

<u>Connecticut Department of</u> <u>Transportation</u>



Local Transportation Capital Improvement Program Application

Municipality:		COG:	
Route/Road:			
Project Title:			
Roadway Functional Classification (if applicable):			
COG Contact Information:			
	Name		Title
	(475) 323-2072		
	Phone Number		Email
Municipal Contact Information:			
	Name		Title
	Phone Number		Email

The applicant must answer the questions below which are intended to address basic issues about existing conditions, project management, project costs, impacts on private property, utilities, wetlands, etc. You may provide your answer in the space provided below or submit separate answer sheets. It is important that the application be as thorough as possible, as missing information will delay the review process. All project-related sections must be completely filled out or the application will be returned and will require resubmittal.

The intent of the application is to establish eligibility, service life, and to ensure the Municipality is considering all pertinent aspects associated with major infrastructure improvements consistent with the purpose and need of the project.

(A) **Project Information**

1. Select the type of proposed improvement (select all that apply):

Please note: The entire application must be completed for all projects in addition to any necessary supplemental sections (K through P) as determined by the type of project.

- Roadway Geometric Improvement
- Stand-Alone Sidewalk Construction
- Bicycle/Pedestrian Improvement, including Multi-Use Trail Facilities
- Intersection Improvement

Provide additional information as required in section K

Bridge Rehabilitation/Replacement

Provide additional information as required in section L

Major Drainage Improvement

Provide additional information as required in section M

Pavement Structure Improvement

Provide additional information as required in section N

- Traffic Signal Replacement/Upgrade/New Installation/Coordination
 Note: Only Signal
 Provide additional information as required in section O Revisions are proposed
- Other (please specify):

Provide additional information as required in section P

2. Describe the purpose and need of the project (i.e. what are the problems to be corrected?). Please provide adequate detail to clearly convey the nature of the problem(s) to be corrected. Provide photographs to document the existing conditions and support the purpose and need. (Attachments acceptable)

 Provide a project description, including project limits and length, that specifically describe how the proposed improvements will correct the problem(s) identified in the purpose and need. Describe what alternative(s) were considered. (Attachments acceptable) 4. Provide concept plans of the proposed improvement. The plans must be sufficiently developed and provide enough detail on a scaled drawing (including aerial photography base mapping if possible) to identify the following:

	Inc.	N/A	SEE ATTACHMENT A4
			Project location
			Limits of project
			Approximate limits and extent of any pavement widening or realignment
			Proposed number of lanes, widths, and arrangements
			Approximate limits and extent of any anticipated ROW acquisitions (based on available ROW information from Assessors maps, GIS data, etc.)
			Structures (i.e. Retaining walls, bridges)
			Watercourses
			Typical Cross Section including lane and shoulder widths, pavement structure, etc.
5.	Have Depa	the rtmen	improvements at this location been previously submitted to the t for funding?
	If yes	, whe	n and under what program?

6. Have any other Federal or State funding sources been applied for or awarded for the improvements at this location?

If yes, please list source, amount, and when awarded in detail below:

7. Does the project impact any State-owned Facilities (i.e. roads, bridges, etc.)?

If yes, describe the impacts:

8. In the area of the project, are there any known proposed developments?

No	🗌 Yes
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If yes, describe the proposed developments: SEE ATTACHMENT A8

9. Design Standards to be used:

- Established municipal standards
- AASHTO Policy on Geometric Design of Highways and Streets
- Connecticut Department of Transportation Highway Design Manual
- AASHTO LRFD Bridge Design Specifications and Connecticut Department of Transportation Bridge Design Manual
- Other, please specify:

(B) Rights of Way

1. Are any Right of Way (ROW) impacts anticipated?

If yes, describe the nature, extent, and type of impacts:

2. If ROW acquisitions will be required, who does the Municipality plan to have perform acquisition activities?

Municipal staff Consultant him	red by	y Munici	pality
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3. If ROW acquisitions are to be performed by the Municipality's staff or their consultant, will the Municipality be seeking reimbursement for ROW costs?

State

🗌 No	🗌 Yes
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(C) Utilities

1. List all utilities within the project area, including their owners.

Overhead	Underground

2. Are any utility impacts anticipated?
No Yes

If yes, explain the nature and extent of the impacts:

Note: Costs associated with utility betterments/upgrades that are not required to accommodate the proposed transportation improvement are not eligible project costs.

3. Have the utility companies been contacted to identify any plans to expand or improve existing utilities that would compromise the service life of the proposed improvements?

□ No □ Yes

If yes, describe any proposed improvements and their schedule:

(D) Storm water drainage system and under drains

 Do any existing storm water drainage problems exist? No 	🗌 Yes
If yes, describe the problem(s):	

2. Is any storm water drainage system work anticipated, including any new or modified drainage outlets?

If yes, explain the nature and extent of the improvements:

If yes, indicate the type of improvement needed and the reason for it. Please also indicate if any existing watercourse crossings have inadequate hydraulic capacity:

(E) Rail Crossings

1. Are there any railroad crossings that are likely to be impacted as part of the project?

🗌 No	Yes
	At-grade
	Grade separated

If yes, describe impacts and any necessary modifications:

(F) Pedestrian/Bicycle Safety and Mobility

1. Complete and attach the Department's Bicycle and Pedestrian Needs Assessment Form to this application (a copy of this form is included in Appendix D). In accordance with Connecticut General Statutes, Section 13a - 153f, and the Department's focus on accommodating non-motorized travel modes, accommodation of all users shall be a routine part of the planning, design, construction, and operating activities of all highways. The need for inclusion of accommodations for bicyclists and pedestrians, including those with disabilities, must be reviewed for every project, regardless of funding source.

SEE ATTACHMENT F

(G) Traffic

The information below needs to be provided or reviewed (as specified) by the designer for all project types except for stand-alone sidewalk projects and bicycle/pedestrian improvements, and multi-use trail facilities that do not involve pedestrian crossings

SEE ATTACHMENT G 1. Volumes

Provide existing and 20-year Projected ADTs and Turning Volumes. Refer to the Preliminary Engineering/Preliminary Design section for guidance on traffic volumes.

2. Crash Experience

Provide a summary of crash experience using the most current three year data, including a crash summary diagram, and analysis noting any discernable crash patterns.

3. Traffic Signals

Review the existing traffic signal plans for projects involving signalized intersections

4. Speed Data

Provide 85th percentile speeds in the project area NOT AVAILABLE

Provide all posted speed limits in the project area 25 MPH

(H) Environmental Resource Involvement

Refer to Application Process/Preliminary Project Submittals - Information provided by the Department for more information.

- 1. Parks, Cemeteries, Historic Structures
 - a. Are there any parks, cemeteries, or historic structures that are likely to be affected by the project? No | | Yes

If yes, describe the type and extent of the anticipated impact.

2. Wetlands

a. Are there any wetlands that are likely to be affected by the project?

No	🗌 Yes
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If yes, describe the type and extent of the anticipated impact.

- 3. Hazardous or Contaminated Sites
 - a. Has the potential for hazardous or contaminated sites and materials in the project area been investigated?

If yes, describe the type and extent of the anticipated impact.

(I) Public Involvement

Refer to Preliminary Engineering/Project Design - Public Involvement section for more information.

1. Has public involvement been conducted?
No Yes

If yes, describe the public involvement effort, when it was conducted, and any public support or opposition to the project:

If no, describe the planned public involvement effort should the project move forward:

Additional public involvement will be done specifically for this project including stakeholder coordination with adjacent property owners as well as a public hearing.

(J) Cost Estimate

- 1. Attach a preliminary cost estimate identifying:
 - a. Approximate quantities and assumed unit prices of the major contract items
 - b. An allowance for minor items (percentage of a)
 - c. Standard lump sum items (i.e. clearing and grubbing, mobilization, construction staking, maintenance and protection of traffic), as applicable (percentages of a + b)
 - d. Total contract items (a + b + c)
 - e. Contingencies (10% of d)
 - f. Incidentals to construction, (i.e. construction inspection, materials testing) (10% of d)
 - g. Rights of way costs
 - h. Eligible utility relocation costs (in accordance with CGS13a-98f)
 Note: Costs associated with utility betterments/upgrades that are not required to accommodate the proposed transportation improvement are not eligible project costs
 - i. Total project costs (d + e + f + g + h)

Sample cost estimate form provided in Appendix M and the Excel spreadsheet is available for download from the Department's LOTCIP webpage: https://www.ct.gov/dot/lotcip

Refer to the Department's most current Cost Estimating Guidelines for cost estimate guidance or use town-generated unit prices. The anticipated costs for each phase of the project shall be well documented and based on reasonable anticipated costs.

The guidelines are located at:

http://portal.ct.gov/-/media/DOT/documents/AEC/costestimatingguidelinespdf.pdf

00010.	
Municipal	

Phase	Municipal Funds (\$)	LOTCIP Funds (\$)	Total (\$)
Design	\$275,000		\$275,000
Right-of-Way	\$0	\$0	\$0
Construction	\$1,725,000	\$4,158,600	\$5,883,600

SEE ATTACHMENT J FOR CONSTRUCTION COST ESTIMATE

ADDITIONAL INFORMATION TO BE PROVIDED BASED ON IMPROVEMENT TYPE SELECTED IN SECTION (A)1:

(K) Roadway Geometric Improvements

Proposed Design Speed 30 MPH

(L) Intersection Improvements

Capacity Analyses (For build and no-build conditions using existing and projected traffic volumes).* SEE ATTACHMENT L

(M) Bridge Rehabilitation/Replacement

Latest Condition Report

(N) Major Drainage Improvement

Material, Age, Hydraulic adequacy assessment of existing drainage system (Condition Report, post-cleaning is preferred)

(O) Pavement Structure Improvement

The level of investigation will be dependent upon the proposed improvements. **Cores or test pits must be performed** such that a representative sample of the existing roadway condition is obtained. If varying pavement conditions exist along the roadway indicating the possibility of different pavement conditions, a test pit should be performed in each roadway section. **Pavement thickness and type**, **sub-base thickness and type**, and the presence of fines and/or groundwater must be noted. Attach the data obtained. If full depth reconstruction is proposed, cores or test pits may be required to justify the scope of the proposed improvements.

Approximate percentage of heavy vehicles:

What is the existing pavement type, condition, and thickness?

What is the anticipated pavement design? Describe the type and depth of each course including the base that is suitable for the ADT and percentage of heavy vehicles. Does it meet current design standards? Describe the cross-section (i.e. lanes and shoulder widths, etc.).

Describe how the service life requirement for the proposed pavement design was determined:

(P) Traffic Signal Replacement/Upgrade/New Installation/Coordination

Who is/will be responsible for ownership, maintenance, and electrical costs CITY OF STAMFORD N STATE ST AT ATLANTIC ST (INSTALLED 2020 UNDER SPN 135-301) Age of existing signals N STATE ST AT CANAL ST AND N STATE ST AT ELM ST(TO BE REPLACED UNDER SPN 135-337, CONSTRUCTION IS SCHEDULED TO BEGIN IN 2021) Capacity Analyses (For build and no-build conditions using existing and projected traffic volumes).* REFERENCED ABOVE IN SECTION L

Warrant Analysis for new signals N/A

Systems Engineering Analysis Form (SEAFORM) for Intelligent Transportation Systems (ITS) projects

(Q) Other

To be determined based on type of improvement proposed.

*Capacity Analysis: For the purposes of this application, a simplified analysis may be performed for signalized intersections that do not require detailed assumptions, proprietary software or specialized traffic engineering skills. The "Quick Estimation Method" is described in detail in the 2010 Highway Capacity Manual, with accompanying worksheets that can be completed by hand. A brief description of the method is also described in Section 3.3.6 of the FHWA Signal Timing Manual, where it is referred to as a "Critical Movement Analysis." The relevant section of the FHWA publication can be accessed at: http://ops.fhwa.dot.gov/publications/fhwahop08024/chapter3.htm. This simplified analysis will yield an approximate critical volume/capacity ratio that can be used to assess overall operation of the intersection. The build and no-build conditions should be analyzed for the existing and projected traffic volumes.

APPLICATION SUBMISSION

This application and supporting documents must be submitted by the Municipality to their COG. At such time when the application is to be forwarded to the Department of Transportation by the COG, it must be forwarded electronically to:

Hugh.Hayward@ct.gov

Mr. Hugh H. Hayward, P.E. Department of Transportation 2800 Berlin Turnpike P.O. Box 317546 Newington, CT 06131-7546

Prepared by:		Date:
	Name, Title and stamp of Responsible P.E. (Municipal or	Consultant)
	Signature	(Stamp)
Reviewed/Re	ecommended by:	Date:
	Name and Title of Municipal Chief Administrative Officer	
	Signature	
Endorsed/Re	commended by:	Date:
	Name and Title of COG Executive Director	
	Signature	

Attachment A2:

Project Purpose and Need Narrative Project Area Photographs Planning Study Excerpts Wayfinding Project Plan Sheets

ATTACHMENT A2- Purpose and Need

Stamford, often recognized as "The City that Works," connects people to jobs and has a daytime population of over 200,000 people. Similarly, we envision this project will serve as the Gateway to Stamford and connect visitors to our City. The North State Street Multimodal Gateway project will create a truly multifaceted corridor that directly builds upon the Federal Transit Administration's (FTA's) investment into the Stamford Urban Transitway and the Connecticut Department of Transportation's (CTDOT's) investment along South State Street/MNR at a fraction of the cost. The enhanced Gateway created with this project will be a fully multi-modal corridor. North State Street is a frontage road for I-95 through downtown Stamford and so already serves as a transition area for motor vehicles. The Stamford Transportation Center is located on the South side of North State Street west of Atlantic Street, and so the project corridor also currently serves as a transition area for pedestrians/rail passengers. Adding a cycle track to the corridor will make it truly multi-modal, safety enhancements will improve conditions for all modes of travel, wayfinding signage will provide important information to visitors along with a sense of place, and other lighting, landscaping, and streetscaping elements will improve the travel experience for all road users, but particularly for pedestrians. Photographs of existing conditions in the project area are included in following pages of this Attachment A2. They show the poor pedestrian environment, lack of bicycle accommodations, and roadway design features that encourage high travel speeds for motor vehicles.

This project, like those before it, strengthens multimodal east-west connections to the South End/Waterfront, South State Street and Stamford's Transportation Center. The culmination of these projects is part of a much larger vision detailed in Walkable Stamford, the Master Plan and the Bicycle and Pedestrian Plan to create one regional center for transportation and mobility. These plans along with other studies that have been conducted for Stamford have noted the lack of bicycle accommodations in the downtown area and the roadway network that was developed to favor travel by motor vehicle. They have also noted that improved connections and access to the Stamford Transportation Center would be beneficial to enhance the quality of life for those who live and/or work in Stamford and to provide expanded opportunities for transit use. Excerpts from key studies and plans are included in following pages of this Attachment A2.

Based on a Synchro analysis of the existing and design year conditions as well as a review of drone footage of the project area during the AM peak period (collected specifically for this application on March 4, 2020), it has been determined that North State Street has excess capacity and would operate acceptably with one lane removed through a 2040 design year. Observations and experience with the corridor reveal that travel speeds are high and there are a number of weaving movements that occur between ramp junctions and intersections. This makes the corridor a challenging environment for even experienced bicyclists, and although a sidewalk is provided along the north side of the roadway, the environment is inhospitable to pedestrians. Counts of pedestrian volumes conducted in February 2020 reveal high volumes of pedestrians

traveling along Atlantic Street to and from the Transportation Center. A review of the crash history for the corridor reveals a high percentage of sideswipe crashes, likely a result of weaving movements in short segments combined with high travel speeds. There was also a high percentage of angle crashes that occurred at intersections in the corridor. (More detailed crash data tables and diagrams are included in Attachment G.) Removing a lane and adding landscaping and streetscaping features along the north side of the road can help reduce travel speeds and improve conditions for weaving maneuvers by reducing the number of required lane changes.

Adding a cycle track that improves access to the Stamford Transportation Center with a connection to points east as well as points north (via the proposed bike lanes on Atlantic Street) will help address a critical need for bicycle accommodations in the downtown area and improve multimodal access to and from the Stamford Transportation Center. Please see excepts from previously conducted studies in the following pages of this Attachment A2 that specifically highlight these needs. The cycle track and improved pedestrian accommodations can also provide new opportunities for development. Safety conditions should also improve for the corridor as the roadway width and intersections sizes are reduced and travel speeds are lowered.



Looking West on North State Street at Elm (source: Google Earth)



Looking West on North State Street West of Elm (source: Google Earth)



Looking West on North State Street at Ramp touchdown East of Canal/Greyrock (source: Google Earth)



Looking West on North State Street at Canal/Greyrock



Looking West on North State Street West of Canal/Greyrock



Looking West on North State Street West at Atlantic Street



Recently Installed New Traffic Signal at State Street West/Atlantic Street



Looking West on North State Street West of Atlantic



Stamford Transportation Center just West of proposed project area

These pages were extracted from the "Stamford Bicycle and Pedestrian Plan'

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TRANSIT STATIONS

There are three transit stations in Stamford which could be accessible to people walking and bicycling if safe and comfortable facilities existed. Encouraging people to walk or bicycle to transit reduces roadway congestion and the cost of building parking garages at transit stations.



EXISTING BICYCLE FACILITIES AND PAVEMENT MARKINGS

This map shows the existing bicycle facilities in Stamford including trails and bike lanes as well as shared-lane markings (i.e. sharrows).



ZERO CAR HOUSEHOLDS

Many residents of Stamford choose or are not able to own a car. These residents are beneficial to the city as they do not use parking spaces and do not add to traffic congestion on the roadway. Pedestrian and bicycle safety infrastructure should be prioritized in the neighborhoods in which they live.



VULNERABLE USERS

Many residents of Stamford are unable to travel by automobile either due to a disability, age or a lack of resources. This map shows the areas with the highest density of seniors, people with disability and people in poverty. These residents are more reliant on walking and often bicycling to get where they need to go. The areas that show a high density of vulnerable users should be considered as priority areas for pedestrian and bicycle improvements.



PERCENT OF JOURNEYS TO WORK BY ACTIVE TRANSPORTATION MODES



bicycle routes, including CT 137 (Washington Blvd) and/or CT 104 (Long Ridge Rd) and CT 106 (Courtland Ave).

- Improve bicycle and pedestrian access and integration with transit.
- Improve bicycle and pedestrian safety on US 1 through markings and delineations or other measures.
- Complete the Mill River corridor, extending it up CT 137 (Washington Blvd) with bike lanes.
- Complete a pedestrian connection between the South End of Stamford/Stamford Station and the Mill River/ Downtown area.

www.ct.gov/dot/cwp/view.asp?a=1390&q=259656 http://ctbikepedplan.org/

Walkable Stamford

Prepared by Project for Public Spaces for City of Stamford, 2008

This report was prepared at the urging of the Royal Bank of Scotland, whose new building opened on Washington Boulevard in 2009. The report describes evaluations and

recommendations for three sites in downtown Stamford. Mid- and longterm recommendations include:



- Add low-level, pedestrian scaled lighting.
- Increase pedestrian crossing time at intersections.
- Repair and widen sidewalks.
- Redesign Washington Blvd with landscaped medians.
- On Washington Blvd between Richmond Hill Ave and State St:
 - Prohibit vehicles from turning right on red to improve pedestrian safety.
 - Paint crosswalks on all four legs of the Washington Blvd and North State St intersection.
 - Remove the channelized two-lane free right turn lane on North State St.
 - Redesign Washington Blvd with landscaped medians.
 - Provide a bicycle and pedestrian connection between the Mill River Greenway and the Transportation Center, possibly along South State St.

- At the Stamford Transportation Center "Gateway" area:
 - Provide more bicycle racks in visible locations.
 - Stripe crosswalks across all four legs of the intersection of North State St and the access road into the UBS parking garage.
 - Permanently narrow North State St to two lanes (possibly providing space for a separated bicycle lane).
 - Study ways to reduce traffic on North State St such as limiting the street to buses, bicycles, and highoccupancy vehicles.
 - Create a bicycle station that includes secure bicycle parking, lockers, showers, and repair.
 - Use curb extensions at the intersection of North State St and the UBS garage access street to shorten crossing distances, slow traffic, and improve pedestrian sight distance.
 - Widen the sidewalk to accommodate bicycles or add bike lanes to Atlantic, North State, and South State Streets; redesign the intersection of Atlantic and North State Streets to prohibit right turns.
 - Take advantage of excess vehicular capacity on Atlantic St between North State St and Main St to install landscaped medians, pedestrian refuges and curb extensions, bicycle lanes, on-street parking, and a reduction in the width and number of travel lanes.
- At the intersection of Washington Blvd and Tresser Blvd:
 - Narrow Tresser Blvd to two lanes in each direction with dedicated left-turn lanes.
 - Provide median pedestrian refuges at the intersection.
- At the intersection of Broad St and Atlantic/Bedford St:
 - Provide a leading pedestrian interval and retime traffic signals.
 - Add curb extension on southend corner to shorten the crosswalk length and slow turning vehicles.
 - In the long-term, shrink and realign the intersection to shorten crossing distances. Widen and extend the medians on both legs of Broad St and on Atlantic St through the crosswalk.
 - Raise the entire intersection to slow traffic entering the intersection and highlight that this is the heart of downtown Stamford.
 - Design Bedford Street as a "Festival Street" so it is easily closed for downtown events by removing the grade change between the sidewalk and street.



Survey

Over the course of five months, Stamford participated in a survey provided in both English and Spanish. The survey received 289 responses either through an online portal or via intercept-surveys. The survey asked questions focused on the pedestrian and bicycling environment in Stamford, propensities to walk and bicycle today, and physical and social changes that would lead to an increase in walking and bicycling. Responses provided an understanding of the desire to walk and bicycle in Stamford and the most common factors that discouraged these activities.

Respondents were asked for their home and work zip codes. Most respondents lived in Stamford south of the Merrit Parkway while a few lived to the north. Most respondents also worked in Stamford, predominately downtown. Respondents generally represented the demographics of Stamford; however, the percentages of respondents who were Hispanic/Latino, Black/African American, or younger than eighteen were lower than the city's actual composition. Twenty-six percent of respondents had children—a group that is typically particularly risk-averse and may be more likely to wish to ride on trails and other separated facilities. Twenty percent of respondents' household income was less than \$50,000 representing a group which may be more dependent on walking and bicycling.

Intercept Survey

Intercept surveys (i.e. in-person surveys) were conducted at key sites throughout the city to ensure information was captured from a diverse cross-section of residents, commuters, students and workers. Intercept-surveys took place at Cove Island Park, the University of Connecticut— Stamford campus, the Stamford Transportation Center, and Friendship and Lione Parks.

Cove Island Park, located along Stamford's southeastern coast, sees many recreational walkers and cyclists, both from surrounding Stamford neighborhoods and from bordering towns. Survey respondents here communicated that inadequate cycling and pedestrian facilities, along streets such as Cove Road, act as a prominent barrier to safety and access in the neighborhood.

At the University of Connecticut campus on Broad Street, college students, who commute to the campus via train (typically Metro-North rail), bus, bike, and foot expressed concern with walking and cycling the "last mile" to campus due to fast-moving traffic, a lack of bicycle lanes, and generally unsafe conditions, prompting their regular use of the University-operated shuttle bus.



Intercept surveys conducted at the Stamford Transportation Center gathered responses from Stamford workers, visitors, and residents, as well as those traveling into, out of, and around Stamford via CTtransit bus, private shuttle, and Metro-North commuter rail. Respondents consistently desired better connections between the transit hub, neighborhoods and offices.

Friendship Park, located at Richmond Hill Avenue and Spruce Street in Stamford's West End, saw minimal pedestrian traffic during the survey period. Those surveyed walk to work, school, or other destinations "always or almost always". Concerns included sidewalk widths and condition, fast car speeds, and difficult street crossings. Despite people enjoying Lione Park, no surveys were administered due to minimal pedestrian traffic.

What We Learned

The survey results highlight the significant desire of Stamford residents to bicycle and walk more, if issues such as high traffic speeds and dangerous crossings were addressed and pedestrian and bicycle facilities created a connected network—all focus areas of this plan. The potential to increase walking rates by 20 percentage points and bicycling rates by 32 percentage points will have a positive impact on Stamford by diverting short car trips to walking and biking, reducing downtown and citywide traffic congestion, increasing physical activity, making streets more vibrant, and improving health and the environment.

Map Comments

An online interactive map, called a Wikimap, was created to gather geographically-specific input from the community about bicycling and walking in Stamford. The Wikimap was available for public input from July 1, 2016 to December 30, 2016. The public identified barriers and routes that are difficult to bike and walk, and provided specific information about the issues at these locations. One hundred and fourteen residents of Stamford commented on 294 routes and 173 barriers. Most of the barrier comments related to intersections. There were concerns about the frequency of places to cross the street and the lack of automobile yielding at marked crosswalks and signalized intersections. Several commenters noted that pedestrian signals should be automatic. Comments related to difficult streets for bicycling and walking focused on fast vehicle speeds. This information was used, along with comments on maps from community meetings and posted at Stamford libraries, as the basis for the recommended bicycle and pedestrian facilities and policies in this plan.







This and the following two pages were extracted from the City of Stamford, Connecticut Transit Oriented Development Technical Assistance Report Findings and Recommendations (11/14/2016)

tenants, the trend today is toward private businesses, many of which also have a policy of locating near transit.

NoMa's redevelopment has not been without challenges, including concerns over displacement of existing residents and a lack of homeownership opportunities. Nonetheless, an area that was formerly blighted and dangerous is now crowded with people walking and biking both within NoMa and to other parts of the city. As mentioned, office development led the way, supported by the rail stations. Residential development



Programming of public spaces such as "Summer Screen 2016" helps to create a vibrant neighborhood. (Source: NoMa BID).

has followed, as the multi-family rental market in DC, particularly near Metro stations, has remained strong. Retail followed more slowly, but is now picking up as high-rise buildings provide more space for ground-floor retail uses. All of those elements—the transit access, the mix of retail, office, and residential, and the attention to amenities like parks and public programming—have combined to create a district with 18-hour appeal.

2. Walkability in the area around the transportation center needs to be improved.

One of the key elements of TOD is walkability. Walkable neighborhoods allow residents and visitors to move throughout the area in a variety of ways, using transit, bikes, and their own feet, as well as in a car. This ability to use multiple transportation options has numerous benefits, including reduced household costs (the average cost of owning and maintaining a car is \$8,698 per year [23]) and increases in public safety and health, as well as reduced emissions.



Figure 8. A neighborhood with good access to transit, shops, jobs, and services can reduce household expenditures on transportation. (Source: Center for Neighborhood Technology, cited in "Transportation and Housing Costs," Federal Highway Administration, <u>http://www.fhwa.dot.gov/livability/fact_sheets/transandhousing.cfm</u>).

^{[23] &}quot;Your Driving Costs," AAA, 2015, <u>http://newsroom.aaa.com/wp-content/uploads/2015/04/Your-Driving-Costs-2015-Facebook.png.</u>

Walkable conditions depend on several physical factors, including small block sizes, intersections that balance the needs of pedestrians and drivers, sidewalks unobstructed by utility poles, driveways, or other interruptions, well-lit pathways, and active land uses at the street-level, such as restaurants and shops. These conditions combine to encourage walking from destination to destination, and as the numbers of pedestrians increase, safety also increases, as more "eyes on the street" reduces the likelihood of crime. Walkability also benefits retail sales in pedestrian-oriented shops. For example, a study of two Barnes and Noble locations in Maryland found that the store in a walkable mixed-use area earned 15percent more than the store located in a strip mall. [24]

Walkability in Stamford was the subject of a 2008 report by Project for Public Spaces ("PPS"), and a study of walkability/bikeability is currently being conducted with a report to the Western Connecticut Council of Governments expected next year. The PPS report identified several existing barriers to walkability in downtown and around the STC, including:

- Streets oriented toward high-speed traffic rather than pedestrians;
- Lack of wayfinding signage;
- Failure to use the STC as an anchor for walkable development;
- Lack of amenities such as seating, lighting, and landscaping;
- Failure to activate the plaza in front of the UBS building; and
- Buildings without active ground-floor uses. [25]

Auto-oriented streets near the STC



Figure 9. (Photos: Robin Stein, City of Stamford).

The PPS report recommended numerous improvements, both near-term and long-term. Some of the key areas of focus were activation of the UBS plaza, increasing the crossing time for pedestrians at major intersections, attracting street-level commercial uses to the area around the STC, and improving the pedestrian and bicyclist experience along Washington Boulevard as they cross into the station.

On the other side of the STC, Atlantic Street has the potential to become a key linkage between downtown destinations and the growing population in the South End. With major regional destinations such as the Stanford Town Center just north of the STC between Atlantic and Canal Streets, residents of the South End could be within an easy walk, bike, or bus trip along Atlantic Street. However, for a significant stretch between downtown and the South End, Atlantic Street is bordered by parking garages, empty lots, and office buildings. These uses offer little to interest passing pedestrians or bicyclists and can even make the

^{[24] &}quot;The Jobs and Transit Connection," memo to the Central Corridor Funders Collaborative, Reconnecting America, 2012, <u>http://www.funderscollaborative.org/wp-content/uploads/2016/03/The-Jobs-and-Transit-Connection.pdf</u>.
[25] "Walkable Stamford: Recommendations for Creating a Pedestrian-Friendly Downtown," Project for Public Spaces, August 2008, pp. 10-11.

trip feel unsafe. Lining Atlantic Street with neighborhood shops, parks, and restaurants would activate the entire corridor and create a seamless connection between people living in the South End and the attractions of downtown.

For this reason, the Atlantic Street Bridge replacement, has the potential to make a tremendous difference for pedestrians, if done right. The state is replacing the old railroad bridge that leads east out of the STC, and reconstructing the portion of Atlantic Street that runs underneath. This project represents a prime opportunity to put into place the type of multimodal improvements that will help to create a seamless connection between the two neighborhoods.

The existing underpass at Atlantic Street provides 8-foot sidewalks, separated from traffic by the bridge support structure. The effect is a dark and forbidding journey between Downtown and Station Place, a key access point for the station and the site of proposed mixed-use development. The project calls for improvements to the pedestrian pathway through the underpass, but it is not clear whether the project will, in fact, result in a safer, more inviting journey by foot. A rendering of the finished project shows a sidewalk immediately adjacent to the right-hand traffic lane, with no barrier or buffer between pedestrians and cars.

Existing Path under Atlantic Street Bridge

Which path is more inviting? Which provides better protection for pedestrians from passing vehicles? How can both goals be realized?



Proposed Path under Atlantic Street Bridge



These pages were extracted from the "Stamford Master Plan"







STAMFORD MASTER PLAN



DECEMBER, 2014 ATTACHMEN

CHAPTER 4.0: A REGIONAL CENTER: TRANSPORTATION AND MOBILITY

Goals

- Address regional roadway congestion and improve commuter rail
- Improve intra-city mobility for all modes (vehicles, transit, pedestrians and bicyclists)
- Promote transit-oriented development

A. Introduction

Improving Stamford's transportation infrastructure is a critical component of the City's economic development strategy. Mitigation of traffic congestion and improvements to commuter rail are essential to sustaining and enhancing economic growth in the city. Traffic congestion on I-95 and the Merritt Parkway and system failures on Metro-North's New Haven line are compromising Stamford's ability to attract economic growth and capture regional demand for entertainment and culture. As shown in Figure 7, I-95 carries approximately 140,000 to 150,000 vehicles per day through Stamford, and the Merritt Parkway carries another 57,000 to 68,000 vehicles. The South Western Regional Planning Agency (SWRPA) projects that congestion on these roadways will continue to grow, with rush-hour traffic reaching consistently severe congestion levels from Greenwich to Westport by 2030 (see Figure 8). At the same time, continued mechanical failures and service interruptions on the New Haven line affect the reliability and performance of the City's commuter rail service. According to a report published by the Regional Plan Association (RPA), \$3.6 billion in additional investment above ConnDOT's current five-year capital plan is needed to bring the New Haven line into a state of good repair within 10 years.⁷ Further system upgrades to reduce travel times and accommodate growth in ridership would require substantial added investment. Without these investments, Stamford's economic growth potential will be constrained by significant access restrictions.

Within the City, roadway and transit improvements and new pedestrian and bicycle connections are needed to effectively get people where they need to go and enhance Stamford's vitality as an appealing, pedestrian- and bicycle-friendly city. Attractive, functional streetscapes and integrated circulation networks that serve all users are key components of the City's strategy for attracting businesses and employees and improving residential quality-of-life. High Ridge and Long Ridge Roads serve as Stamford's primary north-south access routes; east-west access is provided mainly via East and West Main Street (Route 1), which serve as key gateways to the City and will be the next phase of development in the evolution of Stamford over the next 15 years. These roadways provide critical intracity mobility. Traffic along them presents a challenge to neighborhood quality-of-life as drivers seek alternate routes. Bus service does not provide an attractive alternative to driving along these and other routes for those with access to a car. While buses have the potential to transport more people within Stamford and thus reduce traffic congestion, as described below, the current system does not meet the needs of many residents and commuters.

⁷ Getting Back on Track, Unlocking the Full Potential of the New Haven Line, RPA, January 2014.

Stamford Master Plan – Chapter 4.0: A REGIONAL CENTER: TRANSPORTATION AND MOBILITY 12/16/14

B. Mobility Improvements

Stamford's 2002 Master Plan recognized the critical relationship among traffic, transit and growth. A Traffic and Transit Report that accompanied the Master Plan recommended a combination of strategies to address traffic congestion and support economic development. These strategies included transportation demand management (TDM), significant transit improvements and the introduction of substantial new housing development in areas close to Downtown, specifically:

- Lowering parking ratios and increasing floor area ratios near transit
- Allowing for transfer of development rights
- Adding parking at stations east of Stamford
- Adding bus service to meet trains at the Stamford Transportation Center
- Adding train service

Since 2002, Stamford has been actively studying a range of transportation and mobility improvements including transit, pedestrian, bicycle and roadway projects. The City has created new residential development in the South End near the Stamford Transportation Center. Parking ratios for these new residences reflect reduced parking demand for housing near transit. This has been an effective strategy for mitigating the impacts of growth on traffic congestion. There are also a variety of improvements underway at the Stamford Transportation Center, including:

- Platform extensions
- New pedestrian bridge over Washington Boulevard
- Improvements to the Atlantic Street bridge, which will enhance connectivity between Downtown and the South End
- Improvements to the I-95 off-ramp at Atlantic Street to relieve congestion and conflicts
- Widening of State Street to three lanes
- Reorganization of shuttle parking and loading areas

In addition, the State of Connecticut, working with a private developer, has initiated plans to create significant new commercial, residential and retail development at the Stamford Transportation Center. As proposed, the State's transit-oriented development (TOD) plan will include approximately 600,000 square feet of commercial/office space, 60,000 square feet of retail, 150 residential units and a 150-room hotel. As the State moves forward with its plan, coordination with the City will be essential to ensure that the scale of the development and proposed uses are consistent with the City's overall vision for the train station area. As expressed in the Stamford Transportation Center Master Plan prepared in 2010, this area is envisioned as a lively transit hub that provides important transit connections, relates well to pedestrians and bicyclists and provides opportunities for people to live and work in close proximity to transit.

Stamford's two other train stations, which are on the New Canaan branch line, also provide important opportunities for TOD. The City is planning for two new village centers at its Glenbrook and Springdale train stations. This project, which was recommended in the 2002 Master Plan, envisions new mixed-use transit-oriented infill development in a compact area around these stations.

Stamford Master Plan – Chapter 4.0: A REGIONAL CENTER: TRANSPORTATION AND MOBILITY 12/16/14
Buses are another important component of the City's transit system, which must be better integrated into an overall plan for enhancing transit service (see Figure 9: Rail and Bus Routes). While bus ridership has steadily increased over the past several years, as shown in Chart 15, the bus system is designed as a traditional hub and spoke system centered on the Stamford Transportation Center, and does not meet the needs of many residents and commuters. Currently, many corporations provide private shuttle services to transport workers to and from the Stamford train station as an alternative to City bus service. Crosstown and north-south bus service is limited, requiring transfers at the transportation center, which presents a challenge for residents without cars living in neighborhoods outside Downtown such as West Side, Waterside and the East Side, and limits access from the north to amenities and public parkland in the South End. A transit project, the Urban Transitway, which has been implemented by the City, begins to address this issue. The Transitway provides a new high-occupancy-vehicle (HOV) lane and bicycle lane linking the Stamford Transportation Center and East Main Street. Other new transit improvements being piloted in the City include a new trolley service between Downtown and the South End. If successful, this service could be expanded to include other trolley routes providing intra-neighborhood transit.





Source: CT Transit

Stamford's bicycle and pedestrian networks are key components of its transportation infrastructure. As shown in Chart 16, from 2000 to 2010, the percentage of commuters who drove alone to their jobs fell from 70.1 percent to 66 percent, while all other modes – carpooling, public transportation walking and other means – increased as a percentage of total commuters. While these bicycle and pedestrian modes of transportation have traditionally been under-recognized and underutilized in the City, there is significant support for greater emphasis on cyclists and pedestrians and the role they will play in Stamford's future, especially in the Downtown, South End and train station area. These neighborhoods continue to evolve into dynamic urban spaces attracting new residents, businesses, entertainment and culture. Their ability to serve pedestrians and bicycles as well as cars will be essential to supporting the uses and activities that attract economic growth and investment.

Chart 16: Journey to Work Data, 2000 and 2010



Source: U.S. Census, 2000 Summary File 3 & 2010 ACS 1-Year Estimate

Currently, there are few designated bicycle routes in the City. However, as shown in Figure 10, a significant new north-south route is planned along the Rippowam River connecting Scalzi Park to Boccuzzi Park. In addition, the planned East Coast Greenway, a multi-state trail system intended to link the major cities of the East Coast, is proposed to pass through Stamford by utilizing the Merritt Parkway right-of-way. The Department of Transportation (ConnDOT) is studying the feasibility of constructing a multi-use trail along the parkway, as described below.

Many City sidewalks are unwelcoming, and conflicts between pedestrians and vehicles have resulted in numerous injuries, particularly in the Downtown. As shown in Figure 11, the most pedestrian/vehicular crashes have occurred at the intersection of Tresser and Washington Boulevards. Other dangerous locations include Tresser Boulevard and Atlantic Street, Broad and Atlantic Streets, and Broad and Summer Streets. Pedestrian improvements at these and other locations will be essential to increasing Downtown pedestrian traffic and supporting economic activity.

C. Transportation Studies

Since its last Master Plan was published in 2002, Stamford has conducted a number of studies on alternative ways to enhance mobility. These studies recommend a range of strategies for enhancing mobility including parking improvements, alternative modes of transit, traffic calming and roadway improvements, as summarized below.

Stamford Downtown Parking, Traffic and Pedestrian Plan, 2004

This study reviews the location and operation of parking facilities in the Downtown and addresses pedestrian safety and vehicular circulation. The plan recommends ways to make parking more convenient, improve the pedestrian experience, improve traffic circulation and expand public parking facilities.

Greenwich Avenue Corridor Study, 2005

This report studies conceptual plan alternatives for improving traffic circulation and safety, pedestrian circulation and streetscapes along Greenwich Avenue between South State Street and Selleck Street, in response to community requests for improved traffic operations and safety. The alternatives recommended by the study are to:

- Provide a "one-way pair" with Greenwich Avenue serving as a one-way southbound collector roadway and Davenport Street serving as a one-way northbound collector roadway.
- Provide a modern roundabout at the intersection of Greenwich Avenue, Pulaski Street and O&G Main Drive.
- Provide geometry improvements and a new traffic signal at the intersection of Greenwich Avenue, Southfield Avenue and Selleck Street.

Walkable Stamford, 2008

This report describes fundamental qualities of pedestrian-friendly downtowns and provides site-specific short- and long-term recommendations for enhancing walkability in Downtown Stamford. Locations addressed include:

- Washington Boulevard: Tresser to Richmond Hill
- Stamford Gateway
- Atlantic Street: Federal to South State Street
- Washington and Tresser Boulevards
- Broad Street and Atlantic/Bedford Street

Study recommendations discuss ways to make Stamford more pedestrian-friendly, improve wayfinding, increase public amenities and create a more pedestrian-friendly environment at the Stamford Transportation Center.

Downtown Streetcar Feasibility Study, 2010

This study, which was based on a recommendation of the 2002 Master Plan, evaluated the creation of a north-south transit corridor that would run through Downtown Stamford connecting north to the Merritt Parkway. Key travel nodes along the proposed route included Bull's Head and the Ridgeway shopping center area in the north, the UCONN Stamford, Stamford Town Center, the Stamford Transportation Center and Harbor Point in the South End. The study recommended that a priority bus corridor operated by CT Transit be initiated along the proposed route as a pilot program to test the alignment and ridership of a future fixed rail streetcar system.

Stamford Transportation Center Master Plan, 2010

The Stamford Transportation Center (STC) Master Plan presents an improvement plan for addressing existing STC deficiencies to enhance the capacity of the station, improve ridership and address regional highway congestion. Issues addressed in the Master Plan include physical plant deterioration, parking constraints, platform congestion and vehicle congestion. As discussed in the plan, addressing these issues will require a systematic investment program to transform the STC into a regional transportation

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These pages were extracted from the "Innovation District Connectivity & Wayfinding Plan"





Innovation District Connectivity & Wayfinding Plan

City of Stamford

PERFORMANCE SPECIFICATIONS & DESIGN INTENT | STM1523 | JUNE 2018





Attachment A3:

Project Description

ATTACHMENT A3

North State Street is a critical arterial which not only serves as a gateway to the City but also a portal between the Stamford Downtown and Waterfront. The estimated average daily traffic on North State Street is in excess of 15,000 vehicles; however, this number pales in comparison to the daily Metro North Railroad (MNR) boarding and alighting that takes place at the Stamford Transit Center, located along this roadway. The Stamford Transportation Center is the busiest MNR Station on the New Haven Line (with the exception of Grand Central) and has made national attention as it is home to the busiest Shuttle Operations in the country (on a per square-foot basis). Additionally, the North State Street corridor supports the densest development in the City. Within just a quarter (1/4) mile of the corridor there are eleven (11) major projects either built within the last year, currently under construction or planned for the immediate future. All of these projects are vital to the continued prosperity of the City and the region, as the economic engine for the State.

The North State Street Multimodal Gateway project proposes to remove one travel lane from the roadway between Atlantic Street and Elm Street and install a two-way cycle track on the north side of the roadway along with safety enhancements, wayfinding signage, and lighting, landscaping, and streetscaping improvements to create a true multi-modal Gateway to Downtown Stamford. *City leaders are committed to realizing this project and have pledged to provide \$2,000,000 of the funding, 35% of the total project cost.* They are also committed to keeping costs for the project as low as possible by seeking to reuse or repurpose any existing materials and appurtenances where feasible (granite curb, ornamental lights, etc.) These options will be examined in more detail during the design phase.

The proposed project corridor is approximately 3,150 feet long. Considering the project in three segments, segment 1 is 500 feet long and located on the north side of North State Street West of Atlantic Street. For this segment the cycle track will be extended along the North side of the existing roadway (in its current configuration) to just West of Guernsey Street where it will provide improved access for bicyclists to the Stamford Transportation Center. Segment 2 is 1,150 feet long and located between Atlantic Street and Greyrock Place and consists of the removal of a travel lane and installation of a cycle track between the roadway and existing sidewalk. Segment 3 is 1,500 feet long and located between Greyrock Place and Elm Street and also consists of the removal of a travel lane and installation of a cycle track between the roadway and existing sidewalk.

In addition to providing improved access to the Stamford Transportation center, the proposed cycle track will also provide a connection to the bike lanes that have been proposed to be added along Atlantic street between South State Street and Broad Street. Along the North State Street cycle track, landscaped buffers will be provided between the sidewalk and the cycle track and where space allows, landscaping will be provided on the buffers between the cycle track and the roadway. Features will also be included such as enhanced lighting, streetscaping, and wayfinding signage. Traffic

signal revisions are proposed to accommodate the two-way cycle track at the intersections of North State Street at Atlantic Street, North State Street at Canal Street, and North State Street at Elm Street. It is intended for this project to transform this corridor, which serves as a transition zone between I-95 or the Stamford Transportation Center and downtown Stamford, into a comfortable and appealing route for active transportation modes, while also providing a more attractive and safer gateway to the City for motor vehicles.

Options considered were 1) to upgrade the existing sidewalk area into a multi-use path 2) to provide landscaping, streetscaping, and wayfinding enhancements to the existing sidewalk (with no designated facility for bicycles) while maintaining the existing motor vehicle travel lanes and 3) to maintain the existing conditions.

Attachment A4:

Project Location Map Project Concept Plan Project Typical Sections Project Concept Visualizations









North State Street - Multimodal Gateway City of Stamford

April 2021

Conceptual Plan













Sta 28+00 to 29+70 / Sta 31+75 to 32+40 / Sta 36+20 to 36+75





Concept Plan

North State Street Multimodal Gateway

North State Street and Greylock Place Intersection



• 3-4' Buffer



Not To Scale Stamford, CT ATTACHMENT A4

Segment 1 Work Within Existing Corridor Segment Distance -1050 Linear Feet +/-

- Adjust Existing Buffer
- 10-12' Cycle Track
- Adjust Existing Pedestrian Walk Way
- 3-5' Planting Island
- Drop Off Area Removed

Adjust and Enhance Existing Pedestrian Walk (Typ.)

·胡迪斯市美国和大学和中国

100000000

and the second second

Multimodal Transportation Hub: Trafflic, Wayfinding and Site Enhancements

Concept Plan - Corridor Segment 1

North State Street Multimodal Gateway





North

Not To Scale Stamford, CT ATTACHMENT A4



Bird's Eye View Looking Northeast from North State Street at Atlantic Street

North State Street Multimodal Gateway

March 2020



Perspective View Looking Northeast from North State Street at Atlantic Street

North State Street Multimodal Gateway

March 2020



Perspective View Looking West at the Segment 2 Corridor

North State Street Multimodal Gateway



Perspective View Looking West at the Segment 3 Corridor

North State Street Multimodal Gateway



Perspective View Looking West at a Parking Ingress/Egress

North State Street Multimodal Gateway



Bird's Eye View Looking Down at the Segment 3 Corridor

North State Street Multimodal Gateway

Attachment A8:

Recent, Ongoing, and Planned Area Development Descriptions

Reference for City's Current Developments Map

Recent Area Improvement Descriptions

Plans or Visualizations for:

- relocation of I-95NB Exit 8 off ramp
- redesign of Atlantic Street under the Railroad and I-95 bridges
 - proposed re-striping of Atlantic Street
 - Visualizations for Veterans Park

ATTACHMENT A8

Recent, Ongoing, and Planned Area Developments:

The following developments are located within a quarter mile radius of North State Street and its intersections with Elm Street, Canal Street, Atlantic Street and Washington Boulevard. The subsequent developments have either been built within the last year, are currently under construction, or have been approved or are planned. Collectively these developments are anticipated to greatly increase the volume of driver, transit rider, pedestrian and cyclist activity downtown:

South State Street – CTDOT (Proposed) – 960 Space Commuter Parking Garage.

Charter Spectrum World HQ, 406 Washington Boulevard (Under Construction) – 777,000 S.F. Office Space.

Station Place – Empire State Realty Trust (Approved) – 385,000 S.F. Office Space.

Metro Green Phase 4, 695 Atlantic Street – Jonathan Rose Companies (Under Construction) – xx Units.

677 Washington Boulevard – George Comfort & Sons (Under Construction) – Building Renovations for WWE World Headquarters Re-location.

Atlantic Station Phase 2 – RXR/Cappelli (Under Construction) – 325 units & 14,100 S.F. Retail. Phase 1 which was also 325 units & 14,100 S.F. Retail was completed in 2018.

URBY Stamford, 57 Greyrock Place (Completed Nov. 2019) – 648 Apartment Units and 5,090 S.F. Ground Floor Retail Space.

The Smyth, 885 Washington Boulevard – Lennar Multifamily (Under Construction) – 414 Apartments and 19,333 S.F. Ground Floor Retail Space.

True North, 245 Atlantic Street (Under Construction) – 292 Apartments and Fitness Facility.

St. John's Church Piazza, 279 Atlantic Street (Under Construction)

523 Canal Street – Fee FD, LLC (Under Construction) – 173 Units and 1,602 sf Community Space.

Woodland at Pacific – 540 Apartments.

BLT Parcels 1-6 – 1,230 Apartments.

Metro Green Phase 4 – 21 units

for additional information refer to



https://www.choosestamford.com/research-data/pages/current-developments-map

Recent Area Improvements:

- CTDOT State Projects 135-326 & 135-301 Atlantic Street Bridge and Metro-North Railroad Bridge: These CTDOT projects involve the relocation of the Interstate-95 Northbound Exit 8 Off Ramp from Atlantic Street to Canal Street with the construction of a new bridge for the off-ramp over Atlantic Street. Another phase involves replacing the Metro-North Railroad bridge over Atlantic Street, and includes geometric, streetscaping, and multimodal enhancements to Atlantic Street in the vicinity of the bridges. The final design of the Atlantic Street Bridge Underpass will provide bike lanes in both directions connecting the Stamford Urban Transit Way (to the south) to the City's Core (to the north). Pavement Markings and Roadway Striping Plans for the section of Atlantic Street, between Tresser Boulevard and U.S. Route 1 are currently under final design and will be implemented with the milling and repaving of Atlantic Street, scheduled by the City for next year. There are graphic included in the following pages to illustrate these improvements.
- Stamford Urban Transitway- This 1.2 mile long corridor project provides a direct link between the Stamford Transportation Center (south of I-95) and US Route 1 to the east (north of I-95) via Dock Street, Jefferson Street, and Myrtle Avenue. The project involved the reconstruction travel lanes (including one in each direction dedicated for the use of buses, taxis, private shuttles, and HOVs), bus priority, traffic signal improvements, a bicycle way, sidewalks and landscaping.
- Veteran's Park Rehabilitation: The City of Stamford is currently constructing a 5.5 million dollar renovation of Veteran's Park anticipated to be completed by Summer 2019. The park is located on the northeast corner of the Atlantic Street at Main Street intersection (the proposed project location) and will create a unique public gathering space that has not previously existed within the City's center. The Veteran's Park Rehabilitation is expected to drive additional pedestrian traffic within the City's core and through the proposed project intersection. There are graphics included in the following pages to showcase this project.
- **CTDOT State Project 135-320:** This is an intersection improvement project located south of I-95 at the intersection of Atlantic Street at Henry Street which realigned the intersection, added a left turn lane, replaced all pedestrian ramps, added curb extensions, and installed a new traffic control signal.

CTDOT SPN 135-326 INCLUDED THE RELOCATION OF I-95 NB EXIT 8 OFF RAMP TO EAST OF ATLANTIC ST.





Connecticut Department of Transportation

Existing Railroad Bridge



CTDOT SPN 135-301 INCLUDES THE REPLACEMENT OF THE METRO-NORTH RAILROAD BRIDGE AND ENHANCEMENTS TO ATLANTIC STREET

ACHMENT AB

ATTACH Connecticut Department of Transportation

Proposed Railroad Bridge





ATTACH Connecticut Department of Transportation

ATLANTIC ST RE-STRIPING PLAN







Stamford Veterans Memorial Park AUGust 2018



Perspective - Park Overview



Attachment F:

Bicycle and Pedestrian Needs Assessment Form



CONNECTICUT DEPARTMENT OF TRANSPORTATION BICYCLE AND PEDESTRIAN TRAVEL NEEDS ASSESSMENT FORM (BPTNA)



In accordance with Connecticut General Statutes, Section 13a-153f, Accommodations and Provisions of Facilities for All Users and the Department's Policy Statement No. EX.0-31, It is the policy of the Department to consider the needs of all users of all abilities and ages (specifically including pedestrians, bicyclists, transit users, and vehicle operators) in the planning, programming, design, construction, retrofit and maintenance activities related to all roads and streets as a means of providing a "safe, efficient transportation network which enhances quality of life and economic vitality." Therefore, the need for inclusion of accommodations specifically for bicyclists and pedestrians, including those with disabilities, must be reviewed for <u>every</u> project.

This form shall apply to all Department projects, mainline utility projects within the state right-of-way, the Office of the State Traffic Administration (OSTA) certificate applications receiving state or federal funding, and municipal transportation projects that receive state or federal funding. This form provides designers the documentation and information needed to make decisions on the need and extent of bicycle and pedestrian features that should be included in a project. This form is not intended to dictate what features should be included in a project design, as guidance on those questions can be found in numerous other reference documents. This form should be completed to the extent practical (at least Sections 1 & 2) during the project scoping phase and finalized by the completion of the Preliminary Design. Once signed, this form should be retained with the project documents.

Project Number(s):	Route(s):	
Project Name:		
Municipality(s):	Planning Region(s):	:

SECTION 1: APPLICABILITY					
Although bicycle and pedestrian accommodations should be considered for all projects, certain types of projects (e.g. bridge deck patching, culvert re-lining, projects on expressway mainlines) do not typically provide reasonable opportunity to provide improvements for these travel modes. Considering the <u>project</u> type answer the question below. If the question below is answered <u>no</u> , please explain why, then skip to the last page, sign the form, and file this form with the project documents. If the answer is <u>yes</u> , go to Section 2 and complete the rest of the form.					
Yes 🗆	No 🗆				
	patching, cul es. Consideri m, and file th Yes 🗆				

SECTION 2: ASSESSMENT OF STUDY AREA	
2.1 Study Area Map	
Identify any non-motorized and/or transit generators located within the Study Area (Study Area is generally defined as approximately ½ mile radius from project limits). Using the letters in the code column below, create a map from a location plan or aerial photograph indicating the location of existing or planned non-motorized or transit user generators identified below (for planned facilities, precede the letter with a P-).	n the
Non-Motorized/Transit User Generators	Code
Residential Areas: Indicate any general areas of dense residential housing	R
Parks: Include areas that would attract people, whether officially designated as a park or not	Р
Recreational Areas: Examples include athletic fields, dog parks	RA
Religious Facilities	С
Schools (including public and private schools, colleges, universities, daycare or other educational institution)	S
Health / Medical Facilities	н
Town Centers: typically would include areas where Town Halls, Libraries and other public facilities exist	тс
Shopping Centers: especially centers with businesses where non-motorized customers might be expected (restaurants, bookstores, drug stores, etc.)	М
Large Employment Businesses: Factories, large office buildings, hospitals, government offices	Е
Bus Stops	В
Public Transit Facilities: train/bus stations, airports	т
Shared-use trail access / parking	ТА
Other: other known facilities expected to generate or attract non-motorized users	ο
CTDOT BPTNA v3.0 Rev. July 30, 2018

2.2 Analysis of Study Area		2.2 Analysis of Study Area									
Using the map prepared in Section 2.1, and the resources suggested below, answer the follo about the study area. [For State/District-wide or Division of Traffic Engineering projects wit locations use the "Multi-location Table" at: <u>https://www.ct.gov/dot/lib/dot/bptna-table</u> to answer questions marked with an (*)]	wing questions : h many multiloc.docx	Explain as needed (attach additional sheet(s) if needed)									
a. * Referencing the CTDOT Interactive Bike Map located at: <u>http://www.ctbikepedplan.org/interactivemap.html</u> is this project located on the Connecticut Statewide On-Road or Off-Road Bicycle Planning Network?	Yes 🗌 No 🗌										
 * Have all existing bicycle, pedestrian and transit features within and just beyond the project limits (such as: features and ADA accessibility of existing bus stops, sidewalks, shoulder widths, bicycle markings/signs, shared-use paths, etc.) been identified and assessed for condition and need? (If assistance is needed identifying Transit requirements a request can be sent to: <u>DOT.PTransBikePed@ct.gov</u>) 	Yes 🗌 No 🗌										
C. * Are there any areas of concern where physical impediments to non-motorized travel through the study area exist? Physical impediments can be excessive grade, limited width of roads/bridges, gaps or need for sidewalks (indicated by worn foot paths), utility poles or other appurtenances restricting access, etc.	Yes 🗌 No 🗌										
d. * Is there any reason to anticipate an increase in travel by non-motorized and /or transit users through the project limits in the future?	Yes 🗌 No 🗌										
 * Based on the U.S. Access Board's <u>Proposed Guidelines for Pedestrian Facilities in</u> <u>the Public Right-of-Way (PROWAG)</u>, are there barriers to mobility inhibiting continuous access between schools, hospitals, senior care, or community centers, etc. for persons with disabilities that <u>cannot</u> be addressed in this project? 	Yes 🗆 No 🗆										
 f. * Is there a pattern of bicycle or pedestrian crashes within the project area? Crash information can be found by accessing the UCONN Crash Repository at (<u>https://www.ctcrash.uconn.edu/</u>). 	Yes 🗆 No 🗆										

CTDOT BPTNA v3.0 Rev. July 30, 2018

g.	 Does the project provide <u>unique or primary access</u> (defined as access which is not otherwise available within approximately one-half mile of the project) : across a river, highway corridor or other natural and/or man-made barrier? into or out of any of the bicycle and pedestrian generators listed above? between communities? 	Yes 🗌 No 🗌 Yes 🗌 No 🗐 Yes 🗌 No 🗌	
h.	Is the project located near or provide new access or connectivity to state parks, forests or CT Designated Greenways? Information on State Parks, Forests and Greenways can be found at: <u>http://www.ct.gov/deep/cwp/view.asp?a=2707&q=323852</u> and <u>http://www.ct.gov/deep/parkmaps</u> If yes, please notify the Trails and Greenways Program Coordinator at the Department of Energy & Environmental Protection, State Parks Division, by sending a location and description of the project to: <u>deep.stateparks@ct.gov</u> . This is for notification and not intended to be a formal review and /or concurrence.	Yes 🗌 No 🗌	
i.	In accordance to the Complete Streets Policy, the Department will include non- motorized users in traffic counts to the extent possible. Has the existing pedestrian and/or bicyclist usage patterns within the project limits, particularly at intersection and midblock crossings, been observed / collected?	Yes 🗌 No 🗌	
j.	Has there been any documented public concern or comments about non- motorized and/or transit needs in the area?	Yes 🗌 No 🗌	
k.	Are there any comprehensive regional or local planning documents (such as Complete Streets Plan, Sidewalk Plan, Plan of Conservation & Development, etc.) that address bicyclists, pedestrian or transit user conditions within or proximate to the project limits? (Can usually be found on applicable website) Contact the RPO Coordination or Intermodal Planning units in the Bureau of Policy and Planning if assistance is needed.	Yes 🗌 No 🗌	

SECTION 3: NON-MOTORIZED AND TRANSIT ACCOMMODATIONS

Identify any non-motorized and/or transit user accommodations/improvements that may be considered as part of this project. This section is provided as a list of countermeasures that may be appropriate and is not intended to dictate what features should be included in the project design. [For State/District-wide or Division of Traffic Engineering projects with many locations answer this section by considering all sites as if they were one location]

3.1 Pedestrian Facilities and Crossing Treatments		3.2 Bike Facilities (Cont.)					
a. New sidewalks	Yes 🗆 N/A 🗆	e. Signage and/or pavement markings	Yes 🗆 N/A 🗆				
b. Pedestrian median crossing island	Yes 🗌 🛛 N/A 🗌	f. Bicycle parking, bike racks/lockers	Yes 🗌 🛛 N/A 🗌				
c. Curb extension/bulb-outs	Yes 🗌 🛛 N/A 🗌	g. Trail Improvements, including parking	Yes 🗆 N/A 🗆				
d. Reduced Corner Radius	Yes 🗌 🛛 N/A 🗌	h. Special height railings	Yes 🗆 N/A 🗆				
e. Pedestrian bridge/tunnel	Yes 🗌 🛛 N/A 🗌	3.3 Bike & Pedestrian Treatments					
f. New or relocated unsignalized or mid-block crossing	Yes 🗌 N/A 🗌	a. Road diet	Yes 🗆 N/A 🗆				
g. Enhanced illumination at pedestrian crossings	Yes 🗆 N/A 🗆	b. Narrowing travel lane width	Yes 🗆 N/A 🗆				
h. Pedestrian signing and yield lines	Yes 🗌 🛛 N/A 🗌	c. Corridor-wide speed calming	Yes 🗌 N/A 🗌				
i. Parking restrictions near crossings	Yes 🗌 N/A 🗌	3.4 Transit Facilities					
j. Pedestrian hybrid beacon [PHB; also known as		a. New or revised bus stops	Yes 🗌 N/A 🗌				
(HAWK)]	Yes 🗆 N/A 🗆	b. Bus shelters	Yes 🗆 N/A 🗆				
k. Rectangular rapid flashing beacon (RRFB)	Yes 🗆 N/A 🗆	c. Standing pads	Yes 🗆 N/A 🗆				
I. Pedestrian fencing on bridges	Yes 🗌 🛛 N/A 🗌	d. New or revised crossing for bus stop	Yes 🗆 N/A 🗆				
		3.5 Streetscape Elements					
3.2 Bike Facilities		 Landscaping, street trees, planters, buffer strips, etc. 	Yes 🗌 N/A 🗆				
a. Dedicated bike lane or cycle track	Yes 🗆 N/A 🗆	b. Decorative lighting	Yes 🗆 N/A 🗆				
b. Shared-used lanes	Yes 🗌 N/A 🗌	c. Public seating or benches	Yes 🗌 N/A 🗆				
c. Shared-used path	Yes 🗌 🛛 N/A 🗌	3.6 Other (please specify):					
d. Wider shoulders	Yes 🗆 🛛 N/A 🗆						

Once completed this form should be signed, attached to the Preliminary Design Statement, and filed with the project documents in ProjectWise. If the answer to the question under Section 1 "Applicability" is "Yes", please email the link to the completed form in ProjectWise (or a PDF copy) to: <u>CTDOT.BikePedReviews@ct.gov</u>. Comments will be provided if necessary however, designers are not required to obtain concurrence to move forward with design. This form will be maintained and periodically updated by the Office of Strategic Planning & Projects in the Bureau of Policy & Planning.

Prepared By:	Kaethe V. Podgorski	
	MA V My Signature	4/27/21
Approved By:	Jay Bertoli	
_	Signature	4/27/21



- Residential Areas: R
- Parks: P
- Recreational Areas: RA
- Religious Facilities: C
- Schools: S
- Health/Medical Facilities: H
- Town Centers: TC
- Shopping Centers: M
 - Large Employment Businesses: E
- Bus Stops: B
- Public Transit Facilities: TC
- Shared-use Trail access: TA

Attachment G:

Traffic Volumes

- ADT
- 2021 Baseline TMCs
- 2041 Projected TMCs
- Mid-block Pedestrian Volumes

Crash Data

- Summary Tables
- Crash Diagrams

Traffic Signal Improvement Plans

- North State Street at Atlantic (installed 2020 State Project #135-301)
- North State Street at Canal Street (to be replaced under current State Project #135-337).
 - North State Street at Elm (to be replaced under current State Project #135-337)

CTDOT COUNT WAS COLLECTED IN 2011 APPLYING A 0.5% ANNUAL GROWTH RATE: 2020 ADT = 8,060 VPD

2040 ADT = 8,900 VPD



STAMFORD

CONNECTICUT

PREPARED BY THE

CONNECTICUT DEPARTMENT OF TRANSPORTATION

IN COOPERATION WITH THE U.S. DEPARTMENT OF TRANSPORTATION MACHINE LOCATIONS (231) 2014 ADT

COUNTED: JUL/AUG/SEP

PORTABLE	odt 2500 station number 25 indicator
	indicator





PROJ. NO: 20100591.T85

FIGURE 2: 2021 BASELINE TRAFFIC VOLUMES

GATEWAY TRAFFIC STUDY, STAMFORD, CT

February 2019

2041 AM VOLUMES



2041 PM VOLUMES





1/1/2015-12/31/2019 Crashes

along North State Street between Guernsey Ave and Elm St (Milepost 0.00-0.66) Stamford, CT

Source: Connecticut Crash Data Repository



	Year By Manner of Crash / Collision Impact:Crashes										
	Front to rear	Front to front	Angle	Sideswipe, same direction	Sideswipe, opposite direction	Rear to side	Rear to rear	Not Applicable	Other	Unknown	Total
2015	13	0	13	15	0	0	0	3	1	0	45
2016	8	0	9	25	0	0	0	1	2	0	45
2017	6	1	11	23	1	. 0	0	0	0	0	42
2018	4	2	17	17	2	0	0	2	2	0	46
2019	11	1	19	17	1	0	0	3	2	0	54
Total (#)	42	4	69	97	4	0	0	9	7	0	232
Total (%)	18.1%	1.7%	29.7%	41.8%	1.7%	0.0%	0.0%	3.9%	3.0%	0.0%	100.0%

	Year By Road Surface Condition:Crashes												
	Dry	Wet	Snow	Slush	lce / Frost	Moving Water	Sand	Mud, Dirt, Gravel	Oil	Standing Water	Other	Unknown	Total
2015	32	8	2	0	2	0	0	C	0	C	0	1	45
2016	41	4	0	0	0	0	0	C	0	C	0	0	45
2017	34	7	1	0	0	0	0	C	0	C	0	0	42
2018	41	5	0	0	0	0	0	C	0	C	0	0	46
2019	42	12	0	0	0	0	0	C	0	C	0	0	54
Total (#)	190	36	3	0	2	0	0	0	0	0	0	1	232
Total (%)	81.9%	15.5%	1.3%	0.0%	0.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.4%	100.0%

	Year By Light Condition:Crashes									
	Daylight	Dawn	Dusk	Dark-Lighted	Dark-Not Lighted	Dark- Unknown Lighting	Other	Unknown	Total	
2015	30	0	1	14	0	0	0	0	45	
2016	29	0	1	11	0	3	0	1	45	
2017	32	1	2	7	0	0	0	0	42	
2018	32	0	0	10	4	0	0	0	46	
2019	39	0	2	12	1	0	0	0	54	
Total (#)	162	1	6	54	5	3	0	1	232	
Total (%)	69.8%	0.4%	2.6%	23.3%	2.2%	1.3%	0.0%	0.4%	100.0%	

	Year By Time of Day:Crashes									
	6:00 AM - 10:00 AM	10:00 AM - 4:00 PM	4:00 PM - 7:00 PM	7:00 PM - 12:00 AM	12:00 AM - 6:00 AM	Total				
2015	10	14	12	9	0	45				
2016	5	16	14	7	3	45				
2017	13	12	9	7	1	42				
2018	10	17	8	10	1	46				
2019	13	20	11	6	4	54				
Total (#)	51	79	54	39	9	232				
Total (%)	22.0%	34.1%	23.3%	16.8%	3.9%	100.0%				

			Yea	r By Day of the We	ek:Crashes			
	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Total
2015	2	7	9	5	11	5	6	45
2016	4	6	7	7	9	5	7	45
2017	3	4	11	4	14	3	3	42
2018	13	4	5	3	10	7	4	46
2019	8	8	11	6	6	9	6	54
Total (#)	30	29	43	25	50	29	26	232
Total (%)	12.9%	12.5%	18.5%	10.8%	21.6%	12.5%	11.2%	100.0%

						Year	By Month:Crashe	25					
	January	February	March	April	May	June	July	August	September	October	November	December	Total
2015	2	2	6	5	3	9	4	1	. 5	2	4	2	45
2016	8	5	3	3	4	2	4	4	1	1	5	5	45
2017	2	3	2	6	3	3	3	2	4	5	5	4	42
2018	9	4	1	5	8	3	5	C	4	2	2	3	46
2019	4	9	6	1	1	5	3	4	6	3	5	7	54
Total (#)	25	23	18	20	19	22	19	11	20	13	21	21	232
Total (%)	10.8%	9.9%	7.8%	8.6%	8.2%	9.5%	8.2%	4.7%	8.6%	5.6%	9.1%	9.1%	100.0%



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CONSTRUCTION NOTES

(REVISION #XX)

ALL TRAFFIC SIGNAL EQUIPMENT IS NEW EXCEPT AS NOTED.

THE CONTRACTOR SHALL STAKE ALL RIGHT OF WAY PRIOR TO EXCAVATION.

ALL WORK, EQUIPMENT, AND MATERIALS SHALL BE IN ACCORDANCE WITH THE LATEST STANDARD DETAILS AND SPECIFICATIONS OF THE CITY OF STAMFORD AND CTDOT FORM 817.

ANY PROPOSED REVISIONS TO THE LOCATION OF THE APPURTENANCES SHOWN ON THE PLAN MUST BE SUBMITTED FOR REVIEW AND APPROVAL BY THE CITY PRIOR TO INSTALLATION.

UTILITY LOCATIONS ARE FOR INFORMATIONAL PURPOSES ONLY AND SHALL BE CONSIDERED APPROXIMATE. THE CONTRACTOR SHALL CONTACT "CALL BEFORE YOU DIG" AT 1-800-922-4455 PRIOR TO COMMENCING CONSTRUCTION.

THE CONTRACTOR SHALL CONTACT THE CITY OF STAMFORD AT (203)977-5809 IN ORDER TO HAVE THE WATER CONTROL BUREAU LOCATE SANITARY AND STORM SEWERS AND LATERALS. THE CONTRACTOR SHALL REMOVE ALL ABANDONED TRAFFIC SIGNAL EQUIPMENT.

ALL SALVAGEABLE TRAFFIC SIGNAL EQUIPMENT SHALL BE RETURNED TO THE CITY OF STAMFORD TRAFFIC SIGNAL MAINTENANCE FACILITY ON CRESCENT STREET. CONTACT MR. PAUL MONTANARO AT (203)977-4704 THREE WEEKS PRIOR TO CONSTRUCTION TO COORDINATE.

SIGNAL APPURTENANCES WHEN IN OR ADJACENT TO SIDEWALK SHALL BE FIELD LOCATED TO PROVIDE A FREE PATH OF NOT LESS THAN FOUR FEET.

OPTICAL DETECTOR LOCATIONS ARE FOR ILLUSTRATION ONLY. EXACT LOCATIONS SHALL BE DETERMINED BY THE MANUFACTURER OR THEIR DESIGNATED REPRESENTATIVE. OPTICAL DETECTOR CABLES ARE TO BE INSTALLED CONTINUOUS BETWEEN EACH OPTICAL DETECTOR AND THE CONTROLLER CABINET.

THE CONTRACTOR SHALL REPLACE ENTIRE SECTION OF SIDEWALK AND/OR CURBING DAMAGED DUE TO THE INSTALLATION AND/OR REMOVAL OF CONDUITS, HANDHOLES, OR FOUNDATIONS.

CABINET DOOR TO OPEN STREET SIDE.

VIDEO DETECTOR LOCATIONS ARE FOR ILLUSTRATION ONLY. EXACT LOCATIONS SHALL BE DETERMINED BY THE MANUFACTURER OR HIS DESIGNATED REPRESENTATIVE.

INSTALL CROSSWALK AS SHOWN.

REVISE MEDIAN ON CANAL ST AS SHOWN.

ERADICATE STOP BARS AND INSTALL NEW STOP BARS ON WESTBOUND AND SOUTHBOUND APPROACHES AS SHOWN.

INSTALL LANE-USE ARROWS ON AS SHOWN.

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EXISTING HANDHOLE

CCTV CAMERA

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$\langle R \rangle$ INSTALL CLOSED CIRCUIT TELEVISION CAMERA ON 10 FOOT BRACKET.	
$\langle U \rangle$ INSTALL ILLUMINATED STREET SIGN ON MAST ARM (4'x1').	
$\langle V \rangle$ INSTALL VIDEO DETECTION CAMERA ON 15 FOOT BRACKET.	
$\langle X \rangle$ construct type 3 sidewalk ramps per detail sheets.	
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CONTRACTOR TO COORDINATE MAST ARM INSTALLATION WITH UTILITY COMPANIES	
CABLE.	
INSTALL PEDESTAL FOUNDATIONS ADJACENT TO LANDING AREA.	
PROVISION, 1.07 – LEGAL RELATIONS AND RESPONSIBILITIES.	
ALL SIGNAL EQUIPMENT IS TO BE FURNISHED WITH FEDERAL STANDARD NO. 595A, BLACK MATTED FINISHE	ID, 37038 / /
PROPOSED WOOD SPAN POLE -&- PROPOSED UTILITY POLE	

• EXISTING WOOD SPAN POLE PROPOSED STEEL SPAN POLE EXISTING STEEL SPAN POLE

PEDESTRIAN PUSH BUTTON & SIGN LOOP DETECTOR



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Attachment J:

Estimate

Opinion of Cost | City of Stamford LOTCIP Application North State Street Cycle Track Improvements- Stamford, CT STA. 5+00 TO 37+25 TRANSPORATION CENTER to ELM STREET

Major and Mir	nor Contract Items			4/20	0/2020 Rev. 4/27/	2021					
Item No.	Item	Unit	Quantity		Unit \$	Total Cost	LOTCIP PART. (%)	LOTCI V/	IP PART. ALUE	CITY VA	ALUE
0202001	EARTH EXCAVATION (UNCLASSIFIED)	СҮ	4525	\$	25.00	5 113,125.00	100.00%	\$ 1	13,125.00	\$	_
0202529	CUT BITUMINOUS CONCRETE PAVEMENT	LF	3200	\$	2.50	\$ 8,000.00	100.00%	\$	8,000.00	\$	-
0209001	FORMATION OF SUBGRADE	SY	6925	\$	3.00	\$ 20,775.00	100.00%	\$	20,775.00	\$	-
0219011	SEDIMENTATION CONTROL SYSTEM AT CATCH BASIN	EA	14	\$	145.00	2,030.00	100.00%	\$	2,030.00	\$	-
0304002	PROCESSED AGGREGATE BASE	TON	4850	\$	45.00	218,250.00	100.00%	\$2	18,250.00	\$	-
0406171	HMA S0.5 (CYCLE TRACK)	TON	575	\$	114.00	65,550.00	100.00%	\$	65,550.00	\$	-
0406172	HMA S0.375 (CYCLE TRACK)	TON	575	\$	114.00	65,550.00	100.00%	\$	65,550.00	\$	-
0406236	MATERIAL FOR TACK COAT	GAL	425	\$	6.60 \$	2,805.00	100.00%	\$	2,805.00	\$	-
0406999	ASPHALT ADJUSTMENT COST	ALL	2750	\$	1.00 \$	2,750.00	100.00%	\$	2,750.00	\$	-
0507735	CONVERT CB TO MH	EA	9	\$	1,000.00 \$	9,000.00	100.00%	\$	9,000.00	\$	-
0507001A	NEW CATCH BASIN (STAMFORD STYLE)	EA	9	\$	4,000.00	36,000.00	100.00%	\$	36,000.00	\$	-
0507701	ADJUST MH OR CATCH BASIN FRAME AND COVER	EA	6	\$	1,000.00 \$	6,000.00	100.00%	\$	6,000.00	\$	-
0651746A	12" PVC PIPE (INCLDS. EXCAV & BACKFILL)	LF	55	\$	125.00	6,875.00	100.00%	Ş	6,875.00	\$	-
0811005A	6" X 18" GRANITE CURB ROADWAY (INCLUDES RADIAL)	LF	2700	Ş	75.00	<u>5 202,500.00</u>	100.00%	Ş 2	02,500.00	\$	-
0811008A	5" x 16" GRANITE CURB (BORDER - CYCLE TRACK)	LF	6450	Ş	65.00	5 419,250.00	100.00%	\$ 4	19,250.00	\$	-
0921001		SF	27000	Ş	13.00	351,000.00	100.00%	\$ 3	51,000.00	\$	-
0921002A	REPAIR CONCRETE ROAD BASE REPAIR AT CURB (INCLDS. HMA)		1550	Ş	24.00	37,200.00	100.00%	Ş	37,200.00	\$	-
0921003		SF	3500	\$	20.00	5 70,000.00	100.00%	Ş	/0,000.00	\$	-
0921005		SF	/50	\$ 6	20.00	5 15,000.00	100.00%	\$ ¢	15,000.00	\$ ¢	-
092100/A		51	1200	\$ ¢	22.00	26,400.00	100.00%	ې د	20,400.00	ې د	-
091008A		SF	1200	Ş	10.00	40,000,00	100.00%	ې د	12,000.00	ې د	-
0922001A		EA	10	¢ ¢	2,500.00		100.00%	ç ç	40,000.00	ې د	-
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0950005	TIRE FST	SY	1100	\$	5.00	5 500.00	100.00%	¢ ¢	5 500 00	<u>ې</u> د	
0960001A	REMOVE TREES (10" OR GREATER)	FA	27	Ś	500.00	5,500.00	100.00%	Ś	13 500 00	\$	-
0970006		ALL	225000	Ś	1.00	\$ 225,000,00	100.00%	\$ 2	25.000.00	Ś	-
0970007	TRAFFICPERSON (UNIFORMED FLAGGER)	HR	800	Ś	55.00	\$ 44,000,00	100.00%	\$ -	44.000.00	Ś	-
1001001	TRENCHING AND BACKFILLING	LF	8600	Ś	20.00	5 172.000.00	100.00%	\$ 1	72.000.00	\$	-
1002001A	LIGHT POLE FOUNDATIONS (STREET LIGHTS AND PED. LIGHTS)	EA	67	Ś	1.200.00	80.400.00	100.00%	\$	80.400.00	\$	-
1002002A	POWER PANEL "SERVICE" & CABINET FOUNDATON (ILLUMINATION)	EA	1	Ś	25.000.00	5 25.000.00	100.00%	Ś	25.000.00	\$	-
1008115	2" RMC IN TRENCH- ILLUMINATION	LF	13200	\$	18.00	237,600.00	100.00%	\$ 2	37,600.00	\$	-
1010030A	ELECTRICAL PULL BOX	EA	50	\$	1,000.00	\$ 50,000.00	100.00%	\$	50,000.00	\$	-
1030001	AWG CONDUCTORS	LF	45250	\$	1.65	5 74,662.50	100.00%	\$	74,662.50	\$	-
1040001A	DECORATIVE LIGHT POLE (CYCLE TRACK)	EA	47	\$	3,500.00	164,500.00	50.00%	\$	82,250.00	\$ 82,2	<mark>250.00</mark>
1040002A	DECORATIVE LIGHT FIXTURE (CYCLE TRACK)	EA	47	\$	1,750.00	\$ 82,250.00	50.00%	\$	41,125.00	\$ 41,3	<mark>125.00</mark>
1040004	STREET LIGHT POLES 28' ALUMINUM	EA	20	\$	3,000.00	60,000.00	100.00%	\$	60,000.00	\$	-
1040006	STREET LIGHT FIXTURES (COBRA HEADS)	EA	20	\$	1,200.00	\$ 24,000.00	100.00%	\$	24,000.00	\$	-
1040008A	LIGHT POLE ACCESSORIES-DECORATIVE BANNER ARMS/HANGERS (CYCLE TRACK)	EA	47	\$	500.00	\$ 23,500.00	50.00%	\$	11,750.00	\$ 11,	<mark>750.00</mark>
1050001A	BLUE LIGHT SAFETY KIOSK	EA	3	\$	8,500.00	\$ 25,500.00	100.00%	\$	25,500.00	\$	-
1060001A	REMOVE AND RESET LANDSCAPE FEATURES	LS	55000	\$	1.00	\$ 55,000.00	100.00%	\$	55,000.00	\$	-
111710XXA	MODIFY TRAFFIC SIGNAL & APPURTANCES	EA	3	\$	50,000.00	150,000.00	100.00%	\$1	50,000.00	\$	-
1208931	SIGN FACE SHEET ALUMINUM	SF	400	\$	32.00	\$ 12,800.00	100.00%	\$	12,800.00	\$	-
12090XXA	STAMFORD WAYFINDING (CITY GATEWAY) SIGN & FOUNDATION	EA	2	\$	38,000.00	\$ 76,000.00	0.00%	\$	-	\$ 76,0	00.00
12090XXA	STAMFORD WAYFINDING (AREA GATEWAY) SIGN & FOUNDATION	EA	1	\$	16,000.00	\$ 16,000.00	0.00%	\$	-	\$ 16,0	<mark>)00.00</mark>
12090XXA	STAMFORD WAYFINDING (PUBLIC ART) SIGN & FOUNDATION	EA	1	\$	26,500.00	\$ 26,500.00	0.00%	\$	-	\$ 26,	500.00
13010XXA	BIKE RACKS	EA	4	\$	2,500.00	\$ 10,000.00	0.00%	\$	-	\$ 10,0	<mark>)00.00</mark>
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A Minor Items S	ubtotal	20	% of Line "A"			3,563,123		\$ 3 \$	659 900	<u>\$ 20</u>	33,625 52 725
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C Maior and Mi	oor Contract Items Subtotal (A + B)					\$ 4.275.748		Ś 3	8,959,398	\$ 3	16.350
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Other Item All	owances		-								
0201001 Clear	ing and Grubbing (suggested 0.5% - 2%)	1	% of Line "C"			42,757		\$	39,594	\$	3,164
0971001A M 8	P of Traffic (suggested 2% - 5%)	3	% of Line "C"			128,272		\$	118,782	\$	9,491
0975004 Mobi	lization (suggested 4% - 10%)	4	% of Line "C"			\$ 171,030		\$	158,376	\$ 2	12,654
0980001 Const	ruction Staking (suggested 1% - 2%)	1	% of Line "C"		9	\$ 42,757		\$	39,594	\$	3,164
Other Items Su	ubtotal					384,816		\$	356,346	\$ 2	28,473
E CONTRACT SU	BTOTAL (C + D)					\$ 4,660,564		\$ 4	1,315,744	\$ 34	44,823
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F Inflation Subt	tal	5.2%	of Line "F"			242 240]	Ś	224 410	\$	17 921
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G TOTAL CONTRACT COST ESTIMATE (E + F) (Rounded to nearest \$100	0)	\$ 4,903,000	\$	4,540,000	\$ 363,000
LOTCIP Project Costs Summary					
Contract Cost Estimate (Line "G")		\$ 4,903,000	\$	4,540,000	\$ 363,000
Contingencies (10%)	10%	\$ 490,300	\$	454,000	\$ 36,300
Incidentals (10%)	10%	\$ 490,300	\$	454,000	\$ 36,300
ROW	LS	N/A		N/A	N/A
Utilities	LS	\$ -	\$	-	\$ -
TOTAL PROJECT COST		\$ 5,883,600	\$	5,448,000	\$ 435,600
Note: Items highlighted in yellow are partially or non participating	for LOTCIP funding				



Attachment L:

Review of Aerial Footage Traffic Analysis Summary Tables Synchro Report Printouts Note: A 25-minute drone video was taken of the project area on March 4, 2020 during the AM peak period. The 3/11/20 email below documents a review of the video as well as comments on the turning movement volumes provided.

Kaethe Podgorski

From:	Jay Bertoli
Sent:	Friday, March 13, 2020 12:13 PM
То:	Travers, James; Bolella, Garrett
Cc:	Najib Habesch; Kaethe Podgorski
Subject:	FW: Gridsmart, North State Street, LOTCIP Application
Attachments:	LOS Summary.docx

Jim and Garrett,

Per our call on Monday, please see Kaethe's detailed email below and LOS summary attached.

Please let us know how you wish to proceed with the application.

Jay Bertoli, Jr., LEED AP

Senior Associate

BETA Group, Inc. | 860.513.1503 | C: 860.921.7145 Twitter | LinkedIn | Facebook | Instagram

Join our team!

From: Kaethe Podgorski <KPodgorski@BETA-Inc.com>
Sent: Wednesday, March 11, 2020 4:11 PM
To: Jay Bertoli <JBertoli@BETA-Inc.com>
Cc: Randy Collins <RCollins@BETA-Inc.com>; Nathan Socha <NSocha@BETA-Inc.com>
Subject: RE: Gridsmart

Hi Jay,

Here are my thoughts based on updating the Synchro models and reviewing the AM peak period video (note in the screenshots that North is down):

- 1. The video actually looks pretty similar to the synchro/simtraffic model.
- 2. There are two disabled vehicles (from a rear end crash?) that are stuck in the second lane from the left on the North State Street westbound approach to Atlantic for about 1/2 of the video which are making the queues in those left two lanes look worse than they should be (although still not that bad) and are also making the on-ramp operation to the west look better than it should be.



3. After the disabled vehicles clear it is apparent that congestion on I-95 is causing the on-ramp from Atlantic to back up making cars slow to clear the intersection and left lanes of North State Street. Note, however that the right two lanes of North State Street are clear! There generally seems to be extra capacity for the through/right-turn movements with maximum queues extending back to around that first driveway. Those right two lanes would be the only lanes impacted by taking a lane (the two left lanes would remain with the same lane assignments as existing). The models show that queues on the westbound approach would be longer with a lane removal, although they should not back up to Canal/Greyrock.



 Traffic from exit 7: We counted the turning movements of vehicles coming from that off ramp for the 25 min of the video. Of the 206 vehicles exiting on that ramp at the intersection with Canal/Grey Rock: 77 (37%) turned left, 108 (52%) went straight, and 21 (10%) turned right.

In the video There are weaving movements apparent in this section (North State Street between Exit 7 and Canal/Grey Rock) but problems are not too obvious since usually the queues are short enough for everyone to move where they want. Here are the "worst" movements I saw:

Weaving to turn right:



Moving to left lane:



5. It also looks like the queue on the westbound North State Street approach to Canal/Grey Rock doesn't usually back up as far as the off ramp terminus (and there are no impacts to I-95 SB). Here were the worst queues (most of the time they are shorter) and note that these match well with our model that shows the 95 %ile queue for this approach is 407 ft:



Taking a lane here would lengthen these queues past the ramp terminal for some portion of the peak hour unless the westbound movement could be given a greater portion of the green time, but:

6. The queue on the Canal/Grey Rock southbound approach to North State street backed up to Tresser at one point, so I see how N/S timings and progression are important here:



7. We counted the turning movements for the driveways going in and out of the garage entrances on the block between Elm and Canal. Combined for all driveways for the 25 min shown in the video are 48 vehicles turning in and 21 vehicles turning out. They don't seem to have much of an impact on traffic flow in that section.



SO... I think I could reasonably recommend taking a lane between Atlantic and Elm, except on the westbound approach to Canal/Greyrock, where I think we should convert the right lane from a shared through/right-turn lane to an exclusive right-turn pocket for ~250' to prevent queues from backing up on that approach past the ramp junction. The turn lanes for the right-turn movements at the garage entrances in the block between Elm

and Canal we could shift over (since we can take a lane in that area) for now but potentially eliminate later after some more investigation/discussion. The LOS summary is attached. I think the City needs to be on board though- being okay with worse, but still "acceptable" operation in exchange for better accommodation of bikes and peds. That is a political choice, not just an engineering one.

 A separate issue to note: the traffic volumes from the various sources weren't too different, except one place there is a big discrepancy during the AM peak hour is on the southbound Elm St approach to North State Street. Here are the AM raw traffic counts from Urban that show a volume imbalance between Elm St. and Grey Rock of 568, although they aren't showing the ramp, so this seems about right:



From Fuss & O'Neil's Gateway Traffic Study Figure 2 There is a volume imbalance of -630 on N. State Street during the AM peak hour between Canal and Elm/the off ramp (These are the volumes I coded into Synchro):



And from CHA's Stamford Parking Garage "Planning Approved" figure 4 (2021 No-Build Volumes) the volumes are similar to F&O's and also have a volume imbalance of -630 during the AM peak hour between Canal and Elm/the off ramp:



All this to say that the southbound right turn lane on Elm Street is operating at above capacity with that superhigh volume. I can't see that approach in the drone video to confirm, but there is not a good reason for such a large volume imbalance so something seems a little off.

Sorry for the novel, but I wanted to document all this somewhere. Let me know what you think!

Thanks, Kaethe

Kaethe V. Podgorski, PE, PTOE

Project Manager

BETA Group, Inc. | 860.513.1503

Twitter | LinkedIn | Facebook | Instagram

Join our team!

From: Jay Bertoli <<u>JBertoli@BETA-Inc.com</u>> Sent: Monday, March 9, 2020 11:57 AM To: Kaethe Podgorski <<u>KPodgorski@BETA-Inc.com</u>> Subject: Fwd: Gridsmart

Sent from my iPhone

Begin forwarded message:

From: "Travers, James" <<u>JTravers@StamfordCT.gov</u>> Date: March 9, 2020 at 11:47:42 AM EDT To: Jay Bertoli <<u>JBertoli@BETA-Inc.com</u>> Subject: FW: Gridsmart

From: Mike Gearin <<u>mike@photoflightam.com</u>>
Sent: Thursday, March 5, 2020 4:14 PM
To: Travers, James <<u>JTravers@StamfordCT.gov</u>>
Cc: Sam Fingold <<u>Sam.Fingold@photoflightam.com</u>>; Bolella, Garrett <<u>GBolella@StamfordCT.gov</u>>
Subject: Re: Gridsmart

Jim

Please use the link below to download the AM video. The video processing breaks the footage up into 4.0gig files. We take the footage and put it back together to a single file the only disadvantage is it creates one very large video. I am planning on shooting the PM video tomorrow if the weather holds.

https://www.dropbox.com/s/547amks55nkglfx/Stamford%20Traffic.mov?dl=0

Mike

Mike Gearin VP Operations m:<u>(860)</u> 202-2072 o: (844) PAM-4FLY, ext. 703 PhotoFlight Aerial Media *Offering an Incredible Point Of View!*

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On Mar 3, 2020, at 7:05 PM, Travers, James <<u>JTravers@stamfordct.gov</u>> wrote:

Existing Year (2021) LOS Summary Table

																	2021 Remove a lane from Atlantic to Elm, but keep							
				0001 NI	o Build				2	001 E	lomou		from Atl	antic	to Elm			250	' RT po	ockets V	VB on N. S	tate	St.	
					o Bulla				2	JZIF	kemov	e a lane	e from Au	antic	LO EIM					at Atlar	ntic and			
																				at C	anal			
		A	M			PI	М			A	N			٩N	Λ			A	N			PN	1	
				<u>95th</u>				<u>95th</u>				<u>95th</u>				<u>95th</u>				<u>95th</u>				<u>95th</u>
	Ave.			<u>%ile</u>	Ave.			<u>%ile</u>	Ave.			<u>%ile</u>	Ave.			<u>%ile</u>	Ave.			<u>%ile</u>	Ave.			<u>%ile</u>
Intersection/	Delay			Queue	Delay			<u>Queue</u>	Delay			<u>Queue</u>	Delay			<u>Queue</u>	Delay			<u>Queue</u>	Delay			<u>Queue</u>
Movement	(sec/veh)	<u>LOS</u>	<u>V/C</u>	<u>(feet)</u>	(sec/veh)	<u>LOS</u>	<u>V/C</u>	<u>(feet)</u>	<u>(sec/veh)</u>	<u>LOS</u>	<u>V/C</u>	<u>(feet)</u>	<u>(sec/veh)</u>	<u>LOS</u>	<u>V/C</u>	<u>(feet)</u>	(sec/veh)	<u>LOS</u>	<u>V/C</u>	<u>(feet)</u>	<u>(sec/veh)</u>	<u>LOS</u>	<u>V/C</u>	<u>(feet)</u>
<u>N State St at Atlantic St</u>																								
N State St WB L	34.4	С	0.71	306	43.5	D	0.87	396	49.2	D	0.91	#669	47.4	D	0.89	#593	45.1	D	0.83	434	48.9	D	0.87	465
N State St WB LTR	44.0	D	0.88	395	34.5	С	0.67	268	44.2	D	0.93	#545	42.4	D	0.91	494	38.8	D	0.83	384	33.4	С	0.71	310
N State St WB R																	37.5	D	0.70	277	37.7	D	0.71	301
Atlantic St NB L	17.8	В	0.53	199	15.7	В	0.43	139	25.0	С	0.62	215	21.1	С	0.50	153	19.7	В	0.54	215	18.0	В	0.45	153
Atlantic St NB T	13.4	В	0.21	117	12.4	В	0.14	80	17.6	В	0.24	126	16.3	В	0.16	87	14.4	В	0.21	126	14.1	В	0.15	87
Atlantic St SB T	25.6	С	0.24	137	23.8	С	0.29	175	29.5	С	0.29	137	28.8	С	0.35	177	26.2	С	0.25	137	25.6	С	0.30	177
Atlantic St SB R	37.8	D	0.68	#460	33.4	С	0.63	#450	48.8	D	0.80	#460	43.5	D	0.75	#462	38.9	D	0.69	#460	36.4	D	0.66	#462
Overall	32.6	С			32.4	С			39.1	D			37.6	D			33.5	С			32.9	С		
N State St at Canal St																								
N State St WB LTR	27.8	С	0.83	#407	24.3	С	0.65	272	53.0	D	1.03	#601	27.0	С	0.78	346	-	-	-	-	-	-	-	-
N State St WB LT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	28.1	С	0.84	412	24.8	С	0.68	285
N State St WB R	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23.2	С	0.52	m227	21.1	С	0.35	143
Canal St NB L	85.7	F	1.03	#209	58.5	Е	0.94	#281	48.7	D	0.88	#263	53.2	D	0.90	#281	48.7	D	0.88	#263	53.8	D	0.90	#284
Canal St NB T	15.5	В	0.37	148	16.6	В	0.47	200	16.4	В	0.38	164	17.9	В	0.49	221	16.4	В	0.38	164	17.4	В	0.47	221
Canal St SB TR	35.5	D	0.83	326	31.5	С	0.75	282	46.9	D	0.93	#402	38.6	D	0.83	#325	46.9	D	0.93	#402	36.5	D	0.81	#325
Overall	31.9	С			27.2	С			45.3	D			29.9	С			31.8	С			28.1	С		
N State St at Elm St																								
N State St WB L	-	-	-	-	-	-	-	-	26.4	С	0.53	247	29.0	С	0.44	158								
N State St WB LTR	34.3	С	0.87	372	28.8	С	0.55	163	-	-	-	-	-	-	-	-								
N State St WB TR	-	-	-	-	-	-	-	-	37.9	D	0.88	#448	30.5	С	0.57	170								
N State St WB R	47.6	D	0.87	#486	49.7	D	0.85	323	49.0	D	0.89	#505	48.2	D	0.83	296								
Elm St NBL	49.9	D	0.87	#291	22.0	С	0.60	105	52.7	D	0.89	#292	20.7	С	0.59	102								
Elm St NBT	13.7	В	0.35	152	10.6	В	0.29	141	14.0	В	0.35	152	10.2	В	0.28	141								
Elm St SBTR	28.4	С	1.55dr	254	22.1	С	0.61	323	28.7	С	1.56di	254	21.1	С	0.60	323								
Overall	31.8	Ċ			24.4	Ċ			32.7	Ċ			23.9	C										

dr de facto right turn lane

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

m upstream metering is in effect.

Design Year (2041) LOS Summary Table

																	2041 Remove a lane from Atlantic to Elm, but keep							
				2041 N	o Build				2	0/11	Domou	o a land	from Atl	antic f	to Elm			250)' RT po	ockets V	VB on N. S	state	St.	
				2041 1	o bullu				2	0411	VEITION			antic						at Atlar	ntic and			
																				at C	anal			
		Α	M			Р	Μ			Α	М			PN	N			AI	Ν			٩N	Л	
				95 th				95 th				<u>95th</u>				<u>95th</u>				<u>95th</u>				<u>95th</u>
	Ave.			<u>%ile</u>	Ave.			<u>%ile</u>	Ave.			<u>%ile</u>	Ave.			<u>%ile</u>	Ave.			<u>%ile</u>	Ave.			<u>%ile</u>
Intersection/	Delay			<u>Queue</u>	Delay			<u>Queue</u>	Delay			Queue	Delay			<u>Queue</u>	Delay			<u>Queue</u>	Delay			<u>Queue</u>
Movement	(sec/veh)	<u>LOS</u>	<u>V/C</u>	<u>(feet)</u>	(sec/veh)	LOS	<u>V/C</u>	<u>(feet)</u>	(sec/veh)	LOS	<u>V/C</u>	<u>(feet)</u>	<u>(sec/veh)</u>	<u>LOS</u>	<u>V/C</u>	<u>(feet)</u>	(sec/veh)	LOS	<u>V/C</u>	<u>(feet)</u>	<u>(sec/veh)</u>	LOS	<u>V/C</u>	<u>(feet)</u>
<u>N State St at Atlantic St</u>																								
N State St WB L	33.4	С	0.73	348	43.6	D	0.90	448	56.5	Е	0.96	#784	51.3	D	0.93	#721	45.4	D	0.86	502	49.8	D	0.90	539
N State St WB LTR	44.7	D	0.91	456	33.3	С	0.69	300	51.9	D	0.98	#684	46.9	D	0.96	#626	38.4	D	0.86	443	32.2	С	0.86dl	353
N State St WB R																	36.5	D	0.72	315	36.8	D	0.74	344
Atlantic St NB L	21.8	С	0.63	224	18.5	В	0.52	158	36.4	D	0.78	#272	26.0	С	0.62	170	26.5	С	0.67	#264	22.1	С	0.56	170
Atlantic St NB T	15.0	В	0.24	129	13.8	В	0.16	89	18.9	В	0.28	140	17.5	В	0.19	96	16.1	В	0.25	140	15.6	В	0.17	96
Atlantic St SB T	28.2	С	0.30	152	26.9	С	0.35	196	28.2	С	0.31	144	30.2	С	0.40	191	26.7	С	0.29	144	27.5	С	0.36	191
Atlantic St SB R	49.1	D	0.83	#534	41.8	D	0.76	#535	53.0	D	0.87	#492	55.0	D	0.88	#514	45.0	D	0.80	#492	43.7	D	0.78	#514
Overall	34.8	С			34.1	С			44.9	D			42.2	D			34.9	С			34.3	С		
<u>N State St at Canal St</u>																								
N State St WB LTR	43.0	D	0.99	m#503	27.6	С	0.75	310	98.9	F	1.15	m#680	31.0	С	0.87	406	-	-	-	-	-	-	-	-
N State St WB LT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	44.0	D	0.99	m#531	25.7	С	0.74	326
N State St WB R	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25.9	С	0.61	m226	21.4	С	0.38	m159
Canal St NB L	77.6	Е	1.01	#321	58.0	Е	0.93	#314	78.3	Е	1.01	#324	58.5	Е	0.94	#318	63.2	Е	0.95	#311	57.8	Е	0.93	#318
Canal St NB T	14.5	В	0.39	167	16.1	В	0.50	226	16.7	В	0.41	184	18.5	В	0.53	250	15.4	В	0.40	175	18.4	В	0.53	250
Canal St SB TR	41.2	D	0.90	#421	39.0	D	0.87	347	60.5	Е	1.00	#470	52.8	D	0.96	#417	51.5	D	0.96	#455	52.2	D	0.95	#417
Overall	40.5	D			30.3	С			74.9	Ε			35.7	D			41.1	D			32.9	С		
N State St at Elm St																								
N State St WB L	-	-	-	-	-	-	-	-	27.7	С	0.57	278	28.0	С	0.46	176								
N State St WB LTR	42.8	D	0.95	#468	27.9	С	0.57	183	-	-	-	-	-	-	-	-								
N State St WB TR	-	-	-	-	-	-	-	-	48.1	D	0.96	#529	29.6	С	0.59	190								
N State St WB R	62.0	Е	0.96	#560	51.3	D	0.88	#398	63.2	Е	0.97	#582	49.1	D	0.86	338								
Elm St NBL	55.4	Е	0.92	#301	31.9	С	0.70	#141	54.2	D	0.91	#298	31.9	С	0.70	#143								
Elm St NBT	14.1	В	0.39	170	11.9	В	0.33	157	14.4	В	0.39	170	11.4	В	0.32	157								
Elm St SBTR	35.0	D	1.79dr	#323	25.4	С	0.71	371	37.0	D	1.83dı	⁻ #323	24.5	С	0.70	371								
Overall	38.8	D			26.5	С			39.8	D			26.1	С										

dr de facto right turn lane

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

m upstream metering is in effect.

Lanes, Volumes, Timings 2: I-95 ON RAMP & ATLANTIC ST. & N. STATE ST.

12/30/2020

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Lane Group	WBL2	WBL	WBT	WBR	NBL2	NBL	NBT	SBT	SBR	SBR2	
Lane Configurations		<u>አ</u> ካ	≜1 5			3	**	**	đ		
Traffic Volume (vph)	140	640	590	320	280	10	380	310	270	110	
Future Volume (vph)	140	640	590	320	280	10	380	310	270	110	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Util Factor	0.95	0.97	0.95	0.95	0.95	1 00	0.95	0.95	1 00	0.95	
Ped Bike Factor	0.70	0.77	0.96	0.70	0.70	0.99	0.70	0.70	0.98	0.70	
Frt			0.70			0.77			0.50		
Flt Protected		0.950	0.747			0 950			0.000		
Satd Flow (prot)	0	3/133	3202	0	0	1770	3530	3530	1583	0	
Flt Permitted	0	0.950	5202	0	0	0.465	5557	0007	1000	U	
Satd Flow (perm)	0	3/133	3202	0	0	861	3530	3530	1558	0	
Dight Turn on Pod	0	5455	5202	No	0	001	5557	5557	1550	No	
Satd Flow (PTOP)				NU						NU	
Link Spood (mph)			20				20	20			
Link Speed (mpn)			3U 1140				3U 102	3U 241			
							193	241			
Traver Time (S)			20.5	01	4	4	4.4	5.5	4		
Confi. Peas. (#/nr)	0.00	0.00	0.00	91	4	4	0.00	0.00	4	0.00	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	152	696	641	348	304	11	413	337	293	120	
Shared Lane Traffic (%)	-			-	-			~~-			
Lane Group Flow (vph)	0	848	989	0	0	315	413	337	413	0	
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	
Lane Alignment	Left	Left	Left	Right	Left	Left	Left	Left	Right	Right	
Median Width(ft)			24				12	12			
Link Offset(ft)			0				0	0			
Crosswalk Width(ft)			16				16	16			
Two way Left Turn Lane											
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Speed (mph)	15	15		9	15	15			9	9	
Number of Detectors	1	1	1		1	1	0	0	0		
Detector Template	Left				Left						
Leading Detector (ft)	20	306	306		20	30	0	0	0		
Trailing Detector (ft)	0	300	300		0	0	0	0	0		
Detector 1 Position(ft)	0	300	300		0	0	0	0	0		
Detector 1 Size(ft)	20	6	6		20	30	6	6	20		
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex		
Detector 1 Channel											
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		
Turn Type	Perm	Perm	NA		pm+pt	pm+pt	NA	NA	Perm		
Protected Phases			8		5	5	2	6			
Permitted Phases	8	8	-		2	2	_	-	6		
Detector Phase	8	8	8		5	5	2	6	6		
Switch Phase					0		-				
Minimum Initial (s)	15.0	15.0	15.0		5.0	5.0	15.0	15.0	15.0		
Minimum Snlit (s)	13.0 21 N	21.0	21.0		10.0	10.0	26.0	20.0	20.0		
Total Split (s)	51.0	51.0	51.0		22.0	22.0	20.0 61.0	20.0	20.0		
Total Split (S)	15 50/	15 50/	15 50/		10 60/	10 60/	54.5%	3/ 20/	37.0		
	40.070	4J.J70	43.370		17.070	17.070	04.070	J4.070	34.070		

2021 No Build AM.syn

Synchro 10 Report Page 1

Lanes, Volumes, Timings 2: I-95 ON RAMP & ATLANTIC ST. & N. STATE ST.

12/30/2020	
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Lane Group	WBL2	WBL	WBT	WBR	NBL2	NBL	NBT	SBT	SBR	SBR2	
Maximum Green (s)	46.0	46.0	46.0		17.0	17.0	56.0	34.0	34.0		
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	Lead		Lag	Lag		
Lead-Lag Optimize?					Yes	Yes		Yes	Yes		
Vehicle Extension (s)	2.0	2.0	2.0		1.5	1.5	3.0	3.0	3.0		
Recall Mode	None	None	None		None	None	C-Max	Max	Max		
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)	91	91	91				55				
Act Effct Green (s)		39.2	39.2			62.8	62.8	43.7	43.7		
Actuated g/C Ratio		0.35	0.35			0.56	0.56	0.39	0.39		
v/c Ratio		0.71	0.88			0.53	0.21	0.24	0.68		
Control Delay		34.4	44.0			17.8	13.4	25.6	37.8		
Queue Delay		0.0	0.0			0.0	0.0	0.0	0.0		
Total Delay		34.4	44.0			17.8	13.4	25.6	37.8		
LOS		С	D			В	В	С	D		
Approach Delay			39.6				15.3	32.3			
Approach LOS			D				В	С			
Intersection Summary											
Area Type:	Other										
Cycle Length: 112											
Actuated Cycle Length: 112	2										
Offset: 0 (0%), Referenced	to phase 2	:NBTL, S	tart of Gre	een							
Natural Cycle: 65											
Control Type: Actuated-Coc	ordinated										
Maximum v/c Ratio: 0.88											
Intersection Signal Delay: 3	32.6			Ir	ntersection	ո LOS։ C	;				
Intersection Capacity Utiliza	ation 81.1%)		10	CU Level	of Servic	e D				
Analysis Period (min) 15											
Splits and Dhasper 2.105 ON DAMD & ATLANTIC ST & N. STATE ST											

opino una museo.	2.175 01110 0110	•
Ø2 (R)		
61 s		
A ø5	↓ ø6	* _Ø8
22 s	39 s	51 s

Queues 2: I-95 ON RAMP & ATLANTIC ST. & N. STATE ST.

	*	←	1	1	ţ	¥
Lane Group	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	848	989	315	413	337	413
v/c Ratio	0.71	0.88	0.53	0.21	0.24	0.68
Control Delay	34.4	44.0	17.8	13.4	25.6	37.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.4	44.0	17.8	13.4	25.6	37.8
Queue Length 50th (ft)	266	345	117	74	86	249
Queue Length 95th (ft)	306	395	199	117	137	#460
Internal Link Dist (ft)		1088		113	161	
Turn Bay Length (ft)						
Base Capacity (vph)	1409	1315	621	1983	1380	607
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.60	0.75	0.51	0.21	0.24	0.68
Intersection Summary						

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

Queue shown is maximum after two cycles.

Lanes, Volumes, Timings <u>5: CANAL ST. & N. STATE ST.</u>

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					ৰা†়		۲.	^			≜ †Ъ	
Traffic Volume (vph)	0	0	0	310	1310	300	270	590	0	0	630	240
Future Volume (vph)	0	0	0	310	1310	300	270	590	0	0	630	240
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
Ped Bike Factor					0.99		1.00				0.99	
Frt					0.977						0.959	
Flt Protected					0.992		0.950					
Satd. Flow (prot)	0	0	0	0	6170	0	1770	3539	0	0	3373	0
Flt Permitted					0.992		0.113					
Satd. Flow (perm)	0	0	0	0	6169	0	210	3539	0	0	3373	0
Right Turn on Red			Yes			No			Yes			Yes
Satd. Flow (RTOR)											28	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1168			439			220			380	
Travel Time (s)		26.5			10.0			5.0			8.6	
Confl. Peds. (#/hr)				1		30	9		8	8		9
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
Adi. Flow (vph)	0	0	0	337	1424	326	293	641	0	0	685	261
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	2087	0	293	641	0	0	946	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0	5		0	J		12	5		12	5
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors				1	1		1	1			1	
Detector Template				Left								
Leading Detector (ft)				20	40		30	30			40	
Trailing Detector (ft)				0	0		0	0			0	
Detector 1 Position(ft)				0	0		0	0			0	
Detector 1 Size(ft)				20	40		30	30			40	
Detector 1 Type				CI+Ex	CI+Ex		CI+Ex	CI+Ex			CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0		0.0	0.0			0.0	
Detector 1 Queue (s)				0.0	0.0		0.0	0.0			0.0	
Detector 1 Delay (s)				0.0	0.0		0.0	0.0			0.0	
Turn Type				Perm	NA		pm+pt	NA			NA	
Protected Phases					8		5	2			6	
Permitted Phases				8			2					
Detector Phase				8	8		5	2			6	
Switch Phase												
Minimum Initial (s)				10.0	10.0		7.0	15.0			15.0	
Minimum Split (s)				33.0	33.0		11.0	29.0			29.0	
Total Split (s)				40.0	40.0		15.0	55.0			40.0	
Total Split (%)				42.1%	42.1%		15.8%	57.9%			42.1%	

2021 No Build AM.syn

Synchro 10 Report Page 4
Lanes, Volumes, Timings 5: CANAL ST. & N. STATE ST.

12/30/2020)
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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Maximum Green (s)				35.0	35.0		11.0	50.0			35.0	
Yellow Time (s)				3.0	3.0		3.0	3.0			3.0	
All-Red Time (s)				2.0	2.0		1.0	2.0			2.0	
Lost Time Adjust (s)					0.0		0.0	0.0			0.0	
Total Lost Time (s)					5.0		4.0	5.0			5.0	
Lead/Lag							Lead				Lag	
Lead-Lag Optimize?							Yes				Yes	
Vehicle Extension (s)				5.0	5.0		3.0	1.0			3.0	
Recall Mode				None	None		None	C-Min			C-Min	
Walk Time (s)				7.0	7.0			7.0			7.0	
Flash Dont Walk (s)				21.0	21.0			17.0			17.0	
Pedestrian Calls (#/hr)				31	31			8			9	
Act Effct Green (s)					38.6		47.4	46.4			31.4	
Actuated g/C Ratio					0.41		0.50	0.49			0.33	
v/c Ratio					0.83		1.03	0.37			0.83	
Control Delay					27.8		85.7	15.5			35.5	
Queue Delay					0.0		0.0	0.0			0.0	
Total Delay					27.8		85.7	15.5			35.5	
LOS					С		F	В			D	
Approach Delay					27.8			37.5			35.5	
Approach LOS					С			D			D	
Intersection Summary												
Area Type: O	ther											
Cycle Length: 95												
Actuated Cycle Length: 95												
Offset: 30 (32%), Referenced	to phase	2:NBTL a	and 6:SE	BT, Start c	of Yellow							
Natural Cycle: 75												
Control Type: Actuated-Coord	dinated											
Maximum v/c Ratio: 1.03												
Intersection Signal Delay: 31.	.9			In	itersection	n LOS: C						
Intersection Capacity Utilizati	on 81.1%			IC	CU Level	of Service	e D					
Analysis Period (min) 15												
Splits and Phases: 5: CAN	IAL ST. &	N. STAT	E ST.									



Queues 5: CANAL ST. & N. STATE ST.

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Lane Group	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	2087	293	641	946
v/c Ratio	0.83	1.03	0.37	0.83
Control Delay	27.8	85.7	15.5	35.5
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	27.8	85.7	15.5	35.5
Queue Length 50th (ft)	325	~129	118	262
Queue Length 95th (ft)	#407	#290	148	326
Internal Link Dist (ft)	359		140	300
Turn Bay Length (ft)				
Base Capacity (vph)	2505	285	1862	1260
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.83	1.03	0.34	0.75
Intersection Summary				

Volume exceeds capacity, queue is theoretically infinite.

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

12/30/2020

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations					-€††Ъ	1		<u>ተተ</u> ኈ		<u>۲</u>	^	
Traffic Volume (vph)	0	0	0	320	620	790	0	220	870	270	600	0
Future Volume (vph)	0	0	0	320	620	790	0	220	870	270	600	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.91	0.86	0.86	1.00	0.91	0.91	1.00	0.95	1.00
Ped Bike Factor					1.00			0.98		1.00		
Frt					0.956	0.850		0.880				
Flt Protected					0.988					0.950		
Satd. Flow (prot)	0	0	0	0	4522	1362	0	4382	0	1770	3539	0
Flt Permitted					0.988					0.112		
Satd. Flow (perm)	0	0	0	0	4522	1362	0	4382	0	208	3539	0
Right Turn on Red			Yes			No			Yes			Yes
Satd. Flow (RTOR)								100				
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1111			568			482			313	
Travel Time (s)		25.3			12.9			11.0			7.1	
Confl. Peds. (#/hr)						1			12	12		
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	348	674	859	0	239	946	293	652	0
Shared Lane Traffic (%)						49%						
Lane Group Flow (vph)	0	0	0	0	1443	438	0	1185	0	293	652	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0	Ŭ		0	Ŭ		12	, i i i i i i i i i i i i i i i i i i i		12	Ū
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors				1	1	1		1		1	1	
Detector Template				Left								
Leading Detector (ft)				20	30	30		30		30	30	
Trailing Detector (ft)				0	0	0		0		0	0	
Detector 1 Position(ft)				0	0	0		0		0	0	
Detector 1 Size(ft)				20	30	30		30		30	30	
Detector 1 Type				CI+Ex	CI+Ex	CI+Ex		CI+Ex		CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0	0.0		0.0		0.0	0.0	
Detector 1 Queue (s)				0.0	0.0	0.0		0.0		0.0	0.0	
Detector 1 Delay (s)				0.0	0.0	0.0		0.0		0.0	0.0	
Turn Type				Split	NA	Prot		NA		pm+pt	NA	
Protected Phases				8	8	8		6		5	2	
Permitted Phases										2		
Detector Phase				8	8	8		6		5	2	
Switch Phase												
Minimum Initial (s)				10.0	10.0	10.0		15.0		7.0	15.0	
Minimum Split (s)				14.5	14.5	14.5		29.0		11.0	20.0	
Total Split (s)				40.0	40.0	40.0		40.0		15.0	55.0	
Total Split (%)				42.1%	42.1%	42.1%		42.1%		15.8%	57.9%	

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12/30/2020

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Maximum Green (s)				35.5	35.5	35.5		35.0		11.0	50.0	
Yellow Time (s)				3.5	3.5	3.5		3.0		3.0	3.0	
All-Red Time (s)				1.0	1.0	1.0		2.0		1.0	2.0	
Lost Time Adjust (s)					0.0	0.0		0.0		0.0	0.0	
Total Lost Time (s)					4.5	4.5		5.0		4.0	5.0	
Lead/Lag								Lag		Lead		
Lead-Lag Optimize?								Yes		Yes		
Vehicle Extension (s)				2.0	2.0	2.0		3.0		3.0	3.0	
Recall Mode				None	None	None		C-Min		None	C-Min	
Walk Time (s)								7.0				
Flash Dont Walk (s)								17.0				
Pedestrian Calls (#/hr)								12				
Act Effct Green (s)					35.0	35.0		32.9		51.5	50.5	
Actuated g/C Ratio					0.37	0.37		0.35		0.54	0.53	
v/c Ratio					0.87	0.87		1.55dr		0.87	0.35	
Control Delay					34.3	47.6		28.4		49.9	13.7	
Queue Delay					0.0	0.0		0.0		0.0	0.0	
Total Delay					34.3	47.6		28.4		49.9	13.7	
LOS					С	D		С		D	В	
Approach Delay					37.4			28.4			24.9	
Approach LOS					D			С			С	
Intersection Summary												
Area Type: C)ther											
Cycle Length: 95												
Actuated Cycle Length: 95												
Offset: 17.5 (18%), Reference	ed to phas	se 2:NWT	L and 6:	SET, Sta	rt of Yello	W						
Natural Cycle: 80												
Control Type: Actuated-Coord	dinated											
Maximum v/c Ratio: 0.87												
Intersection Signal Delay: 31	.8			Ir	itersection	n LOS: C						
Intersection Capacity Utilizati	ion 75.5%			IC	CU Level	of Service	e D					
Analysis Period (min) 15												
dr Defacto Right Lane. Re	code with	1 though	lane as	a right lar	ne.							

Splits and Phases: 8: ELM ST. & N. STATE ST./I-95 EXIT 8



Queues 8: ELM ST. & N. STATE ST./I-95 EXIT 8

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Lane Group	WBT	WBR	SET	NWL	NWT
Lane Group Flow (vph)	1443	438	1185	293	652
v/c Ratio	0.87	0.87	1.55dr	0.87	0.35
Control Delay	34.3	47.6	28.4	49.9	13.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	34.3	47.6	28.4	49.9	13.7
Queue Length 50th (ft)	291	266	215	124	121
Queue Length 95th (ft)	372	#486	254	#291	152
Internal Link Dist (ft)	488		402		233
Turn Bay Length (ft)					
Base Capacity (vph)	1726	519	1680	335	1909
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.84	0.84	0.71	0.87	0.34
Intersection Summary					

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

Queue shown is maximum after two cycles. dr Defacto Right Lane. Recode with 1 though lane as a right lane.

2021 No Build AM.syn

Lanes, Volumes, Timings 2: I-95 ON RAMP & ATLANTIC ST. & N. STATE ST.

12/30/2020

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Lane Group	WBL2	WBL	WBT	WBR	NBL2	NBL	NBT	SBT	SBR	SBR2	
Lane Configurations		<u>አ</u> ካ	4 1a			3	**	**	đ		
Traffic Volume (vph)	170	770	310	350	200	10	260	400	310	70	
Future Volume (vph)	170	770	310	350	200	10	260	400	310	70	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane I Itil Eactor	0.95	0.97	0.95	0.95	0.95	1 00	0.95	0.95	1.00	0.95	
Ped Bike Factor	0.70	0.77	0.96	0.70	0.70	0.99	0.70	0.70	0.98	0.70	
Frt			0.70			0.77			0.70		
Flt Protected		0.950	0.721			0.950			0.000		
Satd Flow (prot)	0	3/133	3129	0	0	1770	2520	2520	1583	0	
Flt Dormittod	0	0.050	5127	0	0	0.400	3337	3337	1303	0	
Satd Elow (norm)	Ο	2/22	2120	0	0	0.407	2520	2520	1551	٥	
Dight Turn on Dod	0	3433	3129	No	0	755	3039	3039	1001	No	
Sold Flow (DTOD)				NO						NU	
Salu. FIOW (RTUR)			20				20	20			
Link Speed (mpn)			30				30	30			
			1168				193	241			
Travel Time (s)			26.5	= 0	<u>^</u>	<u>^</u>	4.4	5.5	<u>^</u>		
Confl. Peds. (#/hr)	0.00		0.00	50	9	9		0.00	9		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	185	837	337	380	217	11	283	435	337	/6	
Shared Lane Traffic (%)											
Lane Group Flow (vph)	0	1022	717	0	0	228	283	435	413	0	
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	
Lane Alignment	Left	Left	Left	Right	Left	Left	Left	Left	Right	Right	
Median Width(ft)			24				12	12			
Link Offset(ft)			0				0	0			
Crosswalk Width(ft)			16				16	16			
Two way Left Turn Lane											
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Speed (mph)	15	15		9	15	15			9	9	
Number of Detectors	1	1	1		1	1	0	0	0		
Detector Template	Left				Left						
Leading Detector (ft)	20	306	306		20	30	0	0	0		
Trailing Detector (ft)	0	300	300		0	0	0	0	0		
Detector 1 Position(ft)	0	300	300		0	0	0	0	0		
Detector 1 Size(ft)	20	6	6		20	30	6	6	20		
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex		
Detector 1 Channel											
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		
Turn Type	Perm	Perm	NA		pm+pt	pm+pt	NA	NA	Perm		
Protected Phases	1 01111		8		5	5	2	6			
Permitted Phases	8	8	Ŭ		2	2	-	Ū	6		
Detector Phase	8	8	8		5	5	2	6	6		
Switch Phase	0	0	0		0	0	2	0	0		
Minimum Initial (s)	15.0	15.0	15.0		5.0	5.0	15.0	15.0	15.0		
Minimum Snlit (s)	21 0	21.0	21.0		10.0	10.0	75.0 26.0	20.0	20.0		
Total Split (s)	51.0	51.0	51.0		22.0	22.0	20.0 61.0	20.0	20.0		
Total Split (S)	15 5%	15 5%	15 5%		10.4%	10.4%	51 50/	2/ 00/	2/ 00/		
	40.070	4J.J70	40.070		17.070	17.070	J4.J70	34.070	34.070		

2021 No Build PM.syn

Lanes, Volumes, Timings 2: I-95 ON RAMP & ATLANTIC ST. & N. STATE ST.

12/30/2020

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Lane Group	WBL2	WBL	WBT	WBR	NBL2	NBL	NBT	SBT	SBR	SBR2	
Maximum Green (s)	46.0	46.0	46.0		17.0	17.0	56.0	34.0	34.0		
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	Lead		Lag	Lag		
Lead-Lag Optimize?					Yes	Yes		Yes	Yes		
Vehicle Extension (s)	2.0	2.0	2.0		1.5	1.5	3.0	3.0	3.0		
Recall Mode	None	None	None		None	None	C-Max	Мах	Мах		
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)	50	50	50				45				
Act Effct Green (s)		38.2	38.2			63.8	63.8	47.4	47.4		
Actuated g/C Ratio		0.34	0.34			0.57	0.57	0.42	0.42		
v/c Ratio		0.87	0.67			0.43	0.14	0.29	0.63		
Control Delay		43.5	34.5			15.7	12.4	23.8	33.4		
Queue Delay		0.0	0.0			0.0	0.0	0.0	0.0		
Total Delay		43.5	34.5			15.7	12.4	23.8	33.4		
LOS		D	С			В	В	С	С		
Approach Delay			39.8				13.8	28.5			
Approach LOS			D				В	С			
Intersection Summary											
Area Type:	Other										
Cycle Length: 112											
Actuated Cycle Length: 112											
Offset: 0 (0%), Referenced	to phase 2	:NBTL, S	tart of Gre	een							
Natural Cycle: 65											
Control Type: Actuated-Coc	ordinated										
Maximum v/c Ratio: 0.87											
Intersection Signal Delay: 3	2.4			Ir	ntersection	ו LOS: C					
Intersection Capacity Utiliza	ation 75.4%)		10	CU Level	of Servic	e D				
Analysis Period (min) 15											
Solits and Phases: 2.1-9	5 ON RAM		NTIC ST	& N ST	ATE ST						

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Queues 2: I-95 ON RAMP & ATLANTIC ST. & N. STATE ST.

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Lane Group	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	1022	717	228	283	435	413
v/c Ratio	0.87	0.67	0.43	0.14	0.29	0.63
Control Delay	43.5	34.5	15.7	12.4	23.8	33.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.5	34.5	15.7	12.4	23.8	33.4
Queue Length 50th (ft)	350	228	78	47	106	230
Queue Length 95th (ft)	396	268	139	80	175	#450
Internal Link Dist (ft)		1088		113	161	
Turn Bay Length (ft)						
Base Capacity (vph)	1409	1285	583	2017	1496	655
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.73	0.56	0.39	0.14	0.29	0.63
Intersection Summary						

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

Queue shown is maximum after two cycles.

Lanes, Volumes, Timings <u>5: CANAL ST. & N. STATE ST.</u>

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					ৰা†়		۲.	^			A	
Traffic Volume (vph)	0	0	0	350	910	200	280	760	0	0	620	170
Future Volume (vph)	0	0	0	350	910	200	280	760	0	0	620	170
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
Ped Bike Factor					1.00		1.00				1.00	
Frt					0.979						0.968	
Flt Protected					0.988		0.950					
Satd. Flow (prot)	0	0	0	0	6173	0	1770	3539	0	0	3410	0
Flt Permitted					0.988		0.139					
Satd. Flow (perm)	0	0	0	0	6170	0	258	3539	0	0	3410	0
Right Turn on Red			Yes			No			Yes			Yes
Satd. Flow (RTOR)											42	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1168			439			220			380	
Travel Time (s)		26.5			10.0			5.0			8.6	
Confl. Peds. (#/hr)		2010		2	1010	18	8	0.0			0.0	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
Adi, Flow (vph)	0	0	0	380	989	217	304	826	0	0	674	185
Shared Lane Traffic (%)			Ŭ					020	Ū		071	
Lane Group Flow (vph)	0	0	0	0	1586	0	304	826	0	0	859	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0	g		0			12	g		12	g
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors				1	1		1	1			1	
Detector Template				Left								
Leading Detector (ft)				20	40		30	30			40	
Trailing Detector (ft)				0	0		0	0			0	
Detector 1 Position(ft)				0	0		0	0			0	
Detector 1 Size(ft)				20	40		30	30			40	
Detector 1 Type				CI+Ex	CI+Ex		CI+Ex	CI+Ex			CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0		0.0	0.0			0.0	
Detector 1 Queue (s)				0.0	0.0		0.0	0.0			0.0	
Detector 1 Delay (s)				0.0	0.0		0.0	0.0			0.0	
Turn Type				Perm	NA		pm+pt	NA			NA	
Protected Phases					8		5	2			6	
Permitted Phases				8			2					
Detector Phase				8	8		5	2			6	
Switch Phase												
Minimum Initial (s)				10.0	10.0		7.0	15.0			15.0	
Minimum Split (s)				33.0	33.0		11.0	29.0			29.0	
Total Split (s)				40.0	40.0		15.0	55.0			40.0	
Total Split (%)				42.1%	42.1%		15.8%	57.9%			42.1%	

2021 No Build PM.syn

Lanes, Volumes, Timings 5: CANAL ST. & N. STATE ST.

12/30/2020)
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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Maximum Green (s)				35.0	35.0		11.0	50.0			35.0	
Yellow Time (s)				3.0	3.0		3.0	3.0			3.0	
All-Red Time (s)				2.0	2.0		1.0	2.0			2.0	
Lost Time Adjust (s)					0.0		0.0	0.0			0.0	
Total Lost Time (s)					5.0		4.0	5.0			5.0	
Lead/Lag							Lead				Lag	
Lead-Lag Optimize?							Yes				Yes	
Vehicle Extension (s)				5.0	5.0		3.0	1.0			3.0	
Recall Mode				None	None		None	C-Min			C-Min	
Walk Time (s)				7.0	7.0			7.0			7.0	
Flash Dont Walk (s)				21.0	21.0			17.0			17.0	
Pedestrian Calls (#/hr)				20	20			8			8	
Act Effct Green (s)					37.6		48.4	47.4			31.2	
Actuated g/C Ratio					0.40		0.51	0.50			0.33	
v/c Ratio					0.65		0.94	0.47			0.75	
Control Delay					24.3		58.5	16.6			31.5	
Queue Delay					0.0		0.0	0.0			0.0	
Total Delay					24.3		58.5	16.6			31.5	
LOS					С		E	В			С	
Approach Delay					24.3			27.9			31.5	
Approach LOS					С			С			С	
Intersection Summary												
Area Type:	Other											
Cycle Length: 95												
Actuated Cycle Length: 95												
Offset: 30 (32%), Reference	d to phase	2:NBTL a	and 6:SE	ST, Start o	of Yellow							
Natural Cycle: 75												
Control Type: Actuated-Coo	rdinated											
Maximum v/c Ratio: 0.94												
Intersection Signal Delay: 2	7.2			In	tersectior	n LOS: C						
Intersection Capacity Utiliza	tion 72.6%			IC	U Level	of Service	e C					
Analysis Period (min) 15												
Splits and Phases: 5: CA	NAL ST. &	N. STAT	E ST.									



Queues 5: CANAL ST. & N. STATE ST.

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Lane Group	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	1586	304	826	859
v/c Ratio	0.65	0.94	0.47	0.75
Control Delay	24.3	58.5	16.6	31.5
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	24.3	58.5	16.6	31.5
Queue Length 50th (ft)	203	~130	176	237
Queue Length 95th (ft)	272	#281	200	282
Internal Link Dist (ft)	359		140	300
Turn Bay Length (ft)				
Base Capacity (vph)	2444	324	1864	1282
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.65	0.94	0.44	0.67
Intersection Summary				

Volume exceeds capacity, queue is theoretically infinite.

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

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations					-€††Ъ	1		<u>ተተ</u> ኈ		<u>۲</u>	^	
Traffic Volume (vph)	0	0	0	210	140	640	0	1200	100	150	560	0
Future Volume (vph)	0	0	0	210	140	640	0	1200	100	150	560	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.91	0.86	0.86	1.00	0.91	0.91	1.00	0.95	1.00
Ped Bike Factor					0.99			1.00		1.00		
Frt					0.928	0.850		0.988				
Flt Protected					0.985					0.950		
Satd. Flow (prot)	0	0	0	0	4366	1362	0	5010	0	1770	3539	0
Flt Permitted					0.985					0.104		
Satd. Flow (perm)	0	0	0	0	4366	1362	0	5010	0	193	3539	0
Right Turn on Red			Yes			No			Yes			Yes
Satd. Flow (RTOR)								16				
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1111			568			482			313	
Travel Time (s)		25.3			12.9			11.0			7.1	
Confl. Peds. (#/hr)						1			21	21		
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
Adi, Flow (vph)	0	0	0	228	152	696	0	1304	109	163	609	0
Shared Lane Traffic (%)	-	-				50%	-					
Lane Group Flow (vph)	0	0	0	0	728	348	0	1413	0	163	609	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	g
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors				1	1	1		1		1	1	
Detector Template				Left								
Leading Detector (ft)				20	30	30		30		30	30	
Trailing Detector (ft)				0	0	0		0		0	0	
Detector 1 Position(ft)				0	0	0		0		0	0	
Detector 1 Size(ft)				20	30	30		30		30	30	
Detector 1 Type				CI+Ex	CI+Ex	CI+Ex		CI+Ex		CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0	0.0		0.0		0.0	0.0	
Detector 1 Queue (s)				0.0	0.0	0.0		0.0		0.0	0.0	
Detector 1 Delay (s)				0.0	0.0	0.0		0.0		0.0	0.0	
Turn Type				Split	NA	Prot		NA		pm+pt	NA	
Protected Phases				8	8	8		6		5	2	
Permitted Phases										2		
Detector Phase				8	8	8		6		5	2	
Switch Phase						-		-				
Minimum Initial (s)				10.0	10.0	10.0		15.0		7.0	15.0	
Minimum Split (s)				14.5	14.5	14.5		29.0		11.0	20.0	
Total Split (s)				40.0	40.0	40.0		40.0		15.0	55.0	
Total Split (%)				42.1%	42.1%	42.1%		42.1%		15.8%	57.9%	

2021 No Build PM.syn

12/30/2020

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Maximum Green (s)				35.5	35.5	35.5		35.0		11.0	50.0	
Yellow Time (s)				3.5	3.5	3.5		3.0		3.0	3.0	
All-Red Time (s)				1.0	1.0	1.0		2.0		1.0	2.0	
Lost Time Adjust (s)					0.0	0.0		0.0		0.0	0.0	
Total Lost Time (s)					4.5	4.5		5.0		4.0	5.0	
Lead/Lag								Lag		Lead		
Lead-Lag Optimize?								Yes		Yes		
Vehicle Extension (s)				2.0	2.0	2.0		3.0		3.0	3.0	
Recall Mode				None	None	None		C-Min		None	C-Min	
Walk Time (s)								7.0				
Flash Dont Walk (s)								17.0				
Pedestrian Calls (#/hr)								21				
Act Effct Green (s)					28.6	28.6		43.6		57.9	56.9	
Actuated g/C Ratio					0.30	0.30		0.46		0.61	0.60	
v/c Ratio					0.55	0.85		0.61		0.60	0.29	
Control Delay					28.8	49.7		22.1		22.0	10.6	
Queue Delay					0.0	0.0		0.0		0.0	0.0	
Total Delay					28.8	49.7		22.1		22.0	10.6	
LOS					С	D		С		С	В	
Approach Delay					35.6			22.1			13.0	
Approach LOS					D			С			В	
Intersection Summary												
Area Type: Of	ther											
Cycle Length: 95												
Actuated Cycle Length: 95												
Offset: 17.5 (18%), Reference	ed to phas	se 2:NWT	L and 6:	SET, Stai	rt of Yello	W						
Natural Cycle: 65												
Control Type: Actuated-Coord	linated											
Maximum v/c Ratio: 0.85												
Intersection Signal Delay: 24.	4			In	itersectior	n LOS: C						
Intersection Capacity Utilization	on 56.9%			IC	CU Level	of Service	B					
Analysis Period (min) 15												

Splits and Phases: 8: ELM ST. & N. STATE ST./I-95 EXIT 8



Queues 8: ELM ST. & N. STATE ST./I-95 EXIT 8

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Lane Group	WBT	WBR	SET	NWL	NWT
Lane Group Flow (vph)	728	348	1413	163	609
v/c Ratio	0.55	0.85	0.61	0.60	0.29
Control Delay	28.8	49.7	22.1	22.0	10.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	28.8	49.7	22.1	22.0	10.6
Queue Length 50th (ft)	139	223	230	40	89
Queue Length 95th (ft)	163	323	323	105	141
Internal Link Dist (ft)	488		402		233
Turn Bay Length (ft)					
Base Capacity (vph)	1631	508	2305	301	2118
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.45	0.69	0.61	0.54	0.29
Intersection Summary					

12/30/2020

Lanes, Volumes, Timings 2: I-95 ON RAMP & ATLANTIC ST. & N. STATE ST.

12/30/2020

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Lane Group	WBL2	WBL	WBT	WBR	NBL2	NBL	NBT	SBT	SBR	SBR2	
Lane Configurations		3	ፈጉ			3	**	**	đ		
Traffic Volume (vph)	140	640	590	320	280	10	380	310	270	110	
Future Volume (vph)	140	640	590	320	280	10	380	310	270	110	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Util. Factor	0.95	0.91	0.91	0.95	0.95	1.00	0.95	0.95	1.00	0.95	
Ped Bike Factor	0170	0171	0.96	0170	0170	0.99	0170	0170	0.98	0170	
Frt			0.957			0.77			0.850		
Flt Protected		0 950	0.991			0 950			0.000		
Satd. Flow (prot)	0	1610	3098	0	0	1770	3539	3539	1583	0	
Flt Permitted	Ŭ	0.950	0 991			0 442	0007	0007	1000		
Satd. Flow (perm)	0	1610	3098	0	0	818	3539	3539	1558	0	
Right Turn on Red	Ŭ		0070	No		0.0	0007	0007	1000	No	
Satd Flow (RTOR)				110						110	
Link Speed (mph)			30				30	30			
Link Distance (ft)			1168				193	241			
Travel Time (s)			26.5				175	55			
Confl Peds (#/br)			20.5	01	1	1	т.т	0.0	1		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0 92	0.92	0.92	0 92	0.92	
Adi Flow (vpb)	152	696	6/1	3/18	30/	11	/13	337	203	120	
Shared Lane Traffic (%)	152	22%	011	540	304		15	557	275	120	
Lane Group Flow (vpb)	0	618	1210	0	0	215	/13	227	/13	0	
Enter Blocked Intersection	No	No	No	No	No	No	A13	No	A13	No	
Lane Alignment	Loft	Loft	L off	Pight	Loft	Loft	Loft	Loft	Pight	Pight	
Median Width(ft)	Len	Len	12	Night	Len	Leit	12	12	Right	Night	
Link Offsot(ft)			12				12	12			
Crosswalk Width(ft)			16				16	16			
			10				10	10			
Hoadway Eactor	1 00	1 00	1 00	1 00	1 00	1 00	1 00	1 00	1 00	1 00	
Turning Spood (mph)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Number of Detectors	10	10	1	7	10	10	0	0	9	7	
Number of Detectors	Loft	1	1		Loft	1	U	0	U		
Loading Dotoctor (ft)	20	206	206		20	20	0	0	0		
Trailing Detector (II)	20	200	200		20	30	0	0	0		
Detector 1 Desition(ft)	0	200	200		0	0	0	0	0		
Detector 1 Size(ft)	20	300	300		20	20	6	6	20		
Detector 1 Type											
Detector 1 Channel	UI+EX	UI+EX	CI+EX		CI+EX	UI+EX	UI+EX	CI+EX	CI+EX		
Detector 1 Challiner	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		
Detector 1 Queue (c)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		
Detector 1 Delay (c)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		
Delector T Delay (S)	U.U Dorm	U.U Dorm	0.0		0.0	0.0	0.0	0.0	U.U Dorm		
Turn Type	Perm	Perm	NA		pm+pt	pm+pt	NA 2	NA (Perm		
Protected Phases	0	0	8		5	5	2	6	,		
Permilled Phases	8	ъ В В	0		2	2	2		6		
Delector Phase	8	8	8		5	5	2	6	6		
Switch Phase	15.0	15.0	15.0		F 0	F 0	45.0	45.0	45.0		
iviinimum Initial (s)	15.0	15.0	15.0		5.0	5.0	15.0	15.0	15.0		
Minimum Split (s)	31.0	31.0	31.0		10.0	10.0	26.0	20.0	20.0		
Total Split (s)	55.0	55.0	55.0		18.0	18.0	57.0	39.0	39.0		
Total Split (%)	49.1%	49.1%	49.1%		16.1%	16.1%	50.9%	34.8%	34.8%		

2021 Lane Removed AM.syn

Lanes, Volumes, Timings 2: I-95 ON RAMP & ATLANTIC ST. & N. STATE ST.

12/30/2020

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Lane Group	WBL2	WBL	WBT	WBR	NBL2	NBL	NBT	SBT	SBR	SBR2	
Maximum Green (s)	50.0	50.0	50.0		13.0	13.0	52.0	34.0	34.0		
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	Lead		Lag	Lag		
Lead-Lag Optimize?					Yes	Yes		Yes	Yes		
Vehicle Extension (s)	2.0	2.0	2.0		1.5	1.5	3.0	3.0	3.0		
Recall Mode	None	None	None		None	None	C-Max	Max	Max		
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)	91	91	91				55				
Act Effct Green (s)		47.3	47.3			54.7	54.7	37.0	37.0		
Actuated g/C Ratio		0.42	0.42			0.49	0.49	0.33	0.33		
v/c Ratio		0.91	0.93			0.62	0.24	0.29	0.80		
Control Delay		49.2	44.2			25.0	17.6	29.5	48.8		
Queue Delay		0.0	0.0			0.0	0.0	0.0	0.0		
Total Delay		49.2	44.2			25.0	17.6	29.5	48.8		
LOS		D	D			С	В	С	D		
Approach Delay			45.9				20.8	40.1			
Approach LOS			D				С	D			
Intersection Summary											
Area Type:	Other										
Cycle Length: 112											
Actuated Cycle Length: 112	2										
Offset: 0 (0%), Referenced	to phase 2	:NBTL, S	tart of Gre	een							
Natural Cycle: 70											
Control Type: Actuated-Cod	ordinated										
Maximum v/c Ratio: 0.93											
Intersection Signal Delay: 3	39.1			Ir	ntersection	ו LOS: D					
Intersection Capacity Utilization	ation 86.4%)		IC	CU Level	of Servic	еE				
Analysis Period (min) 15											
Splits and Phases: 2: I-9	5 ON RAM	P & ATLA	ANTIC ST	. & N. ST	FATE ST.						

Queues 2: I-95 ON RAMP & ATLANTIC ST. & N. STATE ST.

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Lane Group	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	618	1219	315	413	337	413
v/c Ratio	0.91	0.93	0.62	0.24	0.29	0.80
Control Delay	49.2	44.2	25.0	17.6	29.5	48.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.2	44.2	25.0	17.6	29.5	48.8
Queue Length 50th (ft)	435	435	142	91	97	281
Queue Length 95th (ft)	#669	#545	215	126	137	#460
Internal Link Dist (ft)		1088		113	161	
Turn Bay Length (ft)						
Base Capacity (vph)	718	1383	512	1729	1170	514
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.86	0.88	0.62	0.24	0.29	0.80
Intersection Summary						

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

Queue shown is maximum after two cycles.

Lanes, Volumes, Timings <u>5: CANAL ST. & N. STATE ST.</u>

12/30/2020

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					ፈቶኩ		۲	44			A	
Traffic Volume (vph)	0	0	0	310	1310	300	270	590	0	0	630	240
Future Volume (vph)	0	0	0	310	1310	300	270	590	0	0	630	240
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	0.91	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor					0.99						0.99	
Frt					0.977						0.959	
Flt Protected					0.992		0.950					
Satd. Flow (prot)	0	0	0	0	4896	0	1770	3539	0	0	3373	0
Flt Permitted					0.992		0.125					
Satd. Flow (perm)	0	0	0	0	4896	0	233	3539	0	0	3373	0
Right Turn on Red			Yes			No			Yes			Yes
Satd. Flow (RTOR)											44	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1168			439			220			380	
Travel Time (s)		26.5			10.0			5.0			8.6	
Confl. Peds. (#/hr)				1		30	9		8	8		9
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	337	1424	326	293	641	0	0	685	261
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	2087	0	293	641	0	0	946	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors				1	1		1	1			1	
Detector Template				Left								
Leading Detector (ft)				20	40		30	30			40	
Trailing Detector (ft)				0	0		0	0			0	
Detector 1 Position(ft)				0	0		0	0			0	
Detector 1 Size(ft)				20	40		30	30			40	
Detector 1 Type				CI+Ex	CI+Ex		CI+Ex	CI+Ex			CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0		0.0	0.0			0.0	
Detector 1 Queue (s)				0.0	0.0		0.0	0.0			0.0	
Detector 1 Delay (s)				0.0	0.0		0.0	0.0			0.0	
Turn Type				Perm	NA		pm+pt	NA			NA	
Protected Phases					8		5	2			6	
Permitted Phases				8			2					
Detector Phase				8	8		5	2			6	
Switch Phase							_					
Minimum Initial (s)				10.0	10.0		7.0	15.0			15.0	
Minimum Split (s)				33.0	33.0		11.0	29.0			29.0	
Total Split (s)				44.0	44.0		18.0	51.0			33.0	
Total Split (%)				46.3%	46.3%		18.9%	53.7%			34.7%	

2021 Lane Removed AM.syn

Lanes, Volumes, Timings <u>5: CANAL ST. & N. STATE ST.</u>

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Maximum Green (s)				39.0	39.0		14.0	46.0			28.0	
Yellow Time (s)				3.0	3.0		3.0	3.0			3.0	
All-Red Time (s)				2.0	2.0		1.0	2.0			2.0	
Lost Time Adjust (s)					0.0		0.0	0.0			0.0	
Total Lost Time (s)					5.0		4.0	5.0			5.0	
Lead/Lag							Lead				Lag	
Lead-Lag Optimize?							Yes				Yes	
Vehicle Extension (s)				5.0	5.0		3.0	1.0			3.0	
Recall Mode				None	None		None	C-Min			C-Min	
Walk Time (s)				7.0	7.0			7.0			7.0	
Flash Dont Walk (s)				21.0	21.0			17.0			17.0	
Pedestrian Calls (#/hr)				31	31			8			9	
Act Effct Green (s)					39.4		46.6	45.6			27.9	
Actuated g/C Ratio					0.41		0.49	0.48			0.29	
v/c Ratio					1.03		0.88	0.38			0.93	
Control Delay					53.0		48.7	16.4			46.9	
Queue Delay					0.0		0.0	0.0			0.0	
Total Delay					53.0		48.7	16.4			46.9	
LOS					D		D	В			D	
Approach Delay					53.0			26.6			46.9	
Approach LOS					D			С			D	
Intersection Summary												
Area Type: C	Other											
Cycle Length: 95												
Actuated Cycle Length: 95												
Offset: 30 (32%), Referenced	d to phase	2:NBTL	and 6:SB	T, Start c	of Yellow							
Natural Cycle: 90												
Control Type: Actuated-Coor	dinated											
Maximum v/c Ratio: 1.03												
Intersection Signal Delay: 45	5.3			In	tersectior	ו LOS: D						
Intersection Capacity Utilizat	ion 90.7%			IC	CU Level	of Service	Ε					
Analysis Period (min) 15												
Solits and Phases 5. CAN	AL ST &	Ν STAT	F ST									



Queues 5: CANAL ST. & N. STATE ST.

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Lane Group	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	2087	293	641	946
v/c Ratio	1.03	0.88	0.38	0.93
Control Delay	53.0	48.7	16.4	46.9
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	53.0	48.7	16.4	46.9
Queue Length 50th (ft)	~500	119	123	278
Queue Length 95th (ft)	#601	#263	164	#402
Internal Link Dist (ft)	359		140	300
Turn Bay Length (ft)				
Base Capacity (vph)	2032	340	1713	1025
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	1.03	0.86	0.37	0.92
Intersection Summary				

Volume exceeds capacity, queue is theoretically infinite.

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

12/30/2020

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations				<u>۲</u>	≜1 ≽	1		<u>ተተ</u> ኑ		<u>۲</u>	^	
Traffic Volume (vph)	0	0	0	320	620	790	0	220	870	270	600	0
Future Volume (vph)	0	0	0	320	620	790	0	220	870	270	600	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	0.91	1.00	0.95	1.00
Ped Bike Factor					1.00			0.98		1.00		
Frt					0.946	0.850		0.880				
Flt Protected				0.950						0.950		
Satd. Flow (prot)	0	0	0	1770	3192	1441	0	4382	0	1770	3539	0
Flt Permitted				0.950						0.110		
Satd. Flow (perm)	0	0	0	1770	3192	1441	0	4382	0	205	3539	0
Right Turn on Red			Yes			No			Yes			Yes
Satd. Flow (RTOR)								100				
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1111			568			482			313	
Travel Time (s)		25.3			12.9			11.0			7.1	
Confl. Peds. (#/hr)						1			12	12		
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
Adi, Flow (vph)	0	0	0	348	674	859	0	239	946	293	652	0
Shared Lane Traffic (%)						44%						
Lane Group Flow (vph)	0	0	0	348	1052	481	0	1185	0	293	652	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12	5		12	5		12	5		12	J
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors				1	1	1		1		1	1	
Detector Template				Left								
Leading Detector (ft)				20	30	30		30		30	30	
Trailing Detector (ft)				0	0	0		0		0	0	
Detector 1 Position(ft)				0	0	0		0		0	0	
Detector 1 Size(ft)				20	30	30		30		30	30	
Detector 1 Type				CI+Ex	CI+Ex	CI+Ex		CI+Ex		CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0	0.0		0.0		0.0	0.0	
Detector 1 Queue (s)				0.0	0.0	0.0		0.0		0.0	0.0	
Detector 1 Delay (s)				0.0	0.0	0.0		0.0		0.0	0.0	
Turn Type				Split	NA	Prot		NA		pm+pt	NA	
Protected Phases				8	8	8		6		5	2	
Permitted Phases										2		
Detector Phase				8	8	8		6		5	2	
Switch Phase												
Minimum Initial (s)				10.0	10.0	10.0		15.0		7.0	15.0	
Minimum Split (s)				14.5	14.5	14.5		29.0		11.0	20.0	
Total Split (s)				40.0	40.0	40.0		40.0		15.0	55.0	
Total Split (%)				42.1%	42.1%	42.1%		42.1%		15.8%	57.9%	

2021 Lane Removed AM.syn

12/30/2020

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Maximum Green (s)				35.5	35.5	35.5		35.0		11.0	50.0	
Yellow Time (s)				3.5	3.5	3.5		3.0		3.0	3.0	
All-Red Time (s)				1.0	1.0	1.0		2.0		1.0	2.0	
Lost Time Adjust (s)				0.0	0.0	0.0		0.0		0.0	0.0	
Total Lost Time (s)				4.5	4.5	4.5		5.0		4.0	5.0	
Lead/Lag								Lag		Lead		
Lead-Lag Optimize?								Yes		Yes		
Vehicle Extension (s)				2.0	2.0	2.0		3.0		3.0	3.0	
Recall Mode				None	None	None		C-Min		None	C-Min	
Walk Time (s)								7.0				
Flash Dont Walk (s)								17.0				
Pedestrian Calls (#/hr)								12				
Act Effct Green (s)				35.5	35.5	35.5		32.7		51.0	50.0	
Actuated g/C Ratio				0.37	0.37	0.37		0.34		0.54	0.53	
v/c Ratio				0.53	0.88	0.89		1.56dr		0.89	0.35	
Control Delay				26.4	37.9	49.0		28.7		52.7	14.0	
Queue Delay				0.0	0.0	0.0		0.0		0.0	0.0	
Total Delay				26.4	37.9	49.0		28.7		52.7	14.0	
LOS				С	D	D		С		D	В	
Approach Delay					38.6			28.7			26.0	
Approach LOS					D			С			С	
Intersection Summary												
Area Type: O	ther											
Cycle Length: 95												
Actuated Cycle Length: 95												
Offset: 17.5 (18%), Reference	ed to phas	e 2:NWT	L and 6:	SET, Sta	rt of Yello	W						
Natural Cycle: 80												
Control Type: Actuated-Coord	linated											
Maximum v/c Ratio: 0.89												
Intersection Signal Delay: 32.	7			Ir	itersection	n LOS: C						
Intersection Capacity Utilization	on 76.7%			IC	CU Level	of Service	e D					
Analysis Period (min) 15												
dr Defacto Right Lane. Rec	code with	1 though	lane as	a right lar	ne.							
Splite and Dhacocy O. FLM	CT 0 M	CTATE C										

Splits and Phases: 8: ELM ST. & N. STATE ST./I-95 EXIT 8



Queues 8: ELM ST. & N. STATE ST./I-95 EXIT 8

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Lane Group	WBL	WBT	WBR	SET	NWL	NWT
Lane Group Flow (vph)	348	1052	481	1185	293	652
v/c Ratio	0.53	0.88	0.89	1.56dr	0.89	0.35
Control Delay	26.4	37.9	49.0	28.7	52.7	14.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.4	37.9	49.0	28.7	52.7	14.0
Queue Length 50th (ft)	151	299	275	215	~139	124
Queue Length 95th (ft)	247	#448	#505	254	#292	152
Internal Link Dist (ft)		488		402		233
Turn Bay Length (ft)						
Base Capacity (vph)	681	1229	554	1683	330	1903
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.86	0.87	0.70	0.89	0.34

Intersection Summary Volume exceeds capacity, queue is theoretically infinite.

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

Queue shown is maximum after two cycles.

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Lanes, Volumes, Timings 2: I-95 ON RAMP & ATLANTIC ST. & N. STATE ST.

12/30/2020

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Lane Group	WBL2	WBL	WBT	WBR	NBL2	NBL	NBT	SBT	SBR	SBR2	
Lane Configurations		3	416			3	44	44	đ		
Traffic Volume (vph)	170	770	310	350	200	10	260	400	310	70	
Future Volume (vph)	170	770	310	350	200	10	260	400	310	70	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Util Factor	0.95	0.91	0.91	0.95	0.95	1 00	0.95	0.95	1 00	0.95	
Ped Bike Factor	0170	0171	0.98	0170	0170	0.99	0170	0170	0.98	0170	
Frt			0.951			0.77			0.850		
Flt Protected		0 950	0.981			0 950			0.000		
Satd. Flow (prot)	0	1610	3084	0	0	1770	3539	3539	1583	0	
Flt Permitted	Ŭ	0.950	0 981	Ŭ	Ŭ	0.382	0007	0007	1000	Ŭ	
Satd Flow (perm)	0	1610	3084	0	0	703	3539	3539	1551	0	
Right Turn on Red	Ŭ	1010	0001	No	Ŭ	100	0007	0007	1001	No	
Satd Flow (RTOR)				110						110	
Link Speed (mph)			30				30	30			
Link Distance (ft)			1168				193	241			
Travel Time (s)			26.5				175	55			
Confl Peds (#/hr)			20.5	50	9	Q	т.т	0.0	Q		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adi Flow (vpb)	185	837	337	380	217	11	283	/135	337	76	
Shared Lane Traffic (%)	105	52%	557	500	217		205	700	557	70	
Lane Group Flow (vph)	0	587	1152	0	0	228	283	135	/13	0	
Enter Blocked Intersection	No	No	No	No	No	No	Z03	433 No	A13	No	
Lane Alignment	L off	Loft	Loft	Pight	Loft	Loft	Loft	Loft	Pight	Right	
Median Width(ft)	Len	Len	12	Night	Len	Len	12	12	Night	Night	
Link Offsot(ft)			12				12	12			
Crosswalk Width(ft)			16				16	16			
			10				10	10			
Hoadway Eactor	1 00	1 00	1 00	1 00	1 00	1 00	1 00	1 00	1 00	1 00	
Turning Spood (mph)	1.00	1.00	1.00	0.1	1.00	1.00	1.00	1.00	0.1	0.1	
Number of Detectors	15	15	1	7	15	15	٥	٥	9	7	
Detector Tomplato	Loft	1	1		Loft	1	0	0	U		
Loading Dotoctor (ft)	20	206	206		20	30	٥	٥	٥		
Trailing Detector (ft)	20	300	300		20	0	0	0	0		
Dotoctor 1 Position(ft)	0	300	300		0	0	0	0	0		
Detector 1 Sizo(ft)	20	500	500		20	30	6	6	20		
Detector 1 Size(it)											
Detector 1 Channel			CITLA			CITLA	CITLA	CITLA	CITLA		
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		
Detector 1 Quoue (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		
	Dorm	Dorm	0.0		0.0	0.0	0.0	0.0	Dorm		
Protocted Diasos	Pelill	Pelili	NA 0		pin+pi	pin+pi	NA 2	INA 4	Pellii		
Protected Phases	0	0	Ő		ວ ວ	ວ ວ	Z	0	4		
Permilleu Pridses	Ö 0	ð 0	0		Z	Z E	C	4	0		
Delector Phase	ŏ	8	ð		C	C	Z	0	0		
Switch Phase	15.0	15.0	15.0		ГО	ГО	15.0	15.0	15.0		
Minimum Calit (5)	15.0	15.0	15.0		5.0	5.0	15.0	15.0	15.0		
iviiriimum Spiit (S) Tatal Spiit (s)	31.0	31.0	31.0		10.0	10.0	26.0	20.0	20.0		
Total Split (S)	55.0	55.0	55.0		18.0	18.0	57.0	39.0	39.0		
i otal Split (%)	49.1%	49.1%	49.1%		16.1%	16.1%	50.9%	34.8%	34.8%		

2021 Lane Removed PM.syn

Lanes, Volumes, Timings 2: I-95 ON RAMP & ATLANTIC ST. & N. STATE ST.

12/30/2020	
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Lane Group	WBL2	WBL	WBT	WBR	NBL2	NBL	NBT	SBT	SBR	SBR2	
Maximum Green (s)	50.0	50.0	50.0		13.0	13.0	52.0	34.0	34.0		
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	Lead		Lag	Lag		
Lead-Lag Optimize?					Yes	Yes		Yes	Yes		
Vehicle Extension (s)	2.0	2.0	2.0		1.5	1.5	3.0	3.0	3.0		
Recall Mode	None	None	None		None	None	C-Max	Max	Max		
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)	50	50	50				45				
Act Effct Green (s)		45.9	45.9			56.1	56.1	39.9	39.9		
Actuated g/C Ratio		0.41	0.41			0.50	0.50	0.36	0.36		
v/c Ratio		0.89	0.91			0.50	0.16	0.35	0.75		
Control Delay		47.4	42.4			21.1	16.3	28.8	43.5		
Queue Delay		0.0	0.0			0.0	0.0	0.0	0.0		
Total Delay		47.4	42.4			21.1	16.3	28.8	43.5		
LOS		D	D			С	В	С	D		
Approach Delay			44.1				18.4	36.0			
Approach LOS			D				В	D			
Intersection Summary											
Area Type:	Other										
Cycle Length: 112											
Actuated Cycle Length: 112	2										
Offset: 51 (46%), Reference	ed to phase	2:NBTL,	Start of V	rellow							
Natural Cycle: 70											
Control Type: Actuated-Co	ordinated										
Maximum v/c Ratio: 0.91											
Intersection Signal Delay: 3	37.6			lr	ntersectior	n LOS: D					
Intersection Capacity Utiliz	ation 80.9%)		10	CU Level	of Servic	e D				
Analysis Period (min) 15											
Splits and Dhasses 2.10		יידא פ ח									

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Queues 2: I-95 ON RAMP & ATLANTIC ST. & N. STATE ST.

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ane Group	WBL	WBT	NBL	NBT	SBT	SBR
ane Group Flow (vph)	587	1152	228	283	435	413
/c Ratio	0.89	0.91	0.50	0.16	0.35	0.75
Control Delay	47.4	42.4	21.1	16.3	28.8	43.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.4	42.4	21.1	16.3	28.8	43.5
Queue Length 50th (ft)	414	411	93	57	124	269
Queue Length 95th (ft)	#593	494	153	87	177	#462
nternal Link Dist (ft)		1088		113	161	
Furn Bay Length (ft)						
Base Capacity (vph)	718	1376	475	1772	1260	552
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.82	0.84	0.48	0.16	0.35	0.75

Intersection Summary

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

Queue shown is maximum after two cycles.

Lanes, Volumes, Timings <u>5: CANAL ST. & N. STATE ST.</u>

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					ፈቶኩ		۲.	^			At≱	
Traffic Volume (vph)	0	0	0	350	910	200	280	760	0	0	620	170
Future Volume (vph)	0	0	0	350	910	200	280	760	0	0	620	170
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	0.91	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor					1.00		1.00				1.00	
Frt					0.979						0.968	
Flt Protected					0.988		0.950					
Satd. Flow (prot)	0	0	0	0	4899	0	1770	3539	0	0	3410	0
Flt Permitted					0.988		0.125					
Satd. Flow (perm)	0	0	0	0	4896	0	232	3539	0	0	3410	0
Right Turn on Red			Yes			No			Yes			Yes
Satd. Flow (RTOR)											37	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1168			439			220			380	
Travel Time (s)		26.5			10.0			5.0			8.6	
Confl. Peds. (#/hr)				2		18	8					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
Adi. Flow (vph)	0	0	0	380	989	217	304	826	0	0	674	185
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	1586	0	304	826	0	0	859	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0	J -		0	J -		12	J -		12	<u> </u>
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors				1	1		1	1			1	
Detector Template				Left								
Leading Detector (ft)				20	40		30	30			40	
Trailing Detector (ft)				0	0		0	0			0	
Detector 1 Position(ft)				0	0		0	0			0	
Detector 1 Size(ft)				20	40		30	30			40	
Detector 1 Type				CI+Ex	CI+Ex		CI+Ex	CI+Ex			CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0		0.0	0.0			0.0	
Detector 1 Queue (s)				0.0	0.0		0.0	0.0			0.0	
Detector 1 Delay (s)				0.0	0.0		0.0	0.0			0.0	
Turn Type				Perm	NA		pm+pt	NA			NA	
Protected Phases					8		5	2			6	
Permitted Phases				8			2					
Detector Phase				8	8		5	2			6	
Switch Phase												
Minimum Initial (s)				10.0	10.0		7.0	15.0			15.0	
Minimum Split (s)				33.0	33.0		11.0	29.0			29.0	
Total Split (s)				44.0	44.0		18.0	51.0			33.0	
Total Split (%)				46.3%	46.3%		18.9%	53.7%			34.7%	

2021 Lane Removed PM.syn

Lanes, Volumes, Timings 5: CANAL ST. & N. STATE ST.

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Maximum Green (s)				39.0	39.0		14.0	46.0			28.0	
Yellow Time (s)				3.0	3.0		3.0	3.0			3.0	
All-Red Time (s)				2.0	2.0		1.0	2.0			2.0	
Lost Time Adjust (s)					0.0		0.0	0.0			0.0	
Total Lost Time (s)					5.0		4.0	5.0			5.0	
Lead/Lag							Lead				Lag	
Lead-Lag Optimize?							Yes				Yes	
Vehicle Extension (s)				5.0	5.0		3.0	1.0			3.0	
Recall Mode				None	None		None	C-Min			C-Min	
Walk Time (s)				7.0	7.0			7.0			7.0	
Flash Dont Walk (s)				21.0	21.0			17.0			17.0	
Pedestrian Calls (#/hr)				20	20			8			8	
Act Effct Green (s)					39.3		46.7	45.7			27.9	
Actuated g/C Ratio					0.41		0.49	0.48			0.29	
v/c Ratio					0.78		0.90	0.49			0.83	
Control Delay					27.0		53.2	17.9			38.6	
Queue Delay					0.0		0.0	0.0			0.0	
Total Delay					27.0		53.2	17.9			38.6	
LOS					С		D	В			D	
Approach Delay					27.0			27.4			38.6	
Approach LOS					С			С			D	
Intersection Summary												
Area Type:	Other											
Cycle Length: 95												
Actuated Cycle Length: 95												
Offset: 30 (32%), Reference	d to phase	2:NBTL	and 6:SE	ST, Start c	of Yellow							
Natural Cycle: 75												
Control Type: Actuated-Coo	rdinated											
Maximum v/c Ratio: 0.90												
Intersection Signal Delay: 29	9.9			In	tersectior	n LOS: C						
Intersection Capacity Utiliza	tion 79.3%			IC	CU Level of	of Service	e D					
Analysis Period (min) 15												
Solits and Phases 5. CA	NALST &	Ν STAT	FST									



Queues 5: CANAL ST. & N. STATE ST.

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Lane Group	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	1586	304	826	859
v/c Ratio	0.78	0.90	0.49	0.83
Control Delay	27.0	53.2	17.9	38.6
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	27.0	53.2	17.9	38.6
Queue Length 50th (ft)	287	127	169	243
Queue Length 95th (ft)	346	#281	221	#325
Internal Link Dist (ft)	359		140	300
Turn Bay Length (ft)				
Base Capacity (vph)	2024	340	1713	1039
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.78	0.89	0.48	0.83
Intersection Summary				

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

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations				5	≜1 }	1		ተተ ኈ		5	* *	
Traffic Volume (vph)	0	0	0	210	140	640	0	1200	100	150	560	0
Future Volume (vph)	0	0	0	210	140	640	0	1200	100	150	560	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	0.91	1.00	0.95	1.00
Ped Bike Factor					0.99			1.00		1.00		
Frt					0.896	0.850		0.988				
Flt Protected				0.950						0.950		
Satd. Flow (prot)	0	0	0	1770	3011	1441	0	5010	0	1770	3539	0
Flt Permitted				0.950						0.107		
Satd. Flow (perm)	0	0	0	1770	3011	1441	0	5010	0	199	3539	0
Right Turn on Red			Yes			No			Yes			Yes
Satd. Flow (RTOR)								16				
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1111			568			482			313	
Travel Time (s)		25.3			12.9			11.0			7.1	
Confl. Peds. (#/hr)						1			21	21		
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
Adi, Flow (vph)	0	0	0	228	152	696	0	1304	109	163	609	0
Shared Lane Traffic (%)	-	-	-			50%	-					-
Lane Group Flow (vph)	0	0	0	228	500	348	0	1413	0	163	609	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	g
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors				1	1	1		1		1	1	
Detector Template				Left								
Leading Detector (ft)				20	30	30		30		30	30	
Trailing Detector (ft)				0	0	0		0		0	0	
Detector 1 Position(ft)				0	0	0		0		0	0	
Detector 1 Size(ft)				20	30	30		30		30	30	
Detector 1 Type				CI+Ex	CI+Ex	CI+Ex		CI+Ex		CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0	0.0		0.0		0.0	0.0	
Detector 1 Oueue (s)				0.0	0.0	0.0		0.0		0.0	0.0	
Detector 1 Delay (s)				0.0	0.0	0.0		0.0		0.0	0.0	
Turn Type				Split	NA	Prot		NA		pm+pt	NA	
Protected Phases				8	8	8		6		5	2	
Permitted Phases					U			U U		2	_	
Detector Phase				8	8	8		6		5	2	
Switch Phase								Ū			-	
Minimum Initial (s)				10.0	10.0	10.0		15.0		70	15.0	
Minimum Split (s)				14 5	14 5	14 5		29.0		11.0	20.0	
Total Split (s)				40.0	40.0	40.0		40.0		15.0	55.0	
Total Split (%)				42.1%	42.1%	42 1%		42.1%		15.8%	57.9%	
				72.170	TZ.170	TZ.1/0		TZ.1/0		10.070	51.770	

2021 Lane Removed PM.syn

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Maximum Green (s)				35.5	35.5	35.5		35.0		11.0	50.0	
Yellow Time (s)				3.5	3.5	3.5		3.0		3.0	3.0	
All-Red Time (s)				1.0	1.0	1.0		2.0		1.0	2.0	
Lost Time Adjust (s)				0.0	0.0	0.0		0.0		0.0	0.0	
Total Lost Time (s)				4.5	4.5	4.5		5.0		4.0	5.0	
Lead/Lag								Lag		Lead		
Lead-Lag Optimize?								Yes		Yes		
Vehicle Extension (s)				2.0	2.0	2.0		3.0		3.0	3.0	
Recall Mode				None	None	None		C-Min		None	C-Min	
Walk Time (s)								7.0				
Flash Dont Walk (s)								17.0				
Pedestrian Calls (#/hr)								21				
Act Effct Green (s)				27.6	27.6	27.6		44.7		58.9	57.9	
Actuated g/C Ratio				0.29	0.29	0.29		0.47		0.62	0.61	
v/c Ratio				0.44	0.57	0.83		0.60		0.59	0.28	
Control Delay				29.0	30.5	48.2		21.1		20.7	10.2	
Queue Delay				0.0	0.0	0.0		0.0		0.0	0.0	
Total Delay				29.0	30.5	48.2		21.1		20.7	10.2	
LOS				С	С	D		С		С	В	
Approach Delay					35.9			21.1			12.4	
Approach LOS					D			С			В	
Intersection Summary												
Area Type: (Other											
Cycle Length: 95												
Actuated Cycle Length: 95												
Offset: 17.5 (18%), Reference	ced to phas	se 2:NWT	L and 6:	SET, Sta	rt of Yello	W						
Natural Cycle: 60												
Control Type: Actuated-Coor	rdinated											
Maximum v/c Ratio: 0.83												
Intersection Signal Delay: 23	3.9			Ir	itersection	n LOS: C						
Intersection Capacity Utilizat	tion 56.8%			IC	CU Level	of Service	В					
Analysis Period (min) 15												

Splits and Phases: 8: ELM ST. & N. STATE ST./I-95 EXIT 8



Queues 8: ELM ST. & N. STATE ST./I-95 EXIT 8

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Lane Group	WBL	WBT	WBR	SET	NWL	NWT
Lane Group Flow (vph)	228	500	348	1413	163	609
v/c Ratio	0.44	0.57	0.83	0.60	0.59	0.28
Control Delay	29.0	30.5	48.2	21.1	20.7	10.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.0	30.5	48.2	21.1	20.7	10.2
Queue Length 50th (ft)	110	138	212	223	39	85
Queue Length 95th (ft)	158	170	296	323	102	141
Internal Link Dist (ft)		488		402		233
Turn Bay Length (ft)						
Base Capacity (vph)	661	1125	538	2366	305	2158
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.34	0.44	0.65	0.60	0.53	0.28
Intersection Summary						

Lanes, Volumes, Timings 2: I-95 ON RAMP & ATLANTIC ST. & N. STATE ST.

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Lane Group	WBL2	WBL	WBT	WBR	NBL2	NBL	NBT	SBT	SBR	SBR2	
Lane Configurations		3	Ata	1		3	* *	44	đ		
Traffic Volume (vph)	140	640	590	320	280	10	380	310	270	110	
Future Volume (vph)	140	640	590	320	280	10	380	310	270	110	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Storage Length (ft)		0		250		0			0		
Storage Lanes		1		1		1			1		
Taper Length (ft)		25				25					
Lane Util. Factor	0.95	0.91	0.91	1.00	0.95	1.00	0.95	0.95	1.00	0.95	
Ped Bike Factor				0.87		0.99			0.98		
Frt				0.850					0.850		
Flt Protected		0.950	0.982			0.950					
Satd. Flow (prot)	0	1610	3329	1583	0	1770	3539	3539	1583	0	
Flt Permitted	-	0.950	0.982		-	0.463					
Satd. Flow (perm)	0	1610	3329	1382	0	857	3539	3539	1558	0	
Right Turn on Red	-			No	-					No	
Satd. Flow (RTOR)											
Link Speed (mph)			30				30	30			
Link Distance (ft)			1168				193	241			
Travel Time (s)			26.5				4.4	5.5			
Confl. Peds. (#/hr)				91	4	4			4		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adi, Flow (vph)	152	696	641	348	304	11	413	337	293	120	
Shared Lane Traffic (%)		52%	0.11	0.0					270	. 20	
Lane Group Flow (vph)	0	486	1003	348	0	315	413	337	413	0	
Enter Blocked Intersection	No	No	No	No							
Lane Alignment	Left	Left	Left	Right	Left	Left	Left	Left	Right	Right	
Median Width(ft)			12	J			12	12	J -	J -	
Link Offset(ft)			0				0	0			
Crosswalk Width(ft)			16				16	16			
Two way Left Turn Lane											
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Speed (mph)	15	15		9	15	15			9	9	
Number of Detectors	1	1	1	1	1	1	0	0	0		
Detector Template	Left			Right	Left						
Leading Detector (ft)	20	306	306	20	20	30	0	0	0		
Trailing Detector (ft)	0	300	300	0	0	0	0	0	0		
Detector 1 Position(ft)	0	300	300	0	0	0	0	0	0		
Detector 1 Size(ft)	20	6	6	20	20	30	6	6	20		
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex								
Detector 1 Channel											
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Detector 1 Oueue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Turn Type	Split	Split	NA	Perm	pm+pt	pm+pt	NA	NA	Perm		
Protected Phases	8	8	8		5	5	2	6			
Permitted Phases	Ŭ	Ű	-	8	2	2	_	Ű	6		
Detector Phase	8	8	8	8	5	- 5	2	6	6		
Switch Phase	Ŭ	Ŭ	Ű	5	J	Ŭ	-	Ŭ	Ŭ		
Minimum Initial (s)	15.0	15.0	15.0	15.0	5.0	5.0	15.0	15.0	15.0		

2021 Lane Removed but keep RTL at Atlantic and Canal AM.syn

Lanes, Volumes, Timings	
2: I-95 ON RAMP & ATLANTIC ST. & N. STATE ST	•

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Lane Group	WBL2	WBL	WBT	WBR	NBL2	NBL	NBT	SBT	SBR	SBR2	
Minimum Split (s)	31.0	31.0	31.0	31.0	10.0	10.0	26.0	20.0	20.0		
Total Split (s)	55.0	55.0	55.0	55.0	18.0	18.0	57.0	39.0	39.0		
Total Split (%)	49.1%	49.1%	49.1%	49.1%	16.1%	16.1%	50.9%	34.8%	34.8%		
Maximum Green (s)	50.0	50.0	50.0	50.0	13.0	13.0	52.0	34.0	34.0		
Yellow Time (s)	3.0	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	2.0		
Lost Time Adjust (s)		0.0	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	5.0		
Lead/Lag					Lead	Lead		Lag	Lag		
Lead-Lag Optimize?					Yes	Yes		Yes	Yes		
Vehicle Extension (s)	2.0	2.0	2.0	2.0	1.5	1.5	3.0	3.0	3.0		
Recall Mode	None	None	None	None	None	None	C-Max	Мах	Max		
Walk Time (s)	7.0	7.0	7.0	7.0			7.0				
Flash Dont Walk (s)	19.0	19.0	19.0	19.0			14.0				
Pedestrian Calls (#/hr)	91	91	91	91			55				
Act Effct Green (s)		40.6	40.6	40.6		61.4	61.4	43.0	43.0		
Actuated g/C Ratio		0.36	0.36	0.36		0.55	0.55	0.38	0.38		
v/c Ratio		0.83	0.83	0.70		0.54	0.21	0.25	0.69		
Control Delay		45.1	38.8	37.5		19.7	14.4	26.2	38.9		
Queue Delay		0.0	0.0	0.0		0.0	0.0	0.0	0.0		
Total Delay		45.1	38.8	37.5		19.7	14.4	26.2	38.9		
LOS		D	D	D		В	В	С	D		
Approach Delay			40.2				16.7	33.2			
Approach LOS			D				В	С			
Intersection Summary											
Area Type: C	Other										
Cycle Length: 112											
Actuated Cycle Length: 112											
Offset: 0 (0%), Referenced to	o phase 2	:NBTL, S	tart of Gr	een							
Natural Cycle: 65											
Control Type: Actuated-Coor	dinated										
Maximum v/c Ratio: 0.83											
Intersection Signal Delay: 33	.5			lr	ntersectio	n LOS: C					
Intersection Capacity Utilizat	ion 78.5%)		[(CU Level	of Servic	e D				
Analysis Period (min) 15											

Splits and Phases: 2: I-95 ON RAMP & ATLANTIC ST. & N. STATE ST.

Ø2 (R)		* _{Ø8}
57 s		55 s
A ø5	↓ ø6	
18 s	39 s	

2021 Lane Removed but keep RTL at Atlantic and Canal AM.syn

Queues 2: I-95 ON RAMP & ATLANTIC ST. & N. STATE ST.

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Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	486	1003	348	315	413	337	413
v/c Ratio	0.83	0.83	0.70	0.54	0.21	0.25	0.69
Control Delay	45.1	38.8	37.5	19.7	14.4	26.2	38.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.1	38.8	37.5	19.7	14.4	26.2	38.9
Queue Length 50th (ft)	348	358	212	118	75	87	251
Queue Length 95th (ft)	434	384	277	215	126	137	#460
Internal Link Dist (ft)		1088			113	161	
Turn Bay Length (ft)			250				
Base Capacity (vph)	718	1486	616	587	1940	1359	598
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.68	0.67	0.56	0.54	0.21	0.25	0.69

Intersection Summary

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

Queue shown is maximum after two cycles.

Lanes, Volumes, Timings <u>5: CANAL ST. & N. STATE ST.</u>

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					-4 † †	1	۳	*			↑ ĵ≽	
Traffic Volume (vph)	0	0	0	310	1310	300	270	590	0	0	630	240
Future Volume (vph)	0	0	0	310	1310	300	270	590	0	0	630	240
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		250	0		0	0		0
Storage Lanes	0		0	0		1	1		0	0		0
Taper Length (ft)	25		-	25		-	25		-	25		-
Lane Util, Factor	1.00	1.00	1.00	0.91	0.91	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor				0.7.1	1.00	0.96		0170			0.99	0170
Frt					1.00	0.850					0.959	
Flt Protected					0 991	0.000	0 950				0.707	
Satd Flow (prot)	0	0	0	0	5040	1583	1770	3539	0	0	3373	0
Elt Permitted	Ŭ	Ŭ	Ŭ	Ū	0 991	1000	0 125	0007	Ū	Ū	0070	U
Satd Flow (perm)	0	0	0	0	5039	1517	233	3530	0	0	3373	0
Right Turn on Red	Ū	U	Yes	U	0007	No	200	0007	Yes	U	0070	Yes
Satd Flow (RTOR)			105			NO			105		44	105
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1168			439			220			380	
Travel Time (s)		26.5			10.0			5.0			8.6	
Confl Deds $(\#/hr)$		20.5		1	10.0	30	0	5.0	Q	Q	0.0	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
Adi Flow (vpb)	0.72	0.72	0.72	227	1/2/	326	203	6/1	0.72	0.72	685	261
Shared Lane Traffic (%)	0	0	U	557	1424	520	275	041	0	0	005	201
Lane Group Flow (vph)	0	0	0	0	1761	326	203	6/11	0	0	9/6	0
Enter Blocked Intersection	No	No	No	No	No	No	Z75 No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)	Lon	0	Right	Lon	0	rugin	Lon	12	rtigitt	Lon	12	Right
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		10			10			10			10	
Headway Eactor	1 00	1 00	1 00	1 00	1 00	1 00	1 00	1 00	1 00	1 00	1 00	1 00
Turning Speed (mph)	1.00	1.00	9	1.00	1.00	9	1.00	1.00	9	1.00	1.00	9
Number of Detectors	10		,	1	1	1	1	1	,	10	1	,
Detector Template				Left	•	Right	•				1	
Leading Detector (ft)				20	40	20	30	30			40	
Trailing Detector (ft)				0	0	0	0	0			0	
Detector 1 Position(ft)				0	0	0	0	0			0	
Detector 1 Size(ft)				20	40	20	30	30			40	
Detector 1 Type				CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex			CI+Ex	
Detector 1 Channel				OTTEX	ONEX	OTTEX	ONEX	OTTEX			OTTEX	
Detector 1 Extend (s)				0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Queue (s)				0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Delay (s)				0.0	0.0	0.0	0.0	0.0			0.0	
Turn Type				Perm	NA	Perm	nm+nt	NA			NA	
Protected Phases				1 0111	8	1 0111	5	2			6	
Permitted Phases				8	0	Q	2	2			U	
Detector Phase				۵ و	Q	۵ و	<u>د</u> ج	2			6	
Switch Phase				0	U	0	5	2			U	
Minimum Initial (c)				10.0	10.0	10.0	7 0	15.0			15.0	
winning (S)				10.0	10.0	10.0	1.0	10.0			15.0	

2021 Lane Removed but keep RTL at Atlantic and Canal AM.syn
Lanes, Volumes, Timings 5: CANAL ST. & N. STATE ST.

12/30/2020

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)				33.0	33.0	33.0	11.0	29.0			29.0	
Total Split (s)				44.0	44.0	44.0	18.0	51.0			33.0	
Total Split (%)				46.3%	46.3%	46.3%	18.9%	53.7%			34.7%	
Maximum Green (s)				39.0	39.0	39.0	14.0	46.0			28.0	
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	1.0	2.0			2.0	
Lost Time Adjust (s)					0.0	0.0	0.0	0.0			0.0	
Total Lost Time (s)					5.0	5.0	4.0	5.0			5.0	
Lead/Lag							Lead				Lag	
Lead-Lag Optimize?							Yes				Yes	
Vehicle Extension (s)				5.0	5.0	5.0	3.0	1.0			3.0	
Recall Mode				None	None	None	None	C-Min			C-Min	
Walk Time (s)				7.0	7.0	7.0		7.0			7.0	
Flash Dont Walk (s)				21.0	21.0	21.0		17.0			17.0	
Pedestrian Calls (#/hr)				31	31	31		8			9	
Act Effct Green (s)					39.4	39.4	46.6	45.6			27.9	
Actuated g/C Ratio					0.41	0.41	0.49	0.48			0.29	
v/c Ratio					0.84	0.52	0.88	0.38			0.93	
Control Delay					28.1	23.2	48.7	16.4			46.9	
Queue Delay					0.0	0.0	0.0	0.0			0.0	
Total Delay					28.1	23.2	48.7	16.4			46.9	
LOS					С	С	D	В			D	
Approach Delay					27.4			26.6			46.9	
Approach LOS					С			С			D	
Intersection Summary												
Area Type: Ot	her											
Cycle Length: 95												
Actuated Cycle Length: 95												
Offset: 30 (32%), Referenced	to phase	2:NBTL a	and 6:SE	BT, Start o	of Yellow							
Natural Cycle: 75												
Control Type: Actuated-Coord	inated											
Maximum v/c Ratio: 0.93												
Intersection Signal Delay: 31.8	8			Ir	ntersectio	n LOS: C						
Intersection Capacity Utilization	on 83.6%			10	CU Level	of Service	еE					
Analysis Period (min) 15												

Splits and Phases: 5: CANAL ST. & N. STATE ST.



2021 Lane Removed but keep RTL at Atlantic and Canal AM.syn

Queues 5: CANAL ST. & N. STATE ST.

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Lane Group	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	1761	326	293	641	946
v/c Ratio	0.84	0.52	0.88	0.38	0.93
Control Delay	28.1	23.2	48.7	16.4	46.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	28.1	23.2	48.7	16.4	46.9
Queue Length 50th (ft)	336	152	119	123	278
Queue Length 95th (ft)	412	m227	#263	164	#402
Internal Link Dist (ft)	359			140	300
Turn Bay Length (ft)		250			
Base Capacity (vph)	2091	629	340	1713	1025
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.84	0.52	0.86	0.37	0.92
Intercaction Summary					

Intersection Summary

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

Queue shown is maximum after two cycles. m Volume for 95th percentile queue is metered by upstream signal.

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Lane Group	WBL2	WBL	WBT	WBR	NBL2	NBL	NBT	SBT	SBR	SBR2	
Lane Configurations		3	-at+	1		3	* *	44	đ		
Traffic Volume (vph)	170	770	310	350	200	10	260	400	310	70	
Future Volume (vph)	170	770	310	350	200	10	260	400	310	70	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Storage Length (ft)		0		250		0			0		
Storage Lanes		1		1		1			1		
Taper Length (ft)		25				25					
Lane Util. Factor	0.95	0.91	0.91	1.00	0.95	1.00	0.95	0.95	1.00	0.95	
Ped Bike Factor				0.92		0.99			0.98		
Frt				0.850					0.850		
Flt Protected		0.950	0.971			0.950					
Satd. Flow (prot)	0	1610	3292	1583	0	1770	3539	3539	1583	0	
Flt Permitted		0.950	0.971			0.403					
Satd. Flow (perm)	0	1610	3292	1464	0	742	3539	3539	1551	0	
Right Turn on Red				No						No	
Satd. Flow (RTOR)											
Link Speed (mph)			30				30	30			
Link Distance (ft)			1168				193	241			
Travel Time (s)			26.5				4.4	5.5			
Confl. Peds. (#/hr)				50	9	9			9		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adi, Flow (vph)	185	837	337	380	217	11	283	435	337	76	
Shared Lane Traffic (%)		61%									
Lane Group Flow (vph)	0	511	848	380	0	228	283	435	413	0	
Enter Blocked Intersection	No	No	No	No							
Lane Alignment	Left	Left	Left	Right	Left	Left	Left	Left	Right	Right	
Median Width(ft)			12	Ű			12	12	J	5	
Link Offset(ft)			0				0	0			
Crosswalk Width(ft)			16				16	16			
Two way Left Turn Lane											
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Speed (mph)	15	15		9	15	15			9	9	
Number of Detectors	1	1	1	1	1	1	0	0	0		
Detector Template	Left			Right	Left						
Leading Detector (ft)	20	306	306	20	20	30	0	0	0		
Trailing Detector (ft)	0	300	300	0	0	0	0	0	0		
Detector 1 Position(ft)	0	300	300	0	0	0	0	0	0		
Detector 1 Size(ft)	20	6	6	20	20	30	6	6	20		
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex								
Detector 1 Channel											
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Turn Type	Perm	Perm	NA	Perm	pm+pt	pm+pt	NA	NA	Perm		
Protected Phases			8		5	5	2	6			
Permitted Phases	8	8		8	2	2			6		
Detector Phase	8	8	8	8	5	5	2	6	6		
Switch Phase											
Minimum Initial (s)	15.0	15.0	15.0	15.0	5.0	5.0	15.0	15.0	15.0		

2021 Lane Removed but keep RTL at Atlantic and Canal PM.syn

Lanes, Volumes, Timings	
2: I-95 ON RAMP & ATLANTIC ST. & N. STATE ST	•

12/30/2020

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Lane Group	WBL2	WBL	WBT	WBR	NBL2	NBL	NBT	SBT	SBR	SBR2	
Minimum Split (s)	31.0	31.0	31.0	31.0	10.0	10.0	26.0	20.0	20.0		
Total Split (s)	55.0	55.0	55.0	55.0	18.0	18.0	57.0	39.0	39.0		
Total Split (%)	49.1%	49.1%	49.1%	49.1%	16.1%	16.1%	50.9%	34.8%	34.8%		
Maximum Green (s)	50.0	50.0	50.0	50.0	13.0	13.0	52.0	34.0	34.0		
Yellow Time (s)	3.0	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	2.0		
Lost Time Adjust (s)		0.0	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	5.0		
Lead/Lag					Lead	Lead		Lag	Lag		
Lead-Lag Optimize?					Yes	Yes		Yes	Yes		
Vehicle Extension (s)	2.0	2.0	2.0	2.0	1.5	1.5	3.0	3.0	3.0		
Recall Mode	None	None	None	None	None	None	C-Max	Мах	Мах		
Walk Time (s)	7.0	7.0	7.0	7.0			7.0				
Flash Dont Walk (s)	19.0	19.0	19.0	19.0			14.0				
Pedestrian Calls (#/hr)	50	50	50	50			45				
Act Effct Green (s)		40.7	40.7	40.7		61.3	61.3	45.3	45.3		
Actuated g/C Ratio		0.36	0.36	0.36		0.55	0.55	0.40	0.40		
v/c Ratio		0.87	0.71	0.71		0.45	0.15	0.30	0.66		
Control Delay		48.9	33.4	37.7		18.0	14.1	25.6	36.4		
Queue Delay		0.0	0.0	0.0		0.0	0.0	0.0	0.0		
Total Delay		48.9	33.4	37.7		18.0	14.1	25.6	36.4		
LOS		D	С	D		В	В	С	D		
Approach Delay			38.9				15.9	30.9			
Approach LOS			D				В	С			
Intersection Summary											
Area Type:	Other										
Cycle Length: 112											
Actuated Cycle Length: 112	2										
Offset: 51 (46%), Reference	ed to phase	e 2:NBTL	, Start of	Yellow							
Natural Cycle: 65											
Control Type: Actuated-Co	ordinated										
Maximum v/c Ratio: 0.87											
Intersection Signal Delay: 3	32.9			ıl	ntersectio	n LOS: C					
Intersection Capacity Utiliz	ation 72.5%	5		[(CU Level	of Servic	еC				
Analysis Period (min) 15											

Splits and Phases: 2: I-95 ON RAMP & ATLANTIC ST. & N. STATE ST.



2021 Lane Removed but keep RTL at Atlantic and Canal PM.syn

Queues 2: I-95 ON RAMP & ATLANTIC ST. & N. STATE ST.

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Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	511	848	380	228	283	435	413
v/c Ratio	0.87	0.71	0.71	0.45	0.15	0.30	0.66
Control Delay	48.9	33.4	37.7	18.0	14.1	25.6	36.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.9	33.4	37.7	18.0	14.1	25.6	36.4
Queue Length 50th (ft)	368	280	230	83	51	112	243
Queue Length 95th (ft)	465	310	301	153	87	177	#462
Internal Link Dist (ft)		1088			113	161	
Turn Bay Length (ft)			250				
Base Capacity (vph)	718	1469	653	527	1935	1430	626
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.71	0.58	0.58	0.43	0.15	0.30	0.66

Intersection Summary

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

Queue shown is maximum after two cycles.

Lanes, Volumes, Timings 5: CANAL ST. & N. STATE ST.

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					441>	1	۲	^			A1≱	
Traffic Volume (vph)	0	0	0	350	910	200	280	760	0	0	620	170
Future Volume (vph)	0	0	0	350	910	200	280	760	0	0	620	170
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		250	0		0	0		0
Storage Lanes	0		0	0		1	1		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor					1.00	0.97	1.00				1.00	
Frt						0.850					0.968	
Flt Protected					0.986		0.950					
Satd. Flow (prot)	0	0	0	0	5014	1583	1770	3539	0	0	3410	0
Flt Permitted					0.986		0.121					
Satd. Flow (perm)	0	0	0	0	5011	1536	225	3539	0	0	3410	0
Right Turn on Red			Yes			No			Yes			Yes
Satd. Flow (RTOR)											37	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1168			439			220			380	
Travel Time (s)		26.5			10.0			5.0			8.6	
Confl. Peds. (#/hr)				2		18	8					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)	0	0	0	380	989	217	304	826	0	0	674	185
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	1369	217	304	826	0	0	859	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0	Ŭ		0	5		12	5		12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors				1	1	1	1	1			1	
Detector Template				Left		Right						
Leading Detector (ft)				20	40	20	30	30			40	
Trailing Detector (ft)				0	0	0	0	0			0	
Detector 1 Position(ft)				0	0	0	0	0			0	
Detector 1 Size(ft)				20	40	20	30	30			40	
Detector 1 Type				CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex			CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Queue (s)				0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Delay (s)				0.0	0.0	0.0	0.0	0.0			0.0	
Turn Type				Perm	NA	Perm	pm+pt	NA			NA	
Protected Phases					8		5	2			6	
Permitted Phases				8		8	2					
Detector Phase				8	8	8	5	2			6	
Switch Phase												
Minimum Initial (s)				10.0	10.0	10.0	7.0	15.0			15.0	

2021 Lane Removed but keep RTL at Atlantic and Canal PM.syn

Lanes, Volumes, Timings 5: CANAL ST. & N. STATE ST.

12/30/2020

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)				33.0	33.0	33.0	11.0	29.0			29.0	
Total Split (s)				44.0	44.0	44.0	18.0	51.0			33.0	
Total Split (%)				46.3%	46.3%	46.3%	18.9%	53.7%			34.7%	
Maximum Green (s)				39.0	39.0	39.0	14.0	46.0			28.0	
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	1.0	2.0			2.0	
Lost Time Adjust (s)					0.0	0.0	0.0	0.0			0.0	
Total Lost Time (s)					5.0	5.0	4.0	5.0			5.0	
Lead/Lag							Lead				Lag	
Lead-Lag Optimize?							Yes				Yes	
Vehicle Extension (s)				5.0	5.0	5.0	3.0	1.0			3.0	
Recall Mode				None	None	None	None	C-Min			C-Min	
Walk Time (s)				7.0	7.0	7.0		7.0			7.0	
Flash Dont Walk (s)				21.0	21.0	21.0		17.0			17.0	
Pedestrian Calls (#/hr)				20	20	20		8			8	
Act Effct Green (s)					38.3	38.3	47.7	46.7			29.0	
Actuated g/C Ratio					0.40	0.40	0.50	0.49			0.31	
v/c Ratio					0.68	0.35	0.90	0.47			0.81	
Control Delay					24.8	21.1	53.8	17.4			36.5	
Queue Delay					0.0	0.0	0.0	0.0			0.0	
Total Delay					24.8	21.1	53.8	17.4			36.5	
LOS					С	С	D	В			D	
Approach Delay					24.3			27.2			36.5	
Approach LOS					С			С			D	
Intersection Summary												
Area Type: Otl	her											
Cycle Length: 95												
Actuated Cycle Length: 95												
Offset: 30 (32%), Referenced	to phase	2:NBTL a	and 6:SE	3T, Start o	of Yellow							
Natural Cycle: 75												
Control Type: Actuated-Coordi	nated											
Maximum v/c Ratio: 0.90												
Intersection Signal Delay: 28.1				lr	ntersectio	n LOS: C						
Intersection Capacity Utilizatio	n 74.6%			10	CU Level	of Servic	e D					
Analysis Period (min) 15												

Splits and Phases: 5: CANAL ST. & N. STATE ST.



2021 Lane Removed but keep RTL at Atlantic and Canal PM.syn

Queues 5: CANAL ST. & N. STATE ST

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Lane Group	WBT	WBR	NBL	NBT	SBT	
Lane Group Flow (vph)	1369	217	304	826	859	
v/c Ratio	0.68	0.35	0.90	0.47	0.81	
Control Delay	24.8	21.1	53.8	17.4	36.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	24.8	21.1	53.8	17.4	36.5	
Queue Length 50th (ft)	234	87	129	169	243	
Queue Length 95th (ft)	285	143	#284	221	#325	
Internal Link Dist (ft)	359			140	300	
Turn Bay Length (ft)		250				
Base Capacity (vph)	2070	634	341	1749	1076	

0

0

0

0.80

Reduced v/c Ratio 0.66 0.34

Intersection Summary

Starvation Cap Reductn

Spillback Cap Reductn

Storage Cap Reductn

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

0

0

0

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0.89

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0.47

Queue shown is maximum after two cycles.

2021 Lane Removed but keep RTL at Atlantic and Canal PM.syn

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Lane Group	WBL2	WBL	WBT	WBR	NBL2	NBL	NBT	SBT	SBR	SBR2	
Lane Configurations		55	4 16			3	44	44	đ		
Traffic Volume (vph)	155	708	652	354	310	12	420	343	299	122	
Future Volume (vph)	155	708	652	354	310	12	420	343	299	122	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Util. Factor	0.95	0.97	0.95	0.95	0.95	1.00	0.95	0.95	1.00	0.95	
Ped Bike Factor	0170	0177	0.96	0170	0170	0.99	0170	0170	0.98	0170	
Frt			0.947			0.77			0.850		
Flt Protected		0.950	01717			0.950			01000		
Satd. Flow (prot)	0	3433	3202	0	0	1770	3539	3539	1583	0	
Flt Permitted	-	0.950		-	-	0.426				-	
Satd. Flow (perm)	0	3433	3202	0	0	789	3539	3539	1558	0	
Right Turn on Red	-			No	-					No	
Satd. Flow (RTOR)											
Link Speed (mph)			30				30	30			
Link Distance (ft)			1168				193	241			
Travel Time (s)			26.5				4.4	5.5			
Confl. Peds. (#/hr)			2010	91	4	4		0.0	4		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adi, Flow (vph)	168	770	709	385	337	13	457	373	325	133	
Shared Lane Traffic (%)	100			000		10	107	0.0	020		
Lane Group Flow (vph)	0	938	1094	0	0	350	457	373	458	0	
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	
Lane Alignment	Left	Left	Left	Right	Left	Left	Left	Left	Right	Right	
Median Width(ft)			24	g			12	12			
Link Offset(ft)			0				0	0			
Crosswalk Width(ft)			16				16	16			
Two way Left Turn Lane											
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Speed (mph)	15	15		9	15	15			9	9	
Number of Detectors	1	1	1		1	1	0	0	0		
Detector Template	Left				Left						
Leading Detector (ft)	20	306	306		20	30	0	0	0		
Trailing Detector (ft)	0	300	300		0	0	0	0	0		
Detector 1 Position(ft)	0	300	300		0	0	0	0	0		
Detector 1 Size(ft)	20	6	6		20	30	6	6	20		
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex		
Detector 1 Channel											
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		
Turn Type	Perm	Perm	NA		pm+pt	pm+pt	NA	NA	Perm		
Protected Phases			8		5	5	2	6			
Permitted Phases	8	8			2	2			6		
Detector Phase	8	8	8		5	5	2	6	6		
Switch Phase											
Minimum Initial (s)	15.0	15.0	15.0		5.0	5.0	15.0	15.0	15.0		
Minimum Split (s)	31.0	31.0	31.0		10.0	10.0	26.0	20.0	20.0		
Total Split (s)	51.0	51.0	51.0		22.0	22.0	61.0	39.0	39.0		
Total Split (%)	45.5%	45.5%	45.5%		19.6%	19.6%	54.5%	34.8%	34.8%		

2041 No Build AM.syn

06/15/2020

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Lane Group	WBL2	WBL	WBT	WBR	NBL2	NBL	NBT	SBT	SBR	SBR2
Maximum Green (s)	46.0	46.0	46.0		17.0	17.0	56.0	34.0	34.0	
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	Lead		Lag	Lag	
Lead-Lag Optimize?					Yes	Yes		Yes	Yes	
Vehicle Extension (s)	2.0	2.0	2.0		1.5	1.5	3.0	3.0	3.0	
Recall Mode	None	None	None		None	None	C-Max	Max	Max	
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)	91	91	91				55			
Act Effct Green (s)		42.1	42.1			59.9	59.9	39.9	39.9	
Actuated g/C Ratio		0.38	0.38			0.53	0.53	0.36	0.36	
v/c Ratio		0.73	0.91			0.63	0.24	0.30	0.83	
Control Delay		33.4	44.7			21.8	15.0	28.2	49.1	
Queue Delay		0.0	0.0			0.0	0.0	0.0	0.0	
Total Delay		33.4	44.7			21.8	15.0	28.2	49.1	
LOS		С	D			С	В	С	D	
Approach Delay			39.5				17.9	39.7		
Approach LOS			D				В	D		
Intersection Summary										
Area Type: (Other									
Cycle Length: 112										
Actuated Cycle Length: 112										
Offset: 0 (0%), Referenced t	o phase 2	NBTL, S	tart of Gre	een						
Natural Cycle: 65										
Control Type: Actuated-Coo	rdinated									
Maximum v/c Ratio: 0.91										
Intersection Signal Delay: 34	1.8			Ir	ntersectior	1 LOS: C				
Intersection Capacity Utiliza	tion 88.2%	l.		10	CU Level (of Servic	еE			
Analysis Period (min) 15										
Splits and Phases: 2: I-95	ON RAM	P & ATLA	ANTIC ST	. & N. ST	TATE ST.					

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22 s	39 s	51 s

Queues 2: I-95 ON RAMP & ATLANTIC ST. & N. STATE ST.

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Lane Group	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	938	1094	350	457	373	458
v/c Ratio	0.73	0.91	0.63	0.24	0.30	0.83
Control Delay	33.4	44.7	21.8	15.0	28.2	49.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.4	44.7	21.8	15.0	28.2	49.1
Queue Length 50th (ft)	290	381	143	90	105	312
Queue Length 95th (ft)	348	456	224	129	152	#534
Internal Link Dist (ft)		1088		113	161	
Turn Bay Length (ft)						
Base Capacity (vph)	1409	1315	571	1893	1260	554
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.67	0.83	0.61	0.24	0.30	0.83
Intersection Summary						

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

Queue shown is maximum after two cycles.

Lanes, Volumes, Timings <u>5: CANAL ST. & N. STATE ST.</u>

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					atts.		5	44			4 1.	
Traffic Volume (vph)	0	0	0	343	1448	332	299	652	0	0	697	266
Future Volume (vph)	0	0	0	343	1448	332	299	652	0	0	697	266
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util Eactor	1 00	1 00	1.00	0.86	0.86	0.86	1.00	0.95	1 00	1.00	0.95	0.95
Ped Bike Factor	1.00	1.00	1.00	0.00	0.00	0.00	1.00	0.70	1.00	1.00	0.99	0.70
Frt					0.977						0.959	
Flt Protected					0.992		0 950				0.707	
Satd Flow (prot)	0	0	0	0	6170	0	1770	3539	0	0	3373	0
Flt Permitted	Ŭ	Ū	Ű	Ŭ	0.992	Ű	0 111	0007	Ű	Ŭ	0070	Ű
Satd Flow (perm)	0	0	0	0	6169	0	207	3539	0	0	3373	0
Right Turn on Red	Ū	U	Yes	Ū	0107	No	207	0007	Yes	Ū	0070	Yes
Satd Flow (RTOR)			105			110			105		30	105
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1168			439			220			380	
Travel Time (s)		26.5			10.0			5.0			8.6	
Confl Peds (#/hr)		20.0		1	10.0	30	9	0.0	8	8	0.0	9
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
Adi Flow (vph)	0.72	0.72	0.72	373	1574	361	325	709	0.72	0.72	758	289
Shared Lane Traffic (%)	0	0	U	575	1374	301	525	707	0	0	750	207
Lane Group Flow (vph)	0	0	0	0	2308	0	325	709	0	0	10/17	0
Enter Blocked Intersection	No	No	No	No	2300 No	No	JZJ No	No	No	No	No	No
Lane Alignment	l off	Loft	Pight	L off	Loft	Pight	L off	Loft	Right	l oft	۱۹۵ I oft	Right
Median Width(ft)	Lon	0	Right	Lon	0	Right	Lon	12	Right	LOIT	12	Right
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		10			10			10			10	
Headway Eactor	1 00	1 00	1 00	1 00	1 00	1 00	1 00	1 00	1 00	1 00	1 00	1 00
Turning Speed (mph)	15	1.00	9	15	1.00	9	1.00	1.00	9	1.00	1.00	9
Number of Detectors	15		,	10	1	,	1	1	,	10	1	,
Detector Template				Left	•		•	•			•	
Leading Detector (ft)				20	40		30	30			40	
Trailing Detector (ft)				0	0		0	0			0	
Detector 1 Position(ft)				0	0		0	0			0	
Detector 1 Size(ft)				20	40		30	30			40	
Detector 1 Type				CI+Ex	CI+Ex		CI+Ex	CI+Ex			CI+Ex	
Detector 1 Channel				OFFER	OFFER		OFFER	OTTER				
Detector 1 Extend (s)				0.0	0.0		0.0	0.0			0.0	
Detector 1 Queue (s)				0.0	0.0		0.0	0.0			0.0	
Detector 1 Delay (s)				0.0	0.0		0.0	0.0			0.0	
Turn Type				Perm	NA		nm+nt	NA			NA	
Protected Phases				1 Onn	8		5	2			6	
Permitted Phases				8	Ū		2	2			0	
Detector Phase				8	8		5	2			6	
Switch Phase				0	0		5	2			0	
Minimum Initial (s)				10.0	10.0		7.0	15.0			15.0	
Minimum Snlit (s)				33.0	33.0		11.0	29.0			29.0	
Total Split (s)				40.0	40.0		17.0	55.0			38.0	
Total Split (%)				42.1%	42.1%		17.9%	57.9%			40.0%	

2041 No Build AM.syn

Lanes, Volumes, Timings <u>5: CANAL ST. & N. STATE ST.</u>

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Maximum Green (s)				35.0	35.0		13.0	50.0			33.0	
Yellow Time (s)				3.0	3.0		3.0	3.0			3.0	
All-Red Time (s)				2.0	2.0		1.0	2.0			2.0	
Lost Time Adjust (s)					0.0		0.0	0.0			0.0	
Total Lost Time (s)					5.0		4.0	5.0			5.0	
Lead/Lag							Lead				Lag	
Lead-Lag Optimize?							Yes				Yes	
Vehicle Extension (s)				5.0	5.0		3.0	1.0			3.0	
Recall Mode				None	None		None	C-Min			C-Min	
Walk Time (s)				7.0	7.0			7.0			7.0	
Flash Dont Walk (s)				21.0	21.0			17.0			17.0	
Pedestrian Calls (#/hr)				31	31			8			9	
Act Effct Green (s)					35.9		50.1	49.1			32.1	
Actuated g/C Ratio					0.38		0.53	0.52			0.34	
v/c Ratio					0.99		1.01	0.39			0.90	
Control Delay					43.0		77.6	14.5			41.2	
Queue Delay					0.0		0.0	0.0			0.0	
Total Delay					43.0		77.6	14.5			41.2	
LOS					D		E	В			D	
Approach Delay					43.0			34.3			41.2	
Approach LOS					D			С			D	
Intersection Summary												
Area Type:	Other											
Cycle Length: 95												
Actuated Cycle Length: 95												
Offset: 30 (32%), Reference	ed to phase	2:NBTL	and 6:SB	T, Start o	of Yellow							
Natural Cycle: 80												
Control Type: Actuated-Co	ordinated											
Maximum v/c Ratio: 1.01												
Intersection Signal Delay: 4	40.5			In	tersection	ו LOS: D						
Intersection Capacity Utiliz	ation 88.4%			IC	CU Level	of Service	Ε					
Analysis Period (min) 15												
Splits and Phases: 5: CA	ANAL ST. &	N. STAT	E ST.									



Queues 5: CANAL ST. & N. STATE ST.

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Lane Group	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	2308	325	709	1047
v/c Ratio	0.99	1.01	0.39	0.90
Control Delay	43.0	77.6	14.5	41.2
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	43.0	77.6	14.5	41.2
Queue Length 50th (ft)	~412	143	126	301
Queue Length 95th (ft)	m#503	#321	167	#421
Internal Link Dist (ft)	359		140	300
Turn Bay Length (ft)				
Base Capacity (vph)	2333	323	1862	1191
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.99	1.01	0.38	0.88
Intersection Summary				
 Volume exceeds capaci 	ty, queue is	s theoretic	cally infin	ite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
 Queue shour is maximum offset two surges

Queue shown is maximum after two cycles.

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

Lanes, Volumes, Timings 8: ELM ST. & N. STATE ST./I-95 EXIT 8

06/15/2020

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations					-€††Ъ	1		<u>ተተ</u> ኈ		<u>۲</u>	^	
Traffic Volume (vph)	0	0	0	354	686	873	0	244	962	299	663	0
Future Volume (vph)	0	0	0	354	686	873	0	244	962	299	663	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.91	0.86	0.86	1.00	0.91	0.91	1.00	0.95	1.00
Ped Bike Factor					1.00			0.98		1.00		
Frt					0.956	0.850		0.880				
Flt Protected					0.988					0.950		
Satd. Flow (prot)	0	0	0	0	4522	1362	0	4382	0	1770	3539	0
Flt Permitted					0.988					0.113		
Satd. Flow (perm)	0	0	0	0	4522	1362	0	4382	0	210	3539	0
Right Turn on Red			Yes			No			Yes			Yes
Satd. Flow (RTOR)								92				
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1111			568			482			313	
Travel Time (s)		25.3			12.9			11.0			7.1	
Confl. Peds. (#/hr)						1			12	12		
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	385	746	949	0	265	1046	325	721	0
Shared Lane Traffic (%)						49%						
Lane Group Flow (vph)	0	0	0	0	1596	484	0	1311	0	325	721	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors				1	1	1		1		1	1	
Detector Template				Left								
Leading Detector (ft)				20	30	30		30		30	30	
Trailing Detector (ft)				0	0	0		0		0	0	
Detector 1 Position(ft)				0	0	0		0		0	0	
Detector 1 Size(ft)				20	30	30		30		30	30	
Detector 1 Type				CI+Ex	CI+Ex	CI+Ex		CI+Ex		CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0	0.0		0.0		0.0	0.0	
Detector 1 Queue (s)				0.0	0.0	0.0		0.0		0.0	0.0	
Detector 1 Delay (s)				0.0	0.0	0.0		0.0		0.0	0.0	
Turn Type				Split	NA	Prot		NA		pm+pt	NA	
Protected Phases				8	8	8		6		5	2	
Permitted Phases										2		
Detector Phase				8	8	8		6		5	2	
Switch Phase												
Minimum Initial (s)				10.0	10.0	10.0		15.0		7.0	15.0	
Minimum Split (s)				14.5	14.5	14.5		29.0		11.0	20.0	
Total Split (s)				40.0	40.0	40.0		36.0		19.0	55.0	
i otal Split (%)				42.1%	42.1%	42.1%		37.9%		20.0%	57.9%	

2041 No Build AM.syn

Lanes, Volumes, Timings 8: ELM ST. & N. STATE ST./I-95 EXIT 8

06/15/2020

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Maximum Green (s)				35.5	35.5	35.5		31.0		15.0	50.0	
Yellow Time (s)				3.5	3.5	3.5		3.0		3.0	3.0	
All-Red Time (s)				1.0	1.0	1.0		2.0		1.0	2.0	
Lost Time Adjust (s)					0.0	0.0		0.0		0.0	0.0	
Total Lost Time (s)					4.5	4.5		5.0		4.0	5.0	
Lead/Lag								Lag		Lead		
Lead-Lag Optimize?								Yes		Yes		
Vehicle Extension (s)				2.0	2.0	2.0		3.0		3.0	3.0	
Recall Mode				None	None	None		C-Min		None	C-Min	
Walk Time (s)								7.0				
Flash Dont Walk (s)								17.0				
Pedestrian Calls (#/hr)								12				
Act Effct Green (s)					35.3	35.3		31.6		51.2	50.2	
Actuated g/C Ratio					0.37	0.37		0.33		0.54	0.53	
v/c Ratio					0.95	0.96		1.79dr		0.92	0.39	
Control Delay					42.8	62.0		35.0		55.4	14.1	
Queue Delay					0.0	0.0		0.0		0.0	0.0	
Total Delay					42.8	62.0		35.0		55.4	14.1	
LOS					D	E		D		E	В	
Approach Delay					47.3			35.0			26.9	
Approach LOS					D			D			С	
Intersection Summary												
Area Type: C	Other											
Cycle Length: 95												
Actuated Cycle Length: 95												
Offset: 17.5 (18%), Reference	ed to pha	se 2:NWT	L and 6:	SET, Sta	rt of Yello	W						
Natural Cycle: 80												
Control Type: Actuated-Coor	dinated											
Maximum v/c Ratio: 0.96												
Intersection Signal Delay: 38	8.8			In	tersection	n LOS: D						
Intersection Capacity Utilizat	ion 82.2%			IC	CU Level	of Service	Ε					
Analysis Period (min) 15												
dr Defacto Right Lane. Re	ecode with	1 though	lane as	a right lar	ne.							
		07475		-) <i>u</i> = 0								

Splits and Phases: 8: ELM ST. & N. STATE ST./I-95 EXIT 8



Queues 8: ELM ST. & N. STATE ST./I-95 EXIT 8

	-	*	\mathbf{x}	*	× (
Lane Group	WBT	WBR	SET	NWL	NWT
Lane Group Flow (vph)	1596	484	1311	325	721
v/c Ratio	0.95	0.96	1.79dr	0.92	0.39
Control Delay	42.8	62.0	35.0	55.4	14.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	42.8	62.0	35.0	55.4	14.1
Queue Length 50th (ft)	355	324	254	140	129
Queue Length 95th (ft)	#468	#560	#323	#301	170
Internal Link Dist (ft)	488		402		233
Turn Bay Length (ft)					
Base Capacity (vph)	1689	508	1517	359	1871
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.94	0.95	0.86	0.91	0.39
Intersection Summary					

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

Queue shown is maximum after two cycles. dr Defacto Right Lane. Recode with 1 though lane as a right lane.

06/15/2020

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Lane Group	WBL2	WBL	WBT	WBR	NBL2	NBL	NBT	SBT	SBR	SBR2	
Lane Configurations		55	4 1.			3	**	**	đ		
Traffic Volume (vph)	188	851	343	387	221	12	288	442	343	78	
Future Volume (vph)	188	851	343	387	221	12	288	442	343	78	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Util Factor	0.95	0.97	0.95	0.95	0.95	1 00	0.95	0.95	1 00	0.95	
Ped Bike Factor	0170	0177	0.96	0170	0170	0.99	0170	0170	0.98	0170	
Frt			0.920			0.77			0.850		
Flt Protected		0 950	0.720			0 950			0.000		
Satd Flow (prot)	0	3433	3126	0	0	1770	3539	3539	1583	0	
Flt Permitted	Ŭ	0.950	0120	Ű	Ŭ	0.368	0007	0007	1000	Ű	
Satd Flow (perm)	0	3433	3126	0	0	678	3539	3539	1551	0	
Right Turn on Red	Ŭ	0100	0120	No	Ŭ	010	0007	0007	1001	No	
Satd Flow (RTOR)				110						110	
Link Speed (mph)			30				30	30			
Link Distance (ft)			1168				103	2/1			
Travel Time (s)			26.5				175	55			
Confl Pods (#/br)			20.5	50	0	0	т.т	0.0	0		
Peak Hour Factor	0 02	0 0 2	0 0 2	0 02	0 0 2	0 0 2	0 02	0 0 2	0 02	0 02	
Adi Elow (vpb)	20/	0.72	272	/21	2/0	13	212	/180	272	0.72 85	
Shared Lane Traffic (%)	204	725	575	421	240	15	515	400	575	05	
Lano Group Flow (vpb)	٥	1120	70/	0	0	252	212	180	158	0	
Entor Blockod Intersection	No	No	774 No	No	No	Z00	No	400 No	430 No	No	
Lano Alignmont	Loft	Loft	Loft	Diabt	Loft	Loft	Loft	Loft	Diabt	Diaht	
Lane Alignment Modian Width(ft)	Leit	Leit	24	Right	Len	Leit	12	12	Right	Right	
Lipk Offsot(ft)			24				12	12			
Crosswell Width(ft)			14				14	14			
			10				10	10			
Two way Left Turn Lane	1 00	1.00	1.00	1 00	1 00	1 00	1.00	1.00	1 00	1 00	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Speed (mpn)	15	15	1	9	15	15	0	0	9	9	
Number of Detectors	l off	1	I		l off	1	U	U	U		
Detector Template	Leit	207	207		Leit	20	0	0	0		
Leading Delector (II)	20	306	306		20	30	0	0	0		
Trailing Detector (II)	0	300	300		0	0	0	0	0		
Detector 1 Position(II)	0	300	300		0	0	0	0	0		
Detector 1 Size(II)	20	6	6		20	30	6	6	20		
Detector 1 Type	CI+EX	CI+EX	CI+EX		CI+EX	CI+EX	CI+EX	CI+EX	CI+EX		
Detector I Channel	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		
lurn lype	Perm	Perm	NA		pm+pt	pm+pt	NA	NA	Perm		
Protected Phases			8		5	5	2	6	-		
Permitted Phases	8	8			2	2			6		
Detector Phase	8	8	8		5	5	2	6	6		
Switch Phase											
Minimum Initial (s)	15.0	15.0	15.0		5.0	5.0	15.0	15.0	15.0		
Minimum Split (s)	31.0	31.0	31.0		10.0	10.0	26.0	20.0	20.0		
Total Split (s)	51.0	51.0	51.0		22.0	22.0	61.0	39.0	39.0		
Total Split (%)	45.5%	45.5%	45.5%		19.6%	19.6%	54.5%	34.8%	34.8%		

2041 No Build PM.syn

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Lane Group	WBL2	WBL	WBT	WBR	NBL2	NBL	NBT	SBT	SBR	SBR2
Maximum Green (s)	46.0	46.0	46.0		17.0	17.0	56.0	34.0	34.0	
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	Lead		Lag	Lag	
Lead-Lag Optimize?					Yes	Yes		Yes	Yes	
Vehicle Extension (s)	2.0	2.0	2.0		1.5	1.5	3.0	3.0	3.0	
Recall Mode	None	None	None		None	None	C-Max	Max	Max	
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)	50	50	50				45			
Act Effct Green (s)		41.0	41.0			61.0	61.0	43.5	43.5	
Actuated g/C Ratio		0.37	0.37			0.54	0.54	0.39	0.39	
v/c Ratio		0.90	0.69			0.52	0.16	0.35	0.76	
Control Delay		43.6	33.3			18.5	13.8	26.9	41.8	
Queue Delay		0.0	0.0			0.0	0.0	0.0	0.0	
Total Delay		43.6	33.3			18.5	13.8	26.9	41.8	
LOS		D	С			В	В	С	D	
Approach Delay			39.4				15.9	34.2		
Approach LOS			D				В	С		
Intersection Summary										
Area Type:	Other									
Cycle Length: 112										
Actuated Cycle Length: 112										
Offset: 0 (0%), Referenced	to phase 2	NBTL, S	tart of Gre	een						
Natural Cycle: 70										
Control Type: Actuated-Coc	ordinated									
Maximum v/c Ratio: 0.90										
Intersection Signal Delay: 3	4.1			Ir	ntersectior	ו LOS: C	,			
Intersection Capacity Utiliza	ition 82.1%)		10	CU Level	of Servic	еE			
Analysis Period (min) 15										
Splits and Dhasas 2.10				9. N. CT	ATE CT					



Queues 2: I-95 ON RAMP & ATLANTIC ST. & N. STATE ST.

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Lane Group	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	1129	794	253	313	480	458
v/c Ratio	0.90	0.69	0.52	0.16	0.35	0.76
Control Delay	43.6	33.3	18.5	13.8	26.9	41.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.6	33.3	18.5	13.8	26.9	41.8
Queue Length 50th (ft)	386	249	94	57	128	287
Queue Length 95th (ft)	448	300	158	89	196	#535
Internal Link Dist (ft)		1088		113	161	
Turn Bay Length (ft)						
Base Capacity (vph)	1409	1283	534	1927	1373	601
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.80	0.62	0.47	0.16	0.35	0.76
Intersection Summary						

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

Queue shown is maximum after two cycles.

Lanes, Volumes, Timings <u>5: CANAL ST. & N. STATE ST.</u>

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					attra		5	44			≜1 5	
Traffic Volume (vph)	0	0	0	387	1006	221	310	840	0	0	686	188
Future Volume (vph)	0	0	0	387	1006	221	310	840	0	0	686	188
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
Ped Bike Factor				0100	1 00	0.00	1 00	0170			1 00	0170
Frt					0 979						0.968	
Flt Protected					0.988		0.950				01700	
Satd Flow (prot)	0	0	0	0	6173	0	1770	3539	0	0	3410	0
Flt Permitted	Ŭ	Ű	Ű	Ű	0.988	Ū	0 118	0007	Ű	Ű	0110	Ű
Satd Flow (perm)	0	0	0	0	6170	0	220	3539	0	0	3410	0
Right Turn on Red	Ū	U	Yes	U	0170	No	220	0007	Yes	U	0110	Yes
Satd Flow (RTOR)			105						105		30	105
Link Speed (mph)		30			30			30			30	
Link Distance (ff)		1168			/130			220			380	
Travel Time (s)		26.5			10.0			5.0			8.6	
Confl Dods (#/br)		20.0		C	10.0	10	Q	5.0			0.0	Q
Doak Hour Factor	0.02	0 0 2	0 02	0 02	0.02	0 0 2	0	0 0 2	0 0 2	0 02	0 02	0 0 0 0
Adi Elow (upb)	0.92	0.92	0.92	0.92 //21	1002	240	0.92	0.92	0.92	0.92	746	204
Shared Lane Traffic (%)	0	0	0	421	1095	240	337	913	0	0	740	204
Lang Croup Flow (upb)	0	0	0	0	175/	0	227	012	0	0	050	0
Lane Gloup Flow (vpn)	U No	U No	U No	U No	1754 No	U No	337 No	913 No	U No	U No	950 No	U No
Lana Alignment	NU Loft	INU Loft	Diabt	INU Loft	INU Loft	Diabt	INU Loft	INU Loft	Diabt	INU Loft	INU Loft	Diabt
Lane Allynment Modion Width(ft)	Leit	Leit	Right	Leit	Leit	Right	Leit	Leit	Right	Leit	Leit	Right
link Offect(ft)		0			0			12			12	
Croccwelly Width(ft)		14			14			14			14	
		10			10			10			10	
Two way Left Turri Larie	1.00	1.00	1 00	1 00	1 00	1.00	1.00	1.00	1 00	1 00	1 00	1 00
Headway Faciol	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Number of Detectors	15		9	10	1	9	10	1	9	10	1	9
Number of Detectors				l off	I		I	I			I	
Detector Template				Leit	10		20	20			40	
Leading Detector (II)				20	40		30	30			40	
Trailing Delector (II)				0	0		0	0			0	
Detector 1 Position(ft)				0	0		0	0			0	
Detector I Size(II)				20	40		30	30			40	
Detector 1 Type				CI+EX	CI+EX		CI+EX	CI+EX			CI+EX	
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0		0.0	0.0			0.0	
Detector 1 Queue (s)				0.0	0.0		0.0	0.0			0.0	
Detector 1 Delay (s)				0.0	0.0		0.0	0.0			0.0	
lurn lype				Perm	NA		pm+pt	NA			NA	
Protected Phases				_	8		5	2			6	
Permitted Phases				8			2					
Detector Phase				8	8		5	2			6	
Switch Phase												
Minimum Initial (s)				10.0	10.0		7.0	15.0			15.0	
Minimum Split (s)				33.0	33.0		11.0	29.0			29.0	
Total Split (s)				40.0	40.0		19.0	55.0			36.0	
Total Split (%)				42.1%	42.1%		20.0%	57.9%			37.9%	

2041 No Build PM.syn

Lanes, Volumes, Timings <u>5: CANAL ST. & N. STATE ST.</u>

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Lane Group	EBI	_ EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Maximum Green (s)				35.0	35.0		15.0	50.0			31.0	
Yellow Time (s)				3.0	3.0		3.0	3.0			3.0	
All-Red Time (s)				2.0	2.0		1.0	2.0			2.0	
Lost Time Adjust (s)					0.0		0.0	0.0			0.0	
Total Lost Time (s)					5.0		4.0	5.0			5.0	
Lead/Lag							Lead				Lag	
Lead-Lag Optimize?							Yes				Yes	
Vehicle Extension (s)				5.0	5.0		3.0	1.0			3.0	
Recall Mode				None	None		None	C-Min			C-Min	
Walk Time (s)				7.0	7.0			7.0			7.0	
Flash Dont Walk (s)				21.0	21.0			17.0			17.0	
Pedestrian Calls (#/hr)			20	20			8			8	
Act Effct Green (s)					36.1		49.9	48.9			29.8	
Actuated g/C Ratio					0.38		0.53	0.51			0.31	
v/c Ratio					0.75		0.93	0.50			0.87	
Control Delay					27.6		58.0	16.1			39.0	
Queue Delay					0.0		0.0	0.0			0.0	
Total Delay					27.6		58.0	16.1			39.0	
LOS					С		E	В			D	
Approach Delay					27.6			27.4			39.0	
Approach LOS					С			С			D	
Intersection Summary	1											
Area Type:	Other											
Cycle Length: 95												
Actuated Cycle Lengt	า: 95											
Offset: 30 (32%), Refe	erenced to pha	se 2:NBTL	_ and 6:SE	BT, Start o	of Yellow							
Natural Cycle: 80												
Control Type: Actuate	d-Coordinated											
Maximum v/c Ratio: 0	.93											
Intersection Signal De	lay: 30.3			Ir	itersection	n LOS: C						
Intersection Capacity	Utilization 78.4	1%		IC	CU Level	of Service	e D					
Analysis Period (min)	15											
Splits and Phases:	5: CANAL ST.	& N. STA	TE ST.									



Queues 5: CANAL ST. & N. STATE ST.

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Lane Group	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	1754	337	913	950
v/c Ratio	0.75	0.93	0.50	0.87
Control Delay	27.6	58.0	16.1	39.0
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	27.6	58.0	16.1	39.0
Queue Length 50th (ft)	261	146	175	266
Queue Length 95th (ft)	310	#314	226	347
Internal Link Dist (ft)	359		140	300
Turn Bay Length (ft)				
Base Capacity (vph)	2346	361	1862	1139
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.75	0.93	0.49	0.83
Intersection Summary				

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

ATTACHMENT L

Lanes, Volumes, Timings 8: ELM ST. & N. STATE ST./I-95 EXIT 8

06/15/2020

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations					-€¶\$	1		<u></u> ↑↑₽		<u>۲</u>	<u></u>	
Traffic Volume (vph)	0	0	0	233	155	708	0	1326	111	166	619	0
Future Volume (vph)	0	0	0	233	155	708	0	1326	111	166	619	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.91	0.86	0.86	1.00	0.91	0.91	1.00	0.95	1.00
Ped Bike Factor					0.99			1.00				
Frt					0.928	0.850		0.988				
Flt Protected					0.985					0.950		
Satd. Flow (prot)	0	0	0	0	4366	1362	0	5010	0	1770	3539	0
Flt Permitted					0.985					0.088		
Satd. Flow (perm)	0	0	0	0	4366	1362	0	5010	0	164	3539	0
Right Turn on Red			Yes			No			Yes			Yes
Satd. Flow (RTOR)								16				
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1111			568			482			313	
Travel Time (s)		25.3			12.9			11.0			7.1	
Confl. Peds. (#/hr)						1			21	21		
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
Adi, Flow (vph)	0	0	0	253	168	770	0	1441	121	180	673	0
Shared Lane Traffic (%)						50%						
Lane Group Flow (vph)	0	0	0	0	806	385	0	1562	0	180	673	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0	<u> </u>		0	J -		12	J -		12	J -
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors				1	1	1		1		1	1	
Detector Template				Left								
Leading Detector (ft)				20	30	30		30		30	30	
Trailing Detector (ft)				0	0	0		0		0	0	
Detector 1 Position(ft)				0	0	0		0		0	0	
Detector 1 Size(ft)				20	30	30		30		30	30	
Detector 1 Type				CI+Ex	CI+Ex	CI+Ex		CI+Ex		CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0	0.0		0.0		0.0	0.0	
Detector 1 Queue (s)				0.0	0.0	0.0		0.0		0.0	0.0	
Detector 1 Delay (s)				0.0	0.0	0.0		0.0		0.0	0.0	
Turn Type				Split	NA	Prot		NA		pm+pt	NA	
Protected Phases				8	8	8		6		5	2	
Permitted Phases										2		
Detector Phase				8	8	8		6		5	2	
Switch Phase												
Minimum Initial (s)				10.0	10.0	10.0		15.0		7.0	15.0	
Minimum Split (s)				14.5	14.5	14.5		29.0		11.0	20.0	
Total Split (s)				40.0	40.0	40.0		40.0		15.0	55.0	
Total Split (%)				42.1%	42.1%	42.1%		42.1%		15.8%	57.9%	

2041 No Build PM.syn

Lanes, Volumes, Timings 8: ELM ST. & N. STATE ST./I-95 EXIT 8

06/15/2020

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Maximum Green (s)				35.5	35.5	35.5		35.0		11.0	50.0	
Yellow Time (s)				3.5	3.5	3.5		3.0		3.0	3.0	
All-Red Time (s)				1.0	1.0	1.0		2.0		1.0	2.0	
Lost Time Adjust (s)					0.0	0.0		0.0		0.0	0.0	
Total Lost Time (s)					4.5	4.5		5.0		4.0	5.0	
Lead/Lag								Lag		Lead		
Lead-Lag Optimize?								Yes		Yes		
Vehicle Extension (s)				2.0	2.0	2.0		3.0		3.0	3.0	
Recall Mode				None	None	None		C-Min		None	C-Min	
Walk Time (s)								7.0				
Flash Dont Walk (s)								17.0				
Pedestrian Calls (#/hr)								21				
Act Effct Green (s)					30.7	30.7		41.3		55.8	54.8	
Actuated g/C Ratio					0.32	0.32		0.43		0.59	0.58	
v/c Ratio					0.57	0.88		0.71		0.70	0.33	
Control Delay					27.9	51.3		25.4		31.9	11.9	
Queue Delay					0.0	0.0		0.0		0.0	0.0	
Total Delay					27.9	51.3		25.4		31.9	11.9	
LOS					С	D		С		С	В	
Approach Delay					35.4			25.4			16.1	
Approach LOS					D			С			В	
Intersection Summary												
Area Type: Otl	her											
Cycle Length: 95												
Actuated Cycle Length: 95												
Offset: 17.5 (18%), Reference	d to phas	se 2:NWT	L and 6:	SET, Star	t of Yello	W						
Natural Cycle: 65												
Control Type: Actuated-Coordi	nated											
Maximum v/c Ratio: 0.88												
Intersection Signal Delay: 26.5	5			In	tersection	n LOS: C						
Intersection Capacity Utilizatio	n 61.8%			IC	U Level	of Service	B					
Analysis Period (min) 15												

Splits and Phases: 8: ELM ST. & N. STATE ST./I-95 EXIT 8



Queues 8: ELM ST. & N. STATE ST./I-95 EXIT 8

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Lane Group	WBT	WBR	SET	NWL	NWT
Lane Group Flow (vph)	806	385	1562	180	673
v/c Ratio	0.57	0.88	0.71	0.70	0.33
Control Delay	27.9	51.3	25.4	31.9	11.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	27.9	51.3	25.4	31.9	11.9
Queue Length 50th (ft)	150	244	286	54	109
Queue Length 95th (ft)	183	#398	371	#141	157
Internal Link Dist (ft)	488		402		233
Turn Bay Length (ft)					
Base Capacity (vph)	1631	508	2185	282	2042
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.49	0.76	0.71	0.64	0.33
Intersection Summary					

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

Queue shown is maximum after two cycles.

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Lane Group	WBL2	WBL	WBT	WBR	NBL2	NBL	NBT	SBT	SBR	SBR2	
Lane Configurations		5	ፈቴ			3	44	44	2		
Traffic Volume (vph)	155	708	652	354	310	12	420	343	299	122	
Future Volume (vph)	155	708	652	354	310	12	420	343	299	122	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Util, Factor	0.95	0.91	0.91	0.95	0.95	1.00	0.95	0.95	1.00	0.95	
Ped Bike Factor			0.96			0.99			0.98		
Frt			0.957						0.850		
Flt Protected		0.950	0.991			0.950					
Satd. Flow (prot)	0	1610	3098	0	0	1770	3539	3539	1583	0	
Flt Permitted		0.950	0.991			0.418					
Satd. Flow (perm)	0	1610	3098	0	0	774	3539	3539	1559	0	
Right Turn on Red	-			No	-					No	
Satd. Flow (RTOR)											
Link Speed (mph)			30				30	30			
Link Distance (ft)			1168				193	241			
Travel Time (s)			26.5				4.4	5.5			
Confl. Peds. (#/hr)			2010	91	4	4		0.0	4		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adi, Flow (vph)	168	770	709	385	337	13	457	373	325	133	
Shared Lane Traffic (%)	100	33%				10	107	0.0	020		
Lane Group Flow (vph)	0	684	1348	0	0	350	457	373	458	0	
Enter Blocked Intersection	No										
Lane Alignment	Left	Left	Left	Right	Left	Left	Left	Left	Right	Right	
Median Width(ft)			12	g			12	12			
Link Offset(ft)			0				0	0			
Crosswalk Width(ft)			16				16	16			
Two way Left Turn Lane											
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Speed (mph)	15	15		9	15	15			9	9	
Number of Detectors	1	1	1		1	1	0	0	0		
Detector Template	Left				Left						
Leading Detector (ft)	20	306	306		20	30	0	0	0		
Trailing Detector (ft)	0	300	300		0	0	0	0	0		
Detector 1 Position(ft)	0	300	300		0	0	0	0	0		
Detector 1 Size(ft)	20	6	6		20	30	6	6	20		
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex		
Detector 1 Channel											
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		
Turn Type	Perm	Perm	NA		pm+pt	pm+pt	NA	NA	Perm		
Protected Phases			8		5	5	2	6			
Permitted Phases	8	8			2	2			6		
Detector Phase	8	8	8		5	5	2	6	6		
Switch Phase											
Minimum Initial (s)	15.0	15.0	15.0		5.0	5.0	15.0	15.0	15.0		
Minimum Split (s)	31.0	31.0	31.0		10.0	10.0	26.0	20.0	20.0		
Total Split (s)	55.0	55.0	55.0		14.0	14.0	57.0	43.0	43.0		
Total Split (%)	49.1%	49.1%	49.1%		12.5%	12.5%	50.9%	38.4%	38.4%		

2041 Lane Removed AM.syn

06/15/2020

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Lane Group	WBL2	WBL	WBT	WBR	NBL2	NBL	NBT	SBT	SBR	SBR2	
Maximum Green (s)	50.0	50.0	50.0		9.0	9.0	52.0	38.0	38.0		
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	Lead		Lag	Lag		
Lead-Lag Optimize?					Yes	Yes		Yes	Yes		
Vehicle Extension (s)	2.0	2.0	2.0		1.5	1.5	3.0	3.0	3.0		
Recall Mode	None	None	None		None	None	C-Max	Max	Max		
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)	91	91	91				55				
Act Effct Green (s)		49.6	49.6			52.4	52.4	38.0	38.0		
Actuated g/C Ratio		0.44	0.44			0.47	0.47	0.34	0.34		
v/c Ratio		0.96	0.98			0.78	0.28	0.31	0.87		
Control Delay		56.5	51.9			36.4	18.9	28.2	53.0		
Queue Delay		0.0	0.0			0.0	0.0	0.0	0.0		
Total Delay		56.5	51.9			36.4	18.9	28.2	53.0		
LOS		E	D			D	В	С	D		
Approach Delay			53.4				26.5	41.9			
Approach LOS			D				С	D			
Intersection Summary											
Area Type:	Other										
Cycle Length: 112											
Actuated Cycle Length: 112	2										
Offset: 0 (0%), Referenced	to phase 2	:NBTL, S	tart of Gre	een							
Natural Cycle: 90											
Control Type: Actuated-Coo	ordinated										
Maximum v/c Ratio: 0.98											
Intersection Signal Delay: 4	14.9			Ir	ntersectior	n LOS: D					
Intersection Capacity Utilization	ation 94.2%)		CU Level	of Servic	e F					
Analysis Period (min) 15											
Callia and Disease 0.10											

Splits and Phases: 2: I-95 ON RAMP & ATLANTIC ST. & N. STATE ST.



Queues 2: I-95 ON RAMP & ATLANTIC ST. & N. STATE ST.

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Lane Group	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	684	1348	350	457	373	458
v/c Ratio	0.96	0.98	0.78	0.28	0.31	0.87
Control Delay	56.5	51.9	36.4	18.9	28.2	53.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.5	51.9	36.4	18.9	28.2	53.0
Queue Length 50th (ft)	507	509	164	103	103	306
Queue Length 95th (ft)	#784	#684	#272	140	144	#492
Internal Link Dist (ft)		1088		113	161	
Turn Bay Length (ft)						
Base Capacity (vph)	718	1383	446	1656	1200	528
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.95	0.97	0.78	0.28	0.31	0.87
Intersection Summary						

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

Queue shown is maximum after two cycles.

Lanes, Volumes, Timings <u>5: CANAL ST. & N. STATE ST.</u>

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					ፈቶኬ		5	44		-	≜t ⊾	-
Traffic Volume (vph)	0	0	0	343	1448	332	299	652	0	0	697	266
Future Volume (vph)	0	0	0	343	1448	332	299	652	0	0	697	266
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util Eactor	1 00	1 00	1 00	0.91	0.91	0.91	1 00	0.95	1 00	1 00	0.95	0.95
Ped Bike Factor				0171	0.99	0171		0170	1100		0.99	0170
Frt					0.977						0.959	
Flt Protected					0.992		0.950				01707	
Satd. Flow (prot)	0	0	0	0	4896	0	1770	3539	0	0	3373	0
Flt Permitted	Ŭ				0.992		0.121		Ŭ	Ŭ	0010	
Satd. Flow (perm)	0	0	0	0	4895	0	225	3539	0	0	3373	0
Right Turn on Red	Ŭ		Yes		1070	No	220		Yes	Ŭ	0010	Yes
Satd. Flow (RTOR)											29	
Link Speed (mph)		30			30			30			30	
Link Distance (ff)		1168			439			220			380	
Travel Time (s)		26.5			10.0			5.0			8.6	
Confl. Peds. (#/hr)		2010		1	1010	30	9	0.0	8	8	0.0	9
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
Adi, Flow (vph)	0	0	0	373	1574	361	325	709	0	0	758	289
Shared Lane Traffic (%)	Ŭ			0.0		001	020		Ŭ	Ŭ		207
Lane Group Flow (vph)	0	0	0	0	2308	0	325	709	0	0	1047	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12	g		12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors				1	1		1	1			1	
Detector Template				Left								
Leading Detector (ft)				20	40		30	30			40	
Trailing Detector (ft)				0	0		0	0			0	
Detector 1 Position(ft)				0	0		0	0			0	
Detector 1 Size(ft)				20	40		30	30			40	
Detector 1 Type				CI+Ex	CI+Ex		CI+Ex	CI+Ex			CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0		0.0	0.0			0.0	
Detector 1 Queue (s)				0.0	0.0		0.0	0.0			0.0	
Detector 1 Delay (s)				0.0	0.0		0.0	0.0			0.0	
Turn Type				Perm	NA		pm+pt	NA			NA	
Protected Phases					8		5	2			6	
Permitted Phases				8			2					
Detector Phase				8	8		5	2			6	
Switch Phase												
Minimum Initial (s)				10.0	10.0		7.0	15.0			15.0	
Minimum Split (s)				33.0	33.0		11.0	29.0			29.0	
Total Split (s)				44.0	44.0		17.0	51.0			34.0	
Total Split (%)				46.3%	46.3%		17.9%	53.7%			35.8%	

2041 Lane Removed AM.syn

Lanes, Volumes, Timings <u>5: CANAL ST. & N. STATE ST.</u>

06/15/2020

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Maximum Green (s)				39.0	39.0		13.0	46.0			29.0	
Yellow Time (s)				3.0	3.0		3.0	3.0			3.0	
All-Red Time (s)				2.0	2.0		1.0	2.0			2.0	
Lost Time Adjust (s)					0.0		0.0	0.0			0.0	
Total Lost Time (s)					5.0		4.0	5.0			5.0	
Lead/Lag							Lead				Lag	
Lead-Lag Optimize?							Yes				Yes	
Vehicle Extension (s)				5.0	5.0		3.0	1.0			3.0	
Recall Mode				None	None		None	C-Min			C-Min	
Walk Time (s)				7.0	7.0			7.0			7.0	
Flash Dont Walk (s)				21.0	21.0			17.0			17.0	
Pedestrian Calls (#/hr)				31	31			8			9	
Act Effct Green (s)					39.0		47.0	46.0			29.0	
Actuated g/C Ratio					0.41		0.49	0.48			0.31	
v/c Ratio					1.15		1.01	0.41			1.00	
Control Delay					98.5		78.3	16.7			60.5	
Queue Delay					0.0		0.0	0.0			0.0	
Total Delay					98.5		78.3	16.7			60.5	
LOS					F		E	В			E	
Approach Delay					98.5			36.1			60.5	
Approach LOS					F			D			E	
Intersection Summary												
Area Type: 0	Other											
Cycle Length: 95												
Actuated Cycle Length: 95												
Offset: 30 (32%), Reference	d to phase	2:NBTL	and 6:SE	T, Start c	of Yellow							
Natural Cycle: 110												
Control Type: Actuated-Coo	rdinated											
Maximum v/c Ratio: 1.15												
Intersection Signal Delay: 74	4.7			In	itersection	n LOS: E						
Intersection Capacity Utilization	tion 99.0%			IC	CU Level	of Service	e F					
Analysis Period (min) 15												
Splits and Dhasas E. CAL		N CTAT	гст									



Queues 5: CANAL ST. & N. STATE ST.

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Lane Group	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	2308	325	709	1047
v/c Ratio	1.15	1.01	0.41	1.00
Control Delay	98.5	78.3	16.7	60.5
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	98.5	78.3	16.7	60.5
Queue Length 50th (ft)	~607	~147	139	322
Queue Length 95th (ft)	m#693	#324	184	#470
Internal Link Dist (ft)	359		140	300
Turn Bay Length (ft)				
Base Capacity (vph)	2009	322	1713	1049
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	1.15	1.01	0.41	1.00
Intersection Summary				
 Volume exceeds capaci 	ity, queue is	s theoretic	cally infin	ite.
Queue shown is maximu	um after two	o 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.

ATTACHMENT L

Lanes, Volumes, Timings 8: ELM ST. & N. STATE ST./I-95 EXIT 8

06/15/2020

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations				۲	4 16	1		ተተ ኈ		۲	* *	
Traffic Volume (vph)	0	0	0	354	686	873	0	244	962	299	663	0
Future Volume (vph)	0	0	0	354	686	873	0	244	962	299	663	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	0.91	1.00	0.95	1.00
Ped Bike Factor					1.00			0.98		1.00		
Frt					0.946	0.850		0.880				
Flt Protected				0.950						0.950		
Satd. Flow (prot)	0	0	0	1770	3192	1441	0	4382	0	1770	3539	0
Flt Permitted				0.950						0.116		
Satd. Flow (perm)	0	0	0	1770	3192	1441	0	4382	0	216	3539	0
Right Turn on Red			Yes			No			Yes			Yes
Satd. Flow (RTOR)								93				
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1111			568			482			313	
Travel Time (s)		25.3			12.9			11.0			7.1	
Confl. Peds. (#/hr)						1			12	12		
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	385	746	949	0	265	1046	325	721	0
Shared Lane Traffic (%)						44%						
Lane Group Flow (vph)	0	0	0	385	1164	531	0	1311	0	325	721	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors				1	1	1		1		1	1	
Detector Template				Left								
Leading Detector (ft)				20	30	30		30		30	30	
Trailing Detector (ft)				0	0	0		0		0	0	
Detector 1 Position(ft)				0	0	0		0		0	0	
Detector 1 Size(ft)				20	30	30		30		30	30	
Detector 1 Type				CI+Ex	CI+Ex	CI+Ex		CI+Ex		CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0	0.0		0.0		0.0	0.0	
Detector 1 Queue (s)				0.0	0.0	0.0		0.0		0.0	0.0	
Detector 1 Delay (s)				0.0	0.0	0.0		0.0		0.0	0.0	
lurn lype				Split	NA	Prot		NA		pm+pt	NA	
Protected Phases				8	8	8		6		5	2	
Permitted Phases				0	0	0		,		2	0	
Detector Phase				8	8	8		6		5	2	
Switch Phase				40.0	40.0	40.0		45.0		7.0	45.0	
Minimum Initial (S)				10.0	10.0	10.0		15.0		7.0	15.0	
IVIINIMUM Split (S)				14.5	14.5	14.5		29.0		11.0	20.0	
Total Split (S)				40.0	40.0	40.0		36.0		19.0	55.0	
i otal Split (%)				42.1%	42.1%	42.1%		37.9%		20.0%	57.9%	

2041 Lane Removed AM.syn

Lanes, Volumes, Timings 8: ELM ST. & N. STATE ST./I-95 EXIT 8

06/15/2020

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Maximum Green (s)				35.5	35.5	35.5		31.0		15.0	50.0	
Yellow Time (s)				3.5	3.5	3.5		3.0		3.0	3.0	
All-Red Time (s)				1.0	1.0	1.0		2.0		1.0	2.0	
Lost Time Adjust (s)				0.0	0.0	0.0		0.0		0.0	0.0	
Total Lost Time (s)				4.5	4.5	4.5		5.0		4.0	5.0	
Lead/Lag								Lag		Lead		
Lead-Lag Optimize?								Yes		Yes		
Vehicle Extension (s)				2.0	2.0	2.0		3.0		3.0	3.0	
Recall Mode				None	None	None		C-Min		None	C-Min	
Walk Time (s)								7.0				
Flash Dont Walk (s)								17.0				
Pedestrian Calls (#/hr)								12				
Act Effct Green (s)				36.1	36.1	36.1		30.7		50.4	49.4	
Actuated g/C Ratio				0.38	0.38	0.38		0.32		0.53	0.52	
v/c Ratio				0.57	0.96	0.97		1.83dr		0.91	0.39	
Control Delay				27.7	48.1	63.2		37.0		54.2	14.4	
Queue Delay				0.0	0.0	0.0		0.0		0.0	0.0	
Total Delay				27.7	48.1	63.2		37.0		54.2	14.4	
LOS				С	D	E		D		D	В	
Approach Delay					48.2			37.0			26.8	
Approach LOS					D			D			С	
Intersection Summary												
Area Type: Ot	her											
Cycle Length: 95												
Actuated Cycle Length: 95												
Offset: 17.5 (18%), Reference	d to phas	se 2:NWT	L and 6:	SET, Sta	rt of Yello	W						
Natural Cycle: 80												
Control Type: Actuated-Coord	inated											
Maximum v/c Ratio: 0.97												
Intersection Signal Delay: 39.8	3			In	itersection	n LOS: D						
Intersection Capacity Utilization	on 83.6%			IC	CU Level	of Service	Ε					
Analysis Period (min) 15												
dr Defacto Right Lane. Rec	ode with	1 though	lane as	a right lar	ne.							
Splits and Dhasas		CTATE C	T /I OF F									

Splits and Phases: 8: ELM ST. & N. STATE ST./I-95 EXIT 8



Queues 8: ELM ST. & N. STATE ST./I-95 EXIT 8

	s.	-	*	\mathbf{X}	*	×
Lane Group	WBL	WBT	WBR	SET	NWL	NWT
Lane Group Flow (vph)	385	1164	531	1311	325	721
v/c Ratio	0.57	0.96	0.97	1.83dr	0.91	0.39
Control Delay	27.7	48.1	63.2	37.0	54.2	14.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.7	48.1	63.2	37.0	54.2	14.4
Queue Length 50th (ft)	183	374	343	254	139	129
Queue Length 95th (ft)	278	#529	#582	#323	#298	170
Internal Link Dist (ft)		488		402		233
Turn Bay Length (ft)						
Base Capacity (vph)	671	1211	546	1492	360	1862
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.57	0.96	0.97	0.88	0.90	0.39

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.
 dr Defacto Right Lane. Recode with 1 though lane as a right lane.

2041 Lane Removed AM.syn

Synchro 10 Report Page 9

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ATTACHMENT L

06/15/2020

Lane Group WBL2 WBL WBT WBR NBL2 NBL NBT SBT SBR SBR2 Lane Configurations Image: Strain Stra		1	۲	+	•	*	1	Ť	ŧ	¥	~	
Lane Configurations Image: Configurati	Lane Group	WBL2	WBL	WBT	WBR	NBL2	NBL	NBT	SBT	SBR	SBR2	
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Lane Configurations		3	ፈጉ			3	**	44	đ		
	Traffic Volume (vph)	188	851	343	387	221	12	288	442	343	78	
Ideal Flow (vphpl) 1900 1500 1500 1	Future Volume (vph)	188	851	343	387	221	12	288	442	343	78	
Lane Util. Factor 0.95 0.91 0.91 0.95 0.95 1.00 0.95 0.95 1.00 0.95 Ped Bike Factor 0.98 0.99 0.98 0.99 0.98 0.98 Frt 0.950 0.981 0.950 0.850 Flt Protected 0.950 0.981 0.950 0.833 Stdt. Flow (prot) 0 1610 3081 0 0 1770 3539 3539 1583 0 Flt Permitted 0.950 0.981 0.343 0.343 0.343 0.343 0.343 0.343 Satd. Flow (perm) 0 1610 3081 0 632 3539 1551 0 Right Turn on RedNo No No No No No No Satd. Flow (RTOR) 30 30 30 30 30 Link Distance (ft) 1168 1973 241 Travel Time (s) 26.5 4.4 5.5 Conf. Peds. (#/hr) 50 9 9 9 Peak Hour Factor 0.92 0.92 0.92 0.92 0.92 0.92 Adj. Flow (vph) 204 925 373 421 240 13 313 480 373 85 Shared Lane Traffic (%) 52% 225 313 480 458 0 Enter Blocked IntersectionNoNoNoNoNoNoNoLane Group Flow (vph) 0 648 1275	Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Ped Bike Factor 0.98 0.99 0.98 Frt 0.950 0.981 0.950 Std. Flow (prot) 0 1610 3081 0 0 1770 3539 3539 1583 0 Flt Permitted 0.950 0.981 0.343 0 0 1770 3539 3539 1583 0 Flt Permitted 0.950 0.981 0.343 0 0 632 3539 1551 0 Right Turn on Red No No 0 632 3539 324 1551 0 Stad. Flow (Perm) 0 1610 3081 0 0 632 3539 1551 0 Right Turn on Red No No <t< td=""><td>Lane Util. Factor</td><td>0.95</td><td>0.91</td><td>0.91</td><td>0.95</td><td>0.95</td><td>1.00</td><td>0.95</td><td>0.95</td><td>1.00</td><td>0.95</td><td></td></t<>	Lane Util. Factor	0.95	0.91	0.91	0.95	0.95	1.00	0.95	0.95	1.00	0.95	
Frt 0.950 0.850 Flt Protected 0.950 0.981 0.950 Satd. Flow (port)0161030810017703539353915830Flt Permitted 0.950 0.981 0.343 0.343 0.343 0.343 0.343 Satd. Flow (perm)01610308100632353935391551 0 Right Turn on RedNoNoNoNoNoNoSatd. Flow (RTOR) 0.343 30 30 30 1551 0 Link Speed (mph) 30 30 30 30 241 Travel Time (s) 265 4.4 55 Confl. Peds. (#/hr) 50 9 9 9 Peak Hour Factor 0.92 0.92 0.92 0.92 0.92 0.92 Adj. Flow (vph) 204 925 373 421 240 13 313 480 373 85 Shared Lane Traffic (%) 52% 12 12 12 12 12 12 12 Lane Group Flow (vph) 0 648 1275 0 0 253 313 480 458 0 Enter Blocked IntersectionNoNoNoNoNoNoNoNoNoLane AlignmentLeftLeftRightRightHeiftHeiftHeiftHeiftLink Offset(ft) 0 0 0 0 <td< td=""><td>Ped Bike Factor</td><td></td><td></td><td>0.98</td><td></td><td></td><td>0.99</td><td></td><td></td><td>0.98</td><td></td><td></td></td<>	Ped Bike Factor			0.98			0.99			0.98		
Fit Protected 0.950 0.981 0.950 Satd. Flow (prot) 0 1610 3081 0 0 1770 3539 3539 1583 0 Fit Permitted 0.950 0.981 0.343 0 0 632 3539 1583 0 Right Turn on Red No 0 632 3539 1551 0 Right Turn on Red No 30 30 100 0 632 3539 1551 0 Satd. Flow (perm) 0 1610 3081 0 0 632 3539 1551 0 Satd. Flow (RTOR) No No Satd. Flow (RTOR) No 30 30 1116 Link Distance (ft) 1168 193 241 117 1168 193 241 Travel Time (s) 26.5 4.4 5.5 5 5 5 5 Confl. Peds. (#/hr) 204 925 373 421 240 13 313 480 373 85 Shared Lane Traffic (%) 52%	Frt			0.950						0.850		
Satd. Flow (prot) 0 1610 3081 0 0 1770 3539 3539 1583 0 Flt Permitted 0.950 0.981 0.343 0 0 632 3539 1551 0 Right Turn on Red No No No No No No No Satd. Flow (RTOR) 1610 3081 0 0 632 3539 1551 0 Link Speed (mph) 30 30 30 30 30 30 1161 Travel Time (s) 26.5 4.4 5.5 5 5 1161 1168 193 241 117 1168 193 241 117 1168 193 241 1161	Flt Protected		0.950	0.981			0.950					
Fit Permitted 0.950 0.981 0.343 Satd. Flow (perm) 0 1610 3081 0 0 632 3539 3539 1551 0 Right Turn on Red No No No No No No Satd. Flow (RTOR) 1168 193 241 117 1168 193 241 Travel Time (s) 26.5 4.4 5.5 5 5 100 <t< td=""><td>Satd. Flow (prot)</td><td>0</td><td>1610</td><td>3081</td><td>0</td><td>0</td><td>1770</td><td>3539</td><td>3539</td><td>1583</td><td>0</td><td></td></t<>	Satd. Flow (prot)	0	1610	3081	0	0	1770	3539	3539	1583	0	
Satd. Flow (perm) 0 1610 3081 0 0 632 3539 3539 1551 0 Right Turn on Red No No No No No No Satd. Flow (RTOR) 30 30 30 30 100	Flt Permitted		0.950	0.981			0.343					
Right Turn on RedNoNoSatd. Flow (RTOR)3030Link Speed (mph)3030Link Distance (ft)1168193Travel Time (s)26.54.45.55099Peak Hour Factor0.920.920.920.920.920.920.920.920.920.92Adj. Flow (vph)20492537342124024124013313480373Shared Lane Traffic (%)52%	Satd. Flow (perm)	0	1610	3081	0	0	632	3539	3539	1551	0	
Satd. Flow (RTOR) Link Speed (mph) 30 30 30 Link Distance (ft) 1168 193 241 Travel Time (s) 26.5 4.4 5.5 Confl. Peds. (#/hr) 50 9 9 9 Peak Hour Factor 0.92	Right Turn on Red				No						No	
Link Speed (mph) 30 30 30 30 Link Distance (ft) 1168 193 241 Travel Time (s) 26.5 4.4 5.5 Confl. Peds. (#/hr) 50 9 9 9 Peak Hour Factor 0.92 <t< td=""><td>Satd. Flow (RTOR)</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>	Satd. Flow (RTOR)											
Link Distance (ft) 1168 193 241 Travel Time (s) 26.5 4.4 5.5 Confl. Peds. (#/hr) 50 9 9 9 Peak Hour Factor 0.92 0	Link Speed (mph)			30				30	30			
Travel Time (s) 26.5 4.4 5.5 Confl. Peds. (#/hr) 50 9 9 9 Peak Hour Factor 0.92	Link Distance (ft)			1168				193	241			
Confl. Peds. (#/hr) 50 9 9 9 Peak Hour Factor 0.92	Travel Time (s)			26.5				4.4	5.5			
Peak Hour Factor 0.92 0.9	Confl. Peds. (#/hr)			2010	50	9	9		0.0	9		
Adj. Flow (vph) 204 925 373 421 240 13 313 480 373 85 Shared Lane Traffic (%) 52% 533 313 480 458 0 Enter Blocked Intersection No No<	Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Shared Lane Traffic (%) 52% 1100 110 110 <th< td=""><td>Adi, Flow (vph)</td><td>204</td><td>925</td><td>373</td><td>421</td><td>240</td><td>13</td><td>313</td><td>480</td><td>373</td><td>85</td><td></td></th<>	Adi, Flow (vph)	204	925	373	421	240	13	313	480	373	85	
Lane Group Flow (vph) 0 648 1275 0 0 253 313 480 458 0 Enter Blocked Intersection No No <td>Shared Lane Traffic (%)</td> <td>201</td> <td>52%</td> <td>0,0</td> <td></td> <td>2.10</td> <td></td> <td>0.0</td> <td>100</td> <td>0.0</td> <td>00</td> <td></td>	Shared Lane Traffic (%)	201	52%	0,0		2.10		0.0	100	0.0	00	
Enter Blocked IntersectionNoNoNoNoNoNoNoNoLane AlignmentLeftLeftLeftLeftLeftLeftLeftRightMedian Width(ft)12121212LeftLink Offset(ft)0000Crosswalk Width(ft)161616Two way Left Turn Lane1.001.001.001.001.00Headway Factor1.001.001.001.001.001.00Turning Sneed (mph)1515915159	Lane Group Flow (vph)	0	648	1275	0	0	253	313	480	458	0	
Lane AlignmentLeftLeftLeftRightLeftLeftLeftLeftRightRightMedian Width(ft)121212121212Link Offset(ft)00000Crosswalk Width(ft)16161616Two way Left Turn Lane1.001.001.001.001.001.00Headway Factor1.001.001.001.001.001.001.00Turning Sneed (mph)15159151599	Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	
Median Width(ft) 12 12 12 Link Offset(ft) 0 0 0 Crosswalk Width(ft) 16 16 16 Two way Left Turn Lane 100 1.00 1.00 1.00 1.00 1.00 1.00 Turning Sneed (mph) 15 15 9 15 15 9 9	Lane Alignment	Left	Left	Left	Right	Left	Left	Left	Left	Right	Right	
Link Offset(ft) 0 0 Crosswalk Width(ft) 16 16 Two way Left Turn Lane 100 1.00	Median Width(ft)	Lon	2011	12	g	Lon	Lon	12	12	g	g	
Crosswalk Width(ft) 16 16 16 Two way Left Turn Lane 1.00 <	Link Offset(ft)			0				0	0			
Two way Left Turn Lane Headway Factor 1.00 <td>Crosswalk Width(ft)</td> <td></td> <td></td> <td>16</td> <td></td> <td></td> <td></td> <td>16</td> <td>16</td> <td></td> <td></td> <td></td>	Crosswalk Width(ft)			16				16	16			
Headway Factor 1.00<	Two way Left Turn Lane											
	Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
	Turning Speed (mph)	15	15		9	15	15			9	9	
Number of Detectors 1 1 1 1 1 1 0 0 0	Number of Detectors	1	1	1		1	1	0	0	0		
Detector Template Left Left	Detector Template	Left	-			Left	-	-		-		
Leading Detector (ft) 20 306 306 20 30 0 0 0	Leading Detector (ft)	20	306	306		20	30	0	0	0		
Trailing Detector (ft) 0 300 300 0 0 0 0	Trailing Detector (ft)	0	300	300		0	0	0	0	0		
Detector 1 Position(ft) 0 300 300 0 0 0 0 0	Detector 1 Position(ft)	0	300	300		0	0	0	0	0		
Detector 1 Size(ft) 20 6 6 20 30 6 6 20	Detector 1 Size(ft)	20	6	6		20	30	6	6	20		
Detector 1 Type CI+Ex CI+Ex CI+Ex CI+Ex CI+Ex CI+Ex CI+Ex CI+Ex	Detector 1 Type	CI+Ex	CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex		
Detector 1 Channel	Detector 1 Channel											
Detector 1 Extend (s) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		
Detector 1 Queue (s) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Detector 1 Oueue (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		
Detector 1 Delay (s) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		
Turn Type Perm Perm NA pm+pt NA NA Perm	Turn Type	Perm	Perm	NA		pm+pt	pm+pt	NA	NA	Perm		
Protected Phases 8 5 5 2 6	Protected Phases	1 01111		8		5	5	2	6	1 01111		
Permitted Phases 8 8 2 2 6	Permitted Phases	8	8	Ū		2	2	_		6		
Detector Phase 8 8 8 5 5 2 6 6	Detector Phase	8	8	8		5	5	2	6	6		
Switch Phase	Switch Phase	U	Ŭ	Ū		U	U	-	Ŭ	Ū		
Minimum Initial (s) 15.0 15.0 15.0 5.0 5.0 15.0 15.0	Minimum Initial (s)	15.0	15.0	15.0		5.0	5.0	15.0	15.0	15.0		
Minimum Split (s) $31.0 \ 31.0 \ 31.0 \ 10.0 \ 10.0 \ 10.0 \ 20.$	Minimum Split (s)	31.0	31.0	31.0		10.0	10.0	26.0	20.0	20.0		
Total Split (s) 55.0 55.0 160 160 160 57.0 41.0 41.0	Total Split (s)	55.0	55.0	55.0		16.0	16.0	57.0	41.0	41.0		
Total Split (%) 49.1% 49.1% 49.1% 14.3% 50.9% 36.6%	Total Split (%)	49.1%	49.1%	49.1%		14.3%	14.3%	50.9%	36.6%	36.6%		

2041 Lane Removed PM.syn
06/15/2020

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Lane Group	WBL2	WBL	WBT	WBR	NBL2	NBL	NBT	SBT	SBR	SBR2	
Maximum Green (s)	50.0	50.0	50.0		11.0	11.0	52.0	36.0	36.0		
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	Lead		Lag	Lag		
Lead-Lag Optimize?					Yes	Yes		Yes	Yes		
Vehicle Extension (s)	2.0	2.0	2.0		1.5	1.5	3.0	3.0	3.0		
Recall Mode	None	None	None		None	None	C-Max	Max	Max		
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)	50	50	50				45				
Act Effct Green (s)		48.6	48.6			53.4	53.4	37.8	37.8		
Actuated g/C Ratio		0.43	0.43			0.48	0.48	0.34	0.34		
v/c Ratio		0.93	0.96			0.62	0.19	0.40	0.88		
Control Delay		51.3	46.9			26.0	17.5	30.2	55.0		
Queue Delay		0.0	0.0			0.0	0.0	0.0	0.0		
Total Delay		51.3	46.9			26.0	17.5	30.2	55.0		
LOS		D	D			С	В	С	D		
Approach Delay			48.4				21.3	42.3			
Approach LOS			D				С	D			
Intersection Summary											
Area Type:	Other										
Cycle Length: 112											
Actuated Cycle Length: 112	2										
Offset: 51 (46%), Reference	ed to phase	e 2:NBTL,	Start of '	Yellow							
Natural Cycle: 90											
Control Type: Actuated-Co	ordinated										
Maximum v/c Ratio: 0.96											
Intersection Signal Delay: 4	42.2			Ir	ntersection	n LOS: D					
Intersection Capacity Utiliz	ation 88.0%)		10	CU Level	of Servic	еE				
Analysis Period (min) 15											

Splits and Phases: 2: I-95 ON RAMP & ATLANTIC ST. & N. STATE ST.



Queues 2: I-95 ON RAMP & ATLANTIC ST. & N. STATE ST.

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Lane Group	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	648	1275	253	313	480	458
v/c Ratio	0.93	0.96	0.62	0.19	0.40	0.88
Control Delay	51.3	46.9	26.0	17.5	30.2	55.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.3	46.9	26.0	17.5	30.2	55.0
Queue Length 50th (ft)	463	464	111	67	142	316
Queue Length 95th (ft)	#721	#626	170	96	191	#514
Internal Link Dist (ft)		1088		113	161	
Turn Bay Length (ft)						
Base Capacity (vph)	718	1375	414	1688	1194	523
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.90	0.93	0.61	0.19	0.40	0.88
Intersection Summary						

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

Queue shown is maximum after two cycles.

06/15/2020

Lane Group EBL EBT EBR WBL WBT WBR NBL NBT NBR SBL SBR SBR Lane Configurations 0 0 387 1006 221 310 840 0 0 666 188 Fulure Volume (vph) 0 0 387 1006 221 310 840 0 0 666 188 Glaca Flow (vph) 1000 <th></th> <th>۶</th> <th>+</th> <th>*</th> <th>4</th> <th>ł</th> <th>*</th> <th><</th> <th>1</th> <th>1</th> <th>*</th> <th>Ŧ</th> <th>~</th>		۶	+	*	4	ł	*	<	1	1	*	Ŧ	~
Lane Configurations Image Con	Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
	Lane Configurations					ፈቶኬ		5	**			≜t ⊾	
Future Volume (vph) 0 0 0 0 387 1006 221 310 840 0 0 6666 188 ideal Flow (vphp) 1900	Traffic Volume (vph)	0	0	0	387	1006	221	310	840	0	0	686	188
ideal Flow (php) 1900	Future Volume (vph)	0	0	0	387	1006	221	310	840	0	0	686	188
Lane Ulii, Factor 1.00 1.00 1.00 0.91 0.91 0.91 1.00 0.95 1.00 0.95 1.00 0.95 1.00 <th1.00< th=""> 1.00 1.00</th1.00<>	Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ped Bike Factor 1.00 1.00 1.00 Frt 0.979 0.968 0.950 El Portocted 0.988 0.950 0 341.0 0 Satd. Flow (perm) 0 0 0 4899 0 1770 3539 0 0 3410 0 Right Tum on Red Yes Ves Ves Yes Yes Yes Satd. Flow (perm) 0 0 0 4899 0 1707 3539 0 0 3410 0 Right Tum on Red Yes Ves Ves Yes	Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	0.91	1.00	0.95	1.00	1.00	0.95	0.95
Fit 0.979 0.968 0.950 Fit Protected 0.988 0.950 0 3539 0 0 3410 0 FIt Protected 0.988 0.127 3539 0 0 3410 0 FIT Permitted 0.988 0.129 3539 0 0 3410 0 Satd. Flow (prot) 0 0 0 4896 0 240 3539 0 0 3410 0 Satd. Flow (prot) 0 0 0 4896 0 240 3539 0 0 3410 0 Statl. Flow (prot) 0 0 0 30 30 30 30 30 30 30 30 30 30 30 30 11111 11111 11111	Ped Bike Factor					1.00						1.00	
Fit Protected 0.988 0.950 Satd. Flow (prot) 0 0 0 4899 0 1770 3539 0 0 3410 0 Righ Taw or Red Yes No 240 3539 0 0 3410 0 Righ Taw or Red Yes No Yes Yes Yes Satd. Flow (RTOR) 30 30 30 30 30 30 Link Distance (ft) 1168 439 220 380 56 0 0.92 <td>Frt</td> <td></td> <td></td> <td></td> <td></td> <td>0.979</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>0.968</td> <td></td>	Frt					0.979						0.968	
Said. Flow (prot) 0 0 0 4899 0 1770 3539 0 0 3410 0 FI Permitted 0.988 0.129 0 3539 0 0 3410 0 Right Flow (perm) 0 0 0 4896 0 240 3539 0 0 3410 0 Right Flow (RTOR) 0 0 0 0 30 30 30 30 30 30 30 50 10.0 50 8.6 50 50 50 8.6 50 <td>Flt Protected</td> <td></td> <td></td> <td></td> <td></td> <td>0.988</td> <td></td> <td>0.950</td> <td></td> <td></td> <td></td> <td></td> <td></td>	Flt Protected					0.988		0.950					
Fit Permitted 0 0 0 0 4896 0 129 Satd. Flow (perm) 0 0 0 4896 0 240 3539 0 0 3410 0 Satd. Flow (RTOR) 30 30 30 30 30 30 30 30 100 1168 439 220 3380 100 1168 439 220 3380 100 746 20 20 20 0.92	Satd. Flow (prot)	0	0	0	0	4899	0	1770	3539	0	0	3410	0
Said. Flow (perm) 0 0 0 4896 0 240 3539 0 0 3410 0 Right Turn on Red Yes No Yes Yes Yes Said. Flow (RTOR) 30 30 30 30 30 30 30 30 30 30 Link Speed (mph) 30 26.5 10.0 5.0 8.6 8 Confl. Peds. (#/hr) 2 18 8 9.92 0.92	Flt Permitted					0.988		0.129					
Right Turn on Red Yes No Yes Yes Yes Satd. Flow (RTOR) 30 10 1168 439 220 380 50 60 70 <td>Satd. Flow (perm)</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>4896</td> <td>0</td> <td>240</td> <td>3539</td> <td>0</td> <td>0</td> <td>3410</td> <td>0</td>	Satd. Flow (perm)	0	0	0	0	4896	0	240	3539	0	0	3410	0
Said. Flow (RTOR) 30 30 30 30 30 Link Speed (mph) 1168 439 220 380 Travel Time (s) 26.5 10.0 5.0 8.6 Confl. Peds. (#/hr) 2 18 8 8 Peak Hour Factor 0.92 0.	Right Turn on Red			Yes			No			Yes			Yes
Link Speed (mph) 30 30 30 30 30 30 Link Distance (ft) 1168 439 220 380 Travel Time (s) 26.5 10.0 5.0 8.6 Confl. Peck, (#/h) 2 18 8 8 Peak Hour Factor 0.92 <t< td=""><td>Satd. Flow (RTOR)</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>36</td><td></td></t<>	Satd. Flow (RTOR)											36	
Link Distance (ft) 1168 439 220 380 Travel Time (s) 26.5 10.0 5.0 8.6 Confl. Peds. (#/hr) 2 18 8 8 Peak Hour Factor 0.92	Link Speed (mph)		30			30			30			30	
Travel Time (\$) 26.5 10.0 5.0 8.6 Confl. Peds. (#/h) 2 18 8 8 Peak Hour Factor 0.92	Link Distance (ft)		1168			439			220			380	
Confl. Peds. (#/ht) Line 2 18 8 Number of the sector 8 Peak Hour Factor 0.92	Travel Time (s)		26.5			10.0			5.0			8.6	
Peak Hour Factor 0.92	Confl. Peds. (#/hr)		2010		2		18	8	0.0			0.0	8
Adj. Flow (rph) 0 0 0 421 1093 240 337 913 0 0 746 204 Shared Lane Traffic (%) 240 337 913 0 0 746 204 Shared Lane Traffic (%)	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
Shared Lane Traffic (%) 0 0 0 0 100 100 100 100 0 0 950 0 Lane Group Flow (vph) 0 0 0 0 1754 0 337 913 0 0 950 0 Enter Blocked Intersection No	Adi Flow (vph)	0.72	0.72	0.72	421	1093	240	337	913	0.72	0.72	746	204
Date Group Flow (vph) 0 0 0 1754 0 337 913 0 0 950 0 Enter Blocked Intersection No No<	Shared Lane Traffic (%)	Ŭ	Ū	Ű	121	1070	210	007	,10	Ű	Ű	7.10	201
Land Bridge Product No No <td>Lane Group Flow (vph)</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>1754</td> <td>0</td> <td>337</td> <td>913</td> <td>0</td> <td>0</td> <td>950</td> <td>0</td>	Lane Group Flow (vph)	0	0	0	0	1754	0	337	913	0	0	950	0
Link blocked ministration No	Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lenk might Lenk regin Lenk regin Lenk Lenk <thlenk< th=""> Lenk Lenk</thlenk<>	Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Inix Offset(i) 0 0 0 0 Crosswalk Width(ft) 16 16 16 16 Two way Left Turn Lane	Median Width(ft)	Lon	0	rtigitt	Lon	0	rtigitt	Lon	12	rtigitt	Lon	12	rtight
Link on body (y) 0 16 16 16 16 16 16 16 16 16 16 100 1.00 <td>Link Offset(ft)</td> <td></td> <td>0</td> <td></td> <td></td> <td>0</td> <td></td> <td></td> <td>0</td> <td></td> <td></td> <td>0</td> <td></td>	Link Offset(ft)		0			0			0			0	
Two way Left Turn Lane Headway Factor 1.00 <td>Crosswalk Width(ft)</td> <td></td> <td>16</td> <td></td> <td></td> <td>16</td> <td></td> <td></td> <td>16</td> <td></td> <td></td> <td>16</td> <td></td>	Crosswalk Width(ft)		16			16			16			16	
Headway Factor 1.00<	Two way Left Turn Lane		10			10			10			10	
Instruction	Headway Factor	1 00	1 00	1 00	1 00	1 00	1 00	1 00	1 00	1 00	1 00	1 00	1 00
Number of Detectors 1	Turning Speed (mph)	15	1.00	9	15	1.00	9	15	1.00	9	15	1.00	9
Initial of Template Left Leading Detector (ft) 20 40 30 30 40 Trailing Detector (ft) 0 0 0 0 0 Detector 1 Position(ft) 0 0 0 0 0 Detector 1 Size(ft) 20 40 30 30 40 Detector 1 Size(ft) 20 40 30 30 40 Detector 1 Type CI+Ex CI+Ex CI+Ex CI+Ex CI+Ex Detector 1 Channel 0 0.0 0.0 0.0 0.0 0.0 Detector 1 Queue (s) 0.0 0.0 0.0 0.0 0.0 0.0 Detector 1 Delay (s) 0.0 0.0 0.0 0.0 0.0 0.0 Urun Type Perm Perm NA pm+pt NA NA Protected Phases 8 5 2 6 6 Permitted Phases 8 8 5 2 6 Switch Phase 8 8 5 2 6	Number of Detectors	10		,	1	1	,	1	1	,	10	1	,
Leading Detector (ft) 20 40 30 30 40 Trailing Detector (ft) 0	Detector Template				l eft	•		•	•			•	
Localing Detector (ft) 10 10 00 0 <td>Leading Detector (ft)</td> <td></td> <td></td> <td></td> <td>20</td> <td>40</td> <td></td> <td>30</td> <td>30</td> <td></td> <td></td> <td>40</td> <td></td>	Leading Detector (ft)				20	40		30	30			40	
Intering Detector 1 Position (ft) 0	Trailing Detector (ft)				0	0		0	0			0	
Detector 1 Size(ft) 20 40 30 30 40 Detector 1 Type CI+Ex	Detector 1 Position(ft)				0	0		0	0			0	
Detector 1 Type Cl+Ex	Detector 1 Size(ft)				20	40		30	30			40	
Detector 1 Channel 0.0 0.0 0.0 0.0 0.0 Detector 1 Extend (s) 0.0 0.0 0.0 0.0 0.0 Detector 1 Queue (s) 0.0 0.0 0.0 0.0 0.0 Detector 1 Delay (s) 0.0 0.0 0.0 0.0 0.0 Turn Type Perm NA pm+pt NA NA Protected Phases 8 5 2 6 Permitted Phases 8 8 5 2 6 Detector Phase 8 8 5 2 6 Switch Phase 8 3 5 2 6 Minimum Initial (s) 10.0 10.0 7.0 15.0 15.0	Detector 1 Type				CI+Ex	CI+Ex		CI+Ex	CI+Ex			CI+Ex	
Detector 1 Extend (s) 0.0 0.0 0.0 0.0 Detector 1 Queue (s) 0.0 0.0 0.0 0.0 Detector 1 Delay (s) 0.0 0.0 0.0 0.0 Detector 1 Delay (s) 0.0 0.0 0.0 0.0 Turn Type Perm NA pm+pt NA Protected Phases 8 5 2 6 Permitted Phases 8 8 5 2 6 Detector Phase 8 8 5 2 6 Switch Phase 8 8 5 2 6 Minimum Initial (s) 10.0 10.0 7.0 15.0 15.0	Detector 1 Channel				OFFER	OTTER		OFFER	OTTER			OTTEX	
Detector 1 Queue (s) 0.0 0.0 0.0 0.0 0.0 Detector 1 Queue (s) 0.0 0.0 0.0 0.0 0.0 Detector 1 Delay (s) 0.0 0.0 0.0 0.0 0.0 Turn Type Perm NA pm+pt NA NA Protected Phases 8 5 2 6 Permitted Phases 8 8 5 2 6 Detector Phase 8 8 5 2 6 Switch Phase 8 8 5 2 6 Minimum Initial (s) 10.0 10.0 7.0 15.0 15.0	Detector 1 Extend (s)				0.0	0.0		0.0	0.0			0.0	
Detector 1 Delay (s) 0.0 0.0 0.0 0.0 0.0 Turn Type Perm NA pm+pt NA NA Protected Phases 8 5 2 6 Permitted Phases 8 5 2 6 Detector Phase 8 8 5 2 6 Switch Phase 8 3 5 2 6 Minimum Initial (s) 10.0 10.0 7.0 15.0 15.0	Detector 1 Queue (s)				0.0	0.0		0.0	0.0			0.0	
Detector Perm NA pm+pt NA NA Protected Phases 8 5 2 6 Permitted Phases 8 5 2 6 Detector Phase 8 8 5 2 6 Switch Phase 8 5 2 6 Minimum Initial (s) 10.0 10.0 7.0 15.0 15.0 Minimum Split (c) 33.0 33.0 11.0 29.0 29.0	Detector 1 Delay (s)				0.0	0.0		0.0	0.0			0.0	
Protected Phases8526Permitted Phases882Detector Phase88526Switch Phase8526Minimum Initial (s)10.010.07.015.015.0Minimum Split (c)33.033.011.029.020.0	Turn Type				Perm	NA		nm+nt	NA			NA	
Permitted Phases 8 2 Detector Phase 8 8 5 2 6 Switch Phase 10.0 10.0 7.0 15.0 15.0 Minimum Initial (s) 10.0 10.0 7.0 15.0 15.0	Protected Phases				1 cm	8		5	2			6	
Detector Phase 8 8 5 2 6 Switch Phase 10.0 10.0 7.0 15.0 15.0 Minimum Split (c) 33.0 33.0 11.0 29.0 20.0	Permitted Phases				8	U		2	۷			U	
Switch Phase 10.0 10.0 7.0 15.0 15.0 Minimum Split (s) 33.0 33.0 11.0 20.0 20.0	Detector Phase				8	8		5	2			6	
Minimum Initial (s) 10.0 10.0 7.0 15.0 15.0 Minimum Split (s) 33.0 33.0 11.0 20.0 20.0	Switch Phase				0	0		5	2			0	
Minimum Snlit (s) 33.0 32.0 32.0 11.0 20.0 20.0	Minimum Initial (s)				10.0	10.0		70	15.0			15.0	
1111 1111 /411 /411	Minimum Snlit (s)				33.0	33.0		11.0	29.0			29.0	
Total Split (s) 44 0 44 0 19 0 51 0 32 0	Total Split (s)				44.0	44.0		19.0	51.0			32.0	
Total Split (%) 46.3% 46.3% 20.0% 53.7% 33.7%	Total Split (%)				46.3%	46.3%		20.0%	53.7%			33.7%	

2041 Lane Removed PM.syn

06/15/2020

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Maximum Green (s)				39.0	39.0		15.0	46.0			27.0	
Yellow Time (s)				3.0	3.0		3.0	3.0			3.0	
All-Red Time (s)				2.0	2.0		1.0	2.0			2.0	
Lost Time Adjust (s)					0.0		0.0	0.0			0.0	
Total Lost Time (s)					5.0		4.0	5.0			5.0	
Lead/Lag							Lead				Lag	
Lead-Lag Optimize?							Yes				Yes	
Vehicle Extension (s)				5.0	5.0		3.0	1.0			3.0	
Recall Mode				None	None		None	C-Min			C-Min	
Walk Time (s)				7.0	7.0			7.0			7.0	
Flash Dont Walk (s)				21.0	21.0			17.0			17.0	
Pedestrian Calls (#/hr)				20	20			8			8	
Act Effct Green (s)					39.0		47.0	46.0			27.0	
Actuated g/C Ratio					0.41		0.49	0.48			0.28	
v/c Ratio					0.87		0.94	0.53			0.96	
Control Delay					31.0		58.5	18.5			52.8	
Queue Delay					0.0		0.0	0.0			0.0	
Total Delay					31.0		58.5	18.5			52.8	
LOS					С		E	В			D	
Approach Delay					31.0			29.3			52.8	
Approach LOS					С			С			D	
Intersection Summary												
Area Type: Of	ther											
Cycle Length: 95												
Actuated Cycle Length: 95												
Offset: 30 (32%), Referenced	to phase	2:NBTL	and 6:SE	T, Start c	of Yellow							
Natural Cycle: 80												
Control Type: Actuated-Coord	linated											
Maximum v/c Ratio: 0.96												
Intersection Signal Delay: 35.	7			In	tersection	n LOS: D						
Intersection Capacity Utilization	on 86.5%			IC	CU Level	of Service	Ε					
Analysis Period (min) 15												
Splits and Phases: 5: CAN	AL ST. &	N. STAT	E ST.									



Queues 5: CANAL ST. & N. STATE ST.

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Lane Group	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	1754	337	913	950
v/c Ratio	0.87	0.94	0.53	0.96
Control Delay	31.0	58.5	18.5	52.8
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	31.0	58.5	18.5	52.8
Queue Length 50th (ft)	332	148	193	285
Queue Length 95th (ft)	406	#318	250	#417
Internal Link Dist (ft)	359		140	300
Turn Bay Length (ft)				
Base Capacity (vph)	2009	360	1713	994
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.87	0.94	0.53	0.96
Intersection Summary				

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

Queue shown is maximum after two cycles.

Lanes, Volumes, Timings 8: ELM ST. & N. STATE ST./I-95 EXIT 8

06/15/2020

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations				۲	4 16	1		ተተ ኈ		5	* *	
Traffic Volume (vph)	0	0	0	233	155	708	0	1326	111	166	619	0
Future Volume (vph)	0	0	0	233	155	708	0	1326	111	166	619	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	0.91	1.00	0.95	1.00
Ped Bike Factor					0.99			1.00				
Frt					0.896	0.850		0.988				
Flt Protected				0.950						0.950		
Satd. Flow (prot)	0	0	0	1770	3011	1441	0	5010	0	1770	3539	0
Flt Permitted				0.950						0.086		
Satd. Flow (perm)	0	0	0	1770	3011	1441	0	5010	0	160	3539	0
Right Turn on Red			Yes			No			Yes			Yes
Satd. Flow (RTOR)								16				
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1111			568			482			313	
Travel Time (s)		25.3			12.9			11.0			7.1	
Confl. Peds. (#/hr)						1			21	21		
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	253	168	770	0	1441	121	180	673	0
Shared Lane Traffic (%)						50%						
Lane Group Flow (vph)	0	0	0	253	553	385	0	1562	0	180	673	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors				1	1	1		1		1	1	
Detector Template				Left								
Leading Detector (ft)				20	30	30		30		30	30	
Trailing Detector (ft)				0	0	0		0		0	0	
Detector 1 Position(ft)				0	0	0		0		0	0	
Detector 1 Size(ft)				20	30	30		30		30	30	
Detector 1 Type				CI+Ex	Cl+Ex	CI+Ex		CI+Ex		CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0	0.0		0.0		0.0	0.0	
Detector 1 Queue (s)				0.0	0.0	0.0		0.0		0.0	0.0	
Detector 1 Delay (s)				0.0	0.0	0.0		0.0		0.0	0.0	
lurn lype				Split	NA	Prot		NA		pm+pt	NA	
Protected Phases				8	8	8		6		5	2	
Permitted Phases				0	•	0		,		2	0	
Detector Phase				8	8	8		6		5	2	
SWITCH Phase				10.0	10.0	10.0		45.0		7.0	45.0	
IVIIIIIMUM INITIAI (S)				10.0	10.0	10.0		15.0		/.0	15.0	
iviinimum Spiit (S) Tatal Salit (a)				14.5	14.5	14.5		29.0		11.0	20.0	
Total Split (S)				40.0	40.0	40.0		40.0		15.0	55.0	
i otal Split (%)				42.1%	42.1%	42.1%		42.1%		15.8%	57.9%	

2041 Lane Removed PM.syn

Lanes, Volumes, Timings 8: ELM ST. & N. STATE ST./I-95 EXIT 8

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Maximum Green (s)				35.5	35.5	35.5		35.0		11.0	50.0	
Yellow Time (s)				3.5	3.5	3.5		3.0		3.0	3.0	
All-Red Time (s)				1.0	1.0	1.0		2.0		1.0	2.0	
Lost Time Adjust (s)				0.0	0.0	0.0		0.0		0.0	0.0	
Total Lost Time (s)				4.5	4.5	4.5		5.0		4.0	5.0	
Lead/Lag								Lag		Lead		
Lead-Lag Optimize?								Yes		Yes		
Vehicle Extension (s)				2.0	2.0	2.0		3.0		3.0	3.0	
Recall Mode				None	None	None		C-Min		None	C-Min	
Walk Time (s)								7.0				
Flash Dont Walk (s)								17.0				
Pedestrian Calls (#/hr)								21				
Act Effct Green (s)				29.6	29.6	29.6		42.3		56.9	55. 9	
Actuated g/C Ratio				0.31	0.31	0.31		0.45		0.60	0.59	
v/c Ratio				0.46	0.59	0.86		0.70		0.70	0.32	
Control Delay				28.0	29.6	49.1		24.5		31.9	11.4	
Queue Delay				0.0	0.0	0.0		0.0		0.0	0.0	
Total Delay				28.0	29.6	49.1		24.5		31.9	11.4	
LOS				С	С	D		С		С	В	
Approach Delay					35.6			24.5			15.7	
Approach LOS					D			С			В	
Intersection Summary												
Area Type: C	Other											
Cycle Length: 95												
Actuated Cycle Length: 95												
Offset: 17.5 (18%), Reference	ed to phase	se 2:NWT	L and 6:	SET, Sta	rt of Yello	W						
Natural Cycle: 65												
Control Type: Actuated-Coor	dinated											
Maximum v/c Ratio: 0.86												
Intersection Signal Delay: 26	.1			Ir	itersection	n LOS: C						
Intersection Capacity Utilizat	ion 61.6%			IC	CU Level	of Service	вB					
Analysis Period (min) 15												

Splits and Phases: 8: ELM ST. & N. STATE ST./I-95 EXIT 8



Queues 8: ELM ST. & N. STATE ST./I-95 EXIT 8

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Lane Group	WBL	WBT	WBR	SET	NWL	NWT
Lane Group Flow (vph)	253	553	385	1562	180	673
v/c Ratio	0.46	0.59	0.86	0.70	0.70	0.32
Control Delay	28.0	29.6	49.1	24.5	31.9	11.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.0	29.6	49.1	24.5	31.9	11.4
Queue Length 50th (ft)	119	150	232	275	53	104
Queue Length 95th (ft)	176	190	338	371	#143	157
Internal Link Dist (ft)		488		402		233
Turn Bay Length (ft)						
Base Capacity (vph)	661	1125	538	2241	284	2082
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.49	0.72	0.70	0.63	0.32

Intersection Summary

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

Queue shown is maximum after two cycles.

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Lane Group	WBL2	WBL	WBT	WBR	NBL2	NBL	NBT	SBT	SBR	SBR2	
Lane Configurations		3	-at	1		3	* *	^	đ.		
Traffic Volume (vph)	155	708	652	354	310	12	420	343	299	122	
Future Volume (vph)	155	708	652	354	310	12	420	343	299	122	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Storage Length (ft)		0		250		0			0		
Storage Lanes		1		1		1			1		
Taper Length (ft)		25				25					
Lane Util. Factor	0.95	0.91	0.91	1.00	0.95	1.00	0.95	0.95	1.00	0.95	
Ped Bike Factor				0.87		0.99			0.98		
Frt				0.850					0.850		
Flt Protected		0.950	0.982			0.950					
Satd. Flow (prot)	0	1610	3329	1583	0	1770	3539	3539	1583	0	
Flt Permitted		0.950	0.982			0.431					
Satd. Flow (perm)	0	1610	3329	1382	0	798	3539	3539	1559	0	
Right Turn on Red				No						No	
Satd. Flow (RTOR)											
Link Speed (mph)			30				30	30			
Link Distance (ft)			1168				193	241			
Travel Time (s)			26.5				4.4	5.5			
Confl. Peds. (#/hr)				91	4	4			4		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	168	770	709	385	337	13	457	373	325	133	
Shared Lane Traffic (%)		52%									
Lane Group Flow (vph)	0	538	1109	385	0	350	457	373	458	0	
Enter Blocked Intersection	No	No	No	No							
Lane Alignment	Left	Left	Left	Right	Left	Left	Left	Left	Right	Right	
Median Width(ft)			12	5			12	12	0	5	
Link Offset(ft)			0				0	0			
Crosswalk Width(ft)			16				16	16			
Two way Left Turn Lane											
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Speed (mph)	15	15		9	15	15			9	9	
Number of Detectors	1	1	1	1	1	1	0	0	0		
Detector Template	Left			Right	Left						
Leading Detector (ft)	20	306	306	20	20	30	0	0	0		
Trailing Detector (ft)	0	300	300	0	0	0	0	0	0		
Detector 1 Position(ft)	0	300	300	0	0	0	0	0	0		
Detector 1 Size(ft)	20	6	6	20	20	30	6	6	20		
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex								
Detector 1 Channel											
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Turn Type	Split	Split	NA	Perm	pm+pt	pm+pt	NA	NA	Perm		
Protected Phases	8	8	8		5	5	2	6			
Permitted Phases				8	2	2			6		
Detector Phase	8	8	8	8	5	5	2	6	6		
Switch Phase											
Minimum Initial (s)	15.0	15.0	15.0	15.0	5.0	5.0	15.0	15.0	15.0		

2041 Lane Removed but keep RTL at Atlantic and Canal AM.syn

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WBL2

31.0

Lane Group

Minimum Split (s)

F

WBL

31.0

NBL NBT SBT SBR SBR2 10.0 26.0 20.0 20.0 14.0 57.0 43.0 43.0 2.5% 50.9% 38.4% 38.4%						06/15/2020
NBL NBT SBT SBR SBR2 10.0 26.0 20.0 20.0 14.0 57.0 43.0 43.0 2.5% 50.9% 38.4% 38.4%	•	1	ţ	J.	∢	
10.0 26.0 20.0 20.0 14.0 57.0 43.0 43.0 2.5% 50.9% 38.4% 38.4%	NBL	NBT	SBT	SBR	SBR2	
14.0 57.0 43.0 43.0 2.5% 50.9% 38.4% 38.4%	10.0	26.0	20.0	20.0		
2.5% 50.9% 38.4% 38.4%	14.0	57.0	43.0	43.0		
	2.5%	50.9%	38.4%	38.4%		

Total Split (s)	55.0	55.0	55.0	55.0	14.0	14.0	57.0	43.0	43.0		
Total Split (%)	49.1%	49.1%	49.1%	49.1%	12.5%	12.5%	50.9%	38.4%	38.4%		
Maximum Green (s)	50.0	50.0	50.0	50.0	9.0	9.0	52.0	38.0	38.0		
Yellow Time (s)	3.0	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	2.0		
Lost Time Adjust (s)		0.0	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	5.0		
Lead/Lag					Lead	Lead		Lag	Lag		
Lead-Lag Optimize?					Yes	Yes		Yes	Yes		
Vehicle Extension (s)	2.0	2.0	2.0	2.0	1.5	1.5	3.0	3.0	3.0		
Recall Mode	None	None	None	None	None	None	C-Max	Мах	Мах		
Walk Time (s)	7.0	7.0	7.0	7.0			7.0				
Flash Dont Walk (s)	19.0	19.0	19.0	19.0			14.0				
Pedestrian Calls (#/hr)	91	91	91	91			55				
Act Effct Green (s)		43.6	43.6	43.6		58.4	58.4	41.3	41.3		
Actuated g/C Ratio		0.39	0.39	0.39		0.52	0.52	0.37	0.37		
v/c Ratio		0.86	0.86	0.72		0.67	0.25	0.29	0.80		
Control Delay		45.4	38.4	36.5		26.5	16.1	26.7	45.0		
Queue Delay		0.0	0.0	0.0		0.0	0.0	0.0	0.0		
Total Delay		45.4	38.4	36.5		26.5	16.1	26.7	45.0		
LOS		D	D	D		С	В	С	D		
Approach Delay			39.9				20.6	36.8			
Approach LOS			D				С	D			
Intersection Summary											
Area Type: C	Other										
Cycle Length: 112											
Actuated Cycle Length: 112											
Offset: 0 (0%), Referenced to	o phase 2	:NBTL, S	tart of Gr	een							
Natural Cycle: 70											
Control Type: Actuated-Coor	Control Type: Actuated-Coordinated										
Maximum v/c Ratio: 0.86											
Intersection Signal Delay: 34.9 Intersection LOS: C											
Intersection Capacity Utilizati	ion 85.6%)		IC	CU Level	of Servic	e E				
Analysis Period (min) 15											

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WBR

31.0

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NBL2

10.0

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WBT

31.0

Splits and Phases: 2: I-95 ON RAMP & ATLANTIC ST. & N. STATE ST.

Ø2 (R)		* _{Ø8}
57 s		55 s
A Ø5	↓ Ø6	
14 s	43 s	

2041 Lane Removed but keep RTL at Atlantic and Canal AM.syn

Synchro 10 Report Page 2

Queues 2: I-95 ON RAMP & ATLANTIC ST. & N. STATE ST.

	*	-	•	1	†	Ŧ	لر
Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	538	1109	385	350	457	373	458
v/c Ratio	0.86	0.86	0.72	0.67	0.25	0.29	0.80
Control Delay	45.4	38.4	36.5	26.5	16.1	26.7	45.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.4	38.4	36.5	26.5	16.1	26.7	45.0
Queue Length 50th (ft)	382	393	230	145	91	103	306
Queue Length 95th (ft)	502	443	315	#264	140	144	#492
Internal Link Dist (ft)		1088			113	161	
Turn Bay Length (ft)			250				
Base Capacity (vph)	718	1486	616	522	1845	1303	574
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.75	0.75	0.63	0.67	0.25	0.29	0.80
Interception Cummon							

Intersection Summary

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

Queue shown is maximum after two cycles.

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					4412	1	۲	44			4 16	
Traffic Volume (vph)	0	0	0	343	1448	332	299	652	0	0	697	266
Future Volume (vph)	0	0	0	343	1448	332	299	652	0	0	697	266
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		250	0		0	0		0
Storage Lanes	0		0	0		1	1		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor					1.00	0.96					0.99	
Frt						0.850					0.959	
Flt Protected					0.991		0.950					
Satd. Flow (prot)	0	0	0	0	5040	1583	1770	3539	0	0	3373	0
Flt Permitted					0.991		0.118					
Satd. Flow (perm)	0	0	0	0	5039	1517	220	3539	0	0	3373	0
Right Turn on Red			Yes			No			Yes			Yes
Satd. Flow (RTOR)											34	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1168			439			220			380	
Travel Time (s)		26.5			10.0			5.0			8.6	
Confl. Peds. (#/hr)				1		30	9		8	8		9
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
Adi. Flow (vph)	0	0	0	373	1574	361	325	709	0	0	758	289
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	1947	361	325	709	0	0	1047	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0	5		0	5		12	5		12	5
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors				1	1	1	1	1			1	
Detector Template				Left		Right						
Leading Detector (ft)				20	40	20	30	30			40	
Trailing Detector (ft)				0	0	0	0	0			0	
Detector 1 Position(ft)				0	0	0	0	0			0	
Detector 1 Size(ft)				20	40	20	30	30			40	
Detector 1 Type				CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex			CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Queue (s)				0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Delay (s)				0.0	0.0	0.0	0.0	0.0			0.0	
Turn Type				Perm	NA	Perm	pm+pt	NA			NA	
Protected Phases					8		5	2			6	
Permitted Phases				8		8	2					
Detector Phase				8	8	8	5	2			6	
Switch Phase												
Minimum Initial (s)				10.0	10.0	10.0	7.0	15.0			15.0	

2041 Lane Removed but keep RTL at Atlantic and Canal AM.syn

06/15/2020

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)				33.0	33.0	33.0	11.0	29.0			29.0	
Total Split (s)				42.0	42.0	42.0	18.0	53.0			35.0	
Total Split (%)				44.2%	44.2%	44.2%	18.9%	55.8%			36.8%	
Maximum Green (s)				37.0	37.0	37.0	14.0	48.0			30.0	
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	1.0	2.0			2.0	
Lost Time Adjust (s)					0.0	0.0	0.0	0.0			0.0	
Total Lost Time (s)					5.0	5.0	4.0	5.0			5.0	
Lead/Lag							Lead				Lag	
Lead-Lag Optimize?							Yes				Yes	
Vehicle Extension (s)				5.0	5.0	5.0	3.0	1.0			3.0	
Recall Mode				None	None	None	None	C-Min			C-Min	
Walk Time (s)				7.0	7.0	7.0		7.0			7.0	
Flash Dont Walk (s)				21.0	21.0	21.0		17.0			17.0	
Pedestrian Calls (#/hr)				31	31	31		8			9	
Act Effct Green (s)					37.0	37.0	49.0	48.0			30.0	
Actuated g/C Ratio					0.39	0.39	0.52	0.51			0.32	
v/c Ratio					0.99	0.61	0.95	0.40			0.96	
Control Delay					44.0	25.9	63.2	15.4			51.5	
Queue Delay					0.0	0.0	0.0	0.0			0.0	
Total Delay					44.0	25.9	63.2	15.4			51.5	
LOS					D	С	E	В			D	
Approach Delay					41.2			30.4			51.5	
Approach LOS					D			С			D	
Intersection Summary												
Area Type: Oth	ner											
Cycle Length: 95												
Actuated Cycle Length: 95												
Offset: 30 (32%), Referenced t	o phase	2:NBTL a	and 6:SE	ST, Start o	of Yellow							
Natural Cycle: 80												
Control Type: Actuated-Coordin	nated											
Maximum v/c Ratio: 0.99												
Intersection Signal Delay: 41.1				lr	ntersectio	n LOS: D						
Intersection Capacity Utilization	n 91.2%			IC	CU Level	of Service	e F					
Analysis Period (min) 15												

Splits and Phases: 5: CANAL ST. & N. STATE ST.



2041 Lane Removed but keep RTL at Atlantic and Canal AM.syn

Queues 5: CANAL ST. & N. STATE ST.

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Lane Group	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	1947	361	325	709	1047
v/c Ratio	0.99	0.61	0.95	0.40	0.96
Control Delay	44.0	25.9	63.2	15.4	51.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	44.0	25.9	63.2	15.4	51.5
Queue Length 50th (ft)	419	187	142	132	315
Queue Length 95th (ft)	m#531	m226	#311	175	#455
Internal Link Dist (ft)	359			140	300
Turn Bay Length (ft)		250			
Base Capacity (vph)	1962	590	341	1788	1088
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.99	0.61	0.95	0.40	0.96

Intersection Summary

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

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Lane Group	WBL2	WBL	WBT	WBR	NBL2	NBL	NBT	SBT	SBR	SBR2	
Lane Configurations		3	Ata	1		3	* *	44	đ		
Traffic Volume (vph)	188	851	343	387	221	12	288	442	343	78	
Future Volume (vph)	188	851	343	387	221	12	288	442	343	78	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Storage Length (ft)		0	.,	250	.,	0	.,	.,	0		
Storage Lanes		1		1		1			1		
Taper Length (ft)		25		•		25			•		
Lane Util Factor	0.95	0.91	0 91	1 00	0.95	1 00	0.95	0.95	1 00	0.95	
Ped Bike Factor	0170	0.7.1	0.7.1	0.92	0170	0.99	0.70	0.70	0.98	0170	
Frt				0.850		0177			0.850		
Elt Protected		0 950	0 971	0.000		0 950			0.000		
Satd Flow (prot)	0	1610	3292	1583	0	1770	3539	3539	1583	0	
Elt Permitted	Ū	0.950	0 971	1000	U	0.364	0007	0007	1000	Ŭ	
Satd Flow (perm)	0	1610	3292	1464	0	671	3539	3539	1551	0	
Right Turn on Red	U	1010	5272	No	0	0/1	0007	5557	1001	No	
Satd Flow (RTOR)				110						TNO	
Link Speed (mph)			30				30	30			
Link Distance (ft)			1168				193	241			
Travel Time (s)			26.5				4.4	55			
Confl Peds (#/hr)			20.0	50	9	9	7.7	0.0	9		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adi Flow (vph)	204	925	373	421	240	13	313	480	373	85	
Shared Lane Traffic (%)	204	61%	575	TZ I	240	10	515	100	575	00	
Lane Group Flow (vph)	0	565	937	421	0	253	313	480	458	0	
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	
Lane Alignment	Left	Left	Left	Right	Left	Left	Left	Left	Right	Right	
Median Width(ft)	Lon	Lon	12	Right	Lon	Lon	12	12	rtigitt	Right	
Link Offset(ft)			0				0	0			
Crosswalk Width(ft)			16				16	16			
Two way Left Turn Lane			10				10	10			
Headway Eactor	1.00	1.00	1.00	1 00	1 00	1.00	1 00	1.00	1 00	1 00	
Turning Speed (mph)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.1	1.00	
Number of Detectors	1	1	1	1	1	1	0	0	0	/	
Detector Template	l ≙ft		1	Right	l ⊖ft	1	0	0	0		
Leading Detector (ft)	20	306	306	20	20	30	0	0	0		
Trailing Detector (ft)	20	300	300	20	20	0	0	0	0		
Detector 1 Position/ft)	0	300	300	0	0	0	0	0	0		
Detector 1 Size(ft)	20	500	500	20	20	30	6	6	20		
Detector 1 Type	CLEV	Cl⊥Ev	Cl⊥Ev	CI+Ev	CI+Ev	CI+Ev	Cl⊥Ev	Cl⊥Ev	CI+Ev		
Detector 1 Channel	CITEX		CITEX								
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Turn Type	Dorm	Dorm		Dorm	0.0	0.0	0.0 NA	0.0 NA	Dorm		
Protoctod Dhasos	Pellil	Pellil	NA 0	Pellil	pin+pi	pin+pi	NA 2	NA 4	Pellii		
Protected PlidSes	0	0	Ŏ	0	5	5	Z	0	4		
Detector Desco	Õ	Ö O	0	ð		2	n	L	0		
Delector Pridse	ŏ	ŏ	ŏ	ð	5	С	2	0	0		
Switch Phase	15.0	15.0	15.0	15.0	ГО	ГО	15.0	15.0	15.0		
winimum minal (S)	15.0	15.0	15.0	15.0	5.0	5.0	15.0	15.0	15.0		

2041 Lane Removed but keep RTL at Atlantic and Canal PM.syn

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Lane Group	WBL2	WBL	WBT	WBR	NBL2	NBL	NBT	SBT	SBR	SBR2	
Minimum Split (s)	31.0	31.0	31.0	31.0	10.0	10.0	26.0	20.0	20.0		
Total Split (s)	55.0	55.0	55.0	55.0	16.0	16.0	57.0	41.0	41.0		
Total Split (%)	49.1%	49.1%	49.1%	49.1%	14.3%	14.3%	50.9%	36.6%	36.6%		
Maximum Green (s)	50.0	50.0	50.0	50.0	11.0	11.0	52.0	36.0	36.0		
Yellow Time (s)	3.0	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	2.0		
Lost Time Adjust (s)		0.0	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	5.0		
Lead/Lag					Lead	Lead		Lag	Lag		
Lead-Lag Optimize?					Yes	Yes		Yes	Yes		
Vehicle Extension (s)	2.0	2.0	2.0	2.0	1.5	1.5	3.0	3.0	3.0		
Recall Mode	None	None	None	None	None	None	C-Max	Мах	Max		
Walk Time (s)	7.0	7.0	7.0	7.0			7.0				
Flash Dont Walk (s)	19.0	19.0	19.0	19.0			14.0				
Pedestrian Calls (#/hr)	50	50	50	50			45				
Act Effct Green (s)		43.8	43.8	43.8		58.2	58.2	42.5	42.5		
Actuated g/C Ratio		0.39	0.39	0.39		0.52	0.52	0.38	0.38		
v/c Ratio		0.90	0.86dl	0.74		0.56	0.17	0.36	0.78		
Control Delay		49.8	32.2	36.8		22.1	15.6	27.5	43.7		
Queue Delay		0.0	0.0	0.0		0.0	0.0	0.0	0.0		
Total Delay		49.8	32.2	36.8		22.1	15.6	27.5	43.7		
LOS		D	С	D		С	В	С	D		
Approach Delay			38.4				18.5	35.4			
Approach LOS			D				В	D			
Intersection Summary											
Area Type:	Other										
Cycle Length: 112											
Actuated Cycle Length: 112	2										
Offset: 51 (46%), Reference	ed to phase	e 2:NBTL	, Start of	Yellow							
Natural Cycle: 75	•										
Control Type: Actuated-Co	ordinated										
Maximum v/c Ratio: 0.90											
ntersection Signal Delay: 34.3 Intersection LOS: C											
Intersection Capacity Utiliz	ntersection Capacity Utilization 78.9% ICU Level of Service D										
Inalysis Period (min) 15											
dl Defacto Left Lane. Re	code with 2	I though I	ane as a	left lane.							
		č									

Splits and Phases: 2: I-95 ON RAMP & ATLANTIC ST. & N. STATE ST.



2041 Lane Removed but keep RTL at Atlantic and Canal PM.syn

Queues 2: I-95 ON RAMP & ATLANTIC ST. & N. STATE ST.

2. 1-93 ON KANIF 6	AILA		$\beta 1. \alpha r$	I. STA				00/15/20
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Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR	
Lane Group Flow (vph)	565	937	421	253	313	480	458	
v/c Ratio	0.90	0.86dl	0.74	0.56	0.17	0.36	0.78	
Control Delay	49.8	32.2	36.8	22.1	15.6	27.5	43.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	49.8	32.2	36.8	22.1	15.6	27.5	43.7	
Queue Length 50th (ft)	401	301	248	102	62	137	306	
Queue Length 95th (ft)	539	353	344	170	96	191	#514	
Internal Link Dist (ft)		1088			113	161		
Turn Bay Length (ft)			250					
Base Capacity (vph)	718	1469	653	461	1839	1342	588	
Starvation Cap Reductn	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.79	0.64	0.64	0.55	0.17	0.36	0.78	

Intersection Summary

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.

2041 Lane Removed but keep RTL at Atlantic and Canal PM.syn

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					441	1	5	44		-	4 1.	-
Traffic Volume (vph)	0	0	0	387	1006	221	310	840	0	0	686	188
Future Volume (vph)	0	0	0	387	1006	221	310	840	0	0	686	188
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	1700	0	0	1700	250	0	1700	0	0	1700	0
Storage Lanes	0		0	0		1	1		0	0		0
Taper Length (ft)	25		U	25		•	25		Ū	25		Ū
Lane Util Factor	1 00	1 00	1 00	0.91	0.91	1 00	1 00	0.95	1 00	1 00	0.95	0.95
Ped Bike Factor				0171	1.00	0.97		0170			1.00	0.70
Frt					1.00	0.850					0.968	
Flt Protected					0 986	0.000	0 950				0.700	
Satd Flow (prot)	0	0	0	0	5014	1583	1770	3539	0	0	3410	0
Flt Permitted	U	U	0	U	0.986	1000	0 129	0007	U	U	0110	U
Satd Flow (perm)	0	0	0	0	5011	1536	240	3530	0	0	3410	0
Right Turn on Red	0	0	Ves	0	3011	No	240	3337	Ves	0	5410	Ves
Satd Flow (RTOR)			103			NO			103		36	103
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1168			/130			220			380	
Travel Time (s)		26.5			10.0			5.0			8.6	
Confl Dods (#/br)		20.5		2	10.0	10	Q	5.0			0.0	Q
Doak Hour Factor	0.02	0 0 2	0.02	0.02	0.02	0 0 2	0 0 2	0 0 2	0.02	0.02	0 02	0 0 2
	0.92	0.92	0.92	121	1002	240	0.92	0.92	0.92	0.92	746	204
Sharod Lano Traffic (%)	0	U	0	421	1095	240	337	713	0	0	740	204
Lano Croup Flow (vpb)	٥	٥	0	٥	151/	240	227	012	Δ	٥	050	٥
Enter Blocked Intersection	No	No	No	No	1014 No	240 No	SS7	913 No	No	No	900 No	No
Lano Alignmont	Loft	Loft	Diaht	Loft	Loft	Diabt	Loft	Loft	Diabt	Loft	Loft	Diabt
Modian Width(ft)	LEII		Nyn	LEII		Right	LEII	12	Night	LUII	12	Right
Link Offsot(ft)		0			0			12			12	
Crosswalk Width(ft)		16			16			16			16	
		10			10			10			10	
Hoodway Eactor	1 00	1.00	1 00	1 00	1 00	1 00	1 00	1.00	1 00	1 00	1.00	1 00
Turping Spood (mph)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Number of Detectors	10		9	10	1	9	10	1	9	10	1	9
Number of Detectors				Loft	1	Diabt	1	1			1	
Loading Dotoctor (ft)				20	40	20	20	20			40	
Trailing Detector (II)				20	40	20	30	30			40	
Detector 1 Desition(ft)				0	0	0	0	0			0	
Detector 1 Size(ft)				20	40	20	20	20			40	
Detector 1 Size(II)												
Detector 1 Channel				UI+EX	CI+EX	CI+EX	CI+EX	CI+EX			CI+EX	
Detector 1 Channel				0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Externa (s)				0.0	0.0	0.0	0.0	0.0			0.0	
Detector 1 Delevi (c)				0.0	0.0	0.0	0.0	0.0			0.0	
Detector T Detay (S)				0.0	0.0	0.0	0.0	0.0			0.0	
Turil Type				Perm	INA	Perm	pm+pt	NA 0			NA ,	
Protected Phases				0	8	0	5	2			0	
Permilled Phases				8	0	8	2	2			,	
Delector Phase				8	8	8	5	2			6	
Switch Phase				10.0	40.0	40.0	7.0	45.0			45.0	
Minimum Initial (s)				10.0	10.0	10.0	7.0	15.0			15.0	

2041 Lane Removed but keep RTL at Atlantic and Canal PM.syn

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)				33.0	33.0	33.0	11.0	29.0			29.0	
Total Split (s)				44.0	44.0	44.0	19.0	51.0			32.0	
Total Split (%)				46.3%	46.3%	46.3%	20.0%	53.7%			33.7%	
Maximum Green (s)				39.0	39.0	39.0	15.0	46.0			27.0	
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	1.0	2.0			2.0	
Lost Time Adjust (s)					0.0	0.0	0.0	0.0			0.0	
Total Lost Time (s)					5.0	5.0	4.0	5.0			5.0	
Lead/Lag							Lead				Lag	
Lead-Lag Optimize?							Yes				Yes	
Vehicle Extension (s)				5.0	5.0	5.0	3.0	1.0			3.0	
Recall Mode				None	None	None	None	C-Min			C-Min	
Walk Time (s)				7.0	7.0	7.0		7.0			7.0	
Flash Dont Walk (s)				21.0	21.0	21.0		17.0			17.0	
Pedestrian Calls (#/hr)				20	20	20		8			8	
Act Effct Green (s)					38.9	38.9	47.1	46.1			27.1	
Actuated g/C Ratio					0.41	0.41	0.50	0.49			0.29	
v/c Ratio					0.74	0.38	0.93	0.53			0.95	
Control Delay					25.7	21.4	57.8	18.4			52.2	
Queue Delay					0.0	0.0	0.0	0.0			0.0	
Total Delay					25.7	21.4	57.8	18.4			52.2	
LOS					С	С	E	В			D	
Approach Delay					25.1			29.0			52.2	
Approach LOS					С			С			D	
Intersection Summary												
Area Type: Oth	ner											
Cycle Length: 95												
Actuated Cycle Length: 95												
Offset: 30 (32%), Referenced t	o phase	2:NBTL a	and 6:SB	T, Start o	of Yellow							
Natural Cycle: 80												
Control Type: Actuated-Coordi	nated											
Maximum v/c Ratio: 0.95												
Intersection Signal Delay: 32.9				Ir	ntersectio	n LOS: C						
Intersection Capacity Utilization	n 81.3%			[(CU Level	of Service	e D					
Analysis Period (min) 15												

Splits and Phases: 5: CANAL ST. & N. STATE ST.



Queues 5: CANAL ST. & N. STATE ST.

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Lane Group	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	1514	240	337	913	950
v/c Ratio	0.74	0.38	0.93	0.53	0.95
Control Delay	25.7	21.4	57.8	18.4	52.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	25.7	21.4	57.8	18.4	52.2
Queue Length 50th (ft)	268	98	148	193	285
Queue Length 95th (ft)	326	m159	#318	250	#417
Internal Link Dist (ft)	359			140	300
Turn Bay Length (ft)		250			
Base Capacity (vph)	2057	630	361	1718	997
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.74	0.38	0.93	0.53	0.95

Intersection Summary

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

Queue shown is maximum after two cycles. m Volume for 95th percentile queue is metered by upstream signal.