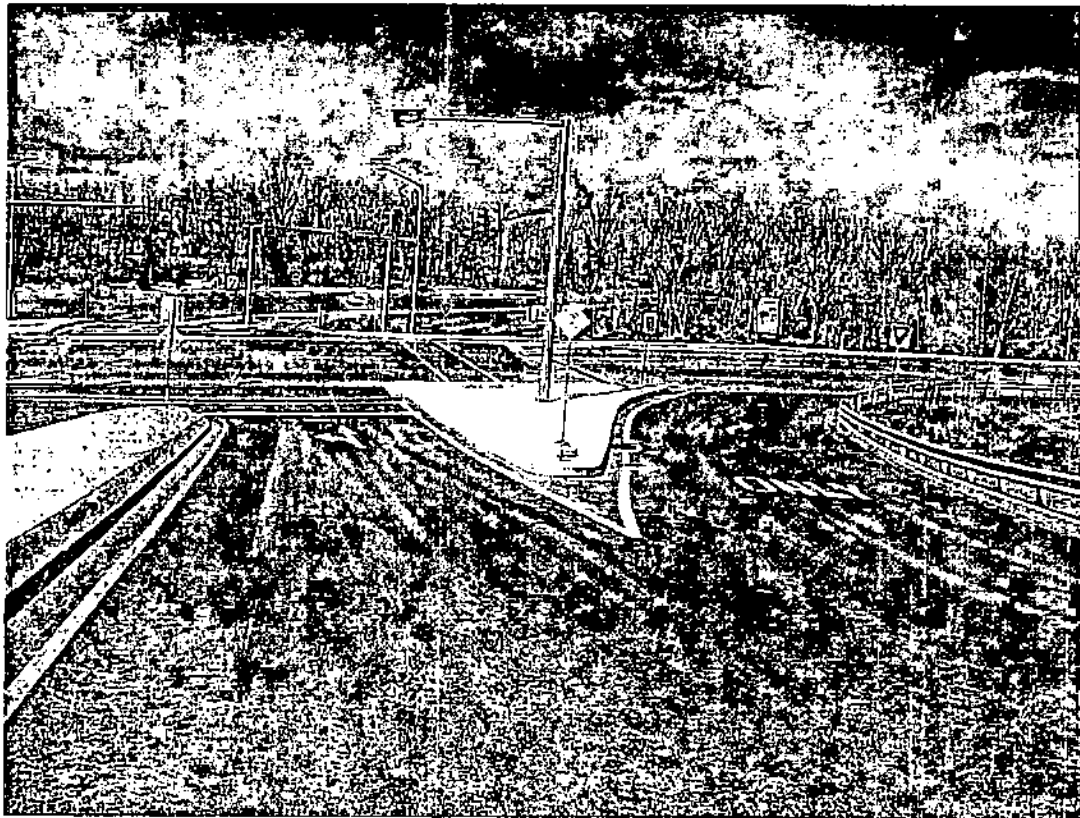
Direction / Road: Southbound (Irving Street)  
Approach / Departure: Approach

---



Direction / Road: Eastbound (American Parkway)  
Approach / Departure: Approach

---



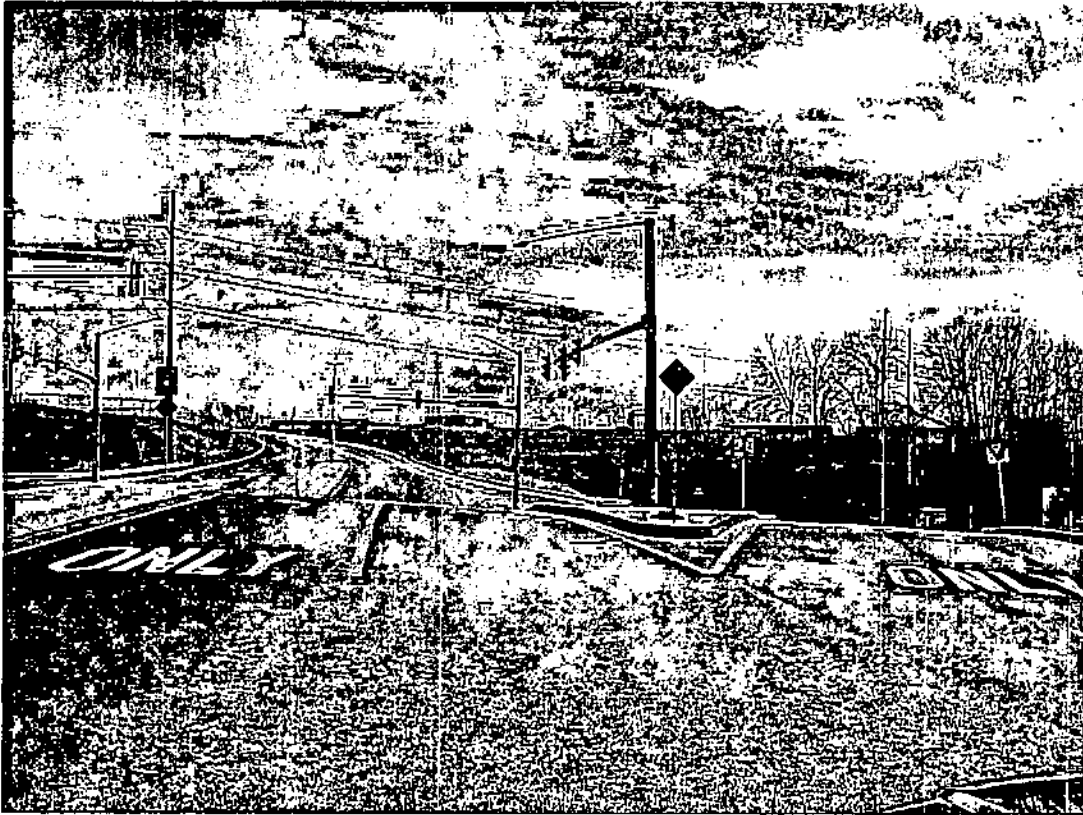
Direction / Road: Northbound (Site Access)  
Approach / Departure: Approach

---



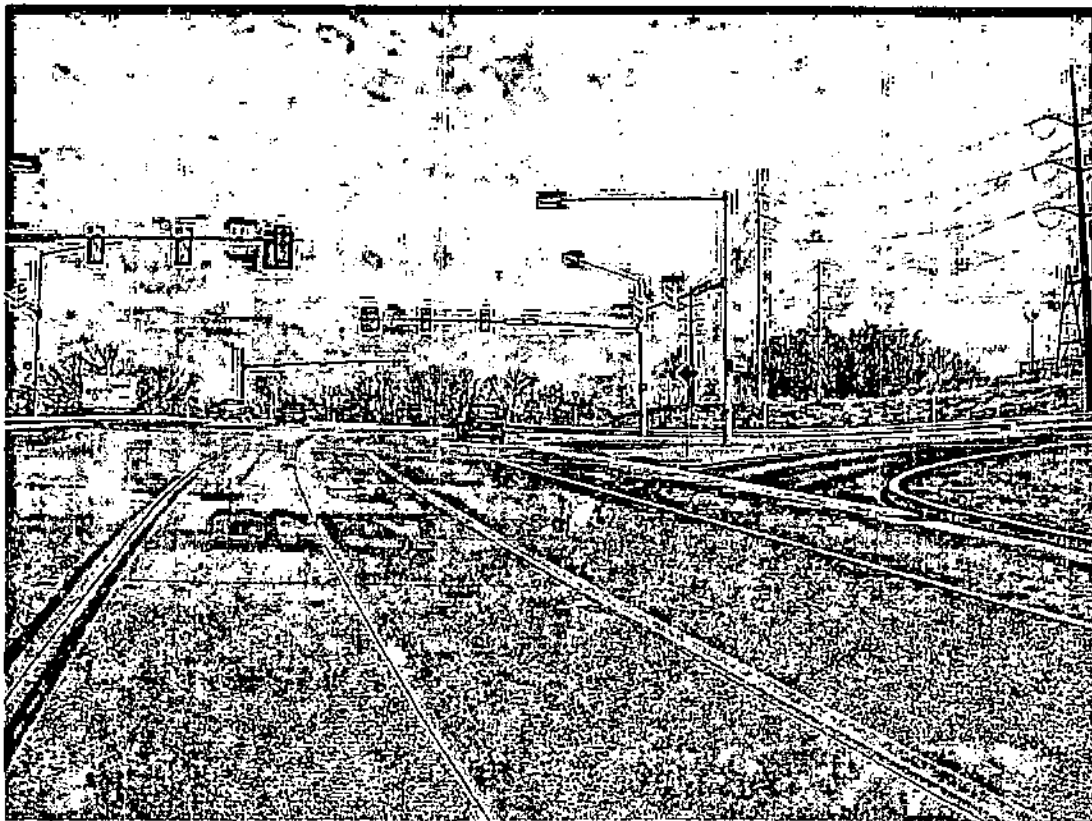
Direction / Road: Westbound (American Parkway)  
Approach / Departure: Approach

---



Direction / Road: Southbound (Agere Site Access)  
Approach / Departure: Approach

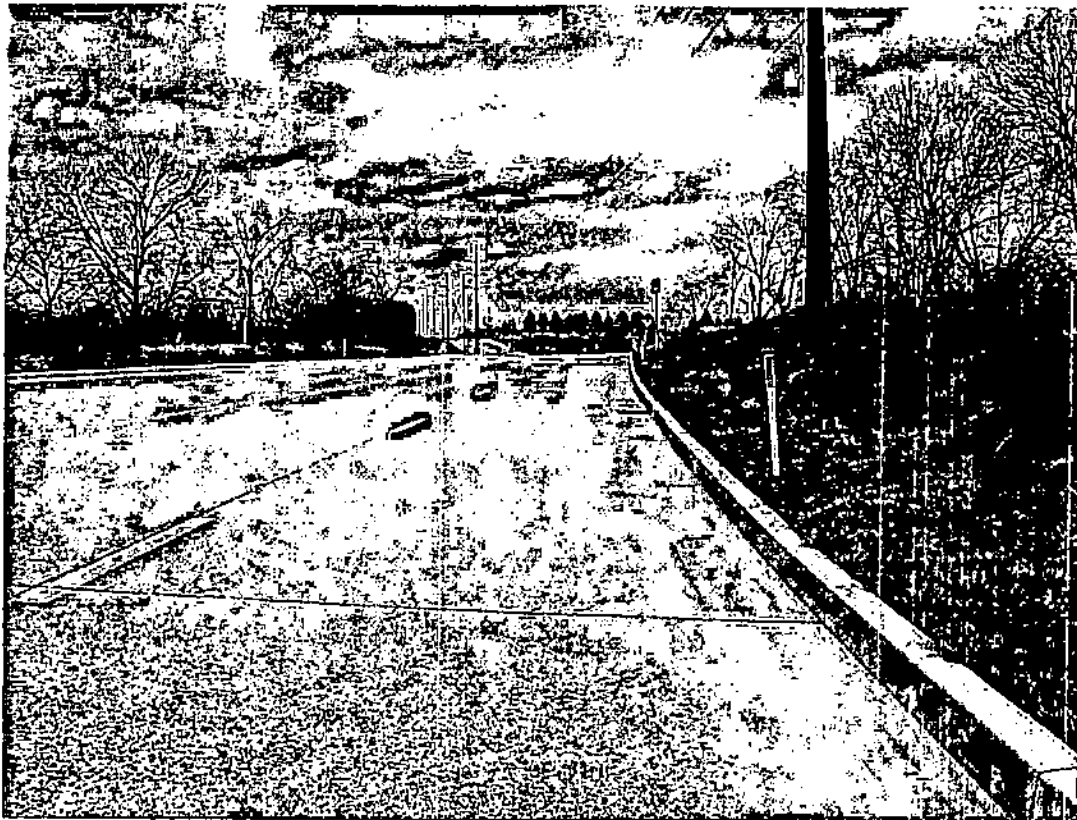
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Direction / Road: Eastbound (American Parkway)  
Approach / Departure: Approach

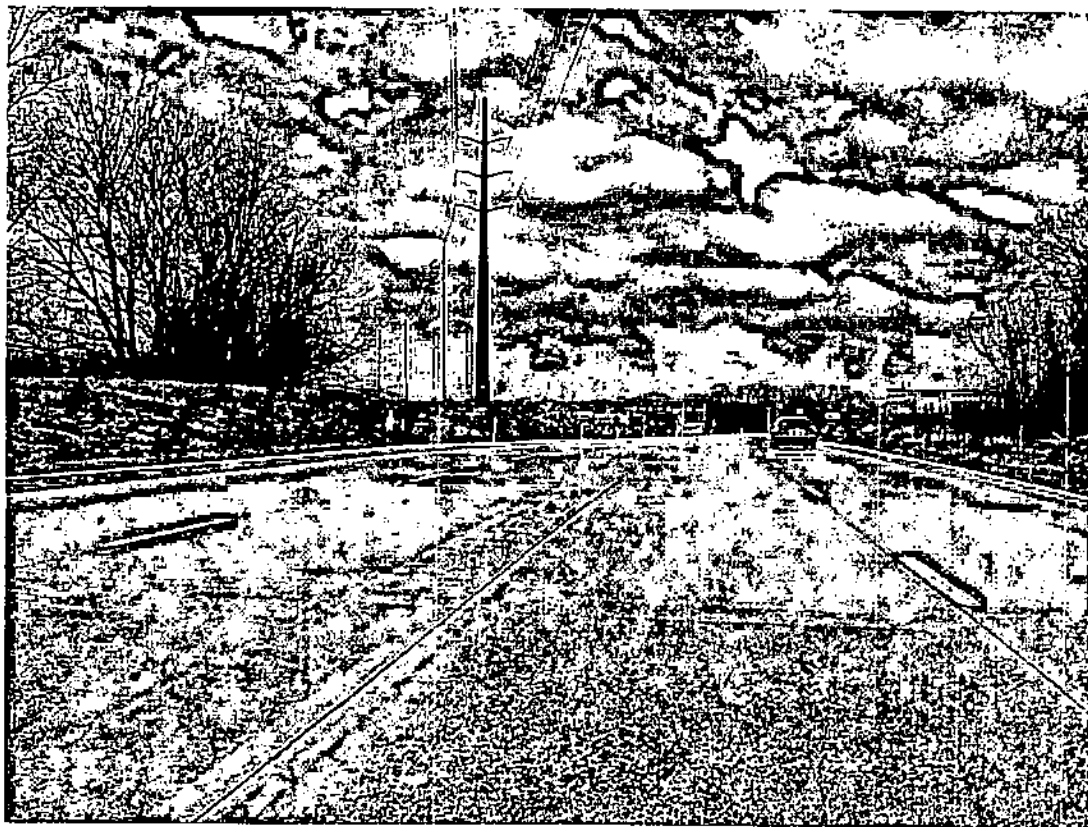
---





Direction / Road: Eastbound (American Parkway)  
Approach / Departure: Approaching site driveway on the right

---



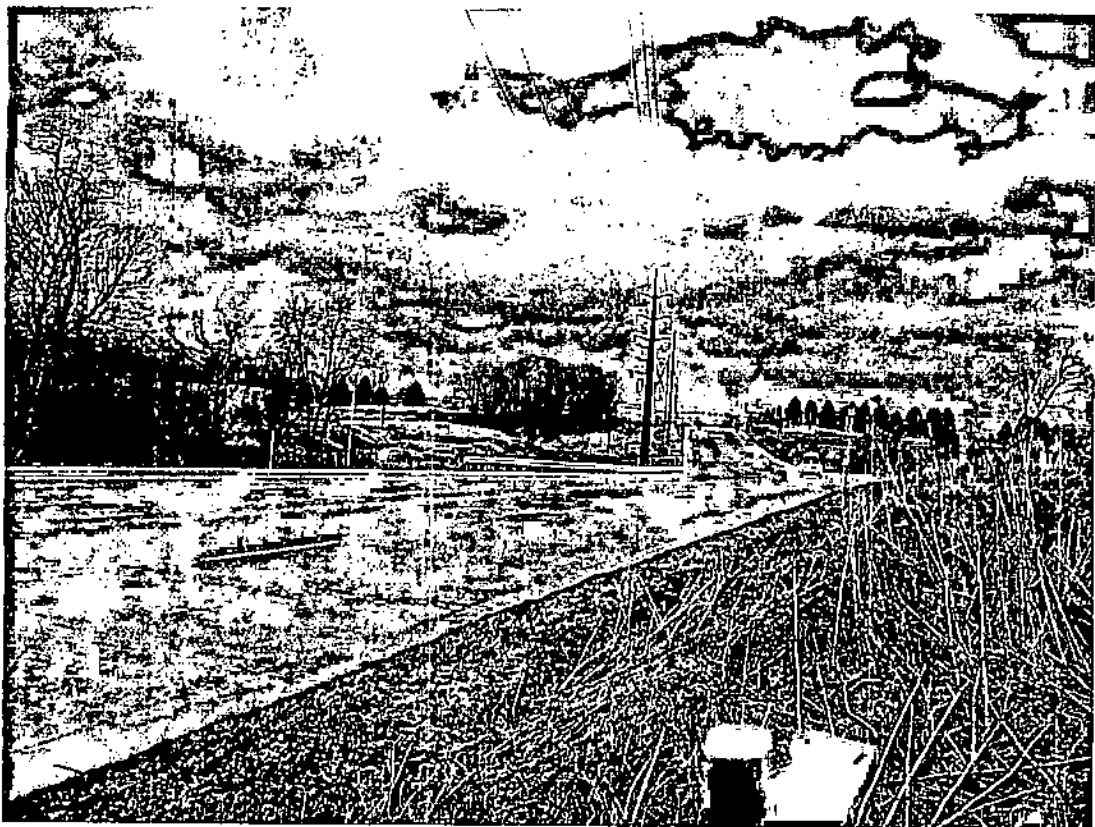
Direction / Road: Westbound (American Parkway)  
Approach / Departure: Approaching site driveway on the left

---



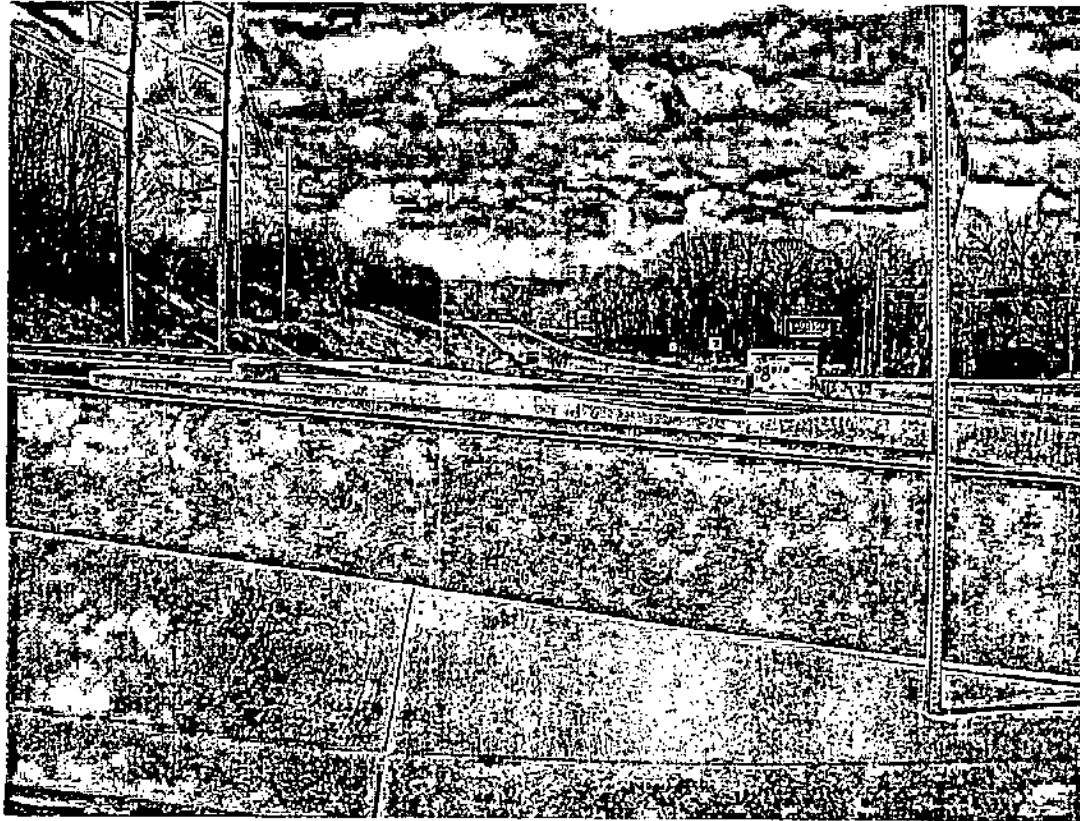
Direction / Road:

Approach / Departure: Looking left out of the site driveway



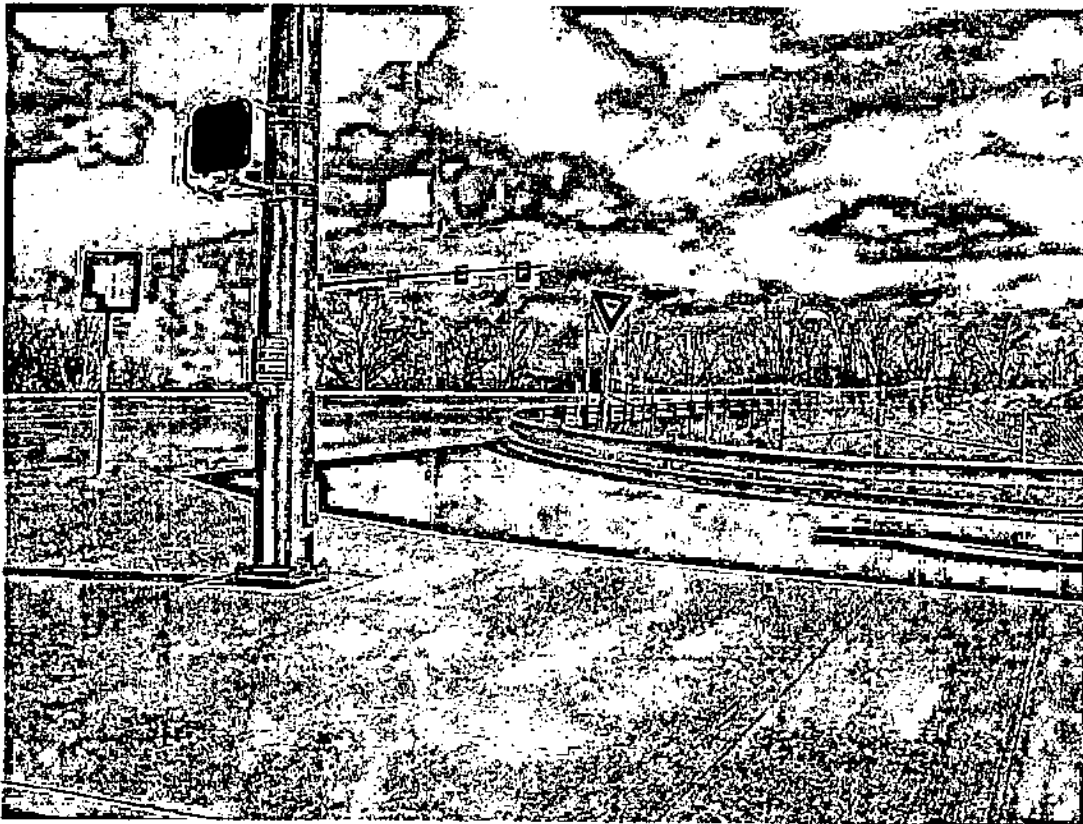
Direction / Road:

Approach / Departure: Looking right out of the site driveway



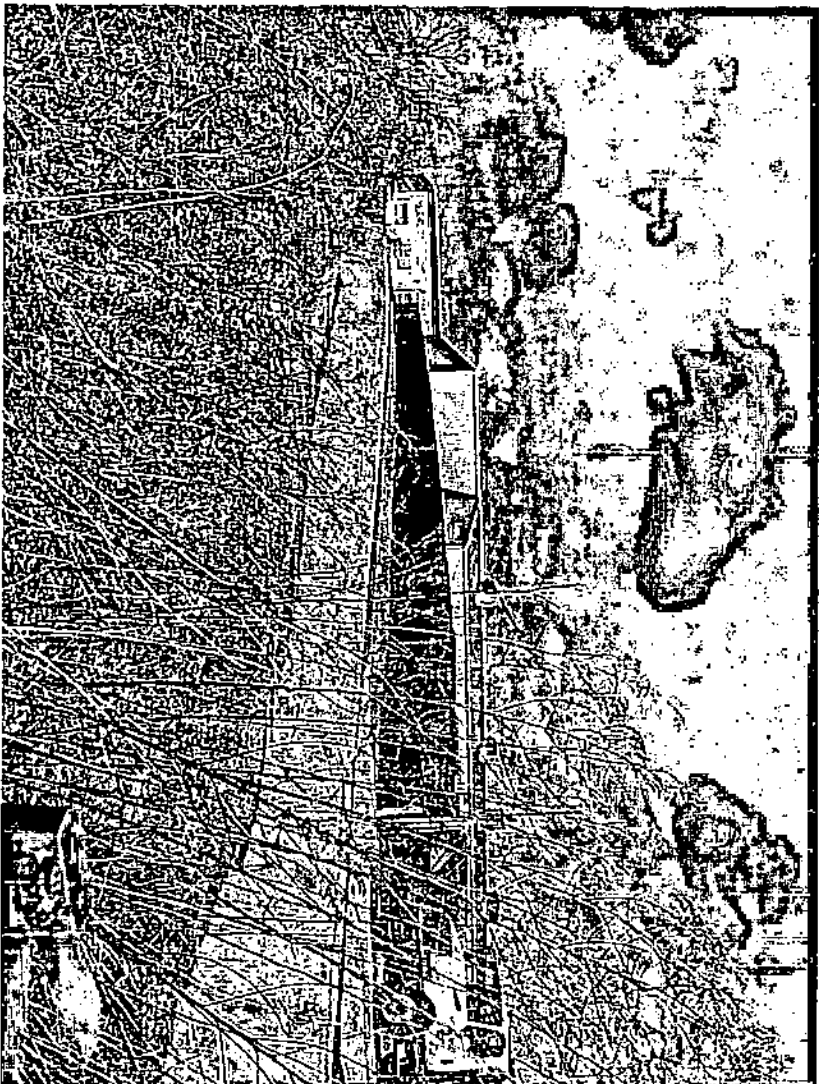
Direction / Road:

Approach / Departure: Looking left out of the main site access



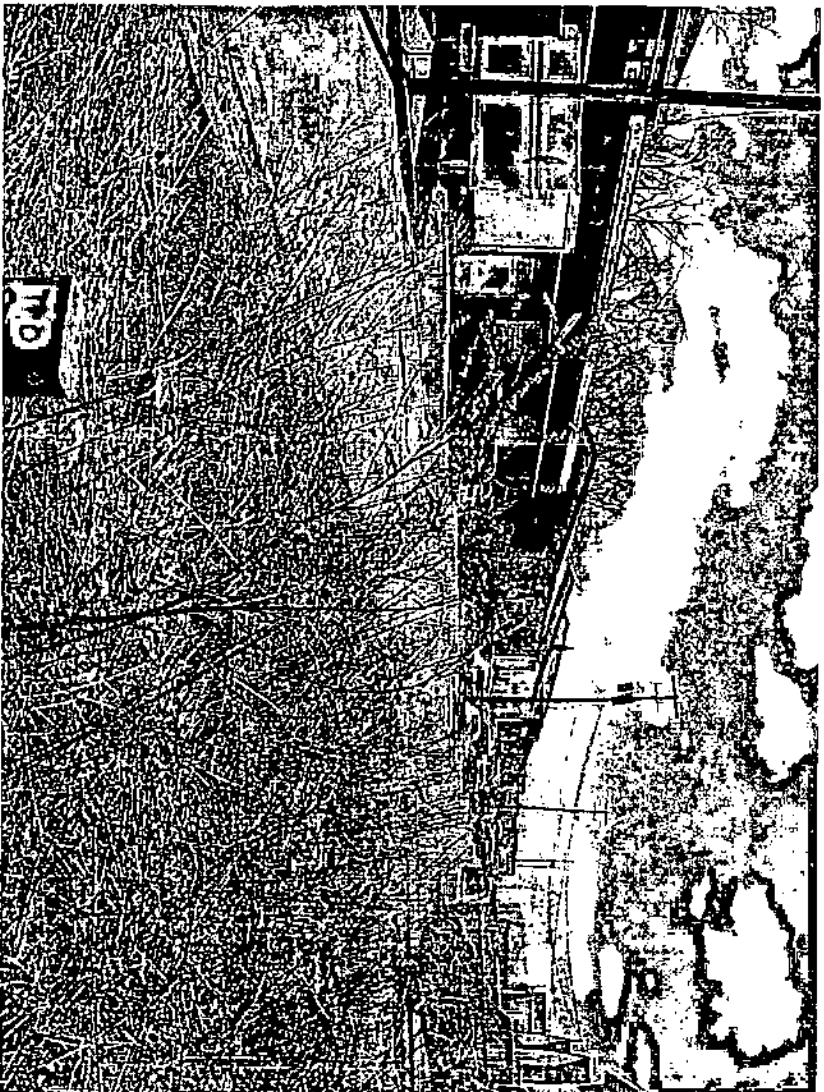
Direction / Road:

Approach / Departure: Looking right out of the main site access



Direction / Road:

Approach / Departure: Looking left out of the site driveway



Direction / Road:

Approach / Departure: Looking right out of the site driveway



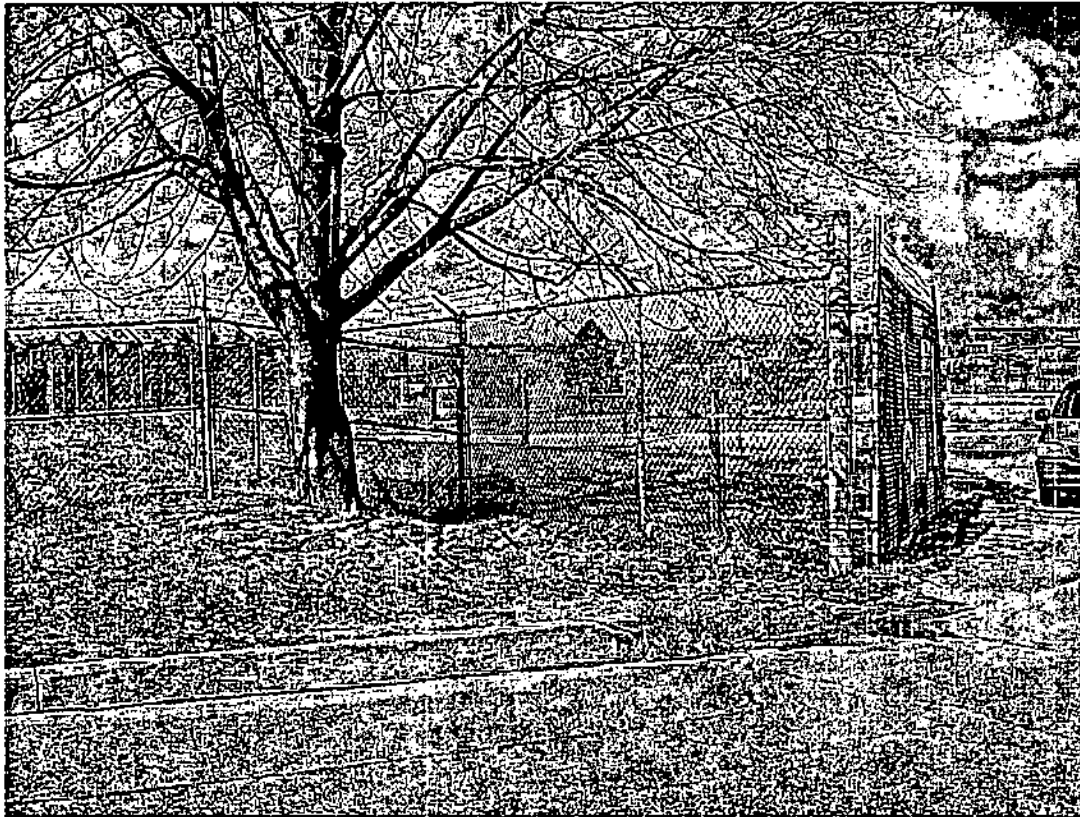
Direction / Road:

Approach / Departure: Approaching the site driveway on the right



Direction / Road:

Approach / Departure: Looking left out of site driveway



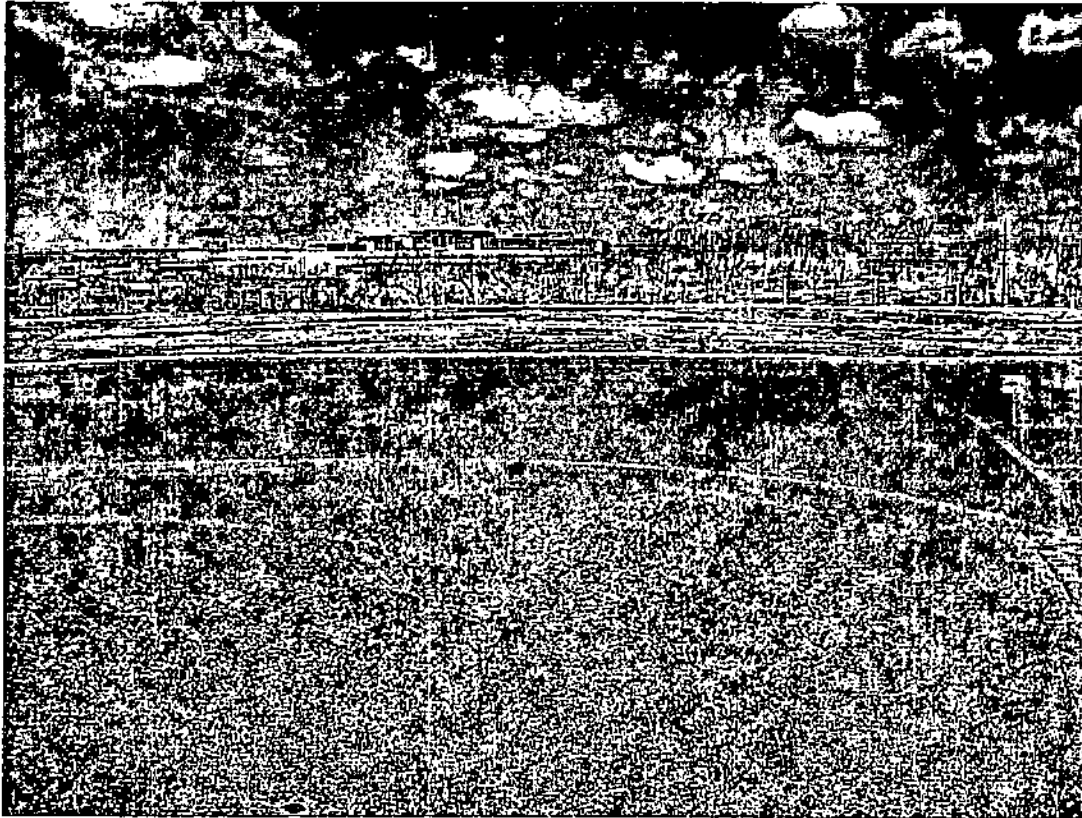
Direction / Road:

Approach / Departure: Looking left from Fenwick Street

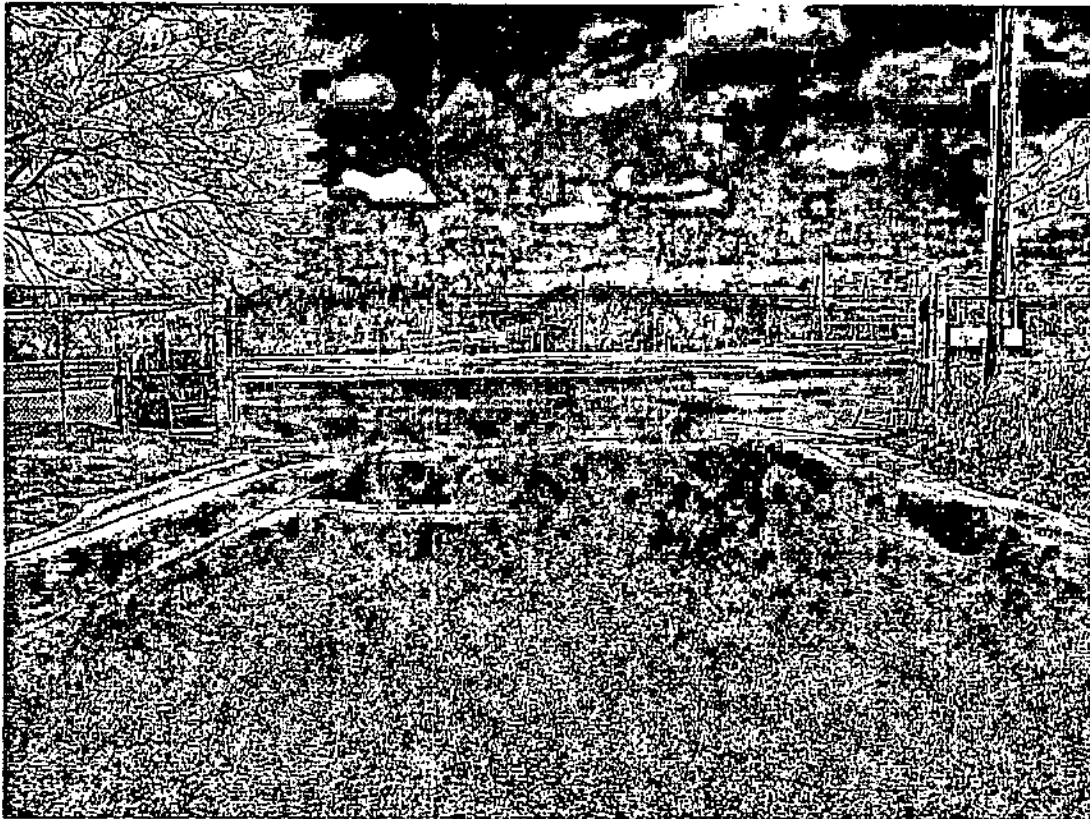


Direction / Road:

Approach / Departure: Looking right from Fenwick Street



Direction / Road: \_\_\_\_\_  
Approach / Departure: Looking north



Direction / Road: \_\_\_\_\_  
Approach / Departure: Looking north

**APPENDIX B**  
*TRAFFIC COUNT PRINTOUTS*



# Traffic Planning & Design, Inc.

4647 Saucon Creek Road  
Center Valley, PA 18034  
Airport Road & Catasauqua Road

File Name : am ar cr combo  
Site Code : 00007979  
Start Date : 3/24/2006  
Page No : 1

## Groups Printed- Unshifted

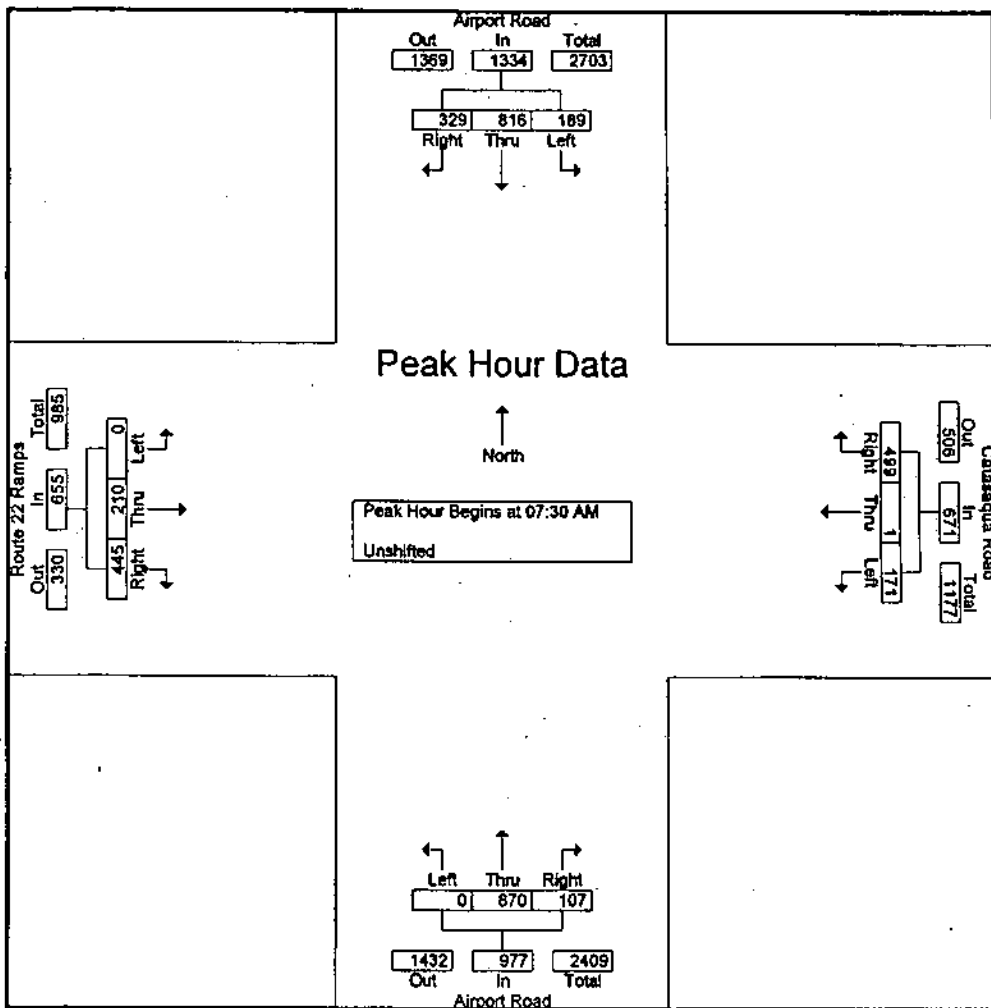
Start Time	Airport Road Southbound					Catasaqua Road Westbound					Airport Road Northbound					Route 22 Ramps Eastbound					Each. Total	Inch. Total	Int. Total
	Left	Thru	Right	Trucks	App. Total	Left	Thru	Right	Trucks	App. Total	Left	Thru	Right	Trucks	App. Total	Left	Thru	Right	Trucks	App. Total			
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0				
07:00 AM	49	143	74	15	266	21	0	102	1	123	0	163	10	20	173	1	41	90	9	132	45	694	739
07:15 AM	37	155	78	30	270	25	22	112	13	159	0	175	13	24	188	1	55	113	8	169	75	786	861
07:30 AM	33	197	84	22	314	37	0	122	5	159	0	224	17	25	241	0	54	135	3	189	55	903	958
07:45 AM	54	234	99	24	387	43	0	151	2	194	0	256	26	29	282	0	68	125	11	193	66	1056	1122
Total	173	729	335	91	1237	126	22	487	21	635	0	818	66	98	884	2	218	463	31	683	241	3439	3680
08:00 AM	48	186	68	11	302	55	0	104	8	159	0	183	35	31	218	0	46	94	11	140	61	819	880
08:15 AM	54	199	78	15	331	36	1	122	7	159	0	207	29	26	236	0	42	91	10	133	58	859	917
08:30 AM	51	161	70	16	282	22	6	125	11	153	0	190	26	21	216	0	33	81	5	114	53	765	818
08:45 AM	57	206	72	21	335	32	0	121	5	153	0	197	36	37	233	0	47	91	13	138	76	859	935
Total	210	752	288	63	1250	145	7	472	31	624	0	777	126	115	903	0	168	357	39	525	248	3302	3550
Grand Total	383	1481	623	154	2487	271	29	959	52	1259	0	1595	192	213	1787	2	386	820	70	1208	489	6741	7230
Apprch %	15.4	59.5	25.1			21.5	2.3	76.2			0	89.3	10.7			0.2	32	67.9					
Total %	5.7	22	9.2		36.9	4	0.4	14.2		18.7	0	23.7	2.8		26.5	0	5.7	12.2		17.9	6.8	93.2	

# Traffic Planning & Design, Inc.

4647 Saucon Creek Road  
Center Valley, PA 18034  
Airport Road & Catasaqua Road

File Name : am ar cr combo  
Site Code : 00007979  
Start Date : 3/24/2006  
Page No : 3

Start Time	Airport Road Southbound				Catasaqua Road Westbound				Airport Road Northbound				Route 22 Ramps Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis from 07:30 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	33	197	84	314	37	0	122	159	0	224	17	241	0	54	135	189	903
07:45 AM	54	234	99	387	43	0	151	194	0	256	26	282	0	68	125	193	1056
08:00 AM	48	186	68	302	55	0	104	159	0	183	35	218	0	46	94	140	819
08:15 AM	54	199	78	331	36	1	122	159	0	207	29	236	0	42	91	133	859
<b>Total Volume</b>	<b>189</b>	<b>816</b>	<b>329</b>	<b>1334</b>	<b>171</b>	<b>1</b>	<b>499</b>	<b>671</b>	<b>0</b>	<b>870</b>	<b>107</b>	<b>977</b>	<b>0</b>	<b>210</b>	<b>445</b>	<b>655</b>	<b>3637</b>
<b>% App. Total</b>	<b>14.2</b>	<b>61.2</b>	<b>24.7</b>		<b>25.5</b>	<b>0.1</b>	<b>74.4</b>		<b>0</b>	<b>89</b>	<b>11</b>		<b>0</b>	<b>32.1</b>	<b>67.9</b>		
PHF	.875	.872	.831	.862	.777	.250	.826	.865	.000	.850	.764	.866	.000	.772	.824	.848	.861



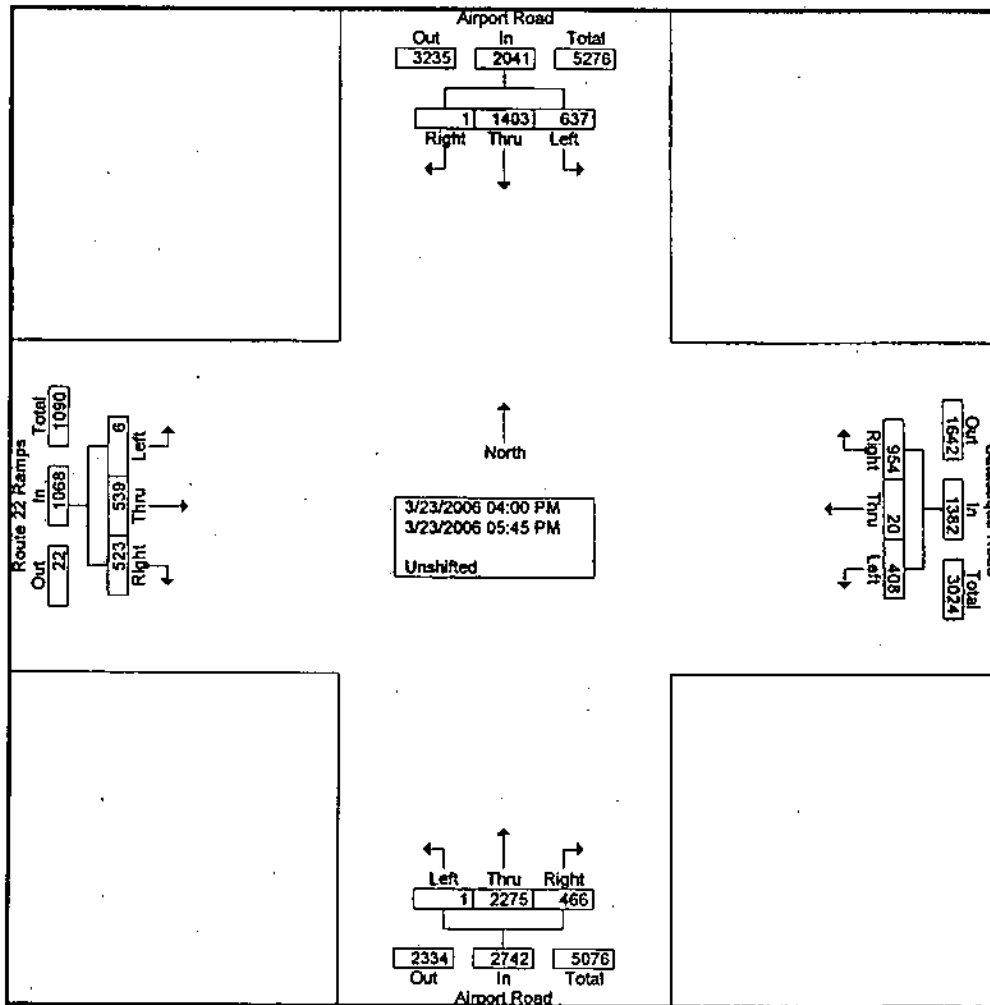
# Traffic Planning & Design, Inc.

4647 Saucon Creek Road  
Center Valley, PA 18034  
Airport Road & Catasaqua Road

File Name : pm ar cr combo  
Site Code : 00000000  
Start Date : 3/23/2006  
Page No : 1

## Groups Printed- Unshifted

Start Time	Airport Road Southbound					Catasaqua Road Westbound					Airport Road Northbound					Route 22 Ramps Eastbound					Ends. Total	Incls. Total	Int. Total
	Left	Thru	Right	Trucks	App. Total	Left	Thru	Right	Trucks	App. Total	Left	Thru	Right	Trucks	App. Total	Left	Thru	Right	Trucks	App. Total			
04:00 PM	80	183	0	10	263	52	10	109	3	171	1	258	49	12	308	1	60	68	7	129	32	871	903
04:15 PM	71	175	0	4	246	55	6	107	4	168	0	310	53	9	363	0	78	62	7	140	24	917	941
04:30 PM	83	180	1	9	264	53	0	98	1	151	0	273	57	6	330	1	63	61	11	125	27	870	897
04:45 PM	84	174	0	10	258	50	0	129	0	179	0	268	53	13	321	1	62	59	9	122	32	880	912
<b>Total</b>	<b>318</b>	<b>712</b>	<b>1</b>	<b>33</b>	<b>1031</b>	<b>210</b>	<b>16</b>	<b>443</b>	<b>8</b>	<b>669</b>	<b>1</b>	<b>1109</b>	<b>212</b>	<b>40</b>	<b>1322</b>	<b>3</b>	<b>263</b>	<b>250</b>	<b>34</b>	<b>516</b>	<b>115</b>	<b>3538</b>	<b>3653</b>
05:00 PM	86	172	0	5	258	50	0	141	1	191	0	387	73	12	460	0	58	59	5	117	23	1026	1049
05:15 PM	73	199	0	4	272	61	1	110	1	172	0	264	55	8	319	1	80	55	8	136	21	899	920
05:30 PM	89	182	0	4	271	36	1	109	3	146	0	261	56	7	317	2	61	85	7	148	21	882	903
05:45 PM	71	138	0	5	209	51	2	151	2	204	0	254	70	4	324	0	77	74	8	151	19	888	907
<b>Total</b>	<b>319</b>	<b>691</b>	<b>0</b>	<b>18</b>	<b>1010</b>	<b>198</b>	<b>4</b>	<b>511</b>	<b>7</b>	<b>713</b>	<b>0</b>	<b>1166</b>	<b>254</b>	<b>31</b>	<b>1420</b>	<b>3</b>	<b>276</b>	<b>273</b>	<b>28</b>	<b>552</b>	<b>84</b>	<b>3695</b>	<b>3779</b>
<b>Grand Total</b>	<b>637</b>	<b>1403</b>	<b>1</b>	<b>51</b>	<b>2041</b>	<b>408</b>	<b>20</b>	<b>954</b>	<b>15</b>	<b>1382</b>	<b>1</b>	<b>2275</b>	<b>466</b>	<b>71</b>	<b>2742</b>	<b>6</b>	<b>539</b>	<b>523</b>	<b>62</b>	<b>1068</b>	<b>199</b>	<b>7233</b>	<b>7432</b>
<b>Apprch %</b>	<b>31.2</b>	<b>68.7</b>	<b>0</b>			<b>29.5</b>	<b>1.4</b>	<b>69</b>			<b>0</b>	<b>83</b>	<b>17</b>			<b>0.6</b>	<b>50.5</b>	<b>49</b>					
<b>Total %</b>	<b>8.8</b>	<b>19.4</b>	<b>0</b>		<b>28.2</b>	<b>5.6</b>	<b>0.3</b>	<b>13.2</b>		<b>19.1</b>	<b>0</b>	<b>31.5</b>	<b>6.4</b>		<b>37.9</b>	<b>0.1</b>	<b>7.5</b>	<b>7.2</b>		<b>14.8</b>	<b>2.7</b>	<b>97.3</b>	

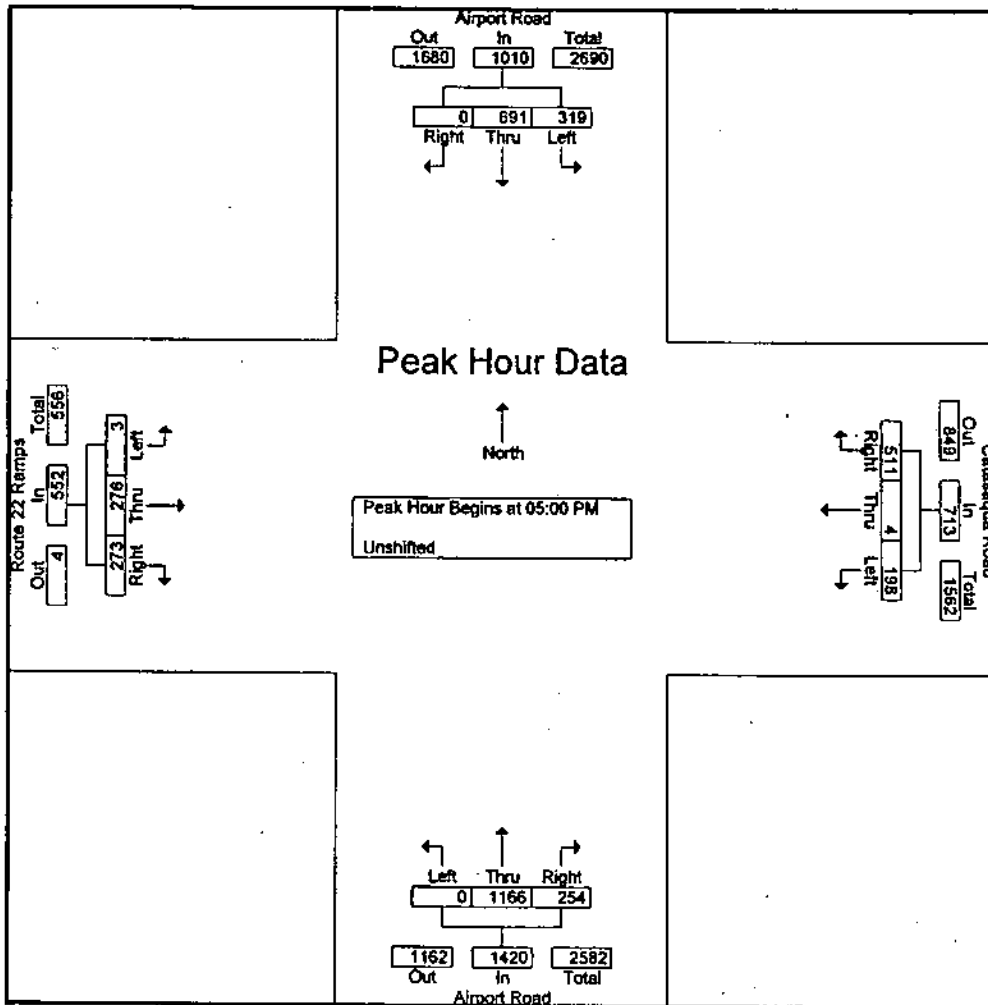


# Traffic Planning & Design, Inc.

4647 Saucon Creek Road  
Center Valley, PA 18034  
Airport Road & Catasaqua Road

File Name : pm ar cr combo  
Site Code : 00000000  
Start Date : 3/23/2006  
Page No : 2

Start Time	Airport Road Southbound				Catasaqua Road Westbound				Airport Road Northbound				Route 22 Ramps Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	86	172	0	258	50	0	141	191	0	387	73	460	0	58	59	117	1026
05:15 PM	73	199	0	272	61	1	110	172	0	264	55	319	1	80	55	136	899
05:30 PM	89	182	0	271	36	1	109	146	0	261	56	317	2	61	85	148	882
05:45 PM	71	138	0	209	51	2	151	204	0	254	70	324	0	77	74	151	888
Total Volume	319	691	0	1010	198	4	511	713	0	1166	254	1420	3	276	273	552	3695
% App. Total	31.6	68.4	0		27.8	0.6	71.7		0	82.1	17.9		0.5	50	49.5		
PHF	.896	.868	.000	.928	.811	.500	.846	.874	.000	.753	.870	.772	.375	.863	.803	.914	.900

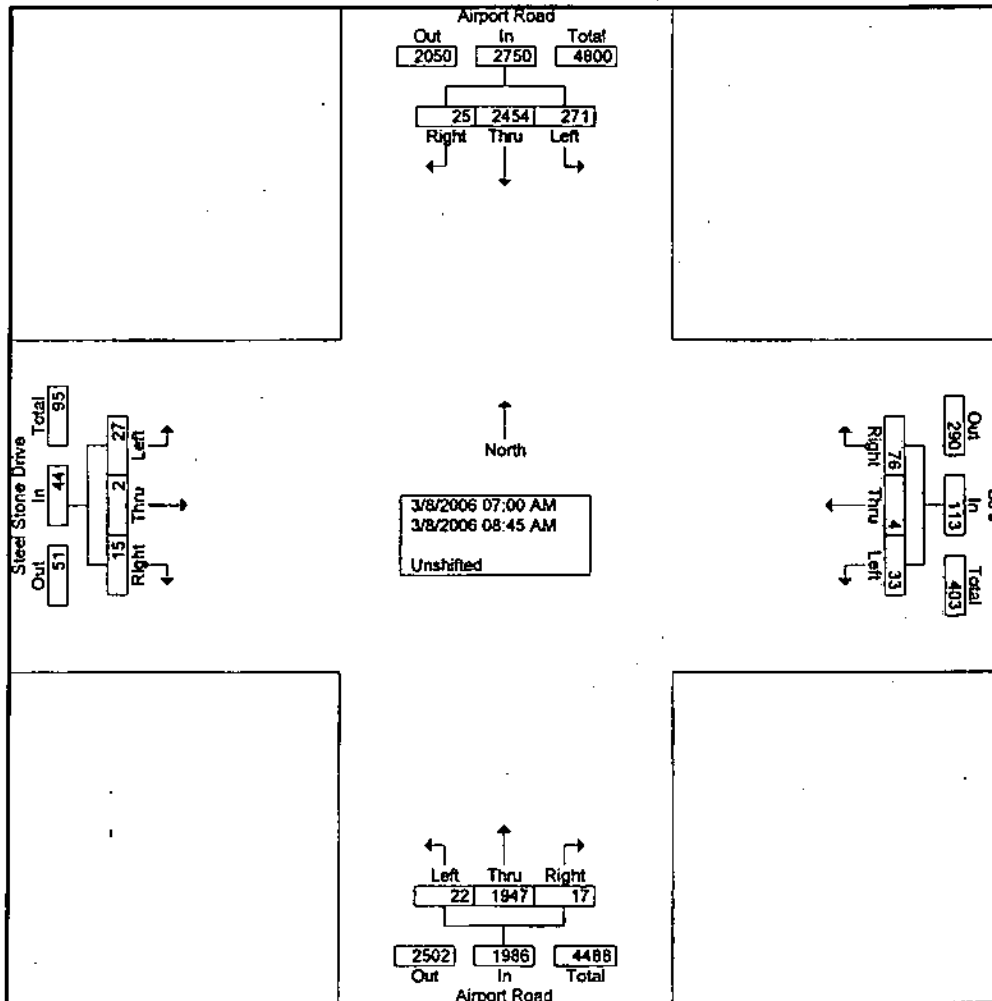


Counter: 17  
 Counted by: BBitto  
 Weather: clear  
 Saved as: AMARBJLD

File Name : AMARBJLD  
 Site Code : 00000000  
 Start Date : 3/8/2006  
 Page No : 1

Groups Printed- Unshifted

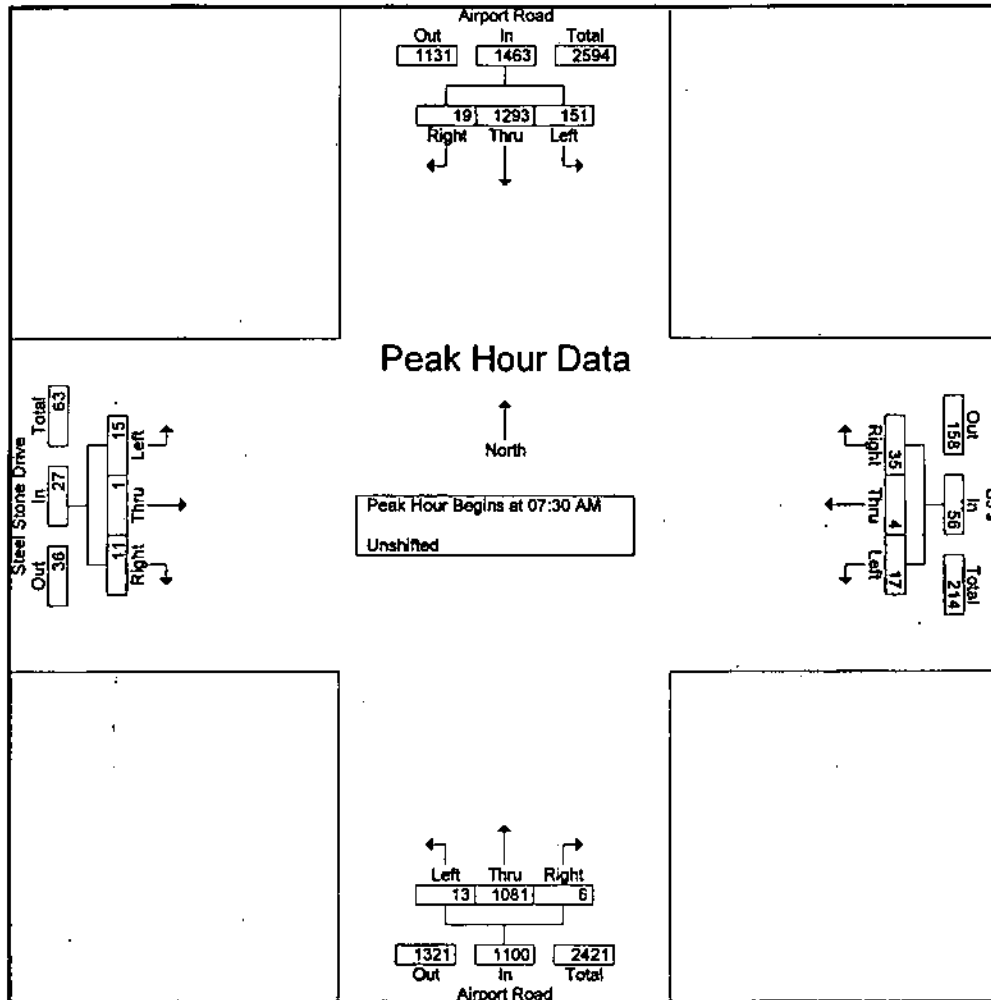
Start Time	Airport Road Southbound					BJ's Westbound					Airport Road Northbound					Steel Stone Drive Eastbound					Excl. Total	Incl. Total	Int. Total
	Left	Thru	Right	Trucks	App. Total	Left	Thru	Right	Trucks	App. Total	Left	Thru	Right	Trucks	App. Total	Left	Thru	Right	Trucks	App. Total			
07:00 AM	21	270	1	23	292	2	0	7	0	9	0	187	3	25	190	1	0	1	0	2	48	493	541
07:15 AM	33	316	0	26	349	3	0	8	1	11	4	228	0	25	232	4	0	1	1	5	53	597	650
07:30 AM	28	313	3	18	344	2	1	7	1	10	7	261	0	26	268	1	0	3	1	4	46	626	672
07:45 AM	34	356	5	15	395	5	1	10	1	16	5	313	1	43	319	3	1	4	0	8	59	738	797
<b>Total</b>	<b>116</b>	<b>1255</b>	<b>9</b>	<b>82</b>	<b>1380</b>	<b>12</b>	<b>2</b>	<b>32</b>	<b>3</b>	<b>46</b>	<b>16</b>	<b>989</b>	<b>4</b>	<b>119</b>	<b>1009</b>	<b>9</b>	<b>1</b>	<b>9</b>	<b>2</b>	<b>19</b>	<b>206</b>	<b>2454</b>	<b>2660</b>
08:00 AM	48	296	9	20	353	7	0	7	0	14	0	260	1	36	261	6	0	1	1	7	57	635	692
08:15 AM	41	328	2	26	371	3	2	11	1	16	1	247	4	31	252	5	0	3	0	8	58	647	705
08:30 AM	29	286	3	21	318	4	0	14	1	18	4	228	8	34	240	5	1	0	0	6	56	582	638
08:45 AM	37	289	2	29	328	7	0	12	1	19	1	223	0	27	224	2	0	2	0	4	57	575	632
<b>Total</b>	<b>155</b>	<b>1199</b>	<b>16</b>	<b>96</b>	<b>1370</b>	<b>21</b>	<b>2</b>	<b>44</b>	<b>3</b>	<b>67</b>	<b>6</b>	<b>958</b>	<b>13</b>	<b>128</b>	<b>977</b>	<b>18</b>	<b>1</b>	<b>6</b>	<b>1</b>	<b>25</b>	<b>228</b>	<b>2439</b>	<b>2667</b>
<b>Grand Total</b>	<b>271</b>	<b>2454</b>	<b>25</b>	<b>178</b>	<b>2750</b>	<b>33</b>	<b>4</b>	<b>76</b>	<b>6</b>	<b>113</b>	<b>22</b>	<b>1947</b>	<b>17</b>	<b>247</b>	<b>1986</b>	<b>27</b>	<b>2</b>	<b>15</b>	<b>3</b>	<b>44</b>	<b>434</b>	<b>4893</b>	<b>5327</b>
Apprch %	9.9	89.2	0.9			29.2	3.5	67.3			1.1	98	0.9			61.4	4.5	34.1					
Total %	5.5	50.2	0.5		56.2	0.7	0.1	1.6		2.3	0.4	39.8	0.3		40.6	0.6	0	0.3		0.9	8.1	91.9	



Traffic Planning and Design, Inc.  
 4647 Saucon Creek Road, Suite 201  
 Center Valley, PA 18034  
 Airport Road & Steel Stone Drive/BJ's Driveway

File Name : AMARBILD  
 Site Code : 00000000  
 Start Date : 3/8/2006  
 Page No : 2

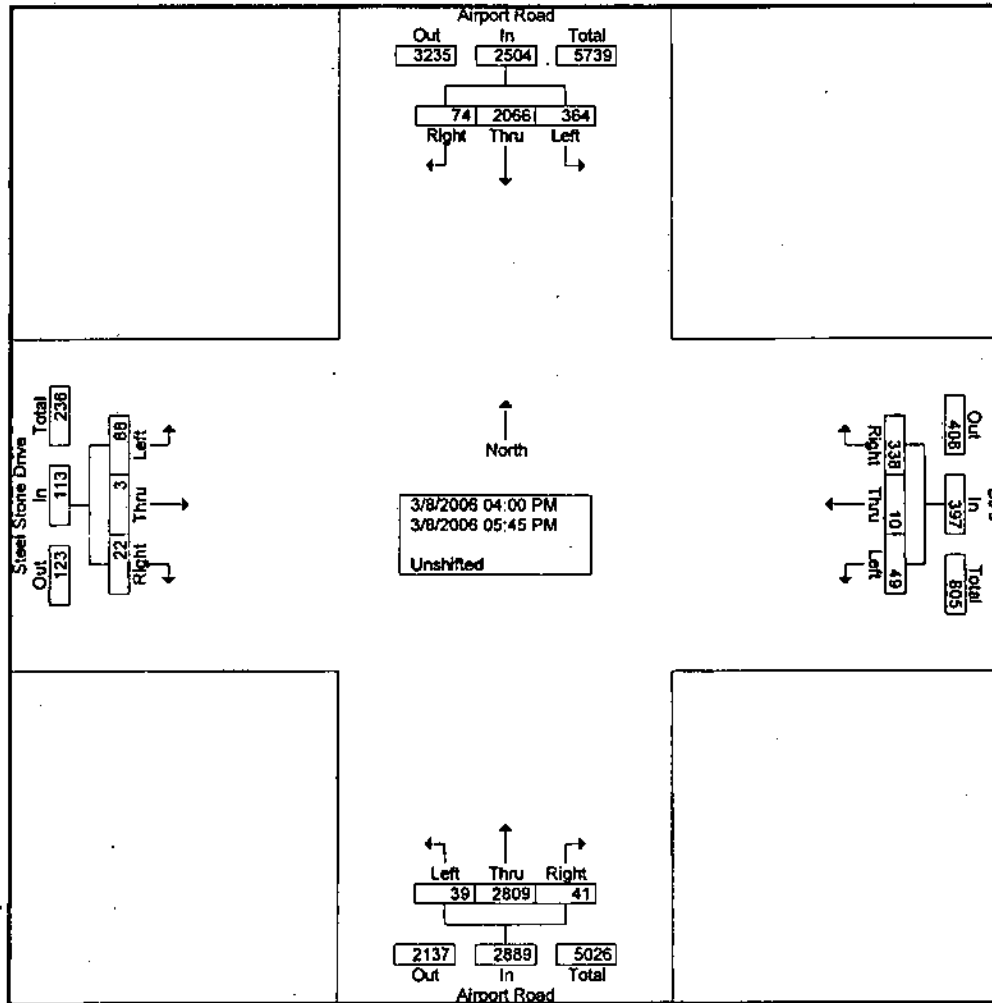
Start Time	Airport Road Southbound				BJ's Westbound				Airport Road Northbound				Steel Stone Drive Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis from 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	28	313	3	344	2	1	7	10	7	261	0	268	1	0	3	4	626
07:45 AM	34	356	5	395	5	1	10	16	5	313	1	319	3	1	4	8	738
08:00 AM	48	296	9	353	7	0	7	14	0	260	1	261	6	0	1	7	635
08:15 AM	41	328	2	371	3	2	11	16	1	247	4	252	5	0	3	8	647
Total Volume	151	1293	19	1463	17	4	35	56	13	1081	6	1100	15	1	11	27	2646
% App. Total	10.3	88.4	1.3		30.4	7.1	62.5		1.2	98.3	0.5		55.6	3.7	40.7		
PHF	.786	.908	.528	.926	.607	.500	.795	.875	.464	.863	.375	.862	.625	.250	.688	.844	.896



Counter: 17  
 Counted by: BBitto  
 Weather: clear  
 Saved as: PMARBJLD

Groups Printed- Unshifted

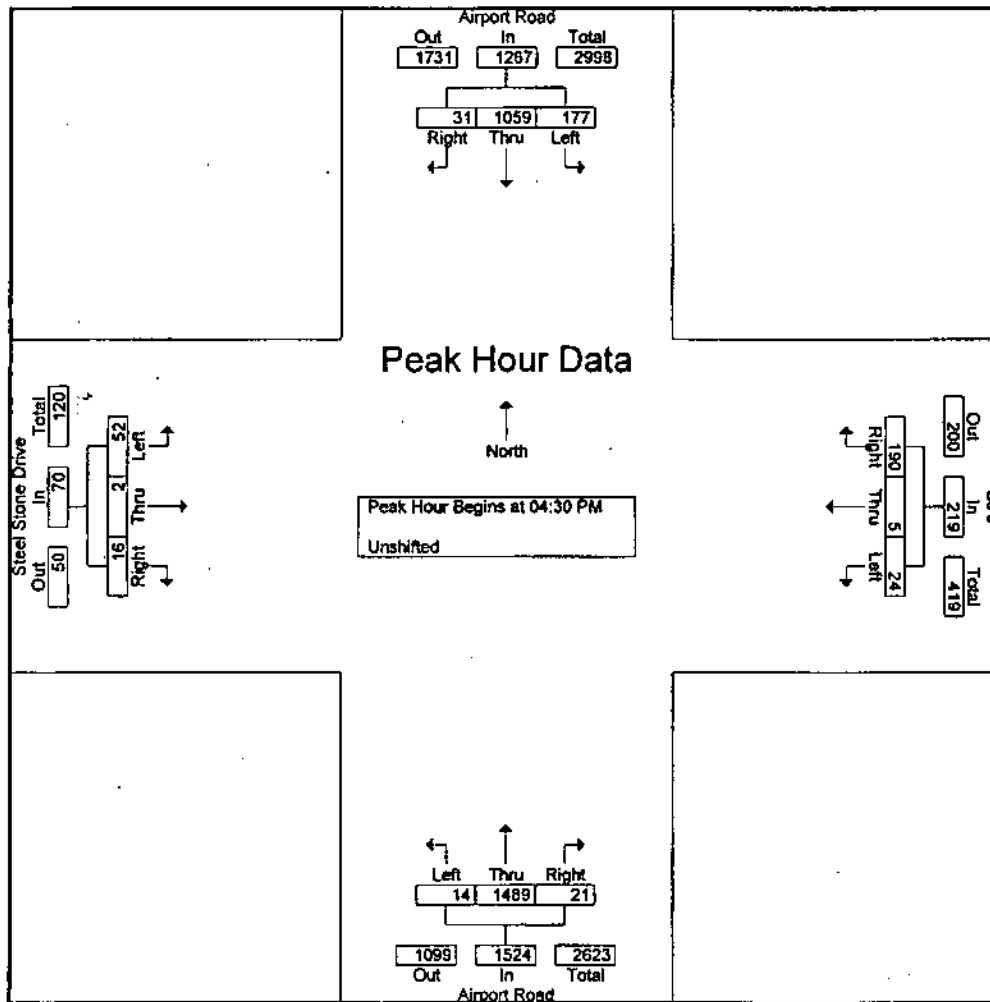
Start Time	Airport Road Southbound					BJ's Westbound					Airport Road Northbound					Steel Stone Drive Eastbound					Code Total	Incl. Total	Int. Total
	Left	Thru	Right	Trucks	App. Total	Left	Thru	Right	Trucks	App. Total	Left	Thru	Right	Trucks	App. Total	Left	Thru	Right	Trucks	App. Total			
04:00 PM	50	279	15	24	344	6	2	42	0	50	11	346	4	12	361	12	0	3	0	15	36	770	806
04:15 PM	46	232	6	24	284	8	0	43	0	51	4	352	4	7	360	6	1	1	1	8	32	703	735
04:30 PM	44	270	8	13	322	7	0	55	4	62	6	353	6	12	365	8	0	5	0	13	29	762	791
04:45 PM	50	292	9	14	351	8	2	38	0	48	3	353	5	9	361	7	1	7	0	15	23	775	798
Total	190	1073	38	75	1301	29	4	178	4	211	24	1404	19	40	1447	33	2	16	1	51	120	3010	3130
05:00 PM	38	245	10	16	293	5	2	55	0	62	2	420	5	12	427	22	1	2	0	25	28	807	835
05:15 PM	45	252	4	9	301	4	1	42	1	47	3	363	5	4	371	15	0	2	0	17	14	736	750
05:30 PM	44	253	11	18	308	7	3	31	1	41	5	336	6	6	347	11	0	1	1	12	26	708	734
05:45 PM	47	243	11	16	301	4	0	32	1	36	5	286	6	7	297	7	0	1	0	8	24	642	666
Total	174	993	36	59	1203	20	6	160	3	186	15	1405	22	29	1442	55	1	6	1	62	92	2893	2985
Grand Total	364	2066	74	134	2504	49	10	338	7	397	39	2809	41	69	2889	88	3	22	2	113	212	5903	6115
Apprch %	14.5	82.5	3			12.3	2.5	85.1			1.3	97.2	1.4			77.9	2.7	19.5					
Total %	6.2	35	1.3	42.4		0.8	0.2	5.7	6.7		0.7	47.6	0.7	48.9		1.5	0.1	0.4	1.9		3.5	96.5	



Traffic Planning and Design, Inc.  
 4647 Saucon Creek Road, Suite 201  
 Center Valley, PA 18034  
 Airport Road & Steel Stone Drive/BJ's Driveway

File Name : PMARBJLD  
 Site Code : 00000000  
 Start Date : 3/8/2006  
 Page No : 2

Start Time	Airport Road Southbound				BJ's Westbound				Airport Road Northbound				Steel Stone Drive Eastbound				Inl. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis from 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	44	270	8	322	7	0	55	62	6	353	6	365	8	0	5	13	762
04:45 PM	50	292	9	351	8	2	38	48	3	353	5	361	7	1	7	15	775
05:00 PM	38	245	10	293	5	2	55	62	2	420	5	427	22	1	2	25	807
05:15 PM	45	252	4	301	4	1	42	47	3	363	5	371	15	0	2	17	736
Total Volume	177	1059	31	1267	24	5	190	219	14	1489	21	1524	52	2	16	70	3080
% App. Total	14	83.6	2.4		11	2.3	86.8		0.9	97.7	1.4		74.3	2.9	22.9		
PHF	.885	.907	.775	.902	.750	.625	.864	.883	.583	.886	.875	.892	.591	.500	.571	.700	.954





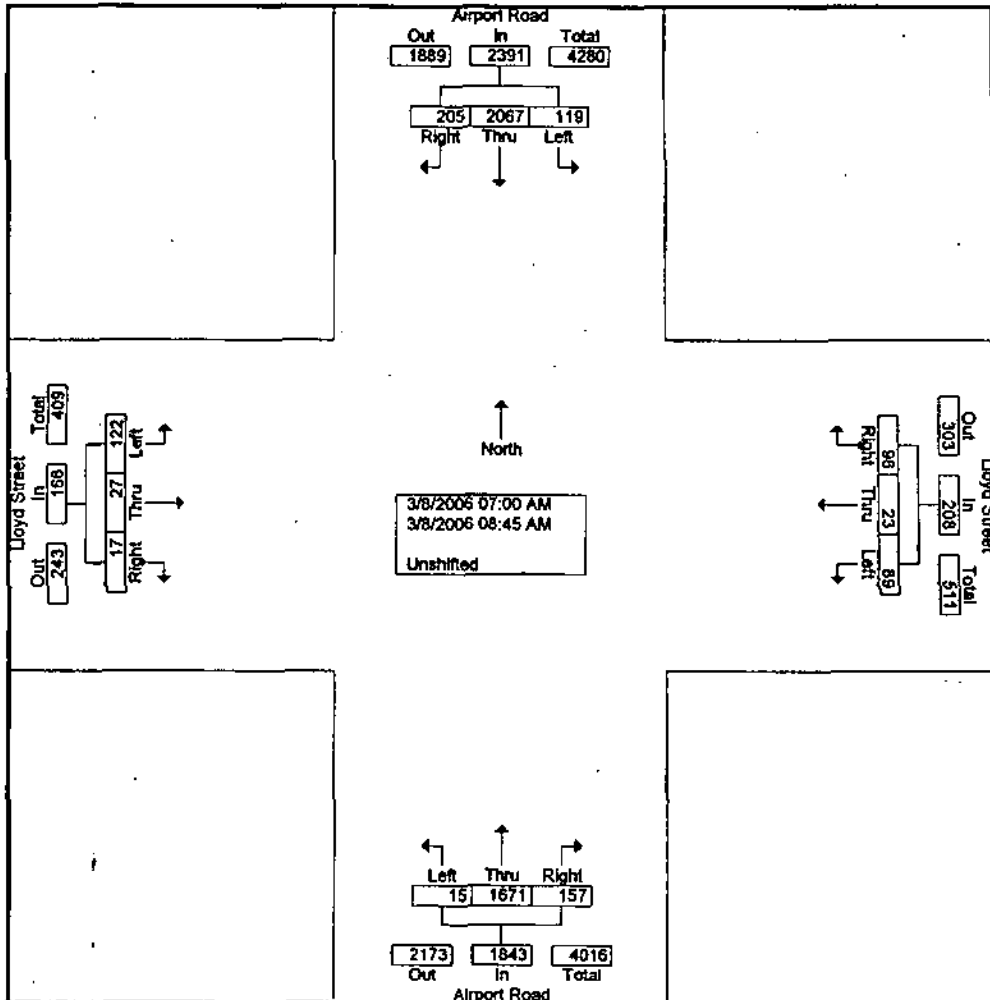
Traffic Planning & Design  
 2500 E. High Street  
 Pottstown, PA 19464  
**Airport Road & Lloyd Street**

Counter: 10  
 Counted by: J. Gabriel  
 Weather: clear  
 Saved as: AMARLS

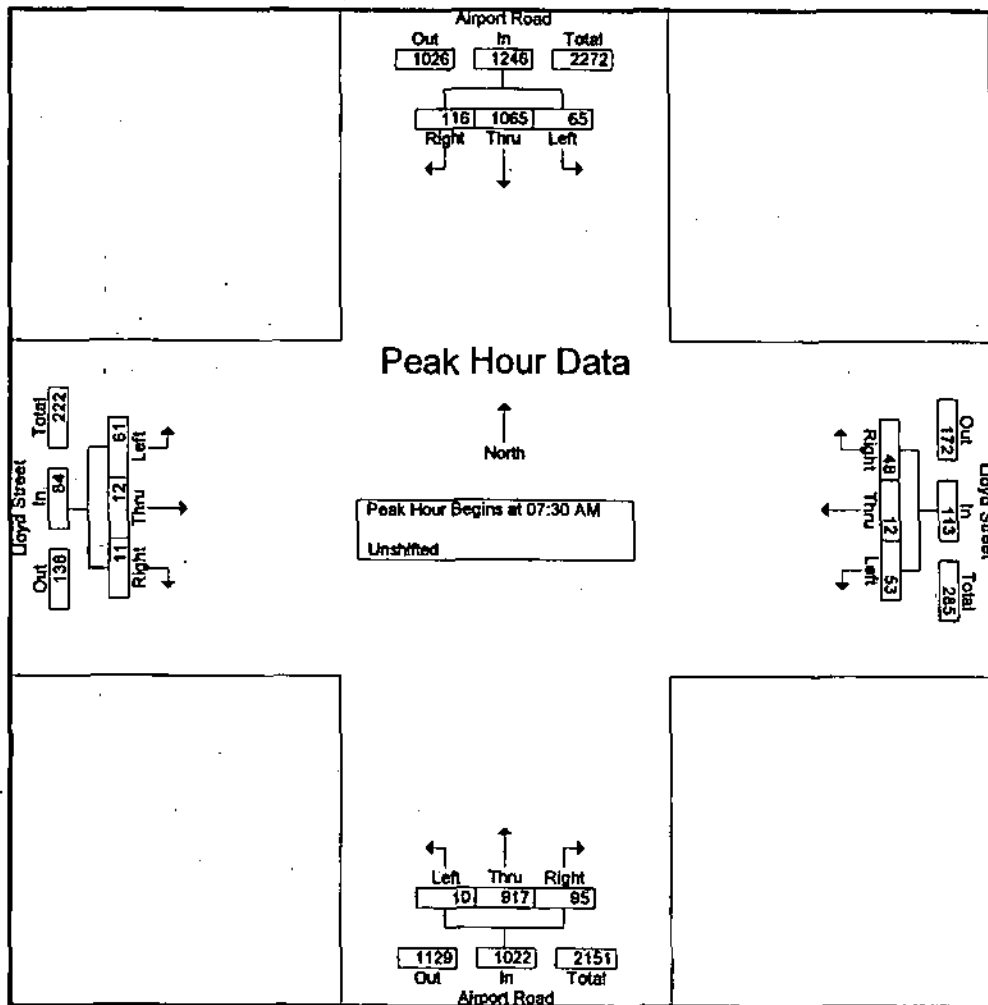
File Name : Not Named 4  
 Site Code : 00000000  
 Start Date : 3/8/2006  
 Page No : 1

**Groups Printed- Unshifted**

Start Time	Airport Road Southbound					Lloyd Street Westbound					Airport Road Northbound					Lloyd Street Eastbound					Exch. Total	Inch. Total	Int. Total
	Left	Thru	Right	Trucks	App. Total	Left	Thru	Right	Trucks	App. Total	Left	Thru	Right	Trucks	App. Total	Left	Thru	Right	Trucks	App. Total			
07:00 AM	13	241	26	24	280	10	0	16	15	26	1	171	9	30	181	19	4	1	1	24	70	511	581
07:15 AM	15	284	26	27	325	3	1	9	5	13	1	199	15	19	215	19	3	2	0	24	51	577	628
07:30 AM	16	264	34	19	314	18	3	15	12	36	2	226	19	26	247	17	4	1	1	22	58	619	677
07:45 AM	9	293	34	18	336	7	3	11	8	21	4	271	29	34	304	11	2	2	0	15	60	676	736
<b>Total</b>	<b>53</b>	<b>1082</b>	<b>120</b>	<b>88</b>	<b>1255</b>	<b>38</b>	<b>7</b>	<b>51</b>	<b>40</b>	<b>96</b>	<b>8</b>	<b>867</b>	<b>72</b>	<b>109</b>	<b>947</b>	<b>66</b>	<b>13</b>	<b>6</b>	<b>2</b>	<b>85</b>	<b>239</b>	<b>2383</b>	<b>2622</b>
08:00 AM	15	245	20	14	280	17	5	10	9	32	2	212	24	32	238	23	3	2	1	28	56	578	634
08:15 AM	25	263	28	25	316	11	1	12	7	24	2	208	23	29	233	10	3	6	1	19	62	592	654
08:30 AM	20	235	15	21	270	13	1	8	8	22	2	201	20	27	223	10	5	1	0	16	56	531	587
08:45 AM	6	242	22	25	270	10	9	15	13	34	1	183	18	22	202	13	3	2	2	18	62	524	586
<b>Total</b>	<b>66</b>	<b>985</b>	<b>85</b>	<b>85</b>	<b>1136</b>	<b>51</b>	<b>16</b>	<b>45</b>	<b>37</b>	<b>112</b>	<b>7</b>	<b>804</b>	<b>85</b>	<b>110</b>	<b>896</b>	<b>56</b>	<b>14</b>	<b>11</b>	<b>4</b>	<b>81</b>	<b>236</b>	<b>2225</b>	<b>2461</b>
<b>Grand Total</b>	<b>119</b>	<b>2067</b>	<b>205</b>	<b>173</b>	<b>2391</b>	<b>89</b>	<b>23</b>	<b>96</b>	<b>77</b>	<b>208</b>	<b>15</b>	<b>1671</b>	<b>157</b>	<b>219</b>	<b>1843</b>	<b>122</b>	<b>27</b>	<b>17</b>	<b>6</b>	<b>166</b>	<b>475</b>	<b>4608</b>	<b>5083</b>
Approch %	5	86.4	8.6			42.8	11.1	46.2			0.8	90.7	8.5			73.5	16.3	10.2					
Total %	2.6	44.9	4.4		51.9	1.9	0.5	2.1		4.5	0.3	36.3	3.4		40	2.6	0.6	0.4		3.6	9.3	90.7	



Start Time	Airport Road Southbound				Lloyd Street Westbound				Airport Road Northbound				Lloyd Street Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis from 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	16	264	34	314	18	3	15	36	2	226	19	247	17	4	1	22	619
07:45 AM	9	293	34	336	7	3	11	21	4	271	29	304	11	2	2	15	676
08:00 AM	15	245	20	280	17	5	10	32	2	212	24	238	23	3	2	28	578
08:15 AM	25	263	28	316	11	1	12	24	2	208	23	233	10	3	6	19	592
Total Volume	65	1065	116	1246	53	12	48	113	10	917	95	1022	61	12	11	84	2465
% App. Total	5.2	85.5	9.3		46.9	10.6	42.5		1	89.7	9.3		72.6	14.3	13.1		
PHF	.650	.909	.853	.927	.736	.600	.800	.785	.625	.846	.819	.840	.663	.750	.458	.750	.912



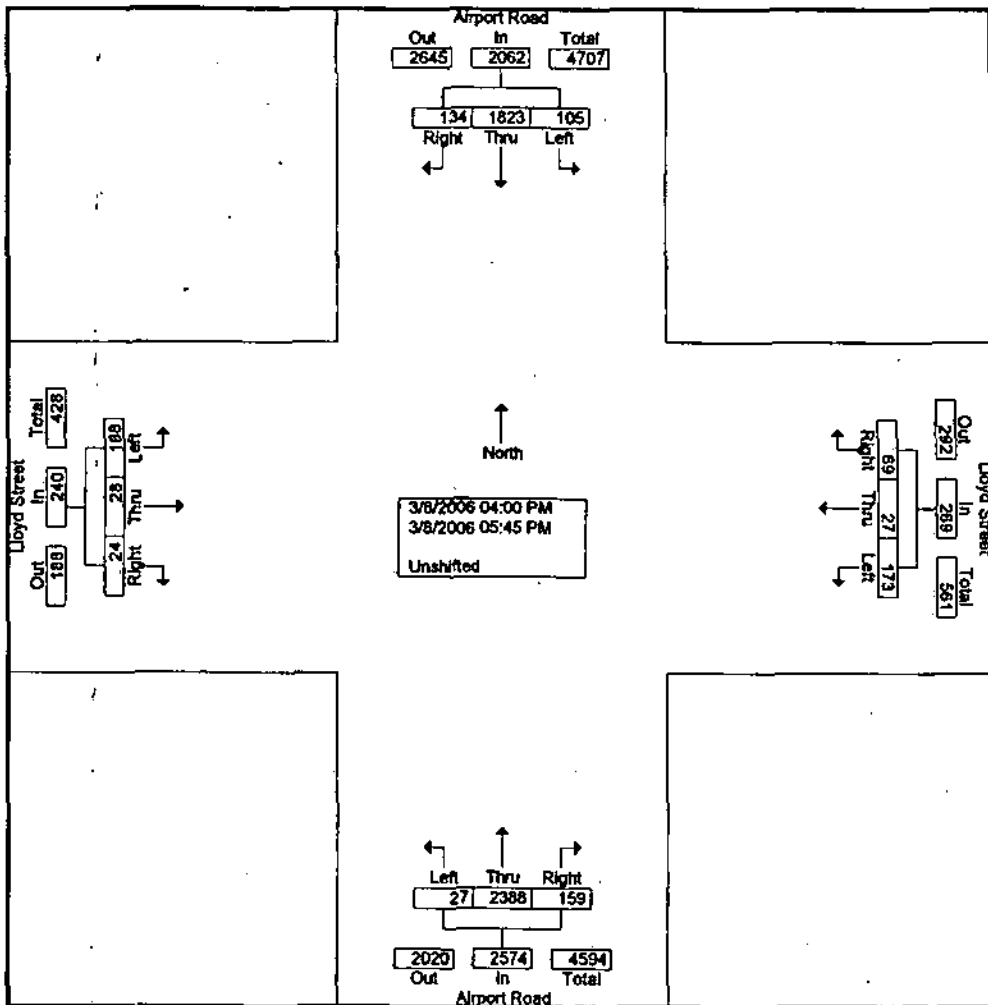
Traffic Planning & Design  
 2500 E. High Street  
 Pottstown, PA 19464  
**Airport Road & Lloyd Street**

Counter: 10  
 Counted by: J. Gabriel  
 Weather: clear  
 Saved as: PMARLS

File Name : Not Named 5  
 Site Code : 00000000  
 Start Date : 3/8/2006  
 Page No : 1

**Groups Printed- Unshifted**

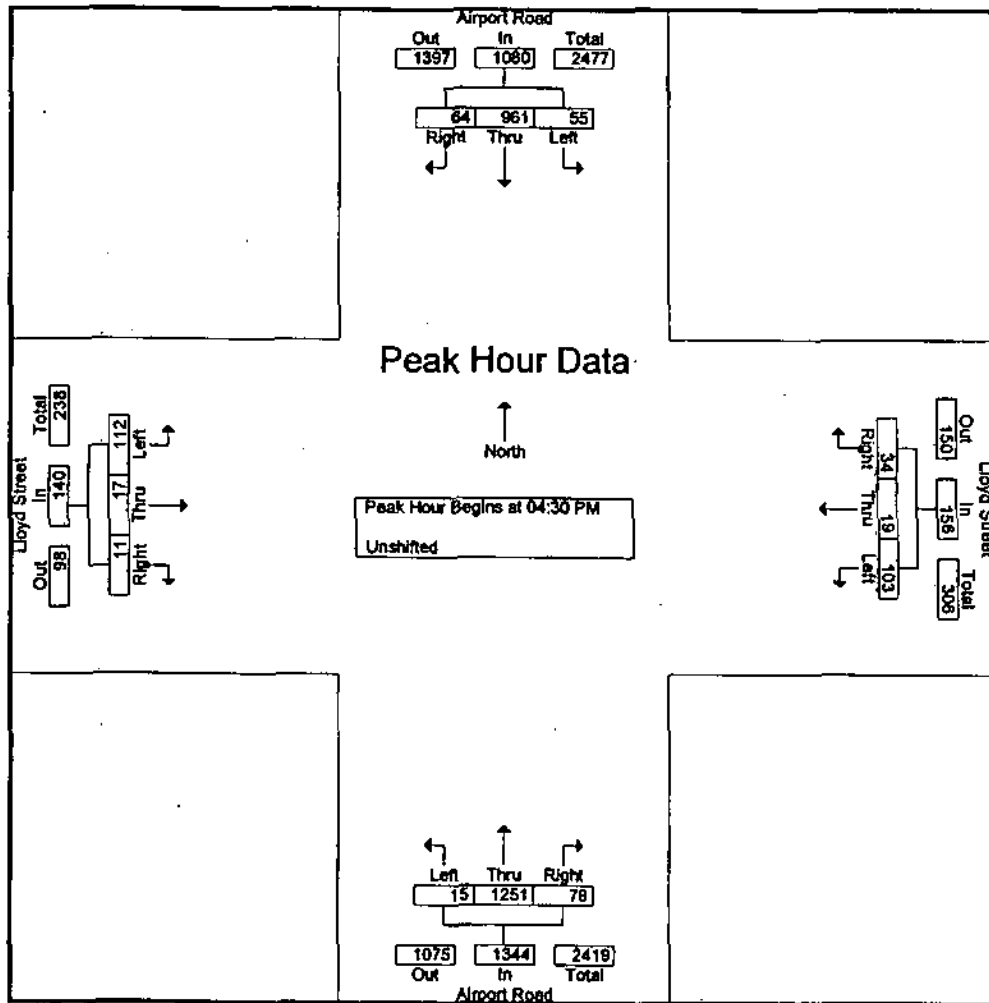
Start Time	Airport Road Southbound					Lloyd Street Westbound					Airport Road Northbound					Lloyd Street Eastbound					Ends Total	Incls. Total	Int. Total
	Left	Thru	Right	Tracks	App. Total	Left	Thru	Right	Tracks	App. Total	Left	Thru	Right	Tracks	App. Total	Left	Thru	Right	Tracks	App. Total			
04:00 PM	13	235	25	20	273	21	3	17	7	41	2	300	18	11	320	25	4	1	0	30	38	664	702
04:15 PM	10	192	21	20	223	22	1	8	5	31	3	285	18	11	306	19	2	3	0	24	36	584	620
04:30 PM	17	256	17	11	290	19	5	12	3	36	3	289	16	9	308	36	2	4	0	42	23	676	699
04:45 PM	15	242	19	16	276	22	3	8	1	33	6	323	32	9	361	17	4	0	0	21	26	691	717
<b>Total</b>	<b>55</b>	<b>925</b>	<b>82</b>	<b>67</b>	<b>1062</b>	<b>84</b>	<b>12</b>	<b>45</b>	<b>16</b>	<b>141</b>	<b>14</b>	<b>1197</b>	<b>84</b>	<b>40</b>	<b>1295</b>	<b>97</b>	<b>12</b>	<b>8</b>	<b>0</b>	<b>117</b>	<b>123</b>	<b>2615</b>	<b>2738</b>
05:00 PM	15	231	21	17	267	35	5	5	1	45	2	346	13	6	361	41	8	3	0	52	24	725	749
05:15 PM	8	232	7	10	247	27	6	9	3	42	4	293	17	10	314	18	3	4	0	25	23	628	651
05:30 PM	11	221	17	13	249	11	4	2	2	17	6	309	19	8	334	23	2	4	1	29	24	629	653
05:45 PM	16	214	7	19	237	16	0	8	1	24	1	243	26	7	270	9	3	5	0	17	27	548	575
<b>Total</b>	<b>50</b>	<b>898</b>	<b>52</b>	<b>59</b>	<b>1000</b>	<b>89</b>	<b>15</b>	<b>24</b>	<b>7</b>	<b>128</b>	<b>13</b>	<b>1191</b>	<b>75</b>	<b>31</b>	<b>1279</b>	<b>91</b>	<b>16</b>	<b>16</b>	<b>1</b>	<b>123</b>	<b>98</b>	<b>2530</b>	<b>2628</b>
<b>Grand Total</b>	<b>105</b>	<b>1823</b>	<b>134</b>	<b>126</b>	<b>2062</b>	<b>173</b>	<b>27</b>	<b>69</b>	<b>23</b>	<b>269</b>	<b>27</b>	<b>2388</b>	<b>159</b>	<b>71</b>	<b>2574</b>	<b>188</b>	<b>28</b>	<b>24</b>	<b>1</b>	<b>240</b>	<b>221</b>	<b>5145</b>	<b>5366</b>
<b>Apprch %</b>	<b>5.1</b>	<b>88.4</b>	<b>6.5</b>			<b>64.3</b>	<b>10</b>	<b>25.7</b>			<b>1</b>	<b>92.8</b>	<b>6.2</b>			<b>78.3</b>	<b>11.7</b>	<b>10</b>					
<b>Total %</b>	<b>2</b>	<b>35.4</b>	<b>2.6</b>		<b>40.1</b>	<b>3.4</b>	<b>0.5</b>	<b>1.3</b>		<b>5.2</b>	<b>0.5</b>	<b>46.4</b>	<b>3.1</b>		<b>50</b>	<b>3.7</b>	<b>0.5</b>	<b>0.5</b>		<b>4.7</b>	<b>4.1</b>	<b>95.9</b>	



Traffic Planning & Design  
 2500 E. High Street  
 Pottstown, PA 19464  
**Airport Road & Lloyd Street**

File Name : Not Named 5  
 Site Code : 00000000  
 Start Date : 3/8/2006  
 Page No : 2

Start Time	Airport Road Southbound				Lloyd Street Westbound				Airport Road Northbound				Lloyd Street Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis from 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	17	256	17	290	19	5	12	36	3	289	16	308	36	2	4	42	676
04:45 PM	15	242	19	276	22	3	8	33	6	323	32	361	17	4	0	21	691
05:00 PM	15	231	21	267	35	5	5	45	2	346	13	361	41	8	3	52	725
05:15 PM	8	232	7	247	27	6	9	42	4	293	17	314	18	3	4	25	628
Total Volume	55	961	64	1080	103	19	34	156	15	1251	78	1344	112	17	11	140	2720
% App. Total	5.1	89	5.9		66	12.2	21.8		1.1	93.1	5.8		80	12.1	7.9		
PHF	.809	.938	.762	.931	.736	.792	.708	.867	.625	.904	.609	.931	.683	.531	.688	.673	.938



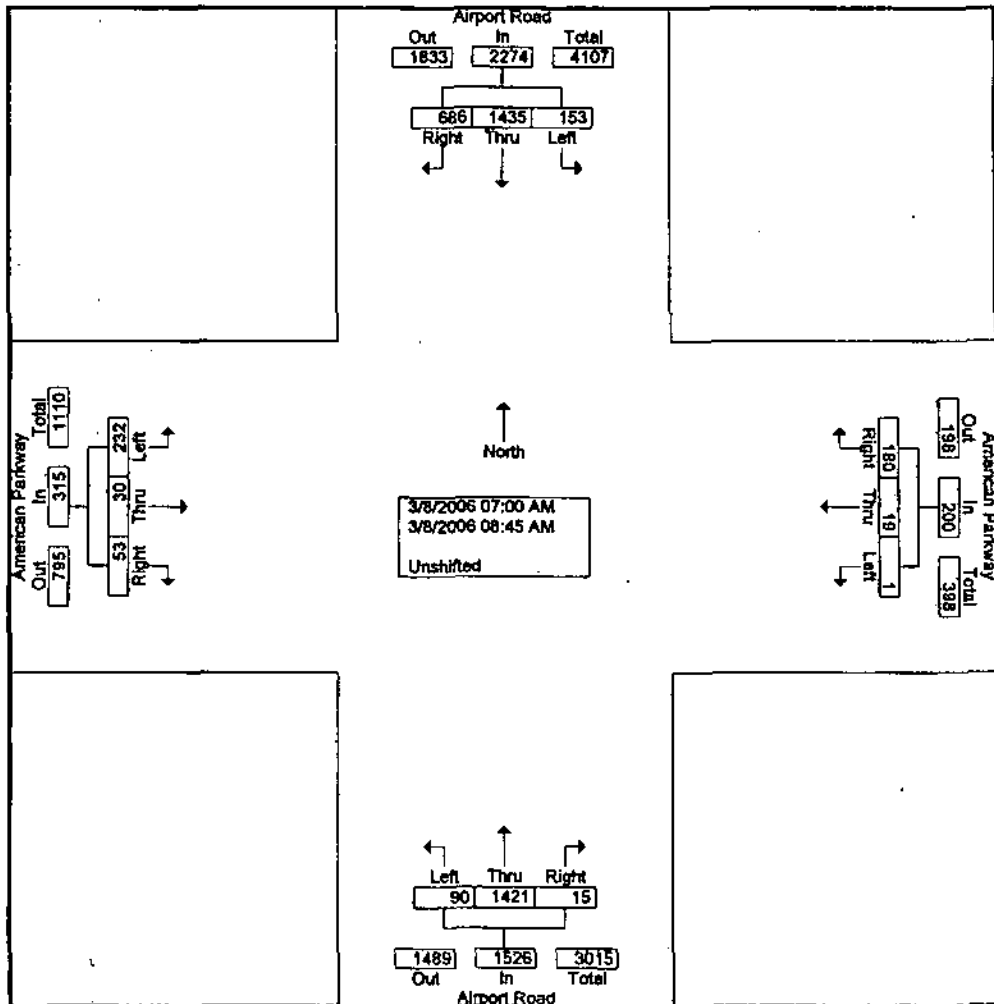
Airport Road & American Parkway

Counter: 17  
 Counted by: Rumbaugh  
 Weather: clear  
 Saved as: AMARAP

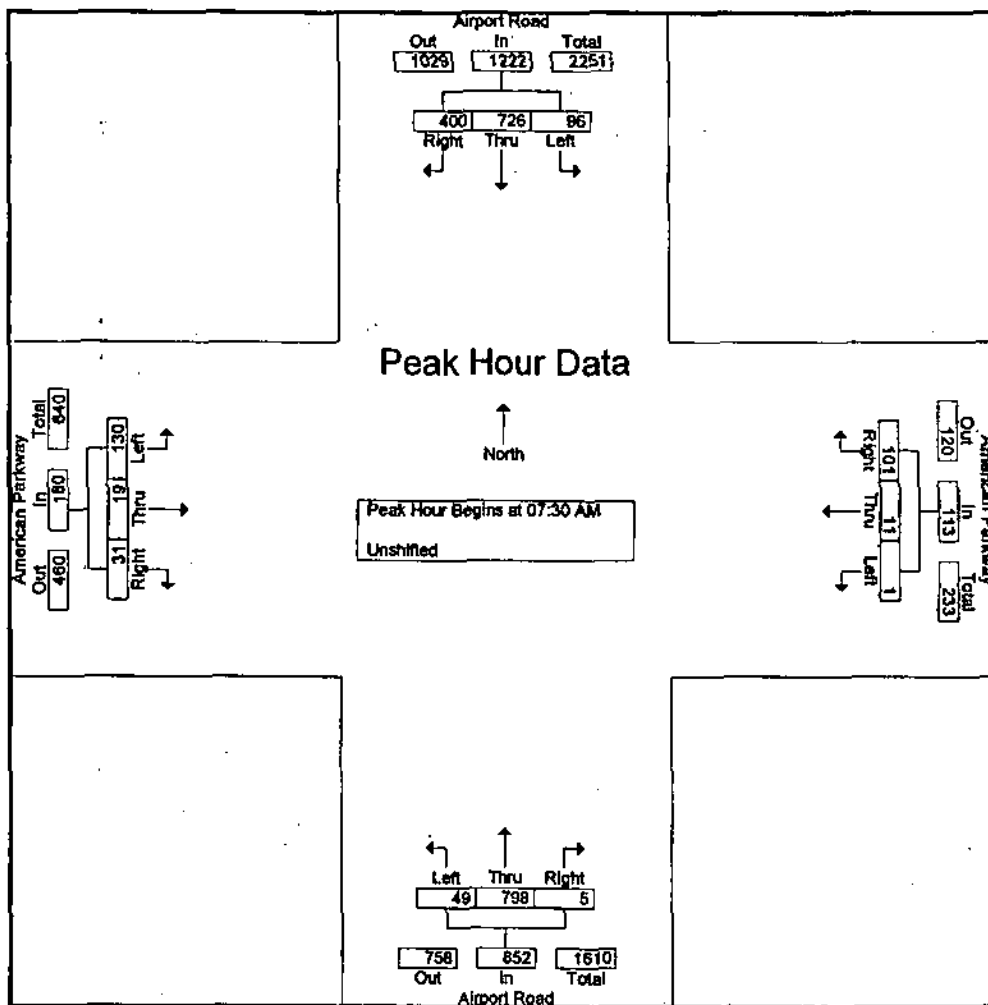
File Name : Not Named 9  
 Site Code : 00000000  
 Start Date : 3/8/2006  
 Page No : 1

Groups Printed- Unshifted

Start Time	Airport Road Southbound					American Parkway Westbound					Airport Road Northbound					American Parkway Eastbound					Ind. Total	Ind. Total	Int. Total
	Left	Thru	Right	Trucks	App. Total	Left	Thru	Right	Trucks	App. Total	Left	Thru	Right	Trucks	App. Total	Left	Thru	Right	Trucks	App. Total			
07:00 AM	19	191	43	19	253	0	0	16	6	16	4	130	4	15	138	16	1	4	5	21	45	428	473
07:15 AM	16	182	68	20	266	0	2	17	3	19	12	166	1	14	179	29	6	8	10	43	47	507	554
07:30 AM	22	194	92	24	308	0	5	34	3	39	13	177	2	22	192	24	5	7	4	36	53	575	628
07:45 AM	38	185	95	18	318	0	2	29	4	31	14	233	2	28	249	41	4	12	10	57	60	655	715
<b>Total</b>	<b>95</b>	<b>752</b>	<b>298</b>	<b>81</b>	<b>1145</b>	<b>0</b>	<b>9</b>	<b>96</b>	<b>16</b>	<b>105</b>	<b>43</b>	<b>706</b>	<b>9</b>	<b>79</b>	<b>758</b>	<b>110</b>	<b>16</b>	<b>31</b>	<b>29</b>	<b>157</b>	<b>205</b>	<b>2165</b>	<b>2370</b>
08:00 AM	19	181	103	15	303	1	2	18	3	21	11	212	1	30	224	36	5	4	4	45	52	593	645
08:15 AM	17	166	110	17	293	0	2	20	4	22	11	176	0	24	187	29	5	8	2	42	47	544	591
08:30 AM	10	171	78	18	259	0	3	24	5	27	12	177	2	25	191	29	3	3	5	35	53	512	565
08:45 AM	12	165	97	25	274	0	3	22	5	25	13	150	3	13	166	28	1	7	7	36	50	501	551
<b>Total</b>	<b>58</b>	<b>683</b>	<b>388</b>	<b>75</b>	<b>1129</b>	<b>1</b>	<b>10</b>	<b>84</b>	<b>17</b>	<b>95</b>	<b>47</b>	<b>715</b>	<b>6</b>	<b>92</b>	<b>768</b>	<b>122</b>	<b>14</b>	<b>22</b>	<b>18</b>	<b>158</b>	<b>202</b>	<b>2150</b>	<b>2352</b>
<b>Grand Total</b>	<b>153</b>	<b>1435</b>	<b>686</b>	<b>156</b>	<b>2274</b>	<b>1</b>	<b>19</b>	<b>180</b>	<b>33</b>	<b>200</b>	<b>90</b>	<b>1421</b>	<b>15</b>	<b>171</b>	<b>1526</b>	<b>232</b>	<b>30</b>	<b>53</b>	<b>47</b>	<b>315</b>	<b>407</b>	<b>4315</b>	<b>4722</b>
<b>Apprch %</b>	<b>6.7</b>	<b>63.1</b>	<b>30.2</b>			<b>0.5</b>	<b>9.5</b>	<b>90</b>			<b>5.9</b>	<b>93.1</b>	<b>1</b>			<b>73.7</b>	<b>9.5</b>	<b>16.8</b>					
<b>Total %</b>	<b>3.5</b>	<b>33.3</b>	<b>15.9</b>		<b>52.7</b>	<b>0</b>	<b>0.4</b>	<b>4.2</b>		<b>4.6</b>	<b>2.1</b>	<b>32.9</b>	<b>0.3</b>		<b>35.4</b>	<b>5.4</b>	<b>0.7</b>	<b>1.2</b>		<b>7.3</b>	<b>8.6</b>	<b>91.4</b>	



Start Time	Airport Road Southbound				American Parkway Westbound				Airport Road Northbound				American Parkway Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	22	194	92	308	0	5	34	39	13	177	2	192	24	5	7	36	575
07:45 AM	38	185	95	318	0	2	29	31	14	233	2	249	41	4	12	57	655
08:00 AM	19	181	103	303	1	2	18	21	11	212	1	224	36	5	4	45	593
08:15 AM	17	166	110	293	0	2	20	22	11	176	0	187	29	5	8	42	544
Total Volume	96	726	400	1222	1	11	101	113	49	798	5	852	130	19	31	180	2367
% App. Total	7.9	59.4	32.7		0.9	9.7	89.4		5.8	93.7	0.6		72.2	10.6	17.2		
PHF	.632	.936	.909	.961	.250	.550	.743	.724	.875	.856	.625	.855	.793	.950	.646	.789	.903



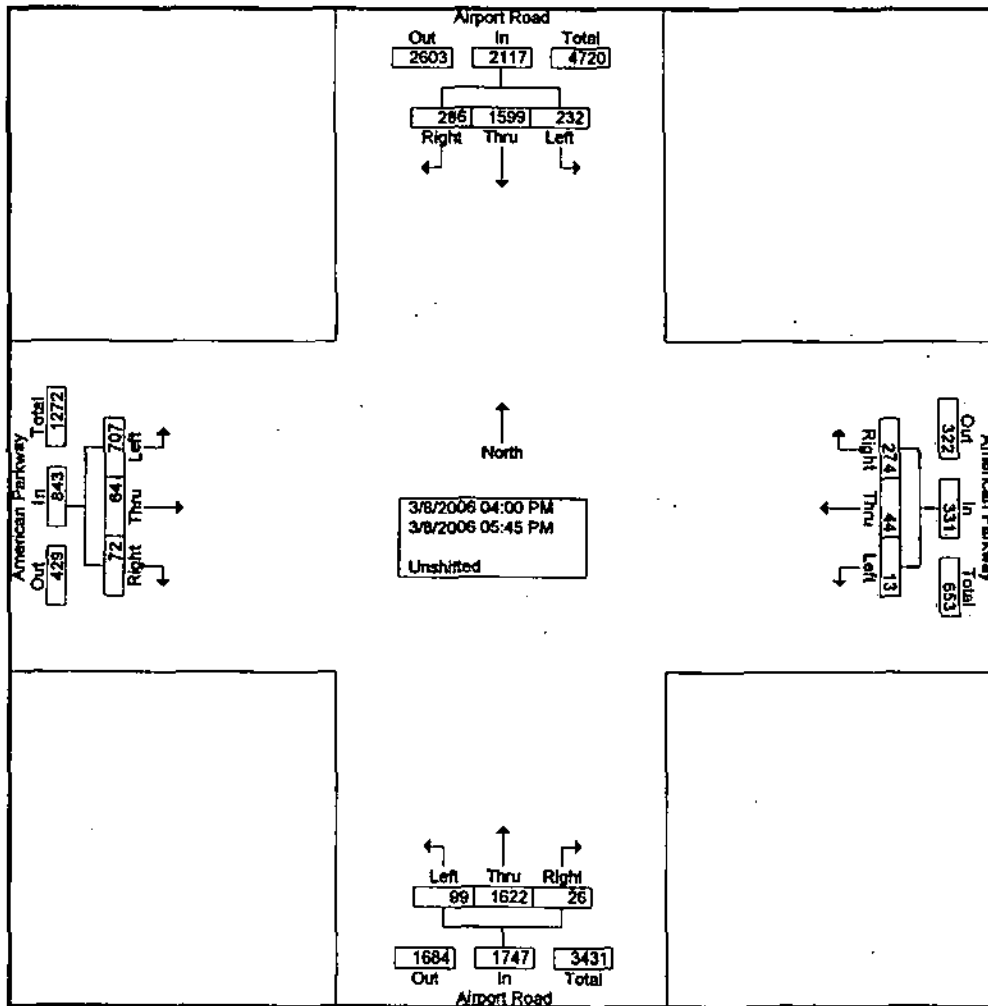
Airport Road & American Parkway

Counter: 1  
 Counted by: LMacDonald  
 Weather: clear  
 Saved as: PMARAP

File Name : Not Named 10  
 Site Code : 00001234  
 Start Date : 3/8/2006  
 Page No : 1

Groups Printed- Unshifted

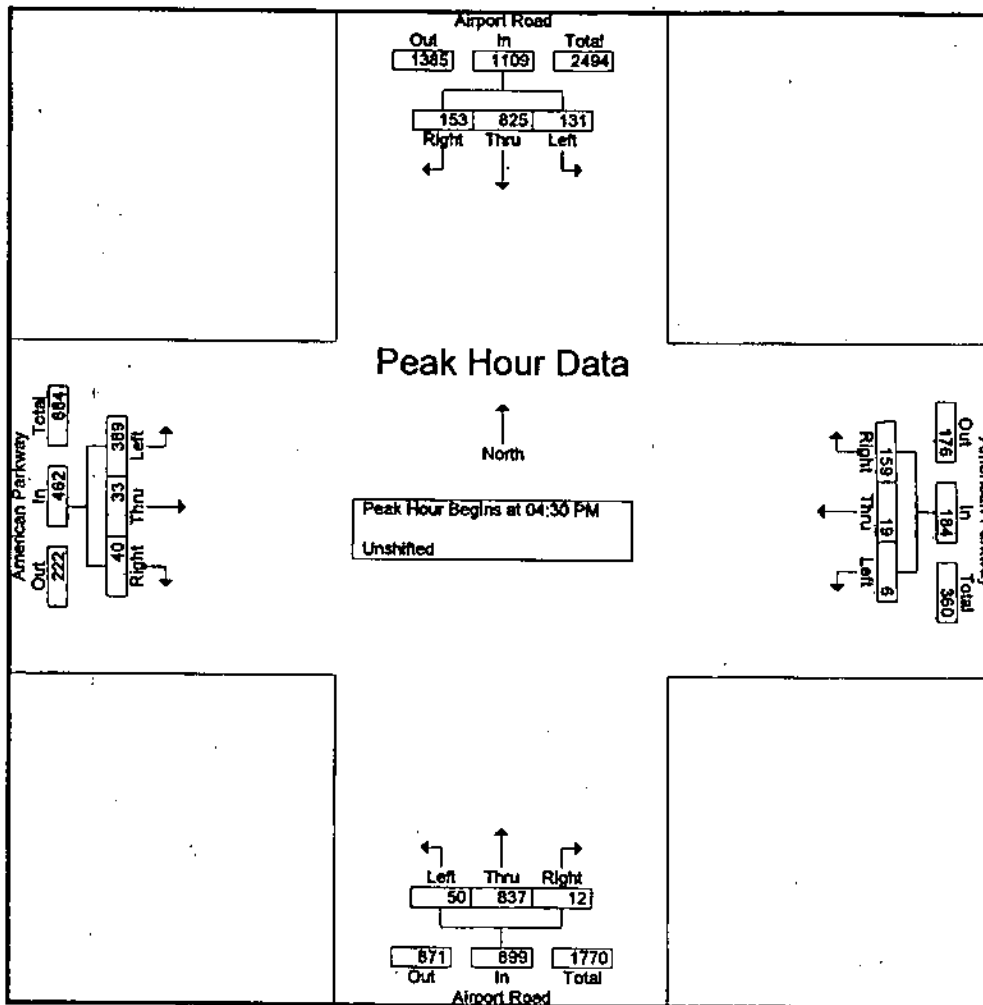
Start Time	Airport Road Southbound					American Parkway Westbound					Airport Road Northbound					American Parkway Eastbound					Leads Total	Vehs. Total	Est. Total
	Left	Thru	Right	Trucks	App. Total	Left	Thru	Right	Trucks	App. Total	Left	Thru	Right	Trucks	App. Total	Left	Thru	Right	Trucks	App. Total			
04:00 PM	35	214	43	11	292	2	13	30	0	45	18	225	6	4	249	62	9	8	1	79	16	665	681
04:15 PM	24	164	32	13	220	2	6	33	0	41	9	197	6	6	212	70	7	12	0	89	19	562	581
04:30 PM	36	220	35	8	291	0	5	49	1	54	7	214	4	7	225	84	11	8	1	103	17	673	690
04:45 PM	34	213	42	7	289	2	4	30	1	36	15	206	4	2	225	93	5	14	3	112	13	662	675
Total	129	811	152	39	1092	6	28	142	2	176	49	842	20	19	911	309	32	42	5	383	65	2562	2627
05:00 PM	29	181	36	4	246	2	6	46	1	54	16	221	4	8	241	112	7	8	0	127	13	668	681
05:15 PM	32	211	40	5	283	2	4	34	0	40	12	196	0	3	208	100	10	10	1	120	9	651	660
05:30 PM	18	201	31	8	250	1	4	31	0	36	13	188	1	4	202	105	12	2	0	119	12	607	619
05:45 PM	24	195	27	12	246	2	2	21	0	25	9	175	1	0	185	81	3	10	3	94	15	550	565
Total	103	788	134	29	1025	7	16	132	1	155	50	780	6	15	836	398	32	30	4	460	49	2476	2525
Grand Total	232	1599	286	68	2117	13	44	274	3	331	99	1622	26	34	1747	707	64	72	9	843	114	5038	5152
Approch %	11	75.5	13.5			3.9	13.3	82.8			5.7	92.8	1.5			83.9	7.6	8.5					
Total %	4.6	31.7	5.7			0.3	0.9	5.4			2	32.2	0.5			34.7	14	1.3	1.4		16.7	2.2	97.8



Traffic Planning & Design  
 2500 E. High Street  
 Pottstown, PA 19464  
**Airport Road & American Parkway**

File Name : Not Named 10  
 Site Code : 00001234  
 Start Date : 3/8/2006  
 Page No : 2

Start Time	Airport Road Southbound				American Parkway Westbound				Airport Road Northbound				American Parkway Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis from 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	36	220	35	291	0	5	49	54	7	214	4	225	84	11	8	103	673
04:45 PM	34	213	42	289	2	4	30	36	15	206	4	225	93	5	14	112	662
05:00 PM	29	181	36	246	2	6	46	54	16	221	4	241	112	7	8	127	668
05:15 PM	32	211	40	283	2	4	34	40	12	196	0	208	100	10	10	120	651
Total Volume	131	825	153	1109	6	19	159	184	50	837	12	899	389	33	40	462	2654
% App. Total	11.8	74.4	13.8		3.3	10.3	86.4		5.6	93.1	1.3		84.2	7.1	8.7		
PHF	.910	.938	.911	.953	.750	.792	.811	.852	.781	.947	.750	.933	.868	.750	.714	.909	.986





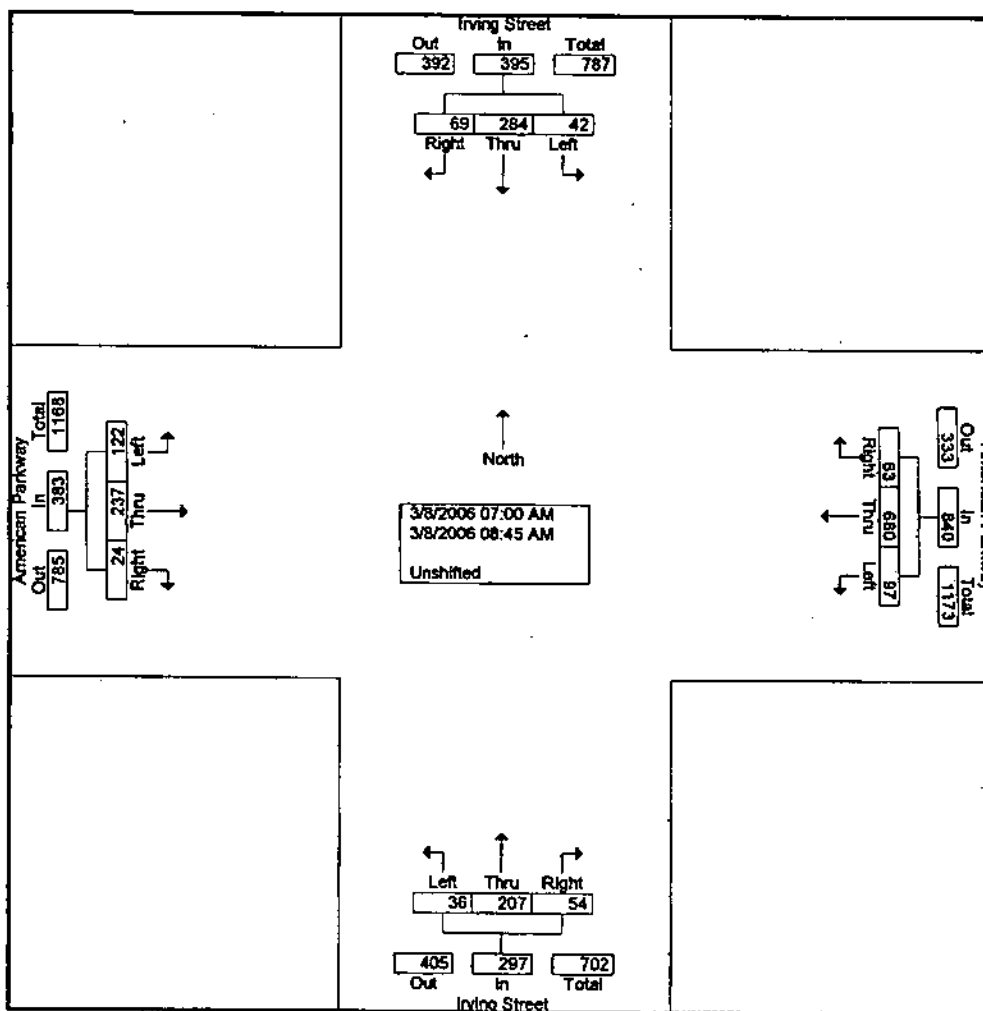
Traffic Planning & Design  
 2500 E. High Street  
 Pottstown, PA 19464  
**Irving Street & American Parkway**

Counter: 5  
 Counted by: TPlociniak  
 Weather: clear  
 Saved as: AMISAP

File Name : Not Named :  
 Site Code : 00000000  
 Start Date : 3/8/2006  
 Page No : 1

**Groups Printed- Unshifted**

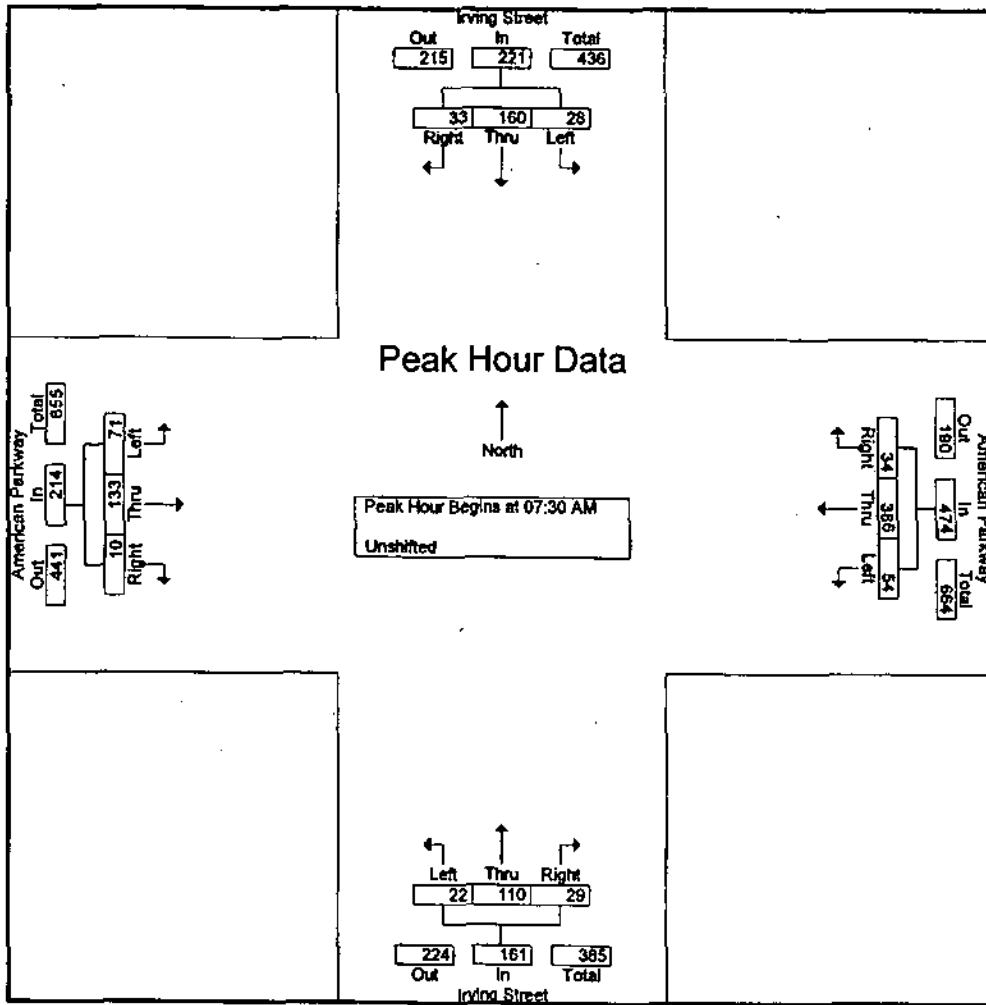
Start Time	Irving Street Southbound					American Parkway Westbound					Irving Street Northbound					American Parkway Eastbound					Leads Total	Veh. Total	Int. Total
	Left	Thru	Right	Trucks	App. Total	Left	Thru	Right	Trucks	App. Total	Left	Thru	Right	Trucks	App. Total	Left	Thru	Right	Trucks	App. Total			
07:00 AM	3	41	7	4	51	12	54	3	2	69	4	27	3	2	34	10	26	5	6	41	14	195	209
07:15 AM	2	32	5	1	39	16	68	5	6	89	3	23	6	3	32	10	30	4	3	44	13	204	217
07:30 AM	8	46	7	4	61	10	85	11	3	106	4	29	5	1	38	14	31	2	2	47	10	252	262
07:45 AM	6	47	9	3	62	12	96	10	1	118	7	30	7	2	44	23	42	3	4	68	10	292	302
<b>Total</b>	19	166	28	12	213	50	303	29	12	382	18	109	21	8	148	57	129	14	15	200	47	943	990
08:00 AM	7	29	7	4	43	15	99	6	2	120	6	32	8	5	46	24	30	4	0	58	11	267	278
08:15 AM	7	38	10	4	55	17	106	7	4	130	5	19	9	1	33	10	30	1	1	41	10	259	269
08:30 AM	2	27	14	1	43	8	82	12	3	102	3	18	7	2	28	14	24	1	2	39	8	212	220
08:45 AM	7	24	10	2	41	7	90	9	4	106	4	29	9	5	42	17	24	4	2	45	13	234	247
<b>Total</b>	23	118	41	11	182	47	377	34	13	458	18	98	33	13	149	65	108	10	5	183	42	972	1014
<b>Grand Total</b>	42	284	69	23	395	97	680	63	25	840	36	207	54	21	297	122	237	24	20	383	89	1915	2004
<b>Approch %</b>	10.6	71.9	17.5			11.5	81	7.5			12.1	69.7	18.2			31.9	61.9	6.3					
<b>Total %</b>	2.2	14.8	3.6	20.6		5.1	35.5	3.3	43.9		1.9	10.8	2.8	15.5		6.4	12.4	1.3	20		4.4	95.6	



Traffic Planning & Design  
 2500 E. High Street  
 Pottstown, PA 19464  
**Irving Street & American Parkway**

File Name : Not Named 2  
 Site Code : 00000000  
 Start Date : 3/8/2006  
 Page No : 2

Start Time	Irving Street Southbound				American Parkway Westbound				Irving Street Northbound				American Parkway Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis from 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	8	46	7	61	10	85	11	106	4	29	5	38	14	31	2	47	252
07:45 AM	6	47	9	62	12	96	10	118	7	30	7	44	23	42	3	68	292
08:00 AM	7	29	7	43	15	99	6	120	6	32	8	46	24	30	4	58	267
08:15 AM	7	38	10	55	17	106	7	130	5	19	9	33	10	30	1	41	259
Total Volume	28	160	33	221	54	386	34	474	22	110	29	161	71	133	10	214	1070
% App. Total	12.7	72.4	14.9		11.4	81.4	7.2		13.7	68.3	18		33.2	62.1	4.7		
PHF	.875	.851	.825	.891	.794	.910	.773	.912	.786	.859	.806	.875	.740	.792	.625	.787	.916

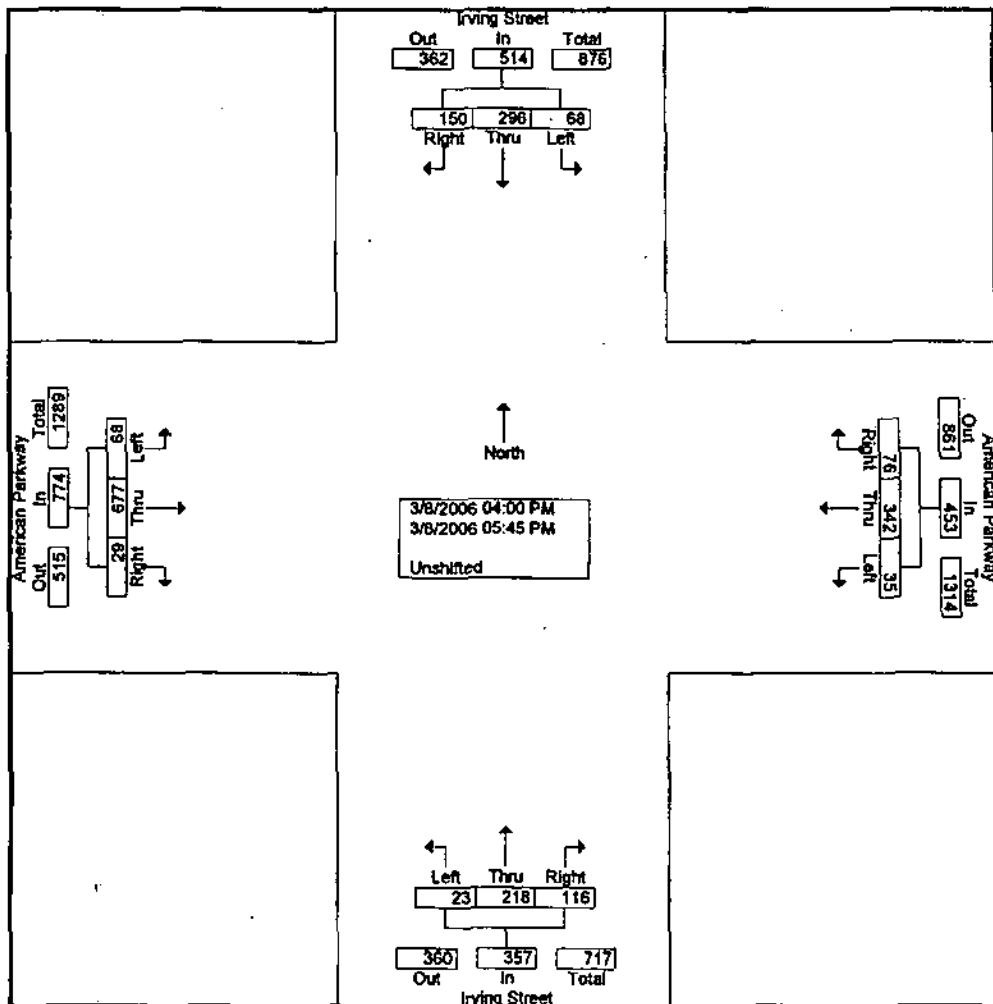


Irving Street & American Parkway

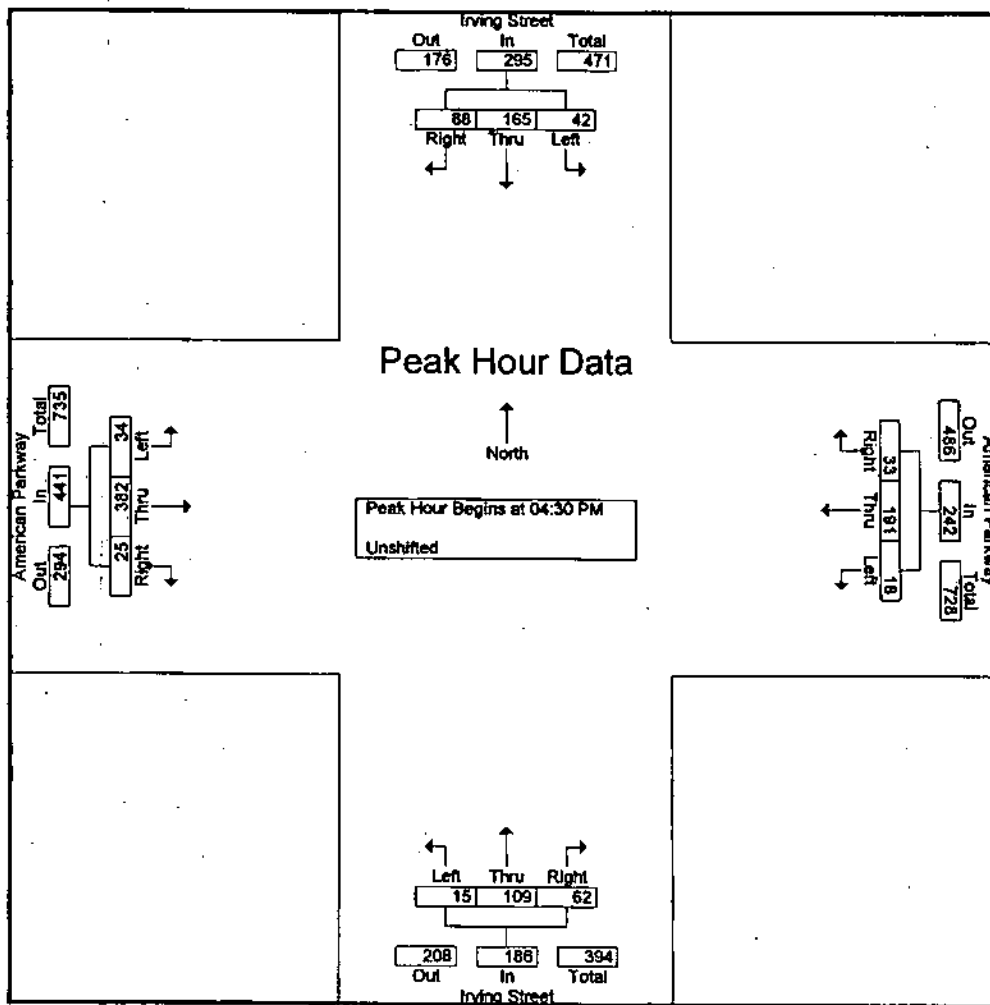
Counter: 5  
 Counted by: TPlociniak  
 Weather: clear  
 Saved as: PMISAP

Groups Printed- Unshifted

Start Time	Irving Street Southbound					American Parkway Westbound					Irving Street Northbound					American Parkway Eastbound					Exch. Total	Inch. Total	Int. Total
	Left	Thru	Right	Trucks	App. Total	Left	Thru	Right	Trucks	App. Total	Left	Thru	Right	Trucks	App. Total	Left	Thru	Right	Trucks	App. Total			
04:00 PM	7	42	19	2	68	5	50	21	4	76	3	36	16	2	55	10	65	1	1	76	9	275	284
04:15 PM	6	29	13	2	48	1	38	11	1	50	3	32	12	0	47	11	58	0	1	69	4	214	218
04:30 PM	11	40	22	2	73	7	38	9	3	54	4	36	20	0	60	13	83	5	0	101	5	288	293
04:45 PM	8	42	20	1	70	3	46	13	3	62	4	26	15	3	45	5	85	5	1	95	8	272	280
Total	32	153	74	7	259	16	172	54	11	242	14	130	63	5	207	39	291	11	3	341	26	1049	1075
05:00 PM	14	55	28	0	97	4	56	3	2	63	5	26	15	0	46	9	109	8	1	126	3	332	335
05:15 PM	9	28	18	0	55	4	51	8	5	63	2	21	12	1	35	7	105	7	1	119	7	272	279
05:30 PM	5	29	17	1	51	6	37	8	4	51	2	21	9	2	32	7	96	2	0	105	7	239	246
05:45 PM	8	31	13	0	52	5	26	3	2	34	0	20	17	5	37	6	76	1	1	83	8	206	214
Total	36	143	76	1	255	19	170	22	13	211	9	88	53	8	150	29	386	18	3	433	25	1049	1074
Grand Total	68	296	150	8	514	35	342	76	24	453	23	218	116	13	357	68	677	29	6	774	51	2098	2149
Approch %	13.2	57.6	29.2			7.7	75.5	16.8			6.4	61.1	32.5			8.8	87.5	3.7					
Total %	3.2	14.1	7.1		24.5	1.7	16.3	3.6		21.6	1.1	10.4	5.5		17	3.2	32.3	1.4		36.9		2.4	97.6



Start Time	Irving Street Southbound				American Parkway Westbound				Irving Street Northbound				American Parkway Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	11	40	22	73	7	38	9	54	4	36	20	60	13	83	5	101	288
04:45 PM	8	42	20	70	3	46	13	62	4	26	15	45	5	85	5	95	272
05:00 PM	14	55	28	97	4	56	3	63	5	26	15	46	9	109	8	126	332
05:15 PM	9	28	18	55	4	51	8	63	2	21	12	35	7	105	7	119	272
Total Volume	42	165	88	295	18	191	33	242	15	109	62	186	34	382	25	441	1164
% App. Total	14.2	55.9	29.8		7.4	78.9	13.6		8.1	58.6	33.3		7.7	86.6	5.7		
PHF	.750	.750	.786	.760	.643	.853	.635	.960	.750	.757	.775	.775	.654	.876	.781	.875	.877



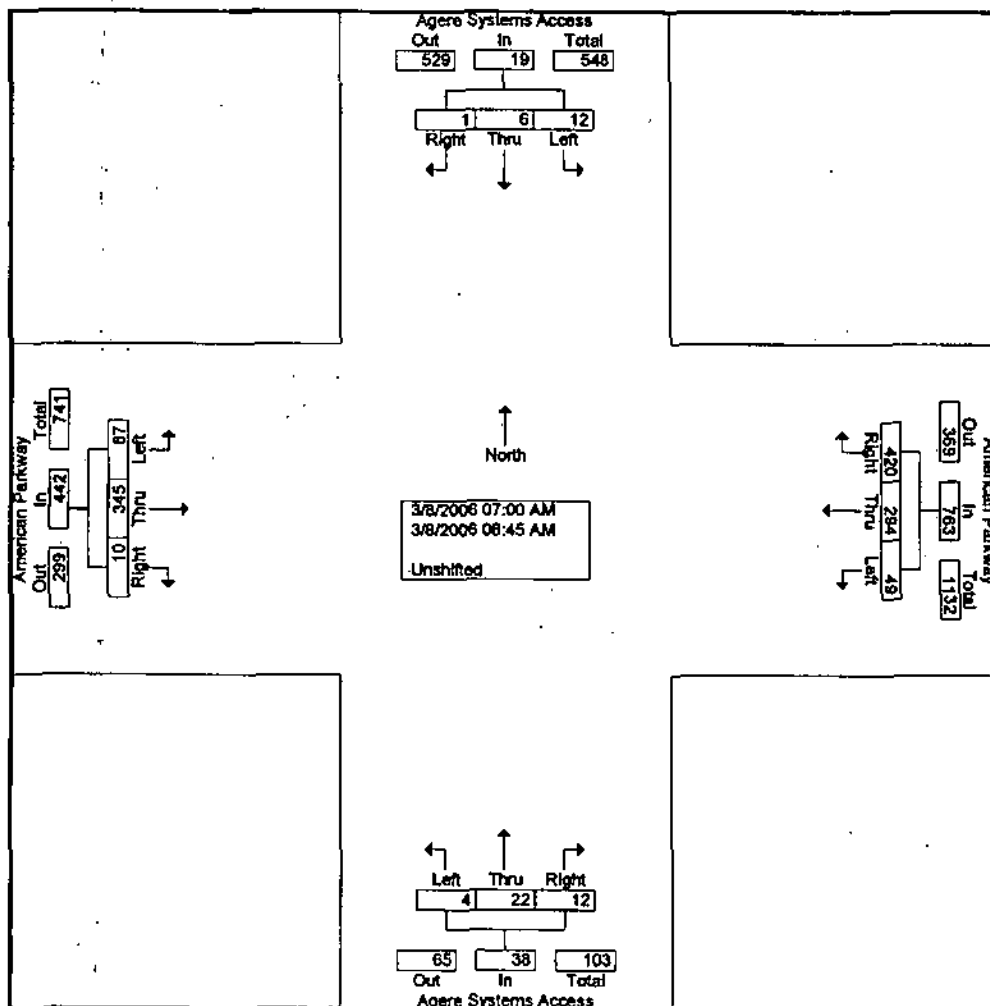
Agere Systems Access & American Parkway

Counter: 3  
 Counted by: JTemple  
 Weather: clear  
 Saved as: AMASAAP

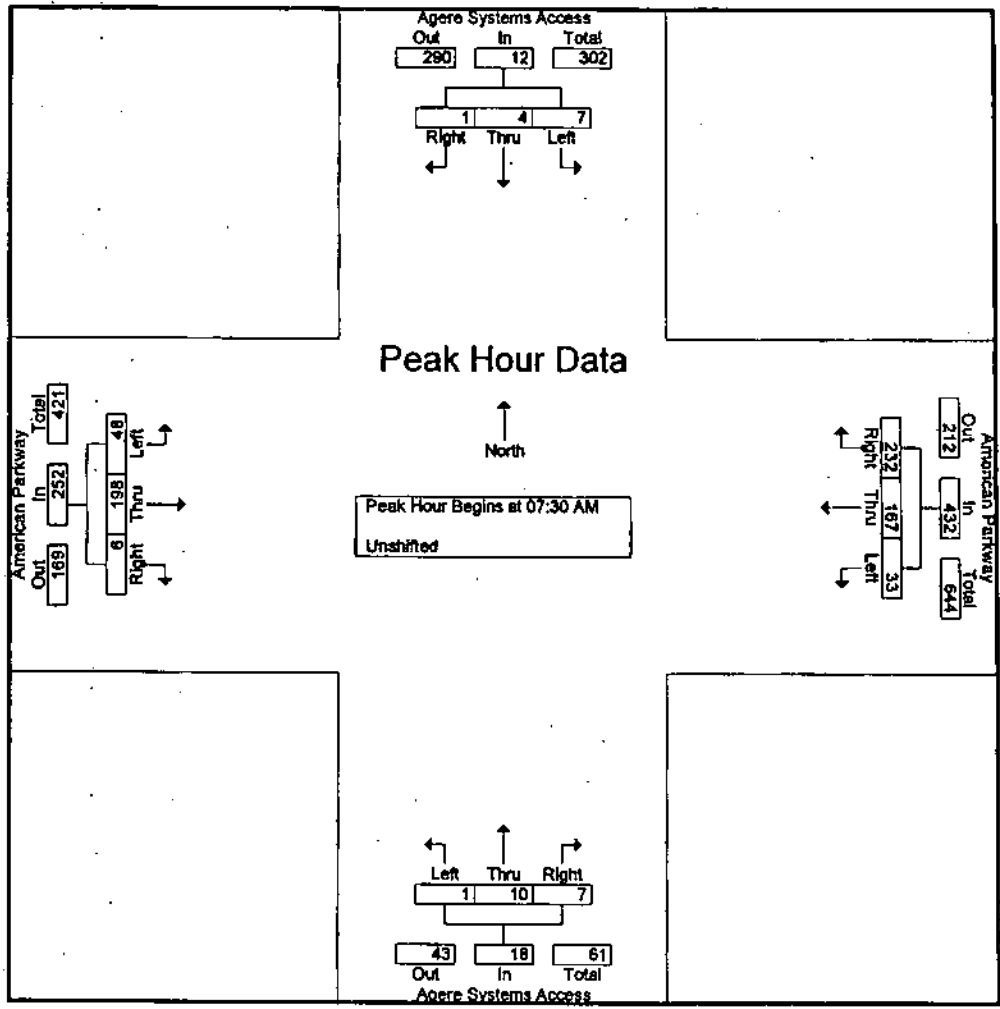
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 Site Code : 00000000  
 Start Date : 3/8/2006  
 Page No : 1

Groups Printed- Unshifted

Start Time	Agere Systems Access Southbound					American Parkway Westbound					Agere Systems Access Northbound					American Parkway Eastbound					Ech. Total	Ind. Total	Int. Total
	Left	Thru	Right	Trcks	App. Total	Left	Thru	Right	Trcks	App. Total	Left	Thru	Right	Trcks	App. Total	Left	Thru	Right	Trcks	App. Total			
07:00 AM	1	0	0	0	1	1	29	32	1	62	1	2	0	0	3	3	34	0	6	37	7	103	110
07:15 AM	0	1	0	0	1	4	32	30	1	66	0	1	0	0	1	5	41	0	4	46	5	114	119
07:30 AM	0	0	0	0	0	5	43	53	2	101	0	1	3	1	4	14	45	2	2	61	5	166	171
07:45 AM	1	0	0	0	1	10	40	54	0	104	0	3	1	1	4	12	69	3	4	84	5	193	198
Total	2	1	0	0	3	20	144	169	4	333	1	7	4	2	12	34	189	5	16	228	22	576	598
08:00 AM	1	2	1	0	4	8	39	58	0	105	0	4	1	0	5	8	51	0	1	59	1	173	174
08:15 AM	5	2	0	0	7	10	45	67	2	122	1	2	2	0	5	14	33	1	1	48	3	182	185
08:30 AM	0	0	0	0	0	7	22	68	0	97	0	3	3	2	6	16	38	2	1	56	3	159	162
08:45 AM	4	1	0	0	5	4	44	58	1	106	2	6	2	0	10	15	34	2	5	51	6	172	178
Total	10	5	1	0	16	29	150	251	3	430	3	15	8	2	26	53	156	5	8	214	13	686	699
Grand Total	12	6	1	0	19	49	294	420	7	763	4	22	12	4	38	87	345	10	24	442	35	1262	1297
Approch %	63.2	31.6	5.3			6.4	38.5	55			10.5	57.9	31.6			19.7	78.1	2.3					
Total %	1	0.5	0.1		1.5	3.9	23.3	33.3		60.5	0.3	1.7	1		3	6.9	27.3	0.8		35	2.7	97.3	



Start Time	Agere Systems Access Southbound				American Parkway Westbound				Agere Systems Access Northbound				American Parkway Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	0	0	0	5	43	53	101	0	1	3	4	14	45	2	61	166
07:45 AM	1	0	0	1	10	40	54	104	0	3	1	4	12	69	3	84	193
08:00 AM	1	2	1	4	8	39	58	105	0	4	1	5	8	51	0	59	173
08:15 AM	5	2	0	7	10	45	67	122	1	2	2	5	14	33	1	48	182
Total Volume	7	4	1	12	33	167	232	432	1	10	7	18	48	198	6	252	714
% App. Total	58.3	33.3	8.3		7.6	38.7	53.7		5.6	55.6	38.9		19	78.6	2.4		
PHF	.350	.500	.250	.429	.825	.928	.866	.885	.250	.625	.583	.900	.857	.717	.500	.750	.925



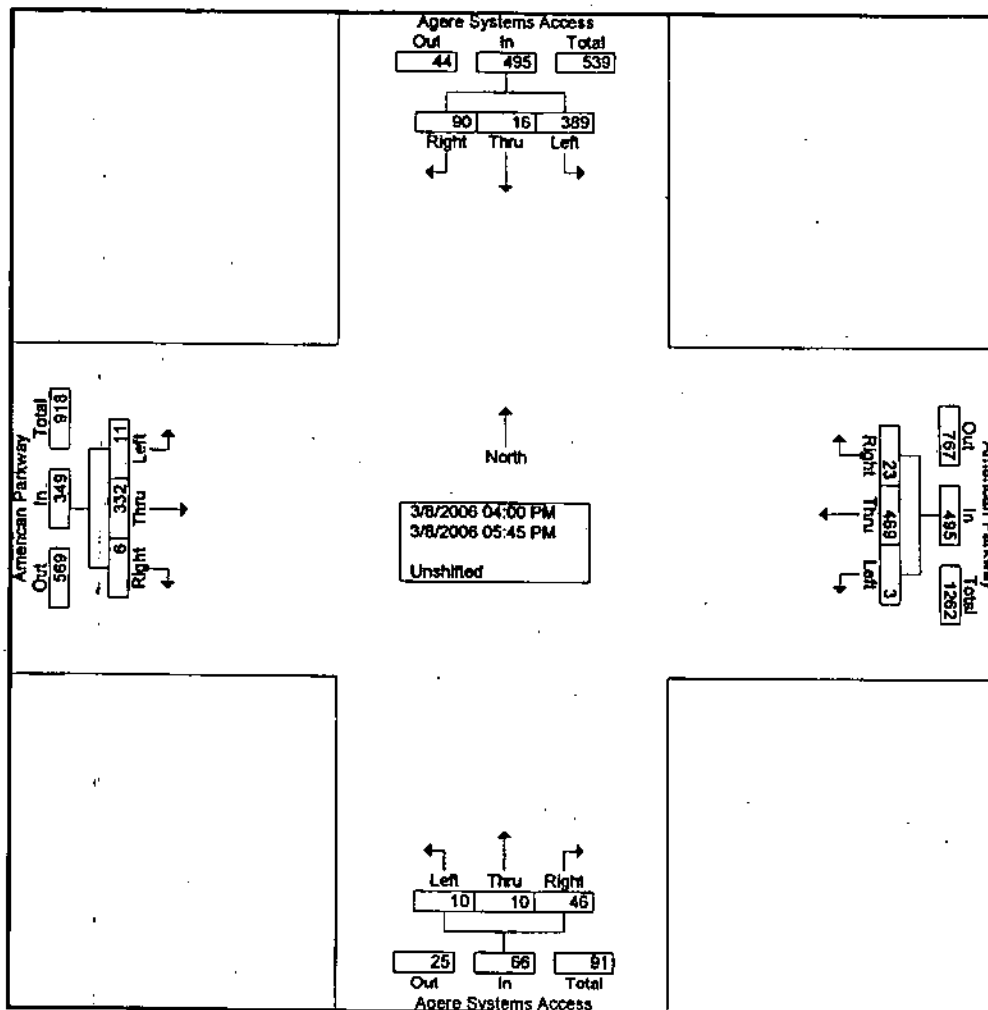
Agere Systems Access & American Parkway

Counter: 3  
 Counted by: JTemple  
 Weather: clear  
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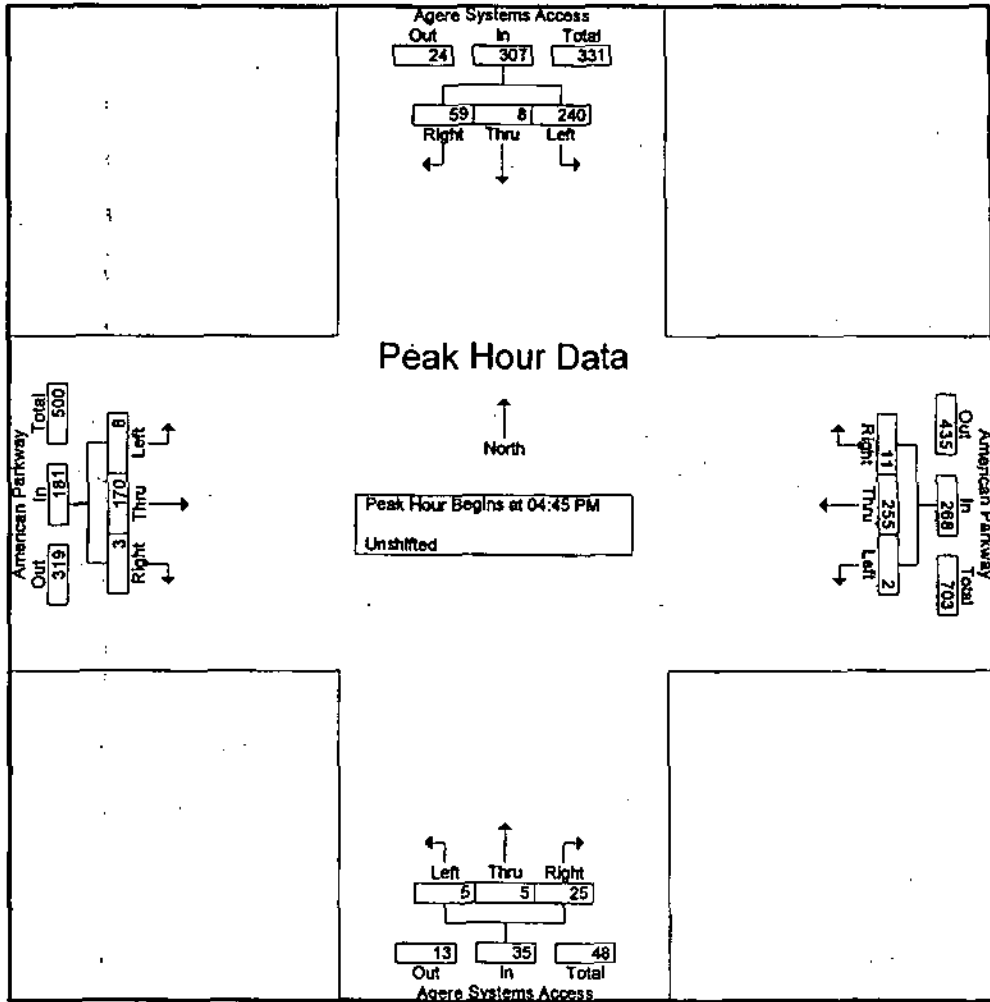
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 Start Date : 3/8/2006  
 Page No : 1

Groups Printed- Unshifted

Start Time	Agere Systems Access Southbound					American Parkway Westbound					Agere Systems Access Northbound					American Parkway Eastbound					Ends. Total	Incls. Total	Int. Total
	Left	Thru	Right	Trucks	App. Total	Left	Thru	Right	Trucks	App. Total	Left	Thru	Right	Trucks	App. Total	Left	Thru	Right	Trucks	App. Total			
04:00 PM	26	2	5	1	33	0	67	6	3	73	1	2	5	0	8	1	44	3	2	48	6	162	168
04:15 PM	26	1	8	1	35	1	48	4	3	53	1	2	5	0	8	0	48	0	1	48	5	144	149
04:30 PM	47	2	7	0	56	0	62	1	2	63	2	1	8	1	11	2	41	0	1	43	4	173	177
04:45 PM	37	1	13	0	51	1	52	2	3	55	1	1	4	0	6	2	42	0	1	44	4	156	160
<b>Total</b>	<b>136</b>	<b>6</b>	<b>33</b>	<b>2</b>	<b>175</b>	<b>2</b>	<b>229</b>	<b>13</b>	<b>11</b>	<b>244</b>	<b>5</b>	<b>6</b>	<b>22</b>	<b>1</b>	<b>33</b>	<b>5</b>	<b>175</b>	<b>3</b>	<b>5</b>	<b>183</b>	<b>19</b>	<b>635</b>	<b>654</b>
05:00 PM	64	5	15	0	84	1	86	3	3	90	3	1	8	0	12	5	52	2	2	59	5	245	250
05:15 PM	71	2	18	1	91	0	62	3	3	65	0	2	8	0	10	0	35	1	1	36	5	202	207
05:30 PM	68	0	13	0	81	0	55	3	1	58	1	1	5	1	7	1	41	0	1	42	3	188	191
05:45 PM	50	3	11	0	64	0	37	1	0	38	1	0	3	0	4	0	29	0	2	29	2	135	137
<b>Total</b>	<b>253</b>	<b>10</b>	<b>57</b>	<b>1</b>	<b>320</b>	<b>1</b>	<b>240</b>	<b>10</b>	<b>7</b>	<b>251</b>	<b>5</b>	<b>4</b>	<b>24</b>	<b>1</b>	<b>33</b>	<b>6</b>	<b>157</b>	<b>3</b>	<b>6</b>	<b>166</b>	<b>15</b>	<b>770</b>	<b>785</b>
<b>Grand Total</b>	<b>389</b>	<b>16</b>	<b>90</b>	<b>3</b>	<b>495</b>	<b>3</b>	<b>469</b>	<b>23</b>	<b>18</b>	<b>495</b>	<b>10</b>	<b>10</b>	<b>46</b>	<b>2</b>	<b>66</b>	<b>11</b>	<b>332</b>	<b>6</b>	<b>11</b>	<b>349</b>	<b>34</b>	<b>1405</b>	<b>1439</b>
<b>Approch %</b>	<b>78.6</b>	<b>3.2</b>	<b>18.2</b>			<b>0.6</b>	<b>94.7</b>	<b>4.6</b>			<b>15.2</b>	<b>15.2</b>	<b>69.7</b>			<b>3.2</b>	<b>95.1</b>	<b>1.7</b>					
<b>Total %</b>	<b>27.7</b>	<b>1.1</b>	<b>6.4</b>		<b>35.2</b>	<b>0.2</b>	<b>33.4</b>	<b>1.6</b>		<b>35.2</b>	<b>0.7</b>	<b>0.7</b>	<b>3.3</b>		<b>4.7</b>	<b>0.8</b>	<b>23.6</b>	<b>0.4</b>		<b>24.8</b>	<b>2.4</b>	<b>97.6</b>	



Start Time	Agere Systems Access Southbound				American Parkway Westbound				Agere Systems Access Northbound				American Parkway Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis from 04:45 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	37	1	13	51	1	52	2	55	1	1	4	6	2	42	0	44	156
05:00 PM	64	5	15	84	1	86	3	90	3	1	8	12	5	52	2	59	245
05:15 PM	71	2	18	91	0	62	3	65	0	2	8	10	0	35	1	36	202
05:30 PM	68	0	13	81	0	55	3	58	1	1	5	7	1	41	0	42	188
Total Volume	240	8	59	307	2	255	11	268	5	5	25	35	8	170	3	181	791
% App. Total	78.2	2.6	19.2		0.7	95.1	4.1		14.3	14.3	71.4		4.4	93.9	1.7		
PHF	.845	.400	.819	.843	.500	.741	.917	.744	.417	.625	.781	.729	.400	.817	.375	.767	.807





**APPENDIX C**  
*NEARBY DEVELOPMENT WORKSHEETS*



ROUTE 22

ROUTE 22  
OFF-RAMP

CATASAUQUA  
ROAD

STEEL STONE  
DRIVE

BJ'S WAREHOUSE  
DRIVEWAY

LLOYD  
STREET

IRVING  
STREET

AMERICAN  
PARKWAY

SITE

FAIRMONT  
STREET

FENWICK  
STREET

GODFREY  
STREET

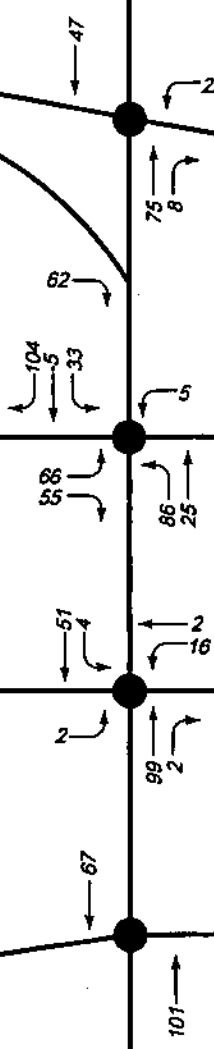
AIRPORT  
ROAD

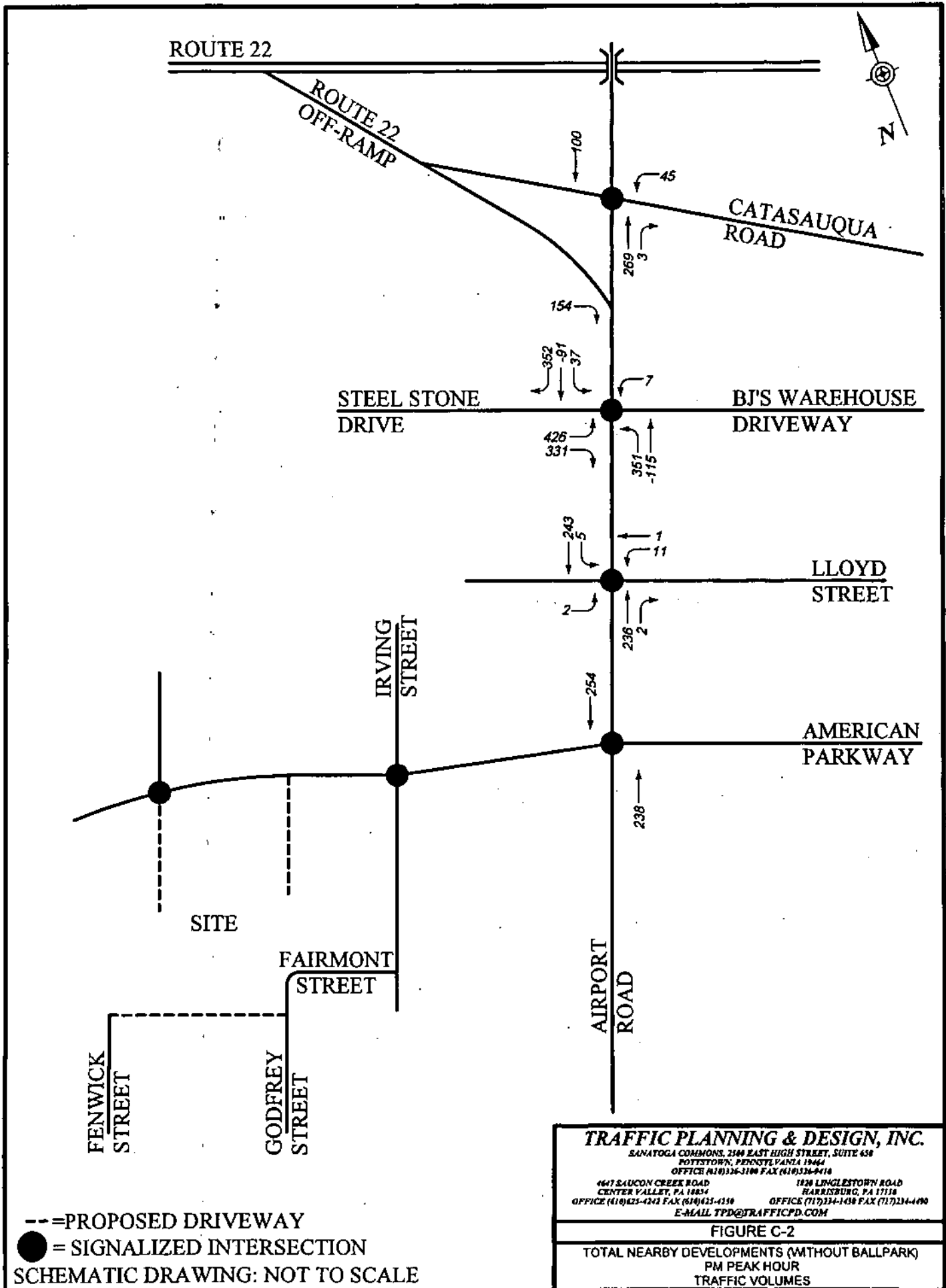
-- = PROPOSED DRIVEWAY  
● = SIGNALIZED INTERSECTION  
SCHEMATIC DRAWING: NOT TO SCALE

**TRAFFIC PLANNING & DESIGN, INC.**  
SANATOGA COMMONS, 2500 EAST HIGH STREET, SUITE 430  
POTTSTOWN, PENNSYLVANIA 19444  
OFFICE (610)326-3100 FAX (610)326-9418  
1647 SAUCON CREEK ROAD 1836 LINGLESTOWN ROAD  
CENTER VALLEY, PA 18834 HARRISBURG, PA 17110  
OFFICE (610)423-4242 FAX (610)423-4250 OFFICE (717)234-1100 FAX (717)234-4490  
E-MAIL TPD@TRAFFICPD.COM

FIGURE C-1

TOTAL NEARBY DEVELOPMENTS  
AM PEAK HOUR  
TRAFFIC VOLUMES







ROUTE 22

ROUTE 22  
OFF-RAMP

CATASAUQUA  
ROAD

STEEL STONE  
DRIVE

BJ'S WAREHOUSE  
DRIVEWAY

LLOYD  
STREET

IRVING  
STREET

AMERICAN  
PARKWAY

SITE

FAIRMONT  
STREET

FENWICK  
STREET

GODFREY  
STREET

AIRPORT  
ROAD

**TRAFFIC PLANNING & DESIGN, INC.**

SANATOGA COMMONS, 2500 EAST HIGH STREET, SUITE 650  
POTTSTOWN, PENNSYLVANIA 19464  
OFFICE (610)326-3100 FAX (610)326-8410  
4647 SAUCON CREEK ROAD 1828 LINGLESTOWN ROAD  
CENTER VALLEY, PA 18034 HARRISBURG, PA 17110  
OFFICE (610)425-4242 FAX (610)425-4250 OFFICE (717)234-1430 FAX (717)234-4400  
E-MAIL TPD@TRAFFICPD.COM

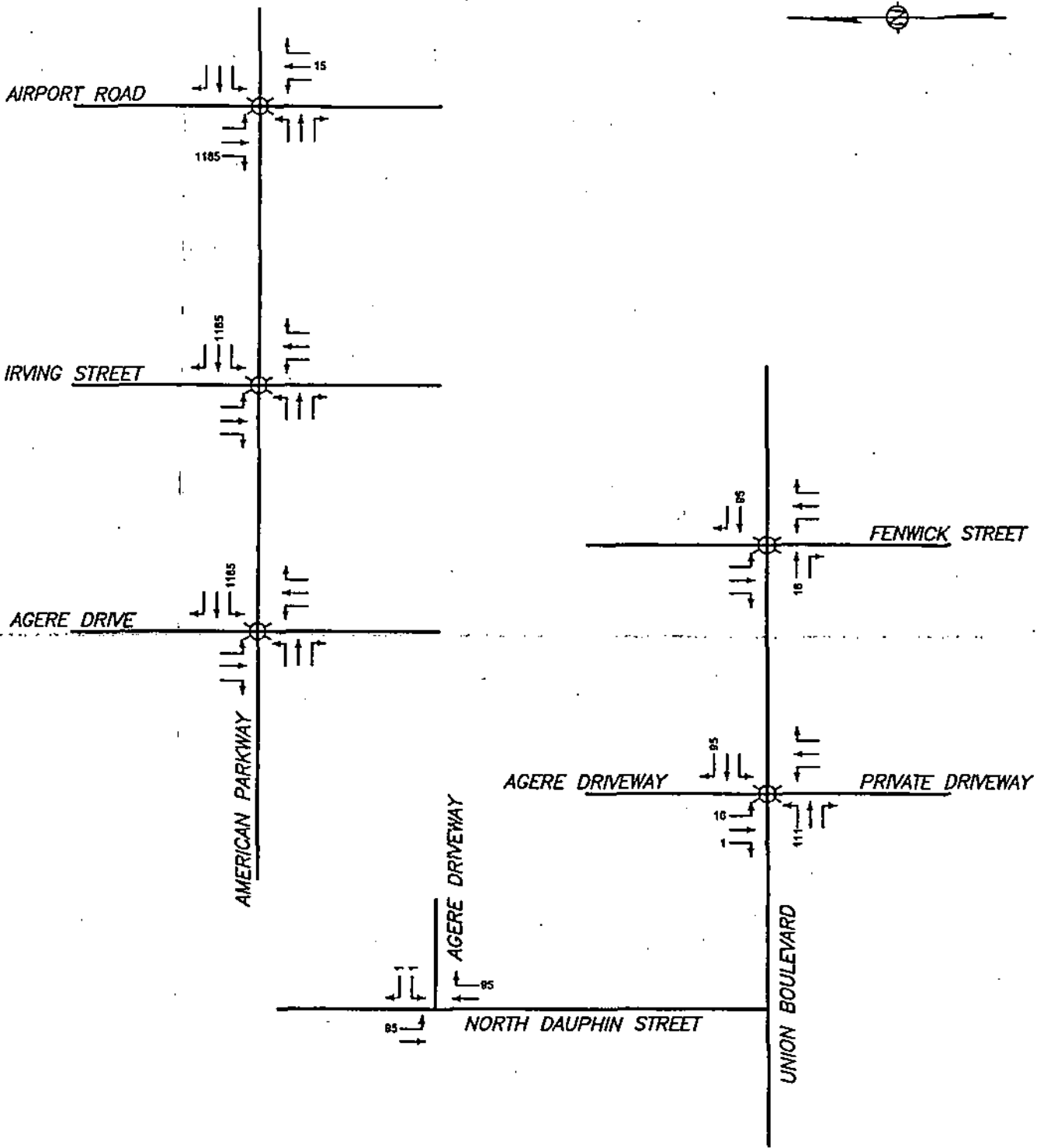
FIGURE C-3

BALLPARK PEAK TRAFFIC  
PM PEAK HOUR  
TRAFFIC VOLUMES

--- = PROPOSED DRIVEWAY

● = SIGNALIZED INTERSECTION

SCHEMATIC DRAWING: NOT TO SCALE



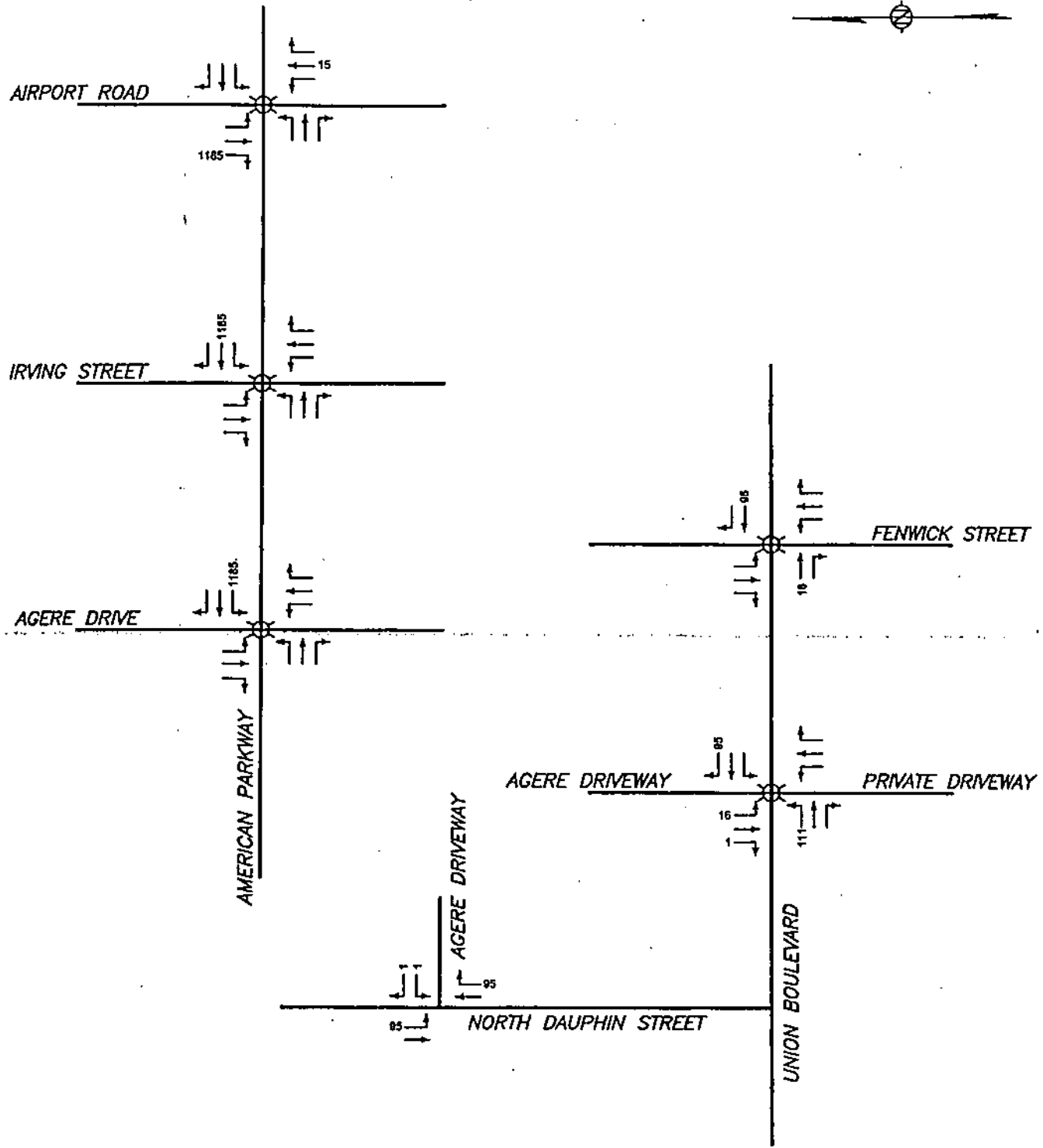
**LEGEND**

- SIGNALIZED INTERSECTION

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 Drawing name: S:\Lehigh County Ballfield\2005-075\Traffic\Figures.dwg Last Modified: Jun 08, 2006 - 11:05am

DRWN. BY: JLS  CKD. BY: BEH  FELD BOOK:	SCALE: NO SCALE  DATE: JUNE 2006  PROJ. NO.: 05075	<p align="center"> <b>LEHIGH COUNTY</b>  <b>LEHIGH COUNTY MINOR LEAGUE BALLPARK</b>  <small>CITY OF ALLENTOWN, LEHIGH COUNTY, PENNSYLVANIA</small>  <b>THE PIDCOCK COMPANY</b>  <small>CIVIL ENGINEERS • ARCHITECTS • LAND PLANNERS • SURVEYORS</small>  <small>2451 PARKWOOD DRIVE ALLENTOWN, PENNSYLVANIA 18103</small> </p> <p align="center"><b>TRIP ASSIGNMENT</b></p>	<p align="center"> <b>FIGURE</b>    <b>10</b> </p>
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 Drawing name: S:\Lehigh County Ballfield\2005-075\Traffic\Figures.dwg Last Modified: Jun 08, 2006 - 11:05am



**LEGEND**

☼ - SIGNALIZED INTERSECTION

DRWN. BY: JLS  CHD. BY: BEH  FIELD BOOK:	SCALE: NO SCALE  DATE: JUNE 2006  PROJ. NO.: 05075	<p align="center"> <b>LEHIGH COUNTY</b>  <b>LEHIGH COUNTY MINOR LEAGUE BALLPARK</b>  <small>CITY OF ALLENTOWN, LEHIGH COUNTY, PENNSYLVANIA</small>  <b>THE PIDCOCK COMPANY</b>  <small>CIVIL ENGINEERS • ARCHITECTS • LAND PLANNERS • SURVEYORS</small>  <small>2451 PARKWOOD DRIVE ALLENTOWN, PENNSYLVANIA 18103</small> </p> <p align="center"><b>TRIP ASSIGNMENT</b></p>	<p align="center"> <b>FIGURE</b>  <b>10</b> </p>
--	---	---	--



ROUTE 22  
OFF-RAMP

AIRPORT  
ROAD

CATASAUQUA  
ROAD

STEEL STONE  
DRIVE

BJ'S  
WAREHOUSE  
DRIVEWAY

SITE

LLOYD  
STREET

AIRPORT  
ROAD

--- = PROPOSED DRIVEWAY  
 ● = SIGNALIZED INTERSECTION  
 SCHEMATIC DRAWING; NOT TO SCALE

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FIGURE  
 AM Near by Development  
 Airport Center



ROUTE 22  
OFF-RAMP

AIRPORT  
ROAD

CATASAUQUA  
ROAD

STEEL STONE  
DRIVE

BJ'S  
WAREHOUSE  
DRIVEWAY

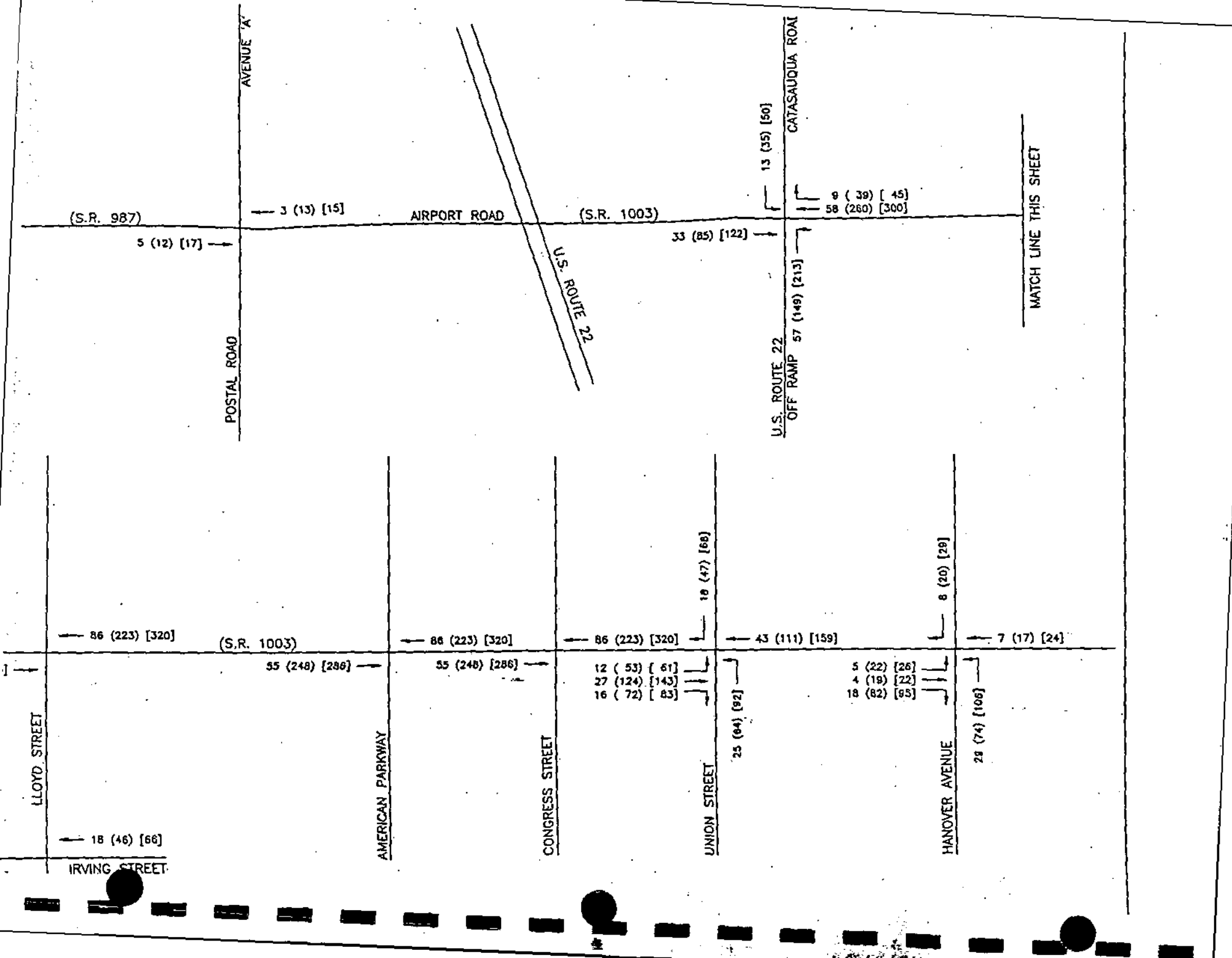
SITE  
LLOYD  
STREET

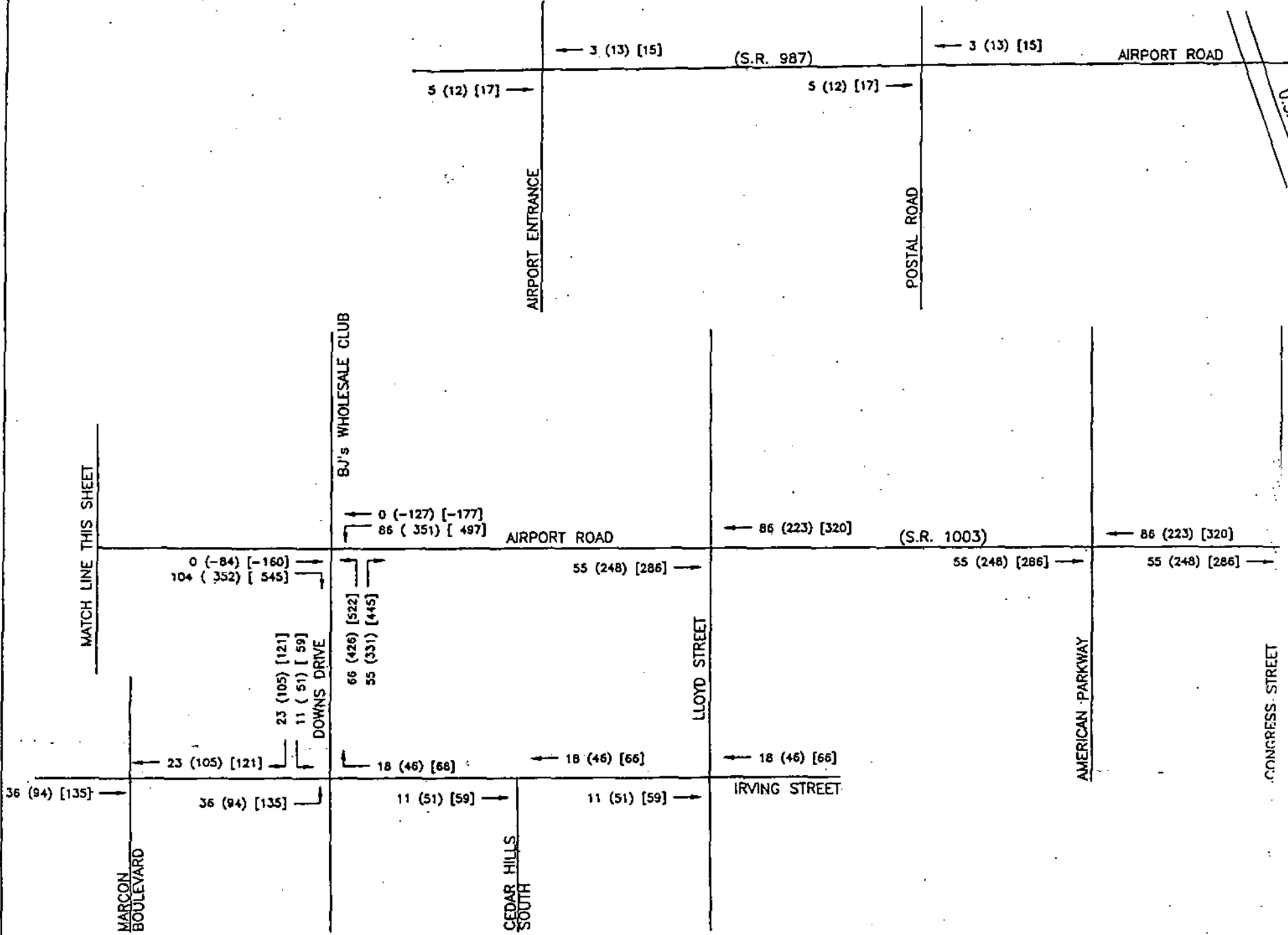
AIRPORT  
ROAD

--- = PROPOSED DRIVEWAY  
● = SIGNALIZED INTERSECTION  
SCHEMATIC DRAWING: NOT TO SCALE

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FIGURE	
PM	Near by Developments Airport Center







**Gannett Fleming**



ROUTE 22  
OFF-RAMP

AIRPORT  
ROAD

CATASAUQUA  
ROAD

STEEL STONE  
DRIVE

BJ'S

WAREHOUSE  
DRIVEWAY

ENTER = 47 (22)  
EXIT = 41 (22)

SITE

LLOYD  
STREET

AIRPORT  
ROAD

X(X) = NEW TRIP (PASS-BY TRIP)  
● = SIGNALIZED INTERSECTION  
SCHEMATIC DRAWING: NOT TO SCALE

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---

FIGURE 11

---

Restaurant + Development  
 TRIP DISTRIBUTION  
 WEEKDAY AM-PEAK HOUR  
 AM



ROUTE 22  
OFF-RAMP

AIRPORT  
ROAD

CATASAUQUA  
ROAD

STEEL STONE  
DRIVE

BJ'S  
WAREHOUSE  
DRIVEWAY

ENTER= 49 (28)  
EXIT= 20 (28)

LLOYD  
STREET

AIRPORT  
ROAD

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X(X) = NEW TRIP (PASS-BY TRIP)

● = SIGNALIZED INTERSECTION

SCHEMATIC DRAWING: NOT TO SCALE

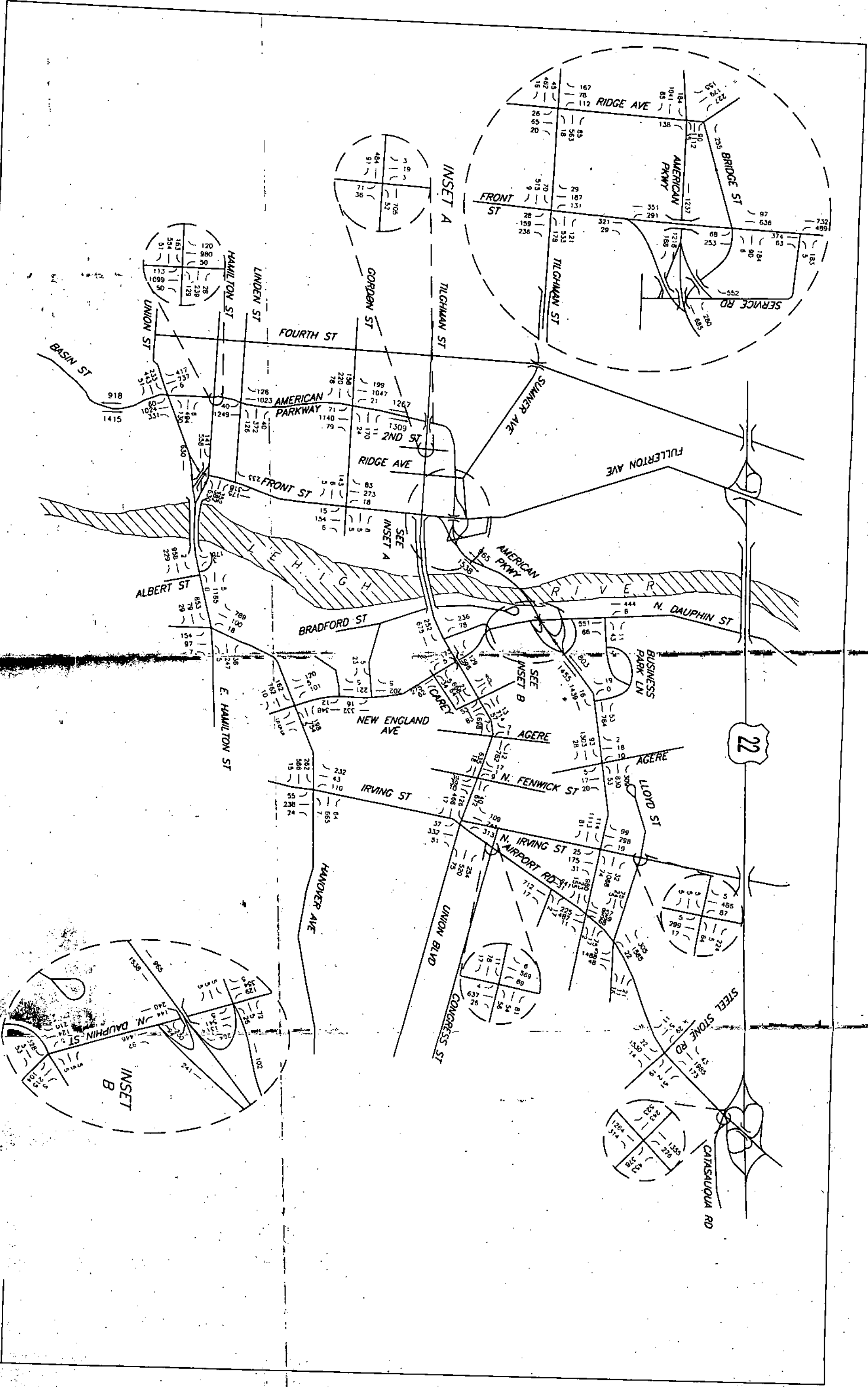
FIGURE 11

Restaurant Development  
TRIP DISTRIBUTION  
WEEKDAY PM PEAK HOUR

**APPENDIX D**  
*AMERICAN PARKWAY BRIDGE VOLUMES*

16.5 X 10.5

10 AM & PM AP Build VolumeS02.dgn 8/15/2006 12:09:20 PM





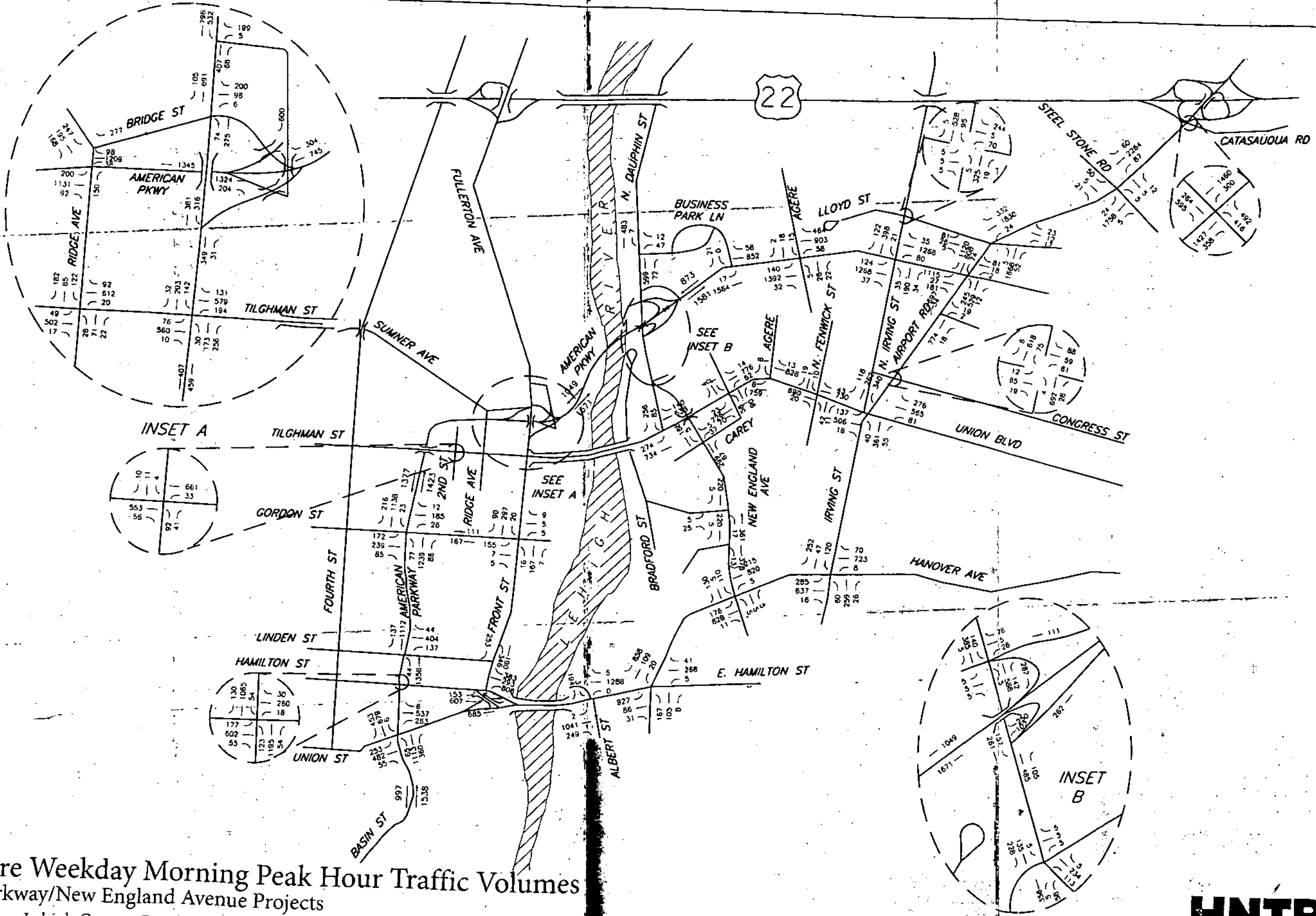


Figure 7  
 2030 Future Weekday Morning Peak Hour Traffic Volumes  
 American Parkway/New England Avenue Projects  
 City Of Allentown, Lehigh County, PA

**HNTB**



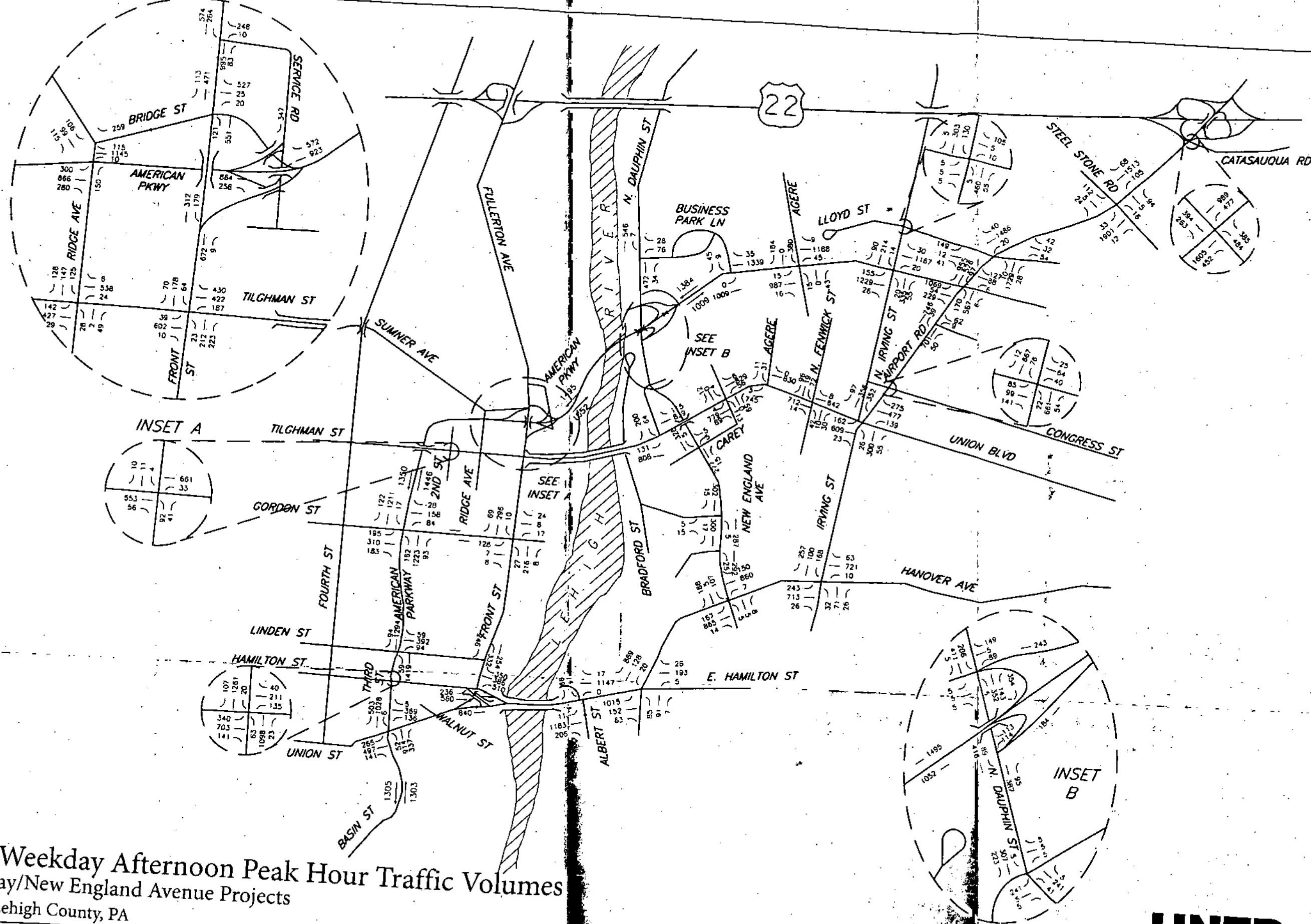


Figure 8  
 2030 Future Weekday Afternoon Peak Hour Traffic Volumes  
 American Parkway/New England Avenue Projects  
 City Of Allentown, Lehigh County, PA

**APPENDIX E**  
*TRIP GENERATION WORKSHEETS*

Trip Distribution Information

State	County	Total # Players	%	To/ From	Inbound Route	County To/From #	Total To/From #	Directional Distribution	Adjusted Distribution
PA	Northampton	66,873	80%	E	Rte 22 W	53,498	1,791,694	51.6%	49%
NJ	Hunterdon	26,503	100%	E	Rte 22 W	26,503			
NJ	Warren	21,990	100%	E	Rte 22 W	21,990			
PA	Monroe	29,180	100%	E	Rte 22 W	29,180			
NJ	Somerset	66,701	100%	E	Rte 22 W	66,701			
NJ	Mercer	88,417	100%	E	Rte 22 W	88,417			
NJ	Morris	103,168	100%	E	Rte 22 W	103,168			
NJ	Sussex	29,597	100%	E	Rte 22 W	29,597			
PA	Pike	9,986	100%	E	Rte 22 W	9,986			
NJ	Middlesex	165,047	100%	E	Rte 22 W	165,047			
PA	Lackawanna	54,738	50%	E	Rte 22 W	27,369			
NJ	Union	135,711	100%	E	Rte 22 W	135,711			
NJ	Camden	123,791	100%	E	Rte 22 W	123,791			
NJ	Gloucester	61,193	100%	E	Rte 22 W	61,193			
NJ	Essex	197,740	100%	E	Rte 22 W	197,740			
NJ	Burlington	104,354	100%	E	Rte 22 W	104,354			
NJ	Passaic	122,071	100%	E	Rte 22 W	122,071			
NY	Richmond	109,962	100%	E	Rte 22 W	109,962			
NJ	Monmouth	132,434	100%	E	Rte 22 W	132,434			
NJ	Salem	15,803	100%	E	Rte 22 W	15,803			
PA	Wayne	10,204	100%	E	Rte 22 W	10,204			
NJ	Hudson	156,975	100%	E	Rte 22 W	156,975			
PA	Northampton	66,873	20%	N	Airport Road	13,375	13,376	0.4%	2%
PA	Lehigh	80,121	15%	S	Airport Road	12,018	12,018	0.3%	2%
PA	Lehigh	80,121	85%	W	Rte 22 E	68,103	1,653,572	47.6%	45%
PA	Carbon	15,141	100%	W	Rte 22 E	15,141			
PA	Bucks	147,420	100%	W	Rte 22 E	147,420			
PA	Berks	80,844	100%	W	Rte 22 E	80,844			
PA	Montgomery	193,875	100%	W	Rte 22 E	193,875			
PA	Schuylkill	33,459	100%	W	Rte 22 E	33,459			
PA	Philadelphia	378,502	100%	W	Rte 22 E	378,502			
PA	Chester	106,939	100%	W	Rte 22 E	106,939			
PA	Delaware	138,876	100%	W	Rte 22 E	138,876			
PA	Luzerne	82,866	100%	W	Rte 22 E	82,866			
PA	Lebanon	30,077	100%	W	Rte 22 E	30,077			
PA	Lancaster	97,016	100%	W	Rte 22 E	97,016			
PA	Columbia	13,455	100%	W	Rte 22 E	13,455			
PA	Lackawanna	54,738	50%	W	Rte 22 E	27,369			
PA	Northumberland	20,755	100%	W	Rte 22 E	20,755			
PA	Montour	3,947	100%	W	Rte 22 E	3,947			
PA	Wyoming	6,571	100%	W	Rte 22 E	6,571			
PA	Dauphin	64,209	100%	W	Rte 22 E	64,209			
DE	New Castle	123,673	100%	W	Rte 22 E	123,673			
MD	Cecil	20,475	100%	W	Rte 22 E	20,475			
TOTAL							3,470,659		98%

Notes: 2% was assumed as a minimum distribution percentage for traffic to/from the north and south via Airport Road.  
 1% was assumed as a minimum for traffic utilizing American Parkway to/from the west.\*  
 1% was assumed as a minimum for traffic utilizing Fenwick Street and Godfrey Street to/from the south.\*  
 \*Trip distribution percentages total 100% with the inclusion of this traffic.

TRAFFIC PLANNING AND DESIGN, INC.

4647 SAUCON CREEK ROAD, SUITE 201  
 CENTER VALLEY, PENNSYLVANIA 18034

(610) 625-4242

FAX (610) 625-4250

E-mail: TrafficExperts@trafficpd.com • www.trafficpd.com

JOB TROP.A. 00001

SHEET NO. 1 OF 2

CALCULATED BY RLH DATE 3-28-06

CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_

SCALE Entering Trips

DATE	7-9 AM	4-6 PM	OFF PEAK *
T- 9/14/04	57	160	184 (6-7 PM)
W- 9/15/04	73	213	213 (6-7 PM)
Th- 9/16/04	104	139	89 (6-7 PM)
<p><u>Tuesday - Thursday Average</u></p> <p>AM Peak → <math>57 + 73 + 104 = 234 \therefore \frac{234}{3} = \boxed{78 \text{ Entering Trips}}</math></p> <p>PM Peak → <math>160 + 213 + 139 = 512 \therefore \frac{512}{3} = \boxed{171 \text{ Entering Trips}}</math></p> <p>* Off Peak → <math>184 + 213 + 89 = 586 \therefore \frac{586}{3} = \boxed{196 \text{ Entering Trips}}</math></p>			

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E-mail: TrafficExperts@trafficpd.com • www.trafficpd.com

JOB TROP. A. 00001

SHEET NO. 2 OF 2

CALCULATED BY KAV DATE 3-28-06

CHECKED BY DATE

SCALE Exiting Trips

Assume average stay in Evansville = 5 hours.

DATE	EXIT 7-9 AM (ENTER 2-4 AM)	EXIT 6-7 PM #off peak (ENTER 1-2 PM)
T - 9/14/04	10	99
W - 9/15/04	7	94
TH - 9/16/04	7	120

Tuesday - Thursday Average

AM Peak →  $10 + 7 + 7 = 24$  ∴  $\frac{24}{3} = 8$  EXITING TRIPS

PM off-peak →  $99 + 94 + 120 = 313$  ∴  $\frac{313}{3} = 105$  EXITING TRIPS

Evansville Site - 1,552,137 visitors per year

Lehigh Valley Site - 3,470,656 estimated visitors per year

⇒ Lehigh Valley peak traffic = 2.24 × Evansville peak traffic

Lehigh Valley Traffic:

AM Peak Entering =  $78 \times 2.24 = 175$  Entering Trips

AM Peak Exiting =  $8 \times 2.24 = 18$  Exiting Trips

PM Peak Entering =  $196 \times 2.24 = 439$  Entering Trips

PM Peak Exiting =  $105 \times 2.24 = 235$  Exiting Trips

**Nu-Metrics Traffic Analyzer Study  
Computer Generated Summary Report**

**Street: Entrance to Aztar parking garage  
Location: Entrance to Aztar parking garage**

TOTAL  
BOTH LANES

A study of vehicle traffic was conducted with HI-STAR unit number 1827. The study was done in the Entrance lane on Entrance to Aztar parking garage in In county. The study began on 09/13/2004 at 04:00 PM and concluded on 09/20/2004 at 01:00 PM, lasting a total of 165 hours. Data was recorded in 60 minute time periods. The total recorded volume of traffic showed 15,227 vehicles passed through the location with a peak volume of 282 on 09/18/2004 at 06:00 PM and a minimum volume of 1 on 09/14/2004 at 03:00 AM. The AADT Count for this study was 2,215.

**SPEED**

Chart 1 lists the values of the speed bins and the total traffic volume for each bin.

Chart 1

0	10	15	20	25	30	35	40	45	50	55	60	65	70	75
to	to	to	to	to	to	to	to	to	to	to	to	to	to	>
9	14	19	24	29	34	39	44	49	54	59	64	69	74	
0	11589	461	136	71	14	20	10	3	1	2	2	2	2	1

At least half of the vehicles were traveling in the 10 - 14 mph range or a lower speed. The average speed for all classified vehicles was 13 mph with 100 percent exceeding the posted speed of mph. The HI-STAR found 0.07 percent of the total vehicles were traveling in excess of 55 mph. The mode speed for this traffic study was 10 mph and the 85th percentile was 14.62 mph.

**CLASSIFICATION**

Chart 2 lists the values of the eight classification bins and the total traffic volume accumulated for each bin.

Chart 2

0	21	28	40	50	60	70	80
to	to	to	to	to	to	to	>
20	27	39	49	59	69	79	
11975	251	77	13	3	3	2	0

Most of the vehicles classified during the study were Passenger Cars. The number of Passenger Cars in the study was 12,226 which represents 99.20 percent of the total classified vehicles. The number of Small Trucks in the study was 77 which represents 0.60 percent of the total classified vehicles. The number of Trucks/Buses in the study was 13 which represents 0.10 percent of the total classified vehicles. The number of Tractor Trailers in the study was 8 which represents 0.10 percent of the total classified vehicles.

**HEADWAY**

During the peak time period, on 09/18/2004 at 06:00 PM the average headway between the vehicles was 12.72 seconds. The slowest traffic period was on 09/14/2004 at 03:00 AM. During this slowest period, the average headway was 1800.0 seconds.

**WEATHER**

The roadway surface temperature over the period of the study varied between 68 and 81 degrees Fahrenheit. The HI-STAR determined that the roadway surface was Dry 100.00 percent of the time.

**Date/Time/Volume/Average Speed/Temperature Report**  
 Entrance to Aztar parking garage

Hi-Star ID: 1827	Begin: 09/13/2004 04:00 PM	End: 09/20/2004 01:00 PM
Street: Entrance to Aztar parking	Lane: Entrance	Hours: 165:00
Garage	Oper:	Period: 60
City:	Posted:	Raw Count: 15227
County:	AADT Factor: 1	AADT Count: 2215

NC87				
Date & Time Range	Count	Avg Speed	Temp	Wet/Dry

Date & Time Range	Count	Avg Speed	Temp	Wet/Dry
<b>09/13/2004</b>				
[04:00 PM-05:00 PM]	112	13 mph	80 F	Dry
[05:00 PM-06:00 PM]	130	14 mph	80 F	Dry
[06:00 PM-07:00 PM]	139	13 mph	80 F	Dry
[07:00 PM-08:00 PM]	100	13 mph	80 F	Dry
[08:00 PM-09:00 PM]	73	13 mph	79 F	Dry
[09:00 PM-10:00 PM]	46	13 mph	78 F	Dry
[10:00 PM-11:00 PM]	58	13 mph	78 F	Dry
[11:00 PM-12:00 AM]	35	13 mph	78 F	Dry
<b>09/14/2004</b>				
[12:00 AM-01:00 AM]	31	13 mph	78 F	Dry
[01:00 AM-02:00 AM]	17	12 mph	78 F	Dry
[02:00 AM-03:00 AM]	10	13 mph	78 F	Dry
[03:00 AM-04:00 AM]	1	0 mph	78 F	Dry
[04:00 AM-05:00 AM]	6	16 mph	77 F	Dry
[05:00 AM-06:00 AM]	9	12 mph	76 F	Dry
[06:00 AM-07:00 AM]	14	13 mph	78 F	Dry
[07:00 AM-08:00 AM]	57	13 mph	76 F	Dry
[08:00 AM-09:00 AM]	50	13 mph	76 F	Dry
[09:00 AM-10:00 AM]	70	13 mph	78 F	Dry
[10:00 AM-11:00 AM]	78	12 mph	78 F	Dry
[11:00 AM-12:00 PM]	81	13 mph	78 F	Dry
[12:00 PM-01:00 PM]	106	13 mph	78 F	Dry
[01:00 PM-02:00 PM]	99	13 mph	79 F	Dry
[02:00 PM-03:00 PM]	101	13 mph	80 F	Dry
[03:00 PM-04:00 PM]	102	13 mph	80 F	Dry
[04:00 PM-05:00 PM]	129	13 mph	80 F	Dry
[05:00 PM-06:00 PM]	160	13 mph	81 F	Dry
[06:00 PM-07:00 PM]	184	13 mph	81 F	Dry
[07:00 PM-08:00 PM]	83	13 mph	80 F	Dry
[08:00 PM-09:00 PM]	79	13 mph	80 F	Dry
[09:00 PM-10:00 PM]	54	13 mph	80 F	Dry
[10:00 PM-11:00 PM]	47	13 mph	78 F	Dry
[11:00 PM-12:00 AM]	44	13 mph	78 F	Dry
<b>09/15/2004</b>				
[12:00 AM-01:00 AM]	23	12 mph	78 F	Dry
[01:00 AM-02:00 AM]	19	13 mph	78 F	Dry
[02:00 AM-03:00 AM]	7	12 mph	78 F	Dry
[03:00 AM-04:00 AM]	2	12 mph	78 F	Dry
[04:00 AM-05:00 AM]	4	12 mph	77 F	Dry
[05:00 AM-06:00 AM]	5	13 mph	77 F	Dry

Date/Time/Volume/Average Speed/Temperature Report

NC97					
Date & Time Range	Count	Avg Speed	Temp	Wet/Dry	
<b>09/15/2004</b>					
[06:00 AM-07:00 AM]	18	13 mph	76 F	Dry	
[07:00 AM-08:00 AM]	69	13 mph	76 F	Dry	
[08:00 AM-09:00 AM]	73	13 mph	77 F	Dry	
[09:00 AM-10:00 AM]	82	13 mph	78 F	Dry	
[10:00 AM-11:00 AM]	99	13 mph	78 F	Dry	
[11:00 AM-12:00 PM]	114	13 mph	78 F	Dry	
[12:00 PM-01:00 PM]	164	14 mph	80 F	Dry	
[01:00 PM-02:00 PM]	84	13 mph	80 F	Dry	
[02:00 PM-03:00 PM]	107	14 mph	80 F	Dry	
[03:00 PM-04:00 PM]	162	13 mph	81 F	Dry	
[04:00 PM-05:00 PM]	159	13 mph	81 F	Dry	
[05:00 PM-06:00 PM]	213	13 mph	81 F	Dry	
[06:00 PM-07:00 PM]	213	13 mph	81 F	Dry	
[07:00 PM-08:00 PM]	122	13 mph	81 F	Dry	
[08:00 PM-09:00 PM]	84	14 mph	80 F	Dry	
[09:00 PM-10:00 PM]	65	14 mph	80 F	Dry	
[10:00 PM-11:00 PM]	54	15 mph	80 F	Dry	
[11:00 PM-12:00 AM]	40	13 mph	80 F	Dry	
<b>09/16/2004</b>					
[12:00 AM-01:00 AM]	27	16 mph	80 F	Dry	
[01:00 AM-02:00 AM]	12	13 mph	79 F	Dry	
[02:00 AM-03:00 AM]	7	14 mph	78 F	Dry	
[03:00 AM-04:00 AM]	5	12 mph	78 F	Dry	
[04:00 AM-05:00 AM]	10	13 mph	78 F	Dry	
[05:00 AM-06:00 AM]	7	13 mph	78 F	Dry	
[06:00 AM-07:00 AM]	44	12 mph	78 F	Dry	
[07:00 AM-08:00 AM]	104	13 mph	78 F	Dry	
[08:00 AM-09:00 AM]	61	13 mph	78 F	Dry	
[09:00 AM-10:00 AM]	65	13 mph	78 F	Dry	
[10:00 AM-11:00 AM]	128	13 mph	78 F	Dry	
[11:00 AM-12:00 PM]	148	13 mph	79 F	Dry	
[12:00 PM-01:00 PM]	157	13 mph	80 F	Dry	
[01:00 PM-02:00 PM]	120	13 mph	80 F	Dry	
[02:00 PM-03:00 PM]	107	14 mph	80 F	Dry	
[03:00 PM-04:00 PM]	142	13 mph	81 F	Dry	
[04:00 PM-05:00 PM]	105	13 mph	81 F	Dry	
[05:00 PM-06:00 PM]	139	13 mph	81 F	Dry	
[06:00 PM-07:00 PM]	169	13 mph	80 F	Dry	
[07:00 PM-08:00 PM]	121	13 mph	80 F	Dry	
[08:00 PM-09:00 PM]	114	13 mph	80 F	Dry	
[09:00 PM-10:00 PM]	93	13 mph	80 F	Dry	
[10:00 PM-11:00 PM]	83	13 mph	78 F	Dry	
[11:00 PM-12:00 AM]	57	12 mph	78 F	Dry	
<b>09/17/2004</b>					
[12:00 AM-01:00 AM]	28	13 mph	78 F	Dry	
[01:00 AM-02:00 AM]	26	12 mph	77 F	Dry	
[02:00 AM-03:00 AM]	7	12 mph	78 F	Dry	



Sep-28-04 12:15P E.U.T.S.

**Date/Time/Volume/Average Speed/Temperature Report**

NC97				
Date & Time Range	Count	Avg Speed	Temp	Wet/Dry
<b>08/17/2004</b>				
[03:00 AM-04:00 AM]	8	12 mph	76 F	Dry
[04:00 AM-05:00 AM]	6	12 mph	76 F	Dry
[05:00 AM-06:00 AM]	9	14 mph	75 F	Dry
[06:00 AM-07:00 AM]	18	13 mph	73 F	Dry
[07:00 AM-08:00 AM]	90	13 mph	73 F	Dry
[08:00 AM-09:00 AM]	71	13 mph	73 F	Dry
[09:00 AM-10:00 AM]	97	13 mph	74 F	Dry
[10:00 AM-11:00 AM]	111	13 mph	76 F	Dry
[11:00 AM-12:00 PM]	231	13 mph	76 F	Dry
[12:00 PM-01:00 PM]	115	13 mph	78 F	Dry
[01:00 PM-02:00 PM]	140	13 mph	78 F	Dry
[02:00 PM-03:00 PM]	123	14 mph	78 F	Dry
[03:00 PM-04:00 PM]	141	15 mph	78 F	Dry
[04:00 PM-05:00 PM]	147	13 mph	78 F	Dry
[05:00 PM-06:00 PM]	214	14 mph	78 F	Dry
[06:00 PM-07:00 PM]	276	13 mph	78 F	Dry
[07:00 PM-08:00 PM]	276	13 mph	77 F	Dry
[08:00 PM-09:00 PM]	223	13 mph	78 F	Dry
[09:00 PM-10:00 PM]	168	13 mph	78 F	Dry
[10:00 PM-11:00 PM]	152	13 mph	76 F	Dry
[11:00 PM-12:00 AM]	119	13 mph	76 F	Dry
<b>09/18/2004</b>				
[12:00 AM-01:00 AM]	62	12 mph	78 F	Dry
[01:00 AM-02:00 AM]	56	13 mph	74 F	Dry
[02:00 AM-03:00 AM]	35	15 mph	73 F	Dry
[03:00 AM-04:00 AM]	30	13 mph	72 F	Dry
[04:00 AM-05:00 AM]	17	12 mph	72 F	Dry
[05:00 AM-06:00 AM]	26	13 mph	71 F	Dry
[06:00 AM-07:00 AM]	36	14 mph	70 F	Dry
[07:00 AM-08:00 AM]	55	13 mph	70 F	Dry
[08:00 AM-09:00 AM]	63	14 mph	70 F	Dry
[09:00 AM-10:00 AM]	90	13 mph	72 F	Dry
[10:00 AM-11:00 AM]	83	13 mph	72 F	Dry
[11:00 AM-12:00 PM]	118	13 mph	74 F	Dry
[12:00 PM-01:00 PM]	141	13 mph	75 F	Dry
[01:00 PM-02:00 PM]	163	15 mph	76 F	Dry
[02:00 PM-03:00 PM]	146	14 mph	76 F	Dry
[03:00 PM-04:00 PM]	139	14 mph	76 F	Dry
[04:00 PM-05:00 PM]	180	13 mph	76 F	Dry
[05:00 PM-06:00 PM]	253	14 mph	77 F	Dry
[06:00 PM-07:00 PM]	282	13 mph	77 F	Dry
[07:00 PM-08:00 PM]	230	13 mph	77 F	Dry
[08:00 PM-09:00 PM]	209	14 mph	78 F	Dry
[09:00 PM-10:00 PM]	184	13 mph	76 F	Dry
[10:00 PM-11:00 PM]	181	15 mph	76 F	Dry
[11:00 PM-12:00 AM]	114	13 mph	78 F	Dry
<b>09/19/2004</b>				

Sep-28-04 12:15P E.U.T.S.

812-436-7834

P.11

## Date/Time/Volume/Average Speed/Temperature Report

NC97				
Date & Time Range	Count	Avg Speed	Temp	Wet/Dry
[12:00 AM-01:00 AM]	74	12 mph	78 F	Dry
[01:00 AM-02:00 AM]	47	14 mph	74 F	Dry
[02:00 AM-03:00 AM]	38	17 mph	74 F	Dry
[03:00 AM-04:00 AM]	44	13 mph	72 F	Dry
[04:00 AM-05:00 AM]	8	14 mph	72 F	Dry
[05:00 AM-06:00 AM]	26	12 mph	71 F	Dry
[06:00 AM-07:00 AM]	27	13 mph	70 F	Dry
[07:00 AM-08:00 AM]	65	13 mph	70 F	Dry
[08:00 AM-09:00 AM]	60	12 mph	70 F	Dry
[09:00 AM-10:00 AM]	105	13 mph	70 F	Dry
[10:00 AM-11:00 AM]	193	13 mph	72 F	Dry
[11:00 AM-12:00 PM]	198	13 mph	73 F	Dry
[12:00 PM-01:00 PM]	212	13 mph	75 F	Dry
[01:00 PM-02:00 PM]	185	13 mph	76 F	Dry
[02:00 PM-03:00 PM]	196	13 mph	76 F	Dry
[03:00 PM-04:00 PM]	183	14 mph	76 F	Dry
[04:00 PM-05:00 PM]	166	13 mph	76 F	Dry
[05:00 PM-06:00 PM]	129	13 mph	76 F	Dry
[06:00 PM-07:00 PM]	153	13 mph	76 F	Dry
[07:00 PM-08:00 PM]	117	13 mph	76 F	Dry
[08:00 PM-09:00 PM]	94	14 mph	76 F	Dry
[09:00 PM-10:00 PM]	74	12 mph	76 F	Dry
[10:00 PM-11:00 PM]	61	13 mph	74 F	Dry
[11:00 PM-12:00 AM]	44	12 mph	74 F	Dry
09/20/2004				
[12:00 AM-01:00 AM]	37	13 mph	72 F	Dry
[01:00 AM-02:00 AM]	12	12 mph	72 F	Dry
[02:00 AM-03:00 AM]	7	13 mph	72 F	Dry
[03:00 AM-04:00 AM]	3	12 mph	70 F	Dry
[04:00 AM-05:00 AM]	3	13 mph	69 F	Dry
[05:00 AM-06:00 AM]	9	12 mph	68 F	Dry
[06:00 AM-07:00 AM]	11	13 mph	68 F	Dry
[07:00 AM-08:00 AM]	58	13 mph	68 F	Dry
[08:00 AM-09:00 AM]	55	13 mph	70 F	Dry
[09:00 AM-10:00 AM]	84	13 mph	70 F	Dry
[10:00 AM-11:00 AM]	103	13 mph	70 F	Dry
[11:00 AM-12:00 PM]	113	13 mph	72 F	Dry
[12:00 PM-01:00 PM]	107	14 mph	73 F	Dry



**APPENDIX F**  
*CAPACITY & QUEUE ANALYSES WORKSHEETS*

3: Route 22E Off-Ramp/Catasauqua Rd & Airport Road

Existing Conditions  
Timing Plan: AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑↑		↑		↑↑↑	↑	↑↑	↑↑	
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	14	12	12	12
Grade (%)		5%			1%			0%				1%
Total Lost time (s)		4.0		4.0		4.0		4.0	4.0	4.0	4.0	
Lane Util. Factor		0.95		0.97		1.00		0.91	1.00	0.97	0.95	
Frt		1.00		1.00		0.85		1.00	0.85	1.00	1.00	
Flt Protected		1.00		0.95		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (prot)		3352		3383		1560		4673	1552	3318	3421	
Flt Permitted		1.00		0.95		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (perm)		3352		3383		1560		4673	1552	3318	3421	
Volume (vph)	0	210	0	177	0	499	0	1007	124	189	846	0
Peak-hour factor, PHF	0.85	0.85	0.85	0.87	0.87	0.87	0.87	0.87	0.87	0.86	0.86	0.86
Adj. Flow (vph)	0	247	0	203	0	574	0	1157	143	220	984	0
RTOR Reduction (vph)	0	0	0	0	0	5	0	0	69	0	0	0
Lane Group Flow (vph)	0	247	0	203	0	569	0	1157	74	220	984	0
Heavy Vehicles (%)	5%	5%	5%	3%	3%	3%	11%	11%	11%	5%	5%	5%
Turn Type				Prot		custom			pm+ov		Prot	
Protected Phases		8		4		1 4 8		2	4		1	6
Permitted Phases									2			
Actuated Green, G (s)		21.4		14.0		60.8		40.2	54.2		13.4	60.6
Effective Green, g (s)		23.4		16.0		63.8		43.2	59.2		16.4	63.6
Actuated g/C Ratio		0.20		0.14		0.55		0.38	0.51		0.14	0.55
Clearance Time (s)		6.0		6.0				7.0	6.0		7.0	7.0
Vehicle Extension (s)		3.0		3.0				3.0	3.0		3.0	3.0
Lane Grp Cap (vph)		682		471		865		1755	853		473	1892
v/s Ratio Prot		0.07		0.06		c0.36		c0.25	0.01		0.07	0.29
v/s Ratio Perm									0.04			
v/c Ratio		0.36		0.43		0.66		0.66	0.09		0.47	0.52
Uniform Delay, d1		39.7		45.3		17.9		29.8	14.2		45.3	16.1
Progression Factor		1.00		1.00		1.00		0.89	3.53		1.00	1.00
Incremental Delay, d2		0.3		0.6		1.8		1.8	0.0		0.7	1.0
Delay (s)		39.7		46.0		19.8		28.1	50.0		46.0	17.2
Level of Service		D		D		B		C	D		D	B
Approach Delay (s)		39.7			26.6			30.5				22.4
Approach LOS		D			C			C				C

Intersection Summary	
HCM Average Control Delay	27.5
HCM Volume to Capacity ratio	0.66
Actuated Cycle Length (s)	115.0
Intersection Capacity Utilization	57.0%
Analysis Period (min)	15
HCM Level of Service	C
Sum of lost time (s)	8.0
ICU Level of Service	B

c Critical Lane Group

3: Route 22E Off-Ramp/Catasauqua Rd & Airport Road

Existing Conditions  
Timing Plan: AM Peak Hour



Lane Group	EBT	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↑↑	↖↗	↖	↑↑↑	↖	↖↗	↑↑
Volume (vph)	210	177	499	1007	124	189	846
Lane Group Flow (vph)	247	203	574	1157	143	220	984
Turn Type		Prot	custom		pm+ov	Prot	
Protected Phases	8	4	1 4 8	2	4	1	6
Permitted Phases					2		
Detector Phases	8	4	1 4 8	2	4	1	6
Minimum Initial (s)	3.0	3.0		8.0	3.0	3.0	8.0
Minimum Split (s)	9.0	9.0		15.0	9.0	10.0	15.0
Total Split (s)	28.0	20.0	71.0	44.0	20.0	23.0	67.0
Total Split (%)	24.3%	17.4%	61.7%	38.3%	17.4%	20.0%	58.3%
Yellow Time (s)	4.0	4.0		5.0	4.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0
Lead/Lag				Lag		Lead	
Lead-Lag Optimize?							
Recall Mode	None	None		C-Max	None	None	C-Max
v/c Ratio	0.36	0.43	0.66	0.66	0.16	0.47	0.52
Control Delay	40.9	48.5	21.0	28.8	8.6	47.0	17.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.9	48.5	21.0	28.8	8.6	47.0	17.5
Queue Length 50th (ft)	82	72	273	275	21	77	232
Queue Length 95th (ft)	114	106	357	326	73	108	270
Internal Link Dist (ft)	440			140			320
Turn Bay Length (ft)		350			500	350	
Base Capacity (vph)	700	471	902	1757	918	548	1893
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.35	0.43	0.64	0.66	0.16	0.40	0.52

Intersection Summary

Cycle Length: 115

Actuated Cycle Length: 115

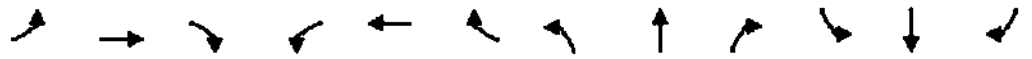
Offset: 14 (12%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow

Natural Cycle: 50

Control Type: Actuated-Coordinated

Splits and Phases: 3: Route 22E Off-Ramp/Catasauqua Rd & Airport Road

↖ ø1	↑ ø2	↖ ø4	↗ ø8
23%	44%	20%	26%
↓ ø6			
67%			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↑↑		↖↗		↖↗		↑↑↑		↖	↖↗	↑↑		
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	14	12	12	12	
Grade (%)	5%		1%		1%		0%		0%		1%		
Total Lost time (s)	4.0		4.0		4.0		4.0		4.0		4.0		
Lane Util. Factor	0.95		0.97		0.88		0.91		1.00	0.97	0.95		
Frnt	1.00		1.00		0.85		1.00		0.85	1.00	1.00		
Flt Protected	1.00		0.95		1.00		1.00		1.00	0.95	1.00		
Satd. Flow (prot)	3352		3383		2746		4673		1552	3318	3421		
Flt Permitted	1.00		0.95		1.00		1.00		1.00	0.95	1.00		
Satd. Flow (perm)	3352		3383		2746		4673		1552	3318	3421		
Volume (vph)	0	220	0	208	0	523	0	1131	138	198	934	10	
Peak-hour factor, PHF	0.85	0.85	0.85	0.87	0.87	0.87	0.87	0.87	0.87	0.86	0.86	0.86	
Adj. Flow (vph)	0	259	0	239	0	601	0	1300	159	230	1086	10	
RTOR Reduction (vph)	0	0	0	0	0	5	0	0	77	0	0	0	
Lane Group Flow (vph)	0	259	0	239	0	596	0	1300	82	230	1086	10	
Heavy Vehicles (%)	5%	5%	5%	3%	3%	3%	11%	11%	11%	5%	5%	5%	
Turn Type	Prot		custom		pm to v		Prot		Prot		Prot		
Protected Phases	8		4		1 4 8		2		4	1	6		
Permitted Phases							2						
Actuated Green, G (s)	21.3		14.0		60.9		40.1		54.1	13.6	60.7		
Effective Green, g (s)	23.3		16.0		63.9		43.1		59.1	16.6	63.7		
Actuated g/C Ratio	0.20		0.14		0.56		0.37		0.51	0.14	0.55		
Clearance Time (s)	6.0		6.0		7.0		7.0		6.0	7.0	7.0		
Vehicle Extension (s)	3.0		3.0		3.0		3.0		3.0	3.0	3.0		
Lane Grp Cap (vph)	679		471		1526		1751		852	479	1895		
v/s Ratio Prot	0.08		c0.07		c0.22		c0.28		0.01	0.07	c0.32		
v/s Ratio Perm									0.04				
v/c Ratio	0.38		0.51		0.39		0.74		0.10	0.48	0.57		
Uniform Delay, d1	39.6		45.9		14.5		31.1		14.3	45.2	16.8		
Progression Factor	1.00		1.00		1.00		0.81		3.07	1.00	1.00		
Incremental Delay, d2	0.4		0.9		0.2		2.7		0.0	0.8	1.3		
Delay (s)	40.0		46.7		14.7		27.8		43.9	46.0	18.0		
Level of Service	D		D		B		C		D	D	B		
Approach Delay (s)	40.0		23.8		29.5		22.9						
Approach LOS	D		C		C		C						
<b>Intersection Summary</b>													
HCM Average Control Delay	26.7						HCM Level of Service						C
HCM Volume to Capacity ratio	0.59												
Actuated Cycle Length (s)	115.0						Sum of lost time (s)						12.0
Intersection Capacity Utilization	52.8%						ICU Level of Service						A
Analysis Period (min)	15												

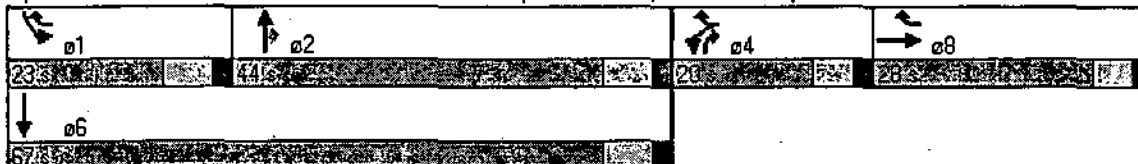
c Critical Lane Group

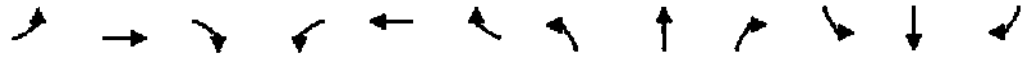


Lane Group	EBT	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↑↑	↗↘	↗↘	↑↑↑	↗	↗↘	↑↑
Volume (vph)	220	208	523	1131	138	198	934
Lane Group Flow (vph)	259	239	601	1300	159	230	1086
Turn Type		Prot+custom			pm+ov	Prot	
Protected Phases	8	4	1 4 8	2	4	1	6
Permitted Phases					2		
Detector Phases	8	4	1 4 8	2	4	1	6
Minimum Initial (s)	3.0	3.0		8.0	3.0	3.0	8.0
Minimum Split (s)	9.0	9.0		15.0	9.0	10.0	15.0
Total Split (s)	28.0	20.0	71.0	44.0	20.0	23.0	67.0
Total Split (%)	24.3%	17.4%	61.7%	38.3%	17.4%	20.0%	58.3%
Yellow Time (s)	4.0	4.0		5.0	4.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0
Lead/Lag				Lag		Lead	
Lead-Lag Optimize?							
Recall Mode	None	None		C-Max	None	None	C-Max
v/c Ratio	0.38	0.51	0.39	0.74	0.17	0.48	0.57
Control Delay	41.1	50.1	14.7	28.5	7.2	47.2	18.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.1	50.1	14.7	28.5	7.2	47.2	18.4
Queue Length 50th (ft)	87	85	130	318	29	81	267
Queue Length 95th (ft)	120	122	158	377	57	113	308
Internal Link Dist (ft)	440			140			320
Turn Bay Length (ft)		350	225		500	350	
Base Capacity (vph)	700	471	1585	1751	923	548	1894
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.51	0.38	0.74	0.17	0.42	0.57

**Intersection Summary**  
 Cycle Length: 115  
 Actuated Cycle Length: 115  
 Offset: 14 (12%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow  
 Natural Cycle: 55  
 Control Type: Actuated-Coordinated

Splits and Phases: 3: Route 22E Off-Ramp/Catasauqua Rd & Airport Road





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↑↑			↑↑			↑↑			↑↑↑	↑	↑↑	↑↑
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	14	12	12	12	
Grade (%)	5%			1%			0%			1%			
Total Lost time (s)	4.0			4.0			4.0		4.0	4.0	4.0	4.0	
Lane Util. Factor	0.95			0.97			0.88		0.91	1.00	0.97	0.95	
Frt	1.00			1.00			0.85		1.00	0.85	1.00	1.00	
Flt Protected	1.00			0.95			1.00		1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3352			3383			2746		4673	1552	3318	3421	
Flt Permitted	1.00			0.95			1.00		1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3352			3383			2746		4673	1552	3318	3421	
Volume (vph)	0	220	0	208	0	523	0	1149	138	198	1023	0	
Peak-hour factor, PHF	0.85	0.85	0.85	0.87	0.87	0.87	0.87	0.87	0.87	0.86	0.86	0.86	
Adj. Flow (vph)	0	259	0	239	0	601	0	1321	159	230	1190	0	
RTOR Reduction (vph)	0	0	0	0	0	4	0	0	77	0	0	0	
Lane Group Flow (vph)	0	259	0	239	0	597	0	1321	82	230	1190	0	
Heavy Vehicles (%)	5%	5%	5%	3%	3%	3%	11%	11%	11%	5%	5%	5%	
Turn Type				Prot		custom		pm+ov		Prot			
Protected Phases	8			4		1 4 8		2 4		1 6			
Permitted Phases								2					
Actuated Green, G (s)	21.3			14.0		60.9		40.1 54.1		13.6 60.7			
Effective Green, g(s)	23.3			16.0		63.9		43.1 59.1		16.6 63.7			
Actuated g/C Ratio	0.20			0.14		0.56		0.37 0.51		0.14 0.55			
Clearance Time (s)	6.0			6.0		7.0		7.0 6.0		7.0 7.0			
Vehicle Extension (s)	3.0			3.0		3.0		3.0 3.0		3.0 3.0			
Lane Grp Cap (vph)	679			471		1526		1751 852		479 1895			
v/s Ratio Prot	0.08			c0.07		c0.22		c0.28 0.01		0.07 c0.35			
v/s Ratio Perm								0.04					
v/c Ratio	0.38			0.51		0.39		0.75 0.10		0.48 0.63			
Uniform Delay, d1	39.6			45.9		14.5		31.3 14.3		45.2 17.5			
Progression Factor	1.00			1.00		1.00		0.81 3.01		1.00 1.00			
Incremental Delay, d2	0.4			0.9		0.2		2.8 0.0		0.8 1.6			
Delay (s)	40.0			46.7		14.7		28.1 43.1		46.0 19.1			
Level of Service	D			D		B		C D		D D		B	
Approach Delay (s)	40.0			23.8		29.7		23.5					
Approach LOS	D			G		G		C					

Intersection Summary			
HCM Average Control Delay	26.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	53.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group





Lane Group	EBT	WBL	WBR	NBT	NBR	SBT	SBT
Lane Configurations	↑↑	↖↗	↖↗	↑↑↑	↑	↖↗	↑↑
Volume (vph)	220	208	523	1149	138	198	1023
Lane Group Flow (vph)	259	239	601	1321	159	230	1190
Turn Type		Prot custom		pm+ov		Prot	
Protected Phases	8	4	1 4 8	2	4	1	6
Permitted Phases					2		
Detector Phases	8	4	1 4 8	2	4	1	6
Minimum Initial (s)	3.0	3.0		8.0	3.0	3.0	8.0
Minimum Split (s)	9.0	9.0		15.0	9.0	10.0	15.0
Total Split (s)	28.0	20.0	71.0	44.0	20.0	23.0	67.0
Total Split (%)	24.3%	17.4%	61.7%	38.3%	17.4%	20.0%	58.3%
Yellow Time (s)	4.0	4.0		5.0	4.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0
Lead/Lag				Lag		Lead	
Lead-Lag Optimize?							
Recall Mode	None	None		C-Max	None	None	C-Max
v/c Ratio	0.38	0.51	0.39	0.75	0.17	0.48	0.63
Control Delay	41.3	50.1	14.8	28.8	7.1	48.3	19.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.3	50.1	14.8	28.8	7.1	48.3	19.6
Queue Length 50th (ft)	87	85	131	326	29	81	306
Queue Length 95th (ft)	120	122	159	386	55	113	351
Internal Link Dist (ft)	440			140			320
Turn Bay Length (ft)		350	225		500	350	
Base Capacity (vph)	700	471	1585	1751	923	548	1894
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.51	0.38	0.75	0.17	0.42	0.63

**Intersection Summary**

Cycle Length: 115  
 Actuated Cycle Length: 115  
 Offset: 14 (12%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow  
 Natural Cycle: 55  
 Control Type: Actuated-Coordinated

Splits and Phases: 3: Route 22E Off-Ramp/Catasauqua Rd & Airport Road

01	02	04	08
23%	44%	20%	28%
06			
67%			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑			↖↗		↖↗		↑↑↑	↖	↖↗	↑↑	
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	14	12	12	12
Grade (%)	5%			1%			0%				1%	
Total Lost time (s)	4.0			4.0			4.0		4.0	4.0	4.0	4.0
Lane Util. Factor	0.95			0.97			0.88		0.91	1.00	0.97	0.95
Frt	1.00			1.00			0.85		1.00	0.85	1.00	1.00
Flt Protected	1.00			0.95			1.00		1.00	1.00	0.95	1.00
Satd. Flow (prot)	3352			3383			2746		4673	1552	3318	3421
Flt Permitted	1.00			0.95			1.00		1.00	1.00	0.95	1.00
Satd. Flow (perm)	3352			3383			2746		4673	1552	3318	3421
Volume (vph)	0	279	0	257	0	663	0	1413	173	251	171	0
Peak-hour factor, PHF	0.85	0.85	0.85	0.87	0.87	0.87	0.87	0.87	0.87	0.86	0.86	0.86
Adj. Flow (vph)	0	328	0	295	0	762	0	1624	199	292	1362	0
RTOR Reduction (vph)	0	0	0	0	0	5	0	0	50	0	0	0
Lane Group Flow (vph)	0	328	0	295	0	757	0	1624	149	292	1362	0
Heavy Vehicles (%)	5%	5%	5%	3%	3%	3%	11%	11%	11%	5%	5%	5%
Turn Type				Prot		custom		pm+ov		Prot		
Protected Phases	8!			4!		1 4 8		2 4!		1 6		
Permitted Phases								2		1		
Actuated Green, G (s)	22.0			22.0		42.5		38.5 60.5		14.5 60.0		
Effective Green, g (s)	24.0			24.0		45.5		41.5 65.5		17.5 63.0		
Actuated g/C Ratio	0.25			0.25		0.48		0.44 0.69		0.18 0.66		
Clearance Time (s)	6.0			6.0		7.0		6.0 7.0		7.0 7.0		
Vehicle Extension (s)	3.0			3.0		3.0		3.0 3.0		3.0 3.0		
Lane Grp Cap (vph)	847			855		1315		2041 1135		611 2269		
v/s Ratio Prot	0.10			0.09		c0.28		c0.35 0.03		0.09 0.40		
v/s Ratio Perm								0.06				
v/c Ratio	0.39			0.35		0.58		0.80 0.13		0.48 0.60		
Uniform Delay, d1	29.7			29.7		17.8		23.1 5.0		34.7 9.0		
Progression Factor	1.00			1.00		1.00		1.00 1.00		1.00 1.00		
Incremental Delay, d2	0.3			0.2		0.6		3.3 0.1		0.6 1.2		
Delay (s)	29.7			29.3		18.4		26.4 5.1		35.3 10.1		
Level of Service	C			C		B		C A		D B		
Approach Delay (s)	29.7			21.5		24.1		24.1		14.6		
Approach LOS	C			C		C		C		B		
<b>Intersection Summary</b>												
HCM Average Control Delay	20.7			20.7		17.8		23.1		5.0		9.0
HCM Volume to Capacity ratio	0.68			0.68		0.68		0.68		0.68		0.68
Actuated Cycle Length (s)	95.0			95.0		95.0		95.0		95.0		95.0
Intersection Capacity Utilization	62.8%			62.8%		62.8%		62.8%		62.8%		62.8%
Analysis Period (min)	15			15		15		15		15		15
! Phase conflict between lane groups.												
c Critical Lane Group												



Lane Group	EBT	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↑↑	↖↗	↖↗	↑↑↑	↖	↖↗	↑↑
Volume (vph)	279	257	663	1413	173	251	1171
Lane Group Flow (vph)	328	295	762	1624	199	292	1362
Turn Type		Prot	custom		pm+ov	Prot	
Protected Phases	8!	4!	1 4 8	2	4!	1	6
Permitted Phases					2		
Detector Phases	8	4	1 4 8	2	4	1	6
Minimum Initial (s)	3.0	3.0		8.0	3.0	3.0	8.0
Minimum Split (s)	9.0	9.0		15.0	9.0	10.0	15.0
Total Split (s)	28.0	20.0	71.0	44.0	20.0	23.0	67.0
Total Split (%)	29.5%	21.1%	74.7%	46.3%	21.1%	24.2%	70.5%
Yellow Time (s)	4.0	4.0		5.0	4.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0
Lead/Lag				Lag		Lead	
Lead-Lag Optimize?							
Recall Mode	None	None		C-Max	None	None	C-Max
v/c Ratio	0.39	0.35	0.58	0.79	0.17	0.48	0.60
Control Delay	31.0	30.5	19.3	27.0	1.5	36.6	10.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.0	30.5	19.3	27.0	1.5	36.6	10.3
Queue Length 50th (ft)	86	75	172	309	6	80	215
Queue Length 95th (ft)	118	108	222	354	22	113	251
Internal Link Dist (ft)	440			140			320
Turn Bay Length (ft)		350	225		500	350	
Base Capacity (vph)	847	855	1363	2044	1179	664	2269
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.35	0.56	0.79	0.17	0.44	0.60

**Intersection Summary**  
 Cycle Length: 95  
 Actuated Cycle Length: 95  
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow  
 Natural Cycle: 50  
 Control Type: Actuated-Coordinated  
 Phase conflict between lane groups

Splits and Phases: 3: Route 22E Off-Ramp/Catasauqua Rd & Airport Road

a1	a2	a4
23s	41s	20s
a6		a8
67s		28s



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑↑		↑↑		↑↑↑	↑	↑↑	↑↑	
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	14	12	12	12
Grade (%)		5%			1%			0%				1%
Total Lost time (s)		4.0		4.0		4.0		4.0	4.0	4.0	4.0	
Lane Util. Factor		0.95		0.97		0.88		0.91	1.00	0.97	0.95	
Frnt		1.00		1.00		0.85		1.00	0.85	1.00	1.00	
Flt Protected		1.00		0.95		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (prot)		3352		3383		2746		4673	1552	3318	3421	
Flt Permitted		1.00		0.95		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (perm)		3352		3383		2746		4673	1552	3318	3421	
Volume (vph)	0	279	0	257	0	663	0	1413	173	251	1260	0
Peak-hour factor, PHF	0.85	0.85	0.85	0.87	0.87	0.87	0.87	0.87	0.87	0.86	0.86	0.86
Adj. Flow (vph)	0	328	0	295	0	762	0	1624	199	292	1465	0
RTOR Reduction (vph)	0	0	0	0	0	5	0	0	50	0	0	0
Lane Group Flow (vph)	0	328	0	295	0	757	0	1624	149	292	1465	0
Heavy Vehicles (%)	5%	5%	5%	3%	3%	3%	11%	11%	11%	5%	5%	5%
Turn Type				Prot		custom			pm+ov		Prot	
Protected Phases		8!		4!		1 4 8		2	4!		1	6
Permitted Phases									2			
Actuated Green, G (s)		22.0		22.0		42.5		38.5	60.5		14.5	60.0
Effective Green, g (s)		24.0		24.0		45.5		41.5	65.5		17.5	63.0
Actuated g/C Ratio		0.25		0.25		0.48		0.44	0.69		0.18	0.66
Clearance Time (s)		6.0		6.0				7.0	6.0		7.0	7.0
Vehicle Extension (s)		3.0		3.0				3.0	3.0		3.0	3.0
Lane Grp Cap (vph)		847		855		1315		2041	1135		611	2269
v/s Ratio Prot		0.10		0.09		c0.28		c0.35	0.03		0.09	c0.43
v/s Ratio Perm									0.06			
v/c Ratio		0.39		0.35		0.58		0.80	0.13		0.48	0.65
Uniform Delay, d1		29.4		29.1		17.8		23.1	5.0		34.7	9.4
Progression Factor		1.00		1.00		1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2		0.3		0.2		0.6		3.3	0.1		0.6	1.4
Delay (s)		29.7		29.3		18.4		26.4	5.1		35.3	10.9
Level of Service		C		C		B		C	A		D	B
Approach Delay (s)		29.7				21.5		24.1				14.9
Approach LOS		C				C		C				B

Intersection Summary	
HCM Average Control Delay	20.6
HCM Volume to Capacity ratio	0.72
Actuated Cycle Length (s)	95.0
Intersection Capacity Utilization	62.8%
Analysis Period (min)	15
HCM Level of Service	C
Sum of lost time (s)	12.0
ICU Level of Service	B

! Phase conflict between lane groups.  
c Critical Lane Group

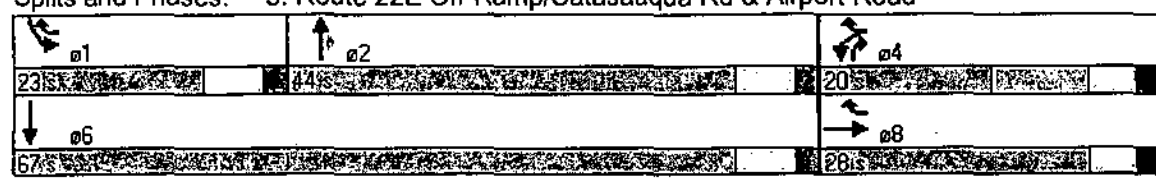


Lane Group	EBT	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↑↑	↑↑	↑↑	↑↑↑	↑	↑↑	↑↑
Volume (vph)	279	257	663	1413	173	251	1260
Lane Group Flow (vph)	328	295	762	1624	199	292	1465
Turn Type		Prot	custom		pm+ov	Prot	
Protected Phases	8!	4!	1 4 8	2	4!	1	6
Permitted Phases					2		
Detector Phases	8	4	1 4 8	2	4	1	6
Minimum Initial (s)	3.0	3.0		8.0	3.0	3.0	8.0
Minimum Split (s)	9.0	9.0		15.0	9.0	10.0	15.0
Total Split (s)	28.0	20.0	71.0	44.0	20.0	23.0	67.0
Total Split (%)	29.5%	21.1%	74.7%	46.3%	21.1%	24.2%	70.5%
Yellow Time (s)	4.0	4.0		5.0	4.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0
Lead/Lag				Lag		Lead	
Lead-Lag Optimize?							
Recall Mode	None	None		C-Max	None	None	C-Max
v/c Ratio	0.39	0.35	0.58	0.79	0.17	0.48	0.65
Control Delay	31.0	30.5	19.5	27.0	1.5	37.2	11.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.0	30.5	19.5	27.0	1.5	37.2	11.1
Queue Length 50th (ft)	86	75	172	309	6	80	243
Queue Length 95th (ft)	118	108	222	354	22	113	284
Internal Link Dist (ft)	440			140			320
Turn Bay Length (ft)		350	225		500	350	
Base Capacity (vph)	847	855	1363	2044	1179	664	2269
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.35	0.56	0.79	0.17	0.44	0.65

**Intersection Summary**

Cycle Length: 95  
 Actuated Cycle Length: 95  
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow  
 Natural Cycle: 50  
 Control Type: Actuated-Coordinated  
 Phase conflict between lane groups:

Splits and Phases: 3: Route 22E Off-Ramp/Catasauqua Rd & Airport Road



3: Route 22E Off-Ramp/Catasauqua Rd & Airport Road 2018 Base Conditions w/AP connection

Timing Plan: AM PEAK HOUR



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑			↑↑		↑↑		↑↑↑		↑	↑↑	↑↑
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	14	12	12	12
Grade (%)		5%				1%			0%			1%
Total Lost time (s)		4.0		4.0		4.0		4.0	4.0	4.0	4.0	
Lane Util. Factor		0.95		0.97		0.88		0.91	1.00	0.97	0.95	
Frt		1.00		1.00		0.85		1.00	0.85	1.00	1.00	
Flt Protected		1.00		0.95		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (prot)		3352		3383		2746		4673	1552	3318	3421	
Flt Permitted		1.00		0.95		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (perm)		3352		3383		2746		4673	1552	3318	3421	
Volume (vph)	0	279	0	257	0	663	0	2326	173	251	1559	0
Peak-hour factor, PHF	0.85	0.85	0.85	0.87	0.87	0.87	0.87	0.87	0.87	0.86	0.86	0.86
Adj. Flow (vph)	0	328	0	295	0	762	0	2674	199	292	1813	0
RTOR Reduction (vph)	0	0	0	0	0	3	0	0	28	0	0	0
Lane Group Flow (vph)	0	328	0	295	0	759	0	2674	171	292	1813	0
Heavy Vehicles (%)	5%	5%	5%	3%	3%	3%	11%	11%	11%	5%	5%	5%
Turn Type				Prot		custom			pm+ov		Prot	
Protected Phases		8		4		1 4 8		2	4		1	6
Permitted Phases									2			
Actuated Green, G (s)		10.0		10.0		31.0		65.0	75.0		15.0	87.0
Effective Green, g (s)		12.0		12.0		34.0		68.0	80.0		18.0	90.0
Actuated g/C Ratio		0.11		0.11		0.31		0.62	0.73		0.16	0.82
Clearance Time (s)		6.0		6.0				7.0	6.0		7.0	7.0
Vehicle Extension (s)		3.0		3.0				3.0	3.0		3.0	3.0
Lane Grp Cap. (vph)		366		369		849		2889	1185		543	2799
v/s Ratio Prot		0.10		0.09		0.28		0.57	0.02		0.09	0.53
v/s Ratio Perm									0.09			
v/c Ratio		0.90		0.80		0.89		0.93	0.14		0.54	0.65
Uniform Delay, d1		48.4		47.8		36.3		18.7	4.6		42.2	3.9
Progression Factor		1.00		1.00		1.00		0.66	0.90		1.00	1.00
Incremental Delay, d2		23.3		11.5		11.8		4.0	0.0		1.0	1.2
Delay (s)		71.7		59.3		48.0		16.4	4.1		43.2	5.0
Level of Service		E		E		D		B	A		D	A
Approach Delay (s)		71.7				51.2		15.6				10.3
Approach LOS		E				D		B				B

Intersection Summary			
HCM Average Control Delay	22.6	HCM Level of Service	G
HCM Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	80.5%	ICU Level of Service	D
Analysis Period (min)	15		
! Phase conflict between lane groups.			
c Critical Lane Group			

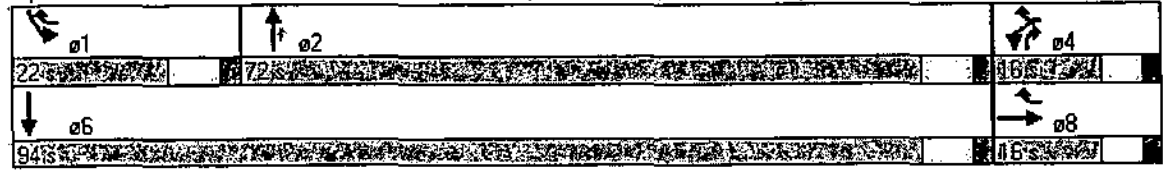
3: Route 22E Off-Ramp/Catasauqua Rd & Airport Road 2018 Base Conditions w/AP connection  
 Timing Plan: AM PEAK HOUR



Lane Group	EBT	WBL	WBR	NBT	NBR	SBT	SBT
Lane Configurations	↑↑	↗↘	↗↗	↑↑↑	↗	↗↘	↑↑
Volume (vph)	279	257	663	2326	173	251	1559
Lane Group Flow (vph)	328	295	762	2674	199	292	1813
Turn Type		Prot	custom		pm+ov	Prot	
Protected Phases	8!	4!	1 4 8	2	4!	1	6
Permitted Phases					2		
Detector Phases	8	4	1 4 8	2	4	1	6
Minimum Initial (s)	3.0	3.0		8.0	3.0	3.0	8.0
Minimum Split (s)	9.0	9.0		15.0	9.0	10.0	15.0
Total Split (s)	16.0	16.0	54.0	72.0	16.0	22.0	94.0
Total Split (%)	14.5%	14.5%	49.1%	65.5%	14.5%	20.0%	85.5%
Yellow Time (s)	4.0	4.0		5.0	4.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0
Lead/Lag				Lag		Lead	
Lead-Lag Optimize?							
Recall Mode	None	None		C-Max	None	None	C-Max
v/c Ratio	0.90	0.80	0.89	0.93	0.16	0.54	0.65
Control Delay	76.0	64.8	50.5	17.0	1.7	46.3	5.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	76.0	64.8	50.5	17.0	1.7	46.3	5.2
Queue Length 50th (ft)	122	106	289	639	17	98	197
Queue Length 95th (ft)	#186	#161	#386	688	m19	136	220
Internal Link Dist (ft)	440			140			320
Turn Bay Length (ft)		350	225		500	350	
Base Capacity (vph)	366	369	852	2889	1210	543	2799
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.90	0.80	0.89	0.93	0.16	0.54	0.65

**Intersection Summary:**  
 Cycle Length: 110  
 Actuated Cycle Length: 110  
 Offset: 22 (20%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow  
 Natural Cycle: 75  
 Control Type: Actuated-Coordinated  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m: Volume for 95th percentile queue is metered by upstream signal.  
 ! Phase conflict between lane groups.

Splits and Phases: 3: Route 22E Off-Ramp/Catasauqua Rd & Airport Road





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑		↑↑		↑↑		↑↑↑		↑	↑↑	↑↑	
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	14	12	12	12
Grade (%)	5%		5%		4%		0%				1%	
Total Lost time (s)	4.0		4.0		4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	0.95		0.97		0.88		0.91	1.00	0.97	0.95	0.95	
Frt	1.00		1.00		0.85		1.00	0.85	1.00	1.00	1.00	
Flt Protected	1.00		0.95		1.00		1.00	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	3352		3383		2746		4673	1552	3318	3421	3421	
Flt Permitted	1.00		0.95		1.00		1.00	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	3352		3383		2746		4673	1552	3318	3421	3421	
Volume (vph)	0	279	0	257	0	663	0	2340	173	251	1525	0
Peak-hour factor, PHF	0.85	0.85	0.85	0.87	0.87	0.87	0.87	0.87	0.87	0.86	0.86	0.86
Adj. Flow (vph)	0	328	0	295	0	762	0	2690	199	292	1773	0
RTOR Reduction (vph)	0	0	0	0	0	3	0	0	28	0	0	0
Lane Group Flow (vph)	0	328	0	295	0	759	0	2690	171	292	1773	0
Heavy Vehicles (%)	5%	5%	5%	3%	3%	3%	11%	11%	11%	5%	5%	5%
Turn type	Prot		Prot		custom		pm+ov		Prot		Prot	
Protected Phases	8!		4!		1 4 8		2 4!		1		6	
Permitted Phases							2					
Actuated Green, G (s)	10.0		10.0		31.0		65.0		75.0		15.0	
Effective Green, g (s)	12.0		12.0		34.0		68.0		80.0		18.0	
Actuated g/C Ratio	0.11		0.11		0.31		0.62		0.73		0.16	
Clearance Time (s)	6.0		6.0		7.0		7.0		6.0		7.0	
Vehicle Extension (s)	3.0		3.0				3.0		3.0		3.0	
Lane Grp Cap (vph)	366		369		849		2889		1185		2799	
v/s Ratio Prot	0.10		0.09		c0.28		c0.58		0.02		0.09	
v/s Ratio Perm							0.09					
v/c Ratio	0.90		0.80		0.89		0.93		0.14		0.63	
Uniform Delay, d1	48.4		47.8		36.3		18.9		4.6		42.2	
Progression Factor	1.00		1.00		1.00		0.73		1.16		1.00	
Incremental Delay, d2	23.3		11.5		11.8		4.6		20.0		1.0	
Delay (s)	71.7		59.3		48.1		18.4		5.3		43.2	
Level of Service	E		E		D		B		A		D	
Approach Delay (s)	71.7				51.2		17.5				10.3	
Approach LOS	E				D		B				B	

Intersection Summary	
HCM Average Control Delay	23.6
HCM Volume to Capacity ratio	0.92
Actuated Cycle Length (s)	110.0
Intersection Capacity Utilization	80.8%
Analysis Period (min)	15
HCM Level of Service	C
Sum of lost time (s)	6.0
ICU Level of Service	D

l Phase conflict between lane groups.  
 c Critical Lane Group





Lane Group	NBT	WBL	WBR	NBT	NBR	SBT	SBT
Lane Configurations	↑↑	↖↗	↖↗	↑↑↑	↑	↖↗	↑↑
Volume (vph)	279	257	663	2340	173	251	1525
Lane Group Flow (vph)	328	295	762	2690	199	292	1773
Turn Type		Prot custom		pm+ov		Prot	
Protected Phases	8	4	1 4 8	2	4	1	6
Permitted Phases				2	2		
Detector Phases	8	4	1 4 8	2	4	1	6
Minimum Initial (s)	3.0	3.0		3.0	3.0	3.0	3.0
Minimum Split (s)	9.0	9.0		15.0	9.0	10.0	15.0
Total Split (s)	16.0	16.0	54.0	72.0	16.0	22.0	94.0
Total Split (%)	14.5%	14.5%	49.1%	65.5%	14.5%	20.0%	85.5%
Yellow Time (s)	4.0	4.0		5.0	4.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0
Lead/Lag				Lag		Lead	
Lead-Lag Optimize?							
Recall Mode	None	None		C-Max	None	None	C-Max
v/c Ratio	0.90	0.80	0.89	0.93	0.16	0.54	0.63
Control Delay	76.0	64.8	50.6	19.0	2.1	46.3	15.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	76.0	64.8	50.6	19.0	2.1	46.3	15.0
Queue Length 50th (ft)	122	106	289	653	23	98	188
Queue Length 95th (ft)	#186	#161	#386	#709	#20	#136	#210
Internal Link Dist (ft)	440			140			320
Turn Bay Length (ft)		350	225		500	350	
Base Capacity (vph)	366	369	852	2889	1210	543	2799
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.90	0.80	0.89	0.93	0.16	0.54	0.63

**Intersection Summary**

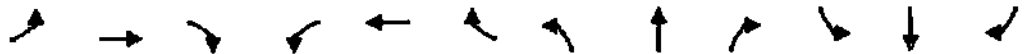
Cycle Length: 110  
 Actuated Cycle Length: 110  
 Offset: 22 (20%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow  
 Natural Cycle: 75  
 Control Type: Actuated-Coordinated  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.  
 ! Phase conflict between lane groups.

Splits and Phases: 3: Route 22E Off-Ramp/Catasauqua Rd & Airport Road

a1	a2	a4
22.3%	72.3%	16.5%
a6		a8
94.3%		16.5%

3: Route 22E Off-Ramp/Catasauqua Rd & Airport Road

Existing Conditions  
Timing Plan: PM Peak Hour



Movement	EBL	EB	EBR	WBL	WB	WBR	NBL	NB	NBR	SBL	SB	SBR
Lane Configurations	↑↑			↑↑		↑	↑↑↑		↑	↑↑		↑↑
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	14	12	12	12
Grade (%)	5%			1%			0%			1%		
Total Lost time (s)	4.0			4.0			4.0			4.0		
Lane Util. Factor	0.95			0.97			1.00			0.97		0.95
Friction	1.00			1.00			0.85			1.00		1.00
Flt. Protected	1.00			0.95			1.00			0.95		1.00
Satd. Flow (prot)	3352			3416			1575			5085		1689
Flt. Permitted	1.00			0.95			1.00			0.95		1.00
Satd. Flow (perm)	3352			3416			1575			5085		1689
Volume (vph)	0	276	0	220	0	511	0	1421	310	319	767	0
Peak-hour factor, PHF	0.91	0.91	0.91	0.87	0.87	0.87	0.77	0.77	0.77	0.93	0.93	0.93
Adj. Flow (vph)	0	303	0	253	0	587	0	1845	403	343	825	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	82	0	0	0
Lane Group Flow (vph)	0	303	0	253	0	587	0	1845	321	343	825	0
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type				Prot		FL custom		pm+ov		Prot		
Protected Phases	8			4		1 4 8		2		4		1 6
Permitted Phases								2				
Actuated Green, G (s)	21.8			8.0		52.8		33.2		41.2		11.0
Effective Green, G (s)	23.8			10.0		55.8		36.2		46.2		14.0
Actuated g/C Ratio	0.24			0.10		0.56		0.36		0.46		0.14
Clearance Time (s)	6.0			6.0		7.0		6.0		7.0		7.0
Vehicle Extension (s)	3.0			3.0				3.0		3.0		3.0
Lane Grp Cap (vph)	1798			342		879		1841		848		909
v/s Ratio Prot	0.09			0.07		0.37		0.36		0.04		0.23
v/s Ratio Perm										0.15		
v/c Ratio	0.38			0.74		0.67		1.00		0.38		0.43
Uniform Delay, d1	31.9			43.7		15.6		31.9		17.5		13.7
Progression Factor	1.00			1.00		1.00		0.81		0.90		1.00
Incremental Delay, d2	0.3			8.1		1.9		19.2		0.2		5.1
Delay (s)	32.2			51.9		17.5		45.2		16.1		14.4
Level of Service	C			D		B		D		B		B
Approach Delay (s)	32.2			27.8				39.9				23.7
Approach LOS	C			C				D				C

Intersection Summary	
HCM Average Control Delay	133.1
HCM Level of Service	C
HCM Volume to Capacity ratio	0.80
Actuated Cycle Length (s)	100.0
Sum of lost time (s)	18.0
Intersection Capacity Utilization	65.8%
ICU Level of Service	C
Analysis Period (min)	15

c Critical Lane Group

3: Route 22E Off-Ramp/Catasauqua Rd & Airport Road

Existing Conditions  
Timing Plan: PM Peak Hour



Lane Group	EB	WBL	WBR	NBT	NBR	SBL	SB
Lane Configurations	↑↑	↑↑	↑	↑↑↑	↑	↑↑	↑↑
Volume (vph)	276	220	511	1421	310	319	767
Lane Group Flow (vph)	303	253	587	1845	403	343	825
Turn Type		Prot	custom		pm-ov	Prot	
Protected Phases	8	4	1 4 8	2	4	1	6
Permitted Phases					2		
Detector Phases	8	4	1 4 8	2	4	1	6
Minimum Initial (s)	3.0	3.0		8.0	3.0	3.0	8.0
Minimum Split (s)	9.0	9.0		15.0	9.0	10.0	15.0
Total Split (s)	28.0	14.0	60.0	40.0	14.0	18.0	58.0
Total Split (%)	28.0%	14.0%	60.0%	40.0%	14.0%	18.0%	58.0%
Yellow Time (s)	4.0	4.0		5.0	4.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0
Lead/Lag				Lag		Lead	
Lead-Lag Optimize?							
Recall Mode	None	None		C-Max	None	None	C-Max
v/c Ratio	0.38	0.74	0.67	1.00	0.44	0.72	0.43
Control Delay	33.5	57.8	20.3	46.8	9.9	50.3	14.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.5	57.8	20.3	46.8	9.9	50.3	14.6
Queue Length 50th (ft)	85	81	247	451	114	109	157
Queue Length 95th (ft)	125	127	349	422	129	157	203
Internal Link Dist (ft)	440			140			320
Turn Bay Length (ft)		350			500	350	
Base Capacity (vph)	804	342	870	1838	923	479	1908
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.74	0.67	1.00	0.44	0.72	0.43

Intersection Summary

Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 62 (62%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow  
 Natural Cycle: 65  
 Control Type: Actuated-Coordinated

Volume exceeds capacity; queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity; queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: Route 22E Off-Ramp/Catasauqua Rd & Airport Road

← 01	↑ 02	↖ 04	↗ 08
18s	40s	18s	22s
↓ 06			
58s			

3: Route 22E Off-Ramp/Catasauqua Rd & Airport Road

2008 Base Conditions  
Timing Plan: PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	ENR	SBL	SBT	SBR	
Lane Configurations		↑↑		↔		↔	↑↑↑	↑	↔	↑↑			
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	14	12	12	12	
Grade (%)		5%			1%			0%				1%	
Total Lost time (s)		4.0		4.0		4.0		4.0	4.0	4.0	4.0		
Lane Util. Factor		0.95		0.97		0.88		0.91	1.00	0.97	0.95		
Frt		1.00		1.00		0.85		1.00	0.85	1.00	1.00		
Flt Protected		1.00		0.95		1.00		1.00	1.00	0.95	1.00		
Satd. Flow (prot)		3352		3416		2773		5085	1689	3416	3522		
Flt Permitted		1.00		0.95		1.00		1.00	1.00	0.95	1.00		
Satd. Flow (perm)		3352		3416		2773		5085	1689	3416	3522		
Volume (vph)	0	290	0	276	0	536	0	1760	328	335	905	0	
Peak-hour factor, PHF	0.91	0.91	0.91	0.87	0.87	0.87	0.77	0.77	0.77	0.93	0.93	0.93	
Adj. Flow (vph)	0	319	0	317	0	616	0	2286	426	360	973	0	
RTOR Reduction (vph)	0	0	0	0	0	1	0	0	25	0	0	0	
Lane Group Flow (vph)	0	319	0	317	0	615	0	2286	401	360	973	0	
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	2%	2%	2%	2%	2%	2%	
Turn Type				Prot		custom		pm ov		Prot			
Protected Phases		8		4		1 4 8		2	4	1	6		
Permitted Phases									2				
Actuated Green, G (s)		16.0		10.0		49.0		47.0	57.0	11.0	65.0		
Effective Green, g (s)		18.0		12.0		52.0		50.0	62.0	14.0	68.0		
Actuated g/C Ratio		0.16		0.11		0.47		0.45	0.56	0.13	0.62		
Clearance Time (s)		6.0		6.0		7.0		7.0	6.0	7.0	7.0		
Vehicle Extension (s)		3.0		3.0		3.0		3.0	3.0	3.0	3.0		
Lane Grp Cap (vph)		549		373		1311		2311	1013	435	2177		
v/s Ratio Prot		c0.10		c0.09		0.22		c0.45	0.04	c0.11	0.28		
v/s Ratio Perm									0.19				
v/c Ratio		0.58		0.85		0.47		0.99	0.40	0.83	0.45		
Uniform Delay, d1		42.5		48.1		19.6		29.7	13.5	46.8	11.1		
Progression Factor		1.00		1.00		1.00		0.78	0.65	1.00	1.00		
Incremental Delay, d2		1.6		16.4		0.3		13.8	10.2	12.2	0.7		
Delay (s)		44.1		64.5		19.9		37.1	9.0	59.0	11.7		
Level of Service		D		E		B		D	A	E	B		
Approach Delay (s)		44.1		35.1		32.7		24.5					
Approach LOS		D		D		C		C		A	C		
<b>Intersection Summary</b>													
HCM Average Control Delay	31.7						HCM Level of Service						C
HCM Volume to Capacity ratio	0.87												
Actuated Cycle Length (s)	110.0						Sum of lost time (s)						16.0
Intersection Capacity Utilization	72.8%						ICU Level of Service						C
Analysis Period (min)	15												

c Critical Lane Group



Lane Group	EBT	WBL	WBRT	NBT	NBR	SBL	SBT
Lane Configurations	↑↑	↘↘	↗↗	↑↑↑	↑	↘↘	↑↑
Volume (vph)	290	276	536	1760	328	335	905
Lane Group Flow (vph)	319	317	616	2286	426	360	973
Turn Type		Prot/custom			pm+ov	Prot	
Protected Phases	8	4	1 4 8	2	4	1	6
Permitted Phases					2		
Detector Phases	8	4	1 4 8	2	4	1	6
Minimum Initial (s)	3.0	3.0		8.0	3.0	3.0	8.0
Minimum Split (s)	9.0	9.0		15.0	9.0	10.0	15.0
Total Split (s)	22.0	16.0	56.0	54.0	18.0	18.0	72.0
Total Split (%)	20.0%	14.5%	50.9%	49.1%	14.5%	16.4%	65.5%
Yellow Time (s)	4.0	4.0		5.0	4.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0
Lead/Lag				Lag		Lead	
Lead-Lag Optimize?							
Recall Mode	None	None		C-Max	None	None	C-Max
v/c Ratio	0.58	0.85	0.47	0.99	0.41	0.83	0.45
Control Delay	47.3	69.6	21.1	38.0	7.5	63.8	11.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.3	69.6	21.1	38.0	7.5	63.8	11.9
Queue Length 50th (ft)	111	114	161	612	65	129	176
Queue Length 95th (ft)	158	178	206	347	80	203	222
Internal Link Dist (ft)	440			140			320
Turn Bay Length (ft)		350	225		500	350	
Base Capacity (vph)	549	373	1312	2311	1037	435	2177
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.58	0.85	0.47	0.99	0.41	0.83	0.45

**Intersection Summary:**  
 Cycle Length: 110  
 Actuated Cycle Length: 110  
 Offset: 37 (34%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 3: Route 22E Off-Ramp/Catasauqua Rd & Airport Road

↘ p1	↑ p2	↗ p4	→ p8
18%	54%	16%	12%
↓ p5			
72%			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑			↖↗		↖↗		↑↑↑		↑	↖↗	↑↑
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	14	12	12	12
Grade (%)		5%			1%			0%				1%
Total Lost time (s)		4.0		4.0		4.0		4.0	4.0	4.0	4.0	
Lane Util. Factor		0.95		0.97		0.88		0.91	1.00	0.97	0.95	
Frt		1.00		1.00		0.85		1.00	0.85	1.00	1.00	
Flt Protected		1.00		0.95		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (prot)		3352		3416		2773		5085	1689	3416	3522	
Flt Permitted		1.00		0.95		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (perm)		3352		3416		2773		5085	1689	3416	3522	
Volume (vph)	0	290	0	276	0	536	0	1986	328	335	1129	0
Peak-hour factor, PHF	0.91	0.91	0.91	0.87	0.87	0.87	0.77	0.77	0.77	0.93	0.93	0.93
Adj. Flow (vph)	0	319	0	317	0	616	0	2579	426	360	1214	0
RTOR Reduction (vph)	0	0	0	0	0	1	0	0	25	0	0	0
Lane Group Flow (vph)	0	319	0	317	0	615	0	2579	401	360	1214	0
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type				Prot		custom			pm+ov	Prot		
Protected Phases		8		4		1 4 8		2	4	1	6	
Permitted Phases								2				
Actuated Green, G (s)		16.0		10.0		49.0		47.0	57.0	11.0	65.0	
Effective Green, g (s)		18.0		12.0		52.0		50.0	62.0	14.0	68.0	
Actuated g/C Ratio		0.16		0.11		0.47		0.45	0.56	0.13	0.62	
Clearance Time (s)		6.0		6.0				7.0	6.0	7.0	7.0	
Vehicle Extension (s)		3.0		3.0				3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		549		373		1311		2311	1013	435	2177	
v/s Ratio Prot		c0.10		c0.09		0.22		c0.51	0.04	c0.11	0.34	
v/s Ratio Perm									0.19			
v/c Ratio		0.58		0.85		0.47		1.12	0.40	0.83	0.56	
Uniform Delay, d1		42.5		48.1		19.7		30.0	13.5	46.8	12.2	
Progression Factor		1.00		1.00		1.00		0.73	0.60	1.00	1.00	
Incremental Delay, d2		1.6		1.7		0.3		56.9	0.2	12.2	1.0	
Delay (s)		44.1		64.5		19.9		78.6	8.2	59.0	13.3	
Level of Service		D		E		B		E	A	E	B	
Approach Delay (s)		44.1				35.1		68.7			23.7	
Approach LOS		D				D		E			C	

**Intersection Summary**

HCM Average Control Delay	49.8	HCM Level of Service	D
HCM Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	77.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBT	WBL	WBR	NBT	NBR	SBT	SBT
Lane Configurations	↑↑	↑↑	↑↑	↑↑↑	↑	↑↑	↑↑
Volume (vph)	290	276	536	1986	328	335	1129
Lane Group Flow (vph)	319	317	616	2579	426	360	1214
Turn Type		Prot	custom		pr	ov	Prot
Protected Phases	8	4	1 4 8	2	4	1	6
Permitted Phases					2		
Detector Phases	8	4	1 4 8	2	4	1	6
Minimum Initial (s)	3.0	3.0		8.0	3.0	3.0	8.0
Minimum Split (s)	9.0	9.0		15.0	9.0	10.0	15.0
Total Split (s)	22.0	16.0	56.0	54.0	16.0	18.0	72.0
Total Split (%)	20.0%	14.5%	50.9%	49.1%	14.5%	16.4%	65.5%
Yellow Time (s)	4.0	4.0		5.0	4.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0
Lead/Lag				Lag		Lead	
Lead-Lag Optimize?							
Recall Mode	None	None		C:Max	None	None	C:Max
v/c Ratio	0.58	0.85	0.47	1.12	0.41	0.83	0.56
Control Delay	47.3	69.6	21.1	80.1	6.8	63.8	13.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.3	69.6	21.1	80.1	6.8	63.8	13.5
Queue Length 50th (ft)	111	114	162	-768	61	129	243
Queue Length 95th (ft)	158	178	206	525	m72	203	301
Internal Link Dist (ft)	440			140			320
Turn Bay Length (ft)		350	225		500	350	
Base Capacity (vph)	549	373	1311	2311	1037	435	2177
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.58	0.85	0.47	1.12	0.41	0.83	0.56

**Intersection Summary**

Cycle Length: 110  
 Actuated Cycle Length: 110  
 Offset: 37 (34%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated  
 - Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.

**Splits and Phases: 3: Route 22E Off-Ramp/Catasauqua Rd & Airport Road**

01	02	04	08
18%	54%	16%	22%
06			
72%			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑			↖↗		↖↗		↑↑↑		↑	↑↑	
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	14	12	12	12
Grade (%)		5%			1%			0%				1%
Total Lost time (s)		4.0		4.0		4.0		4.0	4.0	4.0		4.0
Lane Util. Factor		0.95		0.97		0.88		0.91	1.00	0.97		0.95
Flt Protected		1.00		0.95		1.00		1.00	1.00	0.95		1.00
Satd. Flow (prot)		3352		3416		2773		5085	1689	3416		3522
Flt Permitted		1.00		0.95		1.00		1.00	1.00	0.95		1.00
Satd. Flow (perm)		3352		3416		2773		5085	1689	3416		3522
Volume (vph)	0	290	0	276	0	536	0	1986	328	335	1759	0
Peak-hour factor, PHF	0.91	0.91	0.91	0.87	0.87	0.87	0.77	0.77	0.77	0.93	0.93	0.93
Adj. Flow (vph)	0	319	0	317	0	616	0	2579	425	360	1891	0
RTOR Reduction (vph)	0	0	0	0	0	1	0	0	25	0	0	0
Lane Group Flow (vph)	0	319	0	317	0	615	0	2579	401	360	1891	0
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type				Prot		custom			pm+ov	Prot		
Protected Phases		8		4		1 4 8		2	4	1	6	
Permitted Phases								2				
Actuated Green, G (s)		16.0		10.0		49.0		47.0	57.0	11.0	65.0	
Effective Green, g (s)		18.0		12.0		52.0		50.0	62.0	14.0	68.0	
Actuated g/C Ratio		0.16		0.11		0.47		0.45	0.56	0.13	0.62	
Clearance Time (s)		6.0		6.0		7.0		7.0	6.0	7.0	7.0	
Vehicle Extension (s)		3.0		3.0		3.0		3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		549		373		1311		2311	1013	435	2177	
v/s Ratio Prot		c0.10		c0.09		0.22		c0.51	0.04	0.11	c0.54	
v/s Ratio Perm									0.19			
v/c Ratio		0.58		0.85		0.47		1.12	0.40	0.83	0.87	
Uniform Delay, d1		42.5		48.1		19.7		30.0	13.5	26.8	17.3	
Progression Factor		1.00		1.00		1.00		0.77	0.81	1.00	1.00	
Incremental Delay, d2		1.6		1.4		0.3		5.7	0.2	1.2	5.0	
Delay (s)		44.1		64.5		19.9		79.8	11.1	59.0	22.4	
Level of Service		D		E		B		E	B	E	C	
Approach Delay (s)		44.1				35.1		70.1			28.2	
Approach LOS		D				D		E			C	

**Intersection Summary**

HCM Average Control Delay	49.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	77.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group





Lane Group	EBL	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↑↑	↖↗	↖↗	↑↑↑	↑	↖↗	↑↑
Volume (vph)	290	276	536	1986	328	335	1759
Lane Group Flow (vph)	319	317	616	2579	426	360	1891
Turn Type		Prot	Custom		pm+ov	Prot	
Protected Phases	8	4	1 4 8	2	4	1	6
Permitted Phases					2		
Detector Phases	8	4	1 4 8	2	4	1	6
Minimum Initial (s)	3.0	3.0		8.0	3.0	3.0	8.0
Minimum Split (s)	9.0	9.0		15.0	9.0	10.0	15.0
Total Split (s)	22.0	16.0	56.0	54.0	16.0	18.0	72.0
Total Split (%)	20.0%	14.5%	50.9%	49.1%	14.5%	16.4%	65.5%
Yellow Time (s)	4.0	4.0		5.0	4.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0
Lead/Lag				Lag		Lead	
Lead-Lag Optimize?							
Recall Mode	None	None		C-Max	None	None	C-Max
v/c Ratio	0.58	0.85	0.47	1.12	0.41	0.83	0.87
Control Delay	47.3	69.6	21.1	81.0	9.0	63.8	22.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.3	69.6	21.1	81.0	9.0	63.8	22.9
Queue Length 50th (ft)	111	114	162	-752	94	129	537
Queue Length 95th (ft)	158	178	206	m446	m97	#203	661
Internal Link Dist (ft)	440			140			320
Turn Bay Length (ft)		350	225		500	350	
Base Capacity (vph)	549	373	1311	2311	1037	435	2177
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.58	0.85	0.47	1.12	0.41	0.83	0.87

**Intersection Summary**

Cycle Length: 110  
 Actuated Cycle Length: 110  
 Offset: 25 (23%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated  
 ~ Volume exceeds capacity, queue is theoretically infinite  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal

**Splits and Phases: 3: Route 22E Off-Ramp/Catasauqua Rd & Airport Road**

 18%	 54%	 16%	 22%
 72%			

3: Route 22E Off-Ramp/Catasauqua Rd & Airport Road

2018 Base Conditions  
Timing Plan: PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↑↑		↑↑		↑↑		↑↑↑		↑	↑↑		↑↑	
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	14	12	12	12	
Grade (%)	5%		1%		0%		0%		1%		1%		
Total Lost time (s)	4.0		4.0		4.0		4.0		4.0		4.0		
Lane Util. Factor	0.95		0.97		0.88		0.91		1.00	0.97		0.95	
Friction	1.00		1.00		0.85		1.00		0.85	1.00		1.00	
Flt. Protected	1.00		0.95		1.00		1.00		1.00	0.95		1.00	
Satd. Flow (prot)	3352		3416		2773		5085		1689	3416		3522	
Flt. Permitted	1.00		0.95		1.00		1.00		1.00	0.95		1.00	
Satd. Flow (perm)	3352		3416		2773		5085		1689	3416		3522	
Volume (vph)	0	367	0	337	0	679	0	2158	415	424	1119	0	
Peak-hour factor, PHF	0.91	0.91	0.91	0.87	0.87	0.87	0.77	0.77	0.77	0.93	0.93	0.93	
Adj. Flow (vph)	0	403	0	387	0	780	0	2803	539	456	1203	0	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	12	0	0	0	
Lane Group Flow (vph)	0	403	0	387	0	780	0	2803	527	456	1203	0	
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	2%	2%	2%	2%	2%	2%	
Turn Type	Prot			custom			pm-ov		Prot				
Protected Phases	8		4		1 4 8		2 4		1		6		
Permitted Phases							2						
Actuated Green, G (s)	16.0		10.0		49.0		47.0		57.0	11.0		65.0	
Effective Green, g (s)	18.0		12.0		52.0		50.0		62.0	14.0		68.0	
Actuated g/C Ratio	0.16		0.11		0.47		0.45		0.56	0.13		0.62	
Clearance Time (s)	6.0		6.0		7.0		6.0		7.0	7.0		7.0	
Vehicle Extension (s)	3.0		3.0		3.0		3.0		3.0	3.0		3.0	
Lane Grp. Cap. (vph)	549		373		1311		2311		1013	435		2177	
v/s Ratio Prot	c0.12		c0.11		0.28		c0.55		0.06	c0.13		0.34	
v/s Ratio Perm							0.26						
v/c Ratio	0.73		1.04		0.59		1.21		0.52	1.05		0.55	
Uniform Delay, d1	43.7		49.0		21.3		30.0		14.8	48.0		12.2	
Progression Factor	1.00		1.00		1.00		0.77		0.56	1.00		1.00	
Incremental Delay, d2	5.1		56.7		0.7		98.5		0.3	56.4		1.0	
Delay (s)	48.8		105.7		22.0		121.6		8.6	104.4		13.2	
Level of Service	D		F		C		F		A	F		B	
Approach Delay (s)	48.8		49.7		103.4		38.3						
Approach LOS	D		D		F		D						
<b>Intersection Summary</b>													
HCM Average Control Delay	74.1						HCM Level of Service						E
HCM Volume to Capacity ratio	1.07												
Actuated Cycle Length (s)	110.0						Sum of lost time (s)						16.0
Intersection Capacity Utilization	86.9%						ICU Level of Service						E
Analysis Period (min)	15												

c Critical Lane Group



Lane Group	EBT	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↑↑	↖↗	↖↗	↑↑↑	↖	↖↗	↑↑
Volume (vph)	367	337	679	2158	415	424	1119
Lane Group Flow (vph)	403	387	780	2803	539	456	1203
Turn Type		Prot	custom		pm+ov	Prot	
Protected Phases	8	4	1 4 8	2	4	1	6
Permitted Phases					2		
Detector Phases	8	4	1 4 8	2	4	1	6
Minimum Initial (s)	3.0	3.0		8.0	3.0	3.0	8.0
Minimum Split (s)	9.0	9.0		15.0	9.0	10.0	15.0
Total Split (s)	22.0	16.0	56.0	54.0	16.0	18.0	72.0
Total Split (%)	20.0%	14.5%	50.9%	49.1%	14.5%	16.4%	65.5%
Yellow Time (s)	4.0	4.0		5.0	4.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0
Lead/Lag				Lag		Lead	
Lead-Lag Optimize?							
Recall Mode	None	None		C-Max	None	None	C-Max
v/c Ratio	0.73	1.04	0.59	1.21	0.53	1.05	0.55
Control Delay	52.6	104.9	23.6	122.9	8.2	103.2	13.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.6	104.9	23.6	122.9	8.2	103.2	13.4
Queue Length 50th (ft)	144	-152	222	-892	86	-181	240
Queue Length 95th (ft)	199	#236	276	#724	m92	#283	297
Internal Link Dist (ft)	440			140			320
Turn Bay Length (ft)		350	225		500	350	
Base Capacity (vph)	549	373	1311	2311	1024	435	2177
Starvation Cap. Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap. Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.73	1.04	0.59	1.21	0.53	1.05	0.55

**Intersection Summary**  
 Cycle Length: 110  
 Actuated Cycle Length: 110  
 Offset: 43 (39%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow  
 Natural Cycle: 140  
 Control Type: Actuated-Coordinated

**Volume exceeds capacity, queue is theoretically infinite.**  
 Queue shown is maximum after two cycles.

**# 95th percentile volume exceeds capacity, queue may be longer.**  
 Queue shown is maximum after two cycles.

**m Volume for 95th percentile queue is metered by upstream signal.**

Splits and Phases: 3: Route 22E Off-Ramp/Catasauqua Rd & Airport Road

↖ ø1	↑ ø2	↖ ø4	→ ø8
↓ ø6			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑			↖↗		↑↑		↑↑↑	↑	↖↗	↑↑	
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	14	12	12	12
Grade (%)		5%			1%			0%				1%
Total Lost time (s)		4.0		4.0		4.0		4.0	4.0	4.0		4.0
Lane Util. Factor		0.95		0.97		0.88		0.91	1.00	0.97		0.95
Friction		1.00		1.00		0.85		1.00	0.85	1.00		1.00
Friction Protected		1.00		0.95		1.00		1.00	1.00	0.95		1.00
Satd. Flow (prot)		3352		3416		2773		5085	1689	3416		3522
Friction Permitted		1.00		0.95		1.00		1.00	1.00	0.95		1.00
Satd. Flow (perm)		3352		3416		2773		5085	1689	3416		3522
Volume (vph)	0	367	0	337	0	679	0	2384	415	424	1973	0
Peak-hour factor, PHF	0.91	0.91	0.91	0.87	0.87	0.87	0.77	0.77	0.77	0.93	0.93	0.93
Adj. Flow (vph)	0	403	0	387	0	780	0	3096	539	456	2122	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	12	0	0	0
Lane Group Flow (vph)	0	403	0	387	0	780	0	3096	527	456	2122	0
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type				Prot		custom			pm+ov	Prot		
Protected Phases		8		4		1 4 8		2	4	1	6	
Permitted Phases								2				
Actuated Green, G (s)		16.0		10.0		49.0		47.0	57.0	11.0	65.0	
Effective Green, g (s)		18.0		12.0		52.0		50.0	62.0	14.0	68.0	
Actuated g/C Ratio		0.16		0.11		0.47		0.45	0.56	0.13	0.62	
Clearance Time (s)		6.0		6.0				7.0	6.0	7.0	7.0	
Vehicle Extension (s)		3.0		3.0				3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		659		373		1311		2311	1013	435	2177	
v/s Ratio Prot		c0.12		c0.11		0.28		c0.61	0.06	0.13	c0.60	
v/s Ratio Perm									0.26			
v/c Ratio		0.73		1.04		0.59		1.34	0.52	1.05	0.97	
Uniform Delay, d1		43.7		49.0		21.3		30.0	14.8	48.0	20.2	
Progression Factor		1.00		1.00		1.00		0.76	0.69	1.00	1.00	
Incremental Delay, d2		5.1		56.7		10.7		154.4	0.2	56.4	14.2	
Delay (s)		48.8		105.7		22.0		177.3	10.4	104.4	34.4	
Level of Service		D		F		C		F	B	F	C	
Approach Delay (s)		48.8			49.7			152.6			46.7	
Approach LOS		D			D			F			D	

Intersection Summary	
HCM Average Control Delay	96.7
HCM Volume to Capacity ratio	1.15
Actuated Cycle Length (s)	110.0
Intersection Capacity Utilization	91.3%
Analysis Period (min)	15
HCM Level of Service	F
Sum of lost time (s)	16.0
ICU Level of Service	F



Lane/Group	EBT	WBL	WBR	NBT	INBR	SBL	SBT
Lane Configurations	↑↑	↖↗	↖↗	↑↑↑	↑	↖↗	↑↑
Volume (vph)	367	337	679	2384	415	424	1973
Lane Group Flow (vph)	403	387	780	3096	539	456	2122
Turn Type		Prot+custm		pm+ov		Prot	
Protected Phases	8	4	1 4 8	2	4	1	6
Permitted Phases					2		
Detector Phases	8	4	1 4 8	2	4	1	6
Minimum Initial (s)	3.0	3.0		8.0	3.0	3.0	8.0
Minimum Split (s)	9.0	9.0		15.0	9.0	10.0	15.0
Total Split (s)	22.0	16.0	56.0	54.0	16.0	18.0	72.0
Total Split (%)	20.0%	14.5%	50.9%	49.1%	14.5%	16.4%	65.5%
Yellow Time (s)	4.0	4.0		5.0	4.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0
Lead/Lag				Lag		Lead	
Lead-Lag Optimize?							
Recall Mode	None	None		C-Max	None	None	C-Max
v/c Ratio	0.73	1.04	0.59	1.34	0.53	1.05	0.97
Control Delay	52.6	104.9	23.6	178.5	9.5	103.2	35.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.6	104.9	23.6	178.5	9.5	103.2	35.1
Queue Length 50th (ft)	144	-152	222	-1041	99	-181	703
Queue Length 95th (ft)	199	#236	276 m	#808 m	98	#283	#938
Internal Link Dist (ft)	440			140			320
Turn Bay Length (ft)		350	225		500	350	
Base Capacity (vph)	549	373	1311	2311	1024	435	2177
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.73	1.04	0.59	1.34	0.53	1.05	0.97

**Intersection Summary:**  
 Cycle Length: 110  
 Actuated Cycle Length: 110  
 Offset: 39 (35%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow  
 Natural Cycle: 150  
 Control Type: Actuated-Coordinated  
 Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Route 22E Off-Ramp/Catasauqua Rd & Airport Road

a1	a2	a4	a8
18%	54%	16%	22%
a6			
72%			

3: Route 22E Off-Ramp/Catasauqua Rd & Airport Road 2018 Base Conditions w/AP connection  
 Timing Plan: PM PEAK HOUR



Movement	EBL	EBT	EBR	WBL	WBT	WBR	WBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑		↑↑		↑↑		↑↑↑		↑	↑↑		↑↑
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	14	12	12	12
Grade (%)	5%		7%		1%		0%				1%	
Total Lost time (s)	4.0		4.0		4.0		4.0		4.0	4.0		4.0
Lane Util. Factor	0.95		0.97		0.88		0.91		1.00	0.97		0.95
Frt	1.00		1.00		0.85		1.00		0.85	1.00		1.00
Flt Protected	1.00		0.95		1.00		1.00		1.00	0.95		1.00
Satd. Flow (prot)	3352		3416		2773		5085		1689	3416		3522
Flt Permitted	1.00		0.95		1.00		1.00		1.00	0.95		1.00
Satd. Flow (perm)	3352		3416		2773		5085		1689	3416		3522
Volume (vph)	0	367	0	337	0	679	0	2698	415	424	1677	0
Peak-hour factor, PHF	0.91	0.91	0.91	0.87	0.87	0.87	0.77	0.77	0.77	0.93	0.93	0.93
Adj. Flow (vph)	0	403	0	387	0	780	0	3504	539	456	1803	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	1	0	0	0
Lane Group Flow (vph)	0	403	0	387	0	780	0	3504	538	456	1803	0
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type			Prot		custom		pm/ov		Prot			
Protected Phases	8		4		1 4 8		2 4		1		6	
Permitted Phases							2					
Actuated Green, G (s)	11.0		10.0		44.0		72.0 82.0		11.0 90.0			
Effective Green, g(s)	13.0		12.0		47.0		75.0 87.0		14.0 93.0			
Actuated g/C Ratio	0.10		0.09		0.36		0.58 0.67		0.11 0.72			
Clearance Time (s)	6.0		6.0		7.0		6.0 7.0		7.0			
Vehicle Extension (s)	3.0		3.0				3.0 3.0		3.0 3.0			
Lane Grp Cap (vph)	335		315		1003		2934 1182		368 2520			
v/s Ratio Prot	c0.12		c0.11		0.28		c0.69 0.04		c0.13 0.51			
v/s Ratio Perm							0.28					
v/c Ratio	1.20		1.23		0.78		1.19 0.46		1.24 0.72			
Uniform Delay, d1	58.5		59.0		36.9		27.5 10.2		58.0 10.8			
Progression Factor	1.00		1.00		1.00		0.76 0.59		1.00 1.00			
Incremental Delay, d2	116.3		127.6		33.9		89.5 0.2		128.8 1.8			
Delay (s)	174.8		186.6		40.7		110.5 6.2		186.8 12.6			
Level of Service	F		F		D		F A		F B			
Approach Delay (s)	174.8		89.1				96.6				47.7	
Approach LOS	F		F				F				D	

Intersection Summary	
HCM Average Control Delay	85.5
HCM Volume to Capacity ratio	1.20
Actuated Cycle Length (s)	130.0
Intersection Capacity Utilization	97.3%
Analysis Period (min)	15
HCM Level of Service	F
Sum of lost time (s)	16.0
ICU Level of Service	F

c Critical Lane Group

3: Route 22E Off-Ramp/Catasauqua Rd & Airport Road 2018 Base Conditions w/AP connection  
 Timing Plan: PM PEAK HOUR



Lane Group	NBT	WBL	WBR	NBT	NBR	SBL	SBTR
Lane Configurations	↑↑	↑↑	↑↑	↑↑↑	↑	↑↑	↑↑
Volume (vph)	367	337	679	2698	415	424	1677
Lane Group Flow (vph)	403	387	780	3504	539	456	1803
Turn Type		Prot	custom		pm-ov	Prot	
Protected Phases	8	4	1 4 8	2	4	1	6
Permitted Phases				2	2		
Detector Phases	8	4	1 4 8	2	4	1	6
Minimum Initial (s)	3.0	3.0		8.0	3.0	3.0	8.0
Minimum Split (s)	9.0	9.0		15.0	9.0	10.0	15.0
Total Split (s)	17.0	16.0	51.0	79.0	16.0	18.0	97.0
Total Split (%)	13.1%	12.3%	39.2%	60.8%	12.3%	13.8%	74.6%
Yellow Time (s)	4.0	4.0		5.0	4.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0
Lead/Lag				Lag		Lead	
Lead-Lag Optimize?							
Recall Mode	None	None		C-Max	None	None	C-Max
v/c Ratio	1.20	1.23	0.78	1.19	0.46	1.24	0.72
Control Delay	165.1	175.7	43.3	112.4	5.9	175.8	12.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	165.1	175.7	43.3	112.4	5.9	175.8	12.8
Queue Length 50th (ft)	-216	-207	329	-1305	140	-245	419
Queue Length 95th (ft)	#323	#295	397	#994	m137	#354	498
Internal Link Dist (ft)	440			140			320
Turn Bay Length (ft)		350	225		500	350	
Base Capacity (vph)	335	315	1003	2934	1183	368	2520
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	1.20	1.23	0.78	1.19	0.46	1.24	0.72

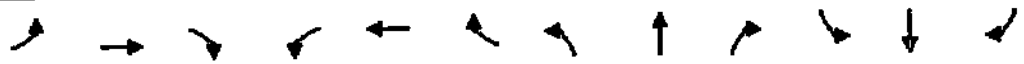
Intersection Summary

Cycle Length: 130  
 Actuated Cycle Length: 130  
 Offset: 50 (38%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow  
 Natural Cycle: 150  
 Control Type: Actuated-Coordinated  
 \* Volume exceeds capacity, queue is theoretically infinite  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer  
 Queue shown is maximum after two cycles.  
 m. Volume for 95th percentile queue is metered by upstream signal

Splits and Phases: 3: Route 22E Off-Ramp/Catasauqua Rd & Airport Road

01	02	04	08
18%	79%	16%	17%
06			
97%			

3: Route 22E Off-Ramp/Catasauqua Rd & Airport Road Projected Conditions W/AP Connection  
 Timing Plan: PM PEAK HOUR



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↖↗		↖↗		↑↑↑	↑	↖↗		↑↑
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	14	12	12	12
Grade (%)		5%				1%			0%			1%
Total Lost time (s)		4.0		4.0		4.0		4.0	4.0	4.0		4.0
Lane Util. Factor		0.95		0.97		0.88		0.91	1.00	0.97		0.95
Fr		1.00		1.00		0.85		1.00	0.85	1.00		1.00
Flt/Protected		1.00		0.95		1.00		1.00	1.00	0.95		1.00
Satd. Flow (prot)		3352		3416		2773		5085	1689	3416		3522
Flt/Permitted		1.00		0.95		1.00		1.00	1.00	0.95		1.00
Satd. Flow (perm)		3352		3416		2773		5085	1689	3416		3522
Volume (vph)	0	367	0	337	0	679	0	2887	415	424	0	1823
Peak-hour factor, PHF	0.91	0.91	0.91	0.87	0.87	0.87	0.77	0.77	0.77	0.93	0.93	0.93
Adj. Flow (vph)	0	403	0	387	0	780	0	3749	539	456	0	1960
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	1	0	0	0
Lane Group Flow (vph)	0	403	0	387	0	780	0	3749	538	456	0	1960
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type				Prot		custom		pm+ov		Prot		
Protected Phases		8		4		1 4 8		2	4	1		6
Permitted Phases								2				
Actuated Green, G (s)		11.0		10.0		44.0		72.0	82.0	11.0		90.0
Effective Green, g (s)		13.0		12.0		47.0		75.0	87.0	14.0		93.0
Actuated g/C Ratio		0.10		0.09		0.36		0.58	0.67	0.11		0.72
Clearance Time (s)		6.0		6.0		7.0		7.0	6.0	7.0		7.0
Vehicle Extension (s)		3.0		3.0				3.0	3.0	3.0		3.0
Lane Grp Cap (vph)		335		315		1003		2934	1182	368		2520
v/s Ratio Prot		c0.12		c0.11		0.28		c0.74	0.04	c0.13		0.56
v/s Ratio Perm									0.28			
v/c Ratio		1.20		1.23		0.78		1.28	0.46	1.24		0.78
Uniform Delay, d1		58.5		59.0		36.9		27.5	10.2	58.0		11.9
Progression Factor		1.00		1.00		1.00		0.74	0.58	1.00		1.00
Incremental Delay, d2		116.3		127.6		13.9		126.4	20.1	128.8		24.4
Delay (s)		174.8		186.6		40.7		146.7	6.0	186.8		14.3
Level of Service		F		F		D		F	A	F		B
Approach Delay (s)		174.8				89.1		129.1				46.9
Approach LOS		F		F		F		F				D

Intersection Summary	
HCM Average Control Delay	101.6
HCM Volume to Capacity ratio	1.26
Actuated Cycle Length (s)	130.0
Intersection Capacity Utilization	101.0%
Analysis Period (min)	15
c Critical Lane Group	
HCM Level of Service	F
Sum of lost time (s)	16.0
ICU Level of Service	G



3: Route 22E Off-Ramp/Catasauqua Rd & Airport Road 2018 Projected Conditions W/AP Connection  
 Timing Plan: PM PEAK HOUR



Lane Group	EBL	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↑↑	↖↗	↖↗	↑↑↑	↖	↖↗	↑↑
Volume (vph)	367	337	679	2887	415	424	1823
Lane Group Flow (vph)	403	387	780	3749	539	456	1960
Turn Type		Prot	custom		pm+ov	Prot	
Protected Phases	8	4	1 4 8	2	4	1	6
Permitted Phases					2		
Detector Phases	8	4	1 4 8	2	4	1	6
Minimum Initial (s)	3.0	3.0		8.0	3.0	3.0	8.0
Minimum Split (s)	9.0	9.0		15.0	9.0	10.0	15.0
Total Split (s)	17.0	16.0	51.0	79.0	16.0	18.0	97.0
Total Split (%)	13.1%	12.3%	39.2%	60.8%	12.3%	13.8%	74.6%
Yellow Time (s)	4.0	4.0		5.0	4.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0
Lead/Lag				Lag		Lead	
Lead-Lag Optimize?							
Recall Mode	None	None		C-Max	None	None	C-Max
v/c Ratio	1.20	1.23	0.78	1.28	0.46	1.24	0.78
Control Delay	165.1	175.7	43.3	149.1	5.7	175.8	14.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	165.1	175.7	43.3	149.1	5.7	175.8	14.7
Queue Length 50th (ft)	-216	-207	329	-1466	132	-245	502
Queue Length 95th (ft)	#323	#295	397m	#128	m129	#354	596
Internal Link Dist (ft)	440			140			320
Turn Bay Length (ft)		350	225		500	350	
Base Capacity (vph)	335	315	1003	2934	1183	368	2520
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	1.20	1.23	0.78	1.28	0.46	1.24	0.78

**Intersection Summary**

Cycle Length: 130  
 Actuated Cycle Length: 130  
 Offset: 50 (38%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow  
 Natural Cycle: 150  
 Control Type: Actuated-Coordinated  
 # Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.

**Splits and Phases: 3: Route 22E Off-Ramp/Catasauqua Rd & Airport Road**

↖ e1 18%	↑ e2 79%	↖ e4 16%	↗ e8 12%
↓ e6 97%			

3: Route 22E Off-Ramp/Catasauqua Rd & Airport Road 2018 Proj. Cond. w/ Ballpark w/AP conn  
 Timing Plan: PM PEAK HOUR



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑		↑↑			↑↑		↑↑↑	↑	↑↑	↑↑	
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	14	12	12	12
Grade (%)	5%		1%			0%		0%		1%		
Total Lost time (s)	4.0		4.0			4.0		4.0	4.0	4.0	4.0	
Lane Util. Factor	0.95		0.97			0.88		0.91	1.00	0.97	0.95	
Frt	1.00		1.00			0.85		1.00	0.85	1.00	1.00	
Flt Protected	1.00		0.95			1.00		1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3352		3416			2773		5085	1689	3416	3522	
Flt Permitted	1.00		0.95			1.00		1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3352		3416			2773		5085	1689	3416	3522	
Volume (vph)	0	367	0	337	0	679	0	2887	415	424	2453	0
Peak-hour factor, PHF	0.91	0.91	0.91	0.87	0.87	0.87	0.77	0.77	0.77	0.93	0.93	0.93
Adj. Flow (vph)	0	403	0	387	0	780	0	3749	539	456	2638	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	1	0	0	0
Lane Group Flow (vph)	0	403	0	387	0	780	0	3749	538	456	2638	0
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type			Prot			Custom		pm ov		Prot		
Protected Phases	8		4			1 4 8		2	4	1	6	
Permitted Phases								2				
Actuated Green, G (s)	11.0		10.0			44.0		72.0	82.0	11.0	90.0	
Effective Green, g (s)	13.0		12.0			47.0		75.0	87.0	14.0	93.0	
Actuated g/C Ratio	0.10		0.09			0.36		0.58	0.67	0.11	0.72	
Clearance Time (s)	6.0		6.0			7.0		7.0	6.0	7.0	7.0	
Vehicle Extension (s)	3.0		3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	335		315			1003		2934	1182	368	2520	
v/s Ratio Prot	c0.12		c0.11			0.28		c0.74	0.04	c0.13	0.75	
v/s Ratio Perm								0.28				
v/c Ratio	1.20		1.23			0.78		1.28	0.46	1.24	1.05	
Uniform Delay (d1)	58.5		59.0			36.9		27.5	10.2	58.0	18.5	
Progression Factor	1.00		1.00			1.00		1.24	1.34	1.00	1.00	
Incremental Delay (d2)	116.3		127.6			39		126.3	0.1	128.8	31.7	
Delay (s)	174.8		186.6			40.7		160.5	13.8	186.8	50.2	
Level of Service	F		F			D		F	B	F	D	
Approach Delay (s)	174.8		89.1					142.1			70.3	
Approach LOS	F		F					F			E	

Intersection Summary			
HCM Average Control Delay	111.8	HCM Level of Service	F
HCM Volume to Capacity ratio	1.26		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	101.0%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

3: Route 22E Off-Ramp/Catasauqua Rd & Airport Road 2018 Proj. Cond. w/ Ballpark w/AP conn  
 Timing Plan: PM PEAK HOUR



Lane Group	EBT	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↑↑	↘↙	↗↘	↑↑↑	↑	↘↙	↑↑
Volume (vph)	367	337	679	2887	415	424	2453
Lane Group Flow (vph)	403	387	780	3749	539	456	2638
Turn Type		Prot	custom		pm+ov	Prot	
Protected Phases	8	4	1 4 8	2	4	1	6
Permitted Phases					2		
Detector Phases	8	4	1 4 8	2	4	1	6
Minimum Initial (s)	3.0	3.0		8.0	3.0	3.0	8.0
Minimum Split (s)	9.0	9.0		15.0	9.0	10.0	15.0
Total Split (s)	17.0	16.0	51.0	79.0	16.0	18.0	97.0
Total Split (%)	13.1%	12.3%	39.2%	60.8%	12.3%	13.8%	74.6%
Yellow Time (s)	4.0	4.0		5.0	4.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0
Lead/Lag				Lag		Lead	
Lead-Lag Optimize?							
Recall Mode	None	None		C-Max	None	None	C-Max
v/c Ratio	1.20	1.23	0.78	1.28	0.46	1.24	1.05
Control Delay	165.1	175.7	43.3	157.5	12.3	175.8	51.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	165.1	175.7	43.3	157.5	12.3	175.8	51.3
Queue Length 50th (ft)	-216	-207	329	-1461	220	-245	-1270
Queue Length 95th (ft)	#323	#295	39m	#1071	m220	#354	#1396
Internal Link Dist (ft)	440			140			320
Turn Bay Length (ft)		350	225		500	350	
Base Capacity (vph)	335	315	1003	2934	1183	368	2520
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	1.20	1.23	0.78	1.28	0.46	1.24	1.05

**Intersection Summary**

Cycle Length: 130  
 Actuated Cycle Length: 130  
 Offset: 40 (31%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow  
 Natural Cycle: 150  
 Control Type: Actuated-Coordinated  
 Volume exceeds capacity; queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 #: 95th percentile volume exceeds capacity; queue may be longer.  
 Queue shown is maximum after two cycles.  
 m: Volume for 95th percentile queue is metered by upstream signal.

**Splits and Phases: 3: Route 22E Off-Ramp/Catasauqua Rd & Airport Road**

↘ 01 18%	↑ 02 79%	↗ 04 16%	→ 08 17%
↓ 06 97%			

5: Pocono Downs/BJ's Driveways & Airport Road

Existing Conditions  
Timing Plan: AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	12	14	12	12	14	12	12	12	12	12	12	12	
Grade (%)		3%			0%			1%			1%		
Total Lost time (s)	4.0	4.0		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	0.95		1.00	0.95		
Frt	1.00	0.86		1.00	0.87		1.00	1.00		1.00	1.00		
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00		
Satd. Flow (prot)	1662	1606		1719	1673		1604	3204		1728	3448		
Flt Permitted	0.73	1.00		0.45	1.00		0.19	1.00		0.17	1.00		
Satd. Flow (perm)	1273	1606		813	1673		313	3204		303	3448		
Volume (vph)	15	11	11	17	14	35	13	1081	6	151	1315	19	
Peak-hour factor, PHF	0.84	0.84	0.84	0.88	0.88	0.88	0.86	0.86	0.86	0.93	0.93	0.93	
Adj. Flow (vph)	18	13	13	19	15	40	15	1257	7	162	1414	20	
RTOR Reduction (vph)	0	12	0	0	35	0	0	0	0	0	1	0	
Lane Group Flow (vph)	18	2	0	19	10	0	15	1264	0	162	1433	0	
Heavy Vehicles (%)	7%	7%	7%	5%	5%	5%	12%	12%	12%	5%	5%	5%	
Turn Type	Perm	Perm	pm+pt	pm+pt	pm+pt	Perm	Perm	pm+pt	pm+pt	pm+pt	pm+pt	pm+pt	
Protected Phases		4		3	8		2			1	6		
Permitted Phases	4			8			2			6			
Actuated Green, G (s)	5.0	5.0		12.4	12.4		77.2	77.2		90.6	90.6		
Effective Green, g (s)	6.0	6.0		13.4	13.4		80.2	80.2		93.6	93.6		
Actuated g/C Ratio	0.05	0.05		0.12	0.12		0.70	0.70		0.81	0.81		
Clearance Time (s)	5.0	5.0		5.0	5.0		7.0	7.0		7.0	7.0		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0		
Lane Grp Cap (vph)	66	84		122	195		218	2234		363	2806		
v/s Ratio Prot		0.00		0.00	0.01			0.39		0.04	0.42		
v/s Ratio Perm	0.01			0.01			0.05			0.33			
v/c Ratio	0.27	0.02		0.16	0.05		0.07	0.57		0.45	0.51		
Uniform Delay, d1	52.4	51.7		45.5	45.1		5.5	8.7		5.2	3.4		
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		2.83	1.14		
Incremental Delay, d2	2.2	0.1		0.6	0.1		0.6	1.0		0.8	0.6		
Delay (s)	54.6	51.8		46.1	45.2		6.1	9.7		15.6	4.5		
Level of Service	D	D		D	D		A	A		B	A		
Approach Delay (s)		53.4			45.5			9.7			5.7		
Approach LOS		D			D			A			A		
Intersection Summary													
HCM Average Control Delay	8.8						HCM Level of Service						A
HCM Volume to Capacity ratio	0.54												
Actuated Cycle Length (s)	115.0						Sum of lost time (s)						16.0
Intersection Capacity Utilization	62.9%						ICU Level of Service						B
Analysis Period (min)	15												

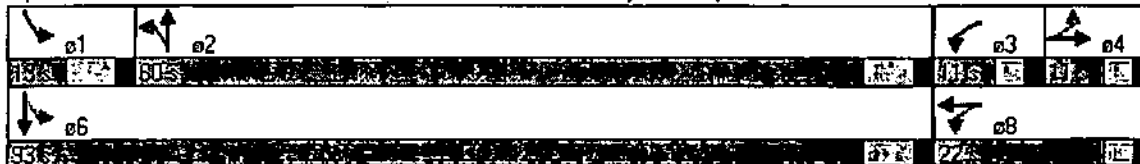
c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖	↗	↖	↗	↖	↕	↖	↕
Volume (vph)	15	11	17	4	13	1081	151	1315
Lane Group Flow (vph)	18	14	19	45	15	1264	162	1434
Turn Type	Perm		pm+pt		Perm		pm+pt	
Protected Phases		4	3	8		2	1	6
Permitted Phases	4		8		2		6	
Detector Phases	4	4	3	8	2	2	1	6
Minimum Initial (s)	3.0	3.0	3.0	3.0	10.0	10.0	3.0	10.0
Minimum Split (s)	9.0	9.0	9.0	8.0	17.0	17.0	10.0	17.0
Total Split (s)	11.0	11.0	11.0	22.0	80.0	80.0	13.0	93.0
Total Split (%)	9.6%	9.6%	9.6%	19.1%	69.6%	69.6%	11.3%	80.9%
Yellow Time (s)	3.0	3.0	3.0	3.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lag	Lag	Lead		Lag	Lag	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes	
Recall Mode	None	None	None	None	C-Max	C-Max	None	C-Max
v/c Ratio	0.23	0.13	0.14	0.22	0.07	0.54	0.45	0.49
Control Delay	58.5	27.7	46.0	16.6	7.4	9.1	10.3	4.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.5	27.7	46.0	16.6	7.4	9.1	10.3	4.2
Queue Length 50th (ft)	13	1	13	4	3	190	24	75
Queue Length 95th (ft)	35	20	34	35	12	287	82	254
Internal Link Dist (ft)		444		645		2211		974
Turn Bay Length (ft)					130		250	
Base Capacity (vph)	79	113	139	296	224	2346	362	2951
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.12	0.14	0.15	0.07	0.54	0.45	0.49

**Intersection Summary:**  
 Cycle Length: 115  
 Actuated Cycle Length: 115  
 Offset: 106 (92%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated

Splits and Phases: 5: Pocono Downs/BJ's Driveways & Airport Road





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↖↗	↑	↖	↖	↑	↖	↖↗	↖↗	↖↗	↖	↑	↖	
Design Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	12	14	12	12	14	12	12	12	12	12	12	12	
Grade (%)		3%			0%				1%			1%	
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	0.97	0.91		1.00	0.95	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	
Satd. Flow (prot)	3224	1866	1487	1719	1930	1538	3111	4605		1728	3455	1546	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	
Satd. Flow (perm)	3224	1866	1487	1719	1930	1538	3111	4605		1728	3455	1546	
Volume (vph)	811	617	66	22	4	35	99	1161	6	184	1383	123	
Peak-hour factor, PHF	0.84	0.84	0.84	0.88	0.88	0.88	0.86	0.86	0.86	0.93	0.93	0.93	
Adj. Flow (vph)	96	71	79	25	5	40	115	1350	7	198	1487	132	
RTOR Reduction (vph)	0	0	66	0	0	33	0	0	0	0	0	35	
Lane Group Flow (vph)	96	71	143	25	5	77	115	1357	0	198	1487	197	
Heavy Vehicles (%)	7%	7%	7%	5%	5%	5%	12%	12%	12%	5%	5%	5%	
Turn Type	Prot	pm+ov	Prot	pm+ov	Prot	pm+ov	Prot	pm+ov	Prot	pm+ov	Prot	pm+ov	
Protected Phases	7	4	5	3	8	1	5	2		1	6	7	
Permitted Phases			4			8				6			
Actuated Green, G (s)	8.7	6.1	15.4	5.9	1.3	19.0	9.3	65.3		17.7	71.7	80.4	
Effective Green, g (s)	19.7	6.1	18.4	5.9	2.3	21.0	12.3	68.3		18.7	74.7	84.4	
Actuated g/C Ratio	0.08	0.05	0.16	0.05	0.02	0.18	0.11	0.59		0.16	0.65	0.73	
Clearance Time (s)	5.0	4.0	7.0	4.0	5.0	5.0	7.0	7.0		5.0	7.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	
Lane Grp. Cap. (vph)	272	99	290	88	39	334	333	2735		281	2244	1188	
v/s Ratio Prot	c0.03	0.00	c0.00	0.01	c0.00	0.00	0.04	0.29		c0.11	c0.43	0.01	
v/s Ratio Perm			0.00			0.00						0.06	
v/c Ratio	0.35	0.01	0.04	0.28	0.13	0.02	0.35	0.50		0.70	0.66	0.08	
Uniform Delay, d1	49.7	51.6	40.9	52.5	55.4	38.6	47.6	13.4		45.5	12.1	4.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		0.89	1.13	0.62	
Incremental Delay, d2	0.8	0.0	0.1	1.8	1.5	0.0	0.6	0.6		7.4	1.5	0.0	
Delay (s)	50.5	51.6	40.9	54.3	56.9	38.6	48.2	14.1		48.0	15.5	2.7	
Level of Service	D	D	D	D	E	D	D	B		D	B	A	
Approach Delay (s)		46.2			45.5			16.8			18.1		
Approach LOS		D			D			B			B		
<b>Intersection Summary</b>													
HCM Average Control Delay	19.5						HCM Level of Service						B
HCM Volume to Capacity ratio	0.64												
Actuated Cycle Length (s)	115.0						Sum of lost time (s)						16.0
Intersection Capacity Utilization	60.5%						ICU Level of Service						B
Analysis Period (min)	15												

c Critical Lane Group

5: Pocono Downs/BJ's Driveways & Airport Road

2008 Base Conditions  
Timing Plan: AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↖↗	↑	↖	↖	↑	↖	↖↗	↖↗	↖	↖↗	↖
Volume (vph)	81	1	66	22	4	35	99	1161	184	1383	123
Lane Group Flow (vph)	96	1	79	25	5	40	115	1357	198	1487	132
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		Prot		pm+ov
Protected Phases	7	4	5	3	8	1	5	2	1	6	7
Permitted Phases			4			3					6
Detector Phases	7	4	5	3	8	1	5	2	1	6	7
Minimum Initial (s)	4.0	3.0	4.0	3.0	3.0	3.0	4.0	10.0	3.0	10.0	4.0
Minimum Split (s)	11.0	9.0	11.0	9.0	8.0	10.0	11.0	17.0	10.0	17.0	11.0
Total Split (s)	16.0	16.0	30.0	16.0	16.0	30.0	30.0	53.0	30.0	53.0	16.0
Total Split (%)	13.9%	13.9%	26.1%	13.9%	13.9%	26.1%	26.1%	46.1%	26.1%	46.1%	13.9%
Yellow Time (s)	3.0	2.0	5.0	2.0	3.0	3.0	5.0	5.0	3.0	5.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	C-Max	None
v/c Ratio	0.35	0.01	0.24	0.20	0.04	0.13	0.34	0.47	0.70	0.63	0.10
Control Delay	51.4	50.0	9.1	51.2	51.0	10.0	47.7	13.6	44.3	14.5	10.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.4	50.0	9.1	51.2	51.0	10.0	47.7	13.6	44.3	14.5	10.6
Queue Length 50th (ft)	35	1	0	17	4	0	41	167	143	253	0
Queue Length 95th (ft)	56	1	0	32	16	0	65	299	204	470	9
Internal Link Dist (ft)		444			645			2211		974	
Turn Bay Length (ft)	275		225	75		125	275		250		275
Base Capacity (vph)	336	195	491	179	201	409	703	2895	391	2363	1296
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.01	0.16	0.14	0.02	0.10	0.16	0.47	0.51	0.63	0.10

**Intersection Summary**  
 Cycle Length: 115  
 Actuated Cycle Length: 115  
 Offset: 104 (90%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow  
 Natural Cycle: 65  
 Control Type: Actuated-Coordinated

Splits and Phases: 5: Pocono Downs/BJ's Driveways & Airport Road

↖	↑	↖	→
01	02	03	04
30%	53%	15%	13%
↖	↓	↖	←
05	06	07	08
30%	53%	15%	13%



Movements	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑	↑	↔	↑	↑	↔↔	↔↔↔	↔	↔↔	↔	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	14	12	12	14	12	12	12	12	12	12	12
Grade (%)		3%			0%			1%			1%	
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	0.97	0.91		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3224	1866	1487	1719	1930	1538	3111	4605		1728	3455	1546
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3224	1866	1487	1719	1930	1538	3111	4605		1728	3455	1546
Volume (vph)	81	1	66	22	4	35	99	179	6	184	1551	123
Peak-hour factor, PHF	0.84	0.84	0.84	0.88	0.88	0.88	0.86	0.86	0.86	0.93	0.93	0.93
Adj. Flow (vph)	96	1	79	25	5	40	115	137	7	198	1668	132
RTOR Reduction (vph)	0	0	66	0	0	33	0	0	0	0	0	32
Lane Group Flow (vph)	96	1	13	25	5	7	115	137	0	198	1668	100
Heavy Vehicles (%)	7%	7%	7%	5%	5%	5%	12%	12%	12%	5%	5%	5%
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		Prot		pm+ov	
Protected Phases	7	4	5	3	8	1	5	2		1	6	7
Permitted Phases							8					6
Actuated Green, G (s)	8.7	6.1	15.4	5.9	1.3	18.9	9.3	65.4		17.6	71.7	80.4
Effective Green, g (s)	9.7	6.1	18.4	5.9	2.3	20.9	12.3	68.4		18.6	74.7	84.4
Actuated g/C Ratio	0.08	0.05	0.16	0.05	0.02	0.18	0.11	0.59		0.16	0.65	0.73
Clearance Time (s)	5.0	4.0	7.0	4.0	5.0	5.0	7.0	7.0		5.0	7.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	272	99	290	88	39	333	333	2739		279	2244	1188
v/s Ratio Prot	c0.03	0.00	c0.00	0.01	c0.00	0.00	0.04	0.30		c0.11	c0.48	0.01
v/s Ratio Perm			0.00			0.00						0.06
v/c Ratio	0.35	0.01	0.04	0.28	0.13	0.02	0.35	0.50		0.71	0.74	0.08
Uniform Delay, d1	49.7	51.6	40.9	52.5	55.7	38.7	47.6	13.5		45.6	13.7	4.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		0.88	1.19	0.89
Incremental Delay, d2	0.8	0.0	0.1	1.8	1.5	0.0	0.6	0.7		7.6	2.1	0.0
Delay (s)	50.5	51.6	40.9	54.3	56.9	38.7	48.2	14.1		47.6	18.5	3.9
Level of Service	D	D	D	D	E	D	D	B		D	B	A
Approach Delay (s)		46.2			45.6			16.8			20.4	
Approach LOS		D			D			B			C	

**Intersection Summary**

HCM Average Control Delay	20.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	65.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



5: Pocono Downs/BJ's Driveways & Airport Road

2008 Projected Conditions  
Timing Plan: AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↖↗	↑	↖	↗	↑	↖	↖↗	↖↗	↖	↖↗	↖
Volume (vph)	81	1	66	22	4	35	99	1179	184	1551	123
Lane Group Flow (vph)	96	1	79	25	5	40	115	1378	198	1668	132
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		Prot		pm+ov
Protected Phases	7	4	5	3	8	1	5	2	1	6	7
Permitted Phases			4			8				6	6
Detector Phases	7	4	5	3	8	1	5	2	1	6	7
Minimum Initial (s)	4.0	3.0	4.0	3.0	3.0	3.0	4.0	10.0	3.0	10.0	4.0
Minimum Split (s)	11.0	9.0	11.0	9.0	8.0	10.0	11.0	17.0	10.0	17.0	11.0
Total Split (s)	16.0	16.0	30.0	16.0	16.0	30.0	30.0	53.0	30.0	53.0	16.0
Total Split (%)	13.9%	13.9%	26.1%	13.9%	13.9%	26.1%	26.1%	46.1%	26.1%	46.1%	13.9%
Yellow Time (s)	3.0	2.0	5.0	2.0	3.0	3.0	5.0	5.0	3.0	5.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C:Max	None	C:Max	None
v/c Ratio	0.35	0.01	0.24	0.20	0.04	0.13	0.34	0.48	0.71	0.71	0.10
Control Delay	52.9	50.0	10.2	53.3	51.5	10.4	50.0	13.6	52.5	17.2	1.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.9	50.0	10.2	53.3	51.5	10.4	50.0	13.6	52.5	17.2	1.0
Queue Length 50th (ft)	35	1	0	17	4	0	41	171	142	402	0
Queue Length 95th (ft)	56	6	32	45	16	24	65	305	205	548	15
Internal Link Dist (ft)		444			645			2211		974	
Turn Bay Length (ft)	275		225	75		125	275		250		
Base Capacity (vph)	336	195	491	179	201	409	703	2896	391	2363	1294
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.01	0.16	0.14	0.02	0.10	0.16	0.48	0.51	0.71	0.10

Intersection Summary

Cycle Length: 115  
 Actuated Cycle Length: 115  
 Offset: 104 (90%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow  
 Natural Cycle: 70  
 Control Type: Actuated-Coordinated  
 m - Volume for 95th percentile queue is metered by upstream signal

Splits and Phases: 5: Pocono Downs/BJ's Driveways & Airport Road

↖ e1 36	↑ e2 53	↗ e3 16	→ e4 16
↗ e5 30	↓ e6 53	↖ e7 16	← e8 16

5: Pocono Downs/BJ's Driveways & Airport Road

2018 Base Conditions  
Timing Plan: AM Peak Hour



Movement	EBEB	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↔↔	↑	↗	↖	↑	↗	↔↔	↑↑↑		↖	↑↑	↗	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	12	14	12	12	14	12	12	12	12	12	12	12	
Grade (%)		3%			0%				1%			1%	
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	0.97	0.91		1.00	0.95	1.00	
Fr't	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	
Satd. Flow (prot)	3224	1866	1487	1719	1930	1538	3111	4605		1728	3455	1546	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	
Satd. Flow (perm)	3224	1866	1487	1719	1930	1538	3111	4605		1728	3455	1546	
Volume (vph)	81	1	66	22	4	35	99	1478	6	184	1798	123	
Peak-hour factor, PHF	0.84	0.84	0.84	0.88	0.88	0.88	0.86	0.86	0.86	0.93	0.93	0.93	
Adj. Flow (vph)	96	1	79	25	5	40	115	1719	7	198	1933	132	
RTOR Reduction (vph)	0	0	66	0	0	33	0	0	0	0	0	27	
Lane Group Flow (vph)	96	1	13	25	5	71	115	1726	0	198	1933	105	
Heavy Vehicles (%)	7%	7%	7%	5%	5%	5%	12%	12%	12%	5%	5%	5%	
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot			Prot		pm+ov	
Protected Phases	7	4	5	3	8	1	5	2		1	6	7	
Permitted Phases			4			3						6	
Actuated Green, G (s)	8.7	6.1	15.4	5.9	1.3	19.3	9.3	65.0		18.0	71.7	80.4	
Effective Green, g (s)	9.7	6.1	18.4	5.9	2.3	21.3	12.3	68.0		19.0	74.7	84.4	
Actuated g/C Ratio	0.08	0.05	0.16	0.05	0.02	0.19	0.11	0.59		0.17	0.65	0.73	
Clearance Time (s)	5.0	4.0	7.0	4.0	5.0	5.0	7.0	7.0		5.0	7.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	272	99	290	88	39	838	333	2723		285	2244	1188	
v/s Ratio Prot	c0.03	0.00	c0.00	0.01	c0.00	0.00	0.04	0.37		c0.11	c0.56	0.01	
v/s Ratio Perm			0.00			0.00						0.06	
v/c Ratio	0.35	0.01	0.04	0.28	0.13	0.02	0.35	0.63		0.69	0.86	0.09	
Uniform Delay, d1	49.7	51.6	40.9	52.5	55.4	38.3	47.6	15.4		45.3	16.0	4.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	
Incremental Delay, d2	0.8	0.0	0.1	1.8	1.5	0.0	0.6	1.1		7.2	4.6	0.0	
Delay (s)	50.5	51.6	40.9	54.3	56.9	38.4	48.2	16.5		52.4	20.7	4.4	
Level of Service	D	D	D	D	E	D	D	B		D	C	A	
Approach Delay (s)		46.2			45.4			18.5			22.5		
Approach LOS		D			D			B			C		
<b>Intersection Summary</b>													
HCM Average Control Delay	22.1					HCM Level of Service							C
HCM Volume to Capacity ratio	0.81												
Actuated Cycle Length (s)	115.0					Sum of lost time (s)							20.0
Intersection Capacity Utilization	72.0%					ICU Level of Service							C
Analysis Period (min)	15												

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↖↗	↑	↖	↖	↑	↖	↖↗	↑↑↑	↖	↑↑	↖
Volume (vph)	81	1	66	22	4	35	99	1478	184	1798	123
Lane Group Flow (vph)	96	1	79	25	5	40	115	1726	198	1933	132
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		Prot		pm+ov
Protected Phases	7	4	5	3	8	1	5	2	1	6	7
Permitted Phases			4			8					6
Detector Phases	7	4	5	3	8	1	5	2	1	6	7
Minimum Initial (s)	4.0	3.0	4.0	3.0	3.0	3.0	4.0	10.0	3.0	10.0	4.0
Minimum Split (s)	11.0	9.0	11.0	9.0	8.0	10.0	11.0	17.0	10.0	17.0	11.0
Total Split (s)	16.0	16.0	30.0	16.0	16.0	30.0	30.0	53.0	30.0	53.0	16.0
Total Split (%)	13.9%	13.9%	26.1%	13.9%	13.9%	26.1%	26.1%	46.1%	26.1%	46.1%	13.9%
Yellow Time (s)	3.0	2.0	5.0	2.0	3.0	3.0	5.0	5.0	3.0	5.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	C-Max	None
v/c Ratio	0.35	0.01	0.24	0.20	0.04	0.13	0.34	0.60	0.69	0.82	0.10
Control Delay	51.4	50.0	9.1	51.2	51.0	9.9	47.7	15.9	49.1	18.5	1.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.4	50.0	9.1	51.2	51.0	9.9	47.7	15.9	49.1	18.5	1.4
Queue Length 50th (ft)	35	1	0	17	4	0	41	242	140	449	3
Queue Length 95th (ft)	56	6	32	45	16	24	65	421	206	922	24
Internal Link Dist (ft)		444			645			2211		974	
Turn Bay Length (ft)	275		225	75		125	275		250		
Base Capacity (vph)	336	195	491	179	201	409	703	2882	391	2363	1291
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.01	0.16	0.14	0.02	0.10	0.16	0.60	0.51	0.82	0.10

**Intersection Summary**  
 Cycle Length: 115  
 Actuated Cycle Length: 115  
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow  
 Natural Cycle: 80s  
 Control Type: Actuated-Coordinated  
 \* 95th percentile volume exceeds capacity, queue may be longer  
 Queue shown is maximum after two cycles.

Splits and Phases: 5: Pocono Downs/BJ's Driveways & Airport Road

↖ ø1 30s	↑ ø2 53s	↖ ø3 15s	→ ø4 15s
↖ ø5 30s	↓ ø6 53s	↖ ø7 15s	← ø8 15s

5: Pocono Downs/BJ's Driveways & Airport Road

2018 Projected Conditions  
Timing Plan: AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↑	↗	↖	↑	↗	↖↗	↖↗↖		↖	↖↖	↗
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	14	12	12	14	12	12	12	12	12	12	12
Grade (%)		3%			0%			1%			1%	
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	0.97	0.91		1.00	0.95	1.00
Fr't	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt. Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3224	1866	1487	1719	1930	1538	3111	4605		1728	3455	1546
Flt. Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3224	1866	1487	1719	1930	1538	3111	4605		1728	3455	1546
Volume (vph)	81	1	66	22	4	35	99	1496	6	184	1966	123
Peak-hour factor, PHF	0.84	0.84	0.84	0.88	0.88	0.88	0.86	0.86	0.86	0.93	0.93	0.93
Adj. Flow (vph)	96	1	79	25	5	40	115	1740	7	198	2114	132
RTOR Reduction (vph)	0	0	66	0	0	33	0	0	0	0	0	25
Lane Group Flow (vph)	96	1	143	25	5	77	115	1747	0	198	2114	107
Heavy Vehicles (%)	7%	7%	7%	5%	5%	5%	12%	12%	12%	5%	5%	5%
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	7	4	5	3	8	1	5	2		1	6	7
Permitted Phases			4			8						6
Actuated Green, G (s)	8.7	6.1	15.4	5.9	1.3	19.3	9.3	65.0		18.0	71.7	80.4
Effective Green, g (s)	9.7	6.1	18.4	5.9	2.3	21.3	12.3	68.0		19.0	74.7	84.4
Actuated g/C Ratio	0.08	0.05	0.16	0.05	0.02	0.19	0.11	0.59		0.17	0.65	0.73
Clearance Time (s)	5.0	4.0	7.0	4.0	5.0	5.0	7.0	7.0		5.0	7.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	272	99	290	188	39	338	333	2723		1285	2244	1188
v/s Ratio Prot	c0.03	0.00	c0.00	0.01	c0.00	0.00	0.04	0.38		c0.11	c0.61	0.01
v/s Ratio Perm			0.00			0.00						0.06
v/c Ratio	0.35	0.01	0.04	0.28	0.13	0.02	0.35	0.64		0.69	0.94	0.09
Uniform Delay, d1	49.7	51.6	40.9	52.5	55.4	38.3	47.6	15.5		45.3	18.2	4.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.8	0.0	0.1	1.8	1.5	0.0	0.6	1.2		7.2	9.5	0.0
Delay (s)	50.5	51.6	40.9	54.3	56.9	38.4	48.2	16.6		52.4	27.7	4.4
Level of Service	D	D	D	D	E	D	D	B		D	C	A
Approach Delay (s)		46.2			45.4			18.6			28.5	
Approach LOS		D			D			B			C	

Intersection Summary

HCM Average Control Delay	25.4	HCM Level of Service	G
HCM Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	76.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↖↗	↑	↗	↖	↑	↗	↖↗	↑↑↑	↖	↑↑	↗
Volume (vph)	81	1	66	22	4	35	99	1496	184	1966	123
Lane Group Flow (vph)	96	1	79	25	5	40	115	1747	198	2114	132
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		Prot		pm+ov
Protected Phases	7	4	5	3	8	1	5	2	1	6	7
Permitted Phases			4			8					6
Detector Phases	7	4	5	3	8	1	5	2	1	6	7
Minimum Initial (s)	4.0	3.0	4.0	3.0	3.0	3.0	4.0	10.0	3.0	10.0	4.0
Minimum Split (s)	11.0	9.0	11.0	9.0	8.0	10.0	11.0	17.0	10.0	17.0	11.0
Total Split (s)	16.0	16.0	30.0	16.0	16.0	30.0	30.0	53.0	30.0	53.0	16.0
Total Split (%)	13.9%	13.9%	26.1%	13.9%	13.9%	26.1%	26.1%	46.1%	26.1%	46.1%	13.9%
Yellow Time (s)	3.0	2.0	5.0	2.0	3.0	3.0	5.0	5.0	3.0	5.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	C-Max	None
v/c Ratio	0.35	0.01	0.24	0.20	0.04	0.13	0.34	0.61	0.69	0.89	0.10
Control Delay	52.9	50.0	10.2	53.3	51.5	10.3	50.0	16.0	57.5	22.5	1.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.9	50.0	10.2	53.3	51.5	10.3	50.0	16.0	57.5	22.5	1.5
Queue Length 50th (ft)	35	1	0	17	4	0	41	247	140	557	4
Queue Length 95th (ft)	56	6	32	45	16	24	65	429	206	1067	26
Internal Link Dist (ft)		444			645			2211		974	
Turn Bay Length (ft)	275		225	75		125	275		250		
Base Capacity (vph)	336	195	491	179	201	409	703	2882	391	2363	1289
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.01	0.16	0.14	0.02	0.10	0.16	0.61	0.51	0.89	0.10

**Intersection Summary:**

Cycle Length: 115  
 Actuated Cycle Length: 115  
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

**Splits and Phases:** 5: Pocono Downs/BJ's Driveways & Airport Road

↖ ø1	↑ ø2	↗ ø3	→ ø4
80%	53%	16%	16%
↗ ø5	↓ ø6	↖ ø7	← ø8
30%	53%	16%	16%



Movements	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↑	↗	↖	↑	↗	↖↗	↖↗	↖↗	↖	↖↗	↗
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	14	12	12	14	12	12	12	12	12	12	12
Grade (%)		3%			0%				1%			1%
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	0.97	0.91		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3224	1866	1487	1719	1930	1538	3111	4606		1728	3455	1546
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3224	1866	1487	1719	1930	1538	3111	4606		1728	3455	1546
Volume (vph)	81	1	66	22	4	35	99	2383	6	184	2185	123
Peak-hour factor, PHF	0.84	0.84	0.84	0.88	0.88	0.88	0.86	0.86	0.86	0.93	0.93	0.93
Adj. Flow (vph)	96	1	79	25	5	40	115	2771	7	198	2349	132
RTOR Reduction (vph)	0	0	39	0	0	11	0	0	0	0	0	34
Lane Group Flow (vph)	96	1	40	25	5	29	115	2778	0	198	2349	98
Heavy Vehicles (%)	7%	7%	7%	5%	5%	5%	12%	12%	12%	5%	5%	5%
Turn Type	Prot	pm+ov	Prot	pm+ov	Prot	pm+ov	Prot	pm+ov	Prot	pm+ov	Prot	pm+ov
Protected Phases	7	4	5	3	8	1	5	2		1	6	7
Permitted Phases			4			8						6
Actuated Green, G (s)	6.0	4.8	12.7	3.8	0.6	15.0	7.9	67.0		14.4	71.5	77.5
Effective Green, g (s)	7.0	4.8	15.7	3.8	1.6	17.0	10.9	70.0		15.4	74.5	81.5
Actuated g/C Ratio	0.06	0.04	0.14	0.03	0.01	0.15	0.10	0.64		0.14	0.68	0.74
Clearance Time (s)	5.0	4.0	7.0	4.0	5.0	5.0	7.0	7.0		5.0	7.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	205	81	266	59	28	294	308	2931		242	2340	1202
v/s Ratio Prot	c0.03	0.00	c0.02	0.01	0.00	0.01	0.04	0.60		c0.11	c0.68	0.01
v/s Ratio Perm			0.01			0.01						0.06
v/c Ratio	0.47	0.01	0.15	0.42	0.18	0.10	0.37	0.95		0.82	1.00	0.08
Uniform Delay, d1	49.7	50.3	41.3	52.0	53.6	39.9	46.4	18.3		45.9	17.8	3.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.84	0.75		1.01	0.81	0.68
Incremental Delay, d2	1.7	70.1	0.3	4.8	3.0	0.1	0.1	1.0		17.3	18.5	0.0
Delay (s)	51.4	50.4	41.6	56.9	56.6	40.1	39.1	14.7		63.6	32.9	2.7
Level of Service	D	D	D	E	E	D	D	B		E	C	A
Approach Delay (s)		47.0			47.3			15.7			33.6	
Approach LOS		D			D			B			C	

**Intersection Summary**

HCM Average Control Delay	25.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	82.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBT	SBL	SBT	SBR
Lane Configurations	↖↗	↑	↗	↖	↑	↗	↖↗	↖↗	↖	↖↗	↖
Volume (vph)	81	1	66	22	4	35	99	2383	184	2185	123
Lane Group Flow (vph)	96	1	79	25	5	40	115	2778	198	2349	132
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		Prot		pm+ov
Protected Phases	7	4	5	3	8	1	5	2	1	6	7
Permitted Phases			4			8					6
Detector Phases	7	4	5	3	8	1	5	2	1	6	7
Minimum Initial (s)	4.0	3.0	4.0	3.0	3.0	3.0	4.0	10.0	3.0	10.0	4.0
Minimum Split (s)	11.0	9.0	11.0	9.0	8.0	10.0	11.0	17.0	10.0	17.0	11.0
Total Split (s)	11.0	10.0	11.0	9.0	8.0	13.0	11.0	78.0	13.0	80.0	11.0
Total Split (%)	10.0%	9.1%	10.0%	8.2%	7.3%	11.8%	10.0%	70.9%	11.8%	72.7%	10.0%
Yellow Time (s)	3.0	2.0	5.0	2.0	3.0	3.0	5.0	5.0	3.0	5.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	C-Max	None
v/c Ratio	0.47	0.01	0.29	0.28	0.07	0.16	0.37	0.90	0.82	0.95	0.10
Control Delay	57.6	50.0	24.4	58.0	53.5	31.8	39.8	12.1	71.4	22.0	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.6	50.0	24.4	58.0	53.5	31.8	39.8	12.1	71.4	22.0	0.4
Queue Length 50th (ft)	34	1	22	17	4	17	39	256	137	519	0
Queue Length 95th (ft)	57	6	59	45	16	48	m37	m213	m#331	#1037	m6
Internal Link Dist (ft)		444			645			2211		974	
Turn Bay Length (ft)	275		225	75		125	275		250		
Base Capacity (vph)	205	109	272	90	70	249	309	3100	242	2464	1282
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.01	0.29	0.28	0.07	0.16	0.37	0.90	0.82	0.95	0.10

**Intersection Summary**

Cycle Length: 110  
 Actuated Cycle Length: 110  
 Offset: 102 (93%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow  
 Natural Cycle: 100  
 Control Type: Actuated-Coordinated  
 # 95th percentile volume exceeds capacity; queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.

**Splits and Phases: 5: Pocono Downs/BJ's Driveways & Airport Road**

↖	↑	↖	→
01	02	03	04
103%	78%	95%	106%
↖	↓	↖	←
05	06	07	08
103%	80%	113%	8%



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↑	↖	↖	↑	↖	↖↗	↖↗	↖↗	↖	↑	↖
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	14	12	12	14	12	12	12	12	12	12	12
Grade (%)		3%			0%				1%			1%
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	0.97	0.91		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3224	1866	1487	1719	1930	1538	3111	4606		1728	3455	1546
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3224	1866	1487	1719	1930	1538	3111	4606		1728	3455	1546
Volume (vph)	81	1	66	22	4	35	99	2397	6	92	2322	123
Peak-hour factor, PHF	0.84	0.84	0.84	0.88	0.88	0.88	0.86	0.86	0.86	0.93	0.93	0.93
Adj Flow (vph)	96	1	79	25	5	40	115	2787	7	99	2497	132
RTOR Reduction (vph)	0	0	36	0	0	11	0	0	0	0	0	34
Lane Group Flow (vph)	96	1	43	25	5	29	115	2794	0	99	2497	98
Heavy Vehicles (%)	7%	7%	7%	5%	5%	5%	12%	12%	12%	5%	5%	5%
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	7	4	5	3	8	1	5	2		1	6	7
Permitted Phases			4			8						6
Actuated Green, G (s)	6.0	4.8	12.7	3.8	0.6	11.1	7.9	70.9		10.5	71.5	77.5
Effective Green, g (s)	7.0	4.8	15.7	3.8	1.6	13.1	10.9	73.9		11.5	72.5	81.5
Actuated g/C Ratio	0.06	0.04	0.14	0.03	0.01	0.12	0.10	0.67		0.10	0.68	0.74
Clearance Time (s)	5.0	4.0	7.0	4.0	5.0	5.0	7.0	7.0		5.0	7.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	205	81	266	59	28	239	308	3094		181	2340	1202
v/s Ratio Prot	c0.03	0.00	c0.02	0.01	0.00	0.01	0.04	0.61		c0.06	c0.72	0.01
v/s Ratio Perm			0.01			0.01						0.06
v/c Ratio	0.47	0.01	0.16	0.42	0.18	0.12	0.37	0.90		0.55	1.07	0.08
Uniform Delay, d1	49.7	50.3	41.4	52.0	53.6	43.3	46.4	15.1		46.8	17.8	3.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.84	0.78		1.00	0.83	0.68
Incremental Delay, d2	1.77	0.1	0.3	4.8	3.0	0.2	0.1	10.5		3.1	38.9	10.0
Delay (s)	51.4	50.4	41.7	56.9	56.6	43.5	39.1	12.3		49.9	53.5	2.7
Level of Service	D	D	D	E	E	D	D	B		D	D	A
Approach Delay (s)		47.0			49.2			13.4			51.0	
Approach LOS		D			D			B			D	

Intersection Summary	
HCM Average Control Delay	32.2
HCM Volume to Capacity ratio	0.91
Actuated Cycle Length (s)	110.0
Intersection Capacity Utilization	86.5%
Analysis Period (min)	15
HCM Level of Service	C
Sum of lost time (s)	12.0
ICU Level of Service	E





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↖↗	↑	↗	↖	↑	↗	↖↗	↖↗	↖	↖↗	↗
Volume (vph)	81	1	66	22	4	35	99	2397	92	2322	123
Lane Group Flow (vph)	96	1	79	25	5	40	115	2794	99	2497	132
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		Prot		pm+ov
Protected Phases	7	4	5	3	8	1	5	2	1	6	7
Permitted Phases			4			8					6
Detector Phases	7	4	5	3	8	1	5	2	1	6	7
Minimum Initial (s)	4.0	3.0	4.0	3.0	3.0	3.0	4.0	10.0	3.0	10.0	4.0
Minimum Split (s)	11.0	9.0	11.0	9.0	8.0	10.0	11.0	17.0	10.0	17.0	11.0
Total Split (s)	11.0	10.0	11.0	9.0	8.0	13.0	11.0	78.0	13.0	80.0	11.0
Total Split (%)	10.0%	9.1%	10.0%	8.2%	7.3%	11.8%	10.0%	70.9%	11.8%	72.7%	10.0%
Yellow Time (s)	3.0	2.0	5.0	2.0	3.0	3.0	5.0	5.0	3.0	5.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	C-Max	None
v/c Ratio	0.47	0.01	0.29	0.28	0.07	0.21	0.37	0.86	0.55	1.01	0.10
Control Delay	57.6	50.0	25.8	58.0	53.5	33.7	39.9	10.6	58.1	35.3	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.6	50.0	25.8	58.0	53.5	33.7	39.9	10.6	58.1	35.3	0.4
Queue Length 50th (ft)	34	1	24	17	4	17	39	257	67	-934	0
Queue Length 95th (ft)	57	6	61	45	16	48	m36	m213	m#130	#1152	m7
Internal Link Dist (ft)		444			645			2211		974	
Turn Bay Length (ft)	275		225	75		125	275		250		
Base Capacity (vph)	205	109	270	90	70	196	309	3263	182	2464	1282
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.01	0.29	0.28	0.07	0.20	0.37	0.86	0.54	1.01	0.10

**Intersection Summary:**  
 Cycle Length: 110  
 Actuated Cycle Length: 110  
 Offset: 102 (93%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow  
 Natural Cycle: 120  
 Control Type: Actuated-Coordinated  
 \* Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m. Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: Pocono Downs/BJ's Driveways & Airport Road

01	02	03	04
13s	78s	9s	10s
05	06	07	08
11s	80s	11s	8s

5: Pocono Downs/BJ's Driveways & Airport Road

Existing Conditions  
Timing Plan: PM Peak Hour

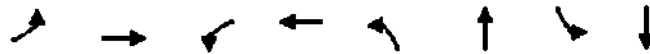


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖ ↗		↖ ↗		↖ ↗		↖ ↗		↖ ↗		↖ ↗	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	14	12	12	14	12	12	12	12	12	12	12
Grade (%)	3%		0%		0%		1%		1%		1%	
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frts	1.00	0.87		1.00	0.85		1.00	1.00		1.00	1.00	
Flt. Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1743	1697		1770	1697		1761	3514		1744	3474	
Flt. Permitted	0.62	1.00		0.56	1.00		0.23	1.00		0.07	1.00	
Satd. Flow (perm)	1137	1697		1043	1697		420	3514		124	3474	
Volume (vph)	52	2	16	25	5	190	14	1489	21	177	1082	34
Peak-hour factor, PHF	0.70	0.70	0.70	0.88	0.88	0.88	0.92	0.92	0.92	0.90	0.90	0.90
Adj. Flow (vph)	74	3	23	28	6	216	15	1618	23	197	1202	34
RTOR Reduction (vph)	0	20	0	0	106	0	0	1	0	0	2	0
Lane Group Flow (vph)	74	6	0	28	116	0	15	1640	0	197	1234	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	4%	4%
Turn type	Perm		pm-pt		Perm		pm-pt		Perm		pm-pt	
Protected Phases	4		3		8		2		1		6	
Permitted Phases	4		8		6		6		6		6	
Actuated Green, G (s)	11.4	11.4		20.0	20.0		52.1	52.1		68.0	68.0	
Effective Green, g (s)	12.4	12.4		21.0	21.0		55.1	55.1		71.0	71.0	
Actuated g/C Ratio	0.12	0.12		0.21	0.21		0.55	0.55		0.71	0.71	
Clearance Time (s)	5.0	5.0		5.0	5.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	141	210		252	356		231	1936		281	2467	
v/s Ratio Prot	0.00		0.01		c0.07		c0.47		c0.08		0.36	
v/s Ratio Perm	c0.07		0.02		0.04		0.41		0.41		0.77	
v/c Ratio	0.52	0.03		0.11	0.33		0.06	0.85		0.70	0.50	
Uniform Delay, d1	41.0	38.5		31.8	33.5		10.5	18.9		26.3	6.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		0.98	1.78	
Incremental Delay, d2	3.5	0.1		0.2	0.5		0.5	4.8		7.3	0.7	
Delay (s)	44.5	38.6		32.0	34.0		11.0	23.7		33.2	12.3	
Level of Service	D		D		C		B		C		B	
Approach Delay (s)	43.0		33.8		23.6		15.2					
Approach LOS	D		C		C		B					
<b>Intersection Summary</b>												
HCM Average Control Delay	21.4		HCM Level of Service		C							
HCM Volume to Capacity ratio	0.76											
Actuated Cycle Length (s)	100.0		Sum of lost time (s)		16.0							
Intersection Capacity Utilization	80.3%		ICU Level of Service		D							
Analysis Period (min)	15											

c Critical Lane Group

5: Pocono Downs/BJ's Driveways & Airport Road

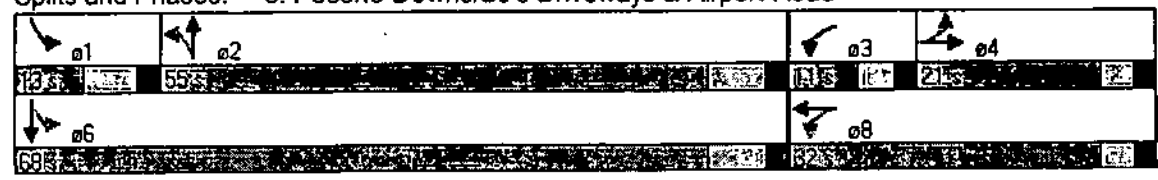
Existing Conditions  
Timing Plan: PM Peak Hour



Lane Group	EBL	EBTL	WBL	WBTL	NBL	NBTL	SBL	SBTL
Lane Configurations	↑	↑	↑	↑	↑	↑↑	↑	↑↑
Volume (vph)	52	2	25	5	14	1489	177	1082
Lane Group Flow (vph)	74	26	28	222	15	1641	197	1236
Turn Type	Perm		pm+pt		Perm		pm+pt	
Protected Phases		4	3	8		2	1	6
Permitted Phases	4		8		2		6	
Detector Phases	4	4	3	8	2	2	1	6
Minimum Initial (s)	3.0	3.0	3.0	3.0	10.0	10.0	3.0	10.0
Minimum Split (s)	9.0	9.0	9.0	8.0	17.0	17.0	10.0	17.0
Total Split (s)	21.0	21.0	11.0	32.0	55.0	55.0	13.0	68.0
Total Split (%)	21.0%	21.0%	11.0%	32.0%	55.0%	55.0%	13.0%	68.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lag	Lag	Lead		Lag	Lag	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes	
Recall Mode	None	None	None	None	C-Max	C-Max	None	C-Max
v/c Ratio	0.52	0.11	0.11	0.52	0.07	0.82	0.68	0.49
Control Delay	45.8	16.6	29.6	15.1	13.5	23.4	31.7	13.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.8	16.6	29.6	15.1	13.5	23.4	31.7	13.2
Queue Length 50th (ft)	45	2	14	45	5	483	72	243
Queue Length 95th (ft)	66	16	33	102	16	#660 m#194	112	412
Internal Link Dist (ft)		444		645		2211		974
Turn Bay Length (ft)					130		250	
Base Capacity (vph)	193	308	257	572	223	2009	289	2540
Starvation Cap. Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap. Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.08	0.11	0.39	0.07	0.82	0.68	0.49

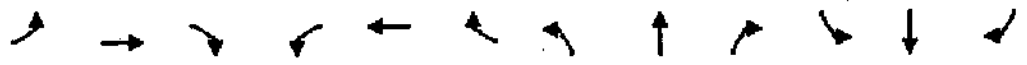
**Intersection Summary**  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 32 (32%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow  
 Natural Cycle: 75  
 Control Type: Actuated-Coordinated  
 # 195th percentile volume exceeds capacity; queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: Pocono Downs/BJ's Driveways & Airport Road



5: Pocono Downs/BJ's Driveways & Airport Road

2008 Base Conditions  
Timing Plan: PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↔↔	↑	↗	↖	↑	↗	↔↔	↕↕↕		↖	↕↕	↗	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	12	14	12	12	14	12	12	12	12	12	12	12	
Grade (%)		3%			0%			1%				-1%	
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	0.97	0.91		1.00	0.95	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	
Satd. Flow (prot)	3382	1957	1560	1770	1987	1583	3416	5049		1744	3489	1561	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	
Satd. Flow (perm)	3382	1957	1560	1770	1987	1583	3416	5049		1744	3489	1561	
Volume (vph)	478	2	347	32	5	190	365	1459	21	214	1055	383	
Peak-hour factor, PHF	0.70	0.70	0.70	0.88	0.88	0.88	0.92	0.92	0.92	0.90	0.90	0.90	
Adj. Flow (vph)	683	3	496	36	6	216	397	1586	23	238	1172	426	
RTOR Reduction (vph)	0	0	226	0	0	7	0	1	0	0	0	163	
Lane Group Flow (vph)	683	3	270	36	6	209	397	1608	0	238	1172	263	
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	4%	4%	
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot			Prot		pm+ov	
Protected Phases	7	4	5	3	8	1	5	2		1	6	7	
Permitted Phases			4			8						6	
Actuated Green, G (s)	23.7	13.5	34.3	11.6	1.4	25.8	20.8	36.5		24.4	40.1	63.8	
Effective Green, g (s)	24.7	14.5	38.3	12.6	2.4	29.8	23.8	39.5		27.4	43.1	67.8	
Actuated g/C Ratio	0.22	0.13	0.35	0.11	0.02	0.27	0.22	0.36		0.25	0.39	0.62	
Clearance Time (s)	5.0	5.0	7.0	5.0	5.0	7.0	7.0	7.0		7.0	7.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	759	258	600	203	43	486	739	1813		434	1367	1019	
v/s Ratio Prot	c0.20	0.00	c0.10	0.02	0.00	0.11	0.12	0.32		c0.14	c0.34	0.06	
v/s Ratio Perm			0.08			0.03						0.11	
v/c Ratio	0.90	0.01	0.45	0.18	0.14	0.43	0.54	0.89		0.55	0.86	0.26	
Uniform Delay, d1	41.4	41.5	27.7	44.0	52.8	33.1	38.2	33.1		35.9	30.6	9.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.01	0.82		1.01	0.86	2.04	
Incremental Delay, d2	13.5	0.0	0.5	0.4	1.5	0.6	0.4	4.1		1.3	6.8	0.1	
Delay (s)	55.0	41.5	28.3	44.4	54.3	33.7	39.2	31.3		37.6	33.0	19.7	
Level of Service	D	D	C	D	D	C	D	C		D	C	B	
Approach Delay (s)		43.7			35.7			32.8			30.5		
Approach LOS		D			D			C			C		
<b>Intersection Summary</b>													
HCM Average Control Delay	34.6			HCM Level of Service									C
HCM Volume to Capacity ratio	0.77												
Actuated Cycle Length (s)	110.0			Sum of lost time (s)									12.0
Intersection Capacity Utilization	70.8%			ICU Level of Service									C
Analysis Period (min)	15												

c Critical Lane Group

5: Pocono Downs/BJ's Driveways & Airport Road

2008 Base Conditions  
Timing Plan: PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBRI
Lane Configurations	↖↗	↑	↗	↖	↑	↗	↖↗	↖↗↖	↖	↖↗	↗
Volume (vph)	478	2	347	32	5	190	365	1459	214	1055	383
Lane Group Flow (vph)	683	3	496	36	6	216	397	1609	238	1172	426
Turn Type	Prot		pm-ov	Prot		pm-ov	Prot		Prot		pm-ov
Protected Phases	7	4	5	3	8	1	5	2	1	6	7
Permitted Phases			4			0					6
Detector Phases	7	4	5	3	8	1	5	2	1	6	7
Minimum Initial (s)	4.0	3.0	4.0	3.0	3.0	3.0	4.0	10.0	3.0	10.0	4.0
Minimum Split (s)	9.0	9.0	11.0	9.0	8.0	10.0	11.0	17.0	10.0	17.0	9.0
Total Split (s)	29.0	16.0	18.0	29.0	16.0	18.0	18.0	47.0	18.0	47.0	29.0
Total Split (%)	26.4%	14.5%	16.4%	26.4%	14.5%	16.4%	16.4%	42.7%	16.4%	42.7%	26.4%
Yellow Time (s)	3.0	3.0	5.0	3.0	3.0	5.0	5.0	5.0	5.0	5.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	C-Max	None
v/c Ratio	0.90	0.01	0.63	0.15	0.05	0.50	0.54	0.80	0.55	0.78	0.35
Control Delay	56.3	41.0	12.8	41.1	48.6	37.0	40.6	26.5	42.9	28.5	2.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.3	41.0	12.8	41.1	48.6	37.0	40.6	26.5	42.9	28.5	2.3
Queue Length 50th (ft)	242	2	95	20	4	123	92	409	139	303	19
Queue Length 95th (ft)	227	8	69	55	18	194	155	473	285	490	39
Internal Link Dist (ft)		444			645			2211		974	
Turn Bay Length (ft)	275		225	75		125	275		250		75
Base Capacity (vph)	769	336	791	402	217	434	739	2001	434	1495	1212
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.89	0.01	0.63	0.09	0.03	0.50	0.54	0.80	0.55	0.78	0.35

**Intersection Summary:**

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 19 (17%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m's Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: Pocono Downs/BJ's Driveways & Airport Road

↖ a1	↑ a2	↗ a3	↖ a4
18%	17%	29%	16%
↗ a5	↓ a6	↖ a7	↖ a8
18%	47%	29%	16%

5: Pocono Downs/BJ's Driveways & Airport Road

2008 Projected Conditions  
Timing Plan: PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↑	↗	↖	↑	↗	↖↗	↖↗↘		↖	↖↗	↗
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	14	12	12	14	12	12	12	12	12	12	12
Grade (%)		3%			0%				1%			1%
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	0.97	0.91		1.00	0.95	1.00
Friction	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt. Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3382	1957	1560	1770	1987	1583	3416	5050		1744	3489	1561
Flt. Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3382	1957	1560	1770	1987	1583	3416	5050		1744	3489	1561
Volume (vph)	478	2	347	32	5	190	365	1685	21	214	1477	383
Peak-hour factor, PHF	0.70	0.70	0.70	0.88	0.88	0.88	0.92	0.92	0.92	0.90	0.90	0.90
Adj. Flow (vph)	683	3	496	36	6	216	397	1832	23	238	1641	426
RTOR Reduction (vph)	0	0	219	0	0	6	0	1	0	0	0	163
Lane Group Flow (vph)	683	3	277	36	6	210	397	1854	0	238	1641	263
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	4%	4%	4%
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		Prot		pm+ov	
Protected Phases	7	4	5	3	8	1	5	2		1	6	7
Permitted Phases			4			8						6
Actuated Green, G (s)	23.7	13.5	34.3	11.6	1.4	25.7	20.8	36.6		24.3	40.1	63.8
Effective Green, g (s)	24.7	14.5	38.3	12.6	2.4	29.7	23.8	39.6		27.3	43.1	67.8
Actuated g/C Ratio	0.22	0.13	0.35	0.11	0.02	0.27	0.22	0.36		0.25	0.39	0.62
Clearance Time (s)	5.0	5.0	7.0	5.0	5.0	7.0	7.0	7.0		7.0	7.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp. Cap (vph)	759	258	600	203	43	485	739	1818		433	1367	1019
v/s Ratio Prot	c0.20	0.00	c0.10	0.02	0.00	0.11	0.12	0.37		c0.14	c0.47	0.06
v/s Ratio Perm			0.08			0.03						0.11
v/c Ratio	0.90	0.01	0.46	0.18	0.14	0.43	0.54	1.02		0.55	1.20	0.26
Uniform Delay, d1	41.4	41.5	27.8	44.0	52.8	33.2	38.2	35.2		36.0	33.4	9.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.05	0.81		1.02	0.84	1.34
Incremental Delay, d2	13.5	20.0	0.6	0.4	1.5	0.6	0.3	18.4		1.3	97.1	0.1
Delay (s)	55.0	41.5	28.4	44.4	54.3	33.8	40.2	46.9		38.2	125.1	13.0
Level of Service	D	D	C	D	D	C	D	D		D	F	B
Approach Delay (s)		43.8			35.8			45.7			95.4	
Approach LOS		D			D			D			F	

Intersection Summary

HCM Average Control Delay	64.0	HCM Level of Service	E
HCM Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	81.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↖↗	↑	↗	↖	↑	↗	↖↗	↖↗↖	↖	↖↖	↗
Volume (vph)	478	2	347	32	5	190	365	1685	214	1477	383
Lane Group Flow (vph)	683	3	496	36	6	216	397	1855	238	1641	426
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		Prot		pm+ov
Protected Phases	7	4	5	3	8	1	5	2	1	6	7
Permitted Phases			4			8					6
Detector Phases	7	4	5	3	8	1	5	2	1	6	7
Minimum Initial (s)	4.0	3.0	4.0	3.0	3.0	3.0	4.0	10.0	3.0	10.0	4.0
Minimum Split (s)	9.0	9.0	11.0	9.0	8.0	10.0	11.0	17.0	10.0	17.0	9.0
Total Split (s)	29.0	16.0	18.0	29.0	16.0	18.0	18.0	47.0	18.0	47.0	29.0
Total Split (%)	26.4%	14.5%	16.4%	26.4%	14.5%	16.4%	16.4%	42.7%	16.4%	42.7%	26.4%
Yellow Time (s)	3.0	3.0	5.0	3.0	3.0	5.0	5.0	5.0	5.0	5.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	C-Max	None
v/c Ratio	0.90	0.01	0.63	0.15	0.05	0.50	0.54	0.93	0.55	1.10	0.35
Control Delay	57.4	41.0	13.5	41.9	49.0	37.2	41.4	30.1	43.5	81.7	17.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.4	41.0	13.5	41.9	49.0	37.2	41.4	30.1	43.5	81.7	17.7
Queue Length 50th (ft)	242	2	104	20	4	123	100	488	143	~724	12
Queue Length 95th (ft)	227	8	76	55	18	194	m#35	m#532	m#290	#876	m#25
Internal Link Dist (ft)		444			645			2211		974	
Turn Bay Length (ft)	275		225	75		125	275		250		
Base Capacity (vph)	769	336	784	402	217	432	738	2005	432	1496	1212
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.89	0.01	0.63	0.09	0.03	0.50	0.54	0.93	0.55	1.10	0.35

**Intersection Summary**

Cycle Length: 110  
 Actuated Cycle Length: 110  
 Offset: 19 (17%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow  
 Natural Cycle: 100  
 Control Type: Actuated-Coordinated  
 \* Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.

**Splits and Phases: 5: Pocono Downs/BJ's Driveways & Airport Road**

↖	↑	↖	↗
18%	47%	29%	18%
↖	↓	↖	↗
18%	47%	29%	16%



Movement	EBL	EBTL	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↑	↗	↖	↑	↗	↖↗	↖↗	↖↗	↖	↖↗	↗
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	14	12	12	14	12	12	12	12	12	12	12
Grade (%)		3%			0%				1%			1%
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	0.97	0.91		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3382	1957	1560	1770	1987	1583	3416	5050		1744	3489	1561
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3382	1957	1560	1770	1987	1583	3416	5050		1744	3489	1561
Volume (vph)	478	2	347	32	5	190	365	1685	21	214	2662	383
Peak-hour factor, PHF	0.70	0.70	0.70	0.88	0.88	0.88	0.92	0.92	0.92	0.90	0.90	0.90
Adj. Flow (vph)	683	3	496	36	6	216	397	1832	23	238	2958	426
RTOR Reduction (vph)	0	0	120	0	0	4	0	1	0	0	0	110
Lane Group Flow (vph)	683	3	376	36	6	212	397	1854	0	238	2958	316
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	4%	4%	4%
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	7	4	5	3	8	1	5	2		1	6	7
Permitted Phases			4			8						6
Actuated Green, G (s)	14.0	7.7	28.9	7.6	1.3	24.6	21.2	47.4		23.3	49.5	63.5
Effective Green, g (s)	15.0	8.7	32.9	8.6	2.3	28.6	24.2	50.4		26.3	52.5	67.5
Actuated g/C Ratio	0.14	0.08	0.30	0.08	0.02	0.26	0.22	0.46		0.24	0.48	0.61
Clearance Time (s)	5.0	5.0	7.0	5.0	5.0	7.0	7.0	7.0		7.0	7.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	461	155	523	138	42	469	752	2314		417	1665	1015
v/s Ratio Prot	c0.20	0.00	c0.16	0.02	0.00	0.11	0.12	0.37		0.14	c0.85	0.04
v/s Ratio Perm			0.08			0.03						0.16
v/c Ratio	1.48	0.02	0.72	0.26	0.14	0.45	0.53	0.80		0.57	1.78	0.31
Uniform Delay, d1	47.5	46.7	34.4	47.7	52.9	34.1	37.9	25.5		36.9	28.8	10.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.01	1.03		1.14	0.82	0.51
Incremental Delay, d2	228.1	0.1	4.7	1.0	1.6	0.7	0.3	1.2		1.7	35.6	0.2
Delay (s)	275.6	46.8	39.1	48.7	54.4	34.8	38.6	27.4		43.7	375.1	5.3
Level of Service	F	D	D	D	D	C	D	C		D	F	A
Approach Delay (s)		175.8			37.2			29.4			309.8	
Approach LOS		F			D			G			F	

Intersection Summary	
HCM Average Control Delay	192.2
HCM Volume to Capacity ratio	1.31
Actuated Cycle Length (s)	110.0
Intersection Capacity Utilization	114.3%
Analysis Period (min)	15
HCM Level of Service	F
Sum of lost time (s)	4.0
ICU Level of Service	H

c Critical Lane Group





Lane Group	EBL	EBTA	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↖↗	↑	↗	↖	↑	↗	↖↗	↖↗	↖	↖↗	↗
Volume (vph)	478	2	347	32	5	190	365	1685	214	2662	383
Lane Group Flow (vph)	683	3	496	36	6	216	397	1855	238	2958	426
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		Prot		pm+ov
Protected Phases	7	4	5	3	8	1	5	2	1	6	7
Permitted Phases			4			8					6
Detector Phases	7	4	5	3	8	1	5	2	1	6	7
Minimum Initial (s)	4.0	3.0	4.0	3.0	3.0	3.0	4.0	10.0	3.0	10.0	4.0
Minimum Split (s)	9.0	9.0	11.0	9.0	8.0	10.0	11.0	17.0	10.0	17.0	9.0
Total Split (s)	19.0	16.0	18.0	19.0	16.0	18.0	18.0	57.0	18.0	57.0	19.0
Total Split (%)	17.3%	14.5%	16.4%	17.3%	14.5%	16.4%	16.4%	51.8%	16.4%	51.8%	17.3%
Yellow Time (s)	3.0	3.0	5.0	3.0	3.0	5.0	5.0	5.0	5.0	5.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	C-Max	None
v/c Ratio	1.48	0.02	0.81	0.20	0.05	0.52	0.53	0.74	0.57	1.65	0.37
Control Delay	262.9	46.5	34.9	47.2	49.0	39.0	39.8	24.0	48.7	317.5	2.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	262.9	46.5	34.9	47.2	49.0	39.0	39.8	24.0	48.7	317.5	2.1
Queue Length 50th (ft)	-343	2	235	23	4	129	94	469	167	-1655	9
Queue Length 95th (ft)	#318	8	220	55	18	196	m134	m510	m#238	#1780	m18
Internal Link Dist (ft)		444			645			2211		974	
Turn Bay Length (ft)	275		225	75		125	275		250		
Base Capacity (vph)	461	235	612	241	217	415	751	2498	417	1792	1160
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.48	0.01	0.81	0.15	0.03	0.52	0.53	0.74	0.57	1.65	0.37

**Intersection Summary:**

Cycle Length: 110  
 Actuated Cycle Length: 110  
 Offset: 27 (25%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow  
 Natural Cycle: 150  
 Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: Pocono Downs/BJ's Driveways & Airport Road

↖	↑	↗	→
18s	57s	19s	16s
↗	↓	↖	←
18s	57s	19s	16s

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↑	↖	↖	↑	↖	↖↗	↖↗↘		↖	↖↗	↖
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	14	12	12	14	12	12	12	12	12	12	12
Grade (%)		3%			0%			1%			1%	
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	0.97	0.91		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3382	1957	1560	1770	1987	1583	3416	5052		1744	3489	1561
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3382	1957	1560	1770	1987	1583	3416	5052		1744	3489	1561
Volume (vph)	478	2	347	32	5	190	365	1944	21	214	1415	383
Peak-hour factor, PHF	0.70	0.70	0.70	0.88	0.88	0.88	0.92	0.92	0.92	0.90	0.90	0.90
Adj. Flow (vph)	683	3	496	36	6	216	397	2113	23	238	1572	426
RTOR Reduction (vph)	0	0	160	0	0	2	0	1	0	0	0	166
Lane Group Flow (vph)	683	3	336	36	6	214	397	2135	0	238	1572	260
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	4%	4%	4%
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot			Prot		pm+ov
Protected Phases	7	4	5	3	8	1	5	2		1	6	7
Permitted Phases						8						6
Actuated Green, G (s)	18.0	10.1	31.6	9.2	1.3	24.0	21.5	44.0		22.7	45.2	63.2
Effective Green, g (s)	19.0	11.1	35.6	10.2	2.3	28.0	24.5	47.0		25.7	48.2	67.2
Actuated g/C Ratio	0.17	0.10	0.32	0.09	0.02	0.25	0.22	0.43		0.23	0.44	0.61
Clearance Time (s)	5.0	5.0	7.0	5.0	5.0	7.0	7.0	7.0		7.0	7.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	584	197	562	164	42	461	761	2159		407	1529	1010
v/s Ratio Prot	c0.20	0.00	c0.13	0.02	0.00	0.11	0.12	0.42		0.14	c0.45	0.04
v/s Ratio Perm			0.08			0.03						0.12
v/c Ratio	1.17	0.02	0.60	0.22	0.14	0.46	0.52	0.99		0.58	1.03	0.26
Uniform Delay, d1	45.5	44.5	31.2	46.2	52.9	34.7	37.6	31.2		37.4	30.9	9.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.29	0.53		0.88	0.82	1.71
Incremental Delay, d2	93.6	0.0	1.7	0.7	1.6	0.7	0.1	3.8		1.9	29.4	0.1
Delay (s)	139.1	44.6	32.9	46.9	54.4	35.4	48.7	20.3		34.8	54.7	17.0
Level of Service	F	D	C	D	D	D	D	C		C	D	B
Approach Delay (s)		94.3			37.4			24.7			45.4	
Approach LOS		F			D			C			D	
<b>Intersection Summary</b>												
HCM Average Control Delay	45.9			HCM Level of Service			D					
HCM Volume to Capacity ratio	0.87											
Actuated Cycle Length (s)	110.0			Sum of lost time (s)			4.0					
Intersection Capacity Utilization	80.2%			ICU Level of Service			D					
Analysis Period (min)	15											

c Critical Lane Group

5: Pocono Downs/BJ's Driveways & Airport Road

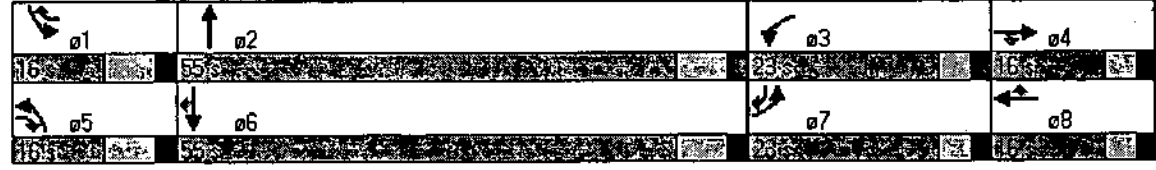
2018 Base Conditions  
Timing Plan: PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↖↗	↑	↗	↖	↑	↗	↖↗	↖↗↖	↖	↖↖	↗
Volume (vph)	478	2	347	32	5	190	365	1944	214	1415	383
Lane Group Flow (vph)	683	3	496	36	6	216	397	2136	238	1572	426
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		Prot		pm+ov
Protected Phases	7	4	5	3	8	1	5	2	1	6	7
Permitted Phases			4			8					6
Detector Phases	7	4	5	3	8	1	5	2	1	6	7
Minimum Initial (s)	4.0	3.0	4.0	3.0	3.0	3.0	4.0	10.0	3.0	10.0	4.0
Minimum Split (s)	9.0	9.0	11.0	9.0	8.0	10.0	11.0	17.0	10.0	17.0	9.0
Total Split (s)	23.0	16.0	16.0	23.0	16.0	16.0	16.0	55.0	16.0	55.0	23.0
Total Split (%)	20.9%	14.5%	14.5%	20.9%	14.5%	14.5%	14.5%	50.0%	14.5%	50.0%	20.9%
Yellow Time (s)	3.0	3.0	5.0	3.0	3.0	5.0	5.0	5.0	5.0	5.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	C-Max	None
v/c Ratio	1.17	0.01	0.72	0.18	0.05	0.53	0.52	0.91	0.58	0.95	0.35
Control Delay	134.4	44.0	24.3	43.7	48.6	40.5	50.0	15.7	40.8	36.0	1.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	134.4	44.0	24.3	43.7	48.6	40.5	50.0	15.7	40.8	36.0	1.9
Queue Length 50th (ft)	-296	2	187	22	4	130	132	379	136	481	19
Queue Length 95th (ft)	#27.1	8	164	55	18	203	m131	m303	m#290	m#692	m35
Internal Link Dist (ft)		444			645			2211		974	
Turn Bay Length (ft)	275		225	75		125	275		250		
Base Capacity (vph)	584	276	689	306	217	405	762	2342	407	1653	1201
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.17	0.01	0.72	0.12	0.03	0.53	0.52	0.91	0.58	0.95	0.35

**Intersection Summary:**  
 Cycle Length: 110  
 Actuated Cycle Length: 110  
 Offset: 25 (23%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated  
 Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: Pocono Downs/BJ's Driveways & Airport Road



3: Route 22E Off-Ramp/Catasauqua Rd & Airport Road

2018 Projected Conditions

Timing Plan: PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑		↖↗			↑↑		↑↑↑		↖↗		↑↑
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	14	12	12	12
Grade (%)	-5%					1%		0%				1%
Total Lost time (s)	4.0		4.0			4.0		4.0		4.0		4.0
Lane Util. Factor	0.95		0.97			0.88		0.91		1.00		0.95
Frt	1.00		1.00			0.85		1.00		0.85		1.00
Flt Protected	1.00		0.95			1.00		1.00		0.95		1.00
Satd. Flow (prot)	3352		3416			2773		5085		1689		3416
Flt Permitted	1.00		0.95			1.00		1.00		0.95		1.00
Satd. Flow (perm)	3352		3416			2773		5085		1689		3416
Volume (vph)	0	367	0	337	0	679	0	2384	415	424	1343	0
Peak-hour factor, PHF	0.91	0.91	0.91	0.87	0.87	0.87	0.77	0.77	0.77	0.93	0.93	0.93
Adj. Flow (vph)	0	403	0	387	0	780	0	3096	539	456	1444	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	12	0	0	0
Lane Group Flow (vph)	0	403	0	387	0	780	0	3096	527	456	1444	0
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type			Prot			custom		pm+ov		Prot		
Protected Phases	8		4			1 4 8		2		4		1
Permitted Phases								2				
Actuated Green, G (s)	16.0		10.0			49.0		47.0		57.0		11.0
Effective Green, g (s)	18.0		12.0			52.0		50.0		62.0		14.0
Actuated g/C Ratio	0.16		0.11			0.47		0.45		0.56		0.13
Clearance Time (s)	6.0		6.0					7.0		6.0		7.0
Vehicle Extension (s)	3.0		3.0					3.0		3.0		3.0
Lane Grp Cap (vph)	549		373			1311		2311		1013		435
v/s Ratio Prot	c0.12		c0.11			0.28		c0.61		0.06		c0.13
v/s Ratio Perm										0.26		
v/c Ratio	0.73		1.04			0.59		1.34		0.52		1.05
Uniform Delay, d1	43.7		49.0			21.3		30.0		14.8		48.0
Progression Factor	1.00		1.00			1.00		0.72		0.52		1.00
Incremental Delay, d2	5.1		56.7			10.7		154.5		0.3		56.4
Delay (s)	48.8		105.7			22.0		176.1		8.0		104.4
Level of Service	D		F			C		F		A		F
Approach Delay (s)	48.8		49.7					151.2				36.6
Approach LOS	D		D					F				D

Intersection Summary

HCM Average Control Delay	98.1	HGM Level of Service	F
HCM Volume to Capacity ratio	1.14		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	91.3%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBT	WBL	WBR	NBT	NBR	SBT	SBT
Lane Configurations	↑↑	↑↑	↑↑	↑↑↑	↑	↑↑	↑↑
Volume (vph)	367	337	679	2384	415	424	1343
Lane Group Flow (vph)	403	387	780	3096	539	456	1444
Turn Type		Prot	custom		pm+ov	Prot	
Protected Phases	8	4	1 4 8	2	4	1	6
Permitted Phases					2		
Detector Phases	8	4	1 4 8	2	4	1	6
Minimum Initial (s)	3.0	3.0		8.0	3.0	3.0	8.0
Minimum Split (s)	9.0	9.0		15.0	9.0	10.0	15.0
Total Split (s)	22.0	16.0	56.0	54.0	16.0	18.0	72.0
Total Split (%)	20.0%	14.5%	50.9%	49.1%	14.5%	16.4%	65.5%
Yellow Time (s)	4.0	4.0		5.0	4.0	5.0	5.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0
Lead/Lag				Lag		Lead	
Lead-Lag Optimize?							
Recall Mode	None	None		C-Max	None	None	C-Max
v/c Ratio	0.73	1.04	0.59	1.34	0.53	1.05	0.66
Control Delay	52.6	104.9	23.6	177.9	7.6	103.2	15.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.6	104.9	23.6	177.9	7.6	103.2	15.5
Queue Length 50th (ft)	144	-152	222	-1040	77	-181	322
Queue Length 95th (ft)	199	#236	276	m#859	m74	#283	396
Internal Link Dist (ft)	440			140			320
Turn Bay Length (ft)		350	225		500	350	
Base Capacity (vph)	549	373	1311	2311	1024	435	2177
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.73	1.04	0.59	1.34	0.53	1.05	0.66

**Intersection Summary**

Cycle Length: 110  
 Actuated Cycle Length: 110  
 Offset: 43 (39%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow  
 Natural Cycle: 150  
 Control Type: Actuated-Coordinated  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.

**Splits and Phases: 3: Route 22E Off-Ramp/Catasauqua Rd & Airport Road**

 18%	 54%	 16%	 22%
 72%			

5: Pocono Downs/BJ's Driveways & Airport Road

2018 Projected Conditions  
Timing Plan: PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↖	↑	↗	↖	↑	↗	↖↖	↖↖↖		↖	↖↖	↗
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	14	12	12	14	12	12	12	12	12	12	12
Grade (%)		3%			0%			1%			1%	
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	0.97	0.91		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3382	1957	1560	1770	1987	1583	3416	5053		1744	3489	1561
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3382	1957	1560	1770	1987	1583	3416	5053		1744	3489	1561
Volume (vph)	478	2	347	32	15	190	365	2170	21	214	1837	383
Peak-hour factor, PHF	0.70	0.70	0.70	0.88	0.88	0.88	0.92	0.92	0.92	0.90	0.90	0.90
Adj. Flow (vph)	683	3	496	36	6	216	397	2359	23	238	2041	426
RTOR Reduction (vph)	0	0	156	0	0	1	0	1	0	0	0	166
Lane Group Flow (vph)	683	3	340	36	6	215	397	2381	0	238	2041	260
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	4%	4%	4%
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot			Prot		pm+ov
Protected Phases	7	4	5	3	8	1	5	2		1	6	7
Permitted Phases			4			8						6
Actuated Green, G (s)	18.0	10.1	31.6	9.2	1.3	24.0	21.5	44.0		22.7	45.2	63.2
Effective Green, g(s)	19.0	11.1	35.6	10.2	2.3	28.0	24.5	47.0		25.7	48.2	67.2
Actuated g/C Ratio	0.17	0.10	0.32	0.09	0.02	0.25	0.22	0.43		0.23	0.44	0.61
Clearance Time (s)	5.0	5.0	7.0	5.0	5.0	7.0	7.0	7.0		7.0	7.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	584	197	562	164	42	1461	761	2159		407	1529	1010
v/s Ratio Prot	c0.20	0.00	c0.14	0.02	0.00	0.11	0.12	0.47		0.14	c0.59	0.04
v/s Ratio Perm			0.08			0.03						0.12
v/c Ratio	1.17	0.02	0.61	0.22	0.14	0.47	0.52	1.10		0.58	1.33	0.26
Uniform Delay, d1	45.5	44.5	31.3	46.2	52.9	34.7	37.6	31.5		37.4	30.9	9.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.31	0.52		0.89	0.84	1.27
Incremental Delay, d2	93.6	0.0	1.9	0.7	1.6	0.7	0.4	47.0		1.9	154.8	0.1
Delay (s)	139.1	44.6	33.1	46.9	54.4	35.4	49.2	63.5		35.1	180.8	12.6
Level of Service	F	D	C	D	D	D	D	E		D	F	B
Approach Delay (s)		94.4			37.5			61.4			141.5	
Approach LOS		F			D			E			F	

Intersection Summary	
HCM Average Control Delay	97.5
HCM Volume to Capacity ratio	1.01
Actuated Cycle Length (s)	110.0
Intersection Capacity Utilization	91.5%
Analysis Period (min)	15
HCM Level of Service	F
Sum of lost time (s)	4.0
ICU Level of Service	F

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↖↗	↑	↗	↖	↑	↗	↖↗	↖↗↖	↖	↖↖	↗
Volume (vph)	478	2	347	32	5	190	365	2170	214	1837	383
Lane Group Flow (vph)	683	3	496	36	6	216	397	2382	238	2041	426
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		Prot		pm+ov
Protected Phases	7	4	5	3	8	1	5	2	1	6	7
Permitted Phases			4			8					6
Detector Phases	7	4	5	3	8	1	5	2	1	6	7
Minimum Initial (s)	4.0	3.0	4.0	3.0	3.0	3.0	4.0	10.0	3.0	10.0	4.0
Minimum Split (s)	9.0	9.0	11.0	9.0	8.0	10.0	11.0	17.0	10.0	17.0	9.0
Total Split (s)	23.0	16.0	16.0	23.0	16.0	16.0	16.0	55.0	16.0	55.0	23.0
Total Split (%)	20.9%	14.5%	14.5%	20.9%	14.5%	14.5%	14.5%	50.0%	14.5%	50.0%	20.9%
Yellow Time (s)	3.0	3.0	5.0	3.0	3.0	5.0	5.0	5.0	5.0	5.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C:Max	None	C:Max	None
v/c Ratio	1.17	0.01	0.72	0.18	0.05	0.53	0.52	1.02	0.58	1.23	0.35
Control Delay	134.4	44.0	25.0	44.8	49.0	40.8	50.5	27.2	41.1	135.2	16
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	134.4	44.0	25.0	44.8	49.0	40.8	50.5	27.2	41.1	135.2	16
Queue Length 50th (ft)	-296	2	192	22	4	131	131	-553	140	-952	13
Queue Length 95th (ft)	#271	8	169	55	18	204	m120	m313	m#295	m#1062	m25
Internal Link Dist (ft)		444			645			2211		974	
Turn Bay Length (ft)	275		225	75		125	275		250		
Base Capacity (vph)	584	276	685	306	217	404	761	2345	407	1655	1202
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.17	0.01	0.72	0.12	0.03	0.53	0.52	1.02	0.58	1.23	0.35

**Intersection Summary:**

Cycle Length: 110  
 Actuated Cycle Length: 110  
 Offset: 25 (23%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow  
 Natural Cycle: 140  
 Control Type: Actuated-Coordinated  
 # Volume exceeds capacity, queue is theoretically infinite  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal

**Splits and Phases: 5: Pocono Downs/BJ's Driveways & Airport Road**

↖ e1 16 s	↑ e2 55 s	↗ e3 23 s	↔ e4 16 s
↘ e5 16 s	↓ e6 55 s	↙ e7 23 s	← e8 16 s



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↑	↗	↖	↑	↗	↔	↔	↔	↖	↗	↗
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	14	12	12	14	12	12	12	12	12	12	12
Grade (%)		3%			0%				1%			1%
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	0.97	0.91		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3382	1957	1560	1770	1987	1583	3416	5053		1744	3489	1561
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3382	1957	1560	1770	1987	1583	3416	5053		1744	3489	1561
Volume (vph)	478	2	347	32	5	190	365	2170	21	214	3022	383
Peak-hour factor, PHF	0.70	0.70	0.70	0.88	0.88	0.88	0.92	0.92	0.92	0.90	0.90	0.90
Adj. Flow (vph)	683	3	496	36	6	216	397	2359	23	238	3358	426
RTOR Reduction (vph)	0	0	120	0	0	1	0	1	0	0	0	97
Lane Group Flow (vph)	683	3	376	36	6	215	397	2381	0	238	3358	329
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	4%	4%
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	7	4	5	3	8	1	5	2		1	6	7
Permitted Phases			4			8						6
Actuated Green, G (s)	14.0	7.7	28.9	7.6	1.3	25.2	21.2	46.8		23.9	49.5	63.5
Effective Green, g (s)	15.0	8.7	32.9	8.6	2.3	29.2	24.2	49.8		26.9	52.5	67.5
Actuated g/C Ratio	0.14	0.08	0.30	0.08	0.02	0.27	0.22	0.45		0.24	0.48	0.61
Clearance Time (s)	5.0	5.0	7.0	5.0	5.0	7.0	7.0	7.0		7.0	7.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	461	155	523	138	42	478	752	2288		426	1665	1015
v/s Ratio Prot	c0.20	0.00	c0.16	0.02	0.00	0.11	0.12	0.47		0.14	c0.96	0.04
v/s Ratio Perm			0.08			0.03						0.17
v/c Ratio	1.48	0.02	0.72	0.26	0.14	0.45	0.53	1.04		0.56	2.02	0.32
Uniform Delay, d1	47.5	46.7	34.4	47.7	52.9	33.7	37.9	30.1		36.4	28.8	10.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.07	0.94		0.92	0.96	0.95
Incremental Delay, d2	228.1	0.1	4.7	1.0	1.6	0.7	0.1	19.9		1.3	459.3	10.2
Delay (s)	275.6	46.8	39.1	48.7	54.4	34.4	40.4	48.2		34.7	486.8	9.8
Level of Service	F	D	D	D	D	C	D	D		C	F	A
Approach Delay (s)		175.8			36.8			47.0			409.5	
Approach LOS		F			D			D			F	

Intersection Summary	
HCM Average Control Delay	242.1
HCM Volume to Capacity ratio	1.49
Actuated Cycle Length (s)	110.0
Intersection Capacity Utilization	124.3%
Analysis Period (min)	15
HCM Level of Service	F
Sum of lost time (s)	810
ICU Level of Service	H

c Critical Lane Group





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↔	↑	↗	↖	↑	↗	↔	↔	↖	↗	↖
Volume (vph)	478	2	347	32	5	190	365	2170	214	3022	383
Lane Group Flow (vph)	683	3	496	36	6	216	397	2382	238	3358	426
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		Prot		pm+ov
Protected Phases	7	4	5	3	8	1	5	2	1	6	7
Permitted Phases			4			8					6
Detector Phases	7	4	5	3	8	1	5	2	1	6	7
Minimum Initial (s)	4.0	3.0	4.0	3.0	3.0	3.0	4.0	10.0	3.0	10.0	4.0
Minimum Split (s)	9.0	9.0	11.0	9.0	8.0	10.0	11.0	17.0	10.0	17.0	9.0
Total Split (s)	19.0	16.0	18.0	19.0	16.0	18.0	18.0	57.0	18.0	57.0	19.0
Total Split (%)	17.3%	14.5%	16.4%	17.3%	14.5%	16.4%	16.4%	51.8%	16.4%	51.8%	17.3%
Yellow Time (s)	3.0	3.0	5.0	3.0	3.0	5.0	5.0	5.0	5.0	5.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	C-Max	None
v/c Ratio	1.48	0.02	0.81	0.20	0.05	0.51	0.53	0.96	0.56	1.87	0.37
Control Delay	262.9	46.5	35.0	47.2	49.0	39.0	41.1	27.7	39.6	417.1	3.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	262.9	46.5	35.0	47.2	49.0	39.0	41.1	27.7	39.6	417.1	3.7
Queue Length 50th (ft)	-343	2	235	23	4	129	97	636	149	-1963	28
Queue Length 95th (ft)	#318	8	220	55	18	199	m106	m529	m214m#2040	m46	
Internal Link Dist (ft)		444			645			2211		974	
Turn Bay Length (ft)	275		225	75		125	275		250		
Base Capacity (vph)	461	235	611	241	217	422	750	2471	427	1792	1150
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.48	0.01	0.81	0.15	0.03	0.51	0.53	0.96	0.56	1.87	0.37

**Intersection Summary:**

Cycle Length: 110  
 Actuated Cycle Length: 110  
 Offset: 28 (25%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow  
 Natural Cycle: 150  
 Control Type: Actuated-Coordinated

Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: Pocono Downs/BJ's Driveways & Airport Road

↖ ø1	↑ ø2	↖ ø3	→ ø4
18s	57s	19s	16s
↖ ø5	↓ ø6	↖ ø7	← ø8
18s	57s	19s	16s



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↑	↖	↖	↑	↖	↖↗	↖↗	↖	↖	↖↗	↖
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	14	12	12	14	12	12	12	12	12	12	12
Grade (%)		3%			0%				1%			1%
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	0.97	0.91		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3382	1957	1560	1770	1987	1583	3416	5053		1744	3489	1561
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3382	1957	1560	1770	1987	1583	3416	5053		1744	3489	1561
Volume (vph)	478	2	347	32	5	190	365	2445	21	214	1974	383
Peak-hour factor, PHF	0.70	0.70	0.70	0.88	0.88	0.88	0.92	0.92	0.92	0.90	0.90	0.90
Adj. Flow (vph)	683	3	496	36	6	216	397	2658	23	238	2193	426
RTOR Reduction (vph)	0	0	24	0	0	2	0	1	0	0	0	53
Lane Group Flow (vph)	683	3	472	36	6	214	397	2680	0	238	2193	373
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	4%	4%	4%
Turn Type	Prot	pm+ov	Prot	pm+ov	Prot	pm+ov	Prot	pm+ov	Prot	pm+ov	Prot	pm+ov
Protected Phases	7	4	5	3	8	1	5	2		1	6	7
Permitted Phases			4			8						6
Actuated Green, G (s)	19.0	11.0	29.4	8.6	0.6	21.0	18.4	66.0		20.4	68.0	87.0
Effective Green, g (s)	20.0	12.0	33.4	9.6	1.6	25.0	21.4	69.0		23.4	71.0	91.0
Actuated g/C Ratio	0.15	0.09	0.26	0.07	0.01	0.19	0.16	0.53		0.18	0.55	0.70
Clearance Time (s)	5.0	5.0	7.0	5.0	5.0	7.0	7.0	7.0		7.0	7.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	620	181	449	131	24	353	562	2682		314	1906	1141
v/s Ratio Prot	c0.20	0.00	c0.17	0.02	0.00	0.11	0.12	0.53		0.14	c0.63	0.05
v/s Ratio Perm			0.13			0.03						0.19
v/c Ratio	1.31	0.02	1.05	0.27	0.25	0.61	0.71	1.00		0.76	1.15	0.33
Uniform Delay, d1	55.0	53.6	48.3	56.9	63.6	48.0	51.3	30.5		50.6	29.5	7.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.09	0.72		1.00	0.84	0.73
Incremental Delay, d2	154.3	0.0	56.7	1.1	5.4	2.9	0.4	5.1		8.2	73.2	0.1
Delay (s)	209.3	53.7	105.0	58.1	69.0	51.0	56.4	27.0		58.9	98.0	5.6
Level of Service	F	D	F	E	E	D	E	C		E	F	A
Approach Delay (s)		165.2			52.4			30.8			81.0	
Approach LOS		F			D			G			F	

Intersection Summary	
HCM Average Control Delay	72.5
HCM Volume to Capacity ratio	1.10
Actuated Cycle Length (s)	130.0
Intersection Capacity Utilization	95.3%
Analysis Period (min)	15
HCM Level of Service	E
Sum of lost time (s)	40
ICU Level of Service	F



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↖↗	↑	↗	↖	↑	↗	↖↗	↖↗	↖	↖↗	↗
Volume (vph)	478	2	347	32	5	190	365	2445	214	1974	383
Lane Group Flow (vph)	683	3	496	36	6	216	397	2681	238	2193	426
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		Prot		pm+ov
Protected Phases	7	4	5	3	8	1	5	2	1	6	7
Permitted Phases			4			8					6
Detector Phases	7	4	5	3	8	1	5	2	1	6	7
Minimum Initial (s)	4.0	3.0	4.0	3.0	3.0	3.0	4.0	10.0	3.0	10.0	4.0
Minimum Split (s)	9.0	9.0	11.0	9.0	8.0	10.0	11.0	17.0	10.0	17.0	9.0
Total Split (s)	24.0	22.0	19.0	10.0	8.0	21.0	19.0	77.0	21.0	79.0	24.0
Total Split (%)	18.5%	16.9%	14.6%	7.7%	6.2%	16.2%	14.6%	59.2%	16.2%	60.8%	18.5%
Yellow Time (s)	3.0	3.0	5.0	3.0	3.0	5.0	5.0	5.0	5.0	5.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	C-Max	None
v/c Ratio	1.31	0.01	1.11	0.23	0.10	0.71	0.71	0.94	0.76	1.09	0.35
Control Delay	197.1	53.0	115.8	58.1	64.8	62.3	56.9	20.6	64.4	71.8	2.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	197.1	53.0	115.8	58.1	64.8	62.3	56.9	20.6	64.4	71.8	2.6
Queue Length 50th (ft)	-381	2	-585	27	5	170	177	568	193	-1082	38
Queue Length 95th (ft)	#339	10	#415	66	20	255	m154	m350	m#356	#1153	m58
Internal Link Dist (ft)		444			645			2211		974	
Turn Bay Length (ft)	275		225	75		125	275		250		
Base Capacity (vph)	520	283	448	158	61	306	562	2839	314	2013	1231
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.31	0.01	1.11	0.23	0.10	0.71	0.71	0.94	0.76	1.09	0.35

**Intersection Summary:**

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 13 (10%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow

Natural Cycle: 140

Control Type: Actuated-Coordinated

# Volume exceeds capacity; queue is theoretically infinite.  
Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity; queue may be longer.  
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: Pocono Downs/BJ's Driveways & Airport Road

↖ ø1 21%	↑ ø2 77%	↗ ø3 10%	↗ ø4 22%
↖ ø5 19%	↓ ø6 79%	↖ ø7 24%	← ø8 81%

5: Pocono Downs/BJ's Driveways & Airport Road 2018 Projected Conditions W/APconnection  
 Timing Plan: PM PEAK HOUR



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↖	↑	↗	↖	↑	↗	↖↖	↑↑↑	↖	↑↑	↑	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	14	12	12	14	12	12	12	12	12	12	12
Grade (%)		3%			0%				1%			1%
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	0.97	0.91	1.00	0.95	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	1.00	1.00	1.00	0.85
Flt: Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3382	1957	1560	1770	1987	1583	3416	5054	1744	3489	1561	1561
Flt: Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3382	1957	1560	1770	1987	1583	3416	5054	1744	3489	1561	1561
Volume (vph)	478	2	347	32	5	190	365	2634	221	214	2318	383
Peak-hour factor, PHF	0.70	0.70	0.70	0.88	0.88	0.88	0.92	0.92	0.92	0.90	0.90	0.90
Adj. Flow (vph)	683	3	496	36	6	216	397	2863	23	238	2576	426
RTOR Reduction (vph)	0	0	22	0	0	1	0	0	0	0	0	53
Lane Group Flow (vph)	683	3	474	36	6	215	397	2886	10	238	2576	373
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	4%	4%	4%
Turn Type	Prot	pm+ov	pm+ov	Prot	pm+ov	pm+ov	Prot	pm+ov	Prot	pm+ov	pm+ov	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	1	6	7	
Permitted Phases			4			8						6
Actuated Green, G (s)	19.0	11.0	29.4	8.6	0.6	21.0	18.4	66.0	20.4	68.0	87.0	
Effective Green, g(s)	20.0	12.0	33.4	9.6	1.6	25.0	21.4	69.0	23.4	71.0	91.0	
Actuated g/C Ratio	0.15	0.09	0.26	0.07	0.01	0.19	0.16	0.53	0.18	0.55	0.70	
Clearance Time (s)	5.0	5.0	7.0	5.0	5.0	7.0	7.0	7.0	7.0	7.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	520	181	449	131	24	353	562	2683	314	1906	1141	
v/s Ratio Prot	c0.20	0.00	c0.17	0.02	0.00	0.11	0.12	0.57	0.14	c0.74	0.05	
v/s Ratio Perm			0.13			0.03					0.19	
v/c Ratio	1.31	0.02	1.06	0.27	0.25	0.61	0.71	1.08	0.76	1.35	0.33	
Uniform Delay, d1	55.0	53.6	48.3	56.9	63.6	48.0	51.3	30.5	50.6	29.5	7.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.10	0.72	0.98	0.91	0.81	
Incremental Delay, d2	154.3	0.0	58.2	1.1	5.4	13.0	10.4	34.8	8.2	161.1	0.1	
Delay (s)	209.3	53.7	106.5	58.1	69.0	51.0	56.7	56.7	57.7	187.8	6.2	
Level of Service	F	D	F	E	E	D	E	E	E	F	A	
Approach Delay (s)		165.8			52.4			56.7		154.4		
Approach LOS		F			D			E		F		

Intersection Summary	
HCM Average Control Delay	112.5
HCM Volume to Capacity ratio	1.22
Actuated Cycle Length (s)	130.0
Intersection Capacity Utilization	104.8%
Analysis Period (min)	15
HCM Level of Service	F
Sum of lost time (s)	410
ICU Level of Service	G

c Critical Lane Group

5: Pocono Downs/BJ's Driveways & Airport Road 2018 Projected Conditions W/APconnection  
 Timing Plan: PM PEAK HOUR



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SPR
Lane Configurations	↖↗	↑	↑	↖	↑	↑	↖↗	↑↑↑	↖	↑↑	↑
Volume (vph)	478	2	347	32	15	190	365	2634	214	2318	383
Lane Group Flow (vph)	683	3	496	36	6	216	397	2886	238	2576	426
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		Prot		pm+ov
Protected Phases	7	4	5	3	8	1	5	2	1	6	7
Permitted Phases			4			8					6
Detector Phases	7	4	5	3	8	1	5	2	1	6	7
Minimum Initial (s)	4.0	3.0	4.0	3.0	3.0	3.0	4.0	10.0	3.0	10.0	4.0
Minimum Split (s)	9.0	9.0	11.0	9.0	8.0	10.0	11.0	17.0	10.0	17.0	9.0
Total Split (s)	24.0	22.0	19.0	10.0	18.0	21.0	19.0	77.0	21.0	79.0	24.0
Total Split (%)	18.5%	16.9%	14.6%	7.7%	6.2%	16.2%	14.6%	59.2%	16.2%	60.8%	18.5%
Yellow Time (s)	3.0	3.0	5.0	3.0	3.0	5.0	5.0	5.0	5.0	5.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	C-Max	None
v/c Ratio	1.31	0.01	1.11	0.23	0.10	0.71	0.71	1.02	0.76	1.28	0.35
Control Delay	197.1	53.0	117.4	58.1	64.8	62.7	57.2	31.3	63.3	154.5	2.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	197.1	53.0	117.4	58.1	64.8	62.7	57.2	31.3	63.3	154.5	2.8
Queue Length 50th (ft)	-381	2	-590	27	5	171	178	-817	193	-1441	40
Queue Length 95th (ft)	#339	10	#419	66	20	256	m145	m356	#330	m1509	m69
Internal Link Dist (ft)		444			645			2211		974	
Turn Bay Length (ft)	275		225	75		125	275		250		
Base Capacity (vph)	520	283	446	158	61	305	562	2839	314	2013	1231
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.31	0.01	1.11	0.23	0.10	0.71	0.71	1.02	0.76	1.28	0.35

Intersection Summary

Cycle Length: 130  
 Actuated Cycle Length: 130  
 Offset: 13 (10%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow  
 Natural Cycle: 150  
 Control Type: Actuated-Coordinated  
 \* Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m: Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: Pocono Downs/BJ's Driveways & Airport Road

↖ ø1 216	↑ ø2 273	↖ ø3 108	→ ø4 223
↘ ø5 196	↓ ø6 79	↘ ø7 245	← ø8 84



Movement	EB1	EB2	EB3	WB1	WB2	WB3	NB1	NB2	NB3	SB1	SB2	SB3
Lane Configurations	↖↗	↑	↖	↖	↑	↖	↖↗	↖↗	↖↗	↖	↑↑	↖
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	14	12	12	14	12	12	12	12	12	12	12
Grade (%)		3%			0%				1%			1%
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	0.97	0.91		1.00	0.95	1.00
Frnt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3382	1957	1560	1770	1987	1583	3416	5054		1744	3489	1561
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3382	1957	1560	1770	1987	1583	3416	5054		1744	3489	1561
Volume (vph)	478	2	347	32	5	190	365	2634	21	214	3503	383
Peak-hour factor, PHF	0.70	0.70	0.70	0.88	0.88	0.88	0.92	0.92	0.92	0.90	0.90	0.90
Adj. Flow (vph)	683	3	496	36	6	216	397	2863	23	236	3892	426
RTOR Reduction (vph)	0	0	20	0	0	1	0	1	0	0	0	60
Lane Group Flow (vph)	683	3	476	36	6	215	397	2885	0	238	3892	366
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	4%	4%	4%
Turn Type	Prot	pm+ov	Prot	pm+ov	Prot	pm+ov	Prot	pm+ov	Prot	pm+ov	Prot	pm+ov
Protected Phases	7	4	5	3	8	1	5	2		1	6	7
Permitted Phases			4				8					6
Actuated Green, G (s)	15.0	8.6	24.0	7.0	0.6	21.0	15.4	70.0		20.4	75.0	90.0
Effective Green, g (s)	16.0	9.6	28.0	8.0	1.6	25.0	18.4	73.0		23.4	78.0	94.0
Actuated g/C Ratio	0.12	0.07	0.22	0.06	0.01	0.19	0.14	0.56		0.18	0.60	0.72
Clearance Time (s)	5.0	5.0	7.0	5.0	5.0	7.0	7.0	7.0		7.0	7.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	416	145	384	109	24	353	483	2838		314	2093	1177
v/s Ratio Prot	c0.20	0.00	c0.18	0.02	0.00	0.11	0.12	0.57		0.14	c1.12	0.04
v/s Ratio Perm			0.13			0.03						0.20
v/c Ratio	1.64	0.02	1.24	0.33	0.25	0.61	0.82	1.02		0.76	1.86	0.31
Uniform Delay, d1	57.0	55.8	45.0	58.4	63.6	48.0	54.2	28.5		50.6	26.0	36.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.23	0.64		1.05	0.89	1.39
Incremental Delay, d2	299.5	0.1	128.6	1.8	5.4	3.0	1.1	10.1		7.4	388.1	0.1
Delay (s)	356.5	55.9	179.6	60.2	69.0	51.0	67.5	28.3		60.6	411.1	9.0
Level of Service	F	E	F	E	E	D	E	C		E	F	A
Approach Delay (s)		281.5			52.7			33.1			355.2	
Approach LOS		F			D			G			F	

Intersection Summary	
HCM Average Control Delay	223.4
HCM Volume to Capacity ratio	1.67
Actuated Cycle Length (s)	130.0
Intersection Capacity Utilization	137.5%
Analysis Period (min)	15
HCM Level of Service	F
Sum of lost time (s)	18.0
ICU Level of Service	H

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↖↗	↑	↗	↖	↑	↗	↖↗	↑↑	↖	↑↑	↗
Volume (vph)	478	2	347	32	5	190	365	2634	214	3503	383
Lane Group Flow (vph)	683	3	496	36	6	216	397	2886	238	3892	426
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		Prot		pm+ov
Protected Phases	7	4	5	3	8	1	5	2	1	6	7
Permitted Phases			4			8					6
Detector Phases	7	4	5	3	8	1	5	2	1	6	7
Minimum Initial (s)	4:0	3:0	4:0	3:0	3:0	3:0	4:0	10:0	3:0	10:0	4:0
Minimum Split (s)	9.0	9.0	11.0	9.0	8.0	10.0	11.0	17.0	10.0	17.0	9.0
Total Split (s)	20:0	18:0	16:0	10:0	8:0	21:0	16:0	81:0	21:0	86:0	20:0
Total Split (%)	15.4%	13.8%	12.3%	7.7%	6.2%	16.2%	12.3%	62.3%	16.2%	66.2%	15.4%
Yellow Time (s)	3:0	3:0	5:0	3:0	3:0	5:0	5:0	5:0	5:0	5:0	3:0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	C-Max	None
v/c Ratio	1.64	0.02	1.31	0.26	0.10	0.71	0.82	0.96	0.76	1.77	0.34
Control Delay	334.9	55.0	194.2	61.2	64.8	62.7	66.4	18.1	65.4	368.6	3.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	334.9	55.0	194.2	61.2	64.8	62.7	66.4	18.1	65.4	368.6	3.1
Queue Length 50th (ft)	-428	2	-627	28	5	171	163	874	185	-2631	50
Queue Length 95th (ft)	#386	10	#497	66	20	256	m#137	m#406	m#260	m#2516	m#57
Internal Link Dist (ft)		444			645			2211		974	
Turn Bay Length (ft)	275		225	75		125	275		250		
Base Capacity (vph)	416	223	379	136	61	305	484	2995	314	2201	1271
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.64	0.01	1.31	0.26	0.10	0.71	0.82	0.96	0.76	1.77	0.34

**Intersection Summary**

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 80 (62%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow

Natural Cycle: 150

Control Type: Actuated-Coordinated

- Volume exceeds capacity, queue is theoretically infinite
- Queue shown is maximum after two cycles.
- #- 95th percentile volume exceeds capacity, queue may be longer
- Queue shown is maximum after two cycles.
- m- Volume for 95th percentile queue is metered by upstream signal

Splits and Phases: 5: Pocono Downs/BJ's Driveways & Airport Road

↖	↑	↖	↗
o1	o2	o3	o4
10s	81s	10s	18s
↖	↓	↗	←
o5	o6	o7	o8
16s	86s	20s	8s

8: Lloyd Street & Airport Road

Existing Conditions  
Timing Plan: AM Peak Hour

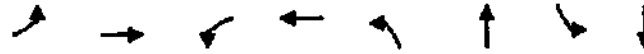


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↕			↕			↖	↗	↖	↗	↖	↗
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	11	12	12	12	12	13	12	12	13	12
Grade (%)	6%			3%			-2%		-1%			
Total Lost time (s)	4.0			4.0			4.0	4.0	4.0		4.0	
Lane Util. Factor	1.00			1.00			1.00	0.95	1.00		0.95	
Frt	0.98			0.94			1.00	0.99	1.00		0.99	
Flt Protected	0.96			0.98			0.95	1.00	0.95		1.00	
Satd. Flow (prot)	1623			1345			1628	3320	1711		3489	
Flt Permitted	0.61			0.82			0.17	1.00	0.19		1.00	
Satd. Flow (perm)	1028			1132			294	3320	346		3489	
Volume (vph)	165	112	12	58	12	52	10	983	95	65	162	116
Peak-hour factor, PHF	0.75	0.75	0.75	0.79	0.79	0.79	0.84	0.84	0.84	0.93	0.93	0.93
Adj. Flow (vph)	87	16	16	73	15	66	12	1170	113	70	1249	125
RTOR Reduction (vph)	0	5	0	0	24	0	0	6	0	0	7	0
Lane Group Flow (vph)	0	114	0	0	130	0	12	1277	0	70	1367	0
Heavy Vehicles (%)	4%	4%	4%	32%	32%	32%	12%	12%	12%	6%	6%	6%
Turn Type	Perm			Perm			Perm		Perm			
Protected Phases	4			8			2		6			
Permitted Phases	4			8			2		6			
Actuated Green, G (s)	12.7			12.7			84.3	84.3	84.3		84.3	
Effective Green, g (s)	12.7			12.7			87.3	87.3	87.3		87.3	
Actuated g/C Ratio	0.13			0.13			0.79	0.79	0.79		0.79	
Clearance Time (s)	6.0			6.0			7.0	7.0	7.0		7.0	
Vehicle Extension (s)	3.0			3.0			3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	137			151			233	2635	275		2769	
v/s Ratio Prot							0.38		c0.39			
v/s Ratio Perm	0.11			c0.11			0.04		0.20			
v/c Ratio	0.83			0.86			0.05	0.48	0.25		0.49	
Uniform Delay, d1	46.4			46.6			2.4	3.8	2.9		3.9	
Progression Factor	1.00			1.00			1.36	1.55	1.00		1.00	
Incremental Delay, d2	32.8			35.5			0.4	0.5	2.2		0.6	
Delay (s)	79.2			82.1			3.7	6.5	5.2		4.5	
Level of Service	E			E			A	A	A		A	
Approach Delay (s)	79.2			82.1			6.4		4.5			
Approach LOS	E			E			A		A			

Intersection Summary	
HCM Average Control Delay	12.3
HCM Volume to Capacity ratio	0.55
Actuated Cycle Length (s)	110.0
Intersection Capacity Utilization	58.4%
Analysis Period (min)	15
HCM Level of Service	B
Sum of lost time (s)	8.0
ICU Level of Service	B

c Critical Lane Group





Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↕		↕		↖	↗	↖	↗
Volume (vph)	65	12	58	12	10	983	65	1162
Lane Group Flow (vph)	0	119	0	154	12	1283	70	1374
Turn Type	Perm		Perm		Perm		Perm	
Protected Phases	4		8		2		6	
Permitted Phases	4		8		2		6	
Detector Phases	4	4	8	8	2	2	6	6
Minimum Initial (s)	3.0	3.0	3.0	3.0	6.0	6.0	6.0	6.0
Minimum Split (s)	9.0	9.0	9.0	9.0	13.0	13.0	13.0	13.0
Total Split (s)	19.0	19.0	19.0	19.0	91.0	91.0	91.0	91.0
Total Split (%)	17.3%	17.3%	17.3%	17.3%	82.7%	82.7%	82.7%	82.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead-Lag Optimize?							
Recall Mode	None		None		C-Max		C-Max	
v/c Ratio	0.83		0.88		0.05	0.49	0.25	0.50
Control Delay	82.9		78.8		4.0	6.6	5.6	4.5
Queue Delay	0.0		0.0		0.0	0.1	0.0	0.0
Total Delay	82.9		78.8		4.0	6.6	5.6	4.5
Queue Length 50th (ft)	79		89		1	137	10	136
Queue Length 95th (ft)	135		166		m4	168	26	168
Internal Link Dist (ft)	476		636		620		2211	
Turn Bay Length (ft)					60		75	
Base Capacity (vph)	146		178		233	2640	275	2774
Starvation Cap Reductn	0		0		0	366	0	0
Spillback Cap Reductn	0		0		0	0	0	0
Storage Cap Reductn	0		0		0	0	0	0
Reduced v/c Ratio	0.82		0.87		0.05	0.56	0.25	0.50

**Intersection Summary:**  
 Cycle Length: 110  
 Actuated Cycle Length: 110  
 Offset: 92 (84%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow  
 Natural Cycle: 40  
 Control Type: Actuated-Coordinated  
 # 95th percentile volume exceeds capacity; queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 8: Lloyd Street & Airport Road

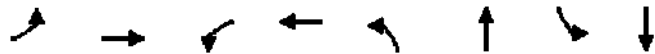
↖ a2	↗ a4
91s	18s
↖ a6	↗ a8
91s	19s



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	11	12	12	12	12	13	12	12	13	12
Grade (%)		6%			3%			2%				1%
Total Lost time (s)	4.0	4.0		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	0.95		1.00	0.95	
Frnt	1.00	0.92		1.00	0.88		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1627	1585		1388	1289		1628	3322		1711	3490	
Flt Permitted	0.66	1.00		0.73	1.00		0.17	1.00		0.11	1.00	
Satd. Flow (perm)	1138	1585		1074	1289		284	3322		204	3490	
Volume (vph)	70	13	13	77	15	55	10	1131	102	72	1276	123
Peak-hour factor, PHF	0.75	0.75	0.75	0.79	0.79	0.79	0.84	0.84	0.84	0.93	0.93	0.93
Adj. Flow (vph)	93	17	17	97	19	70	12	1346	124	77	1372	132
RTOR Reduction (vph)	0	14	0	0	59	0	0	4	0	0	5	0
Lane Group Flow (vph)	93	20	0	97	30	0	12	1463	0	77	1499	0
Heavy Vehicles (%)	4%	4%	4%	32%	32%	32%	12%	12%	12%	6%	6%	6%
Turn Type	Perm			Perm			Perm			pm/pt		
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			16		
Actuated Green, G (s)	14.9	14.9		14.9	14.9		69.4	69.4		82.1	82.1	
Effective Green, g (s)	16.9	16.9		16.9	16.9		72.4	72.4		85.1	85.1	
Actuated g/C Ratio	0.15	0.15		0.15	0.15		0.66	0.66		0.77	0.77	
Clearance Time (s)	6.0	6.0		6.0	6.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	175	244		165	198		187	2186		277	2700	
v/s Ratio Prot		0.01			0.02			c0.44		0.02	c0.43	
v/s Ratio Perm	0.08			c0.09			0.04			0.19		
v/c Ratio	0.53	0.08		0.59	0.15		0.06	0.67		0.28	0.56	
Uniform Delay, d1	42.9	39.9		43.3	40.3		6.7	11.5		7.7	4.9	
Progression Factor	1.00	1.00		1.00	1.00		0.19	0.27		1.00	1.00	
Incremental Delay, d2	3.1	5.0		5.3	0.4		0.5	1.3		0.5	0.8	
Delay (s)	46.0	40.0		48.6	40.7		1.8	4.4		8.3	5.8	
Level of Service	D	D		D	D		A	A		A	A	
Approach Delay (s)		44.4			44.8			4.4			5.9	
Approach LOS		D			D			A			A	

Intersection Summary	
HCM Average Control Delay	8.8
HCM Volume to Capacity ratio	0.65
Actuated Cycle Length (s)	110.0
Sum of lost time (s)	12.0
Intersection Capacity Utilization	65.1%
ICU Level of Service	C
Analysis Period (min)	15

c Critical Lane Group

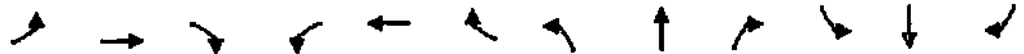


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖	↗	↖	↗	↖	↕	↖	↗
Volume (vph)	70	13	77	15	10	1131	72	1276
Lane Group Flow (vph)	93	34	97	89	12	1467	77	1504
Turn Type	Perm		Perm		Perm		pm+pt	
Protected Phases	4		8		2		1	6
Permitted Phases	4		8		2		6	
Detector Phases	4	4	8	8	2	2	1	6
Minimum Initial (s)	3.0	3.0	3.0	3.0	6.0	6.0	4.0	6.0
Minimum Split (s)	9.0	9.0	9.0	9.0	13.0	13.0	11.0	13.0
Total Split (s)	28.0	28.0	28.0	28.0	64.0	64.0	18.0	82.0
Total Split (%)	25.5%	25.5%	25.5%	25.5%	58.2%	58.2%	16.4%	74.5%
Yellow Time (s)	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag					Lag	Lag	Lead	
Lead-Lag Optimize?					Yes	Yes	Yes	
Recall Mode	None	None	None	None	C-Max	C-Max	None	C-Max
v/c Ratio	0.52	0.13	0.59	0.35	0.06	0.66	0.32	0.56
Control Delay	45.4	23.4	47.5	14.8	2.4	4.7	6.7	6.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0
Total Delay	45.4	23.4	47.5	14.8	2.4	4.9	6.7	6.4
Queue Length 50th (ft)	61	10	65	12	0	34	11	177
Queue Length 95th (ft)	87	29	97	42	mi	44	34	303
Internal Link Dist (ft)	476		636		620		2211	
Turn Bay Length (ft)	75	125		60		75		
Base Capacity (vph)	256	359	234	336	189	2235	304	2707
Starvation Cap Reductn	0	0	0	0	0	173	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.09	0.41	0.26	0.06	0.71	0.25	0.56

**Intersection Summary:**  
 Cycle Length: 110  
 Actuated Cycle Length: 110  
 Offset: 26 (24%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated  
 m: Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 8: Lloyd Street & Airport Road

↖	↗	↕
82%	84%	25%
↖	↗	↕
82%	84%	25%

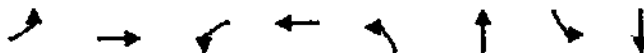


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	11	12	12	12	12	13	12	12	13	12
Grade (%)		6%			3%			2%			1%	
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.92		1.00	0.88		1.00	0.99		1.00	0.99	
Flt: Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1627	1585		1388	1289		1628	3323		1711	3495	
Flt: Permitted	0.66	1.00		0.73	1.00		0.13	1.00		0.11	1.00	
Satd. Flow (perm)	1138	1585		1074	1289		221	3323		196	3495	
Volume (vph)	70	13	13	77	15	55	10	149	102	72	1444	123
Peak-hour factor, PHF	0.75	0.75	0.75	0.79	0.79	0.79	0.84	0.84	0.84	0.93	0.93	0.93
Adj. Flow (vph)	93	17	17	97	19	70	12	1368	121	77	1553	132
RTOR Reduction (vph)	0	14	0	0	59	0	0	4	0	0	5	0
Lane Group Flow (vph)	93	20	0	97	30	0	12	1485	0	77	1680	0
Heavy Vehicles (%)	4%	4%	4%	32%	32%	32%	12%	12%	12%	6%	6%	6%
Turn Type	Perm		Perm		Perm		pm+pt		pm+pt			
Protected Phases	4		8		2		1		6			
Permitted Phases	4		8		2		6					
Actuated Green, G (s)	14.9	14.9		14.9	14.9		69.3	69.3		82.1	82.1	
Effective Green, g (s)	16.9	16.9		16.9	16.9		72.3	72.3		85.1	85.1	
Actuated g/C Ratio	0.15	0.15		0.15	0.15		0.66	0.66		0.77	0.77	
Clearance Time (s)	6.0	6.0		6.0	6.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	175	244		165	198		145	2184		273	2704	
v/s Ratio Prot	0.01		0.02		0.45		0.02		0.48			
v/s Ratio Perm	0.08		0.09		0.05		0.20					
v/c Ratio	0.53	0.08		0.59	0.15		0.08	0.68		0.28	0.62	
Uniform Delay, d1	42.9	39.9		43.3	40.3		6.8	11.7		8.0	5.4	
Progression Factor	1.00	1.00		1.00	1.00		0.22	0.29		1.00	1.00	
Incremental Delay, d2	3.1	0.1		5.3	0.4		0.8	1.3		0.6	1.1	
Delay (s)	46.0	40.0		48.6	40.7		2.3	4.7		8.6	6.5	
Level of Service	D	D		D	D		A	A		A	A	
Approach Delay (s)	44.4		44.8		4.7		6.6					
Approach LOS	D		D		A		A					

**Intersection Summary**

HCM Average Control Delay	9.1	HCM Level of Service	A
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	69.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖	↗	↖	↗	↖	↕	↖	↕
Volume (vph)	70	13	77	15	10	149	72	144
Lane Group Flow (vph)	93	34	97	89	12	1489	77	1685
Turn Type	Perm		Perm		Perm		pm+pt	
Protected Phases		4		8		2	1	6
Permitted Phases	4		8		2		6	
Detector Phases	4	4	8	8	2	2	1	6
Minimum Initial (s)	3.0	3.0	3.0	3.0	6.0	6.0	4.0	6.0
Minimum Split (s)	9.0	9.0	9.0	9.0	13.0	13.0	11.0	13.0
Total Split (s)	28.0	28.0	28.0	28.0	64.0	64.0	18.0	82.0
Total Split (%)	25.5%	25.5%	25.5%	25.5%	58.2%	58.2%	16.4%	74.5%
Yellow Time (s)	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag					Lag	Lag	Lead	
Lead-Lag Optimize?					Yes	Yes	Yes	
Recall Mode	None	None	None	None	C-Max	C-Max	None	C-Max
v/c Ratio	0.52	0.13	0.59	0.35	0.09	0.67	0.32	0.62
Control Delay	51.7	23.9	56.7	16.6	3.2	5.2	8.9	7.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0
Total Delay	51.7	23.9	56.7	16.6	3.2	5.2	8.9	7.3
Queue Length 50th (ft)	61	10	65	12	0	33	11	221
Queue Length 95th (ft)	87	29	97	42	mi	234	37	375
Internal Link Dist (ft)		476		636		620		2211
Turn Bay Length (ft)	75		125		60		75	
Base Capacity (vph)	256	359	234	336	140	2233	299	2709
Starvation Cap Reductn	0	0	0	0	0	148	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.09	0.41	0.26	0.09	0.71	0.26	0.62

**Intersection Summary**

Cycle Length: 110  
 Actuated Cycle Length: 110  
 Offset: 26 (24%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated  
 m: Volume for 95th percentile queue is metered by upstream signal

**Splits and Phases: 8: Lloyd Street & Airport Road**

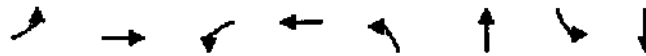
↖ 18.3%	↗ 64.3%	↕ 28.3%
↖ 82.3%	↕ 28.3%	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	11	12	12	12	12	13	12	12	13	12
Grade (%)		6%			3%			2%				1%
Total Lost time (s)	4.0	4.0		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	0.95		1.00	0.95	
Fr <sub>t</sub>	1.00	0.92		1.00	0.88		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1627	1585		1388	1287		1628	3322		1711	3490	
Flt Permitted	0.61	1.00		0.73	1.00		0.09	1.00		0.05	1.00	
Satd. Flow (perm)	1041	1585		1066	1287		149	3322		99	3490	
Volume (vph)	89	16	16	93	18	70	13	1414	128	92	1636	158
Peak-hour factor, PHF	0.75	0.75	0.75	0.79	0.79	0.79	0.84	0.84	0.84	0.93	0.93	0.93
Adj. Flow (vph)	119	21	21	118	23	89	15	1683	152	99	1759	170
RTOR Reduction (vph)	0	17	0	0	74	0	0	5	0	0	6	0
Lane Group Flow (vph)	119	25	0	118	38	0	15	1830	0	99	1923	0
Heavy Vehicles (%)	4%	4%	4%	32%	32%	32%	12%	12%	12%	6%	6%	6%
Turn Type	Perm			Perm			Perm			pm+pt		
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	16.4	16.4		16.4	16.4		65.8	65.8		80.6	80.6	
Effective Green, g (s)	18.4	18.4		18.4	18.4		68.8	68.8		83.6	83.6	
Actuated g/C Ratio	0.17	0.17		0.17	0.17		0.63	0.63		0.76	0.76	
Clearance Time (s)	6.0	6.0		6.0	6.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	174	265		178	215		93	2078		234	2652	
v/s Ratio Prot		0.02			0.03			c0.55		0.04	c0.55	
v/s Ratio Perm	c0.11			0.11			0.10			0.28		
v/c Ratio	0.68	0.09		0.66	0.18		0.16	0.88		0.42	0.73	
Uniform Delay, d1	43.1	38.7		42.9	39.3		8.6	17.2		19.2	17.1	
Progression Factor	1.00	1.00		1.00	1.00		0.49	0.45		1.00	1.00	
Incremental Delay, d2	10.6	0.2		8.9	0.4		2.2	3.5		1.2	1.8	
Delay (s)	53.6	38.9		51.8	39.7		6.4	11.3		20.4	8.8	
Level of Service	D	D		D	D		A	B		C	A	
Approach Delay (s)		49.8			45.9			11.3			9.4	
Approach LOS		D			D			B			A	

Intersection Summary	
HCM Average Control Delay	13.7
HCM Volume to Capacity ratio	0.84
HCM Level of Service	B
Actuated Cycle Length (s)	110.0
Sum of lost time (s)	12.0
Intersection Capacity Utilization	77.1%
ICU Level of Service	D
Analysis Period (min)	15

c Critical Lane Group



Lane Group	EBL	EB	WB	WBL	NBL	NB	SBL	SB
Lane Configurations	↖	↖	↗	↗	↖	↕	↖	↕
Volume (vph)	89	16	93	18	13	1414	92	1636
Lane Group Flow (vph)	119	42	118	112	15	1835	99	1929
Turn Type	Perm		Perm		Perm		pm+pt	
Protected Phases		4		8		2	1	6
Permitted Phases	4		8		2		6	
Detector Phases	4	4	8	8	2	2	1	6
Minimum Initial (s)	3.0	3.0	3.0	3.0	6.0	6.0	4.0	6.0
Minimum Split (s)	9.0	9.0	9.0	9.0	13.0	13.0	11.0	13.0
Total Split (s)	28.0	28.0	28.0	28.0	64.0	64.0	18.0	82.0
Total Split (%)	25.5%	25.5%	25.5%	25.5%	58.2%	58.2%	16.4%	74.5%
Yellow Time (s)	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag					Lag	Lag	Lead	
Lead-Lag Optimize?					Yes	Yes	Yes	
Recall Mode	None	None	None	None	C-Max	C-Max	None	C-Max
v/c Ratio	0.65	0.15	0.66	0.39	0.19	0.88	0.41	0.73
Control Delay	49.2	22.6	49.7	14.2	9.7	13.5	13.6	9.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.2	22.6	49.7	14.2	9.7	13.5	13.6	9.8
Queue Length 50th (ft)	79	13	78	14	2	131	15	326
Queue Length 95th (ft)	110	32	116	46	m3	730	66	500
Internal Link Dist (ft)		476		636		620		2211
Turn Bay Length (ft)	75		125		60		75	
Base Capacity (vph)	238	362	233	350	81	2083	289	2658
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.50	0.12	0.51	0.32	0.19	0.88	0.34	0.73

**Intersection Summary**

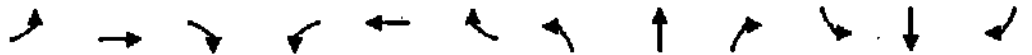
Cycle Length: 110  
 Actuated Cycle Length: 110  
 Offset: 14 (13%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow  
 Natural Cycle: 80  
 Control Type: Actuated-Coordinated

**n** 95th percentile volume exceeds capacity; queue may be longer.  
 Queue shown is maximum after two cycles.

**m** Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 8: Lloyd Street & Airport Road

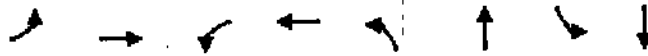
↖ e1 19s	↖ e2 64s	↖ e4 20s
↖ e6 22s		↖ e8 28s



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↕		↖	↕	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	11	12	12	12	12	13	12	12	13	12
Grade (%)		6%			3%			2%				1%
Total Lost time (s)	4.0	4.0		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	0.95		1.00	0.95	
Fr <sub>t</sub>	1.00	0.93		1.00	0.88		1.00	0.99		1.00	0.99	
Fl <sub>t</sub> Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1627	1585		1388	1287		1628	3323		1711	3494	
Fl <sub>t</sub> Permitted	0.61	1.00		0.73	1.00		0.06	1.00		0.05	1.00	
Satd. Flow (perm)	1041	1585		1066	1287		104	3323		99	3494	
Volume (vph)	89	16	16	93	18	70	13	1432	128	92	1804	158
Peak-hour factor, PHF	0.75	0.75	0.75	0.79	0.79	0.79	0.84	0.84	0.84	0.93	0.93	0.93
Adj. Flow (vph)	119	21	21	118	23	89	15	1705	152	99	1940	170
RTOR Reduction (vph)	0	17	0	0	74	0	0	5	0	0	5	0
Lane Group Flow (vph)	119	25	0	118	38	0	115	1852	0	99	2105	0
Heavy Vehicles (%)	4%	4%	4%	32%	32%	32%	12%	12%	12%	6%	6%	6%
Turn Type	Perm			Perm			Perm			pm+pl		
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	16.4	16.4		16.4	16.4		65.8	65.8		80.6	80.6	
Effective Green, g (s)	18.4	18.4		18.4	18.4		68.8	68.8		83.6	83.6	
Actuated g/C Ratio	0.17	0.17		0.17	0.17		0.63	0.63		0.76	0.76	
Clearance Time (s)	6.0	6.0		6.0	6.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	174	265		178	215		65	2078		234	2655	
v/s Ratio Prot		0.02			0.03			c0.56		0.04	c0.60	
v/s Ratio Perm	c0.11			c0.11			c0.14			c0.28		
v/c Ratio	0.68	0.09		0.66	0.18		0.23	0.89		0.42	0.79	
Uniform Delay, d1	43.1	38.7		42.9	39.3		9.0	17.4		19.6	8.0	
Progression Factor	1.00	1.00		1.00	1.00		0.49	0.47		1.00	1.00	
Incremental Delay, d2	10.6	0.2		8.9	0.4		4.7	3.7		1.2	2.5	
Delay (s)	53.6	38.9		51.8	39.7		9.1	11.9		20.8	10.5	
Level of Service	D	D		D	D		A	B		C	B	
Approach Delay (s)		49.8			45.9			11.9			11.0	
Approach LOS		D			D			B			B	

Intersection Summary	
HCM Average Control Delay	14.5
HCM Volume to Capacity ratio	0.85
Actuated Cycle Length (s)	110.0
Intersection Capacity Utilization	81.7%
Analysis Period (min)	15
HCM Level of Service	B
Sum of lost time (s)	12.0
ICU Level of Service	D





Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖	↗	↖	↗	↖	↕	↖	↗
Volume (vph)	89	16	93	18	13	1432	92	1804
Lane Group Flow (vph)	119	42	118	112	15	1857	99	2110
Turn Type	Perm		Perm		Perm		pm+pt	
Protected Phases		4		8		2	1	6
Permitted Phases	4		8		2		6	
Detector Phases	4	4	8	8	2	2	1	6
Minimum Initial (s)	3.0	3.0	3.0	3.0	6.0	6.0	4.0	6.0
Minimum Split (s)	9.0	9.0	9.0	9.0	13.0	13.0	11.0	13.0
Total Split (s)	28.0	28.0	28.0	28.0	64.0	64.0	18.0	82.0
Total Split (%)	25.5%	25.5%	25.5%	25.5%	58.2%	58.2%	16.4%	74.5%
Yellow Time (s)	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag					Lag	Lag	Lead	
Lead-Lag Optimize?					Yes	Yes	Yes	
Recall Mode	None	None	None	None	C-Max	C-Max	None	C-Max
v/c Ratio	0.65	0.15	0.66	0.39	0.21	0.89	0.41	0.79
Control Delay	58.6	23.0	59.5	15.6	10.8	14.2	15.5	11.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.6	23.0	59.5	15.6	10.8	14.2	15.5	11.8
Queue Length 50th (ft)	79	13	78	14	2	140	15	404
Queue Length 95th (ft)	110	32	116	46	m3	#747	66	623
Internal Link Dist (ft)		476		636		620		2211
Turn Bay Length (ft)	75		125		60		75	
Base Capacity (vph)	238	362	233	350	72	2083	289	2659
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.50	0.12	0.51	0.32	0.21	0.89	0.34	0.79

**Intersection Summary**

Cycle Length: 110  
 Actuated Cycle Length: 110  
 Offset: 14 (13%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow  
 Natural Cycle: 80  
 Control Type: Actuated-Coordinated  
 # : 95th percentile volume exceeds capacity; queue may be longer  
 Queue shown is maximum after two cycles.  
 m : Volume for 95th percentile queue is metered by upstream signal

**Splits and Phases: 8: Lloyd Street & Airport Road**

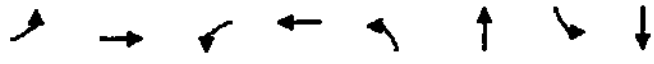
↖ ø1 18.3%	↗ ø2 64.5%	↖ ø4 28.5%
↘ ø6 82.3%		↗ ø8 28.6%



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↕		↖	↕	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	11	12	12	12	12	13	12	12	13	12
Grade (%)		6%			3%			2%				-1%
Total Lost time (s)	4.0	4.0		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	0.95		1.00	0.95	
Friction	1.00	0.93		1.00	0.88		1.00	0.99		1.00	0.99	
Flt. Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1627	1585		1388	1287		1628	3338		1711	3498	
Flt. Permitted	0.54	1.00		0.73	1.00		0.05	1.00		0.05	1.00	
Satd. Flow (perm)	929	1585		1066	1287		87	3338		87	3498	
Volume (vph)	89	16	16	93	18	70	13	2329	128	92	2023	158
Peak-hour factor, PHF	0.75	0.75	0.75	0.79	0.79	0.79	0.84	0.84	0.84	0.93	0.93	0.93
Adj. Flow (vph)	119	21	21	118	23	89	15	2773	152	99	2175	170
RTOR Reduction (vph)	0	19	0	0	53	0	0	4	0	0	5	0
Lane Group Flow (vph)	119	23	0	118	59	0	15	2921	0	99	2340	0
Heavy Vehicles (%)	4%	4%	4%	32%	32%	32%	12%	12%	12%	6%	6%	6%
Turn Type	Perm			Perm			Perm			pm+pt		
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	10.0	10.0		10.0	10.0		76.0	76.0		87.0	87.0	
Effective Green, g (s)	12.0	12.0		12.0	12.0		79.0	79.0		90.0	90.0	
Actuated g/C Ratio	0.11	0.11		0.11	0.11		0.72	0.72		0.82	0.82	
Clearance Time (s)	6.0	6.0		6.0	6.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	101	173		116	140		62	2397		175	2862	
v/s Ratio Prot		0.01			0.05			0.88		0.04	0.67	
v/s Ratio Perm	0.13			0.11			0.17			0.43		
v/c Ratio	1.18	0.13		1.02	0.42		0.24	1.22		0.57	0.82	
Uniform Delay, d1	49.0	44.3		49.0	45.8		5.3	15.5		51.2	5.5	
Progression Factor	1.00	1.00		1.00	1.00		1.21	0.95		0.83	1.86	
Incremental Delay, d2	145.3	0.4		88.2	2.1		30.8	98.8		1.6	1.0	
Delay (s)	194.3	44.7		137.2	47.8		7.3	113.6		44.0	11.3	
Level of Service	F	D		F	D		A	F		D	B	
Approach Delay (s)		155.2			93.7			113.0			12.6	
Approach LOS		F			F			F			B	

Intersection Summary	
HCM Average Control Delay	70.9
HCM Volume to Capacity ratio	1.20
Actuated Cycle Length (s)	110.0
Intersection Capacity Utilization	94.9%
Analysis Period (min)	15
HCM Level of Service	E
Sum of lost time (s)	12.0
ICU Level of Service	F

c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖	↗	↖	↗	↖	↕	↖	↕
Volume (vph)	89	16	93	18	13	2329	92	2023
Lane Group Flow (vph)	119	42	118	112	15	2925	99	2345
Turn Type	Perm.		Perm.		Perm.		pm+pt	
Protected Phases		4		8		2	1	6
Permitted Phases	4		8		2		6	
Detector Phases	4	4	8	8	2	2	1	6
Minimum Initial (s)	3.0	3.0	3.0	3.0	6.0	6.0	4.0	6.0
Minimum Split (s)	9.0	9.0	9.0	9.0	13.0	13.0	11.0	13.0
Total Split (s)	16.0	16.0	16.0	16.0	83.0	83.0	11.0	94.0
Total Split (%)	14.5%	14.5%	14.5%	14.5%	75.5%	75.5%	10.0%	85.5%
Yellow Time (s)	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag					Lag	Lag	Lead	
Lead-Lag Optimize?					Yes	Yes	Yes	
Recall Mode	None	None	None	None	C-Max	C-Max	None	C-Max
v/c Ratio	1.18	0.22	1.02	0.58	0.24	1.22	0.57	0.82
Control Delay	189.1	30.2	138.1	36.6	9.6	117.5	18.2	11.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	34.3	0.0	0.0
Total Delay	189.1	30.2	138.1	36.6	9.6	151.8	18.2	11.8
Queue Length 50th (ft)	~101	14	~86	35	4	~1333	28	537
Queue Length 95th (ft)	#171	37	#171	76	m3	m#968	m30	m599
Internal Link Dist (ft)		476		636		620		2211
Turn Bay Length (ft)	75		125		60		75	
Base Capacity (vph)	101	192	116	193	62	2400	174	2867
Starvation Cap Reductn	0	0	0	0	0	142	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.18	0.22	1.02	0.58	0.24	1.30	0.57	0.82

**Intersection Summary:**

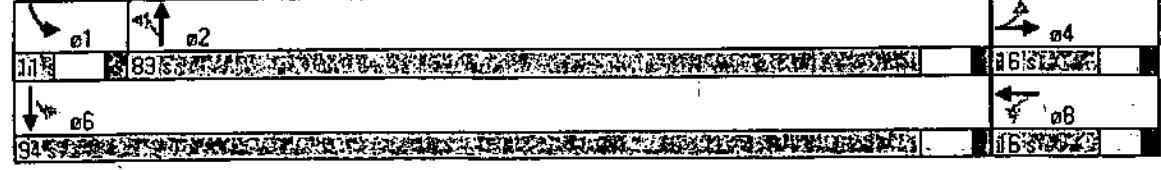
Cycle Length: 110  
 Actuated Cycle Length: 110  
 Offset: 90 (82%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow  
 Natural Cycle: 150  
 Control Type: Actuated-Coordinated

# Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

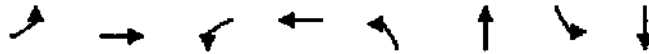
Splits and Phases: 8: Lloyd Street & Airport Road





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↕		↖	↗	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	11	12	12	12	12	13	12	12	13	12
Grade (%)		6%			3%			-2%			-1%	
Total Lost time (s)	4.0	4.0		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	0.95		1.00	0.95	
Fr	1.00	0.93		1.00	0.88		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1627	1585		1388	1287		1628	3338		1711	3501	
Flt Permitted	0.54	1.00		0.73	1.00		0.05	1.00		0.05	1.00	
Satd. Flow (perm)	929	1585		1066	1287		87	3338		87	3501	
Volume (vph)	89	16	16	93	18	70	13	2343	128	92	2160	158
Peak-hour factor, PHF	0.75	0.75	0.75	0.79	0.79	0.79	0.84	0.84	0.84	0.93	0.93	0.93
Adj. Flow (vph)	119	21	21	118	23	89	15	2789	152	99	2323	170
RTOR Reduction (vph)	0	19	0	0	53	0	0	4	0	0	5	0
Lane Group Flow (vph)	119	23	0	118	59	0	15	2937	0	99	2488	0
Heavy Vehicles (%)	4%	4%	4%	32%	32%	32%	12%	12%	12%	6%	6%	6%
Turn Type	Perm		Perm		Perm		pm+pt		pm+pt		pm+pt	
Protected Phases	4		8		8		2		1		6	
Permitted Phases	4		8		8		2		6		6	
Actuated Green, G (s)	10.0	10.0		10.0	10.0		76.0	76.0		87.0	87.0	
Effective Green, g (s)	12.0	12.0		12.0	12.0		79.0	79.0		90.0	90.0	
Actuated g/C Ratio	0.11	0.11		0.11	0.11		0.72	0.72		0.82	0.82	
Clearance Time (s)	6.0	6.0		6.0	6.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	101	173		116	140		162	2397		175	2864	
v/s Ratio Prot		0.01			0.05			c0.88		0.04	c0.71	
v/s Ratio Perm	c0.13			0.11			0.17			0.43		
v/c Ratio	1.18	0.13		1.02	0.42		0.24	1.23		0.57	0.87	
Uniform Delay, d1	49.0	44.3		49.0	45.8		5.3	15.5		51.2	6.3	
Progression Factor	1.00	1.00		1.00	1.00		1.23	0.96		0.81	1.86	
Incremental Delay, d2	145.3	0.4		88.2	2.1		0.8	101.8		1.1	1.0	
Delay (s)	194.3	44.7		137.2	47.8		7.4	116.7		42.8	12.7	
Level of Service	F	D		F	D		A	F		D	B	
Approach Delay (s)		155.2			93.7			116.1			13.9	
Approach LOS		F			F			F			B	

Intersection Summary	
HCM Average Control Delay	71.7
HCM Volume to Capacity ratio	1.21
Actuated Cycle Length (s)	110.0
Intersection Capacity Utilization	94.9%
Analysis Period (min)	15
HCM Level of Service	E
Sum of lost time (s)	12.0
ICU Level of Service	F



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖	↗	↖	↗	↖	↗	↖	↗
Volume (vph)	89	16	93	18	13	2343	92	2160
Lane Group Flow (vph)	119	42	118	112	15	2941	99	2493
Turn Type	Perm		Perm		Perm		pm+pt	
Protected Phases		4		8		2	1	6
Permitted Phases	4		8		2		6	
Detector Phases	4	4	8	8	2	2	1	6
Minimum Initial (s)	3.0	3.0	3.0	3.0	6.0	6.0	4.0	6.0
Minimum Split (s)	9.0	9.0	9.0	9.0	13.0	13.0	11.0	13.0
Total Split (s)	16.0	16.0	16.0	16.0	83.0	83.0	11.0	94.0
Total Split (%)	14.5%	14.5%	14.5%	14.5%	75.5%	75.5%	10.0%	85.5%
Yellow Time (s)	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag					Lag	Lag	Lead	
Lead-Lag Optimize?					Yes	Yes	Yes	
Recall Mode	None	None	None	None	C-Max	C-Max	None	C-Max
v/c Ratio	1.18	0.22	1.02	0.58	0.24	1.23	0.57	0.87
Control Delay	189.1	30.2	138.1	36.6	9.7	120.7	16.5	13.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	34.5	0.0	0.0
Total Delay	189.1	30.2	138.1	36.6	9.7	155.2	16.5	13.7
Queue Length 50th (ft)	-101	14	-86	35	4	-1344	26	590
Queue Length 95th (ft)	#171	37	#171	76	m3	m#924	m27	m601
Internal Link Dist (ft)		476		636		620		2211
Turn Bay Length (ft)	75		125		60		75	
Base Capacity (vph)	101	192	116	193	62	2400	174	2869
Starvation Cap Reductn	0	0	0	0	0	142	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.18	0.22	1.02	0.58	0.24	1.30	0.57	0.87

**Intersection Summary:**

Cycle Length: 110  
 Actuated Cycle Length: 110  
 Offset: 90 (82%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow  
 Natural Cycle: 150  
 Control Type: Actuated-Coordinated  
 - Volume exceeds capacity; queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity; queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.

**Splits and Phases: 8: Lloyd Street & Airport Road**

↖	↗	↗	↖
11%	83%	16%	16%
↘		↖	↘
94%		16%	16%

8: Lloyd Street & Airport Road

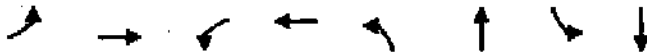
Existing Conditions  
Timing Plan: PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↕			↕			↑	↑↑		↑	↑↑	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	11	12	12	12	12	13	12	12	13	12
Grade (%)		6%			3%			2%				1%
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	0.95		1.00	0.95	
Frnt		0.99			0.97		1.00	0.99		1.00	0.99	
Flt Protected		0.96			0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1662			1724		1770	3628		1728	3538	
Flt Permitted		0.67			0.77		0.21	1.00		0.11	1.00	
Satd. Flow (perm)		1155			1367		382	3628		205	3538	
Volume (vph)	122	17	11	108	19	37	15	1365	78	55	1004	64
Peak-hour factor, PHF	0.67	0.67	0.67	0.87	0.87	0.87	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	182	25	16	124	22	43	16	1468	84	59	1080	69
RTOR Reduction (vph)	0	3	0	0	11	0	0	4	0	0	4	0
Lane Group Flow (vph)	0	220	0	0	178	0	16	1548	0	59	1145	0
Heavy Vehicles (%)	2%	2%	2%	5%	5%	5%	3%	3%	3%	5%	5%	5%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		22.3			22.3		69.7	69.7		69.7	69.7	
Effective Green, g (s)		24.3			24.3		72.7	72.7		72.7	72.7	
Actuated g/C Ratio		0.23			0.23		0.69	0.69		0.69	0.69	
Clearance Time (s)		6.0			6.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap. (vph)		267			316		264	2512		142	2450	
v/s Ratio Prot							c0.43				0.32	
v/s Ratio Perm		c0.19			0.13		0.04			0.29		
v/c Ratio		0.82			0.56		0.06	0.62		0.42	0.47	
Uniform Delay, d1		38.3			35.7		52	87		7.0	7.3	
Progression Factor		1.00			1.00		1.86	2.65		1.00	1.00	
Incremental Delay, d2		18.2			2.3		0.3	0.9		8.7	0.6	
Delay (s)		56.6			38.0		10.0	23.8		15.7	8.0	
Level of Service		E			D		A	C		B	A	
Approach Delay (s)		56.6			38.0			23.7			8.4	
Approach LOS		E			D			C			A	
<b>Intersection Summary</b>												
HCM Average Control Delay	121.0			HCM Level of Service			C					
HCM Volume to Capacity ratio	0.67											
Actuated Cycle Length (s)	105.0			Sum of lost time (s)			8.0					
Intersection Capacity Utilization	62.9%			ICU Level of Service			B					
Analysis Period (min)	15											

c Critical Lane Group

8: Lloyd Street & Airport Road

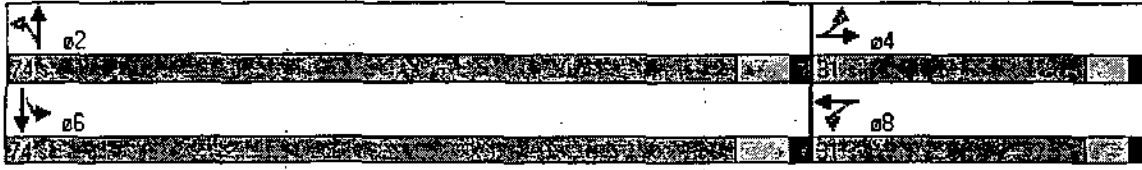
Existing Conditions  
Timing Plan: PM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations		↕		↕	↗	↕	↗	↕
Volume (vph)	122	17	108	19	15	1365	55	1004
Lane Group Flow (vph)	0	223	0	189	16	1552	59	1149
Turn Type	Perm		Perm		Perm		Perm	
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phases	4	4	8	8	2	2	6	6
Minimum Initial (s)	3.0	3.0	3.0	3.0	6.0	6.0	6.0	6.0
Minimum Split (s)	9.0	9.0	9.0	9.0	13.0	13.0	13.0	13.0
Total Split (s)	31.0	31.0	31.0	31.0	74.0	74.0	74.0	74.0
Total Split (%)	29.5%	29.5%	29.5%	29.5%	70.5%	70.5%	70.5%	70.5%
Yellow Time (s)	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
v/c Ratio		0.83		0.59	0.06	0.62	0.44	0.47
Control Delay		53.7		38.5	12.2	25.4	21.3	8.4
Queue Delay		0.0		0.0	0.0	1.5	0.0	0.0
Total Delay		53.7		38.5	12.2	26.9	21.3	8.4
Queue Length 50th (ft)		136		101	7	573	17	178
Queue Length 95th (ft)		154		167	11	645	64	222
Internal Link Dist (ft)		476		636		620		2211
Turn Bay Length (ft)					60		75	
Base Capacity (vph)		298		355	257	2516	134	2454
Starvation Cap Reductn		0		0	0	724	0	0
Spillback Cap Reductn		0		0	0	0	0	0
Storage Cap Reductn		0		0	0	0	0	0
Reduced v/c Ratio		0.75		0.53	0.06	0.87	0.44	0.47

**Intersection Summary**  
 Cycle Length: 105  
 Actuated Cycle Length: 105  
 Offset: 78 (74%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow  
 Natural Cycle: 40  
 Control Type: Actuated-Coordinated  
 m Volume for 95th percentile queue is metered by upstream signal

Splits and Phases: 8: Lloyd Street & Airport Road

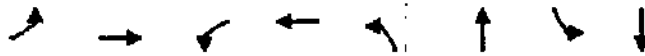




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	11	12	12	12	12	13	12	12	13	12
Grade (%)		6%			3%			2%			1%	
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frnt	1.00	0.94		1.00	0.90		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1659	1642		1745	1657		1770	3632		1728	3544	
Flt Permitted	0.71	1.00		0.73	1.00		0.16	1.00		0.06	1.00	
Satd. Flow (perm)	1244	1642		1337	1657		296	3632		103	3544	
Volume (vph)	131	18	12	124	21	39	16	1677	84	63	1304	68
Peak-hour factor, PHF	0.67	0.67	0.67	0.87	0.87	0.87	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	196	27	18	143	24	45	17	1803	90	68	1402	73
RTOR Reduction (vph)	0	14	0	0	36	0	0	3	0	0	3	0
Lane Group Flow (vph)	196	31	0	143	33	0	17	1890	0	68	1472	10
Heavy Vehicles (%)	2%	2%	2%	5%	5%	5%	3%	3%	3%	5%	5%	5%
Turn type	Perm			Perm			Perm			pm+fp		
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	21.0	21.0		21.0	21.0		63.7	63.7		76.0	76.0	
Effective Green, g (s)	23.0	23.0		23.0	23.0		66.7	66.7		79.0	79.0	
Actuated g/C Ratio	0.21	0.21		0.21	0.21		0.61	0.61		0.72	0.72	
Clearance Time (s)	6.0	6.0		6.0	6.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	260	343		280	346		179	2202		197	2545	
v/s Ratio Prot		0.02			0.02			0.52		0.03	0.42	
v/s Ratio Perm	0.16			0.11			0.06			0.22		
v/c Ratio	0.75	0.09		0.51	0.10		0.09	0.86		0.35	0.58	
Uniform Delay, d1	40.8	35.1		38.5	35.1		9.0	17.8		20.1	7.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		2.02	0.44	
Incremental Delay, d2	11.7	0.1		1.6	0.1		1.1	4.6		0.7	0.7	
Delay (s)	52.5	35.2		40.1	35.2		10.1	22.4		41.4	3.9	
Level of Service	D	D		D	D		B	C		D	A	
Approach Delay (s)		49.3			38.5			22.3			5.6	
Approach LOS		D			D			C			A	
<b>Intersection Summary</b>												
HCM Average Control Delay			18.2			HCM Level of Service	B					
HCM Volume to Capacity ratio			0.82									
Actuated Cycle Length (s)			110.0			Sum of lost time (s)	12.0					
Intersection Capacity Utilization			72.9%			ICU Level of Service	C					
Analysis Period (min)			15									

c Critical Lane Group



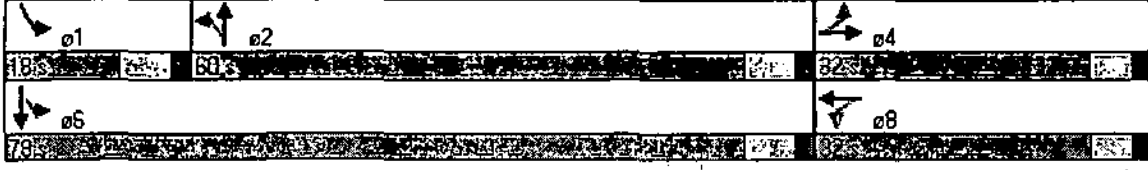


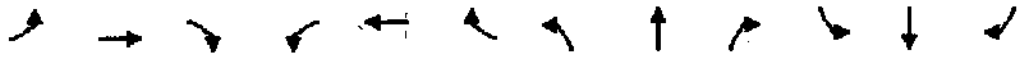
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖	↗	↖	↗	↖	↗	↖	↗
Volume (vph)	131	18	124	21	16	1677	63	1304
Lane Group Flow (vph)	196	45	143	69	17	1893	68	1475
Turn Type	Perm		Perm		Perm		pm+pl	
Protected Phases	4		8		2		1	6
Permitted Phases	4		8		2		1	6
Detector Phases	4		8		2		1	6
Minimum Initial (s)	3.0	3.0	3.0	3.0	6.0	6.0	4.0	6.0
Minimum Split (s)	9.0	9.0	9.0	9.0	13.0	13.0	11.0	18.0
Total Split (s)	32.0	32.0	32.0	32.0	60.0	60.0	18.0	78.0
Total Split (%)	29.1%	29.1%	29.1%	29.1%	54.5%	54.5%	16.4%	70.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag					Lag	Lag	Lead	
Lead-Lag Optimize?					Yes	Yes	Yes	
Recall Mode	None	None	None	None	C-Max	C-Max	None	C-Max
v/c Ratio	0.75	0.13	0.51	0.18	0.09	0.84	0.30	0.58
Control Delay	49.0	22.7	41.3	15.5	13.6	23.6	14.0	4.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	2.3	0.0	0.0
Total Delay	49.0	22.7	41.3	15.5	13.6	25.9	14.0	4.3
Queue Length 50th (ft)	129	15	89	14	5	563	7	86
Queue Length 95th (ft)	141	30	141	46	19	#855	13	101
Internal Link Dist (ft)	476		636		620		2211	
Turn Bay Length (ft)	75		125		60		75	
Base Capacity (vph)	317	431	340	455	185	2249	292	2548
Starvation Cap/Reductn	0	0	0	0	0	229	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.62	0.10	0.42	0.15	0.09	0.94	0.23	0.58

**Intersection Summary**

Cycle Length: 110  
 Actuated Cycle Length: 110  
 Offset: 80 (73%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow  
 Natural Cycle: 75  
 Control Type: Actuated-Coordinated  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m c Volume for 95th percentile queue is metered by upstream signal

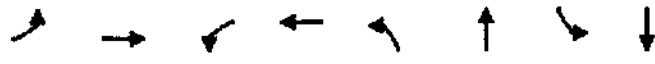
Splits and Phases: 8: Lloyd Street & Airport Road





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	11	12	12	12	12	13	12	12	13	12
Grade (%)		6%			3%			2%				1%
Total Lost time (s)	4.0	4.0		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	0.95		1.00	0.95	
Frt	1.00	0.94		1.00	0.90		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1659	1642		1745	1657		1770	3635		1728	3550	
Flt Permitted	0.71	1.00		0.73	1.00		0.67	1.00		0.06	1.00	
Satd. Flow (perm)	1244	1642		1337	1657		134	3635		103	3550	
Volume (vph)	131	18	12	124	21	39	16	1903	84	63	1726	68
Peak-hour factor, PHF	0.67	0.67	0.67	0.87	0.87	0.87	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	196	27	18	143	24	45	17	2046	90	68	1856	73
RTOR Reduction (vph)	0	14	0	0	36	0	0	2	0	0	2	0
Lane Group Flow (vph)	196	31	0	143	33	0	17	2134	0	68	1927	0
Heavy Vehicles (%)	2%	2%	2%	5%	5%	5%	3%	3%	3%	5%	5%	5%
Turn Type	Perm			Perm			Perm			pm+pl		
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	21.0	21.0		21.0	21.0		63.7	63.7		76.0	76.0	
Effective Green, g (s)	23.0	23.0		23.0	23.0		66.7	66.7		79.0	79.0	
Actuated g/C Ratio	0.21	0.21		0.21	0.21		0.61	0.61		0.72	0.72	
Clearance Time (s)	6.0	6.0		6.0	6.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	260	343		280	346		781	2204		197	2550	
v/s Ratio Prot		0.02			0.02			0.59		0.03	0.54	
v/s Ratio Perm	0.16			0.11			0.13			0.22		
v/c Ratio	0.75	0.09		0.51	0.10		0.21	0.97		0.35	0.76	
Uniform Delay, d1	40.8	35.1		38.5	35.1		9.8	20.6		48.9	9.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		2.10	0.58	
Incremental Delay, d2	11.7	0.1		1.6	0.1		5.8	13.0		0.3	0.6	
Delay (s)	52.5	35.2		40.1	35.2		15.6	33.6		103.1	6.1	
Level of Service	D	D		D	D		B	C		F	A	
Approach Delay (s)		49.3			38.5			33.5			9.4	
Approach LOS		D			D			C			A	

Intersection Summary	
HCM Average Control Delay	24.1
HCM Volume to Capacity ratio	0.91
Actuated Cycle Length (s)	110.0
Intersection Capacity Utilization	75.9%
Analysis Period (min)	15
HCM Level of Service	C
Sum of lost time (s)	12.0
ICU Level of Service	D



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖	↗	↖	↗	↖	↕	↖	↕
Volume (vph)	131	18	124	21	16	1903	63	1726
Lane Group Flow (vph)	196	45	143	69	17	2136	68	1929
Turn Type	Perm		Perm		Perm		pm+bt	
Protected Phases		4		8		2	1	6
Permitted Phases	4		8		2		6	
Detector Phases	4	4	8	8	2	2	1	6
Minimum Initial (s)	3.0	3.0	3.0	3.0	6.0	6.0	4.0	6.0
Minimum Split (s)	9.0	9.0	9.0	9.0	13.0	13.0	11.0	18.0
Total Split (s)	32.0	32.0	32.0	32.0	60.0	60.0	18.0	78.0
Total Split (%)	29.1%	29.1%	29.1%	29.1%	54.5%	54.5%	16.4%	70.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag					Lag	Lag	Lead	
Lead-Lag Optimize?					Yes	Yes	Yes	
Recall Mode	None	None	None	None	C-Max	C-Max	None	C-Max
v/c Ratio	0.75	0.13	0.51	0.18	0.21	0.95	0.30	0.76
Control Delay	58.2	23.0	44.1	15.8	21.1	32.3	14.2	6.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	19.3	0.0	0.0
Total Delay	58.2	23.0	44.1	15.8	21.1	51.6	14.2	6.8
Queue Length 50th (ft)	129	15	89	14	5	736	6	91
Queue Length 95th (ft)	141	30	141	46	25	1046	m6	m90
Internal Link Dist (ft)		476		636		620		2211
Turn Bay Length (ft)	75		125		60		75	
Base Capacity (vph)	317	431	340	455	82	2253	292	2550
Starvation Cap Reductn	0	0	0	0	0	198	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.62	0.10	0.42	0.15	0.21	1.04	0.23	0.76

**Intersection Summary**

Cycle Length: 110  
 Actuated Cycle Length: 110  
 Offset: 80 (73%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated

# 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 8: Lloyd Street & Airport Road

↖ o1 18%	↗ o2 60%	↖ o4 82%
↘ o6 78%		↗ o8 82%

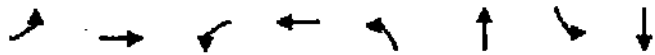


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙	↘		↙	↘		↙	↘		↙	↘	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	11	12	12	12	12	13	12	12	13	12
Grade (%)		6%			3%			2%			1%	
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.94		1.00	0.90		1.00	0.99		1.00	1.00	
Flt-Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1659	1642		1745	1657		1770	3635		1728	3558	
Flt-Permitted	0.71	1.00		0.73	1.00		0.06	1.00		0.06	1.00	
Satd. Flow (perm)	1244	1642		1337	1657		112	3635		103	3558	
Volume (vph)	131	18	12	124	21	39	16	1903	84	63	2911	68
Peak-hour factor, PHF	0.67	0.67	0.67	0.87	0.87	0.87	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	196	27	18	143	24	45	17	2046	90	68	3130	73
RTOR Reduction (vph)	0	2	0	0	36	0	0	2	0	0	1	0
Lane Group Flow (vph)	196	43	0	143	33	50	17	2134	0	68	3202	0
Heavy Vehicles (%)	2%	2%	2%	5%	5%	5%	3%	3%	3%	5%	5%	5%
Turn Type	Perm			Perm			Perm			pm+pt		
Protected Phases		4			8			2			1	6
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	21.0	21.0		21.0	21.0		63.7	63.7		76.0	76.0	
Effective Green, g (s)	23.0	23.0		23.0	23.0		66.7	66.7		79.0	79.0	
Actuated g/C Ratio	0.21	0.21		0.21	0.21		0.61	0.61		0.72	0.72	
Clearance Time (s)	6.0	6.0		6.0	6.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp. Cap (vph)	260	343		280	346		68	2204		197	2555	
v/s Ratio Prot		0.03			0.02			0.59		0.03	c0.90	
v/s Ratio Perm	c0.16			0.11			0.15			0.22		
v/c Ratio	0.75	0.13		0.51	0.10		0.25	0.97		0.35	1.25	
Uniform Delay, d1	40.8	35.3		38.5	35.1		10.0	20.6		48.9	15.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		2.07	0.56	
Incremental Delay, d2	11.7	10.2		1.6	0.1		18.6	18.0		0.1	14.2	
Delay (s)	52.5	35.5		40.1	35.2		18.6	33.6		101.6	122.9	
Level of Service	D	D		D	D		B	C		F	F	
Approach Delay (s)		49.4			38.5			33.5			122.5	
Approach LOS		D			D			C			F	

**Intersection Summary**

HCM Average Control Delay	83.9	HCM Level of Service	F
HCM Volume to Capacity ratio	1.14		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	103.2%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖	↗	↖	↗	↖	↗	↖	↗
Volume (vph)	131	18	124	21	16	1903	63	2911
Lane Group Flow (vph)	196	45	143	69	17	2136	68	3203
Turn Type	Perm		Perm		Perm		pm+pt	
Protected Phases		4		8		2	1	6
Permitted Phases	4		8		2		6	
Detector Phases	4	4	8	8	2	2	1	6
Minimum Initial (s)	3.0	3.0	3.0	3.0	6.0	6.0	4.0	6.0
Minimum Split (s)	9.0	9.0	9.0	9.0	13.0	13.0	11.0	18.0
Total Split (s)	32.0	32.0	32.0	32.0	60.0	60.0	18.0	78.0
Total Split (%)	29.1%	29.1%	29.1%	29.1%	54.5%	54.5%	16.4%	70.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag					Lag	Lag	Lead	
Lead-Lag Optimize?					Yes	Yes	Yes	
Recall Mode	None	None	None	None	C-Max	C-Max	None	C-Max
v/c Ratio	0.75	0.13	0.51	0.18	0.21	0.95	0.30	1.25
Control Delay	58.2	32.7	44.1	15.8	21.2	32.5	13.3	129.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	19.6	0.0	0.0
Total Delay	58.2	32.7	44.1	15.8	21.2	52.1	13.3	129.2
Queue Length 50th (ft)	129	25	89	14	5	734	4	-1556
Queue Length 95th (ft)	141	39	141	46	26	1050	13	196
Internal Link Dist (ft)		476		636		620		2211
Turn Bay Length (ft)	75		125		60		75	
Base Capacity (vph)	317	419	340	455	82	2251	292	2557
Starvation Cap Reductn	0	0	0	0	0	198	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.62	0.11	0.42	0.15	0.21	1.04	0.23	1.25

**Intersection Summary**

Cycle Length: 110  
 Actuated Cycle Length: 110  
 Offset: 76 (69%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow  
 Natural Cycle: 130  
 Control Type: Actuated-Coordinated  
 Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m. Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 8: Lloyd Street & Airport Road

↖ a1	↗ a2	↖ a4
19%	60%	32%
↘ a6		↖ a8
78%		32%



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	11	11	11	12	12	12	12	13	12	12	13	12	
Grade (%)		6%			3%			2%				1%	
Total Lost time (s)	4.0	4.0		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	0.95		1.00	0.95		
Frt	1.00	0.94		1.00	0.90		1.00	0.99		1.00	0.99		
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00		
Satd. Flow (prot)	1659	1644		1745	1654		1770	3632		1728	3543		
Flt Permitted	0.68	1.00		0.72	1.00		0.09	1.00		0.06	1.00		
Satd. Flow (perm)	1189	1644		1323	1654		167	3632		103	3543		
Volume (vph)	170	231	15	155	126	51	20	2111	106	181	1626	88	
Peak-hour factor, PHF	0.67	0.67	0.67	0.87	0.87	0.87	0.93	0.93	0.93	0.93	0.93	0.93	
Adj. Flow (vph)	254	344	22	178	142	59	22	2270	114	187	1748	95	
RTOR Reduction (vph)	0	18	0	0	47	0	0	3	0	0	4	0	
Lane Grp. Flow (vph)	254	381	0	178	142	0	22	2381	0	187	1839	0	
Heavy Vehicles (%)	2%	2%	2%	5%	5%	5%	3%	3%	3%	5%	5%	5%	
Turn type	Perm			Perm			Perm			pm+pt			
Protected Phases		4			8			2		1	6		
Permitted Phases	4			8			2			6			
Actuated Green, G (s)	20.0	20.0		20.0	20.0		63.8	63.8		77.0	77.0		
Effective Green, g (s)	22.0	22.0		22.0	22.0		66.8	66.8		80.0	80.0		
Actuated g/C Ratio	0.20	0.20		0.20	0.20		0.61	0.61		0.73	0.73		
Clearance Time (s)	6.0	6.0		6.0	6.0		7.0	7.0		7.0	7.0		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0		
Lane Grp. Cap. (vph)	238	329		265	331		101	2206		211	2577		
v/s Ratio Prot		0.02			0.03			0.66		0.03	0.52		
v/s Ratio Perm	0.21			0.13			0.13			0.27			
v/c Ratio	1.07	0.12		0.67	0.13		0.22	1.08		0.41	0.71		
Uniform Delay, d1	44.0	36.0		40.7	36.1		9.8	21.6		48.6	18.5		
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.10	1.54		
Incremental Delay, d2	77.3	0.2		6.5	0.2		4.9	44.6		30.6	0.8		
Delay (s)	121.3	36.2		47.2	36.3		14.7	66.2		54.0	13.9		
Level of Service	F	D		D	D		B	E		D	B		
Approach Delay (s)		105.9			43.6			65.8			15.7		
Approach LOS		F			D			E			B		
<b>Intersection Summary</b>													
HCM Average Control Delay	47.4					HCM Level of Service							D
HCM Volume to Capacity ratio	1.05												
Actuated Cycle Length (s)	110.0					Sum of lost time (s)							12.0
Intersection Capacity Utilization	90.1%					ICU Level of Service							E
Analysis Period (min)	15												

c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖	↗	↖	↗	↖	↕	↖	↕
Volume (vph)	170	23	155	26	20	2111	81	1626
Lane Group Flow (vph)	254	56	178	89	22	2384	87	1843
Turn Type	Perm		Perm		Perm		pm:pt	
Protected Phases		4		8		2	1	6
Permitted Phases	4		8		2		6	
Detector Phases	4	4	8	8	2	2	1	6
Minimum Initial (s)	3.0	3.0	3.0	3.0	6.0	6.0	4.0	6.0
Minimum Split (s)	9.0	9.0	9.0	9.0	13.0	13.0	11.0	18.0
Total Split (s)	26.0	26.0	26.0	26.0	66.0	66.0	18.0	84.0
Total Split (%)	23.6%	23.6%	23.6%	23.6%	60.0%	60.0%	16.4%	76.4%
Yellow Time (s)	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag					Lag	Lag	Lead	
Lead-Lag Optimize?					Yes	Yes	Yes	
Recall Mode	None	None	None	None	C-Max	C-Max	None	C-Max
v/c Ratio	1.07	0.16	0.67	0.24	0.20	1.06	0.37	0.71
Control Delay	120.4	26.0	54.7	17.1	16.4	59.3	11.0	14.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	39.5	0.0	0.0
Total Delay	120.4	26.0	54.7	17.1	16.4	98.8	11.0	14.2
Queue Length 50th (ft)	-199	20	117	17	7	-1004	11	643
Queue Length 95th (ft)	#224	37	188	58	25	#1183	m13	m691
Internal Link Dist (ft)		476		636		620		2211
Turn Bay Length (ft)	75		125		60		75	
Base Capacity (vph)	238	346	264	378	111	2253	287	2580
Starvation Cap Reductn	0	0	0	0	0	180	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.07	0.16	0.67	0.24	0.20	1.15	0.30	0.71

Intersection Summary

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 100 (91%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow

Natural Cycle: 140

Control Type: Actuated-Coordinated

Volume exceeds capacity; queue is theoretically infinite.

Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity; queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 8: Lloyd Street & Airport Road

↖ a1 18%	↕ a2 66%	↗ a4 26%
↖ a6 84%		↖ a8 26%

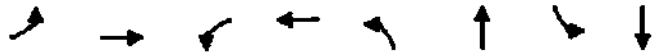


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	11	12	12	12	12	13	12	12	13	12
Grade (%)		6%			3%			2%			1%	
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frnt	1.00	0.94		1.00	0.90		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1659	1644		1745	1654		1770	3634		1728	3548	
Flt Permitted	0.68	1.00		0.72	1.00		0.06	1.00		0.06	1.00	
Satd. Flow (perm)	1189	1644		1323	1654		112	3634		103	3548	
Volume (vph)	170	23	15	155	26	51	20	2337	106	81	2048	88
Peak-hour factor, PHF	0.67	0.67	0.67	0.87	0.87	0.87	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	254	34	22	178	30	59	22	2513	114	87	2202	95
RTOR Reduction (vph)	0	14	0	0	47	0	0	3	0	0	3	0
Lane Group Flow (vph)	254	42	0	178	42	0	22	2624	0	87	2294	0
Heavy Vehicles (%)	2%	2%	2%	5%	5%	5%	3%	3%	3%	5%	5%	5%
Turn Type	Perm			Perm			Perm			pm+pl		
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	20.0	20.0		20.0	20.0		63.8	63.8		77.0	77.0	
Effective Green, g (s)	22.0	22.0		22.0	22.0		66.8	66.8		80.0	80.0	
Actuated g/C Ratio	0.20	0.20		0.20	0.20		0.61	0.61		0.73	0.73	
Clearance Time (s)	6.0	6.0		6.0	6.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	238	329		265	331		68	2207		211	2580	
v/s Ratio Prot		0.03			0.03			0.72		0.03	0.65	
v/s Ratio Perm	0.21			0.13			0.20			0.27		
v/c Ratio	1.07	0.13		0.67	0.13		0.32	1.19		0.41	0.89	
Uniform Delay, d1	44.0	36.1		40.7	36.1		10.6	21.6		27.1	11.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.12	1.56	
Incremental Delay, d2	77.3	0.2		6.5	0.2		12.2	89.9		0.1	0.5	
Delay (s)	121.3	36.3		47.2	36.3		22.7	111.5		30.4	18.6	
Level of Service	F	D		D	D		C	F		C	B	
Approach Delay (s)		105.9			43.6			110.8			19.0	
Approach LOS		F			D			F			B	

Intersection Summary	
HCM Average Control Delay	68.3
HCM Level of Service	E
HCM Volume to Capacity ratio	1.15
Actuated Cycle Length (s)	110.0
Sum of lost time (s)	12.0
Intersection Capacity Utilization	90.7%
ICU Level of Service	E
Analysis Period (min)	15

c Critical Lane Group





Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↙	↘	↙	↘	↙	↕	↙	↕
Volume (vph)	170	23	155	26	20	2337	81	2048
Lane Group Flow (vph)	254	56	178	89	22	2627	87	2297
Turn Type	Perm		Perm		Perm		prn+pt	
Protected Phases		4		8		2	1	6
Permitted Phases	4		8		2		6	
Detector Phases	4	4	8	8	2	2	1	6
Minimum Initial (s)	3.0	3.0	3.0	3.0	6.0	6.0	4.0	6.0
Minimum Split (s)	9.0	9.0	9.0	9.0	13.0	13.0	11.0	18.0
Total Split (s)	26.0	26.0	26.0	26.0	66.0	66.0	18.0	84.0
Total Split (%)	23.6%	23.6%	23.6%	23.6%	60.0%	60.0%	16.4%	76.4%
Yellow Time (s)	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag					Lag	Lag	Lead	
Lead-Lag Optimize?					Yes	Yes	Yes	
Recall Mode	None	None	None	None	C-Max	C-Max	None	C-Max
v/c Ratio	1.07	0.16	0.67	0.24	0.29	1.17	0.37	0.89
Control Delay	120.4	28.2	54.7	17.1	24.6	102.6	10.4	19.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	34.6	0.0	0.0
Total Delay	120.4	28.2	54.7	17.1	24.6	137.2	10.4	19.4
Queue Length 50th (ft)	-199	22	117	17	7	-1194	11	848
Queue Length 95th (ft)	#224	39	188	58	33	#1372	m10	m723
Internal Link Dist (ft)		476		636		620		2211
Turn Bay Length (ft)	75		125		60		75	
Base Capacity (vph)	238	343	264	378	75	2254	287	2584
Starvation Cap Reductn	0	0	0	0	0	141	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.07	0.16	0.67	0.24	0.29	1.24	0.30	0.89

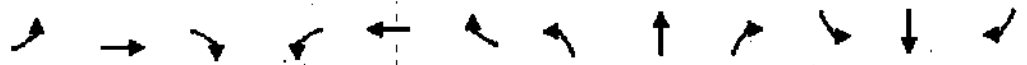
**Intersection Summary**

Cycle Length: 110  
 Actuated Cycle Length: 110  
 Offset: 100 (91%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow  
 Natural Cycle: 150  
 Control Type: Actuated-Coordinated

- Volume exceeds capacity, queue is theoretically infinite.  
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

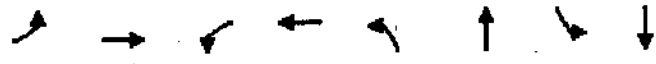
**Splits and Phases: 8: Lloyd Street & Airport Road**

↙ 10s	↕ 66s	↘ 26s
↘ 24s	↕ 26s	↙ 26s



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↕	↕	↖	↗	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	11	12	12	12	12	13	12	12	13	12
Grade (%)		6%			-3%			-2%				1%
Total Lost time (s)	4.0	4.0		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	0.95		1.00	0.95	
Friction	1.00	0.94		1.00	0.90		1.00	0.99		1.00	1.00	
Friction Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1659	1644		1745	1654		1770	3634		1728	3556	
Friction Permitted	0.68	1.00		0.72	1.00		0.06	1.00		0.06	1.00	
Satd. Flow (perm)	1189	1644		1323	1654		112	3634		103	3556	
Volume (vph)	170	23	15	155	26	51	20	2337	106	81	8233	88
Peak-hour factor, PHF	0.67	0.67	0.67	0.87	0.87	0.87	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	254	34	22	178	30	59	22	2513	114	87	3476	95
RTOR Reduction (vph)	0	1	0	0	47	0	0	3	0	0	2	0
Lane Group Flow (vph)	254	55	0	178	42	0	22	2624	0	87	3569	0
Heavy Vehicles (%)	2%	2%	2%	5%	5%	5%	3%	3%	3%	5%	5%	5%
Turn Type	Perm		Perm		Perm		Perm		Perm+Prt		Perm+Prt	
Protected Phases	4		8		8		2		1		6	
Permitted Phases	4		8		8		2		6		6	
Actuated Green, G (s)	20.0	20.0		20.0	20.0		63.8	63.8		77.0	77.0	
Effective Green, g (s)	22.0	22.0		22.0	22.0		66.8	66.8		80.0	80.0	
Actuated g/C Ratio	0.20	0.20		0.20	0.20		0.61	0.61		0.73	0.73	
Clearance Time (s)	6.0	6.0		6.0	6.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	238	329		265	331		68	2207		211	2586	
v/s Ratio Prot		0.03			0.03			0.72		0.03	0.100	
v/s Ratio Perm	0.21			0.13			0.20			0.27		
v/c Ratio	1.07	0.17		0.67	0.13		0.32	1.19		0.41	1.38	
Uniform Delay, d1	44.0	36.4		40.7	36.1		10.6	21.6		27.1	15.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		2.43	0.61	
Incremental Delay, d2	77.3	0.2		6.5	0.2		12.2	69.9		0.1	171.3	
Delay (s)	121.3	36.7		47.2	36.3		22.7	111.5		66.1	180.5	
Level of Service	F	D		D	D		C	F		E	F	
Approach Delay (s)		106.0			43.6			110.8			177.8	
Approach LOS		F			D			F			F	

Intersection Summary	
HCM Average Control Delay	143.6
HCM Volume to Capacity ratio	1.31
Actuated Cycle Length (s)	110.0
Intersection Capacity Utilization	114.9%
Analysis Period (min)	15
HCM Level of Service	F
Sum of lost time (s)	8.0
ICU Level of Service	H



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖	↗	↖	↗	↖	↕	↖	↕
Volume (vph)	170	23	155	26	20	2337	81	3233
Lane Group Flow (vph)	254	56	178	89	22	2627	87	3571
Turn Type	Perm		Perm		Perm		pm+pl	
Protected Phases		4		8		2	1	6
Permitted Phases	4		8		2		6	
Detector Phases	4	4	8	8	2	2	1	6
Minimum Initial (s)	3.0	3.0	3.0	3.0	6.0	6.0	4.0	6.0
Minimum Split (s)	9.0	9.0	9.0	9.0	13.0	13.0	11.0	18.0
Total Split (s)	26.0	26.0	26.0	26.0	66.0	66.0	18.0	84.0
Total Split (%)	23.6%	23.6%	23.6%	23.6%	60.0%	60.0%	16.4%	76.4%
Yellow Time (s)	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag					Lag	Lag	Lead	
Lead-Lag Optimize?					Yes	Yes	Yes	
Recall Mode	None	None	None	None	C-Max	C-Max	None	C-Max
v/c Ratio	1.07	0.17	0.67	0.24	0.29	1.16	0.38	1.38
Control Delay	120.4	37.5	54.7	17.1	24.9	102.5	22.0	187.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	35.1	0.0	0.0
Total Delay	120.4	37.5	54.7	17.1	24.9	137.6	22.0	187.9
Queue Length 50th (ft)	-199	32	117	17	7	-1187	16	-1827
Queue Length 95th (ft)	#224	50	188	58	33	#1380	m3	m75
Internal Link Dist (ft)		476		636		620		2211
Turn Bay Length (ft)	75		125		60		75	
Base Capacity (vph)	238	330	264	378	75	2255	287	2588
Starvation Cap Reductn	0	0	0	0	0	143	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.07	0.17	0.67	0.24	0.29	1.24	0.30	1.38

**Intersection Summary**

Cycle Length: 110  
 Actuated Cycle Length: 110  
 Offset: 81 (74%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow  
 Natural Cycle: 140  
 Control Type: Actuated-Coordinated  
 # Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.

**Splits and Phases: 8: Lloyd Street & Airport Road**

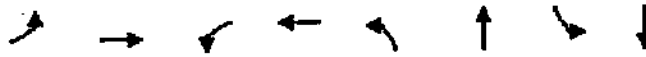
↖ 01 185	↗ 02 56	↖ 04 26
↘ 06 84	↘ 08 26	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↕	↕	↖	↗	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	11	12	12	12	12	13	12	12	13	12
Grade (%)		6%			-3%			-2%			1%	
Total Lost time (s)	4.0	4.0		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	0.95		1.00	0.95	
Frt	1.00	0.94		1.00	0.90		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1659	1644		1745	1654		1770	3636		1728	3550	
Flt Permitted	0.65	1.00		0.72	1.00		0.05	1.00		0.04	1.00	
Satd. Flow (perm)	1138	1644		1323	1654		85	3636		79	3550	
Volume (vph)	170	23	15	155	26	51	20	2610	106	81	2184	88
Peak-hour factor, PHF	0.67	0.67	0.67	0.87	0.87	0.87	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	254	34	22	178	30	59	22	2806	114	87	2348	95
RTOR Reduction (vph)	0	13	0	0	43	0	0	2	0	0	2	0
Lane Group Flow (vph)	254	743	0	178	46	0	22	2918	0	187	2441	0
Heavy Vehicles (%)	2%	2%	2%	5%	5%	5%	3%	3%	3%	5%	5%	5%
Turn Type	Perm		Perm		Perm		pm+pt		pm+pt			
Protected Phases	4		8		8		2		1		6	
Permitted Phases	4		8		8		2		6		6	
Actuated Green, G (s)	21.0	21.0		21.0	21.0		85.0	85.0		96.0	96.0	
Effective Green, g (s)	23.0	23.0		23.0	23.0		88.0	88.0		99.0	99.0	
Actuated g/C Ratio	0.18	0.18		0.18	0.18		0.68	0.68		0.76	0.76	
Clearance Time (s)	6.0	6.0		6.0	6.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	201	291		234	293		58	2461		149	2703	
v/s Ratio Prot		0.03			0.03			c0.80		0.03	c0.69	
v/s Ratio Perm	c0.22			0.13			0.26			0.41		
v/c Ratio	1.26	0.15		0.76	0.16		0.38	1.19		0.58	0.90	
Uniform Delay, d1	53.5	45.2		50.9	45.3		9.1	21.0		61.3	11.8	
Progression Factor	1.00	1.00		1.00	1.00		0.84	0.77		0.76	1.53	
Incremental Delay, d2	152.1	0.2		13.6	0.3		1.7	83.9		10.5	0.6	
Delay (s)	205.6	45.4		64.4	45.6		9.3	100.0		47.0	18.6	
Level of Service	F	D		E	D		A	F		D	B	
Approach Delay (s)		176.7			58.1			99.3			19.6	
Approach LOS		F			E			F			B	

Intersection Summary			
HCM Average Control Delay	68.1	HCM Level of Service	E
HCM Volume to Capacity ratio	1.19		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	98.3%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖	↗	↖	↗	↖	↕	↖	↕
Volume (vph)	170	23	155	26	20	2610	81	2184
Lane Group Flow (vph)	254	56	178	89	22	2920	87	2443
Turn Type	Perm		Perm		Perm		pm+pl	
Protected Phases		4		8		2	1	6
Permitted Phases	4		8		2		6	
Detector Phases	4	4	8	8	2	2	1	6
Minimum Initial (s)	3.0	3.0	3.0	3.0	6.0	6.0	4.0	6.0
Minimum Split (s)	9.0	9.0	9.0	9.0	13.0	13.0	11.0	18.0
Total Split (s)	27.0	27.0	27.0	27.0	92.0	92.0	11.0	103.0
Total Split (%)	20.8%	20.8%	20.8%	20.8%	70.8%	70.8%	8.5%	79.2%
Yellow Time (s)	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag					Lag	Lag	Lead	
Lead-Lag Optimize?					Yes	Yes	Yes	
Recall Mode	None	None	None	None	C-Max	C-Max	None	C-Max
v/c Ratio	1.26	0.18	0.76	0.26	0.39	1.19	0.59	0.90
Control Delay	193.1	35.7	72.2	23.9	13.7	103.0	16.2	19.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	32.8	0.0	0.0
Total Delay	193.1	35.7	72.2	23.9	13.7	135.9	16.2	19.5
Queue Length 50th (ft)	-268	29	144	27	7	-1551	32	646
Queue Length 95th (ft)	#284	48	#242	72	m0m	#1336	m28	m640
Internal Link Dist (ft)		476		636		620		2211
Turn Bay Length (ft)	75		125		60		75	
Base Capacity (vph)	202	304	234	336	57	2464	148	2705
Starvation Cap Reductn	0	0	0	0	0	144	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.26	0.18	0.76	0.26	0.39	1.26	0.59	0.90

Intersection Summary

Cycle Length: 130  
 Actuated Cycle Length: 130  
 Offset: 128 (98%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow  
 Natural Cycle: 140  
 Control Type: Actuated-Coordinated  
 - Volume exceeds capacity, queue is theoretically infinite  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal

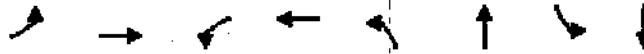
Splits and Phases: 8: Lloyd Street & Airport Road

↖	↗	↗
01	02	04
111s	92s	27s
↘		↖
06		08
103s		27s



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	11	12	12	12	12	13	12	12	13	12
Grade (%)		6%			-3%			2%			1%	
Total Lost time (s)	4.0	4.0		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	0.95		1.00	0.95	
Friction	1.00	0.94		1.00	0.90		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1659	1644		1745	1654		1770	3638		1728	3552	
Flt Permitted	0.65	1.00		0.72	1.00		0.05	1.00		0.04	1.00	
Satd. Flow (perm)	1138	1644		1323	1654		85	3638		79	3552	
Volume (vph)	170	23	15	155	26	51	20	2799	106	81	2528	88
Peak-hour factor, PHF	0.67	0.67	0.67	0.87	0.87	0.87	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	254	34	22	178	30	59	22	3010	114	87	2718	95
RTOR Reduction (vph)	0	7	0	0	42	0	0	2	0	0	2	0
Lane Group Flow (vph)	254	49	0	178	47	0	22	3122	0	87	2811	0
Heavy Vehicles (%)	2%	2%	2%	5%	5%	5%	3%	3%	3%	5%	5%	5%
Turn Type	Perm			Perm			Perm			pm-pt		
Protected Phases	4			8			2			1 6		
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	21.0	21.0		21.0	21.0		85.0	85.0		96.0	96.0	
Effective Green, g (s)	23.0	23.0		23.0	23.0		88.0	88.0		99.0	99.0	
Actuated g/C Ratio	0.18	0.18		0.18	0.18		0.68	0.68		0.76	0.76	
Clearance Time (s)	6.0	6.0		6.0	6.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	201	291		234	293		58	2463		149	2705	
v/s Ratio Prot		0.03			0.03			c0.86		0.03	c0.79	
v/s Ratio Perm	0.22			0.13			0.26			0.41		
v/c Ratio	1.26	0.17		0.76	0.16		0.38	1.27		0.58	1.04	
Uniform Delay, d1	53.5	45.4		50.9	45.3		9.1	21.0		61.3	15.5	
Progression Factor	1.00	1.00		1.00	1.00		0.93	0.85		0.74	1.57	
Incremental Delay, d2	152.1	0.3		13.6	0.3		1.7	120.7		0.5	19.1	
Delay (s)	205.6	45.7		64.4	45.6		10.2	138.5		45.8	43.5	
Level of Service	F	D		E	D		B	F		D	D	
Approach Delay (s)		176.7			58.1			137.7			43.6	
Approach LOS		F			E			F			D	

Intersection Summary	
HCM Average Control Delay	95.1
HCM Volume to Capacity ratio	1.27
Actuated Cycle Length (s)	130.0
Intersection Capacity Utilization	103.5%
Analysis Period (min)	15
c Critical Lane Group	
HCM Level of Service	F
Sum of lost time (s)	12.0
ICU Level of Service	G



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↙	↘	↙	↘	↙	↘	↙	↘
Volume (vph)	170	23	155	26	20	2799	81	2528
Lane Group Flow (vph)	254	56	178	89	22	3124	87	2813
Turn Type	Perm		Perm		Perm		pm+pt	
Protected Phases		4		8		2	1	6
Permitted Phases	4		8		2		6	
Detector Phases	4	4	8	8	2	2	1	6
Minimum Initial (s)	3.0	3.0	3.0	3.0	6.0	6.0	4.0	6.0
Minimum Split (s)	9.0	9.0	9.0	9.0	13.0	13.0	11.0	18.0
Total Split (s)	27.0	27.0	27.0	27.0	92.0	92.0	11.0	103.0
Total Split (%)	20.8%	20.8%	20.8%	20.8%	70.8%	70.8%	8.5%	79.2%
Yellow Time (s)	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag					Lag	Lag	Lead	
Lead-Lag Optimize?					Yes	Yes	Yes	
Recall Mode	None	None	None	None	C-Max	C-Max	None	C-Max
v/c Ratio	1.26	0.19	0.76	0.27	0.39	1.27	0.59	1.04
Control Delay	193.1	41.2	72.2	24.3	15.0	141.4	15.7	43.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	35.2	0.0	0.0
Total Delay	193.1	41.2	72.2	24.3	15.0	176.7	15.7	43.2
Queue Length 50th (ft)	-268	35	144	27	7	-1734	33	-1326
Queue Length 95th (ft)	#284	54	#242	73	m#13	m#19	m23	m660
Internal Link Dist (ft)		476		636		620		2211
Turn Bay Length (ft)	75		125		60		75	
Base Capacity (vph)	202	297	234	335	57	2466	148	2708
Starvation Cap Reductn	0	0	0	0	0	144	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.26	0.19	0.76	0.27	0.39	1.35	0.59	1.04

Intersection Summary

Cycle Length: 130  
 Actuated Cycle Length: 130  
 Offset: 128 (98%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow  
 Natural Cycle: 150  
 Control Type: Actuated-Coordinated  
 - Volume exceeds capacity, queue is theoretically infinite  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal

Splits and Phases: 8: Lloyd Street & Airport Road

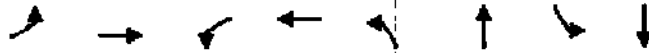
↙	↘	↘	↙
92	27	27	27
↘	↙	↙	↘
103	27	27	27



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	11	12	12	12	12	13	12	12	13	12
Grade (%)		6%			3%			2%				1%
Total Lost time (s)	4.0	4.0		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	0.95		1.00	0.95	
Frt	1.00	0.94		1.00	0.90		1.00	0.99		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1659	1644		1745	1654		1770	3638		1728	3558	
Flt Permitted	0.65	1.00		0.72	1.00		0.05	1.00		0.04	1.00	
Satd. Flow (perm)	1132	1644		1323	1654		85	3638		79	3558	
Volume (vph)	170	23	15	155	26	51	20	2799	106	81	3713	88
Peak-hour factor, PHF	0.67	0.67	0.67	0.87	0.87	0.87	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	254	34	22	178	30	59	22	3010	114	87	3992	95
RTOR Reduction (vph)	0	1	0	0	49	0	0	2	0	0	1	0
Lane Group Flow (vph)	254	55	0	178	40	0	22	3122	0	87	4086	0
Heavy Vehicles (%)	2%	2%	2%	5%	5%	5%	3%	3%	3%	5%	5%	5%
Turn Type	Perm			Perm			Perm			pm+pt		
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	20.0	20.0		20.0	20.0		85.0	85.0		97.0	97.0	
Effective Green, g (s)	22.0	22.0		22.0	22.0		88.0	88.0		100.0	100.0	
Actuated g/C Ratio	0.17	0.17		0.17	0.17		0.68	0.68		0.77	0.77	
Clearance Time (s)	6.0	6.0		6.0	6.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	192	278		224	280		58	2463		162	2737	
v/s Ratio Prot		0.03			0.02			0.86		0.03	c1.15	
v/s Ratio Perm	c0.22			0.13			0.26			0.38		
v/c Ratio	1.32	0.20		0.79	0.14		0.38	1.27		0.54	1.49	
Uniform Delay, d1	54.0	46.4		51.8	46.0		9.1	21.0		60.3	15.0	
Progression Factor	1.00	1.00		1.00	1.00		0.73	0.68		1.01	2.03	
Incremental Delay, d2	176.9	0.4		17.4	0.2		1.7	120.7		0.3	221.9	
Delay (s)	230.9	46.8		69.3	46.2		8.3	135.0		61.4	252.4	
Level of Service	F	D		E	D		A	F		E	F	
Approach Delay (s)		197.6			61.6			134.1			248.4	
Approach LOS		F			E			F			F	

Intersection Summary	
HCM Average Control Delay	194.6
HCM Volume to Capacity ratio	1.46
Actuated Cycle Length (s)	130.0
Intersection Capacity Utilization	128.2%
Analysis Period (min)	15
HCM Level of Service	F
Sum of lost time (s)	8.0
ICU Level of Service	H





Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Volume (vph)	170	23	155	26	20	2799	81	3713
Lane Group Flow (vph)	254	56	178	89	22	3124	87	4087
Turn Type	Perm		Perm		Perm		pm+pl	
Protected Phases		4		8		2	1	6
Permitted Phases	4		8		2		6	
Detector Phases	4	4	8	8	2	2	1	6
Minimum Initial (s)	3.0	3.0	3.0	3.0	6.0	6.0	4.0	6.0
Minimum Split (s)	9.0	9.0	9.0	9.0	13.0	13.0	11.0	18.0
Total Split (s)	26.0	26.0	26.0	26.0	92.0	92.0	12.0	104.0
Total Split (%)	20.0%	20.0%	20.0%	20.0%	70.8%	70.8%	9.2%	80.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag					Lag	Lag	Lead	
Lead-Lag Optimize?					Yes	Yes	Yes	
Recall Mode	None	None	None	None	C-Max	C-Max	None	C-Max
v/c Ratio	1.32	0.20	0.79	0.27	0.39	1.27	0.54	1.49
Control Delay	218.7	47.8	77.1	21.4	12.1	139.2	20.2	248.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	41.8	0.0	0.0
Total Delay	218.7	47.8	77.1	21.4	12.1	181.0	20.2	248.3
Queue Length 50th (ft)	-277	40	146	22	5	-1734	23	-2511
Queue Length 95th (ft)	#293	60	#251	67	m4m	#1319	m12m	#1025
Internal Link Dist (ft)		476		636		620		2211
Turn Bay Length (ft)	75		125		60		75	
Base Capacity (vph)	192	279	224	329	57	2466	162	2740
Starvation Cap Reductn	0	0	0	0	0	169	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.32	0.20	0.79	0.27	0.39	1.36	0.54	1.49

**Intersection Summary**

Cycle Length: 130  
 Actuated Cycle Length: 130  
 Offset: 36 (28%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow  
 Natural Cycle: 140  
 Control Type: Actuated-Coordinated

Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 8: Lloyd Street & Airport Road

12%	92%		26%
104%			26%

11: American Pkwy & Airport Road

Existing Conditions  
Timing Plan: AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↖↗	↑		↖↗	↑		↖↗	↑↕		↖↗	↑↕	↖↗	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	12	14	12	12	12	12	12	16	16	12	13	14	
Grade(%)		2%			1%			1%				0%	
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0	
Lane Util. Factor	0.97	1.00		1.00	1.00		1.00	0.95		1.00	0.95	1.00	
Frt	1.00	0.91		1.00	0.86		1.00	1.00		1.00	1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00	
Satd. Flow (prot)	3123	1644		1604	1458		1604	3631		1703	3519	1625	
Flt Permitted	0.95	1.00		0.71	1.00		0.27	1.00		0.18	1.00	1.00	
Satd. Flow (perm)	3123	1644		1203	1458		462	3631		317	3519	1625	
Volume (vph)	137	21	32	1	11	107	53	844	5	96	726	410	
Peak-hour factor, PHF	0.79	0.79	0.79	0.72	0.72	0.72	0.86	0.86	0.86	0.96	0.96	0.96	
Adj. Flow (vph)	173	27	41	1	15	149	62	981	6	100	756	427	
RTOR Reduction (vph)	0	31	0	0	137	0	0	1	0	0	0	0	
Lane Group Flow (vph)	173	37	0	1	27	0	62	986	0	100	756	427	
Heavy Vehicles (%)	11%	11%	11%	12%	12%	12%	12%	12%	12%	6%	6%	6%	
Turn Type	Prot			Perm			pm/pt			pm/pt		Free	
Protected Phases	7	4			8		5	2		1		6	
Permitted Phases				8			2			6		Free	
Actuated Green, G (s)	11.5	24.6		7.1	7.1		65.4	48.0		65.4	48.0	110.0	
Effective Green, g (s)	13.5	26.6		9.1	9.1		71.4	51.0		71.4	51.0	110.0	
Actuated g/C Ratio	0.12	0.24		0.08	0.08		0.65	0.46		0.65	0.46	1.00	
Clearance Time (s)	6.0	6.0		6.0	6.0		7.0	7.0		7.0	7.0		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0		
Lane Grp Cap (vph)	383	398		100	121		512	1683		463	1632	1625	
v/s Ratio Prot	c0.06	0.02			0.02		0.02	c0.27		0.04	0.21		
v/s Ratio Perm				0.00			0.06			0.10		c0.26	
v/c Ratio	0.45	0.09		0.01	0.23		0.12	0.59		0.22	0.46	0.26	
Uniform Delay, d1	44.8	32.8		46.3	47.2		7.9	21.7		9.1	20.2	0.0	
Progression Factor	1.42	0.56		1.00	1.00		1.00	1.00		0.98	1.12	1.00	
Incremental Delay, d2	0.8	0.1		0.0	1.0		0.5	1.5		0.9	0.8	0.3	
Delay (s)	64.3	18.2		46.4	48.1		8.3	23.2		10.2	23.4	0.3	
Level of Service	E	B		D	D		A	C		B	C	A	
Approach Delay (s)		51.3			48.1			22.4			14.7		
Approach LOS		D			D			C			B		
<b>Intersection Summary</b>													
HCM Average Control Delay	22.9			HCM Level of Service									C
HCM Volume to Capacity ratio	0.45												
Actuated Cycle Length (s)	110.0			Sum of lost time (s)									8.0
Intersection Capacity Utilization	49.4%			ICU Level of Service									A
Analysis Period (min)	15												

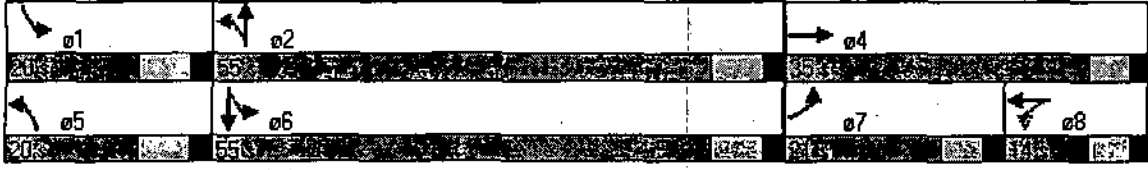
c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↖↗	↑	↖	↗	↖	↖↗	↖	↖↗	↗
Volume (vph)	137	21		11	53	844	96	726	410
Lane Group Flow (vph)	173	68	1	164	62	987	100	756	427
Turn Type	Prot		Perm		pm+pt		pm+pt		Free
Protected Phases	7	4		8	5	2	1	6	
Permitted Phases			8		2		6		Free
Detector Phases	7	4	8	8	5	2	1	6	
Minimum Initial (s)	3.0	3.0	3.0	3.0	3.0	7.0	3.0	7.0	
Minimum Split (s)	9.0	9.0	9.0	9.0	10.0	14.0	10.0	14.0	
Total Split (s)	21.0	35.0	14.0	14.0	20.0	55.0	20.0	55.0	0.0
Total Split (%)	19.1%	31.8%	12.7%	12.7%	18.2%	50.0%	18.2%	50.0%	0.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lead/Lag	Lead		Lag	Lag	Lead	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes		Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	None	Max C	Max	Max C	Max	
v/c Ratio	0.45	0.16	0.01	0.64	0.12	0.59	0.22	0.46	0.26
Control Delay	64.9	9.0	45.0	19.8	7.2	23.5	7.5	23.6	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.9	9.0	45.0	19.8	7.2	23.5	7.5	23.6	0.3
Queue Length 50th (ft)	65	3	1	10	13	262	28	212	0
Queue Length 95th (ft)	78	10	5	38	29	306	m56	m27.1	m0
Internal Link Dist (ft)		940		1800		1544		620	
Turn Bay Length (ft)	475		205				100		400
Base Capacity (vph)	483	493	114	273	512	1684	463	1632	1625
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.14	0.01	0.60	0.12	0.59	0.22	0.46	0.26

**Intersection Summary:**  
 Cycle Length: 110  
 Actuated Cycle Length: 110  
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow  
 Natural Cycle: 50  
 Control Type: Actuated-Coordinated  
 m: Volume for 95th percentile queue is metered by upstream signal

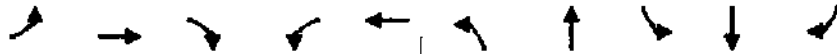
Splits and Phases: 11: American Pkwy & Airport Road





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↑	↖	↖	↑	↖	↖	↑↗	↖	↖	↑↑	↖
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	14	12	12	12	12	12	16	16	12	13	14
Grade (%)		2%			1%			1%				0%
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.86		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3123	1808	1440	1604	1460		1604	3632		1703	3519	1625
Flt Permitted	0.95	1.00	1.00	0.74	1.00		0.22	1.00		0.12	1.00	1.00
Satd. Flow (perm)	3123	1808	1440	1247	1460		377	3632		215	3519	1625
Volume (vph)	144	22	34	1	12	112	56	987	5	101	833	432
Peak-hour factor, PHF	0.79	0.79	0.79	0.72	0.72	0.72	0.86	0.86	0.86	0.96	0.96	0.96
Adj. Flow (vph)	182	28	43	1	17	156	65	1148	6	105	868	450
RTOR Reduction (vph)	0	0	32	0	144	0	0	1	0	0	0	0
Lane Group Flow (vph)	182	28	111	1	29	0	65	1153	0	105	868	450
Heavy Vehicles (%)	11%	11%	11%	12%	12%	12%	12%	12%	12%	6%	6%	6%
Turn Types	Prot	Perm	Perm	Perm	Perm	pm-pt	pm-pt	pm-pt	pm-pt	Free	Free	Free
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases			4	8			2			6		Free
Actuated Green, G (s)	12.1	24.9	24.9	6.8	6.8		65.1	47.9		65.1	47.9	110.0
Effective Green, g (s)	14.1	26.9	26.9	8.8	8.8		71.1	50.9		71.1	50.9	130.0
Actuated g/C Ratio	0.13	0.24	0.24	0.08	0.08		0.65	0.46		0.65	0.46	1.00
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0		7.0	7.0		7.0	7.0	7.0
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)	400	442	352	100	117		469	681		412	1628	1625
v/s Ratio Prot	c0.06	0.02			0.02		0.03	c0.32		0.05	0.25	
v/s Ratio Perm			0.01	0.00			0.06			0.12		c0.28
v/c Ratio	0.46	0.06	0.03	0.01	0.25		0.14	0.69		0.25	0.53	0.28
Uniform Delay, d1	44.4	31.9	31.6	46.6	47.5		18.5	23.3		11.4	21.1	0.0
Progression Factor	0.73	0.72	0.40	1.00	1.00		1.00	1.00		1.52	0.79	1.00
Incremental Delay, d2	0.8	0.1	0.0	0.0	1.1		0.6	2.3		1.3	1.1	0.4
Delay (s)	33.3	23.1	12.8	46.6	48.6		9.1	25.6		18.6	17.8	0.4
Level of Service	C	C	B	D	D		A	C		B	B	A
Approach Delay (s)		28.7			48.6			24.7			12.3	
Approach LOS		C			D			C			B	
<b>Intersection Summary</b>												
HCM Average Control Delay	20.6					HCM Level of Service						
HCM Volume to Capacity ratio	0.51											
Actuated Cycle Length (s)	110.0					Sum of lost time (s)						
Intersection Capacity Utilization	58.0%					ICU Level of Service						
Analysis Period (min)	15											

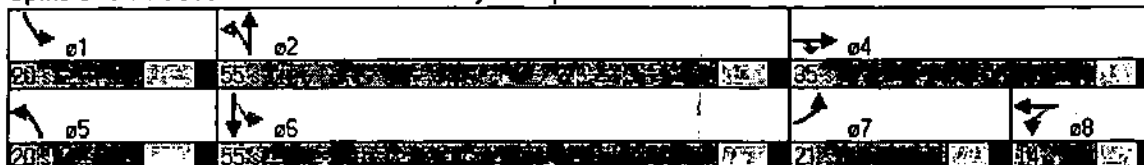
c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↖↗	↑	↖	↖	↖	↖	↖	↖	↖	↖
Volume (vph)	144	22	34	1	12	56	987	101	833	432
Lane Group Flow (vph)	182	28	43	1	173	65	1154	105	868	450
Turn Type	Prot		Perm	Perm		pm+pt		pm+pt		Free
Protected Phases	7	4				8	5	2	1	6
Permitted Phases			4	8		2		6		Free
Detector Phases	7	4	4	8	8	5	2	1	6	
Minimum Initial (s)	3.0	3.0	3.0	3.0	3.0	3.0	7.0	3.0	7.0	
Minimum Split (s)	9.0	9.0	9.0	9.0	9.0	10.0	14.0	10.0	14.0	
Total Split (s)	21.0	35.0	35.0	14.0	14.0	20.0	55.0	20.0	55.0	0.0
Total Split (%)	19.1%	31.8%	31.8%	12.7%	12.7%	18.2%	50.0%	18.2%	50.0%	0.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lead/Lag	Lead			Lag	Lag	Lead	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes			Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	None	None	Max-C	Max	Max-C	Max	
v/c Ratio	0.46	0.06	0.11	0.01	0.67	0.14	0.69	0.25	0.53	0.28
Control Delay	34.2	21.8	4.1	46.0	21.0	7.5	25.8	11.9	17.9	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.2	21.8	4.1	46.0	21.0	7.5	25.8	11.9	17.9	0.4
Queue Length 50th (ft)	39	10	1	1	11	15	327	23	180	0
Queue Length 95th (ft)	52	21	3	5	39	30	377	62	153	0
Internal Link Dist (ft)		940			1800		1544		620	
Turn Bay Length (ft)	475			205			100		400	
Base Capacity (vph)	483	510	437	113	275	470	1684	412	1632	1625
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.05	0.10	0.01	0.63	0.14	0.69	0.25	0.53	0.28

**Intersection Summary:**  
 Cycle Length: 110  
 Actuated Cycle Length: 110  
 Offset: 2 (2%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow  
 Natural Cycle: 55  
 Control Type: Actuated-Coordinated

Splits and Phases: 11: American Pkwy & Airport Road



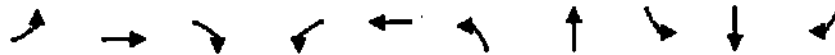


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↑	↖	↖	↖		↖	↖↗		↖	↖↗	↖
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	14	12	12	12	12	12	16	16	12	13	14
Grade (%)		2%			1%			1%			0%	
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frnt	1.00	1.00	0.85	1.00	0.86		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3123	1808	1440	1604	1460		1604	3632		1703	3519	1625
Flt Permitted	0.95	1.00	1.00	0.74	1.00		0.22	1.00		0.12	1.00	1.00
Satd. Flow (perm)	3123	1808	1440	1247	1460		377	3632		215	3519	1625
Volume (vph)	162	22	34	1	12	112	59	987	5	101	833	600
Peak-hour factor, PHF	0.79	0.79	0.79	0.72	0.72	0.72	0.86	0.86	0.86	0.96	0.96	0.96
Adj. Flow (vph)	205	28	43	1	17	156	69	1148	6	105	868	625
RTOR Reduction (vph)	0	0	32	0	144	0	0	1	0	0	0	0
Lane Group Flow (vph)	205	28	11	1	29	0	69	1153	0	105	868	625
Heavy Vehicles (%)	11%	11%	11%	12%	12%	12%	12%	12%	12%	6%	6%	6%
Turn Type	Prot		Perm	Perm			pm+pt			pm+pt		Free
Protected Phases	7	4				8	5	2		1	6	
Permitted Phases			4	8			2			6		Free
Actuated Green, G (s)	12.3	25.1	25.1	6.8	6.8		64.9	47.9		64.9	47.9	110.0
Effective Green, g (s)	4.3	27.1	27.1	8.8	8.8		70.9	50.9		70.9	50.9	110.0
Actuated g/C Ratio	0.13	0.25	0.25	0.08	0.08		0.64	0.46		0.64	0.46	1.00
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0		7.0	7.0		7.0	7.0	
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)	406	445	355	100	117		466	1681		409	1628	1625
v/s Ratio Prot	c0.07	0.02			0.02		0.03	c0.32		0.05	0.25	
v/s Ratio Perm			0.01	0.00			0.07			0.12		c0.38
v/c Ratio	0.50	0.06	0.03	0.01	0.25		0.15	0.69		0.26	0.53	0.38
Uniform Delay, d1	44.6	31.7	31.5	46.6	47.5		38.6	23.9		11.5	21.1	0.0
Progression Factor	0.72	0.70	0.36	1.00	1.00		1.00	1.00		1.46	0.78	1.00
Incremental Delay, d2	1.0	0.1	0.0	0.0	1.1		0.7	2.3		1.2	1.0	0.5
Delay (s)	33.0	22.3	11.5	46.6	48.6		9.3	25.6		17.9	17.4	0.5
Level of Service	C	C	B	D	D		A	C		B	B	A
Approach Delay (s)		28.6			48.6			24.6			10.8	
Approach LOS		C			D			C			B	

**Intersection Summary**

HCM Average Control Delay	19.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	80
Intersection Capacity Utilization	58.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↖↗	↑	↗	↖	↑	↖	↗↖	↖	↗↗	↖
Volume (vph)	162	22	34	1	12	59	987	101	833	600
Lane Group Flow (vph)	205	28	43	1	173	69	1154	105	868	625
Turn Type	Prot		Perm	Perm		pm+pt	pm+pt	pm+pt	pm+pt	Free
Protected Phases	7	4			8	5	2	1	6	
Permitted Phases			4	8	7	2		6		Free
Detector Phases	7	4	4	8	8	5	2	1	6	
Minimum Initial (s)	3.0	3.0	3.0	3.0	3.0	3.0	7.0	3.0	7.0	
Minimum Split (s)	9.0	9.0	9.0	9.0	9.0	10.0	14.0	10.0	14.0	
Total Split (s)	21.0	35.0	35.0	14.0	14.0	20.0	55.0	20.0	55.0	0.0
Total Split (%)	19.1%	31.8%	31.8%	12.7%	12.7%	18.2%	50.0%	18.2%	50.0%	0.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lead/Lag	Lead			Lag	Lag	Lead	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes			Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	None	None	Max	C-Max	Max	C-Max	
v/c Ratio	0.51	0.06	0.11	0.01	0.67	0.15	0.69	0.26	0.53	0.38
Control Delay	36.1	21.2	3.9	46.0	23.2	7.6	25.8	11.5	17.5	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.1	21.2	3.9	46.0	23.2	7.6	25.8	11.5	17.5	0.5
Queue Length 50th (ft)	42	9	1	1	11	16	327	23	166	0
Queue Length 95th (ft)	56	20	3	5	39	31	377	55	150	0
Internal Link Dist (ft)		940			1800		1544		620	
Turn Bay Length (ft)	475			205				100		400
Base Capacity (vph)	483	510	437	113	275	467	1684	409	1632	1625
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.42	0.05	0.10	0.01	0.63	0.15	0.69	0.26	0.53	0.38

**Intersection Summary**

Cycle Length: 110  
 Actuated Cycle Length: 110  
 Offset: 2 (2%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow  
 Natural Cycle: 55  
 Control Type: Actuated-Coordinated  
 m: Volume for 95th percentile queue is metered by upstream signal

**Splits and Phases: 11: American Pkwy & Airport Road**

↖ o1 20%	↗ o2 55%	→ o4 35%
↖ o5 20%	↗ o6 55%	↖ o7 21%
		↗ o8 14%



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↑	↖	↖	↑	↖	↖	↑↕	↖	↖	↑↕	↖
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	14	12	12	12	12	12	16	16	12	13	14
Grade (%)		2%			1%			1%			0%	
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.86		1.00	1.00		1.00	1.00	0.85
Flt. Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3123	1808	1440	1604	1459		1604	3632		1703	3519	1625
Flt. Permitted	0.95	1.00	1.00	0.73	1.00		0.94	1.00		0.08	1.00	1.00
Satd. Flow (perm)	3123	1808	1440	1239	1459		232	3632		141	3519	1625
Volume (vph)	183	28	43	1	15	143	70	1229	7	131	1056	558
Peak-hour factor, PHF	0.79	0.79	0.79	0.72	0.72	0.72	0.86	0.86	0.86	0.96	0.96	0.96
Adj. Flow (vph)	232	35	54	1	21	199	81	1429	8	136	1100	581
RTOR Reduction (vph)	0	0	40	0	183	0	0	1	0	0	0	0
Lane Group Flow (vph)	232	35	14	1	37	0	81	1436	0	136	1100	581
Heavy Vehicles (%)	11%	11%	11%	12%	12%	12%	12%	12%	12%	6%	6%	6%
Turn Type	Prot		Perm	Perm			pm	pt		pm	pt	Free
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases			4	8			2			6		Free
Actuated Green, G (s)	12.9	25.9	25.9	7.0	7.0		64.1	48.0		64.1	48.0	110.0
Effective Green, g (s)	14.9	27.9	27.9	9.0	9.0		70.1	51.0		70.1	51.0	110.0
Actuated g/C Ratio	0.14	0.25	0.25	0.08	0.08		0.64	0.46		0.64	0.46	1.00
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0		7.0	7.0		7.0	7.0	
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)	423	459	365	101	119		386	1684		361	1632	1625
v/s Ratio Prot	c0.07	0.02			0.03		0.04	c0.40		0.07	0.31	
v/s Ratio Perm			0.01	0.00			0.10			0.18		c0.36
v/c Ratio	0.55	0.08	0.04	0.01	0.31		0.21	0.85		0.38	0.67	0.36
Uniform Delay, d1	44.4	31.2	30.9	46.4	47.6		10.8	26.2		16.8	23.0	0.0
Progression Factor	0.75	0.71	0.35	1.00	1.00		1.00	1.00		1.68	0.74	1.00
Incremental Delay, d2	1.5	0.1	0.0	0.0	1.5		1.2	5.7		2.1	1.6	0.4
Delay (s)	34.6	22.3	11.0	46.4	49.1		12.1	31.9		30.2	18.7	0.4
Level of Service	C	C	B	D	D		B	C		C	B	A
Approach Delay (s)		29.3			49.1			30.8			13.7	
Approach LOS		C			D			C			B	

Intersection Summary	
HCM Average Control Delay	23.7
HCM Volume to Capacity ratio	0.63
Actuated Cycle Length (s)	110.0
Sum of lost time (s)	8.0
Intersection Capacity Utilization	69.6%
ICU Level of Service	C
Analysis Period (min)	15

c Critical Lane Group





Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↖↗	↑	↖	↖	↖	↖	↖↗	↖	↖↗	↖
Volume (vph)	183	28	43	1	15	70	1229	131	1056	558
Lane Group Flow (vph)	232	35	54	1	220	81	1437	136	1100	581
Turn Type	Prot		Perm	Perm		pm/pt		pm/pt		Free
Protected Phases	7	4			8	5	2	1	6	
Permitted Phases			4	8	8	2		6		Free
Detector Phases	7	4	4	8	8	5	2	1	6	
Minimum Initial (s)	3.0	3.0	3.0	3.0	3.0	3.0	7.0	3.0	7.0	
Minimum Split (s)	9.0	9.0	9.0	9.0	9.0	10.0	14.0	10.0	14.0	
Total Split (s)	21.0	35.0	35.0	14.0	14.0	20.0	55.0	20.0	55.0	0.0
Total Split (%)	19.1%	31.8%	31.8%	12.7%	12.7%	18.2%	50.0%	18.2%	50.0%	0.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lead/Lag	Lead			Lag	Lag	Lead	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes			Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	None	None	Max C	Max C	Max C	Max C	
v/c Ratio	0.55	0.08	0.13	0.01	0.73	0.21	0.85	0.38	0.67	0.36
Control Delay	36.4	21.5	3.5	46.0	22.3	8.3	32.4	27.4	19.0	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.4	21.5	3.5	46.0	22.3	8.3	32.4	27.4	19.0	0.4
Queue Length 50th (ft)	48	12	1	1	14	18	460	41	307	0
Queue Length 95th (ft)	61	23	4	5	41	36	519	88	270	0
Internal Link Dist (ft)		940			1800		1544		620	
Turn Bay Length (ft)	475			205			100		400	
Base Capacity (vph)	483	510	445	113	313	385	1684	360	1632	1625
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.48	0.07	0.12	0.01	0.70	0.21	0.85	0.38	0.67	0.36

**Intersection Summary**

Cycle Length: 110

Actuated Cycle Length: 110

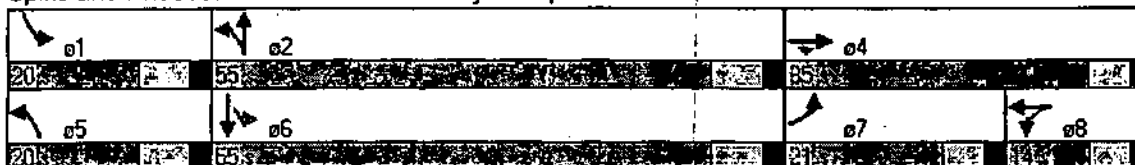
Offset: 4 (4%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow

Natural Cycle: 65

Control Type: Actuated-Coordinated

m: Volume for 95th percentile queue is metered by upstream signal

Splits and Phases: 11: American Pkwy & Airport Road

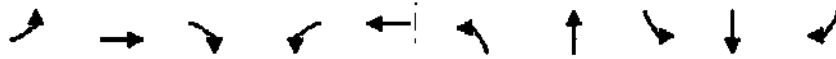




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↑	↖	↖	↖	↖	↖	↖↗	↖	↖	↖↗	↖
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	14	12	12	12	12	12	16	16	12	13	14
Grade (%)		2%			1%			1%			0%	
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.95	1.00
Friction	1.00	1.00	0.85	1.00	0.86		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3123	1808	1440	1604	1459		1604	3632		1703	3519	1625
Flt Permitted	0.95	1.00	1.00	0.73	1.00		0.14	1.00		0.08	1.00	1.00
Satd. Flow (perm)	3123	1808	1440	1239	1459		232	3632		141	3519	1625
Volume (vph)	201	28	43	1	15	143	73	1229	7	131	1056	726
Peak-hour factor, PHF	0.79	0.79	0.79	0.72	0.72	0.72	0.86	0.86	0.86	0.96	0.96	0.96
Adj. Flow (vph)	254	35	54	1	21	199	85	1429	8	136	1100	756
RTOR Reduction (vph)	0	0	40	0	183	0	0	1	0	0	0	0
Lane Group Flow (vph)	254	35	14	1	37	0	85	1436	0	136	1100	756
Heavy Vehicles (%)	11%	11%	11%	12%	12%	12%	12%	12%	12%	6%	6%	6%
Turn Type	Prot		Perm	Perm			pm+pt			pm+pt		Free
Protected Phases	7	4					5	2		1	6	
Permitted Phases			4	8			2			6		Free
Actuated Green, G (s)	13.3	26.4	26.4	7.1	7.1		63.6	48.0		63.6	48.0	110.0
Effective Green, g (s)	15.3	28.4	28.4	9.1	9.1		69.6	51.0		69.6	51.0	110.0
Actuated g/C Ratio	0.14	0.26	0.26	0.08	0.08		0.63	0.46		0.63	0.46	1.00
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0		7.0	7.0		7.0	7.0	
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)	434	467	372	102	121		379	1684		353	1632	1625
v/s Ratio Prot	0.08	0.02			0.03		0.04	0.40		0.07	0.31	
v/s Ratio Perm			0.01	0.00			0.10			0.18		0.47
v/c Ratio	0.59	0.07	0.04	0.01	0.31		0.22	0.85		0.39	0.67	0.47
Uniform Delay, d1	44.4	30.9	30.6	46.3	47.5		11.1	26.2		17.0	23.0	0.0
Progression Factor	0.74	0.69	0.32	1.00	1.00		1.00	1.00		1.64	0.76	1.00
Incremental Delay, d2	2.0	0.1	0.0	0.0	1.5		1.4	5.7		1.9	1.4	0.6
Delay (s)	34.7	21.4	9.7	46.4	49.0		12.4	31.9		29.7	18.8	0.6
Level of Service	C	C	A	D	D		B	C		C	B	A
Approach Delay (s)		29.4			48.9			30.8			12.6	
Approach LOS		C			D			C			B	

Intersection Summary	
HCM Average Control Delay	22.8
HCM Volume to Capacity ratio	0.65
Actuated Cycle Length (s)	110.0
Intersection Capacity Utilization	70.1%
Analysis Period (min)	15
HCM Level of Service	C
Sum of lost time (s)	4.0
ICU Level of Service	C

c Critical Lane Group

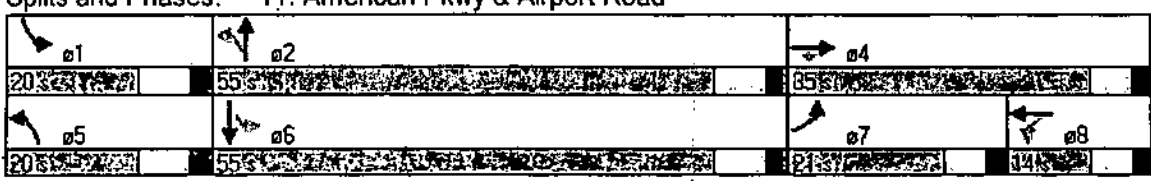


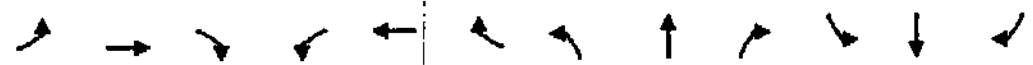
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↖↗	↑	↗	↖	↑	↖	↖↗	↖	↖↗	↗
Volume (vph)	201	28	43	1	15	73	1229	131	1056	726
Lane Group Flow (vph)	254	35	54	1	220	85	1437	136	1100	756
Turn Type	Prot		Perm	Perm		pm+pl	pm+pl	pm+pl		Free
Protected Phases	7	4			8	5	2	1	6	
Permitted Phases			4	8		2		6		Free
Detector Phases	7	4	4	8	8	5	2	1	6	
Minimum Initial (s)	3.0	3.0	3.0	3.0	3.0	3.0	7.0	3.0	7.0	
Minimum Split (s)	9.0	9.0	9.0	9.0	9.0	10.0	14.0	10.0	14.0	
Total Split (s)	21.0	35.0	35.0	14.0	14.0	20.0	55.0	20.0	55.0	0.0
Total Split (%)	19.1%	31.8%	31.8%	12.7%	12.7%	18.2%	50.0%	18.2%	50.0%	0.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lead/Lag	Lead			Lag	Lag	Lead	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes			Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	None	None	Max C-Max	Max C-Max	Max C-Max		
v/c Ratio	0.58	0.08	0.13	0.01	0.73	0.22	0.85	0.38	0.67	0.47
Control Delay	38.2	20.9	3.3	46.0	24.1	8.5	32.4	26.8	19.1	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.2	20.9	3.3	46.0	24.1	8.5	32.4	26.8	19.1	0.6
Queue Length 50th (ft)	51	11	0	1	14	20	460	43	272	0
Queue Length 95th (ft)	71	22	4	5	41	37	519	77	304	0
Internal Link Dist (ft)		940			1800		1544		620	
Turn Bay Length (ft)	475			205			100		400	
Base Capacity (vph)	483	510	445	113	313	379	1684	354	1632	1625
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.53	0.07	0.12	0.01	0.70	0.22	0.85	0.38	0.67	0.47

**Intersection Summary**

Cycle Length: 110  
 Actuated Cycle Length: 110  
 Offset: 4 (4%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow  
 Natural Cycle: 70  
 Control Type: Actuated-Coordinated  
 m. Volume for 95th percentile queue is metered by upstream signal

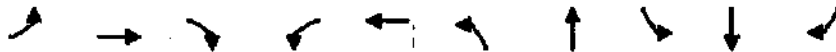
Splits and Phases: 11: American Pkwy & Airport Road





Movement	EBL	EB	EBR	WBL	WB	WBR	NBL	NB	NBR	SBL	SB	SBR
Lane Configurations	↖↗	↑	↗	↖	↑	↖	↖	↑	↗	↖	↑↑	↗
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	14	12	12	12	12	12	16	16	12	13	14
Grade (%)		2%			1%			1%			0%	
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.95	1.00
Fr't	1.00	1.00	0.85	1.00	0.89		1.00	1.00		1.00	1.00	0.85
Flt. Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3123	1808	1440	1604	1497		1604	3632		1703	3519	1625
Flt. Permitted	0.95	1.00	1.00	0.72	1.00		0.11	1.00		0.12	1.00	1.00
Satd. Flow (perm)	3123	1808	1440	1222	1497		188	3632		224	3519	1625
Volume (vph)	1098	40	201	1	47	143	189	1229	7	131	1056	945
Peak-hour factor, PHF	0.79	0.79	0.79	0.72	0.72	0.72	0.86	0.86	0.86	0.96	0.96	0.96
Adj. Flow (vph)	1390	51	254	1	65	199	220	1429	8	136	1100	984
RTOR Reduction (vph)	0	0	55	0	47	0	0	1	0	0	0	0
Lane Group Flow (vph)	1390	51	199	1	217	0	220	1436	0	136	1100	984
Heavy Vehicles (%)	11%	11%	11%	12%	12%	12%	12%	12%	12%	6%	6%	6%
Turn Type	Prot		Perm	Perm			pm+pt			pm+pt		Free
Protected Phases	7	4			8		5	2			1	6
Permitted Phases			4	8			2			6		Free
Actuated Green, G (s)	39.0	52.0	52.0	7.0	7.0		44.0	35.0		32.0	29.0	110.0
Effective Green, g (s)	41.0	54.0	54.0	9.0	9.0		48.0	38.0		38.0	32.0	110.0
Actuated g/C Ratio	0.37	0.49	0.49	0.08	0.08		0.44	0.35		0.35	0.29	1.00
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0		7.0	7.0		7.0	7.0	
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)	1164	888	707	100	122		237	1255		158	1024	1625
v/s Ratio Prot	c0.45	0.03					c0.10	c0.40		0.05	0.31	
v/s Ratio Perm			0.14	0.00			0.31			0.25		0.61
v/c Ratio	1.19	0.06	0.28	0.01	1.78		0.93	1.14		0.86	1.07	0.61
Uniform Delay, d1	34.5	14.7	16.5	46.4	50.5		50.6	36.0		53.4	39.0	0.0
Progression Factor	0.65	0.35	0.31	1.00	1.00		1.00	1.00		1.14	1.12	1.00
Incremental Delay, d2	94.0	0.0	0.2	0.0	382.0		42.5	74.9		26.7	43.9	0.9
Delay (s)	116.3	5.2	5.3	46.4	432.5		93.0	110.9		87.5	87.6	0.9
Level of Service	F	A	A	D	F		F	F		F	F	A
Approach Delay (s)		96.3			431.0			108.5			49.2	
Approach LOS		F			F			F			D	

Intersection Summary	
HCM Average Control Delay	97.0
HCM Volume to Capacity ratio	1.18
Actuated Cycle Length (s)	110.0
Intersection Capacity Utilization	97.4%
Analysis Period (min)	15
HCM Level of Service	F
Sum of lost time (s)	12.0
ICU Level of Service	F



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↖ ↗	↑	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗
Volume (vph)	1098	40	201	1	47	189	1229	131	1056	945
Lane Group Flow (vph)	1390	51	254	1	264	220	1437	136	1100	984
Turn Type	Prot		Perm	Perm		pm+pt	pm+pt	pm+pt		Free
Protected Phases	7	4				8	5	2	1	6
Permitted Phases			4	8		2		6		Free
Detector Phases	7	4	4	8	8	5	2	1	6	
Minimum Initial (s)	3.0	3.0	3.0	3.0	3.0	3.0	7.0	3.0	7.0	
Minimum Split (s)	9.0	9.0	9.0	9.0	9.0	10.0	14.0	10.0	14.0	
Total Split (s)	45.0	58.0	58.0	13.0	13.0	16.0	42.0	10.0	36.0	0.0
Total Split (%)	40.9%	52.7%	52.7%	11.8%	11.8%	14.5%	38.2%	9.1%	32.7%	0.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lead/Lag	Lead			Lag	Lag	Lead	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes			Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	None	None	Max C-Max	Max C-Max	Max C-Max	Max C-Max	
v/c Ratio	1.19	0.06	0.33	0.01	1.56	0.93	1.15	0.86	1.07	0.61
Control Delay	117.9	5.3	3.9	47.0	308.1	71.4	109.3	54.5	85.6	0.9
Queue Delay	0.0	0.0	0.0	0.0	30.2	0.0	393.8	0.0	0.0	0.0
Total Delay	117.9	5.3	3.9	47.0	338.2	71.4	503.0	54.5	85.6	0.9
Queue Length 50th (ft)	-617	7	6	1	-231	109	-630	57	-472	0
Queue Length 95th (ft)	#593	m13	22	5	#285	#238	#713	m#75	m#592	m0
Internal Link Dist (ft)		940			1800		1544		620	
Turn Bay Length (ft)	475			205				100		400
Base Capacity (vph)	1164	888	762	100	169	236	1255	158	1024	1625
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	7	0	545	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.19	0.06	0.33	0.01	1.63	0.93	2.02	0.86	1.07	0.61

**Intersection Summary**

Cycle Length: 110  
 Actuated Cycle Length: 110  
 Offset: 68 (62%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow  
 Natural Cycle: 130  
 Control Type: Actuated-Coordinated  
 Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.

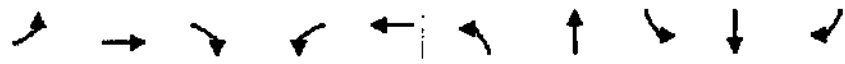
**Splits and Phases: 11: American Pkwy & Airport Road**

↖ e1	↗ e2	→ e4
10s	42s	58s
↖ e5	↓ e6	↗ e7
16s	36s	45s
		↖ e8
		13s



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SEB	SEBT	SBR
Lane Configurations	↖↗	↑	↖	↖	↖	↖	↖	↖	↖	↖	↖↗	↖
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	14	12	12	12	12	12	12	16	16	12	13
Grade (%)		2%			1%			1%				0%
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.89		1.00	1.00		1.00	1.00	0.85
Flt/Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3123	1808	1440	1604	1504		1604	3632		1703	3519	1625
Flt/Permitted	0.95	1.00	1.00	0.72	1.00		0.11	1.00		0.12	1.00	1.00
Satd. Flow (perm)	3123	1808	1440	1221	1504		188	3632		224	3519	1625
Volume (vph)	1112	41	203	1	54	149	216	1229	7	134	1056	1082
Peak-hour factor, PHF	0.79	0.79	0.79	0.72	0.72	0.72	0.86	0.86	0.86	0.96	0.96	0.96
Adj. Flow (vph)	1408	52	257	1	75	199	251	1429	8	136	1100	1127
RTOR Reduction (vph)	0	0	55	0	47	0	0	1	0	0	0	0
Lane Group Flow (vph)	1408	52	202	1	227	0	251	1436	0	136	1100	1127
Heavy Vehicles (%)	11%	11%	11%	12%	12%	12%	12%	12%	12%	6%	6%	6%
Turn Type	Prot		Perm	Perm			pm-pl			pm-pl		Free
Protected Phases	7	4					8	5	2		1	6
Permitted Phases			4	8			2				6	Free
Actuated Green, G (s)	39.0	52.0	52.0	7.0	7.0		44.0	35.0		32.0	29.0	110.0
Effective Green, G (s)	41.0	54.0	54.0	9.0	9.0		48.0	38.0		38.0	32.0	110.0
Actuated g/C Ratio	0.37	0.49	0.49	0.08	0.08		0.44	0.35		0.35	0.29	1.00
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0		7.0	7.0		7.0	7.0	
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)	1164	888	707	100	123		237	1255		158	1024	1625
v/s Ratio Prot	c0.45	0.03			c0.15		c0.12	c0.40		0.05	0.31	
v/s Ratio Perm			0.14	0.00			0.35			0.25		0.69
v/c Ratio	1.21	0.06	0.29	0.01	1.85		1.06	1.14		0.86	1.07	0.69
Uniform Delay, d1	34.5	14.7	16.6	46.4	50.5		51.2	36.0		53.4	39.0	0.0
Progression Factor	0.61	0.35	0.24	1.00	1.00		1.00	1.00		1.10	1.08	1.00
Incremental Delay, d2	100.5	0.0	0.2	0.0	410.7		74.9	74.9		23.7	42.7	1.2
Delay (s)	121.4	5.2	4.1	46.4	461.2		126.1	110.9		82.7	84.7	1.2
Level of Service	F	A	A	D	F		F	F		F	F	A
Approach Delay (s)		100.3			459.7			113.2			44.7	
Approach LOS		F			F			F			F	D

Intersection Summary	
HCM Average Control Delay	98.5
HCM Volume to Capacity ratio	1.21
Actuated Cycle Length (s)	110.0
Intersection Capacity Utilization	98.1%
Analysis Period (min)	15
HCM Level of Service	F
Sum of lost time (s)	12.0
ICU Level of Service	F



Lane Group	EBL	EBT	EBR	WBL	WBT	WBL	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↖↗	↑	↗	↖	↖	↖	↖	↖↗	↖	↖↗	↖
Volume (vph)	1112	41	203	1	54	216	1229	131	1056	1082	
Lane Group Flow (vph)	1408	52	257	1	274	251	1437	136	1100	1127	
Turn Type	Prot		Perm	Perm		pm+pt	pm+pt		pm+pt		Free
Protected Phases	7	4				8	5	2	1	6	
Permitted Phases			4	8		2		6			Free
Detector Phases	7	4	4	8	8	5	2	1	6		
Minimum Initial (s)	3.0	3.0	3.0	3.0	3.0	3.0	7.0	3.0	7.0		
Minimum Split (s)	9.0	9.0	9.0	9.0	9.0	10.0	14.0	10.0	14.0		
Total Split (s)	45.0	58.0	58.0	13.0	13.0	16.0	42.0	10.0	36.0	0.0	
Total Split (%)	40.9%	52.7%	52.7%	11.8%	11.8%	14.5%	38.2%	9.1%	32.7%	0.0%	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0		
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		
Lead/Lag	Lead			Lag	Lag	Lead	Lag	Lead	Lag		
Lead-Lag Optimize?	Yes			Yes	Yes	Yes	Yes	Yes	Yes		
Recall Mode	None	None	None	None	None	Max C	Max	Max	C	Max	
v/c Ratio	1.21	0.06	0.34	0.01	1.61	1.06	1.15	0.86	1.07	0.69	
Control Delay	423.5	5.4	3.2	47.0	328.6	105.2	109.3	50.9	83.1	1.2	
Queue Delay	0.0	0.0	0.0	0.0	35.6	0.0	416.1	0.0	0.0	0.0	
Total Delay	423.5	5.4	3.2	47.0	364.2	105.2	525.4	50.9	83.1	1.2	
Queue Length 50th (ft)	-613	8	7	1	-246	-149	-630	54	-472	0	
Queue Length 95th (ft)	#605	m17	44	5	#300	#289	#713	m60	m577	m0	
Internal Link Dist (ft)		940			1800		1544		620		
Turn Bay Length (ft)	475			205				100		400	
Base Capacity (vph)	1164	888	762	100	170	236	1255	158	1024	1625	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	8	0	562	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	1.21	0.06	0.34	0.01	1.69	1.06	2.07	0.86	1.07	0.69	

**Intersection Summary**

Cycle Length: 110  
 Actuated Cycle Length: 110  
 Offset: 68 (62%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow  
 Natural Cycle: 150  
 Control Type: Actuated-Coordinated  
 - Volume exceeds capacity, queue is theoretically infinite  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal

**Splits and Phases: 11: American Pkwy & Airport Road**

↖	↗	→	
10s	42s	58s	
↖	↘	↗	↖
16s	36s	45s	16s



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	→	↙	↘	→	↙	↘	→	↙	↘	→	↙
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	14	12	12	12	12	12	16	16	12	13	14
Grade (%)		2%			1%			1%			0%	
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	1.00		1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.92		1.00	0.87		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3399	1805		1761	1607		1761	3983		1770	3657	1689
Flt Permitted	0.95	1.00		0.70	1.00		0.12	1.00		0.12	1.00	1.00
Satd. Flow (perm)	3399	1805		1302	1607		230	3983		226	3657	1689
Volume (vph)	1409	135	42	76	21	167	54	882		12	131	825
Peak-hour factor, PHF	0.91	0.91	0.91	0.85	0.85	0.85	0.93	0.93		0.93	0.95	0.95
Adj. Flow (vph)	149	38	46	75	25	196	58	948		13	138	868
RTOR Reduction (vph)	0	31	0	0	175	0	0	1		0	0	0
Lane Group Flow (vph)	149	53	0	46	0	58	960	0		138	868	176
Turn Type	Prot			Perm			pm+pt			pm+pt		Free
Protected Phases	7	4		8			5	2		1		6
Permitted Phases				8			2			6		Free
Actuated Green, G (s)	17.2	32.2		9.0	9.0		52.8	30.0		52.8	30.0	105.0
Effective Green, g (s)	19.2	34.2		11.0	11.0		58.8	33.0		58.8	33.0	105.0
Actuated g/C Ratio	0.18	0.33		0.10	0.10		0.56	0.31		0.56	0.31	1.00
Clearance Time (s)	6.0	6.0		6.0	6.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	622	588		136	168		505	1252		506	1149	1689
v/s Ratio Prot	0.13	0.03			0.03		0.03	0.24		0.07	0.24	
v/s Ratio Perm				0.01			0.04			0.09		0.10
v/c Ratio	0.72	0.09		0.05	0.27		0.11	0.77		0.27	0.76	0.10
Uniform Delay, d1	40.4	24.6		42.3	43.3		12.7	32.5		14.3	32.4	0.0
Progression Factor	0.79	0.76		1.00	1.00		1.00	1.00		0.98	1.15	1.00
Incremental Delay, d2	4.1	0.1		0.2	0.9		0.5	4.5		1.2	4.2	0.1
Delay (s)	36.1	18.9		42.5	44.2		13.2	37.1		15.2	41.3	0.1
Level of Service	D	B		D	D		B	D		B	D	A
Approach Delay (s)		33.4			44.1			35.7			32.1	
Approach LOS		C			D			D			C	

Intersection Summary		
HCM Average Control Delay	34.5	HCM Level of Service C
HCM Volume to Capacity Ratio	0.55	
Actuated Cycle Length (s)	105.0	Sum of lost time (s) 16.0
Intersection Capacity Utilization	68.4%	ICU Level of Service C
Analysis Period (min)	15	
Critical Lane Group		

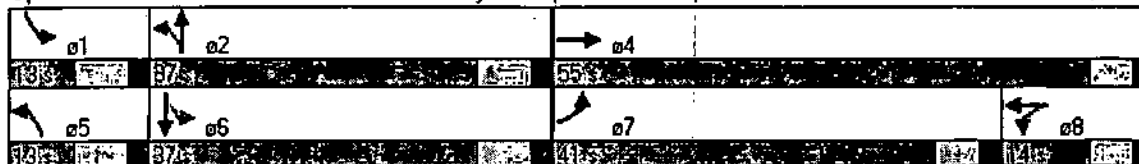




Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↖ ↗	↖	↖	↖	↖	↕	↖	↕	↖
Volume (vph)	409	35	6	21	54	882	131	825	167
Lane Group Flow (vph)	449	84	7	221	58	961	138	868	176
Turn Type	Prot		Perm		pm:pt		pm:pt		Free
Protected Phases	7	4		8	5	2	1	6	
Permitted Phases			8		2		6		Free
Detector Phases	7	4	8	8	5	2	1	6	
Minimum Initial (s)	3.0	3.0	3.0	3.0	3.0	7.0	3.0	7.0	
Minimum Split (s)	9.0	9.0	9.0	9.0	10.0	14.0	10.0	14.0	
Total Split (s)	41.0	55.0	14.0	14.0	13.0	37.0	13.0	37.0	0.0
Total Split (%)	39.0%	52.4%	13.3%	13.3%	12.4%	35.2%	12.4%	35.2%	0.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lead/Lag	Lead		Lag	Lag	Lead	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes		Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	None	Max C	Max	Max C	Max	
v/c Ratio	0.72	0.14	0.05	0.64	0.12	0.77	0.27	0.76	0.10
Control Delay	32.7	8.6	39.7	16.3	11.9	37.4	13.5	41.7	0.1
Queue Delay	0.2	0.0	0.0	3.7	0.0	0.0	0.0	0.0	0.0
Total Delay	32.8	8.6	39.7	20.0	11.9	37.4	13.5	41.7	0.1
Queue Length 50th (ft)	153	26	4	16	14	305	48	302	0
Queue Length 95th (ft)	198	58	16	69	42	382	110	376	0
Internal Link Dist (ft)		940		1800		1544		620	
Turn Bay Length (ft)	475		205			100		400	
Base Capacity (vph)	1198	901	151	359	504	1252	505	1149	1689
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	214	0	0	73	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.46	0.09	0.05	0.77	0.12	0.77	0.27	0.76	0.10

**Intersection Summary**  
 Cycle Length: 105  
 Actuated Cycle Length: 105  
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated  
 m: Volume for 95th percentile queue is metered by upstream signal.

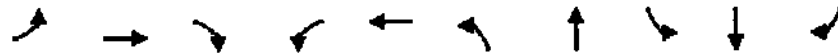
Splits and Phases: 11: American Pkwy & Airport Road





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↑	↖	↖	↑	↖	↖	↑	↖	↖	↑	↖
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	14	12	12	12	12	12	16	16	12	13	14
Grade (%)		2%			1%			1%				0%
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.87		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3399	1967	1567	1761	1606		1761	3984		1770	3657	1689
Flt Permitted	0.95	1.00	1.00	0.73	1.00		0.11	1.00		0.11	1.00	1.00
Satd. Flow (perm)	3399	1967	1567	1354	1606		200	3984		201	3657	1689
Volume (vph)	432	374	44	6	22	176	57	1169	13	138	126	176
Peak-hour factor, PHF	0.91	0.91	0.91	0.85	0.85	0.85	0.93	0.93	0.93	0.95	0.95	0.95
Adj. Flow (vph)	475	411	48	7	26	207	61	1257	14	145	135	185
RTOR Reduction (vph)	0	0	29	0	155	0	0	1	0	0	0	0
Lane Group Flow (vph)	475	411	19	7	78	0	61	1270	0	145	1185	185
Turn Type	Prot		Perm	Perm			pm+pt			pm+pt		Free
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases			4	8			2			6		Free
Actuated Green, G (s)	26.2	39.9	39.9	7.7	7.7		45.1	34.0		45.1	34.0	105.0
Effective Green, g (s)	28.2	41.9	41.9	9.7	9.7		51.1	37.0		51.1	37.0	105.0
Actuated g/C Ratio	0.27	0.40	0.40	0.09	0.09		0.49	0.35		0.49	0.35	1.00
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0		7.0	7.0		7.0	7.0	
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)	913	785	625	125	148		307	1404		309	1289	1689
v/s Ratio Prot	0.14	0.02			0.05		0.03	0.32		0.06	0.32	
v/s Ratio Perm			0.01	0.01			0.07			0.17		0.11
v/c Ratio	0.52	0.05	0.03	0.06	0.53		0.20	0.90		0.47	0.92	0.11
Uniform Delay, d1	32.6	19.4	19.2	43.5	45.5		19.4	32.3		21.4	32.6	0.0
Progression Factor	0.69	0.68	0.32	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.5	0.0	0.0	0.2	3.3		1.4	9.9		5.0	12.0	0.1
Delay (s)	22.9	13.3	6.2	43.7	48.8		20.9	42.2		26.5	44.5	0.1
Level of Service	C	B	A	D	D		C	D		C	D	A
Approach Delay (s)		20.8			48.6			41.2			37.4	
Approach LOS		C			D			D			D	

Intersection Summary			
HCM Average Control Delay	37.0	HCM Level of Service	D
HCM Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	78.1%	ICU Level of Service	D
Analysis Period (min)	15		
Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↖↗	↑	↖	↖	↑	↖	↖↗	↖	↖↗	↖
Volume (vph)	432	37	44	6	22	57	1169	138	1126	176
Lane Group Flow (vph)	475	41	48	7	233	61	1271	145	1185	185
Turn Type	Prot		Perm	Perm		pm-pt		pm-pt		Free
Protected Phases	7	4			8	5	2	1	6	
Permitted Phases	7		4	8		2		6		Free
Detector Phases	7	4	4	8	8	5	2	1	6	
Minimum Initial (s)	3.0	3.0	3.0	3.0	3.0	3.0	7.0	3.0	7.0	
Minimum Split (s)	9.0	9.0	9.0	9.0	9.0	10.0	14.0	10.0	14.0	
Total Split (s)	36.0	50.0	50.0	14.0	14.0	14.0	41.0	14.0	41.0	0.0
Total Split (%)	34.3%	47.6%	47.6%	13.3%	13.3%	13.3%	39.0%	13.3%	39.0%	0.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lead/Lag	Lead			Lag	Lag	Lead	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes			Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	None	None	Max-C	Max-C	Max-C	Max-C	
v/c Ratio	0.52	0.05	0.07	0.06	0.77	0.20	0.91	0.47	0.92	0.11
Control Delay	23.4	12.0	1.8	44.3	30.2	15.9	42.8	22.5	45.1	0.1
Queue Delay	0.6	0.0	0.0	0.0	8.1	0.0	0.2	0.0	0.0	0.0
Total Delay	24.0	12.0	1.8	44.3	38.4	15.9	43.0	22.5	45.1	0.1
Queue Length 50th (ft)	79	10	1	4	39	21	422	53	397	0
Queue Length 95th (ft)	102	22	2	17	125	44	555	108	532	0
Internal Link Dist (ft)		940			1800		1544		620	
Turn Bay Length (ft)	475			205			100		400	
Base Capacity (vph)	1036	862	714	132	311	307	1404	308	1289	1689
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	250	0	0	0	49	0	9	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.60	0.05	0.07	0.05	0.89	0.20	0.91	0.47	0.92	0.11

**Intersection Summary:**  
 Cycle Length: 105  
 Actuated Cycle Length: 105  
 Offset: 77 (73%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated  
 #1: 95th percentile volume exceeds capacity; queue may be longer.  
 Queue shown is maximum after two cycles.

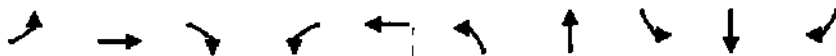
Splits and Phases: 11: American Pkwy & Airport Road





Movement	EB1	EB2	EB3	WB1	WB2	WB3	NB1	NB2	NB3	SB1	SB2	SB3
Lane Configurations	↖↗	↑	↗	↖	↑		↖	↑↑		↖	↑↑	↗
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	14	12	12	12	12	12	16	16	12	13	14
Grade (%)		2%			1%			-1%			0%	
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.95	1.00
Friction	1.00	1.00	0.85	1.00	0.87		1.00	1.00		1.00	1.00	0.85
Flt. Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3399	1967	1567	1761	1606		1761	3984		1770	3657	1689
Flt. Permitted	0.95	1.00	1.00	0.73	1.00		0.11	1.00		0.11	1.00	1.00
Satd. Flow (perm)	3399	1967	1567	1354	1606		200	3984		201	3657	1689
Volume (vph)	658	37	44	76	22	176	66	1169	13	138	1126	598
Peak-hour factor, PHF	0.91	0.91	0.91	0.85	0.85	0.85	0.93	0.93	0.93	0.95	0.95	0.95
Adj. Flow (vph)	723	41	48	77	26	207	71	1257	14	145	1185	629
RTOR Reduction (vph)	0	0	27	0	118	0	0	1	0	0	0	0
Lane Group Flow (vph)	723	41	21	7	15	0	71	1270	0	145	1185	629
Turn Type	Prot	Perm	Perm				pm+pt			pm+pt		Free
Protected Phases	7	4		4	8		5	2		1	6	
Permitted Phases			4	8			2			6		Free
Actuated Green, G (s)	30.0	43.9	43.9	7.9	7.9		41.1	34.0		41.1	34.0	105.0
Effective Green, g (s)	32.0	45.9	45.9	9.9	9.9		47.1	37.0		47.1	37.0	105.0
Actuated g/C Ratio	0.30	0.44	0.44	0.09	0.09		0.45	0.35		0.45	0.35	1.00
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0		7.0	7.0		7.0	7.0	
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)	1036	860	685	128	151		240	1404		241	1289	1689
v/s Ratio Prot	0.21	0.02			0.07		0.03	0.32		0.06	0.32	
v/s Ratio Perm			0.01	0.01			0.10			0.21		0.37
v/c Ratio	0.70	0.05	0.03	0.05	0.76		0.30	0.90		0.60	0.92	0.37
Uniform Delay, d1	32.2	17.0	16.9	43.3	46.4		21.8	32.3		23.7	32.6	0.0
Progression Factor	0.60	0.61	0.19	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.9	0.0	0.0	0.2	20.2		3.1	9.9		10.6	12.0	0.6
Delay (s)	21.4	10.3	3.2	43.5	66.6		24.9	42.2		34.4	44.5	0.6
Level of Service	C	B	A	D	E		C	D		C	D	A
Approach Delay (s)		19.7			65.9			41.3			29.7	
Approach LOS		B			E			D			C	

Intersection Summary	
HCM Average Control Delay	33.4
HCM Level of Service	C
HCM Volume to Capacity ratio	0.79
Actuated Cycle Length (s)	105.0
Sum of lost time (s)	16.0
Intersection Capacity Utilization	84.5%
ICU Level of Service	E
Analysis Period (min)	15
Critical Lane Group	



Lane Group	EBL	EBT	EBRT	WBL	WBT	WBTL	SBL	SBT	SBR
Lane Configurations	↖↗	↑	↖	↖	↖	↖	↖↗	↖	↖
Volume (vph)	658	37	44	6	22	66	1169	138	598
Lane Group Flow (vph)	723	41	48	7	233	71	1271	145	629
Turn Type	Prot		Perm	Perm		pm+pt	pm+pt		Free
Protected Phases	7	4				8	5	2	6
Permitted Phases			4	8	1	2		6	Free
Detector Phases	7	4	4	8	8	5	2	1	6
Minimum Initial (s)	3.0	3.0	3.0	3.0	3.0	3.0	7.0	3.0	7.0
Minimum Split (s)	9.0	9.0	9.0	9.0	9.0	10.0	14.0	10.0	14.0
Total Split (s)	36.0	50.0	50.0	14.0	14.0	14.0	41.0	14.0	41.0
Total Split (%)	34.3%	47.6%	47.6%	13.3%	13.3%	13.3%	39.0%	13.3%	39.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead			Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes			Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max C-Max	Max C-Max	Max C-Max	Max C-Max
v/c Ratio	0.70	0.05	0.07	0.05	0.86	0.30	0.91	0.60	0.92
Control Delay	23.3	10.5	11	44.5	51.0	18.0	42.8	28.9	45.1
Queue Delay	12.5	0.0	0.0	0.0	48.1	0.0	1.3	0.0	0.0
Total Delay	35.8	10.5	11	44.5	99.1	18.0	44.1	28.9	45.1
Queue Length 50th (ft)	106	8	0	4	68	25	422	53	397
Queue Length 95th (ft)	130	18	3	17	179	50	555	108	532
Internal Link Dist (ft)		940			1800		1544		620
Turn Bay Length (ft)	475			205			100		400
Base Capacity (vph)	1036	862	714	129	271	240	1404	241	1289
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	297	0	0	0	56	0	40	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.98	0.05	0.07	0.05	1.08	0.30	0.93	0.60	0.92

Intersection Summary

Cycle Length: 105

Actuated Cycle Length: 105

Offset: 77 (73%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 75

Control Type: Actuated-Coordinated

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

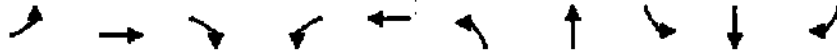
Splits and Phases: 11: American Pkwy & Airport Road

↖	↖↗	→
14%	41%	50%
↖	↖↗	↖
14%	41%	36%



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↑	↖	↖	↖	↖	↖	↖	↖	↖	↖	↖
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	14	12	12	12	12	12	16	16	12	13	14
Grade (%)		2%			1%			1%			0%	
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.87	1.00	1.00	1.00	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	3399	1967	1567	1761	1606	1761	3984	1770	3657	1689	1689	1689
Flt Permitted	0.95	1.00	1.00	0.73	1.00	0.11	1.00	0.11	1.00	1.00	1.00	1.00
Satd. Flow (perm)	3399	1967	1567	1354	1606	200	3984	201	3657	1689	1689	1689
Volume (vph)	658	37	49	6	22	176	66	169	13	138	1126	1783
Peak-hour factor, PHF	0.91	0.91	0.91	0.85	0.85	0.85	0.93	0.93	0.93	0.95	0.95	0.95
Adj. Flow (vph)	723	41	54	7	26	207	71	1257	14	145	1185	1877
RTOR Reduction (vph)	0	0	30	0	118	0	0	1	0	0	0	0
Lane Group Flow (vph)	723	41	24	7	115	0	71	1270	0	145	1185	1877
Turn Type	Prot		Perm	Perm		pm+pt		pm+pt		Free		
Protected Phases	7	4			8	5	12			6		
Permitted Phases			4	8		2		6				
Actuated Green, G (s)	30.0	43.9	43.9	7.9	7.9	41.1	34.0	41.1	34.0	105.0		
Effective Green, g (s)	32.0	45.9	45.9	9.9	9.9	47.1	37.0	47.1	37.0	105.0		
Actuated g/C Ratio	0.30	0.44	0.44	0.09	0.09	0.45	0.35	0.45	0.35	1.00		
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	7.0	7.0	7.0	7.0	7.0		
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)	1036	860	685	128	151	240	1404	241	1289	1689		
v/s Ratio Prot	0.21	0.02			0.07	0.03	0.32	0.06	0.32			
v/s Ratio Perm			0.02	0.01		0.10		0.21		c1.11		
w/c Ratio	0.70	0.05	0.03	0.05	0.76	0.30	0.90	0.60	0.92	1.11		
Uniform Delay, d1	32.2	17.0	16.9	43.3	46.4	21.8	32.3	23.7	32.6	52.5		
Progression Factor	0.59	0.58	0.14	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Incremental Delay, d2	1.9	0.0	0.0	0.2	20.2	3.1	9.9	10.6	12.0	59.1		
Delay (s)	20.9	9.9	2.3	43.5	66.6	24.9	42.2	34.4	44.5	111.6		
Level of Service	C	A	A	D	E	C	D	C	D	F		
Approach Delay (s)		19.1			65.9		41.3		83.3			
Approach LOS		B			E		D		F			

Intersection Summary	
HCM Average Control Delay	63.2
HCM Volume to Capacity ratio	1.11
Actuated Cycle Length (s)	105.0
Intersection Capacity Utilization	84.5%
Analysis Period (min)	15
HCM Level of Service	E
Sum of lost time (s)	0.0
ICU Level of Service	E
c Critical Lane Group	



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↖↗	↑	↗	↖	↑	↖	↗	↖	↑	↗
Volume (vph)	658	37	49	6	22	66	1169	438	1126	1783
Lane Group Flow (vph)	723	41	54	7	233	71	1271	145	1185	1877
Turn Type	Prot		Perm	Perm		pm+pt	pm+pt			Free
Protected Phases	7	4			8	5	2	1	6	
Permitted Phases			4	8		2		6		Free
Detector Phases	7	4	4	8	8	5	2	1	6	
Minimum Initial (s)	3.0	3.0	3.0	3.0	3.0	3.0	7.0	3.0	7.0	
Minimum Split (s)	9.0	9.0	9.0	9.0	9.0	10.0	14.0	10.0	14.0	
Total Split (s)	36.0	50.0	50.0	14.0	14.0	14.0	41.0	14.0	41.0	0.0
Total Split (%)	34.3%	47.6%	47.6%	13.3%	13.3%	13.3%	39.0%	13.3%	39.0%	0.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lead/Lag	Lead			Lag	Lag	Lead	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes			Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	None	None	Max C	Max	Max	C	Max
v/c Ratio	0.70	0.05	0.08	0.05	0.86	0.30	0.91	0.60	0.92	1.11
Control Delay	22.8	10.0	10.9	44.5	51.0	18.0	42.8	28.9	45.1	65.3
Queue Delay	14.6	0.0	0.0	0.0	49.9	0.0	0.5	0.0	0.0	0.0
Total Delay	37.5	10.0	10.9	44.5	101.0	18.0	43.2	28.9	45.1	65.3
Queue Length 50th (ft)	102	8	0	4	68	25	422	53	397	-264
Queue Length 95th (ft)	126	17	2	17	#179	50	#555	108	#532	#528
Internal Link Dist (ft)		940			1800		1544		620	
Turn Bay Length (ft)	475			205			100		400	
Base Capacity (vph)	1036	862	717	129	271	240	1404	241	1289	1689
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	305	0	0	0	57	0	17	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.99	0.05	0.08	0.05	1.09	0.30	0.92	0.60	0.92	1.11

**Intersection Summary**

Cycle Length: 105  
 Actuated Cycle Length: 105  
 Offset: 79 (75%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow  
 Natural Cycle: 75  
 Control Type: Actuated-Coordinated  
 \* Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # .95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

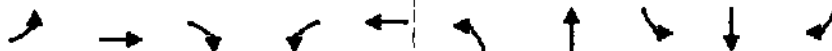
**Splits and Phases: 11: American Pkwy & Airport Road**

↖	↗	→
14%	41%	50%
↖	↘	↗
14%	41%	36%
		↖
		14%



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↖	↑	↗	↖	↗	↖	↖	↗	↖↖	↖	↗↗	↗
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	14	12	12	12	12	12	12	16	16	12	13
Grade (%)		2%				1%			1%			0%
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.87	1.00	1.00	1.00	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3399	1967	1567	1761	1606	1761	3985	1770	3657	1689	3657	1689
Flt Permitted	0.95	1.00	1.00	0.72	1.00	0.11	1.00	0.11	1.00	1.00	1.00	1.00
Satd. Flow (perm)	3399	1967	1567	1340	1606	200	3985	201	3657	1689	3657	1689
Volume (vph)	561	471	56	8	28	229	172	1447	16	180	1387	229
Peak-hour factor, PHF	0.91	0.91	0.91	0.85	0.85	0.85	0.93	0.93	0.93	0.95	0.95	0.95
Adj. Flow (vph)	616	52	62	9	33	269	77	1556	17	189	1460	241
RTOR Reduction (vph)	0	0	35	0	125	0	0	1	0	0	0	0
Lane Group Flow (vph)	616	52	27	9	177	0	77	1572	0	189	1460	241
Turn Type	Prot	Perm	Perm			pm+pt		pm+pt		pm+pt		Free
Protected Phases	7	4			8		5	2		1		16
Permitted Phases			4	8			2		6			Free
Actuated Green, G (s)	28.9	44.0	44.0	9.1	9.1		41.0	34.0		41.0	34.0	105.0
Effective Green, g (s)	30.9	46.0	46.0	11.1	11.1		47.0	37.0		47.0	37.0	105.0
Actuated g/C Ratio	0.29	0.44	0.44	0.11	0.11		0.45	0.35		0.45	0.35	1.00
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0		7.0	7.0		7.0	7.0	
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)	1000	862	686	142	170		238	1404		239	1289	1689
v/s Ratio Prot	0.18	0.03			0.11		0.03	0.39		0.08	0.40	
v/s Ratio Perm			0.02	0.01			0.11		0.28			0.14
v/c Ratio	0.62	0.06	0.04	0.06	1.04		0.32	1.12		0.79	1.13	0.14
Uniform Delay, d1	31.9	17.0	16.9	42.3	47.0		44.9	34.0		48.1	34.0	0.0
Progression Factor	0.64	0.65	0.21	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.1	0.0	0.0	0.2	80.0		3.6	64.0		22.9	69.9	0.2
Delay (s)	21.6	17.1	16.9	42.5	126.9		48.5	98.0		71.0	103.9	10.2
Level of Service	C	B	A	D	F		D	F		E	F	A
Approach Delay (s)		19.3			124.5			95.7			87.4	
Approach LOS		B			F			F			F	
<b>Intersection Summary</b>												
HCM Average Control Delay	82.1				HCM Level of Service				F			
HCM Volume to Capacity ratio	0.90											
Actuated Cycle Length (s)	105.0				Sum of lost time (s)				16.0			
Intersection Capacity Utilization	95.4%				ICU Level of Service				F			
Analysis Period (min)	15											
<b>Critical Lane Group</b>												





Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↖↗	↑	↖	↖	↖	↖	↖↗	↖	↖↗	↖
Volume (vph)	561	47	56	8	28	72	1447	180	1387	229
Lane Group Flow (vph)	616	52	62	9	302	77	1573	189	1460	241
Turn Type	Prot		Perm	Perm		pm+pl		pm+pl		Free
Protected Phases	7	4			8	5	2	1	6	
Permitted Phases			4	8		2		6		Free
Detector Phases	7	4	4	8	8	5	2	1	6	
Minimum Initial (s)	3.0	3.0	3.0	3.0	3.0	3.0	7.0	3.0	7.0	
Minimum Split (s)	9.0	9.0	9.0	9.0	9.0	10.0	14.0	10.0	14.0	
Total Split (s)	36.0	50.0	50.0	14.0	14.0	14.0	41.0	14.0	41.0	0.0
Total Split (%)	34.3%	47.6%	47.6%	13.3%	13.3%	13.3%	39.0%	13.3%	39.0%	0.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lead/Lag	Lead			Lag	Lag	Lead	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes			Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	None	None	Max C	Max	Max C	Max	
v/c Ratio	0.62	0.06	0.09	0.06	1.02	0.32	1.12	0.79	1.13	0.14
Control Delay	22.9	11.4	1.2	44.6	84.5	18.5	97.2	45.5	102.7	0.2
Queue Delay	34.6	0.0	0.0	0.0	139.7	0.0	19.9	0.0	0.0	0.0
Total Delay	57.5	11.4	1.2	44.6	224.2	18.5	117.1	45.5	102.7	0.2
Queue Length 50th (ft)	99	12	0	6	-136	27	-645	73	-602	0
Queue Length 95th (ft)	125	25	6	20	#275	53	#786	#187	#738	10
Internal Link Dist (ft)		940			1800		1544		620	
Turn Bay Length (ft)	475			205			100		400	
Base Capacity (vph)	1036	862	722	142	296	238	1404	239	1289	1689
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	450	0	0	0	75	0	55	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.05	0.06	0.09	0.06	1.37	0.32	1.17	0.79	1.13	0.14

Intersection Summary

Cycle Length: 105

Actuated Cycle Length: 105

Offset: 79 (75%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated

Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

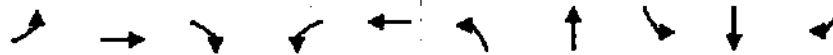
Splits and Phases: 11: American Pkwy & Airport Road

↖ e1	↖↗ e2	→ e4
↖ e5	↖↗ e6	↖ e7
		↖ e8



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑	↑	↑	↑	↑		↑	↑↑		↑	↑↑	↑
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	14	12	12	12	12	12	16	16	12	13	14
Grade (%)		2%			1%			1%			0%	
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.87		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3399	1967	1567	1761	1606		1761	3985		1770	3657	1689
Flt Permitted	0.95	1.00	1.00	0.72	1.00		0.71	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3399	1967	1567	1340	1606		200	3985		201	3657	1689
Volume (vph)	787	47	61	8	28	229	81	1447	16	180	1387	651
Peak-hour factor, PHF	0.91	0.91	0.91	0.85	0.85	0.85	0.93	0.93	0.93	0.95	0.95	0.95
Adj. Flow (vph)	865	52	67	9	33	269	87	1556	17	189	1460	685
RTOR Reduction (vph)	0	0	38	0	107	0	0	1	0	0	0	0
Lane Group Flow (vph)	865	52	29	9	195	0	87	1572	0	189	1460	685
Turn Type	Prot	Perm	Perm			pm+pt		pm+pt		Free		
Protected Phases	7	4		8		5		2		6		
Permitted Phases			4	8		2		6				
Actuated Green, G (s)	30.0	44.0	44.0	8.0	8.0	41.0	34.0	41.0	34.0	105.0		
Effective Green, g (s)	32.0	46.0	46.0	10.0	10.0	47.0	37.0	47.0	37.0	105.0		
Actuated g/C Ratio	0.30	0.44	0.44	0.10	0.10	0.45	0.35	0.45	0.35	1.00		
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	7.0	7.0	7.0	7.0			
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)	1036	862	686	128	153	238	1404	239	1289	1689		
v/s Ratio Prot	0.25	0.03		0.12		0.03	0.39	0.08	0.40			
v/s Ratio Perm			0.02	0.01		0.13		0.28		0.41		
v/c Ratio	0.83	0.06	0.04	0.07	1.28	0.37	1.12	0.79	1.13	0.41		
Uniform Delay, d1	34.0	17.0	16.9	43.3	47.5	45.2	34.0	48.1	34.0	0.0		
Progression Factor	0.60	0.58	0.10	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Incremental Delay, d2	5.3	0.0	0.0	0.2	165.1	4.3	64.0	22.9	69.9	0.7		
Delay (s)	25.7	9.9	1.8	43.5	232.6	49.5	98.0	71.0	103.9	0.7		
Level of Service	C	A	A	D	F	D	F	E	F	A		
Approach Delay (s)		23.2		207.7		95.5		70.9				
Approach LOS		C		F		F		E				

Intersection Summary	
HCM Average Control Delay	77.8
HCM Level of Service	E
HCM Volume to Capacity ratio	1.00
Actuated Cycle Length (s)	105.0
Sum of lost time (s)	16.0
Intersection Capacity Utilization	101.9%
ICU Level of Service	G
Analysis Period (min)	15
c Critical Lane Group	



Lane Group	EBL	EBT	EBR	WBL	WB	NBL	NB	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↗	↖	↗	↖	↗	↗
Volume (vph)	787	47	61	8	28	81	1447	180	1387	651
Lane Group Flow (vph)	865	52	67	9	302	87	1573	189	1460	685
Turn Type	Prot		Perm	Perm		pm+pt		pm+pt		Free
Protected Phases	7	4			8	5	2	1	6	
Permitted Phases			4	8		2		6		Free
Detector Phases	7	4	4	8	8	5	2	1	6	
Minimum Initial (s)	3.0	3.0	3.0	3.0	3.0	3.0	7.0	3.0	7.0	
Minimum Split (s)	9.0	9.0	9.0	9.0	9.0	10.0	14.0	10.0	14.0	
Total Split (s)	36.0	50.0	50.0	14.0	14.0	14.0	41.0	14.0	41.0	0.0
Total Split (%)	34.3%	47.6%	47.6%	13.3%	13.3%	13.3%	39.0%	13.3%	39.0%	0.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lead/Lag	Lead			Lag	Lag	Lead	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes			Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	None	None	Max C	Max	Max C	Max	
v/c Ratio	0.83	0.06	0.09	0.07	1.16	0.37	1.12	0.79	1.13	0.41
Control Delay	28.1	10.1	0.7	44.8	133.6	19.4	97.2	45.5	102.7	10.7
Queue Delay	240.3	0.0	0.0	0.0	243.9	0.0	24.5	0.0	0.0	0.0
Total Delay	268.4	10.1	0.7	44.8	377.6	19.4	121.7	45.5	102.7	10.7
Queue Length 50th (ft)	126	10	0	6	-165	31	-645	73	-602	0
Queue Length 95th (ft)	162	m20	m3	20	#304	58	#786	#187	#738	10
Internal Link Dist (ft)		940			1800		1544		620	
Turn Bay Length (ft)	475			205			100		400	
Base Capacity (vph)	1036	862	724	128	260	238	1404	239	1289	1689
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	472	0	0	0	84	0	67	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.53	0.06	0.09	0.07	1.72	0.37	1.18	0.79	1.13	0.41

**Intersection Summary**

Cycle Length: 105  
 Actuated Cycle Length: 105  
 Offset: 79 (75%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow  
 Natural Cycle: 100  
 Control Type: Actuated-Coordinated  
 - Volume exceeds capacity; queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity; queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.

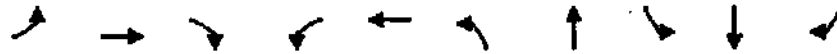
**Splits and Phases: 11: American Pkwy & Airport Road**

↖	↗	↗
14s	41s	50s
↖	↓	↗
14s	41s	65s
		↖
		14s



Movement	EB1L	EB1T	EB1R	WB1L	WB1T	WB1R	NB1L	NB1T	NB1R	SB1L	SB1T	SB1R
Lane Configurations	↖↗	↑	↖	↖	↖	↖	↖	↑↑	↖	↖	↖	↖
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	14	12	12	12	12	12	16	16	12	13	14
Grade (%)		2%			1%			1%			0%	
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.87		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3399	1967	1567	1761	1606		1761	3985		1770	3657	1689
Flt Permitted	0.95	1.00	1.00	0.72	1.00		0.11	1.00		0.11	1.00	1.00
Satd. Flow (perm)	3399	1967	1567	1340	1606		200	3985		201	3657	1689
Volume (vph)	787	47	61	8	28	229	81	1447	16	180	1387	1836
Peak-hour factor, PHF	0.91	0.91	0.91	0.85	0.85	0.85	0.93	0.93	0.93	0.95	0.95	0.95
Adj. Flow (vph)	865	52	67	9	33	269	87	1556	17	189	1460	1933
RTOR Reduction (vph)	0	0	38	0	107	0	0	1	0	0	0	0
Lane Group Flow (vph)	865	52	29	9	195	0	87	1572	0	189	1460	1933
Turn Type	Prot		Perm	Perm			pm+pt		pm+pt			Free
Protected Phases	7	4			8		5	2		1		6
Permitted Phases			4	8			2			6		Free
Actuated Green, G (s)	30.0	44.0	44.0	8.0	8.0		41.0	34.0		41.0	34.0	105.0
Effective Green, g (s)	32.0	46.0	46.0	10.0	10.0		47.0	37.0		47.0	37.0	105.0
Actuated g/C Ratio	0.30	0.44	0.44	0.10	0.10		0.45	0.35		0.45	0.35	1.00
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0		7.0	7.0		7.0	7.0	
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)	1036	862	686	128	153		238	1404		239	1289	1689
v/s Ratio Prot	0.25	0.03			0.12		0.03	0.39		0.08	0.40	
v/s Ratio Perm			0.02	0.01			0.13			0.28		c1.14
v/c Ratio	0.83	0.06	0.04	0.07	1.28		0.37	1.12		0.79	1.13	1.14
Uniform Delay, d1	34.0	17.0	16.9	43.3	47.5		45.2	34.0		48.1	34.0	52.5
Progression Factor	0.81	0.76	0.38	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	5.5	0.0	0.0	0.2	165.1		4.3	64.0		22.9	69.9	72.6
Delay (s)	33.1	12.9	6.5	43.5	212.6		49.5	98.0		71.0	103.9	125.1
Level of Service	C	B	A	D	F		D	F		E	F	F
Approach Delay (s)		30.2			207.7			95.5			118.6	
Approach LOS		C			F			F			F	

Intersection Summary			
HCM Average Control Delay	100.9	HCM Level of Service	F
HCM Volume to Capacity ratio	1.14		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	0.0
Intersection Capacity Utilization	101.9%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



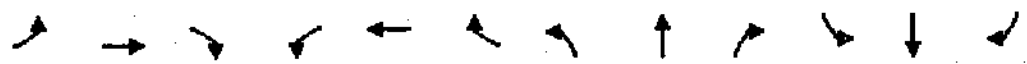
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↑	↗	↖	↑	↗	↖
Volume (vph)	787	47	61	8	28	81	1447	180	1387	1836
Lane Group Flow (vph)	865	52	67	9	302	87	1573	189	1460	1933
Turn Type	Prot		Perm	Perm		pm+pt	pm+pt			Free
Protected Phases	7	4				8	5	2	1	6
Permitted Phases			4	8		2		6		Free
Detector Phases	7	4	4	8	8	5	2	1	6	
Minimum Initial (s)	3.0	3.0	3.0	3.0	3.0	3.0	7.0	3.0	7.0	
Minimum Split (s)	9.0	9.0	9.0	9.0	9.0	10.0	14.0	10.0	14.0	
Total Split (s)	36.0	50.0	50.0	14.0	14.0	14.0	41.0	14.0	41.0	0.0
Total Split (%)	34.3%	47.6%	47.6%	13.3%	13.3%	13.3%	39.0%	13.3%	39.0%	0.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lead/Lag	Lead			Lag	Lag	Lead	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes			Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	None	None	Max C	Max	Max C	Max	
v/c Ratio	0.83	0.06	0.09	0.07	1.16	0.37	1.12	0.79	1.13	1.14
Control Delay	35.5	13.2	1.9	44.8	133.6	19.4	97.2	45.5	102.7	79.7
Queue Delay	230.7	0.0	0.0	0.0	239.6	0.0	26.8	0.0	0.0	0.0
Total Delay	266.3	13.2	1.9	44.8	373.2	19.4	124.0	45.5	102.7	79.7
Queue Length 50th (ft)	179	15	0	6	-165	31	-645	73	-602	-342
Queue Length 95th (ft)	252	29	8	20	#304	58	#786	#187	#738	#605
Internal Link Dist (ft)		940			1800		1544		620	
Turn Bay Length (ft)	475			205			100		400	
Base Capacity (vph)	1036	862	724	128	260	238	1404	239	1289	1689
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	464	0	0	0	83	0	73	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.51	0.06	0.09	0.07	1.71	0.37	1.18	0.79	1.13	1.14

**Intersection Summary**

Cycle Length: 105  
 Actuated Cycle Length: 105  
 Offset: 59 (56%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow  
 Natural Cycle: 100  
 Control Type: Actuated-Coordinated  
 Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

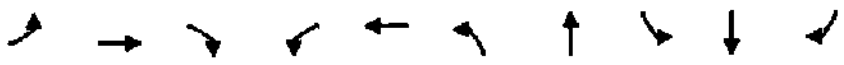
**Splits and Phases: 11: American Pkwy & Airport Road**

↖ p1	↗ p2	→ p4	
14:53	41:57	50:30	
↖ p5	↘ p6	↗ p7	↖ p8
14:53	41:57	86:30	14:53



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↑	↑	↑	↑	↔	↑	↑↑	↔	↑↑	↑↑	↑
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	14	12	12	12	12	12	16	16	12	13	14
Grade (%)		2%			1%			1%			0%	
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util Factor	0.97	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.87		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3399	1967	1567	1761	1616		1761	3985		1770	3657	1689
Flt Permitted	0.95	1.00	1.00	0.73	1.00		0.09	1.00		0.09	1.00	1.00
Satd. Flow (perm)	3399	1967	1567	1351	1616		158	3985		169	3657	1689
Volume (vph)	1060	39	194	8	39	229	157	1447	16	180	1387	787
Peak-hour factor, PHF	0.91	0.91	0.91	0.85	0.85	0.85	0.93	0.93	0.93	0.95	0.95	0.95
Adj. Flow (vph)	1165	43	213	9	46	269	169	1556	17	189	1460	828
RTOR Reduction (vph)	0	0	62	0	59	0	0	1	0	0	0	0
Lane Group Flow (vph)	1165	43	151	9	256	0	169	1572	0	189	1460	828
Turn Type	Prot		Perm	Perm			pm+pt			pm+pt		Free
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases			4	8			2			6		Free
Actuated Green, G (s)	40.0	61.0	61.0	15.0	15.0		52.0	44.0		46.0	41.0	130.0
Effective Green, g (s)	42.0	63.0	63.0	17.0	17.0		58.0	47.0		52.0	44.0	130.0
Actuated g/C Ratio	0.32	0.48	0.48	0.13	0.13		0.45	0.36		0.40	0.34	1.00
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0		7.0	7.0		7.0	7.0	
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)	1098	953	759	177	211		206	1441		166	1238	1689
v/s Ratio Prot	c0.34	0.02					0.07	0.39		0.07	0.40	
v/s Ratio Perm			0.10	0.01			0.30			0.38		c0.49
v/c Ratio	1.06	0.05	0.20	0.05	1.21		0.82	1.09		1.14	1.18	0.49
Uniform Delay, d1	44.0	17.7	19.1	49.4	56.5		60.2	41.5		63.2	43.0	0.0
Progression Factor	0.71	0.52	0.20	1.00	1.00		1.00	1.00		1.30	0.65	1.00
Incremental Delay, d2	42.2	0.0	0.1	0.1	131.2		22.3	52.7		89.5	84.7	0.4
Delay (s)	73.4	9.1	3.9	49.6	187.7		82.5	94.2		171.8	121.5	0.4
Level of Service	E	A	A	D	F		F	F		F	F	A
Approach Delay (s)		61.0			183.9			93.0			84.8	
Approach LOS		E			F			F			F	

Intersection Summary			
HCM Average Control Delay	86.9	HCM Level of Service	F
HCM Volume to Capacity Ratio	1.12		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	110.2%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↖↗	↑	↖	↖	↖	↖	↖↗	↖	↖↗	↖
Volume (vph)	1060	39	194	8	39	157	1447	180	1387	787
Lane Group Flow (vph)	1165	43	213	9	315	169	1573	189	1460	828
Turn Type	Prot		Perm	Perm		pm+pt		pm+pt		Free
Protected Phases	7	4			8	5	2	1	6	
Permitted Phases			4	8	8	2		6		Free
Detector Phases	7	4	4	8	8	5	2	1	6	
Minimum Initial (s)	3.0	3.0	3.0	3.0	3.0	3.0	7.0	3.0	7.0	
Minimum Split (s)	9.0	9.0	9.0	9.0	9.0	10.0	14.0	10.0	14.0	
Total Split (s)	46.0	67.0	67.0	21.0	21.0	15.0	51.0	12.0	48.0	0.0
Total Split (%)	35.4%	51.5%	51.5%	16.2%	16.2%	11.5%	39.2%	9.2%	36.9%	0.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lead/Lag	Lead			Lag	Lag	Lead	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes			Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	None	None	None	C-Max	None	C-Max	
v/c Ratio	1.06	0.05	0.26	0.05	1.17	0.82	1.09	1.14	1.18	0.49
Control Delay	73.6	9.3	2.3	50.4	45.9	58.5	92.2	123.7	118.9	0.4
Queue Delay	15.3	0.0	0.0	0.0	7.3	0.0	77.1	0.0	0.0	0.0
Total Delay	89.0	9.3	2.3	50.4	53.1	58.5	169.4	123.7	118.9	0.4
Queue Length 50th (ft)	-540	6	2	7	-263	90	-787	-131	-781	0
Queue Length 95th (ft)	#680	m15	21	23	#412	#214	#928	m174	#915	m0
Internal Link Dist (ft)		940			1800		1544		620	
Turn Bay Length (ft)	475			205			100		400	
Base Capacity (vph)	1098	953	822	177	270	206	1441	166	1238	1689
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	38	0	0	0	4	0	200	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.10	0.05	0.26	0.05	1.18	0.82	1.27	1.14	1.18	0.49

**Intersection Summary**

Cycle Length: 130  
 Actuated Cycle Length: 130  
 Offset: 100 (77%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow  
 Natural Cycle: 130  
 Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite  
 Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer  
 Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal

Splits and Phases: 11: American Pkwy & Airport Road

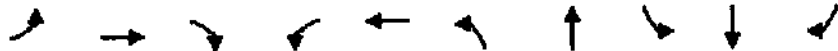
↖ e1	↖ e2	↖ e4	
12%	51%	67%	
↖ e5	↖ e6	↖ e7	↖ e8
15%	49%	48%	21%



Movement	EBL	EB	EBR	WBL	WB	WBR	NBL	NB	NBR	SBL	SB	SBR
Lane Configurations	↖↗	↑	↗	↖	↗		↖	↗		↖	↗	↗
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	14	12	12	12	12	12	16	16	12	13	14
Grade (%)		2%				1%		1%				0%
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.95	1.00
Friction	1.00	1.00	0.85	1.00	0.88		1.00	1.00		1.00	1.00	0.85
Flt. Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3399	1967	1567	1761	1631		1761	3985		1770	3657	1689
Flt. Permitted	0.95	1.00	1.00	0.72	1.00		0.09	1.00		0.09	1.00	1.00
Satd. Flow (perm)	3399	1967	1567	1341	1631		158	3985		169	3657	1689
Volume (vph)	1249	46	229	8	57	229	226	1447	16	180	1387	1131
Peak-hour factor, PHF	0.91	0.91	0.91	0.85	0.85	0.85	0.93	0.93	0.93	0.95	0.95	0.95
Adj. Flow (vph)	1373	51	252	9	67	269	243	1556	17	189	1460	1191
RTOR Reduction (vph)	0	0	62	0	57	0	0	1	0	0	0	0
Lane Group Flow (vph)	1373	51	190	9	279	0	243	1572	0	189	1460	1191
Turn Type	Prot		Perm	Perm			pm+pt			pm+pt		Free
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases			4	8			2			6		Free
Actuated Green, G (s)	40.0	61.0	61.0	15.0	15.0		52.0	44.0		46.0	41.0	130.0
Effective Green, g (s)	42.0	63.0	63.0	17.0	17.0		58.0	47.0		52.0	44.0	130.0
Actuated g/C Ratio	0.32	0.48	0.48	0.13	0.13		0.45	0.36		0.40	0.34	1.00
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0		7.0	7.0		7.0	7.0	
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)	1098	953	759	175	213		206	1441		166	1238	1689
v/s Ratio Prot	c0.40	0.03			c0.17		c0.10	0.39		0.07	0.40	
v/s Ratio Perm			0.12	0.01			c0.43			0.38		c0.71
v/c Ratio	1.25	0.05	0.25	0.05	1.31		1.18	1.09		1.14	1.18	0.71
Uniform Delay, d1	44.0	17.7	19.6	49.4	56.5		61.7	41.5		63.2	43.0	0.0
Progression Factor	0.80	0.65	0.39	1.00	1.00		1.00	1.00		1.29	0.92	1.00
Incremental Delay, d2	117.9	0.0	0.1	0.1	168.2		119.6	52.7		69.5	81.5	0.2
Delay (s)	153.2	17.5	7.7	49.6	224.7		181.3	94.2		151.2	121.0	0.2
Level of Service	F	B	A	D	F		F	F		F	F	A
Approach Delay (s)		127.0			220.2			105.8			72.3	
Approach LOS		F			F			F			E	

Intersection Summary			
HCM Average Control Delay	102.8	HCM Level of Service	F
HCM Volume to Capacity Ratio	1.21		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	116.9%	ICU Level of Service	H
Analysis Period (min)	15		
c. Critical Lane Group			





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↑	↗	↖	↑	↗	↖↗	↑	↗	↖↗	↑	↗
Volume (vph)	1249	46	229	8	57	226	1447	180	1387	1131		
Lane Group Flow (vph)	1373	51	252	9	336	243	1573	189	1460	1191		
Turn Type	Prot		Perm	Perm		pm+pt		pm+pt		Free		
Protected Phases	7	4			8	5	2	1	6			
Permitted Phases			4	8	2		6		Free			
Detector Phases	7	4	4	8	8	5	2	1	6			
Minimum Initial (s)	3.0	3.0	3.0	3.0	3.0	3.0	7.0	3.0	7.0			
Minimum Split (s)	9.0	9.0	9.0	9.0	9.0	10.0	14.0	10.0	14.0			
Total Split (s)	46.0	67.0	67.0	21.0	21.0	15.0	51.0	12.0	48.0	0.0		
Total Split (%)	35.4%	51.5%	51.5%	16.2%	16.2%	11.5%	39.2%	9.2%	36.9%	0.0%		
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0			
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0			
Lead/Lag	Lead			Lag	Lag	Lead	Lag	Lead	Lag			
Lead-Lag Optimize?	Yes			Yes	Yes	Yes	Yes	Yes	Yes			
Recall Mode	None	None	None	None	None	None	C-Max	None	C-Max			
v/c Ratio	1.25	0.05	0.31	0.05	1.24	1.18	1.09	1.14	1.18	0.71		
Control Delay	150.1	11.6	4.6	50.4	172.4	150.5	92.2	103.8	117.6	0.6		
Queue Delay	0.0	0.0	0.0	0.0	67.6	0.0	403.2	0.0	0.0	0.0		
Total Delay	150.1	11.6	4.6	50.4	240.0	150.5	495.5	103.8	117.6	0.6		
Queue Length 50th (ft)	-763	10	9	7	-301	-194	-787	-133	-773	0		
Queue Length 95th (ft)	#870	m13	m23	23	#452	#367	#928	m127	m735	m0		
Internal Link Dist (ft)		940			1800		1544		620			
Turn Bay Length (ft)	475			205				100		400		
Base Capacity (vph)	1098	953	822	175	271	206	1441	166	1238	1689		
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0		
Spillback Cap Reductn	0	0	0	0	30	0	652	0	0	0		
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0		
Reduced v/c Ratio	1.25	0.05	0.31	0.05	1.39	1.18	1.99	1.14	1.18	0.71		

Intersection Summary

Cycle Length: 130  
 Actuated Cycle Length: 130  
 Offset: 100 (77%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow  
 Natural Cycle: 150  
 Control Type: Actuated-Coordinated  
 # Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.

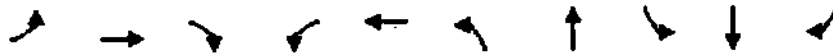
Splits and Phases: 11: American Pkwy & Airport Road

↖ e1	↗ e2	→ e4	
12%	51%	67%	
↖ e5	↗ e6	↖ e7	↗ e8
15%	48%	46%	21%



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↑	↖	↖	↗	↖	↖	↗	↖↗	↖	↗↖	↖
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	14	12	12	12	12	12	16	16	12	13	14
Grade (%)		2%			1%			1%				0%
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.88		1.00	1.00		1.00	1.00	0.85
Eff. Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3399	1967	1567	1761	1631		1761	3985		1770	3657	1689
Eff. Permitted	0.95	1.00	1.00	0.72	1.00		0.09	1.00		0.09	1.00	1.00
Satd. Flow (perm)	3399	1967	1567	1341	1631		158	3985		169	3657	1689
Volume (vph)	1249	46	229	78	57	229	226	1447	16	180	1387	2316
Peak-hour factor, PHF	0.91	0.91	0.91	0.85	0.85	0.85	0.93	0.93	0.93	0.95	0.95	0.95
Adj. Flow (vph)	1373	51	252	93	67	269	243	1556	17	189	1460	2438
RTOR Reduction (vph)	0	0	62	0	57	0	0	1	0	0	0	0
Lane Group Flow (vph)	1373	51	190	93	279	0	243	1572	0	189	1460	2438
Turn Type	Prot		Perm	Perm			pm+pt			pm+pt		Free
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases			4	8			2			6		Free
Actuated Green, G (s)	40.0	61.0	61.0	15.0	15.0		52.0	44.0		46.0	41.0	130.0
Effective Green, g (s)	42.0	63.0	63.0	17.0	17.0		58.0	47.0		52.0	44.0	130.0
Actuated G/C Ratio	0.32	0.48	0.48	0.13	0.13		0.45	0.36		0.40	0.34	1.00
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0		7.0	7.0		7.0	7.0	
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)	1098	953	759	175	213		206	1441		166	1238	1689
v/s Ratio Prot	0.40	0.03			0.17		0.10	0.39		0.07	0.40	
v/s Ratio Perm			0.12	0.01			0.43			0.38		c1.44
v/c Ratio	1.25	0.05	0.25	0.05	1.31		1.18	1.09		1.14	1.18	1.44
Uniform Delay, d1	44.0	17.7	19.6	49.4	56.5		61.7	41.5		63.2	43.0	65.0
Progression Factor	0.46	0.33	0.16	1.00	1.00		1.00	1.00		1.42	0.99	1.00
Incremental Delay, d2	118.6	0.0	0.1	0.1	168.2		119.6	52.7		69.5	81.5	199.9
Delay (s)	138.7	5.9	3.4	49.6	224.7		181.3	94.2		159.0	124.3	264.9
Level of Service	F	A	A	D	F		F	F		F	F	F
Approach Delay (s)		114.3			220.2			105.8			209.8	
Approach LOS		F			F			F			F	

Intersection Summary		
HCM Average Control Delay	166.2	HCM Level of Service F
HCM Volume to Capacity ratio	1.44	
Actuated Cycle Length (s)	130.0	Sum of lost time (s) 0.0
Intersection Capacity Utilization	16.9%	ICU Level of Service H
Analysis Period (min)	15	
c Critical Lane Group		



lane/group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↖↖	↑	↗	↖	↗	↖	↖↗	↖	↖↖	↗
Volume (vph)	1249	46	229	8	57	226	1447	180	1387	2316
Lane Group Flow (vph)	1373	51	252	9	336	243	1573	189	1460	2438
Turn Type	Prot		Perm	Perm		pm+pt		pm+pt		Free
Protected Phases	7	4			8	5	2	1	6	
Permitted Phases			4	8		2		6		Free
Detector Phases	7	4	4	8	8	5	2	1	6	
Minimum Initial (s)	3.0	3.0	3.0	3.0	3.0	3.0	7.0	3.0	7.0	
Minimum Split (s)	9.0	9.0	9.0	9.0	9.0	10.0	14.0	10.0	14.0	
Total Split (s)	46.0	67.0	67.0	21.0	21.0	15.0	51.0	12.0	48.0	0.0
Total Split (%)	35.4%	51.5%	51.5%	16.2%	16.2%	11.5%	39.2%	9.2%	36.9%	0.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lead/Lag	Lead			Lag	Lag	Lead	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes			Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	None	None	Max C-Max	Max C-Max	Max C-Max	Max C-Max	
v/c Ratio	1.25	0.05	0.31	0.05	1.24	1.18	1.09	1.14	1.18	1.44
Control Delay	141.0	6.0	21.4	50.4	172.4	150.5	192.2	106.0	120.0	218.4
Queue Delay	0.0	0.0	0.0	0.0	29.3	2.4	494.7	0.0	0.0	169.0
Total Delay	141.0	6.0	21.4	50.4	201.8	152.8	586.9	106.0	120.0	387.5
Queue Length 50th (ft)	-727	11	24	7	-301	-194	-787	-138	-772	-2223
Queue Length 95th (ft)	#870	m16	34	23	#452	#367	#928	m66	m381	m944
Internal Link Dist (ft)		940			1800		1544		620	
Turn Bay Length (ft)	475			205			100		400	
Base Capacity (vph)	1098	953	822	175	271	206	1441	166	1238	1689
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	14	1	725	0	0	349
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.25	0.05	0.31	0.05	1.31	1.19	2.20	1.14	1.18	1.82

Intersection Summary

Cycle Length: 130  
 Actuated Cycle Length: 130  
 Offset: 128 (98%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow  
 Natural Cycle: 150  
 Control Type: Actuated-Coordinated  
 # Volume exceeds capacity, queue is theoretically infinite  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal

Splits and Phases: 11: American Pkwy & Airport Road

↖	↖	→	
o1	o2	o4	
12%	51%	67%	
↖	↘	↗	↖
o5	o6	o7	o8
15%	48%	46%	21%

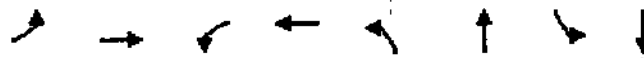
16: American Pkwy & Irving Street

Existing Conditions  
Timing Plan: AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	13	13	12	13	13	11	13	12	11	13	12
Grade (%)		1%			2%			0%				1%
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frnt	1.00	0.99		1.00	0.99		1.00	0.97		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1761	3601		1787	3649		1646	1794		1639	1797	
Flt Permitted	0.43	1.00		0.64	1.00		0.50	1.00		0.66	1.00	
Satd. Flow (perm)	804	3601		1200	3649		866	1794		1133	1797	
Volume (vph)	71	133	10	54	386	34	22	110	29	28	160	33
Peak-hour factor, PHF	0.79	0.79	0.79	0.91	0.91	0.91	0.88	0.88	0.88	0.89	0.89	0.89
Adj. Flow (vph)	90	168	13	59	424	37	25	125	33	31	180	37
RTOR Reduction (vph)	0	5	0	0	6	0	0	8	0	0	6	0
Lane Group Flow (vph)	90	176	0	59	455	0	25	150	0	31	211	0
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	6%	6%	6%	7%	7%	7%
Turn Type	Perm			Perm			pm+pt			Perm		
Protected Phases		2			6		3	8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	46.6	46.6		46.6	46.6		50.4	50.4		40.8	40.8	
Effective Green, g (s)	49.6	49.6		49.6	49.6		52.4	52.4		42.8	42.8	
Actuated g/C Ratio	0.45	0.45		0.45	0.45		0.48	0.48		0.39	0.39	
Clearance Time (s)	7.0	7.0		7.0	7.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	363	1624		541	1645		452	855		441	699	
v/s Ratio Prot		0.05			c0.12		0.00	c0.08			c0.12	
v/s Ratio Perm	0.11			0.05			0.02			0.03		
v/c Ratio	0.25	0.11		0.11	0.28		0.06	0.17		0.07	0.30	
Uniform Delay, d1	18.7	17.4		17.4	18.9		15.7	16.5		21.1	23.3	
Progression Factor	1.00	1.00		1.04	1.02		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.6	0.1		0.4	0.4		0.1	0.4		0.3	1.1	
Delay (s)	20.3	17.6		18.5	19.7		15.8	16.9		21.4	24.4	
Level of Service	C	B		B	B		B	B		C	C	
Approach Delay (s)		18.5			19.6			16.7			24.0	
Approach LOS		B			B			B			C	
<b>Intersection Summary</b>												
HCM Average Control Delay (s)	19.8			HCM Level of Service			B					
HCM Volume to Capacity ratio	0.28											
Actuated Cycle Length (s)	110.0			Sum of lost time (s)			12.0					
Intersection Capacity Utilization	52.1%			ICU Level of Service			A					
Analysis Period (min)	15											

c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖	↕	↖	↕	↖	↕	↖	↕
Volume (vph)	71	133	54	386	22	110	28	160
Lane Group Flow (vph)	90	181	59	461	25	158	31	217
Turn Type	Perm		Perm		pm+pt		Perm	
Protected Phases		2		6	3	8		4
Permitted Phases	2		6		8		4	
Detector Phases	2	2	6	6	3	8	4	4
Minimum Initial (s)	15.0	15.0	15.0	15.0	3.0	7.0	7.0	7.0
Minimum Split (s)	22.0	22.0	22.0	22.0	9.0	13.0	13.0	13.0
Total Split (s)	56.0	56.0	56.0	56.0	12.0	54.0	42.0	42.0
Total Split (%)	50.9%	50.9%	50.9%	50.9%	10.9%	49.1%	38.2%	38.2%
Yellow Time (s)	5.0	5.0	5.0	5.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag					Lead		Lag	Lag
Lead-Lag Optimize?					Yes		Yes	Yes
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	Max	Max	Max
v/c Ratio	0.23	0.11	0.10	0.27	0.06	0.19	0.07	0.31
Control Delay	19.3	15.4	17.4	17.9	17.0	16.8	24.4	25.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.3	15.4	17.4	17.9	17.0	16.8	24.4	25.1
Queue Length 50th (ft)	37	34	22	92	10	58	15	108
Queue Length 95th (ft)	62	47	48	134	25	98	36	170
Internal Link Dist (ft)		1316		940		720		408
Turn Bay Length (ft)	75		75		75		75	
Base Capacity (vph)	386	1707	567	1731	435	825	441	705
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.11	0.10	0.27	0.06	0.19	0.07	0.31

**Intersection Summary:**  
 Cycle Length: 110  
 Actuated Cycle Length: 110  
 Offset: 54 (49%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow  
 Natural Cycle: 45  
 Control Type: Actuated-Coordinated  
 m: Volume for 95th percentile queue is metered by upstream signal.

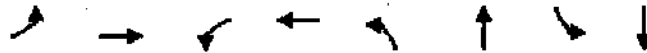
Splits and Phases: 16: American Pkwy & Irving Street

↖ #2	↖ #3	↕ #4
56s	25s	42s
↖ #6	↕ #8	
56s	54s	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖ ↗		↖ ↗		↖ ↗		↖ ↗		↖ ↗		↖ ↗	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	13	13	12	13	13	11	13	12	11	13	12
Grade (%)	-1%		-2%		-2%		0%		-1%		-1%	
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	0.99		1.00	0.97		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1761	3603		1787	3648		1646	1795		1639	1797	
Flt Permitted	0.42	1.00		0.63	1.00		0.49	1.00		0.65	1.00	
Satd. Flow (perm)	773	3603		1188	3648		845	1795		1126	1797	
Volume (vph)	74	141	10	57	407	36	23	115	30	29	168	35
Peak-hour factor, PHF	0.79	0.79	0.79	0.91	0.91	0.91	0.88	0.88	0.88	0.89	0.89	0.89
Adj. Flow (vph)	94	178	13	63	447	40	26	131	34	33	189	39
RTOR Reduction (vph)	0	5	0	0	6	0	0	8	0	0	6	0
Lane Group Flow (vph)	94	186	0	63	481	0	26	157	0	33	222	0
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	6%	6%	6%	7%	7%	7%
Turn Type	Perm		Perm		pm-pl		pm-pl		Perm		4	
Protected Phases	2		6		6		3		8		4	
Permitted Phases	2		6		6		8		4		4	
Actuated Green, G (s)	46.6	46.6		46.6	46.6		50.4	50.4		40.8	40.8	
Effective Green, g (s)	49.6	49.6		49.6	49.6		52.4	52.4		42.8	42.8	
Actuated g/C Ratio	0.45	0.45		0.45	0.45		0.48	0.48		0.39	0.39	
Clearance Time (s)	7.0	7.0		7.0	7.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap. (vph)	349	1625		536	1645		443	855		438	699	
v/s Ratio Prot	0.05		c0.13		0.00		c0.09		c0.12			
v/s Ratio Perm	0.12		0.05		0.02		0.03		0.03			
v/c Ratio	0.27	0.11		0.12	0.29		0.06	0.18		0.08	0.32	
Uniform Delay, d1	18.9	17.5		17.5	19.1		15.8	16.5		21.1	23.4	
Progression Factor	1.00	1.00		0.87	0.93		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.9	0.1		0.4	0.4		0.1	0.5		0.3	1.2	
Delay (s)	20.8	17.6		15.7	18.2		15.8	17.0		21.5	24.6	
Level of Service	C		B		B		B		C		C	
Approach Delay (s)	18.7		17.9		16.8		24.2					
Approach LOS	B		B		B		C					
<b>Intersection Summary</b>												
HCM Average Control Delay	19.2		HCM Level of Service		B							
HCM Volume to Capacity ratio	0.30											
Actuated Cycle Length (s)	110.0		Sum of lost time (s)		12.0							
Intersection Capacity Utilization	52.6%		ICU Level of Service		A							
Analysis Period (min)	15											

c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖	↕	↖	↕	↖	↕	↖	↕
Volume (vph)	74	141	57	407	23	115	29	168
Lane Group Flow (vph)	94	191	63	487	26	165	33	228
Turn Type	Perm		Perm		pm+pt		Perm	
Protected Phases		2		6	3	8		4
Permitted Phases	2		6		8		4	
Detector Phases	2	2	6	6	3	8	4	4
Minimum Initial (s)	15.0	15.0	15.0	15.0	3.0	7.0	7.0	7.0
Minimum Split (s)	22.0	22.0	22.0	22.0	9.0	13.0	13.0	13.0
Total Split (s)	56.0	56.0	56.0	56.0	12.0	54.0	42.0	42.0
Total Split (%)	50.9%	50.9%	50.9%	50.9%	10.9%	49.1%	38.2%	38.2%
Yellow Time (s)	5.0	5.0	5.0	5.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag					Lead		Lag	Lag
Lead-Lag Optimize?					Yes		Yes	Yes
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	Max	Max	Max
v/c Ratio	0.25	0.11	0.11	0.28	0.06	0.20	0.08	0.32
Control Delay	19.7	15.6	14.8	16.5	17.1	17.0	24.4	25.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.7	15.6	14.8	16.5	17.1	17.0	24.4	25.4
Queue Length 50th (ft)	39	36	27	116	10	61	16	114
Queue Length 95th (ft)	65	50	44	132	25	102	38	179
Internal Link Dist (ft)		1316		940		720		408
Turn Bay Length (ft)	75		75		75		75	
Base Capacity (vph)	371	1708	562	1731	426	825	438	705
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.11	0.11	0.28	0.06	0.20	0.08	0.32

**Intersection Summary**

Cycle Length: 110  
 Actuated Cycle Length: 110  
 Offset: 44 (40%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow  
 Natural Cycle: 45  
 Control Type: Actuated-Coordinated  
 m Volume for 95th percentile queue is metered by upstream signal

**Splits and Phases: 16: American Pkwy & Irving Street**



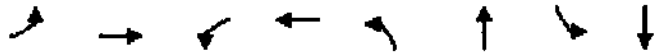


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	13	13	12	13	13	11	13	12	11	13	12
Grade (%)		-1%			-2%			0%				-1%
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frnt	1.00	0.99		1.00	0.99		1.00	0.97		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1761	3607		1787	3661		1646	1795		1639	1797	
Flt Permitted	0.31	1.00		0.62	1.00		0.49	1.00		0.65	1.00	
Satd. Flow (perm)	572	3607		1162	3661		845	1795		1126	1797	
Volume (vph)	74	159	10	57	578	36	23	115	30	29	168	35
Peak-hour factor, PHF	0.79	0.79	0.79	0.91	0.91	0.91	0.88	0.88	0.88	0.89	0.89	0.89
Adj. Flow (vph)	94	201	13	63	635	40	26	131	34	33	189	39
RTOR Reduction (vph)	0	4	0	0	4	0	0	8	0	0	6	0
Lane Group Flow (vph)	94	210	0	63	671	0	26	157	0	33	222	0
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	6%	6%	6%	7%	7%	7%
Turn Type	Perm			Perm			pm+pt			Perm		
Protected Phases	2			6			3	8		4		
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	46.6	46.6		46.6	46.6		50.4	50.4		40.8	40.8	
Effective Green, g (s)	49.6	49.6		49.6	49.6		52.4	52.4		42.8	42.8	
Actuated g/C Ratio	0.45	0.45		0.45	0.45		0.48	0.48		0.39	0.39	
Clearance Time (s)	7.0	7.0		7.0	7.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	258	1626		524	1651		443	855		438	699	
v/s Ratio Prot		0.06			c0.18		0.00	c0.09			c0.12	
v/s Ratio Perm	0.16			0.05			0.02			0.03		
v/c Ratio	0.36	0.13		0.12	0.41		0.06	0.18		0.08	0.32	
Uniform Delay, d1	19.8	17.6		17.5	20.3		15.8	16.5		21.1	23.4	
Progression Factor	1.00	1.00		0.81	0.88		1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.9	0.2		0.4	0.7		0.1	0.5		0.3	1.2	
Delay (s)	23.8	17.8		14.6	18.7		15.8	17.0		21.5	24.6	
Level of Service	C	B		B	B		B	B		C	C	
Approach Delay (s)		19.6			18.3			16.8			24.2	
Approach LOS		B			B			B			C	

Intersection Summary	
HCM Average Control Delay	19.4
HCM Volume to Capacity ratio	0.36
Actuated Cycle Length (s)	110.0
Intersection Capacity Utilization	57.3%
Analysis Period (min)	15
HCM Level of Service	B
Sum of lost time (s)	12.0
ICU Level of Service	B

c Critical Lane Group





Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖	↕	↖	↕	↖	↕	↖	↕
Volume (vph)	74	159	57	578	23	115	29	168
Lane Group Flow (vph)	94	214	63	675	26	165	33	228
Turn Type	Perm		Perm		pm+pt		Perm	
Protected Phases		2		6	3	8		4
Permitted Phases	2		6		8		4	
Detector Phases	2	2	6	6	3	8	4	4
Minimum Initial (s)	15.0	15.0	15.0	15.0	3.0	7.0	7.0	7.0
Minimum Split (s)	22.0	22.0	22.0	22.0	9.0	13.0	13.0	13.0
Total Split (s)	56.0	56.0	56.0	56.0	12.0	54.0	42.0	42.0
Total Split (%)	50.9%	50.9%	50.9%	50.9%	10.9%	49.1%	38.2%	38.2%
Yellow Time (s)	5.0	5.0	5.0	5.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag					Lead		Lag	Lag
Lead-Lag Optimize?					Yes		Yes	Yes
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	Max	Max	Max
v/c Ratio	0.34	0.13	0.11	0.39	0.06	0.20	0.08	0.32
Control Delay	22.6	15.9	13.8	17.1	17.1	17.0	24.4	25.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.6	15.9	13.8	17.1	17.1	17.0	24.4	25.4
Queue Length 50th (ft)	40	41	25	170	10	61	16	114
Queue Length 95th (ft)	70	55	41	178	25	102	38	179
Internal Link Dist (ft)		541		940		720		408
Turn Bay Length (ft)	75		75		75		75	
Base Capacity (vph)	278	1709	550	1735	426	825	438	705
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.34	0.13	0.11	0.39	0.06	0.20	0.08	0.32

**Intersection Summary**

Cycle Length: 110  
 Actuated Cycle Length: 110  
 Offset: 44 (40%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow  
 Natural Cycle: 45  
 Control Type: Actuated-Coordinated  
 m Volume for 95th percentile queue is metered by upstream signal.

**Splits and Phases: 16: American Pkwy & Irving Street**

↖ 02	↖ 03	↕ 04
56%	12%	42%
↖ 06	↕ 08	
56%	54%	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕		↖	↕		↖	↕		↖	↕	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	13	13	12	13	13	11	13	12	11	13	12
Grade(%)		-1%			-2%			0%				1%
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frnt	1.00	0.99		1.00	0.99		1.00	0.97		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1761	3607		1787	3661		1646	1795		1639	1797	
Flt Permitted	0.33	1.00		0.62	1.00		0.55	1.00		0.62	1.00	
Satd. Flow (perm)	606	3607		1162	3661		951	1795		1069	1797	
Volume (vph)	74	159	10	57	578	36	23	115	30	29	168	35
Peak-hour factor, PHF	0.79	0.79	0.79	0.91	0.91	0.91	0.88	0.88	0.88	0.89	0.89	0.89
Adj. Flow (vph)	94	201	13	63	635	40	26	131	34	33	189	39
RTOR Reduction (vph)	0	5	0	0	4	0	0	9	0	0	7	0
Lane Group Flow (vph)	94	210	0	63	674	0	26	156	0	33	221	0
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	6%	6%	6%	7%	7%	7%
Turn Type	Perm		Perm		Perm		Perm		Perm		Perm	
Protected Phases	2		6		8		4					
Permitted Phases	2		6		8		4					
Actuated Green, G (s)	52.0	52.0		52.0	52.0		45.0	45.0		45.0	45.0	
Effective Green, g (s)	55.0	55.0		55.0	55.0		47.0	47.0		47.0	47.0	
Actuated g/C Ratio	0.50	0.50		0.50	0.50		0.43	0.43		0.43	0.43	
Clearance Time (s)	7.0	7.0		7.0	7.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	303	1804		581	1831		406	767		457	768	
v/s Ratio Prot		0.06			c0.18			0.09			c0.12	
v/s Ratio Perm	0.16			0.05			0.03			0.03		
v/c Ratio	0.31	0.12		0.11	0.37		0.06	0.20		0.07	0.29	
Uniform Delay, d1	16.3	14.6		14.5	16.8		18.5	19.8		18.6	20.6	
Progression Factor	1.00	1.00		0.79	0.86		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.6	0.1		0.4	0.5		0.3	0.6		0.3	0.9	
Delay (s)	18.9	14.7		11.8	15.1		18.9	20.4		18.9	21.5	
Level of Service	B	B		B	B		B	C		B	C	
Approach Delay (s)		16.0			14.8			20.2			21.2	
Approach LOS		B			B			C			C	

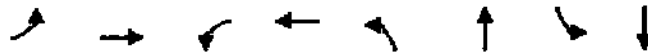
Intersection Summary	
HCM Average Control Delay	16.8
HCM Volume to Capacity ratio	0.33
Actuated Cycle Length (s)	110.0
Intersection Capacity Utilization	59.8%
Analysis Period (min)	15
HCM Level of Service	B
Sum of lost time (s)	8.0
ICU Level of Service	B

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕	↗	↖	↕	↗	↖	↕	↗	↖	↕	↗
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	13	13	12	13	13	11	13	12	11	13	12
Grade (%)		-1%			-2%			0%				1%
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	0.99		1.00	0.97		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1761	3604		1787	3649		1646	1794		1639	1797	
Flt Permitted	0.33	1.00		0.59	1.00		0.42	1.00		0.63	1.00	
Satd. Flow (perm)	620	3604		1119	3649		734	1794		1081	1797	
Volume (vph)	94	178	13	73	524	46	29	146	39	37	213	44
Peak-hour factor, PHF	0.79	0.79	0.79	0.91	0.91	0.91	0.88	0.88	0.88	0.89	0.89	0.89
Adj. Flow (vph)	119	225	16	80	576	51	33	166	44	42	239	49
RTOR Reduction (vph)	0	5	0	0	6	0	0	8	0	0	6	0
Lane Group Flow (vph)	119	236	16	80	621	51	33	202	44	42	282	49
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	6%	6%	6%	7%	7%	7%
Turn Type	Perm			Perm			prmtot				Perm	
Protected Phases		2			6		3	8			4	
Permitted Phases	2			6			8				4	
Actuated Green, G (s)	46.6	46.6		46.6	46.6		50.4	50.4		40.8	40.8	
Effective Green, g (s)	49.6	49.6		49.6	49.6		52.4	52.4		42.8	42.8	
Actuated g/C Ratio	0.45	0.45		0.45	0.45		0.48	0.48		0.39	0.39	
Clearance Time (s)	7.0	7.0		7.0	7.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	280	1625		505	1645		396	855		421	699	
v/s Ratio Prot		0.07			0.17		0.00	c0.11			c0.16	
v/s Ratio Perm	c0.19			c0.07			0.04			0.04		
v/c Ratio	0.42	0.15		0.16	0.38		0.08	0.24		0.10	0.40	
Uniform Delay, d1	20.5	17.7		17.9	20.0		16.2	17.0		21.4	24.3	
Progression Factor	1.00	1.00		0.76	0.83		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.7	0.2		0.6	0.6		0.1	0.6		0.5	1.7	
Delay (s)	25.2	17.9		14.3	17.3		16.2	17.6		21.8	26.1	
Level of Service	C	B		B	B		B	B		C	C	
Approach Delay (s)		20.3			16.9			17.4			25.5	
Approach LOS		C			B			B			C	
<b>Intersection Summary</b>												
HCM Average Control Delay			19.5			HCM Level of Service			B			
HCM Volume to Capacity ratio			0.41									
Actuated Cycle Length (s)			110.0			Sum of lost time (s)			12.0			
Intersection Capacity Utilization			59.0%			ICU Level of Service			B			
Analysis Period (min)	15											

c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖	↕	↖	↕	↖	↕	↖	↕
Volume (vph)	94	178	73	524	29	146	37	213
Lane Group Flow (vph)	119	241	80	627	33	210	42	288
Turn Type	Perm		Perm		pm+pt		Perm	
Protected Phases		2		6	3	8		4
Permitted Phases	2		6		8		4	
Detector Phases	2	2	6	6	3	8	4	4
Minimum Initial (s)	15.0	15.0	15.0	15.0	3.0	7.0	7.0	7.0
Minimum Split (s)	22.0	22.0	22.0	22.0	9.0	13.0	13.0	13.0
Total Split (s)	56.0	56.0	56.0	56.0	12.0	54.0	42.0	42.0
Total Split (%)	50.9%	50.9%	50.9%	50.9%	10.9%	49.1%	38.2%	38.2%
Yellow Time (s)	5.0	5.0	5.0	5.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag					Lead		Lag	Lag
Lead-Lag Optimize?					Yes		Yes	Yes
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	Max	Max	Max
v/c Ratio	0.40	0.14	0.15	0.36	0.09	0.25	0.10	0.41
Control Delay	23.9	16.0	13.5	15.8	17.4	18.0	24.8	27.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.9	16.0	13.5	15.8	17.4	18.0	24.8	27.1
Queue Length 50th (ft)	53	47	33	155	13	82	20	151
Queue Length 95th (ft)	87	61	53	166	30	129	46	229
Internal Link Dist (ft)		1316		940		720		408
Turn Bay Length (ft)	75		75		75		75	
Base Capacity (vph)	300	1708	531	1731	380	825	420	705
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.14	0.15	0.36	0.09	0.25	0.10	0.41

**Intersection Summary**  
 Cycle Length: 110  
 Actuated Cycle Length: 110  
 Offset: 42 (38%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow  
 Natural Cycle: 50  
 Control Type: Actuated-Coordinated  
 m: Volume for 95th percentile queue is metered by upstream signal

Splits and Phases: 16: American Pkwy & Irving Street





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕	↗	↖	↕	↗	↖	↕	↗	↖	↕	↗
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	13	13	12	13	13	11	13	12	11	13	12
Grade (%)		-1%			-2%			0%				-1%
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Friction	1.00	0.99		1.00	0.99		1.00	0.97		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1761	3607		1787	3659		1646	1794		1639	1797	
Flt Permitted	0.24	1.00		0.58	1.00		0.42	1.00		0.63	1.00	
Satd. Flow (perm)	446	3607		1084	3659		734	1794		1081	1797	
Volume (vph)	94	196	13	73	695	46	29	146	39	37	213	44
Peak-hour factor, PHF	0.79	0.79	0.79	0.91	0.91	0.91	0.88	0.88	0.88	0.89	0.89	0.89
Adj. Flow (vph)	119	248	16	80	764	51	33	166	44	42	239	49
RTOR Reduction (vph)	0	4	0	0	4	0	0	8	0	0	6	0
Lane Group Flow (vph)	119	260	0	80	811	0	33	202	0	42	282	0
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	6%	6%	6%	7%	7%	7%
Turn Type	Perm			Perm			pm+pt			Perm		
Protected Phases		2			6		3	8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	46.6	46.6		46.6	46.6		50.4	50.4		40.8	40.8	
Effective Green, g (s)	49.6	49.6		49.6	49.6		52.4	52.4		42.8	42.8	
Actuated g/C Ratio	0.45	0.45		0.45	0.45		0.48	0.48		0.39	0.39	
Clearance Time (s)	7.0	7.0		7.0	7.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	201	1626		489	1650		396	855		421	699	
v/s Ratio Prot		0.07			0.22		0.00	c0.11			c0.16	
v/s Ratio Perm	c0.27			0.07			0.04			0.04		
v/c Ratio	0.59	0.16		0.16	0.49		0.08	0.24		0.10	0.40	
Uniform Delay, d1	22.6	17.9		17.9	21.3		16.2	17.0		21.4	24.3	
Progression Factor	1.00	1.00		0.70	0.79		1.00	1.00		1.00	1.00	
Incremental Delay, d2	12.2	0.2		0.7	1.0		0.1	0.6		0.5	1.7	
Delay (s)	34.8	18.1		13.2	17.7		16.2	17.6		21.8	26.1	
Level of Service	C	B		B	B		B	B		C	C	
Approach Delay (s)		23.3			17.3			17.4			25.5	
Approach LOS		C			B			B			C	

Intersection Summary	
HCM Average Control Delay	20.0
HCM Volume to Capacity ratio	0.49
Actuated Cycle Length (s)	110.0
Intersection Capacity Utilization	63.7%
Analysis Period (min)	15
HCM Level of Service	C
Sum of lost time (s)	12.0
ICU Level of Service	B

c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↵	↕	↵	↕	↵	↕	↵	↕
Volume (vph)	94	196	73	695	29	146	37	213
Lane Group Flow (vph)	119	264	80	815	33	210	42	288
Turn Type	Perm		Perm		pm+pt		Perm	
Protected Phases		2		6	3	8		4
Permitted Phases	2		6		8		4	
Detector Phases	2	2	6	6	3	8	4	4
Minimum Initial (s)	15.0	15.0	15.0	15.0	3.0	7.0	7.0	7.0
Minimum Split (s)	22.0	22.0	22.0	22.0	9.0	13.0	13.0	13.0
Total Split (s)	56.0	56.0	56.0	56.0	12.0	54.0	42.0	42.0
Total Split (%)	50.9%	50.9%	50.9%	50.9%	10.9%	49.1%	38.2%	38.2%
Yellow Time (s)	5.0	5.0	5.0	5.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag					Lead		Lag	Lag
Lead-Lag Optimize?					Yes		Yes	Yes
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	Max	Max	Max
v/c Ratio	0.54	0.15	0.16	0.47	0.09	0.25	0.10	0.41
Control Delay	31.9	16.3	12.4	16.3	17.4	18.0	24.8	27.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.9	16.3	12.4	16.3	17.4	18.0	24.8	27.1
Queue Length 50th (ft)	58	52	31	213	13	82	20	151
Queue Length 95th (ft)	101	66	48	210	30	129	46	229
Internal Link Dist (ft)		541		940		720		408
Turn Bay Length (ft)	75		75		75		75	
Base Capacity (vph)	220	1709	515	1735	380	825	420	705
Starvation Gap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Gap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.54	0.15	0.16	0.47	0.09	0.25	0.10	0.41

**Intersection Summary**

Cycle Length: 110  
 Actuated Cycle Length: 110  
 Offset: 42 (38%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow  
 Natural Cycle: 55  
 Control Type: Actuated-Coordinated  
 m - Volume for 95th percentile queue is metered by upstream signal

**Splits and Phases: 16: American Pkwy & Irving Street**

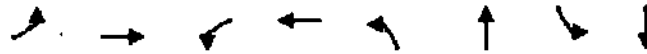
↵ p2 56%	↵ p3 12%	↵ p4 42%
↵ p6 56%	↵ p8 54%	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕		↖	↕		↖	↕		↖	↕	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	13	13	12	13	13	11	13	12	11	13	12
Grade (%)		-1%			2%			0%				-1%
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	0.99		1.00	0.97		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1761	3607		1787	3659		1646	1794		1639	1797	
Flt Permitted	0.28	1.00		0.59	1.00		0.46	1.00		0.55	1.00	
Satd. Flow (perm)	514	3607		1104	3659		795	1794		953	1797	
Volume (vph)	94	196	13	73	695	46	29	146	39	37	213	44
Peak-hour factor, PHF	0.79	0.79	0.79	0.91	0.91	0.91	0.88	0.88	0.88	0.89	0.89	0.89
Adj. Flow (vph)	119	248	16	80	764	51	33	166	44	42	239	49
RTOR Reduction (vph)	0	4	0	0	5	0	0	9	0	0	7	0
Lane Group Flow (vph)	119	260	0	80	810	0	33	201	0	42	281	0
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	6%	6%	6%	7%	7%	7%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			8				4
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	57.0	57.0		57.0	57.0		40.0	40.0		40.0	40.0	
Effective Green, g (s)	60.0	60.0		60.0	60.0		42.0	42.0		42.0	42.0	
Actuated g/C Ratio	0.55	0.55		0.55	0.55		0.38	0.38		0.38	0.38	
Clearance Time (s)	7.0	7.0		7.0	7.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	280	1967		602	1996		304	685		364	686	
v/s Ratio Prot		0.07			0.22			0.11			0.16	
v/s Ratio Perm	0.23			0.07			0.04			0.04		
v/c Ratio	0.42	0.13		0.13	0.41		0.11	0.29		0.12	0.41	
Uniform Delay, d1	14.8	12.2		12.3	14.6		21.9	23.7		22.0	24.9	
Progression Factor	1.00	1.00		0.63	0.71		1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.7	0.1		0.4	0.6		0.7	1.1		0.6	1.8	
Delay (s)	19.5	12.4		8.1	11.0		22.6	24.8		22.6	26.7	
Level of Service	B	B		A	B		C	C		C	C	
Approach Delay (s)		14.6			10.7			24.5			26.2	
Approach LOS		B			B			C			C	

Intersection Summary	
HCM Average Control Delay	16.1
HCM Volume to Capacity ratio	0.42
Actuated Cycle Length (s)	110.0
Intersection Capacity Utilization	66.2%
Analysis Period (min)	15
HCM Level of Service	B
Sum of lost time (s)	8.0
ICU Level of Service	C

c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↶	↷	↶	↷	↶	↷	↶	↷
Volume (vph)	94	196	73	695	29	146	37	213
Lane Group Flow (vph)	119	264	80	815	33	210	42	288
Turn Type	Perm		Perm		Perm		Perm	
Protected Phases		2		6		8		4
Permitted Phases	2		6		8		4	
Detector Phases	2	2	6	6	8	8	4	4
Minimum Initial (s)	15.0	15.0	15.0	15.0	7.0	7.0	7.0	7.0
Minimum Split (s)	22.0	22.0	22.0	22.0	13.0	13.0	13.0	13.0
Total Split (s)	64.0	64.0	64.0	64.0	46.0	46.0	46.0	46.0
Total Split (%)	58.2%	58.2%	58.2%	58.2%	41.8%	41.8%	41.8%	41.8%
Yellow Time (s)	5.0	5.0	5.0	5.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	C:Max	C:Max	C:Max	C:Max	Max	Max	Max	Max
v/c Ratio	0.42	0.13	0.13	0.41	0.11	0.30	0.12	0.42
Control Delay	20.7	12.0	8.3	10.9	23.3	23.6	23.2	26.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.7	12.0	8.3	10.9	23.3	23.6	23.2	26.2
Queue Length 50th (ft)	47	44	23	162	15	95	19	142
Queue Length 95th (ft)	81	56	36	154	37	150	44	214
Internal Link Dist (ft)		541		940		720		408
Turn Bay Length (ft)	75		75		75		75	
Base Capacity (vph)	280	1972	602	2001	304	694	363	693
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.42	0.13	0.13	0.41	0.11	0.30	0.12	0.42

**Intersection Summary**

Cycle Length: 110  
 Actuated Cycle Length: 110  
 Offset: 42 (38%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow  
 Natural Cycle: 40  
 Control Type: Actuated-Coordinated  
 m Volume for 95th percentile queue is metered by upstream signal.

**Splits and Phases: 16: American Pkwy & Irving Street**

↶ e2 64s	↷ e4 46s
↶ e6 64s	↷ e8 46s



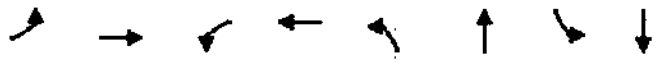


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕		↖	↕		↖	↕		↖	↕	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	13	13	12	13	13	11	13	12	11	13	12
Grade (%)		-1%			-2%			0%				-1%
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	0.99		1.00	0.97		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1761	3634		1787	3671		1646	1794		1639	1797	
Flt Permitted	0.17	1.00		0.08	1.00		0.25	1.00		0.63	1.00	
Satd. Flow (perm)	315	3634		156	3671		436	1794		1081	1797	
Volume (vph)	94	1263	13	73	1062	46	29	146	39	37	213	44
Peak-hour factor, PHF	0.79	0.79	0.79	0.91	0.91	0.91	0.88	0.88	0.88	0.89	0.89	0.89
Adj. Flow (vph)	119	1599	16	80	1167	51	33	166	44	42	239	49
RTOR Reduction (vph)	0	1	0	0	3	0	0	8	0	0	6	0
Lane Group Flow (vph)	119	1614	0	80	1215	0	33	202	0	42	282	0
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	6%	6%	6%	7%	7%	7%
Turn Type	Perm			Perm			pm+pt			Perm		
Protected Phases		2			6		3	8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	66.6	66.6		66.6	66.6		30.4	30.4		22.6	22.6	
Effective Green, g (s)	69.6	69.6		69.6	69.6		32.4	32.4		24.6	24.6	
Actuated g/C Ratio	0.63	0.63		0.63	0.63		0.29	0.29		0.22	0.22	
Clearance Time (s)	7.0	7.0		7.0	7.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	199	2299		99	2323		170	528		242	402	
v/s Ratio Prot		0.44			0.33		0.01	c0.11			c0.16	
v/s Ratio Perm	0.38			c0.51			0.05			0.04		
v/c Ratio	0.60	0.70		0.81	0.52		0.19	0.38		0.17	0.70	
Uniform Delay, d1	11.9	13.3		15.2	14.1		29.2	30.8		34.5	39.3	
Progression Factor	0.44	0.45		0.95	0.83		1.00	1.00		1.00	1.00	
Incremental Delay, d2	8.6	1.2		37.7	0.6		0.6	2.1		1.6	9.8	
Delay (s)	13.9	7.2		52.1	9.8		29.7	32.9		36.0	49.1	
Level of Service	B	A		D	A		C	C		D	D	
Approach Delay (s)		7.7			12.4			32.5			47.4	
Approach LOS		A			B			C			D	

**Intersection Summary**

HCM Average Control Delay	14.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	78.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↙	↕	↙	↕	↙	↕	↙	↕
Volume (vph)	94	1263	73	1062	29	146	37	213
Lane Group Flow (vph)	119	1615	80	1218	33	210	42	288
Turn Type	Perm		Perm		pm+pt		Perm	
Protected Phases		2		6	3	8		4
Permitted Phases	2		6		8		4	
Detector Phases	2	2	6	6	3	8	4	4
Minimum Initial (s)	15.0	15.0	15.0	15.0	3.0	7.0	7.0	7.0
Minimum Split (s)	22.0	22.0	22.0	22.0	9.0	13.0	13.0	13.0
Total Split (s)	76.0	76.0	76.0	76.0	9.0	34.0	25.0	25.0
Total Split (%)	69.1%	69.1%	69.1%	69.1%	8.2%	30.9%	22.7%	22.7%
Yellow Time (s)	5.0	5.0	5.0	5.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag					Lead		Lag	Lag
Lead-Lag Optimize?					Yes		Yes	Yes
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	Max	Max	Max
v/c Ratio	0.56	0.68	0.72	0.51	0.22	0.42	0.17	0.71
Control Delay	12.5	6.5	43.3	8.7	33.5	34.0	39.1	50.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.5	6.5	43.3	8.7	33.5	34.0	39.1	50.2
Queue Length 50th (ft)	14	98	44	207	17	115	25	192
Queue Length 95th (ft)	m23	m16	m#98	m224	42	180	58	#327
Internal Link Dist (ft)		1316		940		720		408
Turn Bay Length (ft)	75		75		75		75	
Base Capacity (vph)	213	2381	111	2406	149	498	242	408
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.56	0.68	0.72	0.51	0.22	0.42	0.17	0.71

**Intersection Summary:**

Cycle Length: 110  
 Actuated Cycle Length: 110  
 Offset: 106 (96%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated

# 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 16: American Pkwy & Irving Street

↙ a2	↙ a3	↓ a4
76	93	25
↙ a6	↕ a8	
76	94	

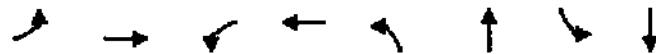


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕		↖	↕		↖	↕		↖	↕	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	13	13	12	13	13	11	13	12	11	13	12
Grade (%)		1%			2%			0%				1%
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	0.99		1.00	0.97		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1761	3634		1787	3674		1646	1794		1639	1797	
Flt Permitted	0.12	1.00		0.08	1.00		0.25	1.00		0.63	1.00	
Satd. Flow (perm)	231	3634		149	3674		436	1794		1081	1797	
Volume (vph)	94	1280	13	73	1233	46	29	146	39	37	213	44
Peak-hour factor, PHF	0.79	0.79	0.79	0.91	0.91	0.91	0.88	0.88	0.88	0.89	0.89	0.89
Adj. Flow (vph)	119	1620	16	80	1355	51	33	166	44	42	239	49
RTOR Reduction (vph)	0	1	0	0	3	0	0	8	0	0	6	0
Lane Group Flow (vph)	119	1635	0	80	1403	0	33	202	0	42	282	0
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	6%	6%	6%	7%	7%	7%
Turn Type	Perm			Perm			pm+pl			Perm		
Protected Phases		2			6		3	8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	66.6	66.6		66.6	66.6		30.4	30.4		22.6	22.6	
Effective Green, g (s)	69.6	69.6		69.6	69.6		32.4	32.4		24.6	24.6	
Actuated g/C Ratio	0.63	0.63		0.63	0.63		0.29	0.29		0.22	0.22	
Clearance Time (s)	7.0	7.0		7.0	7.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	146	2299		94	2325		170	528		242	402	
v/s Ratio Prot		0.45			0.38		0.01	0.11			0.16	
v/s Ratio Perm	0.52			0.54			0.05			0.04		
v/c Ratio	0.82	0.71		0.85	0.60		0.19	0.38		0.17	0.70	
Uniform Delay, d1	15.3	13.5		16.1	12.0		29.2	30.8		34.5	39.3	
Progression Factor	0.71	0.53		0.90	0.81		1.00	1.00		1.00	1.00	
Incremental Delay, d2	21.5	1.0		40.4	0.7		0.6	2.1		1.6	9.8	
Delay (s)	32.3	8.1		54.8	10.4		29.7	32.9		36.0	49.1	
Level of Service	C	A		D	B		C	C		D	D	
Approach Delay (s)		9.8			12.8			32.5			47.4	
Approach LOS		A			B			C			D	

**Intersection Summary**

HCM Average Control Delay	15.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	78.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖	↕	↖	↕	↖	↕	↖	↕
Volume (vph)	94	1280	73	1233	29	146	37	213
Lane Group Flow (vph)	119	1636	80	1406	33	210	42	288
Turn Type	Perm		Perm		pm+pt		Perm	
Protected Phases		2		6	3	8		4
Permitted Phases	2		6		8		4	
Detector Phases	2	2	6	6	3	8	4	4
Minimum Initial (s)	15.0	15.0	15.0	15.0	3.0	7.0	7.0	7.0
Minimum Split (s)	22.0	22.0	22.0	22.0	9.0	13.0	13.0	13.0
Total Split (s)	76.0	76.0	76.0	76.0	9.0	34.0	25.0	25.0
Total Split (%)	69.1%	69.1%	69.1%	69.1%	8.2%	30.9%	22.7%	22.7%
Yellow Time (s)	5.0	5.0	5.0	5.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag					Lead		Lag	Lag
Lead-Lag Optimize?					Yes		Yes	Yes
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	Max	Max	Max
v/c Ratio	0.75	0.69	0.75	0.58	0.22	0.42	0.17	0.71
Control Delay	28.8	7.3	43.9	9.3	33.5	34.0	39.1	50.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.8	7.3	43.9	9.3	33.5	34.0	39.1	50.2
Queue Length 50th (ft)	14	101	43	300	17	115	25	192
Queue Length 95th (ft)	27	165	70	298	42	180	58	327
Internal Link Dist (ft)		541		940		720		408
Turn Bay Length (ft)	75		75		75		75	
Base Capacity (vph)	159	2381	106	2408	149	498	242	408
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.75	0.69	0.75	0.58	0.22	0.42	0.17	0.71

**Intersection Summary**

Cycle Length: 110  
 Actuated Cycle Length: 110  
 Offset: 106 (96%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.

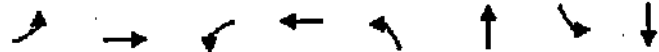
**Splits and Phases: 16: American Pkwy & Irving Street**

↖ e2	↖ e3	↕ e4
76	93	25
↖ e6	↕ e8	
76	84	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙	↑	↘	↙	↑	↘	↙	↑	↘	↙	↑	↘
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	13	13	12	13	13	11	13	12	11	13	12
Grade (%)		-1%			-2%			0%				-1%
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frnt	1.00	1.00		1.00	0.99		1.00	0.97		1.00	0.97	
Flt. Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1761	3634		1787	3674		1646	1794		1639	1797	
Flt. Permitted	0.15	1.00		0.10	1.00		0.28	1.00		0.43	1.00	
Satd. Flow (perm)	270	3634		192	3674		489	1794		749	1797	
Volume (vph)	94	1280	13	73	1233	46	29	146	39	37	243	44
Peak-hour factor, PHF	0.79	0.79	0.79	0.91	0.91	0.91	0.88	0.88	0.88	0.89	0.89	0.89
Adj. Flow (vph)	119	1620	16	80	1355	51	33	166	44	42	239	49
RTOR Reduction (vph)	0	1	0	0	2	0	0	9	0	0	7	0
Lane Group Flow (vph)	119	1635	0	80	1404	0	33	201	0	42	281	0
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	6%	6%	6%	7%	7%	7%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	75.0	75.0		75.0	75.0		22.0	22.0		22.0	22.0	
Effective Green, g (s)	78.0	78.0		78.0	78.0		24.0	24.0		24.0	24.0	
Actuated g/C Ratio	0.71	0.71		0.71	0.71		0.22	0.22		0.22	0.22	
Clearance Time (s)	7.0	7.0		7.0	7.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	191	2577		136	2605		107	391		163	392	
v/s Ratio Prot		c0.45			0.38			0.11			c0.16	
v/s Ratio Perm	0.44			0.42			0.07			0.06		
v/c Ratio	0.62	0.63		0.59	0.54		0.31	0.52		0.26	0.72	
Uniform Delay, d1	8.3	8.5		8.0	7.5		36.0	37.9		35.6	39.8	
Progression Factor	0.68	0.49		0.82	0.70		1.00	1.00		1.00	1.00	
Incremental Delay, d2	9.1	9.7		11.8	10.5		27.3	24.8		3.8	10.7	
Delay (s)	14.8	4.9		18.3	5.8		43.4	42.7		39.4	50.6	
Level of Service	B	A		B	A		D	D		D	D	
Approach Delay (s)		5.6			6.5			42.8			49.1	
Approach LOS		A			A			D			D	

Intersection Summary	
HCM Average Control Delay	12.1
HCM Volume to Capacity ratio	0.65
Actuated Cycle Length (s)	110.0
Intersection Capacity Utilization	81.3%
Analysis Period (min)	15
HCM Level of Service	B
Sum of lost time (s)	8.0
ICU Level of Service	D



Label/Group	EBL	EBTL	WBL	WBTL	NBL	NBT	SBL	SBT
Lane Configurations	↖	↕	↖	↕	↖	↕	↖	↕
Volume (vph)	94	1280	73	1233	29	146	37	213
Lane Group Flow (vph)	119	1636	80	1406	33	210	42	288
Turn Type	Perm		Perm		Perm		Perm	
Protected Phases		2		6		8		4
Permitted Phases	2		6		8		4	
Detector Phases	2	2	6	6	8	8	4	4
Minimum Initial (s)	15.0	15.0	15.0	15.0	7.0	7.0	7.0	7.0
Minimum Split (s)	22.0	22.0	22.0	22.0	13.0	13.0	13.0	13.0
Total Split (s)	82.0	82.0	82.0	82.0	28.0	28.0	28.0	28.0
Total Split (%)	74.5%	74.5%	74.5%	74.5%	25.5%	25.5%	25.5%	25.5%
Yellow Time (s)	5.0	5.0	5.0	5.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	C-Max	C-Max	C-Max	C-Max	Max	Max	Max	Max
v/c Ratio	0.62	0.63	0.59	0.54	0.31	0.53	0.26	0.72
Control Delay	17.1	5.0	22.1	5.9	45.2	41.4	40.6	50.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.1	5.0	22.1	5.9	45.2	41.4	40.6	50.2
Queue Length 50th (ft)	14	101	16	137	20	125	25	184
Queue Length 95th (ft)	m20	107	m49	m137	51	196	58	#278
Internal Link Dist (ft)		541		940		720		408
Turn Bay Length (ft)	75		75		75		75	
Base Capacity (vph)	192	2579	136	2608	107	400	163	399
Starvation Cap. Reductn	0	0	0	0	0	0	0	0
Spillback Cap. Reductn	0	0	0	0	0	0	0	0
Storage Cap. Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.62	0.63	0.59	0.54	0.31	0.53	0.26	0.72

**Intersection Summary**  
 Cycle Length: 110  
 Actuated Cycle Length: 110  
 Offset: 106 (96%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow  
 Natural Cycle: 45  
 Control Type: Actuated-Coordinated  
 # 95th percentile volume exceeds capacity, queue may be longer  
 Queue shown is maximum after two cycles.  
 m. Volume for 95th percentile queue is metered by upstream signal.

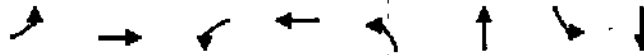
Splits and Phases: 16: American Pkwy & Irving Street

↖ a2	↕ a4
82%	28%
↖ a6	↕ a8
82%	28%



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↗	↘	↖	↗	↘	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	12	13	13	12	13	13	11	13	12	11	13	12	
Grade (%)		-1%			-2%			0%				-1%	
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0		
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00		
Frt	1.00	0.99		1.00	0.98		1.00	0.95		1.00	0.95		
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00		
Satd. Flow (prot)	1778	3642		1736	3510		1711	1821		1719	1833		
Flt Permitted	0.60	1.00		0.43	1.00		0.39	1.00		0.62	1.00		
Satd. Flow (perm)	1129	3642		790	3510		694	1821		1124	1833		
Volume (vph)	34	382	25	18	191	33	15	109	62	42	165	88	
Peak-hour factor, PHF	0.88	0.88	0.88	0.96	0.96	0.96	0.78	0.78	0.78	0.76	0.76	0.76	
Adj. Flow (vph)	39	434	28	19	199	34	19	140	79	55	217	116	
RTOR Reduction (vph)	0	5	0	0	14	0	0	18	0	0	16	0	
Lane Group Flow (vph)	39	457	0	19	219	0	19	201	0	55	317	0	
Heavy Vehicles (%)	2%	2%	2%	5%	5%	5%	2%	2%	2%	2%	2%	2%	
Turn Type	Perm			Perm			pm+pt			Perm			
Protected Phases		2			6		3	8			4		
Permitted Phases	2			6			8			4			
Actuated Green, G (s)	43.4	43.4		43.4	43.4		48.6	48.6		39.9	39.9		
Effective Green, g (s)	46.4	46.4		46.4	46.4		50.6	50.6		41.9	41.9		
Actuated g/C Ratio	0.44	0.44		0.44	0.44		0.48	0.48		0.40	0.40		
Clearance Time (s)	7.0	7.0		7.0	7.0		6.0	6.0		6.0	6.0		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0		
Lane Grp. Cap (vph)	499	1609		349	1551		380	878		449	731		
v/s Ratio Prot		c0.13			0.06		0.00	c0.11			c0.17		
v/s Ratio Perm	0.03			0.02			0.02			0.05			
v/c Ratio	0.08	0.28		0.05	0.14		0.05	0.23		0.12	0.43		
Uniform Delay, d1	16.9	18.7		16.8	17.4		15.2	15.8		19.9	22.9		
Progression Factor	1.00	1.00		0.98	1.02		1.00	1.00		1.00	1.00		
Incremental Delay, d2	0.3	0.4		0.3	0.2		0.1	0.6		0.6	1.9		
Delay (s)	17.2	19.1		16.8	17.9		15.3	16.4		20.5	24.8		
Level of Service	B	B		B	B		B	B		C	C		
Approach Delay (s)		19.0			17.8			16.4			24.2		
Approach LOS		B			B			B			C		
Intersection Summary													
HCM Average Control Delay	19.8						HCM Level of Service						B
HCM Volume to Capacity ratio	0.35												
Actuated Cycle Length (s)	105.0						Sum of lost time (s)						12.0
Intersection Capacity Utilization	55.6%						ICU Level of Service						B
Analysis Period (min)	15												

c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	←	↑↑	←	↑↑	←	↑	←	↑
Volume (vph)	34	382	18	191	15	109	42	165
Lane Group Flow (vph)	39	462	19	233	19	219	55	333
Turn Type	Perm		Perm		pm+pl		Perm	
Protected Phases		2		6	3	8		4
Permitted Phases	2		6		8		4	
Detector Phases	2	2	6	6	3	8	4	4
Minimum Initial (s)	15.0	15.0	15.0	15.0	3.0	7.0	7.0	7.0
Minimum Split (s)	22.0	22.0	22.0	22.0	9.0	13.0	13.0	13.0
Total Split (s)	54.0	54.0	54.0	54.0	13.0	51.0	38.0	38.0
Total Split (%)	51.4%	51.4%	51.4%	51.4%	12.4%	48.6%	36.2%	36.2%
Yellow Time (s)	5.0	5.0	5.0	5.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag					Lead		Lag	Lag
Lead-Lag Optimize?					Yes		Yes	Yes
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	Max	Max	Max
v/c Ratio	0.07	0.27	0.05	0.14	0.05	0.26	0.12	0.45
Control Delay	15.5	16.7	15.1	14.2	16.7	16.1	23.7	24.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.5	16.7	15.1	14.2	16.7	16.1	23.7	24.9
Queue Length 50th (ft)	14	92	8	47	7	74	21	134
Queue Length 95th (ft)	32	123	20	78	18	104	47	205
Internal Link Dist (ft)		1316		940		720		408
Turn Bay Length (ft)	75		75		75		75	
Base Capacity (vph)	540	1739	385	1684	357	834	448	748
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.27	0.05	0.14	0.05	0.26	0.12	0.45

**Intersection Summary**  
 Cycle Length: 105  
 Actuated Cycle Length: 105  
 Offset: 20 (19%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow  
 Natural Cycle: 45  
 Control Type: Actuated-Coordinated  
 m: Volume for 95th percentile queue is metered by upstream signal

Splits and Phases: 16: American Pkwy & Irving Street

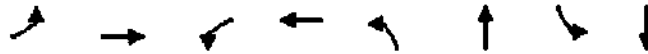
← a2	← a3	↓ a4
54s	19s	38s
← a6	↑ a8	
54s	51s	





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕		↖	↕		↖	↕		↖	↕	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	13	13	12	13	13	11	13	12	11	13	12
Grade (%)		1%			2%			0%				1%
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	0.98		1.00	0.95		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1778	3642		1736	3509		1711	1820		1719	1834	
Flt Permitted	0.59	1.00		0.41	1.00		0.37	1.00		0.62	1.00	
Satd. Flow (perm)	1110	3642		758	3509		665	1820		1114	1834	
Volume (vph)	36	404	26	19	201	35	16	114	65	44	173	92
Peak-hour factor, PHF	0.88	0.88	0.88	0.96	0.96	0.96	0.78	0.78	0.78	0.76	0.76	0.76
Adj. Flow (vph)	41	459	30	20	209	36	21	146	83	58	228	121
RTOR Reduction (vph)	0	5	0	0	14	0	0	18	0	0	16	0
Lane Group Flow (vph)	41	484	0	20	231	0	21	211	0	58	333	0
Heavy Vehicles (%)	2%	2%	2%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Turn Type	Perm			Perm			pm+pt			Perm		
Protected Phases		2			6		3	8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	43.4	43.4		43.4	43.4		48.6	48.6		39.9	39.9	
Effective Green, g (s)	46.4	46.4		46.4	46.4		50.6	50.6		41.9	41.9	
Actuated g/C Ratio	0.44	0.44		0.44	0.44		0.48	0.48		0.40	0.40	
Clearance Time (s)	7.0	7.0		7.0	7.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap. (vph)	491	1609		335	1551		367	877		445	732	
v/s Ratio Prot		c0.13			0.07		0.00	c0.12			c0.18	
v/s Ratio Perm	0.04			0.03			0.02			0.05		
v/c Ratio	0.08	0.30		0.06	0.15		0.06	0.24		0.13	0.45	
Uniform Delay, d1	17.0	18.9		16.8	17.5		15.4	15.9		20.0	23.2	
Progression Factor	1.00	1.00		1.17	1.17		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	0.5		0.3	0.2		0.1	0.6		0.6	2.0	
Delay (s)	17.3	19.3		20.0	20.7		15.5	16.6		20.6	25.2	
Level of Service	B	B		C	C		B	B		C	C	
Approach Delay (s)		19.2			20.7			16.5			24.5	
Approach LOS		B			C			B			C	
<b>Intersection Summary</b>												
HCM Average Control Delay	20.5		HCM Level of Service		C							
HCM Volume to Capacity ratio	0.37											
Actuated Cycle Length (s)	105.0		Sum of lost time (s)		12.0							
Intersection Capacity Utilization	56.4%		ICU Level of Service		B							
Analysis Period (min)	15											

c Critical Lane Group



Lane/Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖	↕	↖	↕	↖	↕	↖	↕
Volume (vph)	36	404	19	201	16	114	44	173
Lane Group Flow (vph)	41	489	20	245	21	229	58	349
Turn Type	Perm	Perm	Perm	pm+pt	Perm	Perm	Perm	Perm
Protected Phases		2		6	3	8		4
Permitted Phases	2		6		8		4	
Detector Phases	2	2	6	6	3	8	4	4
Minimum Initial (s)	15.0	15.0	15.0	15.0	3.0	7.0	7.0	7.0
Minimum Split (s)	22.0	22.0	22.0	22.0	9.0	13.0	13.0	13.0
Total Split (s)	54.0	54.0	54.0	54.0	13.0	51.0	38.0	38.0
Total Split (%)	51.4%	51.4%	51.4%	51.4%	12.4%	48.6%	36.2%	36.2%
Yellow Time (s)	5.0	5.0	5.0	5.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag					Lead		Lag	Lag
Lead-Lag Optimize?					Yes		Yes	Yes
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	Max	Max	Max
v/c Ratio	0.08	0.28	0.05	0.15	0.06	0.27	0.13	0.47
Control Delay	15.6	16.8	18.1	16.5	16.8	16.4	23.8	25.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.6	16.8	18.1	16.5	16.8	16.4	23.8	25.5
Queue Length 50th (ft)	14	98	8	50	8	79	22	142
Queue Length 95th (ft)	34	131	24	77	19	109	50	215
Internal Link Dist (ft)		1316		940		720		408
Turn Bay Length (ft)	75		75		75		75	
Base Capacity (vph)	532	1739	370	1684	345	834	444	747
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.28	0.05	0.15	0.06	0.27	0.13	0.47

**Intersection Summary:**  
 Cycle Length: 105  
 Actuated Cycle Length: 105  
 Offset: 20 (19%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow  
 Natural Cycle: 50  
 Control Type: Actuated-Coordinated  
 Max Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 16: American Pkwy & Irving Street

↖ p2	↖ p3	↖ p4
54	13	83
↖ p6	↖ p8	
54	51	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕		↖	↕		↖	↕		↖	↕	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	13	13	12	13	13	11	13	12	11	13	12
Grade (%)		-1%			-2%			0%				-1%
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frnt	1.00	0.99		1.00	0.99		1.00	0.95		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1778	3653		1736	3560		1711	1820		1719	1834	
Flt Permitted	0.30	1.00		0.27	1.00		0.37	1.00		0.62	1.00	
Satd. Flow (perm)	555	3653		489	3560		665	1820		1114	1834	
Volume (vph)	36	635	26	19	632	35	16	114	65	44	173	92
Peak-hour factor, PHF	0.88	0.88	0.88	0.96	0.96	0.96	0.78	0.78	0.78	0.76	0.76	0.76
Adj. Flow (vph)	41	722	30	20	658	36	21	146	83	58	228	121
RTOR Reduction (vph)	0	3	0	0	4	0	0	18	0	0	16	0
Lane Group Flow (vph)	41	749	0	20	690	0	21	211	0	58	333	0
Heavy Vehicles (%)	2%	2%	2%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Turn Type	Perm			Perm			pm+pt			Perm		
Protected Phases		2			6		3	8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	43.4	43.4		43.4	43.4		48.6	48.6		39.9	39.9	
Effective Green, g (s)	46.4	46.4		46.4	46.4		50.6	50.6		41.9	41.9	
Actuated g/C Ratio	0.44	0.44		0.44	0.44		0.48	0.48		0.40	0.40	
Clearance Time (s)	7.0	7.0		7.0	7.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	245	1614		216	1573		367	877		445	732	
v/s Ratio Prot		c0.21			0.19		0.00	c0.12			c0.18	
v/s Ratio Perm	0.07			0.04			0.02			0.05		
v/c Ratio	0.17	0.46		0.09	0.44		0.06	0.24		0.13	0.45	
Uniform Delay, d1	17.7	20.6		17.0	20.3		15.4	15.9		20.0	23.2	
Progression Factor	1.00	1.00		1.08	1.08		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.5	1.0		0.8	0.8		0.1	0.6		0.6	2.0	
Delay (s)	19.1	21.5		19.2	22.7		15.5	16.6		20.6	25.2	
Level of Service	B	C		B	C		B	B		C	C	
Approach Delay (s)		21.4			22.6			16.5			24.5	
Approach LOS		C			C			B			C	

Intersection Summary	
HCM Average Control Delay	21.8
HCM Volume to Capacity ratio	0.45
Actuated Cycle Length (s)	105.0
Intersection Capacity Utilization	58.0%
Analysis Period (min)	15
HCM Level of Service	C
Sum of lost time (s)	12.0
ICU Level of Service	B



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↵	↕	↵	↕	↵	↕	↵	↕
Volume (vph)	36	635	19	632	16	114	44	173
Lane Group Flow (vph)	41	752	20	694	21	229	58	349
Turn Type	Perm		Perm		pm+pt		Perm	
Protected Phases		2		6	3	8		4
Permitted Phases	2		6		8		4	
Detector Phases	2	2	6	6	3	8	4	4
Minimum Initial (s)	15.0	15.0	15.0	15.0	3.0	7.0	7.0	7.0
Minimum Split (s)	22.0	22.0	22.0	22.0	9.0	13.0	13.0	13.0
Total Split (s)	54.0	54.0	54.0	54.0	13.0	51.0	38.0	38.0
Total Split (%)	51.4%	51.4%	51.4%	51.4%	12.4%	48.6%	36.2%	36.2%
Yellow Time (s)	5.0	5.0	5.0	5.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag					Lead		Lag	Lag
Lead-Lag Optimize?					Yes		Yes	Yes
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	Max	Max	Max
v/c Ratio	0.15	0.43	0.08	0.41	0.06	0.27	0.13	0.47
Control Delay	17.4	19.0	17.4	20.0	16.8	16.4	23.8	25.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.4	19.0	17.4	20.0	16.8	16.4	23.8	25.5
Queue Length 50th (ft)	15	168	7	164	8	79	22	142
Queue Length 95th (ft)	37	211	22	213	19	109	50	215
Internal Link Dist (ft)		541		940		720		408
Turn Bay Length (ft)	75		75		75		75	
Base Capacity (vph)	276	1742	245	1699	345	834	444	747
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.43	0.08	0.41	0.06	0.27	0.13	0.47

**Intersection Summary**

Cycle Length: 105  
 Actuated Cycle Length: 105  
 Offset: 20 (19%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow  
 Natural Cycle: 45  
 Control Type: Actuated-Coordinated  
 m: Volume for 95th percentile queue is metered by upstream signal

Splits and Phases: 16: American Pkwy & Irving Street

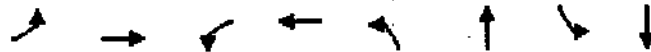
↵ ø2 54s	↵ ø3 13s	↵ ø4 38s
↵ ø6 54s	↵ ø8 51s	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑		↑	↑↑		↑	↑		↑	↑	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	13	13	12	13	13	11	13	12	11	13	12
Grade (%)		-1%			-2%			0%				-1%
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	0.99		1.00	0.95		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1778	3653		1736	3560		1711	1820		1719	1834	
Flt Permitted	0.30	1.00		0.27	1.00		0.45	1.00		0.56	1.00	
Satd. Flow (perm)	567	3653		501	3560		601	1820		1020	1834	
Volume (vph)	36	635	26	19	632	35	16	114	65	44	173	92
Peak-hour factor, PHF	0.88	0.88	0.88	0.96	0.96	0.96	0.78	0.78	0.78	0.76	0.76	0.76
Adj. Flow (vph)	41	722	30	20	658	36	21	146	83	58	228	121
RTOR Reduction (vph)	0	3	0	0	4	0	0	20	0	0	18	0
Lane Group Flow (vph)	41	749	0	20	690	0	21	209	0	58	331	0
Heavy Vehicles (%)	2%	2%	2%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	45.0	45.0		45.0	45.0		47.0	47.0		47.0	47.0	
Effective Green, g (s)	48.0	48.0		48.0	48.0		49.0	49.0		49.0	49.0	
Actuated g/C Ratio	0.46	0.46		0.46	0.46		0.47	0.47		0.47	0.47	
Clearance Time (s)	7.0	7.0		7.0	7.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	259	1670		229	1627		374	849		476	856	
v/s Ratio Prot		c0.21			0.19			0.11			c0.18	
v/s Ratio Perm	0.07			0.04			0.03			0.06		
v/c Ratio	0.16	0.45		0.09	0.42		0.06	0.25		0.12	0.39	
Uniform Delay, d1	16.7	19.5		16.1	19.2		15.3	16.9		15.8	18.2	
Progression Factor	1.00	1.00		1.08	1.08		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.3	0.9		0.7	0.8		0.3	0.7		0.5	1.3	
Delay (s)	18.0	20.3		18.1	21.5		15.6	17.6		16.4	19.5	
Level of Service	B	C		B	C		B	B		B	B	
Approach Delay (s)		20.2			21.4			17.4			19.1	
Approach LOS		C			C			B			B	

Intersection Summary	
HCM Average Control Delay	20.1
HCM Volume to Capacity ratio	0.42
Actuated Cycle Length (s)	105.0
Intersection Capacity Utilization	60.5%
Analysis Period (min)	15
HCM Level of Service	C
Sum of lost time (s)	8.0
ICU Level of Service	B

c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖	↕	↖	↕	↖	↕	↖	↕
Volume (vph)	36	635	19	632	16	114	44	173
Lane Group Flow (vph)	41	752	20	694	21	229	58	349
Turn Type	Perm		Perm		Perm		Perm	
Protected Phases		2		6		8		4
Permitted Phases	2		6		8		4	
Detector Phases	2	2	6	6	8	8	4	4
Minimum Initial (s)	15.0	15.0	15.0	15.0	7.0	7.0	7.0	7.0
Minimum Split (s)	22.0	22.0	22.0	22.0	13.0	13.0	13.0	13.0
Total Split (s)	52.0	52.0	52.0	52.0	53.0	53.0	53.0	53.0
Total Split (%)	49.5%	49.5%	49.5%	49.5%	50.5%	50.5%	50.5%	50.5%
Yellow Time (s)	5.0	5.0	5.0	5.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	C-Max	C-Max	C-Max	C-Max	Max	Max	Max	Max
v/c Ratio	0.16	0.45	0.09	0.43	0.06	0.26	0.12	0.40
Control Delay	18.8	20.4	18.8	21.5	16.0	15.1	16.8	18.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.8	20.4	18.8	21.5	16.0	15.1	16.8	18.1
Queue Length 50th (ft)	16	175	8	170	8	75	21	133
Queue Length 95th (ft)	38	219	23	221	19	104	39	162
Internal Link Dist (ft)		541		940		720		408
Turn Bay Length (ft)	75		75		75		75	
Base Capacity (vph)	259	1673	229	1631	374	870	476	874
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.45	0.09	0.43	0.06	0.26	0.12	0.40

**Intersection Summary:**

Cycle Length: 105  
 Actuated Cycle Length: 105  
 Offset: 20 (19%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow  
 Natural Cycle: 40  
 Control Type: Actuated-Coordinated  
 m Volume for 95th percentile queue is metered by upstream signal

**Splits and Phases: 16: American Pkwy & Irving Street**

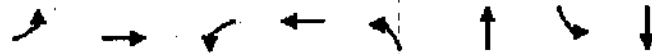
↖ o2	↕ o4
52s	53s
↖ o6	↕ o8
52s	53s



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕		↖	↕		↖	↕		↖	↕	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	13	13	12	13	13	11	13	12	11	13	12
Grade (%)		-1%			-2%			0%			-1%	
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frnt	1.00	0.99		1.00	1.00		1.00	0.95		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1778	3653		1736	3578		1711	1820		1719	1834	
Flt Permitted	0.09	1.00		0.27	1.00		0.37	1.00		0.62	1.00	
Satd. Flow (perm)	161	3653		489	3578		665	1820		1114	1834	
Volume (vph)	36	635	26	19	1817	35	16	114	65	44	173	92
Peak-hour factor, PHF	0.88	0.88	0.88	0.96	0.96	0.96	0.78	0.78	0.78	0.76	0.76	0.76
Adj. Flow (vph)	41	722	30	20	1893	36	21	146	83	58	228	121
RTOR Reduction (vph)	0	3	0	0	1	0	0	18	0	0	16	0
Lane Group Flow (vph)	41	749	0	20	1928	0	21	214	0	58	333	0
Heavy Vehicles (%)	2%	2%	2%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Turn Type	Perm			Perm			Perm+pl			Perm		
Protected Phases		2			6		3	8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	43.4	43.4		43.4	43.4		48.6	48.6		39.9	39.9	
Effective Green, g (s)	46.4	46.4		46.4	46.4		50.6	50.6		41.9	41.9	
Actuated g/C Ratio	0.44	0.44		0.44	0.44		0.48	0.48		0.40	0.40	
Clearance Time (s)	7.0	7.0		7.0	7.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	71	1614		216	1581		367	877		445	732	
v/s Ratio Prot		0.21			c0.54		0.00	c0.12			c0.18	
v/s Ratio Perm	0.25			0.04			0.02			0.05		
v/c Ratio	0.58	0.46		0.09	1.22		0.06	0.24		0.13	0.45	
Uniform Delay, d1	22.0	20.6		17.0	29.3		15.4	15.9		20.0	23.2	
Progression Factor	1.00	1.00		1.03	1.03		1.00	1.00		1.00	1.00	
Incremental Delay, d2	29.9	1.0		0.1	99.3		0.1	0.6		0.6	2.0	
Delay (s)	51.9	21.5		17.7	129.3		15.5	16.6		20.6	25.2	
Level of Service	D	C		B	F		B	B		C	C	
Approach Delay (s)		23.1			128.2			16.5			24.5	
Approach LOS		C			F			B			C	

Intersection Summary	
HCM Average Control Delay	83.0
HCM Volume to Capacity ratio	0.83
Actuated Cycle Length (s)	105.0
Intersection Capacity Utilization	79.4%
Analysis Period (min)	15
HCM Level of Service	F
Sum of lost time (s)	12.0
ICU Level of Service	D

c Critical Lane Group

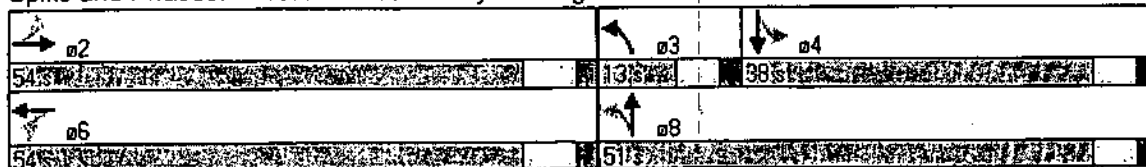


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖	↕	↖	↕	↖	↕	↖	↕
Volume (vph)	36	635	19	1817	16	114	44	173
Lane Group Flow (vph)	41	752	20	1929	21	229	58	349
Turn Type	Perm		Perm		pr	pl	Perm	
Protected Phases		2		6	3	8		4
Permitted Phases	2		6		8		4	
Detector Phases	2	2	6	6	3	8	4	4
Minimum Initial (s)	15.0	15.0	15.0	15.0	3.0	7.0	7.0	7.0
Minimum Split (s)	22.0	22.0	22.0	22.0	9.0	13.0	13.0	13.0
Total Split (s)	54.0	54.0	54.0	54.0	13.0	51.0	38.0	38.0
Total Split (%)	51.4%	51.4%	51.4%	51.4%	12.4%	48.6%	36.2%	36.2%
Yellow Time (s)	5.0	5.0	5.0	5.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag					Lead		Lag	Lag
Lead-Lag Optimize?					Yes		Yes	Yes
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	Max	Max	Max
v/c Ratio	0.58	0.43	0.08	1.13	0.06	0.27	0.13	0.47
Control Delay	56.6	19.0	16.2	88.4	16.8	16.4	23.8	25.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.6	19.0	16.2	88.4	16.8	16.4	23.8	25.5
Queue Length 50th (ft)	19	168	7	-798	8	79	22	142
Queue Length 95th (ft)	#78	211	m7	m#668	19	109	50	215
Internal Link Dist (ft)		541		940		720		408
Turn Bay Length (ft)	75		75		75		75	
Base Capacity (vph)	71	1742	245	1704	345	834	444	747
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.58	0.43	0.08	1.13	0.06	0.27	0.13	0.47

**Intersection Summary**

Cycle Length: 105  
 Actuated Cycle Length: 105  
 Offset: 20 (19%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow  
 Natural Cycle: 80  
 Control Type: Actuated-Coordinated  
 \* Volume exceeds capacity, queue is theoretically infinite  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer  
 Queue shown is maximum after two cycles.  
 m: Volume for 95th percentile queue is metered by upstream signal

**Splits and Phases: 16: American Pkwy & Irving Street**







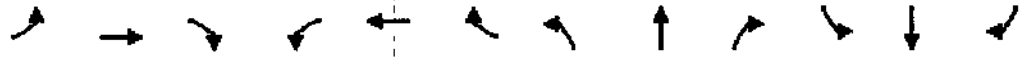
Movements	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕		↖	↕		↖	↕		↖	↕	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	13	13	12	13	13	11	13	12	11	13	12
Grade (%)		-1%			2%			0%				-1%
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00		1.00	0.95		1.00	0.95	
Flt: Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1778	3653		1736	3578		1711	1820		1719	1834	
Flt: Permitted	0.06	1.00		0.34	1.00		0.22	1.00		0.43	1.00	
Satd. Flow (perm)	104	3653		620	3578		388	1820		773	1834	
Volume (vph)	36	635	26	19	1817	35	16	114	65	44	173	92
Peak-hour factor, PHF	0.88	0.88	0.88	0.96	0.96	0.96	0.78	0.78	0.78	0.76	0.76	0.76
Adj. Flow (vph)	41	722	30	20	1893	36	21	146	83	58	228	121
RTOR Reduction (vph)	0	3	0	0	1	0	0	20	0	0	18	0
Lane Group Flow (vph)	41	749	0	20	1928	0	21	209	0	58	331	0
Heavy Vehicles (%)	2%	2%	2%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	69.0	69.0		69.0	69.0		23.0	23.0		23.0	23.0	
Effective Green, g (s)	72.0	72.0		72.0	72.0		25.0	25.0		25.0	25.0	
Actuated g/C Ratio	0.69	0.69		0.69	0.69		0.24	0.24		0.24	0.24	
Clearance Time (s)	7.0	7.0		7.0	7.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	71	2505		425	2453		92	433		184	437	
v/s Ratio Prot		0.21			c0.54			0.11			c0.18	
v/s Ratio Perm	0.39			0.03			0.05			0.08		
v/c Ratio	0.58	0.30		0.05	0.79		0.23	0.48		0.32	0.76	
Uniform Delay, d1	8.6	6.5		5.4	11.2		32.2	34.4		32.9	37.2	
Progression Factor	1.00	1.00		1.02	1.05		1.00	1.00		1.00	1.00	
Incremental Delay, d2	29.9	0.3		0.0	0.2		5.7	3.8		4.4	11.6	
Delay (s)	38.5	6.8		5.5	12.0		37.9	38.3		37.4	48.8	
Level of Service	D	A		A	B		D	D		D	D	
Approach Delay (s)		8.5			11.9			38.2			47.1	
Approach LOS		A			B			D			D	

**Intersection Summary**

HCM Average Control Delay	17.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	81.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↘	↕		↘	↕		↘	↕		↘	↕		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	12	13	13	12	13	13	11	13	12	11	13	12	
Grade (%)		-1%			2%			0%				-1%	
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0		
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00		
Frnt	1.00	0.99		1.00	0.98		1.00	0.94		1.00	0.95		
Flt. Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00		
Satd. Flow (prot)	1778	3642		1736	3508		1711	1819		1719	1833		
Flt. Permitted	0.54	1.00		0.33	1.00		0.26	1.00		0.58	1.00		
Satd. Flow (perm)	1006	3642		611	3508		463	1819		1050	1833		
Volume (vph)	45	522	33	25	259	45	20	145	84	58	219	117	
Peak-hour factor, PHF	0.88	0.88	0.88	0.96	0.96	0.96	0.78	0.78	0.78	0.76	0.76	0.76	
Adj. Flow (vph)	51	593	38	26	270	47	26	186	108	76	288	154	
RTOR Reduction (vph)	0	4	0	0	14	0	0	19	0	0	17	0	
Lane Group Flow (vph)	51	627	0	26	303	0	26	275	0	76	425	10	
Heavy Vehicles (%)	2%	2%	2%	5%	5%	5%	2%	2%	2%	2%	2%	2%	
Turn Type	Perm			Perm			pm+pl			Perm			
Protected Phases		2			6		3	8			4		
Permitted Phases	2			6			8			4			
Actuated Green, G (s)	44.6	44.6		44.6	44.6		47.4	47.4		37.4	37.4		
Effective Green, g (s)	47.6	47.6		47.6	47.6		49.4	49.4		39.4	39.4		
Actuated g/C Ratio	0.45	0.45		0.45	0.45		0.47	0.47		0.38	0.38		
Clearance Time (s)	7.0	7.0		7.0	7.0		6.0	6.0		6.0	6.0		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0		
Lane Grp Cap (vph)	456	1651		277	1590		289	856		394	688		
v/s Ratio Prot		c0.17			0.09		0.01	c0.15			c0.23		
v/s Ratio Perm	0.05			0.04			0.04			0.07			
v/c Ratio	0.11	0.38		0.09	0.19		0.09	0.32		0.19	0.62		
Uniform Delay, d1	16.5	18.9		16.4	17.2		17.2	17.3		22.1	26.7		
Progression Factor	1.00	1.00		1.15	1.16		1.00	1.00		1.00	1.00		
Incremental Delay, d2	0.5	0.7		0.7	0.3		0.1	1.0		1.1	4.1		
Delay (s)	17.0	19.6		19.6	20.2		17.3	18.3		23.2	30.8		
Level of Service	B	B		B	C		B	B		C	C		
Approach Delay (s)		19.4			20.2			18.3			29.7		
Approach LOS		B			C			B			C		
<b>Intersection Summary</b>													
HCM Average Control Delay	22.2						HCM Level of Service						C
HCM Volume to Capacity ratio	0.48												
Actuated Cycle Length (s)	105.0						Sum of lost time (s)						12.0
Intersection Capacity Utilization	63.3%						ICU Level of Service						B
Analysis Period (min)	15												

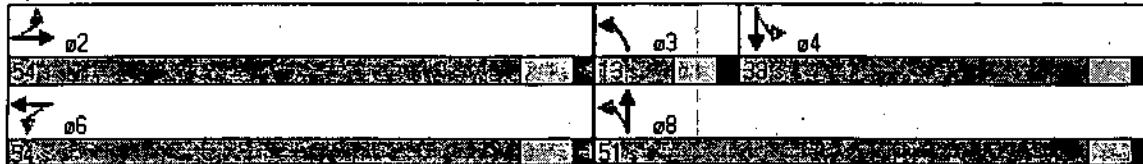
c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↘	↗	↘	↗	↘	↗	↘	↗
Volume (vph)	45	522	25	259	20	145	58	219
Lane Group Flow (vph)	51	631	26	317	26	294	76	442
Turn Type	Perm		Perm		pm+pt		Perm	
Protected Phases		2		6	3	8		4
Permitted Phases	2		6		8		4	
Detector Phases	2	2	6	6	3	8	4	4
Minimum Initial (s)	15.0	15.0	15.0	15.0	3.0	7.0	7.0	7.0
Minimum Split (s)	22.0	22.0	22.0	22.0	9.0	13.0	13.0	13.0
Total Split (s)	54.0	54.0	54.0	54.0	13.0	51.0	38.0	38.0
Total Split (%)	51.4%	51.4%	51.4%	51.4%	12.4%	48.6%	36.2%	36.2%
Yellow Time (s)	5.0	5.0	5.0	5.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag					Lead		Lag	Lag
Lead-Lag Optimize?					Yes		Yes	Yes
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	Max	Max	Max
v/c Ratio	0.11	0.36	0.09	0.19	0.10	0.35	0.19	0.63
Control Delay	16.0	17.9	18.5	17.2	17.2	18.0	26.3	31.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.0	17.9	18.5	17.2	17.2	18.0	26.3	31.4
Queue Length 50th (ft)	18	134	11	67	10	109	37	243
Queue Length 95th (ft)	40	172	m29	m95	22	143	62	284
Internal Link Dist (ft)		1316		940		720		408
Turn Bay Length (ft)	75		75		75		75	
Base Capacity (vph)	482	1738	299	1685	276	834	394	704
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.36	0.09	0.19	0.09	0.35	0.19	0.63

**Intersection Summary:**  
 Cycle Length: 105  
 Actuated Cycle Length: 105  
 Offset: 20 (19%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow  
 Natural Cycle: 50  
 Control Type: Actuated-Coordinated  
 m: Volume for 95th percentile queue is metered by upstream signal

Splits and Phases: 16: American Pkwy & Irving Street





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	13	13	12	13	13	11	13	12	11	13	12
Grade (%)		1%			2%			0%			1%	
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	0.99		1.00	0.94		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1778	3652		1736	3555		1711	1819		1719	1833	
Flt Permitted	0.27	1.00		0.21	1.00		0.26	1.00		0.58	1.00	
Satd. Flow (perm)	498	3652		382	3555		463	1819		1050	1833	
Volume (vph)	45	753	33	25	690	45	320	145	84	58	219	117
Peak-hour factor, PHF	0.88	0.88	0.88	0.96	0.96	0.96	0.78	0.78	0.78	0.76	0.76	0.76
Adj. Flow (vph)	51	856	38	26	719	47	26	186	108	76	288	154
RTOR Reduction (vph)	0	3	0	0	5	0	0	19	0	0	17	0
Lane Group Flow (vph)	51	891	0	26	761	30	26	275	0	76	425	0
Heavy Vehicles (%)	2%	2%	2%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Turn Type	Perm			Perm			pm+pt			Perm		
Protected Phases		2			6		3	8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	44.6	44.6		44.6	44.6		47.4	47.4		37.4	37.4	
Effective Green, g (s)	47.6	47.6		47.6	47.6		49.4	49.4		39.4	39.4	
Actuated g/C Ratio	0.45	0.45		0.45	0.45		0.47	0.47		0.38	0.38	
Clearance Time (s)	7.0	7.0		7.0	7.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	226	1656		173	1612		289	856		394	688	
v/s Ratio Prot		c0.24			0.21		0.01	c0.15			c0.23	
v/s Ratio Perm	0.10			0.07			0.04			0.07		
v/c Ratio	0.23	0.54		0.15	0.47		0.09	0.32		0.19	0.62	
Uniform Delay, d1	17.5	20.7		16.8	20.0		17.2	17.3		22.1	26.7	
Progression Factor	1.00	1.00		1.07	1.08		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.3	1.3		1.7	0.9		0.1	1.0		1.1	4.1	
Delay (s)	19.8	22.0		19.8	22.6		17.3	18.3		23.2	30.8	
Level of Service	B	C		B	C		B	B		C	C	
Approach Delay (s)		21.9			22.5			18.3			29.7	
Approach LOS		C			C			B			C	

Intersection Summary	
HCM Average Control Delay	23.2
HCM Volume to Capacity ratio	0.56
Actuated Cycle Length (s)	105.0
Intersection Capacity Utilization	69.4%
Analysis Period (min)	15
HCM Level of Service	C
Sum of lost time (s)	12.0
ICU Level of Service	C

c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖	↕	↖	↕	↖	↕	↖	↕
Volume (vph)	45	753	25	690	20	145	58	219
Lane Group Flow (vph)	51	894	26	766	26	294	76	442
Turn Type	Perm		Perm		pm+pl		Perm	
Protected Phases		2		6	3	8		4
Permitted Phases	2		6		8		4	
Detector Phases	2	2	6	6	3	8	4	4
Minimum Initial (s)	15.0	15.0	15.0	15.0	3.0	7.0	7.0	7.0
Minimum Split (s)	22.0	22.0	22.0	22.0	9.0	13.0	13.0	13.0
Total Split (s)	54.0	54.0	54.0	54.0	13.0	51.0	38.0	38.0
Total Split (%)	51.4%	51.4%	51.4%	51.4%	12.4%	48.6%	36.2%	36.2%
Yellow Time (s)	5.0	5.0	5.0	5.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag					Lead		Lag	Lead
Lead-Lag Optimize?					Yes		Yes	Yes
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	Max	Max	Max
v/c Ratio	0.21	0.51	0.14	0.45	0.10	0.35	0.19	0.63
Control Delay	18.9	20.2	18.9	20.7	17.2	18.0	26.3	31.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.9	20.2	18.9	20.7	17.2	18.0	26.3	31.4
Queue Length 50th (ft)	19	210	10	186	10	109	37	243
Queue Length 95th (ft)	46	258	m28	m237	22	143	62	284
Internal Link Dist (ft)		541		940		720		408
Turn Bay Length (ft)	75		75		75		75	
Base Capacity (vph)	245	1743	191	1698	276	834	394	704
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.51	0.14	0.45	0.09	0.35	0.19	0.63

**Intersection Summary**

Cycle Length: 105  
 Actuated Cycle Length: 105  
 Offset: 20 (19%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow  
 Natural Cycle: 50  
 Control Type: Actuated-Coordinated  
 m: Volume for 95th percentile queue is metered by upstream signal

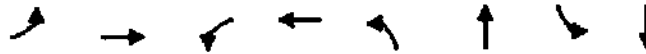
Splits and Phases: 16: American Pkwy & Irving Street

↖ e2	↖ e3	↖ e4
54%	13%	88%
↖ e6	↖ e8	
54%	51%	



Movements	EBL	EBT	EBR	WBL	WBT	WBR	INBL	INBT	INBR	SBL	SBT	SBR
Lane Configurations	↖	↕		↖	↕		↖	↕		↖	↕	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	13	13	12	13	13	11	13	12	11	13	12
Grade (%)		-1%			-2%			0%				-1%
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	0.99		1.00	0.94		1.00	0.95	
Flt. Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1778	3652		1736	3555		1711	1819		1719	1833	
Flt. Permitted	0.26	1.00		0.20	1.00		0.37	1.00		0.51	1.00	
Satd. Flow (perm)	485	3652		368	3555		669	1819		915	1833	
Volume (vph)	45	753	33	25	690	45	20	145	84	58	219	117
Peak-hour factor, PHF	0.88	0.88	0.88	0.96	0.96	0.96	0.78	0.78	0.78	0.76	0.76	0.76
Adj. Flow (vph)	51	856	38	26	719	47	26	186	108	76	288	154
RTOR Reduction (vph)	0	3	0	0	4	0	0	20	0	0	19	0
Lane Group Flow (vph)	51	891	0	26	762	0	26	274	0	76	423	0
Heavy Vehicles (%)	2%	2%	2%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	43.0	43.0		43.0	43.0		49.0	49.0		49.0	49.0	
Effective Green, g (s)	46.0	46.0		46.0	46.0		51.0	51.0		51.0	51.0	
Actuated g/C Ratio	0.44	0.44		0.44	0.44		0.49	0.49		0.49	0.49	
Clearance Time (s)	7.0	7.0		7.0	7.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	212	1600		161	1557		325	884		444	890	
v/s Ratio Prot		c0.24			0.21			0.15			c0.23	
v/s Ratio Perm	0.11			0.07			0.04			0.08		
v/c Ratio	0.24	0.56		0.16	0.49		0.08	0.31		0.17	0.48	
Uniform Delay, d1 (s)	18.5	21.9		17.6	21.1		14.4	16.3		15.1	18.1	
Progression Factor	1.00	1.00		1.07	1.08		1.00	1.00		1.00	1.00	
Incremental Delay, d2 (s)	2.7	1.4		2.0	1.0		0.5	0.9		0.8	1.8	
Delay (s)	21.2	23.3		21.1	23.8		14.9	17.3		16.0	19.9	
Level of Service	C	C		C	C		B	B		B	B	
Approach Delay (s)		23.2			23.8			17.1			19.3	
Approach LOS		C			C			B			B	

Intersection Summary	
HCM Average Control Delay	21.8
HCM Volume to Capacity ratio	0.51
Actuated Cycle Length (s)	105.0
Intersection Capacity Utilization	71.9%
Analysis Period (min)	15
HCM Level of Service	C
Sum of lost time (s)	8.0
ICU Level of Service	C



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↙	↑↑	↙	↑↑	↙	↑	↙	↑
Volume (vph)	45	753	25	690	20	145	58	219
Lane Group Flow (vph)	51	894	26	766	26	294	76	442
Turn Type	Perm		Perm		Perm		Perm	
Protected Phases		2		6		8		4
Permitted Phases	2		6		8		4	
Detector Phases	2	2	6	6	8	8	4	4
Minimum Initial (s)	15.0	15.0	15.0	15.0	7.0	7.0	7.0	7.0
Minimum Split (s)	22.0	22.0	22.0	22.0	13.0	13.0	13.0	13.0
Total Split (s)	50.0	50.0	50.0	50.0	55.0	55.0	55.0	55.0
Total Split (%)	47.6%	47.6%	47.6%	47.6%	52.4%	52.4%	52.4%	52.4%
Yellow Time (s)	5.0	5.0	5.0	5.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	C=Max	C=Max	C=Max	C=Max	Max	Max	Max	Max
v/c Ratio	0.24	0.56	0.16	0.49	0.08	0.33	0.17	0.49
Control Delay	22.4	23.5	22.4	23.8	15.4	15.3	16.5	18.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.4	23.5	22.4	23.8	15.4	15.3	16.5	18.8
Queue Length 50th (ft)	21	228	11	201	9	99	28	176
Queue Length 95th (ft)	50	280	30	254	22	130	47	204
Internal Link Dist (ft)		541		940		720		408
Turn Bay Length (ft)	75		75		75		75	
Base Capacity (vph)	212	1603	162	1562	325	904	445	909
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.56	0.16	0.49	0.08	0.33	0.17	0.49

**Intersection Summary**

Cycle Length: 105  
 Actuated Cycle Length: 105  
 Offset: 20 (19%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow  
 Natural Cycle: 40  
 Control Type: Actuated-Coordinated  
 m: Volume for 95th percentile queue is metered by upstream signal

Splits and Phases: 16: American Pkwy & Irving Street

↙ e2	↓ e4
50%	55%
↙ e6	↑ e8
50%	55%



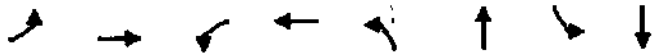


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕	↗	↖	↕	↗	↖	↕	↗	↖	↕	↗
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	13	13	12	13	13	11	13	12	11	13	12
Grade (%)		1%			2%			0%				1%
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00		1.00	0.94		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1778	3652		1736	3576		1711	1819		1719	1833	
Flt Permitted	0.07	1.00		0.25	1.00		0.12	1.00		0.58	1.00	
Satd. Flow (perm)	128	3652		459	3576		223	1819		1050	1833	
Volume (vph)	45	753	33	25	1875	45	20	145	84	58	219	117
Peak-hour factor, PHF	0.88	0.88	0.88	0.96	0.96	0.96	0.78	0.78	0.78	0.76	0.76	0.76
Adj. Flow (vph)	51	856	38	26	1953	47	26	166	108	76	288	154
RTOR Reduction (vph)	0	3	0	0	2	0	0	19	0	0	17	0
Lane Group Flow (vph)	51	891	0	26	1998	0	26	275	0	76	425	0
Heavy Vehicles (%)	2%	2%	2%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Turn Type	Perm			Perm			pm+pt			Perm		
Protected Phases		2			6		3	8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	55.6	55.6		55.6	55.6		36.4	36.4		26.3	26.3	
Effective Green, g (s)	58.6	58.6		58.6	58.6		38.4	38.4		28.3	28.3	
Actuated g/C Ratio	0.56	0.56		0.56	0.56		0.37	0.37		0.27	0.27	
Clearance Time (s)	7.0	7.0		7.0	7.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	71	2038		256	1996		168	665		283	494	
v/s Ratio Prot		0.24			c0.56		0.01	c0.15			c0.23	
v/s Ratio Perm	0.40			0.06			0.05			0.07		
v/c Ratio	0.72	0.44		0.10	1.00		0.15	0.41		0.27	0.86	
Uniform Delay, d1	17.1	13.6		10.9	23.2		24.5	24.9		30.2	36.5	
Progression Factor	1.00	1.00		1.08	1.06		1.00	1.00		1.00	1.00	
Incremental Delay, d2	47.1	0.7		0.1	6.3		0.4	1.9		2.3	17.6	
Delay (s)	64.2	14.2		11.8	30.8		24.9	26.8		32.5	54.1	
Level of Service	E	B		B	C		C	C		C	D	
Approach Delay (s)		16.9			30.6			26.6			50.9	
Approach LOS		B			C			C			D	

**Intersection Summary:**

HCM Average Control Delay	29.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	85.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



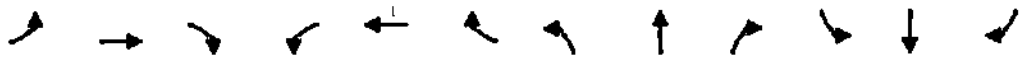
Lane Group	NEBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖	↑↑	↖	↑↑	↖	↑	↖	↑
Volume (vph)	45	753	25	1875	20	145	58	219
Lane Group Flow (vph)	51	894	26	2000	26	294	76	442
Turn Type	Perm		Perm		pm+pl		Perm	
Protected Phases		2		6	3	8		4
Permitted Phases	2		6		8		4	
Detector Phases	2	2	6	6	3	8	4	4
Minimum Initial (s)	15.0	15.0	15.0	15.0	3.0	7.0	7.0	7.0
Minimum Split (s)	22.0	22.0	22.0	22.0	9.0	13.0	13.0	13.0
Total Split (s)	65.0	65.0	65.0	65.0	13.0	40.0	27.0	27.0
Total Split (%)	61.9%	61.9%	61.9%	61.9%	12.4%	38.1%	25.7%	25.7%
Yellow Time (s)	5.0	5.0	5.0	5.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag					Lead		Lag	Lag
Lead-Lag Optimize?					Yes		Yes	Yes
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	Max	Max	Max
v/c Ratio	0.71	0.42	0.09	0.96	0.13	0.46	0.27	0.86
Control Delay	69.8	12.8	11.1	24.5	24.6	26.8	36.2	54.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.8	12.8	11.1	24.5	24.6	26.8	36.2	54.9
Queue Length 50th (ft)	23	163	7	633	12	136	43	-307
Queue Length 95th (ft)	#98	#200	m7	m492	27	177	73	#382
Internal Link Dist (ft)		541		940		720		408
Turn Bay Length (ft)	75		75		75		75	
Base Capacity (vph)	72	2125	274	2078	215	643	283	511
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.71	0.42	0.09	0.96	0.12	0.46	0.27	0.86

**Intersection Summary**

Cycle Length: 105  
 Actuated Cycle Length: 105  
 Offset: 20 (19%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated  
 - Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # - 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m - Volume for 95th percentile queue is metered by upstream signal.

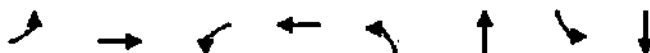
**Splits and Phases: 16: American Pkwy & Irving Street**

a2	a3	a4
65%	13%	27%
a6	a8	
65%	40%	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕		↖	↕		↖	↕		↖	↕	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	13	13	12	13	13	11	13	12	11	13	12
Grade (%)		-1%			-2%			0%				-1%
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00		1.00	0.94		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1778	3652		1736	3576		1711	1819		1719	1833	
Flt Permitted	0.06	1.00		0.28	1.00		0.14	1.00		0.36	1.00	
Satd. Flow (perm)	110	3652		504	3576		260	1819		658	1833	
Volume (vph)	45	753	33	25	1875	45	20	145	84	58	219	117
Peak-hour factor, PHF	0.88	0.88	0.88	0.96	0.96	0.96	0.78	0.78	0.78	0.76	0.76	0.76
Adj. Flow (vph)	51	856	38	26	1953	47	26	186	108	76	288	154
RTOR Reduction (vph)	0	3	0	0	2	0	0	20	0	0	13	0
Lane Group Flow (vph)	51	891	0	26	1998	0	26	1274	0	76	429	0
Heavy Vehicles (%)	2%	2%	2%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Turn Type	Perm			Perm			Perm			Perm		Perm
Protected Phases		2			6			8				4
Permitted Phases	32			6			8			4		
Actuated Green, G (s)	65.0	65.0		65.0	65.0		27.0	27.0		27.0	27.0	
Effective Green, G (s)	68.0	68.0		68.0	68.0		29.0	29.0		29.0	29.0	
Actuated g/C Ratio	0.65	0.65		0.65	0.65		0.28	0.28		0.28	0.28	
Clearance Time (s)	7.0	7.0		7.0	7.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	71	2365		326	2316		72	502		182	506	
v/s Ratio Prot		0.24			c0.56			0.15			c0.23	
v/s Ratio Perm	0.46			0.05			0.10			0.12		
v/c Ratio	0.72	0.38		0.08	0.86		0.36	0.55		0.42	0.85	
Uniform Delay, d1	12.2	8.6		6.9	14.8		30.6	32.4		31.1	35.9	
Progression Factor	1.00	1.00		1.09	1.07		1.00	1.00		1.00	1.00	
Incremental Delay, d2	47.1	0.15		0.0	0.4		13.5	4.2		6.9	16.1	
Delay (s)	59.3	9.1		7.6	16.3		44.0	36.6		38.0	52.0	
Level of Service	E	A		A	B		D	D		D	D	
Approach Delay (s)		11.8			16.2			37.2			49.9	
Approach LOS		B			B			D			D	

Intersection Summary	
HCM Average Control Delay	21.5
HCM Volume to Capacity ratio	0.86
Actuated Cycle Length (s)	105.0
Intersection Capacity Utilization	87.8%
Analysis Period (min)	15
HCM Level of Service	C
Sum of lost time (s)	8.0
ICU Level of Service	E



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖	↕	↖	↕	↖	↕	↖	↕
Volume (vph)	45	753	25	1875	20	145	58	219
Lane Group Flow (vph)	51	894	26	2000	26	294	76	442
Turn Type	Perm		Perm		Perm		Perm	
Protected Phases		2		6		8		4
Permitted Phases	2		6		8		4	
Detector Phases	2	2	6	6	8	8	4	4
Minimum Initial (s)	15.0	15.0	15.0	15.0	7.0	7.0	7.0	7.0
Minimum Split (s)	22.0	22.0	22.0	22.0	13.0	13.0	13.0	13.0
Total Split (s)	72.0	72.0	72.0	72.0	33.0	33.0	33.0	33.0
Total Split (%)	68.6%	68.6%	68.6%	68.6%	31.4%	31.4%	31.4%	31.4%
Yellow Time (s)	5.0	5.0	5.0	5.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	C-Max	G-Max	C-Max	G-Max	Max	Max	Max	Max
v/c Ratio	0.72	0.38	0.08	0.86	0.36	0.56	0.42	0.85
Control Delay	69.0	9.1	7.9	16.9	47.2	34.2	39.7	51.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.0	9.1	7.9	16.9	47.2	34.2	39.7	51.3
Queue Length 50th (ft)	21	132	6	528	14	153	42	271
Queue Length 95th (ft)	#99	163	m6	m412	37	198	73	312
Internal Link Dist (ft)		541		940		720		408
Turn Bay Length (ft)	75		75		75		75	
Base Capacity (vph)	71	2369	326	2316	72	523	181	520
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.72	0.38	0.08	0.86	0.36	0.56	0.42	0.85

**Intersection Summary**

Cycle Length: 105  
 Actuated Cycle Length: 105  
 Offset: 20 (19%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow  
 Natural Cycle: 70  
 Control Type: Actuated-Coordinated  
 # 95th percentile volume exceeds capacity, queue may be longer  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal

**Splits and Phases: 16: American Pkwy & Irving Street**

↖ 02	↕ 04
72	89
↖ 06	↕ 08
72	33



Movement	EBL	EB	EBR	WBL	WB	WBR	NBL	NB	NBR	SBL	SB	SBR
Lane Configurations	↖ ↗	↕		↖ ↗	↕		↖ ↗	↕		↖ ↗	↕	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	13	13	12	13	13	11	13	12	11	13	12
Grade (%)		1%			2%			0%			1%	
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	0.99		1.00	0.94		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1778	3660		1736	3563		1711	1819		1719	1833	
Flt Permitted	0.21	1.00		0.11	1.00		0.20	1.00		0.53	1.00	
Satd. Flow (perm)	387	3660		195	3563		355	1819		958	1833	
Volume (vph)	45	1151	33	25	913	45	20	145	84	58	219	117
Peak-hour factor, PHF	0.88	0.88	0.88	0.96	0.96	0.96	0.78	0.78	0.78	0.76	0.76	0.76
Adj. Flow (vph)	51	1308	38	26	951	47	26	186	108	76	288	154
RTOR Reduction (vph)	0	2	0	0	3	0	0	15	0	0	14	0
Lane Group Flow (vph)	51	1344	0	26	995	0	26	279	0	76	428	0
Heavy Vehicles (%)	2%	2%	2%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Turn Type	Perm			Perm			pm+pl			Perm		
Protected Phases		2			6		3	8			4	
Permitted Phases	2			6			6			4		
Actuated Green, G (s)	68.6	68.6		68.6	68.6		48.4	48.4		40.6	40.6	
Effective Green, g (s)	71.6	71.6		71.6	71.6		50.4	50.4		42.6	42.6	
Actuated g/C Ratio	0.55	0.55		0.55	0.55		0.39	0.39		0.33	0.33	
Clearance Time (s)	7.0	7.0		7.0	7.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	213	2016		107	1962		177	705		314	601	
v/s Ratio Prot		c0.37			0.28		0.00	c0.15			c0.23	
v/s Ratio Perm	0.13			0.13			0.05			0.08		
v/c Ratio	0.24	0.67		0.24	0.51		0.15	0.40		0.24	0.71	
Uniform Delay, d1	15.1	20.7		15.1	18.2		27.9	28.8		31.9	38.3	
Progression Factor	0.68	0.60		0.84	0.89		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.1	1.4		4.4	0.8		0.4	1.7		1.8	7.0	
Delay (s)	12.5	13.8		17.1	17.0		28.3	30.4		33.7	45.3	
Level of Service	B	B		B	B		C	C		C	D	
Approach Delay (s)		13.8			17.0			30.3			43.6	
Approach LOS		B			B			C			D	

**Intersection Summary**

HCM Average Control Delay	21.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	69.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖	↕	↖	↕	↖	↕	↖	↕
Volume (vph)	45	151	25	913	20	145	58	219
Lane Group Flow (vph)	51	1346	26	998	26	294	76	442
Turn Type	Perm		Perm		pm+pt		Perm	
Protected Phases		2		6	3	8		4
Permitted Phases	2		6		8		4	
Detector Phases	2	2	6	6	3	8	4	4
Minimum Initial (s)	15.0	15.0	15.0	15.0	3.0	7.0	7.0	7.0
Minimum Split (s)	22.0	22.0	22.0	22.0	9.0	13.0	13.0	13.0
Total Split (s)	78.0	78.0	78.0	78.0	9.0	52.0	43.0	43.0
Total Split (%)	60.0%	60.0%	60.0%	60.0%	6.9%	40.0%	33.1%	33.1%
Yellow Timer (s)	5.0	5.0	5.0	5.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag					Lead		Lag	Lag
Lead-Lag Optimize?					Yes		Yes	Yes
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	Max	Max	Max
v/c Ratio	0.22	0.65	0.22	0.49	0.16	0.43	0.24	0.72
Control Delay	12.0	12.8	16.5	15.7	28.7	30.3	36.1	45.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.0	12.8	16.5	15.7	28.7	30.3	36.1	45.2
Queue Length 50th (ft)	12	226	11	277	14	168	49	326
Queue Length 95th (ft)	m24	275	m22	m310	30	207	77	360
Internal Link Dist (ft)		1316		940		720		408
Turn Bay Length (ft)	75		75		75		75	
Base Capacity (vph)	227	2086	118	2031	160	687	317	615
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.65	0.22	0.49	0.16	0.43	0.24	0.72

**Intersection Summary**

Cycle Length: 130  
 Actuated Cycle Length: 130  
 Offset: 28 (22%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated  
 m: Volume for 95th percentile queue is metered by upstream signal

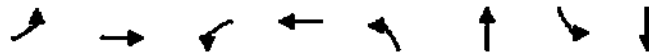
**Splits and Phases: 16: American Pkwy & Irving Street**

↖ 02 78%	↖ 03 9%	↕ 04 49%
↖ 06 78%	↖ 08 52%	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕		↖	↕		↖	↕		↖	↕	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	13	13	12	13	13	11	13	12	11	13	12
Grade (%)		-1%			2%			0%				-1%
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frnt	1.00	1.00		1.00	1.00		1.00	0.94		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1778	3662		1736	3571		1711	1819		1719	1833	
Flt Permitted	0.08	1.00		0.06	1.00		0.20	1.00		0.53	1.00	
Satd. Flow (perm)	157	3662		102	3571		355	1819		958	1833	
Volume (vph)	45	1382	33	25	1344	45	20	145	84	58	219	117
Peak-hour factor, PHF	0.88	0.88	0.88	0.96	0.96	0.96	0.78	0.78	0.78	0.76	0.76	0.76
Adj. Flow (vph)	51	1570	38	26	1400	47	26	186	108	76	288	154
RTOR Reduction (vph)	0	1	0	0	2	0	0	15	0	0	14	0
Lane Group Flow (vph)	51	1607	0	26	1445	0	26	279	0	76	428	0
Heavy Vehicles (%)	2%	2%	2%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Turn Type	Perm			Perm			pm:pl			Perm		
Protected Phases		2			6		3	8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	68.6	68.6		68.6	68.6		48.4	48.4		40.6	40.6	
Effective Green, g (s)	71.6	71.6		71.6	71.6		50.4	50.4		42.6	42.6	
Actuated g/C Ratio	0.55	0.55		0.55	0.55		0.39	0.39		0.33	0.33	
Clearance Time (s)	7.0	7.0		7.0	7.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap. (vph)	86	2017		56	1967		177	705		314	601	
v/s Ratio Prot		c0.44			0.40		0.00	c0.15			c0.23	
v/s Ratio Perm	0.33			0.25			0.05			0.08		
v/c Ratio	0.59	0.80		0.46	0.73		0.15	0.40		0.24	0.71	
Uniform Delay, d1	19.5	23.4		17.6	22.0		27.9	28.8		31.9	38.3	
Progression Factor	1.54	1.47		0.89	0.88		1.00	1.00		1.00	1.00	
Incremental Delay, d2	13.1	1.6		14.8	1.4		0.4	1.7		1.8	7.0	
Delay (s)	43.1	35.9		30.4	20.8		28.3	30.4		33.7	45.3	
Level of Service	D	D		C	C		C	C		C	D	
Approach Delay (s)		36.1			21.0			30.3			43.6	
Approach LOS		D			C			C			D	

Intersection Summary	
HCM Average Control Delay	31.0
HCM Volume to Capacity ratio	0.76
Actuated Cycle Length (s)	130.0
Intersection Capacity Utilization	71.2%
Analysis Period (min)	15
HCM Level of Service	C
Sum of lost time (s)	12.0
ICU Level of Service	C



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↵	↕	↵	↕	↵	↕	↵	↕
Volume (vph)	45	1382	25	1344	20	145	58	219
Lane Group Flow (vph)	51	1608	26	1447	26	294	76	442
Turn Type	Perm		Perm		pm+pt		Perm	
Protected Phases		2		6	3	8		4
Permitted Phases	2		6		8		4	
Detector Phases	2	2	6	6	3	8	4	4
Minimum Initial (s)	15.0	15.0	15.0	15.0	3.0	7.0	7.0	7.0
Minimum Split (s)	22.0	22.0	22.0	22.0	9.0	13.0	13.0	13.0
Total Split (s)	78.0	78.0	78.0	78.0	9.0	52.0	43.0	43.0
Total Split (%)	60.0%	60.0%	60.0%	60.0%	6.9%	40.0%	33.1%	33.1%
Yellow Time (s)	5.0	5.0	5.0	5.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag					Lead		Lag	Lag
Lead-Lag Optimize?					Yes		Yes	Yes
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	Max	Max	Max
v/c Ratio	0.53	0.77	0.43	0.71	0.16	0.43	0.24	0.72
Control Delay	43.2	33.4	30.9	19.3	28.7	30.3	36.1	45.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.2	33.4	30.9	19.3	28.7	30.3	36.1	45.2
Queue Length 50th (ft)	30	517	12	463	14	168	49	326
Queue Length 95th (ft)	m35	m535	m17	m500	30	207	77	360
Internal Link Dist (ft)		541		940		720		408
Turn Bay Length (ft)	75		75		75		75	
Base Capacity (vph)	97	2085	61	2034	160	687	317	615
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.53	0.77	0.43	0.71	0.16	0.43	0.24	0.72

**Intersection Summary**

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 28 (22%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 70

Control Type: Actuated-Coordinated

m - Volume for 95th percentile queue is metered by upstream signal

Splits and Phases: 16: American Pkwy & Irving Street

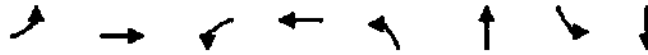
↵ ø2	↵ ø3	↕ ø4
78	91	43
↕ ø5	↕ ø6	
78	52	





Movement	EBU	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕		↖	↕		↖	↕		↖	↕	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	13	13	12	13	13	11	13	12	11	13	12
Grade (%)		-1%			-2%			0%				-1%
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00		1.00	0.94		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1778	3662		1736	3571		1711	1819		1719	1833	
Flt Permitted	0.09	1.00		0.06	1.00		0.27	1.00		0.44	1.00	
Satd. Flow (perm)	171	3662		109	3571		481	1819		787	1833	
Volume (vph)	45	1382	33	25	1344	45	20	145	84	58	219	117
Peak-hour factor, PHF	0.88	0.88	0.88	0.96	0.96	0.96	0.78	0.78	0.78	0.76	0.76	0.76
Adj. Flow (vph)	51	1570	38	26	1400	47	26	186	108	76	288	154
RTOR Reduction (vph)	0	1	0	0	2	0	0	16	0	0	15	0
Lane Group Flow (vph)	51	1607	0	26	1445	0	26	278	0	76	427	0
Heavy Vehicles (%)	2%	2%	2%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Turn Type	Perm			Perm			Perm			Perm		Perm
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	71.0	71.0		71.0	71.0		46.0	46.0		46.0	46.0	
Effective Green, g (s)	74.0	74.0		74.0	74.0		48.0	48.0		48.0	48.0	
Actuated g/C Ratio	0.57	0.57		0.57	0.57		0.37	0.37		0.37	0.37	
Clearance Time (s)	7.0	7.0		7.0	7.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	97	2085		62	2033		178	672		291	677	
v/s Ratio Prot		c0.44			0.40			0.15			c0.23	
v/s Ratio Perm	0.30			0.24			0.05			0.10		
v/c Ratio	0.53	0.77		0.42	0.71		0.15	0.41		0.26	0.63	
Uniform Delay, d1	17.2	21.5		15.8	20.3		27.3	30.5		28.6	33.7	
Progression Factor	1.17	1.08		0.89	0.88		1.00	1.00		1.00	1.00	
Incremental Delay, d2	13.5	2.0		11.3	1.2		7.7	1.9		2.2	4.4	
Delay (s)	33.6	25.2		25.4	19.1		29.1	32.4		30.8	38.2	
Level of Service	C	C		C	B		C	C		C	D	
Approach Delay (s)		25.4			19.2			32.1			37.1	
Approach LOS		C			B			C			D	

Intersection Summary	
HCM Average Control Delay	25.2
HCM Volume to Capacity ratio	0.72
Actuated Cycle Length (s)	130.0
Intersection Capacity Utilization	73.7%
Analysis Period (min)	15
HCM Level of Service	C
Sum of lost time (s)	8.0
ICU Level of Service	D



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖	↕	↖	↕	↖	↕	↖	↕
Volume (vph)	45	1382	25	1344	20	145	58	219
Lane Group Flow (vph)	51	1608	26	1447	26	294	76	442
Turn Type	Perm		Perm		Perm		Perm	
Protected Phases		2		6		8		4
Permitted Phases	2		6		8		4	
Detector Phases	2	2	6	6	8	8	4	4
Minimum Initial (s)	15.0	15.0	15.0	15.0	7.0	7.0	7.0	7.0
Minimum Split (s)	22.0	22.0	22.0	22.0	13.0	13.0	13.0	13.0
Total Split (s)	78.0	78.0	78.0	78.0	52.0	52.0	52.0	52.0
Total Split (%)	60.0%	60.0%	60.0%	60.0%	40.0%	40.0%	40.0%	40.0%
Yellow Time (s)	5.0	5.0	5.0	5.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	C-Max	C-Max	C-Max	C-Max	Max	Max	Max	Max
v/c Ratio	0.53	0.77	0.43	0.71	0.15	0.43	0.26	0.64
Control Delay	39.5	25.6	30.9	19.3	30.2	30.3	31.7	37.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.5	25.6	30.9	19.3	30.2	30.3	31.7	37.0
Queue Length 50th (ft)	24	406	12	463	15	168	44	290
Queue Length 95th (ft)	m39	502	m17	m500	33	207	71	320
Internal Link Dist (ft)		541		940		720		408
Turn Bay Length (ft)	75		75		75		75	
Base Capacity (vph)	97	2085	61	2034	178	687	291	692
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.53	0.77	0.43	0.71	0.15	0.43	0.26	0.64

**Intersection Summary**

Cycle Length: 130  
 Actuated Cycle Length: 130  
 Offset: 28 (22%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow  
 Natural Cycle: 40  
 Control Type: Actuated-Coordinated  
 m Volume for 95th percentile queue is metered by upstream signal

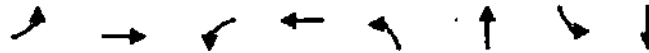
Splits and Phases: 16: American Pkwy & Irving Street



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖ ↗		↖ ↗		↖ ↗		↖ ↗		↖ ↗		↖ ↗	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	13	13	12	13	13	11	13	12	11	13	12
Grade (%)		-1%			-2%			0%				-1%
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Fr't	1.00	1.00		1.00	1.00		1.00	0.94		1.00	0.95	
Flt. Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1778	3662		1736	3579		1711	1819		1719	1833	
Flt. Permitted	0.05	1.00		0.09	1.00		0.12	1.00		0.46	1.00	
Satd. Flow (perm)	90	3662		158	3579		208	1819		841	1833	
Volume (vph)	45	1382	33	25	2529	45	20	145	84	58	219	117
Peak-hour factor, PHF	0.88	0.88	0.88	0.96	0.96	0.96	0.78	0.78	0.78	0.76	0.76	0.76
Adj. Flow (vph)	51	1570	38	26	2634	47	26	186	108	76	285	154
RTOR Reduction (vph)	0	1	0	0	1	0	0	16	0	0	15	0
Lane Group Flow (vph)	51	1607	0	26	2680	0	26	278	0	76	427	0
Heavy Vehicles (%)	2%	2%	2%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Turn Type	Perm		Perm		pm+pl		Perm		Perm		Perm	
Protected Phases	2		6		3		8		4		4	
Permitted Phases	2		6		8		4		4		4	
Actuated Green, G (s)	80.6	80.6		80.6	80.6		36.4	36.4		28.6	28.6	
Effective Green, g(s)	83.6	83.6		83.6	83.6		38.4	38.4		30.6	30.6	
Actuated g/C Ratio	0.64	0.64		0.64	0.64		0.30	0.30		0.24	0.24	
Clearance Time (s)	7.0	7.0		7.0	7.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	58	2355		102	2302		105	1537		198	431	
v/s Ratio Prot		0.44			c0.75		0.01	c0.15			c0.23	
v/s Ratio Perm	0.57			0.16			0.07			0.09		
v/c Ratio	0.88	0.68		0.25	1.16		0.25	0.52		0.38	0.99	
Uniform Delay, d1	19.1	14.8		9.9	23.2		36.8	38.1		41.8	49.6	
Progression Factor	2.31	2.56		1.12	1.13		1.00	1.00		1.00	1.00	
Incremental Delay, d2	15.8	0.1		0.5	74.4		1.2	3.6		5.6	41.4	
Delay (s)	59.7	37.9		11.6	100.6		38.1	41.7		47.3	90.9	
Level of Service	E	D		B	F		D	D		D	F	
Approach Delay (s)		38.6			99.8			41.4			84.5	
Approach LOS		D			F			D			F	

Intersection Summary	
HCM Average Control Delay	75.2
HCM Level of Service	E
HCM Volume to Capacity ratio	1.11
Actuated Cycle Length (s)	130.0
Sum of lost time (s)	12.0
Intersection Capacity Utilization	103.3%
ICU Level of Service	G
Analysis Period (min)	15

c Critical Lane Group

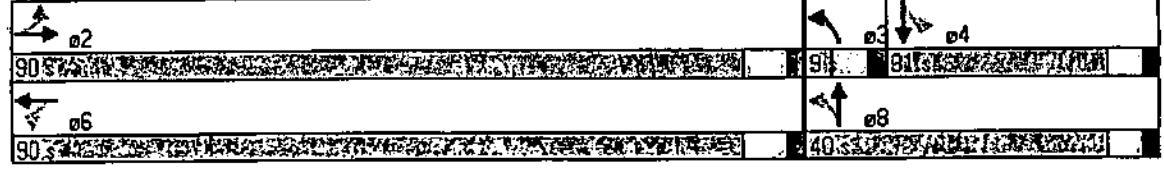


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖	↕	↖	↕	↖	↕	↖	↕
Volume (vph)	45	1382	25	2529	20	145	58	219
Lane Group Flow (vph)	51	1608	26	2681	26	294	76	442
Turn Type	Perm		Perm		pm-pl		Perm	
Protected Phases		2		6	3	8		4
Permitted Phases	2		6		8		4	
Detector Phases	2	2	6	6	3	8	4	4
Minimum Initial (s)	15.0	15.0	15.0	15.0	3.0	7.0	7.0	7.0
Minimum Split (s)	22.0	22.0	22.0	22.0	9.0	13.0	13.0	13.0
Total Split (s)	90.0	90.0	90.0	90.0	9.0	40.0	31.0	31.0
Total Split (%)	69.2%	69.2%	69.2%	69.2%	6.9%	30.8%	23.8%	23.8%
Yellow Time (s)	5.0	5.0	5.0	5.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag					Lead		Lag	Lag
Lead-Lag Optimize?					Yes		Yes	Yes
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	Max	Max	Max
v/c Ratio	0.88	0.66	0.23	1.13	0.21	0.57	0.38	0.99
Control Delay	63.0	34.6	11.9	85.8	38.9	42.1	50.4	87.9
Queue Delay	0.0	0.0	0.0	38.6	0.0	0.0	0.0	0.0
Total Delay	63.0	34.6	11.9	124.5	38.9	42.1	50.4	87.9
Queue Length 50th (ft)	45	723	9	-1387	16	197	56	-415
Queue Length 95th (ft)	m36	m497	m7	m630	35	242	90	m172
Internal Link Dist (ft)		541		940		720		408
Turn Bay Length (ft)	75		75		75		75	
Base Capacity (vph)	58	2423	111	2367	121	520	198	446
Starvation Cap Reductn	0	0	0	169	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.88	0.66	0.23	1.22	0.21	0.57	0.38	0.99

**Intersection Summary**

Cycle Length: 130  
 Actuated Cycle Length: 130  
 Offset: 58 (45%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow  
 Natural Cycle: 150  
 Control Type: Actuated-Coordinated  
 # - Volume exceeds capacity, queue is theoretically infinite  
 Queue shown is maximum after two cycles.  
 # - 95th percentile volume exceeds capacity, queue may be longer  
 Queue shown is maximum after two cycles.  
 m - Volume for 95th percentile queue is metered by upstream signal

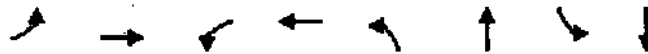
**Splits and Phases: 16: American Pkwy & Irving Street**





Movement	EBL	EB	EBR	WBL	WB	WBR	NBL	NB	NBR	SBL	SB	SBR
Lane Configurations	↖	↕	↗	↖	↕	↗	↖	↕	↗	↖	↕	↗
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	13	13	12	13	13	11	13	12	11	13	12
Grade (%)		1%			2%			0%				1%
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frnt	1.00	1.00		1.00	1.00		1.00	0.94		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1778	3662		1736	3579		1711	1819		1719	1833	
Flt Permitted	0.04	1.00		0.11	1.00		0.14	1.00		0.27	1.00	
Satd. Flow (perm)	81	3662		196	3579		248	1819		481	1833	
Volume (vph)	45	1382	33	25	2529	45	20	145	84	58	219	117
Peak-hour factor, PHF	0.88	0.88	0.88	0.96	0.96	0.96	0.78	0.78	0.78	0.76	0.76	0.76
Adj. Flow (vph)	51	1570	38	26	2634	47	26	186	108	76	288	154
RTOR Reduction (vph)	0	1	0	0	1	0	0	16	0	0	5	0
Lane Group Flow (vph)	51	1607	0	26	2680	0	26	278	0	76	437	0
Heavy Vehicles (%)	2%	2%	2%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	90.0	90.0		90.0	90.0		27.0	27.0		27.0	27.0	
Effective Green, g (s)	93.0	93.0		93.0	93.0		29.0	29.0		29.0	29.0	
Actuated g/C Ratio	0.72	0.72		0.72	0.72		0.22	0.22		0.22	0.22	
Clearance Time (s)	7.0	7.0		7.0	7.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	58	2620		140	2560		55	406		107	409	
v/s Ratio Prot		0.44			0.75			0.15			0.24	
v/s Ratio Perm	0.63			0.13			0.16			0.16		
v/c Ratio	0.88	0.61		0.19	1.05		0.47	0.68		0.71	1.07	
Uniform Delay, d1	14.2	9.4		6.1	18.5		43.9	46.3		46.6	50.5	
Progression Factor	2.80	3.33		1.10	1.16		1.00	1.00		1.00	1.00	
Incremental Delay, d2	15.8	0.1		0.3	22.4		26.4	19.0		32.9	63.6	
Delay (s)	55.4	31.3		6.9	43.9		70.3	55.3		79.5	114.1	
Level of Service	E	G		A	D		E	E		E	F	
Approach Delay (s)		32.1			43.5			56.5			109.0	
Approach LOS		C			D			E			F	

Intersection Summary	
HCM Average Control Delay	47.2
HCM Volume to Capacity ratio	1.05
Actuated Cycle Length (s)	130.0
Intersection Capacity Utilization	105.8%
Analysis Period (min)	15
HCM Level of Service	D
Sum of lost time (s)	8.0
ICU Level of Service	G

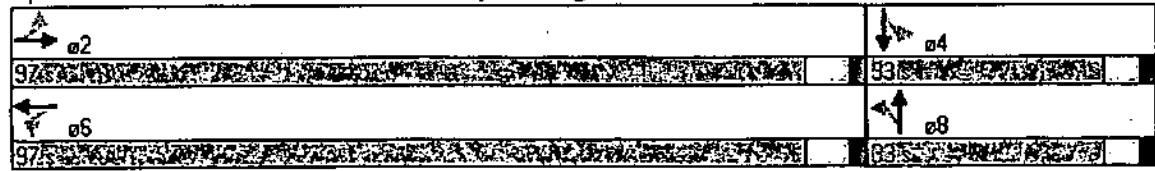


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖	↗	↖	↗	↖	↗	↖	↗
Volume (vph)	45	1382	25	2529	20	145	58	219
Lane Group Flow (vph)	51	1608	26	2681	26	294	76	442
Turn Type	Perm		Perm		Perm		Perm	
Protected Phases		2		6		8		4
Permitted Phases	2		6		8		4	
Detector Phases	2	2	6	6	8	8	4	4
Minimum Initial (s)	15.0	15.0	15.0	15.0	7.0	7.0	7.0	7.0
Minimum Split (s)	22.0	22.0	22.0	22.0	13.0	13.0	13.0	13.0
Total Split (s)	97.0	97.0	97.0	97.0	33.0	33.0	33.0	33.0
Total Split (%)	74.6%	74.6%	74.6%	74.6%	25.4%	25.4%	25.4%	25.4%
Yellow Time (s)	5.0	5.0	5.0	5.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	C-Max	C-Max	C-Max	C-Max	Max	Max	Max	Max
v/c Ratio	0.89	0.61	0.19	1.05	0.47	0.70	0.71	1.07
Control Delay	64.9	31.8	7.8	44.7	74.0	52.9	81.7	109.7
Queue Delay	0.0	0.0	0.0	53.9	0.0	0.0	0.0	0.0
Total Delay	64.9	31.8	7.8	98.5	74.0	52.9	81.7	109.7
Queue Length 50th (ft)	43	715	7	-1296	19	214	60	-407
Queue Length 95th (ft)	m42	m602	m5	m534	47	263	#107	#464
Internal Link Dist (ft)		541		940		720		408
Turn Bay Length (ft)	75		75		75		75	
Base Capacity (vph)	57	2620	140	2560	55	422	107	415
Starvation Cap Reductn	0	0	0	273	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.89	0.61	0.19	1.17	0.47	0.70	0.71	1.07

**Intersection Summary**

Cycle Length: 130  
 Actuated Cycle Length: 130  
 Offset: 58 (45%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow  
 Natural Cycle: 110  
 Control Type: Actuated-Coordinated  
 Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 16: American Pkwy & Irving Street



20: American Pkwy & Agere/Site Driveways

Existing Conditions  
Timing Plan: AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕	↗	↖	↕	↗	↖	↕	↗	↖	↕	↗
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	13	13	12	12	14	12	16	16	13	13	16
Grade (%)		3%			2%			5%				2%
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85		1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1726	3552		1787	3575	1706		1980	1690	1810	1906	1776
Flt Permitted	0.63	1.00		0.54	1.00	1.00		1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1148	3552		1017	3575	1706		1980	1690	1810	1906	1776
Volume (vph)	48	200	6	34	170	237	1	10	7	7	4	1
Peak-hour factor, PHF	0.75	0.75	0.75	0.89	0.89	0.89	0.90	0.90	0.90	0.43	0.43	0.43
Adj. Flow (vph)	64	267	8	38	191	266	1	11	8	16	9	2
RTOR Reduction (vph)	0	3	0	0	0	213	0	0	6	0	0	1
Lane Group Flow (vph)	64	272	0	38	191	53	0	12	2	15	9	1
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	11%	11%	11%	2%	2%	2%
Turn Type	pm+pt			pm+pt			Perm	Split		Perm	Split	Perm
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases	2			6	5	6				8		4
Actuated Green, G (s)	14.8	11.5		14.8	11.5	11.5		16.2	16.2	17.2	17.2	17.2
Effective Green, g (s)	20.8	14.5		20.8	14.5	14.5		17.2	17.2	18.2	18.2	18.2
Actuated g/C Ratio	0.29	0.20		0.29	0.20	0.20		0.24	0.24	0.25	0.25	0.25
Clearance Time (s)	7.0	7.0		7.0	7.0	7.0		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	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	381	713		360	718	343		472	403	456	480	448
v/s Ratio Prot	c0.01	c0.08		0.01	0.05			c0.01		c0.01	0.00	
v/s Ratio Perm	0.03			0.02		0.03			0.00			0.00
v/c Ratio	0.17	0.38		0.11	0.27	0.16		0.03	0.00	0.04	0.02	0.00
Uniform Delay, d1	19.0	25.0		18.7	24.4	23.8		21.1	21.0	20.4	20.3	20.2
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	0.2	0.3		0.1	0.2	0.2		0.1	0.0	0.1	0.1	0.0
Delay (s)	19.2	25.3		18.8	24.6	24.0		21.2	21.0	20.5	20.4	20.2
Level of Service	B	C		B	C	C		C	C	C	C	C
Approach Delay (s)		24.2			23.8			21.1			20.4	
Approach LOS		C			C			C			C	

Intersection Summary	
HCM Average Control Delay	23.8
HCM Volume to Capacity ratio	0.14
Actuated Cycle Length (s)	72.2
Sum of lost time (s)	16.0
Intersection Capacity Utilization	33.0%
ICU Level of Service	A
Analysis Period (min)	15

c Critical Lane Group

20: American Pkwy & Agere/Site Driveways

Existing Conditions  
Timing Plan: AM Peak Hour



Lane/Group	EBL	EBT	WBL	WBT	WBR	NBL	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕	↖	↕	↗	↖	↗	↖	↕	↗
Volume (vph)	48	200	34	170	237	10	7	7	4	1
Lane Group Flow (vph)	64	275	38	191	266	12	8	16	9	2
Turn Type	pm+pt		pm+pt		Perm		Perm	Split		Perm
Protected Phases	5	2	1	6		8		4	4	
Permitted Phases	12		6		6		8		4	4
Detector Phases	5	2	1	6	6	8	8	4	4	4
Minimum Initial (s)	3.0	10.0	3.0	10.0	10.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	10.0	17.0	10.0	17.0	17.0	11.0	11.0	11.0	11.0	11.0
Total Split (s)	13.0	39.0	13.0	39.0	39.0	21.0	21.0	22.0	22.0	22.0
Total Split (%)	13.7%	41.1%	13.7%	41.1%	41.1%	22.1%	22.1%	23.2%	23.2%	23.2%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	Max	Max	Max
v/c Ratio	0.17	0.37	0.10	0.26	0.47	0.02	0.02	0.03	0.02	0.00
Control Delay	17.6	24.7	16.5	24.5	5.0	23.4	14.0	22.7	22.5	17.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.6	24.7	16.5	24.5	5.0	23.4	14.0	22.7	22.5	17.0
Queue Length 50th (ft)	19	57	11	40	0	4	0	6	3	0
Queue Length 95th (ft)	35	74	29	66	55	18	11	10	7	2
Internal Link Dist (ft)		459		1316		856		392		
Turn Bay Length (ft)	200		150		450					
Base Capacity (vph)	375	1395	369	1401	831	492	426	476	502	469
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.20	0.10	0.14	0.32	0.02	0.02	0.03	0.02	0.00

**Intersection Summary**  
 Cycle Length: 95  
 Actuated Cycle Length: 69.3  
 Natural Cycle: 50  
 Control Type: Actuated/Uncoordinated

Splits and Phases: 20: American Pkwy & Agere/Site Driveways

↖ σ1 13s 13%	↕ σ2 39s 39%	↗ σ8 21s 21%	↖ σ4 22s 22%
↗ σ5 13s 13%	↖ σ6 39s 39%		





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕	↗	↖	↕	↗	↖	↕	↗	↖	↕	↗
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	13	13	12	12	14	12	16	16	13	13	16
Grade (%)		3%			2%			-5%				2%
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85		1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1726	3553		1787	3575	1706		1980	1690	1810	1906	1776
Flt Permitted	0.62	1.00		0.52	1.00	1.00		1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1118	3553		984	3575	1706		1980	1690	1810	1906	1776
Volume (vph)	48	211	6	34	194	237	1	10	7	17	9	4
Peak-hour factor, PHF	0.75	0.75	0.75	0.89	0.89	0.89	0.90	0.90	0.90	0.43	0.43	0.43
Adj. Flow (vph)	64	281	8	38	218	266	1	11	8	16	9	2
RTOR Reduction (vph)	0	2	0	0	0	212	0	0	6	0	0	1
Lane Group Flow (vph)	64	287	0	38	218	54	0	12	2	16	9	1
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	11%	11%	11%	2%	2%	2%
Turn Type	pm:pt			pm:pt			Perm: Split			Perm: Split		Perm
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases	12			6		6			8			4
Actuated Green, G (s)	15.0	11.7		15.0	11.7	11.7		16.2	16.2	17.2	17.2	17.2
Effective Green, g (s)	21.0	14.7		21.0	14.7	14.7		17.2	17.2	18.2	18.2	18.2
Actuated g/C Ratio	0.29	0.20		0.29	0.20	0.20		0.24	0.24	0.25	0.25	0.25
Clearance Time (s)	7.0	7.0		7.0	7.0	7.0		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	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	377	721		355	726	346		470	401	455	479	446
v/s Ratio Prot	c0.01	c0.08		0.01	0.06			c0.01		c0.01	0.00	
v/s Ratio Perm	0.03			0.02		0.03		0.00		0.00		0.00
v/c Ratio	0.17	0.40		0.11	0.30	0.16		0.03	0.00	0.04	0.02	0.00
Uniform Delay, d1	18.9	25.0		18.7	24.5	23.7		21.2	21.1	20.5	20.4	20.3
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	0.2	0.4		0.1	0.2	0.2		0.1	0.0	0.1	0.1	0.0
Delay (s)	19.2	25.4		18.8	24.7	24.0		21.3	21.1	20.6	20.5	20.3
Level of Service	B	C		B	C	C		C	C	C	C	C
Approach Delay (s)		24.2			23.9			21.2			20.5	
Approach LOS		C			C			C			C	

Intersection Summary	
HCM Average Control Delay	23.9
HCM Volume to Capacity ratio	0.14
Actuated Cycle Length (s)	72.4
Sum of lost time (s)	16.0
Intersection Capacity Utilization	33.0%
ICU Level of Service	A
Analysis Period (min)	15

c Critical Lane Group

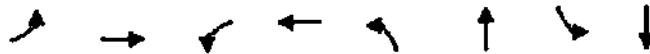


Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↕	↶	↕	↗	↕	↗	↶	↕	↗
Volume (vph)	248	211	34	194	237	10	7	7	4	1
Lane Group Flow (vph)	64	289	38	218	266	12	8	16	9	2
Turn Type	pm+pl		pm+pl		Perm		Perm	Split		Perm
Protected Phases	5	2	1	6		8		4	4	
Permitted Phases	2		6		6		8	1		4
Detector Phases	5	2	1	6	6	8	8	4	4	4
Minimum Initial (s)	3.0	10.0	3.0	10.0	10.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	10.0	17.0	10.0	17.0	17.0	11.0	11.0	11.0	11.0	11.0
Total Split (s)	13.0	39.0	13.0	39.0	39.0	21.0	21.0	22.0	22.0	22.0
Total Split (%)	13.7%	41.1%	13.7%	41.1%	41.1%	22.1%	22.1%	23.2%	23.2%	23.2%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	Max	Max	Max
v/c Ratio	0.17	0.38	0.10	0.29	0.47	0.02	0.02	0.03	0.02	0.00
Control Delay	17.6	24.8	16.4	24.5	4.9	23.5	14.1	23.0	22.8	17.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.6	24.8	16.4	24.5	4.9	23.5	14.1	23.0	22.8	17.0
Queue Length 50th (ft)	19	61	11	45	0	4	0	6	3	0
Queue Length 95th (ft)	35	77	29	74	55	18	11	10	7	2
Internal Link Dist (ft)		459		1316		856			392	
Turn Bay Length (ft)	200		150		450					
Base Capacity (vph)	372	1394	367	1401	831	491	425	475	500	468
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.21	0.10	0.16	0.32	0.02	0.02	0.03	0.02	0.00

**Intersection Summary**  
 Cycle Length: 95  
 Actuated Cycle Length: 69.5  
 Natural Cycle: 50  
 Control Type: Actuated/Uncoordinated

Splits and Phases: 20: American Pkwy & Agere/Site Driveways

↶ 13s 13s	↕ 69s 69s	↗ 21s 21s	↕ 22s 22s
↶ 13s 13s	↕ 69s 69s		



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖	↕	↖	↕	↖	↕	↖	↕
Volume (vph)	74	159	57	578	23	115	29	168
Lane Group Flow (vph)	94	214	63	675	26	165	33	228
Turn Type	Perm		Perm		Perm		Perm	
Protected Phases		2		6		8		4
Permitted Phases	2		6		8		4	
Detector Phases	2	2	6	6	8	8	4	4
Minimum Initial (s)	15.0	15.0	15.0	15.0	7.0	7.0	7.0	7.0
Minimum Split (s)	22.0	22.0	22.0	22.0	13.0	13.0	13.0	13.0
Total Split (s)	59.0	59.0	59.0	59.0	51.0	51.0	51.0	51.0
Total Split (%)	53.6%	53.6%	53.6%	53.6%	46.4%	46.4%	46.4%	46.4%
Yellow Time (s)	5.0	5.0	5.0	5.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	C-Max	C-Max	C-Max	C-Max	Max	Max	Max	Max
v/c Ratio	0.31	0.12	0.11	0.37	0.06	0.21	0.07	0.29
Control Delay	19.9	14.2	12.1	15.0	19.3	18.9	19.3	20.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.9	14.2	12.1	15.0	19.3	18.9	19.3	20.8
Queue Length 50th (ft)	38	38	22	160	11	65	14	97
Queue Length 95th (ft)	65	52	36	156	28	108	33	153
Internal Link Dist (ft)		541		940		720		408
Turn Bay Length (ft)	75		75		75		75	
Base Capacity (vph)	303	1808	582	1835	406	776	457	774
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.12	0.11	0.37	0.06	0.21	0.07	0.29

**Intersection Summary**

Cycle Length: 110  
 Actuated Cycle Length: 110  
 Offset: 44 (40%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow  
 Natural Cycle: 40  
 Control Type: Actuated-Coordinated  
 m Volume for 95th percentile queue is metered by upstream signal.

**Splits and Phases: 16: American Pkwy & Irving Street**

↖ ø2	↕ ø4
59%	51%
↖ ø6	↕ ø8
59%	51%



Lane/Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙	↕	↙	↕	↕	↕	↕	↕	↕	↕
Volume (vph)	48	212	205	194	237	10	14	7	4	1
Lane Group Flow (vph)	64	292	230	218	266	12	16	16	9	2
Turn Type	pm+pt		pm+pt		Perm		Perm	Split		Perm
Protected Phases	5	2	1	6		8		4	4	
Permitted Phases	2		6		6		8			4
Detector Phases	5	2	1	6	6	8	8	4	4	4
Minimum Initial (s)	3.0	10.0	3.0	10.0	10.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	10.0	17.0	10.0	17.0	17.0	11.0	11.0	11.0	11.0	11.0
Total Split (s)	13.0	39.0	13.0	39.0	39.0	21.0	21.0	22.0	22.0	22.0
Total Split (%)	13.7%	41.1%	13.7%	41.1%	41.1%	22.1%	22.1%	23.2%	23.2%	23.2%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	Max	Max	Max
v/c Ratio	0.16	0.42	0.52	0.23	0.41	0.03	0.04	0.04	0.02	0.00
Control Delay	17.0	27.8	22.1	24.0	5.8	23.6	12.1	23.0	22.8	17.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.0	27.8	22.1	24.0	5.8	23.6	12.1	23.0	22.8	17.0
Queue Length 50th (ft)	19	62	75	45	0	4	0	6	3	0
Queue Length 95th (ft)	35	78	127	74	55	18	15	10	7	2
Internal Link Dist (ft)		459		695		856			392	
Turn Bay Length (ft)	200		150		450					
Base Capacity (vph)	402	1310	440	1401	831	451	397	436	460	430
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.22	0.52	0.16	0.32	0.03	0.04	0.04	0.02	0.00

**Intersection Summary**  
 Cycle Length: 95  
 Actuated Cycle Length: 74.7  
 Natural Cycle: 50  
 Control Type: Actuated/Uncoordinated

Splits and Phases: 20: American Pkwy & Agere/Site Driveways

↙ p1 13.0s	↕ p2 39.0s	↕ p3 21.0s	↕ p4 22.0s
↙ p5 13.0s	↕ p6 39.0s		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↗	↖	↗	↖	↖	↗	↗	↖	↗	↖
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	13	13	12	12	14	12	16	16	13	13	16
Grade (%)		3%			2%			5%			2%	
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.85	1.00	1.00	1.00	0.85
Flt: Protected	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1726	3567	1596	1787	3575	1706	1980	1690	1810	1906	1776	1776
Flt: Permitted	0.62	1.00	1.00	0.74	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	1118	3567	1596	824	3575	1706	1980	1690	1810	1906	1776	1776
Volume (vph)	48	212	7	205	194	237	11	10	14	7	4	1
Peak-hour factor, PHF	0.75	0.75	0.75	0.89	0.89	0.89	0.90	0.90	0.90	0.43	0.43	0.43
Adj. Flow (vph)	64	283	9	230	218	266	11	11	16	16	9	2
RTOR Reduction (vph)	0	0	7	0	0	210	0	0	12	0	0	1
Lane Group Flow (vph)	64	283	12	230	218	56	0	12	4	16	9	1
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	11%	11%	11%	2%	2%	2%
Turn Type	pm+pt		Perm	pm+pt		Perm	Split		Perm	Split		Perm
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases	2		2	6		6		6		6		4
Actuated Green, G (s)	19.9	13.9	13.9	23.9	15.9	15.9		22.0	22.0	22.0	22.0	22.0
Effective Green, g (s)	25.9	16.9	16.9	29.9	18.9	18.9		23.0	23.0	23.0	23.0	23.0
Actuated g/C Ratio	0.29	0.19	0.19	0.33	0.21	0.21		0.26	0.26	0.26	0.26	0.26
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0		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		3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	383	671	300	392	752	359		507	432	463	488	454
v/s Ratio Prot	0.02	0.08		0.07	0.06			0.01		0.01	0.00	
v/s Ratio Perm	0.03		0.00	0.12		0.03		0.00		0.00		0.00
v/c Ratio	0.17	0.42	0.01	0.59	0.29	0.16		0.02	0.01	0.03	0.02	0.00
Uniform Delay, d1	23.7	32.2	29.7	23.1	29.9	29.0		25.0	25.0	25.1	25.0	24.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.4	0.0	2.2	0.2	0.2		0.1	0.0	0.1	0.1	0.0
Delay (s)	23.9	32.6	29.7	25.4	30.1	29.2		25.1	25.0	25.3	25.1	24.9
Level of Service	C	C	C	C	C	C		C	C	C	C	C
Approach Delay (s)		31.0			28.2			25.1			25.2	
Approach LOS		C			C			C			C	

**Intersection Summary**

HCM Average Control Delay	28.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.26		
Actuated Cycle Length (s)	89.9	Sum of lost time (s)	16.0
Intersection Capacity Utilization	35.5%	ICU Level of Service	A
Analysis Period (min)	15		

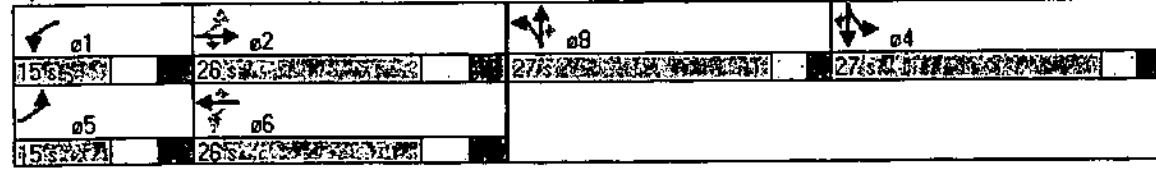
c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕	↗	↖	↕	↗	↕	↗	↖	↕	↗
Volume (vph)	48	212	7	205	194	237	10	14	7	4	1
Lane Group Flow (vph)	64	283	9	230	218	266	12	16	16	9	2
Turn Type	pm+pt		Perm	pm+pt		Perm		Perm	Split		Perm
Protected Phases	5	2		1	6		8		4	4	
Permitted Phases	2		2	6		6		8			4
Detector Phases	5	2	2	1	6	6	8	8	4	4	4
Minimum Initial (s)	3.0	10.0	10.0	3.0	10.0	10.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	10.0	17.0	17.0	10.0	17.0	17.0	11.0	11.0	11.0	11.0	11.0
Total Split (s)	15.0	26.0	26.0	15.0	26.0	26.0	27.0	27.0	27.0	27.0	27.0
Total Split (%)	15.8%	27.4%	27.4%	15.8%	27.4%	27.4%	28.4%	28.4%	28.4%	28.4%	28.4%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	Max	Max	Max
v/c Ratio	0.17	0.45	0.03	0.57	0.29	0.46	0.02	0.04	0.03	0.02	0.00
Control Delay	20.9	35.1	16.7	28.3	31.7	7.1	25.7	12.4	25.9	25.8	19.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.9	35.1	16.7	28.3	31.7	7.1	25.7	12.4	25.9	25.8	19.0
Queue Length 50th (ft)	24	75	0	95	56	0	5	0	7	4	0
Queue Length 95th (ft)	42	92	10	154	88	60	19	16	11	8	2
Internal Link Dist (ft)		459			695		856			392	
Turn Bay Length (ft)	200			150		450					
Base Capacity (vph)	388	826	377	402	898	628	515	451	471	496	463
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.34	0.02	0.57	0.24	0.42	0.02	0.04	0.03	0.02	0.00

**Intersection Summary**  
 Cycle Length: 95  
 Actuated Cycle Length: 88.5  
 Natural Cycle: 50  
 Control Type: Actuated-Uncoordinated

Splits and Phases: 20: American Pkwy & Agere/Site Driveways





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕	↗	↖	↕	↗	↖	↕	↗	↖	↕	↗
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	13	13	12	12	14	12	16	16	13	13	16
Grade(%)		3%			2%			5%				2%
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85		1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1726	3556		1787	3575	1706		1980	1690	1810	1906	1776
Flt Permitted	0.44	1.00		0.43	1.00	1.00		1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	795	3556		817	3575	1706		1980	1690	1810	1906	1776
Volume (vph)	48	271	6	34	326	237	1	10	7	7	4	1
Peak-hour factor, PHF	0.75	0.75	0.75	0.89	0.89	0.89	0.90	0.90	0.90	0.43	0.43	0.43
Adj. Flow (vph)	64	361	8	38	366	266	1	11	8	16	9	2
RTOR Reduction (vph)	0	2	0	0	0	208	0	0	6	0	0	2
Lane Group Flow (vph)	64	367	0	38	366	58	0	12	2	16	9	0
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	11%	11%	11%	2%	2%	2%
Turn Type	pm+pl			pm+pl		Perm	Split		Perm	Split		Perm
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases	2			6		6		8				4
Actuated Green, G (s)	16.6	13.3		16.6	13.3	13.3		16.3	16.3	17.3	17.3	17.3
Effective Green, g (s)	22.6	16.3		22.6	16.3	16.3		17.3	17.3	18.3	18.3	18.3
Actuated g/C Ratio	0.30	0.22		0.30	0.22	0.22		0.23	0.23	0.25	0.25	0.25
Clearance Time (s)	7.0	7.0		7.0	7.0	7.0		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	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	321	781		331	785	375		462	394	446	470	438
v/s Ratio Prot	c0.02	c0.10		0.01	0.10			c0.01		c0.01	0.00	
v/s Ratio Perm	0.04			0.03		0.03		0.00				0.00
v/c Ratio	0.20	0.47		0.11	0.47	0.16		0.03	0.00	0.04	0.02	0.00
Uniform Delay, d1	18.7	25.2		18.4	25.2	23.4		21.9	21.8	21.2	21.2	21.1
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	0.3	0.4		0.2	0.4	0.2		0.1	0.0	0.2	0.1	0.0
Delay (s)	19.0	25.6		18.5	25.6	23.6		22.1	21.9	21.4	21.2	21.1
Level of Service	B	C		B	C	C		C	C	C	C	C
Approach Delay (s)		24.7			24.4			22.0			21.3	
Approach LOS		C			C			C			C	

Intersection Summary	
HCM Average Control Delay	24.4
HCM Volume to Capacity ratio	0.17
Actuated Cycle Length (s)	74.2
Sum of lost time (s)	16.0
Intersection Capacity Utilization	33.0%
ICU Level of Service	A
Analysis Period (min)	15

c Critical Lane Group



Lane Group	EBL	EB	WBL	WB	WBR	NB	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕	↖	↕	↗	↕	↗	↖	↕	↗
Volume (vph)	48	271	34	326	237	10	7	7	4	1
Lane Group Flow (vph)	64	369	38	366	266	12	8	16	9	2
Turn Type	pm+pl		pm+pl		Perm		Perm	Split		Perm
Protected Phases	5	2	1	6		8		4	4	
Permitted Phases	2		6		6		8			4
Detector Phases	5	2	1	6	6	8	8	4	4	4
Minimum Initial (s)	3.0	10.0	3.0	10.0	10.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	10.0	17.0	10.0	17.0	17.0	11.0	11.0	11.0	11.0	11.0
Total Split (s)	13.0	39.0	13.0	39.0	39.0	21.0	21.0	22.0	22.0	22.0
Total Split (%)	13.7%	41.1%	13.7%	41.1%	41.1%	22.1%	22.1%	23.2%	23.2%	23.2%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	Max	Max	Max
v/c Ratio	0.18	0.45	0.11	0.45	0.45	0.02	0.02	0.03	0.02	0.00
Control Delay	17.2	24.7	15.9	24.9	4.7	25.2	15.0	24.6	24.5	18.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.2	24.7	15.9	24.9	4.7	25.2	15.0	24.6	24.5	18.0
Queue Length 50th (ft)	19	80	11	80	0	4	0	6	3	0
Queue Length 95th (ft)	34	96	28	117	52	19	11	11	7	2
Internal Link Dist (ft)		459		1316		856		392		
Turn Bay Length (ft)	200		150		450					
Base Capacity (vph)	349	1395	360	1401	831	481	417	465	490	459
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.26	0.11	0.26	0.32	0.02	0.02	0.03	0.02	0.00

**Intersection Summary**  
 Cycle Length: 95  
 Actuated Cycle Length: 71.3  
 Natural Cycle: 50  
 Control Type: Actuated-Uncoordinated

Splits and Phases: 20: American Pkwy & Agere/Site Driveways

↖ a1 13.0	↕ a2 39.0	↗ a3 21.0	↗ a4 22.0
↖ a5 13.0	↕ a6 39.0		





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕	↗	↖	↕	↗	↖	↕	↗	↖	↕	↗
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	13	13	12	12	14	12	16	16	13	13	16
Grade (%)		3%			2%			5%				2%
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>	1.00	1.00		1.00	1.00	0.85		1.00	0.85	1.00	1.00	0.85
Fl <sub>t</sub> Protected	0.95	1.00		0.95	1.00	1.00		1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1726	3554		1787	3575	1706		1980	1690	1810	1906	1776
Fl <sub>t</sub> Permitted	0.52	1.00		0.39	1.00	1.00		1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	950	3554		735	3575	1706		1980	1690	1810	1906	1776
Volume (vph)	48	272	7	205	326	237	1	10	14	7	4	1
Peak-hour factor, PHF	0.75	0.75	0.75	0.89	0.89	0.89	0.90	0.90	0.90	0.43	0.43	0.43
Adj. Flow (vph)	64	363	9	230	366	266	1	11	16	16	9	2
RTOR Reduction (vph)	0	2	0	0	0	192	0	0	13	0	0	2
Lane Group Flow (vph)	64	370	0	230	366	74	0	12	3	16	9	0
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	11%	11%	11%	2%	2%	2%
Turn Type	pm+pt			pm+pt			Perm	Split		Perm	Split	Perm
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases	2			6		6			8			4
Actuated Green, G (s)	20.1	16.6		25.1	19.1	19.1		16.0	16.0	17.0	17.0	17.0
Effective Green, g (s)	26.1	19.6		31.1	22.1	22.1		17.0	17.0	18.0	18.0	18.0
Actuated g/C Ratio	0.33	0.25		0.39	0.28	0.28		0.21	0.21	0.23	0.23	0.23
Clearance Time (s)	7.0	7.0		7.0	7.0	7.0		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	3.0	3.0	3.0	3.0
Lane Grp Cap. (vph)	375	875		406	993	474		423	361	409	431	402
v/s Ratio Prot	0.01	0.10		0.06	0.10			0.01		0.01	0.00	
v/s Ratio Perm	0.04			0.16		0.04			0.00			0.00
v/c Ratio	0.17	0.42		0.57	0.37	0.16		0.03	0.01	0.04	0.02	0.00
Uniform Delay, d1	18.7	25.2		17.2	23.1	21.7		24.8	24.7	24.0	23.9	23.8
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	0.2	0.3		1.8	0.2	0.2		0.1	0.0	0.2	0.1	0.0
Delay (s)	18.9	25.6		19.0	23.4	21.9		24.9	24.7	24.2	24.0	23.8
Level of Service	B	C		B	C	C		C	C	C	C	C
Approach Delay (s)		24.6			21.8			24.8			24.1	
Approach LOS		C			C			C			C	

**Intersection Summary**

HCM Average Control Delay	22.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	79.6	Sum of lost time (s)	16.0
Intersection Capacity Utilization	35.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBR	SBL	SBT	SBR
Lane Configurations	↙	↑↑	↙	↑↑	↗	↓	↗	↙	↑	↗
Volume (vph)	48	272	205	326	237	10	14	7	4	1
Lane Group Flow (vph)	64	372	230	366	266	12	16	16	9	2
Turn Type	pm+pt		pm+pt		Perm		Perm	Split		Perm
Protected Phases	5	2	1	6		8		4	4	
Permitted Phases	2		6		6		8			4
Detector Phases	5	2	1	6	6	8	8	4	4	4
Minimum Initial (s)	3.0	10.0	3.0	10.0	10.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	10.0	17.0	10.0	17.0	17.0	11.0	11.0	11.0	11.0	11.0
Total Split (s)	13.0	39.0	13.0	39.0	39.0	21.0	21.0	22.0	22.0	22.0
Total Split (%)	13.7%	41.1%	13.7%	41.1%	41.1%	22.1%	22.1%	23.2%	23.2%	23.2%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	Max	Max	Max
v/c Ratio	0.17	0.48	0.54	0.36	0.39	0.03	0.04	0.04	0.02	0.00
Control Delay	16.6	28.1	22.0	24.3	25.3	25.3	12.9	24.6	24.5	18.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.6	28.1	22.0	24.3	25.3	25.3	12.9	24.6	24.5	18.0
Queue Length 50th (ft)	19	81	75	80	0	4	0	6	3	0
Queue Length 95th (ft)	34	97	125	117	52	19	16	11	7	2
Internal Link Dist (ft)		459		695		856			392	
Turn Bay Length (ft)	200		150		450					
Base Capacity (vph)	372	1311	426	1401	831	439	387	425	448	419
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.28	0.54	0.26	0.32	0.03	0.04	0.04	0.02	0.00

**Intersection Summary**  
 Cycle Length: 95  
 Actuated Cycle Length: 76.8  
 Natural Cycle: 50  
 Control Type: Actuated/Uncoordinated

Splits and Phases: 20: American Pkwy & Agere/Site Driveways

↙ 10.5%	↗ 39.5%	↙ 21.5%	↗ 22.5%
↙ 10.5%	↗ 39.5%		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↖	↖	↗	↖	↖	↗	↖	↖	↗	↖
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	13	13	12	12	14	12	16	16	13	13	16
Grade (%)		3%			2%			5%			2%	
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00	1.00	1.00	1.00	1.00
Frnt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85	1.00	1.00	0.85
Flt: Protected	0.95	1.00	1.00	0.95	1.00	1.00		1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1726	3567	1596	1787	3575	1706		1980	1690	1810	1906	1776
Flt: Permitted	0.46	1.00	1.00	0.37	1.00	1.00		1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	842	3567	1596	687	3575	1706		1980	1690	1810	1906	1776
Volume (vph)	48	272	7	205	326	237	1	10	14	7	4	1
Peak-hour factor, PHF	0.75	0.75	0.75	0.89	0.89	0.89	0.90	0.90	0.90	0.43	0.43	0.43
Adj. Flow (vph)	64	363	9	230	366	266	1	11	16	16	9	2
RTOR Reduction (vph)	0	0	7	0	0	205	0	0	12	0	0	2
Lane Group Flow (vph)	64	363	2	230	366	61	0	12	4	16	9	1
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	11%	11%	11%	2%	2%	2%
Turn Type	pm+pt		Perm	pm+pt		Perm	Split		Perm	Split		Perm
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases	2		2	6		6			8			4
Actuated Green, G (s)	22.0	16.0	16.0	26.0	18.0	18.0		22.0	22.0	22.0	22.0	22.0
Effective Green, g (s)	28.0	19.0	19.0	32.0	21.0	21.0		23.0	23.0	23.0	23.0	23.0
Actuated g/C Ratio	0.30	0.21	0.21	0.35	0.23	0.23		0.25	0.25	0.25	0.25	0.25
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0		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		3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	343	737	330	370	816	389		495	423	453	477	444
v/s Ratio Prot	0.02	0.10		0.07	0.10			0.01		0.01	0.00	
v/s Ratio Perm	0.04		0.00	0.14		0.04			0.00			0.00
v/c Ratio	0.19	0.49	0.01	0.62	0.45	0.16		0.02	0.01	0.04	0.02	0.00
Uniform Delay, d1	23.2	32.2	29.0	22.8	30.5	28.4		26.0	25.9	26.1	26.0	25.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3	0.5	0.0	3.2	0.4	0.2		0.1	0.0	0.1	0.1	0.0
Delay (s)	23.4	32.8	29.0	26.0	30.9	28.6		26.1	26.0	26.3	26.1	25.9
Level of Service	C	C	C	G	C	C		C	G	C	C	C
Approach Delay (s)		31.3			28.9			26.0			26.2	
Approach LOS		C			C			C			C	

**Intersection Summary**

HCM Average Control Delay	29.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.28		
Actuated Cycle Length (s)	92.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	35.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑	↗	↕	↗	↘	↑	↗
Volume (vph)	48	272	7	205	326	237	10	14	7	4	1
Lane Group Flow (vph)	64	363	9	230	366	266	12	16	16	9	2
Turn Type	pm+pt		Perm	pm+pt		Perm		Perm	Split		Perm
Protected Phases	5	2		1	6		8		4	4	
Permitted Phases	2		2	6		6		8			4
Detector Phases	5	2	2	1	6	6	8	8	4	4	4
Minimum Initial (s)	3.0	10.0	10.0	4.0	10.0	10.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	10.0	17.0	17.0	11.0	17.0	17.0	11.0	11.0	11.0	11.0	11.0
Total Split (s)	15.0	26.0	26.0	15.0	26.0	26.0	27.0	27.0	27.0	27.0	27.0
Total Split (%)	15.8%	27.4%	27.4%	15.8%	27.4%	27.4%	28.4%	28.4%	28.4%	28.4%	28.4%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	Max	Max	Max
v/c Ratio	0.19	0.53	0.03	0.60	0.44	0.44	0.02	0.04	0.03	0.02	0.00
Control Delay	20.6	35.6	16.1	28.9	32.8	6.6	27.2	13.0	27.1	27.0	20.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.6	35.6	16.1	28.9	32.8	6.6	27.2	13.0	27.1	27.0	20.0
Queue Length 50th (ft)	24	98	0	95	99	0	5	0	7	4	0
Queue Length 95th (ft)	42	115	0	153	141	59	20	16	12	8	2
Internal Link Dist (ft)		459			695		856			392	
Turn Bay Length (ft)	200			150		450					
Base Capacity (vph)	346	826	377	381	899	628	503	441	460	484	453
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.44	0.02	0.60	0.41	0.42	0.02	0.04	0.03	0.02	0.00

**Intersection Summary:**  
 Cycle Length: 95  
 Actuated Cycle Length: 90.6  
 Natural Cycle: 50  
 Control Type: Actuated Uncoordinated

Splits and Phases: 20: American Pkwy & Agere/Site Driveways

 15%	 26%	 27%	 27%
 15%	 26%		



Movements	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕	↗	↖	↕	↗	↖	↕	↗	↖	↕	↗
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	13	13	12	12	14	12	16	16	13	13	16
Grade (%)		3%			2%			5%			2%	
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85		1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1726	3565		1787	3575	1706		1980	1690	1810	1906	1776
Flt Permitted	0.26	1.00		0.06	1.00	1.00		1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	473	3565		112	3575	1706		1980	1690	1810	1906	1776
Volume (vph)	48	1356	6	34	864	237	1	40	7	7	4	1
Peak-hour factor, PHF	0.75	0.75	0.75	0.89	0.89	0.89	0.90	0.90	0.90	0.43	0.43	0.43
Adj. Flow (vph)	64	1808	8	38	971	266	1	44	8	16	9	2
RTOR Reduction (vph)	0	0	0	0	0	86	0	0	7	0	0	2
Lane Group Flow (vph)	64	1816	0	38	971	180	0	12	1	16	9	0
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	11%	11%	11%	2%	2%	2%
Turn Type	pm+pt			pm+pt		Perm	Split		Perm	Split		Perm
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases	2			6		6		8		6		4
Actuated Green, G (s)	72.6	70.2		75.4	71.6	71.6		6.0	6.0	6.0	6.0	6.0
Effective Green, g(s)	78.6	73.2		81.4	74.6	74.6		7.0	7.0	7.0	7.0	7.0
Actuated g/C Ratio	0.71	0.67		0.74	0.68	0.68		0.06	0.06	0.06	0.06	0.06
Clearance Time (s)	7.0	7.0		7.0	7.0	7.0		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	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	399	2372		186	2425	1157		126	108	115	121	113
v/s Ratio Prot	0.01	c0.51		c0.01	0.27			c0.01		c0.01	0.00	
v/s Ratio Perm	0.11			0.14		0.11			0.00			0.00
v/c Ratio	0.16	0.77		0.20	0.40	0.16		0.10	0.00	0.14	0.07	0.00
Uniform Delay, d1	35.0	12.5		12.1	7.8	7.4		48.5	48.2	48.7	48.5	48.2
Progression Factor	1.00	1.00		2.98	0.57	0.30		1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	2.4		0.5	0.4	0.3		1.5	0.1	2.5	1.2	0.0
Delay (s)	5.2	15.0		36.4	4.9	2.2		50.0	48.3	51.2	49.6	48.2
Level of Service	A	B		D	A	A		D	D	D	D	D
Approach Delay (s)		14.6			5.3			49.3			50.4	
Approach LOS		B			A			D			D	

Intersection Summary	
HCM Average Control Delay	11.4
HCM Volume to Capacity ratio	0.63
Actuated Cycle Length (s)	110.0
Intersection Capacity Utilization	57.7%
Analysis Period (min)	15
HCM Level of Service	B
Sum of lost time (s)	16.0
ICU Level of Service	B

c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↖	↗	↖	↖	↖	↖	↗	↗
Volume (vph)	48	1356	34	864	237	10	7	7	4	1
Lane Group Flow (vph)	64	1816	38	971	266	12	8	16	9	2
Turn Type	pm+pt		pm+pt		Perm		Perm	Split		Perm
Protected Phases	5	2	1	6		8		4	4	
Permitted Phases	2		6		6		8			4
Detector Phases	5	2	1	6	6	8	8	4	4	4
Minimum Initial (s)	3.0	10.0	4.0	10.0	10.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	10.0	17.0	11.0	17.0	17.0	11.0	11.0	11.0	11.0	11.0
Total Split (s)	10.0	74.0	14.0	78.0	78.0	11.0	11.0	11.0	11.0	11.0
Total Split (%)	9.1%	67.3%	12.7%	70.9%	70.9%	10.0%	10.0%	10.0%	10.0%	10.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	C-Max	Max	Max	Max	Max	Max
v/c Ratio	0.15	0.74	0.18	0.39	0.21	0.10	0.07	0.14	0.07	0.02
Control Delay	4.3	14.3	11.0	4.8	0.6	50.4	27.9	51.6	50.0	34.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.3	14.3	11.0	4.8	0.6	50.4	27.9	51.6	50.0	34.0
Queue Length 50th (ft)	9	444	0	81	0	8	0	11	6	0
Queue Length 95th (ft)	15	387	20	114	6	28	16	16	11	3
Internal Link Dist (ft)		459		1316		856			392	
Turn Bay Length (ft)	200		150		450					
Base Capacity (vph)	421	2461	231	2470	1261	126	115	115	121	115
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.74	0.16	0.39	0.21	0.10	0.07	0.14	0.07	0.02

**Intersection Summary**

Cycle Length: 110  
 Actuated Cycle Length: 110  
 Offset: 98 (89%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow  
 Natural Cycle: 80  
 Control Type: Actuated-Coordinated  
 m: Volume for 95th percentile queue is metered by upstream signal

**Splits and Phases: 20: American Pkwy & Agere/Site Driveways**

↖ a1 14s	↗ a2 74s	↖ a3 11s	↗ a4 11s
↖ a5 10s	↗ a6 78s		



Movement	EB1	EB2	EB3	WB1	WB2	WB3	NB1	NB2	NB3	SB1	SB2	SB3
Lane Configurations	↘	↕	↗	↘	↕	↗	↖	↖	↖	↖	↖	↖
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	13	13	12	12	14	12	16	16	13	13	16
Grade (%)		3%			2%			5%			2%	
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00	1.00	1.00	1.00	1.00
Flt. Protected	1.00	1.00		1.00	1.00	0.85		1.00	0.85	1.00	1.00	0.85
Flt. Permitted	0.95	1.00		0.95	1.00	1.00		1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1726	3565		1787	3575	1706		1980	1690	1810	1906	1776
Satd. Flow (perm)	536	3565		110	3575	1706		1980	1690	1810	1906	1776
Volume (vph)	48	1356	7	205	864	237	1	10	14	7	4	1
Peak-hour factor, PHF	0.75	0.75	0.75	0.89	0.89	0.89	0.90	0.90	0.90	0.43	0.43	0.43
Adj. Flow (vph)	64	1808	9	230	971	266	1	11	16	16	9	2
RTOR Reduction (vph)	0	0	0	0	0	86	0	0	15	0	0	2
Lane Group Flow (vph)	64	1817	0	230	971	180	0	12	1	16	9	0
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	11%	11%	11%	2%	2%	2%
Turn type	pm+pt			pm+pt		Perm	Split		Perm	Split		Perm
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases	2			6		6			8			4
Actuated Green, G (s)	64.0	61.6		81.0	71.6	71.6		6.0	6.0	6.0	6.0	6.0
Effective Green, g (s)	70.0	64.6		84.0	74.6	74.6		7.0	7.0	7.0	7.0	7.0
Actuated g/C Ratio	0.64	0.59		0.76	0.68	0.68		0.06	0.06	0.06	0.06	0.06
Clearance Time (s)	7.0	7.0		7.0	7.0	7.0		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	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	400	2094		319	2425	1157		126	108	115	121	113
v/s Ratio Prot	0.01	c0.51		c0.10	0.27			c0.01		c0.01	0.00	
v/s Ratio Perm	0.09			0.45		0.11			0.00			0.00
v/c Ratio	0.16	0.87		0.72	0.40	0.16		0.10	0.01	0.14	0.07	0.00
Uniform Delay, d1	7.6	19.1		33.0	7.8	6.4		48.5	48.3	48.7	48.5	48.2
Progression Factor	1.00	1.00		1.32	0.63	0.55		1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	5.2		6.5	0.4	0.2		1.5	0.2	2.5	1.2	0.0
Delay (s)	7.7	24.3		50.1	5.4	3.8		50.0	48.4	51.2	49.6	48.2
Level of Service	A	C		D	A	A		D	D	D	D	D
Approach Delay (s)		23.7			12.1			49.1			50.4	
Approach LOS		C			B			D			D	

**Intersection Summary**

HCM Average Control Delay	19.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	151.0
Intersection Capacity Utilization	64.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↘	↑↑	↑	↙	↑	↘	↑	↑
Volume (vph)	48	1356	205	864	237	10	14	7	4	1
Lane Group Flow (vph)	64	1817	230	971	266	12	16	16	9	2
Turn Type	pm+pt		pm+pt		Perm		Perm	Split		Perm
Protected Phases	5	2	1	6		8		4	4	
Permitted Phases	2		6		6		8			4
Detector Phases	5	2	1	6	6	8	8	4	4	4
Minimum Initial (s)	3.0	10.0	4.0	10.0	10.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	10.0	17.0	11.0	17.0	17.0	11.0	11.0	11.0	11.0	11.0
Total Split (s)	10.0	68.0	20.0	78.0	78.0	11.0	11.0	11.0	11.0	11.0
Total Split (%)	9.1%	61.8%	18.2%	70.9%	70.9%	10.0%	10.0%	10.0%	10.0%	10.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C Max	None	C Max	C Max	Max	Max	Max	Max	Max
v/c Ratio	0.16	0.87	0.72	0.39	0.21	0.10	0.13	0.14	0.07	0.02
Control Delay	5.1	25.1	44.6	5.2	0.8	50.4	23.7	51.6	50.0	34.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.1	25.1	44.6	5.2	0.8	50.4	23.7	51.6	50.0	34.0
Queue Length 50th (ft)	9	542	132	81	0	8	0	11	6	0
Queue Length 95th (ft)	15	456	126	14	28	23	16	31	3	
Internal Link Dist (ft)		459		695		856			392	
Turn Bay Length (ft)	200		150		450					
Base Capacity (vph)	408	2093	329	2470	1261	126	123	115	121	115
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.87	0.70	0.39	0.21	0.10	0.13	0.14	0.07	0.02

**Intersection Summary**

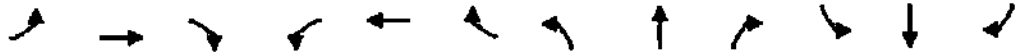
Cycle Length: 110  
 Actuated Cycle Length: 110  
 Offset: 98 (89%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated

# 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 20: American Pkwy & Agere/Site Driveways

01	02	03	04
20s	68s	11s	11s
05	06		
10s	78s		





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↗	↘	↖	↗	↘
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	13	13	12	12	14	12	16	16	13	13	16
Grade (%)		3%			2%			5%				2%
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt. Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1726	3567	1596	3467	3575	1706	1667	1988	1690	1810	1906	1776
Flt. Permitted	0.28	1.00	1.00	0.95	1.00	1.00	0.75	1.00	1.00	0.56	1.00	1.00
Satd. Flow (perm)	511	3567	1596	3467	3575	1706	1319	1988	1690	1068	1906	1776
Volume (vph)	48	1356	7	205	864	237	1	10	14	7	4	1
Peak-hour factor, PHF	0.75	0.75	0.75	0.89	0.89	0.89	0.90	0.90	0.90	0.43	0.43	0.43
Adj. Flow (vph)	64	1808	9	230	971	266	1	11	16	16	9	2
RTOR Reduction (vph)	0	0	3	0	0	84	0	0	14	0	0	2
Lane Group Flow (vph)	64	1808	6	230	971	182	1	11	2	16	9	0
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	11%	11%	11%	2%	2%	2%
Turn Type	pm+pt		Perm	Prot		Perm	Perm		Perm	pm+pt		Perm
Protected Phases	5	2		1	6			8		7		4
Permitted Phases	2		2		6	8		8		4		4
Actuated Green, G (s)	68.0	65.6	65.6	9.0	72.2	72.2	10.8	10.8	10.8	16.4	16.4	16.4
Effective Green, g (s)	74.0	68.6	68.6	12.0	75.2	75.2	11.8	11.8	11.8	17.4	17.4	17.4
Actuated g/C Ratio	0.67	0.62	0.62	0.11	0.68	0.68	0.11	0.11	0.11	0.16	0.16	0.16
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	5.0	5.0	5.0	4.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	403	2225	995	378	2444	1166	141	213	181	180	301	281
v/s Ratio Prot	0.01	c0.51		c0.07	0.27			0.01		c0.00	0.00	
v/s Ratio Perm	0.10		0.00			0.11	0.00		0.00	c0.01		0.00
v/c Ratio	0.16	0.81	0.01	0.61	0.40	0.16	0.01	0.05	0.01	0.09	0.03	0.00
Uniform Delay, d1	6.2	15.8	7.8	46.8	17.6	6.2	43.9	44.1	43.9	39.4	39.2	39.0
Progression Factor	1.00	1.00	1.00	0.99	0.62	0.56	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	3.4	0.0	2.4	0.4	0.2	0.1	0.5	0.1	0.2	0.2	0.0
Delay (s)	6.4	19.2	7.8	48.8	5.1	3.7	44.0	44.5	44.0	39.6	39.3	39.0
Level of Service	A	B	A	D	A	A	D	D	D	D	D	D
Approach Delay (s)		18.7			11.7			44.2			39.5	
Approach LOS		B			B			D			D	

**Intersection Summary**

HCM Average Control Delay	16.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	59.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



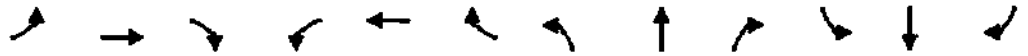
Lane Group	EBE	EBTL	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBTL	SBR
Lane Configurations	↖	↕	↗	↖↗	↕	↗	↖	↕	↗	↖↗	↕	↗
Volume (vph)	48	1356	7	205	864	237	1	10	14	7	7	1
Lane Group Flow (vph)	64	1808	9	230	971	266	1	11	16	16	9	2
Turn Type	pm+pt		Perm	Prot		Perm	Perm		Perm	pm+pt		Perm
Protected Phases	5	2		1	6			8		7	4	
Permitted Phases	2		2		6	8		8		4		4
Detector Phases	5	2	2	1	6	6	8	8	8	7	4	4
Minimum Initial (s)	3.0	10.0	10.0	4.0	10.0	10.0	6.0	6.0	6.0	4.0	6.0	6.0
Minimum Split (s)	10.0	17.0	17.0	11.0	17.0	17.0	11.0	11.0	11.0	8.0	11.0	11.0
Total Split (s)	10.0	75.0	75.0	16.0	81.0	81.0	11.0	11.0	11.0	8.0	19.0	19.0
Total Split (%)	9.1%	68.2%	68.2%	14.5%	73.6%	73.6%	10.0%	10.0%	10.0%	7.3%	17.3%	17.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	3.0	3.0	3.0	3.5	3.0	3.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	2.0	2.0	2.0	0.5	2.0	2.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C:Max	C:Max	None	C:Max	C:Max	Max	Max	Max	None	Max	Max
v/c Ratio	0.15	0.79	0.01	0.61	0.38	0.20	0.01	0.05	0.08	0.10	0.03	0.01
Control Delay	3.8	17.2	3.7	52.9	4.3	0.7	48.0	48.0	22.4	43.0	41.8	29.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.8	17.2	3.7	52.9	4.3	0.7	48.0	48.0	22.4	43.0	41.8	29.0
Queue Length 50th (ft)	8	442	0	84	77	0	1	7	0	10	6	0
Queue Length 95th (ft)	13	372	0	125	117	0	6	26	23	14	10	3
Internal Link Dist (ft)		459			695			856			392	
Turn Bay Length (ft)	200			150		450						
Base Capacity (vph)	425	2302	1033	378	2568	1300	142	213	196	157	260	244
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.79	0.01	0.61	0.38	0.20	0.01	0.05	0.08	0.10	0.03	0.01

**Intersection Summary**

Cycle Length: 110  
 Actuated Cycle Length: 110  
 Offset: 98 (89%), Referenced to phase 2:EBTL and 6:WBT, Start of Yellow  
 Natural Cycle: 75  
 Control Type: Actuated-Coordinated  
 m: Volume for 95th percentile queue is metered by upstream signal

Splits and Phases: 20: American Pkwy & Agere/Site Driveways

↖ 01 16s	↕ 02 75s	↗ 04 19s
↖ 05 10s	↕ 06 81s	↗ 07 18s
		↕ 08 11s



Movement	EBL	EBT	EBRT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↕	↗	↘	↕	↗	↘	↕	↗	↘	↕	↗
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	13	13	12	12	14	12	16	16	13	13	16
Grade (%)		3%			2%			5%				2%
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85		1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.98	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1726	3558		1753	3506	1673		2091	1821	1810	1906	1776
Flt Permitted	0.35	1.00		0.55	1.00	1.00		0.98	1.00	0.95	1.00	1.00
Satd. Flow (perm)	627	3558		1008	3506	1673		2091	1821	1810	1906	1776
Volume (vph)	8	172	3	2	280	12	5	5	26	243	8	59
Peak-hour factor, PHF	0.77	0.77	0.77	0.74	0.74	0.74	0.73	0.73	0.73	0.84	0.84	0.84
Adj. Flow (vph)	10	223	4	3	378	16	7	7	36	289	10	70
RTOR Reduction (vph)	0	1	0	0	0	13	0	0	30	0	0	39
Lane Group Flow (vph)	10	226	0	3	378	3	0	14	6	289	10	31
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	3%	3%	3%	2%	2%	2%
Turn Type	pm+pt			pm+pt			Perm	Split		Perm	Split	Perm
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases	2			6		6			8			
Actuated Green, G (s)	16.4	15.4		16.4	15.4	15.4		17.1	17.1	44.3	44.3	44.3
Effective Green, g (s)	22.4	18.4		22.4	18.4	18.4		18.1	18.1	45.3	45.3	45.3
Actuated g/C Ratio	0.22	0.18		0.22	0.18	0.18		0.18	0.18	0.44	0.44	0.44
Clearance Time (s)	7.0	7.0		7.0	7.0	7.0		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	3.0	3.0	3.0	3.0
Lane Grp. Cap. (vph)	181	643		251	634	302		372	324	805	848	790
v/s Ratio Prot	c0.00	0.06		0.00	c0.11			c0.01		c0.16	0.01	
v/s Ratio Perm	0.01			0.00		0.00			0.00			0.02
v/c Ratio	0.06	0.35		0.01	0.60	0.01		0.04	0.02	0.36	0.01	0.04
Uniform Delay, d1	31.3	36.5		31.0	38.3	34.2		34.6	34.5	18.7	15.8	16.0
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		0.0	1.5	0.0		0.2	0.1	1.2	0.0	0.1
Delay (s)	31.5	36.8		31.1	39.8	34.2		34.8	34.6	19.9	15.8	16.1
Level of Service	C	D		C	D	C		C	C	B	B	B
Approach Delay (s)		36.6			39.5			34.7			19.1	
Approach LOS		D			D			C			B	

Intersection Summary	
HCM Average Control Delay	31.5
HCM Volume to Capacity ratio	0.33
Actuated Cycle Length (s)	101.8
Sum of lost time (s)	16.0
Intersection Capacity Utilization	36.8%
ICU Level of Service	A
Analysis Period (min)	15

c Critical Lane Group

20: American Pkwy & Agere/Site Driveways

Existing Conditions  
Timing Plan: PM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↕	↘	↕	↗	↖	↗	↘	↕	↗
Volume (vph)	8	172	2	280	12	5	26	243	8	59
Lane Group Flow (vph)	10	227	3	378	16	14	36	289	10	70
Turn Type	pm:pt		pm:pt		Perm		Perm	Split		Perm
Protected Phases	5	2	1	6		8		4	4	
Permitted Phases	2	1	6	7	6	8	8	4	4	4
Detector Phases	5	2	1	6	6	8	8	4	4	4
Minimum Initial (s)	3.0	10.0	3.0	10.0	10.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	10.0	17.0	10.0	17.0	17.0	11.0	11.0	11.0	11.0	11.0
Total Split (s)	13.0	37.0	13.0	37.0	37.0	22.0	22.0	49.0	49.0	49.0
Total Split (%)	10.7%	30.6%	10.7%	30.6%	30.6%	18.2%	18.2%	40.5%	40.5%	40.5%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	Max	Max	Max
v/c Ratio	0.04	0.33	0.01	0.56	0.05	0.04	0.10	0.34	0.01	0.08
Control Delay	31.0	34.2	29.5	36.6	15.2	36.0	13.2	19.0	17.0	5.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.0	34.2	29.5	36.6	15.2	36.0	13.2	19.0	17.0	5.0
Queue Length 50th (ft)	5	61	1	106	0	7	0	101	3	0
Queue Length 95th (ft)	15	91	7	140	13	23	19	203	14	24
Internal Link Dist (ft)		459		1316		856		392		
Turn Bay Length (ft)	200		150		450					
Base Capacity (vph)	226	1065	258	1048	511	394	372	852	898	874
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.21	0.01	0.36	0.03	0.04	0.10	0.34	0.01	0.08

**Intersection Summary**  
 Cycle Length: 121  
 Actuated Cycle Length: 96.2  
 Natural Cycle: 55  
 Control Type: Actuated-Uncoordinated

Splits and Phases: 20: American Pkwy & Agere/Site Driveways

↘	↕	↕	↗
01	02	03	04
13.0	37.0	22.0	49.0
↗	↕		
05	06		
13.0	37.0		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↕	↙	↘	↕	↙	↕	↙	↕	↘	↕	↙
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	13	13	12	12	14	12	16	16	13	13	16
Grade (%)		3%			2%			5%				2%
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85		1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.98	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1726	3559		1753	3506	1673		2091	1821	1810	1906	1776
Flt Permitted	0.39	1.00		0.56	1.00	1.00		0.98	1.00	0.95	1.00	1.00
Satd. Flow (perm)	700	3559		1028	3506	1673		2091	1821	1810	1906	1776
Volume (vph)	8	197	3	2	295	12	5	5	26	243	8	59
Peak-hour factor, PHF	0.77	0.77	0.77	0.74	0.74	0.74	0.73	0.73	0.73	0.84	0.84	0.84
Adj. Flow (vph)	10	256	4	3	399	16	7	7	36	289	10	70
RTOR Reduction (vph)	0	1	0	0	0	13	0	0	27	0	0	51
Lane Group Flow (vph)	10	259	0	3	399	3	0	14	9	289	10	19
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	3%	3%	3%	2%	2%	2%
Turn Type	pm+pt			pm+pt			Perm+Split			Perm+Split		Perm
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases	2			6		6			8			4
Actuated Green, G (s)	14.7	13.6		14.5	13.5	13.5		19.2	19.2	20.2	20.2	20.2
Effective Green, G (s)	20.7	16.6		20.5	16.5	16.5		20.2	20.2	21.2	21.2	21.2
Actuated g/C Ratio	0.27	0.21		0.26	0.21	0.21		0.26	0.26	0.27	0.27	0.27
Clearance Time (s)	7.0	7.0		7.0	7.0	7.0		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	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	240	757		307	742	354		542	472	492	518	1483
v/s Ratio Prot	c0.00	0.07		0.00	c0.11			c0.01		c0.16	0.01	
v/s Ratio Perm	0.01			0.00		0.00			0.01			0.01
v/c Ratio	0.04	0.34		0.01	0.54	0.01		0.03	0.02	0.59	0.02	0.04
Uniform Delay, d1	21.3	26.1		21.2	27.4	24.3		21.6	21.5	24.6	20.8	20.9
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	0.1	0.3		0.0	0.8	0.0		0.1	0.1	0.1	0.1	0.2
Delay (s)	21.4	26.3		21.2	28.1	24.3		21.6	21.6	29.7	20.9	21.1
Level of Service	C	C		C	C	C		C	C	C	C	C
Approach Delay (s)		26.2			27.9			21.6			27.8	
Approach LOS		C			C			C			C	
<b>Intersection Summary:</b>												
HCM Average Control Delay	27.2			HCM Level of Service			C					
HCM Volume to Capacity ratio	0.36											
Actuated Cycle Length (s)	78.0			Sum of lost time (s)			16.0					
Intersection Capacity Utilization	36.8%			ICU Level of Service			A					
Analysis Period (min)	15											

c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕	↖	↕	↗	↖	↗	↖	↕	↗
Volume (vph)	8	197	2	295	12	5	26	243	8	59
Lane Group Flow (vph)	10	260	3	399	16	14	36	289	10	70
Turn Type	pm+pt		pm+pt		Perm	Perm	Split			Perm
Protected Phases	5	2	1	6		8		4	4	
Permitted Phases	2		6		6		8			4
Detector Phases	5	2	1	6	6	8	8	4	4	4
Minimum Initial (s)	3.0	10.0	3.0	10.0	10.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	10.0	17.0	10.0	17.0	17.0	11.0	11.0	11.0	11.0	11.0
Total Split (s)	27.0	45.0	27.0	45.0	45.0	24.0	24.0	25.0	25.0	25.0
Total Split (%)	22.3%	37.2%	22.3%	37.2%	37.2%	19.8%	19.8%	20.7%	20.7%	20.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	Max	Max	Max
v/c Ratio	0.04	0.32	0.01	0.50	0.04	0.02	0.07	0.54	0.02	0.12
Control Delay	21.1	23.8	20.0	25.3	11.8	22.9	9.3	27.9	22.2	7.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.1	23.8	20.0	25.3	11.8	22.9	9.3	27.9	22.2	7.3
Queue Length 50th (ft)	3	47	1	77	0	4	0	100	3	0
Queue Length 95th (ft)	11	79	5	114	12	17	16	245	16	28
Internal Link Dist (ft)		459		1316		856		392		
Turn Bay Length (ft)	200		150		450					
Base Capacity (vph)	431	1515	443	1490	721	584	535	531	559	571
Starvation Cap. Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap. Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap. Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.17	0.01	0.27	0.02	0.02	0.07	0.54	0.02	0.12

**Intersection Summary**  
 Cycle Length: 121  
 Actuated Cycle Length: 72.4  
 Natural Cycle: 55  
 Control Type: Actuated-Uncoordinated

Splits and Phases: 20: American Pkwy & Agere/Site Driveways

↖ σ1 27%	↕ σ2 15%	↗ σ8 24%	↗ σ4 25%
↖ σ5 27%	↕ σ6 15%		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑		↘	↑↑	↑		↑	↑	↘	↑	↑
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	13	13	12	12	14	12	16	16	13	13	16
Grade (%)		3%			-2%			-5%				2%
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85		1.00	0.85	1.00	1.00	0.85
Frt Protected	0.95	1.00		0.95	1.00	1.00		0.97	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1726	3555		1753	3506	1673		2082	1821	1810	1906	1776
Frt Permitted	0.52	1.00		0.43	1.00	1.00		0.97	1.00	0.95	1.00	1.00
Satd. Flow (perm)	939	3555		798	3506	1673		2082	1821	1810	1906	1776
Volume (vph)	8	199	5	435	295	12	7	5	118	243	8	59
Peak-hour factor, PHF	0.77	0.77	0.77	0.74	0.74	0.74	0.73	0.73	0.73	0.84	0.84	0.84
Adj. Flow (vph)	10	258	6	588	399	16	10	7	162	289	10	70
RTOR Reduction (vph)	0	2	0	0	0	10	0	0	130	0	0	55
Lane Group Flow (vph)	10	262	0	588	399	6	0	17	32	289	10	15
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	3%	3%	3%	2%	2%	2%
Turn Type	pm+pt			pm+pt		Perm	Split		Perm	Split		Perm
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases	2			6		6			8			4
Actuated Green, G (s)	19.5	18.2		45.2	36.9	36.9		19.0	19.0	20.0	20.0	20.0
Effective Green, g (s)	25.5	21.2		48.2	39.9	39.9		20.0	20.0	21.0	21.0	21.0
Actuated g/C Ratio	0.25	0.21		0.48	0.39	0.39		0.20	0.20	0.21	0.21	0.21
Clearance Time (s)	7.0	7.0		7.0	7.0	7.0		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	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	270	745		597	1382	660		411	360	376	396	369
v/s Ratio Prot	0.00	0.07		0.22	0.11			0.01		0.16	0.01	
v/s Ratio Perm	0.01			0.25		0.00		0.02				0.01
v/c Ratio	0.04	0.35		0.98	0.29	0.01		0.04	0.09	0.77	0.03	0.04
Uniform Delay, d1	28.5	34.1		22.6	21.0	18.6		32.8	33.2	37.8	31.9	32.0
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		32.7	0.1	0.0		0.2	0.5	14.0	0.1	0.2
Delay (s)	28.5	34.4		55.4	21.1	18.6		33.0	33.6	51.8	32.1	32.2
Level of Service	C	C		E	C	B		C	C	D	C	C
Approach Delay (s)		34.2			41.1			33.6			47.6	
Approach LOS		C			D			C			D	

Intersection Summary	
HCM Average Control Delay	40.7
HCM Volume to Capacity ratio	0.72
Actuated Cycle Length (s)	101.2
Intersection Capacity Utilization	62.6%
Analysis Period (min)	15
HCM Level of Service	D
Sum of lost time (s)	12.0
ICU Level of Service	B

c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↖	↗	↖	↖	↖	↖	↖	↖
Volume (vph)	8	199	435	295	12	5	118	243	8	59
Lane Group Flow (vph)	10	264	588	399	16	17	162	289	10	70
Turn Type	pm+pt		pm+pt		Perm		Perm	Split		Perm
Protected Phases	5	2	1	6		8		4	4	
Permitted Phases	2		6		6		8			4
Detector Phases	5	2	1	6	6	8	8	4	4	4
Minimum Initial (s)	3.0	10.0	3.0	10.0	10.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	10.0	17.0	10.0	17.0	17.0	11.0	11.0	11.0	11.0	11.0
Total Split (s)	27.0	45.0	27.0	45.0	45.0	24.0	24.0	25.0	25.0	25.0
Total Split (%)	22.3%	37.2%	22.3%	37.2%	37.2%	19.8%	19.8%	20.7%	20.7%	20.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	Max	Max	Max
v/c Ratio	0.04	0.46	0.93	0.27	0.02	0.04	0.32	0.73	0.02	0.16
Control Delay	19.0	38.5	47.3	19.8	9.5	31.5	7.3	47.0	30.6	9.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.0	38.5	47.3	19.8	9.5	31.5	7.3	47.0	30.6	9.0
Queue Length 50th (ft)	3	76	289	77	0	8	0	163	5	0
Queue Length 95th (ft)	11	96	308	112	11	22	25	#245	17	31
Internal Link Dist (ft)		459		695		856			392	
Turn Bay Length (ft)	200		150		450					
Base Capacity (vph)	434	1207	629	1507	728	436	509	398	419	445
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.22	0.93	0.26	0.02	0.04	0.32	0.73	0.02	0.16

**Intersection Summary:**  
 Cycle Length: 121  
 Actuated Cycle Length: 95.5  
 Natural Cycle: 70  
 Control Type: Actuated Uncoordinated  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 20: American Pkwy & Agere/Site Driveways

↖ φ1	↗ φ2	↖ φ8	↗ φ4
27%	45%	24%	25%
↗ φ5	↖ φ6		
27%	45%		





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↖	↖	↗	↖	↖	↗	↖	↖	↗	↖
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	13	13	12	12	14	12	16	16	13	13	16
Grade (%)		3%			2%			5%				2%
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85	1.00	1.00	0.85
Flt: Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.97	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1726	3567	1596	1753	3506	1673		2082	1821	1810	1906	1776
Flt: Permitted	0.52	1.00	1.00	0.41	1.00	1.00		0.97	1.00	0.95	1.00	1.00
Satd. Flow (perm)	939	3567	1596	764	3506	1673		2082	1821	1810	1906	1776
Volume (vph)	8	199	5	435	295	12	7	5	118	243	8	59
Peak-hour factor, PHF	0.77	0.77	0.77	0.74	0.74	0.74	0.73	0.73	0.73	0.84	0.84	0.84
Adj. Flow (vph)	10	258	6	588	399	16	10	7	162	289	10	70
RTOR Reduction (vph)	0	0	5	0	0	9	0	0	146	0	0	52
Lane Group Flow (vph)	10	258	1	588	399	7	0	17	16	289	10	18
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	3%	3%	3%	2%	2%	2%
Turn Type	pm+pt		Perm	pm+pt		Perm	Split		Perm	Split		Perm
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases	2		2	6		6			8			4
Actuated Green, G (s)	18.3	17.8	17.8	57.0	49.5	49.5		10.1	10.1	28.2	28.2	28.2
Effective Green, g (s)	24.3	20.8	20.8	60.0	52.5	52.5		11.1	11.1	29.2	29.2	29.2
Actuated g/C Ratio	0.22	0.19	0.19	0.53	0.47	0.47		0.10	0.10	0.26	0.26	0.26
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0		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		3.0	3.0	3.0	3.0	3.0
Lane Grp. Cap (vph)	228	661	296	718	1639	782		206	180	471	496	462
v/s Ratio Prot	0.00	0.07		0.26	0.11			0.01		0.16	0.01	
v/s Ratio Perm	0.01		0.00	0.18		0.00			0.01			0.01
v/c Ratio	0.04	0.39	0.00	0.82	0.24	0.01		0.08	0.09	0.61	0.02	0.04
Uniform Delay (d1)	34.7	40.2	37.3	18.9	18.0	16.0		46.0	46.0	36.6	30.9	31.1
Progression Factor	1.00	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	0.0	7.2	0.1	0.0		0.8	1.0	5.9	0.1	0.2
Delay (s)	34.8	40.6	37.3	26.1	18.0	16.0		46.8	47.0	42.5	31.0	31.2
Level of Service	C	D	D	C	B	B		D	D	D	C	C
Approach Delay (s)		40.3			22.7			47.0			40.0	
Approach LOS		D			C			D			D	

Intersection Summary	
HCM Average Control Delay	31.2
HCM Volume to Capacity ratio	0.67
Actuated Cycle Length (s)	112.3
Intersection Capacity Utilization	62.6%
Analysis Period (min)	15
HCM Level of Service	C
Sum of lost time (s)	12.0
ICU Level of Service	B

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑	↗	↖	↗	↘	↑	↗
Volume (vph)	8	199	5	435	295	12	5	118	243	8	59
Lane Group Flow (vph)	10	258	6	588	399	16	17	162	289	10	70
Turn Type	pm+pt		Perm	pm+pt		Perm		Perm	Split		Perm
Protected Phases	5	2		1	6		8		4	4	
Permitted Phases	2		2	6		6		8			4
Detector Phases	5	2	2	1	6	6	8	8	4	4	4
Minimum Initial (s)	3.0	10.0	10.0	3.0	10.0	10.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	10.0	17.0	17.0	10.0	17.0	17.0	11.0	11.0	11.0	11.0	11.0
Total Split (s)	10.0	20.0	20.0	53.0	63.0	63.0	15.0	15.0	33.0	33.0	33.0
Total Split (%)	8.3%	16.5%	16.5%	43.8%	52.1%	52.1%	12.4%	12.4%	27.3%	27.3%	27.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	Max	Max	Max
v/c Ratio	0.05	0.51	0.03	0.85	0.23	0.02	0.08	0.49	0.58	0.02	0.13
Control Delay	21.6	48.0	25.8	32.8	16.0	6.6	48.7	13.1	41.2	33.2	9.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.6	48.0	25.8	32.8	16.0	6.6	48.7	13.1	41.2	33.2	9.1
Queue Length 50th (ft)	3	86	0	283	75	0	11	0	171	5	0
Queue Length 95th (ft)	9	122	11	289	100	9	29	29	279	19	32
Internal Link Dist (ft)		459			695		856			392	
Turn Bay Length (ft)	200			150		450					
Base Capacity (vph)	213	533	244	755	1841	886	216	334	496	523	538
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.48	0.02	0.78	0.22	0.02	0.08	0.49	0.58	0.02	0.13

**Intersection Summary:**  
 Cycle Length: 121  
 Actuated Cycle Length: 106.8  
 Natural Cycle: 70  
 Control Type: Actuated-Uncoordinated

Splits and Phases: 20: American Pkwy & Agere/Site Driveways

↘ φ1	↗ φ2	↑ φ8	↓ φ4
53 s	20 s	15 s	33 s
↗ φ5	↖ φ6		
30 s	63 s		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↕	↗	↘	↕	↗	↘	↕	↗	↘	↕	↗
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	13	13	12	12	14	12	16	16	13	13	16
Grade (%)		3%			-2%			-5%				2%
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00	1.00	1.00	1.00	1.00
Fr't	1.00	1.00		1.00	1.00	0.85		1.00	0.85	1.00	1.00	0.85
Flt: Protected	0.95	1.00		0.95	1.00	1.00		0.97	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1726	3555		1753	3506	1673		2082	1821	1810	1906	1776
Flt: Permitted	0.52	1.00		0.43	1.00	1.00		0.97	1.00	0.95	1.00	1.00
Satd. Flow (perm)	939	3555		798	3506	1673		2082	1821	1810	1906	1776
Volume (vph)	8	199	5	1618	295	12	7	5	118	243	8	59
Peak-hour factor, PHF	0.77	0.77	0.77	0.74	0.74	0.74	0.73	0.73	0.73	0.84	0.84	0.84
Adj. Flow (vph)	10	258	6	2186	399	16	10	7	162	289	10	70
RTOR Reduction (vph)	0	2	0	0	0	10	0	0	130	0	0	55
Lane Group Flow (vph)	10	262	0	2186	399	6	0	17	32	289	10	15
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	3%	3%	3%	2%	2%	2%
Turn Type	pm+pl			pm+pt			Perm	Split		Perm	Split	Perm
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases	2			6			6			6		4
Actuated Green, G (s)	19.5	18.2		45.2	36.9	36.9	19.0	19.0	20.0	20.0	20.0	20.0
Effective Green, g (s)	25.5	21.2		48.2	39.9	39.9	20.0	20.0	21.0	21.0	21.0	21.0
Actuated g/C Ratio	0.25	0.21		0.48	0.39	0.39	0.20	0.20	0.21	0.21	0.21	0.21
Clearance Time (s)	7.0	7.0		7.0	7.0	7.0	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	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	270	745		597	1382	660	411	360	376	396	369	369
v/s Ratio Prot	0.00	0.07		0.83	0.11		0.01		0.16	0.01		
v/s Ratio Perm	0.01			0.91		0.00			0.02			0.01
v/c Ratio	0.04	0.35		3.66	0.29	0.01	0.04	0.09	0.77	0.03	0.04	
Uniform Delay, d1	28.5	34.1		23.0	21.0	18.6	32.8	33.2	37.8	31.9	32.0	
Progression Factor	1.00	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		1201.9	0.1	0.0	0.2	0.5	14.0	0.1	0.2	
Delay (s)	28.5	34.4		1224.9	21.1	18.6	33.0	33.6	51.8	32.1	32.2	
Level of Service	C	C		F	C	B	C	C	D	C	C	
Approach Delay (s)		34.2			1032.8			33.6			47.6	
Approach LOS		C			F			C			D	

**Intersection Summary**

HCM Average Control Delay	794.4	HCM Level of Service	F
HCM Volume to Capacity ratio	2.15		
Actuated Cycle Length (s)	101.2	Sum of lost time (s)	12.0
Intersection Capacity Utilization	128.1%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



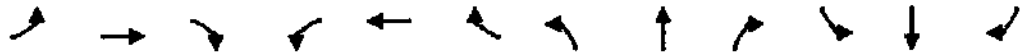
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↖	↕	↖	↕	↗	↖	↕	↖	↕	↗
Volume (vph)	8	199	1618	295	12	5	118	243	8	59
Lane Group Flow (vph)	10	264	2186	399	16	17	162	289	10	70
Turn Type	pm+pt		pm+pt		Perm		Perm	Split		Perm
Protected Phases	5	2	1	6		8		4	4	
Permitted Phases	2		6		6		8			4
Detector Phases	5	2	1	6	6	8	8	4	4	4
Minimum Initial (s)	3.0	10.0	3.0	10.0	10.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	10.0	17.0	10.0	17.0	17.0	11.0	11.0	11.0	11.0	11.0
Total Split (s)	27.0	45.0	27.0	45.0	45.0	24.0	24.0	25.0	25.0	25.0
Total Split (%)	22.3%	37.2%	22.3%	37.2%	37.2%	19.8%	19.8%	20.7%	20.7%	20.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	Max	Max	Max
v/c Ratio	0.04	0.46	3.48	0.27	0.02	0.04	0.32	0.73	0.02	0.16
Control Delay	19.0	38.5	131.2	19.8	9.5	31.5	7.3	47.0	30.6	9.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.0	38.5	131.2	19.8	9.5	31.5	7.3	47.0	30.6	9.0
Queue Length 50th (ft)	3	76	~2375	77	0	8	0	163	5	0
Queue Length 95th (ft)	11	96	#2162	112	11	22	25	#245	17	31
Internal Link Dist (ft)		459		695		856		392		
Turn Bay Length (ft)	200		150		450					
Base Capacity (vph)	434	1207	629	1507	728	436	509	398	419	445
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.22	3.48	0.26	0.02	0.04	0.32	0.73	0.02	0.16

**Intersection Summary**

Cycle Length: 121  
 Actuated Cycle Length: 95.5  
 Natural Cycle: 150  
 Control Type: Actuated/Uncoordinated  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

**Splits and Phases: 20: American Pkwy & Agere/Site Driveways**

↖ e1	↗ e2	↕ e3	↖ e4
27%	45%	24%	25%
↖ e5	↗ e6		
27%	45%		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↑	↘↙	↑	↑		↑	↑	↘	↑	↑
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	13	13	12	12	14	12	16	16	13	13	16
Grade (%)		3%			2%			5%			2%	
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	0.97	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.97	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1726	3567	1596	3401	1845	1673		2082	1821	1810	1906	1776
Flt Permitted	0.53	1.00	1.00	0.95	1.00	1.00		0.97	1.00	0.95	1.00	1.00
Satd. Flow (perm)	957	3567	1596	3401	1845	1673		2082	1821	1810	1906	1776
Volume (vph)	8	199	5	1618	295	12	7	5	118	243	8	59
Peak-hour factor, PHF	0.77	0.77	0.77	0.74	0.74	0.74	0.73	0.73	0.73	0.84	0.84	0.84
Adj. Flow (vph)	10	258	6	2186	399	16	10	7	162	289	10	70
RTOR Reduction (vph)	0	0	5	0	0	7	0	0	148	0	0	58
Lane Group Flow (vph)	10	258	11	2186	399	9	0	17	14	289	10	12
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	3%	3%	3%	2%	2%	2%
Turn Type	pm+pl		Perm	Prot		Perm	Split		Perm	Split		Perm
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases	2		2			6			8			4
Actuated Green, G (s)	18.6	17.3	17.3	55.0	71.0	71.0		10.0	10.0	20.0	20.0	20.0
Effective Green, g (s)	24.6	20.3	20.3	58.0	74.0	74.0		11.0	11.0	21.0	21.0	21.0
Actuated g/C Ratio	0.19	0.16	0.16	0.46	0.59	0.59		0.09	0.09	0.17	0.17	0.17
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0		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		3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	213	573	257	1562	1081	980		181	159	301	317	295
v/s Ratio Prot	0.00	c0.07		c0.64	0.22			c0.01		c0.16	0.01	
v/s Ratio Perm	0.01		0.00			0.01			0.01			0.01
v/c Ratio	0.05	0.45	0.00	1.40	0.37	0.01		0.09	0.09	0.96	0.03	0.04
Uniform Delay, d1	41.4	48.0	44.5	84.1	13.8	10.9		53.1	53.0	52.2	44.1	44.2
Progression Factor	1.00	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	0.6	0.0	183.7	0.2	0.0		1.0	1.1	42.6	0.2	0.3
Delay (s)	41.5	48.5	44.5	217.9	14.0	10.9		54.1	54.1	94.9	44.3	44.4
Level of Service	D	D	D	F	B	B		D	D	F	D	D
Approach Delay (s)		48.2			185.3			54.1			83.9	
Approach LOS		D			F			D			F	

Intersection Summary	
HCM Average Control Delay	156.6
HCM Volume to Capacity ratio	1.01
Actuated Cycle Length (s)	126.3
Intersection Capacity Utilization	84.6%
Analysis Period (min)	15
HCM Level of Service	F
Sum of lost time (s)	16.0
ICU Level of Service	E

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕	↗	↖	↕	↗	↖	↗	↖	↕	↗
Volume (vph)	8	199	5	1618	295	12	5	118	243	8	59
Lane Group Flow (vph)	10	258	6	2186	399	16	17	162	289	10	70
Turn Type	pm+pt		Perm	Prot		Perm		Perm	Split		Perm
Protected Phases	5	2		1	6			8	4	4	
Permitted Phases	2		2		6			8			4
Detector Phases	5	2	2	1	6	6	8	8	4	4	4
Minimum Initial (s)	3.0	10.0	10.0	3.0	10.0	10.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	10.0	17.0	17.0	10.0	17.0	17.0	11.0	11.0	11.0	11.0	11.0
Total Split (s)	62.0	19.0	19.0	62.0	19.0	19.0	15.0	15.0	25.0	25.0	25.0
Total Split (%)	51.2%	15.7%	15.7%	51.2%	15.7%	15.7%	12.4%	12.4%	20.7%	20.7%	20.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	Max	Max	Max
v/c Ratio	0.06	0.60	0.03	1.34	0.35	0.02	0.09	0.52	0.92	0.03	0.19
Control Delay	22.4	56.4	27.0	184.7	13.4	5.2	51.8	14.1	83.0	42.0	11.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.4	56.4	27.0	184.7	13.4	5.2	51.8	14.1	83.0	42.0	11.2
Queue Length 50th (ft)	3	101	0	-1148	135	0	12	0	225	7	0
Queue Length 95th (ft)	10	124	11	#932	199	8	29	29	#348	21	35
Internal Link Dist (ft)		459			695		856			392	
Turn Bay Length (ft)	200			150		450					
Base Capacity (vph)	596	442	203	1635	1131	1032	190	313	315	332	367
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.58	0.03	1.34	0.35	0.02	0.09	0.52	0.92	0.03	0.19

**Intersection Summary**

Cycle Length: 121  
 Actuated Cycle Length: 120.6  
 Natural Cycle: 150  
 Control Type: Actuated Uncoordinated

- Volume exceeds capacity, queue is theoretically infinite.
- Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
- Queue shown is maximum after two cycles.

Splits and Phases: 20: American Pkwy & Agere/Site Driveways

↖ 01	↖ 02	↖ 03	↖ 04
62s	19s	15s	25s
↗ 05	↗ 06		
62s	19s		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↕	↗	↘	↕	↗	↘	↕	↗	↘	↕	↗
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	13	13	12	12	14	12	16	16	13	13	16
Grade (%)		3%			2%			5%				2%
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85		1.00	0.85	1.00	1.00	0.85
Flt. Protected	0.95	1.00		0.95	1.00	1.00		0.98	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1726	3562		1753	3506	1673		2091	1821	1810	1906	1776
Flt. Permitted	0.29	1.00		0.37	1.00	1.00		0.98	1.00	0.95	1.00	1.00
Satd. Flow (perm)	530	3562		688	3506	1673		2091	1821	1810	1906	1776
Volume (vph)	8	331	43	2	382	12	5	5	26	243	8	59
Peak-hour factor, PHF	0.77	0.77	0.77	0.74	0.74	0.74	0.73	0.73	0.73	0.84	0.84	0.84
Adj. Flow (vph)	10	430	4	3	516	16	7	7	36	289	10	70
RTOR Reduction (vph)	0	1	0	0	0	12	0	0	27	0	0	52
Lane Group Flow (vph)	10	433	0	3	516	4	0	14	9	289	10	18
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	3%	3%	3%	2%	2%	2%
Turn Type	pm+pt			pm+pt			Perm	Split		Perm	Split	Perm
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases	2			6		6			8			4
Actuated Green, G (s)	17.3	16.2		17.1	16.1	16.1		19.3	19.3	20.3	20.3	20.3
Effective Green, g (s)	23.3	19.2		23.1	19.1	19.1		20.3	20.3	21.3	21.3	21.3
Actuated g/C Ratio	0.29	0.24		0.29	0.24	0.24		0.25	0.25	0.26	0.26	0.26
Clearance Time (s)	7.0	7.0		7.0	7.0	7.0		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	3.0	3.0	3.0	3.0
Lane Grp Cap. (vph)	214	846		249	829	395		525	458	477	502	468
v/s Ratio Prot	c0.00	0.12		0.00	c0.15			c0.01		c0.16	0.01	
v/s Ratio Perm	0.01			0.00		0.00			0.00			0.01
v/c Ratio	0.05	0.51		0.01	0.62	0.01		0.03	0.02	0.61	0.02	0.04
Uniform Delay, d1	20.9	26.7		20.8	27.6	23.6		22.8	22.8	26.1	22.0	22.1
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	0.1	0.5		0.0	1.5	0.0		0.1	0.1	5.6	0.1	0.2
Delay (s)	21.0	27.3		20.8	29.1	23.6		22.9	22.8	31.7	22.1	22.3
Level of Service	C	C		C	C	C		C	C	C	C	C
Approach Delay (s)		27.1			28.9			22.9			29.7	
Approach LOS		C			C			C			C	

Intersection Summary	
HCM Average Control Delay	28.3
HCM Volume to Capacity ratio	0.39
HCM Level of Service	C
Actuated Cycle Length (s)	80.8
Sum of lost time (s)	16.0
Intersection Capacity Utilization	37.7%
ICU Level of Service	A
Analysis Period (min)	15

c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙	↕	↙	↕	↕	↕	↕	↙	↕	↕
Volume (vph)	8	331	2	382	12	5	26	243	8	59
Lane Group Flow (vph)	10	434	3	516	16	14	36	289	10	70
Turn Type	pm+pt		pm+pt		Perm		Perm	Split		Perm
Protected Phases	5	2	1	6		8		4	4	
Permitted Phases	2		6		6		8			4
Detector Phases	5	2	1	6	6	8	8	4	4	4
Minimum Initial (s)	3.0	10.0	3.0	10.0	10.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	10.0	17.0	10.0	17.0	17.0	11.0	11.0	11.0	11.0	11.0
Total Split (s)	27.0	45.0	27.0	45.0	45.0	24.0	24.0	25.0	25.0	25.0
Total Split (%)	22.3%	37.2%	22.3%	37.2%	37.2%	19.8%	19.8%	20.7%	20.7%	20.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	Max	Max	Max
v/c Ratio	0.04	0.47	0.01	0.58	0.04	0.02	0.07	0.56	0.02	0.13
Control Delay	20.2	24.3	19.5	25.4	11.1	24.7	10.0	30.3	24.0	7.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.2	24.3	19.5	25.4	11.1	24.7	10.0	30.3	24.0	7.8
Queue Length 50th (ft)	3	84	1	104	0	4	0	106	3	0
Queue Length 95th (ft)	1.1	126	5	145	11	18	17	230	17	29
Internal Link Dist (ft)		459		1316		856		392		
Turn Bay Length (ft)	200		150		450					
Base Capacity (vph)	421	1517	431	1490	721	565	518	513	541	554
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.29	0.01	0.35	0.02	0.02	0.07	0.56	0.02	0.13

**Intersection Summary**  
 Cycle Length: 121  
 Actuated Cycle Length: 75.1  
 Natural Cycle: 55  
 Control Type: Actuated-Uncoordinated

Splits and Phases: 20: American Pkwy & Agere/Site Driveways

↙ ø1 27.0	↕ ø2 45.0	↕ ø8 24.0	↕ ø4 25.0
↙ ø5 27.0	↕ ø6 45.0		





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙	↑↑		↙	↑↑	↑		↑	↑	↙	↑	↑
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	13	13	12	12	14	12	16	16	13	13	16
Grade (%)		3%			2%			5%			2%	
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85		1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.97	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1726	3560		1753	3506	1673		2082	1821	1810	1906	1776
Flt Permitted	0.46	1.00		0.80	1.00	1.00		0.97	1.00	0.95	1.00	1.00
Satd. Flow (perm)	838	3560		560	3506	1673		2082	1821	1810	1906	1776
Volume (vph)	8	333	5	433	382	12	7	5	118	243	8	59
Peak-hour factor, PHF	0.77	0.77	0.77	0.74	0.74	0.74	0.73	0.73	0.73	0.84	0.84	0.84
Adj. Flow (vph)	10	432	6	585	516	16	10	7	162	289	10	70
RTOR Reduction (vph)	0	1	0	0	0	9	0	0	131	0	0	56
Lane Group Flow (vph)	10	437	0	585	516	7	0	17	31	289	10	14
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	3%	3%	3%	2%	2%	2%
Turn type	pm:pt			pm:pt			Perm	Split		Perm	Split	Perm
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases	2			6		6			8			4
Actuated Green, G (s)	24.3	23.1		50.1	41.9	41.9		19.0	19.0	20.0	20.0	20.0
Effective Green, g (s)	30.3	26.1		53.1	44.9	44.9		20.0	20.0	21.0	21.0	21.0
Actuated g/C Ratio	0.29	0.25		0.50	0.42	0.42		0.19	0.19	0.20	0.20	0.20
Clearance Time (s)	7.0	7.0		7.0	7.0	7.0		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	3.0	3.0	3.0	3.0
Lane Grp Cap. (vph)	274	876		539	1484	708		392	343	358	377	352
v/s Ratio Prot	0.00	0.12		c0.24	0.15			0.01		c0.16	0.01	
v/s Ratio Perm	0.01			c0.31		0.00		0.02				0.01
v/c Ratio	0.04	0.50		1.09	0.35	0.01		0.04	0.09	0.81	0.03	0.04
Uniform Delay, d1	27.2	34.4		21.0	20.7	17.7		35.2	35.5	40.6	34.3	34.4
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		63.9	0.1	0.0		0.2	0.5	17.5	0.1	0.2
Delay (s)	27.3	34.8		84.9	20.8	17.7		35.4	36.0	58.1	34.4	34.6
Level of Service	C	C		F	C	B		D	D	E	C	C
Approach Delay (s)		34.7			54.4			36.0			53.0	
Approach LOS		C			D			D			D	

Intersection Summary	
HCM Average Control Delay	48.4
HCM Volume to Capacity ratio	0.80
Actuated Cycle Length (s)	106.1
Intersection Capacity Utilization	63.5%
Analysis Period (min)	15
HCM Level of Service	D
Sum of lost time (s)	12.0
ICU Level of Service	B

c Critical Lane Group



lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕	↖	↕	↗	↖	↗	↖	↕	↗
Volume (vph)	8	333	433	382	12	5	118	243	8	59
Lane Group Flow (vph)	10	438	585	516	16	17	162	289	10	70
Turn Type	pm+pt		pm+pt		Perm		Perm	Split		Perm
Protected Phases	5	2	1	6		8		4	4	
Permitted Phases	2		6		6		8			4
Detector Phases	5	2	1	6	6	8	8	4	4	4
Minimum Initial (s)	3.0	10.0	3.0	10.0	10.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	10.0	17.0	10.0	17.0	17.0	11.0	11.0	11.0	11.0	11.0
Total Split (s)	27.0	45.0	27.0	45.0	45.0	24.0	24.0	25.0	25.0	25.0
Total Split (%)	22.3%	37.2%	22.3%	37.2%	37.2%	19.8%	19.8%	20.7%	20.7%	20.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	Max	Max	Max
v/c Ratio	0.04	0.60	1.00	0.33	0.02	0.04	0.33	0.76	0.03	0.16
Control Delay	18.0	40.0	62.3	19.5	8.7	34.4	7.8	52.7	33.6	9.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.0	40.0	62.3	19.5	8.7	34.4	7.8	52.7	33.6	9.7
Queue Length 50th (ft)	3	134	-289	104	0	9	0	175	5	0
Queue Length 95th (ft)	10	154	#316	142	10	24	26	#282	19	32
Internal Link Dist (ft)		459		695		856			392	
Turn Bay Length (ft)	200		150		450					
Base Capacity (vph)	422	1207	583	1573	759	415	492	379	399	427
Starvation Cap. Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.36	1.00	0.33	0.02	0.04	0.33	0.76	0.03	0.16

**Intersection Summary**

Cycle Length: 121  
 Actuated Cycle Length: 100.5  
 Natural Cycle: 75  
 Control Type: Actuated/Uncoordinated  
 - Volume exceeds capacity, queue is theoretically infinite.  
 - Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 - Queue shown is maximum after two cycles.

**Splits and Phases: 20: American Pkwy & Agere/Site Driveways**

↖ p1 27.0s	↕ p2 45.0s	↗ p3 24.0s	↖ p4 25.0s
↖ p5 27.0s	↕ p6 45.0s		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↕	↗	↘	↕	↗	↕	↗	↕	↘	↕	↗
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	13	13	12	12	14	12	16	16	13	13	16
Grade (%)		3%			2%			5%			2%	
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00	1.00	1.00	1.00	1.00
Frnt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85	1.00	1.00	0.85
Flt: Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.97	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1726	3567	1596	1753	3506	1673		2082	1821	1810	1906	1776
Flt: Permitted	0.46	1.00	1.00	0.27	1.00	1.00		0.97	1.00	0.95	1.00	1.00
Satd. Flow (perm)	838	3567	1596	506	3506	1673		2082	1821	1810	1906	1776
Volume (vph)	8	333	5	433	382	12	7	5	118	243	8	59
Peak-hour factor, PHF	0.77	0.77	0.77	0.74	0.74	0.74	0.73	0.73	0.73	0.84	0.84	0.84
Adj. Flow (vph)	10	432	6	585	516	16	10	7	162	289	10	70
RTOR Reduction (vph)	0	0	5	0	0	8	0	0	148	0	0	53
Lane Group Flow (vph)	10	432	1	585	516	8	0	17	14	289	10	17
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	3%	3%	3%	2%	2%	2%
Turn Type	pm+pt		Perm	pm+pt		Perm	Split		Perm	Split		Perm
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases	2		2	6		6			8			4
Actuated Green, G (s)	22.6	22.1	22.1	62.7	55.2	55.2		9.1	9.1	27.3	27.3	27.3
Effective Green, g(s)	28.6	25.1	25.1	65.7	58.2	58.2		10.1	10.1	28.3	28.3	28.3
Actuated g/C Ratio	0.25	0.22	0.22	0.57	0.50	0.50		0.09	0.09	0.24	0.24	0.24
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0		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		3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	233	771	345	679	1758	839		181	158	441	465	433
v/s Ratio Prot	0.00	0.12		c0.27	0.15			c0.01		c0.16	0.01	
v/s Ratio Perm	0.01		0.00	c0.22		0.00			0.01			0.01
v/c Ratio	0.04	0.56	0.00	0.86	0.29	0.01		0.09	0.09	0.66	0.02	0.04
Uniform Delay, d1	33.2	40.6	35.7	20.9	16.9	14.5		48.8	48.8	39.5	33.4	33.5
Progression Factor	1.00	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	0.9	0.0	10.9	0.1	0.0		1.0	1.1	7.4	0.1	0.2
Delay (s)	33.2	41.5	35.7	31.8	17.0	14.5		49.8	49.9	46.9	33.5	33.7
Level of Service	C	D	D	C	B	B		D	D	D	C	C
Approach Delay (s)		41.3			24.7			49.9			44.0	
Approach LOS		D			C			D			D	

**Intersection Summary**

HCM Average Control Delay	33.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	116.1	Sum of lost time (s)	12.0
Intersection Capacity Utilization	63.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕	↗	↖	↕	↗	↖	↕	↗	↕	↗
Volume (vph)	8	333	5	433	382	12	5	118	243	8	59
Lane Group Flow (vph)	10	432	6	585	516	16	17	162	289	10	70
Turn Type	pm+pl		Perm	pm+pl		Perm		Perm	Split		Perm
Protected Phases	5	2		1	6		8		4	4	
Permitted Phases	2		2	6		6		8			4
Detector Phases	5	2	2	1	6	6	8	8	4	4	4
Minimum Initial (s)	3.0	10.0	10.0	3.0	10.0	10.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	10.0	17.0	17.0	10.0	17.0	17.0	11.0	11.0	11.0	11.0	11.0
Total Split (s)	10.0	25.0	25.0	50.0	65.0	65.0	14.0	14.0	32.0	32.0	32.0
Total Split (%)	8.3%	20.7%	20.7%	41.3%	53.7%	53.7%	11.6%	11.6%	26.4%	26.4%	26.4%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	Max	Max	Max
v/c Ratio	0.04	0.69	0.02	0.88	0.28	0.02	0.09	0.52	0.62	0.02	0.14
Control Delay	20.2	50.3	24.0	39.4	15.0	5.9	51.7	14.4	45.7	35.8	9.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.2	50.3	24.0	39.4	15.0	5.9	51.7	14.4	45.7	35.8	9.5
Queue Length 50th (ft)	3	155	0	319	97	0	12	0	191	6	0
Queue Length 95th (ft)	9	188	11	328	124	8	29	29	282	20	32
Internal Link Dist (ft)		459			695		856			392	
Turn Bay Length (ft)	200			150		450					
Base Capacity (vph)	225	672	305	725	1929	928	190	314	463	488	507
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.64	0.02	0.81	0.27	0.02	0.09	0.52	0.62	0.02	0.14

**Intersection Summary**

Cycle Length: 121  
 Actuated Cycle Length: 110.6  
 Natural Cycle: 75  
 Control Type: Actuated-Uncoordinated

**Splits and Phases: 20: American Pkwy & Agere/Site Driveways**

↖ ø1	↕ ø2	↗ ø3	↕ ø4
50 s	25 s	14 s	32 s
↖ ø5	↕ ø6		
10 s	65 s		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕	↗	↖	↕	↗	↖	↕	↗	↖	↕	↗
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	13	13	12	12	14	12	16	16	13	13	16
Grade (%)		3%			2%			5%			2%	
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85		1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.97	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1726	3560		1753	3506	1673		2082	1821	1810	1906	1776
Flt Permitted	0.46	1.00		0.30	1.00	1.00		0.97	1.00	0.95	1.00	1.00
Satd. Flow (perm)	838	3560		560	3506	1673		2082	1821	1810	1906	1776
Volume (vph)	8	333	5	1618	382	12	7	5	118	243	8	59
Peak-hour factor, PHF	0.77	0.77	0.77	0.74	0.74	0.74	0.73	0.73	0.73	0.84	0.84	0.84
Adj. Flow (vph)	10	432	6	2186	516	16	10	7	162	289	10	70
RTOR Reduction (vph)	0	1	0	0	0	9	0	0	131	0	0	56
Lane Group Flow (vph)	10	437	0	2186	516	7	0	17	31	289	10	14
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	3%	3%	3%	2%	2%	2%
Turn Type	pm+pt			pm+pt			Perm	Split		Perm	Split	Perm
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases	2			6		6			8			4
Actuated Green, G (s)	24.3	23.1		50.1	41.9	41.9		19.0	19.0	20.0	20.0	20.0
Effective Green, g (s)	30.3	26.1		53.1	44.9	44.9		20.0	20.0	21.0	21.0	21.0
Actuated g/C Ratio	0.29	0.25		0.50	0.42	0.42		0.19	0.19	0.20	0.20	0.20
Clearance Time (s)	7.0	7.0		7.0	7.0	7.0		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	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	274	876		539	1484	708		392	343	358	377	352
v/s Ratio Prot	0.00	0.12		0.88	0.15			0.01		0.16	0.01	
v/s Ratio Perm	0.01			0.15		0.00		0.02				0.01
v/c Ratio	0.04	0.50		4.06	0.35	0.01		0.04	0.09	0.81	0.03	0.04
Uniform Delay, d1	27.2	34.4		21.0	20.7	17.7		35.2	35.5	40.6	34.3	34.4
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		1379.5	0.1	0.0		0.2	0.5	17.5	0.1	0.2
Delay (s)	27.3	34.8		1400.5	20.8	17.7		35.4	36.0	58.1	34.4	34.6
Level of Service	C	C		F	G	B		D	D	E	C	C
Approach Delay (s)		34.7			1130.4			36.0			53.0	
Approach LOS		C			F			D			D	

Intersection Summary	
HCM Average Control Delay	838.5
HCM Volume to Capacity ratio	2.44
Actuated Cycle Length (s)	106.1
Intersection Capacity Utilization	129.1%
Analysis Period (min)	15
HCM Level of Service	F
Sum of lost time (s)	12.0
ICU Level of Service	H

c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕	↖	↕	↗	↖	↗	↖	↕	↗
Volume (vph)	8	333	1618	382	12	5	118	243	8	59
Lane Group Flow (vph)	10	438	2186	516	16	17	162	289	10	70
Turn Type	pm+pt		pm+pt		Perm		Perm	Split		Perm
Protected Phases	5	2	1	6		8		4		4
Permitted Phases	2		6		6		8			14
Detector Phases	5	2	1	6	6	8	8	4	4	4
Minimum Initial (s)	3.0	10.0	3.0	10.0	10.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	10.0	17.0	10.0	17.0	17.0	11.0	11.0	11.0	11.0	11.0
Total Split (s)	27.0	45.0	27.0	45.0	45.0	24.0	24.0	25.0	25.0	25.0
Total Split (%)	22.3%	37.2%	22.3%	37.2%	37.2%	19.8%	19.8%	20.7%	20.7%	20.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	Max	Max	Max
v/c Ratio	0.04	0.60	3.75	0.33	0.02	0.04	0.33	0.76	0.03	0.16
Control Delay	18.0	40.0	255.9	19.5	8.7	34.4	7.8	52.7	33.6	9.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.0	40.0	255.9	19.5	8.7	34.4	7.8	52.7	33.6	9.7
Queue Length 50th (ft)	3	134	~2456	104	0	9	0	175	5	0
Queue Length 95th (ft)	10	154	#2220	142	10	24	26	#282	19	32
Internal Link Dist (ft)		459		695		856			392	
Turn Bay Length (ft)	200		150		450					
Base Capacity (vph)	422	1207	583	1573	759	415	492	379	399	427
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.36	3.75	0.33	0.02	0.04	0.33	0.76	0.03	0.16

**Intersection Summary**

Cycle Length: 121  
 Actuated Cycle Length: 100.15  
 Natural Cycle: 150  
 Control Type: Actuated-Uncoordinated

~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 20: American Pkwy & Agere/Site Driveways

↖ σ1 27s	↕ σ2 45s	↖ σ8 24s	↕ σ4 25s
↖ σ5 27s	↕ σ6 45s		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↕	↗	↘↗	↕	↗	↖	↗	↖	↘	↕	↗
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	13	13	12	12	14	12	16	16	13	13	16
Grade (%)		3%			2%			5%			2%	
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	0.97	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85	1.00	1.00	0.85
Flt: Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.97	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1726	3567	1596	3401	1845	1673		2082	1821	1810	1906	1776
Flt: Permitted	0.47	1.00	1.00	0.95	1.00	1.00		0.97	1.00	0.95	1.00	1.00
Satd. Flow (perm)	860	3567	1596	3401	1845	1673		2082	1821	1810	1906	1776
Volume (vph)	8	333	5	1618	382	12	47	5	118	243	8	59
Peak-hour factor, PHF	0.77	0.77	0.77	0.74	0.74	0.74	0.73	0.73	0.73	0.84	0.84	0.84
Adj. Flow (vph)	10	432	6	2186	516	16	10	7	162	289	10	70
RTOR Reduction (vph)	0	0	5	0	0	6	0	0	148	0	0	60
Lane Group Flow (vph)	10	432	4	2186	516	10	0	17	14	289	10	10
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	3%	3%	3%	2%	2%	2%
Turn Type	pm+pt		Perm	Prot		Perm	Split		Perm	Split		Perm
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases	2		2		6		8		8		4	4
Actuated Green, G (s)	23.3	22.1	22.1	53.0	73.9	73.9	10.0	10.0	17.0	17.0	17.0	17.0
Effective Green, g(s)	29.3	25.1	25.1	56.0	76.9	76.9	11.0	11.0	18.0	18.0	18.0	18.0
Actuated g/C Ratio	0.23	0.20	0.20	0.44	0.61	0.61	0.09	0.09	0.14	0.14	0.14	0.14
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	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	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	229	710	318	1510	1125	1020		182	159	258	272	254
v/s Ratio Prot	0.00	c0.12		c0.64	0.28			c0.01		c0.16	0.01	
v/s Ratio Perm	0.01		0.00		0.01			0.01		0.01		0.01
v/c Ratio	0.04	0.61	0.00	1.45	0.46	0.01		0.09	0.09	1.12	0.04	0.04
Uniform Delay, d1	37.6	46.0	40.5	35.0	13.3	9.7		53.0	52.9	54.0	46.6	46.6
Progression Factor	1.00	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	1.5	0.0	205.2	0.3	0.0		1.0	1.1	92.2	0.3	0.3
Delay (s)	37.7	47.5	40.5	240.3	13.6	9.7		54.0	54.0	146.3	46.8	46.9
Level of Service	D	D	D	F	B	A		D	D	F	D	D
Approach Delay (s)		47.2			195.9			54.0			124.7	
Approach LOS		D			F			D			F	

Intersection Summary	
HCM Average Control Delay	164.1
HCM Volume to Capacity ratio	1.07
Actuated Cycle Length (s)	126.1
Intersection Capacity Utilization	85.5%
Analysis Period (min)	15
HCM Level of Service	F
Sum of lost time (s)	16.0
ICU Level of Service	E

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕	↗	↖	↕	↗	↖	↗	↖	↕	↗
Volume (vph)	8	333	5	1618	382	12	5	118	243	8	59
Lane Group Flow (vph)	10	432	6	2186	516	16	17	162	289	10	70
Turn Type	pm+pt		Perm	Prot		Perm		Perm	Split		Perm
Protected Phases	5	2		1	6		8		4	4	
Permitted Phases	2		2		6		8				4
Detector Phases	5	2	2	1	6	6	8	8	4	4	4
Minimum Initial (s)	3.0	10.0	10.0	3.0	10.0	10.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	10.0	17.0	17.0	10.0	17.0	17.0	11.0	11.0	11.0	11.0	11.0
Total Split (s)	60.0	24.0	24.0	60.0	24.0	24.0	15.0	15.0	22.0	22.0	22.0
Total Split (%)	49.6%	19.8%	19.8%	49.6%	19.8%	19.8%	12.4%	12.4%	18.2%	18.2%	18.2%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	Max	Max	Max
v/c Ratio	0.06	0.75	0.02	1.38	0.44	0.01	0.09	0.52	1.07	0.04	0.22
Control Delay	20.5	57.0	24.4	205.4	13.2	4.6	51.8	14.1	123.4	44.6	12.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.5	57.0	24.4	205.4	13.2	4.6	51.8	14.1	123.4	44.6	12.2
Queue Length 50th (ft)	3	170	0	1172	174	0	12	0	251	7	0
Queue Length 95th (ft)	9	190	11	956	251	7	29	29	384	22	36
Internal Link Dist (ft)		459			695		856			392	
Turn Bay Length (ft)	200		295	150		450					
Base Capacity (vph)	584	590	269	1580	1177	1074	190	314	270	285	325
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.73	0.02	1.38	0.44	0.01	0.09	0.52	1.07	0.04	0.22

**Intersection Summary**

Cycle Length: 121  
 Actuated Cycle Length: 120.5  
 Natural Cycle: 150  
 Control Type: Actuated Uncoordinated

- Volume exceeds capacity, queue is theoretically infinite.
- Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
- Queue shown is maximum after two cycles.

Splits and Phases: 20: American Pkwy & Agere/Site Driveways

↖	↕	↗	↖	↗
60s	24s	15s	22s	
↖	↕			
60s	24s			





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↕	↗	↘	↕	↗	↖	↗	↖	↘	↕	↗
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	13	13	12	12	14	12	16	16	13	13	16
Grade (%)		3%			2%			5%			2%	
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00	1.00	1.00	1.00	1.00
Frnt	1.00	1.00		1.00	1.00	0.85		1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.98	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1726	3566		1753	3506	1673		2091	1821	1810	1906	1776
Flt Permitted	0.10	1.00		0.13	1.00	1.00		0.98	1.00	0.95	1.00	1.00
Satd. Flow (perm)	177	3566		241	3506	1673		2091	1821	1810	1906	1776
Volume (vph)	8	960	3	2	1036	12	5	5	26	243	8	59
Peak-hour factor, PHF	0.77	0.77	0.77	0.74	0.74	0.74	0.73	0.73	0.73	0.84	0.84	0.84
Adj. Flow (vph)	10	1247	4	3	1400	16	7	7	36	289	10	70
RTOR Reduction (vph)	0	0	0	0	0	7	0	0	34	0	0	54
Lane Group Flow (vph)	10	1251	0	3	1400	9	0	14	2	289	10	16
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	3%	3%	3%	2%	2%	2%
Turn Type	pm+pt			pm+pt		Perm	Split		Perm	Split		Perm
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases	2			6		6		8				4
Actuated Green, G (s)	69.5	68.9		70.5	69.4	69.4		8.0	8.0	28.0	28.0	28.0
Effective Green, g (s)	75.5	71.9		76.5	72.4	72.4		9.0	9.0	29.0	29.0	29.0
Actuated g/C Ratio	0.58	0.55		0.59	0.56	0.56		0.07	0.07	0.22	0.22	0.22
Clearance Time (s)	7.0	7.0		7.0	7.0	7.0		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	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	146	1972		190	1953	932		145	126	404	425	396
v/s Ratio Prot	c0.00	0.35		0.00	c0.40			c0.01		c0.16	0.01	
v/s Ratio Perm	0.04			0.01		0.01		0.00				0.01
v/c Ratio	0.07	0.63		0.02	0.72	0.01		0.10	0.02	0.72	0.02	0.04
Uniform Delay, d1	16.5	20.0		14.5	21.2	12.8		56.7	56.4	46.7	39.4	39.6
Progression Factor	1.00	1.00		0.69	0.60	0.41		1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	1.6		0.0	2.1	0.0		1.3	0.3	10.4	10.1	0.2
Delay (s)	16.7	21.6		10.0	14.9	5.3		58.0	56.7	57.0	39.5	39.8
Level of Service	B	C		A	B	A		E	E	E	D	D
Approach Delay (s)		21.5			14.8			57.1			53.3	
Approach LOS		C			B			E			D	

**Intersection Summary**

HCM Average Control Delay	22.8	HCM Level of Service	G
HCM Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	55.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBTL	WBR	NBT	NBR	SBL	SBTL	SBR
Lane Configurations	↖	↕	↖	↕	↗	↖	↗	↖	↕	↗
Volume (vph)	8	960	2	1036	12	5	26	243	8	59
Lane Group Flow (vph)	10	1251	3	1400	16	14	36	289	10	70
Turn Type	pm+pt		pm+pt		Perm		Perm	Split		Perm
Protected Phases	5	2	1	6		8		4	4	
Permitted Phases	2		6		6		8			4
Detector Phases	5	2	1	6	6	8	8	4	4	4
Minimum Initial (s)	3.0	10.0	3.0	10.0	10.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	10.0	17.0	10.0	17.0	17.0	11.0	11.0	11.0	11.0	11.0
Total Split (s)	10.0	60.0	24.0	74.0	74.0	13.0	13.0	33.0	33.0	33.0
Total Split (%)	7.7%	46.2%	18.5%	56.9%	56.9%	10.0%	10.0%	25.4%	25.4%	25.4%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C Max	None	C Max	C Max	Max	Max	Max	Max	Max
v/c Ratio	0.05	0.59	0.02	0.67	0.02	0.10	0.23	0.72	0.02	0.16
Control Delay	10.4	18.5	7.0	12.5	12.2	58.4	21.0	57.8	39.8	9.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.4	18.5	7.0	12.5	12.2	58.4	21.0	57.8	39.8	9.8
Queue Length 50th (ft)	3	310	1	200	0	11	0	227	7	0
Queue Length 95th (ft)	9	374	m1	195	m2	28	23	303	21	33
Internal Link Dist (ft)		459		1316		856			392	
Turn Bay Length (ft)	200		150		450					
Base Capacity (vph)	193	2125	327	2104	1010	145	160	404	425	451
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.59	0.01	0.67	0.02	0.10	0.23	0.72	0.02	0.16

**Intersection Summary**

Cycle Length: 130  
 Actuated Cycle Length: 130  
 Offset: 32 (25%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow  
 Natural Cycle: 80  
 Control Type: Actuated-Coordinated  
 m: Volume for 95th percentile queue is metered by upstream signal

**Splits and Phases: 20: American Pkwy & Agere/Site Driveways**

01	02	03	04
24s	60s	18s	33s
05	06		
10s	74s		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↕	↗	↘	↕	↗	↘	↕	↗	↘	↕	↗
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	13	13	12	12	14	12	16	16	13	13	16
Grade (%)		3%			-2%			5%			2%	
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85		1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.97	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1726	3565		1753	3506	1673		2082	1821	1810	1906	1776
Flt Permitted	0.19	1.00		0.08	1.00	1.00		0.97	1.00	0.95	1.00	1.00
Satd. Flow (perm)	349	3565		148	3506	1673		2082	1821	1810	1906	1776
Volume (vph)	8	962	5	433	1036	12	7	5	118	243	8	59
Peak-hour factor, PHF	0.77	0.77	0.77	0.74	0.74	0.74	0.73	0.73	0.73	0.84	0.84	0.84
Adj. Flow (vph)	10	1249	6	585	1400	16	10	7	162	289	10	70
RTOR Reduction (vph)	0	0	0	0	0	6	0	0	153	0	0	59
Lane Group Flow (vph)	10	1255	0	585	1400	10	0	17	9	289	10	11
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	3%	3%	3%	2%	2%	2%
Turn Type	pm+pt			pm+pt		Perm	Split		Perm	Split		Perm
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases	2			6		6		8				4
Actuated Green, G (s)	43.6	43.0		87.0	79.4	79.4		6.0	6.0	20.0	20.0	20.0
Effective Green, g (s)	49.6	46.0		90.0	82.4	82.4		7.0	7.0	21.0	21.0	21.0
Actuated g/C Ratio	0.38	0.35		0.69	0.63	0.63		0.05	0.05	0.16	0.16	0.16
Clearance Time (s)	7.0	7.0		7.0	7.0	7.0		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	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	171	1261		596	2222	1060		112	98	292	308	287
v/s Ratio Prot	0.00	0.35		c0.30	0.40			c0.01		c0.16	0.01	
v/s Ratio Perm	0.02			c0.38		0.01		0.00				0.01
v/c Ratio	0.06	1.00		0.98	0.63	0.01		0.15	0.09	0.99	0.03	0.04
Uniform Delay, d1	25.6	41.9		38.7	14.5	8.8		58.7	58.5	54.4	45.9	46.0
Progression Factor	1.00	1.00		1.52	0.56	0.49		1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	24.2		29.0	1.2	0.0		2.9	1.8	50.1	0.2	0.3
Delay (s)	25.7	66.1		88.1	9.3	4.3		61.5	60.3	104.5	46.1	46.2
Level of Service	C	E		F	A	A		E	E	F	D	D
Approach Delay (s)		65.8			32.3			60.4			91.9	
Approach LOS		E			C			E			F	

Intersection Summary	
HCM Average Control Delay	50.5
HCM Volume to Capacity ratio	0.92
Actuated Cycle Length (s)	130.0
Intersection Capacity Utilization	80.9%
Analysis Period (min)	15
HCM Level of Service	D
Sum of lost time (s)	12.0
ICU Level of Service	D



Lane Group	EBL	EBTL	WBL	WBTL	WBR	NBT	NBR	SBL	SBTL	SBR
Lane Configurations	↖	↕	↖	↕	↗	↖	↗	↖	↕	↗
Volume (vph)	8	962	433	1036	12	5	118	243	8	59
Lane Group Flow (vph)	10	1255	585	1400	16	17	162	289	10	70
Turn Type	pm+pl		pm+pl		Perm		Perm	Split		Perm
Protected Phases	5	2	1	6		8		4	4	
Permitted Phases	2		6		6		8			4
Detector Phases	5	2	1	6	6	8	8	4	4	4
Minimum Initial (s)	3.0	10.0	3.0	10.0	10.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	10.0	17.0	10.0	17.0	17.0	11.0	11.0	11.0	11.0	11.0
Total Split (s)	10.0	50.0	44.0	84.0	84.0	11.0	11.0	25.0	25.0	25.0
Total Split (%)	7.7%	38.5%	33.8%	64.6%	64.6%	8.5%	8.5%	19.2%	19.2%	19.2%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	C-Max	Max	Max	Max	Max	Max
v/c Ratio	0.05	1.00	0.98	0.59	0.01	0.15	0.65	0.99	0.03	0.20
Control Delay	12.6	66.1	83.1	7.6	1.8	61.9	21.2	104.4	46.5	11.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.6	66.1	83.1	7.6	1.8	61.9	21.2	104.4	46.5	11.9
Queue Length 50th (ft)	2	552	438	144	0	14	0	246	7	0
Queue Length 95th (ft)	7	518	445	151	0	32	31	385	23	36
Internal Link Dist (ft)		459		695		856			392	
Turn Bay Length (ft)	200		150		450					
Base Capacity (vph)	203	1261	596	2373	1138	112	251	292	308	346
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	1.00	0.98	0.59	0.01	0.15	0.65	0.99	0.03	0.20

**Intersection Summary**

Cycle Length: 130  
 Actuated Cycle Length: 130  
 Offset: 32 (25%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow  
 Natural Cycle: 120  
 Control Type: Actuated-Coordinated

# 95th percentile volume exceeds capacity; queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 20: American Pkwy & Agere/Site Driveways

 44%	 50%	 11%	 25%
 10%	 84%		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↗	↗	↘	↗	↗	↘	↗	↗	↘	↗	↗
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	13	13	12	12	14	12	16	16	13	13	16
Grade (%)		3%			-2%			5%			2%	
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1726	3567	1596	3401	3506	1673	1796	2143	1821	1810	1906	1776
Flt Permitted	0.17	1.00	1.00	0.95	1.00	1.00	0.75	1.00	1.00	0.54	1.00	1.00
Satd. Flow (perm)	303	3567	1596	3401	3506	1673	1420	2143	1821	1034	1906	1776
Volume (vph)	78	960	5	433	1036	12	7	5	118	243	8	59
Peak-hour factor, PHF	0.77	0.77	0.77	0.74	0.74	0.74	0.73	0.73	0.73	0.84	0.84	0.84
Adj. Flow (vph)	10	1247	6	585	1400	16	10	7	162	289	10	70
RTOR Reduction (vph)	0	0	3	0	0	6	0	0	149	0	0	51
Lane Group Flow (vph)	10	1247	3	585	1400	10	10	7	13	289	10	19
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	3%	3%	3%	2%	2%	2%
Turn Type	pm+pt		Perm	Prot		Perm	Perm		Perm	pm+pt		Perm
Protected Phases	5	2		1	6			8		7		4
Permitted Phases	2		2		6	8		8		4		4
Actuated Green, G (s)	53.3	52.7	52.7	24.3	76.4	76.4	9.3	9.3	9.3	34.0	34.0	34.0
Effective Green, g (s)	59.3	55.7	55.7	27.3	79.4	79.4	10.3	10.3	10.3	35.0	35.0	35.0
Actuated g/C Ratio	0.46	0.43	0.43	0.21	0.61	0.61	0.08	0.08	0.08	0.27	0.27	0.27
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	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	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	178	1528	684	714	2141	1022	113	170	144	402	513	478
v/s Ratio Prot	0.00	c0.35		c0.17	0.40			0.00		c0.11	0.01	
v/s Ratio Perm	0.02		0.00			0.01	0.01		0.01	c0.08		0.01
v/c Ratio	0.06	0.82	0.00	0.82	0.65	0.01	0.09	0.04	0.09	0.72	0.02	0.04
Uniform Delay d1	19.6	32.6	21.3	49.0	16.4	9.9	55.5	55.3	55.5	41.4	34.9	35.1
Progression Factor	1.00	1.00	1.00	1.37	0.58	0.52	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay d2	0.1	4.9	0.0	6.2	1.3	0.0	1.5	0.5	1.2	6.1	0.1	0.2
Delay (s)	19.7	37.6	21.3	73.5	10.8	5.2	57.0	55.7	56.7	47.4	35.0	35.2
Level of Service	B	D	C	E	B	A	E	E	E	D	C	D
Approach Delay (s)		37.4			29.1			56.7			44.8	
Approach LOS		D			C			E			D	

Intersection Summary	
HCM Average Control Delay	34.6
HCM Volume to Capacity ratio	0.78
Actuated Cycle Length (s)	130.0
Intersection Capacity Utilization	69.0%
Analysis Period (min)	15
HCM Level of Service	C
Sum of lost time (s)	12.0
ICU Level of Service	C



lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕	↗	↖	↕	↗	↖	↕	↗	↖	↕	↗
Volume (vph)	8	960	5	433	1036	12	7	5	118	243	8	59
Lane Group Flow (vph)	10	1247	6	585	1400	16	10	7	162	289	10	70
Turn Type	pm-pl		Perm	Prot		Perm	Perm		Perm	pm-pl		Perm
Protected Phases	5	2		1	6			8		7		4
Permitted Phases	2		2			6	8		8	4		4
Detector Phases	5	2	2	1	6	6	8	8	8	7	4	4
Minimum Initial (s)	3.0	10.0	10.0	3.0	10.0	10.0	6.0	6.0	6.0	4.0	6.0	6.0
Minimum Split (s)	10.0	17.0	17.0	10.0	17.0	17.0	11.0	11.0	11.0	9.0	11.0	11.0
Total Split (s)	10.0	59.0	59.0	32.0	81.0	81.0	13.0	13.0	13.0	26.0	39.0	39.0
Total Split (%)	7.7%	45.4%	45.4%	24.6%	62.3%	62.3%	10.0%	10.0%	10.0%	20.0%	30.0%	30.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lag	Lag	Lag	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	Max	Max	Max	None	Max	Max
v/c Ratio	0.05	0.82	0.01	0.82	0.61	0.01	0.09	0.04	0.55	0.73	0.02	0.13
Control Delay	10.5	38.2	14.0	76.0	8.9	2.2	58.9	57.2	16.1	53.1	35.2	8.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.5	38.2	14.0	76.0	8.9	2.2	58.9	57.2	16.1	53.1	35.2	8.6
Queue Length 50th (ft)	3	483	1	264	170	0	8	6	0	213	6	0
Queue Length 95th (ft)	7	454	8	265	169	11	22	18	30	284	20	31
Internal Link Dist (ft)		459			695			856			392	
Turn Bay Length (ft)	200			150		150						
Base Capacity (vph)	200	1528	687	733	2292	1099	112	169	293	406	513	530
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.82	0.01	0.80	0.61	0.01	0.09	0.04	0.55	0.71	0.02	0.13

**Intersection Summary**

Cycle Length: 130  
 Actuated Cycle Length: 130  
 Offset: 32 (25%), Referenced to phase 2:EBTL and 6:WBT, Start of Yellow  
 Natural Cycle: 80  
 Control Type: Actuated-Coordinated  
 m: Volume for 95th percentile queue is metered by upstream signal.

**Splits and Phases: 20: American Pkwy & Agere/Site Driveways**

↖	↕	↗	↖	↕	↗	↖	↕	↗
32%	59%	99%	16%	81%	26%	13%	13%	13%



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕	↗	↖	↕	↗	↖	↕	↗	↖	↕	↗
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	13	13	12	12	14	12	16	16	13	13	16
Grade (%)		3%			-2%			5%			2%	
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85		1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.97	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1726	3565		1753	3506	1673		2082	1821	1810	1906	1776
Flt Permitted	0.19	1.00		0.12	1.00	1.00		0.97	1.00	0.95	1.00	1.00
Satd. Flow (perm)	349	3565		231	3506	1673		2082	1821	1810	1906	1776
Volume (vph)	8	962	5	1618	1036	12	71	15	118	243	8	59
Peak-hour factor, PHF	0.77	0.77	0.77	0.74	0.74	0.74	0.73	0.73	0.73	0.84	0.84	0.84
Adj. Flow (vph)	10	1249	6	2186	1400	16	10	7	162	289	10	70
RTOR Reduction (vph)	0	0	0	0	0	5	0	0	153	0	0	63
Lane Group Flow (vph)	10	1255	10	2186	1400	11	0	17	19	289	10	17
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	3%	3%	3%	2%	2%	2%
Turn Type	pm+pt			pm+pt			Perm	Split		Perm	Split	Perm
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases	2			6		6		8				4
Actuated Green, G (s)	25.6	25.0		95.0	87.4	87.4		6.0	6.0	12.0	12.0	12.0
Effective Green, g (s)	31.6	28.0		98.0	90.4	90.4		7.0	7.0	13.0	13.0	13.0
Actuated g/C Ratio	0.24	0.22		0.75	0.70	0.70		0.05	0.05	0.10	0.10	0.10
Clearance Time (s)	7.0	7.0		7.0	7.0	7.0		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	3.0	3.0	3.0	3.0
Lane Grp. Cap (vph)	123	768		947	2438	1163		112	98	181	191	178
v/s Ratio Prot	0.00	0.35		c1.17	0.40			c0.01		c0.16	0.01	
v/s Ratio Perm	0.02			c0.57		0.01		0.00				0.00
v/c Ratio	0.08	1.63		2.31	0.57	0.01		0.15	0.09	1.60	0.05	0.04
Uniform Delay, d1	38.3	51.0		34.3	10.0	6.1		58.7	58.5	58.5	52.9	52.9
Progression Factor	1.00	1.00		0.95	0.49	0.37		1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3	291.3		590.3	0.5	0.0		2.9	1.8	292.9	0.5	0.4
Delay (s)	38.6	342.3		622.8	5.4	2.3		61.5	60.3	351.4	53.4	53.3
Level of Service	D	F		F	A	A		E	E	F	D	D
Approach Delay (s)		339.9			380.1			60.4			286.8	
Approach LOS		F			F			E			F	

**Intersection Summary**

HCM Average Control Delay	353.7	HCM Level of Service	F
HCM Volume to Capacity ratio	2.08		
Actuated Cycle Length (s)	130.0	Sum of lost Time (s)	12.0
Intersection Capacity Utilization	146.5%	ICU Level of Service	H
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕	↖	↕	↗	↖	↗	↖	↕	↗
Volume (vph)	8	962	1618	1036	12	5	118	243	8	59
Lane Group Flow (vph)	10	1255	2186	1400	16	17	162	289	10	70
Turn Type	pm+pt		pm+pt		Perm		Perm	Split		Perm
Protected Phases	5	2	1	6		8		4	4	
Permitted Phases	2		6		6		8			4
Detector Phases	5	2	1	6	6	8	8	4	4	4
Minimum Initial (s)	3.0	10.0	3.0	10.0	10.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	10.0	17.0	10.0	17.0	17.0	11.0	11.0	11.0	11.0	11.0
Total Split (s)	10.0	32.0	70.0	92.0	92.0	11.0	11.0	17.0	17.0	17.0
Total Split (%)	7.7%	24.6%	53.8%	70.8%	70.8%	8.5%	8.5%	13.1%	13.1%	13.1%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	C-Max	Max	Max	Max	Max	Max
v/c Ratio	0.06	1.63	2.31	0.54	0.01	0.15	0.65	1.60	0.05	0.29
Control Delay	21.6	324.6	609.9	4.2	0.9	61.9	213.2	329.9	53.9	15.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.6	324.6	609.9	4.2	0.9	61.9	213.2	329.9	53.9	15.2
Queue Length 50th (ft)	4	-802	-2961	94	0	14	0	-348	8	0
Queue Length 95th (ft)	12	#754	#2486	m104	m0	32	31	#482	24	39
Internal Link Dist (ft)		459		695		856			392	
Turn Bay Length (ft)	200		150		450					
Base Capacity (vph)	155	768	947	2589	1240	112	251	181	191	241
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	1.63	2.31	0.54	0.01	0.15	0.65	1.60	0.05	0.29

**Intersection Summary**

Cycle Length: 130  
 Actuated Cycle Length: 130  
 Offset: 75 (58%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow  
 Natural Cycle: 150  
 Control Type: Actuated-Coordinated

Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 20: American Pkwy & Agere/Site Driveways

↖	↗	↖	↗
70	32	118	17
↖	↗		
92			





Movement	EBL	EB	EBR	WBL	WB	WBR	NBL	NB	NBR	SBL	SB	SBR
Lane Configurations	↖	↕	↗	↖	↕	↗	↖	↕	↗	↖	↕	↗
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	13	13	12	12	14	12	16	16	13	13	16
Grade (%)		3%			-2%			5%			2%	
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt: Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1726	3567	1596	3401	3506	1673	1796	2143	1821	1810	1906	1776
Flt: Permitted	0.19	1.00	1.00	0.95	1.00	1.00	0.75	1.00	1.00	0.48	1.00	1.00
Satd. Flow (perm)	349	3567	1596	3401	3506	1673	1420	2143	1821	913	1906	1776
Volume (vph)	8	962	5	1618	1036	12	7	5	118	243	8	59
Peak-hour factor, PHF	0.77	0.77	0.77	0.74	0.74	0.74	0.73	0.73	0.73	0.84	0.84	0.84
Adj. Flow (vph)	10	1249	6	2186	1400	16	10	7	162	289	10	70
RTOR Reduction (vph)	0	0	3	0	0	5	0	0	153	0	0	58
Lane Group Flow (vph)	10	1249	3	2186	1400	11	10	7	9	289	10	12
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	3%	3%	3%	2%	2%	2%
Turn Type	pm, pt		Perm	Prot		Perm	Perm		Perm	pm, pt		Perm
Protected Phases	5	2		1	6			8		7		4
Permitted Phases	2		2			6	8		8	4		4
Actuated Green, G (s)	33.6	33.0	33.0	57.0	89.4	89.4	6.0	6.0	6.0	21.0	21.0	21.0
Effective Green, g (s)	39.6	36.0	36.0	60.0	92.4	92.4	7.0	7.0	7.0	22.0	22.0	22.0
Actuated g/C Ratio	0.30	0.28	0.28	0.46	0.71	0.71	0.05	0.05	0.05	0.17	0.17	0.17
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	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	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	144	988	442	1570	2492	1189	76	115	98	230	323	301
v/s Ratio Prot	0.00	c0.35		c0.64	0.40			0.00		c0.11	0.01	
v/s Ratio Perm	0.02		0.00			0.01	0.01		0.00	c0.11		0.01
v/c Ratio	0.07	1.26	0.01	1.39	0.56	0.01	0.13	0.06	0.09	1.26	0.03	0.04
Uniform Delay, d1	32.4	47.0	34.1	35.0	9.1	5.5	58.6	58.4	58.5	52.8	45.1	45.2
Progression Factor	1.00	1.00	1.00	0.99	0.50	0.41	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	127.0	0.0	178.8	0.5	0.0	316	110	118	145.8	0.2	0.2
Delay (s)	32.6	174.0	34.1	213.5	5.1	2.3	62.2	59.4	60.3	198.6	45.3	45.4
Level of Service	C	F	C	F	A	A	E	E	E	F	D	D
Approach Delay (s)		172.3			131.5			60.3			165.4	
Approach LOS		F			F			E			F	

**Intersection Summary**

HCM Average Control Delay	141.0	HCM Level of Service	F
HCM Volume to Capacity ratio	1.32		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	102.9%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕	↗	↖	↕	↗	↖	↕	↗	↖	↕	↗
Volume (vph)	8	962	5	1618	1036	12	7	5	118	243	8	59
Lane Group Flow (vph)	10	1249	6	2186	1400	16	10	7	162	289	10	70
Turn Type	pm+pt		Perm	Prot		Perm	Perm		Perm	pm+pt		Perm
Protected Phases	5	2		1	6			8		7	4	
Permitted Phases	2		2		6	8		8		4		4
Detector Phases	5	2	2	1	6	6	8	8	8	7	4	4
Minimum Initial (s)	3.0	10.0	10.0	3.0	10.0	10.0	6.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	10.0	17.0	17.0	10.0	17.0	17.0	11.0	11.0	11.0	11.0	11.0	11.0
Total Split (s)	10.0	40.0	40.0	64.0	94.0	94.0	11.0	11.0	11.0	15.0	26.0	26.0
Total Split (%)	7.7%	30.8%	30.8%	49.2%	72.3%	72.3%	8.5%	8.5%	8.5%	11.5%	20.0%	20.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lag	Lag	Lag	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	C:Max	C:Max	None	C:Max	C:Max	Max	Max	Max	Max	Max	Max
v/c Ratio	0.06	1.26	0.01	1.39	0.53	0.01	0.13	0.06	0.65	1.26	0.03	0.19
Control Delay	18.0	166.4	24.6	208.8	4.0	0.9	62.7	59.8	21.2	188.6	45.6	11.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.0	166.4	24.6	208.8	4.0	0.9	62.7	59.8	21.2	188.6	45.6	11.6
Queue Length 50th (ft)	4	-695	1	-1265	95	0	8	6	0	-304	7	0
Queue Length 95th (ft)	10	#647	11	#1019	105	m0	22	18	31	#439	22	36
Internal Link Dist (ft)		459			695			856			392	
Turn Bay Length (ft)	200		295	150		450						
Base Capacity (vph)	176	988	445	1570	2643	1265	76	115	251	230	323	359
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	1.26	0.01	1.39	0.53	0.01	0.13	0.06	0.65	1.26	0.03	0.19

**Intersection Summary:**

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 75 (58%), Referenced to phase 2:EBTL and 6:WBT, Start of Yellow

Natural Cycle: 150

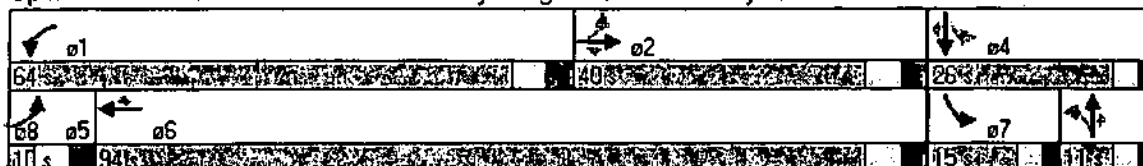
Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.  
Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 20: American Pkwy & Agere/Site Driveways





Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑		↑↑		↑
Sign/Control	Free			Free	Stop	
Grade	1%			-1%	0%	
Volume (veh/h)	232	1	0	636	0	11
Peak Hour Factor	0.75	0.75	0.89	0.89	0.90	0.90
Hourly flow rate (vph)	309	1	0	715	0	12
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage (veh)						
Upstream signal (ft)	775			621		
pX, platoon unblocked			0.98		0.89	0.98
vC, conflicting volume			311		667	155
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			274		436	114
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	99
cM capacity (veh/h)			1259		490	897

Direction/Lane #	EB1	EB2	EB3	WB1	WB2	NB1
Volume Total	155	155	1	357	357	12
Volume Left	0	0	0	0	0	0
Volume Right	0	0	1	0	0	12
cSH	1700	1700	1700	1700	1700	897
Volume to Capacity	0.09	0.09	0.00	0.21	0.21	0.01
Queue Length 95th (ft)	0	0	0	0	0	1
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	9.1
Lane LOS						A
Approach Delay (s)	0.0			0.0		9.1
Approach LOS						A

Intersection Summary	
Average Delay	0.1
Intersection Capacity Utilization	20.9%
ICU Level of Service	A
Analysis Period (min)	15



Lane Group	EBT	EBR	WBT	WBR	NBT	NBR
Lane Configurations	↑↑	↑			↑↑	↑
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	1%			-1%	0%	
Turning Speed (mph)		9	15		15	9
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt		0.850				0.865
Flt Protected						
Satd. Flow (prot)	3522	1575	0	3557	0	1611
Flt Permitted						
Satd. Flow (perm)	3522	1575	0	3557	0	1611
Headway Factor	1.01	1.01	0.99	0.99	1.00	1.00
Link Speed (mph)	40			40	30	
Link Distance (ft)	775			621	518	
Travel Time (s)	13.2			10.6	11.8	
Volume (vph)	232	1	0	636	0	11
Peak Hour Factor	0.75	0.75	0.89	0.89	0.90	0.90
Adj. Flow (vph)	309	1	0	715	0	12
Lane Group Flow (vph)	309	1	0	715	0	12
Sign Control	Free			Free	Stop	

**Intersection Summary**

Area Type: Other  
 Control Type: Unsignalized  
 Intersection Capacity Utilization 20.9% ICU Level of Service A  
 Analysis Period (min): 15



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑		↑↑		↑
Sign Control	Free			Free	Stop	
Grade	1%			-1%	0%	
Volume (veh/h)	292	1	0	768	0	11
Peak Hour Factor	0.75	0.75	0.89	0.89	0.90	0.90
Hourly flow rate (vph)	389	1	0	863	0	12
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None		
Median storage veh						
Upstream signal (ft)	775			621		
pX, platoon unblocked			0.95		0.87	0.95
vC, conflicting volume			391		821	195
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			300		468	93
fC, single (s)			4.1		6.8	6.9
iC, 2 stage (s)						
iF (s)			2.2		3.5	3.3
p0 queue free %			100		100	99
cM capacity (veh/h)			1191		458	895

Direction Lane	EB1	EB2	EB3	WB1	WB2	NB1
Volume Total	195	195	1	431	431	12
Volume Left	0	0	0	0	0	0
Volume Right	0	0	1	0	0	12
cSH	1700	1700	1700	1700	1700	895
Volume to Capacity	0.11	0.11	0.00	0.25	0.25	0.01
Queue Length 95th (ft)	0	0	0	0	0	1
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	9.1
Lane LOS						A
Approach Delay (s)	0.0			0.0		9.1
Approach LOS						A

Intersection Summary	
Average Delay	0.1
Intersection Capacity Utilization	24.6%
IGU Level of Service	A
Analysis Period (min)	15



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑		↑↑		↑
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	1%			-1%	0%	
Turning Speed (mph)		9	15		15	9
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Flt		0.850				0.865
Flt Protected						
Satd. Flow (prot)	3522	1575	0	3557	0	1611
Flt Permitted						
Satd. Flow (perm)	3522	1575	0	3557	0	1611
Headway Factor	1.01	1.01	0.99	0.99	1.00	1.00
Link Speed (mph)	40			40	30	
Link Distance (ft)	775			621	481	
Travel Time (s)	13.2			10.6	10.9	
Volume (vph)	292	1	0	768	0	11
Peak Hour Factor	0.75	0.75	0.89	0.89	0.90	0.90
Adj. Flow (vph)	389	1	0	863	0	12
Lane Group Flow (vph)	389	1	0	863	0	12
Sign Control	Free			Free	Stop	

**Intersection Summary**

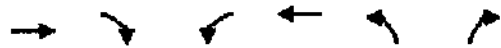
Area Type: Other  
 Control Type: Unsignalized  
 Intersection Capacity Utilization 24.6% ICU Level of Service A  
 Analysis Period (min) 15



Movement	EBT	EBR	WBT	WBR	NBT	NBR
Lane Configurations	↑↑	↑			↑↑	↑
Sign Control	Free				Free	Stop
Grade	1%				-1%	0%
Volume (veh/h)	1376	1	0	1306	0	11
Peak Hour Factor	0.75	0.75	0.89	0.89	0.90	0.90
Hourly flow rate (vph)	1835	1	0	1467	0	12
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh						
Upstream signal (ft)	775			621		
pX, platoon unblocked			0.51		0.63	0.51
vC, conflicting volume			1836		2568	917
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1679		1752	0
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	98
cM capacity (veh/h)			193		48	554

Direction Lane #	EB1	EB2	EB3	WB1	WB2	NB1
Volume Total	917	917	1	734	734	12
Volume Left	0	0	0	0	0	0
Volume Right	0	0	1	0	0	12
cSH	1700	1700	1700	1700	1700	554
Volume to Capacity	0.54	0.54	0.00	0.43	0.43	0.02
Queue Length 95th (ft)	0	0	0	0	0	2
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	11.6
Lane LOS						B
Approach Delay (s)	0.0			0.0		11.6
Approach LOS						B

Intersection Summary	
Average Delay	0.0
Intersection Capacity Utilization	48.0%
Analysis Period (min)	15
CU Level of Service	A



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑		↑↑		↑
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	1%			-1%	0%	
Turning Speed (mph)		9	15		15	9
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt		0.850				0.865
Flt Protected						
Satd. Flow (prot)	3522	1575	0	3557	0	1611
Flt Permitted						
Satd. Flow (perm)	3522	1575	0	3557	0	1611
Headway Factor	1.01	1.01	0.99	0.99	1.00	1.00
Link Speed (mph)	40			40	30	
Link Distance (ft)	775			621	481	
Travel Time (s)	10.2			10.6	10.9	
Volume (vph)	1376	1	0	1306	0	11
Peak Hour Factor	0.75	0.75	0.89	0.89	0.90	0.90
Adj. Flow (vph)	1835	1	0	1467	0	12
Lane Group Flow (vph)	1835	1	0	1467	0	12
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	48.0%
	ICU Level of Service A
Analysis Period (min)	15





Movement	EBT	EBR	WBT	WBR	NBT	NBR
Lane Configurations	↑↑	↑	↑↑	↑		
Sign Control	Free		Free	Stop		
Grade	1%		-1%	0%		
Volume (veh/h)	558	2	0	740	0	139
Peak Hour Factor	0.77	0.77	0.74	0.74	0.90	0.90
Hourly flow rate (vph)	725	3	0	1000	0	154
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None		
Median storage veh						
Upstream signal (ft)	775		621			
pX, platoon unblocked			0.97	0.89	0.97	
vC, conflicting volume			727	1225	362	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			682	1013	304	
iC, single (s)			4.1	6.8	6.9	
iC, 2 stage (s)						
iF (s)			2.2	3.5	3.3	
p0 queue free %			100	100	77	
cM capacity (veh/h)			876	209	668	

Direction/Lane	EB1	EB2	EB3	WB1	WB2	NB1
Volume Total	362	362	3	500	500	154
Volume Left	0	0	0	0	0	0
Volume Right	0	0	3	0	0	154
cSH	1700	1700	1700	1700	1700	668
Volume to Capacity	0.21	0.21	0.00	0.29	0.29	0.23
Queue Length 95th (ft)	0	0	0	0	0	22
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	12.0
Lane LOS						B
Approach Delay (s)	0.0			0.0		12.0
Approach LOS						B

Intersection Summary	
Average Delay	1.0
Intersection Capacity Utilization	30.7%
ICU Level of Service	A
Analysis Period (min)	15



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑		↑↑		↑
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	1%			-1%	0%	
Turning Speed (mph)		9	15		15	9
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt		0.850				0.865
Flt Protected						
Satd. Flow (prot)	3522	1575	0	3557	0	1611
Flt Permitted						
Satd. Flow (perm)	3522	1575	0	3557	0	1611
Headway Factor	1.01	1.01	0.99	0.99	1.00	1.00
Link Speed (mph)	40			40	30	
Link Distance (ft)	775			621	447	
Travel Time (s)	13.2			10.6	10.2	
Volume (vph)	558	2	0	740	0	139
Peak Hour Factor	0.77	0.77	0.74	0.74	0.90	0.90
Adj. Flow (vph)	725	3	0	1000	0	154
Lane Group Flow (vph)	725	3	0	1000	0	154
Sign Control	Free			Free	Stop	

**Intersection Summary**

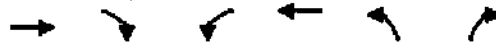
Area Type: Other  
 Control Type: Unsignalized  
 Intersection Capacity Utilization 30.7%      ICU Level of Service A  
 Analysis Period (min): 15



Movement	EB1	EBR	WB1	WBT	NB1	NBR
Lane Configurations	↑↑	↑		↑↑		↑
Sign Control	Free			Free	Stop	
Grade	1%			-1%	0%	
Volume (veh/h)	558	2	0	1925	0	139
Peak Hour Factor	0.77	0.77	0.74	0.74	0.90	0.90
Hourly flow rate (vph)	725	3	0	2601	0	154
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None		
Median storage (veh)						
Upstream signal (ft)	775			621		
pX, platoon unblocked			0.97		0.58	0.97
vC, conflicting volume			727		2025	362
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			682		1866	304
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	77
CM capacity (veh/h)			876		38	668

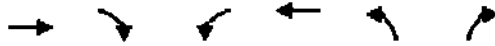
Direction/Lane	EB1	EB2	EB3	WB1	WB2	NB1
Volume Total	362	362	3	1301	1301	154
Volume Left	0	0	0	0	0	0
Volume Right	0	0	3	0	0	154
cSH	1700	1700	1700	1700	1700	668
Volume to Capacity	0.21	0.21	0.00	0.77	0.77	0.23
Queue Length 95th (ft)	0	0	0	0	0	22
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	12.0
Lane LOS						B
Approach Delay (s)	0.0			0.0		12.0
Approach LOS						B

Intersection Summary	
Average Delay	0.5
Intersection Capacity Utilization	56.5%
ICU Level of Service	B
Analysis Period (min)	15



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑		↑↑		↑
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	1%			-1%	0%	
Turning Speed (mph)		9	15		15	9
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Flt		0.850				0.865
Flt Protected						
Satd. Flow (prot)	3522	1575	0	3557	0	1611
Flt Permitted						
Satd. Flow (perm)	3522	1575	0	3557	0	1611
Headway Factor	1.01	1.01	0.99	0.99	1.00	1.00
Link Speed (mph)	40			40	30	
Link Distance (ft)	775			621	489	
Travel Time (s)	13.2			10.6	11.1	
Volume (vph)	558	2	0	1925	0	139
Peak Hour Factor	0.77	0.77	0.74	0.74	0.90	0.90
Adj. Flow (vph)	725	3	0	2601	0	154
Lane Group Flow (vph)	725	3	0	2601	0	154
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	56.5%
	ICU Level of Service B
Analysis Period (min)	15



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑		↑↑		↑
Sign Control	Free			Free	Stop	
Grade	1%			-1%	0%	
Volume (veh/h)	692	2	0	827	0	139
Peak Hour Factor	0.77	0.77	0.74	0.74	0.90	0.90
Hourly flow rate (vph)	899	3	0	1118	0	154
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh						
Upstream signal (ft)	775			621		
pX, platoon unblocked			0.91		0.90	0.91
vC, conflicting volume			901		1457	449
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			790		1095	292
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	76
cM capacity (veh/h)			750		188	639

Direction	Lane #	EB1	EB2	EB3	WB1	WB2	NB1
Volume Total		449	449	3	559	559	154
Volume Left		0	0	0	0	0	0
Volume Right		0	0	3	0	0	154
cSH		1700	1700	1700	1700	1700	639
Volume to Capacity		0.26	0.26	0.00	0.33	0.33	0.24
Queue Length 95th (ft)		0	0	0	0	0	24
Control Delay (s)		0.0	0.0	0.0	0.0	0.0	12.4
Lane LOS							B
Approach Delay (s)		0.0			0.0		12.4
Approach LOS							B

Intersection Summary	
Average Delay	0.9
Intersection Capacity Utilization	34.4%
ICU Level of Service	A
Analysis Period (min)	15



Lane Group	EB	EB	WB	WB	NB	NB
Lane Configurations	↑↑	↑		↑↑		↑
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	1%			-1%	0%	
Turning Speed (mph)		9	15		15	9
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt		0.850			0.865	
Flt Protected						
Satd. Flow (prot)	3522	1575	0	3557	0	1611
Flt Permitted						
Satd. Flow (perm)	3522	1575	0	3557	0	1611
Headway Factor	1.01	1.01	0.99	0.99	1.00	1.00
Link Speed (mph)	40			40	30	
Link Distance (ft)	775			621	431	
Travel Time (s)	13.2			10.6	9.8	
Volume (vph)	692	2	0	827	0	139
Peak Hour Factor	0.77	0.77	0.74	0.74	0.90	0.90
Adj. Flow (vph)	899	3	0	1118	0	154
Lane Group Flow (vph)	899	3	0	1118	0	154
Sign Control	Free		Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	34.4%
ICU Level of Service	A
Analysis Period (min)	15



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑		↑↑		↑
Sign Control	Free			Free	Stop	
Grade	1%			-1%	0%	
Volume (veh/h)	692	2	0	2012	0	139
Peak Hour Factor	0.77	0.77	0.74	0.74	0.90	0.90
Hourly flow rate (vph)	899	3	0	2719	0	154
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None		
Median storage (veh)						
Upstream signal (ft)	775			621		
pX, platoon unblocked			0.91		0.50	0.91
vC, conflicting volume			901		2258	449
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			790		1964	292
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	76
cM capacity (veh/h)			750		28	639

Direction Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1
Volume Total	449	449	3	1359	1359	154
Volume Left	0	0	0	0	0	0
Volume Right	0	0	3	0	0	154
cSH	1700	1700	1700	1700	1700	639
Volume to Capacity	0.26	0.26	0.00	0.80	0.80	0.24
Queue Length 95th (ft)	0	0	0	0	0	24
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	12.4
Lane LOS						B
Approach Delay (s)	0.0			0.0		12.4
Approach LOS						B

Intersection Summary	
Average Delay	0.5
Intersection Capacity Utilization	59.0%
ICU Level of Service	B
Analysis Period (min)	15



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑		↑↑		↑
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	1%			-1%	0%	
Turning Speed (mph)		9	15		15	9
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt		0.850				0.865
Flt Protected						
Satd. Flow (prot)	3522	1575	0	3557	0	1611
Flt Permitted						
Satd. Flow (perm)	3522	1575	0	3557	0	1611
Headway Factor	1.01	1.01	0.99	0.99	1.00	1.00
Link Speed (mph)	40			40	30	
Link Distance (ft)	775			621	615	
Travel Time (s)	13.2			10.6	14.0	
Volume (vph)	692	2	0	2012	0	139
Peak Hour Factor	0.77	0.77	0.74	0.74	0.90	0.90
Adj. Flow (vph)	899	3	0	2719	0	154
Lane Group Flow (vph)	899	3	0	2719	0	154
Sign Control	Free			Free	Stop	

**Intersection Summary**

Area Type: Other  
 Control Type: Unsignalized  
 Intersection Capacity Utilization 59.0%      ICU Level of Service B  
 Analysis Period (min) 15





Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑		↑↑		↑
Sign Control	Free			Free	Stop	
Grade	1%			-1%	0%	
Volume (veh/h)	1321	2	0	1481	0	139
Peak Hour Factor	0.77	0.77	0.74	0.74	0.90	0.90
Hourly flow rate (vph)	1746	3	0	2001	0	154
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None		
Median storage (veh)						
Upstream signal (ft)	775			621		
pX, platoon unblocked			0.66		0.82	0.66
vC, conflicting volume			1748		2716	858
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1571		1711	263
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	68
cM capacity (veh/h)			273		67	484

Direction Lane #	EB1	EB2	EB3	WB1	WB2	NB1
Volume Total	858	858	3	1001	1001	154
Volume Left	0	0	0	0	0	0
Volume Right	0	0	3	0	0	154
cSH	1700	1700	1700	1700	1700	484
Volume to Capacity	0.50	0.50	0.00	0.59	0.59	0.32
Queue Length 95th (ft)	0	0	0	0	0	34
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	15.9
Lane LOS						C
Approach Delay (s)	0.0			0.0		15.9
Approach LOS						C

Intersection Summary	
Average Delay	0.6
Intersection Capacity Utilization	51.8%
ICU Level of Service	A
Analysis Period (min)	15



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑		↑↑		↑
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	1%			-1%	0%	
Turning Speed (mph)		9	15		15	9
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt		-0.850			0.865	
Flt Protected						
Satd Flow (prot)	3522	1575	0	3557	0	1614
Flt Permitted						
Satd Flow (perm)	3522	1575	0	3557	0	1614
Headway Factor	1.01	1.01	0.99	0.99	1.00	1.00
Link Speed (mph)	40			40	30	
Link Distance (ft)	775			621	431	
Travel Time (s)	13.2			10.6	9.8	
Volume (vph)	1321	2	0	1481	0	139
Peak Hour Factor	0.77	0.77	0.74	0.74	0.90	0.90
Adj. Flow (vph)	1716	3	0	2001	0	154
Lane Group Flow (vph)	1716	3	0	2001	0	154
Sign Control	Free			Free	Stop	

**Intersection Summary**

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 51.8%

ICU Level of Service A

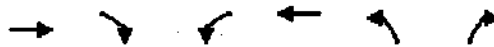
Analysis Period (min) 15



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑		↑↑		↑
Sign Control	Free			Free	Stop	
Grade	1%			-1%	0%	
Volume (veh/h)	1321	2	0	2666	0	139
Peak Hour Factor	0.77	0.77	0.74	0.74	0.90	0.90
Hourly flow rate (vph)	1716	3	0	3603	0	154
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage (veh)						
Upstream signal (ft)	775			621		
pX, platoon unblocked			0.79		0.47	0.79
VC conflicting volume			1718		3517	858
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1645		3924	561
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
f (s)			2.2		3.5	3.3
p0 queue free %			100		100	59
cM capacity (veh/h)			309		1	374

Direction Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1
Volume Total	858	858	3	1801	1801	154
Volume Left	0	0	0	0	0	0
Volume Right	0	0	3	0	0	154
cSH	1700	1700	1700	1700	1700	374
Volume to Capacity	0.50	0.50	0.00	1.06	1.06	0.41
Queue Length 95th (ft)	0	0	0	0	0	49
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	21.3
Lane LOS						C
Approach Delay (s)	0.0			0.0		21.3
Approach LOS						C

Intersection Summary	
Average Delay	0.6
Intersection Capacity Utilization	77.0%
ICU Level of Service	D
Analysis Period (min)	15



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑		↑↑		↑
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	1%			-1%	0%	
Turning Speed (mph)		9	15		15	9
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt		0.850				0.865
Flt Protected						
Satd. Flow (prot)	3522	1575	0	3557	0	1611
Flt Permitted						
Satd. Flow (perm)	3522	1575	0	3557	0	1611
Headway Factor	1.01	1.01	0.99	0.99	1.00	1.00
Link Speed (mph)	40			40	30	
Link Distance (ft)	775			621	615	
Travel Time (s)	13.2			10.6	14.0	
Volume (vph)	1321	2	0	2666	0	139
Peak Hour Factor	0.77	0.77	0.74	0.74	0.90	0.90
Adj. Flow (vph)	1716	3	0	3603	0	154
Lane Group Flow (vph)	1716	3	0	3603	0	154
Sign Control	Free			Free	Stop	

**Intersection Summary**

Area Type: Other  
 Control Type: Unsignalized  
 Intersection Capacity Utilization 77.0% ICU Level of Service D  
 Analysis Period (min): 15

**APPENDIX G**  
*TRAFFIC SIGNAL PERMIT PLANS*

**RAMP PREEMPTION NOTES:**

WHEN PREEMPTION IS ACTIVATED, ANY GREEN INDICATION, EXCEPT GREEN INDICATIONS BY SIGNALS #12 AND #13 SHALL BE FOLLOWED BY SELECTIVE CLEARANCES DEPENDENT UPON THE PHASE IN WHICH THE PREEMPTION OCCURS.

WHEN PREEMPTION IS ACTIVATED, ALL YELLOW AND RED INDICATIONS SHALL TIME OUT, FOLLOWED BY THE GREEN INTERVAL OF THE PREEMPTION PHASE.

IF THE SIGNALS ARE FLASHING WHEN ACTIVATED FOR PREEMPTION, ALL SIGNALS SHALL REMAIN FLASHING.

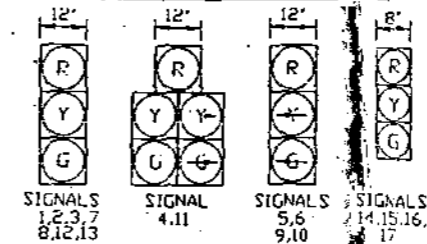
UPON COMPLETION OF PREEMPTION PHASE, IN RETURNING TO NORMAL OPERATION, PHASE 2+6, INTERVAL 4 SHALL FOLLOW.

A CONSTANT CALL ON THE PREEMPTION DETECTOR FOR 180 SECONDS SHALL INHIBIT THE PREEMPTION CALL.

S-0	171111	90891	LUC
HANOVER TOWNSHIP			
PERMIT NO. 39-201-003		SHEET 2 OF 3	
DATE ISSUED 1-11-72		DATE REVISED 4-12-	

\* Condition Diagram Only

**SIGNAL IDENTIFICATION**



- SIGNALS 9, 10, 12, 13 TO BE EQUIPPED WITH BACKPLATES.
- ALL VEHICULAR SIGNAL HEADS SHALL HAVE RED AND GREEN LEDs.

**GENERAL NOTES**

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

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

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

ALL SIGNS AND PAVEMENT MARKINGS INDICATED ON THIS DRAWING ARE CONSIDERED PART OF THE PERMIT AND SHALL BE INSTALLED AND MAINTAINED BY THE PERMITTEE, UNLESS OTHERWISE INDICATED, EXCEPT THE LONGITUDINAL PAVEMENT MARKINGS ON STATE HIGHWAYS WHICH WILL BE MAINTAINED BY THE DEPARTMENT.

INSTALL POST MOUNTED SIGNALS 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 WILL HAVE A MINIMUM HORIZONTAL CLEARANCE OF 2 FEET.

THE BOTTOM OF SIGNAL HEADS AND SIGNS ERECTED OVER THE ROADWAY ARE NOT TO BE LESS THAN 15 FEET NOR MORE THAN 19 FEET ABOVE THE ROADWAY. THE BOTTOM OF POST MOUNTED SIGNAL HEADS ARE NOT TO BE LESS THAN 8 FEET NOR MORE THAN 15 FEET ABOVE THE SIDEWALK OR PAVEMENT GRADE.

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

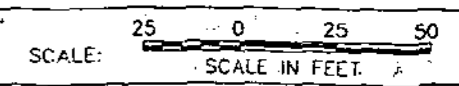
IN ADDITION TO THE SIGNAL PERMIT, THE PERMITTEE SHALL OBTAIN A HIGHWAY OCCUPANCY PERMIT PRIOR TO ANY OPENINGS BEING MADE IN OR UNDER ANY PORTION OF A STATE HIGHWAY.

THIS DRAWING CANNOT BE USED AS A CONSTRUCTION DRAWING UNLESS THE PERMITTEE COMPLIES WITH THE PROVISIONS OF ACT 187, PREVENTION OF DAMAGE TO UNDERGROUND UTILITIES. PRIOR TO CONSTRUCTION CONSULT WITH UTILITY COMPANIES TO RESOLVE ANY PROBLEMS WHICH MAY BE CREATED DUE TO THE LOCATION OF UTILITIES.

PLACE PAVEMENT MARKINGS IN ACCORDANCE WITH THE DEPARTMENT OF TRANSPORTATION PAVEMENT MARKING HANDBOOK.

MAINTENANCE AND PROTECTION OF TRAFFIC FOR THE INSTALLATION AND MAINTENANCE OF THIS TRAFFIC SIGNAL TO BE IN ACCORDANCE WITH PUBLICATION 203, WORK ZONE TRAFFIC CONTROL.

COUNTY:	LEHIGH
MUNICIPALITY:	HANOVER TOWNSHIP
INTERSECTION:	S.R. 1003 (AIRPORT ROAD)
	S.R. 8018 (S.R. 0022 OFF-RAMP) / T-829 (CATASAUQUA ROAD)

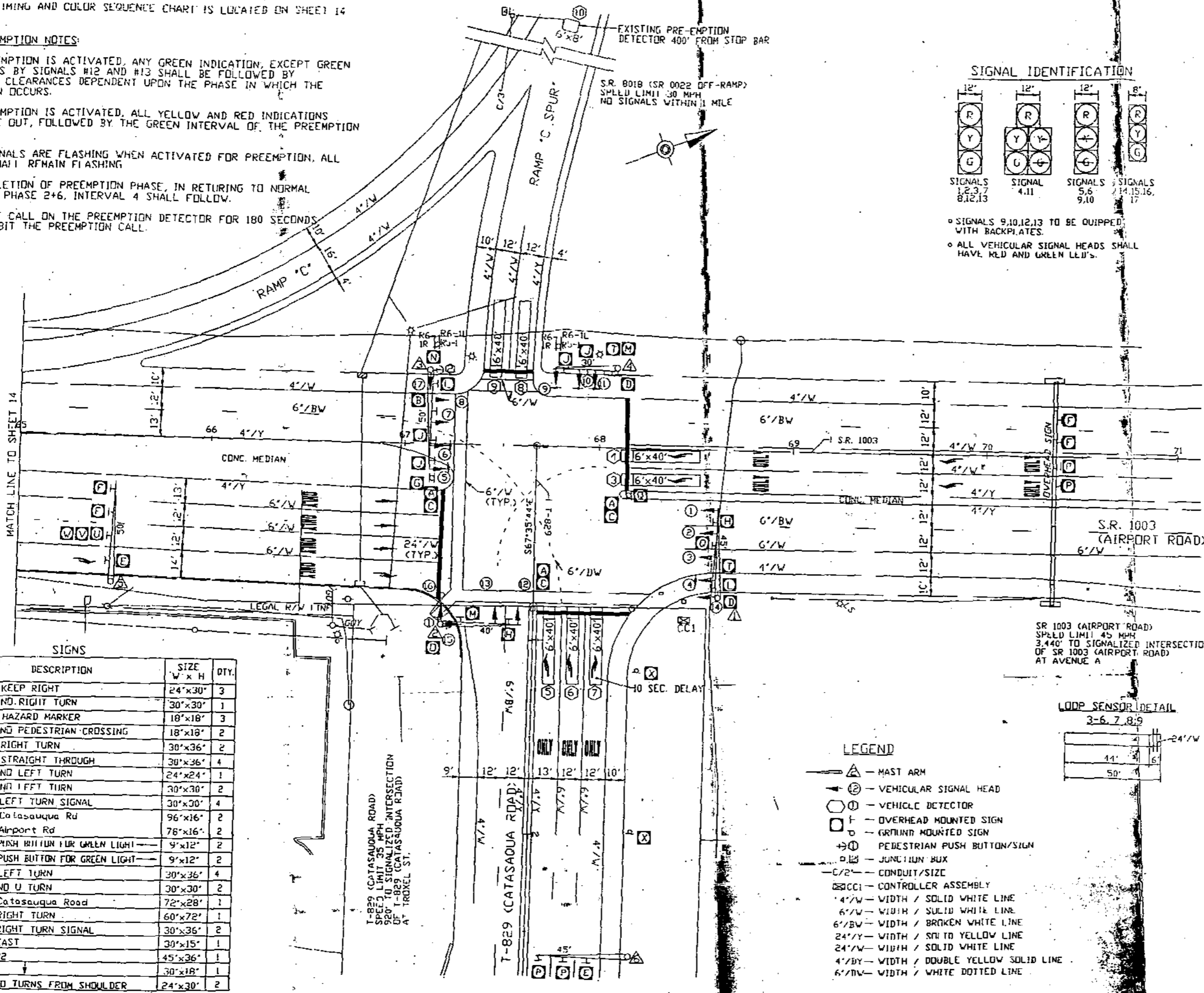
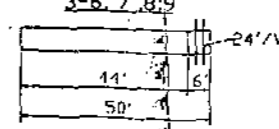


PLAN SYMBOL	SERIES NUMBER	DESCRIPTION	SIZE W x H	QTY.
A	R4-1	KEEP RIGHT	24"x30"	3
B	R3-1	NO RIGHT TURN	30"x30"	1
C	W16-1	HAZARD MARKER	18"x18"	3
D	R9-3	NO PEDESTRIAN CROSSING	18"x18"	2
E	R3-5R	RIGHT TURN	30"x36"	2
F	R3-5S	STRAIGHT THROUGH	30"x36"	4
G	R3-2	NO LEFT TURN	24"x24"	1
H	R3-2	NO LEFT TURN	30"x30"	2
I	R10-10L	LEFT TURN SIGNAL	30"x30"	4
J	D3-4	Catasauqua Rd	96"x16"	2
K	D3-4	Airport Rd	78"x16"	2
L	R10-3	PUSH BUTTON FOR GREEN LIGHT	9"x12"	2
M	R10-3	PUSH BUTTON FOR GREEN LIGHT	9"x12"	2
N	R3-5L	LEFT TURN	30"x36"	4
O	R3-4	NO U TURN	30"x30"	2
P	Special	Catasauqua Road	72"x28"	1
Q	Special	RIGHT TURN	60"x72"	1
R	R10-10R	RIGHT TURN SIGNAL	30"x36"	2
S	M3-2	CAST	30"x15"	1
T	M1-5	22	45"x36"	1
V	M6-3		30"x18"	1
X	M3-3-3	NO TURNS FROM SHOULDER	24"x30"	2

**LEGEND**

- ▲ - MAST ARM
- ⊙ - VEHICULAR SIGNAL HEAD
- - VEHICLE DETECTOR
- ⊕ - OVERHEAD MOUNTED SIGN
- ⊖ - GROUND MOUNTED SIGN
- ⊕⊖ - PEDESTRIAN PUSH BUTTON/SIGN
- ⊖ - JUNCTION BOX
- C/2- CONDUIT/SIZE
- ⊞ - CONTROLLER ASSEMBLY
- 4"/W - WIDTH / SOLID WHITE LINE
- 6"/W - WIDTH / SOLID WHITE LINE
- 6"/BW - WIDTH / BROKEN WHITE LINE
- 24"/Y - WIDTH / SOLID YELLOW LINE
- 24"/W - WIDTH / SOLID WHITE LINE
- 4"/DY - WIDTH / DOUBLE YELLOW SOLID LINE
- 6"/DW - WIDTH / WHITE DOTTED LINE

**LOOP SENSOR DETAIL**



PHASING, TIMING AND COLOR SEQUENCE CHART

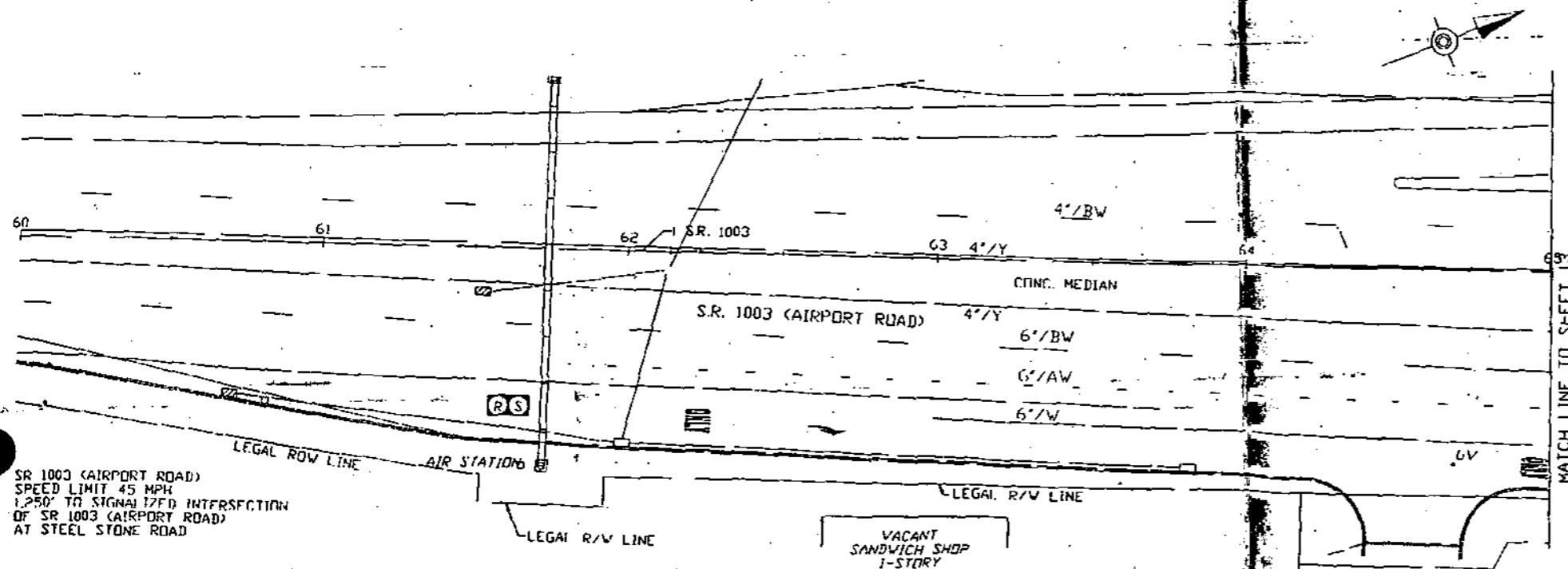
SIGNALS	PHASE 1+6			PHASE 2+6			PHASE 3+8			PHASE 4			PRE-EMPTION			OPERATION FLASHING SEQUENCE	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15		16
1,2,3	R	R	R	G	Y	R	R	R	R	R	R	R		R	R	R	Y
4	R	R	R	G	G	G	R/G/R	R	R	R	R	R		R	R	R	Y
5,6	G	Y	R	R	R	R	R	R	R	R	R	R		R	R	R	OFF
7,8	G	G	G	G	Y	R	R	R	R	R	R	R		R	R	R	Y
9,10	R	R	R	R	R	R	G	Y	R	R	R	R		R	R	R	R
11	R/G/R	R	R	R	R	R	G/G	Y	R	R/G/R	R	R		R	R	R	R
12,13	R	R	R	R	R	R	R	R	R	G	Y	R		G	Y	R	R
14,15	R	R	R	G	Y	R	R	R	R	R	R	R		R	R	R	Y
16,17	R	R	R	R	R	R	R	R	R	G	Y	R		R	R	R	R
FIXED	5	2		5	2		4	2		4	2			4	2		
MIN. GREEN	3			8			3			3							
PASSAGE	3						3			3							
MAXIMUM 1	16			37			14			22				60			
MAXIMUM 2	11			33			8			22				60			
PF OF STRIAN*				19						22							
MEMORY	NON-LOCKING			MIN. RECALL			NON-LOCKING			NON-LOCKING							

\*UPON PEDESTRIAN ACTUATION ONLY

EVENT NO.	DAY OF WEEK							TIME	CYCLE	OFF-SET	REMARK
	M	T	W	T	F	S	S				
1	*	*	*	*	*	*	*	06 00 00	115	14	MAX 1
2	*	*	*	*	*	*	*	15 00 00	100	62	MAX 2
3	*	*	*	*	*	*	*	18 00 00	115	14	MAX 1

CONTROLLER NOTES

- ⊙ Y/G- IF FOLLOWED BY PHASE 3+8
- ⊙ R/G- IF FOLLOWED BY PHASE 3+8
- ⊙ G- IF FOLLOWED BY PHASE 2+6
- ⊙ G- IF FOLLOWED BY PHASE 4+8
- ⊙ Y/G- IF FOLLOWED BY PHASE 1+6 OR 4
- ⊙ R/G- IF FOLLOWED BY PHASE 1+6 OR 4
- ⊙ PHASE 1+6 TO BE FOLLOWED BY PHASE 2+6 ONLY
- ⊙ R/G IF FOLLOWED BY PHASE 1+6 OR 3+8



SR 1003 (AIRPORT ROAD)  
SPEED LIMIT 45 MPH  
1,250' TO SIGNALIZED INTERSECTION  
OF SR 1003 (AIRPORT ROAD)  
AT STEEL STONE ROAD

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
5-0	LEHIGH	90891	LUC	
HANOVER TOWNSHIP				
PERMIT NO. 39-201-003			SHEET 3 OF 3	
DATE ISSUED 7-11-72		DATE REVISED 4-12-0		

\*Condition Diagram Only

GENERAL NOTES

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

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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. SUPPORT POLES FOR OVERHEAD SIGNALS WILL HAVE A MINIMUM HORIZONTAL CLEARANCE OF 2 FEET.

THE BOTTOM OF SIGNAL HEADS AND SIGNS ERECTED OVER THE ROADWAY ARE NOT TO BE LESS THAN 15 FEET NOR MORE THAN 19 FEET ABOVE THE ROADWAY. THE BOTTOM OF POST MOUNTED SIGNAL HEADS ARE NOT TO BE LESS THAN 8 FEET NOR MORE THAN 15 ABOVE THE SIDEWALK OR PAVEMENT GRADE.

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

IN ADDITION TO THE SIGNAL PERMIT, THE PERMITTEE SHALL OBTAIN A HIGHWAY OCCUPANCY PERMIT PRIOR THE 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 187, PREVENTION OF DAMAGE TO UNDERGROUND UTILITIES. PRIOR TO CONSTRUCTION CONSULT WITH UTILITY COMPANIES TO RESOLVE ANY PROBLEMS WHICH MAY BE CREATED DUE THE LOCATION OF UTILITIES.

PLACE PAVEMENT MARKINGS IN ACCORDANCE WITH THE DEPARTMENT OF TRANSPORTATION PAVEMENT MARKING HANDBOOK.

MAINTENANCE AND PROTECTION OF TRAFFIC FOR THE INSTALLATION AND MAINTENANCE OF THIS TRAFFIC SIGNAL TO BE IN ACCORDANCE WITH PUBLICATION 203, WORK ZONE TRAFFIC CONTROL.

COUNTY:	LEHIGH
MUNICIPALITY:	HANOVER TOWNSHIP
INTERSECTION:	S.R. 1003 (AIRPORT ROAD)
	S.R. 8018 (S.R. 0022 OFF-RAMP) / T-829 (CATASAUQUA RDA)

### PROGRAM CHART

EVENT NO.	DAY OF WEEK	TIME	CYCLE	REMARKS	OFFSET
1	*****	06:00-00:00	115 SEC. MAX. 1	106 SEC.	
2	*****	15:00-00:00	100 SEC. MAX. 2	32 SEC.	
3	*****	18:00-00:00	115 SEC. MAX. 1	106 SEC.	

\* OFFSET REFERENCED FROM EXISTING TRAFFIC SIGNAL AT THE INTERSECTION OF AIRPORT ROAD AND CATAWAUGA ROAD

### SEQUENCE CHART

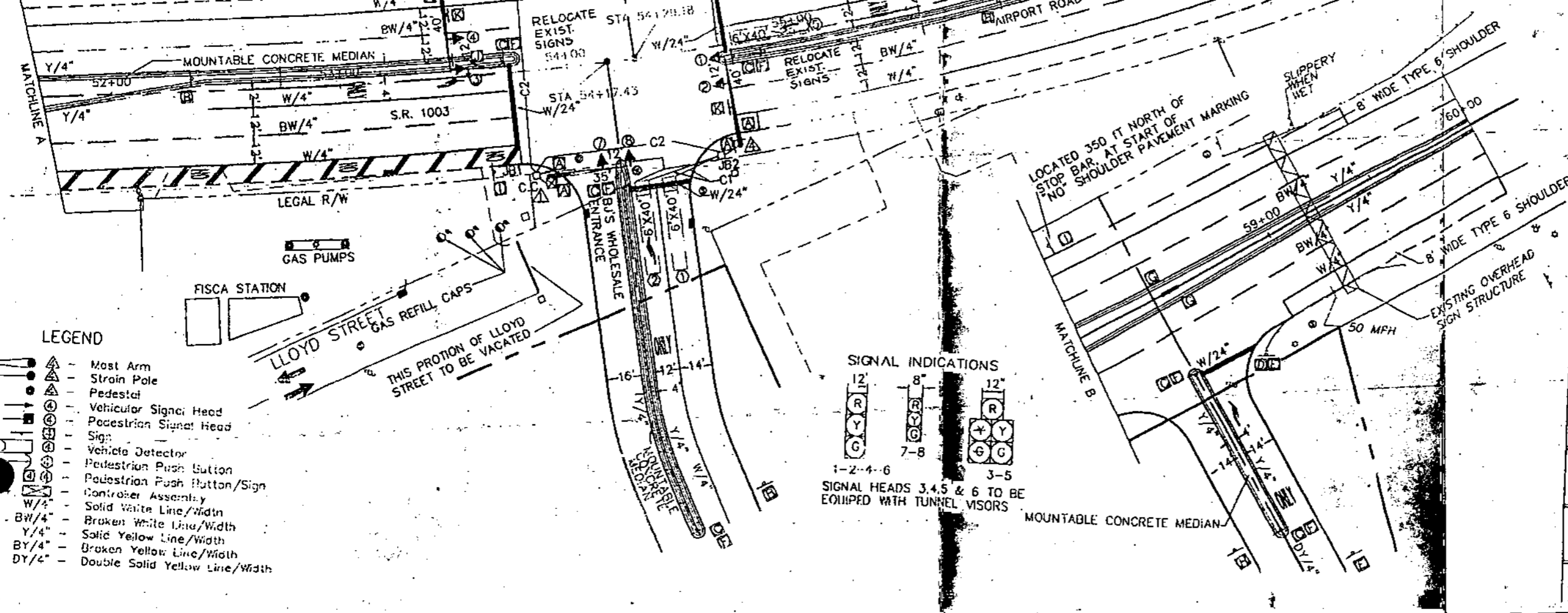
SIGNALS	PHASE 1 + 6			PHASE 2 + 6			PHASE 3 + 8			PHASE 4 + 8			EMERGENCY FLASHING OPERATION
	1	2	3	4	5	6	7	8	9	10	11	12	
1, 2	R	R	R	G	Y	R	R	R	R	R	R	R	Y
3	G	G	G	Y	R	R	R	R	R	R	R	R	Y
4	G	G	G	Y	R	R	R	R	R	R	R	R	Y
5	R	R	R	R	R	R	G	Y	R	R	R	R	Y
6	R	R	R	R	R	R	G	Y	R	R	R	R	Y
7, 8	R	R	R	R	R	R	G	Y	R	R	R	R	Y
FIXED TIME	5	2		5	2		3	2		3	2		
MINIMUM 1	3			10			3			3			
PASSAGE	3						3			3			
MAXIMUM 1	6			73			6			6			
MAXIMUM 2	6			48			6			6			
MEMORY	NL			NL			NL			NL			

PHASE 1+6 MUST FOLLOW PHASE 3+8 OR 4+8  
 ① IF FOLLOWED BY PHASE 1+6 OR 2+6 DISPLAY YELLOW BALL  
 ② IF FOLLOWED BY PHASE 1+6 OR 2+6 DISPLAY RED BALL

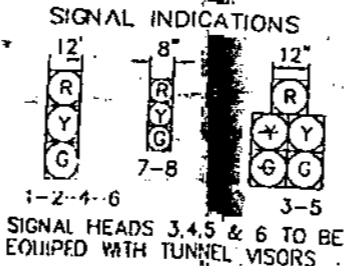
### SIGN TABULATION

PLAN SYMBOL	SERIES	SIZE	QTY.	MESSAGE
ⓐ	R9-3	18"x18"	8	NO PEDESTRIAN X-ING
ⓑ	R3-7L	30"x30"	4	LEFT LANE MUST TURN LEFT
ⓒ	R4-7	24"x30"	8	KEEP RIGHT
ⓓ	R1-1	30"x30"	1	STOP
ⓔ	R3-7R	30"x30"	2	ALL TRAFFIC MUST TURN RIGHT
ⓕ	W16-1D	18"x18"	8	HAZARD MARKER
ⓖ	R6-1R	36"x12"	2	HORIZONTAL RIGHT ONE WAY
ⓗ	R5-1	30"x30"	1	DO NOT ENTER
ⓓ	R3-1-324	30"x30"	4	NO TURNS FROM SHOULDER
ⓓ	R10-12	30"x36"	2	LEFT TURN YIELD ON GREEN
ⓓ	D3-4	8"x36"	2	STEEL STONE ROAD

← NEAREST SIGNAL 2290'



- ### LEGEND
- ▲ - Mast Arm
  - - Strain Pole
  - △ - Pedestal
  - ⊙ - Vehicular Signal Head
  - ⊙ - Pedestrian Signal Head
  - ⊙ - Sign
  - ⊙ - Vehicle Detector
  - ⊙ - Pedestrian Push Button
  - ⊙ - Pedestrian Push Button/Sign
  - ⊙ - Controller Assembly
  - W/4" - Solid White Line/Width
  - BW/4" - Broken White Line/Width
  - Y/4" - Solid Yellow Line/Width
  - BY/4" - Broken Yellow Line/Width
  - DY/4" - Double Solid Yellow Line/Width



DISTRICT	COUNTY	ROUTE	SECTION	SHEET
5-0	LEHIGH	1003		
HANOVER TOWNSHIP				
PERMIT NO. 39 - 201 - 7		SHEET OF		
DATE ISSUED 10-29-91		DATE REVISED 12-13-01		
CONDITION DIAGRAM ONLY				

### GENERAL NOTES

Installation, operation and maintenance of this traffic signal to be in accordance with Pennsylvania Department of Transportation Regulations on Official Traffic Control Devices. No modifications of this installation are permitted unless prior approval is granted, in writing, by the Department.

All maintenance necessary for proper visibility of the signals, including trimming trees, is the responsibility of the Permittee. All signs and pavement markings indicated on this drawing are considered part of the permit and are to be installed and maintained by the Permittee, unless otherwise indicated. Except the longitudinal pavement markings on State Highways which will be maintained by the Department.

Install post mounted signals 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 will have a minimum horizontal clearance of 2 feet.

The bottom of signal heads and signs erected over the roadway are not to be less than 15 feet nor more than 19 feet above the roadway. The bottom of post mounted signal heads are to be not less than 8 feet nor more than 15 feet above the sidewalk or pavement grade.

The minimum horizontal distance between signal heads measured at right angles to the approach is to be 8 feet.

In addition to this signal permit, the Permittee will 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 187, Prevention of Damage to Underground Utilities. Prior to construction consult with utility companies to resolve any problems which may be created due to the location of utilities.

Pavement markings will be placed in accordance with the Department of Transportation Pavement Marking Handbook.

Maintenance and protection of traffic for the installation and maintenance of this traffic signal to be in accordance with publication 203, Work zone traffic control.

County:	LEHIGH
Municipality:	HANOVER TOWNSHIP
Intersection:	S.R. 1003 (AIRPORT ROAD), BJ'S Wholesale Entrance and Pocono Downs Facility Entrance
Reviewed:	<i>[Signature]</i> 2/9/01 Municipal Official Date
Reviewed:	<i>[Signature]</i> 2/14/01 District Traffic Signals Div. Date
Recommended:	<i>[Signature]</i>



PHASING, TIMING AND COLOR SEQUENCE CHART

SIGNALS	PHASE 2+6			PHASE 4+8			OPERATION
	1	2	3	4	5	6	
1,2,3	G	Y	R	R	R	R	Y
4,5	G	Y	R	R	R	R	Y
6,7	R	R	R	G	Y	R	R
8,9	R	R	R	G	Y	R	R
10,11	G	Y	R	R	R	R	Y
12,13	R	R	R	G	Y	R	R
FIXED		5	2		4	2	
MIN. GREEN	6			3			
PASSAGE				3			
MAXIMUM 1	84			13			
MAXIMUM 2	67			25			
PEDESTRIAN*	11			23			
MEMORY		MR			NON-LOCKING		

\*UPON PEDESTRIAN ACTUATION ONLY

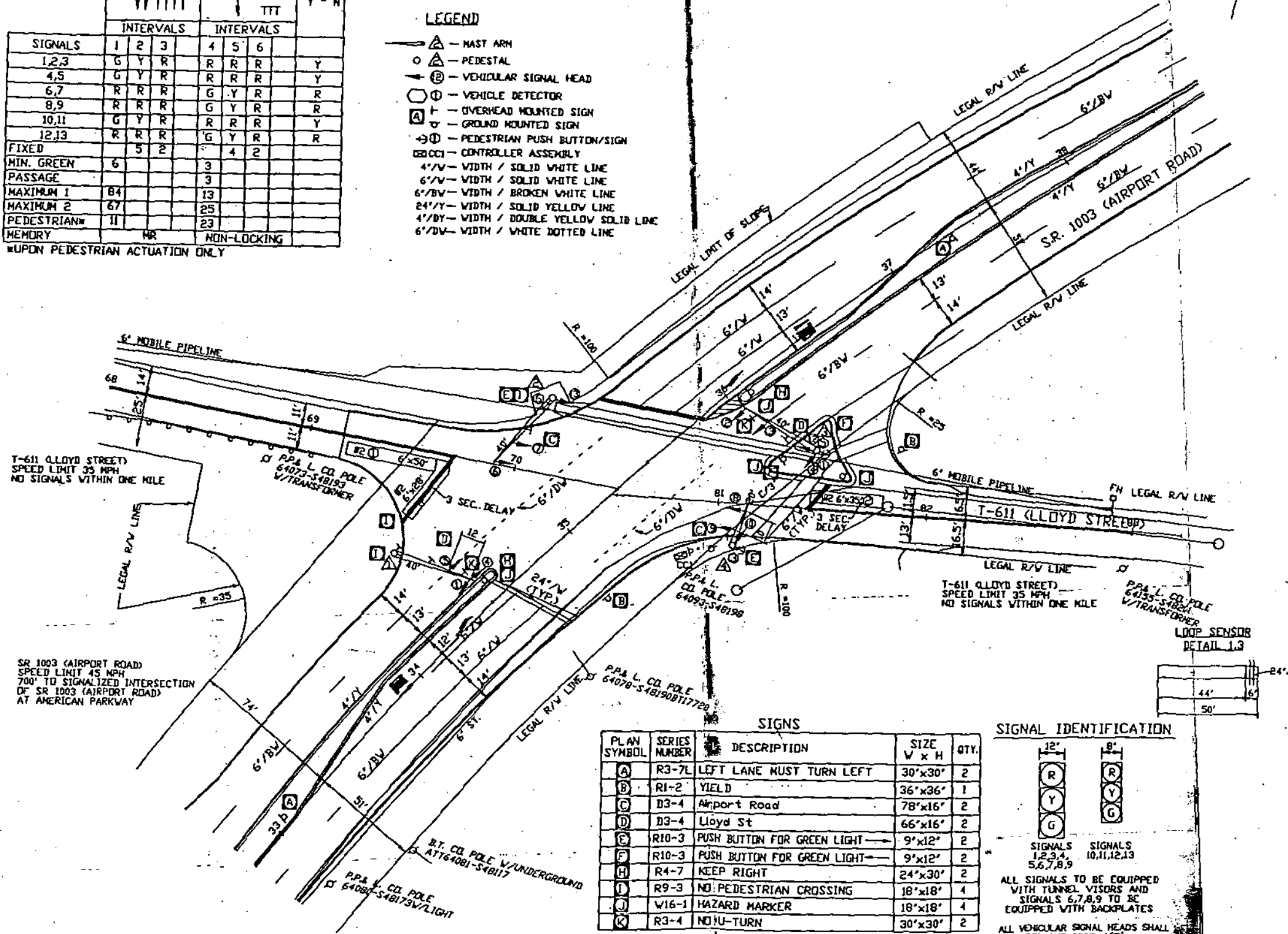
PROGRAM CHART

EVENT NO.	DAY OF WEEK					TIME			CYCLE	OFF-SET	REMARK		
	M	T	W	T	F	S	S	HOUR				MIN.	SEC.
1	*	*	*	*	*	*	*	06	00	00	110	92	MAX 1
2	*	*	*	*	*	*	*	15	00	00	105	78	MAX 2
3	*	*	*	*	*	*	*	18	00	00	110	92	MAX 1

LEGEND

- ▲ - MAST ARM
- - PEDESTAL
- ⊕ - VEHICULAR SIGNAL HEAD
- ⊙ - VEHICLE DETECTOR
- ⊕ - OVERHEAD MOUNTED SIGN
- ⊖ - GROUND MOUNTED SIGN
- ⊕ - PEDESTRIAN PUSH BUTTON/SIGN
- ⊕ - CONTROLLER ASSEMBLY
- 4"/V - WIDTH / SOLID WHITE LINE
- 6"/V - WIDTH / SOLID WHITE LINE
- 6"/BV - WIDTH / BROKEN WHITE LINE
- 24"/Y - WIDTH / SOLID YELLOW LINE
- 4"/DY - WIDTH / DOUBLE YELLOW SOLID LINE
- 6"/DV - WIDTH / WHITE DOTTED LINE

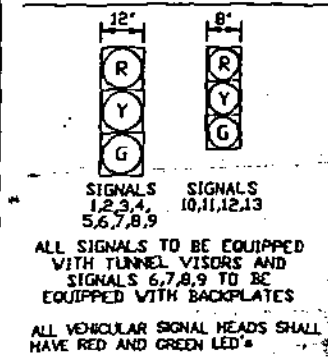
SR 1003 (AIRPORT ROAD)  
SPEED LIMIT 45 MPH  
2,290' TO SIGNALIZED INTERSECTION  
OF SR 1003 (AIRPORT ROAD)  
AT B.J.'S WHOLESALE/POCONO DOWNS FACILITY.



SIGNS

PLAN SYMBOL	SERIES NUMBER	DESCRIPTION	SIZE V x H	QTY.
A	R3-7L	LEFT LANE MUST TURN LEFT	30"x30"	2
B	R1-2	YIELD	36"x36"	1
C	D3-4	Airport Road	78"x16"	2
D	D3-4	Lloyd St	66"x16"	2
E	R10-3	PUSH BUTTON FOR GREEN LIGHT	9"x12"	2
F	R10-3	PUSH BUTTON FOR GREEN LIGHT	9"x12"	2
H	R4-7	KEEP RIGHT	24"x30"	2
I	R9-3	NO PEDESTRIAN CROSSING	18"x18"	4
J	W16-1	HAZARD MARKER	18"x18"	4
K	R3-4	NO U-TURN	30"x30"	2

SIGNAL IDENTIFICATION



DISTRICT	COUNTY	ROUTE	SECTION	SHEET	
5-0	LEHIGH				
HANDOVER TOWNSHIP					
PERMIT NO. 39-201-010				SHEET	OF
DATE ISSUED 10-29-01		DATE REVISED 11-22-02			

\* CONDITION DIAGRAM ONLY

**GENERAL NOTES**

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

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

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

ALL SIGNS AND PAVEMENT MARKINGS INDICATED ON THIS DRAWING ARE CONSIDERED PART OF THE PERMIT AND SHALL BE INSTALLED AND MAINTAINED BY THE PERMITTEE, UNLESS OTHERWISE INDICATED, EXCEPT THE LONGITUDINAL PAVEMENT MARKINGS ON STATE HIGHWAYS WHICH WILL BE MAINTAINED BY THE DEPARTMENT.

INSTALL POST MOUNTED SIGNALS 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 WILL HAVE A MINIMUM HORIZONTAL CLEARANCE OF 2 FEET.

THE BOTTOM OF SIGNAL HEADS AND SIGNS ERRECTED OVER THE ROADWAY ARE NOT TO BE LESS THAN 15 FEET NOR MORE THAN 19 FEET ABOVE THE ROADWAY. THE BOTTOM OF POST MOUNTED SIGNAL HEADS ARE NOT TO BE LESS THAN 8 FEET NOR MORE THAN 15 ABOVE THE SIDEWALK OR PAVEMENT GRADE.

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

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.

THIS DRAWING CANNOT BE USED AS A CONSTRUCTION DRAWING UNLESS THE PERMITTEE COMPLIES WITH THE PROVISIONS OF ACT 187. PREVENTION OF DAMAGE TO UNDERGROUND UTILITIES. PRIOR TO CONSTRUCTION CONSULT WITH UTILITY COMPANIES TO RESOLVE ANY PROBLEMS WHICH MAY BE CREATED DUE TO THE LOCATION OF UTILITIES.

PLACE PAVEMENT MARKINGS IN ACCORDANCE WITH THE DEPARTMENT OF TRANSPORTATION PAVEMENT MARKING HANDBOOK.

MAINTENANCE AND PROTECTION OF TRAFFIC FOR THE INSTALLATION AND MAINTENANCE OF THIS TRAFFIC SIGNAL TO BE IN ACCORDANCE WITH PUBLICATION 203, WORK ZONE TRAFFIC CONTROL.

COUNTY:	LEHIGH
MUNICIPALITY:	HANDOVER TOWNSHIP
INTERSECTION:	SR 1003 (AIRPORT ROAD) AND T-611 (LLOYD STREET)

SCALE: 25 0 25 50  
SCALE IN FEET

PHASING, TIMING AND COLOR SEQUENCE CHART

SIGNALS	PHASE 1+5			PHASE 2+5			PHASE 1+6			PHASE 2+6			PHASE 4+7			PHASE 4+8			REMARKS
	7	8	9	10	11	12	13	14	15	16	17	18	1	2	3	4	5	6	
1.8	R	G	R	G	Y	R	R	R	R	G	Y	R	R	R	R	R	R	R	Y
2.3	R	R	R	R	R	R	G	Y	R	G	Y	R	R	R	R	R	R	R	Y
4.16	R	R	R	R	R	R	G	Y	R	G	Y	R	R	R	R	R	R	R	Y
5.11	R	R	R	R	R	R	G	Y	R	G	Y	R	R	R	R	R	R	R	Y
6.12.13.14	R	R	R	R	R	R	R	R	R	R	R	R	G	Y	R	R	R	R	R
7.15	R	R	R	R	R	R	R	R	R	R	R	R	G	Y	R	R	R	R	R
9.10.17	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	G	Y	R	R
FIXED	5	2		5	2		5	2		5	2		4	2		4	2		
MIN. GREEN	3			3			3			7			3			3			
PASSAGE	3			3			3			3			3			3			
MAXIMUM 1	13			13			13			48			15			8			
MAXIMUM 2	6			6			6			30			35			8			
MEMORY	NON-LOCKING			NON-LOCKING			NON-LOCKING			MAX RECALL			NON-LOCKING			NON-LOCKING			

CONTROLLER NOTES:  
 (1) R/G - IF FOLLOWED BY PHASE 2+5  
 (2) R/G - IF FOLLOWED BY PHASE 1+6  
 (3) G/Y - IF FOLLOWED BY PHASE 2+6  
 (4) G/Y - IF FOLLOWED BY PHASE 2+6  
 (5) TO FOLLOW PHASES 4+7 OR 4+8 ONLY  
 (6) TO FOLLOW PHASES 2+6 OR 1+5 ONLY  
 (7) G/Y - IF FOLLOWED BY PHASE 4+8

SR 1003 (AIRPORT ROAD)  
 SPEED LIMIT 45 MPH  
 700' TO SIGNALIZED INTERSECTION  
 OF SR 1003 (AIRPORT ROAD)  
 AT T-611 (LLOYD STREET)

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
S-0	LEHIGH	AMERICAN PARKWAY	LUC	1 of 2
CITY OF ALLENTOWN				
PERMIT NO.	39-301-804	SHEET	2 OF 2	
DATE ISSUED	12-13-01	DATE REVISED	*9/19/02	
*CONDITION DIAGRAM ONLY				

**GENERAL NOTES**

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

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

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

ALL SIGNS AND PAVEMENT MARKINGS INDICATED ON THIS DRAWING ARE CONSIDERED PART OF THE PERMIT AND SHALL BE INSTALLED AND MAINTAINED BY THE PERMITTEE UNLESS OTHERWISE INDICATED, EXCEPT THE LONGITUDINAL PAVEMENT MARKINGS ON STATE HIGHWAYS WHICH WILL BE MAINTAINED BY THE DEPARTMENT.

INSTALL POST MOUNTED SIGNALS 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 WILL HAVE A MINIMUM HORIZONTAL CLEARANCE OF 2 FEET.

THE BOTTOM OF SIGNAL HEADS AND SIGNS MOUNTED OVER THE ROADWAY ARE NOT TO BE LESS THAN 15 FEET NOR MORE THAN 19 FEET ABOVE THE ROADWAY. THE BOTTOM OF POST MOUNTED SIGNAL HEADS ARE NOT TO BE LESS THAN 8 FEET NOR MORE THAN 15 FEET ABOVE THE SIDEWALK OR PAVEMENT GRADE.

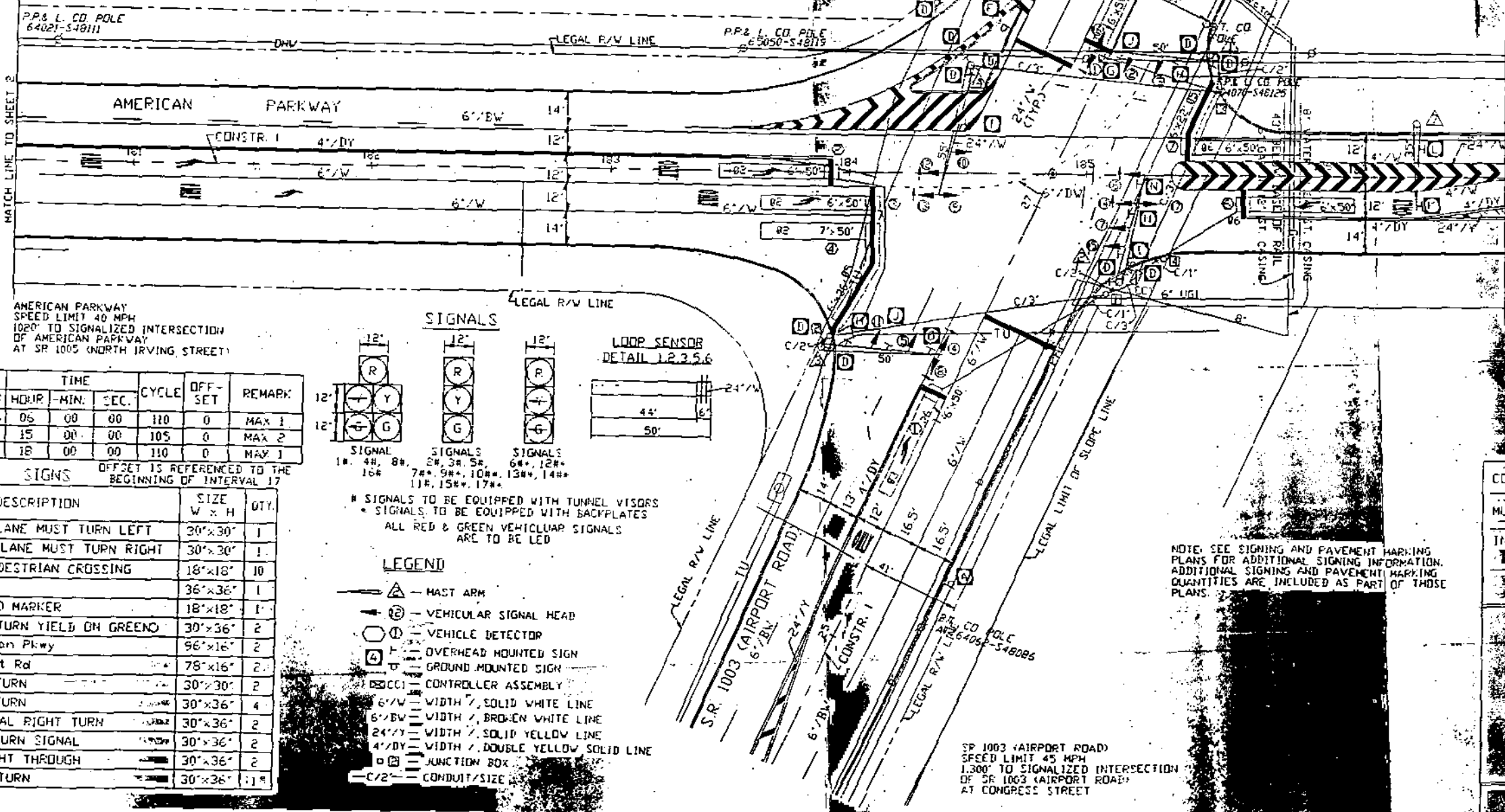
THE MINIMUM HORIZONTAL DISTANCE BETWEEN SIGNAL HEADS MEASURED AT RIGHT ANGLES TO THE APPROACH IS TO BE 8 FEET.

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.

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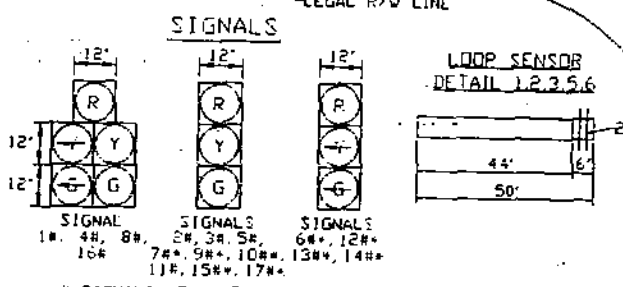
PLACE PAVEMENT MARKINGS IN ACCORDANCE WITH THE DEPARTMENT OF TRANSPORTATION PAVEMENT MARKING HANDBOOK.

MAINTENANCE AND PROTECTION OF TRAFFIC FOR THE INSTALLATION AND MAINTENANCE OF THIS TRAFFIC SIGNAL TO BE IN ACCORDANCE WITH PUBLICATION 203, WORK ZONE TRAFFIC CONTROL.



PROGRAM CHART

EVENT NO.	DAY OF WEEK	TIME			CYCLE	OFF-SET	REMARK
		HR	MIN	SEC			
1	* * * * *	05	00	00	110	0	MAX 1
2	* * * * *	15	00	00	105	0	MAX 2
3	* * * * *	18	00	00	110	0	MAX 1



SIGNS

PLAN SYMBOL	SERIES NUMBER	DESCRIPTION	SIZE W x H	QTY
A	R3-7L	LEFT LANE MUST TURN LEFT	30"x30"	1
B	R3-7R	RIGHT LANE MUST TURN RIGHT	30"x30"	1
C	R9-3	NO PEDESTRIAN CROSSING	18"x18"	10
D	R1-2	YIELD	36"x36"	1
E	W16-1	HAZARD MARKER	18"x18"	1
F	R10-12	LEFT TURN YIELD ON GREEN	30"x36"	2
G	D3-4	American Pkwy	96"x16"	2
H	D3-4	Airport Rd	78"x16"	2
I	R3-4	NO U-TURN	30"x30"	2
J	R3-5L	LEFT TURN	30"x36"	4
K	R3-6SR	OPTIONAL RIGHT TURN	30"x36"	2
L	R10-10L	LEFT TURN SIGNAL	30"x36"	2
M	R3-5S	STRAIGHT THROUGH	30"x36"	2
N	R3-5R	RIGHT TURN	30"x36"	1

LEGEND

- ▲ - MAST ARM
- ⊙ - VEHICULAR SIGNAL HEAD
- ⊙ - VEHICLE DETECTOR
- ⊙ - OVERHEAD MOUNTED SIGN
- ⊙ - GROUND MOUNTED SIGN
- ⊙ - CONTROLLER ASSEMBLY
- 6'W — WIDTH / SOLID WHITE LINE
- 6'BW — WIDTH / BROKEN WHITE LINE
- 24'Y — WIDTH / SOLID YELLOW LINE
- 4'DY — WIDTH / DOUBLE YELLOW SOLID LINE
- ⊠ - JUNCTION BOX
- C/2 — CONDUIT SIZE

\* SIGNALS TO BE EQUIPPED WITH TUNNEL VISORS  
 \* SIGNALS TO BE EQUIPPED WITH BACKPLATES  
 ALL RED & GREEN VEHICULAR SIGNALS ARE TO BE LED

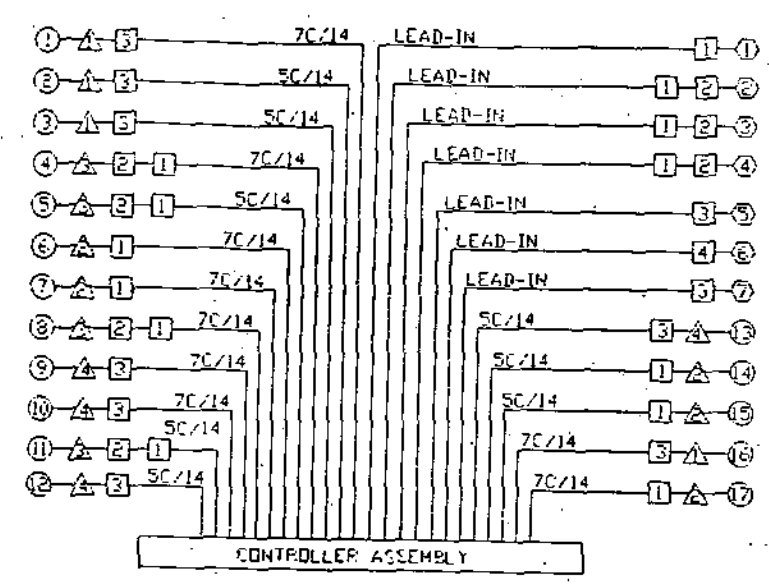
NOTE: SEE SIGNING AND PAVEMENT MARKING PLANS FOR ADDITIONAL SIGNING INFORMATION. ADDITIONAL SIGNING AND PAVEMENT MARKING QUANTITIES ARE INCLUDED AS PART OF THOSE PLANS.

COUNTY	LEHIGH
MUNICIPALITY	CITY OF ALLENTOWN
INTERSECTION	SR 1003 (AIRPORT ROAD) AND AMERICAN PARKWAY
SCALE	25' = 0' 25' 50'

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
5-0	LEHIGH	AMERICAN PARKWAY	LUC	2 OF 2
CITY OF ALLENTOWN/HANDOVER TOWNSHIP				
PERMIT NO. 39-301-204		SHEET 2 OF 2		
DATE ISSUED 12-13-01		DATE REVISED *9/19/02		

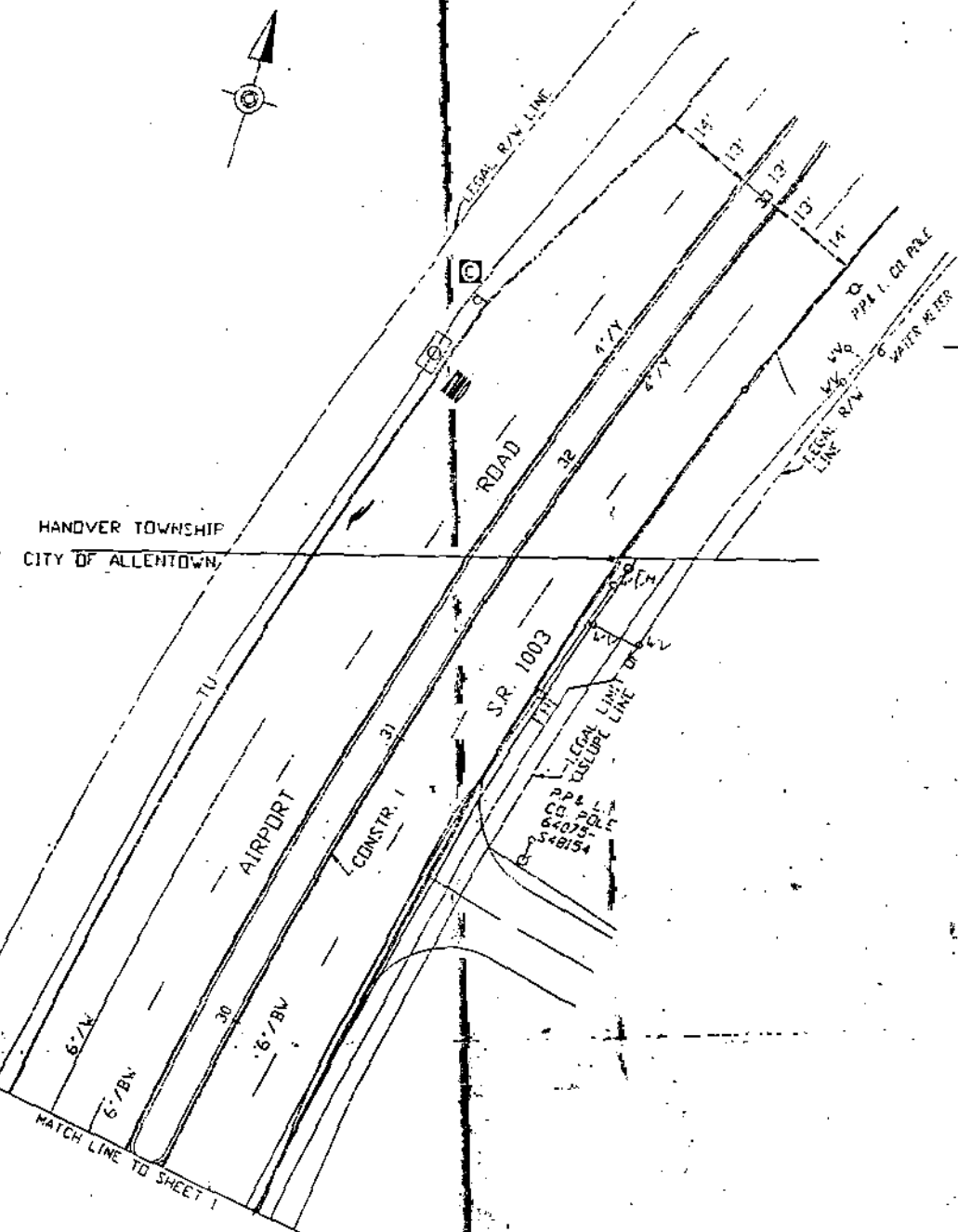
\* CONDITION DIAGRAM ONLY

**WIRING DIAGRAM**



- SIGNAL HEAD
- △ TRAFFIC SIGNAL SUPPORT
- VEHICLE DETECTOR
- JUNCTION BOX

5C/14 = CABLE (NO. OF CONDUCTORS/SIZE AWG)  
 NOTE: CABLES WITHIN CONDUITS SHALL NOT BE BOUND TOGETHER



**LEGEND**

- △ - MAST ARM
- - VEHICULAR SIGNAL HEAD
- - VEHICLE DETECTOR
- - OVERHEAD MOUNTED SIGN
- - GROUND MOUNTED SIGN
- - CONTROLLER ASSEMBLY
- 6'W - WIDTH / SOLID WHITE LINE
- 6'BW - WIDTH / BROKEN WHITE LINE
- 24'Y - WIDTH / SOLID YELLOW LINE
- 4'DY - WIDTH / DOUBLE YELLOW SOLID LINE
- - JUNCTION BOX
- C/2 - CONDUIT/SIZE

**GENERAL NOTES**

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

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THE BOTTOM OF SIGNAL HEADS AND SIGNS ERECTED OVER THE ROADWAY ARE NOT TO BE LESS THAN 15 FEET NOR MORE THAN 19 FEET ABOVE THE ROADWAY. THE BOTTOM OF POST MOUNTED SIGNAL HEADS ARE NOT TO BE LESS THAN 8 FEET NOR MORE THAN 15 ABOVE THE SIDEWALK OR PAVEMENT GRADE.

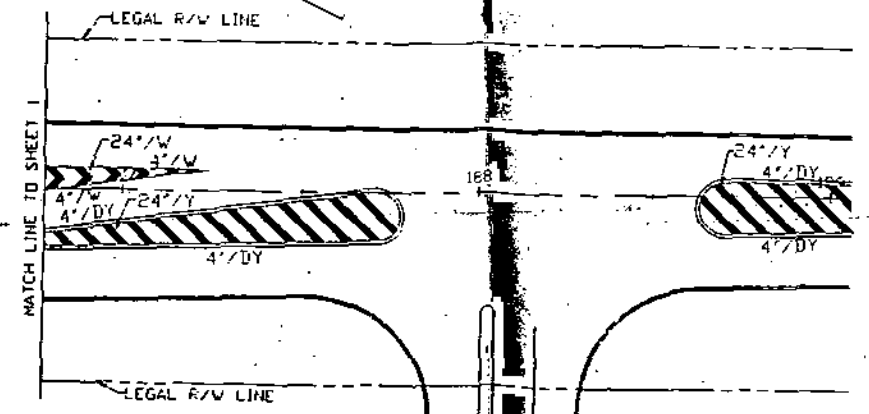
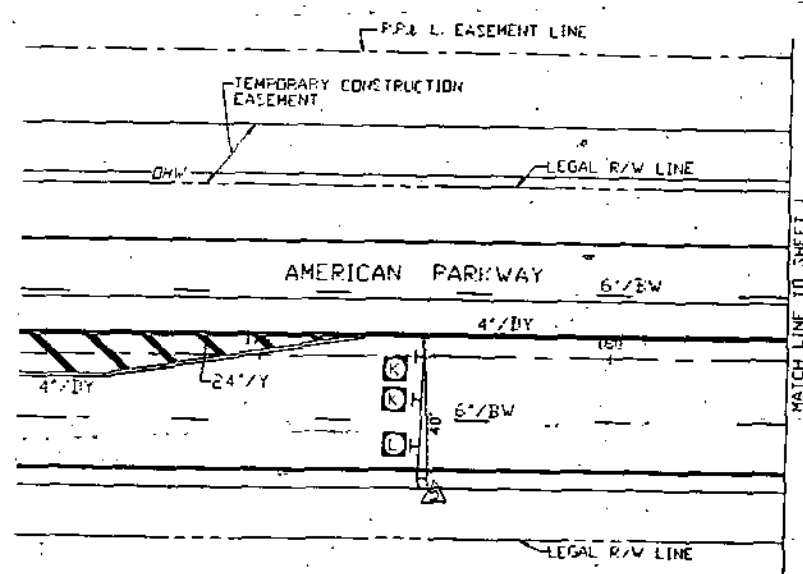
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PLACE PAVEMENT MARKINGS IN ACCORDANCE WITH THE DEPARTMENT OF TRANSPORTATION PAVEMENT MARKING HANDBOOK.

MAINTENANCE AND PROTECTION OF TRAFFIC FOR THE INSTALLATION AND MAINTENANCE OF THIS TRAFFIC SIGNAL TO BE IN ACCORDANCE WITH PUBLICATION 203. WORK ZONE TRAFFIC CONTROL.



COUNTY: LEHIGH  
 MUNICIPALITY: CITY OF ALLENTOWN  
 INTERSECTION:  
 SR 1003 (AIRPORT ROAD) AND  
 AMERICAN PARKWAY

SCALE: 25 0 25 50  
 SCALE IN FEET

PHASING, TIMING AND COLOR SEQUENCE CHART

SIGNALS	PHASE 2+6				PHASE 4+7				PHASE 4+8				OPERATION
	1	2	3	4	5	6	7		8	9	10	11	
1,2	G	G	Y	R	R	R	R		R	R	R	R	Y
3,4	G	G	Y	R	R	R	R		R	R	R	R	Y
5	R	R	R	P	G	G	G		G	G	Y	R	R
6	R	R	P	P	G	G	G		G	G	Y	R	R
7,8	R	R	P	P	P	R			G	G	Y	P	R
9,16	H	H	H	H	H	H	H		M*	FH*	FH*	H	OFF
10,11,14,15	M*	FH*	FH*	H	H	H	H		H	H	H	H	OFF
12,13	H	H	H	H	H	H	H		M*	FH*	FH*	H	OFF
FIXED			5	2		4	2				4	2	
MIN. GREEN	15				3					7			
SEC./ACT.	3												
MAX. INITIAL	25												
PASSAGE	4.5				3					3			
TBR	25												
TTR	15												
MIN. GAP	3												
MAXIMUM 1	49				6					36			
MAXIMUM 2	47				7					32			
PEDESTRIAN*	11	6							13	13			
MEMORY	MIN. RECALL				NON-LOCKING				NON-LOCKING				

① Y IF FOLLOWED BY PHASE 2+6  
 ② R IF FOLLOWED BY PHASE 2+6

SR 1005 (N. IRVING STREET)  
 SPEED LIMIT 35 MPH  
 NO SIGNALS WITHIN 1 MILE

PROGRAM CHART

EVENT NO.	DAY OF WEEK							TIME			CYCLE	OFF-SET	REMARK
	M	T	W	T	F	S	S	HOUR	MIN.	SEC.			
1	*	*	*	*	*	*	*	06	00	00	110	54	MAX 1
2	*	*	*	*	*	*	*	15	00	00	105	20	MAX 2
3	*	*	*	*	*	*	*	18	00	00	110	54	MAX 1

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
5-0	LEHIGH			
CITY OF ALLENTOWN				
PERMIT NO.	39-301-207	SHEET	2	OF 2
DATE ISSUED	12-13-01	DATE REVISED		

GENERAL NOTES

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

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

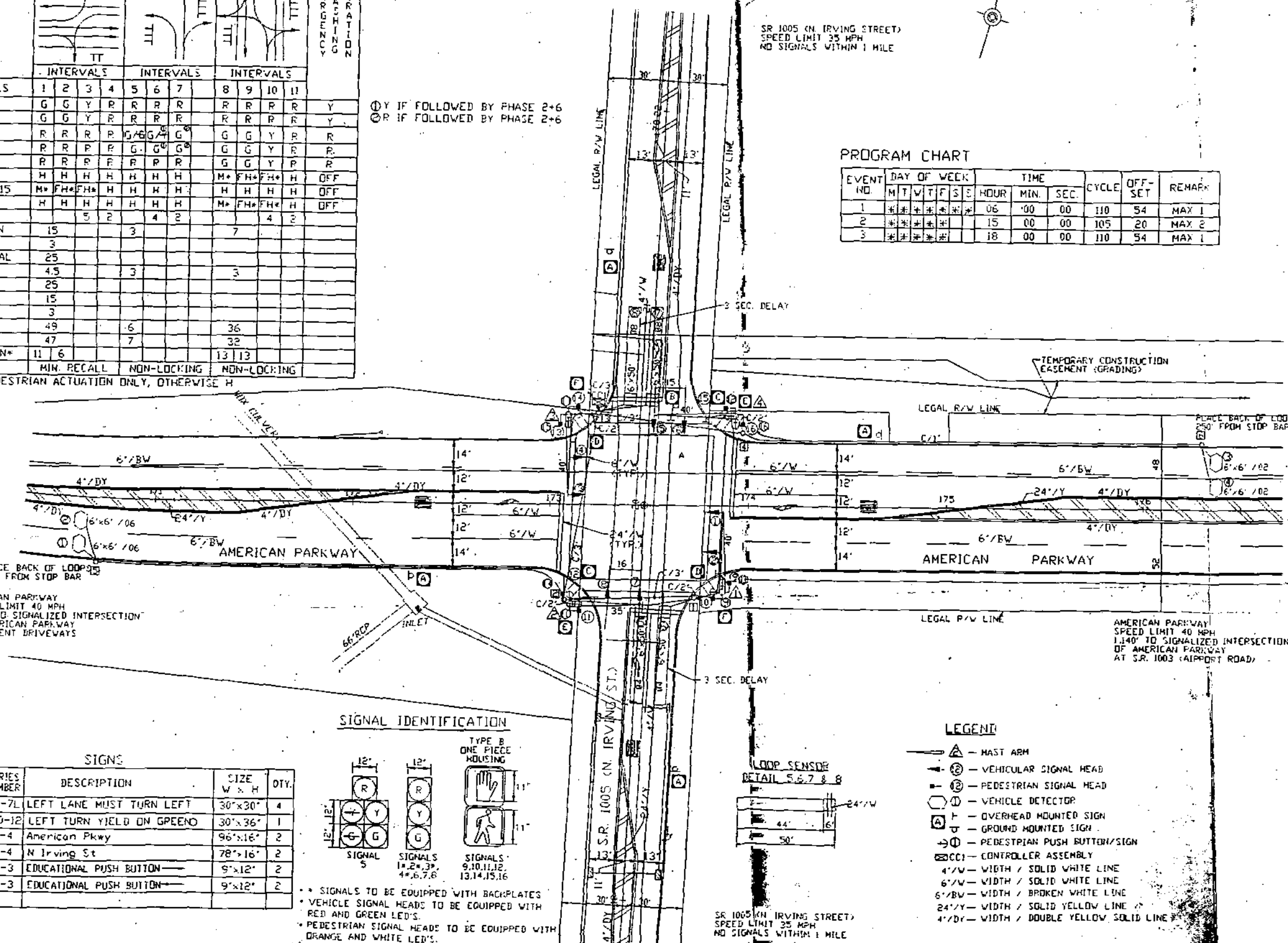
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PLACE PAVEMENT MARKINGS IN ACCORDANCE WITH THE DEPARTMENT OF TRANSPORTATION PAVEMENT MARKING HANDBOOK.

MAINTENANCE AND PROTECTION OF TRAFFIC FOR THE INSTALLATION AND MAINTENANCE OF THIS TRAFFIC SIGNAL TO BE IN ACCORDANCE WITH PUBLICATION E03, WORK ZONE TRAFFIC CONTROL.

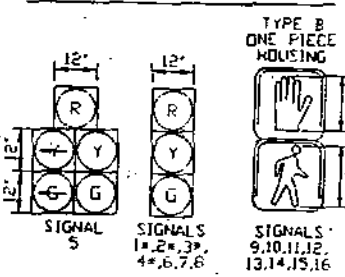
\*UPON PEDESTRIAN ACTUATION ONLY, OTHERWISE H



SIGNS

PLAN SYMBOL	SERIES NUMBER	DESCRIPTION	SIZE W x H	QTY.
A	R3-7L	LEFT LANE MUST TURN LEFT	30"x30"	4
B	R10-12	LEFT TURN YIELD ON GREEN	30"x36"	1
C	D3-4	American Pkwy	96"x16"	2
D	D3-4	N Irving St	78"x16"	2
E	R10-3	EDUCATIONAL PUSH BUTTON	9"x12"	2
F	R10-3	EDUCATIONAL PUSH BUTTON	9"x12"	2

SIGNAL IDENTIFICATION



SIGNALS TO BE EQUIPPED WITH BACKPLATES  
 VEHICLE SIGNAL HEADS TO BE EQUIPPED WITH RED AND GREEN LED'S  
 PEDESTRIAN SIGNAL HEADS TO BE EQUIPPED WITH ORANGE AND WHITE LED'S.

LEGEND

- ▲ - MAST ARM
- ⊙ - VEHICULAR SIGNAL HEAD
- ⊙ - PEDESTRIAN SIGNAL HEAD
- ⊙ - VEHICLE DETECTOR
- ⊙ - OVERHEAD MOUNTED SIGN
- ⊙ - GROUND MOUNTED SIGN
- ⊙ - PEDESTRIAN PUSH BUTTON/SIGN
- ⊙ - CONTROLLER ASSEMBLY
- 4'V - WIDTH / SOLID WHITE LINE
- 6'V - WIDTH / SOLID WHITE LINE
- 6'BW - WIDTH / BROKEN WHITE LINE
- 24'Y - WIDTH / SOLID YELLOW LINE
- 4'DY - WIDTH / DOUBLE YELLOW SOLID LINE

SR 1005 (N. IRVING STREET)  
 SPEED LIMIT 35 MPH  
 NO SIGNALS WITHIN 1 MILE

COUNTY:	LEHIGH
MUNICIPALITY:	CITY OF ALLENTOWN
INTERSECTION:	AMERICAN PARKWAY AND S.R. 1005 (NORTH IRVING STREET)
REVIEWED:	
MUNICIPAL OFFICIAL:	DATE
REVIEWED:	
DISTRICT TRAFFIC SIGNAL DIV.:	DATE
RECOMMENDED:	
DISTRICT TRAFFIC ENGINEER:	DATE
SCALE:	25 0 25 50 SCALE IN FEET

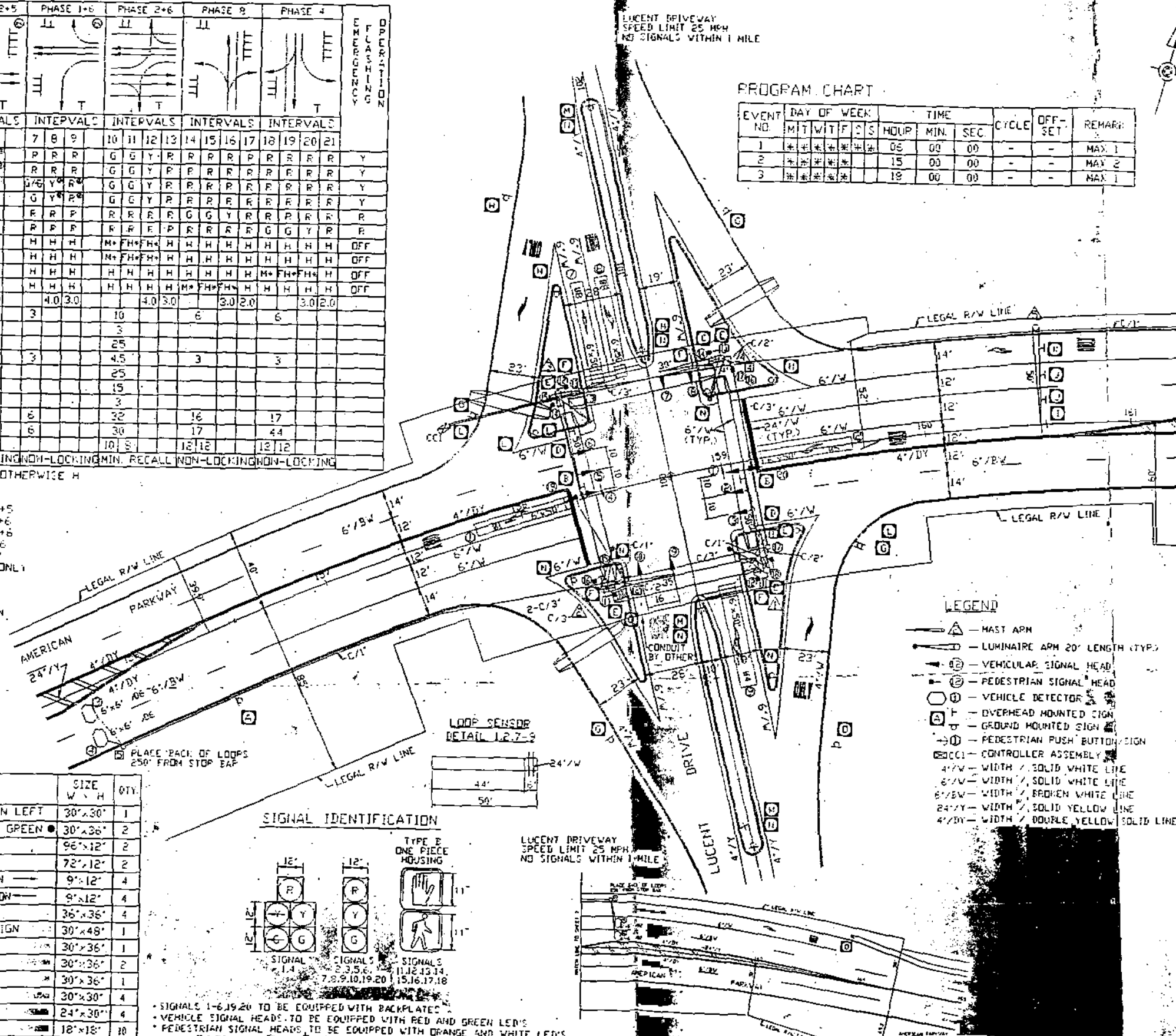
PHASING, TIMING AND COLOR SEQUENCE CHART

SIGNALS	PHASE 1+5			PHASE 2+5			PHASE 1+6			PHASE 2+6			PHASE 3			PHASE 4			DURATION CYCLES			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18		19	20	21
1	R	F	R	G	Y	R	P	R	R	G	Y	R	P	R	R	P	R	R	P	R	R	Y
2,3,19	R	F	R	G	Y	R	P	R	R	G	Y	R	P	R	R	P	R	R	P	R	R	Y
4	R	F	R	G	Y	R	P	R	R	G	Y	R	P	R	R	P	R	R	P	R	R	Y
5,6,20	R	F	R	G	Y	R	P	R	R	G	Y	R	P	R	R	P	R	R	P	R	R	Y
7,8	R	F	R	G	Y	R	P	R	R	G	Y	R	P	R	R	P	R	R	P	R	R	Y
9,10	R	F	R	G	Y	R	P	R	R	G	Y	R	P	R	R	P	R	R	P	R	R	Y
11,12	H	H	H	H	H	H	H	H	H	M	F	H	H	H	H	H	H	H	H	H	H	OFF
13,14	H	H	H	H	H	H	H	H	H	M	F	H	H	H	H	H	H	H	H	H	H	OFF
15,16	H	H	H	H	H	H	H	H	H	M	F	H	H	H	H	H	H	H	H	H	H	OFF
17,18	H	H	H	H	H	H	H	H	H	M	F	H	H	H	H	H	H	H	H	H	H	OFF
FIXED	4.0	3.0		4.0	3.0		4.0	3.0		4.0	3.0		3.0	2.0		3.0	2.0		3.0	2.0		
MIN. GREEN	3			3			3			10			6			6			6			
SEC./ACT.										3			3			3			3			
MAX. INITIAL										25			25			25			25			
PASSAGE	3			3			3			4.5			3			3			3			
TPR										25			25			25			25			
TTR										15			15			15			15			
MIN. GAP										3			3			3			3			
MAXIMUM 1	6			6			6			32			16			17			17			
MAXIMUM 2	6			6			6			30			17			44			44			
PEDESTRIAN*										10	5		12	12		12	12		12	12		
MEMORY	NON-LOCKINGNON-LOCKINGNON-LOCKINGMIN. RECALLNON-LOCKINGNON-LOCKING																					

\*UPON PEDESTRIAN ACTUATION ONLY, OTHERWISE H

- CONTROLLER NOTES
- ⊙ R/G IF FOLLOWED BY PHASE 2+5
  - ⊙ R/G IF FOLLOWED BY PHASE 1+6
  - ⊙ G/Y IF FOLLOWED BY PHASE 2+6
  - ⊙ G IF FOLLOWED BY PHASE 2+6
  - ⊙ TO FOLLOW PHASES 4 OR 6 ONLY
  - ⊙ TO FOLLOW PHASES 4,6 OR 1+5 ONLY

AMERICAN PARKWAY  
SPEED LIMIT 40 MPH  
2,947' TO SIGNALIZED INTERSECTION  
OF AMERICAN PARKWAY  
AT SR. 1007 (DAUPHIN STREET)

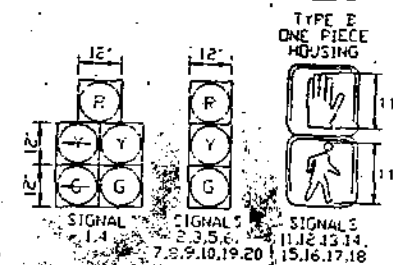


PROGRAM CHART

EVENT NO.	DAY OF WEEK							TIME	CYCLE	OFF-SET	REMARKS
	M	T	W	T	F	S	S				
1	*	*	*	*	*	*	*	05:00:00	-	-	MAX 1
2	*	*	*	*	*	*	*	15:00:00	-	-	MAX 2
3	*	*	*	*	*	*	*	18:00:00	-	-	MAX 1

- LEGEND
- ▲ - MAST ARM
  - - LUMINAIRE ARM 20' LENGTH (TYP.)
  - ⊙ - VEHICULAR SIGNAL HEAD
  - ⊙ - PEDESTRIAN SIGNAL HEAD
  - ⊙ - VEHICLE DETECTOR
  - ⊙ - OVERHEAD MOUNTED SIGN
  - ⊙ - GROUND MOUNTED SIGN
  - ⊙ - PEDESTRIAN PUSH BUTTON SIGN
  - ⊙ - CONTROLLER ASSEMBLY
  - 4"/V - WIDTH / SOLID WHITE LINE
  - 6"/V - WIDTH / SOLID WHITE LINE
  - 6"/BW - WIDTH / BROKEN WHITE LINE
  - 24"/Y - WIDTH / SOLID YELLOW LINE
  - 4"/BY - WIDTH / DOUBLE YELLOW SOLID LINE

SIGNAL IDENTIFICATION



- SIGNALS 1-6, 19, 20 TO BE EQUIPPED WITH BACKPLATES
- VEHICLE SIGNAL HEADS TO BE EQUIPPED WITH RED AND GREEN LED'S
- PEDESTRIAN SIGNAL HEADS TO BE EQUIPPED WITH ORANGE AND WHITE LED'S

SIGN

PLAN SYMBOL	SERIES NUMBER	DESCRIPTION	SIZE W x H	QTY.
A	R3-7L	LEFT LANE MUST TURN LEFT	30"x30"	1
B	R10-12	LEFT TURN YIELD ON GREEN	30"x36"	2
C	D3-4	American Pkwy	96"x12"	2
D	D3-4	Agape Way	72"x12"	2
E	R10-3B	EDUCATIONAL PUSH BUTTON	9"x12"	4
F	R10-3B	EDUCATIONAL PUSH BUTTON	9"x12"	4
G	R1-2	YIELD	36"x36"	4
H	R3-8LORA	LANE USE CONTROL SIGN	30"x48"	1
I	R3-5L	LEFT TURN	30"x36"	1
J	R3-5S	STRAIGHT THROUGH	30"x36"	2
K	R3-5R	RIGHT TURN	30"x36"	1
L	R5-1	DO NOT ENTER	30"x30"	4
M	R4-7	KEEP RIGHT	24"x30"	4
N	W16-1	HAZARD WARNING	12"x18"	10
O	R3-7R	RIGHT LANE MUST TURN RIGHT	30"x30"	2

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
5-0	LEHIGH			
CITY OF ALLENTOWN				
PERMIT NO.	39-301-205	SHEET	2 OF 2	
DATE ISSUED	12/13/01	DATE REVISED	11/25/02	
* CONDITION DIAGRAM ONLY				

GENERAL NOTES

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

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

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

ALL SIGNS AND PAVEMENT MARKINGS INDICATED ON THIS DRAWING ARE CONSIDERED PART OF THE PERMIT AND SHALL BE INSTALLED AND MAINTAINED BY THE PERMITTEE UNLESS OTHERWISE INDICATED, EXCEPT THE LONGITUDINAL PAVEMENT MARKINGS ON STATE HIGHWAYS WHICH WILL BE MAINTAINED BY THE DEPARTMENT.

INSTALL POST MOUNTED SIGNALS 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 WILL HAVE A MINIMUM HORIZONTAL CLEARANCE OF 2 FEET.

THE BOTTOM OF SIGNAL HEADS AND SIGNS ERECTED OVER THE ROADWAY ARE NOT TO BE LESS THAN 15 FEET NOR MORE THAN 19 FEET ABOVE THE ROADWAY. THE BOTTOM OF POST MOUNTED SIGNAL HEADS ARE NOT TO BE LESS THAN 6 FEET NOR MORE THAN 15 FEET ABOVE THE SIDEWALK OR PAVEMENT GRADE.

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

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.

THIS DRAWING CANNOT BE USED AS A CONSTRUCTION DRAWING UNLESS THE PERMITTEE COMPLETES WITH THE PROVISIONS OF ACT 187, PREVENTION OF DAMAGE TO UNDERGROUND UTILITIES. PRIOR TO CONSTRUCTION CONSULT WITH UTILITY COMPANIES TO RESOLVE ANY PROBLEMS WHICH MAY BE CREATED DUE TO THE LOCATION OF UTILITIES.

PLACE PAVEMENT MARKINGS IN ACCORDANCE WITH THE DEPARTMENT OF TRANSPORTATION PAVEMENT MARKING HANDBOOK.

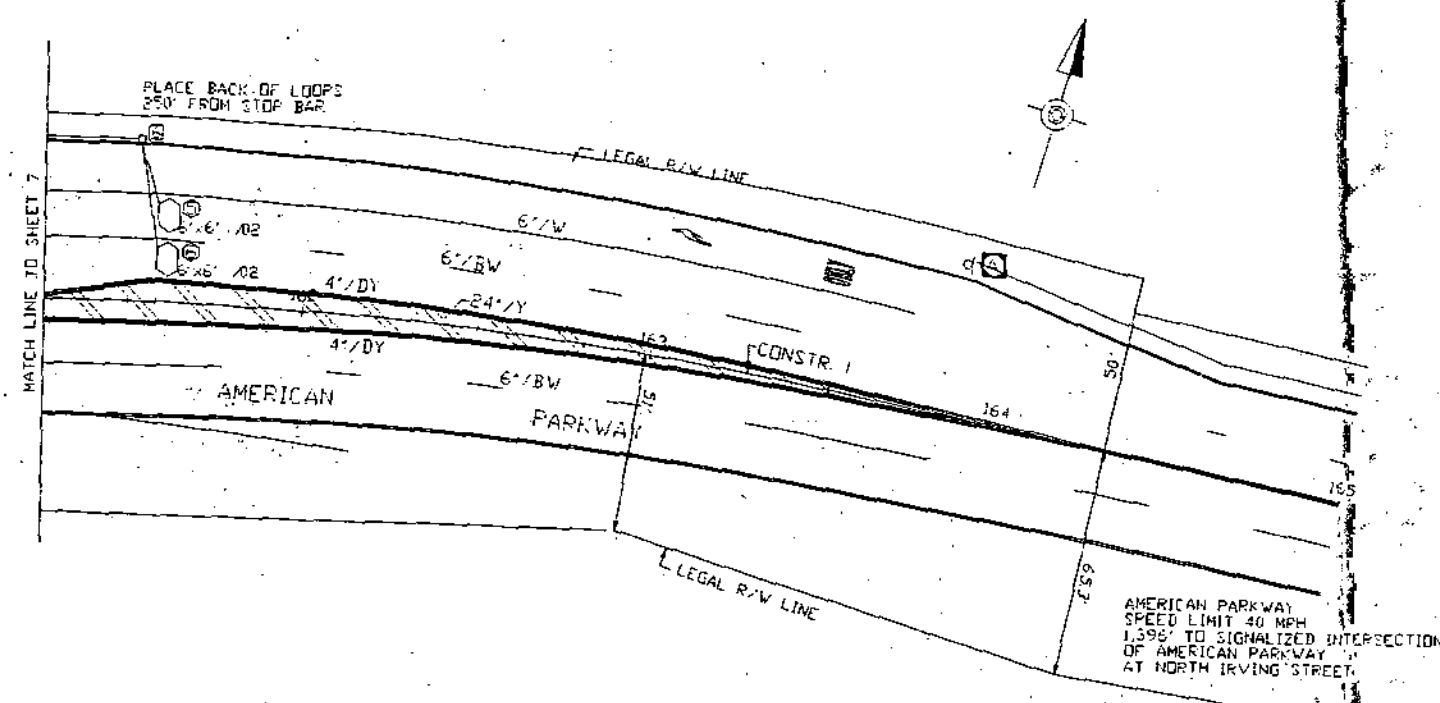
MAINTENANCE AND PROTECTION OF TRAFFIC FOR THE INSTALLATION AND MAINTENANCE OF THIS TRAFFIC SIGNAL TO BE IN ACCORDANCE WITH PUBLICATION 203, WORK ZONE TRAFFIC CONTROL.

COUNTY	LEHIGH
MUNICIPALITY	CITY OF ALLENTOWN
INTERSECTION	AMERICAN PARKWAY AND AGAPE WAY

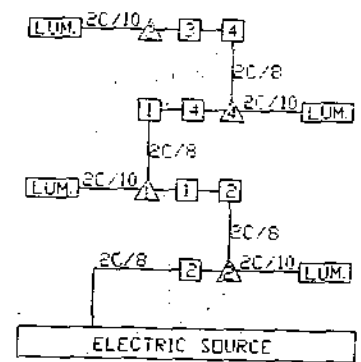


DISTRICT	COUNTY	ROUTE	SECTION	SHEET
5-0	LEHIGH	AMERICAN PARKWAY	LUC	8 of 25
CITY OF ALLENTOWN				
REVISION NUMBER	REVISIONS	DATE	BY	

WIRING DIAGRAM



LIGHTING WIRING DIAGRAM



American Pkwy

Lucent Dr

8" U C LET  
6" L C LET  
(Series E Mod)

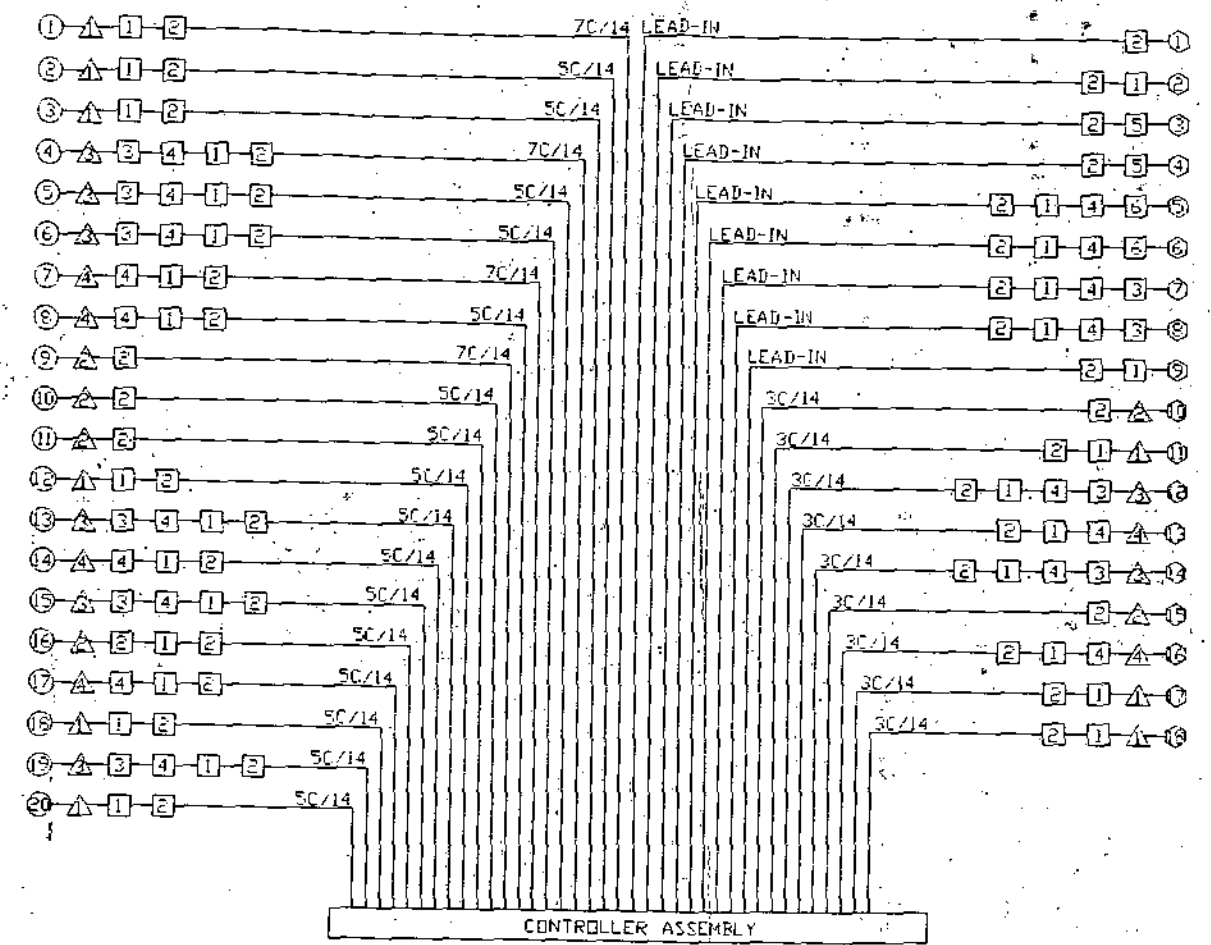
8" U C LET  
6" L C LET  
(Series E Mod)

-	05.0
A	09.0
B	09.7
C	06.8
D	05.2
E	03.5
F	05.2
G	07.3
H	04.5
I	06.0
J	07.7
K	05.9
L	06.4
M	05.8
N	05.0

-	05.65
A	06.3
B	07.5
C	07.0
D	07.6
E	07.3
F	04.0
G	06.0
H	09.1
I	03.9
J	05.65

LEGEND REDUCED BY 11%

WHITE REFLECTORIZED LEGEND AND REFLECTORIZED BORDER ON REFLECTORIZED GREEN BACKGROUND



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

NOTE: CABLES WITHIN CONDUITS SHALL NOT BE BOUND TOGETHER

LEGEND

- △ - MAST ARM
- ← - LUMINAIRE ARM 20' LENGTH (TYP.)
- ⊙ - VEHICULAR SIGNAL HEAD
- ⊙ - PEDESTRIAN SIGNAL HEAD
- ⊙ - VEHICLE DETECTOR
- ⊙ - OVERHEAD MOUNTED SIGN
- ⊙ - GROUND MOUNTED SIGN
- ⊙ - PEDESTRIAN PUSH BUTTON/SIGN
- ⊙ - JUNCTION BOX
- C/2 - CONDUIT/SIZE
- ⊙ - CONTROLLER ASSEMBLY
- 4"/W - WIDTH / SOLID WHITE LINE
- 6"/W - WIDTH / SOLID WHITE LINE
- 6"/BW - WIDTH / BROKEN WHITE LINE
- 24"/Y - WIDTH / SOLID YELLOW LINE
- 4"/DY - WIDTH / DOUBLE YELLOW SOLID LINE

PREPARED BY:  
GANNETT FLEMING, INC.  
VALLEY FORGE, PA

DATE

COUNTY: LEHIGH	
MUNICIPALITY OF ALLENTOWN	
INTERSECTION: AMERICAN PARKWAY AND LUCENT DRIVEWAY	
REVIEWED:	
MUNICIPAL OFFICIAL	DATE
REVIEWED:	
DISTRICT TRAFFIC SIGNAL DIV.	DATE
RECOMMENDED:	
DISTRICT TRAFFIC ENGINEER	DATE
SCALE: 25 0 25 50	SCALE IN FEET