

# PROJECT NOTIFICATION FORM

## 370-380 HARRISON AVENUE

Submitted to:

**Boston Redevelopment Authority** One City Hall Square . Boston, MA 02201

Submitted by:

**South End 10, LLC and South End 11, LLC**

c/o Related Beal 177 Milk Street . Boston, MA 02109

Prepared by:

**Epsilon Associates, Inc.** 3 Clock Tower Place, Suite 250 . Maynard, MA 01754

In Association with:

**Utile**

**Ground Inc.**

**Robert A.M. Stern Architects, LLP**

**Howard Stein Hudson**

**Nutter McClennen & Fish LLC**

**Bryant Associates**

MARCH 31, 2016

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March 31, 2016

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## Chapter 1.0

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### General Information

## 1.0 GENERAL INFORMATION

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### 1.1 Introduction

South End 10, LLC and South End 11, LLC (together, the Proponent), proposes the redevelopment of the former Quinzani's Bakery and Ho Kong Bean Sprout sites in the South End neighborhood of Boston, consisting of three contiguous parcels of land located between East Berkeley Street and Traveler Street at 370-380 Harrison Avenue (collectively, the Project site). The proposed development includes the demolition of the existing structures and the construction of an approximately 14-story mixed-use building with ground floor commercial uses and residential above, as well as three levels of below-grade parking (the Project). In addition to the new building, the Project will include new open spaces and an improved pedestrian experience around the site.

The South End neighborhood has seen significant development activity in the past few years, including a planning and rezoning effort, construction at Ink Block and The Troy, and the approval of several projects, including 345 Harrison Avenue and 80 East Berkeley Street. The Project will continue the transformation of this neighborhood from an area dominated by commercial and industrial uses and large parking lots, to an active urban neighborhood. With this transformation, the Project will provide a number of public benefits, including new affordable housing units, street-level retail space, new on site open spaces, street trees and landscaping, and increased tax revenues.

This Project Notification Form (PNF) is being submitted to the Boston Redevelopment Authority (BRA) to initiate review of the Project under Article 80B, Large Project Review, of the Boston Zoning Code.

### 1.2 Project Identification and Team

Name /Location: 370-380 Harrison Avenue  
Between Traveler Street and East Berkeley Street in  
the South End Neighborhood

Proponent: South End 10, LLC and South End 11, LLC  
c/o Related Beal  
177 Milk Street  
Boston, MA 02109  
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Andrew Hayes

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Landscape Architect: Ground Inc.  
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Mary Marshall

Article 80 and Historic  
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Geoff Starsiak

Transportation and Parking  
Consultant: Howard Stein Hudson  
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Guy Busa  
Michael Santos

Civil Engineer: Bryant Associates  
90 Canal Street, Suite 301  
Boston, MA 02114  
(617) 248-0300  
John Cusack

### 1.3 Project Summary

The approximately 44,570 square foot (sf) Project site is located at 370-380 Harrison Avenue between Traveler Street and East Berkeley Street in the South End neighborhood of Boston (see Figure 1-1). The existing, vacant buildings on the site will be demolished as part of the Project.

The Project, as currently conceived, will include the construction of a new residential building with up to approximately 280 units containing a mix of rental and home ownership opportunities, as well as new ground floor retail/commercial space. Parking will be located in a below-grade garage with access from a new mid-block connection on the eastern edge of the site.

Section 2.2 includes additional information about the Project's program.

### 1.4 Public Benefits

The Project will generate many public benefits for the surrounding neighborhood and the City of Boston as a whole, both during construction and on an ongoing basis upon its completion.

#### *Smart Growth/Transit-Oriented Development*


The Project is consistent with smart-growth and transit-oriented development principles. The Project site is well served by existing public transportation, including major regional rapid transit, commuter rail, and bus lines that provide easy access to the Project site from the Greater Boston region. The addition of residential uses to an underutilized site that is adjacent to new, more active uses, will support the expansion of the vibrant live, work and play area started by other recent projects nearby.

#### *Affordable Housing*

The Project will comply with the applicable Inclusionary Development Policy by providing on-site affordable units and/or a monetary contribution to an affordable housing fund.




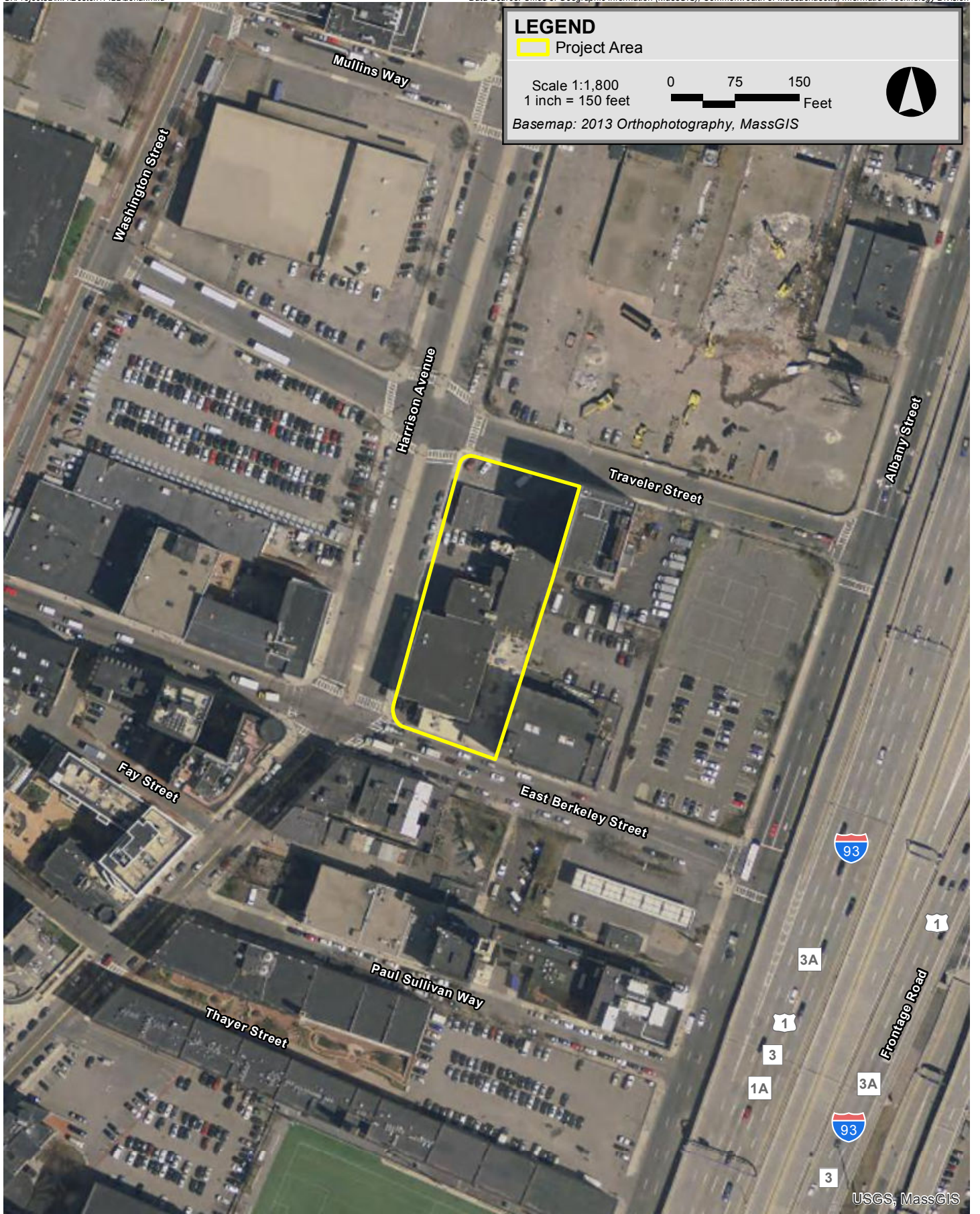
**LEGEND**

 Project Area

Scale 1:1,800  
1 inch = 150 feet

0 75 150 Feet

Basemap: 2013 Orthophotography, MassGIS

370-380 Harrison Avenue Boston, Massachusetts

### ***Improved Street and Pedestrian Environment***

The Project will activate an underutilized site with enhanced streetscapes that include landscaped sidewalks and open spaces. A new mid-block connector between Traveler Street and East Berkeley Street is also proposed.

### ***Sustainable Design/Green Building***

The Proponent is committed to building a LEED certified project with a target of the Silver level, incorporating sustainable design features into the Project to preserve and protect the environment.

### ***Increased Employment***

The Project will create approximately 400 construction jobs and approximately 40 permanent jobs upon stabilization.

### ***New Property Tax***

The Project will result in increased tax revenues compared to the existing condition.

## **1.5 Zoning and Regulatory Controls**

The Project site is located within: (i) the Economic Area North-Area 1 (“EDA North-Area 1”) of the South End Neighborhood Zoning District as established in accordance with Article 64 of the Boston Zoning Code and Enabling Act (the “Code”); (ii) the Groundwater Conservation Overlay District (GCOD); and (iii) the Restricted Parking Overlay District (RPOD), each as established in accordance with the provisions of the Section 3-1A of the Code. The Project site is included within the area which was the subject of a detailed planning and community review process and resulted in the development of the Harrison/Albany Corridor Strategic Plan. The Project site is also located within the South End Harrison/Albany Projection Area of the South End Local Historic District, and is subject to review and approval by the South End Landmark District Commission (SELDC).

The Proponent may seek to establish a Planned Development Area (PDA) for the Project site in accordance with the provisions of Sections 3-1A and 64-28 in a manner which is consistent with the articulated goals and purposes of the Harrison/Albany Corridor Strategic Plan and the South End Neighborhood Zoning District, although at a slightly greater floor area ratio (FAR) than that which is currently contemplated for the EDA North-Area 1 based upon the benefits which the Project could provide. To the extent a PDA is utilized, the PDA plan will also authorize compliance with the GCOD and the RPOD, both of which are overlay districts established in accordance with the Code.

To the extent that a PDA plan is not established and the Proponent pursues obtaining zoning relief for the Project through the Board of Appeal, the Project will require

dimensional variances and conditional use permits to ensure compliance with the terms of the applicable overlay districts.

The Proponent is currently evaluating the most appropriate manner to obtain the required zoning entitlements, and will further this discussion in collaboration with the BRA and the community, and it will be discussed in greater detail in the Draft Project Impact Report (PIR).

## 1.6 Legal Information

### 1.6.1 *Legal Judgments Adverse to the Proposed Project*

The Proponent is not aware of any legal judgments or pending legal actions concerning the Project.

### 1.6.2 *History of Tax Arrears on Property*

The Proponent is not in tax arrears on any property it owns within the City of Boston.

### 1.6.3 *Evidence of Site Control/Nature of Public Easements*

South End 10, LLC and South End 11, LLC acquired the Project site known as and numbered 370-390 Harrison Avenue by three separate deeds in the fall of 2015. There are currently no public easements affecting the Project site. The Project site is included within the South End Harrison/Albany Protection Area of the South End Local Historic District pursuant to a designation by the Boston Landmarks Commission (BLC), recorded with the Suffolk County Registry of Deeds in Book 11641, Page 62. Surveys of the Project site are included in Appendix A.

## 1.7 Anticipated Permits and Approvals

Table 1-1 sets forth a preliminary list of permits and approvals from governmental agencies and authorities that are expected to be required for the Project. It is possible that only some of these permits and approvals will be required, or that additional permits or approvals will be required. The Proponent may seek state and federal funding for the Project.

**Table 1-1 Anticipated Permits and Approvals**

<i>Agency Name</i>	<i>Permit / Approval</i>
<b>FEDERAL</b>	
Environmental Protection Agency	National Pollution Discharge Elimination System General Permit
Federal Aviation Administration	Determination of No Hazard to Air Navigation

**Table 1-1 Anticipated Permits and Approvals (Continued)**

<i>Agency Name</i>	<i>Permit / Approval</i>
<b>STATE</b>	
Department of Environmental Protection	Plan Approval (if required); Fossil Fuel Utilization permit (as required); Notice of Demolition/Construction
Executive Office of Energy and Environmental Affairs (MEPA Office)	Review under the Massachusetts Environmental Policy Act (if required)
Massachusetts Historical Commission	State Register Review, including Determination of No Adverse Effect or Memorandum of Agreement; Section 106 Review (if required)
Massachusetts Water Resources Authority	Construction Dewatering Permit (if required); Temporary Construction Dewatering Permit (if required); Sewer Use Discharge Permit (if required)
<b>LOCAL</b>	
Boston Air Pollution Control Commission	Parking Freeze Permit (if required)
Boston Civic Design Commission	Review and approval pursuant to Article 28 of the Boston Zoning Code
Boston Fire Department	Fuel Storage Permit
Boston Inspectional Service Department	Building Permit (Long Form); Demolition Permit; Certificate of Occupancy
Boston Public Improvement Commission/ Department of Public Works	License for installation of groundwater monitoring wells; Specific Repair Approvals; Discontinuances (if required); Permit for sign, awning, hood, canopy, or marquee, or other incursion over public right of way (as required); Street Layout (as required); Tieback/Earth Excavation Approvals (if required)
Boston Public Safety Commission, Committee on Licenses	Parking Garage Permit; License for Storage of Inflammables
Boston Public Works Department	Curb Cut Permits; Street Opening Permits; Street/Sidewalk Occupancy Permits

**Table 1-1 Anticipated Permits and Approvals (Continued)**

<i>Agency Name</i>	<i>Permit / Approval</i>
Boston Redevelopment Authority	Review under Article 80, including Large Project Review, as required pursuant to Article 80B of the Zoning Code and PDA Plan Review, as required pursuant to Article 80C of the Zoning Code; Cooperation Agreement; Affordable Housing Agreement(s); Boston Residents Construction Employment Plan Agreement; Certifications of Consistency and Compliance
Boston Transportation Department	Transportation Access Plan Agreement; Review and Approval of a Construction Management Plan
Boston Water and Sewer Commission	Sewer Extension/Connection Permit; Sewer Use Discharge Permit; Site Plan Approval; Temporary Construction Dewatering Permit (if required); Cross Connection/Backflow Prevention Approval
Boston Zoning Commission	Zoning Approval subject to BRA recommendation and approval under Article 80C of the Zoning Code, including PDA Plan Approval
Boston Zoning Board of Appeal	Zoning and Building Code variance(s) (if required)
South End Landmark District Commission	Design Review; Application for demolition and construction in the South End Landmark District Protection Area

## 1.8 Public Participation

A Letter of Intent was filed with the BRA on December 31, 2015 beginning the Project's formal public review process. The Proponent looks forward to a comprehensive review process, including meetings with neighbors, local groups, elected officials and other interested parties.

## 1.9 Schedule

Construction of the Project is estimated to commence during the second quarter of 2017 with completion by the second quarter of 2019.

## Chapter 2.0

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### Project Description



## 2.0 PROJECT DESCRIPTION

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### 2.1 Existing Site and Area Context

The approximately 1.02-acre (approximately 44,570 sf) Project site is located at 370-380 Harrison Avenue between Traveler Street and East Berkeley Street in the South End neighborhood of Boston. The Project site is the former location of Quinzani's Bakery (380 Harrison Avenue) and Ho Kong Bean Sprout Co. (370 Harrison Avenue). The buildings are currently vacant and will be demolished as part of the Project.

Harrison Avenue, a prominent north-south corridor connecting the City's South End with Chinatown, includes a mix of residential, commercial, industrial and institutional uses. The area around the Project site, identified as the New York Streets sub-area in the Harrison-Albany Corridor Strategic Plan (see Section 2.3), includes a mix of commercial and industrial properties with large parking lots, as well as a number of new and proposed development projects, including Ink Block, The Troy, 345 Harrison Avenue and 80 East Berkeley Street. Further south down Harrison Avenue is the South of Washington Street (SOWA) sub-area, a vibrant mixed-use neighborhood.

To the east of the site is Interstate 93, which separates the South End from South Boston—the two neighborhoods are connected by Traveler Street and East Berkeley Street/West 4<sup>th</sup> Street. To the north of the area is the Massachusetts Turnpike which separates the South End from Chinatown—the two neighborhoods are connected by Harrison Avenue, Washington Street and Shawmut Avenue/Tremont Street. Both highways are easily accessible by the Project area.

The site is in close proximity to several MBTA bus routes and other transportation hubs, including the MBTA Silver Line along Washington Street. MBTA bus routes 9 and 11 make stops at the East Berkeley Street corner of the site.

There are three public open spaces located within one-quarter-mile of the Project site including Peter's Park, Rotch Playground, and Rolling Bridge Park. The Berkeley Street Community Garden is also located with one-quarter-mile of the Project site.

### 2.2 Project Description

The Project, as currently conceived, will include the construction of a new, up to approximately 356,500 sf mixed-use building facing Harrison Avenue and extending between Traveler and East Berkeley Streets. The approximately 150-foot tall, 14-story building will include up to approximately 280 residential units with a mix of rental and home ownership units (approximately 175 and 105, respectively), and up to approximately 6,000 sf of ground floor retail. Figures 2-1 to 2-3 include a Ground Floor Plan, Typical Floor Plan and Section. Table 2-1 includes the Project program.

The number and location of on-site affordable units will be determined as the Project’s approvals progress. To the extent a PDA is determined to be appropriate, the Project will satisfy the relevant requirements of Article 64.

**Table 2-1 Project Program**

<i>Project Element</i>	<i>Approximate Dimension</i>
Residential	350,500 sf
Rental units	175
Ownership units	105
Commercial / Retail	6,000 sf
<b>Total Square Footage</b>	<b>356,500 sf</b>
Height	Up to 150 feet (per Zoning)
Parking	180 spaces

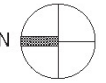
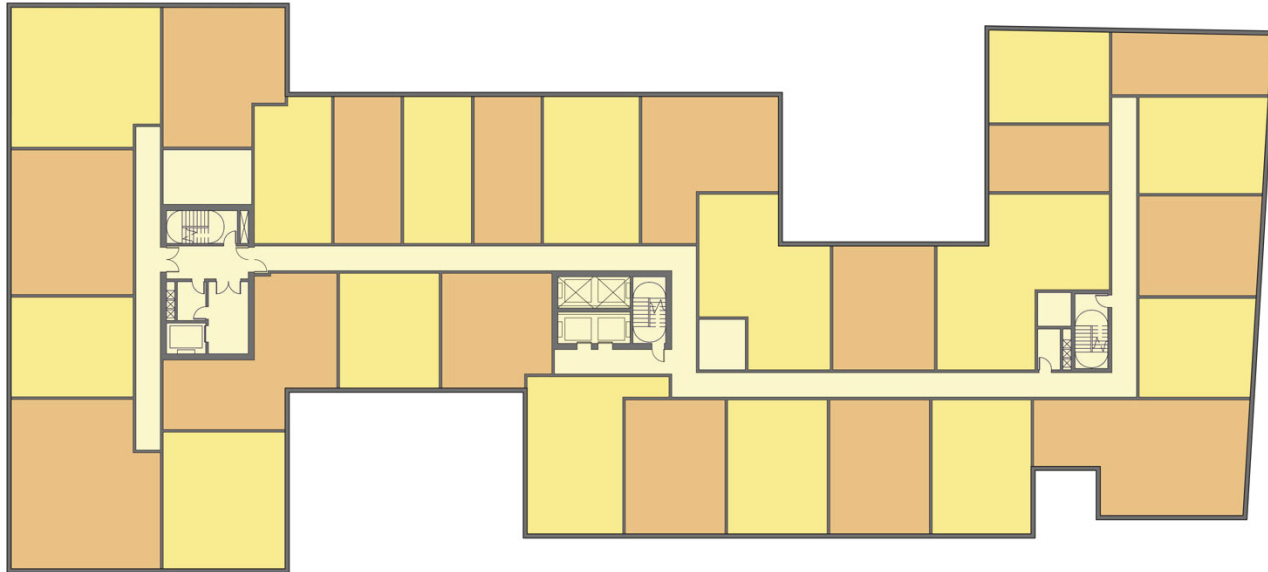
All four sides of the building have been designed to enhance the pedestrian experience around the site: along Traveler Street will be an enhanced greenway, consistent with the Harrison Albany Strategic Plan which identifies Traveler Street as a Primary Green Corridor; the streetscape along Harrison Avenue will be treated as a tree lined linear plaza with the addition of a west facing courtyard; East Berkeley Street will be a tree lined pedestrian street; and a planted garden will line the shared use mid-block connector (see Figure 2-1).

The design of the landscape and streetscape responds to the City of Boston’s Harrison Albany Corridor Strategic Plan. The site is located at the intersection of the Harrison Avenue Creative Use Corridor and the Traveler Street Green Corridor, as mentioned above, and is also at the point where the street grid shifts from one orientation to another along East Berkeley Street. The character and dimensions of the public realm will respond to the site’s particular position in this section of the Harrison Albany Corridor. The generous public realm along Harrison Avenue (the Creative Use Corridor) will range in width from approximately 27 to 63 feet, providing different types and character of space. In recognition of the proposed Traveler Street Green Corridor, a generous, planted, pedestrian streetscape approximately 19-feet wide, is proposed on the northern end of the site, while on East Berkeley Street, an approximately 12-foot wide sidewalk on East Berkeley Street will be held to respect the character/pedestrian experience established by the neighboring parcel. To the east of the site, a wide north/south mid-block connector will provide a “through block” pedestrian connection and facilitates vehicular drop-off and traffic flow, thus extending the open space for vehicles, pedestrians and bicycles.



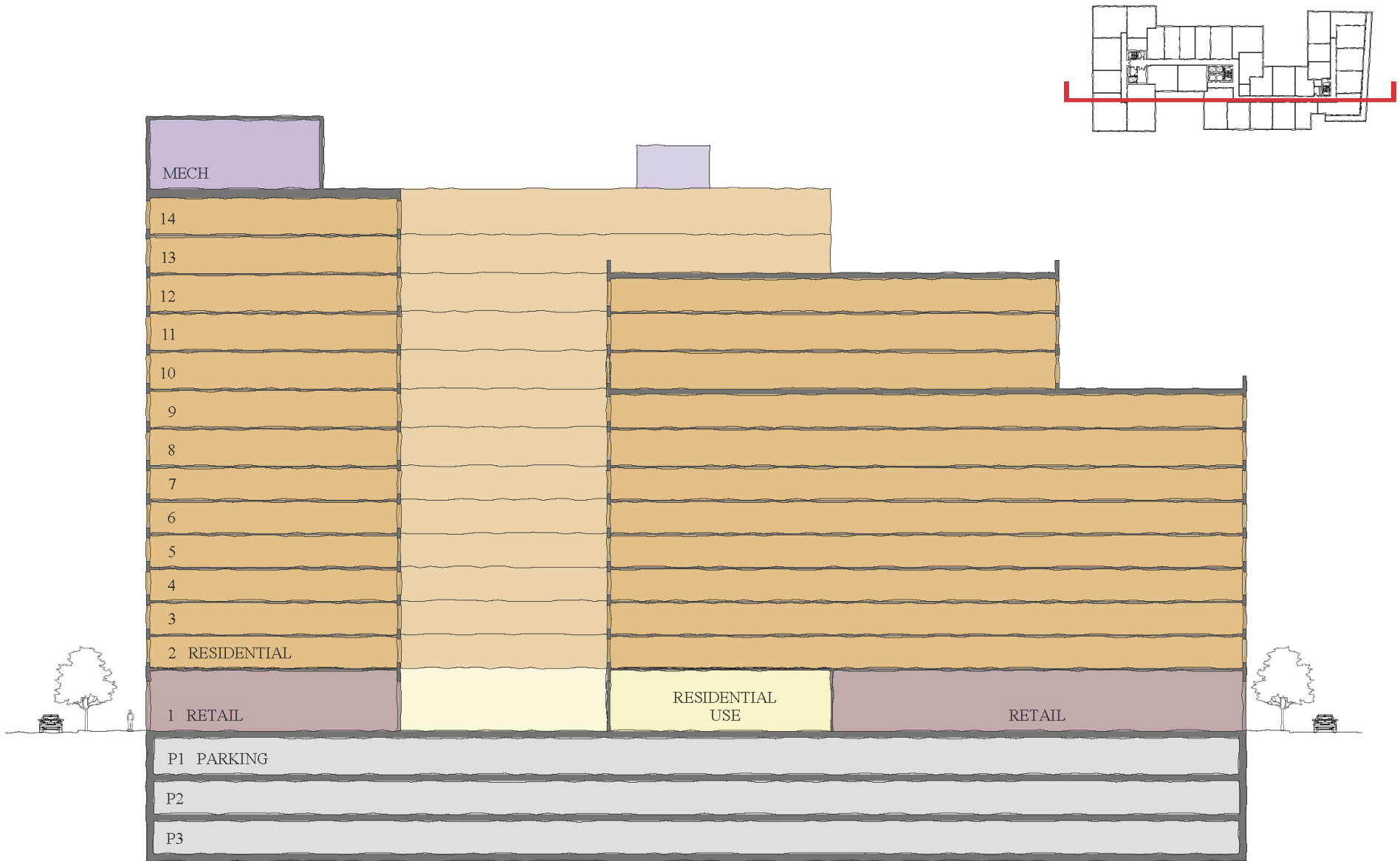


370-380 Harrison Avenue Boston, Massachusetts



370-380 Harrison Avenue Boston, Massachusetts

**Figure 2-2**  
*Typical Floor Plan*



370-380 Harrison Avenue Boston, Massachusetts

The street level uses, including retail, and residential lobbies, and other amenity spaces will further enhance the pedestrian experience along the Project site street frontage in a manner reflective of the public realm planning for South End's "New York Streets" neighborhood (see Section 2.3). The Project is designed to establish a dynamic blend of uses, creating a more vibrant area, that augments not only the pedestrian experience throughout the Project neighborhood, but creates meaningful linkages within the Project site and to adjacent parcels, including other neighborhood redevelopment projects.

The design of the public realm on all edges of the building is intended to strongly enhance the pedestrian experience, with the Harrison Avenue streetscape being the predominant public experience. The generous walkway along the length of Harrison Avenue—ranging in width from approximately 27 to 63 feet—is envisioned as a tree-lined linear plaza, creating both linear and plaza like spaces. The primary pedestrian walkway will be between rows of trees providing ample shade and definition to the pedestrian experience. Either side of the allée of trees will be populated with locations for outdoor seating and other activities. The spatial arrangement of walkway and trees will allow for multiple potential uses that can provide both public and commercial amenities to the neighborhood. Mid-block along Harrison Avenue, the tree lined walkway will expand further into a courtyard that will be a public extension of the sidewalk, emphasized by the planting strategy. Open to the sidewalk and street on one side, and surrounded by potential building program on the other three sides, the courtyard will allow for dining, retail or other activities to open onto it. With a great deal of new and proposed development, the intersection of Harrison Avenue and Traveler Street has been identified as a destination node by the Harrison Albany Corridor Study. The design of the landscape and building each respond to this unique place making opportunity by creating a covered arcade at this location. The arcade will give definition to the sidewalk spaces while also giving prominence to the retail spaces inside.

The Proponent intends to establish a mid-block connector, a multi-purpose space, that will encourage pedestrian circulation within the Project area, and prioritize all personal modes of transportation (e.g., personal vehicles, bicycles, walking) by de-emphasizing curb elevations. The mid-block connector, as shown on Figure 2-1, will connect Traveler Street and East Berkeley Street along the eastern edge of the Project site, providing vehicular access to the Project's parking garage and a connection to drop-off zones for the residential lobbies. Portions of the mid-block connector will be open to the sky and lined with landscape elements that will enhance the space and enhance the pedestrian experience. Pedestrian scale lighting and planting will line the new street, defining the character of this shared use connector. The careful selection of street and pedestrian area materials will allow the mid-block connector to maximize functionality for transportation and pedestrian users, while creating open space that can adapt to the needs of the tenants. This enhanced functionality will have the potential to create a valuable neighborhood asset while providing open space cohesion throughout the Project site.

As described further in Section 3.5, the Project design is influenced by the broader neighborhood, including the Classical Revival style that is prominent throughout Boston, the brick manufacturing buildings in the nearby area, and the larger new developments. The massing has been designed to transition between the surrounding areas, and to create an aesthetically pleasing skyline (see Figures 2-4 and 2-5).

Proposed improvements to the adjacent segment of Harrison Avenue include improved lane designations and intersection functionality, in addition to improved curb-side parking, lighting and other streetscape improvements. The Proponent envisions a significantly improved transition from the two-lane Harrison Avenue layout south of the Project site, to the divided four-lane layout directly in front of the Project site once the Project has been completed.

### 2.3 Harrison-Albany Corridor Strategic Plan

The Project site is located within the boundaries of the Harrison-Albany Corridor Strategic Plan, which was adopted by the BRA in November of 2011, and led to amendments of Article 64 of the Boston Zoning Code in January 2012. The Strategic Plan is made up of four distinct sub-areas, with the Project site located in the New York Streets sub-area. The vision for the area is to:

*“emphasize its location as the vital physical and economic link between the City’s downtown, Chinatown, and South End neighborhoods with convenient access to South Boston and the regional roadway system. Future development should provide exciting new 18-hour uses within a pedestrian-friendly public realm that includes a finer grain of city blocks that allow for enhanced transportation access and circulation. Non-residential uses should provide new jobs for Boston residents.”* (p. 20)

The Project is generally consistent with the urban planning and environmental goals stated in the Strategic Plan by achieving the following:

- ◆ Introducing a dense urban mix of interactive neighborhood uses, including “18-hour” retail and residential uses;
- ◆ Developing a mid-block connection providing a connection between Traveler Street and East Berkeley Street;
- ◆ Creating a pedestrian-friendly environment on the major streets;
- ◆ Revitalizing an underutilized urban area and reinvigorating land formerly dedicated to manufacturing uses, using land efficiently to connect the area to downtown and Chinatown;





370-380 Harrison Avenue Boston, Massachusetts



**370-380 Harrison Avenue Boston, Massachusetts**



- ◆ Introducing high-quality architecture and diverse architecture styles to provide a transformative effect for the neighborhood;
- ◆ Enhancing the public realm with new benefits, including sidewalks with increased width, streetscape enhancements and landscaped open spaces;
- ◆ Promoting the use of alternative modes of transportation and minimizing parking on-site, while providing bicycle racks, bicycle storage and amenities; and
- ◆ Improving water quality by replacing surface parking with new buildings potentially with green roofs, and open spaces through the site that will be landscaped.

## 2.4 Evolution of Design

Early design schemes encompassed a variety of massing options, including a single height building lined up to the west along Harrison Avenue, and a scheme with three single height buildings oriented east-west with single loaded connectors facing west. After studying views looking north on Harrison Avenue of these options, it was determined that the large massing created with these schemes needed to be broken up into smaller components visually and vertically to create a more integrated relationship to the urban context. The following approaches created variation in heights and connected the proposed massing to the lower scale and industrial character of elements to the south, as well as the taller newer developments to the north.

The design team studied several options with an H-shaped plan on the north portion of the site and L-shaped plan on the south portion of the site, creating three separate open air areas in plan. Further evaluation determined that a T-shaped plan on the north portion of the site connected to an L-shaped plan on the south portion of the site, would be the most conducive to creating pleasant open air spaces. This plan would create a larger contiguous L-shaped courtyard in the center of the block, and a west-facing courtyard along the middle of the block on Harrison Avenue, with an additional open space at the southwest corner of the site at East Berkeley Street.

By minimizing curb cuts, loading and service areas, and drop-off areas along the adjacent streets, the design is intended to support the pedestrian experience along Harrison Avenue, as well as along Traveler Street and East Berkeley Street. Studying the vehicular and pedestrian access started with the parking entry ramp located on the southeast side of the site, the loading dock on the north side of the site, and the creation of a pedestrian throughway with a central garden on the eastern edge of the site. Further study created a larger pedestrian, motor, service, landscape, and publicly accessible connector along the eastern edge so that tenant vehicular access would be diverted from the street frontage. The design of this eastern edge has continued to evolve from a two-way vehicular passage, to a



vehicular throughway entering from Traveler Street and exiting to East Berkeley Street. Resident traffic will exit to Traveler Street from the parking garage, reducing the impact on East Berkeley Street. This connection allows for an uninterrupted pedestrian experience along the edge of the site along Harrison Avenue.

## Chapter 3.0

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### Assessment of Development Review Components

## 3.0 ASSESSMENT OF DEVELOPMENT REVIEW COMPONENTS

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This chapter provides detailed transportation and air quality analyses, as well as discussions and qualitative analyses of other environmental impacts related to the Project.

### 3.1 Transportation

Howard Stein Hudson (HSH) has conducted an evaluation of the transportation impacts of the redevelopment of 370-380 Harrison Avenue in Boston's South End neighborhood. The site currently contains industrial facilities used for food distribution. The redevelopment, as currently conceived, will consist of the construction of a new building containing up to approximately 280 residential units and up to approximately 6,000 sf of ground floor commercial/retail space. This transportation study adheres to the Boston Transportation Department (BTD) *Transportation Access Plan Guidelines* and BRA Article 80 Large Project Review process. This study includes an evaluation of existing conditions, future conditions with and without the Project, projected parking demand, loading operations, transit services, and pedestrian activity. The Project will have minimal impact on the study area intersections and the pedestrian and public transportation facilities in the area.

#### 3.1.1 *Project Description*

As described in Chapter 2, the Project site is located at 370-380 Harrison Avenue in Boston's South End neighborhood and is the westernmost parcel located on the block that is bounded by Harrison Avenue to the west, Traveler Street to the north, East Berkeley Street to the south, and Albany Street to the east. The Project site currently contains buildings that housed two existing food distribution businesses.

The Project, as currently conceived, includes the demolition of the existing buildings and the construction of a new residential building with ground floor commercial/retail space. The Project will contain up to approximately 280 residential units and up to approximately 6,000 sf of ground floor commercial/retail space. Up to approximately 180 parking spaces will be provided in three below-grade parking levels for the residential uses on the site. The Project will also close three curb cuts along Harrison Avenue totaling approximately 120 feet in length to provide additional on-street parking. A mid-block connector will be provided in the rear of the building between Traveler Street and East Berkeley Street to accommodate parking, loading, residential pick-up/drop-off, trash pick-up, and move-in/move-out activity. The access way will generally operate with one-way travel from Traveler Street to East Berkeley Street, with two-way travel near Traveler Street to allow for vehicles to exit the parking garage.

Bicycle storage will be provided for approximately 280 bicycles, with additional bicycle racks provided around the building to accommodate visitors and patrons of the Project. All bicycle racks will conform to BTD guidelines and be located in safe, secure locations. The Proponent will work with BTD to identify the most appropriate quantity and location for

bicycle racks on the Project site as part of the Transportation Access Plan Agreement (TAPA) process.

### **3.1.2 Study Methodology**

This transportation study and its supporting analyses were conducted in accordance with BTD guidelines, and are described below.

The Existing (2016) Condition analysis includes an inventory of the existing transportation conditions such as traffic characteristics, parking, curb usage, transit, pedestrian circulation, bicycle facilities, loading, and site conditions. Existing counts for vehicles, bicycles and pedestrians were collected at the study area intersections in January 2016. The traffic counts form the basis for the transportation analysis conducted as part of this evaluation.

The future transportation conditions analysis evaluates potential transportation impacts associated with the Project. The long-term transportation impacts are evaluated for the year 2023, based on a seven-year horizon from the year of the filing of this traffic study. Expected roadway, parking, transit, pedestrian, bicycle accommodation, and loading capabilities and deficiencies are identified. This section includes the following scenarios:

- ◆ The No-Build (2023) Condition analysis includes general background traffic growth, traffic growth associated with specific developments (not including this Project), and transportation improvements that are planned in the vicinity of the Project site.
- ◆ The Build (2023) Condition analysis includes a net increase in traffic volume due to the addition of Project-generated trip estimates to the traffic volumes developed as part of the No-Build (2023) Condition analysis.

The final part of the transportation study identifies measures to mitigate Project-related impacts and to address any traffic, pedestrian, bicycle, transit, safety or construction related issues that are necessary to accommodate the Project.

An evaluation of short-term traffic impacts associated with construction activities is also provided.

### **3.1.3 Study Area**

The transportation study area includes intersections surrounding the Project site along Harrison Avenue, East Berkeley Street, Traveler Street, Washington Street, Albany Street, and Herald Street. The study area consists of the following 13 intersections in the vicinity of the Project site, also shown on Figure 3-1:

- ◆ Harrison Avenue/Traveler Street (signalized);



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- ◆ Albany Street/Traveler Street (signalized);
- ◆ I-93 NB Frontage Road/Traveler Street/I-90 WB On-Ramp/I-93 NB On-Ramp/Broadway Bridge (signalized);
- ◆ I-93 NB Frontage Road/West Fourth Street (signalized);
- ◆ Albany Street/West Fourth Street/East Berkeley Street (signalized);
- ◆ Harrison Avenue/East Berkeley Street (signalized);
- ◆ Washington Street/East Berkeley Street (signalized);
- ◆ Shawmut Avenue/East Berkeley Street (signalized);
- ◆ Tremont Street/East Berkeley Street/Berkeley Street (signalized);
- ◆ Washington Street/Traveler Street (signalized);
- ◆ Washington Street/Herald Street (signalized);
- ◆ Harrison Avenue/Herald Street (signalized); and
- ◆ Albany Street/Herald Street/I-93 SB Ramps (signalized).

#### **3.1.4 Existing Conditions**

This section includes descriptions of existing study area roadway geometries, intersection traffic control, peak-hour vehicular and pedestrian volumes, average daily traffic volumes, public transportation availability, parking, curb usage and loading conditions.

##### **3.1.4.1 Existing Roadway Conditions**

The study area includes the following roadways, which are categorized according to the Massachusetts Department of Transportation (MassDOT) Office of Transportation Planning functional classifications:

***Harrison Avenue*** is a two-way, two to four lane roadway divided by a median, and located adjacent to the west side of the Project site. Harrison Avenue generally runs in a north-south direction between Essex Street to the north and Dudley Square to the south. Harrison Avenue is classified as an urban minor arterial under BTJ jurisdiction. In the vicinity of the site, on-street parking and sidewalks are provided along both sides of the roadway.

***Herald Street*** is a one-way eastbound, three lane roadway located north of the Project site. Herald Street generally runs in an east-west direction between Tremont Street to the west and Albany Street to the east. Herald Street is classified as an urban principal arterial under BTJ jurisdiction. In the vicinity of the site, on-street parking is restricted on both sides of the roadway. Sidewalks are provided on both sides of the roadway; however, the sidewalk on the northern side is only approximately three feet wide.

***Traveler Street*** is located adjacent to the north side of the Project site, and generally runs in an east-west direction between the I-93 NB Frontage Road to the east and Washington Street to the west. Between the I-93 NB Frontage Road and Albany Street, Traveler Street is a one-way eastbound three lane roadway and is classified as an urban principal arterial roadway under BTJ jurisdiction. Parking is not provided along this section of Traveler Street. Between Albany Street and Harrison Avenue, Traveler Street is a two-way, two lane roadway and is classified as a local roadway under BTJ jurisdiction. Parking is provided along both sides of the roadway. Between Harrison Avenue and Washington Street, Traveler Street is a one-way westbound, one lane roadway and is classified as a local roadway under BTJ jurisdiction. Parking is provided along both sides of the roadway. Sidewalks are provided on both sides of Traveler Street.

***East Berkeley Street*** is a one-way westbound, three lane roadway located adjacent to the south side of the Project site, and generally runs in an east-west direction between the I-93 NB Frontage Road to the east and Tremont Street to the west. East Berkeley Street is classified as an urban principal roadway under BTJ jurisdiction. In the vicinity of the site, peak hour restricted on-street parking is provided along both sides of the roadway. Sidewalks are provided on both sides of the roadway.

***Washington Street*** is a two-way, four lane roadway located to the west of the Project that generally runs in a north-south direction between downtown Boston to the north and the outer Boston neighborhoods to the south. Washington Street is classified as an urban principal arterial roadway under BTJ jurisdiction. Washington Street has a dedicated bus lane in both the northbound and southbound directions. In the vicinity of the Project site, there is one southbound bus only lane and three northbound lanes, one of which is a bus only lane. On-street parking is provided on the east side of the roadway. Sidewalks exist on both sides of the roadway.

***Albany Street*** is a one-way southbound, three lane roadway located to the east of the Project site that generally runs in a north-south direction between Kneeland Street to the north and Eustis Street to the south. Albany Street is classified as an urban minor arterial under MassDOT jurisdiction. In the vicinity of the Project site, on-street parking is restricted along both sides of the roadway. Sidewalks are provided on both sides of the roadway.

***I-93 NB Frontage Road*** is a one-way northbound, three lane roadway located to the east of the Project site that generally runs in a north-south direction between Traveler Street to the north and Southampton Street to the south. Albany Street is classified as an urban minor

arterial under MassDOT jurisdiction. In the vicinity of the Project site, on-street parking is restricted along both sides of the roadway. Sidewalks are provided on both sides of the roadway.

***West Fourth Street*** is a two-way, two lane roadway located to the east of the Project site that generally runs in an east-west direction between Dorchester Street to the east and the I-93 NB Frontage Road to the west. West Fourth Street is classified as a principal arterial roadway mostly under BTJ jurisdiction, with the bridge portion of West Fourth Street, east of I-93 under MassDOT jurisdiction. In the vicinity of the site, on-street parking is restricted along both sides of the roadway. Sidewalks are provided on both sides of the roadway.

#### **3.1.4.2 Existing Intersection Conditions**

Existing conditions at the study area intersections are described below.

***Harrison Avenue/Traveler Street*** is a four-legged, signalized intersection with three approaches. The Traveler Street westbound approach consists of one shared left-turn/through/right-turn lane. The Harrison Avenue northbound and southbound approaches both consist of a left-turn/through lane and a through/right-turn lane. Sidewalks are provided along all approaches. Crosswalks, wheelchair ramps, and pedestrian signal equipment are provided across all approaches to the intersection.

***Albany Street/Traveler Street*** is a four-legged, signalized intersection with two approaches. The Traveler Street eastbound approach consists of a through/right-turn lane. The Albany Street southbound approach consists of a left-turn lane, a left-turn/through lane, and a through/right-turn lane. Sidewalks are provided along all approaches. Crosswalks, wheelchair ramps, and pedestrian signal equipment are provided across the east, south, and west legs of the intersection.

***I-93 NB Frontage Road/Traveler Street/I-90 WB On-Ramp/I-93 NB On-Ramp/Broadway Bridge*** is a five-legged, signalized intersection with three approaches. The Traveler Street eastbound approach consists of a left-turn lane and two through lanes. The Broadway Bridge westbound approach consists of two right-turn lanes. The I-93 NB Frontage Road consists of two through lanes and three right-turn lanes. Sidewalks are provided along all approaches with the exception of the northwest corner. Crosswalks, wheelchair ramps, and pedestrian signal equipment are provided across the south and east approaches to the intersection.

***I-93 NB Frontage Road/West Fourth Street*** is a four-legged, signalized intersection with two approaches. The West Fourth Street westbound approach consists of two through lanes and a through/right-turn lane. The I-93 NB Frontage Road northbound approach consists of a left-turn lane, a left-turn/through lane, and a shared through/right-turn lane. Sidewalks are



provided along all approaches with the exception of the northwest corner of the intersection. Crosswalks, wheelchair ramps, and pedestrian signal equipment are provided across the south and east approaches to the intersection.

***Albany Street/East Berkeley Street/West Fourth Street*** is a four-legged, signalized intersection with two approaches. The West Fourth Street westbound approach consists of a left-turn lane and two through lanes. The Albany Street southbound approach consists of two through lanes and a through/right-turn lane. Sidewalks are provided along all approaches. Crosswalks, wheelchair ramps, and pedestrian signal equipment are provided across the east, south, and west legs of the intersection.

***Harrison Avenue/East Berkeley Street*** is a four-legged, signalized intersection with three approaches. The East Berkeley Street westbound approach consists of a left-turn/through lane, a through lane, and a through/right-turn lane. The Harrison Avenue northbound approach consists of a shared left-turn/through lane. The Harrison Avenue southbound approach consists of a through lane and a through/right-turn lane. Sidewalks are provided along all approaches. Crosswalks, wheelchair ramps, and pedestrian signal equipment are provided across all approaches to the intersection.

***Washington Street/East Berkeley Street*** is a four-legged, signalized intersection with three approaches. The East Berkeley Street westbound approach consists of a left-turn/through lane, a through lane, and a shared through/right-turn lane. The Washington Street northbound approach consists of a left-turn lane, a through lane, and a bus-only lane. The Washington Street southbound approach consists of a bus-only lane. Sidewalks are provided along all approaches. Crosswalks, wheelchair ramps, and pedestrian signal equipment are provided across all approaches to the intersection.

***Shawmut Avenue/East Berkeley Street*** is a four-legged, signalized intersection with three approaches. The East Berkeley Street westbound approach consists of three through lanes. The Shawmut Avenue northbound approach consists of a left-turn only lane. The Shawmut Avenue southbound approach consists of a right-turn only lane. Sidewalks are provided along all approaches. Crosswalks, wheelchair ramps, and pedestrian signal equipment are provided across all approaches to the intersection.

***Tremont Street/East Berkeley Street/Berkeley Street*** is a four-legged, signalized intersection with four approaches. The Berkeley Street eastbound approach consists of a left-turn lane and a right-turn lane. The East Berkeley Street westbound approach consists of a left-turn lane, a through lane, and a through/right-turn lane. The Tremont Street northbound approach consists of a left-turn/through lane and a through lane. The Tremont Street southbound approach consists of a through lane and a through/right-turn lane. Sidewalks are provided along all approaches. Crosswalks, wheelchair ramps, and pedestrian signal equipment are provided across all approaches to the intersection.

*Washington Street/Traveler Street* is a three-legged, signalized intersection with two approaches. The Traveler Street westbound approach consists of a right-turn lane. The Washington Street northbound approach consists of two through lanes and a bus-only lane. The Washington Street southbound approach consists of a bus-only lane. Sidewalks are provided along all approaches. Crosswalks, wheelchair ramps, and pedestrian signal equipment are provided across all approaches to the intersection.

*Washington Street/Herald Street* is a four-legged, signalized intersection with three approaches. The Herald Street eastbound approach consists of a left-turn/through lane and two through lanes. The Washington Street northbound approach consists of two through lanes and a right-turn lane. The Washington Street southbound consists of a bus-only lane. Sidewalks are provided along all approaches. Crosswalks, wheelchair ramps, and pedestrian signal equipment are provided across all approaches to the intersection.

*Harrison Avenue/Herald Street* is a four-legged, signalized intersection with three approaches. The Herald Street eastbound approach consists of two through lanes and a through/right-turn lane. The Harrison Avenue northbound approach consists of two right-turn lanes. The Harrison Avenue southbound approach consists of a left-turn lane and two through lanes. Sidewalks are provided along all approaches. Crosswalks, wheelchair ramps, and pedestrian signal equipment are provided across all approaches to the intersection.

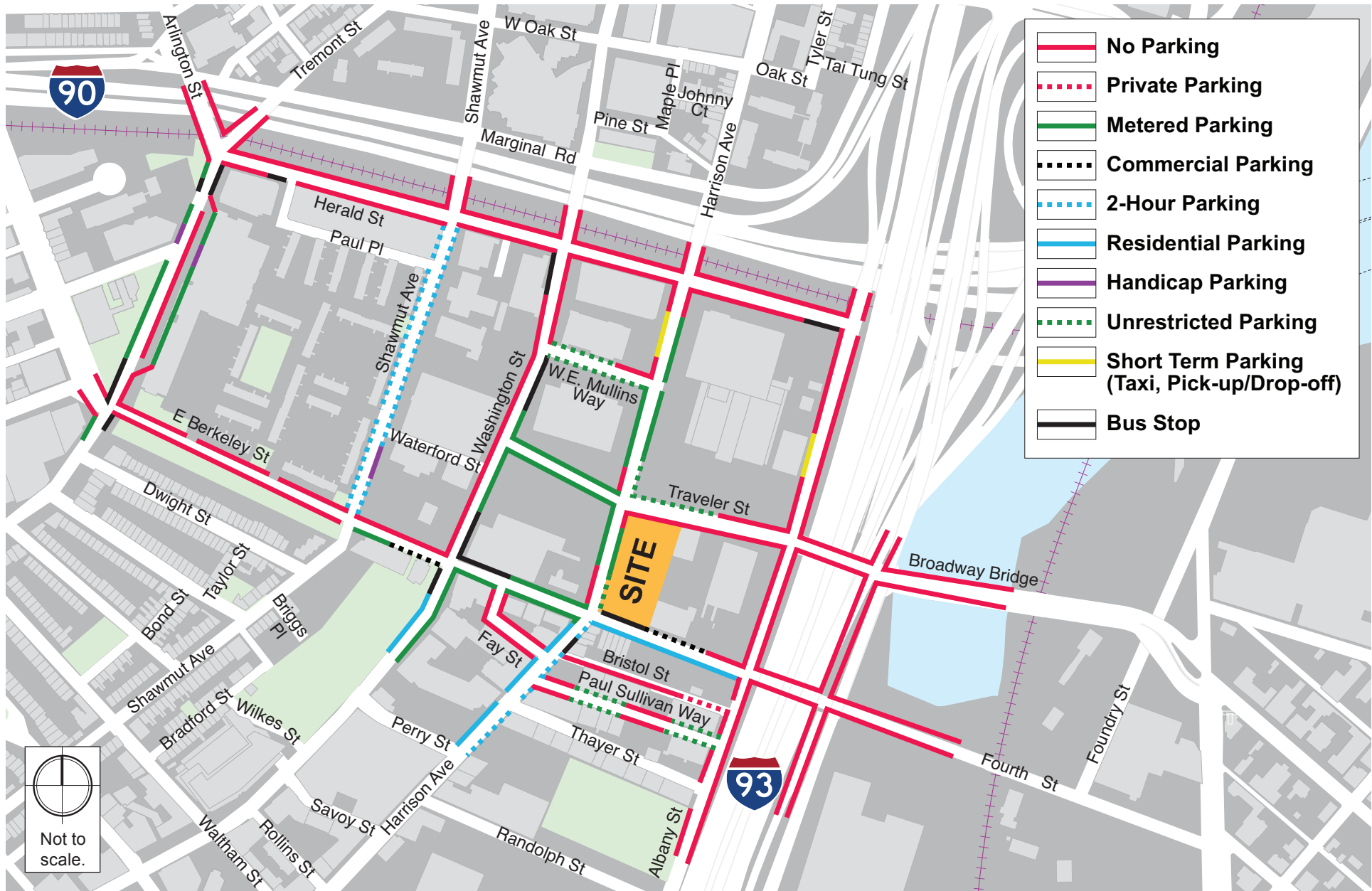
*Albany Street/Herald Street/I-93 SB On-Ramp* is a four legged, signalized intersection with two approaches. The Herald Street eastbound approach consists of three right-turn lanes. The Albany Street southbound approach consists of a left-turn/through lane and two through lanes. Sidewalks are provided along all approaches. Crosswalks, wheelchair ramps, and pedestrian signal equipment are provided across all approaches to the intersection.

#### **3.1.4.3 Existing Parking**

An inventory of the existing on-street parking in the vicinity of the Project site was collected. On-street parking surrounding the Project site generally consists of residential and metered parking. The on-street parking regulations within the study area are shown in Figure 3-2.

#### **3.1.4.4 Existing Traffic Conditions**

Traffic movement data was collected at the study area intersections on Wednesday, January 13, 2016. Turning movement counts (TMCs) and vehicle classification counts were conducted during the weekday a.m. and weekday p.m. peak periods (7:00 – 9:00 a.m. and 4:00 – 6:00 p.m., respectively). The vehicle classification counts included car, heavy vehicle, pedestrian, and bicycle movements. The detailed traffic counts are provided in Appendix B.



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### *Seasonal Adjustment*

To account for seasonal variation in traffic volumes throughout the year, data provided by MassDOT was reviewed. The most recent (2011) MassDOT Weekday Seasonal Factors were used to determine the need for seasonal adjustments to the January 2016 TMCs. The seasonal adjustment factors for roadways similar to the study area indicate that average month traffic volumes are approximately three percent higher than the traffic volumes that were collected. Therefore, the traffic counts were increased by three percent to reflect average month conditions. The MassDOT 2011 Weekday Seasonal Factors table is provided in Appendix B.

The Existing (2016) Condition weekday a.m. peak hour and weekday p.m. peak hour traffic volumes are shown in Figure 3-3 and Figure 3-4, respectively.

#### **3.1.4.5 Existing Bicycle Volumes and Facilities**

In recent years, bicycle use has increased dramatically throughout the City of Boston. The Project site is conveniently located in close proximity to several bicycle facilities. The South Bay Harbor Trail is located to the east of the Project site and will ultimately connect the Fort Point District in South Boston to the Pierre Lallement Bike Path along the MBTA Orange Line/Southwest Corridor Park. Segments of the trail are in place, including the Harborwalk section in South Boston and the Melnea Cass Bike Path in Roxbury. The incomplete connecting segment will operate along portions of the I-93 frontage roads between West Fourth Street and Biosquare Drive at Boston Medical Center.

The City of Boston's "Bike Routes of Boston" map designates Shawmut Avenue as a beginner route. Beginner routes are suitable for all riders, including new cyclists with little or no on-road experience. West Fourth Street/East Berkeley Street and Washington Street are designated as intermediate routes. Washington Street has a shared bus/bicycle lane in the vicinity of the Project site. Intermediate routes are suitable for riders with some on-road experience. Herald Street and Albany Street are designated as advanced routes. Advanced routes are suitable for experienced and traffic-confident riders.

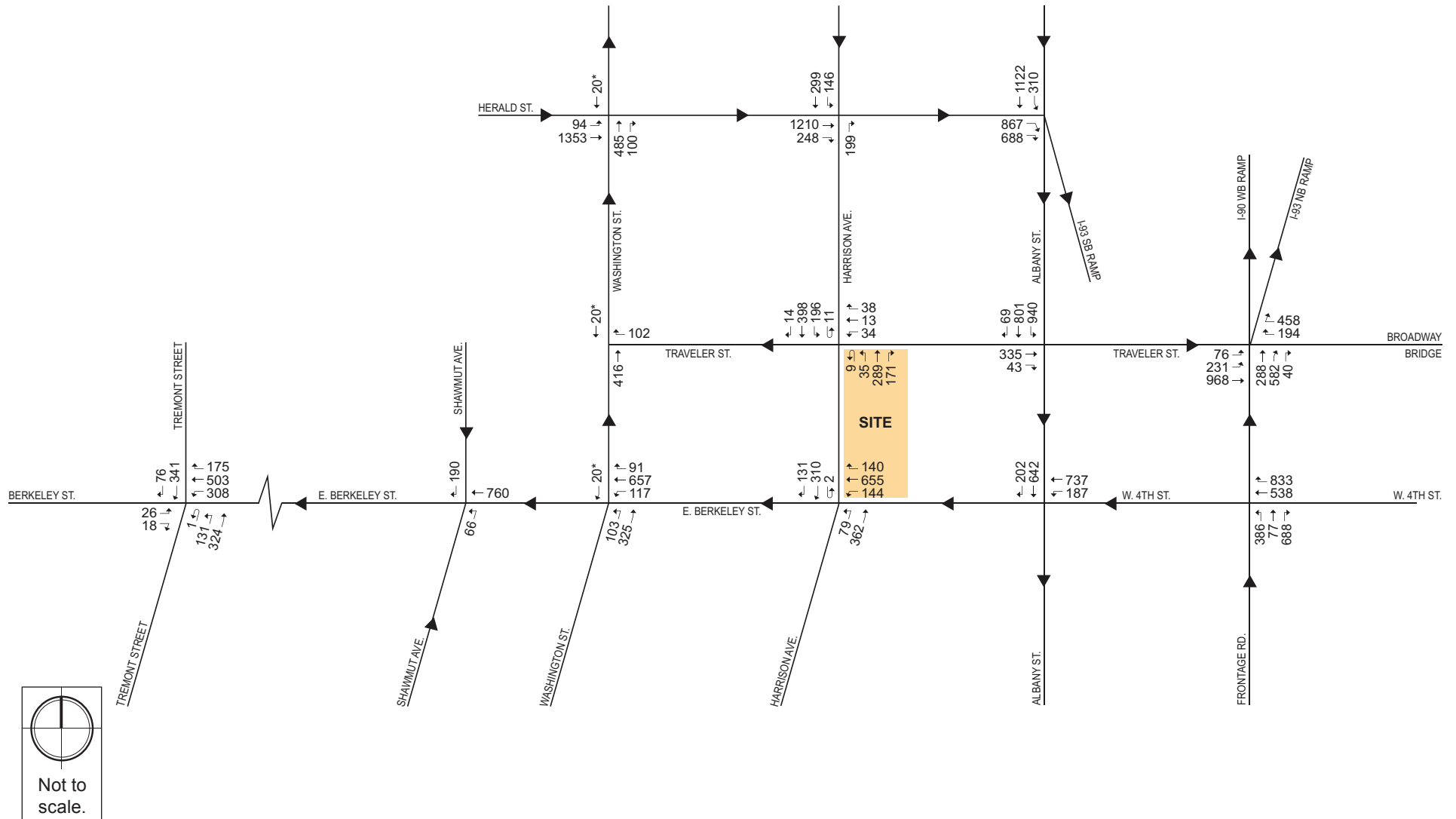
Bicycle counts were conducted concurrent with the vehicular TMCs and are presented in Figure 3-5. As shown in the figure, bicycle volumes are heaviest along Washington Street during the peak periods.

#### **3.1.4.6 Existing Pedestrian Volumes and Accommodations**

The Project site is located on the block surrounded by Harrison Avenue to the west, Traveler Street to the north, East Berkeley Street to the south and Albany Street to the east. Sidewalks are generally in good condition surrounding the site and are provided along both sides of all roadways adjacent to the site. Marked crosswalks, wheel chair ramps, and pedestrian signal equipment are provided at all study area intersections.

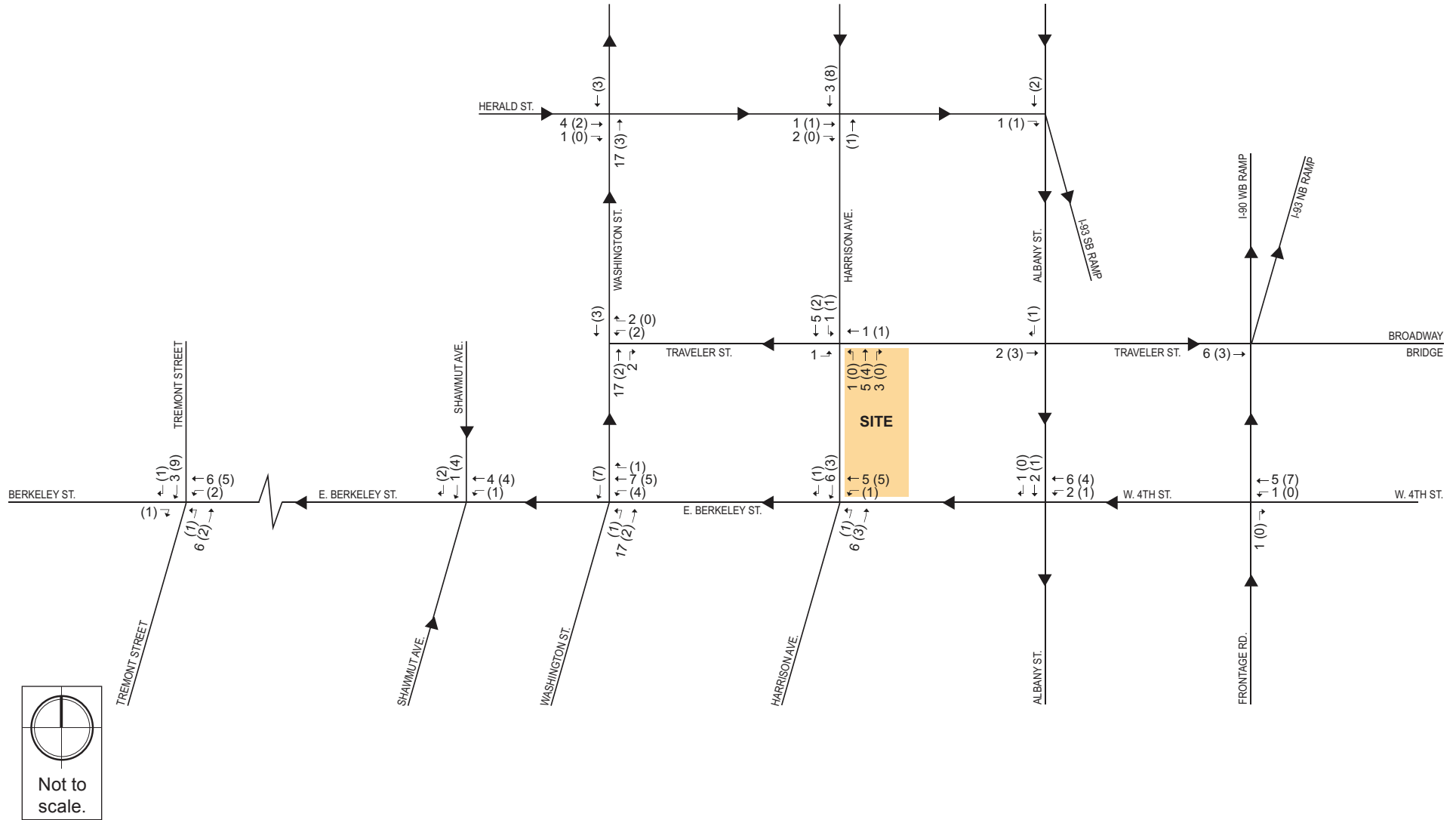


\*Silver Line Buses Only



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a.m. XX  
p.m. (XX)



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To determine the amount of pedestrian activity within the study area, pedestrian counts were conducted concurrent with the TMCs at the study area intersections and are presented in Figure 3-6. As shown in the figure, pedestrian activity is heavy throughout the study area.

#### **3.1.4.7 Car and Bicycle Sharing Services**

Car sharing enables easy access to short-term vehicular transportation. Vehicles are rented on an hourly or daily basis, and all vehicle costs (gas, maintenance, insurance, and parking) are included in the rental fee. Vehicles are checked out for a specific time period and returned to their designated location.

Zipcar is the primary company in the Boston car sharing market. There are currently three Zipcar locations within a quarter-mile walk of the Project site. The nearby car sharing locations are shown in Figure 3-7.

The site is also located in proximity to a bicycle sharing station provided by Hubway. Hubway is the bicycle sharing system in the Boston area which was launched in 2011 and consists of over 140 stations and 1,300 bicycles. There is one Hubway location within a quarter mile of the site. Figure 3-7 shows the Hubway stations in the vicinity of the Project site.

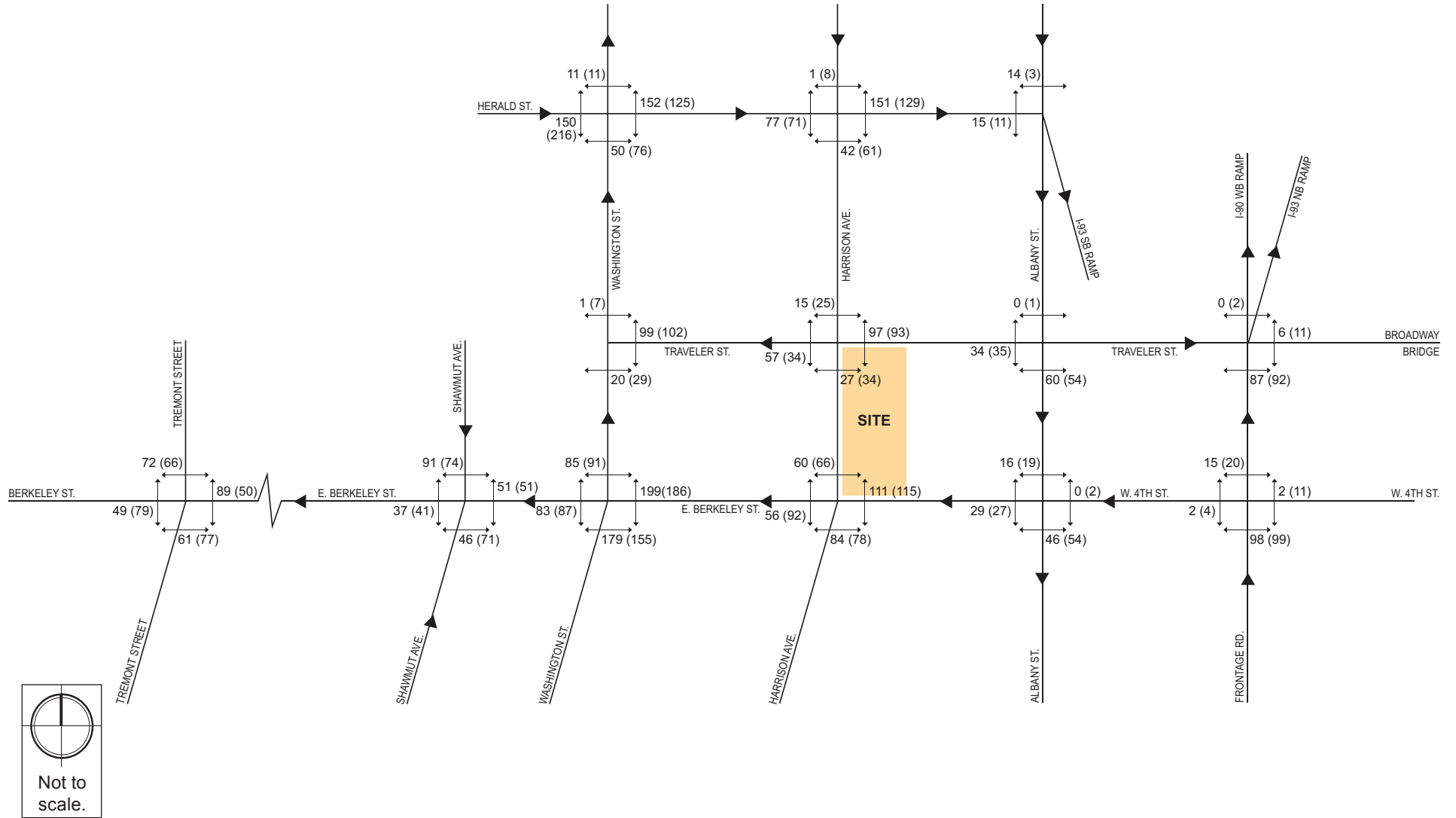
#### **3.1.4.8 Existing Public Transportation Services**

The Project site is located in Boston's South End neighborhood proximate to several public transportation opportunities. The MBTA's Broadway Station is located approximately one-third of a mile east of the site, serving the Red Line and providing access to downtown Boston, Cambridge, Quincy, Dorchester, and Braintree. The MBTA Silver Line and several bus lines are also located proximate to the site. The closest Silver Line station is located one block to the west at the intersection of East Berkeley Street/Washington Street.

The MBTA operates four bus routes, as well as two Silver Line routes, proximate to the Project. Figure 3-8 maps all of the public transportation service located in close proximity of the Project site, and Table 3-1 provides a brief summary of all routes.



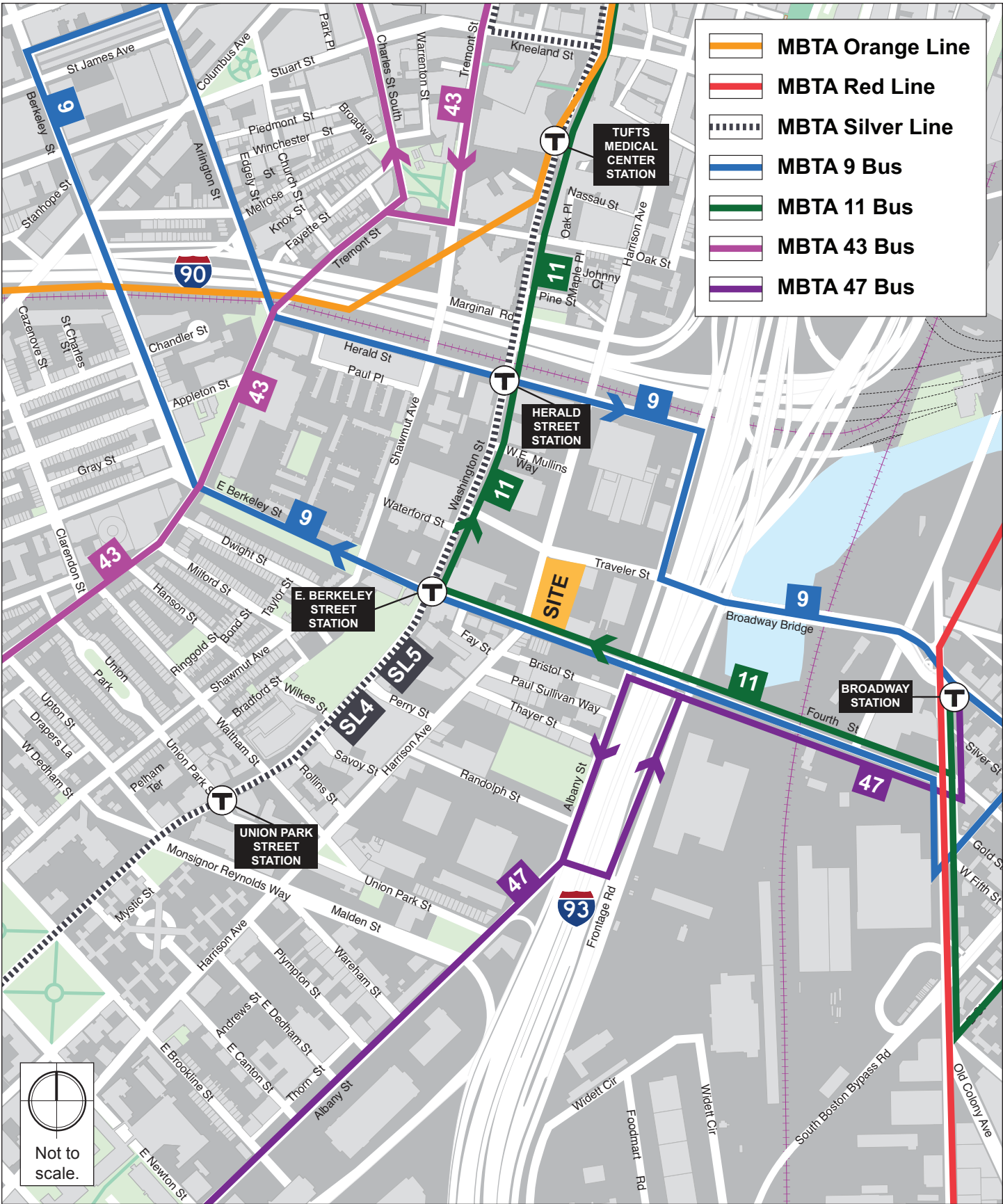
a.m. XX  
p.m. (XX)



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370-380 Harrison Avenue Boston, Massachusetts



370-380 Harrison Avenue Boston, Massachusetts

**Table 3-1 Existing Public Transportation Service Summary**

<i>Transit Service</i>	<i>Description</i>	<i>Rush-hour Headway (in minutes)*</i>
<b>Rapid Transit Routes</b>		
Red Line	Alewife – Ashmont/Braintree	9
<b>Bus Routes</b>		
SL4	Dudley Station – South Station at Essex St. via Washington St.	8
SL5	Dudley Station – Downtown Crossing at Temple Place via Washington St.	8
9	City Point – Copley Square via Broadway Station	5
11	City Point – Downtown BayView Route	6
43	Ruggles Station – Park & Tremont Streets via Tremont Street	12
47	Central Sq., Cambridge - Broadway Station via B.U. Medical Center, Dudley Station & Longwood Medical Area	10

\* Headway is the time between buses.

### 3.1.4.9 Existing (2016) Condition Traffic Operations Analysis

The criterion for evaluating traffic operations is level of service (LOS), which is determined by assessing average delay experienced by vehicles at intersections and along intersection approaches. Trafficware’s Synchro (version 9) software package was used to calculate average delay and associated LOS at the study area intersections. This software is based on the traffic operational analysis methodology of the Transportation Research Board’s 2000 Highway Capacity Manual (HCM).

LOS designations are based on average delay per vehicle for all vehicles entering an intersection. Table 3-2 displays the intersection LOS criteria. LOS A indicates the most favorable condition, with minimum traffic delay, while LOS F represents the worst condition, with significant traffic delay. LOS D or better is typically considered desirable during the peak hours of traffic in urban and suburban settings.

**Table 3-2 Vehicle Level of Service Criteria**

<i>Level of Service</i>	<i>Average Stopped Delay (sec/veh)</i>	
	<i>Signalized Intersections</i>	<i>Unsignalized Intersections</i>
A	≤10	≤10
B	> 10 and ≤20	> 10 and ≤15
C	> 20 and ≤35	> 15 and ≤25
D	> 35 and ≤55	> 25 and ≤35
E	> 55 and ≤80	> 35 and ≤50
F	> 80	> 50

Source: 2000 Highway Capacity Manual, Transportation Research Board.

In addition to delay and LOS, the operational capacity and vehicular queues are calculated and used to further quantify traffic operations at intersections. The following describes these other calculated measures.

The volume-to-capacity ratio (v/c ratio) is a measure of congestion at an intersection approach. A v/c ratio below one indicates that the intersection approach has adequate capacity to process the arriving traffic volumes over the course of an hour. A v/c ratio of one or greater indicates that the traffic volume on the intersection approach exceeds capacity.

The 50<sup>th</sup> percentile queue length, measured in feet, represents the queue length during a cycle of the traffic signal with typical (or median) entering traffic volumes. The 95th percentile queue length, measured in feet, denotes the farthest extent of the vehicle queue (to the last stopped vehicle) upstream from the stop line. This maximum queue occurs five percent, or less, of the time during the peak hour, and typically does not develop during off-peak hours. Since volumes fluctuate throughout the hour, the 95th percentile queue represents what can be considered a “worst case” condition. Queues at an intersection are generally below the 95th percentile length throughout most of the peak hour. It is also unlikely that 95th percentile queues for each approach to an intersection occur simultaneously.

Table 3-3 and Table 3-4 summarize the Existing (2016) Condition operations analysis for the study area intersections during the a.m. and p.m. peak hours, respectively. The detailed analysis sheets are provided in Appendix B.

**Table 3-3 Existing (2016) Condition Operations Analysis Summary, a.m. Peak Hour**

<i>Intersection/Approach</i>	<i>LOS</i>	<i>Delay (s)</i>	<i>V/C Ratio</i>	<i>50th Percentile Queue (ft)</i>	<i>95th Percentile Queue (ft)</i>
Signalized Intersections					
<b>Herald Street/Washington Street</b>	<b>C</b>	<b>23.1</b>	-	-	-
Herald Street EB left/thru   thru   thru	C	23.9	0.67	228	279
Washington Street NB thru   thru	C	23.2	0.60	189	231
Washington Street NB right	B	10.9	0.16	14	38
Washington Street SB thru	B	16.2	0.06	8	21
<b>Herald Street/Harrison Avenue</b>	<b>B</b>	<b>11.4</b>	-	-	-
Herald Street EB thru   thru   thru/right	B	10.6	0.77	27	34
Harrison Avenue NB right   right	A	0.2	0.09	0	m0
Harrison Avenue SB left	A	6.0	0.38	0	19
Harrison Avenue SB thru   thru	C	31.1	0.19	36	63

**Table 3-3 Existing (2016) Condition Operations Analysis Summary, a.m. Peak Hour (Continued)**

<i>Intersection/Approach</i>	<i>LOS</i>	<i>Delay (s)</i>	<i>V/C Ratio</i>	<i>50th Percentile Queue (ft)</i>	<i>95th Percentile Queue (ft)</i>
<b>Herald Street/Albany Street/I-93 SB On-Ramp</b>	<b>D</b>	<b>40.7</b>	-	-	-
Herald Street EB bear right/right	F	> 80.0	> 1.00	~ 571	#852
Herald Street EB right   right	A	5.3	0.60	25	31
Albany Street SB left/thru   thru   thru	D	35.3	0.89	239	#339
<b>Washington Street/Traveler Street</b>	<b>A</b>	<b>4.7</b>	-	-	-
Traveler Street WB right	A	4.3	0.45	0	13
Washington Street NB thru   thru   thru	A	4.8	0.20	19	52
Washington Street SB thru	A	5.4	0.04	2	12
<b>Harrison Avenue/Traveler Street</b>	<b>C</b>	<b>24.9</b>	-	-	-
Traveler Street WB left/thru/right	E	56.3	0.80	113	#211
Harrison Avenue NB left/thru	B	18.2	0.42	65	m100
Harrison Avenue SB thru/right	B	15.0	0.38	48	m118
<b>Albany Street/Traveler Street</b>	<b>D</b>	<b>35.1</b>	-	-	-
Traveler Street EB thru/right	F	> 80.0	0.93	220	214
Albany Street SB left	C	29.7	0.74	375	549
Albany Street SB left/thru   thru/right	C	25.9	0.74	384	480
<b>I-93 NB Frontage Road/I-90 WB On-Ramp/I-93 NB On-Ramp/Traveler Street/Broadway Bridge</b>	<b>D</b>	<b>36.6</b>	-	-	-
Traveler Street EB left/bear left	F	> 80.0	0.92	206	m#327
Traveler Street EB thru   thru	C	21.0	0.37	222	m222
Broadway Bridge WB right/hard right	E	61.1	0.95	431	#692
Broadway Bridge WB hard right	D	46.2	0.86	358	#560
I-93 NB Frontage Road NB bear left   bear left	B	10.3	0.34	44	m45
I-93 NB Frontage Road NB thru   thru   thru/right	B	10.7	0.45	70	m72
<b>I-93 NB Frontage Road/W. Fourth Street</b>	<b>E</b>	<b>61.5</b>	-	-	-
W. Fourth Street WB thru   thru   thru/right	E	56.8	0.87	305	366
I-93 NB Frontage Road NB left	E	55.7	0.89	373	#593
I-93 NB Frontage Road NB left/thru   thru/right	E	69.5	> 1.00	~ 432	#586
<b>Albany Street/W. Fourth Street/E. Berkeley Street</b>	<b>C</b>	<b>28.8</b>	-	-	-
W. Fourth Street WB left	B	13.9	0.31	48	m58
W. Fourth Street WB thru   thru	D	37.6	0.80	232	m577
Albany Street SB thru   thru   thru/right	B	19.5	0.51	80	m126



**Table 3-3 Existing (2016) Condition Operations Analysis Summary, a.m. Peak Hour (Continued)**

<i>Intersection/Approach</i>	<i>LOS</i>	<i>Delay (s)</i>	<i>V/C Ratio</i>	<i>50th Percentile Queue (ft)</i>	<i>95th Percentile Queue (ft)</i>
<b>Harrison Avenue/E. Berkeley Street</b>	<b>D</b>	<b>35.2</b>	-	-	-
E. Berkeley Street WB left/thru   thru   thru/right	C	31.3	0.86	304	#467
Harrison Avenue NB left/thru	E	79.7	0.94	154	#256
Harrison Avenue SB thru	C	28.8	0.63	79	m98
Harrison Avenue SB right	A	3.2	0.28	4	m11
<b>Washington Street/E. Berkeley Street</b>	<b>B</b>	<b>13.9</b>	-	-	-
E. Berkeley Street WB left/thru   thru   thru/right	B	12.4	0.79	72	71
Washington Street NB left	B	18.1	0.18	33	68
Washington Street NB thru   thru	B	17.4	0.28	80	118
Washington Street SB thru	B	17.2	0.05	7	24
<b>E. Berkeley Street/Shawmut Avenue</b>	<b>A</b>	<b>3.3</b>	-	-	-
E. Berkeley Street WB thru   thru   thru	A	3.6	0.47	25	43
Shawmut Avenue NB left	A	1.0	0.20	0	0
Shawmut Avenue SB right	A	2.6	0.40	0	0
<b>Tremont Street/E. Berkeley Street/Berkeley Street</b>	<b>D</b>	<b>48.9</b>	-	-	-
Berkeley Street EB left	D	39.0	0.28	9	23
Berkeley Street EB right	A	0.1	0.03	0	0
E. Berkeley Street WB left	C	29.1	0.64	207	295
E. Berkeley Street WB thru   thru/right	E	65.3	> 1.00	~ 358	#489
Tremont Street NB left/thru   thru	D	43.2	0.88	193	#286
Tremont Street SB thru   thru/right	C	33.5	0.47	86	124

Grey Shading indicates LOS E or F.

~ 50<sup>th</sup> percentile volume exceeds capacity. Queue shown is maximum after two cycles.

# 95<sup>th</sup> percentile volume exceeds capacity. Queue shown is maximum after two cycles.

m Volumes for 95<sup>th</sup> percentile queue is metered by upstream signal.

**Table 3-4 Existing (2016) Condition Operations Analysis Summary, p.m. Peak Hour**

<i>Intersection/Approach</i>	<i>LOS</i>	<i>Delay (s)</i>	<i>V/C Ratio</i>	<i>50th Percentile Queue (ft)</i>	<i>95th Percentile Queue (ft)</i>
Signalized Intersections					
<b>Herald Street/Washington Street</b>	<b>C</b>	<b>20.6</b>	-	-	-
Herald Street EB left/thru   thru  thru	B	18.9	0.66	244	295
Washington Street NB thru   thru	C	26.2	0.49	133	183
Washington Street NB right	B	17.7	0.28	32	76
Washington Street SB thru	C	21.1	0.06	9	25
<b>Herald Street/Harrison Avenue</b>	<b>C</b>	<b>22.1</b>	-	-	-
Herald Street EB thru   thru  thru/right	C	23.4	0.91	332	#427
Harrison Avenue NB right   right	A	0.7	0.25	0	m0
Harrison Avenue SB left	B	13.7	0.54	0	56
Harrison Avenue SB thru   thru	C	34.5	0.45	98	136
<b>Herald Street/Albany Street/I-93 SB On-Ramp</b>	<b>F</b>	<b>&gt; 80.0</b>	-	-	-
Herald Street EB bear right/right	F	> 80.0	> 1.00	~ 1230	m#1438
Herald Street EB right   right	A	6.9	0.63	39	m51
Albany Street SB left/thru   thru   thru	C	23.8	0.75	280	339
<b>Washington Street/Traveler Street</b>	<b>A</b>	<b>3.0</b>	-	-	-
Traveler Street WB right	A	0.7	0.19	0	0
Washington Street NB thru   thru  thru	A	3.6	0.14	15	41
Washington Street SB thru	A	4.3	0.03	2	11
<b>Harrison Avenue/Traveler Street</b>	<b>C</b>	<b>22.8</b>	-	-	-
Traveler Street WB left/thru/right	C	30.3	0.57	39	52
Harrison Avenue NB left/thru	B	17.4	0.45	94	158
Harrison Avenue SB thru/right	C	25.7	0.73	138	#271
<b>Albany Street/Traveler Street</b>	<b>E</b>	<b>64.1</b>	-	-	-
Traveler Street EB thru/right	F	> 80.0	> 1.00	~ 412	#580
Albany Street SB left	C	26.8	0.74	378	568
Albany Street SB left/thru   thru/right	C	22.9	0.74	390	493
<b>I-93 NB Frontage Road/I-90 WB On-Ramp/I-93 NB On-Ramp/Traveler Street/Broadway Bridge</b>	<b>D</b>	<b>38.4</b>	-	-	-
Traveler Street EB left/bear left	F	> 80.0	0.83	211	m267
Traveler Street EB thru   thru	B	10.8	0.57	64	m114
Broadway Bridge WB right/hard right	E	56.1	0.87	269	#435
Broadway Bridge WB hard right	D	44.6	0.77	225	330
I-93 NB Frontage Road NB bear left   bear left	C	34.2	0.34	123	m78
I-93 NB Frontage Road NB thru   thru   thru/right	D	36.3	0.49	192	m120



**Table 3-4 Existing (2016) Condition Operations Analysis Summary, p.m. Peak Hour (Continued)**

<i>Intersection/Approach</i>	<i>LOS</i>	<i>Delay (s)</i>	<i>V/C Ratio</i>	<i>50th Percentile Queue (ft)</i>	<i>95th Percentile Queue (ft)</i>
<b>I-93 NB Frontage Road/W. Fourth Street</b>	<b>F</b>	<b>&gt; 80.0</b>	-	-	-
W. Fourth Street WB thru   thru   thru/right	F	> 80.0	> 1.00dr	~ 598	#663
I-93 NB Frontage Road NB left	C	29.7	0.61	223	336
I-93 NB Frontage Road NB left/thru   thru/right	C	34.4	> 1.00dr	289	379
<b>Albany Street/W. Fourth Street/E. Berkeley Street</b>	<b>C</b>	<b>27.6</b>	-	-	-
W. Fourth Street WB left	B	13.1	0.31	31	m37
W. Fourth Street WB thru   thru	C	27.7	0.53	64	m68
Albany Street SB thru   thru   thru/right	C	30.7	0.47	247	m286
<b>Harrison Avenue/E. Berkeley Street</b>	<b>D</b>	<b>51.5</b>	-	-	-
E. Berkeley Street WB left/thru   thru   thru/right	D	41.0	0.78	249	305
Harrison Avenue NB left/thru	F	> 80.0	> 1.00	~ 443	#610
Harrison Avenue SB thru	C	32.8	0.50	197	284
Harrison Avenue SB right	A	4.7	0.26	0	39
<b>Washington Street/E. Berkeley Street</b>	<b>D</b>	<b>45.6</b>	-	-	-
E. Berkeley Street WB left/thru   thru   thru/right	E	63.9	0.78	253	m238
Washington Street NB left	B	11.7	0.16	33	72
Washington Street NB thru   thru	B	10.8	0.18	54	93
Washington Street SB thru	B	11.1	0.04	7	19
<b>E. Berkeley Street/Shawmut Avenue</b>	<b>A</b>	<b>2.7</b>	-	-	-
E. Berkeley Street WB thru   thru   thru	A	2.9	0.28	13	15
Shawmut Avenue NB left	A	0.7	0.16	0	0
Shawmut Avenue SB right	A	3.0	0.44	0	0
<b>Tremont Street/E. Berkeley Street/Berkeley Street</b>	<b>D</b>	<b>37.8</b>	-	-	-
Berkeley Street EB left	D	54.1	0.47	23	43
Berkeley Street EB right	A	0.2	0.05	0	0
E. Berkeley Street WB left	D	46.1	0.73	263	360
E. Berkeley Street WB thru   thru/right	D	43.5	0.82	293	360
Tremont Street NB left/thru   thru	C	30.1	0.63	156	193
Tremont Street SB thru   thru/right	C	32.9	0.45	140	202

Grey Shading indicates LOS E or F.

~ 50<sup>th</sup> percentile volume exceeds capacity. Queue shown is maximum after two cycles.

# 95<sup>th</sup> percentile volume exceeds capacity. Queue shown is maximum after two cycles.

m Volumes for 95<sup>th</sup> percentile queue is metered by upstream signal.

dr De facto right turn lane – Indicates that the lane operates as an exclusive right-turn lane due to high traffic volumes.

As shown in Table 3-3 and Table 3-4, the majority of intersections and approaches operate at an overall LOS D or better under the Existing (2016) Condition scenario. The following locations were shown to have movements at capacity (v/c ratio of 1.00 or higher) or operating with higher delays (LOS E or LOS F).

- ◆ The Herald Street eastbound right-turn movements at the signalized intersection of **Herald Street/Albany Street/I-93 SB On-Ramp** operate at capacity during both weekday peak hours, with high delays and long queues. This is due to the traffic volume destined for I-93 southbound.
- ◆ The Traveler Street westbound shared left-turn/thru/right-turn lane at the signalized intersection of **Harrison Avenue/Traveler Street** operates at LOS E during the a.m. peak hour, but still operates under capacity with minimal queuing.
- ◆ The signalized intersection of **Albany Street/Traveler Street** operates at an overall LOS E during the p.m. peak hour, with the Traveler Street eastbound movements operating at LOS F during both the weekday a.m. and p.m. peak hours.
- ◆ The Traveler Street eastbound left-turn movements at the signalized intersection of **I-93 NB Frontage Road/I-90 WB On-Ramp/I-93 NB On-Ramp/Traveler Street/Broadway Bridge** operate at LOS F during both the a.m. and p.m. peak hours. The Broadway Bridge westbound right-turn movements operate at LOS E during both the a.m. and p.m. peak hours. All movements at the intersection operate under capacity.
- ◆ The signalized intersection of **I-93 NB Frontage Road/West Fourth Street** operates at an overall LOS E during the a.m. peak hour and LOS F during the p.m. peak hour. During the a.m. peak hour, all approaches at this intersection operate at LOS E. The West Fourth Street westbound approaches operate at LOS F during the p.m. peak hour. The I-93 NB Frontage Road northbound left/thru thru/right approach operates at capacity during both peak hours, and the West Fourth Street westbound operates at capacity only during the p.m. peak hour.
- ◆ The Harrison Avenue northbound approach at the signalized intersection of **Harrison Avenue/East Berkeley Street** operates at LOS E during the weekday a.m. peak hour and LOS F during the weekday p.m. peak hour. The Harrison Avenue northbound approach also operates at capacity during the p.m. peak hour.
- ◆ The East Berkeley Street westbound movements at the signalized intersection of **Washington Street/East Berkeley Street** at LOS E during the p.m. peak hour. All movements operate under capacity during the peak hours.

- ◆ The East Berkeley Street westbound through, through/right movement at the signalized intersection of **Tremont Street/East Berkeley Street/Berkeley Street** operate at capacity during the a.m. peak hour and at LOS E.

### **3.1.5 No-Build (2023) Condition**

The No-Build (2023) Condition reflects a future scenario that incorporates anticipated traffic volume changes. These changes can be contributed to background traffic growth independent of any specific project, traffic associated with other planned specific developments, and planned infrastructure improvements that will affect travel patterns throughout the study area. These infrastructure improvements include roadway, public transportation, pedestrian and bicycle improvements.

#### **3.1.5.1 Background Traffic Growth**

The methodology to account for generic future background traffic growth, independent of this Project, may be affected by changes in demographics, smaller scale development projects, or projects unforeseen at this time. Based on a review of recent and historic traffic data collected, traffic studies conducted for other nearby projects, and to account for any additional unforeseen traffic growth, a traffic growth rate of one percent per year, compounded annually, was used.

#### **3.1.5.2 Specific Development Traffic Growth**

Traffic volumes associated with known development projects can affect traffic patterns throughout the study area within the future analysis time horizon. The following two projects were specifically accounted for in the traffic volumes for future scenarios:

- ◆ **345 Harrison Avenue** – This project calls for the construction of two buildings, totaling approximately 585 residential units, approximately 40,000 sf of ground floor retail and restaurant space, and parking for approximately 273 vehicles in an underground garage. This project has been approved by the BRA.
- ◆ **80 East Berkeley Street** – This project calls for the construction of a 308,000 sf, 11-story mixed-use building consisting of 290,000 sf of office space, 18,000 sf of ground floor retail space, and 200 parking spaces. This project has been approved by the BRA.
- ◆ **Ink Block - Siena** – This project includes the construction of 76 residential condominium units at the corner of Albany Street and Traveler Street. A total of 72 parking spaces will also be provided as part of the Project. This project has been approved by the BRA.

Figure 3-9 shows the location of all nearby development projects. The traffic expected to be generated by the projects other than the three listed above is expected to be minimal and is accounted for in the general background traffic growth rate

### 3.1.5.3 Proposed Infrastructure Improvements

A review of planned improvements to roadway, transit, bicycle, and pedestrian facilities was conducted to determine if there are any nearby improvement projects in the vicinity of the study area. Based on this review, the nearby infrastructure projects are listed below.

**Harrison Albany Corridor Strategic Plan** – The Project site is located within the Harrison Albany Corridor, which was the focus of a comprehensive planning study published in June 2012. The Harrison Albany Corridor Strategic Plan includes proposed reconfiguration and improvements to several roadways in the vicinity of the Project site. These improvements are intended to enhance pedestrian facilities, eliminate some of the one-way roadways in the area, and to provide easier and more efficient vehicular circulation throughout the area. The proposed reconfigurations includes the following changes:

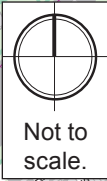
- ◆ **Washington Street** currently has four travel lanes—two northbound lanes for vehicular travel, one northbound lane designated for bicycles and buses, and one southbound lane designated for bicycles and buses. The City of Boston has plans to reassign the lanes to provide a single lane for vehicles in each direction. The bus only lanes will remain and continue to accommodate right turning vehicles.
- ◆ **Harrison Avenue** is currently being redesigned with a reduced cross section to provide bicycle lanes and turning lanes at driveways and intersections. These modifications will be implemented between Herald Street and East Berkeley Street.
- ◆ **Traveler Street** will be reconfigured to allow two-way travel between Harrison Avenue and Washington Street. This will require new signal equipment and signal phasing at the intersection of Harrison Avenue/Traveler Street.

These roadway modifications were incorporated into the future conditions traffic analysis.

### 3.1.5.4 No-Build Traffic Volumes

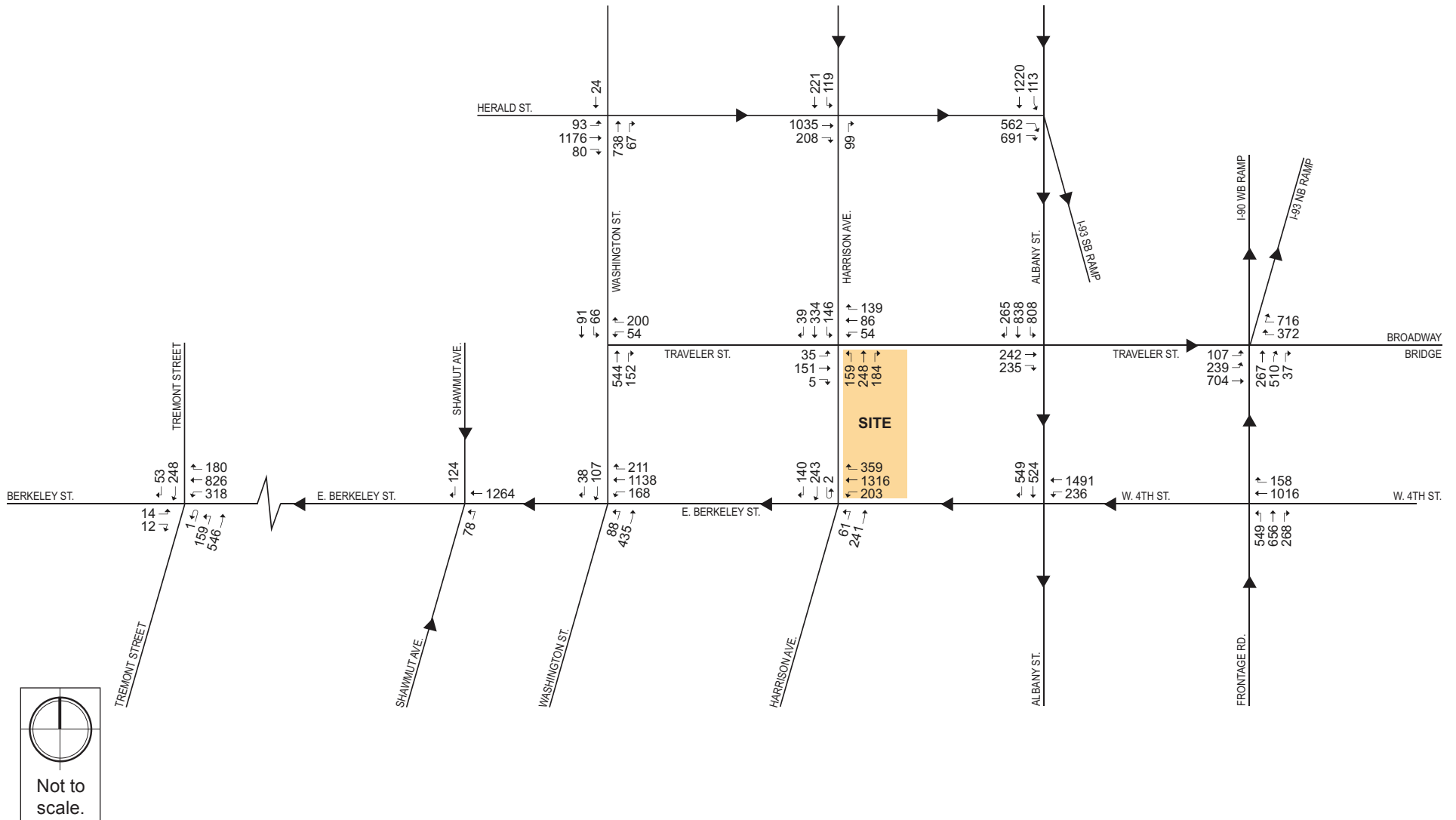
Record information from the BRA and from the traffic analyses conducted for the 345 Harrison Avenue, 80 East Berkeley Street, Ink Block, and 275 Albany Street projects were used along with the existing traffic counts conducted in January 2016 and the one-percent per year annual growth rate to develop the No-Build (2023) Condition traffic volumes. The traffic volumes account for the new travel patterns throughout the study area that will be created by the proposed roadway reconfiguration and improvements. The No-Build (2023) Condition weekday morning and evening peak hour traffic volumes are shown on Figure 3-10 and Figure 3-11, respectively.

- 1** 321 Harrison Avenue
- 2** 136 Shawmut Avenue
- 3** 345 Harrison Avenue
- 4** 80 East Berkeley Street
- 5** Ink Block
- 6** 275 Albany Street - The Troy
- 7** Parcel 24
- 8** 100 Arlington Street
- 9** Parcel P-7A
- 10** Tufts University Health Campus - Dental Addition
- 11** 477-481 Harrison Avenue
- 12** 600 Harrison Avenue
- 13** The Factory at 46 Wareham
- 14** Biosquare II - Parcel F
- 15** 148-152 Dorchester Avenue
- 16** 248 Dorchester Avenue
- 17** South Boston Boutique Hotel
- 18** 14 West Broadway
- 19** South Station Air Rights
- 20** Harrison/Albany Block

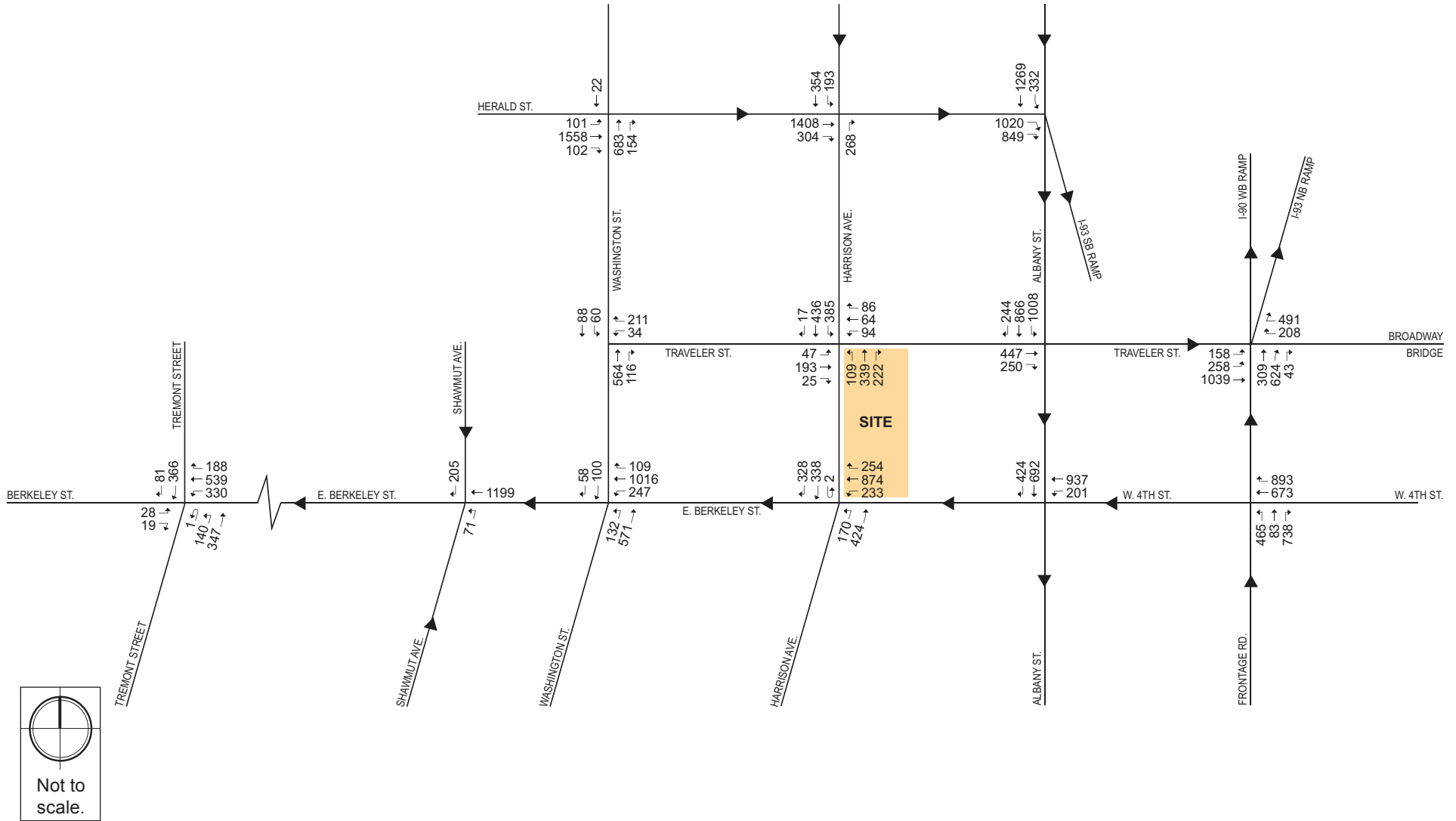


370-380 Harrison Avenue Boston, Massachusetts

**Figure 3-9**  
Nearby Development Projects



**370-380 Harrison Avenue Boston, Massachusetts**



**370-380 Harrison Avenue Boston, Massachusetts**

### 3.1.5.5 No-Build (2023) Condition Traffic Operations Analysis

The No-Build (2023) Condition analysis uses the same methodology as the Existing (2016) Condition operations analysis. Table 3-5 and Table 3-6 present the No-Build (2023) Condition operations analysis for the a.m. and p.m. peak hours, respectively. The shaded cells in the tables indicate a decrease in LOS between the Existing (2016) Condition and the No-Build (2023) Condition to an LOS below LOS D. The detailed analysis sheets are provided in Appendix B.

**Table 3-5 No-Build (2023) Condition Operations Analysis Summary, a.m. Peak Hour**

<i>Intersection/Approach</i>	<i>LOS</i>	<i>Delay (s)</i>	<i>V/C Ratio</i>	<i>50th Percentile Queue (ft)</i>	<i>95th Percentile Queue (ft)</i>
Signalized Intersections					
<b>Herald Street/Washington Street</b>	<b>D</b>	<b>44.3</b>	-	-	-
Herald Street EB left/thru   thru   thru/right	C	24.9	0.74	268	327
Washington Street NB thru	F	> 80.0	> 1.00	~ 573	#802
Washington Street NB right	B	12.4	0.14	18	45
Washington Street SB thru	B	15.1	0.03	9	24
<b>Herald Street/Harrison Avenue</b>	<b>D</b>	<b>45.5</b>	-	-	-
Herald Street EB thru   thru   thru/right	D	54.8	0.69	331	380
Harrison Avenue NB right	A	0.7	0.22	0	m0
Harrison Avenue SB left	B	12.1	0.42	0	53
Harrison Avenue SB thru   thru	C	31.4	0.28	65	99
<b>Herald Street/Albany Street/I-93 SB On-Ramp</b>	<b>D</b>	<b>53.4</b>	-	-	-
Herald Street EB bear right/right	F	> 80.0	> 1.00	~ 659	#938
Herald Street EB right   right	C	31.8	0.64	281	338
Albany Street SB left/thru   thru   thru	C	24.0	0.70	260	315
<b>Washington Street/Traveler Street</b>	<b>A</b>	<b>7.7</b>	-	-	-
Traveler Street WB left/right	B	17.6	0.69	30	85
Washington Street NB thru   thru/right	A	4.7	0.38	38	91
Washington Street SB left/thru   thru	A	4.4	0.11	8	24
<b>Harrison Avenue/Traveler Street</b>	<b>E</b>	<b>56.1</b>	-	-	-
Traveler Street EB left/thru/right	E	55.8	0.76	124	#237
Traveler Street WB left/thru/right	F	> 80.0	0.99	168	#346
Harrison Avenue NB left	B	13.9	0.77	48	m39
Harrison Avenue NB thru/right	E	59.4	0.98	276	m213
Harrison Avenue SB left	D	51.0	0.77	69	m#130
Harrison Avenue SB thru/right	D	51.2	0.88	179	#426



**Table 3-5 No-Build (2023) Condition Operations Analysis Summary, a.m. Peak Hour (Continued)**

<i>Intersection/Approach</i>	<i>LOS</i>	<i>Delay (s)</i>	<i>V/C Ratio</i>	<i>50th Percentile Queue (ft)</i>	<i>95th Percentile Queue (ft)</i>
<b>Albany Street/Traveler Street</b>	<b>F</b>	<b>&gt; 80.0</b>	-	-	-
Traveler Street EB thru/right	F	> 80.0	> 1.00	~ 563	#778
Albany Street SB left	E	75.9	0.91	518	#810
Albany Street SB left/thru   thru/right	E	58.5	0.90	508	#640
<b>I-93 NB Frontage Road/I-90 WB On-Ramp/I-93 NB On-Ramp/Traveler Street/Broadway Bridge</b>	<b>D</b>	<b>49.3</b>	-	-	-
Traveler Street EB left/bear left	F	> 80.0	> 1.00	~ 339	m#339
Traveler Street EB thru   thru	C	29.7	0.36	190	m168
Broadway Bridge WB right/hard right	F	> 80.0	> 1.00	~ 563	#815
Broadway Bridge WB hard right	E	58.8	0.95	432	#673
I-93 NB Frontage Road NB bear left   bear left	B	10.6	0.35	47	m48
I-93 NB Frontage Road NB thru   thru   thru/right	B	11.4	0.48	76	m79
<b>I-93 NB Frontage Road/W. Fourth Street</b>	<b>F</b>	<b>&gt; 80.0</b>	-	-	-
W. Fourth Street WB thru   thru   thru/right	F	> 80.0	0.91	347	#436
I-93 NB Frontage Road NB left	E	79.4	0.99	445	#702
I-93 NB Frontage Road NB left/thru   thru/right	E	66.6	0.99	448	#609
<b>Albany Street/W. Fourth Street/E. Berkeley Street</b>	<b>D</b>	<b>49.1</b>	-	-	-
W. Fourth Street WB left	B	15.1	0.31	59	m65
W. Fourth Street WB thru   thru	E	72.7	0.96	639	m#758
Albany Street SB thru   thru   thru/right	C	23.7	> 1.00dr	182	m202
<b>Harrison Avenue/E. Berkeley Street</b>	<b>F</b>	<b>&gt; 80.0</b>	-	-	-
E. Berkeley Street WB left/thru   thru   thru/right	F	> 80.0	> 1.00	~ 629	#727
Harrison Avenue NB left/thru	F	> 80.0	0.98	204	#379
Harrison Avenue SB thru	D	38.8	0.56	174	m194
Harrison Avenue SB right	B	17.5	0.30	60	m68
<b>Washington Street/E. Berkeley Street</b>	<b>D</b>	<b>45.2</b>	-	-	-
E. Berkeley Street WB left/thru   thru   thru/right	B	16.7	0.86	46	m38
Washington Street NB left	D	43.0	0.46	54	109
Washington Street NB thru	F	> 80.0	> 1.00	~ 388	#583
Washington Street SB thru   thru/right	C	24.7	0.22	32	61

**Table 3-5 No-Build (2023) Condition Operations Analysis Summary, a.m. Peak Hour (Continued)**

<i>Intersection/Approach</i>	<i>LOS</i>	<i>Delay (s)</i>	<i>V/C Ratio</i>	<i>50th Percentile Queue (ft)</i>	<i>95th Percentile Queue (ft)</i>
<b>E. Berkeley Street/Shawmut Avenue</b>	<b>B</b>	<b>10.1</b>	-	-	-
E. Berkeley Street WB thru   thru   thru	B	11.5	0.55	86	146
Shawmut Avenue NB left	A	0.9	0.18	0	0
Shawmut Avenue SB right	A	1.8	0.30	0	0
<b>Tremont Street/E. Berkeley Street/Berkeley Street</b>	<b>E</b>	<b>63.6</b>	-	-	-
Berkeley Street EB left	D	36.1	0.23	7	27
Berkeley Street EB right	A	0.1	0.02	0	0
E. Berkeley Street WB left	C	28.4	0.70	211	327
E. Berkeley Street WB thru   thru/right	F	> 80.0	> 1.00	~ 434	#567
Tremont Street NB left/thru   thru	D	53.8	0.95	214	#344
Tremont Street SB thru   thru/right	C	32.8	0.45	87	131

Grey Shading indicates a decrease of LOS E or F from the Existing (2016) Condition.

~ 50<sup>th</sup> percentile volume exceeds capacity. Queue shown is maximum after two cycles.

# 95<sup>th</sup> percentile volume exceeds capacity. Queue shown is maximum after two cycles.

m Volumes for 95<sup>th</sup> percentile queue is metered by upstream signal.

dr De facto right turn lane – Indicates that the lane operates as an exclusive right-turn lane due to high traffic volumes.

**Table 3-6 No-Build (2023) Condition Operations Analysis Summary, p.m. Peak Hour**

<i>Intersection/Approach</i>	<i>LOS</i>	<i>Delay (s)</i>	<i>V/C Ratio</i>	<i>50th Percentile Queue (ft)</i>	<i>95th Percentile Queue (ft)</i>
Signalized Intersections					
<b>Herald Street/Washington Street</b>	<b>E</b>	<b>75.7</b>	-	-	-
Herald Street EB left/thru   thru   thru/right	F	> 80.0	> 1.00	~ 505	#603
Washington Street NB thru	D	37.3	0.90	395	#656
Washington Street NB right	B	11.9	0.26	46	86
Washington Street SB thru	B	11.3	0.05	7	19
<b>Herald Street/Harrison Avenue</b>	<b>C</b>	<b>30.4</b>	-	-	-
Herald Street EB thru   thru   thru/right	C	34.9	0.91	264	m238
Harrison Avenue NB right	B	10.3	0.66	0	39
Harrison Avenue SB left	B	12.9	0.59	0	61
Harrison Avenue SB thru   thru	D	35.2	0.52	119	156

**Table 3-6 No-Build (2023) Condition Operations Analysis Summary, p.m. Peak Hour (Continued)**

<i>Intersection/Approach</i>	<i>LOS</i>	<i>Delay (s)</i>	<i>V/C Ratio</i>	<i>50th Percentile Queue (ft)</i>	<i>95th Percentile Queue (ft)</i>
<b>Herald Street/Albany Street/I-93 SB On-Ramp</b>	<b>F</b>	<b>&gt; 80.0</b>	-	-	-
Herald Street EB bear right/right	F	> 80.0	> 1.00	~ 1525	m#1761
Herald Street EB right   right	C	24.3	0.78	337	m389
Albany Street SB left/thru   thru   thru	C	27.8	0.84	343	412
<b>Washington Street/Traveler Street</b>	<b>A</b>	<b>4.4</b>	-	-	-
Traveler Street WB left/right	A	8.2	0.78	25	m26
Washington Street NB thru   thru/right	A	3.2	0.33	37	85
Washington Street SB left/thru   thru	A	3.2	0.16	8	22
<b>Harrison Avenue/Traveler Street</b>	<b>F</b>	<b>&gt; 80.0</b>	-	-	-
Traveler Street EB left/thru/right	F	> 80.0	> 1.00	~ 252	#414
Traveler Street WB left/thru/right	F	> 80.0	> 1.00	~ 371	#370
Harrison Avenue NB left	C	26.7	0.56	36	68
Harrison Avenue NB thru/right	F	> 80.0	> 1.00	~ 345	#564
Harrison Avenue SB left	F	> 80.0	> 1.00	~ 322	#560
Harrison Avenue SB thru/right	D	46.0	0.88	251	#437
<b>Albany Street/Traveler Street</b>	<b>F</b>	<b>&gt; 80.0</b>	-	-	-
Traveler Street EB thru/right	F	> 80.0	> 1.00	~ 962	#1149
Albany Street SB left	D	43.7	0.88	525	#826
Albany Street SB left/thru   thru/right	D	35.0	0.89	526	#718
<b>I-93 NB Frontage Road/I-90 WB On-Ramp/I-93 NB On-Ramp/Traveler Street/Broadway Bridge</b>	<b>D</b>	<b>49.6</b>	-	-	-
Traveler Street EB left/bear left	F	> 80.0	> 1.00	~ 377	m#279
Traveler Street EB thru   thru	D	37.4	0.60	105	m102
Broadway Bridge WB right/hard right	E	60.6	0.91	297	#485
Broadway Bridge WB hard right	D	46.5	0.80	248	#365
I-93 NB Frontage Road NB bear left   bear left	D	35.2	0.37	132	m74
I-93 NB Frontage Road NB thru   thru   thru/right	D	37.8	0.54	205	m115
<b>I-93 NB Frontage Road/W. Fourth Street</b>	<b>F</b>	<b>&gt; 80.0</b>	-	-	-
W. Fourth Street WB thru   thru   thru/right	F	> 80.0	> 1.00dr	~ 719	#779
I-93 NB Frontage Road NB left	C	34.7	0.73	287	430
I-93 NB Frontage Road NB left/thru   thru/right	D	38.5	> 1.00dr	325	#436

**Table 3-6 No-Build (2023) Condition Operations Analysis Summary, p.m. Peak Hour (Continued)**

<i>Intersection/Approach</i>	<i>LOS</i>	<i>Delay (s)</i>	<i>V/C Ratio</i>	<i>50th Percentile Queue (ft)</i>	<i>95th Percentile Queue (ft)</i>
<b>Albany Street/W. Fourth Street/E. Berkeley Street</b>	<b>D</b>	<b>49.4</b>	-	-	-
W. Fourth Street WB left	B	14.9	0.33	38	m38
W. Fourth Street WB thru   thru	E	63.2	0.67	93	m84
Albany Street SB thru   thru   thru/right	D	43.9	0.64	307	m291
<b>Harrison Avenue/E. Berkeley Street</b>	<b>F</b>	<b>&gt; 80.0</b>	-	-	-
E. Berkeley Street WB left/thru   thru   thru/right	E	59.7	> 1.00	~ 336	#446
Harrison Avenue NB left/thru	F	> 80.0	> 1.00	~ 618	#786
Harrison Avenue SB thru	D	48.6	0.79	223	#359
Harrison Avenue SB right	A	9.0	0.60	12	92
<b>Washington Street/E. Berkeley Street</b>	<b>C</b>	<b>29.7</b>	-	-	-
E. Berkeley Street WB left/thru   thru   thru/right	D	35.5	0.83	303	m274
Washington Street NB left	B	17.4	0.30	50	98
Washington Street NB thru	C	25.7	0.71	288	445
Washington Street SB thru   thru/right	A	9.4	0.18	22	36
<b>E. Berkeley Street/Shawmut Avenue</b>	<b>B</b>	<b>13.0</b>	-	-	-
E. Berkeley Street WB thru   thru   thru	B	14.8	0.44	174	208
Shawmut Avenue NB left	A	1.1	0.20	0	0
Shawmut Avenue SB right	A	7.9	0.55	0	39
<b>Tremont Street/E. Berkeley Street/Berkeley Street</b>	<b>D</b>	<b>36.4</b>	-	-	-
Berkeley Street EB left	E	62.5	0.54	25	48
Berkeley Street EB right	A	0.2	0.05	0	0
E. Berkeley Street WB left	D	39.8	0.75	251	369
E. Berkeley Street WB thru   thru/right	D	37.9	0.85	287	369
Tremont Street NB left/thru   thru	C	33.7	0.71	175	207
Tremont Street SB thru   thru/right	C	34.7	0.50	155	217

- Grey Shading indicates a decrease of LOS E or F from the Existing (2016) Condition.
- ~ 50<sup>th</sup> percentile volume exceeds capacity. Queue shown is maximum after two cycles.
- # 95<sup>th</sup> percentile volume exceeds capacity. Queue shown is maximum after two cycles.
- m Volumes for 95<sup>th</sup> percentile queue is metered by upstream signal.
- dr De facto right turn lane – Indicates that the lane operates as an exclusive right-turn lane due to high traffic volumes.

As shown in Table 3-5 and Table 3-6, the majority of intersections and approaches continue to operate at the same level of service as the Existing (2016) Condition. The analysis presented in Table 3-5 and Table 3-6 incorporates planned improvements and reconfigurations of Harrison Avenue, Washington Street, and Traveler Street. The following

intersections have movements that experience a decrease in LOS when compared to the Existing (2016) Condition analysis:

- ◆ Operations at the signalized intersection of **Herald Street/Washington Street** decrease from LOS C to LOS E during the p.m. peak hour. The Herald Street eastbound approach decrease from LOS B to LOS F during the p.m. peak hour and the Washington Street northbound through lane decrease from LOS C to LOS F during the a.m. peak hour.
- ◆ The signalized intersection of **Harrison Avenue/Traveler Street** worsens from the LOS C to LOS E during the a.m. peak hour, and from LOS C to LOS F during the p.m. peak hour, with the majority of the movements at the intersection worsening between the Existing and No-Build condition. The No-Build analysis assumes that Traveler Street will be two-way and will create a new eastbound approach to the intersection.
- ◆ The signalized intersection of **Albany Street/Traveler Street** worsens from the Existing (2016) Condition from LOS D to LOS F during the a.m. peak hour, and from LOS E to LOS F during the p.m. peak hour. The Albany Street southbound approaches decrease from LOS C to LOS E during the a.m. peak hour.
- ◆ The signalized intersection of **I-93 NB Frontage Road/I-90 WB On-Ramp/I-93 NB On-Ramp/Traveler Street/Broadway Bridge** continues to operate at the same LOS as the Existing (2016) Condition. The Broadway Bridge westbound shared right-turn/hard-right turn lane decreases from LOS E to LOS F during the a.m. peak hour, while the Broadway Bridge westbound hard-right lane decreases from LOS D to LOS E during the a.m. peak hour.
- ◆ The signalized intersection of **I-93 NB Frontage Road/West Fourth Street** worsens from LOS E to LOS F during the a.m. peak hour. The West Fourth Street westbound approaches decrease from LOS E to LOS F during the a.m. peak hour.
- ◆ The West Fourth Street westbound movements at the signalized intersection of **Albany Street/West Fourth Street/East Berkeley Street** decrease from LOS D to LOS E during the a.m. peak hour, and from LOS C to LOS E during the p.m. peak hour.
- ◆ The signalized intersection of **Harrison Avenue/East Berkeley Street** worsens from LOS D to LOS F during the both the a.m. and p.m. peak hours. The East Berkeley Street westbound approaches decrease from LOS C to LOS F during the a.m. peak hour and LOS D to LOS E during the p.m. peak hour. The Harrison Avenue northbound shared left-turn/through approach decrease from LOS E to LOS F during the a.m. peak hour.

- ◆ The Washington Street northbound movements at the signalized intersection of **Washington Street/East Berkeley Street** decrease from LOS B to LOS F during the a.m. peak hour.
- ◆ The signalized intersection of **Tremont Street/East Berkeley Street/Berkeley Street** worsens from LOS D to LOS E during the a.m. peak hour. The Berkeley Street eastbound left-turn approach decrease from LOS D to LOS E during the p.m. peak hour. The East Berkeley Street westbound through/right-turn approach decreases from LOS E to LOS F during the a.m. peak hour.

### **3.1.6 Build (2023) Condition**

As previously summarized, the Project includes the demolition of the existing buildings on the site and the construction of a new residential building with ground floor commercial/retail space located at 370-380 Harrison Avenue in the South End neighborhood of Boston. The Project will consist of up to approximately 280 residential units and up to approximately 6,000 sf of ground floor commercial/retail space. Below grade parking will be provided in a three-level garage for up to approximately 180 vehicles.

#### **3.1.6.1 Site Access and Vehicle Circulation**

Vehicular access to the garage will be provided via a new mid-block connector between Traveler Street and East Berkeley Street on the eastern portion of the site. The new connector will provide access to the garage and will also accommodate loading, trash pick-up, and move-in/move-out activity. The connector will generally operate with one-way travel from Traveler Street to East Berkeley Street, with two-way travel at the garage exit to allow for vehicles to exit the parking garage. Primary pedestrian access to the site will be from Harrison Avenue, with secondary access provided along the new mid-block connector. The site plan is shown in Figure 3-12.

#### **3.1.6.2 Project Parking**

The parking goals developed by the BTD for this section of the South End are a maximum of 0.75 to 1.00 parking spaces per residential unit. The Project is proposing to construct a total of up to approximately 180 parking spaces in a below-grade, structured garage for a parking ratio of up to approximately 0.64 spaces per residential unit. Access to the parking garage will be provided via a proposed mid-block connector in the rear of the site between Traveler Street and East Berkeley Street. The connector will generally run one-way from Traveler Street to East Berkeley Street while allowing vehicles to exit the garage in the northbound direction onto Traveler Street. Parking for the commercial/retail needs will be served by on-street spaces.



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### 3.1.6.3 Loading and Service Accommodations

All loading for the Project will occur along the proposed mid-block connector in the rear of the building. The connector will provide a dedicated area for loading, deliveries, and pick-up/drop-off and will provide a through travel lane. Most of the service and delivery operations will consist of standard mail and package deliveries with occasional move-in/move-out activity. The loading area will accommodate up to the size of an SU-36 delivery truck (a box truck up to approximately 36-feet in length). Trash pick-up will be conducted by a private trash contractor and will also occur on-site.

Delivery estimates for the Project were based on data provided in the Truck Trip Generation Rates by Land Use in the Central Artery/Tunnel Project Study (CTPS) Area report<sup>1</sup>. Deliveries to the Project site will be limited to mostly SU-36 trucks and smaller delivery vehicles.

**Residential.** Residential units primarily generate delivery trips related to small packages and prepared food. Based on the CTPS report, residential uses generate approximately 0.01 light truck trips per 1,000 sf of gross floor area, and 0.001 medium/heavy truck trips per 1,000 sf of gross floor area.

**Retail.** Retail truck trips vary depending on the type of retail provided, but a general observation is that larger retail attracts larger trucks but not necessarily more truck deliveries. The storefront retail land use was used to calculate the retail truck trip generation. Based on the CTPS report, retail uses generate approximately 0.15 light truck trips per 1,000 sf of floor area, and 0.02 medium/heavy truck trips per 1,000 sf of gross floor area.

Based on the CTPS data, the Project is expected to generate approximately six deliveries per day. It is anticipated that the majority of these deliveries will occur between 7:00 a.m. and 1:00 p.m. The numbers do not include trash truck trips.

### 3.1.6.4 Trip Generation Methodology

Determining the future trip generation of the Project is a complex, multi-step process that produces an estimate of vehicle trips, transit trips, and walk/bicycle trips associated with a proposed development and a specific land use program. A project's location and proximity to different travel modes determines how people will travel to and from a site.

To estimate the number of trips expected to be generated by the Project, data published by the Institute of Transportation Engineers (ITE) in the *Trip Generation Manual*<sup>2</sup> were used.

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<sup>1</sup> Truck Trip Generation Rates by Land Use in the Central Artery/Tunnel Project Study Area; Central Transportation Planning Staff; September 1993.

<sup>2</sup> Trip Generation Manual, 9th Edition; Institute of Transportation Engineers; Washington, D.C.; 2012.



ITE provides data to estimate the total number of unadjusted vehicular trips associated with the Project. In an urban setting well-served by transit, adjustments are necessary to account for other travel mode shares such as walking, bicycling, and transit.

To estimate the unadjusted number of vehicular trips for the Project, the following ITE land use codes (LUCs) were used:

**Land Use Code 200 – Apartment.** The apartment land use is defined as rental dwellings located within the same building with at least three other dwelling units. Trip generation estimates are based on average vehicle rates per unit.

**Land Use Code 820 – Shopping Center.** The Shopping Center land use code is defined as an integrated group of commercial establishments that is planned, developed, owned, and managed as a unit. The Shopping Center land use code was selected because it has slightly higher trip generation rates than other similar retail land uses provided in the Trip Generation Manual, presenting a more conservative scenario. Shopping center trip generation estimates are based on average vehicle rates per square footage of retail space. The commercial/retail uses on the site are expected to generate minimal vehicular trips.

### 3.1.6.5 Mode Share

The BTM provides vehicle, transit, and walking mode split rates for different areas of Boston. Mode share splits were obtained from BTM and are consistent with traffic studies conducted for nearby projects and applied to the trip generation estimates. The unadjusted vehicular trips were converted to person trips by using vehicle occupancy rates published by the Federal Highway Administration (FHWA)<sup>3</sup>. The person trips were then distributed to different modes according to the mode shares shown in Table 3-7.

**Table 3-7 Travel Mode Share**

<i>Land Use</i>		<i>Walk/Bicycle Share</i>	<i>Transit Share</i>	<i>Auto Share</i>	<i>Vehicle Occupancy</i>
<b>Daily</b>					
Residential	In	42%	30%	28%	1.13
	Out	42%	30%	28%	1.13
Retail	In	59%	20%	21%	1.78
	Out	59%	20%	21%	1.78

<sup>3</sup> *Summary of Travel Trends: 2009 National Household Travel Survey*; FHWA; Washington, D.C.; June 2011.

**Table 3-7 Travel Mode Share (Continued)**

<i>Land Use</i>		<i>Walk/Bicycle Share</i>	<i>Transit Share</i>	<i>Auto Share</i>	<i>Vehicle Occupancy</i>
<b>a.m. Peak</b>					
Residential	In	7%	52%	41%	1.13
	Out	51%	18%	31%	1.13
Retail	In	14%	46%	40%	1.78
	Out	58%	10%	32%	1.78
<b>p.m. Peak</b>					
Residential	In	51%	18%	31%	1.13
	Out	7%	52%	41%	1.13
Retail	In	58%	10%	32%	1.78
	Out	14%	46%	40%	1.78

**3.1.6.6 Project Trip Generation**

The mode share percentages shown in Table 3-7 were applied to the number of person trips to develop walk/bicycle, transit, and vehicle trip generation estimates for the Project. The trip generation for the Project by mode is shown in Table 3-8. The detailed trip generation information is provided in Appendix B.

**Table 3-8 Project Trip Generation**

<i>Land Use</i>		<i>Walk/Bicycle Trips</i>	<i>Transit Trips</i>	<i>Vehicle Trips</i>
<b>Daily</b>				
Residential <sup>1</sup>	In	494	353	292
	Out	494	353	292
Retail <sup>2</sup>	In	247	84	50
	Out	247	84	50
<b>a.m. Peak Hour</b>				
Residential	In	3	19	13
	Out	74	26	40
Retail	In	2	6	3
	Out	4	1	1

**Table 3-8 Project Trip Generation (Continued)**

<i>Land Use</i>		<i>Walk/Bicycle Trips</i>	<i>Transit Trips</i>	<i>Vehicle Trips</i>
<b>p.m. Peak Hour</b>				
Residential	In	72	26	39
	Out	5	40	28
Retail	In	21	4	7
	Out	5	17	8

1. Based on ITE Trip Generation Rate, 9th Edition, LUC 220 (Apartment), 313 units.
2. Based on ITE Trip Generation Rate, 9th Edition, LUC 820 (Shopping Center), 11,000 square feet.

As shown in Table 3-8, the Project is expected to generate 1,482 new pedestrian/bicycle trips, 874 new transit trips, and 684 new vehicle trips throughout the day. During the a.m. peak hour, 83 pedestrian trips (5 in and 78 out), 52 transit trips (25 in and 27 out), and 57 vehicle trips (16 in and 41 out) are expected. During the p.m. peak hour, 103 pedestrian trips (93 in and 10 out), 87 transit trips (30 in and 57 out), and 82 vehicle trips (46 in and 36 out) are expected.

#### **3.1.6.7 Trip Distribution**

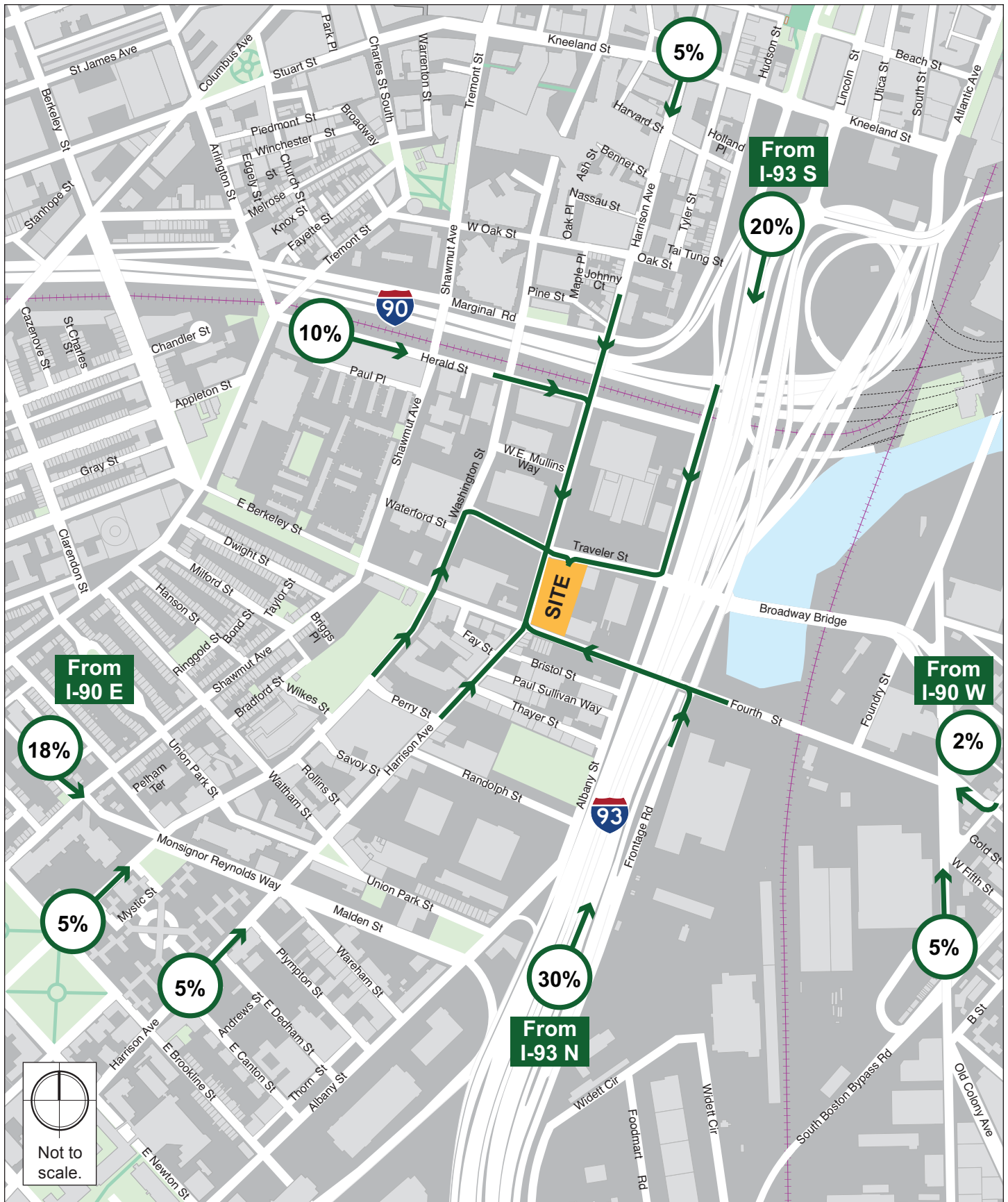
The trip distribution identifies the various travel paths for vehicles associated with the Project. Trip distribution patterns for the Project were based on BTD’s origin-destination data and trip distribution patterns presented in traffic studies for nearby projects. The trip distribution patterns for the Project are illustrated in Figure 3-13 and Figure 3-14.

#### **3.1.6.8 Build Traffic Volumes**

The vehicle trips were distributed through the study area based on the trip distribution shown in Figure 3-13 and Figure 3-14 to create the Project-generated trips. The Project-generated trips for the a.m. and p.m. peak hours are shown in Figure 3-15 and Figure 3-16, respectively. The trip assignments were added to the No-Build (2023) Condition vehicular traffic volumes to develop the Build (2023) Condition vehicular traffic volumes. The Build (2023) Condition a.m. and p.m. peak hour traffic volumes are shown on Figure 3-17 and Figure 3-18, respectively.

#### **3.1.6.9 Bicycle Accommodations**

BTB has established guidelines requiring projects subject to Transportation Access Plan Agreements to provide secure bicycle parking for residents and short-term bicycle racks for visitors. Based on BTB guidelines, the Project will supply approximately 280 secure bicycle parking/storage spaces within the Project site for the residents and employees, as well public bicycle racks throughout the Project site for visitors.

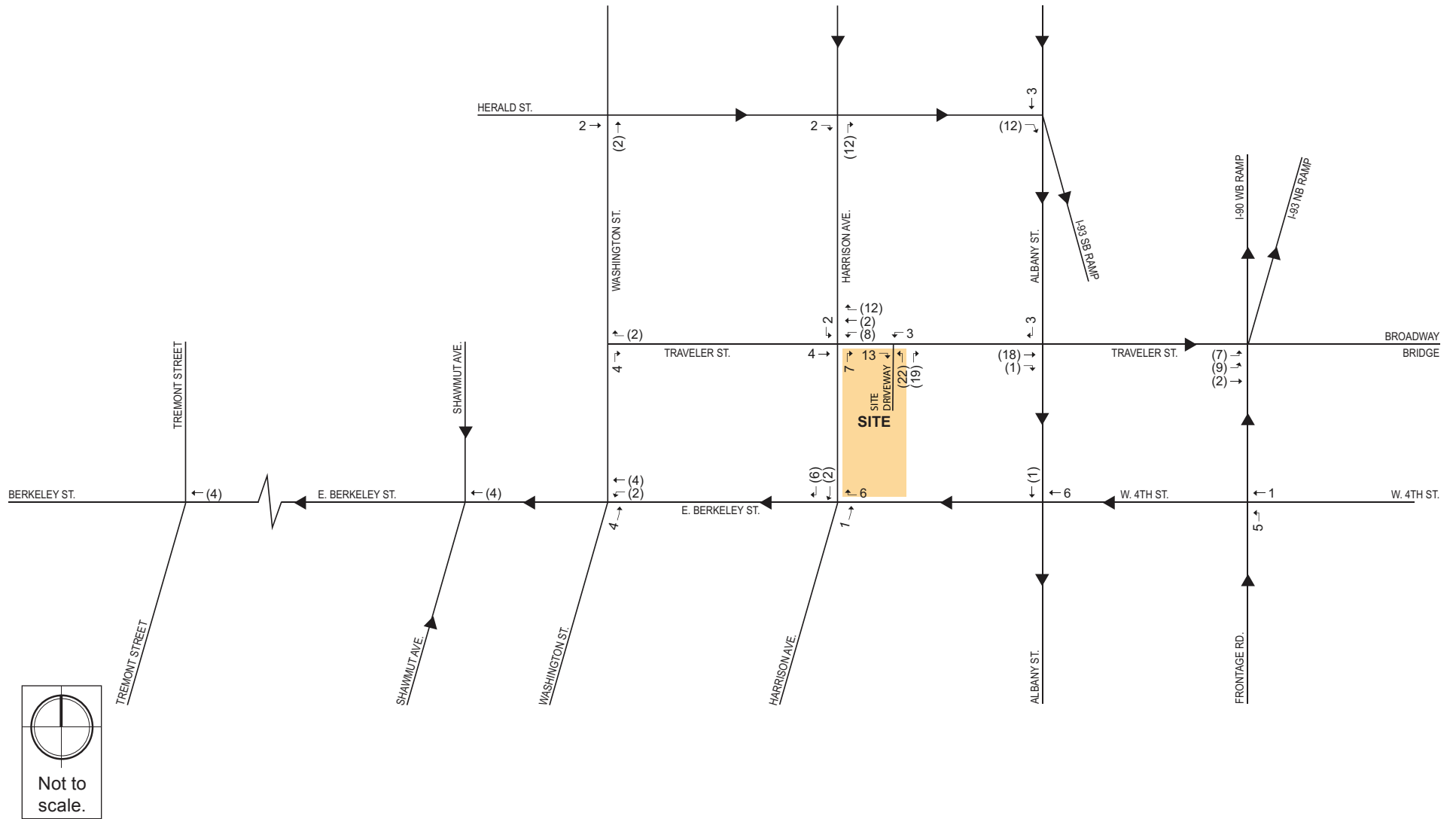


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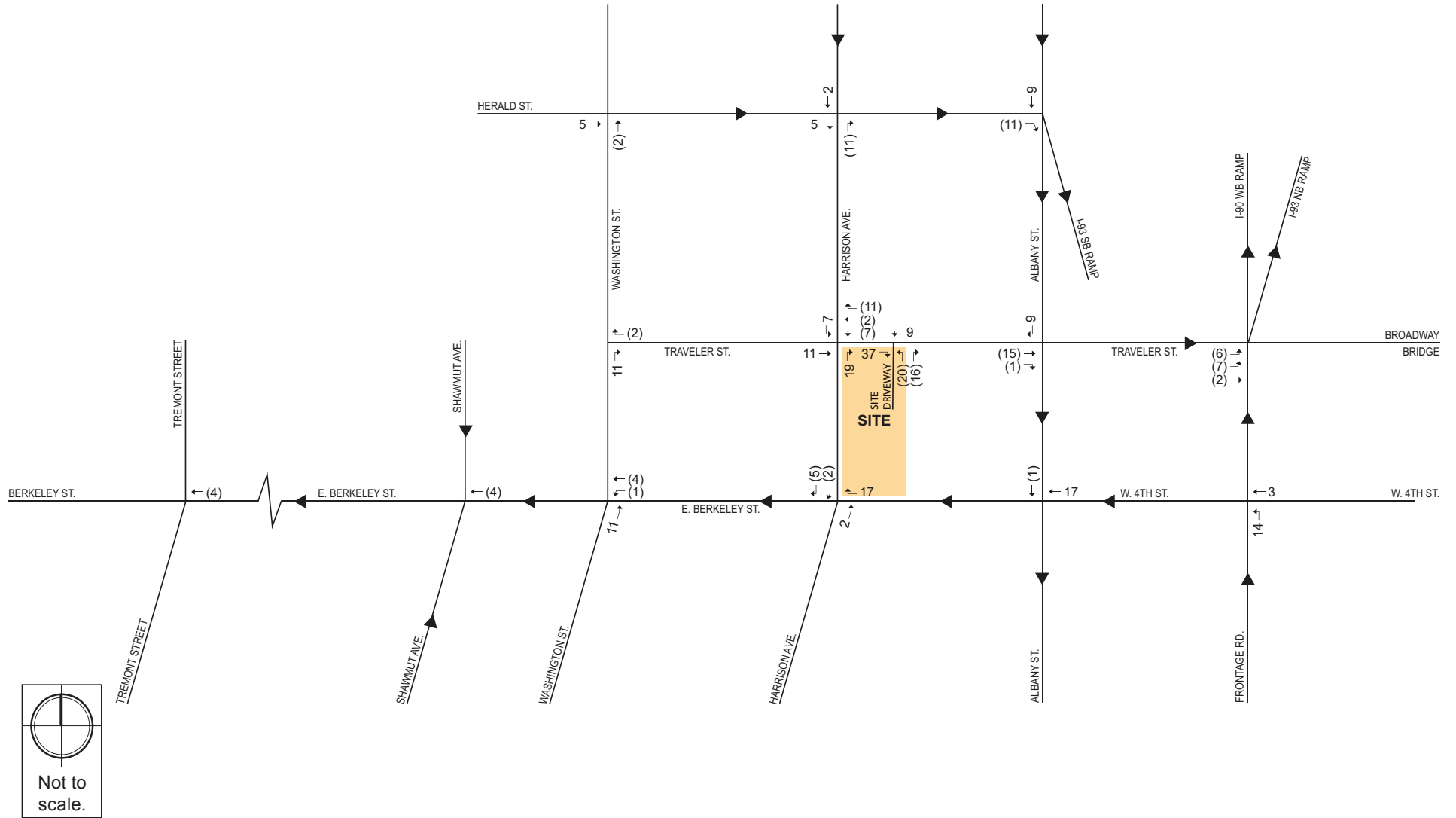
370-380 Harrison Avenue Boston, Massachusetts

Enter 16  
Exit (41)



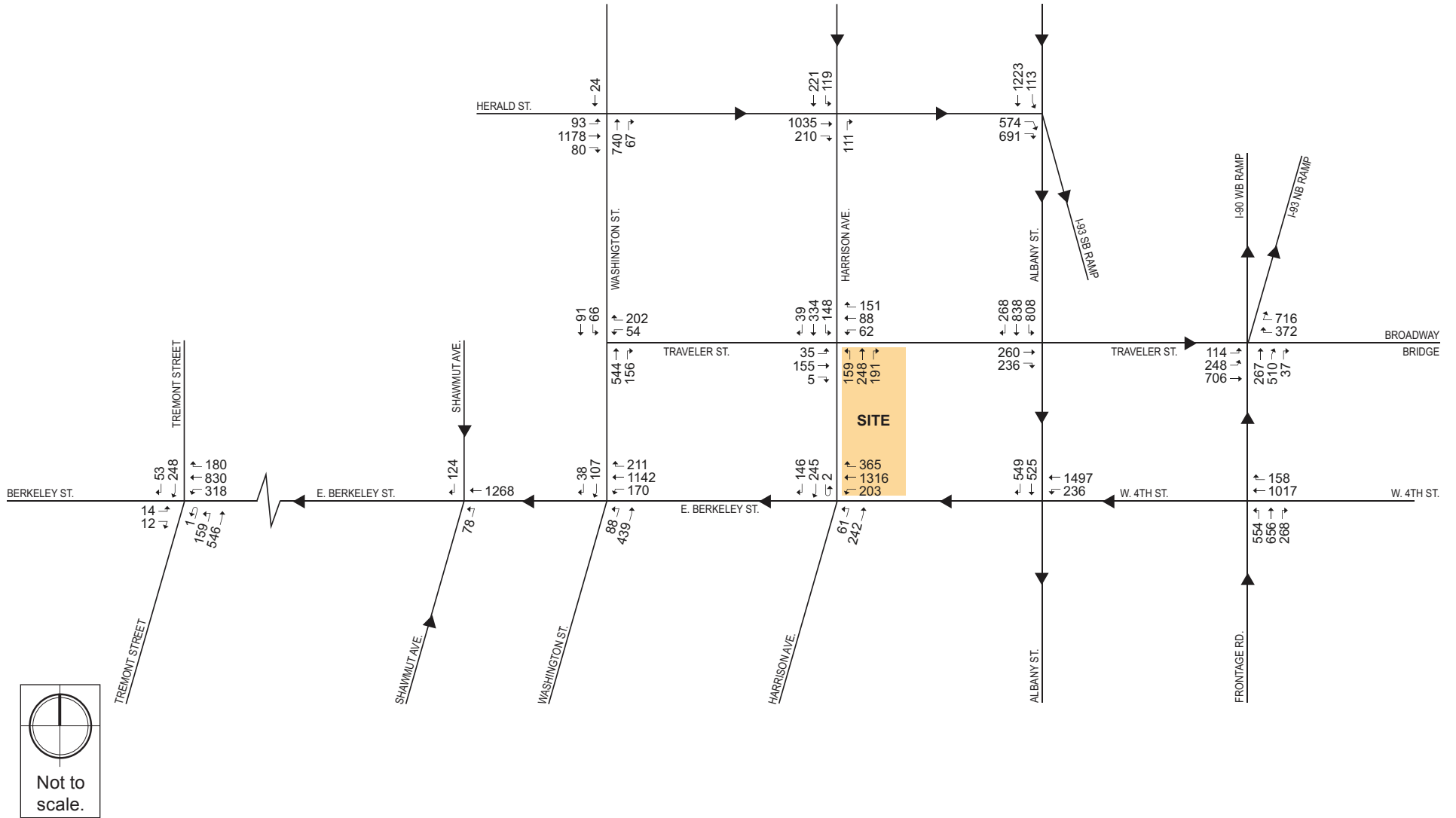
370-380 Harrison Avenue Boston, Massachusetts

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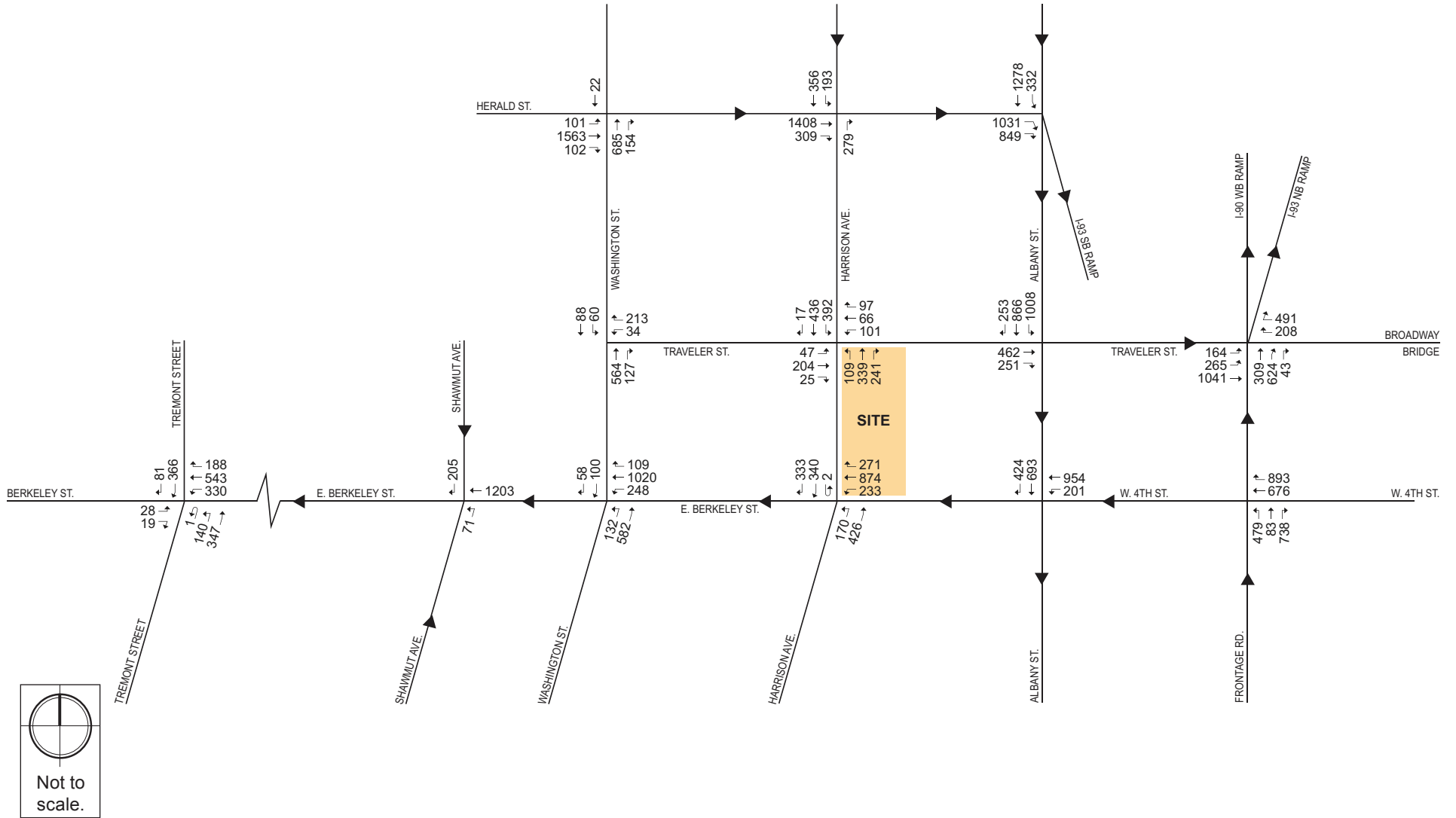
370-380 Harrison Avenue Boston, Massachusetts





**370-380 Harrison Avenue Boston, Massachusetts**





**370-380 Harrison Avenue Boston, Massachusetts**

### 3.1.6.10 Build Condition Traffic Operations Analysis

The Build (2023) Condition analysis uses the same methodology as the Existing (2016) Condition and No-Build (2023) Condition analyses. Table 3-9 and Table 3-10 present the Build (2023) Condition capacity analysis for the a.m. and p.m. peak hours, respectively. The shaded cells in the tables indicate a worsening in LOS between the No-Build (2023) Condition and the Build (2023) Condition. The detailed analysis sheets are provided in Appendix B.

**Table 3-9 Build (2023) Condition Operations Analysis Summary, a.m. Peak Hour**

<i>Intersection/Approach</i>	<i>LOS</i>	<i>Delay (s)</i>	<i>V/C Ratio</i>	<i>50th Percentile Queue (ft)</i>	<i>95th Percentile Queue (ft)</i>
Signalized Intersections					
<b>Herald Street/Washington Street</b>	<b>D</b>	<b>44.6</b>	-	-	-
Herald Street EB left/thru   thru   thru/right	C	25.0	0.74	269	327
Washington Street NB thru	F	> 80.0	> 1.00	~ 575	#805
Washington Street NB right	B	12.4	0.14	18	45
Washington Street SB thru	B	15.1	0.03	9	24
<b>Herald Street/Harrison Avenue</b>	<b>D</b>	<b>45.2</b>	-	-	-
Herald Street EB thru   thru   thru/right	D	54.8	0.69	331	380
Harrison Avenue NB right	A	0.7	0.24	0	m0
Harrison Avenue SB left	B	12.1	0.42	0	53
Harrison Avenue SB thru   thru	C	31.4	0.28	65	99
<b>Herald Street/Albany Street/I-93 SB On-Ramp</b>	<b>E</b>	<b>56.1</b>	-	-	-
Herald Street EB bear right/right	F	> 80.0	> 1.00	~ 682	#961
Herald Street EB right   right	C	31.7	0.64	280	338
Albany Street SB left/thru   thru   thru	C	24.1	0.70	261	316
<b>Washington Street/Traveler Street</b>	<b>A</b>	<b>7.7</b>	-	-	-
Traveler Street WB left/right	B	17.9	0.70	31	87
Washington Street NB thru   thru/right	A	4.8	0.38	39	92
Washington Street SB left/thru   thru	A	4.4	0.11	8	24
<b>Harrison Avenue/Traveler Street</b>	<b>E</b>	<b>64.7</b>	-	-	-
Traveler Street EB left/thru/right	E	58.5	0.78	127	#246
Traveler Street WB left/thru/right	F	> 80.0	> 1.00	~ 214	#388
Harrison Avenue NB left	B	13.9	0.77	48	m38
Harrison Avenue NB thru/right	E	65.9	1.00	287	m217
Harrison Avenue SB left	E	55.6	0.80	72	m#140
Harrison Avenue SB thru/right	D	51.2	0.88	179	#425

**Table 3-9 Build (2023) Condition Operations Analysis Summary, a.m. Peak Hour (Continued)**

<i>Intersection/Approach</i>	<i>LOS</i>	<i>Delay (s)</i>	<i>V/C Ratio</i>	<i>50th Percentile Queue (ft)</i>	<i>95th Percentile Queue (ft)</i>
<b>Albany Street/Traveler Street</b>	<b>F</b>	<b>&gt;80.0</b>	-	-	-
Traveler Street EB thru/right	F	>80.0	>1.00	~598	#814
Albany Street SB left	F	>80.0	0.91	518	#810
Albany Street SB left/thru   thru/right	E	64.6	0.90	510	#645
<b>I-93 NB Frontage Road/I-90 WB On-Ramp/I-93 NB On-Ramp/Traveler Street/Broadway Bridge</b>	<b>D</b>	<b>52.8</b>	-	-	-
Traveler Street EB left/bear left	F	>80.0	>1.00	~368	m#359
Traveler Street EB thru   thru	C	31.2	0.37	191	m166
Broadway Bridge WB right/hard right	F	>80.0	>1.00	~563	#815
Broadway Bridge WB hard right	E	58.8	0.95	432	#673
I-93 NB Frontage Road NB bear left   bear left	B	10.6	0.35	47	m48
I-93 NB Frontage Road NB thru   thru   thru/right	B	11.4	0.48	76	m79
<b>I-93 NB Frontage Road/W. Fourth Street</b>	<b>F</b>	<b>&gt;80.0</b>	-	-	-
W. Fourth Street WB thru   thru   thru/right	F	>80.0	0.91	347	#436
I-93 NB Frontage Road NB left	F	>80.0	1.00	451	#713
I-93 NB Frontage Road NB left/thru   thru/right	E	66.8	0.99	448	#609
<b>Albany Street/W. Fourth Street/E. Berkeley Street</b>	<b>D</b>	<b>49.3</b>	-	-	-
W. Fourth Street WB left	B	15.2	0.31	59	m65
W. Fourth Street WB thru   thru	E	72.9	0.97	642	m#759
Albany Street SB thru   thru   thru/right	C	23.8	>1.00dr	183	m201
<b>Harrison Avenue/E. Berkeley Street</b>	<b>F</b>	<b>&gt;80.0</b>	-	-	-
E. Berkeley Street WB left/thru   thru   thru/right	F	>80.0	>1.00	~632	#731
Harrison Avenue NB left/thru	F	>80.0	0.98	206	#380
Harrison Avenue SB thru	D	38.8	0.57	174	m192
Harrison Avenue SB right	B	17.0	0.31	61	m68
<b>Washington Street/E. Berkeley Street</b>	<b>D</b>	<b>47.0</b>	-	-	-
E. Berkeley Street WB left/thru   thru   thru/right	B	17.6	0.86	48	m39
Washington Street NB left	D	43.1	0.47	54	109
Washington Street NB thru	F	>80.0	>1.00	~394	#590
Washington Street SB thru   thru/right	C	24.7	0.22	32	61
<b>E. Berkeley Street/Shawmut Avenue</b>	<b>B</b>	<b>10.1</b>	-	-	-
E. Berkeley Street WB thru   thru   thru	B	11.5	0.55	87	148
Shawmut Avenue NB left	A	0.9	0.18	0	0
Shawmut Avenue SB right	A	1.8	0.30	0	0

**Table 3-9 Build (2023) Condition Operations Analysis Summary, a.m. Peak Hour (Continued)**

<i>Intersection/Approach</i>	<i>LOS</i>	<i>Delay (s)</i>	<i>V/C Ratio</i>	<i>50th Percentile Queue (ft)</i>	<i>95th Percentile Queue (ft)</i>
<b>Tremont Street/E. Berkeley Street/Berkeley Street</b>	<b>E</b>	<b>64.3</b>	-	-	-
Berkeley Street EB left	D	36.1	0.23	7	27
Berkeley Street EB right	A	0.1	0.02	0	0
E. Berkeley Street WB left	C	28.4	0.70	213	327
E. Berkeley Street WB thru   thru/right	F	>80.0	>1.00	~436	#570
Tremont Street NB left/thru   thru	D	53.8	0.95	214	#344
Tremont Street SB thru   thru/right	C	32.8	0.45	87	131

Grey Shading indicates a decrease to LOS E or F from the No-Build (2023) Condition.

~ 50<sup>th</sup> percentile volume exceeds capacity. Queue shown is maximum after two cycles.

# 95<sup>th</sup> percentile volume exceeds capacity. Queue shown is maximum after two cycles.

m Volumes for 95<sup>th</sup> percentile queue is metered by upstream signal.

dr De facto right turn lane – Indicates that the lane operates as an exclusive right-turn lane due to high traffic volumes.

**Table 3-10 Build (2023) Condition Operations Analysis Summary, p.m. Peak Hour**

<i>Intersection/Approach</i>	<i>LOS</i>	<i>Delay (s)</i>	<i>V/C Ratio</i>	<i>50th Percentile Queue (ft)</i>	<i>95th Percentile Queue (ft)</i>
Signalized Intersections					
<b>Herald Street/Washington Street</b>	<b>E</b>	<b>76.7</b>	-	-	-
Herald Street EB left/thru   thru  thru/right	F	>80.0	>1.00	~507	#605
Washington Street NB thru	D	37.7	0.90	398	#661
Washington Street NB right	B	11.9	0.26	46	86
Washington Street SB thru	B	11.3	0.05	7	19
<b>Herald Street/Harrison Avenue</b>	<b>C</b>	<b>30.6</b>	-	-	-
Herald Street EB thru   thru  thru/right	D	35.1	0.91	264	m238
Harrison Avenue NB right	B	11.9	0.69	0	48
Harrison Avenue SB left	B	12.9	0.59	0	61
Harrison Avenue SB thru   thru	D	35.2	0.52	120	157
<b>Herald Street/Albany Street/I-93 SB On-Ramp</b>	<b>F</b>	<b>&gt;80.0</b>	-	-	-
Herald Street EB bear right/right	F	>80.0	>1.00	~1548	m#1780
Herald Street EB right   right	C	24.4	0.78	337	m388
Albany Street SB left/thru   thru   thru	C	28.0	0.84	346	416

**Table 3-10 Build (2023) Condition Operations Analysis Summary, p.m. Peak Hour (Continued)**

<i>Intersection/Approach</i>	<i>LOS</i>	<i>Delay (s)</i>	<i>V/C Ratio</i>	<i>50th Percentile Queue (ft)</i>	<i>95th Percentile Queue (ft)</i>
Signalized Intersections					
<b>Washington Street/Traveler Street</b>	<b>A</b>	<b>4.4</b>	-	-	-
Traveler Street WB left/right	A	8.2	0.78	27	m26
Washington Street NB thru   thru/right	A	3.2	0.34	37	86
Washington Street SB left/thru   thru	A	3.2	0.16	8	22
<b>Harrison Avenue/Traveler Street</b>	<b>F</b>	<b>&gt; 80.0</b>	-	-	-
Traveler Street EB left/thru/right	F	> 80.0	> 1.00	~ 267	#429
Traveler Street WB left/thru/right	F	> 80.0	> 1.00	~ 408	#401
Harrison Avenue NB left	C	26.7	0.56	36	68
Harrison Avenue NB thru/right	F	> 80.0	> 1.00	~ 387	#592
Harrison Avenue SB left	F	> 80.0	> 1.00	~ 356	#538
Harrison Avenue SB thru/right	D	46.0	0.88	251	#437
<b>Albany Street/Traveler Street</b>	<b>F</b>	<b>&gt; 80.0</b>	-	-	-
Traveler Street EB thru/right	F	> 80.0	> 1.00	~ 990	#1177
Albany Street SB left	D	44.2	0.88	525	#826
Albany Street SB left/thru   thru/right	D	37.0	0.89	534	#726
<b>I-93 NB Frontage Road/I-90 WB On-Ramp/I-93 NB On-Ramp/Traveler Street/Broadway Bridge</b>	<b>D</b>	<b>52.6</b>	-	-	-
Traveler Street EB left/bear left	F	> 80.0	> 1.00	~ 396	m#296
Traveler Street EB thru   thru	D	40.4	0.60	104	m100
Broadway Bridge WB right/hard right	E	60.6	0.91	297	#485
Broadway Bridge WB hard right	D	46.5	0.80	248	#365
I-93 NB Frontage Road NB bear left   bear left	D	35.2	0.37	132	m74
I-93 NB Frontage Road NB thru   thru   thru/right	D	37.8	0.54	205	m115
<b>I-93 NB Frontage Road/W. Fourth Street</b>	<b>F</b>	<b>&gt; 80.0</b>	-	-	-
W. Fourth Street WB thru   thru   thru/right	F	> 80.0	> 1.00dr	~ 720	#781
I-93 NB Frontage Road NB left	D	36.0	0.75	301	451
I-93 NB Frontage Road NB left/thru   thru/right	D	38.5	> 1.00dr	325	#436
<b>Albany Street/W. Fourth Street/E. Berkeley Street</b>	<b>D</b>	<b>49.9</b>	-	-	-
W. Fourth Street WB left	B	15.4	0.33	39	m38
W. Fourth Street WB thru   thru	E	63.8	0.69	98	m88
Albany Street SB thru   thru   thru/right	D	44.2	0.64	308	m288

**Table 3-10 Build (2023) Condition Operations Analysis Summary, p.m. Peak Hour (Continued)**

<i>Intersection/Approach</i>	<i>LOS</i>	<i>Delay (s)</i>	<i>V/C Ratio</i>	<i>50th Percentile Queue (ft)</i>	<i>95th Percentile Queue (ft)</i>
<b>Harrison Avenue/E. Berkeley Street</b>	<b>F</b>	<b>&gt;80.0</b>	-	-	-
E. Berkeley Street WB left/thru   thru   thru/right	E	62.6	>1.00	~357	#454
Harrison Avenue NB left/thru	F	>80.0	>1.00	~621	#790
Harrison Avenue SB thru	D	49.0	0.79	225	#362
Harrison Avenue SB right	A	9.1	0.61	13	93
<b>Washington Street/E. Berkeley Street</b>	<b>C</b>	<b>29.8</b>	-	-	-
E. Berkeley Street WB left/thru   thru   thru/right	D	35.4	0.83	304	m273
Washington Street NB left	B	17.3	0.30	50	97
Washington Street NB thru	C	26.4	0.73	297	458
Washington Street SB thru   thru/right	A	9.4	0.18	22	36
<b>E. Berkeley Street/Shawmut Avenue</b>	<b>B</b>	<b>13.1</b>	-	-	-
E. Berkeley Street WB thru   thru   thru	B	14.9	0.44	175	209
Shawmut Avenue NB left	A	1.1	0.20	0	0
Shawmut Avenue SB right	A	7.9	0.55	0	39
<b>Tremont Street/E. Berkeley Street/Berkeley Street</b>	<b>D</b>	<b>36.5</b>	-	-	-
Berkeley Street EB left	E	63.4	0.55	25	48
Berkeley Street EB right	A	0.2	0.05	0	0
E. Berkeley Street WB left	D	39.6	0.75	251	366
E. Berkeley Street WB thru   thru/right	D	38.0	0.85	289	371
Tremont Street NB left/thru   thru	C	33.8	0.71	175	207
Tremont Street SB thru   thru/right	C	34.8	0.50	156	217

~ 50<sup>th</sup> percentile volume exceeds capacity. Queue shown is maximum after two cycles.

# 95<sup>th</sup> percentile volume exceeds capacity. Queue shown is maximum after two cycles.

m Volumes for 95<sup>th</sup> percentile queue is metered by upstream signal.

dr De facto right turn lane – Indicates that the lane operates as an exclusive right-turn lane due to high traffic volumes.

As shown in Table 3-9 and Table 3-10, the majority of intersections and approaches continue to operate at the same level of service as the No-Build (2023) Condition with the following exceptions:

- ◆ The signalized intersection of **Herald Street/Albany Street/I-93 SB On-Ramp** worsens from the No-Build (2023) Condition from LOS D to LOS E during the a.m. peak hour. All the approaches continue to operate at the same LOS as the No-Build (2023) Condition during both the a.m. and p.m. peak hours.

- ◆ The signalized intersection of **Harrison Avenue/Traveler Street** continues to operate at the same LOS as the No-Build (2023) Condition during both the a.m. and p.m. peak hour. The Harrison Avenue southbound left-turn approach decrease from LOS D to LOS E during the a.m. peak hour.
- ◆ The signalized intersection of **Albany Street/Traveler Street** continues to operate at the same LOS as the No-Build (2023) Condition during both the a.m. and p.m. peak hour. The Albany Street southbound approach decreases from LOS E to LOS F during the a.m. peak hour.
- ◆ The signalized intersection of **I-93 NB Frontage Road/West Fourth Street** continues to operate at the same LOS as the No-Build (2023) Condition during both the a.m. and p.m. peak hour. The I-93 NB Frontage Road northbound left-turn approach decreases from LOS E to LOS F during the a.m. peak hour.

### **3.1.7            *Transportation Demand Management***

The Proponent is committed to implementing Transportation Demand Management (TDM) measures to minimize automobile usage and Project related traffic impacts. TDM will be facilitated by the nature of the Project (which does not generate significant peak hour trips) and its proximity to numerous public transit alternatives.

The Proponent will work with the City to develop a TDM program appropriate to the Project and consistent with its level of impact.

The Proponent is prepared to take advantage of good transit access in marketing the Project site to future residents by working with them to implement the following TDM measures to encourage the use of non-vehicular modes of travel.

The TDM measures for the Project that will be considered will include, but not be limited to, the following:

- ◆ Designation of a transportation coordinator to oversee transportation issues, including parking, service and loading, and deliveries, and work with tenants as they move in to the retail/commercial spaces to raise awareness of public transportation, bicycling, and walking opportunities;
- ◆ Provision of orientation packets to new tenants containing information on available transportation choices, including transit routes/schedules and nearby vehicle sharing and bicycle sharing locations, as well as working with residents and tenants as they move in to help facilitate transportation for new arrivals;
- ◆ Provision of an annual (or more frequent) newsletter or bulletin summarizing transit, ridesharing, bicycling, alternative work schedules, and other travel options;

- ◆ Promotion to commercial tenants that, as employers, they can save on payroll-related taxes and provide employee benefits when they offer transportation benefits such as subsidized public transportation;
- ◆ Provision of electric vehicle charging stations for five percent of the parking spaces in the garage;
- ◆ Provision of information on travel alternatives for employees and visitors via the Internet and in the building lobby;
- ◆ Exploration of the feasibility of providing spaces in the garage for a car sharing service.

### ***3.1.8 Transportation Mitigation Measures***

Although the traffic impacts associated with the new trips are minimal (generating less than five vehicle trips per minute during the peak hours), the Proponent will continue to work with the City of Boston so that the Project efficiently serves vehicle trips, improves the pedestrian environment, and encourages transit and bicycle use.

The Proponent is responsible for preparation of the TAPA, a formal legal agreement between the Proponent and the BTM. The TAPA formalizes the findings of the transportation study, mitigation commitments, elements of access and physical design, travel demand management measures, and any other responsibilities that are agreed to by both the Proponent and the BTM. Because the TAPA must incorporate the results of the technical analysis, it must be executed after these other processes have been completed. The proposed measures listed above, and any additional transportation improvements to be undertaken as part of this Project, will be defined and documented in the TAPA.

The Proponent will also produce a Construction Management Plan (CMP) for review and approval by BTM. The CMP will detail the schedule, staging, parking, delivery, and other associated impacts of the construction of the Project.

### ***3.1.9 Evaluation of Short-term Construction Impacts***

Most construction activities will be accommodated within the current Project site boundaries. Details of the overall construction schedule, working hours, number of construction workers, worker transportation and parking, number of construction vehicles, and routes will be addressed in detail in a CMP to be filed with BTM in accordance with the City's transportation maintenance plan requirements.

To minimize transportation impacts during the construction period, the following measures will be considered for the CMP:

- ◆ Limited construction worker parking on-site;



- ◆ Encouragement of worker carpooling;
- ◆ Consideration of a subsidy for MBTA passes for full-time employees; and
- ◆ Providing secure spaces on-site for workers' supplies and tools so they do not have to be brought to the site each day.

The CMP to be executed with the City prior to commencement of construction will document all committed measures.

## 3.2 Environmental Protection

### 3.2.1 *Wind*

The Project will have a maximum height of 150 feet, as measured according to the Code, with the massing stepping down to the south. The surrounding area includes a number of recently completed, existing and approved buildings of similar height. These buildings will help to shield winds from the site, potentially minimizing pedestrian level wind impacts.

### 3.2.2 *Shadow*

Since the Project will replace open areas and smaller buildings, new shadow will be created in the surrounding area. However, new shadow is anticipated to be limited to the surrounding streets and sidewalks, and potentially onto plaza areas in nearby blocks. However, no new shadow is anticipated to be cast onto existing public open spaces.

### 3.2.3 *Daylight*

The Project will be similar in height to currently constructed and approved buildings in the area. Therefore, daylight impacts are anticipated to be similar to the impacts created by other projects in the area. The vicinity of the site will continue to include a mix of heights and densities that will allow for view of the sky.

### 3.2.4 *Solar Glare*

It is not anticipated that the Project will include the use of reflective glass or other reflective materials on the building facades that would result in adverse impacts from reflected solar glare from the Project.

### 3.2.5 *Air Quality*

#### 3.2.5.1 Introduction

An air quality analysis has been conducted to determine the impact of pollutant emissions from mobile sources generated by the Project. Specifically, a microscale analysis was performed to evaluate the potential air quality impacts of carbon monoxide (CO) resulting

from traffic flow around the Project area. The analysis shows that with the Project in place, all predicted CO concentrations at the studied intersections will be well below one-hour and eight-hour National Ambient Air Quality Standards.

Any new stationary sources will be reviewed by the Massachusetts Department of Environmental Protection during permitting under the Environmental Results Program, as required.

### 3.2.5.2 National Ambient Air Quality Standards and Background Concentrations

Background air quality concentrations and federal air quality standards were utilized to conduct the above air quality impact analyses. Federal National Ambient Air Quality Standards (NAAQS) were developed by the U.S. Environmental Protection Agency (EPA) to protect the human health against adverse health effects with a margin of safety. The modeling methodologies were developed in accordance with the latest Massachusetts Department of Environmental Protection (MassDEP) modeling policies and Federal modeling guidelines.<sup>4</sup> The following sections outline the NAAQS standards and detail the sources of background air quality data.

#### *National Ambient Air Quality Standards*

The 1970 Clean Air Act was enacted by the U.S. Congress to protect the health and welfare of the public from the adverse effects of air pollution. As required by the Clean Air Act, EPA promulgated NAAQS for the following criteria pollutants: nitrogen dioxide (NO<sub>2</sub>), sulfur dioxide (SO<sub>2</sub>), particulate matter (PM) (PM-10 and PM-2.5), carbon monoxide (CO), ozone (O<sub>3</sub>), and lead (Pb). The NAAQS are listed in Table 3-11. Massachusetts Ambient Air Quality Standards (MAAQS) are typically identical to NAAQS (differences are highlighted in **bold** in Table 3-11).

NAAQS specify concentration levels for various averaging times and include both “primary” and “secondary” standards. Primary standards are intended to protect human health, whereas secondary standards are intended to protect public welfare from any known or anticipated adverse effects associated with the presence of air pollutants, such as damage to vegetation. The more stringent of the primary or secondary standards were applied when comparing to the modeling results for this Project.

The NAAQS also reflect various durations of exposure. The non-probabilistic short-term periods (24 hours or less) refer to exposure levels not to be exceeded more than once a year. Long-term periods refer to limits that cannot be exceeded for exposure averaged over three months or longer.

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<sup>4</sup> 40 CFR 51 Appendix W, Guideline on Air Quality Models, 70 FR 68228, Nov. 9, 2005.

**Table 3-11 National (NAAQS) and Massachusetts (MAAQS) Ambient Air Quality Standards**

<i>Pollutant</i>	<i>Averaging Period</i>	<i>NAAQS (<math>\mu\text{g}/\text{m}^3</math>)</i>		<i>MAAQS (<math>\mu\text{g}/\text{m}^3</math>)</i>	
		<i>Primary</i>	<i>Secondary</i>	<i>Primary</i>	<i>Secondary</i>
<b>NO<sub>2</sub></b>	Annual (1)	100	Same	100	Same
	1-hour (2)	<b>188</b>	None	<b>None</b>	None
<b>SO<sub>2</sub></b>	Annual (1)(9)	80	None	80	None
	24-hour (3)(9)	365	None	365	None
	3-hour (3)	None	1300	None	1300
	1-hour (4)	<b>196</b>	None	<b>None</b>	None
<b>PM-2.5</b>	Annual (1)	<b>12</b>	<b>15</b>	<b>None</b>	<b>None</b>
	24-hour (5)	<b>35</b>	<b>Same</b>	<b>None</b>	<b>None</b>
<b>PM-10</b>	Annual (1)(6)	<b>None</b>	None	<b>50</b>	Same
	24-hour (3)(7)	150	Same	150	Same
<b>CO</b>	8-hour (3)	10,000	Same	10,000	Same
	1-hour (3)	40,000	Same	40,000	Same
<b>Ozone</b>	8-hour (8)	<b>147</b>	Same	<b>235</b>	Same
<b>Pb</b>	3-month (1)	1.5	Same	1.5	Same

- (1) Not to be exceeded.
- (2) 98th percentile of one-hour daily maximum concentrations, averaged over three years.
- (3) Not to be exceeded more than once per year.
- (4) 99th percentile of one-hour daily maximum concentrations, averaged over three years.
- (5) 98th percentile, averaged over three years.
- (6) EPA revoked the annual PM-10 NAAQS in 2006.
- (7) Not to be exceeded more than once per year on average over three years.
- (8) Annual fourth-highest daily maximum eight-hour concentration, averaged over three years.
- (9) EPA revoked the annual and 24-hour SO<sub>2</sub> NAAQS in 2010. However, they remain in effect until one year after the area's initial attainment designation, unless designated as "nontainment".

Source: <http://www.epa.gov/ttn/naaqs/criteria.html> and 310 CMR 6.04

***Background Concentrations***

To estimate background pollutant levels representative of the area, the most recent air quality monitor data reported by the MassDEP in their Annual Air Quality Reports was obtained for 2012 to 2014. The three-hour and 24-hour SO<sub>2</sub> values are no longer reported in the annual reports. Data for these pollutant and averaging time combinations were obtained from the EPA's AirData website.

The Clean Air Act allows for one exceedance per year of the CO and SO<sub>2</sub> short-term NAAQS per year. The highest second-high accounts for the one exceedance. Annual NAAQS are never to be exceeded. The 24-hour PM-10 standard is not to be exceeded more than once per year on average over three years. To attain the 24-hour PM-2.5 standard, the three-year average of the 98th percentile of 24-hour concentrations must not exceed 35  $\mu\text{g}/\text{m}^3$ . For annual PM-2.5 averages, the average of the highest yearly observations was used as the background concentration. To attain the one-hour NO<sub>2</sub> standard, the three-year average of the 98th percentile of the maximum daily one-hour concentrations must not exceed 188  $\mu\text{g}/\text{m}^3$ .

Background concentrations were determined from the closest available monitoring stations to the proposed development. All pollutants are not monitored at every station, so data from multiple locations are necessary. The closest monitor is at East First Street in South Boston, roughly 1.3 miles east southeast of the Project location. However, this site only samples for SO<sub>2</sub> and NO<sub>2</sub>. The next closest site is at 174 North Street (1.3 miles north northeast), but this site only samples PM-2.5. A site on Harrison Avenue is roughly 1.5 miles southwest of the Project. This site samples for the remaining pollutants. A summary of the background air quality concentrations are presented in Table 3-12.

**Table 3-12 Observed Ambient Air Quality Concentrations and Selected Background Levels**

<i>Pollutant</i>	<i>Averaging Time</i>	<i>2012</i>	<i>2013</i>	<i>2014</i>	<i>Background Concentration (µg/m<sup>3</sup>)</i>	<i>NAAQS</i>	<i>Percent of NAAQS</i>
SO <sub>2</sub> (1)(6)	1-Hour (5)	31.44	36.68	73.36	47.2	196.0	24%
	3-Hour	27.772	42.706	63.666	63.7	1300.0	5%
	24-Hour	11.79	17.03	21.222	21.2	365.0	6%
	Annual	4.323	4.0086	4.5588	4.6	80.0	6%
PM-10	24-Hour	32	34.0	61	61.0	150.0	41%
	Annual	14.2	15.1	13.9	15.1	50.0	30%
PM-2.5	24-Hour (5)	20.9	19.9	14.5	18.4	35.0	53%
	Annual (5)	9.5	8.8	7.1	8.5	12.0	71%
NO <sub>2</sub> (3)	1-Hour (5)	80.84	88	116.56	95.3	188.0	51%
	Annual	18.2924	22.9	26.32	26.3	100.0	26%
CO (2)	1-Hour	2474.2	2145.3	1963.1	2474.2	40000.0	6%
	8-Hour	2177.4	1375.2	1489.8	2177.4	10000.0	22%
Ozone (4)	8-Hour	121.706	115.817	106.002	121.7	147.0	83%
Lead	Rolling 3-Month	0.014	0.006	0.014	0.014	0.15	9%

Notes:

From 2012-2014 EPA's AirData Website

(1) SO<sub>2</sub> reported ppb. Converted to µg/m<sup>3</sup> using factor of 1 ppm = 2.62 µg/m<sup>3</sup>.

(2) CO reported in ppm. Converted to µg/m<sup>3</sup> using factor of 1 ppm = 1146 µg/m<sup>3</sup>.

(3) NO<sub>2</sub> reported in ppb. Converted to µg/m<sup>3</sup> using factor of 1 ppm = 1.88 µg/m<sup>3</sup>.

(4) O<sub>3</sub> reported in ppm. Converted to µg/m<sup>3</sup> using factor of 1 ppm = 1963 µg/m<sup>3</sup>.

(5) Background level is the average concentration of the three years.

(6) The 24-hour and Annual standards were revoked by EPA on June 22, 2010, Federal Register 75-119, p. 35520.

Air quality in the vicinity of the Project site is generally good, with all local background concentrations found to be well below the NAAQS.

For use in the microscale analysis, background concentrations of CO in ppm were required. The corresponding maximum background concentrations in ppm were 2.2 ppm (2,474 µg/m<sup>3</sup>) for one-hour and 1.9 ppm (2,177 µg/m<sup>3</sup>) for eight-hour CO.

### 3.2.5.3 Methodology

#### *Microscale Analysis*

The BRA typically requests an analysis of the effect on air quality of the increase in traffic generated by projects subject to Large Project Review. This “microscale” analysis is typically required for any intersection where 1) project traffic would impact intersections or roadway links currently operating at LOS D, E, or F or would cause LOS to decline to D, E, or F; 2) project traffic would increase traffic volumes on nearby roadways by 10% or more (unless the increase in traffic volume is less than 100 vehicles per hour); or, 3) the project will generate 3,000 or more new average daily trips on roadways providing access to a single location. The microscale analysis involves modeling of carbon monoxide (CO) emissions from vehicles idling at and traveling through signaled intersections. Predicted ambient concentrations of CO for the Build and No-Build cases are compared with federal (and state) ambient air quality standards for CO.

The microscale analysis typically examines ground-level CO impacts due to traffic queues in the immediate vicinity of a project. CO is used in microscale studies to indicate roadway pollutant levels since it is the most abundant pollutant emitted by motor vehicles and can result in so-called "hot spot" (high concentration) locations around congested intersections. The NAAQS standards do not allow ambient CO concentrations to exceed 35 parts per million (ppm) for a one-hour averaging period, and 9 ppm for an eight-hour averaging period, more than once per year at any location. The widespread use of CO catalysts on current vehicles has reduced the occurrences of CO hotspots. Air quality modeling techniques (computer simulation programs) are typically used to predict CO levels for both existing and future conditions to evaluate compliance of the roadways with the standards. The analysis for the Project followed the procedure outlined in EPA’s intersection modeling guidance.<sup>5</sup>

The microscale analysis has been conducted using the latest versions of EPA’s MOVES and CAL3QHC programs to estimate CO concentrations at sidewalk receptor locations.

Baseline (2016) and future year (2023) emission factor data calculated from the MOVES model, along with traffic data, were input into the CAL3QHC program to determine CO concentrations due to traffic flowing through the selected intersections.

Existing background values of CO at the nearest monitor location at Kenmore Square were obtained from MassDEP. CAL3QHC results were then added to background CO values of 2.2 ppm (one-hour) and 1.9 ppm (eight-hour), as provided by MassDEP, to determine total

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<sup>5</sup> U.S. EPA, Guideline for Modeling Carbon Monoxide from Roadway Intersections; EPA-454/R-92-005, November 1992.

air quality impacts due to the Project. These values were compared to the NAAQS for CO of 35 ppm (one-hour) and 9 ppm (eight-hour).

The modeling methodology was developed in accordance with the latest MassDEP modeling policies and Federal modeling guidelines.<sup>6</sup>

Modeling assumptions and backup data for results presented in this section are provided in Appendix C.

### Intersection Selection

Four signalized intersections included in the traffic study meet the criteria for a microscale analysis, as described above (see Section 3.1). The traffic volumes and LOS calculations provided in Section 3.1 form the basis of evaluating the traffic data versus the microscale thresholds. The intersections found to meet the criteria for inclusion in the microscale analysis are:

- ◆ the intersection of Albany Street & I-93 SB On-Ramp & Herald Street;
- ◆ the intersection of Albany Street & Traveler Street;
- ◆ the intersection of Frontage Road & Traveler Street; and
- ◆ the intersection of Frontage Road & West 4th Street.

Microscale modeling was performed for the intersections based on the aforementioned methodology. The 2016 existing condition, and the 2023 No-Build and Build conditions were each evaluated for both the morning (a.m.) and afternoon (p.m.) peak hour.

### Emissions Calculations (MOVES)

The EPA MOVES computer program was used to estimate motor vehicle emission factors on the roadway network. Emission factors calculated by the MOVES model are based on motor vehicle operations typical of daily periods. The Commonwealth's statewide annual Inspection and Maintenance (I&M) program was included, as well as the county specific vehicle age registration distribution, fleet mix, meteorology, and other inputs. The inputs for MOVES for the existing (2016) and future year (2023) are provided by MassDEP.

All link types for the modeled intersection were input into MOVES. Idle emission factors are obtained from factors for a link average speed of 0 miles per hour (mph). Moving emissions are calculated based on speeds at which free-flowing vehicles travel through the

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<sup>6</sup> 40 CFR 51 Appendix W, Guideline on Air Quality Models, 70 FR 68228, Nov. 9, 2005.

intersection as stated in traffic modeling (SYNCHRO) reports. A speed of 30 mph is used for all free-flow traffic. Speeds of 10 and 15 mph were used for right (and U-turns, if necessary) and left turns, respectively. Roadway emissions factors were obtained from MOVES using EPA guidance.<sup>7</sup>

Winter CO emission factors are typically higher than summer. Therefore, January weekday emission factors were conservatively used in the microscale analyses.

### Receptors & Meteorology Inputs

Sets of up to roughly 200 receptors were placed in the vicinity of the modeled intersections. Receptors extended approximately 300 feet on the sidewalks along the roadways approaching the intersections. The roadway links and receptor locations of the modeled intersections are presented in Figures 3-19 through 3-22.

For the CAL3QHC model, limited meteorological inputs are required. Following EPA guidance<sup>8</sup>, a wind speed of one meter per second, stability class D (4), and a mixing height of 1,000 meters were used. To account for the intersection geometry, wind directions from 0° to 350°, every 10° were selected. A surface roughness length of 321 centimeters was selected.<sup>9</sup>

### Impact Calculations (CAL3QHC)

The CAL3QHC model predicts one-hour concentrations using queue-links at intersections, worst-case meteorological conditions, and traffic input data. The one-hour concentrations were scaled by a factor of 0.9 to estimate eight-hour concentrations.<sup>10</sup> The CAL3QHC methodology was based on EPA CO modeling guidance. Signal timings were provided directly from the traffic modeling outputs.

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<sup>7</sup> U.S. EPA, 2010. Using MOVES in Project-Level Carbon Monoxide Analyses. EPA-420-B-10-041.

<sup>8</sup> U.S. EPA, Guideline for Modeling Carbon Monoxide from Roadway Intersections. EPA-454/R-92-005, November 1992.

<sup>9</sup> U.S. EPA, User's Guide for CAL3QHC Version 2: A Modeling Methodology for Predicting Pollutant Concentrations Near Roadway Intersections. EPA -454/R-92-006 (Revised), September 1995.

<sup>10</sup> U.S. EPA, AERSCREEN User's Guide; EPA-454/B-11-001, March 2011.

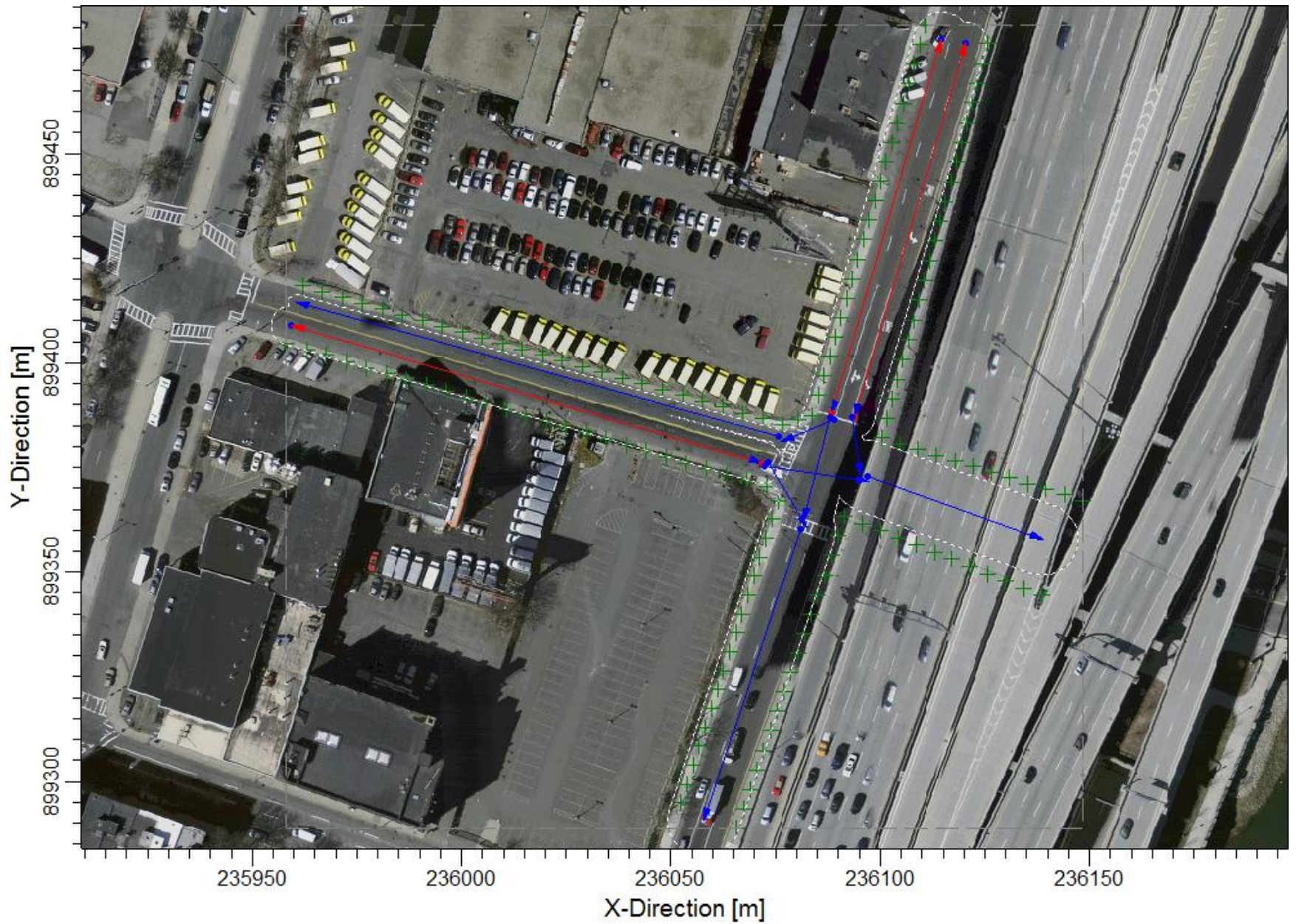




370-380 Harrison Avenue

Boston, Massachusetts

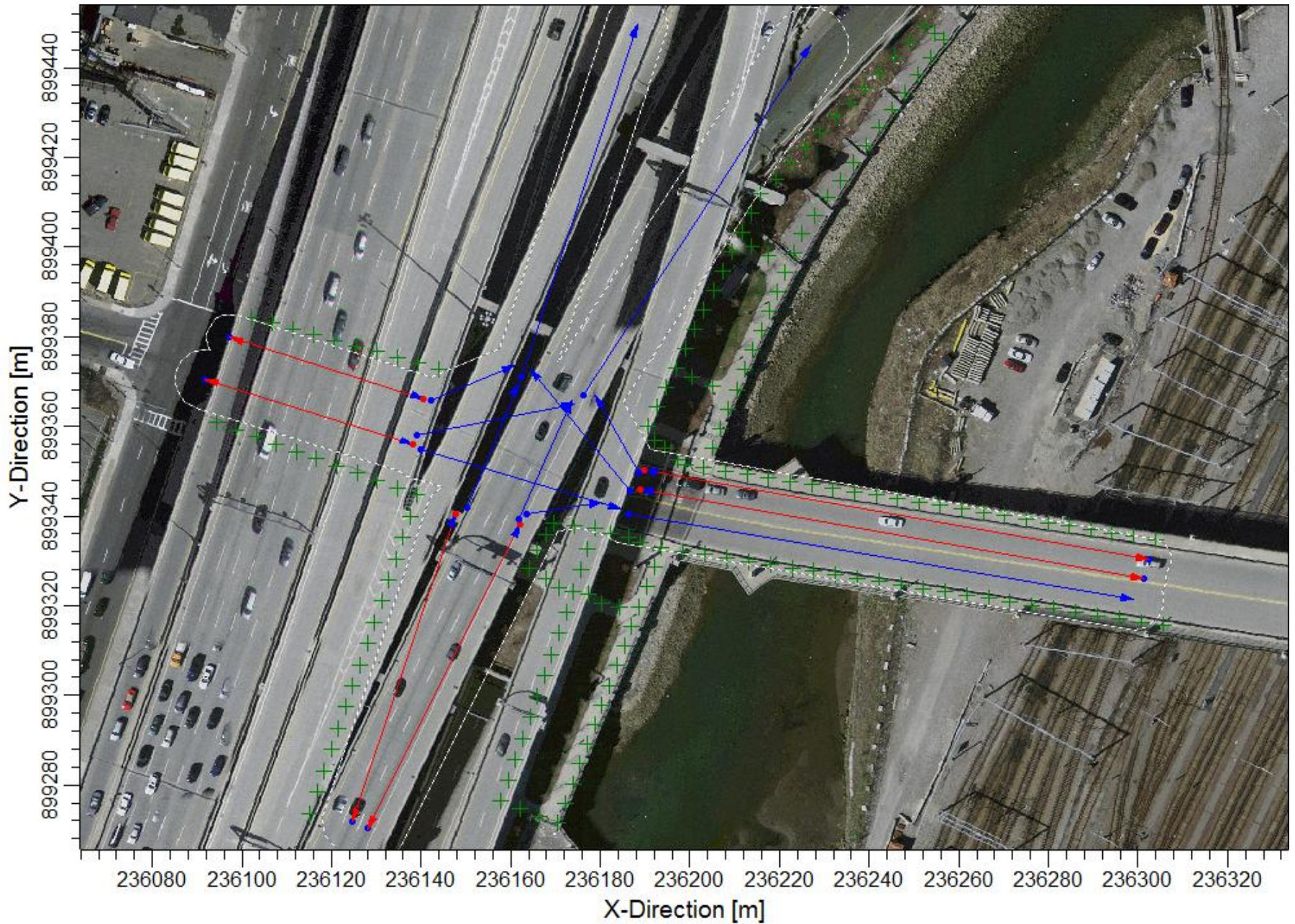




370-380 Harrison Avenue

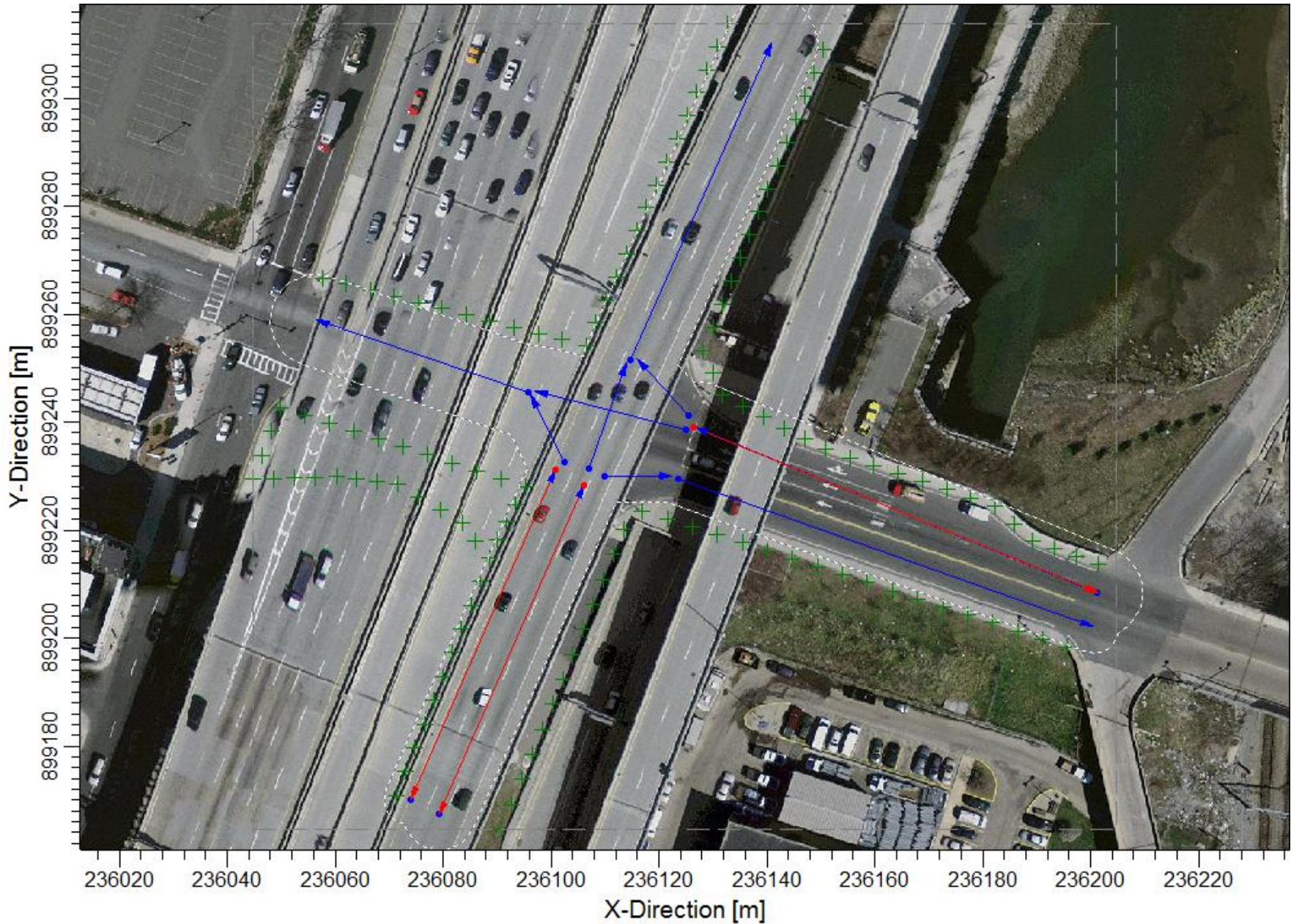
Boston, Massachusetts





370-380 Harrison Avenue Boston, Massachusetts





370-380 Harrison Avenue      Boston, Massachusetts

#### **3.2.5.4 Air Quality Results**

##### ***Microscale Analysis***

The results of the maximum one-hour predicted CO concentrations from CAL3QHC are provided in Tables 3-13 through 3-15 for the 2016 and 2023 scenarios.

The results of the one-hour and eight-hour maximum modeled CO ground-level concentrations from CAL3QHC were added to EPA supplied background levels for comparison to the NAAQS. These values represent the highest potential concentrations at the intersection as they are predicted during the simultaneous occurrence of "defined" worst case meteorology. The highest one-hour traffic-related concentration predicted in the area of the Project, for the modeled conditions (0.8 ppm) plus background (2.2 ppm) is 3.0 ppm for the existing p.m. peak case at the intersection of Frontage Road and West 4th Street. The highest eight-hour traffic-related concentration predicted in the area of the Project for the modeled conditions (0.7 ppm) plus background (1.9 ppm) is 2.6 ppm for the same location and scenario. All concentrations are well below the one-hour NAAQS of 35 ppm and the eight-hour NAAQS of 9 ppm.

#### **3.2.5.5 Conclusion**

Results of the microscale analysis show that all predicted CO concentrations are well below one-hour and eight-hour NAAQS. Therefore, it can be concluded that there are no anticipated adverse air quality impacts resulting from increased traffic in the area.

#### **3.2.5.6 Stationary Sources**

Stationary sources of air pollution are typically units that combust fuel. In this case, these sources consist of heating and hot water units and emergency electrical generators. Cooling towers, although not a combustion source, are a source of particulate emissions.

It is expected that the majority of stationary sources (boilers, engines, etc) may be subject to the MassDEP's Environmental Results Program (ERP). The Proponent will complete the required applications and submittals for the equipment, as necessary.

**Table 3-13 Summary of Microscale Modeling Analysis (Existing 2016)**

<i>Intersection</i>	<i>Peak</i>	<i>CAL3QHC Modeled CO Impacts (ppm)</i>	<i>Monitored Background Concentration (ppm)</i>	<i>Total CO Impacts (ppm)</i>	<i>NAAQS (ppm)</i>
<b>1-Hour</b>					
Albany Street & I-93 SB On-Ramp & Herald Street	AM	0.7	2.2	2.9	35
	PM	0.7	2.2	2.9	35
Albany Street & Traveler Street	AM	0.4	2.2	2.6	35
	PM	0.3	2.2	2.5	35
Frontage Road & Traveler Street	AM	0.4	2.2	2.6	35
	PM	0.4	2.2	2.6	35
Frontage Road & West 4th Street	AM	0.7	2.2	2.9	35
	PM	0.8	2.2	3.0	35
<b>8-Hour</b>					
Albany Street & I-93 SB On-Ramp & Herald Street	AM	0.6	1.9	2.5	9
	PM	0.6	1.9	2.5	9
Albany Street & Traveler Street	AM	0.4	1.9	2.3	9
	PM	0.3	1.9	2.2	9
Frontage Road & Traveler Street	AM	0.4	1.9	2.3	9
	PM	0.4	1.9	2.3	9
Frontage Road & West 4th Street	AM	0.6	1.9	2.5	9
	PM	0.7	1.9	2.6	9
Notes: CAL3QHC eight-hour impacts were conservatively obtained by multiplying one-hour impacts by a screening factor of 0.9.					

**Table 3-14 Summary of Microscale Modeling Analysis (No-Build 2023)**

<i>Intersection</i>	<i>Peak</i>	<i>CAL3QHC Modeled CO Impacts (ppm)</i>	<i>Monitored Background Concentration (ppm)</i>	<i>Total CO Impacts (ppm)</i>	<i>NAAQS (ppm)</i>
<b>1-Hour</b>					
Albany Street & I-93 SB On-Ramp & Herald Street	AM	0.5	2.2	2.7	35
	PM	0.5	2.2	2.7	35
Albany Street & Traveler Street	AM	0.4	2.2	2.6	35
	PM	0.4	2.2	2.6	35
Frontage Road & Traveler Street	AM	0.2	2.2	2.4	35
	PM	0.2	2.2	2.4	35
Frontage Road & West 4th Street	AM	0.4	2.2	2.6	35
	PM	0.5	2.2	2.7	35
<b>8-Hour</b>					
Albany Street & I-93 SB On-Ramp & Herald Street	AM	0.5	1.9	2.4	9
	PM	0.5	1.9	2.4	9
Albany Street & Traveler Street	AM	0.4	1.9	2.3	9
	PM	0.4	1.9	2.3	9
Frontage Road & Traveler Street	AM	0.2	1.9	2.1	9
	PM	0.2	1.9	2.1	9
Frontage Road & West 4th Street	AM	0.4	1.9	2.3	9
	PM	0.5	1.9	2.4	9
Notes: CAL3QHC eight-hour impacts were conservatively obtained by multiplying one-hour impacts by a screening factor of 0.9.					

**Table 3-15 Summary of Microscale Modeling Analysis (Build 2023)**

<i>Intersection</i>	<i>Peak</i>	<i>CAL3QHC Modeled CO Impacts (ppm)</i>	<i>Monitored Background Concentration (ppm)</i>	<i>Total CO Impacts (ppm)</i>	<i>NAAQS (ppm)</i>
<b>1-Hour</b>					
Albany Street & I-93 SB On-Ramp & Herald Street	AM	0.5	2.2	2.7	35
	PM	0.5	2.2	2.7	35
Albany Street & Traveler Street	AM	0.4	2.2	2.6	35
	PM	0.4	2.2	2.6	35
Frontage Road & Traveler Street	AM	0.2	2.2	2.4	35
	PM	0.2	2.2	2.4	35
Frontage Road & West 4th Street	AM	0.4	2.2	2.6	35
	PM	0.5	2.2	2.7	35
<b>8-Hour</b>					
Albany Street & I-93 SB On-Ramp & Herald Street	AM	0.5	1.9	2.4	9
	PM	0.5	1.9	2.4	9
Albany Street & Traveler Street	AM	0.4	1.9	2.3	9
	PM	0.4	1.9	2.3	9
Frontage Road & Traveler Street	AM	0.2	1.9	2.1	9
	PM	0.2	1.9	2.1	9
Frontage Road & West 4th Street	AM	0.4	1.9	2.3	9
	PM	0.5	1.9	2.4	9
Notes: CAL3QHC eight-hour impacts were conservatively obtained by multiplying one-hour impacts by a screening factor of 0.9.					

### **3.2.6**        *Stormwater/Water Quality*

#### **3.2.6.1**       **Existing Stormwater Drainage System**

The Boston Water and Sewer Commission (BWSC) maintains stormwater drainage facilities in Traveler Street, Harrison Avenue and East Berkeley Street. All of the piping in these streets discharges into other BWSC storm drains in Albany Street. The largest BWSC storm drain adjacent to the Project site is a 48-inch pipe in Harrison Avenue which crosses Albany Street to West Broadway where it discharges into the Fort Point Channel. New stormwater connections from the Project will connect to this 48-inch storm drain in Harrison Avenue.

#### **3.2.6.2**       **BWSC Site Plan Review**

As part of the BWSC Site Plan submittal package, the Project will be required to provide groundwater recharge capacity for the first inch of precipitation from the surface runoff from the impervious areas within the Project site. This will be accomplished with a series of groundwater recharge chambers, or with a separate storage system that will collect the surface water runoff and then pump it into the ground with a series of injection wells.

The impervious areas include the building roof surfaces, the hardscape area at street level, and the underground parking garage entrance and exit ramps. BWSC has additional requirements for particle separators on the storm drains located in the vehicular loading and drop-off zones outside of the new building.

Depending on the final design program for the new building and the ground level surface treatment, the Project may have multiple connections to the BWSC stormwater drainage system.

#### **3.2.6.3**       **Stormwater Pollution Prevention Plan**

Since the total Project area is greater than one acre, the Project team is required to prepare a Storm Water Pollution Protection Plan – (SWPPP) and to file a Notice of Intent with the U.S. Environmental Protection Agency to fall under its National Pollution Discharge Elimination System General Construction Permit.

### **3.2.7**        *Flood Hazard Zones/Wetlands*

The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRMs) for the site - Community Panel Numbers 25025C0077J and 25025C0079J – effective March 16, 2016 indicate the FEMA Flood Zone Designations for the site area. The FIRMs show that the Project is outside of the 500-year flood zone.

The site is developed and does not contain wetlands.



### **3.2.8 Geotechnical/Groundwater**

#### **3.2.8.1 Subsurface Conditions**

Available subsurface data and geologic information was reviewed at and around the site to evaluate existing subsurface soil and groundwater conditions. Based on United States Department of Agriculture National Cooperative Soil Survey data, the Project site is considered urban land, wet substratum; a common designation for downtown Boston and in land surrounding Boston Harbor.

In general, subsurface conditions anticipated from surface level down include miscellaneous fill and organic material, over naturally deposited "Boston Blue Clay", over glacial till deposits over bedrock.

Based on review of Boston Groundwater Trust data for groundwater observation well 21K-0243, located on Harrison Avenue in front of 406-408 Harrison Avenue, groundwater levels in the Project area have ranged from 5.13 to 8.42 BCB over the past eleven years.

#### **3.2.8.2 Foundation Construction Methodology**

Column loads for the Project are expected to be supported on new spread footings or a new continuous mat slab. In both scenarios the concrete footings or slab would bear on existing clay approximately 35 to 40 feet below existing ground surface.

Final foundation design will be completed after the subsurface exploration program is completed and the structural loads are known.

An earth retention system will be utilized for the Project's mass excavation for garage and foundation system. Steel sheet piles or slurry wall will be used and will extend into the marine clay layer below the lowest garage level by 5 to 15 feet. A program of instrumentation (survey and/or inclinometers) will be implemented to monitor the performance of the earth retention system.

#### **3.2.8.3 Groundwater Impacts**

The Project is located in the Groundwater Conservation Overlay District (GCOD) and will be designed and constructed to comply with requirements of Article 32 of the Code. Preliminary discussions with BWSC have confirmed that the Project requires groundwater recharge. Approval for the Project in accordance with Article 32 will be obtained by virtue of PDA plan approval or Board of Appeal relief as appropriate.

Some local dewatering may be required during the construction process to manage and remove surface water (precipitation) runoff into the open/uncovered below grade building footprint. To the extent possible, the Project will attempt to recharge/infiltrate that water into the ground outside the building footprint. Construction dewatering will be performed

in accordance with applicable Massachusetts Water Resources Authority (MWRA), EPA, BWSC and MassDEP regulations and policies. Waterproofing will be installed against the exterior face of the portions of the garage which extend below observed and predicted groundwater levels as a permanent groundwater cut-off measure.

Measures will be implemented to maintain groundwater levels outside the Project site boundary. Groundwater levels will be monitored prior to, during, and following construction to ensure adequate groundwater levels are maintained within the Project vicinity.

### **3.2.9        *Solid and Hazardous Wastes***

#### **3.2.9.1       Existing Hazardous Waste Conditions**

A documented release of #2 fuel oil was reported at the site on or about March 4, 1993 and Release Tracking Number (RTN) 3-4224 was assigned to the site. Massachusetts Contingency Plan (MCP) compliance related to RTN 3-4224 was achieved on November 10, 1999 with the filing of a Class A-2 Response Action Outcome (RAO) with the Massachusetts Department of Environmental Protection (MassDEP). The RAO asserts that a condition of No Significant Risk existed at the site and that the RAO fulfilled all MCP obligations. Site closure does not rely on an Activity and Use Limitation (AUL) and no further Response Actions were necessary to maintain either a level of No Significant Risk or maintain a Permanent Solution. Additional, historic site remediation activities conducted under the direction of MassDEP included the closure of underground storage tanks and removal of Non-Aqueous Phase Liquids (NAPL) impacted soils.

Additional characterization of the sites' soil and groundwater will be conducted and, if necessary, soil and groundwater will be managed in accordance with applicable local, state, and federal laws and regulations. During excavation, all soils exported from the site will be managed for off-site disposal in accordance with the current regulations and policies of MassDEP. Asbestos and hazardous materials evaluations will be conducted prior to commencing demolition activities, and should any asbestos containing materials (ACM) or other hazardous materials be identified, a Massachusetts-licensed abatement contractor will be retained to remove them in accordance with local, state, and federal regulations.

#### **3.2.9.2       Operational Solid and Hazardous Wastes**

The Project will generate solid waste typical of residential and commercial/retail uses. Solid waste is expected to include wastepaper, cardboard, glass bottles and food. Recyclable materials will be recycled through a program implemented by building management.

With the exception of household hazardous wastes typical of residential and commercial/retail developments (e.g., cleaning fluids and paint), the Project will not involve the generation, use, transportation, storage, release, or disposal of potentially hazardous

materials. Typical waste generated by the uses will be handled in compliance with all local, state and federal regulations.

The Project will include recycling areas for items such as paper, plastic, glass and cans.

### **3.2.10 Noise**

The mechanical equipment for the Project will be similar to that used on similarly sized residential buildings. Rooftop equipment will be screened, and acoustic screening will be included if necessary to meet local noise standards. The Project team will ensure that the buildings' mechanical equipment will meet the City of Boston Noise Standards.

Construction period noise impacts and mitigation are discussed below in Section 3.2.11.2.

### **3.2.11 Construction Impacts**

The proximity of city streets and abutting commercial properties to the site will require careful scheduling of material removal and delivery. Planning with the City and neighborhood will be essential to the successful development of the Project.

A Construction Management Plan (CMP) will be submitted to the BTD for review and approval prior to issuance of a building permit. The CMP will define truck routes which will help in minimizing the impact of trucks on local streets.

Construction methodologies that ensure public safety and protect nearby businesses will be employed. Techniques such as barricades, walkways, painted lines, and signage will be used as necessary. Construction management and scheduling—including plans for construction worker commuting and parking, routing plans and scheduling for trucking and deliveries, protection of existing utilities, maintenance of fire access, and control of noise and dust—will minimize impacts on the surrounding environment.

Throughout Project construction, a secure perimeter will be maintained to protect the public from construction activities.

#### **3.2.11.1 Construction Air Quality**

Short-term air quality impacts from fugitive dust may be expected during demolition, excavation and the early phases of construction. Plans for controlling fugitive dust during demolition, excavation and construction include mechanical street sweeping, wetting portions of the site during periods of high wind, and careful removal of debris by covered trucks. The construction contract will provide for a number of strictly enforced measures to be used by contractors to reduce potential emissions and minimize impacts. These measures are expected to include:

- ◆ Using wetting agents on areas of exposed soil on a scheduled basis;

- ◆ Using covered trucks;
- ◆ Minimizing spoils on the construction site;
- ◆ Monitoring of actual construction practices to ensure that unnecessary transfers and mechanical disturbances of loose materials are minimized;
- ◆ Minimizing storage of debris on the site; and
- ◆ Periodic street and sidewalk cleaning with water to minimize dust accumulations.

### **3.2.11.2 Construction Noise**

The Proponent is committed to mitigating noise impacts from the construction of the Project. Periodic increased community sound levels, however, are an inherent consequence of construction activities. Construction work will comply with the requirements of the City of Boston Noise Ordinance. Every reasonable effort will be made to minimize the noise impact of construction activities, including:

- ◆ Instituting a proactive program to ensure compliance with the City of Boston noise limitation policy;
- ◆ Using appropriate mufflers on all equipment and ongoing maintenance of intake and exhaust mufflers;
- ◆ Muffling enclosures on continuously running equipment, such as air compressors and welding generators;
- ◆ Replacing specific construction operations and techniques by less noisy ones where feasible;
- ◆ Selecting the quietest of alternative items of equipment where feasible;
- ◆ Scheduling equipment operations to keep average noise levels low, to synchronize the noisiest operations with times of highest ambient levels, and to maintain relatively uniform noise levels;
- ◆ Turning off idling equipment; and
- ◆ Locating noisy equipment at locations that protect sensitive locations by shielding or distance.

### **3.2.11.3 Construction Waste Management**

The Proponent will reuse or recycle demolition and construction materials to the greatest extent feasible. Construction procedures will allow for the segregation, reuse, and recycling

of materials. Materials that cannot be reused or recycled will be transported in covered trucks by a contract hauler to a licensed facility.

### **3.2.12      *Rodent Control***

A rodent extermination certificate will be filed with the building permit application to the City. Rodent inspection monitoring and treatment will be carried out before, during, and at the completion of all construction work for the Project, in compliance with the City's requirements. Rodent extermination prior to work commencement will consist of treatment of areas throughout the site.

### **3.2.13      *Wildlife Habitat***

The site is currently developed and within a fully developed urban area and, as such, the Project will not impact wildlife habitats as designated on the National Heritage and Endangered Species Priority Habitats of Rare Species and Estimated Habitats of Rare Wildlife maps.

## **3.3      Sustainable Design and Green Buildings**

To measure the results of their sustainability initiatives and to comply with Article 37, the Proponent intends to use the framework of the Leadership in Energy and Environmental Design (LEED) rating system. The Project will use LEED for New Construction (LEED-NC) version 2009 as the rating system to demonstrate compliance with Article 37. The LEED rating system tracks the sustainable features of a project by achieving points in the following categories: Sustainable Sites, Water Efficiency, Energy and Atmosphere, Materials and Resources, Indoor Environmental Quality, Innovation and Design Process and Regional Priority Credits.

The Proponent intends to register and certify the Project under LEED. The Project anticipates a minimum of meeting the Silver level. The building will employ energy-efficient and water-conservation features for mechanical, electrical, architectural, and structural systems, assemblies, and materials where possible. The building will be constructed in compliance with the building and energy codes in effect at the time of the building permit application. These codes will be more stringent than the LEED requirements.

A LEED checklist is included on the next page, and details the credits the Project anticipates achieving. The checklist will be updated regularly as the design develops and engineering assumptions are substantiated. Presently, 53 points have been targeted, not including any of the potential Boston Zoning Code Article 37 points. Additional credits, identified as "Maybe" on the checklist, will be evaluated as the design progresses.



# LEED 2009 for New Construction and Major Renovations

370-380 Harrison Ave

## Project Checklist

### 21 2 3 Sustainable Sites Possible Points: 26

Y	?	N			
Y			Prereq 1	Construction Activity Pollution Prevention	
1			Credit 1	Site Selection	1
5			Credit 2	Development Density and Community Connectivity	5
		1	Credit 3	Brownfield Redevelopment	1
6			Credit 4.1	Alternative Transportation—Public Transportation Access	6
	1		Credit 4.2	Alternative Transportation—Bicycle Storage and Changing Rooms	1
3			Credit 4.3	Alternative Transportation—Low-Emitting and Fuel-Efficient Vehicles	3
2			Credit 4.4	Alternative Transportation—Parking Capacity	2
		1	Credit 5.1	Site Development—Protect or Restore Habitat	1
1			Credit 5.2	Site Development—Maximize Open Space	1
1			Credit 6.1	Stormwater Design—Quantity Control	1
1			Credit 6.2	Stormwater Design—Quality Control	1
1			Credit 7.1	Heat Island Effect—Non-roof	1
	1		Credit 7.2	Heat Island Effect—Roof	1
		1	Credit 8	Light Pollution Reduction	1

### 3 4 3 Water Efficiency Possible Points: 10

Y	?	N			
Y			Prereq 1	Water Use Reduction—20% Reduction	
2	2		Credit 1	Water Efficient Landscaping	2 to 4
		2	Credit 2	Innovative Wastewater Technologies	2
1	2	1	Credit 3	Water Use Reduction	2 to 4

### 11 14 10 Energy and Atmosphere Possible Points: 35

Y	?	N			
Y			Prereq 1	Fundamental Commissioning of Building Energy Systems	
Y			Prereq 2	Minimum Energy Performance	
Y			Prereq 3	Fundamental Refrigerant Management	
4	10	5	Credit 1	Optimize Energy Performance	1 to 19
	2	5	Credit 2	On-Site Renewable Energy	1 to 7
2			Credit 3	Enhanced Commissioning	2
2			Credit 4	Enhanced Refrigerant Management	2
1	2		Credit 5	Measurement and Verification	3
2			Credit 6	Green Power	2

### 6 3 5 Materials and Resources Possible Points: 14

Y	?	N			
Y			Prereq 1	Storage and Collection of Recyclables	
		3	Credit 1.1	Building Reuse—Maintain Existing Walls, Floors, and Roof	1 to 3
		1	Credit 1.2	Building Reuse—Maintain 50% of Interior Non-Structural Elements	1
2			Credit 2	Construction Waste Management	1 to 2
	1	1	Credit 3	Materials Reuse	1 to 2

### Materials and Resources, Continued

Y	?	N			
2			Credit 4	Recycled Content	1 to 2
2			Credit 5	Regional Materials	1 to 2
	1		Credit 6	Rapidly Renewable Materials	1
	1		Credit 7	Certified Wood	1

### 7 6 2 Indoor Environmental Quality Possible Points: 15

Y	?	N			
Y			Prereq 1	Minimum Indoor Air Quality Performance	
Y			Prereq 2	Environmental Tobacco Smoke (ETS) Control	
	1		Credit 1	Outdoor Air Delivery Monitoring	1
		1	Credit 2	Increased Ventilation	1
1			Credit 3.1	Construction IAQ Management Plan—During Construction	1
	1		Credit 3.2	Construction IAQ Management Plan—Before Occupancy	1
1			Credit 4.1	Low-Emitting Materials—Adhesives and Sealants	1
1			Credit 4.2	Low-Emitting Materials—Paints and Coatings	1
1			Credit 4.3	Low-Emitting Materials—Flooring Systems	1
		1	Credit 4.4	Low-Emitting Materials—Composite Wood and Agrifiber Products	1
1			Credit 5	Indoor Chemical and Pollutant Source Control	1
1			Credit 6.1	Controllability of Systems—Lighting	1
	1		Credit 6.2	Controllability of Systems—Thermal Comfort	1
	1		Credit 7.1	Thermal Comfort—Design	1
	1		Credit 7.2	Thermal Comfort—Verification	1
	1		Credit 8.1	Daylight and Views—Daylight	1
1			Credit 8.2	Daylight and Views—Views	1

### 4 2 Innovation and Design Process Possible Points: 6

Y	?	N			
1			Credit 1.1	Innovation in Design: Energy Star	1
1			Credit 1.2	Innovation in Design: Exemplary Performance SSc2	1
1			Credit 1.3	Innovation in Design: Exemplary Performance, SSc4.1	1
	1		Credit 1.4	Innovation in Design: Specific Title	1
	1		Credit 1.5	Innovation in Design: Specific Title	1
1			Credit 2	LEED Accredited Professional	1

### 1 1 2 Regional Priority Credits Possible Points: 4

Y	?	N			
1			Credit 1.1	Regional Priority: SSc6.1	1
	1		Credit 1.2	Regional Priority: SSc7.2	1
		1	Credit 1.3	Regional Priority: Specific Credit	1
		1	Credit 1.4	Regional Priority: Specific Credit	1

### 53 32 25 Total Possible Points: 110

Certified 40 to 49 points Silver 50 to 59 points Gold 60 to 79 points Platinum 80 to 110

### **3.3.1 Sustainable Sites**

To reduce pollution from construction activities, the construction manager will implement a project-specific, EPA-compliant Erosion and Sedimentation Control (ESC) plan. Soil erosion, waterway and stormwater system sedimentation, and airborne dust will be controlled during site preparation, demolition of existing conditions, and the construction of the new development.

The Project site is located in a developed area with existing infrastructure and nearby basic services. The Project design includes new open spaces that will improve stormwater runoff, allow stormwater infiltration, and improve the quality of the local environment. Parking will be provided below-grade.

The Proponent is committed to supporting alternative transportation. The Project site is located within a half-mile of public transportation, including the Silver Line and several bus routes. Bicycle racks will be included on site, and preferred parking is anticipated to be designated for low-emitting vehicles.

### **3.3.2 Water Efficiency**

To maximize water efficiency, the Project will include low-flow bathroom fixtures and faucets. Additionally, the Project anticipates minimizing the need for potable water to be used for irrigation through the careful selection of vegetation and mechanical methods to reduce water use.

### **3.3.3 Energy & Atmosphere**

The Project will be constructed based on the building and energy codes in effect at the time of the building permit application. Energy reduction measures are expected to result in energy cost reductions of at least 18%.

To reduce stratospheric ozone depletion, the buildings design team will select building heating, ventilating, air conditioning and refrigeration (HVAC&R) systems that use no chlorofluorocarbon (CFC)-based refrigerants. Project engineers are expected to perform the calculations and implement protocols to verify compliance with LEED EA Credit 4, Enhanced Refrigerant Management.

To verify that the Project's energy-related systems are installed and calibrated to perform according to the owner's Project requirements, basis of design and construction documents, the Project is expected to perform enhanced commissioning activities in accordance with the USGBC LEED 2009 requirements. Additionally, the Proponent anticipates registering an account in ENERGY STAR's Portfolio Manager tool and sharing energy performance information with the USGBC master account.

### **3.3.4**      *Material & Resources*

It is anticipated that a construction and demolition waste management plan will be developed to reduce construction and demolition waste disposed of in landfills and incineration facilities. The waste management plan will describe materials separation strategies and whether the materials will be sorted on-site or comingled. The waste management plan is anticipated to direct 75% of all waste and debris to be recycled.

It is anticipated that the design will specify materials with recycled content and regional materials.

The completed Project will provide dedicated areas for the collection and storage of recyclable materials for all building occupants. Collection and storage areas will be readily accessible and adequately sized based on the building square footage and usage. Materials collected for recycling will include: mixed paper, corrugated cardboard, glass, plastics, and metals.

### **3.3.5**      *Indoor Environmental Quality*

It is intended that the Construction Manager will develop and implement a construction indoor air quality (C-IAQ) management plan to reduce air quality issues resulting from construction and to promote the comfort and well-being of construction workers and building occupants. It is anticipated that during construction, the Sheet Metal and Air Condition Contractors' National Association (SMACNA) IAQ Guidelines For Occupied Buildings Under Construction will be met or exceeded. Air handlers used during construction will have Minimum Efficiency Reporting Value (MERV) 8 filtration media that will be replaced immediately prior to occupancy.

To reduce the quantity of indoor air contaminants that are irritating and/or harmful to installers and occupants, the design intends to specify materials that comply with LEED 2009 requirements regarding the off-gassing of volatile organic compounds (VOC) contents, formaldehydes, etc. for adhesives and sealants, paints and coatings and flooring systems.

The design is anticipated to include a high level of lighting system control by individual occupants, or groups in multi-occupant spaces, and to promote productivity, comfort and well-being. In addition, it is anticipated that the Project spaces will include adequate views of the outdoors.

### **3.3.6**      *Innovation and Design Process*

In addition to the measures described above, the Project anticipates an additional four points as a result of Innovation and exemplary performance. These include increased development density, access to alternative transportation, the use of EnergyStar appliances and the inclusion of a LEED Accredited Professional on the Project team.



### **3.3.7 Regional Priority**

Regional Priority Credits, (RPC) are established LEED credits designated by the USGBC to have priority for a particular area of the country. When a Project team achieves one of the designated RPCs, an additional credit is awarded to the Project. It is anticipated that the Project will achieve one credit for SSc6.1.

## **3.4 Climate Change Adaptability**

### **3.4.1 Introduction**

Climate change conditions considered by the Project team include higher maximum and mean temperatures, more frequent and longer extreme heat events, more frequent and longer droughts, more severe freezing rain and heavy rainfall events, and increased wind gusts.

The expected life of the Project is anticipated to be approximately 50 years. Therefore, the Proponent planned for climate-related conditions projected 50 years into the future. A copy of the completed Checklist is included in Appendix D. Given the preliminary level of design, the responses are also preliminary and may be updated as the Project design progresses.

### **3.4.2 Extreme Heat Events**

The Intergovernmental Panel on Climate Change (IPCC) has predicted that in Massachusetts the number of days with temperatures greater than 90°F will increase from the current five-to-twenty days annually, to thirty-to-sixty days annually.<sup>11</sup> The Project design will include measures to adapt to these conditions, including planting street trees, constructing a high performance building envelope and including operable windows where possible.

### **3.4.3 Rain Events**

As a result of climate change, the Northeast is expected to experience more frequent and intense storms. To mitigate this, the Proponent will take measures to minimize stormwater runoff and protect the Project's mechanical equipment, as necessary. The Project will be designed to reduce the existing peak rates and volumes of stormwater runoff from the site, and promote runoff recharge to the greatest extent practicable. The Project will increase the pervious area on the site from the existing condition, creating infiltration ability on the site.

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<sup>11</sup> IPCC (Intergovernmental Panel on Climate Change), 2007. *Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change* [Solomon, S., D. Qin, M. Manning, Z. Chen, M. Marquis, K. B. Avery, M. Tignor, and H. L. Miller (eds.)]. Cambridge University Press, Cambridge, UK, and New York, 996 pp.

### **3.4.4 Drought Conditions**

Although more intense rain storms are predicted, extended periods of drought are also predicted due to climate change. Under the high emissions scenario, the occurrence of droughts lasting one to three months could go up by as much as 75% over existing conditions by the end of the century. To minimize the Project's susceptibility to drought conditions, the landscape design is anticipated to incorporate native and adaptive plant materials and high efficiency irrigation systems will be installed. Aeration fixtures and appliances will be chosen for water conservation qualities, conserving potable water supplies.

## **3.5 Urban Design**

The building design is influenced by the variety of architecture in the South End neighborhood. From the industrial influences to the south, the scale and design influences from the neighborhood immediately to the north, and the Classical Revival influences throughout Boston, the design acts as a transition while complementing the context (see Figure 3-23). The form of the building is a series of masses: the taller element to the north marks the intersection of Traveler Street and Harrison Avenue, and augments the neighboring developments; to the south, the building steps down to tie into the scale of the group of row houses in the area south of East Berkeley Street.

Stylistically, the building aims to meld the architectural character of the immediate surrounds with a more refined residential feeling typified in the more densely established neighborhoods to the west.

### ***Design Considerations***

The elements that have been considered during the design process include:

- ◆ Proposed Program: mixed use combining retail and residential occupancies, including related amenities such as community gathering spaces, lobby, fitness center, and residential parking;
- ◆ Connectivity: a mid-block connector proposed for the eastern side of the site to break up the larger block to a more pedestrian scale;
- ◆ Open Space: increased public-accessibly open space and refined pedestrian experience; and
- ◆ Architectural Compatibility: visual relationship of the proposed building to other nearby existing developments.



370-380 Harrison Avenue Boston, Massachusetts

### 3.6 Historic and Archaeological Resources

The following section identifies historic and archaeological resources in the vicinity of the Project site. A review was undertaken of the State and National Registers of Historic Places as well as the Inventory of Historic and Archaeological Assets of the Commonwealth (the Inventory) to identify historic resources within the Project's vicinity.

#### ***3.6.1 Historic Resources within the Project Site***

The site contains one and two-story, mid-to-late 20<sup>th</sup> century concrete block buildings and appurtenant storage tanks. A 6,012 sf, single-story structure is located at 370 Harrison Avenue, and a 40,193 sf, two-story building is located at 380 Harrison Avenue. The single-story structure at 370 Harrison Avenue previously housed the Ho Kong Bean Sprout Company, and the two-story structure at 380 Harrison Avenue previously housed the Quinzani Bakery. Both companies closed operations in 2015. The two buildings and supporting structures are vacant and will be removed as part of the Project.

The site is located within the South End Harrison/Albany Protection Area, an area that was established to protect views of the adjacent South End Landmark District, and to ensure that new development or major alterations adjacent to the District are architecturally compatible in massing, setback, and height, and to protect light and air circulation within the District. Building demolitions, the height and setback of new construction, and changes to topography, and landscaping within the Protection Area are subject to review by the South End Landmark District Commission (SELDC).

The property is also located within the South End Industrial Survey Area, a grouping of late nineteenth to early twentieth-century brick industrial buildings with related tenement and worker housing. The South End Industrial Survey Area is included in the Inventory maintained by the Massachusetts Historical Commission (MHC). The area was surveyed by the Boston Landmarks Commission (BLC) in 1997 and was recommended as potentially eligible for listing in the National Register of Historic Places. The buildings at 370-380 Harrison Avenue are not identified as contributing resources to the area.

Neither the South End Harrison/Albany Protection Area nor the South End Industrial Area are listed in the State or National Registers of Historic Places.

#### ***3.6.2 Historic Resources in the Vicinity of the Project Site***

The South End Landmark District and the South End National Register Historic District are located south and west of the Project site. The South End Harrison/Albany Protection Area and the South End Industrial Area have similar boundaries; however, the South End Industrial Area does not extend west of Shawmut Avenue.

Table 3-16 below and Figure 3-24 identify the State and National Register listed properties and historic district located within a quarter mile radius of the Project site.

**Table 3-16 Historic Resources in the Vicinity of the Project Site**

<i>Map</i>	<i>State &amp; National Register-listed Properties &amp; Historic Districts</i>	<i>Address</i>	<i>Designation</i>
1	South End National Register Historic District	Roughly bound by Yarmouth Street, Columbus Avenue, Mass. Turnpike, Berkeley Street, Tremont Street, Dwight Street	National Register Historic District
2	South End Landmark District	Roughly bound by Claremont Street, Camden Street, Harrison Avenue, East Berkeley Street, Mass. Turnpike	Local Historic District, State Register of Historic Places
3	South End Landmark District Protection Area	Roughly bound by Mass. Turnpike, Rt. 93, Washington Street, Malden Street, Harrison Avenue, Albany Street, Camden Street	Protection Area
4	South End Industrial Survey Area	Shawmut Avenue, Herald Street, Albany Street, Union Park Street and Washington Street	Inventory

**3.6.3 Archaeological Resources on the Project Site**

The Project site consists of previously developed urban parcels. No previously identified archaeological resources are located within the Project site. Due to previous development activities and disturbances, including site grading activities, it is not anticipated that the site contains significant previously unidentified archaeological resources. No impacts to archaeological resources are anticipated as a result of the Project.

**3.7 Infrastructure Systems**

The Project will require the utility system service connections listed below. Depending on the building program, there may be more than one connection for these services.

***Domestic Water Service***

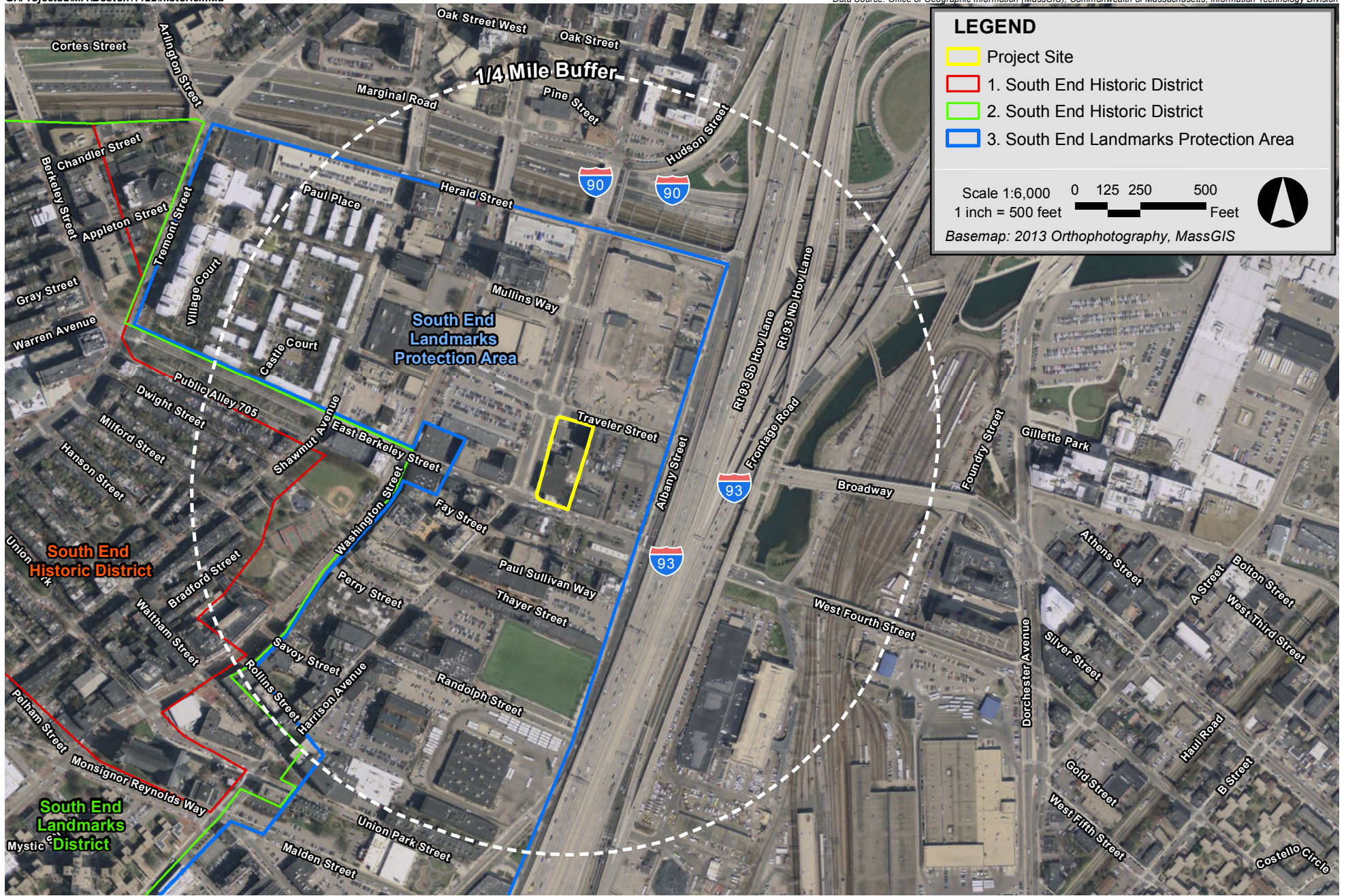
New domestic water services are typically connected to the BWSC Southern Low distribution system, which has a system pressure operating range of 50 to 60 psi. These water mains are available in Traveler Street, Harrison Avenue and East Berkeley Street.

The Project is estimated to require 111,000 gallons per day (gpd) of water.

***Fire Supply Connections***

New fire supply mains are usually connected to the BWSC Southern High distribution system, which has a system pressure operating range of 90 to 100 psi. These higher pressure water mains are available in Traveler Street, Harrison Avenue and Est Berkeley Street.





370-380 Harrison Avenue Boston, Massachusetts



### ***Sanitary Sewer Laterals***

BWSC has sanitary sewer mains in each of the three streets around the Project site. The flow pattern is from Traveler Street to Harrison Avenue to East Berkeley Street, where a 36-inch sanitary sewer connects into the New Albany Street Interceptor at Albany Street and West Fourth Street.

Using 310 CMR 15.00 State Environmental Code - Title 5, the Project is estimated to generate 100,000 gpd of wastewater.

### ***Electrical Service Connections***

Eversource Energy maintains an electrical distribution system network in each of the three streets adjacent to the Project site. The actual power supply cable tie-in points will be determined by Eversource Energy during the design phase.

### ***Communications Service Connections***

Verizon maintains a telecommunications network in each of the three streets surrounding the Project site. The actual cable connections will be determined by Verizon during the design phase.

A cable television system is located in Traveler Street only.

### ***Gas***

Natural gas distribution facilities are available in each of the three streets adjacent to the Project site.

## Chapter 4.0

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### Coordination With Other Governmental Agencies



## **4.0 COORDINATION WITH OTHER GOVERNMENTAL AGENCIES**

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### **4.1 Architectural Access Board Requirements**

The Project will comply with the requirements of the Architectural Access Board and the standards of the Americans with Disabilities Act. The Accessibility Checklist is included in Appendix E.

### **4.2 Massachusetts Environmental Policy Act (MEPA)**

The Proponent is in the process of evaluating whether and to what extent the Project is subject to review in accordance with the requirements of the Massachusetts Environmental Policy Act, MGL c. 30, §§61-62H (MEPA), and the MEPA regulations at 301 CMR 11.00 (the “MEPA Regulations”). MEPA applies to certain actions undertaken and certain permits granted by agencies, departments, boards, commissions, and authorities of the Commonwealth of Massachusetts and other authorities or political subdivisions of the Commonwealth. According to the MEPA Regulations, MEPA review is required if a project exceeds certain thresholds specified in the MEPA Regulations and the project involves a state agency transferring an interest in real property, providing financial assistance or issuing a permit or approval. MEPA review is generally only required if a state agency approval is required and the project exceeds a MEPA threshold. Specifically, pursuant to 301 CMR 11.01(2)(b), the MEPA office only has jurisdiction when “the subject matter of the review threshold is conceptually or physically related to the subject matter of one or more required [permits from a state agency].” Due to the fact that the Proponent may be seeking state or federal sources of funding to enable the Project and that the Project will likely exceed the MEPA review thresholds for transportation (parking and average daily trips) found at 301 CMR 11.03(6), MEPA review may be required. The Proponent will determine the need for MEPA review as the plans for the Project progress.

### **4.3 Massachusetts Historical Commission State Register Review**

The Project will require review by MHC under State Register review regulations (950 CMR 71.00). The Project will commence MHC review through the MEPA process or through the filing of a MHC Project Notification Form in accordance with 950 CMR 71.00 to the extent MEPA review is not required.

### **4.4 South End Landmark District Commission**

The Project site is located within the Protection Area bordering the South End Landmark District. The Proponent will seek SELDC approval for demolition of two buildings on the Project site as part of the Project (e.g., not Demolition Delay under Article 85). The Project will also undergo the appropriate design review for new construction in the Protection Area.

#### 4.5 Other Permits and Approvals

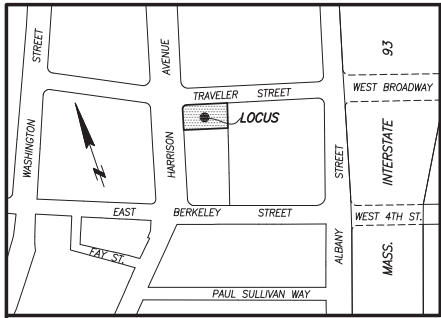
Section 1.7 provides a list of agencies from which it is anticipated that permits and approvals for the Project will be sought.

## Appendix A

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Survey



VICINITY MAP NOT TO SCALE

- LEGEND**
- ⊕ ..... ELECTRIC MANHOLE
  - ⊙ ..... SEWER MANHOLE
  - ⊙ ..... MANHOLE
  - ⊕ ..... TELEPHONE MANHOLE
  - ⊙ ..... MBTA MANHOLE
  - ⊙ ..... STEAM MANHOLE
  - ⊕ ..... CATCH BASIN
  - ⊕ ..... ROUND CATCH BASIN
  - ⊕ ..... WATER SHUT OFF/WATER GATE
  - ⊕ ..... GAS SHUT OFF/GAS GATE
  - ⊕ ..... BOSTON WATER VALVE
  - ⊕ ..... HYDRANT
  - ⊕ ..... FIRE ALARM
  - ⊕ ..... TRAFFIC SIGNAL
  - ⊕ ..... LIGHT POLE
  - ⊕ ..... ELECTRIC HANDHOLE
  - ⊕ ..... BOLLARD
  - ⊕ ..... SIGN
  - ⊕ ..... GATE POST
  - ⊕ ..... OBSERVATION WELL
  - ⊕ ..... DETECTABLE WARNING PAD
  - ⊕ ..... HANDICAP RAMP
  - BC ..... BOTTOM OF CURB
  - CMU ..... CONC. MASONRY UNIT
  - CLF ..... CHAIN LINK FENCE
  - CONC ..... CONCRETE
  - BIT ..... BITUMINOUS
  - COL ..... COLUMN
  - ENT ..... ENTRANCE
  - L= ..... LENGTH
  - N/F ..... NOW OR FORMERLY
  - OHD ..... OVERHEAD DOOR
  - R= ..... RADIUS OR RIM ELEVATION
  - SO. FT. .... SQUARE FEET
  - TBM ..... TEMPORARY BENCH MARK
  - TC ..... TOP OF CURB
  - VGC ..... VERTICAL GRANITE CURB
  - (C) ..... CALCULATED
  - (R) ..... RECORD
  - DSE— ..... DIGSAFE ELECTRIC
  - DSG— ..... DIGSAFE GAS
  - DSST— ..... DIGSAFE STEAM

**PLAN REFERENCES**

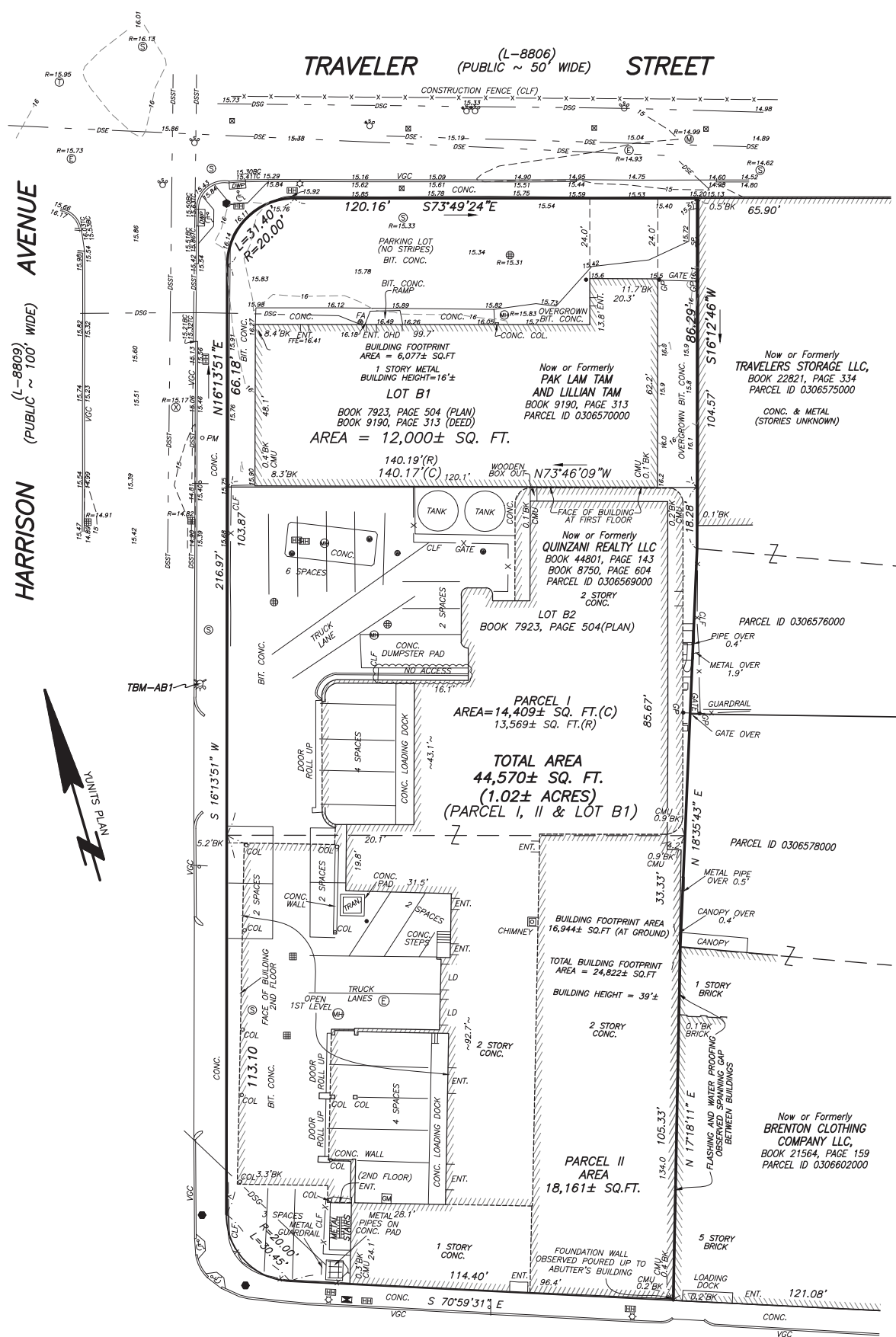
COUNTY REGISTRY OF DEEDS  
 PLAN BOOK 1017 PLAN 263  
 PLAN BOOK 6244 PLAN 567  
 PLAN BOOK 7079 PLAN 503  
 PLAN BOOK 7263 PLAN 345  
 PLAN BOOK 7861 PLAN 84  
 PLAN BOOK 7923 PLAN 504

MASSACHUSETTS LAND COURT  
 LCC 20551A (WITHDRAWN FROM REGISTRATION)

CITY OF BOSTON ENGINEERING DEPARTMENT  
 FIELD BOOK PAGE

PLAN NO. L-150  
 PLAN NO. L-260  
 PLAN NO. L-408  
 PLAN NO. L-625  
 PLAN NO. L-8806  
 PLAN NO. L-8807  
 PLAN NO. L-8809

STREET LINE MAP, SOUTH END PROJECT R-56, BOSTON  
 REDEVELOPMENT AUTHORITY, DATED AUGUST 26, 1968,  
 REVISED OCTOBER 25, 1968.



**EAST BERKELEY STREET**  
 (FORMERLY DOVER STREET)  
 (PUBLIC ~ VARIABLE WIDTH)  
 (L-40B)

**NOTES:**

- 1) BENCH MARK INFORMATION:  
 BENCH MARK USED: RIGHT OUTER CORNER LOWER STONE STEP OF NO. 463 BOYLSTON STREET.  
 ELEVATION = 19.19 (BOSTON CITY BASE).  
 TEMPORARY BENCH MARKS USED (FELDMAN JOB#12985A):  
 TBM-11: X-CUT 2.4' ABOVE GRADE ON LEFT BOLT OVER MAIN OUTLET OF HYDRANT LOCATED AT EASTERLY SIDE OF WASHINGTON STREET.  
 ELEVATION = 19.15  
 TBM-12: X-CUT 2.1' ABOVE GRADE ON LEFT BOLT OVER MAIN OUTLET OF HYDRANT LOCATED AT EASTERLY SIDE OF WASHINGTON STREET.  
 ELEVATION = 18.30  
 TEMPORARY BENCH MARKS SET:  
 TBM-AB1: X-CUT 2.3' ABOVE GRADE ON LEFT BOLT OVER MAIN OUTLET OF HYDRANT LOCATED AT THE EASTERLY SIDE OF HARRISON AVENUE, AS SHOWN HEREON.  
 ELEVATION = 17.98  
 TBM-AB2: X-CUT 2.0' ABOVE GRADE ON LEFT BOLT OVER MAIN OUTLET OF HYDRANT LOCATED AT 350 HARRISON AVENUE.  
 ELEVATION = 18.88
- 2) ELEVATIONS REFER TO BOSTON CITY BASE.
- 3) CONTOUR INTERVAL EQUALS ONE (1) FOOT.

**EXHIBIT PLAN**  
 370 & 380 HARRISON AVENUE  
**BOSTON, MASS.**

FELDMAN LAND SURVEYORS      MARCH 28, 2016  
 112 SHAWMUT AVENUE      PHONE: (617)357-9740  
 BOSTON, MASS. 02118      www.feldmansurveyors.com

**FELDMAN**  
 LAND SURVEYORS

SCALE: 1"=20'

RESEARCH JBD	FIELD CHIEF AB	PROJ MGR DJR	APPROVED	SHEET NO. 1 OF 1
CALC JBD	CADD DCH/MGC	FIELD CHECKED	CRD FILE 14803	JOB NO. 14451A

FILENAME: S:\PROJECTS\14400's\14451\DWG\14451A-EXBT.dwg

**Appendix B**

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Transportation

# TRANSPORTATION TECHNICAL APPENDIX

- TRAFFIC COUNTS
- TRIP GENERATION CALCULATIONS
- INTERSECTION CAPACITY ANALYSIS WORKSHEETS

# TRAFFIC COUNTS





PRECISION  
DATA  
INDUSTRIES, LLC

PRECISION DATA INDUSTRIES, LLC

Office: 508.481.3999 Fax: 508.545.1234

Email: [datarequests@pdillc.com](mailto:datarequests@pdillc.com)

*Traffic Counts with Precision*



Google earth  
©2016 Google

<p><b>Client:</b> Howard Stein/Hudson</p>	<p><b>Engineer:</b> M. Santos</p>	<p><b>Site Code:</b> 15137</p>	<p><b>Date:</b> Wednesday 1/13/16</p>	<p><b>PDI Job Number:</b> 154855</p>	<p><b>City, State:</b> Boston, MA</p>
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PRECISION  
D A T A  
INDUSTRIES, LLC

P.O. Box 301 Berlin, MA 01503  
Office: 508.481.3999 Fax: 508.545.1234  
Email: datarequests@pdillc.com

N/S: Washington Street  
E/W: Herald Street  
City, State: Boston, MA  
Client: Howard Stein-Hudson/ M. Santos

File Name : 154855 A  
Site Code : 15137  
Start Date : 1/13/2016  
Page No : 1

Groups Printed- Cars - Heavy Vehicles

Start Time	Washington Street From North				Herald Street From East				Washington Street From South				Herald Street From West				Int. Total
	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
07:00 AM	0	3	0	0	0	0	0	0	3	85	0	0	0	161	7	0	259
07:15 AM	0	4	0	0	0	0	0	0	9	83	0	0	0	215	4	0	315
07:30 AM	0	4	1	0	0	0	0	0	11	127	0	0	0	270	20	0	433
07:45 AM	0	4	0	0	0	0	0	0	14	118	0	0	0	244	18	0	398
Total	0	15	1	0	0	0	0	0	37	413	0	0	0	890	49	0	1405
08:00 AM	0	5	0	0	0	0	0	0	10	136	0	0	0	277	24	0	452
08:15 AM	0	3	0	0	0	0	0	0	13	147	0	0	0	249	19	0	431
08:30 AM	0	5	0	0	0	0	0	0	15	189	0	0	0	287	24	0	520
08:45 AM	0	5	1	0	0	0	0	0	21	164	0	0	0	232	17	0	440
Total	0	18	1	0	0	0	0	0	59	636	0	0	0	1045	84	0	1843
Grand Total	0	33	2	0	0	0	0	0	96	1049	0	0	0	1935	133	0	3248
Apprch %	0	94.3	5.7	0	0	0	0	0	8.4	91.6	0	0	0	93.6	6.4	0	
Total %	0	1	0.1	0	0	0	0	0	3	32.3	0	0	0	59.6	4.1	0	
Cars	0	2	2	0	0	0	0	0	91	935	0	0	0	1832	130	0	2992
% Cars	0	6.1	100	0	0	0	0	0	94.8	89.1	0	0	0	94.7	97.7	0	92.1
Heavy Vehicles	0	31	0	0	0	0	0	0	5	114	0	0	0	103	3	0	256
% Heavy Vehicles	0	93.9	0	0	0	0	0	0	5.2	10.9	0	0	0	5.3	2.3	0	7.9

Start Time	Washington Street From North					Herald Street From East					Washington Street From South					Herald Street From West					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	0	5	0	0	5	0	0	0	0	0	10	136	0	0	146	0	277	24	0	301	452
08:15 AM	0	3	0	0	3	0	0	0	0	0	13	147	0	0	160	0	249	19	0	268	431
08:30 AM	0	5	0	0	5	0	0	0	0	0	15	189	0	0	204	0	287	24	0	311	520
08:45 AM	0	5	1	0	6	0	0	0	0	0	21	164	0	0	185	0	232	17	0	249	440
Total Volume	0	18	1	0	19	0	0	0	0	0	59	636	0	0	695	0	1045	84	0	1129	1843
% App. Total																					
PHF	.000	.900	.250	.000	.792	.000	.000	.000	.000	.000	.702	.841	.000	.000	.852	.000	.910	.875	.000	.908	.886
Cars	0	2	1	0	3	0	0	0	0	0	55	575	0	0	630	0	992	82	0	1074	1707
% Cars	0	11.1	100	0	15.8	0	0	0	0	0	93.2	90.4	0	0	90.6	0	94.9	97.6	0	95.1	92.6
Heavy Vehicles	0	16	0	0	16	0	0	0	0	0	4	61	0	0	65	0	53	2	0	55	136
% Heavy Vehicles	0	88.9	0	0	84.2	0	0	0	0	0	6.8	9.6	0	0	9.4	0	5.1	2.4	0	4.9	7.4



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N/S: Washington Street  
E/W: Herald Street  
City, State: Boston, MA  
Client: Howard Stein-Hudson/ M. Santos

File Name : 154855 A  
Site Code : 15137  
Start Date : 1/13/2016  
Page No : 1

Groups Printed- Cars

Start Time	Washington Street From North				Herald Street From East				Washington Street From South				Herald Street From West				Int. Total
	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
07:00 AM	0	0	0	0	0	0	0	0	3	74	0	0	0	151	7	0	235
07:15 AM	0	0	0	0	0	0	0	0	9	69	0	0	0	200	4	0	282
07:30 AM	0	0	1	0	0	0	0	0	11	112	0	0	0	260	20	0	404
07:45 AM	0	0	0	0	0	0	0	0	13	105	0	0	0	229	17	0	364
Total	0	0	1	0	0	0	0	0	36	360	0	0	0	840	48	0	1285
08:00 AM	0	0	0	0	0	0	0	0	10	119	0	0	0	264	23	0	416
08:15 AM	0	1	0	0	0	0	0	0	12	134	0	0	0	235	19	0	401
08:30 AM	0	1	0	0	0	0	0	0	15	167	0	0	0	273	23	0	479
08:45 AM	0	0	1	0	0	0	0	0	18	155	0	0	0	220	17	0	411
Total	0	2	1	0	0	0	0	0	55	575	0	0	0	992	82	0	1707
Grand Total	0	2	2	0	0	0	0	0	91	935	0	0	0	1832	130	0	2992
Apprch %	0	50	50	0	0	0	0	0	8.9	91.1	0	0	0	93.4	6.6	0	
Total %	0	0.1	0.1	0	0	0	0	0	3	31.2	0	0	0	61.2	4.3	0	

Start Time	Washington Street From North					Herald Street From East					Washington Street From South					Herald Street From West					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	0	0	0	0	0	0	0	0	0	0	10	119	0	0	129	0	264	23	0	287	416
08:15 AM	0	1	0	0	1	0	0	0	0	0	12	134	0	0	146	0	235	19	0	254	401
08:30 AM	0	1	0	0	1	0	0	0	0	0	15	167	0	0	182	0	273	23	0	296	479
08:45 AM	0	0	1	0	1	0	0	0	0	0	18	155	0	0	173	0	220	17	0	237	411
Total Volume	0	2	1	0	3	0	0	0	0	0	55	575	0	0	630	0	992	82	0	1074	1707
% App. Total	0	66.7	33.3	0		0	0	0	0		8.7	91.3	0	0		0	92.4	7.6	0		
PHF	.000	.500	.250	.000	.750	.000	.000	.000	.000	.000	.764	.861	.000	.000	.865	.000	.908	.891	.000	.907	.891



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City, State: Boston, MA  
Client: Howard Stein-Hudson/ M. Santos

File Name : 154855 A  
Site Code : 15137  
Start Date : 1/13/2016  
Page No : 1

Groups Printed- Heavy Vehicles

Start Time	Washington Street From North				Herald Street From East				Washington Street From South				Herald Street From West				Int. Total
	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
07:00 AM	0	3	0	0	0	0	0	0	0	11	0	0	0	10	0	0	24
07:15 AM	0	4	0	0	0	0	0	0	0	14	0	0	0	15	0	0	33
07:30 AM	0	4	0	0	0	0	0	0	0	15	0	0	0	10	0	0	29
07:45 AM	0	4	0	0	0	0	0	0	1	13	0	0	0	15	1	0	34
Total	0	15	0	0	0	0	0	0	1	53	0	0	0	50	1	0	120
08:00 AM	0	5	0	0	0	0	0	0	0	17	0	0	0	13	1	0	36
08:15 AM	0	2	0	0	0	0	0	0	1	13	0	0	0	14	0	0	30
08:30 AM	0	4	0	0	0	0	0	0	0	22	0	0	0	14	1	0	41
08:45 AM	0	5	0	0	0	0	0	0	3	9	0	0	0	12	0	0	29
Total	0	16	0	0	0	0	0	0	4	61	0	0	0	53	2	0	136
Grand Total	0	31	0	0	0	0	0	0	5	114	0	0	0	103	3	0	256
Apprch %	0	100	0	0	0	0	0	0	4.2	95.8	0	0	0	97.2	2.8	0	
Total %	0	12.1	0	0	0	0	0	0	2	44.5	0	0	0	40.2	1.2	0	

Start Time	Washington Street From North					Herald Street From East					Washington Street From South					Herald Street From West					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	0	4	0	0	4	0	0	0	0	0	1	13	0	0	14	0	15	1	0	16	34
08:00 AM	0	5	0	0	5	0	0	0	0	0	0	17	0	0	17	0	13	1	0	14	36
08:15 AM	0	2	0	0	2	0	0	0	0	0	1	13	0	0	14	0	14	0	0	14	30
08:30 AM	0	4	0	0	4	0	0	0	0	0	0	22	0	0	22	0	14	1	0	15	41
Total Volume	0	15	0	0	15	0	0	0	0	0	2	65	0	0	67	0	56	3	0	59	141
% App. Total	0	100	0	0		0	0	0	0		3	97	0	0		0	94.9	5.1	0		
PHF	.000	.750	.000	.000	.750	.000	.000	.000	.000	.000	.500	.739	.000	.000	.761	.000	.933	.750	.000	.922	.860



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City, State: Boston, MA  
Client: Howard Stein-Hudson/ M. Santos

File Name : 154855 A  
Site Code : 15137  
Start Date : 1/13/2016  
Page No : 1

Groups Printed- Peds and Bikes

Start Time	Washington Street From North					Herald Street From East					Washington Street From South					Herald Street From West					Int. Total
	Right	Thru	Left	Peds EB	Peds WB	Right	Thru	Left	Peds SB	Peds NB	Right	Thru	Left	Peds WB	Peds EB	Right	Thru	Left	Peds NB	Peds SB	
07:00 AM	0	2	0	1	0	0	0	0	8	6	0	1	0	0	1	0	1	0	3	2	25
07:15 AM	0	0	0	1	0	0	0	0	10	10	0	2	0	1	0	0	0	0	3	6	33
07:30 AM	0	0	0	0	1	0	0	0	7	6	0	1	0	4	1	0	0	0	4	9	33
07:45 AM	0	0	0	1	3	0	0	0	22	8	0	1	0	3	2	0	2	0	15	9	66
Total	0	2	0	3	4	0	0	0	47	30	0	5	0	8	4	0	3	0	25	26	157
08:00 AM	0	0	0	1	0	0	0	0	19	19	0	5	0	7	9	0	0	0	13	15	88
08:15 AM	0	0	0	0	1	0	0	0	18	20	0	2	0	3	5	0	2	0	20	22	93
08:30 AM	0	0	0	4	2	0	0	0	13	26	0	2	0	7	6	0	1	0	13	33	107
08:45 AM	0	0	0	2	1	0	0	0	20	17	0	8	0	1	12	0	1	1	14	20	97
Total	0	0	0	7	4	0	0	0	70	82	0	17	0	18	32	0	4	1	60	90	385
Grand Total	0	2	0	10	8	0	0	0	117	112	0	22	0	26	36	0	7	1	85	116	542
Apprch %	0	10	0	50	40	0	0	0	51.1	48.9	0	26.2	0	31	42.9	0	3.3	0.5	40.7	55.5	
Total %	0	0.4	0	1.8	1.5	0	0	0	21.6	20.7	0	4.1	0	4.8	6.6	0	1.3	0.2	15.7	21.4	

Start Time	Washington Street From North						Herald Street From East						Washington Street From South						Herald Street From West						Int. Total
	Right	Thru	Left	Peds EB	Peds WB	App. Total	Right	Thru	Left	Peds SB	Peds NB	App. Total	Right	Thru	Left	Peds WB	Peds EB	App. Total	Right	Thru	Left	Peds NB	Peds SB	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																									
Peak Hour for Entire Intersection Begins at 08:00 AM																									
08:00 AM	0	0	0	1	0	1	0	0	0	19	19	38	0	5	0	7	9	21	0	0	0	13	15	28	88
08:15 AM	0	0	0	0	1	1	0	0	0	18	20	38	0	2	0	3	5	10	0	2	0	20	22	44	93
08:30 AM	0	0	0	4	2	6	0	0	0	13	26	39	0	2	0	7	6	15	0	1	0	13	33	47	107
08:45 AM	0	0	0	2	1	3	0	0	0	20	17	37	0	8	0	1	12	21	0	1	1	14	20	36	97
Total Volume	0	0	0	7	4	11	0	0	0	70	82	152	0	17	0	18	32	67	0	4	1	60	90	155	385
% App. Total	0	0	0	63.6	36.4		0	0	0	46.1	53.9		0	25.4	0	26.9	47.8		0	2.6	0.6	38.7	58.1		
PHF	.000	.000	.000	.438	.500	.458	.000	.000	.000	.875	.788	.974	.000	.531	.000	.643	.667	.798	.000	.500	.250	.750	.682	.824	.900



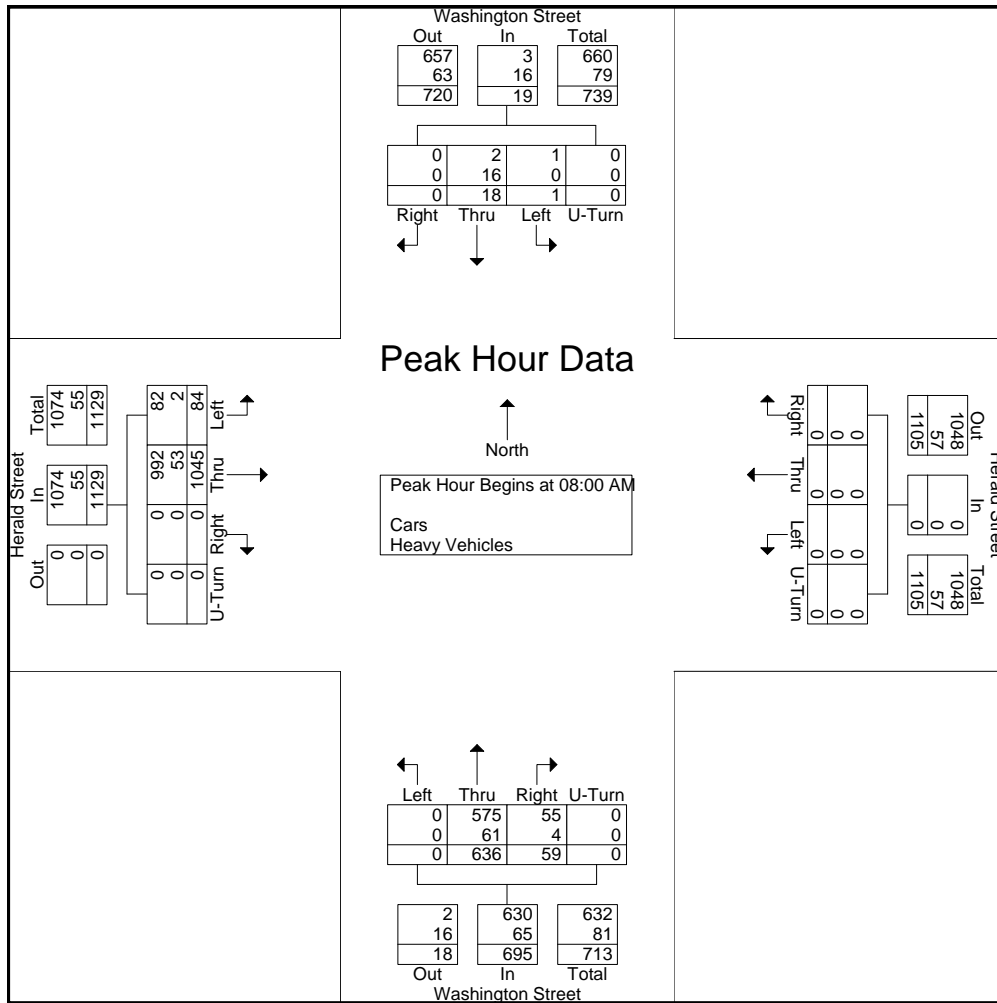
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Page No : 1

Start Time	Washington Street From North					Herald Street From East					Washington Street From South					Herald Street From West					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	0	5	0	0	5	0	0	0	0	0	10	136	0	0	146	0	277	24	0	301	452
08:15 AM	0	3	0	0	3	0	0	0	0	0	13	147	0	0	160	0	249	19	0	268	431
08:30 AM	0	5	0	0	5	0	0	0	0	0	15	189	0	0	204	0	287	24	0	311	520
08:45 AM	0	5	1	0	6	0	0	0	0	0	21	164	0	0	185	0	232	17	0	249	440
Total Volume	0	18	1	0	19	0	0	0	0	0	59	636	0	0	695	0	1045	84	0	1129	1843
% App. Total																					
PHF	.000	.900	.250	.000	.792	.000	.000	.000	.000	.000	.702	.841	.000	.000	.852	.000	.910	.875	.000	.908	.886
Cars	0	2	1	0	3	0	0	0	0	0	55	575	0	0	630	0	992	82	0	1074	1707
% Cars	0	11.1	100	0	15.8	0	0	0	0	0	93.2	90.4	0	0	90.6	0	94.9	97.6	0	95.1	92.6
Heavy Vehicles	0	16	0	0	16	0	0	0	0	0	4	61	0	0	65	0	53	2	0	55	136
% Heavy Vehicles	0	88.9	0	0	84.2	0	0	0	0	0	6.8	9.6	0	0	9.4	0	5.1	2.4	0	4.9	7.4





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File Name : 154855 AA  
Site Code : 15137  
Start Date : 1/13/2016  
Page No : 1

Groups Printed- Cars - Heavy Vehicles

Start Time	Washington Street From North				Herald Street From East				Washington Street From South				Herald Street From West				Int. Total
	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
04:00 PM	0	1	0	0	0	0	0	0	18	82	0	0	0	292	16	0	409
04:15 PM	0	3	2	0	0	0	0	0	13	106	0	0	0	303	17	0	444
04:30 PM	0	4	2	0	0	0	0	0	27	107	0	0	0	295	20	0	455
04:45 PM	0	4	0	0	0	0	0	0	25	128	0	0	0	328	20	0	505
Total	0	12	4	0	0	0	0	0	83	423	0	0	0	1218	73	0	1813
05:00 PM	0	4	0	0	0	0	0	0	28	111	0	1	0	321	23	0	488
05:15 PM	0	3	0	0	0	0	0	0	22	119	0	0	0	346	25	0	515
05:30 PM	0	4	0	0	0	0	0	0	22	113	0	0	2	319	23	0	483
05:45 PM	0	4	2	0	0	0	0	0	12	113	0	0	0	315	14	0	460
Total	0	15	2	0	0	0	0	0	84	456	0	1	2	1301	85	0	1946
Grand Total	0	27	6	0	0	0	0	0	167	879	0	1	2	2519	158	0	3759
Apprch %	0	81.8	18.2	0	0	0	0	0	16	84	0	0.1	0.1	94	5.9	0	
Total %	0	0.7	0.2	0	0	0	0	0	4.4	23.4	0	0	0.1	67	4.2	0	
Cars	0	2	5	0	0	0	0	0	166	802	0	1	2	2467	155	0	3600
% Cars	0	7.4	83.3	0	0	0	0	0	99.4	91.2	0	100	100	97.9	98.1	0	95.8
Heavy Vehicles	0	25	1	0	0	0	0	0	1	77	0	0	0	52	3	0	159
% Heavy Vehicles	0	92.6	16.7	0	0	0	0	0	0.6	8.8	0	0	0	2.1	1.9	0	4.2

Start Time	Washington Street From North					Herald Street From East					Washington Street From South					Herald Street From West					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	0	4	0	0	4	0	0	0	0	0	25	128	0	0	153	0	328	20	0	348	505
05:00 PM	0	4	0	0	4	0	0	0	0	0	28	111	0	1	140	0	321	23	0	344	488
05:15 PM	0	3	0	0	3	0	0	0	0	0	22	119	0	0	141	0	346	25	0	371	515
05:30 PM	0	4	0	0	4	0	0	0	0	0	22	113	0	0	135	2	319	23	0	344	483
Total Volume	0	15	0	0	15	0	0	0	0	0	97	471	0	1	569	2	1314	91	0	1407	1991
% App. Total	.000	.938	.000	.000	.938	.000	.000	.000	.000	.000	.866	.920	.000	.250	.930	.250	.949	.910	.000	.948	.967
Cars	0	2	0	0	2	0	0	0	0	0	96	428	0	1	525	2	1290	89	0	1381	1908
% Cars	0	13.3	0	0	13.3	0	0	0	0	0	99.0	90.9	0	100	92.3	100	98.2	97.8	0	98.2	95.8
Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	1	43	0	0	34	0	129	2	0	163	83
% Heavy Vehicles	0	86.7	0	0	86.7	0	0	0	0	0	1.0	9.1	0	0	7.7	0	1.8	2.2	0	1.8	4.2



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Start Date : 1/13/2016  
Page No : 1

Groups Printed- Cars

Start Time	Washington Street From North				Herald Street From East				Washington Street From South				Herald Street From West				Int. Total
	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
04:00 PM	0	0	0	0	0	0	0	0	18	74	0	0	0	284	15	0	391
04:15 PM	0	0	1	0	0	0	0	0	13	94	0	0	0	295	17	0	420
04:30 PM	0	0	2	0	0	0	0	0	27	101	0	0	0	287	20	0	437
04:45 PM	0	1	0	0	0	0	0	0	25	119	0	0	0	319	20	0	484
Total	0	1	3	0	0	0	0	0	83	388	0	0	0	1185	72	0	1732
05:00 PM	0	0	0	0	0	0	0	0	27	98	0	1	0	319	23	0	468
05:15 PM	0	0	0	0	0	0	0	0	22	109	0	0	0	341	25	0	497
05:30 PM	0	1	0	0	0	0	0	0	22	102	0	0	2	311	21	0	459
05:45 PM	0	0	2	0	0	0	0	0	12	105	0	0	0	311	14	0	444
Total	0	1	2	0	0	0	0	0	83	414	0	1	2	1282	83	0	1868
Grand Total	0	2	5	0	0	0	0	0	166	802	0	1	2	2467	155	0	3600
Apprch %	0	28.6	71.4	0	0	0	0	0	17.1	82.8	0	0.1	0.1	94	5.9	0	
Total %	0	0.1	0.1	0	0	0	0	0	4.6	22.3	0	0	0.1	68.5	4.3	0	

Start Time	Washington Street From North					Herald Street From East					Washington Street From South					Herald Street From West					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	0	1	0	0	1	0	0	0	0	0	25	119	0	0	144	0	319	20	0	339	484
05:00 PM	0	0	0	0	0	0	0	0	0	0	27	98	0	1	126	0	319	23	0	342	468
05:15 PM	0	0	0	0	0	0	0	0	0	0	22	109	0	0	131	0	341	25	0	366	497
05:30 PM	0	1	0	0	1	0	0	0	0	0	22	102	0	0	124	2	311	21	0	334	459
Total Volume	0	2	0	0	2	0	0	0	0	0	96	428	0	1	525	2	1290	89	0	1381	1908
% App. Total																					
PHF	.000	.500	.000	.000	.500	.000	.000	.000	.000	.000	.889	.899	.000	.250	.911	.250	.946	.890	.000	.943	.960



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N/S: Washington Street  
E/W: Herald Street  
City, State: Boston, MA  
Client: Howard Stein-Hudson/ M. Santos

File Name : 154855 AA  
Site Code : 15137  
Start Date : 1/13/2016  
Page No : 1

Groups Printed- Heavy Vehicles

Start Time	Washington Street From North				Herald Street From East				Washington Street From South				Herald Street From West				Int. Total
	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
04:00 PM	0	1	0	0	0	0	0	0	0	8	0	0	0	8	1	0	18
04:15 PM	0	3	1	0	0	0	0	0	0	12	0	0	0	8	0	0	24
04:30 PM	0	4	0	0	0	0	0	0	0	6	0	0	0	8	0	0	18
04:45 PM	0	3	0	0	0	0	0	0	0	9	0	0	0	9	0	0	21
Total	0	11	1	0	0	0	0	0	0	35	0	0	0	33	1	0	81
05:00 PM	0	4	0	0	0	0	0	0	1	13	0	0	0	2	0	0	20
05:15 PM	0	3	0	0	0	0	0	0	0	10	0	0	0	5	0	0	18
05:30 PM	0	3	0	0	0	0	0	0	0	11	0	0	0	8	2	0	24
05:45 PM	0	4	0	0	0	0	0	0	0	8	0	0	0	4	0	0	16
Total	0	14	0	0	0	0	0	0	1	42	0	0	0	19	2	0	78
Grand Total	0	25	1	0	0	0	0	0	1	77	0	0	0	52	3	0	159
Apprch %	0	96.2	3.8	0	0	0	0	0	1.3	98.7	0	0	0	94.5	5.5	0	
Total %	0	15.7	0.6	0	0	0	0	0	0.6	48.4	0	0	0	32.7	1.9	0	

Start Time	Washington Street From North					Herald Street From East					Washington Street From South					Herald Street From West					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:15 PM																					
04:15 PM	0	3	1	0	4	0	0	0	0	0	0	12	0	0	12	0	8	0	0	8	24
04:30 PM	0	4	0	0	4	0	0	0	0	0	0	6	0	0	6	0	8	0	0	8	18
04:45 PM	0	3	0	0	3	0	0	0	0	0	0	9	0	0	9	0	9	0	0	9	21
05:00 PM	0	4	0	0	4	0	0	0	0	0	1	13	0	0	14	0	2	0	0	2	20
Total Volume	0	14	1	0	15	0	0	0	0	0	1	40	0	0	41	0	27	0	0	27	83
% App. Total	0	93.3	6.7	0		0	0	0	0		2.4	97.6	0	0		0	100	0	0		
PHF	.000	.875	.250	.000	.938	.000	.000	.000	.000	.000	.250	.769	.000	.000	.732	.000	.750	.000	.000	.750	.865





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City, State: Boston, MA  
Client: Howard Stein-Hudson/ M. Santos

File Name : 154855 AA  
Site Code : 15137  
Start Date : 1/13/2016  
Page No : 1

Groups Printed- Peds and Bikes

Start Time	Washington Street From North					Herald Street From East					Washington Street From South					Herald Street From West					Int. Total
	Right	Thru	Left	Peds EB	Peds WB	Right	Thru	Left	Peds SB	Peds NB	Right	Thru	Left	Peds WB	Peds EB	Right	Thru	Left	Peds NB	Peds SB	
04:00 PM	0	0	0	1	7	0	0	0	13	15	0	0	0	5	4	0	0	0	16	18	79
04:15 PM	0	1	0	3	4	0	0	0	13	19	0	0	0	4	6	0	1	0	16	25	92
04:30 PM	0	0	0	0	1	0	0	0	20	15	0	0	0	4	5	0	0	0	29	15	89
04:45 PM	0	0	0	1	3	0	0	0	14	28	0	2	0	9	3	0	1	0	17	17	95
Total	0	1	0	5	15	0	0	0	60	77	0	2	0	22	18	0	2	0	78	75	355
05:00 PM	0	2	0	0	1	0	0	0	8	19	0	0	0	16	7	0	0	0	30	26	109
05:15 PM	0	0	0	2	2	0	0	0	19	14	0	1	0	16	9	0	0	0	36	30	129
05:30 PM	0	1	0	0	2	0	0	0	14	9	0	0	0	12	4	0	1	0	26	34	103
05:45 PM	0	1	0	1	6	0	0	0	8	10	0	2	0	8	7	0	2	0	10	26	81
Total	0	4	0	3	11	0	0	0	49	52	0	3	0	52	27	0	3	0	102	116	422
Grand Total	0	5	0	8	26	0	0	0	109	129	0	5	0	74	45	0	5	0	180	191	777
Apprch %	0	12.8	0	20.5	66.7	0	0	0	45.8	54.2	0	4	0	59.7	36.3	0	1.3	0	47.9	50.8	
Total %	0	0.6	0	1	3.3	0	0	0	14	16.6	0	0.6	0	9.5	5.8	0	0.6	0	23.2	24.6	

Start Time	Washington Street From North						Herald Street From East						Washington Street From South						Herald Street From West						Int. Total
	Right	Thru	Left	Peds EB	Peds WB	App. Total	Right	Thru	Left	Peds SB	Peds NB	App. Total	Right	Thru	Left	Peds WB	Peds EB	App. Total	Right	Thru	Left	Peds NB	Peds SB	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																									
Peak Hour for Entire Intersection Begins at 04:45 PM																									
04:45 PM	0	0	0	1	3	4	0	0	0	14	28	42	0	2	0	9	3	14	0	1	0	17	17	35	95
05:00 PM	0	2	0	0	1	3	0	0	0	8	19	27	0	0	0	16	7	23	0	0	0	30	26	56	109
05:15 PM	0	0	0	2	2	4	0	0	0	19	14	33	0	1	0	16	9	26	0	0	0	36	30	66	129
05:30 PM	0	1	0	0	2	3	0	0	0	14	9	23	0	0	0	12	4	16	0	1	0	26	34	61	103
Total Volume	0	3	0	3	8	14	0	0	0	55	70	125	0	3	0	53	23	79	0	2	0	109	107	218	436
% App. Total	0	21.4	0	21.4	57.1	0	0	0	44	56	0	3.8	0	67.1	29.1	0	0.9	0	50	49.1					
PHF	.000	.375	.000	.375	.667	.875	.000	.000	.000	.724	.625	.744	.000	.375	.000	.828	.639	.760	.000	.500	.000	.757	.787	.826	.845



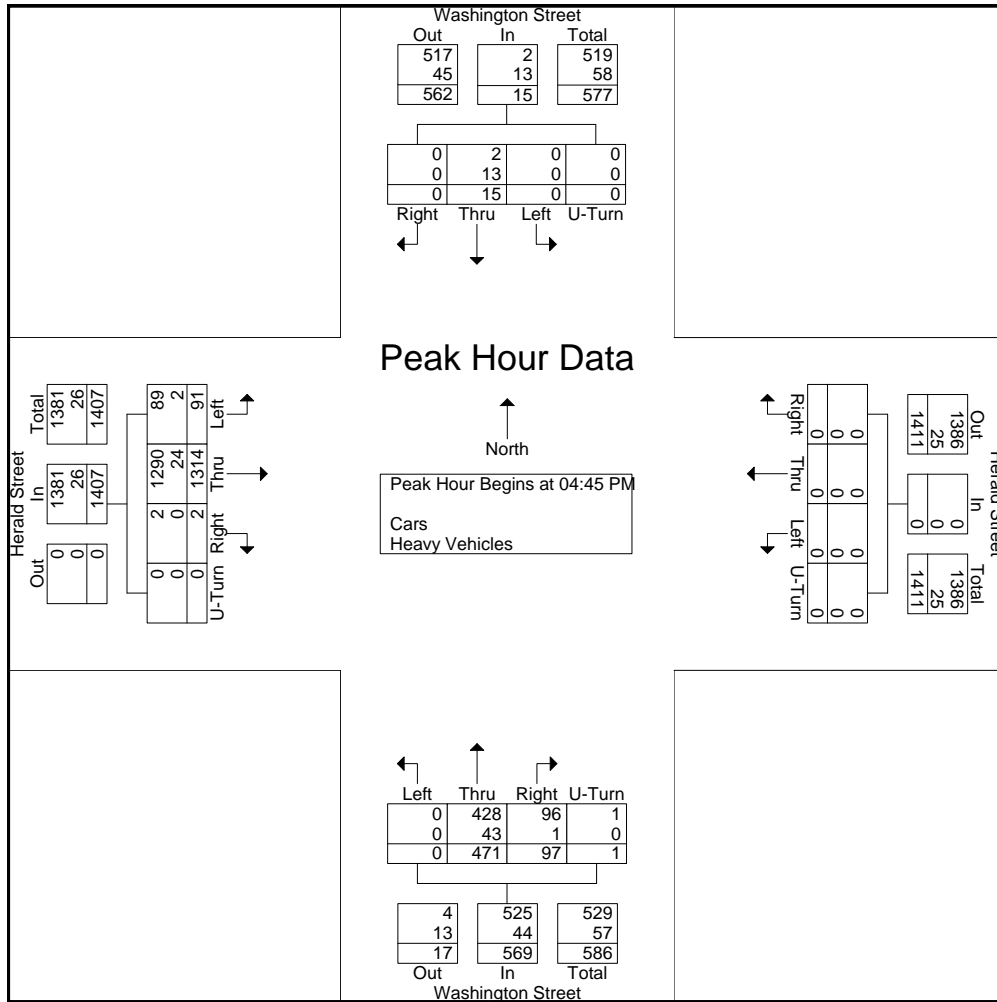
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File Name : 154855 AA  
Site Code : 15137  
Start Date : 1/13/2016  
Page No : 1

Start Time	Washington Street From North					Herald Street From East					Washington Street From South					Herald Street From West					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	0	4	0	0	4	0	0	0	0	0	25	128	0	0	153	0	328	20	0	348	505
05:00 PM	0	4	0	0	4	0	0	0	0	0	28	111	0	1	140	0	321	23	0	344	488
05:15 PM	0	3	0	0	3	0	0	0	0	0	22	119	0	0	141	0	346	25	0	371	515
05:30 PM	0	4	0	0	4	0	0	0	0	0	22	113	0	0	135	2	319	23	0	344	483
Total Volume	0	15	0	0	15	0	0	0	0	0	97	471	0	1	569	2	1314	91	0	1407	1991
% App. Total																					
PHF	.000	.938	.000	.000	.938	.000	.000	.000	.000	.000	.866	.920	.000	.250	.930	.250	.949	.910	.000	.948	.967
Cars	0	2	0	0	2	0	0	0	0	0	96	428	0	1	525	2	1290	89	0	1381	1908
% Cars	0	13.3	0	0	13.3	0	0	0	0	0	99.0	90.9	0	100	92.3	100	98.2	97.8	0	98.2	95.8
Heavy Vehicles																					
% Heavy Vehicles	0	86.7	0	0	86.7	0	0	0	0	0	1.0	9.1	0	0	7.7	0	1.8	2.2	0	1.8	4.2





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City, State: Boston, MA  
Client: Howard Stein-Hudson/ M. Santos

File Name : 154855 B  
Site Code : 15137  
Start Date : 1/13/2016  
Page No : 1

Groups Printed- Cars - Heavy Vehicles

Start Time	Harrison Street From North				Herald Street From East				Harrison Street From South				Herald Street From West				Int. Total
	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
07:00 AM	0	27	12	0	0	0	0	0	15	0	0	1	20	146	0	0	221
07:15 AM	0	20	23	0	0	0	0	0	13	0	0	1	28	195	0	0	280
07:30 AM	0	31	32	0	0	0	0	0	16	0	0	2	40	241	0	0	362
07:45 AM	0	30	25	0	0	0	0	0	13	0	0	0	49	216	0	0	333
Total	0	108	92	0	0	0	0	0	57	0	0	4	137	798	0	0	1196
08:00 AM	0	35	26	0	0	0	0	0	16	0	0	5	46	242	0	0	370
08:15 AM	0	34	24	0	0	0	0	0	22	0	0	4	45	223	0	0	352
08:30 AM	0	31	30	0	0	0	0	0	13	0	0	1	51	251	0	0	377
08:45 AM	0	30	27	0	0	0	0	0	14	0	0	4	46	209	0	0	330
Total	0	130	107	0	0	0	0	0	65	0	0	14	188	925	0	0	1429
Grand Total	0	238	199	0	0	0	0	0	122	0	0	18	325	1723	0	0	2625
Apprch %	0	54.5	45.5	0	0	0	0	0	87.1	0	0	12.9	15.9	84.1	0	0	
Total %	0	9.1	7.6	0	0	0	0	0	4.6	0	0	0.7	12.4	65.6	0	0	
Cars	0	201	182	0	0	0	0	0	112	0	0	18	308	1627	0	0	2448
% Cars	0	84.5	91.5	0	0	0	0	0	91.8	0	0	100	94.8	94.4	0	0	93.3
Heavy Vehicles	0	37	17	0	0	0	0	0	10	0	0	0	17	96	0	0	177
% Heavy Vehicles	0	15.5	8.5	0	0	0	0	0	8.2	0	0	0	5.2	5.6	0	0	6.7

Start Time	Harrison Street From North					Herald Street From East					Harrison Street From South					Herald Street From West					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	0	30	25	0	55	0	0	0	0	0	13	0	0	0	13	49	216	0	0	265	333
08:00 AM	0	35	26	0	61	0	0	0	0	0	16	0	0	5	21	46	242	0	0	288	370
08:15 AM	0	34	24	0	58	0	0	0	0	0	22	0	0	4	26	45	223	0	0	268	352
08:30 AM	0	31	30	0	61	0	0	0	0	0	13	0	0	1	14	51	251	0	0	302	377
Total Volume	0	130	105	0	235	0	0	0	0	0	64	0	0	10	74	191	932	0	0	1123	1432
% App. Total	0	55.3	44.7	0		0	0	0	0	0	86.5	0	0	13.5		17	83	0	0		
PHF	.000	.929	.875	.000	.963	.000	.000	.000	.000	.000	.727	.000	.000	.500	.712	.936	.928	.000	.000	.930	.950
Cars	0	114	97	0	211	0	0	0	0	0	56	0	0	10	66	184	879	0	0	1063	1340
% Cars	0	87.7	92.4	0	89.8	0	0	0	0	0	87.5	0	0	100	89.2	96.3	94.3	0	0	94.7	93.6
Heavy Vehicles	0	16	8	0	24	0	0	0	0	0	8	0	0	0	8	7	53	0	0	60	92
% Heavy Vehicles	0	12.3	7.6	0	10.2	0	0	0	0	0	12.5	0	0	0	10.8	3.7	5.7	0	0	5.3	6.4



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City, State: Boston, MA  
Client: Howard Stein-Hudson/ M. Santos

File Name : 154855 B  
Site Code : 15137  
Start Date : 1/13/2016  
Page No : 1

Groups Printed- Cars

Start Time	Harrison Street From North				Herald Street From East				Harrison Street From South				Herald Street From West				Int. Total
	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
07:00 AM	0	22	11	0	0	0	0	0	15	0	0	1	18	138	0	0	205
07:15 AM	0	16	21	0	0	0	0	0	13	0	0	1	25	183	0	0	259
07:30 AM	0	24	31	0	0	0	0	0	15	0	0	2	36	233	0	0	341
07:45 AM	0	24	24	0	0	0	0	0	11	0	0	0	47	202	0	0	308
Total	0	86	87	0	0	0	0	0	54	0	0	4	126	756	0	0	1113
08:00 AM	0	32	20	0	0	0	0	0	14	0	0	5	45	231	0	0	347
08:15 AM	0	31	23	0	0	0	0	0	18	0	0	4	44	208	0	0	328
08:30 AM	0	27	30	0	0	0	0	0	13	0	0	1	48	238	0	0	357
08:45 AM	0	25	22	0	0	0	0	0	13	0	0	4	45	194	0	0	303
Total	0	115	95	0	0	0	0	0	58	0	0	14	182	871	0	0	1335
Grand Total	0	201	182	0	0	0	0	0	112	0	0	18	308	1627	0	0	2448
Apprch %	0	52.5	47.5	0	0	0	0	0	86.2	0	0	13.8	15.9	84.1	0	0	
Total %	0	8.2	7.4	0	0	0	0	0	4.6	0	0	0.7	12.6	66.5	0	0	

Start Time	Harrison Street From North					Herald Street From East					Harrison Street From South					Herald Street From West					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	0	24	24	0	48	0	0	0	0	0	11	0	0	0	11	47	202	0	0	249	308
08:00 AM	0	32	20	0	52	0	0	0	0	0	14	0	0	5	19	45	231	0	0	276	347
08:15 AM	0	31	23	0	54	0	0	0	0	0	18	0	0	4	22	44	208	0	0	252	328
08:30 AM	0	27	30	0	57	0	0	0	0	0	13	0	0	1	14	48	238	0	0	286	357
Total Volume	0	114	97	0	211	0	0	0	0	0	56	0	0	10	66	184	879	0	0	1063	1340
% App. Total	0	54	46	0		0	0	0	0		84.8	0	0	15.2		17.3	82.7	0	0		
PHF	.000	.891	.808	.000	.925	.000	.000	.000	.000	.000	.778	.000	.000	.500	.750	.958	.923	.000	.000	.929	.938



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Page No : 1

Groups Printed- Heavy Vehicles

Start Time	Harrison Street From North				Herald Street From East				Harrison Street From South				Herald Street From West				Int. Total
	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
07:00 AM	0	5	1	0	0	0	0	0	0	0	0	0	2	8	0	0	16
07:15 AM	0	4	2	0	0	0	0	0	0	0	0	0	3	12	0	0	21
07:30 AM	0	7	1	0	0	0	0	0	1	0	0	0	4	8	0	0	21
07:45 AM	0	6	1	0	0	0	0	0	2	0	0	0	2	14	0	0	25
Total	0	22	5	0	0	0	0	0	3	0	0	0	11	42	0	0	83
08:00 AM	0	3	6	0	0	0	0	0	2	0	0	0	1	11	0	0	23
08:15 AM	0	3	1	0	0	0	0	0	4	0	0	0	1	15	0	0	24
08:30 AM	0	4	0	0	0	0	0	0	0	0	0	0	3	13	0	0	20
08:45 AM	0	5	5	0	0	0	0	0	1	0	0	0	1	15	0	0	27
Total	0	15	12	0	0	0	0	0	7	0	0	0	6	54	0	0	94
Grand Total	0	37	17	0	0	0	0	0	10	0	0	0	17	96	0	0	177
Apprch %	0	68.5	31.5	0	0	0	0	0	100	0	0	0	15	85	0	0	
Total %	0	20.9	9.6	0	0	0	0	0	5.6	0	0	0	9.6	54.2	0	0	

Start Time	Harrison Street From North					Herald Street From East					Harrison Street From South					Herald Street From West					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	0	3	6	0	9	0	0	0	0	0	2	0	0	0	2	1	11	0	0	12	23
08:15 AM	0	3	1	0	4	0	0	0	0	0	4	0	0	0	4	1	15	0	0	16	24
08:30 AM	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	3	13	0	0	16	20
08:45 AM	0	5	5	0	10	0	0	0	0	0	1	0	0	0	1	1	15	0	0	16	27
Total Volume	0	15	12	0	27	0	0	0	0	0	7	0	0	0	7	6	54	0	0	60	94
% App. Total	0	55.6	44.4	0		0	0	0	0	0	100	0	0	0		10	90	0	0		
PHF	.000	.750	.500	.000	.675	.000	.000	.000	.000	.000	.438	.000	.000	.000	.438	.500	.900	.000	.000	.938	.870



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P.O. Box 301 Berlin, MA 01503  
Office: 508.481.3999 Fax: 508.545.1234  
Email: datarequests@pdillc.com

N/S: Harrison Street  
E/W: Herald Street  
City, State: Boston, MA  
Client: Howard Stein-Hudson/ M. Santos

File Name : 154855 B  
Site Code : 15137  
Start Date : 1/13/2016  
Page No : 1

Groups Printed- Peds and Bikes

Start Time	Harrison Street From North					Herald Street From East					Harrison Street From South					Herald Street From West					Int. Total
	Right	Thru	Left	Peds EB	Peds WB	Right	Thru	Left	Peds SB	Peds NB	Right	Thru	Left	Peds WB	Peds EB	Right	Thru	Left	Peds NB	Peds SB	
07:00 AM	0	0	0	0	0	0	0	0	5	4	0	0	0	3	2	1	0	0	4	3	22
07:15 AM	0	2	0	0	0	0	0	0	5	8	0	0	0	2	3	0	0	0	4	3	27
07:30 AM	0	0	0	0	0	0	0	0	2	14	0	0	0	5	1	0	0	0	10	1	33
07:45 AM	0	0	0	0	0	0	0	0	8	22	0	0	0	7	2	1	1	0	12	2	55
Total	0	2	0	0	0	0	0	0	20	48	0	0	0	17	8	2	1	0	30	9	137
08:00 AM	0	0	0	1	0	0	0	0	8	20	0	2	0	4	3	0	0	0	10	6	54
08:15 AM	0	1	0	0	0	0	0	0	8	36	0	0	0	4	0	1	0	0	14	3	67
08:30 AM	0	1	0	0	0	0	0	0	8	23	0	2	0	14	3	1	0	0	10	5	67
08:45 AM	0	1	0	0	0	0	0	0	8	40	0	1	0	9	5	0	1	0	19	10	94
Total	0	3	0	1	0	0	0	0	32	119	0	5	0	31	11	2	1	0	53	24	282
Grand Total	0	5	0	1	0	0	0	0	52	167	0	5	0	48	19	4	2	0	83	33	419
Apprch %	0	83.3	0	16.7	0	0	0	0	23.7	76.3	0	6.9	0	66.7	26.4	3.3	1.6	0	68	27	
Total %	0	1.2	0	0.2	0	0	0	0	12.4	39.9	0	1.2	0	11.5	4.5	1	0.5	0	19.8	7.9	

Start Time	Harrison Street From North						Herald Street From East						Harrison Street From South						Herald Street From West						Int. Total
	Right	Thru	Left	Peds EB	Peds WB	App. Total	Right	Thru	Left	Peds SB	Peds NB	App. Total	Right	Thru	Left	Peds WB	Peds EB	App. Total	Right	Thru	Left	Peds NB	Peds SB	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																									
Peak Hour for Entire Intersection Begins at 08:00 AM																									
08:00 AM	0	0	0	1	0	1	0	0	0	8	20	28	0	2	0	4	3	9	0	0	0	10	6	16	54
08:15 AM	0	1	0	0	0	1	0	0	0	8	36	44	0	0	0	4	0	4	1	0	0	14	3	18	67
08:30 AM	0	1	0	0	0	1	0	0	0	8	23	31	0	2	0	14	3	19	1	0	0	10	5	16	67
08:45 AM	0	1	0	0	0	1	0	0	0	8	40	48	0	1	0	9	5	15	0	1	0	19	10	30	94
Total Volume	0	3	0	1	0	4	0	0	0	32	119	151	0	5	0	31	11	47	2	1	0	53	24	80	282
% App. Total	0	75	0	25	0		0	0	0	21.2	78.8		0	10.6	0	66	23.4		2.5	1.2	0	66.2	30		
PHF	.000	.750	.000	.250	.000	1.00	.000	.000	.000	1.0	.744	.786	.000	.625	.000	.554	.550	.618	.500	.250	.000	.697	.600	.667	.750



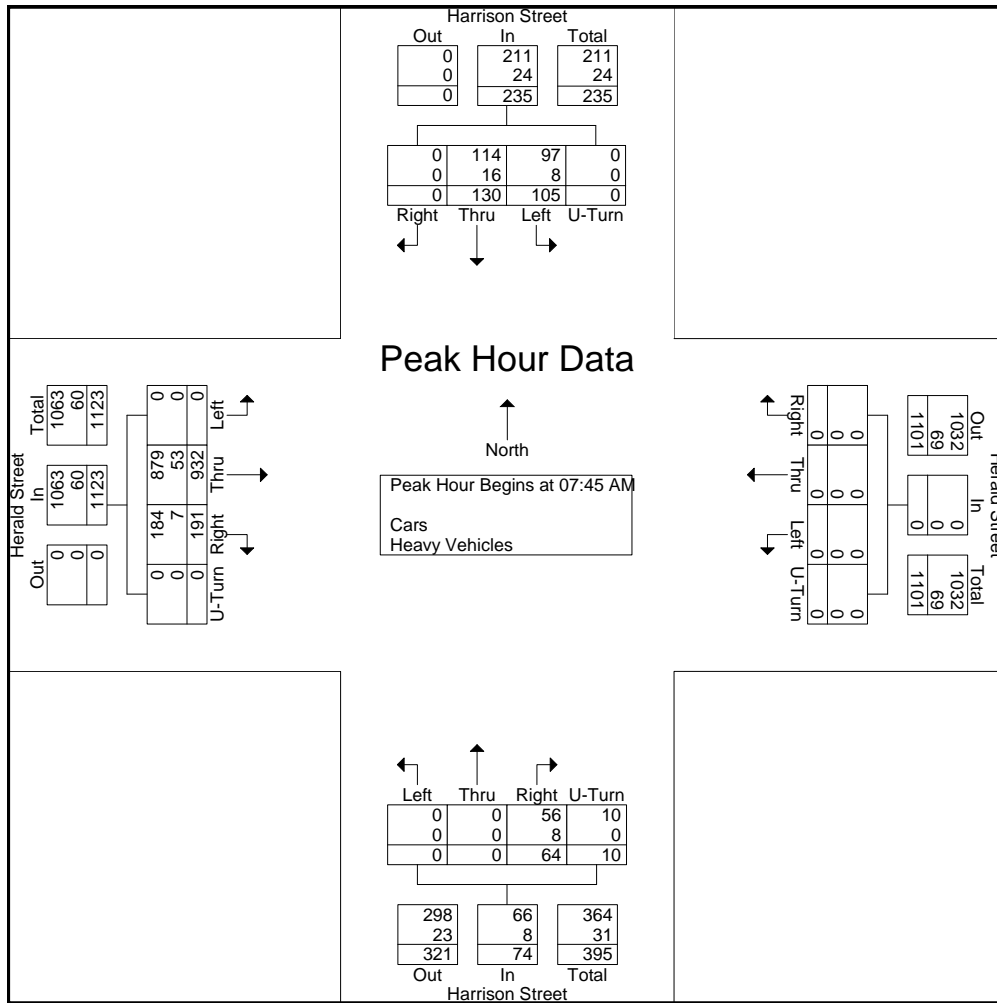
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Start Time	Harrison Street From North					Herald Street From East					Harrison Street From South					Herald Street From West					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	0	30	25	0	55	0	0	0	0	0	13	0	0	0	13	49	216	0	0	265	333
08:00 AM	0	35	26	0	61	0	0	0	0	0	16	0	0	5	21	46	242	0	0	288	370
08:15 AM	0	34	24	0	58	0	0	0	0	0	22	0	0	4	26	45	223	0	0	268	352
08:30 AM	0	31	30	0	61	0	0	0	0	0	13	0	0	1	14	51	251	0	0	302	377
Total Volume	0	130	105	0	235	0	0	0	0	0	64	0	0	10	74	191	932	0	0	1123	1432
% App. Total	0	55.3	44.7	0		0	0	0	0		86.5	0	0	13.5		17	83	0	0		
PHF	.000	.929	.875	.000	.963	.000	.000	.000	.000	.000	.727	.000	.000	.500	.712	.936	.928	.000	.000	.930	.950
Cars	0	114	97	0	211	0	0	0	0	0	56	0	0	10	66	184	879	0	0	1063	1340
% Cars	0	87.7	92.4	0	89.8	0	0	0	0	0	87.5	0	0	100	89.2	96.3	94.3	0	0	94.7	93.6
Heavy Vehicles	0	16	8	0	24	0	0	0	0	0	8	0	0	0	8	7	53	0	0	60	92
% Heavy Vehicles	0	12.3	7.6	0	10.2	0	0	0	0	0	12.5	0	0	0	10.8	3.7	5.7	0	0	5.3	6.4







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Client: Howard Stein-Hudson/ M. Santos

File Name : 154855 BB  
Site Code : 15137  
Start Date : 1/13/2016  
Page No : 1

Groups Printed- Cars - Heavy Vehicles

Start Time	Harrison Street From North				Herald Street From East				Harrison Street From South				Herald Street From West				Int. Total
	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
04:00 PM	0	64	50	0	0	0	0	0	46	0	0	0	60	260	0	0	480
04:15 PM	0	56	38	0	0	0	0	0	39	0	0	0	62	263	0	0	458
04:30 PM	0	56	43	0	0	0	0	0	49	0	0	0	64	253	0	0	465
04:45 PM	0	51	32	0	0	0	0	0	40	0	0	0	61	304	0	0	488
Total	0	227	163	0	0	0	0	0	174	0	0	0	247	1080	0	0	1891
05:00 PM	0	66	38	0	0	0	0	0	55	0	0	0	65	277	0	0	501
05:15 PM	0	74	37	0	0	0	0	0	46	0	0	0	60	311	0	0	528
05:30 PM	0	55	35	0	0	0	0	0	46	0	0	0	55	283	0	0	474
05:45 PM	0	53	27	0	0	0	0	0	45	0	0	1	63	286	0	0	475
Total	0	248	137	0	0	0	0	0	192	0	0	1	243	1157	0	0	1978
Grand Total	0	475	300	0	0	0	0	0	366	0	0	1	490	2237	0	0	3869
Apprch %	0	61.3	38.7	0	0	0	0	0	99.7	0	0	0.3	18	82	0	0	
Total %	0	12.3	7.8	0	0	0	0	0	9.5	0	0	0	12.7	57.8	0	0	
Cars	0	433	296	0	0	0	0	0	362	0	0	1	481	2195	0	0	3768
% Cars	0	91.2	98.7	0	0	0	0	0	98.9	0	0	100	98.2	98.1	0	0	97.4
Heavy Vehicles	0	42	4	0	0	0	0	0	4	0	0	0	9	42	0	0	101
% Heavy Vehicles	0	8.8	1.3	0	0	0	0	0	1.1	0	0	0	1.8	1.9	0	0	2.6

Start Time	Harrison Street From North					Herald Street From East					Harrison Street From South					Herald Street From West					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	0	51	32	0	83	0	0	0	0	0	40	0	0	0	40	61	304	0	0	365	488
05:00 PM	0	66	38	0	104	0	0	0	0	0	55	0	0	0	55	65	277	0	0	342	501
05:15 PM	0	74	37	0	111	0	0	0	0	0	46	0	0	0	46	60	311	0	0	371	528
05:30 PM	0	55	35	0	90	0	0	0	0	0	46	0	0	0	46	55	283	0	0	338	474
Total Volume	0	246	142	0	388	0	0	0	0	0	187	0	0	0	187	241	1175	0	0	1416	1991
% App. Total	.000	.831	.934	.000	.874	.000	.000	.000	.000	.000	.850	.000	.000	.000	.850	.927	.945	.000	.000	.954	.943
Cars	0	226	142	0	368	0	0	0	0	0	184	0	0	0	184	237	1156	0	0	1393	1945
% Cars	0	91.9	100	0	94.8	0	0	0	0	0	98.4	0	0	0	98.4	98.3	98.4	0	0	98.4	97.7
Heavy Vehicles	0	8.1	0	0	5.2	0	0	0	0	0	1.6	0	0	0	1.6	1.7	1.6	0	0	1.6	2.3
% Heavy Vehicles	0	8.1	0	0	5.2	0	0	0	0	0	1.6	0	0	0	1.6	1.7	1.6	0	0	1.6	2.3



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Page No : 1

Groups Printed- Cars

Start Time	Harrison Street From North				Herald Street From East				Harrison Street From South				Herald Street From West				Int. Total
	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
04:00 PM	0	57	48	0	0	0	0	0	46	0	0	0	59	254	0	0	464
04:15 PM	0	50	38	0	0	0	0	0	38	0	0	0	60	257	0	0	443
04:30 PM	0	52	42	0	0	0	0	0	49	0	0	0	62	246	0	0	451
04:45 PM	0	43	32	0	0	0	0	0	38	0	0	0	60	297	0	0	470
Total	0	202	160	0	0	0	0	0	171	0	0	0	241	1054	0	0	1828
05:00 PM	0	62	38	0	0	0	0	0	54	0	0	0	65	274	0	0	493
05:15 PM	0	69	37	0	0	0	0	0	46	0	0	0	58	308	0	0	518
05:30 PM	0	52	35	0	0	0	0	0	46	0	0	0	54	277	0	0	464
05:45 PM	0	48	26	0	0	0	0	0	45	0	0	1	63	282	0	0	465
Total	0	231	136	0	0	0	0	0	191	0	0	1	240	1141	0	0	1940
Grand Total	0	433	296	0	0	0	0	0	362	0	0	1	481	2195	0	0	3768
Apprch %	0	59.4	40.6	0	0	0	0	0	99.7	0	0	0.3	18	82	0	0	
Total %	0	11.5	7.9	0	0	0	0	0	9.6	0	0	0	12.8	58.3	0	0	

Start Time	Harrison Street From North					Herald Street From East					Harrison Street From South					Herald Street From West					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	0	43	32	0	75	0	0	0	0	0	38	0	0	0	38	60	297	0	0	357	470
05:00 PM	0	62	38	0	100	0	0	0	0	0	54	0	0	0	54	65	274	0	0	339	493
05:15 PM	0	69	37	0	106	0	0	0	0	0	46	0	0	0	46	58	308	0	0	366	518
05:30 PM	0	52	35	0	87	0	0	0	0	0	46	0	0	0	46	54	277	0	0	331	464
Total Volume	0	226	142	0	368	0	0	0	0	0	184	0	0	0	184	237	1156	0	0	1393	1945
% App. Total																					
PHF	.000	.819	.934	.000	.868	.000	.000	.000	.000	.000	.852	.000	.000	.000	.852	.912	.938	.000	.000	.952	.939



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Groups Printed- Heavy Vehicles

Start Time	Harrison Street From North				Herald Street From East				Harrison Street From South				Herald Street From West				Int. Total
	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
04:00 PM	0	7	2	0	0	0	0	0	0	0	0	0	1	6	0	0	16
04:15 PM	0	6	0	0	0	0	0	0	1	0	0	0	2	6	0	0	15
04:30 PM	0	4	1	0	0	0	0	0	0	0	0	0	2	7	0	0	14
04:45 PM	0	8	0	0	0	0	0	0	2	0	0	0	1	7	0	0	18
Total	0	25	3	0	0	0	0	0	3	0	0	0	6	26	0	0	63
05:00 PM	0	4	0	0	0	0	0	0	1	0	0	0	0	3	0	0	8
05:15 PM	0	5	0	0	0	0	0	0	0	0	0	0	2	3	0	0	10
05:30 PM	0	3	0	0	0	0	0	0	0	0	0	0	1	6	0	0	10
05:45 PM	0	5	1	0	0	0	0	0	0	0	0	0	0	4	0	0	10
Total	0	17	1	0	0	0	0	0	1	0	0	0	3	16	0	0	38
Grand Total	0	42	4	0	0	0	0	0	4	0	0	0	9	42	0	0	101
Apprch %	0	91.3	8.7	0	0	0	0	0	100	0	0	0	17.6	82.4	0	0	
Total %	0	41.6	4	0	0	0	0	0	4	0	0	0	8.9	41.6	0	0	

Start Time	Harrison Street From North					Herald Street From East					Harrison Street From South					Herald Street From West					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	0	7	2	0	9	0	0	0	0	0	0	0	0	0	0	1	6	0	0	7	16
04:15 PM	0	6	0	0	6	0	0	0	0	0	1	0	0	0	1	2	6	0	0	8	15
04:30 PM	0	4	1	0	5	0	0	0	0	0	0	0	0	0	0	2	7	0	0	9	14
04:45 PM	0	8	0	0	8	0	0	0	0	0	2	0	0	0	2	1	7	0	0	8	18
Total Volume	0	25	3	0	28	0	0	0	0	0	3	0	0	0	3	6	26	0	0	32	63
% App. Total	0	89.3	10.7	0		0	0	0	0		100	0	0	0		18.8	81.2	0	0		
PHF	.000	.781	.375	.000	.778	.000	.000	.000	.000	.000	.375	.000	.000	.000	.375	.750	.929	.000	.000	.889	.875



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Groups Printed- Peds and Bikes

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	Right	Thru	Left	Peds EB	Peds WB	Right	Thru	Left	Peds SB	Peds NB	Right	Thru	Left	Peds WB	Peds EB	Right	Thru	Left	Peds NB	Peds SB	
04:00 PM	0	1	1	1	0	0	0	0	17	14	0	0	0	2	9	1	0	0	5	11	62
04:15 PM	0	3	0	0	0	0	0	0	13	8	0	0	0	6	10	0	1	0	6	12	59
04:30 PM	0	2	0	2	0	0	0	0	19	12	0	2	0	3	8	0	0	0	9	14	71
04:45 PM	0	1	0	0	1	0	0	0	17	13	0	0	0	6	12	0	1	0	4	9	64
Total	0	7	1	3	1	0	0	0	66	47	0	2	0	17	39	1	2	0	24	46	256
05:00 PM	0	2	0	2	0	0	0	0	21	8	0	0	0	7	10	0	0	0	16	12	78
05:15 PM	0	4	0	1	2	0	0	0	24	13	0	0	0	6	7	0	0	0	4	14	75
05:30 PM	0	1	0	1	1	0	0	0	26	7	0	1	0	4	9	0	0	0	2	10	62
05:45 PM	0	2	0	0	1	0	0	0	20	13	0	0	0	2	9	1	0	0	6	20	74
Total	0	9	0	4	4	0	0	0	91	41	0	1	0	19	35	1	0	0	28	56	289
Grand Total	0	16	1	7	5	0	0	0	157	88	0	3	0	36	74	2	2	0	52	102	545
Apprch %	0	55.2	3.4	24.1	17.2	0	0	0	64.1	35.9	0	2.7	0	31.9	65.5	1.3	1.3	0	32.9	64.6	
Total %	0	2.9	0.2	1.3	0.9	0	0	0	28.8	16.1	0	0.6	0	6.6	13.6	0.4	0.4	0	9.5	18.7	

Start Time	Harrison Street From North						Herald Street From East						Harrison Street From South						Herald Street From West						Int. Total
	Right	Thru	Left	Peds EB	Peds WB	App. Total	Right	Thru	Left	Peds SB	Peds NB	App. Total	Right	Thru	Left	Peds WB	Peds EB	App. Total	Right	Thru	Left	Peds NB	Peds SB	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																									
Peak Hour for Entire Intersection Begins at 05:00 PM																									
05:00 PM	0	2	0	2	0	4	0	0	0	21	8	29	0	0	0	7	10	17	0	0	0	16	12	28	78
05:15 PM	0	4	0	1	2	7	0	0	0	24	13	37	0	0	0	6	7	13	0	0	0	4	14	18	75
05:30 PM	0	1	0	1	1	3	0	0	0	26	7	33	0	1	0	4	9	14	0	0	0	2	10	12	62
05:45 PM	0	2	0	0	1	3	0	0	0	20	13	33	0	0	0	2	9	11	1	0	0	6	20	27	74
Total Volume	0	9	0	4	4	17	0	0	0	91	41	132	0	1	0	19	35	55	1	0	0	28	56	85	289
% App. Total	0	52.9	0	23.5	23.5	0	0	0	68.9	31.1	0	1.8	0	34.5	63.6	1.2	0	0	32.9	65.9					
PHF	.000	.563	.000	.500	.500	.607	.000	.000	.000	.875	.788	.892	.000	.250	.000	.679	.875	.809	.250	.000	.000	.438	.700	.759	.926



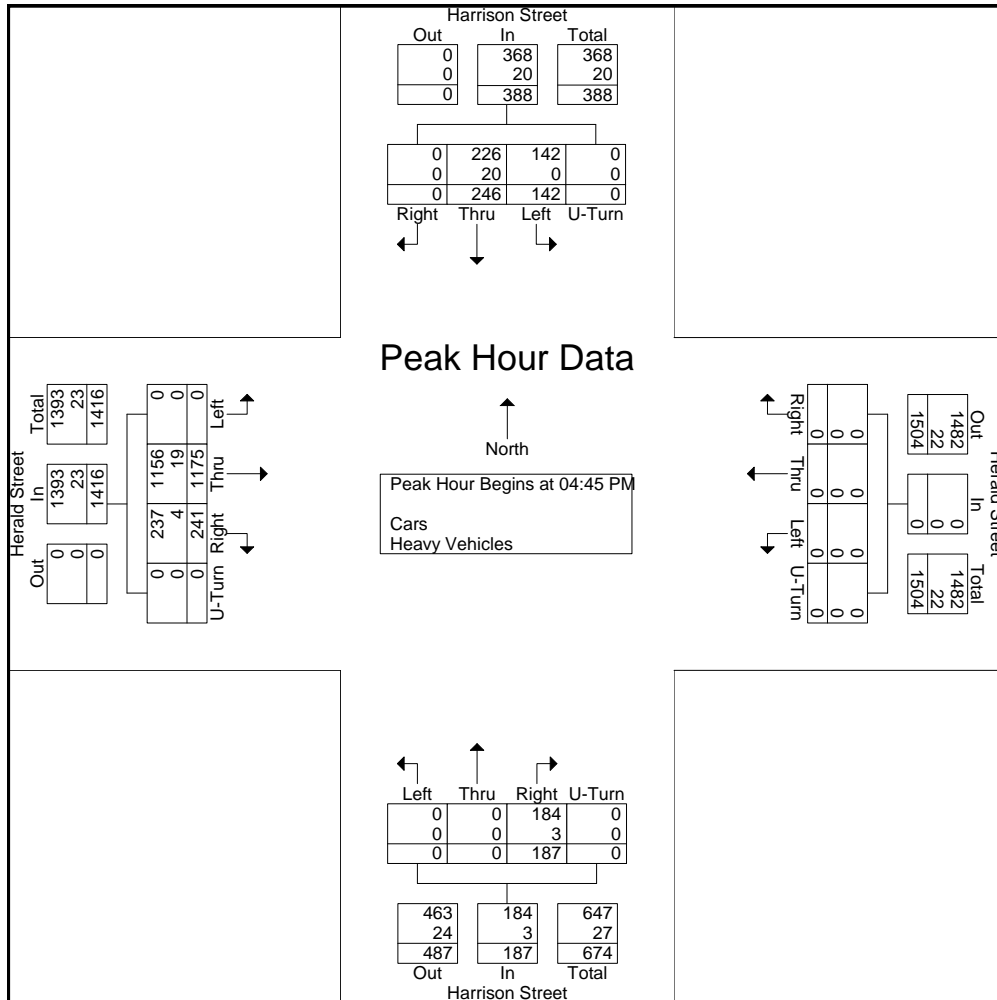
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P.O. Box 301 Berlin, MA 01503  
Office: 508.481.3999 Fax: 508.545.1234  
Email: datarequests@pdillc.com

N/S: Harrison Street  
E/W: Herald Street  
City, State: Boston, MA  
Client: Howard Stein-Hudson/ M. Santos

File Name : 154855 BB  
Site Code : 15137  
Start Date : 1/13/2016  
Page No : 1

Start Time	Harrison Street From North					Herald Street From East					Harrison Street From South					Herald Street From West					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	0	51	32	0	83	0	0	0	0	0	40	0	0	0	40	61	304	0	0	365	488
05:00 PM	0	66	38	0	104	0	0	0	0	0	55	0	0	0	55	65	277	0	0	342	501
05:15 PM	0	74	37	0	111	0	0	0	0	0	46	0	0	0	46	60	311	0	0	371	528
05:30 PM	0	55	35	0	90	0	0	0	0	0	46	0	0	0	46	55	283	0	0	338	474
Total Volume	0	246	142	0	388	0	0	0	0	0	187	0	0	0	187	241	1175	0	0	1416	1991
% App. Total																					
PHF	.000	.831	.934	.000	.874	.000	.000	.000	.000	.000	.850	.000	.000	.000	.850	.927	.945	.000	.000	.954	.943
Cars	0	226	142	0	368	0	0	0	0	0	184	0	0	0	184	237	1156	0	0	1393	1945
% Cars	0	91.9	100	0	94.8	0	0	0	0	0	98.4	0	0	0	98.4	98.3	98.4	0	0	98.4	97.7
Heavy Vehicles																					
% Heavy Vehicles	0	8.1	0	0	5.2	0	0	0	0	0	1.6	0	0	0	1.6	1.7	1.6	0	0	1.6	2.3





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File Name : 154855 C  
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Start Date : 1/13/2016  
Page No : 1

N/S: Albany Street  
SE/W: I-93 Onramp/ Herald Street  
City, State: Boston, MA  
Client: Howard Stein-Hudson/ M. Santos

Groups Printed- Cars - Heavy Vehicles

Start Time	Albany Street From North				I-93 Onramp From Southeast				Albany Street From South				Herald Street From West				Int. Total
	Right	Thru	Bear Left	U-Turn	Bear Right	Bear Left	Hard Left	U-Turn	Hard Right	Thru	Left	U-Turn	Right	Bear Right	Left	U-Turn	
07:00 AM	0	235	24	0	0	0	0	0	0	0	0	0	93	76	0	0	428
07:15 AM	0	232	18	0	0	0	0	0	0	0	0	0	108	119	0	0	477
07:30 AM	0	254	26	0	0	0	0	0	0	0	0	0	123	160	0	0	563
07:45 AM	0	238	25	0	0	0	0	0	0	0	0	0	131	122	0	0	516
Total	0	959	93	0	0	0	0	0	0	0	0	0	455	477	0	0	1984
08:00 AM	0	233	25	0	0	0	0	0	0	0	0	0	140	133	0	0	531
08:15 AM	0	249	30	0	0	0	0	0	0	0	0	0	142	118	0	0	539
08:30 AM	0	259	19	0	0	0	0	0	0	0	0	0	174	108	0	0	560
08:45 AM	0	256	28	0	0	0	0	0	0	0	0	0	145	87	0	0	516
Total	0	997	102	0	0	0	0	0	0	0	0	0	601	446	0	0	2146
Grand Total	0	1956	195	0	0	0	0	0	0	0	0	0	1056	923	0	0	4130
Apprch %	0	90.9	9.1	0	0	0	0	0	0	0	0	0	53.4	46.6	0	0	
Total %	0	47.4	4.7	0	0	0	0	0	0	0	0	0	25.6	22.3	0	0	
Cars	0	1834	178	0	0	0	0	0	0	0	0	0	972	890	0	0	3874
% Cars	0	93.8	91.3	0	0	0	0	0	0	0	0	0	92	96.4	0	0	93.8
Heavy Vehicles	0	122	17	0	0	0	0	0	0	0	0	0	84	33	0	0	256
% Heavy Vehicles	0	6.2	8.7	0	0	0	0	0	0	0	0	0	8	3.6	0	0	6.2

Start Time	Albany Street From North					I-93 Onramp From Southeast					Albany Street From South					Herald Street From West					Int. Total
	Right	Thru	Bear Left	U-Turn	App. Total	Bear Right	Bear Left	Hard Left	U-Turn	App. Total	Hard Right	Thru	Left	U-Turn	App. Total	Right	Bear Right	Left	U-Turn	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	0	254	26	0	280	0	0	0	0	0	0	0	0	0	0	123	160	0	0	283	563
07:45 AM	0	238	25	0	263	0	0	0	0	0	0	0	0	0	0	131	122	0	0	253	516
08:00 AM	0	233	25	0	258	0	0	0	0	0	0	0	0	0	0	140	133	0	0	273	531
08:15 AM	0	249	30	0	279	0	0	0	0	0	0	0	0	0	0	142	118	0	0	260	539
Total Volume	0	974	106	0	1080	0	0	0	0	0	0	0	0	0	0	536	533	0	0	1069	2149
% App. Total	0	90.2	9.8	0		0	0	0	0	0	0	0	0	0	0	50.1	49.9	0	0		
PHF	.000	.959	.883	.000	.964	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.944	.833	.000	.000	.944	.954
Cars	0	910	97	0	1007	0	0	0	0	0	0	0	0	0	0	490	517	0	0	1007	2014
% Cars	0	93.4	91.5	0	93.2	0	0	0	0	0	0	0	0	0	0	91.4	97.0	0	0	94.2	93.7
Heavy Vehicles	0	64	9	0	73	0	0	0	0	0	0	0	0	0	0	46	16	0	0	62	135
% Heavy Vehicles	0	6.6	8.5	0	6.8	0	0	0	0	0	0	0	0	0	0	8.6	3.0	0	0	5.8	6.3



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City, State: Boston, MA  
Client: Howard Stein-Hudson/ M. Santos

File Name : 154855 C  
Site Code : 15137  
Start Date : 1/13/2016  
Page No : 1

Groups Printed- Cars

Start Time	Albany Street From North				I-93 Onramp From Southeast				Albany Street From South				Herald Street From West				Int. Total
	Right	Thru	Bear Left	U-Turn	Bear Right	Bear Left	Hard Left	U-Turn	Hard Right	Thru	Left	U-Turn	Right	Bear Right	Left	U-Turn	
07:00 AM	0	225	21	0	0	0	0	0	0	0	0	0	87	73	0	0	406
07:15 AM	0	217	18	0	0	0	0	0	0	0	0	0	101	112	0	0	448
07:30 AM	0	240	22	0	0	0	0	0	0	0	0	0	114	158	0	0	534
07:45 AM	0	222	23	0	0	0	0	0	0	0	0	0	121	116	0	0	482
Total	0	904	84	0	0	0	0	0	0	0	0	0	423	459	0	0	1870
08:00 AM	0	216	23	0	0	0	0	0	0	0	0	0	127	129	0	0	495
08:15 AM	0	232	29	0	0	0	0	0	0	0	0	0	128	114	0	0	503
08:30 AM	0	246	18	0	0	0	0	0	0	0	0	0	163	107	0	0	534
08:45 AM	0	236	24	0	0	0	0	0	0	0	0	0	131	81	0	0	472
Total	0	930	94	0	0	0	0	0	0	0	0	0	549	431	0	0	2004
Grand Total	0	1834	178	0	0	0	0	0	0	0	0	0	972	890	0	0	3874
Apprch %	0	91.2	8.8	0	0	0	0	0	0	0	0	0	52.2	47.8	0	0	
Total %	0	47.3	4.6	0	0	0	0	0	0	0	0	0	25.1	23	0	0	

Start Time	Albany Street From North					I-93 Onramp From Southeast					Albany Street From South					Herald Street From West					Int. Total
	Right	Thru	Bear Left	U-Turn	App. Total	Bear Right	Bear Left	Hard Left	U-Turn	App. Total	Hard Right	Thru	Left	U-Turn	App. Total	Right	Bear Right	Left	U-Turn	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	0	240	22	0	262	0	0	0	0	0	0	0	0	0	0	114	158	0	0	272	534
07:45 AM	0	222	23	0	245	0	0	0	0	0	0	0	0	0	0	121	116	0	0	237	482
08:00 AM	0	216	23	0	239	0	0	0	0	0	0	0	0	0	0	127	129	0	0	256	495
08:15 AM	0	232	29	0	261	0	0	0	0	0	0	0	0	0	0	128	114	0	0	242	503
Total Volume	0	910	97	0	1007	0	0	0	0	0	0	0	0	0	0	490	517	0	0	1007	2014
% App. Total	0	90.4	9.6	0		0	0	0	0	0	0	0	0	0	0	48.7	51.3	0	0		
PHF	.000	.948	.836	.000	.961	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.957	.818	.000	.000	.926	.943





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City, State: Boston, MA  
Client: Howard Stein-Hudson/ M. Santos

File Name : 154855 C  
Site Code : 15137  
Start Date : 1/13/2016  
Page No : 1

Groups Printed- Heavy Vehicles

Start Time	Albany Street From North				I-93 Onramp From Southeast				Albany Street From South				Herald Street From West				Int. Total
	Right	Thru	Bear Left	U-Turn	Bear Right	Bear Left	Hard Left	U-Turn	Hard Right	Thru	Left	U-Turn	Right	Bear Right	Left	U-Turn	
07:00 AM	0	10	3	0	0	0	0	0	0	0	0	0	6	3	0	0	22
07:15 AM	0	15	0	0	0	0	0	0	0	0	0	0	7	7	0	0	29
07:30 AM	0	14	4	0	0	0	0	0	0	0	0	0	9	2	0	0	29
07:45 AM	0	16	2	0	0	0	0	0	0	0	0	0	10	6	0	0	34
Total	0	55	9	0	0	0	0	0	0	0	0	0	32	18	0	0	114
08:00 AM	0	17	2	0	0	0	0	0	0	0	0	0	13	4	0	0	36
08:15 AM	0	17	1	0	0	0	0	0	0	0	0	0	14	4	0	0	36
08:30 AM	0	13	1	0	0	0	0	0	0	0	0	0	11	1	0	0	26
08:45 AM	0	20	4	0	0	0	0	0	0	0	0	0	14	6	0	0	44
Total	0	67	8	0	0	0	0	0	0	0	0	0	52	15	0	0	142
Grand Total	0	122	17	0	0	0	0	0	0	0	0	0	84	33	0	0	256
Apprch %	0	87.8	12.2	0	0	0	0	0	0	0	0	0	71.8	28.2	0	0	
Total %	0	47.7	6.6	0	0	0	0	0	0	0	0	0	32.8	12.9	0	0	

Start Time	Albany Street From North					I-93 Onramp From Southeast				Albany Street From South					Herald Street From West					Int. Total	
	Right	Thru	Bear Left	U-Turn	App. Total	Bear Right	Bear Left	Hard Left	U-Turn	App. Total	Hard Right	Thru	Left	U-Turn	App. Total	Right	Bear Right	Left	U-Turn		App. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	0	17	2	0	19	0	0	0	0	0	0	0	0	0	0	13	4	0	0	17	36
08:15 AM	0	17	1	0	18	0	0	0	0	0	0	0	0	0	0	14	4	0	0	18	36
08:30 AM	0	13	1	0	14	0	0	0	0	0	0	0	0	0	0	11	1	0	0	12	26
08:45 AM	0	20	4	0	24	0	0	0	0	0	0	0	0	0	0	14	6	0	0	20	44
Total Volume	0	67	8	0	75	0	0	0	0	0	0	0	0	0	0	52	15	0	0	67	142
% App. Total	0	89.3	10.7	0		0	0	0	0	0	0	0	0	0	0	77.6	22.4	0	0		
PHF	.000	.838	.500	.000	.781	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.929	.625	.000	.000	.838	.807



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File Name : 154855 C  
Site Code : 15137  
Start Date : 1/13/2016  
Page No : 1

Groups Printed- Peds and Bikes

Start Time	Albany Street From North					I-93 Onramp From Southeast					Albany Street From South					Herald Street From West					Int. Total	
	Right	Thru	Bear Left	Peds EB	Peds WB	Bear Right	Bear Left	Hard Left	Peds SWB	Peds NEB	Hard Right	Thru	Left	Peds WB	Peds EB	Right	Bear Right	Left	Peds NB	Peds SB		
07:00 AM	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3
07:15 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
07:30 AM	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	5
07:45 AM	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	2	9
Total	0	0	0	5	5	0	0	0	0	0	0	0	0	0	0	1	0	0	2	5	18	
08:00 AM	0	0	0	6	1	0	0	0	0	0	0	0	0	0	0	0	0	0	5	1	13	
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	
08:30 AM	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	4	
08:45 AM	0	0	0	3	2	0	0	0	0	0	0	0	0	0	0	1	0	0	4	2	12	
Total	0	0	0	10	4	0	0	0	0	0	0	0	0	0	0	1	0	0	11	4	30	
Grand Total	0	0	0	15	9	0	0	0	0	0	0	0	0	0	0	2	0	0	13	9	48	
Apprch %	0	0	0	62.5	37.5	0	0	0	0	0	0	0	0	0	0	8.3	0	0	54.2	37.5		
Total %	0	0	0	31.2	18.8	0	0	0	0	0	0	0	0	0	0	4.2	0	0	27.1	18.8		

Start Time	Albany Street From North						I-93 Onramp From Southeast						Albany Street From South						Herald Street From West						Int. Total
	Right	Thru	Bear Left	Peds EB	Peds WB	App. Total	Bear Right	Bear Left	Hard Left	Peds SWB	Peds NEB	App. Total	Hard Right	Thru	Left	Peds WB	Peds EB	App. Total	Right	Bear Right	Left	Peds NB	Peds SB	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																									
Peak Hour for Entire Intersection Begins at 08:00 AM																									
08:00 AM	0	0	0	6	1	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	1	6	13
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
08:30 AM	0	0	0	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	4
08:45 AM	0	0	0	3	2	5	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	4	2	7	12
Total Volume	0	0	0	10	4	14	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	11	4	16	30
% App. Total	0	0	0	71.4	28.6		0	0	0	0	0		0	0	0	0	0		6.2	0	0	68.8	25		
PHF	.000	.000	.000	.417	.500	.500	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.000	.000	.550	.500	.571	.577



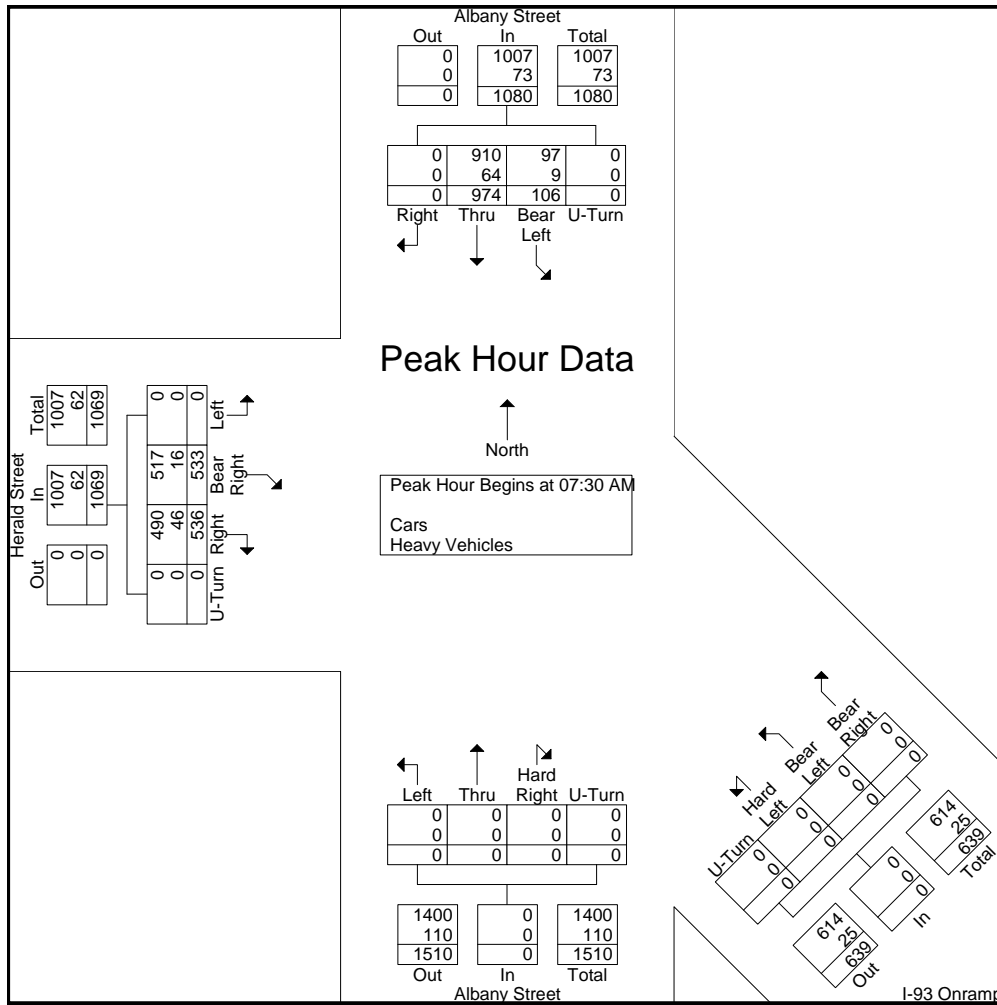
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DATA  
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Start Time	Albany Street From North					I-93 Onramp From Southeast					Albany Street From South					Herald Street From West					Int. Total
	Right	Thru	Bear Left	U-Turn	App. Total	Bear Right	Bear Left	Hard Left	U-Turn	App. Total	Hard Right	Thru	Left	U-Turn	App. Total	Right	Bear Right	Left	U-Turn	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	0	254	26	0	280	0	0	0	0	0	0	0	0	0	0	123	160	0	0	283	563
07:45 AM	0	238	25	0	263	0	0	0	0	0	0	0	0	0	0	131	122	0	0	253	516
08:00 AM	0	233	25	0	258	0	0	0	0	0	0	0	0	0	0	140	133	0	0	273	531
08:15 AM	0	249	30	0	279	0	0	0	0	0	0	0	0	0	0	142	118	0	0	260	539
Total Volume	0	974	106	0	1080	0	0	0	0	0	0	0	0	0	0	536	533	0	0	1069	2149
% App. Total	0	90.2	9.8	0		0	0	0	0	0	0	0	0	0	0	50.1	49.9	0	0		
PHF	.000	.959	.883	.000	.964	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.944	.833	.000	.000	.944	.954
Cars	0	910	97	0	1007	0	0	0	0	0	0	0	0	0	0	490	517	0	0	1007	2014
% Cars	0	93.4	91.5	0	93.2	0	0	0	0	0	0	0	0	0	0	91.4	97.0	0	0	94.2	93.7
Heavy Vehicles	0	64	9	0	73	0	0	0	0	0	0	0	0	0	0	46	16	0	0	62	135
% Heavy Vehicles	0	6.6	8.5	0	6.8	0	0	0	0	0	0	0	0	0	0	8.6	3.0	0	0	5.8	6.3





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Groups Printed- Cars - Heavy Vehicles

Start Time	Albany Street From North				I-93 Onramp From Southeast				Albany Street From South				Herald Street From West				Int. Total
	Right	Thru	Bear Left	U-Turn	Bear Right	Bear Left	Hard Left	U-Turn	Hard Right	Thru	Left	U-Turn	Right	Bear Right	Left	U-Turn	
04:00 PM	0	265	77	0	0	0	0	0	0	0	0	0	146	223	0	0	711
04:15 PM	0	231	92	0	0	0	0	0	0	0	0	0	137	202	0	0	662
04:30 PM	0	243	73	0	0	0	0	0	0	0	0	0	151	197	0	0	664
04:45 PM	0	270	68	0	0	0	0	0	0	0	0	0	159	210	0	0	707
Total	0	1009	310	0	0	0	0	0	0	0	0	0	593	832	0	0	2744
05:00 PM	0	250	83	0	0	0	0	0	0	0	0	0	173	174	0	0	680
05:15 PM	0	297	86	0	0	0	0	0	0	0	0	0	185	192	0	0	760
05:30 PM	0	272	64	0	0	0	0	0	0	0	0	0	151	178	0	0	665
05:45 PM	0	279	54	0	0	0	0	0	0	0	0	0	194	179	0	0	706
Total	0	1098	287	0	0	0	0	0	0	0	0	0	703	723	0	0	2811
Grand Total	0	2107	597	0	0	0	0	0	0	0	0	0	1296	1555	0	0	5555
Apprch %	0	77.9	22.1	0	0	0	0	0	0	0	0	0	45.5	54.5	0	0	
Total %	0	37.9	10.7	0	0	0	0	0	0	0	0	0	23.3	28	0	0	
Cars	0	2036	589	0	0	0	0	0	0	0	0	0	1263	1537	0	0	5425
% Cars	0	96.6	98.7	0	0	0	0	0	0	0	0	0	97.5	98.8	0	0	97.7
Heavy Vehicles	0	71	8	0	0	0	0	0	0	0	0	0	33	18	0	0	130
% Heavy Vehicles	0	3.4	1.3	0	0	0	0	0	0	0	0	0	2.5	1.2	0	0	2.3

Start Time	Albany Street From North					I-93 Onramp From Southeast					Albany Street From South					Herald Street From West					Int. Total
	Right	Thru	Bear Left	U-Turn	App. Total	Bear Right	Bear Left	Hard Left	U-Turn	App. Total	Hard Right	Thru	Left	U-Turn	App. Total	Right	Bear Right	Left	U-Turn	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	0	270	68	0	338	0	0	0	0	0	0	0	0	0	0	159	210	0	0	369	707
05:00 PM	0	250	83	0	333	0	0	0	0	0	0	0	0	0	0	173	174	0	0	347	680
05:15 PM	0	297	86	0	383	0	0	0	0	0	0	0	0	0	0	185	192	0	0	377	760
05:30 PM	0	272	64	0	336	0	0	0	0	0	0	0	0	0	0	151	178	0	0	329	665
Total Volume	0	1089	301	0	1390	0	0	0	0	0	0	0	0	0	0	668	754	0	0	1422	2812
% App. Total	0	78.3	21.7	0		0	0	0	0	0	0	0	0	0	0	47	53	0	0		
PHF	.000	.917	.875	.000	.907	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.903	.898	.000	.000	.943	.925
Cars	0	1056	299	0	1355	0	0	0	0	0	0	0	0	0	0	654	745	0	0	1399	2754
% Cars	0	97.0	99.3	0	97.5	0	0	0	0	0	0	0	0	0	0	97.9	98.8	0	0	98.4	97.9
Heavy Vehicles	0	33	2	0	35	0	0	0	0	0	0	0	0	0	0	14	9	0	0	23	58
% Heavy Vehicles	0	3.0	0.7	0	2.5	0	0	0	0	0	0	0	0	0	0	2.1	1.2	0	0	1.6	2.1



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N/S: Albany Street  
SE/W: I-93 Onramp/ Herald Street  
City, State: Boston, MA  
Client: Howard Stein-Hudson/ M. Santos

File Name : 154855 CC  
Site Code : 15137  
Start Date : 1/13/2016  
Page No : 1

Groups Printed- Cars

Start Time	Albany Street From North				I-93 Onramp From Southeast				Albany Street From South				Herald Street From West				Int. Total
	Right	Thru	Bear Left	U-Turn	Bear Right	Bear Left	Hard Left	U-Turn	Hard Right	Thru	Left	U-Turn	Right	Bear Right	Left	U-Turn	
04:00 PM	0	253	74	0	0	0	0	0	0	0	0	0	140	218	0	0	685
04:15 PM	0	223	91	0	0	0	0	0	0	0	0	0	134	198	0	0	646
04:30 PM	0	232	71	0	0	0	0	0	0	0	0	0	145	197	0	0	645
04:45 PM	0	265	67	0	0	0	0	0	0	0	0	0	154	204	0	0	690
Total	0	973	303	0	0	0	0	0	0	0	0	0	573	817	0	0	2666
05:00 PM	0	239	83	0	0	0	0	0	0	0	0	0	170	173	0	0	665
05:15 PM	0	287	86	0	0	0	0	0	0	0	0	0	182	192	0	0	747
05:30 PM	0	265	63	0	0	0	0	0	0	0	0	0	148	176	0	0	652
05:45 PM	0	272	54	0	0	0	0	0	0	0	0	0	190	179	0	0	695
Total	0	1063	286	0	0	0	0	0	0	0	0	0	690	720	0	0	2759
Grand Total	0	2036	589	0	0	0	0	0	0	0	0	0	1263	1537	0	0	5425
Apprch %	0	77.6	22.4	0	0	0	0	0	0	0	0	0	45.1	54.9	0	0	
Total %	0	37.5	10.9	0	0	0	0	0	0	0	0	0	23.3	28.3	0	0	

Start Time	Albany Street From North					I-93 Onramp From Southeast				Albany Street From South					Herald Street From West					Int. Total	
	Right	Thru	Bear Left	U-Turn	App. Total	Bear Right	Bear Left	Hard Left	U-Turn	App. Total	Hard Right	Thru	Left	U-Turn	App. Total	Right	Bear Right	Left	U-Turn		App. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	0	239	83	0	322	0	0	0	0	0	0	0	0	0	0	170	173	0	0	343	665
05:15 PM	0	287	86	0	373	0	0	0	0	0	0	0	0	0	0	182	192	0	0	374	747
05:30 PM	0	265	63	0	328	0	0	0	0	0	0	0	0	0	0	148	176	0	0	324	652
05:45 PM	0	272	54	0	326	0	0	0	0	0	0	0	0	0	0	190	179	0	0	369	695
Total Volume	0	1063	286	0	1349	0	0	0	0	0	0	0	0	0	0	690	720	0	0	1410	2759
% App. Total	0	78.8	21.2	0		0	0	0	0	0	0	0	0	0	0	48.9	51.1	0	0		
PHF	.000	.926	.831	.000	.904	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.908	.938	.000	.000	.943	.923



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SE/W: I-93 Onramp/ Herald Street  
City, State: Boston, MA  
Client: Howard Stein-Hudson/ M. Santos

File Name : 154855 CC  
Site Code : 15137  
Start Date : 1/13/2016  
Page No : 1

Groups Printed- Heavy Vehicles

Start Time	Albany Street From North				I-93 Onramp From Southeast				Albany Street From South				Herald Street From West				Int. Total
	Right	Thru	Bear Left	U-Turn	Bear Right	Bear Left	Hard Left	U-Turn	Hard Right	Thru	Left	U-Turn	Right	Bear Right	Left	U-Turn	
04:00 PM	0	12	3	0	0	0	0	0	0	0	0	0	6	5	0	0	26
04:15 PM	0	8	1	0	0	0	0	0	0	0	0	0	3	4	0	0	16
04:30 PM	0	11	2	0	0	0	0	0	0	0	0	0	6	0	0	0	19
04:45 PM	0	5	1	0	0	0	0	0	0	0	0	0	5	6	0	0	17
Total	0	36	7	0	0	0	0	0	0	0	0	0	20	15	0	0	78
05:00 PM	0	11	0	0	0	0	0	0	0	0	0	0	3	1	0	0	15
05:15 PM	0	10	0	0	0	0	0	0	0	0	0	0	3	0	0	0	13
05:30 PM	0	7	1	0	0	0	0	0	0	0	0	0	3	2	0	0	13
05:45 PM	0	7	0	0	0	0	0	0	0	0	0	0	4	0	0	0	11
Total	0	35	1	0	0	0	0	0	0	0	0	0	13	3	0	0	52
Grand Total	0	71	8	0	0	0	0	0	0	0	0	0	33	18	0	0	130
Apprch %	0	89.9	10.1	0	0	0	0	0	0	0	0	0	64.7	35.3	0	0	
Total %	0	54.6	6.2	0	0	0	0	0	0	0	0	0	25.4	13.8	0	0	

Start Time	Albany Street From North					I-93 Onramp From Southeast					Albany Street From South					Herald Street From West					Int. Total
	Right	Thru	Bear Left	U-Turn	App. Total	Bear Right	Bear Left	Hard Left	U-Turn	App. Total	Hard Right	Thru	Left	U-Turn	App. Total	Right	Bear Right	Left	U-Turn	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	0	12	3	0	15	0	0	0	0	0	0	0	0	0	0	6	5	0	0	11	26
04:15 PM	0	8	1	0	9	0	0	0	0	0	0	0	0	0	0	3	4	0	0	7	16
04:30 PM	0	11	2	0	13	0	0	0	0	0	0	0	0	0	0	6	0	0	0	6	19
04:45 PM	0	5	1	0	6	0	0	0	0	0	0	0	0	0	0	5	6	0	0	11	17
Total Volume	0	36	7	0	43	0	0	0	0	0	0	0	0	0	0	20	15	0	0	35	78
% App. Total	0	83.7	16.3	0		0	0	0	0	0	0	0	0	0	0	57.1	42.9	0	0		
PHF	.000	.750	.583	.000	.717	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.833	.625	.000	.000	.795	.750



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City, State: Boston, MA  
Client: Howard Stein-Hudson/ M. Santos

File Name : 154855 CC  
Site Code : 15137  
Start Date : 1/13/2016  
Page No : 1

Groups Printed- Peds and Bikes

Start Time	Albany Street From North					I-93 Onramp From Southeast					Albany Street From South					Herald Street From West					Int. Total
	Right	Thru	Bear Left	Peds EB	Peds WB	Bear Right	Bear Left	Hard Left	Peds SWB	Peds NEB	Hard Right	Thru	Left	Peds WB	Peds EB	Right	Bear Right	Left	Peds NB	Peds SB	
04:00 PM	0	0	0	2	4	0	0	0	0	0	0	0	0	0	0	1	0	0	1	4	12
04:15 PM	0	0	0	2	1	0	0	0	0	0	0	0	0	0	0	1	0	0	2	1	7
04:30 PM	0	0	0	4	3	0	0	0	0	0	0	0	0	0	0	0	0	0	4	2	13
04:45 PM	0	0	0	2	3	0	0	0	0	0	0	0	0	0	0	1	0	0	2	2	10
Total	0	0	0	10	11	0	0	0	0	0	0	0	0	0	0	3	0	0	9	9	42
05:00 PM	0	1	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	6
05:15 PM	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	4
05:30 PM	0	1	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	7
05:45 PM	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	7
Total	0	2	0	2	10	0	0	0	0	0	0	0	0	0	0	0	0	0	2	8	24
Grand Total	0	2	0	12	21	0	0	0	0	0	0	0	0	0	0	3	0	0	11	17	66
Apprch %	0	5.7	0	34.3	60	0	0	0	0	0	0	0	0	0	0	9.7	0	0	35.5	54.8	
Total %	0	3	0	18.2	31.8	0	0	0	0	0	0	0	0	0	0	4.5	0	0	16.7	25.8	

Start Time	Albany Street From North						I-93 Onramp From Southeast						Albany Street From South						Herald Street From West						Int. Total
	Right	Thru	Bear Left	Peds EB	Peds WB	App. Total	Bear Right	Bear Left	Hard Left	Peds SWB	Peds NEB	App. Total	Hard Right	Thru	Left	Peds WB	Peds EB	App. Total	Right	Bear Right	Left	Peds NB	Peds SB	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																									
Peak Hour for Entire Intersection Begins at 04:00 PM																									
04:00 PM	0	0	0	2	4	6	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	4	6	12
04:15 PM	0	0	0	2	1	3	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2	1	4	7
04:30 PM	0	0	0	4	3	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	2	6	13
04:45 PM	0	0	0	2	3	5	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2	2	5	10
Total Volume	0	0	0	10	11	21	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	9	9	21	42
% App. Total	0	0	0	47.6	52.4		0	0	0	0	0		0	0	0	0	0		14.3	0	0	42.9	42.9		
PHF	.000	.000	.000	.625	.688	.750	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.563	.563	.875	.808	



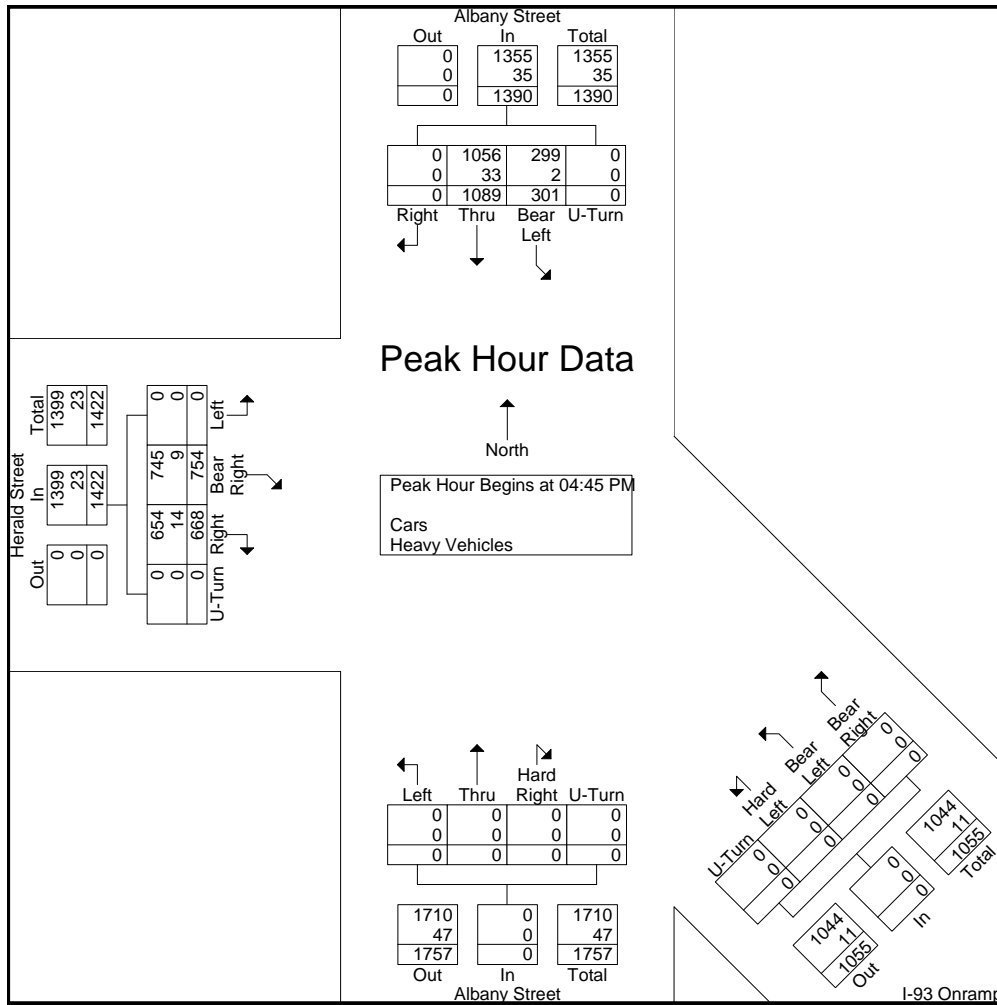
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City, State: Boston, MA  
Client: Howard Stein-Hudson/ M. Santos

File Name : 154855 CC  
Site Code : 15137  
Start Date : 1/13/2016  
Page No : 1

Start Time	Albany Street From North					I-93 Onramp From Southeast					Albany Street From South					Herald Street From West					Int. Total
	Right	Thru	Bear Left	U-Turn	App. Total	Bear Right	Bear Left	Hard Left	U-Turn	App. Total	Hard Right	Thru	Left	U-Turn	App. Total	Right	Bear Right	Left	U-Turn	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	0	270	68	0	338	0	0	0	0	0	0	0	0	0	159	210	0	0	369	707	
05:00 PM	0	250	83	0	333	0	0	0	0	0	0	0	0	0	173	174	0	0	347	680	
05:15 PM	0	297	86	0	383	0	0	0	0	0	0	0	0	0	185	192	0	0	377	760	
05:30 PM	0	272	64	0	336	0	0	0	0	0	0	0	0	0	151	178	0	0	329	665	
Total Volume	0	1089	301	0	1390	0	0	0	0	0	0	0	0	0	668	754	0	0	1422	2812	
% App. Total	0	78.3	21.7	0		0	0	0	0	0	0	0	0	0	47	53	0	0			
PHF	.000	.917	.875	.000	.907	.000	.000	.000	.000	.000	.000	.000	.000	.000	.903	.898	.000	.000	.943	.925	
Cars	0	1056	299	0	1355	0	0	0	0	0	0	0	0	0	654	745	0	0	1399	2754	
% Cars	0	97.0	99.3	0	97.5	0	0	0	0	0	0	0	0	0	97.9	98.8	0	0	98.4	97.9	
Heavy Vehicles	0	33	2	0	35	0	0	0	0	0	0	0	0	0	14	9	0	0	23	58	
% Heavy Vehicles	0	3.0	0.7	0	2.5	0	0	0	0	0	0	0	0	0	2.1	1.2	0	0	1.6	2.1	







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Start Date : 1/13/2016  
Page No : 1

N/S: Washington Street  
E: Traveler Street  
City, State: Boston, MA  
Client: Howard Stein-Hudson/ M. Santos

Groups Printed- Cars - Heavy Vehicles

Start Time	Washington Street From North			Traveler Street From East			Washington Street From South			Int. Total
	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn	
07:00 AM	4	0	0	18	0	0	0	70	0	92
07:15 AM	4	0	0	25	0	0	0	58	0	87
07:30 AM	3	0	0	30	0	0	0	94	0	127
07:45 AM	5	0	0	25	0	0	0	98	0	128
Total	16	0	0	98	0	0	0	320	0	434
08:00 AM	5	0	0	36	0	0	0	100	0	141
08:15 AM	3	0	0	38	0	0	0	102	0	143
08:30 AM	4	0	0	45	0	0	1	132	0	182
08:45 AM	5	0	0	54	0	0	0	124	0	183
Total	17	0	0	173	0	0	1	458	0	649
Grand Total	33	0	0	271	0	0	1	778	0	1083
Apprch %	100	0	0	100	0	0	0.1	99.9	0	
Total %	3	0	0	25	0	0	0.1	71.8	0	
Cars	0	0	0	237	0	0	1	687	0	925
% Cars	0	0	0	87.5	0	0	100	88.3	0	85.4
Heavy Vehicles	33	0	0	34	0	0	0	91	0	158
% Heavy Vehicles	100	0	0	12.5	0	0	0	11.7	0	14.6

Start Time	Washington Street From North				Traveler Street From East				Washington Street From South				Int. Total
	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 08:00 AM													
08:00 AM	5	0	0	5	36	0	0	36	0	100	0	100	141
08:15 AM	3	0	0	3	38	0	0	38	0	102	0	102	143
08:30 AM	4	0	0	4	45	0	0	45	1	132	0	133	182
08:45 AM	5	0	0	5	54	0	0	54	0	124	0	124	183
Total Volume	17	0	0	17	173	0	0	173	1	458	0	459	649
% App. Total	100	0	0	100	100	0	0	100	0.2	99.8	0		
PHF	.850	.000	.000	.850	.801	.000	.000	.801	.250	.867	.000	.863	.887
Cars	0	0	0	0	152	0	0	152	1	411	0	412	564
% Cars	0	0	0	0	87.9	0	0	87.9	100	89.7	0	89.8	86.9
Heavy Vehicles	17	0	0	17	21	0	0	21	0	47	0	47	85
% Heavy Vehicles	100	0	0	100	12.1	0	0	12.1	0	10.3	0	10.2	13.1



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N/S: Washington Street  
E: Traveler Street  
City, State: Boston, MA  
Client: Howard Stein-Hudson/ M. Santos

Groups Printed- Cars

Start Time	Washington Street From North			Traveler Street From East			Washington Street From South			Int. Total
	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn	
07:00 AM	0	0	0	15	0	0	0	62	0	77
07:15 AM	0	0	0	21	0	0	0	47	0	68
07:30 AM	0	0	0	27	0	0	0	81	0	108
07:45 AM	0	0	0	22	0	0	0	86	0	108
Total	0	0	0	85	0	0	0	276	0	361
08:00 AM	0	0	0	30	0	0	0	89	0	119
08:15 AM	0	0	0	34	0	0	0	93	0	127
08:30 AM	0	0	0	40	0	0	1	112	0	153
08:45 AM	0	0	0	48	0	0	0	117	0	165
Total	0	0	0	152	0	0	1	411	0	564
Grand Total	0	0	0	237	0	0	1	687	0	925
Apprch %	0	0	0	100	0	0	0.1	99.9	0	
Total %	0	0	0	25.6	0	0	0.1	74.3	0	

Start Time	Washington Street From North				Traveler Street From East				Washington Street From South				Int. Total
	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 08:00 AM													
08:00 AM	0	0	0	0	30	0	0	30	0	89	0	89	119
08:15 AM	0	0	0	0	34	0	0	34	0	93	0	93	127
08:30 AM	0	0	0	0	40	0	0	40	1	112	0	113	153
08:45 AM	0	0	0	0	48	0	0	48	0	117	0	117	165
Total Volume	0	0	0	0	152	0	0	152	1	411	0	412	564
% App. Total	0	0	0	0	100	0	0	100	0.2	99.8	0		
PHF	.000	.000	.000	.000	.792	.000	.000	.792	.250	.878	.000	.880	.855



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File Name : 154855 F  
Site Code : 15137  
Start Date : 1/13/2016  
Page No : 1

N/S: Washington Street  
E: Traveler Street  
City, State: Boston, MA  
Client: Howard Stein-Hudson/ M. Santos

Groups Printed- Heavy Vehicles

Start Time	Washington Street From North			Traveler Street From East			Washington Street From South			Int. Total
	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn	
07:00 AM	4	0	0	3	0	0	0	8	0	15
07:15 AM	4	0	0	4	0	0	0	11	0	19
07:30 AM	3	0	0	3	0	0	0	13	0	19
07:45 AM	5	0	0	3	0	0	0	12	0	20
Total	16	0	0	13	0	0	0	44	0	73
08:00 AM	5	0	0	6	0	0	0	11	0	22
08:15 AM	3	0	0	4	0	0	0	9	0	16
08:30 AM	4	0	0	5	0	0	0	20	0	29
08:45 AM	5	0	0	6	0	0	0	7	0	18
Total	17	0	0	21	0	0	0	47	0	85
Grand Total	33	0	0	34	0	0	0	91	0	158
Apprch %	100	0	0	100	0	0	0	100	0	
Total %	20.9	0	0	21.5	0	0	0	57.6	0	

Start Time	Washington Street From North				Traveler Street From East				Washington Street From South				Int. Total
	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:45 AM													
07:45 AM	5	0	0	5	3	0	0	3	0	12	0	12	20
08:00 AM	5	0	0	5	6	0	0	6	0	11	0	11	22
08:15 AM	3	0	0	3	4	0	0	4	0	9	0	9	16
08:30 AM	4	0	0	4	5	0	0	5	0	20	0	20	29
Total Volume	17	0	0	17	18	0	0	18	0	52	0	52	87
% App. Total	100	0	0		100	0	0		0	100	0		
PHF	.850	.000	.000	.850	.750	.000	.000	.750	.000	.650	.000	.650	.750



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N/S: Washington Street  
E: Traveler Street  
City, State: Boston, MA  
Client: Howard Stein-Hudson/ M. Santos

File Name : 154855 F  
Site Code : 15137  
Start Date : 1/13/2016  
Page No : 1

Groups Printed- Peds and Bikes

Start Time	Washington Street From North				Traveler Street From East				Washington Street From South				Int. Total
	Thru	Left	Peds EB	Peds WB	Right	Left	Peds SB	Peds NB	Right	Thru	Peds WB	Peds EB	
07:00 AM	0	0	0	0	0	0	3	8	0	3	1	2	17
07:15 AM	0	0	2	0	0	0	3	15	0	1	0	0	21
07:30 AM	0	0	1	0	0	0	2	12	0	1	1	1	18
07:45 AM	0	0	0	0	0	0	5	8	0	1	1	3	18
Total	0	0	3	0	0	0	13	43	0	6	3	6	74
08:00 AM	0	0	0	0	0	0	9	16	0	5	2	2	34
08:15 AM	0	0	0	1	0	0	5	20	0	3	2	3	34
08:30 AM	0	0	0	0	1	0	4	22	1	2	3	4	37
08:45 AM	0	0	0	0	1	0	11	12	1	7	2	2	36
Total	0	0	0	1	2	0	29	70	2	17	9	11	141
Grand Total	0	0	3	1	2	0	42	113	2	23	12	17	215
Apprch %	0	0	75	25	1.3	0	26.8	72	3.7	42.6	22.2	31.5	
Total %	0	0	1.4	0.5	0.9	0	19.5	52.6	0.9	10.7	5.6	7.9	

Start Time	Washington Street From North					Traveler Street From East					Washington Street From South					Int. Total
	Thru	Left	Peds EB	Peds WB	App. Total	Right	Left	Peds SB	Peds NB	App. Total	Right	Thru	Peds WB	Peds EB	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																
Peak Hour for Entire Intersection Begins at 08:00 AM																
08:00 AM	0	0	0	0	0	0	0	9	16	25	0	5	2	2	9	34
08:15 AM	0	0	0	1	1	0	0	5	20	25	0	3	2	3	8	34
08:30 AM	0	0	0	0	0	1	0	4	22	27	1	2	3	4	10	37
08:45 AM	0	0	0	0	0	1	0	11	12	24	1	7	2	2	12	36
Total Volume	0	0	0	1	1	2	0	29	70	101	2	17	9	11	39	141
% App. Total	0	0	0	100		2	0	28.7	69.3		5.1	43.6	23.1	28.2		
PHF	.000	.000	.000	.250	.250	.500	.000	.659	.795	.935	.500	.607	.750	.688	.813	.953



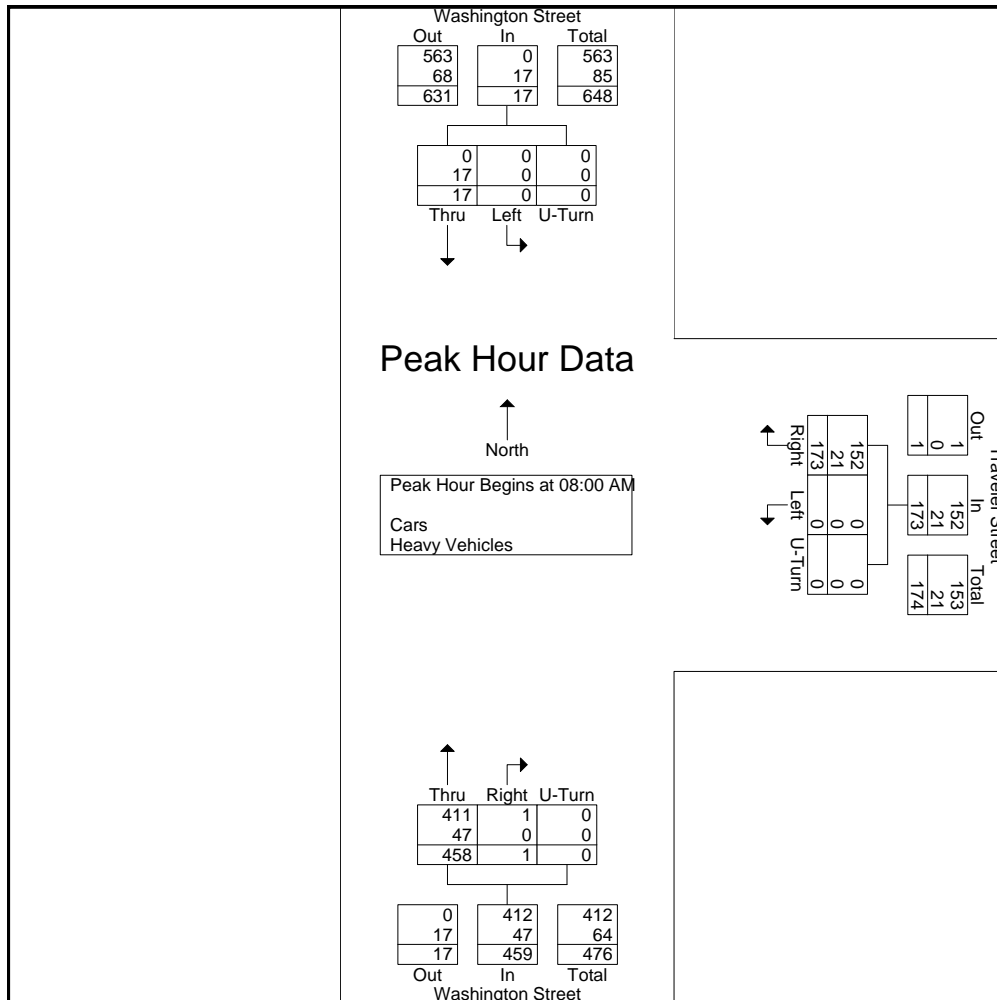
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N/S: Washington Street  
E: Traveler Street  
City, State: Boston, MA  
Client: Howard Stein-Hudson/ M. Santos

File Name : 154855 F  
Site Code : 15137  
Start Date : 1/13/2016  
Page No : 1

Start Time	Washington Street From North				Traveler Street From East				Washington Street From South				Int. Total
	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 08:00 AM													
08:00 AM	5	0	0	5	36	0	0	36	0	100	0	100	141
08:15 AM	3	0	0	3	38	0	0	38	0	102	0	102	143
08:30 AM	4	0	0	4	45	0	0	45	1	132	0	133	182
08:45 AM	5	0	0	5	54	0	0	54	0	124	0	124	183
Total Volume	17	0	0	17	173	0	0	173	1	458	0	459	649
% App. Total	100	0	0		100	0	0		0.2	99.8	0		
PHF	.850	.000	.000	.850	.801	.000	.000	.801	.250	.867	.000	.863	.887
Cars	0	0	0	0	152	0	0	152	1	411	0	412	564
% Cars	0	0	0	0	87.9	0	0	87.9	100	89.7	0	89.8	86.9
Heavy Vehicles	17	0	0	17	21	0	0	21	0	47	0	47	85
% Heavy Vehicles	100	0	0	100	12.1	0	0	12.1	0	10.3	0	10.2	13.1





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Site Code : 15137  
Start Date : 1/13/2016  
Page No : 1

N/S: Washington Street  
E: Traveler Street  
City, State: Boston, MA  
Client: Howard Stein-Hudson/ M. Santos

Groups Printed- Cars - Heavy Vehicles

Start Time	Washington Street From North			Traveler Street From East			Washington Street From South			Int. Total
	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn	
04:00 PM	2	0	0	30	0	0	0	75	0	107
04:15 PM	5	0	0	25	0	0	0	83	0	113
04:30 PM	4	0	0	31	0	0	0	92	0	127
04:45 PM	5	0	0	28	0	0	0	101	0	134
Total	16	0	0	114	0	0	0	351	0	481
05:00 PM	5	0	0	22	0	0	0	110	0	137
05:15 PM	2	0	0	25	0	0	0	100	0	127
05:30 PM	4	0	0	24	0	0	0	93	0	121
05:45 PM	3	0	0	20	1	0	0	89	0	113
Total	14	0	0	91	1	0	0	392	0	498
Grand Total	30	0	0	205	1	0	0	743	0	979
Apprch %	100	0	0	99.5	0.5	0	0	100	0	
Total %	3.1	0	0	20.9	0.1	0	0	75.9	0	
Cars	5	0	0	179	0	0	0	689	0	873
% Cars	16.7	0	0	87.3	0	0	0	92.7	0	89.2
Heavy Vehicles	25	0	0	26	1	0	0	54	0	106
% Heavy Vehicles	83.3	0	0	12.7	100	0	0	7.3	0	10.8

Start Time	Washington Street From North				Traveler Street From East				Washington Street From South				Int. Total
	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:30 PM													
04:30 PM	4	0	0	4	31	0	0	31	0	92	0	92	127
04:45 PM	5	0	0	5	28	0	0	28	0	101	0	101	134
05:00 PM	5	0	0	5	22	0	0	22	0	110	0	110	137
05:15 PM	2	0	0	2	25	0	0	25	0	100	0	100	127
Total Volume	16	0	0	16	106	0	0	106	0	403	0	403	525
% App. Total	100	0	0		100	0	0		0	100	0		
PHF	.800	.000	.000	.800	.855	.000	.000	.855	.000	.916	.000	.916	.958
Cars	3	0	0	3	94	0	0	94	0	375	0	375	472
% Cars	18.8	0	0	18.8	88.7	0	0	88.7	0	93.1	0	93.1	89.9
Heavy Vehicles	13	0	0	13	12	0	0	12	0	28	0	28	53
% Heavy Vehicles	81.3	0	0	81.3	11.3	0	0	11.3	0	6.9	0	6.9	10.1



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File Name : 154855 FF  
Site Code : 15137  
Start Date : 1/13/2016  
Page No : 1

N/S: Washington Street  
E: Traveler Street  
City, State: Boston, MA  
Client: Howard Stein-Hudson/ M. Santos

Groups Printed- Cars

Start Time	Washington Street From North			Traveler Street From East			Washington Street From South			Int. Total
	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn	
04:00 PM	0	0	0	27	0	0	0	68	0	95
04:15 PM	0	0	0	20	0	0	0	76	0	96
04:30 PM	0	0	0	29	0	0	0	87	0	116
04:45 PM	2	0	0	25	0	0	0	94	0	121
Total	2	0	0	101	0	0	0	325	0	428
05:00 PM	1	0	0	17	0	0	0	101	0	119
05:15 PM	0	0	0	23	0	0	0	93	0	116
05:30 PM	1	0	0	20	0	0	0	87	0	108
05:45 PM	1	0	0	18	0	0	0	83	0	102
Total	3	0	0	78	0	0	0	364	0	445
Grand Total	5	0	0	179	0	0	0	689	0	873
Apprch %	100	0	0	100	0	0	0	100	0	
Total %	0.6	0	0	20.5	0	0	0	78.9	0	

Start Time	Washington Street From North				Traveler Street From East				Washington Street From South				Int. Total
	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:30 PM													
04:30 PM	0	0	0	0	29	0	0	29	0	87	0	87	116
04:45 PM	2	0	0	2	25	0	0	25	0	94	0	94	121
05:00 PM	1	0	0	1	17	0	0	17	0	101	0	101	119
05:15 PM	0	0	0	0	23	0	0	23	0	93	0	93	116
Total Volume	3	0	0	3	94	0	0	94	0	375	0	375	472
% App. Total	100	0	0		100	0	0		0	100	0		
PHF	.375	.000	.000	.375	.810	.000	.000	.810	.000	.928	.000	.928	.975



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File Name : 154855 FF  
Site Code : 15137  
Start Date : 1/13/2016  
Page No : 1

N/S: Washington Street  
E: Traveler Street  
City, State: Boston, MA  
Client: Howard Stein-Hudson/ M. Santos

Groups Printed- Heavy Vehicles

Start Time	Washington Street From North			Traveler Street From East			Washington Street From South			Int. Total
	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn	
04:00 PM	2	0	0	3	0	0	0	7	0	12
04:15 PM	5	0	0	5	0	0	0	7	0	17
04:30 PM	4	0	0	2	0	0	0	5	0	11
04:45 PM	3	0	0	3	0	0	0	7	0	13
Total	14	0	0	13	0	0	0	26	0	53
05:00 PM	4	0	0	5	0	0	0	9	0	18
05:15 PM	2	0	0	2	0	0	0	7	0	11
05:30 PM	3	0	0	4	0	0	0	6	0	13
05:45 PM	2	0	0	2	1	0	0	6	0	11
Total	11	0	0	13	1	0	0	28	0	53
Grand Total	25	0	0	26	1	0	0	54	0	106
Apprch %	100	0	0	96.3	3.7	0	0	100	0	
Total %	23.6	0	0	24.5	0.9	0	0	50.9	0	

Start Time	Washington Street From North				Traveler Street From East				Washington Street From South				Int. Total
	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:15 PM													
04:15 PM	5	0	0	5	5	0	0	5	0	7	0	7	17
04:30 PM	4	0	0	4	2	0	0	2	0	5	0	5	11
04:45 PM	3	0	0	3	3	0	0	3	0	7	0	7	13
05:00 PM	4	0	0	4	5	0	0	5	0	9	0	9	18
Total Volume	16	0	0	16	15	0	0	15	0	28	0	28	59
% App. Total	100	0	0		100	0	0		0	100	0		
PHF	.800	.000	.000	.800	.750	.000	.000	.750	.000	.778	.000	.778	.819





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E: Traveler Street  
City, State: Boston, MA  
Client: Howard Stein-Hudson/ M. Santos

File Name : 154855 FF  
Site Code : 15137  
Start Date : 1/13/2016  
Page No : 1

Groups Printed- Peds and Bikes

Start Time	Washington Street From North				Traveler Street From East				Washington Street From South				Int. Total
	Thru	Left	Peds EB	Peds WB	Right	Left	Peds SB	Peds NB	Right	Thru	Peds WB	Peds EB	
04:00 PM	1	1	0	0	0	0	14	9	0	0	3	4	32
04:15 PM	2	0	0	0	0	1	14	15	0	0	3	2	37
04:30 PM	1	0	0	0	0	0	17	11	0	0	3	4	36
04:45 PM	3	0	0	0	0	0	11	14	0	0	1	3	32
Total	7	1	0	0	0	1	56	49	0	0	10	13	137
05:00 PM	0	0	0	1	0	1	10	22	0	0	1	4	39
05:15 PM	0	0	2	0	0	1	14	9	0	1	6	4	37
05:30 PM	0	0	3	1	0	0	14	8	0	1	5	5	37
05:45 PM	0	0	1	0	0	0	11	11	0	2	4	7	36
Total	0	0	6	2	0	2	49	50	0	4	16	20	149
Grand Total	7	1	6	2	0	3	105	99	0	4	26	33	286
Apprch %	43.8	6.2	37.5	12.5	0	1.4	50.7	47.8	0	6.3	41.3	52.4	
Total %	2.4	0.3	2.1	0.7	0	1	36.7	34.6	0	1.4	9.1	11.5	

Start Time	Washington Street From North					Traveler Street From East					Washington Street From South					Int. Total
	Thru	Left	Peds EB	Peds WB	App. Total	Right	Left	Peds SB	Peds NB	App. Total	Right	Thru	Peds WB	Peds EB	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																
Peak Hour for Entire Intersection Begins at 05:00 PM																
05:00 PM	0	0	0	1	1	0	1	10	22	33	0	0	1	4	5	39
05:15 PM	0	0	2	0	2	0	1	14	9	24	0	1	6	4	11	37
05:30 PM	0	0	3	1	4	0	0	14	8	22	0	1	5	5	11	37
05:45 PM	0	0	1	0	1	0	0	11	11	22	0	2	4	7	13	36
Total Volume	0	0	6	2	8	0	2	49	50	101	0	4	16	20	40	149
% App. Total	0	0	75	25		0	2	48.5	49.5		0	10	40	50		
PHF	.000	.000	.500	.500	.500	.000	.500	.875	.568	.765	.000	.500	.667	.714	.769	.955



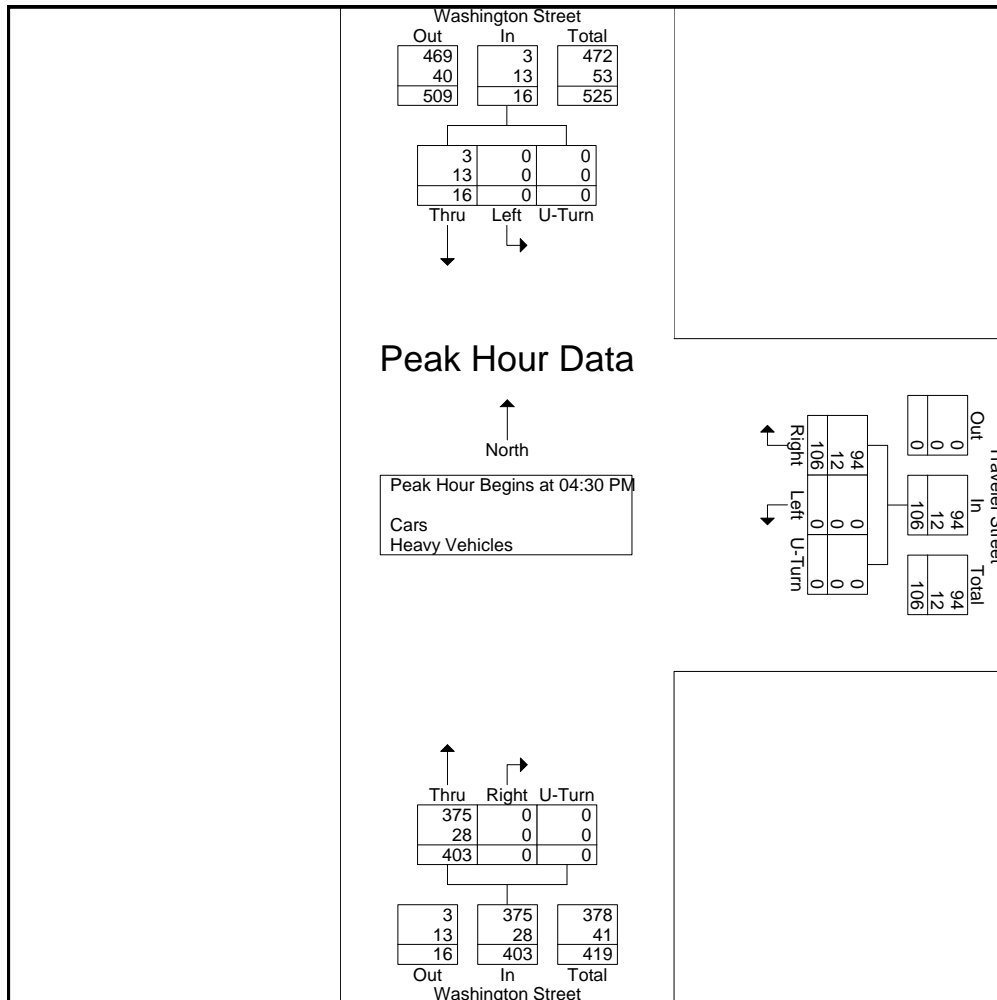
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City, State: Boston, MA  
Client: Howard Stein-Hudson/ M. Santos

File Name : 154855 FF  
Site Code : 15137  
Start Date : 1/13/2016  
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Start Time	Washington Street From North				Traveler Street From East				Washington Street From South				Int. Total
	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:30 PM													
04:30 PM	4	0	0	4	31	0	0	31	0	92	0	92	127
04:45 PM	5	0	0	5	28	0	0	28	0	101	0	101	134
05:00 PM	5	0	0	5	22	0	0	22	0	110	0	110	137
05:15 PM	2	0	0	2	25	0	0	25	0	100	0	100	127
Total Volume	16	0	0	16	106	0	0	106	0	403	0	403	525
% App. Total	100	0	0		100	0	0		0	100	0		
PHF	.800	.000	.000	.800	.855	.000	.000	.855	.000	.916	.000	.916	.958
Cars	3	0	0	3	94	0	0	94	0	375	0	375	472
% Cars	18.8	0	0	18.8	88.7	0	0	88.7	0	93.1	0	93.1	89.9
Heavy Vehicles	13	0	0	13	12	0	0	12	0	28	0	28	53
% Heavy Vehicles	81.3	0	0	81.3	11.3	0	0	11.3	0	6.9	0	6.9	10.1





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N/S: Harrison Street  
E/W: Traveler Street  
City, State: Boston, MA  
Client: Howard Stein-Hudson/ M. Santos

File Name : 154855 I  
Site Code : 15137  
Start Date : 1/13/2016  
Page No : 1

Groups Printed- Cars - Heavy Vehicles

Start Time	Harrison Street From North				Traveler Street From East				Harrison Street From South				Traveler Street From West				Int. Total
	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
07:00 AM	6	26	9	2	6	9	3	0	15	18	16	0	0	0	0	0	110
07:15 AM	6	39	5	0	9	10	10	0	30	28	21	2	0	0	0	0	160
07:30 AM	12	39	14	3	12	10	13	0	29	36	26	2	0	0	0	0	196
07:45 AM	7	49	11	1	12	12	9	0	39	30	20	1	0	0	0	0	191
Total	31	153	39	6	39	41	35	0	113	112	83	5	0	0	0	0	657
08:00 AM	4	68	13	1	18	18	16	0	27	39	18	3	0	0	0	0	225
08:15 AM	7	63	17	1	12	14	12	0	19	44	25	3	0	0	0	0	217
08:30 AM	8	60	22	2	25	18	9	0	29	46	23	3	0	0	0	0	245
08:45 AM	4	62	12	1	19	20	9	0	20	36	33	1	0	0	0	0	217
Total	23	253	64	5	74	70	46	0	95	165	99	10	0	0	0	0	904
Grand Total	54	406	103	11	113	111	81	0	208	277	182	15	0	0	0	0	1561
Apprch %	9.4	70.7	17.9	1.9	37	36.4	26.6	0	30.5	40.6	26.7	2.2	0	0	0	0	
Total %	3.5	26	6.6	0.7	7.2	7.1	5.2	0	13.3	17.7	11.7	1	0	0	0	0	
Cars	33	379	91	9	113	105	79	0	194	264	177	14	0	0	0	0	1458
% Cars	61.1	93.3	88.3	81.8	100	94.6	97.5	0	93.3	95.3	97.3	93.3	0	0	0	0	93.4
Heavy Vehicles	21	27	12	2	0	6	2	0	14	13	5	1	0	0	0	0	103
% Heavy Vehicles	38.9	6.7	11.7	18.2	0	5.4	2.5	0	6.7	4.7	2.7	6.7	0	0	0	0	6.6

Start Time	Harrison Street From North					Traveler Street From East					Harrison Street From South					Traveler Street From West					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	4	68	13	1	86	18	18	16	0	52	27	39	18	3	87	0	0	0	0	0	225
08:15 AM	7	63	17	1	88	12	14	12	0	38	19	44	25	3	91	0	0	0	0	0	217
08:30 AM	8	60	22	2	92	25	18	9	0	52	29	46	23	3	101	0	0	0	0	0	245
08:45 AM	4	62	12	1	79	19	20	9	0	48	20	36	33	1	90	0	0	0	0	0	217
Total Volume	23	253	64	5	345	74	70	46	0	190	95	165	99	10	369	0	0	0	0	0	904
% App. Total	6.7	73.3	18.6	1.4		38.9	36.8	24.2	0		25.7	44.7	26.8	2.7		0	0	0	0	0	
PHF	.719	.930	.727	.625	.938	.740	.875	.719	.000	.913	.819	.897	.750	.833	.913	.000	.000	.000	.000	.000	.922
Cars	13	240	59	5	317	74	64	44	0	182	91	157	95	9	352	0	0	0	0	0	851
% Cars	56.5	94.9	92.2	100	91.9	100	91.4	95.7	0	95.8	95.8	95.2	96.0	90.0	95.4	0	0	0	0	0	94.1
Heavy Vehicles	10	13	5	0	28	0	6	2	0	8	4	8	4	1	17	0	0	0	0	0	53
% Heavy Vehicles	43.5	5.1	7.8	0	8.1	0	8.6	4.3	0	4.2	4.2	4.8	4.0	10.0	4.6	0	0	0	0	0	5.9





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N/S: Harrison Street  
E/W: Traveler Street  
City, State: Boston, MA  
Client: Howard Stein-Hudson/ M. Santos

File Name : 154855 I  
Site Code : 15137  
Start Date : 1/13/2016  
Page No : 1

Groups Printed- Heavy Vehicles

Start Time	Harrison Street From North				Traveler Street From East				Harrison Street From South				Traveler Street From West				Int. Total
	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
07:00 AM	3	1	2	2	0	0	0	0	0	1	0	0	0	0	0	0	9
07:15 AM	2	4	1	0	0	0	0	0	2	0	0	0	0	0	0	0	9
07:30 AM	4	4	3	0	0	0	0	0	3	2	0	0	0	0	0	0	16
07:45 AM	2	5	1	0	0	0	0	0	5	2	1	0	0	0	0	0	16
Total	11	14	7	2	0	0	0	0	10	5	1	0	0	0	0	0	50
08:00 AM	3	4	2	0	0	3	2	0	0	4	1	0	0	0	0	0	19
08:15 AM	3	1	1	0	0	1	0	0	0	1	1	1	0	0	0	0	9
08:30 AM	1	5	1	0	0	0	0	0	1	1	1	0	0	0	0	0	10
08:45 AM	3	3	1	0	0	2	0	0	3	2	1	0	0	0	0	0	15
Total	10	13	5	0	0	6	2	0	4	8	4	1	0	0	0	0	53
Grand Total	21	27	12	2	0	6	2	0	14	13	5	1	0	0	0	0	103
Apprch %	33.9	43.5	19.4	3.2	0	75	25	0	42.4	39.4	15.2	3	0	0	0	0	
Total %	20.4	26.2	11.7	1.9	0	5.8	1.9	0	13.6	12.6	4.9	1	0	0	0	0	

Start Time	Harrison Street From North					Traveler Street From East					Harrison Street From South					Traveler Street From West					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	2	4	1	0	7	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	9
07:30 AM	4	4	3	0	11	0	0	0	0	0	3	2	0	0	5	0	0	0	0	0	16
07:45 AM	2	5	1	0	8	0	0	0	0	0	5	2	1	0	8	0	0	0	0	0	16
08:00 AM	3	4	2	0	9	0	3	2	0	5	0	4	1	0	5	0	0	0	0	0	19
Total Volume	11	17	7	0	35	0	3	2	0	5	10	8	2	0	20	0	0	0	0	0	60
% App. Total	31.4	48.6	20	0		0	60	40	0		50	40	10	0		0	0	0	0		
PHF	.688	.850	.583	.000	.795	.000	.250	.250	.000	.250	.500	.500	.500	.000	.625	.000	.000	.000	.000	.000	.789



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N/S: Harrison Street  
E/W: Traveler Street  
City, State: Boston, MA  
Client: Howard Stein-Hudson/ M. Santos

File Name : 154855 I  
Site Code : 15137  
Start Date : 1/13/2016  
Page No : 1

Groups Printed- Peds and Bikes

Start Time	Harrison Street From North					Traveler Street From East					Harrison Street From South					Traveler Street From West					Int. Total
	Right	Thru	Left	Peds EB	Peds WB	Right	Thru	Left	Peds SB	Peds NB	Right	Thru	Left	Peds WB	Peds EB	Right	Thru	Left	Peds NB	Peds SB	
07:00 AM	0	0	1	3	1	0	0	0	2	1	0	0	0	1	2	0	0	0	4	1	16
07:15 AM	0	2	0	0	4	0	0	0	2	7	0	0	0	0	1	0	0	0	2	2	20
07:30 AM	0	0	0	2	0	0	0	0	3	7	0	0	0	1	1	0	0	0	8	3	25
07:45 AM	0	1	1	3	1	0	0	0	11	11	0	0	0	3	5	0	0	0	11	2	49
Total	0	3	2	8	6	0	0	0	18	26	0	0	0	5	9	0	0	0	25	8	110
08:00 AM	0	0	0	2	1	0	0	0	4	9	0	2	0	6	1	0	0	0	11	0	36
08:15 AM	0	1	1	2	5	0	0	0	11	18	0	0	0	2	1	0	0	0	9	0	50
08:30 AM	0	3	0	2	2	0	0	0	10	11	0	1	1	3	0	0	0	1	15	3	52
08:45 AM	0	1	0	0	1	0	1	0	14	20	3	2	0	11	3	0	0	0	12	7	75
Total	0	5	1	6	9	0	1	0	39	58	3	5	1	22	5	0	0	1	47	10	213
Grand Total	0	8	3	14	15	0	1	0	57	84	3	5	1	27	14	0	0	1	72	18	323
Apprch %	0	20	7.5	35	37.5	0	0.7	0	40.1	59.2	6	10	2	54	28	0	0	1.1	79.1	19.8	
Total %	0	2.5	0.9	4.3	4.6	0	0.3	0	17.6	26	0.9	1.5	0.3	8.4	4.3	0	0	0.3	22.3	5.6	

Start Time	Harrison Street From North						Traveler Street From East						Harrison Street From South						Traveler Street From West						Int. Total
	Right	Thru	Left	Peds EB	Peds WB	App. Total	Right	Thru	Left	Peds SB	Peds NB	App. Total	Right	Thru	Left	Peds WB	Peds EB	App. Total	Right	Thru	Left	Peds NB	Peds SB	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																									
Peak Hour for Entire Intersection Begins at 08:00 AM																									
08:00 AM	0	0	0	2	1	3	0	0	0	4	9	13	0	2	0	6	1	9	0	0	0	11	0	11	36
08:15 AM	0	1	1	2	5	9	0	0	0	11	18	29	0	0	0	2	1	3	0	0	0	9	0	9	50
08:30 AM	0	3	0	2	2	7	0	0	0	10	11	21	0	1	1	3	0	5	0	0	1	15	3	19	52
08:45 AM	0	1	0	0	1	2	0	1	0	14	20	35	3	2	0	11	3	19	0	0	0	12	7	19	75
Total Volume	0	5	1	6	9	21	0	1	0	39	58	98	3	5	1	22	5	36	0	0	1	47	10	58	213
% App. Total	0	23.8	4.8	28.6	42.9		0	1	0	39.8	59.2		8.3	13.9	2.8	61.1	13.9		0	0	1.7	81	17.2		
PHF	.000	.417	.250	.750	.450	.583	.000	.250	.000	.696	.725	.700	.250	.625	.250	.500	.417	.474	.000	.000	.250	.783	.357	.763	.710



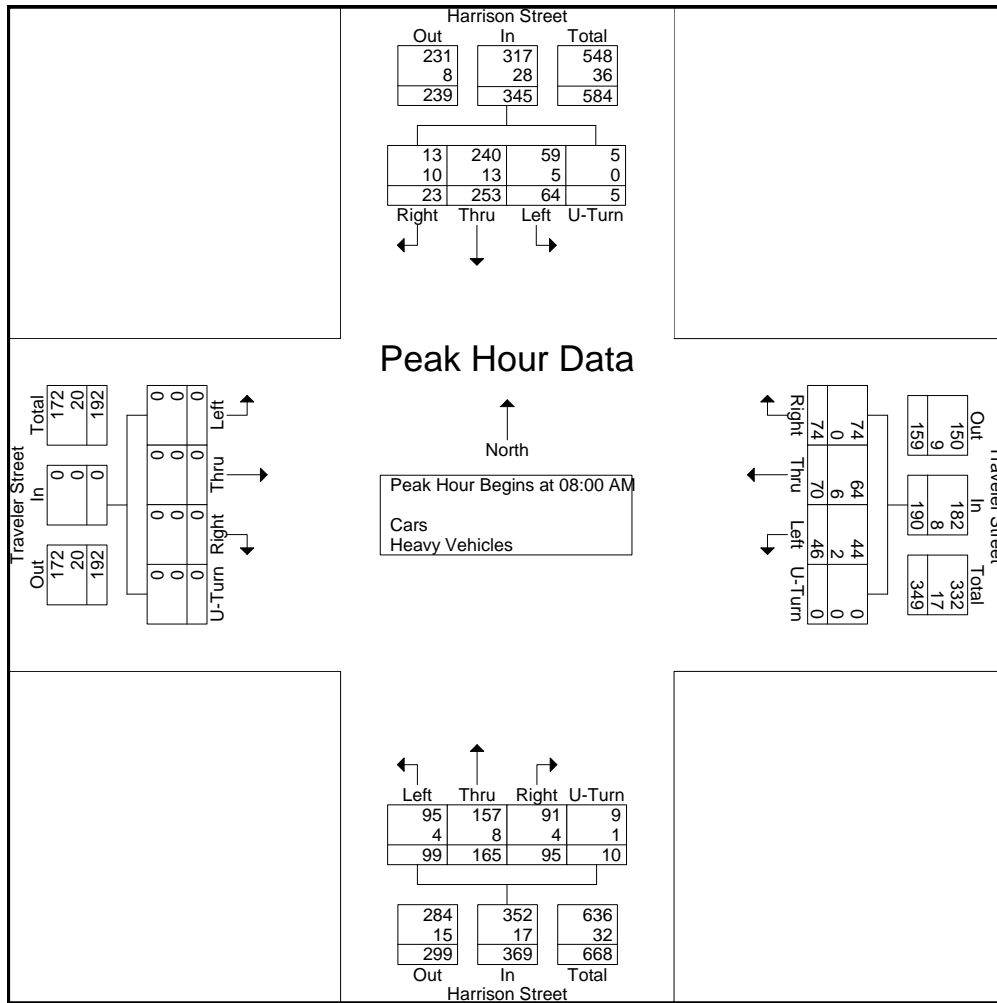
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City, State: Boston, MA  
Client: Howard Stein-Hudson/ M. Santos

File Name : 154855 I  
Site Code : 15137  
Start Date : 1/13/2016  
Page No : 1

Start Time	Harrison Street From North					Traveler Street From East					Harrison Street From South					Traveler Street From West					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	4	68	13	1	86	18	18	16	0	52	27	39	18	3	87	0	0	0	0	0	225
08:15 AM	7	63	17	1	88	12	14	12	0	38	19	44	25	3	91	0	0	0	0	0	217
08:30 AM	8	60	22	2	92	25	18	9	0	52	29	46	23	3	101	0	0	0	0	0	245
08:45 AM	4	62	12	1	79	19	20	9	0	48	20	36	33	1	90	0	0	0	0	0	217
Total Volume	23	253	64	5	345	74	70	46	0	190	95	165	99	10	369	0	0	0	0	0	904
% App. Total	6.7	73.3	18.6	1.4		38.9	36.8	24.2	0		25.7	44.7	26.8	2.7		0	0	0	0		
PHF	.719	.930	.727	.625	.938	.740	.875	.719	.000	.913	.819	.897	.750	.833	.913	.000	.000	.000	.000	.000	.922
Cars	13	240	59	5	317	74	64	44	0	182	91	157	95	9	352	0	0	0	0	0	851
% Cars	56.5	94.9	92.2	100	91.9	100	91.4	95.7	0	95.8	95.8	95.2	96.0	90.0	95.4	0	0	0	0	0	94.1
Heavy Vehicles	10	13	5	0	28	0	6	2	0	8	4	8	4	1	17	0	0	0	0	0	53
% Heavy Vehicles	43.5	5.1	7.8	0	8.1	0	8.6	4.3	0	4.2	4.2	4.8	4.0	10.0	4.6	0	0	0	0	0	5.9





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E/W: Traveler Street  
City, State: Boston, MA  
Client: Howard Stein-Hudson/ M. Santos

File Name : 154855 II  
Site Code : 15137  
Start Date : 1/13/2016  
Page No : 1

Groups Printed- Cars - Heavy Vehicles

Start Time	Harrison Street From North				Traveler Street From East				Harrison Street From South				Traveler Street From West				Int. Total
	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
04:00 PM	6	77	45	4	5	3	4	0	49	68	13	2	0	0	0	0	276
04:15 PM	4	105	42	0	6	2	6	0	38	54	10	2	0	0	0	0	269
04:30 PM	3	91	58	1	5	3	6	0	39	59	13	6	0	0	0	0	284
04:45 PM	4	79	45	5	7	4	8	0	41	63	8	1	0	0	0	0	265
Total	17	352	190	10	23	12	24	0	167	244	44	11	0	0	0	0	1094
05:00 PM	2	113	43	1	6	5	7	0	45	73	10	0	0	0	0	0	305
05:15 PM	2	108	45	1	9	1	4	0	46	74	9	1	0	0	0	0	300
05:30 PM	6	83	57	4	15	3	14	0	34	71	7	7	0	0	0	0	301
05:45 PM	3	71	56	1	5	3	13	0	49	49	4	4	0	0	0	0	258
Total	13	375	201	7	35	12	38	0	174	267	30	12	0	0	0	0	1164
Grand Total	30	727	391	17	58	24	62	0	341	511	74	23	0	0	0	0	2258
Apprch %	2.6	62.4	33.6	1.5	40.3	16.7	43.1	0	35.9	53.8	7.8	2.4	0	0	0	0	
Total %	1.3	32.2	17.3	0.8	2.6	1.1	2.7	0	15.1	22.6	3.3	1	0	0	0	0	
Cars	10	707	378	17	58	24	60	0	331	502	69	23	0	0	0	0	2179
% Cars	33.3	97.2	96.7	100	100	100	96.8	0	97.1	98.2	93.2	100	0	0	0	0	96.5
Heavy Vehicles	20	20	13	0	0	0	2	0	10	9	5	0	0	0	0	0	79
% Heavy Vehicles	66.7	2.8	3.3	0	0	0	3.2	0	2.9	1.8	6.8	0	0	0	0	0	3.5

Start Time	Harrison Street From North					Traveler Street From East					Harrison Street From South					Traveler Street From West					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	4	79	45	5	133	7	4	8	0	19	41	63	8	1	113	0	0	0	0	0	265
05:00 PM	2	113	43	1	159	6	5	7	0	18	45	73	10	0	128	0	0	0	0	0	305
05:15 PM	2	108	45	1	156	9	1	4	0	14	46	74	9	1	130	0	0	0	0	0	300
05:30 PM	6	83	57	4	150	15	3	14	0	32	34	71	7	7	119	0	0	0	0	0	301
Total Volume	14	383	190	11	598	37	13	33	0	83	166	281	34	9	490	0	0	0	0	0	1171
% App. Total	2.3	64	31.8	1.8		44.6	15.7	39.8	0		33.9	57.3	6.9	1.8		0	0	0	0	0	
PHF	.583	.847	.833	.550	.940	.617	.650	.589	.000	.648	.902	.949	.850	.321	.942	.000	.000	.000	.000	.000	.960
Cars	4	373	186	11	574	37	13	32	0	82	161	274	30	9	474	0	0	0	0	0	1130
% Cars	28.6	97.4	97.9	100	96.0	100	100	97.0	0	98.8	97.0	97.5	88.2	100	96.7	0	0	0	0	0	96.5
Heavy Vehicles	10	10	4	0	24	0	0	1	0	1	5	7	4	0	16	0	0	0	0	0	41
% Heavy Vehicles	71.4	2.6	2.1	0	4.0	0	0	3.0	0	1.2	3.0	2.5	11.8	0	3.3	0	0	0	0	0	3.5









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File Name : 154855 II  
Site Code : 15137  
Start Date : 1/13/2016  
Page No : 1

Groups Printed- Peds and Bikes

Start Time	Harrison Street From North					Traveler Street From East					Harrison Street From South					Traveler Street From West					Int. Total	
	Right	Thru	Left	Peds EB	Peds WB	Right	Thru	Left	Peds SB	Peds NB	Right	Thru	Left	Peds WB	Peds EB	Right	Thru	Left	Peds NB	Peds SB		
04:00 PM	0	2	1	3	1	0	0	0	14	3	0	0	0	2	5	0	0	0	2	10		
04:15 PM	0	1	0	4	1	0	1	0	6	13	1	0	0	1	6	0	0	0	13	7		
04:30 PM	0	1	0	2	3	0	0	0	10	10	0	2	0	1	5	0	0	0	6	11		
04:45 PM	0	1	0	2	4	0	0	0	7	9	0	0	0	1	2	0	0	0	4	9		
Total	0	5	1	11	9	0	1	0	37	35	1	2	0	5	18	0	0	0	25	37		187
05:00 PM	0	0	0	5	1	0	1	0	8	10	0	1	0	4	12	0	0	0	5	5		52
05:15 PM	0	0	1	1	3	0	0	0	11	12	0	0	0	5	4	0	0	0	2	9		48
05:30 PM	0	1	0	8	1	0	0	0	22	14	0	3	0	2	4	0	0	0	0	1		56
05:45 PM	0	0	1	3	5	0	0	0	19	21	0	0	0	3	2	0	0	0	7	13		74
Total	0	1	2	17	10	0	1	0	60	57	0	4	0	14	22	0	0	0	14	28		230
Grand Total	0	6	3	28	19	0	2	0	97	92	1	6	0	19	40	0	0	0	39	65		417
Apprch %	0	10.7	5.4	50	33.9	0	1	0	50.8	48.2	1.5	9.1	0	28.8	60.6	0	0	0	37.5	62.5		
Total %	0	1.4	0.7	6.7	4.6	0	0.5	0	23.3	22.1	0.2	1.4	0	4.6	9.6	0	0	0	9.4	15.6		

Start Time	Harrison Street From North						Traveler Street From East						Harrison Street From South						Traveler Street From West						Int. Total		
	Right	Thru	Left	Peds EB	Peds WB	App. Total	Right	Thru	Left	Peds SB	Peds NB	App. Total	Right	Thru	Left	Peds WB	Peds EB	App. Total	Right	Thru	Left	Peds NB	Peds SB	App. Total			
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																											
Peak Hour for Entire Intersection Begins at 05:00 PM																											
05:00 PM	0	0	0	5	1	6	0	1	0	8	10	19	0	1	0	4	12	17	0	0	0	5	5	10			52
05:15 PM	0	0	1	1	3	5	0	0	0	11	12	23	0	0	0	5	4	9	0	0	0	2	9	11			48
05:30 PM	0	1	0	8	1	10	0	0	0	22	14	36	0	3	0	2	4	9	0	0	0	0	1	1			56
05:45 PM	0	0	1	3	5	9	0	0	0	19	21	40	0	0	0	3	2	5	0	0	0	7	13	20			74
Total Volume	0	1	2	17	10	30	0	1	0	60	57	118	0	4	0	14	22	40	0	0	0	14	28	42			230
% App. Total	0	3.3	6.7	56.7	33.3		0	0.8	0	50.8	48.3		0	10	0	35	55		0	0	0	33.3	66.7				
PHF	.000	.250	.500	.531	.500	.750	.000	.250	.000	.682	.679	.738	.000	.333	.000	.700	.458	.588	.000	.000	.000	.500	.538	.525			.777



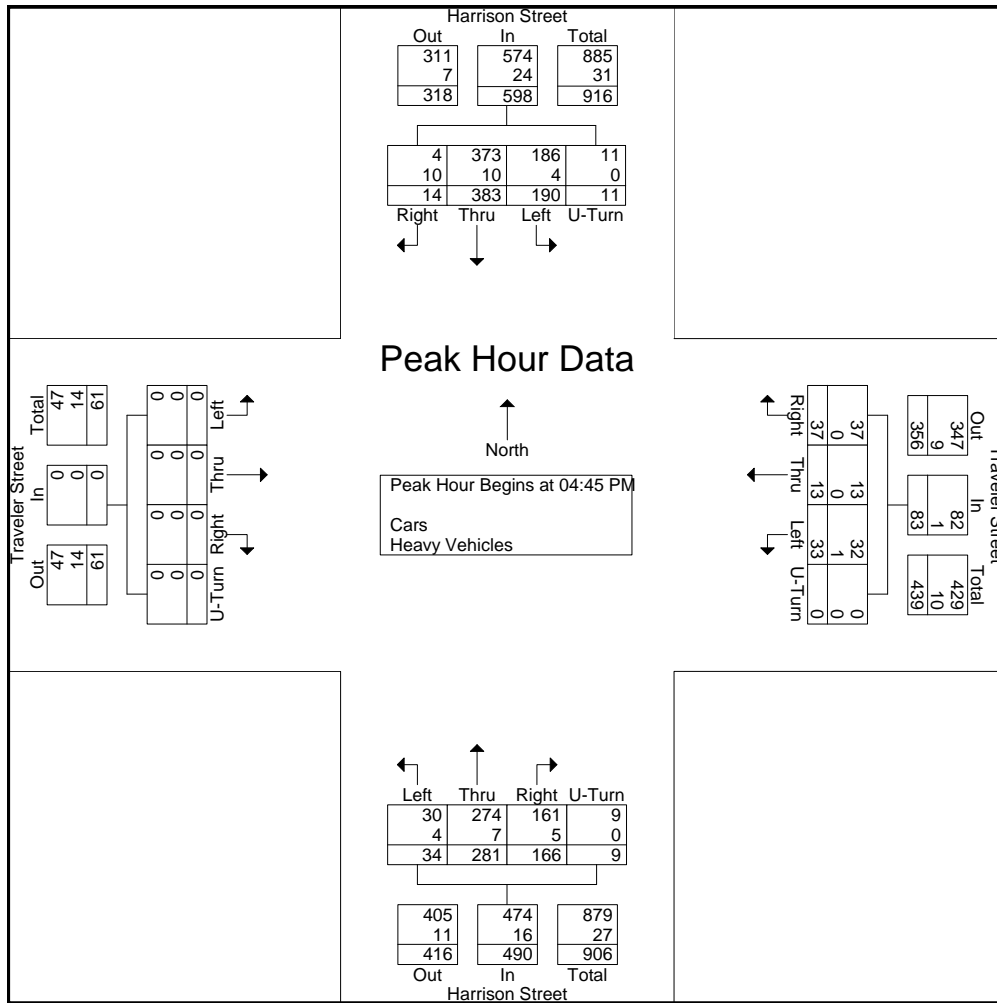
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N/S: Harrison Street  
E/W: Traveler Street  
City, State: Boston, MA  
Client: Howard Stein-Hudson/ M. Santos

File Name : 154855 II  
Site Code : 15137  
Start Date : 1/13/2016  
Page No : 1

Start Time	Harrison Street From North					Traveler Street From East					Harrison Street From South					Traveler Street From West					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	4	79	45	5	133	7	4	8	0	19	41	63	8	1	113	0	0	0	0	0	265
05:00 PM	2	113	43	1	159	6	5	7	0	18	45	73	10	0	128	0	0	0	0	0	305
05:15 PM	2	108	45	1	156	9	1	4	0	14	46	74	9	1	130	0	0	0	0	0	300
05:30 PM	6	83	57	4	150	15	3	14	0	32	34	71	7	7	119	0	0	0	0	0	301
Total Volume	14	383	190	11	598	37	13	33	0	83	166	281	34	9	490	0	0	0	0	0	1171
% App. Total	2.3	64	31.8	1.8		44.6	15.7	39.8	0		33.9	57.3	6.9	1.8		0	0	0	0		
PHF	.583	.847	.833	.550	.940	.617	.650	.589	.000	.648	.902	.949	.850	.321	.942	.000	.000	.000	.000	.000	.960
Cars	4	373	186	11	574	37	13	32	0	82	161	274	30	9	474	0	0	0	0	0	1130
% Cars	28.6	97.4	97.9	100	96.0	100	100	97.0	0	98.8	97.0	97.5	88.2	100	96.7	0	0	0	0	0	96.5
Heavy Vehicles	10	10	4	0	24	0	0	1	0	1	5	7	4	0	16	0	0	0	0	0	41
% Heavy Vehicles	71.4	2.6	2.1	0	4.0	0	0	3.0	0	1.2	3.0	2.5	11.8	0	3.3	0	0	0	0	0	3.5





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N/S: Albany Street  
E/W: Traveler Street  
City, State: Boston, MA  
Client: Howard Stein-Hudson/ M. Santos

File Name : 154855 J  
Site Code : 15137  
Start Date : 1/13/2016  
Page No : 1

Groups Printed- Cars - Heavy Vehicles

Start Time	Albany Street From North				Traveler Street From East				Albany Street From South				Traveler Street From West				Int. Total
	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
07:00 AM	4	99	105	0	0	0	0	0	0	0	0	0	5	10	0	0	223
07:15 AM	12	114	101	0	0	0	0	0	0	0	0	0	6	12	0	0	245
07:30 AM	21	162	138	0	0	0	1	0	0	0	0	0	5	13	0	0	340
07:45 AM	22	134	122	0	0	0	0	0	0	0	0	0	7	26	0	0	311
Total	59	509	466	0	0	0	1	0	0	0	0	0	23	61	0	0	1119
08:00 AM	17	177	155	0	0	0	0	0	0	0	0	0	4	20	0	0	373
08:15 AM	25	151	159	0	0	0	0	0	0	0	0	0	10	28	0	0	373
08:30 AM	31	165	184	0	0	0	1	0	0	0	0	0	9	33	0	0	423
08:45 AM	35	154	157	0	0	0	2	0	0	0	0	0	11	55	0	0	414
Total	108	647	655	0	0	0	3	0	0	0	0	0	34	136	0	0	1583
Grand Total	167	1156	1121	0	0	0	4	0	0	0	0	0	57	197	0	0	2702
Apprch %	6.8	47.3	45.9	0	0	0	100	0	0	0	0	0	22.4	77.6	0	0	
Total %	6.2	42.8	41.5	0	0	0	0.1	0	0	0	0	0	2.1	7.3	0	0	
Cars	159	1082	1036	0	0	0	0	0	0	0	0	0	55	178	0	0	2510
% Cars	95.2	93.6	92.4	0	0	0	0	0	0	0	0	0	96.5	90.4	0	0	92.9
Heavy Vehicles	8	74	85	0	0	0	4	0	0	0	0	0	2	19	0	0	192
% Heavy Vehicles	4.8	6.4	7.6	0	0	0	100	0	0	0	0	0	3.5	9.6	0	0	7.1

Start Time	Albany Street From North					Traveler Street From East					Albany Street From South					Traveler Street From West					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	17	177	155	0	349	0	0	0	0	0	0	0	0	0	0	4	20	0	0	24	373
08:15 AM	25	151	159	0	335	0	0	0	0	0	0	0	0	0	0	10	28	0	0	38	373
08:30 AM	31	165	184	0	380	0	0	1	0	1	0	0	0	0	0	9	33	0	0	42	423
08:45 AM	35	154	157	0	346	0	0	2	0	2	0	0	0	0	0	11	55	0	0	66	414
Total Volume	108	647	655	0	1410	0	0	3	0	3	0	0	0	0	0	34	136	0	0	170	1583
% App. Total	7.7	45.9	46.5	0		0	0	100	0		0	0	0	0		20	80	0	0		
PHF	.771	.914	.890	.000	.928	.000	.000	.375	.000	.375	.000	.000	.000	.000	.000	.773	.618	.000	.000	.644	.936
Cars	106	610	615	0	1331	0	0	0	0	0	0	0	0	0	0	33	123	0	0	156	1487
% Cars	98.1	94.3	93.9	0	94.4	0	0	0	0	0	0	0	0	0	0	97.1	90.4	0	0	91.8	93.9
Heavy Vehicles	2	37	40	0	79	0	0	3	0	3	0	0	0	0	0	1	13	0	0	14	96
% Heavy Vehicles	1.9	5.7	6.1	0	5.6	0	0	100	0	100	0	0	0	0	0	2.9	9.6	0	0	8.2	6.1



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E/W: Traveler Street  
City, State: Boston, MA  
Client: Howard Stein-Hudson/ M. Santos

File Name : 154855 J  
Site Code : 15137  
Start Date : 1/13/2016  
Page No : 1

Groups Printed- Cars

Start Time	Albany Street From North				Traveler Street From East				Albany Street From South				Traveler Street From West				Int. Total
	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
07:00 AM	3	95	100	0	0	0	0	0	0	0	0	0	4	10	0	0	212
07:15 AM	11	101	91	0	0	0	0	0	0	0	0	0	6	10	0	0	219
07:30 AM	18	149	124	0	0	0	0	0	0	0	0	0	5	12	0	0	308
07:45 AM	21	127	106	0	0	0	0	0	0	0	0	0	7	23	0	0	284
Total	53	472	421	0	0	0	0	0	0	0	0	0	22	55	0	0	1023
08:00 AM	16	168	146	0	0	0	0	0	0	0	0	0	4	19	0	0	353
08:15 AM	25	142	150	0	0	0	0	0	0	0	0	0	9	25	0	0	351
08:30 AM	31	154	176	0	0	0	0	0	0	0	0	0	9	31	0	0	401
08:45 AM	34	146	143	0	0	0	0	0	0	0	0	0	11	48	0	0	382
Total	106	610	615	0	0	0	0	0	0	0	0	0	33	123	0	0	1487
Grand Total	159	1082	1036	0	0	0	0	0	0	0	0	0	55	178	0	0	2510
Apprch %	7	47.5	45.5	0	0	0	0	0	0	0	0	0	23.6	76.4	0	0	
Total %	6.3	43.1	41.3	0	0	0	0	0	0	0	0	0	2.2	7.1	0	0	

Start Time	Albany Street From North					Traveler Street From East					Albany Street From South					Traveler Street From West					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	16	168	146	0	330	0	0	0	0	0	0	0	0	0	0	4	19	0	0	23	353
08:15 AM	25	142	150	0	317	0	0	0	0	0	0	0	0	0	0	9	25	0	0	34	351
08:30 AM	31	154	176	0	361	0	0	0	0	0	0	0	0	0	0	9	31	0	0	40	401
08:45 AM	34	146	143	0	323	0	0	0	0	0	0	0	0	0	0	11	48	0	0	59	382
Total Volume	106	610	615	0	1331	0	0	0	0	0	0	0	0	0	0	33	123	0	0	156	1487
% App. Total	8	45.8	46.2	0		0	0	0	0	0	0	0	0	0	0	21.2	78.8	0	0		
PHF	.779	.908	.874	.000	.922	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.750	.641	.000	.000	.661	.927



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City, State: Boston, MA  
Client: Howard Stein-Hudson/ M. Santos

File Name : 154855 J  
Site Code : 15137  
Start Date : 1/13/2016  
Page No : 1

Groups Printed- Heavy Vehicles

Start Time	Albany Street From North				Traveler Street From East				Albany Street From South				Traveler Street From West				Int. Total
	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
07:00 AM	1	4	5	0	0	0	0	0	0	0	0	0	1	0	0	0	11
07:15 AM	1	13	10	0	0	0	0	0	0	0	0	0	0	2	0	0	26
07:30 AM	3	13	14	0	0	0	1	0	0	0	0	0	0	1	0	0	32
07:45 AM	1	7	16	0	0	0	0	0	0	0	0	0	0	3	0	0	27
Total	6	37	45	0	0	0	1	0	0	0	0	0	1	6	0	0	96
08:00 AM	1	9	9	0	0	0	0	0	0	0	0	0	0	1	0	0	20
08:15 AM	0	9	9	0	0	0	0	0	0	0	0	0	1	3	0	0	22
08:30 AM	0	11	8	0	0	0	1	0	0	0	0	0	0	2	0	0	22
08:45 AM	1	8	14	0	0	0	2	0	0	0	0	0	0	7	0	0	32
Total	2	37	40	0	0	0	3	0	0	0	0	0	1	13	0	0	96
Grand Total	8	74	85	0	0	0	4	0	0	0	0	0	2	19	0	0	192
Apprch %	4.8	44.3	50.9	0	0	0	100	0	0	0	0	0	9.5	90.5	0	0	
Total %	4.2	38.5	44.3	0	0	0	2.1	0	0	0	0	0	1	9.9	0	0	

Start Time	Albany Street From North					Traveler Street From East					Albany Street From South					Traveler Street From West					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	1	13	10	0	24	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	26
07:30 AM	3	13	14	0	30	0	0	1	0	1	0	0	0	0	0	0	1	0	0	1	32
07:45 AM	1	7	16	0	24	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	27
08:00 AM	1	9	9	0	19	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	20
Total Volume	6	42	49	0	97	0	0	1	0	1	0	0	0	0	0	0	7	0	0	7	105
% App. Total	6.2	43.3	50.5	0		0	0	100	0		0	0	0	0		0	100	0	0		
PHF	.500	.808	.766	.000	.808	.000	.000	.250	.000	.250	.000	.000	.000	.000	.000	.000	.583	.000	.000	.583	.820



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Client: Howard Stein-Hudson/ M. Santos

File Name : 154855 J  
Site Code : 15137  
Start Date : 1/13/2016  
Page No : 1

Groups Printed- Peds and Bikes

Start Time	Albany Street From North					Traveler Street From East					Albany Street From South					Traveler Street From West					Int. Total
	Right	Thru	Left	Peds EB	Peds WB	Right	Thru	Left	Peds SB	Peds NB	Right	Thru	Left	Peds WB	Peds EB	Right	Thru	Left	Peds NB	Peds SB	
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	3	0	7
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	1	0	0	0	5
07:30 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	6	2	0	0	0	2	1	12
07:45 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	2	9	0	0	0	6	7	25
Total	0	0	0	1	0	0	0	0	0	1	0	0	0	12	15	0	1	0	11	8	49
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	3	4	0	1	0	7	6	21
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	11	4	0	0	0	3	0	18
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	8	6	0	0	0	1	5	20
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	17	7	0	1	0	9	3	37
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	39	21	0	2	0	20	14	96
Grand Total	0	0	0	1	0	0	0	0	0	1	0	0	0	51	36	0	3	0	31	22	145
Apprch %	0	0	0	100	0	0	0	0	0	100	0	0	0	58.6	41.4	0	5.4	0	55.4	39.3	
Total %	0	0	0	0.7	0	0	0	0	0	0.7	0	0	0	35.2	24.8	0	2.1	0	21.4	15.2	

Start Time	Albany Street From North						Traveler Street From East						Albany Street From South						Traveler Street From West						Int. Total
	Right	Thru	Left	Peds EB	Peds WB	App. Total	Right	Thru	Left	Peds SB	Peds NB	App. Total	Right	Thru	Left	Peds WB	Peds EB	App. Total	Right	Thru	Left	Peds NB	Peds SB	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																									
Peak Hour for Entire Intersection Begins at 08:00 AM																									
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	4	7	0	1	0	7	6	14	21
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	4	15	0	0	0	3	0	3	18
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	6	14	0	0	0	1	5	6	20
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	17	7	24	0	1	0	9	3	13	37
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	39	21	60	0	2	0	20	14	36	96
% App. Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	65	35	60	0	5.6	0	55.6	38.9	36	96
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.574	.750	.625	.000	.500	.000	.556	.583	.643	.649





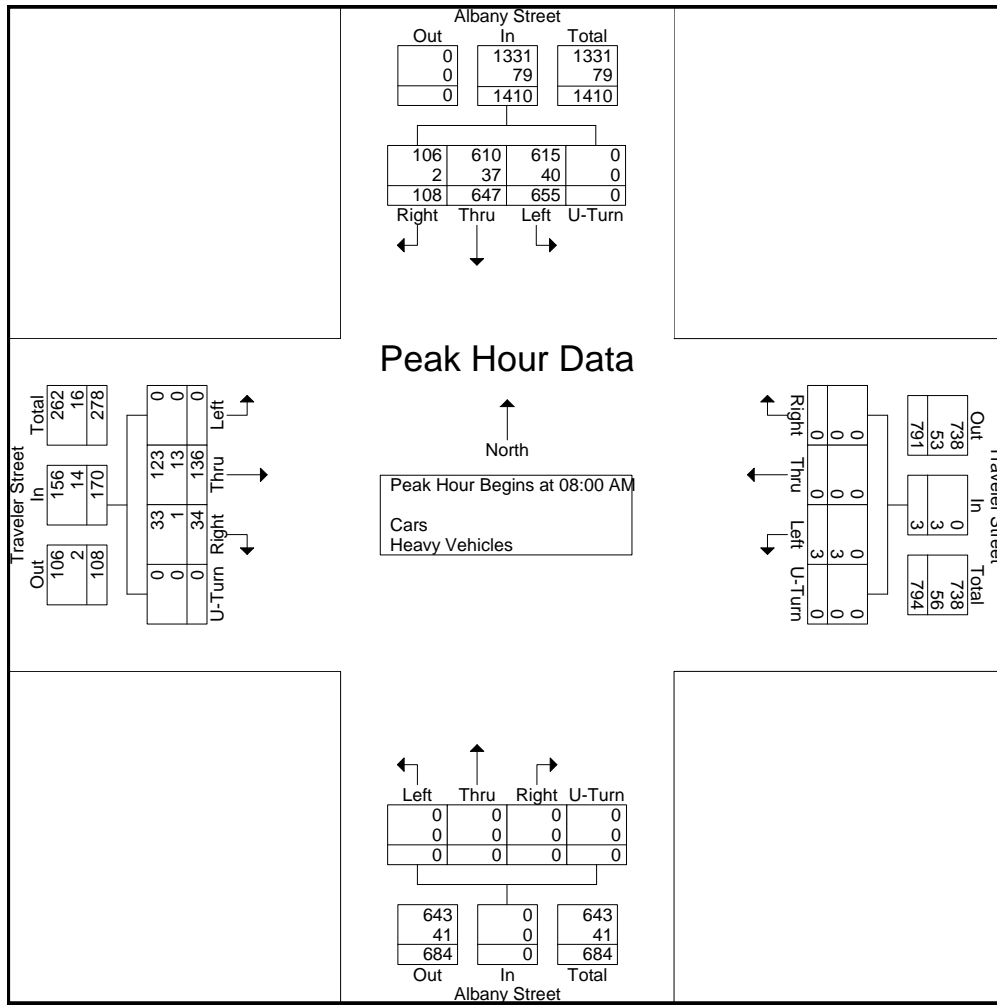
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Start Time	Albany Street From North					Traveler Street From East					Albany Street From South					Traveler Street From West					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	17	177	155	0	349	0	0	0	0	0	0	0	0	0	0	4	20	0	0	24	373
08:15 AM	25	151	159	0	335	0	0	0	0	0	0	0	0	0	0	10	28	0	0	38	373
08:30 AM	31	165	184	0	380	0	0	1	0	1	0	0	0	0	0	9	33	0	0	42	423
08:45 AM	35	154	157	0	346	0	0	2	0	2	0	0	0	0	0	11	55	0	0	66	414
Total Volume	108	647	655	0	1410	0	0	3	0	3	0	0	0	0	0	34	136	0	0	170	1583
% App. Total	7.7	45.9	46.5	0		0	0	100	0		0	0	0	0		20	80	0	0		
PHF	.771	.914	.890	.000	.928	.000	.000	.375	.000	.375	.000	.000	.000	.000	.000	.773	.618	.000	.000	.644	.936
Cars	106	610	615	0	1331	0	0	0	0	0	0	0	0	0	0	33	123	0	0	156	1487
% Cars	98.1	94.3	93.9	0	94.4	0	0	0	0	0	0	0	0	0	0	97.1	90.4	0	0	91.8	93.9
Heavy Vehicles	2	37	40	0	79	0	0	3	0	3	0	0	0	0	0	1	13	0	0	14	96
% Heavy Vehicles	1.9	5.7	6.1	0	5.6	0	0	100	0	100	0	0	0	0	0	2.9	9.6	0	0	8.2	6.1





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N/S: Albany Street  
E/W: Traveler Street  
City, State: Boston, MA  
Client: Howard Stein-Hudson/ M. Santos

Groups Printed- Cars - Heavy Vehicles

Start Time	Albany Street From North				Traveler Street From East				Albany Street From South				Traveler Street From West				Int. Total	
	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn		
04:00 PM	18	171	196	0	0	1	0	0	0	0	0	0	0	7	47	0	0	440
04:15 PM	15	208	197	0	0	0	0	0	0	0	0	0	0	11	79	0	0	510
04:30 PM	15	175	188	0	0	0	0	0	0	0	0	0	0	12	98	0	0	488
04:45 PM	14	177	186	0	0	0	0	0	0	0	0	0	0	13	92	0	0	482
Total	62	731	767	0	0	1	0	0	0	0	0	0	0	43	316	0	0	1920
05:00 PM	14	178	228	0	0	0	0	0	0	0	0	0	0	12	81	0	0	513
05:15 PM	10	170	204	0	0	0	0	0	0	0	0	0	0	13	68	0	0	465
05:30 PM	17	183	217	0	0	0	0	0	0	0	0	0	0	4	84	0	0	505
05:45 PM	16	202	215	0	0	0	0	0	0	0	0	0	0	12	79	0	0	524
Total	57	733	864	0	0	0	0	0	0	0	0	0	0	41	312	0	0	2007
Grand Total	119	1464	1631	0	0	1	0	0	0	0	0	0	0	84	628	0	0	3927
Apprch %	3.7	45.6	50.7	0	0	100	0	0	0	0	0	0	0	11.8	88.2	0	0	
Total %	3	37.3	41.5	0	0	0	0	0	0	0	0	0	0	2.1	16	0	0	
Cars	114	1392	1571	0	0	1	0	0	0	0	0	0	0	81	607	0	0	3766
% Cars	95.8	95.1	96.3	0	0	100	0	0	0	0	0	0	0	96.4	96.7	0	0	95.9
Heavy Vehicles	5	72	60	0	0	0	0	0	0	0	0	0	0	3	21	0	0	161
% Heavy Vehicles	4.2	4.9	3.7	0	0	0	0	0	0	0	0	0	0	3.6	3.3	0	0	4.1

Start Time	Albany Street From North					Traveler Street From East					Albany Street From South					Traveler Street From West					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	14	178	228	0	420	0	0	0	0	0	0	0	0	0	0	12	81	0	0	93	513
05:15 PM	10	170	204	0	384	0	0	0	0	0	0	0	0	0	0	13	68	0	0	81	465
05:30 PM	17	183	217	0	417	0	0	0	0	0	0	0	0	0	0	4	84	0	0	88	505
05:45 PM	16	202	215	0	433	0	0	0	0	0	0	0	0	0	0	12	79	0	0	91	524
Total Volume	57	733	864	0	1654	0	0	0	0	0	0	0	0	0	0	41	312	0	0	353	2007
% App. Total	3.4	44.3	52.2	0		0	0	0	0	0	0	0	0	0	0	11.6	88.4	0	0		
PHF	.838	.907	.947	.000	.955	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.788	.929	.000	.000	.949	.958
Cars	56	705	836	0	1597	0	0	0	0	0	0	0	0	0	0	40	298	0	0	338	1935
% Cars	98.2	96.2	96.8	0	96.6	0	0	0	0	0	0	0	0	0	0	97.6	95.5	0	0	95.8	96.4
Heavy Vehicles	1	28	28	0	57	0	0	0	0	0	0	0	0	0	0	1	14	0	0	15	72
% Heavy Vehicles	1.8	3.8	3.2	0	3.4	0	0	0	0	0	0	0	0	0	0	2.4	4.5	0	0	4.2	3.6



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File Name : 154855 JJ  
Site Code : 15137  
Start Date : 1/13/2016  
Page No : 1

N/S: Albany Street  
E/W: Traveler Street  
City, State: Boston, MA  
Client: Howard Stein-Hudson/ M. Santos

Groups Printed- Cars

Start Time	Albany Street From North				Traveler Street From East				Albany Street From South				Traveler Street From West				Int. Total	
	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn		
04:00 PM	18	157	187	0	0	1	0	0	0	0	0	0	0	7	46	0	0	416
04:15 PM	13	196	191	0	0	0	0	0	0	0	0	0	0	11	77	0	0	488
04:30 PM	14	168	179	0	0	0	0	0	0	0	0	0	0	11	96	0	0	468
04:45 PM	13	166	178	0	0	0	0	0	0	0	0	0	0	12	90	0	0	459
Total	58	687	735	0	0	1	0	0	0	0	0	0	0	41	309	0	0	1831
05:00 PM	14	169	220	0	0	0	0	0	0	0	0	0	0	11	79	0	0	493
05:15 PM	9	165	196	0	0	0	0	0	0	0	0	0	0	13	64	0	0	447
05:30 PM	17	174	211	0	0	0	0	0	0	0	0	0	0	4	79	0	0	485
05:45 PM	16	197	209	0	0	0	0	0	0	0	0	0	0	12	76	0	0	510
Total	56	705	836	0	0	0	0	0	0	0	0	0	0	40	298	0	0	1935
Grand Total	114	1392	1571	0	0	1	0	0	0	0	0	0	0	81	607	0	0	3766
Apprch %	3.7	45.2	51.1	0	0	100	0	0	0	0	0	0	0	11.8	88.2	0	0	
Total %	3	37	41.7	0	0	0	0	0	0	0	0	0	0	2.2	16.1	0	0	

Start Time	Albany Street From North					Traveler Street From East					Albany Street From South					Traveler Street From West					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	14	169	220	0	403	0	0	0	0	0	0	0	0	0	0	11	79	0	0	90	493
05:15 PM	9	165	196	0	370	0	0	0	0	0	0	0	0	0	0	13	64	0	0	77	447
05:30 PM	17	174	211	0	402	0	0	0	0	0	0	0	0	0	0	4	79	0	0	83	485
05:45 PM	16	197	209	0	422	0	0	0	0	0	0	0	0	0	0	12	76	0	0	88	510
Total Volume	56	705	836	0	1597	0	0	0	0	0	0	0	0	0	0	40	298	0	0	338	1935
% App. Total	3.5	44.1	52.3	0		0	0	0	0	0	0	0	0	0	0	11.8	88.2	0	0		
PHF	.824	.895	.950	.000	.946	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.769	.943	.000	.000	.939	.949



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N/S: Albany Street  
E/W: Traveler Street  
City, State: Boston, MA  
Client: Howard Stein-Hudson/ M. Santos

File Name : 154855 JJ  
Site Code : 15137  
Start Date : 1/13/2016  
Page No : 1

Groups Printed- Heavy Vehicles

Start Time	Albany Street From North				Traveler Street From East				Albany Street From South				Traveler Street From West				Int. Total
	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
04:00 PM	0	14	9	0	0	0	0	0	0	0	0	0	0	1	0	0	24
04:15 PM	2	12	6	0	0	0	0	0	0	0	0	0	0	2	0	0	22
04:30 PM	1	7	9	0	0	0	0	0	0	0	0	0	1	2	0	0	20
04:45 PM	1	11	8	0	0	0	0	0	0	0	0	0	1	2	0	0	23
Total	4	44	32	0	0	0	0	0	0	0	0	0	2	7	0	0	89
05:00 PM	0	9	8	0	0	0	0	0	0	0	0	0	1	2	0	0	20
05:15 PM	1	5	8	0	0	0	0	0	0	0	0	0	0	4	0	0	18
05:30 PM	0	9	6	0	0	0	0	0	0	0	0	0	0	5	0	0	20
05:45 PM	0	5	6	0	0	0	0	0	0	0	0	0	0	3	0	0	14
Total	1	28	28	0	0	0	0	0	0	0	0	0	1	14	0	0	72
Grand Total	5	72	60	0	0	0	0	0	0	0	0	0	3	21	0	0	161
Apprch %	3.6	52.6	43.8	0	0	0	0	0	0	0	0	0	12.5	87.5	0	0	
Total %	3.1	44.7	37.3	0	0	0	0	0	0	0	0	0	1.9	13	0	0	

Start Time	Albany Street From North					Traveler Street From East					Albany Street From South					Traveler Street From West					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	0	14	9	0	23	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	24
04:15 PM	2	12	6	0	20	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	22
04:30 PM	1	7	9	0	17	0	0	0	0	0	0	0	0	0	0	1	2	0	0	3	20
04:45 PM	1	11	8	0	20	0	0	0	0	0	0	0	0	0	0	1	2	0	0	3	23
Total Volume	4	44	32	0	80	0	0	0	0	0	0	0	0	0	0	2	7	0	0	9	89
% App. Total	5	55	40	0		0	0	0	0		0	0	0	0		22.2	77.8	0	0		
PHF	.500	.786	.889	.000	.870	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.500	.875	.000	.000	.750	.927



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E/W: Traveler Street  
City, State: Boston, MA  
Client: Howard Stein-Hudson/ M. Santos

File Name : 154855 JJ  
Site Code : 15137  
Start Date : 1/13/2016  
Page No : 1

Groups Printed- Peds and Bikes

Start Time	Albany Street From North					Traveler Street From East					Albany Street From South					Traveler Street From West					Int. Total
	Right	Thru	Left	Peds EB	Peds WB	Right	Thru	Left	Peds SB	Peds NB	Right	Thru	Left	Peds WB	Peds EB	Right	Thru	Left	Peds NB	Peds SB	
04:00 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	7	4	0	0	0	5	3	20
04:15 PM	0	0	0	0	0	0	0	0	0	1	0	0	1	3	5	0	0	0	3	1	14
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	0	0	0	2	3	9
04:45 PM	1	0	0	0	0	0	0	0	0	0	0	0	0	4	4	0	1	0	7	2	19
Total	1	0	0	0	0	0	0	0	0	2	0	0	1	15	16	0	1	0	17	9	62
05:00 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	4	9	0	2	0	1	7	24
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	7	11	0	0	0	4	6	28
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	8	7	0	0	0	5	3	23
05:45 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	3	11	0	0	0	2	8	25
Total	0	0	1	1	0	0	0	0	0	0	0	0	0	22	38	0	2	0	12	24	100
Grand Total	1	0	1	1	0	0	0	0	0	2	0	0	1	37	54	0	3	0	29	33	162
Apprch %	33.3	0	33.3	33.3	0	0	0	0	0	100	0	0	1.1	40.2	58.7	0	4.6	0	44.6	50.8	
Total %	0.6	0	0.6	0.6	0	0	0	0	0	1.2	0	0	0.6	22.8	33.3	0	1.9	0	17.9	20.4	

Start Time	Albany Street From North						Traveler Street From East						Albany Street From South						Traveler Street From West						Int. Total
	Right	Thru	Left	Peds EB	Peds WB	App. Total	Right	Thru	Left	Peds SB	Peds NB	App. Total	Right	Thru	Left	Peds WB	Peds EB	App. Total	Right	Thru	Left	Peds NB	Peds SB	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																									
Peak Hour for Entire Intersection Begins at 05:00 PM																									
05:00 PM	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	4	9	13	0	2	0	1	7	10	24
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	11	18	0	0	0	4	6	10	28
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	7	15	0	0	0	5	3	8	23
05:45 PM	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	3	11	14	0	0	0	2	8	10	25
Total Volume	0	0	1	1	0	2	0	0	0	0	0	0	0	0	0	22	38	60	0	2	0	12	24	38	100
% App. Total	0	0	50	50	0		0	0	0	0	0		0	0	0	36.7	63.3		0	5.3	0	31.6	63.2		
PHF	.000	.000	.250	.250	.000	.500	.000	.000	.000	.000	.000	.000	.000	.000	.000	.688	.864	.833	.000	.250	.000	.600	.750	.950	.893



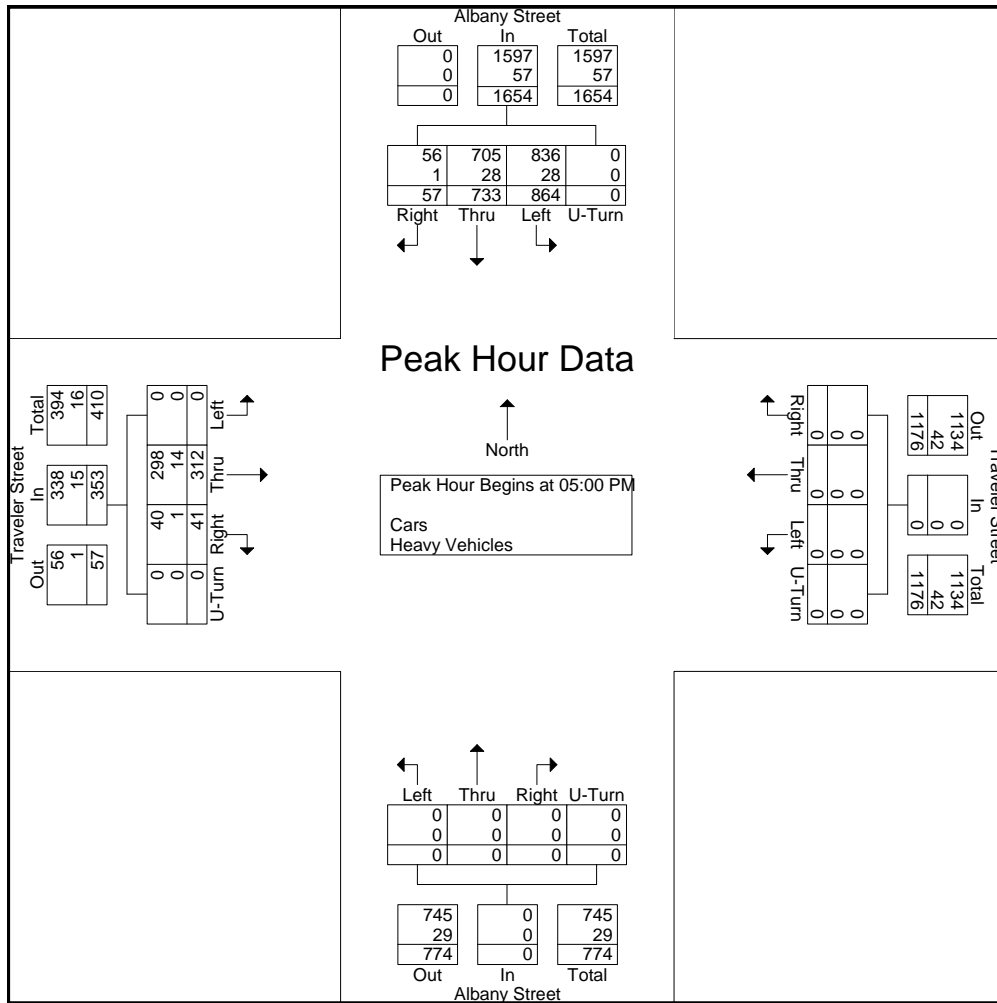
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City, State: Boston, MA  
Client: Howard Stein-Hudson/ M. Santos

File Name : 154855 JJ  
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Start Date : 1/13/2016  
Page No : 1

Start Time	Albany Street From North					Traveler Street From East					Albany Street From South					Traveler Street From West					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	14	178	228	0	420	0	0	0	0	0	0	0	0	0	0	12	81	0	0	93	513
05:15 PM	10	170	204	0	384	0	0	0	0	0	0	0	0	0	0	13	68	0	0	81	465
05:30 PM	17	183	217	0	417	0	0	0	0	0	0	0	0	0	0	4	84	0	0	88	505
05:45 PM	16	202	215	0	433	0	0	0	0	0	0	0	0	0	0	12	79	0	0	91	524
Total Volume	57	733	864	0	1654	0	0	0	0	0	0	0	0	0	0	41	312	0	0	353	2007
% App. Total	3.4	44.3	52.2	0		0	0	0	0	0	0	0	0	0	0	11.6	88.4	0	0		
PHF	.838	.907	.947	.000	.955	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.788	.929	.000	.000	.949	.958
Cars	56	705	836	0	1597	0	0	0	0	0	0	0	0	0	0	40	298	0	0	338	1935
% Cars	98.2	96.2	96.8	0	96.6	0	0	0	0	0	0	0	0	0	0	97.6	95.5	0	0	95.8	96.4
Heavy Vehicles	1	28	28	0	57	0	0	0	0	0	0	0	0	0	0	1	14	0	0	15	72
% Heavy Vehicles	1.8	3.8	3.2	0	3.4	0	0	0	0	0	0	0	0	0	0	2.4	4.5	0	0	4.2	3.6













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City, State: Boston, MA  
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File Name : 154855 K  
Site Code : 15137  
Start Date : 1/13/2016  
Page No : 1

Groups Printed- Peds and Bikes

Start Time	Albany Street From North					W. 4th Street From East					Albany Street From South					E. Berkeley Street From West					Int. Total
	Right	Thru	Left	Peds EB	Peds WB	Right	Thru	Left	Peds SB	Peds NB	Right	Thru	Left	Peds WB	Peds EB	Right	Thru	Left	Peds NB	Peds SB	
07:00 AM	0	0	0	2	0	0	0	0	1	0	0	0	0	1	2	0	0	0	1	1	8
07:15 AM	0	1	0	0	5	0	1	0	0	0	0	0	0	5	1	0	0	0	1	2	16
07:30 AM	0	0	0	1	0	0	1	3	0	0	0	0	0	3	3	0	0	0	1	5	17
07:45 AM	0	0	0	1	1	0	0	2	0	0	0	0	0	8	3	0	1	0	2	4	22
Total	0	1	0	4	6	0	2	5	1	0	0	0	0	17	9	0	1	0	5	12	63
08:00 AM	0	0	0	1	5	0	0	0	0	0	0	0	0	3	4	0	0	0	3	7	23
08:15 AM	0	1	0	1	5	0	3	0	0	0	0	0	0	9	2	0	0	0	0	2	23
08:30 AM	0	0	0	0	2	0	1	0	0	0	0	0	0	12	10	0	0	0	1	7	33
08:45 AM	1	1	0	2	0	0	2	2	0	0	0	0	0	4	2	0	0	0	4	5	23
Total	1	2	0	4	12	0	6	2	0	0	0	0	0	28	18	0	0	0	8	21	102
Grand Total	1	3	0	8	18	0	8	7	1	0	0	0	0	45	27	0	1	0	13	33	165
Apprch %	3.3	10	0	26.7	60	0	50	43.8	6.2	0	0	0	0	62.5	37.5	0	2.1	0	27.7	70.2	
Total %	0.6	1.8	0	4.8	10.9	0	4.8	4.2	0.6	0	0	0	0	27.3	16.4	0	0.6	0	7.9	20	

Start Time	Albany Street From North						W. 4th Street From East						Albany Street From South						E. Berkeley Street From West						Int. Total
	Right	Thru	Left	Peds EB	Peds WB	App. Total	Right	Thru	Left	Peds SB	Peds NB	App. Total	Right	Thru	Left	Peds WB	Peds EB	App. Total	Right	Thru	Left	Peds NB	Peds SB	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																									
Peak Hour for Entire Intersection Begins at 08:00 AM																									
08:00 AM	0	0	0	1	5	6	0	0	0	0	0	0	0	0	0	3	4	7	0	0	0	3	7	10	23
08:15 AM	0	1	0	1	5	7	0	3	0	0	0	3	0	0	0	9	2	11	0	0	0	0	2	2	23
08:30 AM	0	0	0	0	2	2	0	1	0	0	0	1	0	0	0	12	10	22	0	0	0	1	7	8	33
08:45 AM	1	1	0	2	0	4	0	2	2	0	0	4	0	0	0	4	2	6	0	0	0	4	5	9	23
Total Volume	1	2	0	4	12	19	0	6	2	0	0	8	0	0	0	28	18	46	0	0	0	8	21	29	102
% App. Total	5.3	10.5	0	21.1	63.2		0	75	25	0	0		0	0	0	60.9	39.1		0	0	0	27.6	72.4		
PHF	.250	.500	.000	.500	.600	.679	.000	.500	.250	.000	.500		.000	.000	.000	.583	.450	.523	.000	.000	.000	.500	.750		.773



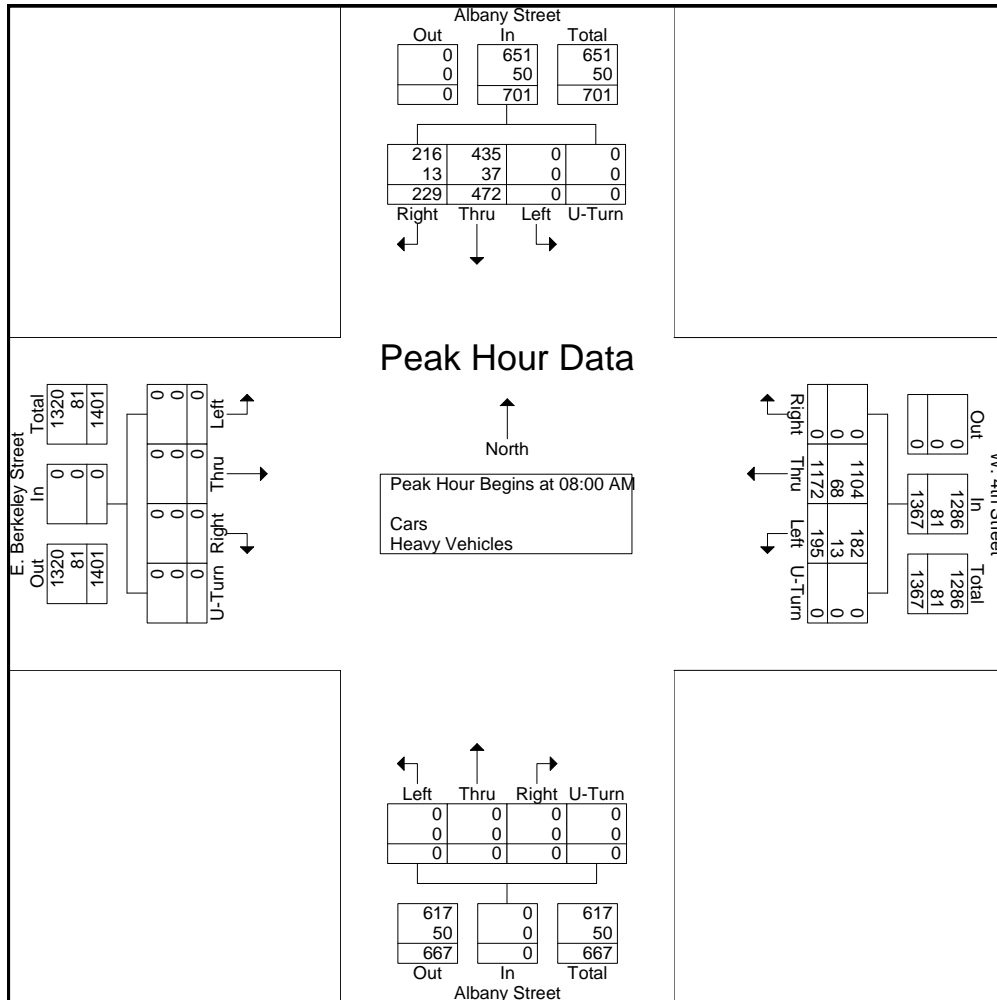
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Site Code : 15137  
Start Date : 1/13/2016  
Page No : 1

Start Time	Albany Street From North					W. 4th Street From East					Albany Street From South					E. Berkeley Street From West					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	55	103	0	0	158	0	295	52	0	347	0	0	0	0	0	0	0	0	0	0	505
08:15 AM	50	112	0	0	162	0	313	55	0	368	0	0	0	0	0	0	0	0	0	0	530
08:30 AM	64	137	0	0	201	0	284	44	0	328	0	0	0	0	0	0	0	0	0	0	529
08:45 AM	60	120	0	0	180	0	280	44	0	324	0	0	0	0	0	0	0	0	0	0	504
Total Volume	229	472	0	0	701	0	1172	195	0	1367	0	0	0	0	0	0	0	0	0	0	2068
% App. Total																					
PHF	.895	.861	.000	.000	.872	.000	.936	.886	.000	.929	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.975
Cars	216	435	0	0	651	0	1104	182	0	1286	0	0	0	0	0	0	0	0	0	0	1937
% Cars	94.3	92.2	0	0	92.9	0	94.2	93.3	0	94.1	0	0	0	0	0	0	0	0	0	0	93.7
Heavy Vehicles																					
% Heavy Vehicles	5.7	7.8	0	0	7.1	0	5.8	6.7	0	5.9	0	0	0	0	0	0	0	0	0	0	6.3











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N/S: Albany Street  
E/W: W. 4th Street/ E. Berkeley Street  
City, State: Boston, MA  
Client: Howard Stein-Hudson/ M. Santos

File Name : 154855 KK  
Site Code : 15137  
Start Date : 1/13/2016  
Page No : 1

Groups Printed- Peds and Bikes

Start Time	Albany Street From North					W. 4th Street From East					Albany Street From South					E. Berkeley Street From West					Int. Total
	Right	Thru	Left	Peds EB	Peds WB	Right	Thru	Left	Peds SB	Peds NB	Right	Thru	Left	Peds WB	Peds EB	Right	Thru	Left	Peds NB	Peds SB	
04:00 PM	0	0	0	5	3	0	1	0	0	1	0	0	0	1	6	0	0	0	2	3	22
04:15 PM	0	0	1	6	0	0	0	0	0	0	0	0	0	6	5	0	1	0	4	4	27
04:30 PM	0	0	0	3	2	0	2	2	0	0	0	1	0	6	9	0	0	0	5	6	36
04:45 PM	0	0	0	3	2	0	1	1	0	0	0	0	0	2	6	0	0	0	2	3	20
Total	0	0	1	17	7	0	4	3	0	1	0	1	0	15	26	0	1	0	13	16	105
05:00 PM	0	0	0	5	4	0	0	0	0	2	0	0	0	2	12	0	0	0	7	3	35
05:15 PM	0	0	0	3	1	0	2	0	0	0	0	0	0	5	9	0	0	0	5	2	27
05:30 PM	0	1	0	0	1	0	1	0	0	0	0	0	0	5	13	0	0	0	0	5	26
05:45 PM	0	0	0	2	3	0	3	0	0	0	0	0	0	4	12	0	0	0	4	5	33
Total	0	1	0	10	9	0	6	0	0	2	0	0	0	16	46	0	0	0	16	15	121
Grand Total	0	1	1	27	16	0	10	3	0	3	0	1	0	31	72	0	1	0	29	31	226
Apprch %	0	2.2	2.2	60	35.6	0	62.5	18.8	0	18.8	0	1	0	29.8	69.2	0	1.6	0	47.5	50.8	
Total %	0	0.4	0.4	11.9	7.1	0	4.4	1.3	0	1.3	0	0.4	0	13.7	31.9	0	0.4	0	12.8	13.7	

Start Time	Albany Street From North						W. 4th Street From East						Albany Street From South						E. Berkeley Street From West						Int. Total
	Right	Thru	Left	Peds EB	Peds WB	App. Total	Right	Thru	Left	Peds SB	Peds NB	App. Total	Right	Thru	Left	Peds WB	Peds EB	App. Total	Right	Thru	Left	Peds NB	Peds SB	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																									
Peak Hour for Entire Intersection Begins at 05:00 PM																									
05:00 PM	0	0	0	5	4	9	0	0	0	0	2	2	0	0	0	2	12	14	0	0	0	7	3	10	35
05:15 PM	0	0	0	3	1	4	0	2	0	0	0	2	0	0	0	5	9	14	0	0	0	5	2	7	27
05:30 PM	0	1	0	0	1	2	0	1	0	0	0	1	0	0	0	5	13	18	0	0	0	0	5	5	26
05:45 PM	0	0	0	2	3	5	0	3	0	0	0	3	0	0	0	4	12	16	0	0	0	4	5	9	33
Total Volume	0	1	0	10	9	20	0	6	0	0	2	8	0	0	0	16	46	62	0	0	0	16	15	31	121
% App. Total	0	5	0	50	45		0	75	0	0	25		0	0	0	25.8	74.2		0	0	0	51.6	48.4		
PHF	.000	.250	.000	.500	.563	.556	.000	.500	.000	.000	.250	.667	.000	.000	.000	.800	.885	.861	.000	.000	.000	.571	.750	.775	.864



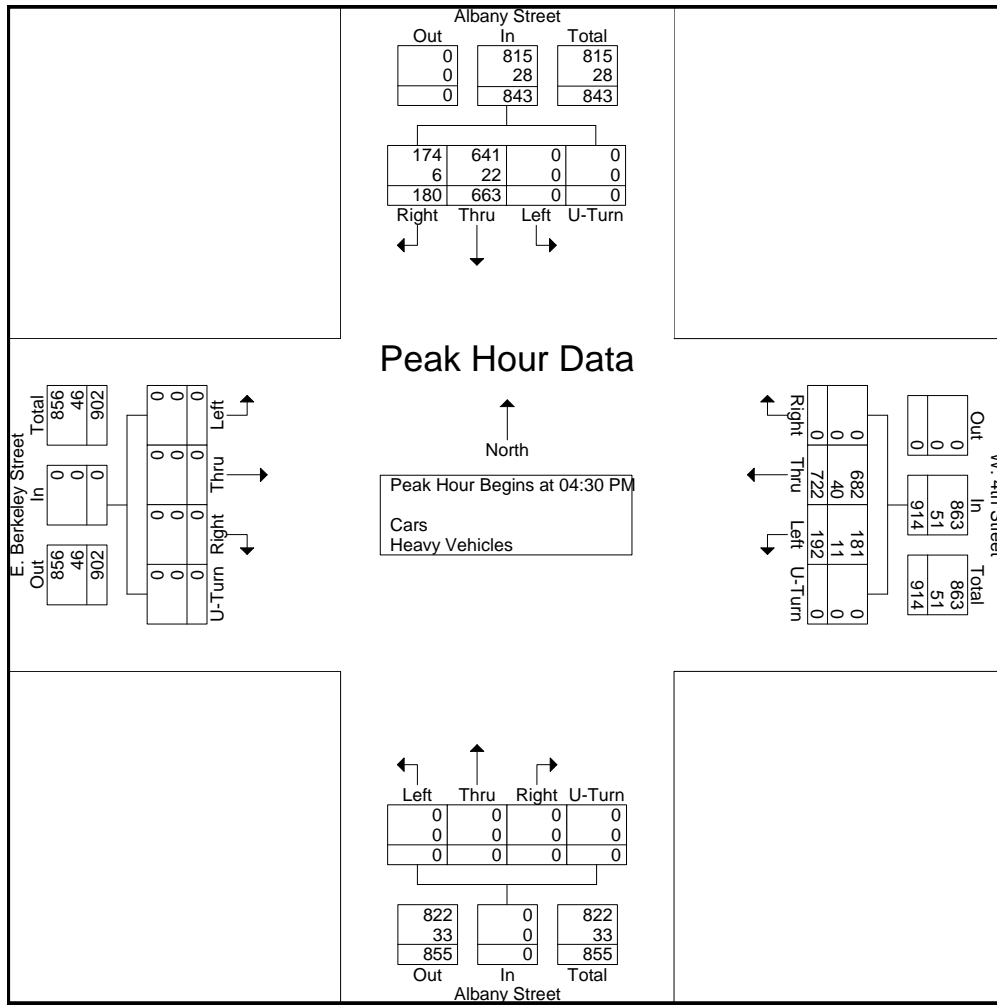
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City, State: Boston, MA  
Client: Howard Stein-Hudson/ M. Santos

File Name : 154855 KK  
Site Code : 15137  
Start Date : 1/13/2016  
Page No : 1

Start Time	Albany Street From North					W. 4th Street From East					Albany Street From South					E. Berkeley Street From West					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	35	170	0	0	205	0	183	46	0	229	0	0	0	0	0	0	0	0	0	0	434
04:45 PM	33	187	0	0	220	0	174	42	0	216	0	0	0	0	0	0	0	0	0	0	436
05:00 PM	59	149	0	0	208	0	180	48	0	228	0	0	0	0	0	0	0	0	0	0	436
05:15 PM	53	157	0	0	210	0	185	56	0	241	0	0	0	0	0	0	0	0	0	0	451
Total Volume	180	663	0	0	843	0	722	192	0	914	0	0	0	0	0	0	0	0	0	0	1757
% App. Total	21.4	78.6	0	0		0	79	21	0		0	0	0	0	0	0	0	0	0	0	
PHF	.763	.886	.000	.000	.958	.000	.976	.857	.000	.948	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.974
Cars	174	641	0	0	815	0	682	181	0	863	0	0	0	0	0	0	0	0	0	0	1678
% Cars	96.7	96.7	0	0	96.7	0	94.5	94.3	0	94.4	0	0	0	0	0	0	0	0	0	0	95.5
Heavy Vehicles	6	22	0	0	28	0	40	11	0	51	0	0	0	0	0	0	0	0	0	0	79
% Heavy Vehicles	3.3	3.3	0	0	3.3	0	5.5	5.7	0	5.6	0	0	0	0	0	0	0	0	0	0	4.5







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NE/S/N: I-93 Frontage Road/ I-90 Onramps  
E/W: Broadway Bridge/ Traveler Street  
City, State: Boston, MA  
Client: Howard Stein-Hudson/ M. Santos

File Name : 154855 L  
Site Code : 15137  
Start Date : 1/13/2016  
Page No : 1

Groups Printed- Cars - Heavy Vehicles

Start Time	I-90 Onramps From North					I-93 Frontage Road NB From Northeast					Broadway Bridge From East					I-93 Frontage Road NB From South					Traveler Street From West					Int. Total
	Right	Thru	Left	Hard Left	U-Turn	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	Hard Right	Right	Thru	Left	U-Turn	Right	Bear Right	Thru	Left	U-Turn	Right	Thru	Bear Left	Left	U-Turn	
07:00 AM	0	0	0	0	0	0	0	0	0	0	118	91	0	0	0	12	94	61	0	0	0	125	41	13	0	555
07:15 AM	0	0	0	0	0	0	0	0	0	0	128	82	0	0	0	9	100	74	0	0	0	136	36	18	0	583
07:30 AM	0	0	0	0	0	0	0	0	0	0	129	90	0	0	0	11	122	88	0	0	0	149	61	11	0	661
07:45 AM	0	0	0	0	0	0	0	0	0	0	150	93	0	0	0	11	122	80	0	0	0	157	57	15	0	685
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>525</b>	<b>356</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>43</b>	<b>438</b>	<b>303</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>567</b>	<b>195</b>	<b>57</b>	<b>0</b>	<b>2484</b>
08:00 AM	0	0	0	0	0	0	0	0	0	0	166	84	0	0	0	10	112	73	0	0	0	147	50	9	0	651
08:15 AM	0	0	0	0	0	0	0	0	0	0	159	98	0	0	0	8	104	59	0	0	0	163	52	11	0	654
08:30 AM	0	0	0	0	0	0	0	0	0	0	173	68	0	0	0	5	125	52	0	0	0	177	55	11	0	666
08:45 AM	0	0	0	0	0	0	0	0	0	0	151	87	0	0	0	10	121	58	0	0	0	151	44	10	0	632
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>649</b>	<b>337</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>33</b>	<b>462</b>	<b>242</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>638</b>	<b>201</b>	<b>41</b>	<b>0</b>	<b>2603</b>
Grand Total	0	0	0	0	0	0	0	0	0	0	1174	693	0	0	0	76	900	545	0	0	0	1205	396	98	0	5087
Apprch %	0	0	0	0	0	0	0	0	0	0	62.9	37.1	0	0	0	5	59.2	35.8	0	0	0	70.9	23.3	5.8	0	
Total %	0	0	0	0	0	0	0	0	0	0	23.1	13.6	0	0	0	1.5	17.7	10.7	0	0	0	23.7	7.8	1.9	0	
Cars	0	0	0	0	0	0	0	0	0	0	1167	677	0	0	0	69	825	475	0	0	0	1113	366	92	0	4784
% Cars	0	0	0	0	0	0	0	0	0	0	99.4	97.7	0	0	0	90.8	91.7	87.2	0	0	0	92.4	92.4	93.9	0	94
Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	7	16	0	0	0	7	75	70	0	0	0	92	30	6	0	303
% Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0.6	2.3	0	0	0	9.2	8.3	12.8	0	0	0	7.6	7.6	6.1	0	6

Start Time	I-90 Onramps From North							I-93 Frontage Road NB From Northeast							Broadway Bridge From East							I-93 Frontage Road NB From South							Traveler Street From West							Int. Total
	Right	Thru	Left	Hard Left	U-Turn	App. Total	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	App. Total	Hard Right	Right	Thru	Left	U-Turn	App. Total	Right	Bear Right	Thru	Left	U-Turn	App. Total	Right	Thru	Bear Left	Left	U-Turn	App. Total						
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																																				
Peak Hour for Entire Intersection Begins at 07:45 AM																																				
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	150	93	0	0	0	243	11	122	80	0	0	213	0	157	57	15	0	229	685					
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	166	84	0	0	0	250	10	112	73	0	0	195	0	147	50	9	0	206	651					
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	159	98	0	0	0	257	8	104	59	0	0	171	0	163	52	11	0	226	654					
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	173	68	0	0	0	241	5	125	52	0	0	182	0	177	55	11	0	243	666					
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	648	343	0	0	0	991	34	463	264	0	0	761	0	644	214	46	0	904	2656					
% App. Total	0	0	0	0	0	0	0	0	0	0	0	0	65.4	34.6	0	0	0		4.5	60.8	34.7	0	0		0	71.2	23.7	5.1	0							
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.936	.875	.000	.000	.000	.964	.773	.926	.825	.000	.000	.893	.000	.910	.939	.767	.000	.930	.969					
Cars	0	0	0	0	0	0	0	0	0	0	0	0	645	336	0	0	0	981	30	439	235	0	0	704	0	595	196	41	0	832	2517					
% Cars	0	0	0	0	0	0	0	0	0	0	0	0	99.5	98.0	0	0	0	99.0	88.2	94.8	89.0	0	0	92.5	0	92.4	91.6	89.1	0	92.0	94.8					
Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	3	7	0	0	0	10	4	24	29	0	0	57	0	49	18	5	0	72	139					
% Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0.5	2.0	0	0	0	1.0	11.8	5.2	11.0	0	0	7.5	0	7.6	8.4	10.9	0	8.0	5.2					



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City, State: Boston, MA  
Client: Howard Stein-Hudson/ M. Santos

File Name : 154855 L  
Site Code : 15137  
Start Date : 1/13/2016  
Page No : 1

Groups Printed- Cars

Start Time	I-90 Onramps From North					I-93 Frontage Road NB From Northeast					Broadway Bridge From East					I-93 Frontage Road NB From South					Traveler Street From West					Int. Total
	Right	Thru	Left	Hard Left	U-Turn	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	Hard Right	Right	Thru	Left	U-Turn	Right	Bear Right	Thru	Left	U-Turn	Right	Thru	Bear Left	Left	U-Turn	
07:00 AM	0	0	0	0	0	0	0	0	0	0	118	88	0	0	0	12	81	50	0	0	0	113	40	12	0	514
07:15 AM	0	0	0	0	0	0	0	0	0	0	128	79	0	0	0	7	88	59	0	0	0	123	36	18	0	538
07:30 AM	0	0	0	0	0	0	0	0	0	0	127	88	0	0	0	11	109	82	0	0	0	142	58	11	0	628
07:45 AM	0	0	0	0	0	0	0	0	0	0	150	92	0	0	0	11	115	74	0	0	0	142	51	14	0	649
Total	0	0	0	0	0	0	0	0	0	0	523	347	0	0	0	41	393	265	0	0	0	520	185	55	0	2329
08:00 AM	0	0	0	0	0	0	0	0	0	0	165	81	0	0	0	9	106	63	0	0	0	137	45	8	0	614
08:15 AM	0	0	0	0	0	0	0	0	0	0	158	96	0	0	0	7	100	51	0	0	0	149	48	10	0	619
08:30 AM	0	0	0	0	0	0	0	0	0	0	172	67	0	0	0	3	118	47	0	0	0	167	52	9	0	635
08:45 AM	0	0	0	0	0	0	0	0	0	0	149	86	0	0	0	9	108	49	0	0	0	140	36	10	0	587
Total	0	0	0	0	0	0	0	0	0	0	644	330	0	0	0	28	432	210	0	0	0	593	181	37	0	2455
Grand Total	0	0	0	0	0	0	0	0	0	0	1167	677	0	0	0	69	825	475	0	0	0	1113	366	92	0	4784
Apprch %	0	0	0	0	0	0	0	0	0	0	63.3	36.7	0	0	0	5	60.3	34.7	0	0	0	70.8	23.3	5.9	0	
Total %	0	0	0	0	0	0	0	0	0	0	24.4	14.2	0	0	0	1.4	17.2	9.9	0	0	0	23.3	7.7	1.9	0	

Start Time	I-90 Onramps From North						I-93 Frontage Road NB From Northeast						Broadway Bridge From East						I-93 Frontage Road NB From South						Traveler Street From West						Int. Total	
	Right	Thru	Left	Hard Left	U-Turn	App. Total	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	App. Total	Hard Right	Right	Thru	Left	U-Turn	App. Total	Right	Bear Right	Thru	Left	U-Turn	App. Total	Right	Thru	Bear Left	Left	U-Turn	App. Total		
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																																
Peak Hour for Entire Intersection Begins at 07:45 AM																																
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	150	92	0	0	0	242	11	115	74	0	0	200	0	142	51	14	0	207	649	
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	165	81	0	0	0	246	9	106	63	0	0	178	0	137	45	8	0	190	614	
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	158	96	0	0	0	254	7	100	51	0	0	158	0	149	48	10	0	207	619	
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	172	67	0	0	0	239	3	118	47	0	0	168	0	167	52	9	0	228	635	
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	645	336	0	0	0	981	30	439	235	0	0	704	0	595	196	41	0	832	2517	
% App. Total	0	0	0	0	0	0	0	0	0	0	0	0	65.7	34.3	0	0	0		4.3	62.4	33.4	0	0		0	71.5	23.6	4.9	0			
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.938	.875	.000	.000	.000	.966	.682	.930	.794	.000	.000	.880	.000	.891	.942	.732	.000	.912	.970	



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City, State: Boston, MA  
Client: Howard Stein-Hudson/ M. Santos

File Name : 154855 L  
Site Code : 15137  
Start Date : 1/13/2016  
Page No : 1

Groups Printed- Heavy Vehicles

Start Time	I-90 Onramps From North					I-93 Frontage Road NB From Northeast					Broadway Bridge From East					I-93 Frontage Road NB From South					Traveler Street From West					Int. Total	
	Right	Thru	Left	Hard Left	U-Turn	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	Hard Right	Right	Thru	Left	U-Turn	Right	Bear Right	Thru	Left	U-Turn	Right	Thru	Bear Left	Left	U-Turn		
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	13	11	0	0	0	0	12	1	1	0	41
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	2	12	15	0	0	0	0	13	0	0	0	45
07:30 AM	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	13	6	0	0	0	0	7	3	0	0	33
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	7	6	0	0	0	0	15	6	1	0	36
Total	0	0	0	0	0	0	0	0	0	0	2	9	0	0	0	2	45	38	0	0	0	0	47	10	2	0	155
08:00 AM	0	0	0	0	0	0	0	0	0	0	1	3	0	0	0	1	6	10	0	0	0	0	10	5	1	0	37
08:15 AM	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	1	4	8	0	0	0	0	14	4	1	0	35
08:30 AM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	2	7	5	0	0	0	0	10	3	2	0	31
08:45 AM	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0	1	13	9	0	0	0	0	11	8	0	0	45
Total	0	0	0	0	0	0	0	0	0	0	5	7	0	0	0	5	30	32	0	0	0	0	45	20	4	0	148
Grand Total	0	0	0	0	0	0	0	0	0	0	7	16	0	0	0	7	75	70	0	0	0	0	92	30	6	0	303
Apprch %	0	0	0	0	0	0	0	0	0	0	30.4	69.6	0	0	0	4.6	49.3	46.1	0	0	0	0	71.9	23.4	4.7	0	
Total %	0	0	0	0	0	0	0	0	0	0	2.3	5.3	0	0	0	2.3	24.8	23.1	0	0	0	0	30.4	9.9	2	0	

Start Time	I-90 Onramps From North						I-93 Frontage Road NB From Northeast						Broadway Bridge From East						I-93 Frontage Road NB From South						Traveler Street From West						Int. Total
	Right	Thru	Left	Hard Left	U-Turn	App. Total	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	App. Total	Hard Right	Right	Thru	Left	U-Turn	App. Total	Right	Bear Right	Thru	Left	U-Turn	App. Total	Right	Thru	Bear Left	Left	U-Turn	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																															
Peak Hour for Entire Intersection Begins at 07:00 AM																															
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3	0	13	11	0	0	24	0	12	1	1	0	14	41	
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3	2	12	15	0	0	29	0	13	0	0	0	13	45	
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	4	0	13	6	0	0	19	0	7	3	0	0	10	33	
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	7	6	0	0	13	0	15	6	1	0	22	36	
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	2	9	0	0	11	2	45	38	0	0	85	0	47	10	2	0	59	155	
% App. Total	0	0	0	0	0	0	0	0	0	0	0	0	18.2	81.8	0	0	0	2.4	52.9	44.7	0	0	0	0	79.7	16.9	3.4	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.750	.000	.000	.688	.250	.865	.633	.000	.000	.733	.000	.783	.417	.500	.000	.670	.861	



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NE/S/N: I-93 Frontage Road/ I-90 Onramps  
E/W: Broadway Bridge/ Traveler Street  
City, State: Boston, MA  
Client: Howard Stein-Hudson/ M. Santos

File Name : 154855 L  
Site Code : 15137  
Start Date : 1/13/2016  
Page No : 1

Groups Printed- Peds and Bikes

Start Time	I-90 Onramps From North						I-93 Frontage Road NB From Northeast						Broadway Bridge From East						I-93 Frontage Road NB From South						Traveler Street From West						Int. Total
	Right	Thru	Left	Hard Left	Peds EB	Peds WB	Hard Right	Bear Right	Bear Left	Hard Left	Peds SEB	Peds NWB	Hard Right	Right	Thru	Left	Peds SB	Peds NB	Right	Bear Right	Thru	Left	Peds WB	Peds EB	Right	Thru	Bear Left	Left	Peds NB	Peds SB	
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	3	5	0	1	0	0	0	0	10
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	4	0	0	0	0	0	0	16
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	8	0	0	0	0	0	0	16	
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	0	0	0	0	18	5	0	2	0	0	0	0	29
<b>Total</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	3	0	0	0	0	41	22	0	3	0	0	0	0	71
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0	0	11	7	0	3	0	0	0	0	24
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0	0	12	8	0	1	0	0	0	0	24
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18	11	0	0	0	0	0	0	29
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	7	0	2	0	0	0	0	22	
<b>Total</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	2	0	0	0	0	54	33	0	6	0	0	0	0	99
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	5	0	0	0	0	95	55	0	9	0	0	0	0	170
Apprch %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	54.5	45.5	0	0	0	0	63.3	36.7	0	100	0	0	0	0	
Total %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3.5	2.9	0	0	0	0	55.9	32.4	0	5.3	0	0	0	0	

Start Time	I-90 Onramps From North							I-93 Frontage Road NB From Northeast							Broadway Bridge From East							I-93 Frontage Road NB From South							Traveler Street From West							Int. Total
	Right	Thru	Left	Hard Left	Peds s E	Peds s W	App. Total	Hard Right	Bear Right	Bear Left	Hard Left	Peds s S	Peds s N	App. Total	Hard Right	Right	Thru	Left	Peds s SB	Peds s NB	App. Total	Right	Bear Right	Thru	Left	Peds s WB	Peds s EB	App. Total	Right	Thru	Bear Left	Left	Peds s NB	Peds s SB	App. Total	
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	4	0	0	0	0	18	5	23	0	2	0	0	0	2	29	
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	3	0	0	0	0	11	7	18	0	3	0	0	0	3	24	
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	3	0	0	0	0	12	8	20	0	1	0	0	0	1	24	
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18	11	29	0	0	0	0	0	0	0	29		
Total Volume																									59	31	90	0	6	0	0	0	0	6	106	
% App. Total																										65.6	34.4		0	100	0	0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.500	.914	

Peak Hour for Entire Intersection Begins at 07:45 AM

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1



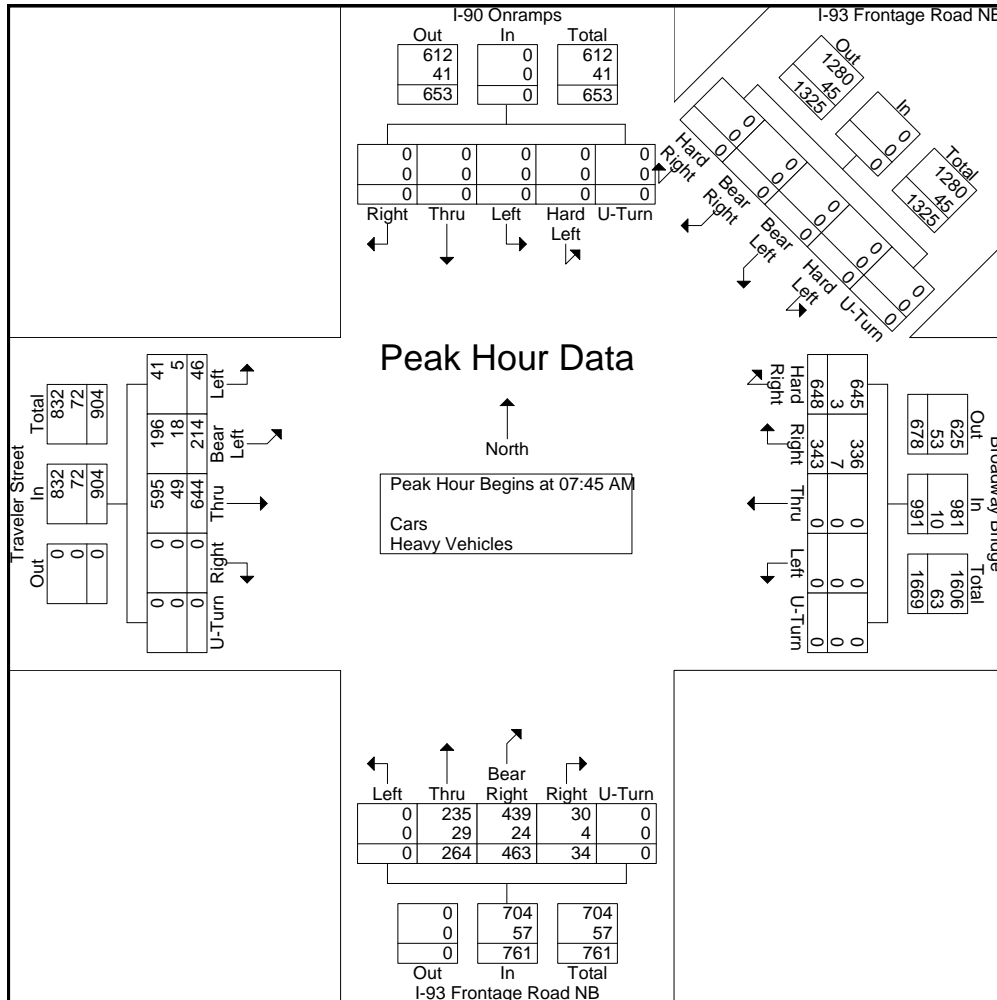
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E/W: Broadway Bridge/ Traveler Street  
City, State: Boston, MA  
Client: Howard Stein-Hudson/ M. Santos

File Name : 154855 L  
Site Code : 15137  
Start Date : 1/13/2016  
Page No : 1

Start Time	I-90 Onramps From North						I-93 Frontage Road NB From Northeast						Broadway Bridge From East						I-93 Frontage Road NB From South						Traveler Street From West						Int. Total
	Right	Thru	Left	Hard Left	U-Turn	App. Total	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	App. Total	Hard Right	Right	Thru	Left	U-Turn	App. Total	Right	Bear Right	Thru	Left	U-Turn	App. Total	Right	Thru	Bear Left	Left	U-Turn	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																															
Peak Hour for Entire Intersection Begins at 07:45 AM																															
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	150	93	0	0	0	243	11	122	80	0	0	213	0	157	57	15	0	229	685
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	166	84	0	0	0	250	10	112	73	0	0	195	0	147	50	9	0	206	651
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	159	98	0	0	0	257	8	104	59	0	0	171	0	163	52	11	0	226	654
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	173	68	0	0	0	241	5	125	52	0	0	182	0	177	55	11	0	243	666
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	648	343	0	0	0	991	34	463	264	0	0	761	0	644	214	46	0	904	2656
% App. Total	0	0	0	0	0	0	0	0	0	0	0	0	65.4	34.6	0	0	0	0	4.5	60.8	34.7	0	0	0	0	71.2	23.7	5.1	0	0	0
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.936	.875	.000	.000	.000	.964	.773	.926	.825	.000	.000	.893	.000	.910	.939	.767	.000	.930	.969
Cars	0	0	0	0	0	0	0	0	0	0	0	0	645	336	0	0	0	981	30	439	235	0	0	704	0	595	196	41	0	832	2517
% Cars	0	0	0	0	0	0	0	0	0	0	0	0	99.5	98.0	0	0	0	99.0	88.2	94.8	89.0	0	0	92.5	0	92.4	91.6	89.1	0	92.0	94.8
Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	3	7	0	0	0	10	4	24	29	0	0	57	0	49	18	5	0	72	139
% Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0.5	2.0	0	0	0	1.0	11.8	5.2	11.0	0	0	7.5	0	7.6	8.4	10.9	0	8.0	5.2





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NE/S/N: I-93 Frontage Road/ I-90 Onramps  
E/W: Broadway Bridge/ Traveler Street  
City, State: Boston, MA  
Client: Howard Stein-Hudson/ M. Santos

File Name : 154855 LL  
Site Code : 15137  
Start Date : 1/13/2016  
Page No : 1

Groups Printed- Cars - Heavy Vehicles

Start Time	I-90 Onramps From North					I-93 Frontage Road NB From Northeast					Broadway Bridge From East					I-93 Frontage Road NB From South					Traveler Street From West					Int. Total	
	Right	Thru	Left	Hard Left	U-Turn	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	Hard Right	Right	Thru	Left	U-Turn	Right	Bear Right	Thru	Left	U-Turn	Right	Thru	Bear Left	Left	U-Turn		
04:00 PM	0	0	0	0	0	0	0	0	0	0	117	54	0	0	0	8	156	81	0	0	0	0	219	69	27	0	731
04:15 PM	0	0	0	0	0	0	0	0	0	0	94	45	0	0	1	11	135	71	0	0	0	0	192	62	27	0	638
04:30 PM	0	0	0	0	0	0	0	0	0	0	103	51	0	0	0	13	140	68	0	0	0	0	222	69	17	0	683
04:45 PM	0	0	0	0	0	0	0	0	0	0	110	35	0	0	1	11	131	68	0	0	0	0	228	48	17	0	649
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>424</b>	<b>185</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>43</b>	<b>562</b>	<b>288</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>861</b>	<b>248</b>	<b>88</b>	<b>0</b>	<b>2701</b>
05:00 PM	0	0	0	0	0	0	0	0	0	0	95	46	0	0	0	11	165	76	0	0	0	0	219	49	18	0	679
05:15 PM	0	0	0	0	0	0	0	0	0	0	113	54	0	0	0	10	132	79	0	0	0	0	264	66	18	0	736
05:30 PM	0	0	0	0	0	0	0	0	0	0	127	53	0	0	0	7	137	57	0	0	0	0	229	61	21	0	692
05:45 PM	0	0	0	0	0	0	0	0	0	0	95	33	0	0	0	9	102	55	0	0	0	0	250	77	13	0	634
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>430</b>	<b>186</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>37</b>	<b>536</b>	<b>267</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>962</b>	<b>253</b>	<b>70</b>	<b>0</b>	<b>2741</b>
Grand Total	0	0	0	0	0	0	0	0	0	0	854	371	0	0	2	80	1098	555	0	0	0	0	1823	501	158	0	5442
Apprch %	0	0	0	0	0	0	0	0	0	0	69.6	30.2	0	0	0.2	4.6	63.4	32	0	0	0	0	73.4	20.2	6.4	0	
Total %	0	0	0	0	0	0	0	0	0	0	15.7	6.8	0	0	0	1.5	20.2	10.2	0	0	0	0	33.5	9.2	2.9	0	
Cars	0	0	0	0	0	0	0	0	0	0	848	355	0	0	2	73	1059	533	0	0	0	0	1756	487	156	0	5269
% Cars	0	0	0	0	0	0	0	0	0	0	99.3	95.7	0	0	100	91.2	96.4	96	0	0	0	0	96.3	97.2	98.7	0	96.8
Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	6	16	0	0	0	7	39	22	0	0	0	0	67	14	2	0	173
% Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0.7	4.3	0	0	0	8.8	3.6	4	0	0	0	0	3.7	2.8	1.3	0	3.2

Start Time	I-90 Onramps From North							I-93 Frontage Road NB From Northeast							Broadway Bridge From East							I-93 Frontage Road NB From South							Traveler Street From West							Int. Total
	Right	Thru	Left	Hard Left	U-Turn	App. Total	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	App. Total	Hard Right	Right	Thru	Left	U-Turn	App. Total	Right	Bear Right	Thru	Left	U-Turn	App. Total	Right	Thru	Bear Left	Left	U-Turn	App. Total						
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																																				
Peak Hour for Entire Intersection Begins at 04:45 PM																																				
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	110	35	0	0	1	146	11	131	68	0	0	210	0	228	48	17	0	293	649						
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	95	46	0	0	0	141	11	165	76	0	0	252	0	219	49	18	0	286	679						
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	113	54	0	0	0	167	10	132	79	0	0	221	0	264	66	18	0	348	736						
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	127	53	0	0	0	180	7	137	57	0	0	201	0	229	61	21	0	311	692						
Total Volume	0	0	0	0	0	0	0	0	0	0	0	445	188	0	0	1	634	39	565	280	0	0	884	0	940	224	74	0	1238	2756						
% App. Total	0	0	0	0	0	0	0	0	0	0	0	70.2	29.7	0	0	0.2		4.4	63.9	31.7	0	0		0	75.9	18.1	6	0								
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.876	.870	.000	.000	.250	.881	.886	.856	.886	.000	.000	.877	.000	.890	.848	.881	.000	.889	.936						
Cars	0	0	0	0	0	0	0	0	0	0	0	444	181	0	0	1	626	38	553	274	0	0	865	0	908	218	73	0	1199	2690						
% Cars	0	0	0	0	0	0	0	0	0	0	0	99.8	96.3	0	0	100	98.7	97.4	97.9	97.9	0	0	97.9	0	96.6	97.3	98.6	0	96.8	97.6						
Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	1	7	0	0	0	8	1	12	6	0	0	19	0	32	6	1	0	39	66						
% Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	0.2	3.7	0	0	0	1.3	2.6	2.1	2.1	0	0	2.1	0	3.4	2.7	1.4	0	3.2	2.4						



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E/W: Broadway Bridge/ Traveler Street  
City, State: Boston, MA  
Client: Howard Stein-Hudson/ M. Santos

File Name : 154855 LL  
Site Code : 15137  
Start Date : 1/13/2016  
Page No : 1

Groups Printed- Cars

Start Time	I-90 Onramps From North					I-93 Frontage Road NB From Northeast					Broadway Bridge From East					I-93 Frontage Road NB From South					Traveler Street From West					Int. Total
	Right	Thru	Left	Hard Left	U-Turn	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	Hard Right	Right	Thru	Left	U-Turn	Right	Bear Right	Thru	Left	U-Turn	Right	Thru	Bear Left	Left	U-Turn	
04:00 PM	0	0	0	0	0	0	0	0	0	0	113	52	0	0	0	7	150	73	0	0	0	214	66	27	0	702
04:15 PM	0	0	0	0	0	0	0	0	0	0	94	44	0	0	1	9	126	68	0	0	0	180	61	27	0	610
04:30 PM	0	0	0	0	0	0	0	0	0	0	102	47	0	0	0	11	131	65	0	0	0	210	68	17	0	651
04:45 PM	0	0	0	0	0	0	0	0	0	0	110	32	0	0	1	11	129	67	0	0	0	221	46	16	0	633
Total	0	0	0	0	0	0	0	0	0	0	419	175	0	0	2	38	536	273	0	0	0	825	241	87	0	2596
05:00 PM	0	0	0	0	0	0	0	0	0	0	95	46	0	0	0	10	161	73	0	0	0	211	49	18	0	663
05:15 PM	0	0	0	0	0	0	0	0	0	0	112	52	0	0	0	10	129	78	0	0	0	256	63	18	0	718
05:30 PM	0	0	0	0	0	0	0	0	0	0	127	51	0	0	0	7	134	56	0	0	0	220	60	21	0	676
05:45 PM	0	0	0	0	0	0	0	0	0	0	95	31	0	0	0	8	99	53	0	0	0	244	74	12	0	616
Total	0	0	0	0	0	0	0	0	0	0	429	180	0	0	0	35	523	260	0	0	0	931	246	69	0	2673
Grand Total	0	0	0	0	0	0	0	0	0	0	848	355	0	0	2	73	1059	533	0	0	0	1756	487	156	0	5269
Apprch %	0	0	0	0	0	0	0	0	0	0	70.4	29.5	0	0	0.2	4.4	63.6	32	0	0	0	73.2	20.3	6.5	0	
Total %	0	0	0	0	0	0	0	0	0	0	16.1	6.7	0	0	0	1.4	20.1	10.1	0	0	0	33.3	9.2	3	0	

Start Time	I-90 Onramps From North						I-93 Frontage Road NB From Northeast						Broadway Bridge From East						I-93 Frontage Road NB From South						Traveler Street From West						Int. Total	
	Right	Thru	Left	Hard Left	U-Turn	App. Total	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	App. Total	Hard Right	Right	Thru	Left	U-Turn	App. Total	Right	Bear Right	Thru	Left	U-Turn	App. Total	Right	Thru	Bear Left	Left	U-Turn	App. Total		
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																																
Peak Hour for Entire Intersection Begins at 04:45 PM																																
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	110	32	0	0	1	143	11	129	67	0	0	207	0	221	46	16	0	283	633	
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	95	46	0	0	0	141	10	161	73	0	0	244	0	211	49	18	0	278	663	
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	112	52	0	0	0	164	10	129	78	0	0	217	0	256	63	18	0	337	718	
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	127	51	0	0	0	178	7	134	56	0	0	197	0	220	60	21	0	301	676	
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	444	181	0	0	1	626	38	553	274	0	0	865	0	908	218	73	0	1199	2690	
% App. Total	0	0	0	0	0	0	0	0	0	0	0	0	70.9	28.9	0	0	0.2		4.4	63.9	31.7	0	0		0	75.7	18.2	6.1	0			
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.874	.870	.000	.000	.250	.879	.864	.859	.878	.000	.000	.886	.000	.887	.865	.869	.000	.889	.937	



PRECISION  
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NE/S/N: I-93 Frontage Road/ I-90 Onramps  
E/W: Broadway Bridge/ Traveler Street  
City, State: Boston, MA  
Client: Howard Stein-Hudson/ M. Santos

File Name : 154855 LL  
Site Code : 15137  
Start Date : 1/13/2016  
Page No : 1

Groups Printed- Heavy Vehicles

Start Time	I-90 Onramps From North					I-93 Frontage Road NB From Northeast					Broadway Bridge From East					I-93 Frontage Road NB From South					Traveler Street From West					Int. Total	
	Right	Thru	Left	Hard Left	U-Turn	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	Hard Right	Right	Thru	Left	U-Turn	Right	Bear Right	Thru	Left	U-Turn	Right	Thru	Bear Left	Left	U-Turn		
04:00 PM	0	0	0	0	0	0	0	0	0	0	4	2	0	0	0	1	6	8	0	0	0	0	5	3	0	0	29
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	9	3	0	0	0	0	12	1	0	0	28
04:30 PM	0	0	0	0	0	0	0	0	0	0	1	4	0	0	0	2	9	3	0	0	0	0	12	1	0	0	32
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	2	1	0	0	0	0	7	2	1	0	16
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>10</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>26</b>	<b>15</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>36</b>	<b>7</b>	<b>1</b>	<b>0</b>	<b>105</b>
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	4	3	0	0	0	0	8	0	0	0	16
05:15 PM	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	3	1	0	0	0	0	8	3	0	0	18
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	3	1	0	0	0	0	9	1	0	0	16
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	1	3	2	0	0	0	0	6	3	1	0	18
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>6</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>13</b>	<b>7</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>31</b>	<b>7</b>	<b>1</b>	<b>0</b>	<b>68</b>
Grand Total	0	0	0	0	0	0	0	0	0	0	6	16	0	0	0	7	39	22	0	0	0	0	67	14	2	0	173
Apprch %	0	0	0	0	0	0	0	0	0	0	27.3	72.7	0	0	0	10.3	57.4	32.4	0	0	0	0	80.7	16.9	2.4	0	
Total %	0	0	0	0	0	0	0	0	0	0	3.5	9.2	0	0	0	4	22.5	12.7	0	0	0	0	38.7	8.1	1.2	0	

Start Time	I-90 Onramps From North						I-93 Frontage Road NB From Northeast						Broadway Bridge From East						I-93 Frontage Road NB From South						Traveler Street From West						Int. Total
	Right	Thru	Left	Hard Left	U-Turn	App. Total	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	App. Total	Hard Right	Right	Thru	Left	U-Turn	App. Total	Right	Bear Right	Thru	Left	U-Turn	App. Total	Right	Thru	Bear Left	Left	U-Turn	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																															
Peak Hour for Entire Intersection Begins at 04:00 PM																															
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	4	2	0	0	0	6	1	6	8	0	0	15	0	5	3	0	0	8	29	
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	2	9	3	0	0	14	0	12	1	0	0	13	28	
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	1	4	0	0	0	5	2	9	3	0	0	14	0	12	1	0	0	13	32	
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3	0	2	1	0	0	3	0	7	2	1	0	10	16	
Total Volume	0	0	0	0	0	0	0	0	0	0	0	5	10	0	0	0	15	5	26	15	0	0	46	0	36	7	1	0	44	105	
% App. Total	0	0	0	0	0	0	0	0	0	0	0	33.3	66.7	0	0	0		10.9	56.5	32.6	0	0		0	81.8	15.9	2.3	0			
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.313	.625	.000	.000	.000	.625	.625	.722	.469	.000	.000	.767	.000	.750	.583	.250	.000	.846	.820	





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NE/S/N: I-93 Frontage Road/ I-90 Onramps  
E/W: Broadway Bridge/ Traveler Street  
City, State: Boston, MA  
Client: Howard Stein-Hudson/ M. Santos

File Name : 154855 LL  
Site Code : 15137  
Start Date : 1/13/2016  
Page No : 1

Groups Printed- Peds and Bikes

Start Time	I-90 Onramps From North						I-93 Frontage Road NB From Northeast						Broadway Bridge From East						I-93 Frontage Road NB From South						Traveler Street From West						Int. Total
	Right	Thru	Left	Hard Left	Peds EB	Peds WB	Hard Right	Bear Right	Bear Left	Hard Left	Peds SEB	Peds NWB	Hard Right	Right	Thru	Left	Peds SB	Peds NB	Right	Bear Right	Thru	Left	Peds WB	Peds EB	Right	Thru	Bear Left	Left	Peds NB	Peds SB	
04:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	1	0	0	0	0	2	9	0	2	0	0	0	0	17
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	7	11	0	1	0	0	0	0	21	
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	9	8	0	0	0	0	0	0	18	
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	3	13	0	1	0	0	0	0	18	
<b>Total</b>	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	5	2	0	0	0	0	21	41	0	4	0	0	0	0	74	
05:00 PM	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	6	1	0	0	0	13	15	0	1	0	0	0	0	38	
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	7	19	0	1	0	0	0	0	29	
05:30 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	11	11	0	0	0	0	0	0	25	
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	5	8	0	2	0	0	0	0	16	
<b>Total</b>	0	0	0	0	1	1	0	0	0	0	0	2	0	0	0	0	10	1	0	0	0	36	53	0	4	0	0	0	0	108	
Grand Total	0	0	0	0	1	1	0	0	0	0	1	2	0	0	0	0	15	3	0	0	0	57	94	0	8	0	0	0	0	182	
Apprch %	0	0	0	0	50	50	0	0	0	0	33.3	66.7	0	0	0	0	83.3	16.7	0	0	0	37.7	62.3	0	100	0	0	0	0		
Total %	0	0	0	0	0.5	0.5	0	0	0	0	0.5	1.1	0	0	0	0	8.2	1.6	0	0	0	31.3	51.6	0	4.4	0	0	0	0		

Start Time	I-90 Onramps From North							I-93 Frontage Road NB From Northeast							Broadway Bridge From East							I-93 Frontage Road NB From South							Traveler Street From West							Int. Total
	Right	Thru	Left	Hard Left	Peds s E	Peds s W	App. Total	Hard Right	Bear Right	Bear Left	Hard Left	Peds s S	Peds s N	App. Total	Hard Right	Right	Thru	Left	Peds s SB	Peds s NB	App. Total	Right	Bear Right	Thru	Left	Peds s WB	Peds s EB	App. Total	Right	Thru	Bear Left	Left	Peds s NB	Peds s SB	App. Total	
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	3	13	16	0	1	0	0	0	0	1	18	
05:00 PM																						13	15	28	0	1	0	0	0	0	0	0	1	38		
05:15 PM																						19	26	0	1	0	0	0	0	0	1	29				
05:30 PM																						11	11	22	0	0	0	0	0	0	0	0	25			
Total Volume																						34	58	92	0	3	0	0	0	0	0	3	110			
% App. Total					50	50		0	0	0	0	0	100		0	0	0	0	81.8	18.2		37	63		0	100	0	0	0	0						
PHF	.000	.000	.000	.000	.250	.250	.500	.000	.000	.000	.000	.500	.500	.000	.000	.000	.000	.375	.500	.393	.000	.000	.000	.000	.654	.763	.821	.000	.750	.000	.000	.000	.750	.724		

Peak Hour for Entire Intersection Begins at 04:45 PM

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 3



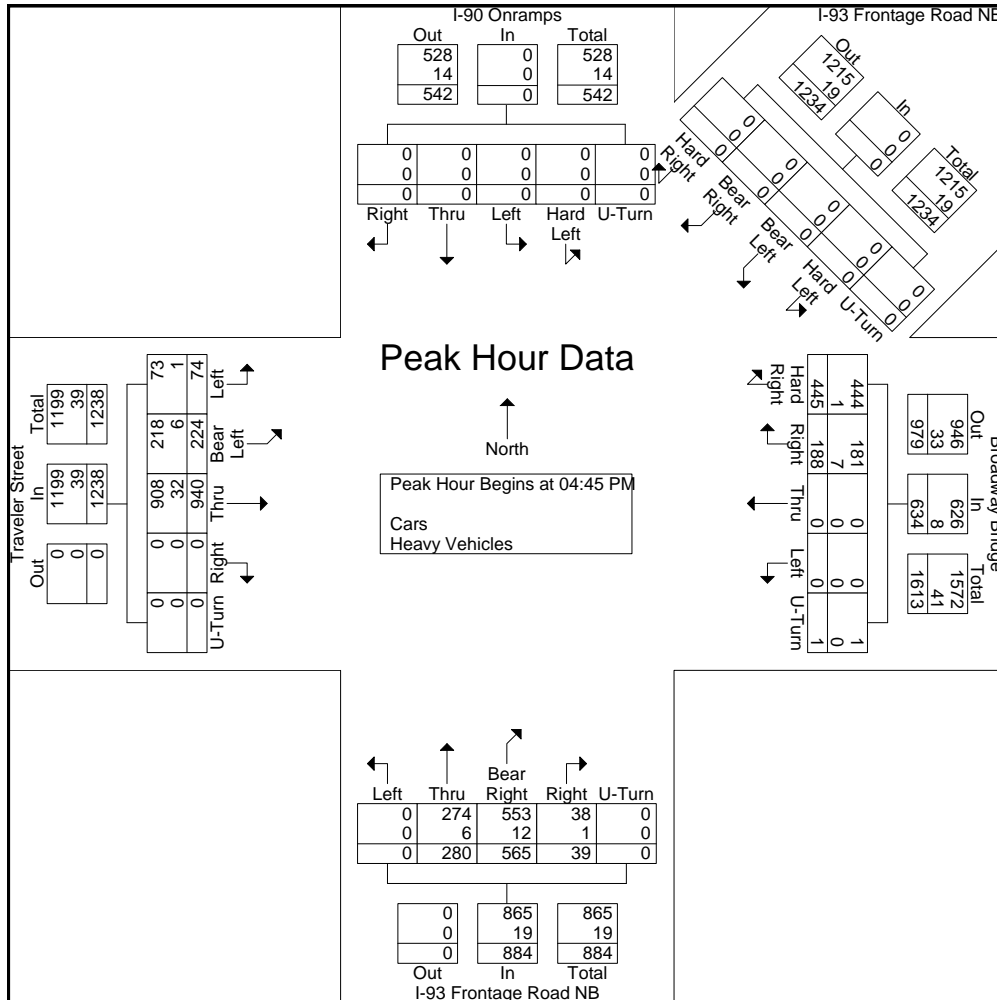
PRECISION  
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File Name : 154855 LL  
Site Code : 15137  
Start Date : 1/13/2016  
Page No : 1

NE/S/N: I-93 Frontage Road/ I-90 Onramps  
E/W: Broadway Bridge/ Traveler Street  
City, State: Boston, MA  
Client: Howard Stein-Hudson/ M. Santos

Start Time	I-90 Onramps From North						I-93 Frontage Road NB From Northeast						Broadway Bridge From East						I-93 Frontage Road NB From South						Traveler Street From West						Int. Total
	Right	Thru	Left	Hard Left	U-Turn	App. Total	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	App. Total	Hard Right	Right	Thru	Left	U-Turn	App. Total	Right	Bear Right	Thru	Left	U-Turn	App. Total	Right	Thru	Bear Left	Left	U-Turn	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																															
Peak Hour for Entire Intersection Begins at 04:45 PM																															
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	110	35	0	0	1	146	11	131	68	0	0	210	0	228	48	17	0	293	649
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	95	46	0	0	0	141	11	165	76	0	0	252	0	219	49	18	0	286	679
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	113	54	0	0	0	167	10	132	79	0	0	221	0	264	66	18	0	348	736
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	127	53	0	0	0	180	7	137	57	0	0	201	0	229	61	21	0	311	692
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	445	188	0	0	1	634	39	565	280	0	0	884	0	940	224	74	0	1238	2756
% App. Total	0	0	0	0	0	0	0	0	0	0	0	0	70.2	29.7	0	0	0.2	88.1	4.4	63.9	31.7	0	0	87.7	0	75.9	18.1	6	0	93.6	93.6
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.876	.870	.000	.000	.250	.881	.886	.856	.886	.000	.000	.877	.000	.890	.848	.881	.000	.889	.936
Cars	0	0	0	0	0	0	0	0	0	0	0	0	444	181	0	0	1	626	38	553	274	0	0	865	0	908	218	73	0	1199	2690
% Cars	0	0	0	0	0	0	0	0	0	0	0	0	99.8	96.3	0	0	100	98.7	97.4	97.9	97.9	0	0	97.9	0	96.6	97.3	98.6	0	96.8	97.6
Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	1	7	0	0	0	8	1	12	6	0	0	19	0	32	6	1	0	39	66
% Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0.2	3.7	0	0	0	1.3	2.6	2.1	2.1	0	0	2.1	0	3.4	2.7	1.4	0	3.2	2.4





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N/S: I-93 Frontage Road NB  
E/W: W. 4th Street  
City, State: Boston, MA  
Client: Howard Stein-Hudson/ M. Santos

File Name : 154855 M  
Site Code : 15137  
Start Date : 1/13/2016  
Page No : 1

Groups Printed- Cars - Heavy Vehicles

Start Time	I-93 Frontage Road NB From North				W. 4th Street From East				I-93 Frontage Road NB From South				W. 4th Street From West				Int. Total
	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
07:00 AM	0	0	0	0	26	195	0	0	60	150	96	0	0	0	0	0	527
07:15 AM	0	0	0	0	43	216	0	0	45	135	100	0	0	0	0	0	539
07:30 AM	0	0	0	0	41	189	0	0	45	172	96	0	0	0	1	0	544
07:45 AM	0	0	0	0	42	232	0	0	71	173	110	0	0	0	0	0	628
Total	0	0	0	0	152	832	0	0	221	630	402	0	0	0	1	0	2238
08:00 AM	0	0	0	0	30	213	0	0	63	158	131	0	0	0	0	0	595
08:15 AM	0	0	0	0	35	243	0	0	71	146	124	0	0	0	0	0	619
08:30 AM	0	0	0	0	41	216	0	0	50	125	107	0	0	0	0	0	539
08:45 AM	0	0	0	0	37	206	0	0	59	140	102	0	0	0	0	0	544
Total	0	0	0	0	143	878	0	0	243	569	464	0	0	0	0	0	2297
Grand Total	0	0	0	0	295	1710	0	0	464	1199	866	0	0	0	1	0	4535
Apprch %	0	0	0	0	14.7	85.3	0	0	18.3	47.4	34.2	0	0	0	100	0	
Total %	0	0	0	0	6.5	37.7	0	0	10.2	26.4	19.1	0	0	0	0	0	
Cars	0	0	0	0	276	1579	0	0	411	1059	827	0	0	0	1	0	4153
% Cars	0	0	0	0	93.6	92.3	0	0	88.6	88.3	95.5	0	0	0	100	0	91.6
Heavy Vehicles	0	0	0	0	19	131	0	0	53	140	39	0	0	0	0	0	382
% Heavy Vehicles	0	0	0	0	6.4	7.7	0	0	11.4	11.7	4.5	0	0	0	0	0	8.4

Start Time	I-93 Frontage Road NB From North					W. 4th Street From East					I-93 Frontage Road NB From South					W. 4th Street From West					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	0	0	0	0	0	41	189	0	0	230	45	172	96	0	313	0	0	1	0	1	544
07:45 AM	0	0	0	0	0	42	232	0	0	274	71	173	110	0	354	0	0	0	0	0	628
08:00 AM	0	0	0	0	0	30	213	0	0	243	63	158	131	0	352	0	0	0	0	0	595
08:15 AM	0	0	0	0	0	35	243	0	0	278	71	146	124	0	341	0	0	0	0	0	619
Total Volume	0	0	0	0	0	148	877	0	0	1025	250	649	461	0	1360	0	0	1	0	1	2386
% App. Total	0	0	0	0	0	14.4	85.6	0	0		18.4	47.7	33.9	0		0	0	100	0		
PHF	.000	.000	.000	.000	.000	.881	.902	.000	.000	.922	.880	.938	.880	.000	.960	.000	.000	.250	.000	.250	.950
Cars	0	0	0	0	0	140	801	0	0	941	224	589	440	0	1253	0	0	1	0	1	2195
% Cars	0	0	0	0	0	94.6	91.3	0	0	91.8	89.6	90.8	95.4	0	92.1	0	0	100	0	100	92.0
Heavy Vehicles	0	0	0	0	0	8	76	0	0	84	26	60	21	0	107	0	0	0	0	0	191
% Heavy Vehicles	0	0	0	0	0	5.4	8.7	0	0	8.2	10.4	9.2	4.6	0	7.9	0	0	0	0	0	8.0



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Office: 508.481.3999 Fax: 508.545.1234  
Email: datarequests@pdillc.com

N/S: I-93 Frontage Road NB  
E/W: W. 4th Street  
City, State: Boston, MA  
Client: Howard Stein-Hudson/ M. Santos

File Name : 154855 M  
Site Code : 15137  
Start Date : 1/13/2016  
Page No : 1

Groups Printed- Cars

Start Time	I-93 Frontage Road NB From North				W. 4th Street From East				I-93 Frontage Road NB From South				W. 4th Street From West				Int. Total
	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
07:00 AM	0	0	0	0	23	182	0	0	52	127	91	0	0	0	0	0	475
07:15 AM	0	0	0	0	41	199	0	0	41	116	92	0	0	0	0	0	489
07:30 AM	0	0	0	0	40	179	0	0	43	155	92	0	0	0	1	0	510
07:45 AM	0	0	0	0	41	212	0	0	60	161	100	0	0	0	0	0	574
Total	0	0	0	0	145	772	0	0	196	559	375	0	0	0	1	0	2048
08:00 AM	0	0	0	0	27	191	0	0	56	140	127	0	0	0	0	0	541
08:15 AM	0	0	0	0	32	219	0	0	65	133	121	0	0	0	0	0	570
08:30 AM	0	0	0	0	38	199	0	0	43	110	105	0	0	0	0	0	495
08:45 AM	0	0	0	0	34	198	0	0	51	117	99	0	0	0	0	0	499
Total	0	0	0	0	131	807	0	0	215	500	452	0	0	0	0	0	2105
Grand Total	0	0	0	0	276	1579	0	0	411	1059	827	0	0	0	1	0	4153
Apprch %	0	0	0	0	14.9	85.1	0	0	17.9	46.1	36	0	0	0	100	0	
Total %	0	0	0	0	6.6	38	0	0	9.9	25.5	19.9	0	0	0	0	0	

Start Time	I-93 Frontage Road NB From North					W. 4th Street From East					I-93 Frontage Road NB From South					W. 4th Street From West					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	0	0	0	0	0	40	179	0	0	219	43	155	92	0	290	0	0	1	0	1	510
07:45 AM	0	0	0	0	0	41	212	0	0	253	60	161	100	0	321	0	0	0	0	0	574
08:00 AM	0	0	0	0	0	27	191	0	0	218	56	140	127	0	323	0	0	0	0	0	541
08:15 AM	0	0	0	0	0	32	219	0	0	251	65	133	121	0	319	0	0	0	0	0	570
Total Volume	0	0	0	0	0	140	801	0	0	941	224	589	440	0	1253	0	0	1	0	1	2195
% App. Total	0	0	0	0	0	14.9	85.1	0	0		17.9	47	35.1	0		0	0	100	0		
PHF	.000	.000	.000	.000	.000	.854	.914	.000	.000	.930	.862	.915	.866	.000	.970	.000	.000	.250	.000	.250	.956



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E/W: W. 4th Street  
City, State: Boston, MA  
Client: Howard Stein-Hudson/ M. Santos

File Name : 154855 M  
Site Code : 15137  
Start Date : 1/13/2016  
Page No : 1

Groups Printed- Heavy Vehicles

Start Time	I-93 Frontage Road NB From North				W. 4th Street From East				I-93 Frontage Road NB From South				W. 4th Street From West				Int. Total
	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
07:00 AM	0	0	0	0	3	13	0	0	8	23	5	0	0	0	0	0	52
07:15 AM	0	0	0	0	2	17	0	0	4	19	8	0	0	0	0	0	50
07:30 AM	0	0	0	0	1	10	0	0	2	17	4	0	0	0	0	0	34
07:45 AM	0	0	0	0	1	20	0	0	11	12	10	0	0	0	0	0	54
Total	0	0	0	0	7	60	0	0	25	71	27	0	0	0	0	0	190
08:00 AM	0	0	0	0	3	22	0	0	7	18	4	0	0	0	0	0	54
08:15 AM	0	0	0	0	3	24	0	0	6	13	3	0	0	0	0	0	49
08:30 AM	0	0	0	0	3	17	0	0	7	15	2	0	0	0	0	0	44
08:45 AM	0	0	0	0	3	8	0	0	8	23	3	0	0	0	0	0	45
Total	0	0	0	0	12	71	0	0	28	69	12	0	0	0	0	0	192
Grand Total	0	0	0	0	19	131	0	0	53	140	39	0	0	0	0	0	382
Apprch %	0	0	0	0	12.7	87.3	0	0	22.8	60.3	16.8	0	0	0	0	0	
Total %	0	0	0	0	5	34.3	0	0	13.9	36.6	10.2	0	0	0	0	0	

Start Time	I-93 Frontage Road NB From North					W. 4th Street From East					I-93 Frontage Road NB From South					W. 4th Street From West					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
07:45 AM	0	0	0	0	0	1	20	0	0	21	11	12	10	0	33	0	0	0	0	0	54
08:00 AM	0	0	0	0	0	3	22	0	0	25	7	18	4	0	29	0	0	0	0	0	54
08:15 AM	0	0	0	0	0	3	24	0	0	27	6	13	3	0	22	0	0	0	0	0	49
08:30 AM	0	0	0	0	0	3	17	0	0	20	7	15	2	0	24	0	0	0	0	0	44
Total Volume	0	0	0	0	0	10	83	0	0	93	31	58	19	0	108	0	0	0	0	0	201
% App. Total	0	0	0	0	0	10.8	89.2	0	0		28.7	53.7	17.6	0		0	0	0	0		
PHF	.000	.000	.000	.000	.000	.833	.865	.000	.000	.861	.705	.806	.475	.000	.818	.000	.000	.000	.000	.000	.931

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1  
Peak Hour for Entire Intersection Begins at 07:45 AM



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Client: Howard Stein-Hudson/ M. Santos

File Name : 154855 M  
Site Code : 15137  
Start Date : 1/13/2016  
Page No : 1

Groups Printed- Peds and Bikes

Start Time	I-93 Frontage Road NB From North					W. 4th Street From East					I-93 Frontage Road NB From South					W. 4th Street From West					Int. Total
	Right	Thru	Left	Peds EB	Peds WB	Right	Thru	Left	Peds SB	Peds NB	Right	Thru	Left	Peds WB	Peds EB	Right	Thru	Left	Peds NB	Peds SB	
07:00 AM	0	0	0	3	0	0	2	0	0	1	0	0	0	2	3	0	0	0	0	0	11
07:15 AM	0	0	0	0	3	0	2	0	0	0	0	0	0	8	2	0	0	0	0	0	15
07:30 AM	0	0	0	2	1	0	4	0	1	1	0	0	0	10	4	0	0	0	0	0	23
07:45 AM	0	0	0	2	0	0	3	0	1	2	0	0	0	15	5	0	0	0	0	0	28
Total	0	0	0	7	4	0	11	0	2	4	0	0	0	35	14	0	0	0	0	0	77
08:00 AM	0	0	0	1	4	0	0	0	0	1	0	0	0	12	6	0	0	0	0	0	24
08:15 AM	0	0	0	0	4	0	2	0	1	0	0	0	0	19	7	0	0	0	0	0	33
08:30 AM	0	0	0	4	0	0	0	0	1	0	0	0	0	22	14	0	0	0	1	0	42
08:45 AM	0	0	0	2	0	1	3	0	0	1	1	0	0	16	2	0	0	0	1	0	27
Total	0	0	0	7	8	1	5	0	2	2	1	0	0	69	29	0	0	0	2	0	126
Grand Total	0	0	0	14	12	1	16	0	4	6	1	0	0	104	43	0	0	0	2	0	203
Apprch %	0	0	0	53.8	46.2	3.7	59.3	0	14.8	22.2	0.7	0	0	70.3	29.1	0	0	0	100	0	
Total %	0	0	0	6.9	5.9	0.5	7.9	0	2	3	0.5	0	0	51.2	21.2	0	0	0	1	0	

Start Time	I-93 Frontage Road NB From North						W. 4th Street From East						I-93 Frontage Road NB From South						W. 4th Street From West						Int. Total
	Right	Thru	Left	Peds EB	Peds WB	App. Total	Right	Thru	Left	Peds SB	Peds NB	App. Total	Right	Thru	Left	Peds WB	Peds EB	App. Total	Right	Thru	Left	Peds NB	Peds SB	App. Total	
07:45 AM	0	0	0	2	0	2	0	3	0	1	2	6	0	0	0	15	5	20	0	0	0	0	0	0	28
08:00 AM	0	0	0	1	4	5	0	0	0	0	1	1	0	0	0	12	6	18	0	0	0	0	0	0	24
08:15 AM	0	0	0	0	4	4	0	2	0	1	0	3	0	0	0	19	7	26	0	0	0	0	0	0	33
08:30 AM	0	0	0	4	0	4	0	0	0	1	0	1	0	0	0	22	14	36	0	0	0	1	0	1	42
Total Volume	0	0	0	7	8	15	0	5	0	3	3	11	0	0	0	68	32	100	0	0	0	1	0	1	127
% App. Total	0	0	0	46.7	53.3	0	45.5	0	27.3	27.3	0	0	0	68	32	0	0	0	100	0					
PHF	.000	.000	.000	.438	.500	.750	.000	.417	.000	.750	.375	.458	.000	.000	.000	.773	.571	.694	.000	.000	.000	.250	.000	.250	.756

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 07:45 AM



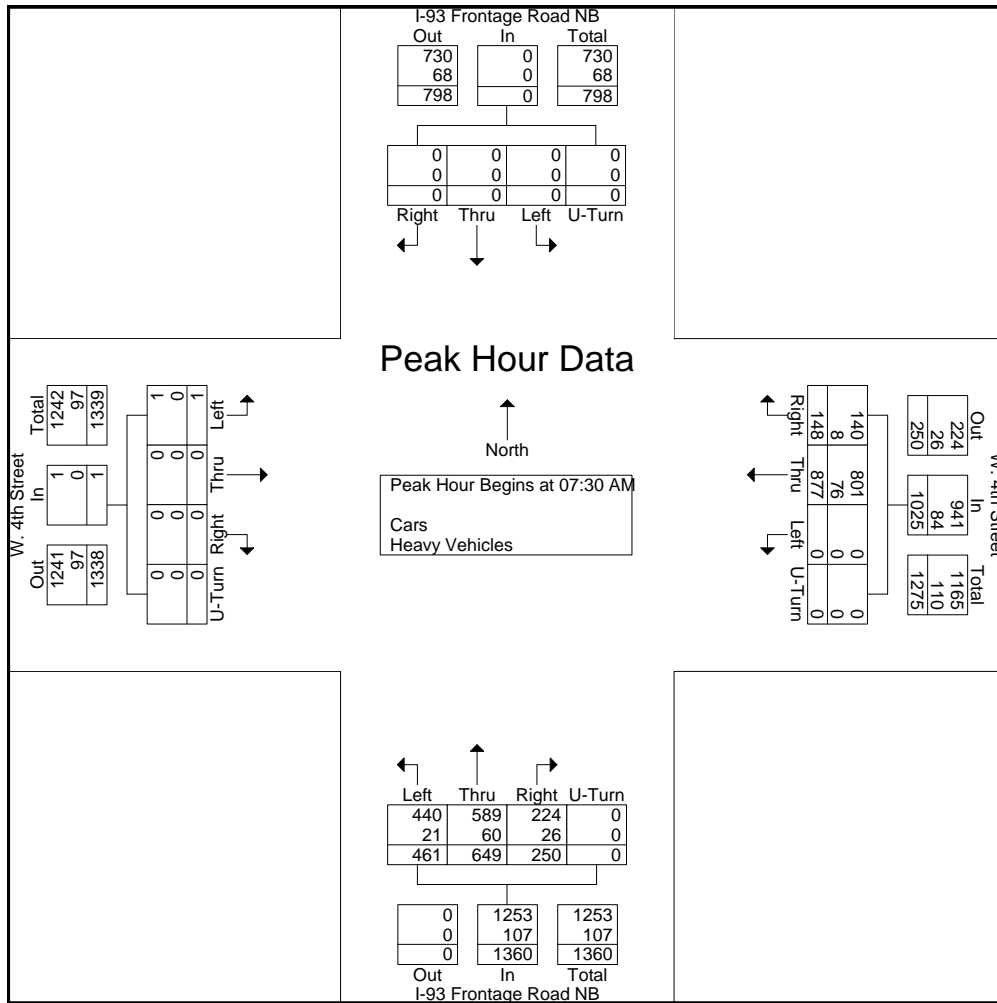
PRECISION  
DATA  
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Start Date : 1/13/2016  
Page No : 1

Start Time	I-93 Frontage Road NB From North					W. 4th Street From East					I-93 Frontage Road NB From South					W. 4th Street From West					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	0	0	0	0	0	41	189	0	0	230	45	172	96	0	313	0	0	1	0	1	544
07:45 AM	0	0	0	0	0	42	232	0	0	274	71	173	110	0	354	0	0	0	0	0	628
08:00 AM	0	0	0	0	0	30	213	0	0	243	63	158	131	0	352	0	0	0	0	0	595
08:15 AM	0	0	0	0	0	35	243	0	0	278	71	146	124	0	341	0	0	0	0	0	619
Total Volume	0	0	0	0	0	148	877	0	0	1025	250	649	461	0	1360	0	0	1	0	1	2386
% App. Total	0	0	0	0	0	14.4	85.6	0	0		18.4	47.7	33.9	0		0	0	100	0		
PHF	.000	.000	.000	.000	.000	.881	.902	.000	.000	.922	.880	.938	.880	.000	.960	.000	.000	.250	.000	.250	.950
Cars	0	0	0	0	0	140	801	0	0	941	224	589	440	0	1253	0	0	1	0	1	2195
% Cars	0	0	0	0	0	94.6	91.3	0	0	91.8	89.6	90.8	95.4	0	92.1	0	0	100	0	100	92.0
Heavy Vehicles	0	0	0	0	0	8	76	0	0	84	26	60	21	0	107	0	0	0	0	0	191
% Heavy Vehicles	0	0	0	0	0	5.4	8.7	0	0	8.2	10.4	9.2	4.6	0	7.9	0	0	0	0	0	8.0





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File Name : 154855 MM  
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Start Date : 1/13/2016  
Page No : 1

Groups Printed- Cars - Heavy Vehicles

Start Time	I-93 Frontage Road NB From North				W. 4th Street From East				I-93 Frontage Road NB From South				W. 4th Street From West				Int. Total
	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
04:00 PM	0	0	0	0	18	140	0	0	108	236	70	0	0	0	0	0	572
04:15 PM	0	0	0	0	16	125	0	0	65	212	70	0	0	0	0	0	488
04:30 PM	0	0	0	0	11	143	0	0	92	214	85	0	0	0	0	0	545
04:45 PM	0	0	0	0	22	150	0	0	89	205	67	0	0	0	0	0	533
Total	0	0	0	0	67	558	0	0	354	867	292	0	0	0	0	0	2138
05:00 PM	0	0	0	0	18	158	0	0	108	198	68	0	0	0	0	0	550
05:15 PM	0	0	0	0	11	200	0	0	71	213	45	0	0	0	0	0	540
05:30 PM	0	0	0	0	19	160	0	0	66	193	51	0	0	0	0	0	489
05:45 PM	0	0	0	0	11	155	0	0	67	147	47	0	0	0	0	0	427
Total	0	0	0	0	59	673	0	0	312	751	211	0	0	0	0	0	2006
Grand Total	0	0	0	0	126	1231	0	0	666	1618	503	0	0	0	0	0	4144
Apprch %	0	0	0	0	9.3	90.7	0	0	23.9	58.1	18	0	0	0	0	0	
Total %	0	0	0	0	3	29.7	0	0	16.1	39	12.1	0	0	0	0	0	
Cars	0	0	0	0	121	1160	0	0	633	1546	474	0	0	0	0	0	3934
% Cars	0	0	0	0	96	94.2	0	0	95	95.6	94.2	0	0	0	0	0	94.9
Heavy Vehicles	0	0	0	0	5	71	0	0	33	72	29	0	0	0	0	0	210
% Heavy Vehicles	0	0	0	0	4	5.8	0	0	5	4.4	5.8	0	0	0	0	0	5.1

Start Time	I-93 Frontage Road NB From North					W. 4th Street From East					I-93 Frontage Road NB From South					W. 4th Street From West					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	0	0	0	0	0	11	143	0	0	154	92	214	85	0	391	0	0	0	0	0	545
04:45 PM	0	0	0	0	0	22	150	0	0	172	89	205	67	0	361	0	0	0	0	0	533
05:00 PM	0	0	0	0	0	18	158	0	0	176	108	198	68	0	374	0	0	0	0	0	550
05:15 PM	0	0	0	0	0	11	200	0	0	211	71	213	45	0	329	0	0	0	0	0	540
Total Volume	0	0	0	0	0	62	651	0	0	713	360	830	265	0	1455	0	0	0	0	0	2168
% App. Total	0	0	0	0	0	8.7	91.3	0	0		24.7	57	18.2	0		0	0	0	0	0	
PHF	.000	.000	.000	.000	.000	.705	.814	.000	.000	.845	.833	.970	.779	.000	.930	.000	.000	.000	.000	.000	.985
Cars	0	0	0	0	0	60	617	0	0	677	337	801	248	0	1386	0	0	0	0	0	2063
% Cars	0	0	0	0	0	96.8	94.8	0	0	95.0	93.6	96.5	93.6	0	95.3	0	0	0	0	0	95.2
Heavy Vehicles	0	0	0	0	0	2	34	0	0	36	23	29	17	0	69	0	0	0	0	0	105
% Heavy Vehicles	0	0	0	0	0	3.2	5.2	0	0	5.0	6.4	3.5	6.4	0	4.7	0	0	0	0	0	4.8





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Groups Printed- Cars

Start Time	I-93 Frontage Road NB From North				W. 4th Street From East				I-93 Frontage Road NB From South				W. 4th Street From West				Int. Total
	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
04:00 PM	0	0	0	0	17	129	0	0	104	222	64	0	0	0	0	0	536
04:15 PM	0	0	0	0	14	118	0	0	64	196	65	0	0	0	0	0	457
04:30 PM	0	0	0	0	10	133	0	0	84	202	77	0	0	0	0	0	506
04:45 PM	0	0	0	0	21	141	0	0	84	199	64	0	0	0	0	0	509
Total	0	0	0	0	62	521	0	0	336	819	270	0	0	0	0	0	2008
05:00 PM	0	0	0	0	18	149	0	0	102	193	65	0	0	0	0	0	527
05:15 PM	0	0	0	0	11	194	0	0	67	207	42	0	0	0	0	0	521
05:30 PM	0	0	0	0	19	148	0	0	63	187	50	0	0	0	0	0	467
05:45 PM	0	0	0	0	11	148	0	0	65	140	47	0	0	0	0	0	411
Total	0	0	0	0	59	639	0	0	297	727	204	0	0	0	0	0	1926
Grand Total	0	0	0	0	121	1160	0	0	633	1546	474	0	0	0	0	0	3934
Apprch %	0	0	0	0	9.4	90.6	0	0	23.9	58.3	17.9	0	0	0	0	0	
Total %	0	0	0	0	3.1	29.5	0	0	16.1	39.3	12	0	0	0	0	0	

Start Time	I-93 Frontage Road NB From North					W. 4th Street From East					I-93 Frontage Road NB From South					W. 4th Street From West					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	0	0	0	0	0	10	133	0	0	143	84	202	77	0	363	0	0	0	0	0	506
04:45 PM	0	0	0	0	0	21	141	0	0	162	84	199	64	0	347	0	0	0	0	0	509
05:00 PM	0	0	0	0	0	18	149	0	0	167	102	193	65	0	360	0	0	0	0	0	527
05:15 PM	0	0	0	0	0	11	194	0	0	205	67	207	42	0	316	0	0	0	0	0	521
Total Volume	0	0	0	0	0	60	617	0	0	677	337	801	248	0	1386	0	0	0	0	0	2063
% App. Total	0	0	0	0	0	8.9	91.1	0	0		24.3	57.8	17.9	0		0	0	0	0	0	
PHF	.000	.000	.000	.000	.000	.714	.795	.000	.000	.826	.826	.967	.805	.000	.955	.000	.000	.000	.000	.000	.979



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File Name : 154855 MM  
Site Code : 15137  
Start Date : 1/13/2016  
Page No : 1

Groups Printed- Heavy Vehicles

Start Time	I-93 Frontage Road NB From North				W. 4th Street From East				I-93 Frontage Road NB From South				W. 4th Street From West				Int. Total
	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
04:00 PM	0	0	0	0	1	11	0	0	4	14	6	0	0	0	0	0	36
04:15 PM	0	0	0	0	2	7	0	0	1	16	5	0	0	0	0	0	31
04:30 PM	0	0	0	0	1	10	0	0	8	12	8	0	0	0	0	0	39
04:45 PM	0	0	0	0	1	9	0	0	5	6	3	0	0	0	0	0	24
Total	0	0	0	0	5	37	0	0	18	48	22	0	0	0	0	0	130
05:00 PM	0	0	0	0	0	9	0	0	6	5	3	0	0	0	0	0	23
05:15 PM	0	0	0	0	0	6	0	0	4	6	3	0	0	0	0	0	19
05:30 PM	0	0	0	0	0	12	0	0	3	6	1	0	0	0	0	0	22
05:45 PM	0	0	0	0	0	7	0	0	2	7	0	0	0	0	0	0	16
Total	0	0	0	0	0	34	0	0	15	24	7	0	0	0	0	0	80
Grand Total	0	0	0	0	5	71	0	0	33	72	29	0	0	0	0	0	210
Apprch %	0	0	0	0	6.6	93.4	0	0	24.6	53.7	21.6	0	0	0	0	0	
Total %	0	0	0	0	2.4	33.8	0	0	15.7	34.3	13.8	0	0	0	0	0	

Start Time	I-93 Frontage Road NB From North					W. 4th Street From East					I-93 Frontage Road NB From South					W. 4th Street From West					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	0	0	0	0	0	1	11	0	0	12	4	14	6	0	24	0	0	0	0	0	36
04:15 PM	0	0	0	0	0	2	7	0	0	9	1	16	5	0	22	0	0	0	0	0	31
04:30 PM	0	0	0	0	0	1	10	0	0	11	8	12	8	0	28	0	0	0	0	0	39
04:45 PM	0	0	0	0	0	1	9	0	0	10	5	6	3	0	14	0	0	0	0	0	24
Total Volume	0	0	0	0	0	5	37	0	0	42	18	48	22	0	88	0	0	0	0	0	130
% App. Total	0	0	0	0	0	11.9	88.1	0	0		20.5	54.5	25	0		0	0	0	0	0	
PHF	.000	.000	.000	.000	.000	.625	.841	.000	.000	.875	.563	.750	.688	.000	.786	.000	.000	.000	.000	.000	.833



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N/S: I-93 Frontage Road NB  
E/W: W. 4th Street  
City, State: Boston, MA  
Client: Howard Stein-Hudson/ M. Santos

File Name : 154855 MM  
Site Code : 15137  
Start Date : 1/13/2016  
Page No : 1

Groups Printed- Peds and Bikes

Start Time	I-93 Frontage Road NB From North					W. 4th Street From East					I-93 Frontage Road NB From South					W. 4th Street From West					Int. Total
	Right	Thru	Left	Peds EB	Peds WB	Right	Thru	Left	Peds SB	Peds NB	Right	Thru	Left	Peds WB	Peds EB	Right	Thru	Left	Peds NB	Peds SB	
04:00 PM	0	0	0	7	5	0	0	0	1	0	0	0	0	2	7	0	1	0	0	1	24
04:15 PM	0	0	0	5	0	0	0	0	0	1	0	0	0	5	10	0	1	0	1	0	23
04:30 PM	0	0	0	1	6	0	2	0	4	0	0	0	0	7	16	0	2	0	0	3	41
04:45 PM	0	0	0	2	1	0	1	0	0	3	0	0	0	3	10	0	1	0	1	0	22
Total	0	0	0	15	12	0	3	0	5	4	0	0	0	17	43	0	5	0	2	4	110
05:00 PM	0	0	0	5	3	0	2	0	0	3	0	0	0	4	28	0	2	0	1	0	48
05:15 PM	0	0	0	2	0	0	3	0	1	1	0	0	0	7	18	0	2	0	0	0	34
05:30 PM	0	0	0	4	3	0	1	0	0	3	0	0	0	5	24	0	2	0	2	0	44
05:45 PM	0	0	0	7	5	0	2	0	0	1	0	0	0	4	26	0	0	0	2	0	47
Total	0	0	0	18	11	0	8	0	1	8	0	0	0	20	96	0	6	0	5	0	173
Grand Total	0	0	0	33	23	0	11	0	6	12	0	0	0	37	139	0	11	0	7	4	283
Apprch %	0	0	0	58.9	41.1	0	37.9	0	20.7	41.4	0	0	0	21	79	0	50	0	31.8	18.2	
Total %	0	0	0	11.7	8.1	0	3.9	0	2.1	4.2	0	0	0	13.1	49.1	0	3.9	0	2.5	1.4	

Start Time	I-93 Frontage Road NB From North						W. 4th Street From East						I-93 Frontage Road NB From South						W. 4th Street From West						Int. Total
	Right	Thru	Left	Peds EB	Peds WB	App. Total	Right	Thru	Left	Peds SB	Peds NB	App. Total	Right	Thru	Left	Peds WB	Peds EB	App. Total	Right	Thru	Left	Peds NB	Peds SB	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																									
Peak Hour for Entire Intersection Begins at 05:00 PM																									
05:00 PM	0	0	0	5	3	8	0	2	0	0	3	5	0	0	0	4	28	32	0	2	0	1	0	3	48
05:15 PM	0	0	0	2	0	2	0	3	0	1	1	5	0	0	0	7	18	25	0	2	0	0	0	2	34
05:30 PM	0	0	0	4	3	7	0	1	0	0	3	4	0	0	0	5	24	29	0	2	0	2	0	4	44
05:45 PM	0	0	0	7	5	12	0	2	0	0	1	3	0	0	0	4	26	30	0	0	0	2	0	2	47
Total Volume	0	0	0	18	11	29	0	8	0	1	8	17	0	0	0	20	96	116	0	6	0	5	0	11	173
% App. Total	0	0	0	62.1	37.9		0	47.1	0	5.9	47.1		0	0	0	17.2	82.8		0	54.5	0	45.5	0		
PHF	.000	.000	.000	.643	.550	.604	.000	.667	.000	.250	.667	.850	.000	.000	.000	.714	.857	.906	.000	.750	.000	.625	.000	.688	.901



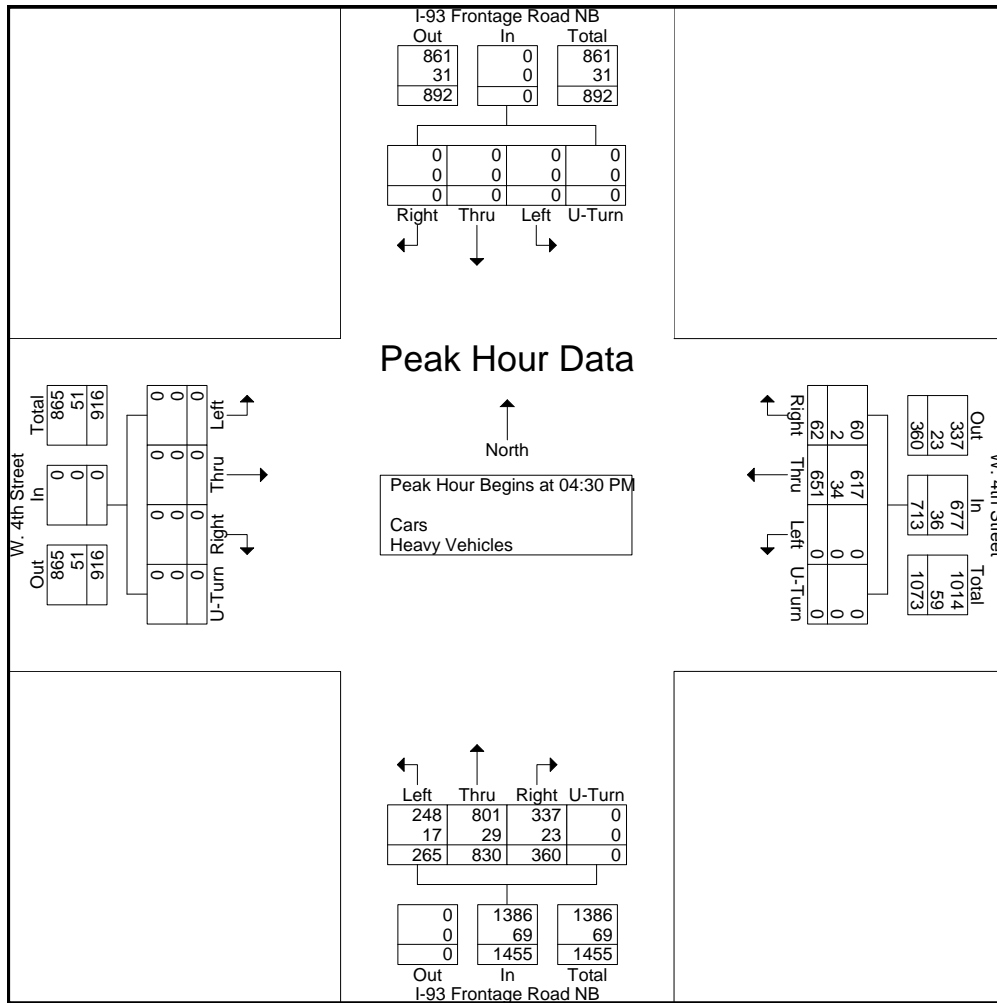
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N/S: I-93 Frontage Road NB  
E/W: W. 4th Street  
City, State: Boston, MA  
Client: Howard Stein-Hudson/ M. Santos

File Name : 154855 MM  
Site Code : 15137  
Start Date : 1/13/2016  
Page No : 1

Start Time	I-93 Frontage Road NB From North					W. 4th Street From East					I-93 Frontage Road NB From South					W. 4th Street From West					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	0	0	0	0	0	11	143	0	0	154	92	214	85	0	391	0	0	0	0	0	545
04:45 PM	0	0	0	0	0	22	150	0	0	172	89	205	67	0	361	0	0	0	0	0	533
05:00 PM	0	0	0	0	0	18	158	0	0	176	108	198	68	0	374	0	0	0	0	0	550
05:15 PM	0	0	0	0	0	11	200	0	0	211	71	213	45	0	329	0	0	0	0	0	540
Total Volume	0	0	0	0	0	62	651	0	0	713	360	830	265	0	1455	0	0	0	0	0	2168
% App. Total	0	0	0	0	0	8.7	91.3	0	0		24.7	57	18.2	0		0	0	0	0		
PHF	.000	.000	.000	.000	.000	.705	.814	.000	.000	.845	.833	.970	.779	.000	.930	.000	.000	.000	.000	.000	.985
Cars	0	0	0	0	0	60	617	0	0	677	337	801	248	0	1386	0	0	0	0	0	2063
% Cars	0	0	0	0	0	96.8	94.8	0	0	95.0	93.6	96.5	93.6	0	95.3	0	0	0	0	0	95.2
Heavy Vehicles	0	0	0	0	0	2	34	0	0	36	23	29	17	0	69	0	0	0	0	0	105
% Heavy Vehicles	0	0	0	0	0	3.2	5.2	0	0	5.0	6.4	3.5	6.4	0	4.7	0	0	0	0	0	4.8





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N/S: Tremont Street  
E/W: E. Berkeley Street/ Berkeley Street  
City, State: Boston, MA  
Client: Howard Stein-Hudson/ M. Santos

File Name : 154855 N  
Site Code : 15137  
Start Date : 1/13/2016  
Page No : 1

Groups Printed- Cars - Heavy Vehicles

Start Time	Tremont Street From North				E. Berkeley Street From East				Tremont Street From South				Berkeley Street From West				Int. Total
	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
07:00 AM	7	42	0	0	39	160	68	0	0	76	19	0	1	0	3	0	415
07:15 AM	7	44	0	0	33	161	65	0	0	80	27	0	0	0	4	0	421
07:30 AM	7	52	0	0	32	151	67	0	0	107	26	0	1	0	6	0	449
07:45 AM	13	55	0	0	42	190	52	0	0	119	32	0	1	0	6	0	510
Total	34	193	0	0	146	662	252	0	0	382	104	0	3	0	19	0	1795
08:00 AM	12	62	0	0	37	189	79	0	0	119	39	0	2	0	3	0	542
08:15 AM	10	46	0	0	47	196	69	0	0	135	37	0	4	0	5	0	549
08:30 AM	18	60	0	0	37	193	60	0	0	129	37	1	2	0	4	0	541
08:45 AM	8	56	0	0	42	170	80	0	0	111	31	0	3	0	1	0	502
Total	48	224	0	0	163	748	288	0	0	494	144	1	11	0	13	0	2134
Grand Total	82	417	0	0	309	1410	540	0	0	876	248	1	14	0	32	0	3929
Apprch %	16.4	83.6	0	0	13.7	62.4	23.9	0	0	77.9	22	0.1	30.4	0	69.6	0	
Total %	2.1	10.6	0	0	7.9	35.9	13.7	0	0	22.3	6.3	0	0.4	0	0.8	0	
Cars	75	382	0	0	290	1320	519	0	0	842	241	1	14	0	32	0	3716
% Cars	91.5	91.6	0	0	93.9	93.6	96.1	0	0	96.1	97.2	100	100	0	100	0	94.6
Heavy Vehicles	7	35	0	0	19	90	21	0	0	34	7	0	0	0	0	0	213
% Heavy Vehicles	8.5	8.4	0	0	6.1	6.4	3.9	0	0	3.9	2.8	0	0	0	0	0	5.4

Start Time	Tremont Street From North					E. Berkeley Street From East					Tremont Street From South					Berkeley Street From West					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	13	55	0	0	68	42	190	52	0	284	0	119	32	0	151	1	0	6	0	7	510
08:00 AM	12	62	0	0	74	37	189	79	0	305	0	119	39	0	158	2	0	3	0	5	542
08:15 AM	10	46	0	0	56	47	196	69	0	312	0	135	37	0	172	4	0	5	0	9	549
08:30 AM	18	60	0	0	78	37	193	60	0	290	0	129	37	1	167	2	0	4	0	6	541
Total Volume	53	223	0	0	276	163	768	260	0	1191	0	502	145	1	648	9	0	18	0	27	2142
% App. Total	19.2	80.8	0	0		13.7	64.5	21.8	0		0	77.5	22.4	0.2		33.3	0	66.7	0		
PHF	.736	.899	.000	.000	.885	.867	.980	.823	.000	.954	.000	.930	.929	.250	.942	.563	.000	.750	.000	.750	.975
Cars	47	204	0	0	251	150	725	250	0	1125	0	483	140	1	624	9	0	18	0	27	2027
% Cars	88.7	91.5	0	0	90.9	92.0	94.4	96.2	0	94.5	0	96.2	96.6	100	96.3	100	0	100	0	100	94.6
Heavy Vehicles	6	19	0	0	25	13	43	10	0	66	0	19	5	0	24	0	0	0	0	0	115
% Heavy Vehicles	11.3	8.5	0	0	9.1	8.0	5.6	3.8	0	5.5	0	3.8	3.4	0	3.7	0	0	0	0	0	5.4



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City, State: Boston, MA  
Client: Howard Stein-Hudson/ M. Santos

File Name : 154855 N  
Site Code : 15137  
Start Date : 1/13/2016  
Page No : 1

Groups Printed- Cars

Start Time	Tremont Street From North				E. Berkeley Street From East				Tremont Street From South				Berkeley Street From West				Int. Total
	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
07:00 AM	7	39	0	0	37	146	66	0	0	70	18	0	1	0	3	0	387
07:15 AM	7	42	0	0	32	148	60	0	0	75	27	0	0	0	4	0	395
07:30 AM	7	46	0	0	31	142	66	0	0	103	25	0	1	0	6	0	427
07:45 AM	11	51	0	0	38	176	51	0	0	116	29	0	1	0	6	0	479
Total	32	178	0	0	138	612	243	0	0	364	99	0	3	0	19	0	1688
08:00 AM	11	57	0	0	33	181	75	0	0	114	39	0	2	0	3	0	515
08:15 AM	9	41	0	0	45	182	68	0	0	129	36	0	4	0	5	0	519
08:30 AM	16	55	0	0	34	186	56	0	0	124	36	1	2	0	4	0	514
08:45 AM	7	51	0	0	40	159	77	0	0	111	31	0	3	0	1	0	480
Total	43	204	0	0	152	708	276	0	0	478	142	1	11	0	13	0	2028
Grand Total	75	382	0	0	290	1320	519	0	0	842	241	1	14	0	32	0	3716
Apprch %	16.4	83.6	0	0	13.6	62	24.4	0	0	77.7	22.2	0.1	30.4	0	69.6	0	
Total %	2	10.3	0	0	7.8	35.5	14	0	0	22.7	6.5	0	0.4	0	0.9	0	

Start Time	Tremont Street From North					E. Berkeley Street From East					Tremont Street From South					Berkeley Street From West					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	11	57	0	0	68	33	181	75	0	289	0	114	39	0	153	2	0	3	0	5	515
08:15 AM	9	41	0	0	50	45	182	68	0	295	0	129	36	0	165	4	0	5	0	9	519
08:30 AM	16	55	0	0	71	34	186	56	0	276	0	124	36	1	161	2	0	4	0	6	514
08:45 AM	7	51	0	0	58	40	159	77	0	276	0	111	31	0	142	3	0	1	0	4	480
Total Volume	43	204	0	0	247	152	708	276	0	1136	0	478	142	1	621	11	0	13	0	24	2028
% App. Total	17.4	82.6	0	0		13.4	62.3	24.3	0		0	77	22.9	0.2		45.8	0	54.2	0		
PHF	.672	.895	.000	.000	.870	.844	.952	.896	.000	.963	.000	.926	.910	.250	.941	.688	.000	.650	.000	.667	.977



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Groups Printed- Heavy Vehicles

Start Time	Tremont Street From North				E. Berkeley Street From East				Tremont Street From South				Berkeley Street From West				Int. Total
	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
07:00 AM	0	3	0	0	2	14	2	0	0	6	1	0	0	0	0	0	28
07:15 AM	0	2	0	0	1	13	5	0	0	5	0	0	0	0	0	0	26
07:30 AM	0	6	0	0	1	9	1	0	0	4	1	0	0	0	0	0	22
07:45 AM	2	4	0	0	4	14	1	0	0	3	3	0	0	0	0	0	31
Total	2	15	0	0	8	50	9	0	0	18	5	0	0	0	0	0	107
08:00 AM	1	5	0	0	4	8	4	0	0	5	0	0	0	0	0	0	27
08:15 AM	1	5	0	0	2	14	1	0	0	6	1	0	0	0	0	0	30
08:30 AM	2	5	0	0	3	7	4	0	0	5	1	0	0	0	0	0	27
08:45 AM	1	5	0	0	2	11	3	0	0	0	0	0	0	0	0	0	22
Total	5	20	0	0	11	40	12	0	0	16	2	0	0	0	0	0	106
Grand Total	7	35	0	0	19	90	21	0	0	34	7	0	0	0	0	0	213
Apprch %	16.7	83.3	0	0	14.6	69.2	16.2	0	0	82.9	17.1	0	0	0	0	0	
Total %	3.3	16.4	0	0	8.9	42.3	9.9	0	0	16	3.3	0	0	0	0	0	

Start Time	Tremont Street From North					E. Berkeley Street From East					Tremont Street From South					Berkeley Street From West					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	2	4	0	0	6	4	14	1	0	19	0	3	3	0	6	0	0	0	0	0	31
08:00 AM	1	5	0	0	6	4	8	4	0	16	0	5	0	0	5	0	0	0	0	0	27
08:15 AM	1	5	0	0	6	2	14	1	0	17	0	6	1	0	7	0	0	0	0	0	30
08:30 AM	2	5	0	0	7	3	7	4	0	14	0	5	1	0	6	0	0	0	0	0	27
Total Volume	6	19	0	0	25	13	43	10	0	66	0	19	5	0	24	0	0	0	0	0	115
% App. Total	24	76	0	0		19.7	65.2	15.2	0		0	79.2	20.8	0		0	0	0	0		
PHF	.750	.950	.000	.000	.893	.813	.768	.625	.000	.868	.000	.792	.417	.000	.857	.000	.000	.000	.000	.000	.927



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Page No : 1

Groups Printed- Peds and Bikes

Start Time	Tremont Street From North					E. Berkeley Street From East					Tremont Street From South					Berkeley Street From West					Int. Total
	Right	Thru	Left	Peds EB	Peds WB	Right	Thru	Left	Peds SB	Peds NB	Right	Thru	Left	Peds WB	Peds EB	Right	Thru	Left	Peds NB	Peds SB	
07:00 AM	0	0	0	1	5	0	0	0	0	2	0	0	0	1	2	0	0	0	3	2	16
07:15 AM	0	0	0	1	5	0	0	0	0	2	0	0	0	14	5	0	0	0	4	3	34
07:30 AM	0	0	0	6	8	0	0	0	0	6	0	0	0	5	3	0	0	0	7	1	36
07:45 AM	0	1	0	3	5	0	0	0	0	2	0	0	0	16	5	0	0	0	2	1	35
Total	0	1	0	11	23	0	0	0	0	12	0	0	0	36	15	0	0	0	16	7	121
08:00 AM	0	0	0	3	12	0	0	0	6	14	0	1	0	9	1	0	0	0	10	0	56
08:15 AM	0	0	0	4	20	0	2	0	8	21	0	0	0	14	7	0	0	0	7	5	88
08:30 AM	0	2	0	4	15	0	1	0	4	13	0	2	0	19	3	0	0	0	9	4	76
08:45 AM	0	1	0	4	10	0	3	0	4	19	0	3	0	7	1	0	0	0	11	3	66
Total	0	3	0	15	57	0	6	0	22	67	0	6	0	49	12	0	0	0	37	12	286
Grand Total	0	4	0	26	80	0	6	0	22	79	0	6	0	85	27	0	0	0	53	19	407
Apprch %	0	3.6	0	23.6	72.7	0	5.6	0	20.6	73.8	0	5.1	0	72	22.9	0	0	0	73.6	26.4	
Total %	0	1	0	6.4	19.7	0	1.5	0	5.4	19.4	0	1.5	0	20.9	6.6	0	0	0	13	4.7	

Start Time	Tremont Street From North						E. Berkeley Street From East						Tremont Street From South						Berkeley Street From West						Int. Total	
	Right	Thru	Left	Peds EB	Peds WB	App. Total	Right	Thru	Left	Peds SB	Peds NB	App. Total	Right	Thru	Left	Peds WB	Peds EB	App. Total	Right	Thru	Left	Peds NB	Peds SB	App. Total		
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																										
Peak Hour for Entire Intersection Begins at 08:00 AM																										
08:00 AM	0	0	0	3	12	15	0	0	0	6	14	20	0	1	0	9	1	11	0	0	0	10	0	10	20	56
08:15 AM	0	0	0	4	20	24	0	2	0	8	21	31	0	0	0	14	7	21	0	0	0	7	5	12	24	88
08:30 AM	0	2	0	4	15	21	0	1	0	4	13	18	0	2	0	19	3	24	0	0	0	9	4	13	26	76
08:45 AM	0	1	0	4	10	15	0	3	0	4	19	26	0	3	0	7	1	11	0	0	0	11	3	14	26	66
Total Volume	0	3	0	15	57	75	0	6	0	22	67	95	0	6	0	49	12	67	0	0	0	37	12	49	95	286
% App. Total	0	4	0	20	76		0	6.3	0	23.2	70.5		0	9	0	73.1	17.9		0	0	0	75.5	24.5			
PHF	.000	.375	.000	.938	.713	.781	.000	.500	.000	.688	.798	.766	.000	.500	.000	.645	.429	.698	.000	.000	.000	.841	.600	.875	.813	





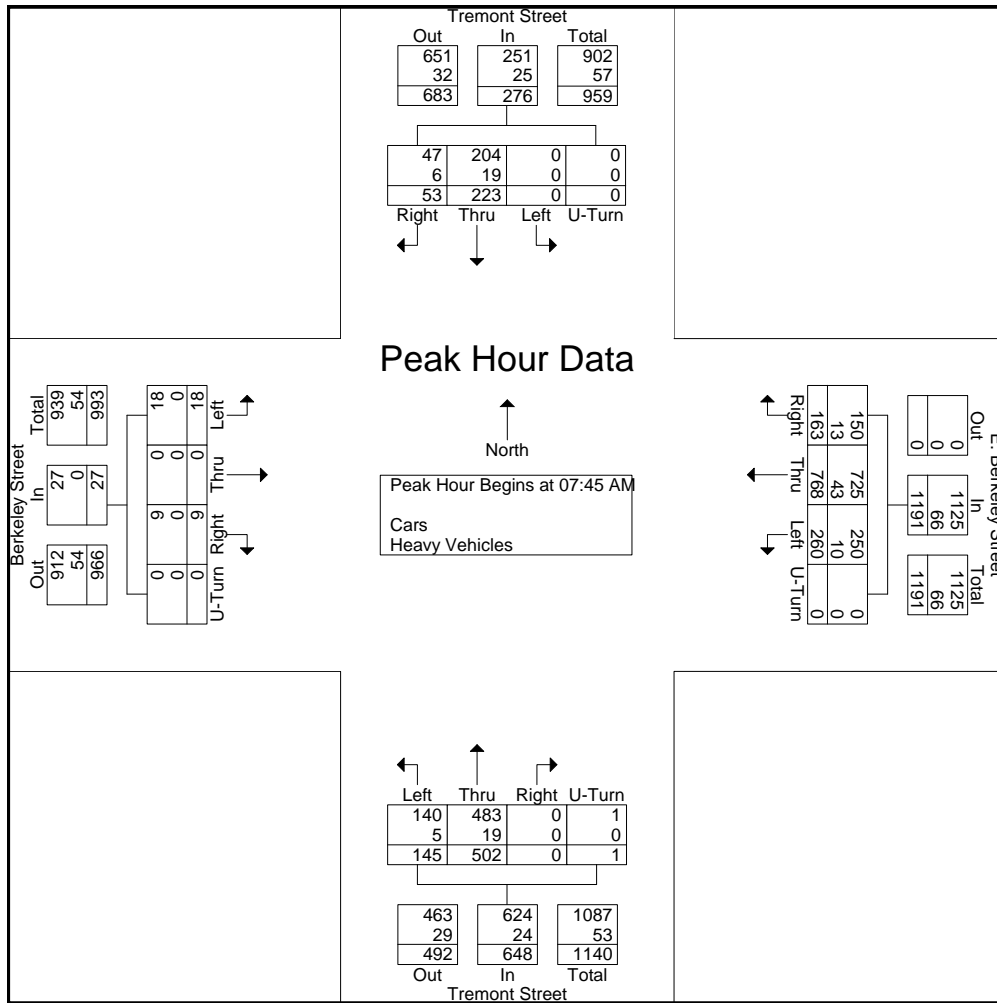
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D A T A  
INDUSTRIES, LLC

P.O. Box 301 Berlin, MA 01503  
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N/S: Tremont Street  
E/W: E. Berkeley Street/ Berkeley Street  
City, State: Boston, MA  
Client: Howard Stein-Hudson/ M. Santos

File Name : 154855 N  
Site Code : 15137  
Start Date : 1/13/2016  
Page No : 1

Start Time	Tremont Street From North					E. Berkeley Street From East					Tremont Street From South					Berkeley Street From West					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	13	55	0	0	68	42	190	52	0	284	0	119	32	0	151	1	0	6	0	7	510
08:00 AM	12	62	0	0	74	37	189	79	0	305	0	119	39	0	158	2	0	3	0	5	542
08:15 AM	10	46	0	0	56	47	196	69	0	312	0	135	37	0	172	4	0	5	0	9	549
08:30 AM	18	60	0	0	78	37	193	60	0	290	0	129	37	1	167	2	0	4	0	6	541
Total Volume	53	223	0	0	276	163	768	260	0	1191	0	502	145	1	648	9	0	18	0	27	2142
% App. Total	19.2	80.8	0	0		13.7	64.5	21.8	0		0	77.5	22.4	0.2		33.3	0	66.7	0		
PHF	.736	.899	.000	.000	.885	.867	.980	.823	.000	.954	.000	.930	.929	.250	.942	.563	.000	.750	.000	.750	.975
Cars	47	204	0	0	251	150	725	250	0	1125	0	483	140	1	624	9	0	18	0	27	2027
% Cars	88.7	91.5	0	0	90.9	92.0	94.4	96.2	0	94.5	0	96.2	96.6	100	96.3	100	0	100	0	100	94.6
Heavy Vehicles	6	19	0	0	25	13	43	10	0	66	0	19	5	0	24	0	0	0	0	0	115
% Heavy Vehicles	11.3	8.5	0	0	9.1	8.0	5.6	3.8	0	5.5	0	3.8	3.4	0	3.7	0	0	0	0	0	5.4





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City, State: Boston, MA  
Client: Howard Stein-Hudson/ M. Santos

File Name : 154855 NN  
Site Code : 15137  
Start Date : 1/13/2016  
Page No : 1

Groups Printed- Cars - Heavy Vehicles

Start Time	Tremont Street From North				E. Berkeley Street From East				Tremont Street From South				Berkeley Street From West				Int. Total
	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
04:00 PM	14	92	0	0	37	118	91	0	0	60	23	0	6	0	6	0	447
04:15 PM	15	84	0	0	29	87	69	0	0	93	26	0	3	0	2	0	408
04:30 PM	20	82	0	0	42	132	70	0	0	69	24	0	1	0	5	0	445
04:45 PM	14	80	0	0	32	127	71	0	0	79	24	0	3	0	2	0	432
Total	63	338	0	0	140	464	301	0	0	301	97	0	13	0	15	0	1732
05:00 PM	18	76	0	0	42	132	85	0	0	65	25	0	6	0	9	0	458
05:15 PM	22	88	0	0	57	105	68	0	0	99	36	1	3	0	9	0	488
05:30 PM	20	87	0	0	39	124	75	0	0	72	42	0	5	0	5	0	469
05:45 PM	20	95	0	0	36	127	74	0	0	76	26	1	3	0	5	0	463
Total	80	346	0	0	174	488	302	0	0	312	129	2	17	0	28	0	1878
Grand Total	143	684	0	0	314	952	603	0	0	613	226	2	30	0	43	0	3610
Apprch %	17.3	82.7	0	0	16.8	50.9	32.3	0	0	72.9	26.9	0.2	41.1	0	58.9	0	
Total %	4	18.9	0	0	8.7	26.4	16.7	0	0	17	6.3	0.1	0.8	0	1.2	0	
Cars	139	665	0	0	311	904	592	0	0	591	222	2	30	0	43	0	3499
% Cars	97.2	97.2	0	0	99	95	98.2	0	0	96.4	98.2	100	100	0	100	0	96.9
Heavy Vehicles	4	19	0	0	3	48	11	0	0	22	4	0	0	0	0	0	111
% Heavy Vehicles	2.8	2.8	0	0	1	5	1.8	0	0	3.6	1.8	0	0	0	0	0	3.1

Start Time	Tremont Street From North					E. Berkeley Street From East					Tremont Street From South					Berkeley Street From West					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	18	76	0	0	94	42	132	85	0	259	0	65	25	0	90	6	0	9	0	15	458
05:15 PM	22	88	0	0	110	57	105	68	0	230	0	99	36	1	136	3	0	9	0	12	488
05:30 PM	20	87	0	0	107	39	124	75	0	238	0	72	42	0	114	5	0	5	0	10	469
05:45 PM	20	95	0	0	115	36	127	74	0	237	0	76	26	1	103	3	0	5	0	8	463
Total Volume	80	346	0	0	426	174	488	302	0	964	0	312	129	2	443	17	0	28	0	45	1878
% App. Total	18.8	81.2	0	0		18	50.6	31.3	0		0	70.4	29.1	0.5		37.8	0	62.2	0		
PHF	.909	.911	.000	.000	.926	.763	.924	.888	.000	.931	.000	.788	.768	.500	.814	.708	.000	.778	.000	.750	.962
Cars	78	339	0	0	417	172	470	298	0	940	0	304	125	2	431	17	0	28	0	45	1833
% Cars	97.5	98.0	0	0	97.9	98.9	96.3	98.7	0	97.5	0	97.4	96.9	100	97.3	100	0	100	0	100	97.6
Heavy Vehicles	2	7	0	0	9	2	18	4	0	24	0	8	4	0	12	0	0	0	0	0	45
% Heavy Vehicles	2.5	2.0	0	0	2.1	1.1	3.7	1.3	0	2.5	0	2.6	3.1	0	2.7	0	0	0	0	0	2.4



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City, State: Boston, MA  
Client: Howard Stein-Hudson/ M. Santos

File Name : 154855 NN  
Site Code : 15137  
Start Date : 1/13/2016  
Page No : 1

Groups Printed- Cars

Start Time	Tremont Street From North				E. Berkeley Street From East				Tremont Street From South				Berkeley Street From West				Int. Total
	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
04:00 PM	13	89	0	0	37	109	90	0	0	57	23	0	6	0	6	0	430
04:15 PM	14	80	0	0	28	81	69	0	0	89	26	0	3	0	2	0	392
04:30 PM	20	81	0	0	42	123	67	0	0	67	24	0	1	0	5	0	430
04:45 PM	14	76	0	0	32	121	68	0	0	74	24	0	3	0	2	0	414
Total	61	326	0	0	139	434	294	0	0	287	97	0	13	0	15	0	1666
05:00 PM	17	74	0	0	42	128	84	0	0	64	25	0	6	0	9	0	449
05:15 PM	21	86	0	0	57	98	67	0	0	97	35	1	3	0	9	0	474
05:30 PM	20	85	0	0	38	121	73	0	0	70	40	0	5	0	5	0	457
05:45 PM	20	94	0	0	35	123	74	0	0	73	25	1	3	0	5	0	453
Total	78	339	0	0	172	470	298	0	0	304	125	2	17	0	28	0	1833
Grand Total	139	665	0	0	311	904	592	0	0	591	222	2	30	0	43	0	3499
Apprch %	17.3	82.7	0	0	17.2	50	32.8	0	0	72.5	27.2	0.2	41.1	0	58.9	0	
Total %	4	19	0	0	8.9	25.8	16.9	0	0	16.9	6.3	0.1	0.9	0	1.2	0	

Start Time	Tremont Street From North					E. Berkeley Street From East					Tremont Street From South					Berkeley Street From West					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	17	74	0	0	91	42	128	84	0	254	0	64	25	0	89	6	0	9	0	15	449
05:15 PM	21	86	0	0	107	57	98	67	0	222	0	97	35	1	133	3	0	9	0	12	474
05:30 PM	20	85	0	0	105	38	121	73	0	232	0	70	40	0	110	5	0	5	0	10	457
05:45 PM	20	94	0	0	114	35	123	74	0	232	0	73	25	1	99	3	0	5	0	8	453
Total Volume	78	339	0	0	417	172	470	298	0	940	0	304	125	2	431	17	0	28	0	45	1833
% App. Total	18.7	81.3	0	0		18.3	50	31.7	0		0	70.5	29	0.5		37.8	0	62.2	0		
PHF	.929	.902	.000	.000	.914	.754	.918	.887	.000	.925	.000	.784	.781	.500	.810	.708	.000	.778	.000	.750	.967





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City, State: Boston, MA  
Client: Howard Stein-Hudson/ M. Santos

File Name : 154855 NN  
Site Code : 15137  
Start Date : 1/13/2016  
Page No : 1

Groups Printed- Peds and Bikes

Start Time	Tremont Street From North					E. Berkeley Street From East					Tremont Street From South					Berkeley Street From West					Int. Total
	Right	Thru	Left	Peds EB	Peds WB	Right	Thru	Left	Peds SB	Peds NB	Right	Thru	Left	Peds WB	Peds EB	Right	Thru	Left	Peds NB	Peds SB	
04:00 PM	0	1	0	10	4	0	1	0	4	1	0	0	0	10	5	0	0	0	4	2	42
04:15 PM	0	2	0	4	4	0	0	0	11	4	0	0	0	8	9	0	0	0	9	9	60
04:30 PM	0	0	0	7	1	0	2	0	8	3	0	1	0	9	9	0	0	0	1	6	47
04:45 PM	0	1	0	14	3	0	1	0	5	5	0	0	0	10	18	0	0	0	8	12	77
Total	0	4	0	35	12	0	4	0	28	13	0	1	0	37	41	0	0	0	22	29	226
05:00 PM	0	2	0	14	8	0	1	1	5	5	0	1	0	5	9	0	0	0	4	14	69
05:15 PM	1	4	0	6	6	0	1	1	8	4	0	1	0	8	5	0	0	0	2	16	63
05:30 PM	0	2	0	9	6	0	2	0	9	9	0	0	1	6	16	1	0	0	4	19	84
05:45 PM	0	3	0	12	11	0	2	0	10	5	0	1	0	5	7	0	0	0	5	9	70
Total	1	11	0	41	31	0	6	2	32	23	0	3	1	24	37	1	0	0	15	58	286
Grand Total	1	15	0	76	43	0	10	2	60	36	0	4	1	61	78	1	0	0	37	87	512
Apprch %	0.7	11.1	0	56.3	31.9	0	9.3	1.9	55.6	33.3	0	2.8	0.7	42.4	54.2	0.8	0	0	29.6	69.6	
Total %	0.2	2.9	0	14.8	8.4	0	2	0.4	11.7	7	0	0.8	0.2	11.9	15.2	0.2	0	0	7.2	17	

Start Time	Tremont Street From North						E. Berkeley Street From East						Tremont Street From South						Berkeley Street From West						Int. Total
	Right	Thru	Left	Peds EB	Peds WB	App. Total	Right	Thru	Left	Peds SB	Peds NB	App. Total	Right	Thru	Left	Peds WB	Peds EB	App. Total	Right	Thru	Left	Peds NB	Peds SB	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																									
Peak Hour for Entire Intersection Begins at 04:45 PM																									
04:45 PM	0	1	0	14	3	18	0	1	0	5	5	11	0	0	0	10	18	28	0	0	0	8	12	20	77
05:00 PM	0	2	0	14	8	24	0	1	1	5	5	12	0	1	0	5	9	15	0	0	0	4	14	18	69
05:15 PM	1	4	0	6	6	17	0	1	1	8	4	14	0	1	0	8	5	14	0	0	0	2	16	18	63
05:30 PM	0	2	0	9	6	17	0	2	0	9	9	20	0	0	1	6	16	23	1	0	0	4	19	24	84
Total Volume	1	9	0	43	23	76	0	5	2	27	23	57	0	2	1	29	48	80	1	0	0	18	61	80	293
% App. Total	1.3	11.8	0	56.6	30.3		0	8.8	3.5	47.4	40.4		0	2.5	1.2	36.2	60		1.2	0	0	22.5	76.2		
PHF	.250	.563	.000	.768	.719	.792	.000	.625	.500	.750	.639	.713	.000	.500	.250	.725	.667	.714	.250	.000	.000	.563	.803	.833	.872



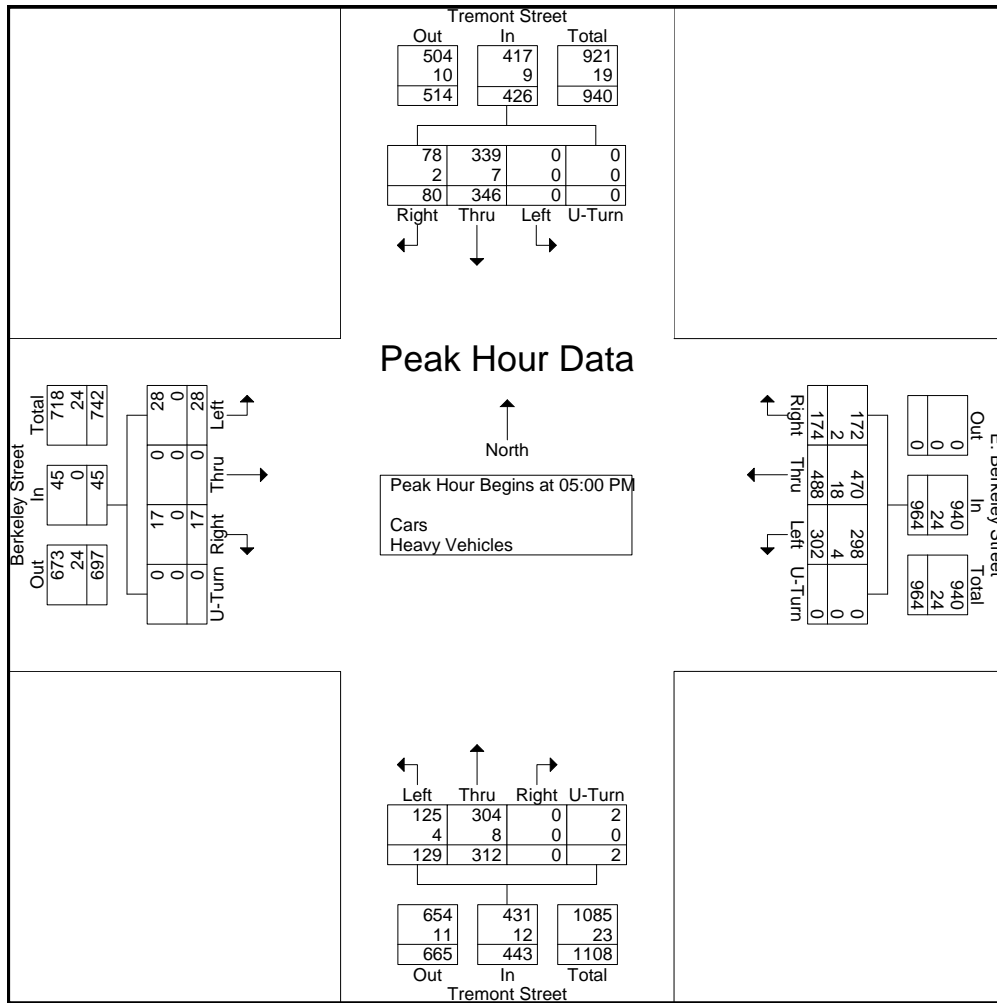
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Start Date : 1/13/2016  
Page No : 1

Start Time	Tremont Street From North					E. Berkeley Street From East					Tremont Street From South					Berkeley Street From West					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	18	76	0	0	94	42	132	85	0	259	0	65	25	0	90	6	0	9	0	15	458
05:15 PM	22	88	0	0	110	57	105	68	0	230	0	99	36	1	136	3	0	9	0	12	488
05:30 PM	20	87	0	0	107	39	124	75	0	238	0	72	42	0	114	5	0	5	0	10	469
05:45 PM	20	95	0	0	115	36	127	74	0	237	0	76	26	1	103	3	0	5	0	8	463
Total Volume	80	346	0	0	426	174	488	302	0	964	0	312	129	2	443	17	0	28	0	45	1878
% App. Total	18.8	81.2	0	0		18	50.6	31.3	0		0	70.4	29.1	0.5		37.8	0	62.2	0		
PHF	.909	.911	.000	.000	.926	.763	.924	.888	.000	.931	.000	.788	.768	.500	.814	.708	.000	.778	.000	.750	.962
Cars	78	339	0	0	417	172	470	298	0	940	0	304	125	2	431	17	0	28	0	45	1833
% Cars	97.5	98.0	0	0	97.9	98.9	96.3	98.7	0	97.5	0	97.4	96.9	100	97.3	100	0	100	0	100	97.6
Heavy Vehicles	2	7	0	0	9	2	18	4	0	24	0	8	4	0	12	0	0	0	0	0	45
% Heavy Vehicles	2.5	2.0	0	0	2.1	1.1	3.7	1.3	0	2.5	0	2.6	3.1	0	2.7	0	0	0	0	0	2.4





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N/S: Shawmut Avenue  
E/W: E. Berkeley Street  
City, State: Boston, MA  
Client: Howard Stein-Hudson/ M. Santos

File Name : 154855 O  
Site Code : 15137  
Start Date : 1/13/2016  
Page No : 1

Groups Printed- Cars - Heavy Vehicles

Start Time	Shawmut Avenue From North				E. Berkeley Street From East				Shawmut Avenue From South				E. Berkeley Street From West				Int. Total
	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
07:00 AM	17	0	0	0	0	221	0	0	0	0	23	0	0	0	0	0	261
07:15 AM	22	0	0	0	0	225	0	0	0	0	16	0	0	0	0	0	263
07:30 AM	19	0	0	0	0	213	0	0	0	0	16	0	0	0	0	0	248
07:45 AM	19	0	0	0	0	269	0	0	0	0	16	0	0	0	0	0	304
Total	77	0	0	0	0	928	0	0	0	0	71	0	0	0	0	0	1076
08:00 AM	21	0	0	0	0	257	0	0	0	0	16	0	0	0	0	0	294
08:15 AM	21	0	0	0	0	255	0	0	0	0	23	0	0	0	0	0	299
08:30 AM	25	0	0	0	0	254	0	0	0	0	12	0	0	0	0	0	291
08:45 AM	44	0	0	0	0	231	0	0	0	0	20	0	0	0	0	0	295
Total	111	0	0	0	0	997	0	0	0	0	71	0	0	0	0	0	1179
Grand Total	188	0	0	0	0	1925	0	0	0	0	142	0	0	0	0	0	2255
Apprch %	100	0	0	0	0	100	0	0	0	0	100	0	0	0	0	0	
Total %	8.3	0	0	0	0	85.4	0	0	0	0	6.3	0	0	0	0	0	
Cars	180	0	0	0	0	1817	0	0	0	0	132	0	0	0	0	0	2129
% Cars	95.7	0	0	0	0	94.4	0	0	0	0	93	0	0	0	0	0	94.4
Heavy Vehicles	8	0	0	0	0	108	0	0	0	0	10	0	0	0	0	0	126
% Heavy Vehicles	4.3	0	0	0	0	5.6	0	0	0	0	7	0	0	0	0	0	5.6

Start Time	Shawmut Avenue From North					E. Berkeley Street From East					Shawmut Avenue From South					E. Berkeley Street From West					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	19	0	0	0	19	0	269	0	0	269	0	0	16	0	16	0	0	0	0	0	304
08:00 AM	21	0	0	0	21	0	257	0	0	257	0	0	16	0	16	0	0	0	0	0	294
08:15 AM	21	0	0	0	21	0	255	0	0	255	0	0	23	0	23	0	0	0	0	0	299
08:30 AM	25	0	0	0	25	0	254	0	0	254	0	0	12	0	12	0	0	0	0	0	291
Total Volume	86	0	0	0	86	0	1035	0	0	1035	0	0	67	0	67	0	0	0	0	0	1188
% App. Total	.860	.000	.000	.000	.860	.000	.962	.000	.000	.962	.000	.000	.728	.000	.728	.000	.000	.000	.000	.000	.977
PHF	.860	.000	.000	.000	.860	.000	.962	.000	.000	.962	.000	.000	.728	.000	.728	.000	.000	.000	.000	.000	.977
Cars	83	0	0	0	83	0	977	0	0	977	0	0	61	0	61	0	0	0	0	0	1121
% Cars	96.5	0	0	0	96.5	0	94.4	0	0	94.4	0	0	91.0	0	91.0	0	0	0	0	0	94.4
Heavy Vehicles	3	0	0	0	3	0	58	0	0	58	0	0	6	0	6	0	0	0	0	0	67
% Heavy Vehicles	3.5	0	0	0	3.5	0	5.6	0	0	5.6	0	0	9.0	0	9.0	0	0	0	0	0	5.6







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N/S: Shawmut Avenue  
E/W: E. Berkeley Street  
City, State: Boston, MA  
Client: Howard Stein-Hudson/ M. Santos

File Name : 154855 O  
Site Code : 15137  
Start Date : 1/13/2016  
Page No : 1

Groups Printed- Heavy Vehicles

Start Time	Shawmut Avenue From North				E. Berkeley Street From East				Shawmut Avenue From South				E. Berkeley Street From West				Int. Total
	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
07:00 AM	0	0	0	0	0	15	0	0	0	0	1	0	0	0	0	0	16
07:15 AM	1	0	0	0	0	18	0	0	0	0	0	0	0	0	0	0	19
07:30 AM	1	0	0	0	0	8	0	0	0	0	1	0	0	0	0	0	10
07:45 AM	0	0	0	0	0	19	0	0	0	0	2	0	0	0	0	0	21
Total	2	0	0	0	0	60	0	0	0	0	4	0	0	0	0	0	66
08:00 AM	0	0	0	0	0	12	0	0	0	0	1	0	0	0	0	0	13
08:15 AM	0	0	0	0	0	16	0	0	0	0	3	0	0	0	0	0	19
08:30 AM	3	0	0	0	0	11	0	0	0	0	0	0	0	0	0	0	14
08:45 AM	3	0	0	0	0	9	0	0	0	0	2	0	0	0	0	0	14
Total	6	0	0	0	0	48	0	0	0	0	6	0	0	0	0	0	60
Grand Total	8	0	0	0	0	108	0	0	0	0	10	0	0	0	0	0	126
Apprch %	100	0	0	0	0	100	0	0	0	0	100	0	0	0	0	0	
Total %	6.3	0	0	0	0	85.7	0	0	0	0	7.9	0	0	0	0	0	

Start Time	Shawmut Avenue From North					E. Berkeley Street From East					Shawmut Avenue From South					E. Berkeley Street From West					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	0	0	0	0	0	0	19	0	0	19	0	0	2	0	2	0	0	0	0	0	21
08:00 AM	0	0	0	0	0	0	12	0	0	12	0	0	1	0	1	0	0	0	0	0	13
08:15 AM	0	0	0	0	0	0	16	0	0	16	0	0	3	0	3	0	0	0	0	0	19
08:30 AM	3	0	0	0	3	0	11	0	0	11	0	0	0	0	0	0	0	0	0	0	14
Total Volume	3	0	0	0	3	0	58	0	0	58	0	0	6	0	6	0	0	0	0	0	67
% App. Total	100	0	0	0		0	100	0	0		0	0	100	0		0	0	0	0		
PHF	.250	.000	.000	.000	.250	.000	.763	.000	.000	.763	.000	.000	.500	.000	.500	.000	.000	.000	.000	.000	.798



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City, State: Boston, MA  
Client: Howard Stein-Hudson/ M. Santos

File Name : 154855 O  
Site Code : 15137  
Start Date : 1/13/2016  
Page No : 1

Groups Printed- Peds and Bikes

Start Time	Shawmut Avenue From North					E. Berkeley Street From East					Shawmut Avenue From South					E. Berkeley Street From West					Int. Total
	Right	Thru	Left	Peds EB	Peds WB	Right	Thru	Left	Peds SB	Peds NB	Right	Thru	Left	Peds WB	Peds EB	Right	Thru	Left	Peds NB	Peds SB	
07:00 AM	0	0	0	4	2	0	0	0	2	3	0	0	0	3	4	0	0	0	2	0	20
07:15 AM	0	0	0	0	3	0	0	0	4	4	0	0	0	10	2	0	0	0	4	1	28
07:30 AM	0	0	0	4	8	0	1	0	3	16	0	1	0	7	1	0	0	0	6	1	48
07:45 AM	0	0	0	4	5	0	0	0	2	16	0	0	0	9	5	0	0	0	10	0	51
Total	0	0	0	12	18	0	1	0	11	39	0	1	0	29	12	0	0	0	22	2	147
08:00 AM	0	0	0	6	16	0	0	0	7	14	0	0	0	4	2	0	0	0	8	2	59
08:15 AM	0	0	0	2	26	0	1	0	3	12	0	0	0	12	6	0	0	0	7	2	71
08:30 AM	0	0	0	4	14	0	1	0	5	4	0	0	0	10	3	0	0	0	5	4	50
08:45 AM	0	1	0	6	17	0	2	0	3	3	0	0	0	4	5	0	0	0	8	1	50
Total	0	1	0	18	73	0	4	0	18	33	0	0	0	30	16	0	0	0	28	9	230
Grand Total	0	1	0	30	91	0	5	0	29	72	0	1	0	59	28	0	0	0	50	11	377
Apprch %	0	0.8	0	24.6	74.6	0	4.7	0	27.4	67.9	0	1.1	0	67	31.8	0	0	0	82	18	
Total %	0	0.3	0	8	24.1	0	1.3	0	7.7	19.1	0	0.3	0	15.6	7.4	0	0	0	13.3	2.9	

Start Time	Shawmut Avenue From North						E. Berkeley Street From East						Shawmut Avenue From South						E. Berkeley Street From West						Int. Total
	Right	Thru	Left	Peds EB	Peds WB	App. Total	Right	Thru	Left	Peds SB	Peds NB	App. Total	Right	Thru	Left	Peds WB	Peds EB	App. Total	Right	Thru	Left	Peds NB	Peds SB	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																									
Peak Hour for Entire Intersection Begins at 07:45 AM																									
07:45 AM	0	0	0	4	5	9	0	0	0	2	16	18	0	0	0	9	5	14	0	0	0	10	0	10	51
08:00 AM	0	0	0	6	16	22	0	0	0	7	14	21	0	0	0	4	2	6	0	0	0	8	2	10	59
08:15 AM	0	0	0	2	26	28	0	1	0	3	12	16	0	0	0	12	6	18	0	0	0	7	2	9	71
08:30 AM	0	0	0	4	14	18	0	1	0	5	4	10	0	0	0	10	3	13	0	0	0	5	4	9	50
Total Volume	0	0	0	16	61	77	0	2	0	17	46	65	0	0	0	35	16	51	0	0	0	30	8	38	231
% App. Total	0	0	0	20.8	79.2		0	3.1	0	26.2	70.8		0	0	0	68.6	31.4		0	0	0	78.9	21.1		
PHF	.000	.000	.000	.667	.587	.688	.000	.500	.000	.607	.719	.774	.000	.000	.000	.729	.667	.708	.000	.000	.000	.750	.500	.950	.813



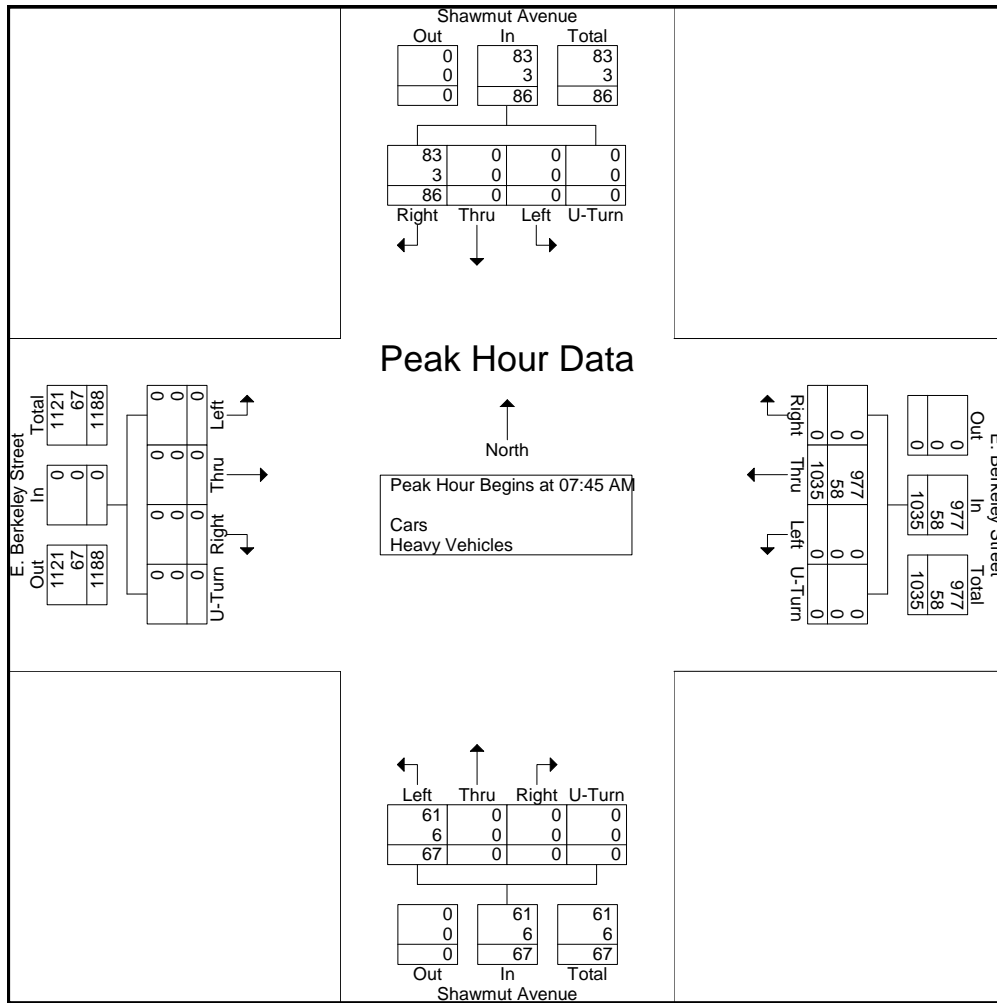
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Client: Howard Stein-Hudson/ M. Santos

File Name : 154855 O  
Site Code : 15137  
Start Date : 1/13/2016  
Page No : 1

Start Time	Shawmut Avenue From North					E. Berkeley Street From East					Shawmut Avenue From South					E. Berkeley Street From West					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	19	0	0	0	19	0	269	0	0	269	0	0	16	0	16	0	0	0	0	0	304
08:00 AM	21	0	0	0	21	0	257	0	0	257	0	0	16	0	16	0	0	0	0	0	294
08:15 AM	21	0	0	0	21	0	255	0	0	255	0	0	23	0	23	0	0	0	0	0	299
08:30 AM	25	0	0	0	25	0	254	0	0	254	0	0	12	0	12	0	0	0	0	0	291
Total Volume	86	0	0	0	86	0	1035	0	0	1035	0	0	67	0	67	0	0	0	0	0	1188
% App. Total																					
PHF	.860	.000	.000	.000	.860	.000	.962	.000	.000	.962	.000	.000	.728	.000	.728	.000	.000	.000	.000	.000	.977
Cars	83	0	0	0	83	0	977	0	0	977	0	0	61	0	61	0	0	0	0	0	1121
% Cars	96.5	0	0	0	96.5	0	94.4	0	0	94.4	0	0	91.0	0	91.0	0	0	0	0	0	94.4
Heavy Vehicles	3	0	0	0	3	0	58	0	0	58	0	0	6	0	6	0	0	0	0	0	67
% Heavy Vehicles	3.5	0	0	0	3.5	0	5.6	0	0	5.6	0	0	9.0	0	9.0	0	0	0	0	0	5.6





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City, State: Boston, MA  
Client: Howard Stein-Hudson/ M. Santos

File Name : 154855 OO  
Site Code : 15137  
Start Date : 1/13/2016  
Page No : 1

Groups Printed- Cars - Heavy Vehicles

Start Time	Shawmut Avenue From North				E. Berkeley Street From East				Shawmut Avenue From South				E. Berkeley Street From West				Int. Total
	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
04:00 PM	65	0	0	0	0	133	0	0	0	0	15	0	0	0	0	0	213
04:15 PM	49	0	0	0	0	125	0	0	0	0	19	0	0	0	0	0	193
04:30 PM	66	0	0	0	0	142	0	0	0	0	14	0	0	0	0	0	222
04:45 PM	46	0	0	0	0	181	0	0	0	0	13	0	0	0	0	0	240
Total	226	0	0	0	0	581	0	0	0	0	61	0	0	0	0	0	868
05:00 PM	50	0	0	0	0	185	0	0	0	0	14	0	0	0	0	0	249
05:15 PM	44	1	0	0	0	175	0	0	0	0	18	0	0	0	0	0	238
05:30 PM	44	0	0	0	0	184	0	0	0	0	19	0	0	0	0	0	247
05:45 PM	41	0	0	0	0	171	0	0	0	0	20	0	0	0	0	0	232
Total	179	1	0	0	0	715	0	0	0	0	71	0	0	0	0	0	966
Grand Total	405	1	0	0	0	1296	0	0	0	0	132	0	0	0	0	0	1834
Apprch %	99.8	0.2	0	0	0	100	0	0	0	0	100	0	0	0	0	0	
Total %	22.1	0.1	0	0	0	70.7	0	0	0	0	7.2	0	0	0	0	0	
Cars	402	1	0	0	0	1240	0	0	0	0	129	0	0	0	0	0	1772
% Cars	99.3	100	0	0	0	95.7	0	0	0	0	97.7	0	0	0	0	0	96.6
Heavy Vehicles	3	0	0	0	0	56	0	0	0	0	3	0	0	0	0	0	62
% Heavy Vehicles	0.7	0	0	0	0	4.3	0	0	0	0	2.3	0	0	0	0	0	3.4

Start Time	Shawmut Avenue From North					E. Berkeley Street From East					Shawmut Avenue From South					E. Berkeley Street From West					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	46	0	0	0	46	0	181	0	0	181	0	0	13	0	13	0	0	0	0	0	240
05:00 PM	50	0	0	0	50	0	185	0	0	185	0	0	14	0	14	0	0	0	0	0	249
05:15 PM	44	1	0	0	45	0	175	0	0	175	0	0	18	0	18	0	0	0	0	0	238
05:30 PM	44	0	0	0	44	0	184	0	0	184	0	0	19	0	19	0	0	0	0	0	247
Total Volume	184	1	0	0	185	0	725	0	0	725	0	0	64	0	64	0	0	0	0	0	974
% App. Total	99.5	0.5	0	0		0	100	0	0		0	0	100	0		0	0	0	0	0	
PHF	.920	.250	.000	.000	.925	.000	.980	.000	.000	.980	.000	.000	.842	.000	.842	.000	.000	.000	.000	.000	.978
Cars	182	1	0	0	183	0	700	0	0	700	0	0	63	0	63	0	0	0	0	0	946
% Cars	98.9	100	0	0	98.9	0	96.6	0	0	96.6	0	0	98.4	0	98.4	0	0	0	0	0	97.1
Heavy Vehicles	2	0	0	0	2	0	25	0	0	25	0	0	1	0	1	0	0	0	0	0	28
% Heavy Vehicles	1.1	0	0	0	1.1	0	3.4	0	0	3.4	0	0	1.6	0	1.6	0	0	0	0	0	2.9





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Client: Howard Stein-Hudson/ M. Santos

File Name : 154855 OO  
Site Code : 15137  
Start Date : 1/13/2016  
Page No : 1

Groups Printed- Heavy Vehicles

Start Time	Shawmut Avenue From North				E. Berkeley Street From East				Shawmut Avenue From South				E. Berkeley Street From West				Int. Total
	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
04:00 PM	0	0	0	0	0	11	0	0	0	0	0	0	0	0	0	0	11
04:15 PM	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	7
04:30 PM	1	0	0	0	0	10	0	0	0	0	2	0	0	0	0	0	13
04:45 PM	1	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	8
Total	2	0	0	0	0	35	0	0	0	0	2	0	0	0	0	0	39
05:00 PM	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	7
05:15 PM	0	0	0	0	0	5	0	0	0	0	1	0	0	0	0	0	6
05:30 PM	1	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	7
05:45 PM	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	3
Total	1	0	0	0	0	21	0	0	0	0	1	0	0	0	0	0	23
Grand Total	3	0	0	0	0	56	0	0	0	0	3	0	0	0	0	0	62
Apprch %	100	0	0	0	0	100	0	0	0	0	100	0	0	0	0	0	
Total %	4.8	0	0	0	0	90.3	0	0	0	0	4.8	0	0	0	0	0	

Start Time	Shawmut Avenue From North					E. Berkeley Street From East					Shawmut Avenue From South					E. Berkeley Street From West					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	0	0	0	0	0	0	11	0	0	11	0	0	0	0	0	0	0	0	0	0	11
04:15 PM	0	0	0	0	0	0	7	0	0	7	0	0	0	0	0	0	0	0	0	0	7
04:30 PM	1	0	0	0	1	0	10	0	0	10	0	0	2	0	2	0	0	0	0	0	13
04:45 PM	1	0	0	0	1	0	7	0	0	7	0	0	0	0	0	0	0	0	0	0	8
Total Volume	2	0	0	0	2	0	35	0	0	35	0	0	2	0	2	0	0	0	0	0	39
% App. Total	100	0	0	0		0	100	0	0		0	0	100	0		0	0	0	0		
PHF	.500	.000	.000	.000	.500	.000	.795	.000	.000	.795	.000	.000	.250	.000	.250	.000	.000	.000	.000	.000	.750



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N/S: Shawmut Avenue  
E/W: E. Berkeley Street  
City, State: Boston, MA  
Client: Howard Stein-Hudson/ M. Santos

File Name : 154855 OO  
Site Code : 15137  
Start Date : 1/13/2016  
Page No : 1

Groups Printed- Peds and Bikes

Start Time	Shawmut Avenue From North					E. Berkeley Street From East					Shawmut Avenue From South					E. Berkeley Street From West					Int. Total
	Right	Thru	Left	Peds EB	Peds WB	Right	Thru	Left	Peds SB	Peds NB	Right	Thru	Left	Peds WB	Peds EB	Right	Thru	Left	Peds NB	Peds SB	
04:00 PM	0	0	0	12	4	0	1	0	6	3	0	1	1	4	5	0	0	0	0	5	42
04:15 PM	0	0	0	8	6	0	0	0	4	3	0	0	0	3	5	0	0	0	3	7	39
04:30 PM	0	0	0	4	9	0	2	0	8	3	0	0	0	6	9	0	0	0	0	5	46
04:45 PM	1	0	0	6	10	0	1	0	4	5	0	0	0	7	14	0	0	0	5	3	56
Total	1	0	0	30	29	0	4	0	22	14	0	1	1	20	33	0	0	0	8	20	183
05:00 PM	0	0	0	11	8	0	1	0	10	4	0	0	0	9	8	0	0	0	8	2	61
05:15 PM	1	3	0	9	7	0	1	1	8	3	0	0	0	12	8	0	0	0	3	10	66
05:30 PM	0	1	0	13	10	0	1	0	13	4	0	0	0	7	6	0	0	0	2	8	65
05:45 PM	0	1	0	9	8	0	1	0	7	3	0	0	0	6	5	0	0	0	3	8	51
Total	1	5	0	42	33	0	4	1	38	14	0	0	0	34	27	0	0	0	16	28	243
Grand Total	2	5	0	72	62	0	8	1	60	28	0	1	1	54	60	0	0	0	24	48	426
Apprch %	1.4	3.5	0	51.1	44	0	8.2	1	61.9	28.9	0	0.9	0.9	46.6	51.7	0	0	0	33.3	66.7	
Total %	0.5	1.2	0	16.9	14.6	0	1.9	0.2	14.1	6.6	0	0.2	0.2	12.7	14.1	0	0	0	5.6	11.3	

Start Time	Shawmut Avenue From North						E. Berkeley Street From East						Shawmut Avenue From South						E. Berkeley Street From West						Int. Total
	Right	Thru	Left	Peds EB	Peds WB	App. Total	Right	Thru	Left	Peds SB	Peds NB	App. Total	Right	Thru	Left	Peds WB	Peds EB	App. Total	Right	Thru	Left	Peds NB	Peds SB	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																									
Peak Hour for Entire Intersection Begins at 04:45 PM																									
04:45 PM	1	0	0	6	10	17	0	1	0	4	5	10	0	0	0	7	14	21	0	0	0	5	3	8	56
05:00 PM	0	0	0	11	8	19	0	1	0	10	4	15	0	0	0	9	8	17	0	0	0	8	2	10	61
05:15 PM	1	3	0	9	7	20	0	1	1	8	3	13	0	0	0	12	8	20	0	0	0	3	10	13	66
05:30 PM	0	1	0	13	10	24	0	1	0	13	4	18	0	0	0	7	6	13	0	0	0	2	8	10	65
Total Volume	2	4	0	39	35	80	0	4	1	35	16	56	0	0	0	35	36	71	0	0	0	18	23	41	248
% App. Total	2.5	5	0	48.8	43.8		0	7.1	1.8	62.5	28.6		0	0	0	49.3	50.7		0	0	0	43.9	56.1		
PHF	.500	.333	.000	.750	.875	.833	.000	1.0	.250	.673	.800	.778	.000	.000	.000	.729	.643	.845	.000	.000	.000	.563	.575	.788	.939



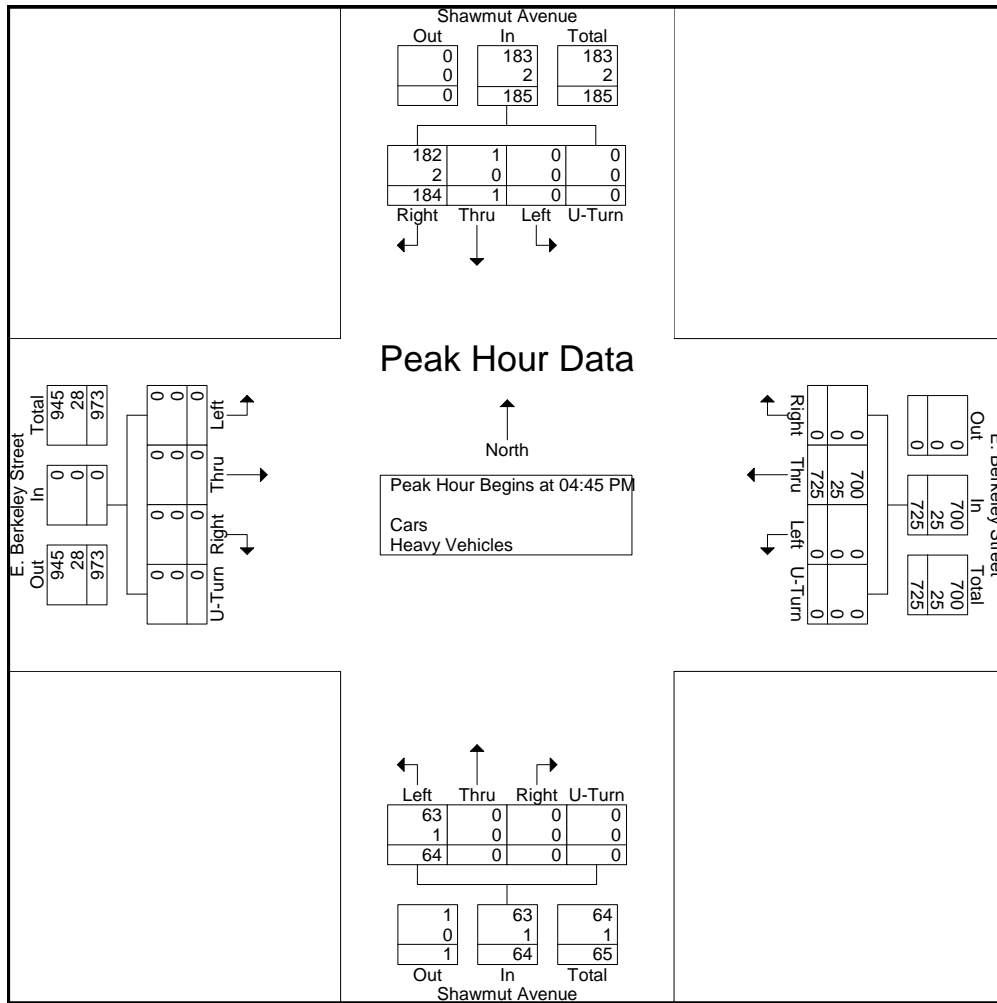
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DATA  
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Start Time	Shawmut Avenue From North					E. Berkeley Street From East					Shawmut Avenue From South					E. Berkeley Street From West					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	46	0	0	0	46	0	181	0	0	181	0	0	13	0	13	0	0	0	0	0	240
05:00 PM	50	0	0	0	50	0	185	0	0	185	0	0	14	0	14	0	0	0	0	0	249
05:15 PM	44	1	0	0	45	0	175	0	0	175	0	0	18	0	18	0	0	0	0	0	238
05:30 PM	44	0	0	0	44	0	184	0	0	184	0	0	19	0	19	0	0	0	0	0	247
Total Volume	184	1	0	0	185	0	725	0	0	725	0	0	64	0	64	0	0	0	0	0	974
% App. Total	99.5	0.5	0	0		0	100	0	0		0	0	100	0		0	0	0	0		
PHF	.920	.250	.000	.000	.925	.000	.980	.000	.000	.980	.000	.000	.842	.000	.842	.000	.000	.000	.000	.000	.978
Cars	182	1	0	0	183	0	700	0	0	700	0	0	63	0	63	0	0	0	0	0	946
% Cars	98.9	100	0	0	98.9	0	96.6	0	0	96.6	0	0	98.4	0	98.4	0	0	0	0	0	97.1
Heavy Vehicles	2	0	0	0	2	0	25	0	0	25	0	0	1	0	1	0	0	0	0	0	28
% Heavy Vehicles	1.1	0	0	0	1.1	0	3.4	0	0	3.4	0	0	1.6	0	1.6	0	0	0	0	0	2.9







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File Name : 154855 P  
Site Code : 15137  
Start Date : 1/13/2016  
Page No : 1

Groups Printed- Cars - Heavy Vehicles

Start Time	Washington Street From North				E. Berkeley Street From East				Washington Street From South				E. Berkeley Street From West				Int. Total
	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
07:00 AM	0	4	0	0	13	203	29	0	0	59	24	0	0	0	0	0	332
07:15 AM	0	4	0	0	15	210	23	0	0	47	19	0	0	0	0	0	318
07:30 AM	0	3	0	0	25	189	26	0	0	68	25	0	0	0	0	0	336
07:45 AM	1	5	0	0	23	254	27	0	0	75	16	0	0	0	0	0	401
Total	1	16	0	0	76	856	105	0	0	249	84	0	0	0	0	0	1387
08:00 AM	0	3	0	0	26	248	33	0	0	75	17	0	0	0	0	0	402
08:15 AM	0	4	0	0	31	249	24	0	0	71	16	0	0	0	0	0	395
08:30 AM	0	4	0	0	33	231	32	0	0	97	25	0	0	0	0	0	422
08:45 AM	0	3	0	0	31	219	15	0	0	88	17	0	0	0	0	0	373
Total	0	14	0	0	121	947	104	0	0	331	75	0	0	0	0	0	1592
Grand Total	1	30	0	0	197	1803	209	0	0	580	159	0	0	0	0	0	2979
Apprch %	3.2	96.8	0	0	8.9	81.6	9.5	0	0	78.5	21.5	0	0	0	0	0	
Total %	0	1	0	0	6.6	60.5	7	0	0	19.5	5.3	0	0	0	0	0	
Cars	0	0	0	0	171	1707	186	0	0	516	151	0	0	0	0	0	2731
% Cars	0	0	0	0	86.8	94.7	89	0	0	89	95	0	0	0	0	0	91.7
Heavy Vehicles	1	30	0	0	26	96	23	0	0	64	8	0	0	0	0	0	248
% Heavy Vehicles	100	100	0	0	13.2	5.3	11	0	0	11	5	0	0	0	0	0	8.3

Start Time	Washington Street From North					E. Berkeley Street From East					Washington Street From South					E. Berkeley Street From West					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	1	5	0	0	6	23	254	27	0	304	0	75	16	0	91	0	0	0	0	0	401
08:00 AM	0	3	0	0	3	26	248	33	0	307	0	75	17	0	92	0	0	0	0	0	402
08:15 AM	0	4	0	0	4	31	249	24	0	304	0	71	16	0	87	0	0	0	0	0	395
08:30 AM	0	4	0	0	4	33	231	32	0	296	0	97	25	0	122	0	0	0	0	0	422
Total Volume	1	16	0	0	17	113	982	116	0	1211	0	318	74	0	392	0	0	0	0	0	1620
% App. Total	5.9	94.1	0	0		9.3	81.1	9.6	0		0	81.1	18.9	0		0	0	0	0	0	
PHF	.250	.800	.000	.000	.708	.856	.967	.879	.000	.986	.000	.820	.740	.000	.803	.000	.000	.000	.000	.000	.960
Cars	0	0	0	0	0	94	925	104	0	1123	0	285	72	0	357	0	0	0	0	0	1480
% Cars	0	0	0	0	0	83.2	94.2	89.7	0	92.7	0	89.6	97.3	0	91.1	0	0	0	0	0	91.4
Heavy Vehicles	1	16	0	0	17	19	57	12	0	88	0	33	2	0	35	0	0	0	0	0	140
% Heavy Vehicles	100	100	0	0	100	16.8	5.8	10.3	0	7.3	0	10.4	2.7	0	8.9	0	0	0	0	0	8.6



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Start Date : 1/13/2016  
Page No : 1

Groups Printed- Cars

Start Time	Washington Street From North				E. Berkeley Street From East				Washington Street From South				E. Berkeley Street From West				Int. Total
	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
07:00 AM	0	0	0	0	13	189	27	0	0	51	21	0	0	0	0	0	301
07:15 AM	0	0	0	0	11	198	19	0	0	37	17	0	0	0	0	0	282
07:30 AM	0	0	0	0	24	181	22	0	0	59	25	0	0	0	0	0	311
07:45 AM	0	0	0	0	17	237	25	0	0	68	16	0	0	0	0	0	363
Total	0	0	0	0	65	805	93	0	0	215	79	0	0	0	0	0	1257
08:00 AM	0	0	0	0	23	236	30	0	0	67	16	0	0	0	0	0	372
08:15 AM	0	0	0	0	28	234	20	0	0	65	16	0	0	0	0	0	363
08:30 AM	0	0	0	0	26	218	29	0	0	85	24	0	0	0	0	0	382
08:45 AM	0	0	0	0	29	214	14	0	0	84	16	0	0	0	0	0	357
Total	0	0	0	0	106	902	93	0	0	301	72	0	0	0	0	0	1474
Grand Total	0	0	0	0	171	1707	186	0	0	516	151	0	0	0	0	0	2731
Apprch %	0	0	0	0	8.3	82.7	9	0	0	77.4	22.6	0	0	0	0	0	
Total %	0	0	0	0	6.3	62.5	6.8	0	0	18.9	5.5	0	0	0	0	0	

Start Time	Washington Street From North					E. Berkeley Street From East					Washington Street From South					E. Berkeley Street From West					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	0	0	0	0	0	17	237	25	0	279	0	68	16	0	84	0	0	0	0	0	363
08:00 AM	0	0	0	0	0	23	236	30	0	289	0	67	16	0	83	0	0	0	0	0	372
08:15 AM	0	0	0	0	0	28	234	20	0	282	0	65	16	0	81	0	0	0	0	0	363
08:30 AM	0	0	0	0	0	26	218	29	0	273	0	85	24	0	109	0	0	0	0	0	382
Total Volume	0	0	0	0	0	94	925	104	0	1123	0	285	72	0	357	0	0	0	0	0	1480
% App. Total	0	0	0	0	0	8.4	82.4	9.3	0		0	79.8	20.2	0		0	0	0	0	0	
PHF	.000	.000	.000	.000	.000	.839	.976	.867	.000	.971	.000	.838	.750	.000	.819	.000	.000	.000	.000	.000	.969



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Groups Printed- Heavy Vehicles

Start Time	Washington Street From North				E. Berkeley Street From East				Washington Street From South				E. Berkeley Street From West				Int. Total
	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
07:00 AM	0	4	0	0	0	14	2	0	0	8	3	0	0	0	0	0	31
07:15 AM	0	4	0	0	4	12	4	0	0	10	2	0	0	0	0	0	36
07:30 AM	0	3	0	0	1	8	4	0	0	9	0	0	0	0	0	0	25
07:45 AM	1	5	0	0	6	17	2	0	0	7	0	0	0	0	0	0	38
Total	1	16	0	0	11	51	12	0	0	34	5	0	0	0	0	0	130
08:00 AM	0	3	0	0	3	12	3	0	0	8	1	0	0	0	0	0	30
08:15 AM	0	4	0	0	3	15	4	0	0	6	0	0	0	0	0	0	32
08:30 AM	0	4	0	0	7	13	3	0	0	12	1	0	0	0	0	0	40
08:45 AM	0	3	0	0	2	5	1	0	0	4	1	0	0	0	0	0	16
Total	0	14	0	0	15	45	11	0	0	30	3	0	0	0	0	0	118
Grand Total	1	30	0	0	26	96	23	0	0	64	8	0	0	0	0	0	248
Apprch %	3.2	96.8	0	0	17.9	66.2	15.9	0	0	88.9	11.1	0	0	0	0	0	
Total %	0.4	12.1	0	0	10.5	38.7	9.3	0	0	25.8	3.2	0	0	0	0	0	

Start Time	Washington Street From North					E. Berkeley Street From East					Washington Street From South					E. Berkeley Street From West					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	1	5	0	0	6	6	17	2	0	25	0	7	0	0	7	0	0	0	0	0	38
08:00 AM	0	3	0	0	3	3	12	3	0	18	0	8	1	0	9	0	0	0	0	0	30
08:15 AM	0	4	0	0	4	3	15	4	0	22	0	6	0	0	6	0	0	0	0	0	32
08:30 AM	0	4	0	0	4	7	13	3	0	23	0	12	1	0	13	0	0	0	0	0	40
Total Volume	1	16	0	0	17	19	57	12	0	88	0	33	2	0	35	0	0	0	0	0	140
% App. Total	5.9	94.1	0	0		21.6	64.8	13.6	0		0	94.3	5.7	0		0	0	0	0		
PHF	.250	.800	.000	.000	.708	.679	.838	.750	.000	.880	.000	.688	.500	.000	.673	.000	.000	.000	.000	.000	.875



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Groups Printed- Peds and Bikes

Start Time	Washington Street From North					E. Berkeley Street From East					Washington Street From South					E. Berkeley Street From West					Int. Total
	Right	Thru	Left	Peds EB	Peds WB	Right	Thru	Left	Peds SB	Peds NB	Right	Thru	Left	Peds WB	Peds EB	Right	Thru	Left	Peds NB	Peds SB	
07:00 AM	0	0	0	1	4	0	0	0	7	13	0	0	0	8	25	0	0	0	3	6	67
07:15 AM	0	1	0	2	6	0	0	0	10	25	0	0	0	21	27	0	0	0	2	3	97
07:30 AM	0	0	0	3	11	0	0	0	7	16	0	1	0	12	13	0	0	0	9	7	79
07:45 AM	0	0	0	2	7	0	0	0	15	23	0	0	0	17	12	0	0	0	11	1	88
Total	0	1	0	8	28	0	0	0	39	77	0	1	0	58	77	0	0	0	25	17	331
08:00 AM	0	0	0	3	11	0	1	0	16	30	0	4	0	12	14	0	0	0	6	10	107
08:15 AM	0	0	0	3	23	0	4	0	19	33	0	2	0	28	30	0	0	0	12	7	161
08:30 AM	0	0	0	4	20	0	0	0	21	29	0	3	0	27	23	0	0	0	6	12	145
08:45 AM	0	0	0	10	11	0	2	0	25	26	0	8	0	26	19	1	0	0	12	18	158
Total	0	0	0	20	65	0	7	0	81	118	0	17	0	93	86	1	0	0	36	47	571
Grand Total	0	1	0	28	93	0	7	0	120	195	0	18	0	151	163	1	0	0	61	64	902
Apprch %	0	0.8	0	23	76.2	0	2.2	0	37.3	60.6	0	5.4	0	45.5	49.1	0.8	0	0	48.4	50.8	
Total %	0	0.1	0	3.1	10.3	0	0.8	0	13.3	21.6	0	2	0	16.7	18.1	0.1	0	0	6.8	7.1	

Start Time	Washington Street From North						E. Berkeley Street From East						Washington Street From South						E. Berkeley Street From West						Int. Total
	Right	Thru	Left	Peds EB	Peds WB	App. Total	Right	Thru	Left	Peds SB	Peds NB	App. Total	Right	Thru	Left	Peds WB	Peds EB	App. Total	Right	Thru	Left	Peds NB	Peds SB	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																									
Peak Hour for Entire Intersection Begins at 08:00 AM																									
08:00 AM	0	0	0	3	11	14	0	1	0	16	30	47	0	4	0	12	14	30	0	0	0	6	10	16	107
08:15 AM	0	0	0	3	23	26	0	4	0	19	33	56	0	2	0	28	30	60	0	0	0	12	7	19	161
08:30 AM	0	0	0	4	20	24	0	0	0	21	29	50	0	3	0	27	23	53	0	0	0	6	12	18	145
08:45 AM	0	0	0	10	11	21	0	2	0	25	26	53	0	8	0	26	19	53	1	0	0	12	18	31	158
Total Volume	0	0	0	20	65	85	0	7	0	81	118	206	0	17	0	93	86	196	1	0	0	36	47	84	571
% App. Total	0	0	0	23.5	76.5		0	3.4	0	39.3	57.3		0	8.7	0	47.4	43.9		1.2	0	0	42.9	56		
PHF	.000	.000	.000	.500	.707	.817	.000	.438	.000	.810	.894	.920	.000	.531	.000	.830	.717	.817	.250	.000	.000	.750	.653	.677	.887



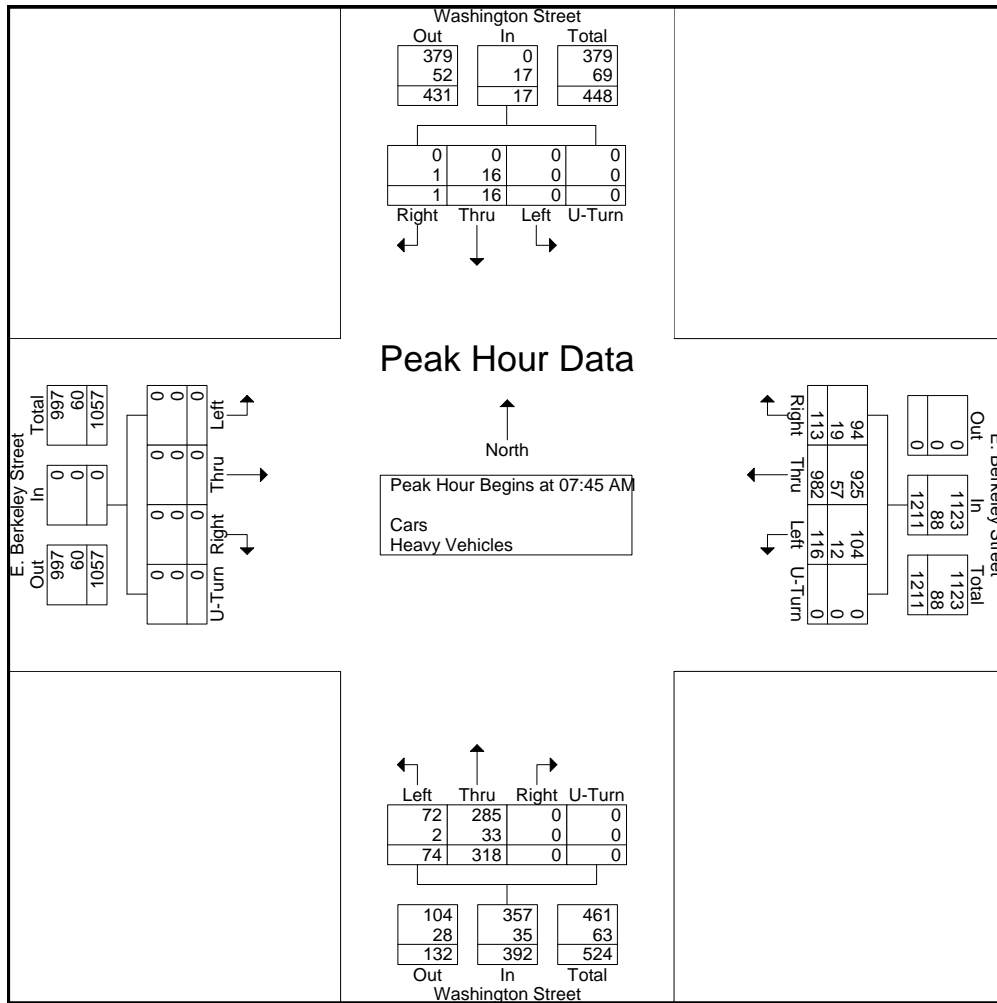
PRECISION  
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N/S: Shawmut Avenue  
E/W: E. Berkeley Street  
City, State: Boston, MA  
Client: Howard Stein-Hudson/ M. Santos

File Name : 154855 P  
Site Code : 15137  
Start Date : 1/13/2016  
Page No : 1

Start Time	Washington Street From North					E. Berkeley Street From East					Washington Street From South					E. Berkeley Street From West					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	1	5	0	0	6	23	254	27	0	304	0	75	16	0	91	0	0	0	0	0	401
08:00 AM	0	3	0	0	3	26	248	33	0	307	0	75	17	0	92	0	0	0	0	0	402
08:15 AM	0	4	0	0	4	31	249	24	0	304	0	71	16	0	87	0	0	0	0	0	395
08:30 AM	0	4	0	0	4	33	231	32	0	296	0	97	25	0	122	0	0	0	0	0	422
Total Volume	1	16	0	0	17	113	982	116	0	1211	0	318	74	0	392	0	0	0	0	0	1620
% App. Total	5.9	94.1	0	0		9.3	81.1	9.6	0		0	81.1	18.9	0		0	0	0	0		
PHF	.250	.800	.000	.000	.708	.856	.967	.879	.000	.986	.000	.820	.740	.000	.803	.000	.000	.000	.000	.000	.960
Cars	0	0	0	0	0	94	925	104	0	1123	0	285	72	0	357	0	0	0	0	0	1480
% Cars	0	0	0	0	0	83.2	94.2	89.7	0	92.7	0	89.6	97.3	0	91.1	0	0	0	0	0	91.4
Heavy Vehicles	1	16	0	0	17	19	57	12	0	88	0	33	2	0	35	0	0	0	0	0	140
% Heavy Vehicles	100	100	0	0	100	16.8	5.8	10.3	0	7.3	0	10.4	2.7	0	8.9	0	0	0	0	0	8.6





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File Name : 154855 PP  
Site Code : 15137  
Start Date : 1/13/2016  
Page No : 1

Groups Printed- Cars - Heavy Vehicles

Start Time	Washington Street From North				E. Berkeley Street From East				Washington Street From South				E. Berkeley Street From West				Int. Total
	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
04:00 PM	0	2	0	0	12	133	21	0	0	54	17	0	0	0	0	0	239
04:15 PM	0	5	0	0	15	128	28	0	0	59	18	0	0	0	0	0	253
04:30 PM	0	3	0	0	21	137	19	0	0	59	22	0	0	0	0	0	261
04:45 PM	0	5	0	0	18	174	24	0	0	72	23	0	0	0	0	0	316
Total	0	15	0	0	66	572	92	0	0	244	80	0	0	0	0	0	1069
05:00 PM	0	6	0	0	21	160	33	0	0	75	23	0	0	0	0	0	318
05:15 PM	0	2	0	0	26	147	30	0	0	63	33	0	0	0	0	0	301
05:30 PM	0	6	0	0	23	157	27	0	0	68	21	0	0	0	0	0	302
05:45 PM	1	4	0	0	19	142	24	0	0	67	32	1	0	0	0	0	290
Total	1	18	0	0	89	606	114	0	0	273	109	1	0	0	0	0	1211
Grand Total	1	33	0	0	155	1178	206	0	0	517	189	1	0	0	0	0	2280
Apprch %	2.9	97.1	0	0	10.1	76.5	13.4	0	0	73.1	26.7	0.1	0	0	0	0	
Total %	0	1.4	0	0	6.8	51.7	9	0	0	22.7	8.3	0	0	0	0	0	
Cars	1	6	0	0	140	1122	190	0	0	477	188	1	0	0	0	0	2125
% Cars	100	18.2	0	0	90.3	95.2	92.2	0	0	92.3	99.5	100	0	0	0	0	93.2
Heavy Vehicles	0	27	0	0	15	56	16	0	0	40	1	0	0	0	0	0	155
% Heavy Vehicles	0	81.8	0	0	9.7	4.8	7.8	0	0	7.7	0.5	0	0	0	0	0	6.8

Start Time	Washington Street From North					E. Berkeley Street From East					Washington Street From South					E. Berkeley Street From West					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	0	5	0	0	5	18	174	24	0	216	0	72	23	0	95	0	0	0	0	0	316
05:00 PM	0	6	0	0	6	21	160	33	0	214	0	75	23	0	98	0	0	0	0	0	318
05:15 PM	0	2	0	0	2	26	147	30	0	203	0	63	33	0	96	0	0	0	0	0	301
05:30 PM	0	6	0	0	6	23	157	27	0	207	0	68	21	0	89	0	0	0	0	0	302
Total Volume	0	19	0	0	19	88	638	114	0	840	0	278	100	0	378	0	0	0	0	0	1237
% App. Total	0	100	0	0		10.5	76	13.6	0		0	73.5	26.5	0		0	0	0	0		
PHF	.000	.792	.000	.000	.792	.846	.917	.864	.000	.972	.000	.927	.758	.000	.964	.000	.000	.000	.000	.000	.972
Cars	0	5	0	0	5	80	612	109	0	801	0	256	100	0	356	0	0	0	0	0	1162
% Cars	0	26.3	0	0	26.3	90.9	95.9	95.6	0	95.4	0	92.1	100	0	94.2	0	0	0	0	0	93.9
Heavy Vehicles	0	14	0	0	14	8	26	5	0	39	0	22	0	0	22	0	0	0	0	0	75
% Heavy Vehicles	0	73.7	0	0	73.7	9.1	4.1	4.4	0	4.6	0	7.9	0	0	5.8	0	0	0	0	0	6.1



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E/W: E. Berkeley Street  
City, State: Boston, MA  
Client: Howard Stein-Hudson/ M. Santos

File Name : 154855 PP  
Site Code : 15137  
Start Date : 1/13/2016  
Page No : 1

Groups Printed- Cars

Start Time	Washington Street From North				E. Berkeley Street From East				Washington Street From South				E. Berkeley Street From West				Int. Total
	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
04:00 PM	0	0	0	0	9	122	17	0	0	50	17	0	0	0	0	0	215
04:15 PM	0	0	0	0	14	120	23	0	0	53	18	0	0	0	0	0	228
04:30 PM	0	0	0	0	19	128	19	0	0	56	22	0	0	0	0	0	244
04:45 PM	0	1	0	0	16	167	23	0	0	66	23	0	0	0	0	0	296
Total	0	1	0	0	58	537	82	0	0	225	80	0	0	0	0	0	983
05:00 PM	0	2	0	0	17	153	33	0	0	69	23	0	0	0	0	0	297
05:15 PM	0	0	0	0	25	141	26	0	0	58	33	0	0	0	0	0	283
05:30 PM	0	2	0	0	22	151	27	0	0	63	21	0	0	0	0	0	286
05:45 PM	1	1	0	0	18	140	22	0	0	62	31	1	0	0	0	0	276
Total	1	5	0	0	82	585	108	0	0	252	108	1	0	0	0	0	1142
Grand Total	1	6	0	0	140	1122	190	0	0	477	188	1	0	0	0	0	2125
Apprch %	14.3	85.7	0	0	9.6	77.3	13.1	0	0	71.6	28.2	0.2	0	0	0	0	
Total %	0	0.3	0	0	6.6	52.8	8.9	0	0	22.4	8.8	0	0	0	0	0	

Start Time	Washington Street From North					E. Berkeley Street From East					Washington Street From South					E. Berkeley Street From West					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	0	1	0	0	1	16	167	23	0	206	0	66	23	0	89	0	0	0	0	0	296
05:00 PM	0	2	0	0	2	17	153	33	0	203	0	69	23	0	92	0	0	0	0	0	297
05:15 PM	0	0	0	0	0	25	141	26	0	192	0	58	33	0	91	0	0	0	0	0	283
05:30 PM	0	2	0	0	2	22	151	27	0	200	0	63	21	0	84	0	0	0	0	0	286
Total Volume	0	5	0	0	5	80	612	109	0	801	0	256	100	0	356	0	0	0	0	0	1162
% App. Total	0	100	0	0		10	76.4	13.6	0		0	71.9	28.1	0		0	0	0	0		
PHF	.000	.625	.000	.000	.625	.800	.916	.826	.000	.972	.000	.928	.758	.000	.967	.000	.000	.000	.000	.000	.978



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Client: Howard Stein-Hudson/ M. Santos

File Name : 154855 PP  
Site Code : 15137  
Start Date : 1/13/2016  
Page No : 1

Groups Printed- Heavy Vehicles

Start Time	Washington Street From North				E. Berkeley Street From East				Washington Street From South				E. Berkeley Street From West				Int. Total
	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
04:00 PM	0	2	0	0	3	11	4	0	0	4	0	0	0	0	0	0	24
04:15 PM	0	5	0	0	1	8	5	0	0	6	0	0	0	0	0	0	25
04:30 PM	0	3	0	0	2	9	0	0	0	3	0	0	0	0	0	0	17
04:45 PM	0	4	0	0	2	7	1	0	0	6	0	0	0	0	0	0	20
Total	0	14	0	0	8	35	10	0	0	19	0	0	0	0	0	0	86
05:00 PM	0	4	0	0	4	7	0	0	0	6	0	0	0	0	0	0	21
05:15 PM	0	2	0	0	1	6	4	0	0	5	0	0	0	0	0	0	18
05:30 PM	0	4	0	0	1	6	0	0	0	5	0	0	0	0	0	0	16
05:45 PM	0	3	0	0	1	2	2	0	0	5	1	0	0	0	0	0	14
Total	0	13	0	0	7	21	6	0	0	21	1	0	0	0	0	0	69
Grand Total	0	27	0	0	15	56	16	0	0	40	1	0	0	0	0	0	155
Apprch %	0	100	0	0	17.2	64.4	18.4	0	0	97.6	2.4	0	0	0	0	0	
Total %	0	17.4	0	0	9.7	36.1	10.3	0	0	25.8	0.6	0	0	0	0	0	

Start Time	Washington Street From North					E. Berkeley Street From East					Washington Street From South					E. Berkeley Street From West					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	0	2	0	0	2	3	11	4	0	18	0	4	0	0	4	0	0	0	0	0	24
04:15 PM	0	5	0	0	5	1	8	5	0	14	0	6	0	0	6	0	0	0	0	0	25
04:30 PM	0	3	0	0	3	2	9	0	0	11	0	3	0	0	3	0	0	0	0	0	17
04:45 PM	0	4	0	0	4	2	7	1	0	10	0	6	0	0	6	0	0	0	0	0	20
Total Volume	0	14	0	0	14	8	35	10	0	53	0	19	0	0	19	0	0	0	0	0	86
% App. Total	0	100	0	0		15.1	66	18.9	0		0	100	0	0		0	0	0	0		
PHF	.000	.700	.000	.000	.700	.667	.795	.500	.000	.736	.000	.792	.000	.000	.792	.000	.000	.000	.000	.000	.860





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City, State: Boston, MA  
Client: Howard Stein-Hudson/ M. Santos

File Name : 154855 PP  
Site Code : 15137  
Start Date : 1/13/2016  
Page No : 1

Groups Printed- Peds and Bikes

Start Time	Washington Street From North					E. Berkeley Street From East					Washington Street From South					E. Berkeley Street From West					Int. Total
	Right	Thru	Left	Peds EB	Peds WB	Right	Thru	Left	Peds SB	Peds NB	Right	Thru	Left	Peds WB	Peds EB	Right	Thru	Left	Peds NB	Peds SB	
04:00 PM	0	1	0	10	5	0	0	0	34	26	0	0	0	7	17	0	1	0	8	9	118
04:15 PM	0	3	0	11	7	0	0	0	23	26	0	0	0	14	16	0	0	0	4	17	121
04:30 PM	0	0	0	8	16	0	1	1	33	41	0	0	1	15	23	0	1	0	15	14	169
04:45 PM	0	3	0	9	13	0	1	1	21	27	0	2	0	16	29	0	0	0	7	7	136
Total	0	7	0	38	41	0	2	2	111	120	0	2	1	52	85	0	2	0	34	47	544
05:00 PM	0	3	0	9	13	0	2	0	18	26	0	0	0	11	16	0	0	0	5	8	111
05:15 PM	0	1	0	8	15	0	0	1	19	30	0	0	1	18	23	0	0	0	10	18	144
05:30 PM	0	0	0	11	13	1	2	2	20	25	0	0	0	22	20	0	0	0	11	21	148
05:45 PM	0	2	0	4	14	0	2	1	27	17	0	2	0	13	21	0	0	0	1	10	114
Total	0	6	0	32	55	1	6	4	84	98	0	2	1	64	80	0	0	0	27	57	517
Grand Total	0	13	0	70	96	1	8	6	195	218	0	4	2	116	165	0	2	0	61	104	1061
Apprch %	0	7.3	0	39.1	53.6	0.2	1.9	1.4	45.6	50.9	0	1.4	0.7	40.4	57.5	0	1.2	0	36.5	62.3	
Total %	0	1.2	0	6.6	9	0.1	0.8	0.6	18.4	20.5	0	0.4	0.2	10.9	15.6	0	0.2	0	5.7	9.8	

Start Time	Washington Street From North						E. Berkeley Street From East						Washington Street From South						E. Berkeley Street From West						Int. Total
	Right	Thru	Left	Peds EB	Peds WB	App. Total	Right	Thru	Left	Peds SB	Peds NB	App. Total	Right	Thru	Left	Peds WB	Peds EB	App. Total	Right	Thru	Left	Peds NB	Peds SB	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																									
Peak Hour for Entire Intersection Begins at 04:30 PM																									
04:30 PM	0	0	0	8	16	24	0	1	1	33	41	76	0	0	1	15	23	39	0	1	0	15	14	30	169
04:45 PM	0	3	0	9	13	25	0	1	1	21	27	50	0	2	0	16	29	47	0	0	0	7	7	14	136
05:00 PM	0	3	0	9	13	25	0	2	0	18	26	46	0	0	0	11	16	27	0	0	0	5	8	13	111
05:15 PM	0	1	0	8	15	24	0	0	1	19	30	50	0	0	1	18	23	42	0	0	0	10	18	28	144
Total Volume	0	7	0	34	57	98	0	4	3	91	124	222	0	2	2	60	91	155	0	1	0	37	47	85	560
% App. Total	0	7.1	0	34.7	58.2		0	1.8	1.4	41	55.9		0	1.3	1.3	38.7	58.7		0	1.2	0	43.5	55.3		
PHF	.000	.583	.000	.944	.891	.980	.000	.500	.750	.689	.756	.730	.000	.250	.500	.833	.784	.824	.000	.250	.000	.617	.653	.708	.828



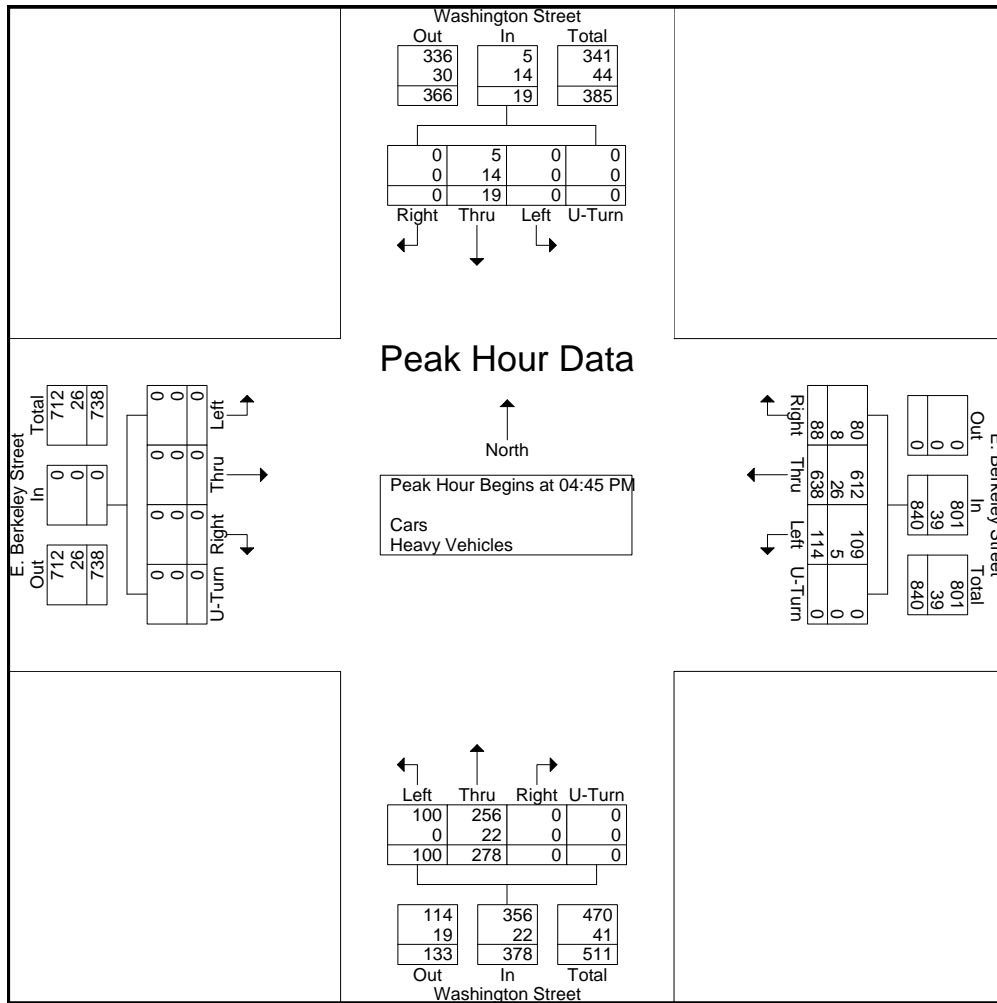
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File Name : 154855 PP  
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Page No : 1

Start Time	Washington Street From North					E. Berkeley Street From East					Washington Street From South					E. Berkeley Street From West					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	0	5	0	0	5	18	174	24	0	216	0	72	23	0	95	0	0	0	0	0	316
05:00 PM	0	6	0	0	6	21	160	33	0	214	0	75	23	0	98	0	0	0	0	0	318
05:15 PM	0	2	0	0	2	26	147	30	0	203	0	63	33	0	96	0	0	0	0	0	301
05:30 PM	0	6	0	0	6	23	157	27	0	207	0	68	21	0	89	0	0	0	0	0	302
Total Volume	0	19	0	0	19	88	638	114	0	840	0	278	100	0	378	0	0	0	0	0	1237
% App. Total	0	100	0	0		10.5	76	13.6	0		0	73.5	26.5	0		0	0	0	0		
PHF	.000	.792	.000	.000	.792	.846	.917	.864	.000	.972	.000	.927	.758	.000	.964	.000	.000	.000	.000	.000	.972
Cars	0	5	0	0	5	80	612	109	0	801	0	256	100	0	356	0	0	0	0	0	1162
% Cars	0	26.3	0	0	26.3	90.9	95.9	95.6	0	95.4	0	92.1	100	0	94.2	0	0	0	0	0	93.9
Heavy Vehicles	0	14	0	0	14	8	26	5	0	39	0	22	0	0	22	0	0	0	0	0	75
% Heavy Vehicles	0	73.7	0	0	73.7	9.1	4.1	4.4	0	4.6	0	7.9	0	0	5.8	0	0	0	0	0	6.1





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E/W: E. Berkeley Street  
City, State: Boston, MA  
Client: Howard Stein-Hudson/ M. Santos

File Name : 154855 Q  
Site Code : 15137  
Start Date : 1/13/2016  
Page No : 1

Groups Printed- Cars - Heavy Vehicles

Start Time	Harrison Avenue From North				E. Berkeley Street From East				Harrison Avenue From South				E. Berkeley Street From West				Int. Total	
	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn		
07:00 AM	9	21	0	0	28	224	46	0	0	19	7	0	0	0	0	0	0	354
07:15 AM	13	32	0	0	40	243	33	0	0	40	3	0	0	0	0	0	0	404
07:30 AM	22	29	0	1	42	206	42	0	0	50	14	0	0	0	0	0	0	406
07:45 AM	22	42	0	0	36	277	35	0	0	46	8	0	0	0	0	0	0	466
Total	66	124	0	1	146	950	156	0	0	155	32	0	0	0	0	0	0	1630
08:00 AM	26	58	0	0	45	270	39	0	0	42	17	0	0	0	0	0	0	497
08:15 AM	21	56	0	1	44	286	40	0	0	46	11	0	0	0	0	0	0	505
08:30 AM	25	49	0	0	57	256	35	0	0	44	11	0	0	0	0	0	0	477
08:45 AM	22	52	0	1	51	239	45	0	0	38	11	0	0	0	0	0	0	459
Total	94	215	0	2	197	1051	159	0	0	170	50	0	0	0	0	0	0	1938
Grand Total	160	339	0	3	343	2001	315	0	0	325	82	0	0	0	0	0	0	3568
Apprch %	31.9	67.5	0	0.6	12.9	75.3	11.8	0	0	79.9	20.1	0	0	0	0	0	0	
Total %	4.5	9.5	0	0.1	9.6	56.1	8.8	0	0	9.1	2.3	0	0	0	0	0	0	
Cars	149	320	0	3	324	1850	306	0	0	307	79	0	0	0	0	0	0	3338
% Cars	93.1	94.4	0	100	94.5	92.5	97.1	0	0	94.5	96.3	0	0	0	0	0	0	93.6
Heavy Vehicles	11	19	0	0	19	151	9	0	0	18	3	0	0	0	0	0	0	230
% Heavy Vehicles	6.9	5.6	0	0	5.5	7.5	2.9	0	0	5.5	3.7	0	0	0	0	0	0	6.4

Start Time	Harrison Avenue From North					E. Berkeley Street From East					Harrison Avenue From South					E. Berkeley Street From West					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	22	42	0	0	64	36	277	35	0	348	0	46	8	0	54	0	0	0	0	0	466
08:00 AM	26	58	0	0	84	45	270	39	0	354	0	42	17	0	59	0	0	0	0	0	497
08:15 AM	21	56	0	1	78	44	286	40	0	370	0	46	11	0	57	0	0	0	0	0	505
08:30 AM	25	49	0	0	74	57	256	35	0	348	0	44	11	0	55	0	0	0	0	0	477
Total Volume	94	205	0	1	300	182	1089	149	0	1420	0	178	47	0	225	0	0	0	0	0	1945
% App. Total	.904	.884	.000	.250	.893	.798	.952	.931	.000	.959	.000	.967	.691	.000	.953	.000	.000	.000	.000	.000	.963
PHF	.904	.884	.000	.250	.893	.798	.952	.931	.000	.959	.000	.967	.691	.000	.953	.000	.000	.000	.000	.000	.963
Cars	86	194	0	1	281	170	1000	142	0	1312	0	169	45	0	214	0	0	0	0	0	1807
% Cars	91.5	94.6	0	100	93.7	93.4	91.8	95.3	0	92.4	0	94.9	95.7	0	95.1	0	0	0	0	0	92.9
Heavy Vehicles	8.5	5.4	0	0	6.3	6.6	8.2	4.7	0	7.6	0	5.1	4.3	0	4.9	0	0	0	0	0	7.1
% Heavy Vehicles	8.5	5.4	0	0	6.3	6.6	8.2	4.7	0	7.6	0	5.1	4.3	0	4.9	0	0	0	0	0	7.1





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N/S: Harrison Avenue  
E/W: E. Berkeley Street  
City, State: Boston, MA  
Client: Howard Stein-Hudson/ M. Santos

File Name : 154855 Q  
Site Code : 15137  
Start Date : 1/13/2016  
Page No : 1

Groups Printed- Heavy Vehicles

Start Time	Harrison Avenue From North				E. Berkeley Street From East				Harrison Avenue From South				E. Berkeley Street From West				Int. Total
	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
07:00 AM	0	1	0	0	1	16	0	0	0	0	0	0	0	0	0	0	18
07:15 AM	0	1	0	0	2	22	1	0	0	0	0	0	0	0	0	0	26
07:30 AM	2	3	0	0	2	16	0	0	0	5	0	0	0	0	0	0	28
07:45 AM	4	3	0	0	3	31	3	0	0	5	0	0	0	0	0	0	49
Total	6	8	0	0	8	85	4	0	0	10	0	0	0	0	0	0	121
08:00 AM	1	5	0	0	3	17	2	0	0	2	1	0	0	0	0	0	31
08:15 AM	0	1	0	0	2	23	1	0	0	2	0	0	0	0	0	0	29
08:30 AM	3	2	0	0	4	18	1	0	0	0	1	0	0	0	0	0	29
08:45 AM	1	3	0	0	2	8	1	0	0	4	1	0	0	0	0	0	20
Total	5	11	0	0	11	66	5	0	0	8	3	0	0	0	0	0	109
Grand Total	11	19	0	0	19	151	9	0	0	18	3	0	0	0	0	0	230
Apprch %	36.7	63.3	0	0	10.6	84.4	5	0	0	85.7	14.3	0	0	0	0	0	
Total %	4.8	8.3	0	0	8.3	65.7	3.9	0	0	7.8	1.3	0	0	0	0	0	

Start Time	Harrison Avenue From North					E. Berkeley Street From East					Harrison Avenue From South					E. Berkeley Street From West					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	4	3	0	0	7	3	31	3	0	37	0	5	0	0	5	0	0	0	0	0	49
08:00 AM	1	5	0	0	6	3	17	2	0	22	0	2	1	0	3	0	0	0	0	0	31
08:15 AM	0	1	0	0	1	2	23	1	0	26	0	2	0	0	2	0	0	0	0	0	29
08:30 AM	3	2	0	0	5	4	18	1	0	23	0	0	1	0	1	0	0	0	0	0	29
Total Volume	8	11	0	0	19	12	89	7	0	108	0	9	2	0	11	0	0	0	0	0	138
% App. Total	42.1	57.9	0	0		11.1	82.4	6.5	0		0	81.8	18.2	0		0	0	0	0		
PHF	.500	.550	.000	.000	.679	.750	.718	.583	.000	.730	.000	.450	.500	.000	.550	.000	.000	.000	.000	.000	.704



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N/S: Harrison Avenue  
E/W: E. Berkeley Street  
City, State: Boston, MA  
Client: Howard Stein-Hudson/ M. Santos

File Name : 154855 Q  
Site Code : 15137  
Start Date : 1/13/2016  
Page No : 1

Groups Printed- Peds and Bikes

Start Time	Harrison Avenue From North					E. Berkeley Street From East					Harrison Avenue From South					E. Berkeley Street From West					Int. Total
	Right	Thru	Left	Peds EB	Peds WB	Right	Thru	Left	Peds SB	Peds NB	Right	Thru	Left	Peds WB	Peds EB	Right	Thru	Left	Peds NB	Peds SB	
07:00 AM	0	0	0	14	2	0	0	0	3	2	0	0	0	5	3	0	0	0	8	0	37
07:15 AM	0	2	0	18	2	0	0	2	5	7	0	0	0	13	3	0	0	0	6	2	60
07:30 AM	0	0	0	14	4	0	1	0	7	5	0	0	0	7	2	0	0	0	9	1	50
07:45 AM	0	2	0	0	6	0	0	0	13	4	0	0	0	15	2	0	0	0	11	0	53
Total	0	4	0	46	14	0	1	2	28	18	0	0	0	40	10	0	0	0	34	3	200
08:00 AM	0	0	0	4	5	0	0	0	12	10	0	2	0	8	3	0	0	0	8	2	54
08:15 AM	0	1	0	7	16	0	3	0	16	15	0	0	0	15	13	0	0	0	13	1	100
08:30 AM	0	3	0	8	4	0	0	0	16	12	0	0	0	16	13	0	0	0	13	3	88
08:45 AM	0	2	0	6	10	0	2	0	15	15	0	4	0	11	5	0	0	0	11	5	86
Total	0	6	0	25	35	0	5	0	59	52	0	6	0	50	34	0	0	0	45	11	328
Grand Total	0	10	0	71	49	0	6	2	87	70	0	6	0	90	44	0	0	0	79	14	528
Apprch %	0	7.7	0	54.6	37.7	0	3.6	1.2	52.7	42.4	0	4.3	0	64.3	31.4	0	0	0	84.9	15.1	
Total %	0	1.9	0	13.4	9.3	0	1.1	0.4	16.5	13.3	0	1.1	0	17	8.3	0	0	0	15	2.7	

Start Time	Harrison Avenue From North						E. Berkeley Street From East						Harrison Avenue From South						E. Berkeley Street From West						Int. Total
	Right	Thru	Left	Peds EB	Peds WB	App. Total	Right	Thru	Left	Peds SB	Peds NB	App. Total	Right	Thru	Left	Peds WB	Peds EB	App. Total	Right	Thru	Left	Peds NB	Peds SB	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																									
Peak Hour for Entire Intersection Begins at 08:00 AM																									
08:00 AM	0	0	0	4	5	9	0	0	0	12	10	22	0	2	0	8	3	13	0	0	0	8	2	10	54
08:15 AM	0	1	0	7	16	24	0	3	0	16	15	34	0	0	0	15	13	28	0	0	0	13	1	14	100
08:30 AM	0	3	0	8	4	15	0	0	0	16	12	28	0	0	0	16	13	29	0	0	0	13	3	16	88
08:45 AM	0	2	0	6	10	18	0	2	0	15	15	32	0	4	0	11	5	20	0	0	0	11	5	16	86
Total Volume	0	6	0	25	35	66	0	5	0	59	52	116	0	6	0	50	34	90	0	0	0	45	11	56	328
% App. Total	0	9.1	0	37.9	53		0	4.3	0	50.9	44.8		0	6.7	0	55.6	37.8		0	0	0	80.4	19.6		
PHF	.000	.500	.000	.781	.547	.688	.000	.417	.000	.922	.867	.853	.000	.375	.000	.781	.654	.776	.000	.000	.000	.865	.550	.875	.820



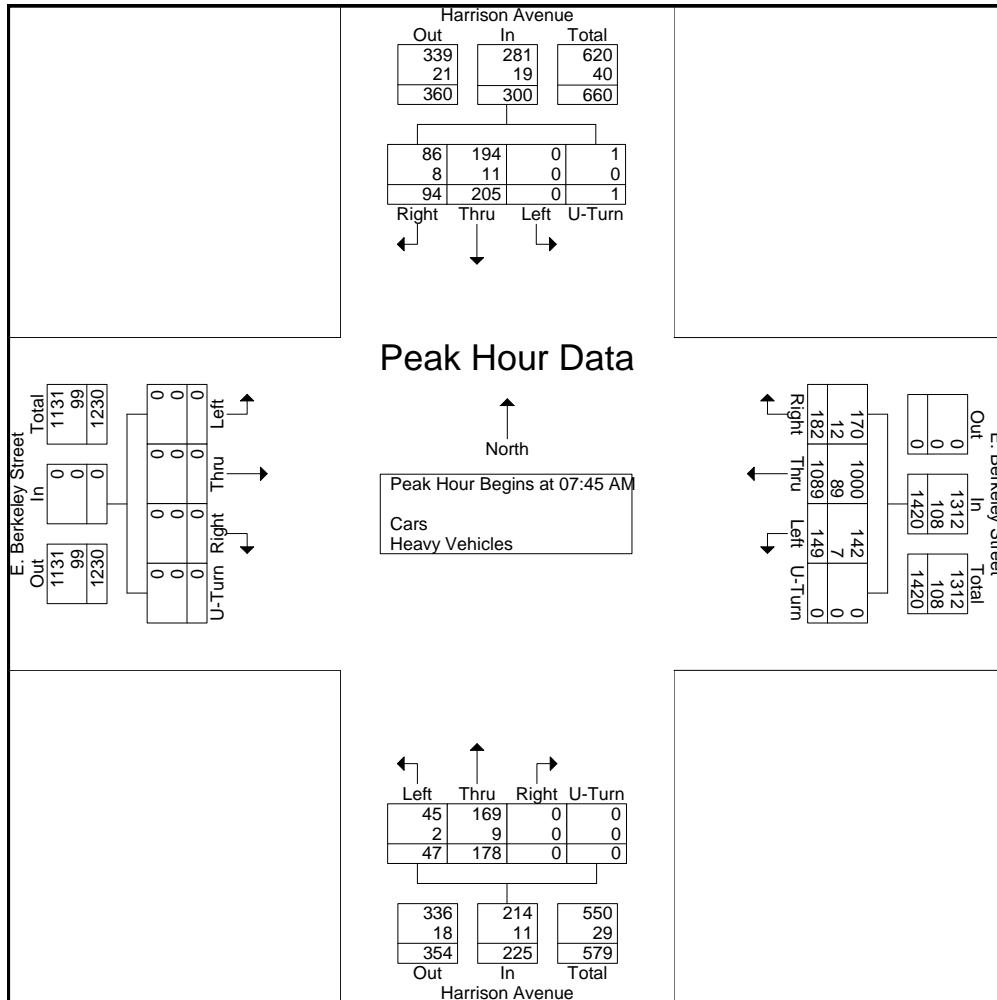
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Page No : 1

Start Time	Harrison Avenue From North					E. Berkeley Street From East					Harrison Avenue From South					E. Berkeley Street From West					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	22	42	0	0	64	36	277	35	0	348	0	46	8	0	54	0	0	0	0	0	466
08:00 AM	26	58	0	0	84	45	270	39	0	354	0	42	17	0	59	0	0	0	0	0	497
08:15 AM	21	56	0	1	78	44	286	40	0	370	0	46	11	0	57	0	0	0	0	0	505
08:30 AM	25	49	0	0	74	57	256	35	0	348	0	44	11	0	55	0	0	0	0	0	477
Total Volume	94	205	0	1	300	182	1089	149	0	1420	0	178	47	0	225	0	0	0	0	0	1945
% App. Total																					
PHF	.904	.884	.000	.250	.893	.798	.952	.931	.000	.959	.000	.967	.691	.000	.953	.000	.000	.000	.000	.000	.963
Cars	86	194	0	1	281	170	1000	142	0	1312	0	169	45	0	214	0	0	0	0	0	1807
% Cars	91.5	94.6	0	100	93.7	93.4	91.8	95.3	0	92.4	0	94.9	95.7	0	95.1	0	0	0	0	0	92.9
Heavy Vehicles																					
% Heavy Vehicles	8.5	5.4	0	0	6.3	6.6	8.2	4.7	0	7.6	0	5.1	4.3	0	4.9	0	0	0	0	0	7.1





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Client: Howard Stein-Hudson/ M. Santos

File Name : 154855 QQ  
Site Code : 15137  
Start Date : 1/13/2016  
Page No : 1

Groups Printed- Cars - Heavy Vehicles

Start Time	Harrison Avenue From North				E. Berkeley Street From East				Harrison Avenue From South				E. Berkeley Street From West				Int. Total	
	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn		
04:00 PM	26	55	0	0	39	133	26	0	0	97	10	0	0	0	0	0	0	386
04:15 PM	32	83	0	1	24	129	38	0	0	75	15	0	0	0	0	0	0	397
04:30 PM	26	64	0	0	34	151	28	0	0	85	17	0	0	0	0	0	0	405
04:45 PM	35	61	0	1	37	145	35	0	0	76	17	0	0	0	0	0	0	407
Total	119	263	0	2	134	558	127	0	0	333	59	0	0	0	0	0	0	1595
05:00 PM	34	78	0	0	26	169	33	0	0	95	10	0	0	0	0	0	0	445
05:15 PM	30	91	0	0	30	159	33	0	0	101	19	0	0	0	0	0	0	463
05:30 PM	28	71	0	1	38	163	39	0	0	72	22	0	0	0	0	0	0	434
05:45 PM	29	62	0	0	32	153	40	0	0	73	10	0	0	0	0	0	0	399
Total	121	302	0	1	126	644	145	0	0	341	61	0	0	0	0	0	0	1741
Grand Total	240	565	0	3	260	1202	272	0	0	674	120	0	0	0	0	0	0	3336
Apprch %	29.7	69.9	0	0.4	15	69.3	15.7	0	0	84.9	15.1	0	0	0	0	0	0	
Total %	7.2	16.9	0	0.1	7.8	36	8.2	0	0	20.2	3.6	0	0	0	0	0	0	
Cars	233	549	0	3	252	1127	265	0	0	658	115	0	0	0	0	0	0	3202
% Cars	97.1	97.2	0	100	96.9	93.8	97.4	0	0	97.6	95.8	0	0	0	0	0	0	96
Heavy Vehicles	7	16	0	0	8	75	7	0	0	16	5	0	0	0	0	0	0	134
% Heavy Vehicles	2.9	2.8	0	0	3.1	6.2	2.6	0	0	2.4	4.2	0	0	0	0	0	0	4

Start Time	Harrison Avenue From North					E. Berkeley Street From East					Harrison Avenue From South					E. Berkeley Street From West					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	35	61	0	1	97	37	145	35	0	217	0	76	17	0	93	0	0	0	0	0	407
05:00 PM	34	78	0	0	112	26	169	33	0	228	0	95	10	0	105	0	0	0	0	0	445
05:15 PM	30	91	0	0	121	30	159	33	0	222	0	101	19	0	120	0	0	0	0	0	463
05:30 PM	28	71	0	1	100	38	163	39	0	240	0	72	22	0	94	0	0	0	0	0	434
Total Volume	127	301	0	2	430	131	636	140	0	907	0	344	68	0	412	0	0	0	0	0	1749
% App. Total	29.5	70	0	0.5		14.4	70.1	15.4	0		0	83.5	16.5	0		0	0	0	0		
PHF	.907	.827	.000	.500	.888	.862	.941	.897	.000	.945	.000	.851	.773	.000	.858	.000	.000	.000	.000	.000	.944
Cars	122	294	0	2	418	126	606	137	0	869	0	333	66	0	399	0	0	0	0	0	1686
% Cars	96.1	97.7	0	100	97.2	96.2	95.3	97.9	0	95.8	0	96.8	97.1	0	96.8	0	0	0	0	0	96.4
Heavy Vehicles	5	7	0	0	12	5	30	3	0	38	0	11	2	0	13	0	0	0	0	0	63
% Heavy Vehicles	3.9	2.3	0	0	2.8	3.8	4.7	2.1	0	4.2	0	3.2	2.9	0	3.2	0	0	0	0	0	3.6









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File Name : 154855 QQ  
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Groups Printed- Peds and Bikes

Start Time	Harrison Avenue From North					E. Berkeley Street From East					Harrison Avenue From South					E. Berkeley Street From West					Int. Total
	Right	Thru	Left	Peds EB	Peds WB	Right	Thru	Left	Peds SB	Peds NB	Right	Thru	Left	Peds WB	Peds EB	Right	Thru	Left	Peds NB	Peds SB	
04:00 PM	0	2	0	6	31	0	1	0	17	8	0	0	0	9	10	0	0	0	5	9	98
04:15 PM	0	2	0	5	1	0	0	0	6	11	0	1	0	8	6	0	0	0	18	4	62
04:30 PM	0	0	0	9	2	0	2	0	17	6	0	2	0	2	13	0	0	0	13	9	75
04:45 PM	1	0	0	2	3	0	1	0	8	13	0	0	0	3	10	0	0	0	4	19	64
Total	1	4	0	22	37	0	4	0	48	38	0	3	0	22	39	0	0	0	40	41	299
05:00 PM	0	0	0	8	24	0	1	0	15	16	0	1	0	9	7	0	0	0	16	8	105
05:15 PM	0	1	0	5	7	0	1	1	13	16	0	1	0	9	10	0	0	0	11	15	90
05:30 PM	0	2	0	10	7	0	2	0	19	15	0	1	1	10	20	0	0	0	12	7	106
05:45 PM	0	1	0	3	11	0	3	0	13	20	0	1	0	4	14	0	0	0	12	15	97
Total	0	4	0	26	49	0	7	1	60	67	0	4	1	32	51	0	0	0	51	45	398
Grand Total	1	8	0	48	86	0	11	1	108	105	0	7	1	54	90	0	0	0	91	86	697
Apprch %	0.7	5.6	0	33.6	60.1	0	4.9	0.4	48	46.7	0	4.6	0.7	35.5	59.2	0	0	0	51.4	48.6	
Total %	0.1	1.1	0	6.9	12.3	0	1.6	0.1	15.5	15.1	0	1	0.1	7.7	12.9	0	0	0	13.1	12.3	

Start Time	Harrison Avenue From North						E. Berkeley Street From East						Harrison Avenue From South						E. Berkeley Street From West						Int. Total
	Right	Thru	Left	Peds EB	Peds WB	App. Total	Right	Thru	Left	Peds SB	Peds NB	App. Total	Right	Thru	Left	Peds WB	Peds EB	App. Total	Right	Thru	Left	Peds NB	Peds SB	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																									
Peak Hour for Entire Intersection Begins at 05:00 PM																									
05:00 PM	0	0	0	8	24	32	0	1	0	15	16	32	0	1	0	9	7	17	0	0	0	16	8	24	105
05:15 PM	0	1	0	5	7	13	0	1	1	13	16	31	0	1	0	9	10	20	0	0	0	11	15	26	90
05:30 PM	0	2	0	10	7	19	0	2	0	19	15	36	0	1	1	10	20	32	0	0	0	12	7	19	106
05:45 PM	0	1	0	3	11	15	0	3	0	13	20	36	0	1	0	4	14	19	0	0	0	12	15	27	97
Total Volume	0	4	0	26	49	79	0	7	1	60	67	135	0	4	1	32	51	88	0	0	0	51	45	96	398
% App. Total	0	5.1	0	32.9	62		0	5.2	0.7	44.4	49.6		0	4.5	1.1	36.4	58		0	0	0	53.1	46.9		
PHF	.000	.500	.000	.650	.510	.617	.000	.583	.250	.789	.838	.938	.000	1.0	.250	.800	.638	.688	.000	.000	.000	.797	.750	.889	.939



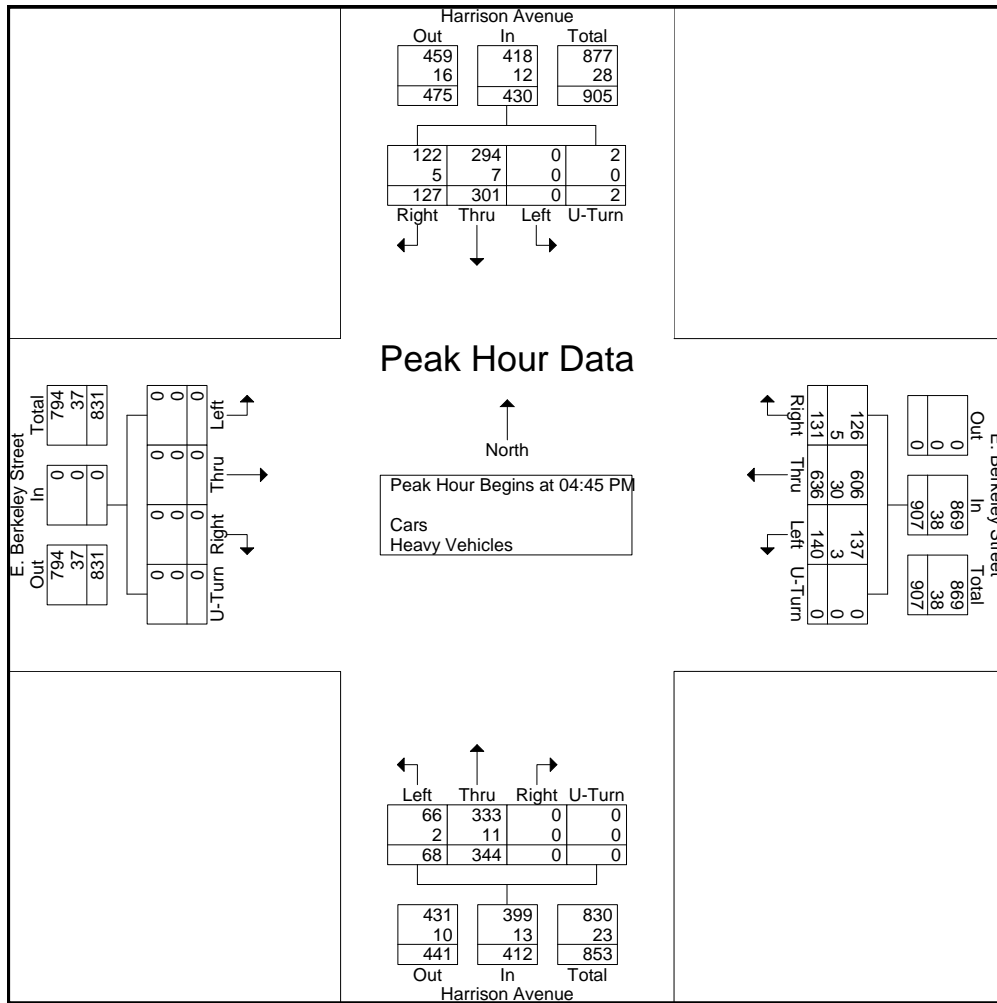
PRECISION  
D A T A  
INDUSTRIES, LLC

P.O. Box 301 Berlin, MA 01503  
Office: 508.481.3999 Fax: 508.545.1234  
Email: datarequests@pdillc.com

N/S: Harrison Avenue  
E/W: E. Berkeley Street  
City, State: Boston, MA  
Client: Howard Stein-Hudson/ M. Santos

File Name : 154855 QQ  
Site Code : 15137  
Start Date : 1/13/2016  
Page No : 1

Start Time	Harrison Avenue From North					E. Berkeley Street From East					Harrison Avenue From South					E. Berkeley Street From West					Int. Total
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	35	61	0	1	97	37	145	35	0	217	0	76	17	0	93	0	0	0	0	0	407
05:00 PM	34	78	0	0	112	26	169	33	0	228	0	95	10	0	105	0	0	0	0	0	445
05:15 PM	30	91	0	0	121	30	159	33	0	222	0	101	19	0	120	0	0	0	0	0	463
05:30 PM	28	71	0	1	100	38	163	39	0	240	0	72	22	0	94	0	0	0	0	0	434
Total Volume	127	301	0	2	430	131	636	140	0	907	0	344	68	0	412	0	0	0	0	0	1749
% App. Total	29.5	70	0	0.5		14.4	70.1	15.4	0		0	83.5	16.5	0		0	0	0	0		
PHF	.907	.827	.000	.500	.888	.862	.941	.897	.000	.945	.000	.851	.773	.000	.858	.000	.000	.000	.000	.000	.944
Cars	122	294	0	2	418	126	606	137	0	869	0	333	66	0	399	0	0	0	0	0	1686
% Cars	96.1	97.7	0	100	97.2	96.2	95.3	97.9	0	95.8	0	96.8	97.1	0	96.8	0	0	0	0	0	96.4
Heavy Vehicles	5	7	0	0	12	5	30	3	0	38	0	11	2	0	13	0	0	0	0	0	63
% Heavy Vehicles	3.9	2.3	0	0	2.8	3.8	4.7	2.1	0	4.2	0	3.2	2.9	0	3.2	0	0	0	0	0	3.6



# INTERSECTION CAPACITY ANALYSIS WORKSHEETS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↑↑↑						↑	↔↑		↑	
Traffic Volume (vph)	101	1558	102	0	0	0	0	683	154	0	22	0
Future Volume (vph)	101	1558	102	0	0	0	0	683	154	0	22	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	12	12	12	12	11	11	12	12	12
Lane Util. Factor	0.91	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99							0.83			
Frt		0.991							0.850			
Flt Protected		0.997										
Satd. Flow (prot)	0	4297	0	0	0	0	0	1517	1391	0	914	0
Flt Permitted		0.997										
Satd. Flow (perm)	0	4297	0	0	0	0	0	1517	1160	0	914	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11							22			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		323			408			147			296	
Travel Time (s)		7.3			9.3			3.3			6.7	
Confl. Peds. (#/hr)			76						125			
Confl. Bikes (#/hr)									3			
Peak Hour Factor	0.95	0.95	0.95	0.92	0.92	0.92	0.93	0.93	0.93	0.94	0.94	0.94
Heavy Vehicles (%)	2%	2%	0%	0%	0%	0%	0%	9%	1%	0%	87%	0%
Bus Blockages (#/hr)	0	9	9	0	0	0	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1853	0	0	0	0	0	734	166	0	23	0
Turn Type	Perm	NA						NA	Perm		NA	
Protected Phases		1						6			6	
Permitted Phases	1								6			
Detector Phase	1	1						6	6		6	
Switch Phase												
Minimum Initial (s)	12.0	12.0						12.0	12.0		12.0	
Minimum Split (s)	29.0	29.0						29.0	29.0		29.0	
Total Split (s)	42.0	42.0						58.0	58.0		58.0	
Total Split (%)	42.0%	42.0%						58.0%	58.0%		58.0%	
Maximum Green (s)	37.0	37.0						53.0	53.0		53.0	
Yellow Time (s)	4.0	4.0						4.0	4.0		4.0	
All-Red Time (s)	1.0	1.0						1.0	1.0		1.0	
Lost Time Adjust (s)		-1.0						-1.0	-1.0		-1.0	
Total Lost Time (s)		4.0						4.0	4.0		4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0						3.0	3.0		3.0	
Recall Mode	C-Max	C-Max						Max	Max		Max	
Walk Time (s)	15.0	15.0						15.0	15.0		15.0	
Flash Dont Walk (s)	9.0	9.0						9.0	9.0		9.0	
Pedestrian Calls (#/hr)	0	0						0	0		0	
Act Effct Green (s)		38.0						54.0	54.0		54.0	
Actuated g/C Ratio		0.38						0.54	0.54		0.54	
v/c Ratio		1.13						0.90	0.26		0.05	
Control Delay		97.4						36.4	11.9		11.3	
Queue Delay		0.1						0.8	0.0		0.0	
Total Delay		97.5						37.3	11.9		11.3	
LOS		F						D	B		B	
Approach Delay		97.5						32.6			11.3	
Approach LOS		F						C			B	
Queue Length 50th (ft)		-505						395	46		7	
Queue Length 95th (ft)		#603						#656	86		19	
Internal Link Dist (ft)		243			328			67			216	
Turn Bay Length (ft)												
Base Capacity (vph)		1639						819	636		493	
Starvation Cap Reductn		0						13	0		0	
Spillback Cap Reductn		45						0	0		0	
Storage Cap Reductn		0						0	0		0	
Reduced v/c Ratio		1.16						0.91	0.26		0.05	

Intersection Summary

Area Type: CBD  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 14 (14%), Referenced to phase 1:EBTL, Start of Green  
 Natural Cycle: 75  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.13  
 Intersection Signal Delay: 75.7 Intersection LOS: E  
 Intersection Capacity Utilization 85.2% ICU Level of Service E  
 Analysis Period (min) 15

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

Splits and Phases: 1: Washington Street & Herald Street





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations		↑↑↑							↑	↑	↑↑		
Traffic Volume (vph)	0	1408	304	0	0	0	0	0	268	193	354	0	
Future Volume (vph)	0	1408	304	0	0	0	0	0	268	193	354	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	14	13	13	12	12	12	12	12	16	12	14	14	
Lane Util. Factor	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	
Ped Bike Factor		1.00											
Frt		0.973							0.865				
Flt Protected										0.950			
Satd. Flow (prot)	0	4585	0	0	0	0	0	0	1644	1624	3209	0	
Flt Permitted										0.950			
Satd. Flow (perm)	0	4585	0	0	0	0	0	0	1644	1624	3209	0	
Right Turn on Red			Yes			Yes			Yes	Yes		Yes	
Satd. Flow (RTOR)		56							352	222			
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		408			542			147			275		
Travel Time (s)		9.3			12.3			3.3			6.3		
Confl. Bikes (#/hr)			1										
Peak Hour Factor	0.95	0.95	0.95	0.92	0.92	0.92	0.85	0.85	0.85	0.87	0.87	0.87	
Heavy Vehicles (%)	0%	2%	2%	0%	0%	0%	0%	0%	2%	0%	8%	0%	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	1802	0	0	0	0	0	0	315	222	407	0	
Turn Type		NA							Prot	Prot	NA		
Protected Phases		1							6	5	5 6		2
Permitted Phases													
Detector Phase		1							6	5	5 6		
Switch Phase													
Minimum Initial (s)		10.0							8.0	8.0			1.0
Minimum Split (s)		15.0							13.0	13.0			25.0
Total Split (s)		44.0							15.0	15.0			26.0
Total Split (%)		44.0%							15.0%	15.0%			26%
Maximum Green (s)		39.0							10.0	10.0			22.0
Yellow Time (s)		4.0							4.0	3.0			3.0
All-Red Time (s)		1.0							1.0	2.0			1.0
Lost Time Adjust (s)		-1.0							-1.0	-1.0			
Total Lost Time (s)		4.0							4.0	4.0			
Lead/Lag		Lead							Lag	Lead			Lag
Lead-Lag Optimize?										Yes			
Vehicle Extension (s)		2.0							2.0	2.0			0.2
Recall Mode		C-Max							None	Max			None
Walk Time (s)													7.0
Flash Dont Walk (s)													14.0
Pedestrian Calls (#/hr)													269
Act Effct Green (s)		42.5							9.5	11.0	24.5		
Actuated g/C Ratio		0.42							0.10	0.11	0.24		
v/c Ratio		0.91							0.66	0.59	0.52		
Control Delay		32.6							10.3	12.9	35.2		
Queue Delay		2.3							0.0	0.0	0.0		
Total Delay		34.9							10.3	12.9	35.2		
LOS		C							B	B	D		
Approach Delay		34.9						10.3			27.3		
Approach LOS		C						B			C		
Queue Length 50th (ft)		264							0	0	119		
Queue Length 95th (ft)		m238							39	61	156		
Internal Link Dist (ft)		328			462			67			195		
Turn Bay Length (ft)													
Base Capacity (vph)		1978							494	376	834		
Starvation Cap Reductn		92							0	0	0		
Spillback Cap Reductn		0							0	0	0		
Storage Cap Reductn		0							0	0	0		
Reduced v/c Ratio		0.96							0.64	0.59	0.49		

Intersection Summary

Area Type: CBD  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 0 (0%), Referenced to phase 1:EBT, Start of Green  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.91  
 Intersection Signal Delay: 30.4 Intersection LOS: C  
 Intersection Capacity Utilization 78.1% ICU Level of Service D  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Harrison Avenue & Herald Street



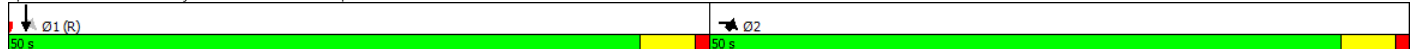
Lane Group	EBL	EBR	EBR2	NBL	NBT	NBR	SBL	SBT	SBR	NWL	NWR
Lane Configurations											
Traffic Volume (vph)	0	1020	849	0	0	0	332	1269	0	0	0
Future Volume (vph)	0	1020	849	0	0	0	332	1269	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.76	0.88	1.00	1.00	1.00	0.91	0.91	1.00	1.00	1.00
Frt		0.850	0.850								
Flt Protected								0.990			
Satd. Flow (prot)	0	1083	2533	0	0	0	0	4505	0	0	0
Flt Permitted								0.990			
Satd. Flow (perm)	0	1083	2533	0	0	0	0	4505	0	0	0
Right Turn on Red			No			Yes	Yes		No		Yes
Satd. Flow (RTOR)								42			
Link Speed (mph)	30			30				30		30	
Link Distance (ft)	542			742				329		393	
Travel Time (s)	12.3			16.9				7.5		8.9	
Peak Hour Factor	0.94	0.94	0.94	0.92	0.92	0.92	0.91	0.91	0.91	0.92	0.92
Heavy Vehicles (%)	0%	2%	1%	0%	0%	0%	1%	3%	2%	0%	0%
Shared Lane Traffic (%)			0%								
Lane Group Flow (vph)	0	1085	903	0	0	0	0	1760	0	0	0
Turn Type		Prot	Prot				Perm	NA			
Protected Phases		2	2					1			
Permitted Phases								1			
Detector Phase		2	2					1	1		
Switch Phase											
Minimum Initial (s)		8.0	8.0					8.0	8.0		
Minimum Split (s)		23.0	23.0					23.0	23.0		
Total Split (s)		50.0	50.0					50.0	50.0		
Total Split (%)		50.0%	50.0%					50.0%	50.0%		
Maximum Green (s)		45.0	45.0					45.0	45.0		
Yellow Time (s)		4.0	4.0					4.0	4.0		
All-Red Time (s)		1.0	1.0					1.0	1.0		
Lost Time Adjust (s)		0.0	-1.0					-1.0	-1.0		
Total Lost Time (s)		5.0	4.0					4.0	4.0		
Lead/Lag		Lag	Lag				Lead	Lead			
Lead-Lag Optimize?		Yes	Yes				Yes	Yes			
Vehicle Extension (s)		2.0	2.0				2.0	2.0			
Recall Mode		Max	Max				C-Max	C-Max			
Act Effct Green (s)		45.0	46.0					46.0	46.0		
Actuated g/C Ratio		0.45	0.46					0.46	0.46		
v/c Ratio		2.23	0.78					0.84	0.84		
Control Delay		576.1	24.3					27.8	27.8		
Queue Delay		0.0	0.0					0.0	0.0		
Total Delay		576.1	24.3					27.8	27.8		
LOS		F	C					C	C		
Approach Delay	325.5							27.8	27.8		
Approach LOS	F							C	C		
Queue Length 50th (ft)		-1525	337					343	343		
Queue Length 95th (ft)		m#1761	m389					412	412		
Internal Link Dist (ft)	462				662			249	249	313	
Turn Bay Length (ft)											
Base Capacity (vph)		487	1165					2094	2094		
Starvation Cap Reductn		0	0					0	0		
Spillback Cap Reductn		0	0					0	0		
Storage Cap Reductn		0	0					0	0		
Reduced v/c Ratio		2.23	0.78					0.84	0.84		

Intersection Summary

Area Type: CBD  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 82 (82%), Referenced to phase 1:SBTL, Start of Green  
 Natural Cycle: 75  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 2.23  
 Intersection Signal Delay: 185.7  
 Intersection Capacity Utilization Err%  
 Analysis Period (min) 15  
 Intersection LOS: F  
 ICU Level of Service H

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

Splits and Phases: 3: Albany Street & I-93 SB On-Ramp & Herald Street







Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↕			↕
Traffic Volume (vph)	34	211	564	116	60	88
Future Volume (vph)	34	211	564	116	60	88
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	13	11	12	12	12
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95
Ped Bike Factor	0.97		0.96			0.97
Frt	0.884		0.974			
Flt Protected	0.993					0.980
Satd. Flow (prot)	1313	0	2789	0	0	2202
Flt Permitted	0.993					0.671
Satd. Flow (perm)	1304	0	2789	0	0	1468
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)	240		69			
Link Speed (mph)	30		30			30
Link Distance (ft)	417		435			294
Travel Time (s)	9.5		9.9			6.7
Confl. Peds. (#/hr)	29	7		102	102	
Peak Hour Factor	0.88	0.88	0.92	0.92	0.80	0.80
Heavy Vehicles (%)	0%	14%	7%	0%	0%	75%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	279	0	739	0	0	185
Turn Type	Prot		NA		Perm	NA
Protected Phases	5		1			1
Permitted Phases					1	
Detector Phase	5		1		1	1
Switch Phase						
Minimum Initial (s)	4.0		10.0		10.0	10.0
Minimum Split (s)	21.0		28.0		28.0	28.0
Total Split (s)	21.0		69.0		69.0	69.0
Total Split (%)	23.3%		76.7%		76.7%	76.7%
Maximum Green (s)	16.0		65.0		65.0	65.0
Yellow Time (s)	4.0		3.0		3.0	3.0
All-Red Time (s)	1.0		1.0		1.0	1.0
Lost Time Adjust (s)	0.0		0.0		0.0	0.0
Total Lost Time (s)	5.0		4.0		4.0	4.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		2.0		2.0	2.0
Recall Mode	None		C-Max		C-Max	C-Max
Walk Time (s)	5.0		17.0		17.0	17.0
Flash Dont Walk (s)	11.0		7.0		7.0	7.0
Pedestrian Calls (#/hr)	0		0		0	0
Act Effct Green (s)	9.7		71.3		71.3	71.3
Actuated g/C Ratio	0.11		0.79		0.79	0.79
v/c Ratio	0.78		0.33		0.16	0.16
Control Delay	8.2		3.2		3.2	3.2
Queue Delay	0.0		0.0		0.0	0.0
Total Delay	8.2		3.2		3.2	3.2
LOS	A		A		A	A
Approach Delay	8.2		3.2		3.2	3.2
Approach LOS	A		A		A	A
Queue Length 50th (ft)	25		37		8	8
Queue Length 95th (ft)	m26		85		22	22
Internal Link Dist (ft)	337		355		214	214
Turn Bay Length (ft)						
Base Capacity (vph)	430		2222		1162	1162
Starvation Cap Reductn	0		0		0	0
Spillback Cap Reductn	0		0		0	0
Storage Cap Reductn	0		0		0	0
Reduced v/c Ratio	0.65		0.33		0.16	0.16

Intersection Summary

Area Type: CBD  
 Cycle Length: 90  
 Actuated Cycle Length: 90  
 Offset: 21 (23%), Referenced to phase 1:NBSB, Start of Green  
 Natural Cycle: 50  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.78  
 Intersection Signal Delay: 4.4 Intersection LOS: A  
 Intersection Capacity Utilization 58.8% ICU Level of Service B  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: Washington Street & Traveler Street



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations		↕			↕		↕	↕		↕	↕		
Traffic Volume (vph)	47	193	25	94	64	86	109	339	222	385	436	17	
Future Volume (vph)	47	193	25	94	64	86	109	339	222	385	436	17	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	10	10	10	12	12	12	12	12	12	
Storage Length (ft)	0		0	0	0	0	90		0	160		0	
Storage Lanes	0		0	0	0	0	1		0	1		0	
Taper Length (ft)	25		25		25		25		25		25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor					0.99		0.99		0.99		1.00		
Frt		0.987			0.952		0.941		0.941		0.994		
Flt Protected		0.991			0.981		0.950		0.950		0.950		
Satd. Flow (prot)	0	1673	0	0	1461	0	1450	1557	0	1593	1448	0	
Flt Permitted		0.806			0.529		0.259		0.145		0.145		
Satd. Flow (perm)	0	1360	0	0	788	0	395	1557	0	243	1448	0	
Right Turn on Red			Yes			Yes			No			No	
Satd. Flow (RTOR)		5			25								
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		417			550			388			371		
Travel Time (s)		9.5			12.5			8.8			8.4		
Confl. Bikes (#/hr)						1			4			2	
Peak Hour Factor	0.92	0.92	0.92	0.65	0.65	0.65	0.94	0.94	0.94	0.94	0.94	0.94	
Heavy Vehicles (%)	0%	0%	0%	3%	0%	0%	12%	2%	3%	2%	3%	71%	
Parking (#/hr)												0	0
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	288	0	0	375	0	116	597	0	410	482	0	
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA		
Protected Phases		3			3		4	1		4	1		2
Permitted Phases	3			3			1			1			
Detector Phase	3	3		3	3		4	1		4	1		
Switch Phase													
Minimum Initial (s)	6.0	6.0		6.0	6.0		5.0	10.0		5.0	10.0		1.0
Minimum Split (s)	11.0	11.0		11.0	11.0		10.0	15.0		10.0	15.0		26.0
Total Split (s)	15.0	15.0		15.0	15.0		10.0	39.0		10.0	39.0		26.0
Total Split (%)	16.7%	16.7%		16.7%	16.7%		11.1%	43.3%		11.1%	43.3%		29%
Maximum Green (s)	10.0	10.0		10.0	10.0		5.0	34.0		5.0	34.0		22.0
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	4.0		3.0	4.0		3.0
All-Red Time (s)	1.0	1.0		1.0	1.0		2.0	1.0		2.0	1.0		1.0
Lost Time Adjust (s)		0.0			-1.0		1.0	0.0		0.0	0.0		
Total Lost Time (s)		5.0			4.0		6.0	5.0		5.0	5.0		
Lead/Lag	Lead	Lead		Lead	Lead		Lag	Lead		Lag	Lead		Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes								
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0		2.0
Recall Mode	None	None		None	None		None	C-Max		None	C-Max		None
Walk Time (s)													7.0
Flash Dont Walk (s)													15.0
Pedestrian Calls (#/hr)													187
Act Effct Green (s)		10.0			11.0		37.0	34.0		39.0	34.0		
Actuated g/C Ratio		0.11			0.12		0.41	0.38		0.43	0.38		
v/c Ratio		1.86			3.18		0.56	1.02		2.28	0.88		
Control Delay		435.3			1017.9		26.7	70.9		610.2	46.0		
Queue Delay		0.0			0.0		0.0	30.1		0.0	0.0		
Total Delay		435.3			1017.9		26.7	101.0		610.2	46.0		
LOS		F			F		C	F		F	D		
Approach Delay		435.3			1017.9			88.9			305.3		
Approach LOS		F			F			F			F		
Queue Length 50th (ft)		-252			-371		36	-345		-322	251		
Queue Length 95th (ft)		#414			#370		68	#564		#560	#437		
Internal Link Dist (ft)		337			470			308			291		
Turn Bay Length (ft)							90			160			
Base Capacity (vph)		155			118		209	588		180	547		
Starvation Cap Reductn		0			0		0	62		0	0		
Spillback Cap Reductn		0			0		0	0		0	0		
Storage Cap Reductn		0			0		0	0		0	0		
Reduced v/c Ratio		1.86			3.18		0.56	1.13		2.28	0.88		

Intersection Summary

Area Type: CBD  
 Cycle Length: 90  
 Actuated Cycle Length: 90  
 Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green  
 Natural Cycle: 150  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 3.18  
 Intersection Signal Delay: 371.6  
 Intersection Capacity Utilization 99.9%  
 Intersection LOS: F  
 ICU Level of Service F  
 Analysis Period (min) 15  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 9: Harrison Avenue & Traveler Street



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations		↕								↕	↕		
Traffic Volume (vph)	0	447	250	0	0	0	0	0	0	1008	866	244	
Future Volume (vph)	0	447	250	0	0	0	0	0	0	1008	866	244	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	0.95	
Ped Bike Factor		0.99									0.99		
Frt		0.952									0.974		
Flt Protected										0.950	0.989		
Satd. Flow (prot)	0	1551	0	0	0	0	0	0	0	1478	2950	0	
Flt Permitted										0.950	0.989		
Satd. Flow (perm)	0	1551	0	0	0	0	0	0	0	1478	2950	0	
Right Turn on Red			No			No			No	No		No	
Satd. Flow (RTOR)													
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		550			284			404			742		
Travel Time (s)		12.5			6.5			9.2			16.9		
Confl. Peds. (#/hr)													35
Confl. Bikes (#/hr)			3										1
Peak Hour Factor	0.87	0.87	0.87	0.92	0.92	0.92	0.92	0.92	0.92	0.95	0.95	0.95	
Heavy Vehicles (%)	0%	4%	5%	0%	0%	0%	0%	0%	0%	0%	0%	4%	
Shared Lane Traffic (%)										30%			
Lane Group Flow (vph)	0	801	0	0	0	0	0	0	0	743	1487	0	
Turn Type		NA								Perm	NA		
Protected Phases		5									1		2
Permitted Phases										1			
Detector Phase		5								1	1		
Switch Phase													
Minimum Initial (s)		8.0								10.0	10.0		1.0
Minimum Split (s)		13.0								62.0	62.0		23.0
Total Split (s)		25.0								62.0	62.0		23.0
Total Split (%)		22.7%								56.4%	56.4%		21%
Maximum Green (s)		20.0								57.0	57.0		17.0
Yellow Time (s)		4.0								4.0	4.0		2.0
All-Red Time (s)		1.0								1.0	1.0		4.0
Lost Time Adjust (s)		-1.0								-1.0	-1.0		
Total Lost Time (s)		4.0								4.0	4.0		
Lead/Lag										Lead	Lead		Lag
Lead-Lag Optimize?										Yes	Yes		Yes
Vehicle Extension (s)		2.0								2.0	2.0		0.2
Recall Mode		None								C-Max	C-Max		None
Walk Time (s)										45.0	45.0		7.0
Flash Dont Walk (s)										12.0	12.0		10.0
Pedestrian Calls (#/hr)										0	0		90
Act Effct Green (s)		21.0								62.6	62.6		
Actuated g/C Ratio		0.19								0.57	0.57		
v/c Ratio		2.71								0.88	0.89		
Control Delay		797.3								37.1	30.5		
Queue Delay		2.3								6.6	4.5		
Total Delay		799.6								43.7	35.0		
LOS		F								D	D		
Approach Delay		799.6									37.9		
Approach LOS		F									D		
Queue Length 50th (ft)		-962								525	526		
Queue Length 95th (ft)		#1149								#826	#718		
Internal Link Dist (ft)		470			204			324			662		
Turn Bay Length (ft)													
Base Capacity (vph)		296								841	1678		
Starvation Cap Reductn		0								0	0		
Spillback Cap Reductn		49								70	139		
Storage Cap Reductn		0								0	0		
Reduced v/c Ratio		3.24								0.96	0.97		

Intersection Summary

Area Type: CBD  
 Cycle Length: 110  
 Actuated Cycle Length: 110  
 Offset: 0 (0%), Referenced to phase 1:SBTL, Start of Green  
 Natural Cycle: 150  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 2.71  
 Intersection Signal Delay: 239.2  
 Intersection LOS: F  
 Intersection Capacity Utilization 97.2%  
 ICU Level of Service F  
 Analysis Period (min) 15  
 - Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 10: Albany Street & Traveler Street



Lane Group	EBL2	EBL	EBT	WBR	WBR2	NBL	NBT	NBR
Lane Configurations		↔	↕	↕	↕	↕	↕	↕
Traffic Volume (vph)	158	258	1039	208	491	309	624	43
Future Volume (vph)	158	258	1039	208	491	309	624	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	14	12	13	12	12	12	12
Storage Length (ft)		0		0		200		0
Storage Lanes		1		2		2		0
Taper Length (ft)		25				100		
Lane Util. Factor	0.95	1.00	0.95	0.88	1.00	0.97	0.91	0.91
Ped Bike Factor							1.00	
Frt				0.850	0.850			
Flt Protected		0.950				0.950		
Satd. Flow (prot)	0	1695	3154	1291	1454	3090	4567	0
Flt Permitted		0.950				0.950		
Satd. Flow (perm)	0	1695	3154	1291	1454	3090	4567	0
Right Turn on Red	No				No			No
Satd. Flow (RTOR)								
Link Speed (mph)			30				30	
Link Distance (ft)			284				410	
Travel Time (s)			6.5				9.3	
Confl. Peds. (#/hr)								11
Peak Hour Factor	0.89	0.89	0.89	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	1%	3%	3%	4%	0%	2%	2%	3%
Shared Lane Traffic (%)					29%			
Lane Group Flow (vph)	0	468	1167	398	396	351	758	0
Turn Type	Prot	Prot	NA	Perm	Prot	Split	NA	
Protected Phases	2	2	2.5		5	1	1	
Permitted Phases				5				
Detector Phase	2	2	2.5	5	5	1	1	
Switch Phase								
Minimum Initial (s)	8.0	8.0		8.0	8.0	10.0	10.0	
Minimum Split (s)	32.0	32.0		13.5	13.5	36.0	36.0	
Total Split (s)	32.0	32.0		42.0	42.0	36.0	36.0	
Total Split (%)	29.1%	29.1%		38.2%	38.2%	32.7%	32.7%	
Maximum Green (s)	25.0	25.0		36.5	36.5	30.5	30.5	
Yellow Time (s)	3.5	3.5		4.5	4.5	4.5	4.5	
All-Red Time (s)	3.5	3.5		1.0	1.0	1.0	1.0	
Lost Time Adjust (s)		-2.0		-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)		5.0		3.5	3.5	3.5	3.5	
Lead/Lag								
Lead-Lag Optimize?								
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	2.0	
Recall Mode	None	None		None	None	C-Max	C-Max	
Walk Time (s)	7.0	7.0				9.5	9.5	
Flash Dont Walk (s)	18.0	18.0				21.0	21.0	
Pedestrian Calls (#/hr)	94	94				0	0	
Act Effct Green (s)		27.0	67.9	37.4	37.4	33.6	33.6	
Actuated g/C Ratio		0.25	0.62	0.34	0.34	0.31	0.31	
v/c Ratio		1.12	0.60	0.91	0.80	0.37	0.54	
Control Delay		99.4	8.5	60.6	46.5	35.2	37.8	
Queue Delay		3.9	28.8	0.0	0.0	0.0	0.0	
Total Delay		103.2	37.4	60.6	46.5	35.2	37.8	
LOS		F	D	E	D	D	D	
Approach Delay			56.2				37.0	
Approach LOS			E				D	
Queue Length 50th (ft)		-377	105	297	248	132	205	
Queue Length 95th (ft)		m#279	m102	#485	#365	m74	m115	
Internal Link Dist (ft)			204				330	
Turn Bay Length (ft)						200		
Base Capacity (vph)		416	1978	451	508	942	1394	
Starvation Cap Reductn		126	864	0	0	0	0	
Spillback Cap Reductn		0	0	0	0	0	0	
Storage Cap Reductn		0	0	0	0	0	0	
Reduced v/c Ratio		1.61	1.05	0.88	0.78	0.37	0.54	

Intersection Summary

Area Type: CBD  
 Cycle Length: 110  
 Actuated Cycle Length: 110  
 Offset: 49 (45%), Referenced to phase 1:NBT, Start of Green  
 Natural Cycle: 105  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.13  
 Intersection Signal Delay: 49.6  
 Intersection LOS: D  
 Intersection Capacity Utilization 87.4%  
 ICU Level of Service E  
 Analysis Period (min) 15  
 - Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 12: Frontage Road & Traveler Street/Broadway Bridge & I-90 WB Ramp

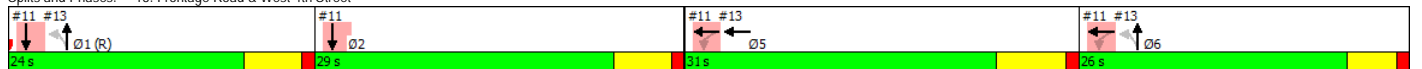


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø1	Ø2	Ø6
Lane Configurations					↑↑↑		↓	↑↑↑							
Traffic Volume (vph)	0	0	0	0	673	893	465	83	738	0	0	0			
Future Volume (vph)	0	0	0	0	673	893	465	83	738	0	0	0			
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900			
Lane Util. Factor	1.00	1.00	1.00	1.00	0.91	0.91	0.91	0.91	0.95	1.00	1.00	1.00			
Ped Bike Factor					0.97										
Frt					0.914			0.872							
Flt Protected							0.950	0.997							
Satd. Flow (prot)	0	0	0	0	4034	0	1478	2588	0	0	0	0			
Flt Permitted							0.950	0.997							
Satd. Flow (perm)	0	0	0	0	4034	0	1478	2588	0	0	0	0			
Right Turn on Red				No		No	No		No			No			
Satd. Flow (RTOR)															
Link Speed (mph)		30			30			30			30				
Link Distance (ft)		270			630			418			410				
Travel Time (s)		6.1			14.3			9.5			9.3				
Confl. Peds. (#/hr)						20									
Confl. Bikes (#/hr)						7									
Peak Hour Factor	0.92	0.92	0.92	0.87	0.87	0.87	0.92	0.92	0.92	0.92	0.92	0.92			
Heavy Vehicles (%)	0%	0%	0%	0%	5%	1%	0%	3%	5%	0%	0%	0%			
Shared Lane Traffic (%)							10%								
Lane Group Flow (vph)	0	0	0	0	1800	0	454	943	0	0	0	0			
Turn Type					NA		Perm	NA							
Protected Phases					5			1 6					1	2	6
Permitted Phases								1 6							
Detector Phase					5			1 6	1 6						
Switch Phase															
Minimum Initial (s)					8.0								10.0	7.0	8.0
Minimum Split (s)					26.5								24.0	29.0	23.0
Total Split (s)					31.0								24.0	29.0	26.0
Total Split (%)					28.2%								22%	26%	24%
Maximum Green (s)					24.5								18.5	23.5	21.0
Yellow Time (s)					5.5								4.5	4.5	4.0
All-Red Time (s)					1.0								1.0	1.0	1.0
Lost Time Adjust (s)					-1.0										
Total Lost Time (s)					5.5										
Lead/Lag					Lead								Lead	Lag	Lag
Lead-Lag Optimize?													Yes		
Vehicle Extension (s)					2.0								2.0	2.0	2.0
Recall Mode					None								C-Max	None	None
Walk Time (s)					7.0								12.5	7.0	7.0
Flash Dont Walk (s)					13.0								6.0	16.5	11.0
Pedestrian Calls (#/hr)					99								0	137	54
Act Effct Green (s)					25.5		46.5	46.5							
Actuated g/C Ratio					0.23		0.42	0.42							
v/c Ratio					3.12dr		0.73	1.45dr							
Control Delay					446.6		34.7	38.5							
Queue Delay					0.3		0.0	0.0							
Total Delay					446.9		34.7	38.5							
LOS					F		C	D							
Approach Delay					446.9			37.3							
Approach LOS					F			D							
Queue Length 50th (ft)					-719		287	325							
Queue Length 95th (ft)					#779		430	#436							
Internal Link Dist (ft)		190			550			338			330				
Turn Bay Length (ft)															
Base Capacity (vph)					935		624	1094							
Starvation Cap Reductn					0		0	0							
Spillback Cap Reductn					47		0	0							
Storage Cap Reductn					0		0	0							
Reduced v/c Ratio					2.03		0.73	0.86							

Intersection Summary

Area Type: CBD  
 Cycle Length: 110  
 Actuated Cycle Length: 110  
 Offset: 52 (47%), Referenced to phase 1:SBT, Start of Green  
 Natural Cycle: 145  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.93  
 Intersection Signal Delay: 267.9 Intersection LOS: F  
 Intersection Capacity Utilization 94.6% ICU Level of Service F  
 Analysis Period (min) 15  
 - Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Splits and Phases: 13: Frontage Road & West 4th Street

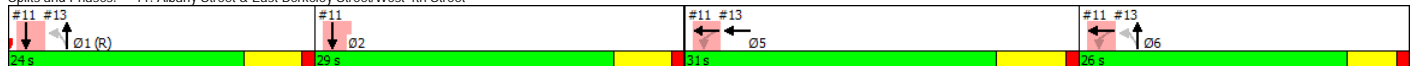


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø1	Ø2	Ø5	Ø6
Lane Configurations				↘	↗						↗	↘				
Traffic Volume (vph)	0	0	0	201	937	0	0	0	0	0	692	424				
Future Volume (vph)	0	0	0	201	937	0	0	0	0	0	692	424				
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900				
Lane Width (ft)	12	12	12	12	13	12	12	12	12	12	12	12				
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	0.91	0.91				
Ped Bike Factor				0.91							0.98					
Frt											0.943					
Flt Protected				0.950												
Satd. Flow (prot)	0	0	0	1547	3197	0	0	0	0	0	4193	0				
Flt Permitted				0.950												
Satd. Flow (perm)	0	0	0	1409	3197	0	0	0	0	0	4193	0				
Right Turn on Red			No	No		No			No		No	No				
Satd. Flow (RTOR)																
Link Speed (mph)		30			30			30			30					
Link Distance (ft)		514			270			454			404					
Travel Time (s)		11.7			6.1			10.3			9.2					
Confl. Peds. (#/hr)				54								27				
Confl. Bikes (#/hr)												1				
Peak Hour Factor	0.92	0.92	0.92	0.93	0.93	0.93	0.92	0.92	0.92	0.93	0.93	0.93				
Heavy Vehicles (%)	0%	0%	0%	5%	5%	0%	0%	0%	0%	0%	3%	2%				
Shared Lane Traffic (%)																
Lane Group Flow (vph)	0	0	0	216	1008	0	0	0	0	0	1200	0				
Turn Type				Perm	NA						NA					
Protected Phases					5 6						12		1	2	5	6
Permitted Phases				5 6												
Detector Phase				5 6	5 6						12					
Switch Phase																
Minimum Initial (s)													10.0	7.0	8.0	8.0
Minimum Split (s)													24.0	29.0	26.5	23.0
Total Split (s)													24.0	29.0	31.0	26.0
Total Split (%)													22%	26%	28%	24%
Maximum Green (s)													18.5	23.5	24.5	21.0
Yellow Time (s)													4.5	4.5	5.5	4.0
All-Red Time (s)													1.0	1.0	1.0	1.0
Lost Time Adjust (s)																
Total Lost Time (s)																
Lead/Lag													Lead	Lag	Lead	Lag
Lead-Lag Optimize?													Yes			
Vehicle Extension (s)													2.0	2.0	2.0	2.0
Recall Mode													C-Max	None	None	None
Walk Time (s)													12.5	7.0	7.0	7.0
Flash Dont Walk (s)													6.0	16.5	13.0	11.0
Pedestrian Calls (#/hr)													0	137	99	54
Act Effct Green (s)				51.5	51.5						49.5					
Actuated g/C Ratio				0.47	0.47						0.45					
v/c Ratio				0.33	0.67						0.64					
Control Delay				11.2	12.6						32.9					
Queue Delay				3.7	50.6						11.0					
Total Delay				14.9	63.2						43.9					
LOS				B	E						D					
Approach Delay					54.7						43.9					
Approach LOS					D						D					
Queue Length 50th (ft)				38	93						307					
Queue Length 95th (ft)				m38	m84						m291					
Internal Link Dist (ft)		434			190			374			324					
Turn Bay Length (ft)																
Base Capacity (vph)				659	1496						1886					
Starvation Cap Reductn				353	675						671					
Spillback Cap Reductn				0	0						0					
Storage Cap Reductn				0	0						0					
Reduced v/c Ratio				0.71	1.23						0.99					

Intersection Summary

Area Type: CBD  
 Cycle Length: 110  
 Actuated Cycle Length: 110  
 Offset: 52 (47%), Referenced to phase 1:SBT, Start of Green  
 Natural Cycle: 145  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.93  
 Intersection Signal Delay: 49.4  
 Intersection LOS: D  
 Intersection Capacity Utilization 104.8%  
 ICU Level of Service G  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 11: Albany Street & East Berkeley Street/West 4th Street



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR	Ø2
Lane Configurations					↕↕↕			↕				↕	↕	
Traffic Volume (vph)	0	0	0	233	874	254	170	424	0	2	0	338	328	
Future Volume (vph)	0	0	0	233	874	254	170	424	0	2	0	338	328	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	15	11	11	12	14	12	12	12	12	16	
Storage Length (ft)	0	0	0	0	0	0	0	0	0	0	0	0	150	
Storage Lanes	0	0	0	0	0	0	0	0	0	0	0	0	1	
Taper Length (ft)	25			25			25				25			
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor					0.98			0.98					0.89	
Frt					0.972								0.850	
Flt Protected					0.992			0.986						
Satd. Flow (prot)	0	0	0	0	4041	0	0	1571	0	0	0	1677	1426	
Flt Permitted					0.992			0.986				0.998		
Satd. Flow (perm)	0	0	0	0	3964	0	0	1546	0	0	0	1673	1273	
Right Turn on Red			Yes			Yes			Yes				Yes	
Satd. Flow (RTOR)					58								343	
Link Speed (mph)		30			30			30				30		
Link Distance (ft)		475			514			1333				388		
Travel Time (s)		10.8			11.7			30.3				8.8		
Confl. Peds. (#/hr)				78			92						92	
Confl. Bikes (#/hr)						5							3	
Peak Hour Factor	0.92	0.92	0.92	0.94	0.94	0.94	0.86	0.86	0.86	0.89	0.89	0.89	0.89	
Heavy Vehicles (%)	0%	0%	0%	2%	5%	4%	3%	3%	0%	0%	0%	2%	4%	
Bus Blockages (#/hr)	0	0	0	0	20	20	0	0	0	0	0	0	0	
Parking (#/hr)				0			0	0				0	0	
Shared Lane Traffic (%)														
Lane Group Flow (vph)	0	0	0	0	1448	0	0	691	0	0	0	382	369	
Turn Type				Perm	NA		Split	NA		Perm		NA	Perm	
Protected Phases					1		5l	5				5l		2
Permitted Phases					1					5			5	
Detector Phase					1	1		5	5		5		5	5
Switch Phase														
Minimum Initial (s)				8.0	8.0		8.0	8.0		8.0		8.0	8.0	1.0
Minimum Split (s)				13.0	13.0		13.0	13.0		13.0		13.0	13.0	26.0
Total Split (s)				40.0	40.0		34.0	34.0		34.0		34.0	34.0	26.0
Total Split (%)				40.0%	40.0%		34.0%	34.0%		34.0%		34.0%	34.0%	26%
Maximum Green (s)				35.0	35.0		29.0	29.0		29.0		29.0	29.0	22.0
Yellow Time (s)				4.0	4.0		4.0	4.0		4.0		4.0	4.0	3.0
All-Red Time (s)				1.0	1.0		1.0	1.0		1.0		1.0	1.0	1.0
Lost Time Adjust (s)					0.0			0.0				0.0	0.0	
Total Lost Time (s)					5.0			5.0				5.0	5.0	
Lead/Lag				Lead	Lead								Lag	
Lead-Lag Optimize?				Yes	Yes								Yes	
Vehicle Extension (s)				2.0	2.0		2.0	2.0		2.0		2.0	2.0	0.2
Recall Mode				C-Max	C-Max		None	None		None		None	None	None
Walk Time (s)														7.0
Flash Dont Walk (s)														15.0
Pedestrian Calls (#/hr)														351
Act Effct Green (s)					35.0			29.0				29.0	29.0	
Actuated g/C Ratio					0.35			0.29				0.29	0.29	
v/c Ratio					1.02			1.52				0.79	0.60	
Control Delay					59.7			273.3				46.0	9.0	
Queue Delay					0.0			0.0				2.6	0.0	
Total Delay					59.7			273.4				48.6	9.0	
LOS					E			F				D	A	
Approach Delay					59.7			273.4				29.1		
Approach LOS					E			F				C		
Queue Length 50th (ft)					-336			-618				223	12	
Queue Length 95th (ft)					#446			#786				#359	92	
Internal Link Dist (ft)		395			434			1253				308		
Turn Bay Length (ft)													150	
Base Capacity (vph)					1425			455				485	612	
Starvation Cap Reductn					0			0				39	0	
Spillback Cap Reductn					0			2				0	2	
Storage Cap Reductn					0			0				0	0	
Reduced v/c Ratio					1.02			1.53				0.86	0.60	

Intersection Summary

Area Type: CBD  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 0 (0%), Referenced to phase 1:WBTL, Start of Green  
 Natural Cycle: 150  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.52  
 Intersection Signal Delay: 102.9 Intersection LOS: F  
 Intersection Capacity Utilization 106.4% ICU Level of Service G  
 Analysis Period (min) 15  
 - Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 ! Phase conflict between lane groups.

Splits and Phases: 17: Harrison Avenue & East Berkeley Street



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations					↑↑↑		↑	↑			↑↑		
Traffic Volume (vph)	0	0	0	247	1016	109	132	571	0	0	100	58	
Future Volume (vph)	0	0	0	247	1016	109	132	571	0	0	100	58	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	11	11	11	10	13	12	12	12	12	
Storage Length (ft)	0	0	0	0	0	0	70	0	0	0	0	0	
Storage Lanes	0	0	0	0	0	0	1	0	0	0	0	0	
Taper Length (ft)	25			25			25			25			
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	0.91	1.00	1.00	1.00	1.00	0.95	0.95	
Ped Bike Factor					0.95		0.91						
Frt					0.988						0.945		
Flt Protected					0.991		0.950						
Satd. Flow (prot)	0	0	0	0	4129	0	1516	1636	0	0	2089	0	
Flt Permitted					0.991		0.626						
Satd. Flow (perm)	0	0	0	0	3964	0	910	1636	0	0	2089	0	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)					18						73		
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		323			475			819			435		
Travel Time (s)		7.3			10.8			18.6			9.9		
Confl. Peds. (#/hr)				155		91	87						
Confl. Bikes (#/hr)						5							
Peak Hour Factor	0.92	0.92	0.92	0.97	0.97	0.97	0.96	0.96	0.96	0.79	0.79	0.79	
Heavy Vehicles (%)	0%	0%	0%	4%	4%	9%	0%	8%	0%	0%	74%	0%	
Bus Blockages (#/hr)	0	0	0	0	10	0	0	0	0	0	0	0	
Parking (#/hr)									0				
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	0	0	0	1414	0	138	595	0	0	200	0	
Turn Type				Split	NA		Perm	NA			NA		
Protected Phases				5	5			1			1		2
Permitted Phases							1						
Detector Phase				5	5		1	1			1		
Switch Phase													
Minimum Initial (s)				8.0	8.0		20.0	20.0			20.0		2.0
Minimum Split (s)				25.0	25.0		28.0	28.0			28.0		24.0
Total Split (s)				48.0	48.0		28.0	28.0			28.0		24.0
Total Split (%)				48.0%	48.0%		28.0%	28.0%			28.0%		24%
Maximum Green (s)				44.0	44.0		24.0	24.0			24.0		22.0
Yellow Time (s)				3.0	3.0		3.0	3.0			3.0		2.0
All-Red Time (s)				1.0	1.0		1.0	1.0			1.0		0.0
Lost Time Adjust (s)					0.0		0.0	0.0			0.0		
Total Lost Time (s)					4.0		4.0	4.0			4.0		
Lead/Lag							Lead	Lead			Lead		Lag
Lead-Lag Optimize?													
Vehicle Extension (s)				3.0	3.0		3.0	3.0			3.0		3.0
Recall Mode				None	None		C-Max	C-Max			C-Max		None
Walk Time (s)				8.0	8.0		16.0	16.0			16.0		7.0
Flash Dont Walk (s)				13.0	13.0		8.0	8.0			8.0		15.0
Pedestrian Calls (#/hr)				246	246		0	0			0		0
Act Effct Green (s)					41.0		51.0	51.0			51.0		
Actuated g/C Ratio					0.41		0.51	0.51			0.51		
v/c Ratio					0.83		0.30	0.71			0.18		
Control Delay					35.2		17.4	25.7			9.4		
Queue Delay					0.4		0.0	0.0			0.0		
Total Delay					35.5		17.4	25.7			9.4		
LOS					D		B	C			A		
Approach Delay					35.5			24.1			9.4		
Approach LOS					D			C			A		
Queue Length 50th (ft)					303		50	288			22		
Queue Length 95th (ft)					m274		98	445			36		
Internal Link Dist (ft)		243			395			739			355		
Turn Bay Length (ft)							70						
Base Capacity (vph)					1826		463	834			1101		
Starvation Cap Reductn					94		0	0			0		
Spillback Cap Reductn					0		0	0			0		
Storage Cap Reductn					0		0	0			0		
Reduced v/c Ratio					0.82		0.30	0.71			0.18		

Intersection Summary

Area Type: CBD  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 25 (25%), Referenced to phase 1:NBSB, Start of Green  
 Natural Cycle: 100  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.83  
 Intersection Signal Delay: 29.7  
 Intersection LOS: C  
 Intersection Capacity Utilization 73.9%  
 ICU Level of Service D  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 16: Washington Street & East Berkeley Street





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations					↑↑↑		↓					↑	
Traffic Volume (vph)	0	0	0	0	1199	0	71	0	0	0	0	205	
Future Volume (vph)	0	0	0	0	1199	0	71	0	0	0	0	205	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor													0.865
Fit Protected							0.950						
Satd. Flow (prot)	0	0	0	0	4532	0	1593	0	0	0	0	1465	
Fit Permitted							0.950						
Satd. Flow (perm)	0	0	0	0	4532	0	1593	0	0	0	0	1465	
Right Turn on Red				Yes		Yes	Yes		Yes			Yes	
Satd. Flow (RTOR)							265					265	
Link Speed (mph)		30			30			30				30	
Link Distance (ft)		829			323			598				590	
Travel Time (s)		18.8			7.3			13.6				13.4	
Confl. Bikes (#/hr)													4
Peak Hour Factor	0.92	0.92	0.92	0.98	0.98	0.98	0.84	0.84	0.84	0.93	0.93	0.93	
Heavy Vehicles (%)	0%	0%	0%	0%	3%	0%	2%	0%	0%	0%	0%	0%	1%
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	0	0	0	1223	0	85	0	0	0	0	220	
Turn Type					NA		Prot					Prot	
Protected Phases					1		5!					5!	2
Permitted Phases													
Detector Phase					1		5					5	
Switch Phase													
Minimum Initial (s)					8.0		8.0					8.0	1.0
Minimum Split (s)					62.0		20.0					20.0	22.0
Total Split (s)					62.0		36.0					36.0	22.0
Total Split (%)					51.7%		30.0%					30.0%	18%
Maximum Green (s)					57.0		31.0					31.0	16.0
Yellow Time (s)					3.0		3.0					3.0	2.0
All-Red Time (s)					2.0		2.0					2.0	4.0
Lost Time Adjust (s)					0.0		0.0					0.0	
Total Lost Time (s)					5.0		5.0					5.0	
Lead/Lag					Lead								Lag
Lead-Lag Optimize?													
Vehicle Extension (s)					2.0		2.0					2.0	0.2
Recall Mode					C-Max		None					None	None
Walk Time (s)					47.0		8.0					8.0	7.0
Flash Dont Walk (s)					10.0		7.0					7.0	9.0
Pedestrian Calls (#/hr)					0		51					51	237
Act Effct Green (s)					74.4		13.6					13.6	
Actuated g/C Ratio					0.62		0.11					0.11	
v/c Ratio					0.44		0.20					0.55	
Control Delay					12.7		1.1					7.9	
Queue Delay					2.1		0.0					0.0	
Total Delay					14.8		1.1					7.9	
LOS					B		A					A	
Approach Delay					14.8			1.1				7.9	
Approach LOS					B			A				A	
Queue Length 50th (ft)					174		0					0	
Queue Length 95th (ft)					208		0					39	
Internal Link Dist (ft)		749			243			518				510	
Turn Bay Length (ft)													
Base Capacity (vph)					2809		608					575	
Starvation Cap Reductn					1387		0					0	
Spillback Cap Reductn					0		0					0	
Storage Cap Reductn					0		0					0	
Reduced v/c Ratio					0.86		0.14					0.38	

Intersection Summary

Area Type: CBD  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 98 (82%), Referenced to phase 1:WBT, Start of Green  
 Natural Cycle: 105  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.55  
 Intersection Signal Delay: 13.0 Intersection LOS: B  
 Intersection Capacity Utilization 55.9% ICU Level of Service B  
 Analysis Period (min) 15  
 ! Phase conflict between lane groups.

Splits and Phases: 15: Shawmut Avenue & East Berkeley Street

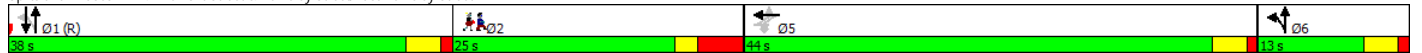


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations	↖		↗	↖	↗		↖	↗		↖	↗		
Traffic Volume (vph)	28	0	19	330	539	188	140	347	0	0	366	81	
Future Volume (vph)	28	0	19	330	539	188	140	347	0	0	366	81	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	1.00	1.00	0.95	0.95	
Ped Bike Factor					1.00			0.99				0.98	
Frt			0.850		0.961							0.973	
Flt Protected	0.950			0.950				0.986					
Satd. Flow (prot)	1624	0	1454	1593	3013	0	0	3119	0	0	3021	0	
Flt Permitted	0.145			0.950				0.620					
Satd. Flow (perm)	248	0	1454	1593	3013	0	0	1941	0	0	3021	0	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)			100		43						22		
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		647			829			409			534		
Travel Time (s)		14.7			18.8			9.3			12.1		
Confl. Peds. (#/hr)							79					66	
Confl. Bikes (#/hr)						5						9	
Peak Hour Factor	0.70	0.70	0.70	0.92	0.92	0.92	0.81	0.81	0.81	0.92	0.92	0.92	
Heavy Vehicles (%)	0%	0%	0%	2%	4%	1%	2%	3%	0%	0%	3%	3%	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	40	0	27	359	790	0	0	601	0	0	486	0	
Turn Type	D,Pm		Perm	Perm	NA		pm+pt	NA			NA		
Protected Phases					5		6	1 6			1		2
Permitted Phases	5		5	5			1 6						
Detector Phase	5		5	5	5		6	1 6			1		
Switch Phase													
Minimum Initial (s)	5.0		5.0	5.0	5.0		4.0				10.0		1.0
Minimum Split (s)	9.0		9.0	9.0	9.0		8.0				38.0		25.0
Total Split (s)	44.0		44.0	44.0	44.0		13.0				38.0		25.0
Total Split (%)	36.7%		36.7%	36.7%	36.7%		10.8%				31.7%		21%
Maximum Green (s)	40.0		40.0	40.0	40.0		9.0				34.0		19.0
Yellow Time (s)	3.0		3.0	3.0	3.0		3.0				3.0		2.0
All-Red Time (s)	1.0		1.0	1.0	1.0		1.0				1.0		4.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0						0.0		
Total Lost Time (s)	4.0		4.0	4.0	4.0						4.0		
Lead/Lag											Lead		Lag
Lead-Lag Optimize?													
Vehicle Extension (s)	2.0		2.0	2.0	2.0		2.0				2.0		0.2
Recall Mode	None		None	None	None		None				C-Max		None
Walk Time (s)											28.0		8.0
Flash Dont Walk (s)											6.0		11.0
Pedestrian Calls (#/hr)											0		212
Act Effct Green (s)	36.0		36.0	36.0	36.0		47.0				38.0		
Actuated g/C Ratio	0.30		0.30	0.30	0.30		0.39				0.32		
v/c Ratio	0.54		0.05	0.75	0.85		0.71				0.50		
Control Delay	62.5		0.2	39.8	37.9		33.7				34.7		
Queue Delay	0.0		0.0	0.0	0.0		0.0				0.0		
Total Delay	62.5		0.2	39.8	37.9		33.7				34.7		
LOS	E		A	D	D		C				C		
Approach Delay		37.4				38.5		33.7			34.7		
Approach LOS		D			D		C				C		
Queue Length 50th (ft)	25		0	251	287		175				155		
Queue Length 95th (ft)	48		0	369	369		207				217		
Internal Link Dist (ft)		567			749		329				454		
Turn Bay Length (ft)													
Base Capacity (vph)	82		551	531	1033		849				972		
Starvation Cap Reductn	0		0	0	0		0				0		
Spillback Cap Reductn	0		0	0	0		0				0		
Storage Cap Reductn	0		0	0	0		0				0		
Reduced v/c Ratio	0.49		0.05	0.68	0.76		0.71				0.50		

Intersection Summary

Area Type:	CBD
Cycle Length:	120
Actuated Cycle Length:	120
Offset:	75 (63%), Referenced to phase 1:NBSB, Start of Green
Natural Cycle:	90
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.85
Intersection Signal Delay:	36.4
Intersection LOS:	D
Intersection Capacity Utilization:	80.5%
ICU Level of Service:	D
Analysis Period (min):	15

Splits and Phases: 14: Tremont Street & Berkeley Street/East Berkeley Street



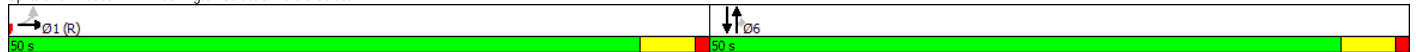
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔↔						↑	↑		↑	
Traffic Volume (vph)	93	1176	80	0	0	0	0	738	67	0	24	0
Future Volume (vph)	93	1176	80	0	0	0	0	738	67	0	24	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	12	12	12	12	11	11	12	12	12
Lane Util. Factor	0.91	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00							0.80			
Frt		0.991							0.850			
Flt Protected		0.997										
Satd. Flow (prot)	0	4300	0	0	0	0	0	1621	1378	0	1676	0
Flt Permitted		0.997										
Satd. Flow (perm)	0	4300	0	0	0	0	0	1621	1097	0	1676	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13							22			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		323			408			147			296	
Travel Time (s)		7.3			9.3			3.3			6.7	
Confl. Peds. (#/hr)			50						152			
Confl. Bikes (#/hr)									17			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Bus Blockages (#/hr)	0	9	9	0	0	0	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1466	0	0	0	0	0	802	73	0	26	0
Turn Type	Perm	NA						NA	Perm		NA	
Protected Phases		1						6			6	
Permitted Phases	1								6			
Detector Phase	1	1						6	6		6	
Switch Phase												
Minimum Initial (s)	12.0	12.0						12.0	12.0		12.0	
Minimum Split (s)	29.0	29.0						29.0	29.0		29.0	
Total Split (s)	50.0	50.0						50.0	50.0		50.0	
Total Split (%)	50.0%	50.0%						50.0%	50.0%		50.0%	
Maximum Green (s)	45.0	45.0						45.0	45.0		45.0	
Yellow Time (s)	4.0	4.0						4.0	4.0		4.0	
All-Red Time (s)	1.0	1.0						1.0	1.0		1.0	
Lost Time Adjust (s)		-1.0						-1.0	-1.0		-1.0	
Total Lost Time (s)		4.0						4.0	4.0		4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0						3.0	3.0		3.0	
Recall Mode	C-Max	C-Max						None	None		None	
Walk Time (s)	15.0	15.0						15.0	15.0		15.0	
Flash Dont Walk (s)	9.0	9.0						9.0	9.0		9.0	
Pedestrian Calls (#/hr)	0	0						0	0		0	
Act Effct Green (s)		46.0						46.0	46.0		46.0	
Actuated g/C Ratio		0.46						0.46	0.46		0.46	
v/c Ratio		0.74						1.08	0.14		0.03	
Control Delay		24.7						83.5	12.3		15.1	
Queue Delay		0.3						0.0	0.1		0.0	
Total Delay		24.9						83.5	12.4		15.1	
LOS		C						F	B		B	
Approach Delay		24.9						77.6			15.1	
Approach LOS		C						E			B	
Queue Length 50th (ft)		268						-573	18		9	
Queue Length 95th (ft)		327						#802	45		24	
Internal Link Dist (ft)		243			328			67			216	
Turn Bay Length (ft)												
Base Capacity (vph)		1985						745	516		770	
Starvation Cap Reductn		0						0	0		0	
Spillback Cap Reductn		110						0	98		0	
Storage Cap Reductn		0						0	0		0	
Reduced v/c Ratio		0.78						1.08	0.17		0.03	

Intersection Summary

Area Type: CBD  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 19 (19%), Referenced to phase 1:EBTL, Start of Green  
 Natural Cycle: 70  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.08  
 Intersection Signal Delay: 44.3  
 Intersection Capacity Utilization 79.4%  
 Analysis Period (min) 15  
 Intersection LOS: D  
 ICU Level of Service D

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

Splits and Phases: 1: Washington Street & Herald Street



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations		↑↑↑								↑↑	↑↑		
Traffic Volume (vph)	0	1035	208	0	0	0	0	0	99	119	221	0	
Future Volume (vph)	0	1035	208	0	0	0	0	0	99	119	221	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	14	13	13	12	12	12	12	12	16	12	14	14	
Lane Util. Factor	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	
Ped Bike Factor		1.00											
Frt		0.975							0.865				
Flt Protected										0.950			
Satd. Flow (prot)	0	4595	0	0	0	0	0	0	1644	1593	3398	0	
Flt Permitted										0.950			
Satd. Flow (perm)	0	4595	0	0	0	0	0	0	1644	1593	3398	0	
Right Turn on Red			Yes			Yes			Yes	Yes		Yes	
Satd. Flow (RTOR)		50							387	129			
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		408			542			147			275		
Travel Time (s)		9.3			12.3			3.3			6.3		
Confl. Bikes (#/hr)			1										
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	1351	0	0	0	0	0	0	108	129	240	0	
Turn Type		NA							Prot	Prot	NA		
Protected Phases		1							6	5	5 6		2
Permitted Phases													
Detector Phase		1							6	5	5 6		
Switch Phase													
Minimum Initial (s)		10.0							8.0	8.0			1.0
Minimum Split (s)		15.0							13.0	13.0			26.0
Total Split (s)		44.0							14.0	16.0			26.0
Total Split (%)		44.0%							14.0%	16.0%			26%
Maximum Green (s)		39.0							9.0	11.0			22.0
Yellow Time (s)		4.0							4.0	3.0			3.0
All-Red Time (s)		1.0							1.0	2.0			1.0
Lost Time Adjust (s)		-1.0							-1.0	-1.0			
Total Lost Time (s)		4.0							4.0	4.0			
Lead/Lag		Lead							Lag	Lead			Lag
Lead-Lag Optimize?		Yes							Yes	Yes			
Vehicle Extension (s)		2.0							2.0	2.0			0.2
Recall Mode		C-Max							None	Max			None
Walk Time (s)													7.0
Flash Dont Walk (s)													14.0
Pedestrian Calls (#/hr)													271
Act Effct Green (s)		42.0							9.0	12.0	25.0		
Actuated g/C Ratio		0.42							0.09	0.12	0.25		
v/c Ratio		0.69							0.22	0.42	0.28		
Control Delay		51.2							0.7	12.1	31.4		
Queue Delay		3.5							0.0	0.0	0.0		
Total Delay		54.8							0.7	12.1	31.4		
LOS		D							A	B	C		
Approach Delay		54.8						0.7			24.6		
Approach LOS		D						A			C		
Queue Length 50th (ft)		331							0	0	65		
Queue Length 95th (ft)		380							m0	53	99		
Internal Link Dist (ft)		328			462			67			195		
Turn Bay Length (ft)													
Base Capacity (vph)		1958							512	304	883		
Starvation Cap Reductn		500							0	0	0		
Spillback Cap Reductn		0							0	0	0		
Storage Cap Reductn		0							0	0	0		
Reduced v/c Ratio		0.93							0.21	0.42	0.27		

Intersection Summary

Area Type: CBD  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 87 (87%), Referenced to phase 1:EBT, Start of Green  
 Natural Cycle: 80  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.69  
 Intersection Signal Delay: 45.5  
 Intersection Capacity Utilization 51.5%  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Harrison Avenue & Herald Street

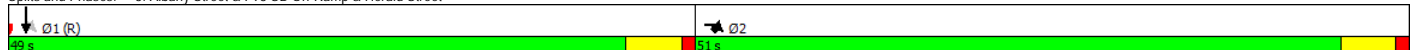


	↖	↗	↘	↙	↕	↖	↗	↘	↙	↕	↖	↗
Lane Group	EBL	EBR	EBR2	NBL	NBT	NBR	SBL	SBT	SBR	NWL	NWR	
Lane Configurations		↘	↘					↖↖↖				
Traffic Volume (vph)	0	562	691	0	0	0	113	1220	0	0	0	
Future Volume (vph)	0	562	691	0	0	0	113	1220	0	0	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Util. Factor	1.00	0.76	0.88	1.00	1.00	1.00	0.91	0.91	1.00	1.00	1.00	
Frt		0.850	0.850									
Flt Protected								0.996				
Satd. Flow (prot)	0	1083	2508	0	0	0	0	4558	0	0	0	
Flt Permitted								0.996				
Satd. Flow (perm)	0	1083	2508	0	0	0	0	4558	0	0	0	
Right Turn on Red			No			Yes	Yes		No		Yes	
Satd. Flow (RTOR)								22				
Link Speed (mph)	30			30				30		30		
Link Distance (ft)	542			742				329		393		
Travel Time (s)	12.3			16.9				7.5		8.9		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Shared Lane Traffic (%)			0%									
Lane Group Flow (vph)	0	611	751	0	0	0	0	1449	0	0	0	
Turn Type		Prot	Prot				Perm	NA				
Protected Phases		2	2					1				
Permitted Phases							1					
Detector Phase		2	2				1	1				
Switch Phase												
Minimum Initial (s)		8.0	8.0				8.0	8.0				
Minimum Split (s)		23.0	23.0				23.0	23.0				
Total Split (s)		51.0	51.0				49.0	49.0				
Total Split (%)		51.0%	51.0%				49.0%	49.0%				
Maximum Green (s)		46.0	46.0				44.0	44.0				
Yellow Time (s)		4.0	4.0				4.0	4.0				
All-Red Time (s)		1.0	1.0				1.0	1.0				
Lost Time Adjust (s)		0.0	-1.0					-1.0				
Total Lost Time (s)		5.0	4.0					4.0				
Lead/Lag		Lag	Lag				Lead	Lead				
Lead-Lag Optimize?		Yes	Yes				Yes	Yes				
Vehicle Extension (s)		2.0	2.0				2.0	2.0				
Recall Mode		Max	Max				C-Max	C-Max				
Act Effct Green (s)		46.0	47.0					45.0				
Actuated g/C Ratio		0.46	0.47					0.45				
v/c Ratio		1.23	0.64					0.70				
Control Delay		149.5	31.8					24.0				
Queue Delay		0.0	0.0					0.0				
Total Delay		149.5	31.8					24.0				
LOS		F	C					C				
Approach Delay	84.6							24.0				
Approach LOS	F							C				
Queue Length 50th (ft)		-659	281					260				
Queue Length 95th (ft)		#938	338					315				
Internal Link Dist (ft)	462				662			249		313		
Turn Bay Length (ft)												
Base Capacity (vph)		498	1178					2063				
Starvation Cap Reductn		0	0					0				
Spillback Cap Reductn		0	0					0				
Storage Cap Reductn		0	0					0				
Reduced v/c Ratio		1.23	0.64					0.70				

Intersection Summary

Area Type: CBD  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 80 (80%), Referenced to phase 1:SBTL, Start of Green  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.23  
 Intersection Signal Delay: 53.4 Intersection LOS: D  
 Intersection Capacity Utilization Err% ICU Level of Service H  
 Analysis Period (min) 15  
 - Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 3: Albany Street & I-93 SB On-Ramp & Herald Street





Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↑↓			↑↓
Traffic Volume (vph)	54	200	544	152	66	91
Future Volume (vph)	54	200	544	152	66	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	13	11	12	12	12
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95
Ped Bike Factor	0.98		0.97			0.98
Frt	0.894		0.967			
Flt Protected	0.989					0.979
Satd. Flow (prot)	1467	0	2886	0	0	3118
Flt Permitted	0.989					0.700
Satd. Flow (perm)	1460	0	2886	0	0	2192
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)	185		102			
Link Speed (mph)	30		30			30
Link Distance (ft)	417		435			294
Travel Time (s)	9.5		9.9			6.7
Confl. Peds. (#/hr)	20	1		99	99	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	276	0	756	0	0	171
Turn Type	Prot		NA		Perm	NA
Protected Phases	5		1			1
Permitted Phases					1	
Detector Phase	5		1		1	1
Switch Phase						
Minimum Initial (s)	4.0		10.0		10.0	10.0
Minimum Split (s)	21.0		28.0		28.0	28.0
Total Split (s)	21.0		39.0		39.0	39.0
Total Split (%)	35.0%		65.0%		65.0%	65.0%
Maximum Green (s)	16.0		35.0		35.0	35.0
Yellow Time (s)	4.0		3.0		3.0	3.0
All-Red Time (s)	1.0		1.0		1.0	1.0
Lost Time Adjust (s)	0.0		0.0		0.0	0.0
Total Lost Time (s)	5.0		4.0		4.0	4.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		2.0		2.0	2.0
Recall Mode	None		C-Max		C-Max	C-Max
Walk Time (s)	5.0		17.0		17.0	17.0
Flash Dont Walk (s)	11.0		7.0		7.0	7.0
Pedestrian Calls (#/hr)	0		0		0	0
Act Effct Green (s)	10.0		41.0		41.0	41.0
Actuated g/C Ratio	0.17		0.68		0.68	0.68
v/c Ratio	0.69		0.38		0.11	0.11
Control Delay	17.6		4.7		4.4	4.4
Queue Delay	0.0		0.0		0.0	0.0
Total Delay	17.6		4.7		4.4	4.4
LOS	B		A		A	A
Approach Delay	17.6		4.7		4.4	4.4
Approach LOS	B		A		A	A
Queue Length 50th (ft)	30		38		8	8
Queue Length 95th (ft)	85		91		24	24
Internal Link Dist (ft)	337		355		214	214
Turn Bay Length (ft)						
Base Capacity (vph)	526		2003		1497	1497
Starvation Cap Reductn	0		0		0	0
Spillback Cap Reductn	0		0		0	0
Storage Cap Reductn	0		0		0	0
Reduced v/c Ratio	0.52		0.38		0.11	0.11

Intersection Summary

Area Type: CBD  
 Cycle Length: 60  
 Actuated Cycle Length: 60  
 Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green  
 Natural Cycle: 50  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.69  
 Intersection Signal Delay: 7.7  
 Intersection Capacity Utilization 59.7%  
 Analysis Period (min) 15  
 Intersection LOS: A  
 ICU Level of Service B

Splits and Phases: 6: Washington Street & Traveler Street



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations		↕			↕		↕	↕		↕	↕		
Traffic Volume (vph)	35	151	5	54	86	139	159	248	184	146	334	39	
Future Volume (vph)	35	151	5	54	86	139	159	248	184	146	334	39	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	10	10	10	12	12	12	12	12	12	
Storage Length (ft)	0	0	0	0	0	0	90	0	0	160	0	0	
Storage Lanes	0	0	0	0	0	0	1	0	0	1	0	0	
Taper Length (ft)	25	25	25	25	25	25	25	25	25	25	25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor					0.99		0.99		0.99		1.00		
Frt		0.997			0.933		0.936		0.984				
Flt Protected		0.991			0.990		0.950		0.950				
Satd. Flow (prot)	0	1656	0	0	1430	0	1593	1552	0	1593	1481	0	
Flt Permitted		0.779			0.848		0.261		0.185				
Satd. Flow (perm)	0	1302	0	0	1225	0	438	1552	0	310	1481	0	
Right Turn on Red		Yes			Yes		No		No		No		
Satd. Flow (RTOR)		1			46								
Link Speed (mph)		30			30		30		30		30		
Link Distance (ft)		417			550		388		371		371		
Travel Time (s)		9.5			12.5		8.8		8.4		8.4		
Confl. Bikes (#/hr)					1		5		5		5		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Parking (#/hr)											0	0	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	207	0	0	303	0	173	470	0	159	405	0	
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA		
Protected Phases		3			3		4	1		4	1		2
Permitted Phases		3			3		1			1			
Detector Phase		3			3		4	1		4	1		
Switch Phase													
Minimum Initial (s)	6.0	6.0		6.0	6.0		5.0	10.0		5.0	10.0		1.0
Minimum Split (s)	13.0	13.0		13.0	13.0		12.0	17.0		12.0	17.0		26.0
Total Split (s)	26.0	26.0		26.0	26.0		12.0	36.0		12.0	36.0		26.0
Total Split (%)	26.0%	26.0%		26.0%	26.0%		12.0%	36.0%		12.0%	36.0%		26%
Maximum Green (s)	21.0	21.0		21.0	21.0		7.0	31.0		7.0	31.0		22.0
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	4.0		3.0	4.0		3.0
All-Red Time (s)	1.0	1.0		1.0	1.0		2.0	1.0		2.0	1.0		1.0
Lost Time Adjust (s)		0.0			-1.0		1.0	0.0		0.0	0.0		
Total Lost Time (s)		5.0			4.0		6.0	5.0		5.0	5.0		
Lead/Lag	Lead	Lead		Lead	Lead		Lag	Lead		Lag	Lead		Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes								
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0		0.2
Recall Mode	None	None		None	None		None	C-Max		None	C-Max		None
Walk Time (s)													7.0
Flash Dont Walk (s)													15.0
Pedestrian Calls (#/hr)													196
Act Effct Green (s)		21.0			22.0		36.0	31.0		38.0	31.0		
Actuated g/C Ratio		0.21			0.22		0.36	0.31		0.38	0.31		
v/c Ratio		0.76			0.99		0.77	0.98		0.77	0.88		
Control Delay		55.8			84.8		13.9	31.2		51.0	51.2		
Queue Delay		0.0			0.0		0.0	28.2		0.0	0.0		
Total Delay		55.8			84.8		13.9	59.4		51.0	51.2		
LOS		E			F		B	E		D	D		
Approach Delay		55.8			84.8			47.1			51.1		
Approach LOS		E			F			D			D		
Queue Length 50th (ft)		124			168		48	276		69	179		
Queue Length 95th (ft)		#237			#346		m39	m213		m#130	#426		
Internal Link Dist (ft)		337			470			308			291		
Turn Bay Length (ft)							90			160			
Base Capacity (vph)		274			305		226	481		207	459		
Starvation Cap Reductn		0			0		0	43		0	0		
Spillback Cap Reductn		0			0		0	0		0	0		
Storage Cap Reductn		0			0		0	0		0	0		
Reduced v/c Ratio		0.76			0.99		0.77	1.07		0.77	0.88		

Intersection Summary

Area Type: CBD  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 55 (55%), Referenced to phase 1:NBSB, Start of Green  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.99  
 Intersection Signal Delay: 56.1 Intersection LOS: E  
 Intersection Capacity Utilization 71.9% ICU Level of Service C  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 9: Harrison Avenue & Traveler Street



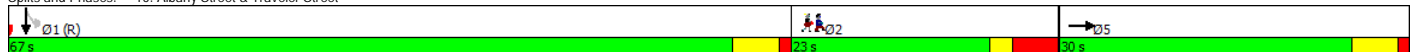


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations		↕								↕	↕↕		
Traffic Volume (vph)	0	242	235	0	0	0	0	0	0	808	838	265	
Future Volume (vph)	0	242	235	0	0	0	0	0	0	808	838	265	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	0.95	
Ped Bike Factor		0.99											
Frt		0.934									0.969		
Flt Protected										0.950	0.993		
Satd. Flow (prot)	0	1555	0	0	0	0	0	0	0	1449	2936	0	
Flt Permitted										0.950	0.993		
Satd. Flow (perm)	0	1555	0	0	0	0	0	0	0	1449	2936	0	
Right Turn on Red			No			No			No	No		No	
Satd. Flow (RTOR)													
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		550			284			404			742		
Travel Time (s)		12.5			6.5			9.2			16.9		
Confl. Bikes (#/hr)			2										
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Shared Lane Traffic (%)										21%			
Lane Group Flow (vph)	0	518	0	0	0	0	0	0	0	694	1383	0	
Turn Type		NA								Perm	NA		
Protected Phases		5									1		2
Permitted Phases										1			
Detector Phase		5								1	1		
Switch Phase													
Minimum Initial (s)		8.0								10.0	10.0		1.0
Minimum Split (s)		13.0								67.0	67.0		23.0
Total Split (s)		30.0								67.0	67.0		23.0
Total Split (%)		25.0%								55.8%	55.8%		19%
Maximum Green (s)		25.0								62.0	62.0		17.0
Yellow Time (s)		4.0								4.0	4.0		2.0
All-Red Time (s)		1.0								1.0	1.0		4.0
Lost Time Adjust (s)		-1.0								-1.0	-1.0		
Total Lost Time (s)		4.0								4.0	4.0		
Lead/Lag										Lead	Lead		Lag
Lead-Lag Optimize?										Yes	Yes		Yes
Vehicle Extension (s)		0.2								2.0	2.0		0.2
Recall Mode		None								C-Max	C-Max		None
Walk Time (s)										50.0	50.0		7.0
Flash Dont Walk (s)										12.0	12.0		10.0
Pedestrian Calls (#/hr)										0	0		94
Act Effct Green (s)		26.0								63.0	63.0		
Actuated g/C Ratio		0.22								0.52	0.52		
v/c Ratio		1.54								0.91	0.90		
Control Delay		291.6								44.4	34.9		
Queue Delay		0.0								31.5	23.7		
Total Delay		291.6								75.9	58.5		
LOS		F								E	E		
Approach Delay		291.6									64.3		
Approach LOS		F									E		
Queue Length 50th (ft)		-563								518	508		
Queue Length 95th (ft)		#778								#810	#640		
Internal Link Dist (ft)		470			204			324			662		
Turn Bay Length (ft)													
Base Capacity (vph)		336								760	1541		
Starvation Cap Reductn		0								0	0		
Spillback Cap Reductn		0								106	215		
Storage Cap Reductn		0								0	0		
Reduced v/c Ratio		1.54								1.06	1.04		

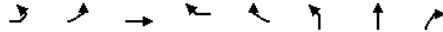
Intersection Summary

Area Type: CBD  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 2 (2%), Referenced to phase 1:SBTL, Start of Green  
 Natural Cycle: 145  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.54  
 Intersection Signal Delay: 109.7  
 Intersection LOS: F  
 Intersection Capacity Utilization 77.6%  
 ICU Level of Service D  
 Analysis Period (min) 15  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 10: Albany Street & Traveler Street







Lane Group	EBL2	EBL	EBT	WBR	WBR2	NBL	NBT	NBR
Lane Configurations		↑↑	↑↑	↑↑	↑↑	↑↑	↑↑↑	
Traffic Volume (vph)	107	239	704	372	716	267	510	37
Future Volume (vph)	107	239	704	372	716	267	510	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	14	12	13	12	12	12	12
Storage Length (ft)		0		0		200		0
Storage Lanes		1		2		2		0
Taper Length (ft)		25				100		
Lane Util. Factor	0.95	1.00	0.95	0.88	1.00	0.97	0.91	0.91
Frt				0.850	0.850			
Flt Protected		0.950				0.950		
Satd. Flow (prot)	0	1699	3185	1296	1425	3090	4577	0
Flt Permitted		0.950				0.950		
Satd. Flow (perm)	0	1699	3185	1296	1425	3090	4577	0
Right Turn on Red	No				No			No
Satd. Flow (RTOR)								
Link Speed (mph)			30				30	
Link Distance (ft)			284				410	
Travel Time (s)			6.5				9.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)					24%			
Lane Group Flow (vph)	0	376	765	591	591	290	594	0
Turn Type	Prot	Prot	NA	Perm	Prot	Split	NA	
Protected Phases	2	2	2.5		5	1	1	
Permitted Phases				5				
Detector Phase	2	2	2.5	5	5	1	1	
Switch Phase								
Minimum Initial (s)	8.0	8.0		8.0	8.0	10.0	10.0	
Minimum Split (s)	28.0	28.0		13.5	13.5	36.0	36.0	
Total Split (s)	28.0	28.0		56.0	56.0	36.0	36.0	
Total Split (%)	23.3%	23.3%		46.7%	46.7%	30.0%	30.0%	
Maximum Green (s)	21.0	21.0		50.5	50.5	30.5	30.5	
Yellow Time (s)	3.5	3.5		4.5	4.5	4.5	4.5	
All-Red Time (s)	3.5	3.5		1.0	1.0	1.0	1.0	
Lost Time Adjust (s)		-2.0		-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)		5.0		3.5	3.5	3.5	3.5	
Lead/Lag								
Lead-Lag Optimize?								
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	2.0	
Recall Mode	None	None		None	None	C-Max	C-Max	
Walk Time (s)	7.0	7.0				9.5	9.5	
Flash Dont Walk (s)	14.0	14.0				21.0	21.0	
Pedestrian Calls (#/hr)	87	87				0	0	
Act Effct Green (s)		23.0	79.0	52.5	52.5	32.5	32.5	
Actuated g/C Ratio		0.19	0.66	0.44	0.44	0.27	0.27	
v/c Ratio		1.16	0.36	1.04	0.95	0.35	0.48	
Control Delay		108.5	12.4	83.2	58.8	10.6	11.4	
Queue Delay		2.1	17.4	0.0	0.0	0.0	0.0	
Total Delay		110.7	29.7	83.2	58.8	10.6	11.4	
LOS		F	C	F	E	B	B	
Approach Delay			56.4				11.1	
Approach LOS			E				B	
Queue Length 50th (ft)		-339	190	-563	432	47	76	
Queue Length 95th (ft)		m#339	m168	#815	#673	m48	m79	
Internal Link Dist (ft)			204				330	
Turn Bay Length (ft)						200		
Base Capacity (vph)		325	2096	567	623	836	1239	
Starvation Cap Reductn		53	1330	0	0	0	0	
Spillback Cap Reductn		0	0	0	0	0	0	
Storage Cap Reductn		0	0	0	0	0	0	
Reduced v/c Ratio		1.38	1.00	1.04	0.95	0.35	0.48	

Intersection Summary

Area Type: CBD  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 114 (95%), Referenced to phase 1:NBT, Start of Green  
 Natural Cycle: 140  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.16  
 Intersection Signal Delay: 49.3  
 Intersection Capacity Utilization 86.0%  
 Analysis Period (min) 15  
 Intersection LOS: D  
 ICU Level of Service E

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

Splits and Phases: 12: Frontage Road & Traveler Street/Broadway Bridge & I-90 WB Ramp



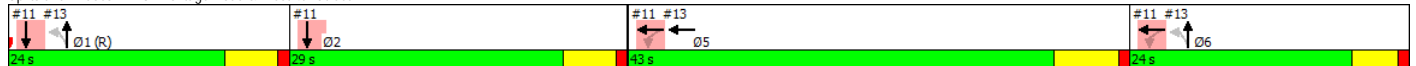


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø1	Ø2	Ø6
Lane Configurations					↑↑↑		↑	↑↑↑							
Traffic Volume (vph)	0	0	0	0	1016	158	549	656	268	0	0	0			
Future Volume (vph)	0	0	0	0	1016	158	549	656	268	0	0	0			
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900			
Lane Util. Factor	1.00	1.00	1.00	1.00	0.91	0.91	0.91	0.91	0.95	1.00	1.00	1.00			
Ped Bike Factor					1.00										
Frt					0.980			0.959							
Flt Protected							0.950	0.997							
Satd. Flow (prot)	0	0	0	0	4476	0	1449	2917	0	0	0	0			
Flt Permitted							0.950	0.997							
Satd. Flow (perm)	0	0	0	0	4476	0	1449	2917	0	0	0	0			
Right Turn on Red				No		No	No		No			No			
Satd. Flow (RTOR)															
Link Speed (mph)		30			30			30			30				
Link Distance (ft)		270			630			418			410				
Travel Time (s)		6.1			14.3			9.5			9.3				
Confl. Bikes (#/hr)						5									
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Shared Lane Traffic (%)								11%							
Lane Group Flow (vph)	0	0	0	0	1276	0	531	1070	0	0	0	0			
Turn Type					NA		Perm	NA							
Protected Phases					5			1 6					1	2	6
Permitted Phases								1 6							
Detector Phase					5			1 6	1 6						
Switch Phase															
Minimum Initial (s)					8.0								10.0	7.0	8.0
Minimum Split (s)					26.5								24.0	29.0	23.0
Total Split (s)					43.0								24.0	29.0	24.0
Total Split (%)					35.8%								20%	24%	20%
Maximum Green (s)					36.5								18.5	23.5	19.0
Yellow Time (s)					5.5								4.5	4.5	4.0
All-Red Time (s)					1.0								1.0	1.0	1.0
Lost Time Adjust (s)					-1.0										
Total Lost Time (s)					5.5										
Lead/Lag					Lead								Lead	Lag	Lag
Lead-Lag Optimize?													Yes		
Vehicle Extension (s)					2.0								2.0	2.0	2.0
Recall Mode					None								C-Max	None	None
Walk Time (s)					7.0								12.5	7.0	7.0
Flash Dont Walk (s)					13.0								6.0	16.5	11.0
Pedestrian Calls (#/hr)					98								0	100	46
Act Effct Green (s)					37.5		44.5	44.5							
Actuated g/C Ratio					0.31		0.37	0.37							
v/c Ratio					0.91		0.99	0.99							
Control Delay					50.6		74.4	62.9							
Queue Delay					42.0		5.1	3.7							
Total Delay					92.6		79.4	66.6							
LOS					F		E	E							
Approach Delay					92.6			70.8							
Approach LOS					F			E							
Queue Length 50th (ft)					347		445	448							
Queue Length 95th (ft)					#436		#702	#609							
Internal Link Dist (ft)		190			550			338			330				
Turn Bay Length (ft)															
Base Capacity (vph)					1398		537	1081							
Starvation Cap Reductn					0		0	0							
Spillback Cap Reductn					228		11	17							
Storage Cap Reductn					0		0	0							
Reduced v/c Ratio					1.09		1.01	1.01							

Intersection Summary

Area Type: CBD  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 117 (98%), Referenced to phase 1:SBT, Start of Green  
 Natural Cycle: 115  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.99  
 Intersection Signal Delay: 80.5  
 Intersection LOS: F  
 Intersection Capacity Utilization 83.4%  
 ICU Level of Service E  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 13: Frontage Road & West 4th Street

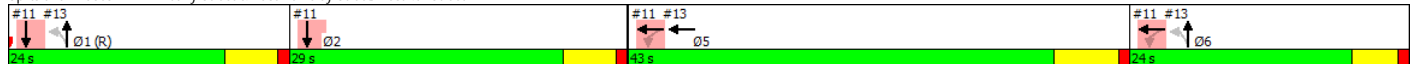


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø1	Ø2	Ø5	Ø6
Lane Configurations				↔	↔						↔	↔				
Traffic Volume (vph)	0	0	0	236	1491	0	0	0	0	0	524	549				
Future Volume (vph)	0	0	0	236	1491	0	0	0	0	0	524	549				
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900				
Lane Width (ft)	12	12	12	12	13	12	12	12	12	12	12	12				
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	0.91	0.91				
Ped Bike Factor											0.99					
Frt											0.923					
Flt Protected				0.950												
Satd. Flow (prot)	0	0	0	1593	3291	0	0	0	0	0	4196	0				
Flt Permitted				0.950												
Satd. Flow (perm)	0	0	0	1593	3291	0	0	0	0	0	4196	0				
Right Turn on Red			No	No		No			No		No	No				
Satd. Flow (RTOR)																
Link Speed (mph)		30			30			30			30					
Link Distance (ft)		514			270			454			404					
Travel Time (s)		11.7			6.1			10.3			9.2					
Confl. Bikes (#/hr)												2				
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92				
Shared Lane Traffic (%)																
Lane Group Flow (vph)	0	0	0	257	1621	0	0	0	0	0	1167	0				
Turn Type				Perm	NA						NA					
Protected Phases					5 6						1 2		1	2	5	6
Permitted Phases				5 6												
Detector Phase				5 6	5 6						1 2					
Switch Phase																
Minimum Initial (s)													10.0	7.0	8.0	8.0
Minimum Split (s)													24.0	29.0	26.5	23.0
Total Split (s)													24.0	29.0	43.0	24.0
Total Split (%)													20%	24%	36%	20%
Maximum Green (s)													18.5	23.5	36.5	19.0
Yellow Time (s)													4.5	4.5	5.5	4.0
All-Red Time (s)													1.0	1.0	1.0	1.0
Lost Time Adjust (s)																
Total Lost Time (s)																
Lead/Lag													Lead	Lag	Lead	Lag
Lead-Lag Optimize?													Yes			
Vehicle Extension (s)													2.0	2.0	2.0	2.0
Recall Mode													C-Max	None	None	None
Walk Time (s)													12.5	7.0	7.0	7.0
Flash Dont Walk (s)													6.0	16.5	13.0	11.0
Pedestrian Calls (#/hr)													0	100	98	46
Act Effct Green (s)				61.5	61.5						49.5					
Actuated g/C Ratio				0.51	0.51						0.41					
v/c Ratio				0.31	0.96						1.01dr					
Control Delay				12.3	29.7						22.3					
Queue Delay				2.8	43.1						1.4					
Total Delay				15.1	72.7						23.7					
LOS				B	E						C					
Approach Delay					64.9						23.7					
Approach LOS					E						C					
Queue Length 50th (ft)				59	639						182					
Queue Length 95th (ft)				m65	m#758						m202					
Internal Link Dist (ft)		434			190			374			324					
Turn Bay Length (ft)																
Base Capacity (vph)				816	1686						1730					
Starvation Cap Reductn				441	326						349					
Spillback Cap Reductn				0	0						0					
Storage Cap Reductn				0	0						0					
Reduced v/c Ratio				0.69	1.19						0.85					

Intersection Summary

Area Type: CBD  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 117 (98%), Referenced to phase 1:SBT, Start of Green  
 Natural Cycle: 115  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.99  
 Intersection Signal Delay: 49.1 Intersection LOS: D  
 Intersection Capacity Utilization 93.5% ICU Level of Service F  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.  
 dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Splits and Phases: 11: Albany Street & East Berkeley Street/West 4th Street



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR	Ø2
Lane Configurations					↕↕↕			↕				↕	↕	
Traffic Volume (vph)	0	0	0	203	1316	359	61	241	0	2	0	243	140	
Future Volume (vph)	0	0	0	203	1316	359	61	241	0	2	0	243	140	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	15	11	11	12	14	12	12	12	12	16	
Storage Length (ft)	0	0	0	0	0	0	0	0	0	0	0	0	150	
Storage Lanes	0	0	0	0	0	0	0	0	0	0	0	0	1	
Taper Length (ft)	25			25			25				25			
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor					1.00									0.98
Frt					0.971									0.850
Flt Protected					0.995			0.990						
Satd. Flow (prot)	0	0	0	0	4140	0	0	1593	0	0	0	1676	1454	
Flt Permitted					0.995			0.738				0.998		
Satd. Flow (perm)	0	0	0	0	4140	0	0	1188	0	0	0	1673	1429	
Right Turn on Red			Yes			Yes			Yes					Yes
Satd. Flow (RTOR)					60									152
Link Speed (mph)		30			30			30				30		
Link Distance (ft)		475			514			1333				388		
Travel Time (s)		10.8			11.7			30.3				8.8		
Confl. Bikes (#/hr)						5								6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Bus Blockages (#/hr)	0	0	0	0	20	20	0	0	0	0	0	0	0	
Parking (#/hr)					0			0						0
Shared Lane Traffic (%)														
Lane Group Flow (vph)	0	0	0	0	2041	0	0	328	0	0	0	266	152	
Turn Type				Perm	NA		Perm	NA		Perm		NA	Perm	
Protected Phases					1			5				5		2
Permitted Phases					1			5			5			5
Detector Phase					1	1		5	5			5	5	
Switch Phase														
Minimum Initial (s)				8.0	8.0		8.0	8.0		8.0		8.0	8.0	1.0
Minimum Split (s)				13.0	13.0		13.0	13.0		13.0		13.0	13.0	26.0
Total Split (s)				40.0	40.0		34.0	34.0		34.0		34.0	34.0	26.0
Total Split (%)				40.0%	40.0%		34.0%	34.0%		34.0%		34.0%	34.0%	26%
Maximum Green (s)				35.0	35.0		29.0	29.0		29.0		29.0	29.0	22.0
Yellow Time (s)				4.0	4.0		4.0	4.0		4.0		4.0	4.0	3.0
All-Red Time (s)				1.0	1.0		1.0	1.0		1.0		1.0	1.0	1.0
Lost Time Adjust (s)					0.0			0.0				0.0	0.0	
Total Lost Time (s)					5.0			5.0				5.0	5.0	
Lead/Lag				Lead	Lead									Lag
Lead-Lag Optimize?				Yes	Yes									Yes
Vehicle Extension (s)				2.0	2.0		2.0	2.0		2.0		2.0	2.0	0.2
Recall Mode				C-Max	C-Max		None	None		None		None	None	None
Walk Time (s)														7.0
Flash Dont Walk (s)														15.0
Pedestrian Calls (#/hr)														311
Act Effct Green (s)					35.8			28.2				28.2	28.2	
Actuated g/C Ratio					0.36			0.28				0.28	0.28	
v/c Ratio					1.34			0.98				0.56	0.30	
Control Delay					187.3			81.4				38.8	17.5	
Queue Delay					0.3			0.0				0.0	0.0	
Total Delay					187.6			81.4				38.8	17.5	
LOS					F			F				D	B	
Approach Delay					187.6			81.4				31.0		
Approach LOS					F			F				C		
Queue Length 50th (ft)					-629			204				174	60	
Queue Length 95th (ft)					#727			#379				m194	m68	
Internal Link Dist (ft)		395			434			1253				308		
Turn Bay Length (ft)													150	
Base Capacity (vph)					1520			344				485	522	
Starvation Cap Reductn					0			0				0	0	
Spillback Cap Reductn					118			0				0	4	
Storage Cap Reductn					0			0				0	0	
Reduced v/c Ratio					1.46			0.95				0.55	0.29	

Intersection Summary

Area Type: CBD  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 40 (40%), Referenced to phase 1:WBTL, Start of Green  
 Natural Cycle: 140  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.34  
 Intersection Signal Delay: 151.6  
 Intersection Capacity Utilization 86.4%  
 Intersection LOS: F  
 ICU Level of Service E  
 Analysis Period (min) 15  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 17: Harrison Avenue & East Berkeley Street

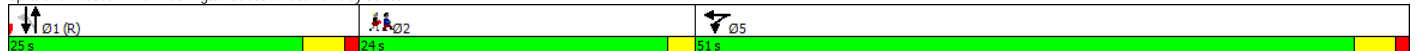


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations					↑↑↑		↑	↑			↑↑		
Traffic Volume (vph)	0	0	0	168	1138	211	88	435	0	0	107	38	
Future Volume (vph)	0	0	0	168	1138	211	88	435	0	0	107	38	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	11	11	11	10	13	12	12	12	12	
Storage Length (ft)	0	0	0	0	0	0	70	0	0	0	0	0	
Storage Lanes	0	0	0	0	0	0	1	0	0	0	0	0	
Taper Length (ft)	25			25			25			25			
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	0.91	1.00	1.00	1.00	1.00	0.95	0.95	
Ped Bike Factor				0.95			0.90						
Frt				0.979							0.961		
Flt Protected				0.994			0.950						
Satd. Flow (prot)	0	0	0	0	4169	0	1486	1732	0	0	3061	0	
Flt Permitted				0.994			0.652						
Satd. Flow (perm)	0	0	0	0	4051	0	918	1732	0	0	3061	0	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)					41						41		
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		323			475			819			435		
Travel Time (s)		7.3			10.8			18.6			9.9		
Confl. Peds. (#/hr)				179		85	83						
Confl. Bikes (#/hr)						7							
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Bus Blockages (#/hr)	0	0	0	0	10	0	0	0	0	0	0	0	
Parking (#/hr)									0				
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	0	0	0	1649	0	96	473	0	0	157	0	
Turn Type				Split	NA		Perm	NA			NA		
Protected Phases				5	5			1			1		2
Permitted Phases								1					
Detector Phase				5	5		1	1			1		
Switch Phase													
Minimum Initial (s)				8.0	8.0		20.0	20.0			20.0		2.0
Minimum Split (s)				25.0	25.0		24.0	24.0			24.0		24.0
Total Split (s)				51.0	51.0		25.0	25.0			25.0		24.0
Total Split (%)				51.0%	51.0%		25.0%	25.0%			25.0%		24%
Maximum Green (s)				47.0	47.0		21.0	21.0			21.0		22.0
Yellow Time (s)				3.0	3.0		3.0	3.0			3.0		2.0
All-Red Time (s)				1.0	1.0		1.0	1.0			1.0		0.0
Lost Time Adjust (s)					0.0		0.0	0.0			0.0		
Total Lost Time (s)					4.0		4.0	4.0			4.0		
Lead/Lag							Lead	Lead			Lead		Lag
Lead-Lag Optimize?													
Vehicle Extension (s)				3.0	3.0		3.0	3.0			3.0		3.0
Recall Mode				None	None		C-Min	C-Min			C-Min		None
Walk Time (s)				8.0	8.0		12.0	12.0			12.0		7.0
Flash Dont Walk (s)				13.0	13.0		8.0	8.0			8.0		15.0
Pedestrian Calls (#/hr)				264	264		0	0			0		264
Act Effct Green (s)					45.4		22.6	22.6			22.6		
Actuated g/C Ratio					0.45		0.23	0.23			0.23		
v/c Ratio					0.86		0.46	1.21			0.22		
Control Delay					6.5		43.0	152.0			24.7		
Queue Delay					10.1		0.0	0.0			0.0		
Total Delay					16.7		43.0	152.0			24.7		
LOS					B		D	F			C		
Approach Delay					16.7			133.6			24.7		
Approach LOS					B			F			C		
Queue Length 50th (ft)					46		54	-388			32		
Queue Length 95th (ft)					m38		109	#583			61		
Internal Link Dist (ft)		243			395			739			355		
Turn Bay Length (ft)							70						
Base Capacity (vph)					1981		207	391			723		
Starvation Cap Reductn					327		0	0			0		
Spillback Cap Reductn					0		0	0			0		
Storage Cap Reductn					0		0	0			0		
Reduced v/c Ratio					1.00		0.46	1.21			0.22		

Intersection Summary

Area Type: CBD  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.21  
 Intersection Signal Delay: 45.2 Intersection LOS: D  
 Intersection Capacity Utilization 77.5% ICU Level of Service D  
 Analysis Period (min) 15  
 - Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 16: Washington Street & East Berkeley Street





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations					↑↑↑		↓						↑
Traffic Volume (vph)	0	0	0	0	1264	0	78	0	0	0	0	124	
Future Volume (vph)	0	0	0	0	1264	0	78	0	0	0	0	124	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor													0.865
Frt													
Flt Protected							0.950						
Satd. Flow (prot)	0	0	0	0	4577	0	1593	0	0	0	0	1450	
Flt Permitted							0.950						
Satd. Flow (perm)	0	0	0	0	4577	0	1593	0	0	0	0	1450	
Right Turn on Red				Yes		Yes	Yes		Yes			Yes	
Satd. Flow (RTOR)							287					287	
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		829			323			598			590		
Travel Time (s)		18.8			7.3			13.6			13.4		
Confl. Bikes (#/hr)													1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	0	0	0	1374	0	85	0	0	0	0	135	
Turn Type					NA		Prot					Prot	
Protected Phases					1		5!					5!	2
Permitted Phases													
Detector Phase					1		5					5	
Switch Phase													
Minimum Initial (s)					8.0		8.0					8.0	1.0
Minimum Split (s)					54.0		20.0					20.0	22.0
Total Split (s)					54.0		24.0					24.0	22.0
Total Split (%)					54.0%		24.0%					24.0%	22%
Maximum Green (s)					49.0		19.0					19.0	16.0
Yellow Time (s)					3.0		3.0					3.0	2.0
All-Red Time (s)					2.0		2.0					2.0	4.0
Lost Time Adjust (s)					0.0		0.0					0.0	
Total Lost Time (s)					5.0		5.0					5.0	
Lead/Lag					Lead								Lag
Lead-Lag Optimize?													
Vehicle Extension (s)					2.0		2.0					2.0	0.2
Recall Mode					C-Max		None					None	None
Walk Time (s)					39.0		8.0					8.0	7.0
Flash Dont Walk (s)					10.0		7.0					7.0	9.0
Pedestrian Calls (#/hr)					0		51					51	225
Act Effct Green (s)					54.4		13.6					13.6	
Actuated g/C Ratio					0.54		0.14					0.14	
v/c Ratio					0.55		0.18					0.30	
Control Delay					11.2		0.9					1.8	
Queue Delay					0.3		0.0					0.0	
Total Delay					11.5		0.9					1.8	
LOS					B		A					A	
Approach Delay					11.5			0.9				1.8	
Approach LOS					B			A				A	
Queue Length 50th (ft)					86		0					0	
Queue Length 95th (ft)					146		0					0	
Internal Link Dist (ft)		749			243			518				510	
Turn Bay Length (ft)													
Base Capacity (vph)					2489		535					507	
Starvation Cap Reductn					455		0					0	
Spillback Cap Reductn					0		0					0	
Storage Cap Reductn					0		0					0	
Reduced v/c Ratio					0.68		0.16					0.27	

Intersection Summary

Area Type: CBD  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 40 (40%), Referenced to phase 1:WBT, Start of Green  
 Natural Cycle: 100  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.55  
 Intersection Signal Delay: 10.1  
 Intersection Capacity Utilization 52.1%  
 Analysis Period (min) 15  
 Intersection LOS: B  
 ICU Level of Service A  
 ! Phase conflict between lane groups.

Splits and Phases: 15: Shawmut Avenue & East Berkeley Street



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations	↔		↔	↔	↔				↔	↔		↔	↔	
Traffic Volume (vph)	14	0	12	318	826	180	1	159	546	0	0	248	53	
Future Volume (vph)	14	0	12	318	826	180	1	159	546	0	0	248	53	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	1.00	1.00	0.95	0.95	
Ped Bike Factor					1.00							1.00		
Frt			0.850		0.973							0.973		
Flt Protected	0.950			0.950					0.989					
Satd. Flow (prot)	1593	0	1425	1593	3090	0	0	0	3150	0	0	3091	0	
Flt Permitted	0.129			0.950					0.713					
Satd. Flow (perm)	216	0	1425	1593	3090	0	0	0	2271	0	0	3091	0	
Right Turn on Red			Yes			Yes				Yes			Yes	
Satd. Flow (RTOR)			120		27							24		
Link Speed (mph)		30			30				30			30		
Link Distance (ft)		647			829				409			534		
Travel Time (s)		14.7			18.8				9.3			12.1		
Confl. Bikes (#/hr)						6							3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Shared Lane Traffic (%)														
Lane Group Flow (vph)	15	0	13	346	1094	0	0	0	767	0	0	328	0	
Turn Type	D.Pm		Perm	Perm	NA		custom	pm+pt	NA			NA		
Protected Phases					5			6	1 6			1		2
Permitted Phases	5		5	5			6	1 6						
Detector Phase	5		5	5	5		6	6	1 6			1		
Switch Phase														
Minimum Initial (s)	5.0		5.0	5.0	5.0		4.0	4.0				10.0		1.0
Minimum Split (s)	9.0		9.0	9.0	9.0		8.0	8.0				27.0		25.0
Total Split (s)	35.0		35.0	35.0	35.0		13.0	13.0				27.0		25.0
Total Split (%)	35.0%		35.0%	35.0%	35.0%		13.0%	13.0%				27.0%		25%
Maximum Green (s)	31.0		31.0	31.0	31.0		9.0	9.0				23.0		19.0
Yellow Time (s)	3.0		3.0	3.0	3.0		3.0	3.0				3.0		2.0
All-Red Time (s)	1.0		1.0	1.0	1.0		1.0	1.0				1.0		4.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0							0.0		
Total Lost Time (s)	4.0		4.0	4.0	4.0							4.0		
Lead/Lag												Lead		Lag
Lead-Lag Optimize?														
Vehicle Extension (s)	2.0		2.0	2.0	2.0		2.0	2.0				2.0		0.2
Recall Mode	None		None	None	None		None	None				C-Max		None
Walk Time (s)												17.0		8.0
Flash Dont Walk (s)												6.0		11.0
Pedestrian Calls (#/hr)												0		271
Act Effct Green (s)	31.0		31.0	31.0	31.0				32.0			23.0		
Actuated g/C Ratio	0.31		0.31	0.31	0.31				0.32			0.23		
v/c Ratio	0.23		0.02	0.70	1.12				0.95			0.45		
Control Delay	36.1		0.1	28.4	91.8				53.8			32.8		
Queue Delay	0.0		0.0	0.0	0.0				0.0			0.0		
Total Delay	36.1		0.1	28.4	91.8				53.8			32.8		
LOS	D		A	C	F				D			C		
Approach Delay		19.4			76.6				53.8			32.8		
Approach LOS		B			E				D			C		
Queue Length 50th (ft)	7		0	211	-434				214			87		
Queue Length 95th (ft)	27		0	327	#567				#344			131		
Internal Link Dist (ft)		567			749				329			454		
Turn Bay Length (ft)														
Base Capacity (vph)	66		524	493	976				805			729		
Starvation Cap Reductn	0		0	0	0				0			0		
Spillback Cap Reductn	0		0	0	0				0			0		
Storage Cap Reductn	0		0	0	0				0			0		
Reduced v/c Ratio	0.23		0.02	0.70	1.12				0.95			0.45		

Intersection Summary

Area Type: CBD  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 38 (38%), Referenced to phase 1:NBSB, Start of Green  
 Natural Cycle: 110  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.12  
 Intersection Signal Delay: 63.6  
 Intersection LOS: E  
 Intersection Capacity Utilization 73.2%  
 ICU Level of Service D  
 Analysis Period (min) 15  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 14: Tremont Street & Berkeley Street/East Berkeley Street



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑						↑↑	↑		↑	
Traffic Volume (vph)	94	1353	0	0	0	0	0	485	100	0	20	0
Future Volume (vph)	94	1353	0	0	0	0	0	485	100	0	20	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	12	12	12	12	11	11	12	12	12
Lane Util. Factor	0.91	0.91	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor									0.70			
Frt									0.850			
Flt Protected		0.997										
Satd. Flow (prot)	0	4358	0	0	0	0	0	2881	1391	0	914	0
Flt Permitted		0.997										
Satd. Flow (perm)	0	4358	0	0	0	0	0	2881	980	0	914	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)									33			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		323			408			147			296	
Travel Time (s)		7.3			9.3			3.3			6.7	
Confl. Peds. (#/hr)									125			
Confl. Bikes (#/hr)									3			
Peak Hour Factor	0.95	0.95	0.95	0.92	0.92	0.92	0.93	0.93	0.93	0.94	0.94	0.94
Heavy Vehicles (%)	2%	2%	0%	0%	0%	0%	0%	9%	1%	0%	87%	0%
Bus Blockages (#/hr)	0	9	9	0	0	0	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1523	0	0	0	0	0	522	108	0	21	0
Turn Type	Split	NA						NA	Perm		NA	
Protected Phases	6	6						1			1	
Permitted Phases									1			
Detector Phase	6	6						1	1		1	
Switch Phase												
Minimum Initial (s)	8.0	8.0						8.0	8.0		8.0	
Minimum Split (s)	31.0	31.0						19.0	19.0		19.0	
Total Split (s)	58.0	58.0						42.0	42.0		42.0	
Total Split (%)	58.0%	58.0%						42.0%	42.0%		42.0%	
Maximum Green (s)	52.0	52.0						36.0	36.0		36.0	
Yellow Time (s)	3.0	3.0						3.0	3.0		3.0	
All-Red Time (s)	3.0	3.0						3.0	3.0		3.0	
Lost Time Adjust (s)		-1.0						-1.0	-1.0		-1.0	
Total Lost Time (s)		5.0						5.0	5.0		5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0						2.0	2.0		2.0	
Recall Mode	Max	Max						C-Max	C-Max		C-Max	
Walk Time (s)	20.0	20.0						8.0	8.0		8.0	
Flash Dont Walk (s)	5.0	5.0						5.0	5.0		5.0	
Pedestrian Calls (#/hr)	0	0						0	0		0	
Act Effct Green (s)		53.0						37.0	37.0		37.0	
Actuated g/C Ratio		0.53						0.37	0.37		0.37	
v/c Ratio		0.66						0.49	0.28		0.06	
Control Delay		18.7						26.2	17.7		21.1	
Queue Delay		0.2						0.0	0.0		0.0	
Total Delay		18.9						26.2	17.7		21.1	
LOS		B						C	B		C	
Approach Delay		18.9						24.7			21.1	
Approach LOS		B						C			C	
Queue Length 50th (ft)		244						133	32		9	
Queue Length 95th (ft)		295						183	76		25	
Internal Link Dist (ft)		243			328			67			216	
Turn Bay Length (ft)												
Base Capacity (vph)		2309						1065	383		338	
Starvation Cap Reductn		0						0	0		0	
Spillback Cap Reductn		196						0	1		0	
Storage Cap Reductn		0						0	0		0	
Reduced v/c Ratio		0.72						0.49	0.28		0.06	

Intersection Summary

Area Type: CBD  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 60 (60%), Referenced to phase 1:NBSB, Start of Green  
 Natural Cycle: 50  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.66  
 Intersection Signal Delay: 20.6  
 Intersection LOS: C  
 Intersection Capacity Utilization 54.4%  
 ICU Level of Service A  
 Analysis Period (min) 15

Splits and Phases: 1: Washington Street & Herald Street





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations		↑↑↑							↑↑	↑	↑↑		
Traffic Volume (vph)	0	1210	248	0	0	0	0	0	199	146	299	0	
Future Volume (vph)	0	1210	248	0	0	0	0	0	199	146	299	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	14	13	13	12	12	12	12	12	16	12	14	14	
Lane Util. Factor	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	0.88	1.00	0.95	1.00	
Ped Bike Factor		1.00											
Frt		0.974							0.850				
Flt Protected										0.950			
Satd. Flow (prot)	0	4596	0	0	0	0	0	0	2842	1624	3209	0	
Flt Permitted										0.950			
Satd. Flow (perm)	0	4596	0	0	0	0	0	0	2842	1624	3209	0	
Right Turn on Red			Yes			Yes			Yes	Yes		Yes	
Satd. Flow (RTOR)		49							713	168			
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		408			542			147			275		
Travel Time (s)		9.3			12.3			3.3			6.3		
Confl. Bikes (#/hr)			1										
Peak Hour Factor	0.95	0.95	0.95	0.92	0.92	0.92	0.85	0.85	0.85	0.87	0.87	0.87	
Heavy Vehicles (%)	0%	2%	2%	0%	0%	0%	0%	0%	2%	0%	8%	0%	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	1535	0	0	0	0	0	0	234	168	344	0	
Turn Type		NA							Prot	Prot	NA		
Protected Phases		1							6	5	5 6		2
Permitted Phases													
Detector Phase		1							6	5	5 6		
Switch Phase													
Minimum Initial (s)		8.0							8.0	8.0			1.0
Minimum Split (s)		14.0							13.0	13.0			31.0
Total Split (s)		41.0							14.0	14.0			31.0
Total Split (%)		41.0%							14.0%	14.0%			31%
Maximum Green (s)		35.0							9.0	9.0			24.0
Yellow Time (s)		3.0							3.0	3.0			3.0
All-Red Time (s)		3.0							2.0	2.0			4.0
Lost Time Adjust (s)		-1.0							-1.0	-1.0			
Total Lost Time (s)		5.0							4.0	4.0			
Lead/Lag		Lead							Lag	Lead			Lag
Lead-Lag Optimize?										Yes			
Vehicle Extension (s)		2.0							2.0	2.0			0.2
Recall Mode		C-Max							Max	Max			None
Walk Time (s)													7.0
Flash Dont Walk (s)													17.0
Pedestrian Calls (#/hr)													269
Act Effct Green (s)		36.0							10.0	10.0	24.0		
Actuated g/C Ratio		0.36							0.10	0.10	0.24		
v/c Ratio		0.91							0.25	0.54	0.45		
Control Delay		22.7							0.7	13.7	34.5		
Queue Delay		0.7							0.0	0.0	0.0		
Total Delay		23.4							0.7	13.7	34.5		
LOS		C							A	B	C		
Approach Delay		23.4						0.7			27.7		
Approach LOS		C						A			C		
Queue Length 50th (ft)		332							0	0	98		
Queue Length 95th (ft)		#427							m0	56	136		
Internal Link Dist (ft)		328			462			67			195		
Turn Bay Length (ft)													
Base Capacity (vph)		1685							925	313	770		
Starvation Cap Reductn		31							0	0	0		
Spillback Cap Reductn		0							0	0	0		
Storage Cap Reductn		0							0	0	0		
Reduced v/c Ratio		0.93							0.25	0.54	0.45		

Intersection Summary

Area Type: CBD  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 20 (20%), Referenced to phase 1:EBT, Start of Green  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.91  
 Intersection Signal Delay: 22.1 Intersection LOS: C  
 Intersection Capacity Utilization 59.7% ICU Level of Service B  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 # Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Harrison Avenue & Herald Street

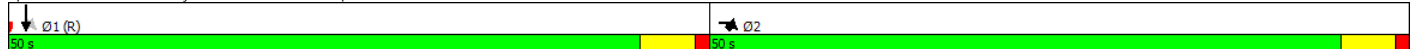


Lane Group	EBL	EBR	EBR2	NBL	NBT	NBR	SBL	SBT	SBR	NWL	NWR
Lane Configurations											
Traffic Volume (vph)	0	867	688	0	0	0	310	1122	0	0	0
Future Volume (vph)	0	867	688	0	0	0	310	1122	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.76	0.88	1.00	1.00	1.00	0.91	0.91	1.00	1.00	1.00
Frt		0.850	0.850								
Flt Protected								0.989			
Satd. Flow (prot)	0	1083	2533	0	0	0	0	4501	0	0	0
Flt Permitted								0.989			
Satd. Flow (perm)	0	1083	2533	0	0	0	0	4501	0	0	0
Right Turn on Red			No			Yes	Yes		No		Yes
Satd. Flow (RTOR)								71			
Link Speed (mph)	30				30			30		30	
Link Distance (ft)	542				742			329		393	
Travel Time (s)	12.3				16.9			7.5		8.9	
Peak Hour Factor	0.94	0.94	0.94	0.92	0.92	0.92	0.91	0.91	0.91	0.92	0.92
Heavy Vehicles (%)	0%	2%	1%	0%	0%	0%	1%	3%	2%	0%	0%
Shared Lane Traffic (%)			0%								
Lane Group Flow (vph)	0	922	732	0	0	0	0	1574	0	0	0
Turn Type		Prot	Prot				Perm	NA			
Protected Phases		2	2					1			
Permitted Phases								1			
Detector Phase		2	2					1	1		
Switch Phase											
Minimum Initial (s)		8.0	8.0					8.0	8.0		
Minimum Split (s)		23.0	23.0					23.0	23.0		
Total Split (s)		50.0	50.0					50.0	50.0		
Total Split (%)		50.0%	50.0%					50.0%	50.0%		
Maximum Green (s)		45.0	45.0					45.0	45.0		
Yellow Time (s)		4.0	4.0					4.0	4.0		
All-Red Time (s)		1.0	1.0					1.0	1.0		
Lost Time Adjust (s)		0.0	-1.0					-1.0	-1.0		
Total Lost Time (s)		5.0	4.0					4.0	4.0		
Lead/Lag		Lag	Lag				Lead	Lead			
Lead-Lag Optimize?		Yes	Yes				Yes	Yes			
Vehicle Extension (s)		2.0	2.0				2.0	2.0			
Recall Mode		Max	Max				C-Max	C-Max			
Act Effct Green (s)		45.0	46.0					46.0	46.0		
Actuated g/C Ratio		0.45	0.46					0.46	0.46		
v/c Ratio		1.89	0.63					0.75	0.75		
Control Delay		424.9	6.9					23.8	23.8		
Queue Delay		0.0	0.0					0.0	0.0		
Total Delay		424.9	6.9					23.8	23.8		
LOS		F	A					C	C		
Approach Delay	239.9							23.8	23.8		
Approach LOS	F							C	C		
Queue Length 50th (ft)		-1230	39					280	280		
Queue Length 95th (ft)		m#1438	m51					339	339		
Internal Link Dist (ft)	462				662			249	249	313	
Turn Bay Length (ft)											
Base Capacity (vph)		487	1165					2108	2108		
Starvation Cap Reductn		0	0					0	0		
Spillback Cap Reductn		0	0					0	0		
Storage Cap Reductn		0	0					0	0		
Reduced v/c Ratio		1.89	0.63					0.75	0.75		

Intersection Summary

Area Type: CBD  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 82 (82%), Referenced to phase 1:SBTL, Start of Green  
 Natural Cycle: 80  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.89  
 Intersection Signal Delay: 134.6  
 Intersection Capacity Utilization Err%  
 Analysis Period (min) 15  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Albany Street & I-93 SB On-Ramp & Herald Street



	↙	↖	↑	↗	↘	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↑	↑↑↑			↑
Traffic Volume (vph)	0	102	416	0	0	20
Future Volume (vph)	0	102	416	0	0	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	13	11	12	12	12
Lane Util. Factor	1.00	1.00	0.91	1.00	1.00	1.00
Frt		0.865				
Flt Protected						
Satd. Flow (prot)	0	1341	4217	0	0	977
Flt Permitted						
Satd. Flow (perm)	0	1341	4217	0	0	977
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		462				
Link Speed (mph)	30		30			30
Link Distance (ft)	417		435			294
Travel Time (s)	9.5		9.9			6.7
Peak Hour Factor	0.88	0.88	0.92	0.92	0.80	0.80
Heavy Vehicles (%)	0%	14%	7%	0%	0%	75%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	116	452	0	0	25
Turn Type		Prot	NA			NA
Protected Phases		5	1			1
Permitted Phases						
Detector Phase		5	1			1
Switch Phase						
Minimum Initial (s)		10.0	20.0			20.0
Minimum Split (s)		25.0	65.0			65.0
Total Split (s)		25.0	65.0			65.0
Total Split (%)		27.8%	72.2%			72.2%
Maximum Green (s)		21.0	61.0			61.0
Yellow Time (s)		3.0	3.0			3.0
All-Red Time (s)		1.0	1.0			1.0
Lost Time Adjust (s)		0.0	0.0			0.0
Total Lost Time (s)		4.0	4.0			4.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)		2.0	4.0			4.0
Recall Mode		None	C-Max			C-Max
Walk Time (s)		13.0	54.0			54.0
Flash Dont Walk (s)		8.0	7.0			7.0
Pedestrian Calls (#/hr)		29	0			0
Act Effct Green (s)		14.4	71.2			71.2
Actuated g/C Ratio		0.16	0.79			0.79
v/c Ratio		0.19	0.14			0.03
Control Delay		0.7	3.6			4.3
Queue Delay		0.0	0.0			0.0
Total Delay		0.7	3.6			4.3
LOS		A	A			A
Approach Delay	0.7		3.6			4.3
Approach LOS	A		A			A
Queue Length 50th (ft)		0	15			2
Queue Length 95th (ft)		0	41			11
Internal Link Dist (ft)	337		355			214
Turn Bay Length (ft)						
Base Capacity (vph)		667	3336			773
Starvation Cap Reductn		0	0			0
Spillback Cap Reductn		0	0			0
Storage Cap Reductn		0	0			0
Reduced v/c Ratio		0.17	0.14			0.03

**Intersection Summary**

Area Type: CBD  
 Cycle Length: 90  
 Actuated Cycle Length: 90  
 Offset: 46 (51%), Referenced to phase 1:NBSB, Start of Green  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.19  
 Intersection Signal Delay: 3.0  
 Intersection Capacity Utilization 31.7%  
 Analysis Period (min) 15  
 Intersection LOS: A  
 ICU Level of Service A

Splits and Phases: 6: Washington Street & Traveler Street



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	Ø2
Lane Configurations					↕				↕				↕		
Traffic Volume (vph)	0	0	0	34	13	38	9	35	289	171	11	196	398	14	
Future Volume (vph)	0	0	0	34	13	38	9	35	289	171	11	196	398	14	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	10	10	10	12	12	12	12	12	12	12	12	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
Ped Bike Factor					0.99				0.99				1.00		
Frt					0.940				0.949				0.997		
Flt Protected					0.980				0.996				0.984		
Satd. Flow (prot)	0	0	0	0	1444	0	0	0	2957	0	0	0	2905	0	
Flt Permitted					0.980				0.845				0.647		
Satd. Flow (perm)	0	0	0	0	1444	0	0	0	2509	0	0	0	1910	0	
Right Turn on Red			Yes			Yes				No				No	
Satd. Flow (RTOR)					48										
Link Speed (mph)		30			30				30				30		
Link Distance (ft)		417			550				388				371		
Travel Time (s)		9.5			12.5				8.8				8.4		
Confl. Bikes (#/hr)						1				4					2
Peak Hour Factor	0.92	0.92	0.92	0.65	0.65	0.65	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	
Heavy Vehicles (%)	0%	0%	0%	3%	0%	0%	0%	12%	2%	3%	0%	2%	3%	71%	
Parking (#/hr)													0		0
Shared Lane Traffic (%)															
Lane Group Flow (vph)	0	0	0	0	130	0	0	0	536	0	0	0	659	0	
Turn Type				Split	NA		Perm	Perm	NA		Perm	Perm	NA		
Protected Phases				3	3				1				1		2
Permitted Phases							1	1			1	1			
Detector Phase				3	3		1	1	1		1	1	1		
Switch Phase															
Minimum Initial (s)				5.0	5.0		8.0	8.0	8.0		8.0	8.0	8.0		1.0
Minimum Split (s)				11.0	11.0		14.0	14.0	14.0		14.0	14.0	14.0		23.0
Total Split (s)				25.0	25.0		32.0	32.0	32.0		32.0	32.0	32.0		23.0
Total Split (%)				31.3%	31.3%		40.0%	40.0%	40.0%		40.0%	40.0%	40.0%		29%
Maximum Green (s)				19.0	19.0		26.0	26.0	26.0		26.0	26.0	26.0		17.0
Yellow Time (s)				3.0	3.0		3.0	3.0	3.0		3.0	3.0	3.0		2.0
All-Red Time (s)				3.0	3.0		3.0	3.0	3.0		3.0	3.0	3.0		4.0
Lost Time Adjust (s)					-1.0				0.0				0.0		
Total Lost Time (s)					5.0				6.0				6.0		
Lead/Lag							Lead	Lead	Lead		Lead	Lead	Lead		Lag
Lead-Lag Optimize?															
Vehicle Extension (s)				2.0	2.0		2.0	2.0	2.0		2.0	2.0	2.0		2.0
Recall Mode				None	None		C-Max	C-Max	C-Max		C-Max	C-Max	C-Max		None
Walk Time (s)															7.0
Flash Dont Walk (s)															10.0
Pedestrian Calls (#/hr)															187
Act Effct Green (s)					10.4				37.8				37.8		
Actuated g/C Ratio					0.13				0.47				0.47		
v/c Ratio					0.57				0.45				0.73		
Control Delay					30.3				17.4				25.7		
Queue Delay					0.0				0.0				0.0		
Total Delay					30.3				17.4				25.7		
LOS					C				B				C		
Approach Delay					30.3				17.4				25.7		
Approach LOS					C				B				C		
Queue Length 50th (ft)					39				94				138		
Queue Length 95th (ft)					52				158				#271		
Internal Link Dist (ft)		337			470				308				291		
Turn Bay Length (ft)															
Base Capacity (vph)					397				1186				903		
Starvation Cap Reductn					0				0				0		
Spillback Cap Reductn					0				0				0		
Storage Cap Reductn					0				0				0		
Reduced v/c Ratio					0.33				0.45				0.73		

Intersection Summary

Area Type: CBD  
 Cycle Length: 80  
 Actuated Cycle Length: 80  
 Offset: 2 (3%), Referenced to phase 1:NBSB, Start of Green  
 Natural Cycle: 65  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.73  
 Intersection Signal Delay: 22.8  
 Intersection Capacity Utilization 55.4%  
 Intersection LOS: C  
 ICU Level of Service B  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 9: Harrison Avenue & Traveler Street



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations		↕								↕	↕↔		
Traffic Volume (vph)	0	335	43	0	0	0	0	0	0	940	801	69	
Future Volume (vph)	0	335	43	0	0	0	0	0	0	940	801	69	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	0.95	
Ped Bike Factor		1.00									1.00		
Frt		0.985									0.991		
Flt Protected										0.950	0.986		
Satd. Flow (prot)	0	1615	0	0	0	0	0	0	0	1478	3025	0	
Flt Permitted										0.950	0.986		
Satd. Flow (perm)	0	1615	0	0	0	0	0	0	0	1478	3025	0	
Right Turn on Red			No			No			No	No		No	
Satd. Flow (RTOR)													
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		550			284			404			742		
Travel Time (s)		12.5			6.5			9.2			16.9		
Confl. Peds. (#/hr)													35
Confl. Bikes (#/hr)			3										1
Peak Hour Factor	0.87	0.87	0.87	0.92	0.92	0.92	0.92	0.92	0.92	0.95	0.95	0.95	
Heavy Vehicles (%)	0%	4%	5%	0%	0%	0%	0%	0%	0%	0%	0%	4%	
Shared Lane Traffic (%)										37%			
Lane Group Flow (vph)	0	434	0	0	0	0	0	0	0	623	1282	0	
Turn Type		NA								Perm	NA		
Protected Phases		5									1		2
Permitted Phases										1			
Detector Phase		5								1	1		
Switch Phase													
Minimum Initial (s)		8.0								10.0	10.0		1.0
Minimum Split (s)		13.0								62.0	62.0		23.0
Total Split (s)		25.0								62.0	62.0		23.0
Total Split (%)		22.7%								56.4%	56.4%		21%
Maximum Green (s)		20.0								57.0	57.0		17.0
Yellow Time (s)		4.0								4.0	4.0		2.0
All-Red Time (s)		1.0								1.0	1.0		4.0
Lost Time Adjust (s)		-1.0								-1.0	-1.0		
Total Lost Time (s)		4.0								4.0	4.0		
Lead/Lag										Lead	Lead		Lag
Lead-Lag Optimize?										Yes	Yes		Yes
Vehicle Extension (s)		2.0								2.0	2.0		0.2
Recall Mode		None								C-Max	C-Max		None
Walk Time (s)										45.0	45.0		7.0
Flash Dont Walk (s)										12.0	12.0		10.0
Pedestrian Calls (#/hr)										0	0		90
Act Effct Green (s)		21.0								62.6	62.6		
Actuated g/C Ratio		0.19								0.57	0.57		
v/c Ratio		1.41								0.74	0.74		
Control Delay		237.2								26.5	22.8		
Queue Delay		1.9								0.2	0.1		
Total Delay		239.1								26.8	22.9		
LOS		F								C	C		
Approach Delay		239.1									24.2		
Approach LOS		F									C		
Queue Length 50th (ft)		-412								378	390		
Queue Length 95th (ft)		#580								568	493		
Internal Link Dist (ft)		470			204			324			662		
Turn Bay Length (ft)													
Base Capacity (vph)		308								841	1721		
Starvation Cap Reductn		0								0	0		
Spillback Cap Reductn		43								22	45		
Storage Cap Reductn		0								0	0		
Reduced v/c Ratio		1.64								0.76	0.76		

Intersection Summary

Area Type: CBD  
 Cycle Length: 110  
 Actuated Cycle Length: 110  
 Offset: 0 (0%), Referenced to phase 1:SBTL, Start of Green  
 Natural Cycle: 120  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.41  
 Intersection Signal Delay: 64.1 Intersection LOS: E  
 Intersection Capacity Utilization 76.7% ICU Level of Service D  
 Analysis Period (min) 15  
 - Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 10: Albany Street & Traveler Street



Lane Group	EBL2	EBL	EBT	WBR	WBR2	NBL	NBT	NBR
Lane Configurations								
Traffic Volume (vph)	76	231	968	194	458	288	582	40
Future Volume (vph)	76	231	968	194	458	288	582	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	14	12	13	12	12	12	12
Storage Length (ft)		0		0		200		0
Storage Lanes		1		2		2		0
Taper Length (ft)		25				100		
Lane Util. Factor	0.95	1.00	0.95	0.88	1.00	0.97	0.91	0.91
Ped Bike Factor							1.00	
Frt				0.850	0.850			
Flt Protected		0.950				0.950		
Satd. Flow (prot)	0	1690	3154	1291	1454	3090	4567	0
Flt Permitted		0.950				0.950		
Satd. Flow (perm)	0	1690	3154	1291	1454	3090	4567	0
Right Turn on Red	No			No				No
Satd. Flow (RTOR)								
Link Speed (mph)			30				30	
Link Distance (ft)			284				410	
Travel Time (s)			6.5				9.3	
Confl. Peds. (#/hr)								11
Peak Hour Factor	0.89	0.89	0.89	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	1%	3%	3%	4%	0%	2%	2%	3%
Shared Lane Traffic (%)					29%			
Lane Group Flow (vph)	0	345	1088	371	369	327	706	0
Turn Type	Prot	Prot	NA	Perm	Prot	Split	NA	
Protected Phases	2	2	2.5		5	1	1	
Permitted Phases				5				
Detector Phase	2	2	2.5	5	5	1	1	
Switch Phase								
Minimum Initial (s)	8.0	8.0		8.0	8.0	10.0	10.0	
Minimum Split (s)	32.0	32.0		13.5	13.5	36.0	36.0	
Total Split (s)	32.0	32.0		42.0	42.0	36.0	36.0	
Total Split (%)	29.1%	29.1%		38.2%	38.2%	32.7%	32.7%	
Maximum Green (s)	25.0	25.0		36.5	36.5	30.5	30.5	
Yellow Time (s)	3.5	3.5		4.5	4.5	4.5	4.5	
All-Red Time (s)	3.5	3.5		1.0	1.0	1.0	1.0	
Lost Time Adjust (s)		-2.0		-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)		5.0		3.5	3.5	3.5	3.5	
Lead/Lag								
Lead-Lag Optimize?								
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	2.0	
Recall Mode	None	None		None	None	C-Max	C-Max	
Walk Time (s)	7.0	7.0				9.5	9.5	
Flash Dont Walk (s)	18.0	18.0				21.0	21.0	
Pedestrian Calls (#/hr)	94	94				0	0	
Act Effct Green (s)		27.0	66.8	36.3	36.3	34.7	34.7	
Actuated g/C Ratio		0.25	0.61	0.33	0.33	0.32	0.32	
v/c Ratio		0.83	0.57	0.87	0.77	0.34	0.49	
Control Delay		53.8	8.0	56.1	44.6	34.2	36.3	
Queue Delay		54.1	2.7	0.0	0.0	0.0	0.0	
Total Delay		107.9	10.8	56.1	44.6	34.2	36.3	
LOS		F	B	E	D	C	D	
Approach Delay			34.1				35.7	
Approach LOS			C				D	
Queue Length 50th (ft)		211	64	269	225	123	192	
Queue Length 95th (ft)		m267	m114	#435	330	m78	m120	
Internal Link Dist (ft)			204				330	
Turn Bay Length (ft)						200		
Base Capacity (vph)		414	1978	451	508	973	1439	
Starvation Cap Reductn		120	743	0	0	0	0	
Spillback Cap Reductn		0	0	0	0	0	0	
Storage Cap Reductn		0	0	0	0	0	0	
Reduced v/c Ratio		1.17	0.88	0.82	0.73	0.34	0.49	

**Intersection Summary**

Area Type: CBD  
 Cycle Length: 110  
 Actuated Cycle Length: 110  
 Offset: 49 (45%), Referenced to phase 1:NBT, Start of Green  
 Natural Cycle: 95  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.87  
 Intersection Signal Delay: 38.4 Intersection LOS: D  
 Intersection Capacity Utilization 79.0% ICU Level of Service D  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.

**Splits and Phases: 12: Frontage Road & Traveler Street/Broadway Bridge & I-90 WB Ramp**

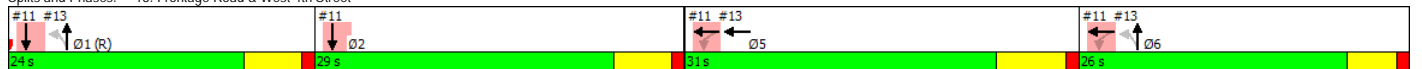


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø1	Ø2	Ø6
Lane Configurations					↑↑↑		↑	↑↑							
Traffic Volume (vph)	0	0	0	0	538	833	386	77	688	0	0	0			
Future Volume (vph)	0	0	0	0	538	833	386	77	688	0	0	0			
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900			
Lane Util. Factor	1.00	1.00	1.00	1.00	0.91	0.91	0.91	0.91	0.95	1.00	1.00	1.00			
Ped Bike Factor					0.97										
Frt					0.909			0.872							
Flt Protected							0.950	0.998							
Satd. Flow (prot)	0	0	0	0	4010	0	1478	2590	0	0	0	0			
Flt Permitted							0.950	0.998							
Satd. Flow (perm)	0	0	0	0	4010	0	1478	2590	0	0	0	0			
Right Turn on Red				No		No	No		No			No			
Satd. Flow (RTOR)															
Link Speed (mph)		30			30			30			30				
Link Distance (ft)		270			630			418			410				
Travel Time (s)		6.1			14.3			9.5			9.3				
Confl. Peds. (#/hr)						20									
Confl. Bikes (#/hr)						7									
Peak Hour Factor	0.92	0.92	0.92	0.87	0.87	0.87	0.92	0.92	0.92	0.92	0.92	0.92			
Heavy Vehicles (%)	0%	0%	0%	0%	5%	1%	0%	3%	5%	0%	0%	0%			
Shared Lane Traffic (%)							10%								
Lane Group Flow (vph)	0	0	0	0	1575	0	378	874	0	0	0	0			
Turn Type					NA		Perm	NA							
Protected Phases					5			1 6					1	2	6
Permitted Phases								1 6							
Detector Phase					5			1 6	1 6						
Switch Phase															
Minimum Initial (s)					8.0								10.0	7.0	8.0
Minimum Split (s)					26.5								24.0	29.0	23.0
Total Split (s)					31.0								24.0	29.0	26.0
Total Split (%)					28.2%								22%	26%	24%
Maximum Green (s)					24.5								18.5	23.5	21.0
Yellow Time (s)					5.5								4.5	4.5	4.0
All-Red Time (s)					1.0								1.0	1.0	1.0
Lost Time Adjust (s)					-1.0										
Total Lost Time (s)					5.5										
Lead/Lag					Lead								Lead	Lag	Lag
Lead-Lag Optimize?													Yes		
Vehicle Extension (s)					2.0								2.0	2.0	2.0
Recall Mode					None								C-Max	None	None
Walk Time (s)					7.0								12.5	7.0	7.0
Flash Dont Walk (s)					13.0								6.0	16.5	11.0
Pedestrian Calls (#/hr)					99								0	137	54
Act Effct Green (s)					25.5		46.5	46.5							
Actuated g/C Ratio					0.23		0.42	0.42							
v/c Ratio					2.92dr		0.61	1.35dr							
Control Delay					346.8		29.7	34.4							
Queue Delay					0.0		0.0	0.0							
Total Delay					346.8		29.7	34.4							
LOS					F		C	C							
Approach Delay					346.8			33.0							
Approach LOS					F			C							
Queue Length 50th (ft)					-598		223	289							
Queue Length 95th (ft)					#663		336	379							
Internal Link Dist (ft)		190			550			338			330				
Turn Bay Length (ft)															
Base Capacity (vph)					929		624	1094							
Starvation Cap Reductn					0		0	0							
Spillback Cap Reductn					8		0	0							
Storage Cap Reductn					0		0	0							
Reduced v/c Ratio					1.71		0.61	0.80							

Intersection Summary

Area Type: CBD  
 Cycle Length: 110  
 Actuated Cycle Length: 110  
 Offset: 52 (47%), Referenced to phase 1:SBT, Start of Green  
 Natural Cycle: 135  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.70  
 Intersection Signal Delay: 207.8 Intersection LOS: F  
 Intersection Capacity Utilization 80.4% ICU Level of Service D  
 Analysis Period (min) 15  
 - Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Splits and Phases: 13: Frontage Road & West 4th Street

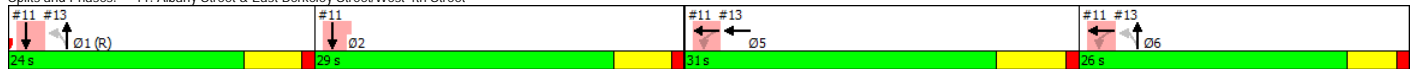


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø1	Ø2	Ø5	Ø6
Lane Configurations				↘	↗						↗	↘				
Traffic Volume (vph)	0	0	0	187	737	0	0	0	0	0	642	202				
Future Volume (vph)	0	0	0	187	737	0	0	0	0	0	642	202				
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900				
Lane Width (ft)	12	12	12	12	13	12	12	12	12	12	12	12				
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	0.91	0.91				
Ped Bike Factor				0.91							0.99	0.91				
Frt											0.964					
Flt Protected				0.950												
Satd. Flow (prot)	0	0	0	1547	3197	0	0	0	0	0	4317	0				
Flt Permitted				0.950												
Satd. Flow (perm)	0	0	0	1409	3197	0	0	0	0	0	4317	0				
Right Turn on Red			No	No		No			No		No	No				
Satd. Flow (RTOR)																
Link Speed (mph)		30			30			30			30					
Link Distance (ft)		514			270			454			404					
Travel Time (s)		11.7			6.1			10.3			9.2					
Confl. Peds. (#/hr)				54								27				
Confl. Bikes (#/hr)												1				
Peak Hour Factor	0.92	0.92	0.92	0.93	0.93	0.93	0.92	0.92	0.92	0.93	0.93	0.93				
Heavy Vehicles (%)	0%	0%	0%	5%	5%	0%	0%	0%	0%	0%	3%	2%				
Shared Lane Traffic (%)																
Lane Group Flow (vph)	0	0	0	201	792	0	0	0	0	0	907	0				
Turn Type				Perm	NA						NA					
Protected Phases					5 6						12		1	2	5	6
Permitted Phases				5 6												
Detector Phase				5 6	5 6						12					
Switch Phase																
Minimum Initial (s)													10.0	7.0	8.0	8.0
Minimum Split (s)													24.0	29.0	26.5	23.0
Total Split (s)													24.0	29.0	31.0	26.0
Total Split (%)													22%	26%	28%	24%
Maximum Green (s)													18.5	23.5	24.5	21.0
Yellow Time (s)													4.5	4.5	5.5	4.0
All-Red Time (s)													1.0	1.0	1.0	1.0
Lost Time Adjust (s)																
Total Lost Time (s)																
Lead/Lag													Lead	Lag	Lead	Lag
Lead-Lag Optimize?													Yes			
Vehicle Extension (s)													2.0	2.0	2.0	2.0
Recall Mode													C-Max	None	None	None
Walk Time (s)													12.5	7.0	7.0	7.0
Flash Dont Walk (s)													6.0	16.5	13.0	11.0
Pedestrian Calls (#/hr)													0	137	99	54
Act Effct Green (s)				51.5	51.5						49.5					
Actuated g/C Ratio				0.47	0.47						0.45					
v/c Ratio				0.31	0.53						0.47					
Control Delay				10.3	10.3						29.5					
Queue Delay				2.7	17.4						1.2					
Total Delay				13.1	27.7						30.7					
LOS				B	C						C					
Approach Delay					24.8						30.7					
Approach LOS					C						C					
Queue Length 50th (ft)				31	64						247					
Queue Length 95th (ft)				m37	m68						m286					
Internal Link Dist (ft)		434			190			374			324					
Turn Bay Length (ft)																
Base Capacity (vph)				659	1496						1942					
Starvation Cap Reductn				347	705						751					
Spillback Cap Reductn				0	0						0					
Storage Cap Reductn				0	0						0					
Reduced v/c Ratio				0.64	1.00						0.76					

Intersection Summary

Area Type: CBD  
 Cycle Length: 110  
 Actuated Cycle Length: 110  
 Offset: 52 (47%), Referenced to phase 1:SBT, Start of Green  
 Natural Cycle: 135  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.70  
 Intersection Signal Delay: 27.6  
 Intersection LOS: C  
 Intersection Capacity Utilization 90.5%  
 ICU Level of Service E  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 11: Albany Street & East Berkeley Street/West 4th Street





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR	Ø2
Lane Configurations					↕↕↕			↕				↕	↕	
Traffic Volume (vph)	0	0	0	144	655	140	79	362	0	2	0	310	131	
Future Volume (vph)	0	0	0	144	655	140	79	362	0	2	0	310	131	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	15	11	11	12	14	12	12	12	12	16	
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor					0.98			0.99						0.81
Frt					0.978									0.850
Flt Protected					0.992			0.991						
Satd. Flow (prot)	0	0	0	0	4073	0	0	1579	0	0	0	1677	1426	
Flt Permitted					0.992			0.727					0.998	
Satd. Flow (perm)	0	0	0	0	3996	0	0	1144	0	0	0	1673	1150	
Right Turn on Red			Yes			Yes			Yes					Yes
Satd. Flow (RTOR)					30									147
Link Speed (mph)		30			30			30				30		
Link Distance (ft)		475			514			1333				388		
Travel Time (s)		10.8			11.7			30.3				8.8		
Confl. Peds. (#/hr)				78			92							92
Confl. Bikes (#/hr)						5								3
Peak Hour Factor	0.92	0.92	0.92	0.94	0.94	0.94	0.86	0.86	0.86	0.89	0.89	0.89	0.89	
Heavy Vehicles (%)	0%	0%	0%	2%	5%	4%	3%	3%	0%	0%	0%	2%	4%	
Bus Blockages (#/hr)	0	0	0	0	20	20	0	0	0	0	0	0	0	
Parking (#/hr)				0			0	0						
Shared Lane Traffic (%)														
Lane Group Flow (vph)	0	0	0	0	999	0	0	513	0	0	0	350	147	
Turn Type				Perm	NA		Perm	NA		Perm		NA	Perm	
Protected Phases					1			5				5		2
Permitted Phases					1			5				5		
Detector Phase				1	1			5	5			5	5	
Switch Phase														
Minimum Initial (s)				8.0	8.0		8.0	8.0		8.0		8.0	8.0	1.0
Minimum Split (s)				44.0	44.0		22.0	22.0		22.0		22.0	22.0	22.0
Total Split (s)				44.0	44.0		54.0	54.0		54.0		54.0	54.0	22.0
Total Split (%)				36.7%	36.7%		45.0%	45.0%		45.0%		45.0%	45.0%	18%
Maximum Green (s)				38.0	38.0		50.0	50.0		50.0		50.0	50.0	16.0
Yellow Time (s)				3.0	3.0		3.0	3.0		3.0		3.0	3.0	2.0
All-Red Time (s)				3.0	3.0		1.0	1.0		1.0		1.0	1.0	4.0
Lost Time Adjust (s)					0.0			0.0				0.0	0.0	
Total Lost Time (s)					6.0			4.0				4.0	4.0	
Lead/Lag				Lead	Lead									Lag
Lead-Lag Optimize?				Yes	Yes									Yes
Vehicle Extension (s)				2.0	2.0		2.0	2.0		2.0		2.0	2.0	0.2
Recall Mode				C-Max	C-Max		None	None		None		None	None	None
Walk Time (s)				30.0	30.0		7.0	7.0		7.0		7.0	7.0	7.0
Flash Dont Walk (s)				8.0	8.0		11.0	11.0		11.0		11.0	11.0	9.0
Pedestrian Calls (#/hr)				0	0		207	207		207		207	207	351
Act Effct Green (s)					38.0			50.0				50.0	50.0	
Actuated g/C Ratio					0.32			0.42				0.42	0.42	
v/c Ratio					0.78			1.08				0.50	0.26	
Control Delay					41.0			98.3				28.9	4.7	
Queue Delay					0.0			0.0				3.8	0.0	
Total Delay					41.0			98.3				32.8	4.7	
LOS					D			F				C	A	
Approach Delay					41.0			98.3				24.5		
Approach LOS					D			F				C		
Queue Length 50th (ft)					249			-443				197	0	
Queue Length 95th (ft)					305			#610				284	39	
Internal Link Dist (ft)		395			434			1253				308		
Turn Bay Length (ft)														
Base Capacity (vph)					1285			476				697	564	
Starvation Cap Reductn					0			0				258	0	
Spillback Cap Reductn					0			0				0	0	
Storage Cap Reductn					0			0				0	0	
Reduced v/c Ratio					0.78			1.08				0.80	0.26	

Intersection Summary

Area Type: CBD  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 96 (80%), Referenced to phase 1:WBT, Start of Green  
 Natural Cycle: 120  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.08  
 Intersection Signal Delay: 51.5  
 Intersection LOS: D  
 Intersection Capacity Utilization 76.7%  
 ICU Level of Service D  
 Analysis Period (min) 15  
 - Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 17: Harrison Avenue & East Berkeley Street



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕↕↕		↕	↕↕			↕	
Traffic Volume (vph)	0	0	0	117	657	91	103	325	0	0	20	0
Future Volume (vph)	0	0	0	117	657	91	103	325	0	0	20	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	11	11	11	10	13	12	12	12	12
Storage Length (ft)	0	0	0	0	0	0	70	0	0	0	0	0
Storage Lanes	0	0	0	0	0	0	1	0	0	0	0	0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	0.91	1.00	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor					0.94		0.91					
Frt					0.984							
Flt Protected					0.993		0.950					
Satd. Flow (prot)	0	0	0	0	4086	0	1516	3109	0	0	983	0
Flt Permitted					0.993		0.741					
Satd. Flow (perm)	0	0	0	0	3931	0	1080	3109	0	0	983	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					32							
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		323			475			819			435	
Travel Time (s)		7.3			10.8			18.6			9.9	
Confl. Peds. (#/hr)				155		91	87					
Confl. Bikes (#/hr)						5						
Peak Hour Factor	0.92	0.92	0.92	0.97	0.97	0.97	0.96	0.96	0.96	0.79	0.79	0.79
Heavy Vehicles (%)	0%	0%	0%	4%	4%	9%	0%	8%	0%	0%	74%	0%
Bus Blockages (#/hr)	0	0	0	0	10	0	0	0	0	0	0	0
Parking (#/hr)									0			
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	892	0	107	339	0	0	25	0
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					5			1				1
Permitted Phases					5			1				
Detector Phase					5	5		1	1			1
Switch Phase												
Minimum Initial (s)				8.0	8.0		8.0	8.0			8.0	
Minimum Split (s)				26.0	26.0		40.0	40.0			40.0	
Total Split (s)				80.0	80.0		40.0	40.0			40.0	
Total Split (%)				66.7%	66.7%		33.3%	33.3%			33.3%	
Maximum Green (s)				74.0	74.0		35.0	35.0			35.0	
Yellow Time (s)				3.0	3.0		3.0	3.0			3.0	
All-Red Time (s)				3.0	3.0		2.0	2.0			2.0	
Lost Time Adjust (s)					0.0		0.0	0.0			0.0	
Total Lost Time (s)					6.0		5.0	5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)				2.0	2.0		2.0	2.0			2.0	
Recall Mode				None	None		C-Max	C-Max			C-Max	
Walk Time (s)				8.0	8.0		30.0	30.0			30.0	
Flash Dont Walk (s)				12.0	12.0		5.0	5.0			5.0	
Pedestrian Calls (#/hr)				246	246		0	0			0	
Act Effct Green (s)				34.2	34.2		74.8	74.8			74.8	
Actuated g/C Ratio				0.28	0.28		0.62	0.62			0.62	
v/c Ratio				0.78	0.78		0.16	0.18			0.04	
Control Delay				63.9	63.9		11.7	10.8			11.1	
Queue Delay				0.0	0.0		0.0	0.0			0.0	
Total Delay				63.9	63.9		11.7	10.8			11.1	
LOS				E	E		B	B			B	
Approach Delay				63.9	63.9		11.0	11.0			11.1	
Approach LOS				E	E		B	B			B	
Queue Length 50th (ft)				253	253		33	54			7	
Queue Length 95th (ft)				m238	m238		72	93			19	
Internal Link Dist (ft)		243		395	395		739	739			355	
Turn Bay Length (ft)							70	70				
Base Capacity (vph)				2436	2436		673	1937			612	
Starvation Cap Reductn				0	0		0	0			0	
Spillback Cap Reductn				0	0		0	0			0	
Storage Cap Reductn				0	0		0	0			0	
Reduced v/c Ratio				0.37	0.37		0.16	0.18			0.04	

Intersection Summary

Area Type: CBD  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 32 (27%), Referenced to phase 1:NBSB, Start of Green  
 Natural Cycle: 70  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.78  
 Intersection Signal Delay: 45.6  
 Intersection Capacity Utilization 41.8%  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 16: Washington Street & East Berkeley Street

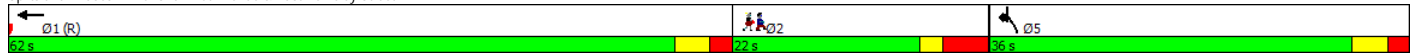


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations					↑↑↑		↓					↑	
Traffic Volume (vph)	0	0	0	0	760	0	66	0	0	0	0	190	
Future Volume (vph)	0	0	0	0	760	0	66	0	0	0	0	190	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor													0.865
Fit Protected							0.950						
Satd. Flow (prot)	0	0	0	0	4532	0	1593	0	0	0	0	1465	
Fit Permitted							0.950						
Satd. Flow (perm)	0	0	0	0	4532	0	1593	0	0	0	0	1465	
Right Turn on Red				Yes		Yes	Yes		Yes			Yes	
Satd. Flow (RTOR)							338					338	
Link Speed (mph)		30			30			30				30	
Link Distance (ft)		829			323			598				590	
Travel Time (s)		18.8			7.3			13.6				13.4	
Confl. Bikes (#/hr)													4
Peak Hour Factor	0.92	0.92	0.92	0.98	0.98	0.98	0.84	0.84	0.84	0.93	0.93	0.93	
Heavy Vehicles (%)	0%	0%	0%	0%	3%	0%	2%	0%	0%	0%	0%	0%	1%
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	0	0	0	776	0	79	0	0	0	0	204	
Turn Type					NA		Prot					Prot	
Protected Phases					1		5!					5!	2
Permitted Phases													
Detector Phase					1		5					5	
Switch Phase													
Minimum Initial (s)					8.0		8.0					8.0	1.0
Minimum Split (s)					62.0		20.0					20.0	22.0
Total Split (s)					62.0		36.0					36.0	22.0
Total Split (%)					51.7%		30.0%					30.0%	18%
Maximum Green (s)					57.0		31.0					31.0	16.0
Yellow Time (s)					3.0		3.0					3.0	2.0
All-Red Time (s)					2.0		2.0					2.0	4.0
Lost Time Adjust (s)					0.0		0.0					0.0	
Total Lost Time (s)					5.0		5.0					5.0	
Lead/Lag					Lead								Lag
Lead-Lag Optimize?													
Vehicle Extension (s)					2.0		2.0					2.0	0.2
Recall Mode					C-Max		None					None	None
Walk Time (s)					47.0		8.0					8.0	7.0
Flash Dont Walk (s)					10.0		7.0					7.0	9.0
Pedestrian Calls (#/hr)					0		51					51	237
Act Effct Green (s)					74.4		13.6					13.6	
Actuated g/C Ratio					0.62		0.11					0.11	
v/c Ratio					0.28		0.16					0.44	
Control Delay					2.3		0.7					3.0	
Queue Delay					0.6		0.0					0.0	
Total Delay					2.9		0.7					3.0	
LOS					A		A					A	
Approach Delay					2.9		0.7				3.0		
Approach LOS					A		A				A		
Queue Length 50th (ft)					13		0					0	
Queue Length 95th (ft)					15		0					0	
Internal Link Dist (ft)		749			243			518				510	
Turn Bay Length (ft)													
Base Capacity (vph)					2809		662					629	
Starvation Cap Reductn					1526		0					0	
Spillback Cap Reductn					0		0					0	
Storage Cap Reductn					0		0					0	
Reduced v/c Ratio					0.60		0.12					0.32	

Intersection Summary

Area Type: CBD  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 98 (82%), Referenced to phase 1:WBT, Start of Green  
 Natural Cycle: 105  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.44  
 Intersection Signal Delay: 2.7  
 Intersection Capacity Utilization 45.1%  
 Analysis Period (min) 15  
 ! Phase conflict between lane groups.

Splits and Phases: 15: Shawmut Avenue & East Berkeley Street



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations	↘		↗	↘	↗		↘	↗		↘	↗		
Traffic Volume (vph)	26	0	18	308	503	175	131	324	0	0	341	76	
Future Volume (vph)	26	0	18	308	503	175	131	324	0	0	341	76	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	1.00	1.00	0.95	0.95	
Ped Bike Factor					1.00			0.99					
Frt			0.850		0.961						0.973		
Flt Protected	0.950			0.950				0.986					
Satd. Flow (prot)	1624	0	1454	1593	3013	0	0	3119	0	0	3021	0	
Flt Permitted	0.162			0.950				0.639					
Satd. Flow (perm)	277	0	1454	1593	3013	0	0	1999	0	0	3021	0	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)			100		43						22		
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		647			829			409			534		
Travel Time (s)		14.7			18.8			9.3			12.1		
Confl. Peds. (#/hr)							79					66	
Confl. Bikes (#/hr)						5						9	
Peak Hour Factor	0.70	0.70	0.70	0.92	0.92	0.92	0.81	0.81	0.81	0.92	0.92	0.92	
Heavy Vehicles (%)	0%	0%	0%	2%	4%	1%	2%	3%	0%	0%	3%	3%	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	37	0	26	335	737	0	0	562	0	0	454	0	
Turn Type	D,Pm		Perm	Perm	NA		pm+pt	NA			NA		
Protected Phases					5		6	1 6			1		2
Permitted Phases	5		5	5			1 6						
Detector Phase	5		5	5	5		6	1 6			1		
Switch Phase													
Minimum Initial (s)	5.0		5.0	5.0	5.0		4.0				10.0		1.0
Minimum Split (s)	9.0		9.0	9.0	9.0		8.0				38.0		25.0
Total Split (s)	44.0		44.0	44.0	44.0		13.0				38.0		25.0
Total Split (%)	36.7%		36.7%	36.7%	36.7%		10.8%				31.7%		21%
Maximum Green (s)	40.0		40.0	40.0	40.0		9.0				34.0		19.0
Yellow Time (s)	3.0		3.0	3.0	3.0		3.0				3.0		2.0
All-Red Time (s)	1.0		1.0	1.0	1.0		1.0				1.0		4.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0						0.0		
Total Lost Time (s)	4.0		4.0	4.0	4.0						4.0		
Lead/Lag											Lead		Lag
Lead-Lag Optimize?													
Vehicle Extension (s)	2.0		2.0	2.0	2.0		2.0				2.0		0.2
Recall Mode	None		None	None	None		None				C-Max		None
Walk Time (s)											28.0		8.0
Flash Dont Walk (s)											6.0		11.0
Pedestrian Calls (#/hr)											0		212
Act Effct Green (s)	34.5		34.5	34.5	34.5		48.5				39.5		
Actuated g/C Ratio	0.29		0.29	0.29	0.29		0.40				0.33		
v/c Ratio	0.47		0.05	0.73	0.82		0.63				0.45		
Control Delay	54.1		0.2	46.1	43.5		30.1				32.9		
Queue Delay	0.0		0.0	0.0	0.0		0.0				0.0		
Total Delay	54.1		0.2	46.1	43.5		30.1				32.9		
LOS	D		A	D	D		C				C		
Approach Delay		31.9			44.3		30.1				32.9		
Approach LOS		C			D		C				C		
Queue Length 50th (ft)	23		0	263	293		156				140		
Queue Length 95th (ft)	43		0	360	360		193				202		
Internal Link Dist (ft)		567			749		329				454		
Turn Bay Length (ft)													
Base Capacity (vph)	92		551	531	1033		892				1009		
Starvation Cap Reductn	0		0	0	0		0				0		
Spillback Cap Reductn	0		0	0	0		0				0		
Storage Cap Reductn	0		0	0	0		0				0		
Reduced v/c Ratio	0.40		0.05	0.63	0.71		0.63				0.45		

Intersection Summary

Area Type:	CBD
Cycle Length:	120
Actuated Cycle Length:	120
Offset:	75 (63%), Referenced to phase 1:NBSB, Start of Green
Natural Cycle:	90
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.82
Intersection Signal Delay:	37.8
Intersection Capacity Utilization:	78.1%
Analysis Period (min):	15
Intersection LOS:	D
ICU Level of Service:	D

Splits and Phases: 14: Tremont Street & Berkeley Street/East Berkeley Street

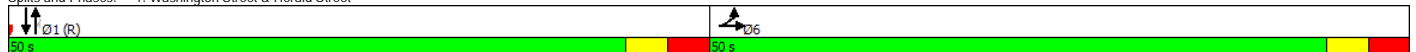


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑						↑↑	↑		↑	
Traffic Volume (vph)	87	1076	0	0	0	0	0	655	61	0	19	0
Future Volume (vph)	87	1076	0	0	0	0	0	655	61	0	19	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	12	12	12	12	11	11	12	12	12
Lane Util. Factor	0.91	0.91	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor									0.68			
Frt									0.850			
Flt Protected		0.996										
Satd. Flow (prot)	0	4238	0	0	0	0	0	2855	1405	0	905	0
Flt Permitted		0.996										
Satd. Flow (perm)	0	4238	0	0	0	0	0	2855	955	0	905	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)									33			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		323			408			147			296	
Travel Time (s)		7.3			9.3			3.3			6.7	
Confl. Peds. (#/hr)									152			
Confl. Bikes (#/hr)									17			
Peak Hour Factor	0.91	0.91	0.91	0.92	0.92	0.92	0.85	0.85	0.85	0.79	0.79	0.79
Heavy Vehicles (%)	2%	5%	0%	0%	0%	0%	7%	10%	0%	0%	89%	0%
Bus Blockages (#/hr)	0	9	9	0	0	0	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1278	0	0	0	0	0	771	72	0	24	0
Turn Type	Split	NA						NA	Perm		NA	
Protected Phases	6	6						1			1	
Permitted Phases									1			
Detector Phase	6	6						1	1		1	
Switch Phase												
Minimum Initial (s)	8.0	8.0						8.0	8.0		8.0	
Minimum Split (s)	31.0	31.0						19.0	19.0		19.0	
Total Split (s)	50.0	50.0						50.0	50.0		50.0	
Total Split (%)	50.0%	50.0%						50.0%	50.0%		50.0%	
Maximum Green (s)	44.0	44.0						44.0	44.0		44.0	
Yellow Time (s)	3.0	3.0						3.0	3.0		3.0	
All-Red Time (s)	3.0	3.0						3.0	3.0		3.0	
Lost Time Adjust (s)		-1.0						-1.0	-1.0		-1.0	
Total Lost Time (s)		5.0						5.0	5.0		5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0						2.0	2.0		2.0	
Recall Mode	Max	Max						C-Max	C-Max		C-Max	
Walk Time (s)	20.0	20.0						8.0	8.0		8.0	
Flash Dont Walk (s)	5.0	5.0						5.0	5.0		5.0	
Pedestrian Calls (#/hr)	0	0						0	0		0	
Act Effct Green (s)		45.0						45.0	45.0		45.0	
Actuated g/C Ratio		0.45						0.45	0.45		0.45	
v/c Ratio		0.67						0.60	0.16		0.06	
Control Delay		23.8						23.2	10.9		16.2	
Queue Delay		0.0						0.0	0.0		0.0	
Total Delay		23.9						23.2	10.9		16.2	
LOS		C						C	B		B	
Approach Delay		23.9						22.1			16.2	
Approach LOS		C						C			B	
Queue Length 50th (ft)		228						189	14		8	
Queue Length 95th (ft)		279						231	38		21	
Internal Link Dist (ft)		243			328			67			216	
Turn Bay Length (ft)												
Base Capacity (vph)		1907						1284	447		407	
Starvation Cap Reductn		0						0	0		0	
Spillback Cap Reductn		31						0	0		0	
Storage Cap Reductn		0						0	0		0	
Reduced v/c Ratio		0.68						0.60	0.16		0.06	

Intersection Summary

Area Type: CBD  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 69 (69%), Referenced to phase 1:NBSB, Start of Green  
 Natural Cycle: 55  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.67  
 Intersection Signal Delay: 23.1 Intersection LOS: C  
 Intersection Capacity Utilization 53.5% ICU Level of Service A  
 Analysis Period (min) 15

Splits and Phases: 1: Washington Street & Herald Street





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations		↑↑↑							↑↑	↑	↑↑		
Traffic Volume (vph)	0	963	194	0	0	0	0	0	67	110	134	0	
Future Volume (vph)	0	963	194	0	0	0	0	0	67	110	134	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	14	13	13	12	12	12	12	12	16	12	14	14	
Lane Util. Factor	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	0.88	1.00	0.95	1.00	
Ped Bike Factor		1.00											
Frt		0.975							0.850				
Flt Protected										0.950			
Satd. Flow (prot)	0	4449	0	0	0	0	0	0	2612	1464	3094	0	
Flt Permitted										0.950			
Satd. Flow (perm)	0	4449	0	0	0	0	0	0	2612	1464	3094	0	
Right Turn on Red			Yes			Yes			Yes	Yes		Yes	
Satd. Flow (RTOR)		47							755	164			
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		408			542			147			275		
Travel Time (s)		9.3			12.3			3.3			6.3		
Confl. Bikes (#/hr)			1										
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.76	0.76	0.76	0.97	0.97	0.97	
Heavy Vehicles (%)	0%	6%	3%	0%	0%	0%	0%	0%	11%	11%	12%	0%	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	1258	0	0	0	0	0	0	88	113	138	0	
Turn Type		NA							Prot	Prot	NA		
Protected Phases		1							6	5	5 6		2
Permitted Phases													
Detector Phase		1							6	5	5 6		
Switch Phase													
Minimum Initial (s)		8.0							8.0	8.0			1.0
Minimum Split (s)		14.0							13.0	13.0			31.0
Total Split (s)		41.0							14.0	14.0			31.0
Total Split (%)		41.0%							14.0%	14.0%			31%
Maximum Green (s)		35.0							9.0	9.0			24.0
Yellow Time (s)		3.0							3.0	3.0			3.0
All-Red Time (s)		3.0							2.0	2.0			4.0
Lost Time Adjust (s)		-1.0							-1.0	-1.0			
Total Lost Time (s)		5.0							4.0	4.0			
Lead/Lag		Lead							Lag	Lead			Lag
Lead-Lag Optimize?		Yes							Yes	Yes			
Vehicle Extension (s)		2.0							2.0	2.0			0.2
Recall Mode		C-Max							Max	Max			None
Walk Time (s)													7.0
Flash Dont Walk (s)													17.0
Pedestrian Calls (#/hr)													271
Act Effct Green (s)		36.0							10.0	10.0	24.0		
Actuated g/C Ratio		0.36							0.10	0.10	0.24		
v/c Ratio		0.77							0.09	0.38	0.19		
Control Delay		10.5							0.2	6.0	31.1		
Queue Delay		0.1							0.0	0.0	0.0		
Total Delay		10.6							0.2	6.0	31.1		
LOS		B							A	A	C		
Approach Delay		10.6						0.2			19.8		
Approach LOS		B						A			B		
Queue Length 50th (ft)		27							0	0	36		
Queue Length 95th (ft)		34							m0	19	63		
Internal Link Dist (ft)		328			462			67			195		
Turn Bay Length (ft)													
Base Capacity (vph)		1631							940	294	742		
Starvation Cap Reductn		25							0	0	0		
Spillback Cap Reductn		0							0	0	0		
Storage Cap Reductn		0							0	0	0		
Reduced v/c Ratio		0.78							0.09	0.38	0.19		

Intersection Summary

Area Type: CBD  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 31 (31%), Referenced to phase 1:EBT, Start of Green  
 Natural Cycle: 80  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.77  
 Intersection Signal Delay: 11.4 Intersection LOS: B  
 Intersection Capacity Utilization 49.8% ICU Level of Service A  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Harrison Avenue & Herald Street

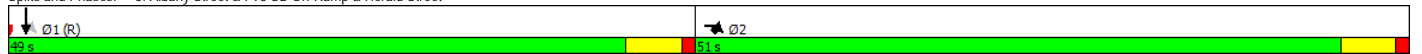


Lane Group	EBL	EBR	EBR2	NBL	NBT	NBR	SBL	SBT	SBR	NWL	NWR
Lane Configurations											
Traffic Volume (vph)	0	521	619	0	0	0	105	1027	0	0	0
Future Volume (vph)	0	521	619	0	0	0	105	1027	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.76	0.88	1.00	1.00	1.00	0.91	0.91	1.00	1.00	1.00
Frt		0.850	0.850								
Flt Protected								0.995			
Satd. Flow (prot)	0	1072	2347	0	0	0	0	2875	0	0	0
Flt Permitted								0.995			
Satd. Flow (perm)	0	1072	2347	0	0	0	0	2875	0	0	0
Right Turn on Red			No			Yes	Yes		No		Yes
Satd. Flow (RTOR)								22			
Link Speed (mph)	30				30			30		30	
Link Distance (ft)	542				742			329		393	
Travel Time (s)	12.3				16.9			7.5		8.9	
Peak Hour Factor	0.93	0.93	0.93	0.92	0.92	0.92	0.97	0.97	0.97	0.92	0.92
Heavy Vehicles (%)	0%	3%	9%	0%	0%	0%	8%	67%	0%	0%	0%
Shared Lane Traffic (%)			0%								
Lane Group Flow (vph)	0	560	666	0	0	0	0	1167	0	0	0
Turn Type		Prot	Prot				Perm	NA			
Protected Phases		2	2					1			
Permitted Phases								1			
Detector Phase		2	2					1	1		
Switch Phase											
Minimum Initial (s)		8.0	8.0				8.0	8.0			
Minimum Split (s)		23.0	23.0				23.0	23.0			
Total Split (s)		51.0	51.0				49.0	49.0			
Total Split (%)		51.0%	51.0%				49.0%	49.0%			
Maximum Green (s)		46.0	46.0				44.0	44.0			
Yellow Time (s)		4.0	4.0				4.0	4.0			
All-Red Time (s)		1.0	1.0				1.0	1.0			
Lost Time Adjust (s)		0.0	-1.0					-1.0			
Total Lost Time (s)		5.0	4.0					4.0			
Lead/Lag		Lag	Lag				Lead	Lead			
Lead-Lag Optimize?		Yes	Yes				Yes	Yes			
Vehicle Extension (s)		2.0	2.0				2.0	2.0			
Recall Mode		Max	Max				C-Max	C-Max			
Act Effct Green (s)		46.0	47.0					45.0			
Actuated g/C Ratio		0.46	0.47					0.45			
v/c Ratio		1.14	0.60					0.89			
Control Delay		94.3	5.3					35.3			
Queue Delay		0.0	0.0					0.0			
Total Delay		94.3	5.3					35.3			
LOS		F	A					D			
Approach Delay	45.9							35.3			
Approach LOS	D							D			
Queue Length 50th (ft)		-571	25					239			
Queue Length 95th (ft)		#852	31					#339			
Internal Link Dist (ft)	462				662			249		313	
Turn Bay Length (ft)											
Base Capacity (vph)		493	1103					1305			
Starvation Cap Reductn		0	0					0			
Spillback Cap Reductn		0	0					0			
Storage Cap Reductn		0	0					0			
Reduced v/c Ratio		1.14	0.60					0.89			

Intersection Summary

Area Type: CBD  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 93 (93%), Referenced to phase 1:SBTL, Start of Green  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.14  
 Intersection Signal Delay: 40.7  
 Intersection Capacity Utilization Err%  
 Analysis Period (min) 15  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 3: Albany Street & I-93 SB On-Ramp & Herald Street

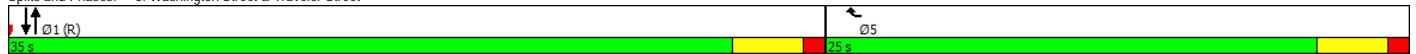


	↙	↖	↑	↗	↘	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↑	↑↑↑			↑
Traffic Volume (vph)	0	178	472	0	0	19
Future Volume (vph)	0	178	472	0	0	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	13	11	12	12	12
Lane Util. Factor	1.00	1.00	0.91	1.00	1.00	1.00
Frt		0.865				
Flt Protected						
Satd. Flow (prot)	0	1365	4102	0	0	855
Flt Permitted						
Satd. Flow (perm)	0	1365	4102	0	0	855
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		274				
Link Speed (mph)	30		30			30
Link Distance (ft)	417		435			294
Travel Time (s)	9.5		9.9			6.7
Peak Hour Factor	0.80	0.80	0.86	0.86	0.85	0.85
Heavy Vehicles (%)	0%	12%	10%	0%	0%	100%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	223	549	0	0	22
Turn Type		Prot	NA			NA
Protected Phases		5	1			1
Permitted Phases						
Detector Phase		5	1			1
Switch Phase						
Minimum Initial (s)		10.0	20.0			20.0
Minimum Split (s)		25.0	35.0			35.0
Total Split (s)		25.0	35.0			35.0
Total Split (%)		41.7%	58.3%			58.3%
Maximum Green (s)		21.0	31.0			31.0
Yellow Time (s)		3.0	3.0			3.0
All-Red Time (s)		1.0	1.0			1.0
Lost Time Adjust (s)		0.0	0.0			0.0
Total Lost Time (s)		4.0	4.0			4.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)		2.0	4.0			4.0
Recall Mode		None	C-Max			C-Max
Walk Time (s)		13.0	24.0			24.0
Flash Dont Walk (s)		8.0	7.0			7.0
Pedestrian Calls (#/hr)		20	0			0
Act Effct Green (s)		12.2	39.8			39.8
Actuated g/C Ratio		0.20	0.66			0.66
v/c Ratio		0.45	0.20			0.04
Control Delay		4.3	4.8			5.4
Queue Delay		0.0	0.0			0.0
Total Delay		4.3	4.8			5.4
LOS		A	A			A
Approach Delay	4.3		4.8			5.4
Approach LOS	A		A			A
Queue Length 50th (ft)		0	19			2
Queue Length 95th (ft)		13	52			12
Internal Link Dist (ft)	337		355			214
Turn Bay Length (ft)						
Base Capacity (vph)		655	2721			567
Starvation Cap Reductn		0	0			0
Spillback Cap Reductn		0	0			0
Storage Cap Reductn		0	0			0
Reduced v/c Ratio		0.34	0.20			0.04

Intersection Summary

Area Type: CBD  
 Cycle Length: 60  
 Actuated Cycle Length: 60  
 Offset: 38 (63%), Referenced to phase 1:NBSB, Start of Green  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.45  
 Intersection Signal Delay: 4.7  
 Intersection Capacity Utilization 35.6%  
 Analysis Period (min) 15  
 Intersection LOS: A  
 ICU Level of Service A

Splits and Phases: 6: Washington Street & Traveler Street



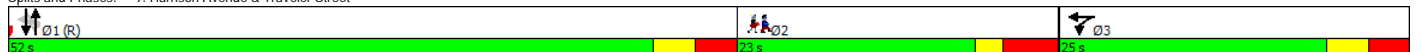


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	Ø2
Lane Configurations					↕				↕				↕		
Traffic Volume (vph)	0	0	0	47	72	76	10	102	171	108	5	78	261	24	
Future Volume (vph)	0	0	0	47	72	76	10	102	171	108	5	78	261	24	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	10	10	10	12	12	12	12	12	12	12	12	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
Ped Bike Factor					0.99				0.99				1.00		
Frt					0.947				0.958				0.990		
Flt Protected					0.988				0.986				0.989		
Satd. Flow (prot)	0	0	0	0	1425	0	0	0	2915	0	0	0	2791	0	
Flt Permitted					0.988				0.717				0.757		
Satd. Flow (perm)	0	0	0	0	1425	0	0	0	2120	0	0	0	2137	0	
Right Turn on Red			Yes			Yes				No				No	
Satd. Flow (RTOR)					29										
Link Speed (mph)		30			30				30				30		
Link Distance (ft)		417			550				388				371		
Travel Time (s)		9.5			12.5				8.8				8.4		
Confl. Bikes (#/hr)						1				5					5
Peak Hour Factor	0.92	0.92	0.92	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.94	0.94	0.94	0.94	
Heavy Vehicles (%)	0%	0%	0%	4%	9%	0%	10%	4%	5%	4%	0%	8%	5%	43%	
Parking (#/hr)													0		0
Shared Lane Traffic (%)															
Lane Group Flow (vph)	0	0	0	0	215	0	0	0	430	0	0	0	392	0	
Turn Type				Split	NA		Perm	Perm	NA		Perm	Perm	NA		
Protected Phases				3	3				1				1		2
Permitted Phases							1	1			1	1			
Detector Phase				3	3		1	1	1		1	1	1		
Switch Phase															
Minimum Initial (s)				5.0	5.0		8.0	8.0	8.0		8.0	8.0	8.0		1.0
Minimum Split (s)				11.0	11.0		14.0	14.0	14.0		14.0	14.0	14.0		23.0
Total Split (s)				25.0	25.0		52.0	52.0	52.0		52.0	52.0	52.0		23.0
Total Split (%)				25.0%	25.0%		52.0%	52.0%	52.0%		52.0%	52.0%	52.0%		23%
Maximum Green (s)				19.0	19.0		46.0	46.0	46.0		46.0	46.0	46.0		17.0
Yellow Time (s)				3.0	3.0		3.0	3.0	3.0		3.0	3.0	3.0		2.0
All-Red Time (s)				3.0	3.0		3.0	3.0	3.0		3.0	3.0	3.0		4.0
Lost Time Adjust (s)					-1.0				0.0				0.0		
Total Lost Time (s)					5.0				6.0				6.0		
Lead/Lag							Lead	Lead	Lead		Lead	Lead	Lead		Lag
Lead-Lag Optimize?															
Vehicle Extension (s)				2.0	2.0		2.0	2.0	2.0		2.0	2.0	2.0		0.2
Recall Mode				None	None		C-Max	C-Max	C-Max		C-Max	C-Max	C-Max		None
Walk Time (s)															7.0
Flash Dont Walk (s)															10.0
Pedestrian Calls (#/hr)															196
Act Effct Green (s)					17.1				48.9				48.9		
Actuated g/C Ratio					0.17				0.49				0.49		
v/c Ratio					0.80				0.42				0.38		
Control Delay					56.3				18.2				15.0		
Queue Delay					0.0				0.0				0.0		
Total Delay					56.3				18.2				15.0		
LOS					E				B				B		
Approach Delay					56.3				18.2				15.0		
Approach LOS					E				B				B		
Queue Length 50th (ft)					113				65				48		
Queue Length 95th (ft)					#211				m100				m118		
Internal Link Dist (ft)		337			470				308				291		
Turn Bay Length (ft)															
Base Capacity (vph)					308				1036				1044		
Starvation Cap Reductn					0				0				0		
Spillback Cap Reductn					0				0				0		
Storage Cap Reductn					0				0				0		
Reduced v/c Ratio					0.70				0.42				0.38		

Intersection Summary

Area Type: CBD  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 18 (18%), Referenced to phase 1:NBSB, Start of Green  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.80  
 Intersection Signal Delay: 24.9 Intersection LOS: C  
 Intersection Capacity Utilization 50.7% ICU Level of Service A  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 9: Harrison Avenue & Traveler Street





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations		↑								↑	↑↑		
Traffic Volume (vph)	0	151	35	0	0	0	0	0	0	754	697	195	
Future Volume (vph)	0	151	35	0	0	0	0	0	0	754	697	195	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	0.95	
Ped Bike Factor		1.00									0.99		
Frt		0.974									0.973		
Flt Protected										0.950	0.991		
Satd. Flow (prot)	0	1528	0	0	0	0	0	0	0	1478	2963	0	
Flt Permitted										0.950	0.991		
Satd. Flow (perm)	0	1528	0	0	0	0	0	0	0	1478	2963	0	
Right Turn on Red			No			No			No	No		No	
Satd. Flow (RTOR)													
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		550			284			404			742		
Travel Time (s)		12.5			6.5			9.2			16.9		
Confl. Peds. (#/hr)													34
Confl. Bikes (#/hr)			2										
Peak Hour Factor	0.64	0.64	0.64	0.38	0.38	0.38	0.92	0.92	0.92	0.93	0.93	0.93	
Heavy Vehicles (%)	0%	10%	3%	0%	0%	0%	0%	0%	0%	0%	0%	2%	
Shared Lane Traffic (%)										28%			
Lane Group Flow (vph)	0	291	0	0	0	0	0	0	0	584	1186	0	
Turn Type		NA								Perm	NA		
Protected Phases		5									1		2
Permitted Phases										1			
Detector Phase		5								1	1		
Switch Phase													
Minimum Initial (s)		8.0								10.0	10.0		1.0
Minimum Split (s)		13.0								67.0	67.0		23.0
Total Split (s)		30.0								67.0	67.0		23.0
Total Split (%)		25.0%								55.8%	55.8%		19%
Maximum Green (s)		25.0								62.0	62.0		17.0
Yellow Time (s)		4.0								4.0	4.0		2.0
All-Red Time (s)		1.0								1.0	1.0		4.0
Lost Time Adjust (s)		-1.0								-1.0	-1.0		
Total Lost Time (s)		4.0								4.0	4.0		
Lead/Lag										Lead	Lead		Lag
Lead-Lag Optimize?										Yes	Yes		Yes
Vehicle Extension (s)		0.2								2.0	2.0		0.2
Recall Mode		None								C-Max	C-Max		None
Walk Time (s)										50.0	50.0		7.0
Flash Dont Walk (s)										12.0	12.0		10.0
Pedestrian Calls (#/hr)										0	0		94
Act Effct Green (s)		24.5								64.5	64.5		
Actuated g/C Ratio		0.20								0.54	0.54		
v/c Ratio		0.93								0.74	0.74		
Control Delay		83.6								28.7	25.5		
Queue Delay		0.0								1.1	0.4		
Total Delay		83.6								29.7	25.9		
LOS		F								C	C		
Approach Delay		83.6									27.2		
Approach LOS		F									C		
Queue Length 50th (ft)		220								375	384		
Queue Length 95th (ft)		214								549	480		
Internal Link Dist (ft)		470			204			324			662		
Turn Bay Length (ft)													
Base Capacity (vph)		331								794	1592		
Starvation Cap Reductn		0								0	0		
Spillback Cap Reductn		0								66	106		
Storage Cap Reductn		0								0	0		
Reduced v/c Ratio		0.88								0.80	0.80		

Intersection Summary

Area Type:	CBD
Cycle Length:	120
Actuated Cycle Length:	120
Offset:	8 (7%), Referenced to phase 1:SBLT, Start of Green
Natural Cycle:	115
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.93
Intersection Signal Delay:	35.1
Intersection LOS:	D
Intersection Capacity Utilization:	69.5%
ICU Level of Service:	C
Analysis Period (min):	15

Splits and Phases: 10: Albany Street & Traveler Street

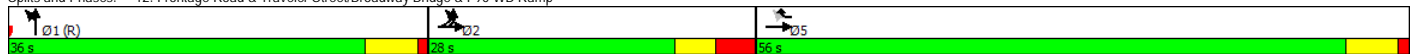


Lane Group	EBL2	EBL	EBT	WBR	WBR2	NBL	NBT	NBR
Lane Configurations								
Traffic Volume (vph)	42	207	657	347	668	249	476	34
Future Volume (vph)	42	207	657	347	668	249	476	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	14	12	13	12	12	12	12
Storage Length (ft)		0		0		200		0
Storage Lanes		1		2		2		0
Taper Length (ft)		25				100		
Lane Util. Factor	0.95	1.00	0.95	0.88	1.00	0.97	0.91	0.91
Ped Bike Factor							0.99	
Ft				0.850	0.850			
Flt Protected		0.950				0.950		
Satd. Flow (prot)	0	1575	3036	1300	1439	2789	4346	0
Flt Permitted		0.950				0.950		
Satd. Flow (perm)	0	1575	3036	1300	1439	2789	4346	0
Right Turn on Red	No				No			No
Satd. Flow (RTOR)								
Link Speed (mph)			30				30	
Link Distance (ft)			284				410	
Travel Time (s)			6.5				9.3	
Confl. Peds. (#/hr)								87
Peak Hour Factor	0.91	0.91	0.91	0.96	0.96	0.92	0.92	0.92
Heavy Vehicles (%)	10%	10%	7%	2%	1%	13%	6%	15%
Shared Lane Traffic (%)					24%			
Lane Group Flow (vph)	0	273	722	528	529	271	554	0
Turn Type	Prot	Prot	NA	Perm	Prot	Split	NA	
Protected Phases	2	2	2.5		5	1	1	
Permitted Phases				5				
Detector Phase	2	2	2.5	5	5	1	1	
Switch Phase								
Minimum Initial (s)	8.0	8.0		8.0	8.0	10.0	10.0	
Minimum Split (s)	28.0	28.0		13.5	13.5	36.0	36.0	
Total Split (s)	28.0	28.0		56.0	56.0	36.0	36.0	
Total Split (%)	23.3%	23.3%		46.7%	46.7%	30.0%	30.0%	
Maximum Green (s)	21.0	21.0		50.5	50.5	30.5	30.5	
Yellow Time (s)	3.5	3.5		4.5	4.5	4.5	4.5	
All-Red Time (s)	3.5	3.5		1.0	1.0	1.0	1.0	
Lost Time Adjust (s)		-2.0		-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)		5.0		3.5	3.5	3.5	3.5	
Lead/Lag								
Lead-Lag Optimize?								
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	2.0	
Recall Mode	None	None		None	None	C-Max	C-Max	
Walk Time (s)	7.0	7.0				9.5	9.5	
Flash Dont Walk (s)	14.0	14.0				21.0	21.0	
Pedestrian Calls (#/hr)	87	87				0	0	
Act Effct Green (s)		22.7	77.6	51.4	51.4	33.9	33.9	
Actuated g/C Ratio		0.19	0.65	0.43	0.43	0.28	0.28	
v/c Ratio		0.92	0.37	0.95	0.86	0.34	0.45	
Control Delay		60.4	14.9	61.1	46.2	10.3	10.7	
Queue Delay		29.9	6.0	0.0	0.0	0.0	0.0	
Total Delay		90.3	21.0	61.1	46.2	10.3	10.7	
LOS		F	C	E	D	B	B	
Approach Delay			40.0				10.6	
Approach LOS			D				B	
Queue Length 50th (ft)		206	222	431	358	44	70	
Queue Length 95th (ft)		m#327	m222	#692	#560	m45	m72	
Internal Link Dist (ft)			204				330	
Turn Bay Length (ft)						200		
Base Capacity (vph)		301	1973	568	629	788	1228	
Starvation Cap Reductn		40	1182	0	0	0	0	
Spillback Cap Reductn		0	0	0	0	0	0	
Storage Cap Reductn		0	0	0	0	0	0	
Reduced v/c Ratio		1.05	0.91	0.93	0.84	0.34	0.45	

Intersection Summary

Area Type: CBD  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 0 (0%), Referenced to phase 1:NBTL, Start of Green  
 Natural Cycle: 110  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.95  
 Intersection Signal Delay: 36.6 Intersection LOS: D  
 Intersection Capacity Utilization 90.8% ICU Level of Service E  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 12: Frontage Road & Traveler Street/Broadway Bridge & I-90 WB Ramp

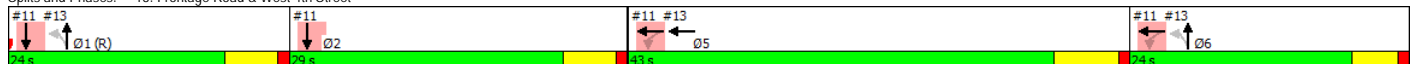


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø1	Ø2	Ø6
Lane Configurations					↑↑↑		↓	↑↑↑							
Traffic Volume (vph)	0	0	0	0	904	147	478	612	250	0	0	0			
Future Volume (vph)	0	0	0	0	904	147	478	612	250	0	0	0			
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900			
Lane Util. Factor	1.00	1.00	1.00	1.00	0.91	0.91	0.91	0.91	0.95	1.00	1.00	1.00			
Ped Bike Factor					1.00										
Frt					0.979			0.959							
Flt Protected							0.950	0.997							
Satd. Flow (prot)	0	0	0	0	4223	0	1435	2668	0	0	0	0			
Flt Permitted							0.950	0.997							
Satd. Flow (perm)	0	0	0	0	4223	0	1435	2668	0	0	0	0			
Right Turn on Red				No		No	No		No			No			
Satd. Flow (RTOR)															
Link Speed (mph)		30			30			30			30				
Link Distance (ft)		270			630			418			410				
Travel Time (s)		6.1			14.3			9.5			9.3				
Confl. Bikes (#/hr)						5									
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.91	0.91	0.91	0.92	0.92	0.92			
Heavy Vehicles (%)	0%	0%	0%	0%	8%	8%	3%	12%	12%	0%	0%	0%			
Shared Lane Traffic (%)							10%								
Lane Group Flow (vph)	0	0	0	0	1143	0	472	1001	0	0	0	0			
Turn Type					NA		Perm	NA							
Protected Phases					5			1 6					1	2	6
Permitted Phases								1 6							
Detector Phase					5			1 6	1 6						
Switch Phase															
Minimum Initial (s)						8.0							10.0	7.0	8.0
Minimum Split (s)						26.5							24.0	29.0	23.0
Total Split (s)						43.0							24.0	29.0	24.0
Total Split (%)						35.8%							20%	24%	20%
Maximum Green (s)						36.5							18.5	23.5	19.0
Yellow Time (s)						5.5							4.5	4.5	4.0
All-Red Time (s)						1.0							1.0	1.0	1.0
Lost Time Adjust (s)						-1.0									
Total Lost Time (s)						5.5									
Lead/Lag					Lead								Lead	Lag	Lag
Lead-Lag Optimize?													Yes		
Vehicle Extension (s)					2.0								2.0	2.0	2.0
Recall Mode					None								C-Max	None	None
Walk Time (s)					7.0								12.5	7.0	7.0
Flash Dont Walk (s)					13.0								6.0	16.5	11.0
Pedestrian Calls (#/hr)					98								0	100	46
Act Effct Green (s)					37.5		44.5	44.5							
Actuated g/C Ratio					0.31		0.37	0.37							
v/c Ratio					0.87		0.89	1.01							
Control Delay					47.1		55.7	69.5							
Queue Delay					9.7		0.0	0.0							
Total Delay					56.8		55.7	69.5							
LOS					E		E	E							
Approach Delay					56.8			65.1							
Approach LOS					E			E							
Queue Length 50th (ft)					305		373	-432							
Queue Length 95th (ft)					366		#593	#586							
Internal Link Dist (ft)		190			550			338			330				
Turn Bay Length (ft)															
Base Capacity (vph)					1319		532	989							
Starvation Cap Reductn					0		0	0							
Spillback Cap Reductn					164		0	0							
Storage Cap Reductn					0		0	0							
Reduced v/c Ratio					0.99		0.89	1.01							

Intersection Summary

Area Type: CBD  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 3 (3%), Referenced to phase 1:SBT, Start of Green  
 Natural Cycle: 105  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.01  
 Intersection Signal Delay: 61.5  
 Intersection Capacity Utilization 70.3%  
 Intersection LOS: E  
 ICU Level of Service C  
 Analysis Period (min) 15  
 - Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 13: Frontage Road & West 4th Street

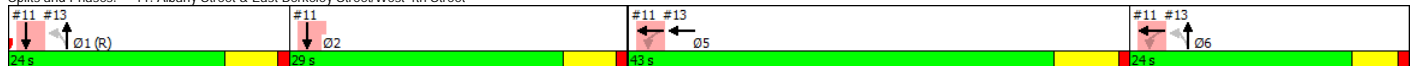


	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø1	Ø2	Ø5	Ø6
Lane Configurations				↖	↖						↗	↗				
Traffic Volume (vph)	0	0	0	220	1214	0	0	0	0	0	486	246				
Future Volume (vph)	0	0	0	220	1214	0	0	0	0	0	486	246				
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900				
Lane Width (ft)	12	12	12	12	13	12	12	12	12	12	12	12				
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	0.91	0.91				
Ped Bike Factor											0.98					
Frt											0.950					
Flt Protected				0.950												
Satd. Flow (prot)	0	0	0	1518	3167	0	0	0	0	0	4037	0				
Flt Permitted				0.950												
Satd. Flow (perm)	0	0	0	1518	3167	0	0	0	0	0	4037	0				
Right Turn on Red			No	No		No			No		No	No				
Satd. Flow (RTOR)																
Link Speed (mph)		30			30			30			30					
Link Distance (ft)		514			270			454			404					
Travel Time (s)		11.7			6.1			10.3			9.2					
Confl. Peds. (#/hr)												29				
Confl. Bikes (#/hr)												2				
Peak Hour Factor	0.92	0.92	0.92	0.93	0.93	0.93	0.92	0.92	0.92	0.87	0.87	0.87				
Heavy Vehicles (%)	0%	0%	0%	7%	6%	0%	0%	0%	0%	0%	8%	6%				
Shared Lane Traffic (%)																
Lane Group Flow (vph)	0	0	0	237	1305	0	0	0	0	0	842	0				
Turn Type				Perm	NA						NA					
Protected Phases					5 6						12		1	2	5	6
Permitted Phases					5 6											
Detector Phase					5 6	5 6					12					
Switch Phase																
Minimum Initial (s)													10.0	7.0	8.0	8.0
Minimum Split (s)													24.0	29.0	26.5	23.0
Total Split (s)													24.0	29.0	43.0	24.0
Total Split (%)													20%	24%	36%	20%
Maximum Green (s)													18.5	23.5	36.5	19.0
Yellow Time (s)													4.5	4.5	5.5	4.0
All-Red Time (s)													1.0	1.0	1.0	1.0
Lost Time Adjust (s)																
Total Lost Time (s)																
Lead/Lag													Lead	Lag	Lead	Lag
Lead-Lag Optimize?													Yes			
Vehicle Extension (s)													2.0	2.0	2.0	2.0
Recall Mode													C-Max	None	None	None
Walk Time (s)													12.5	7.0	7.0	7.0
Flash Dont Walk (s)													6.0	16.5	13.0	11.0
Pedestrian Calls (#/hr)													0	100	98	46
Act Effct Green (s)				61.5	61.5						49.5					
Actuated g/C Ratio				0.51	0.51						0.41					
v/c Ratio				0.31	0.80						0.51					
Control Delay				11.7	17.9						19.2					
Queue Delay				2.2	19.7						0.3					
Total Delay				13.9	37.6						19.5					
LOS				B	D						B					
Approach Delay					34.0						19.5					
Approach LOS					C						B					
Queue Length 50th (ft)				48	232						80					
Queue Length 95th (ft)				m58	m577						m126					
Internal Link Dist (ft)		434			190			374			324					
Turn Bay Length (ft)																
Base Capacity (vph)				777	1623						1665					
Starvation Cap Reductn				405	351						305					
Spillback Cap Reductn				0	0						0					
Storage Cap Reductn				0	0						0					
Reduced v/c Ratio				0.64	1.03						0.62					

Intersection Summary

Area Type: CBD  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 3 (3%), Referenced to phase 1:SBT, Start of Green  
 Natural Cycle: 105  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.01  
 Intersection Signal Delay: 28.8 Intersection LOS: C  
 Intersection Capacity Utilization 80.5% ICU Level of Service D  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 11: Albany Street & East Berkeley Street/West 4th Street



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR	Ø2
Lane Configurations					↕↕↕			↕				↕	↕	
Traffic Volume (vph)	0	0	0	164	1083	213	52	175	0	2	0	221	97	
Future Volume (vph)	0	0	0	164	1083	213	52	175	0	2	0	221	97	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	15	11	11	12	14	12	12	12	12	16	
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor					0.99			0.99					0.89	
Frt					0.978								0.850	
Flt Protected					0.994			0.989						
Satd. Flow (prot)	0	0	0	0	4032	0	0	1543	0	0	0	1629	1412	
Flt Permitted					0.994			0.720				0.998		
Satd. Flow (perm)	0	0	0	0	3982	0	0	1109	0	0	0	1626	1261	
Right Turn on Red			Yes			Yes			Yes				Yes	
Satd. Flow (RTOR)					38								104	
Link Speed (mph)		30			30			30				30		
Link Distance (ft)		475			514			1333				388		
Travel Time (s)		10.8			11.7			30.3				8.8		
Confl. Peds. (#/hr)				84			56						56	
Confl. Bikes (#/hr)						5							6	
Peak Hour Factor	0.92	0.92	0.92	0.95	0.95	0.95	0.93	0.93	0.93	0.93	0.93	0.93	0.93	
Heavy Vehicles (%)	0%	0%	0%	3%	6%	6%	6%	5%	0%	0%	0%	5%	5%	
Bus Blockages (#/hr)	0	0	0	0	20	20	0	0	0	0	0	0	0	
Parking (#/hr)				0			0	0				0		
Shared Lane Traffic (%)														
Lane Group Flow (vph)	0	0	0	0	1537	0	0	244	0	0	0	240	104	
Turn Type				Perm	NA		Perm	NA		Perm		NA	Perm	
Protected Phases					1			5				5		2
Permitted Phases					1			5				5		
Detector Phase				1	1			5	5			5	5	
Switch Phase														
Minimum Initial (s)				8.0	8.0		8.0	8.0		8.0		8.0	8.0	1.0
Minimum Split (s)				44.0	44.0		22.0	22.0		22.0		22.0	22.0	22.0
Total Split (s)				44.0	44.0		34.0	34.0		34.0		34.0	34.0	22.0
Total Split (%)				44.0%	44.0%		34.0%	34.0%		34.0%		34.0%	34.0%	22%
Maximum Green (s)				38.0	38.0		30.0	30.0		30.0		30.0	30.0	16.0
Yellow Time (s)				3.0	3.0		3.0	3.0		3.0		3.0	3.0	2.0
All-Red Time (s)				3.0	3.0		1.0	1.0		1.0		1.0	1.0	4.0
Lost Time Adjust (s)					0.0			0.0				0.0	0.0	
Total Lost Time (s)					6.0			4.0				4.0	4.0	
Lead/Lag				Lead	Lead									Lag
Lead-Lag Optimize?				Yes	Yes									Yes
Vehicle Extension (s)				2.0	2.0		2.0	2.0		2.0		2.0	2.0	0.2
Recall Mode				C-Max	C-Max		None	None		None		None	None	None
Walk Time (s)				30.0	30.0		7.0	7.0		7.0		7.0	7.0	7.0
Flash Dont Walk (s)				8.0	8.0		11.0	11.0		11.0		11.0	11.0	9.0
Pedestrian Calls (#/hr)				0	0		167	167		167		167	167	311
Act Effct Green (s)					44.5			23.5				23.5	23.5	
Actuated g/C Ratio					0.44			0.24				0.24	0.24	
v/c Ratio					0.86			0.94				0.63	0.28	
Control Delay					31.3			79.7				28.8	3.2	
Queue Delay					0.0			0.0				0.0	0.0	
Total Delay					31.3			79.7				28.8	3.2	
LOS					C			E				C	A	
Approach Delay					31.3			79.7				21.1		
Approach LOS					C			E				C		
Queue Length 50th (ft)					304			154				79	4	
Queue Length 95th (ft)					#467			#256				m98	m11	
Internal Link Dist (ft)		395			434			1253				308		
Turn Bay Length (ft)														
Base Capacity (vph)					1794			332				487	451	
Starvation Cap Reductn					0			0				0	0	
Spillback Cap Reductn					0			0				0	0	
Storage Cap Reductn					0			0				0	0	
Reduced v/c Ratio					0.86			0.73				0.49	0.23	

Intersection Summary

Area Type: CBD  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 53 (53%), Referenced to phase 1:WBT, Start of Green  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.94  
 Intersection Signal Delay: 35.2  
 Intersection LOS: D  
 Intersection Capacity Utilization 72.0%  
 ICU Level of Service C  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 17: Harrison Avenue & East Berkeley Street



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕↕↕		↕	↕↕			↕	
Traffic Volume (vph)	0	0	0	107	994	131	77	341	0	0	19	0
Future Volume (vph)	0	0	0	107	994	131	77	341	0	0	19	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	11	11	11	10	13	12	12	12	12
Storage Length (ft)	0	0	0	0	0	0	70	0	0	0	0	0
Storage Lanes	0	0	0	0	0	0	1	0	0	0	0	0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	0.91	1.00	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor					0.96		0.93					
Frt					0.984							
Flt Protected					0.996		0.950					
Satd. Flow (prot)	0	0	0	0	4046	0	1458	3080	0	0	855	0
Flt Permitted					0.996		0.743					
Satd. Flow (perm)	0	0	0	0	3951	0	1062	3080	0	0	855	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					32							
Link Speed (mph)		30					30				30	
Link Distance (ft)		323			475		819				435	
Travel Time (s)		7.3			10.8		18.6				9.9	
Confl. Peds. (#/hr)				179		85	83					
Confl. Bikes (#/hr)						7						
Peak Hour Factor	0.92	0.92	0.92	0.95	0.95	0.95	0.83	0.83	0.83	0.88	0.88	0.88
Heavy Vehicles (%)	0%	0%	0%	11%	5%	12%	4%	9%	0%	0%	100%	0%
Bus Blockages (#/hr)	0	0	0	0	10	0	0	0	0	0	0	0
Parking (#/hr)									0			
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	1297	0	93	411	0	0	22	0
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					5		1				1	
Permitted Phases					5		1					
Detector Phase					5	5	1	1			1	
Switch Phase												
Minimum Initial (s)				8.0	8.0		8.0	8.0			8.0	
Minimum Split (s)				26.0	26.0		40.0	40.0			40.0	
Total Split (s)				60.0	60.0		40.0	40.0			40.0	
Total Split (%)				60.0%	60.0%		40.0%	40.0%			40.0%	
Maximum Green (s)				54.0	54.0		35.0	35.0			35.0	
Yellow Time (s)				3.0	3.0		3.0	3.0			3.0	
All-Red Time (s)				3.0	3.0		2.0	2.0			2.0	
Lost Time Adjust (s)					0.0		0.0	0.0			0.0	
Total Lost Time (s)					6.0		5.0	5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)				2.0	2.0		2.0	2.0			2.0	
Recall Mode				None	None		C-Max	C-Max			C-Max	
Walk Time (s)				8.0	8.0		30.0	30.0			30.0	
Flash Dont Walk (s)				12.0	12.0		5.0	5.0			5.0	
Pedestrian Calls (#/hr)				264	264		0	0			0	
Act Effct Green (s)				41.1	41.1		47.9	47.9			47.9	
Actuated g/C Ratio				0.41	0.41		0.48	0.48			0.48	
v/c Ratio				0.79	0.79		0.18	0.28			0.05	
Control Delay				12.4	12.4		18.1	17.4			17.2	
Queue Delay				0.0	0.0		0.0	0.0			0.0	
Total Delay				12.4	12.4		18.1	17.4			17.2	
LOS				B	B		B	B			B	
Approach Delay				12.4	12.4		17.6	17.6			17.2	
Approach LOS				B	B		B	B			B	
Queue Length 50th (ft)				72	72		33	80			7	
Queue Length 95th (ft)				71	71		68	118			24	
Internal Link Dist (ft)		243			395			739			355	
Turn Bay Length (ft)							70					
Base Capacity (vph)					2148		508	1476			409	
Starvation Cap Reductn					25		0	0			0	
Spillback Cap Reductn					0		0	0			0	
Storage Cap Reductn					0		0	0			0	
Reduced v/c Ratio					0.61		0.18	0.28			0.05	

Intersection Summary

Area Type: CBD  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 8 (8%), Referenced to phase 1:NBSB, Start of Green  
 Natural Cycle: 70  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.79  
 Intersection Signal Delay: 13.9  
 Intersection Capacity Utilization 48.2%  
 Intersection LOS: B  
 ICU Level of Service A  
 Analysis Period (min) 15

Splits and Phases: 16: Washington Street & East Berkeley Street

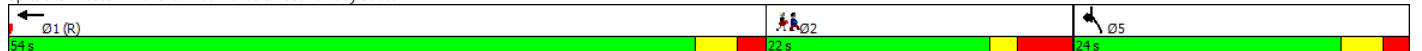


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations					↑↑↑		↓						↑
Traffic Volume (vph)	0	0	0	0	1071	0	73	0	0	0	0	114	
Future Volume (vph)	0	0	0	0	1071	0	73	0	0	0	0	114	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor													0.865
Fit Protected							0.950						
Satd. Flow (prot)	0	0	0	0	4446	0	1504	0	0	0	0	1409	
Fit Permitted							0.950						
Satd. Flow (perm)	0	0	0	0	4446	0	1504	0	0	0	0	1409	
Right Turn on Red				Yes		Yes	Yes		Yes			Yes	
Satd. Flow (RTOR)							306					306	
Link Speed (mph)		30			30			30				30	
Link Distance (ft)		829			323			598				590	
Travel Time (s)		18.8			7.3			13.6				13.4	
Confl. Bikes (#/hr)													1
Peak Hour Factor	0.92	0.92	0.92	0.95	0.95	0.95	0.77	0.77	0.77	0.63	0.63	0.63	0.63
Heavy Vehicles (%)	0%	0%	0%	0%	5%	0%	8%	0%	0%	0%	0%	0%	5%
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	0	0	0	1127	0	95	0	0	0	0	181	
Turn Type					NA		Prot					Prot	
Protected Phases					1		5!					5!	2
Permitted Phases													
Detector Phase					1		5					5	
Switch Phase													
Minimum Initial (s)					8.0		8.0					8.0	1.0
Minimum Split (s)					54.0		20.0					20.0	22.0
Total Split (s)					54.0		24.0					24.0	22.0
Total Split (%)					54.0%		24.0%					24.0%	22%
Maximum Green (s)					49.0		19.0					19.0	16.0
Yellow Time (s)					3.0		3.0					3.0	2.0
All-Red Time (s)					2.0		2.0					2.0	4.0
Lost Time Adjust (s)					0.0		0.0					0.0	
Total Lost Time (s)					5.0		5.0					5.0	
Lead/Lag					Lead								Lag
Lead-Lag Optimize?													
Vehicle Extension (s)					2.0		2.0					2.0	0.2
Recall Mode					C-Max		None					None	None
Walk Time (s)					39.0		8.0					8.0	7.0
Flash Dont Walk (s)					10.0		7.0					7.0	9.0
Pedestrian Calls (#/hr)					0		51					51	225
Act Effct Green (s)					54.4		13.6					13.6	
Actuated g/C Ratio					0.54		0.14					0.14	
v/c Ratio					0.47		0.20					0.40	
Control Delay					3.4		1.0					2.6	
Queue Delay					0.2		0.0					0.0	
Total Delay					3.6		1.0					2.6	
LOS					A		A					A	
Approach Delay					3.6		1.0				2.6		
Approach LOS					A		A				A		
Queue Length 50th (ft)					25		0					0	
Queue Length 95th (ft)					43		0					0	
Internal Link Dist (ft)		749			243			518				510	
Turn Bay Length (ft)													
Base Capacity (vph)					2418		533					515	
Starvation Cap Reductn					512		0					0	
Spillback Cap Reductn					0		0					0	
Storage Cap Reductn					0		0					0	
Reduced v/c Ratio					0.59		0.18					0.35	

Intersection Summary

Area Type: CBD  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 53 (53%), Referenced to phase 1:WBT, Start of Green  
 Natural Cycle: 100  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.47  
 Intersection Signal Delay: 3.3  
 Intersection Capacity Utilization 47.0%  
 Analysis Period (min) 15  
 ! Phase conflict between lane groups.

Splits and Phases: 15: Shawmut Avenue & East Berkeley Street





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations	↖		↗	↖	↗			↕			↕		
Traffic Volume (vph)	13	0	11	297	770	168	148	509	0	0	231	49	
Future Volume (vph)	13	0	11	297	770	168	148	509	0	0	231	49	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	1.00	1.00	0.95	0.95	
Ped Bike Factor					1.00						1.00		
Frt			0.850		0.973						0.974		
Flt Protected	0.950			0.950				0.989					
Satd. Flow (prot)	1624	0	1454	1562	2992	0	0	3133	0	0	2891	0	
Flt Permitted	0.129			0.950				0.718					
Satd. Flow (perm)	221	0	1454	1562	2992	0	0	2275	0	0	2891	0	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)			120		27						23		
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		647			829			409			534		
Travel Time (s)		14.7			18.8			9.3			12.1		
Confl. Bikes (#/hr)						6							3
Peak Hour Factor	0.67	0.67	0.67	0.96	0.96	0.96	0.93	0.93	0.93	0.87	0.87	0.87	
Heavy Vehicles (%)	0%	0%	0%	4%	5%	7%	1%	3%	0%	0%	9%	10%	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	19	0	16	309	977	0	0	706	0	0	322	0	
Turn Type	D.Pm		Perm	Perm	NA		pm+pt	NA			NA		
Protected Phases					5		6	1 6			1		2
Permitted Phases	5		5	5			1 6						
Detector Phase	5		5	5	5		6	1 6			1		
Switch Phase													
Minimum Initial (s)	5.0		5.0	5.0	5.0		4.0				10.0		1.0
Minimum Split (s)	9.0		9.0	9.0	9.0		8.0				27.0		25.0
Total Split (s)	35.0		35.0	35.0	35.0		13.0				27.0		25.0
Total Split (%)	35.0%		35.0%	35.0%	35.0%		13.0%				27.0%		25%
Maximum Green (s)	31.0		31.0	31.0	31.0		9.0				23.0		19.0
Yellow Time (s)	3.0		3.0	3.0	3.0		3.0				3.0		2.0
All-Red Time (s)	1.0		1.0	1.0	1.0		1.0				1.0		4.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0						0.0		
Total Lost Time (s)	4.0		4.0	4.0	4.0						4.0		
Lead/Lag										Lead			Lag
Lead-Lag Optimize?													
Vehicle Extension (s)	2.0		2.0	2.0	2.0		2.0				2.0		0.2
Recall Mode	None		None	None	None		None				C-Max		None
Walk Time (s)											17.0		8.0
Flash Dont Walk (s)											6.0		11.0
Pedestrian Calls (#/hr)											0		271
Act Effct Green (s)	31.0		31.0	31.0	31.0		32.0				23.0		
Actuated g/C Ratio	0.31		0.31	0.31	0.31		0.32				0.23		
v/c Ratio	0.28		0.03	0.64	1.03		0.88				0.47		
Control Delay	39.0		0.1	29.1	65.3		43.2				33.5		
Queue Delay	0.0		0.0	0.0	0.0		0.0				0.0		
Total Delay	39.0		0.1	29.1	65.3		43.2				33.5		
LOS	D		A	C	E		D				C		
Approach Delay		21.2			56.6		43.2				33.5		
Approach LOS		C			E		D				C		
Queue Length 50th (ft)	9		0	207	-358		193				86		
Queue Length 95th (ft)	23		0	295	#489		#286				124		
Internal Link Dist (ft)		567			749		329				454		
Turn Bay Length (ft)													
Base Capacity (vph)	68		533	484	946		805				682		
Starvation Cap Reductn	0		0	0	0		0				0		
Spillback Cap Reductn	0		0	0	0		0				0		
Storage Cap Reductn	0		0	0	0		0				0		
Reduced v/c Ratio	0.28		0.03	0.64	1.03		0.88				0.47		

Intersection Summary

Area Type: CBD  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 51 (51%), Referenced to phase 1:NBSB, Start of Green  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.03  
 Intersection Signal Delay: 48.9  
 Intersection Capacity Utilization 68.8%  
 Intersection LOS: D  
 ICU Level of Service C  
 Analysis Period (min) 15  
 - Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 14: Tremont Street & Berkeley Street/East Berkeley Street



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↕↔						↕	↕		↕	
Traffic Volume (vph)	101	1563	102	0	0	0	0	685	154	0	22	0
Future Volume (vph)	101	1563	102	0	0	0	0	685	154	0	22	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	12	12	12	12	11	11	12	12	12
Lane Util. Factor	0.91	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99							0.83			
Frt		0.991							0.850			
Flt Protected		0.997										
Satd. Flow (prot)	0	4297	0	0	0	0	0	1517	1391	0	914	0
Flt Permitted		0.997										
Satd. Flow (perm)	0	4297	0	0	0	0	0	1517	1160	0	914	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11							22			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		323			408			147			296	
Travel Time (s)		7.3			9.3			3.3			6.7	
Confl. Peds. (#/hr)			76						125			
Confl. Bikes (#/hr)									3			
Peak Hour Factor	0.95	0.95	0.95	0.92	0.92	0.92	0.93	0.93	0.93	0.94	0.94	0.94
Heavy Vehicles (%)	2%	2%	0%	0%	0%	0%	0%	9%	1%	0%	87%	0%
Bus Blockages (#/hr)	0	9	9	0	0	0	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1858	0	0	0	0	0	737	166	0	23	0
Turn Type	Perm	NA						NA	Perm		NA	
Protected Phases		1						6			6	
Permitted Phases	1								6			
Detector Phase	1	1						6	6		6	
Switch Phase												
Minimum Initial (s)	12.0	12.0						12.0	12.0		12.0	
Minimum Split (s)	29.0	29.0						29.0	29.0		29.0	
Total Split (s)	42.0	42.0						58.0	58.0		58.0	
Total Split (%)	42.0%	42.0%						58.0%	58.0%		58.0%	
Maximum Green (s)	37.0	37.0						53.0	53.0		53.0	
Yellow Time (s)	4.0	4.0						4.0	4.0		4.0	
All-Red Time (s)	1.0	1.0						1.0	1.0		1.0	
Lost Time Adjust (s)		-1.0						-1.0	-1.0		-1.0	
Total Lost Time (s)		4.0						4.0	4.0		4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0						3.0	3.0		3.0	
Recall Mode	C-Max	C-Max						Max	Max		Max	
Walk Time (s)	15.0	15.0						15.0	15.0		15.0	
Flash Dont Walk (s)	9.0	9.0						9.0	9.0		9.0	
Pedestrian Calls (#/hr)	0	0						0	0		0	
Act Effct Green (s)		38.0						54.0	54.0		54.0	
Actuated g/C Ratio		0.38						0.54	0.54		0.54	
v/c Ratio		1.13						0.90	0.26		0.05	
Control Delay		98.6						36.9	11.9		11.3	
Queue Delay		0.1						0.8	0.0		0.0	
Total Delay		98.7						37.7	11.9		11.3	
LOS		F						D	B		B	
Approach Delay		98.7						33.0			11.3	
Approach LOS		F						C			B	
Queue Length 50th (ft)		-507						398	46		7	
Queue Length 95th (ft)		#605						#661	86		19	
Internal Link Dist (ft)		243			328			67			216	
Turn Bay Length (ft)												
Base Capacity (vph)		1639						819	636		493	
Starvation Cap Reductn		0						12	0		0	
Spillback Cap Reductn		47						0	0		0	
Storage Cap Reductn		0						0	0		0	
Reduced v/c Ratio		1.17						0.91	0.26		0.05	

Intersection Summary

Area Type: CBD  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 14 (14%), Referenced to phase 1:EBTL, Start of Green  
 Natural Cycle: 75  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.13  
 Intersection Signal Delay: 76.7 Intersection LOS: E  
 Intersection Capacity Utilization 85.4% ICU Level of Service E  
 Analysis Period (min) 15  
 - Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 1: Washington Street & Herald Street



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations		↑↑↑								↑↑	↑↑		
Traffic Volume (vph)	0	1408	309	0	0	0	0	0	279	193	356	0	
Future Volume (vph)	0	1408	309	0	0	0	0	0	279	193	356	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	14	13	13	12	12	12	12	12	16	12	14	14	
Lane Util. Factor	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	
Ped Bike Factor		1.00											
Frt		0.973							0.865				
Flt Protected										0.950			
Satd. Flow (prot)	0	4584	0	0	0	0	0	0	1644	1624	3209	0	
Flt Permitted										0.950			
Satd. Flow (perm)	0	4584	0	0	0	0	0	0	1644	1624	3209	0	
Right Turn on Red			Yes			Yes			Yes	Yes		Yes	
Satd. Flow (RTOR)		58							352	222			
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		408			542			147			275		
Travel Time (s)		9.3			12.3			3.3			6.3		
Confl. Bikes (#/hr)			1										
Peak Hour Factor	0.95	0.95	0.95	0.92	0.92	0.92	0.85	0.85	0.85	0.87	0.87	0.87	
Heavy Vehicles (%)	0%	2%	2%	0%	0%	0%	0%	0%	2%	0%	8%	0%	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	1807	0	0	0	0	0	0	328	222	409	0	
Turn Type		NA							Prot	Prot	NA		
Protected Phases		1							6	5	5 6		2
Permitted Phases													
Detector Phase		1							6	5	5 6		
Switch Phase													
Minimum Initial (s)		10.0							8.0	8.0			1.0
Minimum Split (s)		15.0							13.0	13.0			25.0
Total Split (s)		44.0							15.0	15.0			26.0
Total Split (%)		44.0%							15.0%	15.0%			26%
Maximum Green (s)		39.0							10.0	10.0			22.0
Yellow Time (s)		4.0							4.0	3.0			3.0
All-Red Time (s)		1.0							1.0	2.0			1.0
Lost Time Adjust (s)		-1.0							-1.0	-1.0			
Total Lost Time (s)		4.0							4.0	4.0			
Lead/Lag		Lead							Lag	Lead			Lag
Lead-Lag Optimize?										Yes			
Vehicle Extension (s)		2.0							2.0	2.0			0.2
Recall Mode		C-Max							None	Max			None
Walk Time (s)													7.0
Flash Dont Walk (s)													14.0
Pedestrian Calls (#/hr)													269
Act Effct Green (s)		42.4							9.6	11.0	24.6		
Actuated g/C Ratio		0.42							0.10	0.11	0.25		
v/c Ratio		0.91							0.69	0.59	0.52		
Control Delay		32.7							11.9	12.9	35.2		
Queue Delay		2.4							0.0	0.0	0.0		
Total Delay		35.1							11.9	12.9	35.2		
LOS		D							B	B	D		
Approach Delay		35.1						11.9			27.4		
Approach LOS		D						B			C		
Queue Length 50th (ft)		264							0	0	120		
Queue Length 95th (ft)		m238							48	61	157		
Internal Link Dist (ft)		328			462			67			195		
Turn Bay Length (ft)													
Base Capacity (vph)		1978							494	376	834		
Starvation Cap Reductn		92							0	0	0		
Spillback Cap Reductn		0							0	0	0		
Storage Cap Reductn		0							0	0	0		
Reduced v/c Ratio		0.96							0.66	0.59	0.49		

Intersection Summary

Area Type: CBD  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 0 (0%), Referenced to phase 1:EBT, Start of Green  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.91  
 Intersection Signal Delay: 30.6 Intersection LOS: C  
 Intersection Capacity Utilization 79.0% ICU Level of Service D  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Harrison Avenue & Herald Street

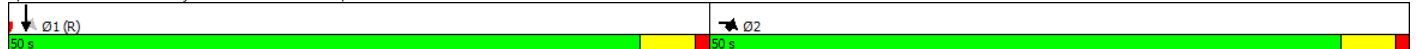


Lane Group	EBL	EBR	EBR2	NBL	NBT	NBR	SBL	SBT	SBR	NWL	NWR
Lane Configurations											
Traffic Volume (vph)	0	1031	849	0	0	0	332	1278	0	0	0
Future Volume (vph)	0	1031	849	0	0	0	332	1278	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.76	0.88	1.00	1.00	1.00	0.91	0.91	1.00	1.00	1.00
Frt		0.850	0.850								
Flt Protected								0.990			
Satd. Flow (prot)	0	1083	2533	0	0	0	0	4505	0	0	0
Flt Permitted								0.990			
Satd. Flow (perm)	0	1083	2533	0	0	0	0	4505	0	0	0
Right Turn on Red			No			Yes	Yes		No		Yes
Satd. Flow (RTOR)								41			
Link Speed (mph)	30			30				30		30	
Link Distance (ft)	542			742				329		393	
Travel Time (s)	12.3			16.9				7.5		8.9	
Peak Hour Factor	0.94	0.94	0.94	0.92	0.92	0.92	0.91	0.91	0.91	0.92	0.92
Heavy Vehicles (%)	0%	2%	1%	0%	0%	0%	1%	3%	2%	0%	0%
Shared Lane Traffic (%)			0%								
Lane Group Flow (vph)	0	1097	903	0	0	0	0	1769	0	0	0
Turn Type		Prot	Prot				Perm	NA			
Protected Phases		2	2					1			
Permitted Phases								1			
Detector Phase		2	2					1	1		
Switch Phase											
Minimum Initial (s)		8.0	8.0					8.0	8.0		
Minimum Split (s)		23.0	23.0					23.0	23.0		
Total Split (s)		50.0	50.0					50.0	50.0		
Total Split (%)		50.0%	50.0%					50.0%	50.0%		
Maximum Green (s)		45.0	45.0					45.0	45.0		
Yellow Time (s)		4.0	4.0					4.0	4.0		
All-Red Time (s)		1.0	1.0					1.0	1.0		
Lost Time Adjust (s)		0.0	-1.0					-1.0	-1.0		
Total Lost Time (s)		5.0	4.0					4.0	4.0		
Lead/Lag		Lag	Lag				Lead	Lead			
Lead-Lag Optimize?		Yes	Yes				Yes	Yes			
Vehicle Extension (s)		2.0	2.0				2.0	2.0			
Recall Mode		Max	Max				C-Max	C-Max			
Act Effct Green (s)		45.0	46.0					46.0	46.0		
Actuated g/C Ratio		0.45	0.46					0.46	0.46		
v/c Ratio		2.25	0.78					0.84	0.84		
Control Delay		587.0	24.4					28.0	28.0		
Queue Delay		0.0	0.0					0.0	0.0		
Total Delay		587.0	24.4					28.0	28.0		
LOS		F	C					C	C		
Approach Delay	332.9							28.0	28.0		
Approach LOS	F							C	C		
Queue Length 50th (ft)		-1548	337					346	346		
Queue Length 95th (ft)		m#1780	m388					416	416		
Internal Link Dist (ft)	462				662			249	249	313	
Turn Bay Length (ft)											
Base Capacity (vph)		487	1165					2094	2094		
Starvation Cap Reductn		0	0					0	0		
Spillback Cap Reductn		0	0					0	0		
Storage Cap Reductn		0	0					0	0		
Reduced v/c Ratio		2.25	0.78					0.84	0.84		

Intersection Summary

Area Type: CBD  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 82 (82%), Referenced to phase 1:SBTL, Start of Green  
 Natural Cycle: 80  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 2.25  
 Intersection Signal Delay: 189.8  
 Intersection Capacity Utilization Err%  
 Analysis Period (min) 15  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Albany Street & I-93 SB On-Ramp & Herald Street





Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↕			↕
Traffic Volume (vph)	34	213	564	127	60	88
Future Volume (vph)	34	213	564	127	60	88
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	13	11	12	12	12
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95
Ped Bike Factor	0.97		0.96			0.97
Frt	0.884		0.972			
Flt Protected	0.993					0.980
Satd. Flow (prot)	1312	0	2778	0	0	2202
Flt Permitted	0.993					0.669
Satd. Flow (perm)	1303	0	2778	0	0	1465
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)	242		77			
Link Speed (mph)	30		30			30
Link Distance (ft)	417		435			294
Travel Time (s)	9.5		9.9			6.7
Confl. Peds. (#/hr)	29	7		102	102	
Peak Hour Factor	0.88	0.88	0.92	0.92	0.80	0.80
Heavy Vehicles (%)	0%	14%	7%	0%	0%	75%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	281	0	751	0	0	185
Turn Type	Prot		NA		Perm	NA
Protected Phases	5		1			1
Permitted Phases					1	
Detector Phase	5		1		1	1
Switch Phase						
Minimum Initial (s)	4.0		10.0		10.0	10.0
Minimum Split (s)	21.0		28.0		28.0	28.0
Total Split (s)	21.0		69.0		69.0	69.0
Total Split (%)	23.3%		76.7%		76.7%	76.7%
Maximum Green (s)	16.0		65.0		65.0	65.0
Yellow Time (s)	4.0		3.0		3.0	3.0
All-Red Time (s)	1.0		1.0		1.0	1.0
Lost Time Adjust (s)	0.0		0.0		0.0	0.0
Total Lost Time (s)	5.0		4.0		4.0	4.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		2.0		2.0	2.0
Recall Mode	None		C-Max		C-Max	C-Max
Walk Time (s)	5.0		17.0		17.0	17.0
Flash Dont Walk (s)	11.0		7.0		7.0	7.0
Pedestrian Calls (#/hr)	0		0		0	0
Act Effct Green (s)	9.8		71.2		71.2	71.2
Actuated g/C Ratio	0.11		0.79		0.79	0.79
v/c Ratio	0.78		0.34		0.16	0.16
Control Delay	8.2		3.2		3.2	3.2
Queue Delay	0.0		0.0		0.0	0.0
Total Delay	8.2		3.2		3.2	3.2
LOS	A		A		A	A
Approach Delay	8.2		3.2		3.2	3.2
Approach LOS	A		A		A	A
Queue Length 50th (ft)	27		37		8	8
Queue Length 95th (ft)	m26		86		22	22
Internal Link Dist (ft)	337		355		214	
Turn Bay Length (ft)						
Base Capacity (vph)	432		2214		1159	
Starvation Cap Reductn	0		0		0	0
Spillback Cap Reductn	0		0		0	0
Storage Cap Reductn	0		0		0	0
Reduced v/c Ratio	0.65		0.34		0.16	0.16

Intersection Summary

Area Type: CBD  
 Cycle Length: 90  
 Actuated Cycle Length: 90  
 Offset: 21 (23%), Referenced to phase 1:NBSB, Start of Green  
 Natural Cycle: 50  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.78  
 Intersection Signal Delay: 4.4  
 Intersection Capacity Utilization 59.4%  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

Intersection LOS: A  
 ICU Level of Service B

Splits and Phases: 6: Washington Street & Traveler Street



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations		↕			↕		↕	↕		↕	↕		
Traffic Volume (vph)	47	204	25	101	66	97	109	339	241	392	436	17	
Future Volume (vph)	47	204	25	101	66	97	109	339	241	392	436	17	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	10	10	10	12	12	12	12	12	12	
Storage Length (ft)	0		0	0	0	0	90		0	160		0	
Storage Lanes	0		0	0	0	0	1		0	1		0	
Taper Length (ft)	25		25		25		25		25		25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor					0.99		0.99		0.99		1.00		
Frt		0.988			0.950		0.938		0.938		0.994		
Flt Protected		0.992			0.981		0.950		0.950		0.950		
Satd. Flow (prot)	0	1676	0	0	1458	0	1450	1551	0	1593	1448	0	
Flt Permitted		0.810			0.527		0.259		0.124		0.124		
Satd. Flow (perm)	0	1368	0	0	783	0	395	1551	0	208	1448	0	
Right Turn on Red			Yes			Yes			No			No	
Satd. Flow (RTOR)		4			26								
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		417			550			388			371		
Travel Time (s)		9.5			12.5			8.8			8.4		
Confl. Bikes (#/hr)						1			4			2	
Peak Hour Factor	0.92	0.92	0.92	0.65	0.65	0.65	0.94	0.94	0.94	0.94	0.94	0.94	
Heavy Vehicles (%)	0%	0%	0%	3%	0%	0%	12%	2%	3%	2%	3%	71%	
Parking (#/hr)												0	0
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	300	0	0	406	0	116	617	0	417	482	0	
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA		
Protected Phases		3			3		4	1		4	1		2
Permitted Phases	3			3			1			1			
Detector Phase	3	3		3	3		4	1		4	1		
Switch Phase													
Minimum Initial (s)	6.0	6.0		6.0	6.0		5.0	10.0		5.0	10.0		1.0
Minimum Split (s)	11.0	11.0		11.0	11.0		10.0	15.0		10.0	15.0		26.0
Total Split (s)	15.0	15.0		15.0	15.0		10.0	39.0		10.0	39.0		26.0
Total Split (%)	16.7%	16.7%		16.7%	16.7%		11.1%	43.3%		11.1%	43.3%		29%
Maximum Green (s)	10.0	10.0		10.0	10.0		5.0	34.0		5.0	34.0		22.0
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	4.0		3.0	4.0		3.0
All-Red Time (s)	1.0	1.0		1.0	1.0		2.0	1.0		2.0	1.0		1.0
Lost Time Adjust (s)		0.0			-1.0		1.0	0.0		0.0	0.0		
Total Lost Time (s)		5.0			4.0		6.0	5.0		5.0	5.0		
Lead/Lag	Lead	Lead		Lead	Lead		Lag	Lead		Lag	Lead		Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes								
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0		2.0
Recall Mode	None	None		None	None		None	C-Max		None	C-Max		None
Walk Time (s)													7.0
Flash Dont Walk (s)													15.0
Pedestrian Calls (#/hr)													187
Act Effct Green (s)		10.0			11.0		37.0	34.0		39.0	34.0		
Actuated g/C Ratio		0.11			0.12		0.41	0.38		0.43	0.38		
v/c Ratio		1.94			3.44		0.56	1.05		2.50	0.88		
Control Delay		468.5			1134.4		26.7	81.9		708.0	46.0		
Queue Delay		0.0			0.0		0.0	17.8		0.0	0.0		
Total Delay		468.5			1134.4		26.7	99.7		708.0	46.0		
LOS		F			F		C	F		F	D		
Approach Delay		468.5			1134.4			88.1			353.1		
Approach LOS		F			F			F			F		
Queue Length 50th (ft)		-267			-408		36	-387		-356	251		
Queue Length 95th (ft)		#429			#401		68	#592		#538	#437		
Internal Link Dist (ft)		337			470			308			291		
Turn Bay Length (ft)							90			160			
Base Capacity (vph)		155			118		209	585		167	547		
Starvation Cap Reductn		0			0		0	59		0	0		
Spillback Cap Reductn		0			0		0	0		0	0		
Storage Cap Reductn		0			0		0	0		0	0		
Reduced v/c Ratio		1.94			3.44		0.56	1.17		2.50	0.88		

Intersection Summary

Area Type: CBD  
 Cycle Length: 90  
 Actuated Cycle Length: 90  
 Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green  
 Natural Cycle: 150  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 3.44  
 Intersection Signal Delay: 420.5  
 Intersection Capacity Utilization 104.7%  
 Analysis Period (min) 15  
 - Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 9: Harrison Avenue & Traveler Street

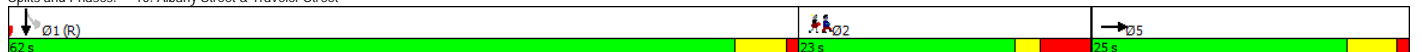


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations		↕								↕	↕↕		
Traffic Volume (vph)	0	462	251	0	0	0	0	0	0	1008	866	253	
Future Volume (vph)	0	462	251	0	0	0	0	0	0	1008	866	253	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	0.95	
Ped Bike Factor		0.99									0.99		
Frt		0.952									0.973		
Flt Protected										0.950	0.989		
Satd. Flow (prot)	0	1552	0	0	0	0	0	0	0	1478	2945	0	
Flt Permitted										0.950	0.989		
Satd. Flow (perm)	0	1552	0	0	0	0	0	0	0	1478	2945	0	
Right Turn on Red			No			No			No	No		No	
Satd. Flow (RTOR)													
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		550			284			404			742		
Travel Time (s)		12.5			6.5			9.2			16.9		
Confl. Peds. (#/hr)													35
Confl. Bikes (#/hr)			3										1
Peak Hour Factor	0.87	0.87	0.87	0.92	0.92	0.92	0.92	0.92	0.92	0.95	0.95	0.95	
Heavy Vehicles (%)	0%	4%	5%	0%	0%	0%	0%	0%	0%	0%	0%	4%	
Shared Lane Traffic (%)										30%			
Lane Group Flow (vph)	0	820	0	0	0	0	0	0	0	743	1496	0	
Turn Type		NA								Perm	NA		
Protected Phases		5									1		2
Permitted Phases										1			
Detector Phase		5								1	1		
Switch Phase													
Minimum Initial (s)		8.0								10.0	10.0		1.0
Minimum Split (s)		13.0								62.0	62.0		23.0
Total Split (s)		25.0								62.0	62.0		23.0
Total Split (%)		22.7%								56.4%	56.4%		21%
Maximum Green (s)		20.0								57.0	57.0		17.0
Yellow Time (s)		4.0								4.0	4.0		2.0
All-Red Time (s)		1.0								1.0	1.0		4.0
Lost Time Adjust (s)		-1.0								-1.0	-1.0		
Total Lost Time (s)		4.0								4.0	4.0		
Lead/Lag										Lead	Lead		Lag
Lead-Lag Optimize?										Yes	Yes		Yes
Vehicle Extension (s)		2.0								2.0	2.0		0.2
Recall Mode		None								C-Max	C-Max		None
Walk Time (s)										45.0	45.0		7.0
Flash Dont Walk (s)										12.0	12.0		10.0
Pedestrian Calls (#/hr)										0	0		90
Act Effct Green (s)		21.0								62.6	62.6		
Actuated g/C Ratio		0.19								0.57	0.57		
v/c Ratio		2.77								0.88	0.89		
Control Delay		825.7								37.1	31.1		
Queue Delay		2.3								7.2	5.9		
Total Delay		828.0								44.2	37.0		
LOS		F								D	D		
Approach Delay		828.0									39.4		
Approach LOS		F									D		
Queue Length 50th (ft)		-990								525	534		
Queue Length 95th (ft)		#1177								#826	#726		
Internal Link Dist (ft)		470			204			324			662		
Turn Bay Length (ft)													
Base Capacity (vph)		296								841	1675		
Starvation Cap Reductn		0								0	0		
Spillback Cap Reductn		49								73	145		
Storage Cap Reductn		0								0	0		
Reduced v/c Ratio		3.32								0.97	0.98		

Intersection Summary

Area Type: CBD  
 Cycle Length: 110  
 Actuated Cycle Length: 110  
 Offset: 0 (0%), Referenced to phase 1:SBTL, Start of Green  
 Natural Cycle: 150  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 2.77  
 Intersection Signal Delay: 250.8 Intersection LOS: F  
 Intersection Capacity Utilization 98.2% ICU Level of Service F  
 Analysis Period (min) 15  
 - Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 10: Albany Street & Traveler Street



Lane Group	EBL2	EBL	EBT	WBR	WBR2	NBL	NBT	NBR	
Lane Configurations									
Traffic Volume (vph)	164	265	1041	208	491	309	624	43	
Future Volume (vph)	164	265	1041	208	491	309	624	43	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	16	14	12	13	12	12	12	12	
Storage Length (ft)		0		0		200		0	
Storage Lanes		1		2		2		0	
Taper Length (ft)		25				100			
Lane Util. Factor	0.95	1.00	0.95	0.88	1.00	0.97	0.91	0.91	
Ped Bike Factor							1.00		
Frt				0.850	0.850				
Flt Protected		0.950				0.950			
Satd. Flow (prot)	0	1695	3154	1291	1454	3090	4567	0	
Flt Permitted		0.950				0.950			
Satd. Flow (perm)	0	1695	3154	1291	1454	3090	4567	0	
Right Turn on Red	No				No			No	
Satd. Flow (RTOR)									
Link Speed (mph)			30				30		
Link Distance (ft)			284				410		
Travel Time (s)			6.5				9.3		
Confl. Peds. (#/hr)								11	
Peak Hour Factor	0.89	0.89	0.89	0.88	0.88	0.88	0.88	0.88	
Heavy Vehicles (%)	1%	3%	3%	4%	0%	2%	2%	3%	
Shared Lane Traffic (%)					29%				
Lane Group Flow (vph)	0	482	1170	398	396	351	758	0	
Turn Type	Prot	Prot	NA	Perm	Prot	Split	NA		
Protected Phases	2	2	2.5		5	1	1		
Permitted Phases				5					
Detector Phase	2	2	2.5	5	5	1	1		
Switch Phase									
Minimum Initial (s)	8.0	8.0		8.0	8.0	10.0	10.0		
Minimum Split (s)	32.0	32.0		13.5	13.5	36.0	36.0		
Total Split (s)	32.0	32.0		42.0	42.0	36.0	36.0		
Total Split (%)	29.1%	29.1%		38.2%	38.2%	32.7%	32.7%		
Maximum Green (s)	25.0	25.0		36.5	36.5	30.5	30.5		
Yellow Time (s)	3.5	3.5		4.5	4.5	4.5	4.5		
All-Red Time (s)	3.5	3.5		1.0	1.0	1.0	1.0		
Lost Time Adjust (s)		-2.0		-2.0	-2.0	-2.0	-2.0		
Total Lost Time (s)		5.0		3.5	3.5	3.5	3.5		
Lead/Lag									
Lead-Lag Optimize?									
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	2.0		
Recall Mode	None	None		None	None	C-Max	C-Max		
Walk Time (s)	7.0	7.0				9.5	9.5		
Flash Dont Walk (s)	18.0	18.0				21.0	21.0		
Pedestrian Calls (#/hr)	94	94				0	0		
Act Effct Green (s)		27.0	67.9	37.4	37.4	33.6	33.6		
Actuated g/C Ratio		0.25	0.62	0.34	0.34	0.31	0.31		
v/c Ratio		1.16	0.60	0.91	0.80	0.37	0.54		
Control Delay		112.8	8.5	60.6	46.5	35.2	37.8		
Queue Delay		3.9	31.9	0.0	0.0	0.0	0.0		
Total Delay		116.6	40.4	60.6	46.5	35.2	37.8		
LOS		F	D	E	D	D	D		
Approach Delay			62.7				37.0		
Approach LOS			E				D		
Queue Length 50th (ft)		-396	104	297	248	132	205		
Queue Length 95th (ft)		m#296	m100	#485	#365	m74	m115		
Internal Link Dist (ft)			204				330		
Turn Bay Length (ft)						200			
Base Capacity (vph)		416	1978	451	508	942	1394		
Starvation Cap Reductn		125	870	0	0	0	0		
Spillback Cap Reductn		0	0	0	0	0	0		
Storage Cap Reductn		0	0	0	0	0	0		
Reduced v/c Ratio		1.66	1.06	0.88	0.78	0.37	0.54		

Intersection Summary

Area Type: CBD  
 Cycle Length: 110  
 Actuated Cycle Length: 110  
 Offset: 49 (45%), Referenced to phase 1:NBT, Start of Green  
 Natural Cycle: 105  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.16  
 Intersection Signal Delay: 52.6  
 Intersection LOS: D  
 Intersection Capacity Utilization 88.2%  
 ICU Level of Service E  
 Analysis Period (min) 15  
 - Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 12: Frontage Road & Traveler Street/Broadway Bridge & I-90 WB Ramp



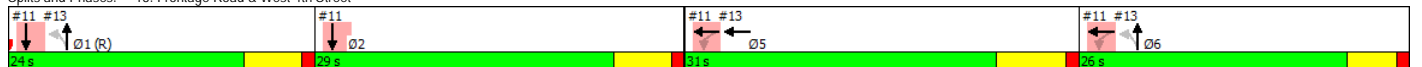


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø1	Ø2	Ø6
Lane Configurations					↑↑↑		↑	↑↑							
Traffic Volume (vph)	0	0	0	0	676	893	479	83	738	0	0	0			
Future Volume (vph)	0	0	0	0	676	893	479	83	738	0	0	0			
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900			
Lane Util. Factor	1.00	1.00	1.00	1.00	0.91	0.91	0.91	0.91	0.95	1.00	1.00	1.00			
Ped Bike Factor					0.97										
Frt					0.915			0.873							
Flt Protected							0.950	0.997							
Satd. Flow (prot)	0	0	0	0	4038	0	1478	2591	0	0	0	0			
Flt Permitted							0.950	0.997							
Satd. Flow (perm)	0	0	0	0	4038	0	1478	2591	0	0	0	0			
Right Turn on Red				No		No	No		No			No			
Satd. Flow (RTOR)															
Link Speed (mph)		30			30			30			30				
Link Distance (ft)		270			630			418			410				
Travel Time (s)		6.1			14.3			9.5			9.3				
Confl. Peds. (#/hr)						20									
Confl. Bikes (#/hr)						7									
Peak Hour Factor	0.92	0.92	0.92	0.87	0.87	0.87	0.92	0.92	0.92	0.92	0.92	0.92			
Heavy Vehicles (%)	0%	0%	0%	0%	5%	1%	0%	3%	5%	0%	0%	0%			
Shared Lane Traffic (%)							10%								
Lane Group Flow (vph)	0	0	0	0	1803	0	469	944	0	0	0	0			
Turn Type					NA		Perm	NA							
Protected Phases					5			1 6					1	2	6
Permitted Phases								1 6							
Detector Phase					5			1 6	1 6						
Switch Phase															
Minimum Initial (s)					8.0								10.0	7.0	8.0
Minimum Split (s)					26.5								24.0	29.0	23.0
Total Split (s)					31.0								24.0	29.0	26.0
Total Split (%)					28.2%								22%	26%	24%
Maximum Green (s)					24.5								18.5	23.5	21.0
Yellow Time (s)					5.5								4.5	4.5	4.0
All-Red Time (s)					1.0								1.0	1.0	1.0
Lost Time Adjust (s)					-1.0										
Total Lost Time (s)					5.5										
Lead/Lag					Lead								Lead	Lag	Lag
Lead-Lag Optimize?													Yes		
Vehicle Extension (s)					2.0								2.0	2.0	2.0
Recall Mode					None								C-Max	None	None
Walk Time (s)					7.0								12.5	7.0	7.0
Flash Dont Walk (s)					13.0								6.0	16.5	11.0
Pedestrian Calls (#/hr)					99								0	137	54
Act Effct Green (s)					25.5		46.5	46.5							
Actuated g/C Ratio					0.23		0.42	0.42							
v/c Ratio					3.12dr		0.75	1.45dr							
Control Delay					447.1		36.0	38.5							
Queue Delay					0.4		0.0	0.0							
Total Delay					447.5		36.0	38.5							
LOS					F		D	D							
Approach Delay					447.5			37.7							
Approach LOS					F			D							
Queue Length 50th (ft)					-720		301	325							
Queue Length 95th (ft)					#781		451	#436							
Internal Link Dist (ft)		190			550			338			330				
Turn Bay Length (ft)															
Base Capacity (vph)					936		624	1095							
Starvation Cap Reductn					0		0	0							
Spillback Cap Reductn					63		0	0							
Storage Cap Reductn					0		0	0							
Reduced v/c Ratio					2.07		0.75	0.86							

Intersection Summary

Area Type: CBD  
 Cycle Length: 110  
 Actuated Cycle Length: 110  
 Offset: 52 (47%), Referenced to phase 1:SBT, Start of Green  
 Natural Cycle: 145  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.93  
 Intersection Signal Delay: 267.4 Intersection LOS: F  
 Intersection Capacity Utilization 95.0% ICU Level of Service F  
 Analysis Period (min) 15  
 - Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Splits and Phases: 13: Frontage Road & West 4th Street

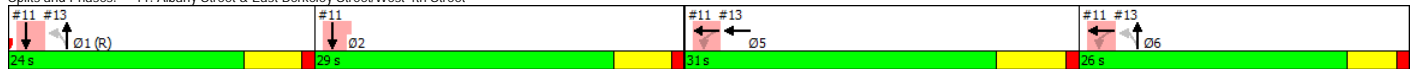


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø1	Ø2	Ø5	Ø6
Lane Configurations				↘	↗						↗	↘				
Traffic Volume (vph)	0	0	0	201	954	0	0	0	0	0	693	424				
Future Volume (vph)	0	0	0	201	954	0	0	0	0	0	693	424				
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900				
Lane Width (ft)	12	12	12	12	13	12	12	12	12	12	12	12				
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	0.91	0.91				
Ped Bike Factor				0.91							0.98					
Frt											0.943					
Flt Protected				0.950												
Satd. Flow (prot)	0	0	0	1547	3197	0	0	0	0	0	4193	0				
Flt Permitted				0.950												
Satd. Flow (perm)	0	0	0	1409	3197	0	0	0	0	0	4193	0				
Right Turn on Red			No	No		No			No		No	No				
Satd. Flow (RTOR)																
Link Speed (mph)		30			30			30			30					
Link Distance (ft)		514			270			454			404					
Travel Time (s)		11.7			6.1			10.3			9.2					
Confl. Peds. (#/hr)				54								27				
Confl. Bikes (#/hr)												1				
Peak Hour Factor	0.92	0.92	0.92	0.93	0.93	0.93	0.92	0.92	0.92	0.93	0.93	0.93				
Heavy Vehicles (%)	0%	0%	0%	5%	5%	0%	0%	0%	0%	0%	3%	2%				
Shared Lane Traffic (%)																
Lane Group Flow (vph)	0	0	0	216	1026	0	0	0	0	0	1201	0				
Turn Type				Perm	NA						NA					
Protected Phases					5 6						12		1	2	5	6
Permitted Phases				5 6												
Detector Phase				5 6	5 6						12					
Switch Phase																
Minimum Initial (s)													10.0	7.0	8.0	8.0
Minimum Split (s)													24.0	29.0	26.5	23.0
Total Split (s)													24.0	29.0	31.0	26.0
Total Split (%)													22%	26%	28%	24%
Maximum Green (s)													18.5	23.5	24.5	21.0
Yellow Time (s)													4.5	4.5	5.5	4.0
All-Red Time (s)													1.0	1.0	1.0	1.0
Lost Time Adjust (s)																
Total Lost Time (s)																
Lead/Lag													Lead	Lag	Lead	Lag
Lead-Lag Optimize?													Yes			
Vehicle Extension (s)													2.0	2.0	2.0	2.0
Recall Mode													C-Max	None	None	None
Walk Time (s)													12.5	7.0	7.0	7.0
Flash Dont Walk (s)													6.0	16.5	13.0	11.0
Pedestrian Calls (#/hr)													0	137	99	54
Act Effct Green (s)				51.5	51.5						49.5					
Actuated g/C Ratio				0.47	0.47						0.45					
v/c Ratio				0.33	0.69						0.64					
Control Delay				11.6	13.2						32.8					
Queue Delay				3.8	50.5						11.4					
Total Delay				15.4	63.8						44.2					
LOS				B	E						D					
Approach Delay					55.4						44.2					
Approach LOS					E						D					
Queue Length 50th (ft)				39	98						308					
Queue Length 95th (ft)				m38	m88						m288					
Internal Link Dist (ft)		434			190			374			324					
Turn Bay Length (ft)																
Base Capacity (vph)				659	1496						1886					
Starvation Cap Reductn				354	673						672					
Spillback Cap Reductn				0	0						0					
Storage Cap Reductn				0	0						0					
Reduced v/c Ratio				0.71	1.25						0.99					

Intersection Summary

Area Type: CBD  
 Cycle Length: 110  
 Actuated Cycle Length: 110  
 Offset: 52 (47%), Referenced to phase 1:SBT, Start of Green  
 Natural Cycle: 145  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.93  
 Intersection Signal Delay: 49.9  
 Intersection Capacity Utilization 105.2%  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.  
 Intersection LOS: D  
 ICU Level of Service G

Splits and Phases: 11: Albany Street & East Berkeley Street/West 4th Street



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR	Ø2
Lane Configurations														
Traffic Volume (vph)	0	0	0	233	874	271	170	426	0	2	0	340	333	
Future Volume (vph)	0	0	0	233	874	271	170	426	0	2	0	340	333	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	15	11	11	12	14	12	12	12	12	16	
Storage Length (ft)	0	0	0	0	0	0	0	0	0	0	0	0	150	
Storage Lanes	0	0	0	0	0	0	0	0	0	0	0	0	1	
Taper Length (ft)	25			25			25				25			
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor					0.98			0.98						0.89
Frt					0.971									0.850
Flt Protected					0.992			0.986						
Satd. Flow (prot)	0	0	0	0	4036	0	0	1571	0	0	0	1677	1426	
Flt Permitted					0.992			0.986				0.998		
Satd. Flow (perm)	0	0	0	0	3960	0	0	1546	0	0	0	1673	1273	
Right Turn on Red			Yes			Yes			Yes					Yes
Satd. Flow (RTOR)					64								346	
Link Speed (mph)		30			30			30				30		
Link Distance (ft)		475			514			1333				388		
Travel Time (s)		10.8			11.7			30.3				8.8		
Confl. Peds. (#/hr)				78			92							92
Confl. Bikes (#/hr)						5								3
Peak Hour Factor	0.92	0.92	0.92	0.94	0.94	0.94	0.86	0.86	0.86	0.89	0.89	0.89	0.89	
Heavy Vehicles (%)	0%	0%	0%	2%	5%	4%	3%	3%	0%	0%	0%	2%	4%	
Bus Blockages (#/hr)	0	0	0	0	20	20	0	0	0	0	0	0	0	
Parking (#/hr)				0			0	0						
Shared Lane Traffic (%)														
Lane Group Flow (vph)	0	0	0	0	1466	0	0	693	0	0	0	384	374	
Turn Type				Perm	NA		Split	NA		Perm		NA	Perm	
Protected Phases					1		5	5			5	5		2
Permitted Phases					1					5			5	
Detector Phase				1	1		5	5		5		5	5	
Switch Phase														
Minimum Initial (s)				8.0	8.0		8.0	8.0		8.0		8.0	8.0	1.0
Minimum Split (s)				13.0	13.0		13.0	13.0		13.0		13.0	13.0	26.0
Total Split (s)				40.0	40.0		34.0	34.0		34.0		34.0	34.0	26.0
Total Split (%)				40.0%	40.0%		34.0%	34.0%		34.0%		34.0%	34.0%	26%
Maximum Green (s)				35.0	35.0		29.0	29.0		29.0		29.0	29.0	22.0
Yellow Time (s)				4.0	4.0		4.0	4.0		4.0		4.0	4.0	3.0
All-Red Time (s)				1.0	1.0		1.0	1.0		1.0		1.0	1.0	1.0
Lost Time Adjust (s)					0.0			0.0				0.0	0.0	
Total Lost Time (s)					5.0			5.0				5.0	5.0	
Lead/Lag				Lead	Lead									Lag
Lead-Lag Optimize?				Yes	Yes									Yes
Vehicle Extension (s)				2.0	2.0		2.0	2.0		2.0		2.0	2.0	0.2
Recall Mode				C-Max	C-Max		None	None		None		None	None	None
Walk Time (s)														7.0
Flash Dont Walk (s)														15.0
Pedestrian Calls (#/hr)														351
Act Effct Green (s)					35.0			29.0				29.0	29.0	
Actuated g/C Ratio					0.35			0.29				0.29	0.29	
v/c Ratio					1.03			1.52				0.79	0.61	
Control Delay					62.6			275.2				46.3	9.1	
Queue Delay					0.0			0.1				2.7	0.0	
Total Delay					62.6			275.3				49.0	9.1	
LOS					E			F				D	A	
Approach Delay					62.6			275.3				29.3		
Approach LOS					E			F				C		
Queue Length 50th (ft)					-357			-621				225	13	
Queue Length 95th (ft)					#454			#790				#362	93	
Internal Link Dist (ft)		395			434			1253				308		
Turn Bay Length (ft)													150	
Base Capacity (vph)					1427			455				485	614	
Starvation Cap Reductn					0			0				39	0	
Spillback Cap Reductn					0			3				0	2	
Storage Cap Reductn					0			0				0	0	
Reduced v/c Ratio					1.03			1.53				0.86	0.61	

Intersection Summary

Area Type: CBD  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 0 (0%), Referenced to phase 1:WBTL, Start of Green  
 Natural Cycle: 150  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.52  
 Intersection Signal Delay: 104.5 Intersection LOS: F  
 Intersection Capacity Utilization 107.2% ICU Level of Service G  
 Analysis Period (min) 15  
 - Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 ! Phase conflict between lane groups.

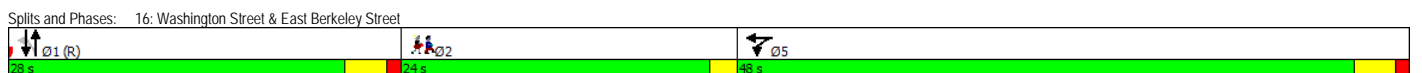
Splits and Phases: 17: Harrison Avenue & East Berkeley Street



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations					↑↑↑		↑	↑			↑↑		
Traffic Volume (vph)	0	0	0	248	1020	109	132	582	0	0	100	58	
Future Volume (vph)	0	0	0	248	1020	109	132	582	0	0	100	58	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	11	11	11	10	13	12	12	12	12	
Storage Length (ft)	0	0	0	0	0	0	70	0	0	0	0	0	
Storage Lanes	0	0	0	0	0	0	1	0	0	0	0	0	
Taper Length (ft)	25			25			25			25			
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	0.91	1.00	1.00	1.00	1.00	0.95	0.95	
Ped Bike Factor					0.95		0.92						
Frt					0.988						0.945		
Flt Protected					0.991		0.950						
Satd. Flow (prot)	0	0	0	0	4129	0	1516	1636	0	0	2089	0	
Flt Permitted					0.991		0.626						
Satd. Flow (perm)	0	0	0	0	3965	0	918	1636	0	0	2089	0	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)					18						73		
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		323			475			819			435		
Travel Time (s)		7.3			10.8			18.6			9.9		
Confl. Peds. (#/hr)				155		91	87						
Confl. Bikes (#/hr)						5							
Peak Hour Factor	0.92	0.92	0.92	0.97	0.97	0.97	0.96	0.96	0.96	0.79	0.79	0.79	
Heavy Vehicles (%)	0%	0%	0%	4%	4%	9%	0%	8%	0%	0%	74%	0%	
Bus Blockages (#/hr)	0	0	0	0	10	0	0	0	0	0	0	0	
Parking (#/hr)									0				
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	0	0	0	1420	0	138	606	0	0	200	0	
Turn Type				Split	NA		Perm	NA			NA		
Protected Phases				5	5			1			1		2
Permitted Phases							1						
Detector Phase				5	5		1	1			1		
Switch Phase													
Minimum Initial (s)				8.0	8.0		20.0	20.0			20.0		2.0
Minimum Split (s)				25.0	25.0		28.0	28.0			28.0		24.0
Total Split (s)				48.0	48.0		28.0	28.0			28.0		24.0
Total Split (%)				48.0%	48.0%		28.0%	28.0%			28.0%		24%
Maximum Green (s)				44.0	44.0		24.0	24.0			24.0		22.0
Yellow Time (s)				3.0	3.0		3.0	3.0			3.0		2.0
All-Red Time (s)				1.0	1.0		1.0	1.0			1.0		0.0
Lost Time Adjust (s)				0.0	0.0		0.0	0.0			0.0		
Total Lost Time (s)				4.0	4.0		4.0	4.0			4.0		
Lead/Lag							Lead	Lead			Lead		Lag
Lead-Lag Optimize?													
Vehicle Extension (s)				3.0	3.0		3.0	3.0			3.0		3.0
Recall Mode				None	None		C-Max	C-Max			C-Max		None
Walk Time (s)				8.0	8.0		16.0	16.0			16.0		7.0
Flash Dont Walk (s)				13.0	13.0		8.0	8.0			8.0		15.0
Pedestrian Calls (#/hr)				246	246		0	0			0		0
Act Effct Green (s)				41.1	41.1		50.9	50.9			50.9		
Actuated g/C Ratio				0.41	0.41		0.51	0.51			0.51		
v/c Ratio				0.83	0.83		0.30	0.73			0.18		
Control Delay				35.0	35.0		17.3	26.4			9.4		
Queue Delay				0.4	0.4		0.0	0.0			0.0		
Total Delay				35.4	35.4		17.3	26.4			9.4		
LOS				D	D		B	C			A		
Approach Delay				35.4	35.4			24.7			9.4		
Approach LOS				D	D			C			A		
Queue Length 50th (ft)				304	304		50	297			22		
Queue Length 95th (ft)				m273	m273		97	458			36		
Internal Link Dist (ft)		243			395			739			355		
Turn Bay Length (ft)							70						
Base Capacity (vph)				1826	1826		467	833			1099		
Starvation Cap Reductn				95	95		0	0			0		
Spillback Cap Reductn				0	0		0	0			0		
Storage Cap Reductn				0	0		0	0			0		
Reduced v/c Ratio				0.82	0.82		0.30	0.73			0.18		

**Intersection Summary**

Area Type: CBD  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 25 (25%), Referenced to phase 1:NBSB, Start of Green  
 Natural Cycle: 100  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.83  
 Intersection Signal Delay: 29.8 Intersection LOS: C  
 Intersection Capacity Utilization 74.0% ICU Level of Service D  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.

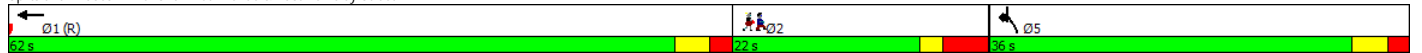


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations					↑↑↑		↓						↑
Traffic Volume (vph)	0	0	0	0	1203	0	71	0	0	0	0	205	
Future Volume (vph)	0	0	0	0	1203	0	71	0	0	0	0	205	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor													0.865
Flt													
Flt Protected							0.950						
Satd. Flow (prot)	0	0	0	0	4532	0	1593	0	0	0	0	1465	
Flt Permitted							0.950						
Satd. Flow (perm)	0	0	0	0	4532	0	1593	0	0	0	0	1465	
Right Turn on Red				Yes		Yes	Yes		Yes			Yes	
Satd. Flow (RTOR)							265					265	
Link Speed (mph)		30			30			30				30	
Link Distance (ft)		829			323			598				590	
Travel Time (s)		18.8			7.3			13.6				13.4	
Confl. Bikes (#/hr)													4
Peak Hour Factor	0.92	0.92	0.92	0.98	0.98	0.98	0.84	0.84	0.84	0.93	0.93	0.93	
Heavy Vehicles (%)	0%	0%	0%	0%	3%	0%	2%	0%	0%	0%	0%	0%	1%
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	0	0	0	1228	0	85	0	0	0	0	220	
Turn Type					NA		Prot					Prot	
Protected Phases					1		5!					5!	2
Permitted Phases													
Detector Phase					1		5					5	
Switch Phase													
Minimum Initial (s)					8.0		8.0					8.0	1.0
Minimum Split (s)					62.0		20.0					20.0	22.0
Total Split (s)					62.0		36.0					36.0	22.0
Total Split (%)					51.7%		30.0%					30.0%	18%
Maximum Green (s)					57.0		31.0					31.0	16.0
Yellow Time (s)					3.0		3.0					3.0	2.0
All-Red Time (s)					2.0		2.0					2.0	4.0
Lost Time Adjust (s)					0.0		0.0					0.0	
Total Lost Time (s)					5.0		5.0					5.0	
Lead/Lag					Lead								Lag
Lead-Lag Optimize?													
Vehicle Extension (s)					2.0		2.0					2.0	0.2
Recall Mode					C-Max		None					None	None
Walk Time (s)					47.0		8.0					8.0	7.0
Flash Dont Walk (s)					10.0		7.0					7.0	9.0
Pedestrian Calls (#/hr)					0		51					51	237
Act Effct Green (s)					74.4		13.6					13.6	
Actuated g/C Ratio					0.62		0.11					0.11	
v/c Ratio					0.44		0.20					0.55	
Control Delay					12.7		1.1					7.9	
Queue Delay					2.1		0.0					0.0	
Total Delay					14.9		1.1					7.9	
LOS					B		A					A	
Approach Delay					14.9			1.1				7.9	
Approach LOS					B			A				A	
Queue Length 50th (ft)					175		0					0	
Queue Length 95th (ft)					209		0					39	
Internal Link Dist (ft)		749			243			518				510	
Turn Bay Length (ft)													
Base Capacity (vph)					2809		608					575	
Starvation Cap Reductn					1385		0					0	
Spillback Cap Reductn					0		0					0	
Storage Cap Reductn					0		0					0	
Reduced v/c Ratio					0.86		0.14					0.38	

Intersection Summary

Area Type: CBD  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 98 (82%), Referenced to phase 1:WBT, Start of Green  
 Natural Cycle: 105  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.55  
 Intersection Signal Delay: 13.1  
 Intersection Capacity Utilization 56.0%  
 Analysis Period (min) 15  
 ! Phase conflict between lane groups.

Splits and Phases: 15: Shawmut Avenue & East Berkeley Street



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations	↘		↗	↘	↗		↘	↗		↘	↗		
Traffic Volume (vph)	28	0	19	330	543	188	140	347	0	0	366	81	
Future Volume (vph)	28	0	19	330	543	188	140	347	0	0	366	81	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	1.00	1.00	0.95	0.95	
Ped Bike Factor					1.00			0.99				0.98	
Frt			0.850		0.961							0.973	
Flt Protected	0.950			0.950				0.986					
Satd. Flow (prot)	1624	0	1454	1593	3013	0	0	3119	0	0	3021	0	
Flt Permitted	0.143			0.950				0.620					
Satd. Flow (perm)	245	0	1454	1593	3013	0	0	1941	0	0	3021	0	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)			100		43						22		
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		647			829			409			534		
Travel Time (s)		14.7			18.8			9.3			12.1		
Confl. Peds. (#/hr)							79					66	
Confl. Bikes (#/hr)						5						9	
Peak Hour Factor	0.70	0.70	0.70	0.92	0.92	0.92	0.81	0.81	0.81	0.92	0.92	0.92	
Heavy Vehicles (%)	0%	0%	0%	2%	4%	1%	2%	3%	0%	0%	3%	3%	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	40	0	27	359	794	0	0	601	0	0	486	0	
Turn Type	D,Pm		Perm	Perm	NA		pm+pt	NA			NA		
Protected Phases					5		6	1 6			1		2
Permitted Phases	5		5	5			1 6						
Detector Phase	5		5	5	5		6	1 6			1		
Switch Phase													
Minimum Initial (s)	5.0		5.0	5.0	5.0		4.0				10.0		1.0
Minimum Split (s)	9.0		9.0	9.0	9.0		8.0				38.0		25.0
Total Split (s)	44.0		44.0	44.0	44.0		13.0				38.0		25.0
Total Split (%)	36.7%		36.7%	36.7%	36.7%		10.8%				31.7%		21%
Maximum Green (s)	40.0		40.0	40.0	40.0		9.0				34.0		19.0
Yellow Time (s)	3.0		3.0	3.0	3.0		3.0				3.0		2.0
All-Red Time (s)	1.0		1.0	1.0	1.0		1.0				1.0		4.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0						0.0		
Total Lost Time (s)	4.0		4.0	4.0	4.0						4.0		
Lead/Lag											Lead		Lag
Lead-Lag Optimize?													
Vehicle Extension (s)	2.0		2.0	2.0	2.0		2.0				2.0		0.2
Recall Mode	None		None	None	None		None				C-Max		None
Walk Time (s)											28.0		8.0
Flash Dont Walk (s)											6.0		11.0
Pedestrian Calls (#/hr)											0		212
Act Effct Green (s)	36.1		36.1	36.1	36.1		46.9				37.9		
Actuated g/C Ratio	0.30		0.30	0.30	0.30		0.39				0.32		
v/c Ratio	0.55		0.05	0.75	0.85		0.71				0.50		
Control Delay	63.4		0.2	39.6	38.0		33.8				34.8		
Queue Delay	0.0		0.0	0.0	0.0		0.0				0.0		
Total Delay	63.4		0.2	39.6	38.0		33.8				34.8		
LOS	E		A	D	D		C				C		
Approach Delay		37.9			38.5		33.8				34.8		
Approach LOS		D			D		C				C		
Queue Length 50th (ft)	25		0	251	289		175				156		
Queue Length 95th (ft)	48		0	366	371		207				217		
Internal Link Dist (ft)		567			749		329				454		
Turn Bay Length (ft)													
Base Capacity (vph)	81		551	531	1033		847				970		
Starvation Cap Reductn	0		0	0	0		0				0		
Spillback Cap Reductn	0		0	0	0		0				0		
Storage Cap Reductn	0		0	0	0		0				0		
Reduced v/c Ratio	0.49		0.05	0.68	0.77		0.71				0.50		

Intersection Summary

Area Type:	CBD
Cycle Length:	120
Actuated Cycle Length:	120
Offset:	75 (63%), Referenced to phase 1:NBSB, Start of Green
Natural Cycle:	90
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.85
Intersection Signal Delay:	36.5
Intersection Capacity Utilization:	80.5%
Analysis Period (min):	15
Intersection LOS:	D
ICU Level of Service:	D

Splits and Phases: 14: Tremont Street & Berkeley Street/East Berkeley Street



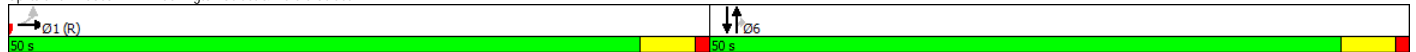
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔↔						↑	↑		↑	
Traffic Volume (vph)	93	1178	80	0	0	0	0	740	67	0	24	0
Future Volume (vph)	93	1178	80	0	0	0	0	740	67	0	24	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	12	12	12	12	11	11	12	12	12
Lane Util. Factor	0.91	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00							0.80			
Frt		0.991							0.850			
Flt Protected		0.997										
Satd. Flow (prot)	0	4300	0	0	0	0	0	1621	1378	0	1676	0
Flt Permitted		0.997										
Satd. Flow (perm)	0	4300	0	0	0	0	0	1621	1097	0	1676	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13							22			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		323			408			147			296	
Travel Time (s)		7.3			9.3			3.3			6.7	
Confl. Peds. (#/hr)			50						152			
Confl. Bikes (#/hr)									17			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Bus Blockages (#/hr)	0	9	9	0	0	0	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1468	0	0	0	0	0	804	73	0	26	0
Turn Type	Perm	NA						NA	Perm		NA	
Protected Phases		1						6			6	
Permitted Phases	1								6			
Detector Phase	1	1						6	6		6	
Switch Phase												
Minimum Initial (s)	12.0	12.0						12.0	12.0		12.0	
Minimum Split (s)	29.0	29.0						29.0	29.0		29.0	
Total Split (s)	50.0	50.0						50.0	50.0		50.0	
Total Split (%)	50.0%	50.0%						50.0%	50.0%		50.0%	
Maximum Green (s)	45.0	45.0						45.0	45.0		45.0	
Yellow Time (s)	4.0	4.0						4.0	4.0		4.0	
All-Red Time (s)	1.0	1.0						1.0	1.0		1.0	
Lost Time Adjust (s)		-1.0						-1.0	-1.0		-1.0	
Total Lost Time (s)		4.0						4.0	4.0		4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0						3.0	3.0		3.0	
Recall Mode	C-Max	C-Max						None	None		None	
Walk Time (s)	15.0	15.0						15.0	15.0		15.0	
Flash Dont Walk (s)	9.0	9.0						9.0	9.0		9.0	
Pedestrian Calls (#/hr)	0	0						0	0		0	
Act Effct Green (s)		46.0						46.0	46.0		46.0	
Actuated g/C Ratio		0.46						0.46	0.46		0.46	
v/c Ratio		0.74						1.08	0.14		0.03	
Control Delay		24.7						84.4	12.3		15.1	
Queue Delay		0.3						0.0	0.1		0.0	
Total Delay		25.0						84.4	12.4		15.1	
LOS		C						F	B		B	
Approach Delay		25.0						78.4			15.1	
Approach LOS		C						E			B	
Queue Length 50th (ft)		269						-575	18		9	
Queue Length 95th (ft)		327						#805	45		24	
Internal Link Dist (ft)		243			328			67			216	
Turn Bay Length (ft)												
Base Capacity (vph)		1985						745	516		770	
Starvation Cap Reductn		0						0	0		0	
Spillback Cap Reductn		112						0	97		0	
Storage Cap Reductn		0						0	0		0	
Reduced v/c Ratio		0.78						1.08	0.17		0.03	

Intersection Summary

Area Type: CBD  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 19 (19%), Referenced to phase 1:EBTL, Start of Green  
 Natural Cycle: 70  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.08  
 Intersection Signal Delay: 44.6  
 Intersection Capacity Utilization 79.5%  
 Analysis Period (min) 15  
 Intersection LOS: D  
 ICU Level of Service D

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

Splits and Phases: 1: Washington Street & Herald Street



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations		↑↑↑								↑↑	↑↑		
Traffic Volume (vph)	0	1035	210	0	0	0	0	0	111	119	221	0	
Future Volume (vph)	0	1035	210	0	0	0	0	0	111	119	221	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	14	13	13	12	12	12	12	12	16	12	14	14	
Lane Util. Factor	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	
Ped Bike Factor		1.00											
Frt		0.975							0.865				
Flt Protected										0.950			
Satd. Flow (prot)	0	4595	0	0	0	0	0	0	1644	1593	3398	0	
Flt Permitted										0.950			
Satd. Flow (perm)	0	4595	0	0	0	0	0	0	1644	1593	3398	0	
Right Turn on Red			Yes			Yes			Yes	Yes		Yes	
Satd. Flow (RTOR)		51							387	129			
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		408			542			147			275		
Travel Time (s)		9.3			12.3			3.3			6.3		
Confl. Bikes (#/hr)			1										
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	1353	0	0	0	0	0	0	121	129	240	0	
Turn Type		NA							Prot	Prot	NA		
Protected Phases		1							6	5	5 6		2
Permitted Phases													
Detector Phase		1							6	5	5 6		
Switch Phase													
Minimum Initial (s)		10.0							8.0	8.0			1.0
Minimum Split (s)		15.0							13.0	13.0			26.0
Total Split (s)		44.0							14.0	16.0			26.0
Total Split (%)		44.0%							14.0%	16.0%			26%
Maximum Green (s)		39.0							9.0	11.0			22.0
Yellow Time (s)		4.0							4.0	3.0			3.0
All-Red Time (s)		1.0							1.0	2.0			1.0
Lost Time Adjust (s)		-1.0							-1.0	-1.0			
Total Lost Time (s)		4.0							4.0	4.0			
Lead/Lag		Lead							Lag	Lead			Lag
Lead-Lag Optimize?		Yes							Yes	Yes			
Vehicle Extension (s)		2.0							2.0	2.0			0.2
Recall Mode		C-Max							None	Max			None
Walk Time (s)													7.0
Flash Dont Walk (s)													14.0
Pedestrian Calls (#/hr)													271
Act Effct Green (s)		42.0							9.0	12.0	25.0		
Actuated g/C Ratio		0.42							0.09	0.12	0.25		
v/c Ratio		0.69							0.24	0.42	0.28		
Control Delay		51.2							0.7	12.1	31.4		
Queue Delay		3.6							0.0	0.0	0.0		
Total Delay		54.8							0.7	12.1	31.4		
LOS		D							A	B	C		
Approach Delay		54.8						0.7			24.6		
Approach LOS		D						A			C		
Queue Length 50th (ft)		331							0	0	65		
Queue Length 95th (ft)		380							m0	53	99		
Internal Link Dist (ft)		328			462			67			195		
Turn Bay Length (ft)													
Base Capacity (vph)		1959							512	304	883		
Starvation Cap Reductn		500							0	0	0		
Spillback Cap Reductn		0							0	0	0		
Storage Cap Reductn		0							0	0	0		
Reduced v/c Ratio		0.93							0.24	0.42	0.27		

Intersection Summary

Area Type: CBD  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 87 (87%), Referenced to phase 1:EBT, Start of Green  
 Natural Cycle: 80  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.69  
 Intersection Signal Delay: 45.2  
 Intersection Capacity Utilization 52.4%  
 Analysis Period (min) 15  
 m Volume for 95th percentile queue is metered by upstream signal.  
 Intersection LOS: D  
 ICU Level of Service A

Splits and Phases: 2: Harrison Avenue & Herald Street



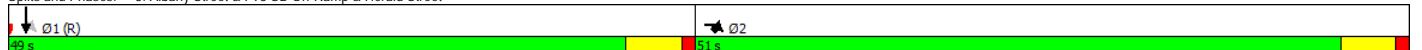


	↖	↗	↘	↙	↕	↖	↗	↘	↙	↕	↖	↗
Lane Group	EBL	EBR	EBR2	NBL	NBT	NBR	SBL	SBT	SBR	NWL	NWR	
Lane Configurations		↘	↘					↖↖↖				
Traffic Volume (vph)	0	574	691	0	0	0	113	1223	0	0	0	
Future Volume (vph)	0	574	691	0	0	0	113	1223	0	0	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Util. Factor	1.00	0.76	0.88	1.00	1.00	1.00	0.91	0.91	1.00	1.00	1.00	
Frt		0.850	0.850									
Flt Protected								0.996				
Satd. Flow (prot)	0	1083	2508	0	0	0	0	4558	0	0	0	
Flt Permitted								0.996				
Satd. Flow (perm)	0	1083	2508	0	0	0	0	4558	0	0	0	
Right Turn on Red			No			Yes	Yes		No		Yes	
Satd. Flow (RTOR)								22				
Link Speed (mph)	30				30			30		30		
Link Distance (ft)	542				742			329		393		
Travel Time (s)	12.3				16.9			7.5		8.9		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Shared Lane Traffic (%)			0%									
Lane Group Flow (vph)	0	624	751	0	0	0	0	1452	0	0	0	
Turn Type		Prot	Prot				Perm	NA				
Protected Phases		2	2					1				
Permitted Phases							1					
Detector Phase		2	2				1	1				
Switch Phase												
Minimum Initial (s)		8.0	8.0				8.0	8.0				
Minimum Split (s)		23.0	23.0				23.0	23.0				
Total Split (s)		51.0	51.0				49.0	49.0				
Total Split (%)		51.0%	51.0%				49.0%	49.0%				
Maximum Green (s)		46.0	46.0				44.0	44.0				
Yellow Time (s)		4.0	4.0				4.0	4.0				
All-Red Time (s)		1.0	1.0				1.0	1.0				
Lost Time Adjust (s)		0.0	-1.0					-1.0				
Total Lost Time (s)		5.0	4.0					4.0				
Lead/Lag		Lag	Lag				Lead	Lead				
Lead-Lag Optimize?		Yes	Yes				Yes	Yes				
Vehicle Extension (s)		2.0	2.0				2.0	2.0				
Recall Mode		Max	Max				C-Max	C-Max				
Act Effct Green (s)		46.0	47.0					45.0				
Actuated g/C Ratio		0.46	0.47					0.45				
v/c Ratio		1.25	0.64					0.70				
Control Delay		159.9	31.7					24.1				
Queue Delay		0.0	0.0					0.0				
Total Delay		159.9	31.7					24.1				
LOS		F	C					C				
Approach Delay	89.9							24.1				
Approach LOS	F							C				
Queue Length 50th (ft)		-682	280					261				
Queue Length 95th (ft)		#961	338					316				
Internal Link Dist (ft)	462				662			249		313		
Turn Bay Length (ft)												
Base Capacity (vph)		498	1178					2063				
Starvation Cap Reductn		0	0					0				
Spillback Cap Reductn		0	0					0				
Storage Cap Reductn		0	0					0				
Reduced v/c Ratio		1.25	0.64					0.70				

Intersection Summary

Area Type: CBD  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 80 (80%), Referenced to phase 1:SBTL, Start of Green  
 Natural Cycle: 70  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.25  
 Intersection Signal Delay: 56.1 Intersection LOS: E  
 Intersection Capacity Utilization Err% ICU Level of Service H  
 Analysis Period (min) 15  
 - Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 3: Albany Street & I-93 SB On-Ramp & Herald Street



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↑↓			↑↓
Traffic Volume (vph)	54	202	544	156	66	91
Future Volume (vph)	54	202	544	156	66	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	13	11	12	12	12
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95
Ped Bike Factor	0.98		0.97			0.98
Frt	0.894		0.966			
Flt Protected	0.990					0.979
Satd. Flow (prot)	1468	0	2881	0	0	3118
Flt Permitted	0.990					0.699
Satd. Flow (perm)	1461	0	2881	0	0	2189
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)	185		106			
Link Speed (mph)	30		30			30
Link Distance (ft)	417		435			294
Travel Time (s)	9.5		9.9			6.7
Confl. Peds. (#/hr)	20	1		99	99	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	279	0	761	0	0	171
Turn Type	Prot		NA		Perm	NA
Protected Phases	5		1			1
Permitted Phases					1	
Detector Phase	5		1		1	1
Switch Phase						
Minimum Initial (s)	4.0		10.0		10.0	10.0
Minimum Split (s)	21.0		28.0		28.0	28.0
Total Split (s)	21.0		39.0		39.0	39.0
Total Split (%)	35.0%		65.0%		65.0%	65.0%
Maximum Green (s)	16.0		35.0		35.0	35.0
Yellow Time (s)	4.0		3.0		3.0	3.0
All-Red Time (s)	1.0		1.0		1.0	1.0
Lost Time Adjust (s)	0.0		0.0		0.0	0.0
Total Lost Time (s)	5.0		4.0		4.0	4.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		2.0		2.0	2.0
Recall Mode	None		C-Max		C-Max	C-Max
Walk Time (s)	5.0		17.0		17.0	17.0
Flash Dont Walk (s)	11.0		7.0		7.0	7.0
Pedestrian Calls (#/hr)	0		0		0	0
Act Effct Green (s)	10.1		40.9		40.9	40.9
Actuated g/C Ratio	0.17		0.68		0.68	0.68
v/c Ratio	0.70		0.38		0.11	0.11
Control Delay	17.9		4.8		4.4	4.4
Queue Delay	0.0		0.0		0.0	0.0
Total Delay	17.9		4.8		4.4	4.4
LOS	B		A		A	A
Approach Delay	17.9		4.8		4.4	4.4
Approach LOS	B		A		A	A
Queue Length 50th (ft)	31		39		8	8
Queue Length 95th (ft)	87		92		24	24
Internal Link Dist (ft)	337		355		214	214
Turn Bay Length (ft)						
Base Capacity (vph)	527		1997		1491	1491
Starvation Cap Reductn	0		0		0	0
Spillback Cap Reductn	0		0		0	0
Storage Cap Reductn	0		0		0	0
Reduced v/c Ratio	0.53		0.38		0.11	0.11

Intersection Summary

Area Type: CBD  
 Cycle Length: 60  
 Actuated Cycle Length: 60  
 Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green  
 Natural Cycle: 50  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.70  
 Intersection Signal Delay: 7.7  
 Intersection Capacity Utilization 60.0%  
 Analysis Period (min) 15  
 Intersection LOS: A  
 ICU Level of Service B

Splits and Phases: 6: Washington Street & Traveler Street



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations		↕			↕		↕	↕		↕	↕		
Traffic Volume (vph)	35	155	5	62	88	151	159	248	191	148	334	39	
Future Volume (vph)	35	155	5	62	88	151	159	248	191	148	334	39	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	10	10	10	12	12	12	12	12	12	
Storage Length (ft)	0	0	0	0	0	0	90	0	0	160	0	0	
Storage Lanes	0	0	0	0	0	0	1	0	0	1	0	0	
Taper Length (ft)	25	25	25	25	25	25	25	25	25	25	25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor					0.99		0.99		0.99		1.00		
Frt		0.997			0.932		0.935		0.984				
Flt Protected		0.991			0.990		0.950		0.950				
Satd. Flow (prot)	0	1656	0	0	1428	0	1593	1550	0	1593	1481	0	
Flt Permitted		0.767			0.823		0.261		0.175				
Satd. Flow (perm)	0	1282	0	0	1187	0	438	1550	0	293	1481	0	
Right Turn on Red			Yes			Yes			No			No	
Satd. Flow (RTOR)		1			46								
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		417			550			388			371		
Travel Time (s)		9.5			12.5			8.8			8.4		
Confl. Bikes (#/hr)						1			5			5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Parking (#/hr)											0	0	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	211	0	0	327	0	173	478	0	161	405	0	
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA		
Protected Phases		3			3		4	1		4	1		2
Permitted Phases		3			3		1			1			
Detector Phase		3			3		4	1		4	1		
Switch Phase													
Minimum Initial (s)	6.0	6.0		6.0	6.0		5.0	10.0		5.0	10.0		1.0
Minimum Split (s)	13.0	13.0		13.0	13.0		12.0	17.0		12.0	17.0		26.0
Total Split (s)	26.0	26.0		26.0	26.0		12.0	36.0		12.0	36.0		26.0
Total Split (%)	26.0%	26.0%		26.0%	26.0%		12.0%	36.0%		12.0%	36.0%		26%
Maximum Green (s)	21.0	21.0		21.0	21.0		7.0	31.0		7.0	31.0		22.0
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	4.0		3.0	4.0		3.0
All-Red Time (s)	1.0	1.0		1.0	1.0		2.0	1.0		2.0	1.0		1.0
Lost Time Adjust (s)		0.0			-1.0		1.0	0.0		0.0	0.0		
Total Lost Time (s)		5.0			4.0		6.0	5.0		5.0	5.0		
Lead/Lag	Lead	Lead		Lead	Lead		Lag	Lead		Lag	Lead		Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes								
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0		0.2
Recall Mode	None	None		None	None		None	C-Max		None	C-Max		None
Walk Time (s)													7.0
Flash Dont Walk (s)													15.0
Pedestrian Calls (#/hr)													196
Act Effct Green (s)		21.0			22.0		36.0	31.0		38.0	31.0		
Actuated g/C Ratio		0.21			0.22		0.36	0.31		0.38	0.31		
v/c Ratio		0.78			1.10		0.77	1.00		0.80	0.88		
Control Delay		58.5			115.3		13.9	34.8		55.6	51.2		
Queue Delay		0.0			0.0		0.0	31.1		0.0	0.0		
Total Delay		58.5			115.3		13.9	65.9		55.6	51.2		
LOS		E			F		B	E		E	D		
Approach Delay		58.5			115.3			52.0			52.4		
Approach LOS		E			F			D			D		
Queue Length 50th (ft)		127			-214		48	287		72	179		
Queue Length 95th (ft)		#246			#388		m38	m217		m#140	#425		
Internal Link Dist (ft)		337			470			308			291		
Turn Bay Length (ft)							90			160			
Base Capacity (vph)		270			297		226	480		202	459		
Starvation Cap Reductn		0			0		0	42		0	0		
Spillback Cap Reductn		0			0		0	0		0	0		
Storage Cap Reductn		0			0		0	0		0	0		
Reduced v/c Ratio		0.78			1.10		0.77	1.09		0.80	0.88		

Intersection Summary

Area Type: CBD  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 55 (55%), Referenced to phase 1:NBSB, Start of Green  
 Natural Cycle: 100  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.10  
 Intersection Signal Delay: 64.7  
 Intersection LOS: E  
 Intersection Capacity Utilization 75.3%  
 ICU Level of Service D  
 Analysis Period (min) 15  
 - Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 9: Harrison Avenue & Traveler Street





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations		↕								↕	↕↕		
Traffic Volume (vph)	0	260	236	0	0	0	0	0	0	808	838	268	
Future Volume (vph)	0	260	236	0	0	0	0	0	0	808	838	268	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	0.95	
Ped Bike Factor		0.99											
Frt		0.936									0.969		
Flt Protected										0.950	0.993		
Satd. Flow (prot)	0	1559	0	0	0	0	0	0	0	1449	2936	0	
Flt Permitted										0.950	0.993		
Satd. Flow (perm)	0	1559	0	0	0	0	0	0	0	1449	2936	0	
Right Turn on Red			No			No			No	No		No	
Satd. Flow (RTOR)													
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		550			284			404			742		
Travel Time (s)		12.5			6.5			9.2			16.9		
Confl. Bikes (#/hr)			2										
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Shared Lane Traffic (%)										21%			
Lane Group Flow (vph)	0	540	0	0	0	0	0	0	0	694	1386	0	
Turn Type		NA								Perm	NA		
Protected Phases		5									1		2
Permitted Phases										1			
Detector Phase		5								1	1		
Switch Phase													
Minimum Initial (s)		8.0								10.0	10.0		1.0
Minimum Split (s)		13.0								67.0	67.0		23.0
Total Split (s)		30.0								67.0	67.0		23.0
Total Split (%)		25.0%								55.8%	55.8%		19%
Maximum Green (s)		25.0								62.0	62.0		17.0
Yellow Time (s)		4.0								4.0	4.0		2.0
All-Red Time (s)		1.0								1.0	1.0		4.0
Lost Time Adjust (s)		-1.0								-1.0	-1.0		
Total Lost Time (s)		4.0								4.0	4.0		
Lead/Lag										Lead	Lead		Lag
Lead-Lag Optimize?										Yes	Yes		Yes
Vehicle Extension (s)		0.2								2.0	2.0		0.2
Recall Mode		None								C-Max	C-Max		None
Walk Time (s)										50.0	50.0		7.0
Flash Dont Walk (s)										12.0	12.0		10.0
Pedestrian Calls (#/hr)										0	0		94
Act Effct Green (s)		26.0								63.0	63.0		
Actuated g/C Ratio		0.22								0.52	0.52		
v/c Ratio		1.60								0.91	0.90		
Control Delay		317.0								44.4	35.0		
Queue Delay		0.1								36.4	29.6		
Total Delay		317.0								80.9	64.6		
LOS		F								F	E		
Approach Delay		317.0									70.0		
Approach LOS		F									E		
Queue Length 50th (ft)		-598								518	510		
Queue Length 95th (ft)		#814								#810	#645		
Internal Link Dist (ft)		470			204			324			662		
Turn Bay Length (ft)													
Base Capacity (vph)		337								760	1541		
Starvation Cap Reductn		0								0	0		
Spillback Cap Reductn		2								114	232		
Storage Cap Reductn		0								0	0		
Reduced v/c Ratio		1.61								1.07	1.06		

Intersection Summary

Area Type: CBD  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 2 (2%), Referenced to phase 1:SBTL, Start of Green  
 Natural Cycle: 145  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.60  
 Intersection Signal Delay: 120.9  
 Intersection LOS: F  
 Intersection Capacity Utilization 78.8%  
 ICU Level of Service D  
 Analysis Period (min) 15  
 - Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 10: Albany Street & Traveler Street

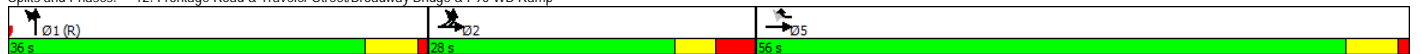


Lane Group	EBL2	EBL	EBT	WBR	WBR2	NBL	NBT	NBR
Lane Configurations								
Traffic Volume (vph)	114	248	706	372	716	267	510	37
Future Volume (vph)	114	248	706	372	716	267	510	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	14	12	13	12	12	12	12
Storage Length (ft)		0		0		200		0
Storage Lanes		1		2		2		0
Taper Length (ft)		25				100		
Lane Util. Factor	0.95	1.00	0.95	0.88	1.00	0.97	0.91	0.91
Frt				0.850	0.850			
Flt Protected		0.950				0.950		
Satd. Flow (prot)	0	1699	3185	1296	1425	3090	4577	0
Flt Permitted		0.950				0.950		
Satd. Flow (perm)	0	1699	3185	1296	1425	3090	4577	0
Right Turn on Red	No				No			No
Satd. Flow (RTOR)								
Link Speed (mph)			30				30	
Link Distance (ft)			284				410	
Travel Time (s)			6.5				9.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)					24%			
Lane Group Flow (vph)	0	394	767	591	591	290	594	0
Turn Type	Prot	Prot	NA	Perm	Prot	Split	NA	
Protected Phases	2	2	2.5		5	1	1	
Permitted Phases				5				
Detector Phase	2	2	2.5	5	5	1	1	
Switch Phase								
Minimum Initial (s)	8.0	8.0		8.0	8.0	10.0	10.0	
Minimum Split (s)	28.0	28.0		13.5	13.5	36.0	36.0	
Total Split (s)	28.0	28.0		56.0	56.0	36.0	36.0	
Total Split (%)	23.3%	23.3%		46.7%	46.7%	30.0%	30.0%	
Maximum Green (s)	21.0	21.0		50.5	50.5	30.5	30.5	
Yellow Time (s)	3.5	3.5		4.5	4.5	4.5	4.5	
All-Red Time (s)	3.5	3.5		1.0	1.0	1.0	1.0	
Lost Time Adjust (s)		-2.0		-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)		5.0		3.5	3.5	3.5	3.5	
Lead/Lag								
Lead-Lag Optimize?								
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	2.0	
Recall Mode	None	None		None	None	C-Max	C-Max	
Walk Time (s)	7.0	7.0				9.5	9.5	
Flash Dont Walk (s)	14.0	14.0				21.0	21.0	
Pedestrian Calls (#/hr)	87	87				0	0	
Act Effct Green (s)		23.0	79.0	52.5	52.5	32.5	32.5	
Actuated g/C Ratio		0.19	0.66	0.44	0.44	0.27	0.27	
v/c Ratio		1.21	0.37	1.04	0.95	0.35	0.48	
Control Delay		131.9	12.6	83.2	58.8	10.6	11.4	
Queue Delay		2.1	18.6	0.0	0.0	0.0	0.0	
Total Delay		134.0	31.2	83.2	58.8	10.6	11.4	
LOS		F	C	F	E	B	B	
Approach Delay			66.1				11.1	
Approach LOS			E				B	
Queue Length 50th (ft)		-368	191	-563	432	47	76	
Queue Length 95th (ft)		m#359	m166	#815	#673	m48	m79	
Internal Link Dist (ft)			204				330	
Turn Bay Length (ft)						200		
Base Capacity (vph)		325	2096	567	623	836	1239	
Starvation Cap Reductn		52	1332	0	0	0	0	
Spillback Cap Reductn		0	0	0	0	0	0	
Storage Cap Reductn		0	0	0	0	0	0	
Reduced v/c Ratio		1.44	1.00	1.04	0.95	0.35	0.48	

Intersection Summary

Area Type: CBD  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 114 (95%), Referenced to phase 1:NBT, Start of Green  
 Natural Cycle: 140  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.21  
 Intersection Signal Delay: 52.8 Intersection LOS: D  
 Intersection Capacity Utilization 87.0% ICU Level of Service E  
 Analysis Period (min) 15  
 - Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 12: Frontage Road & Traveler Street/Broadway Bridge & I-90 WB Ramp



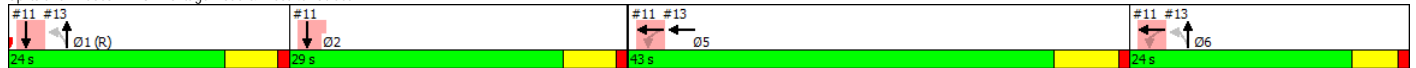


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø1	Ø2	Ø6
Lane Configurations					↑↑↑		↑	↑↑↑							
Traffic Volume (vph)	0	0	0	0	1017	158	554	656	268	0	0	0			
Future Volume (vph)	0	0	0	0	1017	158	554	656	268	0	0	0			
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900			
Lane Util. Factor	1.00	1.00	1.00	1.00	0.91	0.91	0.91	0.91	0.95	1.00	1.00	1.00			
Ped Bike Factor					1.00										
Frt					0.980			0.959							
Flt Protected							0.950	0.997							
Satd. Flow (prot)	0	0	0	0	4476	0	1449	2917	0	0	0	0			
Flt Permitted							0.950	0.997							
Satd. Flow (perm)	0	0	0	0	4476	0	1449	2917	0	0	0	0			
Right Turn on Red				No		No	No		No			No			
Satd. Flow (RTOR)															
Link Speed (mph)		30			30			30			30				
Link Distance (ft)		270			630			418			410				
Travel Time (s)		6.1			14.3			9.5			9.3				
Confl. Bikes (#/hr)						5									
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Shared Lane Traffic (%)								11%							
Lane Group Flow (vph)	0	0	0	0	1277	0	536	1070	0	0	0	0			
Turn Type					NA		Perm	NA							
Protected Phases					5			1 6					1	2	6
Permitted Phases								1 6							
Detector Phase					5			1 6	1 6						
Switch Phase															
Minimum Initial (s)					8.0								10.0	7.0	8.0
Minimum Split (s)					26.5								24.0	29.0	23.0
Total Split (s)					43.0								24.0	29.0	24.0
Total Split (%)					35.8%								20%	24%	20%
Maximum Green (s)					36.5								18.5	23.5	19.0
Yellow Time (s)					5.5								4.5	4.5	4.0
All-Red Time (s)					1.0								1.0	1.0	1.0
Lost Time Adjust (s)					-1.0										
Total Lost Time (s)					5.5										
Lead/Lag					Lead								Lead	Lag	Lag
Lead-Lag Optimize?													Yes		
Vehicle Extension (s)					2.0								2.0	2.0	2.0
Recall Mode					None								C-Max	None	None
Walk Time (s)					7.0								12.5	7.0	7.0
Flash Dont Walk (s)					13.0								6.0	16.5	11.0
Pedestrian Calls (#/hr)					98								0	100	46
Act Effct Green (s)					37.5		44.5	44.5							
Actuated g/C Ratio					0.31		0.37	0.37							
v/c Ratio					0.91		1.00	0.99							
Control Delay					50.7		76.7	62.9							
Queue Delay					42.4		6.1	3.9							
Total Delay					93.0		82.9	66.8							
LOS					F		F	E							
Approach Delay					93.0			72.2							
Approach LOS					F			E							
Queue Length 50th (ft)					347		451	448							
Queue Length 95th (ft)					#436		#713	#609							
Internal Link Dist (ft)		190			550			338			330				
Turn Bay Length (ft)															
Base Capacity (vph)					1398		537	1081							
Starvation Cap Reductn					0		0	0							
Spillback Cap Reductn					228		12	18							
Storage Cap Reductn					0		0	0							
Reduced v/c Ratio					1.09		1.02	1.01							

Intersection Summary

Area Type: CBD  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 117 (98%), Referenced to phase 1:SBT, Start of Green  
 Natural Cycle: 115  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.00  
 Intersection Signal Delay: 81.4  
 Intersection LOS: F  
 Intersection Capacity Utilization 83.5%  
 ICU Level of Service E  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 13: Frontage Road & West 4th Street



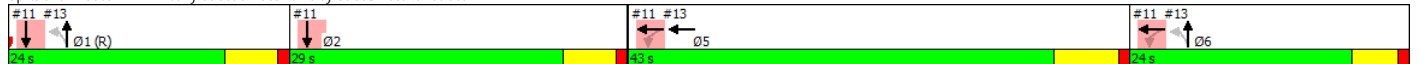


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø1	Ø2	Ø5	Ø6
Lane Configurations				↘	↗						↗	↘				
Traffic Volume (vph)	0	0	0	236	1497	0	0	0	0	0	525	549				
Future Volume (vph)	0	0	0	236	1497	0	0	0	0	0	525	549				
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900				
Lane Width (ft)	12	12	12	12	13	12	12	12	12	12	12	12				
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	0.91	0.91				
Ped Bike Factor											0.99	0.99				
Frt											0.923					
Flt Protected				0.950												
Satd. Flow (prot)	0	0	0	1593	3291	0	0	0	0	0	4196	0				
Flt Permitted				0.950												
Satd. Flow (perm)	0	0	0	1593	3291	0	0	0	0	0	4196	0				
Right Turn on Red			No	No		No			No		No	No				
Satd. Flow (RTOR)																
Link Speed (mph)		30			30			30			30					
Link Distance (ft)		514			270			454			404					
Travel Time (s)		11.7			6.1			10.3			9.2					
Confl. Bikes (#/hr)												2				
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92				
Shared Lane Traffic (%)																
Lane Group Flow (vph)	0	0	0	257	1627	0	0	0	0	0	1168	0				
Turn Type				Perm	NA						NA					
Protected Phases					5 6						1 2		1	2	5	6
Permitted Phases				5 6												
Detector Phase				5 6	5 6						1 2					
Switch Phase																
Minimum Initial (s)													10.0	7.0	8.0	8.0
Minimum Split (s)													24.0	29.0	26.5	23.0
Total Split (s)													24.0	29.0	43.0	24.0
Total Split (%)													20%	24%	36%	20%
Maximum Green (s)													18.5	23.5	36.5	19.0
Yellow Time (s)													4.5	4.5	5.5	4.0
All-Red Time (s)													1.0	1.0	1.0	1.0
Lost Time Adjust (s)																
Total Lost Time (s)																
Lead/Lag													Lead	Lag	Lead	Lag
Lead-Lag Optimize?													Yes			
Vehicle Extension (s)													2.0	2.0	2.0	2.0
Recall Mode													C-Max	None	None	None
Walk Time (s)													12.5	7.0	7.0	7.0
Flash Dont Walk (s)													6.0	16.5	13.0	11.0
Pedestrian Calls (#/hr)													0	100	98	46
Act Effct Green (s)				61.5	61.5						49.5					
Actuated g/C Ratio				0.51	0.51						0.41					
v/c Ratio				0.31	0.97						1.01dr					
Control Delay				12.4	30.2						22.3					
Queue Delay				2.8	42.7						1.4					
Total Delay				15.2	72.9						23.8					
LOS				B	E						C					
Approach Delay					65.1						23.8					
Approach LOS					E						C					
Queue Length 50th (ft)				59	642						183					
Queue Length 95th (ft)				m65	m#759						m201					
Internal Link Dist (ft)		434			190			374			324					
Turn Bay Length (ft)																
Base Capacity (vph)				816	1686						1730					
Starvation Cap Reductn				441	326						349					
Spillback Cap Reductn				0	0						0					
Storage Cap Reductn				0	0						0					
Reduced v/c Ratio				0.69	1.20						0.85					

Intersection Summary

Area Type: CBD  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 117 (98%), Referenced to phase 1:SBT, Start of Green  
 Natural Cycle: 115  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.00  
 Intersection Signal Delay: 49.3 Intersection LOS: D  
 Intersection Capacity Utilization 93.7% ICU Level of Service F  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.  
 dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Splits and Phases: 11: Albany Street & East Berkeley Street/West 4th Street



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR	Ø2
Lane Configurations					↕↕↕			↕				↕	↕	
Traffic Volume (vph)	0	0	0	203	1316	365	61	242	0	2	0	245	146	
Future Volume (vph)	0	0	0	203	1316	365	61	242	0	2	0	245	146	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	15	11	11	12	14	12	12	12	12	16	
Storage Length (ft)	0	0	0	0	0	0	0	0	0	0	0	0	150	
Storage Lanes	0	0	0	0	0	0	0	0	0	0	0	0	1	
Taper Length (ft)	25			25			25				25			
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor					1.00									0.98
Frt					0.971									0.850
Flt Protected					0.995			0.990						
Satd. Flow (prot)	0	0	0	0	4140	0	0	1593	0	0	0	1676	1454	
Flt Permitted					0.995			0.737				0.998		
Satd. Flow (perm)	0	0	0	0	4140	0	0	1186	0	0	0	1673	1429	
Right Turn on Red			Yes			Yes			Yes					Yes
Satd. Flow (RTOR)					62									159
Link Speed (mph)		30			30			30				30		
Link Distance (ft)		475			514			1333				388		
Travel Time (s)		10.8			11.7			30.3				8.8		
Confl. Bikes (#/hr)						5								6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Bus Blockages (#/hr)	0	0	0	0	20	20	0	0	0	0	0	0	0	
Parking (#/hr)					0			0						0
Shared Lane Traffic (%)														
Lane Group Flow (vph)	0	0	0	0	2048	0	0	329	0	0	0	268	159	
Turn Type				Perm	NA		Perm	NA		Perm		NA	Perm	
Protected Phases					1			5				5		2
Permitted Phases					1			5			5			5
Detector Phase					1	1		5	5			5	5	
Switch Phase														
Minimum Initial (s)				8.0	8.0		8.0	8.0		8.0		8.0	8.0	1.0
Minimum Split (s)				13.0	13.0		13.0	13.0		13.0		13.0	13.0	26.0
Total Split (s)				40.0	40.0		34.0	34.0		34.0		34.0	34.0	26.0
Total Split (%)				40.0%	40.0%		34.0%	34.0%		34.0%		34.0%	34.0%	26%
Maximum Green (s)				35.0	35.0		29.0	29.0		29.0		29.0	29.0	22.0
Yellow Time (s)				4.0	4.0		4.0	4.0		4.0		4.0	4.0	3.0
All-Red Time (s)				1.0	1.0		1.0	1.0		1.0		1.0	1.0	1.0
Lost Time Adjust (s)					0.0			0.0				0.0	0.0	
Total Lost Time (s)					5.0			5.0				5.0	5.0	
Lead/Lag				Lead	Lead									Lag
Lead-Lag Optimize?				Yes	Yes									Yes
Vehicle Extension (s)				2.0	2.0		2.0	2.0		2.0		2.0	2.0	0.2
Recall Mode				C-Max	C-Max		None	None		None		None	None	None
Walk Time (s)														7.0
Flash Dont Walk (s)														15.0
Pedestrian Calls (#/hr)														311
Act Effct Green (s)					35.7			28.3				28.3	28.3	
Actuated g/C Ratio					0.36			0.28				0.28	0.28	
v/c Ratio					1.35			0.98				0.57	0.31	
Control Delay					190.1			82.1				38.8	17.0	
Queue Delay					0.3			0.0				0.0	0.0	
Total Delay					190.5			82.1				38.8	17.0	
LOS					F			F				D	B	
Approach Delay					190.5			82.1				30.7		
Approach LOS					F			F				C		
Queue Length 50th (ft)					-632			206				174	61	
Queue Length 95th (ft)					#731			#380				m192	m68	
Internal Link Dist (ft)		395			434			1253				308		
Turn Bay Length (ft)													150	
Base Capacity (vph)					1518			343				485	527	
Starvation Cap Reductn					0			0				0	0	
Spillback Cap Reductn					131			0				0	4	
Storage Cap Reductn					0			0				0	0	
Reduced v/c Ratio					1.48			0.96				0.55	0.30	

Intersection Summary

Area Type: CBD  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 40 (40%), Referenced to phase 1:WBTL, Start of Green  
 Natural Cycle: 150  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.35  
 Intersection Signal Delay: 153.4  
 Intersection Capacity Utilization 86.7%  
 Intersection LOS: F  
 ICU Level of Service E  
 Analysis Period (min) 15  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 17: Harrison Avenue & East Berkeley Street





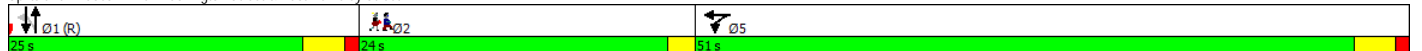
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations					↕↕↕		↕	↕			↕↕		
Traffic Volume (vph)	0	0	0	170	1142	211	88	439	0	0	107	38	
Future Volume (vph)	0	0	0	170	1142	211	88	439	0	0	107	38	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	11	11	11	10	13	12	12	12	12	
Storage Length (ft)	0	0	0	0	0	0	70	0	0	0	0	0	
Storage Lanes	0	0	0	0	0	0	1	0	0	0	0	0	
Taper Length (ft)	25			25			25			25			
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	0.91	1.00	1.00	1.00	1.00	0.95	0.95	
Ped Bike Factor				0.95	0.95		0.90						
Frt				0.979							0.961		
Flt Protected				0.994			0.950						
Satd. Flow (prot)	0	0	0	0	4169	0	1486	1732	0	0	3061	0	
Flt Permitted				0.994			0.652						
Satd. Flow (perm)	0	0	0	0	4050	0	918	1732	0	0	3061	0	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)					41						41		
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		323			475			819			435		
Travel Time (s)		7.3			10.8			18.6			9.9		
Confl. Peds. (#/hr)				179		85	83						
Confl. Bikes (#/hr)						7							
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Bus Blockages (#/hr)	0	0	0	0	10	0	0	0	0	0	0	0	
Parking (#/hr)									0				
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	0	0	0	1655	0	96	477	0	0	157	0	
Turn Type				Split	NA		Perm	NA			NA		
Protected Phases				5	5			1			1		2
Permitted Phases								1					
Detector Phase				5	5		1	1			1		
Switch Phase													
Minimum Initial (s)				8.0	8.0		20.0	20.0			20.0		2.0
Minimum Split (s)				25.0	25.0		24.0	24.0			24.0		24.0
Total Split (s)				51.0	51.0		25.0	25.0			25.0		24.0
Total Split (%)				51.0%	51.0%		25.0%	25.0%			25.0%		24%
Maximum Green (s)				47.0	47.0		21.0	21.0			21.0		22.0
Yellow Time (s)				3.0	3.0		3.0	3.0			3.0		2.0
All-Red Time (s)				1.0	1.0		1.0	1.0			1.0		0.0
Lost Time Adjust (s)					0.0		0.0	0.0			0.0		
Total Lost Time (s)					4.0		4.0	4.0			4.0		
Lead/Lag							Lead	Lead			Lead		Lag
Lead-Lag Optimize?													
Vehicle Extension (s)				3.0	3.0		3.0	3.0			3.0		3.0
Recall Mode				None	None		C-Min	C-Min			C-Min		None
Walk Time (s)				8.0	8.0		12.0	12.0			12.0		7.0
Flash Dont Walk (s)				13.0	13.0		8.0	8.0			8.0		15.0
Pedestrian Calls (#/hr)				264	264		0	0			0		264
Act Effct Green (s)					45.4		22.6	22.6			22.6		
Actuated g/C Ratio					0.45		0.23	0.23			0.23		
v/c Ratio					0.86		0.47	1.22			0.22		
Control Delay					6.7		43.1	156.9			24.7		
Queue Delay					10.9		0.0	0.0			0.0		
Total Delay					17.6		43.1	156.9			24.7		
LOS					B		D	F			C		
Approach Delay					17.6			137.8			24.7		
Approach LOS					B			F			C		
Queue Length 50th (ft)					48		54	-394			32		
Queue Length 95th (ft)					m39		109	#590			61		
Internal Link Dist (ft)		243			395			739			355		
Turn Bay Length (ft)							70						
Base Capacity (vph)					1981		206	390			722		
Starvation Cap Reductn					327		0	0			0		
Spillback Cap Reductn					0		0	0			0		
Storage Cap Reductn					0		0	0			0		
Reduced v/c Ratio					1.00		0.47	1.22			0.22		

Intersection Summary

Area Type: CBD  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.22  
 Intersection Signal Delay: 47.0  
 Intersection Capacity Utilization 77.7%  
 Analysis Period (min) 15  
 Intersection LOS: D  
 ICU Level of Service D

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

Splits and Phases: 16: Washington Street & East Berkeley Street



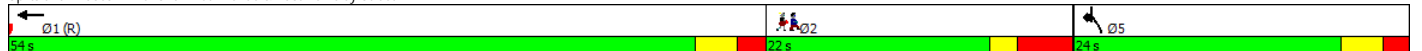


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations					↑↑↑		↓						↑
Traffic Volume (vph)	0	0	0	0	1268	0	78	0	0	0	0	0	124
Future Volume (vph)	0	0	0	0	1268	0	78	0	0	0	0	0	124
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor													0.865
Frt													
Flt Protected							0.950						
Satd. Flow (prot)	0	0	0	0	4577	0	1593	0	0	0	0	0	1450
Flt Permitted							0.950						
Satd. Flow (perm)	0	0	0	0	4577	0	1593	0	0	0	0	0	1450
Right Turn on Red				Yes		Yes	Yes		Yes				Yes
Satd. Flow (RTOR)							287						287
Link Speed (mph)		30			30			30					30
Link Distance (ft)		829			323			598					590
Travel Time (s)		18.8			7.3			13.6					13.4
Confl. Bikes (#/hr)													1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	0	0	0	1378	0	85	0	0	0	0	0	135
Turn Type					NA		Prot						Prot
Protected Phases					1		5!						5!
Permitted Phases													2
Detector Phase					1		5						5
Switch Phase													
Minimum Initial (s)					8.0		8.0						8.0
Minimum Split (s)					54.0		20.0						20.0
Total Split (s)					54.0		24.0						24.0
Total Split (%)					54.0%		24.0%						24.0%
Maximum Green (s)					49.0		19.0						19.0
Yellow Time (s)					3.0		3.0						3.0
All-Red Time (s)					2.0		2.0						2.0
Lost Time Adjust (s)					0.0		0.0						0.0
Total Lost Time (s)					5.0		5.0						5.0
Lead/Lag					Lead								Lag
Lead-Lag Optimize?													
Vehicle Extension (s)					2.0		2.0						2.0
Recall Mode					C-Max		None						None
Walk Time (s)					39.0		8.0						8.0
Flash Dont Walk (s)					10.0		7.0						7.0
Pedestrian Calls (#/hr)					0		51						51
Act Effct Green (s)					54.4		13.6						13.6
Actuated g/C Ratio					0.54		0.14						0.14
v/c Ratio					0.55		0.18						0.30
Control Delay					11.2		0.9						1.8
Queue Delay					0.3		0.0						0.0
Total Delay					11.5		0.9						1.8
LOS					B		A						A
Approach Delay					11.5			0.9					1.8
Approach LOS					B		A					A	
Queue Length 50th (ft)					87		0						0
Queue Length 95th (ft)					148		0						0
Internal Link Dist (ft)		749			243			518				510	
Turn Bay Length (ft)													
Base Capacity (vph)					2489		535						507
Starvation Cap Reductn					455		0						0
Spillback Cap Reductn					0		0						0
Storage Cap Reductn					0		0						0
Reduced v/c Ratio					0.68		0.16						0.27

Intersection Summary

Area Type: CBD  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 40 (40%), Referenced to phase 1:WBT, Start of Green  
 Natural Cycle: 100  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.55  
 Intersection Signal Delay: 10.1  
 Intersection LOS: B  
 Intersection Capacity Utilization 52.2%  
 ICU Level of Service A  
 Analysis Period (min) 15  
 ! Phase conflict between lane groups.

Splits and Phases: 15: Shawmut Avenue & East Berkeley Street





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations	↔		↔	↔	↔				↔	↔		↔	↔	
Traffic Volume (vph)	14	0	12	318	830	180	1	159	546	0	0	248	53	
Future Volume (vph)	14	0	12	318	830	180	1	159	546	0	0	248	53	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	1.00	1.00	0.95	0.95	
Ped Bike Factor					1.00							1.00		
Frt			0.850		0.973							0.973		
Flt Protected	0.950			0.950					0.989					
Satd. Flow (prot)	1593	0	1425	1593	3090	0	0	0	3150	0	0	3091	0	
Flt Permitted	0.129			0.950					0.713					
Satd. Flow (perm)	216	0	1425	1593	3090	0	0	0	2271	0	0	3091	0	
Right Turn on Red			Yes			Yes				Yes			Yes	
Satd. Flow (RTOR)			120		27							24		
Link Speed (mph)		30			30				30			30		
Link Distance (ft)		647			829				409			534		
Travel Time (s)		14.7			18.8				9.3			12.1		
Confl. Bikes (#/hr)						6								3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Shared Lane Traffic (%)														
Lane Group Flow (vph)	15	0	13	346	1098	0	0	0	767	0	0	328	0	
Turn Type	D.Pm		Perm	Perm	NA		custom	pm+pt	NA			NA		
Protected Phases					5			6	1 6			1		2
Permitted Phases	5		5	5			6	1 6						
Detector Phase	5		5	5	5		6	6	1 6			1		
Switch Phase														
Minimum Initial (s)	5.0		5.0	5.0	5.0		4.0	4.0				10.0		1.0
Minimum Split (s)	9.0		9.0	9.0	9.0		8.0	8.0				27.0		25.0
Total Split (s)	35.0		35.0	35.0	35.0		13.0	13.0				27.0		25.0
Total Split (%)	35.0%		35.0%	35.0%	35.0%		13.0%	13.0%				27.0%		25%
Maximum Green (s)	31.0		31.0	31.0	31.0		9.0	9.0				23.0		19.0
Yellow Time (s)	3.0		3.0	3.0	3.0		3.0	3.0				3.0		2.0
All-Red Time (s)	1.0		1.0	1.0	1.0		1.0	1.0				1.0		4.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0							0.0		
Total Lost Time (s)	4.0		4.0	4.0	4.0							4.0		
Lead/Lag												Lead		Lag
Lead-Lag Optimize?														
Vehicle Extension (s)	2.0		2.0	2.0	2.0		2.0	2.0				2.0		0.2
Recall Mode	None		None	None	None		None	None				C-Max		None
Walk Time (s)												17.0		8.0
Flash Dont Walk (s)												6.0		11.0
Pedestrian Calls (#/hr)												0		271
Act Effct Green (s)	31.0		31.0	31.0	31.0				32.0			23.0		
Actuated g/C Ratio	0.31		0.31	0.31	0.31				0.32			0.23		
v/c Ratio	0.23		0.02	0.70	1.12				0.95			0.45		
Control Delay	36.1		0.1	28.4	93.4				53.8			32.8		
Queue Delay	0.0		0.0	0.0	0.0				0.0			0.0		
Total Delay	36.1		0.1	28.4	93.4				53.8			32.8		
LOS	D		A	C	F				D			C		
Approach Delay		19.4			77.8				53.8			32.8		
Approach LOS		B			E				D			C		
Queue Length 50th (ft)	7		0	213	-436				214			87		
Queue Length 95th (ft)	27		0	327	#570				#344			131		
Internal Link Dist (ft)		567			749				329			454		
Turn Bay Length (ft)														
Base Capacity (vph)	66		524	493	976				805			729		
Starvation Cap Reductn	0		0	0	0				0			0		
Spillback Cap Reductn	0		0	0	0				0			0		
Storage Cap Reductn	0		0	0	0				0			0		
Reduced v/c Ratio	0.23		0.02	0.70	1.13				0.95			0.45		

Intersection Summary

Area Type: CBD  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 38 (38%), Referenced to phase 1:NBSB, Start of Green  
 Natural Cycle: 110  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.13  
 Intersection Signal Delay: 64.3  
 Intersection LOS: E  
 Intersection Capacity Utilization 73.3%  
 ICU Level of Service D  
 Analysis Period (min) 15  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 14: Tremont Street & Berkeley Street/East Berkeley Street



# TRIP GENERATION CALCULATIONS

### 370-380 Harrison Avenue

#### Trip Generation Assessment

HOWARD STEIN HUDSON

29-Mar-16

Land Use	Size	Category	Unadjusted Vehicle Trips	Internal trips	Pass-by %	Less capture trips	Assumed national vehicle occupancy rate <sup>1</sup>	Converted to Person trips	Transit Share <sup>2</sup>	Transit Trips	Walk/Bike/ Other Share <sup>2</sup>	Walk/ Bike/ Other Trips	Vehicle Share <sup>2</sup>	Total Vehicle Person Trips	Assumed local auto occupancy rate for autos <sup>4</sup>	Total Adjusted Auto Trips
<b>Daily Peak Hour</b>																
Apartment <sup>6</sup>	313 units	Total	2,082	0%	0%	2,082	1.13	<b>2,352</b>	30%	<b>706</b>	42%	<b>988</b>	28%	<b>658</b>	1.13	<b>584</b>
		In	1,041	0%	0%	1,041	1.13	<b>1,176</b>	30%	<b>353</b>	42%	<b>494</b>	28%	<b>329</b>	1.13	<b>292</b>
		Out	1,041	0%	0%	1,041	1.13	<b>1,176</b>	30%	<b>353</b>	42%	<b>494</b>	28%	<b>329</b>	1.13	<b>292</b>
Retail <sup>7</sup>	11 KSF	Total	470	0%	0%	470	1.78	<b>836</b>	20%	<b>168</b>	59%	<b>494</b>	21%	<b>176</b>	1.78	<b>100</b>
		In	235	0%	0%	235	1.78	<b>418</b>	20%	<b>84</b>	59%	<b>247</b>	21%	<b>88</b>	1.78	<b>50</b>
		Out	235	0%	0%	235	1.78	<b>418</b>	20%	<b>84</b>	59%	<b>247</b>	21%	<b>88</b>	1.78	<b>50</b>
<b>Total</b>		Total	<b>2,552</b>					<b>3,188</b>		<b>874</b>		<b>1,482</b>		<b>834</b>		<b>684</b>
		In	<b>1,276</b>					<b>1,594</b>		<b>437</b>		<b>741</b>		<b>417</b>		<b>342</b>
		Out	<b>1,276</b>					<b>1,594</b>		<b>437</b>		<b>741</b>		<b>417</b>		<b>342</b>
<b>AM Peak Hour</b>																
Apartment	313 units	Total	160	0%	0%	160	1.13	<b>181</b>		<b>45</b>		<b>77</b>		<b>60</b>	1.13	<b>53</b>
		In	32	0%	0%	32	1.13	<b>36</b>	52%	<b>19</b>	7%	<b>3</b>	41%	<b>15</b>	1.13	<b>13</b>
		Out	128	0%	0%	128	1.13	<b>145</b>	18%	<b>26</b>	51%	<b>74</b>	31%	<b>45</b>	1.13	<b>40</b>
Retail	11 KSF	Total	11	0%	0%	11	1.78	<b>19</b>		<b>7</b>		<b>6</b>		<b>7</b>	1.78	<b>4</b>
		In	7	0%	0%	7	1.78	<b>12</b>	46%	<b>6</b>	14%	<b>2</b>	40%	<b>5</b>	1.78	<b>3</b>
		Out	4	0%	0%	4	1.78	<b>7</b>	10%	<b>1</b>	58%	<b>4</b>	32%	<b>2</b>	1.78	<b>1</b>
<b>Total</b>		Total	<b>171</b>					<b>200</b>		<b>52</b>		<b>83</b>		<b>67</b>		<b>57</b>
		In	<b>39</b>					<b>48</b>		<b>25</b>		<b>5</b>		<b>20</b>		<b>16</b>
		Out	<b>132</b>					<b>152</b>		<b>27</b>		<b>78</b>		<b>47</b>		<b>41</b>
<b>PM Peak Hour</b>																
Apartment	313 units	Total	194	0%	0%	194	1.13	<b>219</b>		<b>66</b>		<b>77</b>		<b>76</b>	1.13	<b>67</b>
		In	126	0%	0%	126	1.13	<b>142</b>	18%	<b>26</b>	51%	<b>72</b>	31%	<b>44</b>	1.13	<b>39</b>
		Out	68	0%	0%	68	1.13	<b>77</b>	52%	<b>40</b>	7%	<b>5</b>	41%	<b>32</b>	1.13	<b>28</b>
Retail	11 KSF	Total	41	0%	0%	41	1.78	<b>73</b>		<b>21</b>		<b>26</b>		<b>27</b>	1.78	<b>15</b>
		In	20	0%	0%	20	1.78	<b>36</b>	10%	<b>4</b>	58%	<b>21</b>	32%	<b>12</b>	1.78	<b>7</b>
		Out	21	0%	0%	21	1.78	<b>37</b>	46%	<b>17</b>	14%	<b>5</b>	40%	<b>15</b>	1.78	<b>8</b>
<b>Total</b>		Total	<b>235</b>					<b>292</b>		<b>87</b>		<b>103</b>		<b>103</b>		<b>82</b>
		In	<b>146</b>					<b>178</b>		<b>30</b>		<b>93</b>		<b>56</b>		<b>46</b>
		Out	<b>89</b>					<b>114</b>		<b>57</b>		<b>10</b>		<b>47</b>		<b>36</b>

1. 2009 National vehicle occupancy rates - 1.13:home to work; 1.84: family/personal business; 1.78: shopping; 2.2 social/recreational

2. Mode shares based on peak-hour BTM Data for Area 2 and consistent with studies for nearby projects.

4. Local vehicle occupancy rates based on 2009 National vehicle occupancy rates.

6. ITE Trip Generation Rate, 9th Edition, LUC 220 (Apartment), average rate

7. ITE Trip Generation Rate, 9th Edition, LUC 820 (Shopping Center), average rate

**Appendix C**

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Air Quality

# APPENDIX C AIR QUALITY

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## Introduction

This Air Quality Appendix provides modeling assumptions and backup for results presented in Section 3.2.5 of the report. Included within this documentation is a brief description of the methodology employed along with pertinent calculations and data used in the emissions and dispersion calculations supporting the microscale air quality analysis.

## Motor Vehicle Emissions

The EPA MOVES computer program generated motor vehicle emissions used in the garage stationary source analysis along with the mobile source CAL3QHC modeling and mesoscale analysis. The model input parameters were provided by MassDEP. Emission rates were derived for 2015 and 2020 for speed limits of idle, 10, 15, and 30 mph for use in the microscale analyses.

### MOVES CO Emission Factor Summary

#### Carbon Monoxide Only

		2016	2023
Free Flow	30 mph	2.697	1.844
Right Turns	10 mph	4.447	2.956
Left Turns	15 mph	3.823	2.586
Queues	Idle	9.997	4.102

Notes: Winter CO emission factors are higher than Summer and are conservatively used  
Urban Unrestricted Roadway type used

## CAL3QHC

For the intersection studied, the CAL3QHC model was applied to calculate CO concentrations at sensitive receptor locations using emission rates derived in MOVES. The intersection's queue links and free flow links were input to the model along with sensitive receptors at all locations nearby each intersection. The meteorological assumptions input into the model were a 1.0 meter per second wind speed, Pasquill-Gifford Class D stability combined with a mixing height of 1000 meters. For each direction, the full range of wind directions at 10 degree intervals was examined. In addition, a surface roughness ( $z_0$ ) of 321 cm was used for the intersection. Idle emission rates for queue links were based on 0 mph emission rates derived in MOVES. Emission rates for speeds of 10, 15, and 30 mph were used for right turn, left turn, and free flow links, respectively.

## Background Concentrations

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**Quinzani 370-380 Harrison Avenue - Boston, MA  
Calculation of Microscale Modeling Emission Factors  
Summary of MOVES2014a Output**

**Carbon Monoxide Only**

		<b>2016</b>	<b>2023</b>
<b>Free Flow</b>	30 mph	2.697	1.844
<b>Right Turns</b>	10 mph	4.447	2.956
<b>Left Turns</b>	15 mph	3.823	2.586
<b>Queues</b>	Idle	9.997	4.102

Notes: Winter CO emission factors are higher than Summer and are conservatively used  
Urban Unrestricted Roadway type used

Quinzani - 370-380 Harrison Avenue, Boston  
Background Concentrations

POLLUTANT	AVERAGING TIME	Form	2012	2013	2014	Units	ppm/ppb to $\mu\text{g}/\text{m}^3$ Conversion Factor	2012-2014 Background Concentration ( $\mu\text{g}/\text{m}^3$ )	Location
SO <sub>2</sub> <sup>(1)(6)</sup>	1-Hour <sup>(5)</sup>	99th %	12	14	28	ppb	2.62	47.2	531A E. 1st St., Boston
	3-Hour	H2H	10.6	16.3	24.3	ppb	2.62	63.7	531A E. 1st St., Boston
	24-Hour	H2H	4.5	6.5	8.1	ppb	2.62	21.2	531A E. 1st St., Boston
	Annual	H	1.65	1.53	1.74	ppb	2.62	4.6	531A E. 1st St., Boston
PM-10	24-Hour	H2H	32.0	34	61	$\mu\text{g}/\text{m}^3$	1	61	Harrison Ave., Boston
	Annual	H	14.2	15.1	13.9	$\mu\text{g}/\text{m}^3$	1	15.1	Harrison Ave., Boston
PM-2.5	24-Hour <sup>(4)</sup>	98th %	20.9	19.9	14.5	$\mu\text{g}/\text{m}^3$	1	18.4	174 North St, Boston
	Annual <sup>(4)</sup>	H	9.5	8.8	7.1	$\mu\text{g}/\text{m}^3$	1	8.5	174 North St, Boston
NO <sub>2</sub> <sup>(3)</sup>	1-Hour <sup>(5)</sup>	98th %	43	47	62	ppb	1.88	95.3	531A E. 1st St., Boston
	Annual	H	9.7	12.2	14	ppb	1.88	26.3	531A E. 1st St., Boston
CO <sup>(2)</sup>	1-Hour	H2H	2.2	1.9	1.7	ppm	1146	2474.2	Harrison Ave., Boston
	8-Hour	H2H	1.9	1.2	1.3	ppm	1146	2177.4	Harrison Ave., Boston
Ozone <sup>(4)</sup>	8-Hour	H4H	0.062	0.059	0.054	ppm	1963	121.7	Harrison Ave., Boston
Lead	Rolling 3-Month	H	0.014	0.006	0.014	$\mu\text{g}/\text{m}^3$	1	0.014	Harrison Ave., Boston

Notes:

From 2012-2014 EPA's AirData Website

<sup>1</sup> SO<sub>2</sub> reported in ppb. Converted to  $\mu\text{g}/\text{m}^3$  using factor of 1 ppm = 2.62  $\mu\text{g}/\text{m}^3$ .

<sup>2</sup> CO reported in ppm. Converted to  $\mu\text{g}/\text{m}^3$  using factor of 1 ppm = 1146  $\mu\text{g}/\text{m}^3$ .

<sup>3</sup> NO<sub>2</sub> reported in ppb. Converted to  $\mu\text{g}/\text{m}^3$  using factor of 1 ppm = 1.88  $\mu\text{g}/\text{m}^3$ .

<sup>4</sup> O<sub>3</sub> reported in ppm. Converted to  $\mu\text{g}/\text{m}^3$  using factor of 1 ppm = 1963  $\mu\text{g}/\text{m}^3$ .

<sup>5</sup> Background level is the average concentration of the three years.

<sup>6</sup> The 24-hour and Annual standards were revoked by EPA on June 22, 2010, Federal Register 75-119, p. 35520.

## Model Input/Output Files

Due to excessive size CAL3QHC, and MOVES input and output files are available on digital media upon request.

Appendix D

Climate Change Checklist

# Climate Change Preparedness and Resiliency Checklist for New Construction

In November 2013, in conformance with the Mayor's 2011 Climate Action Leadership Committee's recommendations, the Boston Redevelopment Authority adopted policy for all development projects subject to Boston Zoning Article 80 Small and Large Project Review, including all Institutional Master Plan modifications and updates, are to complete the following checklist and provide any necessary responses regarding project resiliency, preparedness, and to mitigate any identified adverse impacts that might arise under future climate conditions.

For more information about the City of Boston's climate policies and practices, and the 2011 update of the climate action plan, *A Climate of Progress*, please see the City's climate action web pages at <http://www.cityofboston.gov/climate>

In advance we thank you for your time and assistance in advancing best practices in Boston.

## Climate Change Analysis and Information Sources:

1. Northeast Climate Impacts Assessment ([www.climatechoices.org/ne/](http://www.climatechoices.org/ne/))
2. USGCRP 2009 (<http://www.globalchange.gov/publications/reports/scientific-assessments/us-impacts/>)
3. Army Corps of Engineers guidance on sea level rise (<http://planning.usace.army.mil/toolbox/library/ECs/EC11652212Nov2011.pdf>)
4. Proceeding of the National Academy of Science, "Global sea level rise linked to global temperature", Vermeer and Rahmstorf, 2009 (<http://www.pnas.org/content/early/2009/12/04/0907765106.full.pdf>)
5. "Hotspot of accelerated sea-level rise on the Atlantic coast of North America", Asbury H. Sallenger Jr\*, Kara S. Doran and Peter A. Howd, 2012 ([http://www.bostonredevelopmentauthority.org/planning/Hotspot of Accelerated Sea-level Rise 2012.pdf](http://www.bostonredevelopmentauthority.org/planning/Hotspot%20of%20Accelerated%20Sea-level%20Rise%202012.pdf))
6. "Building Resilience in Boston": Best Practices for Climate Change Adaptation and Resilience for Existing Buildings, Linnean Solutions, The Built Environment Coalition, The Resilient Design Institute, 2103 ([http://www.greenribboncommission.org/downloads/Building\\_Resilience\\_in\\_Boston\\_SML.pdf](http://www.greenribboncommission.org/downloads/Building_Resilience_in_Boston_SML.pdf))

## Checklist

Please respond to all of the checklist questions to the fullest extent possible. For projects that respond "Yes" to any of the D.1 – Sea-Level Rise and Storms, Location Description and Classification questions, please respond to all of the remaining Section D questions.

Checklist responses are due at the time of initial project filing or Notice of Project Change and final filings just prior seeking Final BRA Approval. A PDF of your response to the Checklist should be submitted to the Boston Redevelopment Authority via your project manager.

**Please Note:** When initiating a new project, please visit the BRA web site for the most current [Climate Change Preparedness & Resiliency Checklist](#).

## Climate Change Resiliency and Preparedness Checklist

### A.1 - Project Information

Project Name:	370-380 Harrison Avenue
Project Address Primary:	370-380 Harrison Avenue
Project Address Additional:	
Project Contact (name / Title / Company / email / phone):	David Chattman, Vice President, Related Beal, DChattman@Related.com, (617) 451-2100

### A.2 - Team Description

Owner / Developer:	South End 10, LLC and South End 11, LLC
Architect:	Utile (Executive Architect), Robert A.M. Stern Architects, LLP (Design Architect)
Engineer (building systems):	TBD
Sustainability / LEED:	TBD
Permitting:	Epsilon Associates, Inc.
Construction Management:	TBD
Climate Change Expert:	Epsilon Associates, Inc.

### A.3 - Project Permitting and Phase

At what phase is the project – most recent completed submission at the time of this response?

<input checked="" type="checkbox"/> PNF / Expanded PNF Submission	<input type="checkbox"/> Draft / Final Project Impact Report Submission	<input type="checkbox"/> BRA Board Approved	<input type="checkbox"/> Notice of Project Change
<input type="checkbox"/> Planned Development Area	<input type="checkbox"/> BRA Final Design Approved	<input type="checkbox"/> Under Construction	<input type="checkbox"/> Construction just completed:

### A.4 - Building Classification and Description

List the principal Building Uses:	Residential, Commercial/Retail
List the First Floor Uses:	Commercial/Retail, Residential Lobbies, Residential Amenity

What is the principal Construction Type – select most appropriate type?

<input type="checkbox"/> Wood Frame	<input type="checkbox"/> Masonry	<input type="checkbox"/> Steel Frame	<input checked="" type="checkbox"/> Concrete
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Describe the building?

Site Area:	44,570 SF	Building Area:	356,500 SF
Building Height:	150 Ft.	Number of Stories:	14 Flrs.
First Floor Elevation (reference Boston City Base):	15.9 feet	Are there below grade spaces/levels, if yes how many:	3 levels

### A.5 - Green Building

Which LEED Rating System(s) and version has or will your project use (by area for multiple rating systems)?

Select by Primary Use:	<input checked="" type="checkbox"/> New Construction	<input type="checkbox"/> Core & Shell	<input type="checkbox"/> Healthcare	<input type="checkbox"/> Schools
	<input type="checkbox"/> Retail	<input type="checkbox"/> Homes Midrise	<input type="checkbox"/> Homes	<input type="checkbox"/> Other
Select LEED Outcome:	<input type="checkbox"/> Certified	<input checked="" type="checkbox"/> Silver	<input type="checkbox"/> Gold	<input type="checkbox"/> Platinum

Will the project be USGBC Registered and / or USGBC Certified?

Registered:	<input type="text" value="Yes"/>	Certified:	<input type="text" value="Yes"/>
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### A.6 - Building Energy-

What are the base and peak operating energy loads for the building? **TBD**

Electric:	<input type="text" value="(kW)"/>	Heating:	<input type="text" value="(MMBtu/hr)"/>
What is the planned building Energy Use Intensity:	<input type="text" value="(kWh/SF)"/>	Cooling:	<input type="text" value="(Tons/hr)"/>

What are the peak energy demands of your critical systems in the event of a service interruption?

Electric:	<input type="text" value="(kW)"/>	Heating:	<input type="text" value="(MMBtu/hr)"/>
		Cooling:	<input type="text" value="(Tons/hr)"/>

What is nature and source of your back-up / emergency generators? **TBD**

Electrical Generation:	<input type="text" value="(kW)"/>	Fuel Source:	<input type="text" value=""/>
System Type and Number of Units:	<input type="checkbox"/> Combustion Engine	<input type="checkbox"/> Gas Turbine	<input type="checkbox"/> Combine Heat and Power <span style="float: right;">(Units)</span>

## B - Extreme Weather and Heat Events

Climate change will result in more extreme weather events including higher year round average temperatures, higher peak temperatures, and more periods of extended peak temperatures. The section explores how a project responds to higher temperatures and heat waves.

### B.1 - Analysis

What is the full expected life of the project?

Select most appropriate:	<input type="checkbox"/> 10 Years	<input type="checkbox"/> 25 Years	<input checked="" type="checkbox"/> 50 Years	<input type="checkbox"/> 75 Years
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What is the full expected operational life of key building systems (e.g. heating, cooling, ventilation)?

Select most appropriate:	<input type="checkbox"/> 10 Years	<input checked="" type="checkbox"/> 25 Years	<input type="checkbox"/> 50 Years	<input type="checkbox"/> 75 Years
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What time span of future Climate Conditions was considered?

Select most appropriate:	<input type="checkbox"/> 10 Years	<input type="checkbox"/> 25 Years	<input checked="" type="checkbox"/> 50 Years	<input type="checkbox"/> 75 Years
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Analysis Conditions - What range of temperatures will be used for project planning – Low/High?

8/91 Deg.
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What Extreme Heat Event characteristics will be used for project planning – Peak High, Duration, and Frequency?

100 Deg.	5 Days	5 Events / yr.
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What Drought characteristics will be used for project planning – Duration and Frequency?

30-90 Days	0.2 Events / yr.
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What Extreme Rain Event characteristics will be used for project planning – Seasonal Rain Fall, Peak Rain Fall, and Frequency of Events per year?

45 Inches / yr.	4 Inches	0.5 Events / yr.
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What Extreme Wind Storm Event characteristics will be used for project planning – Peak Wind Speed, Duration of Storm Event, and Frequency of Events per year?

105 Peak Wind	10 Hours	0.25 Events / yr.
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## B.2 - Mitigation Strategies

What will be the overall energy performance, based on use, of the project and how will performance be determined?

Building energy use below code: 

TBD
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How is performance determined: 

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What specific measures will the project employ to reduce building energy consumption?

Select all appropriate:

<input checked="" type="checkbox"/> High performance building envelop	<input checked="" type="checkbox"/> High performance lighting & controls	<input type="checkbox"/> Building day lighting	<input checked="" type="checkbox"/> EnergyStar equip. / appliances
<input type="checkbox"/> High performance HVAC equipment	<input checked="" type="checkbox"/> Energy recovery ventilation	<input type="checkbox"/> No active cooling	<input type="checkbox"/> No active heating
Describe any added measures:			

What are the insulation (R) values for building envelop elements?

Roof:	R = 25	Walls / Curtain Wall Assembly:	R = 13
Foundation:	R = 15	Basement / Slab:	R = 10
Windows:	R = / U = 0.4	Doors:	R = / U = 0.7

What specific measures will the project employ to reduce building energy demands on the utilities and infrastructure?

<input type="checkbox"/> On-site clean energy / CHP system(s)	<input type="checkbox"/> Building-wide power dimming	<input type="checkbox"/> Thermal energy storage systems	<input type="checkbox"/> Ground source heat pump
<input type="checkbox"/> On-site Solar PV	<input type="checkbox"/> On-site Solar Thermal	<input type="checkbox"/> Wind power	<input type="checkbox"/> None

Describe any added measures: 

CHP and solar PV will be studied.
-----------------------------------

Will the project employ Distributed Energy / Smart Grid Infrastructure and /or Systems?



Select all appropriate:

<input type="checkbox"/> Connected to local distributed electrical	<input type="checkbox"/> Building will be Smart Grid ready	<input type="checkbox"/> Connected to distributed steam, hot, chilled water	<input type="checkbox"/> Distributed thermal energy ready
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Will the building remain operable without utility power for an extended period?

Yes	If yes, for how long:	TBD
If Yes, is building "Islandable?"		
TBD		
If Yes, describe strategies:		

Describe any non-mechanical strategies that will support building functionality and use during an extended interruption(s) of utility services and infrastructure:

Select all appropriate:

<input type="checkbox"/> Solar oriented - longer south walls	<input type="checkbox"/> Prevailing winds oriented	<input type="checkbox"/> External shading devices	<input type="checkbox"/> Tuned glazing,
<input type="checkbox"/> Building cool zones	<input checked="" type="checkbox"/> Operable windows	<input checked="" type="checkbox"/> Natural ventilation	<input type="checkbox"/> Building shading
<input type="checkbox"/> Potable water for drinking / food preparation	<input type="checkbox"/> Potable water for sinks / sanitary systems	<input type="checkbox"/> Waste water storage capacity	<input checked="" type="checkbox"/> High Performance Building Envelop
Describe any added measures: Cool room will be studied			

What measures will the project employ to reduce urban heat-island effect?

Select all appropriate:

<input type="checkbox"/> High reflective paving materials	<input checked="" type="checkbox"/> Shade trees & shrubs	<input type="checkbox"/> High reflective roof materials	<input type="checkbox"/> Vegetated roofs
Describe other strategies: High reflective paving materials and vegetated roofs will be studied.			

What measures will the project employ to accommodate rain events and more rain fall?

Select all appropriate:

<input type="checkbox"/> On-site retention systems & ponds	<input type="checkbox"/> Infiltration galleries & areas	<input type="checkbox"/> Vegetated water capture systems	<input type="checkbox"/> Vegetated roofs
Describe other strategies:			

What measures will the project employ to accommodate extreme storm events and high winds?

Select all appropriate:

<input type="checkbox"/> Hardened building structure & elements	<input checked="" type="checkbox"/> Buried utilities & hardened infrastructure	<input type="checkbox"/> Hazard removal & protective landscapes	<input checked="" type="checkbox"/> Soft & permeable surfaces (water infiltration)
Describe other strategies:			

## C - Sea-Level Rise and Storms

Rising Sea-Levels and more frequent Extreme Storms increase the probability of coastal and river flooding and enlarging the extent of the 100 Year Flood Plain. This section explores if a project is or might be subject to Sea-Level Rise and Storm impacts.

### C.1 - Location Description and Classification:

Do you believe the building to susceptible to flooding now or during the full expected life of the building?

Describe site conditions?

Site Elevation – Low/High Points:

Building Proximity to Water:

Is the site or building located in any of the following?

Coastal Zone:	<input type="text" value="No"/>	Velocity Zone:	<input type="text" value="No"/>
Flood Zone:	<input type="text" value="No"/>	Area Prone to Flooding:	<input type="text" value="No"/>

Will the 2013 Preliminary FEMA Flood Insurance Rate Maps or future floodplain delineation updates due to Climate Change result in a change of the classification of the site or building location?

2013 FEMA Prelim. FIRMs:	<input type="text" value="No"/>	Future floodplain delineation updates:	<input type="text" value="No"/>
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What is the project or building proximity to nearest Coastal, Velocity or Flood Zone or Area Prone to Flooding?

***If you answered YES to any of the above Location Description and Classification questions, please complete the following questions. Otherwise you have completed the questionnaire; thank you!***

**C - Sea-Level Rise and Storms**

This section explores how a project responds to Sea-Level Rise and / or increase in storm frequency or severity.

**C.2 - Analysis**

How were impacts from higher sea levels and more frequent and extreme storm events analyzed:

Sea Level Rise:	<input type="text" value="Ft."/>	Frequency of storms:	<input type="text" value="per year"/>
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**C.3 - Building Flood Proofing**

Describe any strategies to limit storm and flood damage and to maintain functionality during an extended periods of disruption.

What will be the Building Flood Proof Elevation and First Floor Elevation:

Flood Proof Elevation:	<input type="text" value="feet"/>	First Floor Elevation:	<input type="text" value="feet"/>
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Will the project employ temporary measures to prevent building flooding (e.g. barricades, flood gates):

<input type="text"/>	If Yes, to what elevation	<input type="text"/>
If Yes, describe:		
<input type="text"/>		

What measures will be taken to ensure the integrity of critical building systems during a flood or severe storm event:

<input type="checkbox"/> Systems located above 1 <sup>st</sup> Floor.	<input type="checkbox"/> Water tight utility conduits	<input type="checkbox"/> Waste water back flow prevention	<input type="checkbox"/> Storm water back flow prevention
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Were the differing effects of fresh water and salt water flooding considered:

Yes/No
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Will the project site / building(s) be accessible during periods of inundation or limited access to transportation:

	If yes, to what height above 100 Year Floodplain:	Boston City Base Elev. (Ft.)
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Will the project employ hard and / or soft landscape elements as velocity barriers to reduce wind or wave impacts?

No
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If Yes, describe:

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Will the building remain occupiable without utility power during an extended period of inundation:

Yes/ No	If Yes, for how long:	
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Describe any additional strategies to addressing sea level rise and or sever storm impacts:

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#### C.4 - Building Resilience and Adaptability

Describe any strategies that would support rapid recovery after a weather event and accommodate future building changes that respond to climate change:

Will the building be able to withstand severe storm impacts and endure temporary inundation?

Select appropriate:

	<input type="checkbox"/> Hardened / Resilient Ground Floor Construction	<input type="checkbox"/> Temporary shutters and or barricades	<input type="checkbox"/> Resilient site design, materials and construction
--	---	---	--

Can the site and building be reasonably modified to increase Building Flood Proof Elevation?

Select appropriate:

	<input type="checkbox"/> Surrounding site elevation can be raised	<input type="checkbox"/> Building ground floor can be raised	<input type="checkbox"/> Construction been engineered
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Describe additional strategies:

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Has the building been planned and designed to accommodate future resiliency enhancements?

Select appropriate:

	<input type="checkbox"/> Solar PV	<input type="checkbox"/> Solar Thermal	<input type="checkbox"/> Clean Energy / CHP System(s)
	<input type="checkbox"/> Potable water storage	<input type="checkbox"/> Wastewater storage	<input type="checkbox"/> Back up energy systems & fuel

Describe any specific or additional strategies:

--

Thank you for completing the Boston Climate Change Resilience and Preparedness Checklist!

For questions or comments about this checklist or Climate Change Resiliency and Preparedness best practices, please contact: [John.Dalzell.BRA@cityofboston.gov](mailto:John.Dalzell.BRA@cityofboston.gov)

## Appendix E

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### Accessibility Checklist

## **Accessibility Checklist**

(to be added to the BRA Development Review Guidelines)

In 2009, a nine-member Advisory Board was appointed to the Commission for Persons with Disabilities in an effort to reduce architectural, procedural, attitudinal, and communication barriers affecting persons with disabilities in the City of Boston. These efforts were instituted to work toward creating universal access in the built environment.

In line with these priorities, the Accessibility Checklist aims to support the inclusion of people with disabilities. In order to complete the Checklist, you must provide specific detail, including descriptions, diagrams and data, of the universal access elements that will ensure all individuals have an equal experience that includes full participation in the built environment throughout the proposed buildings and open space.

In conformance with this directive, all development projects subject to Boston Zoning Article 80 Small and Large Project Review, including all Institutional Master Plan modifications and updates, are to complete the following checklist and provide any necessary responses regarding the following:

- improvements for pedestrian and vehicular circulation and access;
- encourage new buildings and public spaces to be designed to enhance and preserve Boston's system of parks, squares, walkways, and active shopping streets;
- ensure that persons with disabilities have full access to buildings open to the public;
- afford such persons the educational, employment, and recreational opportunities available to all citizens; and
- preserve and increase the supply of living space accessible to persons with disabilities.

We would like to thank you in advance for your time and effort in advancing best practices and progressive approaches to expand accessibility throughout Boston's built environment.

### **Accessibility Analysis Information Sources:**

1. Americans with Disabilities Act – 2010 ADA Standards for Accessible Design
  - a. [http://www.ada.gov/2010ADASTandards\\_index.htm](http://www.ada.gov/2010ADASTandards_index.htm)
2. Massachusetts Architectural Access Board 521 CMR
  - a. <http://www.mass.gov/eopss/consumer-prot-and-bus-lic/license-type/aab/aab-rules-and-regulations-pdf.html>
3. Boston Complete Street Guidelines
  - a. <http://bostoncompletestreets.org/>
4. City of Boston Mayors Commission for Persons with Disabilities Advisory Board
  - a. <http://www.cityofboston.gov/Disability>
5. City of Boston – Public Works Sidewalk Reconstruction Policy
  - a. [http://www.cityofboston.gov/images\\_documents/sidewalk%20policy%200114\\_tcm3-41668.pdf](http://www.cityofboston.gov/images_documents/sidewalk%20policy%200114_tcm3-41668.pdf)
6. Massachusetts Office On Disability Accessible Parking Requirements
  - a. [www.mass.gov/anf/docs/mod/hp-parking-regulations-mod.doc](http://www.mass.gov/anf/docs/mod/hp-parking-regulations-mod.doc)
7. MBTA Fixed Route Accessible Transit Stations
  - a. [http://www.mbta.com/about\\_the\\_mbta/accessibility/](http://www.mbta.com/about_the_mbta/accessibility/)

**Article 80 | ACCESSIBILTY CHECKLIST**

**Project Information**

Project Name:	370-380 Harrison Avenue
Project Address Primary:	370-380 Harrison Avenue
Project Address Additional:	
Project Contact (name / Title / Company / email / phone):	David Chattman, Vice President, Related Beal, DChattman@Related.com, (617) 451-2100

**Team Description**

Owner / Developer:	South End 10, LLC and South End 11, LLC
Architect:	Utile (Executive Architect), Robert A.M. Stern Architects, LLP (Design Architect)
Engineer (building systems):	TBD
Sustainability / LEED:	TBD
Permitting:	Epsilon Associates, Inc.
Construction Management:	TBD

**Project Permitting and Phase**

At what phase is the project – at time of this questionnaire?

PNF / Expanded PNF Submitted	Draft / Final Project Impact Report Submitted	BRA Board Approved
BRA Design Approved	Under Construction	Construction just completed:

**Article 80 | ACCESSIBILITY CHECKLIST**

**Building Classification and Description**

What are the principal Building Uses - select all appropriate uses?

Residential – One to Three Unit	<b>Residential - Multi-unit, Four +</b>	Institutional	Education
Commercial	Office	<b>Retail</b>	Assembly
Laboratory / Medical	Manufacturing / Industrial	Mercantile	Storage, Utility and Other
First Floor Uses (List)	<i>Retail / commercial, Residential lobby and accessory spaces</i>		

What is the Construction Type – select most appropriate type?

Wood Frame	Masonry	Steel Frame	<b>Concrete</b>
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Describe the building?

Site Area:	44,570 SF	Building Area:	356,500 SF
Building Height:	150 Ft.	Number of Stories:	14 Flrs.
First Floor Elevation:	15.9 feet	Are there below grade spaces:	Yes

**Assessment of Existing Infrastructure for Accessibility:**

This section explores the proximity to accessible transit lines and proximate institutions such as, but not limited to hospitals, elderly and disabled housing, and general neighborhood information. The proponent should identify how the area surrounding the development is accessible for people with mobility impairments and should analyze the existing condition of the accessible routes through sidewalk and pedestrian ramp reports.

Provide a description of the development neighborhood and identifying characteristics.

The area around the Project site includes a mix of commercial and industrial properties with large parking lots, as well as a number of new developments and proposed developments, including Ink Block, The Troy, 345 Harrison Avenue and 80 East Berkeley Street. Further south is the South of Washington Street (SOWA) sub-area, a vibrant mixed-use neighborhood.

List the surrounding ADA compliant MBTA transit lines and the proximity to the development site: Commuter rail, subway, bus, etc.

Bus routes 9, 11, and 47. Silver Line.

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List the surrounding institutions: hospitals, public housing and elderly and disabled housing developments, educational facilities, etc.

Pine Street Inn, Eva White Housing, ABCD South End Head Start, Little Sprouts, Sunshine Child Care Center, Acorn Child Care Center, Josiah Quincy School, Quincy Upper School, Chung-Wah Academy-New England, City Lights Performing Arts School

Is the proposed development on a priority accessible route to a key public use facility? List the surrounding: government buildings, libraries, community centers and recreational facilities and other related facilities.

Boston Chinatown Neighborhood Center, Castle Square Community Center

**Surrounding Site Conditions – Existing:**

This section identifies the current condition of the sidewalks and pedestrian ramps around the development site.

Are there sidewalks and pedestrian ramps existing at the development site?

Yes

*If yes above*, list the existing sidewalk and pedestrian ramp materials and physical condition at the development site.

East Berkeley Street  
 Existing granite curb and cement concrete sidewalk – fair to poor condition  
 Portions of cement concrete sidewalk have different colors  
 Two existing ADA pedestrian ramps at N/E corner of the Harrison Avenue / East Berkeley St intersection – fair condition  
 Extra curb cuts for current building  
 Existing street sidewalk has street lights and associated electrical conduits, hand holes and street light control cabinet

Harrison Avenue  
 Existing granite curb and cement concrete sidewalk – fair condition  
 Long curb cuts for driveway ramps to @ Quinzani Bakery building for access to loading docks and parking area  
 Two existing ADA pedestrian ramps at S/E corner of the Harrison Avenue / Traveler St intersection – fair condition



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<p>Are the sidewalks and pedestrian ramps existing-to-remain? <b>If yes</b>, have the sidewalks and pedestrian ramps been verified as compliant? <b>If yes</b>, please provide surveyors report.</p>	<p><u>Traveler Street</u></p> <p>Existing granite curb and cement concrete sidewalk –fair to poor condition</p> <p>Long curb cut for driveway ramp into parking area adjacent to Ho Kong Bean Sprout building</p>
<p>Is the development site within a historic district? <b>If yes</b>, please identify.</p>	<p>Sidewalks and pedestrian ramps around development site will be surveyed for compliance. These ramps are also included in the planned Harrison Avenue street improvements and will be compliant.</p> <p>South End Harrison/Albany Protection Area</p>

**Surrounding Site Conditions – Proposed**

This section identifies the proposed condition of the walkways and pedestrian ramps in and around the development site. The width of the sidewalk contributes to the degree of comfort and enjoyment of walking along a street. Narrow sidewalks do not support lively pedestrian activity, and may create dangerous conditions that force people to walk in the street. Typically, a five foot wide Pedestrian Zone supports two people walking side by side or two wheelchairs passing each other. An eight foot wide Pedestrian Zone allows two pairs of people to comfortable pass each other, and a ten foot or wider Pedestrian Zone can support high volumes of pedestrians.

<p>Are the proposed sidewalks consistent with the Boston Complete Street Guidelines? See: <a href="http://www.bostoncompletestreets.org">www.bostoncompletestreets.org</a></p>	<p>Yes</p>
<p><b>If yes above</b>, choose which Street Type was applied: Downtown Commercial, Downtown Mixed-use, Neighborhood Main, Connector, Residential, Industrial, Shared Street, Parkway, Boulevard.</p>	<p>Traveler Street will be Type A per Harrison-Albany Corridor Guidelines; Harrison Ave and E Berkeley St will be Type B per Harrison-Albany Corridor Guidelines.</p>
<p>What is the total width of the proposed sidewalk? List the widths of the proposed zones: Frontage, Pedestrian and Furnishing Zone.</p>	<p>Harrison Ave – width varies from approx. 27'-63". Frontage: 3'-6, Ped: 10', Furn: 7'-6"</p> <p>Traveler Street – 19'. Frontage: 3', Ped: 10', Furn: 6'-0"</p> <p>E. Berkeley Street – 12'. Frontage: 0', Ped: 12', Furn: 0'-0"</p> <p>Note: dimensioned to face of building</p>

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List the proposed materials for each Zone. Will the proposed materials be on private property or will the proposed materials be on the City of Boston pedestrian right-of-way?

To be determined.

If the pedestrian right-of-way is on private property, will the proponent seek a pedestrian easement with the City of Boston Public Improvement Commission?

Proponent does not anticipate a pedestrian easement.

Will sidewalk cafes or other furnishings be programmed for the pedestrian right-of-way?

No.

**If yes above,** what are the proposed dimensions of the sidewalk café or furnishings and what will the right-of-way clearance be?

**Proposed Accessible Parking:**

See Massachusetts Architectural Access Board Rules and Regulations 521 CMR Section 23.00 regarding accessible parking requirement counts and the Massachusetts Office of Disability Handicap Parking Regulations.

What is the total number of parking spaces provided at the development site parking lot or garage?

180

What is the total number of accessible spaces provided at the development site?

6

Will any on street accessible parking spaces be required? **If yes,** has the proponent contacted the Commission for Persons with Disabilities and City of Boston Transportation Department

No

**Article 80 | ACCESSIBILTY CHECKLIST**

regarding this need?

Where is accessible visitor parking located?

Has a drop-off area been identified? **If yes**, will it be accessible?

Include a diagram of the accessible routes to and from the accessible parking lot/garage and drop-off areas to the development entry locations. Please include route distances.

Where is accessible visitor parking located?	On the first parking level, one floor below grade.
Has a drop-off area been identified? <b>If yes</b> , will it be accessible?	Yes, the drop-off area is in the rear of the building and will be accessible.
Include a diagram of the accessible routes to and from the accessible parking lot/garage and drop-off areas to the development entry locations. Please include route distances.	See attached parking level diagram.

**Circulation and Accessible Routes:**

The primary objective in designing smooth and continuous paths of travel is to accommodate persons of all abilities that allow for universal access to entryways, common spaces and the visit-ability\* of neighbors.

*\*Visit-ability – Neighbors ability to access and visit with neighbors without architectural barrier limitations*

Provide a diagram of the accessible route connections through the site.

Describe accessibility at each entryway: Flush Condition, Stairs, Ramp Elevator.

Are the accessible entrance and the standard entrance integrated?

**If no above**, what is the reason?

Will there be a roof deck or outdoor courtyard space? **If yes**, include

Provide a diagram of the accessible route connections through the site.	See attached site plan diagram.
Describe accessibility at each entryway: Flush Condition, Stairs, Ramp Elevator.	All entryways are a flush condition.
Are the accessible entrance and the standard entrance integrated?	Yes
<b>If no above</b> , what is the reason?	
Will there be a roof deck or outdoor courtyard space? <b>If yes</b> , include	To be determined.

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diagram of the accessible route.

Has an accessible routes way-finding and signage package been developed? **If yes**, please describe.

Wayfinding to be developed at a later date.

**Accessible Units: (If applicable)**

In order to facilitate access to housing opportunities this section addresses the number of accessible units that are proposed for the development site that remove barriers to housing choice.

What is the total number of proposed units for the development?

How many units are for sale; how many are for rent? What is the market value vs. affordable breakdown?

How many accessible units are being proposed?

Please provide plan and diagram of the accessible units.

How many accessible units will also be affordable? If none, please describe reason.

Do standard units have architectural barriers that would prevent entry or use of common space for persons with mobility impairments? Example: stairs at entry or step to balcony. **If yes**, please provide reason.

Has the proponent reviewed or presented the proposed plan to the City of Boston Mayor’s Commission for Persons with Disabilities Advisory Board?

280
105 units for sale, 175 units for rent. Affordable breakdown consistent with the applicable IDP.
Condominiums: 105 units will meet MAAB Group 1 requirements; Rental: 166 units will meet MAAB Group 1 requirements; 9 units will meet MAAB Group 2A requirements.
A plan and diagram of accessible units will be shared as they are developed.
All affordable units will be accessible. 5% will meet MAAB Group 2A requirements, Remaining will meet MAAB Group 1 requirements
No
Presentation will be scheduled.

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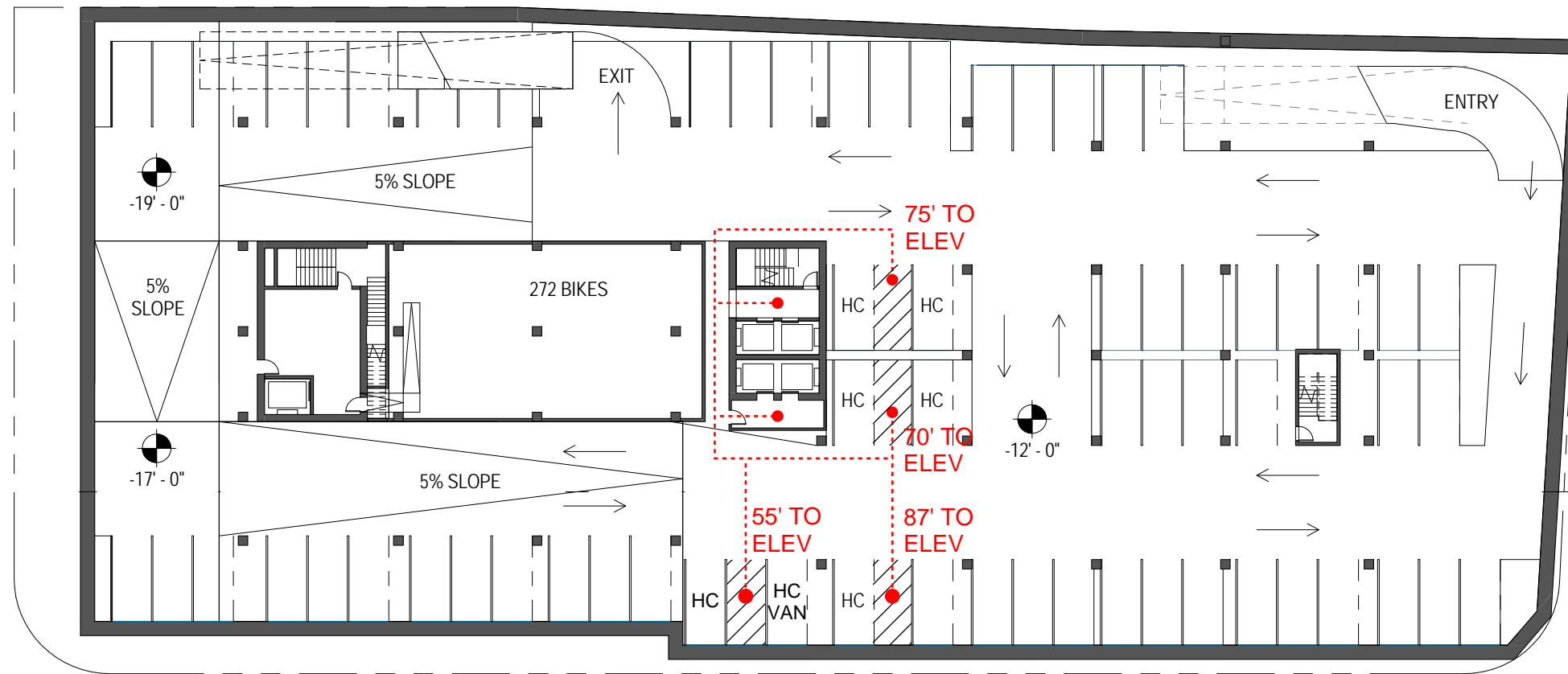
Did the Advisory Board vote to support this project? **If no**, what recommendations did the Advisory Board give to make this project more accessible?



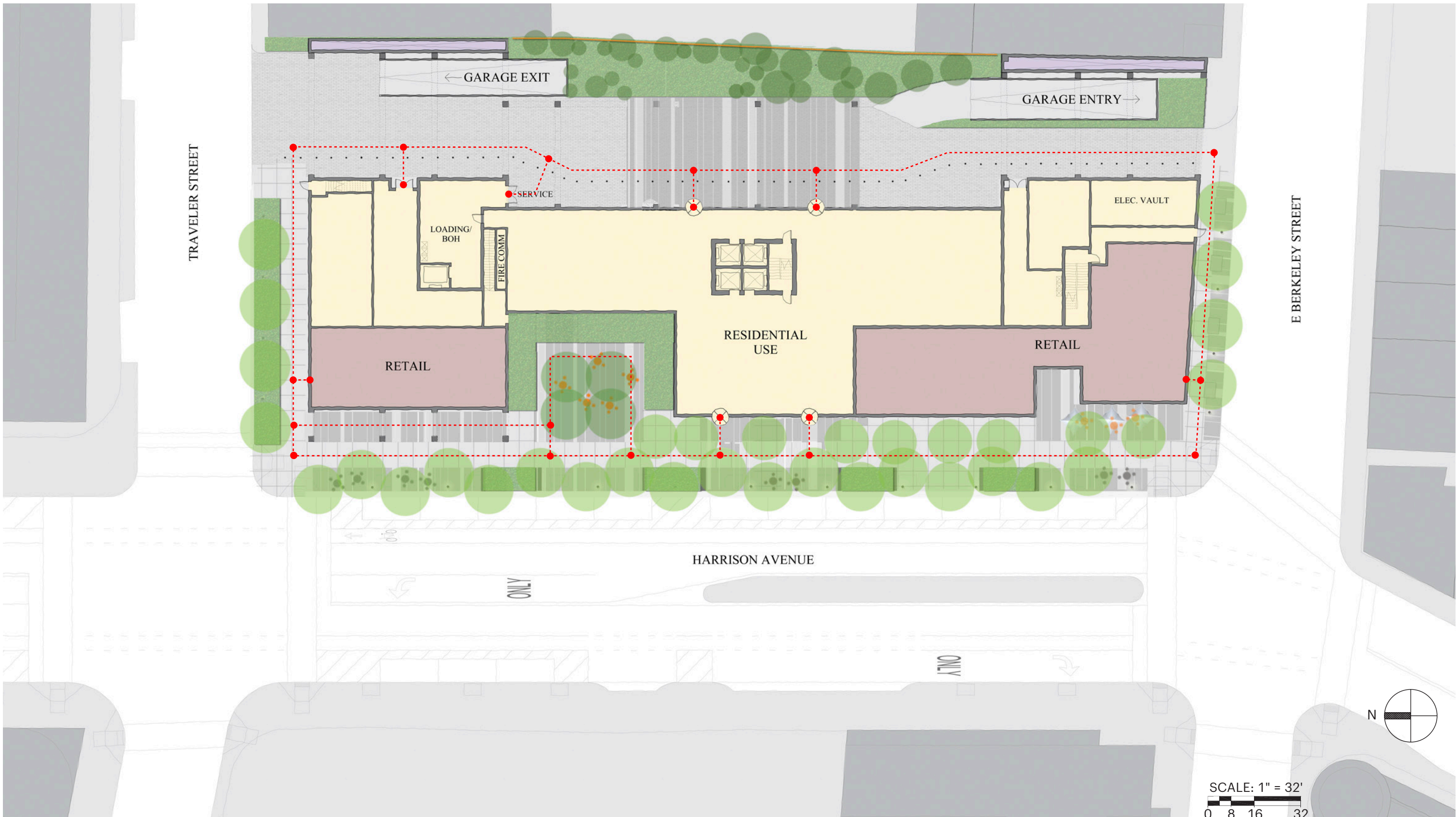
Thank you for completing the Accessibility Checklist!

For questions or comments about this checklist or accessibility practices, please contact:

[kathryn.quigley@boston.gov](mailto:kathryn.quigley@boston.gov) | Mayors Commission for Persons with Disabilities



ACCESSIBILITY DIAGRAM - PARKING LEVEL



### ACCESSIBILITY DIAGRAM - GROUND LEVEL

MARCH 24, 2016

- ACCESSIBLE ACCESS POINT
- ACCESSIBLE ROUTE