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Technical Memorandum

To:	Jeffrey Pantazes, Senior Technical Director - AKRF David Hinchey, Manager – Environmental - PSEG Fossil Environmental Affairs
From:	Alex Auld, Senior Transportation Planner - AKRF Anthony Russo, Vice President - AKRF
Date:	August 26, 2016
Re:	Bridgeport Harbor Station Unit 5 Combined –Cycle Facility Traffic Impact Study
Cc:	Jacqueline Fusco, Senior Project Manager - AKRF

A. INTRODUCTION AND EXECUTIVE SUMMARY

INTRODUCTION

PSEG Power Connecticut LLC ("PSEG") is proposing to build a new 485 MW Combined Cycle facility at the site of its existing Bridgeport Harbor Station ("BHS") located at 1 Atlantic Street in Bridgeport, Connecticut (the Facility or Project).

This memorandum serves as a Traffic Impact Study (TIS) and evaluates the potential temporary effects of the proposed Project on traffic during Project construction.

This TIS presents a quantified analysis of six (6) intersections in the vicinity of the project site to assess the proposed Project's effect on vehicular traffic in the area during construction for the Weekday AM and PM construction peak hours for Existing, Future Conditions without the proposed project construction activity ("No Build"), and Future Conditions with the proposed project construction activity ("Build"). In addition, this TIS presents a qualitative assessment of truck routes/traffic to and from the project site and parking conditions.

EXECUTIVE SUMMARY

A quantified traffic analysis was conducted at six (6) intersections in the vicinity of the project site for the Weekday AM and PM construction peak hours, in order to assess the effects that construction related traffic would have on the area traffic network. Roadway geometry, traffic control device, and traffic volume count data was collected to establish 2016 existing traffic conditions. The potential effects of the construction related traffic on the area traffic network was assessed by comparing future 2019 (the year in which construction of the proposed facility is anticipated to be completed) traffic conditions without the proposed construction traffic versus with the proposed construction traffic.

In order to establish future 2019 traffic volumes without the proposed project construction activity ("No Build Conditions"), the Connecticut Department of Transportation ("ConnDOT") and the City of Bridgeport were contacted for information regarding projected traffic growth rates for the area and future projects which would potentially increase and/or affect traffic volumes in the area. Based on the information provided, no projects were identified which would significantly affect traffic volumes in the area. To provide for a conservative analysis, the growth rate provided by ConnDOT was increased from 0.4 to 0.7 percent per year for use in this study and applied to the 2016 Existing traffic volumes.

Construction-related traffic estimates were developed for both auto (construction worker) and truck (delivery) traffic. Future 2019 traffic volumes with the proposed construction activity ("Build") conditions were determined by adding and assigning construction traffic to the 2019 No Build traffic network based on probable routes anticipated to be utilized by construction vehicles (autos and trucks) to and from the site.

A comparison of the 2019 No Build and 2019 Build analyses revealed that one of the study area intersection (Lafayette Street & South Frontage Road/I-95 NB On-Ramp) movements would experience an impact with a deterioration in Level of Service (LOS) during the Weekday PM Construction peak hour, and that the one impact identified could be mitigated with signal retimings at that intersection if necessary.

In addition to the findings from the capacity analyses results described above, other key findings of the study include the following:

- No impacts on the on-street parking supply are anticipated as all construction worker parking is anticipated to be accommodated in off-street lots and construction workers will not park on neighborhood streets.
- Trucking activity on area streets will be limited to standard sized trucks as heavy / oversized equipment will be transported to the site by barge, therefore no oversized trucks will be utilized for transporting equipment or materials. The exception to this would be for construction equipment delivery to the site (i.e. cranes, etc.)
- Trucks arriving to the site will be processed on-site and not idle on local streets. Trucks arriving during nighttime hours (or any other time when trucks cannot be processed on-site) will travel to the Pine Street and Wordin Avenue Laydown areas, or other pre-designated, not residential areas.
- All effects of the construction activity would be temporary and are expected to be limited to the construction time frame for the new plant. Once in operation, the Proposed Project would introduce only a small number of vehicular trips (20 to 25) to the study area roadways and would not be expected to have a significant adverse impact on traffic operations within the surrounding area.

B. EXISTING CONDITIONS

STUDY AREA AND DATA COLLECTION PROGRAM

To assess the traffic impacts associated with the construction of the Proposed Project, a study area was identified that considered key intersections that might be affected by Project-generated trips. A total of six locations were identified for analysis, as shown in **Figure 1**. These intersections are:

1. Lafayette Boulevard & North Frontage Road/South Avenue/I-95 SB Off-Ramp (signalized)
2. Lafayette Street & South Frontage Road/I-95 NB On-Ramp (signalized)
3. Broad Street & Railroad Avenue/Ferry Access Road (signalized)
4. Ferry Access Road & Main Street (unsignalized)
5. Broad Street & Atlantic Street (unsignalized)
6. Main Street & Atlantic Street (unsignalized).

8/24/2016

Approximate Area of Development

Project Site Property Boundary

1/2-Mile Study Area

Intersection Analyzed

0 4,000 FEET

Traffic Study Area

Figure 1

BRIDGEPORT HARBOR STATION - Combined Cycle Project

Existing traffic conditions at the six Study Area intersections were established based on traffic counts conducted in July, 2016. Manual turning movement counts were collected at all the Study Area intersections during the weekday AM and weekday PM construction peak periods. Data collection sheets are provided in **Appendix A**.

In addition to the manual turning movement counts at Study Area intersections, Automatic Traffic Recorder (ATR) counts were conducted for one full week at the following locations:

1. Atlantic Street, between Main Street and Broad Street
2. Main Street, between Whiting Street and Atlantic Street.

Field inventories of roadway geometry and signal timings/phasings were also conducted to provide the appropriate inputs to the operational analyses. Traffic signal timing plans for the signalized intersections studied were also obtained from the Connecticut Department of Transportation (ConnDOT).

ROADWAY AND INTERSECTION CHARACTERISTICS

ROADWAYS

The following is a brief description of some of the major roadways and intersections analyzed within the study area.

Interstate 95(Connecticut Turnpike/Governor John Davis Lodge Turnpike)

Interstate 95 ("I-95") is a divided limited-access north-south interstate highway and is maintained by ConnDOT. While signed as a north-south highway, I-95 generally runs in an east-west direction in the vicinity of the Site. I-95 generally provides 3 to 4 travel lanes in each direction. Access to local streets in the study area from I-95 is provided by Exits 26 (northbound and southbound), 27 (northbound), and 27A (southbound). I-95 is a major commuter and long distance travel route connecting municipalities along the southern Connecticut coastline to the New York City region and other portions of New England. In the vicinity of the study area, I-95 experienced Average Daily Traffic (ADT) volumes in 2015 ranging from approximately 123,400 to 152,500 vehicles per day[1].

South Avenue

South Avenue is a minor arterial roadway that generally traverses in an east-west direction within the study area and is maintained by the City of Bridgeport. West of the I-95 overpass, South Avenue is a one-way westbound roadway which generally provides 2 to 4 travel lanes. East of the I-95 overpass South Avenue is a two-way roadway which generally provides one travel lane in each direction and provides on-street parking. The pavement width along South Avenue varies between approximately 30 and 55 feet within the study area.

North Frontage Road

North Frontage Road is a minor arterial roadway that generally traverses in an east-west direction within the study area and is maintained by the City of Bridgeport. North Frontage Road is a one-way westbound roadway which generally provides 2 to 3 travel lanes. The pavement width along North Frontage Road varies between approximately 19 and 32 feet within the study area.

South Frontage Road

South Frontage Road is a minor arterial roadway that generally traverses in an east-west direction within the study area and is maintained by the City of Bridgeport. South Frontage Road is a one-way eastbound roadway which generally provides 2 to 4 travel lanes. The pavement width along South Frontage Road varies between approximately 24 and 53 feet within the study area.

[1] Source: ConnDOT 2015 Traffic Volumes State Maintained Highway Network (Traffic Log).

Lafayette Boulevard

Lafayette Boulevard is a collector roadway that generally traverses in a north-south direction within the study area and is maintained by the City of Bridgeport. Lafayette Boulevard generally provides 2 to 3 moving lanes in each direction separated by a raised median for much of its length. The pavement width along Lafayette Boulevard is approximately 55 feet wide within the study area.

Lafayette Street

Lafayette Street is a collector roadway that generally traverses in a north-south direction within the study area and is maintained by the City of Bridgeport. Lafayette Street generally provides one moving lane in each direction and provides on-street parking along much of its length. The pavement width along Lafayette Street is approximately 31 feet wide within the study area.

Broad Street

Broad Street is a collector roadway that generally traverses in a north-south direction within the study area and is maintained by the City of Bridgeport. Broad Street generally provides one moving lane in each direction and on-street parking is available along portions of Broad Street. The pavement width along Broad Street is approximately 30 feet wide within the study area.

Main Street

Main Street is a collector roadway that generally traverses in a north-south direction within the study area and is maintained by the City of Bridgeport. Main Street generally provides one moving lane in each direction and provides on-street parking along much of its length. The pavement width along Main Street is approximately 35 feet wide within the study area.

Atlantic Street

Atlantic Street is a collector roadway that generally traverses in an east-west direction within the study area and is maintained by the City of Bridgeport. West of Main Street, Atlantic Street is a one-way westbound roadway which generally provides one travel lane and provides on-street parking along much of its length. East of Main Street, Atlantic Street is a two-way roadway and generally provides 1 moving lane in each direction. The pavement width along Atlantic Street is approximately 31 feet wide within the study area.

Railroad Avenue

Railroad Avenue is a collector roadway that generally traverses in an east-west direction within the study area and is maintained by the City of Bridgeport. Railroad Avenue consists of two one-way roadways, one westbound and one eastbound, which abut the north and south sides of the Metro North Railroad tracks, respectively. Each roadway generally provides one travel lane. Striped on-street parking spaces are present along much of the length of the eastbound roadway. The pavement width along Railroad Avenue roadways varies between approximately 25 and 32 feet within the study area.

Ferry Access Road

West of Main Street, Ferry Access Road is a collector roadway that generally traverses in an east-west direction within the study area and is maintained by the City of Bridgeport. East of Main Street, Ferry Access Road is a gated roadway which serves the Water Street Dock and Terminal area and has time-restricted access. Ferry Access Road generally provides one moving lane in each direction. The pavement width along Ferry Access Road varies between approximately 21 and 31 feet within the study area.

INTERSECTIONS

Lafayette Boulevard & North Frontage Road/I-95 Southbound Off-Ramp

Lafayette Boulevard intersects North Frontage Road and the I-95 Southbound Off-Ramp to form a five-legged intersection and is controlled by a traffic signal. The Lafayette Boulevard northbound approach consists of a shared left-turn/through lane and a through lane. The Lafayette Boulevard southbound approach consists of a two through lanes and a shared through/right-turn lane. The westbound North Frontage Road and the I-95 Southbound Off-Ramp approaches consist of two parallel roadways which operate under individual signal phases. The North Frontage Road approach consists of a shared left-turn/through lane and a shared through/right-turn lane. The I-95 Southbound Off-Ramp approach consists of a shared left-turn/through lane and a through lane. Pedestrian facilities, including sidewalks, crosswalks, and pedestrian signals are provided at this intersection.

Lafayette Street & South Frontage Road/I-95 Northbound On-Ramp

Lafayette Street intersects South Frontage Road and the I-95 Northbound On-Ramp to form a four-legged intersection and is controlled by a traffic signal. The Lafayette Street northbound approach consists of a single lane which permits through and right turn movements. The Lafayette Boulevard southbound approach consists of a two left-turn lanes and a through lane. The eastbound South Frontage Road approach consists of a left-turn lane and a shared through/right-turn lane. Sidewalk, crosswalks, and pedestrian signals are provided at this intersection.

Broad Street & Atlantic Street

Broad Street intersects Atlantic Street to form a four-legged intersection and is an all-way stop sign controlled intersection. The Broad Street northbound approach consists of a single lane which permits through and right turn movements. The Broad Street southbound approach consists of a single lane which permits left turn and through movements. The Atlantic Street eastbound approach consists of a single lane which permits left turn, through, and right turn movements. Sidewalks are provided at this intersection.

Main Street & Atlantic Street

Main Street intersects Atlantic Street to form a four-legged intersection and is stop sign controlled on the Atlantic Street approaches. The Main Street northbound approach consists of a single lane which permits through and right turn movements. The Main Street southbound approach consists of a single lane which permits left turn and through movements. The Atlantic Street eastbound approach consists of a single lane which permits left turn, through, and right turn movements. The Atlantic Street westbound approach consists of a single lane which permits left turn and right turn movements. Sidewalks are provided at this intersection.

Ferry Access Road & Main Street

Ferry Access Road intersects Main Street to form a three-legged intersection and is stop sign controlled on all approaches. The Main Street northbound approach consists of a single lane which permits left turn and right turn movements. The Ferry Access Road eastbound approach consists of a single lane which permits through and right turn movements. The Ferry Access Road westbound approach (gated) consists of a single lane which permits left turn and through movements. Sidewalks and a crosswalk are provided at this intersection.

Broad Street & Railroad Avenue/Ferry Access Road

Broad Street intersects Railroad Avenue and Ferry Access Road to form a four-legged intersection and is controlled by a traffic signal. The Broad Street northbound approach consists of a single lane which permits through and right turn movements. The Broad Street southbound approach consists of a single lane which permits left turn and through movements The Railroad Avenue eastbound approach consists of a left-turn lane and a shared through/right-turn lane. Sidewalks, crosswalks, and pedestrian signals are provided at this intersection.

TRAFFIC CONDITIONS

CONSTRUCTION PEAK HOURS AND TRAFFIC VOLUMES

Based on a review of all the traffic count data and anticipated hours of construction activity, the overall peak hours for the study area intersections were determined to be as follows:

- Weekday AM Peak Hour – 6:00 AM to 7:00 AM
- Weekday PM Peak Hour – 5:30 PM to 6:30 PM

For the purpose of this study, individual peak hours for each intersection in the study area were reviewed and selected for analysis. The peak hour volumes were compared against the ATR count data and balanced as needed.

Figures 2 and **3** show the roadway volumes at the study area intersections for existing conditions for the peak hours analyzed. In the study area, the two-way traffic volumes range from approximately 176 to 526 vehicles per hour (vph) along Lafayette Boulevard, 80 to 154 vph along Ferry Access Road, 57 to 241 to 504 vph along Broad Street, and 32 to 97 vph along Main Street.

CAPACITY ANALYSIS METHODOLOGY

Signalized Intersections

The operation of signalized intersections in the study area was analyzed by applying the Percentile Delay Methodology included in the Synchro 8 traffic signal software. This methodology builds on the methodologies presented in the 2010 *Highway Capacity Manual* (HCM2010) for signalized intersections and evaluates signalized intersections for average control delay per vehicle and level of service (LOS).

LOS can be characterized for the entire intersection, each intersection approach, and each lane group. Control delay alone is used to characterize LOS for the entire intersection or an approach. Control delay and volume-to-capacity (v/c) ratio are used to characterize LOS for a lane group. Delay quantifies the increase in travel time due to traffic signal control. It is also a surrogate measure of driver discomfort and fuel consumption. The volume-to-capacity ratio quantifies the degree to which a phase's capacity is utilized by a lane group.

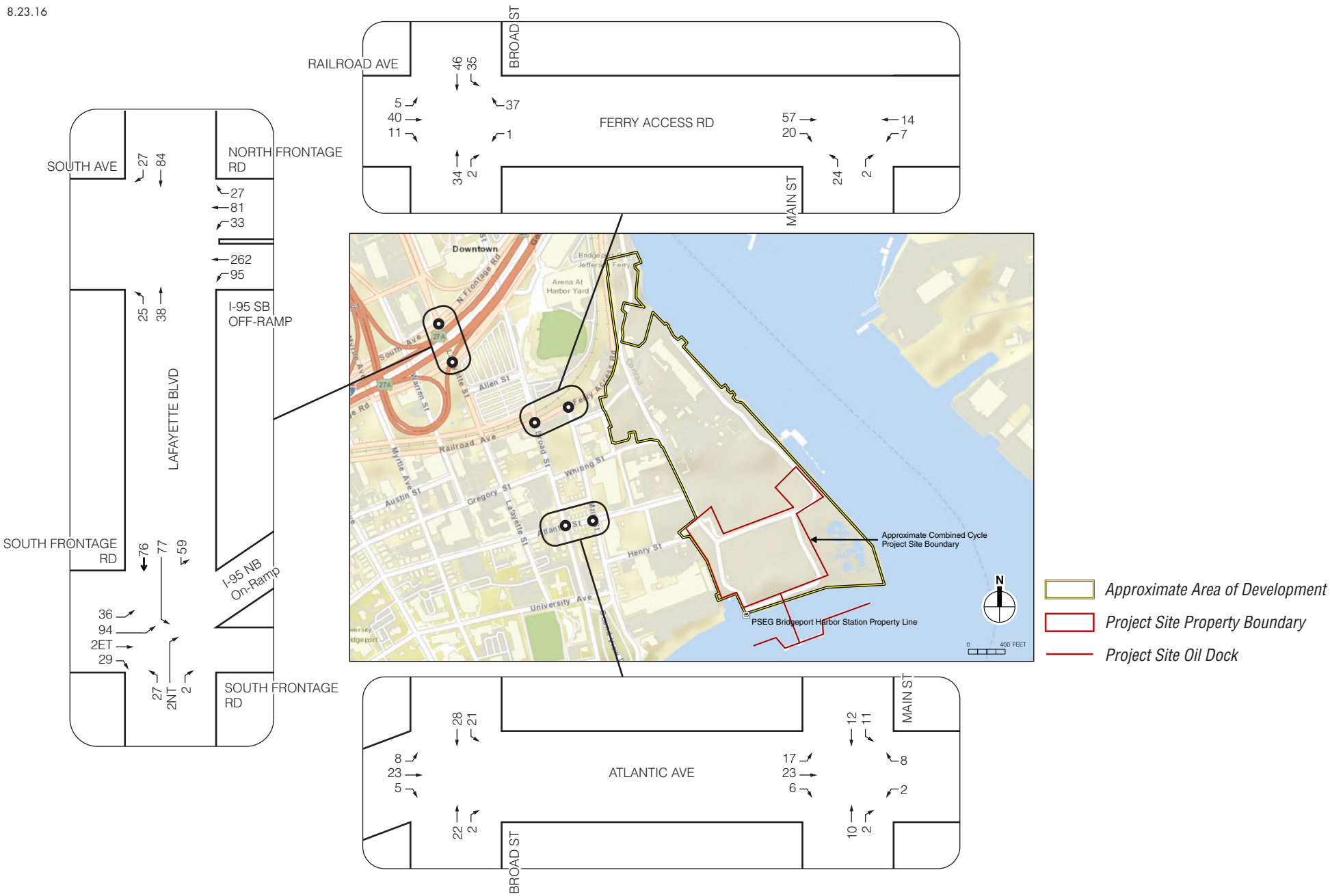
LOS A describes operation with a control delay of 10 seconds per vehicle or less and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is low and either progression is exceptionally favorable or the cycle length is very short. If it is due to favorable progression, most vehicles arrive during the green indication and travel through the intersection without stopping.

LOS B describes operation with control delay between 10 and 20 seconds per vehicle and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is low and either progression is highly favorable or the cycle length is short. More vehicles stop than with LOS A.

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

LOS D describes operation with control delay between 35 and 55 seconds per vehicle and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is high and either progression is ineffective or the cycle length is long. Many vehicles stop and individual cycle failures are noticeable.

8.23.16

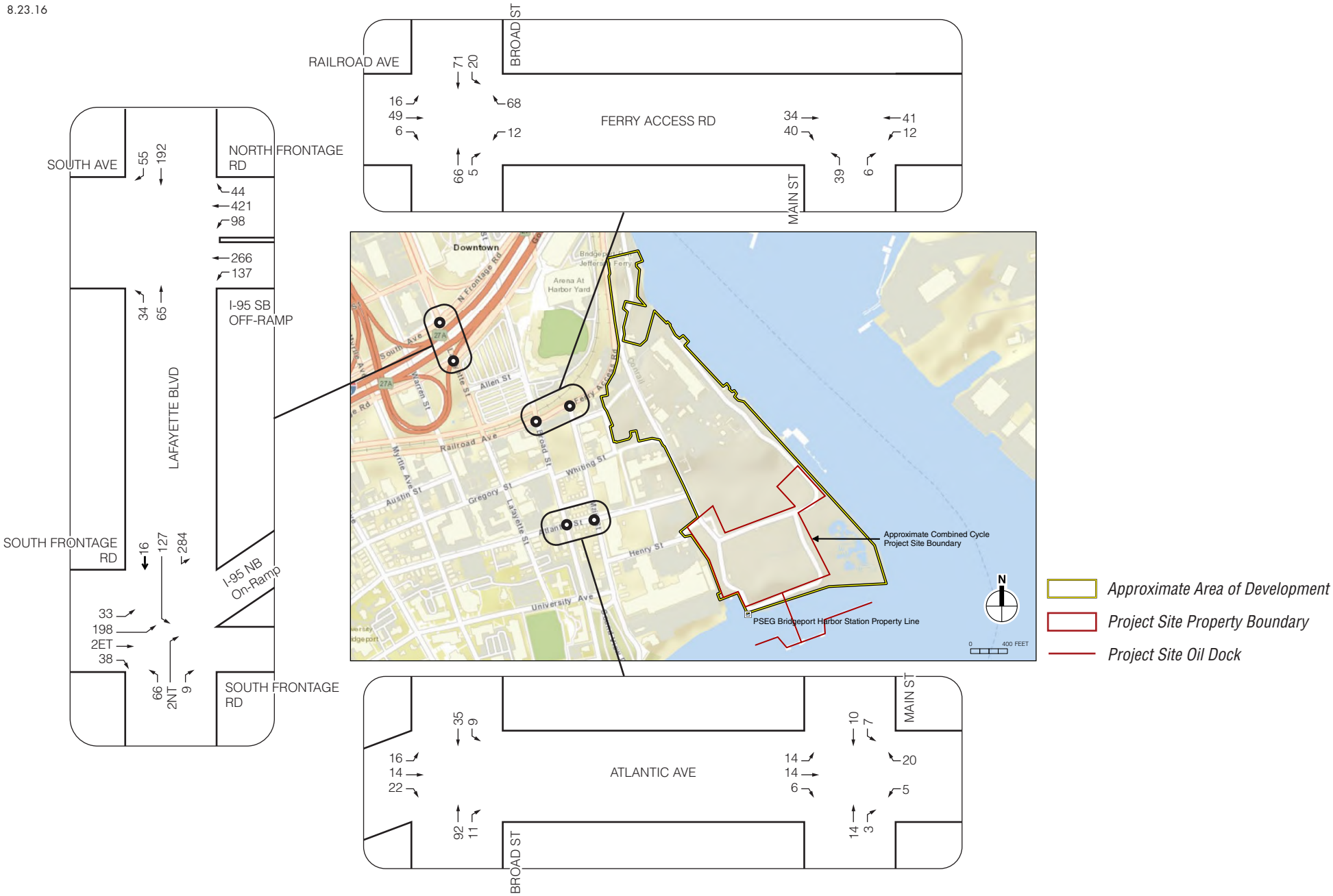


2016 Existing Traffic Volumes
Weekday AM Peak Hour (6:00 AM-7:00 AM)

BHS Unit 5 Post FCA Permitting

Figure 2

8.23.16



2016 Existing Traffic Volumes
Weekday PM Peak Hour (5:30 PM-6:30 PM)

BHS Unit 5 Post FCA Permitting

Figure 3

LOS E describes operation with control delay between 55 and 80 seconds per vehicle and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is high, progression is unfavorable, and the cycle length is long. Individual cycle failures are frequent.

LOS F describes operation with control delay exceeding 80 seconds per vehicle or a volume-to-capacity ratio greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is very high, progression is very poor, and the cycle length is long. Most cycles fail to clear the queue.

A lane group can incur a delay less than 80 seconds per vehicle when the volume-to-capacity ratio exceeds 1.0. This condition typically occurs when the cycle length is short, the signal progression is favorable, or both. As a result, both the delay and volume-to-capacity ratio are considered when lane group LOS is established. A ratio of 1.0 or more indicates that cycle capacity is fully utilized and represents failure from a capacity perspective (just as delay in excess of 80 seconds per vehicle represents failure from a delay perspective).

The control delay criteria for the range of service levels for signalized intersections are shown in **Table 1.**

Table 1
LOS Criteria for Signalized Intersections

Control Delay Per Vehicle	Level-of-Service (LOS)[1]	
	v/c ratio ≤ 1.0	v/c ratio > 1.0
≤ 10.0 seconds	A	F
>10.0 and ≤ 20.0 seconds	B	F
>20.0 and ≤ 35.0 seconds	C	F
>35.0 and ≤ 55.0 seconds	D	F
>55.0 and ≤ 80.0 seconds	E	F
>80.0 seconds	F	F

Source: Transportation Research Board. *2010 Highway Capacity Manual*.
Note: (1) For approach-based and intersectionwide assessments, LOS is defined solely by control delay.

Unsignalized Intersections

LOS for a two-way stop-controlled (TWSC) and all-way stop-controlled (AWSC) intersections is determined by the computed or measured control delay. For motor vehicles, LOS is determined for each minor-street movement (or shared movement) as well as major-street left turns at TWSC intersections and for all movements at AWSC intersections. LOS is not defined for the intersection as a whole for TWSC and AWSC intersections.

The LOS criteria for both TWSC and AWSC unsignalized intersections are summarized in **Table 2**.

Table 2
LOS Criteria for Unsignalized Intersections

Control Delay Per Vehicle	Level-of-Service (LOS)[1]	
	v/c ratio ≤ 1.0	v/c ratio > 1.0
≤ 10.0 seconds	A	F
>10.0 and ≤ 15.0 seconds	B	F
>15.0 and ≤ 25.0 seconds	C	F
>25.0 and ≤ 35.0 seconds	D	F
>35.0 and ≤ 50.0 seconds	E	F
>50.0 seconds	F	F

Source: Transportation Research Board. *2010 Highway Capacity Manual*.
Note: (1) For TWSC intersections, the LOS criteria apply to each lane on a given approach and to each approach on the minor street (for TWSC intersections). LOS is not calculated for major-street approaches or for the intersection as a whole.

Note that the LOS criteria for unsignalized intersections are somewhat different from the criteria used in signalized intersections. At TWSC intersections, drivers on the stop-controlled approaches are required to select gaps in the major-street flow in order to execute crossing or turning maneuvers. In the presence of a

queue, each driver on the controlled approach must also use some time to move into the front-of-queue position and prepare to evaluate gaps in the major-street flow. AWSC intersections require drivers on all approaches to stop before proceeding into the intersection.

EXISTING OPERATING CONDITIONS

Traffic operating conditions at each Study Area intersection were analyzed using the Synchro 8 Percentile Delay and *HCM2010* methodologies as described above (see **Appendix A** for Synchro 8 outputs for all Study Area intersections) to compute delays, v/c ratios, and LOS as described above.

During peak hours, LOS D operations are generally considered to be acceptable operating conditions for signalized and unsignalized intersections. As shown in **Table 3** most of the study area intersection lane groups/approaches operate at LOS D or better under 2016 Existing Conditions during the peak hours analyzed with the exception of the westbound (I-95 Off-Ramp) approach of the Lafayette Boulevard and North Frontage Road/South Avenue/I-95 SB Off-Ramp intersection, which operates at LOS E during the Weekday PM peak hour.

ACCIDENT DATA

Table 4 summarizes the most recent three year's traffic accident data for each of the study area intersections and other key locations compiled from the Connecticut Crash Data Repository records for the three-year period of August 1, 2013 through July 31, 2016 (see **Appendix A** for accident data records). **Table 5** summarizes the three year period's traffic accident data for each of the study area non-intersection locations (i.e., road segments between study area intersections) compiled from the same Connecticut Crash Data Repository records.

INTERSECTION ACCIDENTS

As shown in **Table 4**, the highest number of intersection accidents (9) occurred at the intersection of Lafayette Street and Railroad Avenue[2] over the 3-year period studied (August, 2013 through July, 2016), followed by the intersection of Lafayette Boulevard and North Frontage Road/South Avenue/I-95 SB Off-Ramp (8), the intersection of Broad Street & Railroad Avenue/Ferry Access Road (7), the intersection of Lafayette Street & South Frontage Road/I-95 NB On-Ramp (6), and Lafayette Street & Gregory Street (6). The most commonly occurring types of accidents at these locations were (right) angle collisions. Rear-end, turning movement, and fixed-object collisions were other types of collisions which occurred at these intersections.

The most common accident factors at the study area intersections were disregard of traffic control devices vehicles following too closely ("tailgating"), and failure to yield right of way, with other factors including improper turning, driver error, and unsafe speed.

At least one accident involved a collision of a truck on Lafayette Street with the Metro-North Railroad overpass due to exceeding the overpass clearance height.

There were no fatalities reported at any of the study area intersections in the records provided by the Connecticut Crash Data Repository during the 3-year time period studied.

NON-INTERSECTION ACCIDENTS

As shown in **Table 5**, the segment of Lafayette Street between Railroad Avenue and Gregory Street experienced the highest number of accidents (7) for the over the 3-year time period examined among the roadways between the study area intersections. The most commonly occurring accident type along this road segment was sideswipe (same direction) accidents, mostly occurring between one moving vehicle and one parked vehicle. Specific factors for these accidents were not identified in the accident data

[2] Considers accidents occurring at Lafayette Street's intersection with both the eastbound and westbound Railroad Avenue roadways.

Table 3
Bridgeport Habor Station Unit 5
2016 Existing Conditions Level of Service Analysis

No.	Intersection	Approach	Lane Group	AM (6:00-7:00 AM) V/C Ratio	AM Delay (sec)	AM LOS	PM (5:30-6:30 PM) V/C Ratio	PM Delay (sec)	PM LOS
Signalized Intersections									
1	Lafayette Boulevard	WB (Ramp)	LT	0.65	40.7	D	0.76	48.2	D
	& North Frontage Road/South Avenue/I-95 SB Off-Ramp	WB (Street)	LTR	0.24	30.9	C	0.90	61.4	E
		NB	LT	0.06	19.3	B	0.11	23.4	C
		SB	TR	0.07	14.4	B	0.16	17.9	B
		INT			29.0	C		39.3	D
2	Lafayette Boulevard	EB	L	0.05	14.1	B	0.06	17.4	B
	& South Frontage Road/I-95 NB On-Ramp		TR	0.27	13.7	B	0.46	21.0	C
		NB	TR	0.32	31.2	C	0.64	38.1	D
		SB	L	0.39	30.8	C	0.65	34.7	C
			T	0.41	33.5	C	0.50	33.7	C
		INT			23.0	C		30.0	C
3	Broad Street	EB	L	0.04	12.2	B	0.12	15.2	B
	& Railroad Avenue/Ferry Access Road		TR	0.05	8.5	A	0.07	11.2	B
		WB	LTR	0.08	0.3	A	0.17	0.7	A
		NB	TR	0.18	23.7	C	0.32	25.1	C
		SB	LT	0.36	26.7	C	0.37	26.8	C
		INT			16.5	B		15.9	B
Unsignalized Intersections									
4	Ferry Access Road	EB	TR	0.10	7.3	A	0.10	7.2	A
	& Main Street	WB	LT	0.03	7.3	A	0.08	7.6	A
		NB	LR	0.04	7.5	A	0.07	7.7	A
		INT			7.3	A		7.5	A
5	Broad Street	EB	LTR	0.05	7.3	A	0.07	7.4	A
	& Atlantic Street	NB	TR	0.03	7.2	A	0.13	7.7	A
		SB	LT	0.07	7.4	A	0.07	7.5	A
		INT			7.3	A		7.6	A
6	Main Street	EB	LTR	0.07	9.5	A	0.05	9.3	A
	& Atlantic Street	WB	LR	0.01	8.7	A	0.03	8.7	A
		SB	LT	0.01	7.3	A	0.01	7.3	A
		INT			6.6	A		6.3	A

Notes:
EB = Eastbound; WB = Westbound; NB = Northbound; SB = Southbound; INT = Intersection.
L = Left-Turn; T = Through; R = Right-Turn.
V/C = Volume to Capacity; SPV = Seconds per Vehicle; LOS = Level of Service.

Table 4

Study Area Accident Summary - Intersection Locations

Intersection	Number of Accidents		Accident Trend															
	Avg/Yr	Period 8/1/13-7/31/16	Property Damage	Personal Injury	Fatality	Fixed Object	Overtaking	Rear End	Angle	Turning (Same Direction)	Turning (Opposite Direction)	Turning (Intersecting Paths)	Sideswipe (Same Direction)	Sideswipe (Opposite Direction)	Ped/Bike	Head On	Backing	Unknown
1. Lafayette Boulevard and North Frontage Road/South Avenue/I-95 SB Off-Ramp	2.7	8	7	1		1		2	3	1	1							
2. Lafayette Street & South Frontage Road/I-95 NB On-Ramp	2.0	6	4	2				3	2	1								
3. Lafayette Street & Railroad Avenue (EB & WB)	3.0	9	6	3		2		2	4			1						
4. Lafayette Street & Gregory Street	2.0	6	2	4				5	1									
5. Lafayette Street & Atlantic Street	1.3	4	4						2				2					
6. Broad Street & Railroad Avenue/Ferry Access Road	2.3	7	3	4		1			6									
7. Ferry Access Road & Main Street	0.0	0																
8. Broad Street & Atlantic Street	0.0	0																
9. Main Street & Atlantic Street	0.7	2	1	1					2									

Source: Connecticut Crash Data Repository (ConnDOT/UCONN), August 2016

Table 5

Study Area Accident Summary - Non-Intersection Locations

Road Segment	Number of Accidents		Accident Trend															
	Avg/Yr	Period 8/1/13-7/31/16	Property Damage	Personal Injury	Fatality	Fixed Object	Overtaking	Rear End	Angle	Turning (Same Direction)	Turning (Opposite Direction)	Turning (Intersecting Paths)	Sideswipe (Same Direction)	Sideswipe (Opposite Direction)	Ped/Bike	Head On	Backing	Unknown
1. Lafayette Boulevard between North Frontage Road/South Avenue and South Frontage Road	0.0	0																
2. Lafayette Street between South Frontage Road and Railroad Avenue	1.3	4	2	2		1		2										1
3. Lafayette Street between Railroad Avenue and Gregory Street	2.3	7	7						1				5	1				
4. Lafayette Street between Gregory Street and Atlantic Street	0.0	0																
5. Broad Street between EB Railroad Avenue/Ferry Access Road and Atlantic Street	0.7	2	2							1							1	
6. Main Street between Ferry Access Road and Remington Property Entrance	0.7	2	2										1				1	
7. Ferry Access Road between Broad Street and Main Street	0.3	1	1					1										
8. Atlantic Street between Lafayette Street and Main Street	0.3	1		1										1				

Source: Connecticut Crash Data Repository (ConnDOT/UCONN), August 2016

records, however two of these accidents involved school buses. The other roadway segments examined experienced fewer than 5 accidents of the 3-year period studied. The types of accidents occurring along these segments included rear-end, turning movement, sideswipe, backing, and fixed object collisions. Due to the relatively low number of accidents along these road segments, no distinctive trends in the accident data could be identified. Accident factors along these road segments include following too closely, improper turning, slippery pavement surfaces, and unsafe backing actions.

No fatalities were reported along any of the road segments studied.

C. FUTURE WITHOUT THE PROPOSED PROJECT

TRAFFIC CONDITIONS

The Future without the Proposed Project construction activity, or "No Build," traffic condition is an interim scenario that establishes a future baseline condition without the Proposed Project. The No Build year is the same year as the Build year of the Proposed Project (2019). No Build traffic conditions are ascertained based on the following procedure:

- Increase the 2016 Existing Conditions traffic volumes by an annual background growth rate
- Manually add trips from pending developments ("No Build projects") located in the vicinity of the project site.
- Consideration of major roadway improvements in the vicinity of study area.

Based on guidance from ConnDOT, a growth rate of 0.4 percent per year was recommended for use in this study for the Bridgeport South End area.

ConnDOT and the City of Bridgeport were contacted for a list of pending developments located in the vicinity of the project site. Based on conversations with ConnDOT, no proposed pending projects which would be potential major traffic generators were identified in the project study area. **Figure A-1** in **Appendix A** lists and shows the locations of the pending projects identified by the City. Although no large projects were identified in the study area, it was determined that a conservative growth factor would be utilized to develop the 2019 No Build volumes. Therefore, a 0.7 percent per year growth rate was applied to the 2016 Existing Conditions traffic volumes to develop the 2019 No Build volumes, resulting in an overall growth rate of 2.1 percent.

Based on conversations with ConnDOT and the City of Bridgeport, no major roadway improvements are planned or proposed in the vicinity of the study area.

Based on the information presented above, the grown 2019 traffic volumes serve as the 2019 No Build traffic volumes. Traffic volumes for the 2019 No Build peak hours analyzed are shown in **Figures 4 and 5**.

Table 6 presents a comparison of 2016 Existing and 2019 No Build LOS conditions for the study area intersections for the peak hours. Synchro 8 outputs for the 2019 No Build scenario are provided in **Appendix A**.

Under the 2019 No Build conditions, there would be no notable changes in LOS for any of the study area intersections analyzed.

D. FUTURE WITH THE PROPOSED PROJECT CONSTRUCTION

Because the proposed project is expected to generate little new traffic when completed, any potential traffic impacts from the proposed project are expected to only occur during its construction period Estimates of the proposed project's peak construction period ("Build Conditions") traffic have been developed.

The construction period is anticipated to take place between April 2017 and June 2019 (at the end of which the plant would become operational). It is anticipated that the peak construction activity at the

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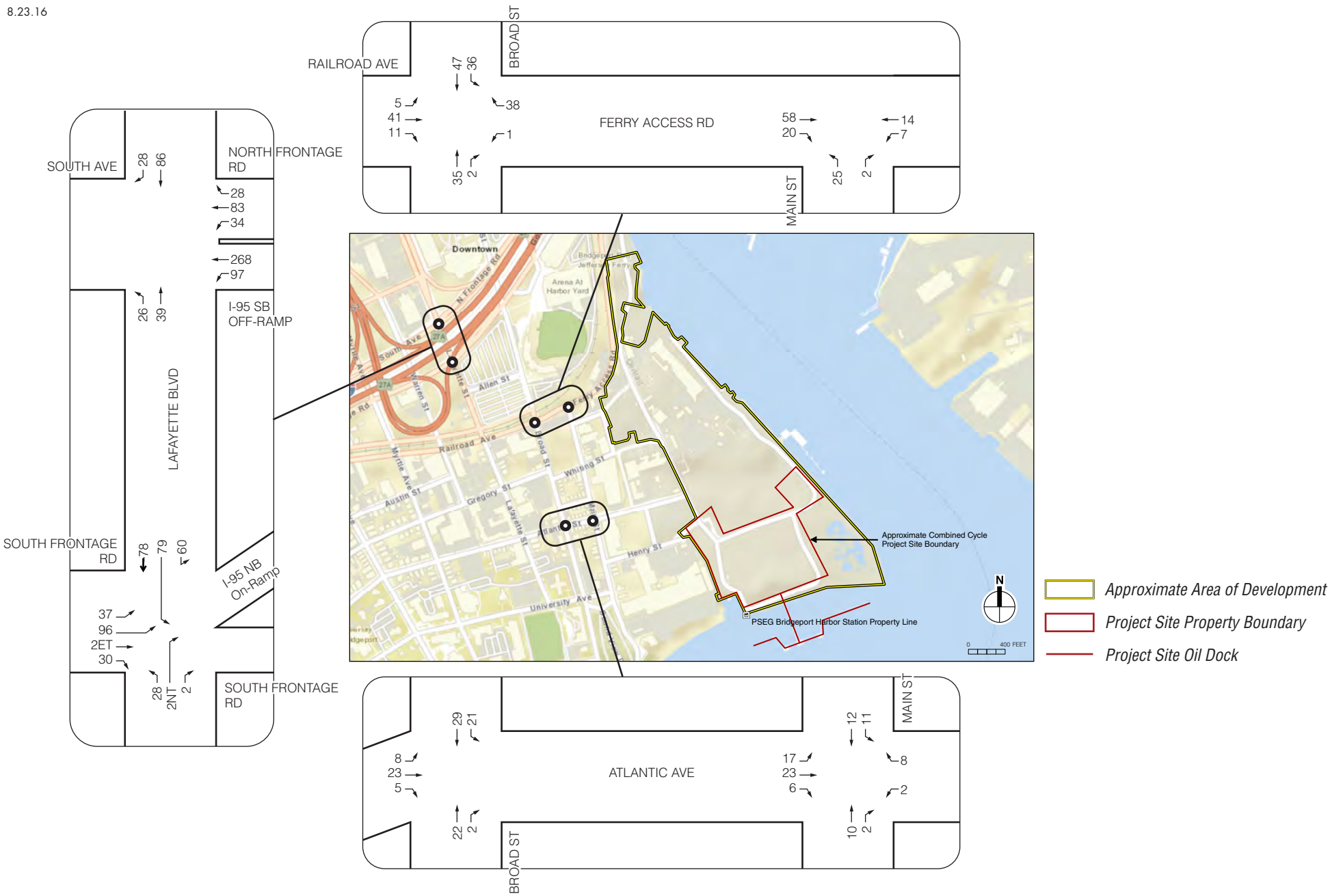

2019 No Build Traffic Volumes
Weekday AM Peak Hour (6:00 AM-7:00 AM)

BHS Unit 5 Post FCA Permitting

Figure 4

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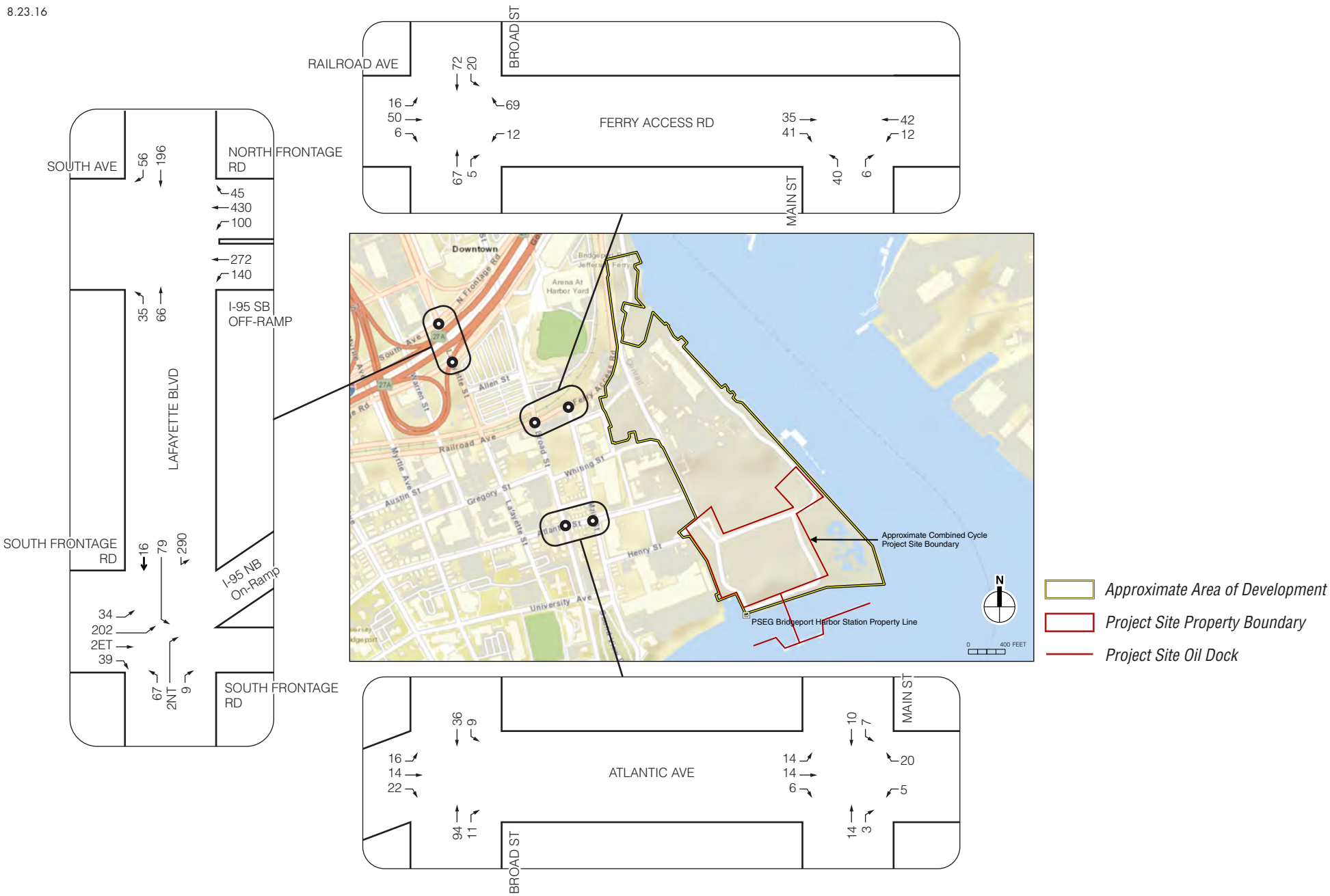

2019 No Build Traffic Volumes
Weekday PM Peak Hour (5:30 PM-6:30 PM)

BHS Unit 5 Post FCA Permitting

Figure 5

Table 6

Bridgeport Habor Station Unit 5

2016 Existing Conditions and 2019 No Build Level of Service Analysis

No.	Intersection	Approach	Lane Group	AM Peak Hour (6:00-7:00 AM)						PM Peak Hour (5:30-6:30 PM)					
				2016 Existing			2019 No Build			2016 Existing			2019 No Build		
				V/C Ratio	Delay (spv)	LOS	V/C Ratio	Delay (spv)	LOS	V/C Ratio	Delay (spv)	LOS	V/C Ratio	Delay (spv)	LOS
Signalized Intersections															
1	Lafayette Boulevard	WB (Ramp)	LT	0.65	40.7	D	0.64	40.2	D	0.76	48.2	D	0.76	47.6	D
	& North Frontage Road/South Avenue/I-95 SB Off-Ramp	WB (Street)	LTR	0.24	30.9	C	0.24	31.0	C	0.90	61.4	E	0.92	64.6	E
		NB	LT	0.06	19.3	B	0.07	19.4	B	0.11	23.4	C	0.11	23.6	C
		SB	TR	0.07	14.4	B	0.08	14.5	B	0.16	17.9	B	0.16	18.2	B
		INT			29.0	C		28.7	C		39.3	D		40.2	D
2	Lafayette Boulevard	EB	L	0.05	14.1	B	0.05	14.1	B	0.06	17.4	B	0.06	17.5	B
	& South Frontage Road/I-95 NB On-Ramp		TR	0.27	13.7	B	0.28	13.9	B	0.46	21	C	0.48	21.4	C
		NB	TR	0.32	31.2	C	0.33	31.3	C	0.64	38.1	D	0.65	38.4	D
		SB	L	0.39	30.8	C	0.40	30.8	C	0.65	34.7	C	0.65	34.6	C
			T	0.41	33.5	C	0.42	33.6	C	0.50	33.7	C	0.30	28.3	C
		INT			23.0	C		23.1	C		30.0	C		29.5	C
3	Broad Street	EB	L	0.04	12.2	B	0.04	13.0	B	0.12	15.2	B	0.12	15.2	B
	& Railroad Avenue/Ferry Access Road		TR	0.05	8.5	A	0.06	9.8	A	0.07	11.2	B	0.07	11.2	B
		WB	LTR	0.08	0.3	A	0.08	0.3	A	0.17	0.7	A	0.17	0.7	A
		NB	TR	0.18	23.7	C	0.19	23.8	C	0.32	25.1	C	0.32	25.4	C
		SB	LT	0.36	26.7	C	0.36	26.8	C	0.37	26.8	C	0.37	26.8	C
		INT			16.5	B		16.9	B		15.9	B		16.0	B
Unsignalized Intersections															
4	Ferry Access Road	EB	TR	0.10	7.3	A	0.10	7.3	A	0.10	7.2	A	0.10	7.2	A
	& Main Street	WB	LT	0.03	7.3	A	0.03	7.3	A	0.08	7.6	A	0.08	7.6	A
		NB	LR	0.04	7.5	A	0.04	7.5	A	0.07	7.7	A	0.07	7.7	A
		INT			7.3	A		7.3	A		7.5	A		7.5	A
5	Broad Street	EB	LTR	0.05	7.3	A	0.05	7.3	A	0.07	7.4	A	0.07	7.4	A
	& Atlantic Street	NB	TR	0.03	7.2	A	0.03	7.2	A	0.13	7.7	A	0.13	7.7	A
		SB	LT	0.07	7.4	A	0.07	7.4	A	0.07	7.5	A	0.07	7.5	A
		INT			7.3	A		7.3	A		7.6	A		7.6	A
6	Main Street	EB	LTR	0.07	9.5	A	0.07	9.5	A	0.05	9.3	A	0.05	9.3	A
	& Atlantic Street	WB	LR	0.01	8.7	A	0.01	8.7	A	0.03	8.7	A	0.03	8.7	A
		SB	LT	0.01	7.3	A	0.01	7.3	A	0.01	7.3	A	0.01	7.3	A
		INT			6.6	A		6.6	A		6.3	A		6.3	A

Notes:

EB = Eastbound; WB = Westbound; NB = Northbound; SB = Southbound; INT = Intersection.

L = Left-Turn; T = Through; R = Right-Turn.

V/C = Volume to Capacity; SPV = Seconds per Vehicle; LOS = Level of Service.

project site would take place from February 2018 through December 2018. Although the peak construction activity is expected to take place in 2018, to provide for a conservative analysis, 2019 will be considered as the year for peak construction activity.

This section describes the analysis assumptions used to develop the 2019 Build traffic volumes and analysis parameters for this project, followed by a discussion of 2019 Build traffic conditions anticipated in the project area.

CONSTRUCTION VEHICLE TRIP GENERATION

AUTO TRAFFIC

During the peak construction period for this project, it is conservatively assumed that the peak number of workers traveling to and from the site would be 450 workers. Note that the craft labor estimate of 350 workers previously developed by PSEG has been increased to assure that adequate margin exists in the calculations. Applying the estimated auto occupancy of 1.2 persons per vehicle to account for carpooling would result in the total construction worker daily and peak hour trips, shown below in **Table 7**.

Table 7
AM and PM Peak Hour Construction Period Worker Trips

Total Daily Workers		Resulting Worker Trips*	AM Construction Peak Trips Inbound (6:00-7:00 AM)	PM Construction Peak Trips Inbound (5:30-6:30 PM)
450		375	375	375

Note: *To account for auto occupancy of 1.2 persons per vehicle (carpooling), the total daily number is divided by 1.20.

While unlikely to actually occur, it was assumed that all 375 inbound worker trips would arrive to the site during the AM peak hour and all 375 outbound worker trips would depart from the site during the PM peak hour. Lunch facilities will be provided for the workers on site so workers would remain on-site for lunch breaks (workers are required to remain on-site during the day).

TRUCK TRAFFIC

Truck traffic to and from the project site will be generated by a variety of trucks and truck sizes. Oversized and weight restrictive delivery loads to the site would arrive by barge and therefore the use of oversized trucks along the roadway network would not be required for such deliveries, excepting for certain limited construction equipment deliveries, such as cranes or other specialized earth moving equipment. Truck traffic would comprise of standard sized trucks which would not require any special permits to travel along the study area roadways.

During the peak construction period for this project, it is anticipated that there will be 30 trucks traveling to and from the site each day (including concrete deliveries) and there would be a maximum of 10 trucks traveling to and from the site during the peak hours. For the purpose of this analysis (to provide for a conservative analysis), it is assumed that trucks would arrive and depart from the site during the same hour. **Table 8** summarizes the anticipated number of truck trips per day and for each of the peak hours.

Table 8
AM and PM Peak Hour Construction Period Truck Trips

Total Daily Trucks	AM Construction Peak Trips Truck Trips (6:00-7:00 AM)			PM Construction Peak Trips Truck Trips (5:30-6:30 PM)		
	In	Out	Total	In	Out	Total
30	10	10	20	10	10	20

Trucks arriving to the site will be processed on-site and not idle on local streets. Trucks arriving during nighttime hours (or any other time when trucks cannot be processed on-site) will travel to the Pine Street and Wordin Avenue Laydown areas or other pre-designated off site non-residential area. Any necessary truck trips to these Laydown areas would likely be small in number and would generally occur outside the peak hours examined.

During the peak hours examined, there is anticipated to a total of 395 project generated vehicle trips during both the AM (385 entering, 10 exiting) and PM (10 entering, 385 exiting) peak hours. A summary of the total number of the project generated trips are shown below in **Table 9**.

Table 9
AM and PM Peak Hour Construction Period Total Vehicle Trips

Vehicle Type	AM Construction Peak Trips Truck Trips (6:00-7:00 AM)			PM Construction Peak Trips Truck Trips (5:30-6:30 PM)		
	In	Out	Total	In	Out	Total
Autos	375	0	375	0	375	375
Trucks	10	10	20	10	10	20
TOTAL	**385**	**10**	**395**	**10**	**385**	**395**

CONSTRUCTION VEHICLE TRIP DISTRIBUTION AND ASSIGNMENTS

TRIP DISTRIBUTIONS

Auto Traffic

The arrival distributions for the worker auto traffic assume the following distributions:

- 70 percent arriving from I-95 Northbound
- 25 percent arriving from I-95 Southbound
- 5 percent arriving locally from other areas of Bridgeport

Worker vehicles arriving via I-95 would use Exit 27 (northbound) or 27A (southbound). Once in the South End area, worker vehicles would travel south on Lafayette Street, turn left onto Atlantic Avenue, right onto Main Street, and then left into the Remington property where worker parking would be provided. Workers would then walk from the lot to the project site.

The departure distributions would generally be similar to the arrival distributions, but reversed. However, modifications to the departure distributions along local streets were made as needed to take into account one-way streets in the study area.

A graphical depiction of the worker (auto) routes and distributions is shown in **Figure 6**.

Truck Traffic

The arrival distributions for the truck traffic assume the following distributions:

- 70 percent arriving from I-95 Northbound
- 30 percent arriving from I-95 Southbound

Trucks would utilize exits 26, 27, or 27A from I-95. Trucks which would exceed overpass clearances along key roadways to the site (e.g. Lafayette Street, Broad Street) would utilize Exit 26 while all other trucks would use Exits 27 (northbound) or 27A (southbound). The contractors would be responsible for ensuring trucks use the appropriate routes (in order to account for clearance heights, see **Appendix A**). PSEG will work with all contractors to ensure that this issue is appropriately handled. It has been

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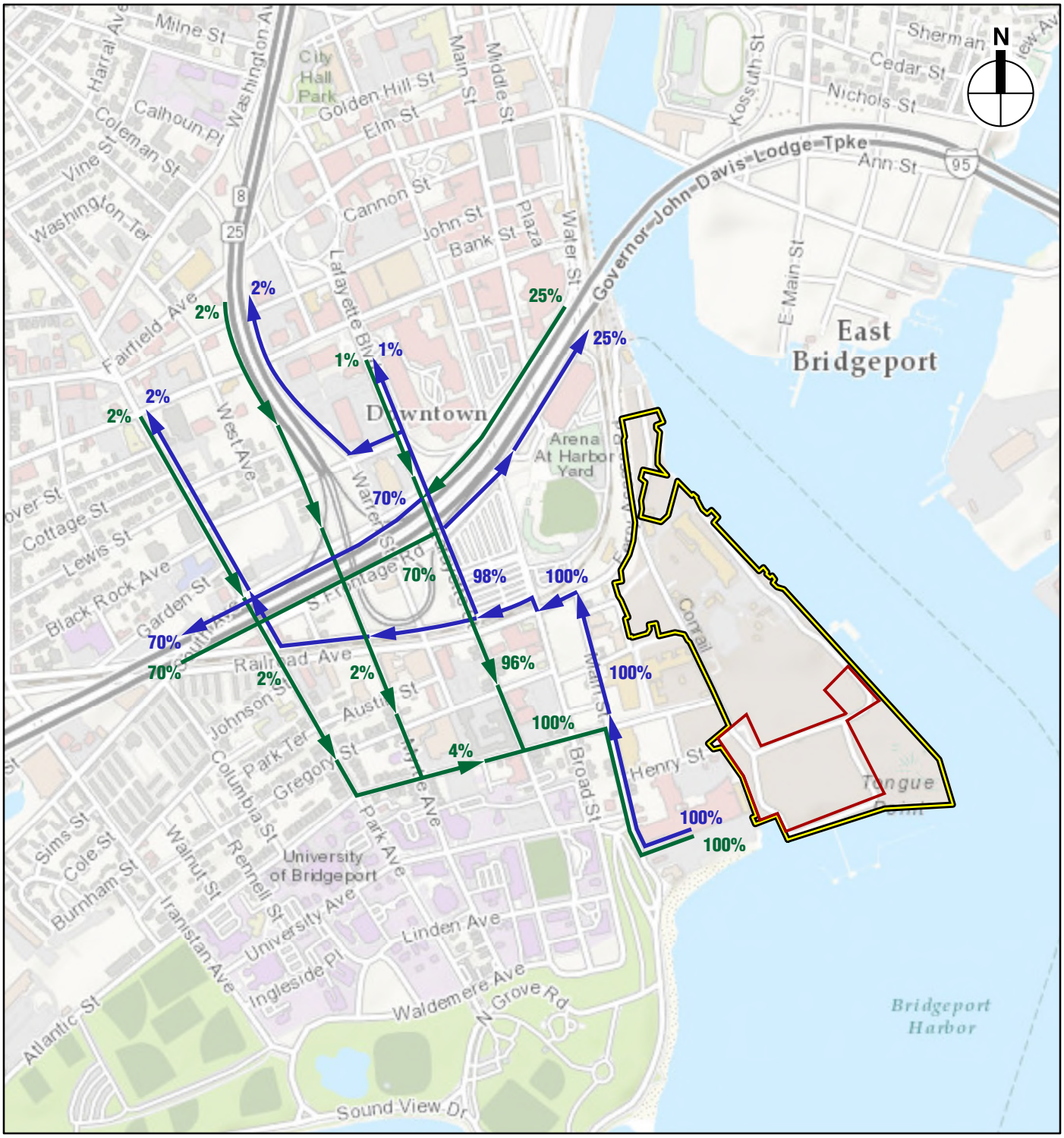

Approximate Area of Development

Project Site Property Boundary

Entering Auto Trips

Exiting Auto Trips

BRIDGEPORT HARBOR STATION - Combined Cycle Project

Auto Trip Distributions
Figure 6

assumed that trucks arriving and departing during the peak hours would utilize Exit 26. Once exiting I-95, trucks would travel east on Pine Street to Admiral Street, turn right onto Iranistan Avenue, turn left onto Atlantic Avenue, right onto Main Street, and then left into and then left into a material receiving yard located on the Remington property.

The departure distributions would be similar to the arrival distributions, but reversed. However, modifications to the departure distributions along local streets were made as needed to take into account one-way streets in the study area and facilitating truck turning movements.

A graphical depiction of the truck routes and distributions are shown in **Figures 7 and 8**.

TRIP ASSIGNMENTS

Each of the auto and truck trips described above has been assigned to the study area traffic network using the percentage distributions and routings described above. **Figures 9** and **10** illustrate the resulting 2019 total construction peak project generated traffic volumes during the AM and PM peak hours, respectively.

TRAFFIC CONDITIONS

The projected site-generated traffic volumes were added to the 2019 No Build traffic volumes to create the 2019 Build traffic volumes (peak construction year), which are shown in **Figures 11** and **12** for the AM and PM peak hours, respectively.

Table 10 presents a comparison of 2019 No Build and 2019 Build LOS conditions for the study area intersections for the peak hours. Synchro 8 outputs for the 2019 Build scenario are provided in **Appendix A**.

Under 2019 Build conditions, the northbound through/right-turn movement at the Lafayette Street & South Frontage Road/I-95 NB On-Ramp intersection would deteriorate from LOS D to LOS E during the PM peak hour.

It is important to note that the traffic impact presented above is expected to be temporary in duration (from approximately February 2018 to December 2018).

TRAFFIC MITIGATION

Table 11 presents a comparison of the 2019 No Build, 2019 Build, and 2019 Build with Mitigation LOS conditions. As shown in Table 11, for the impacted location described above (the northbound through/right-turn movement at the Lafayette Street & South Frontage Road/I-95 NB On-Ramp intersection), possible mitigation measures could include retiming the traffic signal by reallocating 1 second of green time from the eastbound phase to the southbound phase.

With minor signal retiming implemented at this intersection, No Build conditions LOS could be maintained at each of the study area intersections during the construction period.

PARKING

Parking for the construction workers would be provided on the Remington property, accessible directly from a driveway located on Main Street. Parking for all workers could be accommodated on the Remington property and workers would not need to park on local streets in the area. In the event any overflow parking would be needed, overflow parking could be accommodated on nearby Bridgeport Harbor Station properties, including potential parking areas located on Atlantic Avenue and Henry Street. These areas, designated as BH-3 and BH-4, have estimated parking capacities of 48 and 138 spaces, respectively, and are within walking distance of the project site.

E. POTENTIAL EFFECTS OF THE PROJECT DURING OPERATION

After construction is completed, the workforce of the new plant is expected to be approximately 20 to 28 workers, many of which are already existing workers at the current facility. Operations traffic will consist

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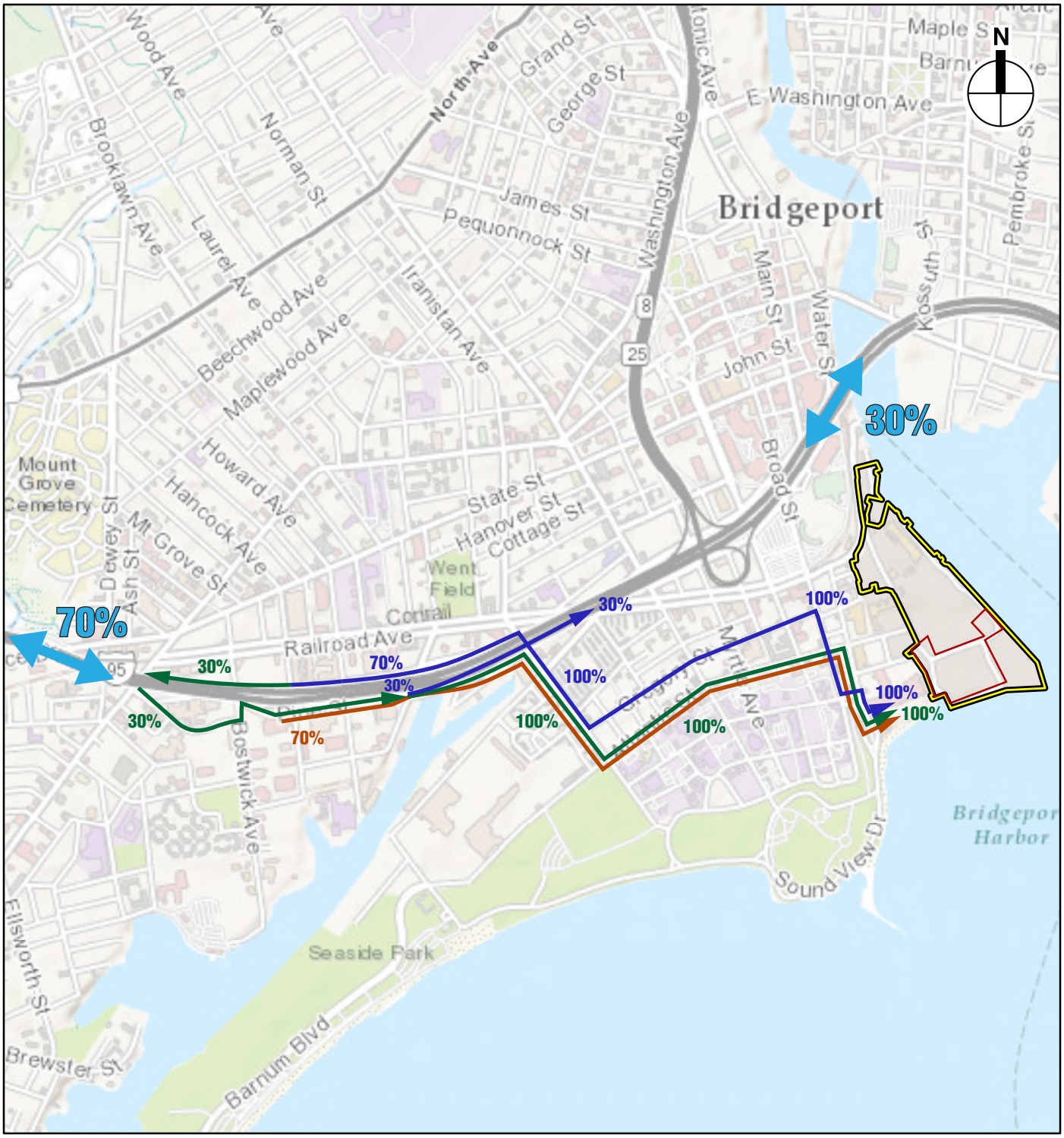

Approximate Area of Development

Project Site Property Boundary

From I-95 South

From I-95 South

To I-95 South

Trip Routing & Distributions - High Clearance Trucks

BRIDGEPORT HARBOR STATION - Combined Cycle Project

Figure 7

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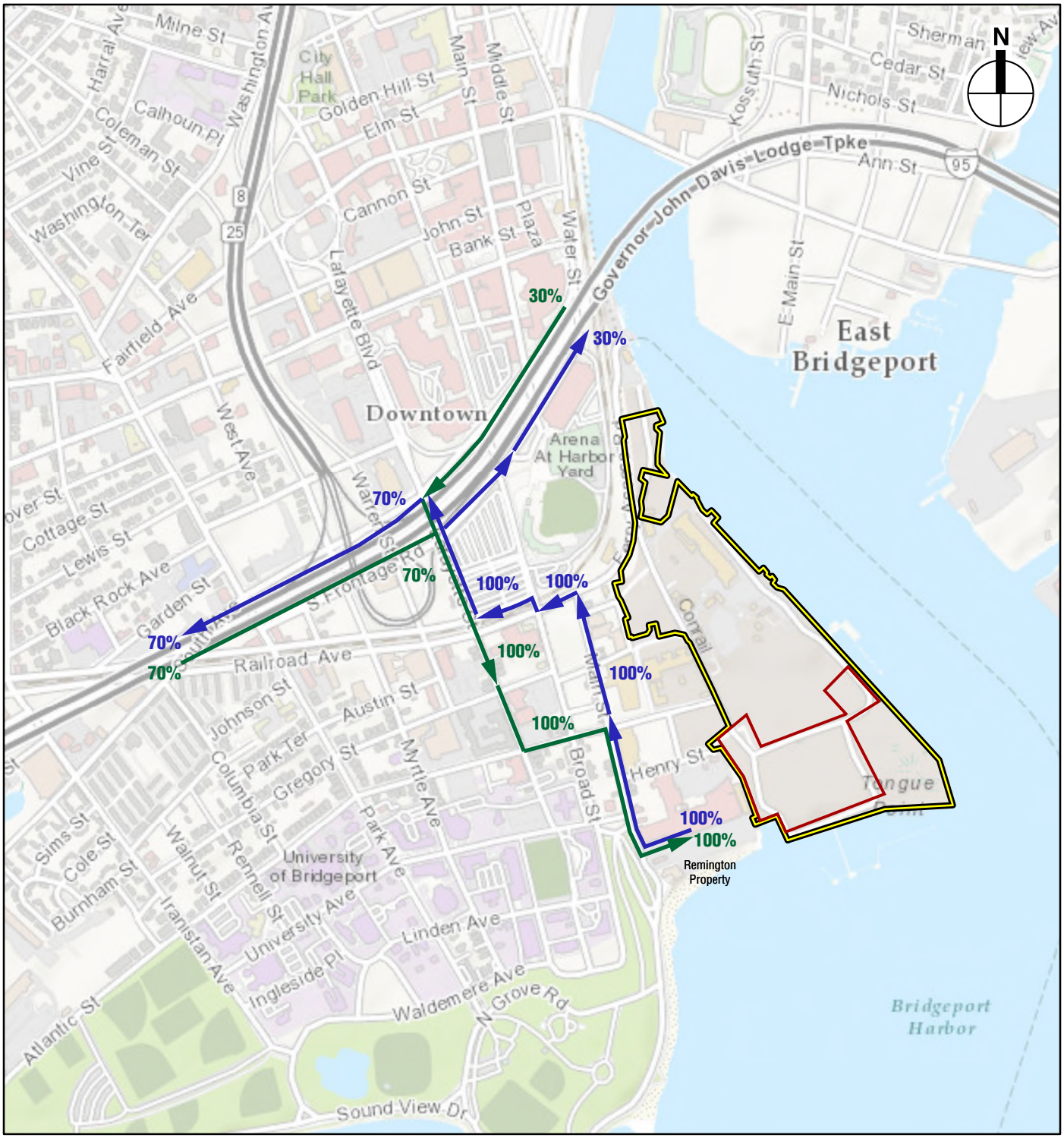

Approximate Area of Development

Project Site Property Boundary

Entering Trucks Trips

Exiting Trucks Trips

Trip Routing & Distributions - Low Clearance Trucks

BRIDGEPORT HARBOR STATION - Combined Cycle Project

Figure 8

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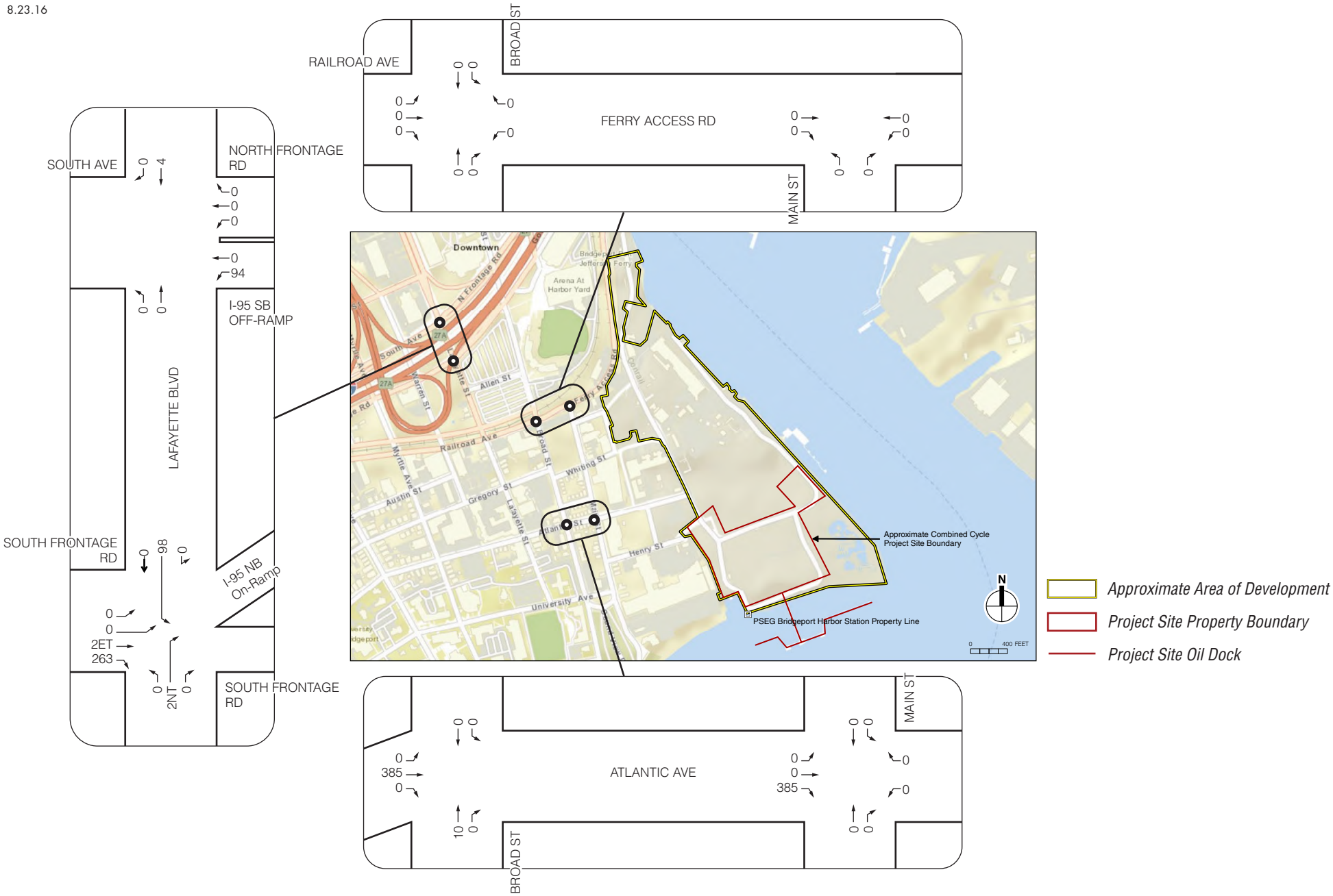

Project Generated Traffic Volumes
Weekday AM Peak Hour (6:00 AM-7:00 AM)

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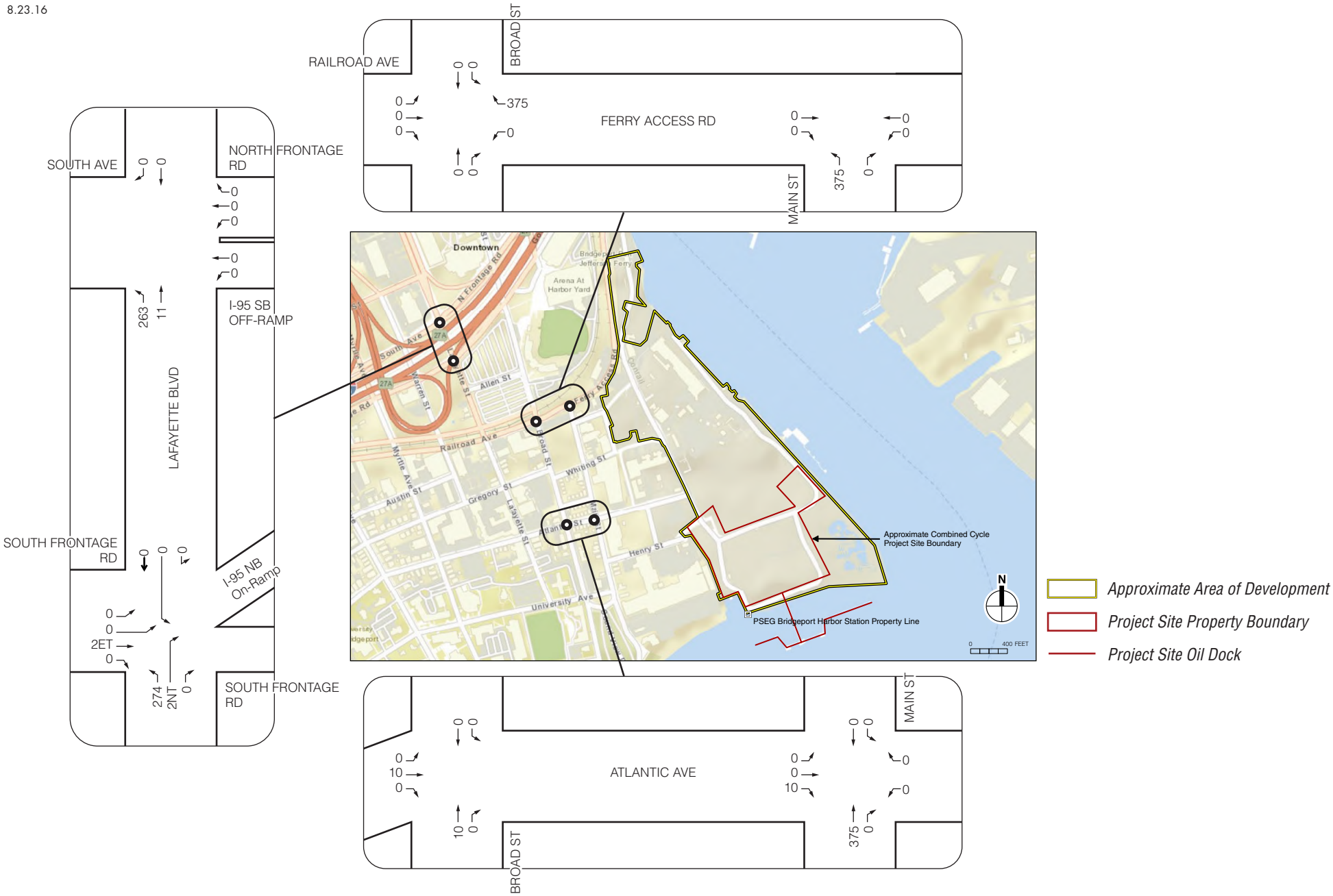

Project Generated Traffic Volumes
Weekday PM Peak Hour (5:30 PM-6:30 PM)

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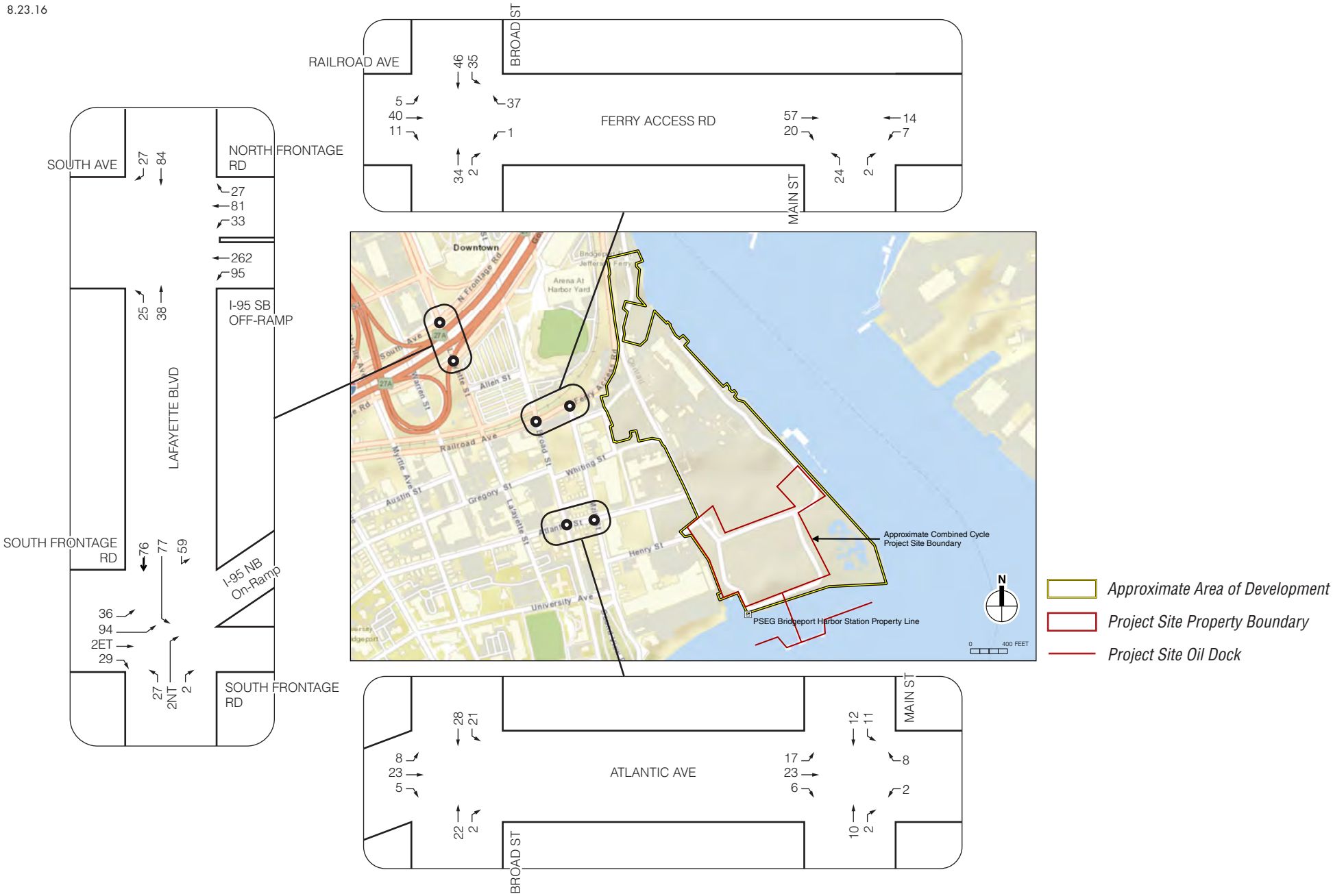

2019 Build Traffic Volumes
Weekday AM Peak Hour (6:00 AM-7:00 AM)

BHS Unit 5 Post FCA Permitting

Figure 11

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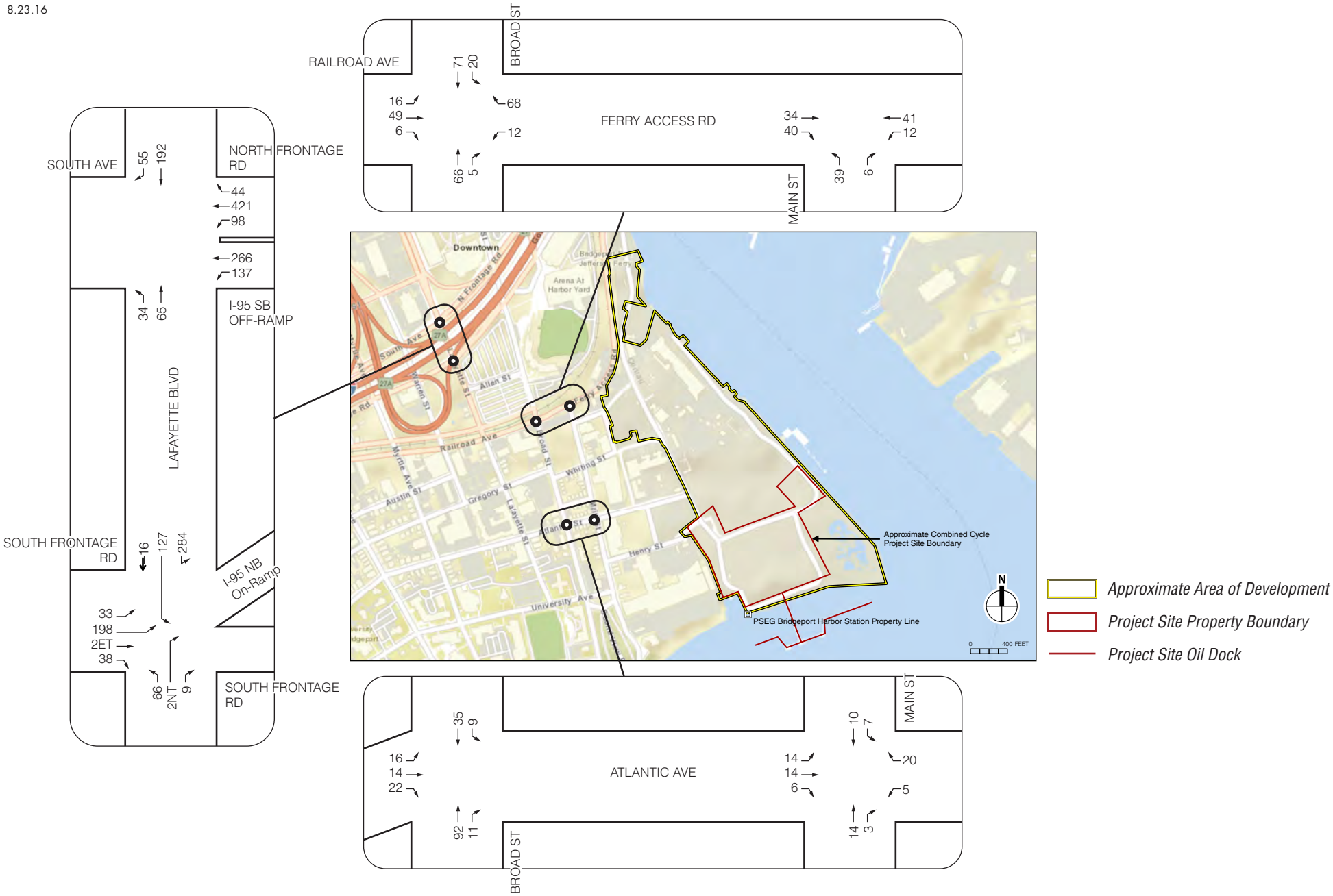

2019 Build Traffic Volumes
Weekday PM Peak Hour (5:30 PM-6:30 PM)

BHS Unit 5 Post FCA Permitting

Figure12

Table 10

Bridgeport Habor Station Unit 5

2019 No Build and 2019 Build Conditions Level of Service Analysis

No.	Intersection	Approach	Lane Group	AM Peak Hour (6:00-7:00 AM)						PM Peak Hour (5:30-6:30 PM)					
				2019 No Build			2019 Build			2019 No Build			2019 Build		
				V/C Ratio	Delay (spv)	LOS	V/C Ratio	Delay (spv)	LOS	V/C Ratio	Delay (spv)	LOS	V/C Ratio	Delay (spv)	LOS
Signalized Intersections															
1	Lafayette Boulevard	WB (Ramp)	LT	0.64	40.2	D	0.60	35.9	D	0.76	47.6	D	0.76	47.6	D
	& North Frontage Road/South Avenue/I-95 SB Off-Ramp	WB (Street)	LTR	0.24	31.0	C	0.24	31.0	C	0.92	64.6	E	0.92	64.6	E
		NB	LT	0.07	19.4	B	0.08	21.2	C	0.11	23.6	C	0.89dl	30.0	C
		SB	TR	0.08	14.5	B	0.10	16.0	B	0.16	18.2	B	0.16	18.2	B
		INT			28.7	C		27.9	C		40.2	D		38.9	D
2	Lafayette Boulevard	EB	L	0.05	14.1	B	0.06	16.1	B	0.06	17.5	B	0.11	22.4	C
	& South Frontage Road/I-95 NB On-Ramp		TR	0.28	13.9	B	0.69	22.6	C	0.48	21.4	C	0.83	42.3	D
		NB	TR	0.33	31.3	C	0.33	31.3	C	0.65	38.4	D	0.96	55.3	E
		SB	L	0.40	30.8	C	0.27	25.6	C	0.65	34.6	C	0.65	34.6	C
			T	0.42	33.6	C	0.63	37.6	D	0.30	28.3	C	0.30	28.3	C
		INT			23.1	C		26.3	C		29.5	C		44.3	D
3	Broad Street	EB	L	0.04	13.0	B	0.04	13.0	B	0.12	15.2	B	0.15	16.2	B
	& Railroad Avenue/Ferry Access Road		TR	0.06	9.8	A	0.06	9.8	A	0.07	11.2	B	0.08	11.2	B
		WB	LTR	0.08	0.3	A	0.08	0.3	A	0.17	0.7	A	0.70	8.0	A
		NB	TR	0.19	23.8	C	0.19	23.8	C	0.32	25.4	C	0.32	25.4	C
		SB	LT	0.36	26.8	C	0.36	26.8	C	0.37	26.8	C	0.37	26.8	C
		INT			16.9	B		16.9	B		16	B		12.5	B
Unsignalized Intersections															
4	Ferry Access Road	EB	TR	0.10	7.3	A	0.10	7.3	A	0.10	7.2	A	0.13	8.8	A
	& Main Street	WB	LT	0.03	7.3	A	0.03	7.3	A	0.08	7.6	A	0.10	9.1	A
		NB	LR	0.04	7.5	A	0.04	7.5	A	0.07	7.7	A	0.66	16.2	C
		INT			7.3	A		7.3	A		7.5	A		14.5	B
5	Broad Street	EB	LTR	0.05	7.3	A	0.57	12.4	B	0.07	7.4	A	0.09	7.6	A
	& Atlantic Street	NB	TR	0.03	7.2	A	0.05	8.4	A	0.13	7.7	A	0.14	7.8	A
		SB	LT	0.07	7.4	A	0.09	8.7	A	0.07	7.5	A	0.07	7.6	A
		INT			7.3	A		11.8	B		7.6	A		7.7	A
6	Main Street	EB	LTR	0.07	9.5	A	0.53	12.5	B	0.05	9.3	A	0.10	12.3	B
	& Atlantic Street	WB	LR	0.01	8.7	A	0.02	10.1	B	0.03	8.7	A	0.06	12.3	B
		SB	LT	0.01	7.3	A	0.01	7.3	A	0.01	7.3	A	0.01	8.4	A
		INT			6.6	A		11.7	A		6.3	A		1.9	A

Notes:

EB = Eastbound; WB = Westbound; NB = Northbound; SB = Southbound; INT = Intersection.

L = Left-Turn; T = Through; R = Right-Turn.

V/C = Volume to Capacity; SPV = Seconds per Vehicle; LOS = Level of Service.

Shaded data denotes impacted location.

Table 11
Bridgeport Habor Station Unit 5
2019 No Build, 2019 Build, and 2019 Build with Mitigation (No CALP) Level of Service Analysis
PM Peak Hour

No.	Intersection	Approach	PM Peak Hour (5:30-6:30PM)												Improvement Measures
			2019 No Build				2019 Build				2019 Build with Mitigation				
			Lane Group	V/C Ratio	Delay (SPV)	LOS	Lane Group	V/C Ratio	Delay (SPV)	LOS	Lane Group	V/C Ratio	Delay (SPV)	LOS	
2	Lafayette Boulevard	EB	L	0.06	17.5	B	L	0.11	22.4	C	L	0.12	23.3	C	-Signal Retiming
	& South Frontage Road/I-95 NB On-Ramp		TR	0.48	21.4	C	TR	0.83	42.3	D	TR	0.87	48.3	D	
		NB	TR	0.65	38.4	D	TR	0.96	55.3	E	TR	0.92	46.7	D	
		SB	L	0.65	34.6	C	L	0.65	34.6	C	L	0.66	34.6	C	
			T	0.30	28.3	C	T	0.30	28.3	C	T	0.31	28.3	C	
		INT			29.5	C			44.3	D			42.3	D	

Notes:
EB = Eastbound; WB = Westbound; NB = Northbound; SB = Southbound; INT = Intersection.
L = Left-Turn; T = Through; R = Right-Turn.
V/C = Volume to Capacity; SPV = Seconds per Vehicle; LOS = Level of Service.
Shaded data denotes impacted location.

of workforce commuting, limited maintenance and outage workforce for short periods of time, and relatively minor truck deliveries of materials needed to operate and maintain the new plant.

Overall, the operation of the Proposed Project would introduce only a small number of vehicular trips to the study area roadways and would not be expected to have a significant adverse impact on traffic operations within the surrounding area.

F. CONCLUSIONS

Based on the results of this study, the key effects of construction activity for the Proposed Project on traffic within the study area would be limited to temporary increases in traffic levels from construction vehicles and one deterioration in LOS at one of the study area signalized intersections. This deterioration in LOS could be mitigated with signal retimings.

No impacts on the on-street parking supply are anticipated as all construction worker parking is anticipated to be accommodated in off-street lots and construction workers will not be authorized to park on neighborhood streets.

Trucking activity on area streets will be normally limited to standard sized trucks as heavy equipment will be transported to the site by barge, therefore no oversized trucks will be utilized for transporting equipment or materials, excepting for potential oversize construction equipment (cranes, etc.) deliveries. However, the Contractor(s) will ensure that trucks traveling through the area are routed properly to ensure that any overpass clearances can accommodate the truck heights. In addition, trucks arriving to the site will be processed on-site and not idle on local streets. Trucks arriving during nighttime hours (or any other time when trucks cannot be processed on-site) will travel to the Pine Street and Wordin Avenue Laydown areas or other pre-designated non-residential areas.

It is important to note that all effects of the construction activity would be temporary and are expected to be limited to the construction time frame for the new plant. Once in operation, the Proposed Project would introduce only a small number of vehicular trips to the study area roadways and would not be expected to have a significant adverse impact on traffic operations within the surrounding area.

APPENDIX A

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1. Traffic Counts/Data Collection
    a. Turning Movement Counts (TMC)
    b. Automatic Traffic Recorder (ATR) Counts
    c. ConnDOT Traffic Counts

2. Physical Inventories

3. ConnDOT Traffic Signal Timing Plans

4. Synchro Output Worksheets

5. Accident Data Records

6. No Build Projects Map

7. Truck Overpass Clearance Data

1. TRAFFIC COUNTS/DATA COLLECTION

a. Turning Movement Counts (TMC)
b. Automatic Traffic Recorder (ATR) Counts
c. CONNDOT Count Data

GENERAL INFORMATION

PROJECT NAME:	Bridgeport Harbor Station
PROJECT NO:	71312
DATE:	August 26, 2016

INTERSECTION INFORMATION

SURVEY DATE:		July 12, 2016			
INTERSECTION:	**STREET (E-W):**	South Ave/ I-95 WB Exit Ramp			
	STREET (N-S):	Lafayette Blvd			
SURVEY PERIOD:	**AM PEAK PERIOD**	6:00 AM	TO	8:00 AM	
	PM PEAK PERIOD	4:30 PM	TO	6:30 PM	

TRAFFIC VOLUMES

Time Period Begin	End	Eastbound Left	Thru	Right	Total	Westbound Left	Thru	Right	Total	Northbound Left	Thru	Right	Total	Southbound Left	Thru	Right	Total
AM PEAK PERIOD																	
6:00 AM	6:15 AM	0	0	0	0	15	170	0	185	6	5	0	11	0	16	6	22
6:15 AM	6:30 AM	0	0	0	0	18	100	0	118	5	5	0	10	0	17	4	21
6:30 AM	6:45 AM	0	0	0	0	25	71	0	96	5	9	0	14	0	18	7	25
6:45 AM	7:00 AM	0	0	0	0	22	63	1	86	6	9	0	15	0	27	6	33
7:00 AM	7:15 AM	0	0	0	0	25	67	0	92	6	10	0	16	0	17	6	23
7:15 AM	7:30 AM	0	0	0	0	21	61	0	82	6	6	0	12	0	20	8	28
7:30 AM	7:45 AM				0				0				0				0
7:45 AM	8:00 AM				0				0				0				0
Generalized AM Peak Hour Only																	
6:30 AM	6:45 AM	0	0	0	0	25	71	0	96	5	9	0	14	0	18	7	25
6:45 AM	7:00 AM	0	0	0	0	22	63	1	86	6	9	0	15	0	27	6	33
7:00 AM	7:15 AM	0	0	0	0	25	67	0	92	6	10	0	16	0	17	6	23
7:15 AM	7:30 AM	0	0	0	0	21	61	0	82	6	6	0	12	0	20	8	28
Peak Hour Total		0	0	0	0	93	262	1	356	23	34	0	57	0	82	27	109
Peak 15 Minute Vol		0	0	0	0	25	71	1	96	6	10	0	16	0	27	8	33
Calculated PHF		N/A	N/A	N/A	N/A	0.93	0.92	0.25	0.93	0.96	0.85	N/A	0.89	N/A	0.76	0.84	0.83
PM PEAK PERIOD																	
4:30 PM	4:45 PM	0	0	0	0	26	46	1	73	17	6	0	23	0	22	10	32
4:45 PM	5:00 PM	0	0	0	0	20	46	1	67	11	10	0	21	0	29	11	40
5:00 PM	5:15 PM	0	0	0	0	27	43	0	70	7	13	0	20	0	28	13	41
5:15 PM	5:30 PM	0	0	0	0	28	48	0	76	8	11	0	19	0	44	10	54
5:30 PM	5:45 PM	0	0	0	0	33	66	0	99	10	16	0	26	0	39	12	51
5:45 PM	6:00 PM	0	0	0	0	31	61	2	94	7	17	0	24	0	55	10	65
6:00 PM	6:15 PM	0	0	0	0	36	71	0	107	8	14	0	22	0	45	15	60
6:15 PM	6:30 PM	0	0	0	0	35	68	1	104	9	18	0	27	0	49	18	67
Generalized PM Peak Hour Only																	
5:30 PM	5:45 PM	0	0	0	0	33	66	0	99	10	16	0	26	0	39	12	51
5:45 PM	6:00 PM	0	0	0	0	31	61	2	94	7	17	0	24	0	55	10	65
6:00 PM	6:15 PM	0	0	0	0	36	71	0	107	8	14	0	22	0	45	15	60
6:15 PM	6:30 PM	0	0	0	0	35	68	1	104	9	18	0	27	0	49	18	67
Peak Hour Total		0	0	0	0	135	266	3	404	34	65	0	99	0	188	55	243
Peak 15 Minute Vol		0	0	0	0	36	71	2	107	10	18	0	27	0	55	18	67
Calculated PHF		N/A	N/A	N/A	N/A	0.94	0.94	0.38	0.94	0.85	0.90	N/A	0.92	N/A	0.85	0.76	0.91

GENERAL INFORMATION

PROJECT NAME: Bridgeport Harbor Station
PROJECT NO: 71312
DATE: August 26, 2016

INTERSECTION INFORMATION

SURVEY DATE: July 12, 2016

INTERSECTION: **STREET (E-W):** South Ave/ N. Frontage Rd
STREET (N-S): Lafayette Blvd

SURVEY PERIOD: **AM PEAK PERIOD** 6:00 AM TO 8:00 AM
PM PEAK PERIOD 4:30 PM TO 6:30 PM

TRAFFIC VOLUMES

Time Period Begin	End	Eastbound Left	Thru	Right	Total	Westbound Left	Thru	Right	Total	Northbound Left	Thru	Right	Total	Southbound Left	Thru	Right	Total
AM PEAK PERIOD																	
6:00 AM	6:15 AM	0	0	0	0	18	17	6	41	6	5	0	11	0	16	6	22
6:15 AM	6:30 AM	0	0	0	0	11	28	5	44	5	5	0	10	0	17	4	21
6:30 AM	6:45 AM	0	0	0	0	10	16	5	31	5	9	0	14	0	18	7	25
6:45 AM	7:00 AM	0	0	0	0	7	22	7	36	6	9	0	15	0	27	6	33
7:00 AM	7:15 AM	0	0	0	0	7	22	7	36	6	10	0	16	0	17	6	23
7:15 AM	7:30 AM	0	0	0	0	8	21	8	37	6	6	0	12	0	20	8	28
7:30 AM	7:45 AM				0				0				0				0
7:45 AM	8:00 AM				0				0				0				0
Generalized AM Peak Hour Only																	
6:30 AM	6:45 AM	0	0	0	0	10	16	5	31	5	9	0	14	0	18	7	25
6:45 AM	7:00 AM	0	0	0	0	7	22	7	36	6	9	0	15	0	27	6	33
7:00 AM	7:15 AM	0	0	0	0	7	22	7	36	6	10	0	16	0	17	6	23
7:15 AM	7:30 AM	0	0	0	0	8	21	8	37	6	6	0	12	0	20	8	28
Peak Hour Total		0	0	0	0	32	81	27	140	23	34	0	57	0	82	27	109
Peak 15 Minute Vol		0	0	0	0	10	22	8	37	6	10	0	16	0	27	8	33
Calculated PHF		N/A	N/A	N/A	N/A	0.80	0.92	0.84	0.95	0.96	0.85	N/A	0.89	N/A	0.76	0.84	0.83
PM PEAK PERIOD																	
4:30 PM	4:45 PM	0	0	0	0	6	40	9	55	17	6	0	23	0	22	10	32
4:45 PM	5:00 PM	0	0	0	0	6	30	9	45	11	10	0	21	0	29	11	40
5:00 PM	5:15 PM	0	0	0	0	13	50	11	74	7	13	0	20	0	28	13	41
5:15 PM	5:30 PM	0	0	0	0	17	61	6	84	8	11	0	19	0	44	10	54
5:30 PM	5:45 PM	0	0	0	0	19	88	8	115	10	16	0	26	0	39	12	51
5:45 PM	6:00 PM	0	0	0	0	32	143	9	184	7	17	0	24	0	55	10	65
6:00 PM	6:15 PM	0	0	0	0	21	99	15	135	8	14	0	22	0	45	15	60
6:15 PM	6:30 PM	0	0	0	0	24	91	12	127	9	18	0	27	0	49	18	67
Generalized PM Peak Hour Only																	
5:30 PM	5:45 PM	0	0	0	0	19	88	8	115	10	16	0	26	0	39	12	51
5:45 PM	6:00 PM	0	0	0	0	32	143	9	184	7	17	0	24	0	55	10	65
6:00 PM	6:15 PM	0	0	0	0	21	99	15	135	8	14	0	22	0	45	15	60
6:15 PM	6:30 PM	0	0	0	0	24	91	12	127	9	18	0	27	0	49	18	67
Peak Hour Total		0	0	0	0	96	421	44	561	34	65	0	99	0	188	55	243
Peak 15 Minute Vol		0	0	0	0	32	143	15	184	10	18	0	27	0	55	18	67
Calculated PHF		N/A	N/A	N/A	N/A	0.75	0.74	0.73	0.76	0.85	0.90	N/A	0.92	N/A	0.85	0.76	0.91

GENERAL INFORMATION

PROJECT NAME:	Bridgeport Harbor Station
PROJECT NO:	71312
DATE:	August 26, 2016

INTERSECTION INFORMATION

SURVEY DATE:		July 12, 2016		
INTERSECTION:	**STREET (E-W):**	S. Frontage Rd/ I-95 EB Entrance Ramp		
	STREET (N-S):	Lafayette St		
SURVEY PERIOD:	**AM PEAK PERIOD**	6:00 AM	TO	8:00 AM
	PM PEAK PERIOD	4:30 PM	TO	6:30 PM

TRAFFIC VOLUMES

Time Period Begin	End	Eastbound Left	Thru	Right	Total	Westbound Left	Thru	Right	Total	Northbound Left	Thru	Right	Total	Southbound Left	Thru	Right	Total
AM PEAK PERIOD																	
6:00 AM	6:15 AM	1	15	0	16	0	0	0	0	0	6	6	12	4	3	0	7
6:15 AM	6:30 AM	1	18	0	19	0	0	0	0	0	6	3	9	4	8	0	12
6:30 AM	6:45 AM	4	22	0	26	0	0	0	0	0	7	6	13	3	16	0	19
6:45 AM	7:00 AM	5	19	0	24	0	0	0	0	0	3	6	9	11	18	0	29
7:00 AM	7:15 AM	16	31	0	47	0	0	0	0	0	6	7	13	28	22	0	50
7:15 AM	7:30 AM	11	22	0	33	0	0	0	0	0	11	14	25	17	21	0	38
7:30 AM	7:45 AM				0				0				0				0
7:45 AM	8:00 AM				0				0				0				0
Generalized AM Peak Hour Only																	
6:30 AM	6:45 AM	4	22	0	26	0	0	0	0	0	7	6	13	3	16	0	19
6:45 AM	7:00 AM	5	19	0	24	0	0	0	0	0	3	6	9	11	18	0	29
7:00 AM	7:15 AM	16	31	0	47	0	0	0	0	0	6	7	13	28	22	0	50
7:15 AM	7:30 AM	11	22	0	33	0	0	0	0	0	11	14	25	17	21	0	38
Peak Hour Total		36	94	0	130	0	0	0	0	0	27	33	60	59	77	0	136
Peak 15 Minute Vol		16	31	0	47	0	0	0	0	0	11	14	25	28	22	0	50
Calculated PHF		0.56	0.76	N/A	0.69	N/A	N/A	N/A	N/A	N/A	0.61	0.59	0.60	0.53	0.88	N/A	0.68
PM PEAK PERIOD																	
4:30 PM	4:45 PM	5	53	0	58	0	0	0	0	0	16	10	26	33	24	0	57
4:45 PM	5:00 PM	5	51	0	56	0	0	0	0	0	17	16	33	33	17	0	50
5:00 PM	5:15 PM	7	89	0	96	0	0	0	0	0	11	17	28	40	18	0	58
5:15 PM	5:30 PM	6	11	0	17	0	0	0	0	0	13	30	43	40	20	0	60
5:30 PM	5:45 PM	7	44	0	51	0	0	0	0	0	15	30	45	43	36	0	79
5:45 PM	6:00 PM	6	40	0	46	0	0	0	0	0	18	26	44	66	30	0	96
6:00 PM	6:15 PM	8	63	0	71	0	0	0	0	0	10	21	31	95	31	0	126
6:15 PM	6:30 PM	8	51	0	59	0	0	0	0	0	16	23	39	80	30	0	110
Generalized PM Peak Hour Only																	
5:30 PM	5:45 PM	7	44	0	51	0	0	0	0	0	15	30	45	43	36	0	79
5:45 PM	6:00 PM	6	40	0	46	0	0	0	0	0	18	26	44	66	30	0	96
6:00 PM	6:15 PM	8	63	0	71	0	0	0	0	0	10	21	31	95	31	0	126
6:15 PM	6:30 PM	8	51	0	59	0	0	0	0	0	16	23	39	80	30	0	110
Peak Hour Total		29	198	0	227	0	0	0	0	0	59	100	159	284	127	0	411
Peak 15 Minute Vol		8	63	0	71	0	0	0	0	0	18	30	45	95	36	0	126
Calculated PHF		0.91	0.79	N/A	0.80	N/A	N/A	N/A	N/A	N/A	0.82	0.83	0.88	0.75	0.88	N/A	0.82

GENERAL INFORMATION

PROJECT NAME:	Bridgeport Harbor Station
PROJECT NO:	71312
DATE:	August 26, 2016

INTERSECTION INFORMATION

SURVEY DATE:		July 12, 2016			
INTERSECTION:	**STREET (E-W):**	S. Frontage Rd			
	STREET (N-S):	Lafayette St			
SURVEY PERIOD:	**AM PEAK PERIOD**	6:00 AM	TO	8:00 AM	
	PM PEAK PERIOD	4:30 PM	TO	6:30 PM	

TRAFFIC VOLUMES

Time Period Begin	End	Eastbound Left	Thru	Right	Total	Westbound Left	Thru	Right	Total	Northbound Left	Thru	Right	Total	Southbound Left	Thru	Right	Total
AM PEAK PERIOD																	
6:00 AM	6:15 AM	0	9	3	12	0	0	0	0	0	6	0	6	6	3	0	9
6:15 AM	6:30 AM	0	8	2	10	0	0	0	0	0	6	0	6	8	8	0	16
6:30 AM	6:45 AM	0	18	3	21	0	0	0	0	0	7	0	7	15	16	0	31
6:45 AM	7:00 AM	0	27	7	34	0	0	0	0	0	3	0	3	16	18	0	34
7:00 AM	7:15 AM	0	21	7	28	0	0	0	0	0	6	1	7	24	22	0	46
7:15 AM	7:30 AM	0	34	12	46	0	0	0	0	0	11	1	12	21	21	0	42
7:30 AM	7:45 AM				0				0				0				0
7:45 AM	8:00 AM				0				0				0				0
Generalized AM Peak Hour Only																	
6:30 AM	6:45 AM	0	18	3	21	0	0	0	0	0	7	0	7	15	16	0	31
6:45 AM	7:00 AM	0	27	7	34	0	0	0	0	0	3	0	3	16	18	0	34
7:00 AM	7:15 AM	0	21	7	28	0	0	0	0	0	6	1	7	24	22	0	46
7:15 AM	7:30 AM	0	34	12	46	0	0	0	0	0	11	1	12	21	21	0	42
Peak Hour Total		0	100	29	129	0	0	0	0	0	27	2	29	76	77	0	153
Peak 15 Minute Vol		0	34	12	46	0	0	0	0	0	11	1	12	24	22	0	46
Calculated PHF		N/A	0.74	0.60	0.70	N/A	N/A	N/A	N/A	N/A	0.61	0.50	0.60	0.79	0.88	N/A	0.83
PM PEAK PERIOD																	
4:30 PM	4:45 PM	0	10	3	13	0	0	0	0	0	16	1	17	3	24	0	27
4:45 PM	5:00 PM	0	13	3	16	0	0	0	0	0	17	1	18	3	17	0	20
5:00 PM	5:15 PM	0	17	6	23	0	0	0	0	0	11	1	12	3	18	0	21
5:15 PM	5:30 PM	0	22	6	28	0	0	0	0	0	13	2	15	3	20	0	23
5:30 PM	5:45 PM	0	20	8	28	0	0	0	0	0	15	3	18	3	36	0	39
5:45 PM	6:00 PM	0	15	11	26	0	0	0	0	0	18	2	20	3	30	0	33
6:00 PM	6:15 PM	0	11	9	20	0	0	0	0	0	10	3	13	5	31	0	36
6:15 PM	6:30 PM	0	16	10	26	0	0	0	0	0	16	1	17	5	30	0	35
Generalized PM Peak Hour Only																	
5:30 PM	5:45 PM	0	20	8	28	0	0	0	0	0	15	3	18	3	36	0	39
5:45 PM	6:00 PM	0	15	11	26	0	0	0	0	0	18	2	20	3	30	0	33
6:00 PM	6:15 PM	0	11	9	20	0	0	0	0	0	10	3	13	5	31	0	36
6:15 PM	6:30 PM	0	16	10	26	0	0	0	0	0	16	1	17	5	30	0	35
Peak Hour Total		0	62	38	100	0	0	0	0	0	59	9	68	16	127	0	143
Peak 15 Minute Vol		0	20	11	28	0	0	0	0	0	18	3	20	5	36	0	39
Calculated PHF		N/A	0.78	0.86	0.89	N/A	N/A	N/A	N/A	N/A	0.82	0.75	0.85	0.80	0.88	N/A	0.92

GENERAL INFORMATION

PROJECT NAME:	Bridgeport Harbor Station
PROJECT NO:	71312
DATE:	August 26, 2016

INTERSECTION INFORMATION

SURVEY DATE:		July 12, 2016		
INTERSECTION:	**STREET (E-W):**	Railroad Ave/ Ferry Access Rd		
	STREET (N-S):	Broad St		
SURVEY PERIOD:	**AM PEAK PERIOD**	6:00 AM	TO	8:00 AM
	PM PEAK PERIOD	4:30 PM	TO	6:30 PM

TRAFFIC VOLUMES

Time Period Begin	End	Eastbound Left	Thru	Right	Total	Westbound Left	Thru	Right	Total	Northbound Left	Thru	Right	Total	Southbound Left	Thru	Right	Total
AM PEAK PERIOD																	
6:00 AM	6:15 AM	0	1	2	3	0	0	2	2	0	4	0	4	6	3	0	9
6:15 AM	6:30 AM	1	13	0	14	0	0	47	47	0	7	0	7	12	12	0	24
6:30 AM	6:45 AM	1	7	2	10	0	0	5	5	0	11	0	11	2	14	0	16
6:45 AM	7:00 AM	1	7	3	11	1	0	11	12	0	11	0	11	6	11	0	17
7:00 AM	7:15 AM	1	7	2	10	0	0	10	10	0	7	0	7	6	10	0	16
7:15 AM	7:30 AM	2	6	4	12	0	0	11	11	0	5	0	5	8	11	0	19
7:30 AM	7:45 AM				0				0				0				0
7:45 AM	8:00 AM				0				0				0				0
Generalized AM Peak Hour Only																	
6:30 AM	6:45 AM	1	7	2	10	0	0	5	5	0	11	0	11	2	14	0	16
6:45 AM	7:00 AM	1	7	3	11	1	0	11	12	0	11	0	11	6	11	0	17
7:00 AM	7:15 AM	1	7	2	10	0	0	10	10	0	7	0	7	6	10	0	16
7:15 AM	7:30 AM	2	6	4	12	0	0	11	11	0	5	0	5	8	11	0	19
Peak Hour Total		5	27	11	43	1	0	37	38	0	34	0	34	22	46	0	68
Peak 15 Minute Vol		2	7	4	12	1	0	11	12	0	11	0	11	8	14	0	19
Calculated PHF		0.63	0.96	0.69	0.90	0.25	N/A	0.84	0.79	N/A	0.77	N/A	0.77	0.69	0.82	N/A	0.89
PM PEAK PERIOD																	
4:30 PM	4:45 PM	5	25	1	31	7	0	11	18	0	9	1	10	5	8	0	13
4:45 PM	5:00 PM	4	18	0	22	3	0	56	59	0	23	2	25	4	13	0	17
5:00 PM	5:15 PM	6	14	1	21	0	0	11	11	0	30	1	31	4	20	0	24
5:15 PM	5:30 PM	5	12	1	18	0	0	9	9	0	27	0	27	3	17	0	20
5:30 PM	5:45 PM	5	15	1	21	0	0	11	11	0	20	1	21	3	18	0	21
5:45 PM	6:00 PM	6	11	1	18	6	0	13	19	0	11	1	12	4	19	0	23
6:00 PM	6:15 PM	4	10	2	16	3	0	21	24	0	17	3	20	7	18	0	25
6:15 PM	6:30 PM	1	13	2	16	3	0	23	26	0	18	0	18	6	16	0	22
Generalized PM Peak Hour Only																	
5:30 PM	5:45 PM	5	15	1	21	0	0	11	11	0	20	1	21	3	18	0	21
5:45 PM	6:00 PM	6	11	1	18	6	0	13	19	0	11	1	12	4	19	0	23
6:00 PM	6:15 PM	4	10	2	16	3	0	21	24	0	17	3	20	7	18	0	25
6:15 PM	6:30 PM	1	13	2	16	3	0	23	26	0	18	0	18	6	16	0	22
Peak Hour Total		16	49	6	71	12	0	68	80	0	66	5	71	20	71	0	91
Peak 15 Minute Vol		6	15	2	21	6	0	23	26	0	20	3	21	7	19	0	25
Calculated PHF		0.67	0.82	0.75	0.85	0.50	N/A	0.74	0.77	N/A	0.83	0.42	0.85	0.71	0.93	N/A	0.91

GENERAL INFORMATION

PROJECT NAME:	Bridgeport Harbor Station
PROJECT NO:	71312
DATE:	August 26, 2016

INTERSECTION INFORMATION

SURVEY DATE:		July 12, 2016		
INTERSECTION:	**STREET (E-W):**	Ferry Access Rd		
	STREET (N-S):	Main St		
SURVEY PERIOD:	**AM PEAK PERIOD**	6:00 AM	TO	8:00 AM
	PM PEAK PERIOD	4:30 PM	TO	6:30 PM

TRAFFIC VOLUMES

Time Period Begin	End	Eastbound Left	Thru	Right	Total	Westbound Left	Thru	Right	Total	Northbound Left	Thru	Right	Total	Southbound Left	Thru	Right	Total
AM PEAK PERIOD																	
6:00 AM	6:15 AM	0	2	3	5	1	0	0	1	6	0	1	7	0	0	0	0
6:15 AM	6:30 AM	0	3	10	13	3	1	0	4	6	0	0	6	0	0	0	0
6:30 AM	6:45 AM	0	19	4	23	2	4	0	6	2	0	0	2	0	0	0	0
6:45 AM	7:00 AM	0	17	4	21	3	4	0	7	5	0	0	5	0	0	0	0
7:00 AM	7:15 AM	0	11	6	17	1	1	0	2	5	0	1	6	0	0	0	0
7:15 AM	7:30 AM	0	10	6	16	1	1	0	2	4	0	1	5	0	0	0	0
7:30 AM	7:45 AM				0				0				0				0
7:45 AM	8:00 AM				0				0				0				0
Generalized AM Peak Hour Only																	
6:30 AM	6:45 AM	0	19	4	23	2	4	0	6	2	0	0	2	0	0	0	0
6:45 AM	7:00 AM	0	17	4	21	3	4	0	7	5	0	0	5	0	0	0	0
7:00 AM	7:15 AM	0	11	6	17	1	1	0	2	5	0	1	6	0	0	0	0
7:15 AM	7:30 AM	0	10	6	16	1	1	0	2	4	0	1	5	0	0	0	0
Peak Hour Total		0	57	20	77	7	10	0	17	16	0	2	18	0	0	0	0
Peak 15 Minute Vol		0	19	6	23	3	4	0	7	5	0	1	6	0	0	0	0
Calculated PHF		N/A	0.75	0.83	0.84	0.58	0.63	N/A	0.61	0.80	N/A	0.50	0.75	N/A	N/A	N/A	N/A
PM PEAK PERIOD																	
4:30 PM	4:45 PM	0	13	5	18	4	17	0	21	15	0	1	16	0	0	0	0
4:45 PM	5:00 PM	0	7	5	12	2	2	0	4	11	0	1	12	0	0	0	0
5:00 PM	5:15 PM	0	12	2	14	1	3	0	4	7	0	0	7	0	0	0	0
5:15 PM	5:30 PM	0	1	5	6	1	3	0	4	7	0	1	8	0	0	0	0
5:30 PM	5:45 PM	0	1	6	7	4	11	0	15	6	0	0	6	0	0	0	0
5:45 PM	6:00 PM	0	9	6	15	5	10	0	15	11	0	2	13	0	0	0	0
6:00 PM	6:15 PM	0	7	7	14	1	8	0	9	10	0	3	13	0	0	0	0
6:15 PM	6:30 PM	0	7	9	16	2	7	0	9	7	0	1	8	0	0	0	0
Generalized PM Peak Hour Only																	
5:30 PM	5:45 PM	0	1	6	7	4	11	0	15	6	0	0	6	0	0	0	0
5:45 PM	6:00 PM	0	9	6	15	5	10	0	15	11	0	2	13	0	0	0	0
6:00 PM	6:15 PM	0	7	7	14	1	8	0	9	10	0	3	13	0	0	0	0
6:15 PM	6:30 PM	0	7	9	16	2	7	0	9	7	0	1	8	0	0	0	0
Peak Hour Total		0	24	28	52	12	36	0	48	34	0	6	40	0	0	0	0
Peak 15 Minute Vol		0	9	9	16	5	11	0	15	11	0	3	13	0	0	0	0
Calculated PHF		N/A	0.67	0.78	0.81	0.60	0.82	N/A	0.80	0.77	N/A	0.50	0.77	N/A	N/A	N/A	N/A

GENERAL INFORMATION

PROJECT NAME:	Bridgeport Harbor Station
PROJECT NO:	71312
DATE:	August 26, 2016

INTERSECTION INFORMATION

SURVEY DATE:		July 12, 2016		
INTERSECTION:	**STREET (E-W):**	Atlantic St		
	STREET (N-S):	Broad St		
SURVEY PERIOD:	**AM PEAK PERIOD**	6:00 AM	TO	8:00 AM
	PM PEAK PERIOD	4:30 PM	TO	6:30 PM

TRAFFIC VOLUMES

Time Period Begin	End	Eastbound Left	Thru	Right	Total	Westbound Left	Thru	Right	Total	Northbound Left	Thru	Right	Total	Southbound Left	Thru	Right	Total
AM PEAK PERIOD																	
6:00 AM	6:15 AM	3	9	0	12	0	0	0	0	0	3	0	3	5	6	0	11
6:15 AM	6:30 AM	1	4	2	7	0	0	0	0	0	7	0	7	0	7	0	7
6:30 AM	6:45 AM	1	4	2	7	0	0	0	0	0	6	0	6	0	7	0	7
6:45 AM	7:00 AM	3	5	1	9	0	0	0	0	0	6	0	6	5	8	0	13
7:00 AM	7:15 AM	1	4	1	6	0	0	0	0	0	5	1	6	5	6	0	11
7:15 AM	7:30 AM	3	5	1	9	0	0	0	0	0	5	1	6	6	7	0	13
7:30 AM	7:45 AM				0				0				0				0
7:45 AM	8:00 AM				0				0				0				0
Generalized AM Peak Hour Only																	
6:30 AM	6:45 AM	1	4	2	7	0	0	0	0	0	6	0	6	0	7	0	7
6:45 AM	7:00 AM	3	5	1	9	0	0	0	0	0	6	0	6	5	8	0	13
7:00 AM	7:15 AM	1	4	1	6	0	0	0	0	0	5	1	6	5	6	0	11
7:15 AM	7:30 AM	3	5	1	9	0	0	0	0	0	5	1	6	6	7	0	13
Peak Hour Total		8	18	5	31	0	0	0	0	0	22	2	24	16	28	0	44
Peak 15 Minute Vol		3	5	2	9	0	0	0	0	0	6	1	6	6	8	0	13
Calculated PHF		0.67	0.90	0.63	0.86	N/A	N/A	N/A	N/A	N/A	0.92	0.50	1.00	0.67	0.88	N/A	0.85
PM PEAK PERIOD																	
4:30 PM	4:45 PM	4	2	3	9	0	0	0	0	0	24	2	26	2	8	0	10
4:45 PM	5:00 PM	2	6	7	15	0	0	0	0	0	20	0	20	0	11	0	11
5:00 PM	5:15 PM	3	3	5	11	0	0	0	0	0	18	0	18	1	9	0	10
5:15 PM	5:30 PM	3	2	6	11	0	0	0	0	0	12	2	14	1	9	0	10
5:30 PM	5:45 PM	4	2	7	13	0	0	0	0	0	23	1	24	0	13	0	13
5:45 PM	6:00 PM	4	1	6	11	0	0	0	0	0	25	2	27	0	8	0	8
6:00 PM	6:15 PM	5	1	8	14	0	0	0	0	0	23	3	26	3	7	0	10
6:15 PM	6:30 PM	3	5	1	9	0	0	0	0	0	21	1	22	3	7	0	10
Generalized PM Peak Hour Only																	
5:30 PM	5:45 PM	4	2	7	13	0	0	0	0	0	23	1	24	0	13	0	13
5:45 PM	6:00 PM	4	1	6	11	0	0	0	0	0	25	2	27	0	8	0	8
6:00 PM	6:15 PM	5	1	8	14	0	0	0	0	0	23	3	26	3	7	0	10
6:15 PM	6:30 PM	3	5	1	9	0	0	0	0	0	21	1	22	3	7	0	10
Peak Hour Total		16	9	22	47	0	0	0	0	0	92	7	99	6	35	0	41
Peak 15 Minute Vol		5	5	8	14	0	0	0	0	0	25	3	27	3	13	0	13
Calculated PHF		0.80	0.45	0.69	0.84	N/A	N/A	N/A	N/A	N/A	0.92	0.58	0.92	0.50	0.67	N/A	0.79

GENERAL INFORMATION

PROJECT NAME:	Bridgeport Harbor Station
PROJECT NO:	71312
DATE:	August 26, 2016

INTERSECTION INFORMATION

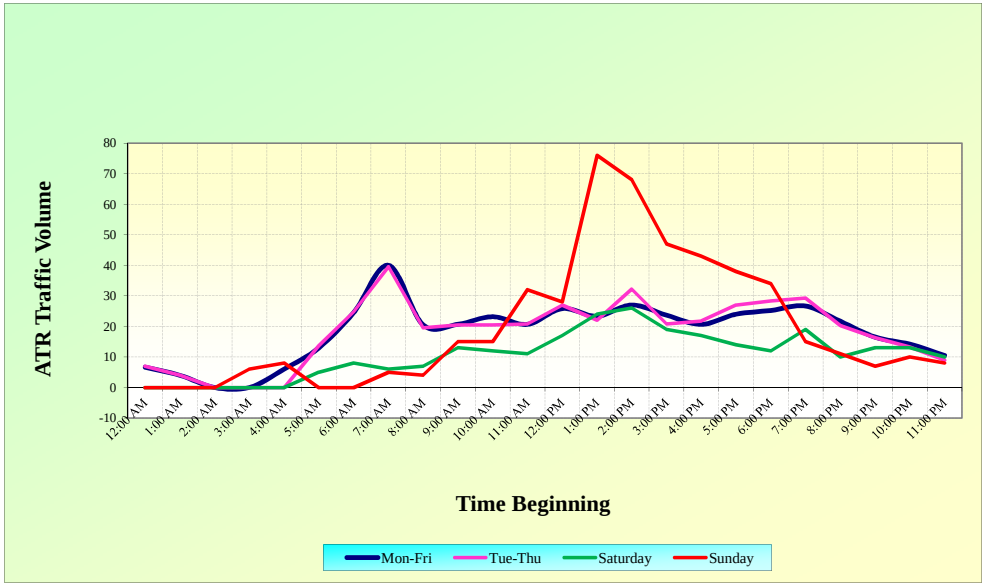
SURVEY DATE:		July 12, 2016			
INTERSECTION:	**STREET (E-W):**	Atlantic St			
	STREET (N-S):	Main St			
SURVEY PERIOD:	**AM PEAK PERIOD**	6:00 AM	TO	8:00 AM	
	PM PEAK PERIOD	4:30 PM	TO	6:30 PM	

TRAFFIC VOLUMES

Time Period Begin	End	Eastbound Left	Thru	Right	Total	Westbound Left	Thru	Right	Total	Northbound Left	Thru	Right	Total	Southbound Left	Thru	Right	Total
AM PEAK PERIOD																	
6:00 AM	6:15 AM	0	13	0	13	0	0	2	2	0	3	0	3	2	2	0	4
6:15 AM	6:30 AM	3	3	0	6	0	0	1	1	0	3	0	3	1	2	0	3
6:30 AM	6:45 AM	3	3	0	6	0	0	1	1	0	3	0	3	1	1	0	2
6:45 AM	7:00 AM	1	1	1	3	0	0	3	3	0	4	0	4	2	1	0	3
7:00 AM	7:15 AM	1	4	1	6	1	0	3	4	0	1	1	2	3	2	0	5
7:15 AM	7:30 AM	4	4	1	9	1	0	1	2	0	2	1	3	1	2	0	3
7:30 AM	7:45 AM				0				0				0				0
7:45 AM	8:00 AM				0				0				0				0
Generalized AM Peak Hour Only																	
6:30 AM	6:45 AM	3	3	0	6	0	0	1	1	0	3	0	3	1	1	0	2
6:45 AM	7:00 AM	1	1	1	3	0	0	3	3	0	4	0	4	2	1	0	3
7:00 AM	7:15 AM	1	4	1	6	1	0	3	4	0	1	1	2	3	2	0	5
7:15 AM	7:30 AM	4	4	1	9	1	0	1	2	0	2	1	3	1	2	0	3
Peak Hour Total		9	12	3	24	2	0	8	10	0	10	2	12	7	6	0	13
Peak 15 Minute Vol		4	4	1	9	1	0	3	4	0	4	1	4	3	2	0	5
Calculated PHF		0.56	0.75	0.75	0.67	0.50	N/A	0.67	0.63	N/A	0.63	0.50	0.75	0.58	0.75	N/A	0.65
PM PEAK PERIOD																	
4:30 PM	4:45 PM	4	1	1	6	0	0	1	1	0	8	0	8	1	1	0	2
4:45 PM	5:00 PM	3	1	0	4	0	0	10	10	0	2	0	2	1	2	0	3
5:00 PM	5:15 PM	1	1	6	8	1	0	5	6	0	6	0	6	0	3	0	3
5:15 PM	5:30 PM	1	1	4	6	1	0	0	1	0	6	0	6	1	3	0	4
5:30 PM	5:45 PM	4	1	0	5	0	0	1	1	0	5	0	5	2	3	0	5
5:45 PM	6:00 PM	1	5	1	7	1	0	0	1	0	1	1	2	1	4	0	5
6:00 PM	6:15 PM	1	4	1	6	2	0	6	8	0	1	1	2	3	1	0	4
6:15 PM	6:30 PM	2	3	3	8	2	0	4	6	0	1	1	2	0	1	0	1
Generalized PM Peak Hour Only																	
5:30 PM	5:45 PM	4	1	0	5	0	0	1	1	0	5	0	5	2	3	0	5
5:45 PM	6:00 PM	1	5	1	7	1	0	0	1	0	1	1	2	1	4	0	5
6:00 PM	6:15 PM	1	4	1	6	2	0	6	8	0	1	1	2	3	1	0	4
6:15 PM	6:30 PM	2	3	3	8	2	0	4	6	0	1	1	2	0	1	0	1
Peak Hour Total		8	13	5	26	5	0	11	16	0	8	3	11	6	9	0	15
Peak 15 Minute Vol		4	5	3	8	2	0	6	8	0	5	1	5	3	4	0	5
Calculated PHF		0.50	0.65	0.42	0.81	0.63	N/A	0.46	0.50	N/A	0.40	0.75	0.55	0.50	0.56	N/A	0.75

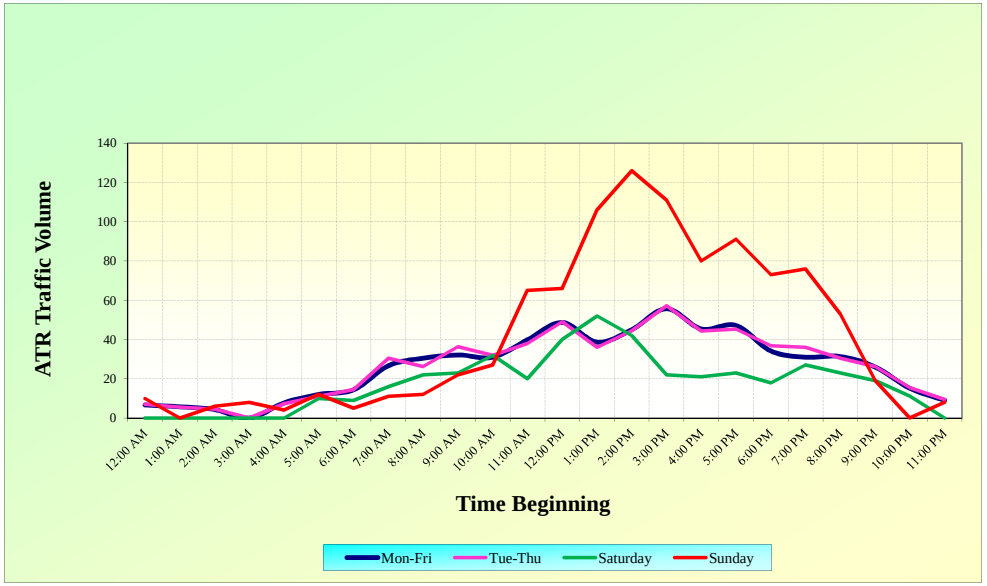
Rolling Peak Hour Summary									
AM (Begin)	Mon-Fri	Tue-Thu	Saturday	Sunday	PM (Begin)	Mon-Fri	Tue-Thu	Saturday	Sunday
12:00 AM	7	7	0	0	12:00 PM	26	27	17	28
12:15 AM	7	7	0	0	12:15 PM	26	27	19	27
12:30 AM	6	0	0	0	12:30 PM	28	28	27	38
12:45 AM	6	5	0	0	12:45 PM	25	24	24	69
1:00 AM	4	4	0	0	1:00 PM	23	22	24	76
1:15 AM	0	0	0	0	1:15 PM	25	24	27	90
1:30 AM	0	0	0	0	1:30 PM	22	23	25	86
1:45 AM	0	0	4	0	1:45 PM	25	28	27	64
2:00 AM	0	0	0	0	2:00 PM	27	32	26	68
2:15 AM	0	0	0	0	2:15 PM	25	28	23	55
2:30 AM	0	0	0	0	2:30 PM	26	27	17	55
2:45 AM	0	0	0	0	2:45 PM	25	24	18	58
3:00 AM	0	0	0	6	3:00 PM	24	21	19	47
3:15 AM	0	0	0	10	3:15 PM	23	22	17	50
3:30 AM	5	0	0	10	3:30 PM	21	21	20	53
3:45 AM	5	0	0	8	3:45 PM	22	23	17	41
4:00 AM	6	0	0	8	4:00 PM	21	22	17	43
4:15 AM	0	0	0	9	4:15 PM	21	21	17	35
4:30 AM	7	6	0	9	4:30 PM	23	24	18	33
4:45 AM	11	10	5	0	4:45 PM	23	26	18	39
5:00 AM	13	14	5	0	5:00 PM	24	27	14	38
5:15 AM	17	18	5	0	5:15 PM	24	27	12	43
5:30 AM	18	19	5	0	5:30 PM	23	28	9	37
5:45 AM	18	19	6	0	5:45 PM	24	28	11	35
6:00 AM	25	25	8	0	6:00 PM	25	28	12	34
6:15 AM	35	35	7	0	6:15 PM	28	32	15	29
6:30 AM	42	42	7	0	6:30 PM	29	34	16	22
6:45 AM	46	44	6	0	6:45 PM	27	29	13	22
7:00 AM	40	40	6	5	7:00 PM	27	29	19	15
7:15 AM	31	29	7	5	7:15 PM	25	27	17	14
7:30 AM	24	23	8	4	7:30 PM	26	24	17	15
7:45 AM	20	21	9	4	7:45 PM	25	25	17	8
8:00 AM	21	20	7	4	8:00 PM	22	20	10	11
8:15 AM	18	18	7	11	8:15 PM	22	20	11	12
8:30 AM	21	22	7	12	8:30 PM	19	19	11	11
8:45 AM	21	21	12	15	8:45 PM	19	20	12	10
9:00 AM	21	21	13	15	9:00 PM	17	16	13	7
9:15 AM	22	20	13	10	9:15 PM	16	15	14	4
9:30 AM	22	19	15	10	9:30 PM	15	14	13	4
9:45 AM	22	20	11	11	9:45 PM	15	13	13	5
10:00 AM	23	21	12	15	10:00 PM	14	13	13	10
10:15 AM	22	22	12	22	10:15 PM	13	13	12	11
10:30 AM	22	21	9	27	10:30 PM	11	10	10	12
10:45 AM	22	21	11	28	10:45 PM	11	11	11	12
11:00 AM	21	21	11	32	11:00 PM	11	9	10	8
11:15 AM	22	22	12	31					
11:30 AM	21	23	13	30	Day Total	438	437	256	470
11:45 AM	22	25	13	29					

ATLANTIC ST FR MAIN ST TO BROAD ST, EB - July 2016



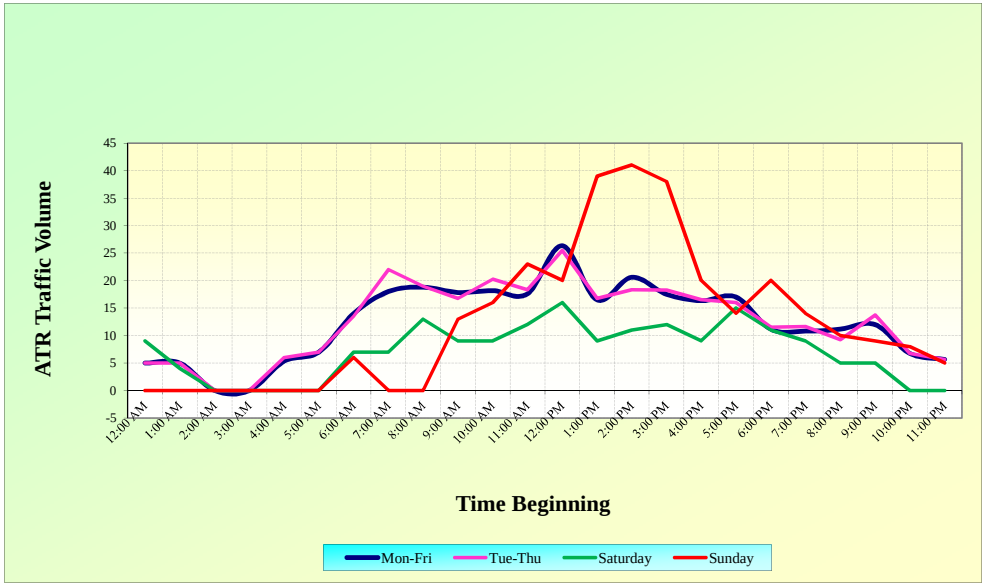
Rolling Peak Hour Summary									
AM (Begin)	Mon-Fri	Tue-Thu	Saturday	Sunday	PM (Begin)	Mon-Fri	Tue-Thu	Saturday	Sunday
12:00 AM	7	7	0	10	12:00 PM	49	49	40	66
12:15 AM	8	8	0	10	12:15 PM	42	42	43	70
12:30 AM	7	7	0	7	12:30 PM	42	38	49	86
12:45 AM	6	6	0	0	12:45 PM	40	36	47	98
1:00 AM	6	6	0	0	1:00 PM	39	36	52	106
1:15 AM	4	5	0	0	1:15 PM	37	34	46	110
1:30 AM	5	5	0	0	1:30 PM	34	31	41	115
1:45 AM	5	5	0	0	1:45 PM	42	42	47	116
2:00 AM	4	5	0	6	2:00 PM	45	45	42	126
2:15 AM	6	4	0	7	2:15 PM	46	47	39	133
2:30 AM	0	0	0	7	2:30 PM	51	53	33	132
2:45 AM	0	0	0	8	2:45 PM	53	53	20	122
3:00 AM	0	0	0	8	3:00 PM	56	57	22	111
3:15 AM	6	6	0	7	3:15 PM	62	63	20	104
3:30 AM	6	6	0	7	3:30 PM	58	57	21	97
3:45 AM	7	7	0	5	3:45 PM	48	48	21	93
4:00 AM	8	7	0	4	4:00 PM	45	44	21	80
4:15 AM	7	6	0	5	4:15 PM	41	38	25	80
4:30 AM	8	7	0	5	4:30 PM	44	42	28	78
4:45 AM	9	9	10	12	4:45 PM	48	46	29	83
5:00 AM	12	11	10	12	5:00 PM	47	45	23	91
5:15 AM	13	14	10	11	5:15 PM	43	44	17	81
5:30 AM	13	13	9	11	5:30 PM	42	43	20	72
5:45 AM	15	15	6	5	5:45 PM	36	40	18	74
6:00 AM	14	15	9	5	6:00 PM	34	37	18	73
6:15 AM	16	16	10	7	6:15 PM	36	40	20	76
6:30 AM	21	21	13	8	6:30 PM	32	37	17	79
6:45 AM	26	28	17	9	6:45 PM	31	36	24	77
7:00 AM	27	31	16	11	7:00 PM	31	36	27	76
7:15 AM	29	31	19	10	7:15 PM	30	33	33	83
7:30 AM	30	30	20	10	7:30 PM	32	34	32	79
7:45 AM	30	26	21	11	7:45 PM	32	34	26	66
8:00 AM	31	26	22	12	8:00 PM	31	31	23	53
8:15 AM	31	29	20	18	8:15 PM	30	31	18	35
8:30 AM	30	28	21	19	8:30 PM	27	27	16	25
8:45 AM	28	29	20	20	8:45 PM	28	29	18	19
9:00 AM	32	36	23	22	9:00 PM	26	26	19	19
9:15 AM	34	38	33	24	9:15 PM	22	22	17	0
9:30 AM	36	39	34	23	9:30 PM	21	23	14	0
9:45 AM	36	41	32	22	9:45 PM	16	18	12	0
10:00 AM	31	32	32	27	10:00 PM	15	16	11	0
10:15 AM	30	30	20	34	10:15 PM	13	13	12	13
10:30 AM	33	33	16	43	10:30 PM	10	10	0	13
10:45 AM	37	35	22	55	10:45 PM	9	9	0	11
11:00 AM	40	38	20	65	11:00 PM	9	10	0	8
11:15 AM	48	48	30	64					
11:30 AM	50	51	35	64	Day Total	638	644	430	991
11:45 AM	49	51	38	69					

MAIN ST FR WHITING ST TO ATLANTIC ST, NB - JULY 2016



Rolling Peak Hour Summary									
AM (Begin)	Mon-Fri	Tue-Thu	Saturday	Sunday	PM (Begin)	Mon-Fri	Tue-Thu	Saturday	Sunday
12:00 AM	5	5	9	0	12:00 PM	26	26	16	20
12:15 AM	5	5	9	0	12:15 PM	24	23	15	23
12:30 AM	5	5	6	0	12:30 PM	21	20	10	28
12:45 AM	5	5	4	0	12:45 PM	18	16	9	35
1:00 AM	5	5	4	0	1:00 PM	17	17	9	39
1:15 AM	5	5	4	0	1:15 PM	19	18	9	41
1:30 AM	0	0	0	0	1:30 PM	21	22	11	37
1:45 AM	0	0	0	0	1:45 PM	22	20	12	40
2:00 AM	0	0	0	0	2:00 PM	21	18	11	41
2:15 AM	0	0	0	0	2:15 PM	19	17	12	43
2:30 AM	7	0	0	0	2:30 PM	18	16	8	44
2:45 AM	0	0	0	0	2:45 PM	17	17	8	43
3:00 AM	0	0	0	0	3:00 PM	18	18	12	38
3:15 AM	5	0	0	0	3:15 PM	18	19	15	36
3:30 AM	5	0	0	0	3:30 PM	18	18	16	31
3:45 AM	6	6	0	0	3:45 PM	17	17	14	26
4:00 AM	5	6	0	0	4:00 PM	16	17	9	20
4:15 AM	5	5	0	0	4:15 PM	16	16	9	14
4:30 AM	6	6	0	0	4:30 PM	17	17	9	15
4:45 AM	5	4	0	0	4:45 PM	17	16	13	12
5:00 AM	7	7	0	0	5:00 PM	17	16	15	14
5:15 AM	9	10	0	0	5:15 PM	15	15	14	15
5:30 AM	11	11	0	7	5:30 PM	13	13	14	19
5:45 AM	14	14	0	4	5:45 PM	12	12	12	20
6:00 AM	14	14	7	6	6:00 PM	11	12	11	20
6:15 AM	14	13	8	6	6:15 PM	11	12	10	21
6:30 AM	16	16	8	7	6:30 PM	11	11	10	18
6:45 AM	16	17	8	0	6:45 PM	11	12	10	16
7:00 AM	18	22	7	0	7:00 PM	11	12	9	14
7:15 AM	18	23	8	0	7:15 PM	11	10	8	11
7:30 AM	17	21	10	0	7:30 PM	12	11	7	12
7:45 AM	20	23	10	0	7:45 PM	12	11	5	11
8:00 AM	19	19	13	0	8:00 PM	11	9	5	10
8:15 AM	19	18	11	0	8:15 PM	9	10	4	11
8:30 AM	19	19	8	10	8:30 PM	10	10	4	8
8:45 AM	18	17	9	15	8:45 PM	12	14	4	7
9:00 AM	18	17	9	13	9:00 PM	12	14	5	9
9:15 AM	17	17	10	14	9:15 PM	12	13	5	7
9:30 AM	17	17	13	13	9:30 PM	11	12	6	6
9:45 AM	16	17	11	9	9:45 PM	7	7	0	8
10:00 AM	18	20	9	16	10:00 PM	7	7	0	8
10:15 AM	17	20	8	21	10:15 PM	6	6	0	8
10:30 AM	17	19	8	28	10:30 PM	6	6	0	8
10:45 AM	18	20	9	28	10:45 PM	6	6	0	6
11:00 AM	18	18	12	23	11:00 PM	6	6	0	5
11:15 AM	20	21	13	19					
11:30 AM	23	23	17	15	Day Total	299	303	172	296
11:45 AM	25	26	18	16					

MAIN ST FR WHITING ST TO ATLANTIC ST, SB - July, 2016



2. PHYSICAL INVENTORIES

State of Connecticut
Department of Transportation

2015 Traffic Volumes
State Maintained Highway Network
(Traffic Log)

Prepared By
Division of Systems Information, Bureau of Policy and Planning
In Cooperation with U.S. Department of Transportation – Federal Highway Administration

PREFACE TO
THE 2015 TRAFFIC LOG

The Traffic Log lists the estimated average daily traffic volumes (ADT) for segments of highway where significant traffic volume changes occur. Town lines are shown for reference purposes.

The ADTs shown in this Traffic Log are estimates of the number of vehicles passing through the defined section of highway on an average day in 2015 for both directions of travel combined, except where a ramp serves as the main line of a route or where the highway, or a portion thereof, has been designated as one way.

In addition to the ADT and the length of the highway section to which it applies, the entry "OVLP" appears in the body of this log. The term "OVLP" means, "overlap" and is used to indicate that the ADT volumes will be found on the route being overlapped.

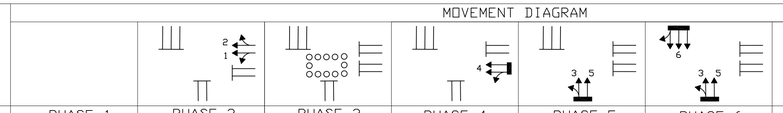
The ADTs shown should not be used for point-specific locations. Information regarding estimated ADTs for specific locations may be obtained by contacting the Traffic Monitoring and Data Analysis Section at (860) 594-2093.

ROUTE - 095 NEW YORK SL (GREENWICH) TO RHODE ISLAND SL (N STONINGTON)
LOGGED DIRECTION / N

FROM	Beg Cum Miles	Exit No	TO	End Cum Miles	Exit No	Section Length	2015 ADT
NB EXIT TO CENTER ST(065)	22.74	019	NB ACC FR US 1(066)	23.36		0.62	121100
NB ACC FR US 1(066)	23.36		NB ACC FR BRONSON RD(068)	23.85		0.49	134100
NB ACC FR BRONSON RD(068)	23.85		NB EXIT TO MILL PLAIN RD(070)	24.22	021	0.37	139000
NB EXIT TO MILL PLAIN RD(070)	24.22	021	NB ACC FR MILL PLAIN RD(072)	24.53		0.31	134800
NB ACC FR MILL PLAIN RD(072)	24.53		NB EXIT TO ROUND HILL RD(291)	24.69	022	0.16	141900
NB EXIT TO ROUND HILL RD(291)	24.69	022	NB ACC FR SERVICE AREA	25.07		0.38	130600
NB ACC FR SERVICE AREA	25.07		NB ACC FR RTE 135(NO BNSN RD)(074)	25.35		0.28	136800
NB ACC FR RTE 135(NO BNSN RD)(074)	25.35		NB EXIT TO US 1(077)	25.72	023	0.37	146200
NB EXIT TO US 1(077)	25.72	023	NB ACC FR US 1(079)	25.95		0.23	142600
NB ACC FR US 1(079)	25.95		NB EXIT TO US 1(080)	26.42	024	0.47	146900
NB EXIT TO US 1(080)	26.42	024	NB ACC FR JOHNSON DR(083)	27.00		0.58	133400
NB ACC FR JOHNSON DR(083)	27.00		NB EXIT TO COOLIDGE ST(084)	27.08	025	0.08	147900
NB EXIT TO COOLIDGE ST(084)	27.08	025	SB ACC FR COMMERCE DR(085)	27.30		0.22	143800
SB ACC FR COMMERCE DR(085)	27.30		FAIRFIELD - BRIDGEPORT TL	27.33		0.03	139600
FAIRFIELD - BRIDGEPORT TL	27.33		NB ACC FR PINE ST #1(086)	27.83		0.50	139600
NB ACC FR PINE ST #1(086)	27.83		NB EXIT TO WORDIN AVE #2(089)	28.13		0.30	157500
NB EXIT TO WORDIN AVE #2(089)	28.13		NB ACC FR WORDIN AVE #2(090)	28.48		0.35	152500
NB ACC FR WORDIN AVE #2(090)	28.48		NB EXIT TO MYRTLE AVE #1(344)	28.86	027	0.38	161300
NB EXIT TO MYRTLE AVE #1(344)	28.86	027	NB-JCT RTE 8 & 25	29.04	027A	0.18	141700
NB-JCT RTE 8 & 25	29.04	027A	NB ACC FR RTE 8 SB(TR 806)	29.48		0.44	123400
NB ACC FR RTE 8 SB(TR 806)	29.48		NB EXIT TO RTE 127(E MAIN ST)(092)	29.70	028	0.22	154900
NB EXIT TO RTE 127(E MAIN ST)(092)	29.70	028	NB EXIT TO SEAVIEW AVE(357)	30.19	029	0.49	146100
NB EXIT TO SEAVIEW AVE(357)	30.19	029	NB ACC FR SEAVIEW AVE(358)	30.57		0.38	129300
NB ACC FR SEAVIEW AVE(358)	30.57		NB EXIT TO RTE 113(101)	30.94	030	0.37	137300
NB EXIT TO RTE 113(101)	30.94	030	BRIDGEPORT - STRATFORD TL	31.11		0.17	116000
BRIDGEPORT - STRATFORD TL	31.11		NB ACC FR SURF AVE(102)	31.41		0.30	116000
NB ACC FR SURF AVE(102)	31.41		NB EXIT TO HONEYSPOT RD(104)	31.95	031	0.54	122800
NB EXIT TO HONEYSPOT RD(104)	31.95	031	NB ACC FR SOUTH AVE #1(106)	32.42		0.47	115700
NB ACC FR SOUTH AVE #1(106)	32.42		NB EXIT TO BEARDSLEY AVE(108)	32.71	032	0.29	125600
NB EXIT TO BEARDSLEY AVE(108)	32.71	032	NB ACC FR W BROAD ST(110)	33.00		0.29	112500
NB ACC FR W BROAD ST(110)	33.00		NB EXIT TO RTE 130 EB(112)	33.70	033	0.70	122600
NB EXIT TO RTE 130 EB(112)	33.70	033	STRATFORD - MILFORD TL	34.54		0.84	110700
STRATFORD - MILFORD TL	34.54		NB EXIT TO US 1	35.29	034	0.75	110700
NB EXIT TO US 1	35.29	034	NB ACC FR US 1	35.53		0.24	120300

3. ConnDOT Traffic Signal Timing Plans

MOVEMENT DIAGRAM



NTOR		PHASE 1			PHASE 2			PHASE 3			PHASE 4			PHASE 5			PHASE 6			PHASE 7			PHASE 8		
	FLASH	GRN	CL	CL	GRN	CL	CL	GRN	CL	CL	GRN	CL	CL	GRN	CL	CL	GRN	CL	CL	GRN	CL	CL	GRN	CL	CL
1	Y				← G	Y	R	R	R	R	R	R	R	R	R	R	R	R	R						
2	Y				G →	Y	R	R	R	R	R	R	R	R	R	R	R	R	R						
3	R				R	R	R	R	R	R	R	R	R	G ←	G ←	G	G	Y	R						
4	R				R	R	R	R	R	R	G	Y	R	R	R	R	R	R	R						
5	R				R	R	R	R	R	R	R	R	R	G	G	G	G	Y	R						
6	R				R	R	R	R	R	R	R	R	R	R	R	R	G	Y	R						
P	OFF				← DW →			WØ			← DW →														
					← YIELD PT. →																				
MIN.					10	3	2	25	0. 1	0	5	3	2	5	3	0	5	3	2						
MAX.					40	5	5	27	0. 1	0	30	5	5	30	5	2	30	5	5						
MIN GRN					15						9			5			9								
WALK								7																	
PED CLR								18																	
VEH EXT					3						2			2			2								
MAX 1					24						14			9			15								
MAX 2					24						14			9			15								
YELLOW						3			0. 1			3			3			3							
RED							2			0			2			0. 1			2						
ADD INIT																									
MAX INIT																									
TBR																									
TTR																									
MIN GAP																									
MODE		OFF			MAX. RECALL			NON-LOCK			LOCK			LOCK			LOCK			OFF			OFF		
INI START					THIS PHASE																				

DETECTORS

IDENT	SIZE (WXL)	TURNS	MODE
D4	MICROWAVE		PULSE
D5	MICROWAVE		PULSE
D6	1. 8 X 1. 8	4	PRESENCE
D6A	1. 8 X 1. 8	4	PRESENCE
D6B	1. 8 X 1. 8	4	PRESENCE
SD1	1. 8 X 1. 8	4	PRESENCE
SD2	1. 8 X 1. 8	4	PRESENCE
SD3	1. 8 X 1. 8	4	PRESENCE
SD4	1. 8 X 1. 8	4	PRESENCE
SD5	1. 8 X 1. 8	4	PRESENCE
SD6	1. 8 X 1. 8	4	PRESENCE
SD7	1. 8 X 1. 8	4	PRESENCE

PROGRAM

FUNCTION	TIME	DAYS
FLASH	FUTURE	
MAX. 1	ALL OTHER TIMES	
MAX. 2	FUTURE	
PATTERN 2	ALL OTHER TIMES	

COORDINATION TYPE- CLOSED LOOP

CYCLE	PHASE SPLITS SEC/%								OFFSET		PERMISSIVE PERIOD	
	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8	SEC	%	Ø	SEC
70		24/34	25/36	19/27	12/17	15/21			31	45		

SYSTEM LOC	TECHNICAL NOTES
MASTER	STANDARD OVERLAP SKIP FEATURES APPLY
CITY HALL	TIMINGS SHOWN INDICATE FREE OPERATION.
015-228	ACTUAL TIMING TO BE DETERMINED BY CLOSED
015-257	LOOP SYSTEM TIMING PLAN.
015-277	ARTERY DETECTORS TO BE INOPERATIVE DURING
015-279	COORDINATION.
015-266	PHASE 6 TO ALWAYS FOLLOW PHASE 5.
	PHASE 4 TO ALWAYS FOLLOW PHASE 3.

ENERGY BY- TOWN | METER # - | INTERSECTION #015-257

MAINT 24hr ☐ Norm ☒ | SERVICE POLE-U1 MH #744

METERED SERVICE

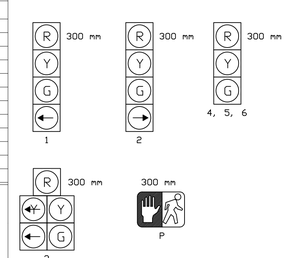
OFFICE RECORD

REVISION # 4

STC #	SM #
SIGNAL REVISED UNDER STATE PROJECT #15-271	
INSTALLED ALL NEW EQUIPMENT.	
TRANSFERRED OWNERSHIP TO TOWN.	

SIGNAL FACES

ALL INDICATIONS TO HAVE LED LAMPS.



TOWN SIGNAL

LEGEND

R RED	PROPOSED CONTROLLER
Y YELLOW	EXISTING CONTROLLER
G GREEN	PROPOSED HANDHOLE
RED ARROW	EXISTING HANDHOLE
YELLOW ARROW	PROPOSED (R.M.C.) RIGID METAL CONDUIT
GREEN ARROW	CABLE CLOSURE
WALK/ FL. D. W.	DET. LEADS IN SAW CUT
D. W. DON'T WALK	AUXILIARY TERMINATION CABINET
FL. FLASHING	OPTICAL DETECTOR
PROPOSED WOOD SPAN POLE	MICROWAVE DETECTOR
EXISTING WOOD SPAN POLE	AUXILIARY EQUIPMENT CABINET
PROPOSED STEEL SPAN POLE	PROPOSED COMB. SPAN POLE
EXISTING STEEL SPAN POLE	EXISTING COMB. SPAN POLE
PROPOSED LUMINAIRE	
EXISTING LUMINAIRE	
PROPOSED UTILITY POLE	
EXISTING UTILITY POLE	
PEDESTAL MOUNTING	
PEDESTRIAN PUSH BUTTON & SIGN	
TRAFFIC SIGNAL FACE	
PEDESTRIAN SIGNAL FACE	
LOOP DETECTOR	

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION
BUR. OF ENGINEERING & HWY OPERATIONS
DIVISION OF TRAFFIC ENGINEERING

TRAFFIC CONTROL SIGNAL

CITY OF BRIDGEPORT
SOUTH AVENUE, NORTH FRONTAGE ROAD
I-95 OFF RAMP AND LAFAYETTE STREET

REV. # 4	TRAFFIC		ELECTRICAL	
		DATE		DATE
FIELD SURVEY				
ENGINEER	VN ENGINEERS, INC. 9/1/97			
DRAFTER				
CHECKED BY				
SUBMITTED BY				
APPROVED BY				
DATE				

F. H. W. A. REGION NO.	STATE	TOWN	FED. AID PROJ. NO.	PROJ. NO	YEAR	ROUTE NO.	SHEET NO.	TOTAL SHEETS
1	CONN.	BRIDGEPORT	STPA-95-1(152)	29 15-271	1998	I - 95	174-1	631

CONSTRUCTION NOTES

1. CALL BEFORE YOU DIG, 1-800-922-4455.
2. ALL TRAFFIC SIGNAL EQUIPMENT IS NEW.
3. STAKE ALL R. O. W. PRIOR TO EXCAVATION.
4. FOUR WEEKS PRIOR TO INSTALLATION CONTACT:
   UNITED ILLUMINATING COMPANY REPRESENTATIVE: KATHLEEN KIJAK (203) 499-2428
   S. N. E. T. REPRESENTATIVE: ROBERT BOUFFARD (203) 238-5620
5. INSTALL HANDHOLES APPROX. 0. 3m BEHIND CURB OR EDGE OF ROAD, UNLESS OTHERWISE SPECIFIED.
6. ALL HANDHOLES ARE TYPE II, UNLESS OTHERWISE NOTED.
7. HANDHOLES ARE TO BE SPACED NO MORE THAN 45. 0m APART.
8. NO SPLICES IN INTERCONNECT CABLE. (SEE INTERCONNECT INDEX PLAN)
9. REPLACE ENTIRE SECTION OF SIDEWALK DAMAGED DUE TO INSTALLATION OF CONDUIT, HANDHOLE OR FOUNDATION.
10. PLACE ALL ADJACENT ROAD CROSSING CONDUITS IN COMMON TRENCH.
11. REMOVE ALL ABANDONED TRAFFIC SIGNAL EQUIPMENT INCLUDING, BUT NOT LIMITED TO FOUNDATIONS, HANDHOLES, CONDUIT RISERS & CABLE, MESSENGER & INTERCONNECT, STEEL POLES, AND WOOD POLES.
12. CONTROLLER CABINET DOOR TO OPEN PERPENDICULAR TO THE STREET.
13. INSTALL EIGHT PHASE, FULLY ACTUATED, TYPE 170E CONTROLLER, IN A TYPE 336S CABINET WITH A TYPE "M" ADAPTER ON A 750mm x 750mm FOUNDATION.
14. ALL NEW PEDESTRIAN APPURTENANCES SHALL CONFORM TO ADA REQUIREMENTS.
15. VEHICLE DETECTORS TO BE POSITIONED BY MANUFACTURER. MICROWAVE DETECTOR ANGLE OF INSTALLATION TO BE FIELD ADJUSTED TO PROVIDE AN AREA OF DETECTION AS SHOWN IN THE MICROWAVE DETECTION AREA DIAGRAM.
16. INSTALL SYSTEM DETECTORS IN CENTER OF LANE. CONTRACTOR TO FIELD LOCATE DETECTORS PRIOR TO INSTALLATION TO AVOID DAMAGED PAVEMENT.
17. ALL EXISTING TRAFFIC SIGNAL EQUIPMENT WHICH IS REMOVED REMAINS THE PROPERTY OF THE CITY OF BRIDGEPORT. CONTACT MR. DANIEL SULLIVAN (203) 576-8391 AT D. P. W. 55 CONGRESS STREET TO COORDINATE THE RETURN OF EQUIPMENT.
18. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY CITY PERMITS INCLUDING BUT NOT LIMITED TO: SIDEWALKS, CURBS AND ROAD OPENINGS PRIOR TO ANY EXCAVATIONS.

Ⓥ INSTALL 2800 ALUMINUM PEDESTAL WITH SIGNAL FACES AT BACK EDGE OF WALK AND WITHIN R. O. W.

Ⓦ 750 X 750 HANDHOLE.

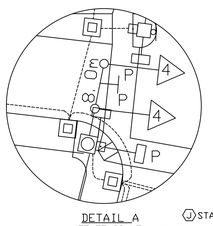
REV. # 4 | INTERSECTION #015-257

SIGN LEGEND

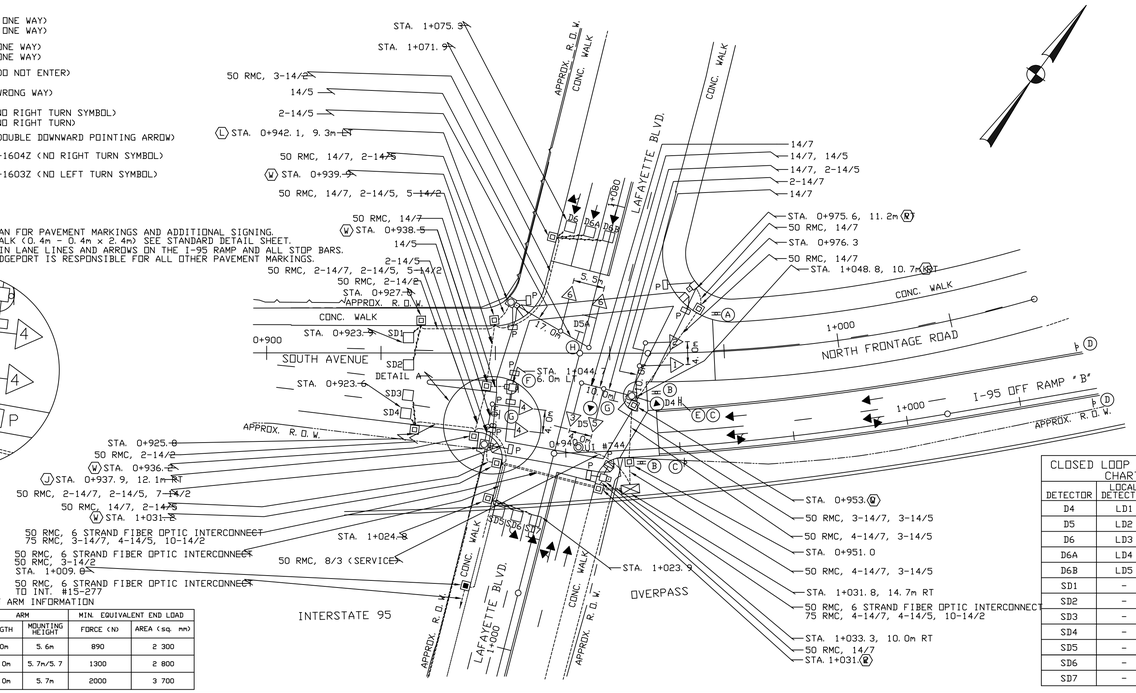
- Ⓐ ERECT 31-0077Z (ONE WAY) ERECT 31-0088Z (ONE WAY)
- Ⓑ ERECT 31-0077 (ONE WAY) ERECT 31-0088 (ONE WAY)
- Ⓒ ERECT 31-0509 (DO NOT ENTER)
- Ⓓ ERECT 31-0512 (WRONG WAY)
- Ⓔ ERECT 31-0517 (NO RIGHT TURN SYMBOL) ERECT 31-0518 (NO RIGHT TURN)
- Ⓕ ERECT 41-4212 (DOUBLE DOWNWARD POINTING ARROW)
- Ⓖ MAST ARM MTD 31-1604Z (NO RIGHT TURN SYMBOL)
- Ⓗ MAST ARM MTD 31-1603Z (NO LEFT TURN SYMBOL)

NOTES

SEE SEPARATE PLAN FOR PAVEMENT MARKINGS AND ADDITIONAL SIGNING.
BAR TYPE CROSSWALK (0. 4m - 0. 4m x 2. 4m) SEE STANDARD DETAIL SHEET.
STATE TO MAINTAIN LANE LINES AND ARROWS ON THE I-95 RAMP AND ALL STOP BARS.
THE CITY OF BRIDGEPORT IS RESPONSIBLE FOR ALL OTHER PAVEMENT MARKINGS.



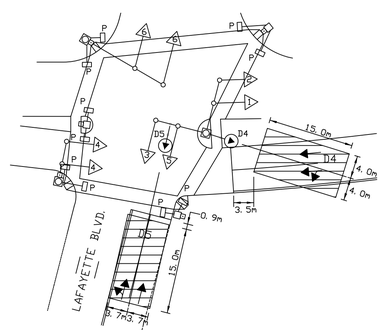
DETAIL A
NOT TO SCALE



MAST ARM INFORMATION

	SHAFT		ARM		MIN. EQUIVALENT END LOAD	
	LENGTH	B. C.	LENGTH	MOUNTING HEIGHT	FORCE (N)	AREA (sq. mm)
Ⓙ	6. 0m	460	8. 0m	5. 6m	890	≥ 300
Ⓚ	6. 0m	510	10. 0m	5. 7m/5. 7	1300	≥ 800
Ⓛ	6. 0m	560	17. 0m	5. 7m	2000	≥ 700

CLOSED LOOP DETECTOR CHART		
DETECTOR	LOCAL DETECTOR	SYSTEM DETECTOR
D4	LD1	-
D5	LD2	-
D6	LD3	-
D6A	LD4	-
D6B	LD5	-
SD1	-	SD1
SD2	-	SD2
SD3	-	SD3
SD4	-	SD4
SD5	-	SD5
SD6	-	SD6
SD7	-	SD7



MICROWAVE DETECTION AREAS

TOWN SIGNAL

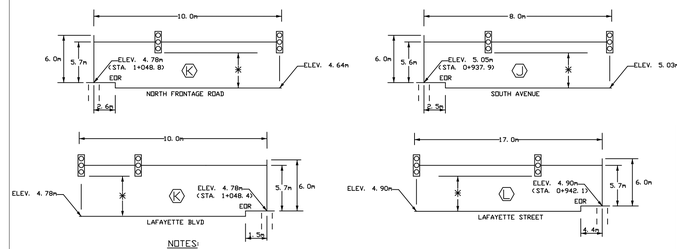
STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION
BUR. OF ENGINEERING & HWY. OPERATIONS
DIVISION OF TRAFFIC ENGINEERING

TRAFFIC CONTROL SIGNAL LAYOUT

CITY OF BRIDGEPORT
SOUTH AVENUE, NORTH FRONTAGE ROAD
I-95 OFF RAMP AND LAFAYETTE STREET

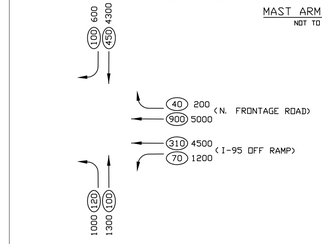
SCALE 1: 500 METRIC

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED.



NOTES:
* DISTANCE BETWEEN ROAD AND SIGNAL HEAD SHALL BE 4. 9 TO 5. 5 METERS.
CROSS SECTIONS ARE IN LINE WITH MAST ARM.
CONTRACTOR TO VERIFY MAST ARM INFORMATION PRIOR TO ORDERING MAST ARMS.

MAST ARM DETAILS
NOT TO SCALE



TRAFFIC VOLUME DIAGRAM

TRAFFIC YEAR 2015

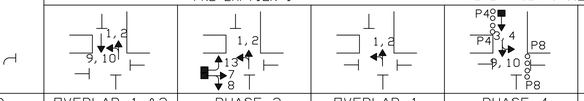
000 AM PEAK (NOT AVAILABLE)
000 PM PEAK
000 ADT

ADDENDUM NO. 2

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & HIGHWAY OPERATIONS
DIVISION OF TRAFFIC ENGINEERING

TRAFFIC CONTROL SIGNAL

REV. # 4 INTERSECTION #015-257

	PRE-EMPTION 1	PRE-EMPTION 3 MOVEMENT DIAGRAM	PRE-EMPTION 2	PRE-EMPTION 4
				
NTOR	OVERLAP 1 &2	PHASE 2	OVERLAP 1	PHASE 4	PHASE 5	PHASE 6	OVERLAP 2	PHASE 8

FACE #		FLASH	GRN	CL	CL	GRN	CL	CL	GRN	CL	CL	GRN	CL	CL	GRN	CL	CL	GRN	CL	CL	GRN	CL	CL	GRN	CL	CL
	1,2	R	G		G	G		G	G		G		G	R		R			G		G	R		R	G		G
	3,4	R	R		R	R		R	R		R		R	G		Y			R		R	R		R	R		R
	5,6	R	R		R	R		R	R		R		R	R		R			R		R	R		R	G		Y
	7,8,13	R	R		R	G		Y	R		R		R	R		R			R		R	R		R	R		R
	9,10	R	G		Y	R		R	R		R		R	G		G			R		R	G		Y	R		R
	11,12	R	R		R	R		R	R		R		R	R		R			G		Y	R		R	R		R
	P6	OFF	←						DW	→									WØ	←			DW	→			
	P4,P8	OFF	←						DW	→		WØ	←	DW	→				←			DW	→		WØ	←	DW	→
	MIN.		1	2	1	5	2	1	1	1	1	5	2	1				3	2	2	1	2	1	5	2	1
	MAX.		15	5	5	90			15	5	5	90	5	5				90	5	5	15	15	5	90	5	5

INTERVALS																										
	MIN GRN	3			8			3			9						13			3			9		
	WALK				4												4						6		
	PED CLR				4												4						4		
	VEH EXT				2						2						2						2		
	MAX 1				10			3			10						15			3			10		
	MAX 2				10			3			10						15			3			10		
	YELLOW		3			3			3			3							3			3			3	
	RED			1			2			1			2					2			1			2		
	ADD INI																									
	MAX INT																									
	TBR																									
	TTR																									
	MIN GAP																									
MODE			NON-LOCK			MAX. RECALL			NON-LOCK			NON-LOCK			OFF						NON-LOCK					
INI START						THIS PHASE																				

DETECTORS			
IDENT	SIZE (WXL)	TURNS	MODE
D2	1.8 x 2.4	3	PRES.
D4	1.8 x 2.4	3	PRES.
D4A	1.8 x 2.4	3	PRES.
D6	1.8 x 2.4	3	PRES.
D8	1.8 x 2.4	3	PRES.
D8A	1.8 x 2.4	3	PRES.
SD1	1.8 x 4.8	3	PRES.
SD2	1.8 x 2.4	3	PRES.

PROGRAM		
FUNCTION	TIME	DAYS
FREE	ALL TIMES	DAILY
MAX 1	ALL TIMES	
MAX 2	FUTURE	

COORDINATION TYPE-														PERMISSIVE PERIOD		SYSTEM LOC
	PHASE SPLITS %/SEC								OFFSET							
CYCLE	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8	SEC	%	Ø	SEC	MASTER

TECHNICAL NOTES
STANDARD OVERLAP SKIP FEATURES APPLY
OVERLAP 1, 2, AND 1 & 2 SHALL BE EXTENDED 3 SECONDS BEYOND THEIR PARENT GREEN TIME
PHASES
CONTROLLER TYPE SHALL BE 170 SERIES
① PERMISSIVE PERIOD 1 TO BE ASSIGNED TO Ø4, /O4P/ O8, O8P.
② PERMISSIVE PERIOD 2 TO BE ASSIGNED TO Ø6, /O6P.

ENERGY BY- CITY | METER # - | INTERSECTION# NONE

MAINT LEVEL NORMAL | SERVICE POLE- UI # 2657

SIGNAL FACES

P4, P6, P8 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13

ALL INDICATIONS TO HAVE LED LAMPS

INSTALL BACK PLATE ON SIGNAL HEADS 8, 11, 12, 13.

OFFICE RECORD

STC #	SM #

PRE-EMPTION TABLE				
	1	2	3	4
PRIORITY	NO	NO	NO	NO
DET LOCK	YES	YES	YES	YES
DELAY	0	0	0	0
ALT MIN GRN	5	5	5	5
ALT MIN YELLOW	PARENT	PARENT	PARENT	PARENT
ALT RED	PARENT	PARENT	PARENT	PARENT
ALT PED CLR	NO	NO	NO	NO
HOLD GREEN	2.5	2.5	2.5	2.5
HOLD YELLOW	3.0	3.0	3.0	3.0
HOLD RED	2.0	2.0	2.0	2.0
HOLD PHASE	2		4	8
EXIT PHASE	6	NONE	NONE	NONE
EXIT CALL	NONE	NONE	NONE	NONE

TOWN SIGNAL

LEGEND

R RED
Y YELLOW
G GREEN
RED ARROW
YELLOW ARROW
GREEN ARROW
WØ WALK/ FL. D.W.
D.W. DON'T WALK
FL. FLASHING
PROPOSED WOOD SPAN POLE
EXISTING WOOD SPAN POLE
PROPOSED STEEL SPAN POLE
EXISTING STEEL SPAN POLE
PROPOSED UTILITY POLE
EXISTING UTILITY POLE
PEDESTAL MOUNTING
PEDESTRIAN PUSH BUTTON & SIGN
TRAFFIC SIGNAL FACE
PEDESTRIAN SIGNAL FACE
LOOP DETECTOR
MAGNETIC DETECTOR
SD SYSTEM DETECTOR
OPTICAL DETECTOR
PROPOSED CONTROLLER
EXISTING CONTROLLER
PROPOSED HANDHOLE
EXISTING HANDHOLE
PROPOSED (R.M.C.) RIGID METALCONDUIT
EXISTING (R.M.C.) RIGID METALCONDUIT
CABLE CLOSURE DET. LEADS IN SAW CUT
AUXILIARY TERMINATION CABINET
AUXILIARY EQUIPMENT CABINET
AUDIBLE PEDESTRIAN SIGNAL

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION
BUR. OF ENGINEERING & HWY. OPERATIONS
DIVISION OF TRAFFIC ENGINEERING

TRAFFIC CONTROL SIGNAL

CITY OF BRIDGEPORT
RAILROAD AVE. AT BROAD ST.

REV #	TRAFFIC	DATE	ELECTRICAL	DATE
ENGINEER				
DRAFTER				
CHECKED BY				
SUBMITTED BY				
APPROVED BY				
DATE				

F. H. W. A. REGION NO	STATE	TOWN	FED. AID PROJ. NO.	PROJ. NO	YEAR	ROUTE NO.	SHEET NO.	TOTAL SHEETS
1	CONN.	BRIDGEPORT	STPA-95-1(149)28 STPA-95-1(150)28	15-268/269	2000	I-95	195-13	787

CONSTRUCTION NOTES

STAKE ALL R. O. W. PRIOR TO EXCAVATION

ALL EQUIPMENT SHALL BE NEW.

REMOVE ALL ABANDONED TRAFFIC SIGNAL EQUIPMENT INCLUDING BUT NOT LIMITED TO FOUNDATIONS, HANDHOLES, CONDUIT RISERS & CABLE, STEEL POLES, AND WOOD POLES.

ELECTRIC SERVICE TO BE METERED WITH METER MOUNTED ON THE SIDE OF THE CONTROLLER CABINET AND APPROVED BY UNITED ILLUMINATING (UI).

ANCHOR BOLTS FOR THE FOUNDATIONS SHALL BE SET SQUARE TO THE MAST ARM SUCH THAT TWO BOLTS ARE IN TENSION AND TWO BOLTS ARE IN COMPRESSION.

INSTALL CONCRETE SIDEWALK ON CABINET DOOR SIDES OF CONTROLLER FOUNDATION. CABINET DOOR TO OPEN ON FIELD SIDE. CABINET DOORS TO OPEN PERPENDICULAR TO STREET.

INSTALL LOOP DETECTORS IN BASE COURSE OR EXISTING PAVEMENT. SEGMENTED LOOPS TO BE SPLICED IN SERIES.

LOOP DETECTORS TO BE INSTALLED 0.9m FROM THE EDGE OF THE ROAD AND 2.4m APART UNLESS OTHERWISE NOTED.

INSTALL RMC STAND-OFFS ON ALL UTILITY POLES.

ALL HANDHOLES ARE 760x760. INSTALL HANDHOLES APPROX. 340mm BEHIND CURBS, EDGE OF ROADWAY, OR EDGE OF SIDEWALK UNLESS OTHERWISE SPECIFIED.

ALL HANDHOLES TO HAVE CAST IRON COVERS.

INSTALL CONTROLLER AND MAST ARM FOUNDATIONS WITHIN R. O. W. BEHIND SIDEWALK EDGE FARTHEST FROM ROADWAY.

ALL TRAFFIC SIGNAL HEADS WILL BE FIXED MOUNTED ON THE MAST ARM.

ALL MAST ARM MOUNTED SIGNS TO BE FIXED TO THE ARM.

CONTRACTOR SHALL COORDINATE SIGNAL INSTALLATION WITH THE FOLLOWING UTILITY COMPANIES:
- CABLEVISION OF CONNECTICUT AT 203-696-4765
- S. N. E. T. AT 203-238-5620
- BRIDGEPORT HYDRAULIC COMPANY AT 203-337-5905
- AT&T AT 203-269-2567
- UNITED ILLUMINATING AT 203-926-4664
- SOUTHERN CONNECTICUT GAS COMPANY AT 203-382-8111

THE CONTRACTOR SHALL INSTALL ALL PAVEMENT MARKINGS AS SHOWN ON PLAN.

THE CONTRACTOR SHALL INSTALL VIBRATING ARROWS ON ALL PEDESTRIAN SIGNALS. ARROWS TO BE POSITIONED PARALLEL TO CROSSWALK.

INSTALL OPTICAL PREEMPTION EQUIPMENT

CONSTRUCT TYPE I AND PARALLEL TYPE SIDEWALK RAMPS AT LOCATIONS SHOWN ON THE PLANS AND PER SPECIAL PROVISIONS.

EXISTING TRAFFIC SIGNAL EQUIPMENT TO BE REMOVED, AS NOTED IN THE SPECIAL PROVISIONS, SHALL BE RETURNED TO THE CITY OF BRIDGEPORT, DEPARTMENT OF PUBLIC FACILITIES

THE CONTRACTOR SHALL TELEPHONE DANIEL E. SULLIVAN OF THE CITY OF BRIDGEPORT, MAINTENANCE DEPARTMENT AT (203) 576-7751 PRIOR TO ANY EXCAVATION.

THE CONTRACTOR SHALL TELEPHONE 'CALL BEFORE YOU DIG', PRIOR TO ANY EXCAVATION.

ALL SIGNS REMOVED DURING CONSTRUCTION SHALL BE REPLACED IN KIND UNLESS OTHERWISE NOTED.

EACH PROPOSED FOUNDATION SHOWN CONTIGUOUS WITH THE STREET LINE SHALL NOT BE PLACED CLOSER THAN SIX INCHES TO THE STREET LINE.

INSTALL SYSTEM DETECTORS IN CENTER OF LANE. CONTRACTOR TO FIELD LOCATE DETECTORS PER CITY TRAFFIC ENGINEER APPROVAL PRIOR TO INSTALLATION TO AVOID DAMAGED PAVEMENT.

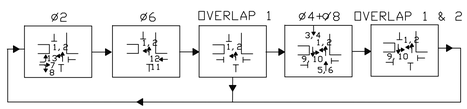
THE CONTRACTOR SHALL PROVIDE 3m OF SLACK FOR ALL CABLES INSIDE HANDHOLES AND SHALL TAG AND IDENTIFY CABLES ACCORDINGLY.

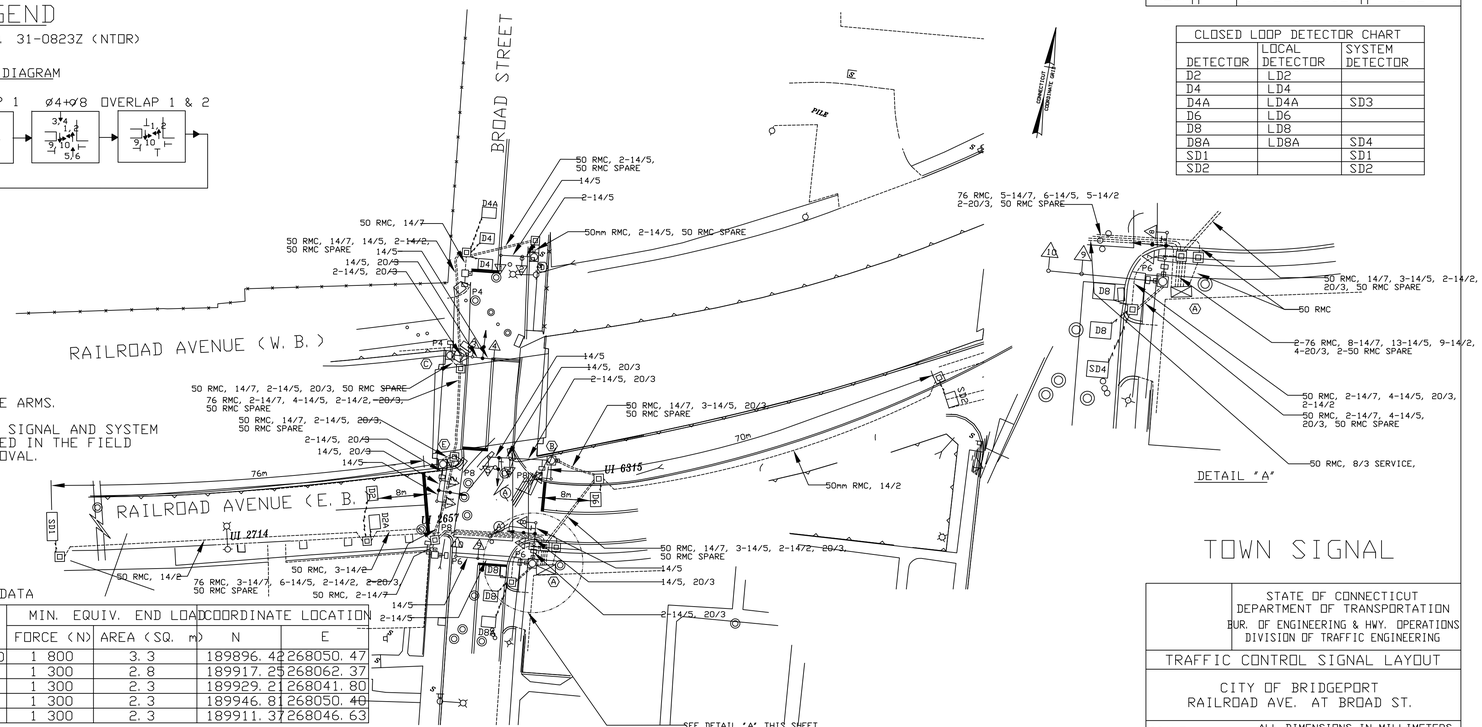
REV. # | INTERSECTION# NONE

SIGN LEGEND

(A) MAST ARM MTD. 31-0823Z (NTOR)

SEQUENCING DIAGRAM





DETAIL 'A'

NOTES:
1. ALL MAST ARMS TO BE ADJUSTABLE ARMS.
2. PROPOSED MAST ARM, PEDESTRIAN SIGNAL AND SYSTEM DETECTOR LOCATIONS TO BE LOCATED IN THE FIELD PER CITY TRAFFIC ENGINEER APPROVAL.

CLOSED LOOP DETECTOR CHART		
DETECTOR	LOCAL DETECTOR	SYSTEM DETECTOR
D2	LD2	
D4	LD4	
D4A	LD4A	SD3
D6	LD6	
D8	LD8	
D8A	LD8A	SD4
SD1		SD1
SD2		SD2

MAST ARM ASSEMBLY DATA

MAST ARM	SHAFT LENGTH	SHAFT BOLT CIRCLE	ARM LENGTH	MIN. EQUIV. END LOAD FORCE (N)	MIN. EQUIV. END LOAD AREA (SQ. m)	COORDINATE LOCATION N	COORDINATE LOCATION E
(A)	5 800	510	7 000 & 13 000	1 800	3.3	189896.42	268050.47
(B)	5 800	460	10 000	1 300	2.8	189917.25	268062.37
(C)	5 800	460	8 000	1 300	2.3	189929.21	268041.80
(D)	5 800	460	6 000	1 300	2.3	189946.81	268050.40
(E)	5 800	460	7 000	1 300	2.3	189911.37	268046.63

TOWN SIGNAL

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION
BUR. OF ENGINEERING & HWY. OPERATIONS
DIVISION OF TRAFFIC ENGINEERING

TRAFFIC CONTROL SIGNAL LAYOUT

CITY OF BRIDGEPORT
RAILROAD AVE. AT BROAD ST.

SCALE : 1:500 ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE NOTED.

REV. # | INTERSECTION# NONE

NEW SHEET ADDED BY CONSTRUCTION ORDER REQUEST 6/16/00

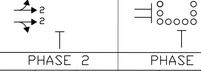
REVISIONS			
NO.	DATE	INIT.	DESCRIPTION
1.	6/26/15	PDP	FREE OPERATION

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & HIGHWAY OPERATIONS
DIVISION OF TRAFFIC ENGINEERING

TRAFFIC CONTROL SIGNAL

MOVEMENT DIAGRAM

NONE



NTOR		PHASE 1			PHASE 2			PHASE 3			PHASE 4			PHASE 5			PHASE 6			PHASE 7			PHASE 8		
	FLASH	GRN	CL	CL	GRN	CL	CL	GRN	CL	CL	GRN	CL	CL	GRN	CL	CL	GRN	CL	CL	GRN	CL	CL	GRN	CL	CL
FACE # 1	R				R	R	R	R	R	R	↑	Y	R	R	R	R									
FACE # 2	Y				G	Y	R	R	R	R	R	R	R	R	R	R									
FACE # 3	R				R	R	R	R	R	R	↑	Y	R	R	R	R									
FACE # 4	R				R	R	R	R	R	R	←	Y	R	R	R	R									
FACE # 5	R				R	R	R	R	R	R	R	R	R	G	Y	R									
FACE # P	OFF				←	DW	→	WØ	←	DW	→														
						YIELD																			
① MIN.					10	3	0	19	0	0	5	3	0	5	3	0									
① MAX.					25	5	2	19	0. 1	0. 1	40	5	2	25	5	2									
INTERVALS MIN GRN					15						9			9											
INTERVALS WALK					14			7																	
INTERVALS PED CLR					1			12																	
INTERVALS VEH EXT											2. 5			2. 5											
INTERVALS MAX 1					19						20			17											
INTERVALS MAX 2					19						20			17											
INTERVALS YELLOW						3			0. 1			3			3										
INTERVALS RED							2			0. 1			2			1									
INTERVALS ADD INIT																									
INTERVALS MAX INIT																									
INTERVALS TBR																									
INTERVALS TTR																									
INTERVALS MIN GAP																									
MODE		OFF			MIN. RECALL			NON-LOCK			LOCK			LOCK			OFF			OFF			OFF		
INI START					THIS PHASE																				

DETECTORS

IDENT	SIZE (WXL)	TURNS	MODE
D4	MICRO	-	PULSE
D5	MICRO	-	PULSE
SD1	1. 8 X 1. 8	4	PRESENCE
SD2	1. 8 X 1. 8	4	PRESENCE
SD3	6. 7 X 1. 8	3	PRESENCE
SD4	1. 8 X 1. 8	4	PRESENCE
SD5	1. 8 X 1. 8	4	PRESENCE

PROGRAM

FUNCTION	TIME	DAYS
FLASH	FUTURE	
MAX1	ALL OTHER TIMES	
MAX2	FUTURE	

COORDINATION TYPE- CLOSED LOOP

CYCLE	PHASE SPLITS %/SEC Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8	OFFSET SEC	%	PERMISSIVE PERIOD Ø	SEC
MAX1									0	0		

SYSTEM LOC	TECHNICAL NOTES
MASTER	STANDARD OVERLAP SKIP FEATURES APPLY
CITY	TIMINGS SHOWN INDICATE FREE OPERATION.
S. FRONTAGE	ACTUAL TIMINGS TO BE DETERMINED BY CLOSED
@ MAIN ST.	LOOP LOCAL COORDINATION UNIT.
015-277	① TOTAL CYCLE LENGTH NOT TO EXCEED
015-266	70 SECONDS.

ENERGY BY-CITY | METER # - | INTERSECTION #015-266

MAINT 24hr ☐ Norm ☒ | SERVICE POLE-UI9264

METERED SERVICE

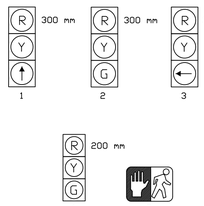
OFFICE RECORD

REVISION #

STC #	SM #
SIGNAL REVISED UNDER STATE PROJECT #15-270	
INSTALLED ALL NEW EQUIPMENT.	
TRANSFERRED OWNERSHIP TO TOWN.	

SIGNAL FACES

ALL CIRCULAR RED INDICATIONS SHALL BE LED LAMPS



TOWN SIGNAL

LEGEND

R RED	PROPOSED CONTROLLER
Y YELLOW	EXISTING CONTROLLER
G GREEN	PROPOSED HANDHOLE
RA RED ARROW	EXISTING HANDHOLE
YA YELLOW ARROW	PROPOSED (R.M.C.) RIGID METALCONDUIT
GA GREEN ARROW	PROPOSED CABLE CLOSURE
WA WALK/ FL. D.W.	DET. LEADS IN SAW CUT
D.W. DON'T WALK	AUXILIARY TERMINATION CABINET
FL. FLASHING	MICROWAVE DETECTOR
PROPOSED WOOD SPAN POLE	EXISTING PEDESTAL MOUNTING
EXISTING WOOD SPAN POLE	AUXILIARY EQUIPMENT CABINET
PROPOSED STEEL SPAN POLE	PROPOSED COMB. SPAN POLE
EXISTING STEEL SPAN POLE	EXISTING COMB. SPAN POLE
PROPOSED LUMINAIRE	
EXISTING LUMINAIRE	
PROPOSED UTILITY POLE	
EXISTING UTILITY POLE	
PEDESTAL MOUNTING	
PEDESTRIAN PUSH BUTTON & SIGN	
TRAFFIC SIGNAL FACE	
PEDESTRIAN SIGNAL FACE	
LOOP DETECTOR	

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION
BUR. OF ENGINEERING & HWY OPERATIONS
DIVISION OF TRAFFIC ENGINEERING

TRAFFIC CONTROL SIGNAL

CITY OF BRIDGEPORT
SOUTH FRONTAGE ROAD & I-95 NB ON RAMP
AT LAFAYETTE STREET

REV. #	TRAFFIC DATE	ELECTRICAL DATE
FIELD SURVEY		
ENGINEER	VN ENGINEERS, INC.	
DRAFTER		
CHECKED BY		
SUBMITTED BY		
APPROVED BY		
DATE		

F. H. W. A. REGION NO.	STATE	TOWN	FED. AID PROJ. NO.	PROJ. NO.	YEAR	ROUTE NO.	SHEET NO.	TOTAL SHEETS
1	CONN.	BRIDGEPORT	STPA-95-1(151)2	15-270	1996	I-95	142-14	537

CONSTRUCTION NOTES

1. CALL BEFORE YOU DIG, 1-800-922-4455.
2. ALL TRAFFIC SIGNAL EQUIPMENT IS NEW.
3. STAKE ALL R. O. W. PRIOR TO EXCAVATION.
4. TWO WEEKS PRIOR TO INSTALLATION CONTACT:
   UNITED ILLUMINATING COMPANY REPRESENTATIVE: KATHLEEN KIJAK (203) 499-2428
   S. N. E. T. REPRESENTATIVE: ROBERT BOUFFARD (203) 238-5620
5. INSTALL HANDHOLES APPROX. 0. 3m BEHIND CURB OR EDGE OF ROAD, UNLESS OTHERWISE SPECIFIED.
6. ALL HANDHOLES ARE TYPE II, UNLESS OTHERWISE NOTED.
7. HANDHOLES ARE TO BE SPACED NO MORE THAN 45. 0m APART.
8. NO SPLICES IN INTERCONNECT CABLE.
9. REPLACE ENTIRE SECTION OF SIDEWALK DAMAGED DUE TO INSTALLATION OF CONDUIT, HANDHOLE OR FOUNDATION.
10. PLACE ALL ADJACENT ROAD CROSSING CONDUITS IN COMMON TRENCH.
11. VEHICLE DETECTORS TO BE POSITIONED BY MANUFACTURER. MICROWAVE DETECTOR ANGLE OF INSTALLATION TO BE FIELD ADJUSTED TO PROVIDE AN AREA OF DETECTION AS SHOWN IN DIAGRAM.
12. CONTRACTOR TO INSTALL BASE MOUNTED EIGHT PHASE CONTROLLER CABINET EQUIPPED WITH AN OUTSIDE ELECTRIC METER ENCLOSURE APPROVED BY U. I. CO.
13. INSTALL ALL FOUNDATIONS ADJACENT TO BACK EDGE OF WALK AND WITHIN R. O. W.
14. CABINET DOOR TO OPEN PERPENDICULAR TO THE STREET.
15. INSTALL EIGHT PHASE, FULLY ACTUATED, TYPE 170E CONTROLLER, IN A TYPE 336 CABINET WITH A TYPE "M" ADAPTER ON A TYPE IV FOUNDATION.
16. ALL NEW PEDESTRIAN APPURTENANCES SHALL CONFORM TO ADA REQUIREMENTS.
17. ALL EXISTING TRAFFIC SIGNAL EQUIPMENT WHICH IS REMOVED REMAINS THE PROPERTY OF CONNDOT. CONTACT MR. ROBERT CARPE (860) 566-5067 TO COORDINATE THE RETURN OF EQUIPMENT.
18. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY CITY PERMITS INCLUDING BUT NOT LIMITED TO: SIDEWALKS, CURBS, AND ROAD OPENINGS PRIOR TO ANY EXCAVATION.
19. ALL TRAFFIC SIGNALS ARE TO BE FIXED MOUNTED ONTO MAST ARMS, UNLESS OTHERWISE NOTED.

Ⓒ Ⓓ INSTALL STEEL MAST ARM ADJACENT TO BACK EDGE OF WALK.

Ⓔ INSTALL STEEL MAST ARM IN WALK AT BACK EDGE AND WITHIN THE RIGHT OF WAY.

Ⓦ INSTALL 750 X 750 HANDHOLE.

REVISIONS

1. 11/17/97: REVISED LOCATION OF FIBER OPTIC INTERCONNECT CABLE TO UNDERGROUND.

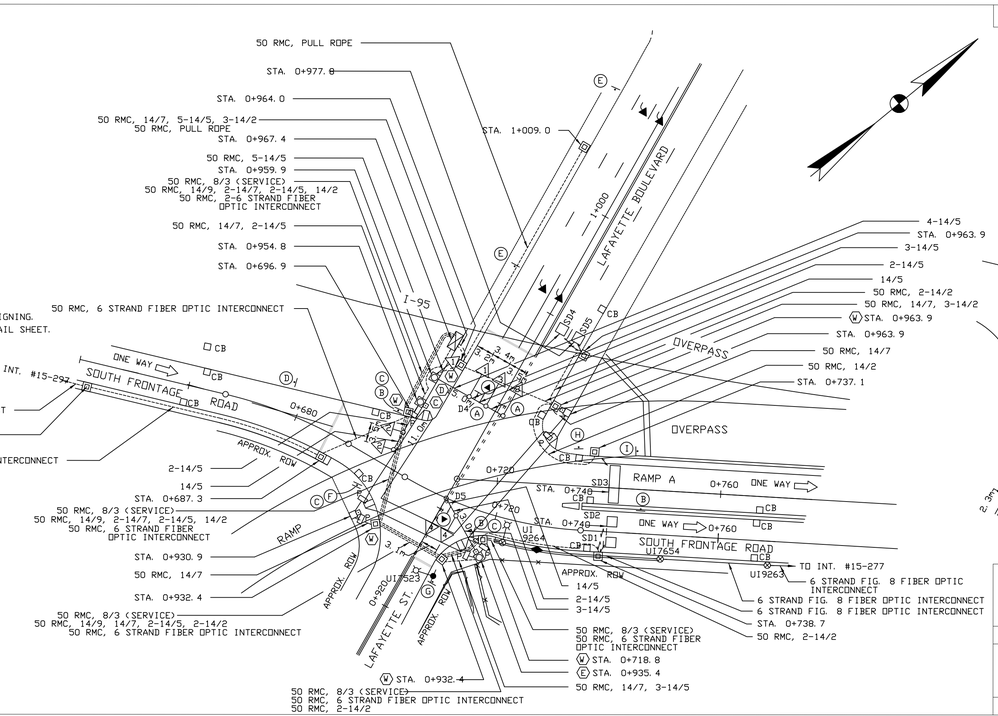
REV. # | INTERSECTION #015-266

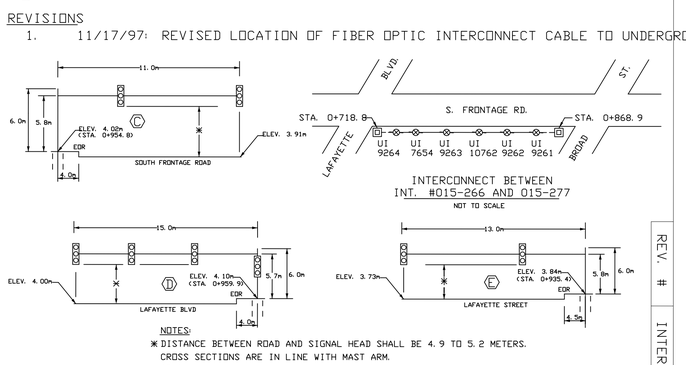
SIGN LEGEND

- Ⓐ MAST ARM MTD 31-0135Z (ONLY)
- Ⓑ ERECT 31-0077Z (ONE WAY →)
- Ⓒ ERECT 31-0088Z (ONE WAY ←)
- Ⓓ ERECT 31-0512Z (WRONG WAY)
- Ⓔ ERECT 31-0569Z (ONLY)
- Ⓕ ERECT 31-0517Z (NO RIGHT TURN SYMBOL) ERECT 31-0518Z (NO RIGHT TURN PLATE)
- Ⓖ ERECT 31-0519Z (NO LEFT TURN SYMBOL) ERECT 31-0520Z (NO LEFT TURN PLATE)
- Ⓗ ERECT 31-0077 (ONE WAY →)
- Ⓘ ERECT 31-0200 (PEDESTRIANS PROHIBITED)

NOTES

SEE SEPARATE PLAN FOR PAVEMENT MARKINGS AND ADDITIONAL SIGNING.
BAR TYPE CROSSWALK (0. 4m - 0. 4m x 2. 4m) SEE STANDARD DETAIL SHEET.





CLOSED LOOP DETECTOR CHART		
DETECTOR	LOCAL DETECTOR	SYSTEM DETECTOR
SD1	-	SD1
SD2	-	SD2
SD3	-	SD3
SD4	-	SD4
SD5	-	SD5
D4	LD4	-
D5	LD5	-

MAST ARM INFORMATION

	SHAFT		ARM		MIN. EQUIVALENT END LOAD	
	LENGTH	B. C.	LENGTH	MOUNTING HEIGHT	FORCE (N)	AREA (sq. mm)
Ⓒ	6. 0m	510 mm	11. 0m	5. 8m	1 100	2 800
Ⓓ	6. 0m	510 mm	15. 0m	5. 7m	1 500	3 700
Ⓔ	6. 0m	510 mm	13. 0m	5. 8m	1 300	3 300

TOWN SIGNAL

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION
BUR. OF ENGINEERING & HWY. OPERATIONS
DIVISION OF TRAFFIC ENGINEERING

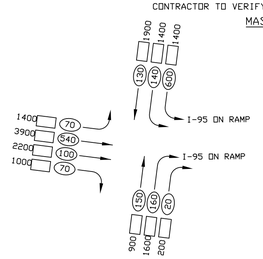
TRAFFIC CONTROL SIGNAL LAYOUT

CITY OF BRIDGEPORT
SOUTH FRONTAGE ROAD & I-95 NB ON RAMP
AT LAFAYETTE STREET

SCALE 1: 500 METRIC — ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED.

NOTES:
✱ DISTANCE BETWEEN ROAD AND SIGNAL HEAD SHALL BE 4. 9 TO 5. 2 METERS.
CROSS SECTIONS ARE IN LINE WITH MAST ARM.
CONTRACTOR TO VERIFY MAST ARM INFORMATION PRIOR TO ORDERING MAST ARMS.

MAST ARM DETAILS
NOT TO SCALE



TRAFFIC VOLUME DIAGRAM

TRAFFIC YEAR 2015

000 AM PEAK (NOT AVAILABLE)

000 PM PEAK

000 ADT

REVISED BY CONSTRUCTION ORDER REQUEST - 11/17/97

REV. # | INTERSECTION #015-266

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & HIGHWAY OPERATIONS
DIVISION OF TRAFFIC ENGINEERING

TRAFFIC CONTROL SIGNAL

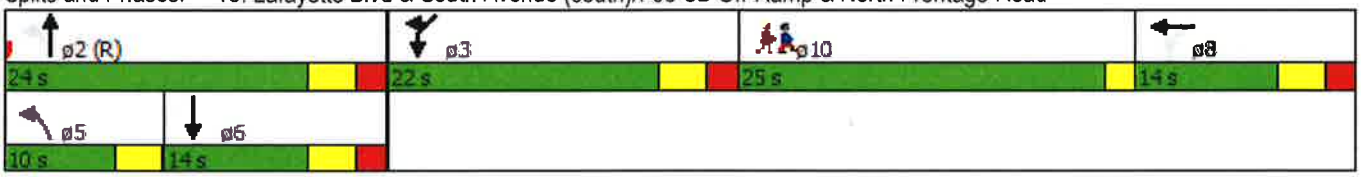
4. SYNCHRO OUTPUT WORKSHEETS

Lane Group	WBL	WBT	NBL	NBT	SBT	SBR	SWL	SWR	SWR2	ø10
Lane Configurations										
Volume (vph)	95	262	25	38	84	27	33	81	27	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	11	11	12	12	14	12	
Grade (%)		0%		0%	0%		0%			
Storage Length (ft)	0		0			0	0	0		
Storage Lanes	0		0			0	1	1		
Taper Length (ft)	25		25				25			
Right Turn on Red						Yes			Yes	
Link Speed (mph)		30		30	30		30			
Link Distance (ft)		480		275	340		417			
Travel Time (s)		10.9		6.3	7.7		9.5			
Confl. Peds. (#/hr)	5		5			5	5	5	5	
Confl. Bikes (#/hr)										
Peak Hour Factor	0.93	0.93	0.89	0.89	0.83	0.83	0.95	0.95	0.95	
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	
Parking (#/hr)										
Mid-Block Traffic (%)		0%		0%	0%		0%			
Shared Lane Traffic (%)								48%		
Turn Type	Perm	NA	pm+pt	NA	NA		Prot	Prot		
Protected Phases		8	5	2	6		3	3		10
Permitted Phases	8	8	2		6		3			
Detector Phase	8	8	5	2	6		3	3		
Switch Phase										
Minimum Initial (s)	9.0	9.0	5.0	9.0	9.0		15.0	15.0		7.0
Minimum Split (s)	14.0	14.0	8.1	14.0	14.0		21.0	21.0		25.0
Total Split (s)	14.0	14.0	10.0	24.0	14.0		22.0	22.0		25.0
Total Split (%)	16.5%	16.5%	11.8%	28.2%	16.5%		25.9%	25.9%		29%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		2.0
All-Red Time (s)	2.0	2.0	0.1	2.0	2.0		2.0	2.0		0.0
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0		
Total Lost Time (s)		5.0		5.0	5.0		5.0	5.0		
Lead/Lag			Lead		Lag		Lead	Lead		Lag
Lead-Lag Optimize?							Yes	Yes		Yes
Recall Mode	None	None	None	C-Max	None		Max	Max		None
Act Effct Green (s)		14.9		33.1	33.1		17.0	17.0		
Actuated g/C Ratio		0.18		0.39	0.39		0.20	0.20		
v/c Ratio		0.65		0.06	0.07		0.24	0.17		
Control Delay		40.7		19.3	14.4		30.9	0.8		
Queue Delay		0.0		0.0	0.0		0.0	0.0		
Total Delay		40.7		19.3	14.4		30.9	0.8		
LOS		D		B	B		C	A		
Approach Delay		40.7		19.3	14.4		16.3			
Approach LOS		D		B	B		B			

Intersection Summary	
Area Type:	Other

Cycle Length: 85
Actuated Cycle Length: 85
Offset: 0 (0%), Referenced to phase 2:NBTL, Start of Green
Natural Cycle: 85
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.65
Intersection Signal Delay: 28.9 Intersection LOS: C
Intersection Capacity Utilization 46.3% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 18: Lafayette Blvd & South Avenue (south)/I-95 SB Off-Ramp & North Frontage Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	36	194	29	0	0	0	0	27	35	135	77	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	16	12	12	12	12	12	15	12	11	11	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	1		0	0		0	0		0	2		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			No			Yes
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		337			124			289			275	
Travel Time (s)		7.7			2.8			6.6			6.3	
Confl. Peds. (#/hr)	5		5				5		5	5		5
Confl. Bikes (#/hr)												
Peak Hour Factor	0.80	0.80	0.80	0.92	0.92	0.92	0.80	0.80	0.80	0.80	0.80	0.80
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	5%	3%	2%	2%	2%	2%	3%	3%	5%	3%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Turn Type	Perm	NA						NA		custom	NA	
Protected Phases		2						8		4	4	
Permitted Phases	2							8		4		
Detector Phase	2	2						8		4	4	
Switch Phase												
Minimum Initial (s)	15.0	15.0						9.0		9.0	9.0	
Minimum Split (s)	20.0	20.0						14.0		14.0	14.0	
Total Split (s)	22.0	22.0						14.0		14.0	14.0	
Total Split (%)	31.4%	31.4%						20.0%		20.0%	20.0%	
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	0.0	
Total Lost Time (s)	5.0	5.0						4.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Min	C-Min						None		None	None	
Act Effct Green (s)	36.0	36.0						9.3		9.3	9.3	
Actuated g/C Ratio	0.51	0.51						0.13		0.13	0.13	
v/c Ratio	0.05	0.27						0.32		0.39	0.41	
Control Delay	14.1	13.7						31.2		30.8	33.5	
Queue Delay	0.0	0.0						0.0		0.0	0.0	
Total Delay	14.1	13.7						31.2		30.8	33.5	
LOS	B	B						C		C	C	
Approach Delay		13.8						31.2			31.8	
Approach LOS		B						C			C	

Intersection Summary	
Area Type:	Other

Lane Group	ø10
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Right Turn on Red	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Growth Factor	
Heavy Vehicles (%)	
Bus Blockages (#/hr)	
Parking (#/hr)	
Mid-Block Traffic (%)	
Shared Lane Traffic (%)	
Turn Type	
Protected Phases	10
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	20.0
Total Split (s)	20.0
Total Split (%)	29%
Yellow Time (s)	2.0
All-Red Time (s)	0.1
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary

Cycle Length: 70
Actuated Cycle Length: 70
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.41
Intersection Signal Delay: 23.0 Intersection LOS: C
Intersection Capacity Utilization 31.4% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 14: Lafayette Street/Lafayette Blvd & South Frontage Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	40	11	1	0	37	0	34	2	35	46	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	13	12	12	16	12	12	15	12	12	13	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	75		0	0		0	0		0	0		0
Storage Lanes	1		0	0		0	0		0	0		0
Taper Length (ft)	100			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		449			287			887			417	
Travel Time (s)		10.2			6.5			20.2			9.5	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.80	0.80	0.80	0.80	0.80	0.80	0.89	0.89	0.89
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	2%	3%	3%	3%	3%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	2	2	0
Parking (#/hr)			5									
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Turn Type	Perm	NA		Perm	NA			NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6						4		
Detector Phase	2	2		6	6			8		4	4	
Switch Phase												
Minimum Initial (s)	8.0	8.0		13.0	13.0			3.0		9.0	9.0	
Minimum Split (s)	13.0	13.0		18.0	18.0			14.0		16.0	16.0	
Total Split (s)	14.0	14.0		18.0	18.0			14.0		21.0	21.0	
Total Split (%)	23.3%	23.3%		30.0%	30.0%			23.3%		35.0%	35.0%	
Yellow Time (s)	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		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0			0.0			0.0			0.0	
Total Lost Time (s)	5.0	5.0			5.0			5.0			4.0	
Lead/Lag	Lead	Lead		Lag	Lag			Lead				
Lead-Lag Optimize?	Yes	Yes		Yes	Yes			Yes				
Recall Mode	C-Max	C-Max		None	None			None		None	None	
Act Effct Green (s)	38.0	38.0			13.0			7.1			9.4	
Actuated g/C Ratio	0.63	0.63			0.22			0.12			0.16	
v/c Ratio	0.04	0.05			0.08			0.18			0.36	
Control Delay	12.2	8.5			0.3			23.7			26.7	
Queue Delay	0.0	0.0			0.0			0.0			0.0	
Total Delay	12.2	8.5			0.3			23.7			26.7	
LOS	B	A			A			C			C	
Approach Delay		8.9			0.3			23.7			26.7	
Approach LOS		A			A			C			C	

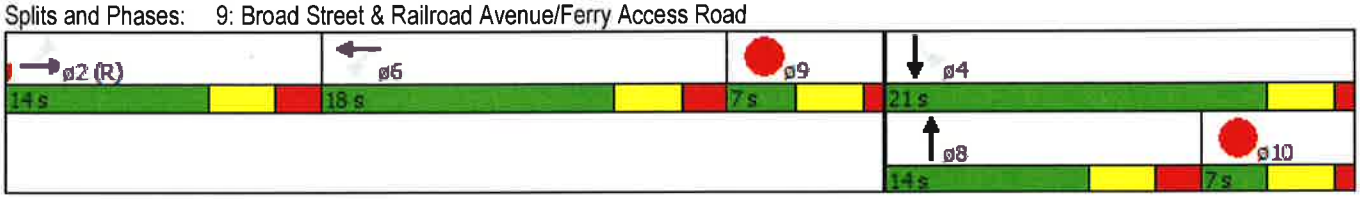
Intersection Summary	
Area Type:	Other

Lane Group	ø9	ø10
Lane Configurations		
Volume (vph)		
Ideal Flow (vphpl)		
Lane Width (ft)		
Grade (%)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Right Turn on Red		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Peak Hour Factor		
Growth Factor		
Heavy Vehicles (%)		
Bus Blockages (#/hr)		
Parking (#/hr)		
Mid-Block Traffic (%)		
Shared Lane Traffic (%)		
Turn Type		
Protected Phases	9	10
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	3.0	3.0
Minimum Split (s)	7.0	7.0
Total Split (s)	7.0	7.0
Total Split (%)	12%	12%
Yellow Time (s)	3.0	3.0
All-Red Time (s)	1.0	1.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag		Lag
Lead-Lag Optimize?		Yes
Recall Mode	None	None
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		

Intersection Summary

Cycle Length: 60
Actuated Cycle Length: 60
Offset: 0 (0%), Referenced to phase 2:EBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.36
Intersection Signal Delay: 16.5 Intersection LOS: B
Intersection Capacity Utilization 29.4% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 9: Broad Street & Railroad Avenue/Ferry Access Road



Intersection	
Intersection Delay, s/veh	7.3
Intersection LOS	A

Movement	EBU	EBT	EBR	WBU	WBL	WBT	NBU	NBL	NBR
Vol, veh/h	0	57	20	0	7	14	0	24	2
Peak Hour Factor	0.92	0.84	0.84	0.92	0.80	0.80	0.92	0.80	0.80
Heavy Vehicles, %	2	3	3	2	3	3	2	3	3
Mvmt Flow	0	68	24	0	9	17	0	30	2
Number of Lanes	0	1	0	0	0	1	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	7.3	7.3	7.5
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	WBLn1
Vol Left, %	92%	0%	33%
Vol Thru, %	0%	74%	67%
Vol Right, %	8%	26%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	26	77	21
LT Vol	0	57	14
Through Vol	2	20	0
RT Vol	24	0	7
Lane Flow Rate	32	92	26
Geometry Grp	1	1	1
Degree of Util (X)	0.039	0.099	0.03
Departure Headway (Hd)	4.292	3.872	4.143
Convergence, Y/N	Yes	Yes	Yes
Cap	830	925	862
Service Time	2.34	1.897	2.179
HCM Lane V/C Ratio	0.039	0.099	0.03
HCM Control Delay	7.5	7.3	7.3
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.1	0.3	0.1

Intersection	
Intersection Delay, s/veh	7.3
Intersection LOS	A

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	8	23	5	0	0	0	0	0	0	22	2
Peak Hour Factor	0.92	0.86	0.86	0.86	0.92	0.92	0.92	0.92	0.92	1.00	1.00	1.00
Heavy Vehicles, %	2	3	3	3	2	2	2	2	2	2	3	3
Mvmt Flow	0	9	27	6	0	0	0	0	0	0	22	2
Number of Lanes	0	0	1	0	0	0	0	0	0	0	1	0

Approach	EB	NB
Opposing Approach		SB
Opposing Lanes	0	1
Conflicting Approach Left	SB	EB
Conflicting Lanes Left	1	1
Conflicting Approach Right	NB	
Conflicting Lanes Right	1	0
HCM Control Delay	7.3	7.2
HCM LOS	A	A

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	0%	22%	43%
Vol Thru, %	92%	64%	57%
Vol Right, %	8%	14%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	24	36	49
LT Vol	22	23	28
Through Vol	2	5	0
RT Vol	0	8	21
Lane Flow Rate	24	42	58
Geometry Grp	1	1	1
Degree of Util (X)	0.027	0.047	0.066
Departure Headway (Hd)	4.017	4.052	4.128
Convergence, Y/N	Yes	Yes	Yes
Cap	889	880	868
Service Time	2.05	2.093	2.153
HCM Lane V/C Ratio	0.027	0.048	0.067
HCM Control Delay	7.2	7.3	7.4
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.1	0.1	0.2

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	21	28	0
Peak Hour Factor	0.92	0.85	0.85	0.85
Heavy Vehicles, %	2	3	3	2
Mvmt Flow	0	25	33	0
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	
Conflicting Lanes Left	0
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	7.4
HCM LOS	A

Lane

Intersection	
Int Delay, s/veh	6.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR
Vol, veh/h	17	23	6	2	0	8	0	10	2
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	3	3	3	3	3	3	2	3	3
Mvmt Flow	21	29	8	2	0	10	0	12	2

Major/Minor	Minor2			Minor1			Major1		
Conflicting Flow All	72	68	25	85	67	24	20	0	0
Stage 1	48	48	-	19	19	-	-	-	-
Stage 2	24	20	-	66	48	-	-	-	-
Critical Hdwy	7.13	6.53	6.23	7.13	6.53	6.23	4.12	-	-
Critical Hdwy Stg 1	6.13	5.53	-	6.13	5.53	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.13	5.53	-	-	-	-
Follow-up Hdwy	3.527	4.027	3.327	3.527	4.027	3.327	2.218	-	-
Pot Cap-1 Maneuver	917	821	1048	899	822	1050	1596	-	-
Stage 1	963	853	-	997	878	-	-	-	-
Stage 2	991	877	-	942	853	-	-	-	-
Platoon blocked, %								-	-
Mov Cap-1 Maneuver	892	805	1036	853	806	1038	1587	-	-
Mov Cap-2 Maneuver	892	805	-	853	806	-	-	-	-
Stage 1	958	841	-	991	873	-	-	-	-
Stage 2	976	872	-	890	841	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	9.5	8.7	0
HCM LOS	A	A	

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1587	-	-	861	995	1581	-	-
HCM Lane V/C Ratio	-	-	-	0.067	0.013	0.009	-	-
HCM Control Delay (s)	0	-	-	9.5	8.7	7.3	0	-
HCM Lane LOS	A	-	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0	0	-	-

Intersection	
Int Delay, s/veh	

Movement	SBL	SBT	SBR
Vol, veh/h	11	12	0
Conflicting Peds, #/hr	5	0	5
Sign Control	Free	Free	Free
RT Channelized	-	-	None
Storage Length	-	-	-
Veh in Median Storage, #	-	0	-
Grade, %	-	0	-
Peak Hour Factor	80	80	80
Heavy Vehicles, %	3	3	2
Mvmt Flow	14	15	0

Major/Minor	Major2		
Conflicting Flow All	20	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.13	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.227	-	-
Pot Cap-1 Maneuver	1590	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	1581	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	SB
HCM Control Delay, s	3.5
HCM LOS	

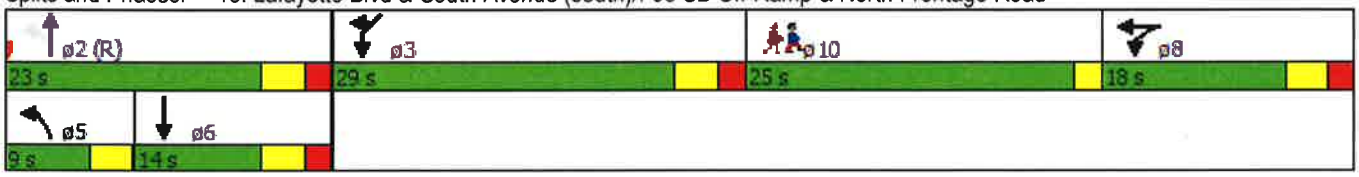
Minor Lane/Major Mvmt

Lane Group	WBL	WBT	NBL	NBT	SBT	SBR	SWL	SWR	SWR2	ø10
Lane Configurations										
Volume (vph)	137	266	34	65	192	55	98	421	44	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	11	11	12	12	14	12	
Grade (%)		0%		0%	0%		0%			
Storage Length (ft)	0		0			0	0	0		
Storage Lanes	0		0			0	1	1		
Taper Length (ft)	25		25				25			
Right Turn on Red						Yes			Yes	
Link Speed (mph)		30		30	30		30			
Link Distance (ft)		480		275	340		417			
Travel Time (s)		10.9		6.3	7.7		9.5			
Confl. Peds. (#/hr)	5		5			5	5	5	5	
Confl. Bikes (#/hr)										
Peak Hour Factor	0.94	0.94	0.92	0.92	0.91	0.91	0.80	0.80	0.80	
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	
Parking (#/hr)										
Mid-Block Traffic (%)		0%		0%	0%		0%			
Shared Lane Traffic (%)								45%		
Turn Type	custom	NA	pm+pt	NA	NA		Prot	Prot		
Protected Phases	8	8	5	2	6		3	3		10
Permitted Phases	8	8	2		6		3			
Detector Phase	8	8	5	2	6		3	3		
Switch Phase										
Minimum Initial (s)	9.0	9.0	5.0	9.0	9.0		15.0	15.0		7.0
Minimum Split (s)	14.0	14.0	8.1	14.0	14.0		21.0	21.0		25.0
Total Split (s)	18.0	18.0	9.0	23.0	14.0		29.0	29.0		25.0
Total Split (%)	18.9%	18.9%	9.5%	24.2%	14.7%		30.5%	30.5%		26%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		2.0
All-Red Time (s)	2.0	2.0	0.1	2.0	2.0		2.0	2.0		0.0
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0		
Total Lost Time (s)		5.0		5.0	5.0		5.0	5.0		
Lead/Lag			Lead		Lag		Lead	Lead		Lag
Lead-Lag Optimize?							Yes	Yes		Yes
Recall Mode	None	None	None	C-Max	None		Max	Max		None
Act Effct Green (s)		15.9		35.1	35.1		24.0	24.0		
Actuated g/C Ratio		0.17		0.37	0.37		0.25	0.25		
v/c Ratio		0.76		0.11	0.16		0.90	0.69		
Control Delay		48.2		23.4	17.9		61.4	27.1		
Queue Delay		0.0		0.0	0.0		0.0	0.0		
Total Delay		48.2		23.4	17.9		61.4	27.1		
LOS		D		C	B		E	C		
Approach Delay		48.2		23.4	17.9		44.6			
Approach LOS		D		C	B		D			

Intersection Summary	
Area Type:	Other

Cycle Length: 95
Actuated Cycle Length: 95
Offset: 0 (0%), Referenced to phase 2:NBTL, Start of Green
Natural Cycle: 85
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.90
Intersection Signal Delay: 39.3 Intersection LOS: D
Intersection Capacity Utilization 62.7% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 18: Lafayette Blvd & South Avenue (south)/I-95 SB Off-Ramp & North Frontage Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	33	260	38	0	0	0	0	66	109	300	127	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	16	12	12	12	12	12	15	12	11	11	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	1		0	0		0	0		0	2		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			No			Yes
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		337			124			289			275	
Travel Time (s)		7.7			2.8			6.6			6.3	
Confl. Peds. (#/hr)	5		5				5		5	5		5
Confl. Bikes (#/hr)												
Peak Hour Factor	0.80	0.80	0.80	0.92	0.92	0.92	0.88	0.88	0.88	0.82	0.82	0.82
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	5%	3%	2%	2%	2%	2%	3%	3%	5%	3%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Turn Type	Perm	NA						NA		custom	NA	
Protected Phases		2						8		4	4	
Permitted Phases	2							8		4		
Detector Phase	2	2						8		4	4	
Switch Phase												
Minimum Initial (s)	15.0	15.0						9.0		9.0	9.0	
Minimum Split (s)	21.0	21.0						14.0		14.0	14.0	
Total Split (s)	21.0	21.0						15.0		14.0	14.0	
Total Split (%)	30.0%	30.0%						21.4%		20.0%	20.0%	
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	0.0	
Total Lost Time (s)	5.0	5.0						4.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Min	C-Min						None		None	None	
Act Effct Green (s)	27.9	27.9						11.9		12.3	12.3	
Actuated g/C Ratio	0.40	0.40						0.17		0.18	0.18	
v/c Ratio	0.06	0.46						0.64		0.65	0.50	
Control Delay	17.4	21.0						38.1		34.7	33.7	
Queue Delay	0.0	0.0						0.0		0.0	0.0	
Total Delay	17.4	21.0						38.1		34.7	33.7	
LOS	B	C						D		C	C	
Approach Delay		20.7						38.1			34.4	
Approach LOS		C						D			C	

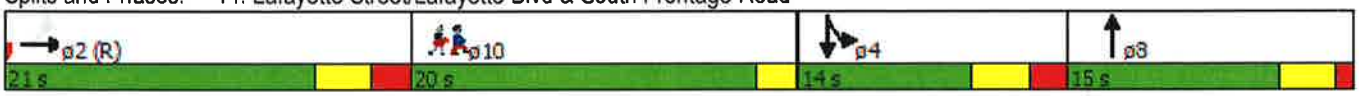
Intersection Summary	
Area Type:	Other

Lane Group	ø10
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Right Turn on Red	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Growth Factor	
Heavy Vehicles (%)	
Bus Blockages (#/hr)	
Parking (#/hr)	
Mid-Block Traffic (%)	
Shared Lane Traffic (%)	
Turn Type	
Protected Phases	10
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	20.0
Total Split (s)	20.0
Total Split (%)	29%
Yellow Time (s)	2.0
All-Red Time (s)	0.1
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary

Cycle Length: 70
Actuated Cycle Length: 70
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.65
Intersection Signal Delay: 30.0 Intersection LOS: C
Intersection Capacity Utilization 46.8% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 14: Lafayette Street/Lafayette Blvd & South Frontage Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	16	49	6	12	0	68	0	66	5	20	71	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	13	12	12	16	12	12	15	12	12	13	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	75		0	0		0	0		0	0		0
Storage Lanes	1		0	0		0	0		0	0		0
Taper Length (ft)	100			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		449			287			887			417	
Travel Time (s)		10.2			6.5			20.2			9.5	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)												
Peak Hour Factor	0.85	0.85	0.85	0.80	0.80	0.80	0.85	0.85	0.85	0.91	0.91	0.91
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	2%	3%	3%	3%	3%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	2	2	0
Parking (#/hr)			5									
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Turn Type	Perm	NA		Perm	NA			NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6						4		
Detector Phase	2	2		6	6			8		4	4	
Switch Phase												
Minimum Initial (s)	8.0	8.0		13.0	13.0			3.0		9.0	9.0	
Minimum Split (s)	13.0	13.0		18.0	18.0			14.0		16.0	16.0	
Total Split (s)	13.0	13.0		18.0	18.0			15.0		22.0	22.0	
Total Split (%)	21.7%	21.7%		30.0%	30.0%			25.0%		36.7%	36.7%	
Yellow Time (s)	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		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0			0.0			0.0			0.0	
Total Lost Time (s)	5.0	5.0			5.0			5.0			4.0	
Lead/Lag	Lead	Lead		Lag	Lag			Lead				
Lead-Lag Optimize?	Yes	Yes		Yes	Yes			Yes				
Recall Mode	C-Max	C-Max		None	None			None		None	None	
Act Effct Green (s)	30.8	30.8			13.0			7.7			9.4	
Actuated g/C Ratio	0.51	0.51			0.22			0.13			0.16	
v/c Ratio	0.12	0.07			0.17			0.32			0.37	
Control Delay	15.2	11.2			0.7			25.1			26.8	
Queue Delay	0.0	0.0			0.0			0.0			0.0	
Total Delay	15.2	11.2			0.7			25.1			26.8	
LOS	B	B			A			C			C	
Approach Delay		12.1			0.7			25.1			26.8	
Approach LOS		B			A			C			C	

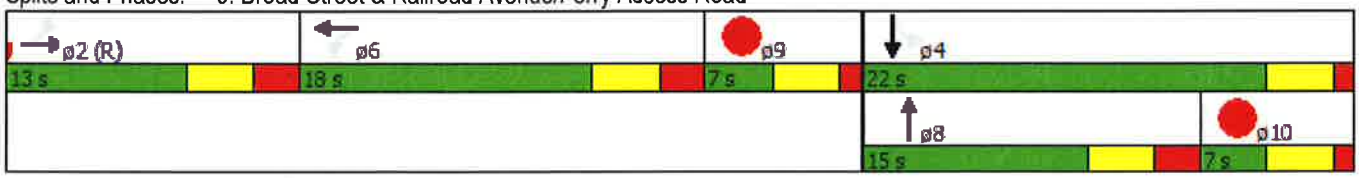
Intersection Summary	
Area Type:	Other

Lane Group	ø9	ø10
Lane Configurations		
Volume (vph)		
Ideal Flow (vphpl)		
Lane Width (ft)		
Grade (%)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Right Turn on Red		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Peak Hour Factor		
Growth Factor		
Heavy Vehicles (%)		
Bus Blockages (#/hr)		
Parking (#/hr)		
Mid-Block Traffic (%)		
Shared Lane Traffic (%)		
Turn Type		
Protected Phases	9	10
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	3.0	3.0
Minimum Split (s)	7.0	7.0
Total Split (s)	7.0	7.0
Total Split (%)	12%	12%
Yellow Time (s)	3.0	3.0
All-Red Time (s)	1.0	1.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag		Lag
Lead-Lag Optimize?		Yes
Recall Mode	None	None
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		

Intersection Summary

Cycle Length: 60
Actuated Cycle Length: 60
Offset: 0 (0%), Referenced to phase 2:EBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.37
Intersection Signal Delay: 15.9 Intersection LOS: B
Intersection Capacity Utilization 31.0% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 9: Broad Street & Railroad Avenue/Ferry Access Road



Intersection	
Intersection Delay, s/veh	7.5
Intersection LOS	A

Movement	EBU	EBT	EBR	WBU	WBL	WBT	NBU	NBL	NBR
Vol, veh/h	0	34	40	0	12	41	0	39	6
Peak Hour Factor	0.92	0.81	0.81	0.92	0.80	0.80	0.92	0.80	0.80
Heavy Vehicles, %	2	3	3	2	3	3	2	3	3
Mvmt Flow	0	42	49	0	15	51	0	49	7
Number of Lanes	0	1	0	0	0	1	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	7.2	7.6	7.7
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	WBLn1
Vol Left, %	87%	0%	23%
Vol Thru, %	0%	46%	77%
Vol Right, %	13%	54%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	45	74	53
LT Vol	0	34	41
Through Vol	6	40	0
RT Vol	39	0	12
Lane Flow Rate	56	91	66
Geometry Grp	1	1	1
Degree of Util (X)	0.067	0.096	0.077
Departure Headway (Hd)	4.315	3.775	4.164
Convergence, Y/N	Yes	Yes	Yes
Cap	823	943	856
Service Time	2.378	1.825	2.211
HCM Lane V/C Ratio	0.068	0.097	0.077
HCM Control Delay	7.7	7.2	7.6
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.2	0.3	0.2

Intersection	
Intersection Delay, s/veh	7.6
Intersection LOS	A

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	16	14	22	0	0	0	0	0	0	92	11
Peak Hour Factor	0.92	0.84	0.84	0.84	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	3	3	3	2	2	2	2	2	2	3	3
Mvmt Flow	0	19	17	26	0	0	0	0	0	0	100	12
Number of Lanes	0	0	1	0	0	0	0	0	0	0	1	0

Approach	EB	NB
Opposing Approach		SB
Opposing Lanes	0	1
Conflicting Approach Left	SB	EB
Conflicting Lanes Left	1	1
Conflicting Approach Right	NB	
Conflicting Lanes Right	1	0
HCM Control Delay	7.4	7.7
HCM LOS	A	A

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	0%	31%	20%
Vol Thru, %	89%	27%	80%
Vol Right, %	11%	42%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	103	52	44
LT Vol	92	14	35
Through Vol	11	22	0
RT Vol	0	16	9
Lane Flow Rate	112	62	55
Geometry Grp	1	1	1
Degree of Util (X)	0.126	0.07	0.064
Departure Headway (Hd)	4.037	4.046	4.186
Convergence, Y/N	Yes	Yes	Yes
Cap	884	874	850
Service Time	2.08	2.124	2.239
HCM Lane V/C Ratio	0.127	0.071	0.065
HCM Control Delay	7.7	7.4	7.5
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.4	0.2	0.2

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	9	35	0
Peak Hour Factor	0.92	0.80	0.80	0.80
Heavy Vehicles, %	2	3	3	2
Mvmt Flow	0	11	44	0
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	
Conflicting Lanes Left	0
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	7.5
HCM LOS	A

Lane

Intersection	
Int Delay, s/veh	6.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR
Vol, veh/h	14	14	6	5	0	20	0	14	3
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	80	80	80	80	80	80
Heavy Vehicles, %	3	3	3	3	3	3	2	3	3
Mvmt Flow	17	17	7	6	0	25	0	18	4

Major/Minor	Minor2			Minor1			Major1		
Conflicting Flow All	72	61	23	71	59	29	18	0	0
Stage 1	35	35	-	24	24	-	-	-	-
Stage 2	37	26	-	47	35	-	-	-	-
Critical Hdwy	7.13	6.53	6.23	7.13	6.53	6.23	4.12	-	-
Critical Hdwy Stg 1	6.13	5.53	-	6.13	5.53	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.13	5.53	-	-	-	-
Follow-up Hdwy	3.527	4.027	3.327	3.527	4.027	3.327	2.218	-	-
Pot Cap-1 Maneuver	917	828	1051	918	830	1043	1599	-	-
Stage 1	978	864	-	991	873	-	-	-	-
Stage 2	976	872	-	964	864	-	-	-	-
Platoon blocked, %								-	-
Mov Cap-1 Maneuver	881	814	1039	883	816	1031	1590	-	-
Mov Cap-2 Maneuver	881	814	-	883	816	-	-	-	-
Stage 1	973	854	-	985	868	-	-	-	-
Stage 2	947	867	-	927	854	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	9.3	8.7	0
HCM LOS	A	A	

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1590	-	-	875	998	1573	-	-
HCM Lane V/C Ratio	-	-	-	0.048	0.031	0.006	-	-
HCM Control Delay (s)	0	-	-	9.3	8.7	7.3	0	-
HCM Lane LOS	A	-	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.1	0	-	-

Intersection	
Int Delay, s/veh	

Movement	SBL	SBT	SBR
Vol, veh/h	7	10	0
Conflicting Peds, #/hr	5	0	5
Sign Control	Free	Free	Free
RT Channelized	-	-	None
Storage Length	-	-	-
Veh in Median Storage, #	-	0	-
Grade, %	-	0	-
Peak Hour Factor	80	80	80
Heavy Vehicles, %	3	3	2
Mvmt Flow	9	12	0

Major/Minor	Major2		
Conflicting Flow All	26	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.13	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.227	-	-
Pot Cap-1 Maneuver	1582	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	1573	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	SB
HCM Control Delay, s	3
HCM LOS	

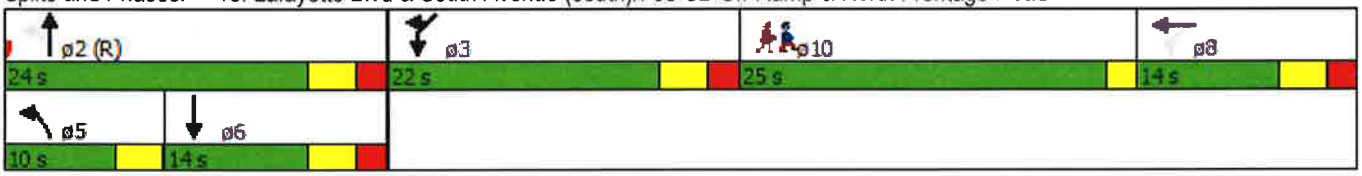
Minor Lane/Major Mvmt

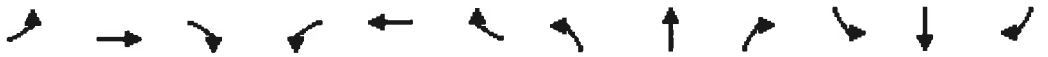
Lane Group	WBL	WBT	NBL	NBT	SBT	SBR	SWL	SWR	SWR2	ø10
Lane Configurations										
Volume (vph)	97	268	26	39	86	28	34	83	28	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	11	11	12	12	14	12	
Grade (%)		0%		0%	0%		0%			
Storage Length (ft)	0		0			0	0	0		
Storage Lanes	0		0			0	1	1		
Taper Length (ft)	25		25				25			
Right Turn on Red						Yes			Yes	
Link Speed (mph)		30		30	30		30			
Link Distance (ft)		480		275	340		417			
Travel Time (s)		10.9		6.3	7.7		9.5			
Confl. Peds. (#/hr)	5		5			5	5	5	5	
Confl. Bikes (#/hr)										
Peak Hour Factor	0.93	0.93	0.89	0.89	0.83	0.83	0.95	0.95	0.95	
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	
Parking (#/hr)										
Mid-Block Traffic (%)		0%		0%	0%		0%			
Shared Lane Traffic (%)								48%		
Turn Type	Perm	NA	pm+pt	NA	NA		Prot	Prot		
Protected Phases		8	5	2	6		3	3		10
Permitted Phases	8	8	2		6		3			
Detector Phase	8	8	5	2	6		3	3		
Switch Phase										
Minimum Initial (s)	9.0	9.0	5.0	9.0	9.0		15.0	15.0		7.0
Minimum Split (s)	14.0	14.0	8.1	14.0	14.0		21.0	21.0		25.0
Total Split (s)	14.0	14.0	10.0	24.0	14.0		22.0	22.0		25.0
Total Split (%)	16.5%	16.5%	11.8%	28.2%	16.5%		25.9%	25.9%		29%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		2.0
All-Red Time (s)	2.0	2.0	0.1	2.0	2.0		2.0	2.0		0.0
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0		
Total Lost Time (s)		5.0		5.0	5.0		5.0	5.0		
Lead/Lag			Lead		Lag		Lead	Lead		Lag
Lead-Lag Optimize?							Yes	Yes		Yes
Recall Mode	None	None	None	C-Max	None		Max	Max		None
Act Effct Green (s)		15.3		32.7	32.7		17.0	17.0		
Actuated g/C Ratio		0.18		0.38	0.38		0.20	0.20		
v/c Ratio		0.64		0.07	0.08		0.24	0.17		
Control Delay		40.2		19.4	14.5		31.0	0.8		
Queue Delay		0.0		0.0	0.0		0.0	0.0		
Total Delay		40.2		19.4	14.5		31.0	0.8		
LOS		D		B	B		C	A		
Approach Delay		40.2		19.4	14.5		16.3			
Approach LOS		D		B	B		B			

Intersection Summary	
Area Type:	Other

Cycle Length: 85
Actuated Cycle Length: 85
Offset: 0 (0%), Referenced to phase 2:NBTL, Start of Green
Natural Cycle: 85
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.64
Intersection Signal Delay: 28.7 Intersection LOS: C
Intersection Capacity Utilization 46.6% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 18: Lafayette Blvd & South Avenue (south)/I-95 SB Off-Ramp & North Frontage Road





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	37	198	30	0	0	0	0	28	36	138	79	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	16	12	12	12	12	12	15	12	11	11	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	1		0	0		0	0		0	2		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			No			Yes
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		337			124			289			275	
Travel Time (s)		7.7			2.8			6.6			6.3	
Confl. Peds. (#/hr)	5		5				5		5	5		5
Confl. Bikes (#/hr)												
Peak Hour Factor	0.80	0.80	0.80	0.92	0.92	0.92	0.80	0.80	0.80	0.80	0.80	0.80
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	5%	3%	2%	2%	2%	2%	3%	3%	5%	3%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Turn Type	Perm	NA						NA		custom	NA	
Protected Phases		2						8		4	4	
Permitted Phases	2							8		4		
Detector Phase	2	2						8		4	4	
Switch Phase												
Minimum Initial (s)	15.0	15.0						9.0		9.0	9.0	
Minimum Split (s)	20.0	20.0						14.0		14.0	14.0	
Total Split (s)	22.0	22.0						14.0		14.0	14.0	
Total Split (%)	31.4%	31.4%						20.0%		20.0%	20.0%	
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	0.0	
Total Lost Time (s)	5.0	5.0						4.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Min	C-Min						None		None	None	
Act Effct Green (s)	35.9	35.9						9.3		9.4	9.4	
Actuated g/C Ratio	0.51	0.51						0.13		0.13	0.13	
v/c Ratio	0.05	0.28						0.33		0.40	0.42	
Control Delay	14.1	13.9						31.3		30.8	33.6	
Queue Delay	0.0	0.0						0.0		0.0	0.0	
Total Delay	14.1	13.9						31.3		30.8	33.6	
LOS	B	B						C		C	C	
Approach Delay		13.9						31.3			31.8	
Approach LOS		B						C			C	

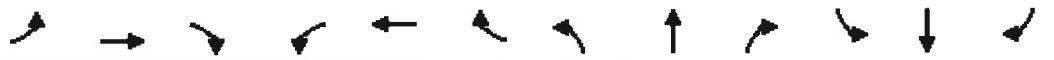
Intersection Summary	
Area Type:	Other

Lane Group	ø10
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Right Turn on Red	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Growth Factor	
Heavy Vehicles (%)	
Bus Blockages (#/hr)	
Parking (#/hr)	
Mid-Block Traffic (%)	
Shared Lane Traffic (%)	
Turn Type	
Protected Phases	10
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	20.0
Total Split (s)	20.0
Total Split (%)	29%
Yellow Time (s)	2.0
All-Red Time (s)	0.1
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary

Cycle Length: 70
Actuated Cycle Length: 70
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.42
Intersection Signal Delay: 23.1 Intersection LOS: C
Intersection Capacity Utilization 31.4% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 14: Lafayette Street/Lafayette Blvd & South Frontage Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	41	11	1	0	38	0	35	2	36	47	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	13	12	12	16	12	12	15	12	12	13	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	75		0	0		0	0		0	0		0
Storage Lanes	1		0	0		0	0		0	0		0
Taper Length (ft)	100			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		449			287			887			417	
Travel Time (s)		10.2			6.5			20.2			9.5	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.80	0.80	0.80	0.80	0.80	0.80	0.89	0.89	0.89
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	2%	3%	3%	3%	3%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	2	2	0
Parking (#/hr)			5									
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Turn Type	Perm	NA		Perm	NA			NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6						4		
Detector Phase	2	2		6	6			8		4	4	
Switch Phase												
Minimum Initial (s)	8.0	8.0		13.0	13.0			3.0		9.0	9.0	
Minimum Split (s)	13.0	13.0		18.0	18.0			14.0		16.0	16.0	
Total Split (s)	14.0	14.0		18.0	18.0			14.0		21.0	21.0	
Total Split (%)	23.3%	23.3%		30.0%	30.0%			23.3%		35.0%	35.0%	
Yellow Time (s)	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		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0			0.0			0.0			0.0	
Total Lost Time (s)	5.0	5.0			5.0			5.0			4.0	
Lead/Lag	Lead	Lead		Lag	Lag			Lead				
Lead-Lag Optimize?	Yes	Yes		Yes	Yes			Yes				
Recall Mode	C-Max	C-Max		None	None			None		None	None	
Act Effct Green (s)	34.4	34.4			13.0			7.1			9.4	
Actuated g/C Ratio	0.57	0.57			0.22			0.12			0.16	
v/c Ratio	0.04	0.06			0.08			0.19			0.36	
Control Delay	13.0	9.8			0.3			23.8			26.8	
Queue Delay	0.0	0.0			0.0			0.0			0.0	
Total Delay	13.0	9.8			0.3			23.8			26.8	
LOS	B	A			A			C			C	
Approach Delay		10.1			0.3			23.8			26.8	
Approach LOS		B			A			C			C	

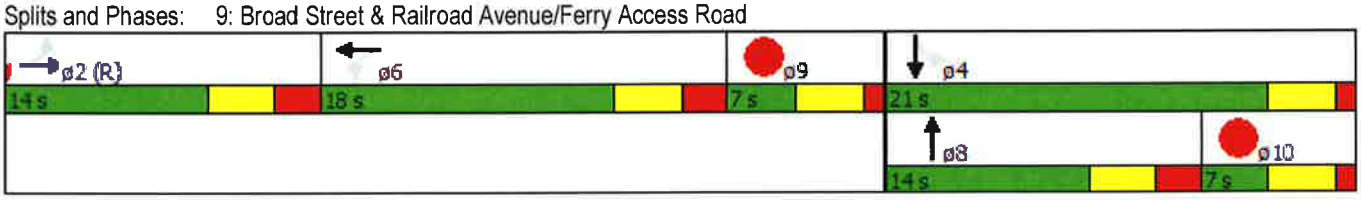
Intersection Summary	
Area Type:	Other

Lane Group	ø9	ø10
Lane Configurations		
Volume (vph)		
Ideal Flow (vphpl)		
Lane Width (ft)		
Grade (%)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Right Turn on Red		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Peak Hour Factor		
Growth Factor		
Heavy Vehicles (%)		
Bus Blockages (#/hr)		
Parking (#/hr)		
Mid-Block Traffic (%)		
Shared Lane Traffic (%)		
Turn Type		
Protected Phases	9	10
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	3.0	3.0
Minimum Split (s)	7.0	7.0
Total Split (s)	7.0	7.0
Total Split (%)	12%	12%
Yellow Time (s)	3.0	3.0
All-Red Time (s)	1.0	1.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag		Lag
Lead-Lag Optimize?		Yes
Recall Mode	None	None
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		

Intersection Summary

Cycle Length: 60
Actuated Cycle Length: 60
Offset: 0 (0%), Referenced to phase 2:EBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.36
Intersection Signal Delay: 16.9 Intersection LOS: B
Intersection Capacity Utilization 29.5% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 9: Broad Street & Railroad Avenue/Ferry Access Road



Intersection	
Intersection Delay, s/veh	7.3
Intersection LOS	A

Movement	EBU	EBT	EBR	WBU	WBL	WBT	NBU	NBL	NBR
Vol, veh/h	0	58	20	0	7	14	0	25	2
Peak Hour Factor	0.92	0.84	0.84	0.92	0.80	0.80	0.92	0.80	0.80
Heavy Vehicles, %	2	3	3	2	3	3	2	3	3
Mvmt Flow	0	69	24	0	9	17	0	31	2
Number of Lanes	0	1	0	0	0	1	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	7.3	7.3	7.5
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	WBLn1
Vol Left, %	93%	0%	33%
Vol Thru, %	0%	74%	67%
Vol Right, %	7%	26%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	27	78	21
LT Vol	0	58	14
Through Vol	2	20	0
RT Vol	25	0	7
Lane Flow Rate	34	93	26
Geometry Grp	1	1	1
Degree of Util (X)	0.04	0.1	0.03
Departure Headway (Hd)	4.298	3.876	4.147
Convergence, Y/N	Yes	Yes	Yes
Cap	829	924	861
Service Time	2.344	1.901	2.182
HCM Lane V/C Ratio	0.041	0.101	0.03
HCM Control Delay	7.5	7.3	7.3
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.1	0.3	0.1

Intersection	
Intersection Delay, s/veh	7.3
Intersection LOS	A

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	8	23	5	0	0	0	0	0	0	22	2
Peak Hour Factor	0.92	0.86	0.86	0.86	0.92	0.92	0.92	0.92	0.92	1.00	1.00	1.00
Heavy Vehicles, %	2	3	3	3	2	2	2	2	2	2	3	3
Mvmt Flow	0	9	27	6	0	0	0	0	0	0	22	2
Number of Lanes	0	0	1	0	0	0	0	0	0	0	1	0

Approach	EB	NB
Opposing Approach		SB
Opposing Lanes	0	1
Conflicting Approach Left	SB	EB
Conflicting Lanes Left	1	1
Conflicting Approach Right	NB	
Conflicting Lanes Right	1	0
HCM Control Delay	7.3	7.2
HCM LOS	A	A

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	0%	22%	42%
Vol Thru, %	92%	64%	58%
Vol Right, %	8%	14%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	24	36	50
LT Vol	22	23	29
Through Vol	2	5	0
RT Vol	0	8	21
Lane Flow Rate	24	42	59
Geometry Grp	1	1	1
Degree of Util (X)	0.027	0.047	0.067
Departure Headway (Hd)	4.018	4.054	4.126
Convergence, Y/N	Yes	Yes	Yes
Cap	889	880	868
Service Time	2.051	2.094	2.151
HCM Lane V/C Ratio	0.027	0.048	0.068
HCM Control Delay	7.2	7.3	7.4
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.1	0.1	0.2

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	21	29	0
Peak Hour Factor	0.92	0.85	0.85	0.85
Heavy Vehicles, %	2	3	3	2
Mvmt Flow	0	25	34	0
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	
Conflicting Lanes Left	0
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	7.4
HCM LOS	A

Lane

Intersection	
Int Delay, s/veh	6.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR
Vol, veh/h	17	23	6	2	0	8	0	10	2
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	3	3	3	3	3	3	2	3	3
Mvmt Flow	21	29	8	2	0	10	0	12	2

Major/Minor	Minor2			Minor1			Major1		
Conflicting Flow All	72	68	25	85	67	24	20	0	0
Stage 1	48	48	-	19	19	-	-	-	-
Stage 2	24	20	-	66	48	-	-	-	-
Critical Hdwy	7.13	6.53	6.23	7.13	6.53	6.23	4.12	-	-
Critical Hdwy Stg 1	6.13	5.53	-	6.13	5.53	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.13	5.53	-	-	-	-
Follow-up Hdwy	3.527	4.027	3.327	3.527	4.027	3.327	2.218	-	-
Pot Cap-1 Maneuver	917	821	1048	899	822	1050	1596	-	-
Stage 1	963	853	-	997	878	-	-	-	-
Stage 2	991	877	-	942	853	-	-	-	-
Platoon blocked, %								-	-
Mov Cap-1 Maneuver	892	805	1036	853	806	1038	1587	-	-
Mov Cap-2 Maneuver	892	805	-	853	806	-	-	-	-
Stage 1	958	841	-	991	873	-	-	-	-
Stage 2	976	872	-	890	841	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	9.5	8.7	0
HCM LOS	A	A	

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1587	-	-	861	995	1581	-	-
HCM Lane V/C Ratio	-	-	-	0.067	0.013	0.009	-	-
HCM Control Delay (s)	0	-	-	9.5	8.7	7.3	0	-
HCM Lane LOS	A	-	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0	0	-	-

Intersection	
Int Delay, s/veh	

Movement	SBL	SBT	SBR
Vol, veh/h	11	12	0
Conflicting Peds, #/hr	5	0	5
Sign Control	Free	Free	Free
RT Channelized	-	-	None
Storage Length	-	-	-
Veh in Median Storage, #	-	0	-
Grade, %	-	0	-
Peak Hour Factor	80	80	80
Heavy Vehicles, %	3	3	2
Mvmt Flow	14	15	0

Major/Minor	Major2		
Conflicting Flow All	20	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.13	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.227	-	-
Pot Cap-1 Maneuver	1590	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	1581	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	SB
HCM Control Delay, s	3.5
HCM LOS	

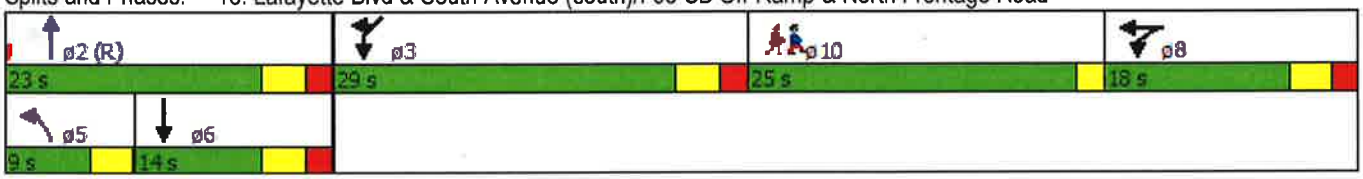
Minor Lane/Major Mvmt

Lane Group	WBL	WBT	NBL	NBT	SBT	SBR	SWL	SWR	SWR2	ø10
Lane Configurations										
Volume (vph)	140	272	35	66	196	56	100	430	45	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	11	11	12	12	14	12	
Grade (%)		0%		0%	0%		0%			
Storage Length (ft)	0		0			0	0	0		
Storage Lanes	0		0			0	1	1		
Taper Length (ft)	25		25				25			
Right Turn on Red						Yes			Yes	
Link Speed (mph)		30		30	30		30			
Link Distance (ft)		480		275	340		417			
Travel Time (s)		10.9		6.3	7.7		9.5			
Confl. Peds. (#/hr)	5		5			5	5	5	5	
Confl. Bikes (#/hr)										
Peak Hour Factor	0.94	0.94	0.92	0.92	0.91	0.91	0.80	0.80	0.80	
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	
Parking (#/hr)										
Mid-Block Traffic (%)		0%		0%	0%		0%			
Shared Lane Traffic (%)								45%		
Turn Type	custom	NA	pm+pt	NA	NA		Prot	Prot		
Protected Phases	8	8	5	2	6		3	3		10
Permitted Phases	8	8	2		6		3			
Detector Phase	8	8	5	2	6		3	3		
Switch Phase										
Minimum Initial (s)	9.0	9.0	5.0	9.0	9.0		15.0	15.0		7.0
Minimum Split (s)	14.0	14.0	8.1	14.0	14.0		21.0	21.0		25.0
Total Split (s)	18.0	18.0	9.0	23.0	14.0		29.0	29.0		25.0
Total Split (%)	18.9%	18.9%	9.5%	24.2%	14.7%		30.5%	30.5%		26%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		2.0
All-Red Time (s)	2.0	2.0	0.1	2.0	2.0		2.0	2.0		0.0
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0		
Total Lost Time (s)		5.0		5.0	5.0		5.0	5.0		
Lead/Lag			Lead		Lag		Lead	Lead		Lag
Lead-Lag Optimize?							Yes	Yes		Yes
Recall Mode	None	None	None	C-Max	None		Max	Max		None
Act Effct Green (s)		16.3		34.7	34.7		24.0	24.0		
Actuated g/C Ratio		0.17		0.37	0.37		0.25	0.25		
v/c Ratio		0.76		0.11	0.16		0.92	0.71		
Control Delay		47.6		23.6	18.2		64.6	28.1		
Queue Delay		0.0		0.0	0.0		0.0	0.0		
Total Delay		47.6		23.6	18.2		64.6	28.1		
LOS		D		C	B		E	C		
Approach Delay		47.6		23.6	18.2		46.7			
Approach LOS		D		C	B		D			

Intersection Summary	
Area Type:	Other

Cycle Length: 95
Actuated Cycle Length: 95
Offset: 0 (0%), Referenced to phase 2:NBTL, Start of Green
Natural Cycle: 85
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 40.2 Intersection LOS: D
Intersection Capacity Utilization 63.4% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 18: Lafayette Blvd & South Avenue (south)/I-95 SB Off-Ramp & North Frontage Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	34	265	39	0	0	0	0	67	111	306	79	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	16	12	12	12	12	12	15	12	11	11	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	1		0	0		0	0		0	2		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			No			Yes
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		337			124			289			275	
Travel Time (s)		7.7			2.8			6.6			6.3	
Confl. Peds. (#/hr)	5		5				5		5	5		5
Confl. Bikes (#/hr)												
Peak Hour Factor	0.80	0.80	0.80	0.92	0.92	0.92	0.88	0.88	0.88	0.82	0.82	0.82
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	5%	3%	2%	2%	2%	2%	3%	3%	5%	3%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Turn Type	Perm	NA						NA		custom	NA	
Protected Phases		2						8		4	4	
Permitted Phases	2							8		4		
Detector Phase	2	2						8		4	4	
Switch Phase												
Minimum Initial (s)	15.0	15.0						9.0		9.0	9.0	
Minimum Split (s)	20.0	20.0						14.0		14.0	14.0	
Total Split (s)	21.0	21.0						15.0		14.0	14.0	
Total Split (%)	30.0%	30.0%						21.4%		20.0%	20.0%	
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	0.0	
Total Lost Time (s)	5.0	5.0						4.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Min	C-Min						None		None	None	
Act Effct Green (s)	27.6	27.6						11.9		12.5	12.5	
Actuated g/C Ratio	0.39	0.39						0.17		0.18	0.18	
v/c Ratio	0.06	0.48						0.65		0.65	0.30	
Control Delay	17.5	21.4						38.4		34.6	28.3	
Queue Delay	0.0	0.0						0.0		0.0	0.0	
Total Delay	17.5	21.4						38.4		34.6	28.3	
LOS	B	C						D		C	C	
Approach Delay		21.0						38.4			33.3	
Approach LOS		C						D			C	

Intersection Summary	
Area Type:	Other

Lane Group	ø10
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Right Turn on Red	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Growth Factor	
Heavy Vehicles (%)	
Bus Blockages (#/hr)	
Parking (#/hr)	
Mid-Block Traffic (%)	
Shared Lane Traffic (%)	
Turn Type	
Protected Phases	10
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	20.0
Total Split (s)	20.0
Total Split (%)	29%
Yellow Time (s)	2.0
All-Red Time (s)	0.1
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary

Cycle Length: 70
Actuated Cycle Length: 70
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.65
Intersection Signal Delay: 29.5
Intersection LOS: C
Intersection Capacity Utilization 47.4%
ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 14: Lafayette Street/Lafayette Blvd & South Frontage Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	16	50	6	12	0	69	0	67	5	20	72	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	13	12	12	16	12	12	15	12	12	13	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	75		0	0		0	0		0	0		0
Storage Lanes	1		0	0		0	0		0	0		0
Taper Length (ft)	100			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		449			287			887			417	
Travel Time (s)		10.2			6.5			20.2			9.5	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)												
Peak Hour Factor	0.85	0.85	0.85	0.80	0.80	0.80	0.85	0.85	0.85	0.91	0.91	0.91
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	2%	3%	3%	3%	3%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	2	2	0
Parking (#/hr)			5									
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Turn Type	Perm	NA		Perm	NA			NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6						4		
Detector Phase	2	2		6	6			8		4	4	
Switch Phase												
Minimum Initial (s)	8.0	8.0		13.0	13.0			3.0		9.0	9.0	
Minimum Split (s)	13.0	13.0		18.0	18.0			14.0		16.0	16.0	
Total Split (s)	13.0	13.0		18.0	18.0			15.0		22.0	22.0	
Total Split (%)	21.7%	21.7%		30.0%	30.0%			25.0%		36.7%	36.7%	
Yellow Time (s)	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		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0			0.0			0.0			0.0	
Total Lost Time (s)	5.0	5.0			5.0			5.0			4.0	
Lead/Lag	Lead	Lead		Lag	Lag			Lead				
Lead-Lag Optimize?	Yes	Yes		Yes	Yes			Yes				
Recall Mode	C-Max	C-Max		None	None			None		None	None	
Act Effct Green (s)	30.8	30.8			13.0			7.7			9.4	
Actuated g/C Ratio	0.51	0.51			0.22			0.13			0.16	
v/c Ratio	0.12	0.07			0.17			0.32			0.37	
Control Delay	15.2	11.2			0.7			25.4			26.8	
Queue Delay	0.0	0.0			0.0			0.0			0.0	
Total Delay	15.2	11.2			0.7			25.4			26.8	
LOS	B	B			A			C			C	
Approach Delay		12.1			0.7			25.4			26.8	
Approach LOS		B			A			C			C	

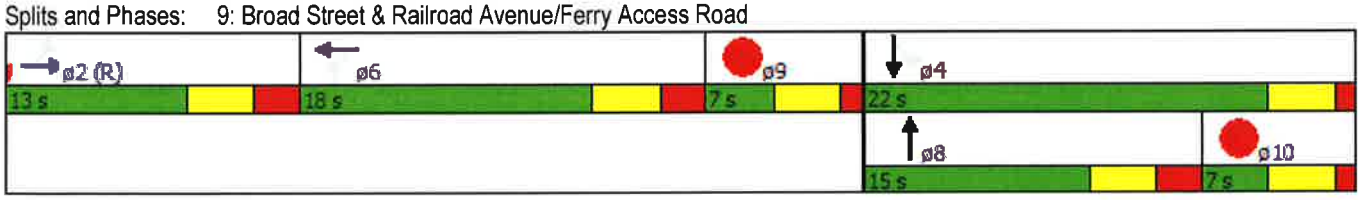
Intersection Summary	
Area Type:	Other

Lane Group	ø9	ø10
Lane Configurations		
Volume (vph)		
Ideal Flow (vphpl)		
Lane Width (ft)		
Grade (%)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Right Turn on Red		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Peak Hour Factor		
Growth Factor		
Heavy Vehicles (%)		
Bus Blockages (#/hr)		
Parking (#/hr)		
Mid-Block Traffic (%)		
Shared Lane Traffic (%)		
Turn Type		
Protected Phases	9	10
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	3.0	3.0
Minimum Split (s)	7.0	7.0
Total Split (s)	7.0	7.0
Total Split (%)	12%	12%
Yellow Time (s)	3.0	3.0
All-Red Time (s)	1.0	1.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag		Lag
Lead-Lag Optimize?		Yes
Recall Mode	None	None
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		

Intersection Summary

Cycle Length: 60
Actuated Cycle Length: 60
Offset: 0 (0%), Referenced to phase 2:EBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.37
Intersection Signal Delay: 16.0
Intersection LOS: B
Intersection Capacity Utilization 31.1%
ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 9: Broad Street & Railroad Avenue/Ferry Access Road



Intersection	
Intersection Delay, s/veh	7.5
Intersection LOS	A

Movement	EBU	EBT	EBR	WBU	WBL	WBT	NBU	NBL	NBR
Vol, veh/h	0	35	41	0	12	42	0	40	6
Peak Hour Factor	0.92	0.81	0.81	0.92	0.80	0.80	0.92	0.80	0.80
Heavy Vehicles, %	2	3	3	2	3	3	2	3	3
Mvmt Flow	0	43	51	0	15	52	0	50	7
Number of Lanes	0	1	0	0	0	1	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	7.2	7.6	7.7
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	WBLn1
Vol Left, %	87%	0%	22%
Vol Thru, %	0%	46%	78%
Vol Right, %	13%	54%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	46	76	54
LT Vol	0	35	42
Through Vol	6	41	0
RT Vol	40	0	12
Lane Flow Rate	58	94	68
Geometry Grp	1	1	1
Degree of Util (X)	0.069	0.098	0.078
Departure Headway (Hd)	4.323	3.779	4.167
Convergence, Y/N	Yes	Yes	Yes
Cap	822	941	855
Service Time	2.386	1.83	2.216
HCM Lane V/C Ratio	0.071	0.1	0.08
HCM Control Delay	7.7	7.2	7.6
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.2	0.3	0.3

Intersection	
Intersection Delay, s/veh	7.6
Intersection LOS	A

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	16	14	22	0	0	0	0	0	0	94	11
Peak Hour Factor	0.92	0.84	0.84	0.84	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	3	3	3	2	2	2	2	2	2	3	3
Mvmt Flow	0	19	17	26	0	0	0	0	0	0	102	12
Number of Lanes	0	0	1	0	0	0	0	0	0	0	1	0

Approach	EB	NB
Opposing Approach		SB
Opposing Lanes	0	1
Conflicting Approach Left	SB	EB
Conflicting Lanes Left	1	1
Conflicting Approach Right	NB	
Conflicting Lanes Right	1	0
HCM Control Delay	7.4	7.7
HCM LOS	A	A

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	0%	31%	20%
Vol Thru, %	90%	27%	80%
Vol Right, %	10%	42%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	105	52	45
LT Vol	94	14	36
Through Vol	11	22	0
RT Vol	0	16	9
Lane Flow Rate	114	62	56
Geometry Grp	1	1	1
Degree of Util (X)	0.128	0.07	0.065
Departure Headway (Hd)	4.039	4.05	4.186
Convergence, Y/N	Yes	Yes	Yes
Cap	883	873	850
Service Time	2.082	2.13	2.24
HCM Lane V/C Ratio	0.129	0.071	0.066
HCM Control Delay	7.7	7.4	7.5
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.4	0.2	0.2

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	9	36	0
Peak Hour Factor	0.92	0.80	0.80	0.80
Heavy Vehicles, %	2	3	3	2
Mvmt Flow	0	11	45	0
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	
Conflicting Lanes Left	0
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	7.5
HCM LOS	A

Lane

Intersection	
Int Delay, s/veh	6.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR
Vol, veh/h	14	14	6	5	0	20	0	14	3
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	80	80	80	80	80	80
Heavy Vehicles, %	3	3	3	3	3	3	2	3	3
Mvmt Flow	17	17	7	6	0	25	0	18	4

Major/Minor	Minor2			Minor1			Major1		
Conflicting Flow All	72	61	23	71	59	29	18	0	0
Stage 1	35	35	-	24	24	-	-	-	-
Stage 2	37	26	-	47	35	-	-	-	-
Critical Hdwy	7.13	6.53	6.23	7.13	6.53	6.23	4.12	-	-
Critical Hdwy Stg 1	6.13	5.53	-	6.13	5.53	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.13	5.53	-	-	-	-
Follow-up Hdwy	3.527	4.027	3.327	3.527	4.027	3.327	2.218	-	-
Pot Cap-1 Maneuver	917	828	1051	918	830	1043	1599	-	-
Stage 1	978	864	-	991	873	-	-	-	-
Stage 2	976	872	-	964	864	-	-	-	-
Platoon blocked, %								-	-
Mov Cap-1 Maneuver	881	814	1039	883	816	1031	1590	-	-
Mov Cap-2 Maneuver	881	814	-	883	816	-	-	-	-
Stage 1	973	854	-	985	868	-	-	-	-
Stage 2	947	867	-	927	854	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	9.3	8.7	0
HCM LOS	A	A	

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1590	-	-	875	998	1573	-	-
HCM Lane V/C Ratio	-	-	-	0.048	0.031	0.006	-	-
HCM Control Delay (s)	0	-	-	9.3	8.7	7.3	0	-
HCM Lane LOS	A	-	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.1	0	-	-

Intersection	
Int Delay, s/veh	

Movement	SBL	SBT	SBR
Vol, veh/h	7	10	0
Conflicting Peds, #/hr	5	0	5
Sign Control	Free	Free	Free
RT Channelized	-	-	None
Storage Length	-	-	-
Veh in Median Storage, #	-	0	-
Grade, %	-	0	-
Peak Hour Factor	80	80	80
Heavy Vehicles, %	3	3	2
Mvmt Flow	9	12	0

Major/Minor	Major2		
Conflicting Flow All	26	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.13	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.227	-	-
Pot Cap-1 Maneuver	1582	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	1573	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	SB
HCM Control Delay, s	3
HCM LOS	

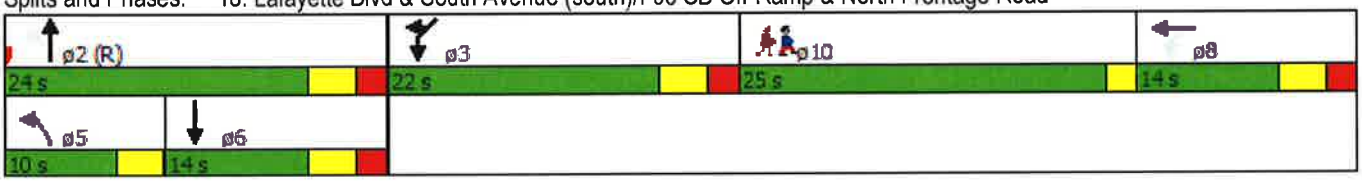
Minor Lane/Major Mvmt

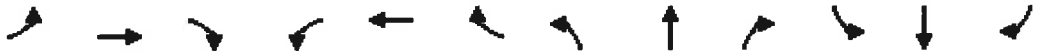
Lane Group	WBL	WBT	NBL	NBT	SBT	SBR	SWL	SWR	SWR2	ø10
Lane Configurations										
Volume (vph)	194	268	33	39	90	28	34	83	28	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	11	11	12	12	14	12	
Grade (%)		0%		0%	0%		0%			
Storage Length (ft)	0		0			0	0	0		
Storage Lanes	0		0			0	1	1		
Taper Length (ft)	25		25				25			
Right Turn on Red						Yes			Yes	
Link Speed (mph)		30		30	30		30			
Link Distance (ft)		480		275	340		417			
Travel Time (s)		10.9		6.3	7.7		9.5			
Confl. Peds. (#/hr)	5		5			5	5	5	5	
Confl. Bikes (#/hr)										
Peak Hour Factor	0.93	0.93	0.89	0.89	0.83	0.83	0.95	0.95	0.95	
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	
Parking (#/hr)										
Mid-Block Traffic (%)		0%		0%	0%		0%			
Shared Lane Traffic (%)								48%		
Turn Type	Perm	NA	pm+pt	NA	NA		Prot	Prot		
Protected Phases		8	5	2	6		3	3		10
Permitted Phases	8	8	2		6		3			
Detector Phase	8	8	5	2	6		3	3		
Switch Phase										
Minimum Initial (s)	9.0	9.0	5.0	9.0	9.0		15.0	15.0		7.0
Minimum Split (s)	14.0	14.0	8.1	14.0	14.0		21.0	21.0		25.0
Total Split (s)	14.0	14.0	10.0	24.0	14.0		22.0	22.0		25.0
Total Split (%)	16.5%	16.5%	11.8%	28.2%	16.5%		25.9%	25.9%		29%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		2.0
All-Red Time (s)	2.0	2.0	0.1	2.0	2.0		2.0	2.0		0.0
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0		
Total Lost Time (s)		5.0		5.0	5.0		5.0	5.0		
Lead/Lag			Lead		Lag		Lead	Lead		Lag
Lead-Lag Optimize?							Yes	Yes		Yes
Recall Mode	None	None	None	C-Max	None		Max	Max		None
Act Effct Green (s)		21.0		27.0	27.0		17.0	17.0		
Actuated g/C Ratio		0.25		0.32	0.32		0.20	0.20		
v/c Ratio		0.60		0.09	0.10		0.24	0.17		
Control Delay		35.8		21.3	16.0		31.0	0.8		
Queue Delay		0.0		0.0	0.0		0.0	0.0		
Total Delay		35.8		21.3	16.0		31.0	0.8		
LOS		D		C	B		C	A		
Approach Delay		35.8		21.3	16.0		16.3			
Approach LOS		D		C	B		B			

Intersection Summary	
Area Type:	Other

Cycle Length: 85
Actuated Cycle Length: 85
Offset: 0 (0%), Referenced to phase 2:NBTL, Start of Green
Natural Cycle: 85
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.60
Intersection Signal Delay: 27.8 Intersection LOS: C
Intersection Capacity Utilization 50.9% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 18: Lafayette Blvd & South Avenue (south)/I-95 SB Off-Ramp & North Frontage Road





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	37	198	300	0	0	0	0	35	39	138	180	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	16	12	12	12	12	12	15	12	11	11	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	1		0	0		0	0		0	2		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			No			Yes
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		337			124			289			275	
Travel Time (s)		7.7			2.8			6.6			6.3	
Confl. Peds. (#/hr)	5		5				5		5	5		5
Confl. Bikes (#/hr)												
Peak Hour Factor	0.80	0.80	0.80	0.92	0.92	0.92	0.80	0.80	0.80	0.80	0.80	0.80
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	5%	3%	2%	2%	2%	2%	3%	3%	5%	3%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Turn Type	Perm	NA						NA		custom	NA	
Protected Phases		2						8		4	4	
Permitted Phases	2							8		4		
Detector Phase	2	2						8		4	4	
Switch Phase												
Minimum Initial (s)	15.0	15.0						9.0		9.0	9.0	
Minimum Split (s)	20.0	20.0						14.0		14.0	14.0	
Total Split (s)	22.0	22.0						14.0		14.0	14.0	
Total Split (%)	31.4%	31.4%						20.0%		20.0%	20.0%	
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	0.0	
Total Lost Time (s)	5.0	5.0						4.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Min	C-Min						None		None	None	
Act Effct Green (s)	31.0	31.0						9.4		14.2	14.2	
Actuated g/C Ratio	0.44	0.44						0.13		0.20	0.20	
v/c Ratio	0.06	0.71						0.37		0.26	0.62	
Control Delay	16.2	23.3						32.1		25.4	37.3	
Queue Delay	0.0	0.0						0.0		0.0	0.0	
Total Delay	16.2	23.3						32.1		25.4	37.3	
LOS	B	C						C		C	D	
Approach Delay		22.8						32.1			32.1	
Approach LOS		C						C			C	

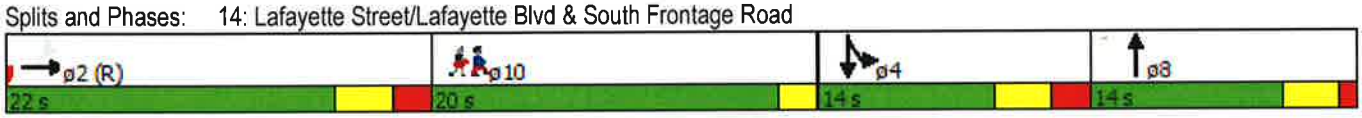
Intersection Summary	
Area Type:	Other

Lane Group	ø10
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Right Turn on Red	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Growth Factor	
Heavy Vehicles (%)	
Bus Blockages (#/hr)	
Parking (#/hr)	
Mid-Block Traffic (%)	
Shared Lane Traffic (%)	
Turn Type	
Protected Phases	10
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	20.0
Total Split (s)	20.0
Total Split (%)	29%
Yellow Time (s)	2.0
All-Red Time (s)	0.1
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary

Cycle Length: 70
Actuated Cycle Length: 70
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.71
Intersection Signal Delay: 26.7 Intersection LOS: C
Intersection Capacity Utilization 48.1% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 14: Lafayette Street/Lafayette Blvd & South Frontage Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	41	11	1	0	48	0	35	2	36	47	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	13	12	12	16	12	12	15	12	12	13	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	75		0	0		0	0		0	0		0
Storage Lanes	1		0	0		0	0		0	0		0
Taper Length (ft)	100			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		449			287			887			417	
Travel Time (s)		10.2			6.5			20.2			9.5	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.80	0.80	0.80	0.80	0.80	0.80	0.89	0.89	0.89
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	2%	3%	3%	3%	3%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	2	2	0
Parking (#/hr)			5									
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Turn Type	Perm	NA		Perm	NA			NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6						4		
Detector Phase	2	2		6	6			8		4	4	
Switch Phase												
Minimum Initial (s)	8.0	8.0		13.0	13.0			3.0		9.0	9.0	
Minimum Split (s)	13.0	13.0		18.0	18.0			14.0		16.0	16.0	
Total Split (s)	14.0	14.0		18.0	18.0			14.0		21.0	21.0	
Total Split (%)	23.3%	23.3%		30.0%	30.0%			23.3%		35.0%	35.0%	
Yellow Time (s)	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		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0			0.0			0.0			0.0	
Total Lost Time (s)	5.0	5.0			5.0			5.0			4.0	
Lead/Lag	Lead	Lead		Lag	Lag			Lead				
Lead-Lag Optimize?	Yes	Yes		Yes	Yes			Yes				
Recall Mode	C-Max	C-Max		None	None			None		None	None	
Act Effct Green (s)	34.4	34.4			13.0			7.1			9.4	
Actuated g/C Ratio	0.57	0.57			0.22			0.12			0.16	
v/c Ratio	0.04	0.06			0.10			0.19			0.36	
Control Delay	13.0	9.8			0.3			23.8			26.8	
Queue Delay	0.0	0.0			0.0			0.0			0.0	
Total Delay	13.0	9.8			0.3			23.8			26.8	
LOS	B	A			A			C			C	
Approach Delay		10.1			0.3			23.8			26.8	
Approach LOS		B			A			C			C	

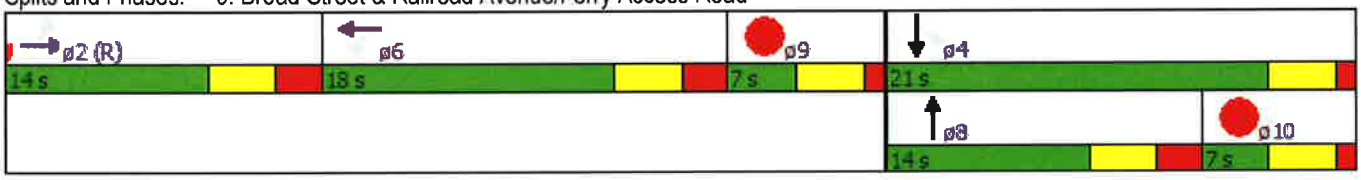
Intersection Summary	
Area Type:	Other

Lane Group	ø9	ø10
Lane Configurations		
Volume (vph)		
Ideal Flow (vphpl)		
Lane Width (ft)		
Grade (%)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Right Turn on Red		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Peak Hour Factor		
Growth Factor		
Heavy Vehicles (%)		
Bus Blockages (#/hr)		
Parking (#/hr)		
Mid-Block Traffic (%)		
Shared Lane Traffic (%)		
Turn Type		
Protected Phases	9	10
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	3.0	3.0
Minimum Split (s)	7.0	7.0
Total Split (s)	7.0	7.0
Total Split (%)	12%	12%
Yellow Time (s)	3.0	3.0
All-Red Time (s)	1.0	1.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag		Lag
Lead-Lag Optimize?		Yes
Recall Mode	None	None
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		

Intersection Summary

Cycle Length: 60
Actuated Cycle Length: 60
Offset: 0 (0%), Referenced to phase 2:EBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.36
Intersection Signal Delay: 16.1 Intersection LOS: B
Intersection Capacity Utilization 29.5% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 9: Broad Street & Railroad Avenue/Ferry Access Road



Intersection	
Intersection Delay, s/veh	7.4
Intersection LOS	A

Movement	EBU	EBT	EBR	WBU	WBL	WBT	NBU	NBL	NBR
Vol, veh/h	0	58	20	0	7	14	0	35	2
Peak Hour Factor	0.92	0.84	0.84	0.92	0.80	0.80	0.92	0.80	0.80
Heavy Vehicles, %	2	3	3	2	3	3	2	3	3
Mvmt Flow	0	69	24	0	9	17	0	44	2
Number of Lanes	0	1	0	0	0	1	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	7.4	7.3	7.6
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	WBLn1
Vol Left, %	95%	0%	33%
Vol Thru, %	0%	74%	67%
Vol Right, %	5%	26%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	37	78	21
LT Vol	0	58	14
Through Vol	2	20	0
RT Vol	35	0	7
Lane Flow Rate	46	93	26
Geometry Grp	1	1	1
Degree of Util (X)	0.055	0.101	0.03
Departure Headway (Hd)	4.314	3.897	4.169
Convergence, Y/N	Yes	Yes	Yes
Cap	826	917	855
Service Time	2.362	1.931	2.213
HCM Lane V/C Ratio	0.056	0.101	0.03
HCM Control Delay	7.6	7.4	7.3
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.2	0.3	0.1

Intersection	
Intersection Delay, s/veh	11.8
Intersection LOS	B

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	8	408	5	0	0	0	0	0	0	22	2
Peak Hour Factor	0.92	0.86	0.86	0.86	0.92	0.92	0.92	0.92	0.92	1.00	1.00	1.00
Heavy Vehicles, %	2	3	3	3	2	2	2	2	2	2	3	3
Mvmt Flow	0	9	474	6	0	0	0	0	0	0	22	2
Number of Lanes	0	0	1	0	0	0	0	0	0	0	1	0

Approach	EB	NB
Opposing Approach		SB
Opposing Lanes	0	1
Conflicting Approach Left	SB	EB
Conflicting Lanes Left	1	1
Conflicting Approach Right	NB	
Conflicting Lanes Right	1	0
HCM Control Delay	12.3	8.3
HCM LOS	B	A

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	0%	2%	42%
Vol Thru, %	92%	97%	58%
Vol Right, %	8%	1%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	24	421	50
LT Vol	22	408	29
Through Vol	2	5	0
RT Vol	0	8	21
Lane Flow Rate	24	490	59
Geometry Grp	1	1	1
Degree of Util (X)	0.034	0.556	0.084
Departure Headway (Hd)	5.083	4.09	5.167
Convergence, Y/N	Yes	Yes	Yes
Cap	708	871	697
Service Time	3.087	2.176	3.169
HCM Lane V/C Ratio	0.034	0.563	0.085
HCM Control Delay	8.3	12.3	8.6
HCM Lane LOS	A	B	A
HCM 95th-tile Q	0.1	3.5	0.3

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	21	29	0
Peak Hour Factor	0.92	0.85	0.85	0.85
Heavy Vehicles, %	2	3	3	2
Mvmt Flow	0	25	34	0
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	
Conflicting Lanes Left	0
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	8.6
HCM LOS	A

Lane

Intersection	
Int Delay, s/veh	11.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR
Vol, veh/h	17	23	391	2	0	8	0	20	2
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	3	3	3	3	3	3	2	3	3
Mvmt Flow	21	29	489	2	0	10	0	25	2

Major/Minor	Minor2			Minor1			Major1		
Conflicting Flow All	84	81	25	337	79	36	20	0	0
Stage 1	48	48	-	31	31	-	-	-	-
Stage 2	36	33	-	306	48	-	-	-	-
Critical Hdwy	7.13	6.53	6.23	7.13	6.53	6.23	4.12	-	-
Critical Hdwy Stg 1	6.13	5.53	-	6.13	5.53	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.13	5.53	-	-	-	-
Follow-up Hdwy	3.527	4.027	3.327	3.527	4.027	3.327	2.218	-	-
Pot Cap-1 Maneuver	900	807	1048	615	809	1034	1596	-	-
Stage 1	963	853	-	983	867	-	-	-	-
Stage 2	977	866	-	702	853	-	-	-	-
Platoon blocked, %								-	-
Mov Cap-1 Maneuver	875	791	1036	310	793	1023	1587	-	-
Mov Cap-2 Maneuver	875	791	-	310	793	-	-	-	-
Stage 1	958	841	-	978	862	-	-	-	-
Stage 2	962	861	-	353	841	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	12.5	10.2	0
HCM LOS	B	B	

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1587	-	-	1012	701	1563	-	-
HCM Lane V/C Ratio	-	-	-	0.532	0.018	0.009	-	-
HCM Control Delay (s)	0	-	-	12.5	10.2	7.3	0	-
HCM Lane LOS	A	-	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	3.2	0.1	0	-	-

Intersection	
Int Delay, s/veh	

Movement	SBL	SBT	SBR
Vol, veh/h	11	12	0
Conflicting Peds, #/hr	5	0	5
Sign Control	Free	Free	Free
RT Channelized	-	-	None
Storage Length	-	-	-
Veh in Median Storage, #	-	0	-
Grade, %	-	0	-
Peak Hour Factor	80	80	80
Heavy Vehicles, %	3	3	2
Mvmt Flow	14	15	0

Major/Minor	Major2		
Conflicting Flow All	33	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.13	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.227	-	-
Pot Cap-1 Maneuver	1572	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	1563	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	SB
HCM Control Delay, s	3.5
HCM LOS	

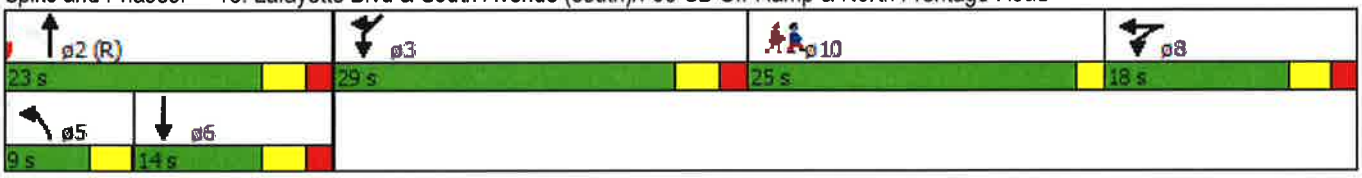
Minor Lane/Major Mvmt

Lane Group	WBL	WBT	NBL	NBT	SBT	SBR	SWL	SWR	SWR2	ø10
Lane Configurations										
Volume (vph)	140	272	298	77	196	56	100	430	45	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	11	11	12	12	14	12	
Grade (%)		0%		0%	0%		0%			
Storage Length (ft)	0		0			0	0	0		
Storage Lanes	0		0			0	1	1		
Taper Length (ft)	25		25				25			
Right Turn on Red						Yes			Yes	
Link Speed (mph)		30		30	30		30			
Link Distance (ft)		480		275	340		417			
Travel Time (s)		10.9		6.3	7.7		9.5			
Confl. Peds. (#/hr)	5		5			5	5	5	5	
Confl. Bikes (#/hr)										
Peak Hour Factor	0.94	0.94	0.92	0.92	0.91	0.91	0.80	0.80	0.80	
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	
Parking (#/hr)										
Mid-Block Traffic (%)		0%		0%	0%		0%			
Shared Lane Traffic (%)								45%		
Turn Type	custom	NA	pm+pt	NA	NA		Prot	Prot		
Protected Phases	8	8	5	2	6		3	3		10
Permitted Phases	8	8	2		6		3			
Detector Phase	8	8	5	2	6		3	3		
Switch Phase										
Minimum Initial (s)	9.0	9.0	5.0	9.0	9.0		15.0	15.0		7.0
Minimum Split (s)	14.0	14.0	8.1	14.0	14.0		21.0	21.0		25.0
Total Split (s)	18.0	18.0	9.0	23.0	14.0		29.0	29.0		25.0
Total Split (%)	18.9%	18.9%	9.5%	24.2%	14.7%		30.5%	30.5%		26%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		2.0
All-Red Time (s)	2.0	2.0	0.1	2.0	2.0		2.0	2.0		0.0
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0		
Total Lost Time (s)		5.0		5.0	5.0		5.0	5.0		
Lead/Lag			Lead		Lag		Lead	Lead		Lag
Lead-Lag Optimize?							Yes	Yes		Yes
Recall Mode	None	None	None	C-Max	None		Max	Max		None
Act Effct Green (s)		16.3		34.7	34.7		24.0	24.0		
Actuated g/C Ratio		0.17		0.37	0.37		0.25	0.25		
v/c Ratio		0.76		0.89dl	0.16		0.92	0.71		
Control Delay		47.6		30.0	18.2		64.6	28.1		
Queue Delay		0.0		0.0	0.0		0.0	0.0		
Total Delay		47.6		30.0	18.2		64.6	28.1		
LOS		D		C	B		E	C		
Approach Delay		47.6		30.0	18.2		46.7			
Approach LOS		D		C	B		D			

Intersection Summary	
Area Type:	Other

Cycle Length: 95
Actuated Cycle Length: 95
Offset: 0 (0%), Referenced to phase 2:NBTL, Start of Green
Natural Cycle: 85
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 38.9 Intersection LOS: D
Intersection Capacity Utilization 72.4% ICU Level of Service C
Analysis Period (min) 15
dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 18: Lafayette Blvd & South Avenue (south)/I-95 SB Off-Ramp & North Frontage Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	34	265	39	0	0	0	0	341	205	306	79	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	16	12	12	12	12	12	15	12	11	11	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	1		0	0		0	0		0	2		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			No			Yes
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		337			124			289			275	
Travel Time (s)		7.7			2.8			6.6			6.3	
Confl. Peds. (#/hr)	5		5				5		5	5		5
Confl. Bikes (#/hr)												
Peak Hour Factor	0.80	0.80	0.80	0.92	0.92	0.92	0.88	0.88	0.88	0.82	0.82	0.82
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	5%	3%	2%	2%	2%	2%	3%	3%	5%	3%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Turn Type	Perm	NA						NA		custom	NA	
Protected Phases		2						8		4	4	
Permitted Phases	2							8		4		
Detector Phase	2	2						8		4	4	
Switch Phase												
Minimum Initial (s)	15.0	15.0						9.0		9.0	9.0	
Minimum Split (s)	20.0	20.0						14.0		14.0	14.0	
Total Split (s)	21.0	21.0						15.0		14.0	14.0	
Total Split (%)	30.0%	30.0%						21.4%		20.0%	20.0%	
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	0.0	
Total Lost Time (s)	5.0	5.0						4.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Min	C-Min						None		None	None	
Act Effct Green (s)	15.8	15.8						23.7		12.5	12.5	
Actuated g/C Ratio	0.23	0.23						0.34		0.18	0.18	
v/c Ratio	0.11	0.83						0.96		0.65	0.30	
Control Delay	22.4	42.3						55.3		34.6	28.3	
Queue Delay	0.0	0.0						0.0		0.0	0.0	
Total Delay	22.4	42.3						55.3		34.6	28.3	
LOS	C	D						E		C	C	
Approach Delay		40.3						55.3			33.3	
Approach LOS		D						E			C	

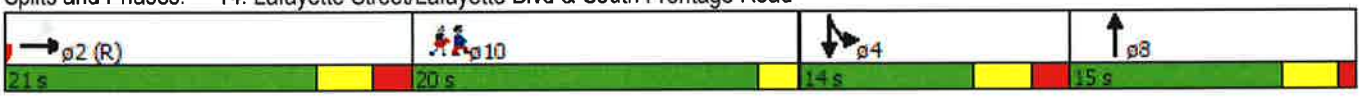
Intersection Summary	
Area Type:	Other

Lane Group	ø10
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Right Turn on Red	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Growth Factor	
Heavy Vehicles (%)	
Bus Blockages (#/hr)	
Parking (#/hr)	
Mid-Block Traffic (%)	
Shared Lane Traffic (%)	
Turn Type	
Protected Phases	10
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	20.0
Total Split (s)	20.0
Total Split (%)	29%
Yellow Time (s)	2.0
All-Red Time (s)	0.1
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary

Cycle Length: 70
Actuated Cycle Length: 70
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.96
Intersection Signal Delay: 44.3
Intersection LOS: D
Intersection Capacity Utilization 67.4%
ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 14: Lafayette Street/Lafayette Blvd & South Frontage Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	16	50	6	12	0	444	0	67	5	20	72	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	13	12	12	16	12	12	15	12	12	13	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	75		0	0		0	0		0	0		0
Storage Lanes	1		0	0		0	0		0	0		0
Taper Length (ft)	100			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		449			287			887			417	
Travel Time (s)		10.2			6.5			20.2			9.5	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)												
Peak Hour Factor	0.85	0.85	0.85	0.80	0.80	0.80	0.85	0.85	0.85	0.91	0.91	0.91
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	2%	3%	3%	3%	3%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	2	2	0
Parking (#/hr)			5									
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Turn Type	Perm	NA		Perm	NA			NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6						4		
Detector Phase	2	2		6	6			8		4	4	
Switch Phase												
Minimum Initial (s)	8.0	8.0		13.0	13.0			3.0		9.0	9.0	
Minimum Split (s)	13.0	13.0		18.0	18.0			14.0		16.0	16.0	
Total Split (s)	13.0	13.0		18.0	18.0			15.0		22.0	22.0	
Total Split (%)	21.7%	21.7%		30.0%	30.0%			25.0%		36.7%	36.7%	
Yellow Time (s)	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		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0			0.0			0.0			0.0	
Total Lost Time (s)	5.0	5.0			5.0			5.0			4.0	
Lead/Lag	Lead	Lead		Lag	Lag			Lead				
Lead-Lag Optimize?	Yes	Yes		Yes	Yes			Yes				
Recall Mode	C-Max	C-Max		None	None			None		None	None	
Act Effct Green (s)	26.2	26.2			13.0			7.7			9.4	
Actuated g/C Ratio	0.44	0.44			0.22			0.13			0.16	
v/c Ratio	0.15	0.08			0.70			0.32			0.37	
Control Delay	16.2	11.2			8.0			25.4			26.8	
Queue Delay	0.0	0.0			0.0			0.0			0.0	
Total Delay	16.2	11.2			8.0			25.4			26.8	
LOS	B	B			A			C			C	
Approach Delay		12.4			8.0			25.4			26.8	
Approach LOS		B			A			C			C	

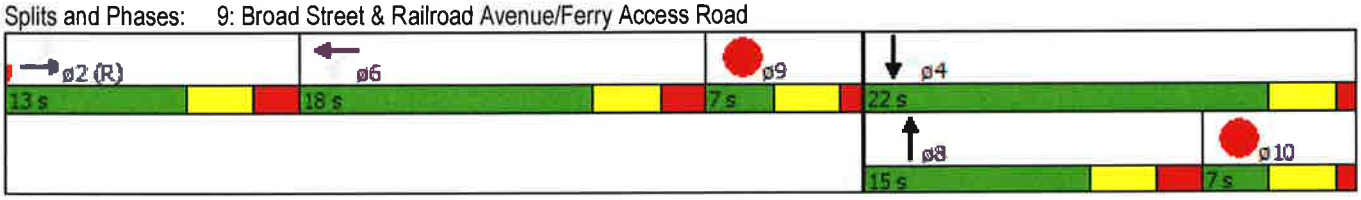
Intersection Summary	
Area Type:	Other

Lane Group	ø9	ø10
Lane Configurations		
Volume (vph)		
Ideal Flow (vphpl)		
Lane Width (ft)		
Grade (%)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Right Turn on Red		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Peak Hour Factor		
Growth Factor		
Heavy Vehicles (%)		
Bus Blockages (#/hr)		
Parking (#/hr)		
Mid-Block Traffic (%)		
Shared Lane Traffic (%)		
Turn Type		
Protected Phases	9	10
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	3.0	3.0
Minimum Split (s)	7.0	7.0
Total Split (s)	7.0	7.0
Total Split (%)	12%	12%
Yellow Time (s)	3.0	3.0
All-Red Time (s)	1.0	1.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag		Lag
Lead-Lag Optimize?		Yes
Recall Mode	None	None
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		

Intersection Summary

Cycle Length: 60
Actuated Cycle Length: 60
Offset: 0 (0%), Referenced to phase 2:EBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.70
Intersection Signal Delay: 12.5 Intersection LOS: B
Intersection Capacity Utilization 54.4% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 9: Broad Street & Railroad Avenue/Ferry Access Road



Intersection	
Intersection Delay, s/veh	14.5
Intersection LOS	B

Movement	EBU	EBT	EBR	WBU	WBL	WBT	NBU	NBL	NBR
Vol, veh/h	0	35	41	0	12	42	0	415	6
Peak Hour Factor	0.92	0.81	0.81	0.92	0.80	0.80	0.92	0.80	0.80
Heavy Vehicles, %	2	3	3	2	3	3	2	3	3
Mvmt Flow	0	43	51	0	15	52	0	519	7
Number of Lanes	0	1	0	0	0	1	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	8.8	9.1	16.2
HCM LOS	A	A	C

Lane	NBLn1	EBLn1	WBLn1
Vol Left, %	99%	0%	22%
Vol Thru, %	0%	46%	78%
Vol Right, %	1%	54%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	421	76	54
LT Vol	0	35	42
Through Vol	6	41	0
RT Vol	415	0	12
Lane Flow Rate	526	94	68
Geometry Grp	1	1	1
Degree of Util (X)	0.665	0.13	0.101
Departure Headway (Hd)	4.551	5.002	5.404
Convergence, Y/N	Yes	Yes	Yes
Cap	795	715	661
Service Time	2.583	3.048	3.454
HCM Lane V/C Ratio	0.662	0.131	0.103
HCM Control Delay	16.2	8.8	9.1
HCM Lane LOS	C	A	A
HCM 95th-tile Q	5.1	0.4	0.3

Intersection	
Intersection Delay, s/veh	7.7
Intersection LOS	A

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	16	24	22	0	0	0	0	0	0	104	11
Peak Hour Factor	0.92	0.84	0.84	0.84	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	3	3	3	2	2	2	2	2	2	3	3
Mvmt Flow	0	19	29	26	0	0	0	0	0	0	113	12
Number of Lanes	0	0	1	0	0	0	0	0	0	0	1	0

Approach	EB	NB
Opposing Approach		SB
Opposing Lanes	0	1
Conflicting Approach Left	SB	EB
Conflicting Lanes Left	1	1
Conflicting Approach Right	NB	
Conflicting Lanes Right	1	0
HCM Control Delay	7.6	7.8
HCM LOS	A	A

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	0%	26%	20%
Vol Thru, %	90%	39%	80%
Vol Right, %	10%	35%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	115	62	45
LT Vol	104	24	36
Through Vol	11	22	0
RT Vol	0	16	9
Lane Flow Rate	125	74	56
Geometry Grp	1	1	1
Degree of Util (X)	0.141	0.084	0.066
Departure Headway (Hd)	4.067	4.1	4.217
Convergence, Y/N	Yes	Yes	Yes
Cap	876	861	842
Service Time	2.117	2.187	2.279
HCM Lane V/C Ratio	0.143	0.086	0.067
HCM Control Delay	7.8	7.6	7.6
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.5	0.3	0.2

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	9	36	0
Peak Hour Factor	0.92	0.80	0.80	0.80
Heavy Vehicles, %	2	3	3	2
Mvmt Flow	0	11	45	0
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	
Conflicting Lanes Left	0
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	7.6
HCM LOS	A

Lane

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR
Vol, veh/h	14	14	16	5	0	20	0	389	3
Conflicting Peds, #/hr	5	0	5	5	0	5	5	0	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	80	80	80	80	80	80
Heavy Vehicles, %	3	3	3	3	3	3	2	3	3
Mvmt Flow	17	17	20	6	0	25	0	486	4

Major/Minor	Minor2			Minor1			Major1		
Conflicting Flow All	541	530	23	547	528	498	18	0	0
Stage 1	35	35	-	493	493	-	-	-	-
Stage 2	506	495	-	54	35	-	-	-	-
Critical Hdwy	7.13	6.53	6.23	7.13	6.53	6.23	4.12	-	-
Critical Hdwy Stg 1	6.13	5.53	-	6.13	5.53	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.13	5.53	-	-	-	-
Follow-up Hdwy	3.527	4.027	3.327	3.527	4.027	3.327	2.218	-	-
Pot Cap-1 Maneuver	450	453	1051	446	454	570	1599	-	-
Stage 1	978	864	-	556	545	-	-	-	-
Stage 2	547	544	-	956	864	-	-	-	-
Platoon blocked, %								-	-
Mov Cap-1 Maneuver	422	444	1039	417	445	564	1590	-	-
Mov Cap-2 Maneuver	422	444	-	417	445	-	-	-	-
Stage 1	973	851	-	553	542	-	-	-	-
Stage 2	520	541	-	905	851	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	12.3	12.3	0
HCM LOS	B	B	

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1590	-	-	549	527	1058	-	-
HCM Lane V/C Ratio	-	-	-	0.099	0.059	0.008	-	-
HCM Control Delay (s)	0	-	-	12.3	12.3	8.4	0	-
HCM Lane LOS	A	-	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.3	0.2	0	-	-

Intersection	
Int Delay, s/veh	

Movement	SBL	SBT	SBR
Vol, veh/h	7	10	0
Conflicting Peds, #/hr	5	0	5
Sign Control	Free	Free	Free
RT Channelized	-	-	None
Storage Length	-	-	-
Veh in Median Storage, #	-	0	-
Grade, %	-	0	-
Peak Hour Factor	80	80	80
Heavy Vehicles, %	3	3	2
Mvmt Flow	9	12	0

Major/Minor	Major2		
Conflicting Flow All	495	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.13	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.227	-	-
Pot Cap-1 Maneuver	1064	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	1058	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	SB
HCM Control Delay, s	3.5
HCM LOS	

Minor Lane/Major Mvmt

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	34	265	39	0	0	0	0	341	205	306	79	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	16	12	12	12	12	12	15	12	11	11	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	1		0	0		0	0		0	2		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			No			Yes
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		337			124			289			275	
Travel Time (s)		7.7			2.8			6.6			6.3	
Confl. Peds. (#/hr)	5		5				5		5	5		5
Confl. Bikes (#/hr)												
Peak Hour Factor	0.80	0.80	0.80	0.92	0.92	0.92	0.88	0.88	0.88	0.82	0.82	0.82
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	5%	3%	2%	2%	2%	2%	3%	3%	5%	3%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Turn Type	Perm	NA						NA		custom	NA	
Protected Phases		2						8		4	4	
Permitted Phases	2							8		4		
Detector Phase	2	2						8		4	4	
Switch Phase												
Minimum Initial (s)	15.0	15.0						9.0		9.0	9.0	
Minimum Split (s)	20.0	20.0						14.0		14.0	14.0	
Total Split (s)	20.0	20.0						15.0		15.0	15.0	
Total Split (%)	28.6%	28.6%						21.4%		21.4%	21.4%	
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	0.0	
Total Lost Time (s)	5.0	5.0						4.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	C-Min	C-Min						None		None	None	
Act Effct Green (s)	15.0	15.0						24.8		12.2	12.2	
Actuated g/C Ratio	0.21	0.21						0.35		0.17	0.17	
v/c Ratio	0.12	0.87						0.92		0.66	0.31	
Control Delay	23.3	48.3						46.7		34.6	28.3	
Queue Delay	0.0	0.0						0.0		0.0	0.0	
Total Delay	23.3	48.3						46.7		34.6	28.3	
LOS	C	D						D		C	C	
Approach Delay		45.8						46.7			33.3	
Approach LOS		D						D			C	

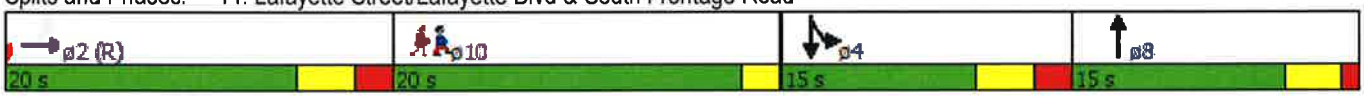
Intersection Summary	
Area Type:	Other

Lane Group	ø10
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Right Turn on Red	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Growth Factor	
Heavy Vehicles (%)	
Bus Blockages (#/hr)	
Parking (#/hr)	
Mid-Block Traffic (%)	
Shared Lane Traffic (%)	
Turn Type	
Protected Phases	10
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	20.0
Total Split (s)	20.0
Total Split (%)	29%
Yellow Time (s)	2.0
All-Red Time (s)	0.1
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary

Cycle Length: 70
Actuated Cycle Length: 70
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 42.3 Intersection LOS: D
Intersection Capacity Utilization 67.4% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 14: Lafayette Street/Lafayette Blvd & South Frontage Road



5. ACCIDENT DATA RECORDS

http://ctcrash.uconn.edu/QueryTool2.action?qid=20738

Crash ID	DOT Case N	Date Of Crash	Time Of Cr	Severity Text Format	At or Between Intersections Text Format	Name of Road that Crash Occurred O	Alpha Description of Crash Location	Collision Type Text Format
3035488	115620	8/29/2013	20:18:00	Property Damage Only	Crash occurred BETWEEN intersections	LAFAYETTE ST NO 2	100 feet South of RAILROAD AV NO	Fixed Object
3035495	115627	8/22/2013	20:32:00	Property Damage Only	Crash occurred AT an intersection	RAILROAD AV NO 1	at LAFAYETTE ST NO 2	Angle
3046307	128826	8/21/2013	16:54:00	Property Damage Only	Crash occurred AT an intersection	LAFAYETTE ST NO 2	at NORTH FRONTAGE RD	Turning-Same Direction
3047776	130358	10/7/2013	16:51:00	Injury (No fatality)	Crash occurred AT an intersection	LAFAYETTE ST NO 2	at SOUTH FRONTAGE RD	Angle
3048438	131043	10/8/2013	19:08:00	Property Damage Only	Crash occurred AT an intersection	FERRY ACCESS	at BROAD ST	Angle
3052101	135002	11/17/2013	16:16:00	Injury (No fatality)	Crash occurred AT an intersection	LAFAYETTE ST NO 2	at RAILROAD AV NO 1	Rear-end
3058355	142155	12/18/2013	15:10:00	Property Damage Only	Crash occurred AT an intersection	BROAD ST	at RAILROAD AV NO 1	Angle
3073847	156330	2/12/2014	20:48:00	Property Damage Only	Crash occurred AT an intersection	LAFAYETTE BLVD	at NORTH FRONTAGE RD	Rear-end
3074255	156746	2/14/2014	9:00:00	Property Damage Only	Crash occurred AT an intersection	ATLANTIC ST	at LAFAYETTE ST NO 2	Angle
3075568	158121	2/19/2014	12:34:00	Property Damage Only	Crash occurred BETWEEN intersections	LAFAYETTE ST NO 2	300 feet South of RAILROAD AV NO	Sideswipe-Same Direction
3082719	165676	3/8/2014	16:10:00	Property Damage Only	Crash occurred AT an intersection	LAFAYETTE ST NO 2	at NORTH FRONTAGE RD	Turning-Opposite Direction
3088767	172085	4/26/2014	10:46:00	Property Damage Only	Crash occurred AT an intersection	SOUTH FRONTAGE RD	at LAFAYETTE ST NO 2	Rear-end
3090277	173664	4/2/2014	8:02:00	Property Damage Only	Crash occurred AT an intersection	LAFAYETTE ST NO 2	at SOUTH FRONTAGE RD	Turning-Same Direction
3091541	174985	4/22/2014	8:45:00	Property Damage Only	Crash occurred BETWEEN intersections	BROAD ST	100 feet South of WHITING ST	Backing
3110619	195157	6/24/2014	19:00:00	Property Damage Only	Crash occurred AT an intersection	LAFAYETTE ST NO 2	at RAILROAD AV NO 2	Turning-Intersecting Paths
3118772	203898	8/14/2014	19:15:00	Injury (No fatality)	Crash occurred AT an intersection	MAIN ST NO 1	at ATLANTIC ST	Angle
3126389	211936	9/11/2014	16:25:00	Injury (No fatality)	Crash occurred AT an intersection	LAFAYETTE ST NO 2	20 feet South of ALLEN ST	Unknown
3128939	214599	9/1/2014	19:00:00	Property Damage Only	Crash occurred AT an intersection	RAILROAD AV NO 2	at LAFAYETTE ST NO 2	Angle
3132286	218162	9/28/2014	11:10:00	Property Damage Only	Crash occurred BETWEEN intersections	BROAD ST	50 feet North of GREGORY ST	Turning-Same Direction
3141075	227516	10/30/2014	15:58:00	Property Damage Only	Crash occurred AT an intersection	RAILROAD AV NO 2	at BROAD ST	Angle
3141497	227950	10/24/2014	18:15:00	Property Damage Only	Crash occurred BETWEEN intersections	LAFAYETTE ST NO 2	50 feet North of RAILROAD AV NO 2	Rear-end
3145738	232383	11/13/2014	9:19:00	Property Damage Only	Crash occurred AT an intersection	ATLANTIC ST	at MAIN ST NO 1	Angle
3149110	235966	12/8/2014	14:48:00	Property Damage Only	Crash occurred AT an intersection	NORTH FRONTAGE RD	at LAFAYETTE BLVD	Rear-end
3149783	236695	12/20/2014	15:48:00	Injury (No fatality)	Crash occurred AT an intersection	RAILROAD AV NO 1	at LAFAYETTE ST NO 2	Angle
3149791	236703	12/21/2014	16:25:00	Injury (No fatality)	Crash occurred AT an intersection	RAILROAD AV NO 1	at LAFAYETTE ST NO 2	Angle
3149803	236715	12/4/2014	15:45:00	Property Damage Only	Crash occurred BETWEEN intersections	LAFAYETTE ST NO 2	75 feet South of RAILROAD AV NO 1	Sideswipe-Same Direction
3150104	237022	12/3/2014	10:56:00	Property Damage Only	Crash occurred AT an intersection	LAFAYETTE ST NO 2	at ATLANTIC ST	Sideswipe-Same Direction

http://ctcrash.uconn.edu/QueryTool2.action?qid=12070

CrashId	Date Of Crash	Crash Severity Text Format	Roadway Name	Intersecting Roadway Name	Manner of Crash / Collision Impact Text Format	Crash Specific Location Text Format
135734	11/2/2015	Injury of any type (Serious, Minor, Possible)	Lafayette Boulevard	NORTH FRONTAGE RD	Angle	Intersection
225838	6/28/2016	Property Damage Only	Lafayette St	NORTH FRONTAGE RD	Angle	Intersection
169622	2/11/2016	Property Damage Only	Lafayette Street	NORTH FRONTAGE RD	Angle	Intersection
60182	6/5/2015	Property Damage Only	Lafayette Street	SOUTH AV	Not Applicable	Intersection
92369	6/22/2015	Property Damage Only	SOUTH FRONTAGE RD	LAFAYETTE ST NO 2	Front to rear	Intersection
173189	2/19/2016	Property Damage Only	Lafayette St		Angle	Intersection-Related
173166	2/16/2016	Injury of any type (Serious, Minor, Possible)	S Frontage Rd		Front to rear	Intersection-Related
115259	2/17/2015	Injury of any type (Serious, Minor, Possible)	Lafayette Street	ALLEN ST	Not Applicable	Intersection
220046	7/4/2016	Property Damage Only	Lafayette St	unknown	Front to rear	Intersection
123388	11/13/2015	Property Damage Only	Lafayette Street	UP METRO NORTH RR	Not Applicable	Other
200975	5/3/2016	Property Damage Only	LAFAYETTE ST	RAILROAD AV NO 1	Front to rear	Non-Junction
115334	3/3/2015	Property Damage Only	Lafayette Street		Sideswipe, same direction	Non-Junction
92287	4/27/2015	Property Damage Only	LAFAYETTE ST		Angle	Non-Junction
146337	12/15/2015	Property Damage Only	460 Lafayette St		Sideswipe, same direction	Non-Junction
201335	2/25/2016	Property Damage Only	460 Lafayette St	unknown	Sideswipe, same direction	Non-Junction
163701	1/25/2016	Property Damage Only	435 LAFAYETTE ST		Sideswipe, same direction	Non-Junction
72226	7/26/2015	Injury of any type (Serious, Minor, Possible)	Lafayette St	GREGORY ST	Angle	Intersection
122398	4/15/2015	Injury of any type (Serious, Minor, Possible)	Lafayette St	GREGORY ST	Front to front	Intersection
91341	8/29/2015	Property Damage Only	Lafayette Street	GREGORY ST	Angle	Intersection
78699	8/3/2015	Property Damage Only	Lafayette St.	GREGORY ST	Angle	Intersection
79892	8/22/2015	Injury of any type (Serious, Minor, Possible)	Lafayette Street	GREGORY ST	Angle	Intersection
126717	10/29/2015	Property Damage Only	Lafayette St	Atlantic St	Angle	Intersection
51647	2/18/2015	Property Damage Only	Lafayette	ATLANTIC ST	Sideswipe, same direction	Intersection
192169	4/20/2016	Injury of any type (Serious, Minor, Possible)	Atlantic St		Sideswipe, opposite direction	Non-Junction
193164	4/21/2016	Injury of any type (Serious, Minor, Possible)	Broad St	FERRY ACCESS	Angle	Intersection
144954	12/10/2015	Injury of any type (Serious, Minor, Possible)	Railroad Ave	BROAD ST	Not Applicable	Intersection
146255	12/5/2015	Injury of any type (Serious, Minor, Possible)	Railroad Ave	BROAD ST	Angle	Intersection
215097	6/13/2016	Injury of any type (Serious, Minor, Possible)	Railroad Ave	BROAD ST	Angle	Intersection
141312	11/29/2015	Property Damage Only	ferry access rd		Front to rear	Non-Junction
98871	8/26/2015	Property Damage Only	MAIN STREET		Rear to rear	Intersection
228375	7/29/2016	Property Damage Only	Main St	KIEFER ST	Sideswipe, same direction	Intersection

6. NO BUILD PROJECTS MAP

(Source: *Bridgeport Briefing Book: An Overview of the Park City*, City of Bridgeport, Office of Planning and Economic Development, Division of City Planning, July, 2015)

CITY OF BRIDGEPORT

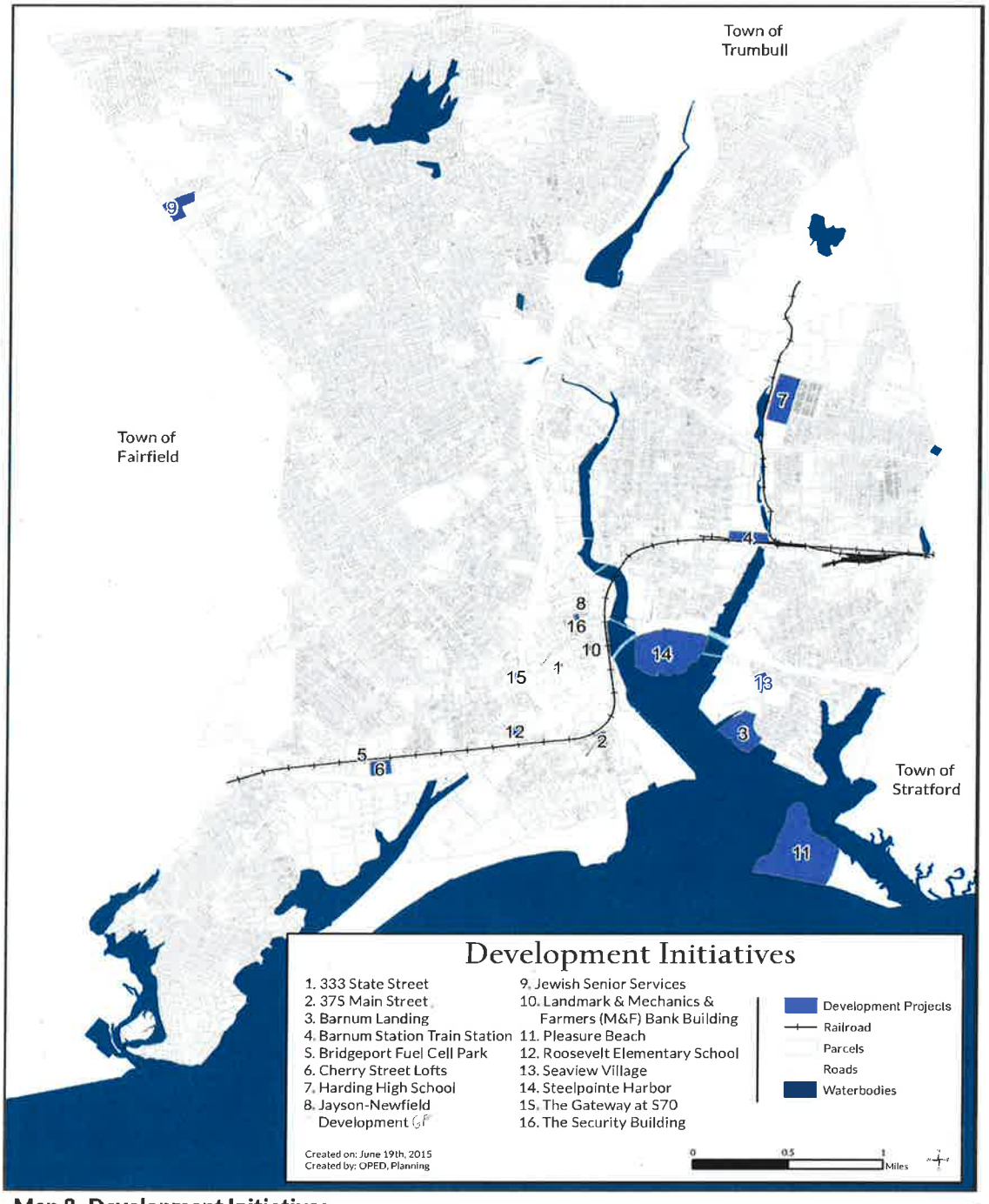
Bridgeport Briefing Book: An Overview of the Park City

July, 2015

Prepared by the City of Bridgeport, Office of Planning and Economic Development, Division of City Planning

3.7 Development Initiatives

The following pages outline only a few of the development projects and initiatives occurring in Bridgeport. For further information on any of these projects, please contact the listed developer, or the Office of Planning and Economic Development at 203-576-7221.



Map 8- Development Initiatives

Source: Office of Planning and Economic Development

FIGURE A-1
No Build Projects Map

7. TRUCK OVERPASS CLEARANCE DATA

Railroad Bridge Underpass Clearances
(Area of Bridgeport Harbor Station)

Broad St	**12’4”**
Lafayette St.	**11’3”**
Warren St.	**11’1”**
Myrtle Av.	**11’2”**
Park Av.	**12’7”**
South Av.	**11’7”**
Iranistan Av.	**13’1”**

Highway Bridge Underpass Clearance

Wordin Av.	**14’5”**