441 CANAL STREET MIXED-USE DEVELOPMENT

TRAFFIC/TRANSPORTATION STUDY AND
TDM/PARKING MANAGEMENT PLAN

Prepared for:

Heyman Properties, LLC

Client Ref: 141.15708.00002

February 2022

February 1, 2022

Mr. Jack McNamara, Vice President
Heyman Properties, LLC
C/O Heyman Enterprises
667 Madison Avenue, 20th Floor
New York, NY 10065

RE: Traffic/Transportation Study and TDM/Parking Management Plan
441 Canal Street Mixed-Use Development
Stamford, Connecticut
SLR #141.15708.00002

Dear Mr. McNamara:

At your request, we have conducted this study to assess the transportation aspects of the proposed 441 Canal Street mixed-use development in the South End of Stamford. This proposed development, which will replace existing buildings on the site, is to be 18 floors tall and contain around 401 residential units and 6,800 square feet (SF) of commercial space. This study encompasses review and analysis of pre-development area roadway traffic conditions and operations, assessment of area crash history and safety, estimation of the amount of new traffic that will be generated by this proposed development, and analyses of anticipated future traffic operations at and near the site after this proposed mixed-use development has opened. This study has also been prepared based on input and feedback from the City of Stamford Traffic, Transportation and Parking (TTP) Department and the Connecticut Department of Transportation (CTDOT). **Figure 1** shows the site location and surrounding area. It is noted that this development is a Transit Oriented Development (TOD), as it is located only around one-third of a mile from, only 3 to 4 blocks east of, the Stamford Transportation Center.

SITE ENVIRONS AND EXISTING CONDITIONS

The key intersections surrounding the site that have been analyzed as part of this study are the following:

1. Canal Street at North State Street (signalized)
2. Canal Street at South State Street (signalized)
3. Canal Street at Dock Street/Jefferson Street (signalized)
4. Dock Street at John Street (unsignalized)
5. Dock Street at Pacific Street (signalized)
6. Atlantic Street at Station Place/Dock Street (signalized)
7. Atlantic Street at South State Street (signalized)
8. Atlantic Street at North State Street (signalized)
9. Canal Street at proposed site driveway (unsignalized)
10. John Street at proposed site driveway (unsignalized)

North State Street and South State Street are a one-way pair of roads that provide access to on- and off-ramps for Interstate 95 (I-95) (Connecticut Turnpike) with two to three travel lanes and additional turning lanes at key intersections. North State Street carries westbound traffic while South State Street carries eastbound traffic. Although the speed limit for these roads is not posted within the study area, the City of Stamford has a blanket approval for a speed limit of 25 miles per hour (mph) unless posted and/or approved otherwise.

Canal Street and Atlantic Street run approximately north/south and are collector streets. The posted speed limit on Canal Street is 25 mph. Canal Street currently has two lanes in each direction adjacent to the site, as well as additional turn lanes at its intersection with Dock Street/Jefferson Street.

Dock Street/Jefferson Street (also known as the Urban Transitway) runs approximately east/west with two travel lanes in each direction and additional turning lanes at major intersections. One of the two travel lanes in either direction is reserved for high-occupancy vehicles with two or more persons per vehicle. Dock Street additionally has bicycle lanes.

John Street and Pacific Street are side streets (particularly John Street) that run approximately north/south with one travel lane in each direction. We understand that John Street is to be restriped as part of the adjacent 523 Canal Street development (Studio Green on Canal) to shift the centerline slightly to the west, retaining one lane in each direction, in order to add on-street parking along part(s) of the east side of John Street.

Crash History Analysis

Crash data for the streets adjacent to the site was obtained from the Connecticut Crash Data Repository (CTCDR) for the pre-COVID 3-year period of January 1, 2017, through December 31, 2019. This crash data is shown in Table 1, summarized by location, accident severity, and collision type.

TABLE 1
Crash History Summary

LOCATION:	CRASH SEVERITY					TYPE OF COLLISION						
	SERIOUS INJURY OR FATAL	SUSPECTED MINOR INJURY	POSSIBLE INJURY	PROPERTY DAMAGE ONLY	TOTAL	ANGLE	SIDESWIPE, SAME DIRECTION	HEAD-ON	REAR-END	FIXED-OBJECT	PEDESTRIAN	TOTAL
Canal Street along site frontage		1		1	**2**	1				1		**2**
Canal Street at Dock Street/Jefferson Street		4	5	36	**45**	14	6	1	22	1	1	**45**
Dock Street along site frontage					**0**							**0**
Dock Street at John Street		1	1	2	**4**	2			1		1	**4**
John Street along site frontage					**0**							**0**
TOTAL	**0**	**6**	**6**	**39**	**51**	**17**	**6**	**1**	**23**	**2**	**2**	**51**

Source: *Connecticut Crash Data Repository from January 1, 2017 through December 31, 2019*

In total, 51 crashes were reported during the 3-year period in the vicinity of the site. Approximately 76 percent of reported collisions resulted in property damage only and there were no serious injuries or fatalities reported. The most common collision type was the rear-end collision at 45 percent, followed by angle collisions at 33 percent and same-direction sideswipes at 12 percent. Considering the high volume of vehicles that travel through the study area, there do not appear to be any unusual trends in the crash history. Rear-end crashes, for instance, are unfortunately fairly common at high-traffic signalized intersections.

It is noted that there were two crashes that occurred that involved pedestrians, one at the signalized intersection of Canal Street and Dock Street/Jefferson Street and one at the unsignalized intersection of Dock Street at John Street. The one at Canal Street and Dock/Jefferson occurred on February 10, 2017, a Friday, at approximately 2:45 p.m. where a pedestrian was reportedly on Canal Street walking southbound and while crossing Dock Street was struck by a right turning vehicle. Wintry weather may have played a factor. It is not known if the pedestrian was crossing with the pedestrian walk signal, which operates concurrently with the Canal Street north-south artery traffic flow. The other collision involving a pedestrian, which occurred at the intersection of Dock Street and John Street, interestingly happened only 5 days later on February 15, 2017, a Wednesday, at approximately 4:50 p.m. during wet weather. This

occurred where a pedestrian was reportedly in the crosswalk on John Street when he/she was struck by a vehicle about to make a right turn from the John Street stop-sign controlled approach onto Dock Street. Both of these pedestrian collisions reportedly resulted in minor injuries.

Baseline Roadway Traffic Volumes

Due to the COVID-19 pandemic and its overall effect on reducing current travel and traffic patterns, new intersection turning movement traffic counts were unable to be conducted at the study intersections. Based on correspondence with the City of Stamford TTP Department and CTDOT, the baseline traffic volumes were established using the 2021 Combined Traffic Volumes from the Gateway Tower Expansion traffic study prepared by Fuss & O'Neill, dated February 11, 2021. Since the 2021 Combined Volumes from the Gateway study did not include the intersections of Dock Street at Pacific Street and Dock Street at John Street, traffic volumes from the 583 Pacific Street Traffic Study and the 523 Canal Street study were used and adjusted pro rata to balance with the Gateway 2021 Combined Volumes. **Figure 2** shows the baseline morning and afternoon peak-hour traffic volumes.

PROPOSED DEVELOPMENT, ACCESS, AND SITE TRAFFIC

The site is located on the south side of Dock Street between John Street and Canal Street. The proposed development will consist of approximately 401 total residential units and 6,800 SF of ground floor retail. Of the 401 residential units, just over three-quarters are to be 1-bedroom or studio units. A specific tenant for the ground-floor commercial space has not been determined at this time. For the purpose of this traffic study, it is conservatively assumed that this approximately 6,800 SF may be restaurant. Should a different commercial tenant, or multiple tenants, occupy this space, it would likely produce less traffic than one larger restaurant. The development is to have an internal parking garage with approximately 429 on-site parking spaces, meeting the zoning regulation requirements without any sharing. Vehicle access to/from the site will be provided primarily via two driveways, one at Canal Street and one at John Street, both of which are to be located as far as possible from nearby city intersections on the site's respective frontages.

Site-Generated Traffic Estimates

Peak-hour vehicle trips projected to be generated by the proposed development were estimated based on statistical data contained in the Institute of Transportation Engineers' (ITE) *Trip Generation*[1] publication. ITE Land Use Code (LUC) #222, Multifamily Housing (High-Rise), was used to estimate the number of trips that will be generated by the residential portion of the development. Since a tenant(s) for the approximately 6,800 SF of commercial space has not yet been identified, LUC #932, High Turnover Sit-Down Restaurant, was used to estimate vehicle trips generated by this portion of the development. LUC #932 has a higher trip rate than that of general retail and is therefore a more conservative estimate of potential traffic that may be generated by this approximately 6,800 SF portion of the building.

[1] *Trip Generation*, *10th Edition.* Institute of Transportation Engineers, 2017

Since ITE base data is largely based on single-use suburban sites with minimal access to transit, it is appropriate to adjust initial ITE trip generation estimates to more accurately reflect that this site is mixed-use and within a city setting with nearby transit. The site is noted to be within walking distance of a major transit station (the Stamford Transportation Center train and bus station), as well as on local bus routes and near shuttles, which allows for the use of a 20 percent TOD/walk credit for the trip estimates based on advice from CTDOT. The development itself is also to be mixed-use, allowing for another 5 percent credit per CTDOT procedures. As conservative measures, note that no credit was taken to account for the removal of any existing traffic associated with the prior land uses on this site that will be replaced, and no credit was taken for commercial traffic that would be vehicular pass-by traffic. Table 2 summarizes the trip generation estimates for the 441 Canal Street development.

TABLE 2
Estimated Site-Generated Vehicular Traffic

LAND USE	ITE LAND USE #	NUMBER OF VEHICLE TRIPS					
		WEEKDAY MORNING PEAK HOUR			WEEKDAY AFTERNOON PEAK HOUR		
		IN	OUT	TOTAL	IN	OUT	TOTAL
Multifamily Housing, high-rise (401 units)	222	40	75	115	75	55	130
25% TOD and Internal-Capture credit [1]		*-10*	*-20*	*-30*	*-20*	*-15*	*-35*
Residential Total		**30**	**55**	**85**	**55**	**40**	**95**
High Turnover Sit-down Restaurant (6,800 square feet)	932	40	35	75	40	30	70
25% TOD and Internal-Capture credit [1]		*-10*	*-10*	*-20*	*-10*	*-10*	*-20*
Commercial Total		**30**	**25**	**55**	**30**	**20**	**50**
Grand Total		**60**	**80**	**140**	**85**	**60**	**145**

Trip Generation, 11th Edition. Institute of Transportation Engineers, 2021
1. Per CTDOT-allowed procedures.

Site Traffic Distribution and Routing

The geographic distribution and routing of the site-generated traffic was estimated based on review of Journey-to-Work census data and the general roadway traffic patterns in the vicinity of the site. Given differences in travel patterns between residential and commercial land uses, separate trip distributions were created for each land use. The estimated site traffic distributions are shown in **Figures 3 and 4** for the residential and retail land uses, respectively. Note that as a conservative measure, most of the estimated new vehicular site traffic was routed for this study via Dock Street or Canal Street. Some

motorists may ultimately decide to also utilize Market Street and/or Henry Street to get where they are going, particularly if headed toward the west, southwest, or northwest of the site. **Figures 5 and 6** show the estimated site-generated traffic routed through the study intersections based on these distributions for the weekday morning and afternoon peak hours.

FUTURE ROADWAY TRAFFIC VOLUMES AND OPERATIONS

Future roadway traffic volumes were estimated both with and without the proposed development in place in order to determine possible traffic impacts. For the purposes of this study, the proposed 441 Canal Street development is anticipated to open in 2024.

The background traffic scenario is reflective of future conditions before the new development is built and was estimated by expanding the baseline traffic volumes to the estimated opening year of 2024 using an annual growth rate of 0.6 percent, per input from CTDOT. Additionally, the anticipated future site trips from the following approved developments were added to the network:

- 523 Canal
- 860 Canal
- True North

The Gateway Combined 2021 volumes, which were used as the baseline volumes in this analysis, already include the following developments:

- Atlantic Station
- The Smyth
- Davenport Landing
- Harbor Point
- URBY Stamford
- Woodland at Pacific
- Metro Green
- CTDOT STC Parking Garage
- Gateway Tower Expansion

The resultant projected future year 2024 volumes reflect conditions just before the proposed development would open and can be seen on **Figure 7** as the background traffic volumes. These volumes were approved by both CTDOT and TTP.

The combined traffic scenario is reflective of future conditions after the proposed development is built and opened and was estimated by adding the estimated new traffic generated by the development (shown in **Figures 5 and 6**) to the future background traffic (shown in **Figure 7**). The resultant estimated 2024 future combined (build) traffic volumes are shown on **Figure 8** for the weekday morning and afternoon peak hours.

Traffic Capacity Analyses

The future traffic volumes at the study intersections were evaluated by means of the *Synchro* software package, which use the methodologies of the *Highway Capacity Manual*. At the direction of the City of Stamford TTP Department, the signal phasing and timings for the signalized study intersections used in our analysis were based on signal timings provided by the City. Note that these signal timings may be different from past years and past area traffic studies because the City periodically adjusts how the signals are timed.

The quality of operations is measured and expressed as a level of service (LOS). LOS is defined as a measure of inconvenience that motorists experience. The levels are expressed with letter designations of A through F. In areas such as city areas, downtowns, and many TOD areas, LOS E during peak hours is often deemed acceptable and can indicate an efficient tradeoff between traffic flow and the amount of land devoted to the movement of motor vehicles. A more detailed explanation of LOS can be found in the Appendix.

Table 3 summarizes the findings of future overall LOS at the study intersections without (background) and with (combined) the estimated traffic generated by the proposed development, using the current signal timings. A comparison of background versus combined conditions is the assessment of whether or not the proposed development will noticeably affect traffic operations. The individual worksheets for each of the intersections and a more detailed LOS table are provided in the Appendix.

As can be seen in Table 3, traffic conditions between the background and combined scenarios are expected to remain the same in many areas. Some intersections are nonetheless expected to operate with poor LOS during peak hours in the future regardless of whether this proposed development occurs. For example, the signalized intersection of Canal Street at North State Street is expected to operate during the morning peak hour at overall LOS E with (Combined traffic conditions) or without (Background traffic conditions) new traffic added to the roadway network from this development. No change in LOS between Background and Combined traffic conditions indicates no notable impact caused by this development.

At some other signalized intersections nearby during certain peak periods, the new traffic associated with this development would result in a single letter reduction in LOS. For example, the intersection of Canal Street at South State Street is expected to decrease in overall LOS from E to F during the afternoon peak hour (between Background and Combined traffic conditions). The intersection of Canal Street at Dock Street/Jefferson Street would decrease in overall LOS from D to E during both weekday peak hours. However, investigation of modifications that could be made to adjust how the signals are timed found that in all cases where an overall LOS at a traffic signal would *decrease* in overall letter grade this could be mitigated through timing change adjustments. The results where signal timing adjustments would mitigate a decrease in overall LOS or improve existing LOS are shown in parentheses on Table 3.

TABLE 3
Level of Service Summary

MOVEMENTS	WEEKDAY MORNING PEAK HOUR		WEEKDAY AFTERNOON PEAK HOUR	
	BACKGROUND	COMBINED	BACKGROUND	COMBINED
OVERALL SIGNALIZED LOS				
Canal Street at North State Street	**E**	**E (D)**	**D**	**D (C)**
Canal Street at South State Street	**D**	**D**	**E**	**F (E)**
Canal Street at Dock Street/Jefferson Street	**D**	**D**	**D**	**E (C)**
Dock Street at Pacific Street	**C**	**C**	**C**	**C**
Atlantic Street at Station Place/Dock Street	**C**	**C**	**C**	**C**
Atlantic Street at South State Street	**B**	**B**	**C**	**C**
Atlantic Street at North State Street	**D**	**D (C)**	**D**	**D (C)**
UNSIGNALIZED				
Dock Street at John Street				
Eastbound Left	B	B	A	A
Westbound Left	B	B	B	C
Northbound Left/Through/Right	E	E	F	F
Southbound Left	E	E	F	F
Southbound Through/Right	B	B	B	B
Canal Street at proposed site driveway				
Eastbound Left/Right	-	A	-	A
Northbound Left	-	C	-	D
John Street at proposed site driveway				
Westbound Left/Right	-	A	-	A
Southbound Left	-	A	-	A

( ): with signal timing adjustment

Signal timing adjustments were also investigated for several other intersections in the study area and in some cases were found to improve upon an overall LOS (or improve upon signal delays and queuing but not to the extent of changing a LOS grade) even if unnecessary as a mitigation measure for this

development. To simplify Table 3, only signal timing adjustments that would result in an overall LOS improvement are denoted in parentheses. The City of Stamford TTP Department may wish to adjust signal timings based on this information as they periodically do, especially as traffic patterns evolve while Stamford continues to grow. Signal timings should continue to be adjusted and fine-tuned periodically as traffic patterns change, especially after new major developments come online such as this one and the other major developments that are included in our Background Traffic profile. Further details on these intersection operations and signal timing adjustment-related changes can be found in the Appendix.

At the *unsignalized* study intersections, the westbound left movement at the John Street at Dock Street intersection is the only movement expected to experience a decrease in LOS, and a minor decrease at that, due to the new traffic from this proposed 441 Canal Street development. With exceptions at the northbound approach of John Street at Dock Street and the opposite private driveway opposite John Street, no individual movements at the stop-sign controlled study intersections are expected to experience poor LOS during peak hours under Background and Combined conditions. And it is noted that these particular underlying delays at the John Street approach are due primarily to high volumes of passing traffic on Dock Street. Such is the case with stop-sign controlled approaches to higher traffic roads, even when the number of vehicles (particularly left-turning vehicles) egressing from a side street or driveway may be relatively low. The poor LOS that can be expected in the future for the left turn from John Street to Dock Street during the afternoon peak hour, for instance, will be similarly experienced at other left turns from other unsignalized side streets along Dock Street. It should also be noted that some motorists who become familiar with this site and the general area traffic patterns, especially motorists who routinely drive this area, will likely adjust their routing as necessary to avoid known delays associated with one route versus another. For example, some motorists may anticipate that there will be some delays egressing the site from John Street to Dock Street and instead will utilize the Canal Street driveway to get on their way or egress from John Street to Market Street to then drive to their destination.

The traffic flow analysis also takes into account anticipated restriping of Canal Street along the site frontage and to the south to have one northbound lane, one southbound lane, a center left-turn lane, and on-street parking on the west side of Canal Street instead of the existing four total vehicle lanes (the current two lanes in each direction). The change to Canal Street was a condition of approval of the adjacent 523 Canal Street redevelopment (Studio Green on Canal). The City of Stamford TTP Department indicated that this change will be made at some point in 2022 prior to the future background and combined traffic analysis conditions of this study. This change is what is known as a 'road-diet,' which can have other benefits such as slowing vehicle speeds and thus increasing safety in urban environments.

TRANSPORTATION DEMAND MANAGEMENT (TDM)/PARKING MANAGEMENT PLAN

As per the relatively new sections 19.F and 19.G of the Stamford Zoning Regulations, this portion of the study has been prepared as a combined TDM and Parking Management Plan for the proposed 441 Canal Street development. "… PMPs [Parking Management Plans], by themselves or in conjunction with the Transportation Demand Management Plans, are intended to discourage use of single occupancy passenger vehicles." More specifically, the regulations seek to achieve that at least 20 percent of employees and residents commute to work by travel modes other than single occupancy vehicles (SOVs)

– for example by using transit, carpooling, car sharing, telecommuting, bicycling, and/or walking. This is a worthy aim to help achieve less automobile congestion, emissions, and so on.

Alternate Travel Mode Options

The site's location, approximately one-third of a mile from the Stamford Transportation Center, and in the South End mixed-use urban neighborhood near downtown, lends itself to fewer trips to/from the site by automobile and instead by other more sustainable modes of transportation. A 20 percent to 25 percent reduction from ITE base vehicle trip generation estimates, quantified in Table 2, is anticipated due in large part to the site's location alone. The Stamford Transportation Center includes both rail service (Metro North, Amtrak, and Shore Line East) and the CTtransit Stamford Local System's bus hub, not to mention regional bus service, as well as local shuttle service. CTtransit bus routes 326 and 327, and the Harbor Point–Downtown shuttle (City Trolley), go directly past 441 Canal Street. The 441 Canal Street development will also have secure bicycle parking within the building for over 100 bicycles. Furthermore, with regard to the site's location, review of the latest available Census data (American Community Service 5-year Estimates circa 2019) finds that only around 57.5 percent of workers who reside in the South End (Census Tract 222) commute to work by driving alone; approximately 10.5 percent carpool, 17.5 percent use public transportation, 7.5 percent walk to work, 4 percent work from home, and 3 percent use other means (including some by bicycle). If future 441 Canal Street residents practice similar travel characteristics, this will bode well to meeting the 20 percent+ goal.

Parking

There are to be approximately 429 parking spaces within the 441 Canal Street development, exceeding the Stamford Zoning Regulation parking requirement for this development. It bears mentioning that municipal minimal parking requirements can be at odds with SOV reduction goals. Per the regulations, most of the parking is required for the 401 residential units and approximately 10 of the spaces are required for the commercial component of the development. Although it is noted that if the commercial component is ultimately occupied by several smaller tenants, then no parking would be required for the site commercial use(s).

The ultimate mix of how parking on the site will be used between the residential and commercial, and as a whole, may also turn out to be different. Review of ITE data, for instance, indicates that multifamily high-rise residential buildings on average generate just less than one parked car per unit during peak times and that high-rises near rail transit may only use half a parking space per unit on the whole, or one parked car for every two residential units. Review of parking count data in our files of multifamily residential buildings in central Stamford indicates that a development this close to the Stamford Transportation Center and with just over three-quarters of the units to be one-bedroom and studio units may end up using around 0.75 parking spaces per unit in the aggregate during peak periods, which would be around 300 parked vehicles within the approximately 429 spaces. And these are during the residential parking peak period, which is typically overnight and also when commercial parking usage is little to none. During the daytime and possibly the evening when the commercial use(s) on the site would be open (and note again that the commercial is a relatively small component of this development), residential parking demand is lower than

its overnight peak. Moreover, patrons of the commercial who drive to the site will likely be most inclined to park on street.

The approximately 429 on-site parking spaces will be self-park. Within the total, there are to be approximately 22 handicap spaces and 44 electric vehicle charging (EV) spaces. There is to be bicycle parking within the site for over 100 bicycles as mentioned above. There will also be loading within the site for box trucks, as well as the ability for truck loading on Canal Street and John Street with the forthcoming addition of on-street parking.

Access to the on-site parking is to be gate-controlled at both site driveways, one at Canal Street and one at John Street. Parking for residents within the site will be unassigned and unbundled. Unbundled parking is where a monthly parking pass will not automatically be included in the cost of rent. Instead, residents who want to park may pay separately for a monthly parking pass. Unbundled parking is generally a proven method to lower residential parking demand and can allow those residents without a car to not have to pay for parking (that would otherwise be embedded in their lease) that they do not need. Virtually every multifamily development in the downtown and South End unbundles parking. Residents who have a monthly parking pass should be instructed to first park on the upper levels of the site's parking garage. The ground-level parking is to have approximately 49 spaces (out of the total on-site parking supply), of which 10 may be designated for commercial tenant(s) use (in accordance with the zoning regulation) and the remaining approximately 39 ground level spaces could be allowed to effectively be shared-parking between commercial and residential (e.g., commercial daytime/evening use and overnight residential use), though it should again be noted that shared parking is not needed to satisfy zoning parking requirements. Building management can determine, how they see fit, the extent to which commercial tenant staff/employees may be offered monthly parking within the site and also to what extent commercial patron parking and visitor parking within the site could be allowed and managed (e.g., through hourly pay-parking, store-purchase validation, etc.).

New on-street parking adjacent to the site on Canal Street and John Street, which is expected to be installed/striped in the coming year as part of the 523 Canal Street development, should be signed as 2-hour parking like other existing on-street parking nearby in the South End, with the exception of 2 to 4 on-street spaces that we suggest be short-term (e.g., 15-minute parking) for curbside pickup/drop-off/delivery. The on-street parking adjacent to the site should also be monitored and the City may wish to increasingly manage on-street parking in the public right-of-way through the use of parking meters to spur increased turnover of spaces.

TDM/Parking Management – Monitor, Evaluate, and Increasingly Manage if Necessary

Periodic follow-up traffic and parking studies should be done after this development has opened and is mostly occupied (i.e., more than three-quarters occupied) to quantify and evaluate its actual traffic and parking demands. The number of peak-hour vehicle trips to/from the site should be counted to determine if it is meeting the aforementioned 20 percent reduction goal (see Table 2), and the peak number of parked vehicles at the site should also be counted to determine if parking should be better managed.

If the goal is not met that at least one in five residents and employees travel to/from this site by means other than by SOVs, that there be a 20 percent reduction from ITE base vehicle trip generation estimates, then the 441 Canal Street development should implement TDM/automobile-use reduction measure. These could include, but may not necessarily be limited to, one or more of the following:

- Provide transit information to residents and employees of the site
- Provide reduced-cost or free transit passes to residents and employees
- Introduce CarShare vehicles to the site (e.g., Zipcar, or a similar service)
- Increase the cost to park on site: resident monthly parking, commercial employee parking, commercial patron hourly parking

Moreover, if parking usage in the site is found to be regularly at capacity, then a higher level of parking management may be needed. This could include, but may not be limited to, one or more of the following:

- Charge more to park (as mentioned above)
- Remove the ability for some users to park on the site
- Increase parking supply on site (e.g., valet, stackers, tandem parking)

If parking turns out to be greatly oversupplied within the site, then it may make sense to lease excess supply to a third party and/or repurpose the excess for a different use.

If the future on-street parking adjacent to the site on Canal Street and John Street is found to be regularly at capacity for extended periods of the day, then the City may wish to introduce parking meters and to adjust meter pricing as necessary.

RECOMMENDATIONS

The following are recommendations and proposed improvements to enhance traffic operations and non-motorists' mobility in connection with this development:

- We recommend that the City of Stamford retime traffic signals near the site after this development is built and opened, particularly at the Canal Street intersections with North State Street, South State Street, and Dock Street/Jefferson Street. Again, it is important to note that timing changes at only some of the area intersections during some periods of the day may be minimally necessary as mitigation for this proposed development. These are Canal Street at South State Street and Canal Street at Dock Street/Jefferson Street during the weekday afternoon peak hour. We understand that the City of Stamford periodically adjusts and fine-tunes signal timings as traffic patterns change while the city grows, and should continue to do so when appropriate, such as after every new major development that comes online, and may wish to consult the suggested timing changes that have been analyzed as part of this study that are detailed in the Appendix.

- A curb extension/bumpout is to be installed at the southeast corner of Dock Street at John Street at the site frontage. This will provide some degree of safety improvement for pedestrians by shortening the crosswalk distance. As noted above, a crash occurred at this location involving a pedestrian in February 2017. John Street is to be restriped as part of the adjacent 523 Canal Street redevelopment to shift the centerline slightly to the west in order to add on-street parking along the east side of John Street. This provides the opportunity to install a curb extension/bumpout at this corner.

- New sidewalks will be installed along the site frontage as necessary upon construction of the new building on this site.

- Periodic monitoring and evaluation traffic counts of the site (peak-hour counts) should be undertaken after the site is built and three-quarters occupied to understand if the 20 percent SOV reduction goal is being met (see Table 2). If the site traffic counts are found to not be 20 percent less than the ITE base vehicle trip generation projections, then TDM measures (as mentioned earlier) should be implemented. The applicant is happy to accept a condition of approval requiring this reporting.

- Periodic monitoring and evaluation parking counts of the site (at different times of day and at night) should be undertaken after the site is built and three-quarters occupied to understand if the site is underparked or overparked, and as necessary to adjust how the parking is managed. The applicant is happy to accept a condition of approval requiring this reporting.

- The future on-street parking adjacent to the site on Canal Street and John Street should have 2 to 4 short-term (e.g., 15 minute) parking spaces for pickup/drop-off/delivery, with the remaining spaces signed as 2-hour parking. The on-street parking should also be monitored to determine if it should be increasingly managed by the City through the use of parking meters.

CONCLUSION

This study was conducted to assess the transportation aspects of the proposed development to be located at 441 Canal Street in Stamford, Connecticut. To determine a profile of existing/baseline conditions, field reconnaissance and data assembly efforts were undertaken. Estimates of the amount of new traffic that will be generated by the proposed development were made based on industry statistical data, and intersection capacity analyses were performed comparing future traffic scenarios at and nearby the site both without and with the new development in place. It was found that the new traffic generated by this development may cause some relatively minor reductions in LOS traffic operations at some area intersections. However, these could be mitigated through signal timing adjustments. These and other improvements are recommended to enhance area traffic operations in the future and to enhance non-motorist mobility, which are listed above. Lastly, traffic and parking counts of the site should be conducted after it is built and mostly occupied to determine if it is meeting City-regulation vehicular traffic reduction goals and if TDM measures should be implemented for the site and/or if parking at/adjacent to the site should be managed differently.

We hope this report is useful to you and the City of Stamford. If you have any questions or need further information, please do not hesitate to contact either of the undersigned.

Sincerely,

SLR International Corporation

David G. Sullivan, PE
U.S. Manager of Traffic & Transportation Planning

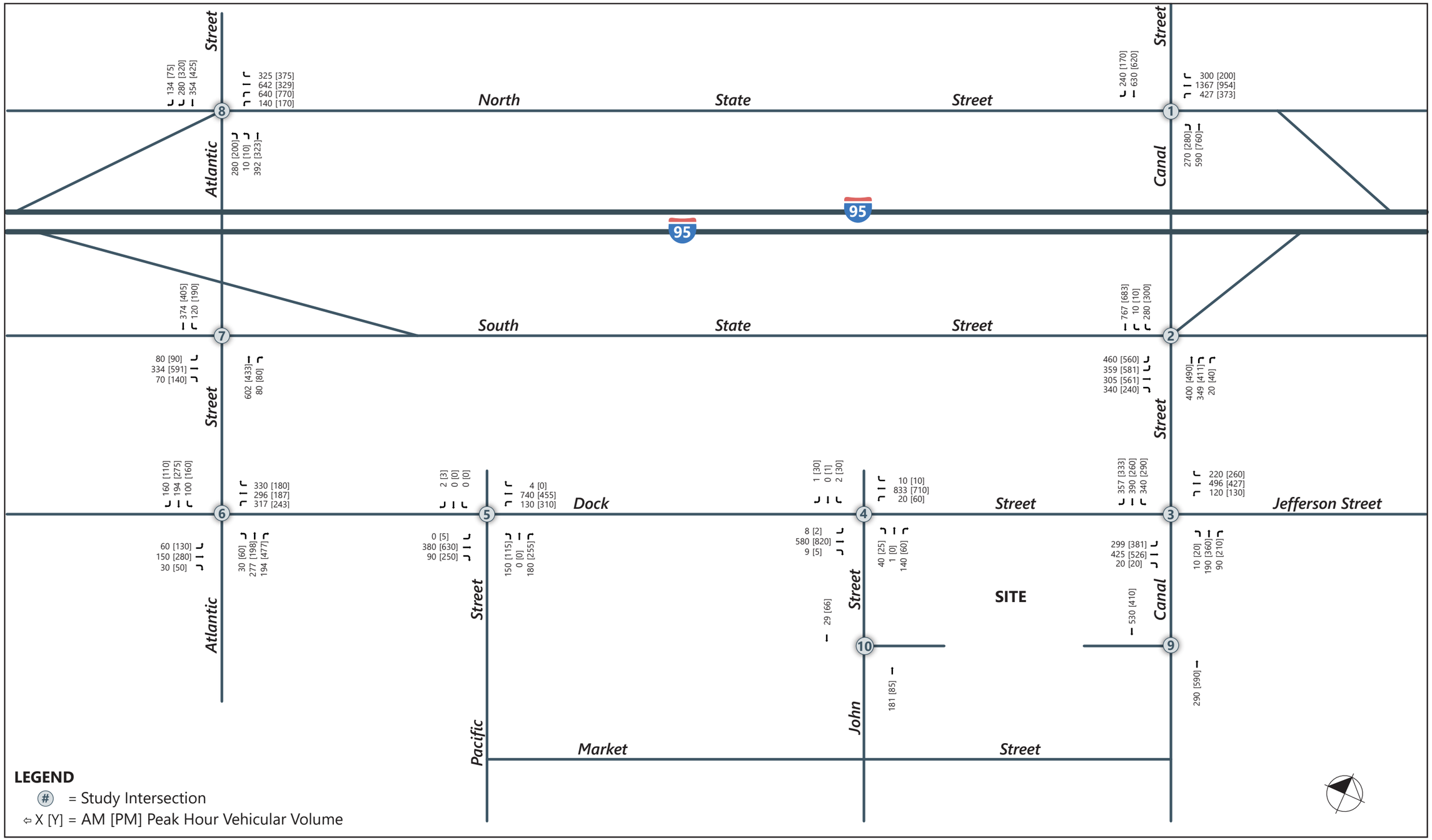
Neil C. Olinski, MS, PTP
Senior Transportation Planner

Enclosures

141.15708.00002.f122.rpt

FIGURE 1

SITE LOCATION MAP



LEGEND

(#) = Study Intersection

⇦ X [Y] = AM [PM] Peak Hour Vehicular Volume

FIGURE 2

BASELINE TRAFFIC VOLUMES

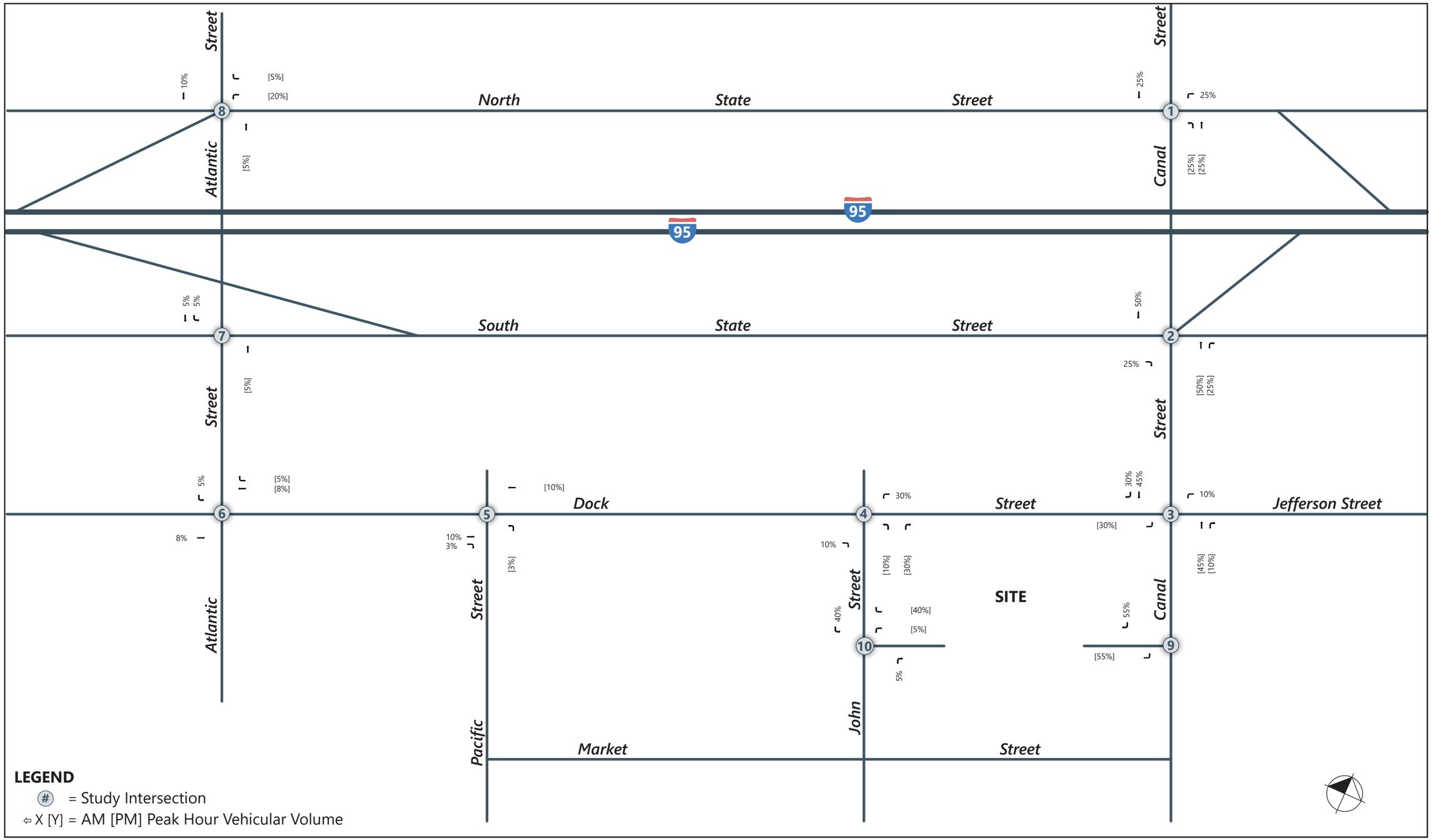


FIGURE 3

SITE TRAFFIC DISTRIBUTION
RESIDENTIAL LAND USE

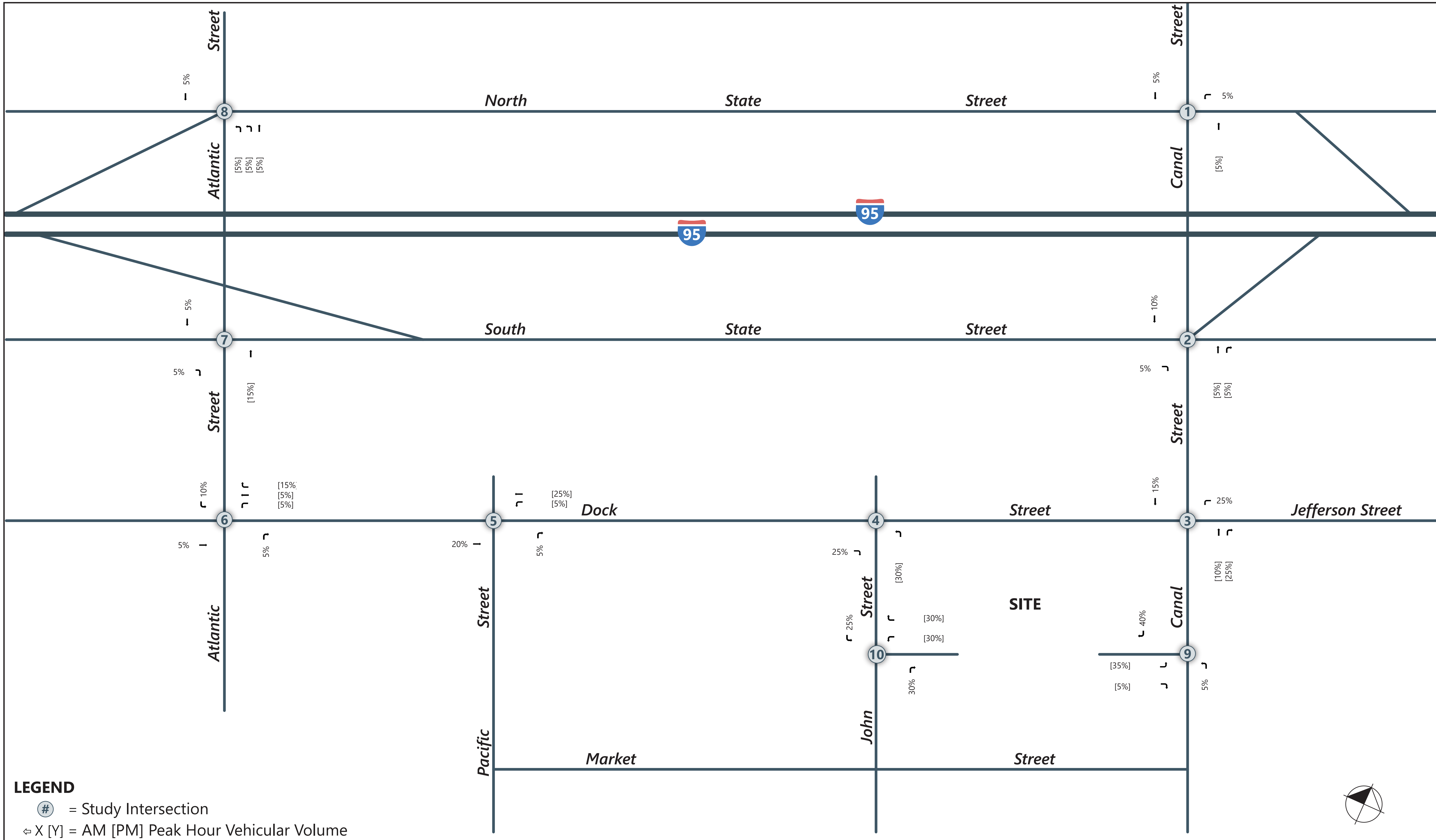


FIGURE 4

SITE TRAFFIC DISTRIBUTION
RETAIL LAND USE

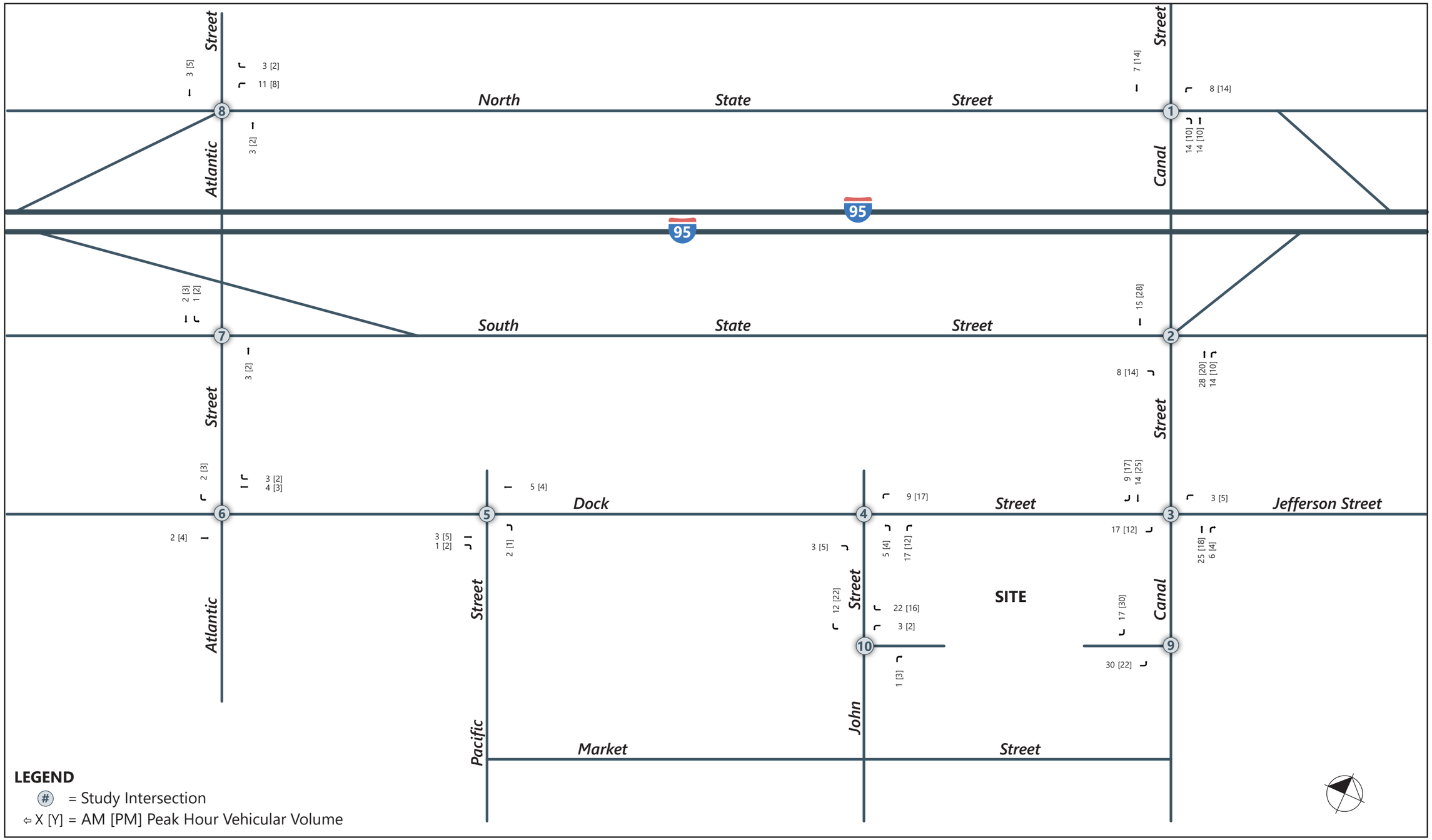


FIGURE 5

SITE-GENERATED TRAFFIC
RESIDENTIAL LAND USE

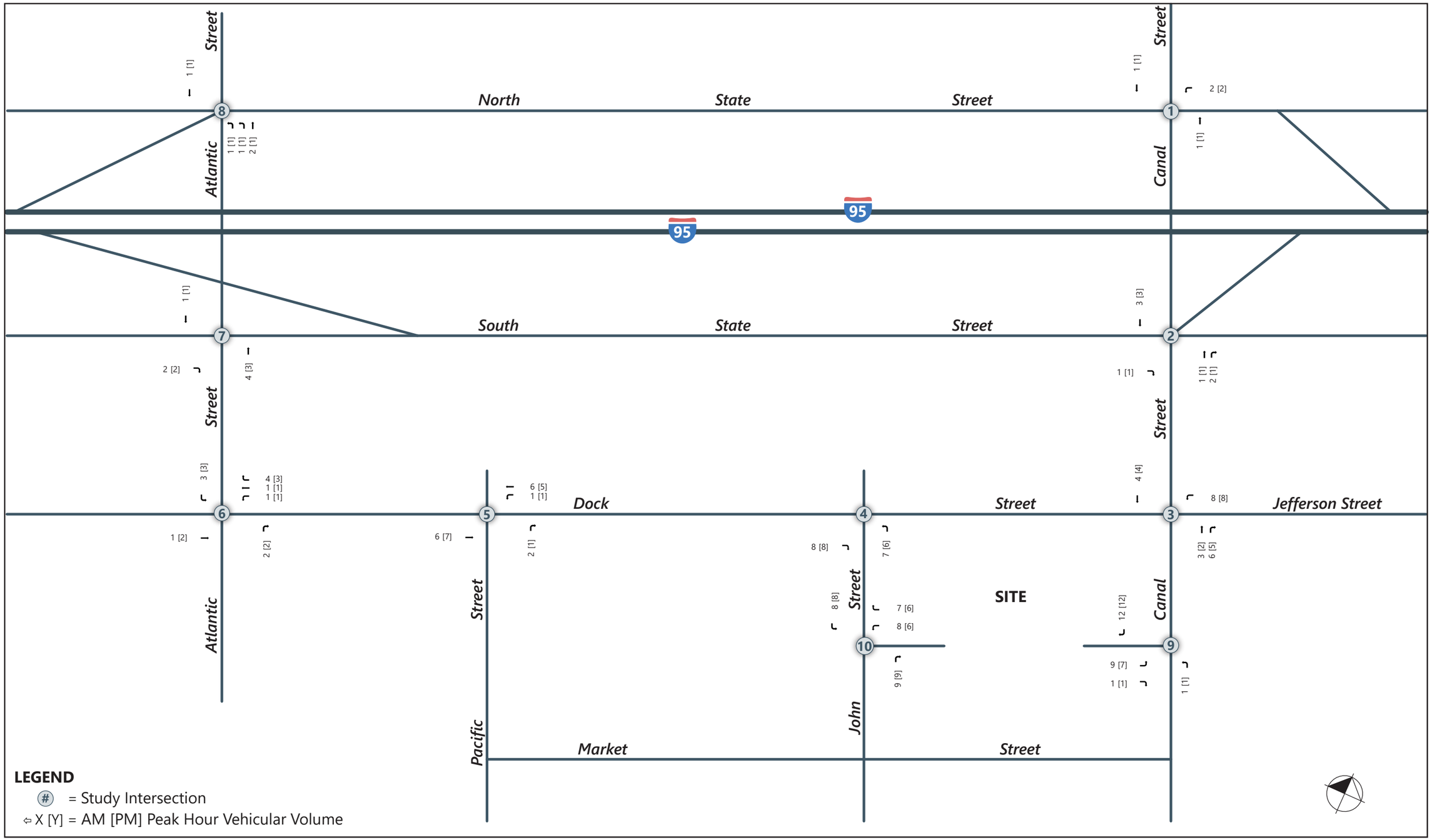
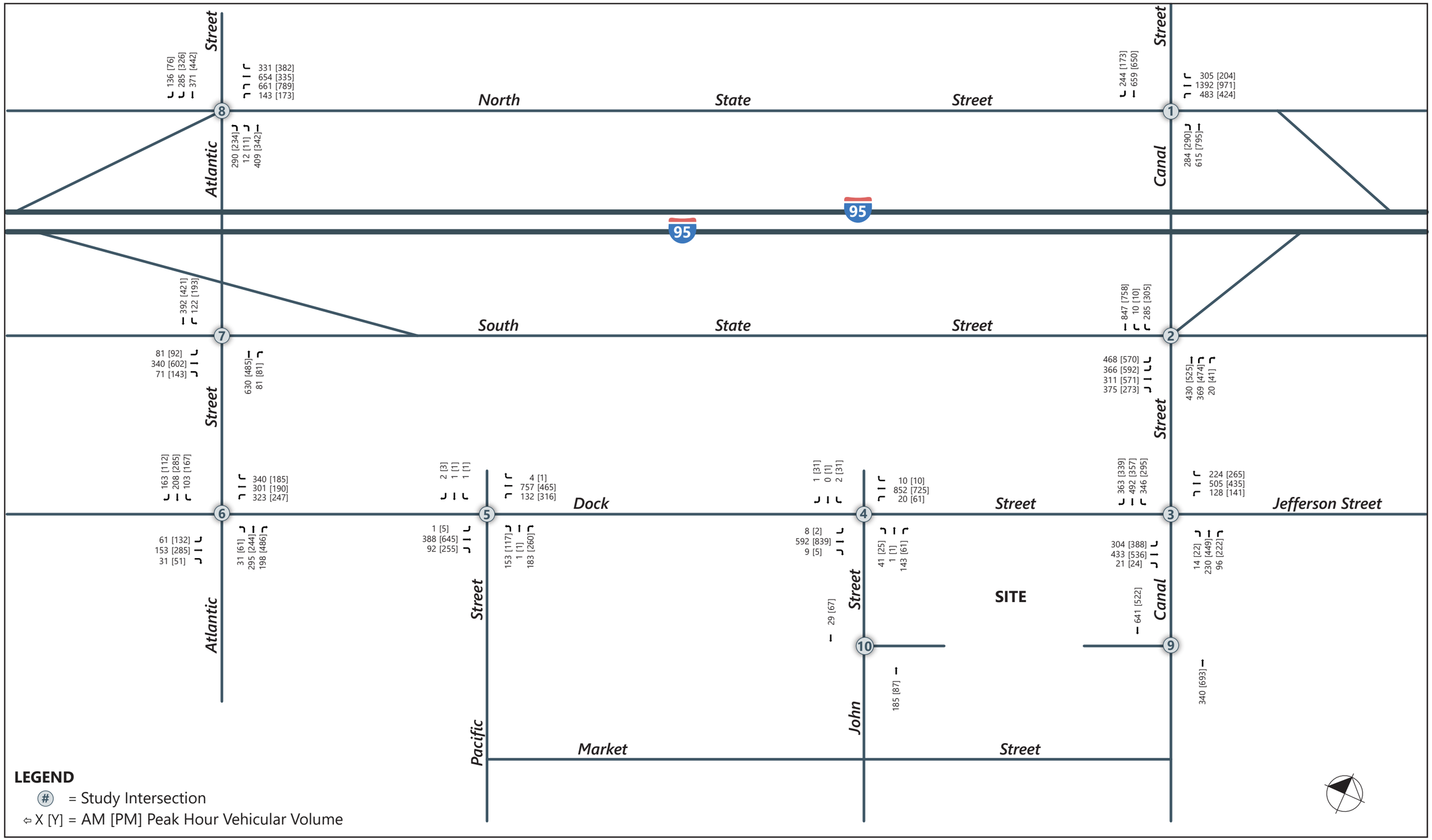


FIGURE 6

SITE-GENERATED TRAFFIC
RETAIL LAND USE



LEGEND

(#) = Study Intersection

⇦ X [Y] = AM [PM] Peak Hour Vehicular Volume

FIGURE 7

BACKGROUND TRAFFIC VOLUMES

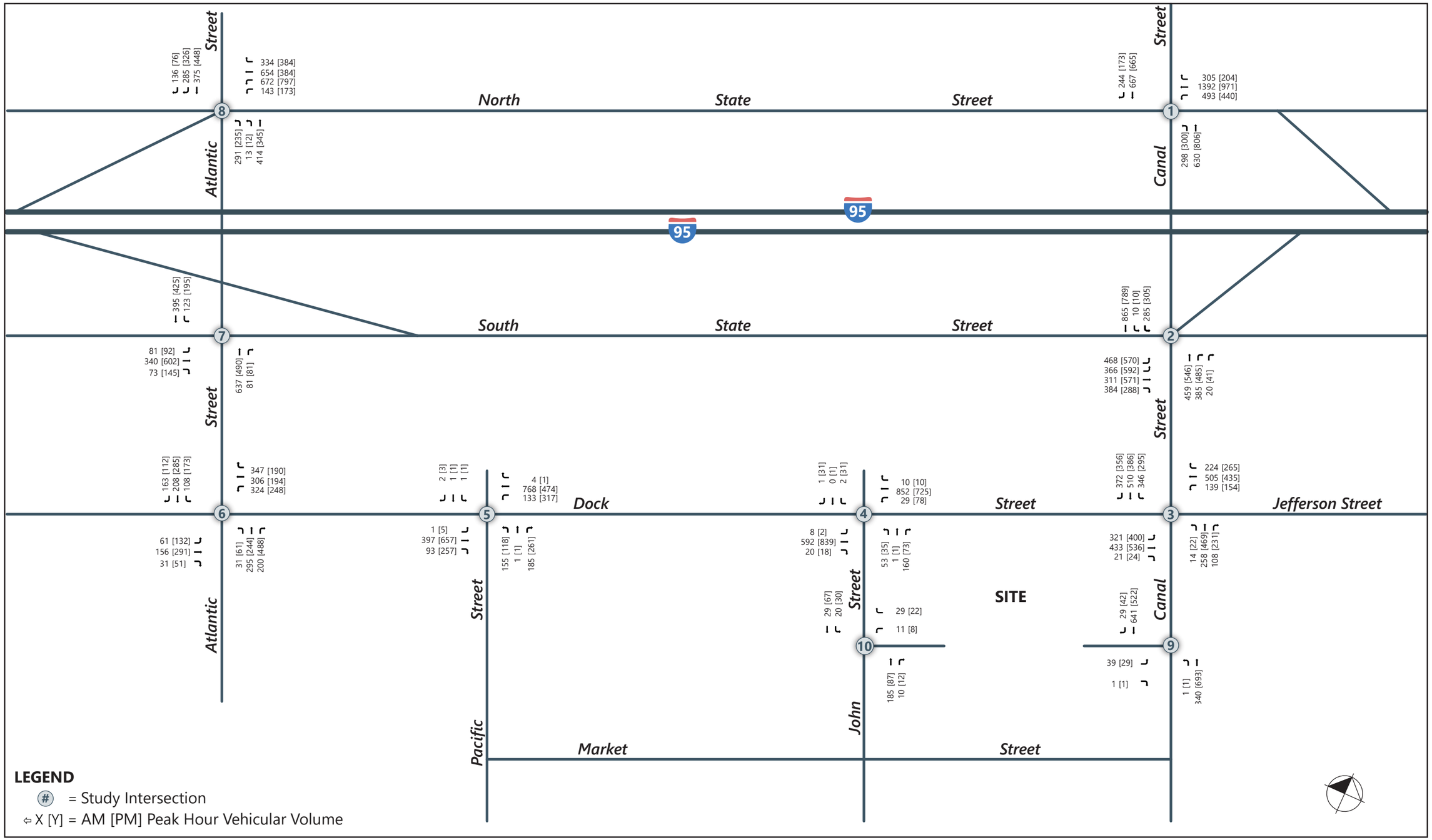


FIGURE 8

COMBINED TRAFFIC VOLUMES

APPENDIX

LEVEL OF SERVICE
FOR
SIGNALIZED INTERSECTIONS
(MOTORIZED VEHICLE MODE)

Level of service for signalized intersections is defined in terms of control delay, which is a measure of driver discomfort, frustration, fuel consumption, and increased travel time. The delay experienced by a motorist is made up of a number of factors that relate to control, geometrics, traffic, and incidents. Total delay is the difference between the travel time actually experienced and the reference travel time that would result during base conditions: in the absence of traffic control, geometric delay, any incidents, and any other vehicles. Specifically, LOS criteria for traffic signals are stated in terms of the average control delay per vehicle, typically for a 15-min analysis period. Delay is a complex measure and depends on a number of variables, including the quality of progression, the cycle length, the green ratio, and the v/c ratio for the lane group. The criteria are given below.

LEVEL-OF SERVICE CRITERIA FOR SIGNALIZED INTERSECTIONS
MOTORIZED VEHICLE MODE

LOS By Volume-to-Capacity Ratio[1]		CONTROL DELAY (s/veh)
v/c ≤ 1.0	v/c > 1.0	
A	F	≤ 10
B	F	> 10 AND ≤ 20
C	F	> 20 AND ≤ 35
D	F	> 35 AND ≤ 55
E	F	> 55 AND ≤ 80
F	F	> 80

[1] For approach-based and intersection-wide assessments, LOS is defined solely by control delay.

Specific descriptions of each LOS for signalized intersections are provided below:

Level of Service A describes operations with a control delay of 10 s/veh and 20 s/veh and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is low and either progression is exceptionally favorable or the cycle length is very short. If LOS A is the result of favorable progression, most vehicles arrive during the green indication and travel through the intersection without stopping.

Level of Service B describes operations with control delay between 10 and 20 s/veh and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is low and either progression is highly favorable or the cycle length is short. More vehicles stop than with LOS A.

Level of Service C describes operations with control delay between 20 and 35 s/veh and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when progression is favorable or the cycle length is moderate. Individual *cycle failures* (i.e., one or more queued vehicles are not able to depart as a result of insufficient capacity during the cycle) may begin to appear at this level. The number of vehicles stopping is significant, although many vehicles still pass through the intersection without stopping.

Level of Service D describes operations with control delay between 35 and 55 s/veh and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is high and either progression is ineffective or the cycle length is long. Many vehicles stop and individual cycle failures are noticeable.

Level of Service E describes operations with control delay between 55 and 80 s/veh and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is high, progression is unfavorable, and the cycle length is long. Individual cycle failures are frequent.

Level of Service F describes operations with control delay exceeding 80 s/veh or a volume-to-capacity ratio greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is very high, progression is very poor, and the cycle length is long. Most cycles fail to clear the queue.

Reference: Highway Capacity Manual 6, Transportation Research Board, 2016.

LEVEL OF SERVICE
FOR TWO-WAY
STOP SIGN CONTROLLED INTERSECTIONS

The level of service for a TWSC (two-way stop controlled) intersection is determined by the computed or measured control delay and is defined for each minor movement. Level of service is not defined for the intersection as a whole. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. LOS criteria are given in the Table**.** LOS criteria are given below:

LEVEL-OF SERVICE CRITERIA FOR AWSC INTERSECTIONS	
LOS[1]	**CONTROL DELAY (s/veh)**
A	**≤ 10**
B	**> 10 AND ≤ 15**
C	**> 15 AND ≤ 25**
D	**> 25 AND ≤ 35**
E	**> 35 AND ≤ 50**
F	**> 50**

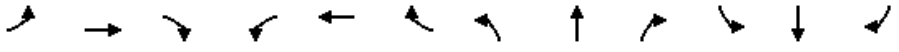
Note: LOS criteria apply to each lane on a given approach and to each approach on the minor street.
LOS is not calculated for major-street approaches or for the intersection as a whole.
LOS F is assigned to a movement if the volume-to-capacity ratio exceeds 1.0, regardless of the control delay

Reference: Highway Capacity Manual Version 6.0, Transportation Research Board, 2016.

441 Canal Traffic Street Study - LOS Summary Table

MOVEMENTS	WEEKDAY MORNING PEAK HOUR			WEEKDAY AFTERNOON PEAK HOUR		
	BACKGROUND	COMBINED	COMBINED WITH TIMING CHANGES	BACKGROUND	COMBINED	COMBINED WITH TIMING CHANGES
SIGNALIZED						
Canal Street at North State Street						
Westbound Left/Through/Right	F	F	D	D	D	D
Northbound Left	F	F	E	F	F	C
Northbound Through	B	B	B	C	C	B
Southbound Through/Right	D	D	E	D	D	C
OVERALL	**E**	**E**	**D**	**D**	**D**	**C**
Canal Street at South State Street						
Eastbound Left/Slight Left	F	F	E	F	F	F
Eastbound Slight Left	E	E	E	F	F	F
Eastbound Through	C	C	C	C	C	C
Eastbound Right	E	E	D	D	D	C
Northbound Through/Right/Slight Right	C	C	B	F	F	D
Southbound Left/Slight Left/Through	C	C	E	D	E	D
OVERALL	**D**	**D**	**D**	**E**	**F**	**E**
Canal Street at Dock Street/Jefferson Street						
Eastbound Left	E	F	D	F	F	D
Eastbound Through/Right	D	D	C	D	D	C
Westbound Left	C	C	C	C	C	C
Westbound Through/Right	E	E	E	F	F	D
Northbound Left/Through	D	D	C	D	D	D
Northbound Right	A	A	A	A	A	B
Southbound Left	C	C	C	B	C	C
Southbound Through/Right	C	C	C	B	B	C
Southbound Right	A	A	A	A	A	A
OVERALL	**D**	**D**	**D**	**D**	**E**	**C**
Dock Street at Pacific Street						
Eastbound Left	B	B	B	B	B	B
Eastbound Through/Right	B	B	C	C	C	C
Westbound Left	B	B	A	C	C	D
Westbound Through/Right	B	B	A	B	B	A
Northbound Left/Through/Right	D	D	D	D	D	D
Southbound Left/Through/Right	C	C	C	B	B	B
OVERALL	**C**	**C**	**C**	**C**	**C**	**C**

Atlantic Street at Station Place/Dock Street						
Eastbound Left	C	C	C	C	C	C
Eastbound Through/Right	E	E	E	E	E	E
Westbound Left	D	D	D	C	C	C
Westbound Through	D	D	D	C	C	C
Westbound Right	A	A	B	A	A	A
Northbound Left	B	B	B	C	C	C
Northbound Through	C	C	C	C	C	C
Northbound Right	A	A	A	A	A	A
Southbound Left	A	A	B	B	B	B
Southbound Through	B	B	B	B	B	C
Southbound Right	A	A	A	A	A	A
OVERALL	**C**	**C**	**C**	**C**	**C**	**C**
Atlantic Street at South State Street						
Eastbound Left	D	D	D	C	C	C
Eastbound Through/Right	D	D	D	D	D	D
Northbound Through	A	A	A	B	B	B
Northbound Right	A	A	A	A	A	B
Southbound Left	A	A	A	B	B	B
Southbound Through	A	A	A	A	A	A
OVERALL	**B**	**B**	**B**	**C**	**C**	**C**
Atlantic Street at North State Street						
Westbound Left/Through/Right	D	D	C	D	D	C
Northbound Left	D	D	C	D	D	C
Northbound Through	B	B	B	B	B	B
Southbound Through	D	D	C	D	D	C
Southbound Right	F	F	E	E	E	E
OVERALL	**D**	**D**	**C**	**D**	**D**	**C**
UNSIGNALIZED						
Dock Street at John Street						
Northbound Left/Through	E	E	E	F	F	F
Northbound Right	B	B	B	B	B	B
Eastbound Left	B	B	B	A	A	A
Westbound Left	B	B	B	B	C	C
Southbound Left	E	E	E	F	F	F
Southbound Through/Right	B	B	B	B	B	B
Canal Street at proposed site driveway						
Northbound Left	-	A	A	-	A	A
Eastbound Left/Right	-	C	C	-	D	D
John Street at proposed site driveway						
Westbound Left/Right	-	A	A	-	A	A
Southbound Left	-	A	A	-	A	A



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	483	1392	305	284	615	0	0	659	244
Future Volume (vph)	0	0	0	483	1392	305	284	615	0	0	659	244
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.86	0.86	0.86	1.00	0.95	1.00	1.00	0.95	0.95
Frt					0.979						0.959	
Flt Protected					0.989		0.950					
Satd. Flow (prot)	0	0	0	0	6204	0	1770	3539	0	0	3394	0
Flt Permitted					0.989		0.102					
Satd. Flow (perm)	0	0	0	0	6204	0	190	3539	0	0	3394	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					38						47	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1209			425			225			425	
Travel Time (s)		27.5			9.7			5.1			9.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	525	1513	332	309	668	0	0	716	265
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	2370	0	309	668	0	0	981	0
Turn Type				Split	NA		D.P+P	NA			NA	
Protected Phases				4	4		1	1 2			2	
Permitted Phases							2					
Detector Phase				4	4		1					
Switch Phase												
Minimum Initial (s)				7.0	7.0		7.0				15.0	
Minimum Split (s)				34.5	34.5		11.0				33.4	
Total Split (s)				50.0	50.0		27.0				43.0	
Total Split (%)				41.7%	41.7%		22.5%				35.8%	
Maximum Green (s)				43.5	43.5		23.0				37.6	
Yellow Time (s)				3.3	3.3		3.0				3.3	
All-Red Time (s)				3.2	3.2		1.0				2.1	
Lost Time Adjust (s)					0.0		0.0				-1.0	
Total Lost Time (s)					6.5		4.0				4.4	
Lead/Lag							Lead				Lag	
Lead-Lag Optimize?											Yes	
Vehicle Extension (s)				3.0	3.0		3.0				0.2	
Recall Mode				None	None		Min				C-Min	
Walk Time (s)				7.0	7.0						7.0	
Flash Dont Walk (s)				21.0	21.0						21.0	
Pedestrian Calls (#/hr)				0	0						0	
Act Effct Green (s)					43.5		62.0	66.0			40.1	
Actuated g/C Ratio					0.36		0.52	0.55			0.33	
v/c Ratio					1.04		0.81	0.34			0.84	
Control Delay					68.1		43.0	8.8			43.4	
Queue Delay					23.7		57.6	2.6			0.4	
Total Delay					91.9		100.7	11.3			43.9	
LOS					F		F	B			D	
Approach Delay					91.9			39.6			43.9	
Approach LOS					F			D			D	
Stops (vph)					1937		286	300			771	
Fuel Used(gal)					48		5	4			15	
CO Emissions (g/hr)					3367		319	268			1065	
NOx Emissions (g/hr)					655		62	52			207	
VOC Emissions (g/hr)					780		74	62			247	
Dilemma Vehicles (#)					0		0	0			0	
Queue Length 50th (ft)					~572		190	155			361	
Queue Length 95th (ft)					#648		m266	114			#458	
Internal Link Dist (ft)		1129			345			145			345	
Turn Bay Length (ft)												
Base Capacity (vph)					2273		403	1946			1165	
Starvation Cap Reductn					0		147	1122			0	
Spillback Cap Reductn					121		0	0			27	
Storage Cap Reductn					0		0	0			0	
Reduced v/c Ratio					1.10		1.21	0.81			0.86	

Intersection Summary

Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 107 (89%), Referenced to phase 2:NBSB, Start of Yellow			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.04			
Intersection Signal Delay: 69.2		Intersection LOS: E	
Intersection Capacity Utilization 86.8%		ICU Level of Service E	
Analysis Period (min) 15			

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

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

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

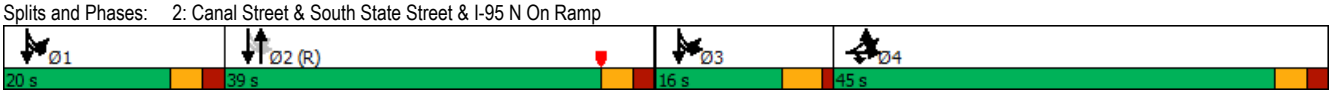
Splits and Phases: 1: Canal St & North State St

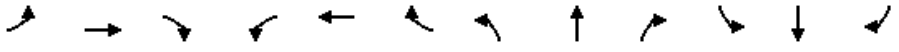
Lane Group	EBL2	EBL	EBT	EBR	NBT	NBR	NBR2	SBL2	SBL	SBT	Ø1	Ø3
Lane Configurations												
Traffic Volume (vph)	468	366	311	375	430	369	20	285	10	847		
Future Volume (vph)	468	366	311	375	430	369	20	285	10	847		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900		
Lane Width (ft)	11	11	11	11	12	12	12	12	12	12		
Lane Util. Factor	0.91	0.95	0.95	1.00	0.95	0.95	0.95	0.95	0.95	0.95		
Frt				0.850	0.929							
Flt Protected	0.950	0.950								0.987		
Satd. Flow (prot)	1557	1625	3421	1531	3288	0	0	0	0	3493		
Flt Permitted	0.950	0.950								0.558		
Satd. Flow (perm)	1557	1625	3421	1531	3288	0	0	0	0	1975		
Right Turn on Red				No			No					
Satd. Flow (RTOR)												
Link Speed (mph)			30		30					30		
Link Distance (ft)			1170		450					225		
Travel Time (s)			26.6		10.2					5.1		
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98		
Adj. Flow (vph)	478	373	317	383	439	377	20	291	10	864		
Shared Lane Traffic (%)	11%											
Lane Group Flow (vph)	425	426	317	383	836	0	0	0	0	1165		
Turn Type	Split	Split	NA	Prot	NA			D.P+P	D.P+P	NA		
Protected Phases	4	4	4	4	2			1 3	1 3	1 2 3	1	3
Permitted Phases								2	2			
Detector Phase	4	4	4	4				1 3	1 3			
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	15.0						5.0	5.0
Minimum Split (s)	33.0	33.0	33.0	33.0	33.0						10.0	9.5
Total Split (s)	45.0	45.0	45.0	45.0	39.0						20.0	16.0
Total Split (%)	37.5%	37.5%	37.5%	37.5%	32.5%						17%	13%
Maximum Green (s)	40.0	40.0	40.0	40.0	34.0						15.0	11.5
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0						3.0	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0						2.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0							
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0							
Lead/Lag	Lag	Lag	Lag	Lag	Lag						Lead	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0	2.0	2.0	0.2						2.0	2.0
Recall Mode	None	None	None	None	C-Min						None	Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0							
Flash Dont Walk (s)	21.0	21.0	21.0	21.0	21.0							
Pedestrian Calls (#/hr)	0	0	0	0	0							
Act Effct Green (s)	35.3	35.3	35.3	35.3	58.7					69.7		
Actuated g/C Ratio	0.29	0.29	0.29	0.29	0.49					0.58		
v/c Ratio	0.93	0.89	0.31	0.85	0.52					0.91		
Control Delay	68.3	62.0	33.2	57.8	25.9					23.2		
Queue Delay	18.9	12.0	0.0	0.0	2.2					2.3		
Total Delay	87.2	74.0	33.2	57.8	28.1					25.5		
LOS	F	E	C	E	C					C		
Approach Delay			65.3		28.1					25.5		
Approach LOS			E		C					C		
Stops (vph)	379	378	246	341	692					615		
Fuel Used(gal)	12	11	6	10	11					11		
CO Emissions (g/hr)	816	780	440	679	770					754		
NOx Emissions (g/hr)	159	152	86	132	150					147		
VOC Emissions (g/hr)	189	181	102	157	179					175		
Dilemma Vehicles (#)	0	0	0	0	0					0		
Queue Length 50th (ft)	337	321	105	272	275					151		
Queue Length 95th (ft)	#515	#475	145	387	m410					m#173		
Internal Link Dist (ft)			1090		370					145		
Turn Bay Length (ft)												
Base Capacity (vph)	519	541	1140	510	1607					1285		
Starvation Cap Reductn	0	0	0	0	602					52		
Spillback Cap Reductn	93	97	0	0	0					23		
Storage Cap Reductn	0	0	0	0	0					0		
Reduced v/c Ratio	1.00	0.96	0.28	0.75	0.83					0.94		

Intersection Summary		
Area Type:	Other	
Cycle Length: 120		
Actuated Cycle Length: 120		
Offset: 112 (93%), Referenced to phase 2:NBSB, Start of Yellow		
Natural Cycle: 90		
Control Type: Actuated-Coordinated		
Maximum v/c Ratio: 0.93		
Intersection Signal Delay: 43.5		Intersection LOS: D
Intersection Capacity Utilization 92.0%		ICU Level of Service F
Analysis Period (min) 15		

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

Splits and Phases: 2: Canal Street & South State Street & I-95 N On Ramp





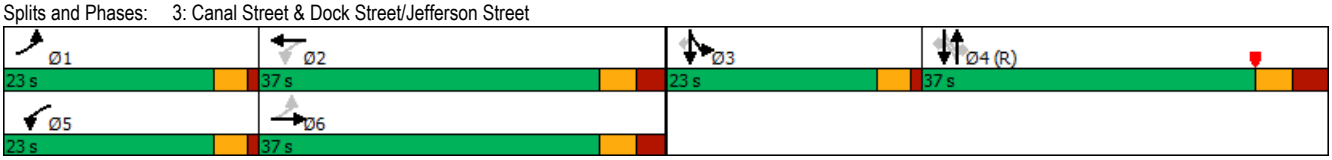
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	304	433	21	128	505	224	14	230	96	346	492	363
Future Volume (vph)	304	433	21	128	505	224	14	230	96	346	492	363
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	160		0	150		120	0		120
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	25			55			25			60		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Frt		0.993			0.954				0.850			0.850
Flt Protected	0.950			0.950				0.997		0.950		
Satd. Flow (prot)	1770	3514	0	1770	3376	0	0	3529	1583	1770	1863	1583
Flt Permitted	0.126			0.479				0.909		0.585		
Satd. Flow (perm)	235	3514	0	892	3376	0	0	3217	1583	1090	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			57				101			241
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		384			422			263			450	
Travel Time (s)		8.7			9.6			6.0			10.2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	320	456	22	135	532	236	15	242	101	364	518	382
Shared Lane Traffic (%)												
Lane Group Flow (vph)	320	478	0	135	768	0	0	257	101	364	518	382
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases	1	6		5	2			4		3	3 4	
Permitted Phases	6			2			4		4	3 4		3 4
Detector Phase	1	6		5	2		4	4	4	3	3 4	3 4
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		15.0	15.0	15.0	7.0		
Minimum Split (s)	9.0	34.1		9.0	34.1		36.6	36.6	36.6	11.0		
Total Split (s)	23.0	37.0		23.0	37.0		37.0	37.0	37.0	23.0		
Total Split (%)	19.2%	30.8%		19.2%	30.8%		30.8%	30.8%	30.8%	19.2%		
Maximum Green (s)	19.0	30.9		19.0	30.9		30.4	30.4	30.4	19.0		
Yellow Time (s)	3.0	3.3		3.0	3.3		3.3	3.3	3.3	3.0		
All-Red Time (s)	1.0	2.8		1.0	2.8		3.3	3.3	3.3	1.0		
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0	0.0		
Total Lost Time (s)	4.0	6.1		4.0	6.1			6.6	6.6	4.0		
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag	Lag	Lead		
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	0.2		3.0	0.2		3.0	3.0	3.0	3.0		
Recall Mode	None	None		None	None		C-Min	C-Min	C-Min	None		
Walk Time (s)		7.0			7.0		7.0	7.0	7.0			
Flash Dont Walk (s)		21.0			21.0		23.0	23.0	23.0			
Pedestrian Calls (#/hr)		0			0		0	0	0			
Act Effct Green (s)	52.9	35.8		40.9	27.8			33.5	33.5	55.1	59.1	59.1
Actuated g/C Ratio	0.44	0.30		0.34	0.23			0.28	0.28	0.46	0.49	0.49
v/c Ratio	0.93	0.45		0.35	0.93			0.29	0.20	0.60	0.56	0.42
Control Delay	64.5	35.4		23.0	59.9			35.8	7.8	20.4	21.0	6.7
Queue Delay	4.4	0.0		0.0	3.0			0.0	0.0	0.0	4.4	0.8
Total Delay	68.9	35.4		23.0	62.9			35.8	7.8	20.4	25.4	7.4
LOS	E	D		C	E			D	A	C	C	A
Approach Delay		48.8			56.9			27.9			18.5	
Approach LOS		D			E			C			B	
Stops (vph)	210	354		83	644			188	14	211	319	122
Fuel Used(gal)	6	7		2	17			3	0	4	6	2
CO Emissions (g/hr)	424	461		124	1155			232	30	267	391	171
NOx Emissions (g/hr)	82	90		24	225			45	6	52	76	33
VOC Emissions (g/hr)	98	107		29	268			54	7	62	91	40
Dilemma Vehicles (#)	0	0		0	0			0	0	0	0	0
Queue Length 50th (ft)	188	154		61	284			83	0	162	259	47
Queue Length 95th (ft)	#355	209		99	#358			124	44	m190	m303	m66
Internal Link Dist (ft)		304			342			183			370	
Turn Bay Length (ft)				160					120			120
Base Capacity (vph)	346	1051		502	911			898	514	608	917	902
Starvation Cap Reductn	0	0		0	0			0	0	0	316	259
Spillback Cap Reductn	11	0		0	73			0	0	0	0	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Storage Cap Reductn	0	0		0	0			0	0	0	0	0
Reduced v/c Ratio	0.96	0.45		0.27	0.92			0.29	0.20	0.60	0.86	0.59

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 117 (98%), Referenced to phase 4:NBSB, Start of Yellow			
Natural Cycle: 95			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.93			
Intersection Signal Delay: 37.2		Intersection LOS: D	
Intersection Capacity Utilization 93.6%		ICU Level of Service F	
Analysis Period (min) 15			

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

Splits and Phases: 3: Canal Street & Dock Street/Jefferson Street

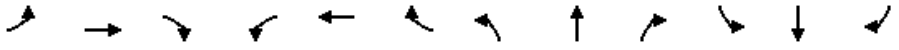


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	388	92	132	757	4	153	1	183	1	1	2
Future Volume (vph)	1	388	92	132	757	4	153	1	183	1	1	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	90		0	90		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.971			0.999			0.927			0.932	
Flt Protected	0.950			0.950				0.978			0.988	
Satd. Flow (prot)	1770	3437	0	1770	3536	0	0	1689	0	0	1715	0
Flt Permitted	0.331			0.390				0.853			0.948	
Satd. Flow (perm)	617	3437	0	726	3536	0	0	1473	0	0	1646	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		27						57			2	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		510			228			158			352	
Travel Time (s)		11.6			5.2			3.6			8.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1	422	100	143	823	4	166	1	199	1	1	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1	522	0	143	827	0	0	366	0	0	4	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	1	6		5	2			4			4	
Permitted Phases	6			2			4			4		
Detector Phase	1	6		5	2		4	4		4	4	
Switch Phase												
Minimum Initial (s)	5.0	15.0		5.0	15.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	10.0	35.0		10.0	35.0		35.0	35.0		35.0	35.0	
Total Split (s)	25.0	45.0		25.0	45.0		45.0	45.0		45.0	45.0	
Total Split (%)	21.7%	39.1%		21.7%	39.1%		39.1%	39.1%		39.1%	39.1%	
Maximum Green (s)	20.0	40.0		20.0	40.0		40.0	40.0		40.0	40.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
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)	5.0	5.0		5.0	5.0			5.0			5.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		23.0			23.0		23.0	23.0		23.0	23.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)	66.0	60.4		74.7	72.6			30.3			30.3	
Actuated g/C Ratio	0.57	0.53		0.65	0.63			0.26			0.26	
v/c Ratio	0.00	0.29		0.26	0.37			0.85			0.01	
Control Delay	11.0	16.6		10.3	12.6			51.7			21.2	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	11.0	16.6		10.3	12.6			51.7			21.2	
LOS	B	B		B	B			D			C	
Approach Delay		16.6			12.3			51.7			21.3	
Approach LOS		B			B			D			C	
Stops (vph)	1	254		52	365			269			3	
Fuel Used(gal)	0	5		1	7			5			0	
CO Emissions (g/hr)	1	345		76	487			381			3	
NOx Emissions (g/hr)	0	67		15	95			74			1	
VOC Emissions (g/hr)	0	80		18	113			88			1	
Dilemma Vehicles (#)	0	0		0	0			0			0	
Queue Length 50th (ft)	0	103		38	136			220			1	
Queue Length 95th (ft)	3	176		80	272			305			9	
Internal Link Dist (ft)		430			148			78			272	
Turn Bay Length (ft)	90			90								
Base Capacity (vph)	601	1818		653	2231			549			573	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.00	0.29		0.22	0.37			0.67			0.01	

Intersection Summary			
Area Type:	Other		
Cycle Length: 115			
Actuated Cycle Length: 115			
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.85			
Intersection Signal Delay: 21.3		Intersection LOS: C	
Intersection Capacity Utilization 64.1%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 5: Pacific Street & Dock Street

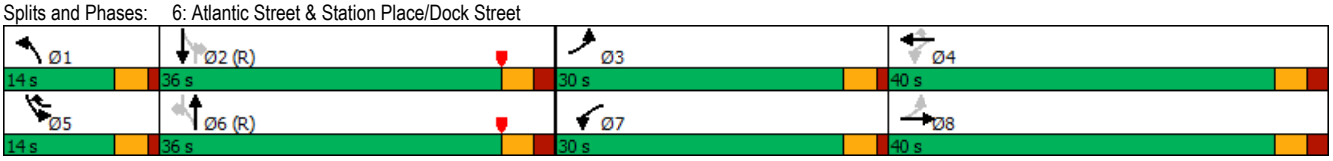


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	61	153	31	323	301	340	31	295	198	103	208	163
Future Volume (vph)	61	153	31	323	301	340	31	295	198	103	208	163
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	210		0	100		130	70		110
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	25			10			50			45		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.974				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1814	0	1770	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.563			0.319			0.611			0.497		
Satd. Flow (perm)	1049	1814	0	594	1863	1583	1138	3539	1583	926	3539	1583
Right Turn on Red			No			Yes			Yes			Yes
Satd. Flow (RTOR)						370			215			177
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		348			510			366			301	
Travel Time (s)		7.9			11.6			8.3			6.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	66	166	34	351	327	370	34	321	215	112	226	177
Shared Lane Traffic (%)												
Lane Group Flow (vph)	66	200	0	351	327	370	34	321	215	112	226	177
Turn Type	pm+pt	NA		pm+pt	NA	pm+ov	pm+pt	NA	custom	pm+pt	NA	custom
Protected Phases	3	8		7	4	5	1	6		5	2	
Permitted Phases	8			4		4	6		2	2		6
Detector Phase	3	8		7	4	5	1		2	5		6
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0	5.0	5.0	15.0	15.0	5.0	15.0	15.0
Minimum Split (s)	10.0	34.0		10.0	34.0	10.0	10.0	34.0	34.0	10.0	34.0	34.0
Total Split (s)	30.0	40.0		30.0	40.0	14.0	14.0	36.0	36.0	14.0	36.0	36.0
Total Split (%)	25.0%	33.3%		25.0%	33.3%	11.7%	11.7%	30.0%	30.0%	11.7%	30.0%	30.0%
Maximum Green (s)	26.0	35.0		26.0	35.0	10.0	10.0	31.0	31.0	10.0	31.0	31.0
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	2.0		1.0	2.0	1.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	5.0		4.0	5.0	4.0	4.0	5.0	5.0	4.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	2.0	3.0	0.2	0.2	2.0	0.2	0.2
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0			7.0			7.0	7.0		7.0	7.0
Flash Dont Walk (s)		22.0			22.0			22.0	22.0		22.0	22.0
Pedestrian Calls (#/hr)		0			0			0	0		0	0
Act Effct Green (s)	27.9	18.6		47.5	36.2	49.2	59.1	51.4	56.6	63.2	56.6	51.4
Actuated g/C Ratio	0.23	0.16		0.40	0.30	0.41	0.49	0.43	0.47	0.53	0.47	0.43
v/c Ratio	0.22	0.71		0.75	0.58	0.43	0.06	0.21	0.25	0.21	0.14	0.23
Control Delay	24.2	61.8		36.8	40.0	3.5	16.1	23.9	4.2	8.6	10.9	3.4
Queue Delay	0.0	0.0		0.8	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.4
Total Delay	24.2	61.8		37.6	40.0	3.8	16.1	23.9	4.2	8.6	10.9	3.8
LOS	C	E		D	D	A	B	C	A	A	B	A
Approach Delay		52.5			26.4			16.0			8.0	
Approach LOS		D			C			B			A	
Stops (vph)	44	170		232	249	23	16	186	18	39	78	20
Fuel Used(gal)	1	4		5	5	2	0	3	1	1	1	1
CO Emissions (g/hr)	50	262		349	351	121	19	231	58	45	97	42
NOx Emissions (g/hr)	10	51		68	68	23	4	45	11	9	19	8
VOC Emissions (g/hr)	11	61		81	81	28	5	54	13	10	22	10
Dilemma Vehicles (#)	0	0		0	0	0	0	0	0	0	0	0
Queue Length 50th (ft)	31	149		198	216	0	12	83	0	35	37	2
Queue Length 95th (ft)	54	217		256	294	52	33	132	51	59	54	5
Internal Link Dist (ft)		268			430			286			221	
Turn Bay Length (ft)	100			210			100		130	70		110
Base Capacity (vph)	550	529		490	574	887	643	1516	860	561	1670	779
Starvation Cap Reductn	0	0		26	0	119	0	0	0	0	0	288
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.38		0.76	0.57	0.48	0.05	0.21	0.25	0.20	0.14	0.36

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 37 (31%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.75			
Intersection Signal Delay: 22.9		Intersection LOS: C	
Intersection Capacity Utilization 61.0%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 6: Atlantic Street & Station Place/Dock Street

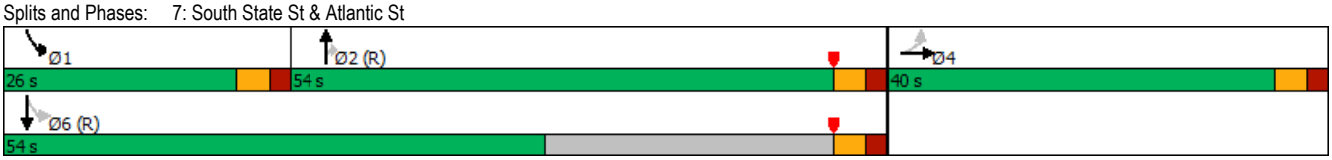


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	81	340	71	0	0	0	0	630	81	122	392	0
Future Volume (vph)	81	340	71	0	0	0	0	630	81	122	392	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.974							0.850			
Flt Protected	0.950									0.950		
Satd. Flow (prot)	1770	3447	0	0	0	0	0	3539	1583	1770	3539	0
Flt Permitted	0.950									0.324		
Satd. Flow (perm)	1770	3447	0	0	0	0	0	3539	1583	604	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		21							92			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		294			1170			301			244	
Travel Time (s)		6.7			26.6			6.8			5.5	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	92	386	81	0	0	0	0	716	92	139	445	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	92	467	0	0	0	0	0	716	92	139	445	0
Turn Type	Perm	NA						NA	Perm	pm+pt	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4								2	6		
Detector Phase	4	4						2	2	1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0						15.0	15.0	5.0	15.0	
Minimum Split (s)	34.0	34.0						34.0	34.0	10.0	27.0	
Total Split (s)	40.0	40.0						54.0	54.0	26.0	54.0	
Total Split (%)	33.3%	33.3%						45.0%	45.0%	21.7%	45.0%	
Maximum Green (s)	35.0	35.0						49.0	49.0	21.0	49.0	
Yellow Time (s)	3.0	3.0						3.0	3.0	3.0	3.0	
All-Red Time (s)	2.0	2.0						2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0						-1.0	-1.0	0.0	-1.0	
Total Lost Time (s)	4.0	4.0						4.0	4.0	5.0	4.0	
Lead/Lag								Lag	Lag	Lead		
Lead-Lag Optimize?								Yes	Yes	Yes		
Vehicle Extension (s)	2.0	2.0						0.2	0.2	2.0	0.2	
Recall Mode	None	None						C-Max	C-Max	Min	C-Max	
Walk Time (s)	7.0	7.0						7.0	7.0		7.0	
Flash Dont Walk (s)	22.0	22.0						15.0	15.0		15.0	
Pedestrian Calls (#/hr)	0	0						0	0		0	
Act Effct Green (s)	21.5	21.5						78.3	78.3	89.5	90.5	
Actuated g/C Ratio	0.18	0.18						0.65	0.65	0.75	0.75	
v/c Ratio	0.29	0.74						0.31	0.09	0.27	0.17	
Control Delay	43.8	51.3						8.4	1.8	6.7	3.5	
Queue Delay	0.0	0.0						0.4	0.0	0.3	0.3	
Total Delay	43.8	51.3						8.8	1.8	7.0	3.8	
LOS	D	D						A	A	A	A	
Approach Delay		50.1						8.0			4.6	
Approach LOS		D						A			A	
Stops (vph)	68	361						194	6	43	78	
Fuel Used(gal)	1	7						4	0	1	1	
CO Emissions (g/hr)	90	506						254	18	44	102	
NOx Emissions (g/hr)	17	98						49	3	9	20	
VOC Emissions (g/hr)	21	117						59	4	10	24	
Dilemma Vehicles (#)	0	0						0	0	0	0	
Queue Length 50th (ft)	63	174						80	1	20	33	
Queue Length 95th (ft)	104	213						135	13	m33	m46	
Internal Link Dist (ft)		214			1090			221			164	
Turn Bay Length (ft)												
Base Capacity (vph)	531	1048						2307	1064	654	2668	
Starvation Cap Reductn	0	0						1007	0	201	1590	
Spillback Cap Reductn	0	0						26	0	0	0	
Storage Cap Reductn	0	0						0	0	0	0	
Reduced v/c Ratio	0.17	0.45						0.55	0.09	0.31	0.41	

Intersection Summary

Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 46 (38%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.74			
Intersection Signal Delay: 19.0		Intersection LOS: B	
Intersection Capacity Utilization 46.7%		ICU Level of Service A	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 7: South State St & Atlantic St



Lane Group	WBL2	WBL	WBT	WBR	NBL2	NBL	NBT	SBT	SBR	SBR2	Ø2	Ø3	Ø5
Lane Configurations													
Traffic Volume (vph)	143	661	654	331	290	12	409	371	285	136			
Future Volume (vph)	143	661	654	331	290	12	409	371	285	136			
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900			
Lane Util. Factor	0.86	0.86	0.86	0.86	0.95	1.00	0.95	0.95	1.00	0.95			
Frt			0.972						0.850				
Flt Protected			0.978			0.950							
Satd. Flow (prot)	0	0	6091	0	0	1770	3539	3539	1583	0			
Flt Permitted			0.978			0.344							
Satd. Flow (perm)	0	0	6091	0	0	641	3539	3539	1583	0			
Right Turn on Red				No						No			
Satd. Flow (RTOR)													
Link Speed (mph)			30				25	25					
Link Distance (ft)			1209				244	742					
Travel Time (s)			27.5				6.7	20.2					
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85			
Adj. Flow (vph)	168	778	769	389	341	14	481	436	335	160			
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	0	2104	0	0	355	481	436	495	0			
Turn Type	Split	Split	NA		custom	custom	NA	NA	Perm				
Protected Phases	4	4	4		3 5	3 5	2 3	6			2	3	5
Permitted Phases					2	2			6				
Detector Phase	4	4	4		3 5	3 5			6				
Switch Phase													
Minimum Initial (s)	10.0	10.0	10.0					15.0	15.0		15.0	5.0	5.0
Minimum Split (s)	31.0	31.0	31.0					20.0	20.0		26.0	10.0	10.0
Total Split (s)	57.0	57.0	57.0					39.0	39.0		39.0	12.0	12.0
Total Split (%)	47.5%	47.5%	47.5%					32.5%	32.5%		33%	10%	10%
Maximum Green (s)	52.0	52.0	52.0					34.0	34.0		34.0	7.0	7.0
Yellow Time (s)	3.0	3.0	3.0					3.0	3.0		3.0	3.0	3.0
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				
Total Lost Time (s)			5.0					5.0	5.0				
Lead/Lag								Lag	Lag				Lead
Lead-Lag Optimize?													
Vehicle Extension (s)	2.0	2.0	2.0					0.2	0.2		0.2	2.0	2.0
Recall Mode	None	None	None					None	None		C-Max	None	None
Walk Time (s)	7.0	7.0	7.0								7.0		
Flash Dont Walk (s)	19.0	19.0	19.0								14.0		
Pedestrian Calls (#/hr)	0	0	0								0		
Act Effct Green (s)			51.0			54.0	59.0	35.0	35.0				
Actuated g/C Ratio			0.42			0.45	0.49	0.29	0.29				
v/c Ratio			1.26dl			0.85	0.28	0.42	1.07				
Control Delay			35.8			36.9	11.6	36.2	104.3				
Queue Delay			0.0			0.0	0.6	0.0	0.0				
Total Delay			35.8			36.9	12.2	36.2	104.3				
LOS			D			D	B	D	F				
Approach Delay			35.8				22.7	72.4					
Approach LOS			D				C	E					
Stops (vph)			1666			207	142	294	350				
Fuel Used(gal)			39			4	2	6	13				
CO Emissions (g/hr)			2734			258	165	434	905				
NOx Emissions (g/hr)			532			50	32	84	176				
VOC Emissions (g/hr)			634			60	38	101	210				
Dilemma Vehicles (#)			0			0	0	0	0				
Queue Length 50th (ft)			470			147	52	145	~436				
Queue Length 95th (ft)			m464			#123	57	182	#591				
Internal Link Dist (ft)			1129				164	662					
Turn Bay Length (ft)													
Base Capacity (vph)			2639			419	1739	1031	461				
Starvation Cap Reductn			0			0	836	0	0				
Spillback Cap Reductn			0			0	0	0	0				
Storage Cap Reductn			0			0	0	0	0				
Reduced v/c Ratio			0.80			0.85	0.53	0.42	1.07				

Intersection Summary

Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 22 (18%), Referenced to phase 2:NBTL, Start of Yellow			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.07			
Intersection Signal Delay: 41.8		Intersection LOS: D	
Intersection Capacity Utilization 91.9%		ICU Level of Service F	
Analysis Period (min) 15			

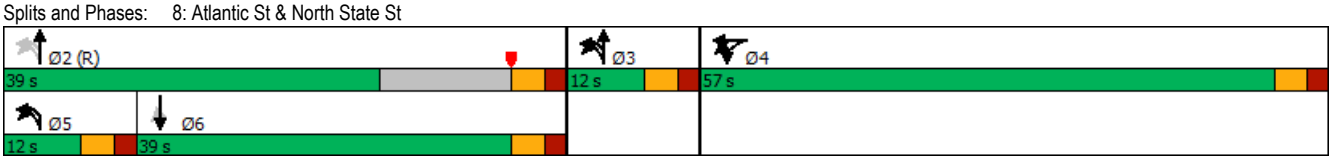
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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.

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 8: Atlantic St & North State St



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	493	1392	305	298	630	0	0	667	244
Future Volume (vph)	0	0	0	493	1392	305	298	630	0	0	667	244
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.86	0.86	0.86	1.00	0.95	1.00	1.00	0.95	0.95
Frt					0.979						0.960	
Flt Protected					0.989		0.950					
Satd. Flow (prot)	0	0	0	0	6204	0	1770	3539	0	0	3398	0
Flt Permitted					0.989		0.104					
Satd. Flow (perm)	0	0	0	0	6204	0	194	3539	0	0	3398	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					38						46	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1209			425			225			425	
Travel Time (s)		27.5			9.7			5.1			9.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	536	1513	332	324	685	0	0	725	265
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	2381	0	324	685	0	0	990	0
Turn Type				Split	NA		D.P+P	NA			NA	
Protected Phases				4	4		1	1 2			2	
Permitted Phases							2					
Detector Phase				4	4		1					
Switch Phase												
Minimum Initial (s)				7.0	7.0		7.0				15.0	
Minimum Split (s)				34.5	34.5		11.0				33.4	
Total Split (s)				50.0	50.0		27.0				43.0	
Total Split (%)				41.7%	41.7%		22.5%				35.8%	
Maximum Green (s)				43.5	43.5		23.0				37.6	
Yellow Time (s)				3.3	3.3		3.0				3.3	
All-Red Time (s)				3.2	3.2		1.0				2.1	
Lost Time Adjust (s)					0.0		0.0				-1.0	
Total Lost Time (s)					6.5		4.0				4.4	
Lead/Lag							Lead				Lag	
Lead-Lag Optimize?											Yes	
Vehicle Extension (s)				3.0	3.0		3.0				0.2	
Recall Mode				None	None		Min				C-Min	
Walk Time (s)				7.0	7.0						7.0	
Flash Dont Walk (s)				21.0	21.0						21.0	
Pedestrian Calls (#/hr)				0	0						0	
Act Effct Green (s)					43.5		62.0	66.0			39.6	
Actuated g/C Ratio					0.36		0.52	0.55			0.33	
v/c Ratio					1.05		0.83	0.35			0.86	
Control Delay					69.7		45.5	8.4			44.9	
Queue Delay					21.9		56.7	2.9			0.8	
Total Delay					91.6		102.2	11.3			45.7	
LOS					F		F	B			D	
Approach Delay					91.6			40.5			45.7	
Approach LOS					F			D			D	
Stops (vph)					1946		301	297			783	
Fuel Used(gal)					49		5	4			16	
CO Emissions (g/hr)					3432		346	268			1096	
NOx Emissions (g/hr)					668		67	52			213	
VOC Emissions (g/hr)					795		80	62			254	
Dilemma Vehicles (#)					0		0	0			0	
Queue Length 50th (ft)					~578		203	139			366	
Queue Length 95th (ft)					#653		m#309	113			#482	
Internal Link Dist (ft)		1129			345			145			345	
Turn Bay Length (ft)												
Base Capacity (vph)					2273		403	1946			1152	
Starvation Cap Reductn					0		147	1119			0	
Spillback Cap Reductn					127		0	0			35	
Storage Cap Reductn					0		0	0			0	
Reduced v/c Ratio					1.11		1.27	0.83			0.89	

Intersection Summary

Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 107 (89%), Referenced to phase 2:NBSB, Start of Yellow			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.05			
Intersection Signal Delay: 69.4		Intersection LOS: E	
Intersection Capacity Utilization 87.9%		ICU Level of Service E	
Analysis Period (min) 15			

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

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

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

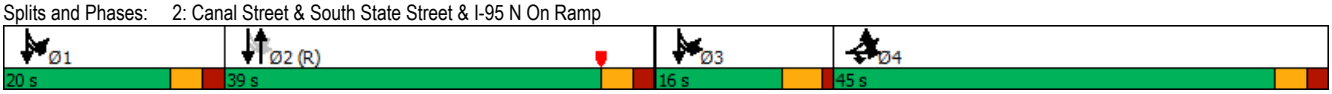
Splits and Phases: 1: Canal St & North State St

Lane Group	EBL2	EBL	EBT	EBR	NBT	NBR	NBR2	SBL2	SBL	SBT	Ø1	Ø3
Lane Configurations												
Traffic Volume (vph)	468	366	311	384	459	385	20	285	10	865		
Future Volume (vph)	468	366	311	384	459	385	20	285	10	865		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900		
Lane Width (ft)	11	11	11	11	12	12	12	12	12	12		
Lane Util. Factor	0.91	0.95	0.95	1.00	0.95	0.95	0.95	0.95	0.95	0.95		
Frt				0.850	0.930							
Flt Protected	0.950	0.950								0.987		
Satd. Flow (prot)	1557	1625	3421	1531	3291	0	0	0	0	3493		
Flt Permitted	0.950	0.950								0.548		
Satd. Flow (perm)	1557	1625	3421	1531	3291	0	0	0	0	1939		
Right Turn on Red				No			No					
Satd. Flow (RTOR)												
Link Speed (mph)			30		30					30		
Link Distance (ft)			1170		450					225		
Travel Time (s)			26.6		10.2					5.1		
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98		
Adj. Flow (vph)	478	373	317	392	468	393	20	291	10	883		
Shared Lane Traffic (%)	11%											
Lane Group Flow (vph)	425	426	317	392	881	0	0	0	0	1184		
Turn Type	Split	Split	NA	Prot	NA			D.P+P	D.P+P	NA		
Protected Phases	4	4	4	4	2			1 3	1 3	1 2 3	1	3
Permitted Phases								2	2			
Detector Phase	4	4	4	4				1 3	1 3			
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	15.0						5.0	5.0
Minimum Split (s)	33.0	33.0	33.0	33.0	33.0						10.0	9.5
Total Split (s)	45.0	45.0	45.0	45.0	39.0						20.0	16.0
Total Split (%)	37.5%	37.5%	37.5%	37.5%	32.5%						17%	13%
Maximum Green (s)	40.0	40.0	40.0	40.0	34.0						15.0	11.5
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0						3.0	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0						2.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0							
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0							
Lead/Lag	Lag	Lag	Lag	Lag	Lag						Lead	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0	2.0	2.0	0.2						2.0	2.0
Recall Mode	None	None	None	None	C-Min						None	Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0							
Flash Dont Walk (s)	21.0	21.0	21.0	21.0	21.0							
Pedestrian Calls (#/hr)	0	0	0	0	0							
Act Effct Green (s)	35.3	35.3	35.3	35.3	58.7					69.7		
Actuated g/C Ratio	0.29	0.29	0.29	0.29	0.49					0.58		
v/c Ratio	0.93	0.89	0.31	0.87	0.55					0.93		
Control Delay	68.5	62.2	33.4	60.4	28.2					25.3		
Queue Delay	22.6	14.7	0.0	0.0	3.9					4.1		
Total Delay	91.1	76.9	33.4	60.4	32.1					29.4		
LOS	F	E	C	E	C					C		
Approach Delay			67.8		32.1					29.4		
Approach LOS			E		C					C		
Stops (vph)	379	381	247	350	743					636		
Fuel Used(gal)	12	11	6	10	12					12		
CO Emissions (g/hr)	817	782	441	710	845					805		
NOx Emissions (g/hr)	159	152	86	138	164					157		
VOC Emissions (g/hr)	189	181	102	165	196					187		
Dilemma Vehicles (#)	0	0	0	0	0					0		
Queue Length 50th (ft)	338	322	105	280	324					154		
Queue Length 95th (ft)	#512	#475	146	#404	m425					m#190		
Internal Link Dist (ft)			1090		370					145		
Turn Bay Length (ft)												
Base Capacity (vph)	519	541	1140	510	1608					1268		
Starvation Cap Reductn	0	0	0	0	625					52		
Spillback Cap Reductn	99	104	0	0	37					28		
Storage Cap Reductn	0	0	0	0	0					0		
Reduced v/c Ratio	1.01	0.97	0.28	0.77	0.90					0.97		

Intersection Summary		
Area Type:	Other	
Cycle Length: 120		
Actuated Cycle Length: 120		
Offset: 112 (93%), Referenced to phase 2:NBSB, Start of Yellow		
Natural Cycle: 90		
Control Type: Actuated-Coordinated		
Maximum v/c Ratio: 0.93		
Intersection Signal Delay: 46.6		Intersection LOS: D
Intersection Capacity Utilization 93.8%		ICU Level of Service F
Analysis Period (min) 15		

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

Splits and Phases: 2: Canal Street & South State Street & I-95 N On Ramp



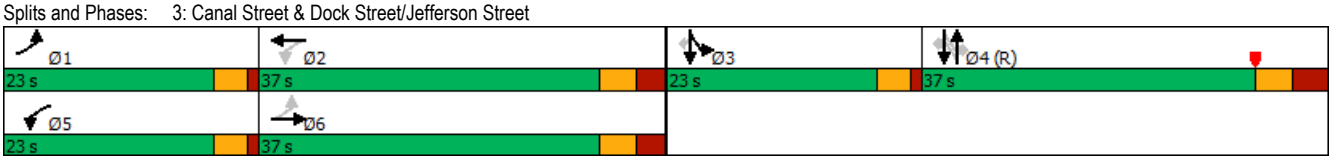
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	321	433	21	139	505	224	14	258	108	346	510	372
Future Volume (vph)	321	433	21	139	505	224	14	258	108	346	510	372
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	160		0	150		120	0		120
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	25			55			25			60		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Frt		0.993			0.954				0.850			0.850
Flt Protected	0.950			0.950				0.997		0.950		
Satd. Flow (prot)	1770	3514	0	1770	3376	0	0	3529	1583	1770	1863	1583
Flt Permitted	0.126			0.478				0.911		0.553		
Satd. Flow (perm)	235	3514	0	890	3376	0	0	3224	1583	1030	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			57				114			238
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		384			422			263			450	
Travel Time (s)		8.7			9.6			6.0			10.2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	338	456	22	146	532	236	15	272	114	364	537	392
Shared Lane Traffic (%)												
Lane Group Flow (vph)	338	478	0	146	768	0	0	287	114	364	537	392
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases	1	6		5	2			4		3	3 4	
Permitted Phases	6			2			4		4	3 4		3 4
Detector Phase	1	6		5	2		4	4	4	3	3 4	3 4
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		15.0	15.0	15.0	7.0		
Minimum Split (s)	9.0	34.1		9.0	34.1		36.6	36.6	36.6	11.0		
Total Split (s)	23.0	37.0		23.0	37.0		37.0	37.0	37.0	23.0		
Total Split (%)	19.2%	30.8%		19.2%	30.8%		30.8%	30.8%	30.8%	19.2%		
Maximum Green (s)	19.0	30.9		19.0	30.9		30.4	30.4	30.4	19.0		
Yellow Time (s)	3.0	3.3		3.0	3.3		3.3	3.3	3.3	3.0		
All-Red Time (s)	1.0	2.8		1.0	2.8		3.3	3.3	3.3	1.0		
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0	0.0		
Total Lost Time (s)	4.0	6.1		4.0	6.1			6.6	6.6	4.0		
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag	Lag	Lead		
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	0.2		3.0	0.2		3.0	3.0	3.0	3.0		
Recall Mode	None	None		None	None		C-Min	C-Min	C-Min	None		
Walk Time (s)		7.0			7.0		7.0	7.0	7.0			
Flash Dont Walk (s)		21.0			21.0		23.0	23.0	23.0			
Pedestrian Calls (#/hr)		0			0		0	0	0			
Act Effct Green (s)	52.9	35.4		41.4	27.8			33.5	33.5	55.1	59.1	59.1
Actuated g/C Ratio	0.44	0.30		0.34	0.23			0.28	0.28	0.46	0.49	0.49
v/c Ratio	0.98	0.46		0.37	0.93			0.32	0.22	0.62	0.59	0.44
Control Delay	75.6	35.8		23.3	59.9			36.3	7.5	20.3	21.2	6.9
Queue Delay	10.2	0.0		0.0	4.8			0.0	0.0	0.0	5.1	0.8
Total Delay	85.8	35.8		23.3	64.7			36.3	7.5	20.3	26.3	7.8
LOS	F	D		C	E			D	A	C	C	A
Approach Delay		56.5			58.1			28.1			19.0	
Approach LOS		E			E			C			B	
Stops (vph)	220	357		90	644			212	16	176	335	131
Fuel Used(gal)	7	7		2	17			4	0	4	6	3
CO Emissions (g/hr)	498	464		135	1155			262	33	253	408	179
NOx Emissions (g/hr)	97	90		26	225			51	6	49	79	35
VOC Emissions (g/hr)	115	108		31	268			61	8	59	95	41
Dilemma Vehicles (#)	0	0		0	0			0	0	0	0	0
Queue Length 50th (ft)	205	155		66	284			94	0	161	271	48
Queue Length 95th (ft)	#390	211		106	#358			137	46	m184	m308	m69
Internal Link Dist (ft)		304			342			183			370	
Turn Bay Length (ft)				160					120			120
Base Capacity (vph)	346	1038		502	911			899	523	589	917	900
Starvation Cap Reductn	0	0		0	0			0	0	0	308	255
Spillback Cap Reductn	14	0		0	93			0	0	0	0	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Storage Cap Reductn	0	0		0	0			0	0	0	0	0
Reduced v/c Ratio	1.02	0.46		0.29	0.94			0.32	0.22	0.62	0.88	0.61

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 117 (98%), Referenced to phase 4:NBSB, Start of Yellow			
Natural Cycle: 95			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.98			
Intersection Signal Delay: 39.4		Intersection LOS: D	
Intersection Capacity Utilization 95.5%		ICU Level of Service F	
Analysis Period (min) 15			

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

Splits and Phases: 3: Canal Street & Dock Street/Jefferson Street

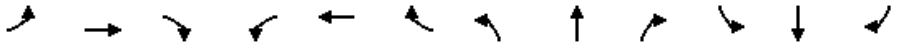


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	397	93	133	768	4	155	1	185	1	1	2
Future Volume (vph)	1	397	93	133	768	4	155	1	185	1	1	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	90		0	90		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.972			0.999			0.927			0.932	
Flt Protected	0.950			0.950				0.978			0.988	
Satd. Flow (prot)	1770	3440	0	1770	3536	0	0	1689	0	0	1715	0
Flt Permitted	0.326			0.383				0.853			0.948	
Satd. Flow (perm)	607	3440	0	713	3536	0	0	1473	0	0	1646	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		27						57			2	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		510			228			158			352	
Travel Time (s)		11.6			5.2			3.6			8.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1	432	101	145	835	4	168	1	201	1	1	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1	533	0	145	839	0	0	370	0	0	4	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	1	6		5	2			4			4	
Permitted Phases	6			2			4			4		
Detector Phase	1	6		5	2		4	4		4	4	
Switch Phase												
Minimum Initial (s)	5.0	15.0		5.0	15.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	10.0	35.0		10.0	35.0		35.0	35.0		35.0	35.0	
Total Split (s)	25.0	45.0		25.0	45.0		45.0	45.0		45.0	45.0	
Total Split (%)	21.7%	39.1%		21.7%	39.1%		39.1%	39.1%		39.1%	39.1%	
Maximum Green (s)	20.0	40.0		20.0	40.0		40.0	40.0		40.0	40.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
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)	5.0	5.0		5.0	5.0			5.0			5.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		23.0			23.0		23.0	23.0		23.0	23.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)	65.6	60.1		74.5	72.4			30.5			30.5	
Actuated g/C Ratio	0.57	0.52		0.65	0.63			0.27			0.27	
v/c Ratio	0.00	0.29		0.26	0.38			0.86			0.01	
Control Delay	11.0	16.9		10.5	12.8			52.1			21.2	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	11.0	16.9		10.5	12.8			52.1			21.2	
LOS	B	B		B	B			D			C	
Approach Delay		16.9			12.4			52.1			21.3	
Approach LOS		B			B			D			C	
Stops (vph)	1	262		52	374			274			3	
Fuel Used(gal)	0	5		1	7			6			0	
CO Emissions (g/hr)	1	355		77	497			387			3	
NOx Emissions (g/hr)	0	69		15	97			75			1	
VOC Emissions (g/hr)	0	82		18	115			90			1	
Dilemma Vehicles (#)	0	0		0	0			0			0	
Queue Length 50th (ft)	0	106		38	141			223			1	
Queue Length 95th (ft)	3	180		81	276			309			9	
Internal Link Dist (ft)		430			148			78			272	
Turn Bay Length (ft)	90			90								
Base Capacity (vph)	595	1809		645	2224			549			573	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.00	0.29		0.22	0.38			0.67			0.01	

Intersection Summary			
Area Type:	Other		
Cycle Length: 115			
Actuated Cycle Length: 115			
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.86			
Intersection Signal Delay: 21.5		Intersection LOS: C	
Intersection Capacity Utilization 64.7%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 5: Pacific Street & Dock Street

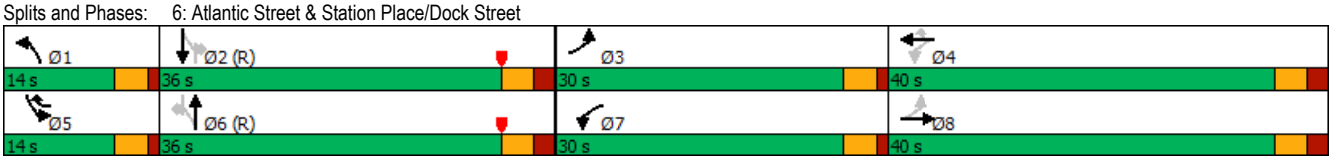


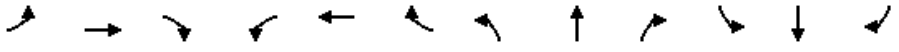
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	61	156	31	324	306	347	31	295	200	108	208	163
Future Volume (vph)	61	156	31	324	306	347	31	295	200	108	208	163
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	210		0	100		130	70		110
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	25			10			50			45		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.975				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1816	0	1770	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.560			0.314			0.611			0.495		
Satd. Flow (perm)	1043	1816	0	585	1863	1583	1138	3539	1583	922	3539	1583
Right Turn on Red			No			Yes			Yes			Yes
Satd. Flow (RTOR)						377			217			177
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		348			510			366			301	
Travel Time (s)		7.9			11.6			8.3			6.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	66	170	34	352	333	377	34	321	217	117	226	177
Shared Lane Traffic (%)												
Lane Group Flow (vph)	66	204	0	352	333	377	34	321	217	117	226	177
Turn Type	pm+pt	NA		pm+pt	NA	pm+ov	pm+pt	NA	custom	pm+pt	NA	custom
Protected Phases	3	8		7	4	5	1	6		5	2	
Permitted Phases	8			4		4	6		2	2		6
Detector Phase	3	8		7	4	5	1		2	5		6
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0	5.0	5.0	15.0	15.0	5.0	15.0	15.0
Minimum Split (s)	10.0	34.0		10.0	34.0	10.0	10.0	34.0	34.0	10.0	34.0	34.0
Total Split (s)	30.0	40.0		30.0	40.0	14.0	14.0	36.0	36.0	14.0	36.0	36.0
Total Split (%)	25.0%	33.3%		25.0%	33.3%	11.7%	11.7%	30.0%	30.0%	11.7%	30.0%	30.0%
Maximum Green (s)	26.0	35.0		26.0	35.0	10.0	10.0	31.0	31.0	10.0	31.0	31.0
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	2.0		1.0	2.0	1.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	5.0		4.0	5.0	4.0	4.0	5.0	5.0	4.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	2.0	3.0	0.2	0.2	2.0	0.2	0.2
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0			7.0			7.0	7.0		7.0	7.0
Flash Dont Walk (s)		22.0			22.0			22.0	22.0		22.0	22.0
Pedestrian Calls (#/hr)		0			0			0	0		0	0
Act Effct Green (s)	28.2	18.9		47.8	36.4	49.7	58.7	51.0	56.4	63.1	56.4	51.0
Actuated g/C Ratio	0.24	0.16		0.40	0.30	0.41	0.49	0.42	0.47	0.53	0.47	0.42
v/c Ratio	0.22	0.72		0.75	0.59	0.43	0.06	0.21	0.25	0.22	0.14	0.23
Control Delay	24.0	61.6		36.8	39.9	3.5	16.3	24.2	4.2	8.8	11.0	3.4
Queue Delay	0.0	0.0		0.7	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.4
Total Delay	24.0	61.6		37.5	39.9	3.7	16.3	24.2	4.2	8.8	11.0	3.8
LOS	C	E		D	D	A	B	C	A	A	B	A
Approach Delay		52.4			26.3			16.1			8.1	
Approach LOS		D			C			B			A	
Stops (vph)	44	174		232	254	23	16	187	18	41	78	19
Fuel Used(gal)	1	4		5	5	2	0	3	1	1	1	1
CO Emissions (g/hr)	49	268		349	357	123	20	233	59	47	97	42
NOx Emissions (g/hr)	10	52		68	69	24	4	45	11	9	19	8
VOC Emissions (g/hr)	11	62		81	83	28	5	54	14	11	22	10
Dilemma Vehicles (#)	0	0		0	0	0	0	0	0	0	0	0
Queue Length 50th (ft)	31	152		197	220	0	12	83	0	36	37	2
Queue Length 95th (ft)	54	221		255	298	52	33	133	52	62	55	5
Internal Link Dist (ft)		268			430			286			221	
Turn Bay Length (ft)	100			210			100		130	70		110
Base Capacity (vph)	552	529		490	578	893	639	1502	858	557	1662	774
Starvation Cap Reductn	0	0		24	0	122	0	0	0	0	0	284
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.39		0.76	0.58	0.49	0.05	0.21	0.25	0.21	0.14	0.36

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 37 (31%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.75			
Intersection Signal Delay: 22.9		Intersection LOS: C	
Intersection Capacity Utilization 61.5%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 6: Atlantic Street & Station Place/Dock Street





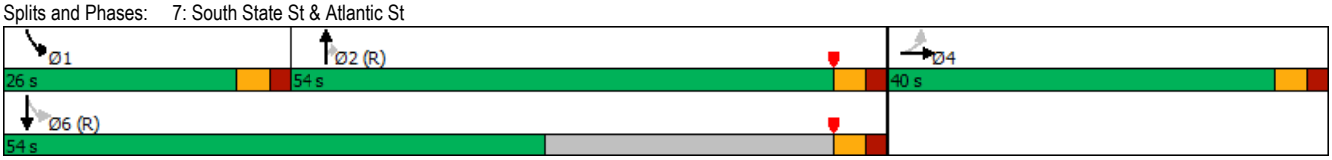
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	81	340	73	0	0	0	0	637	81	123	395	0
Future Volume (vph)	81	340	73	0	0	0	0	637	81	123	395	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.973							0.850			
Flt Protected	0.950									0.950		
Satd. Flow (prot)	1770	3444	0	0	0	0	0	3539	1583	1770	3539	0
Flt Permitted	0.950									0.320		
Satd. Flow (perm)	1770	3444	0	0	0	0	0	3539	1583	596	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		22							92			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		294			1170			301			244	
Travel Time (s)		6.7			26.6			6.8			5.5	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	92	386	83	0	0	0	0	724	92	140	449	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	92	469	0	0	0	0	0	724	92	140	449	0
Turn Type	Perm	NA						NA	Perm	pm+pt	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4								2	6		
Detector Phase	4	4						2	2	1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0						15.0	15.0	5.0	15.0	
Minimum Split (s)	34.0	34.0						34.0	34.0	10.0	27.0	
Total Split (s)	40.0	40.0						54.0	54.0	26.0	54.0	
Total Split (%)	33.3%	33.3%						45.0%	45.0%	21.7%	45.0%	
Maximum Green (s)	35.0	35.0						49.0	49.0	21.0	49.0	
Yellow Time (s)	3.0	3.0						3.0	3.0	3.0	3.0	
All-Red Time (s)	2.0	2.0						2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0						-1.0	-1.0	0.0	-1.0	
Total Lost Time (s)	4.0	4.0						4.0	4.0	5.0	4.0	
Lead/Lag								Lag	Lag	Lead		
Lead-Lag Optimize?								Yes	Yes	Yes		
Vehicle Extension (s)	2.0	2.0						0.2	0.2	2.0	0.2	
Recall Mode	None	None						C-Max	C-Max	Min	C-Max	
Walk Time (s)	7.0	7.0						7.0	7.0		7.0	
Flash Dont Walk (s)	22.0	22.0						15.0	15.0		15.0	
Pedestrian Calls (#/hr)	0	0						0	0		0	
Act Effct Green (s)	21.5	21.5						78.2	78.2	89.5	90.5	
Actuated g/C Ratio	0.18	0.18						0.65	0.65	0.75	0.75	
v/c Ratio	0.29	0.74						0.31	0.09	0.27	0.17	
Control Delay	43.8	51.3						8.5	1.8	6.8	3.5	
Queue Delay	0.0	0.0						0.4	0.0	0.3	0.3	
Total Delay	43.8	51.3						8.9	1.8	7.1	3.8	
LOS	D	D						A	A	A	A	
Approach Delay		50.1						8.1			4.6	
Approach LOS		D						A			A	
Stops (vph)	68	363						197	6	45	77	
Fuel Used(gal)	1	7						4	0	1	1	
CO Emissions (g/hr)	90	508						257	18	46	102	
NOx Emissions (g/hr)	17	99						50	3	9	20	
VOC Emissions (g/hr)	21	118						60	4	11	24	
Dilemma Vehicles (#)	0	0						0	0	0	0	
Queue Length 50th (ft)	63	175						81	1	20	33	
Queue Length 95th (ft)	104	213						136	14	m32	m46	
Internal Link Dist (ft)		214			1090			221			164	
Turn Bay Length (ft)												
Base Capacity (vph)	531	1048						2306	1064	649	2668	
Starvation Cap Reductn	0	0						997	0	199	1581	
Spillback Cap Reductn	0	0						43	0	0	0	
Storage Cap Reductn	0	0						0	0	0	0	
Reduced v/c Ratio	0.17	0.45						0.55	0.09	0.31	0.41	

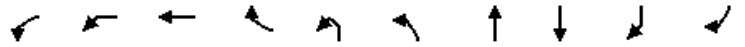
Intersection Summary

Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 46 (38%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.74	
Intersection Signal Delay: 19.0	Intersection LOS: B
Intersection Capacity Utilization 47.0%	ICU Level of Service A
Analysis Period (min) 15	

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

Splits and Phases: 7: South State St & Atlantic St





Lane Group	WBL2	WBL	WBT	WBR	NBL2	NBL	NBT	SBT	SBR	SBR2	Ø2	Ø3	Ø5
Lane Configurations													
Traffic Volume (vph)	143	672	654	334	291	13	414	375	285	136			
Future Volume (vph)	143	672	654	334	291	13	414	375	285	136			
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900			
Lane Util. Factor	0.86	0.86	0.86	0.86	0.95	1.00	0.95	0.95	1.00	0.95			
Frt			0.972						0.850				
Flt Protected			0.978			0.950							
Satd. Flow (prot)	0	0	6091	0	0	1770	3539	3539	1583	0			
Flt Permitted			0.978			0.339							
Satd. Flow (perm)	0	0	6091	0	0	631	3539	3539	1583	0			
Right Turn on Red				No						No			
Satd. Flow (RTOR)													
Link Speed (mph)			30				25	25					
Link Distance (ft)			1209				244	742					
Travel Time (s)			27.5				6.7	20.2					
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85			
Adj. Flow (vph)	168	791	769	393	342	15	487	441	335	160			
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	0	2121	0	0	357	487	441	495	0			
Turn Type	Split	Split	NA		custom	custom	NA	NA	Perm				
Protected Phases	4	4	4		3 5	3 5	2 3	6			2	3	5
Permitted Phases					2	2			6				
Detector Phase	4	4	4		3 5	3 5			6				
Switch Phase													
Minimum Initial (s)	10.0	10.0	10.0					15.0	15.0		15.0	5.0	5.0
Minimum Split (s)	31.0	31.0	31.0					20.0	20.0		26.0	10.0	10.0
Total Split (s)	57.0	57.0	57.0					39.0	39.0		39.0	12.0	12.0
Total Split (%)	47.5%	47.5%	47.5%					32.5%	32.5%		33%	10%	10%
Maximum Green (s)	52.0	52.0	52.0					34.0	34.0		34.0	7.0	7.0
Yellow Time (s)	3.0	3.0	3.0					3.0	3.0		3.0	3.0	3.0
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				
Total Lost Time (s)			5.0					5.0	5.0				
Lead/Lag								Lag	Lag				Lead
Lead-Lag Optimize?													
Vehicle Extension (s)	2.0	2.0	2.0					0.2	0.2		0.2	2.0	2.0
Recall Mode	None	None	None					None	None		C-Max	None	None
Walk Time (s)	7.0	7.0	7.0								7.0		
Flash Dont Walk (s)	19.0	19.0	19.0								14.0		
Pedestrian Calls (#/hr)	0	0	0								0		
Act Effct Green (s)			51.2			53.8	58.8	34.8	34.8				
Actuated g/C Ratio			0.43			0.45	0.49	0.29	0.29				
v/c Ratio			1.27dl			0.86	0.28	0.43	1.08				
Control Delay			35.8			38.7	11.7	36.4	106.0				
Queue Delay			0.0			0.0	0.6	0.0	0.0				
Total Delay			35.8			38.7	12.3	36.4	106.0				
LOS			D			D	B	D	F				
Approach Delay			35.8				23.4	73.2					
Approach LOS			D				C	E					
Stops (vph)			1684			210	145	298	350				
Fuel Used(gal)			39			4	2	6	13				
CO Emissions (g/hr)			2758			267	168	440	915				
NOx Emissions (g/hr)			537			52	33	86	178				
VOC Emissions (g/hr)			639			62	39	102	212				
Dilemma Vehicles (#)			0			0	0	0	0				
Queue Length 50th (ft)			475			148	52	147	~436				
Queue Length 95th (ft)			m466			#133	58	184	#591				
Internal Link Dist (ft)			1129				164	662					
Turn Bay Length (ft)													
Base Capacity (vph)			2639			415	1734	1026	459				
Starvation Cap Reductn			0			0	829	0	0				
Spillback Cap Reductn			0			0	0	0	0				
Storage Cap Reductn			0			0	0	0	0				
Reduced v/c Ratio			0.80			0.86	0.54	0.43	1.08				

Intersection Summary

Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 22 (18%), Referenced to phase 2:NBTL, Start of Yellow			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.08			
Intersection Signal Delay: 42.1		Intersection LOS: D	
Intersection Capacity Utilization 92.6%		ICU Level of Service F	
Analysis Period (min) 15			

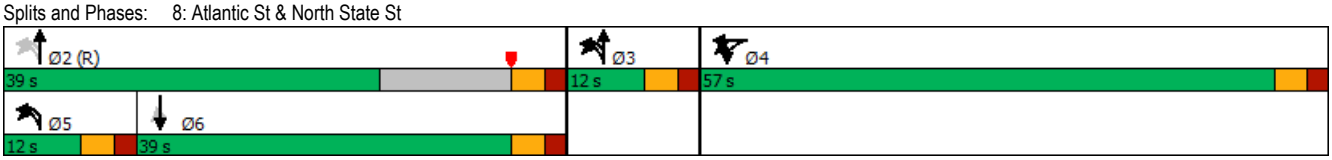
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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.

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 8: Atlantic St & North State St



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	493	1392	305	298	630	0	0	667	244
Future Volume (vph)	0	0	0	493	1392	305	298	630	0	0	667	244
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.86	0.86	0.86	1.00	0.95	1.00	1.00	0.95	0.95
Frt					0.979						0.960	
Flt Protected					0.989		0.950					
Satd. Flow (prot)	0	0	0	0	6204	0	1770	3539	0	0	3398	0
Flt Permitted					0.989		0.119					
Satd. Flow (perm)	0	0	0	0	6204	0	222	3539	0	0	3398	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					40						42	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1209			425			225			425	
Travel Time (s)		27.5			9.7			5.1			9.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	536	1513	332	324	685	0	0	725	265
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	2381	0	324	685	0	0	990	0
Turn Type				Split	NA		D.P+P	NA			NA	
Protected Phases				4	4		1	1 2			2	
Permitted Phases							2					
Detector Phase				4	4		1					
Switch Phase												
Minimum Initial (s)				7.0	7.0		7.0				15.0	
Minimum Split (s)				34.5	34.5		11.0				33.4	
Total Split (s)				53.0	53.0		32.0				35.0	
Total Split (%)				44.2%	44.2%		26.7%				29.2%	
Maximum Green (s)				46.5	46.5		28.0				29.6	
Yellow Time (s)				3.3	3.3		3.0				3.3	
All-Red Time (s)				3.2	3.2		1.0				2.1	
Lost Time Adjust (s)					0.0		0.0				-1.0	
Total Lost Time (s)					6.5		4.0				4.4	
Lead/Lag							Lead				Lag	
Lead-Lag Optimize?											Yes	
Vehicle Extension (s)				3.0	3.0		3.0				0.2	
Recall Mode				None	None		Min				C-Min	
Walk Time (s)				7.0	7.0						7.0	
Flash Dont Walk (s)				21.0	21.0						21.0	
Pedestrian Calls (#/hr)				0	0						0	
Act Effct Green (s)					46.5		59.0	63.0			34.6	
Actuated g/C Ratio					0.39		0.49	0.52			0.29	
v/c Ratio					0.98		0.78	0.37			0.98	
Control Delay					50.1		34.8	8.4			65.2	
Queue Delay					4.5		30.1	4.1			6.5	
Total Delay					54.6		64.9	12.6			71.6	
LOS					D		E	B			E	
Approach Delay					54.6			29.4			71.6	
Approach LOS					D			C			E	
Stops (vph)					1967		228	254			735	
Fuel Used(gal)					40		4	4			19	
CO Emissions (g/hr)					2831		272	251			1340	
NOx Emissions (g/hr)					551		53	49			261	
VOC Emissions (g/hr)					656		63	58			311	
Dilemma Vehicles (#)					0		0	0			0	
Queue Length 50th (ft)					517		162	105			~413	
Queue Length 95th (ft)					#615		m239	124			#581	
Internal Link Dist (ft)		1129			345			145			345	
Turn Bay Length (ft)												
Base Capacity (vph)					2428		474	1857			1010	
Starvation Cap Reductn					0		156	1070			0	
Spillback Cap Reductn					55		0	0			29	
Storage Cap Reductn					0		0	0			0	
Reduced v/c Ratio					1.00		1.02	0.87			1.01	

Intersection Summary

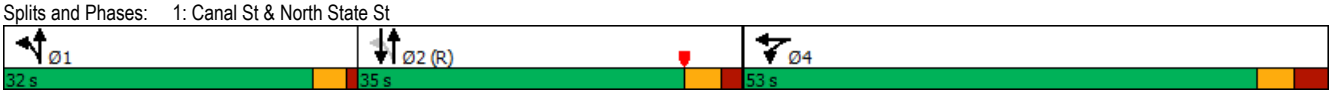
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 113 (94%), Referenced to phase 2:NBSB, Start of Yellow	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.98	
Intersection Signal Delay: 52.6	Intersection LOS: D
Intersection Capacity Utilization 87.9%	ICU Level of Service E
Analysis Period (min) 15	

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

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

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

Splits and Phases: 1: Canal St & North State St

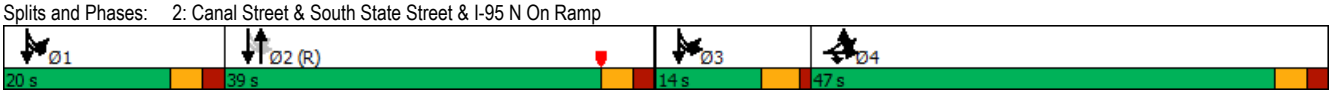


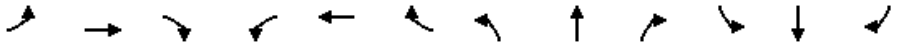
Lane Group	EBL2	EBL	EBT	EBR	NBT	NBR	NBR2	SBL2	SBL	SBT	Ø1	Ø3
Lane Configurations												
Traffic Volume (vph)	468	366	311	384	459	385	20	285	10	865		
Future Volume (vph)	468	366	311	384	459	385	20	285	10	865		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900		
Lane Width (ft)	11	11	11	11	12	12	12	12	12	12		
Lane Util. Factor	0.91	0.95	0.95	1.00	0.95	0.95	0.95	0.95	0.95	0.95		
Frt				0.850	0.930							
Flt Protected	0.950	0.950								0.987		
Satd. Flow (prot)	1557	1625	3421	1531	3291	0	0	0	0	3493		
Flt Permitted	0.950	0.950								0.545		
Satd. Flow (perm)	1557	1625	3421	1531	3291	0	0	0	0	1929		
Right Turn on Red				No			No					
Satd. Flow (RTOR)												
Link Speed (mph)			30		30					30		
Link Distance (ft)			1170		450					225		
Travel Time (s)			26.6		10.2					5.1		
Peak Hour Factor	0.92	0.98	0.98	0.98	0.98	0.98	0.92	0.92	0.98	0.98		
Adj. Flow (vph)	509	373	317	392	468	393	22	310	10	883		
Shared Lane Traffic (%)	13%											
Lane Group Flow (vph)	443	439	317	392	883	0	0	0	0	1203		
Turn Type	Split	Split	NA	Prot	NA			D.P+P	D.P+P	NA		
Protected Phases	4	4	4	4	2			1 3	1 3	1 2 3	1	3
Permitted Phases								2	2			
Detector Phase	4	4	4	4				1 3	1 3			
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	15.0						5.0	5.0
Minimum Split (s)	33.0	33.0	33.0	33.0	33.0						10.0	9.5
Total Split (s)	47.0	47.0	47.0	47.0	39.0						20.0	14.0
Total Split (%)	39.2%	39.2%	39.2%	39.2%	32.5%						17%	12%
Maximum Green (s)	42.0	42.0	42.0	42.0	34.0						15.0	9.5
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0						3.0	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0						2.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0							
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0							
Lead/Lag	Lag	Lag	Lag	Lag	Lag						Lead	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0	2.0	2.0	0.2						2.0	2.0
Recall Mode	None	None	None	None	C-Min						None	Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0							
Flash Dont Walk (s)	21.0	21.0	21.0	21.0	21.0							
Pedestrian Calls (#/hr)	0	0	0	0	0							
Act Effct Green (s)	36.9	36.9	36.9	36.9	59.1					68.1		
Actuated g/C Ratio	0.31	0.31	0.31	0.31	0.49					0.57		
v/c Ratio	0.92	0.88	0.30	0.83	0.55					0.99		
Control Delay	59.2	51.5	27.2	47.3	18.8					30.2		
Queue Delay	6.4	3.8	0.0	0.2	1.0					37.2		
Total Delay	65.6	55.3	27.2	47.5	19.8					67.4		
LOS	E	E	C	D	B					E		
Approach Delay			50.6		19.8					67.4		
Approach LOS			D		B					E		
Stops (vph)	309	320	187	288	500					512		
Fuel Used(gal)	10	10	6	9	9					12		
CO Emissions (g/hr)	723	707	391	615	636					838		
NOx Emissions (g/hr)	141	138	76	120	124					163		
VOC Emissions (g/hr)	168	164	91	142	147					194		
Dilemma Vehicles (#)	0	0	0	0	0					0		
Queue Length 50th (ft)	264	247	75	208	156					~124		
Queue Length 95th (ft)	#513	346	101	295	m247					m#224		
Internal Link Dist (ft)			1090		370					145		
Turn Bay Length (ft)												
Base Capacity (vph)	544	568	1197	535	1619					1211		
Starvation Cap Reductn	0	0	0	0	450					124		
Spillback Cap Reductn	65	68	0	7	26					49		
Storage Cap Reductn	0	0	0	0	0					0		
Reduced v/c Ratio	0.92	0.88	0.26	0.74	0.76					1.11		

Intersection Summary		
Area Type:	Other	
Cycle Length: 120		
Actuated Cycle Length: 120		
Offset: 20 (17%), Referenced to phase 2:NBSB, Start of Yellow		
Natural Cycle: 90		
Control Type: Actuated-Coordinated		
Maximum v/c Ratio: 0.99		
Intersection Signal Delay: 48.7		Intersection LOS: D
Intersection Capacity Utilization 93.8%		ICU Level of Service F
Analysis Period (min) 15		

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

Splits and Phases: 2: Canal Street & South State Street & I-95 N On Ramp





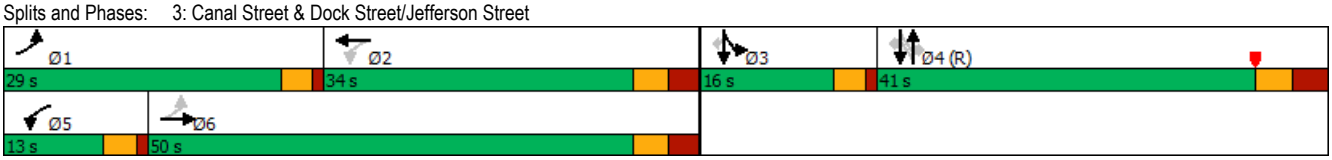
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	321	433	21	139	505	224	14	258	108	346	510	372
Future Volume (vph)	321	433	21	139	505	224	14	258	108	346	510	372
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	160		0	0		120	0		120
Storage Lanes	1		0	1		0	0		1	1		1
Taper Length (ft)	25			55			25			60		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Frt		0.993			0.954				0.850			0.850
Flt Protected	0.950			0.950				0.997		0.950		
Satd. Flow (prot)	1770	3514	0	1770	3376	0	0	3529	1583	1770	1863	1583
Flt Permitted	0.129			0.479				0.913		0.562		
Satd. Flow (perm)	240	3514	0	892	3376	0	0	3231	1583	1047	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5			55				137			227
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		384			422			263			450	
Travel Time (s)		8.7			9.6			6.0			10.2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	338	456	22	146	532	236	15	272	114	364	537	392
Shared Lane Traffic (%)												
Lane Group Flow (vph)	338	478	0	146	768	0	0	287	114	364	537	392
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases	1	6		5	2			4		3	3 4	
Permitted Phases	6			2			4		4	3 4		3 4
Detector Phase	1	6		5	2		4	4	4	3	3 4	3 4
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		15.0	15.0	15.0	7.0		
Minimum Split (s)	9.0	34.1		9.0	34.1		36.6	36.6	36.6	11.0		
Total Split (s)	29.0	50.0		13.0	34.0		41.0	41.0	41.0	16.0		
Total Split (%)	24.2%	41.7%		10.8%	28.3%		34.2%	34.2%	34.2%	13.3%		
Maximum Green (s)	25.0	43.9		9.0	27.9		34.4	34.4	34.4	12.0		
Yellow Time (s)	3.0	3.3		3.0	3.3		3.3	3.3	3.3	3.0		
All-Red Time (s)	1.0	2.8		1.0	2.8		3.3	3.3	3.3	1.0		
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0	0.0		
Total Lost Time (s)	4.0	6.1		4.0	6.1			6.6	6.6	4.0		
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag	Lag	Lead		
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	0.2		3.0	0.2		3.0	3.0	3.0	3.0		
Recall Mode	None	None		None	None		C-Min	C-Min	C-Min	None		
Walk Time (s)		7.0			7.0		7.0	7.0	7.0			
Flash Dont Walk (s)		21.0			21.0		23.0	23.0	23.0			
Pedestrian Calls (#/hr)		0			0		0	0	0			
Act Effct Green (s)	55.2	40.3		37.8	26.9			38.2	38.2	52.8	56.8	56.8
Actuated g/C Ratio	0.46	0.34		0.32	0.22			0.32	0.32	0.44	0.47	0.47
v/c Ratio	0.86	0.40		0.42	0.96			0.28	0.19	0.68	0.61	0.45
Control Delay	52.7	33.3		24.0	66.4			32.6	4.0	26.3	24.8	8.7
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0	0.0	5.2	0.7
Total Delay	52.7	33.3		24.0	66.4			32.6	4.0	26.3	30.0	9.4
LOS	D	C		C	E			C	A	C	C	A
Approach Delay		41.3			59.7			24.5			22.7	
Approach LOS		D			E			C			C	
Stops (vph)	271	346		97	631			203	9	317	385	129
Fuel Used(gal)	6	6		2	17			3	0	5	6	3
CO Emissions (g/hr)	412	444		139	1219			244	25	337	454	187
NOx Emissions (g/hr)	80	86		27	237			48	5	66	88	36
VOC Emissions (g/hr)	96	103		32	282			57	6	78	105	43
Dilemma Vehicles (#)	0	0		0	0			0	0	0	0	0
Queue Length 50th (ft)	213	146		62	288			90	0	185	316	77
Queue Length 95th (ft)	#330	208		101	#408			131	30	m227	m379	m119
Internal Link Dist (ft)		304			342			183			370	
Turn Bay Length (ft)				160					120			120
Base Capacity (vph)	428	1288		348	827			1028	597	533	881	868
Starvation Cap Reductn	0	0		0	0			0	0	0	274	214
Spillback Cap Reductn	0	0		0	0			0	0	0	0	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Storage Cap Reductn	0	0		0	0			0	0	0	0	0
Reduced v/c Ratio	0.79	0.37		0.42	0.93			0.28	0.19	0.68	0.88	0.60

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 57 (48%), Referenced to phase 4:NBSB, Start of Yellow			
Natural Cycle: 95			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.96			
Intersection Signal Delay: 37.2		Intersection LOS: D	
Intersection Capacity Utilization 95.5%		ICU Level of Service F	
Analysis Period (min) 15			

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

Splits and Phases: 3: Canal Street & Dock Street/Jefferson Street



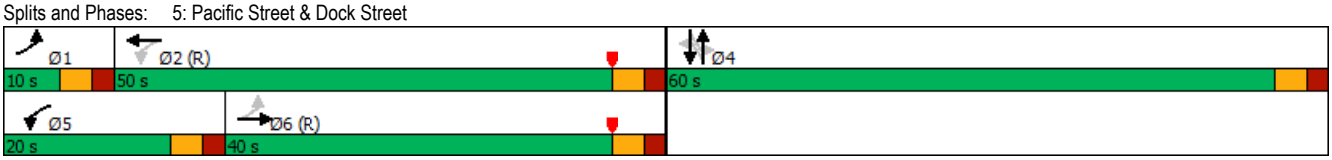
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	397	93	133	768	4	155	1	185	1	1	2
Future Volume (vph)	1	397	93	133	768	4	155	1	185	1	1	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	90		0	90		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.972			0.999			0.927			0.932	
Flt Protected	0.950			0.950				0.978			0.988	
Satd. Flow (prot)	1770	3440	0	1770	3536	0	0	1689	0	0	1715	0
Flt Permitted	0.324			0.383				0.853			0.949	
Satd. Flow (perm)	604	3440	0	713	3536	0	0	1473	0	0	1648	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		24						66			2	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		510			228			158			352	
Travel Time (s)		11.6			5.2			3.6			8.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1	432	101	145	835	4	168	1	201	1	1	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1	533	0	145	839	0	0	370	0	0	4	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	1	6		5	2			4			4	
Permitted Phases	6			2			4			4		
Detector Phase	1	6		5	2		4	4		4	4	
Switch Phase												
Minimum Initial (s)	5.0	15.0		5.0	15.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	10.0	35.0		10.0	35.0		35.0	35.0		35.0	35.0	
Total Split (s)	10.0	40.0		20.0	50.0		60.0	60.0		60.0	60.0	
Total Split (%)	8.3%	33.3%		16.7%	41.7%		50.0%	50.0%		50.0%	50.0%	
Maximum Green (s)	5.0	35.0		15.0	45.0		55.0	55.0		55.0	55.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
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)	5.0	5.0		5.0	5.0			5.0			5.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		23.0			23.0		23.0	23.0		23.0	23.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)	67.7	62.7		77.4	75.4			32.6			32.6	
Actuated g/C Ratio	0.56	0.52		0.64	0.63			0.27			0.27	
v/c Ratio	0.00	0.29		0.27	0.38			0.83			0.01	
Control Delay	18.0	26.0		5.8	8.6			48.1			21.0	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	18.0	26.0		5.8	8.6			48.1			21.0	
LOS	B	C		A	A			D			C	
Approach Delay		26.0			8.2			48.1			21.0	
Approach LOS		C			A			D			C	
Stops (vph)	1	366		36	328			261			3	
Fuel Used(gal)	0	7		1	6			5			0	
CO Emissions (g/hr)	1	459		61	434			363			3	
NOx Emissions (g/hr)	0	89		12	84			71			1	
VOC Emissions (g/hr)	0	106		14	101			84			1	
Dilemma Vehicles (#)	0	0		0	0			0			0	
Queue Length 50th (ft)	0	166		15	47			226			1	
Queue Length 95th (ft)	m2	255		m64	m323			299			9	
Internal Link Dist (ft)		430			148			78			272	
Turn Bay Length (ft)	90			90								
Base Capacity (vph)	389	1810		592	2221			710			756	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	

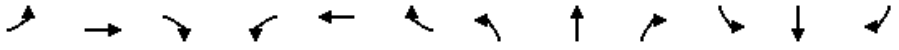
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.00	0.29		0.24	0.38			0.52			0.01	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 83 (69%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.83			
Intersection Signal Delay: 21.0		Intersection LOS: C	
Intersection Capacity Utilization 64.7%		ICU Level of Service C	
Analysis Period (min) 15			

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

Splits and Phases: 5: Pacific Street & Dock Street



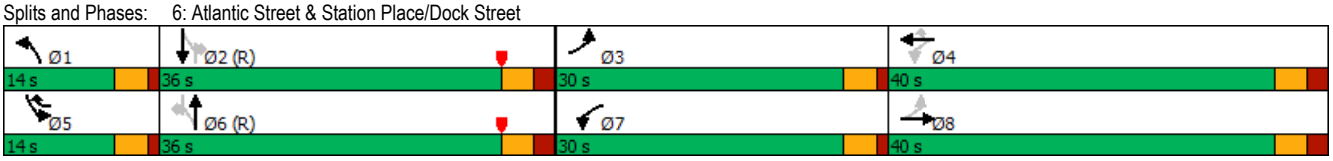


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	61	156	31	324	306	347	31	295	200	108	208	163
Future Volume (vph)	61	156	31	324	306	347	31	295	200	108	208	163
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	210		0	100		130	70		110
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	25			10			50			45		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.975				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1816	0	1770	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.560			0.314			0.611			0.495		
Satd. Flow (perm)	1043	1816	0	585	1863	1583	1138	3539	1583	922	3539	1583
Right Turn on Red			No			Yes			Yes			Yes
Satd. Flow (RTOR)						377			217			177
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		348			510			366			301	
Travel Time (s)		7.9			11.6			8.3			6.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	66	170	34	352	333	377	34	321	217	117	226	177
Shared Lane Traffic (%)												
Lane Group Flow (vph)	66	204	0	352	333	377	34	321	217	117	226	177
Turn Type	pm+pt	NA		pm+pt	NA	pm+ov	pm+pt	NA	custom	pm+pt	NA	custom
Protected Phases	3	8		7	4	5	1	6		5	2	
Permitted Phases	8			4		4	6		2	2		6
Detector Phase	3	8		7	4	5	1		2	5		6
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0	5.0	5.0	15.0	15.0	5.0	15.0	15.0
Minimum Split (s)	10.0	34.0		10.0	34.0	10.0	10.0	34.0	34.0	10.0	34.0	34.0
Total Split (s)	30.0	40.0		30.0	40.0	14.0	14.0	36.0	36.0	14.0	36.0	36.0
Total Split (%)	25.0%	33.3%		25.0%	33.3%	11.7%	11.7%	30.0%	30.0%	11.7%	30.0%	30.0%
Maximum Green (s)	26.0	35.0		26.0	35.0	10.0	10.0	31.0	31.0	10.0	31.0	31.0
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	2.0		1.0	2.0	1.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	5.0		4.0	5.0	4.0	4.0	5.0	5.0	4.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	2.0	3.0	0.2	0.2	2.0	0.2	0.2
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0			7.0			7.0	7.0		7.0	7.0
Flash Dont Walk (s)		22.0			22.0			22.0	22.0		22.0	22.0
Pedestrian Calls (#/hr)		0			0			0	0		0	0
Act Effct Green (s)	28.2	18.9		47.8	36.4	49.7	58.7	51.0	56.4	63.1	56.4	51.0
Actuated g/C Ratio	0.24	0.16		0.40	0.30	0.41	0.49	0.42	0.47	0.53	0.47	0.42
v/c Ratio	0.22	0.72		0.75	0.59	0.43	0.06	0.21	0.25	0.22	0.14	0.23
Control Delay	24.0	61.6		39.3	43.4	14.9	16.3	24.2	4.2	11.7	14.3	2.6
Queue Delay	0.0	0.0		1.7	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.5
Total Delay	24.0	61.6		41.0	43.4	15.3	16.3	24.2	4.2	11.7	14.3	3.1
LOS	C	E		D	D	B	B	C	A	B	B	A
Approach Delay		52.4			32.6			16.1			9.9	
Approach LOS		D			C			B			A	
Stops (vph)	44	174		286	285	221	16	187	18	33	99	18
Fuel Used(gal)	1	4		5	5	4	0	3	1	1	2	1
CO Emissions (g/hr)	49	268		382	384	255	20	233	59	48	115	40
NOx Emissions (g/hr)	10	52		74	75	50	4	45	11	9	22	8
VOC Emissions (g/hr)	11	62		88	89	59	5	54	14	11	27	9
Dilemma Vehicles (#)	0	0		0	0	0	0	0	0	0	0	0
Queue Length 50th (ft)	31	152		251	252	107	12	83	0	28	30	1
Queue Length 95th (ft)	54	221		338	349	257	33	133	52	52	46	1
Internal Link Dist (ft)		268			430			286			221	
Turn Bay Length (ft)	100			210			100		130	70		110
Base Capacity (vph)	552	529		490	578	893	639	1502	858	557	1662	774
Starvation Cap Reductn	0	0		47	0	179	0	0	0	0	0	312
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.39		0.79	0.58	0.53	0.05	0.21	0.25	0.21	0.14	0.38

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 35 (29%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.75			
Intersection Signal Delay: 26.1		Intersection LOS: C	
Intersection Capacity Utilization 61.5%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 6: Atlantic Street & Station Place/Dock Street



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	81	340	73	0	0	0	0	637	81	123	395	0
Future Volume (vph)	81	340	73	0	0	0	0	637	81	123	395	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.973							0.850			
Flt Protected	0.950									0.950		
Satd. Flow (prot)	1770	3444	0	0	0	0	0	3539	1583	1770	3539	0
Flt Permitted	0.950									0.319		
Satd. Flow (perm)	1770	3444	0	0	0	0	0	3539	1583	594	3539	0
Right Turn on Red			No			Yes			No			Yes
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		294			1170			301			244	
Travel Time (s)		6.7			26.6			6.8			5.5	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	92	386	83	0	0	0	0	724	92	140	449	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	92	469	0	0	0	0	0	724	92	140	449	0
Turn Type	Perm	NA						NA	Perm	pm+pt	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4								2	6		
Detector Phase	4	4						2	2	1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0						15.0	15.0	5.0	15.0	
Minimum Split (s)	34.0	34.0						34.0	34.0	10.0	27.0	
Total Split (s)	44.0	44.0						55.0	55.0	21.0	76.0	
Total Split (%)	36.7%	36.7%						45.8%	45.8%	17.5%	63.3%	
Maximum Green (s)	39.0	39.0						50.0	50.0	16.0	71.0	
Yellow Time (s)	3.0	3.0						3.0	3.0	3.0	3.0	
All-Red Time (s)	2.0	2.0						2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0						-1.0	-1.0	0.0	-1.0	
Total Lost Time (s)	4.0	4.0						4.0	4.0	5.0	4.0	
Lead/Lag								Lag	Lag	Lead		
Lead-Lag Optimize?								Yes	Yes	Yes		
Vehicle Extension (s)	2.0	2.0						0.2	0.2	2.0	0.2	
Recall Mode	None	None						C-Max	C-Max	Min	C-Max	
Walk Time (s)	7.0	7.0						7.0	7.0		7.0	
Flash Dont Walk (s)	22.0	22.0						15.0	15.0		15.0	
Pedestrian Calls (#/hr)	0	0						0	0		0	
Act Effct Green (s)	22.3	22.3						77.3	77.3	88.7	89.7	
Actuated g/C Ratio	0.19	0.19						0.64	0.64	0.74	0.75	
v/c Ratio	0.28	0.73						0.32	0.09	0.27	0.17	
Control Delay	42.9	52.8						8.9	7.5	5.9	1.5	
Queue Delay	0.0	0.0						0.5	0.0	0.4	0.4	
Total Delay	42.9	52.8						9.4	7.5	6.3	1.8	
LOS	D	D						A	A	A	A	
Approach Delay		51.2						9.2			2.9	
Approach LOS		D						A			A	
Stops (vph)	67	377						260	26	34	33	
Fuel Used(gal)	1	7						4	0	1	1	
CO Emissions (g/hr)	88	522						286	32	40	74	
NOx Emissions (g/hr)	17	102						56	6	8	14	
VOC Emissions (g/hr)	20	121						66	7	9	17	
Dilemma Vehicles (#)	0	0						0	0	0	0	
Queue Length 50th (ft)	62	182						108	24	9	11	
Queue Length 95th (ft)	103	220						123	33	m27	m10	
Internal Link Dist (ft)		214			1090			221			164	
Turn Bay Length (ft)												
Base Capacity (vph)	590	1148						2280	1020	595	2644	
Starvation Cap Reductn	0	0						1030	0	186	1603	
Spillback Cap Reductn	0	0						124	0	0	0	
Storage Cap Reductn	0	0						0	0	0	0	
Reduced v/c Ratio	0.16	0.41						0.58	0.09	0.34	0.43	

Intersection Summary

Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 12 (10%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.73			
Intersection Signal Delay: 19.3		Intersection LOS: B	
Intersection Capacity Utilization 47.0%		ICU Level of Service A	
Analysis Period (min) 15			

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

Splits and Phases: 7: South State St & Atlantic St

Lane Group	WBL2	WBL	WBT	WBR	NBL2	NBL	NBT	SBT	SBR	SBR2	Ø2	Ø3	Ø5
Lane Configurations													
Traffic Volume (vph)	143	672	654	334	291	13	414	375	285	136			
Future Volume (vph)	143	672	654	334	291	13	414	375	285	136			
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900			
Lane Util. Factor	0.86	0.86	0.86	0.86	0.95	1.00	0.95	0.95	1.00	0.95			
Frt			0.972						0.850				
Flt Protected			0.978			0.950							
Satd. Flow (prot)	0	0	6091	0	0	1770	3539	3539	1583	0			
Flt Permitted			0.978			0.373							
Satd. Flow (perm)	0	0	6091	0	0	695	3539	3539	1583	0			
Right Turn on Red				No						No			
Satd. Flow (RTOR)													
Link Speed (mph)			30				25	25					
Link Distance (ft)			1209				244	742					
Travel Time (s)			27.5				6.7	20.2					
Peak Hour Factor	0.92	0.85	0.85	0.85	0.92	0.85	0.85	0.85	0.85	0.92			
Adj. Flow (vph)	155	791	769	393	316	15	487	441	335	148			
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	0	2108	0	0	331	487	441	483	0			
Turn Type	Split	Split	NA		custom	custom	NA	NA	Perm				
Protected Phases	4	4	4		3 5	3 5	2 3	6			2	3	5
Permitted Phases					2	2			6				
Detector Phase	4	4	4		3 5	3 5			6				
Switch Phase													
Minimum Initial (s)	10.0	10.0	10.0					15.0	15.0		15.0	5.0	5.0
Minimum Split (s)	31.0	31.0	31.0					20.0	20.0		26.0	10.0	10.0
Total Split (s)	49.0	49.0	49.0					39.0	39.0		39.0	20.0	12.0
Total Split (%)	40.8%	40.8%	40.8%					32.5%	32.5%		33%	17%	10%
Maximum Green (s)	44.0	44.0	44.0					34.0	34.0		34.0	15.0	7.0
Yellow Time (s)	3.0	3.0	3.0					3.0	3.0		3.0	3.0	3.0
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				
Total Lost Time (s)			5.0					5.0	5.0				
Lead/Lag								Lag	Lag				Lead
Lead-Lag Optimize?													
Vehicle Extension (s)	2.0	2.0	2.0					0.2	0.2		0.2	2.0	2.0
Recall Mode	None	None	None					None	None		C-Max	None	None
Walk Time (s)	7.0	7.0	7.0								7.0		
Flash Dont Walk (s)	19.0	19.0	19.0								14.0		
Pedestrian Calls (#/hr)	0	0	0								0		
Act Effct Green (s)			44.0			61.0	66.0	41.7	41.7				
Actuated g/C Ratio			0.37			0.51	0.55	0.35	0.35				
v/c Ratio			1.46dl			0.69	0.25	0.36	0.88				
Control Delay			31.3			22.5	11.2	30.9	56.0				
Queue Delay			0.0			0.0	0.6	0.0	0.0				
Total Delay			31.3			22.6	11.8	30.9	56.0				
LOS			C			C	B	C	E				
Approach Delay			31.3				16.1	44.0					
Approach LOS			C				B	D					
Stops (vph)			1683			219	230	274	350				
Fuel Used(gal)			38			3	3	6	9				
CO Emissions (g/hr)			2642			200	188	404	616				
NOx Emissions (g/hr)			514			39	37	79	120				
VOC Emissions (g/hr)			612			46	44	94	143				
Dilemma Vehicles (#)			0			0	0	0	0				
Queue Length 50th (ft)			476			161	120	130	341				
Queue Length 95th (ft)			492			192	131	182	#561				
Internal Link Dist (ft)			1129				164	662					
Turn Bay Length (ft)													
Base Capacity (vph)			2233			594	1946	1228	549				
Starvation Cap Reductn			0			7	1036	0	0				
Spillback Cap Reductn			0			0	0	0	0				
Storage Cap Reductn			0			0	0	0	0				
Reduced v/c Ratio			0.94			0.56	0.54	0.36	0.88				

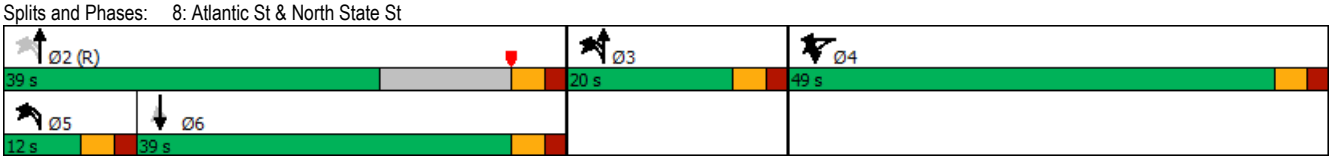
Intersection Summary

Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 14 (12%), Referenced to phase 2:NBTL, Start of Yellow			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.94			
Intersection Signal Delay: 31.1		Intersection LOS: C	
Intersection Capacity Utilization 92.6%		ICU Level of Service F	
Analysis Period (min) 15			

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

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 8: Atlantic St & North State St



Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	592	9	20	852	10	41	1	143	2	0	1
Future Vol, veh/h	8	592	9	20	852	10	41	1	143	2	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	130	-	-	-	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	9	643	10	22	926	11	45	1	155	2	0	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	937	0	0	653	0	0	1173	1647	327	1252	1647	469
Stage 1	-	-	-	-	-	-	666	666	-	976	976	-
Stage 2	-	-	-	-	-	-	507	981	-	276	671	-
Critical Hdwy	4.14	-	-	5.34	-	-	6.99	6.54	7.14	6.99	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	7.34	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.74	5.54	-
Follow-up Hdwy	2.22	-	-	3.12	-	-	3.67	4.02	3.92	3.67	4.02	3.32
Pot Cap-1 Maneuver	727	-	-	574	-	-	172	98	571	153	98	541
Stage 1	-	-	-	-	-	-	348	456	-	263	327	-
Stage 2	-	-	-	-	-	-	500	326	-	671	453	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	727	-	-	574	-	-	165	93	571	106	93	541
Mov Cap-2 Maneuver	-	-	-	-	-	-	165	93	-	106	93	-
Stage 1	-	-	-	-	-	-	344	451	-	260	315	-
Stage 2	-	-	-	-	-	-	480	314	-	481	448	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.3	26.6	30.4
HCM LOS			D	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	363	727	-	-	574	-	-	106	541
HCM Lane V/C Ratio	0.554	0.012	-	-	0.038	-	-	0.021	0.002
HCM Control Delay (s)	26.6	10	-	-	11.5	-	-	39.7	11.7
HCM Lane LOS	D	B	-	-	B	-	-	E	B
HCM 95th %tile Q(veh)	3.2	0	-	-	0.1	-	-	0.1	0

Intersection	
Int Delay, s/veh	4.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	592	20	29	852	10	53	1	160	2	0	1
Future Vol, veh/h	8	592	20	29	852	10	53	1	160	2	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	130	-	-	-	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	9	643	22	32	926	11	58	1	174	2	0	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	937	0	0	665	0	0	1199	1673	333	1272	1679	469
Stage 1	-	-	-	-	-	-	672	672	-	996	996	-
Stage 2	-	-	-	-	-	-	527	1001	-	276	683	-
Critical Hdwy	4.14	-	-	5.34	-	-	6.99	6.54	7.14	6.99	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	7.34	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.74	5.54	-
Follow-up Hdwy	2.22	-	-	3.12	-	-	3.67	4.02	3.92	3.67	4.02	3.32
Pot Cap-1 Maneuver	727	-	-	566	-	-	166	95	566	148	94	541
Stage 1	-	-	-	-	-	-	344	453	-	256	320	-
Stage 2	-	-	-	-	-	-	487	319	-	671	447	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	727	-	-	566	-	-	157	89	566	96	88	541
Mov Cap-2 Maneuver	-	-	-	-	-	-	157	89	-	96	88	-
Stage 1	-	-	-	-	-	-	340	448	-	253	302	-
Stage 2	-	-	-	-	-	-	459	301	-	458	442	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.4	35.9	32.8
HCM LOS			E	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	339	727	-	-	566	-	-	96	541
HCM Lane V/C Ratio	0.686	0.012	-	-	0.056	-	-	0.023	0.002
HCM Control Delay (s)	35.9	10	-	-	11.7	-	-	43.4	11.7
HCM Lane LOS	E	B	-	-	B	-	-	E	B
HCM 95th %tile Q(veh)	4.8	0	-	-	0.2	-	-	0.1	0

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	39	1	1	340	641	29
Future Vol, veh/h	39	1	1	340	641	29
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	42	1	1	370	697	32

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1085	713	729	0	-	0
Stage 1	713	-	-	-	-	-
Stage 2	372	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	240	432	875	-	-	-
Stage 1	486	-	-	-	-	-
Stage 2	697	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	240	432	875	-	-	-
Mov Cap-2 Maneuver	240	-	-	-	-	-
Stage 1	486	-	-	-	-	-
Stage 2	697	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	23	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	875	-	243	-	-
HCM Lane V/C Ratio	0.001	-	0.179	-	-
HCM Control Delay (s)	9.1	-	23	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0.6	-	-

Intersection	
Int Delay, s/veh	1.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	11	29	185	10	20	29
Future Vol, veh/h	11	29	185	10	20	29
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	12	32	201	11	22	32

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	283	207	0	0	212	0
Stage 1	207	-	-	-	-	-
Stage 2	76	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	707	833	-	-	1358	-
Stage 1	828	-	-	-	-	-
Stage 2	947	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	696	833	-	-	1358	-
Mov Cap-2 Maneuver	696	-	-	-	-	-
Stage 1	828	-	-	-	-	-
Stage 2	932	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.8	0	3.1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	790	1358	-
HCM Lane V/C Ratio	-	-	0.055	0.016	-
HCM Control Delay (s)	-	-	9.8	7.7	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0	-

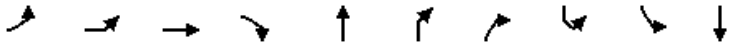
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	424	971	204	290	795	0	0	650	173
Future Volume (vph)	0	0	0	424	971	204	290	795	0	0	650	173
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.86	0.86	0.86	1.00	0.95	1.00	1.00	0.95	0.95
Frt					0.981						0.968	
Flt Protected					0.987		0.950					
Satd. Flow (prot)	0	0	0	0	6204	0	1770	3539	0	0	3426	0
Flt Permitted					0.987		0.126					
Satd. Flow (perm)	0	0	0	0	6204	0	235	3539	0	0	3426	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					34						29	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1209			425			225			425	
Travel Time (s)		27.5			9.7			5.1			9.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	461	1055	222	315	864	0	0	707	188
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	1738	0	315	864	0	0	895	0
Turn Type				Split	NA		D.P+P	NA			NA	
Protected Phases				4	4		1	1 2			2	
Permitted Phases							2					
Detector Phase				4	4		1					
Switch Phase												
Minimum Initial (s)				7.0	7.0		7.0				15.0	
Minimum Split (s)				34.5	34.5		11.0				33.4	
Total Split (s)				50.0	50.0		27.0				43.0	
Total Split (%)				41.7%	41.7%		22.5%				35.8%	
Maximum Green (s)				43.5	43.5		23.0				37.6	
Yellow Time (s)				3.3	3.3		3.0				3.3	
All-Red Time (s)				3.2	3.2		1.0				2.1	
Lost Time Adjust (s)					0.0		0.0				-1.0	
Total Lost Time (s)					6.5		4.0				4.4	
Lead/Lag							Lead				Lag	
Lead-Lag Optimize?											Yes	
Vehicle Extension (s)				3.0	3.0		3.0				0.2	
Recall Mode				None	None		Min				C-Min	
Walk Time (s)				7.0	7.0						7.0	
Flash Dont Walk (s)				21.0	21.0						21.0	
Pedestrian Calls (#/hr)				0	0						0	
Act Effct Green (s)					43.0		62.5	66.5			40.5	
Actuated g/C Ratio					0.36		0.52	0.55			0.34	
v/c Ratio					0.77		0.79	0.44			0.76	
Control Delay					36.3		33.3	8.2			39.9	
Queue Delay					0.2		57.5	19.3			0.3	
Total Delay					36.5		90.8	27.5			40.2	
LOS					D		F	C			D	
Approach Delay					36.5			44.4			40.2	
Approach LOS					D			D			D	
Stops (vph)					1353		221	383			703	
Fuel Used(gal)					25		4	5			13	
CO Emissions (g/hr)					1719		258	338			929	
NOx Emissions (g/hr)					334		50	66			181	
VOC Emissions (g/hr)					398		60	78			215	
Dilemma Vehicles (#)					0		0	0			0	
Queue Length 50th (ft)					336		156	128			322	
Queue Length 95th (ft)					383		m212	m174			404	
Internal Link Dist (ft)		1129			345			145			345	
Turn Bay Length (ft)												
Base Capacity (vph)					2270		418	1961			1174	
Starvation Cap Reductn					0		151	1106			0	
Spillback Cap Reductn					89		0	0			37	
Storage Cap Reductn					0		0	0			0	
Reduced v/c Ratio					0.80		1.18	1.01			0.79	

Intersection Summary

Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 107 (89%), Referenced to phase 2:NBSB, Start of Yellow			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.79			
Intersection Signal Delay: 39.8		Intersection LOS: D	
Intersection Capacity Utilization 75.9%		ICU Level of Service D	
Analysis Period (min) 15			

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

Splits and Phases: 1: Canal St & North State St



Lane Group	EBL2	EBL	EBT	EBR	NBT	NBR	NBR2	SBL2	SBL	SBT	Ø1	Ø3
Lane Configurations												
Traffic Volume (vph)	570	592	571	273	525	474	41	305	10	758		
Future Volume (vph)	570	592	571	273	525	474	41	305	10	758		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900		
Lane Width (ft)	11	11	11	11	12	12	12	12	12	12		
Lane Util. Factor	0.91	0.95	0.95	1.00	0.95	0.95	0.95	0.95	0.95	0.95		
Frt				0.850	0.926							
Flt Protected	0.950	0.950								0.986		
Satd. Flow (prot)	1557	1625	3421	1531	3277	0	0	0	0	3490		
Flt Permitted	0.950	0.950								0.505		
Satd. Flow (perm)	1557	1625	3421	1531	3277	0	0	0	0	1787		
Right Turn on Red				No			No					
Satd. Flow (RTOR)												
Link Speed (mph)			30		30					30		
Link Distance (ft)			1170		450					225		
Travel Time (s)			26.6		10.2					5.1		
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98		
Adj. Flow (vph)	582	604	583	279	536	484	42	311	10	773		
Shared Lane Traffic (%)	10%											
Lane Group Flow (vph)	524	662	583	279	1062	0	0	0	0	1094		
Turn Type	Split	Split	NA	Prot	NA			D.P+P	D.P+P	NA		
Protected Phases	4	4	4	4	2			1 3	1 3	1 2 3	1	3
Permitted Phases								2	2			
Detector Phase	4	4	4	4				1 3	1 3			
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	15.0						5.0	5.0
Minimum Split (s)	33.0	33.0	33.0	33.0	33.0						10.0	9.5
Total Split (s)	45.0	45.0	45.0	45.0	39.0						20.0	16.0
Total Split (%)	37.5%	37.5%	37.5%	37.5%	32.5%						17%	13%
Maximum Green (s)	40.0	40.0	40.0	40.0	34.0						15.0	11.5
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0						3.0	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0						2.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0							
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0							
Lead/Lag	Lag	Lag	Lag	Lag	Lag						Lead	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0	2.0	2.0	0.2						2.0	2.0
Recall Mode	None	None	None	None	C-Min						None	Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0							
Flash Dont Walk (s)	21.0	21.0	21.0	21.0	21.0							
Pedestrian Calls (#/hr)	0	0	0	0	0							
Act Effct Green (s)	40.0	40.0	40.0	40.0	54.0					65.0		
Actuated g/C Ratio	0.33	0.33	0.33	0.33	0.45					0.54		
v/c Ratio	1.01	1.22	0.51	0.55	0.72					1.13dl		
Control Delay	81.1	151.2	33.3	36.8	39.4					35.4		
Queue Delay	31.8	1.3	0.0	0.0	50.2					9.7		
Total Delay	112.9	152.6	33.3	36.8	89.5					45.1		
LOS	F	F	C	D	F					D		
Approach Delay			92.7		89.5					45.1		
Approach LOS			F		F					D		
Stops (vph)	448	529	477	233	941					644		
Fuel Used(gal)	16	29	12	6	17					13		
CO Emissions (g/hr)	1094	2015	819	407	1202					921		
NOx Emissions (g/hr)	213	392	159	79	234					179		
VOC Emissions (g/hr)	253	467	190	94	279					213		
Dilemma Vehicles (#)	0	0	0	0	0					0		
Queue Length 50th (ft)	~450	~665	208	191	456					114		
Queue Length 95th (ft)	m#706	#920	271	m271	m484					#253		
Internal Link Dist (ft)			1090		370					145		
Turn Bay Length (ft)												
Base Capacity (vph)	519	541	1140	510	1474					1124		
Starvation Cap Reductn	0	0	0	0	615					48		
Spillback Cap Reductn	77	81	0	0	0					0		
Storage Cap Reductn	0	0	0	0	0					0		
Reduced v/c Ratio	1.19	1.44	0.51	0.55	1.24					1.02		

Intersection Summary		
Area Type:	Other	
Cycle Length: 120		
Actuated Cycle Length: 120		
Offset: 112 (93%), Referenced to phase 2:NBSB, Start of Yellow		
Natural Cycle: 140		
Control Type: Actuated-Coordinated		
Maximum v/c Ratio: 1.22		
Intersection Signal Delay: 79.5		Intersection LOS: E
Intersection Capacity Utilization 105.8%		ICU Level of Service G
Analysis Period (min) 15		

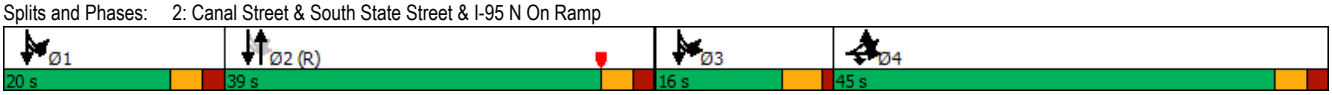
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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.

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 2: Canal Street & South State Street & I-95 N On Ramp



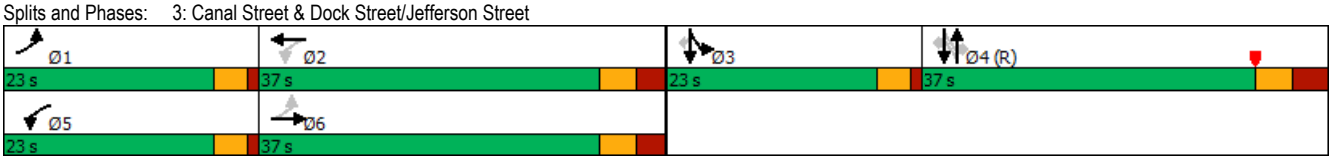
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	388	536	24	141	435	265	22	449	222	295	357	339
Future Volume (vph)	388	536	24	141	435	265	22	449	222	295	357	339
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	160		0	150		120	0		120
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	25			55			25			60		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Frt		0.994			0.943				0.850			0.850
Flt Protected	0.950			0.950				0.998		0.950		
Satd. Flow (prot)	1770	3518	0	1770	3337	0	0	3532	1583	1770	1863	1583
Flt Permitted	0.134			0.352				0.920		0.372		
Satd. Flow (perm)	250	3518	0	656	3337	0	0	3256	1583	693	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			103				209			310
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		384			422			263			450	
Travel Time (s)		8.7			9.6			6.0			10.2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	408	564	25	148	458	279	23	473	234	311	376	357
Shared Lane Traffic (%)												
Lane Group Flow (vph)	408	589	0	148	737	0	0	496	234	311	376	357
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases	1	6		5	2			4		3	3 4	
Permitted Phases	6			2			4		4	3 4		3 4
Detector Phase	1	6		5	2		4	4	4	3	3 4	3 4
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		15.0	15.0	15.0	7.0		
Minimum Split (s)	9.0	34.1		9.0	34.1		36.6	36.6	36.6	11.0		
Total Split (s)	23.0	37.0		23.0	37.0		37.0	37.0	37.0	23.0		
Total Split (%)	19.2%	30.8%		19.2%	30.8%		30.8%	30.8%	30.8%	19.2%		
Maximum Green (s)	19.0	30.9		19.0	30.9		30.4	30.4	30.4	19.0		
Yellow Time (s)	3.0	3.3		3.0	3.3		3.3	3.3	3.3	3.0		
All-Red Time (s)	1.0	2.8		1.0	2.8		3.3	3.3	3.3	1.0		
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0	0.0		
Total Lost Time (s)	4.0	6.1		4.0	6.1			6.6	6.6	4.0		
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag	Lag	Lead		
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	0.2		3.0	0.2		3.0	3.0	3.0	3.0		
Recall Mode	None	None		None	None		C-Min	C-Min	C-Min	None		
Walk Time (s)		7.0			7.0		7.0	7.0	7.0			
Flash Dont Walk (s)		21.0			21.0		23.0	23.0	23.0			
Pedestrian Calls (#/hr)		0			0		0	0	0			
Act Effct Green (s)	51.0	33.2		39.7	25.9			36.2	36.2	57.0	61.0	61.0
Actuated g/C Ratio	0.42	0.28		0.33	0.22			0.30	0.30	0.48	0.51	0.51
v/c Ratio	1.18	0.60		0.46	0.92			0.51	0.38	0.63	0.40	0.37
Control Delay	137.4	40.2		26.1	56.7			37.9	8.6	19.8	15.7	2.8
Queue Delay	2.6	0.0		0.0	51.5			0.0	0.0	0.0	1.2	0.5
Total Delay	139.9	40.2		26.1	108.2			37.9	8.6	19.8	16.8	3.3
LOS	F	D		C	F			D	A	B	B	A
Approach Delay		81.0			94.5			28.5			13.1	
Approach LOS		F			F			C			B	
Stops (vph)	258	470		94	589			385	36	158	173	45
Fuel Used(gal)	13	9		2	15			7	1	3	3	2
CO Emissions (g/hr)	939	619		144	1066			470	73	217	234	114
NOx Emissions (g/hr)	183	120		28	207			92	14	42	46	22
VOC Emissions (g/hr)	218	143		33	247			109	17	50	54	26
Dilemma Vehicles (#)	0	0		0	0			0	0	0	0	0
Queue Length 50th (ft)	~322	206		70	257			168	14	100	126	23
Queue Length 95th (ft)	#509	264		108	319			237	82	m137	m163	m16
Internal Link Dist (ft)		304			342			183			370	
Turn Bay Length (ft)				160					120			120
Base Capacity (vph)	346	980		433	935			980	623	503	946	956
Starvation Cap Reductn	0	0		0	0			0	0	0	351	264
Spillback Cap Reductn	69	0		0	358			0	0	0	0	0

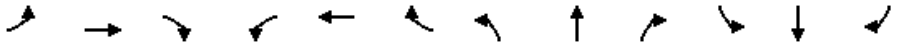
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Storage Cap Reductn	0	0		0	0			0	0	0	0	0
Reduced v/c Ratio	1.47	0.60		0.34	1.28			0.51	0.38	0.62	0.63	0.52

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 117 (98%), Referenced to phase 4:NBSB, Start of Yellow			
Natural Cycle: 95			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.18			
Intersection Signal Delay: 54.4		Intersection LOS: D	
Intersection Capacity Utilization 91.1%		ICU Level of Service F	
Analysis Period (min) 15			

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

Splits and Phases: 3: Canal Street & Dock Street/Jefferson Street



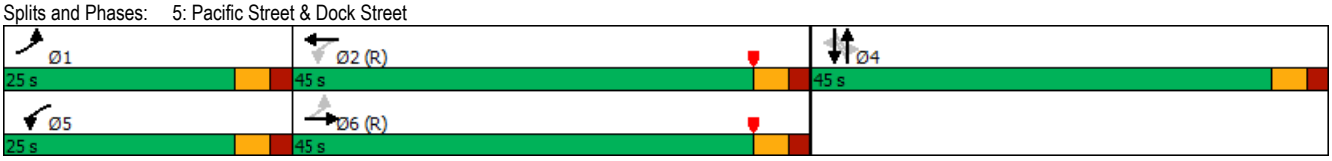


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	645	255	316	465	1	117	1	260	1	1	3
Future Volume (vph)	5	645	255	316	465	1	117	1	260	1	1	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	90		0	90		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.958						0.907			0.919	
Flt Protected	0.950			0.950				0.985			0.990	
Satd. Flow (prot)	1770	3391	0	1770	3539	0	0	1664	0	0	1695	0
Flt Permitted	0.466			0.161				0.894			0.953	
Satd. Flow (perm)	868	3391	0	300	3539	0	0	1510	0	0	1631	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		56						106			3	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		510			228			158			352	
Travel Time (s)		11.6			5.2			3.6			8.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	701	277	343	505	1	127	1	283	1	1	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	5	978	0	343	506	0	0	411	0	0	5	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	1	6		5	2			4			4	
Permitted Phases	6			2			4			4		
Detector Phase	1	6		5	2		4	4		4	4	
Switch Phase												
Minimum Initial (s)	5.0	15.0		5.0	15.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	10.0	35.0		10.0	35.0		35.0	35.0		35.0	35.0	
Total Split (s)	25.0	45.0		25.0	45.0		45.0	45.0		45.0	45.0	
Total Split (%)	21.7%	39.1%		21.7%	39.1%		39.1%	39.1%		39.1%	39.1%	
Maximum Green (s)	20.0	40.0		20.0	40.0		40.0	40.0		40.0	40.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
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)	5.0	5.0		5.0	5.0			5.0			5.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		23.0			23.0		23.0	23.0		23.0	23.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)	57.3	51.6		74.8	72.6			30.2			30.2	
Actuated g/C Ratio	0.50	0.45		0.65	0.63			0.26			0.26	
v/c Ratio	0.01	0.63		0.80	0.23			0.87			0.01	
Control Delay	11.6	27.2		31.6	11.3			47.7			19.8	
Queue Delay	0.0	0.5		0.0	0.0			0.0			0.0	
Total Delay	11.6	27.7		31.6	11.3			47.7			19.8	
LOS	B	C		C	B			D			B	
Approach Delay		27.6			19.5			47.7			19.8	
Approach LOS		C			B			D			B	
Stops (vph)	3	660		160	202			273			3	
Fuel Used(gal)	0	12		4	4			6			0	
CO Emissions (g/hr)	3	854		291	281			395			4	
NOx Emissions (g/hr)	1	166		57	55			77			1	
VOC Emissions (g/hr)	1	198		67	65			91			1	
Dilemma Vehicles (#)	0	0		0	0			0			0	
Queue Length 50th (ft)	1	280		122	74			222			1	
Queue Length 95th (ft)	7	409		#292	157			315			10	
Internal Link Dist (ft)		430			148			78			272	
Turn Bay Length (ft)	90			90								
Base Capacity (vph)	693	1551		450	2234			594			569	
Starvation Cap Reductn	0	210		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.01	0.73		0.76	0.23			0.69			0.01	

Intersection Summary			
Area Type:	Other		
Cycle Length: 115			
Actuated Cycle Length: 115			
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.87			
Intersection Signal Delay: 28.2		Intersection LOS: C	
Intersection Capacity Utilization 85.2%		ICU Level of Service E	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 5: Pacific Street & Dock Street



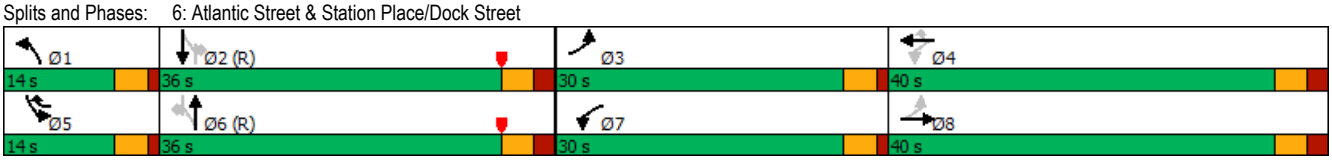
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	132	285	51	247	190	185	61	244	486	167	285	112
Future Volume (vph)	132	285	51	247	190	185	61	244	486	167	285	112
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	210		0	100		130	70		110
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	25			10			50			45		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.977				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1820	0	1770	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.628			0.174			0.563			0.538		
Satd. Flow (perm)	1170	1820	0	324	1863	1583	1049	3539	1583	1002	3539	1583
Right Turn on Red			No			Yes			Yes			Yes
Satd. Flow (RTOR)						201			528			122
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		348			510			366			301	
Travel Time (s)		7.9			11.6			8.3			6.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	143	310	55	268	207	201	66	265	528	182	310	122
Shared Lane Traffic (%)												
Lane Group Flow (vph)	143	365	0	268	207	201	66	265	528	182	310	122
Turn Type	pm+pt	NA		pm+pt	NA	pm+ov	pm+pt	NA	custom	pm+pt	NA	custom
Protected Phases	3	8		7	4	5	1	6		5	2	
Permitted Phases	8			4		4	6		2	2		6
Detector Phase	3	8		7	4	5	1		2	5		6
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0	5.0	5.0	15.0	15.0	5.0	15.0	15.0
Minimum Split (s)	10.0	34.0		10.0	34.0	10.0	10.0	34.0	34.0	10.0	34.0	34.0
Total Split (s)	30.0	40.0		30.0	40.0	14.0	14.0	36.0	36.0	14.0	36.0	36.0
Total Split (%)	25.0%	33.3%		25.0%	33.3%	11.7%	11.7%	30.0%	30.0%	11.7%	30.0%	30.0%
Maximum Green (s)	26.0	35.0		26.0	35.0	10.0	10.0	31.0	31.0	10.0	31.0	31.0
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	2.0		1.0	2.0	1.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	5.0		4.0	5.0	4.0	4.0	5.0	5.0	4.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	2.0	3.0	0.2	0.2	2.0	0.2	0.2
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0			7.0			7.0	7.0		7.0	7.0
Flash Dont Walk (s)		22.0			22.0			22.0	22.0		22.0	22.0
Pedestrian Calls (#/hr)		0			0			0	0		0	0
Act Effct Green (s)	41.2	28.7		54.3	37.7	52.0	52.3	43.4	46.7	55.6	46.7	43.4
Actuated g/C Ratio	0.34	0.24		0.45	0.31	0.43	0.44	0.36	0.39	0.46	0.39	0.36
v/c Ratio	0.31	0.84		0.68	0.35	0.25	0.13	0.21	0.56	0.35	0.23	0.19
Control Delay	20.6	60.5		30.4	32.0	2.9	21.0	29.6	5.6	12.9	16.9	4.2
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.0
Total Delay	20.6	60.5		30.4	32.0	2.9	21.0	29.6	5.6	13.1	17.1	4.2
LOS	C	E		C	C	A	C	C	A	B	B	A
Approach Delay		49.2			22.7			14.2			13.4	
Approach LOS		D			C			B			B	
Stops (vph)	86	313		155	139	13	36	170	43	73	161	25
Fuel Used(gal)	1	7		3	3	1	1	3	2	1	3	0
CO Emissions (g/hr)	97	474		235	193	64	44	217	152	86	177	35
NOx Emissions (g/hr)	19	92		46	38	12	9	42	30	17	34	7
VOC Emissions (g/hr)	22	110		55	45	15	10	50	35	20	41	8
Dilemma Vehicles (#)	0	0		0	0	0	0	0	0	0	0	0
Queue Length 50th (ft)	64	269		129	122	0	27	75	0	61	62	1
Queue Length 95th (ft)	86	361		176	169	37	64	125	95	m101	m123	m7
Internal Link Dist (ft)		268			430			286			221	
Turn Bay Length (ft)	100			210			100		130	70		110
Base Capacity (vph)	648	530		459	617	808	535	1280	938	529	1377	650
Starvation Cap Reductn	0	0		0	0	0	0	0	0	56	543	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0

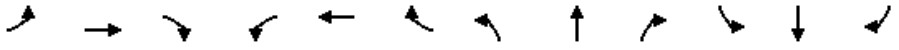
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.69		0.58	0.34	0.25	0.12	0.21	0.56	0.38	0.37	0.19

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 37 (31%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.84			
Intersection Signal Delay: 22.9		Intersection LOS: C	
Intersection Capacity Utilization 69.1%		ICU Level of Service C	
Analysis Period (min) 15			

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

Splits and Phases: 6: Atlantic Street & Station Place/Dock Street





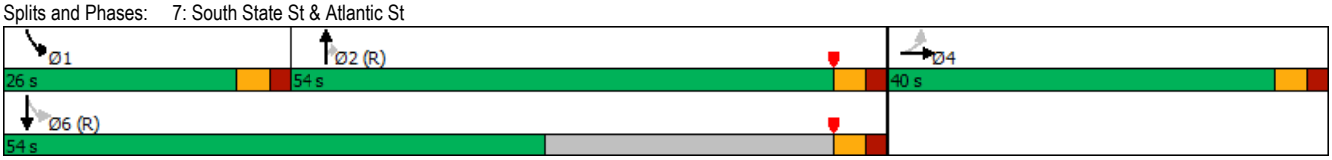
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	92	602	143	0	0	0	0	485	81	193	421	0
Future Volume (vph)	92	602	143	0	0	0	0	485	81	193	421	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.971							0.850			
Flt Protected	0.950									0.950		
Satd. Flow (prot)	1770	3437	0	0	0	0	0	3539	1583	1770	3539	0
Flt Permitted	0.950									0.365		
Satd. Flow (perm)	1770	3437	0	0	0	0	0	3539	1583	680	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		25							92			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		294			1170			301			244	
Travel Time (s)		6.7			26.6			6.8			5.5	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	105	684	163	0	0	0	0	551	92	219	478	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	105	847	0	0	0	0	0	551	92	219	478	0
Turn Type	Perm	NA						NA	Perm	pm+pt	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4								2	6		
Detector Phase	4	4						2	2	1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0						15.0	15.0	5.0	15.0	
Minimum Split (s)	34.0	34.0						34.0	34.0	10.0	27.0	
Total Split (s)	40.0	40.0						54.0	54.0	26.0	54.0	
Total Split (%)	33.3%	33.3%						45.0%	45.0%	21.7%	45.0%	
Maximum Green (s)	35.0	35.0						49.0	49.0	21.0	49.0	
Yellow Time (s)	3.0	3.0						3.0	3.0	3.0	3.0	
All-Red Time (s)	2.0	2.0						2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0						-1.0	-1.0	0.0	-1.0	
Total Lost Time (s)	4.0	4.0						4.0	4.0	5.0	4.0	
Lead/Lag								Lag	Lag	Lead		
Lead-Lag Optimize?								Yes	Yes	Yes		
Vehicle Extension (s)	2.0	2.0						0.2	0.2	2.0	0.2	
Recall Mode	None	None						C-Max	C-Max	Min	C-Max	
Walk Time (s)	7.0	7.0						7.0	7.0		7.0	
Flash Dont Walk (s)	22.0	22.0						15.0	15.0		15.0	
Pedestrian Calls (#/hr)	0	0						0	0		0	
Act Effct Green (s)	33.7	33.7						62.6	62.6	77.3	78.3	
Actuated g/C Ratio	0.28	0.28						0.52	0.52	0.64	0.65	
v/c Ratio	0.21	0.86						0.30	0.11	0.41	0.21	
Control Delay	33.5	49.6						17.0	4.2	12.5	6.8	
Queue Delay	0.0	0.0						0.4	0.0	0.6	0.3	
Total Delay	33.5	49.6						17.5	4.2	13.1	7.1	
LOS	C	D						B	A	B	A	
Approach Delay		47.8						15.6			9.0	
Approach LOS		D						B			A	
Stops (vph)	68	672						209	12	93	106	
Fuel Used(gal)	1	13						4	0	1	2	
CO Emissions (g/hr)	85	904						278	23	96	137	
NOx Emissions (g/hr)	17	176						54	4	19	27	
VOC Emissions (g/hr)	20	210						64	5	22	32	
Dilemma Vehicles (#)	0	0						0	0	0	0	
Queue Length 50th (ft)	61	312						98	0	46	51	
Queue Length 95th (ft)	104	377						136	18	m67	66	
Internal Link Dist (ft)		214			1090			221			164	
Turn Bay Length (ft)												
Base Capacity (vph)	531	1048						1846	869	628	2309	
Starvation Cap Reductn	0	0						790	0	165	1204	
Spillback Cap Reductn	15	0						25	0	0	0	
Storage Cap Reductn	0	0						0	0	0	0	
Reduced v/c Ratio	0.20	0.81						0.52	0.11	0.47	0.43	

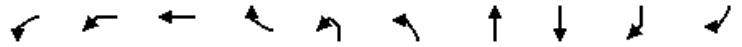
Intersection Summary

Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 46 (38%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.86			
Intersection Signal Delay: 26.9		Intersection LOS: C	
Intersection Capacity Utilization 56.1%		ICU Level of Service B	
Analysis Period (min) 15			

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

Splits and Phases: 7: South State St & Atlantic St





Lane Group	WBL2	WBL	WBT	WBR	NBL2	NBL	NBT	SBT	SBR	SBR2	Ø2	Ø3	Ø5
Lane Configurations													
Traffic Volume (vph)	173	789	335	382	234	11	342	442	326	76			
Future Volume (vph)	173	789	335	382	234	11	342	442	326	76			
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900			
Lane Util. Factor	0.86	0.86	0.86	0.86	0.95	1.00	0.95	0.95	1.00	0.95			
Frt			0.966						0.850				
Flt Protected			0.972			0.950							
Satd. Flow (prot)	0	0	6017	0	0	1770	3539	3539	1583	0			
Flt Permitted			0.972			0.295							
Satd. Flow (perm)	0	0	6017	0	0	550	3539	3539	1583	0			
Right Turn on Red				No						No			
Satd. Flow (RTOR)													
Link Speed (mph)			30				25	25					
Link Distance (ft)			1209				244	742					
Travel Time (s)			27.5				6.7	20.2					
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85			
Adj. Flow (vph)	204	928	394	449	275	13	402	520	384	89			
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	0	1975	0	0	288	402	520	473	0			
Turn Type	Split	Split	NA		custom	custom	NA	NA	Perm				
Protected Phases	4	4	4		3 5	3 5	2 3	6			2	3	5
Permitted Phases					2	2			6				
Detector Phase	4	4	4		3 5	3 5			6				
Switch Phase													
Minimum Initial (s)	10.0	10.0	10.0					15.0	15.0		15.0	5.0	5.0
Minimum Split (s)	31.0	31.0	31.0					20.0	20.0		26.0	10.0	10.0
Total Split (s)	57.0	57.0	57.0					39.0	39.0		39.0	12.0	12.0
Total Split (%)	47.5%	47.5%	47.5%					32.5%	32.5%		33%	10%	10%
Maximum Green (s)	52.0	52.0	52.0					34.0	34.0		34.0	7.0	7.0
Yellow Time (s)	3.0	3.0	3.0					3.0	3.0		3.0	3.0	3.0
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				
Total Lost Time (s)			5.0					5.0	5.0				
Lead/Lag								Lag	Lag				Lead
Lead-Lag Optimize?													
Vehicle Extension (s)	2.0	2.0	2.0					0.2	0.2		0.2	2.0	2.0
Recall Mode	None	None	None					None	None		C-Max	None	None
Walk Time (s)	7.0	7.0	7.0								7.0		
Flash Dont Walk (s)	19.0	19.0	19.0								14.0		
Pedestrian Calls (#/hr)	0	0	0								0		
Act Effct Green (s)			50.0			55.0	60.0	36.7	36.7				
Actuated g/C Ratio			0.42			0.46	0.50	0.31	0.31				
v/c Ratio			1.54dl			0.74	0.23	0.48	0.98				
Control Delay			36.6			33.6	10.7	36.3	78.1				
Queue Delay			0.0			1.5	0.5	0.0	0.0				
Total Delay			36.6			35.1	11.2	36.3	78.1				
LOS			D			D	B	D	E				
Approach Delay			36.6				21.2	56.2					
Approach LOS			D				C	E					
Stops (vph)			1529			208	91	354	333				
Fuel Used(gal)			37			3	2	7	10				
CO Emissions (g/hr)			2572			209	126	519	714				
NOx Emissions (g/hr)			501			41	25	101	139				
VOC Emissions (g/hr)			596			48	29	120	165				
Dilemma Vehicles (#)			0			0	0	0	0				
Queue Length 50th (ft)			427			66	48	176	~391				
Queue Length 95th (ft)			440			130	55	217	#556				
Internal Link Dist (ft)			1129				164	662					
Turn Bay Length (ft)													
Base Capacity (vph)			2607			397	1770	1082	484				
Starvation Cap Reductn			0			29	913	0	0				
Spillback Cap Reductn			0			0	0	0	0				
Storage Cap Reductn			0			0	0	0	0				
Reduced v/c Ratio			0.76			0.78	0.47	0.48	0.98				

Intersection Summary

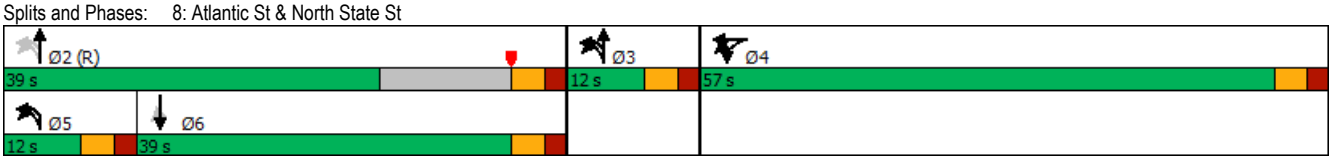
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 22 (18%), Referenced to phase 2:NBTL, Start of Yellow			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.98			
Intersection Signal Delay: 39.0		Intersection LOS: D	
Intersection Capacity Utilization 94.7%		ICU Level of Service F	
Analysis Period (min) 15			

~ 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.

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 8: Atlantic St & North State St



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	440	971	204	300	806	0	0	665	173
Future Volume (vph)	0	0	0	440	971	204	300	806	0	0	665	173
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.86	0.86	0.86	1.00	0.95	1.00	1.00	0.95	0.95
Frt					0.981						0.969	
Flt Protected					0.987		0.950					
Satd. Flow (prot)	0	0	0	0	6204	0	1770	3539	0	0	3429	0
Flt Permitted					0.987		0.116					
Satd. Flow (perm)	0	0	0	0	6204	0	216	3539	0	0	3429	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					34						29	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1209			425			225			425	
Travel Time (s)		27.5			9.7			5.1			9.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	478	1055	222	326	876	0	0	723	188
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	1755	0	326	876	0	0	911	0
Turn Type				Split	NA		D.P+P	NA			NA	
Protected Phases				4	4		1	1 2			2	
Permitted Phases							2					
Detector Phase				4	4		1					
Switch Phase												
Minimum Initial (s)				7.0	7.0		7.0				15.0	
Minimum Split (s)				34.5	34.5		11.0				33.4	
Total Split (s)				50.0	50.0		27.0				43.0	
Total Split (%)				41.7%	41.7%		22.5%				35.8%	
Maximum Green (s)				43.5	43.5		23.0				37.6	
Yellow Time (s)				3.3	3.3		3.0				3.3	
All-Red Time (s)				3.2	3.2		1.0				2.1	
Lost Time Adjust (s)					0.0		0.0				-1.0	
Total Lost Time (s)					6.5		4.0				4.4	
Lead/Lag							Lead				Lag	
Lead-Lag Optimize?											Yes	
Vehicle Extension (s)				3.0	3.0		3.0				0.2	
Recall Mode				None	None		Min				C-Min	
Walk Time (s)				7.0	7.0						7.0	
Flash Dont Walk (s)				21.0	21.0						21.0	
Pedestrian Calls (#/hr)				0	0						0	
Act Effct Green (s)					43.0		62.5	66.5			40.0	
Actuated g/C Ratio					0.36		0.52	0.55			0.33	
v/c Ratio					0.78		0.82	0.45			0.78	
Control Delay					36.5		37.8	8.3			41.0	
Queue Delay					0.2		56.9	23.2			1.2	
Total Delay					36.7		94.7	31.5			42.2	
LOS					D		F	C			D	
Approach Delay					36.7			48.7			42.2	
Approach LOS					D			D			D	
Stops (vph)					1371		245	386			724	
Fuel Used(gal)					25		4	5			14	
CO Emissions (g/hr)					1742		293	343			963	
NOx Emissions (g/hr)					339		57	67			187	
VOC Emissions (g/hr)					404		68	80			223	
Dilemma Vehicles (#)					0		0	0			0	
Queue Length 50th (ft)					340		175	127			330	
Queue Length 95th (ft)					388		m234	m183			413	
Internal Link Dist (ft)		1129			345			145			345	
Turn Bay Length (ft)												
Base Capacity (vph)					2270		411	1960			1163	
Starvation Cap Reductn					0		151	1105			0	
Spillback Cap Reductn					100		0	0			97	
Storage Cap Reductn					0		0	0			0	
Reduced v/c Ratio					0.81		1.25	1.02			0.85	

Intersection Summary

Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 107 (89%), Referenced to phase 2:NBSB, Start of Yellow			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.82			
Intersection Signal Delay: 41.7		Intersection LOS: D	
Intersection Capacity Utilization 77.3%		ICU Level of Service D	
Analysis Period (min) 15			

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

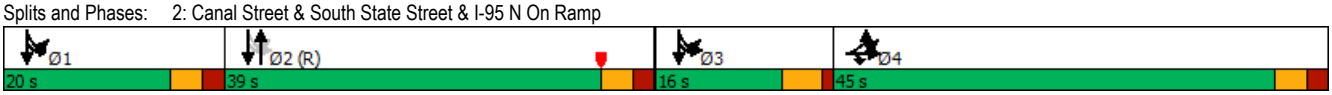
Splits and Phases: 1: Canal St & North State St

Lane Group	EBL2	EBL	EBT	EBR	NBT	NBR	NBR2	SBL2	SBL	SBT	Ø1	Ø3
Lane Configurations												
Traffic Volume (vph)	570	592	571	288	546	485	41	305	10	789		
Future Volume (vph)	570	592	571	288	546	485	41	305	10	789		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900		
Lane Width (ft)	11	11	11	11	12	12	12	12	12	12		
Lane Util. Factor	0.91	0.95	0.95	1.00	0.95	0.95	0.95	0.95	0.95	0.95		
Frt				0.850	0.926							
Flt Protected	0.950	0.950								0.986		
Satd. Flow (prot)	1557	1625	3421	1531	3277	0	0	0	0	3490		
Flt Permitted	0.950	0.950								0.505		
Satd. Flow (perm)	1557	1625	3421	1531	3277	0	0	0	0	1787		
Right Turn on Red				No			No					
Satd. Flow (RTOR)												
Link Speed (mph)			30		30					30		
Link Distance (ft)			1170		450					225		
Travel Time (s)			26.6		10.2					5.1		
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98		
Adj. Flow (vph)	582	604	583	294	557	495	42	311	10	805		
Shared Lane Traffic (%)	10%											
Lane Group Flow (vph)	524	662	583	294	1094	0	0	0	0	1126		
Turn Type	Split	Split	NA	Prot	NA			D.P+P	D.P+P	NA		
Protected Phases	4	4	4	4	2			1 3	1 3	1 2 3	1	3
Permitted Phases								2	2			
Detector Phase	4	4	4	4				1 3	1 3			
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	15.0						5.0	5.0
Minimum Split (s)	33.0	33.0	33.0	33.0	33.0						10.0	9.5
Total Split (s)	45.0	45.0	45.0	45.0	39.0						20.0	16.0
Total Split (%)	37.5%	37.5%	37.5%	37.5%	32.5%						17%	13%
Maximum Green (s)	40.0	40.0	40.0	40.0	34.0						15.0	11.5
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0						3.0	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0						2.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0							
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0							
Lead/Lag	Lag	Lag	Lag	Lag	Lag						Lead	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0	2.0	2.0	0.2						2.0	2.0
Recall Mode	None	None	None	None	C-Min						None	Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0							
Flash Dont Walk (s)	21.0	21.0	21.0	21.0	21.0							
Pedestrian Calls (#/hr)	0	0	0	0	0							
Act Effct Green (s)	40.0	40.0	40.0	40.0	54.0					65.0		
Actuated g/C Ratio	0.33	0.33	0.33	0.33	0.45					0.54		
v/c Ratio	1.01	1.22	0.51	0.58	0.74					1.17dl		
Control Delay	81.2	151.3	33.4	37.9	40.7					41.7		
Queue Delay	32.1	1.6	0.0	0.0	50.0					13.9		
Total Delay	113.3	152.9	33.4	37.9	90.8					55.6		
LOS	F	F	C	D	F					E		
Approach Delay			92.7		90.8					55.6		
Approach LOS			F		F					E		
Stops (vph)	448	529	478	247	978					669		
Fuel Used(gal)	16	29	12	6	18					15		
CO Emissions (g/hr)	1095	2016	820	434	1262					1048		
NOx Emissions (g/hr)	213	392	160	84	246					204		
VOC Emissions (g/hr)	254	467	190	101	292					243		
Dilemma Vehicles (#)	0	0	0	0	0					0		
Queue Length 50th (ft)	~451	~665	208	203	470					~126		
Queue Length 95th (ft)	m#708	#922	m271	m286	m493					#158		
Internal Link Dist (ft)			1090		370					145		
Turn Bay Length (ft)												
Base Capacity (vph)	519	541	1140	510	1474					1124		
Starvation Cap Reductn	0	0	0	0	615					48		
Spillback Cap Reductn	91	95	0	0	10					0		
Storage Cap Reductn	0	0	0	0	0					0		
Reduced v/c Ratio	1.22	1.48	0.51	0.58	1.27					1.05		

Intersection Summary		
Area Type:	Other	
Cycle Length: 120		
Actuated Cycle Length: 120		
Offset: 112 (93%), Referenced to phase 2:NBSB, Start of Yellow		
Natural Cycle: 150		
Control Type: Actuated-Coordinated		
Maximum v/c Ratio: 1.22		
Intersection Signal Delay: 82.5		Intersection LOS: F
Intersection Capacity Utilization 107.6%		ICU Level of Service G
Analysis Period (min) 15		

~ 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.
dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 2: Canal Street & South State Street & I-95 N On Ramp



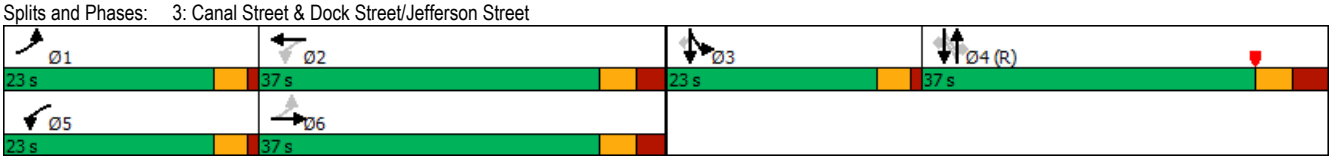
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	400	536	24	154	435	265	22	469	231	295	386	356
Future Volume (vph)	400	536	24	154	435	265	22	469	231	295	386	356
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	160		0	150		120	0		120
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	25			55			25			60		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Frt		0.994			0.943				0.850			0.850
Flt Protected	0.950			0.950				0.998		0.950		
Satd. Flow (prot)	1770	3518	0	1770	3337	0	0	3532	1583	1770	1863	1583
Flt Permitted	0.134			0.338				0.919		0.354		
Satd. Flow (perm)	250	3518	0	630	3337	0	0	3253	1583	659	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			103				208			301
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		384			422			263			450	
Travel Time (s)		8.7			9.6			6.0			10.2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	421	564	25	162	458	279	23	494	243	311	406	375
Shared Lane Traffic (%)												
Lane Group Flow (vph)	421	589	0	162	737	0	0	517	243	311	406	375
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases	1	6		5	2			4		3	3 4	
Permitted Phases	6			2			4		4	3 4		3 4
Detector Phase	1	6		5	2		4	4	4	3	3 4	3 4
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		15.0	15.0	15.0	7.0		
Minimum Split (s)	9.0	34.1		9.0	34.1		36.6	36.6	36.6	11.0		
Total Split (s)	23.0	37.0		23.0	37.0		37.0	37.0	37.0	23.0		
Total Split (%)	19.2%	30.8%		19.2%	30.8%		30.8%	30.8%	30.8%	19.2%		
Maximum Green (s)	19.0	30.9		19.0	30.9		30.4	30.4	30.4	19.0		
Yellow Time (s)	3.0	3.3		3.0	3.3		3.3	3.3	3.3	3.0		
All-Red Time (s)	1.0	2.8		1.0	2.8		3.3	3.3	3.3	1.0		
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0	0.0		
Total Lost Time (s)	4.0	6.1		4.0	6.1			6.6	6.6	4.0		
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag	Lag	Lead		
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	0.2		3.0	0.2		3.0	3.0	3.0	3.0		
Recall Mode	None	None		None	None		C-Min	C-Min	C-Min	None		
Walk Time (s)		7.0			7.0		7.0	7.0	7.0			
Flash Dont Walk (s)		21.0			21.0		23.0	23.0	23.0			
Pedestrian Calls (#/hr)		0			0		0	0	0			
Act Effct Green (s)	50.8	32.5		40.4	25.9			36.0	36.0	57.0	61.0	61.0
Actuated g/C Ratio	0.42	0.27		0.34	0.22			0.30	0.30	0.48	0.51	0.51
v/c Ratio	1.22	0.62		0.49	0.92			0.53	0.39	0.64	0.43	0.39
Control Delay	151.8	41.0		26.9	56.7			38.5	9.4	20.2	15.9	3.2
Queue Delay	3.2	0.0		0.0	51.9			0.0	0.0	0.0	1.4	0.6
Total Delay	155.0	41.0		26.9	108.6			38.5	9.4	20.2	17.3	3.8
LOS	F	D		C	F			D	A	C	B	A
Approach Delay		88.5			93.9			29.2			13.5	
Approach LOS		F			F			C			B	
Stops (vph)	262	473		103	589			403	41	161	190	56
Fuel Used(gal)	15	9		2	15			7	1	3	4	2
CO Emissions (g/hr)	1049	626		159	1066			495	80	219	255	125
NOx Emissions (g/hr)	204	122		31	207			96	16	43	50	24
VOC Emissions (g/hr)	243	145		37	247			115	19	51	59	29
Dilemma Vehicles (#)	0	0		0	0			0	0	0	0	0
Queue Length 50th (ft)	~344	207		77	257			177	20	102	139	26
Queue Length 95th (ft)	#535	266		117	319			247	91	m137	m176	m18
Internal Link Dist (ft)		304			342			183			370	
Turn Bay Length (ft)				160					120			120
Base Capacity (vph)	346	963		427	935			974	619	492	943	950
Starvation Cap Reductn	0	0		0	0			0	0	0	344	261
Spillback Cap Reductn	81	0		0	382			0	0	0	0	0

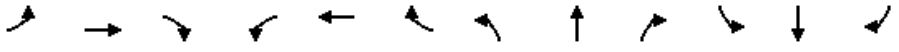
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Storage Cap Reductn	0	0		0	0			0	0	0	0	0
Reduced v/c Ratio	1.59	0.61		0.38	1.33			0.53	0.39	0.63	0.68	0.54

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 117 (98%), Referenced to phase 4:NBSB, Start of Yellow			
Natural Cycle: 105			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.22			
Intersection Signal Delay: 56.0		Intersection LOS: E	
Intersection Capacity Utilization 93.8%		ICU Level of Service F	
Analysis Period (min) 15			

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

Splits and Phases: 3: Canal Street & Dock Street/Jefferson Street



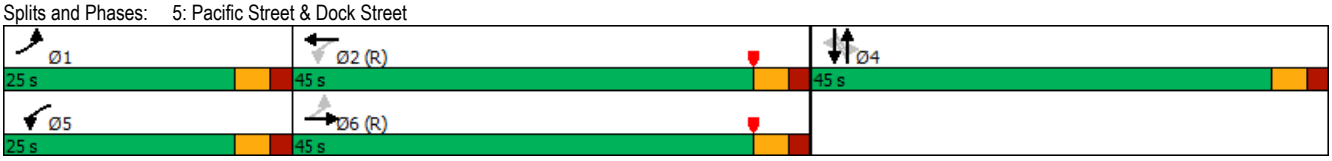


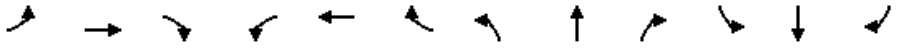
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	657	257	317	474	1	118	1	261	1	1	3
Future Volume (vph)	5	657	257	317	474	1	118	1	261	1	1	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	90		0	90		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.958						0.907			0.919	
Flt Protected	0.950			0.950				0.985			0.990	
Satd. Flow (prot)	1770	3391	0	1770	3539	0	0	1664	0	0	1695	0
Flt Permitted	0.461			0.154				0.894			0.953	
Satd. Flow (perm)	859	3391	0	287	3539	0	0	1510	0	0	1631	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		55						106			3	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		510			228			158			352	
Travel Time (s)		11.6			5.2			3.6			8.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	714	279	345	515	1	128	1	284	1	1	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	5	993	0	345	516	0	0	413	0	0	5	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	1	6		5	2			4			4	
Permitted Phases	6			2			4			4		
Detector Phase	1	6		5	2		4	4		4	4	
Switch Phase												
Minimum Initial (s)	5.0	15.0		5.0	15.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	10.0	35.0		10.0	35.0		35.0	35.0		35.0	35.0	
Total Split (s)	25.0	45.0		25.0	45.0		45.0	45.0		45.0	45.0	
Total Split (%)	21.7%	39.1%		21.7%	39.1%		39.1%	39.1%		39.1%	39.1%	
Maximum Green (s)	20.0	40.0		20.0	40.0		40.0	40.0		40.0	40.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
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)	5.0	5.0		5.0	5.0			5.0			5.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		23.0			23.0		23.0	23.0		23.0	23.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)	56.7	51.0		74.8	72.5			30.2			30.2	
Actuated g/C Ratio	0.49	0.44		0.65	0.63			0.26			0.26	
v/c Ratio	0.01	0.65		0.80	0.23			0.87			0.01	
Control Delay	11.6	27.9		32.9	11.4			48.0			19.8	
Queue Delay	0.0	0.6		0.0	0.0			0.0			0.0	
Total Delay	11.6	28.5		32.9	11.4			48.0			19.8	
LOS	B	C		C	B			D			B	
Approach Delay		28.4			20.0			48.0			19.8	
Approach LOS		C			B			D			B	
Stops (vph)	3	677		164	206			276			3	
Fuel Used(gal)	0	13		4	4			6			0	
CO Emissions (g/hr)	3	879		299	287			399			4	
NOx Emissions (g/hr)	1	171		58	56			78			1	
VOC Emissions (g/hr)	1	204		69	67			92			1	
Dilemma Vehicles (#)	0	0		0	0			0			0	
Queue Length 50th (ft)	1	287		131	76			224			1	
Queue Length 95th (ft)	7	418		#303	161			317			10	
Internal Link Dist (ft)		430			148			78			272	
Turn Bay Length (ft)	90			90								
Base Capacity (vph)	687	1533		444	2232			594			569	
Starvation Cap Reductn	0	207		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.01	0.75		0.78	0.23			0.70			0.01	

Intersection Summary			
Area Type:	Other		
Cycle Length: 115			
Actuated Cycle Length: 115			
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.87			
Intersection Signal Delay: 28.8		Intersection LOS: C	
Intersection Capacity Utilization 85.8%		ICU Level of Service E	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 5: Pacific Street & Dock Street





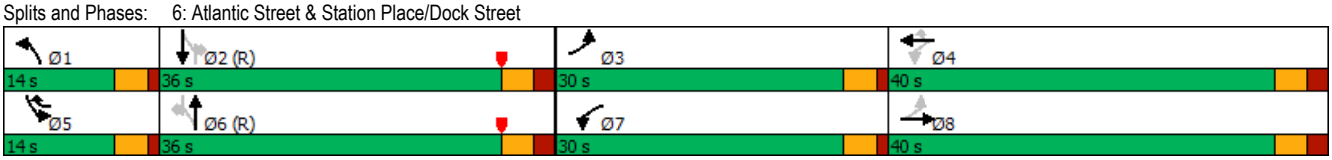
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	132	291	51	248	194	190	61	244	488	173	285	112
Future Volume (vph)	132	291	51	248	194	190	61	244	488	173	285	112
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	210		0	100		130	70		110
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	25			10			50			45		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.978				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1822	0	1770	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.626			0.170			0.563			0.536		
Satd. Flow (perm)	1166	1822	0	317	1863	1583	1049	3539	1583	998	3539	1583
Right Turn on Red			No			Yes			Yes			Yes
Satd. Flow (RTOR)						207			530			122
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		348			510			366			301	
Travel Time (s)		7.9			11.6			8.3			6.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	143	316	55	270	211	207	66	265	530	188	310	122
Shared Lane Traffic (%)												
Lane Group Flow (vph)	143	371	0	270	211	207	66	265	530	188	310	122
Turn Type	pm+pt	NA		pm+pt	NA	pm+ov	pm+pt	NA	custom	pm+pt	NA	custom
Protected Phases	3	8		7	4	5	1	6		5	2	
Permitted Phases	8			4		4	6		2	2		6
Detector Phase	3	8		7	4	5	1		2	5		6
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0	5.0	5.0	15.0	15.0	5.0	15.0	15.0
Minimum Split (s)	10.0	34.0		10.0	34.0	10.0	10.0	34.0	34.0	10.0	34.0	34.0
Total Split (s)	30.0	40.0		30.0	40.0	14.0	14.0	36.0	36.0	14.0	36.0	36.0
Total Split (%)	25.0%	33.3%		25.0%	33.3%	11.7%	11.7%	30.0%	30.0%	11.7%	30.0%	30.0%
Maximum Green (s)	26.0	35.0		26.0	35.0	10.0	10.0	31.0	31.0	10.0	31.0	31.0
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	2.0		1.0	2.0	1.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	5.0		4.0	5.0	4.0	4.0	5.0	5.0	4.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	2.0	3.0	0.2	0.2	2.0	0.2	0.2
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0			7.0			7.0	7.0		7.0	7.0
Flash Dont Walk (s)		22.0			22.0			22.0	22.0		22.0	22.0
Pedestrian Calls (#/hr)		0			0			0	0		0	0
Act Effct Green (s)	41.5	29.0		54.7	38.2	52.5	51.9	42.9	46.3	55.3	46.3	42.9
Actuated g/C Ratio	0.35	0.24		0.46	0.32	0.44	0.43	0.36	0.39	0.46	0.39	0.36
v/c Ratio	0.31	0.85		0.68	0.36	0.26	0.13	0.21	0.57	0.36	0.23	0.19
Control Delay	20.4	60.6		30.5	31.9	2.9	21.2	29.9	5.6	13.1	16.9	4.2
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.0
Total Delay	20.4	60.6		30.5	31.9	2.9	21.2	29.9	5.6	13.3	17.2	4.2
LOS	C	E		C	C	A	C	C	A	B	B	A
Approach Delay		49.4			22.6			14.3			13.5	
Approach LOS		D			C			B			B	
Stops (vph)	86	317		155	142	14	36	171	44	77	160	25
Fuel Used(gal)	1	7		3	3	1	1	3	2	1	3	0
CO Emissions (g/hr)	97	481		236	197	66	44	218	154	90	177	35
NOx Emissions (g/hr)	19	94		46	38	13	9	42	30	18	34	7
VOC Emissions (g/hr)	22	112		55	46	15	10	51	36	21	41	8
Dilemma Vehicles (#)	0	0		0	0	0	0	0	0	0	0	0
Queue Length 50th (ft)	63	273		129	124	0	28	76	0	71	62	1
Queue Length 95th (ft)	86	369		180	172	37	64	125	94	m103	m121	m7
Internal Link Dist (ft)		268			430			286			221	
Turn Bay Length (ft)	100			210			100		130	70		110
Base Capacity (vph)	651	531		459	620	816	531	1266	936	524	1366	644
Starvation Cap Reductn	0	0		0	0	0	0	0	0	52	536	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0

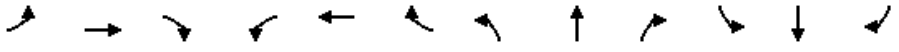
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.70		0.59	0.34	0.25	0.12	0.21	0.57	0.40	0.37	0.19

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 37 (31%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.85			
Intersection Signal Delay: 23.0		Intersection LOS: C	
Intersection Capacity Utilization 69.9%		ICU Level of Service C	
Analysis Period (min) 15			

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

Splits and Phases: 6: Atlantic Street & Station Place/Dock Street





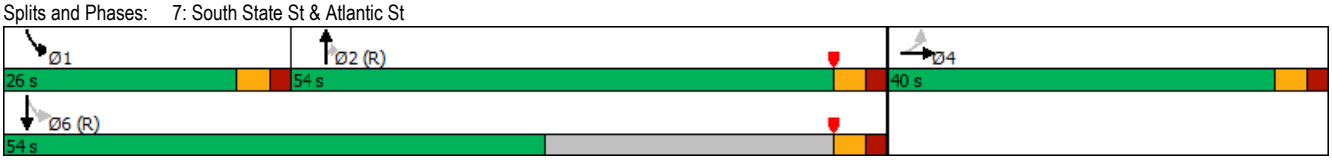
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	92	602	145	0	0	0	0	490	81	195	425	0
Future Volume (vph)	92	602	145	0	0	0	0	490	81	195	425	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.971							0.850			
Flt Protected	0.950									0.950		
Satd. Flow (prot)	1770	3437	0	0	0	0	0	3539	1583	1770	3539	0
Flt Permitted	0.950									0.362		
Satd. Flow (perm)	1770	3437	0	0	0	0	0	3539	1583	674	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		25							92			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		294			1170			301			244	
Travel Time (s)		6.7			26.6			6.8			5.5	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	105	684	165	0	0	0	0	557	92	222	483	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	105	849	0	0	0	0	0	557	92	222	483	0
Turn Type	Perm	NA						NA	Perm	pm+pt	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4								2	6		
Detector Phase	4	4						2	2	1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0						15.0	15.0	5.0	15.0	
Minimum Split (s)	34.0	34.0						34.0	34.0	10.0	27.0	
Total Split (s)	40.0	40.0						54.0	54.0	26.0	54.0	
Total Split (%)	33.3%	33.3%						45.0%	45.0%	21.7%	45.0%	
Maximum Green (s)	35.0	35.0						49.0	49.0	21.0	49.0	
Yellow Time (s)	3.0	3.0						3.0	3.0	3.0	3.0	
All-Red Time (s)	2.0	2.0						2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0						-1.0	-1.0	0.0	-1.0	
Total Lost Time (s)	4.0	4.0						4.0	4.0	5.0	4.0	
Lead/Lag								Lag	Lag	Lead		
Lead-Lag Optimize?								Yes	Yes	Yes		
Vehicle Extension (s)	2.0	2.0						0.2	0.2	2.0	0.2	
Recall Mode	None	None						C-Max	C-Max	Min	C-Max	
Walk Time (s)	7.0	7.0						7.0	7.0		7.0	
Flash Dont Walk (s)	22.0	22.0						15.0	15.0		15.0	
Pedestrian Calls (#/hr)	0	0						0	0		0	
Act Effct Green (s)	33.7	33.7						62.5	62.5	77.3	78.3	
Actuated g/C Ratio	0.28	0.28						0.52	0.52	0.64	0.65	
v/c Ratio	0.21	0.86						0.30	0.11	0.42	0.21	
Control Delay	33.4	49.6						17.1	4.1	12.7	6.7	
Queue Delay	0.0	0.0						0.4	0.0	0.6	0.3	
Total Delay	33.5	49.6						17.5	4.1	13.3	7.0	
LOS	C	D						B	A	B	A	
Approach Delay		47.8						15.6			9.0	
Approach LOS		D						B			A	
Stops (vph)	68	672						213	12	96	106	
Fuel Used(gal)	1	13						4	0	1	2	
CO Emissions (g/hr)	85	907						282	23	98	138	
NOx Emissions (g/hr)	16	176						55	4	19	27	
VOC Emissions (g/hr)	20	210						65	5	23	32	
Dilemma Vehicles (#)	0	0						0	0	0	0	
Queue Length 50th (ft)	61	313						100	0	47	51	
Queue Length 95th (ft)	104	379						138	18	m67	66	
Internal Link Dist (ft)		214			1090			221			164	
Turn Bay Length (ft)												
Base Capacity (vph)	531	1048						1842	868	626	2308	
Starvation Cap Reductn	0	0						782	0	163	1203	
Spillback Cap Reductn	29	0						30	0	0	0	
Storage Cap Reductn	0	0						0	0	0	0	
Reduced v/c Ratio	0.21	0.81						0.53	0.11	0.48	0.44	

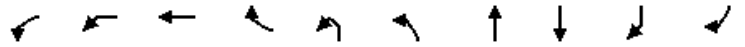
Intersection Summary

Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 46 (38%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.86			
Intersection Signal Delay: 26.9		Intersection LOS: C	
Intersection Capacity Utilization 56.4%		ICU Level of Service B	
Analysis Period (min) 15			

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

Splits and Phases: 7: South State St & Atlantic St





Lane Group	WBL2	WBL	WBT	WBR	NBL2	NBL	NBT	SBT	SBR	SBR2	Ø2	Ø3	Ø5
Lane Configurations													
Traffic Volume (vph)	173	797	335	384	235	12	345	448	326	76			
Future Volume (vph)	173	797	335	384	235	12	345	448	326	76			
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900			
Lane Util. Factor	0.86	0.86	0.86	0.86	0.95	1.00	0.95	0.95	1.00	0.95			
Frt			0.966						0.850				
Flt Protected			0.972			0.950							
Satd. Flow (prot)	0	0	6017	0	0	1770	3539	3539	1583	0			
Flt Permitted			0.972			0.289							
Satd. Flow (perm)	0	0	6017	0	0	538	3539	3539	1583	0			
Right Turn on Red				No						No			
Satd. Flow (RTOR)													
Link Speed (mph)			30				25	25					
Link Distance (ft)			1209				244	742					
Travel Time (s)			27.5				6.7	20.2					
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85			
Adj. Flow (vph)	204	938	394	452	276	14	406	527	384	89			
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	0	1988	0	0	290	406	527	473	0			
Turn Type	Split	Split	NA		custom	custom	NA	NA	Perm				
Protected Phases	4	4	4		3 5	3 5	2 3	6			2	3	5
Permitted Phases					2	2			6				
Detector Phase	4	4	4		3 5	3 5			6				
Switch Phase													
Minimum Initial (s)	10.0	10.0	10.0					15.0	15.0		15.0	5.0	5.0
Minimum Split (s)	31.0	31.0	31.0					20.0	20.0		26.0	10.0	10.0
Total Split (s)	57.0	57.0	57.0					39.0	39.0		39.0	12.0	12.0
Total Split (%)	47.5%	47.5%	47.5%					32.5%	32.5%		33%	10%	10%
Maximum Green (s)	52.0	52.0	52.0					34.0	34.0		34.0	7.0	7.0
Yellow Time (s)	3.0	3.0	3.0					3.0	3.0		3.0	3.0	3.0
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				
Total Lost Time (s)			5.0					5.0	5.0				
Lead/Lag								Lag	Lag				Lead
Lead-Lag Optimize?													
Vehicle Extension (s)	2.0	2.0	2.0					0.2	0.2		0.2	2.0	2.0
Recall Mode	None	None	None					None	None		C-Max	None	None
Walk Time (s)	7.0	7.0	7.0								7.0		
Flash Dont Walk (s)	19.0	19.0	19.0								14.0		
Pedestrian Calls (#/hr)	0	0	0								0		
Act Effct Green (s)			50.2			54.8	59.8	36.5	36.5				
Actuated g/C Ratio			0.42			0.46	0.50	0.30	0.30				
v/c Ratio			1.54dl			0.76	0.23	0.49	0.98				
Control Delay			36.4			35.2	10.7	36.7	79.9				
Queue Delay			0.0			1.8	0.5	0.0	0.0				
Total Delay			36.4			37.0	11.2	36.7	79.9				
LOS			D			D	B	D	E				
Approach Delay			36.4				21.9	57.1					
Approach LOS			D				C	E					
Stops (vph)			1545			214	93	360	335				
Fuel Used(gal)			37			3	2	8	10				
CO Emissions (g/hr)			2586			216	128	528	725				
NOx Emissions (g/hr)			503			42	25	103	141				
VOC Emissions (g/hr)			599			50	30	122	168				
Dilemma Vehicles (#)			0			0	0	0	0				
Queue Length 50th (ft)			431			66	48	179	~392				
Queue Length 95th (ft)			446			136	55	221	#556				
Internal Link Dist (ft)			1129				164	662					
Turn Bay Length (ft)													
Base Capacity (vph)			2607			392	1764	1075	481				
Starvation Cap Reductn			0			29	909	0	0				
Spillback Cap Reductn			0			0	0	0	0				
Storage Cap Reductn			0			0	0	0	0				
Reduced v/c Ratio			0.76			0.80	0.47	0.49	0.98				

Intersection Summary

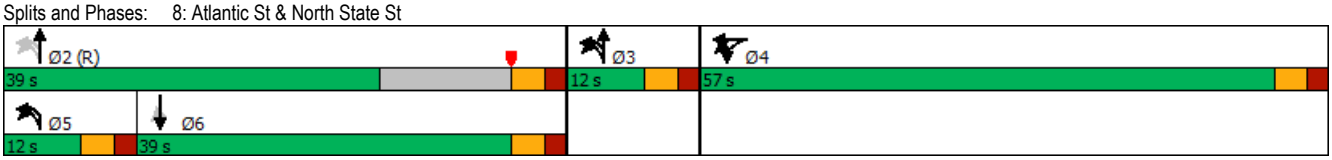
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 22 (18%), Referenced to phase 2:NBTL, Start of Yellow			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.98			
Intersection Signal Delay: 39.3		Intersection LOS: D	
Intersection Capacity Utilization 95.2%		ICU Level of Service F	
Analysis Period (min) 15			

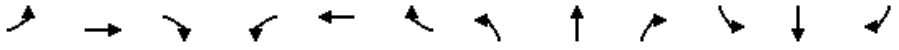
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 8: Atlantic St & North State St



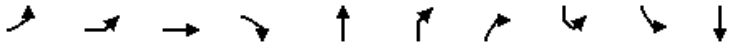


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	440	971	204	300	806	0	0	665	173
Future Volume (vph)	0	0	0	440	971	204	300	806	0	0	665	173
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.86	0.86	0.86	1.00	0.95	1.00	1.00	0.95	0.95
Frt					0.981						0.969	
Flt Protected					0.987		0.950					
Satd. Flow (prot)	0	0	0	0	6204	0	1770	3539	0	0	3429	0
Flt Permitted					0.987		0.212					
Satd. Flow (perm)	0	0	0	0	6204	0	395	3539	0	0	3429	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					32						32	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1209			425			225			425	
Travel Time (s)		27.5			9.7			5.1			9.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	478	1055	222	326	876	0	0	723	188
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	1755	0	326	876	0	0	911	0
Turn Type				Split	NA		D.P+P	NA			NA	
Protected Phases				4	4		1	1 2			2	
Permitted Phases							2					
Detector Phase				4	4		1					
Switch Phase												
Minimum Initial (s)				7.0	7.0		7.0				15.0	
Minimum Split (s)				34.5	34.5		11.0				33.4	
Total Split (s)				44.0	44.0		14.0				62.0	
Total Split (%)				36.7%	36.7%		11.7%				51.7%	
Maximum Green (s)				37.5	37.5		10.0				56.6	
Yellow Time (s)				3.3	3.3		3.0				3.3	
All-Red Time (s)				3.2	3.2		1.0				2.1	
Lost Time Adjust (s)					0.0		0.0				-1.0	
Total Lost Time (s)					6.5		4.0				4.4	
Lead/Lag							Lead				Lag	
Lead-Lag Optimize?											Yes	
Vehicle Extension (s)				3.0	3.0		3.0				0.2	
Recall Mode				None	None		Min				C-Min	
Walk Time (s)				7.0	7.0						7.0	
Flash Dont Walk (s)				21.0	21.0						21.0	
Pedestrian Calls (#/hr)				0	0						0	
Act Effct Green (s)					37.5		68.0	72.0			57.6	
Actuated g/C Ratio					0.31		0.57	0.60			0.48	
v/c Ratio					0.90		0.96	0.41			0.55	
Control Delay					45.7		31.0	4.5			22.7	
Queue Delay					1.4		1.1	14.7			0.8	
Total Delay					47.1		32.1	19.2			23.5	
LOS					D		C	B			C	
Approach Delay					47.1			22.7			23.5	
Approach LOS					D			C			C	
Stops (vph)					1457		129	307			552	
Fuel Used(gal)					28		3	4			10	
CO Emissions (g/hr)					1988		219	269			678	
NOx Emissions (g/hr)					387		43	52			132	
VOC Emissions (g/hr)					461		51	62			157	
Dilemma Vehicles (#)					0		0	0			0	
Queue Length 50th (ft)					370		79	107			245	
Queue Length 95th (ft)					421		m86	m111			307	
Internal Link Dist (ft)		1129			345			145			345	
Turn Bay Length (ft)												
Base Capacity (vph)					1960		338	2123			1662	
Starvation Cap Reductn					0		2	1240			0	
Spillback Cap Reductn					81		0	0			416	
Storage Cap Reductn					0		0	0			0	
Reduced v/c Ratio					0.93		0.97	0.99			0.73	

Intersection Summary

Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 31 (26%), Referenced to phase 2:NBSB, Start of Yellow			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.96			
Intersection Signal Delay: 34.0		Intersection LOS: C	
Intersection Capacity Utilization 77.3%		ICU Level of Service D	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 1: Canal St & North State St

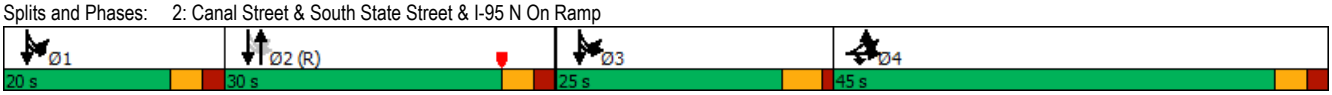


Lane Group	EBL2	EBL	EBT	EBR	NBT	NBR	NBR2	SBL2	SBL	SBT	Ø1	Ø3
Lane Configurations												
Traffic Volume (vph)	570	592	571	288	546	485	41	305	10	789		
Future Volume (vph)	570	592	571	288	546	485	41	305	10	789		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900		
Lane Width (ft)	11	11	11	11	12	12	12	12	12	12		
Lane Util. Factor	0.91	0.95	0.95	1.00	0.95	0.95	0.95	0.95	0.95	0.95		
Frt				0.850	0.926							
Flt Protected	0.950	0.950								0.985		
Satd. Flow (prot)	1557	1625	3421	1531	3277	0	0	0	0	3486		
Flt Permitted	0.950	0.950								0.523		
Satd. Flow (perm)	1557	1625	3421	1531	3277	0	0	0	0	1851		
Right Turn on Red				No			No					
Satd. Flow (RTOR)												
Link Speed (mph)			30		30					30		
Link Distance (ft)			1170		450					225		
Travel Time (s)			26.6		10.2					5.1		
Peak Hour Factor	0.92	0.98	0.98	0.98	0.98	0.98	0.92	0.92	0.98	0.98		
Adj. Flow (vph)	620	604	583	294	557	495	45	332	10	805		
Shared Lane Traffic (%)	10%											
Lane Group Flow (vph)	558	666	583	294	1097	0	0	0	0	1147		
Turn Type	Split	Split	NA	Prot	NA			D.P+P	D.P+P	NA		
Protected Phases	4	4	4	4	2			1 3	1 3	1 2 3	1	3
Permitted Phases								2	2			
Detector Phase	4	4	4	4				1 3	1 3			
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	15.0						5.0	5.0
Minimum Split (s)	33.0	33.0	33.0	33.0	33.0						10.0	9.5
Total Split (s)	45.0	45.0	45.0	45.0	30.0						20.0	25.0
Total Split (%)	37.5%	37.5%	37.5%	37.5%	25.0%						17%	21%
Maximum Green (s)	40.0	40.0	40.0	40.0	25.0						15.0	20.5
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0						3.0	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0						2.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0							
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0							
Lead/Lag	Lag	Lag	Lag	Lag	Lag						Lead	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0	2.0	2.0	0.2						2.0	2.0
Recall Mode	None	None	None	None	C-Min						None	Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0							
Flash Dont Walk (s)	21.0	21.0	21.0	21.0	21.0							
Pedestrian Calls (#/hr)	0	0	0	0	0							
Act Effct Green (s)	40.0	40.0	40.0	40.0	45.0					65.0		
Actuated g/C Ratio	0.33	0.33	0.33	0.33	0.38					0.54		
v/c Ratio	1.08	1.23	0.51	0.58	0.89					0.96dl		
Control Delay	91.3	148.1	25.1	29.1	38.8					37.0		
Queue Delay	10.1	0.7	0.0	0.1	0.0					15.5		
Total Delay	101.4	148.7	25.1	29.2	38.8					52.6		
LOS	F	F	C	C	D					D		
Approach Delay			85.1		38.8					52.6		
Approach LOS			F		D					D		
Stops (vph)	425	517	338	186	936					1046		
Fuel Used(gal)	17	28	10	5	17					16		
CO Emissions (g/hr)	1158	1981	699	375	1217					1121		
NOx Emissions (g/hr)	225	385	136	73	237					218		
VOC Emissions (g/hr)	268	459	162	87	282					260		
Dilemma Vehicles (#)	0	0	0	0	0					0		
Queue Length 50th (ft)	~534	~678	134	133	420					356		
Queue Length 95th (ft)	m#751	#907	m182	m210	m#507					m#438		
Internal Link Dist (ft)			1090		370					145		
Turn Bay Length (ft)												
Base Capacity (vph)	519	541	1140	510	1228					1275		
Starvation Cap Reductn	0	0	0	0	0					147		
Spillback Cap Reductn	40	42	0	10	0					11		
Storage Cap Reductn	0	0	0	0	0					0		
Reduced v/c Ratio	1.16	1.33	0.51	0.59	0.89					1.02		

Intersection Summary		
Area Type:	Other	
Cycle Length: 120		
Actuated Cycle Length: 120		
Offset: 115 (96%), Referenced to phase 2:NBSB, Start of Yellow		
Natural Cycle: 140		
Control Type: Actuated-Coordinated		
Maximum v/c Ratio: 1.23		
Intersection Signal Delay: 64.8		Intersection LOS: E
Intersection Capacity Utilization 107.6%		ICU Level of Service G
Analysis Period (min) 15		

~ 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.
dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 2: Canal Street & South State Street & I-95 N On Ramp



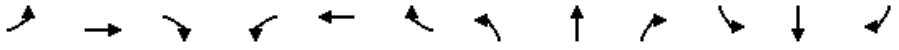
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	400	536	24	154	435	265	22	469	231	295	386	356
Future Volume (vph)	400	536	24	154	435	265	22	469	231	295	386	356
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	160		0	0		120	0		120
Storage Lanes	1		0	1		0	0		1	1		1
Taper Length (ft)	25			55			25			60		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Frt		0.994			0.943				0.850			0.850
Flt Protected	0.950			0.950				0.998		0.950		
Satd. Flow (prot)	1770	3518	0	1770	3337	0	0	3532	1583	1770	1863	1583
Flt Permitted	0.132			0.430				0.919		0.344		
Satd. Flow (perm)	246	3518	0	801	3337	0	0	3253	1583	641	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			107				197			257
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		384			422			263			450	
Travel Time (s)		8.7			9.6			6.0			10.2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	421	564	25	162	458	279	23	494	243	311	406	375
Shared Lane Traffic (%)												
Lane Group Flow (vph)	421	589	0	162	737	0	0	517	243	311	406	375
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA	Perm	pm+pt	NA	Perm
Protected Phases	1	6		5	2			4		3	3 4	
Permitted Phases	6			2			4		4	3 4		3 4
Detector Phase	1	6		5	2		4	4	4	3	3 4	3 4
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		15.0	15.0	15.0	7.0		
Minimum Split (s)	9.0	34.1		9.0	34.1		36.6	36.6	36.6	11.0		
Total Split (s)	31.0	48.0		23.0	40.0		32.0	32.0	32.0	17.0		
Total Split (%)	25.8%	40.0%		19.2%	33.3%		26.7%	26.7%	26.7%	14.2%		
Maximum Green (s)	27.0	41.9		19.0	33.9		25.4	25.4	25.4	13.0		
Yellow Time (s)	3.0	3.3		3.0	3.3		3.3	3.3	3.3	3.0		
All-Red Time (s)	1.0	2.8		1.0	2.8		3.3	3.3	3.3	1.0		
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0	0.0		
Total Lost Time (s)	4.0	6.1		4.0	6.1			6.6	6.6	4.0		
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag	Lag	Lead		
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	0.2		3.0	0.2		3.0	3.0	3.0	3.0		
Recall Mode	None	None		None	None		C-Min	C-Min	C-Min	None		
Walk Time (s)		7.0			7.0		7.0	7.0	7.0			
Flash Dont Walk (s)		21.0			21.0		23.0	23.0	23.0			
Pedestrian Calls (#/hr)		0			0		0	0	0			
Act Effct Green (s)	58.2	40.6		40.0	26.4			34.2	34.2	49.8	53.8	53.8
Actuated g/C Ratio	0.48	0.34		0.33	0.22			0.28	0.28	0.42	0.45	0.45
v/c Ratio	0.94	0.49		0.45	0.90			0.56	0.41	0.80	0.49	0.44
Control Delay	52.2	26.3		22.3	53.5			40.8	11.4	30.9	20.4	6.5
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0	0.0	1.6	0.5
Total Delay	52.2	26.3		22.3	53.5			40.8	11.4	30.9	22.0	7.0
LOS	D	C		C	D			D	B	C	C	A
Approach Delay		37.1			47.9			31.4			19.4	
Approach LOS		D			D			C			B	
Stops (vph)	314	437		103	579			416	48	214	279	76
Fuel Used(gal)	7	7		2	15			7	1	4	5	2
CO Emissions (g/hr)	502	496		149	1030			516	89	285	315	150
NOx Emissions (g/hr)	98	96		29	200			100	17	55	61	29
VOC Emissions (g/hr)	116	115		34	239			120	21	66	73	35
Dilemma Vehicles (#)	0	0		0	0			0	0	0	0	0
Queue Length 50th (ft)	277	190		67	255			182	27	132	204	57
Queue Length 95th (ft)	#420	255		96	308			261	105	m#248	m318	m70
Internal Link Dist (ft)		304			342			183			370	
Turn Bay Length (ft)				160					120			120
Base Capacity (vph)	462	1264		470	1019			926	591	388	834	851
Starvation Cap Reductn	0	0		0	0			0	0	0	256	178
Spillback Cap Reductn	0	0		0	0			0	0	0	0	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Storage Cap Reductn	0	0		0	0			0	0	0	0	0
Reduced v/c Ratio	0.91	0.47		0.34	0.72			0.56	0.41	0.80	0.70	0.56

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 46 (38%), Referenced to phase 4:NBSB, Start of Yellow			
Natural Cycle: 105			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.94			
Intersection Signal Delay: 33.4		Intersection LOS: C	
Intersection Capacity Utilization 93.8%		ICU Level of Service F	
Analysis Period (min) 15			

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

Splits and Phases: 3: Canal Street & Dock Street/Jefferson Street



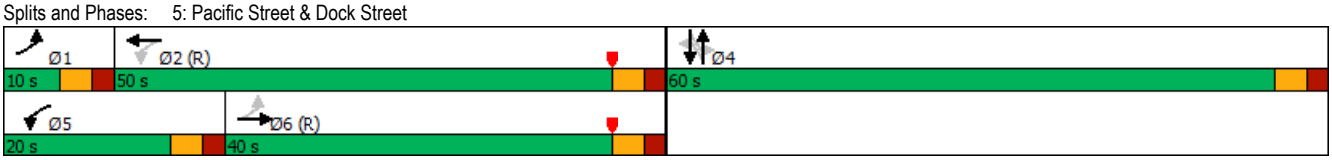
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	657	257	317	474	1	118	1	261	1	1	3
Future Volume (vph)	5	657	257	317	474	1	118	1	261	1	1	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	90		0	90		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.958						0.907			0.919	
Flt Protected	0.950			0.950				0.985			0.990	
Satd. Flow (prot)	1770	3391	0	1770	3539	0	0	1664	0	0	1695	0
Flt Permitted	0.461			0.173				0.894			0.954	
Satd. Flow (perm)	859	3391	0	322	3539	0	0	1510	0	0	1633	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		48						122			3	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		510			228			158			352	
Travel Time (s)		11.6			5.2			3.6			8.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	714	279	345	515	1	128	1	284	1	1	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	5	993	0	345	516	0	0	413	0	0	5	0
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	1	6		5	2			4			4	
Permitted Phases	6			2			4			4		
Detector Phase	1	6		5	2		4	4		4	4	
Switch Phase												
Minimum Initial (s)	5.0	15.0		5.0	15.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	10.0	35.0		10.0	35.0		35.0	35.0		35.0	35.0	
Total Split (s)	10.0	40.0		20.0	50.0		60.0	60.0		60.0	60.0	
Total Split (%)	8.3%	33.3%		16.7%	41.7%		50.0%	50.0%		50.0%	50.0%	
Maximum Green (s)	5.0	35.0		15.0	45.0		55.0	55.0		55.0	55.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
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)	5.0	5.0		5.0	5.0			5.0			5.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		23.0			23.0		23.0	23.0		23.0	23.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)	63.2	58.2		78.2	76.2			31.8			31.8	
Actuated g/C Ratio	0.53	0.48		0.65	0.64			0.26			0.26	
v/c Ratio	0.01	0.59		0.88	0.23			0.84			0.01	
Control Delay	12.6	20.3		35.4	6.6			43.9			19.4	
Queue Delay	0.0	0.4		0.0	0.0			0.0			0.0	
Total Delay	12.6	20.7		35.4	6.6			43.9			19.4	
LOS	B	C		D	A			D			B	
Approach Delay		20.7			18.1			43.9			19.4	
Approach LOS		C			B			D			B	
Stops (vph)	3	478		151	147			258			3	
Fuel Used(gal)	0	10		4	3			5			0	
CO Emissions (g/hr)	3	702		305	232			370			3	
NOx Emissions (g/hr)	1	137		59	45			72			1	
VOC Emissions (g/hr)	1	163		71	54			86			1	
Dilemma Vehicles (#)	0	0		0	0			0			0	
Queue Length 50th (ft)	1	175		44	25			222			1	
Queue Length 95th (ft)	m4	353		#338	183			299			10	
Internal Link Dist (ft)		430			148			78			272	
Turn Bay Length (ft)	90			90								
Base Capacity (vph)	490	1669		390	2247			758			750	
Starvation Cap Reductn	0	257		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	

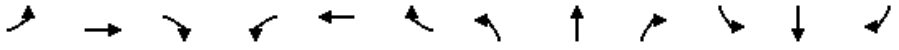
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.01	0.70		0.88	0.23			0.54			0.01	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 64 (53%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.88			
Intersection Signal Delay: 23.9		Intersection LOS: C	
Intersection Capacity Utilization 85.8%		ICU Level of Service E	
Analysis Period (min) 15			

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

Splits and Phases: 5: Pacific Street & Dock Street





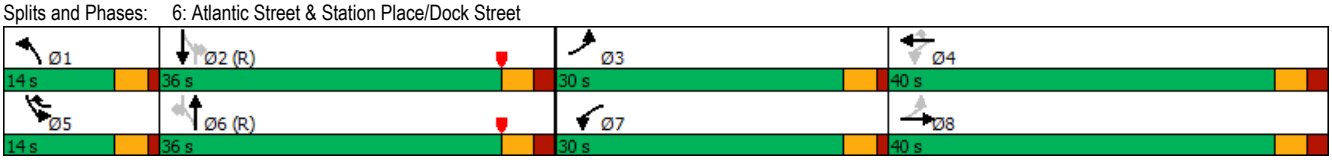
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	132	291	51	248	194	190	61	244	488	173	285	112
Future Volume (vph)	132	291	51	248	194	190	61	244	488	173	285	112
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	210		0	100		130	70		110
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	25			10			50			45		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.978				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1822	0	1770	1863	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.626			0.170			0.563			0.536		
Satd. Flow (perm)	1166	1822	0	317	1863	1583	1049	3539	1583	998	3539	1583
Right Turn on Red			No			Yes			Yes			Yes
Satd. Flow (RTOR)						207			530			122
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		348			510			366			301	
Travel Time (s)		7.9			11.6			8.3			6.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	143	316	55	270	211	207	66	265	530	188	310	122
Shared Lane Traffic (%)												
Lane Group Flow (vph)	143	371	0	270	211	207	66	265	530	188	310	122
Turn Type	pm+pt	NA		pm+pt	NA	pm+ov	pm+pt	NA	custom	pm+pt	NA	custom
Protected Phases	3	8		7	4	5	1	6		5	2	
Permitted Phases	8			4		4	6		2	2		6
Detector Phase	3	8		7	4	5	1		2	5		6
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0	5.0	5.0	15.0	15.0	5.0	15.0	15.0
Minimum Split (s)	10.0	34.0		10.0	34.0	10.0	10.0	34.0	34.0	10.0	34.0	34.0
Total Split (s)	30.0	40.0		30.0	40.0	14.0	14.0	36.0	36.0	14.0	36.0	36.0
Total Split (%)	25.0%	33.3%		25.0%	33.3%	11.7%	11.7%	30.0%	30.0%	11.7%	30.0%	30.0%
Maximum Green (s)	26.0	35.0		26.0	35.0	10.0	10.0	31.0	31.0	10.0	31.0	31.0
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	2.0		1.0	2.0	1.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	5.0		4.0	5.0	4.0	4.0	5.0	5.0	4.0	5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	2.0	3.0	0.2	0.2	2.0	0.2	0.2
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0			7.0			7.0	7.0		7.0	7.0
Flash Dont Walk (s)		22.0			22.0			22.0	22.0		22.0	22.0
Pedestrian Calls (#/hr)		0			0			0	0		0	0
Act Effct Green (s)	41.5	29.0		54.7	38.2	52.5	51.9	42.9	46.3	55.3	46.3	42.9
Actuated g/C Ratio	0.35	0.24		0.46	0.32	0.44	0.43	0.36	0.39	0.46	0.39	0.36
v/c Ratio	0.31	0.85		0.68	0.36	0.26	0.13	0.21	0.57	0.36	0.23	0.19
Control Delay	20.4	60.6		33.4	20.1	1.4	21.2	29.9	5.6	17.0	20.8	3.6
Queue Delay	0.0	0.2		0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.0
Total Delay	20.4	60.9		33.4	20.1	1.4	21.2	29.9	5.6	17.1	21.1	3.6
LOS	C	E		C	C	A	C	C	A	B	C	A
Approach Delay		49.6			19.7			14.3			16.5	
Approach LOS		D			B			B			B	
Stops (vph)	86	317		172	113	15	36	171	44	83	141	10
Fuel Used(gal)	1	7		4	2	1	1	3	2	1	3	0
CO Emissions (g/hr)	97	481		253	153	62	44	218	154	102	186	28
NOx Emissions (g/hr)	19	94		49	30	12	9	42	30	20	36	5
VOC Emissions (g/hr)	22	112		59	35	14	10	51	36	24	43	6
Dilemma Vehicles (#)	0	0		0	0	0	0	0	0	0	0	0
Queue Length 50th (ft)	63	273		72	110	23	28	76	0	73	69	1
Queue Length 95th (ft)	86	369		231	76	0	64	125	94	m110	m92	m8
Internal Link Dist (ft)		268			430			286			221	
Turn Bay Length (ft)	100			210			100		130	70		110
Base Capacity (vph)	651	531		459	620	816	531	1266	936	524	1366	644
Starvation Cap Reductn	0	0		0	0	0	0	0	0	51	536	0
Spillback Cap Reductn	0	12		0	0	0	0	0	3	0	0	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.71		0.59	0.34	0.25	0.12	0.21	0.57	0.40	0.37	0.19

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 104 (87%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.85			
Intersection Signal Delay: 22.9		Intersection LOS: C	
Intersection Capacity Utilization 69.9%		ICU Level of Service C	
Analysis Period (min) 15			

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

Splits and Phases: 6: Atlantic Street & Station Place/Dock Street



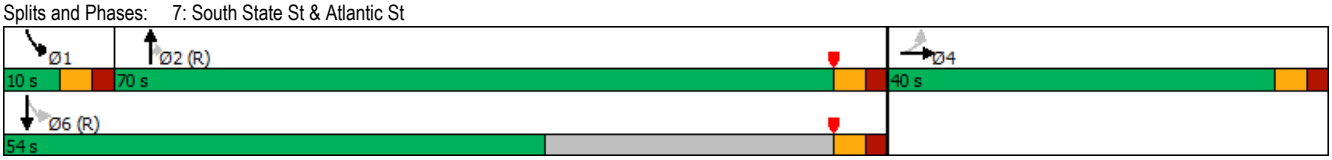
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	92	602	145	0	0	0	0	490	81	195	425	0
Future Volume (vph)	92	602	145	0	0	0	0	490	81	195	425	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.971							0.850			
Flt Protected	0.950									0.950		
Satd. Flow (prot)	1770	3437	0	0	0	0	0	3539	1583	1770	3539	0
Flt Permitted	0.950									0.375		
Satd. Flow (perm)	1770	3437	0	0	0	0	0	3539	1583	699	3539	0
Right Turn on Red			No			Yes			No			Yes
Satd. Flow (RTOR)												
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		294			1170			301			244	
Travel Time (s)		6.7			26.6			6.8			5.5	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	105	684	165	0	0	0	0	557	92	222	483	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	105	849	0	0	0	0	0	557	92	222	483	0
Turn Type	Perm	NA						NA	Perm	pm+pt	NA	
Protected Phases		4						2		1	6	
Permitted Phases	4								2	6		
Detector Phase	4	4						2	2	1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0						15.0	15.0	5.0	15.0	
Minimum Split (s)	34.0	34.0						34.0	34.0	10.0	27.0	
Total Split (s)	40.0	40.0						70.0	70.0	10.0	54.0	
Total Split (%)	33.3%	33.3%						58.3%	58.3%	8.3%	45.0%	
Maximum Green (s)	35.0	35.0						65.0	65.0	5.0	49.0	
Yellow Time (s)	3.0	3.0						3.0	3.0	3.0	3.0	
All-Red Time (s)	2.0	2.0						2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0						-1.0	-1.0	0.0	-1.0	
Total Lost Time (s)	4.0	4.0						4.0	4.0	5.0	4.0	
Lead/Lag								Lag	Lag	Lead		
Lead-Lag Optimize?								Yes	Yes	Yes		
Vehicle Extension (s)	2.0	2.0						0.2	0.2	2.0	0.2	
Recall Mode	None	None						C-Max	C-Max	Min	C-Max	
Walk Time (s)	7.0	7.0						7.0	7.0		7.0	
Flash Dont Walk (s)	22.0	22.0						15.0	15.0		15.0	
Pedestrian Calls (#/hr)	0	0						0	0		0	
Act Effct Green (s)	34.1	34.1						67.9	67.9	76.9	77.9	
Actuated g/C Ratio	0.28	0.28						0.57	0.57	0.64	0.65	
v/c Ratio	0.21	0.87						0.28	0.10	0.45	0.21	
Control Delay	33.2	51.2						14.4	12.9	10.8	2.6	
Queue Delay	0.0	0.0						0.5	0.0	1.5	0.3	
Total Delay	33.2	51.2						14.9	12.9	12.3	2.9	
LOS	C	D						B	B	B	A	
Approach Delay		49.2						14.6			5.9	
Approach LOS		D						B			A	
Stops (vph)	68	686						222	33	84	68	
Fuel Used(gal)	1	13						4	1	1	1	
CO Emissions (g/hr)	84	929						267	41	88	99	
NOx Emissions (g/hr)	16	181						52	8	17	19	
VOC Emissions (g/hr)	20	215						62	9	20	23	
Dilemma Vehicles (#)	0	0						0	0	0	0	
Queue Length 50th (ft)	60	321						108	33	31	34	
Queue Length 95th (ft)	104	390						128	53	m61	m27	
Internal Link Dist (ft)		214			1090			221			164	
Turn Bay Length (ft)												
Base Capacity (vph)	531	1031						2001	894	492	2296	
Starvation Cap Reductn	0	0						947	0	134	1156	
Spillback Cap Reductn	0	0						35	0	0	0	
Storage Cap Reductn	0	0						0	0	0	0	
Reduced v/c Ratio	0.20	0.82						0.53	0.10	0.62	0.42	

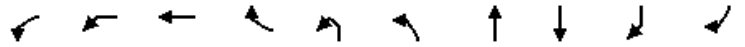
Intersection Summary

Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 109 (91%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.87			
Intersection Signal Delay: 26.2		Intersection LOS: C	
Intersection Capacity Utilization 56.4%		ICU Level of Service B	
Analysis Period (min) 15			

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

Splits and Phases: 7: South State St & Atlantic St





Lane Group	WBL2	WBL	WBT	WBR	NBL2	NBL	NBT	SBT	SBR	SBR2	Ø2	Ø3	Ø5
Lane Configurations													
Traffic Volume (vph)	173	797	335	384	235	12	345	448	326	76			
Future Volume (vph)	173	797	335	384	235	12	345	448	326	76			
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900			
Lane Util. Factor	0.86	0.86	0.86	0.86	0.95	1.00	0.95	0.95	1.00	0.95			
Frt			0.966						0.850				
Flt Protected			0.972			0.950							
Satd. Flow (prot)	0	0	6017	0	0	1770	3539	3539	1583	0			
Flt Permitted			0.972			0.309							
Satd. Flow (perm)	0	0	6017	0	0	576	3539	3539	1583	0			
Right Turn on Red				No						No			
Satd. Flow (RTOR)													
Link Speed (mph)			30				25	25					
Link Distance (ft)			1209				244	742					
Travel Time (s)			27.5				6.7	20.2					
Peak Hour Factor	0.92	0.85	0.85	0.85	0.92	0.85	0.85	0.85	0.85	0.92			
Adj. Flow (vph)	188	938	394	452	255	14	406	527	384	83			
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	0	1972	0	0	269	406	527	467	0			
Turn Type	Split	Split	NA		custom	custom	NA	NA	Perm				
Protected Phases	4	4	4		3 5	3 5	2 3	6			2	3	5
Permitted Phases					2	2			6				
Detector Phase	4	4	4		3 5	3 5			6				
Switch Phase													
Minimum Initial (s)	10.0	10.0	10.0					15.0	15.0		15.0	5.0	5.0
Minimum Split (s)	31.0	31.0	31.0					20.0	20.0		26.0	10.0	10.0
Total Split (s)	52.0	52.0	52.0					39.0	39.0		39.0	17.0	12.0
Total Split (%)	43.3%	43.3%	43.3%					32.5%	32.5%		33%	14%	10%
Maximum Green (s)	47.0	47.0	47.0					34.0	34.0		34.0	12.0	7.0
Yellow Time (s)	3.0	3.0	3.0					3.0	3.0		3.0	3.0	3.0
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				
Total Lost Time (s)			5.0					5.0	5.0				
Lead/Lag								Lag	Lag				Lead
Lead-Lag Optimize?													
Vehicle Extension (s)	2.0	2.0	2.0					0.2	0.2		0.2	2.0	2.0
Recall Mode	None	None	None					None	None		C-Max	None	None
Walk Time (s)	7.0	7.0	7.0								7.0		
Flash Dont Walk (s)	19.0	19.0	19.0								14.0		
Pedestrian Calls (#/hr)	0	0	0								0		
Act Effct Green (s)			46.4			58.6	63.6	40.0	40.0				
Actuated g/C Ratio			0.39			0.49	0.53	0.33	0.33				
v/c Ratio			1.65dl			0.65	0.22	0.45	0.88				
Control Delay			28.8			21.3	9.9	33.4	58.3				
Queue Delay			0.0			0.0	0.4	0.0	0.0				
Total Delay			28.8			21.3	10.3	33.4	58.3				
LOS			C			C	B	C	E				
Approach Delay			28.8				14.7	45.1					
Approach LOS			C				B	D					
Stops (vph)			1028			171	154	344	338				
Fuel Used(gal)			32			2	2	7	9				
CO Emissions (g/hr)			2203			156	140	503	603				
NOx Emissions (g/hr)			429			30	27	98	117				
VOC Emissions (g/hr)			511			36	32	117	140				
Dilemma Vehicles (#)			0			0	0	0	0				
Queue Length 50th (ft)			260			38	30	165	337				
Queue Length 95th (ft)			243			165	114	221	#544				
Internal Link Dist (ft)			1129				164	662					
Turn Bay Length (ft)													
Base Capacity (vph)			2356			496	1875	1180	528				
Starvation Cap Reductn			0			0	989	0	0				
Spillback Cap Reductn			0			0	0	0	0				
Storage Cap Reductn			0			0	0	0	0				
Reduced v/c Ratio			0.84			0.54	0.46	0.45	0.88				

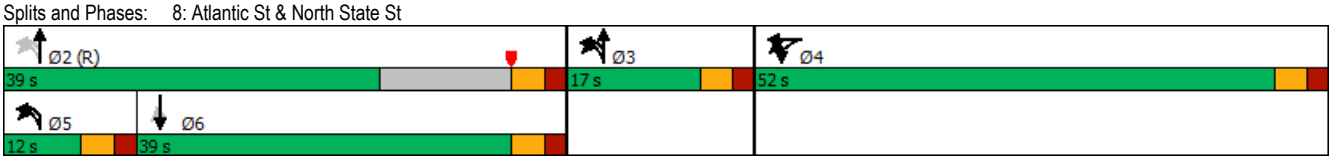
Intersection Summary

Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 105 (88%), Referenced to phase 2:NBTL, Start of Yellow			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.88			
Intersection Signal Delay: 30.6		Intersection LOS: C	
Intersection Capacity Utilization 95.2%		ICU Level of Service F	
Analysis Period (min) 15			

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

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 8: Atlantic St & North State St



Intersection	
Int Delay, s/veh	3.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	839	5	61	725	10	25	1	61	31	1	31
Future Vol, veh/h	2	839	5	61	725	10	25	1	61	31	1	31
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	130	-	-	-	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	912	5	66	788	11	27	1	66	34	1	34

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	799	0	0	917	0	0	1446	1850	459	1295	1847	400
Stage 1	-	-	-	-	-	-	919	919	-	926	926	-
Stage 2	-	-	-	-	-	-	527	931	-	369	921	-
Critical Hdwy	4.14	-	-	5.34	-	-	6.99	6.54	7.14	6.99	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	7.34	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.74	5.54	-
Follow-up Hdwy	2.22	-	-	3.12	-	-	3.67	4.02	3.92	3.67	4.02	3.32
Pot Cap-1 Maneuver	819	-	-	429	-	-	113	74	470	143	74	600
Stage 1	-	-	-	-	-	-	232	348	-	282	346	-
Stage 2	-	-	-	-	-	-	487	344	-	590	347	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	819	-	-	429	-	-	93	62	470	107	62	600
Mov Cap-2 Maneuver	-	-	-	-	-	-	93	62	-	107	62	-
Stage 1	-	-	-	-	-	-	232	347	-	281	293	-
Stage 2	-	-	-	-	-	-	387	291	-	504	346	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	1.1	35.5	33
HCM LOS			E	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	210	819	-	-	429	-	-	107	472
HCM Lane V/C Ratio	0.45	0.003	-	-	0.155	-	-	0.315	0.074
HCM Control Delay (s)	35.5	9.4	-	-	14.9	-	-	53.4	13.2
HCM Lane LOS	E	A	-	-	B	-	-	F	B
HCM 95th %tile Q(veh)	2.1	0	-	-	0.5	-	-	1.2	0.2

Intersection	
Int Delay, s/veh	5.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	839	18	78	725	10	35	1	73	31	1	31
Future Vol, veh/h	2	839	18	78	725	10	35	1	73	31	1	31
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	130	-	-	-	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	912	20	85	788	11	38	1	79	34	1	34

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	799	0	0	932	0	0	1491	1895	466	1333	1900	400
Stage 1	-	-	-	-	-	-	926	926	-	964	964	-
Stage 2	-	-	-	-	-	-	565	969	-	369	936	-
Critical Hdwy	4.14	-	-	5.34	-	-	6.99	6.54	7.14	6.99	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	7.34	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.74	5.54	-
Follow-up Hdwy	2.22	-	-	3.12	-	-	3.67	4.02	3.92	3.67	4.02	3.32
Pot Cap-1 Maneuver	819	-	-	422	-	-	106	69	465	135	68	600
Stage 1	-	-	-	-	-	-	229	346	-	267	332	-
Stage 2	-	-	-	-	-	-	462	330	-	590	342	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	819	-	-	422	-	-	83	55	465	93	54	600
Mov Cap-2 Maneuver	-	-	-	-	-	-	83	55	-	93	54	-
Stage 1	-	-	-	-	-	-	229	345	-	266	265	-
Stage 2	-	-	-	-	-	-	347	264	-	487	341	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	1.5	55	38.4
HCM LOS			F	E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	183	819	-	-	422	-	-	93	456
HCM Lane V/C Ratio	0.647	0.003	-	-	0.201	-	-	0.362	0.076
HCM Control Delay (s)	55	9.4	-	-	15.7	-	-	64.2	13.5
HCM Lane LOS	F	A	-	-	C	-	-	F	B
HCM 95th %tile Q(veh)	3.8	0	-	-	0.7	-	-	1.4	0.2

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	29	1	1	693	522	42
Future Vol, veh/h	29	1	1	693	522	42
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	32	1	1	753	567	46

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1345	590	613	0	-	0
Stage 1	590	-	-	-	-	-
Stage 2	755	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	167	508	966	-	-	-
Stage 1	554	-	-	-	-	-
Stage 2	464	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	167	508	966	-	-	-
Mov Cap-2 Maneuver	167	-	-	-	-	-
Stage 1	553	-	-	-	-	-
Stage 2	464	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	30.9	0	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	966	-	171	-	-
HCM Lane V/C Ratio	0.001	-	0.191	-	-
HCM Control Delay (s)	8.7	-	30.9	-	-
HCM Lane LOS	A	-	D	-	-
HCM 95th %tile Q(veh)	0	-	0.7	-	-

Intersection	
Int Delay, s/veh	2.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	8	22	87	12	30	67
Future Vol, veh/h	8	22	87	12	30	67
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	24	95	13	33	73

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	241	102	0	0	108	0
Stage 1	102	-	-	-	-	-
Stage 2	139	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	747	953	-	-	1483	-
Stage 1	922	-	-	-	-	-
Stage 2	888	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	730	953	-	-	1483	-
Mov Cap-2 Maneuver	730	-	-	-	-	-
Stage 1	922	-	-	-	-	-
Stage 2	868	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.2	0	2.3
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	881	1483	-
HCM Lane V/C Ratio	-	-	0.037	0.022	-
HCM Control Delay (s)	-	-	9.2	7.5	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0.1	-