Whitman, Requardt & Associates, LLP
Engineers · Architects · Environmental Planners Est. 1915

MEMORANDUM

Date: November 22, 2016

Project: North Claymont Area Master Plan

Subject: Transportation Technical Report

Whitman, Requardt & Associates, LLP provided transportation analysis throughout the planning process for the North Claymont Area Master Plan to develop the recommended street network and facilities for people walking and bicycling. In the same timeframe Delaware Transit Corporation (DTC) has been developing alternative concept plans for the relocated Claymont train station (now branded the Claymont Regional Transportation Center, or CRTC), which lies within the study area. The train station is a key component for Transit Oriented Development (TOD) envisioned in the North Claymont Area Master Plan. The opportunity for TOD was a benefit of relocating the CRTC cited in DTC's successful application for federal TIGER grant funding.

The lead project planner for the North Claymont Area Master Plan, Rhodeside & Harwell, Inc. (RHI), developed the land use plans with a grid of smaller streets to create a denser development that encourages walking, rather than recommending wider roadways in a suburban context.

This memo documents the process for future scenario traffic forecasts and resulting street and intersection requirements for the North Claymont Area Master Plan.

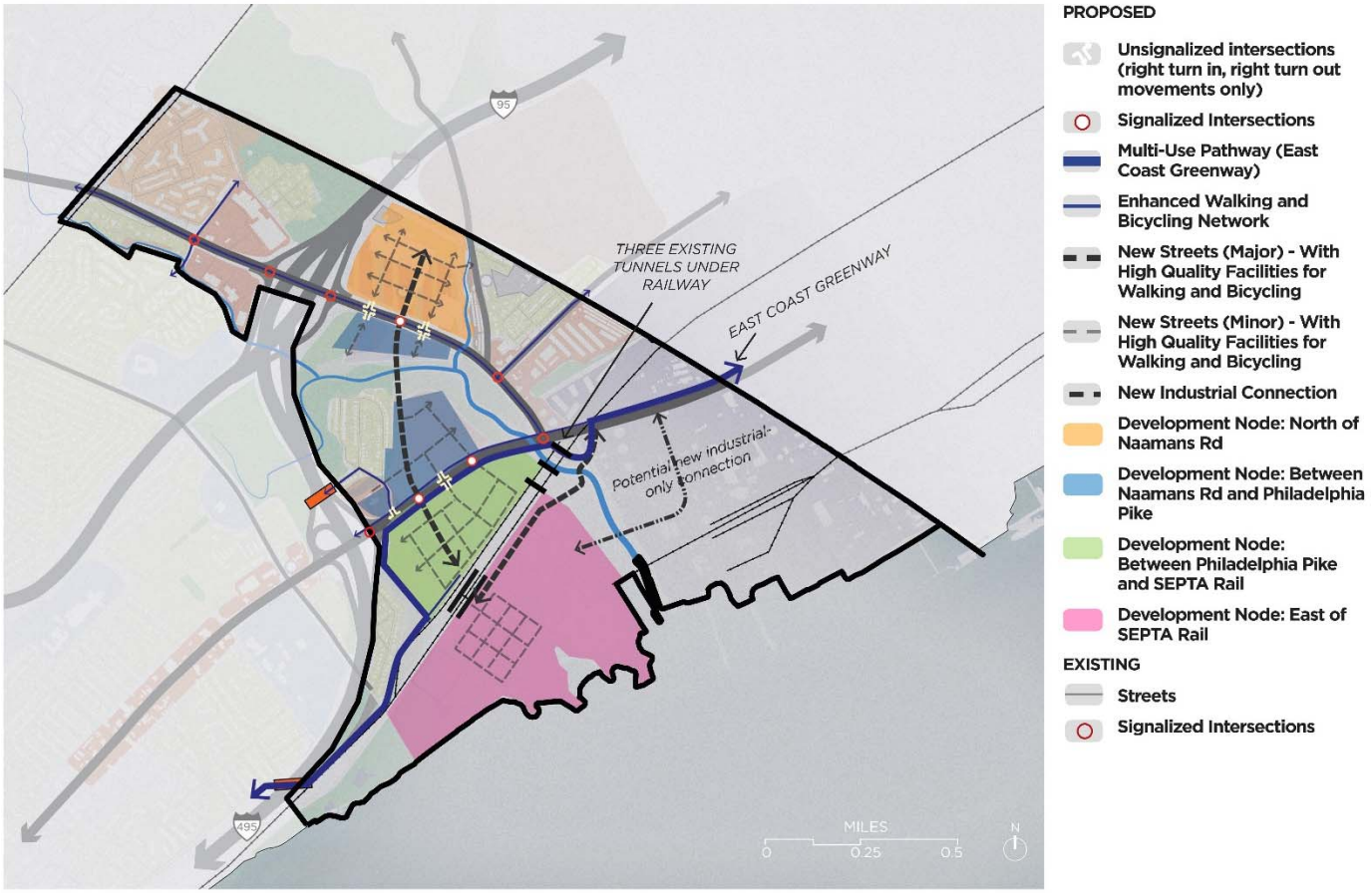
The traffic analysis divides the Master Plan study area into four development nodes, as shown on the Connectivity Framework Map in Figure 1:

- North of Naamans Road, i.e. the current Tri-State Mall
- Between Naamans Road and Philadelphia Pike, or the northern portion of the former Claymont Steel site
- Between Philadelphia Pike and the SEPTA rail
- East of SEPTA rail

The types and amounts of different land uses within the nodes were provided by RHI for each of three initial development scenarios (Scenario 2, Scenario 3, Scenario 4). These development scenarios all have the same basic street configuration:

- A new spine road connecting Naamans Road with Philadelphia Pike. The spine road continues north of Naamans Road and east of Philadelphia Pike. The spine road would be signalized at its intersections with Naamans Road and with Philadelphia Pike.
- Conversion of the Alcott Avenue intersection with Philadelphia Pike to right-in, right-out operation. This is needed to address a safety concern at the existing signal location, and for acceptable spacing of traffic signals along Philadelphia Pike. A new street connecting the Knollwood community to the spine road would provide left-turn entry and exit access to Knollwood via the spine road signal at Philadelphia Pike.
- Additional right in-right out access points for the development nodes on their frontages with Naamans Road and/or Philadelphia Pike.
- A potential new signal on Philadelphia Pike for access from the industrial portion of the development node between Philadelphia Pike and the SEPTA rail, to separate industrial traffic from the TOD portion of that node and to provide safe crosswalk opportunities at reasonable intervals.

Figure 1: Connectivity Framework Map



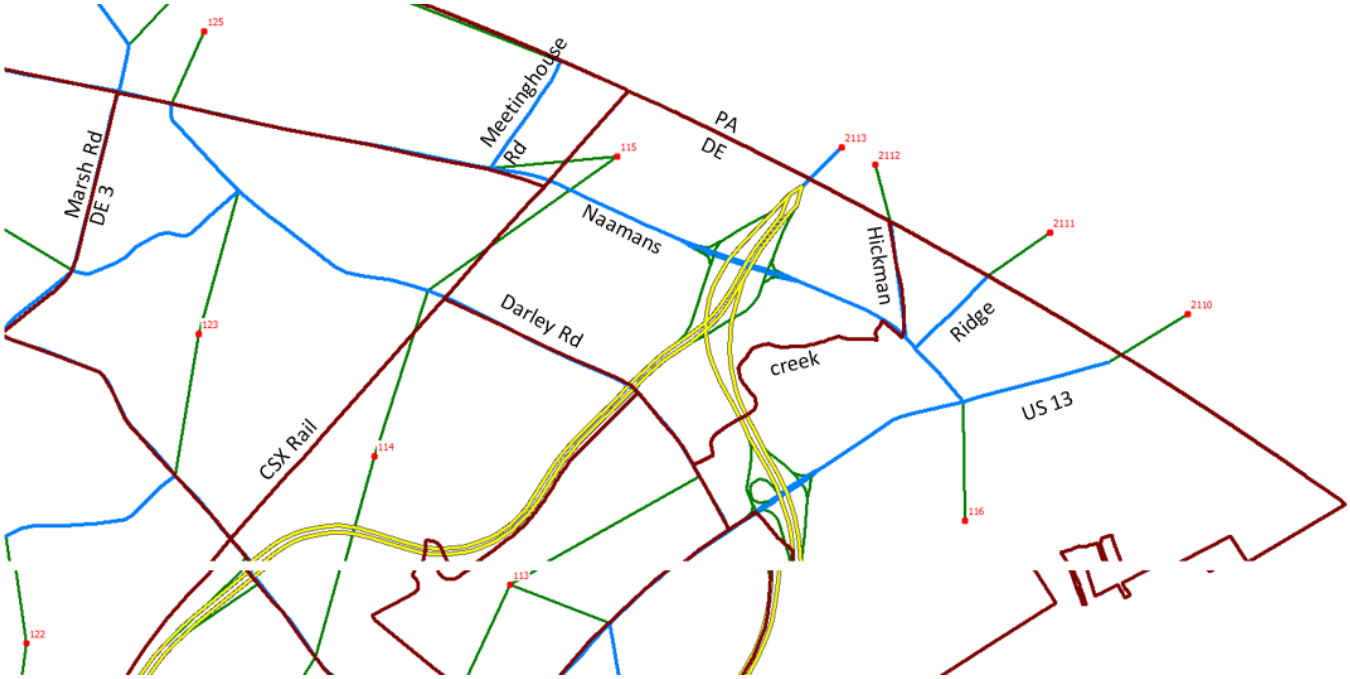
Traffic Forecasting Process

DelDOT's Peninsula Travel Demand Model was used to develop future traffic forecasts for a Year 2040 No Build scenario (which includes relocation of the Claymont train station) and for the three development scenarios. Model results provided average daily traffic (ADT) and three-hour peak period directional traffic on the roadway network. The model's No-Build alternative forecast showed very low background growth, less than 0.5% annually.

The North Claymont study area falls into Peninsula Model traffic analysis zones (TAZs) 115 and 116. New centroids and centroid connectors were created for the four development nodes. A new TAZ was created for the area east of the SEPTA rail because its access will be totally separate from other development in TAZ 116.

Figure 2 shows the existing TAZ boundaries and centroids. External centroids were used for I-95, Hickman Road, Ridge Road, and US 13 in Pennsylvania.

Figure 2: TAZ Boundaries and Centroids



The ADTs for the four development node centroid connectors are equivalent to daily trip generation of the development nodes. Development node ADTs from the model are shown in Table 1. ITE Trip Generation Manual daily trips were reviewed for comparison. The results were similar with the exception of the development node north of Naamans Road in Scenario 2, which includes 300,000 square feet of institutional-medical uses, and the development node east of SEPTA rail in Scenario 3, which includes a 243-acre marine terminal.

The model provided directional peak period traffic for a three-hour AM period and a three-hour PM period. To convert the three-hour period to peak hour traffic, existing intersection traffic counts were examined for the relation of the peak hour to the three-hour total. Many of the counts were conducted for a two-hour peak period, but some counts provided a three-hour period. By examining all the counts it was determined that applying a factor of 38% to the model's three-hour forecasts provides a reasonable estimate of directional peak hour traffic. The directional traffic on the development node centroid connectors represents the peak hour traffic entering and exiting the development nodes.

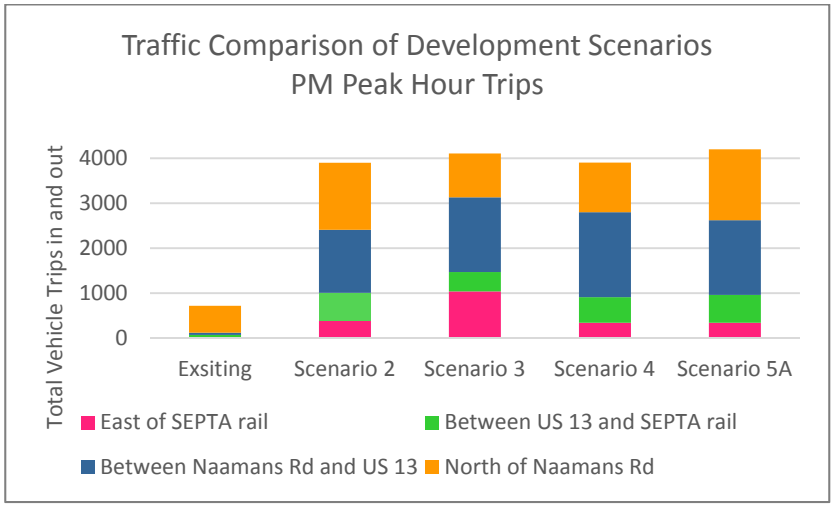
A preferred land use alternative, called Scenario 5A, was reached through a public process after the modelling had been completed. Scenario 5A includes 580 residential units and 2.3 million square feet of commercial, institutional, and industrial space. Scenario 5A is a hybrid in that each development node of Scenario 5A is similar to that same area in one of the other scenarios. A manual adjustment was made to the model output to reflect this change.

The PM peak hour is the highest hour of weekday traffic. A comparison of the PM peak hour traffic generated by the scenarios is illustrated in Figure 3. All of the scenarios generate approximately 4,000 motor vehicle trips in the PM peak hour.

Table 1: Development Daily and Peak Hour Trip Generation

Development Node	Scenario 2	Scenario 3	Scenario 4
North of Naamans Rd	23,900 (1,050 AM peak 1,580 PM peak)	11,400 (710 AM peak 980 PM peak)	13,000 (800 AM peak 1,100 PM peak)
Between Naamans Rd and Philadelphia Pike	15,500 (1,175 AM peak 1,400 PM peak)	18,700 (1,330 AM peak 1,660 PM peak)	21,400 (1,500 AM peak 1,890 PM peak)
Between Philadelphia Pike and SEPTA rail	6,600 (540 AM peak 620 PM peak)	4,600 (370 AM peak 430 PM peak)	6,200 (480 AM peak 570 PM peak)
East of SEPTA rail	4,500 (325 AM peak 390 PM peak)	11,200 (870 AM peak 1,040 PM peak)	3,800 (280 AM peak 340 PM peak)
Total Daily Trips	**50,500** (3,090 AM peak 3,990 PM peak)	**45,900** (3,530 AM peak 4,110 PM peak)	**44,400** (3,060 AM peak 3,900 PM peak)

Figure 3: Traffic Comparison of Development Scenarios



For informational purposes, peak hour entering and exiting volumes for each development node from the model were compared to trips calculated from the Institute of Transportation Engineers *Trip Generation Manual* (9th Edition). For the ITE trip calculation, pass-by reduction was applied to retail and a 10% reduction was applied to account for internal trips and transit use. The comparison of ITE trip generation and trips provided using the adjusted model is shown below for Scenario 5A. These model results were used for the traffic analysis.

Table 2: Scenario 5A Peak Hour Trips by Development Node

Development Node	Peak	ITE Trip Generation		Model Trips	
		Enter	Exit	Enter	Exit
1	AM	479	335	685	363
	PM	666	688	704	873
2	AM	1068	279	866	477
	PM	671	1156	707	954
3	AM	530	86	376	163
	PM	133	522	247	372
4	AM	93	172	156	122
	PM	183	150	163	179

Assignment of development traffic to the road network

Direction of approach for development traffic was determined by comparing the three-hour peak period directional volume of road links in the model's No-Build condition with the three-hour peak period volume of the development scenario. The difference is traffic generated by scenario development. The model did not show any increase on local roads leading into Pennsylvania: US 13, Ridge Road, or Hickman Road. However WRA assigned a small number to Ridge Road for the traffic analysis.

Table 3: Trip Assignment

Approach	Trip Assignment
Naamans Road west	20%
I-95 to-from the north	25%
I-95 to-from the south	15%
I-495 to-from the south	30%
US 13 south of I-495	8%
US 13 north of Naamans Road	0%
Ridge Road	2%
Hickman Road	0%

A spreadsheet model using this assignment was created to distribute development traffic to the road network and calculate turn movements at study area intersections. The analysis assumed that the spine road would primarily serve the development nodes and would not divert through traffic off Philadelphia Pike and Naamans Road.

The spine road could provide an attractive route for cut-through traffic between the south on Philadelphia Pike and the west on Naamans Road if it were designed with capacity for through traffic. This is not desirable from a traffic operations viewpoint for several reasons:

- The cut-through would involve northbound Philadelphia Pike left turns to the spine road and spine road left turns to Naamans Road. By staying on the main roads, this movement would travel straight on northbound Philadelphia Pike at the spine road and straight on westbound Naamans Road at the spine road. Through movements are preferred to left turn movements from a traffic operations perspective.
- Northbound traffic on Philadelphia Pike that does not cut-through the spine road will make their left turn at Naamans Road. This is a T intersection with low opposing traffic on southbound Philadelphia Pike. There is a much greater capacity for left turns at Naamans Road.
- The spine road left turn volume from the development to westbound Naamans Road will be very high even without the addition of cut-through traffic.

By designing the spine road to primarily serve the development areas and limiting capacity with one through lane in each direction with turn lanes or roundabouts at major internal intersections, through traffic will find it just as convenient to remain on the main roadways.

Future Road Network Volumes with Full Development of Scenario 5A

The existing ADTs and the projected future ADTs on road segments in the study area with full development of Scenario 5A are illustrated in Figure 9 at the end of this memo.

The AM and PM peak hour signalized intersection volumes under existing conditions are illustrated in Figure 10. Future AM and PM intersection volumes with full development are shown in Figure 11.

Analysis of Future Traffic Operations

The weekday commuter peak hours were analyzed using Synchro version 9 software. Existing conditions analysis used current signal phasing and timing from DelDOT records. Scenario 5A AM peak hour and PM peak hour volumes were analyzed to determine road and signal improvements that would be needed to achieve overall intersection level of service (LOS) D (overall average delay per vehicle less than 55 seconds) under full development conditions. In order to promote a walkable environment, motor vehicle lanes were not added unless clearly necessary.

A SimTraffic analysis of Philadelphia Pike was run for the PM peak hour in order to check progression and queuing. The SimTraffic showed excessive queuing on the southbound spine road right turn to go south on Philadelphia Pike. Adding a second right turn lane to the southbound approach solved this issue. The SimTraffic analysis also resulted in the addition of a second left turn lane on the northbound I-495 off ramp to Philadelphia Pike, in order to allow more green time for the northbound Philadelphia Pike left turn to the on-ramp and for the southbound Philadelphia Pike through movement.

The Synchro and SimTraffic reports for Alternative 5A are attached to this memo.

Some conclusions apply to all development scenarios examined, including preferred Scenario 5A.

- A road diet—reducing the current four lanes to three lanes plus bike lanes—was examined for Philadelphia Pike, but the analysis determined this will not be feasible given the future traffic projections. The only intersection that might be reduced in footprint is the intersection of Philadelphia Pike and Naamans Road. The turning radii could be reduced, the four northbound Philadelphia Pike lanes could be reduced to three, and/or the three eastbound lanes on Naamans Road could be reduced to two.

- A second signal for development access may be desirable on Philadelphia Pike for reasons other than capacity – i.e. to separate the industrial traffic from the TOD, and to provide reasonable intervals for crosswalks and left turns for people bicycling. The minimum signal spacing would be 800 feet.

- At the request of the Project Management Committee, study area intersections were examined to see whether any are candidates for roundabouts. Single-lane roundabouts could be provided within development nodes either on the spine road or other internal development roads. No roundabouts are proposed on the main roadways. The only intersection that could be a candidate for a roundabout (based on volume alone) is the intersection of Philadelphia Pike and Naamans Road. However given the amount of truck traffic here, especially as the industrial area redevelops, a roundabout is not proposed.

- The I-495 southbound off ramp to Naamans Road will need to be widened to provide two left turn lanes and longer storage for the left turn to Naamans Road east. The left turn queue should not be allowed to block the ramp right turn to Naamans Road west; that ramp will have a volume in excess of 1,200 vehicles in the PM peak.

- At some point the I-495 southbound off ramp right turn to Naamans Road west will need to be signalized because of its very high volume and weaving conflicts with westbound Naamans Road traffic. At that time the ramp should be widened for a second right turn lane.

- The intersection of Naamans Road and the I-95 northbound on and off ramps will operate at an extreme LOS F. With the existing diamond interchange configuration, it would be necessary to widen the bridge from five to eight lanes to accommodate future peak hour traffic.

- The radius of the ramp right turn yield lane from northbound I-95 to eastbound Naamans Road should be tightened significantly for traffic operations approaching the spine road. In general, the very large right turn radii of all the ramps should be tightened to slow traffic and provide safer crossings for people walking.

- At Philadelphia Pike and Naamans Road, consider changing northbound Philadelphia Pike from a single left turn lane and two through lanes to one of the following configurations:
    - A double left turn lane and single through lane, or
    - A left turn only lane, a shared left-through lane, and a through-only lane similar to the existing configuration of eastbound Naamans Road at the I-95 northbound ramps. Under this option a split phase operation would be used for Philadelphia Pike.

- The I-495 northbound off-ramp to Philadelphia Pike will need to be widened to provide adequate separate storage lanes for left turns and right turns from the ramp. The radius of the ramp right turn should be reduced significantly and a double right turn lane provided.

- The I-495 southbound off ramp to Philadelphia Pike cannot be signalized due to signal spacing and queuing issues. Today fewer than 10 vehicles per hour turn left from the ramp to go north on Philadelphia Pike but this could increase in the future when there are destinations to the north. Interchange signing for I-495 Exit 6 Naamans Road should be modified to direct motorists on southbound I-495 to exit there to reach the development areas rather than continuing on I-495. This routing was assumed in the traffic analysis.

Implications for Development of Preferred Alternative 5A

Development that is proposed in areas east of Philadelphia Pike can be accommodated with existing roadways, assuming that intersection improvements are made at the site access points. This includes development between Philadelphia Pike and the SEPTA rail (including the CRTC) and development between the rail line and the Delaware River.

With improvements to the interstate ramps but no widening of the Naamans Road bridge over I-95/I-495, only about one-third of the master plan development in the areas west of Philadelphia Pike and north of Naamans Road could be achieved while maintaining LOS D.

Accommodating all of the master plan development while retaining the current traditional diamond interchange design at Naamans Road and I-95 will require widening the Naamans Road bridge from five to eight lanes to provide three through lanes each direction and double left turn lanes at the on-ramps to I-95. Additional widening would be needed for facilities for walking and bicycling.

Alternatively, the master plan development traffic could be accommodated by converting the interchange to a diverging diamond interchange (DDI), keeping the existing bridge width along with ramp widening. People walking and bicycling would cross the bridge in a protected space in the median. The DDI design for the I-95/Naamans Road interchange was examined for general physical feasibility and appears to be feasible. A SimTraffic analysis was run for the diverging diamond concept. The Synchro network layout was conceptual, but the analysis demonstrated the ability of a DDI to handle the future PM peak hour, which is the critical time period. Because the 600-foot long bridges over the interstates would not need to be widened, the cost of interchange improvements for future development might be on the order of half of the cost of improving the traditional diamond interchange with wider bridges.

Figure 4: Initial DDI concept

Implementation

A monitoring and triggering process is recommended for implementation of road improvements. For example, where a double turn lane is envisioned at spine road intersections, initial construction could provide a single turn lane with signal equipment set back far enough for ultimate conditions.

The responsibility for construction and funding source for construction of each transportation recommendation must be determined. Costly improvements such as conversion of the I-95/Naamans Road interchange to a DDI will require state and federal funding and must therefore be programmed in DelDOT's Capital Transportation Plan.

Any development in the area between the rail line and the Delaware River will require a totally new road to gain access to Philadelphia Pike, potentially including a bridge over Naamans Creek. The access road will pass through existing industrial properties and will require agreements with property owners. Such access roads are expected to be the responsibility of the developer.

DTC will construct a new access road to the CRTC in the area between Philadelphia Pike and the SEPTA rail. The spine road of the North Claymont Master Plan has been located to serve as a direct access for the station with high visibility from Philadelphia Pike. For the initial phase of implementation, the access road to the train station could be constructed to intersect Philadelphia Pike further north in order to avoid the costs of converting Alcott Avenue to right-in, right out operation, constructing the spine road west of Philadelphia Pike and constructing alternate access for the Knollwood community. The Master Plan provides a location for the initial phase station access road that can be signalized and that fits in with ultimate envisioned TOD and industrial road network.

IMPROVEMENTS TO OTHER LOCATIONS

Two roads, Ridge Road and Society Drive, were cited by the Advisory Committee as having existing traffic problems. These roads were examined for potential improvements. Recommendations for Ridge Road and for Society Drive are not driven by master plan development.

Ridge Road

Ridge Road in Pennsylvania is PennDOT SR 3006.

The Average Daily Traffic (ADT) on Ridge Road is 6,800 vehicles in Pennsylvania (Lower Chichester Township, Delaware County). North of the Delaware state line Ridge Road carries more traffic than US 13 (ADT of 5,100 vehicles).

Ridge Road is 42 feet wide. The road is striped for four lanes (two lanes in each direction) north of the Lawn Croft Cemetery driveway and is striped for two lanes in the vicinity of the Analine Village neighborhood. Ridge Road again becomes four lanes further south approaching Naamans Road.

Curb parking is provided on the west side of Ridge Road between National Avenue and Parkway Avenue and on both sides from Parkway Avenue to Virginia Avenue. The west side is lined with attached single family residences, most of them without driveways. On-street parking ends south of Virginia Avenue where properties on both sides are commercial with off-street parking lots.

Traveling southbound on Ridge Road, after the cemetery the right lane merges left into one lane using a white edge line. The taper distance is 450 feet from the south side of the cemetery driveway to National Avenue. Curb parking begins at National Avenue. The entire merge is in Pennsylvania. In the northbound direction, there is one travel lane on Ridge Road in vicinity of the residential neighborhood. The northbound direction becomes two lanes north of National Avenue, just by adding the dashed lane line.

The truck entrance to a FedEx distribution center is located 1,200 feet north of the cemetery driveway. Large tractor trailers enter and exit this unsignalized driveway travelling to/from the south on Ridge Road to access Naamans Road and the interstate highways. The FedEx facility main entrance is located on Blue Ball Avenue.
The signalized intersection of Ridge Road and Blue Ball Avenue is 1,000 feet north of the FedEx truck entrance. Ridge Road remains four lanes through this area.

The speed limit is 40 mph in this segment according to administrative data in PennDOT's video log for SR 3006. There is no speed limit sign in the southbound direction, though a 40 mph speed limit sign is posted in the northbound direction. The speed limit changes to 35 mph north of Blue Ball Avenue.

The ADT of 6,800 does not require a four-lane roadway. Two lanes are required on southbound Ridge Road only for capacity at the Naamans Road traffic signal.

Problem identification

There are no advance signs warning southbound traffic of the lane drop. The 450-foot taper marking meets requirements for the 40 mph speed limit but the speed limit is not posted and some vehicles may be travelling faster. The dashed lane line ends 150 feet in advance of the taper, which technically meets marking requirements. However, the distinction appears to be lost on drivers and does not serve as advance warning.

Advance visibility of the southbound lane merge is not good due to a vertical curve in Ridge Road which crests near the cemetery. The road then descends toward Naamans Road. A vehicle in the right lane that fails to merge encounters the parking lane. If a car is parked north of National Avenue the merge is more abrupt.

For traffic entering Ridge Road from Naamans Road, the section with two northbound lanes is very short, more like a short northbound acceleration lane for the westbound Naamans Road right turn. There is no yield sign for the right turn. This may be for the benefit of trucks, particularly tractor trailers destined to FedEx. The taper length at the lane drop is less than 200 feet. There is no signing and markings are poor. Again the vertical alignment does not provide a good view of the lane drop ahead. This section is in Delaware.

Figure 5: Ridge Road

Looking east and north at the entrance to Ridge Road. The westbound right turn currently has its own lane on Ridge Road which then merges left.

Looking north on Ridge Road. In 2007 (left photo) a lane merge warning sign was present, but no sign is there today (right photo).

Ridge Road Recommendations

DelDOT should work with PennDOT on the recommended improvements because they extend into Pennsylvania.

1. At a minimum, PennDOT should install warning signs for the southbound lane drop on Ridge Road in accordance with the MUTCD Guidelines for Advance Placement of Warning Signs, 670 feet in advance of beginning the taper for a 40 mph speed. However, it is also recommended that the lane drop be moved north of the cemetery driveway, where sight distance and merge distance are ample. The lane drop can be located between the FedEx truck driveway and the cemetery driveway. Pavement arrows can be used in the right lane to give further warning of the merge ahead. The northbound direction in this area can remain two lanes as it is today.

2. Post the speed limit in the southbound direction. PennDOT should confer with DelDOT to post an appropriate speed limit approaching National Avenue where the land use changes character. The Delaware state line is one block south of National Avenue.

3. For the northbound traffic entering Ridge Road from Naamans Road, it is recommended that the westbound Naamans Road right turn be controlled with yield signs. Northbound Ridge Road can be restriped to provide one lane with a shoulder. This would eliminate the merge problem. The shoulder would enable bypass of a northbound vehicle stopped to make a left turn into one of the commercial sites north of the Wawa convenience store.

Society Drive at Northtowne Plaza Shopping Center

The right turn acceleration lane from the I-95 south off ramp to westbound SR 92 becomes the right turn only lane into Society Drive. Before Society Drive and within that right turn lane on Naamans Road is a right turn entry-only driveway signed for Home Depot deliveries that leads to the Northtowne Shopping Center parking lot. That driveway is also used by shopping center patrons.

The shopping center parking lot driveway to Society Drive is often at or over capacity. The changes made for the new Wawa revised northbound Society Drive approaching the shopping center driveway. Previously there were two more or less unmarked lanes that stopped being wide enough for two cars just south of the shopping center entrance. There was an awkward merge right before the decision point to go straight or turn right into the shopping center. Drivers exiting the shopping center had to decide whether a northbound car on Society Drive was turning right (which was most of the time) or going straight (less likely, but the exiting driver had to be sure). The movement exiting the parking lot is an extremely heavy movement during peak times. Prior to the Wawa construction, this caused backups back to Home Depot and occasional gridlock in the parking lots.

Figure 6: Society Drive

Before – looking south on Society Drive at the driveway. In this view the new Wawa was added at the upper left. Bus stop is seen at right.

Before – looking north from Naamans Road. In this view the new Wawa was added at right.

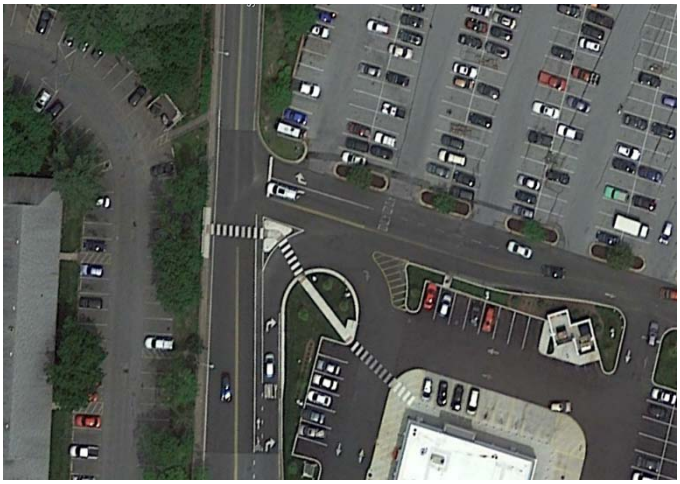
With the modification, two northbound lanes are provided on Society Drive the entire distance to the driveway, and the right lane drops as a channelized right turn lane into the shopping center. The Wawa entrance is immediately after that turn, and it is entry only, no exit. Cars exit the Wawa to the shopping center driveway at another location further away from Society Drive.

Figure 7: Society Drive

After – looking north from Naamans Road. The right turn from Naamans Road yields, the right lane on Society Drive is channelized with an island to turn right into the shopping center.

The double left turn on eastbound Naamans Road channels the outer left lane into the right turn lane for Wawa and the shopping center. Traffic in the inner left lane is channeled into the Society Hill Drive straight through lane and is often merging right to enter the shopping center/Wawa.

Figure 8: Society Drive



There is a crosswalk across Society Drive to the bus stop at the driveway intersection. Wawa is at the lower right.

Society Drive Recommendations:

1. An all-way stop is one option at the T intersection of Society Drive through movements and the shopping center driveway. The high volume northbound Society Drive right turn has been removed from the intersection. Now, the heaviest movement, the westbound driveway left turn exit, is forced to stop for two much lighter movements (through movements on Society Drive). By stopping all movements, traffic on the driveway exit would be guaranteed to “get its turn” and the queue within the parking lot would likely be shorter. The stop sign would also reinforce stopping for the crosswalk.

2. Provision of a roundabout at this location rather than an all-way stop might also provide benefits. A roundabout would help reduce crashes associated with motorists failing to yield the right of way. It could also provide a traffic calming effect for people walking across the streets.

3. In the PM peak hour the very high volume free right turn from the southbound I-495 off ramp to Naamans Road makes it difficult for Naamans Road westbound traffic to merge right to enter the Home Depot driveway or Society Drive. At some point in the future, the conflict will increase to the point where the ramp should be signalized. If signalized, the ramp right turn will require two lanes. Signalization and widening of the ramp is consistent with the proposed Diverging Diamond Interchange improvement. Signalization will also provide for safe crossing of the ramp for people walking along Naamans Road.

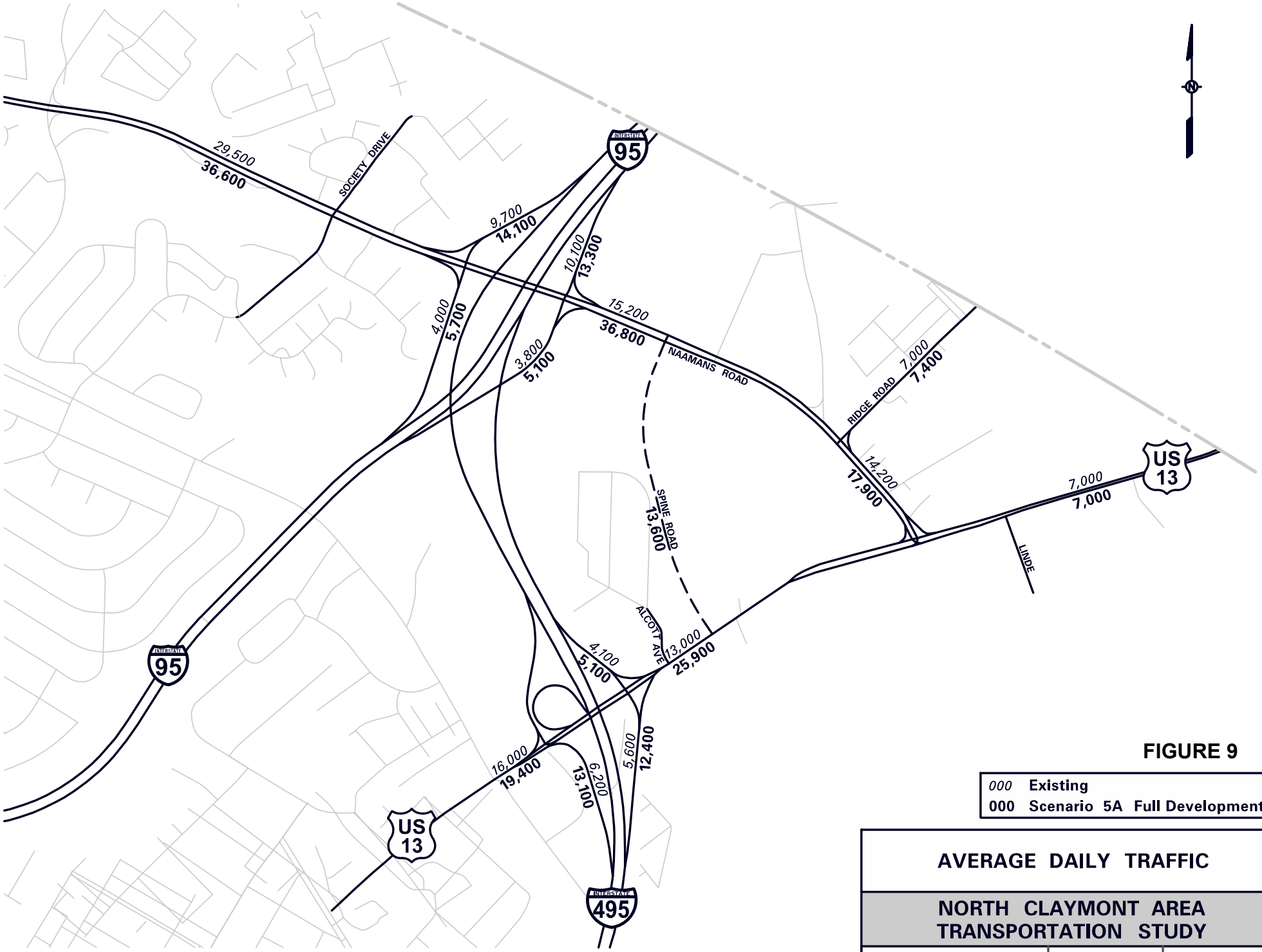


FIGURE 9

000	**Existing**
000	**Scenario 5A Full Development**

AVERAGE DAILY TRAFFIC

NORTH CLAYMONT AREA TRANSPORTATION STUDY

0 1000 2000

OCTOBER 2016

SHEET 1 OF 1

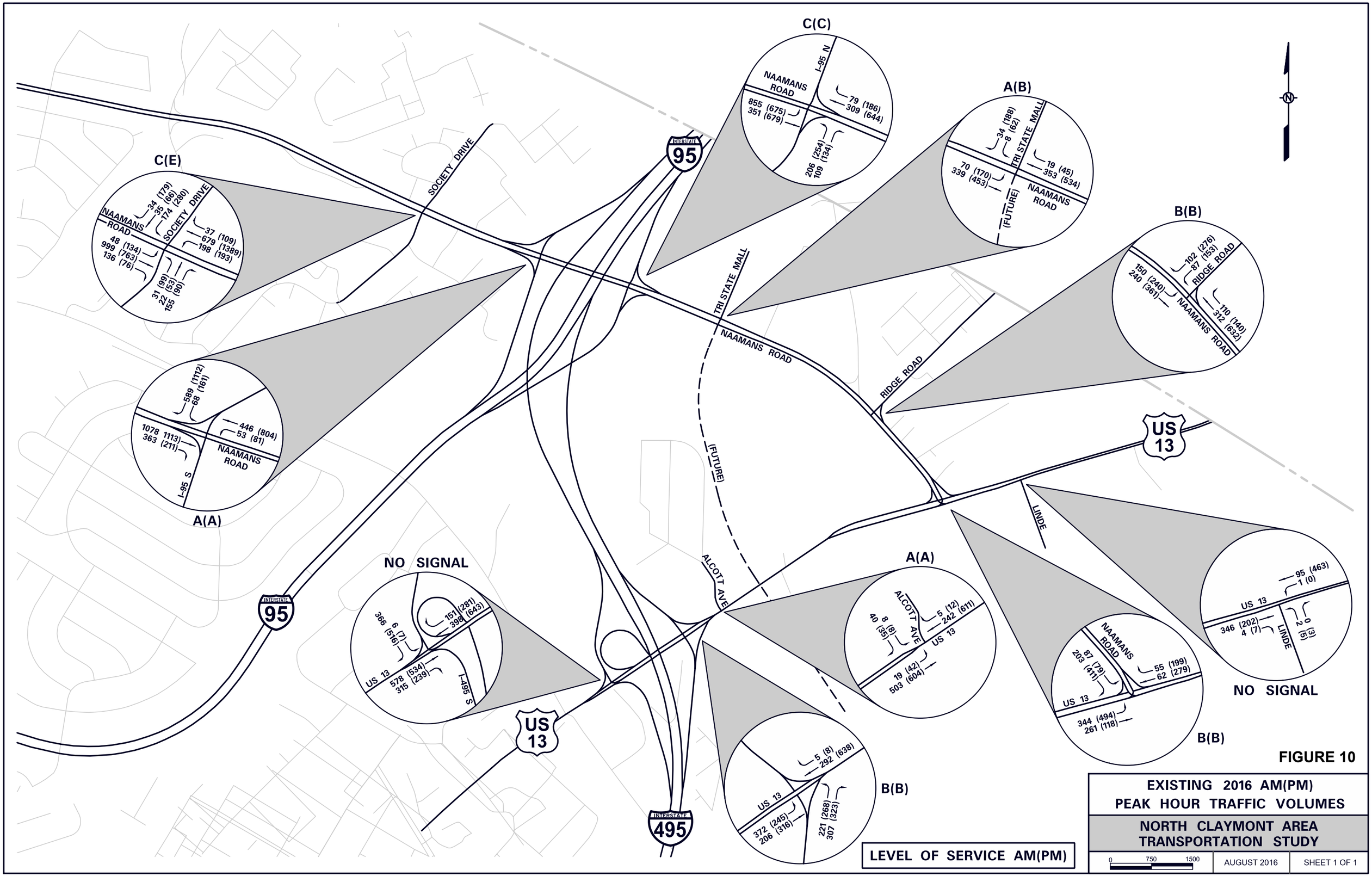


FIGURE 10

LEVEL OF SERVICE AM(PM)

EXISTING 2016 AM(PM)
PEAK HOUR TRAFFIC VOLUMES

NORTH CLAYMONT AREA
TRANSPORTATION STUDY

0 750 1500 | AUGUST 2016 | SHEET 1 OF 1

NOTE:
LEVEL OF SERVICE D ACHIEVED IF INTERCHANGE IS CONVERTED TO A DIVERGING DIAMOND (DDI)

D(F)
L-95 N
NAAMANS ROAD
964 (761)
1273 (1387)
278 (577)
765 (1457)
232 (286)
425 (396)

D(D)
NEW DEVELOPMENT
218 (244)
73 (250)
73 (100)
274 (82)
512 (802)
10 (8)
NAAMANS RD
SPINE ROAD
411 (422)
626 (708)
395 (374)
243 (504)
20 (100)
5 (11)

B(B)
RIDGE ROAD
NAAMANS ROAD
137 (304)
114 (185)
171 (241)
565 (710)
132 (175)
702 (1130)

D(E)
SOCIETY DRIVE
NAAMANS RD
84 (259)
35 (66)
244 (320)
87 (189)
922 (1839)
223 (189)
118 (174)
1414 (1066)
153 (86)
(112)
(60)
(73)
35
25
170

C(D)
NAAMANS ROAD
I-95 S
664 (1253)
593 (608)
711 (1213)
222 (420)
1577 (1449)
409 (238)

D(D)
SPINE ROAD
US 13
CLAYMONT STATION TOD
10 (51)
385 (1007)
158 (104)
5 (20)
75 (49)
315 (440)
22 (50)
60 (100)
90 (285)
260 (247)
930 (1001)
180 (64)

NO SIGNAL
US 13
483 (959)
537 (915)
413
7 (582)
7 (8)
818 (747)
355 (269)

B(B)
RETAIL DR
INDUSTRIAL DR
US 13
10 (50)
468 (984)
80 (13)
5
5 (10)
65 (100)
10 (70)
1 (1)
20 (84)
100 (70)
902 (1022)
55 (25)

C(C)
NAAMANS ROAD
US 13
LINDE
192 (187)
438 (675)
135 (331)
116 (382)
685 (907)
353 (195)

NO SIGNAL
US 13
LINDE
132 (539)
3 (3)
392 (222)
153 (162)
2 (4)
120 (176)

D(D)
US 13
99 (219)
749 (1572)
419 (276)
399 (502)
249 (302)
249 (810)

INTERSTATE 95
INTERSTATE 495
US 13
SOCIETY DRIVE
SPINE ROAD
NAAMANS ROAD
RIDGE ROAD
ALCOTT AVE (NO SIGNAL)
CLAYMONT STATION TOD
LINDE

LEVEL OF SERVICE AM(PM)

FIGURE 11

SCENARIO 5A AM(PM)
PEAK HOUR TRAFFIC VOLUMES

NORTH CLAYMONT AREA TRANSPORTATION STUDY

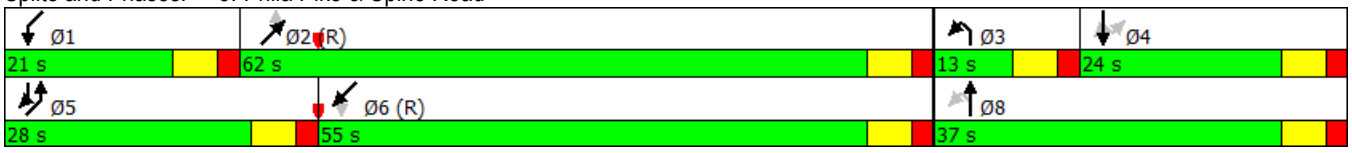
0 750 1500 | AUGUST 2016 | SHEET 1 OF 1

Lane Group	NBL	NBT	SBL	SBT	SBR	NEL	NET	SWL	SWT
Lane Configurations									
Traffic Volume (vph)	95	36	5	75	315	260	930	158	385
Future Volume (vph)	95	36	5	75	315	260	930	158	385
Turn Type	pm+pt	NA	Perm	NA	pm+ov	pm+pt	NA	pm+pt	NA
Protected Phases	3	8		4	5	5	2	1	6
Permitted Phases	8		4		4	2		6	
Detector Phase	3	8	4	4	5	5	2	1	6
Switch Phase									
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	31.0	20.0	20.0	10.0	10.0	28.0	10.0	28.0
Total Split (s)	13.0	37.0	24.0	24.0	28.0	28.0	62.0	21.0	55.0
Total Split (%)	10.8%	30.8%	20.0%	20.0%	23.3%	23.3%	51.7%	17.5%	45.8%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead		Lag	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	Max	Max	None	None	C-Max	None	C-Max
Act Effct Green (s)	31.0	31.0		18.0	39.6	74.9	59.4	67.1	55.4
Actuated g/C Ratio	0.26	0.26		0.15	0.33	0.62	0.50	0.56	0.46
v/c Ratio	0.35	0.32		0.32	0.30	0.45	0.70	0.60	0.26
Control Delay	38.8	12.0		49.2	3.4	10.8	27.9	22.2	20.8
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.8	12.0		49.2	3.4	10.8	27.9	22.2	20.8
LOS	D	B		D	A	B	C	C	C
Approach Delay		22.1		12.7			24.6		21.2
Approach LOS		C		B			C		C

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:NETL and 6:SWTL, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.70
Intersection Signal Delay: 21.8 — Intersection LOS: C
Intersection Capacity Utilization 67.1% — ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 3: Phila Pike & Spine Road



Lane Group	NBL	NBT	SBT	SBR	NEL	NET	SWL	SWT
Lane Group Flow (vph)	103	169	87	342	283	1207	172	429
v/c Ratio	0.35	0.32	0.32	0.30	0.45	0.70	0.60	0.26
Control Delay	38.8	12.0	49.2	3.4	10.8	27.9	22.2	20.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.8	12.0	49.2	3.4	10.8	27.9	22.2	20.8
Queue Length 50th (ft)	63	23	61	0	92	370	49	103
Queue Length 95th (ft)	112	80	112	32	m100	m424	107	152
Internal Link Dist (ft)		963	2366			407		847
Turn Bay Length (ft)	300				300		200	
Base Capacity (vph)	298	522	273	1279	700	1721	338	1630
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	0.35	0.32	0.32	0.27	0.40	0.70	0.51	0.26

Intersection Summary

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

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	95	36	120	5	75	315	260	930	180	158	385	10
Future Volume (vph)	95	36	120	5	75	315	260	930	180	158	385	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0	6.0	6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	1.00			1.00	0.88	1.00	0.95		1.00	0.95	
Frt	1.00	0.88			1.00	0.85	1.00	0.98		1.00	1.00	
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1648			1857	2787	1770	3453		1770	3526	
Flt Permitted	0.53	1.00			0.98	1.00	0.44	1.00		0.14	1.00	
Satd. Flow (perm)	979	1648			1824	2787	821	3453		253	3526	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	103	39	130	5	82	342	283	1011	196	172	418	11
RTOR Reduction (vph)	0	96	0	0	0	246	0	13	0	0	2	0
Lane Group Flow (vph)	103	73	0	0	87	96	283	1194	0	172	427	0
Turn Type	pm+pt	NA		Perm	NA	pm+ov	pm+pt	NA		pm+pt	NA	
Protected Phases	3	8			4	5	5	2		1	6	
Permitted Phases	8			4		4	2			6		
Actuated Green, G (s)	31.0	31.0			18.0	33.6	75.0	59.4		67.0	55.4	
Effective Green, g (s)	31.0	31.0			18.0	33.6	75.0	59.4		67.0	55.4	
Actuated g/C Ratio	0.26	0.26			0.15	0.28	0.62	0.49		0.56	0.46	
Clearance Time (s)	6.0	6.0			6.0	6.0	6.0	6.0		6.0	6.0	
Vehicle Extension (s)	4.0	4.0			4.0	4.0	4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)	299	425			273	919	636	1709		287	1627	
v/s Ratio Prot	c0.02	0.04				0.01	0.06	c0.35		c0.06	0.12	
v/s Ratio Perm	c0.07				0.05	0.02	0.22			0.28		
v/c Ratio	0.34	0.17			0.32	0.10	0.44	0.70		0.60	0.26	
Uniform Delay, d1	35.2	34.5			45.5	32.0	10.4	23.4		16.6	19.8	
Progression Factor	1.00	1.00			1.00	1.00	1.04	1.13		1.00	1.00	
Incremental Delay, d2	0.9	0.9			3.1	0.1	0.3	1.1		3.9	0.4	
Delay (s)	36.2	35.4			48.6	32.1	11.1	27.5		20.5	20.2	
Level of Service	D	D			D	C	B	C		C	C	
Approach Delay (s)		35.7			35.4			24.4			20.3	
Approach LOS		D			D			C			C	

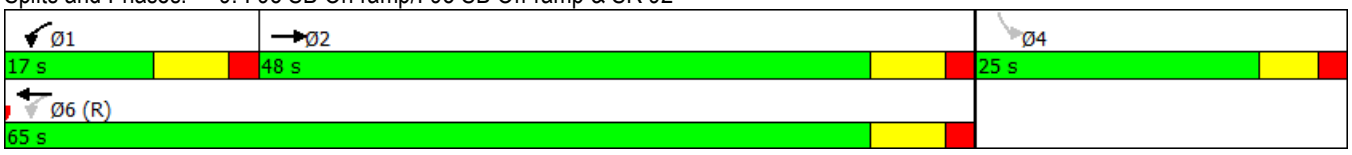
Intersection Summary			
HCM 2000 Control Delay	26.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	67.1%	ICU Level of Service	C
Analysis Period (min)	15		

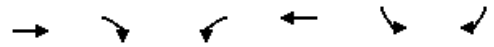
c Critical Lane Group

Lane Group	EBT	EBR	WBL	WBT	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	1577	409	222	711	593	664
Future Volume (vph)	1577	409	222	711	593	664
Turn Type	NA	Free	pm+pt	NA	Perm	Free
Protected Phases	2		1	6		
Permitted Phases		Free	6		4	Free
Detector Phase	2		1	6	4	
Switch Phase						
Minimum Initial (s)	10.0		5.0	10.0	5.0	
Minimum Split (s)	17.0		12.0	17.0	12.0	
Total Split (s)	48.0		17.0	65.0	25.0	
Total Split (%)	53.3%		18.9%	72.2%	27.8%	
Yellow Time (s)	5.0		5.0	5.0	4.0	
All-Red Time (s)	2.0		2.0	2.0	2.0	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	
Total Lost Time (s)	7.0		7.0	7.0	6.0	
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes					
Recall Mode	Max		None	C-Max	None	
Act Effct Green (s)	41.0	90.0	58.0	58.0	19.0	90.0
Actuated g/C Ratio	0.46	1.00	0.64	0.64	0.21	1.00
v/c Ratio	1.05	0.28	0.90	0.36	1.01	0.49
Control Delay	50.6	0.6	51.2	0.4	73.0	1.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.6	0.6	51.2	0.4	73.0	1.1
LOS	D	A	D	A	E	A
Approach Delay	40.1			12.4		
Approach LOS	D			B		

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 76 (84%), Referenced to phase 6:WBTL, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.05	
Intersection Signal Delay: 32.5	Intersection LOS: C
Intersection Capacity Utilization 89.5%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 9: I-95 SB On-ramp/I-95 SB Off-ramp & SR 92





Lane Group	EBT	EBR	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	1696	449	252	817	732	772
v/c Ratio	1.05	0.28	0.90	0.36	1.01	0.49
Control Delay	50.6	0.6	51.2	0.4	73.0	1.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.6	0.6	51.2	0.4	73.0	1.1
Queue Length 50th (ft)	~565	0	76	2	~219	0
Queue Length 95th (ft)	m#564	m0	m#125	m2	#282	0
Internal Link Dist (ft)	1050			759		
Turn Bay Length (ft)		525	300		500	
Base Capacity (vph)	1612	1583	279	2280	724	1583
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.05	0.28	0.90	0.36	1.01	0.49

Intersection Summary

~ 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.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1577	409	222	711	0	0	0	0	593	0	664
Future Volume (vph)	0	1577	409	222	711	0	0	0	0	593	0	664
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0	4.0	7.0	7.0					6.0		4.0
Lane Util. Factor		0.95	1.00	1.00	0.95					0.97		1.00
Frt		1.00	0.85	1.00	1.00					1.00		0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95		1.00
Satd. Flow (prot)		3539	1583	1770	3539					3433		1583
Flt Permitted		1.00	1.00	0.08	1.00					0.95		1.00
Satd. Flow (perm)		3539	1583	155	3539					3433		1583
Peak-hour factor, PHF	0.92	0.93	0.91	0.88	0.87	0.92	0.92	0.92	0.92	0.81	0.92	0.86
Adj. Flow (vph)	0	1696	449	252	817	0	0	0	0	732	0	772
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1696	449	252	817	0	0	0	0	732	0	772
Turn Type		NA	Free	pm+pt	NA					Perm		Free
Protected Phases		2		1	6							
Permitted Phases			Free	6						4		Free
Actuated Green, G (s)		41.0	90.0	58.0	58.0					19.0		90.0
Effective Green, g (s)		41.0	90.0	58.0	58.0					19.0		90.0
Actuated g/C Ratio		0.46	1.00	0.64	0.64					0.21		1.00
Clearance Time (s)		7.0		7.0	7.0					6.0		
Vehicle Extension (s)		4.0		3.0	4.0					4.0		
Lane Grp Cap (vph)		1612	1583	279	2280					724		1583
v/s Ratio Prot		c0.48		c0.10	0.23							
v/s Ratio Perm			0.28	0.48						c0.21		0.49
v/c Ratio		1.05	0.28	0.90	0.36					1.01		0.49
Uniform Delay, d1		24.5	0.0	26.7	7.4					35.5		0.0
Progression Factor		0.67	1.00	1.45	0.02					1.00		1.00
Incremental Delay, d2		31.9	0.2	18.7	0.2					36.2		1.1
Delay (s)		48.2	0.2	57.5	0.4					71.7		1.1
Level of Service		D	A	E	A					E		A
Approach Delay (s)		38.2			13.8			0.0			35.5	
Approach LOS		D			B			A			D	

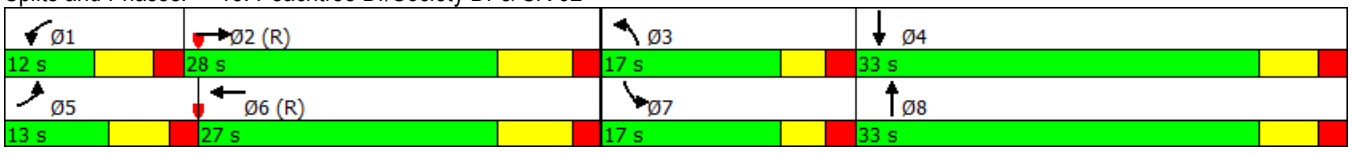
Intersection Summary			
HCM 2000 Control Delay	31.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	89.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	118	1414	153	223	922	87	35	25	170	244	35	84
Future Volume (vph)	118	1414	153	223	922	87	35	25	170	244	35	84
Turn Type	Prot	NA	Free	Prot	NA	Free	Prot	NA	Free	Prot	NA	Free
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			Free			Free			Free			Free
Detector Phase	5	2		1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	12.0	27.0		12.0	29.0		12.0	33.0		12.0	12.0	
Total Split (s)	13.0	28.0		12.0	27.0		17.0	33.0		17.0	33.0	
Total Split (%)	14.4%	31.1%		13.3%	30.0%		18.9%	36.7%		18.9%	36.7%	
Yellow Time (s)	4.0	5.0		4.0	5.0		3.0	4.0		3.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	-2.0		0.0	-2.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	5.0		6.0	5.0		5.0	6.0		5.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	8.3	35.8	90.0	10.5	38.1	90.0	8.7	15.2	90.0	11.6	17.7	90.0
Actuated g/C Ratio	0.09	0.40	1.00	0.12	0.42	1.00	0.10	0.17	1.00	0.13	0.20	1.00
v/c Ratio	0.50	1.07	0.11	0.59	0.67	0.08	0.26	0.12	0.14	0.63	0.11	0.07
Control Delay	44.9	74.8	0.1	49.6	27.9	0.1	40.8	27.8	0.2	44.1	26.3	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.9	74.8	0.1	49.6	27.9	0.1	40.8	27.8	0.2	44.1	26.3	0.1
LOS	D	E	A	D	C	A	D	C	A	D	C	A
Approach Delay		65.0			29.4			9.4			30.6	
Approach LOS		E			C			A			C	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 110	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.07	
Intersection Signal Delay: 44.6	Intersection LOS: D
Intersection Capacity Utilization 73.2%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 18: Peachtree Dr/Society Dr & SR 92



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	157	1504	180	235	1002	113	45	36	224	280	40	118
v/c Ratio	0.50	1.07	0.11	0.59	0.67	0.08	0.26	0.12	0.14	0.63	0.11	0.07
Control Delay	44.9	74.8	0.1	49.6	27.9	0.1	40.8	27.8	0.2	44.1	26.3	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.9	74.8	0.1	49.6	27.9	0.1	40.8	27.8	0.2	44.1	26.3	0.1
Queue Length 50th (ft)	43	~525	0	69	178	0	24	19	0	78	21	0
Queue Length 95th (ft)	63	#794	0	#152	#468	0	48	28	0	114	38	0
Internal Link Dist (ft)		2406			1050			533			618	
Turn Bay Length (ft)	325		375	400			200		250	200		150
Base Capacity (vph)	316	1408	1583	401	1496	1425	236	558	1583	457	571	1583
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	0.50	1.07	0.11	0.59	0.67	0.08	0.19	0.06	0.14	0.61	0.07	0.07

Intersection Summary

~ 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.

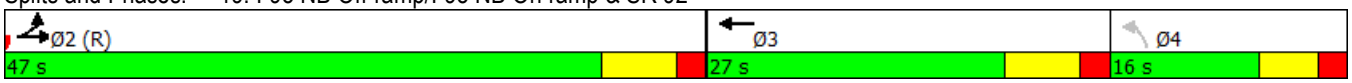
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	118	1414	153	223	922	87	35	25	170	244	35	84
Future Volume (vph)	118	1414	153	223	922	87	35	25	170	244	35	84
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	5.0	4.0	6.0	5.0	4.0	5.0	6.0	4.0	5.0	6.0	4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	1.00	1.00	0.97	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)	3433	3539	1583	3433	3539	1425	1770	1863	1583	3433	1863	1583
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)	3433	3539	1583	3433	3539	1425	1770	1863	1583	3433	1863	1583
Peak-hour factor, PHF	0.75	0.94	0.85	0.95	0.92	0.77	0.78	0.69	0.76	0.87	0.88	0.71
Adj. Flow (vph)	157	1504	180	235	1002	113	45	36	224	280	40	118
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	157	1504	180	235	1002	113	45	36	224	280	40	118
Parking (#/hr)						0						
Turn Type	Prot	NA	Free	Prot	NA	Free	Prot	NA	Free	Prot	NA	Free
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			Free			Free			Free			Free
Actuated Green, G (s)	8.3	31.5	90.0	10.5	33.7	90.0	5.9	12.4	90.0	11.6	18.1	90.0
Effective Green, g (s)	8.3	33.5	90.0	10.5	35.7	90.0	5.9	12.4	90.0	11.6	18.1	90.0
Actuated g/C Ratio	0.09	0.37	1.00	0.12	0.40	1.00	0.07	0.14	1.00	0.13	0.20	1.00
Clearance Time (s)	6.0	7.0		6.0	7.0		5.0	6.0		5.0	6.0	
Vehicle Extension (s)	4.0	5.0		4.0	5.0		4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)	316	1317	1583	400	1403	1425	116	256	1583	442	374	1583
v/s Ratio Prot	0.05	c0.42		c0.07	0.28		0.03	0.02		c0.08	0.02	
v/s Ratio Perm			0.11			0.08			c0.14			0.07
v/c Ratio	0.50	1.14	0.11	0.59	0.71	0.08	0.39	0.14	0.14	0.63	0.11	0.07
Uniform Delay, d1	38.9	28.2	0.0	37.7	22.9	0.0	40.3	34.1	0.0	37.2	29.4	0.0
Progression Factor	1.00	1.00	1.00	1.08	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.7	73.5	0.1	2.4	2.9	0.1	2.9	0.3	0.2	3.3	0.2	0.1
Delay (s)	40.5	101.7	0.1	43.1	24.6	0.1	43.2	34.5	0.2	40.5	29.5	0.1
Level of Service	D	F	A	D	C	A	D	C	A	D	C	A
Approach Delay (s)		86.6			25.8			10.6			28.6	
Approach LOS		F			C			B			C	

Intersection Summary			
HCM 2000 Control Delay	53.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	73.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBT	WBR	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	964	1273	765	268	232	425
Future Volume (vph)	964	1273	765	268	232	425
Turn Type	Split	NA	NA	Free	Perm	Free
Protected Phases	2	2	3			
Permitted Phases				Free	4	Free
Detector Phase	2	2	3		4	
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0		5.0	
Minimum Split (s)	17.0	17.0	21.0		11.0	
Total Split (s)	47.0	47.0	27.0		16.0	
Total Split (%)	52.2%	52.2%	30.0%		17.8%	
Yellow Time (s)	5.0	5.0	5.0		4.0	
All-Red Time (s)	2.0	2.0	2.0		2.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0		0.0	
Total Lost Time (s)	5.0	5.0	5.0		6.0	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	C-Max	C-Max	Max		None	
Act Effct Green (s)	42.1	42.1	22.0	90.0	9.9	90.0
Actuated g/C Ratio	0.47	0.47	0.24	1.00	0.11	1.00
v/c Ratio	1.04	1.05	0.91	0.24	0.67	0.32
Control Delay	45.2	43.6	44.5	0.3	47.9	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.2	43.6	44.5	0.3	47.9	0.5
LOS	D	D	D	A	D	A
Approach Delay		44.1	30.2			
Approach LOS		D	C			

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 16 (18%), Referenced to phase 2:EBTL, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.05	
Intersection Signal Delay: 35.5	Intersection LOS: D
Intersection Capacity Utilization 89.5%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 19: I-95 NB Off-ramp/I-95 NB On-ramp & SR 92



Lane Group	EBL	EBT	WBT	WBR	NBL	NBR
Lane Group Flow (vph)	786	1646	789	377	252	512
v/c Ratio	1.04	1.05	0.91	0.24	0.67	0.32
Control Delay	45.2	43.6	44.5	0.3	47.9	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.2	43.6	44.5	0.3	47.9	0.5
Queue Length 50th (ft)	~551	~579	250	0	72	0
Queue Length 95th (ft)	m#438	m#466	#350	0	111	0
Internal Link Dist (ft)		759	973			
Turn Bay Length (ft)	400			450	300	300
Base Capacity (vph)	753	1573	865	1583	381	1583
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.04	1.05	0.91	0.24	0.66	0.32

Intersection Summary

~ 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.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	964	1273	0	0	765	268	232	0	425	0	0	0
Future Volume (vph)	964	1273	0	0	765	268	232	0	425	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0	4.0	6.0		4.0			
Lane Util. Factor	0.91	0.91			0.95	1.00	0.97		1.00			
Frt	1.00	1.00			1.00	0.85	1.00		0.85			
Flt Protected	0.95	0.99			1.00	1.00	0.95		1.00			
Satd. Flow (prot)	1610	3363			3539	1583	3433		1583			
Flt Permitted	0.95	0.99			1.00	1.00	0.95		1.00			
Satd. Flow (perm)	1610	3363			3539	1583	3433		1583			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.97	0.71	0.92	0.92	0.83	0.92	0.92	0.92
Adj. Flow (vph)	1048	1384	0	0	789	377	252	0	512	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	786	1646	0	0	789	377	252	0	512	0	0	0
Turn Type	Split	NA			NA	Free	Perm		Free			
Protected Phases	2	2			3							
Permitted Phases						Free	4		Free			
Actuated Green, G (s)	40.1	40.1			20.0	90.0	9.9		90.0			
Effective Green, g (s)	42.1	42.1			22.0	90.0	9.9		90.0			
Actuated g/C Ratio	0.47	0.47			0.24	1.00	0.11		1.00			
Clearance Time (s)	7.0	7.0			7.0		6.0					
Vehicle Extension (s)	4.0	4.0			4.0		4.0					
Lane Grp Cap (vph)	753	1573			865	1583	377		1583			
v/s Ratio Prot	0.49	c0.49			c0.22							
v/s Ratio Perm						0.24	c0.07		0.32			
v/c Ratio	1.04	1.05			0.91	0.24	0.67		0.32			
Uniform Delay, d1	23.9	23.9			33.1	0.0	38.5		0.0			
Progression Factor	0.76	0.77			0.90	1.00	1.00		1.00			
Incremental Delay, d2	23.9	23.0			13.4	0.3	4.9		0.5			
Delay (s)	42.2	41.5			43.3	0.3	43.4		0.5			
Level of Service	D	D			D	A	D		A			
Approach Delay (s)		41.7			29.4			14.7			0.0	
Approach LOS		D			C			B			A	

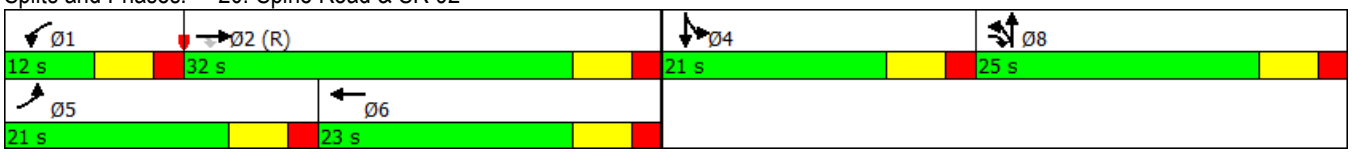
Intersection Summary			
HCM 2000 Control Delay	33.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	89.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBT
Lane Configurations								
Traffic Volume (vph)	411	626	395	10	512	243	20	73
Future Volume (vph)	411	626	395	10	512	243	20	73
Turn Type	Prot	NA	pm+ov	Prot	NA	Split	NA	NA
Protected Phases	5	2	8	1	6	8	8	4
Permitted Phases			2					
Detector Phase	5	2	8	1	6	8	8	4
Switch Phase								
Minimum Initial (s)	4.0	10.0	4.0	4.0	10.0	4.0	4.0	4.0
Minimum Split (s)	10.0	31.0	35.0	10.0	31.0	35.0	35.0	20.0
Total Split (s)	21.0	32.0	25.0	12.0	23.0	25.0	25.0	21.0
Total Split (%)	23.3%	35.6%	27.8%	13.3%	25.6%	27.8%	27.8%	23.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag			
Lead-Lag Optimize?	Yes	Yes		Yes	Yes			
Recall Mode	None	C-Max	None	None	Max	None	None	None
Act Effct Green (s)	14.7	43.8	63.3	6.7	25.4	14.7	14.7	11.1
Actuated g/C Ratio	0.16	0.49	0.70	0.07	0.28	0.16	0.16	0.12
v/c Ratio	0.80	0.42	0.35	0.08	0.76	0.47	0.09	0.66
Control Delay	35.7	29.2	4.5	42.2	48.5	36.2	26.6	19.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.7	29.2	4.5	42.2	48.5	36.2	26.6	19.8
LOS	D	C	A	D	D	D	C	B
Approach Delay		24.4			48.4		35.3	19.8
Approach LOS		C			D		D	B

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:EBT, Start of Green	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.80	
Intersection Signal Delay: 30.9	Intersection LOS: C
Intersection Capacity Utilization 69.5%	ICU Level of Service C
Analysis Period (min) 15	

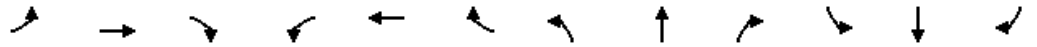
Splits and Phases: 20: Spine Road & SR 92



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	447	728	429	11	758	264	27	395
v/c Ratio	0.80	0.42	0.35	0.08	0.76	0.47	0.09	0.66
Control Delay	35.7	29.2	4.5	42.2	48.5	36.2	26.6	19.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.7	29.2	4.5	42.2	48.5	36.2	26.6	19.8
Queue Length 50th (ft)	140	214	41	7	226	70	11	44
Queue Length 95th (ft)	m148	m233	m64	m16	#364	102	32	86
Internal Link Dist (ft)		973			1347		2366	714
Turn Bay Length (ft)	600					500		
Base Capacity (vph)	572	1720	1224	131	994	724	386	728
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	0.78	0.42	0.35	0.08	0.76	0.36	0.07	0.54

Intersection Summary

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.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	411	626	395	10	512	174	243	20	5	73	73	218
Future Volume (vph)	411	626	395	10	512	174	243	20	5	73	73	218
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0			6.0	
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95		0.97	1.00			0.95	
Frt	1.00	1.00	0.85	1.00	0.96		1.00	0.97			0.91	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00			0.99	
Satd. Flow (prot)	3433	3539	1583	1770	3407		3433	1811			3189	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00			0.99	
Satd. Flow (perm)	3433	3539	1583	1770	3407		3433	1811			3189	
Peak-hour factor, PHF	0.92	0.86	0.92	0.92	0.90	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	447	728	429	11	569	189	264	22	5	79	79	237
RTOR Reduction (vph)	0	0	173	0	32	0	0	4	0	0	208	0
Lane Group Flow (vph)	447	728	256	11	726	0	264	23	0	0	187	0
Turn Type	Prot	NA	pm+ov	Prot	NA		Split	NA		Split	NA	
Protected Phases	5	2	8	1	6		8	8		4	4	
Permitted Phases			2									
Actuated Green, G (s)	14.7	39.0	53.7	1.2	25.5		14.7	14.7			11.1	
Effective Green, g (s)	14.7	39.0	53.7	1.2	25.5		14.7	14.7			11.1	
Actuated g/C Ratio	0.16	0.43	0.60	0.01	0.28		0.16	0.16			0.12	
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0			6.0	
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0			4.0	
Lane Grp Cap (vph)	560	1533	944	23	965		560	295			393	
v/s Ratio Prot	c0.13	0.21	0.04	0.01	c0.21		c0.08	0.01			c0.06	
v/s Ratio Perm			0.12									
v/c Ratio	0.80	0.47	0.27	0.48	0.75		0.47	0.08			0.48	
Uniform Delay, d1	36.2	18.2	8.7	44.1	29.4		34.1	31.9			36.7	
Progression Factor	0.81	1.64	6.14	1.05	1.50		1.00	1.00			1.00	
Incremental Delay, d2	4.3	0.5	0.1	18.2	5.0		0.9	0.2			1.2	
Delay (s)	33.5	30.3	53.7	64.4	48.9		35.0	32.1			38.0	
Level of Service	C	C	D	E	D		C	C			D	
Approach Delay (s)		37.4			49.2			34.7			38.0	
Approach LOS		D			D			C			D	

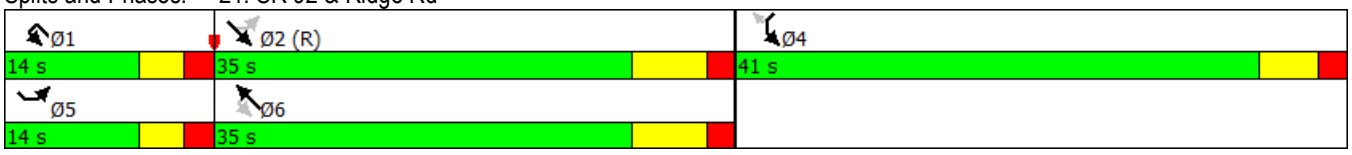
Intersection Summary			
HCM 2000 Control Delay	40.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	69.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	SEL	SET	NWT	NWR	SWL	SWR	Ø1
Lane Configurations							
Traffic Volume (vph)	171	565	702	132	114	137	
Future Volume (vph)	171	565	702	132	114	137	
Turn Type	pm+pt	NA	NA	Free	Prot	Perm	
Protected Phases	5	2	6		4		1
Permitted Phases	2			Free		4	
Detector Phase	5	2	6		4	4	
Switch Phase							
Minimum Initial (s)	5.0	15.0	15.0		5.0	5.0	5.0
Minimum Split (s)	11.0	38.0	38.0		41.0	41.0	11.0
Total Split (s)	14.0	35.0	35.0		41.0	41.0	14.0
Total Split (%)	15.6%	38.9%	38.9%		45.6%	45.6%	16%
Yellow Time (s)	3.0	5.0	5.0		4.0	4.0	3.0
All-Red Time (s)	2.0	2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	7.0	7.0		6.0	6.0	
Lead/Lag	Lead	Lag	Lag				Lead
Lead-Lag Optimize?	Yes	Yes	Yes				Yes
Recall Mode	None	C-Max	Max		None	None	None
Act Effct Green (s)	63.2	61.2	46.3	90.0	15.8	15.8	
Actuated g/C Ratio	0.70	0.68	0.51	1.00	0.18	0.18	
v/c Ratio	0.44	0.26	0.48	0.10	0.47	0.42	
Control Delay	20.9	7.9	14.0	0.1	36.5	7.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	20.9	7.9	14.0	0.1	36.5	7.3	
LOS	C	A	B	A	D	A	
Approach Delay		11.1	11.8		20.5		
Approach LOS		B	B		C		

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:SETL, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.48	
Intersection Signal Delay: 12.8	Intersection LOS: B
Intersection Capacity Utilization 50.2%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 21: SR 92 & Ridge Rd



Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Group Flow (vph)	201	628	878	163	146	178
v/c Ratio	0.44	0.26	0.48	0.10	0.47	0.42
Control Delay	20.9	7.9	14.0	0.1	36.5	7.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.9	7.9	14.0	0.1	36.5	7.3
Queue Length 50th (ft)	43	13	52	0	78	0
Queue Length 95th (ft)	148	173	175	0	92	26
Internal Link Dist (ft)		1347	942		678	
Turn Bay Length (ft)	300			250		350
Base Capacity (vph)	468	2406	1819	1583	688	724
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.43	0.26	0.48	0.10	0.21	0.25

Intersection Summary

Movement	SEL	SET	NWU	NWT	NWR	SWL	SWR
Lane Configurations							
Traffic Volume (vph)	171	565	0	702	132	114	137
Future Volume (vph)	171	565	0	702	132	114	137
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	7.0		7.0	4.0	6.0	6.0
Lane Util. Factor	1.00	0.95		0.95	1.00	1.00	1.00
Frt	1.00	1.00		1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00		1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	3539		3539	1583	1770	1583
Flt Permitted	0.24	1.00		1.00	1.00	0.95	1.00
Satd. Flow (perm)	449	3539		3539	1583	1770	1583
Peak-hour factor, PHF	0.85	0.90	0.92	0.80	0.81	0.78	0.77
Adj. Flow (vph)	201	628	0	878	163	146	178
RTOR Reduction (vph)	0	0	0	0	0	0	147
Lane Group Flow (vph)	201	628	0	878	163	146	31
Turn Type	pm+pt	NA	pm+pt	NA	Free	Prot	Perm
Protected Phases	5	2	1	6		4	
Permitted Phases	2		6		Free		4
Actuated Green, G (s)	61.2	61.2		46.3	90.0	15.8	15.8
Effective Green, g (s)	61.2	61.2		46.3	90.0	15.8	15.8
Actuated g/C Ratio	0.68	0.68		0.51	1.00	0.18	0.18
Clearance Time (s)	5.0	7.0		7.0		6.0	6.0
Vehicle Extension (s)	3.0	4.0		4.0		4.0	4.0
Lane Grp Cap (vph)	450	2406		1820	1583	310	277
v/s Ratio Prot	c0.05	0.18		c0.25		c0.08	
v/s Ratio Perm	0.25				0.10		0.02
v/c Ratio	0.45	0.26		0.48	0.10	0.47	0.11
Uniform Delay, d1	6.6	5.6		14.1	0.0	33.3	31.2
Progression Factor	3.04	1.13		0.79	1.00	1.00	1.00
Incremental Delay, d2	0.7	0.2		0.8	0.1	1.5	0.2
Delay (s)	20.8	6.6		12.0	0.1	34.9	31.5
Level of Service	C	A		B	A	C	C
Approach Delay (s)		10.0		10.1		33.0	
Approach LOS		B		B		C	

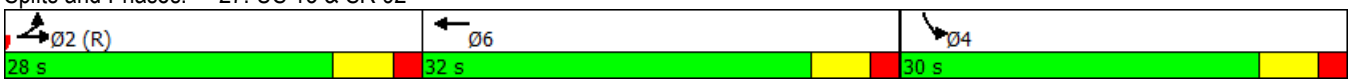
Intersection Summary			
HCM 2000 Control Delay	13.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	50.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	685	353	116	135	192	438
Future Volume (vph)	685	353	116	135	192	438
Turn Type	Split	NA	NA	Free	Prot	Free
Protected Phases	2	2	6		4	
Permitted Phases				Free		Free
Detector Phase	2	2	6		4	
Switch Phase						
Minimum Initial (s)	15.0	15.0	15.0		5.0	
Minimum Split (s)	22.0	22.0	32.0		30.0	
Total Split (s)	28.0	28.0	32.0		30.0	
Total Split (%)	31.1%	31.1%	35.6%		33.3%	
Yellow Time (s)	4.0	4.0	4.0		4.0	
All-Red Time (s)	2.0	2.0	2.0		2.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	6.0	6.0	6.0		6.0	
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	C-Max	C-Max	None		None	
Act Effct Green (s)	35.9	35.9	17.3	90.0	18.7	90.0
Actuated g/C Ratio	0.40	0.40	0.19	1.00	0.21	1.00
v/c Ratio	0.62	0.59	0.39	0.11	0.74	0.30
Control Delay	26.8	28.6	34.2	0.1	44.2	1.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.8	28.6	34.2	0.1	44.2	1.3
LOS	C	C	C	A	D	A
Approach Delay		27.4	15.7		16.9	
Approach LOS		C	B		B	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:EBTL, Start of Green	
Natural Cycle: 85	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.74	
Intersection Signal Delay: 22.5	Intersection LOS: C
Intersection Capacity Utilization 46.8%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 27: US 13 & SR 92



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	856	441	141	167	274	481
v/c Ratio	0.62	0.59	0.39	0.11	0.74	0.30
Control Delay	26.8	28.6	34.2	0.1	44.2	1.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.8	28.6	34.2	0.1	44.2	1.3
Queue Length 50th (ft)	188	185	73	0	139	10
Queue Length 95th (ft)	#313	#358	99	0	189	58
Internal Link Dist (ft)		767	560		942	
Turn Bay Length (ft)	600					
Base Capacity (vph)	1370	743	538	1583	472	1583
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.62	0.59	0.26	0.11	0.58	0.30

Intersection Summary

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

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	685	353	116	135	192	438
Future Volume (vph)	685	353	116	135	192	438
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	4.0	6.0	4.0
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	1863	1863	1583	1770	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	1863	1863	1583	1770	1583
Peak-hour factor, PHF	0.80	0.80	0.82	0.81	0.70	0.91
Adj. Flow (vph)	856	441	141	167	274	481
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	856	441	141	167	274	481
Turn Type	Split	NA	NA	Free	Prot	Free
Protected Phases	2	2	6		4	
Permitted Phases				Free		Free
Actuated Green, G (s)	36.0	36.0	17.3	90.0	18.7	90.0
Effective Green, g (s)	36.0	36.0	17.3	90.0	18.7	90.0
Actuated g/C Ratio	0.40	0.40	0.19	1.00	0.21	1.00
Clearance Time (s)	6.0	6.0	6.0		6.0	
Vehicle Extension (s)	5.0	5.0	5.0		3.0	
Lane Grp Cap (vph)	1373	745	358	1583	367	1583
v/s Ratio Prot	c0.25	0.24	0.08		c0.15	
v/s Ratio Perm				0.11		c0.30
v/c Ratio	0.62	0.59	0.39	0.11	0.75	0.30
Uniform Delay, d1	21.6	21.2	31.8	0.0	33.4	0.0
Progression Factor	1.00	1.00	1.00	1.00	0.97	1.00
Incremental Delay, d2	2.1	3.4	1.5	0.1	7.9	0.5
Delay (s)	23.7	24.7	33.3	0.1	40.2	0.5
Level of Service	C	C	C	A	D	A
Approach Delay (s)		24.0	15.3		14.9	
Approach LOS		C	B		B	

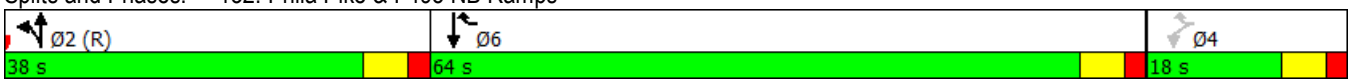
Intersection Summary			
HCM 2000 Control Delay	20.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	46.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	WBL	WBR	NBL	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	249	971	419	399	749
Future Volume (vph)	249	971	419	399	749
Turn Type	Perm	custom	Split	NA	NA
Protected Phases		6	2	2	6
Permitted Phases	4	4			
Detector Phase	4	6	2	2	6
Switch Phase					
Minimum Initial (s)	5.0	15.0	15.0	15.0	15.0
Minimum Split (s)	11.0	22.0	22.0	22.0	22.0
Total Split (s)	18.0	64.0	38.0	38.0	64.0
Total Split (%)	15.0%	53.3%	31.7%	31.7%	53.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	0.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	6.0	4.0	4.0	4.0
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	None	Max	C-Max	C-Max	Max
Act Effct Green (s)	13.7	75.7	34.3	34.3	60.0
Actuated g/C Ratio	0.11	0.63	0.29	0.29	0.50
v/c Ratio	0.69	1.06	0.90	0.43	0.46
Control Delay	60.9	67.8	63.9	36.6	21.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	60.9	67.8	63.9	36.6	21.8
LOS	E	E	E	D	C
Approach Delay				50.6	21.8
Approach LOS				D	C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NBTL, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.06	
Intersection Signal Delay: 49.8	Intersection LOS: D
Intersection Capacity Utilization 81.0%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 132: Phila Pike & I-495 NB Ramps

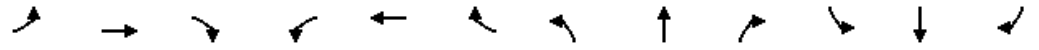


Lane Group	WBL	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	271	1055	455	434	814
v/c Ratio	0.69	1.06	0.90	0.43	0.46
Control Delay	60.9	67.8	63.9	36.6	21.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	60.9	67.8	63.9	36.6	21.8
Queue Length 50th (ft)	105	~893	340	144	255
Queue Length 95th (ft)	151	#1147	#534	194	303
Internal Link Dist (ft)				431	161
Turn Bay Length (ft)			400		
Base Capacity (vph)	400	999	505	1010	1769
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.68	1.06	0.90	0.43	0.46

Intersection Summary

~ 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.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	249	0	971	419	399	0	0	749	0
Future Volume (vph)	0	0	0	249	0	971	419	399	0	0	749	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0		6.0	4.0	4.0			4.0	
Lane Util. Factor				0.97		1.00	1.00	0.95			0.95	
Frt				1.00		0.85	1.00	1.00			1.00	
Flt Protected				0.95		1.00	0.95	1.00			1.00	
Satd. Flow (prot)				3433		1583	1770	3539			3539	
Flt Permitted				0.95		1.00	0.95	1.00			1.00	
Satd. Flow (perm)				3433		1583	1770	3539			3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	271	0	1055	455	434	0	0	814	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	271	0	1055	455	434	0	0	814	0
Turn Type				Perm		custom	Split	NA			NA	
Protected Phases						6	2	2			6	
Permitted Phases				4		4						
Actuated Green, G (s)				11.7		69.7	32.3	32.3			58.0	
Effective Green, g (s)				13.7		69.7	34.3	34.3			60.0	
Actuated g/C Ratio				0.11		0.58	0.29	0.29			0.50	
Clearance Time (s)				6.0		6.0	6.0	6.0			6.0	
Vehicle Extension (s)				3.0		3.0	3.0	3.0			3.0	
Lane Grp Cap (vph)				391		998	505	1011			1769	
v/s Ratio Prot						c0.51	c0.26	0.12			0.23	
v/s Ratio Perm				0.08		0.16						
v/c Ratio				0.69		1.06	0.90	0.43			0.46	
Uniform Delay, d1				51.1		25.1	41.2	34.9			19.5	
Progression Factor				1.00		1.00	1.00	1.00			1.06	
Incremental Delay, d2				5.2		44.8	21.8	1.3			0.8	
Delay (s)				56.4		70.0	63.0	36.2			21.5	
Level of Service				E		E	E	D			C	
Approach Delay (s)		0.0			67.2			49.9			21.5	
Approach LOS		A			E			D			C	

Intersection Summary			
HCM 2000 Control Delay	49.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	81.0%	ICU Level of Service	D
Analysis Period (min)	15		

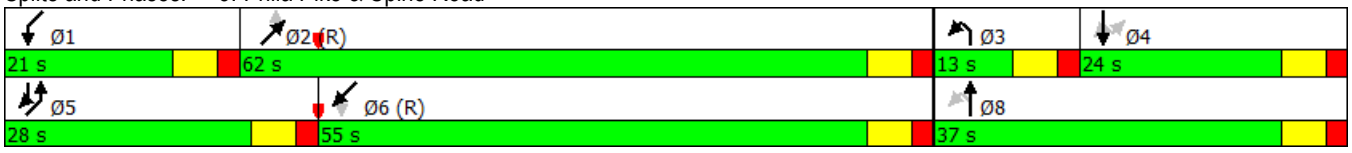
c Critical Lane Group

Lane Group	NBL	NBT	SBL	SBT	SBR	NEL	NET	SWL	SWT
Lane Configurations									
Traffic Volume (vph)	95	36	5	75	315	260	930	158	385
Future Volume (vph)	95	36	5	75	315	260	930	158	385
Turn Type	pm+pt	NA	Perm	NA	pm+ov	pm+pt	NA	pm+pt	NA
Protected Phases	3	8		4	5	5	2	1	6
Permitted Phases	8		4		4	2		6	
Detector Phase	3	8	4	4	5	5	2	1	6
Switch Phase									
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	31.0	20.0	20.0	10.0	10.0	28.0	10.0	28.0
Total Split (s)	13.0	37.0	24.0	24.0	28.0	28.0	62.0	21.0	55.0
Total Split (%)	10.8%	30.8%	20.0%	20.0%	23.3%	23.3%	51.7%	17.5%	45.8%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead		Lag	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	Max	Max	None	None	C-Max	None	C-Max
Act Effct Green (s)	31.0	31.0		18.0	39.6	74.9	59.4	67.1	55.4
Actuated g/C Ratio	0.26	0.26		0.15	0.33	0.62	0.50	0.56	0.46
v/c Ratio	0.35	0.32		0.32	0.30	0.45	0.70	0.60	0.26
Control Delay	38.8	12.0		49.2	3.4	10.8	27.9	22.2	20.8
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.8	12.0		49.2	3.4	10.8	27.9	22.2	20.8
LOS	D	B		D	A	B	C	C	C
Approach Delay		22.1		12.7			24.6		21.2
Approach LOS		C		B			C		C

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:NETL and 6:SWTL, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.70
Intersection Signal Delay: 21.8 — Intersection LOS: C
Intersection Capacity Utilization 67.1% — ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 3: Phila Pike & Spine Road



Lane Group	NBL	NBT	SBT	SBR	NEL	NET	SWL	SWT
Lane Group Flow (vph)	103	169	87	342	283	1207	172	429
v/c Ratio	0.35	0.32	0.32	0.30	0.45	0.70	0.60	0.26
Control Delay	38.8	12.0	49.2	3.4	10.8	27.9	22.2	20.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.8	12.0	49.2	3.4	10.8	27.9	22.2	20.8
Queue Length 50th (ft)	63	23	61	0	92	370	49	103
Queue Length 95th (ft)	112	80	112	32	m100	m424	107	152
Internal Link Dist (ft)		963	2366			407		847
Turn Bay Length (ft)	300				300		200	
Base Capacity (vph)	298	522	273	1279	700	1721	338	1630
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	0.35	0.32	0.32	0.27	0.40	0.70	0.51	0.26

Intersection Summary

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

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	95	36	120	5	75	315	260	930	180	158	385	10
Future Volume (vph)	95	36	120	5	75	315	260	930	180	158	385	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0	6.0	6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	1.00			1.00	0.88	1.00	0.95		1.00	0.95	
Frt	1.00	0.88			1.00	0.85	1.00	0.98		1.00	1.00	
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1648			1857	2787	1770	3453		1770	3526	
Flt Permitted	0.53	1.00			0.98	1.00	0.44	1.00		0.14	1.00	
Satd. Flow (perm)	979	1648			1824	2787	821	3453		253	3526	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	103	39	130	5	82	342	283	1011	196	172	418	11
RTOR Reduction (vph)	0	96	0	0	0	246	0	13	0	0	2	0
Lane Group Flow (vph)	103	73	0	0	87	96	283	1194	0	172	427	0
Turn Type	pm+pt	NA		Perm	NA	pm+ov	pm+pt	NA		pm+pt	NA	
Protected Phases	3	8			4	5	5	2		1	6	
Permitted Phases	8			4		4	2			6		
Actuated Green, G (s)	31.0	31.0			18.0	33.6	75.0	59.4		67.0	55.4	
Effective Green, g (s)	31.0	31.0			18.0	33.6	75.0	59.4		67.0	55.4	
Actuated g/C Ratio	0.26	0.26			0.15	0.28	0.62	0.49		0.56	0.46	
Clearance Time (s)	6.0	6.0			6.0	6.0	6.0	6.0		6.0	6.0	
Vehicle Extension (s)	4.0	4.0			4.0	4.0	4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)	299	425			273	919	636	1709		287	1627	
v/s Ratio Prot	c0.02	0.04				0.01	0.06	c0.35		c0.06	0.12	
v/s Ratio Perm	c0.07				0.05	0.02	0.22			0.28		
v/c Ratio	0.34	0.17			0.32	0.10	0.44	0.70		0.60	0.26	
Uniform Delay, d1	35.2	34.5			45.5	32.0	10.4	23.4		16.6	19.8	
Progression Factor	1.00	1.00			1.00	1.00	1.04	1.13		1.00	1.00	
Incremental Delay, d2	0.9	0.9			3.1	0.1	0.3	1.1		3.9	0.4	
Delay (s)	36.2	35.4			48.6	32.1	11.1	27.5		20.5	20.2	
Level of Service	D	D			D	C	B	C		C	C	
Approach Delay (s)		35.7			35.4			24.4			20.3	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	26.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	67.1%	ICU Level of Service	C
Analysis Period (min)	15		

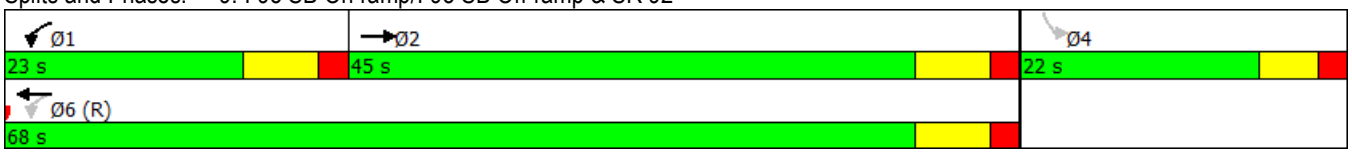
c Critical Lane Group

9: I-95 SB On-ramp/I-95 SB Off-ramp & SR 92

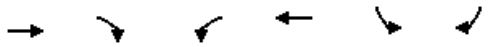
Lane Group	EBT	EBR	WBL	WBT	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	1449	238	420	1213	608	1253
Future Volume (vph)	1449	238	420	1213	608	1253
Turn Type	NA	Free	pm+pt	NA	Perm	Free
Protected Phases	2		1	6		
Permitted Phases		Free	6		4	Free
Detector Phase	2		1	6	4	
Switch Phase						
Minimum Initial (s)	10.0		5.0	10.0	5.0	
Minimum Split (s)	17.0		12.0	17.0	12.0	
Total Split (s)	45.0		23.0	68.0	22.0	
Total Split (%)	50.0%		25.6%	75.6%	24.4%	
Yellow Time (s)	5.0		5.0	5.0	4.0	
All-Red Time (s)	2.0		2.0	2.0	2.0	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	
Total Lost Time (s)	7.0		7.0	7.0	6.0	
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	Max		None	C-Max	None	
Act Effct Green (s)	38.0	90.0	61.0	61.0	16.0	90.0
Actuated g/C Ratio	0.42	1.00	0.68	0.68	0.18	1.00
v/c Ratio	1.04	0.17	1.15	0.55	1.08	0.86
Control Delay	54.1	0.2	109.4	2.2	97.8	7.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.1	0.2	109.4	2.2	97.8	7.1
LOS	D	A	F	A	F	A
Approach Delay	46.4			29.8		
Approach LOS	D			C		

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 10 (11%), Referenced to phase 6:WBTL, Start of Green	
Natural Cycle: 130	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.15	
Intersection Signal Delay: 37.6	Intersection LOS: D
Intersection Capacity Utilization 97.3%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 9: I-95 SB On-ramp/I-95 SB Off-ramp & SR 92



9: I-95 SB On-ramp/I-95 SB Off-ramp & SR 92



Lane Group	EBT	EBR	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	1558	262	457	1318	661	1362
v/c Ratio	1.04	0.17	1.15	0.55	1.08	0.86
Control Delay	54.1	0.2	109.4	2.2	97.8	7.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.1	0.2	109.4	2.2	97.8	7.1
Queue Length 50th (ft)	~515	0	~234	43	~219	0
Queue Length 95th (ft)	#629	m0	m123	m0	#326	0
Internal Link Dist (ft)	1050			759		
Turn Bay Length (ft)		525	300		500	
Base Capacity (vph)	1494	1583	397	2398	610	1583
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.04	0.17	1.15	0.55	1.08	0.86

Intersection Summary

~ 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.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1449	238	420	1213	0	0	0	0	608	0	1253
Future Volume (vph)	0	1449	238	420	1213	0	0	0	0	608	0	1253
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0	4.0	7.0	7.0					6.0		4.0
Lane Util. Factor		0.95	1.00	1.00	0.95					0.97		1.00
Frt		1.00	0.85	1.00	1.00					1.00		0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95		1.00
Satd. Flow (prot)		3539	1583	1770	3539					3433		1583
Flt Permitted		1.00	1.00	0.09	1.00					0.95		1.00
Satd. Flow (perm)		3539	1583	166	3539					3433		1583
Peak-hour factor, PHF	0.92	0.93	0.91	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1558	262	457	1318	0	0	0	0	661	0	1362
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1558	262	457	1318	0	0	0	0	661	0	1362
Parking (#/hr)	0											
Turn Type		NA	Free	pm+pt	NA					Perm		Free
Protected Phases		2		1	6							
Permitted Phases			Free	6						4		Free
Actuated Green, G (s)		38.0	90.0	61.0	61.0					16.0		90.0
Effective Green, g (s)		38.0	90.0	61.0	61.0					16.0		90.0
Actuated g/C Ratio		0.42	1.00	0.68	0.68					0.18		1.00
Clearance Time (s)		7.0		7.0	7.0					6.0		
Vehicle Extension (s)		4.0		3.0	4.0					4.0		
Lane Grp Cap (vph)		1494	1583	397	2398					610		1583
v/s Ratio Prot		0.44		0.20	0.37							
v/s Ratio Perm			0.17	c0.58						0.19		c0.86
v/c Ratio		1.04	0.17	1.15	0.55					1.08		0.86
Uniform Delay, d1		26.0	0.0	28.9	7.4					37.0		0.0
Progression Factor		0.74	1.00	1.74	0.27					1.00		1.00
Incremental Delay, d2		33.0	0.2	71.0	0.1					61.2		6.4
Delay (s)		52.1	0.2	121.1	2.1					98.2		6.4
Level of Service		D	A	F	A					F		A
Approach Delay (s)		44.6			32.8			0.0			36.4	
Approach LOS		D			C			A			D	

Intersection Summary			
HCM 2000 Control Delay	37.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.22		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	97.3%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

18: Peachtree Dr/Society Dr & SR 92

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	174	1066	86	189	1700	189	112	60	73	320	66	259
Future Volume (vph)	174	1066	86	189	1700	189	112	60	73	320	66	259
Turn Type	Prot	NA	Free	Prot	NA	Free	Prot	NA	Free	Prot	NA	Free
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			Free			Free			Free			Free
Detector Phase	5	2		1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	12.0	27.0		12.0	29.0		12.0	33.0		12.0	12.0	
Total Split (s)	14.0	47.0		14.0	47.0		16.0	13.0		16.0	13.0	
Total Split (%)	15.6%	52.2%		15.6%	52.2%		17.8%	14.4%		17.8%	14.4%	
Yellow Time (s)	4.0	5.0		4.0	5.0		3.0	4.0		3.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	7.0		6.0	7.0		5.0	6.0		5.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	9.2	42.5	90.0	8.1	41.4	90.0	11.0	7.0	90.0	11.0	6.9	90.0
Actuated g/C Ratio	0.10	0.47	1.00	0.09	0.46	1.00	0.12	0.08	1.00	0.12	0.08	1.00
v/c Ratio	0.87	0.68	0.06	0.64	1.14	0.15	0.67	0.60	0.06	0.88	0.52	0.23
Control Delay	66.2	21.8	0.1	50.1	88.1	0.1	54.1	58.9	0.1	62.2	53.7	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.2	21.8	0.1	50.1	88.1	0.1	54.1	58.9	0.1	62.2	53.7	0.3
LOS	E	C	A	D	F	A	D	E	A	E	D	A
Approach Delay		29.2			75.4			39.5			33.5	
Approach LOS		C			E			D			C	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 26 (29%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.14	
Intersection Signal Delay: 51.9	Intersection LOS: D
Intersection Capacity Utilization 83.6%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 18: Peachtree Dr/Society Dr & SR 92

18: Peachtree Dr/Society Dr & SR 92

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	305	1134	101	199	1848	245	144	87	96	368	75	365
v/c Ratio	0.87	0.68	0.06	0.64	1.14	0.15	0.67	0.60	0.06	0.88	0.52	0.23
Control Delay	66.2	21.8	0.1	50.1	88.1	0.1	54.1	58.9	0.1	62.2	53.7	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.2	21.8	0.1	50.1	88.1	0.1	54.1	58.9	0.1	62.2	53.7	0.3
Queue Length 50th (ft)	91	268	0	60	~649	0	80	49	0	107	42	0
Queue Length 95th (ft)	82	345	0	m84	#794	m0	121	73	0	#175	#84	0
Internal Link Dist (ft)		2406			1050			533			618	
Turn Bay Length (ft)	325		375	400			200		250	200		150
Base Capacity (vph)	352	1670	1583	310	1626	1583	216	144	1583	419	144	1583
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	0.87	0.68	0.06	0.64	1.14	0.15	0.67	0.60	0.06	0.88	0.52	0.23

Intersection Summary

~ 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.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	174	1066	86	189	1700	189	112	60	73	320	66	259
Future Volume (vph)	174	1066	86	189	1700	189	112	60	73	320	66	259
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	7.0	4.0	6.0	7.0	4.0	5.0	6.0	4.0	5.0	6.0	4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	1.00	1.00	0.97	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)	3433	3539	1583	3433	3539	1583	1770	1863	1583	3433	1863	1583
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)	3433	3539	1583	3433	3539	1583	1770	1863	1583	3433	1863	1583
Peak-hour factor, PHF	0.57	0.94	0.85	0.95	0.92	0.77	0.78	0.69	0.76	0.87	0.88	0.71
Adj. Flow (vph)	305	1134	101	199	1848	245	144	87	96	368	75	365
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	305	1134	101	199	1848	245	144	87	96	368	75	365
Turn Type	Prot	NA	Free	Prot	NA	Free	Prot	NA	Free	Prot	NA	Free
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			Free			Free			Free			Free
Actuated Green, G (s)	9.2	41.3	90.0	8.1	40.2	90.0	11.0	5.6	90.0	11.0	5.6	90.0
Effective Green, g (s)	9.2	41.3	90.0	8.1	40.2	90.0	11.0	5.6	90.0	11.0	5.6	90.0
Actuated g/C Ratio	0.10	0.46	1.00	0.09	0.45	1.00	0.12	0.06	1.00	0.12	0.06	1.00
Clearance Time (s)	6.0	7.0		6.0	7.0		5.0	6.0		5.0	6.0	
Vehicle Extension (s)	4.0	5.0		4.0	5.0		4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)	350	1624	1583	308	1580	1583	216	115	1583	419	115	1583
v/s Ratio Prot	c0.09	0.32		0.06	c0.52		0.08	c0.05		c0.11	0.04	
v/s Ratio Perm			0.06			0.15			0.06			c0.23
v/c Ratio	0.87	0.70	0.06	0.65	1.17	0.15	0.67	0.76	0.06	0.88	0.65	0.23
Uniform Delay, d1	39.8	19.4	0.0	39.6	24.9	0.0	37.7	41.5	0.0	38.8	41.2	0.0
Progression Factor	1.00	1.00	1.00	1.08	0.71	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	20.9	2.5	0.1	3.6	81.4	0.1	8.3	25.6	0.1	18.9	13.8	0.3
Delay (s)	60.8	21.9	0.1	46.2	99.1	0.1	46.0	67.1	0.1	57.7	55.0	0.3
Level of Service	E	C	A	D	F	A	D	E	A	E	E	A
Approach Delay (s)		28.2			83.9			38.2			31.5	
Approach LOS		C			F			D			C	

Intersection Summary			
HCM 2000 Control Delay	55.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	83.6%	ICU Level of Service	E
Analysis Period (min)	15		

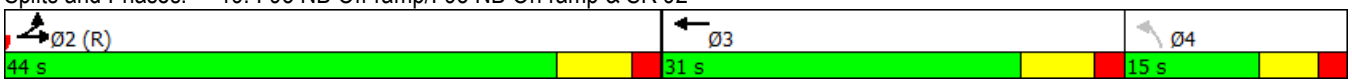
c Critical Lane Group

19: I-95 NB Off-ramp/I-95 NB On-ramp & SR 92

Lane Group	EBL	EBT	WBT	WBR	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	761	1387	1457	577	286	396
Future Volume (vph)	761	1387	1457	577	286	396
Turn Type	Split	NA	NA	Free	Perm	Free
Protected Phases	2	2	3			
Permitted Phases				Free	4	Free
Detector Phase	2	2	3		4	
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0		5.0	
Minimum Split (s)	17.0	17.0	21.0		11.0	
Total Split (s)	44.0	44.0	31.0		15.0	
Total Split (%)	48.9%	48.9%	34.4%		16.7%	
Yellow Time (s)	5.0	5.0	5.0		4.0	
All-Red Time (s)	2.0	2.0	2.0		2.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	7.0	7.0	7.0		6.0	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	C-Max	C-Max	Max		None	
Act Effct Green (s)	37.0	37.0	24.0	90.0	9.0	90.0
Actuated g/C Ratio	0.41	0.41	0.27	1.00	0.10	1.00
v/c Ratio	1.13	1.15	1.59	0.40	0.91	0.27
Control Delay	84.6	92.0	299.5	0.5	71.5	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	84.6	92.0	299.5	0.5	71.5	0.4
LOS	F	F	F	A	E	A
Approach Delay		89.6	211.5			
Approach LOS		F	F			

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 52 (58%), Referenced to phase 2:EBTL, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.59	
Intersection Signal Delay: 131.0	Intersection LOS: F
Intersection Capacity Utilization 97.3%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 19: I-95 NB Off-ramp/I-95 NB On-ramp & SR 92



19: I-95 NB Off-ramp/I-95 NB On-ramp & SR 92

Lane Group	EBL	EBT	WBT	WBR	NBL	NBR
Lane Group Flow (vph)	744	1591	1502	627	311	430
v/c Ratio	1.13	1.15	1.59	0.40	0.91	0.27
Control Delay	84.6	92.0	299.5	0.5	71.5	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	84.6	92.0	299.5	0.5	71.5	0.4
Queue Length 50th (ft)	~567	~614	~641	0	91	0
Queue Length 95th (ft)	m#528	m#568	m#733	m0	#168	0
Internal Link Dist (ft)		759	973			
Turn Bay Length (ft)	400			450	300	300
Base Capacity (vph)	661	1389	943	1583	343	1583
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.13	1.15	1.59	0.40	0.91	0.27

Intersection Summary

~ 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.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	761	1387	0	0	1457	577	286	0	396	0	0	0
Future Volume (vph)	761	1387	0	0	1457	577	286	0	396	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0			7.0	4.0	6.0		4.0			
Lane Util. Factor	0.91	0.91			0.95	1.00	0.97		1.00			
Frt	1.00	1.00			1.00	0.85	1.00		0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95		1.00			
Satd. Flow (prot)	1610	3381			3539	1583	3433		1583			
Flt Permitted	0.95	1.00			1.00	1.00	0.95		1.00			
Satd. Flow (perm)	1610	3381			3539	1583	3433		1583			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.97	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	827	1508	0	0	1502	627	311	0	430	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	744	1591	0	0	1502	627	311	0	430	0	0	0
Turn Type	Split	NA			NA	Free	Perm		Free			
Protected Phases	2	2			3							
Permitted Phases						Free	4		Free			
Actuated Green, G (s)	37.0	37.0			24.0	90.0	9.0		90.0			
Effective Green, g (s)	37.0	37.0			24.0	90.0	9.0		90.0			
Actuated g/C Ratio	0.41	0.41			0.27	1.00	0.10		1.00			
Clearance Time (s)	7.0	7.0			7.0		6.0					
Vehicle Extension (s)	4.0	4.0			4.0		4.0					
Lane Grp Cap (vph)	661	1389			943	1583	343		1583			
v/s Ratio Prot	0.46	c0.47			c0.42							
v/s Ratio Perm						0.40	c0.09		0.27			
v/c Ratio	1.13	1.15			1.59	0.40	0.91		0.27			
Uniform Delay, d1	26.5	26.5			33.0	0.0	40.1		0.0			
Progression Factor	0.92	0.93			1.20	1.00	1.00		1.00			
Incremental Delay, d2	58.6	66.3			269.9	0.5	26.8		0.4			
Delay (s)	83.0	90.9			309.5	0.5	66.9		0.4			
Level of Service	F	F			F	A	E		A			
Approach Delay (s)		88.4			218.5			28.3			0.0	
Approach LOS		F			F			C			A	

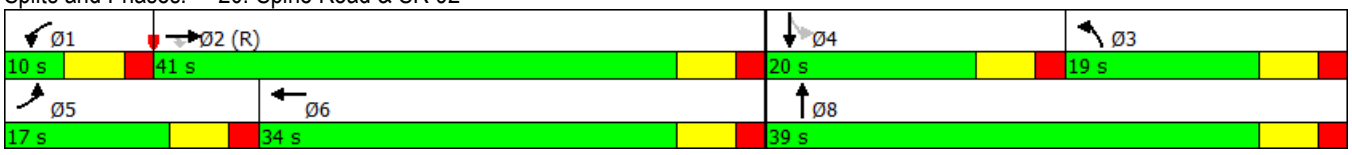
Intersection Summary			
HCM 2000 Control Delay	133.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.27		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	97.3%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	422	708	474	8	902	504	100	100	250
Future Volume (vph)	422	708	474	8	902	504	100	100	250
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Perm	NA
Protected Phases	5	2		1	6	3	8		4
Permitted Phases			2					4	
Detector Phase	5	2	2	1	6	3	8	4	4
Switch Phase									
Minimum Initial (s)	4.0	10.0	10.0	4.0	10.0	4.0	4.0	4.0	4.0
Minimum Split (s)	17.0	17.0	17.0	10.0	17.0	10.0	17.0	17.0	17.0
Total Split (s)	17.0	41.0	41.0	10.0	34.0	19.0	39.0	20.0	20.0
Total Split (%)	18.9%	45.6%	45.6%	11.1%	37.8%	21.1%	43.3%	22.2%	22.2%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0		-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag		Lead	Lead
Lead-Lag Optimize?		Yes	Yes	Yes		Yes		Yes	Yes
Recall Mode	None	C-Max	C-Max	None	Max	None	None	None	None
Act Effct Green (s)	13.0	45.0	45.0	6.0	30.0	15.0	35.0		16.0
Actuated g/C Ratio	0.14	0.50	0.50	0.07	0.33	0.17	0.39		0.18
v/c Ratio	0.93	0.43	0.49	0.08	0.90	0.96	0.17		0.98
Control Delay	41.8	10.1	5.5	26.6	48.9	67.2	17.7		60.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Delay	41.8	10.1	5.5	26.6	48.9	67.2	17.7		60.7
LOS	D	B	A	C	D	E	B		E
Approach Delay		17.1			48.7		58.3		60.7
Approach LOS		B			D		E		E

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:EBT, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.98	
Intersection Signal Delay: 38.7	Intersection LOS: D
Intersection Capacity Utilization 84.3%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 20: Spine Road & SR 92



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	459	753	515	9	1049	548	121	610
v/c Ratio	0.93	0.43	0.49	0.08	0.90	0.96	0.17	0.98
Control Delay	41.8	10.1	5.5	26.6	48.9	67.2	17.7	60.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.8	10.1	5.5	26.6	48.9	67.2	17.7	60.7
Queue Length 50th (ft)	114	114	48	5	335	161	41	145
Queue Length 95th (ft)	m110	m202	m136	m6	#430	#262	79	#259
Internal Link Dist (ft)		973			1347		2366	714
Turn Bay Length (ft)	600			150		500		
Base Capacity (vph)	495	1769	1048	118	1172	572	717	625
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	0.93	0.43	0.49	0.08	0.90	0.96	0.17	0.98

Intersection Summary

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.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	422	708	474	8	902	82	504	100	11	100	250	224
Future Volume (vph)	422	708	474	8	902	82	504	100	11	100	250	224
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0			4.0	
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95		0.97	1.00			0.95	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.99			0.94	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00			0.99	
Satd. Flow (prot)	3433	3539	1583	1770	3494		3433	1835			3303	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00			0.87	
Satd. Flow (perm)	3433	3539	1583	1770	3494		3433	1835			2897	
Peak-hour factor, PHF	0.92	0.94	0.92	0.92	0.94	0.92	0.92	0.92	0.92	0.94	0.94	0.94
Adj. Flow (vph)	459	753	515	9	960	89	548	109	12	106	266	238
RTOR Reduction (vph)	0	0	285	0	8	0	0	4	0	0	111	0
Lane Group Flow (vph)	459	753	230	9	1041	0	548	117	0	0	499	0
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Perm	NA	
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases			2							4		
Actuated Green, G (s)	11.0	38.2	38.2	0.8	28.0		13.0	33.0			14.0	
Effective Green, g (s)	13.0	40.2	40.2	2.8	30.0		15.0	35.0			16.0	
Actuated g/C Ratio	0.14	0.45	0.45	0.03	0.33		0.17	0.39			0.18	
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0			6.0	
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0			4.0	
Lane Grp Cap (vph)	495	1580	707	55	1164		572	713			515	
v/s Ratio Prot	c0.13	0.21		0.01	c0.30		c0.16	0.06				
v/s Ratio Perm			0.15								c0.17	
v/c Ratio	0.93	0.48	0.33	0.16	0.89		0.96	0.16			0.97	
Uniform Delay, d1	38.0	17.5	16.1	42.5	28.5		37.2	17.9			36.8	
Progression Factor	0.75	0.65	2.96	0.65	1.44		1.00	1.00			1.00	
Incremental Delay, d2	10.1	0.3	0.4	1.3	7.8		27.3	0.1			31.6	
Delay (s)	38.6	11.7	48.1	28.8	48.9		64.5	18.1			68.3	
Level of Service	D	B	D	C	D		E	B			E	
Approach Delay (s)		29.7			48.8			56.1			68.3	
Approach LOS		C			D			E			E	

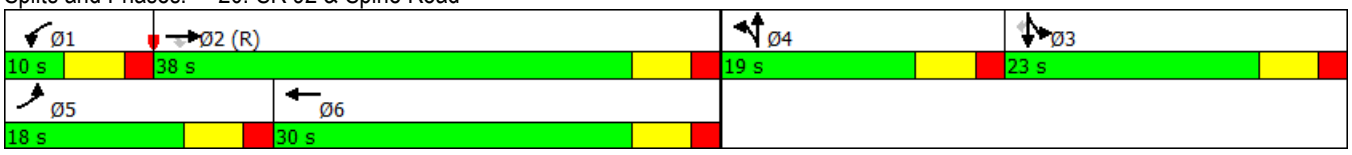
Intersection Summary			
HCM 2000 Control Delay	44.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	84.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	422	708	374	8	802	504	100	250	224
Future Volume (vph)	422	708	374	8	802	504	100	250	224
Turn Type	Prot	NA	Perm	Prot	NA	Split	NA	NA	Perm
Protected Phases	5	2		1	6	4	4	3	
Permitted Phases			2						3
Detector Phase	5	2	2	1	6	4	4	3	3
Switch Phase									
Minimum Initial (s)	4.0	10.0	10.0	4.0	10.0	4.0	4.0	4.0	4.0
Minimum Split (s)	17.0	17.0	17.0	10.0	17.0	10.0	10.0	10.0	10.0
Total Split (s)	18.0	38.0	38.0	10.0	30.0	19.0	19.0	23.0	23.0
Total Split (%)	20.0%	42.2%	42.2%	11.1%	33.3%	21.1%	21.1%	25.6%	25.6%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	0.0	0.0	-2.0	-2.0	0.0	-2.0	0.0
Total Lost Time (s)	4.0	4.0	6.0	6.0	4.0	4.0	6.0	4.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	Max	None	None	None	None
Act Effct Green (s)	14.0	42.0	40.0	4.0	26.0	15.0	13.0	19.0	17.0
Actuated g/C Ratio	0.16	0.47	0.44	0.04	0.29	0.17	0.14	0.21	0.19
v/c Ratio	0.98	0.46	0.44	0.12	0.93	0.96	0.45	0.98	0.47
Control Delay	77.2	18.1	3.7	32.0	52.0	67.2	39.7	77.6	6.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	77.2	18.1	3.7	32.0	52.0	67.2	39.7	77.6	6.9
LOS	E	B	A	C	D	E	D	E	A
Approach Delay		31.2			51.8		62.3	50.3	
Approach LOS		C			D		E	D	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:EBT, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.98	
Intersection Signal Delay: 44.7	Intersection LOS: D
Intersection Capacity Utilization 84.9%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 20: SR 92 & Spine Road



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	459	753	407	9	942	548	121	378	238
v/c Ratio	0.98	0.46	0.44	0.12	0.93	0.96	0.45	0.98	0.47
Control Delay	77.2	18.1	3.7	32.0	52.0	67.2	39.7	77.6	6.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	77.2	18.1	3.7	32.0	52.0	67.2	39.7	77.6	6.9
Queue Length 50th (ft)	154	140	0	5	301	161	61	215	0
Queue Length 95th (ft)	#267	232	59	m7	#407	#262	115	#392	52
Internal Link Dist (ft)		945			1347		340	714	
Turn Bay Length (ft)	600		850	150					
Base Capacity (vph)	467	1651	929	78	1016	572	269	387	505
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	0.98	0.46	0.44	0.12	0.93	0.96	0.45	0.98	0.47

Intersection Summary

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.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	422	708	374	8	802	82	504	100	11	100	250	224
Future Volume (vph)	422	708	374	8	802	82	504	100	11	100	250	224
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	6.0	6.0	4.0		4.0	6.0			4.0	6.0
Lane Util. Factor	*0.85	0.95	1.00	1.00	0.95		0.97	1.00			1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.99			1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00			0.99	1.00
Satd. Flow (prot)	3008	3539	1583	1770	3489		3433	1835			1837	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00			0.99	1.00
Satd. Flow (perm)	3008	3539	1583	1770	3489		3433	1835			1837	1583
Peak-hour factor, PHF	0.92	0.94	0.92	0.92	0.94	0.92	0.92	0.92	0.92	0.94	0.92	0.94
Adj. Flow (vph)	459	753	407	9	853	89	548	109	12	106	272	238
RTOR Reduction (vph)	0	0	248	0	9	0	0	4	0	0	0	193
Lane Group Flow (vph)	459	753	159	9	933	0	548	117	0	0	378	45
Turn Type	Prot	NA	Perm	Prot	NA		Split	NA		Split	NA	Perm
Protected Phases	5	2		1	6		4	4		3	3	
Permitted Phases			2									3
Actuated Green, G (s)	12.0	35.2	35.2	0.8	24.0		13.0	13.0			17.0	17.0
Effective Green, g (s)	14.0	37.2	35.2	0.8	26.0		15.0	13.0			19.0	17.0
Actuated g/C Ratio	0.16	0.41	0.39	0.01	0.29		0.17	0.14			0.21	0.19
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0			6.0	6.0
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0			4.0	4.0
Lane Grp Cap (vph)	467	1462	619	15	1007		572	265			387	299
v/s Ratio Prot	c0.15	0.21		0.01	c0.27		c0.16	0.06			c0.21	
v/s Ratio Perm			0.10									0.03
v/c Ratio	0.98	0.52	0.26	0.60	0.93		0.96	0.44			0.98	0.15
Uniform Delay, d1	37.9	19.7	18.5	44.4	31.1		37.2	35.2			35.3	30.5
Progression Factor	1.00	1.00	1.00	0.72	1.30		1.00	1.00			1.00	1.00
Incremental Delay, d2	37.0	1.3	1.0	42.9	11.6		27.3	1.6			39.3	0.3
Delay (s)	74.9	21.0	19.6	74.8	52.0		64.5	36.8			74.6	30.8
Level of Service	E	C	B	E	D		E	D			E	C
Approach Delay (s)		35.9			52.2			59.5			57.7	
Approach LOS		D			D			E			E	

Intersection Summary			
HCM 2000 Control Delay	47.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	84.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	SEL	SET	NWT	NWR	SWL	SWR	Ø1
Lane Configurations							
Traffic Volume (vph)	241	710	1130	175	185	304	
Future Volume (vph)	241	710	1130	175	185	304	
Turn Type	pm+pt	NA	NA	Free	Prot	Perm	
Protected Phases	5	2	6		4		1
Permitted Phases	2			Free		4	
Detector Phase	5	2	6		4	4	
Switch Phase							
Minimum Initial (s)	5.0	15.0	15.0		5.0	5.0	5.0
Minimum Split (s)	11.0	38.0	38.0		12.0	12.0	11.0
Total Split (s)	24.0	57.0	45.0		21.0	21.0	12.0
Total Split (%)	26.7%	63.3%	50.0%		23.3%	23.3%	13%
Yellow Time (s)	3.0	5.0	5.0		4.0	4.0	3.0
All-Red Time (s)	2.0	2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	7.0	7.0		6.0	6.0	
Lead/Lag	Lead	Lag	Lag				Lead
Lead-Lag Optimize?	Yes	Yes	Yes				Yes
Recall Mode	None	C-Max	Max		None	None	None
Act Effct Green (s)	64.6	62.6	43.7	90.0	14.4	14.4	
Actuated g/C Ratio	0.72	0.70	0.49	1.00	0.16	0.16	
v/c Ratio	0.72	0.32	0.71	0.14	0.77	0.70	
Control Delay	25.0	2.3	22.3	0.2	55.5	15.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	25.0	2.3	22.3	0.2	55.5	15.0	
LOS	C	A	C	A	E	B	
Approach Delay		8.3	19.0		30.3		
Approach LOS		A	B		C		

Intersection Summary		
Cycle Length: 90		
Actuated Cycle Length: 90		
Offset: 17 (19%), Referenced to phase 2:SETL, Start of Green		
Natural Cycle: 70		
Control Type: Actuated-Coordinated		
Maximum v/c Ratio: 0.77		
Intersection Signal Delay: 17.4	Intersection LOS: B	
Intersection Capacity Utilization 69.8%	ICU Level of Service C	
Analysis Period (min) 15		

Splits and Phases: 21: SR 92 & Ridge Rd

Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Group Flow (vph)	284	789	1228	216	218	358
v/c Ratio	0.72	0.32	0.71	0.14	0.77	0.70
Control Delay	25.0	2.3	22.3	0.2	55.5	15.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.0	2.3	22.3	0.2	55.5	15.0
Queue Length 50th (ft)	29	34	283	0	119	24
Queue Length 95th (ft)	m133	m42	405	0	#201	93
Internal Link Dist (ft)		1347	942		678	
Turn Bay Length (ft)	300			250		350
Base Capacity (vph)	483	2462	1720	1583	295	521
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.59	0.32	0.71	0.14	0.74	0.69

Intersection Summary

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.

Movement	SEL	SET	NWU	NWT	NWR	SWL	SWR
Lane Configurations							
Traffic Volume (vph)	241	710	0	1130	175	185	304
Future Volume (vph)	241	710	0	1130	175	185	304
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	7.0		7.0	4.0	6.0	6.0
Lane Util. Factor	1.00	0.95		0.95	1.00	1.00	1.00
Frt	1.00	1.00		1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00		1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	3539		3539	1583	1770	1583
Flt Permitted	0.12	1.00		1.00	1.00	0.95	1.00
Satd. Flow (perm)	216	3539		3539	1583	1770	1583
Peak-hour factor, PHF	0.85	0.90	0.92	0.92	0.81	0.85	0.85
Adj. Flow (vph)	284	789	0	1228	216	218	358
RTOR Reduction (vph)	0	0	0	0	0	0	260
Lane Group Flow (vph)	284	789	0	1228	216	218	98
Turn Type	pm+pt	NA	pm+pt	NA	Free	Prot	Perm
Protected Phases	5	2	1	6		4	
Permitted Phases	2		6		Free		4
Actuated Green, G (s)	62.6	62.6		43.7	90.0	14.4	14.4
Effective Green, g (s)	62.6	62.6		43.7	90.0	14.4	14.4
Actuated g/C Ratio	0.70	0.70		0.49	1.00	0.16	0.16
Clearance Time (s)	5.0	7.0		7.0		6.0	6.0
Vehicle Extension (s)	3.0	4.0		4.0		4.0	4.0
Lane Grp Cap (vph)	390	2461		1718	1583	283	253
v/s Ratio Prot	c0.11	0.22		0.35		c0.12	
v/s Ratio Perm	c0.39				0.14		0.06
v/c Ratio	0.73	0.32		0.71	0.14	0.77	0.39
Uniform Delay, d1	17.4	5.4		18.2	0.0	36.2	33.9
Progression Factor	1.13	0.37		1.00	1.00	1.00	1.00
Incremental Delay, d2	6.2	0.3		2.6	0.2	12.9	1.4
Delay (s)	25.9	2.3		20.8	0.2	49.1	35.2
Level of Service	C	A		C	A	D	D
Approach Delay (s)		8.5		17.7		40.5	
Approach LOS		A		B		D	

Intersection Summary			
HCM 2000 Control Delay	18.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	69.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	907	195	382	331	187	675
Future Volume (vph)	907	195	382	331	187	675
Turn Type	Prot	NA	NA	Free	Prot	Free
Protected Phases	5	2	6		4	
Permitted Phases				Free		Free
Detector Phase	5	2	6		4	
Switch Phase						
Minimum Initial (s)	15.0	15.0	15.0		5.0	
Minimum Split (s)	22.0	22.0	32.0		30.0	
Total Split (s)	28.0	60.0	32.0		30.0	
Total Split (%)	31.1%	66.7%	35.6%		33.3%	
Yellow Time (s)	4.0	4.0	4.0		4.0	
All-Red Time (s)	2.0	2.0	2.0		2.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	6.0	6.0	6.0		6.0	
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	None	None	None		None	
Act Effct Green (s)	22.2	52.0	23.7	80.4	16.3	80.4
Actuated g/C Ratio	0.28	0.65	0.29	1.00	0.20	1.00
v/c Ratio	1.04	0.11	0.82	0.25	0.68	0.46
Control Delay	71.9	6.2	41.0	0.4	41.2	1.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	71.9	6.2	41.0	0.4	41.2	1.0
LOS	E	A	D	A	D	A
Approach Delay		58.8	22.2		10.2	
Approach LOS		E	C		B	

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 80.4	
Natural Cycle: 85	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.04	
Intersection Signal Delay: 33.3	Intersection LOS: C
Intersection Capacity Utilization 71.3%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 27: Phila Pike & SR 92

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	986	244	449	389	220	734
v/c Ratio	1.04	0.11	0.82	0.25	0.68	0.46
Control Delay	71.9	6.2	41.0	0.4	41.2	1.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	71.9	6.2	41.0	0.4	41.2	1.0
Queue Length 50th (ft)	~296	21	207	0	106	0
Queue Length 95th (ft)	#469	39	#358	0	166	0
Internal Link Dist (ft)		767	639		942	
Turn Bay Length (ft)	600					
Base Capacity (vph)	948	2400	608	1583	479	1583
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.04	0.10	0.74	0.25	0.46	0.46

Intersection Summary

~ 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.

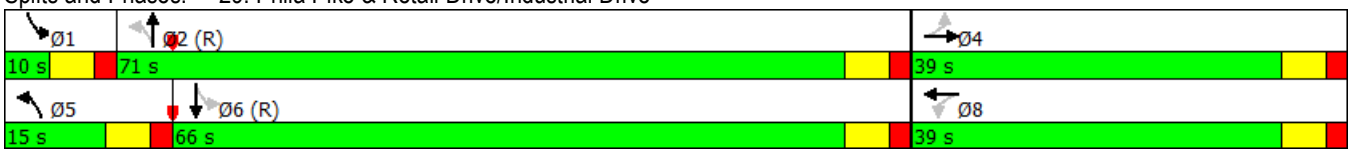
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	907	195	382	331	187	675
Future Volume (vph)	907	195	382	331	187	675
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	4.0	6.0	4.0
Lane Util. Factor	0.97	0.95	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	3539	1863	1583	1593	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	3539	1863	1583	1593	1583
Peak-hour factor, PHF	0.92	0.80	0.85	0.85	0.85	0.92
Adj. Flow (vph)	986	244	449	389	220	734
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	986	244	449	389	220	734
Parking (#/hr)					0	
Turn Type	Prot	NA	NA	Free	Prot	Free
Protected Phases	5	2	6		4	
Permitted Phases				Free		Free
Actuated Green, G (s)	22.2	52.0	23.8	80.3	16.3	80.3
Effective Green, g (s)	22.2	52.0	23.8	80.3	16.3	80.3
Actuated g/C Ratio	0.28	0.65	0.30	1.00	0.20	1.00
Clearance Time (s)	6.0	6.0	6.0		6.0	
Vehicle Extension (s)	5.0	5.0	5.0		3.0	
Lane Grp Cap (vph)	949	2291	552	1583	323	1583
v/s Ratio Prot	c0.29	0.07	c0.24		c0.14	
v/s Ratio Perm				0.25		0.46
v/c Ratio	1.04	0.11	0.81	0.25	0.68	0.46
Uniform Delay, d1	29.0	5.4	26.2	0.0	29.6	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	39.8	0.0	10.1	0.4	5.8	1.0
Delay (s)	68.9	5.4	36.2	0.4	35.4	1.0
Level of Service	E	A	D	A	D	A
Approach Delay (s)		56.3	19.6		8.9	
Approach LOS		E	B		A	

Intersection Summary			
HCM 2000 Control Delay	31.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	80.3	Sum of lost time (s)	18.0
Intersection Capacity Utilization	71.3%	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								
Traffic Volume (vph)	10	5	84	1	70	1022	13	984
Future Volume (vph)	10	5	84	1	70	1022	13	984
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	pm+pt	NA
Protected Phases		4		8	5	2	1	6
Permitted Phases	4		8		2	2	6	6
Detector Phase	4	4	8	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	33.0	33.0	33.0	33.0	10.0	33.0	10.0	33.0
Total Split (s)	39.0	39.0	39.0	39.0	15.0	71.0	10.0	66.0
Total Split (%)	32.5%	32.5%	32.5%	32.5%	12.5%	59.2%	8.3%	55.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		6.0		6.0	6.0	6.0	6.0	6.0
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)		19.7		19.7	87.8	84.3	80.1	76.9
Actuated g/C Ratio		0.16		0.16	0.73	0.70	0.67	0.64
v/c Ratio		0.36		0.75	0.22	0.46	0.04	0.50
Control Delay		12.6		56.8	2.2	1.9	6.7	14.2
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0
Total Delay		12.6		56.8	2.2	1.9	6.7	14.2
LOS		B		E	A	A	A	B
Approach Delay		12.6		56.8		1.9		14.1
Approach LOS		B		E		A		B

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 7 (6%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.75	
Intersection Signal Delay: 11.1	Intersection LOS: B
Intersection Capacity Utilization 63.3%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 29: Phila Pike & Retail Drive/Industrial Drive



Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	125	168	76	1138	14	1124
v/c Ratio	0.36	0.75	0.22	0.46	0.04	0.50
Control Delay	12.6	56.8	2.2	1.9	6.7	14.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.6	56.8	2.2	1.9	6.7	14.2
Queue Length 50th (ft)	11	101	3	26	2	232
Queue Length 95th (ft)	60	170	m5	38	10	353
Internal Link Dist (ft)	346	733		314		156
Turn Bay Length (ft)			150		150	
Base Capacity (vph)	516	353	362	2475	320	2253
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.48	0.21	0.46	0.04	0.50

Intersection Summary

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	5	100	84	1	70	70	1022	25	13	984	50
Future Volume (vph)	10	5	100	84	1	70	70	1022	25	13	984	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frt		0.88			0.94		1.00	1.00		1.00	0.99	
Flt Protected		1.00			0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1636			1703		1770	3527		1770	3514	
Flt Permitted		0.97			0.68		0.19	1.00		0.22	1.00	
Satd. Flow (perm)		1592			1197		351	3527		412	3514	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	11	5	109	91	1	76	76	1111	27	14	1070	54
RTOR Reduction (vph)	0	91	0	0	28	0	0	1	0	0	2	0
Lane Group Flow (vph)	0	34	0	0	140	0	76	1137	0	14	1122	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2	2		6	6	
Actuated Green, G (s)		19.7			19.7		87.3	80.7		77.3	75.7	
Effective Green, g (s)		19.7			19.7		87.3	80.7		77.3	75.7	
Actuated g/C Ratio		0.16			0.16		0.73	0.67		0.64	0.63	
Clearance Time (s)		6.0			6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)		261			196		333	2371		283	2216	
v/s Ratio Prot							c0.01	c0.32		0.00	c0.32	
v/s Ratio Perm		0.02			c0.12		0.15			0.03		
v/c Ratio		0.13			0.71		0.23	0.48		0.05	0.51	
Uniform Delay, d1		42.8			47.5		6.8	9.5		8.0	12.0	
Progression Factor		1.00			1.00		0.21	0.15		1.00	1.00	
Incremental Delay, d2		0.3			12.3		0.3	0.5		0.1	0.8	
Delay (s)		43.1			59.8		1.8	1.9		8.1	12.8	
Level of Service		D			E		A	A		A	B	
Approach Delay (s)		43.1			59.8			1.9			12.8	
Approach LOS		D			E			A			B	

Intersection Summary			
HCM 2000 Control Delay	12.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	63.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	WBL	WBR	NBL	NBT	SBT	Ø1
Lane Configurations						
Traffic Volume (vph)	302	810	276	502	1550	
Future Volume (vph)	302	810	276	502	1550	
Turn Type	Prot	custom	Prot	NA	NA	
Protected Phases	4	1 4	5	2	6	1
Permitted Phases						
Detector Phase	4	1 4	5	2	6	
Switch Phase						
Minimum Initial (s)	4.0		4.0	15.0	15.0	4.0
Minimum Split (s)	20.0		22.0	22.0	22.0	20.0
Total Split (s)	22.0		27.0	60.0	71.0	38.0
Total Split (%)	18.3%		22.5%	50.0%	59.2%	32%
Yellow Time (s)	4.0		4.0	4.0	4.0	4.0
All-Red Time (s)	2.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0		-2.0	-2.0	-2.0	
Total Lost Time (s)	4.0		4.0	4.0	4.0	
Lead/Lag			Lead	Lag	Lag	Lead
Lead-Lag Optimize?						
Recall Mode	None		None	C-Max	Max	None
Act Effct Green (s)	18.0	51.8	23.0	58.2	67.0	
Actuated g/C Ratio	0.15	0.43	0.19	0.48	0.56	
v/c Ratio	0.71	0.81	0.98	0.35	0.95	
Control Delay	57.8	36.7	98.8	16.7	27.2	
Queue Delay	0.0	0.0	0.0	0.0	5.6	
Total Delay	57.8	36.7	98.8	16.7	32.8	
LOS	E	D	F	B	C	
Approach Delay				45.8	32.8	
Approach LOS				D	C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 1 (1%), Referenced to phase 2:NBT, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.98	
Intersection Signal Delay: 38.9	Intersection LOS: D
Intersection Capacity Utilization 84.2%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 132: Phila Pike & I-495 NB Ramps

Lane Group	WBL	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	328	880	300	546	1685
v/c Ratio	0.71	0.81	0.98	0.35	0.95
Control Delay	57.8	36.7	98.8	16.7	27.2
Queue Delay	0.0	0.0	0.0	0.0	5.6
Total Delay	57.8	36.7	98.8	16.7	32.8
Queue Length 50th (ft)	126	321	216	163	304
Queue Length 95th (ft)	177	415	#427	73	m#835
Internal Link Dist (ft)				431	161
Turn Bay Length (ft)	250	400	500		
Base Capacity (vph)	463	1128	305	1545	1778
Starvation Cap Reductn	0	0	0	0	79
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.71	0.78	0.98	0.35	0.99

Intersection Summary

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.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	302	0	810	276	502	0	0	1550	0
Future Volume (vph)	0	0	0	302	0	810	276	502	0	0	1550	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0		6.0	4.0	4.0			4.0	
Lane Util. Factor				0.97		0.88	1.00	0.95			0.95	
Frt				1.00		0.85	1.00	1.00			1.00	
Flt Protected				0.95		1.00	0.95	1.00			1.00	
Satd. Flow (prot)				3090		2508	1593	3185			3185	
Flt Permitted				0.95		1.00	0.95	1.00			1.00	
Satd. Flow (perm)				3090		2508	1593	3185			3185	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	328	0	880	300	546	0	0	1685	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	328	0	880	300	546	0	0	1685	0
Turn Type				Prot		custom	Prot	NA			NA	
Protected Phases				4		1 4	5	2			6	
Permitted Phases												
Actuated Green, G (s)				16.0		51.8	21.0	56.2			65.0	
Effective Green, g (s)				18.0		51.8	23.0	58.2			67.0	
Actuated g/C Ratio				0.15		0.43	0.19	0.49			0.56	
Clearance Time (s)				6.0			6.0	6.0			6.0	
Vehicle Extension (s)				4.0			3.0	3.0			3.0	
Lane Grp Cap (vph)				463		1082	305	1544			1778	
v/s Ratio Prot				0.11		c0.35	c0.19	0.17			c0.53	
v/s Ratio Perm												
v/c Ratio				0.71		0.81	0.98	0.35			0.95	
Uniform Delay, d1				48.5		29.9	48.3	19.2			24.9	
Progression Factor				1.00		1.00	1.09	0.81			0.73	
Incremental Delay, d2				5.3		5.0	45.4	0.6			8.2	
Delay (s)				53.8		34.9	98.0	16.2			26.3	
Level of Service				D		C	F	B			C	
Approach Delay (s)		0.0			40.0			45.2			26.3	
Approach LOS		A			D			D			C	

Intersection Summary			
HCM 2000 Control Delay	35.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	84.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Arterial Level of Service: NB Phila Pike

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed	Run 1 Speed	Run 1 Delay
Myrtle Ave	117	11.3	15.9	0.1	13	13	11.3
I-495 SB Off	50	3.4	10.4	0.1	31	30	3.4
	56	0.7	2.5	0.0	33	32	0.7
	54	0.6	2.4	0.0	48	47	0.7
	132	15.9	24.1	0.1	15	13	17.8
	14	3.1	6.5	0.0	25	26	3.1
Alcott Ave.	299	2.6	5.7	0.0	21	22	2.3
Spine Road	3	17.7	23.3	0.1	11	12	15.5
	38	6.9	13.2	0.1	21	21	6.5
Industrial Drive	29	6.1	12.0	0.1	22	25	5.1
	49	1.4	4.9	0.0	33	34	1.2
SR 92	27	5.3	18.2	0.2	32	31	5.7
Waterfront Area Driv	11	3.2	14.0	0.1	35	34	3.6
Total		78.2	153.0	0.9	22	22	76.9

Arterial Level of Service: NB Phila Pike

Cross Street	Run 2 Speed	Run 2 Delay	Run 3 Speed	Run 3 Delay	Run 4 Speed	Run 4 Delay
Myrtle Ave	13	11.5	13	11.1	13	11.4
I-495 SB Off	29	3.6	32	3.0	31	3.3
	33	0.6	34	0.6	32	0.7
	50	0.5	50	0.5	48	0.6
	15	14.4	14	16.3	15	15.5
	25	3.1	25	3.2	26	3.0
Alcott Ave.	20	2.7	20	2.8	21	2.5
Spine Road	11	18.5	11	19.3	11	17.5
	21	6.6	20	7.3	20	7.2
Industrial Drive	23	5.8	21	6.8	21	6.7
	33	1.4	31	1.6	32	1.5
SR 92	32	5.4	33	4.5	31	5.7
Waterfront Area Driv	36	2.9	36	2.7	35	3.2
Total	22	77.1	22	79.6	22	78.9

Arterial Level of Service: SB Phila Pike

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed	Run 1 Speed	Run 1 Delay
Waterfront Area Driv	11	0.6	7.9	0.1	43	43	0.6
SR 92	27	27.8	38.2	0.1	13	12	30.0
	49	11.0	24.0	0.2	24	27	8.4
Retail Drive	29	15.1	18.8	0.0	9	11	11.0
	38	11.3	17.3	0.1	16	23	5.7
Spine Road	3	38.1	44.0	0.1	6	7	31.4
Alcott Ave.	299	7.6	13.2	0.1	20	21	6.6
	14	6.5	9.6	0.0	12	14	5.5
I-495 NB Ramps	132	16.8	20.2	0.0	8	9	15.8
	54	2.8	10.6	0.1	33	33	2.8
	56	0.8	3.3	0.0	35	35	0.8
I-495 SB Off	50	1.2	3.2	0.0	25	24	1.4
Darley Rd.	117	27.3	33.8	0.1	9	9	30.4
Total		167.0	244.0	1.0	14	15	150.4

Arterial Level of Service: SB Phila Pike

Cross Street	Run 2 Speed	Run 2 Delay	Run 3 Speed	Run 3 Delay	Run 4 Speed	Run 4 Delay
Waterfront Area Driv	43	0.6	43	0.5	43	0.6
SR 92	14	25.6	13	26.8	13	28.8
	18	18.6	26	9.2	27	8.3
Retail Drive	5	27.2	10	11.9	12	9.8
	9	24.0	17	10.2	25	4.8
Spine Road	4	55.4	6	39.3	9	25.6
Alcott Ave.	17	9.8	20	7.5	22	6.2
	10	8.5	12	6.9	14	5.2
I-495 NB Ramps	7	18.7	8	17.3	9	15.5
	33	2.8	33	2.8	33	2.8
	36	0.8	35	0.8	36	0.7
I-495 SB Off	25	1.2	25	1.2	26	1.1
Darley Rd.	10	25.5	9	27.5	10	25.8
Total	12	218.7	15	162.0	17	135.2