November 2015

Redevelopment of the Government Center Garage

WP-B2 Office Building

Boston, Massachusetts

SUBMITTED TO
Boston Redevelopment Authority

PROPONENT
The HYM Investment Group, LLC
on behalf of Bulfinch Congress
Holdings, LLC

PREPARED BY
vhb

IN ASSOCIATION WITH
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THE
HYM
INVESTMENT GROUP, LLC

November 16, 2015

Mr. Brian P. Golden, Director
Boston Redevelopment Authority
One City Hall Square
Boston, MA 02201

Re: **Expanded Project Notification Form**
Redevelopment of the Government Center Garage – WP-B2 Office Building
One Congress Street, Boston, Massachusetts

Dear Mr. Golden:

On behalf of Bulfinch Congress Holdings, LLC ("BCH"), the owner of the proposed project, The HYM Investment Group, LLC ("HYM") as the proposed proponent (the "Proponent") is pleased to submit the enclosed Expanded Project Notification Form (EPNF) for a new office building to be located at the corner of New Chardon Street and Congress Street on the West Parcel as the second phase of the Redevelopment of the Government Center Garage project located at One Congress Street in downtown Boston (referred to herein as "WP-B2," or the "Proposed Project").

The Proposed Project is a component of the overall redevelopment plan for the Government Center Garage (the "Garage")—an approximately 2,310-space parking garage that creates a physical, visual, and perceptual barrier between its surrounding neighborhoods. Planned Development Area (PDA) No. 96, which sets the zoning (i.e., building height, massing, and uses) for the larger redevelopment plan includes a vibrant mixed use development consisting of six new buildings (or "Project Components") was approved by the Boston Redevelopment Authority (the "BRA") Board on November 14, 2013 and the Boston Zoning Commission (the "BZC") on December 11, 2013 under Article 80C, Planned Development Area Review of the Boston Zoning Code (the "Code"). In order to receive PDA approval, the proposed redevelopment plan was required to be reviewed under Article 80B, Large Project Review of the Code (the "Development Plan Project"). The Preliminary Adequacy Determination for the Development Plan Project was issued by the BRA on November 22, 2013.

According to the Development Review Procedures of the approved PDA, each individual building is anticipated to be subject to Large Project Review under Article 80B. Since the BRA has approved conceptual plans, this subsequent review and approval is intended to be focused on the advanced building and public realm design.

WP-B2 plays a critical role in the goal towards: (i) opening up Congress Street to daylight and air through demolition of approximately 60 percent of the Garage, thus, creating the opportunity for

future redevelopment of the East Parcel into a new public plaza and a dynamic and vibrant mixed use development; and (ii) completely encompassing the northwestern portion of the Garage to create a new and interesting streetscape in downtown Boston. The proposed Class A office building is designed with a curved façade and asymmetrical form is combined with two flowing curved edges or swoops that help lessen the building's height by elegantly placing it on the Proposed Project Site. By beginning to replace a massive unsightly barrier with an elegant office building anchored by a three-story office lobby with retail space with a highly transparent façade providing public views from the outside in and an exterior landscape public plaza will substantially contribute to improving the vitality, and the urban design and architectural character of the Government Center and Bulfinch Triangle areas. Overall, the Proposed Project will achieve several key goals and public benefits, including, but not limited to the following:

1. Continue to revitalize an underutilized urban renewal era above-ground structured parking garage and use land efficiently establishing a dense commercial development.

2. Become a catalyst for continued growth and redevelopment in the Government Center and Bulfinch Triangle neighborhoods.

3. Encourage the diversification and expansion of Boston's economy in new areas of economic activity with the creation of a new Class A office building targeted to creative industry, technology, lifestyle and health care tenants in an area traditionally dominated by government tenants.

4. Create over 1,000 construction jobs in all trades and bring approximately 4,000-5,000 new economy jobs.

5. Create approximately $6.5 million in new annual local real estate tax revenue.

6. Enhance and activate New Chardon Street with streetscape improvements and new ground-floor uses, including a visible 8,000 square foot office lobby and 10,800 square feet of retail space.

7. Encourage the diversification and expansion of Boston's economy in new areas of economic activity with the creation of a new Class A office building targeted to creative industry, technology, lifestyle and health care tenants in an area traditionally dominated by government tenants.

8. Improve pedestrian safety and vehicular circulation by relocating the existing New Chardon Street garage entrance/exit to the Bowker Street/Hawkins Street intersection.

9. Improve traffic circulation to the regional highway system and local roadway network by allowing vehicles exiting the garage from Bowker Street to make a right turn onto New Chardon Street and go directly to I-93 Southbound (not currently allowed).

10. Provide a new 850-space bicycle storage facility – the largest in the City of Boston – with showers and changing rooms for employees of the new office building.

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11. Incorporate sustainability throughout by targeting LEED Gold Core and Shell for the Proposed Project and thoughtfully planning for efficient use of energy and resources through all stages of design and during operations.

In accordance with the approved PDA, prior to receiving a Certificate of Occupancy for the Proposed Project, a substantial portion of the eastern half of the Garage must be demolished. Additional public benefits associated with the removal of the eastern portion of the Garage over Congress Street include:

1. Introduce sky and daylight along Congress Street between New Sudbury and New Chardon Streets

2. Provide new views/vistas by breaking the mega-block into two appropriately-scaled urban blocks, including new views of the historic Custom House Tower and iconic downtown buildings, such as 60 State Street and the Financial District towers

3. Unlock the potential to: (i) dramatically improve the public realm and architectural character of Congress Street; and (ii) redevelop the East Parcel, including a new public plaza and a dynamic and vibrant mixed use development

4. Visually connect Bulfinch Triangle, North End, and Market District

Requests for copies of this submittal should be directed to Lauren DeVoe at 617-607-0091 or via e-mail at ldevoe@vhb.com.

We look forward to working with you, your staff and the community in your continuing review of this project.

Very truly yours,

The HYM Investment Group, LLC

Thomas O'Brien
Managing Partner

Enclosure

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Project Description

Consistent with Article 80 of the Boston Zoning Code and Enabling Act ("Article 80"), this Expanded Project Notification Form (EPNF) presents the second phase of the Redevelopment of Government Center Garage project—the office building located on the West Parcel (WP-B2, or the "Proposed Project"). Refer to Figure 1.1 for site location and context. WP-B2 plays a critical role in the goal towards: (i) opening up Congress Street to daylight and air through demolition of 60 percent of the Garage, thus, creating the opportunity for future redevelopment of the East Parcel into a new public plaza and a dynamic and vibrant mixed use development; and (ii) completely encompassing the northwestern portion of the Garage to create a new and interesting streetscape in downtown Boston.

The Proposed Project is a component of the overall redevelopment plan for the Government Center Garage (the "Garage")—a physical, visual, and perceptual barrier between the surrounding neighborhoods. Planned Development Area (PDA) No. 96, which sets the zoning (i.e., building height, massing, and uses) for the redevelopment plan including a vibrant mixed use development consisting of six new buildings (or "Project Components") was approved by the Boston Redevelopment Authority (the "BRA") Board on November 14, 2013 and the Boston Zoning Commission (the "BZC") on December 11, 2013 under Article 80C, Planned Development Area Review of the Boston Zoning Code (the "Code"). In order to receive PDA approval, the proposed redevelopment plan was required to be reviewed under Article 80B, Large Project Review of the Code (the "Development Plan Project"). The Preliminary Adequacy Determination for the Development Plan Project was issued by the BRA on November 22, 2013.

According to the Development Review Procedures of the approved PDA, each Project Component is anticipated to be subject to Large Project Review under Article 80B. Since the BRA has approved conceptual plans, this subsequent review and approval is intended to be focused on the advanced building and public realm design to confirm consistency with the PDA.

The following chapter provides a description of site context and existing conditions, an overview of the history and background of the Proposed Project, and a description of the Proposed Project, including a summary public benefits and consistency with local, regional,

and state planning goals and initiatives. Also provided is an overview of the public review and participation process and an outline of subsequent sections of this EPNF.

1.1 Site Context and Existing Conditions

Figures 1.2 and 1.3 present an aerial image and photographs of the Garage as it exists today, respectively. A remnant of the urban renewal era with an outdated program and planning form, the Proposed Project Site is set within a portion of the footprint of an antiquated and underutilized 11-story above-grade parking garage structure with failing retail. The Garage is set on an approximately 4.82-acre site generally bounded by New Chardon Street to the north, the John F. Fitzgerald Surface Road (the "Surface Road")/Interstate-93 (I-93) Ramp Parcel to the east, New Sudbury Street to the south, and Bowker Street to the west (the "PDA Site").

The PDA Site and Proposed Project Site are located within the 1964 Government Center Urban Renewal District, the more recently established Government Center/Markets District (Article 45 of the Code), and the Sudbury Street Restricted Growth Area. The Proposed Project Site is immediately adjacent to Government Center—the location of Boston City Hall, Suffolk County courthouses, and state and federal office buildings. Nearby to the north of the Proposed Project Site is Bulfinch Triangle, which consists of sports/entertainment uses (e.g., Boston TD Garden complex), offices, retail and residential buildings. The PDA Site is also nearby and/or connected to the following additional urban neighborhoods or distinct sections of the city:

- North End, which consists of residential and neighborhood retail, including restaurants;
- Bulfinch Triangle / Entertainment District, a neighborhood with a rich history which consists of a mix of commercial and residential uses, and, further north, the TD Garden, home to the Boston Celtics and Boston Bruins;
- Market District and the Rose F. Kennedy Greenway (also referred to herein as the "Greenway");
- Financial District, which primarily consists of office uses;
- West End, which consists of residential uses and, further northwest, institutional uses (e.g., hospitals/ medical offices); and
- Beacon Hill residential neighborhood.

This very mixed context offers the opportunity to create a very positive intervention and reconnect the PDA Site to these surrounding areas. The Proposed Project has the potential to unlock the value of the various uses in close proximity.

As identified on the existing conditions site plan presented in Figure 1.4, the Proposed Project is composed of a portion of the northwestern end of the existing garage structure and a portion of the adjacent public sidewalk on the southern side of New Chardon Street. The Proposed Project is generally bounded by New Chardon Street to the north, Bowker Street to the west, and the existing garage structure to the south and Merrimac Street/Congress Street

to the east. New Chardon Street is a two-way local street connecting from Cambridge Street and Beacon Hill to I-93 southbound and the North End at Surface Road/Washington Street northbound. Bowker Street, which is located to the west of the Proposed Project Site is a one-way local street that continues from Hawkins Street to New Chardon Street.

1.2 Project Background and History

The Garage was built in the late 1960's as part of an urban renewal project – the Government Center Urban Renewal District, which mandated the clearance of numerous residential and commercial buildings for the construction of local, state, and federal government offices and other related facilities (residential uses were prohibited). This resulted in the construction of a mega-block parking garage, which visually and physically divided and disrupted the urban neighborhoods and districts around it. Conceived at a time when auto-centric policy dominated, the existing underutilized 2,310-space parking garage adds little to the vitality of the area around it and in many ways detracts from the vibrancy of this section of downtown Boston.

Bulfinch Congress Holdings, LLC ("BCH") as the owner of the Proposed Project, is the single purpose entity comprised of the National Electrical Benefit Fund ("NEBF"). BCH purchased the property in 2007 with the primary goal of redeveloping the Garage. In 2010, BCH brought on The HYM Investment Group, LLC ("HYM")—a Boston-based real estate company focused on the acquisition, development, and management of complicated urban mixed-use projects—to operate the Garage and develop a viable redevelopment plan on behalf of BCH (the "Proponent").

The prime objective of the Development Plan Project is to break-up the existing 1960's urban renewal mega-block by opening Merrimac Street (referred to herein as Congress Street)[1] to air and daylight and creating two new vibrant, mixed use, appropriately scaled urban blocks (the "West Parcel and "East Parcel") with active and pedestrian-friendly ground floors and unique public spaces that will reconnect the areas around it. The Development Plan Project aims to be a leader in sustainable, transit-oriented, and integrated redevelopment that will serve as a catalyst for further redevelopment of the Government Center area. By bringing back uses, such as residential and retail (which previously existed prior to 1960's urban renewal of the area) and introducing new office tenants from the new economy (high tech and creative industry), the Development Plan Project will revitalize the area, which is currently dominated by government office use.

1.2.1 Overview of the Development Plan Project Review

As part of the approval of the PDA, the Development Plan Project was subject to review under Article 80B. The Proponent commenced Large Project Review by filing a Letter of Intent (LOI)

1 The portion of the public way that runs under the Garage is commonly referred to as Congress Street; however, according to the City of Boston's Street Book, it is named Merrimac Street.

with the BRA on June 21, 2011, which indicated the Proponent's intent to submit a Project Notification Form (PNF) in connection with the Development Plan Project (i.e., for approval of the conceptual master plan). Filed on June 5, 2013, the PNF presented details about the Project and provided information and preliminary analysis of transportation, environmental protection, infrastructure, and other components in order to inform the city agencies and neighborhood residents about the Development Plan Project, potential impacts and proposed mitigation. Notice of the BRA's receipt of the 2013 PNF was published in the Boston Herald on June 6, 2013, which initiated the reconvening of the Mayoral-appointed Impact Advisory Group (IAG) and a 30-day public comment period. The Proponent agreed to an extension of the public comment period, which was requested by the BRA and community. Pursuant of Section 80B-5.3 of the Zoning Code, a scoping session was held on June 19, 2013 with the City of Boston's public agencies, at which time the Project was reviewed and discussed. Members of the IAG were also invited to attend the scoping session.

Written comments on the 2013 PNF were submitted to the BRA from elected officials and the City's public agencies as well as community organizations and the general public (i.e., local residents and business owners). On August 9, 2013, the BRA issued the Scoping Determination, which outlined additional information and analyses required for continued agency and public review. The Proponent submitted a Draft Project Impact Report (DPIR) on August 23, 2013.

Simultaneously, in August 2013, the BZC adopted the Greenway District Overlay with revised zoning codes for this area, which includes the PDA Site. In connection with this overlay, the BRA proposed adoption of zoning controls for certain areas within the Greenway District, including the PDA Site. On September 13, 2013, a PDA Development Plan was submitted to the BRA and public for review and approval of zoning relief in accordance with Article 80C of the Code. The PDA set forth the proposed location and appearance of structures, open spaces and landscaping, uses of the area, densities, traffic circulation, parking and loading facilities, access to public transportation, and dimensions and heights of structures. After a public hearing on November 14, 2013, the BRA Board unanimously voted to approve the PDA Development Plan and issued a Preliminary Adequacy Determination, waiving further review in accordance with Article 80 of the Boston Zoning Code. On December 11, 2013, the BZC voted to approve the PDA.

According to the Development Review Procedures of the approved PDA, each of the Project Components is anticipated to be subject to Large Project Review under Section 80B of the Zoning Code. Since the BRA has approved conceptual plans, this subsequent review and approval is intended to be focused on the advanced building and public realm design to confirm each Project Component's consistency with the Development Plan Project. Minor modifications or design refinements related to site improvements, public spaces, building massing or exterior facades, roofscapes, transportation mitigation, parking or service/loading are to be subject of this review without amendment of the PDA unless the BRA determines changes are not consistent with the Development Plan Project.

1.2.1.1 Overview of Agency Coordination on the Development Plan Project

City agencies had the opportunity to review the Development Plan Project and its potential impacts as part of the extensive Article 80 review process. In addition to the BRA meetings on the 2013 PNF and DPIR filings, the Proponent held multiple separate meetings with the City's environmental staff of the Boston Environmental and Energy Services Department. Specifically, the group discussed the Development Plan Project's ability to achieve a high level of sustainability as well as addressing other typical environmental issues, including preliminary pedestrian wind and shadows studies.

The Proponent also held numerous meetings with BTD staff and a joint meeting with Department of Public Works ("DPW") (at their request to hold a joint meeting) to provide an overview of the Development Plan Project, and to discuss how DPW and BTD can coordinate on items, such as utilities, parking, and traffic implications with respect to the Development Plan Project.

The Proponent met with the Boston Landmarks Commission (BLC) staff to share an update on the ongoing review by the Massachusetts Historical Commission (MHC) and provide all supplemental information submitted in response to MHC's review comments. At the BLC meeting, it was confirmed that the Garage building is not subject to Article 85 (Demolition Delay) of the Boston Zoning Code because only partial demolition is proposed.

1.2.2 Overview of Massachusetts Environmental Policy Act (MEPA) Review

Following BRA approvals of the Development Plan Project, the Proponent commenced review under the Massachusetts Environmental Policy Act (MEPA) by filing an Expanded Environmental Notification Form (EENF) in December 2013. The almost 11-month MEPA review process allowed for continued public review, and state agency review and comment. On October 31, 2014, the Secretary of the Executive Office of Energy and Environmental Affairs (EEA) determined the Master Plan adequately and properly complied with MEPA and its implementing regulations.

1.3 Proposed Project Description

As shown in the proposed conditions site plan presented in Figure 1.5, the approximately 1,012,000-square foot Proposed Project consists of Class A office space, support parking, and ground floor retail space along New Chardon Street. A summary of the Proposed Project program is provided in Table 1.1 below.

TABLE 1.1 PROPOSED DEVELOPMENT PROGRAM FOR WP-B2

Use	Size
Office	1,001,200 GSF
Ground-floor Retail	10,800 GSF
Total	**1,012,000 GSF**

GSF Gross Square Feet

Since the PDA approval, the Proposed Project has been refined as follows:

- Shaped oval massing;
- Slightly less overall gross square footage (approximately 2,000 less square feet); and
- More uniformly-sized floor plates.

These changes do not materially or adversely impact the PDA or require additional mitigation. Refer to Section 2.5.1 of Chapter 2, *General Information and Regulatory Context* for a more detailed comparison to the PDA dimensional requirements.

1.3.1 Proposed Building Design Overview

The Proposed Project provides the opportunity to create a new vibrant office building with ground floor uses and enhanced pedestrian environment that aim to activate New Chardon Street and the northern portion of Merrimac/Congress Street. As described further in Chapter 3, *Urban Design*, the proposed design approach is to create a world-class cosmopolitan building, where the future collective composition of buildings transcends local scale and context to create a built form that is decidedly of the 21st Century.

The proposed office building's curved plan and slender form allows for views, light, and air to flow freely between the different portions of the development as well as maintaining the open character of the overlapping neighborhoods. As shown in Figure 1.6, the curved façade and asymmetrical form is combined with two flowing curved edges or swoops that help lessen the building's height by elegantly placing it on the Proposed Project Site. The building will be especially striking when lit at night as the graceful curves of the inner shell softly glow on the horizon.

The proposed office building will be anchored by a 2-story, 8,000-square foot lobby with a highly transparent façade and inviting entrance canopies that give the building a pedestrian scale and public views from outside inward. To the west of the lobby is a 10,800-square foot retail space with direct access to the exterior landscape plaza on the west side of the Proposed Project Site (Figure 1.5). Refer to Chapter 3, *Urban Design* for a detailed description of the proposed building design and how it intends to relate to the public realm.

1.3.2 Public Realm Improvements

The proposed ground-level enhancements are focused in two key areas: office lobby entrance; and ground floor retail. Pavement treatments are proposed within the various frontage, pedestrian and furnishing zones guide users through the public environment, maintaining accessible connections to adjacent interior spaces. Bollards and seating elements are placed strategically to help defend the building shell from stray vehicles. Street trees and annual/perennial plantings define the street edge, as well as enhance pedestrian user experience. The general landscape palette consists of native or adapted species. Refer to Chapter 3, *Urban Design* for additional detail and illustrations of the proposed public realm improvements for the Proposed Project.

1.3.3 Access and Circulation

Parking for the office building will be provided within the existing Garage. As with the Development Plan Project, vehicular access and egress for the Proposed Project will be directed to a new garage access/egress off Bowker Street (Figure 4.12). Locating vehicular access away from the office lobby and ground floor retail along New Chardon Street avoids conflicts with pedestrian experience. Additionally, major service and loading areas for the office building will also be located off Bowker Street (Figure 3.1a). Refer to Chapter 4, *Transportation and Parking* for additional information on vehicular access and circulation.

1.3.4 Parking

As discussed in Chapter 4, *Transportation and Parking*, the parking demand ratio assumed for WP-B2 is about 0.30 spaces per 1,000 square feet of office yielding a parking supply requirement of approximately 300 spaces for the Proposed Project. Dedicated office tenant parking spaces are not anticipated for the Project at this time.

In accordance with the approved PDA, prior to receiving a Certificate of Occupancy for the Proposed Project, a substantial portion of the eastern half of the Garage must be demolished. Construction of the Proposed Project includes 60,000 square feet (142 spaces) of parking provided within the Proposed Project Site on Floors 6 through 10. Construction of the new parking combined with the existing parking spaces to remain after demolition of eastern portion of the Garage that extends over Congress Street and the East Parcel will provide a parking capacity of approximately 1,159 spaces. As demonstrated in previous filings, this future parking supply will more than satisfy the parking requirements for both the Proposed Project, WP-B1 (which will have already have been constructed), and all other components of the approved Development Plan Project through a shared parking approach. For additional, detailed information on parking refer to Chapter 4, *Transportation and Parking*.

1.3.5 Project Schedule

The total construction duration for the Proposed Project is anticipated to be 42 months. The timing of the commencement of construction is driven by securing sizable tenant(s) committed to leasing space at the office tower.

1.4 Summary of Public Benefits

The public benefits of the Proposed Project include significant urban design and public realm improvements, job creation, and additional tax revenues. The Proposed Project will substantially contribute to improving the vitality, and the urban design and architectural character of the Government Center and Bulfinch Triangle areas, and will include some level of public benefits/amenities, which are listed below. Also listed are the public benefits associated with the demolition of approximately 60 percent of the existing garage structure, which is a pre-requisite to the issuance of the Certificate of Occupancy for the Proposed Project.

1.4.1 Proposed Project Benefits

Public Realm

- Enhance and activate New Chardon Street with streetscape improvements and new ground-floor uses, including a visible 8,000 square foot office lobby and 10,800 square feet of retail space.
- Create new urban open space opportunities at the ground-floor on the corner of New Chardon and Merrimac Streets.
- Encourage the diversification and expansion of Boston's economy in new areas of economic activity with the creation of a new Class A office building targeted to creative industry, technology, lifestyle and health care tenants in an area traditionally dominated by government tenants.
- Provide exterior at-grade short-term bicycle parking adjacent to the office lobby and new retail stores for visitors and customers.

Transportation

- Improve pedestrian safety and vehicular circulation by relocating the existing New Chardon Street garage entrance/exit to the Bowker Street/Hawkins Street intersection.
- Improve traffic circulation to the regional highway system and local roadway network by allowing vehicles exiting the garage from Bowker Street to make a right turn onto New Chardon Street and go directly to I-93 Southbound (not currently allowed).
- Implement Boston Complete Street Guidelines with provisions of a new bicycle lane and enhanced pedestrian facilities along New Chardon Street.

- Provide a new 850-space bicycle storage facility with showers and changing rooms for employees of the new office building.

Sustainability

- Take advantage of existing infrastructure developed to support the density of the downtown core.
- Begin to revitalize an underutilized urban renewal era above-ground structured parking garage and use land efficiently providing a dense commercial development.
- Incorporate sustainability throughout by thoughtfully planning for efficient use of energy and resources through all stages of design and during operations.
- Provide a unique and sustainable project through the redevelopment and reuse of the existing Garage and by utilizing the Leadership in Energy and Environmental Design (LEED) Green Building Rating System, in compliance with Article 37 of the Code, targeting a LEED for Core and Shell Gold rating.
- Improve water quality and reduce heat island effect through the process of redevelopment and updating to current stormwater management standards, including incorporation of green roofs/roof gardens, rainwater harvesting for on-site re-use, and phosphorous mitigation.
- Lease and operate the buildings in a sustainable manner (i.e., following construction of each component, develop Tenant Manual/Guidelines to ensure that the sustainability efforts are implemented throughout operation).
- Provide five (5) additional Electric Vehicle (EV) charging stations (in addition to the five EV stations provided by WP-B1) in the Garage and provide additional preferred parking area for low-emitting/fuel-efficient vehicles.

Social & Economic

- Become a catalyst for growth and redevelopment in the Government Center and Bulfinch Triangle neighborhoods.
- Encourage the diversification and expansion of Boston's economy in new areas of economic activity with the creation of a new class A office building targeted to creative industry, technology, lifestyle and health care tenants in an area traditionally dominated by government tenants.
- Support the future Boston Public Market by introducing new uses to the area, which will bring new residents, customers, and employees.
- Create over 1,000 construction jobs in all trades and bring approximately 4,000-5,000 new economy jobs.
- Create approximately $6.5 million in new annual local real estate tax revenue.

1.4.2 Garage Demolition Benefits

Public Realm

- Introduce sky and daylight along Congress Street between New Sudbury and New Chardon Streets
- Provide new views/vistas by breaking the mega-block into two appropriately-scaled urban blocks, including new views of the historic Custom House Tower and iconic downtown buildings, such as 60 State Street and the Financial District towers
- Unlock the potential to: (i) dramatically improve the public realm and architectural character of Congress Street; and (ii) redevelop the East Parcel, including a new public plaza and a dynamic and vibrant mixed use development
- Visually connect Bulfinch Triangle, North End, and Market District

1.5 Consistency with Public Planning

WP-B2, as currently programed and designed, remains consistent with a number of the city's planning goals and initiatives for redevelopment of the area, as demonstrated in the 2013 DPIR. These include: (i) the Greenway District Planning Study Use and Development Guidelines (specifically, the Market District and Government Center sub-district); (ii) the Crossroads Initiative; (iii) Boston Complete Streets Guidelines; (iv) the Climate Action Plan; (v) the updated Open Space Plan; (vi) Article 45, Government Center/Markets District of the Zoning Code; and (vii) Article 37, Green Buildings of the Zoning Code. Also, the Project supports many regional and state-wide planning goals and initiatives.

1.6 Community Outreach

During the review and approval process of the Development Plan Project the Proponent was engaged in a highly public and transparent process to inform reviewing city and state agencies, elected officials, community representatives, and the general public. The Proponent is committed to maintaining an open dialogue on the Proposed Project with interested parties.

1.6.1 Community Engagement

The public has had the opportunity to review the Development Plan Project and its potential impacts as part of the Article 80 review (i.e., the 2013 PNF and 2013 DPIR) and PDA Plan review as well as the state MEPA review. To date, the Proponent has held over 50 meetings with various city departments, state agencies, civic organizations, community groups/community representatives, elected officials, and individual stakeholders.

In addition to the BRA public hearing held on June 19, 2013, the BRA review process included a series of Impact Advisory Group (IAG) meetings—all of which were made open to the public and were publically advertised—to go over the Project and specific topics, as

needed/requested. IAG working sessions were held on June 12, June 19, June 26, July 10, August 7, August 23 and September 26, 2013 at Boston City Hall that were made open to the public and were publicly advertised.

The Proponent also created a project website, www.governmentcentergarageredevelopment.com, on which the presentations from each of the community meetings, including the community meetings that were held by the Proponent prior to the 2013 PNF submission as well as the community meetings and IAG working session meetings held during the review of the 2013 PNF and 2013 DPIR, can be downloaded. The public was notified of public meetings and Development Plan Project status/updates through the use social media, including Facebook, Twitter, and Google+ postings.

During the MEPA review process, the Proponent continued to meet with various city agencies/departments as well as departments of the MBTA and the MEPA staff. As required by the MEPA regulations, a public on-site scoping meeting was held on January 6, 2014, and both the EENF and DEIR were distributed and made available for public review and posted to the project website.

The Proponent remains committed to providing the public with the opportunity to review the design review document(s) for the Proposed Project as well as other phases of the Development Plan Project, and will likely continue to meet with city and state agencies, elected officials, community representatives, and the general public on a regular basis, particularly during the design review process.

1.6.2 Impact Advisory Group

In connection with a prior proposal for the Development Plan Project, the BRA solicited IAG nominations. Such nominations were obtained from the local elected representatives and city councilor, as well as recommendations from the Offices of Neighborhood Services and City Councilors at Large. Nominations were also obtained from the BRA. The following are the present members of the IAG for the Proposed Project:

- Ms. Deborah Connors
- Ms. Jane Forrestall
- Ms. Francine Gannon
- Ms. Linda Jonash
- Ms. Martha Maguire
- Mr. Joe McDonald
- Mrs. Martha McNamara
- Ms. Kimberly Paikos
- Mr. David Roderick
- Mr. Jay Walsh

-

As with the previous Article 80 review process, in addition to the required BRA public hearing, the Proponent will hold will hold IAG meetings during Article 80B review process for the Proposed Project —all of which will be made open to the public and publically advertised.

These meetings are intended to go over the Proposed Project, including current building design and public realm improvements as well as specific topics, as needed/requested.

1.7 EPNF Report Contents

A description of enhancement to the public realm and assessment of potential environmental and community impacts was provided as part of the previous City of Boston Article 80 (the 2013 PNF and 2013 DPIR) as well as state MEPA review filings for the Development Plan Project. In accordance with the approved PDA, based on current WP-B2 building design, this EPNF presents an update to development-related issues, such as urban and architectural design, sustainable and green building design, transportation, environmental impact categories, infrastructure needs, and historic resources.

Chapter 2: General Information and Regulatory Context provides general information, including, a description of the Applicant/Proponent and project team, legal information, site ownership information, and a description of regulatory controls and approvals anticipated for the Proposed Project.

Chapter 3: Urban Design provides detailed descriptions of design development of the proposed office building visual and architectural features as well as urban design/public realm improvements with supporting graphics.

Chapter 4: Transportation and Parking presents an update on traffic/transportation- and parking-related elements based on the more specific design and building program of the Proposed Project. The updated transportation study provides a more focused 5-year horizon compared to the 15-year full-build horizon analyzed for the Development Plan Project and includes a comprehensive assessment of the potential transportation impacts, including traffic, transit, pedestrian, bicycle, parking, and building service and loading requirements.

Chapter 5: Environmental Protection presents updated findings from the environmental studies that assess the potential Proposed Project-related impacts and the proposed feasible measures intended to mitigate, limit, or minimize those impacts.

Chapter 6: Sustainability/Green Building and Climate Change Preparedness provides an update to the sustainable design elements being considered for the Proposed Project based on a more advanced building design to continue to demonstrate compliance with Article 37 of the Code. This chapter also discusses the approach to preparing for changes in climate change, in accordance with the BRA Climate Change Resiliency and Preparedness Policy.

Chapter 7: Infrastructure describes the anticipated water consumption and sewage generation, and proposed utilities, including stormwater management facilities required for the Proposed Project.

Chapter 8: Historic Resources identifies any historic properties /districts within close proximity of the Site, and describes any effects to these properties and proposed mitigation as a result of the Proposed Project.

Supporting attachments include:

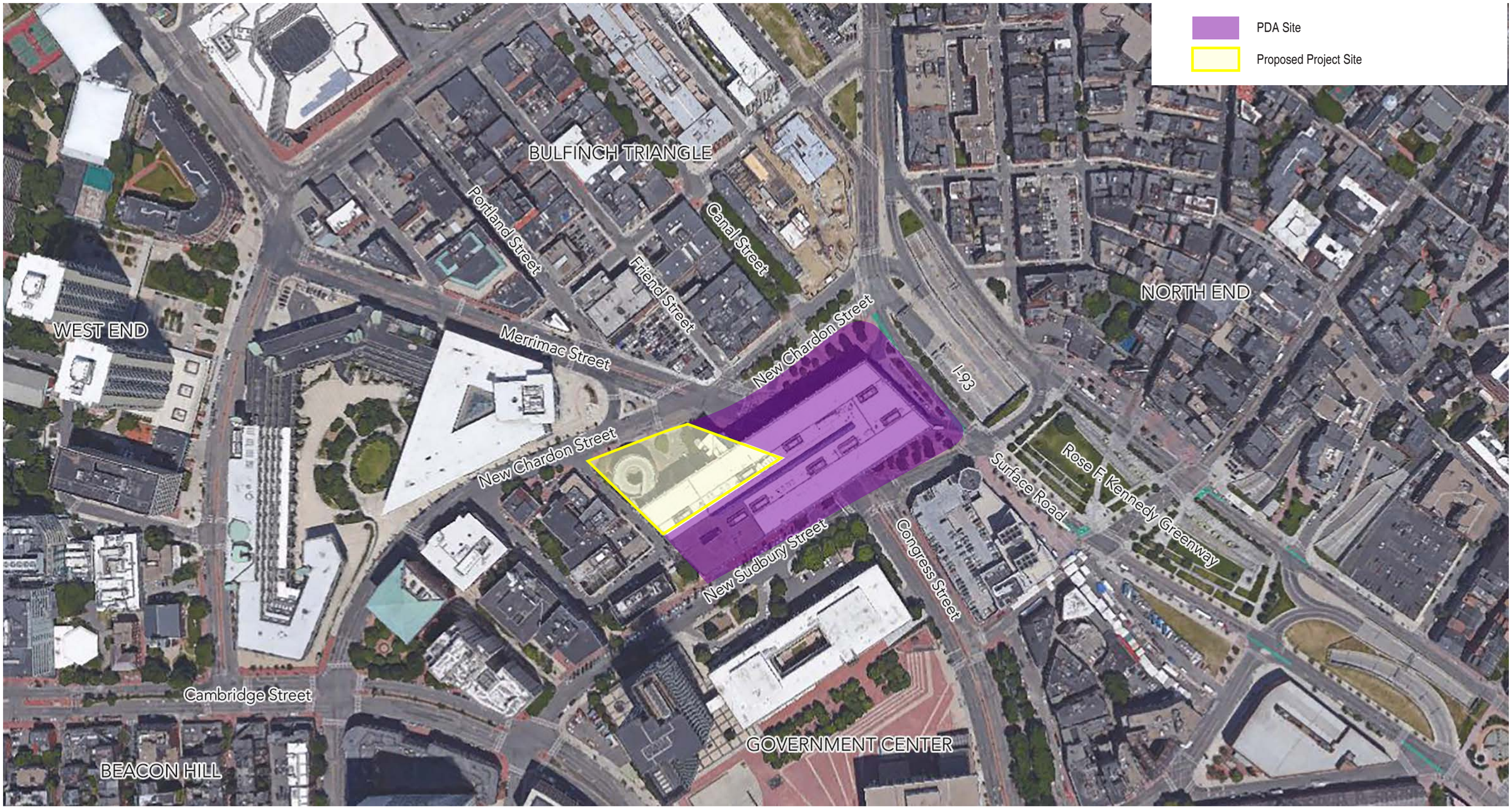
- Appendix A: Transportation Supporting Documentation
- Appendix B: Pedestrian Wind Supporting Documentation
- Appendix C: Solar Glare Supporting Documentation
- Appendix D: Air Quality Supporting Documentation
- Appendix E: BRA Checklists
- Appendix F: List of Abutters
- Appendix G: Disclosure Form

Source: 2008 MassGIS 15cm Aerial

Figure 1.1

Site Location and Context

Redevelopment of the Government Center Garage
WP-B2 (Office Building)
Boston, Massachusetts



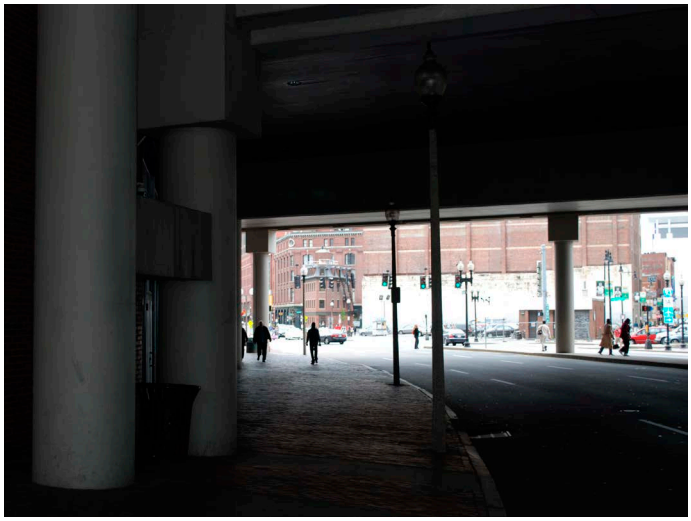
THE HYM INVESTMENT GROUP, LLC

cbt

Figure 1.2
Aerial Image of the Existing Garage

Redevelopment of the Government Center Garage
WP-B2 (Office Building)
Boston, Massachusetts

New Chardon Street



Congress Street-Under Garage

New Chardon Street-Looking West

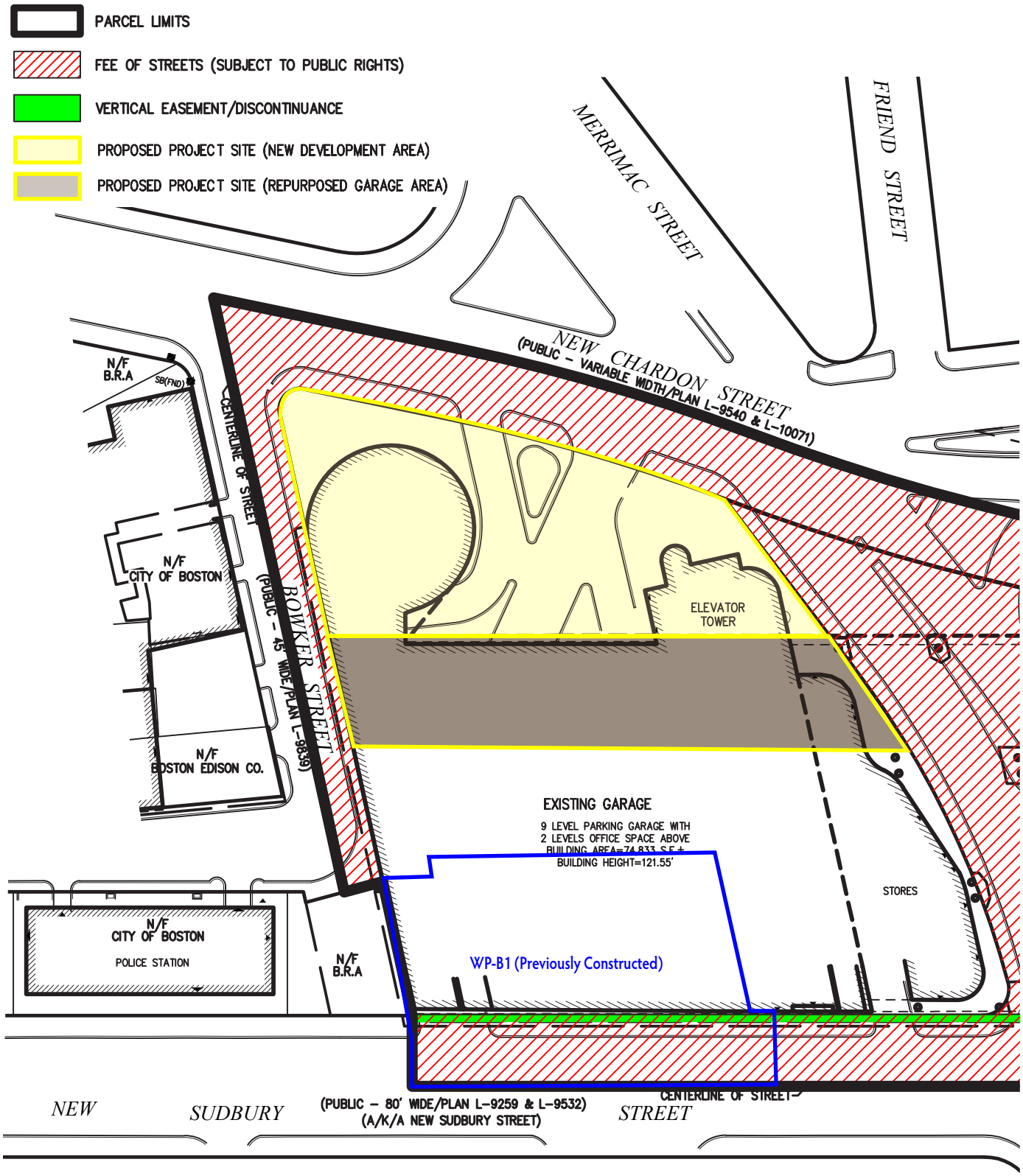
THE HYM INVESTMENT GROUP, LLC

vhb

Figure 1.3

Existing Site Photos

Redevelopment of the Government Center Garage
WP-B2 (Office Building)
Boston, Massachusetts

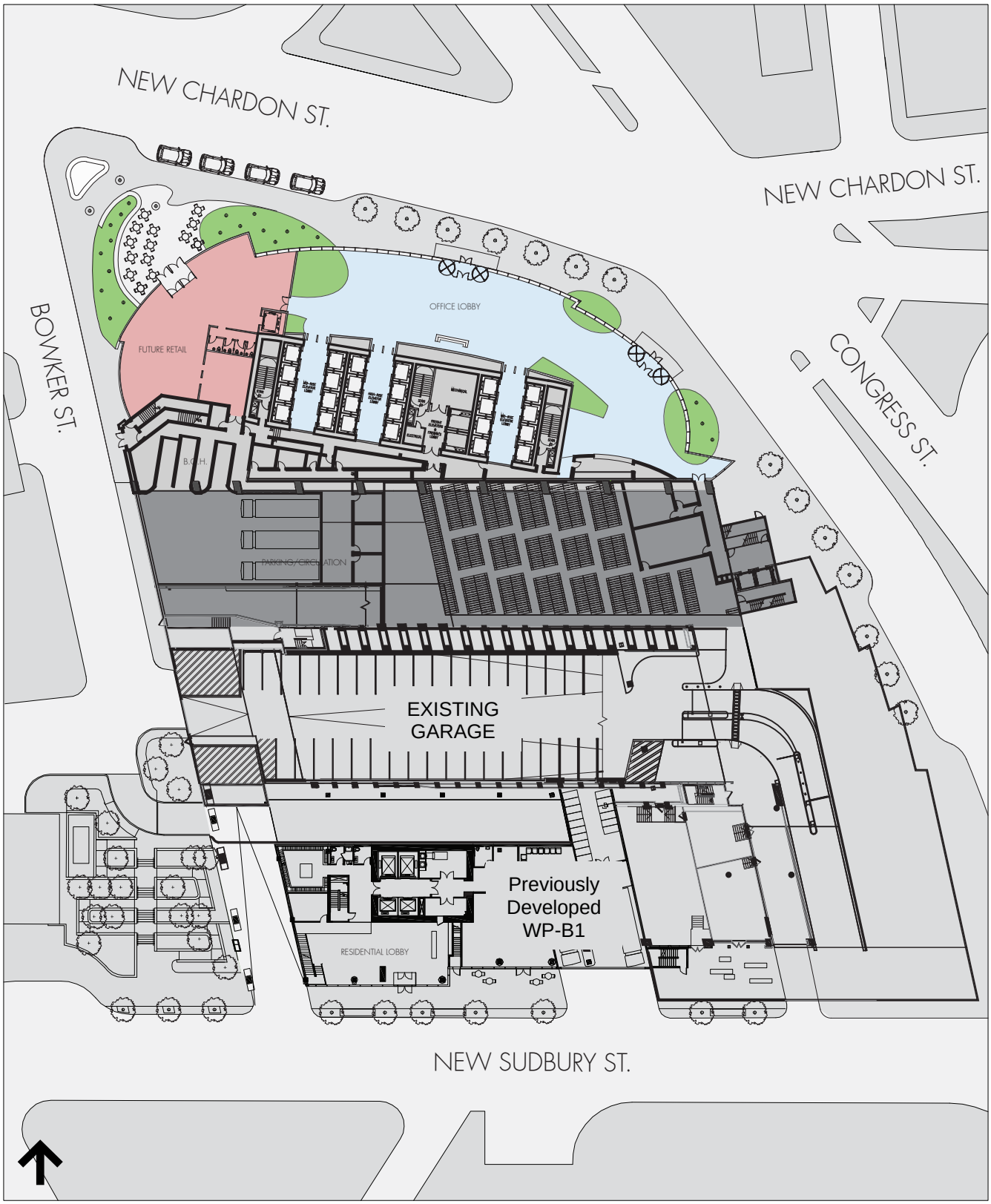


Source: The property lines shown on this plan are based upon an actual field survey conducted by VHB in January, 2007 and from deeds and plans of record.

Figure 1.4

Existing Conditions Site Plan

Redevelopment of the Government Center Garage
WP-B2 (Office Building)
Boston, Massachusetts



cbt

THE HYM INVESTMENT GROUP, LLC

Pelli Clarke Pelli Architects

- OFFICE
- FUTURE RETAIL
- LANDSCAPE / GREENSCAPE
- PARKING / CIRCULATION
- BACK OF HOUSE

Figure 1.5

Proposed Conditions Site Plan

Redevelopment of the Government Center Garage
WP-B2 (Office Building)
Boston, Massachusetts

Figure 1.6

Project Rendering

cbt

THE HYM INVESTMENT GROUP, LLC

Pelli Clarke Pelli Architects

Redevelopment of the Government Center Garage
WP-B2 (Office Building)
Boston, Massachusetts

2

General Information and Regulatory Context

The following chapter provides general information, including, a description of the Applicant/Proponent and project team, legal information, site ownership information, and a description of regulatory controls and approvals anticipated for the Proposed Project.

2.1 Applicant/Proponent Information

The Applicant, Bulfinch Congress Holdings, LLC (or BCH) as the owner of the Proposed Project, is the single purpose entity comprised of the National Electrical Benefit Fund ("NEBF"). BCH purchased the property in 2007 with the primary goal of redeveloping the Garage. In 2010, BCH brought on HYM to operate the Garage and develop a viable redevelopment plan on behalf of BCH. HYM, as the Proponent, is a Boston-based real estate company focused on the acquisition, development and management of complicated urban mixed-use projects.

For over 35 years, HYM's principals have been working on real estate ventures in the Boston, New York and Washington, DC corridor. HYM develops, invests, owns and manages real estate assets for its own portfolio and on behalf of major institutional and private investors. HYM is committed to making a positive impact on the communities it works within. In addition to the Proposed Project, HYM is currently providing a variety of development management and/or advisory services for approximately 9.5 million square feet, including NorthPoint, a 45-acre mixed-use development located primarily in Cambridge where a portion of the site lies in Somerville, and Boston Landing, a proposed 1.6 million square foot mixed use campus along the Massachusetts Turnpike in Boston's Brighton neighborhood. HYM was also heavily involved in recently completed Twenty|20, a 355-unit residential tower in East Cambridge, and Waterside Place, a 237-unit apartment tower in Boston's Seaport District.

2.2 Development Team

The following lists the key members of the development team for the Proposed Project:

Developer/Proponent	The HYM Investment Group, LLC on behalf of Bulfinch Congress Holdings, LLC One Congress Street, 10th Floor Boston, MA 02114 (617) 248-8905 *Contacts:* Thomas N. O'Brien, Managing Director Douglas J. Manz, Director of Development
Architect	Pelli Clarke Pelli Architects 1056 Chapel Street New Haven, CT 06510 (203) 777-2515 *Contact:* Chris Koon, AIA, Senior Associate
Legal Counsel	Rubin and Rudman, LLP 50 Rowes Wharf Boston, MA 02110 (617) 330-7000 *Contact:* James Greene, Attorney
Civil Engineering, Permitting, Historic Advisor	VHB, Inc. 99 High Street, 10th Floor Boston, MA 02110 617-728-7777 *Contacts:* Howard Moshier, P.E., LEED AP, Senior Project Manager Lauren DeVoe, AICP, LEED AP-BD+C, Senior Environmental Planner Rita Walsh, Senior Preservation Planner
Traffic Engineer	Howard/Stein-Hudson Associates, Inc. 11 Beacon Street, Suite 1010 Boston, MA 02108 617.482.7080 *Contact:* Guy Busa, Jr., Principal
Mechanical, Electrical, and Plumbing Engineer	WSP 88 Black Falcon Avenue, Suite 210 Boston, MA 02210 (617) 210-1600 *Contact:* Tom Burroughs, PE, LEED AP, Senior Vice President of Building Systems
Sustainable Design Consultant	The Green Engineer 54 Junction Square Drive Concord, MA 01742 (978) 369-8978 *Contacts:* Chris Schaffner, PE, LEED Fellow, Principal and Founder Sarah Michelman, RA, LEED AP BD +C, Senior Project Manager

Landscape Architect	Dirtworks, PC 315 West 39th Street, Studio #910 New York, NY 10018 (212) 529-2263 *Contact*: David Kamp, FASLA, LF, NA, President
Construction Manager	Tishman Construction Corporation, New England Region An AECOM Company 66 Long Wharf, 2nd Floor Boston, MA 02110 (857) 383-3908 *Contact:* Jeffrey A. Eamer, First Vice President

2.3 Legal Information

2.3.1 Legal Judgments or Actions Pending Concerning the Proposed Project

There are no legal judgments or suits which would affect the ability of the Applicant to proceed with the Project.

2.3.2 History of Tax Arrears on Property Owned in Boston by the Applicant

The property is identified as 50 New Sudbury Street, Ward 3, Parcel 2700. There are no outstanding real estate taxes owed on the property.

2.3.3 Evidence of Site Control

The Proposed Project is a component of the PDA Site, which is owned by BCH, pursuant to a Deed dated February 28, 2007 recorded with the Suffolk County Registry of Deeds in Book 41381, Page 316 and noted on Certificate of Title No. 124328 (the "Property"). The Deed specifically references that the Property includes the fee interest to the centerlines of North Washington Street, New Sudbury Street, Bowker Street and New Chardon Street, subject to the rights of the public in these areas. The Property also includes certain overhead and subsurface areas that have been discontinued by the Public Improvement Commission in Merrimac Street, New Sudbury Street, Bowker Street and New Chardon Street. The Property is also subject to an easement for the public in Merrimac Street and an MBTA easement on North Washington Street.

2.3.4 Site Control/Public Easements

The Applicant acquired the Property at 50 New Sudbury Street by deed dated February 28, 2007 and recorded with Suffolk County Registry of Deeds in Book 41381, Page 316 on March 1, 2007. The property is subject to easement to the MBTA, a Maintenance Agreement with the City of Boston Public Improvements Commission (PIC), and an easement for structural supports from the BRA.

2.4 Proposed Project Site Description/Ownership

The Garage was built in the late 1960's as part of an urban renewal project – the Government Center Urban Renewal District, which mandated the clearance of numerous residential and commercial buildings for the construction of local, state, and federal government offices and other related facilities (residential uses were prohibited). This resulted in the construction of a mega-block parking garage, which visually and physically divided and disrupted the urban neighborhoods and districts around it. Conceived at a time when auto-centric policy dominated, the existing underutilized 2,310-space parking garage adds little to the vitality of the area around it and in many ways detracts from the vibrancy of this section of downtown Boston.

The Garage was initially constructed to serve short-term parkers with a capacity of 1,865 commercial public parking spaces. In 1990, approximately 256,532 square feet of office space was added in two levels above the existing ninth floor of the Garage. At that time, 445 new parking spaces were added through reconfiguration and restriping in order to support the new office space, increasing the Garage capacity to approximately 2,310 spaces. Approximately 37,602 square feet of retail space is also part of the existing Garage, mostly along Congress Street and has historically been heavily underutilized.

2.4.1 Existing Proposed Project Site Conditions and Ownership

The Proposed Project Site, as identified on Figure 1.4, consists of approximately 48,035 square feet, or 1.1 acres, is composed of a portion of the existing garage structure and adjacent roadway areas owned in fee by the Applicant. The Proposed Project Site is generally bounded by New Chardon Street to the north, Bowker Street to the west, and the existing garage structure to the south, and Merrimac/Congress Street to the west. New Chardon Street is a two-way arterial street accessing I-93 south and connecting Washington Street to the east and Cambridge Street to the west. Bowker Street, which is located to the west of the Proposed Project Site is a one-way local street that continues from Hawkins Street to New Chardon Street.

2.4.1.1 Ownership

Site ownership is recorded as a single parcel of land from the center lines of Bowker, New Chardon, and New Sudbury Streets to the state highway property line. Various easements exist on, over, and under the parcel, which allow access for public streets and utilities, and for surface and underground construction and operation of MBTA bus and subway systems.

This EPNF is for design review and approval of the Proposed Project and is not considered to be a subdivision or "condominium" of parcels for purposes of determining specific boundaries of the parcel. Consistent with the PDA, each parcel, or Project Component, will likely have separate owners, but this has not yet been defined in detail. The specific information on the current ownership is outlined in Table 2.1 below.

TABLE 2.1 WP-B2 SITE OWNERSHIP INFORMATION

Assessing Parcel #:	0302700-000
Address (Existing):	50 New Sudbury Street (Legal) One Congress Street (Secondary)
Address (Proposed):	One Congress Street Boston, MA 02114
Ownership:	Bulfinch Congress Holdings, LLC
Lot Size:	±48,035 square feet (±1.1 acres)
Gross Building Area:	Proposed: 1,012,000 GSF
Occupancies/Tenancies:	Proposed: 1,001,200 GSF Office, 10,800 GSF Retail, and Parking[1]

GSF Gross Square Feet

1 Construction of new parking associated with WP-B2 combined with the existing parking spaces to remain after demolition of eastern portion of the Garage will provide a parking capacity of approximately 1,159 spaces. As demonstrated in previous filings, this future parking supply will more than satisfy the parking requirements for both the Proposed Project, WP-B1 (which will have already have been constructed), and all other components of the approved Development Plan Project through a shared parking approach. Dedicated office tenant parking spaces are not anticipated for the Proposed Project at this time.

2.4.2 Description of Site Metes and Bounds

The overall PDA Site (including to the center line of the street) at full build-out will contain 209,949 square feet (4.8 acres) and will consist of the West Parcel containing 129,744 square feet and the East Parcel containing 80,205 square feet, which includes areas to be acquired, as shown on a plan entitled: "Parcel Area Plan of Land in Boston, Massachusetts", prepared by Vanesse Hangen Brustlin, Inc., scale 1' = 40', dated May 1, 2013 ("Parcel Area Plan") in Appendix G of the 2013 DPIR along with a detailed description of the metes and bounds of the PDA Site.

The Proposed Project Site consists of approximately 30,110 square feet of new development area and 17,925 square feet of repurposed garage area for a total site area of 48,035 square feet located in the northern portion of the West Parcel (Figure 1.4). The specific metes and bounds of the WP-B2 parcel have not yet been determined.

2.4.3 Land Transfers and Easements

As part of the Proposed Project, the Proponent will request that with the cooperation of the BRA the City of Boston discontinue minor areas of existing public rights along New Chardon Street, as shown in Figure 1.4, to allow the Proponent to wrap the Garage with the new building.

2.4.4 List of Nearby Property Owners

A list of property owners with addresses located within 500 feet of the boundaries of the Proposed Project Site is provided in Appendix F. This list was provided by the Boston Assessing Department.

2.5 Regulatory Controls, Approvals, and Permits

Table 2.2 below provides a comprehensive list of approvals and/or permits anticipated to be required for the Proposed Project.

TABLE 2.2 LIST OF ANTICIPATED PERMITS AND APPROVALS FOR WP-B2

Agency/Department	Permit/Approval/Action	Status
Federal		
Federal Aviation Administration	• Determination of No Air Hazard to Air Navigation	To be obtained
U.S. Environmental Protection Agency	• NPDES General Permit	To be obtained prior to construction (if required)
Commonwealth of Massachusetts		
MassDEP Division of Water Pollution Control	• Groundwater Discharge Permit	To be obtained (if required)
MassDEP Environmental Results Program	• Permits related to fossil fuel burning building equipment, such as heating boilers and emergency generators	To be obtained
MassDEP Division of Air Quality Control	• Pre-construction notice	To be submitted
Massachusetts Historical Commission	• Memorandum of Agreement	Determination issued May 27, 2014; Consultation process ongoing
Massachusetts Water Resources Authority	• Construction Dewatering Permit	To be obtained (if required)
City of Boston		
Boston Redevelopment Authority	• Review under Article 80B, Large Project Review • Review pursuant to Article 37, Green Buildings of the Boston Zoning Code	PDA approval received 11/14/13; EPNF filed herein for individual Project Component WP-B2
Boston Civic Design Commission	• Review and approval pursuant to Article 28 of the Boston Zoning Code	To be obtained
Boston Transportation Department	• Review and approval of Construction Management Plan • Transportation Access Plan Agreement (TAPA)	Each to be obtained[1]
Boston Water and Sewer Commission	• Sewer Use Discharge Permit • Site Plan Approval • Construction Dewatering Permit	Each to be obtained

Agency/Department	Permit/Approval/Action	Status
Boston Public Improvement Commission/Department of Public Works	• License for installation of groundwater monitoring well • Specific Repair Plan • Street and Sidewalk Occupation Permits • Tieback/Earth Retention Permit • Air Rights Discontinuance (for Bowker Street improvements)	Each to be obtained
Boston Inspectional Services Department	• Building Permit (Long Form) • Demolition Permit • Certificate of Occupancy	Each to be obtained
Boston Fire Department	Fuel storage permit	To be obtained
Boston Committee on Licenses	• Parking Garage Permit • License for Storage of Inflammables	Each to be obtained
Boston Employment Commission	• Boston Residents Jobs Policy compliance	To be obtained
Boston Departments & Agencies	• Comments for Article 80B review • General Operational Permits, Licenses (as required)	Each to be obtained

NPDES National Pollutant Discharge Elimination System
MassDEP Massachusetts Department of Environmental Protection
1 The Master TAPA is under review by BTD.

2.5.1 Zoning Controls/Planned Development Area

Upon recommendation by the BRA to the Zoning Commission for the designation of the Proposed Project Site as a PDA eligible area, the Proponent filed a draft Development Plan for public review and comment, in accordance with Article 80C of the Code in September 2013. Approval of the PDA No. 96 was received from the BRA Board on November 14, 2013 and the Boston Zoning Commission on December 11, 2013. The Preliminary Adequacy Determination was issued by the BRA on November 22, 2013.

The Proposed Project is consistent with the PDA dimensional requirements with minor modifications, as noted in Table 2.3 below. Such modifications include slightly less overall gross square footage (approximately 2,000 less square feet) and more uniform floor plates. These changes do not materially or adversely impact the PDA or require additional mitigation.

TABLE 2.3 PDA DIMENSIONAL REGULATIONS AND WP-B2 DIMENSIONS

Category	Existing PDA	Proposed Project (WP-B2)
Permitted Use	Residential, Office, Retail and Hotel	Office and Retail
Maximum Gross Floor Area	1,014,000 SF	1,012,000 SF
Maximum Building Height for WP-B2	528 feet	528 feet
Maximum Floor Plates for WP-B2	31,000 SF lower plates 23,000 SF upper plates	Average 27,500 SF floor plates
Parking Spaces	1,159 spaces	1,159 spaces
Off-Street Loading Bays	Not specified	Three (3) off-street loading bays

1 Represents the future parking capacity under the full-build out of the Development Plan Project. The parking demand ratio assumed for WP-B2 is 0.30 spaces/1,000 square feet of office; therefore, the parking supply for the Proposed Project is approximately 300 spaces.

The proposed building form is an extruded oval floor plan with a modest taper from bottom to top on the primary frontage on Congress Street. This building's smaller approximately 28,700-square foot ground floor area has been carefully planned to sweep around the corner from New Sudbury Street to Congress Street allowing development of a very inviting public street scape. The 31,000-square foot ground floor of the PDA would extend to the property limits and use virtually all available private land for building footprint. The proposed building, on the other hand, limits ground level development providing the difference as landscaped open space.

The upper floor plate of the proposed building is approximately 28,000 square feet and has a similar appearance in the sky as a rectangular floor plate of 23,000 square feet consistent with the PDA. This is because the appearance of a curved building form is always more slender than the appearance of a rectangular form; and this is most pronounced with circular and oval forms. The curved surface gently "falls away" from the viewer providing a softer skyline impact. A reasonably efficient rectangular floor plate of 23,000 square feet suitable for the Proposed Project Site would be 110 feet by 209 feet with a diagonal of 236 feet. By way of comparison, the long dimension of the proposed 28,000-square foot oval floor plate is 235 feet. So the appearance of the proposed building on the skyline will be about equivalent to a 23,000-square foot rectangular building.

Refer to Section 3.4.4 of Chapter 3, *Urban Design* for a discussion of how the Proposed Project is consistent with the PDA design criteria discussion.

2.5.2 City of Boston Article 80B, Large Project Review

According to the Development Review Procedures of the approved PDA, each Project Component is anticipated to be subject to Large Project Review under Section 80B of the Zoning Code. Since the BRA has approved conceptual plans, this subsequent review and approval is intended to be focused on the advanced building and public realm design to

confirm each Project Component's consistency with the Development Plan Project. Minor modifications or design refinements related to site improvements, exterior facades, roofscapes, public spaces, transportation mitigation, parking or service/loading are to be subject of this review without amendment of the PDA unless the BRA determines changes are not consistent with the Development Plan Project.

Table 2.4 below summarizes the updated development impact analyses provided herein compared to what was provided previously in the 2013 DPIR for the Development Plan Project.

TABLE 2.4 DEVELOPMENT REVIEW COMPONENTS FOR WP-B2

Development Impact Category	**Analyzed in 2013 PNF/DPIR for the Development Plan Project** (Yes/No)	**Updated for Proposed Project (WP-B2)** (Yes/No/Explanation)
Urban Design	Yes	Yes, updated based on current building design. The completed Accessibility Checklist provided (Appendix E).
Transportation and Parking	Yes, for a full build-out 15-year horizon	Yes, Proposed Project-specific traffic study for a 5-year horizon
Environmental Protection		
Wind	Yes (Preliminary Only)	Yes, Proposed Project-specific wind tunnel analysis
Shadow	Yes, comprehensive study provided	Yes, updated based on current building design
Daylight	Yes	No change
Solar Glare	Yes (Qualitative Only)	Yes, modeled based on current building design
Air Quality	Yes	Yes, for stationary sources based on current building design
Water Quality	Yes	No change
Flood Hazard	Yes	No change
Groundwater/Geo-technical	Yes	No change
Solid and Hazardous Waste	Yes	No change
Noise	Yes	No change
Temporary Construction Impacts	Yes	Yes, updated for the Proposed Project-specific construction phase
Rodent Control Post-construction	Yes	No change
Sustainability/Green Building	Yes	Yes, draft LEED for New Construction-specific scorecard and supporting narrative provided updated based on current building design
Climate Change Preparedness and Resiliency	No (not required)	Yes, comprehensive evaluation for the Proposed Project. The completed

Development Impact Category	**Analyzed in 2013 PNF/DPIR for the Development Plan Project** (Yes/No)	**Updated for Proposed Project (WP-B2)** (Yes/No/Explanation)
		Climate Change Preparedness and Resiliency Checklist provided (Appendix E).
Infrastructure Systems	Yes	Yes, based on Proposed Project-specific infrastructure needs
Historic Resources	Yes	Yes, updated potential impacts on nearby historic resources based on current building design

3

Urban Design

A description of enhancement to the public realm was provided as part of the previous City of Boston Article 80 and state MEPA review filings for the Development Plan Project. In accordance with the approved PDA, this chapter presents an update on urban design based on the more specific design and program of the Proposed Project—the WP-B2 Office Building, or Phase 2. This chapter provides detailed descriptions with supporting graphics related to the urban context, design and development of the Proposed Project. Within the context of the larger Development Plan Project, the Proposed Project provides the opportunity to create a new vibrant office building with ground floor uses and enhanced pedestrian environment that aim to activate New Chardon Street and the northern portion of Merrimac/Congress Street.

The proposed project design departs from the typical office prototype with the creation of an iconic elliptical shaped tower form that is of a global metropolitan scale, and decidedly of the 21st Century, which will anchor and transform this part of downtown Boston into a new vibrant destination.

3.1 Development Plan Project Overview

As part of the Article 80 review process, the Development Plan Project design (specifically, building heights and massing) evolved in response to BRA, community, and other public entities feedback and comments. The Proponent agreed to lower/rearrange the height and density of the buildings. These changes were outlined in detail within the 2013 DPIR, which was submitted to the BRA. Improvements specific to the Proposed Project include the following:

- The height of the proposed office building on the West Parcel (WP-B2) was lowered by 72 feet to 528 feet (a 12 percent reduction in height).
- The overall development program was reduced by 122,800 gross square feet of office uses. In addition, approximately 30,000 gross square feet of office space was shifted to residential space, which helped lower the induced traffic associated with the full build-out.
- The construction phasing plan was changed by moving up the demolition of the Garage from Phase 3A to Phase 2A, with the goal of realizing the key public benefit of the removal

of the existing garage structure over Congress Street sooner. The Garage is also required to be demolished before WP-B2 can be occupied.

Combined, these changes reduced the overall impacts of the Development Plan Project, as demonstrated in the 2013 DPIR and further evaluated as part of the MEPA review process. Specifically, the project changes resulted in a reduction in net new shadow, a minor reduction in traffic as well as associated air emissions and parking demand (in particular during weekday periods freeing up additional parking for transient and commuter parking).

The Development Plan Project outlines a clear set of strategies to create a diverse mixed-use neighborhood downtown by removing and reinventing various portions of the underutilized Garage. As discussed in the 2013 DPIR, the following design goals were set for the Development Plan Project:

- Daylight Congress Street and provide new views/vistas by breaking the mega-block into two appropriately scaled urban blocks.
- Create a vibrant urban environment through the introduction of new/different uses (e.g., residential, hotel, office and retail tenant mix).
- Design a viable phased redevelopment strategy that provides community benefits with manageable construction impacts.
- Enhance pedestrian connections through and around the Project Site.
- Activate the public realm with new public open space and streetscape improvements.
- Be a leader for sustainability.

These goals are generally reflected in the approved PDA as part of the "Design Performance Criteria."

3.2 Key Design Considerations

The key findings related to urban design include:

- The Proposed Project advances the transformative vision for the redevelopment of the Garage and Government Center area. As such, it builds on the Development Plan Project prepared for the PDA Site in 2013 and is consistent with the design criteria of the approved PDA.
- Removal of the eastern portion of the garage allows for Congress Street to be opened for daylight and views.
- The building height was reduced to 528 feet and the rooftop screening device was sculpted to a degree that lessens the shadow cast on adjacent buildings and streets.
- The building mass was reconfigured and sculpted so that the overall impression of the mass was reduced.

- The elliptical tower form with its sculpted tower finish will be iconic and elegant new addition to the Boston Skyline, anchoring and fostering the further redevelopment of this area of downtown Boston.
- The ground floor program has been expanded to include not only the lobby space for the office building, but also a retail space (most likely a restaurant or a café located at the corner of New Chardon and Bowker Streets) and a 850-space bike storage and repair facility with an entrance off Congress Street, the largest such facility in the City of Boston. These measures enhance the urban environment and public experience of the Proposed Project Site.
- The pedestrian experience is enhanced with the reconstruction of the sidewalk along the Proposed Project to Boston Complete Street guidelines and the incorporation of new landscaping and sitting areas along with new street trees.
- The Proposed Project is designed to be LEED for Core and Shell Gold level and will be targeting new economy based tenants.

3.3 Urban Context

The Garage's location at the intersection of the North End, West End, Beacon Hill, Bulfinch Triangle and Government Center neighborhoods uniquely positions it to stitch together downtown Boston's fragmented urban fabric. It also provides an important opportunity to re-introduce the human-scale and public spaces following the damage caused by the urban renewal efforts in the area in the 1950s and 1960s. As the Development Plan Project demonstrates, this will be achieved by creating a cluster of distinct and interesting buildings with strong visual, architectural and programmatic synergies. The Proposed Project will specifically further this goal with iconic architecture, innovative massing, and inviting streetscape designs that respond to the immediate urban context.

The Proposed Project is located at the intersection of several important Boston districts. This convergence of multiple street grids demands a building that faces the city in all directions. The proposed office building design gracefully addresses these conditions, resulting in a distinctive building that will appear to change in form when seen from different vantage points around the city. Juxtaposed to the rectilinear towers of the city skyline, the new office tower's sweeping form will be a new icon for Boston.

Figure 3.1a through Figure 3.1d show the building floor plans. In the proposed design, the office building is an integral element in the city fabric and it will foster a pleasant pedestrian experience. The proposed building will have lobby entrances on New Chardon Street and Merrimac/Congress Street and will be a visible point within the greater network of adjacent streets. New Chardon Street is a two-way arterial street accessing I-93 south and connecting Washington Street to the east and Cambridge Street to the west. West of the office lobby at the corner of Bowker and New Chardon Streets a new ground level retail space(s) is proposed, which will create a vibrant public realm environment with active pedestrian uses (Figure 3.1a). To further enhance the public realm, the office tower's transparent lobby, which will curve

around onto Merrimac/Congress Street will feature a dramatic presentation wall designed as a work of art that can be seen from outside and will invite passers-by inside to smaller, built-in retail kiosks located inside the lobby.

Prior to a certificate of occupancy being issued for the Proposed Project, removal of the eastern portion of the existing garage structure over Merrimac/Congress Street will take place. This will open a portion of Merrimac/Congress Street to more daylighting and fresh air, and it will set the stage for later phases to more seamlessly connect surrounding neighborhoods with active ground floor uses, attractive sidewalk, and streetscapes and appropriately scaled massing representing a significant public benefit of the Development Plan Project.

This centrally located site will position the Proposed Project within walking distance of many of the city's civic, social, and recreational amenities. The Proposed Project Site is directly across the New Chardon Street from the Edward W. Brooke Courthouse and Bulfinch Triangle Historic District. It is also located in the vicinity of the recently opened Boston Public Market and Rose F. Kennedy Greenway North End Parks just beyond. The Proposed Project is within walking distance of arts, athletic, and entertainment events at the Boston Garden, the culinary and cultural delights of the North End, and the historic and family attractions of Faneuil Hall, Quincy Market, and the Freedom Trail. Finally, it is just one block from City Hall and City Hall Plaza, home to many community events and celebrations throughout the year.

One of the strengths of the Proposed Project is its proximity to public transit. It is located immediately across the street from the MBTA Haymarket transit and bus stations, providing access to the Orange and Green Lines as well as several local bus routes. It is also located within walking distance of the Blue Line at Bowdoin Station located on Cambridge Street. Additionally, the Proposed Project Site is ¼-mile from North Station, offering connections to the MBTA Commuter Rail, and Green and Orange Lines, and Amtrak.

3.4 Proposed Project Design Development and Concept

Following the Development Plan Project, the Proposed Project will aim to align itself as closely as possible with the Greenway Planning Guidelines. The proposed office building's curved plan and slender form allow for views, light, and air to flow freely between the different portions of the development as well as maintaining the open character of the overlapping neighborhoods. The curved façade and asymmetrical form is combined with two flowing curved edges or swoops that help lessen the building's height by elegantly placing it on the Proposed Project Site. The building will be especially striking when lit at night as the graceful curves of the inner shell softly glow on the horizon.

The design leverages the openness of the Proposed Project Site and the proximity to different parts of the city creating strong ties between the building and the surrounding environs. The oval shape allows for continuous views to some of Boston's most historic neighborhoods. This proximity will create a desirable address to work that is uniquely Boston in character one from which the history of the city unfolds in a birds-eye series of views. The Proposed Project design

will complement the city skyline with a fresh contemporary design based on resiliency and sustainability rather than emulating existing Boston architecture.

Considering the interests of both the surrounding neighborhood and the Proposed Project's future tenants, the Proponent and design team aimed to design a building that distinguished itself through its simple unique shape and iconic gesture on the Boston skyline. The proposed design intentionally differs from that of the proposed WP-B1 residential tower in order to create a more interesting skyline and urban experience of downtown Boston. This differentiation also creates an opportunity for the two buildings to engage in an architectural conversation. This differentiation supports the intent of the approved PDA design criteria to encourage the incremental development and planning of this new urban neighborhood. It also diminishes the perception of the Proposed Project as part of a "super block" development.

3.4.1 Height and Massing

Figure 3.2a through Figure 3.2d present the proposed building elevations, and Figure 3.3 and Figure 3.3b present the proposed building sections. The Proposed Project will reach up to 528 feet in height to the last occupied floor. The proposed building height and massing are designed to maintain a graceful shape that minimizes the impact on the overall cityscape while creating desirable office tenant floorplates.

As illustrated in Figure 3.4, a key design advancement of the WP-B2 since the Development Plan Project includes shaping of the building massing to a curved oval shape from a rectangle block to better provide a more interesting contribution to the city skyline. This design change would result in benefits from a shadow perspective as daylight is created under all conditions due to the building shape compared to the DPIR massing, as shown in yellow on the shadow study graphics (Figures 5.2 through 5.5.). The updated shadow studies are presented in Section 5.4 of Chapter 5, *Environmental Protection*.

Figure 3.5a through Figure 3.5d present project renderings from a city skyline vantage point down to the ground plane at the base of the proposed office building. The massing represented during the PDA approval process was softened through the use of a curved form that evolved from the curve of the Merrimac/Congress Street and New Chardon Street intersection. The previous rectilinear shape has been refined into an oval to ease the pedestrian flow at the corner of New Chardon Street and Merrimac/Congress Street. As shown in Figure 3.5a, the front of the building was set facing the Harbor and the façade was shaped with three curvilinear edges. These edges open the east portion of the building toward the Boston Harbor and the adjacent major intersection, which result in a lobby and ends of the office floors that will have sweeping panoramaic views of street life and of this newly activated part of the public realm (Figures 3.5b-d). The curvilinear edges of the façade cumulate at the top of the building to create an iconic expression that links the Proposed Project to the greater context of downtown Boston. The shaping of the building takes cues from the flow of space at the public realm, as graphically exhibited in Figure 3.5d.

3.4.2 Character and Materials

The character and materials of the Proposed Project generally represent the highly efficient, modern, multi-tenant downtown office space existing within. The majority of the office building façade will be glass and aluminum curtain wall cladding. This cladding is divided into three different curtainwall designs that help articulate the overall building mass. This pattern and texture of mullions and non-transparent materials will provide a scale-giving texture. The tower will terminate in an elegant rooftop that unifies the design as a whole and screens unsightly mechanical equipment. The base of the proposed office building anchors the building to the ground through a highly transparent lobby façade and inviting entrance canopies that give the building a pedestrian scale and public transparency (Figure 3.4d).

The three curtain walls designs help articulate the overall building shape. An inner shell is created between curved edges pulling on two sides towards New Chardon and Congress Street. This central front face signifies the main side of the proposed office building at the street level as well as at the larger scale of the city skyline—a gesture that creates the unique massing character (Figure 3.5a). This façade will be especially striking when lit at night with the graceful curve of this inner shell softly glowing on the horizon. This façade curves and tapers as it ascends up the building adding to the unique character of the mass from this perspective. The taut glazing system is composed of butt-jointed glass minimizing exterior articulation.

The outer shell's metal-and-glass curtain wall will have higher efficiency glazing and will be articulated with external vertical fins that give the broader sides of the building a unique and unified character. These fin not only serve as an aesthetic refinement, but also function to address solar glare and to serve to support the building maintenance system. Refer to Chapter 5, *Environmental Protection* for the findings of the solar glare study.

Lastly, the swooping edges of the façade are accentuated by a third curtainwall type. On the North side of the building horizontal fins refine the swooping edges from the top of the building all the way down to the base of the building. The exterior articulation on this portion of the building activates the intersection of Merrimac/Congress and New Chardon and forms a cover to the more transparent lobby glazing.

The curtain wall designs are contemporary in spirit and support the building's sustainable-design ambitions. The energy-efficient skin combined with the high-performance building systems are the primary sustainable design strategies and will help achieve the Proponent's goal of a LEED Gold rating (as discussed further in Chapter 6, *Sustainability/Green Building and Climate Change Preparedness*).

3.4.3 Building Program

The building consists of 1,012,000 SF of office space including a spacious lobby that is open to the public. Additionally, retail space has been provided to activate the public realm. The retail space is expected to include a café with exterior seating, a bicycle repair shop and potentially a small retail kiosk located within the lobby. On lower Floors 1 through 10, the front portion of

the building facing Congress Street will consist of office suites while the remaining portions of the floors will be parking, accessed from the existing Garage, and hidden behind the new curtianwall façade. On Floor 11, office tenants will have accessed to an outdoor roof deck area, which has become an important element in Class A office towers. After Floor 11, the typical office floorplate will commence and rise through the building, slightly shrinking in size as the building tapers towards the upper floors.

3.4.4 Consistency with PDA Design Performance Criteria

The Proposed Project aims to meet and exceed the PDA Design Performance Criteria in the following ways.

Site and Public Realm

1. The overall design should break down the existing garage "superblock" character and create new, strong patterns of streets and blocks, pedestrian edges, and open spaces, with the goal of reintegrating two new blocks in the city fabric.

   The Proposed Project will activate New Chardon Street and the New Chardon-Merrimac Street/Congress Street intersection. The proposed ground floor café seating will create welcoming pedestrian spaces and soften the street edge. The project will also add landscape elements along New Chardon Street and Bunker Street.

Building Design & Architecture

1. The project must form a cluster of distinctive individual buildings that defines Government Center on the skyline.

   The Proposed Project has been designed to articulate a distinct identity within the larger Government Center development and the city.

2. The design of the taller (over 300 feet) buildings must respond to the unique "360 degree visibility/orientation" opportunity that the site (separate from Downtown and North Station) offers as it is approached from all directions around it.

   View and vista studies have been conducted to ensure that the Proposed Project has a distinct yet appropriate presence in the Boston skyline when viewed from a variety of different angles and perspectives.

3. Design of the building must mark its location in the city through the use of highest quality building materials, building performance systems, and inventive façade articulation to create a form that is durable, distinctive, and timeless.

   The Proposed Project will use high quality building materials to create a façade that is unified in its appearance creating a distinctive building shape that softens the edge and smooths the transition of the New Chardon-Congress Street intersection.

4. The buildings, both as a group and individually, must meaningfully contribute to the image of the Boston skyline (with an effect akin to the Hancock and Prudential buildings) from different vantage points including Boston Harbor, the Charles River, the highway, the Greenway and other long distance views.

   The Proposed Project emphasizes the design's strong vertical lines and slender nature to form a distinct and intriguing element in the city's skyline. As an office building, WP-B2 is shaped differently from WP-B1 so that the mass of the two towers are different therefore minimizing the impression of a superblock. The uniqueness of the shape contributes to the image of the Boston skyline and connects this neighborhood back to the greater downtown.

5. From the Harbor and Charles River the high rises within the project must provide a legible read of the new high spine that is formed between South Station/Downtown and proposed Boston Garden/North Station development.

   Given its height and prominent location, the Proposed Project will play a critical role in visually and physically connecting and continuing the new high spine.

6. The localized views of the project from different vantage points, especially the Rose Kennedy Greenway must enhance the experience of the Greenway and provide an aesthetically pleasing and distinctive backdrop to both Government Center Plaza and the Greenway.

   The Proposed Project has been designed to articulate its unique identity at all scales. The building's distinct massing will create visual interest from a distance, providing a pleasing backdrop for city activities occurring at civic and social centers such as City Hall Plaza and the Rose Kennedy Greenway. Up close, its unity of materiality and careful attention to the articulation of the base as it rests on the project site will further contribute to the neighborhood's eclectic character.

7. The mechanical/top should be integrated to the overall architecture and form of the building.

   The mechanical systems and penthouse will be located behind a rooftop extension of the façade that continues the curved gestures from the street to the top of the building. A secondary screen will be setback from the main façade to provide further visual protection from points further away from the project. The overall composition will be a unified form that conceals mechanical equipment.

8. The buildings must be expressive of the long standing reputation of Boston as a center of innovation. Consequently, the project must incorporate a systemic, research-based approach to sustainability and be designed to pursue higher LEED rating. Per the PDA, the Development Plan Project must contain at least one LEED Platinum building, one LEED Silver building, and the remaining buildings must be LEED Gold.

The Proposed WP-B2 is currently targeting LEED Gold certification.

9. In both the base and towers, embrace design that allows for flexibility and possible change in use.

   By pursuing rigorous and robust resiliency and sustainability strategies, the Proposed Project will position itself to adapt to the changing needs and conditions of the city and community overtime.

3.5 Views and Vistas

The design team has carefully conducted dozens of view studies to understand and best realize the full potential of this central location. In the 2013 DPIR, view perspectives were based on the conceptual design of the Development Plan Project, which addressed building heights and massing volumes only. These visual studies have been updated with the current more refined building design to illustrate the potential effect of the size, scale, and massing of the Proposed Project.

Figures 3.6a-k present view perspectives of the Proposed Project from various viewpoints. As the images suggest, the Proposed Project will fit into Boston's skyline from a variety of different angles. A major contribution to the skyline, the building's massing allows it to both stand out and blend in as is most appropriate from different vantage points across the city. Careful attention has been paid to design the WP-B2 building to be different from the WP-B1 building, so that both structures complement the overall skyline from these different vantage points and so that the super-block concept is diminished. The Proposed Project Site offers opportunities to create views across the Boston Harbor to Bunker Hill in Charlestown, East Boston, and beyond. These views will enhance the value of the office space making it a desirable location adding vibrancy to the development of the overall area. Also, it is vital that such a high-profile office building be highly elegant and transformative while still allowing for urban vistas from a distance. The Downtown, Government Center and West End developments are a fabric of buildings on the city skyline and the Proposed Project maintains an active presence in this composition. The visual presence of the Proposed Project has been studied in depth for its appearance on both the existing and the emerging Boston skyline as well as from various distant view points and neighborhoods such as the Greenway, North End, West End, Bulfinch Triangle and Beacon Hill. The proposed composition and scale of the overall Proposed Project is fitting to such a lynchpin location in the city.

3.6 Streetscape Improvements and Landscaping

The proposed streetscape improvement/landscape design intends to connect the proposed office building to the surrounding neighborhood, as well as create a rich and unique user experience in compliance with Boston Complete Streets Guidelines. Pavement treatments used within the various frontage, pedestrian and furnishing zone conditions guide users through

the public environment, maintaining accessible connections to adjacent interior spaces. Bollards and seating elements are placed strategically to help defend the building shell from stray vehicles. Street trees and annual/perennial plantings define the street edge, as well as enhance pedestrian user experience. The general landscape palette consists of native or adapted species. Figure 3.7a and Figure 3.7b illustrate the proposed New Chardon Street streetscape/landscaping plan without and with tree canopy, respectively.

3.6.1 Office Building

Figure 3.8a and 3.8b present the streetscape sections in front of the proposed office building lobby along New Chardon Street. Pavement used within the frontage zone complement adjacent interior spaces, creating visual connections throughout. Low walls along the pedestrian zone provide permanent seating options and division between planting and paved surfaces. Planting beds in the frontage zone and adjacent lobby blur the line between interior and exterior, while increasing the visual depth of planting space.

3.6.2 Ground Floor Retail

Figure 3.8c presents the streetscape section at the proposed public open space located at the corner of New Chardon and Bowker Streets. A large planting bed along Bowker Street borders the western edge of the proposed retail space. Low walls within the retail space give users fixed seating options, while defining the boundary between public and private experience. Movable tables and chairs offer a variety of flexible seating options for the establishment. Pavement used within the retail space complement adjacent interior spaces. Plantings provide shelter and perceived privacy from the public space, while maintaining visibility to and from all areas.

3.7 Open Space

At the northwest corner near the intersection of Bowker and New Chardon Streets the building has been set back from the street to provide a triangular shaped open space, which will have seating incorporated around this new space and may feature public artwork. The remaining portion of the triangular space will be semi-public as it will be for outdoor seating for the adjacent café, which will help activate the public realm at this corner.

Along New Chardon Street, small planters mimic the curvilinear shape of the building providing green space that visually activates the edge of the building. These green spaces are repeated within the lobby space so that the experience of the streetscape propagates visually into the lobby interior.

3.8 Access and Circulation

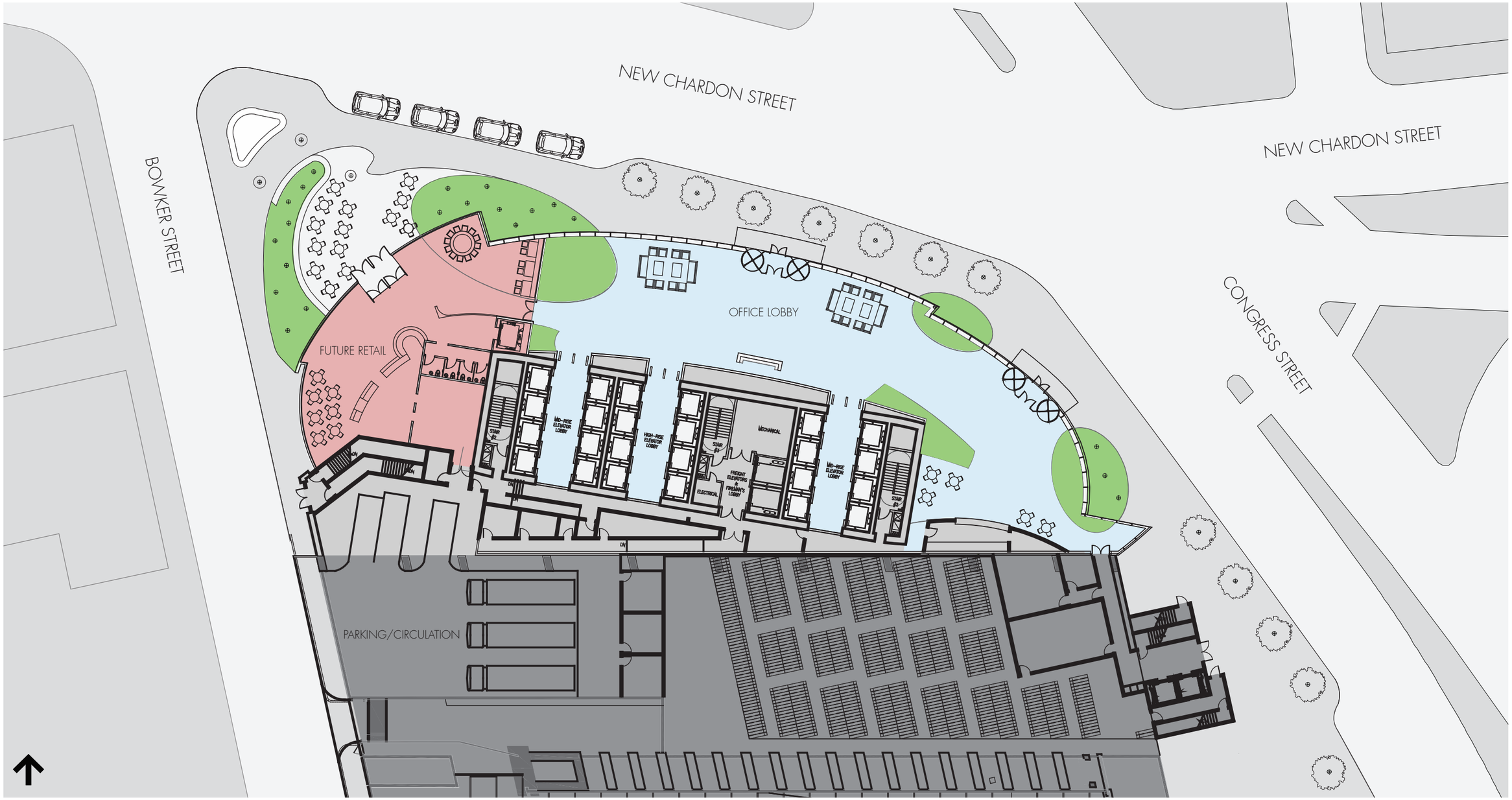
Pedestrian and vehicular circulation plans for the Development Plan Project were presented in the 2013 DPIR. Parking for the office building will be provided within the existing Garage. As with the Development Plan Project, vehicular access and egress for the Proposed Project will be directed to a new garage access/egress off Bowker Street. Locating vehicular access away from the office lobby and ground floor retail along New Chardon Street avoids conflicts with pedestrian experience. Additionally, major service and loading areas for the office building will also be located off of Bowker Street (Figure 3.1a). Refer to Chapter 4, *Transportation and Parking* for additional information on vehicular access and circulation, and building service/loading.

Bike and pedestrian circulation will enter the site at crosswalk locations on New Chardon Street and Congress Street. Bike circulation will occur off-site within the dedicated bike lanes along New Chardon Street and Congress Street. On-site storage and repair facilities will be accessible for residents and visitors. The incorporation of a large 850-space bike storage room and repair facility on Congress Street will serve as a hub for bike users in the city. In addition, once WP-B2 opens, the Proponent will evaluate the new Hubway Station, placed during WP-B1, on the East Parcel for potential expansion.

3.8.1 Accessibility

The Proponent and design team have made efforts to provide adequate accessibility throughout the Proposed Project. Appendix E includes a completed Accessibility Checklist for the Proposed Project, as required for Article 80 review submissions.

Adjacent sidewalks approaching the proposed office building will be made accessible, as required. There are four entryway conditions for WP-B2: two at the main office lobby; one at the future ground floor retail space; and one into the Garage and bike storage located on Congress Street. All four entryways will be designed to be flush accessible conditions. A total of 24 accessible parking spaces (21 car spaces and three van spaces) will be provided near the new loading dock associated with the Proposed Project in the Garage. Dedicated accessible office parking spaces are not anticipated at this time. The Proponent will reach out to Institute for Human Centered Design for feedback on accessibility issues during Article 80, Large Project Review of the Proposed Project.



OFFICE

FUTURE RETAIL

LANDSCAPE / GREENSCAPE

PARKING / CIRCULATION

BACK OF HOUSE

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Figure 3.1a

Building Floorplan - Level 1

Redevelopment of the Government Center Garage
WP-B2 (Office Building)
Boston, Massachusetts

OFFICE

FUTURE RETAIL

PARKING / CIRCULATION

BACK OF HOUSE

cbt

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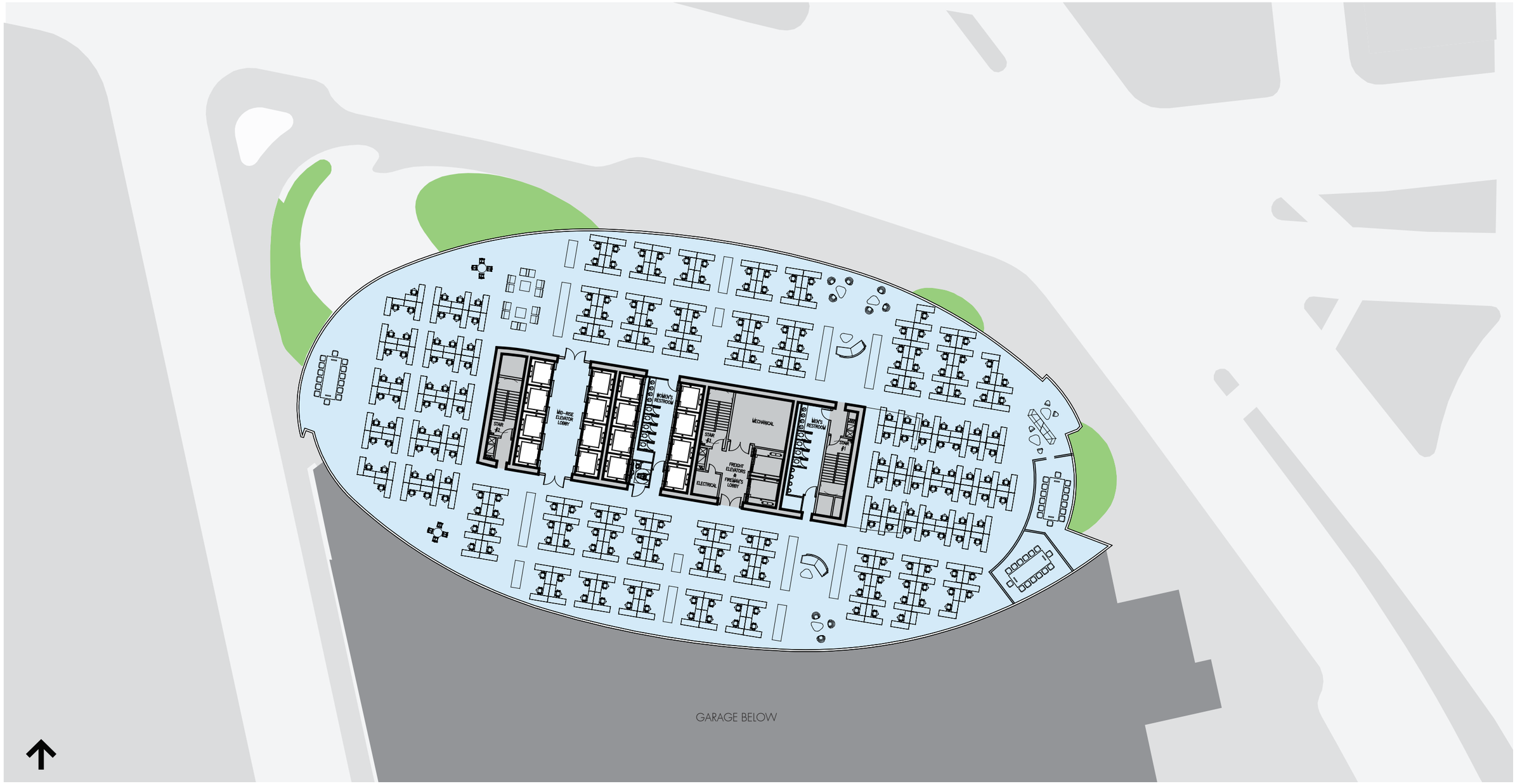
Figure 3.1b

Building Floorplan - Typical Garage Floor (Levels 5 to 10)

Redevelopment of the Government Center Garage
WP-B2 (Office Building)
Boston, Massachusetts



OFFICE

PARKING / CIRCULATION

BACK OF HOUSE

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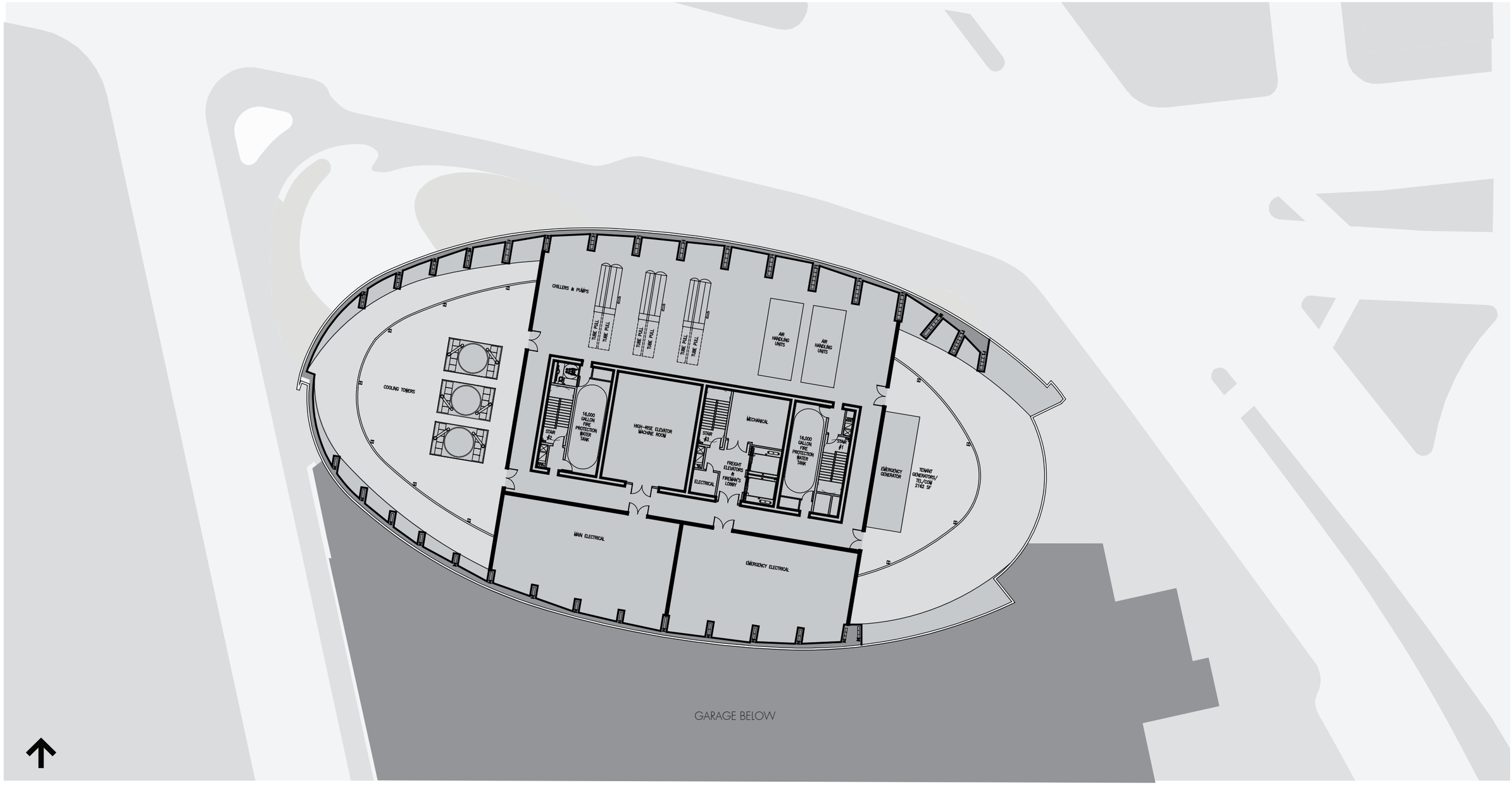
Figure 3.1c

Building Floorplan - Typical Office Floor (Levels 12 to 44)

Redevelopment of the Government Center Garage
WP-B2 (Office Building)
Boston, Massachusetts



MECHANICAL

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Figure 3.1d

Building Floorplan - Rooftop Mechancial Penthouse

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WP-B2 (Office Building)
Boston, Massachusetts

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Figure 3.2a

South Elevation

Redevelopment of the Government Center Garage
WP-B2 (Office Building)
Boston, Massachusetts

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Figure 3.2b

North Elevation

Redevelopment of the Government Center Garage
WP-B2 (Office Building)
Boston, Massachusetts

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Figure 3.2c

West Elevation

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Boston, Massachusetts

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Figure 3.2d

East Elevation

Redevelopment of the Government Center Garage
WP-B2 (Office Building)
Boston, Massachusetts

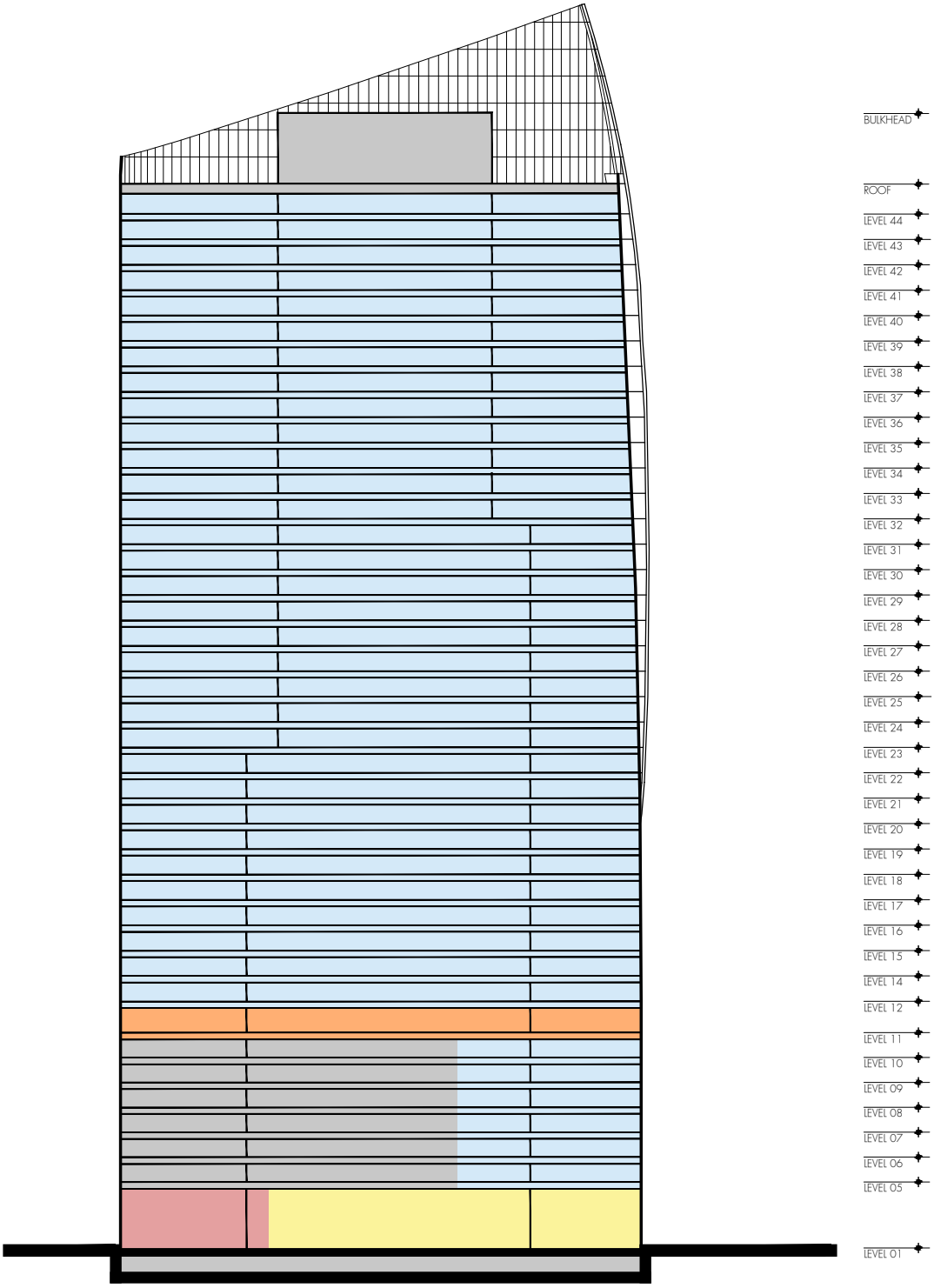

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Figure 3.3a

North Section

Redevelopment of the Government Center Garage
WP-B2 (Office Building)
Boston, Massachusetts

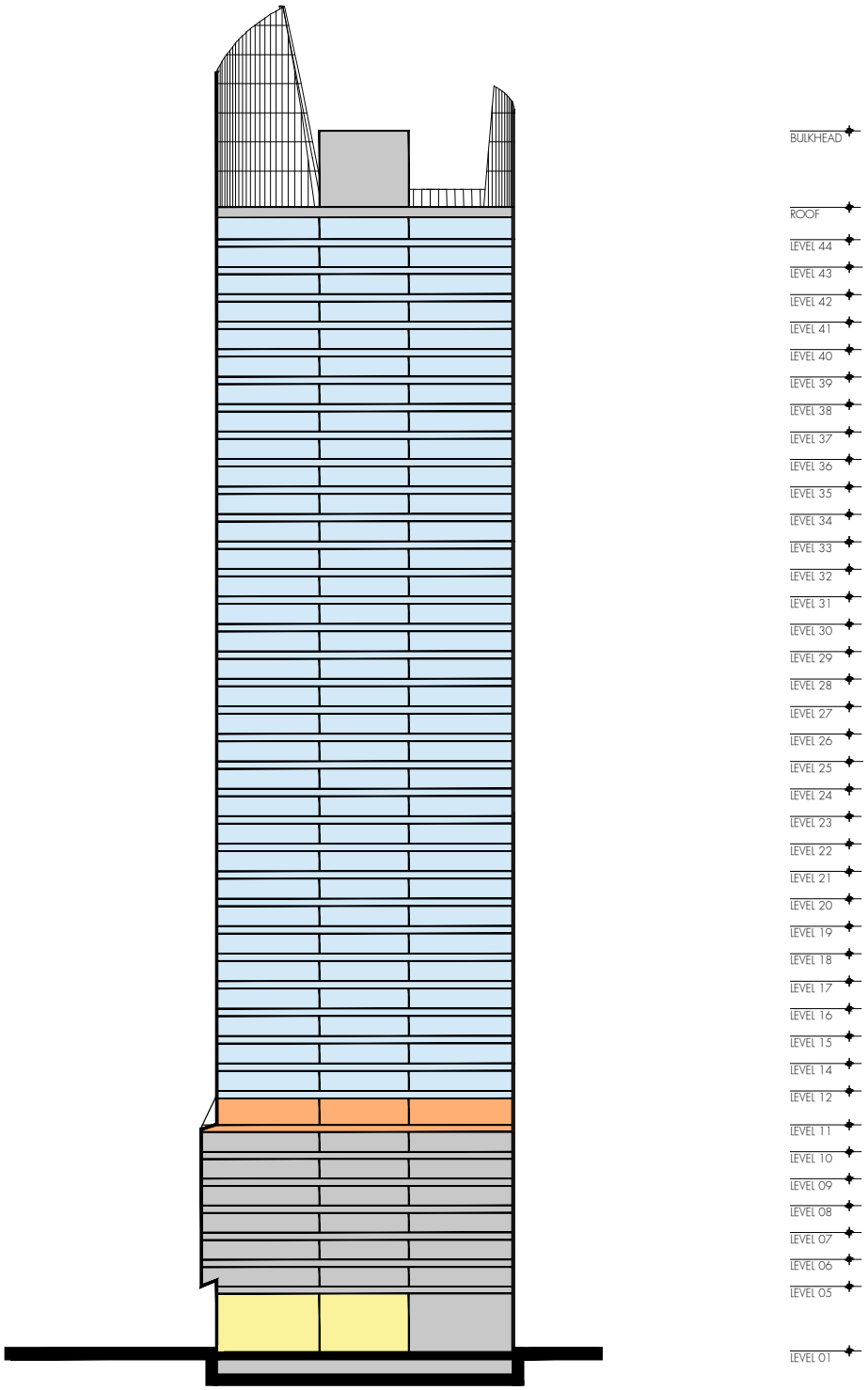

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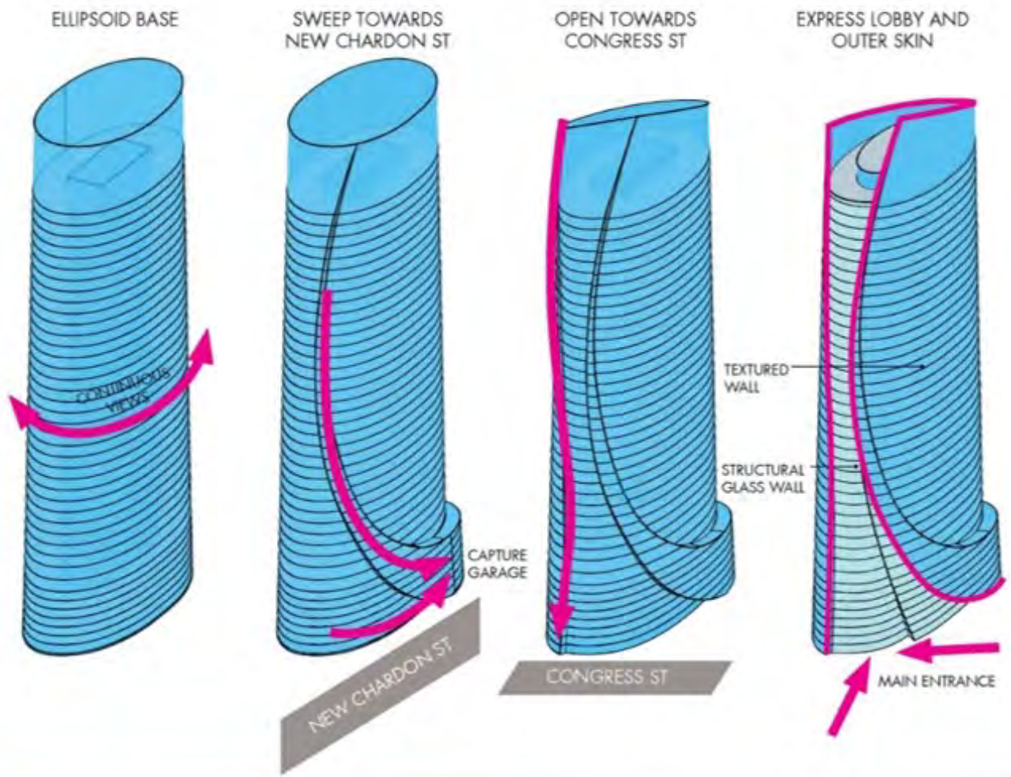
Figure 3.3b

East Section

Redevelopment of the Government Center Garage
WP-B2 (Office Building)
Boston, Massachusetts

CONCEPT DIAGRAMS / URBAN RESPONSE

The design leverages the many views available from the site and creates strong ties between the building and the surrounding site. The ellipsoid shape allows for sweeping views around Boston. Pulling on two sides towards New Chardon St and Congress St, a central front face is created. To define the shape, the split area is further defined through the use of two distinct curtain wall types.



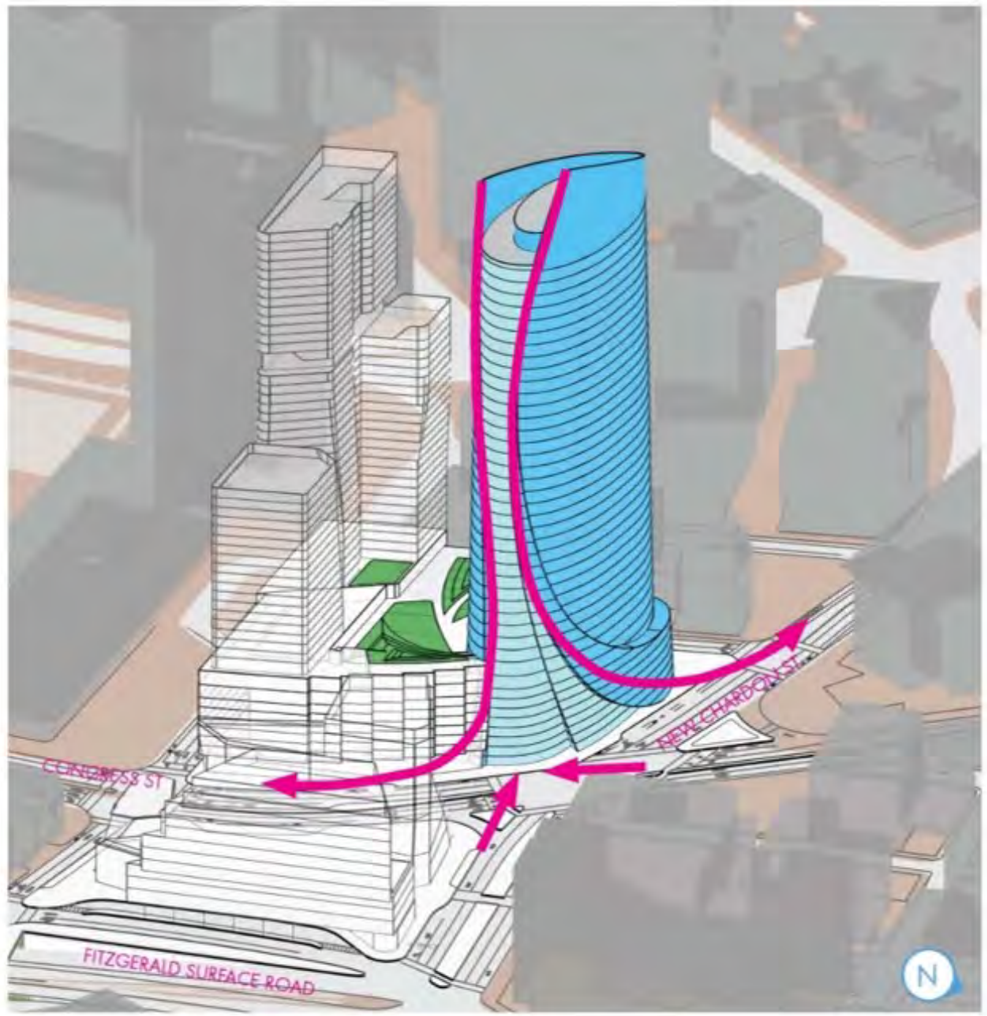


Figure 3.4

Massing Evolution

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110 canal street boston, ma 02114

Pelli Clarke Pelli
Architects

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Figure 3.5a

Project Renderings - Overall City View

Redevelopment of the Government Center Garage
WP-B2 (Office Building)
Boston, Massachusetts

Exterior Grade Level View of Public Way

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Figure 3.5b

Project Renderings

Redevelopment of the Government Center Garage
WP-B2 (Office Building)
Boston, Massachusetts

Exterior Grade Level View of Public Way

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Figure 3.5c

Project Renderings

Redevelopment of the Government Center Garage
WP-B2 (Office Building)
Boston, Massachusetts

Conceptual Lobby

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Figure 3.5d

Project Renderings

Redevelopment of the Government Center Garage
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Boston, Massachusetts

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Figure 3.6a

View from Cambridge Street

Redevelopment of the Government Center Garage
WP-B2 (Office Building)
Boston, Massachusetts

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Figure 3.6b

View from Cambridge-Bowdoin Intersection

Redevelopment of the Government Center Garage
WP-B2 (Office Building)
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Figure 3.6c

View from Rose F. Kennedy Greenway

Redevelopment of the Government Center Garage
WP-B2 (Office Building)
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Figure 3.6d

View from Longfellow Bridge

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Figure 3.6e

View from Memorial Drive

Redevelopment of the Government Center Garage
WP-B2 (Office Building)
Boston, Massachusetts

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Figure 3.6f

View from The Museum of Science

Redevelopment of the Government Center Garage
WP-B2 (Office Building)
Boston, Massachusetts

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Figure 3.6g

View from North Washington Street

Redevelopment of the Government Center Garage
WP-B2 (Office Building)
Boston, Massachusetts

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Figure 3.6h

View from The Public Garden

Redevelopment of the Government Center Garage
WP-B2 (Office Building)
Boston, Massachusetts

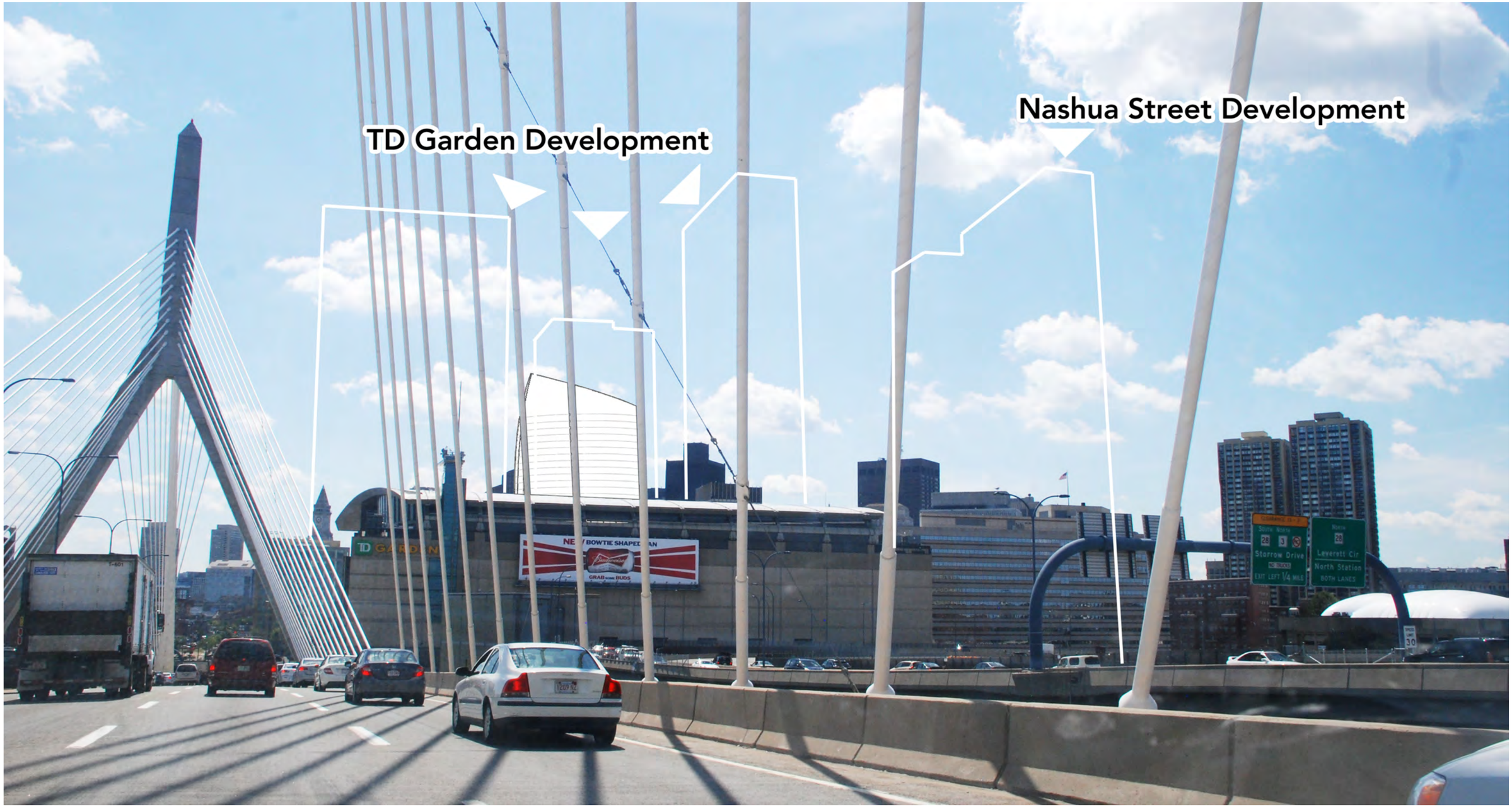

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Figure 3.6i

View from Zakim Bridge

Redevelopment of the Government Center Garage
WP-B2 (Office Building)
Boston, Massachusetts

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Figure 3.6j

View from North End - Thatcher Street

Redevelopment of the Government Center Garage
WP-B2 (Office Building)
Boston, Massachusetts

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Figure 3.6k

View from Martha Road

Redevelopment of the Government Center Garage
WP-B2 (Office Building)
Boston, Massachusetts

Figure 3.7a

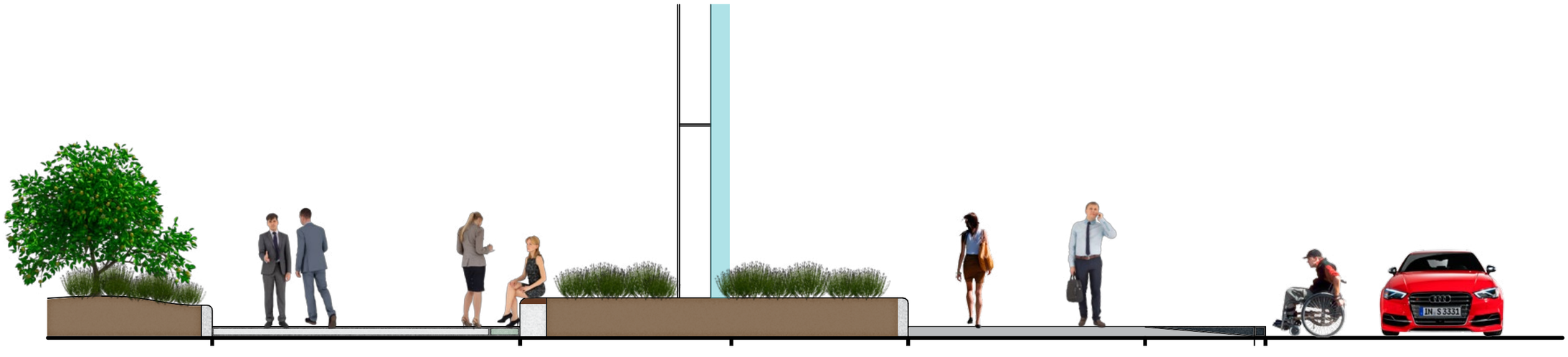
Proposed Streetscape Plan
Without Tree Canopy

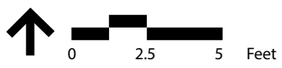
Redevelopment of the Government Center Garage
WP-B2 (Office Building)
Boston, Massachusetts

Figure 3.7b

Proposed Streetscape Plan
With Tree Canopy

Redevelopment of the Government Center Garage
WP-B2 (Office Building)
Boston, Massachusetts



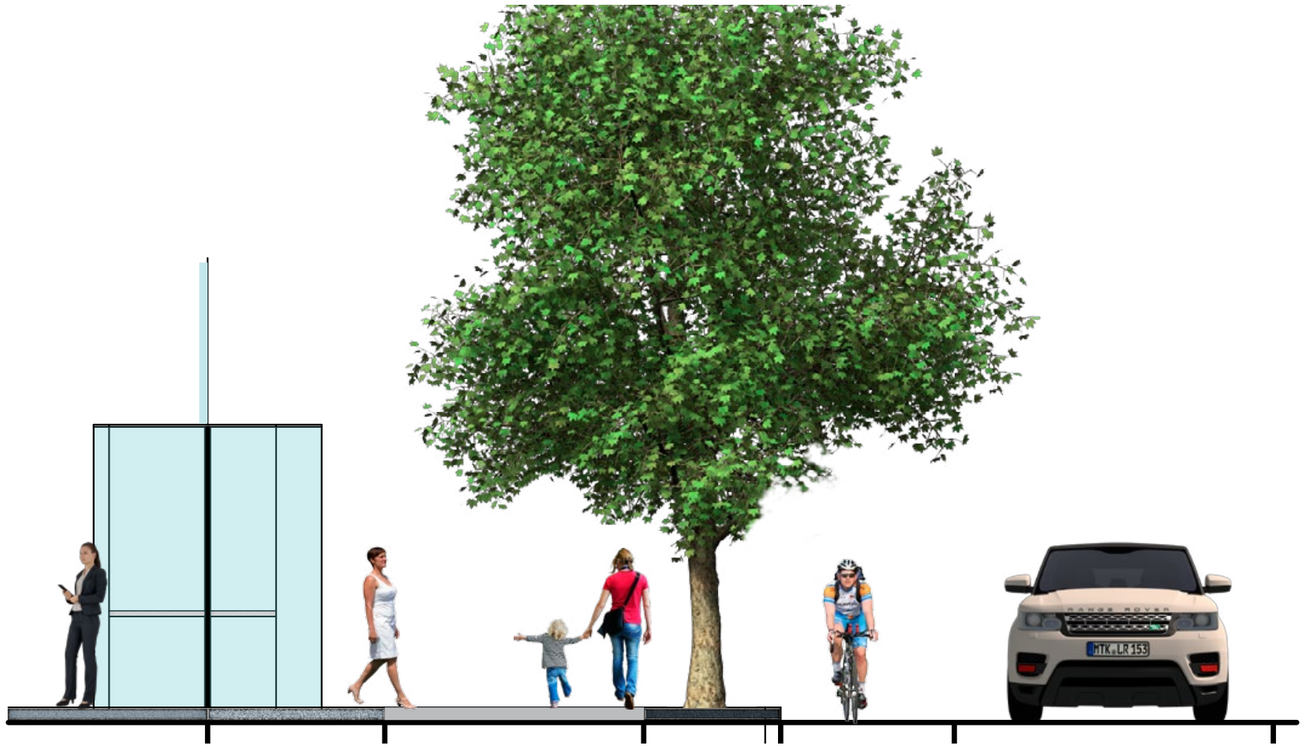


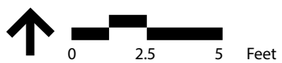
Pedestrian Zone
Greenscape Zone
Frontage Zone

Figure 3.8a

Proposed Streetscape Cross-Section - New Chardon St. at Merrimac/Congress

Redevelopment of the Government Center Garage
WP-B2 (Office Building)
Boston, Massachusetts



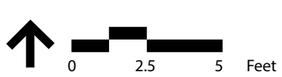


Pedestrian Zone
Greenscape Zone
Frontage Zone

Figure 3.8b

Proposed Streetscape Cross-Section - New Chardon St.

Redevelopment of the Government Center Garage
WP-B2 (Office Building)
Boston, Massachusetts

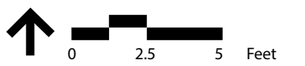


Pedestrian Zone
Greenscape Zone
Frontage Zone

Figure 3.8c

Proposed Streetscape Cross-Section - Public Open Space on New Chardon St.

Redevelopment of the Government Center Garage
WP-B2 (Office Building)
Boston, Massachusetts



Pedestrian Zone
Greenscape Zone
Frontage Zone

Figure 3.8d

Proposed Streetscape Cross-Section -- Public Open Space on Bowker St.

Redevelopment of the Government Center Garage
WP-B2 (Office Building)
Boston, Massachusetts

HOWARD STEIN HUDSON
Engineers + Planners

4 Transportation and Parking

A comprehensive transportation and parking study of the Development Plan Project was conducted as part of the previous City of Boston Article 80 and state MEPA review processes. In accordance with the approved PDA, this chapter presents an update on traffic, transportation, and parking, related elements based on the more specific design and building program of the Proposed Project (Phase 2 or WP-B2). The updated transportation study provides a more focused 5-year horizon compared to the 15-year full-build horizon analyzed for the Development Plan Project and includes a comprehensive assessment of the potential transportation impacts, including traffic, transit, pedestrian, bicycle, parking, and building service and loading requirements. This study also identifies which components of the previously discussed Development Plan Project mitigation measures and Travel Demand Management (TDM) measures are appropriate to be associated with the Proposed Project. This analysis has been developed with input from BTD and BRA.

4.1 Project Description

As described in Chapter 1, *Project Description*, the Proposed Project entails the development of 1,001,200 square feet of office space and approximately 10,800 square feet of ground floor retail. The existing approximately 2,310 space Garage structure will have been reduced to approximately 2,115 spaces as part of the garage enabling process and WP-B1 to be constructed before the Proposed Project. As part of the Proposed Project, the Garage will be reduced further, to its final capacity of approximately 1,159 spaces. The Proposed Project may reduce the available parking to approximately 1,100 spaces in order to enable the future WP-B3 construction. In either case, the Garage will provide adequate parking for the Proposed Project as well as the parking demand of WP-B1 and a public transient parking component.

4.1.1 Key Findings

As described in this EPNF, at full occupancy, the approximately 2,310-space Garage would produce significantly more vehicle trips to area roadways than the Proposed Project. However, since the Garage is currently operating well below its capacity, the traffic study assesses the

net increase to the current baseline traffic in the area due to the removal of the existing trips traveling to the PDA Site (associated with both the on-site office space and the transient parking) and the addition of new trips associated with the Proposed Project (office space, retail, and a reduced transient parking component). Modifications to lane geometry, traffic signal timings and lane usage are proposed to address any Proposed Project impacts, as well as improve existing traffic operations deficiencies in the area that have long-existed.

4.2 Overview of the Development Plan Project Review

In June 2013, the Proponent filed a PNF with the BRA for a full build-out of the PDA site, or the Development Plan Project. In response to comment letters received from the BRA, City of Boston departments, and the community as well as comments received at IAG and at community meetings, the Proponent made changes to the Development Plan Project building massing and program. The revised program was presented and analyzed as part of the 2013 DPIR filed with the BRA in August 2013. These documents contained a comprehensive transportation impact analysis and included an evaluation of traffic, transit, pedestrian, bicycle, parking and loading/service operations for the Development Plan Project which was codified in a PDA. In accordance with the Development Review Procedures of the approved PDA, each individual future phase is required to be reviewed under the City's Article 80 Large Project Review process so that specific transportation impacts along with which of the previously discussed mitigation and TDM measures are appropriate to be implemented with each Phase.

Subsequently, through 2014, the Development Plan Project was reviewed by state agencies under MEPA and its implementing regulations. The MEPA comprehensive transportation impact study for the Development Plan Project included additional supporting analysis and clarifications in response to reviewer comments. MEPA also further evaluated potential traffic mitigation measures for the overall Project and its individual components.

4.2.1 Development Plan Project Traffic Evaluation

The transportation analysis for the Development Plan Project included an evaluation of the then existing conditions (2013). Industry standard traffic engineering practice is to use a 5-year horizon; however, since the Development Plan Project is expected to be built in several phases, the year 2028 was designated as the future Full-Build design year. The future conditions without the redevelopment of the PDA Site (No-Build 2028), future conditions with the redevelopment in place (Build 2028) were thoroughly evaluated and the impact of the entire Development Plan Project was determined. The trip generation for the Development Plan Project was determined based on an assumed building program that included 755 residential units, 19,100 square feet of retail, and 1,004,950 square feet of office space on the West Parcel and 57 residential units, a 196 room hotel, 63,400 square feet of retail, and 142,550 square feet of office space on the East Parcel, as presented in the 2013 DPIR.

4.2.2 Development Plan Project Parking Evaluation

The existing PDA Site currently contains approximately 2,310 parking spaces accessed from the West Parcel via New Chardon Street and New Sudbury Street. However, the parking spaces are currently underutilized with a peak parking demand of approximately 50 percent. Transient parking demand is at maximum during TD Garden events with approximately 550 spaces (weeknight) and 600 spaces (weekend night).

The Development Plan Project, at its completion, is anticipated to contain approximately 1,159 total parking spaces. For a mixed-use development with a common parking garage, the most efficient use of the parking resource is to "share" rather than have assigned or dedicated parking for each land, as discussed in Chapter 4, *Transportation and Parking* of the 2013 DPIR. Parking for the condominium and hotel uses, for example, will peak at night, while parking demand for the office space will peak during the day. It is expected that peak parking demand for the uses on-site for the Development Plan Project will be 590 spaces, with the remaining 569 spaces available for off-site monthly pass holders and transient parking.

4.3 Transportation Study Methodology

This transportation study adheres to the BTD Transportation Access Plan Guidelines and BRA Article 80, Large Project Review process. This study includes an evaluation of existing transportation conditions, future transportation conditions with and without the Proposed Project, projected parking demand, loading operations, transit services, pedestrian activity, and bicycle accommodations.

This transportation study determines the impact of the proposed WP-B2 building. For the purposes of this study the Proposed Project includes the demolition of the garage over Congress Street and the East Parcel (and the net reduction of trips associated with the decreased transient parking), the relocation of the New Chardon Driveways to Bowker Street, and construction WP-B2 building.

The Existing (2015) 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. Per BTD request in August 2015, new data was collected including vehicles, bicycles, and pedestrians at the study area intersections in September 2015. A traffic data collection effort forms the basis for the transportation analysis conducted as part of this evaluation.

The future transportation conditions analysis evaluates potential transportation impacts associated with the Proposed Project. Long-term impacts are evaluated for the year 2020, based on a five-year horizon from the year of the filing of this traffic study.

The No-Build (2020) 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 Proposed Project Site. Phase 1, WP-B1 building has been included as a background project to this Proposed Project. The remaining phases of the Development Plan Project are expected to be completed beyond the five year horizon.

The Build (2020) 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 (2020) Condition analysis. Expected roadway, parking, transit, pedestrian, and bicycle accommodations, as well as loading capabilities and deficiencies, are identified. In order to present the isolated traffic impact of the WP-B2 development and the appropriate mitigation measures, for the purposes of this EPNF, it is assumed that the additional phases of the Development Plan Project redevelopment do not occur prior to 2020.

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 Proposed Project.

4.3.1 Study Area

The traffic analysis describes and evaluates the following study area intersections in addition to the garage driveways on New Sudbury Street, as identified by the BTD during a meeting in August 2015, and shown in Figure 4.1.

- Cambridge Street/Staniford Street/Temple Street;
- Staniford Street/Merrimac Street/Lomasney Way;
- North Washington Street/Causeway Street/Commercial Street;
- North Washington Street/Thatcher Street/Valenti Way;
- Valenti Way/Beverly Street;
- Cross Street/Sumner Tunnel Off-ramp/Cooper Street;
- North Washington Street/Beverly Street;
- North Washington Street/New Chardon Street/ Sumner Tunnel Off-ramps/I-93 Southbound and Callahan Tunnel On-ramps/Surface Road;
- New Chardon Street/Canal Street (pedestrian crossing);
- New Chardon Street/Congress Street/Merrimac Street/Government Center Garage North Entrance;
- New Chardon Street/Government Center Garage North Exit;
- New Chardon Street/Bowker Street;
- New Chardon Street/Hawkins Street;
- Cambridge Street/New Chardon Street/Bowdoin Street;
- Cambridge Street/New Sudbury Street/Somerset Street;
- Congress Street/New Sudbury Street;

- New Sudbury Street/Haymarket Garage Driveway
- Surface Street/New Sudbury Street/Surface Road; and
- Cross Street/New Sudbury Street /I-93 Northbound On-ramp.
- Hanover Street/Cross Street;
- Hanover Street/Surface Road;
- Hanover Street/Congress Street
- North Street/Cross Street;
- North Street/Surface Road;
- North Street/Clinton Street;
- North Street/Union Street;
- North Street/Congress Street; and
- Clinton Street/Surface Road.

4.4 Existing (2015) Condition

This section includes descriptions of existing study area roadway geometries, intersection traffic control, peak hour vehicular and pedestrian volumes, average daily traffic volumes, public and alternative (car share and bike share) transportation availability, on-street curb usage, and area off-street parking supply.

4.4.1 Existing Roadway Conditions

The roadways immediately serving the Proposed Project include the following facilities, which are categorized according to the MassDOT Office of Transportation Planning functional classifications.

Congress Street is an urban principal arterial roadway under City of Boston jurisdiction. Congress Street runs in a northwest-southeast direction between New Chardon Street at the Proposed Project Site and Northern Avenue in the Seaport Waterfront district. Congress Street generally consists of three travel lanes in each direction within the study area, and parking is prohibited.

New Sudbury Street is an urban principal arterial that falls under the jurisdiction of the City of Boston. New Sudbury Street runs one-way northeast-bound between Cambridge Street and Cross Street. New Sudbury Street generally consists of two travel lanes but widens at intersections (Congress Street and Surface Road) to include turning lanes. Parallel and diagonal parking is provided along New Sudbury Street; the diagonal parking is generally reserved for the Boston Police Department and the District Attorney.

New Chardon Street is an urban principal arterial that runs northeast–southwest between Cambridge Street and the intersection of Congress Street and Merrimac Street. New Chardon Street falls under the jurisdiction of the City of Boston. New Chardon Street consists of two

lanes in each direction. On-street metered parking is generally provided. On weekdays, a portion of the parking spaces along the south side of the roadway, opposite the Brooke Courthouse, are restricted during peak commuter hours.

John F. Fitzgerald Surface Road (Surface Road) is an urban principal arterial roadway under MassDOT jurisdiction. Surface Road runs one-way southeast-bound along the subsurface John F. Fitzgerald Expressway (I-93) between North Washington Street and Purchase Street. Surface Road is separated from Cross Street and Atlantic Avenue, which run one-way northwest-bound, by the Rose Kennedy Greenway. Surface Road consists of two travel lanes at the Proposed Project Site, but generally consist of three travel lanes further south. Parking is not permitted for its length.

4.4.2 Existing Intersection Conditions

Existing conditions at the pertinent study area intersections are described below.

New Chardon Street/North Washington Street/ Sumner Tunnel Off-ramps/I-93 Southbound and Callahan Tunnel On-ramps/Surface Road is a five-leg signalized intersection with three approaches. The New Chardon Street eastbound approach is under BTD jurisdiction and consists of two 11-feet wide through lanes to I-93 southbound/Sumner Tunnel on-ramps, and a 15-foot right-turn lane towards Surface Road. The Callahan Tunnel off-ramp approach is under MassDOT jurisdiction and consists of a single 40-foot lane that generally acts as two travel lanes. The North Washington Street southbound approach is under BTD jurisdiction and consists of two 11-foot shared left-turn/through lanes, an 11-foot shared through/right-turn lane, and a 14-foot exclusive right-turn lane. Parking is not permitted in the vicinity of the intersection.

New Chardon Street/Canal Street is a three-leg signalized intersection with two approaches and is under BTD jurisdiction. The New Chardon Street eastbound approach consists of a 12-foot through lane and a 13-foot through lane. The New Chardon Street westbound approach consists of an 11-foot through lane, a 10-foot through lane, and a 13-foot shared through/right-turn lane. Canal Street consists of one wide travel lane and runs one-way northbound. Metered parking is provided along Canal Street, but parking is not permitted on New Chardon Street in the vicinity of the intersection.

New Chardon Street/Congress Street/Merrimac Street/Government Center Garage North Entrance is an oblique four-way intersection with the Government Center Garage (Garage) North Entrance acting as the fifth leg of the intersection. New Chardon Street approaches the intersection from the east and west, while Congress Street forms the northbound approach and Merrimac Street forms the southbound approach. The New Chardon Street eastbound approach of consists of a 12-foot left-turn/through-lane and a 12-foot through/right-turn lane. New Chardon Street westbound consists of a 10-foot exclusive left-turn lane that is sometimes used for U-turns, a 12-foot left-turn/through-lane and a 12-foot through/right-turn lane. Congress Street northbound consists of a 10-foot exclusive left-turn lane, two 10-foot through-lanes, and a 17-foot channelized right-turn lane. Merrimac Street southbound

consists of an 11-foot shared left-turn/through lane, an 11-foot through lane, a 10-foot through lane, and a channelized yield controlled right-turn lane. Sidewalks are available along all approaches. Crosswalks and pedestrian ramps are provided across each approach, including across the right-turn slip lanes on Merrimac Street. Median refuges are also provided on the Merrimac Street and Congress Street crossings and at the New Chardon westbound approach. Parking is prohibited in the vicinity of the intersection.

New Chardon Street/Government Center Garage North Exit is a two-leg intersection with one approach and is under BTD jurisdiction. The New Chardon Street eastbound approach consists of a 12-foot left-turn/through-lane and a 12-foot through/right-turn lane. Government Center Garage Exit consists of one wide travel lane and runs one-way northbound. Crosswalks and pedestrian ramps are provided across the Government Center Garage North Exit approach only. Parking is prohibited in the vicinity of the intersection.

New Chardon Street/Bowker Street is an unsignalized intersection with three approaches, and falls under BTD jurisdiction. The New Chardon Street eastbound approach consists of one 11-foot through lane and one 15-foot through lane. The New Chardon Street westbound approach consists of a 17-foot through lane and a 13-foot through lane. The Bowker Street northbound approach consists of a single 34-foot travel lane. Bowker Street runs one-way northbound. Parking is provided west of the intersection on New Chardon Street and along Bowker Street. A crosswalk is provided across Bowker Street, but no crosswalks are provided across New Chardon Street at the intersection.

New Chardon Street/Hawkins Street is an unsignalized intersection with two approaches, and falls under BTD jurisdiction. The New Chardon Street eastbound approach consists of one 11-foot through lane and one 15-foot shared through/right-turn lane. The New Chardon Street westbound approach consists of a 17-foot shared left-turn/through lane and a 13-foot through lane. Hawkins Street runs one-way southbound. Parking is provided along all approaches to the intersection including Hawkins Street along both sides of the roadway. A crosswalk and wheelchair ramps are provided across Hawkins Street. No crosswalks are provided across New Chardon Street at the intersection.

New Chardon Street/Cambridge Street/Bowdoin Street is a four-way intersection, under BTD jurisdiction. Cambridge Street approaches the intersection from the east and west, while New Chardon Street forms the southbound approach and Bowdoin Street forms the northbound approach. Cambridge Street eastbound consists of two through-lanes and a right-turn lane. Cambridge Street westbound consists of a shared left-turn/through-lane and a shared through/right-turn lane. New Chardon Street southbound approach consists of a left-turn lane, a through lane, and a right-turn lane. The Bowdoin Street northbound approach consists of a left-turn lane, a through lane, and a right-turn lane. Sidewalks are available along all approaches. Crosswalks and pedestrian ramps are provided across each approach. Median refuges are also provided on the Cambridge Street crossings. Metered parking is provided along Cambridge Street and Bowdoin Street, but parking is not permitted on New Chardon Street in the vicinity of the intersection.

New Sudbury Street/Cambridge Street/Somerset Street is a four-leg signalized intersection with three approaches, under BTD jurisdiction. The Cambridge Street eastbound approach consists of two left-turn lanes, that are sometimes used for U-turns, a through-lane, and a thru/right-turn lane. The Cambridge Street westbound approach consists of a left-turn lane, which is sometimes used for U-turns, two through lanes, and a right-turn lane. Somerset Street northbound consists of a shared all-purpose lane. New Sudbury Street consists of two travel lanes and runs one-way northbound away from the intersection. Sidewalks are available along all approaches. Crosswalks and pedestrian ramps are provided across each approach. Raised medians provide pedestrian refuge crossing Cambridge Street crossings. Metered parking is provided along Cambridge Street but parking is not permitted on New Sudbury Street and Somerset Street in the vicinity of the intersection.

New Sudbury Street/Government Center Garage South Exit is a two-leg intersection with one approach and is under BTD jurisdiction. The New Sudbury Street eastbound approach consists of two through lanes. Government Center Garage South Exit consists of one wide travel lane and runs one-way southbound providing egress from the garage to New Sudbury Street. Crosswalks and pedestrian ramps are provided across the Government Center Exit approach only. On-Street public parking is not permitted in the vicinity of the intersection; reserved for police vehicles only.

New Sudbury Street/Government Center Garage South Entrance is a two-leg intersection with one approach and is under BTD jurisdiction. The New Sudbury Street eastbound approach consists of a left-turn lane and a through lane. Directly east of the intersection, New Sudbury Street widens to four lanes by restricting curbside parking, to include left and right turn lanes and two through lanes. Government Center Garage South Entrance consists of one wide travel lane and runs one-way northbound. Crosswalks and pedestrian ramps are provided across the Government Center Entrance approach only. On-Street public parking is not permitted in the vicinity of the intersection; reserved for police vehicles only.

New Sudbury Street/Congress Street is a four-leg signalized intersection with three approaches and is under BTD jurisdiction. The New Sudbury Street eastbound approach consists of a 12-foot wide exclusive left-turn lane of about 100 feet in length, two 11-feet wide through lanes, and a 10-foot exclusive right-turn lane. The Congress Street northbound approach consists of two 11-foot through lanes and a 12-foot shared through/ right-turn lane. The Congress Street southbound approach consists of a 10-foot exclusive left-turn lane with a storage length of about 100 feet, an 11-foot through lane, and two 10-foot through lanes. At the Proposed Project Site, angled parking is provided for Boston Police Department vehicles along the north side of the New Sudbury Street eastbound approach.

New Sudbury Street/Surface Road is a five-leg signalized intersection with three approaches. The New Sudbury Street eastbound approach is under BTD jurisdiction and consists of two 13-foot through lanes and a 13-foot exclusive right-turn lane. The Surface Road southbound approach falls under MassDOT jurisdiction and consists of a 12-foot shared left-turn/through lane and a 12-foot through lane. The MBTA Haymarket bus facility

southeast-bound approach falls under BTD jurisdiction and consists of a single 24-foot exclusive right-turn lane. Parking is not provided in the vicinity of the intersection

New Sudbury Street/Cross Street/I-93 Northbound On-ramp is three-leg signalized intersection with two approaches. The New Sudbury Street eastbound approach is under BTD jurisdiction and consists of a hard left-turn lane onto the I-93 Northbound On-ramp and a left-turn lane to Cross Street. Cross Street northbound approach consists of a bear left-turn lane onto the I-93 Northbound On-ramp and a through lane. I-93 On-ramp is under MassDOT jurisdiction and consists of one wide travel lane and runs one-way northbound away from the intersection. Crosswalks and pedestrian ramps are provided across each approach. Limited Parking is available on Cross Street from Noon-5 p.m. for a maximum of 2-hours.

4.4.3 Parking

An inventory of the on-street and off-street parking in the vicinity of the Project was collected. A description of each follows.

4.4.3.1 On-Street Parking and Curb Use

On-street parking and curb use immediately abutting the Proposed Project is shown in Figure 4.2. On-street curb use regulations around the Proposed Project are a mix of no parking/no stopping; parking reserved for police and court vehicles, commercial loading zones, and metered parking.

4.4.3.2 Off-Street Parking

The Garage has a total of 2,310 parking spaces in nine above-ground levels. Of the total on-site parking supply, 1,865 are commercial public parking spaces and 445 are "exempt" employee parking. In addition to the Garage, approximately 12,875 off-street parking spaces are available in garages and lots within a ¼-mile (approximately seven-minute walk) of the Proposed Project Site. Of these, approximately 5,457 are private spaces and 7,418 are public commercial parking spaces. Area garages account for 10,570 of these parking spaces and 2,305 spaces are in surface parking lots. These facilities are identified in Figure 4.3. Off-street parking structures within a ¼-mile of the Proposed Project Site are listed in Table 4.1. Table 4.2 lists the off-street surface parking lots within ¼-mile of the Proposed Project Site.

TABLE 4.1 OFF-STREET PARKING GARAGES WITHIN 1/4-MILE OF THE PROPOSED PROJECT SITE

Map #	Address	Parking Facility	Private Capacity	Public Capacity
A	50 Cambridge Street	Center Plaza Garage	0	586
B	100 Cambridge Street	Saltonstall Building	466	0
C	19 Staniford Street	Hurley Building	180	0
D	City Hall	City Hall Executive Garage	28	0
E	City Hall	City Hall Garage	60	0
F	Congress Street	JFK Building Garage	180	0
G	Congress St Parcel 7	Parcel 7 Garage	0	310
H	Parmenter St/Prince St	MBTA North Station/TD Garden	70	0
J	101 Merrimac Street	101 Merrimac Street Garage	0	70
K	80 Causeway Street	MBTA North Station/TD Garden	54	1,221
L	35 Lomasney Way	TD Garden Garage	0	710
M	60 Staniford Street	Longfellow Place Garage	490	0
N	226–234 Causeway St	234 Strada	66	0
P	600 Commercial Street	North End Garage	445	200
Q	6 Medford Street	Ninety 8 North, LLC	9	0
R	130–140 Bowdoin St	Boston View Apartments	0	107
S	1 Bowdoin Square	Bowdoin Square Office Building	25	0
T	1 Ashburton Place	McCormack Building	482	0
U	Bowdoin St at Derne St	State House Garage	136	0
V	Cambridge Street	Charles River Plaza Garage	0	794
W	1 Beacon Street	One Beacon Street Garage	0	150
X	73 Tremont Street	73 Tremont Garage	0	120
Y	45 Province Street	45 Province Street	110	184
Z	275 Washington Street	Pi Alley Garage	0	600
AA	1 Devonshire Place	Devonshire Tower	109	87
AB	Causeway Street	Tip O'Neil Building Garage	239	0
AC	80–102 Fulton Street	Fulton Court Condo Trust	59	0
AD	28 State Street	28 State St LLC	150	0
AE	75 State Street	75 State Street Garage	0	700
AF	60 State Street	60 State Street Associates	78	227
AG	53 State Street	Exchange Place	93	0
AJ	Clinton Street	Clinton Street Garage	0	597
AH	200 State Street	Marketplace Center Garage	0	120
AI	The Victor	110 Beverly Street	142	0
AJ	Avenir	101 Canal Street	116	0

TABLE 4.2 OFF-STREET PARKING SURFACE LOTS WITHIN 1/4-MILE OF THE PROPOSED PROJECT SITE

Map #	Address	Parking Facility	Private Capacity	Public Capacity
1	61 New Sudbury Street	JFK Lot	23	0
2	Alley 102	Alley 102	17	0
3	Creek Square	Creek Square Lot	10	0
4	Blackstone Street	BDPW Lot	14	0
5	Baldwin Place	Real Prop Lot	0	4
6	174 N. Richmond St	Richmond Street Lot	12	0
7	133–147 North Street	133–147 North Street	15	0
8	34 Cooper Street	D'Amore Parking	67	0
9	60 Endicott Street	Endicott at Stillman Street	10	0
10	55 Cooper Street	DCR Employee Lot	6	0
11	165 Canal Street	165 Canal Street	19	0
12	26–28 Lancaster Street	VIP Parking Lot	0	26
13	302–320 Friend Street	Friend Street Lot	0	41
14	200–204 Friend Street	Friend Street Lot	12	0
15	168 Friend Street	P & P	0	83
16	235–239 Friend Street	J & O Lot	0	26
17	70 Charter Street	Michael Angelo School Lot	10	0
18	57 Friend Street	57 Friend Street Lot	0	0
19	70 Lancaster Street	Stanhope – Lancaster Street	0	50
20	90 N. Washington St	Pinstripe Parking	0	47
21	181 N. Washington St	Ruggiero Lot	0	7
22	266 Causeway Street	234 Strada	0	14
23	Lovejoy Place	Lovejoy Place Parking Lot	0	47
24	580 Commercial Street	Commercial @ Charter St Lot	0	49
25	75 Nashua Street	MGH Lot	800	0
26	151 Beverly Street	Charton-Realty Parking Lot	0	53
27	20 Staniford Street	Staniford Street Lot	35	0
28	185 Cambridge Street	Charles River Plaza Lot	160	0
29	325 N. Bennet Street	N. Bennet Street Lot	30	0
30	12–14 Ashburton Place	Ashburton Place Lot	0	38
31	17 Beacon Street	Beacon Street Lot	0	24
32	219–223 North Street	120 Fulton Street Parking	13	0
33	56 Fulton Street	Fulton Street Lot	110	0
34	Cross St/Stillman St	N/A	0	4
35	9 Chatham Street	N/A	0	10
36	Hawthorne Place	Braman-Dow Lot	0	112
37	70 Fulton Street	N End Community Nursing HM	19	0
38	100 Nashua Street	Suffolk County	99	0
39	360 Cardinal O'Connell Way	Regina Cleri Lot	13	0

Map #	Address	Parking Facility	Private Capacity	Public Capacity
40	41 Blossom Street	N/A	25	0
41	585 Commercial Street	585 Commercial Street Lot	48	0
42	263 Beverly Street	DCR Employee Lot	73	0
43	60 Joy Street	Peter Faneuil School Lot	15	0
44	200 Cambridge Street	Boston Fire Department Lot	15	0

Car Sharing Services

Car sharing, which is predominantly provided by Zipcar in the Boston area, supplies easy access to vehicular transportation for those who do not own cars. Both Zipcar and Zipvan are currently located within the Garage. Enterprise Rent-A-Car has also started car sharing service in the Boston area, one of which currently exists in the Garage. 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. There are eight car sharing locations within a ¼ mile walk of the Proposed Project Site. The nearby car sharing locations are shown in Figure 4.4.

4.4.4 Existing Public Transportation

The Proposed Project Site is located in downtown Boston with abundant public transportation opportunities. The East Parcel consists of the MBTA Haymarket Station, which provides Orange and Green line subway service. Additionally, there are several other MBTA stations within a quarter-mile of the Proposed Project Site, including those on the Blue Line at Bowdoin, Government Center, and State Street stations; the Orange Line at North Station and State Street station, and the Green Line at North Station and Government Center Station. North Station also provides access to the MBTA's regional commuter rail trains serving the northern and northwestern suburbs of Boston. The MBTA Haymarket Bus Station located on the East Parcel provides bus bays for service for the Route 111 buses to Chelsea/Revere and certain 400 series commuter buses serving the north shore communities of Salem, Lynn, Revere, Saugus and Melrose. MBTA public transportation services within the study area are shown on Figure 4.5 and listed in Table 4.3 below.

TABLE 4.3 EXISTING PUBLIC TRANSPORTATION SUMMARIES

Service	Description	Rush Hour Headway (in minutes)
	Subway	
Orange Line	Forest Hills–Oak Grove	4–5
Blue Line	Bowdoin–Wonderland	5
Green Line	Boston College – Lechmere Cleveland Circle - Lechmere Riverside - Lechmere Heath Street – Lechmere	6–7
Orange Line	North Station-World Trade Center via Federal Courthouse and South Station	11-15
	Local Bus Routes	
Route 4	Assembly Sq. Mall–Downtown via Sullivan Sq., Main St. and Haymarket Station	15-18
Route 92	Sullivan Sq. Station–Downtown via Bunker Hill Street and Haymarket Station	7–8
Route 93	Woodlawn or Broadway and Park Avenue–Haymarket Station via Tobin Bridge	7-10
Route 111	North Station-World Trade Center via Federal Courthouse and South Station	11-15
	Express Bus Routes	
Route 325	Elm Street, Medford–Haymarket Station via Fellsway West, Salem Street, and I-93	15-20
Route 326	West Medford–Haymarket Station via Playstead Road, High Street, Medford, and I-93	12-20
Route 352	Burlington-Boston Via Route 128 and I-93	20-30
Route 354	Woburn Express-Boston Via Woburn Square and I-93	15-20
Route 424	Eastern Avenue and Essex Street–Haymarket Station Wonderland Salem Depot–Haymarket Station Wonderland Salem Depot–Central Square, Lynn,	30
Route 426	Central Square, Lynn–Haymarket Station via Cliftondale	15-20
Route 428	Oaklandvale–Haymarket Station via Granada Highlands	30-40
Route 434	Peabody–Haymarket Express via Goodwin's Circle	1 daily roundtrip
Route 450	Eastern Avenue and Essex Street–Haymarket Station Wonderland Salem Depot–Haymarket Station Wonderland Salem Depot–Central Square, Lynn	30

A combination of nine express buses and four local bus routes currently stop at or adjacent to the MBTA Haymarket Station as a terminus or an intermediate stop. Five of the express buses run only during peak AM and PM periods, and one express bus only runs one daily round trip.

Out of these 13 bus routes, only one local bus (Route 111) and five express buses (the Route 400's to the inner suburbs) actually utilize the MBTA Haymarket bus facility bays. All other buses that are scheduled to stop at MBTA Haymarket Station do so curbside along the approaches to the Congress Street (4, 92, 93, 325, and 326) and New Sudbury Street (352 and 354) intersection. Of those buses that actually enter the Haymarket bus facility, approximately 65 percent of the total daily bus trips are from the Route 111 buses (Chelsea/Revere) contributing to well over 75 percent of all patrons using the MBTA's Haymarket bus facility.

The MBTA operates for 20 hours of the day with the commuter peak periods being the busiest. The peak periods of use at the MBTA Haymarket bus facility are more limited to being only on weekdays between 7:00 and 8:30 AM and 4:30 and 6:00 PM. Due to the low frequency of service for the 400 series routes during the typical weekday non-peak commuter periods (and none on the weekends), the MBTA Haymarket bus facility is primarily utilized by the Route 111 buses during non-peak commuter periods.

4.4.5 Existing Traffic Data

Traffic volume data was collected at the majority of the study area intersections on Wednesday, September 23, 2015. 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 traffic classification counts included car, heavy vehicle, pedestrian, and bicycle movements.

Previously collected traffic volume data was obtained from the Connect Historic Boston project and the Haymarket Hotel project. This data was collected on October 29, 2013 and May 13, 2014. A growth factor was applied to the traffic volumes collected at the intersection in 2013 and 2014 by one-half percent per year to align with the newly collected 2015 volumes.

4.4.5.1 Existing Pedestrian Volumes and Accommodations

In general, sidewalks are provided along all roadways in the vicinity of the Proposed Project Site and are in good condition. Crosswalks are provided at all study area intersections, including pedestrian signal equipment at the signalized study area intersections.

To determine the amount of pedestrian activity within the study area, pedestrian counts were conducted concurrent with the TMCs at the study area intersection and are presented in Figure 4.6. As shown in the figure, peak commuter hour pedestrian activity is heavy throughout the study area.

4.4.5.2 Existing Bicycle Volumes and Accommodations

In recent years, bicycle use has increased dramatically throughout the City of Boston. The Proposed Project Site is conveniently located in close proximity to several bicycle facilities. The roadways adjacent to the Proposed Project Site currently do not have any designated bicycle accommodations. According to the "Bike Routes of Boston" website issued by the City

of Boston, Congress Street, Cambridge Street, Merrimac Street, Cross Street, and Martha Road are designated "advanced" level bike routes suitable for experienced and traffic-confident cyclists. State Street, Causeway Street, Commercial Street, and Endicott Street are designated as "intermediate" level routes, suitable for riders with some on-road experience. The pathway from Chatham Street to North Street between Faneuil Hall and the Quincy Marketplace, Thoreau Path in Charles River Park, and a pathway through North Station to the Charles River bike paths are designated as shared-use bike paths.

Bicycle counts were conducted concurrent with the vehicular TMCs. The weekday a.m. peak hour and the weekday p.m. peak hour bicycle volumes are presented in Figure 4.7.

Bicycle Sharing Services

The Proposed Project Site is 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. As shown in Figure 4.8, there are 6 Hubway bicycle sharing stations located within a ¼ mile of the Proposed Project Site. In addition, Phase 1 (WP-B1) will include the installation of a Hubway bike sharing station at Haymarket Station. The Proponent has committed to providing this Hubway Station with Phase 1 of the Project and will work with the City of Boston and Hubway to temporarily relocate the Hubway station, as necessary, during the Proposed Project construction period.

4.4.5.3 Existing Vehicular Traffic Volumes

The TMCs conducted showed that in the study area the vehicle weekday a.m. peak hour occurred from 7:00 – 9:00 a.m. and the weekday p.m. peak hour occurred from 5:00 – 6:00 p.m.

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 September TMCs. The seasonal adjustment factor for roadways similar to the study area (Group 6) is below 1.0 for the month of September. This indicates that average month traffic volumes are less than the traffic volumes that were collected. Therefore, the traffic counts were not adjusted downward to reflect average month conditions and provide a conservatively high analysis consistent with the peak season traffic volumes.

The existing traffic volumes that were collected were used to develop the Existing (2015) Condition traffic volumes. The Existing (2015) weekday a.m. peak hour and weekday p.m. peak hour traffic volumes are shown in Figures 4.9a and Figure 4.9b, respectively.

4.4.6 Existing (2015) 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 4.4 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 4.4 VEHICLE LEVEL OF SERVICE CRITERIA

Level Of Service	Signalized Intersections	Unsignalized Intersections
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 (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 95th percentile queue, 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.

Tables 4.5 and 4.6 summarize the Existing (2015) Condition capacity analysis for the study area intersection during the weekday a.m. peak hour and weekday p.m. peak hour, respectively. The shaded cells in the tables indicate an operating condition below LOS D. The detailed analysis sheets are provided in Appendix A.

TABLE 4.5 EXISTING (2015) CONDITION, CAPACITY ANALYSIS SUMMARY, WEEKDAY A.M. PEAK HOUR

Intersection Approach	LOS	Delay (sec)	v/c	50th Percentile Queue (ft.)	95th Percentile Queue (ft.)
Signalized Intersections					
Cambridge Street/Staniford Street/Temple Street	**D**	**37.8**			
Cambridge EB left	E	69.8	0.90	124	#259
Cambridge EB thru | thru	D	45.9	0.79	148	#305
Cambridge WB thru | thru	C	29.8	0.52	97	140
Cambridge WB right	A	2.2	0.22	0	10
Temple NB right	D	46.9	0.26	15	25
Staniford SB left	C	34.2	0.56	125	203
Staniford SB right	D	37.0	0.66	128	216
Merrimac Street/Lomasney Way/Staniford Street/Causeway Street	**F**	**192.3**			
Staniford EB left	D	47.4	0.32	49	83
Staniford EB left/thru	D	48.6	0.49	175	222
Staniford EB right	F	207.8	1.27	~234	#325
Causeway WB left/thru | thru	E	75.5	0.89	238	#336
Causeway WB right	F	138.7	1.12	~333	#525
Merrimac NB left	F	1,348.0	3.85	~290	#419
Merrimac NB thru/right	F	86.6	0.82	163	#264
Lomasney SB left	F	126.0	1.02	~179	#338
Lomasney SB thru/right	E	66.6	0.76	236	#365
Lomasney SB right	F	99.6	0.97	285	#486
North Washington Street/Causeway Street	**D**	**50.9**			
Causeway EB left	F	80.7	0.85	176	#308
Causeway EB left/thru	D	49.7	0.32	69	125
Causeway EB right	B	15.0	0.44	4	61
Causeway WB left/thru | thru	E	59.3	0.71	153	201
Causeway WB right	C	31.9	0.46	171	245
N. Washington NB left/thru | thru	F	106.0	1.09	~351	#476
N. Washington NB right	D	49.9	0.53	87	156
N. Washington SB left	C	34.1	0.70	135	238
N. Washington SB thru | thru/right	C	28.4	0.73	396	489
N. Washington SB right	C	33.8	0.74	351	520
North Washington Street/Valenti Way/Thatcher Street	**B**	**16.0**			

Intersection Approach	LOS	Delay (sec)	v/c	50th Percentile Queue (ft.)	95th Percentile Queue (ft.)
N. Washington NB left	E	57.9	0.77	186	255
N. Washington NB thru | thru/right	B	12.6	0.44	133	226
N. Washington SB left/thru | thru | thru/right	B	10.6	0.53	170	270
Beverly Street/Valenti Way	**C**	**21.5**			
Valenti WB left	A	4.7	0.18	0	0
Valenti WB left/thru	A	5.9	0.15	4	7
Beverly SB thru | thru/right	D	47.5	0.46	62	83
Cross Street/Cooper Street/I-93 Off-Ramps	**B**	**15.3**			
Cooper WB right	A	1.6	0.20	0	0
Cross NB thru | thru	C	32.9	0.39	101	134
I-93 Off-Ramp NWB right | right	A	8.4	0.59	53	82
North Washington Street/Beverly Street	**A**	**6.3**			
Beverly EB right | right | right	B	16.5	0.31	56	86
N. Washington SB thru | thru | thru	A	4.4	0.44	201	6
North Washington Street/New Chardon Street/Sumner Tunnel Off-ramp/I-93 SB & Callahan Tunnel On-ramps/Surface Road	**E**	**57.2**			
New Chardon EB thru | thru | thru/right	D	38.1	0.50	157	172
I-93 Off-Ramp WB left/thru | thru	F	126.5	1.16	~372	#445
N. Washington SB left	C	33.4	0.77	314	467
N. Washington SB left/thru | thru/right	C	29.5	0.80	330	354
N. Washington SB right	C	32.2	0.75	196	403
New Chardon Street/Canal Street	**A**	**4.1**			
New Chardon EB thru | thru	A	3.5	0.25	46	57
New Chardon WB thru | thru | thru/right	A	4.5	0.33	0	m0
Merrimac Street/Congress Street/New Chardon Street/Garage Entrance	**D**	**35.0**			
New Chardon EB left/thru | thru/right	D	38.2	0.76	15	#51
New Chardon WB left	D	53.3	0.86	165	#434
New Chardon WB left/thru | thru/right	C	32.2	0.78	165	201
Congress NB left	C	31.4	0.75	124	m#313
Congress NB left/thru | thru	C	26.3	0.77	131	200
Congress NB right	A	9.7	0.30	71	117
Merrimac SB left/thru | thru | thru	E	60.1	0.78	113	145
Merrimac SB right	A	8.3	0.43	0	20
New Chardon Street/Garage Exit	**B**	**13.3**			
New Chardon EB thru | thru	D	53.4	0.54	85	116
New Chardon WB thru | thru	A	1.7	0.33	8	18
Garage NB left/right	D	44.0	0.02	3	4

Intersection Approach	LOS	Delay (sec)	v/c	50th Percentile Queue (ft.)	95th Percentile Queue (ft.)
Cambridge Street/New Chardon Street/ Bowdoin Street	**C**	**23.6**			
Cambridge EB thru | thru | thru/right	C	26.6	0.41	24	210
Cambridge WB left/thru | thru/right	A	9.9	0.24	23	33
Bowdoin NB left	C	25.8	0.51	57	95
Bowdoin NB thru	D	51.3	0.66	82	140
Bowdoin NB right	A	4.5	0.34	0	16
New Chardon SB left	C	29.8	0.71	136	199
New Chardon SB thru	C	33.6	0.48	97	150
New Chardon SB right	A	6.8	0.51	0	59
Cambridge Street/New Sudbury Street/Somerset Street	**D**	**43.7**			
Cambridge EB left | left	D	44.4	0.78	79	134
Cambridge EB thru | thru	D	50.3	0.97	210	#323
Cambridge WB left	E	66.7	0.79	75	#204
Cambridge WB thru | thru	C	26.0	0.24	52	81
Cambridge WB right	A	7.9	0.37	0	41
Somerset NB left/thru/right	D	41.7	0.49	44	64
Congress Street/New Sudbury Street	**C**	**33.8**			
New Sudbury EB left	E	61.8	0.68	122	#208
New Sudbury EB thru | thru	D	49.3	0.52	96	140
New Sudbury EB right	C	22.8	0.70	0	#97
Congress NB thru | thru | thru/right	D	35.3	0.71	239	294
Congress SB left	E	58.9	0.59	80	m99
Congress SB thru | thru | thru	B	15.4	0.26	106	m127
Surface Street/New Sudbury Street/Haymarket Bus Exit	**C**	**26.6**			
New Sudbury EB thru | thru	C	27.7	0.29	84	120
New Sudbury EB right	A	6.8	0.29	0	41
Surface SB left/thru | thru	C	30.0	0.44	134	173
Haymarket Bus SB left/right	D	40.5	0.18	19	32
Cross Street/New Sudbury Street/I-93 NB On-Ramp	**A**	**4.4**			
New Sudbury EB left | left	A	1.5	0.26	0	2
Cross NB left/thru | thru	A	5.7	0.54	183	225
Cross Street/Hanover Street	**B**	**10.8**			
Hanover EB left	C	23.4	0.11	10	21
Hanover EB thru	C	21.8	0.07	13	25
Hanover WB thru/right	C	27.8	0.45	87	132
Cross NB left/thru | thru/right	A	7.2	0.61	57	66

Intersection Approach	LOS	Delay (sec)	v/c	50th Percentile Queue (ft.)	95th Percentile Queue (ft.)
Surface Street/Hanover Street	**B**	**13.7**			
Hanover EB thru | thru/right	D	36.4	0.08	12	26
Hanover WB left	B	16.1	0.19	33	m56
Hanover WB thru	C	21.4	0.32	105	146
Surface SB left/thru | thru/right	A	8.3	0.41	37	55
Congress Street/Hanover Street	**A**	**9.4**			
Hanover WB right	D	44.3	0.74	104	161
Congress NB thru | thru | thru/right	A	5.0	0.18	102	m119
Congress SB thru | thru | thru	A	1.5	0.17	14	43
Cross Street/North Street/I-93 Off-Ramp	**C**	**28.5**			
I-93 Off-Ramp EB left	C	23.1	0.52	180	274
I-93 Off-Ramp EB left/thru	C	22.0	0.48	164	251
Cross NB thru | thru/right	D	37.4	0.58	145	201
Surface Street/North Street/ I-93 Off-Ramp	**B**	**15.9**			
North EB right	A	7.5	0.08	31	45
I-93 Off-Ramp WB left/thru | thru	B	15.7	0.68	300	376
Surface SB thru | thru/right	B	17.6	0.62	75	104
Clinton Street/North Street/Millennium Hotel Driveway	**B**	**14.5**			
North EB left/thru	A	8.4	0.06	9	26
North WB thru | thru/right	A	6.1	0.43	132	143
Clinton NB left	E	78.8	0.37	60	m73
Clinton NB left/thru/right	C	28.1	0.34	0	0
Millennium SB left	C	34.0	0.01	1	5
Millennium SB right	A	0.9	0.05	0	0
North Street/Union Street	**D**	**52.9**			
North EB left	A	1.2	0.03	1	m1
North EB thru	A	3.1	0.06	2	m3
North WB thru | thru/right	E	56.7	0.87	166	#266
Congress Street/North Street	**F**	**80.9**			
North WB left | left/right	E	68.0	1.01	~82	m#165
Congress NB thru | thru | thru/right	A	3.2	0.48	5	7
Congress SB left/thru | thru | thru	F	141.3	1.20	~228	#319
Surface Street/Clinton Street/I-93 Off-Ramp	**D**	**45.8**			
I-93 Off-Ramp WB left	E	65.0	1.00	502	#774
I-94 Off-Ramp WB left/thru	C	30.6	0.68	296	428
Surface SB thru | thru | thru/right	D	40.6	0.89	250	#336

Intersection Approach	LOS	Delay (sec)	v/c	50th Percentile Queue (ft.)	95th Percentile Queue (ft.)
Unsignalized Intersections					
New Chardon/Bowker Street					
New Chardon EB thru | thru	A	0.0	0.05	-	0
New Chardon WB thru | thru	A	0.0	0.06	-	0
Bowker NB left/right	B	10.5	0.07	-	6
New Chardon/Hawkins Street					
New Chardon EB thru | thru	A	0.0	0.07	-	0
New Chardon WB thru | thru	A	1.8	0.31	-	3
New Sudbury Street/Garage Exit Driveway					
New Sudbury EB thru | thru	A	0.0	0.13	-	0
Government Center Garage SB left	B	10.3	0.21	-	20
New Sudbury Street/Haymarket Garage Driveway					
New Sudbury thru | thru | thru/right	A	0.0	0.11	-	0
Haymarket Garage NB right	B	12.1	0.06	-	5

m – Volumes for 95th percentile queue is metered by upstream signal
~ – 50th percentile queue exceeds capacity; queue shown is maximum after two cycles
# – 95th percentile queue exceeds capacity; queue shown is maximum after two cycles

TABLE 4.6 EXISTING (2015) CONDITION, CAPACITY ANALYSIS SUMMARY, WEEKDAY P.M. PEAK HOUR

Intersection Approach	LOS	Delay (sec)	v/c	50th Percentile Queue (ft.)	95th Percentile Queue (ft.)
Signalized Intersections					
Cambridge Street/Staniford Street/Temple Street	**E**	**74.0**			
Cambridge EB left	F	292.9	1.55	~288	#451
Cambridge EB thru | thru	D	39.0	0.71	146	#298
Cambridge WB thru | thru	C	26.6	0.63	137	165
Cambridge WB right	A	2.1	0.23	5	16
Temple NB right	D	41.0	0.07	4	10
Staniford SB left	C	32.4	0.51	118	185
Staniford SB right	C	32.2	0.54	103	169
Merrimac Street/Lomasney Way/ Staniford Street/Causeway Street	**F**	**109.7**			
Staniford EB left	D	45.8	0.36	115	160
Staniford EB left/thru	F	90.4	0.98	405	#505
Staniford EB right	F	209.9	1.32	~521	#616
Causeway WB left/thru | thru	E	57.5	0.56	137	174
Causeway WB right	F	123.5	0.97	280	#415
Merrimac NB left	F	374.9	1.58	~102	#213
Merrimac NB thru/right	F	106.0	0.95	209	#376
Lomasney SB left	E	73.5	0.76	149	#263
Lomasney SB thru/right	E	72.7	0.83	271	#424
Lomasney SB right	E	68.8	0.76	206	#330
North Washington Street/Causeway Street	**F**	**141.3**			
Causeway EB left	F	234.6	1.40	~529	#715
Causeway EB left/thru	D	46.4	0.30	75	128
Causeway EB right	A	7.1	0.30	0	26
Causeway WB left/thru | thru	F	168.9	1.21	~339	#459
Causeway WB right	D	40.9	0.71	310	383
N. Washington NB left/thru | thru	F	358.3	1.71	~588	#721
N. Washington NB right	E	56.6	0.53	62	122
N. Washington SB left	C	33.6	0.58	110	196
N. Washington SB thru | thru/right	C	29.9	0.70	361	442
N. Washington SB right	C	24.6	0.42	155	232
North Washington/Valenti Way/Thatcher Street	**B**	**13.6**			
N. Washington NB left	E	68.6	0.83	189	#315
N. Washington NB thru | thru/right	A	5.9	0.50	78	122
N. Washington SB left/thru | thru | thru/right	A	8.1	0.47	135	165

Intersection Approach	LOS	Delay (sec)	v/c	50th Percentile Queue (ft.)	95th Percentile Queue (ft.)
Beverly Street/Valenti Way	**C**	**20.3**			
Valenti WB left	A	1.9	0.24	0	m0
Valenti WB left/thru	A	2.3	0.11	4	m5
Beverly SB thru | thru/right	D	39.5	0.50	93	127
Cross Street/Cooper Street/ I-93 Off-Ramps	**B**	**12.1**			
Cooper WB right	A	2.5	0.25	0	0
Cross NB thru | thru	D	47.4	0.48	71	107
I-93 Off-Ramp NWB right | right	A	5.8	0.63	53	135
North Washington Street/Beverly Street	**B**	**10.2**			
Beverly EB right | right | right	C	21.9	0.47	97	134
N. Washington SB thru | thru | thru	A	5.7	0.42	51	58
North Washington Street/New Chardon Street/Sumner Tunnel Off-ramp/I-93 SB & Callahan Tunnel On-ramps/Surface Road	**D**	**43.3**			
New Chardon EB thru | thru | thru/right	C	27.9	0.72	237	#293
I-93 Off-Ramp WB left/thru | thru	D	37.1	0.57	155	214
N. Washington SB left	E	79.0	1.01	~440	#689
N. Washington SB left/thru | thru/right	D	47.4	0.98dl	337	#454
N. Washington SB right	C	28.5	0.56	126	235
New Chardon Street/Canal Street	**A**	**5.0**			
New Chardon EB thru | thru	A	7.8	0.41	146	169
New Chardon WB thru | thru | thru/right	A	1.3	0.23	0	m14
Merrimac Street/Congress Street/New Chardon Street/Garage Entrance	**D**	**50.9**			
New Chardon EB left/thru | thru/right	C	31.7	0.85	28	#207
New Chardon WB left	F	142.0	1.09	~200	#364
New Chardon WB left/thru | thru/right	F	93.2	0.98	185	#285
Congress NB left	C	25.5	0.44	52	m72
Congress NB left/thru | thru	C	23.6	0.44	54	m72
Congress NB right	A	8.5	0.48	53	m61
Merrimac SB left/thru | thru | thru	D	50.8	1.08dl	163	210
Merrimac SB right	A	1.1	0.17	0	0
New Chardon Street/Garage Exit	**B**	**19.1**			
New Chardon EB thru | thru	D	45.9	0.61	126	177
New Chardon WB thru | thru	A	1.5	0.27	6	m6
Garage NB left/right	C	22.5	0.28	26	68

Intersection Approach	LOS	Delay (sec)	v/c	50th Percentile Queue (ft.)	95th Percentile Queue (ft.)
Cambridge Street/New Chardon Street/ Bowdoin Street	**C**	**28.4**			
Cambridge EB thru | thru | thru/right	C	21.8	0.51	64	186
Cambridge WB left/thru | thru/right	B	15.7	0.45	39	m55
Bowdoin NB left	C	23.9	0.55	87	144
Bowdoin NB thru	E	56.8	0.87	186	#322
Bowdoin NB right	B	12.0	0.36	16	65
New Chardon SB left	D	53.2	0.89	102	#240
New Chardon SB thru	C	34.7	0.46	90	153
New Chardon SB right	A	7.2	0.41	0	55
Cambridge Street/New Sudbury Street/Somerset Street	**C**	**34.4**			
Cambridge EB left | left	D	43.0	0.84	90	m#143
Cambridge EB thru | thru	C	31.5	0.65	163	m#297
Cambridge WB left	E	67.9	0.70	40	#90
Cambridge WB thru | thru	C	24.8	0.22	62	106
Cambridge WB right	A	8.0	0.39	0	56
Somerset NB left/thru/right	D	51.9	0.77	116	188
Congress Street/New Sudbury Street	**D**	**37.8**			
New Sudbury EB left	D	49.4	0.58	104	177
New Sudbury EB thru | thru	D	50.9	0.75	150	208
New Sudbury EB right	C	20.6	0.68	0	#102
Congress NB thru | thru | thru/right	C	28.7	0.90	82	#349
Congress SB left	F	139.9	1.02	~121	m#149
Congress SB thru | thru | thru	B	16.3	0.27	78	m87
Surface Street/New Sudbury Street/Haymarket Bus Exit	**D**	**53.6**			
New Sudbury EB thru | thru	E	70.7	0.55	222	m263
New Sudbury EB right	A	9.2	0.33	25	m43
Surface SB left/thru | thru	D	36.1	0.48	98	m125
Haymarket Bus SB left/right	D	49.9	0.33	28	55
Cross Street/New Sudbury Street/I-93 NB On-Ramp	**A**	**8.1**			
New Sudbury EB left | left	A	4.6	0.65	4	17
Cross NB left/thru | thru	B	10.4	0.85	425	532
Cross Street/Hanover Street	**B**	**13.5**			
Hanover EB left	E	57.0	0.36	45	71
Hanover EB thru	D	46.8	0.08	24	47
Hanover WB thru/right	D	40.4	0.56	112	187
Cross NB left/thru | thru/right	A	7.0	0.70	11	13

Intersection Approach	LOS	Delay (sec)	v/c	50th Percentile Queue (ft.)	95th Percentile Queue (ft.)
Surface Street/Hanover Street	**B**	**11.6**			
Hanover EB thru | thru/right	C	20.1	0.12	18	30
Hanover WB left	B	13.0	0.16	21	m35
Hanover WB thru	B	13.9	0.14	27	m46
Surface SB left/thru | thru/right	A	9.7	0.38	44	62
Congress Street/Hanover Street	**A**	**2.9**			
Hanover WB right	C	35.0	0.64	50	100
Congress NB thru | thru | thru/right	A	0.5	0.24	0	m26
Congress SB thru | thru | thru	A	0.3	0.16	4	m5
Cross Street/North Street/I-93 Off-Ramp	**D**	**35.3**			
I-93 Off-Ramp EB left	C	32.7	0.53	156	237
I-93 Off-Ramp EB left/thru	C	30.8	0.46	135	208
Cross NB thru | thru/right	D	37.0	0.81	330	418
Surface Street/North Street/ I-93 Off-Ramp	**B**	**18.5**			
North EB right	A	8.2	0.21	36	55
I-93 Off-Ramp WB left/thru | thru	B	18.5	0.30	97	103
Surface SB thru | thru/right	C	21.1	0.43	183	226
Clinton Street/North Street/Millennium Hotel Driveway	**B**	**17.4**			
North EB left/thru	D	40.8	0.14	64	110
North WB thru | thru/right	A	9.4	0.21	23	30
Clinton NB left	C	33.0	0.42	53	m71
Clinton NB left/thru/right	A	3.0	0.38	0	0
Millennium SB left	C	30.0	0.01	2	7
Millennium SB right	A	0.2	0.03	0	0
North Street/Union Street	**C**	**27.2**			
North EB left	A	1.3	0.02	0	m1
North EB thru	A	3.4	0.08	1	m6
North WB thru | thru/right	C	32.3	0.63	117	177
Congress Street/North Street	**C**	**34.1**			
North WB left | left/right	C	23.1	0.82	23	54
Congress NB thru | thru | thru/right	A	6.5	0.70	21	m28
Congress SB left/thru | thru | thru	E	78.4	0.87	184	#233
Surface Street/Clinton Street/ I-93 Off-Ramp	**C**	**27.8**			
I-93 Off-Ramp WB left	C	24.0	0.43	149	228
I-94 Off-Ramp WB left/thru	C	22.5	0.36	128	197
Surface SB thru | thru | thru/right	C	31.2	0.63	143	185
Unsignalized Intersections					
New Chardon/Bowker Street					
New Chardon EB thru | thru	A	0.0	0.11	-	0

Intersection Approach	LOS	Delay (sec)	v/c	50th Percentile Queue (ft.)	95th Percentile Queue (ft.)
New Chardon WB thru | thru	A	0.0	0.19	-	0
Bowker NB left/right	B	12.0	0.09	-	7
New Chardon/Hawkins Street					
New Chardon EB thru | thru	A	0.0	0.15	-	0
New Chardon WB thru | thru	A	1.3	0.24	-	2
New Sudbury Street/Garage Exit Driveway					
New Sudbury EB thru | thru	A	0.0	0.18	-	0
Government Center Garage SB left	B	11.0	0.25	-	24
New Sudbury Street/Haymarket Garage Driveway					
New Sudbury thru | thru | thru/right	A	0.0	0.23	-	0
Haymarket Garage NB right	C	19.6	0.24	-	22

As shown in Table 4.5 and Table 4.6, under the Existing (2015) Condition:

The intersection of **Cambridge Street/Staniford Street/Temple Street** operates at LOS D during the a.m. peak hour and LOS E during the p.m. peak hour. The Cambridge Street eastbound left-turn approach operates at LOS E during the a.m. peak hour and LOS F during the p.m. peak hour.

The intersection of **Merrimac Street/Lomasney Way/Staniford Street/Causeway Street** operates at LOS F during both the a.m. and p.m. peak hours. The Staniford Street eastbound left-turn/thru approach operates at LOS F during the p.m. peak hour. The Staniford Street eastbound right-turn approach, the Causeway Street westbound right-turn approach, the Merrimac Street northbound left-turn approach, and the Merrimac Street northbound thru/right-turn approach operate at LOS F during both the a.m. and p.m. peak hours. The Causeway Street westbound left-turn/thru | thru approach, and the Lomasney Street southbound thru/right-turn approach operate at LOS E during both the a.m. and p.m. peak hour. The Lomasney Street southbound left-turn approach and the Lomasney Street southbound right-turn approach operate at LOS F during the a.m. peak hour and LOS E during the p.m. peak hour.

The intersection of **North Washington Street/Causeway Street** operates at LOS D during the a.m. peak hour and LOS F during the p.m. peak hour. The Causeway Street eastbound left-turn approach, and the North Washington Street northbound left-turn/thru | thru approach operate at LOS F during both the a.m. and p.m. peak hours. The Causeway Street westbound left-turn/thru | thru approach operates at LOS E during the a.m. peak hour and LOS F during the p.m. peak hour. The North Washington Street northbound right-turn approach operates at LOS E during the p.m. peak hour.

The intersection of **North Washington Street/Valenti Way/Thatcher Street** operates under capacity during both the a.m. and p.m. peak hours. The North Washington Street eastbound left-turn approach operates at LOS E during both the a.m. and p.m. peak hours.

The intersection of **North Washington Street/New Chardon Street/Sumner Tunnel Off-ramp/I-93 SB & Callahan Tunnel On-ramps/Surface Road** operates at LOS E during the a.m. peak hour and LOS D during the p.m. peak hour. The I-93 Off-Ramp westbound left-turn/thru | thru approach operates at LOS F during the a.m. peak hour. The North Washington Street southbound left-turn approach operates at LOS E during the p.m. peak hour. The longest queues occur at these same approaches during the a.m. peak hour and the p.m. peak hour, respectively.

The intersection of **Merrimac Street/Congress Street/New Chardon Street/Garage Entrance** operates under capacity during both the a.m. and p.m. peak hours. The New Chardon Street westbound left-turn approach, and the New Chardon Street westbound left-turn/thru | thru/right-turn approach operate at LOS F during the p.m. peak hour. The Merrimac Street southbound left-turn/thru | thru | thru approach operates at LOS E during the a.m. peak hour. The longest queue occurs at the New Chardon Street westbound left approach during both the a.m. and p.m. peak hours.

The intersection of **Cambridge Street/New Chardon Street/Bowdoin Street** operates under capacity during both the a.m. and p.m. peak hours. The Bowdoin Street northbound thru approach operates at LOS E during the p.m. peak hour.

The intersection of **Cambridge Street/New Sudbury Street/Somerset Street** operates under capacity during the a.m. and p.m. peak hours. The Cambridge Street westbound left-turn approach operates at LOS E during both the a.m. and p.m. peak hours. The longest queue occurs at the Cambridge Street eastbound thru | thru approach during both the a.m. and p.m. peak hour.

The intersection of **Congress Street/New Sudbury Street** operates under capacity during both the a.m. and p.m. peak hours. The New Sudbury Street eastbound left-turn approach operates at LOS E during the a.m. peak hour. The Congress Street southbound left-turn approach operates at LOS E during the a.m. peak hour and LOS F during the p.m. peak hour.

The intersection of **Surface Street/New Sudbury Street/Haymarket Bus Exit** operates under capacity during the a.m. and p.m. peak hours. The New Sudbury Street eastbound thru | thru approach operates at LOS E during the p.m. peak hour.

The intersection of **Cross Street/Hanover Street** operates under capacity during both the a.m. and p.m. peak hours. The Hanover Street eastbound left-turn approach operates at LOS E during the p.m. peak hour. The longest queue occurs at the Hanover Street westbound thru/right-turn approach during both the a.m. and p.m. peak hours.

The intersection of **Clinton Street/North Street/Millennium Hotel Driveway** operates under capacity during both the a.m. and p.m. peak hours. The Clinton Street northbound left-turn approach operates at LOS E during the a.m. peak hour.

The intersection of **North Street/Union Street** operates under capacity during both the a.m. and p.m. peak hours. The North Street westbound thru | thru/right-turn approach operates at LOS E during the a.m. peak hour.

The intersection of **Congress Street/North Street** operates at LOS F during the a.m. peak hour and LOS C during the p.m. peak hour. The North Street westbound left | left/right approach operates at LOS E during the a.m. peak hour. The Congress Street southbound left-turn/thru | thru | thru approach operates at LOS F during the a.m. peak hour and LOS E during the p.m. peak hour.

The intersection of **Surface Street/Clinton Street/I-93 Off-Ramp** operates under capacity during both the a.m. and p.m. peak hours. The I-93 Off-Ramp westbound left-turn approach operates at LOS E during the a.m. peak hour. The longest queue occurs at this same approach during both the a.m. and p.m. peak hours.

4.5 No-Build (2020) Condition

The No-Build (2020) Condition reflects a future scenario that incorporates anticipated traffic volume changes associated with background traffic growth independent of any specific project; traffic associated with other planned specific background 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.

4.5.1 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 recently and to account for any additional unforeseen traffic growth, a traffic growth rate of 0.5 percent per year, compounded annually, was used.

4.5.2 Specific Development Traffic Growth

Traffic volumes associated with the larger or closer known development projects can affect traffic patterns throughout the study area within the future analysis time horizon. Eight such projects were specifically accounted for in the traffic volumes for future scenarios while others were included in the general background traffic growth. A few projects that had previously been included in the Development Plan Project's traffic studies (most notably Avenir, Victor, and the Suffolk University's 20 Somerset building) were constructed and occupied as of the

new data collection in September 2015. The project area background projects are listed below and are mapped on Figure 4.10:

- Bulfinch Parcel 1B and 1C – This project, located on Beverly Street, involves the construction of a new, mixed-use project including 231 apartments, 219 hotel rooms, 8,800 sf of ground floor retail, and 176 garage parking spaces. Trips generated by this project were distributed to the study area intersections.
- One Canal Street – Currently under construction, this project includes for 320 residential units and 22,000 square feet of commercial/retail use. Trips generated by this project were distributed to the study area intersections.
- 121-127 Portland Street (Forecaster 121) – Known as the Forecaster Building and currently under construction, this project will add two floors to an existing six-story building. The project includes 54 loft dwelling units and 42 parking spaces. Trips generated by project were distributed to the study area intersections.
- Lovejoy Wharf – This project is located at 160 North Washington Street (Hoffman Building) and 131 Beverly Street. As of the date of the data collection, the office redevelopment of the Hoffman Building had been constructed and was occupied. The residential portion of the project is currently under construction. This portion of the project will consist of approximately 175 residential condominium units.
- Garden Garage – This site is located at 35 Lomasney Way on approximately three acres of land in Boston's West End. According to the Notice of Project Change filed with the BRA on October 6, 2015, the project proposes to construct an approximately 44-story residential building on the site of the existing above-ground Garden Garage. The Project would create approximately 470 residential units and 2,300 sf of ground floor retail space. In addition, the existing 650-space garage will be replaced with an 830-space underground parking structure, resulting in a net increase of 180 new spaces. Trips generated by this project were distributed to the study area intersections
- Massachusetts General Hospital Institutional Master Plan Building for the 3rd Century. MGH is constructing a new ambulatory care building on the site of several former hospital buildings. One phase of the project, the Yawkey Outpatient Center, is already complete and includes a 725-space parking garage. Both the garage and Yawkey Center are operational. A second 150-bed addition, permitted through the Institutional Master Plan, is under construction and is expected to be fully occupied by 2012. No new parking is to be built as part of the second phase. Trips generated by this project were distributed to the study area intersections
- Nashua Street Residences – Currently under construction, this project includes the development of a 503-unit residential tower with 3,575 sf of retail space and 219 parking spaces. Vehicle trips generated by the project were distributed to the study area intersections.
- The Boston Garden – This mixed-use transit-oriented project currently proposed will include residential, office, hotel, and retail space. This development is expected to occur over the course several years and extend beyond the traffic study horizon year of this

study. The full-build project includes 497 residential units, a 306 room hotel, 810,000 sf of office space, 235,000 sf of retail/restaurant space including a neighborhood grocery store, and over 65,000 sf in expansions to elevators, lobbies, concessions, and an atrium hall for TD Garden and the North Station's use. An addition of 800 parking spaces are planned to be added beneath the site and will be connected to the existing 1,275 parking space garage underneath the Boston Garden. Trips generated by Phase 1, which includes approximately 306 hotel rooms; approximately 142,000 sf of flex office space; approximately 235,000 sf of commercial/retail/restaurant space to include a grocery store, were distributed to the study area intersections.

4.5.3 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, it was determined that there are several proposed roadway improvement projects to be constructed by others located in the immediate vicinity of the Project. These include the Connect Historic Boston project; final roadway circulation improvements in the Bulfinch Triangle as proposed with the Central Artery/Tunnel Surface Transportation Action Forum (STAF) recommendations; reconstruction of Cambridge Street as part of the MBTA's improvements to its Government Center Station; and bicycle accommodation (bike lanes) along various corridors by BTD's Boston Bike Network project. All these improvements are assumed to be completed by the time of Project completion and are incorporated into the No-Build (2020) Condition.

4.5.4 No Build Traffic Volumes

The 0.5 percent per year annual growth rate, compounded annually, was applied to the Existing (2015) Condition traffic volumes, then the traffic volumes associated with the specific development projects listed above was added to determine the No-Build (2020) Condition traffic volumes. The No-Build (2020) weekday a.m. peak hour and weekday p.m. peak hour traffic volumes are shown on Figures 4.11a and Figure 4.11b, respectively.

4.5.5 No-Build (2020) Condition Traffic Operations Analysis

The No-Build (2020) Condition analysis uses the same methodology as the Existing (2015) Condition capacity analysis. Table 4.7 and Table 4.8 present the No-Build (2020) Condition operations analysis for the weekday a.m. peak hour and weekday p.m. peak hour, respectively. The shaded cells in the tables indicate a decrease in LOS between the Existing (2015) Condition and the No-Build (2020) Condition to an LOS below LOS D. The detailed analysis sheets are provided in Appendix A.

TABLE 4.7 NO-BUILD (2020) CONDITION, CAPACITY ANALYSIS SUMMARY WEEKDAY A.M. PEAK HOUR

Intersection Approach	LOS	Delay (sec)	v/c	50th Percentile Queue (ft.)	95th Percentile Queue (ft.)
Signalized Intersections					
Cambridge Street/Staniford Street/Temple Street	**D**	**43.3**			
Cambridge EB left	F	99.1	1.03	~150	#297
Cambridge EB thru | thru	D	49.1	0.84	160	#328
Cambridge WB thru | thru	C	31.0	0.55	103	146
Cambridge WB right	A	2.2	0.23	0	10
Temple NB right	D	46.9	0.26	15	25
Staniford SB left	C	34.8	0.57	130	210
Staniford SB right	D	40.3	0.72	143	#257
Merrimac Street/Lomasney Way/ Staniford Street/Causeway Street	**F**	**207.5**			
Staniford EB left	D	49.7	0.38	58	95
Staniford EB left/thru	D	49.9	0.53	192	240
Staniford EB right	F	218.7	1.30	~243	#334
Causeway WB left/thru | thru	F	82.0	0.94	253	#364
Causeway WB right	F	192.9	1.28	~418	#620
Merrimac NB left	F	1396.1	3.96	~300	#430
Merrimac NB thru/right	F	92.0	0.86	173	#281
Lomasney SB left	F	167.9	1.17	~230	#396
Lomasney SB thru/right	E	69.4	0.79	249	#392
Lomasney SB right	F	108.1	1.01	~302	#509
North Washington Street/Causeway Street	**F**	**81.5**			
Causeway EB left | left	E	55.4	0.45	95	139
Causeway EB thru/right	B	14.5	0.54	14	95
Causeway WB left/thru | thru	E	68.2	0.77	175	225
Causeway WB right	D	44.2	0.62	205	287
N. Washington NB thru | thru/right	F	172.9	1.26	~501	#633
N. Washington SB left	F	208.9	1.29	~325	#511
N. Washington SB thru | thru	C	29.0	0.71	406	491
N. Washington SB right	D	54.9	0.91	340	#586
N. Washington NWB right/right	A	0.7	0.10	0	0
North Washington/Valenti Way/Thatcher Street	**C**	**22.3**			
N. Washington NB left	E	65.4	0.84	245	322
N. Washington NB thru | thru/right	B	17.5	0.49	173	279
N. Washington SB left/thru | thru | thru/right	B	15.1	0.59	221	335

Intersection Approach	LOS	Delay (sec)	v/c	50th Percentile Queue (ft.)	95th Percentile Queue (ft.)
Beverly Street/Valenti Way	**C**	**25.0**			
Valenti WB left	A	4.0	0.20	0	0
Valenti WB left/thru	A	8.1	0.25	8	23
Beverly SB thru | thru/right	D	54.1	0.65	93	114
Cross Street/Cooper Street/ I-93 Off-Ramps	**B**	**16.1**			
Cooper WB right	A	2.0	0.22	0	0
Cross NB thru | thru	C	33.6	0.44	112	148
I-93 Off-Ramp NWB right | right	A	9.2	0.65	57	90
North Washington Street/Beverly Street	**A**	**5.7**			
Beverly EB right | right | right	B	19.4	0.39	85	123
N. Washington SB thru | thru | thru	A	2.5	0.45	6	7
North Washington Street/New Chardon Street/Sumner Tunnel Off-ramp/I-93 SB & Callahan Tunnel On-ramps/Surface Road	**E**	**66.3**			
New Chardon EB thru | thru | thru/right	D	40.3	0.54	147	157
I-93 Off-Ramp WB left/thru | thru	F	153.2	1.22	~398	#471
N. Washington SB left	D	39.1	0.83	372	#549
N. Washington SB left/thru | thru/right	C	34.1	0.85	364	316
N. Washington SB right	D	35.0	0.77	273	317
New Chardon Street/Canal Street	**A**	**5.2**			
New Chardon EB thru | thru	A	5.4	0.27	72	81
New Chardon WB thru | thru | thru/right	A	5.0	0.34	0	m0
Merrimac Street/Congress Street/New Chardon Street/Garage Entrance	**D**	**44.5**			
New Chardon EB left/thru | thru/right	D	46.9	0.84	20	#47
New Chardon WB left	E	59.2	0.89	172	#457
New Chardon WB left/thru | thru/right	C	34.7	0.81	171	209
Congress NB left	E	58.5	0.78	145	#337
Congress NB left/thru | thru	D	52.7	0.80	149	#232
Congress NB right	A	7.3	0.31	40	55
Merrimac SB left/thru | thru | thru	E	62.1	0.81	118	150
Merrimac SB right	A	9.2	0.44	0	25
New Chardon Street/Bowker Street	**B**	**14.6**			
New Chardon EB thru | thru	E	55.6	0.61	97	131
New Chardon WB thru | thru	A	1.8	0.34	8	20
Bowker Street left/right	D	44.0	0.02	3	4

Intersection Approach	LOS	Delay (sec)	v/c	50th Percentile Queue (ft.)	95th Percentile Queue (ft.)
Cambridge Street/New Chardon Street/ Bowdoin Street	**C**	**24.2**			
Cambridge EB thru | thru | thru/right	C	27.6	0.43	33	m216
Cambridge WB left/thru | thru/right	A	9.9	0.25	24	16
Bowdoin NB left	C	26.5	0.53	60	100
Bowdoin NB thru	D	52.0	0.67	84	144
Bowdoin NB right	A	4.7	0.35	0	19
New Chardon SB left	C	30.5	0.73	139	204
New Chardon SB thru	C	33.8	0.49	100	154
New Chardon SB right	A	6.9	0.52	0	59
Cambridge Street/New Sudbury Street/Somerset Street	**D**	**40.5**			
Cambridge EB left | left	D	45.3	0.80	82	#140
Cambridge EB thru | thru	D	38.3	0.89	~223	#346
Cambridge WB left	F	94.2	0.93	80	#192
Cambridge WB thru | thru	C	24.9	0.22	55	84
Cambridge WB right	A	7.4	0.34	0	42
Somerset NB left/thru/right	D	52.8	0.60	47	72
Congress Street/New Sudbury Street	**C**	**26.2**			
New Sudbury EB left	D	38.2	0.42	107	173
New Sudbury EB thru | thru/right	C	31.5	0.62	121	177
Congress NB thru | thru | thru/right	C	27.4	0.63	220	270
Congress SB left	D	47.7	0.50	69	m87
Congress SB thru | thru | thru	B	13.4	0.23	82	m103
Surface Street/New Sudbury Street/Haymarket Bus Exit	**C**	**27.0**			
New Sudbury EB thru | thru	C	28.2	0.31	90	129
New Sudbury EB right	A	6.8	0.30	0	41
Surface SB left/thru | thru	C	30.5	0.46	143	183
Haymarket Bus SB left/right	D	40.8	0.19	20	34
Cross Street/New Sudbury Street/I-93 NB On-Ramp	**A**	**4.4**			
New Sudbury EB left | left	A	1.5	0.27	0	2
Cross NB left/thru | thru	A	5.8	0.59	197	252
Cross Street/Hanover Street	**B**	**11.7**			
Hanover EB left	C	22.6	0.11	9	20
Hanover EB thru	C	21.3	0.07	13	25
Hanover WB thru/right	C	28.2	0.46	90	137
Cross NB left/thru | thru/right	A	8.4	0.67	64	103

Intersection Approach	LOS	Delay (sec)	v/c	50th Percentile Queue (ft.)	95th Percentile Queue (ft.)
Surface Street/Hanover Street	**B**	**13.9**			
Hanover EB thru | thru/right	D	38.8	0.08	0	28
Hanover WB left	B	16.0	0.19	33	m55
Hanover WB thru	C	21.7	0.33	108	157
Surface SB left/thru | thru/right	A	8.4	0.44	39	57
Congress Street/Hanover Street	**B**	**11.6**			
Hanover WB right	E	57.0	0.81	156	235
Congress NB thru | thru | thru/right	A	3.0	0.21	27	m31
Congress SB thru | thru | thru	A	4.2	0.19	45	83
Cross Street/North Street/I-93 Off-Ramp	**C**	**29.4**			
I-93 Off-Ramp EB left	C	24.8	0.58	210	317
I-93 Off-Ramp EB left/thru	C	23.2	0.53	187	283
Cross NB thru | thru/right	D	38.2	0.60	152	208
Surface Street/North Street/ I-93 Off-Ramp	**B**	**16.3**			
North EB right	A	7.8	0.08	31	46
I-93 Off-Ramp WB left/thru | thru	B	16.1	0.70	314	394
Surface SB thru | thru/right	B	17.9	0.65	80	107
Clinton Street/North Street/Millennium Hotel Driveway	**C**	**23.6**			
North EB left/thru	A	8.5	0.06	9	26
North WB thru | thru/right	A	6.1	0.44	134	144
Clinton NB left	F	118.5	0.39	62	m76
Clinton NB left/thru/right	F	86.1	0.35	0	0
Millennium SB left	C	34.0	0.01	1	5
Millennium SB right	A	1.1	0.05	0	0
North Street/Union Street	**E**	**73.5**			
North EB left	A	1.1	0.03	0	m1
North EB thru	A	3.1	0.06	2	m3
North WB thru | thru/right	E	78.8	0.92	175	#500
Congress Street/North Street	**F**	**89.7**			
North WB left | left/right	E	68.0	1.07	~96	m#165
Congress NB thru | thru | thru/right	A	3.5	0.49	5	10
Congress SB left/thru | thru | thru	F	166.7	1.24	~254	#342
Surface Street/Clinton Street/I-93 Off-Ramp	**D**	**49.3**			
I-93 Off-Ramp WB left	E	71.0	1.02	~562	#802
I-94 Off-Ramp WB left/thru	C	31.6	0.71	311	450
Surface SB thru | thru | thru/right	D	43.8	0.93	267	#371

Intersection Approach	LOS	Delay (sec)	v/c	50th Percentile Queue (ft.)	95th Percentile Queue (ft.)
Unsignalized Intersections					
New Chardon/Bowker Street					
New Chardon EB thru | thru	A	0.0	0.06	-	0
New Chardon WB thru | thru	A	0.0	0.27	-	0
Bowker NB left/right	B	10.4	0.10	-	8
New Chardon/Hawkins Street					
New Chardon EB thru | thru/right	A	0.0	0.07	-	0
New Chardon WB left/thru | thru	A	2.1	0.32	-	4
New Sudbury Street/Garage Exit Driveway					
New Sudbury EB thru | thru	A	0.0	0.14	-	0
Government Center Garage SB left	B	10.4	0.23	-	23
New Sudbury Street/Haymarket Garage					
New Sudbury thru | thru | thru/right	A	0.0	0.11	-	0
Haymarket Garage NB right	B	12.2	0.06	-	5

TABLE 4.8 NO-BUILD (2020) CONDITION, CAPACITY ANALYSIS SUMMARY WEEKDAY P.M. PEAK HOUR

Intersection Approach	LOS	Delay (sec)	v/c	50th Percentile Queue (ft.)	95th Percentile Queue (ft.)
Signalized Intersections					
Cambridge Street/Staniford Street/Temple Street	**F**	**89.0**			
Cambridge EB left	F	369.3	1.72	~329	#497
Cambridge EB thru | thru	D	40.3	0.74	154	#317
Cambridge WB thru | thru	C	27.4	0.66	145	172
Cambridge WB right	A	2.1	0.23	6	15
Temple NB right	D	41.0	0.07	4	10
Staniford SB left	C	33.0	0.53	123	191
Staniford SB right	D	36.3	0.65	130	207
Merrimac Street/Lomasney Way/ Staniford Street/Causeway Street	**F**	**117.7**			
Staniford EB left	D	46.7	0.40	128	174
Staniford EB left/thru	F	103.3	1.04	~460	#549
Staniford EB right	F	222.6	1.36	~538	#633
Causeway WB left/thru | thru	E	61.3	0.67	164	204
Causeway WB right	F	134.4	1.11	~371	#513
Merrimac NB left	F	390.3	1.62	~105	#217
Merrimac NB thru/right	F	119.5	1.01	~226	#406
Lomasney SB left	F	97.8	0.93	191	#351
Lomasney SB thru/right	E	75.0	0.85	287	#455
Lomasney SB right	E	70.0	0.78	215	#350
North Washington Street/Causeway Street	**E**	**77.0**			
Causeway EB left | left	E	77.1	0.92	237	#324
Causeway EB thru/right	B	12.4	0.51	7	73
Causeway WB left/thru | thru	E	60.0	0.66	154	188
Causeway WB right	F	85.3	1.00	~382	#542
N. Washington NB thru | thru/right	F	152.3	1.22	~581	#717
N. Washington SB left	F	161.7	1.14	~225	#391
N. Washington SB thru | thru	C	29.1	0.70	376	456
N. Washington SB right	A	8.5	0.36	93	136
N. Washington NWB right/right	A	2.2	0.23	0	0
North Washington/Valenti Way/Thatcher Street	**C**	**23.0**			
N. Washington NB left	F	116.3	1.11	~305	#498
N. Washington NB thru | thru/right	A	7.2	0.52	90	144
N. Washington SB left/thru | thru | thru/right	A	8.8	0.50	141	172

Intersection Approach	LOS	Delay (sec)	v/c	50th Percentile Queue (ft.)	95th Percentile Queue (ft.)
Beverly Street/Valenti Way	**C**	**26.0**			
Valenti WB left	A	2.7	0.26	0	m0
Valenti WB left/thru	A	3.5	0.23	9	m9
Beverly SB thru | thru/right	D	48.8	0.73	147	188
Cross Street/Cooper Street/ I-93 Off-Ramps	**B**	**14.3**			
Cooper WB right	A	6.2	0.29	0	0
Cross NB thru | thru	D	50.1	0.59	88	128
I-93 Off-Ramp NWB right | right	A	6.8	0.68	57	m167
North Washington Street/Beverly Street	**B**	**18.4**			
Beverly EB right | right | right	D	44.8	0.61	156	183
N. Washington SB thru | thru | thru	A	5.7	0.43	52	59
North Washington Street/New Chardon Street/Sumner Tunnel Off-ramp/I-93 SB & Callahan Tunnel On-ramps/Surface Road	**E**	**58.6**			
New Chardon EB thru | thru | thru/right	C	29.1	0.74	253	#344
I-93 Off-Ramp WB left/thru | thru	D	37.9	0.60	162	223
N. Washington SB left	F	108.4	1.13	~561	#809
N. Washington SB left/thru | thru/right	E	79.1	1.09dl	386	#531
N. Washington SB right	C	31.0	0.58	143	258
New Chardon Street/Canal Street	**A**	**5.4**			
New Chardon EB thru | thru	A	8.3	0.43	126	m150
New Chardon WB thru | thru | thru/right	A	1.6	0.23	5	m21
Merrimac Street/Congress Street/New Chardon Street/Garage Entrance	**E**	**63.4**			
New Chardon EB left/thru | thru/right	D	38.9	0.91	35	#233
New Chardon WB left	F	155.7	1.14	~215	#375
New Chardon WB left/thru | thru/right	F	100.7	1.01	~193	#293
Congress NB left	D	49.7	0.49	146	m189
Congress NB left/thru | thru	D	47.9	0.49	149	m187
Congress NB right	D	40.1	0.49	235	m309
Merrimac SB left/thru | thru | thru	D	52.7	1.11dl	170	#230
Merrimac SB right	A	1.2	0.19	0	0
New Chardon Street/Bowker Street	**B**	**19.8**			
New Chardon EB thru | thru	D	47.5	0.66	137	192
New Chardon WB thru | thru	A	1.5	0.29	6	m7
Bowker Street left/right	C	23.2	0.29	28	70

Intersection Approach	LOS	Delay (sec)	v/c	50th Percentile Queue (ft.)	95th Percentile Queue (ft.)
Cambridge Street/New Chardon Street/ Bowdoin Street	**C**	**29.5**			
Cambridge EB thru | thru | thru/right	C	22.9	0.54	71	192
Cambridge WB left/thru | thru/right	B	15.8	0.47	41	m56
Bowdoin NB left	C	24.5	0.57	91	149
Bowdoin NB thru	E	58.5	0.89	193	#337
Bowdoin NB right	B	12.4	0.36	18	67
New Chardon SB left	E	58.1	0.91	105	#254
New Chardon SB thru	C	34.8	0.46	92	157
New Chardon SB right	A	7.1	0.42	0	56
Cambridge Street/New Sudbury Street/Somerset Street	**D**	**35.6**			
Cambridge EB left | left	D	45.5	0.86	97	m#151
Cambridge EB thru | thru	C	32.8	0.69	166	m#312
Cambridge WB left	E	69.0	0.71	41	#94
Cambridge WB thru | thru	C	25.4	0.24	66	111
Cambridge WB right	A	8.1	0.40	0	57
Somerset NB left/thru/right	D	52.7	0.78	120	194
Congress Street/New Sudbury Street	**D**	**45.2**			
New Sudbury EB left	C	31.4	0.38	93	153
New Sudbury EB thru | thru/right	F	89.8	0.78	200	270
Congress NB thru | thru | thru/right	D	36.3	0.81	255	324
Congress SB left	E	56.7	0.78	129	m136
Congress SB thru | thru | thru	B	11.9	0.23	80	m84
Surface Street/New Sudbury Street/Haymarket Bus Exit	**E**	**56.2**			
New Sudbury EB thru | thru	E	75.5	0.57	265	311
New Sudbury EB right	A	4.8	0.34	4	m9
Surface SB left/thru | thru	D	37.7	0.51	111	m124
Haymarket Bus SB left/right	D	50.5	0.35	30	57
Cross Street/New Sudbury Street/I-93 NB On-Ramp	**B**	**10.1**			
New Sudbury EB left | left	A	5.0	0.68	6	17
Cross NB left/thru | thru	B	13.3	0.90	503	#626
Cross Street/Hanover Street	**B**	**15.3**			
Hanover EB left	E	57.2	0.37	45	72
Hanover EB thru	D	46.7	0.08	26	49
Hanover WB thru/right	D	41.3	0.58	116	193
Cross NB left/thru | thru/right	A	9.4	0.75	12	16

Intersection Approach	LOS	Delay (sec)	v/c	50th Percentile Queue (ft.)	95th Percentile Queue (ft.)
Surface Street/Hanover Street	**B**	**11.0**			
Hanover EB thru | thru/right	B	20.0	0.12	18	29
Hanover WB left	B	14.0	0.17	23	m37
Hanover WB thru	B	15.3	0.16	34	m55
Surface SB left/thru | thru/right	A	8.3	0.40	35	54
Congress Street/Hanover Street	**A**	**3.4**			
Hanover WB right	D	39.2	0.68	61	120
Congress NB thru | thru | thru/right	A	0.8	0.26	1	m37
Congress SB thru | thru | thru	A	0.3	0.17	1	2
Cross Street/North Street/I-93 Off-Ramp	**D**	**44.1**			
I-93 Off-Ramp EB left	C	33.5	0.55	166	251
I-93 Off-Ramp EB left/thru	C	31.4	0.48	144	220
Cross NB thru | thru/right	D	49.7	0.88	374	#483
Surface Street/North Street/ I-93 Off-Ramp	**B**	**19.0**			
North EB right	A	8.2	0.22	37	56
I-93 Off-Ramp WB left/thru | thru	B	18.6	0.31	100	106
Surface SB thru | thru/right	C	21.9	0.45	196	241
Clinton Street/North Street/Millennium Hotel Driveway	**B**	**17.4**			
North EB left/thru	D	39.9	0.14	65	108
North WB thru | thru/right	A	9.4	0.22	23	31
Clinton NB left	C	33.0	0.45	55	m73
Clinton NB left/thru/right	A	3.5	0.40	0	0
Millennium SB left	C	30.0	0.01	2	7
Millennium SB right	A	0.2	0.03	0	0
North Street/Union Street	**C**	**30.5**			
North EB left	A	1.6	0.02	0	m1
North EB thru	A	3.9	0.08	1	m8
North WB thru | thru/right	D	36.2	0.66	124	186
Congress Street/North Street	**C**	**29.4**			
North WB left | left/right	C	29.5	0.86	25	63
Congress NB thru | thru | thru/right	A	8.6	0.74	23	m28
Congress SB left/thru | thru | thru	E	56.5	0.92	172	#258
Surface Street/Clinton Street/I-93 Off-Ramp	**C**	**28.3**			
I-93 Off-Ramp WB left	C	24.2	0.44	153	234
I-94 Off-Ramp WB left/thru	C	22.9	0.38	138	211
Surface SB thru | thru | thru/right	C	31.9	0.65	151	198

Intersection Approach	LOS	Delay (sec)	v/c	50th Percentile Queue (ft.)	95th Percentile Queue (ft.)
Unsignalized Intersections					
New Chardon/Bowker Street					
New Chardon EB thru | thru	A	0.0	0.12	-	0
New Chardon WB thru | thru	A	0.0	0.21	-	0
Bowker NB left/right	B	12.0	0.13	-	11
New Chardon/Hawkins Street					
New Chardon EB thru | thru/right	A	0.0	0.16	-	0
New Chardon WB left/thru | thru	A	2.4	0.25	-	5
New Sudbury Street/Garage Exit Driveway					
New Sudbury EB thru | thru	A	0.0	0.18	-	0
Government Center Garage SB left	B	11.2	0.27	-	27
New Sudbury Street/Haymarket Garage					
New Sudbury thru | thru | thru/right	A	0.0	0.23	-	0
Haymarket Garage NB right	C	20.1	0.25	-	24

As shown in Table 4.7 and Table 4.8, under the No-Build (2020) Condition:

The intersection of **Cambridge Street/Staniford Street/Temple Street** worsens from the Existing (2015) Condition from LOS E to LOS F during the p.m. peak hour. The Cambridge Street eastbound left-turn approach decreases from LOS E to LOS F during the a.m. peak hour.

The intersection of **Merrimac Street/Lomasney Way/Staniford Street/Causeway Street** continues to operate at the same LOS as the Existing (2015) Condition. The Causeway Street westbound left-turn/thru | thru approach decrease from LOS E to LOS F during the a.m. peak hour. The Lomasney southbound left-turn approach decreases from LOS E to LOS F during the p.m. peak hour.

The intersection of **North Washington Street/Causeway Street** worsens from the Existing (2015) Condition from LOS D to LOS F during the a.m. peak hour. The Causeway Street westbound right approach decreases from LOS D to LOS F during the p.m. peak hour. The North Washington Street southbound left-turn approach decreases form LOS C to LOS F during both the a.m. and p.m. peak hours.

The intersection of **North Washington Street/Valenti Way/Thatcher Street** continues to operate at the same LOS as the Existing (2015) Condition. The North Washington Street northbound left-turn approach decrease from LOS E to LOS F during the p.m. peak hour.

The intersection of **North Washington Street/New Chardon Street/Sumner Tunnel Off-ramp/I-93 SB & Callahan Tunnel On-ramps/Surface Road** worsens from the Existing (2015) Condition from LOS D to LOS E during the p.m. peak hour. The North Washington Street southbound left-turn approach decrease from LOS E to LOS F during the p.m. peak hour. The

North Washington Street southbound left/thru | thru/right approach decrease from LOS D to LOS E during the p.m. peak hour.

The intersection of **Merrimac Street/Congress Street/New Chardon Street/Garage Entrance** worsens from the Existing (2015) Condition from LOS D to LOS F during the p.m. peak hour. The New Chardon Street westbound left-turn approach decrease from LOS D to LOS E during the a.m. peak hour. The Congress Street northbound left-turn approach decreases from LOS C to LOS E during the a.m. peak hour.

The intersection of **New Chardon Street/Bowker Street** is proposed to be signalized under No-Build (2020) Condition and operates under capacity during both the a.m. and p.m. peak hours. The New Chardon Street eastbound thru | thru approach will operate at LOS E during the a.m. peak hour.

The intersection of **Cambridge Street/New Chardon Street/Bowdoin Street** continues to operate at the same LOS as the Existing (2015) Condition. The New Chardon Street southbound left-turn approach decrease from LOS D to LOS E during the p.m. peak hour.

The intersection of **Cambridge Street/New Sudbury Street/Somerset Street** continues to operate at the same LOS as the Existing (2015) Condition. The Cambridge westbound left-turn approach decreases from LOS E to LOS F during the a.m. peak hour.

The intersection of **Congress Street/New Sudbury Street** continues to operate at the same LOS as the Existing (2015) Condition. The New Sudbury Street eastbound thru | thru/right approach decrease from LOS D to LOS F during the p.m. peak hour.

The intersection of **Surface Street/New Sudbury Street/Haymarket Bus Exit** worsens from the Existing (2015) Condition from LOS D to LOS E during the p.m. peak hour.

The intersection of **Congress Street/Hanover Street** continues to operate at the same LOS as the Existing (2015) Condition. The Hanover Street westbound right-turn approach decrease from LOS D to LOS E during the a.m. peak hour.

The intersection of **Clinton Street/North Street/Millennium Hotel Driveway** continues to operate at the same LOS as the Existing (2015) Condition. The Clinton Street northbound left-turn approach decrease from LOS E to LOS F during the a.m. peak hour. The Clinton Street northbound left/thru/right approach decrease from LOS C to LOS F during the a.m. peak hour.

The intersection of **North Street/Union Street** worsens from the Existing (2015) Condition from LOS D to LOS E during the a.m. peak hour.

4.6 Build (2020) Condition

As previously mentioned, the Proposed Project entails the development of up to 1,001,200 square feet of office space and approximately 10,800 square feet of ground floor retail use. The overall parking capacity of the Garage will have been reduced to 2,115 spaces as part of the garage enabling work and the Phase 1 development (WP-B1). Phase 2 also includes demolition of the Garage over Congress Street and the East Parcel, and relocation of the New Chardon garage driveways to Bowker Street (prior to issuance of WP-B2's certificate of occupancy) reducing total parking capacity at the Garage to approximately 1,159 spaces. Based on the detailed assessment and analysis of the Development Plan Project's parking demand presented in the August 2013 DPIR, the Garage will provide adequate parking for the Proposed Project, as well as a component of transient parking demand.

4.6.1 Site Access and Vehicle Circulation

The Proposed Project will be located on the northwest corner of the West Parcel. Primary access for pedestrians to the office lobby will be along New Chardon Street and Congress Street. The entrance to the retail space will be located to the west of the office lobby, with access also along New Chardon Street. The New Chardon Street vehicular access to the Garage will be relocated to Bowker Street as part of the proposed Project. Vehicular access along New Sudbury Street will remain unchanged from the Phase 1 development (WP-B1) of the PDA Site. Access to bicycle parking facility will be from Congress Street. The Proposed Project's site access plan is shown in Figure 4.12.

4.6.2 Loading and Service Accommodations

As shown in Figure 4.12, deliveries to the Proposed Project will occur at the off-street service area with access along Bowker Street. Delivery estimates for the office space was based on a recent survey at the John Hancock Tower[1] and estimates for the retail space were based on data provided in the Truck Trip Generation Rates by Land Use in the Central Artery/Tunnel Project Study Area report[2].

Based on the survey, office uses generate approximately 0.046 light truck (SU-30 or smaller) trips per 1,000 square feet of floor area and 0.002 medium/heavy truck trips per 1,000 square feet of gross floor area. Retail uses depend on more frequent deliveries from smaller vehicles. Based on the CTPS report, retail uses generate approximately 0.15 light truck/car trips per 1,000 sf of floor area and 0.15 medium/heavy truck trips per 1,000 sf of gross floor area. A summary of anticipated loading/service activity by land use is presented in Table 4.9.

▼

1 Loading Dock Survey at the John Hancock Tower, Boston, February 8 – 12, 2010. Conducted by Howard Stein Hudson.

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

TABLE 4.9 EXPECTED DELIVERY ACTIVITY

Land Use	Number of Deliveries	General Delivery Times
Office	48	10% before 7:00 a.m.
Retail	3	70% between 7:00 a.m. and 1:00 p.m.
Total	51	20% after 1:00 p.m.

Based on the CTPS data, the Project is expected to generate approximately 51 deliveries per day. It is anticipated that the majority of these will occur between 7:00 a.m. and 1:00 p.m. Since the service area is located on Bowker Street, the truck activity will have minimal impact on the vehicular operations in the study area. The Proposed Project will limit and schedule deliveries during non-commuter peak periods to minimize traffic and pedestrian conflicts.

4.6.3 Parking

The construction of the Proposed Project combined with the demolition of east portion of the Garage over Congress Street and the East Parcel will reduce the available parking capacity of the Garage from 2,115 spaces to approximately 1,159 spaces.

4.6.3.1 Proposed Project Parking Demand

The Proposed Project's parking demand will be fully accommodated in the Garage through a combination of constraining parking provided for the office use of the Proposed Project and sharing parking in the Garage with other land uses proposed as part of the overall Development Project Plan.

The maximum parking ratios determined for the area by BTD in their district-based parking goals and guidelines are 0.40 spaces per 1,000 square feet of office. Based on current trends in parking demand in downtown Boston certain land uses exhibit lower ratios than the BTD maximum guidelines, including that for office space in the downtown core. The Proposed Project will provide 0.30 spaces/1,000 square feet of office, for a demand of approximately 300 spaces.

4.6.3.2 Shared Parking

For a mixed-use development with a common parking garage, the most efficient use of the parking resource is to "share" parking rather than have assigned or dedicated parking for each land use. Parking for residential uses, for example, will peak at night, while parking demand for the office use will peak during the day.

A detailed analysis of the parking demand and an assessment of shared parking of the overall Development Plan Project was conducted and presented in the August 2013 DPIR. The analysis documented the expected peak parking demand of the completed Development Plan Project at approximately 590 spaces.

At the completion of the Proposed Project, the Development Plan Project will have two significant components utilizing Garage parking; the residential component of Phase 1 – WP-B1 and the office component of Phase 1 – WP-B2. Shared parking calculations can be applied to determine the peak parking demand of both uses at any one time.

The combined peak parking demand of the two uses is expected to occur during the weekday midday period between 10:00 a.m. and 1:00 p.m. Based on the shared parking assessment in the August 2013 DPIR, the residential use of Phase 1 would be expected to have a midday peak utilization rate of 45% of the 245 parking spaces associated with WP-B1, or 110 spaces with the midday peak of the office use of Phase 2 having a peak utilization rate of 80% of the 300 spaces associated with WP-B2, or 240 spaces. The peak parking demand of the Development Plan Project at the completion of Phase 1 and Phase 2 when only WP-B1 and WP-B2 are occupied is therefore expected to be 350 spaces. Based on the methodology and utilization rates provided in the August 2013 DPIR shared parking assessment, the weekday evening peak of the two uses is expected to be approximately 275 spaces.

At the completion of Phase 1 and Phase 2 of the Development Plan Project, the approximate 1,159 space Garage would be able to accommodate 810 transient parkers at midday and 885 transient parkers during the weekday evening peak. As future phases of the Development Plan Project are constructed and occupied, the available transient parking will decrease to approximately 569 spaces as the Development Plan Project demand increases to approximately 590 spaces.

4.6.4 Bicycle Accommodations

The Development Plan Project is committed to accommodating and promoting bicycle use and will provide an approximate 850-space shared bicycle parking facility in the garage with primary access from Congress Street. This facility (the largest ever built in the City of Boston) will incorporate employee changing rooms and showers and will be part of the Proposed Project.

The bicycle parking facility, as shown in Figure 4.13 will be "shared" between all Development Plan Project users. This will allow the facility to have the flexibility, for example, to share daytime bicycle parking for employees who commute by bicycle with those Development Plan Project residents who vacate spaces during the day to commute from residences by bicycle. Conversely, these Development Plan Project residents will utilize night and weekend bicycle parking vacated by weekday Development Plan Project office commuters. The Development Plan Project will seek a manager/operator for the 850-space, shared bicycle parking facility that will also provide on-site bicycle repair services. This operator may also provide bicycle sales and bicycle accessories sales and operate from a retail store front adjoining the bicycle parking facility. Should the shared bicycle parking facility have excess capacity, the Development Plan Project may offer commuter bicycle parking at a nominal daily fee to riders not directly affiliated with the Development Plan Project but commuting by bicycle to work in the local area.

The Development Plan Project will also provide bicycle racks for short-term parking by visitors at major building entrances and near public open spaces. Due to the nature of land uses at the Development Plan Project, there is significant opportunity to share both short-term visitor and longer-term employee and resident bicycle parking. It is expected that the shared bicycle parking facility will also be able to accommodate a good number of short-term bicycle parking for visitors and guests, particularly until the commuter bicycle mode share exceeds 9 percent.

The Proposed Project will work with Boston Bikes and BTD to provide an appropriate number of on-site exterior public bicycle racks for at the Phase 2 – WP-B2 office component of the Development Plan Project.

4.6.5 Trip Generation Methodology

Determining the future trip generation of the Proposed 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 Proposed Project, data published by the Institute of Transportation Engineers (ITE) in the latest edition of the manual, Trip Generation (9th Edition, 2012) were used. ITE provides data to estimate the total number of unadjusted vehicular trips associated with the Proposed 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 Proposed Project, the following ITE land use code (LUCs) was used:

- Land Use Code 710 -- General Office. General office is defined as an office building containing multiple tenants. An office building typically contains a mixture of professional services.
- Land Use Code 820 – Shopping Center. The shopping center land use is defined as an integrated group of commercial establishments that is planned, developed, owned and managed as one unit. Trip generation estimates are based on average vehicular rates per 1,000 sf of gross leasable area.

In order to determine the net impact associated with the Proposed Project, the trips currently traveling to the Garage were removed from the peak hour traffic volumes within the study area. As noted previously, the existing approximately 2,310-space Garage will be reduced to approximately 1,159 parking spaces at the time of the Proposed Project. The existing traffic traveling to the Garage was replaced with trips expected to be associated with the 810 public transient parking spaces previously noted in the 'Shared Parking' section as available at the time of the Proposed Project. Trip generation for these 810 public transient parking spaces is estimated based on several sources, including 24-hour existing driveway counts, transient parking demand characteristics identified in the 2007 One Congress Redevelopment Study by

Walker Parking Consultants, and ratios determined by comparing peak hour traffic volumes into and out of the Proposed Project Site with midday peak parking demand volumes.

As noted previously, the existing 2,310 space Garage will be reduced to approximately 1,159 parking spaces at the time of the Proposed Project. In order to determine the net Proposed Project impact, the trips currently traveling to the Garage (associated with the on-site office space as well as the on-site parking) were removed from the peak hour traffic volumes within the study area. These trips were replaced with trips expected to be associated with the 810 public transient parking spaces previously noted in the 'Shared Parking' section as available at the time of the Proposed Project.

Trip generation for these 810 public transient parking spaces is estimated based on several sources, including 24-hour existing driveway counts, transient parking demand characteristics identified in the 2007 One Congress Redevelopment Study by Walker Parking Consultants, and ratios determined by comparing peak hour traffic volumes into and out of the Proposed Project Site with midday peak parking demand volumes.

4.6.6 Mode Share

The ITE rates produce vehicle trip estimates, which are converted to person trips based on average vehicle occupancy rates. The unadjusted vehicular trips were converted to person trips by using vehicle occupancy rates published by the Federal Highway Administration (FHWA). Using BTD's mode split data for Area 2 and local vehicle occupancy rates, shown in Table 4.10, the person trips are then reallocated to walk/bike, transit and vehicle mode shares.

4.10 TRAVEL MODE SHARES AND VEHICLE OCCUPANCY RATES

Land Use		Walk/Bike Share	Transit Share	Vehicle Share	Vehicle Occupancy Rate
			Daily		
Residential	In	31%	43%	26%	1.13
	Out	31%	43%	26%	1.13
Retail	In	59%	20%	21%	1.78
	Out	59%	20%	21%	1.78
Transient	In	100%	0%	100%	1.13
Parking	Out	100%	0%	100%	1.13
			Weekday AM Peak Hour		
Residential	In	5%	63%	32%	1.13
	Out	26%	18%	56%	1.13
Retail	In	14%	46%	40%	1.78
	Out	58%	10%	32%	1.78
Transient	In	100%	0%	100%	1.13
Parking	Out	100%	0%	100%	1.13
			Weekday PM Peak Hour		
Residential	In	26%	18%	56%	1.13
	Out	5%	63%	32%	1.13
Retail	In	58%	10%	32%	1.78
	Out	14%	46%	40%	1.78
Transient	In	100%	0%	100%	1.13
Parking	Out	100%	0%	100%	1.13

1 All transient parking users drive to or from the Proposed Project Site, and also walk to or from the Proposed Project Site.

4.6.7 Proposed Project Trip Generation

The mode share percentages shown in Table 4.10 were applied to the number of person trips to develop walk/bicycle, transit, and vehicle trip generation estimates. The trips currently traveling to the Garage (both transient parkers and existing office tenants) were removed from the traffic volumes traveling through the study area intersections. The trips associated with the office space, retail space, and transient parking spaces were then added to the study area traffic volumes. The net trip generation for the Proposed Project by mode is shown in Table 4.11. The detailed trip generation calculations are in Appendix A.

TABLE 4.11 NET PROJECT TRIP GENERATION

Land Use		Walk/Bike Trips	Transit Trips	Vehicle Trips
Daily				
Office	In	1,934	2,683	1,436
	Out	1,934	2.683	1,436
Retail	In	242	82	48
	Out	242	82	48
Transient	In	-1,370	0	-1,142
Parking	Out	-1,370	0	-1,142
Net Total	In	806	2,765	342
	Out	806	2,765	342
	Total	1,612	5,530	684
Weekday a.m. Peak Hour				
Office	In	78	977	439
	Out	54	37	103
Retail	In	1	3	1
	Out	2	0	1
Transient	In	-16	0	-170
Parking	Out	-204	0	-13
Net Total	In	63	980	270
	Out	-148	37	91
	Total	-85	1,017	361
Weekday p.m. Peak Hour				
Office	In	74	51	140
	Out	70	877	394
Retail	In	15	3	5
	Out	4	12	6
Transient	In	-118	0	-40
Parking	Out	-48	0	-98
Net Total	In	-29	54	105
	Out	26	889	302
	Total	-3	943	407

As shown in Table 4.11, the Proposed Project is expected to produce 1,612 net new pedestrian trips, 5,530 net new transit trips, and 684 vehicle trips throughout the day. During the a.m. peak hour there is expected to be 85 fewer pedestrian trips (an additional 63 trips in and a reduction of 148 trips out), 1,017 transit trips (980 in and 37 out), and 361 vehicle trips (270 in and 91 out). During the p.m. peak hour there is expected to be a reduction of 3 pedestrian trips (a reduction of 29 trips in and an increase of 26 out), 943 transit trips (54 in and 889 out), and 407 vehicle trips (105 in and 302 out).

4.6.8 Trip Distribution

The trip distribution identifies the various travel paths for vehicles associated with the Proposed Project. Trip distribution patterns for the Proposed Project were based on BTD's origin-destination data for Area 2 and trip distribution patterns presented in traffic studies for nearby projects. All vehicle trips are assigned to the Garage with the vehicle trip distribution entering the Garage, shown in Figure 4.14 and the vehicle trip distribution exiting the Garage, shown in Figure 4.15. The majority of vehicle traffic will use the regional highway system to access the Proposed Project.

4.6.9 Build Traffic Volumes

The vehicle trips were distributed through the study area. The Proposed Project-generated trips for the weekday a.m. peak hour and weekday p.m. peak hour are shown in Figure 4.16a and Figure 4.16b, respectively. The trip assignments were added to the No-Build (2020) Condition vehicular traffic volumes to develop the Build (2020) Condition vehicular traffic volumes. The Build (2020) Condition weekday a.m. peak hour and weekday p.m. peak hour traffic volumes are shown on Figure 4.17a and Figure 4.17b, respectively.

4.6.10 Build Condition Traffic Operations Analysis

The Build (2020) Condition analysis uses the same methodology as the Existing (2015) Condition and No-Build (2020) Condition analysis. Tables 4.12 and 4.13 present the Build (2020) 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 (2020) Condition and the Build (2020) Condition. The detailed analysis sheets are provided in Appendix A.

TABLE 4.12 BUILD (2020) CONDITION, CAPACITY ANALYSIS SUMMARY WEEKDAY A.M. PEAK HOUR

Intersection Approach	LOS	Delay (sec)	v/c	50th Percentile Queue (ft.)	95th Percentile Queue (ft.)
Signalized Intersections					
Cambridge Street/Staniford Street/Temple Street	**D**	**43.6**			
Cambridge EB left	F	101.6	1.04	~156	#298
Cambridge EB thru | thru	D	48.7	0.84	158	#325
Cambridge WB thru | thru	C	31.6	0.56	106	150
Cambridge WB right	A	2.2	0.23	0	10
Temple NB right	D	46.9	0.26	15	25
Staniford SB left	C	34.8	0.57	130	210
Staniford SB right	D	40.3	0.72	143	#257
Merrimac Street/Lomasney Way/ Staniford Street/Causeway Street	**F**	**207.6**			
Staniford EB left	D	49.7	0.38	58	95
Staniford EB left/thru	D	49.9	0.53	192	240
Staniford EB right	F	218.7	1.30	~243	#334
Causeway WB left/thru | thru	F	82.0	0.94	253	#364
Causeway WB right	F	192.9	1.28	~418	#620
Merrimac NB left	F	1396.1	3.96	~300	#430
Merrimac NB thru/right	F	99.4	0.91	183	#301
Lomasney SB left	F	172.4	1.18	~231	#397
Lomasney SB thru/right	E	76.1	0.86	274	#440
Lomasney SB right	F	108.1	1.01	~302	#509
North Washington Street/Causeway Street	**F**	**82.0**			
Causeway EB left | left	E	55.4	0.45	95	139
Causeway EB thru/right	B	14.5	0.54	14	95
Causeway WB left/thru | thru	E	68.2	0.77	175	225
Causeway WB right	D	44.2	0.62	205	287
N. Washington NB thru | thru/right	F	174.6	1.27	~504	#637
N. Washington SB left	F	208.9	1.29	~325	#511
N. Washington SB thru | thru	C	28.9	0.71	405	488
N. Washington SB right	D	54.9	0.91	340	#586
N. Washington NWB right/right	A	0.7	0.10	0	0
North Washington/Valenti Way/Thatcher Street	**C**	**22.4**			
N. Washington NB left	E	65.4	0.84	245	322
N. Washington NB thru | thru/right	B	17.7	0.49	174	282
N. Washington SB left/thru | thru | thru/right	B	15.1	0.59	221	335

Intersection Approach	LOS	Delay (sec)	v/c	50th Percentile Queue (ft.)	95th Percentile Queue (ft.)
Beverly Street/Valenti Way	**C**	**25.0**			
Valenti WB left	A	4.0	0.20	0	0
Valenti WB left/thru	A	8.1	0.25	8	23
Beverly SB thru | thru/right	D	54.1	0.65	93	114
Cross Street/Cooper Street/ I-93 Off-Ramps	**B**	**16.8**			
Cooper WB right	A	2.0	0.22	0	0
Cross NB thru | thru	C	33.6	0.44	112	148
I-93 Off-Ramp NWB right | right	B	10.3	0.66	75	88
North Washington Street/Beverly Street	**A**	**5.7**			
Beverly EB right | right | right	B	19.4	0.39	85	123
N. Washington SB thru | thru | thru	A	2.5	0.45	6	7
North Washington Street/New Chardon Street/Sumner Tunnel Off-ramp/I-93 SB & Callahan Tunnel On-ramps/Surface Road	**D**	**54.5**			
New Chardon EB thru | thru | thru/right	C	20.8	0.47	172	184
I-93 Off-Ramp WB left/thru | thru	E	64.7	0.96	317	#396
N. Washington SB left	B	14.5	0.55	156	262
N. Washington SB left/thru | thru/right	E	71.8	0.98	336	#917
N. Washington SB right	F	94.3	0.90	203	#298
New Chardon Street/Canal Street	**B**	**12.4**			
New Chardon EB thru | thru	C	25.6	0.37	188	m199
New Chardon WB thru | thru | thru/right	A	4.7	0.43	0	m0
Merrimac Street/Congress Street/New Chardon Street/Garage Entrance	**E**	**61.7**			
New Chardon EB left/thru | thru/right	F	98.3	1.01	~155	#234
New Chardon WB left	D	48.8	0.94	230	#490
New Chardon WB left/thru | thru/right	B	19.6	0.70	145	216
Congress NB left	F	127.5	1.12	~339	#552
Congress NB left/thru | thru	F	87.7	1.08dl	~241	#428
Congress NB right	A	3.6	0.22	14	m19
Merrimac SB left/thru | thru | thru	D	53.0	0.61	97	127
Merrimac SB right	B	18.0	0.66	0	66
New Chardon Street/Bowker Street	**B**	**12.4**			
New Chardon EB thru | thru	A	2.9	0.06	10	22
New Chardon WB thru | thru	A	7.8	0.55	157	276
Bowker Street left/right	D	43.6	0.83	95	165

Intersection Approach	LOS	Delay (sec)	v/c	50th Percentile Queue (ft.)	95th Percentile Queue (ft.)
Cambridge Street/New Chardon Street/ Bowdoin Street	**C**	**24.0**			
Cambridge EB thru | thru | thru/right	C	27.4	0.43	31	m217
Cambridge WB left/thru | thru/right	A	9.9	0.25	23	16
Bowdoin NB left	C	26.7	0.54	61	100
Bowdoin NB thru	D	51.2	0.66	81	139
Bowdoin NB right	A	4.8	0.35	0	19
New Chardon SB left	C	30.6	0.73	141	207
New Chardon SB thru	C	34.1	0.50	102	156
New Chardon SB right	A	6.9	0.54	0	60
Cambridge Street/New Sudbury Street/Somerset Street	**D**	**40.6**			
Cambridge EB left | left	D	45.3	0.80	81	#138
Cambridge EB thru | thru	D	38.5	0.89	~225	#349
Cambridge WB left	F	93.9	0.93	80	#192
Cambridge WB thru | thru	C	24.9	0.22	55	84
Cambridge WB right	A	7.4	0.34	0	42
Somerset NB left/thru/right	D	52.6	0.60	47	72
Congress Street/New Sudbury Street	**C**	**33.4**			
New Sudbury EB left	C	33.9	0.13	29	61
New Sudbury EB thru | thru/right	D	40.5	0.75	152	216
New Sudbury EB right	D	39.7	0.72	283	342
Congress NB thru | thru | thru/right	D	47.3	0.56	65	m90
Congress SB left	B	11.5	0.22	73	m85
Surface Street/New Sudbury Street/Haymarket Bus Exit	**C**	**27.2**			
New Sudbury EB thru | thru	C	28.9	0.33	99	140
New Sudbury EB right	A	6.9	0.31	0	42
Surface SB left/thru | thru	C	30.5	0.46	143	183
Haymarket Bus SB left/right	D	40.8	0.19	20	34
Cross Street/New Sudbury Street/I-93 NB On-Ramp	**A**	**5.1**			
New Sudbury EB left | left	A	1.4	0.29	0	2
Cross NB left/thru | thru	A	6.9	0.59	189	221
Cross Street/Hanover Street	**B**	**17.9**			
Hanover EB left	C	22.9	0.11	9	20
Hanover EB thru	C	21.7	0.07	14	26
Hanover WB thru/right	C	29.0	0.47	95	141
Cross NB left/thru | thru/right	B	16.1	0.78	106	363

Intersection Approach	LOS	Delay (sec)	v/c	50th Percentile Queue (ft.)	95th Percentile Queue (ft.)
Surface Street/Hanover Street	**D**	**38.2**			
Hanover EB thru | thru/right	C	32.5	0.08	6	16
Hanover WB left	B	16.3	0.19	34	m56
Hanover WB thru	F	80.3	0.60	274	368
Surface SB left/thru | thru/right	A	8.5	0.44	40	59
Congress Street/Hanover Street	**C**	**26.1**			
Hanover WB right	F	90.2	0.98	246	#420
Congress NB thru | thru | thru/right	B	10.8	0.24	121	m123
Congress SB thru | thru | thru	A	4.6	0.20	53	66
Cross Street/North Street/I-93 Off-Ramp	**C**	**32.7**			
I-93 Off-Ramp EB left	C	30.8	0.74	296	445
I-93 Off-Ramp EB left/thru	C	26.4	0.64	244	365
Cross NB thru | thru/right	D	40.6	0.61	154	211
Surface Street/North Street/ I-93 Off-Ramp	**B**	**16.1**			
North EB right	A	7.5	0.08	31	45
I-93 Off-Ramp WB left/thru | thru	B	15.6	0.68	298	374
Surface SB thru | thru/right	B	18.3	0.65	81	108
Clinton Street/North Street/Millennium Hotel Driveway	**C**	**31.6**			
North EB left/thru	A	8.9	0.06	10	28
North WB thru | thru/right	A	6.0	0.42	127	137
Clinton NB left	F	114.8	0.63	93	m114
Clinton NB left/thru/right	F	85.9	0.57	0	0
Millennium SB left	C	34.0	0.01	1	5
Millennium SB right	A	1.0	0.05	0	0
North Street/Union Street	**E**	**78.5**			
North EB left	A	1.1	0.03	0	m1
North EB thru	A	3.2	0.06	2	m3
North WB thru | thru/right	F	83.8	0.98	432	#563
Congress Street/North Street	**F**	**90.8**			
North WB left | left/right	F	81.5	1.13	~148	m#163
Congress NB thru | thru | thru/right	A	3.7	0.51	6	m10
Congress SB left/thru | thru | thru	F	154.3	1.23	~246	#333
Surface Street/Clinton Street/I-93 Off-Ramp	**D**	**51.0**			
I-93 Off-Ramp WB left	E	71.0	1.02	~562	#802
I-94 Off-Ramp WB left/thru	D	41.5	0.86	421	#649
Surface SB thru | thru | thru/right	D	43.8	0.93	267	#372

Intersection Approach	LOS	Delay (sec)	v/c	50th Percentile Queue (ft.)	95th Percentile Queue (ft.)
Unsignalized Intersections					
New Chardon/Hawkins Street					
New Chardon EB thru | thru	A	0.0	0.06	-	0
New Chardon WB thru | thru	A	8.5	0.46	-	63
New Sudbury Street/Garage Exit Driveway					
New Sudbury EB thru | thru	A	0.0	0.13	-	0
Government Center Garage SB left	A	9.9	0.14	-	12
New Sudbury Street/Haymarket Garage					
New Sudbury thru | thru | thru/right	A	0.0	0.12	-	0
Haymarket Garage NB right	B	12.3	0.06	-	5

TABLE 4.13 BUILD (2020) CONDITION, CAPACITY ANALYSIS SUMMARY WEEKDAY P.M. PEAK HOUR

Intersection Approach	LOS	Delay (sec)	v/c	50th Percentile Queue (ft.)	95th Percentile Queue (ft.)
Signalized Intersections					
Cambridge Street/Staniford Street/Temple Street	**F**	**101.1**			
Cambridge EB left	F	443.3	1.89	~341	#508
Cambridge EB thru | thru	D	39.6	0.73	150	#308
Cambridge WB thru | thru	C	34.8	0.76	205	211
Cambridge WB right	A	2.0	0.23	5	15
Temple NB right	D	41.0	0.07	4	10
Staniford SB left	C	33.0	0.53	123	191
Staniford SB right	D	36.3	0.65	130	207
Merrimac Street/Lomasney Way/ Staniford Street/Causeway Street	**F**	**133.6**			
Staniford EB left	D	46.7	0.40	128	174
Staniford EB left/thru	F	103.3	1.04	~460	#549
Staniford EB right	F	222.6	1.36	~538	#633
Causeway WB left/thru | thru	E	61.3	0.67	164	204
Causeway WB right	F	134.4	1.11	~371	#513
Merrimac NB left	F	390.3	1.62	~105	#217
Merrimac NB thru/right	F	240.7	1.39	~403	#597
Lomasney SB left	F	118.6	1.01	~197	#368
Lomasney SB thru/right	E	79.0	0.88	300	#478
Lomasney SB right	E	70.0	0.78	215	#350
North Washington Street/Causeway Street	**E**	**79.0**			
Causeway EB left | left	E	77.1	0.92	237	#324
Causeway EB thru/right	B	12.4	0.51	7	73
Causeway WB left/thru | thru	E	60.0	0.66	154	188
Causeway WB right	F	85.3	1.00	~382	#542
N. Washington NB thru | thru/right	F	159.9	1.24	~596	#733
N. Washington SB left	F	161.7	1.14	~225	#391
N. Washington SB thru | thru	C	29.2	0.70	379	460
N. Washington SB right	A	8.5	0.36	93	136
N. Washington NWB right/right	A	2.2	0.23	0	0
North Washington/Valenti Way/Thatcher Street	**C**	**22.9**			
N. Washington NB left	F	116.0	1.11	~306	#501
N. Washington NB thru | thru/right	A	7.3	0.53	88	150
N. Washington SB left/thru | thru | thru/right	A	8.8	0.50	141	172

Intersection Approach	LOS	Delay (sec)	v/c	50th Percentile Queue (ft.)	95th Percentile Queue (ft.)
Beverly Street/Valenti Way	**C**	**26.0**			
Valenti WB left	A	2.7	0.26	0	m0
Valenti WB left/thru	A	3.5	0.23	9	m9
Beverly SB thru | thru/right	D	48.8	0.73	147	188
Cross Street/Cooper Street/ I-93 Off-Ramps	**B**	**15.1**			
Cooper WB right	A	6.8	0.30	0	0
Cross NB thru | thru	D	50.1	0.59	88	128
I-93 Off-Ramp NWB right | right	A	7.9	0.69	102	m220
North Washington Street/Beverly Street	**B**	**18.3**			
Beverly EB right | right | right	D	44.8	0.61	156	183
N. Washington SB thru | thru | thru	A	5.7	0.43	52	60
North Washington Street/New Chardon Street/Sumner Tunnel Off-ramp/I-93 SB & Callahan Tunnel On-ramps/Surface Road	**D**	**54.5**			
New Chardon EB thru | thru | thru/right	E	71.2	0.95	267	#399
I-93 Off-Ramp WB left/thru | thru	D	45.2	0.76	164	228
N. Washington SB left	B	12.5	0.66	224	295
N. Washington SB left/thru | thru/right	E	66.1	1.01	~690	#969
N. Washington SB right	D	52.6	0.80	128	#202
New Chardon Street/Canal Street	**C**	**33.8**			
New Chardon EB thru | thru	D	54.1	0.75	124	m122
New Chardon WB thru | thru | thru/right	A	3.6	0.37	6	26
Merrimac Street/Congress Street/New Chardon Street/Garage Entrance	**F**	**94.7**			
New Chardon EB left/thru | thru/right	F	177.2	1.27	~340	#464
New Chardon WB left	F	156.8	1.14	~220	#398
New Chardon WB left/thru | thru/right	F	108.0	1.04	~207	#324
Congress NB left	E	55.2	0.57	171	m202
Congress NB left/thru | thru	D	52.8	0.57	173	m202
Congress NB right	D	39.0	0.40	188	m228
Merrimac SB left/thru | thru | thru	D	50.6	1.10dl	165	212
Merrimac SB right	A	1.9	0.26	0	1
New Chardon Street/Bowker Street	**B**	**16.8**			
New Chardon EB thru | thru	B	12.1	0.19	64	115
New Chardon WB thru | thru	A	3.1	0.41	19	m80
Bowker Street left/right	D	38.5	0.90	290	184

Intersection Approach	LOS	Delay (sec)	v/c	50th Percentile Queue (ft.)	95th Percentile Queue (ft.)
Cambridge Street/New Chardon Street/ Bowdoin Street	**C**	**29.6**			
Cambridge EB thru | thru | thru/right	C	22.5	0.53	68	190
Cambridge WB left/thru | thru/right	B	16.4	0.47	41	m56
Bowdoin NB left	C	24.5	0.57	91	149
Bowdoin NB thru	E	58.8	0.89	195	#339
Bowdoin NB right	B	12.4	0.36	18	67
New Chardon SB left	E	60.4	0.93	107	#259
New Chardon SB thru	C	34.9	0.47	94	159
New Chardon SB right	A	7.2	0.45	0	59
Cambridge Street/New Sudbury Street/Somerset Street	**D**	**35.1**			
Cambridge EB left | left	D	43.5	0.84	91	m#142
Cambridge EB thru | thru	C	32.8	0.68	168	m#313
Cambridge WB left	E	69.1	0.71	41	#95
Cambridge WB thru | thru	C	25.4	0.23	66	111
Cambridge WB right	A	8.1	0.40	0	57
Somerset NB left/thru/right	D	52.7	0.78	120	194
Congress Street/New Sudbury Street	**D**	**53.2**			
New Sudbury EB left	C	27.5	0.16	36	71
New Sudbury EB thru | thru/right	F	99.5	0.93	264	#382
Congress NB thru | thru | thru/right	D	43.7	0.87	259	390
Congress SB left	E	55.8	0.78	129	m135
Congress SB thru | thru | thru	B	11.9	0.23	79	m83
Surface Street/New Sudbury Street/Haymarket Bus Exit	**D**	**54.2**			
New Sudbury EB thru | thru	E	74.5	0.64	306	m356
New Sudbury EB right	A	3.7	0.36	4	m6
Surface SB left/thru | thru	C	30.1	0.51	130	m134
Haymarket Bus SB left/right	D	50.5	0.35	30	57
Cross Street/New Sudbury Street/I-93 NB On-Ramp	**B**	**11.3**			
New Sudbury EB left | left	A	5.6	0.95dl	11	20
Cross NB left/thru | thru	B	15.3	0.90	458	#618
Cross Street/Hanover Street	**B**	**17.0**			
Hanover EB left	E	56.6	0.37	45	72
Hanover EB thru	D	45.9	0.09	29	52
Hanover WB thru/right	D	41.4	0.58	117	193
Cross NB left/thru | thru/right	B	11.6	0.79	14	293

Intersection Approach	LOS	Delay (sec)	v/c	50th Percentile Queue (ft.)	95th Percentile Queue (ft.)
Surface Street/Hanover Street	**B**	**13.2**			
Hanover EB thru | thru/right	B	19.3	0.12	18	28
Hanover WB left	B	16.7	0.17	28	m44
Hanover WB thru	C	20.5	0.25	66	m104
Surface SB left/thru | thru/right	A	9.2	0.41	41	58
Congress Street/Hanover Street	**A**	**5.9**			
Hanover WB right	D	46.1	0.77	116	174
Congress NB thru | thru | thru/right	A	1.5	0.28	23	m68
Congress SB thru | thru | thru	A	1.1	0.18	1	m49
Cross Street/North Street/I-93 Off-Ramp	**D**	**47.5**			
I-93 Off-Ramp EB left	D	36.2	0.63	196	293
I-93 Off-Ramp EB left/thru	C	33.0	0.54	165	248
Cross NB thru | thru/right	D	54.4	0.88	375	#486
Surface Street/North Street/ I-93 Off-Ramp	**B**	**196**			
North EB right	A	8.0	0.22	37	56
I-93 Off-Ramp WB left/thru | thru	B	18.5	0.30	97	103
Surface SB thru | thru/right	C	23.1	0.46	201	245
Clinton Street/North Street/Millennium Hotel Driveway	**B**	**17.9**			
North EB left/thru	D	40.0	0.14	65	108
North WB thru | thru/right	A	9.5	0.21	23	31
Clinton NB left	C	33.2	0.50	61	m78
Clinton NB left/thru/right	A	4.9	0.47	0	0
Millennium SB left	C	30.5	0.01	2	7
Millennium SB right	A	0.2	0.03	0	0
North Street/Union Street	**D**	**42.6**			
North EB left	A	1.6	0.02	0	m1
North EB thru	A	4.0	0.08	1	m8
North WB thru | thru/right	D	50.3	0.70	162	206
Congress Street/North Street	**C**	**33.9**			
North WB left | left/right	D	44.6	0.90	19	#75
Congress NB thru | thru | thru/right	A	9.0	0.74	23	m27
Congress SB left/thru | thru | thru	E	57.6	0.93	173	#263
Surface Street/Clinton Street/I-93 Off-Ramp	**C**	**28.6**			
I-93 Off-Ramp WB left	C	24.2	0.44	153	234
I-94 Off-Ramp WB left/thru	C	23.9	0.44	163	245
Surface SB thru | thru | thru/right	C	32.1	0.66	154	203

Intersection Approach	LOS	Delay (sec)	v/c	50th Percentile Queue (ft.)	95th Percentile Queue (ft.)
Unsignalized Intersections					
New Chardon/Hawkins Street					
New Chardon EB thru | thru	A	0.0	0.16	-	0
New Chardon WB thru | thru	A	6.5	0.26	-	25
New Sudbury Street/Garage Exit Driveway					
New Sudbury EB thru | thru	A	0.0	0.18	-	0
Government Center Garage SB left	B	11.6	0.30	-	32
New Sudbury Street/Haymarket Garage					
New Sudbury thru | thru | thru/right	A	0.0	0.26	-	0
Haymarket Garage NB right	C	21.3	0.26	-	26

As shown in Table 4.12 and Table 4.13, under the Build (2020) Condition:

The intersection of **North Washington Street/New Chardon Street/Sumner Tunnel Off-ramp/I-93 SB & Callahan Tunnel On-ramps/Surface Road** continues to operate at the same LOS as the No-Build (2020) Condition. The New Chardon Street eastbound thru | thru | thru/right decreases from LOS C to LOS E during the p.m. peak hour. The North Washington Street southbound left/thru | thru/right approach decreases from LOS C to LOS E during the a.m. peak hour. The North Washington Street right-turn approach decreases from LOS D to LOS F during the a.m. peak hour.

The intersection of **Merrimac Street/Congress Street/New Chardon Street/Garage Entrance** worsens from the No-Build (2020) Condition LOS D to LOS E during the a.m. peak hour and LOS E to LOS F during the p.m. peak hour. The New Chardon Street eastbound left/thru | thru/right approach decrease from LOS D to LOS F during both the a.m. and p.m. peak hours. The Congress Street northbound left-turn approach decrease from LOS E to LOS F during the a.m. peak hour and decreases from LOS D to LOS E during the a.m. peak hour. The Congress Street northbound left/thru | thru approach decrease from LOS D to LOS F during the a.m. peak hour.

The intersection of **Surface Street/Hanover Street** continues to operate at the same LOS as the No-Build (2020) Condition. The Hanover Street westbound thru approach decrease from LOS C to LOS F during the a.m. peak hour.

The intersection of **Congress Street/Hanover Street** continues to operate at the same LOS as the No-Build (2020) Condition. The Congress Street westbound right-turn approach decrease from LOS E to LOS F during the a.m. peak hour.

The intersection of **North Street/Union Street** continues to operate at the same LOS as the No-Build (2020) Condition. The North Street westbound thru | thru/right approach decrease from LOS E to LOS F during the a.m. peak hour.

The intersection of **Congress Street/North Street** continues to operate at the same LOS as the No-Build (2020) Condition. The North Street westbound left | left/right approach decrease from LOS E to LOS F during the a.m. peak hour.

4.7 Transportation Demand Management

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

On-site management will keep a supply of transit information (schedules, maps, and fare information) to be made available to the residents and patrons of the Proposed Project. The Proponent will work with the City to develop a TDM program appropriate to the Proposed Project and consistent with its level of impact.

The Proponent is prepared to take advantage of good transit access in marketing the Proposed Project to future office tenants 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 Proposed Project may include but are not limited to the following:

- The Proponent will designate a transportation coordinator to oversee transportation issues, including parking, service and loading, and deliveries, and will work with tenants as they move in to office space to raise awareness of public transportation, bicycling, and walking opportunities;
- The Proponent will provide orientation packets to new tenants containing information on available transportation choices, including transit routes/schedules and nearby vehicle sharing and bicycle sharing locations. On-site management will work with residents and tenants as they move in to help facilitate transportation for new arrivals;
- Join and participate in a local Transportation Management Association on behalf of commercial tenants;
- Promote 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;
- Encourage employers to subsidize on-site full-time employees' purchase of monthly transit passes;
- Encourage employers to arrange to provide Guaranteed Ride Home during hours in which public transit service is no longer available to employee's home;
- Participate in area airport shuttle services;
- Provide on-line registration for the RideSource ride-matching program through the local TMA membership;

- Provide access to information on area carpool and vanpool participants through the local TMA membership
- Provide electric vehicle charging stations for 10 spaces in the garage;
- Designate up to 5 percent of the parking spaces as preferred parking for low emission vehicles;
- Provide information on travel alternatives for employees and visitors via the Internet and in the building lobby;
- Continue to offer car share spaces in the Garage.

4.8 Proposed Transportation Mitigation

At full occupancy, the 2,310 space Garage would produce significantly more vehicle trips to area roadways than the Proposed Project, or the entire Development Plan Project for that matter. However, since the Garage is operating well below its capacity, the traffic study assesses the net increase to the current baseline traffic in the area due to the new trip generation associated with the proposed office use along with the reduction in the number of transient parkers served by the site due to the proposed reduction in overall parking capacity of the Garage from 2,310 spaces to approximately 1,159 spaces. The existing location of the current Garage driveways in close proximity to the Merrimac Street/Congress Street/New Chardon intersection is problematic to the overall traffic operations at this intersection and causes major bicyclist and pedestrian safety concerns. Relocation of these Garage driveways to Bowker Street is a significant improvement to operations and safety at this location and to the local roadway network. The Proponent will continue to work with the City of Boston so that the Proposed Project efficiently serves vehicle trips, improves the pedestrian and bicyclist environment, and encourages transit and bicycle use.

The geometric, signal timing, and pavement marking improvements proposed as WP-B1 mitigation were the first phase in overall proposed improvements to the area as part of the Development Plan Project and as such will remain in place and are intended to support the Proposed Project's improvements.

A key mitigation improvement of the Proposed Project is the relocation of the New Chardon Street Garage Driveways to Bowker Street. The current New Chardon Street entrance driveway acts as a non-standard fifth leg to the signalized New Chardon Street/Congress Street/Merrimac Street intersection and was observed causing lane utilization issues on all approaches to the signalized intersection, essentially decreasing capacity. The signalized Garage North Exit Driveway on New Chardon Street is located in close proximity to the New Chardon Street/Congress Street/Merrimac Street intersection creating intersection clearance interval issues, again decreasing capacity of the intersection. In addition to significant improvements to pedestrian and bicyclist safety, the closing of both of these driveways and the non-standard conditions they create will provide an operations benefit beyond what is shown in the Synchro intersection operations analysis results.

In addition, the Proposed Project includes roadway modifications to increase vehicle capacity, without degrading the bicyclist or pedestrian experience. The New Chardon Street eastbound approach to the I-93 Southbound and Callahan Tunnel On-ramps will be slightly widened to accommodate a third lane the complete distance between the Surface Road and Congress Street. This will allow motorists to queue from the signal at the On-ramps along New Chardon Street and Congress Street to New Sudbury Street without blocking local roadways or signal operations. Currently the northbound Congress Street right turn movement must merge with New Chardon Street eastbound traffic creating a much shorter queue storage length. Bowker Street will remain one way northbound, however, the removal of parking along the east side will allow for two lanes exiting the Garage approaching the proposed signal on New Chardon Street that will be relocated from the Garage North Exit Driveway intersection. These modifications and others are shown in Figure 4.18.

The proposed mitigation also includes signal timing modifications at the study area intersections with updated coordinated phases and offsets, the Proposed Project will not only mitigate its impacts, but will improve the existing traffic operations in the area. Tables 4.14 and 4.15 present a comparison of the Build (2020) Condition capacity analysis and the Build (2020) With Mitigation Condition capacity analysis for the a.m. and p.m. peak hours, respectively. The grey shaded cells in the tables indicate the minor worsening in LOS between the two conditions while the hatched cells indicate the major improvements between the two conditions. The detailed analysis sheets are provided in Appendix A.

Table 4.14 Build (2020) With Mitigation Condition, Capacity Analysis Summary Weekday a.m. Peak Hour

Intersection Approach	LOS	Delay (sec)	v/c	LOS	Delay (sec)	v/c
	Build (2020) Condition			Build-Mitigated (2020) Condition		
Signalized Intersections						
Cambridge Street/Staniford Street/Temple Street	**D**	**43.6**		**D**	**42.4**	
Cambridge EB left	F	101.6	1.04	F	101.6	1.04
Cambridge EB thru | thru	D	48.7	0.84	D	48.7	0.84
Cambridge WB thru | thru	C	31.6	0.56	C	27.6	0.56
Cambridge WB right	A	2.2	0.23	A	1.4	0.23
Temple NB right	D	46.9	0.26	D	46.1	0.26
Staniford SB left	C	34.8	0.57	C	33.6	0.57
Staniford SB right	D	40.3	0.72	D	40.3	0.72
Merrimac Street/Lomasney Way/ Staniford Street/Causeway Street	**F**	**207.6**		**F**	**207.6**	
Staniford EB left	D	49.7	0.38	D	49.7	0.38
Staniford EB left/thru	D	49.9	0.53	D	49.9	0.53
Staniford EB right	F	218.7	1.30	F	218.7	1.30
Causeway WB left/thru | thru	F	82.0	0.94	F	82.0	0.94
Causeway WB right	F	192.9	1.28	F	192.9	1.28
Merrimac NB left	F	1396.1	3.96	F	1396.1	3.96
Merrimac NB thru/right	F	99.4	0.91	F	99.4	0.91
Lomasney SB left	F	172.4	1.18	F	172.4	1.18
Lomasney SB thru/right	E	76.1	0.86	E	76.1	0.86
Lomasney SB right	F	108.1	1.01	F	108.1	1.01
North Washington Street/Causeway Street	**F**	**82.0**		**D**	**43.2**	
Causeway EB left | left	E	55.4	0.45	D	40.8	0.34
Causeway EB thru/right	B	14.5	0.54	D	35.4	0.72
Causeway WB left/thru | thru	E	68.2	0.77	D	51.9	0.66
Causeway WB right	D	44.2	0.62	A	6.9	0.28
N. Washington NB thru | thru/right	F	174.6	1.27	E	73.5	1.04
N. Washington SB left	F	208.9	1.29	F	117.8	1.05
N. Washington SB thru | thru	C	28.9	0.71	C	27.9	0.74
N. Washington SB right	D	54.9	0.91	A	7.6	0.50
N. Washington NWB right/right	A	0.7	0.10	A	0.1	0.04
North Washington/Valenti Way/Thatcher Street	**C**	**22.4**		**B**	**18.4**	
N. Washington NB left	E	65.4	0.84	E	63.4	0.84
N. Washington NB thru | thru/right	B	17.7	0.49	B	17.8	0.49
N. Washington SB left/thru | thru | thru/right	B	15.1	0.59	A	8.1	0.59

Intersection Approach	LOS	Delay (sec)	v/c	LOS	Delay (sec)	v/c
	Build (2020) Condition			Build-Mitigated (2020) Condition		
Beverly Street/Valenti Way	**C**	**25.0**		**B**	**19.4**	
Valenti WB left	A	4.0	0.20	A	5.4	0.24
Valenti WB left/thru	A	8.1	0.25	B	15.3	0.32
Beverly SB thru | thru/right	D	54.1	0.65	C	32.7	0.34
Cross Street/Cooper Street/ I-93 Off-Ramps	**B**	**16.8**		**B**	**15.6**	
Cooper WB right	A	2.0	0.22	A	2.1	0.23
Cross NB thru | thru	C	33.6	0.44	D	44.2	0.61
I-93 Off-Ramp NWB right | right	B	10.3	0.66	A	3.7	0.57
North Washington Street/Beverly Street	**A**	**5.7**		**B**	**11.6**	
Beverly EB right | right | right	B	19.4	0.39	C	24.3	0.36
N. Washington SB thru | thru | thru	A	2.5	0.45	A	8.6	0.46
North Washington Street/New Chardon Street/Sumner Tunnel Off-ramp/I-93 SB & Callahan Tunnel On-ramps/Surface Road	**D**	**54.5**		**C**	**20.7**	
New Chardon EB thru | thru | thru/right	C	20.8	0.47	C	23.4	0.38
I-93 Off-Ramp WB left/thru | thru	E	64.7	0.96	D	36.5	0.75
N. Washington SB left	B	14.5	0.55	A	4.7	0.57
N. Washington SB left/thru | thru/right	E	71.8	0.98	A	5.7	0.48
N. Washington SB right	F	94.3	0.90	C	34.1	0.70
New Chardon Street/Canal Street	**B**	**12.4**		**A**	**3.8**	
New Chardon EB thru | thru	C	25.6	0.37	A	7.5	0.21
New Chardon WB thru | thru | thru/right	A	4.7	0.43	A	1.6	0.35
Merrimac Street/Congress Street/New Chardon Street/Garage Entrance	**E**	**61.7**		**D**	**38.7**	
New Chardon EB left/thru | thru/right	F	98.3	1.01	D	53.9	0.77
New Chardon WB left	D	48.8	0.94	E	61.5	0.90
New Chardon WB left/thru | thru/right	B	19.6	0.70	D	37.7	0.84
Congress NB left	F	127.5	1.12	D	37.3	0.99
Congress NB left/thru | thru	F	87.7	1.08dl	C	21.6	0.81
Congress NB right	A	3.6	0.22	A	5.8	0.25
Merrimac SB left/thru | thru | thru	D	53.0	0.61	E	57.2	0.54
Merrimac SB right	B	18.0	0.66	D	53.8	0.60
New Chardon Street/Bowker Street	**B**	**12.4**		**A**	**8.2**	
New Chardon EB thru | thru	A	2.9	0.06	A	3.1	0.06
New Chardon WB thru | thru	A	7.8	0.55	A	2.0	0.54
Bowker Street left/right	D	43.6	0.83	D	45.8	0.83

Intersection Approach	LOS	Delay (sec)	v/c	LOS	Delay (sec)	v/c
	Build (2020) Condition			Build-Mitigated (2020) Condition		
Cambridge Street/New Chardon Street/ Bowdoin Street	**C**	**24.0**		**B**	**16.0**	
Cambridge EB thru | thru | thru/right	C	27.4	0.43	A	5.2	0.43
Cambridge WB left/thru | thru/right	A	9.9	0.25	A	8.0	0.25
Bowdoin NB left	C	26.7	0.54	C	26.7	0.54
Bowdoin NB thru	D	51.2	0.66	D	51.2	0.66
Bowdoin NB right	A	4.8	0.35	A	4.8	0.35
New Chardon SB left	C	30.6	0.73	C	30.6	0.73
New Chardon SB thru	C	34.1	0.50	C	34.1	0.50
New Chardon SB right	A	6.9	0.54	A	6.9	0.54
Cambridge Street/New Sudbury Street/Somerset Street	**D**	**40.6**		**B**	**17.0**	
Cambridge EB left | left	D	45.3	0.80	A	4.9	0.13
Cambridge EB thru | thru	D	38.5	0.89	A	5.5	0.44
Cambridge WB left	F	93.9	0.93	D	49.9	0.64
Cambridge WB thru | thru	C	24.9	0.22	D	40.4	0.54
Cambridge WB right	A	7.4	0.34	B	16.7	0.58
Somerset NB left/thru/right	D	52.6	0.60	D	52.2	0.59
Congress Street/New Sudbury Street	**C**	**33.4**		**D**	**39.9**	
New Sudbury EB left	C	33.9	0.13	D	41.9	0.18
New Sudbury EB thru | thru/right	D	40.5	0.75	E	79.5	0.99
New Sudbury EB right	D	39.7	0.72	C	34.2	0.89
Congress NB thru | thru | thru/right	D	47.3	0.56	F	82.4	0.84
Congress SB left	B	11.5	0.22	B	13.4	0.40
Surface Street/New Sudbury Street/Haymarket Bus Exit	**C**	**27.2**		**C**	**26.4**	
New Sudbury EB thru | thru	C	28.9	0.33	C	29.7	0.34
New Sudbury EB right	A	6.9	0.31	A	7.1	0.32
Surface SB left/thru | thru	C	30.5	0.46	C	28.0	0.43
Haymarket Bus SB left/right	D	40.8	0.19	D	43.1	0.21
Cross Street/New Sudbury Street/I-93 NB On-Ramp	**A**	**5.1**		**A**	**10.0**	
New Sudbury EB left | left	A	1.4	0.29	A	9.3	0.34
Cross NB left/thru | thru	A	6.9	0.59	B	10.3	0.22
Cross Street/Hanover Street	**B**	**17.9**		**B**	**11.7**	
Hanover EB left	C	22.9	0.11	C	21.8	0.14
Hanover EB thru	C	21.7	0.07	B	19.6	0.08
Hanover WB thru/right	C	29.0	0.47	D	35.1	0.55
Cross NB left/thru | thru/right	B	16.1	0.78	A	7.9	0.72

Intersection Approach	LOS	Delay (sec)	v/c	LOS	Delay (sec)	v/c
	Build (2020) Condition			Build-Mitigated (2020) Condition		
Surface Street/Hanover Street	**D**	**38.2**		**C**	**20.2**	
Hanover EB thru | thru/right	C	32.5	0.08	C	34.1	0.08
Hanover WB left	B	16.3	0.19	A	8.8	0.15
Hanover WB thru	F	80.3	0.60	B	14.2	0.51
Surface SB left/thru | thru/right	A	8.5	0.44	C	25.8	0.55
Congress Street/Hanover Street	**C**	**26.1**		**B**	**14.6**	
Hanover WB right	F	90.2	0.98	D	43.0	0.80
Congress NB thru | thru | thru/right	B	10.8	0.24	A	9.9	0.31
Congress SB thru | thru | thru	A	4.6	0.20	A	2.6	0.25
Cross Street/North Street/I-93 Off-Ramp	**C**	**32.7**		**C**	**31.0**	
I-93 Off-Ramp EB left	C	30.8	0.74	C	24.8	0.68
I-93 Off-Ramp EB left/thru	C	26.4	0.64	C	21.6	0.58
Cross NB thru | thru/right	D	40.6	0.61	D	46.3	0.72
Surface Street/North Street/ I-93 Off-Ramp	**B**	**16.1**		**B**	**13.9**	
North EB right	A	7.5	0.08	A	7.2	0.08
I-93 Off-Ramp WB left/thru | thru	B	15.6	0.68	B	15.6	0.68
Surface SB thru | thru/right	B	18.3	0.65	B	10.6	0.65
Clinton Street/North Street/Millennium Hotel Driveway	**C**	**31.6**		**A**	**7.4**	
North EB left/thru	A	8.9	0.06	A	6.0	0.06
North WB thru | thru/right	A	6.0	0.42	A	2.3	0.42
Clinton NB left	F	114.8	0.63	C	33.1	0.63
Clinton NB left/thru/right	F	85.9	0.57	A	7.6	0.57
Millennium SB left	C	34.0	0.01	C	34.0	0.01
Millennium SB right	A	1.0	0.05	A	0.4	0.05
North Street/Union Street	**E**	**78.5**		**C**	**23.1**	
North EB left	A	1.1	0.03	A	2.2	0.05
North EB thru	A	3.2	0.06	A	4.5	0.06
North WB thru | thru/right	F	83.8	0.98	C	24.4	0.64
Congress Street/North Street	**F**	**90.8**		**D**	**44.3**	
North WB left | left/right	F	81.5	1.13	E	62.7	0.98
Congress NB thru | thru | thru/right	A	3.7	0.51	A	5.8	0.55
Congress SB left/thru | thru | thru	F	154.3	1.23	D	40.4	0.89
Surface Street/Clinton Street/I-93 Off-Ramp	**D**	**51.0**		**D**	**52.2**	
I-93 Off-Ramp WB left	E	71.0	1.02	E	71.0	1.02
I-94 Off-Ramp WB left/thru	D	41.5	0.86	D	41.5	0.86
Surface SB thru | thru | thru/right	D	43.8	0.93	D	46.4	0.93

Intersection Approach	LOS	Delay (sec)	v/c	LOS	Delay (sec)	v/c
	Build (2020) Condition			Build-Mitigated (2020) Condition		
Unsignalized Intersections						
New Chardon/Hawkins Street						
New Chardon EB thru | thru	A	0.0	0.06	A	0.0	0.06
New Chardon WB thru | thru	A	8.5	0.46	A	8.5	0.46
New Sudbury Street/Garage Exit Driveway						
New Sudbury EB thru | thru	A	0.0	0.13	A	0.0	0.13
Government Center Garage SB left	A	9.9	0.14	B	10.8	0.16
New Sudbury Street/Haymarket Garage						
New Sudbury thru | thru | thru/right	A	0.0	0.12	A	0.0	0.15
Haymarket Garage NB right	B	12.3	0.06	B	12.8	0.06

Table 4.15 Build (2020) With Mitigation Condition, Capacity Analysis Summary Weekday p.m. Peak Hour

Intersection Approach	LOS	Delay (sec)	v/c	LOS	Delay (sec)	v/c
	Build (2020) Condition			Build-Mitigated (2020) Condition		
Signalized Intersections						
Cambridge Street/Staniford Street/Temple Street	**F**	**101.1**		**F**	**99.6**	
Cambridge EB left	F	443.3	1.89	F	443.3	1.89
Cambridge EB thru | thru	D	39.6	0.73	D	39.6	0.73
Cambridge WB thru | thru	C	34.8	0.76	C	30.3	0.76
Cambridge WB right	A	2.0	0.23	A	0.9	0.23
Temple NB right	D	41.0	0.07	D	41.0	0.07
Staniford SB left	C	33.0	0.53	C	32.3	0.53
Staniford SB right	D	36.3	0.65	D	36.3	0.65
Merrimac Street/Lomasney Way/ Staniford Street/Causeway Street	**F**	**133.6**		**F**	**133.6**	
Staniford EB left	D	46.7	0.40	D	46.7	0.40
Staniford EB left/thru	F	103.3	1.04	F	103.3	1.04
Staniford EB right	F	222.6	1.36	F	222.6	1.36
Causeway WB left/thru | thru	E	61.3	0.67	E	61.3	0.67
Causeway WB right	F	134.4	1.11	F	134.4	1.11
Merrimac NB left	F	390.3	1.62	F	390.3	1.62
Merrimac NB thru/right	F	240.7	1.39	F	240.7	1.39
Lomasney SB left	F	118.6	1.01	F	118.6	1.01
Lomasney SB thru/right	E	79.0	0.88	E	79.0	0.88
Lomasney SB right	E	70.0	0.78	E	70.0	0.78
North Washington Street/Causeway Street	**E**	**79.0**		**E**	**57.8**	
Causeway EB left | left	E	77.1	0.92	D	41.4	0.66
Causeway EB thru/right	B	12.4	0.51	C	23.5	0.61
Causeway WB left/thru | thru	E	60.0	0.66	D	43.1	0.54
Causeway WB right	F	85.3	1.00	B	10.2	0.45
N. Washington NB thru | thru/right	F	159.9	1.24	F	119.6	1.17
N. Washington SB left	F	161.7	1.14	F	187.6	1.24
N. Washington SB thru | thru	C	29.2	0.70	C	31.4	0.78
N. Washington SB right	A	8.5	0.36	A	5.9	0.32
N. Washington NWB right/right	A	2.2	0.23	A	0.2	0.07
North Washington/Valenti Way/Thatcher Street	**C**	**22.9**		**B**	**19.2**	
N. Washington NB left	F	116.0	1.11	F	117.4	1.11
N. Washington NB thru | thru/right	A	7.3	0.53	A	6.8	0.53
N. Washington SB left/thru | thru | thru/right	A	8.8	0.50	A	1.1	0.50

Intersection Approach	LOS	Delay (sec)	v/c	LOS	Delay (sec)	v/c
	Build (2020) Condition			Build-Mitigated (2020) Condition		
Beverly Street/Valenti Way	**C**	**26.0**		**C**	**26.6**	
Valenti WB left	A	2.7	0.26	A	3.7	0.26
Valenti WB left/thru	A	3.5	0.23	A	4.5	0.23
Beverly SB thru | thru/right	D	48.8	0.73	D	49.0	0.73
Cross Street/Cooper Street/ I-93 Off-Ramps	**B**	**15.1**		**B**	**15.7**	
Cooper WB right	A	6.8	0.30	A	6.8	0.30
Cross NB thru | thru	D	50.1	0.59	D	50.1	0.59
I-93 Off-Ramp NWB right | right	A	7.9	0.69	A	8.7	0.69
North Washington Street/Beverly Street	**B**	**18.3**		**B**	**13.0**	
Beverly EB right | right | right	D	44.8	0.61	C	29.3	0.61
N. Washington SB thru | thru | thru	A	5.7	0.43	A	5.3	0.43
North Washington Street/New Chardon Street/Sumner Tunnel Off-ramp/I-93 SB & Callahan Tunnel On-ramps/Surface Road	**D**	**54.5**		**D**	**38.1**	
New Chardon EB thru | thru | thru/right	E	71.2	0.95	D	44.9	0.92
I-93 Off-Ramp WB left/thru | thru	D	45.2	0.76	D	41.9	0.72
N. Washington SB left	B	12.5	0.66	B	13.8	0.65
N. Washington SB left/thru | thru/right	E	66.1	1.01	D	44.3	0.99
N. Washington SB right	D	52.6	0.80	D	35.5	0.50
New Chardon Street/Canal Street	**C**	**33.8**		**A**	**7.2**	
New Chardon EB thru | thru	D	54.1	0.75	B	10.5	0.43
New Chardon WB thru | thru | thru/right	A	3.6	0.37	A	2.3	0.31
Merrimac Street/Congress Street/New Chardon Street/Garage Entrance	**F**	**94.7**		**D**	**49.4**	
New Chardon EB left/thru | thru/right	F	177.2	1.27	F	92.9	0.98
New Chardon WB left	F	156.8	1.14	E	61.2	0.89
New Chardon WB left/thru | thru/right	F	108.0	1.04	D	41.4	0.81
Congress NB left	E	55.2	0.57	C	28.6	0.75
Congress NB left/thru | thru	D	52.8	0.57	C	22.1	0.74
Congress NB right	D	39.0	0.40	B	15.7	0.50
Merrimac SB left/thru | thru | thru	D	50.6	1.10dl	D	52.5	0.68
Merrimac SB right	A	1.9	0.26	D	47.2	0.72
New Chardon Street/Bowker Street	**B**	**16.8**		**B**	**16.8**	
New Chardon EB thru | thru	B	12.1	0.19	B	12.1	0.19
New Chardon WB thru | thru	A	3.1	0.41	A	2.3	0.41
Bowker Street left/right	D	38.5	0.90	D	39.8	0.90

Intersection Approach	LOS	Delay (sec)	v/c	LOS	Delay (sec)	v/c
	Build (2020) Condition			Build-Mitigated (2020) Condition		
Cambridge Street/New Chardon Street/ Bowdoin Street	**C**	**29.6**		**C**	**25.3**	
Cambridge EB thru | thru | thru/right	C	22.5	0.53	A	8.9	0.53
Cambridge WB left/thru | thru/right	B	16.4	0.47	B	13.0	0.47
Bowdoin NB left	C	24.5	0.57	C	24.9	0.57
Bowdoin NB thru	E	58.8	0.89	E	58.8	0.89
Bowdoin NB right	B	12.4	0.36	B	12.4	0.36
New Chardon SB left	E	60.4	0.93	E	60.4	0.93
New Chardon SB thru	C	34.9	0.47	C	34.9	0.47
New Chardon SB right	A	7.2	0.45	A	7.4	0.45
Cambridge Street/New Sudbury Street/Somerset Street	**D**	**35.1**		**C**	**22.2**	
Cambridge EB left | left	D	43.5	0.84	A	9.6	0.17
Cambridge EB thru | thru	C	32.8	0.68	B	12.6	0.43
Cambridge WB left	E	69.1	0.71	D	36.4	0.30
Cambridge WB thru | thru	C	25.4	0.23	D	40.5	0.59
Cambridge WB right	A	8.1	0.40	B	15.7	0.62
Somerset NB left/thru/right	D	52.7	0.78	D	47.5	0.74
Congress Street/New Sudbury Street	**D**	**53.2**		**D**	**37.3**	
New Sudbury EB left	C	27.5	0.16	C	26.0	0.15
New Sudbury EB thru | thru/right	F	99.5	0.93	D	47.3	0.88
New Sudbury EB right	D	43.7	0.87	D	42.1	0.88
Congress NB thru | thru | thru/right	E	55.8	0.78	E	64.7	0.84
Congress SB left	B	11.9	0.23	A	5.5	0.34
Surface Street/New Sudbury Street/Haymarket Bus Exit	**D**	**54.2**		**D**	**36.5**	
New Sudbury EB thru | thru	E	74.5	0.64	D	43.4	0.64
New Sudbury EB right	A	3.7	0.36	A	3.7	0.36
Surface SB left/thru | thru	C	30.1	0.51	C	32.6	0.51
Haymarket Bus SB left/right	D	50.5	0.35	D	50.8	0.35
Cross Street/New Sudbury Street/I-93 NB On-Ramp	**B**	**11.3**		**C**	**23.9**	
New Sudbury EB left | left	A	5.6	0.95dl	C	34.3	0.99
Cross NB left/thru | thru	B	15.3	0.90	B	16.4	0.90
Cross Street/Hanover Street	**B**	**17.0**		**B**	**12.7**	
Hanover EB left	E	56.6	0.37	C	26.2	0.37
Hanover EB thru	D	45.9	0.09	B	17.7	0.09
Hanover WB thru/right	D	41.4	0.58	D	41.4	0.58
Cross NB left/thru | thru/right	B	11.6	0.79	A	8.4	0.79

Intersection Approach	LOS	Delay (sec)	v/c	LOS	Delay (sec)	v/c
	Build (2020) Condition			Build-Mitigated (2020) Condition		
Surface Street/Hanover Street	**B**	**13.2**		**C**	**31.1**	
Hanover EB thru | thru/right	B	19.3	0.12	C	32.3	0.12
Hanover WB left	B	16.7	0.17	B	18.2	0.17
Hanover WB thru	C	20.5	0.25	C	23.1	0.25
Surface SB left/thru | thru/right	A	9.2	0.41	D	36.0	0.41
Congress Street/Hanover Street	**A**	**5.9**		**A**	**4.5**	
Hanover WB right	D	46.1	0.77	C	29.9	0.77
Congress NB thru | thru | thru/right	A	1.5	0.28	A	0.5	0.28
Congress SB thru | thru | thru	A	1.1	0.18	A	3.3	0.18
Cross Street/North Street/I-93 Off-Ramp	**D**	**47.5**		**D**	**37.7**	
I-93 Off-Ramp EB left	D	36.2	0.63	D	36.2	0.63
I-93 Off-Ramp EB left/thru	C	33.0	0.54	C	33.0	0.54
Cross NB thru | thru/right	D	54.4	0.88	D	39.3	0.88
Surface Street/North Street/ I-93 Off-Ramp	**B**	**196**		**B**	**12.2**	
North EB right	A	8.0	0.22	A	4.7	0.22
I-93 Off-Ramp WB left/thru | thru	B	18.5	0.30	B	18.5	0.30
Surface SB thru | thru/right	C	23.1	0.46	A	9.4	0.46
Clinton Street/North Street/Millennium Hotel Driveway	**B**	**17.9**		**B**	**17.4**	
North EB left/thru	D	40.0	0.14	C	29.3	0.14
North WB thru | thru/right	A	9.5	0.21	B	11.1	0.21
Clinton NB left	C	33.2	0.50	D	35.2	0.50
Clinton NB left/thru/right	A	4.9	0.47	A	4.2	0.47
Millennium SB left	C	30.5	0.01	C	30.5	0.01
Millennium SB right	A	0.2	0.03	A	0.2	0.03
North Street/Union Street	**D**	**42.6**		**A**	**7.0**	
North EB left	A	1.6	0.02	A	1.7	0.03
North EB thru	A	4.0	0.08	A	4.5	0.08
North WB thru | thru/right	D	50.3	0.70	A	7.6	0.36
Congress Street/North Street	**C**	**33.9**		**C**	**23.7**	
North WB left | left/right	D	44.6	0.90	D	38.8	0.80
Congress NB thru | thru | thru/right	A	9.0	0.74	A	6.8	0.76
Congress SB left/thru | thru | thru	E	57.6	0.93	C	33.2	0.74
Surface Street/Clinton Street/I-93 Off-Ramp	**C**	**28.6**		**C**	**25.1**	
I-93 Off-Ramp WB left	C	24.2	0.44	C	24.2	0.44
I-94 Off-Ramp WB left/thru	C	23.9	0.44	C	23.9	0.44
Surface SB thru | thru | thru/right	C	32.1	0.66	C	26.0	0.66

Unsignalized Intersections

Intersection Approach	LOS	Delay (sec)	v/c	LOS	Delay (sec)	v/c
	Build (2020) Condition			Build-Mitigated (2020) Condition		
New Chardon/Hawkins Street						
New Chardon EB thru | thru	A	0.0	0.16	A	0.0	0.16
New Chardon WB thru | thru	A	6.5	0.26	A	6.5	0.26
New Sudbury Street/Garage Exit Driveway						
New Sudbury EB thru | thru	A	0.0	0.18	A	0.0	0.18
Government Center Garage SB left	B	11.6	0.30	B	13.3	0.36
New Sudbury Street/Haymarket Garage						
New Sudbury thru | thru | thru/right	A	0.0	0.26	A	0.0	0.33
Haymarket Garage NB right	C	21.3	0.26	D	27.6	0.33

As part of the Proposed Project, the Proponent will also bring abutting sidewalks and pedestrian ramps to the City of Boston standards in accordance with the Boston Complete Streets design guidelines. This will include the reconstruction and widening of the sidewalks where possible, the installation of new, accessible ramps, improvements to street lighting where necessary, and planting of street trees surrounding the Proposed Project Site, where appropriate. In addition, as previously mentioned, extensive bicycle accommodations, both public and private, will be included as part of the Proposed Project, as well as car sharing services, and electronic vehicle charging stations. More extensive roadway improvement mitigation measures are expected to be associated with later phases of the Development Plan Project.

The Proponent is responsible for preparation of the Transportation Access Plan Agreement (TAPA), a formal legal agreement between the Proponent and the BTD. 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 BTD. 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.

4.9 Evaluation of Short-term Construction Impacts

The Proponent will develop a Construction Management Plan (CMP) for review and approval by BTD. The CMP will detail the schedule, staging, parking, delivery, and other associated impacts of the construction of the Project. A description of the conceptual CMP for the Proposed Project is provided in Section 5.8 of Chapter 5, *Environmental Protection*.

Most construction activities will be accommodated within the current Proposed 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 BTD 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 developed in coordination with and executed with the City prior to commencement of construction, will document all committed measures.

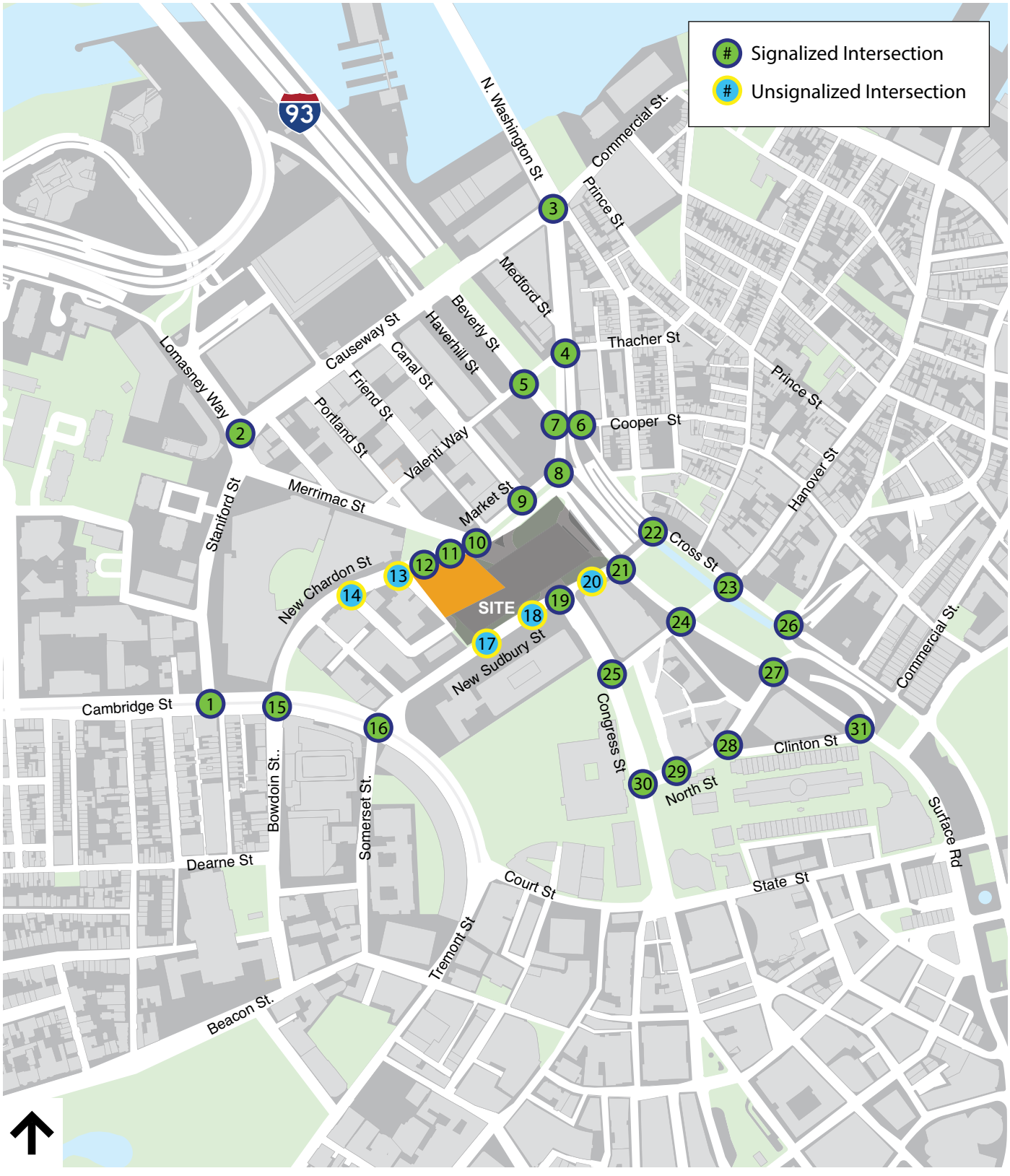


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Figure 4.1

Traffic Study Area Intersections

Redevelopment of the Government Center Garage
WP-B2 (Office Building)

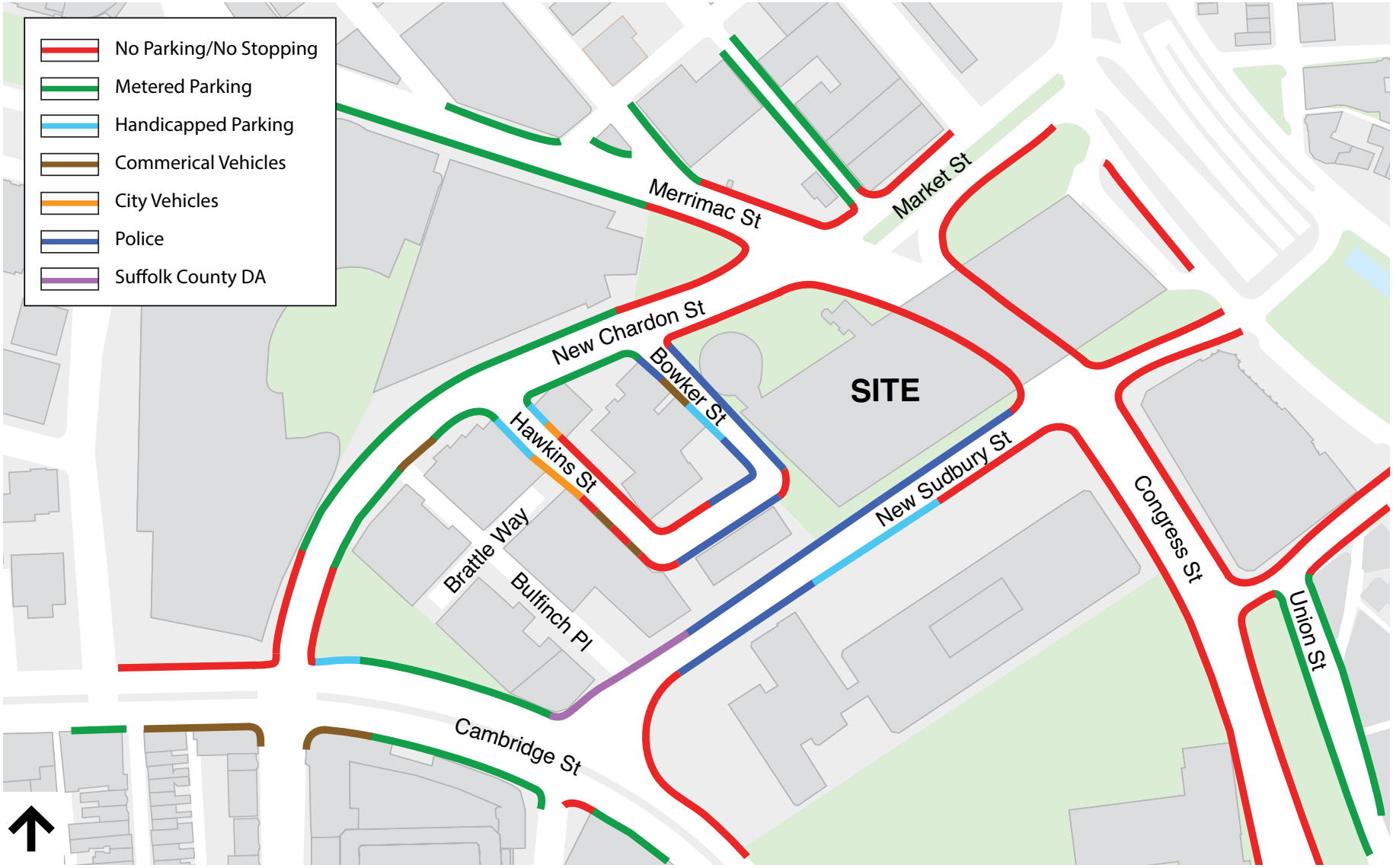

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Figure 4.2
Existing On-Street Parking and Curbside Inventory

Redevelopment of the Government Center Garage
WP-B2 (Office Building)

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Figure 4.3

Existing Off-Street Parking

Redevelopment of the Government Center Garage
WP-B2 (Office Building)

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Figure 4.4

Existing Car Share Locations

Redevelopment of the Government Center Garage
WP-B2 (Office Building)

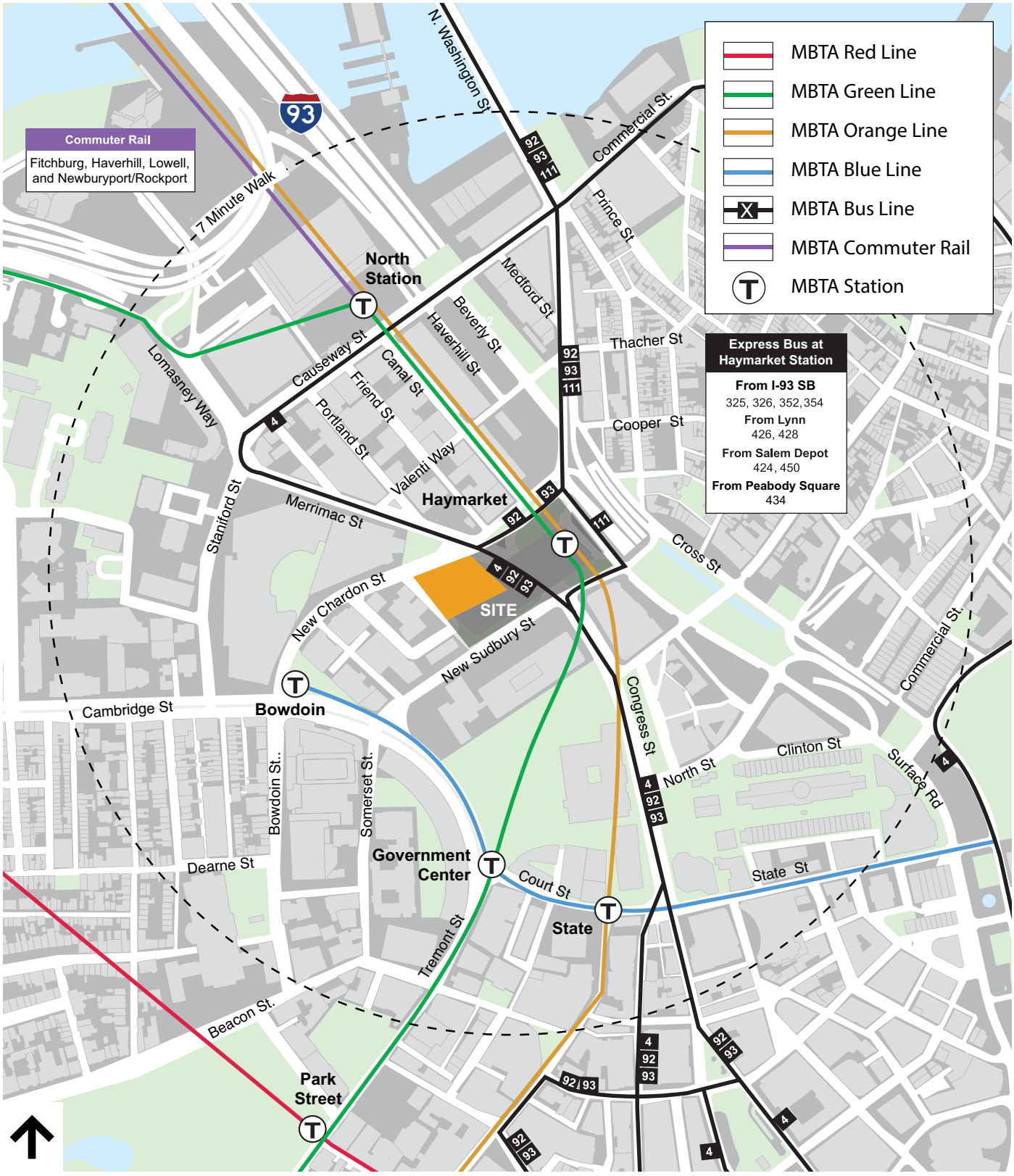

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Figure 4.5

Public Transportation

Redevelopment of the Government Center Garage
WP-B2 (Office Building)

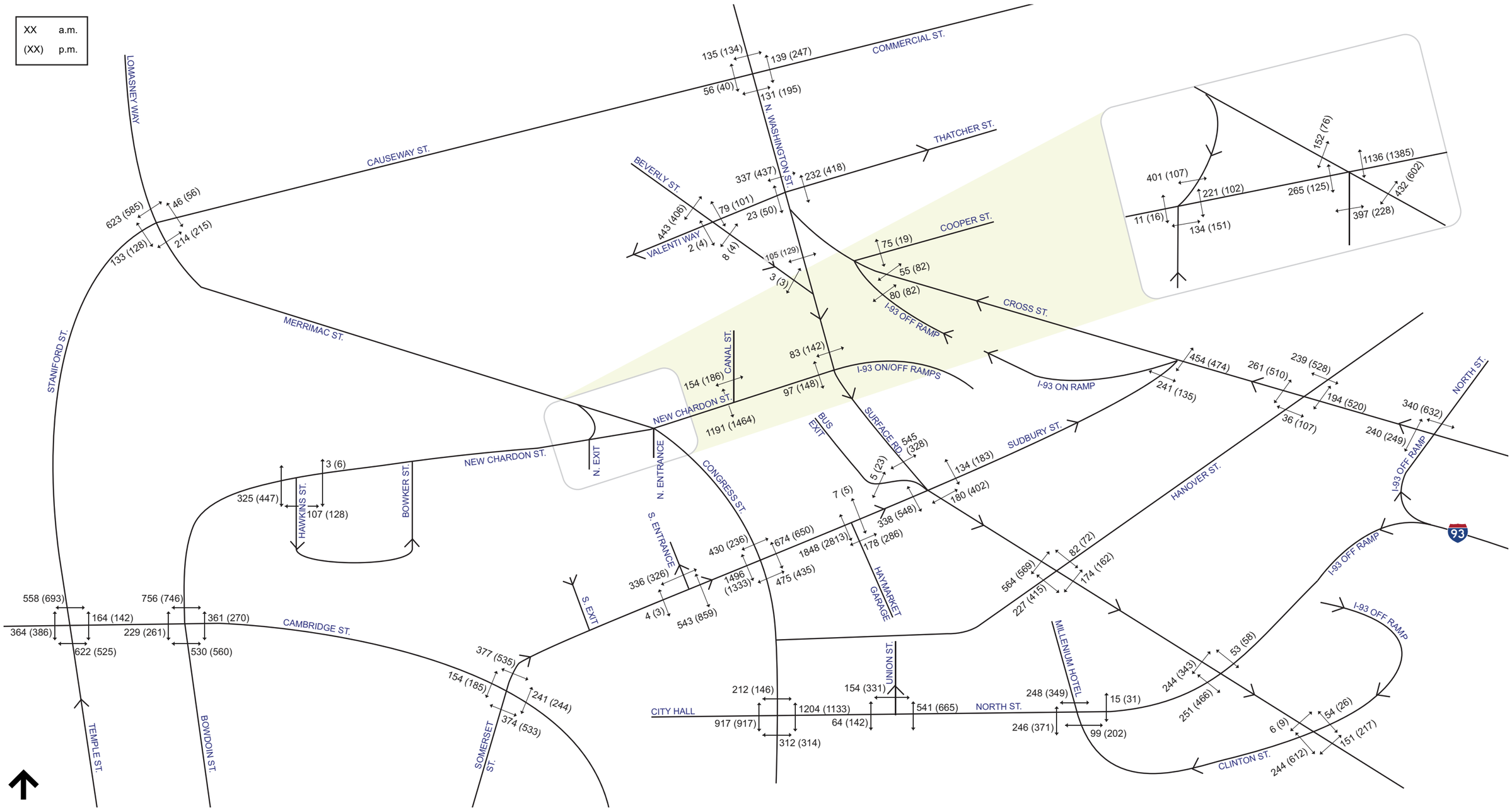

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Figure 4.6

Existing (2015) Pedestrian Volumes, Weekday a.m. and p.m. Peak Hour

Redevelopment of the Government Center Garage
WP-B2 (Office Building)

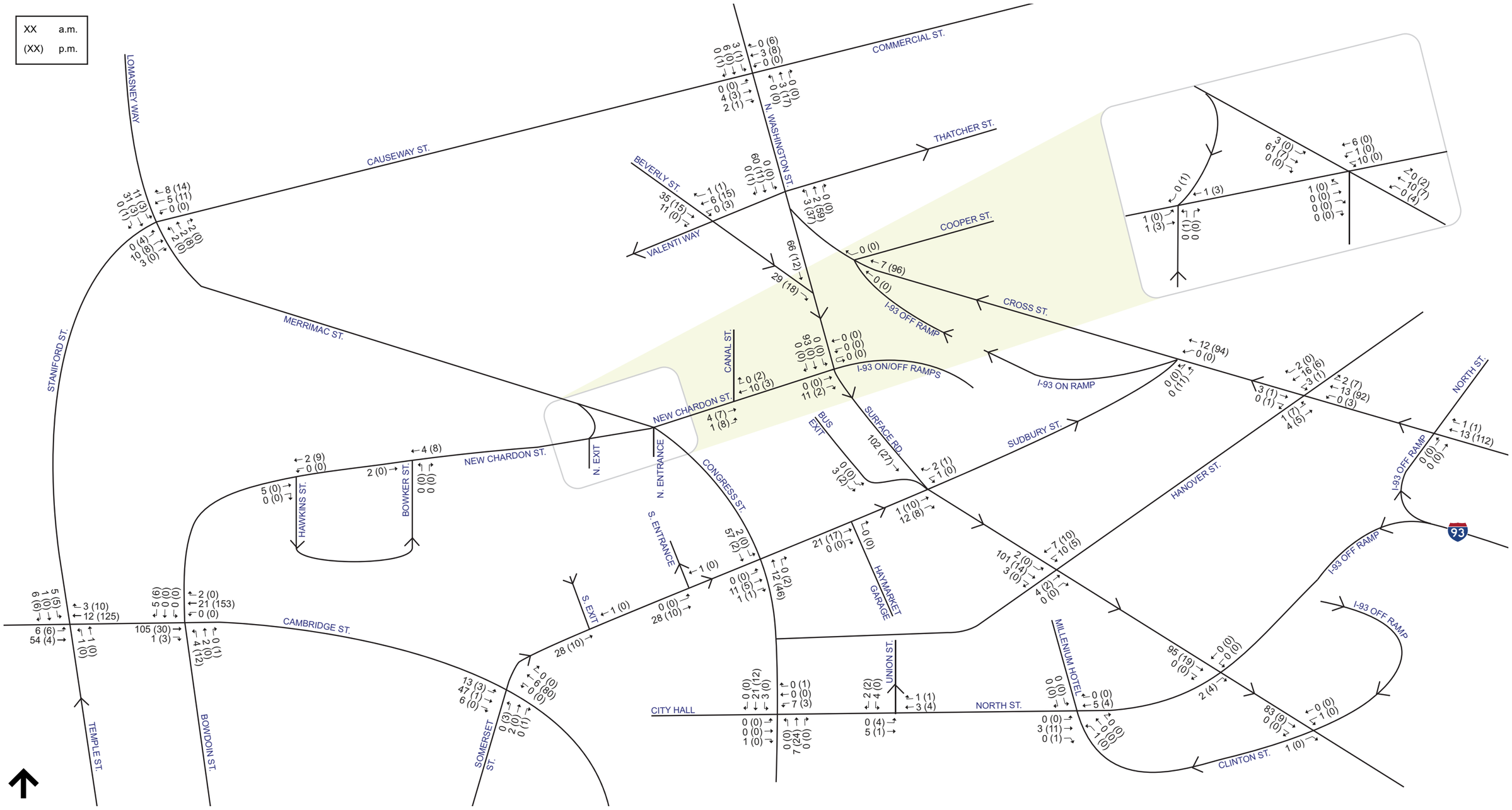

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Figure 4.7

Existing (2015) Bicycle Volumes,
Weekday a.m. and p.m. Peak Hour

Redevelopment of the Government Center Garage
WP-B2 (Office Building)

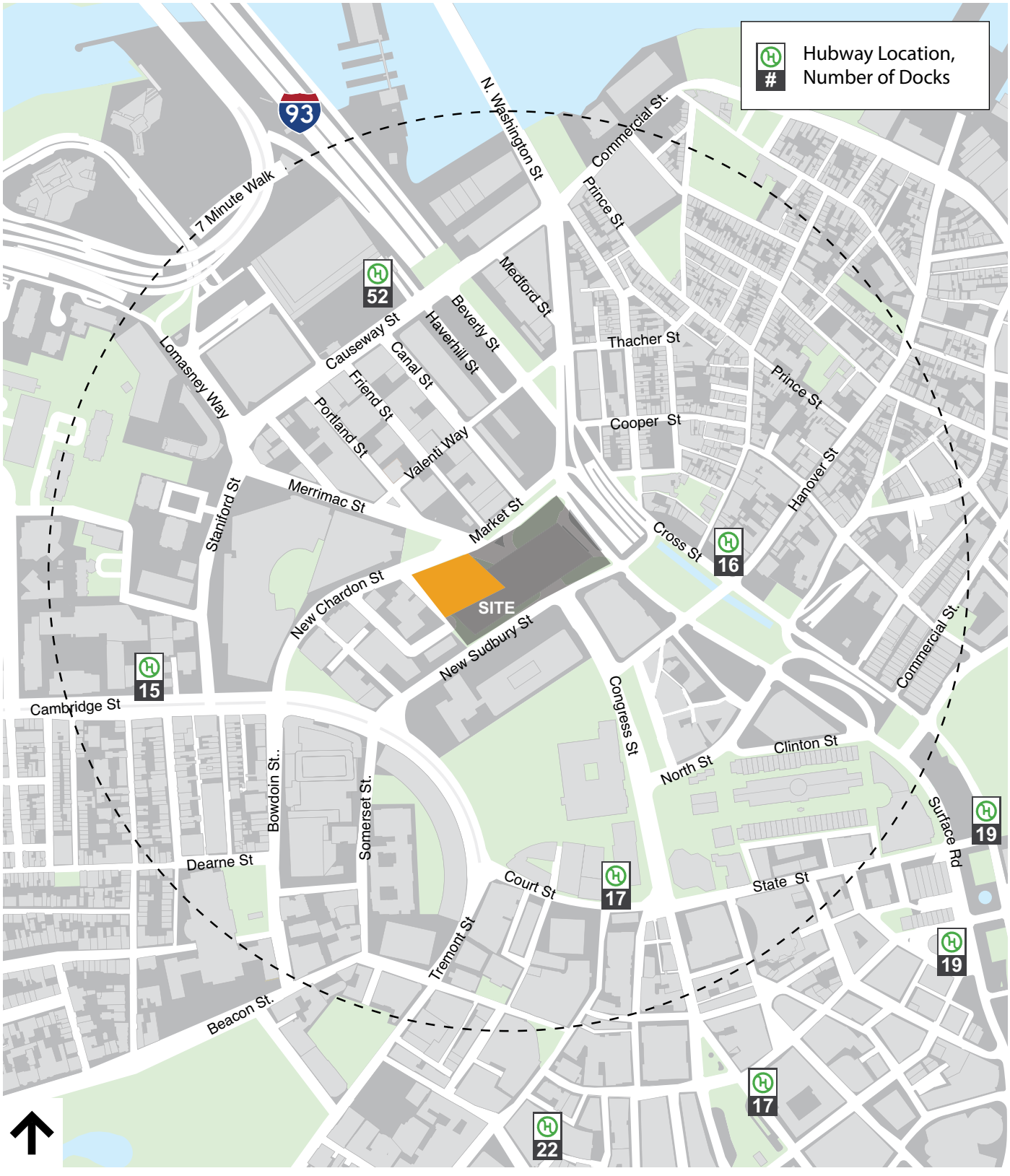

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Figure 4.8

Existing Bicycle Share Locations

Redevelopment of the Government Center Garage
WP-B2 (Office Building)

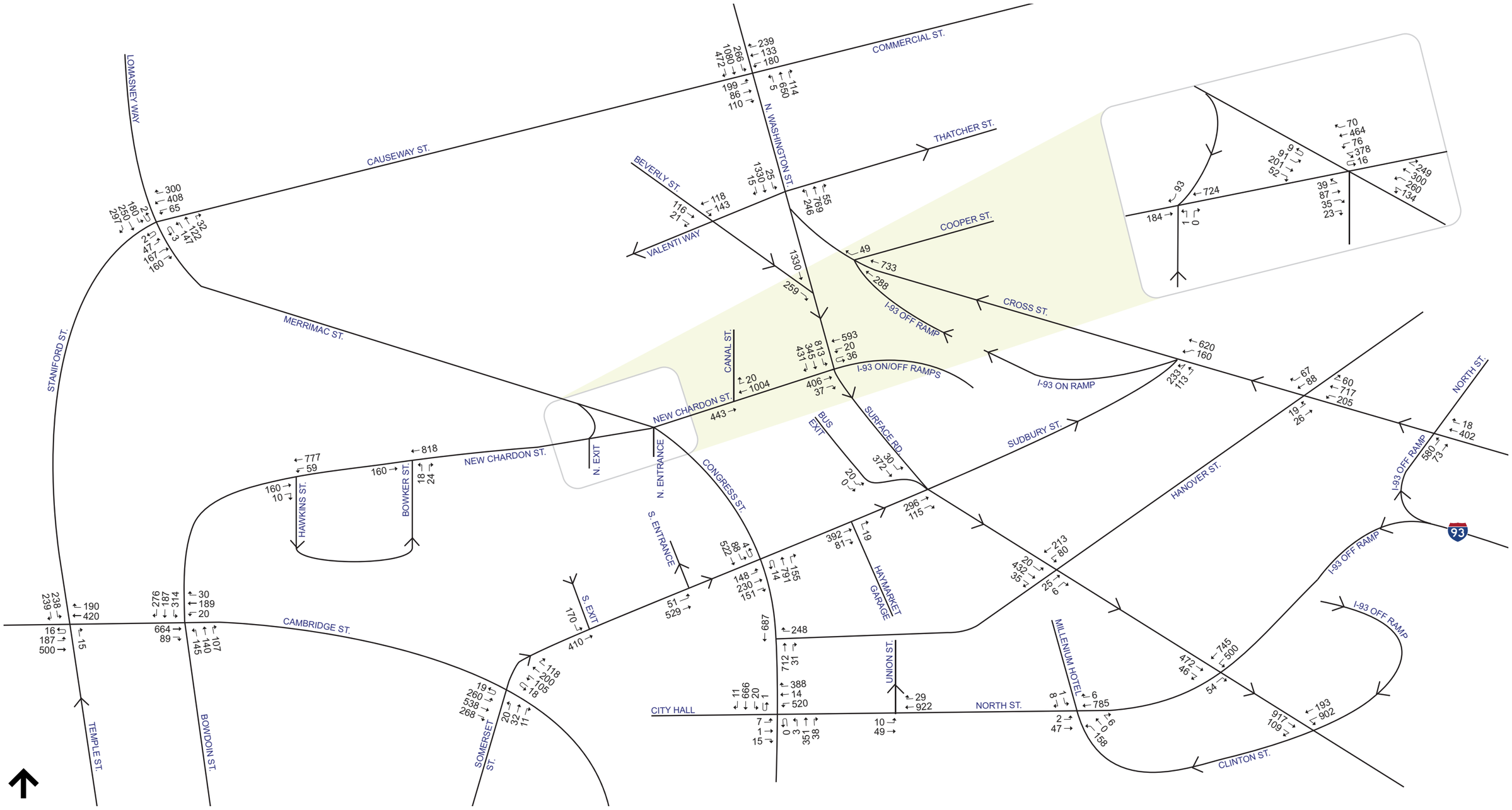

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Figure 4.9a

Existing (2015) Condition Traffic Volumes, Weekday a.m. Peak Hour

Redevelopment of the Government Center Garage
WP-B2 (Office Building)

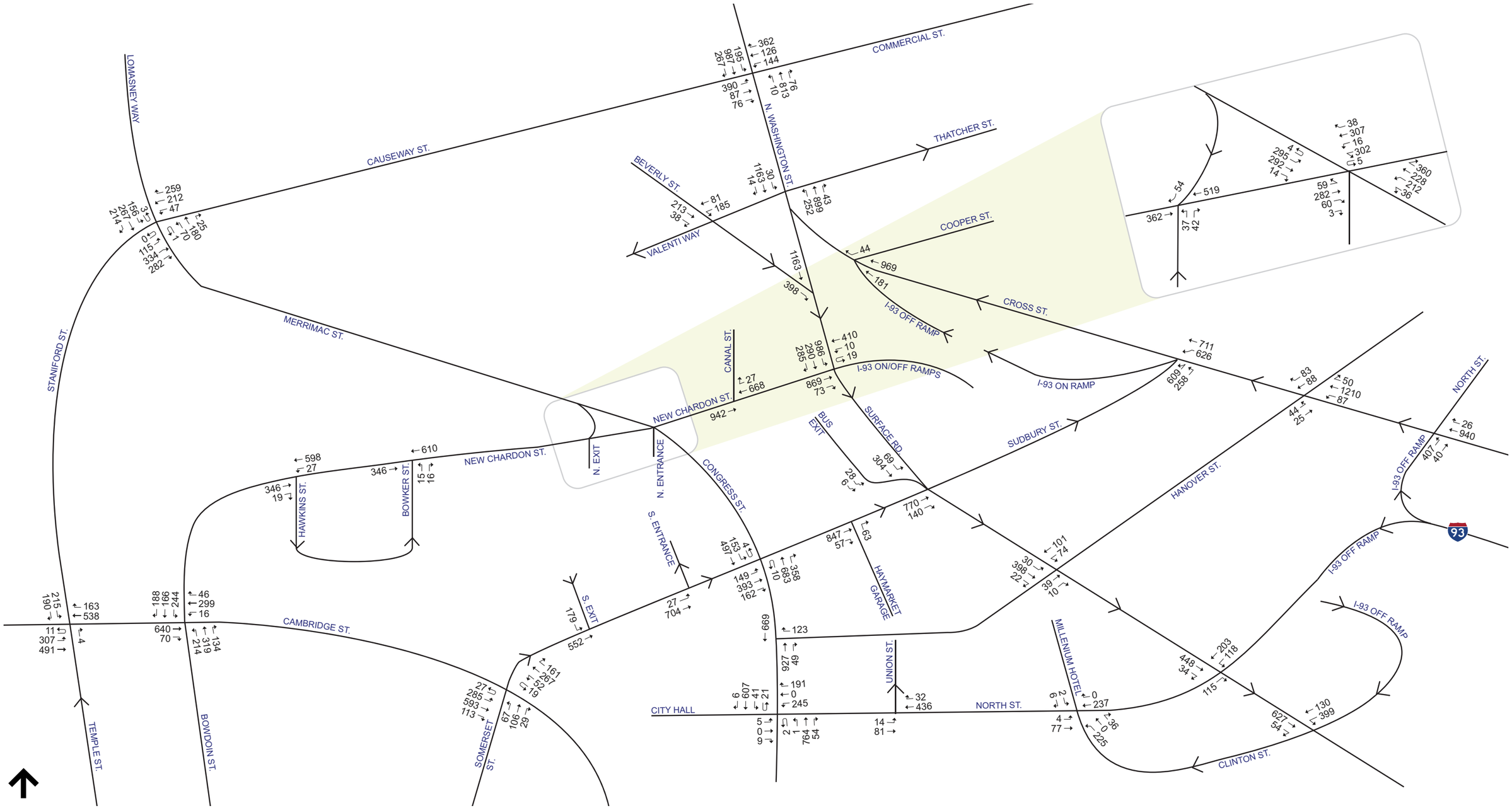

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Figure 4.9b

Existing (2015) Condition Traffic Volumes, Weekday p.m. Peak Hour

Redevelopment of the Government Center Garage
WP-B2 (Office Building)

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Figure 4.10

Site Specific Development Project Locations

Redevelopment of the Government Center Garage
WP-B2 (Office Building)

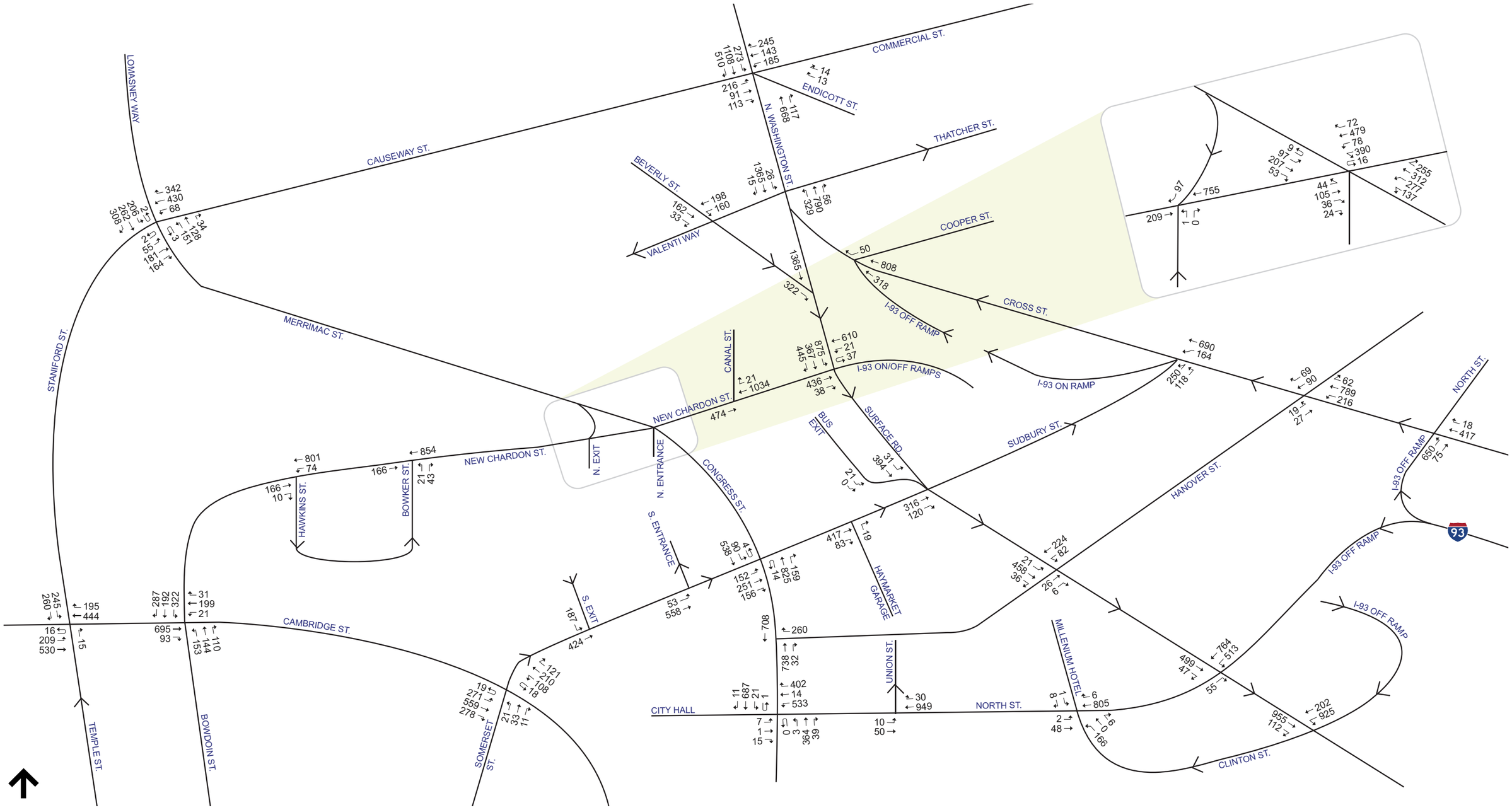

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Figure 4.11a

No-Build (2020) Condition Traffic Volumes, Weekday a.m. Peak Hour

Redevelopment of the Government Center Garage
WP-B2 (Office Building)

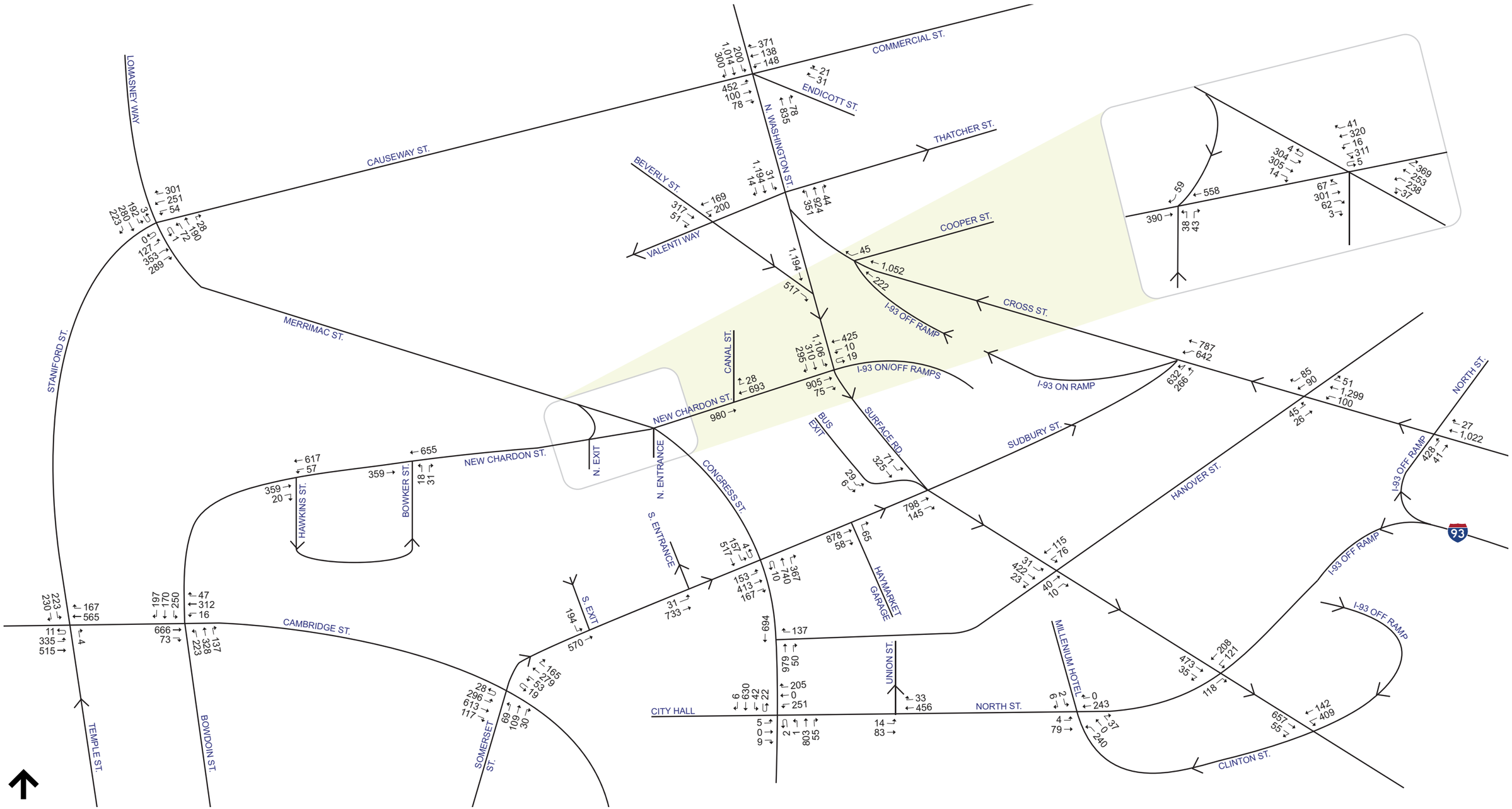

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Figure 4.11b

No-Build (2020) Condition Traffic Volumes, Weekday p.m. Peak Hour

Redevelopment of the Government Center Garage
WP-B2 (Office Building)

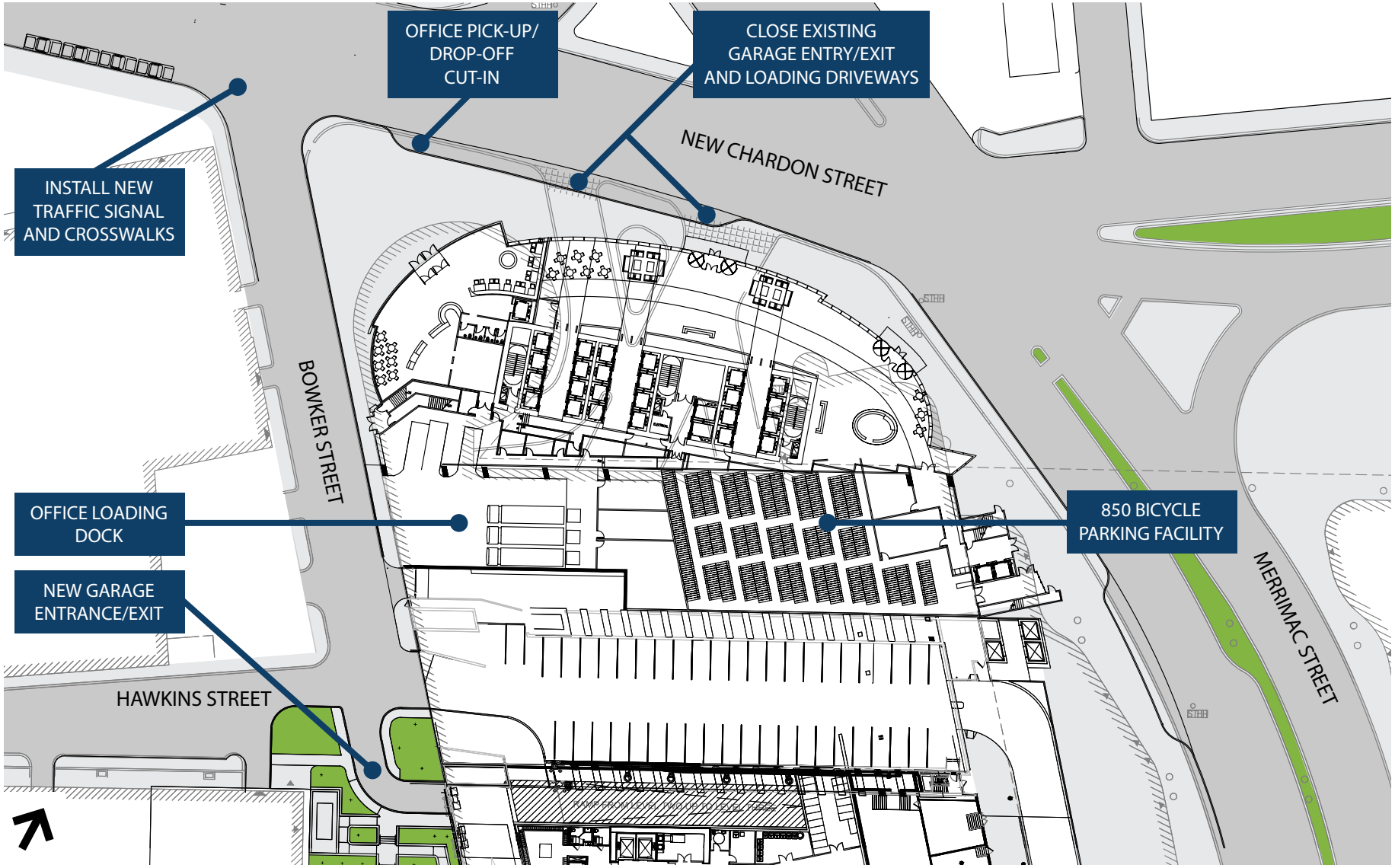

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Figure 4.12

Proposed Access and Circulation Plan

Redevelopment of the Government Center Garage
WP-B2 (Office Building)

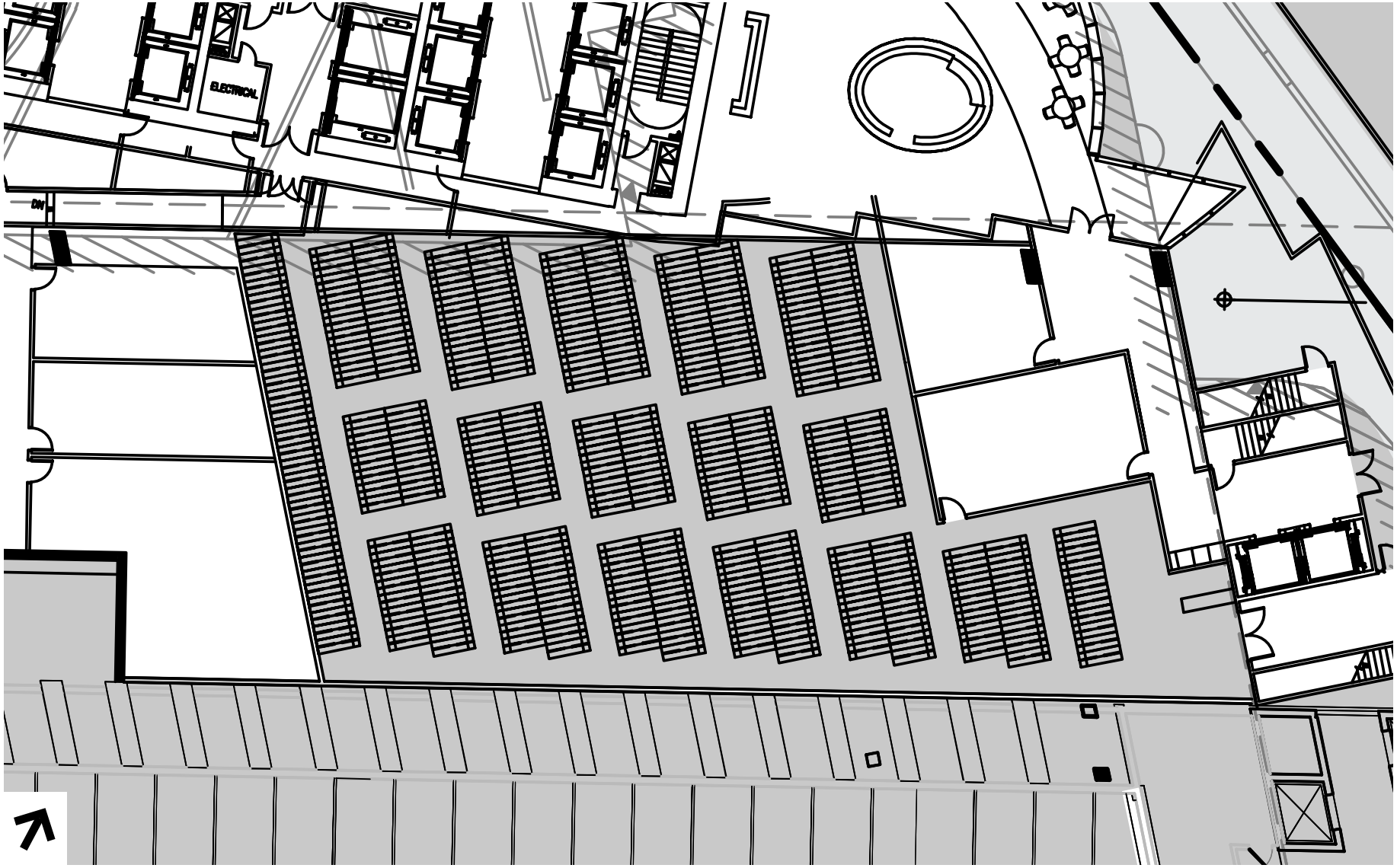

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Figure 4.13
Proposed Bike Accommodations

Redevelopment of the Government Center Garage
WP-B2 (Office Building)

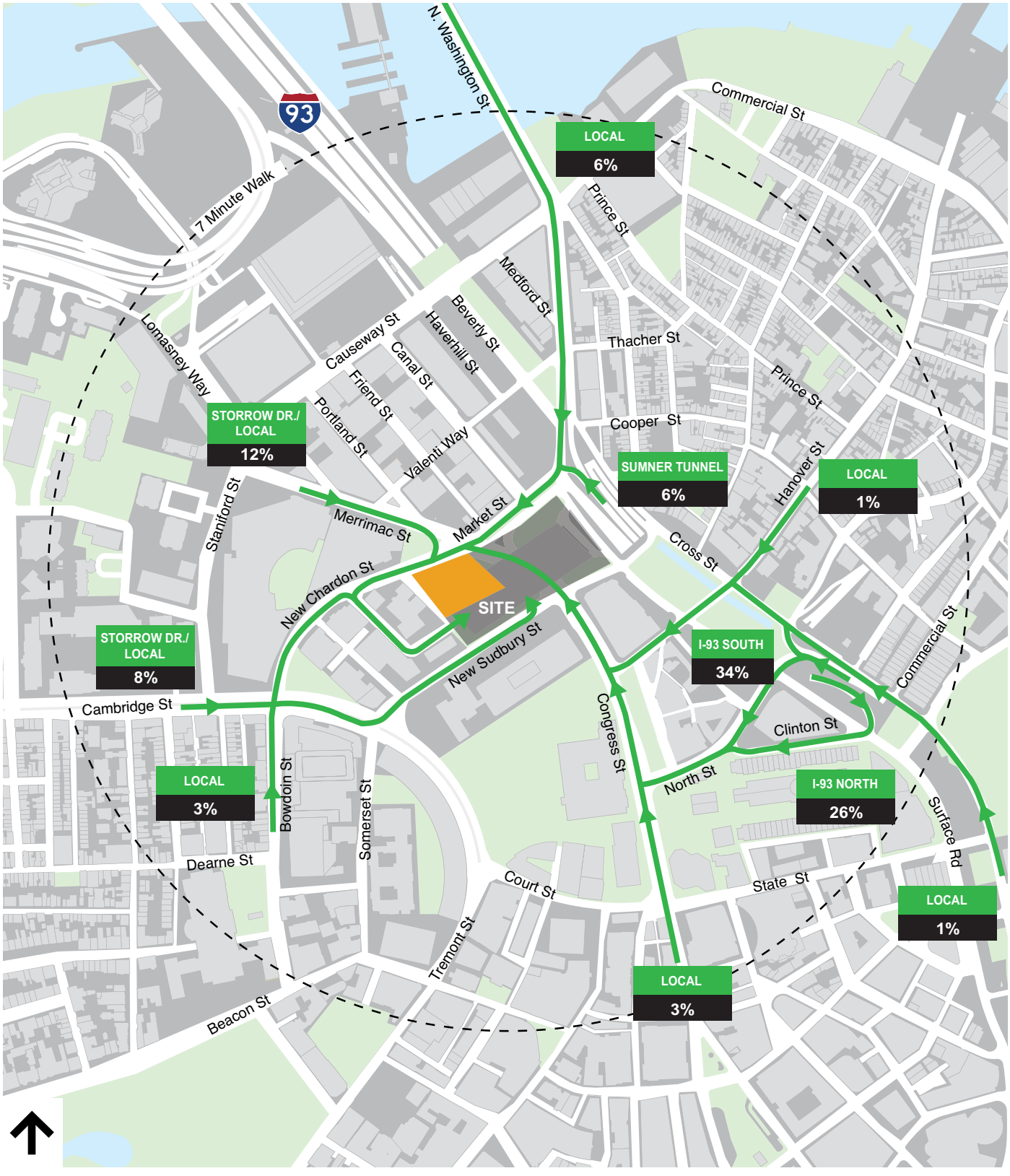

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Figure 4.14

Vehicle Trip Distribution Entering

Redevelopment of the Government Center Garage
WP-B2 (Office Building)

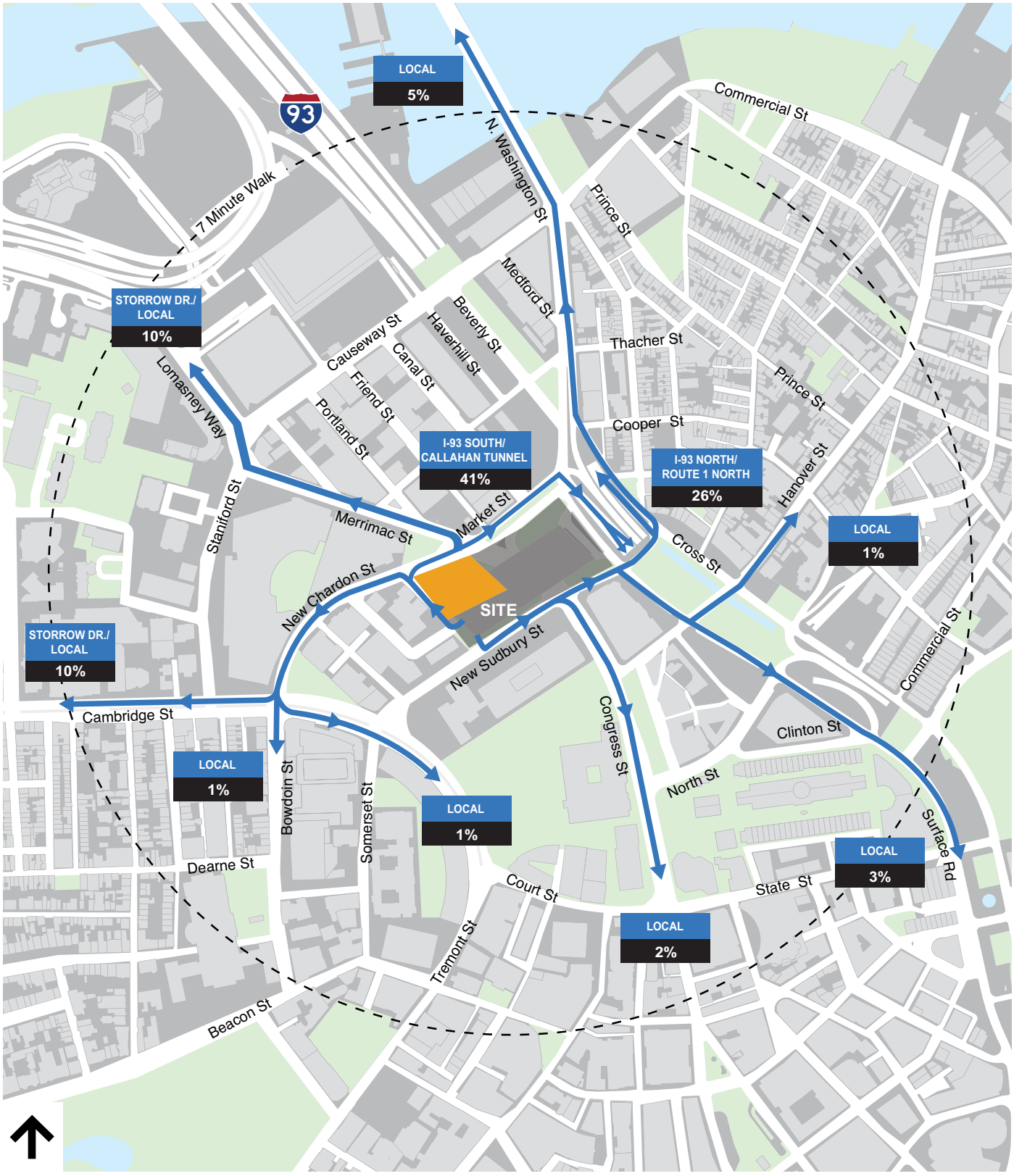

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Figure 4.15

Vehicle Trip Distribution Exiting

Redevelopment of the Government Center Garage
WP-B2 (Office Building)

Enter 614
(Exit) (266)

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Figure 4.16a
Vehicle Trip Distribution, Weekday a.m. Peak Hour

Redevelopment of the Government Center Garage
WP-B2 (Office Building)

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Figure 4.16b

Vehicle Trip Distribution, Weekday p.m. Peak Hour

Redevelopment of the Government Center Garage
WP-B2 (Office Building)

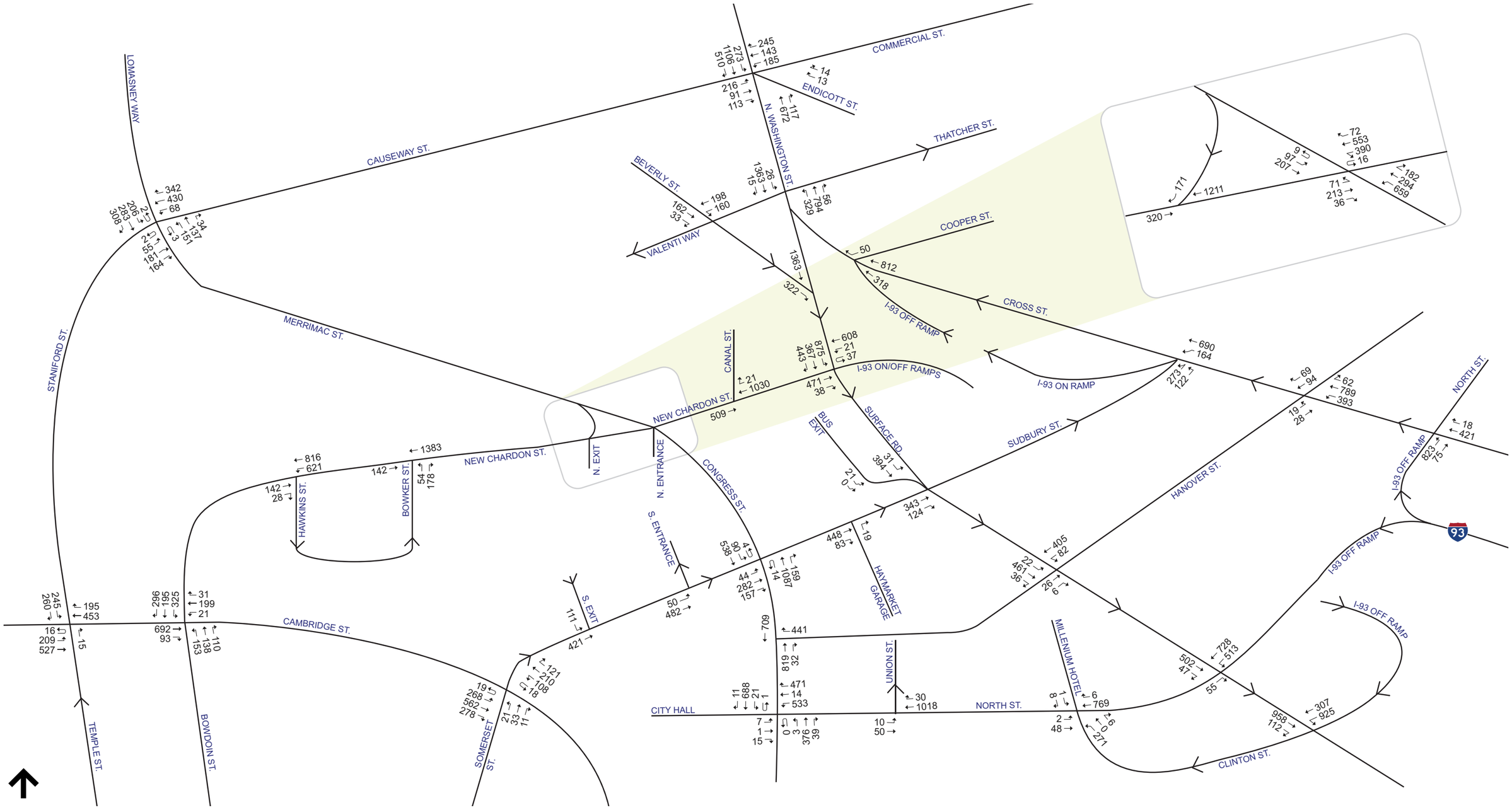

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Figure 4.17a

Build (2020) Condition Traffic Volumes,
Weekday a.m. Peak Hour

Redevelopment of the Government Center Garage
WP-B2 (Office Building)

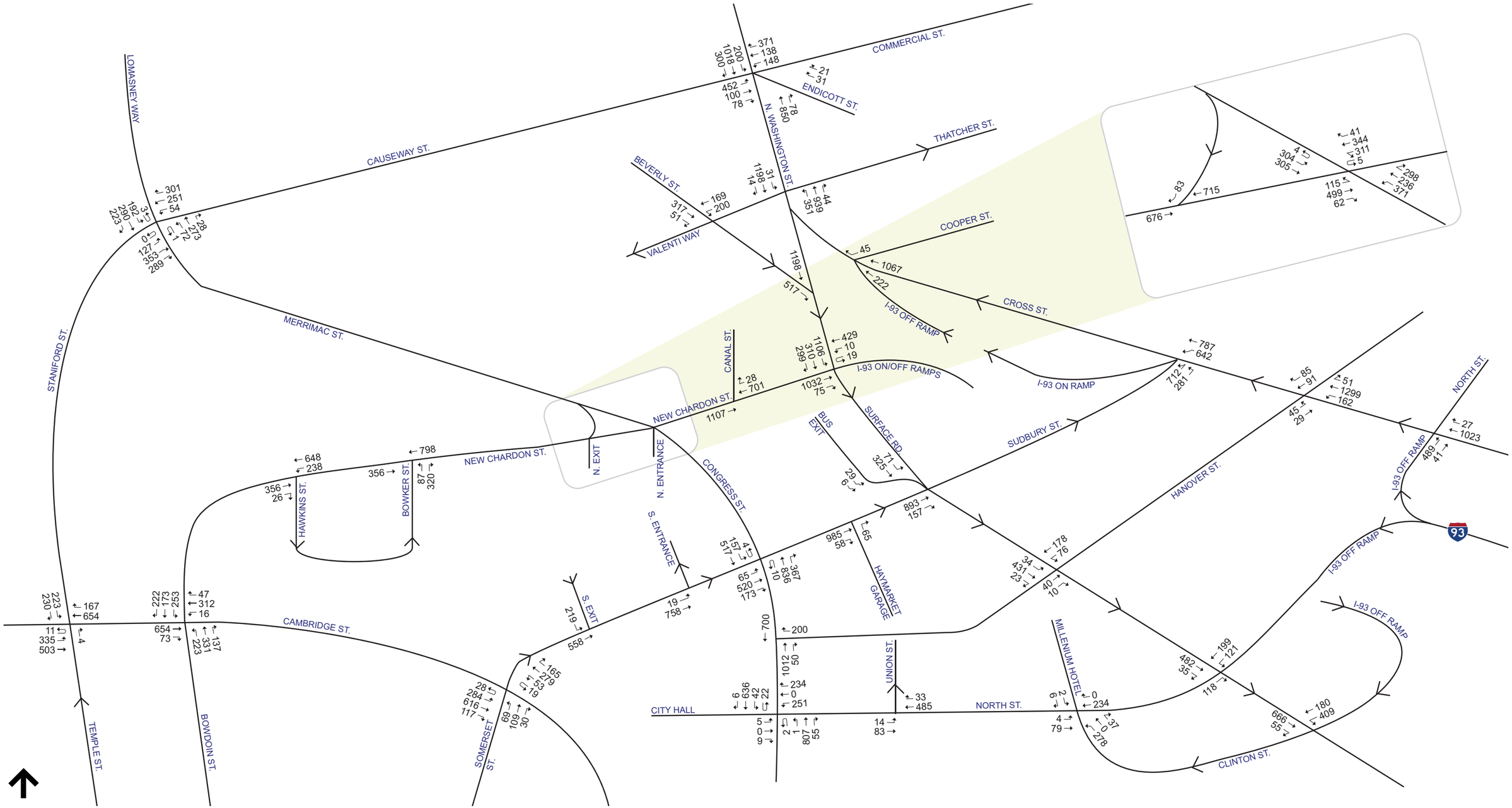

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Figure 4.17b

Build (2020) Condition Traffic Volumes,
Weekday p.m. Peak Hour

Redevelopment of the Government Center Garage
WP-B2 (Office Building)

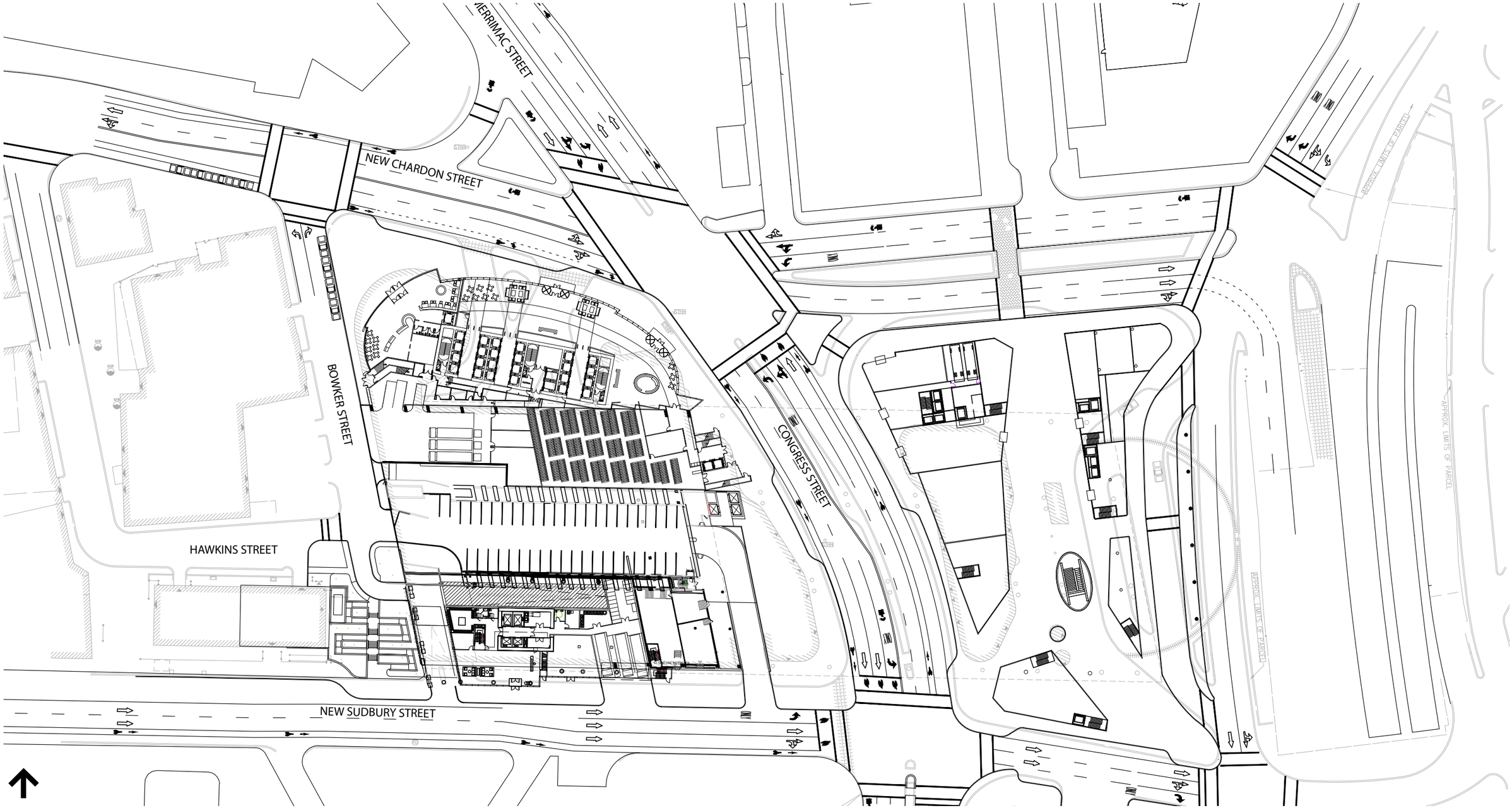

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Figure 4.18
Proposed On-Street Improvement Plan

Redevelopment of the Government Center Garage
WP-B2 (Office Building)

5

Environmental Protection

An assessment of potential environmental impacts was conducted as part of the previous City of Boston Article 80 and state MEPA review filings for the Development Plan Project. In accordance with the approved PDA, this chapter presents updated findings from the environmental categories re-evaluated based on the current building design. As summarized previously in Table 2.4 of Chapter 2, *General Information and Regulatory Context*, the following environmental categories have been re-evaluated for the Proposed Project:

- Wind
- Shadow
- Daylight
- Solar Glare
- Air Quality (stationary source)
- Temporary Construction Impacts

Generally, environmental analyses compare future no-build to build conditions. Because the WP-B1 residential building is proposed to be constructed as Phase 1 of the Development Plan Project, it is included under the future no-build condition for the wind, shadow, daylight, solar glare and air quality impact analyses. Therefore, the environmental impact analyses presented herein represent a cumulative impact assessment.

5.1 Key Findings

The key findings related to environmental protection include:

- The proposed wind mitigation demonstrates that all sensor locations are brought to the Acceptable level where future build wind conditions are expected to exceed BRA standards along New Sudbury and Bowker Streets.
- While the heights of the buildings remain consistent with the approved Development Plan Project, the massing (i.e., building shape) has been transformed from the previously proposed rectangular shape into an oval shaped plan that contains less exterior façade area and results in less overall net new shadow than what was assumed in the DPIR.
- Under most conditions, majority of the skyplane is already obstructed from surrounding public ways due to the existing Garage. Therefore, the Proposed Project would not result

in a significant increase in the amount of obstructed skyplane from these two adjacent public ways.

- Levels of reflections created by the Proposed Project are typical of what is found in an urban environment. Sensitive receptors (i.e., drivers and pedestrians) would have a low visual glare impact since the reflections associated with the Proposed Project are not aligned with the direction of traffic and not within a driver's typical 20 degree cone of vision.
- While some moderate levels of reflection are predicted to occur immediately to the north near the New Chardon/Merrimac/Congress Street intersection in early morning and late afternoon during the summer, the design team will explore the use of less reflective glass and other passive architectural measures to help mitigate these moderate levels of reflection as the building design progresses.
- The air quality study demonstrates that the combined operation of the building mechanical systems (i.e., boilers and the emergency generator(s)) will comply with the National Ambient Air Quality Standards (NAAQS).
- Construction-related impacts are temporary in nature and are typically related to truck traffic, air (dust), noise, stormwater runoff, solid waste and vibration. All temporary construction-period impacts associated with the Proposed Project will be managed to minimize disruption to the surrounding neighborhood through a comprehensive Construction Management Plan and in coordination with the appropriate city agencies.

5.2 Development Plan Project Review Overview

In June 2013, the Proponent filed a PNF with the BRA that addressed potential impacts related to Wind (a qualitative assessment), Shadows, Solar Glare (a qualitative assessment), Water Quality, Groundwater/Geotechnical, Flood Hazard Zone, Solid and Hazardous Waste, and Green Building/Sustainability. Subsequently, the DPIR provided supplemental environmental impact studies based on the revised Project, such as Wind, Shadows, Daylight, Air Quality, Noise, Rodent Control Post-Construction and Temporary Construction Impacts. In accordance with the BRA Scoping Determination, the DPIR also provided expanded shadow studies as well as an update on the sustainable design approach. When compared to the PNF, the revised Development Plan Project generally results in a lesser degree of environmental impacts.

For Wind, the previous 2013 PNF provided a preliminary qualitative assessment by phase to begin to understand the potential for high wind activity and/or channeling wind flows around and/or through the PDA Site. A key goal was to continue to assess potential wind impacts in order to mitigate though updated design of each of the Project Components. The subsequent DPIR included a pedestrian wind tunnel study analysis for the No-Build, Build, and Build with Mitigation Conditions based on the revised DPIR program. The wind tunnel results were based on preliminary massing and were meant to identify potential problem areas to be mitigated through building design. The Proponent committed to undergoing wind tunnel studies for each Project Component under future individual Article 80B reviews to ensure that the BRA wind criteria guidelines are met.

For Shadows, the previous 2013 PNF presented a preliminary shadow impact assessment for the Development Plan Project based on early building height and massing. The subsequent DPIR provided updated shadow studies based on the lower/rearrange the height and density of the buildings in response to BRA, community, and other public entities feedback and comment (as discussed in Section 3.1 of Chapter 3, *Urban Design*), which resulted in reduced net new shadow under a number of conditions. Per the request of the BRA, an expanded shadow study was conducted to further detail net new shadows on the two Rose Kennedy Greenway North End Parks, Charles River, Boston Harbor, and other major public open spaces in the vicinity of the PDA Site.

The DPIR included a comprehensive assessment of potential localized (microscale, or "hot spot") air quality impacts due to induced traffic on local roadways as a result of the Development Plan Project. This analysis evaluated the Project-related concentrations (from vehicles traveling through congested intersections in the study area) of carbon monoxide (CO) and particulate matter ($PM_{2.5}$ and PM_{10}) at sensitive receptor locations. The air quality assessment also evaluated Ultra-Fine Particulates and a stationary analysis of the Garage ventilation to determine the potential change in air pollution for the Development Plan Project. The air quality evaluation demonstrates that the Development Plan Project complied with city, state, and federal air quality requirements.

The DPIR included a noise assessment associated with the Development Plan Project, which included noise monitoring to determine existing sound levels and calculations of future sound levels associated with potential building mechanical equipment. The noise assessment conducted as part of the DPIR to demonstrate the Development Plan Project would not generate sound levels that exceed the City's noise standards. Based on the noise monitoring, the existing sound levels are greater than the City's nighttime standard of 50 dB(A) and since the building mechanical equipment will be located within mechanical penthouses on the rooftops of each building, the sound levels generated by the Project's building mechanical equipment resulted in an overall sound level change (increase) by one decibel at only six of the 13 sensitive receptor locations, which is in compliance with the City of Boston noise standards. Additionally, by ultimately enclosing three sides of the Garage, the Development Plan Project will provide a significant noise benefit as it will screen existing noise internal to the Garage (i.e., engine noise, car alarms). And, since a majority of the service and loading activities will be serviced on-site and within the proposed buildings, noise impacts to the sensitive receptor locations will be negligible.

Through 2014, the potential environmental impacts associated with the Development Plan Project was also reviewed by state agencies under MEPA and its implementing regulations. The MEPA filings also provided additional supporting analysis and clarifications in response to reviewer comments.

5.3 Pedestrian Wind

A pedestrian wind tunnel study was conducted to assess the effect of the Proposed Project on pedestrian-level wind conditions around the Proposed Project Site and to provide recommendations for minimizing adverse effects. The following configurations were simulated:

- Future No-Build Configuration/Condition: includes all existing surrounding buildings with WP-B1 is in place and the eastern portion of the Garage to remain;
- Build without Mitigation Configuration/Condition: includes WP-B2 as currently designed with approximately half of the existing Garage demolished and WP-B1 is in place; and
- Build with Mitigation Configuration/Condition: includes the Proposed Project with wind mitigation measures for both WP-B1 and WP-B2 in place.

5.3.1 Methodology

A scale model was equipped with specially designed wind speed sensors at 121 grade level locations, chosen in consultation with the BRA (prior to the DPIR submission), which recorded the mean and fluctuating components of wind speed at a full-scale height of five (5) feet above grade in pedestrian areas throughout the Proposed Project Site. The results were then combined with long-term meteorological data, recorded during the years 1981 to 2011 at Boston's Logan International Airport, in order to predict full scale wind conditions. Meteorological data summarizing the annual and seasonal wind climates in the Boston area, based on the data from Logan Airport is presented in the supporting documentation provided in Appendix B. The prevailing winds are from directions between southwest and northwest. In the case of strong winds, northeast and west-northwest are the dominant wind directions.

The interaction of these winds with major buildings, especially those that protrude above their surroundings, often cause increased local wind speeds at the pedestrian level. Typically, wind speeds increase with elevation above the ground surface, and taller buildings intercept these faster winds and deflect them down to the pedestrian level (Downwashing flows). The funneling of wind through gaps between buildings (Channeling flows) and the acceleration of wind around corners of buildings may also cause increases in wind speed. Conversely, if a building is surrounded by others of equivalent height, it may be protected from the prevailing upper-level winds, resulting in no significant changes to the local pedestrian-level wind environment.

The wind study presents a cumulative analysis of wind conditions where it assumes WP-B1 is in place with full garage remaining as the background condition as the No-Build Condition. The Proposed Project was analyzed comparing No-Build to Build Conditions, which included both the residential (WP-B1) and office (WP-B2, Proposed Project) buildings in place, the eastern portion of the Garage removed, and WP-B3 (the future second residential building on the West Parcel) and the East Parcel buildings as undeveloped.

5.3.1.1 Pedestrian Wind Comfort Criteria

The BRA has adopted two standards for assessing the relative wind comfort of pedestrians. First, the BRA wind design guidance criterion states that an effective gust velocity (hourly mean wind speed +1.5 times the root-mean-square wind speed) of 31 miles per hour (mph) should not be exceeded more than one percent of the time. The second set of criteria used by the BRA to determine the acceptability of a specific location is based on the work of Melbourne.[1] This set of criteria is used to determine the relative level of pedestrian wind comfort for activities such as sitting, standing or walking. The criteria are expressed in terms of benchmarks for the 1-hour mean wind speed exceeded 1 percent of the time (i.e., the 99th percentile mean wind speed). They are presented in Table 5.1.

TABLE 5.1 BOSTON REDEVELOPMENT AUTHORITY MEAN WIND CRITERIA*

Melbourne Category	Criteria*
1. Comfortable for Sitting	<12 miles per hour
2. Comfortable for Standing	>12 and <15 miles per hour
3. Comfortable for Walking	>15 and <19 miles per hour
4. Uncomfortable for Walking	>19 and <27 miles per hour
5. Dangerous	<12 miles per hour

Source: Boston Redevelopment Authority
*Applicable to the hourly mean wind speed exceeded one percent of the time.

The wind climate found in a typical urban downtown location in Boston is generally comfortable for the pedestrian use of sidewalks and thoroughfares and meets the BRA effective gust velocity criterion of 31 mph. However, without any mitigation measures, the general wind climate in an urban downtown location is likely to be uncomfortable for more passive activities, such as sitting.

5.3.2 Pedestrian Wind Findings

Figures 5.1a and 5.1b graphically depict the wind comfort conditions at each wind measurement location based on the annual winds for each configuration (the No-Build and Build with Mitigation Configurations, respectively). Refer to Figure 3c dated 10/8/15 in Appendix B for the Build without Mitigation Configuration (annual mean speed). Typically the summer and fall winds tend to be more comfortable than the annual winds while the winter and spring winds are less comfortable than the annual winds. The following summary of pedestrian wind comfort is based on the annual winds for each simulated configuration.

5.3.2.1 No-Build Wind Conditions

In general, the majority of the winds that impact the Project Site come from the North, West and Northwest directions and flow down Merrimac and New Chardon Streets. Buildings and

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1 1 Melbourne, W.H., 1978, "Criteria for Environmental Wind Conditions", Journal of Industrial Aerodynamics, 3 (1978) 241 – 249.

cityscape located north, west and northwest from the Proposed Project are generally lower in scale and have minimal impact in diffusing the wind, and appear to be the primary cause of wind impacts in the general area.

Under the No-Build Condition, which includes WP-B1 and the Garage in place, the pedestrian-level wind conditions at the Proposed Project Site would be comfortable for walking or better, in general, with exception. Uncomfortable wind conditions were detected along New Sudbury Street, Cambridge Street, Congress Street and New Chardon Street (Figure 5.1a). Winds at two locations along Cambridge Street are also in exceedance of the annual effective gust criterion (Figure 4a provided in Appendix B on the enclosed CD-ROM).

5.3.2.2 Build without Mitigation Wind Conditions

The Proponent assessed wind conditions for a configuration that included the WP-B1 and WP-B2 components without mitigation measures, and assumed the removal of the eastern portion of the Garage over Congress Street and the East Parcel (the Build without Mitigation Condition). In this testing scenario, the removal of the eastern portion of the existing garage and the addition of the two building components resulted in a number of less favorable wind conditions surrounding the project site. Refer to Figures 3c and 4c dated 10/8/15 provided as hardcopies in Appendix B.

In the Build without Mitigation Condition, the eastern portion of the existing garage is demolished. It should be noted that the Garage – prior to its demolition in the build condition – proved marginally effective in diverting wind further east. The loss of the windbreak due to garage demolition creates wind channeling around the Proposed Project and down the newly exposed Congress Street.

The benefit of the windbreak pales in comparison to the removal of just over half of the Garage, particularly because the additional wind impacts created in the build condition are mitigated with measures described below in Section 5.3.2.3. Removal of the Garage is one of the single largest public benefits generated by the Development Plan Project as it will remove a visual eyesore, daylight an important part of Boston, and unlock important north-south vistas for the first time in over 50 years.

5.3.2.3 Build with Mitigation Wind Conditions

Based on the results of the Build without Mitigation Condition, the Proponent analyzed a Build with Mitigation Condition, which included the testing of wind mitigation measures in the wind tunnel to improve pedestrian-level wind conditions around the Proposed Project Site. Mitigation measures included the addition of approximately 5-inch caliper marcescent trees located on site as well as on municipal sidewalks surrounding the PDA Site.[2] In strategic locations, pedestrian windscreens were also deployed to buffer specific wind conditions. The

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2 Marcescent trees are on the City of Boston's approved tree list and tend to maintain foliage throughout the winter.

extent of the proposed at-grade tree planting provides benefits beyond wind mitigation in terms of beautifying the streets, and reducing heat island and air pollution effects. The pedestrian windscreens may be designed as interesting architectural or artistic objects that may also incorporate public amenities, such as benches, trash receptacles, and wayfinding.

As shown in Figure 5.1b, under the Build with Mitigation Condition, pedestrian-level wind comfort categorizations are expected to remain generally similar to the No-Build Condition. In a few instances along New Chardon Street and Merrimac/Congress Street, the wind sensors detected uncomfortable wind conditions where they were comfortable in the No-Build Condition. Regarding wind gusts, all sensor locations were brought into the Acceptable level range for effective gust speeds as a result of the proposed wind mitigation measures with the following exceptions: two off-site locations along Cambridge Street (unchanged from the No-Build Condition); and one mid-block location along Congress Street (sensor #15; refer to Figure 4b dated 11/11/15 provided in Appendix D on the CD-ROM). The change in condition at sensor #15 for wind gusts and the wind comfort locations detected as uncomfortable along New Chardon Street and Congress Street may be the result of the simulated removal of the eastern portion of the existing garage structure. As discussed previously, the removal of the Garage is one of the single largest public benefits that is generated by the Development Plan Project as it will remove a visual eyesore, daylight an important part of Boston, and unlock important north-south vistas for the first time in over 50 years. The Proponent is committed to continuing to identify measures to mitigate the wind impacts at sensor #15 as the design of the Proposed Project evolves and as WP-B3 and East Parcel sites are developed and as interim conditions (if any) for those sites are considered.

5.4 Shadow

The Proposed Project, like any new building in Boston, will cast shadow on areas to its west, northwest, north, northeast and east. This extensive study indicated minimal net new shadow impact on the Greenway Parks from March to August, and on the Charles River, Boston Harbor, Beacon Hill, North End, and West End in different times of a year.

Figures 5.2 through 5.5 present shadows for the Proposed Project, as required by Article 80B. In addition, these figures indicate the changes in shadows compared to the conceptual massing shown in the DPIR shadow studies. All buildings under construction and any proposed buildings anticipated to be completed prior to the completion of the Proposed Project are included in the shadow study model.

5.4.1 Methodology

The shadow study was prepared using methodologies consistent with accepted practices for such studies completed under Article 80 review. A computer model of the Proposed Project and surrounding urban area was developed. Using software called Revit, a number of days and times were analyzed, as required under Article 80. The analysis used “clear sky” solar data at the location of Boston’s Logan International Airport, which means that no cloud cover ever

occurs, therefore providing a "worst case" scenario showing the full extent of when and where shadow could occur.

The shadow study provides a comparison of the No-Build and Build Conditions to identify "net new" shadow associated with the Proposed Project based on current building design. The shadow study then compares the net new shadow to the DPIR massing net new shadows. The conditions were compared for the spring and fall equinoxes, and the summer and winter solstices at 9:00 AM, 12:00 Noon and 3:00 PM, and at 6:00 PM for the summer solstice and equinoxes.

Shadows from existing structures were accounted for and "net new" shadow is indicated graphically in Figures 5.2 through 5.5 using a deeper shade of blue. Shadow improvements, or new daylight, expected as a result of the changes in the building shape compared to the conceptual massing used in the DPIR shadow studies (shown in yellow).

The No-Build Condition assumes that WP-B1 is in place (submitted for Article 80B review as a separate project) and the eastern portion of the Garage to remain. The Build Condition assumes WP-B2 is in place, the eastern portion of the Garage has been removed, and the East Parcel remains undeveloped. The net new shadow associated with the Proposed Project was analyzed by comparing No Build to Build Conditions.

5.4.2 Shadow Impact Study Findings

When the sun shines any object on the landscape will cast a shadow. Depending where the shadow falls, the time of year, and what the weather conditions are will determine if the shade is welcome or not. The Proposed Project will cast shadows; however, when compared to the conceptual massing of the DPIR, there are only slight differences, and under some conditions daylight is created as a result of the change in building shape, as indicated in yellow on Figures 5.2 through 5.5.

As described in Chapter 3, *Urban Design*, the building mass has been refined from the massing presented in the DPIR. The massing approved as part of the Development Plan Project assumed a building mass that was rectangular is shape. The Proposed Project is an oval shaped plan that contains less exterior façade area and results in less daylight blockage than what was assumed in the DPIR. As a result the amount of shadow obstruction was reduced throughout the year. Additionally, the sculpting of the proposed building massing into a more elegant top also has a positive impact on the Boston's skyline.

Additionally, unusual for new development in Boston, starting in Phase 2A, the Project will provide periods of new sunlight on streets now covered or shaded by the Garage throughout the year. Because the eastern half of the Garage will be removed, shadow is actually eliminated on parts of Congress Street and the East Parcel.

As with the Development Plan Project, the updated shadow studies demonstrate that the new residential building as currently designed will not impact the Boston Common and will have

minimal to no shadow impacts to the west towards Beacon Hill and the West End. Additionally, the Proposed Project will not result in any net shadows on other major open spaces, including City Hall Plaza, Cardinal Cushing Park, and the park behind the Brooke Courthouse, as these public spaces already have shadow cast upon them from existing, adjacent buildings Refer to Section 8.4.2 of Chapter 8, *Historic Resources* for a discussion of net new shadow on the Bulfinch Triangle Historic District.

5.4.2.1 March 21

Refer to Figures 5.2a-d for the spring equinox shadow conditions. In late-winter/early-spring, the sun is still relatively low in the sky. In the morning, net new shadow primarily falls on existing roofs with the exception of the western most portion of Merrimac Street. Between 12PM and 3PM, the net new shadows are shorter falling primarily on the intersection of New Chardon and Merrimac Street. By 6PM, the net new shadow extends across the North End. The net new shadow that is casted is primarily falling on roof tops at this time and the portion of net new shadows that would fall over the Boston Harbor have been reduced as a result of building shaping (Figure 5.2d).

5.4.2.2 June 21

Refer to Figures 5.3a-d for the summer solstice shadow conditions. During the summertime between 9AM and 12PM, the extent of new shadow cast from the proposed office building would be confined primarily to the immediate north over New Chardon Street between Bowker Street and Congress Street. At 3PM, net new shadow moves east over Congress Street and the East Parcel. By 6PM, net new shadow will fall southeast mostly on existing building rooftops with a small portion cast on the nearby Greenway North End Parks. While this late afternoon shadow will most likely be welcomed on a hot sunny afternoon, it continues to move south off the park fairly quickly at this time of day.

5.4.2.3 September 21

Refer to Figures 5.4a-d for the fall equinox shadow conditions. As under the March 21 conditions, in the morning during the fall net new shadow would be cast primarily on existing rooftops to the northwest with the exception of the western most part of Merrimac Street. At 12PM, the net new shadow would fall shorter primarily on the intersection of New Chardon and Merrimac/Congress Streets and over a portion of the southern edge of the Bulfinch Triangle Historic District. By 3PM, net new shadow would move east and continue to fall primarily over the New Chardon/Merrimac/Congress Street intersection. As shown in Figures 5.4b and 5.4c, net new shadow in this area have been greatly reduced due to the reshaping of the tower from the DPIR submission. By 6PM, net new shadow would extend across the North End over mostly existing building rooftops and a portion of the Boston Harbor, which has been reduced from the DPIR massing (Figure 5.4d).

5.4.2.4 December 21

Refer to Figures 5.4a-c for the winter solstice shadow conditions. Winter shadows, cast by sun low in the sky and extend long throughout the vicinity of the Proposed Project Site, including under the existing conditions. Also during this time of the year, the days are less bright and there is much less contrast between shaded and unshaded areas. Given these environmental conditions, net new shadow from the Proposed Project is fairly minimal and falls primarily on exiting building rooftops. The massing change from rectilinear to an oval shape mass improve the winter shadow cast across the city more substantially during this time of the year than any other time, specifically across the Bulfinch Triangle (Figures 5.4b-c).

5.4.2.5 Rose F. Kennedy Greenway North End Parcels

The Proposed Project would have no to very minimal impact on the nearby Greenway North End Parks during the first part of the year when the park is either exposed to sunlight or impacted by existing buildings. Net new shadow from the Proposed Project does not reach the Greenway until late afternoon during the summer (Figure 5.3d). From about 4:30PM to sunset in June, the shadow would track across the two northernmost blocks of the public park. It is important to note, that the net new shadow over the two Greenway would not cover the entire area of the two parks and varies both in area and duration through the summer. As fall approaches, the net new shadow from the Proposed Project would fall back behind the shadows from the existing cityscape.

To better understand what impact these late day shadows would have on the Greenway, the Proponent engaged a landscape consultant to review the type of plantings currently found within the North End Parks of the Rose Kennedy Greenway and to assess the potential shadow impact on the existing landscape based on the area and duration of those shadows. After review, the consultant concluded that there would be no material adverse impacts to those plantings caused by the net new shadow. The planting mix in those parcels includes evergreen shrubs and a mix of flowering perennials. The species represented within these zones, such as Perovskia, Buxus, and Rosa and are ones that are classified as full-sun species. Full-sun is typically understood as six (6) hours or more of daylight per day. Even at its most extreme, June 21, the net new shadow on the longest day would still allow for more than nine (9) hours of daylight and, therefore, the Greenway would receive more than enough sunlight to maintain those plants.

5.4.2.6 Boston Harbor

In general, shadows on the Boston Harbor would only be noticed in the late afternoon before the sunset from March to April, and from August to October, as exhibited below. And, the maximum length of impact is less than one hour. During May, June, July, November and December, when dates are closer to Solstice, there would be no shadow impact due to the northwestern sunset angle in the summer and the earlier sunset time in the winter.

- January: From about 15:00 to 16:35 Sunset

- February: From 16:00 to 17:18 Sunset
- March: From 17:00 to 18:53 Sunset
- April: From 18:00 to 19:27 Sunset
- May: No Impact
- June: No Impact
- July: No Impact
- August: From 18:00 to 19:28 Sunset
- September: From 17:00 to 18:36 Sunset
- October: From 16:00 to 17:46 Sunset
- November: From about 15:00 to Sunset
- December: From about 14:30 to Sunset

5.4.2.7 Charles River

Net new shadow on the Charles River would only be noticed in the early morning of the winter months when the shadow just touches the banks of the river. At no other time would shadow extend to the Charles River. Since shadow generally moves quickly in the morning, the maximum duration of impact is less than one hour.

5.4.2.8 Other Major Public Open Spaces

Other major open space areas considered include: City Hall Plaza; Cardinal Cushing Park; and the park behind the Brooke Courthouse. The shadow studies does not indicate any net shadow impact on the major open spaces, including City Hall Plaza and Cardinal Cushing Park, mainly due to the buildings adjacent to those public spaces already casting shadow on them. The park behind the Brooke Courthouse would experience a small amount of net new shadow caused by the proposed building in the summer mornings, but as can be seen from the June 21 9AM condition, the massing revisions to the Proposed Project result in an improvement in shadows compared to the DPIR massing, as shown in yellow on Figure 5.3a.

5.5 Daylight

The following section describes the anticipated effect on daylight coverage at the Proposed Project Site as a result of the Proposed Project. An analysis of the percentage of skydome obstructed under the Build and No-Build Conditions is a requirement of Article 80B as part of the Environmental Protection component (Section 80B-2(c) of the City of Boston Zoning Code). The daylight analysis was prepared using the BRA's Daylight Analysis Program (BRADA) and has been completed in accordance with the requirements of Article 80 of the City of Boston Zoning Code. The results of the analysis are presented in Figures 5.6a-c.

5.5.1 Methodology

The Proposed Project was analyzed using the BRADA and by comparing the Existing/No-Build Condition and Build Condition. This section provides a description of the methodology used for the analysis.

5.5.1.1 BRADA Software

The BRADA program was developed in 1985 by the Massachusetts Institute of Technology to estimate the pedestrian's view of the skydome taking into account the massing and building materials used. The software approximates a pedestrian's view of a site based on input parameters such as: location of viewpoint, length and height of buildings and the relative reflectivity of the building facades. The model typically uses the midpoint of an adjacent right-of-way or sidewalk as the analysis viewpoint. Based on these data, the model calculates the perceived skydome obstruction and provides a graphic depicting the analysis conditions.

The model inputs used for the daylight study were taken from a combination of the BRA City model, an existing conditions survey prepared by VHB, Inc., and schematic design plans prepared by Pelli Clarke Pelli Architects dated October 2015. As described above, the BRADA software considers the relative reflectivity of building facades when calculating perceived daylight obstruction. Highly reflective materials are thought to reduce the perceived skydome obstruction when compared to non-reflective materials. For the purposes of this daylight analysis, the building facades are considered non-reflective, resulting in a conservative estimate of daylight obstruction.

5.5.1.2 Viewpoints

The following viewpoints were used for this daylight analysis:

- New Chardon Street – This viewpoint is located on the centerline of the street on the northern façade of Garage and Proposed Project.
- Bowker Street – This viewpoint is located on the centerline of the street on the western façade of Garage and Proposed Project.
- New Sudbury Street – This viewpoint is located on the centerline of the street on the southern façade of Garage and Proposed Project.

The viewpoint represents the existing and proposed building façades when viewed from the adjacent pubic way.

5.5.2 Daylight Conditions

Table 5.2 below presents the percentage of skyplane that is expected to be obstructed with and without the Proposed Project from each viewpoint. Figures 5.6a-c graphically show the Project-related daylight impacts for the viewpoints from adjacent public streets.

TABLE 5.2 WP-B2 EXISTING/NO-BUILD AND BUILD DAYLIGHT CONDITIONS*

Viewpoint	Existing/No-Build Skyplane Obstruction	Build Skyplane Obstruction
New Chardon Street	14.8%	32.3%
Bowker Street	82.0%	81.6%
New Sudbury Street	72.4%	75.3%

*Refer to Figures 5.6a-c.

Under the Existing/No-Build Condition, the majority of the skyplane is already obstructed from both New Sudbury and Bowker Streets due to the existing Garage (over 70 percent and over 80 percent, respectively). Therefore, the Proposed Project would not result in a significant increase in the amount of obstructed skyplane from these two adjacent public ways.

From the New Chardon Street viewpoint, the Proposed Project is expected to increase the amount of skyplane obstruction from approximately 15 percent to 32 percent as a result of the increased height of the office building compared to the existing Garage. This effect is to be expected as the Garage is set back from New Chardon Street and is being replaced by a single taller building with less of set back; however, for only a small portion of the span of the vantage (Figure 5.6c). This change as well as from the other adjacent public streets is well within the expected level of view obstruction when considered in the context of the City's planning objectives and the Proponent's redevelopment goals. Consistent with the approved PDA, the desired density and massing of the Proposed Project necessitates obstructing a portion of daylight at the Proposed Project Site.

5.6 Solar Glare

A solar glare study was conducted on the Proposed Project. The objective of the solar glare study was to assess the impact solar reflections emanating from the building facade on the surrounding urban terrain and buildings.

5.6.1 Methodology

A computer model of the Proposed Project and surrounding urban area was developed. Using proprietary software called Eclipse[3] a number of receptor locations were analyzed. Three types of receptors were identified to understand the visual (glare) impacts on drivers, pedestrians and building facades. The solar glare analysis used "clear sky" solar data at the location of Boston's Logan International Airport and assumed no cloud cover ever occurs to provide a "worst case" scenario showing the full extent of when and where glare could occur. Finally, a statistical analysis was performed to assess the frequency, intensity and duration of the glare

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3 Developed by RWDI Consulting Engineers & Scientists

events. Reflections from existing structures were not accounted for; although shadows from these structures were factored in.

Glazed surfaces were modeled as clear float glass with Low-E coating, which has a visible and full spectrum reflectance of 11 and 30 percent, respectfully. The metal panel portions of the façade will be non-reflective as they will be painted with low luster finish in shades of gray. Appendix C provides visual impact diagrams for each receptor point.

5.6.2 Solar Glare Study Findings

Levels of reflections created by this project are typical of what is found in an urban environment. The convex shape building means the reflections emanating from it are not focusing in any particular area. Therefore, no significant visual glare impacts on sensitive receptors (i.e., building facades, drivers, and pedestrians) surrounding the Proposed Project Site are expected.

While drivers travelling southwest along New Chardon Street (receptor D1, as identified in the Solar Glare Study in Appendix C) would experience reflected light off the Proposed Project, the reflections anticipated during peak evening rush hour (between approximately 4PM and 5PM) fall outside of a driver's "cone of vision." Approximately one hour later the building reflection would fall within the driver's cone of vision, however, the actual sun would already also in the driver's line of sight. Therefore, at this time the glare impact from the building, which only lasts approximately 5 to 15 minutes from February through October, is comparable to the glare from the sun that the driver is already experiencing without the building reflections. Similarly, drivers travelling northeast along New Chardon Street (receptor D3) would experience visual glancing impacts from the lower one-quarter of the north facade. Although these, reflections would occur in the very early morning (between 4:00 am to 6:00 am; not during peak morning rush hour) during the summer only.

High-impact visual reflections emanating from the lower one quarter of the northeast facade are also expected to impact the drivers travelling southeast along Merrimac Street near the intersection of New Chardon Street (receptor D2). While these reflections could alter a driver's experience because the actual sun would not be in the driver's line of sight when the reflections occur, the reflections would occur in the very early morning (between 4:00 am to 6:00 am; not during peak morning rush hour) during the summer only.

As the building design progresses, the Proponent and the design team will explore the use of less reflective glass and other passive architectural measures to help mitigate these moderate levels of reflection. A more detailed report of the solar glare findings are included in Appendix C.

5.7 Air Quality

The DPIR microscale air quality assessment was based on the entire Development Plan Project program and, therefore, represents a more comprehensive analysis. Because the number of new vehicle trips associated with only WP-B2 (and WP-B2 in place) is lower when compared to the vehicular traffic estimated for the DPIR program at full build-out, a microscale, or "hot spot", air quality study analysis was not re-evaluated. This section considers stationary sources (i.e., building mechanical systems) associated with the Proposed Project. Appendix D provides the air quality analysis supporting documentation.

5.7.1 Stationary Source Air Quality Analysis

The purpose of the stationary source analysis is to demonstrate that operation of the Proposed Project (i.e., operation of the boilers and emergency generators) will not cause or contribute to a violation of any applicable National Ambient Air Quality Standards (NAAQS). The air quality analysis includes a dispersion modeling analysis that evaluates concentrations of CO, nitrogen dioxide (NO_2), PM2.5, PM10 and sulfur dioxide (SO_2) associated with this equipment. Table 5.3 below lists the equipment proposed as part of the Proposed Project and considered as part of the stationary source air quality analysis. The WP-B2 air quality presents a cumulative analysis to include WP-B1 mechanical equipment

The equipment presented in Table 5.3 below includes the equipment proposed as part of WP-B1 and the Proposed Project (WP-B2). The air quality analysis includes a dispersion modeling analysis that evaluates concentrations of carbon monoxide (CO), nitrogen dioxide (NO_2), particulate matter ($PM_{2.5}$ and PM_{10}) and sulfur dioxide (SO_2) associated with this equipment.

TABLE 5.3 EMISSION SOURCES

Type of Emission Source	Size
WP-B1 Residential Building	
Emergency Standby Diesel Generator	1,500 kW
Four (4) Natural Gas Boilers	5,000 MBH each
WP-B2 Office Building	
Emergency Standby Diesel Generator	1,500 kW
Eight (8) Natural Gas Boilers	5,000 MBH each

5.7.1.1 Methodology

MassDEP requires that a stationary source air quality impact analysis be included as part of the permitting process. Refined dispersion modeling (AERMOD) requires detailed emissions data, information regarding stack and building geometry, meteorological data, and surrounding

terrain data. AERMOD[4] is an air dispersion computer program designed to assess emissions generated by stationary sources and takes into consideration the complexities of multiple sources, meteorological data, and varying terrain geometry. AERMOD modeling procedures follow EPA guidance for evaluating stationary source emissions. The use of this model is appropriate for chemically stable, gaseous or fine particulate pollutants, such as CO, NO_2, PM, and SO_2. AERMOD incorporates multiple sources, meteorological data, source emission data, stack and building geometry, and detailed surrounding land use and topography. These data were incorporated into AERMOD to generate concentrations that demonstrate whether or not the proposed project would comply with the NAAQS.

Emission Source Data

The manufacturer's specifications for the emergency standby diesel generators and heating boilers typically provide the emission source data. The source data include the type, emission rate, stack height, stack diameter, exit velocity (flow rate), and exit temperature. Typical parameters for the generator and boilers have been assumed for modeling purposes and are presented in Table 5.4 below. As the building design progresses, the air quality modeling would have to be updated with the specific project equipment parameters through the air quality permitting process (Self-Certification, or Environmental Results Program (ERP)). It has been assumed that the emergency generator will have a separate stack, while the four boilers exhaust into one stack. The air quality study evaluated pollution concentrations under worst-case full-load operating conditions for the emergency standby diesel generators and heating boilers.

TABLE 5.4 WP-B2 EMISSION SOURCE DATA

	Proposed 1,500 kW Generator	Eight 5,000 MBH Natural Gas Boilers[1]
CO Emission Rate (g/sec)	0.270	0.09072
NOx Emission Rate (g/sec)	0.10548	0.43344
$PM_{2.5}$ Emission Rate (g/sec)	0.0176	0.16632
PM_{10} Emission Rate (g/sec)	0.0176	0.16632
SO_2 Emission Rate (g/sec)	0.002807	0.00744
Stack Height above ground (ft)	538.3 (10 feet above roof)	538.3 (10 feet above roof)
Stack Diameter (in)	14	42
Exit Velocity (ft/sec)	170	6.9
Exit Temp. (^{0}F)	759	440

Note: These emission parameters are typical parameters. Actual emission parameters are not available at this planning stage.

1 These values represent the total emissions out of the exhaust stack venting the exhaust of all eight (8) boilers.

[4] AERMOD Dispersion Model, Version 15181.

Background Concentrations

The total concentrations that receptor locations will experience include background concentrations from other surrounding emission sources. Background concentrations are ambient pollution levels from other stationary, mobile, and area sources. EPA maintains an air quality monitoring network and produces annual air quality reports that include monitoring data for CO, NO_2, $PM_{10,}$ $PM_{2.5}$ and SO_2. MassDEP recommends that a background site within 10 kilometers be identified. The closest monitoring site was used for all criteria pollutants. This location was Kenmore Square, Boston, Massachusetts for all pollutants except $PM_{2.5}$ and PM_{10}. Background concentrations for $PM_{2.5}$ were based on the monitoring site at 174 North Street, Boston, Massachusetts and based on the monitoring site at One City Square, Boston for PM_{10}. For background concentrations, MassDEP recommends using the 98th percentile value averaged over three years for 24-hour $PM_{2.5}$, the 98th percentile value averaged over 3 years for 1-hour NO_2, and the 99th percentile value averaged over three years for 1-hour SO_2. For long-term averaging times (annual), the highest annual mean recorded in the three most recent years shall be used for NO_2, while the average of the annual mean recorded in the three most recent years shall be used for $PM_{2.5}$.

The background concentration values of the pollutants modeled in this air quality analysis over the three most recent years are shown in Table 5.5.

TABLE 5.5 WP-B2 BACKGROUND CONCENTRATIONS

Pollutant	Averaging Time	Background Concentration
Carbon Monoxide (CO)	1-Hour[1]	1,514.1 µg/m^3
	8-Hour[1]	1,048.3 µg/m^3
Nitrogen Dioxide (NO_2)	Annual[2]	36.5 µg/m^3
	1-Hour[3]	93.1 µg/m^3
Particulate Matter (PM_{10})	24-Hour[4]	47.7 µg/m^3
Particulate Matter ($PM_{2.5}$)	Annual[5]	8.4 µg/m^3
	24-Hour[6]	18.2 µg/m^3
Sulfur Dioxide (SO_2)	1-Hour[7]	31.0 µg/m^3

1 Reflects the highest second-high value of the three most recent years (2012-2014) from Kenmore Square in Boston.
2 Reflects the highest annual mean value of the three most recent years (2012-2014) from Kenmore Square in Boston.
3 Reflects the average of the 98th percentile values of the three most recent years (2012-2014) from Kenmore Square in Boston.

4 Reflects the average second-high values of the three most recent years (2012-2014) from One City Square in Boston.
5 Reflects the average of the annual mean values of the three most recent years (2012-2014) from 174 North Street in Boston.
6 Reflects the average of the 98th percentile values of the three most recent years (2012-2014) from 174 North Street in Boston.
7 Reflects the average of the 99th percentile values of the three most recent years (2012-2014) from Kenmore Square in Boston.

Analysis & Results

Using the air dispersion model AERMOD, concentrations for all pollutants at various distances away from the stack were calculated to ensure that the highest concentrations were identified and the Proposed Project emission sources would not cause harm to public health and the environment. Aerial and elevation data obtained from the United States Geological Survey (USGS) and Google Earth™ were used to identify the elevations and distances to the receptor locations.

The air quality analysis calculated the worst-case concentrations of the five (5) criteria pollutants (CO, NO_2, $PM_{2.5}$, PM_{10}, and SO_2.), associated with the operation of the emergency standby diesel generator and boilers operating at full load conditions. The worst-case concentrations from the "project impacts" determined through the AERMOD analysis were added to the background concentrations and compared to the NAAQS. Table 5.6 below summarizes the existing ambient background concentrations, project impacts, and total concentrations.

TABLE 5.6 WP-B2 TOTAL POLLUTANT CONCENTRATIONS [1]

Pollutant	Averaging Time	Background Concentrations (µg/m³)	Project Impacts[1] (µg/m³)	Total Concentrations[2] (µg/m³)	Criteria: NAAQS (µg/m³)
Carbon Monoxide[3] (CO)	1-Hour	1,514.10	27.47	1,541.57	40,000
	8-Hour	1,048.30	18.43	1,066.73	10,000
Nitrogen Dioxide[3] (NO_2)	Annual	36.50	5.12	41.62	100
	1-Hour	93.10	30.50	123.60	189
Particulate Matter[4] (PM_{10})	24-Hour	47.67	5.66	53.33	150
Particulate Matter[5] ($PM_{2.5}$)	Annual	8.40	2.07	10.47	12
	24-Hour	18.20	4.45	22.65	35
Sulfur Dioxide[3] (SO_2)	1-Hour	31.00	0.75	31.75	196

1 WP-B2 Air Quality presents a cumulative analysis to include WP-B1 mechanical equipment. Project impacts represent the maximum concentrations from all of the WP-B1 and WP-B2 emission sources.
2 Total Concentrations represent the total of the background concentration and project impacts.
3 Background concentrations based on data from Kenmore Square station in Boston
4 Background concentrations based on data from One City Square station in Boston.
5 Background concentrations based on data from 174 North Street station in Boston.

Carbon Monoxide

The air quality analysis calculated the worst-case 1-hour and 8-hour CO concentrations for the emergency standby diesel generator and boilers at full load operation including ambient background concentrations. As summarized in Table 5.6 above, the highest 1-hour CO concentration is 1,541.57 µg/m3, while the highest 8-hour CO concentration is 1,066.73 µg/m3. These values comply with and are well below the NAAQS of 40,000 µg/m3 and 10,000 µg/m3, respectively.

Nitrogen Dioxide

Modeling full load operation of the emergency standby diesel generator and boilers resulted in a maximum annual NO_2 concentration of 41.62 µg/m^3 and 1-hour concentrations of 123.60 µg/m^3. All predicted NO_2 concentrations comply with the NAAQS of 100 µg/m^3 and 189 µg/m^3, respectively. The NO_2 results are presented in Table 5.6 above.

Particulate Matter 2.5

The air quality analysis calculated the worst case annual and 24-hour $PM_{2.5}$ concentrations for the emergency standby diesel generator and boilers at full load operation. The highest annual $PM_{2.5}$ concentration is 10.47 µg/m^3, while the highest 24-hour $PM_{2.5}$ concentration is 22.65 µg/m^3. The annual and 24-hour value $PM_{2.5}$ complies with the NAAQS of 12 µg/m^3 and 35 µg/m^3, respectively. The $PM_{2.5}$ results are presented in Table 5.6 above.

Particulate Matter 10

The air quality analysis calculated the worst case 24-hour PM_{10} concentration for the emergency standby diesel generator and boilers at full load operation. The highest 24-hour PM_{10} concentration is 53.33 µg/m^3, which complies with the NAAQS of 150 µg/m^3. The PM_{10} results are presented in Table 5.6 above.

Sulfur Dioxide

The air quality analysis calculated the worst case 1-hour SO_2 concentrations for the emergency standby diesel generator and boilers at full load operation. For SO_2, the highest 1-hour concentration is 31.75 µg/m^3, which complies with the NAAQS of 196 µg/m^3. The SO_2 results are presented in Table 5.6 above.

5.7.1.2 Conclusion

The air quality study demonstrates that the combined operation of the boilers and the emergency generator for the Proposed Project will comply with the NAAQS. The results of the modeling demonstrate that all of the modeled CO, NO_2, PM, and SO_2 concentrations for the full load operating conditions comply with the NAAQS. The results demonstrate that operating

the emission sources (emergency standby diesel generators and boilers) will not cause or contribute to violations of the NAAQS. The analysis was conducted using typical emission parameters for the equipment currently planned. A detailed analysis with the chosen final equipment will be provided to show compliance with the NAAQS for the MassDEP ERP program, as required.

5.8 Construction Management Plan

Construction-related impacts associated with the Proposed Project construction activities are temporary in nature and are typically related to truck traffic, air (dust), noise, stormwater runoff, solid waste and vibration. All temporary construction-period impacts associated with WP-B2 will be managed to minimize disruption to the surrounding neighborhood. The following section generally describes the potential construction-period impacts and proposed Construction Management Plan (CMP) elements. Figure 5.7 illustrates the proposed construction logistics plan.

As the design of WP-B2 progresses, the Construction Manager (CM) will refine and expand the CMP to address sub-phases and reflect the input of the regulatory authorities having jurisdiction over CMPs, including the Boston Fire Department (BFD) and BTD.

The CMP elements discussed below are specific to construction of WP-B2 and do not include the demolition activities associated with the removal of the eastern portion of the Garage. The CMP to be developed for the garage demolition activities will be the subject of a future Demolition Permit approval process.

5.8.1 Scope of Work/Construction Timing and Sequencing

As described in Chapter 1, *Project Description*, the Proposed Project includes construction of a new office building, removal of existing parking garage helix on northwest corner of the Proposed Project Site for the new building, and other minor configuration modifications internal to the Garage. The total construction duration is anticipated to be approximately 42 months.

Demolition will be completed with hydraulic processing equipment. The new building will be erected with a tower crane. Assist cranes be required at periodic times. The construction area work zone will be confined by jersey barriers and fencing.

Typical hours of operation are from 7:00 AM to 6:00 PM, Monday through Friday. While it is anticipated that some shift work may be required, no significant noise-generating activity will occur prior to 7AM. There may be occasions where work may be required on selected Saturdays or Sundays, such as to mobilize or demobilize heavy equipment (setting up and taking down the tower crane, as an example). These specific activities will be identified and the CM will obtain the necessary permits from the City for such cases as well as provide notice to neighbors in the vicinity of the Proposed Project Site.

5.8.2 Site Preparation and Staging

Construction site access will be provided via New Chardon Street where vehicles will enter from the west and exit heading east. Site fenced area will include both east-bound travel lanes on New Chardon. Truck track mat will be utilized during below grade construction. Crane picks will be made from New Chardon Street within the fenced in area (Figure 5.7).

Prior to the start of construction, existing utilities will be surveyed and mapped. No excavations will be performed until Dig Safe has been notified, and utilities marked. Existing public and private infrastructure located within the public right-of-way will be protected during construction. The installation of proposed utilities within the public way will be in accordance with the MWRA, BWSC, Boston Public Works, Dig Safe and the governing utility company requirements, as applicable. All necessary permits will be obtained before the commencement of the specific utility installation. Specific methods for constructing proposed utilities where they are near to, or connect with, existing water, sewer and drain facilities will be reviewed by BWSC as part of its Site Plan Review process.

5.8.3 Pedestrian Safety and Access

Public safety is the primary consideration in all our construction planning and building processes. Specific pedestrian crosswalks and re-routing measures will be taken to allow for adequate egress around the active construction zones.

The sidewalk along the south side of New Chardon Street and east side of Bowker Street will be closed to pedestrians during construction. A new crosswalk/pedestrian signal/handicap ramps at Bowker/New Chardon will be established. Pedestrians will be re-routed the west side of Bowker Street via a new crosswalk and then continue on the north side of New Chardon Street. The New Chardon Street Garage entrance will be closed during construction; however, the new Bowker Street entrance will be operational at this time. Temporary protection will be afforded by sidewalk and access walkway overhead protection and routes will be secured by barriers.

As shown on Figure 5.7, the WP-B2 construction zone is located on the west side of Congress Street and, therefore, no impacts to the MBTA existing operations at Haymarket Station are expected.

5.8.4 Construction Traffic and Parking

Proposed truck Routes have been identified for the Proposed Project, as shown on Figure 5.8. The Truck Delivery Routes will occur within the construction zone (Figure 5.7). Site fencing will be erected in accordance with sidewalk and road closure permits. Best efforts will be made to schedule major deliveries on non-peak traffic hours. Signage will be prevalent throughout the site and surrounding streets informing pedestrians and traffic alike of the impacts.

It is the intent of the Proponent to minimize the impact on traffic and parking in the PDA Site area. No on-site construction parking will be made available to subcontractors and all trade workers will be encouraged to utilize readily accessible MBTA services. If workers cannot take advantage of existing public transportation services, they will be encouraged to park in local, off-street private parking lots.

5.8.4.1 Truck Traffic Management

Arrivals

From the South and West, vehicles will travel on I-93 North and take Exit 23 – Aquarium (toward Quincy Market), ,merge onto North Street and take a left onto Congress Street, right on State Street, continue onto Court Street, right on Cambridge Street, take a right onto New Chardon Street.

From the North, Take I-93 Exit 24A Government Center, slight right on Clinton Street, left onto North Street and take a left onto Congress St, right on State Street, continue onto Court Street, right on Cambridge Street, take a right onto New Chardon Street.

Departures

To go north, take a right onto Congress, left onto New Sudbury Street, left onto I- 93N ramp. To go south, continue on New Chardon and take a right onto I-93S ramp.

Surrounding Local Streets

Access to the WP-B2 construction site will be located on New Chardon Street (Figure 5.7). A detailed CMP and Traffic Control Plan will be developed. It is anticipated both east-bound travel lanes on New Chardon will be utilized for vehicle and site access. No other impacts to surrounding streets are anticipated for construction of WP-B2.

5.8.5 Air Quality/Dust

Overall, air quality in the vicinity of the Proposed Project Site area is not expected to be substantially affected by redevelopment because of emission control procedures and the temporary nature of construction activities. Emissions from the operation of construction machinery (i.e., CO, nitrogen oxides [NOx], PM, volatile organic compounds [VOCs], and GHGs) are short-term and not generally considered substantial.

During construction within the Project Site, emission controls for construction vehicle emissions will be employed, including, as appropriate, proper maintenance of all motor vehicles, machinery, and equipment associated with construction activities (i.e., the maintenance of manufacture's muffler equipment or other regulatory-required emissions control devices). The state's anti-idling law will be enforced during all construction of the Proposed Project with the installation of on-site anti-idling signage at loading and drop-

off/pick-up/waiting areas. In addition, the Proponent is committed to meeting the requirements the DEP State Revolving Fund (SRF) for diesel construction equipment. These require that all non-road diesel equipment rated 50 horsepower or greater that will be used on a construction site meet EPA's Tier 4 emission limits or be retrofitted with appropriate emission reduction equipment. Emission reduction equipment includes EPA-verified, CARB-verified or DEP-approved diesel oxidation catalysts or diesel particulate filters.

The construction air quality will be mostly influenced by the control of fugitive dust and construction vehicle/equipment emissions. Proposed air quality control measures include:

- Eliminate idling of construction vehicles to reduce exhaust emissions,
- Utilize appropriate mufflers on construction vehicles and insure that they are functioning properly,
- Utilize electric powered tower cranes
- Utilize electric welding equipment in lieu of gas-fired equipment,
- Contain construction operations, such as sprayed on fireproofing, to eliminate migration of dust.

The CMP will include methods to mitigate the fugitive dust and soils that will be generated during the course of construction. Mitigation measures to reduce fugitive dust will include:

- Dust will be primarily controlled by means of hosing down with water employed during the demolition and foundation phases.
- Utilize wetting agents where hosing down with water is not practical.
- Provision of mechanical street sweeping during the performance of the building and utility and excavation/backfill work.
- Make every effort to insure that trucks removing materials from the construction site will be free of mud and debris from their tires, prior to departure through use of rumble plates/wheel-wash station as appropriate.
- Trucks leaving the construction site with construction debris or soils will be fully covered.

5.8.6 Construction Noise

Every reasonable effort will be made to minimize the noise impact of the construction activities. Mitigation measures will include:

- No equipment start-up prior to 7:00 AM;
- Eliminate idling of construction vehicles;
- Utilize appropriate mufflers on all equipment and perform on-going maintenance to assure that intake and exhaust are functioning properly;
- Locate noisy equipment as far as possible from sensitive areas; and

- Shield or encapsulate noisy equipment as practicable.

5.8.7 Stormwater Runoff/Erosion Control

While a federal National Pollutant Discharge Elimination System (NPDES) General Construction Permit is not required because construction of WP-B2 is not anticipated to disturb over one (1) acre of land, the CM will be required to take measures to prevent erosion and to control sediments during the construction phase. These measures will likely include perimeter silt fence/straw barrier protection, dust control, and drain inlet protection. Any construction dewatering discharges will be appropriately controlled and discharged in accordance with the NPDES state and local dewatering standards. An overall site-specific Storm Water Pollution Prevention Plan (SWPPP) will be developed in accordance with local (BWSC) regulatory agency requirements. If the scope changes, the Proponent will review the federal NPDES requirements.

5.8.8 Construction Waste Management

The CM will take an active role in regard to the processing and recycling of construction waste and will have in-place a Construction Waste Management Plan (CWMP) for the Proposed Project. The CWMP will require the CM to contract with a licensed waste hauler that has off-site sorting capabilities. All construction debris will be taken off-site by the waste hauler, sorted as either recycled debris or waste debris and sent to the proper recycling center or waste facility. Construction debris shall be wetted and covered to minimize air born dust particles. Prior to construction, in accordance with the LEED goals established (discussed further in Chapter 6, *Sustainability/Green Building and Climate Change Preparedness*) construction and demolition debris will be diverted away from landfills and incineration facilities, and will be sought to reuse materials, where feasible and reasonable.

Asbestos containing material (ACM) is not expected to have been used in the Garage; however, if ACM is encountered during demolition of any portion of the existing garage structure it will be handled appropriately, and in accordance with state and local regulations. The Proponent is aware of the U.S. EPA Remediation General Permit program and, if applicable, will apply for permit coverage.

5.8.9 Hazardous Materials

Scope of the phase includes demolition of a portion of the existing garage. We do not anticipate any hazardous materials will be encountered during demolition. However, if encountered, we will obtain permits for chemical cleaning and abrasive blasting, if required.

5.8.10 Odor and Rodent Control

A formal Certified Pest Control Plan will be implemented in accordance with City requirements. Other than potential emissions from construction equipment, additional odor issues are not anticipated during construction.

5.8.11 Vibration

Prior to and during construction, the project team proposes to implement a monitoring program to document pre-construction conditions, and to detect construction effects on adjacent structures, if any. Acceptable vibration criteria will be established prior to demolition/construction, and vibration will be monitored to ensure compliance with the agreed-upon standard. The program will identify adjacent buildings most likely to be impacted by the proposed construction and include conducting preconstruction condition surveys of these adjacent structures. In addition the program will incorporate an instrumentation program, which would include:

- Elevation reference points on adjacent buildings and structures;
- Monitoring gages on cracks that may be identified in adjacent building;
- Survey points to monitor lateral deflection of the excavation support system; and
- Vibration monitoring during vibration generating activities such as garage demolition

5.8.12 Coordination with Abutters/Community and Other Projects

The CM will participate in keeping neighborhood associations aware of schedule impact updates to keep surrounding communities appropriately informed up upcoming work activity.

There are likely to be several other development projects in the areas near the Proposed Project Site. The Proponent is committed to participating in coordinated construction management planning efforts that may be sponsored by the City and/or groups, such as the Downtown North Association and A Better City.

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Figure 5.1a

No-Build Pedestrian Wind Conditions

Redevelopment of the Government Center Garage
WP-B2 (Office Building)
Boston, Massachusetts

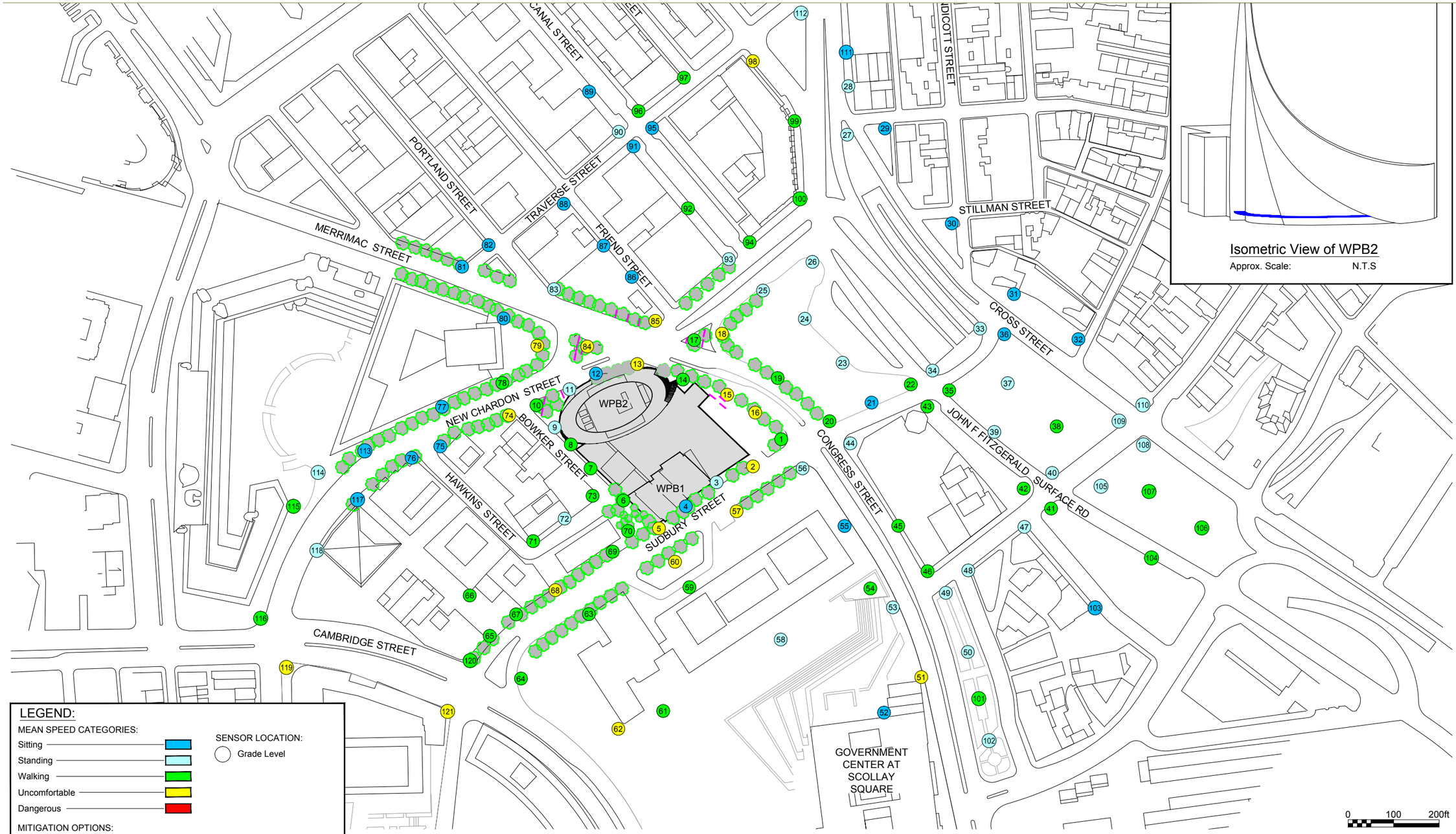
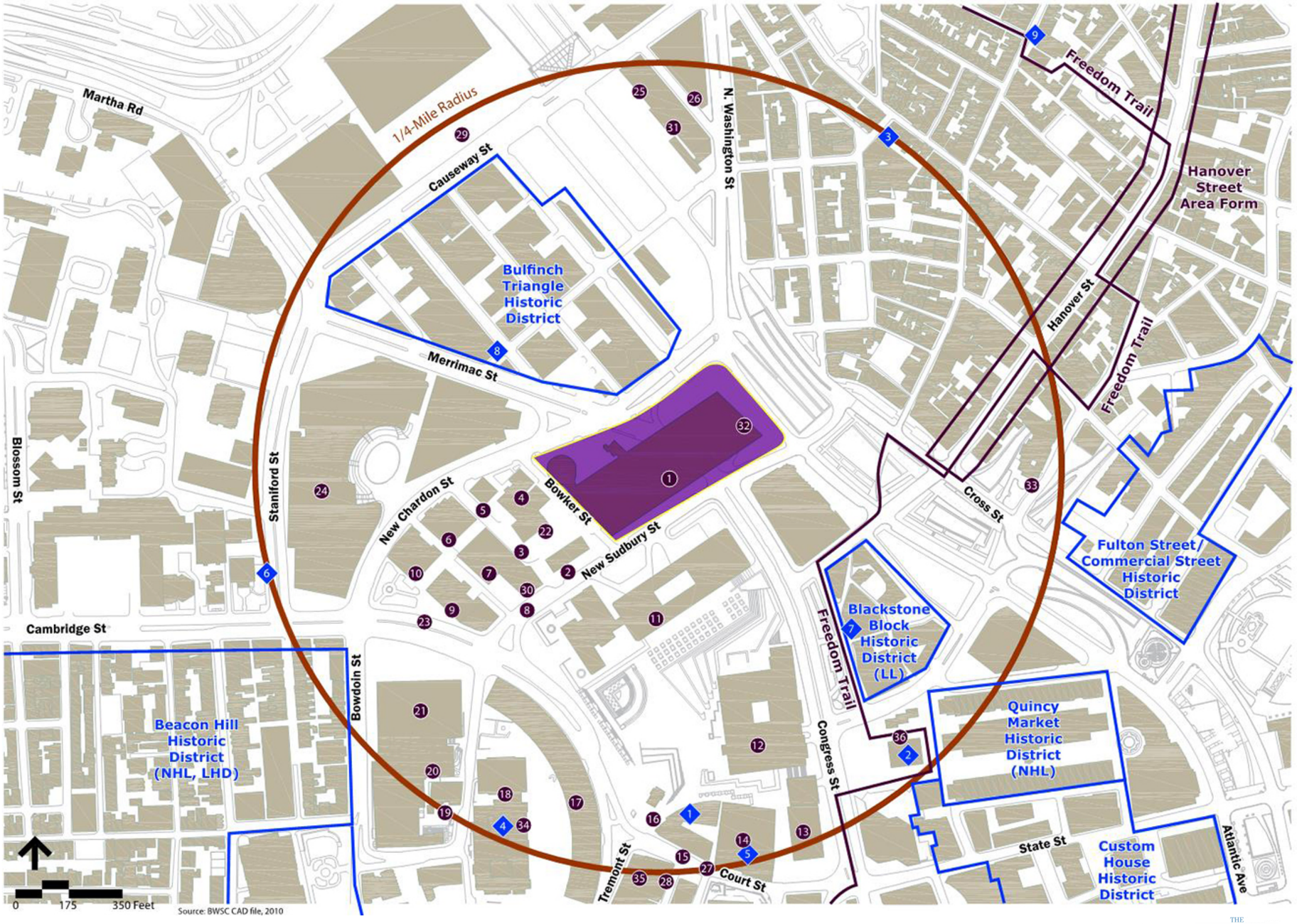


Figure 5.1b

WP-B2 Build Pedestrian Wind Conditions

Redevelopment of the Government Center Garage
WP-B2 (Office Building)
Boston, Massachusetts



National Register Individually Listed Properties
- 1 Sears Crescent and Block
- 2 Faneuil Hall (NHL, PR, LL)
- 3 Vermont Building
- 4 John Adams Courthouse
- 5 Ames Building (LL)
- 6 Old West Church (NHL, PR)
- 7 Union Oyster House (NHL, LL)
- 8 138-142 Portland Street
- 9 The Old North Church

MHC Individually Inventoried Properties
- 1 Government Center Parking Garage
- 2 District 1 Police Station
- 3 Boston Edison Substation
- 4 Overseers of the Public Welfare Building
- 5 O'Neal Building (Jewish Family and Children's Services)
- 6 Royal Globe Insurance Company
- 7 R.K.O. General Building
- 8 One Bulfinch Place
- 9 New England Telephone and Telegraph
- 10 Bulfinch Building
- 11 JFK Federal Building
- 12 Boston City Hall
- 13 New England Merchants National Bank
- 14 One Washington Mall
- 15 City Bank and Trust Building
- 16 Government Center MBTA Station
- 17 One, Two and Three Center Plaza
- 18 Suffolk County Courthouse Addition
- 19 Metropolitan District Commission Building
- 20 McCormack Office Building
- 21 Leverett Saltonstall Building
- 22 Temporary Home for Women
- 23 Bowdoin Street MBTA Station
- 24 Lindemann Mental Health Center
- 25 Dow Braman and Company Building
- 26 Keaney Square Building
- 27 Old Colony Trust Building
- 28 United States Trust Company Building
- 29 North Station MBTA Substation and Signal Tower
- 30 Capital Bank Building
- 31 6-24 Medford Street
- 32 Haymarket MBTA Station
- 33 Traffic Tunnel Administration Building
- 34 Rufus Choate Statue
- 35 Hemenway Building
- 36 Faneuil Hall Greenhouses

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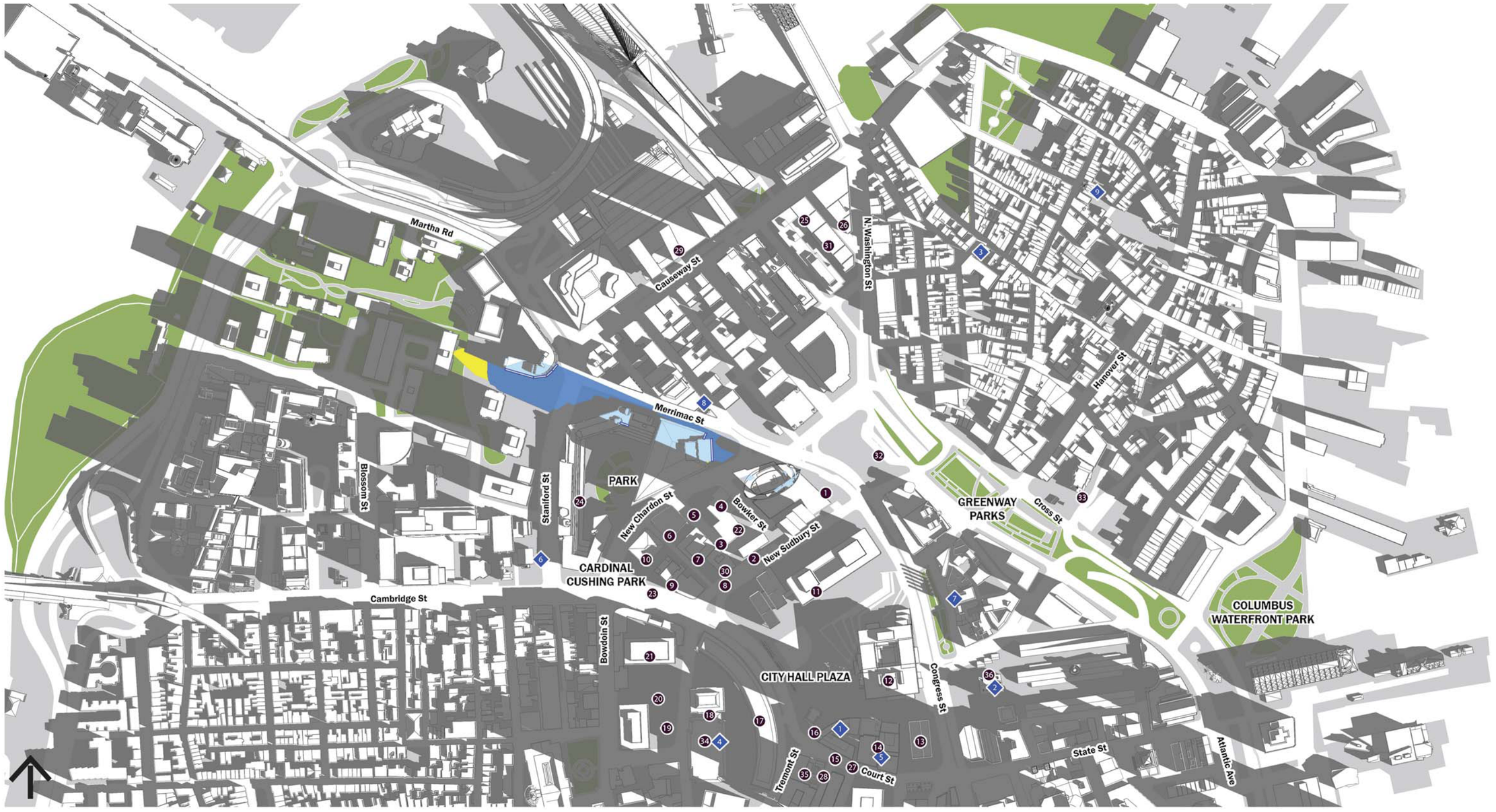
Figure 5.2

Historical Sites

Redevelopment of the Government Center Garage
WP-B2 (Office Building)
Boston, Massachusetts



NET NEW SHADOW (STREET LEVEL)

NET NEW SHADOW (ROOFTOP)

NET NEW SHADOW (FACADE)

PUBLIC OPEN/GREEN SPACE

SHADOW IMPROVEMENT COMPARED TO DPIR

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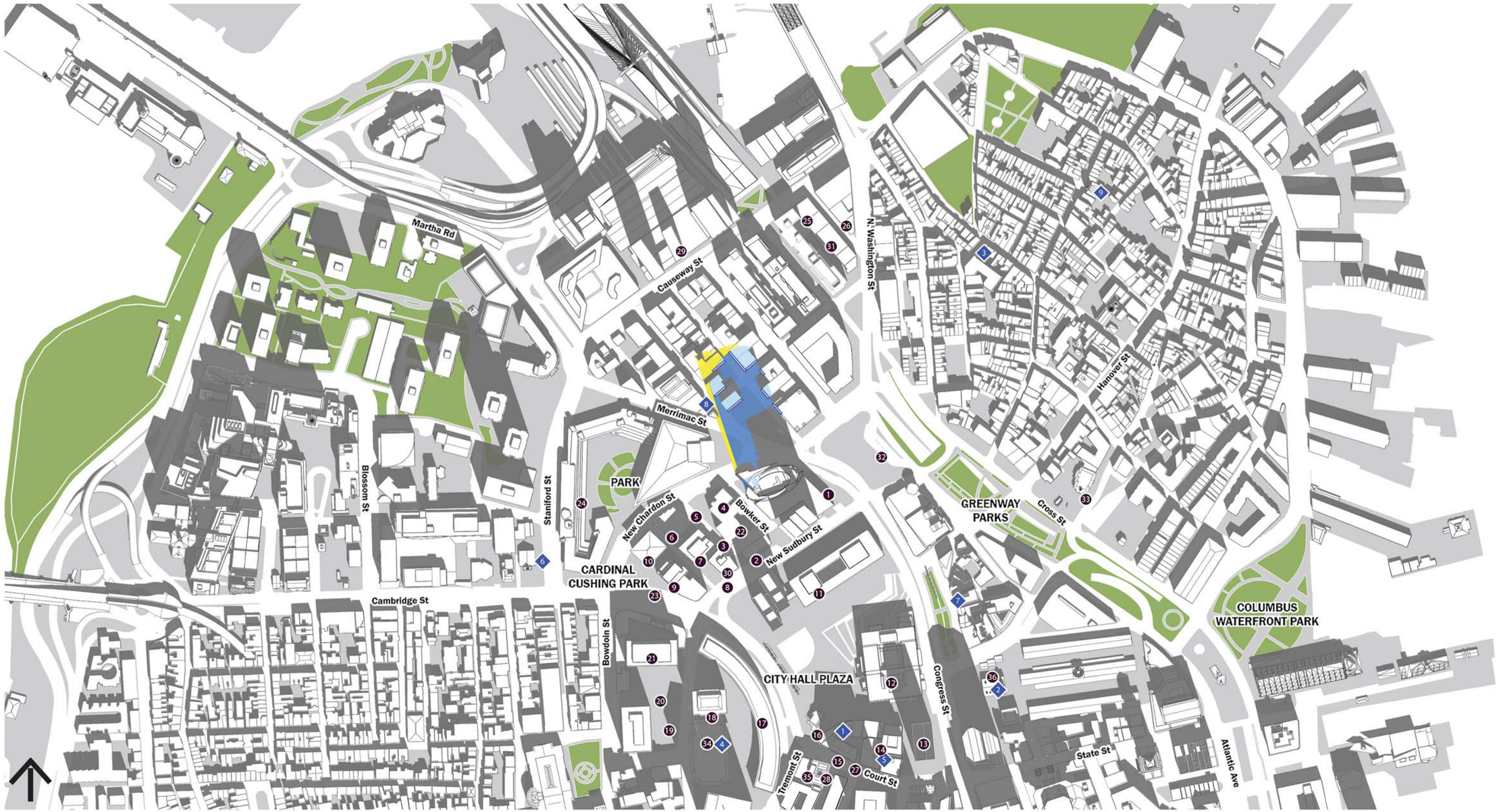
Figure 5.2a

WP-B2 Shadows - March 21 9AM

Redevelopment of the Government Center Garage
WP-B2 (Office Building)
Boston, Massachusetts



NET NEW SHADOW (STREET LEVEL)

NET NEW SHADOW (ROOFTOP)

NET NEW SHADOW (FACADE)

PUBLIC OPEN/GREEN SPACE

SHADOW IMPROVEMENT COMPARED TO DPIR

cbt

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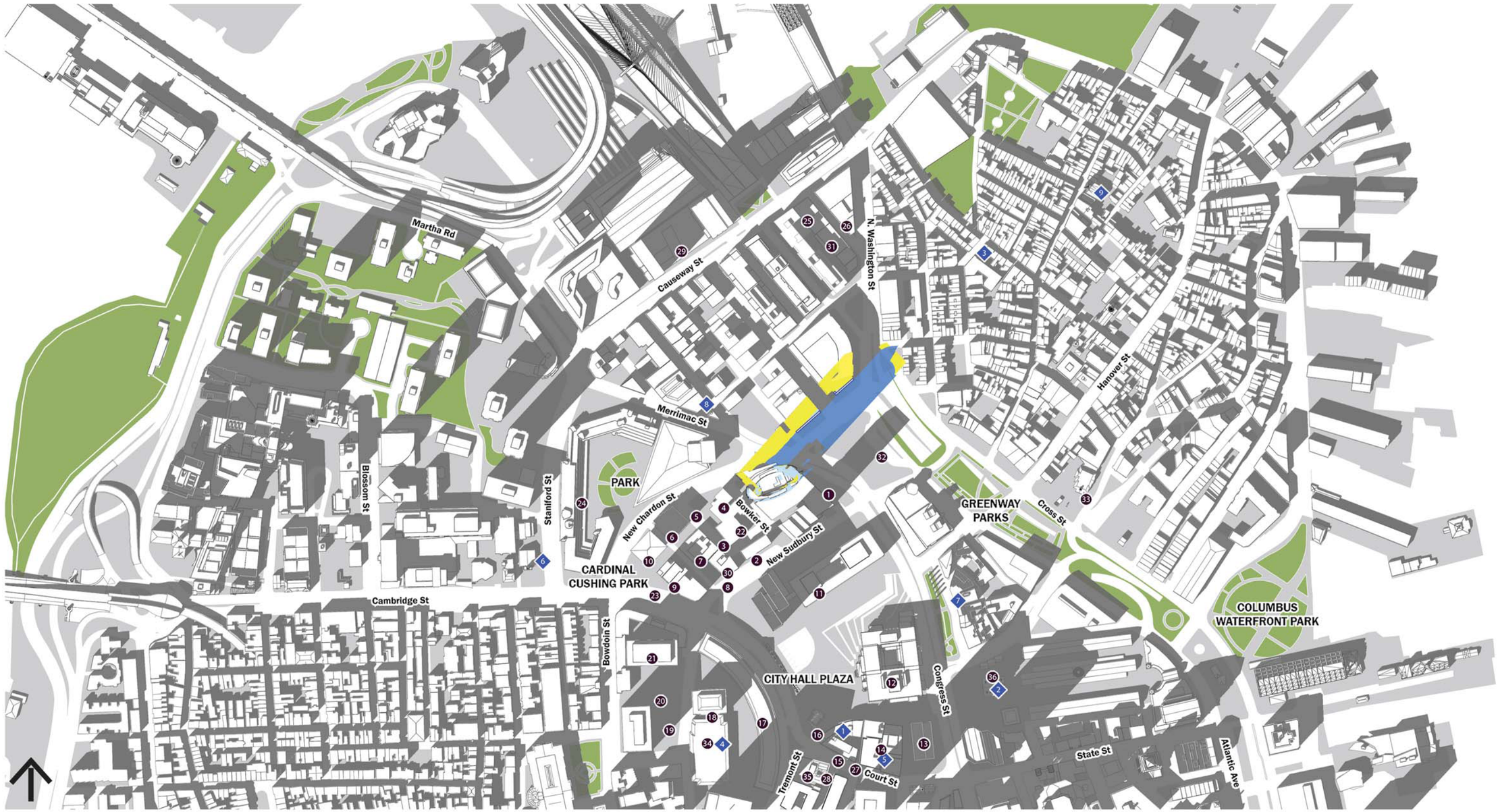
Figure 5.2b

WP-B2 Shadows - March 21 12PM

Redevelopment of the Government Center Garage
WP-B2 (Office Building)
Boston, Massachusetts



NET NEW SHADOW (STREET LEVEL)

NET NEW SHADOW (ROOFTOP)

NET NEW SHADOW (FACADE)

PUBLIC OPEN/GREEN SPACE

SHADOW IMPROVEMENT COMPARED TO DPIR

cbt

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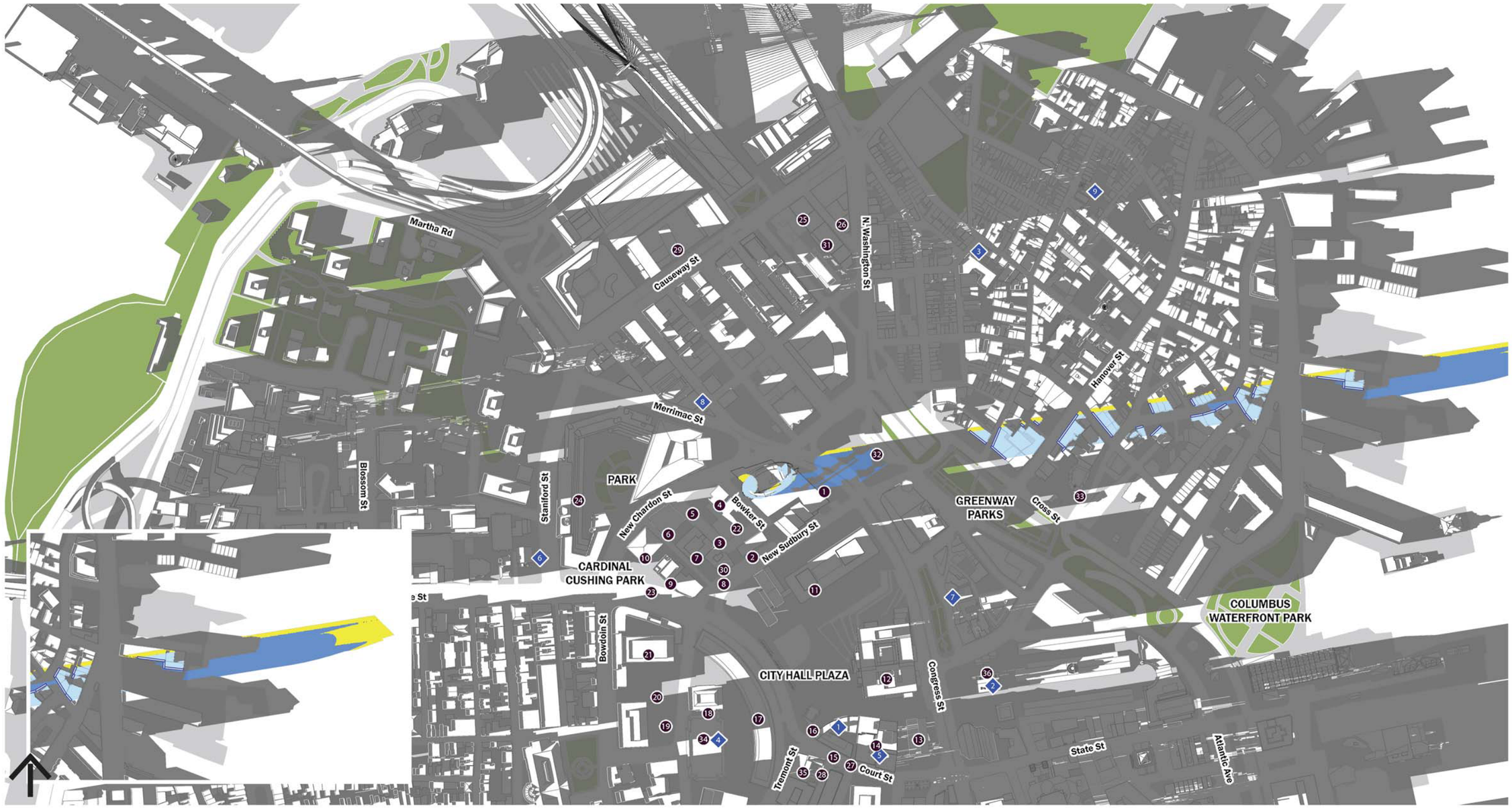
Figure 5.2c

WP-B2 Shadows - March 21 3PM

Redevelopment of the Government Center Garage
WP-B2 (Office Building)
Boston, Massachusetts



cbt

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Figure 5.2d

WP-B2 Shadows - March 21 6PM

Redevelopment of the Government Center Garage
WP-B2 (Office Building)
Boston, Massachusetts

NET NEW SHADOW (STREET LEVEL)

NET NEW SHADOW (ROOFTOP)

NET NEW SHADOW (FACADE)

PUBLIC OPEN/GREEN SPACE

SHADOW IMPROVEMENT COMPARED TO DPIR

cbt

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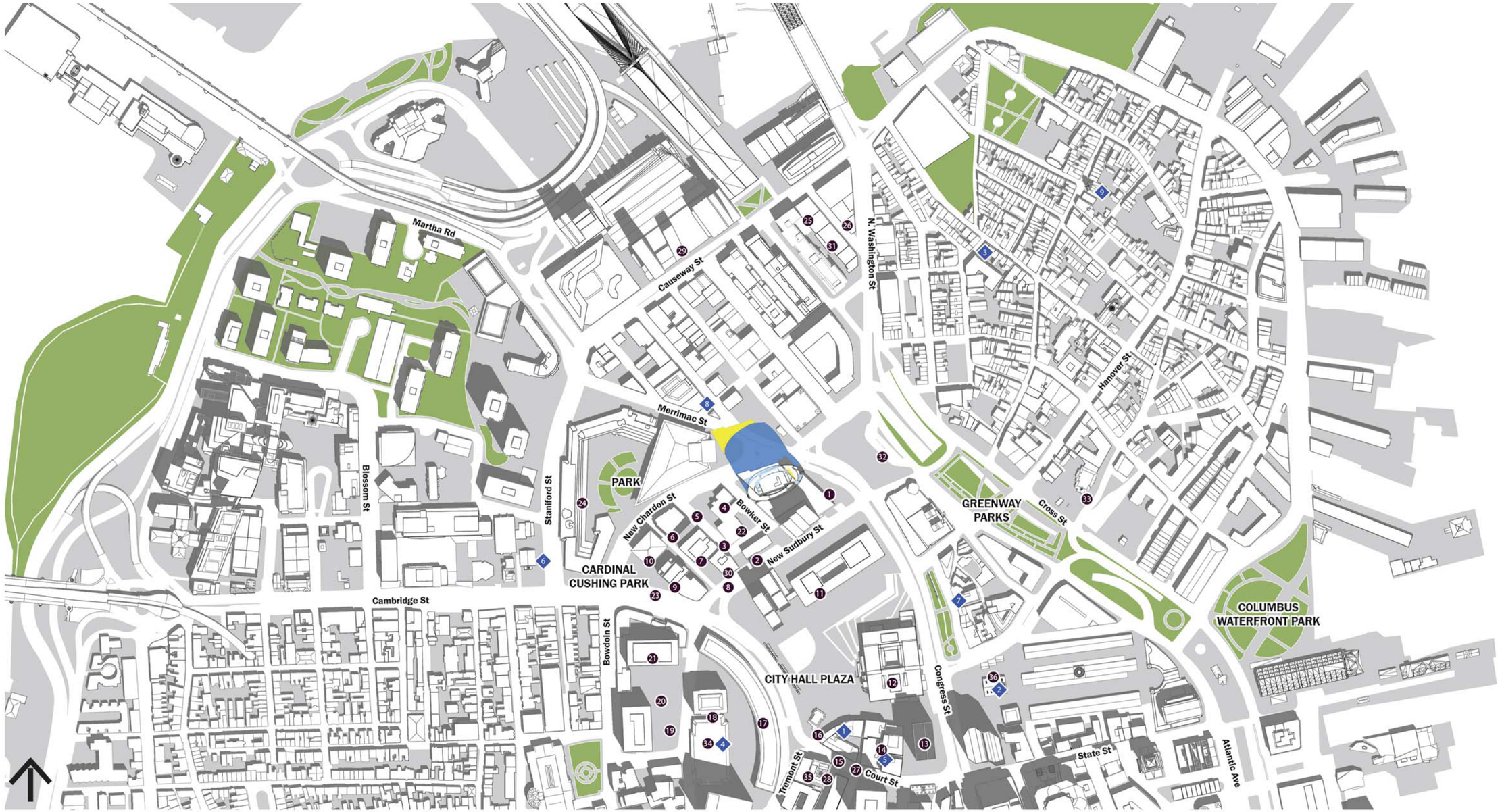
Figure 5.3a

WP-B2 Shadows - June 21 9AM

Redevelopment of the Government Center Garage
WP-B2 (Office Building)
Boston, Massachusetts



NET NEW SHADOW (STREET LEVEL)

NET NEW SHADOW (ROOFTOP)

NET NEW SHADOW (FACADE)

PUBLIC OPEN/GREEN SPACE

SHADOW IMPROVEMENT COMPARED TO DPIR

cbt

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Figure 5.3b

WP-B2 Shadows - June 21 12PM

Redevelopment of the Government Center Garage
WP-B2 (Office Building)
Boston, Massachusetts

NET NEW SHADOW (STREET LEVEL)

NET NEW SHADOW (ROOFTOP)

NET NEW SHADOW (FACADE)

PUBLIC OPEN/GREEN SPACE

SHADOW IMPROVEMENT COMPARED TO DPIR

cbt

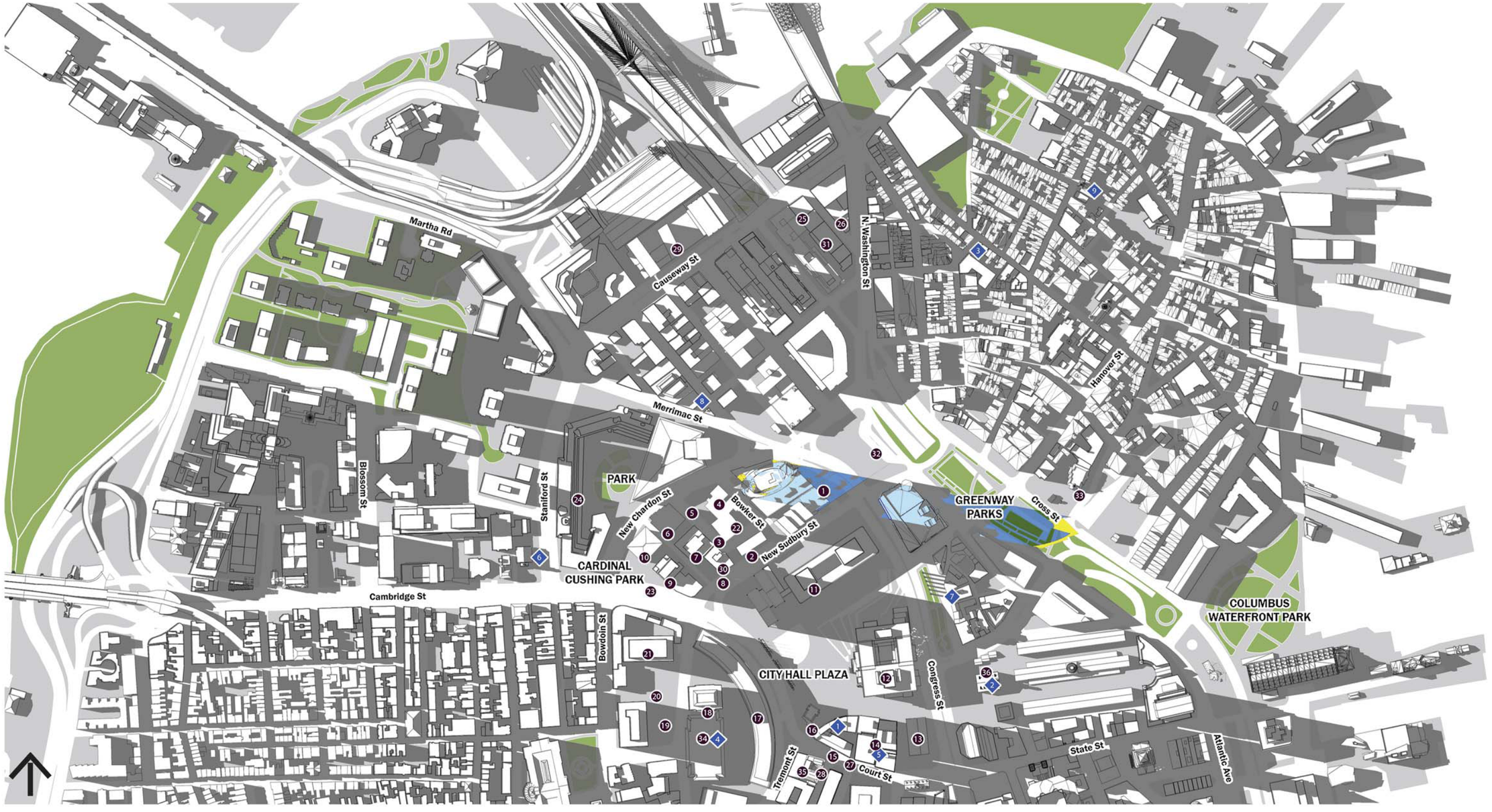
THE HYM INVESTMENT GROUP, LLC

Pelli Clarke Pelli Architects

Figure 5.3c

WP-B2 Shadows - June 21 3PM

Redevelopment of the Government Center Garage
WP-B2 (Office Building)
Boston, Massachusetts



cbt

THE HYM INVESTMENT GROUP, LLC

Pelli Clarke Pelli Architects

Figure 5.3d

WP-B2 Shadows - June 21 6PM

Redevelopment of the Government Center Garage
WP-B2 (Office Building)
Boston, Massachusetts

NET NEW SHADOW (STREET LEVEL)

NET NEW SHADOW (ROOFTOP)

NET NEW SHADOW (FACADE)

PUBLIC OPEN/GREEN SPACE

SHADOW IMPROVEMENT COMPARED TO DPIR

cbt

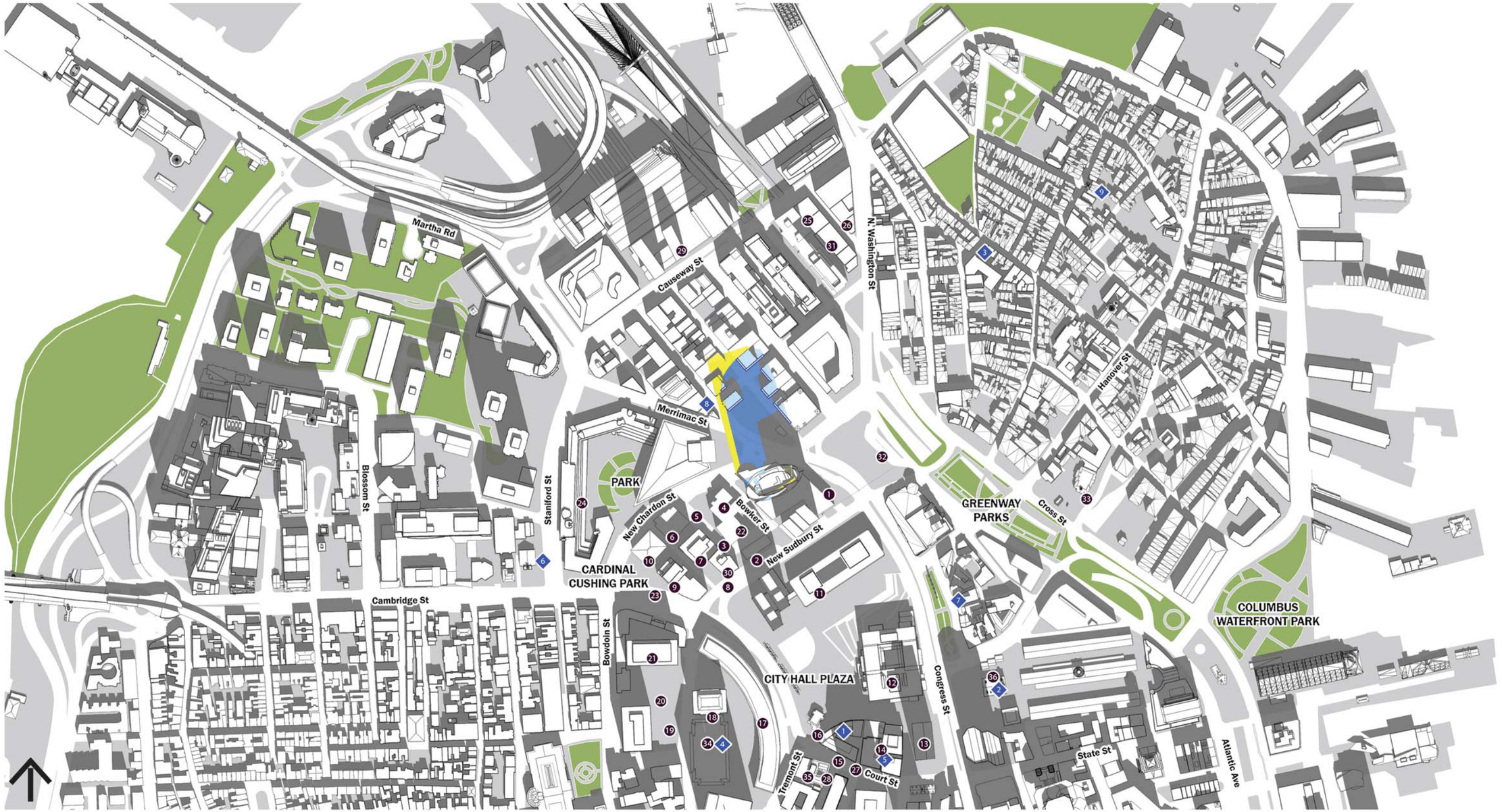
THE HYM INVESTMENT GROUP, LLC

Pelli Clarke Pelli Architects

Figure 5.4a

WP-B2 Shadows - Sept. 21 9AM

Redevelopment of the Government Center Garage
WP-B2 (Office Building)
Boston, Massachusetts



NET NEW SHADOW (STREET LEVEL)

NET NEW SHADOW (ROOFTOP)

NET NEW SHADOW (FACADE)

PUBLIC OPEN/GREEN SPACE

SHADOW IMPROVEMENT COMPARED TO DPIR

cbt

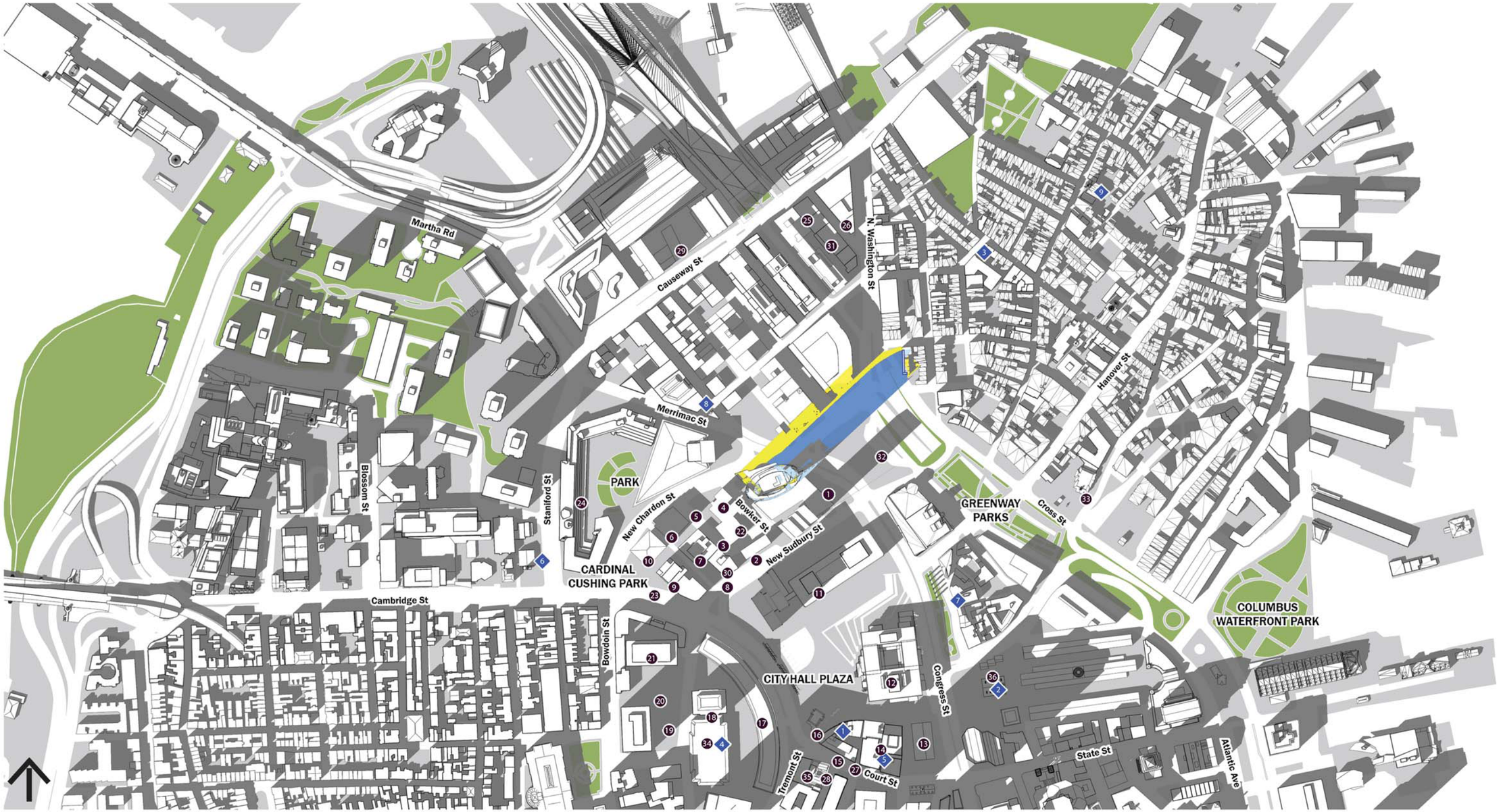
THE HYM INVESTMENT GROUP, LLC

Pelli Clarke Pelli Architects

Figure 5.4b

WP-B2 Shadows - Sept. 21 12PM

Redevelopment of the Government Center Garage
WP-B2 (Office Building)
Boston, Massachusetts



NET NEW SHADOW (STREET LEVEL)

NET NEW SHADOW (ROOFTOP)

NET NEW SHADOW (FACADE)

PUBLIC OPEN/GREEN SPACE

SHADOW IMPROVEMENT COMPARED TO DPIR

cbt

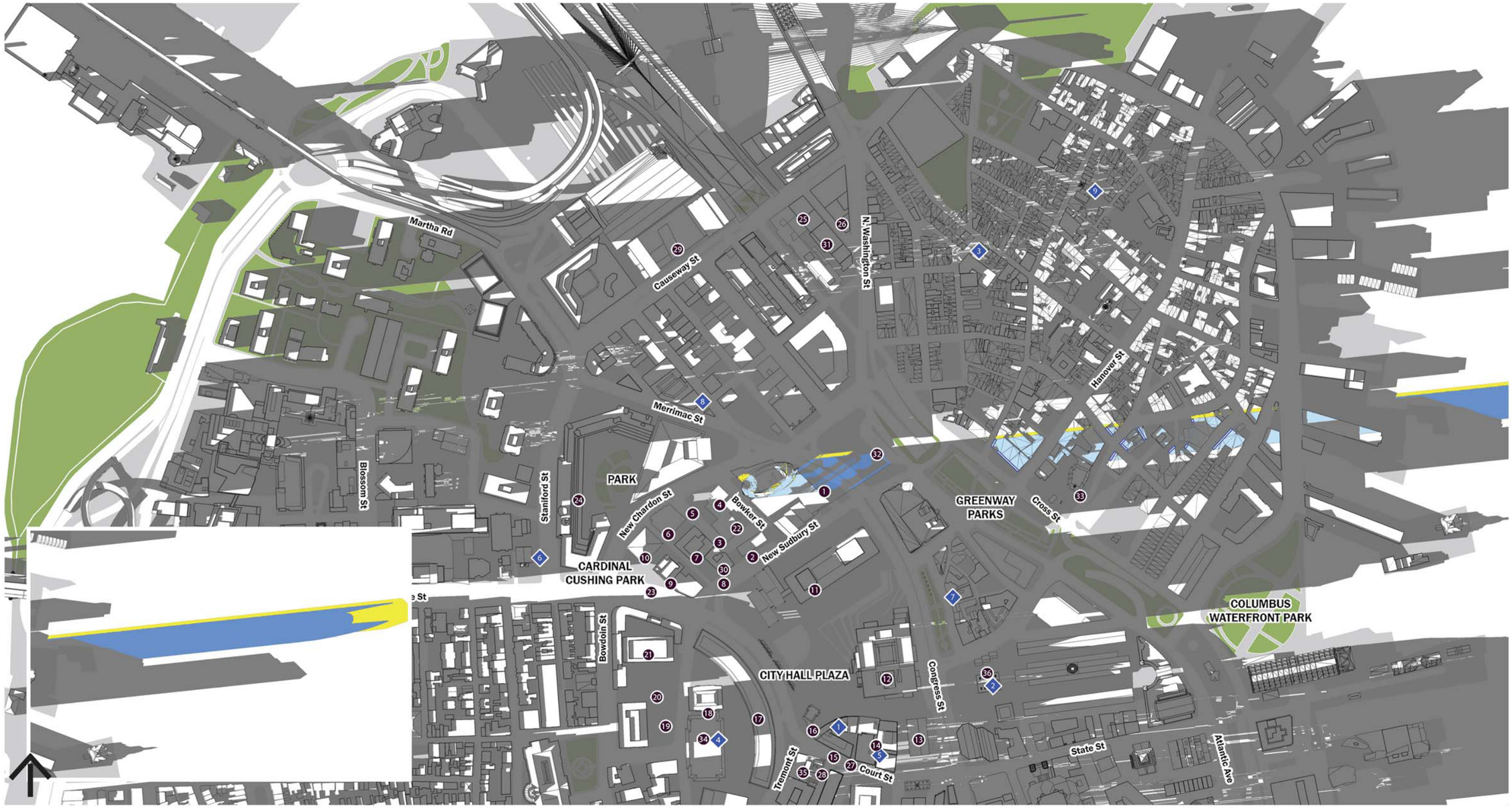
THE HYM INVESTMENT GROUP, LLC

Pelli Clarke Pelli Architects

Figure 5.4c

WP-B2 Shadows - Sept. 21 3PM

Redevelopment of the Government Center Garage
WP-B2 (Office Building)
Boston, Massachusetts



cbt

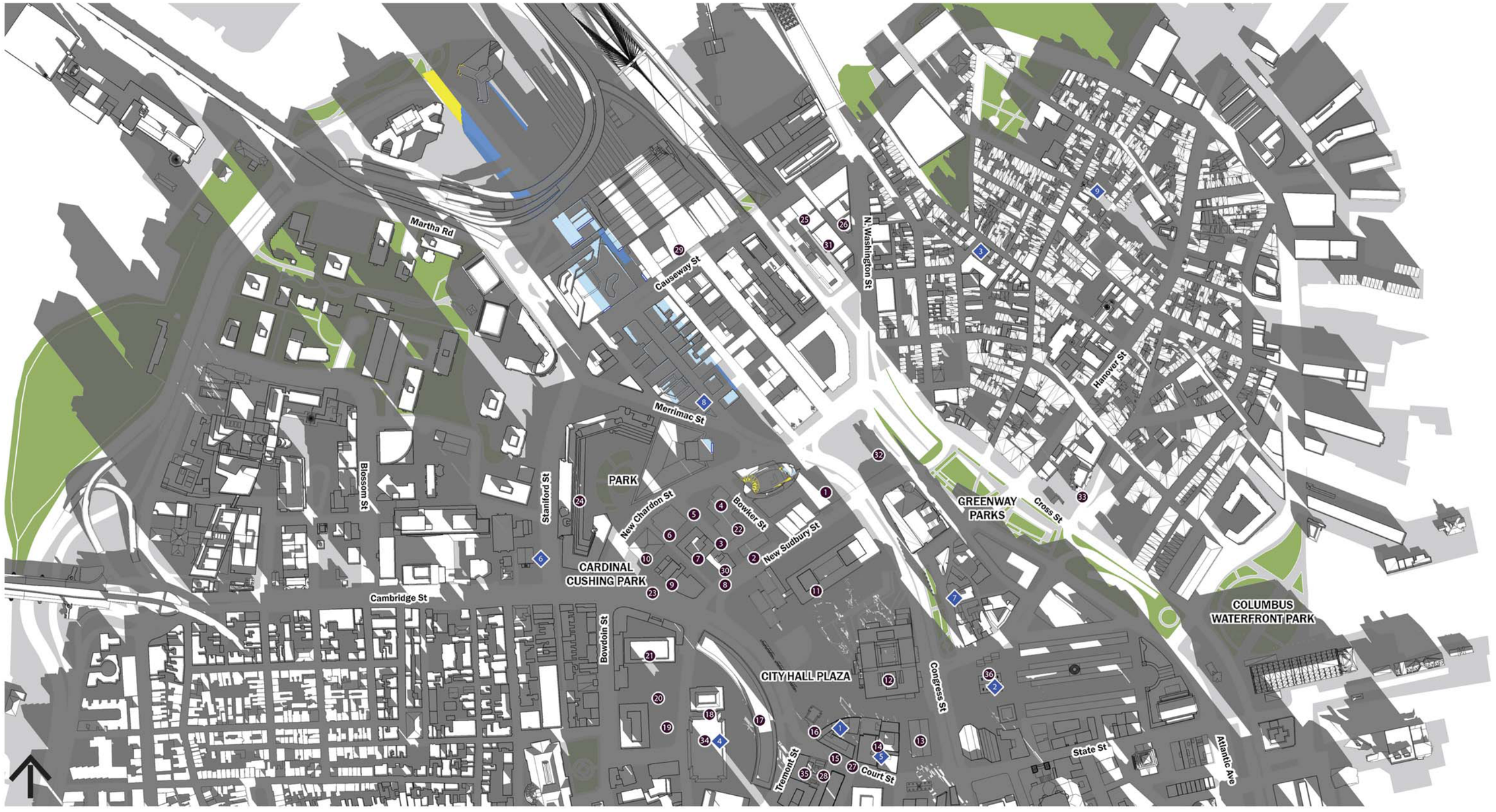
THE HYM INVESTMENT GROUP, LLC

Pelli Clarke Pelli Architects

Figure 5.4d

WP-B2 Shadows - Sept. 21 6PM

Redevelopment of the Government Center Garage
WP-B2 (Office Building)
Boston, Massachusetts



NET NEW SHADOW (STREET LEVEL)

NET NEW SHADOW (ROOFTOP)

NET NEW SHADOW (FACADE)

PUBLIC OPEN/GREEN SPACE

SHADOW IMPROVEMENT COMPARED TO DPIR

cbt

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Pelli Clarke Pelli Architects

Figure 5.5a

WP-B2 Shadows - Dec. 21 9AM

Redevelopment of the Government Center Garage
WP-B2 (Office Building)
Boston, Massachusetts

NET NEW SHADOW (STREET LEVEL)

NET NEW SHADOW (ROOFTOP)

NET NEW SHADOW (FACADE)

PUBLIC OPEN/GREEN SPACE

SHADOW IMPROVEMENT COMPARED TO DPIR

cbt

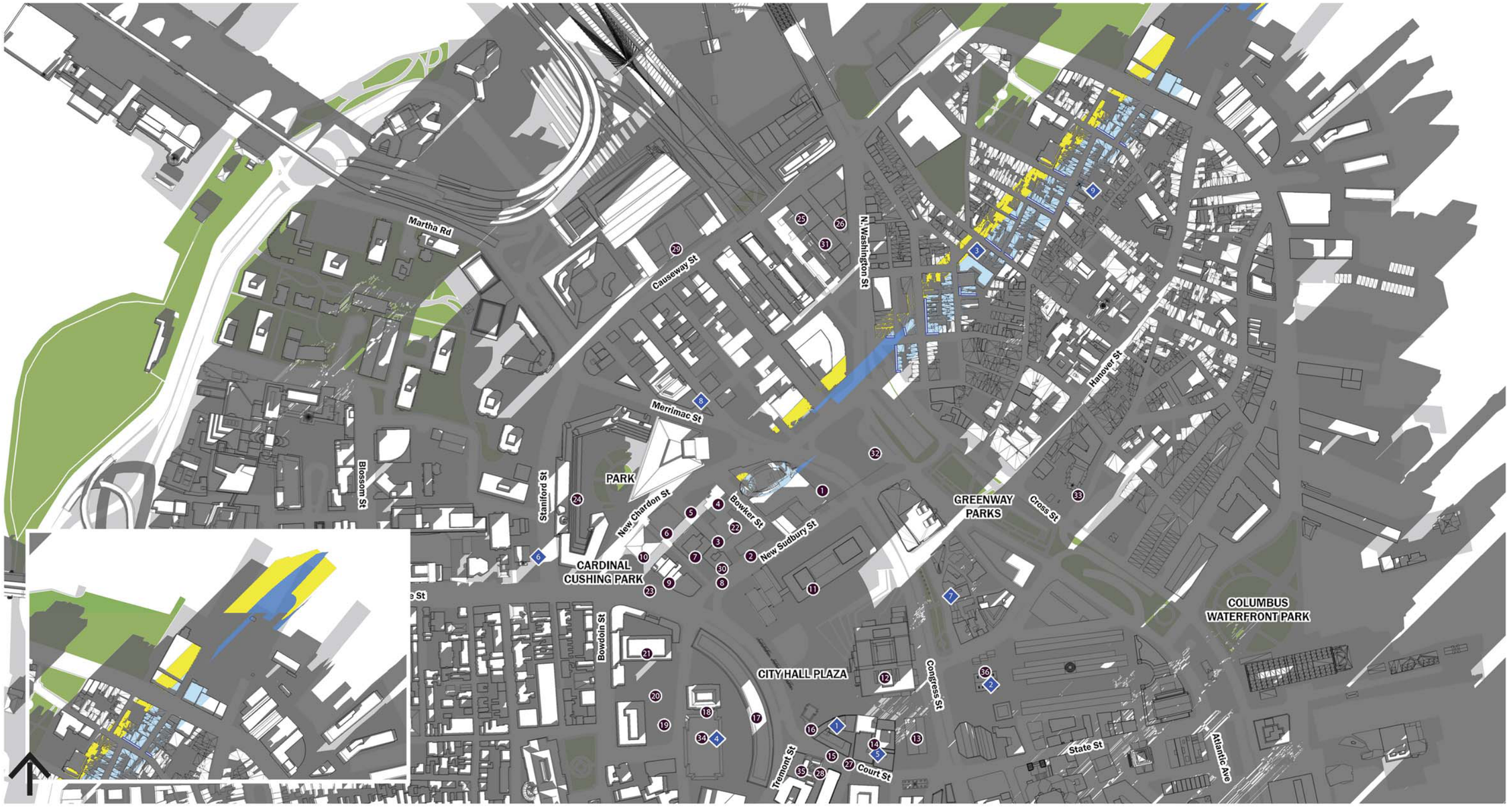
THE HYM INVESTMENT GROUP, LLC

Pelli Clarke Pelli Architects

Figure 5.5b

WP-B2 Shadows - Dec. 21 12PM

Redevelopment of the Government Center Garage
WP-B2 (Office Building)
Boston, Massachusetts



cbt

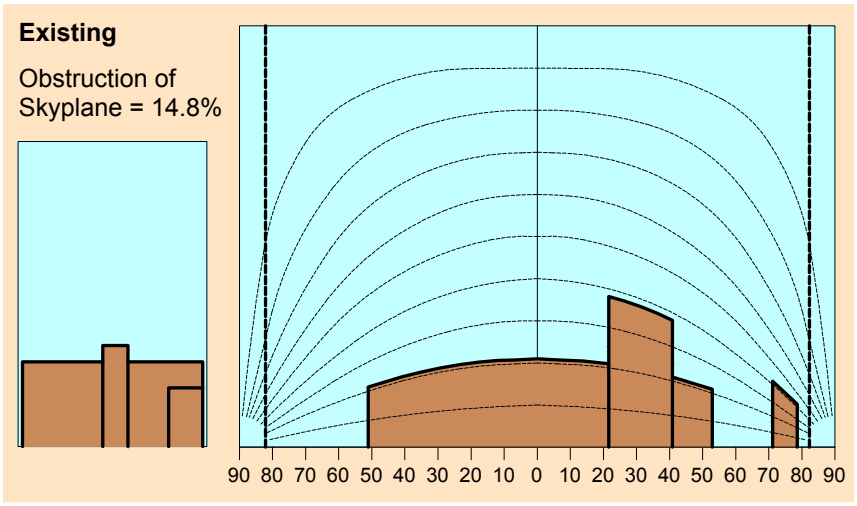
THE HYM INVESTMENT GROUP, LLC

Pelli Clarke Pelli Architects

Figure 5.5c

WP-B2 Shadows - Dec. 21 3PM

Redevelopment of the Government Center Garage
WP-B2 (Office Building)
Boston, Massachusetts



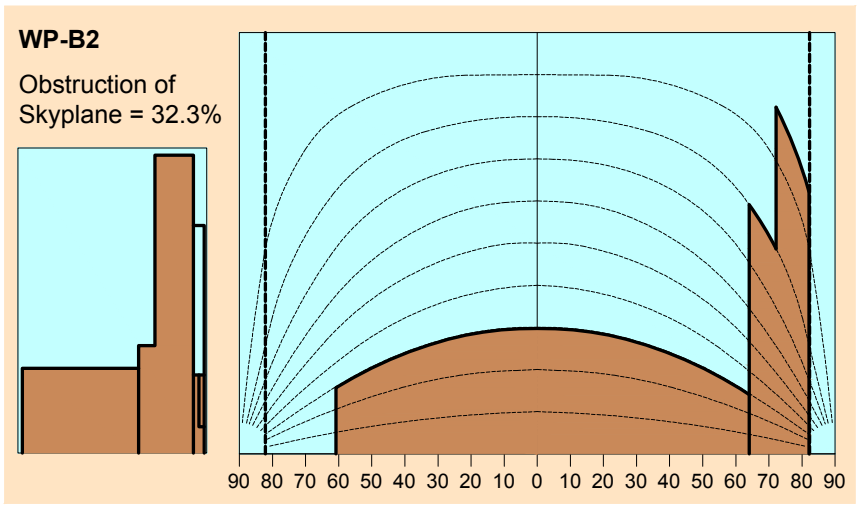
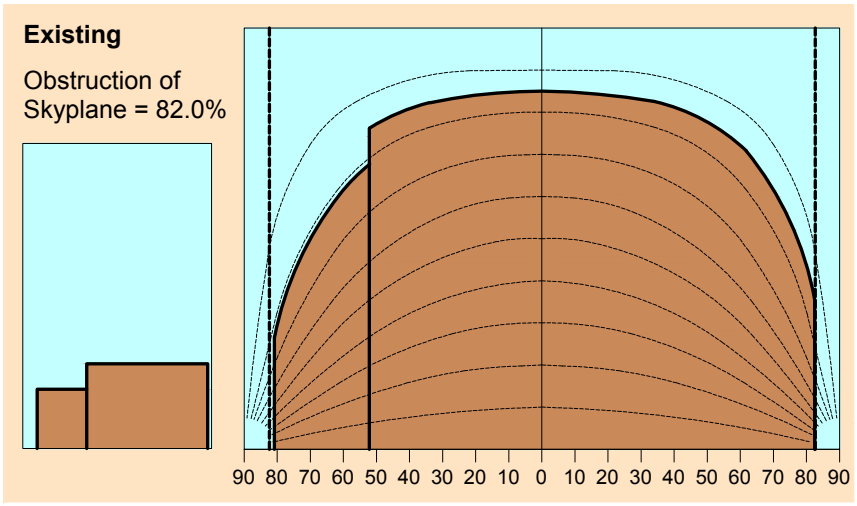


Figure 5.6a

Daylight Analysis
Center of New Chardon Street

Redevelopment of the Government Center Garage
WP-B2 (Office Building)
Boston, Massachusetts



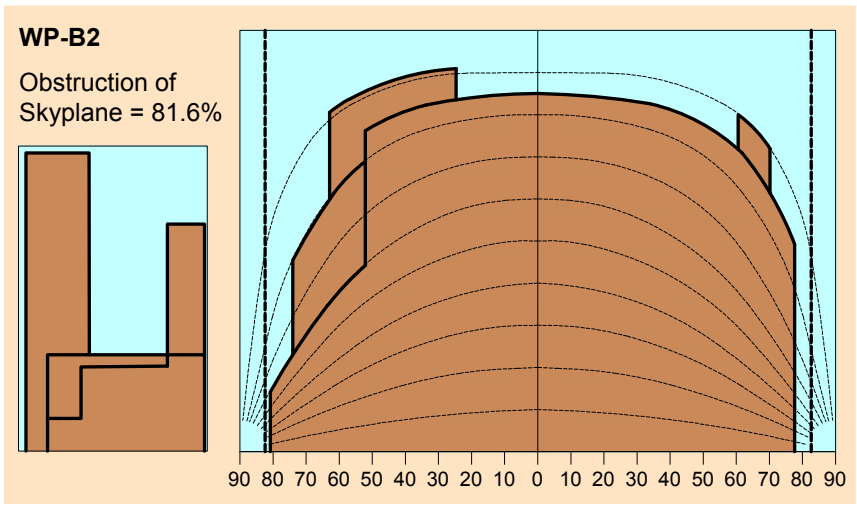
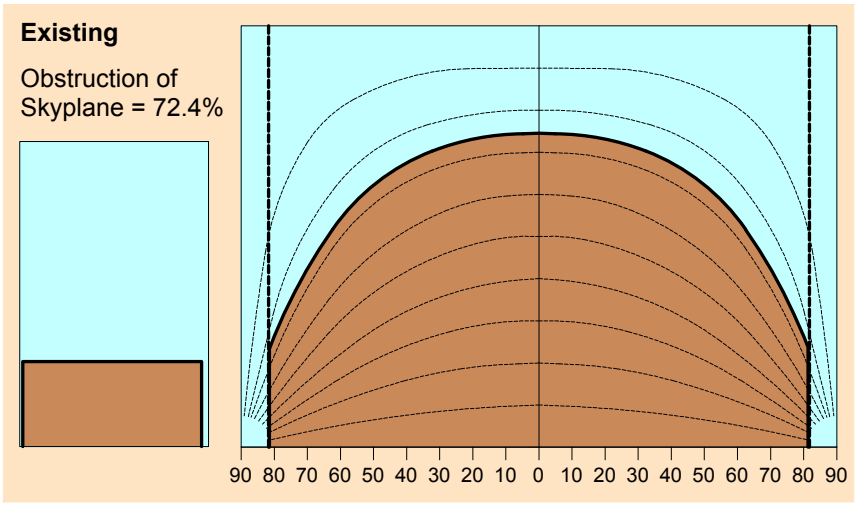


Figure 5.6b

Daylight Analysis
Center of Bowker Street

Redevelopment of the Government Center Garage
WP-B2 (Office Building)
Boston, Massachusetts



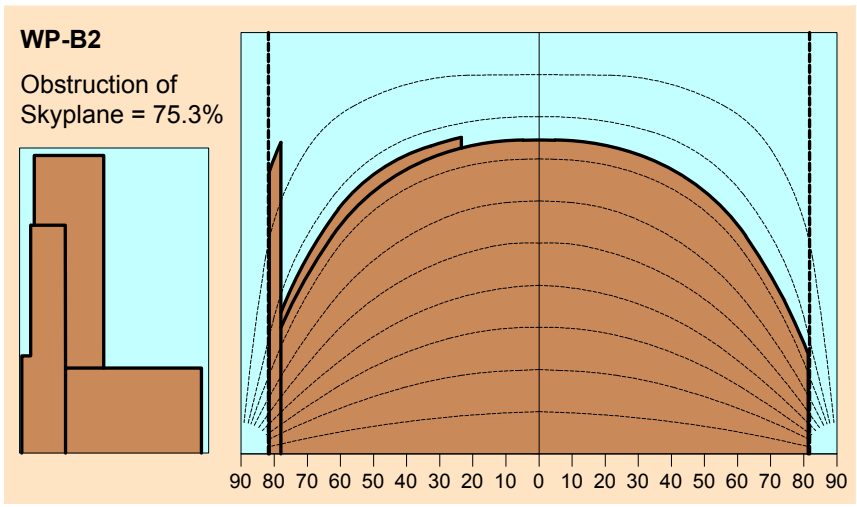


Figure 5.6c

Daylight Analysis
Center of New Sudbury Street

Redevelopment of the Government Center Garage
WP-B2 (Office Building)
Boston, Massachusetts

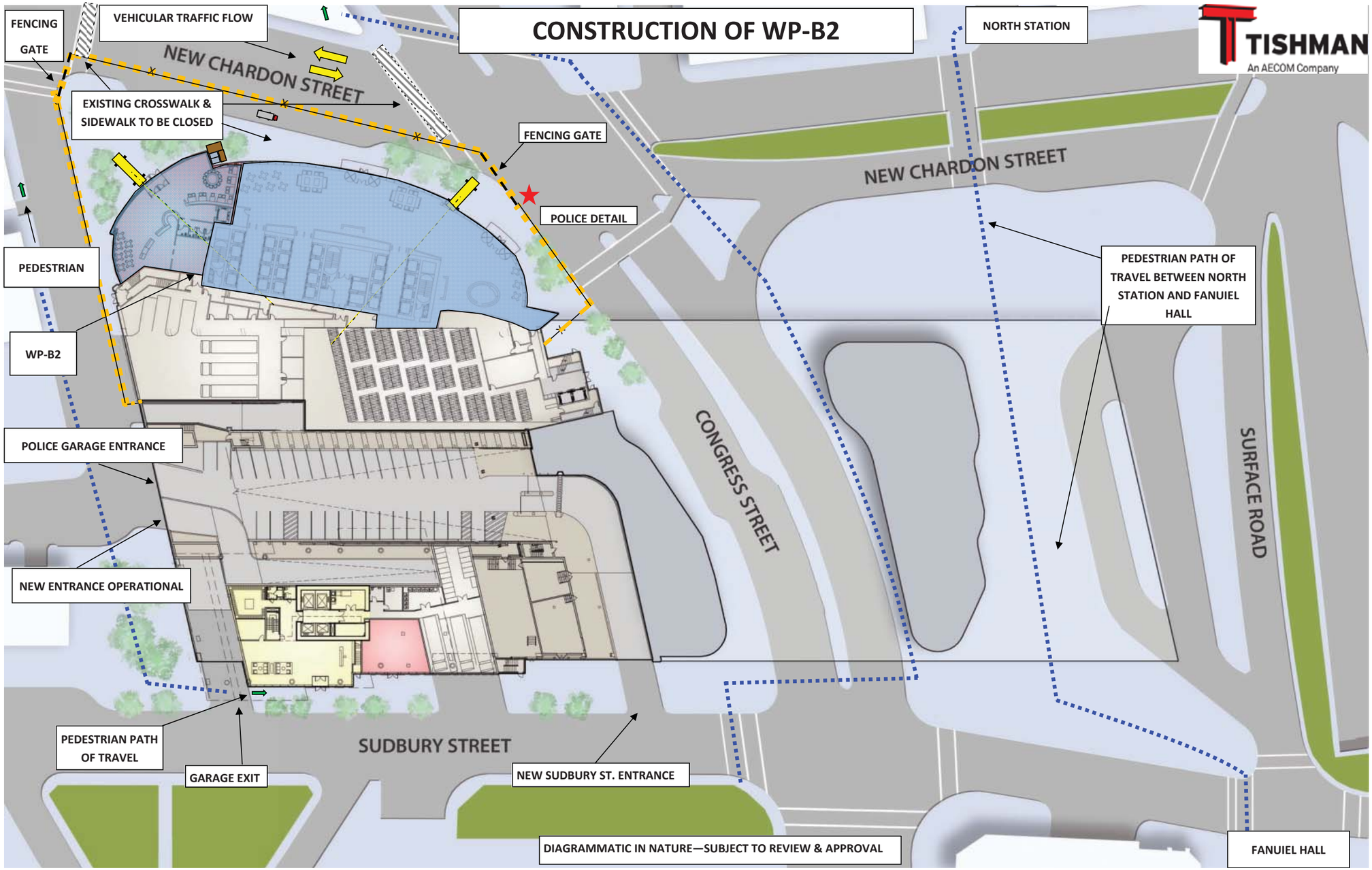


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Figure 5.7
WP-B2 Construction Logistics Plan

Redevelopment of the Government Center Garage
WP-B2 (Office Building)
Boston, Massachusetts

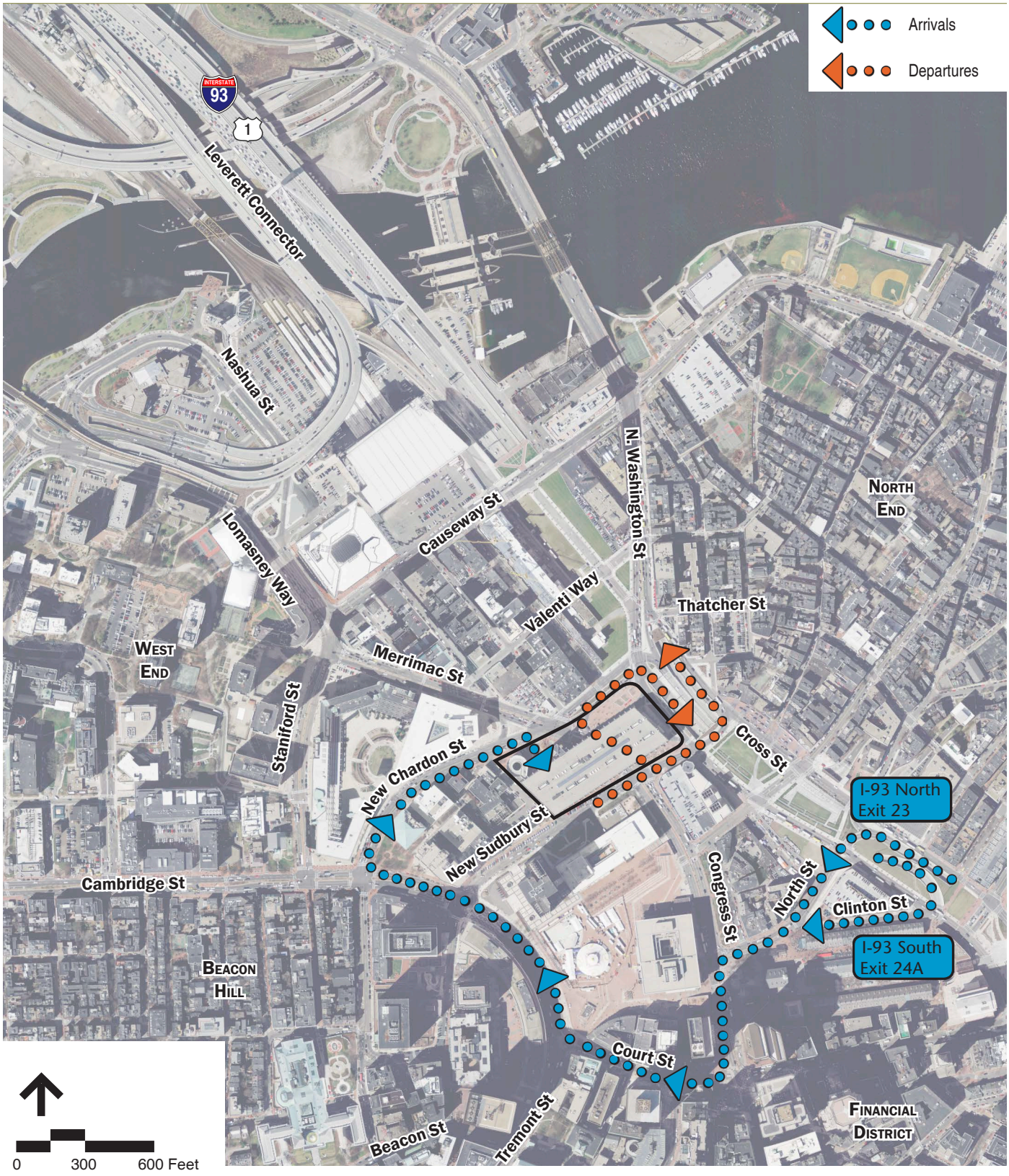

Figure 5.8

WP-B2 Proposed Construction Truck Routes

Redevelopment of the Government Center Garage
WP-B2 (Office Building)
Boston, Massachusetts

6

Sustainability/Green Building and Climate Change Preparedness

Based on conceptual design, an overall sustainable design approach and a preliminary assessment of green building design was provided in both the PNF, dated June 2013, and DPIR, dated August 2013, for Article 80B review for the Development Plan Project, in compliance with the requirements of Article 37 of the Boston Zoning Code relative to the City's Green Building policies and procedures (Article 37). The following chapter provides an update to the sustainable design elements being considered for the Proposed Project based on a more advanced design of WP-B2 to continue to demonstrate compliance with the requirements of Article 37. In addition to compliance with Article 37 and consistent with the approved PDA, the Proponent intends to target for a Gold rating using the U.S. Green Building Council's (USGBC) Leadership in Energy and Environmental Design (LEED®) Green Building Rating System for Core and Shell (LEED-CS).

In support of Boston's Greenhouse Gas (GHG) emissions reductions goals, this section presents the estimated energy usage and GHG emissions reductions based on a preliminary building energy model conducted for the Proposed Project. Additionally, the potential for on-site clean/renewable energy and energy efficiency assistance programs that may be available to the Proposed Project is also discussed.

This chapter also discusses the approach to preparing for changes in climate change, in accordance with the BRA Climate Change Resiliency and Preparedness Policy (the "Resiliency Policy"). The required Climate Change Resiliency and Preparedness Checklist (the "Resiliency Checklist") has been completed for the Project and is provided in Appendix E.

6.1 Summary of Key Findings

The key related to sustainability/green building design and climate change preparedness include:

- The Proposed Project is inherently sustainable as it aims to utilize land efficiently through redevelopment of an underutilized, above-grade parking garage with a dense mixed-use

development, promote the use of alternative modes of transportation, encourage pedestrian activity, provide new public outdoor space, and reduce environmental impacts both locally and globally through sustainable design.

- In addition to compliance with Article 37 and consistent with the Development Plan Project, the Proponent intends to target a LEED-CS Gold rating, as demonstrated by the enclosed draft LEED scorecard (Figure 6.1). This represents a noteworthy increase in LEED points compared to 40 points for a Certified rating, as required by Article 37.
- In support of Boston's GHG emissions reductions goals, the Proponent has estimated energy usage based on a preliminary building energy model, which demonstrates that it is feasible for the Proposed Project to comply with the potential future Stretch Energy Code requirements. Based on the preliminary design parameters assumed in the Design Case, the proposed office building would achieve an energy savings of approximately 19.8 percent when compared to the Base Case. This would result in a GHG emissions reduction of 18.1 percent (from an estimated 4,612 tons per year CO_2 emissions to 3,779 tons per year).
- Potential impacts associated with predicted future sea level rise, increased frequency and intensity of precipitation events, and extreme heat events to the Proposed Project were considered during early stages of design.

6.2 Development Plan Project Review Overview

As part of the Article 80 review process for the Development Plan Project, based on conceptual design, preliminary LEED scorecards were provided to demonstrate that the key components— residential and office uses— could be LEED certifiable under LEED-NC and LEED for Core and Shell (LEED-CS), respectively, as demonstrated in the 2013 DPIR. Based on this initial LEED credit evaluation, the Proponent set an overall design goal of achieving LEED certification for the Project Components targeting a Gold rating under LEED-CS for the commercial components and Silver rating under LEED-NC for residential components. Supporting narratives on the overall sustainable approach for the Development Plan Project were also included in the 2013 PNF and DPIR filings (Chapters 4 and 5, respectively).

In the early stages of the Development Plan Project, the Proponent took efforts to develop a long-term sustainability vision and set priorities for the overall redevelopment. As a result, key drivers, or goals, and more specific objectives were defined to guide design, construction, and, ultimately, operations of the buildings. The Proponent committed to further evaluating sustainable design strategies and incorporating such strategies into the design, construction, and operation of each Project Component, where feasible and reasonable. This includes a commitment to an overall design goal of achieving some level of LEED certification beyond the requirements of Article 37 (i.e., LEED certifiable) for all the Project Components. As part of the PDA approval, the full build-out must include the construction of one (1) building to a LEED Platinum rating, four (4) buildings to a LEED Gold rating, and one (1) building to a LEED Silver rating. This is a significant commitment by the Proponent to sustainability. The

Proponent will determine which LEED rating is appropriate and applicable at the time each Project Component is advanced through the City's design review and approval process.

Under the MEPA review process, the Development Plan Project was required to comply with the MEPA Greenhouse Gas Emissions Policy and Protocol (the "MEPA GHG Policy"). Consistent with the current MEPA GHG Policy dated May 5, 2010, the Development Plan Project was evaluated for both stationary and mobile source GHG emissions, which requires preliminary building energy modeling. Through this process, the Proponent further evaluated/tested potential energy conservation measures (ECMs) based on conceptual design of the Project Components. In addition, to address MEPA's draft Climate Change Adaptation and Resiliency Policy, both the MEPA DEIR and FEIR evaluated the potential for climate change impacts (specifically, sea level rise, intense flooding) and presented possible strategies for resilience, where applicable and feasible, as it is their intent to lease and operate the buildings in a sustainable manner.

6.3 Regulatory Context

The following sections discuss the regulatory context as it relates to sustainability/green building design and climate change adaptation for the Proposed Project.

6.3.1 Boston Zoning Code Article 37, Green Buildings

Any project that is subject to Article 80B, Large Project Review is also subject to the requirements of Article 37. Initial Article 80 review filings must include preliminary information on the Project's sustainable/green building design approach to be reviewed by the Interagency Green Building Committee (IGBC). The IGBC consists of at least one representative of city agencies, including the BRA, BED, BTD, the Inspectional Services Department and the Mayor's Office.

The Article 37 submittal requirements includes completing a LEED scorecard (using a rating system applicable to the project) that demonstrates a project would meet the minimum requirements to achieve a LEED Certified level (all LEED Pre-requisites and achieve at least 40 points) without registering the project with the USGBC, or "LEED certifiable."

Additionally, in support of Boston's GHG emissions reductions goals, project filings must also include preliminary building energy model/estimated energy usage, clean/renewable energy evaluation, and energy efficiency assistance programs that may be available to a project.

6.3.1.1 Boston Green Building Credits

Appendix A of Article 37 lists Boston Green Building Credits, which are credits that may be included in the calculation toward achieving a LEED certifiable project. These credits were developed by the City and are intended to address local issues unique to development within Boston. The credits include the following categories: Modern Grid; Historic Preservation; Groundwater Recharge; and Modern Mobility.

6.3.2 BRA Climate Change Preparedness and Resiliency Policy

In November 2013, in conformance with the Mayor's 2011 Climate Action Leadership Committee's recommendations, the BRA adopted policy for all development projects subject to Boston Zoning Article 80 Small and Large Project Review to complete the Resiliency Checklist with responses regarding consideration of potential adverse impacts that might arise under future climate conditions, and any project resiliency, preparedness, and/or mitigation measures identified early in the design stage. The Resiliency Checklist is reviewed by the IGBC.

6.3.3 Massachusetts Stretch Energy Code

As part of the Green Communities Act of 2008, Massachusetts developed an optional building code that gives cities and towns the ability to choose stronger energy performance in buildings than the state building code (the "Stretch Energy Code"). Codified by the Board of Building Regulations and Standards (BBRS) as 780 CMR Appendix 115.AA of the 8th edition Massachusetts Building Code, the Stretch Energy Code is an appendix to the Massachusetts building code, based on further amendments to the International Energy Conservation Code (IECC). The Stretch Energy Code increases the energy efficiency code requirements for new construction and major residential renovations or additions in municipalities that adopt it. The Stretch Energy Code applies to both residential and commercial buildings and, specifically, for new commercial buildings over 5,000 square feet in size, including multi-family residential buildings over three (3) stories.

In 2010, the City of Boston was designated a Green Community under the Green Communities Designation and Grant Program—an initiative of the Massachusetts Department of Energy Resources. In order to be designated a Green Community and, therefore, eligible for grant money available annually, communities are required to meet five rigorous qualification criteria one of which includes minimizing life-cycle costs, such as adopt and implement the Stretch Energy Code. The goal of the grant program is for a municipality to use grant money to assist residents, businesses, and the municipality departments/facilities in reducing energy use or installing renewable energy systems. For the City of Boston, the Stretch Energy Code was adopted and became mandatory on July 1, 2011.

The current Stretch Energy Code requires projects to achieve at minimum a 20 percent energy efficiency compared to the state's energy code by either meeting the performance standard of 20 percent better than ASHRAE 90.1-2007, or using a prescriptive energy code. On July 1, 2014, the IECC2009 and ASHRAE 90.1-2007 ceased to be a code option for non-Stretch Energy Code communities, and the IECC 2012 and ASHRAE standard 90.1-2010 became the new/updated state-wide Base Energy Code. It is expected that an updated Stretch Energy Code, if/when enacted, will require additional energy reductions beyond these standards and that Green Communities, such as Boston will automatically adopt any updates to the Stretch Energy Code (unless they vote to change their bylaw to no longer be a stretch code community). At the time of this EPNF filing, the updated Stretch Energy Code requirements have not been published; however they are expected to be issued in 2016.

6.4 Overview of Approach to Sustainability

The Proposed Project is inherently sustainable as it aims to utilize land efficiently through redevelopment of an obsolete above-grade parking garage with a dense mixed-use development, promote the use of alternative modes of transportation, encourage pedestrian activity, promote the use of local materials, provide for a high-quality indoor environment for users, and reduce environmental impacts both locally and globally. The Proponent is committed to incorporating many key aspects of sustainability and high-performance building design, where applicable and feasible.

A key objective of the overall Development Plan Project is maintaining a substantial portion of the Garage intact and in use, which results in a significant savings in embodied energy and materials. Keeping the western portion of the Garage significantly reduces the need for raw materials and associated energy to transport new materials and rebuild a parking structure in addition to reducing the amount of construction waste created in demolition. Additionally, the Proposed Project aims to incorporate a substantial amount of green roof and roof garden/deck areas as a shared outdoor amenity for the office tenants and their employees, and future residents associated with WP-B1 and WP-B3, as well an environmental benefit. The proposed green roofs/roof gardens will continue to allow for material reduction of heat island effect and help manage stormwater runoff.

As required by the PDA, the Proponent is committed to providing "a unique and sustainable project through the redevelopment and reuse of the existing garage and by utilizing the LEED." The Proponent is aiming to achieve a LEED Gold rating for the Proposed Project, which is consistent with the PDA. In order to incorporate sustainability into the Proposed Project, the Proponent will not only apply the LEED-CS Green Building Rating System, but will also rely on the overall sustainability vision and priorities established for the Development Plan Project to guide sustainability for the Proposed Project. Very early on in the design process the Proponent brought on a sustainability consultant, which led the design team in a comprehensive sustainability workshop. The workshop's primary focus was to develop a sustainability vision and to set priorities for the Project. The key sustainable drivers, or goals, are as follows:

1. Positive contribution to the community and built environment
2. Model for transit oriented development
3. Ability to cope with future climate change
4. Energy Efficiency
5. Resource Efficiency (i.e. water, waste and materials)
6. Sustainable Operations

6.4.1 Key Sustainable Drivers/Goals and Objectives

With the sustainability framework for the Project identified (described above), specific goals have preliminarily been established for each framework component, as described below.

Goal #1: Positive contribution to the community and built environment

Objectives:

a. Enhance pedestrian experience on-site, 'pedestrian first' design
b. Increase pedestrian connectivity from North Station to Greenway
c. Create comfortable microclimate for exterior spaces

Goal #2: Model for transit oriented development

Objectives:

a. Exemplar for Boston's Complete Streets Program
b. Reduce auto use by residents and office occupants
c. Improve traffic flows around site

Goal #3: Energy Efficiency

Objectives:

a. Reduce energy use beyond minimum requirement
b. Optimize major plant systems and reduce peak loads

Goal #4: Resource Efficiency - Water

Objectives:

a. Explore reduction of potable water consumption beyond minimum LEED requirement
b. Use available water for non-potable uses in a cost effective manner

Goal #4: Resource Efficiency – Waste and Materials

Objectives:

a. Use building materials efficiently
b. Use building materials with low environmental impacts
c. Reuse portion of existing garage to reduce environmental impacts and embodied energy

Goal #5: Ability to Cope with Future Climate Change

Objectives:

a. Resilient to flooding
b. Resilient to extreme heat
c. Create comfortable microclimate for exterior spaces

Goal #6: Sustainable Operations

Objectives:

a. Easy to maintain
b. Able to measure, manage and improve energy, water and waste use
c. Attracts sustainable tenants

6.5 Green Building Design/Compliance with Article 37

Consistent with the sustainable goals for the Development Plan Project and requirements of Article 37, the Proponent and design team have continued to work to incorporate sustainable design, construction, and operations principles and practices into the Proposed Project. Multiple "sustainability focus/coordination meetings" have been held since the 2013 DPIR as design progressed. Consistent with the approved PDA, the Proponent intends to target for a LEED Gold rating under LEED-CS version 3 (2009). The preliminary LEED-CS Scorecard presented as Figure 6.1 is tracking 61 'yes' points and 17 'maybe' points on track for a Gold rating. The 'maybe' points represent credits that will continue to be evaluated as design progresses. This represents a noteworthy increase in LEED points compared to 40 'yes' points for a Certified rating, as required by Article 37 and helps to fulfill the PDA requirement for achieving a LEED Gold rating for up to four buildings. The Proponent intends to register the Proposed Project with the Green Business Certification Inc., or GBCI, for LEED certification.[1]

The design team for the Proposed Project includes several LEED Accredited Professionals (AP), including Paul Crisalli, Director of Operations with HYM and the sustainability consultants, Chris Schaffner, PE, LEED Fellow, Principal and Founder, and Sarah Michelman, RA, LEED AP BD+C, Senior Project Manager of The Green Engineer, Inc.

6.5.1 LEED Master Site Credit Approach

The comprehensive Development Plan Project is comprised of two distinct parcels of land on either side of Congress Street; each parcel (the West Parcel and East Parcel) includes multiple new buildings with shared public transit services, infrastructure, pedestrian-oriented circulation and public open space. Due to the arrangement of multiple buildings on a shared site, a Master Site LEED documentation approach is proposed for the buildings on the West Parcel, including the Proposed Project and WP-B1, as currently designed, and the future WP-B3 residential tower.

The USGBC provides sites with multiple buildings the opportunity to pursue the majority of the Sustainable Sites credits and a few other Prerequisites for the entire parcel using a Master Site documentation approach. This approach streamlines the documentation process where applicable LEED Prerequisites and Credits are documented only one time under the Master Site project. While the Master Site project is registered with the USGBC through LEED Online, it does not pursue LEED Certification. Each individual project associated with the Master Site must attempt individual LEED Certification using the most appropriate LEED rating system, such as Core and Shell, New Construction, or Retail. The Proponent will register a Master Site project for the West Parcel. LEED Prerequisites and Credits available to be documented through the Master Site process are as follows:

▼

1 The GBCI exclusively administers project certifications as well as professional credentials and certificates within the framework of the USGBC's LEED green building rating systems.

- Sustainable Sites (SS) Credit 1 – Site Selection
- SS Credit 2 – Development Density and Community Connectivity
- SS Credits 4.1, 4.2, 4.3 & 4.4 – Alternative Transportation
- SS Credit 5.2 – Site Development, Maximize Open Space
- SS Credits 6.1 & 6.2 – Stormwater Design
- SS Credit 7.1 – Heat Island Effect, Non-Roof
- SS Credit 8 – Light Pollution Reduction
- Energy & Atmosphere (EA) Prerequisite 3 – Fundamental Refrigerant Management
- Indoor Environmental Quality (IEQ) Prerequisite 2 – Environmental Tobacco Smoke (ETS) Control
- Innovation in Design (ID) Credit(s) (where applicable to the Master Site)

6.5.2 Sustainable Sites (SS)

The Proposed Project Site located in a densely developed area of downtown Boston. Tenants of the office building will have extensive access to multiple modes of public transportation including the Orange and Green MBTA subway lines, the commuter rail and multiple MBTA bus routes. The Proposed Project Site is located across Merrimac/Congress Street from the MBTA Haymarket subway and bus stations, and is within walking distance (about a ¼-mile) of the North Station commuter rail transit hub. The Proposed Project includes retaining the western portion of the existing parking garage for use by the office tenants, and their employees, visitors, and others. And, the first level of the parking garage will include a substantial bike storage facility to serve the Proposed Project as well as other proposed uses, including WP-B1 (the residential building).

- **SSp1 Construction Activity Pollution Prevention:** The Proposed Project-specific construction documents will include erosion and sedimentation control guidance for on-site implementation by the Construction Manager, (CM). The CM is required to implement a compliant erosion and sedimentation control plan that meets local requirements and the U.S. Environmental Protection Agency (EPA) Construction General Permit (Phase I and II) of the National Pollutant Discharge Elimination System (NPDES) Program.
- **SSc1 Site Selection:** The Proposed Project Site is a previously developed urban parcel in a densely developed neighborhood. The parcel does not meet any of the prohibited development site criteria. This credit will be documented as part of the West Parcel Master Site project.
- **SSc2 Development Density and Community Connectivity:** The Proposed Project meets the criteria for Option 2, Community Connectivity. The immediate neighborhood has more than 10 services with pedestrian access, including restaurants, grocery stores, banks and a post office. This credit will be documented as part of the West Parcel Master Site project.

- **SSc4.1 Alternative Transportation, Access to Public Transit:** The Proposed Project Site is located across Merrimac/Congress Street from the MBTA Haymarket subway and bus stations with access to the Orange and Green Lines and several bus routes, respectively. Also, it is within walking distance (about a ¼-mile) of the North Station commuter rail transit hub. This credit will be documented as part of the West Parcel Master Site project.
- **SSc4.2 Alternative Transportation, Bicycle Storage and Changing Rooms:** A significant portion of the first level of the Garage will be dedicated to bike storage for up to 850 bikes to serve residents, employees, and visitors. This facility, which will include with showers and changing rooms as well as on-site bicycle repair, and potentially bicycle sales and other services, will be the largest ever built in the City of Boston. The Proponent will seek to engage a manager/operator for the facility. This credit will be documented as part of the West Parcel Master Site project.
- **SSc4.3 Alternative Transportation, Low Emitting Fuel Efficient Vehicles:** The Garage will include preferred parking spaces for low-emitting/fuel-efficient vehicles and Electric Vehicle (EV) charging stations for use by future residents, office employees, and others. This credit will be documented as part of the West Parcel Master Site project.
- **SSc4.4 Alternative Transportation, Parking Capacity:** With the removal of the eastern portion of the existing garage structure, the future quantity of parking on-site will be reduced by over 1,100 parking spaces. Additionally, designated parking spaces for high-occupancy vehicles (carpools and vanpools) will be included throughout the Garage to remain. This credit will be documented as part of the West Parcel Master Site project.
- **SSc5.2 Site Development Maximize Open Space:** This credit may be attainable through the creation of new at-grade public open space and proposed rooftop open spaces/green roofs. Collectively, these spaces must exceed requirements by 25 percent. If attainable, this credit will be documented as part of the West Parcel Master Site project.
- **SSc6.1 Stormwater Design – Quantity Control & SSc6.2 Stormwater Design – Quality Control:** The Proposed Project is targeting a 25 percent reduction through rainwater harvesting tanks and groundwater injection wells. Additionally, because the stormwater runoff will be collected on-site will be directed through a Vortech water treatment system prior to being released into the city's drainage system, SSc6.2 may be attainable. This credit will be documented as part of the West Parcel Master Site project.
- **SSc7.1 Heat Island Effect – Non-Roof:** The Proposed Project will meet the criteria for this credit by providing 100 percent of the vehicle parking under cover. This credit will be documented as part of the West Parcel Master Site project.
- **SSc7.2 Heat Island Effect – Roof:** An SRI-compliant roof membrane product for the highest roof area and membrane portions of the lower roof where not vegetated has been specified for the office building. In combination, the Proposed Project will meet or exceed the requirements of this credit.
- **SSc8 Light Pollution Reduction:** The Proposed Project will endeavor to meet the LEED v4 Light Pollution Reduction requirements through the specification of compliant exterior and site light fixtures, and minimizing light trespass from the Proposed Project Site. This credit will be pursued as part of the West Parcel Master Site project.

- **SSc9 Tenant Design Guidelines:** The Proponent will develop draft Tenant Design and Construction Guidelines for distribution and review will potential building tenants. The guidelines will outline the sustainable design and energy efficiency measures in the base building and provide detailed guidance for the Tenants to fit-out their space in alignment with the sustainability goals.

6.5.3 Water Efficiency (WE)

- **WEp1/WEc1 Water Use Reduction:** Through the specification of low-flow high-efficiency plumbing fixtures, the Proposed Project will exceed the required 20 percent annual potable water use reduction and will target reducing the annual potable water use by up to 35 percent.
- **WEc1 Water Efficient Landscaping:** The at-grade landscape design and vegetated roofs will use a mixture of trees, shrubs, and groundcover all of which grow well in the urban environment. Additionally, rainwater harvesting for irrigation is being explored as a stormwater management measure to control site runoff. Therefore, the proposed irrigation system will be designed use 50 percent less potable water when compared to a mid-summer baseline.

  The Proponent will continue to evaluate/consider using zero potable water for irrigation purposes for two additional points.

6.5.4 Energy & Atmosphere (EA)

The HVAC system for the core and shell of the office building will include a central plant with energy efficient cooling towers, chillers, and condensing boilers. Floor by floor AHUs will deliver ventilation air for the VAV system. Heat recovery ventilation AHUs will deliver 100 percent outside air to the floor by floor units. Tenants will provide the terminal units within their lease space. The design will include a DDC Building Automation system that is expandable to accommodate tenant systems and equipment.

- **EAp1/EAc3 Commissioning:** The building owner has and will continue to engage a Commissioning Agent during all phases of the Proposed Project to review the proposed design and ultimately confirm the building systems are installed and function as intended and desired.
- **EAp2/EAc1 Energy Performance:** As design progresses, the design team will continue to use whole building energy modeling to document the annual energy use and cost savings. Early energy modeling results indicate an estimated 21 percent annual energy cost savings when compared to a baseline building performance as calculated using the rating method in Appendix G of ANSI/ASHREA/IESNA Standard 90.1-2007.
- **EAp3 Fundamental Refrigerant Management:** As per the prerequisite requirements, the specifications for refrigerants used in the building HVAC & R systems will not permit the use of CFC based refrigerants. This credit will be documented as part of the West Parcel Master Site project.

- **EAc4 Enhanced Refrigerant Management:** Once the mechanical cooling equipment has been specified, submitted, and approved, final calculations will be run to confirm if credit requirements are met.
- **EAc5.1 Measurement and Verification, Base Building:** The Proponent plans to develop and implement a Measurement and Verification (M&V) plan consistent with Option D: Calibrated Simulation (Savings Estimation Method 2) as specified by the International Performance Measurement & Verification Protocol (IPMVP), Volume III: Concepts and Options for Determining Energy Savings in New Construction, April 2003 for the base Core and Shell building. If the Proponent chooses to go for this credit, ample metering will be installed to allow for the development of a M&V plan and implementation.
- **EAc5.2 Measurement and Verification ("M&W"), Tenant Sub-Metering:** The Proposed Project will include a centrally monitored electronic metering network in the base building design that is capable of being expanded to accommodate and document the future tenant sub-metering. The Proponent will develop and implement an appropriate tenant M&V plan that includes a process for corrective action if the results of the M&V plan indicate that energy savings are not being achieved will be included. If the Proponent chooses to go for this credit, ample metering will need to be installed to allow for the development of a M&V plan and implementation.
- **EAc6 Green Power:** The Proponent will explore the purchase of 'green power' for a 2-year period renewable energy contract to provide a minimum of 35 percent of the building's electricity from renewable sources.

6.5.5 Materials and Resources (MR)

The Proposed Project will specify materials and products with recycled content, those made with certified wood and regionally procurable products to the extent possible throughout the construction phase. The construction management team will endeavor to divert Construction and Demolition (C&D) waste from area landfills and procure materials that are made with FSC-certified wood, have recycled content and/or are harvested, extracted and manufactured within 500 miles of the Proposed Project Site.

- **MRp1 Storage and Collection of Recyclables:** Storage of collected recyclables will be accommodated on the ground floor of the Proposed Project in an area adjacent to the loading dock located in the Garage. Tenants will bring their recyclables to this central storage room. The recyclables will be collected by a contracted waste management company on a regular basis.
- **MRc2.1/MRc2.2 Construction Waste Management:** The Construction Manager (CM) will develop and implement a Construction Waste Management Plan (CWMP). The CM will endeavor to divert as much demolition debris and construction waste from area landfills as possible with a minimum diversion rate of 75% overall.

  MRc4 Recycled Content: The design specifications will require certain materials to include pre- and/or post-consumer recycled content. The Proponent has established a target for 10 percent of the materials and products installed to be materials with recycled content based on overall Proposed Project-specific materials costs.

The CM will track the building materials with a goal of achieving the 20 percent recycled content materials threshold for an additional LEED point.

- **MRc5 Regional Materials, Extracted, Processed and Manufactured Regionally:** The design specifications include some materials to be extracted, harvested, recovered and manufactured within a 500 mile radius of the Proposed Project Site. The Proponent has established a target for 10 percent of the materials and products installed to be regional materials based on overall Proposed Project-specific materials costs.

  The CM will track the building materials with a goal of achieving the 20 percent regional materials threshold for an additional LEED point.

- **MRc7 Certified Wood:** The design specifications will include wood materials to be from FSC-certified forests and from compliant manufacturers and millwork shops. The CM will track the submitted and installed wood materials and products with a goal to achieve the 50 percent (by cost) threshold based on overall wood materials costs.

6.5.6 Indoor Environmental Quality (IEQ)

The interior air quality will be monitored during the construction phase of the Proposed Project and prior to occupancy. Low emitting materials, (low-Volatile Organic Compound, or VOC), will be used throughout construction to maintain and improve air quality within the base building.

- **IEQp1 Minimum IAQ Performance:** The office building mechanical systems are designed to meet or exceed the requirements of ASHRAE Standard 62.1-2007 sections 4 through 7.
- **IEQp2 Environmental Tobacco Smoke Control:** The entire office building and Proposed Project Site will be non-smoking. This policy will be enforced through posted signage.
- **IEQc1 Outdoor Air Delivery Monitoring:** The office building design includes monitoring of outdoor air delivery to densely occupied and other applicable spaces. Carbon dioxide (CO_2) sensors and airflow monitors signal when additional fresh air is needed in order to meet minimum ventilation requirements set forth in ASHRAE 62.1-2007. The addition of these sensors allows ventilation to be delivered on demand only when required, which reduces energy consumption when spaces are not occupied.
- **IEQc3 Construction Indoor Air Quality Management Plan:** The CM will be required to develop and implement a compliant Indoor Air Quality Management Plan for the construction and pre-occupancy phases of the Proposed Project to meet/exceed the recommended Control Measures of the SMACNA IAQ Guidelines for Occupied buildings Under Construction 2nd Edition 2007, ANSI/SMACNA 008-2008 (Chapter 3).
- **IEQc4.1 Low Emitting Materials, Adhesives and Sealants:** The design specifications for adhesives and sealants used inside the building envelope will include requirements for compliance with the low VOC criteria for adhesives and sealants as established in the South Coast Air Quality Management District (SCAQMD) Rule #1168.
- **IEQc4.2 Low Emitting Materials, Paints and Coatings:** The design specifications will include requirements for paints and coatings to meet low-VOC criteria for paints and

coatings in accordance with applicable sections of Green Seal Standard GS-11, Green Seal Standard GC-03 and SCQAMD Rule #1113.

- **IEQc4.3 Low Emitting Materials, Flooring Systems:** The design specifications will include compliant flooring materials that meet the applicable requirements of FloorScore certification or the Carpet Rug Institute Green label program.
- **IEQc4.4 Low Emitting Materials, Composite Wood:** The design specifications will include composite wood and agrifiber products that contain no added urea-formaldehyde. The CM will aim to use only NAU-compliant materials throughout the Core and Shell build-out. Additionally, the Tenant Design and Construction Guidelines will encourage future tenants to install only NAUF-compliant composite wood materials.
- **Credit 5 Indoor Chemical and Pollutant Source Control:** The design team will aim to minimize and control the entry of pollutants into the building and to contain chemical use areas. Achievement of this credit is contingent on the final design.
- **IEQc7 Thermal Comfort – Design:** The design team will ensure the building systems are designed to meet the requirements of ASHRAE 55-2004 for all applicable mechanically-ventilated regularly occupied spaces.
- **IEQc8.2 Daylight and Views, Views:** The proposed building envelope is a high-performance curtain wall system with extensive areas of windows with ample access to daylight and views for the anticipated regularly occupied spaces on a typical office floor. The office building will use a proposed typical office layout to demonstrate how a minimum of 90 percent of all regularly occupied spaces have access to outdoor views.

6.5.7 Innovation in Design (ID)

- **IDc1 Innovation and Design:** Under the LEED Master Site Credit approach (described previously in Section 6.5.1), the Proposed Project will attempt to achieve up to three Exemplary Performance site-related credits: SSc2 – Development Density and Community Connectivity; SSc4.1 – Alternative Transportation, Access to Public Transit; and SSc7.1 – Heat Island Effect, Non-Roof.

  Two ID credits remain to be determined at this time. Possible ID credits include Low Mercury Lighting, Integrated Pest Management, and Green Housekeeping.
- **IDc2 LEED Accredited Professional:** There are several LEED APs on the project team and, therefore, this credit is achievable.

6.5.8 Regional Priority Credits (RPC)

Applicable RPCs for the Proposed Project include:

- SSc3 Brownfield Development;
- SSc6.1 Stormwater Management, Quantity,
- SSc7.1 Heat Island Effect – Non-roof;
- SSc7.2 Heat Island Effect- Roof;

- EAc2 On-Site Renewable Energy; and
- MRc1.1 Building Reuse.

LEED credit SSc3 is not available to the Proposed Project. The Proposed Project will attempt to achieve two RP credits: SSc7.1 and SSc7.2.

6.5.9 Boston Green Building Credits

At this preliminary design stage, the Proposed Project may achieve two of the four available Boston Green Building credits (Appendix A of Article 37):

- **Historic Preservation** – One point would be awarded for preservation and reuse of a portion of the Garage, which is not yet 50 years of age, but was originally inventoried by the BLC in 1980 with an updated form prepared in 2009.
- **Modern Mobility** – One point would be awarded for the robust TDM Plan proposed.

6.6 Greenhouse Gas Emissions Reduction Strategies

In support of Boston's GHG reduction goals and consistent with the Development Plan Project sustainability goal #3, the Proponent has evaluated and incorporated strategies to minimize energy consumption associated with the Proposed Project through building energy modeling based on conceptual design as well as considered clean/renewable energy sources. Also, the Proponent has begun to engage utility providers to better understand available alternative/cleaner energy sources and grants/rebates.

6.6.1 Preliminary Building Energy Model

The computer-based eQUEST model was used to estimate the amount of overall energy consumed by the proposed office building from its projected electricity and gas usage based on assumptions for the Proposed Project's building elements, such as (but not limited to) the specific type of use(s) and users of the buildings, building configuration and architecture type, building envelope (walls/windows), interior fit-out (where known), and HVAC equipment efficiency ratings.[2] To estimate associated stationary source GHG emissions, the amount of consumed energy is then converted into the amount of CO_2 emitted using the standardized conversion factor.[3]

As discussed previously under Section 6.3.3, the Stretch Energy Code is expected to be updated requiring additional energy reductions beyond these standards. Therefore, the more stringent requirements of this future potential Stretch Energy Code were considered by using

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2 eQUEST (the Quick Energy Simulation Tool), version 3.60 release from James J. Hirsch, DBA James J. Hirsch & Associates, Camarillo, CA.

3 719 lb CO2/MWh was used to convert electricity consumption into the amount of CO2 emissions (2012 ISO-New England Marginal Emissions Report). 117.08 lb CO2/Mbtu was used to convert gas consumption into the amount of CO2 emissions (The Energy Information Administration Documentation for Emissions for GHG).

the current state energy code as the baseline for which to compare energy savings to (the "Base Case"). The current state base energy code defaults to the 2012 version of the International Energy Conservation Code (IECC) and ASHRAE standard 90.1-20103 approved by the BBRS on July 9, 2013 and effective on July 1, 2014. For the purposes of the stationary source GHG emissions assessment, the Proposed Project has been designed to meet the requirements of the future potential Stretch Energy Code requirements under consideration by the BBRS in the near future (the "Design Case").

Key energy savings features of the Proposed Project include: energy recovery for exhaust; high-efficiency condensing boilers; more efficient building materials (i.e., walls and windows); high-efficiency domestic water heaters; and a chiller water plant that exceeds base energy code efficiency with variable speed technology and efficient lighting. In addition, the office space has been designed to assume that future tenants will want an efficient building (i.e., Class A Office Space) and, therefore, a daylighting design strategy with occupancy controls are proposed into order to take credit and take advantage of reduced interior lighting than is typical of an office.

The results of the preliminary energy model results demonstrate that it is feasible for the Proposed Project to comply with the potential future Stretch Energy Code requirements. Based on the preliminary design parameters assumed in the Design Case, the proposed office building would achieve an energy savings of approximately 19.8 percent when compared to the Base Case. This would result in a GHG emissions reduction of 18.1 percent (from an estimated 4,612 tons per year CO_2 emissions to 3,779 tons per year).

6.6.2 On-Site Clean/Renewable Energy Analysis

6.6.2.1 Combine Heat and Power

CHP systems are most advantageous for facilities that have a hot water demand year-round whereas the hot water demand for office buildings is minimal and only seasonal. Therefore, during the warmer months when the demand for hot water is low, the hot water generated by the CHP system will need to be cooled via a dry cooler or cooling tower. This will eliminate the economics benefits of the system during the warmer months.

The team has also confirmed with the electric utility (Eversource) that it does not allow Combined Heat and Power (CHP) systems to connect to their network in the Proposed Project Site area due to protection concerns from the utility. This precludes an important financial and efficiency element of a CHP which is to sell electricity back to the grid during non-peak on-site demand.

Rather than pursue CHP, the Proponent is committed to investing in ECMs through design, which based on preliminary building energy modeling is expected to exceed future potential Stretch Code requirements. In addition, given the anticipated construction timeframe, it is anticipated that energy conservation technologies will advance providing additional,

potentially more viable options than a CHP system. However, consistent with the sustainability goals, the Proponent is committed to continuing to evaluate feasible and beneficial ECMs.

6.6.2.2 Rooftop Photovoltaic Solar Evaluation

For the purposes of gaining a better understanding of their potential contribution to on-site power generation, all Development Plan Project building rooftops were assessed for the potential for solar photovoltaic (PV) systems. This evaluation determined that building rooftop space on the West Parcel is very limited given the space requirements for the building rooftop mechanical units and proposed iconic expression of building rooftop for WP-B2. The assessment concluded that the proposed office building on the East Parcel (EP-B2) was the best location for rooftop solar and this location continues to be designated for such.

6.6.2.3 Steam

Steam is available to the Proposed Project via a district energy plant located in downtown Boston, which is produced from a Combined Heat and Power (CHP) system. The CHP District Steam plant is powered via natural gas and produces both electricity and steam. Past experience has shown that using district steam will reduce the overall GHG emissions; however, it may not necessarily reduce the overall energy cost for the owner. The Proponent has continued to discuss with Veolia the possibility of utilizing steam for the Proposed Project.

The results of the steam evaluation show the use of district steam for heating could potentially reduce source energy consumption. The office building could utilize steam to provide space heating in lieu of conventional natural-gas condensing boilers. The use of steam would likely reduce installation cost; however, its long-term effect on operating cost would need to be studied. The feasibility of the use of district steam is highly dependent on a detailed on additional to more fully understand the benefits of using district steam. The Proponent will continue to evaluate the use of steam through continued direct discussions with Veolia as the building design advances.

6.6.3 Energy Efficiency Assistance

The Proponent is aware that the Proposed Project's electrical and natural gas service providers may potentially offer technical assistance and incentives for implementing energy efficiency measures. By working with these utilities throughout the design process, the Proponent will evaluate additional energy conservation strategies and, therefore, additional energy savings and associated GHG emissions reductions may be achieved. The Proponent will participate in the Mass Save New Construction Program, which is designed to target energy efficiency opportunities in new commercial, industrial, and governmental facilities. The program provides financial incentives and technical assistance to developers, customers and design professionals to encourage the use of design features and equipment that optimize energy efficiency in the new construction projects. The measures are treated either under the prescriptive track or custom track of the program. When a project does not fit in to a prescriptive track, it is put in to a custom track. The custom track utilizes industry accepted computer building modeling

and custom spreadsheets to calculate potential energy savings Furthermore, the Proponent is committed to meeting the applicable requirements of the future City of Boston Building Energy Reporting and Disclosure Ordinance once the office building is in operation. By tracking energy usage during building operations, future energy efficiency improvements are likely to be implemented to maintain/improve energy savings.

6.7 Climate Change Preparedness and Resiliency

As required by the BRA for all Large Project Review projects, the project team has considered anticipated changes in climate by completing the BRA Climate Change Resiliency and Preparedness Checklist, which is provided in Appendix E. Climate change is expected to result in rising sea levels, more frequent extreme storms, and more extreme weather events. The following sections describe what has been considered as it relates to climate change impacts as part of the early stages of project design.

6.7.1 Anticipated Sea Level Rise and Flooding

The Proponent began to consider and address climate change impacts and planning for resilience during the early stages of planned and design.

The Proponent has evaluated the findings outlined in *Sea Level Rise: Understanding and Applying Trends and Future Scenarios for Analysis and Planning* by the Massachusetts Office of Coastal Zone Management.[4] Potential sea level rise scenarios were evaluated by CZM for four different climate change scenarios in Boston, Massachusetts: Lowest, Intermediate Low, Intermediate High and Highest. These scenarios result in a range of sea level rise from 0.81 feet to 6.83 feet in the year 2100.

These sea level rise estimates were applied to the 100-year flood elevation of approximately elevation 16.5 (Boston City Base (BCB)) presented in the FEMA flood Map 25025C008J; effective date 3/16/2016 and resulted in the following elevations:

- Lowest Scenario – Elevation 17.3 BCB
- Intermediate Low Scenario – Elevation 18.4 BCB
- Intermediate High Scenario – Elevation 20.7 BCB
- Highest Scenario – Elevation 23.3 BCB

As a comparison, the project team evaluated the findings of the recent Intergovernmental Panel on Climate Change's *5th Assessment Report*.[5] Figure 13.23 of that report presents different sea level rise projections based on various climate change scenarios for New York City. These sea level rise estimates range from approximately one (1) foot to four (4) feet.

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4 Office of Coastal Zone Management, Sea Level Rise: Understanding and Applying Trends and Future Scenarios for Analysis and Planning, December 2013.

5 Intergovernmental Panel on Climate Change, 5th Assessment Report, 2013.

Given the expected useful life of the Proposed Project is less than the time horizons studied in the two referenced reports and given the difference in the highest sea level rise estimates, the Proponent elected to evaluate the impacts of a 3-foot sea level rise applied to the preliminary 100-year flood elevation. The resultant study elevation is 19.5 BCB, which is midway between the Intermediate Low and Intermediate High scenarios.

Refer to Figure 6.2 for an illustration of how this sea level rise scenario would impact the Proposed Project Site. This is not a typical occurrence, but still important to evaluate given the ability to prepare the office building through design to mitigate potential damage to critical building infrastructure.

Existing elevations adjacent to and on the Proposed Project Site and adjacent sidewalk areas range from approximately 15.5 BCB to 19.0 BCB. Therefore, surface flooding could occur in the study scenario of a 3-foot sea level rise applied to the preliminary 100-year flood elevation. The checklist provided in Appendix E outlines potential resiliency measures for the Proposed Project.

The impact on the adjacent roadway network was also evaluated. In the study scenario of a 3-foot sea level rise applied to the preliminary 100-year flood elevation, New Chardon Street would be flooded, over half of Congress Street between New Chardon Street and New Sudbury Street would be flooded, and half of Bowker Street (towards New Chardon Street) would also be flooded.

6.7.2 Extreme Weather Conditions

In addition to sea level rise, additional climate change issues predicted for Massachusetts, per the 2011 Massachusetts Climate Change Adaptation Report, include an increase in extreme weather events which could consist of drought, tropical rainfall patterns (i.e., increased precipitation) and extreme heat and cold stretches, increase in the number of days with extreme heat (i.e., temperatures greater than 90°F and 100°F) and/or fewer days of snow yet increased winter precipitation.[6] Proposed Project-related resiliency measures aimed at addressing these potential events are discussed below.

6.7.3 Potential Resiliency Measures

The project team plans to use the results of the climate change impact assessment to evaluate potential design elements to mitigate the effects of this potential sea level rise on the Proposed Project. These elements are related to both building and site design.

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6 Executive Office of Energy and Environmental Affairs and Adaptation Advisory Committee, Massachusetts Climate Change Adaptation Report, September 2011.

6.7.3.1 Building Design Measures

The Proponent is currently planning on placing critical electrical and telecommunications equipment above the first floor, thus providing resiliency during flood events. The project design team will also be looking at elevator locations and elevations based on the sea level rise projections.

The following additional design measures will be explored to protect the proposed office bulding from potential flooding and sea level rise impacts:

- Provide for a 12-inch curb along the building face (versus glass) to hold back surface flooding;
- Preparing for temporary removable structures that can be placed in front of entries;
- Install hard flooring materials, not carpet, on all first-floors;
- Relocate the transformers to an upper level.
- Provide air intake and exhaust areas at least one level above ground-floor; and
- Do not implement areaways to provide ventilation.

The goal would be to minimize downtime of the office building if a major flood event impacted the ground floor/lobby.

In order to address rising temperature impacts through building design, climate files that reflect the predicted increase in temperature could be used as part of the energy modeling process to better understand how the office building and its systems would perform under different climate conditions. (This understanding can then be taken into account when designing major plant and overall HVAC systems.)

During power outages, building emergency and life safety systems (i.e., fire-pump pressurizing sprinkler and standpipe systems, egress lighting, smoke evacuation systems, heat and smoke detection and alarm systems, emergency communications and first-responder's elevator systems) will all be powered by diesel emergency generators in each building and the Garage. Emergency generators will be sized to operate long enough to safely fight a fire or to evacuate the building (i.e., 8-10 hours), as required by code. Generally, the emergency generators will be roof-mounted and air-cooled. All fuel supplies will be protected from the effects of extreme weather and potential flooding, and could be enhanced to provide running time greater than required by current codes in order to provide continued safety features for extended periods to account for the possibility that fuel supply to fill the tanks could be interrupted. To run for longer periods, emergency generators require bigger fuel tanks, which add expense and take up valuable building space making them cost- prohibitive as they would stand idle majority of the time. As design progresses, the Proponent is committed to exploring expanding the size of emergency generators to allow for select common areas and other emergency and life safety

systems to remain operational for a period of time beyond the code requirement, specifically in residential buildings.

6.7.3.2 Site Design Measures

As previously discussed, a significant amount of existing roof area will be repurposed for green roof area, providing an ecosystem-based retrofit measure. Green roofs help mitigate extreme heat waves and heat island effect as well as reduce stormwater runoff. At the street level, the Proponent aims to reduce heat island effect through the integration of greenery, such as tree canopy cover and at-grade multi-tiered planting. Also, green strips and infiltration strips will be incorporated as part of the proposed roadway improvements of the streets surrounding the Proposed Project Site, in accordance with Boston's Complete Street Guidelines. In addition, the Proponent will be retaining the first inch of rainwater for the Proposed Project Site, in part to reduce phosphorus entering the Charles River, which also mitigates the amount of stormwater run-off from the Proposed Project Site. This harvested rainwater stormwater will be used for on-site irrigation and mechanical uses; thereby, reducing water demand during periods of drought.

To address more tropical rainfall patterns, the Proposed Project will evaluate inlet capacities during short-duration, high-intensity rain events. The project team will work with BWSC to understand the parameters for future analyses.

LEED 2009 for Core and Shell Development

Project Checklist

Redevelopment of the Government Center Garage - WP-B2 Office Building

One Congress Street, Boston — Draft October 2015

Sustainable Sites — Possible Points: 28

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
2			Credit 4.2	Alternative Transportation—Bicycle Storage and Changing Rooms	2
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
1			Credit 9	Tenant Design and Construction Guidelines	1

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
3		1	Credit 3	Water Use Reduction	2 to 4

Energy and Atmosphere — Possible Points: 37

Y	?	N			
Y			Prereq 1	Fundamental Commissioning of Building Energy Systems	
Y			Prereq 2	Minimum Energy Performance	
Y			Prereq 3	Fundamental Refrigerant Management	
6	2	13	Credit 1	Optimize Energy Performance	3 to 21
		4	Credit 2	On-Site Renewable Energy	4
2			Credit 3	Enhanced Commissioning	2
	2		Credit 4	Enhanced Refrigerant Management	2
3			Credit 5.1	Measurement and Verification—Base Building	3
3			Credit 5.2	Measurement and Verification—Tenant Submetering	3
	2		Credit 6	Green Power	2

Materials and Resources — Possible Points: 13

Y	?	N			
Y			Prereq 1	Storage and Collection of Recyclables	
		5	Credit 1	Building Reuse—Maintain Existing Walls, Floors, and Roof	1 to 5
2			Credit 2	Construction Waste Management	1 to 2
		1	Credit 3	Materials Reuse	1
1	1		Credit 4	Recycled Content	1 to 2
1	1		Credit 5	Regional Materials	1 to 2
	1		Credit 6	Certified Wood	1

Indoor Environmental Quality — Possible Points: 12

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	Construction IAQ Management Plan—During Construction	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	Controllability of Systems—Thermal Comfort	1
1			Credit 7	Thermal Comfort—Design	1
		1	Credit 8.1	Daylight and Views—Daylight	1
1			Credit 8.2	Daylight and Views—Views	1

Innovation and Design Process — Possible Points: 6

1			Credit 1.1	Innovation in Design: Exemplary Performance - SSc2	1
1			Credit 1.2	Innovation in Design: Exemplary Performance - SSc4.1	1
1			Credit 1.3	Innovation in Design: Exemplary Performance - SSc7.1	1
1			Credit 1.4	Innovation in Design: TBD	1
1			Credit 1.5	Innovation in Design: TBD	1
1			Credit 2	LEED Accredited Professional	1

Regional Priority Credits — Possible Points: 4

		1	Credit 1.1	Regional Priority: SSc3	1
	1		Credit 1.2	Regional Priority: SSc6.1	1
1			Credit 1.3	Regional Priority: SSc7.1	1
1			Credit 1.4	Regional Priority: SSc7.2	1

Total — Possible Points: 110

61	17	32

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

Boston Green Building Credits — Possible Points: 4

Y	?	N				
Y			d	Prereq 1	Retrofit Diesel Construction Vehicles	
Y			d	Prereq 2	Outdoor Construction Management Plan	
Y			d	Prereq 3	Integrated Pest Management Plan	
	1		d/C	Credit 1.1	Modern Grid	1
		1	d/C	Credit 1.2	Historic Preservation	1
	1		d/C	Credit 1.3	Groundwater Recharge	1
	1		d/C	Credit 1.4	Modern Mobility	1

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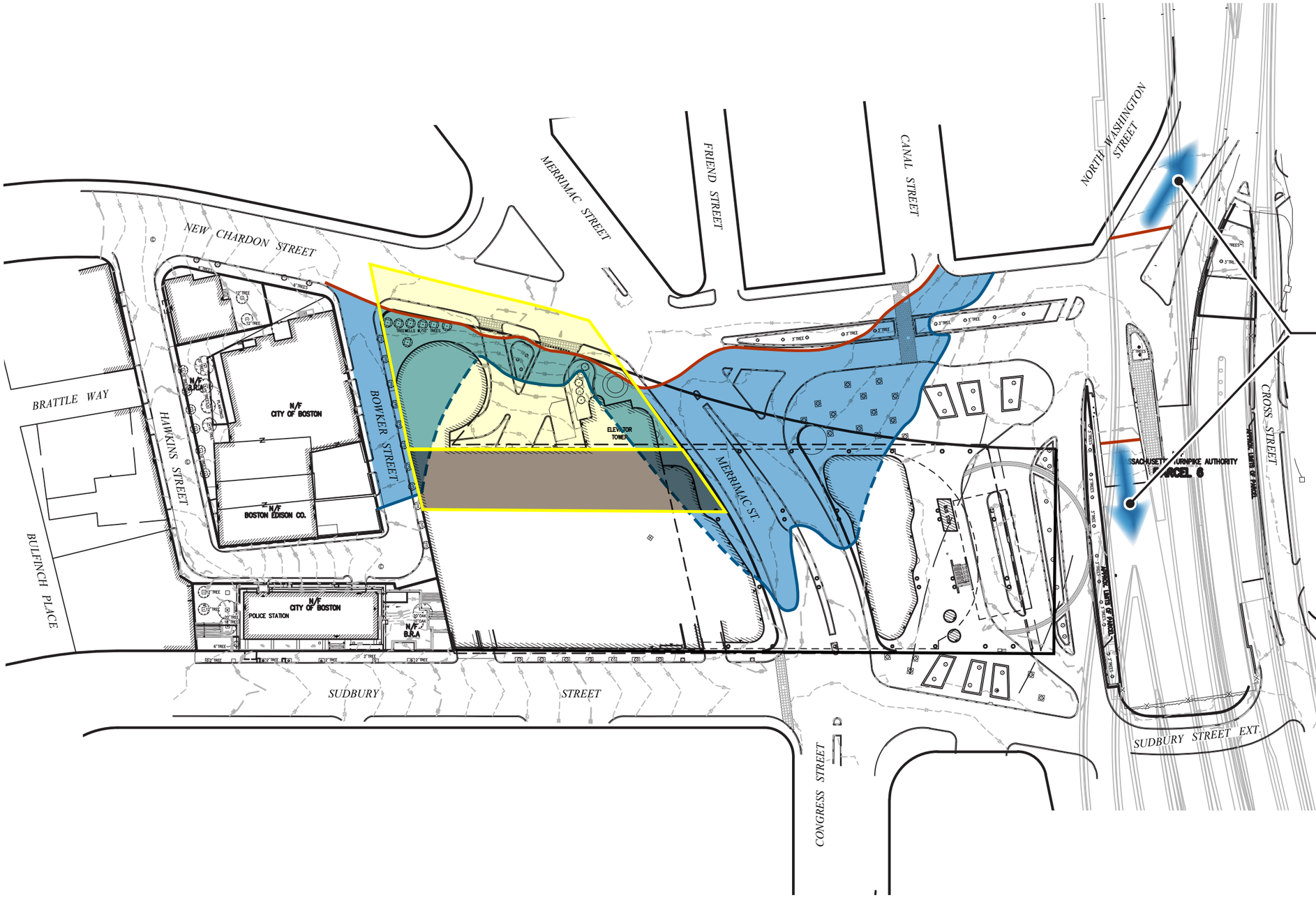
Figure 6.1

WP-B2 Preliminary LEED Scorcard

Redevelopment of the Government Center Garage
WP-B2 (Office Building)
Boston, Massachusetts



Note: This graphic represents the impacts of a 3-foot sea level rise applied to the 2013 Preliminary FEMA Flood Mapping for a 100-year event. This is not a typical occurrence and has been assumed to evaluate the ability to mitigate potential damage to critical building infrastructure.

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Figure 6.2
Predicted Sea Level Rise

Redevelopment of the Government Center Garage
WP-B2 (Office Building)
Boston, Massachusetts

7

Infrastructure

An assessment of infrastructure demands of the Development Plan Project was conducted as part of the previous City of Boston Article 80 and state MEPA review filings. In accordance with the approved PDA, this chapter presents an update on the infrastructure demands based on the more specific design and program of the Proposed Project—the WP-B2 Office Building, or Phase 2. This chapter provides a comparison of the infrastructure demands of current Proposed Project versus the program presented in the 2013 DPIR. The Proposed Project development program presented herein represents an approximately 12,800-square foot reduction in office space and an approximately 1,750-square foot increase in retail use from the program evaluated in the 2013 DPIR.

As with the Development Plan Project, the Proposed Project will utilize the existing water, sewer, electrical and natural gas systems available in public streets adjacent to the Proposed Project Site. These systems, as shown in Figure 7.1, include those owned or managed by the Boston Water and Sewer Commission (BWSC), private utility companies, and on-site infrastructure systems. Research indicates that these services are available at the Proposed Project Site frontage.

7.1 Key Findings

The key findings related to infrastructure systems include:

- The Proposed Project, as defined in Chapter 1, *Project Description*, does not substantially change the infrastructure requirements from those presented in the 2013 DPIR.
- The Proposed Project Site is currently serviced by the BWSC for domestic and fire protection water and sanitary sewage conveyance.
- Based upon sewage generation rates outlined in the DEP Sewer Connection and Extension Regulations, 310 CMR 15.203.f, the Proposed Project is estimated to generate approximately 75,630 gallons per day (net new) of sanitary sewage and will require approximately 83,193 gallons of water per day (net new).
- Construction of the Proposed Project will incorporate on-site stormwater management and treatment systems that will improve water quality, reduce runoff volume, and control

peak rates of runoff in comparison to existing conditions. This system will comply with the 2008 DEP Stormwater Management Policy and Standards.

- As part of the overall sustainability plan, the Proposed Project may utilize harvested rainwater to provide for air conditioning make-up water.
- In order to reduce water usage, the Proponent is planning to install low-flow and low-consumption plumbing fixtures, in compliance with Article 37 of the Zoning Code.

7.2 Sanitary Sewer

Local sanitary sewer service is provided by BWSC via a 12-inch sanitary sewer in Bowker Street that connects to a 15-inch sanitary sewer in New Chardon Street and ultimately connects to the West Side Interceptor (Figure 7.1). This pipe ultimately discharges to the Deer Island Treatment Plant for treatment and disposal.

Based on conceptual design, the 2013 DPIR estimated that WP-B2 (office building) would generate approximately 76,503 gallons per day. As a result of the minor proposed changes in the program associated with the current building design, the Proposed Project is expected to generate approximately 75,630 gallons per day, which represents a decrease of approximately 873 gallons per day. The sanitary sewers in the streets surrounding the Proposed Project Site have full-flow capacities of at least approximately 1,850,000 gallons per day. These capacities are far in excess of Project-generated wastewater.

Sanitary sewer connections for the Project are likely to be on New Chardon Street and Bowker Street. Sanitary sewers are available along the Proposed Project Site frontage and should be available at numerous locations. Individual building connections will be determined as the design advances and will be included in BWSC Site Plan approval filings. The Proponent will submit a General Service Application and site plan to the BWSC for review at the appropriate time of design.

As discussed in the MEPA filings, the Proponent will work with BWSC to develop an Infiltration and Inflow (I/I) mitigation plan with the likely mechanism being a contribution to BWSC's I/I mitigation fund, using 4:1 ratio as the basis.

7.3 Water Supply

Domestic and fire protection water at the Proposed Project Site is provided by BWSC in the following streets and sizes (Figure 7.1):

- A 16-inch fire service in New Chardon Street (westerly of Merrimac Street);
- A 30-inch southern low main in New Chardon Street (westerly of Merrimac Street);
- A 16-inch southern high main in New Chardon Street (westerly of Merrimac Street);
- 12-inch Southern High mains in Bowker Street; and

- 12-inch and 8-inch Southern Low mains in Bowker Street.

Domestic water demand is based on estimated sewage generation with an added factor of 10 percent for consumption, system losses and other use. Based upon sewage generation rates outlined in the MassDEP Sewer Connection and Extension Regulations, 310 CMR 15.203.f, the Project will require approximately 83,193 gallons per day of domestic water. Domestic water and fire protection connections will be provided via the numerous 12-inch and 16-inch mains available to the Proposed Project Site. The larger mains provide local area supply and capacity for the system as a whole. The Project will not connect to the 30-inch SL main in New Chardon Street.

Regarding air conditioning make-up water, the Proposed Project is in the schematic stage and specific MEP equipment has not yet been selected. Also, as noted in the 2013 DPIR, the Proponent is exploring the use of harvested rainwater to provide air conditioning make-up water. Other water conservation measures being considered or incorporated into the Proposed Project design and operations are described more fully in Chapter 6, *Sustainability/Green Building and Climate Change Preparedness* of this EPNF. Such potential water conservation measures include:

- Installation of low-flow and low-consumption plumbing fixtures and appliances in all residential units to achieve a minimum 20 percent water efficiency with a target to reduce water usage by 35 percent;
- Harvesting of rainwater for irrigation purposes;
- Rainfall sensors for irrigated roof deck areas; and
- Sensor operated faucets and lavatories for common area restrooms.

7.4 Stormwater Management

The Proposed Project is located in a densely developed urban area consisting mostly of impervious rooftops and impervious paved surfaces. BWSC owns and maintains an extensive system of catch basins, manholes, and drain pipes in the area immediately adjacent to the Proposed Project Site. This system of pipes, catch basins and manholes drains to specific areas within the Charles River Watershed.

The storm drainage system serving the Proposed Project Site drains primarily to the Charles River. The surface drainage for New Sudbury Street, Merrimac Street/Congress Street, New Chardon Street and Bowker Street drains to Combined Sewer Outfall (CSO) 049 in Charles River near the Nashua Street Jail.

Local storm drain service is provided to the Proposed Project Site by BWSC via a 15-inch storm drain in Bowker Street and a 36-inch storm drain in New Chardon Street (Figure 7.1). The Proposed Project will not result in significant changes in the stormwater management approach from that proposed in the approved 2013 DPIR. As discussed in the 2013 DPIR, the

Proposed Project will introduce stormwater control measures that will both improve water quality and reduce runoff. The specific stormwater controls to be incorporated into the Proposed Project will be defined and submitted to BWSC as part of the Site Plan Approval Process.

In order to address treatment of the first inch of stormwater runoff over the Proposed Project Site, per BWSC requirements and Lower Charles TMDL standards, the Proponent is exploring the use of stormwater control measures, as follows:

- *Subsurface infiltration systems* – the Proponent is evaluating the use of vertical injection wells to provide stormwater recharge.
- *Green roofs* – the Proponent is including a green roof.
- *Rainwater harvesting* – the Proponent is evaluating the harvesting of roof runoff for use in mechanical make-up water, and irrigation.
- *Sidewalk infiltration* - the use of permeable pavement strips and/or tree pit filtration along curb lines is being considered as a method to improve sidewalk runoff water quality.
- *Proprietary treatment devices* – proprietary filter devices (i.e. JellyFish, Vortechnics, etc.) may also be used as a method to improve stormwater quality.

Given that, under existing conditions, the Proposed Project Site is virtually impervious, the new office building is not expected to result in the introduction of any additional peak flows, volumes, pollutants or sediments that would potentially impact the receiving waters of the BWSC's stormwater drainage system. In fact, with the introduction of the stormwater control measures currently planned, runoff rates and volumes will be reduced, lessening the Proposed Project Site's impact on BWSC's system, and, therefore, stormwater runoff quality will be improved.

The MEPA DEIR outlined the Project's consistency with the MassDEP Stormwater Management Standards. As presented herein, the Proposed Project is not proposing any changes to the stormwater conditions analyzed in the previous filings.

7.5 Energy

7.5.1 Electricity

Eversource operates underground electric systems in New Chardon Street and Bowker Street. These systems include primary power serving an existing electrical substation on Hawkins Street. The daily electrical demand of the Proposed Project is estimated to be approximately 13,000 kilowatt (kW). The Proponent and NSTAR have met concerning the Project and NSTAR will likely provide service from either Bowker Street or New Chardon Street. As design progresses, the Proponent and NSTAR will coordinate the final design and installation of electrical service.

7.5.2 Natural Gas

The estimated natural gas demand for the Project is estimated to be approximately 46,000 cubic foot per hour (CFH).Should the Proponent elect to use steam as an energy source, natural gas demand would be reduced, as evaluated in Section 6.6.2.2 of Chapter 6, *Sustainability/Green Building and Climate Change Preparedness*. National Grid has two existing gas mains that could potentially service the Proposed Project: a 6-inch main in Bowker Street; and a 6-inch main in New Chardon Street. The Proponent has met with National Grid and has identified that the intermediate pressure 16-inch main in New Sudbury Street can serve the Proposed Project. As design progresses, the Proponent will further coordinate with National Grid to further define the service requirements.

7.5.3 Steam

Veolia/Trigen owns underground steam system in the vicinity of the Proposed Project Site, including:

- A 14-inch main in Merrimac Street/Congress Street;
- A 12-inch main in New Chardon Street; and
- A 6-inch main in Bowker Street.

The Proponent and Veolia/Trigen have met numerous times to discuss the possibility of utilizing steam for the Proposed Project, which would require an estimated 48,000 pounds per hour. To serve the Proposed Project, a service lateral in New Sudbury Street may be required. Should the Proponent elect to use Veolia/Trigen steam for heating and/or hot water needs, the Proponent and Veolia will coordinate the final design and installation of steam infrastructure.

7.6 Other Utilities

The Proponent will select private telecommunications companies to provide telephone, cable and data services. There are several potential candidates with substantial downtown Boston networks capable of providing service and there are numerous duct bank systems in the streets abutting the Proposed Project Site. Upon selection of a provider or providers, the Proponent will coordinate service connection locations and obtain appropriate approvals. Comcast has indicated it can provide service to the Proposed Project via existing infrastructure in Bowker Street. Other telecommunications providers currently provide service to the Proposed Project Site.

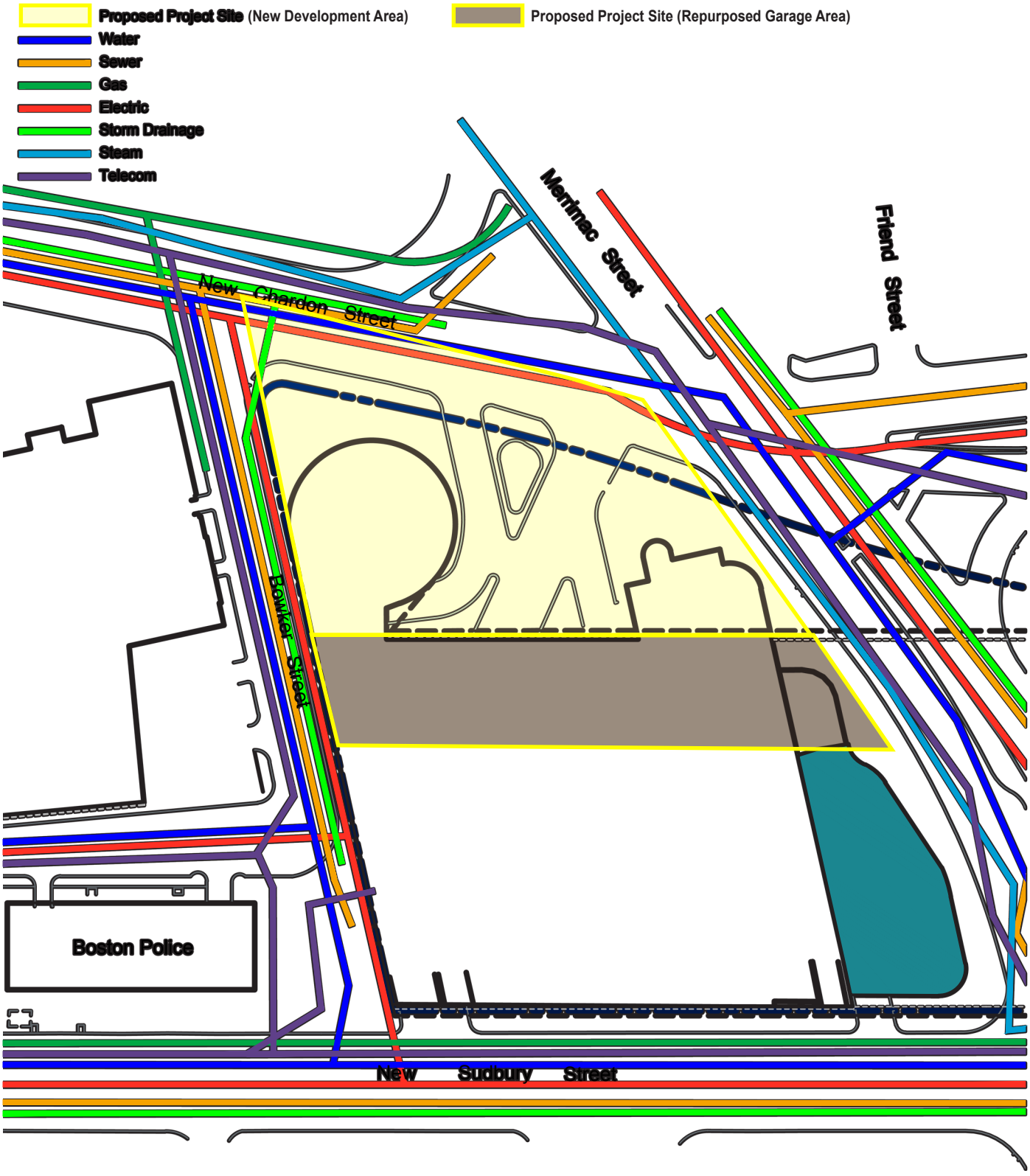


Figure 7.1

Existing Utility Infrastructure

Redevelopment of the Government Center Garage
WP-B2 (Office Building)
Boston, Massachusetts

8

Historic Resources

This chapter provides information on the inventoried and listed historic properties that are on and within a ¼-mile radius of the Proposed Project Site and possible impacts to them as a result. Inventoried and listed property information was obtained from the Boston Landmarks Commission (BLC), the Massachusetts Historical Commission (MHC), the Massachusetts Cultural Resource Information System (MACRIS), and the MHC on-line database.

8.1 Key Findings

The key findings related to historic and cultural resources include:

- The Proposed Project Site includes the Government Center Garage (MACRIS Inventory Number: BOS.2024), which is not yet 50 years of age, but was originally inventoried by the BLC in 1980 and evaluated for probable significance in 2009.
- Because the Proposed Project Site consists of a building from 1966 it is assumed that there is no potential for archaeological resources as a result of previous extensive ground disturbance.
- The single National Register of Historic Places resource is the Bulfinch Triangle Historic District, which is located across Merrimac Street from the Proposed Project Site to the north/northeast.
- The potential impacts related to pedestrian-level wind, shadows, vehicle traffic, and views on surrounding historic resources as a result of the Proposed Project remain insignificant, as with the Development Plan Project.
- As with the Development Plan Project, the refined design of the new building and surrounding public realm upgrades will improve the overall urban design setting of the area, in contrast to the current setting that is dominated by the Garage and its associated limited and deteriorated streetscape elements along the adjacent public ways (New Chardon and Bowker Streets).

8.2 Development Plan Project Review Overview

The 2013 PNF assessed the potential Proposed Project-related impacts on historic resources related to pedestrian-level wind, shadows, vehicle traffic, and views. As demonstrated in the 2013 DPIR, the revised building heights resulted in a reduction in shadows and vehicle traffic and, therefore, the Proposed Project will continue to have limited to no impacts associated with net new shadow and vehicle trips on the surrounding historic properties. The findings of the pedestrian wind study conducted as part of the 2013 DPIR showed potential for high wind activity and/or channeling flows at the PDA Site. Therefore, a key goal of project design has been to continue to assess and test mitigation for potential adverse wind conditions at the ground plane within and nearby by to the PDA Site through design. Special attention has been given to potential wind impacts on nearby historic resources, including the Bulfinch Triangle Historic District and Bowker Street properties west of the Proposed Project Site. While there are some pedestrian-level wind impacts associated with the Proposed Project, these resources are not expected to be significantly directly impacted. The results of the pedestrian-level wind study for the proposed office building is presented in Section 5.3 of Chapter 5, *Environmental Protection*.

The Proponent also held informational meetings with the Boston Environment Department (BED) during their review of the 2013 DPIR as well as Boston Landmarks Commission (BLC) staff. The meeting with the BED resulted in a better understanding of the potential shadow impacts. BLC staff members were updated on the ongoing MHC review under the MEPA process and were provided all supplemental information submitted in response to MHC's review comments. At the BLC meeting, it was confirmed that the Government Center Garage building is not subject to Article 85 (Demolition Delay) of the Boston Zoning Code because only partial demolition is proposed.

In accordance with the PDA, updated building design/architectural details and environmental impact studies, including understanding potential impacts on historic resources based on a more refined is required as part of the Article 80B, Large Project Review for each Project Component (provided herein). Specific measures intended to mitigate, limit, or minimize impacts, where appropriate, as required by local, state, and federal regulation are also discussed herein. Additionally, the Proponent plans to meet with the BLC staff to present the design update.

8.2.1 MHC Review of Proposed Project Effects

In December 2013, the Proponent submitted the EENF to commence MHC's review of the Development Plan Project in place of submitting a separate Project Notification Form. On January 14, 2014, MHC issued a comment letter on the EENF requesting additional information in order to determine what effect the Development Plan Project may have on surrounding historic resources. Specifically, MHC requested printouts of the shadow and visual studies originally completed as part of the BRA 2013 DPIR filing and included in Appendix B of the EENF (provided electronically on a CD-ROM). On February 7, 2014, the Proponent provided a

hardcopy of this extensive shadow study. The Proponent also enclosed hard copies of building elevations and site sections to provide a sense of size, scale, and massing of the Development Plan Project as well as the view impact studies, including pedestrian level view perspectives. MHC reviewed these materials and issued a comment letter dated March 7, 2014 requesting additional visual studies, which the Proponent provided on April 15, 2014. The additional representative perspectives were developed from specified properties listed in the State and National Register to assist MHC in determining what effect the size, scale, and massing the Development Plan Project may have on the character and setting of the nearby historic properties.

In its determination letter dated May 27, 2014 and, again, in a June 19, 2014 comment letter on the DEIR, MHC requested additional information to eliminate or minimize the adverse effect of the Development Plan Project on the Bulfinch Triangle and Blackstone Block Historic Districts, and the Sears' Crescent and Sears' Block buildings. The Proponent issued a response on July 10, 2014 requesting MHC arrange a meeting with consulting parties to discuss appropriate ways to mitigate potential adverse effects of the Development Plan Project. On August 8, 2014, MHC issued a response letter requesting additional information (design alternatives) in preparation for the consultation meeting. The Proponent is currently preparing the supplemental information requested by MHC. In accordance with the determination, beyond the conclusion of the MEPA review process, the Proponent is committed to participating in the consultation process, pursuant to 950 CMR 71.00.

8.3 Existing Historic Resources

The Proposed Project Site is located in the 1964 Government Center Urban Renewal District, which was the focus of clearance and new construction for a nexus of local, state, and federal government offices and other related facilities in the 1960s and 1970s. The Proposed Project Site is surrounded by numerous older neighborhoods and districts of Boston, including the Bulfinch Triangle to the north, the North End to the east, and Government Center and Faneuil Hall to the south.

The inventoried and listed districts and properties on and within a ¼-mile radius are shown on Figure 8.1. The list is arranged by the following designations:

- National Register districts
- National Register individually listed properties
- MHC inventoried areas (documented on Form A or a BLC street inventory form)
- MHC individually inventoried properties, outside of the North End
- MHC individually inventoried properties within the North End (that are within the ¼-mile radius)

For greater context, Figure 8.2 identifies all of the inventoried properties within the ¼-mile radius as well as National-Register listed properties within a larger area of the downtown area.

8.3.1 Government Center Garage (BOS.2024)

The Government Center Garage (BOS.2024) was originally inventoried by the BLC in 1980. Additional information on the building and a consultant evaluation of possible significance when it reaches the age of 50 years (2016) was completed in June 2009 for the BLC. The evaluation of significance noted the free-standing nature of the Garage, which is rare for a Downtown Boston garage structure in the mid-to-late 20th century and its unusual multi-modal functions, its association with the firm of Kallman, McKinnell & Knowles (who designed Boston's City Hall) and Samuel Glaser & Associates, and as an element of the Government Center mid-20th century urban renewal development.

The building, which dates to 1966, was jointly designed by Saul Glaser & Associates and Boston City Hall's architects, Kallman, McKinnell & Knowles. The large scale building with some ground-level retail covers two city blocks and spans Congress Street. Designed in the Brutalist style, the building is composed of pre-cast concrete elements that include beams, columns piers, and spandrels.

8.3.2 Adjacent and Nearby Inventoried and Listed Properties

The MBTA Haymarket Station on the East Parcel has been assigned two MHC inventory numbers (BOS.920 and BOS. 923), but no forms were found at either the BLC or the MHC. The station elements were recorded as part of the MBTA Phase I Survey. The date assigned to BOS.920 is 1905, while BOS.923 has a date of 1898. These construction dates certainly do not correspond to the above-ground infrastructure of the station, which dates to the 1960s and more recent alterations.

Directly west of the Garage on the west side of Bowker Street are four inventoried properties: the District 1 Police Station (BOS.2023), a 1968 structure which fronts on New Sudbury Street; the Temporary Home for Women (BOS.1904) at 40-50 Bowker Street, which dates to 1924; Overseers of the Public Welfare Building (BOS. 1783), which carries the address of 35 Hawkins Street and also dates to 1924; and the Boston Edison substation (BOS.948) at 33 Hawkins Street, which was built in 1927 (Figure 8.1). In previous reviews of the Proposed Project Site, MHC stated that the last two named properties (Overseers of the Public Welfare Building and the Boston Edison Substation) were eligible for the National Register of Historic Places under Criterion A (association with significant events) at the local level (Brona Simon to Secretary Ian A. Bowles, April 21, 2009).

Located to the south of the Garage is the John F. Kennedy Federal Office Building (BOS.1617), which also dates to 1966 and shares the mid-20th century urban renewal story of this area (Figure 8.1). The building has not been subject to an official evaluation of its National Register eligibility, due to its age; the 2009 update of the inventory form for the building recommended an assessment of its eligibility when it reached 50 years of age (2016).

Only one National Register of Historic Places district is in the vicinity of the Proposed Project Site—the Bulfinch Triangle Historic District (the "District"). The District is located just north of

the Proposed Project Site across from the Merrimac Street/New Chardon Street intersection (Figure 8.1). The District contains a collection of mainly late 19th and early 20th century brick warehouse and commercial buildings.

8.3.3 Archeological Resources

As the Proposed Project Site consists of a building from 1966, it is assumed that there is no potential for archaeological resources as a result of previous extensive ground disturbance. With regard to archaeology, the Garage is located at the southern end of the former Mill Pond, the location of significant industrial pursuits of Colonial Boston from 1643 through the filling of the area in the early 19th century. The present Garage structure straddles the shoreline of the former 1629 Shawmut Peninsula and the bay area of Mill Pond. The southwestern end of the Garage, the location of the Proposed Project, along what is now New Sudbury Street, is located on the original landmass of Boston.

According to BLC comments on the EENF, archaeological investigations for the Central Artery Tunnel project were conducted between 1987 and 1989, which recovered intact archaeological remains associated with wharves and wharf-related sites, landfill, and structures in the parcel immediately adjacent to the Garage. This archaeological site, the Mill Pond site (BOS-HA-14), produced valuable historical data relating to the period between 1630 and 1830. Due to the proximity of the Garage to this archaeological site and its similar environs, it is highly likely that the location of the Garage once contained similar important deposits. But, is it assumed that the construction of the Garage, the tunneling of the Boston and Maine Railroad, and later MBTA lines, and finally the dense brick structures located on the western portion of the project area in the late 19th century all have caused enough probable damage to the archaeological resources to not warrant archaeological survey.

8.4 Potential Project Impacts to Historic Resources

As described previously in Chapter 1, *Project Description*, the Proposed Project will replace the garage egress helix and cover/enclose the entire north-facing edge of the Garage with a new building façade. Additionally, new public open space will be created at the northwest corner of the West Parcel. A portion of the remaining garage structure along Bowker Street will remain partially open. While the Garage is an inventoried property, it has not been subjected to an official evaluation of its historic significance due to its relatively recent date of construction.

Based on a more refined building design, potential impacts of the proposed office building on surrounding historic resources in the vicinity of the Proposed Project Site have been considered and are discussed in the following sections. Specific measures intended to mitigate, limit, or minimize impacts, where appropriate, as required by local, state, and federal regulation is also discussed.

8.4.1 Design and Public Realm

As described in Chapter 3, *Urban Design*, the design of the new building and surrounding public realm upgrades will improve the overall urban design setting of the area, in contrast to the current setting that is dominated by the Garage and its associated limited and deteriorated streetscape elements along the New Chardon Street and Bowker Street frontage. Per the BLC's request, the new building will have dated cornerstone to allow those who are attentive to and value the architecture of the City to appreciate the historical context in which structures were conceived and built.

8.4.2 Shadow

As presented in Chapter 5, *Environmental Protection*, updated shadow studies have been provided that evaluate the shadows cast based on the current design of the Proposed Project compared to the 2013 DPIR shadows based on the conceptual massing. While the building height remains consistent with the approved Development Plan Project, the massing (i.e., building shape) has been greatly refined from what was assumed in the 2013 DPIR shadow study (from a rectangle shape to a more elegant oval shape), as discussed in Section 3.3.1 of Chapter 3, *Urban Design*. As a result, the current proposed office building design decreases the amount of net new shadow under a number of conditions when compared to the 2013 DPIR shadows.

As a result of the Proposed Project, net new shadow is expected on rooftops of some buildings in the southernmost portion of the District starting around 12PM in March and September, but by 3PM the shadow has moved completely out of the District. In June, no net new shadow would be created over the District. As with the Development Plan Project, the winter shadow conditions demonstrate that during the colder months shadow (existing and net new) moves across the Bulfinch Triangle Historic District west to east starting at 8:00/9:00 AM and passing over the District by 1:00/2:00 PM providing for afternoon sunlight over the District, thereby, reducing the potential for ice damage on facades or roofs of historic structures.

Unusual for new development in Boston, starting in Phase 2A, the Development Plan Project will provide periods of new sunlight on streets now covered or shaded by the Garage throughout the year. Because the eastern half of the Garage will be removed, shadow would actually be eliminated on parts of Congress Street and the East Parcel.

8.4.3 Wind

Section 5.3 of Chapter 5, *Environmental Protection* (and Appendix B) presents the updated wind tunnel results based on the currently propose office building design. The pedestrian-level wind study gave special attention was given to potential wind impacts on nearby historic resources, specifically the Bowker Street historic properties west of the Proposed Project Site as well as the District to the north.

Under the Build with Mitigation Condition (with the addition of the Proposed Project and wind mitigation measures), pedestrian-level wind comfort categorizations are expected to remain generally similar to the No-Build Condition, including at locations identified in the No-Build Condition as Uncomfortable. In a few instances along the Proposed Project Site frontage on New Chardon Street and Congress Street, the wind sensors detected Uncomfortable wind conditions. These locations, the majority of which would not directly impact historic properties (and none of which would significantly change wind conditions in the District), may have been impacted by the simulated removal of the eastern portion of the existing garage structure over Congress Street and the East Parcel, which is a condition of the approved PDA for the Proposed Project. The Overseers of the Public Welfare Building located at the corner of New Chardon Street and Bowker Street is the only nearby historic property that would experience a nearby negative change in wind comfort. However, the main entrance to this building appears to face Bowker Street, which under the Build with Mitigation Condition would be comfortable for Walking or Standing.

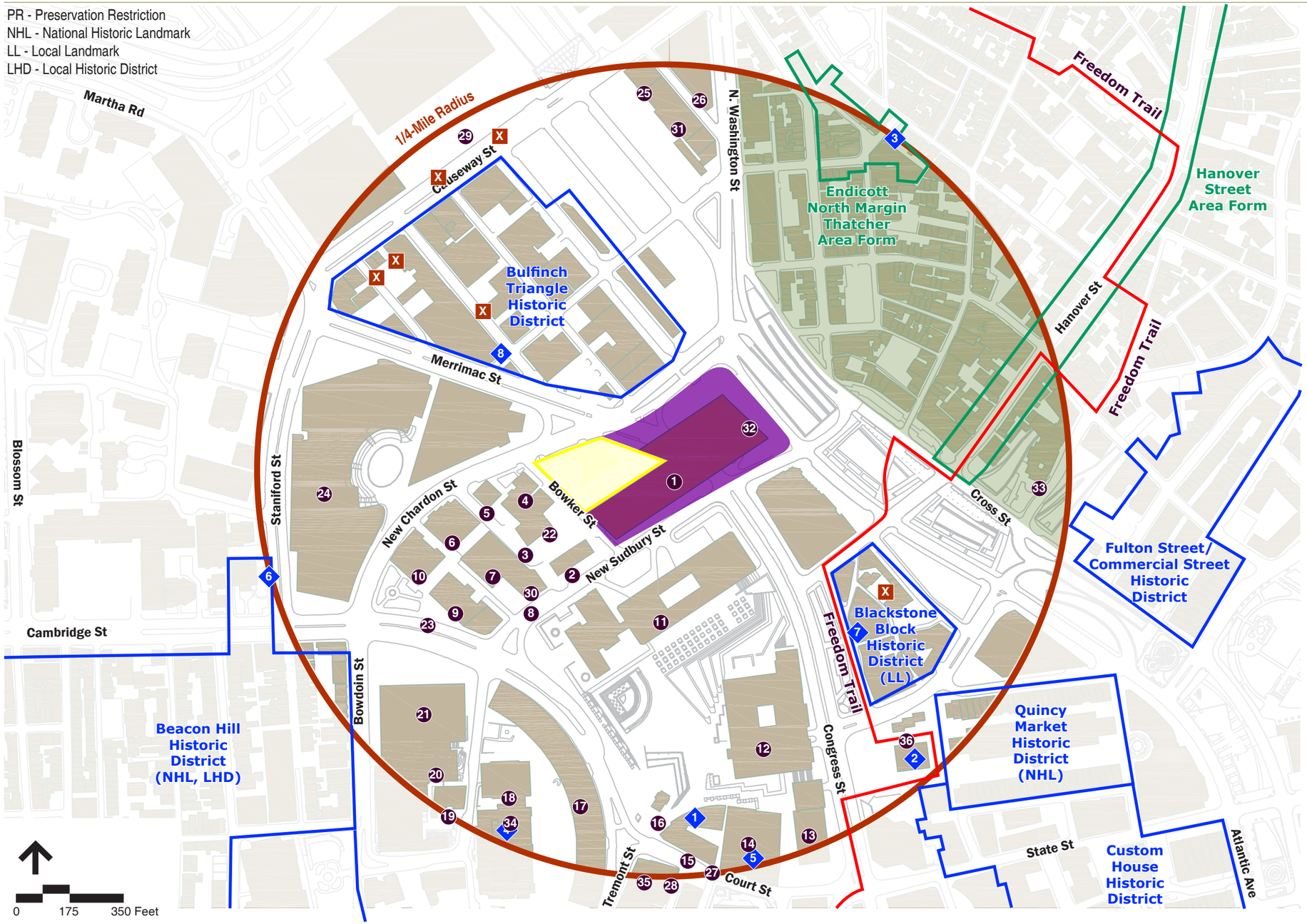
8.4.4 View Corridors

Figures 3.6a-i present the updated view perspectives based on the currently proposed residential building design. These visual studies aim to illustrate the potential effect of the size, scale, and massing of the proposed buildings on historic properties in the vicinity of the Proposed Project.

As demonstrated by these illustrations, the Proposed Project is not expected to have a negative view impact in the historical context of the Bulfinch Triangle Historic District or other surrounding historic properties. Views of the existing garage structure from the National Register-listed Bulfinch Triangle Historic District were not among the characteristics for which the resource was listed. Therefore, the Proposed Project is not expected to have a negative view impact in the historical context of the District. Similarly, views of the Proposed Project from the historic properties on Bowker Street and Hawkins Street will not affect these properties as any significance they might possess does not include their setting. Additionally, their current setting has been greatly altered since their original construction.

Additionally, as mentioned previously, under Phase 2A the eastern half of the Garage will be removed opening up a vast north-south view corridor along Congress Street. This key public benefit of the Development Plan Project will be a positive effect where views of the National Register-listed Custom House Tower in the Financial District will be gained from the District reconnecting the area's historical elements. Also, views will be gained of the District from Faneuil Hall marketplace and the new Boston Public Market.

PR - Preservation Restriction
NHL - National Historic Landmark
LL - Local Landmark
LHD - Local Historic District



PDA Site
Proposed Project Site
National Register Historic Districts
MHC Inventoried Area

National Register Individually Listed Properties
1. Sears Crescent and Block
2. Faneuil Hall (NHL, PR, LL)
3. Vermont Building
4. John Adams Courthouse
5. Ames Building (LL)
6. Old West Church (NHL, PR)
7. Union Oyster House (NHL, LL)
8. 138-142 Portland Street

MHC Individually Inventoried Properties
1. Government Center Parking Garage
2. District 1 Police Station
3. Boston Edison Substation
4. Overseers of the Public Welfare Building
5. O'Neal Building (Jewish Family and Children's Services)
6. Royal Globe Insurance Company
7. R.K.O. General Building
8. One Bulfinch Place
9. New England Telephone and Telegraph
10. Bulfinch Building
11. JFK Federal Building
12. Boston City Hall
13. New England Merchants National Bank
14. One Washington Mall
15. City Bank and Trust Building
16. Government Center MBTA Station
17. One, Two and Three Center Plaza
18. Suffolk County Courthouse Addition
19. Metropolitan District Commission Building
20. McCormack Office Building
21. Leverett Saltonstall Building
22. Temporary Home for Women
23. Bowdoin Street MBTA Station
24. Lindemann Mental Health Center
25. Dow Braman and Company Building
26. Keaney Square Building
27. Old Colony Trust Building
28. United States Trust Company Building
29. North Station MBTA Substation and Signal Tower
30. Capital Bank Building
31. 6-24 Medford Street
32. Haymarket MBTA Station
33. Traffic Tunnel Administration Building
34. Rufus Choate Statue
35. Hemenway Building
36. Faneuil Hall Greenhouses

X MHC Individually Inventoried Properties Demolished
North End - Please see Table 8-1 for list of properties

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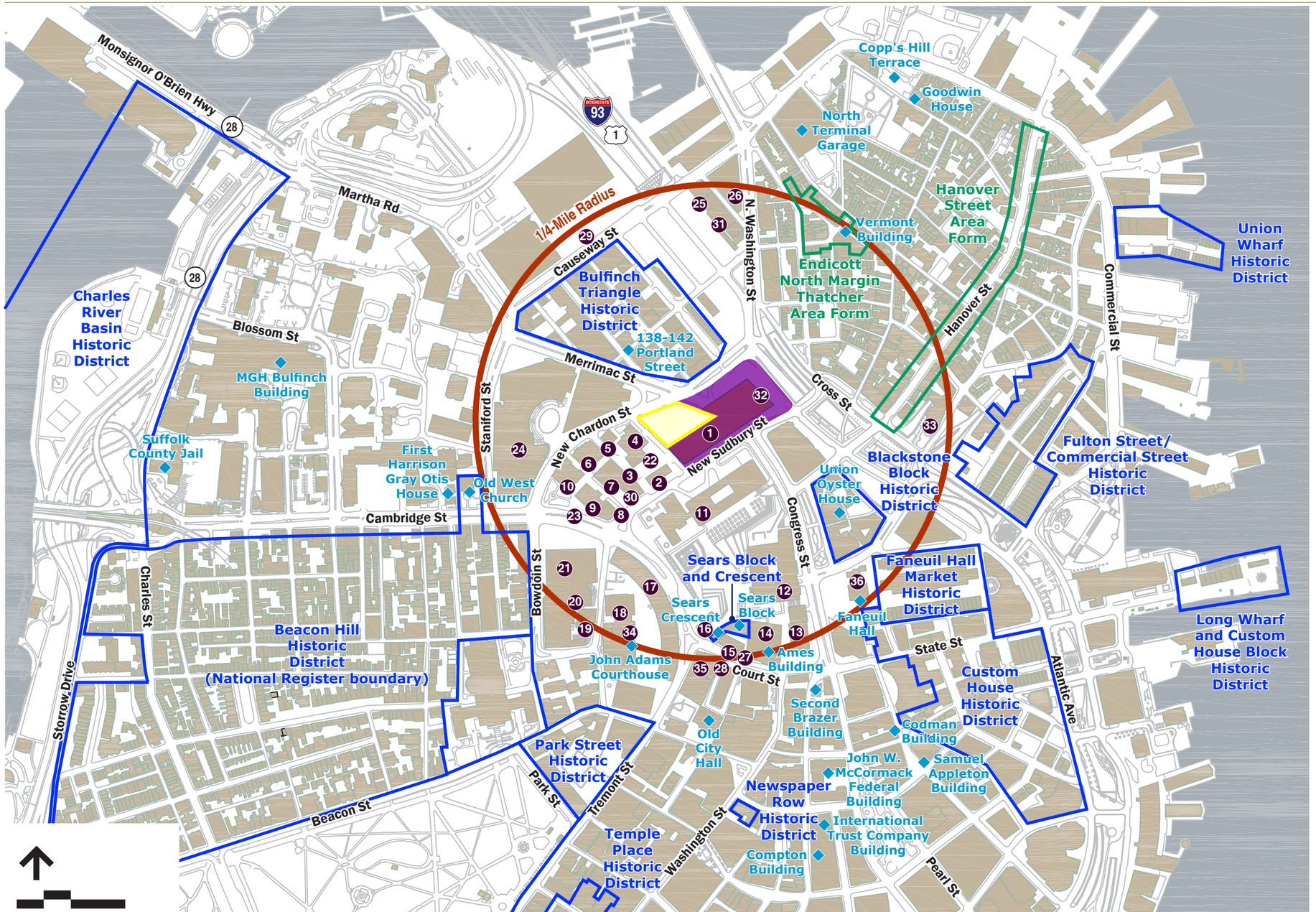
Figure 8.1
Historic Resources in the Vicinity of the Project Site

Redevelopment of the Government Center Garage
WP-B2 (Office Building)
Boston, Massachusetts

Source: BWSC CAD file, 2010



Source: BWSC CAD file, 2010

Figure 8.2
Inventoried and Designated Resources within the 1/4-mile radius of the Project Site and National Register Districts and Individually-Listed Properties in the Vicinity
Redevelopment of the Government Center Garage
WP-B2 (Office Building)
Boston, Massachusetts

9

Project Certification

This Expanded Project Notification Form (EPNF) has been submitted to the Boston Redevelopment Authority, as required by Article 80B of the Zoning Code, on the 16th of November, 2015.

Proponent

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Managing Partner

Preparer

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Senior Environmental Planner

APPENDIX A: Transportation Supporting Documentation

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N/S: Staniford Street/ Temple Street
E/W: Cambridge Street
City, State: Boston, MA
Client: Howard/ Stein-Hudson/A. Siu

File Name : 133598 A
Site Code : 2006084
Start Date : 10/29/2013
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Staniford Street From North				Cambridge Street From East				Temple Street From South				Cambridge Street From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
07:00 AM	43	0	39	0	29	67	0	0	1	0	0	0	0	82	31	0	292
07:15 AM	40	0	32	0	32	77	0	0	4	0	0	0	0	100	35	3	323
07:30 AM	56	0	31	1	29	96	0	0	1	0	0	0	0	104	34	5	357
07:45 AM	74	0	46	0	24	98	0	0	5	0	0	0	0	102	40	2	391
Total	213	0	148	1	114	338	0	0	11	0	0	0	0	388	140	10	1363
08:00 AM	54	0	54	0	31	97	0	1	4	0	0	0	0	102	43	5	391
08:15 AM	60	0	53	1	46	103	0	0	7	0	0	0	0	127	35	4	436
08:30 AM	60	0	63	0	44	108	0	0	2	0	0	0	0	129	51	4	461
08:45 AM	63	0	66	0	55	80	0	0	2	0	0	0	0	137	56	3	462
Total	237	0	236	1	176	388	0	1	15	0	0	0	0	495	185	16	1750
Grand Total	450	0	384	2	290	726	0	1	26	0	0	0	0	883	325	26	3113
Apprch %	53.8	0	45.9	0.2	28.5	71.4	0	0.1	100	0	0	0	0	71.6	26.3	2.1	
Total %	14.5	0	12.3	0.1	9.3	23.3	0	0	0.8	0	0	0	0	28.4	10.4	0.8	
Cars	413	0	370	2	262	675	0	1	24	0	0	0	0	860	313	25	2945
% Cars	91.8	0	96.4	100	90.3	93	0	100	92.3	0	0	0	0	97.4	96.3	96.2	94.6
Heavy Vehicles	37	0	14	0	28	51	0	0	2	0	0	0	0	23	12	1	168
% Heavy Vehicles	8.2	0	3.6	0	9.7	7	0	0	7.7	0	0	0	0	2.6	3.7	3.8	5.4

	Staniford Street From North					Cambridge Street From East					Temple Street From South					Cambridge Street From West					
Start Time	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	Int. 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	54	0	54	0	108	31	97	0	**1**	129	4	0	0	0	4	0	102	43	**5**	150	391
08:15 AM	60	0	53	**1**	114	46	103	0	0	149	**7**	0	0	0	**7**	0	127	35	4	166	436
08:30 AM	60	0	63	0	123	44	**108**	0	0	**152**	2	0	0	0	2	0	129	51	4	184	461
08:45 AM	**63**	0	**66**	0	**129**	**55**	80	0	0	135	2	0	0	0	2	0	**137**	**56**	3	**196**	**462**
Total Volume	237	0	236	1	474	176	388	0	1	565	15	0	0	0	15	0	495	185	16	696	1750
% App. Total	50	0	49.8	0.2		31.2	68.7	0	0.2		100	0	0	0		0	71.1	26.6	2.3		
PHF	.940	.000	.894	.250	.919	.800	.898	.000	.250	.929	.536	.000	.000	.000	.536	.000	.903	.826	.800	.888	.947
Cars	221	0	227	1	449	163	362	0	1	526	15	0	0	0	15	0	483	179	15	677	1667
% Cars	93.2	0	96.2	100	94.7	92.6	93.3	0	100	93.1	100	0	0	0	100	0	97.6	96.8	93.8	97.3	95.3
Heavy Vehicles	16	0	9	0	25	13	26	0	0	39	0	0	0	0	0	0	12	6	1	19	83
% Heavy Vehicles	6.8	0	3.8	0	5.3	7.4	6.7	0	0	6.9	0	0	0	0	0	0	2.4	3.2	6.3	2.7	4.7

PRECISION
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N/S: Staniford Street/ Temple Street
E/W: Cambridge Street
City, State: Boston, MA
Client: Howard/ Stein-Hudson/A. Siu

File Name : 133598 A
Site Code : 2006084
Start Date : 10/29/2013
Page No : 1

Groups Printed- Peds and Bicycles

	Staniford Street From North				Cambridge Street From East				Temple Street From South				Cambridge Street From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
07:00 AM	2	0	0	49	1	1	0	15	0	0	0	31	0	1	1	21	122
07:15 AM	1	0	0	50	0	1	0	14	0	0	0	43	0	8	0	16	133
07:30 AM	1	0	0	93	1	0	0	23	0	0	0	81	0	10	0	31	240
07:45 AM	0	0	2	101	0	4	0	26	0	0	0	103	0	20	7	38	301
Total	4	0	2	293	2	6	0	78	0	0	0	258	0	39	8	106	796
08:00 AM	2	0	1	112	0	3	0	38	0	1	0	135	0	9	1	111	413
08:15 AM	3	0	0	139	1	2	0	45	0	0	1	173	0	22	1	76	463
08:30 AM	1	1	1	136	1	5	0	42	0	0	0	154	0	11	2	118	472
08:45 AM	0	0	3	171	1	2	0	39	0	0	0	160	0	12	2	59	449
Total	6	1	5	558	3	12	0	164	0	1	1	622	0	54	6	364	1797
Grand Total	10	1	7	851	5	18	0	242	0	1	1	880	0	93	14	470	2593
Apprch %	1.2	0.1	0.8	97.9	1.9	6.8	0	91.3	0	0.1	0.1	99.8	0	16.1	2.4	81.5	
Total %	0.4	0	0.3	32.8	0.2	0.7	0	9.3	0	0	0	33.9	0	3.6	0.5	18.1	

	Staniford Street From North					Cambridge Street From East					Temple Street From South					Cambridge Street From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. 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	2	0	1	112	115	0	3	0	38	41	0	**1**	0	135	136	0	9	1	111	121	413
08:15 AM	**3**	0	0	139	142	**1**	2	0	**45**	**48**	0	0	**1**	**173**	**174**	0	**22**	1	76	99	463
08:30 AM	1	**1**	1	136	139	1	**5**	0	42	48	0	0	0	154	154	0	11	**2**	**118**	**131**	**472**
08:45 AM	0	0	**3**	**171**	**174**	1	2	0	39	42	0	0	0	160	160	0	12	2	59	73	449
Total Volume	6	1	5	558	570	3	12	0	164	179	0	1	1	622	624	0	54	6	364	424	1797
% App. Total	1.1	0.2	0.9	97.9		1.7	6.7	0	91.6		0	0.2	0.2	99.7		0	12.7	1.4	85.8		
PHF	.500	.250	.417	.816	.819	.750	.600	.000	.911	.932	.000	.250	.250	.899	.897	.000	.614	.750	.771	.809	.952

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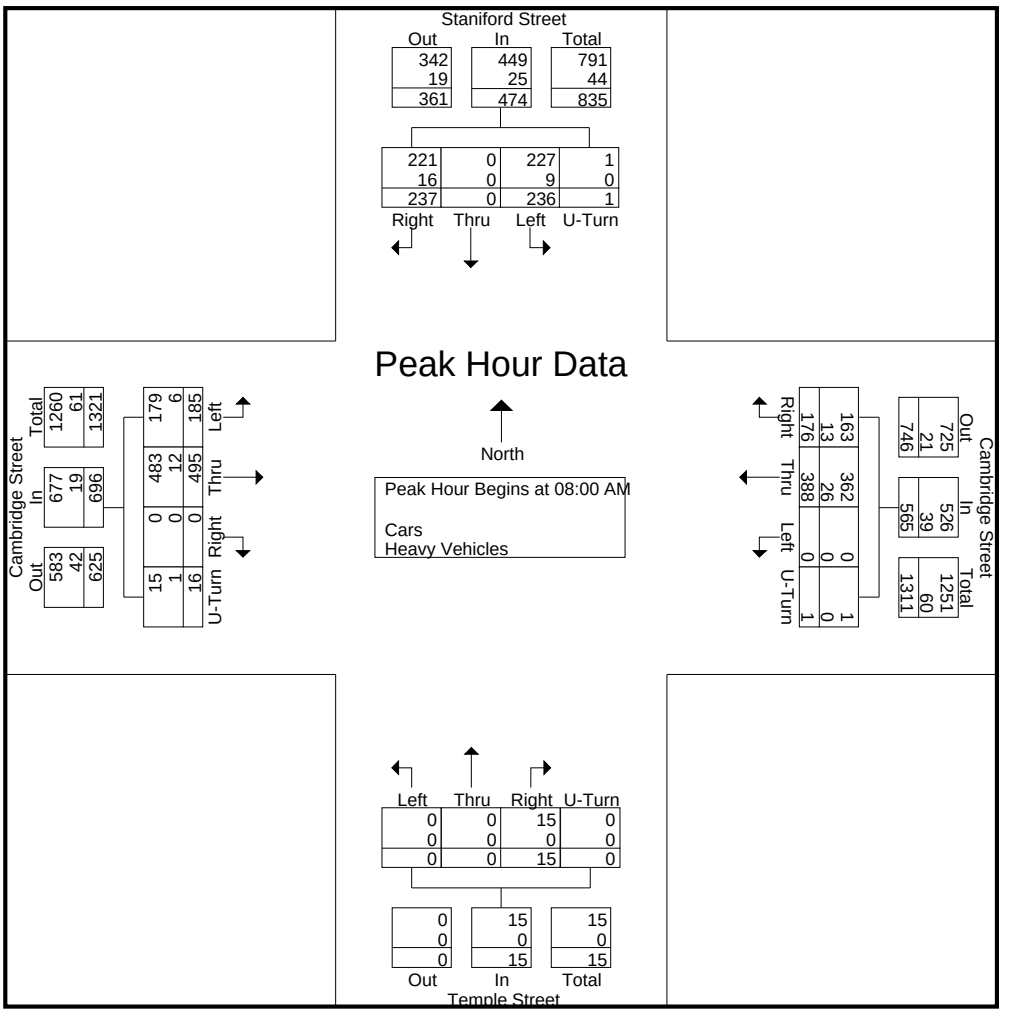
	Staniford Street From North					Cambridge Street From East					Temple Street From South					Cambridge Street From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis 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	54	0	54	0	108	31	97	0	**1**	129	4	0	0	0	4	0	102	43	**5**	150	391
08:15 AM	60	0	53	**1**	114	46	103	0	0	149	**7**	0	0	0	**7**	0	127	35	4	166	436
08:30 AM	60	0	63	0	123	44	**108**	0	0	**152**	2	0	0	0	2	0	129	51	4	184	461
08:45 AM	**63**	0	**66**	0	**129**	**55**	80	0	0	135	2	0	0	0	2	0	**137**	**56**	3	**196**	**462**
Total Volume	237	0	236	1	474	176	388	0	1	565	15	0	0	0	15	0	495	185	16	696	1750
% App. Total	50	0	49.8	0.2		31.2	68.7	0	0.2		100	0	0	0		0	71.1	26.6	2.3		
PHF	.940	.000	.894	.250	.919	.800	.898	.000	.250	.929	.536	.000	.000	.000	.536	.000	.903	.826	.800	.888	.947
Cars	221	0	227	1	449	163	362	0	1	526	15	0	0	0	15	0	483	179	15	677	1667
% Cars	93.2	0	96.2	100	94.7	92.6	93.3	0	100	93.1	100	0	0	0	100	0	97.6	96.8	93.8	97.3	95.3
Heavy Vehicles	16	0	9	0	25	13	26	0	0	39	0	0	0	0	0	0	12	6	1	19	83
% Heavy Vehicles	6.8	0	3.8	0	5.3	7.4	6.7	0	0	6.9	0	0	0	0	0	0	2.4	3.2	6.3	2.7	4.7



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File Name : 133598 AA
Site Code : 2006084
Start Date : 10/29/2013
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Groups Printed- Cars - Heavy Vehicles

	Staniford Street From North				Cambridge Street From East				Temple Street From South				Cambridge Street From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:00 PM	34	0	53	1	37	121	0	0	6	0	0	0	0	112	55	3	422
04:15 PM	36	0	31	0	48	98	0	0	3	0	0	0	0	135	69	2	422
04:30 PM	51	0	52	0	48	100	0	0	3	0	0	0	0	155	70	0	479
04:45 PM	39	0	48	0	47	110	0	0	1	0	0	0	0	123	67	1	436
Total	160	0	184	1	180	429	0	0	13	0	0	0	0	525	261	6	1759
05:00 PM	50	0	65	0	26	132	0	0	0	0	0	0	0	123	76	3	475
05:15 PM	45	0	49	1	46	127	0	0	2	0	0	0	0	140	84	2	496
05:30 PM	50	0	48	0	41	142	0	0	1	0	0	0	0	106	68	2	458
05:45 PM	43	0	51	0	48	132	0	0	1	0	0	0	0	117	76	4	472
Total	188	0	213	1	161	533	0	0	4	0	0	0	0	486	304	11	1901
Grand Total	348	0	397	2	341	962	0	0	17	0	0	0	0	1011	565	17	3660
Apprch %	46.6	0	53.1	0.3	26.2	73.8	0	0	100	0	0	0	0	63.5	35.5	1.1	
Total %	9.5	0	10.8	0.1	9.3	26.3	0	0	0.5	0	0	0	0	27.6	15.4	0.5	
Cars	334	0	387	2	320	924	0	0	16	0	0	0	0	981	553	17	3534
% Cars	96	0	97.5	100	93.8	96	0	0	94.1	0	0	0	0	97	97.9	100	96.6
Heavy Vehicles	14	0	10	0	21	38	0	0	1	0	0	0	0	30	12	0	126
% Heavy Vehicles	4	0	2.5	0	6.2	4	0	0	5.9	0	0	0	0	3	2.1	0	3.4

	Staniford Street From North					Cambridge Street From East					Temple Street From South					Cambridge Street From West					
Start Time	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	Int. 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	**50**	0	**65**	0	**115**	26	132	0	0	158	0	0	0	0	0	0	123	76	3	202	475
05:15 PM	45	0	49	**1**	95	46	127	0	0	173	**2**	0	0	0	**2**	0	**140**	**84**	2	**226**	**496**
05:30 PM	50	0	48	0	98	41	**142**	0	0	**183**	1	0	0	0	1	0	106	68	2	176	458
05:45 PM	43	0	51	0	94	**48**	132	0	0	180	1	0	0	0	1	0	117	76	**4**	197	472
Total Volume	188	0	213	1	402	161	533	0	0	694	4	0	0	0	4	0	486	304	11	801	1901
% App. Total	46.8	0	53	0.2		23.2	76.8	0	0		100	0	0	0		0	60.7	38	1.4		
PHF	.940	.000	.819	.250	.874	.839	.938	.000	.000	.948	.500	.000	.000	.000	.500	.000	.868	.905	.688	.886	.958
Cars	180	0	213	1	394	153	516	0	0	669	4	0	0	0	4	0	472	300	11	783	1850
% Cars	95.7	0	100	100	98.0	95.0	96.8	0	0	96.4	100	0	0	0	100	0	97.1	98.7	100	97.8	97.3
Heavy Vehicles	8	0	0	0	8	8	17	0	0	25	0	0	0	0	0	0	14	4	0	18	51
% Heavy Vehicles	4.3	0	0	0	2.0	5.0	3.2	0	0	3.6	0	0	0	0	0	0	2.9	1.3	0	2.2	2.7

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Groups Printed- Peds and Bicycles

	Staniford Street From North				Cambridge Street From East				Temple Street From South				Cambridge Street From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
04:00 PM	1	1	1	143	3	6	0	30	0	0	0	71	0	1	3	57	317
04:15 PM	0	0	0	130	0	11	0	31	0	0	1	68	0	0	0	61	302
04:30 PM	1	0	1	150	3	8	0	24	0	1	0	66	0	0	1	61	316
04:45 PM	0	0	0	152	0	6	0	34	0	1	0	82	0	1	2	57	335
Total	2	1	2	575	6	31	0	119	0	2	1	287	0	2	6	236	1270
05:00 PM	2	0	0	184	3	33	0	51	0	0	0	108	0	3	3	110	497
05:15 PM	1	0	2	183	5	34	0	30	0	0	0	152	0	1	1	122	531
05:30 PM	0	0	1	185	1	22	0	32	0	0	0	135	0	0	1	94	471
05:45 PM	3	0	2	141	1	36	0	29	0	0	0	130	0	0	1	60	403
Total	6	0	5	693	10	125	0	142	0	0	0	525	0	4	6	386	1902
Grand Total	8	1	7	1268	16	156	0	261	0	2	1	812	0	6	12	622	3172
Apprch %	0.6	0.1	0.5	98.8	3.7	36	0	60.3	0	0.2	0.1	99.6	0	0.9	1.9	97.2	
Total %	0.3	0	0.2	40	0.5	4.9	0	8.2	0	0.1	0	25.6	0	0.2	0.4	19.6	

	Staniford Street From North					Cambridge Street From East					Temple Street From South					Cambridge Street From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. 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	2	0	0	184	**186**	3	33	0	**51**	**87**	0	0	0	108	108	0	**3**	**3**	110	116	497
05:15 PM	1	0	**2**	183	186	**5**	34	0	30	69	0	0	0	**152**	**152**	0	1	1	**122**	**124**	**531**
05:30 PM	0	0	1	**185**	186	1	22	0	32	55	0	0	0	135	135	0	0	1	94	95	471
05:45 PM	**3**	0	2	141	146	1	**36**	0	29	66	0	0	0	130	130	0	0	1	60	61	403
Total Volume	6	0	5	693	704	10	125	0	142	277	0	0	0	525	525	0	4	6	386	396	1902
% App. Total	0.9	0	0.7	98.4		3.6	45.1	0	51.3		0	0	0	100		0	1	1.5	97.5		
PHF	.500	.000	.625	.936	.946	.500	.868	.000	.696	.796	.000	.000	.000	.863	.863	.000	.333	.500	.791	.798	.895

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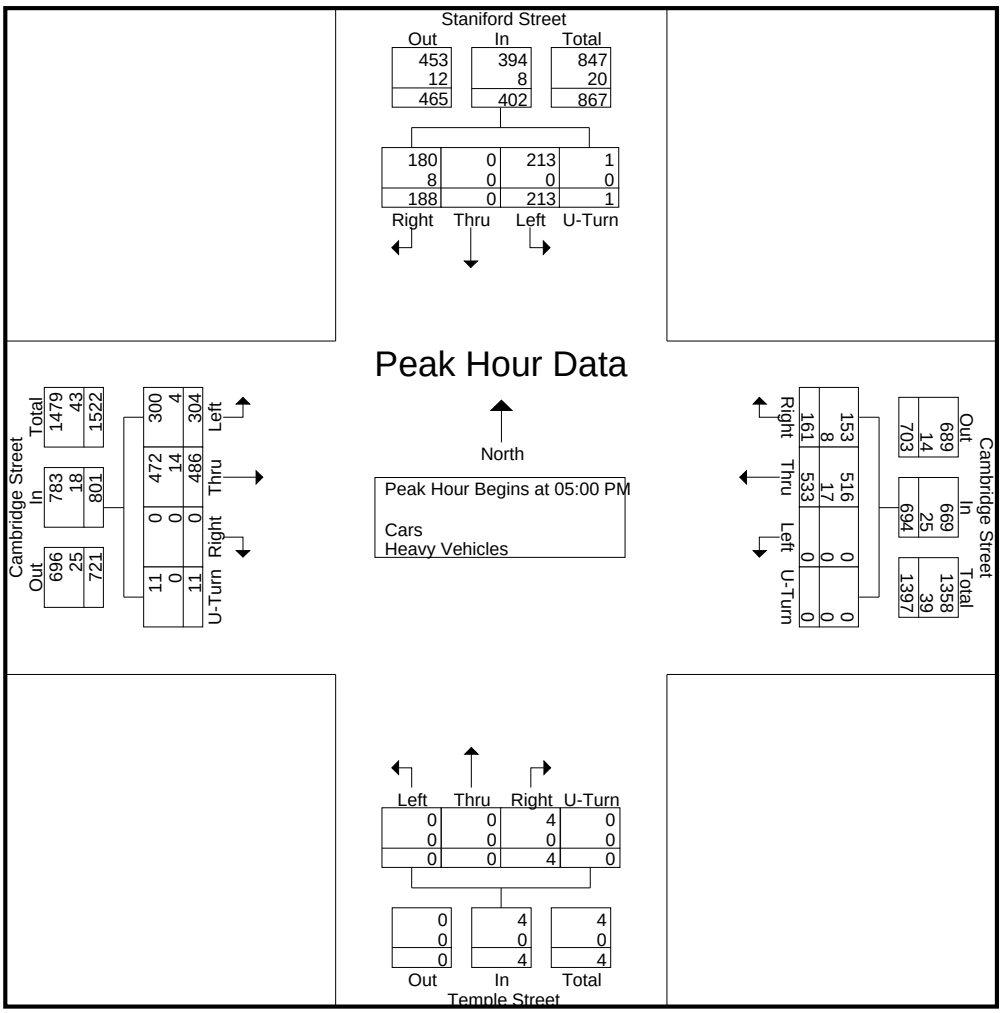
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	**50**	0	**65**	0	**115**	26	132	0	0	158	0	0	0	0	0	0	123	76	3	202	475
05:15 PM	45	0	49	**1**	95	46	127	0	0	173	**2**	0	0	0	**2**	0	**140**	**84**	2	**226**	**496**
05:30 PM	50	0	48	0	98	41	**142**	0	0	**183**	1	0	0	0	1	0	106	68	2	176	458
05:45 PM	43	0	51	0	94	**48**	132	0	0	180	1	0	0	0	1	0	117	76	**4**	197	472
Total Volume	188	0	213	1	402	161	533	0	0	694	4	0	0	0	4	0	486	304	11	801	1901
% App. Total	46.8	0	53	0.2		23.2	76.8	0	0		100	0	0	0		0	60.7	38	1.4		
PHF	.940	.000	.819	.250	.874	.839	.938	.000	.000	.948	.500	.000	.000	.000	.500	.000	.868	.905	.688	.886	.958
Cars	180	0	213	1	394	153	516	0	0	669	4	0	0	0	4	0	472	300	11	783	1850
% Cars	95.7	0	100	100	98.0	95.0	96.8	0	0	96.4	100	0	0	0	100	0	97.1	98.7	100	97.8	97.3
Heavy Vehicles	8	0	0	0	8	8	17	0	0	25	0	0	0	0	0	0	14	4	0	18	51
% Heavy Vehicles	4.3	0	0	0	2.0	5.0	3.2	0	0	3.6	0	0	0	0	0	0	2.9	1.3	0	2.2	2.7



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N/S: Causeway Street/ Staniford Street
E/W: Merrimac Street/ Lomasney Way
City, State: Boston, MA
Client: Howard/ Stein-Hudson/A. Siu

File Name : 133598 C
Site Code : 2006084
Start Date : 10/29/2013
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Causeway Street From North				Merrimac Street From East				Staniford Street From South				Lomasney Way From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
07:00 AM	58	77	8	0	6	21	26	0	34	32	12	0	67	34	27	0	402
07:15 AM	47	67	14	0	6	20	25	0	24	30	18	0	58	41	25	0	375
07:30 AM	67	71	10	0	4	18	39	1	37	27	12	0	64	40	36	0	426
07:45 AM	76	87	13	0	11	29	39	0	38	35	18	1	71	41	39	0	498
Total	248	302	45	0	27	88	129	1	133	124	60	1	260	156	127	0	1701
08:00 AM	70	101	19	0	7	35	38	0	36	39	7	0	61	41	40	0	494
08:15 AM	78	93	13	0	8	29	32	1	42	31	14	0	79	53	37	1	511
08:30 AM	84	98	14	0	7	24	40	1	51	41	17	0	69	78	40	0	564
08:45 AM	65	112	18	0	10	33	36	1	51	54	9	2	85	87	61	1	625
Total	297	404	64	0	32	121	146	3	180	165	47	2	294	259	178	2	2194
Grand Total	545	706	109	0	59	209	275	4	313	289	107	3	554	415	305	2	3895
Apprch %	40.1	51.9	8	0	10.8	38.2	50.3	0.7	44	40.6	15	0.4	43.4	32.5	23.9	0.2	
Total %	14	18.1	2.8	0	1.5	5.4	7.1	0.1	8	7.4	2.7	0.1	14.2	10.7	7.8	0.1	
Cars	517	659	62	0	52	194	261	4	294	259	93	3	530	402	283	2	3615
% Cars	94.9	93.3	56.9	0	88.1	92.8	94.9	100	93.9	89.6	86.9	100	95.7	96.9	92.8	100	92.8
Heavy Vehicles	28	47	47	0	7	15	14	0	19	30	14	0	24	13	22	0	280
% Heavy Vehicles	5.1	6.7	43.1	0	11.9	7.2	5.1	0	6.1	10.4	13.1	0	4.3	3.1	7.2	0	7.2

	Causeway Street From North					Merrimac Street From East					Staniford Street From South					Lomasney Way From West					
Start Time	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	Int. 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	70	101	**19**	0	190	7	**35**	38	0	**80**	36	39	7	0	82	61	41	40	0	142	494
08:15 AM	78	93	13	0	184	8	29	32	**1**	70	42	31	14	0	87	79	53	37	**1**	170	511
08:30 AM	**84**	98	14	0	**196**	7	24	**40**	1	72	**51**	41	**17**	0	109	69	78	40	0	187	564
08:45 AM	65	**112**	18	0	195	**10**	33	36	1	80	51	**54**	9	**2**	**116**	**85**	**87**	**61**	1	**234**	**625**
Total Volume	297	404	64	0	765	32	121	146	3	302	180	165	47	2	394	294	259	178	2	733	2194
% App. Total	38.8	52.8	8.4	0		10.6	40.1	48.3	1		45.7	41.9	11.9	0.5		40.1	35.3	24.3	0.3		
PHF	.884	.902	.842	.000	.976	.800	.864	.913	.750	.944	.882	.764	.691	.250	.849	.865	.744	.730	.500	.783	.878
Cars	285	373	42	0	700	28	115	137	3	283	168	151	43	2	364	284	255	170	2	711	2058
% Cars	96.0	92.3	65.6	0	91.5	87.5	95.0	93.8	100	93.7	93.3	91.5	91.5	100	92.4	96.6	98.5	95.5	100	97.0	93.8
Heavy Vehicles	12	31	22	0	65	4	6	9	0	19	12	14	4	0	30	10	4	8	0	22	136
% Heavy Vehicles	4.0	7.7	34.4	0	8.5	12.5	5.0	6.2	0	6.3	6.7	8.5	8.5	0	7.6	3.4	1.5	4.5	0	3.0	6.2

PRECISION
D A T A
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Client: Howard/ Stein-Hudson/A. Siu

File Name : 133598 C
Site Code : 2006084
Start Date : 10/29/2013
Page No : 1

Groups Printed- Peds and Bicycles

	Causeway Street From North				Merrimac Street From East				Staniford Street From South				Lomasney Way From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
07:00 AM	1	0	0	3	0	0	1	23	0	1	0	25	1	1	0	55	111
07:15 AM	0	2	0	9	0	0	0	31	0	1	0	27	0	5	0	84	159
07:30 AM	1	3	0	10	0	0	0	28	0	0	0	22	1	3	1	107	176
07:45 AM	1	1	0	7	0	0	0	39	2	5	0	29	0	6	1	156	247
Total	3	6	0	29	0	0	1	121	2	7	0	103	2	15	2	402	693
08:00 AM	4	1	0	10	1	0	0	67	0	0	0	28	0	10	0	172	293
08:15 AM	3	2	0	17	0	0	1	48	1	3	0	36	0	5	3	114	233
08:30 AM	0	1	0	12	1	2	1	60	0	2	0	40	0	10	7	181	317
08:45 AM	1	1	0	16	0	1	0	47	0	3	0	50	0	9	6	95	229
Total	8	5	0	55	2	3	2	222	1	8	0	154	0	34	16	562	1072
Grand Total	11	11	0	84	2	3	3	343	3	15	0	257	2	49	18	964	1765
Apprch %	10.4	10.4	0	79.2	0.6	0.9	0.9	97.7	1.1	5.5	0	93.5	0.2	4.7	1.7	93.3	
Total %	0.6	0.6	0	4.8	0.1	0.2	0.2	19.4	0.2	0.8	0	14.6	0.1	2.8	1	54.6	

	Causeway Street From North					Merrimac Street From East					Staniford Street From South					Lomasney Way From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. 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	1	0	7	9	0	0	0	39	39	**2**	**5**	0	29	36	0	6	1	156	163	247
08:00 AM	**4**	1	0	10	15	**1**	0	0	**67**	**68**	0	0	0	28	28	0	**10**	0	172	182	293
08:15 AM	3	**2**	0	**17**	**22**	0	0	**1**	48	49	1	3	0	36	40	0	5	3	114	122	233
08:30 AM	0	1	0	12	13	1	**2**	1	60	64	0	2	0	**40**	**42**	0	10	**7**	**181**	**198**	**317**
Total Volume	8	5	0	46	59	2	2	2	214	220	3	10	0	133	146	0	31	11	623	665	1090
% App. Total	13.6	8.5	0	78		0.9	0.9	0.9	97.3		2.1	6.8	0	91.1		0	4.7	1.7	93.7		
PHF	.500	.625	.000	.676	.670	.500	.250	.500	.799	.809	.375	.500	.000	.831	.869	.000	.775	.393	.860	.840	.860

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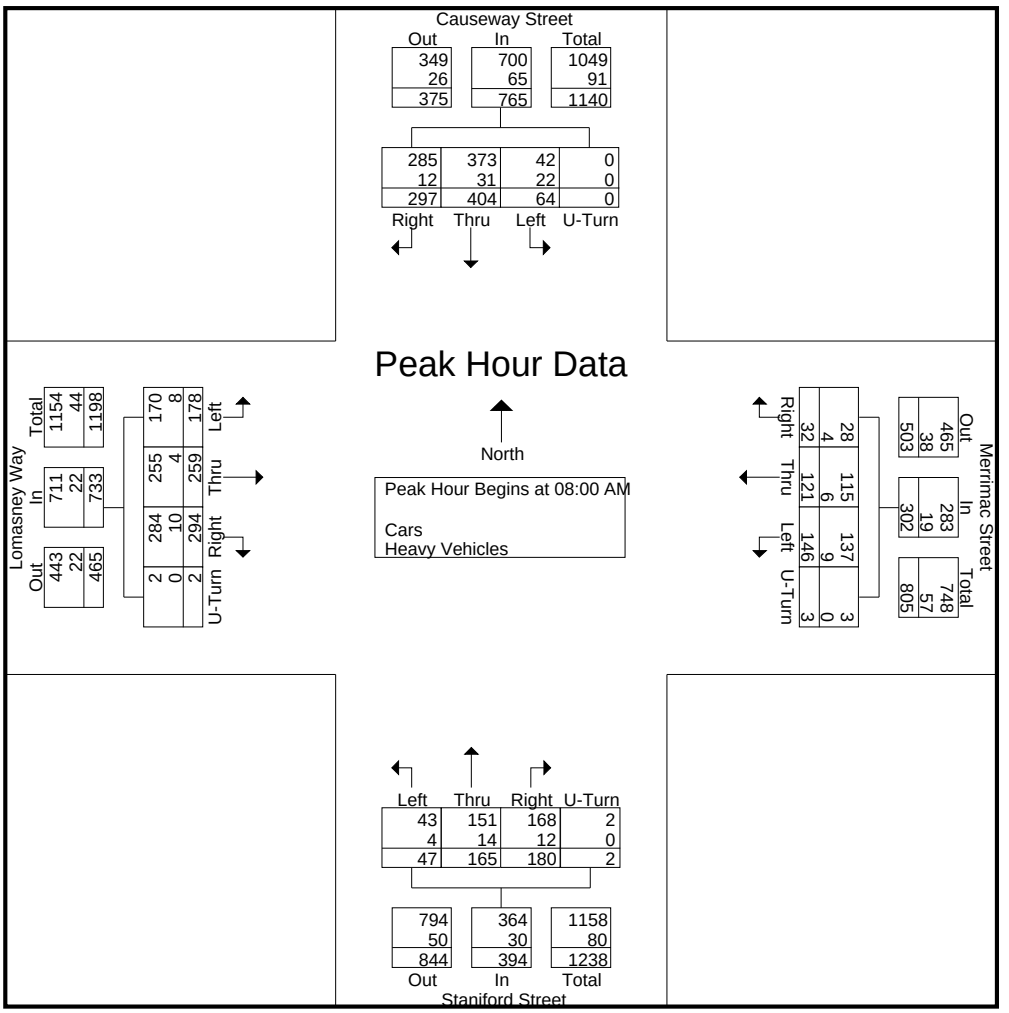
	Causeway Street From North					Merrimac Street From East					Staniford Street From South					Lomasney Way From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	70	101	**19**	0	190	7	**35**	38	0	**80**	36	39	7	0	82	61	41	40	0	142	494
08:15 AM	78	93	13	0	184	8	29	32	**1**	70	42	31	14	0	87	79	53	37	**1**	170	511
08:30 AM	**84**	98	14	0	**196**	7	24	**40**	1	72	**51**	41	**17**	0	109	69	78	40	0	187	564
08:45 AM	65	**112**	18	0	195	**10**	33	36	1	80	51	**54**	9	**2**	**116**	**85**	**87**	**61**	1	**234**	**625**
Total Volume	297	404	64	0	765	32	121	146	3	302	180	165	47	2	394	294	259	178	2	733	2194
% App. Total	38.8	52.8	8.4	0		10.6	40.1	48.3	1		45.7	41.9	11.9	0.5		40.1	35.3	24.3	0.3		
PHF	.884	.902	.842	.000	.976	.800	.864	.913	.750	.944	.882	.764	.691	.250	.849	.865	.744	.730	.500	.783	.878
Cars	285	373	42	0	700	28	115	137	3	283	168	151	43	2	364	284	255	170	2	711	2058
% Cars	96.0	92.3	65.6	0	91.5	87.5	95.0	93.8	100	93.7	93.3	91.5	91.5	100	92.4	96.6	98.5	95.5	100	97.0	93.8
Heavy Vehicles	12	31	22	0	65	4	6	9	0	19	12	14	4	0	30	10	4	8	0	22	136
% Heavy Vehicles	4.0	7.7	34.4	0	8.5	12.5	5.0	6.2	0	6.3	6.7	8.5	8.5	0	7.6	3.4	1.5	4.5	0	3.0	6.2



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File Name : 133598 CC
Site Code : 2006084
Start Date : 10/29/2013
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Causeway Street From North				Merrimac Street From East				Staniford Street From South				Lomasney Way From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:00 PM	46	66	7	0	3	41	10	4	80	57	26	1	45	49	41	0	476
04:15 PM	45	46	10	0	6	36	16	0	71	66	22	1	35	60	38	1	453
04:30 PM	51	59	12	0	10	45	19	3	84	72	26	0	48	45	34	1	509
04:45 PM	51	62	13	0	8	48	17	1	58	65	35	0	49	53	37	0	497
Total	193	233	42	0	27	170	62	8	293	260	109	2	177	207	150	2	1935
05:00 PM	58	51	12	0	5	45	19	0	93	104	31	0	53	56	44	0	571
05:15 PM	82	59	12	0	1	47	15	0	55	96	33	0	42	58	43	2	545
05:30 PM	58	47	14	0	13	35	28	0	57	62	24	0	66	57	38	1	500
05:45 PM	58	53	9	0	6	51	7	1	74	69	26	0	51	93	29	0	527
Total	256	210	47	0	25	178	69	1	279	331	114	0	212	264	154	3	2143
Grand Total	449	443	89	0	52	348	131	9	572	591	223	2	389	471	304	5	4078
Apprch %	45.8	45.2	9.1	0	9.6	64.4	24.3	1.7	41.2	42.6	16.1	0.1	33.3	40.3	26	0.4	
Total %	11	10.9	2.2	0	1.3	8.5	3.2	0.2	14	14.5	5.5	0	9.5	11.5	7.5	0.1	
Cars	448	416	58	0	50	345	122	9	557	566	204	2	375	458	301	5	3916
% Cars	99.8	93.9	65.2	0	96.2	99.1	93.1	100	97.4	95.8	91.5	100	96.4	97.2	99	100	96
Heavy Vehicles	1	27	31	0	2	3	9	0	15	25	19	0	14	13	3	0	162
% Heavy Vehicles	0.2	6.1	34.8	0	3.8	0.9	6.9	0	2.6	4.2	8.5	0	3.6	2.8	1	0	4

	Causeway Street From North					Merrimac Street From East					Staniford Street From South					Lomasney Way From West					
Start Time	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	Int. 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	58	51	12	0	121	5	45	19	0	69	**93**	**104**	31	0	**228**	53	56	**44**	0	153	**571**
05:15 PM	**82**	**59**	12	0	**153**	1	47	15	0	63	55	96	**33**	0	184	42	58	43	**2**	145	545
05:30 PM	58	47	**14**	0	119	**13**	35	**28**	0	**76**	57	62	24	0	143	**66**	57	38	1	162	500
05:45 PM	58	53	9	0	120	6	**51**	7	**1**	65	74	69	26	0	169	51	**93**	29	0	**173**	527
Total Volume	256	210	47	0	513	25	178	69	1	273	279	331	114	0	724	212	264	154	3	633	2143
% App. Total	49.9	40.9	9.2	0		9.2	65.2	25.3	0.4		38.5	45.7	15.7	0		33.5	41.7	24.3	0.5		
PHF	.780	.890	.839	.000	.838	.481	.873	.616	.250	.898	.750	.796	.864	.000	.794	.803	.710	.875	.375	.915	.938
Cars	256	196	36	0	488	24	177	68	1	270	272	319	107	0	698	204	256	153	3	616	2072
% Cars	100	93.3	76.6	0	95.1	96.0	99.4	98.6	100	98.9	97.5	96.4	93.9	0	96.4	96.2	97.0	99.4	100	97.3	96.7
Heavy Vehicles	0	14	11	0	25	1	1	1	0	3	7	12	7	0	26	8	8	1	0	17	71
% Heavy Vehicles	0	6.7	23.4	0	4.9	4.0	0.6	1.4	0	1.1	2.5	3.6	6.1	0	3.6	3.8	3.0	0.6	0	2.7	3.3

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Groups Printed- Peds and Bicycles

	Causeway Street From North				Merrimac Street From East				Staniford Street From South				Lomasney Way From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
04:00 PM	0	3	0	16	0	1	0	45	0	1	0	25	0	0	1	111	203
04:15 PM	3	0	0	24	0	1	1	41	0	1	1	35	0	0	1	129	237
04:30 PM	1	4	0	18	0	0	0	48	0	2	1	32	1	2	0	177	286
04:45 PM	1	5	0	15	0	3	0	44	0	0	2	20	0	0	1	137	228
Total	5	12	0	73	0	5	1	178	0	4	4	112	1	2	3	554	954
05:00 PM	3	1	0	12	0	0	0	59	0	2	0	31	0	0	0	146	254
05:15 PM	9	1	0	11	0	5	0	64	0	4	1	45	0	1	2	125	268
05:30 PM	6	0	0	12	0	2	1	37	0	1	0	25	0	1	0	104	189
05:45 PM	6	0	0	13	0	1	0	41	0	1	0	21	0	0	2	76	161
Total	24	2	0	48	0	8	1	201	0	8	1	122	0	2	4	451	872
Grand Total	29	14	0	121	0	13	2	379	0	12	5	234	1	4	7	1005	1826
Apprch %	17.7	8.5	0	73.8	0	3.3	0.5	96.2	0	4.8	2	93.2	0.1	0.4	0.7	98.8	
Total %	1.6	0.8	0	6.6	0	0.7	0.1	20.8	0	0.7	0.3	12.8	0.1	0.2	0.4	55	

	Causeway Street From North					Merrimac Street From East					Staniford Street From South					Lomasney Way From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. 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	1	4	0	**18**	**23**	0	0	0	48	48	0	2	1	32	35	**1**	**2**	0	**177**	**180**	**286**
04:45 PM	1	**5**	0	15	21	0	3	0	44	47	0	0	**2**	20	22	0	0	1	137	138	228
05:00 PM	3	1	0	12	16	0	0	0	59	59	0	2	0	31	33	0	0	0	146	146	254
05:15 PM	**9**	1	0	11	21	0	**5**	0	**64**	**69**	0	**4**	1	**45**	**50**	0	1	**2**	125	128	268
Total Volume	14	11	0	56	81	0	8	0	215	223	0	8	4	128	140	1	3	3	585	592	1036
% App. Total	17.3	13.6	0	69.1		0	3.6	0	96.4		0	5.7	2.9	91.4		0.2	0.5	0.5	98.8		
PHF	.389	.550	.000	.778	.880	.000	.400	.000	.840	.808	.000	.500	.500	.711	.700	.250	.375	.375	.826	.822	.906

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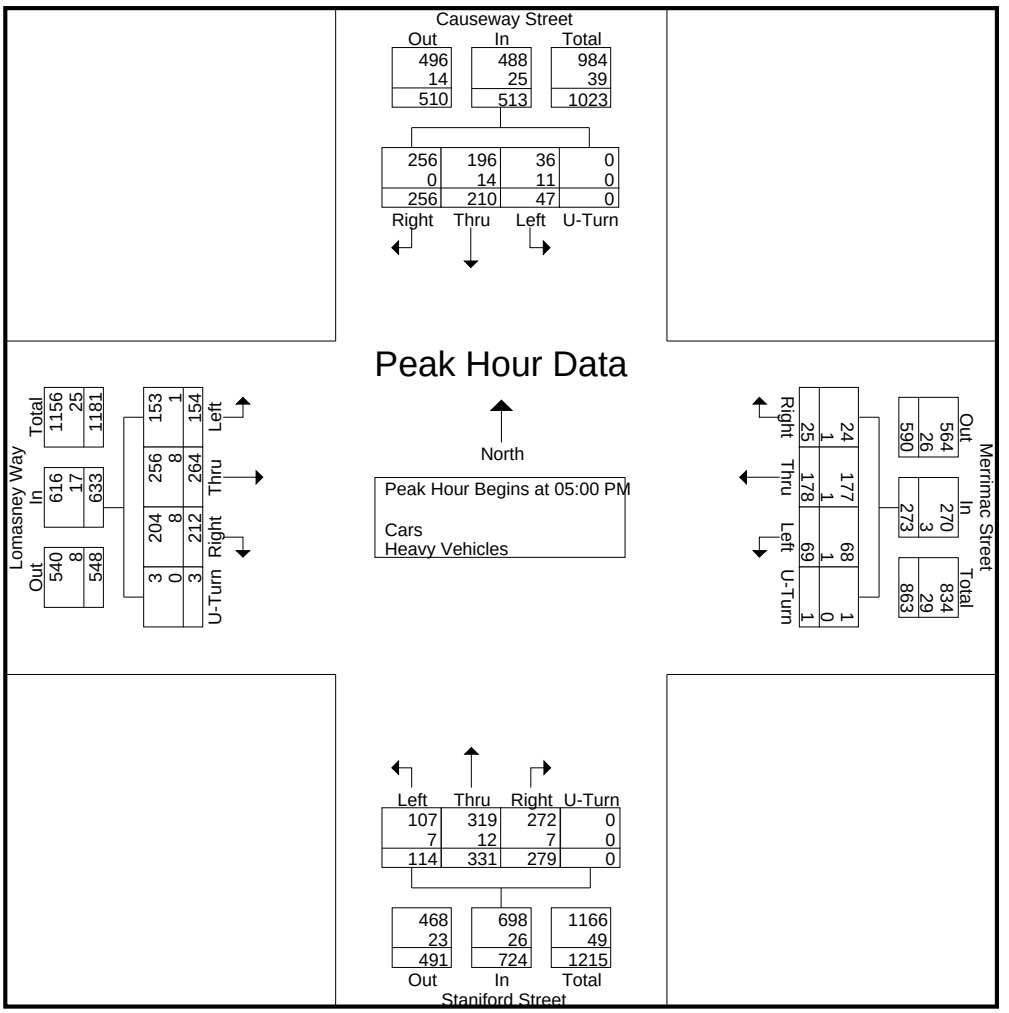
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	58	51	12	0	121	5	45	19	0	69	**93**	**104**	31	0	**228**	53	56	**44**	0	153	**571**
05:15 PM	**82**	**59**	12	0	**153**	1	47	15	0	63	55	96	**33**	0	184	42	58	43	**2**	145	545
05:30 PM	58	47	**14**	0	119	**13**	35	**28**	0	**76**	57	62	24	0	143	**66**	57	38	1	162	500
05:45 PM	58	53	9	0	120	6	**51**	7	**1**	65	74	69	26	0	169	51	**93**	29	0	**173**	527
Total Volume	256	210	47	0	513	25	178	69	1	273	279	331	114	0	724	212	264	154	3	633	2143
% App. Total	49.9	40.9	9.2	0		9.2	65.2	25.3	0.4		38.5	45.7	15.7	0		33.5	41.7	24.3	0.5		
PHF	.780	.890	.839	.000	.838	.481	.873	.616	.250	.898	.750	.796	.864	.000	.794	.803	.710	.875	.375	.915	.938
Cars	256	196	36	0	488	24	177	68	1	270	272	319	107	0	698	204	256	153	3	616	2072
% Cars	100	93.3	76.6	0	95.1	96.0	99.4	98.6	100	98.9	97.5	96.4	93.9	0	96.4	96.2	97.0	99.4	100	97.3	96.7
Heavy Vehicles	0	14	11	0	25	1	1	1	0	3	7	12	7	0	26	8	8	1	0	17	71
% Heavy Vehicles	0	6.7	23.4	0	4.9	4.0	0.6	1.4	0	1.1	2.5	3.6	6.1	0	3.6	3.8	3.0	0.6	0	2.7	3.3



N/S: North Washington Street
E/W/SE: Causeway Street/Endicott St
City, State: Boston, MA
Client: Howard/ Stein-Hudson/A. Siu

PRECISION DATA INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
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File Name : 133598 L
Site Code : 2006084
Start Date : 10/29/2013
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	North Washington Street From North					Commercial Street From East					Endicott Street From Southeast					North Washington Street From South					Causeway Street From West					
Start Time	Right	Thru	Bear Left	Left	U-Turn	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	Int. Total
07:00 AM	108	202	0	43	0	35	29	35	0	0	2	0	1	2	0	0	17	116	1	0	16	0	19	40	0	666
07:15 AM	109	228	0	43	0	41	27	23	0	0	2	1	0	2	0	0	15	120	1	1	11	0	23	42	0	689
07:30 AM	119	223	0	46	0	33	29	34	0	0	1	6	0	0	0	0	16	132	2	0	15	0	14	39	0	709
07:45 AM	112	236	0	80	1	59	30	29	0	0	4	0	0	0	0	0	29	124	1	0	19	0	27	48	0	799
Total	448	889	0	212	1	168	115	121	0	0	9	7	1	4	0	0	77	492	5	1	61	0	83	169	0	2863
08:00 AM	123	245	0	65	1	61	33	37	0	0	5	1	0	1	0	0	20	151	1	0	31	0	19	38	0	832
08:15 AM	112	219	0	68	0	54	42	54	0	0	3	6	0	0	0	0	18	160	2	0	20	0	21	52	0	831
08:30 AM	120	270	0	50	0	63	27	32	0	0	2	6	0	1	0	0	22	147	1	0	20	0	18	59	0	838
08:45 AM	127	222	0	65	0	40	37	22	0	0	4	3	0	4	0	0	13	146	0	0	21	0	27	62	0	793
Total	482	956	0	248	1	218	139	145	0	0	14	16	0	6	0	0	73	604	4	0	92	0	85	211	0	3294
Grand Total	930	1845	0	460	2	386	254	266	0	0	23	23	1	10	0	0	150	1096	9	1	153	0	168	380	0	6157
Apprch %	28.7	57	0	14.2	0.1	42.6	28	29.4	0	0	40.4	40.4	1.8	17.5	0	0	11.9	87.3	0.7	0.1	21.8	0	24	54.2	0	
Total %	15.1	30	0	7.5	0	6.3	4.1	4.3	0	0	0.4	0.4	0	0.2	0	0	2.4	17.8	0.1	0	2.5	0	2.7	6.2	0	
Cars	864	1634	0	439	2	354	217	255	0	0	22	22	1	8	0	0	139	935	6	1	136	0	161	319	0	5515
% Cars	92.9	88.6	0	95.4	100	91.7	85.4	95.9	0	0	95.7	95.7	100	80	0	0	92.7	85.3	66.7	100	88.9	0	95.8	83.9	0	89.6
Heavy Vehicles	66	211	0	21	0	32	37	11	0	0	1	1	0	2	0	0	11	161	3	0	17	0	7	61	0	642
% Heavy Vehicles	7.1	11.4	0	4.6	0	8.3	14.6	4.1	0	0	4.3	4.3	0	20	0	0	7.3	14.7	33.3	0	11.1	0	4.2	16.1	0	10.4

	North Washington Street From North						Commercial Street From East						Endicott Street From Southeast						North Washington Street From South						Causeway Street From West						
Start Time	Right	Thru	Bear Left	Left	U-Turn	App. 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	Int. 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	112	236	0	**80**	**1**	429	59	30	29	0	0	118	4	0	0	0	0	4	0	**29**	124	1	0	154	19	0	**27**	48	0	94	799
08:00 AM	**123**	245	0	65	1	434	61	33	37	0	0	131	**5**	1	0	**1**	0	7	0	20	151	1	0	172	**31**	0	19	38	0	88	832
08:15 AM	112	219	0	68	0	399	54	**42**	**54**	0	0	**150**	3	**6**	0	0	0	**9**	0	18	**160**	**2**	0	**180**	20	0	21	52	0	93	831
08:30 AM	120	**270**	0	50	0	**440**	**63**	27	32	0	0	122	2	6	0	1	0	9	0	22	147	1	0	170	20	0	18	**59**	0	**97**	**838**
Total Volume	467	970	0	263	2	1702	237	132	152	0	0	521	14	13	0	2	0	29	0	89	582	5	0	676	90	0	85	197	0	372	3300
% App. Total	27.4	57	0	15.5	0.1		45.5	25.3	29.2	0	0		48.3	44.8	0	6.9	0		0	13.2	86.1	0.7	0		24.2	0	22.8	53	0		
PHF	.949	.898	.000	.822	.500	.967	.940	.786	.704	.000	.000	.868	.700	.542	.000	.500	.000	.806	.000	.767	.909	.625	.000	.939	.726	.000	.787	.835	.000	.959	.984
Cars	433	861	0	250	2	1546	218	116	142	0	0	476	13	13	0	1	0	27	0	83	507	4	0	594	81	0	80	165	0	326	2969
% Cars	92.7	88.8	0	95.1	100	90.8	92.0	87.9	93.4	0	0	91.4	92.9	100	0	50.0	0	93.1	0	93.3	87.1	80.0	0	87.9	90.0	0	94.1	83.8	0	87.6	90.0
Heavy Vehicles	34	109	0	13	0	156	19	16	10	0	0	45	1	0	0	1	0	2	0	6	75	1	0	82	9	0	5	32	0	46	331
% Heavy Vehicles	7.3	11.2	0	4.9	0	9.2	8.0	12.1	6.6	0	0	8.6	7.1	0	0	50.0	0	6.9	0	6.7	12.9	20.0	0	12.1	10.0	0	5.9	16.2	0	12.4	10.0

PRECISION
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N/S: North Washington Street
E/W/SE: Causeway Street/Endicott St
City, State: Boston, MA
Client: Howard/ Stein-Hudson/A. Siu

File Name : 133598 L
Site Code : 2006084
Start Date : 10/29/2013
Page No : 1

Groups Printed- Peds and Bicycles

	North Washington Street From North					Commercial Street From East					Endicott Street From Southeast					North Washington Street From South					Causeway Street From West					
Start Time	Right	Thru	Bear Left	Left	Peds	Right	Thru	Left	Hard Left	Peds	Hard Right	Bear Right	Bear Left	Hard Left	Peds	Hard Right	Right	Thru	Left	Peds	Right	Bear Right	Thru	Left	Peds	Int. Total
07:00 AM	0	1	0	0	23	0	2	0	0	10	0	0	0	0	11	0	0	0	0	16	0	0	0	0	6	69
07:15 AM	0	0	0	0	23	0	0	0	0	18	0	0	0	0	28	0	0	0	0	28	0	0	0	0	4	101
07:30 AM	0	0	0	0	16	1	1	0	0	26	0	0	0	0	16	0	0	0	0	23	0	0	0	0	4	87
07:45 AM	1	0	0	0	26	0	0	0	0	30	0	1	0	0	24	0	0	0	0	31	0	0	0	0	6	119
Total	1	1	0	0	88	1	3	0	0	84	0	1	0	0	79	0	0	0	0	98	0	0	0	0	20	376
08:00 AM	0	2	0	0	41	0	2	0	0	29	0	0	0	0	29	0	0	0	0	34	0	0	1	0	13	151
08:15 AM	0	1	0	0	30	0	1	0	0	37	0	0	0	0	16	0	0	0	0	27	0	0	1	0	12	125
08:30 AM	0	3	0	0	34	0	0	0	0	47	0	0	0	0	24	0	0	2	0	37	2	0	0	0	17	166
08:45 AM	0	0	0	3	30	0	0	0	0	26	0	0	0	0	17	0	0	1	0	33	0	0	2	0	14	126
Total	0	6	0	3	135	0	3	0	0	139	0	0	0	0	86	0	0	3	0	131	2	0	4	0	56	568
Grand Total	1	7	0	3	223	1	6	0	0	223	0	1	0	0	165	0	0	3	0	229	2	0	4	0	76	944
Apprch %	0.4	3	0	1.3	95.3	0.4	2.6	0	0	97	0	0.6	0	0	99.4	0	0	1.3	0	98.7	2.4	0	4.9	0	92.7	
Total %	0.1	0.7	0	0.3	23.6	0.1	0.6	0	0	23.6	0	0.1	0	0	17.5	0	0	0.3	0	24.3	0.2	0	0.4	0	8.1	

	North Washington Street From North						Commercial Street From East						Endicott Street From Southeast						North Washington Street From South						Causeway Street From West						
Start Time	Right	Thru	Bear Left	Left	Peds	App. Total	Right	Thru	Left	Hard Left	Peds	App. Total	Hard Right	Bear Right	Bear Left	Hard Left	Peds	App. Total	Hard Right	Right	Thru	Left	Peds	App. Total	Right	Bear Right	Thru	Left	Peds	App. Total	Int. 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	2	0	0	**41**	**43**	0	**2**	0	0	29	31	0	0	0	0	**29**	**29**	0	0	0	0	34	34	0	0	1	0	13	14	151
08:15 AM	0	1	0	0	30	31	0	1	0	0	37	38	0	0	0	0	16	16	0	0	0	0	27	27	0	0	1	0	12	13	125
08:30 AM	0	**3**	0	0	34	37	0	0	0	0	**47**	**47**	0	0	0	0	24	24	0	0	**2**	0	**37**	**39**	**2**	0	0	0	**17**	**19**	**166**
08:45 AM	0	0	0	**3**	30	33	0	0	0	0	26	26	0	0	0	0	17	17	0	0	1	0	33	34	0	0	**2**	0	14	16	126
Total Volume	0	6	0	3	135	144	0	3	0	0	139	142	0	0	0	0	86	86	0	0	3	0	131	134	2	0	4	0	56	62	568
% App. Total	0	4.2	0	2.1	93.8		0	2.1	0	0	97.9		0	0	0	0	100		0	0	2.2	0	97.8		3.2	0	6.5	0	90.3		
PHF	.000	.500	.000	.250	.823	.837	.000	.375	.000	.000	.739	.755	.000	.000	.000	.000	.741	.741	.000	.000	.375	.000	.885	.859	.250	.000	.500	.000	.824	.816	.855

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City, State: Boston, MA
Client: Howard/ Stein-Hudson/A. Siu

File Name : 133598 L
Site Code : 2006084
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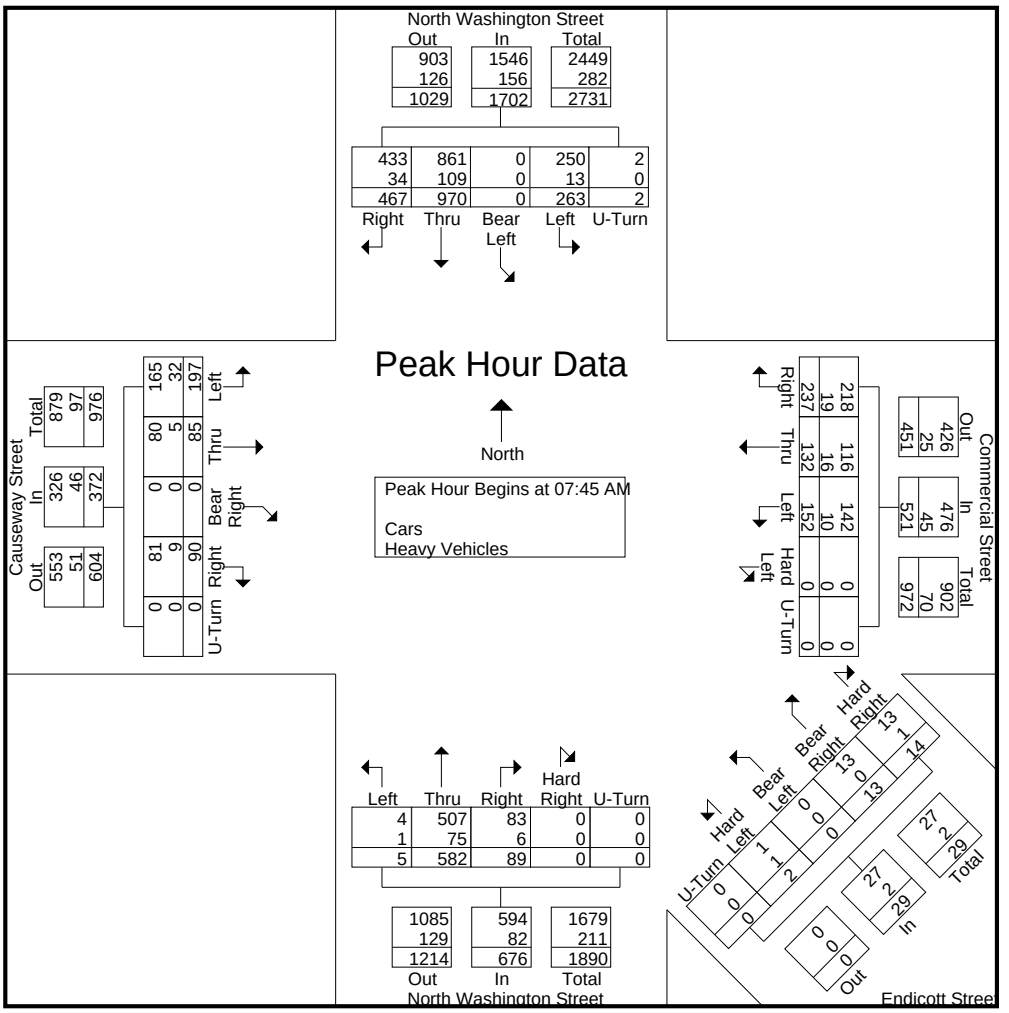
	North Washington Street From North						Commercial Street From East						Endicott Street From Southeast						North Washington Street From South						Causeway Street From West						
Start Time	Right	Thru	Bear Left	Left	U-Turn	App. Total	Right	Thru	Left	Hard Left	U-Turn	App. Total	Hard Right	Bear Right	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	Int. 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	112	236	0	**80**	**1**	429	59	30	29	0	0	118	4	0	0	0	0	4	0	**29**	124	1	0	154	19	0	**27**	48	0	94	799
08:00 AM	**123**	245	0	65	1	434	61	33	37	0	0	131	**5**	1	0	**1**	0	7	0	20	151	1	0	172	**31**	0	19	38	0	88	832
08:15 AM	112	219	0	68	0	399	54	**42**	**54**	0	0	**150**	3	**6**	0	0	0	**9**	0	18	**160**	**2**	0	**180**	20	0	21	52	0	93	831
08:30 AM	120	**270**	0	50	0	**440**	**63**	27	32	0	0	122	2	6	0	1	0	9	0	22	147	1	0	170	20	0	18	**59**	0	**97**	**838**
Total Volume	467	970	0	263	2	1702	237	132	152	0	0	521	14	13	0	2	0	29	0	89	582	5	0	676	90	0	85	197	0	372	3300
% App. Total	27.4	57	0	15.5	0.1		45.5	25.3	29.2	0	0		48.3	44.8	0	6.9	0		0	13.2	86.1	0.7	0		24.2	0	22.8	53	0		
PHF	.949	.898	.000	.822	.500	.967	.940	.786	.704	.000	.000	.868	.700	.542	.000	.500	.000	.806	.000	.767	.909	.625	.000	.939	.726	.000	.787	.835	.000	.959	.984
Cars	433	861	0	250	2	1546	218	116	142	0	0	476	13	13	0	1	0	27	0	83	507	4	0	594	81	0	80	165	0	326	2969
% Cars	92.7	88.8	0	95.1	100	90.8	92.0	87.9	93.4	0	0	91.4	92.9	100	0	50.0	0	93.1	0	93.3	87.1	80.0	0	87.9	90.0	0	94.1	83.8	0	87.6	90.0
Heavy Vehicles	34	109	0	13	0	156	19	16	10	0	0	45	1	0	0	1	0	2	0	6	75	1	0	82	9	0	5	32	0	46	331
% Heavy Vehicles	7.3	11.2	0	4.9	0	9.2	8.0	12.1	6.6	0	0	8.6	7.1	0	0	50.0	0	6.9	0	6.7	12.9	20.0	0	12.1	10.0	0	5.9	16.2	0	12.4	10.0



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Groups Printed- Cars - Heavy Vehicles

	North Washington Street From North					Commercial Street From East					Endicott Street From Southeast					North Washington Street From South					Causeway Street From West					
Start Time	Right	Thru	Bear Left	Left	U-Turn	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	Int. Total
04:00 PM	63	201	0	50	0	78	23	31	0	0	2	9	1	3	0	0	5	152	3	0	24	0	13	80	0	738
04:15 PM	56	189	0	27	0	75	27	20	0	0	3	6	0	1	0	0	19	167	1	0	21	0	27	78	0	717
04:30 PM	62	198	0	43	0	80	29	39	0	0	4	6	0	0	0	0	16	157	0	0	22	0	16	107	1	780
04:45 PM	79	196	0	51	0	63	22	25	0	0	4	5	1	1	0	0	12	165	0	0	16	0	27	75	0	742
Total	260	784	0	171	0	296	101	115	0	0	13	26	2	5	0	0	52	641	4	0	83	0	83	340	1	2977
05:00 PM	64	193	0	44	1	87	30	28	0	0	1	8	0	0	0	0	21	162	3	0	15	0	24	114	0	795
05:15 PM	60	224	0	55	0	103	30	30	0	0	4	8	1	2	0	0	17	163	0	0	18	0	19	100	0	834
05:30 PM	61	186	0	43	0	105	43	34	0	0	11	9	1	0	0	0	13	188	5	0	12	0	16	97	0	824
05:45 PM	55	169	0	37	0	87	29	34	0	0	13	9	0	2	0	0	21	163	0	0	15	0	24	84	0	742
Total	240	772	0	179	1	382	132	126	0	0	29	34	2	4	0	0	72	676	8	0	60	0	83	395	0	3195
Grand Total	500	1556	0	350	1	678	233	241	0	0	42	60	4	9	0	0	124	1317	12	0	143	0	166	735	1	6172
Apprch %	20.8	64.6	0	14.5	0	58.9	20.2	20.9	0	0	36.5	52.2	3.5	7.8	0	0	8.5	90.6	0.8	0	13.7	0	15.9	70.3	0.1	
Total %	8.1	25.2	0	5.7	0	11	3.8	3.9	0	0	0.7	1	0.1	0.1	0	0	2	21.3	0.2	0	2.3	0	2.7	11.9	0	
Cars	450	1407	0	350	1	645	209	233	0	0	41	59	4	8	0	0	119	1168	11	0	131	0	155	687	1	5679
% Cars	90	90.4	0	100	100	95.1	89.7	96.7	0	0	97.6	98.3	100	88.9	0	0	96	88.7	91.7	0	91.6	0	93.4	93.5	100	92
Heavy Vehicles	50	149	0	0	0	33	24	8	0	0	1	1	0	1	0	0	5	149	1	0	12	0	11	48	0	493
% Heavy Vehicles	10	9.6	0	0	0	4.9	10.3	3.3	0	0	2.4	1.7	0	11.1	0	0	4	11.3	8.3	0	8.4	0	6.6	6.5	0	8

	North Washington Street From North						Commercial Street From East						Endicott Street From Southeast						North Washington Street From South						Causeway Street From West						
Start Time	Right	Thru	Bear Left	Left	U-Turn	App. 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	Int. 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	**79**	196	0	51	0	326	63	22	25	0	0	110	4	5	**1**	1	0	11	0	12	165	0	0	177	16	0	**27**	75	0	118	742
05:00 PM	64	193	0	44	**1**	302	87	30	28	0	0	145	1	8	0	0	0	9	0	**21**	162	3	0	186	15	0	24	**114**	0	**153**	795
05:15 PM	60	**224**	0	**55**	0	**339**	103	30	30	0	0	163	4	8	1	**2**	0	15	0	17	163	0	0	180	**18**	0	19	100	0	137	**834**
05:30 PM	61	186	0	43	0	290	**105**	**43**	**34**	0	0	**182**	**11**	**9**	1	0	0	**21**	0	13	**188**	**5**	0	**206**	12	0	16	97	0	125	824
Total Volume	264	799	0	193	1	1257	358	125	117	0	0	600	20	30	3	3	0	56	0	63	678	8	0	749	61	0	86	386	0	533	3195
% App. Total	21	63.6	0	15.4	0.1		59.7	20.8	19.5	0	0		35.7	53.6	5.4	5.4	0		0	8.4	90.5	1.1	0		11.4	0	16.1	72.4	0		
PHF	.835	.892	.000	.877	.250	.927	.852	.727	.860	.000	.000	.824	.455	.833	.750	.375	.000	.667	.000	.750	.902	.400	.000	.909	.847	.000	.796	.846	.000	.871	.958
Cars	240	719	0	193	1	1153	350	112	115	0	0	577	19	30	3	2	0	54	0	60	613	8	0	681	57	0	79	360	0	496	2961
% Cars	90.9	90.0	0	100	100	91.7	97.8	89.6	98.3	0	0	96.2	95.0	100	100	66.7	0	96.4	0	95.2	90.4	100	0	90.9	93.4	0	91.9	93.3	0	93.1	92.7
Heavy Vehicles	24	80	0	0	0	104	8	13	2	0	0	23	1	0	0	1	0	2	0	3	65	0	0	68	4	0	7	26	0	37	234
% Heavy Vehicles	9.1	10.0	0	0	0	8.3	2.2	10.4	1.7	0	0	3.8	5.0	0	0	33.3	0	3.6	0	4.8	9.6	0	0	9.1	6.6	0	8.1	6.7	0	6.9	7.3

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N/S: North Washington Street
E/W/SW: Causeway Street/ Endicott Street
City, State: Boston, MA
Client: Howard/ Stein-Hudson/A. Siu

File Name : 133598 LL
Site Code : 2006084
Start Date : 10/29/2013
Page No : 1

Groups Printed- Peds and Bicycles

	North Washington Street From North					Commercial Street From East					Endicott Street From Southeast					North Washington Street From South					Causeway Street From West					
Start Time	Right	Thru	Bear Left	Left	Peds	Right	Thru	Left	Hard Left	Peds	Hard Right	Bear Right	Bear Left	Hard Left	Peds	Hard Right	Right	Thru	Left	Peds	Right	Bear Right	Thru	Left	Peds	Int. Total
04:00 PM	0	1	0	0	35	1	0	0	0	42	0	0	0	0	14	0	0	0	0	17	1	0	0	0	6	117
04:15 PM	0	0	0	0	31	1	1	0	0	56	0	0	0	0	19	0	0	0	0	24	0	0	0	0	6	138
04:30 PM	0	0	0	0	18	0	1	0	0	38	0	0	0	0	20	0	0	1	0	31	0	0	0	1	8	118
04:45 PM	0	0	0	0	26	0	0	0	0	55	0	0	0	0	25	0	0	1	0	28	0	0	2	0	12	149
Total	0	1	0	0	110	2	2	0	0	191	0	0	0	0	78	0	0	2	0	100	1	0	2	1	32	522
05:00 PM	0	0	0	0	36	1	3	0	0	54	0	2	0	0	36	0	0	2	0	39	0	0	0	0	5	178
05:15 PM	0	0	0	1	37	1	2	0	0	78	0	1	0	0	57	0	0	1	0	46	0	0	0	0	11	235
05:30 PM	1	0	0	0	27	1	2	0	0	56	1	1	0	0	39	0	0	5	0	59	1	0	1	0	15	209
05:45 PM	0	0	0	0	34	3	1	0	0	59	0	5	0	0	43	0	0	9	0	51	0	0	2	0	9	216
Total	1	0	0	1	134	6	8	0	0	247	1	9	0	0	175	0	0	17	0	195	1	0	3	0	40	838
Grand Total	1	1	0	1	244	8	10	0	0	438	1	9	0	0	253	0	0	19	0	295	2	0	5	1	72	1360
Apprch %	0.4	0.4	0	0.4	98.8	1.8	2.2	0	0	96.1	0.4	3.4	0	0	96.2	0	0	6.1	0	93.9	2.5	0	6.2	1.2	90	
Total %	0.1	0.1	0	0.1	17.9	0.6	0.7	0	0	32.2	0.1	0.7	0	0	18.6	0	0	1.4	0	21.7	0.1	0	0.4	0.1	5.3	

	North Washington Street From North						Commercial Street From East						Endicott Street From Southeast						North Washington Street From South						Causeway Street From West						
Start Time	Right	Thru	Bear Left	Left	Peds	App. Total	Right	Thru	Left	Hard Left	Peds	App. Total	Hard Right	Bear Right	Bear Left	Hard Left	Peds	App. Total	Hard Right	Right	Thru	Left	Peds	App. Total	Right	Bear Right	Thru	Left	Peds	App. Total	Int. 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	0	36	36	1	**3**	0	0	54	58	0	2	0	0	36	38	0	0	2	0	39	41	0	0	0	0	5	5	178
05:15 PM	0	0	0	**1**	**37**	**38**	1	2	0	0	**78**	**81**	0	1	0	0	**57**	**58**	0	0	1	0	46	47	0	0	0	0	11	11	**235**
05:30 PM	**1**	0	0	0	27	28	1	2	0	0	56	59	**1**	1	0	0	39	41	0	0	5	0	**59**	**64**	**1**	0	1	0	**15**	**17**	209
05:45 PM	0	0	0	0	34	34	**3**	1	0	0	59	63	0	**5**	0	0	43	48	0	0	**9**	0	51	60	0	0	**2**	0	9	11	216
Total Volume	1	0	0	1	134	136	6	8	0	0	247	261	1	9	0	0	175	185	0	0	17	0	195	212	1	0	3	0	40	44	838
% App. Total	0.7	0	0	0.7	98.5		2.3	3.1	0	0	94.6		0.5	4.9	0	0	94.6		0	0	8	0	92		2.3	0	6.8	0	90.9		
PHF	.250	.000	.000	.250	.905	.895	.500	.667	.000	.000	.792	.806	.250	.450	.000	.000	.768	.797	.000	.000	.472	.000	.826	.828	.250	.000	.375	.000	.667	.647	.891

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City, State: Boston, MA
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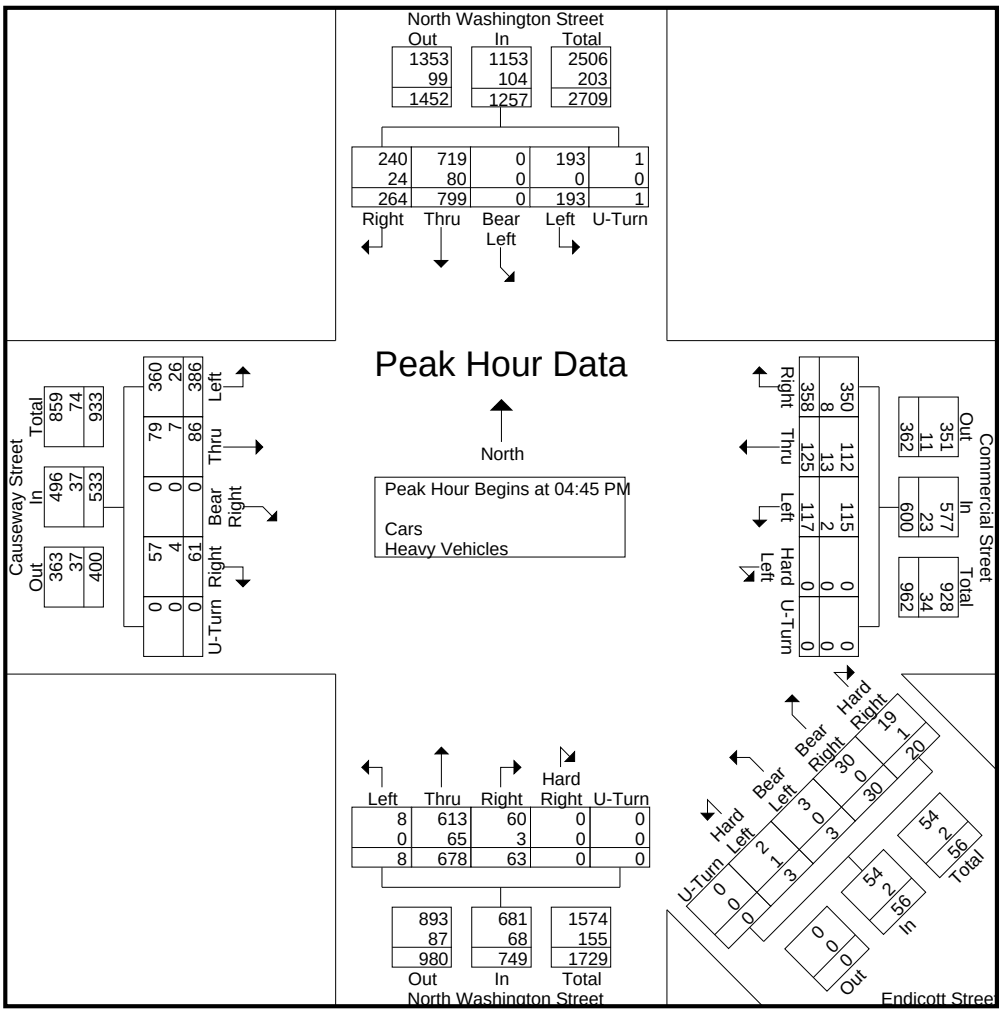
File Name : 133598 LL
Site Code : 2006084
Start Date : 10/29/2013
Page No : 1

	North Washington Street From North						Commercial Street From East						Endicott Street From Southeast						North Washington Street From South						Causeway Street From West						
Start Time	Right	Thru	Bear Left	Left	U-Turn	App. 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	Int. 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	**79**	196	0	51	0	326	63	22	25	0	0	110	4	5	**1**	1	0	11	0	12	165	0	0	177	16	0	**27**	75	0	118	742
05:00 PM	64	193	0	44	**1**	302	87	30	28	0	0	145	1	8	0	0	0	9	0	**21**	162	3	0	186	15	0	24	**114**	0	**153**	795
05:15 PM	60	**224**	0	**55**	0	**339**	103	30	30	0	0	163	4	8	1	**2**	0	15	0	17	163	0	0	180	**18**	0	19	100	0	137	**834**
05:30 PM	61	186	0	43	0	290	**105**	**43**	**34**	0	0	**182**	**11**	**9**	1	0	0	**21**	0	13	**188**	**5**	0	**206**	12	0	16	97	0	125	824
Total Volume	264	799	0	193	1	1257	358	125	117	0	0	600	20	30	3	3	0	56	0	63	678	8	0	749	61	0	86	386	0	533	3195
% App. Total	21	63.6	0	15.4	0.1		59.7	20.8	19.5	0	0		35.7	53.6	5.4	5.4	0		0	8.4	90.5	1.1	0		11.4	0	16.1	72.4	0		
PHF	.835	.892	.000	.877	.250	.927	.852	.727	.860	.000	.000	.824	.455	.833	.750	.375	.000	.667	.000	.750	.902	.400	.000	.909	.847	.000	.796	.846	.000	.871	.958
Cars	240	719	0	193	1	1153	350	112	115	0	0	577	19	30	3	2	0	54	0	60	613	8	0	681	57	0	79	360	0	496	2961
% Cars	90.9	90.0	0	100	100	91.7	97.8	89.6	98.3	0	0	96.2	95.0	100	100	66.7	0	96.4	0	95.2	90.4	100	0	90.9	93.4	0	91.9	93.3	0	93.1	92.7
Heavy Vehicles	24	80	0	0	0	104	8	13	2	0	0	23	1	0	0	1	0	2	0	3	65	0	0	68	4	0	7	26	0	37	234
% Heavy Vehicles	9.1	10.0	0	0	0	8.3	2.2	10.4	1.7	0	0	3.8	5.0	0	0	33.3	0	3.6	0	4.8	9.6	0	0	9.1	6.6	0	8.1	6.7	0	6.9	7.3



N/S: North Washington Street
E/W: Thacher Street/ Valenti Way
City, State: Boston, MA
Client: Howard Stein-Hudson/ B. Beisel

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File Name : 154673 A
Site Code : 2007190
Start Date : 9/23/2015
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	North Washington Street From North				Thacher Street From East				North Washington Street From South				Valenti Way From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
07:00 AM	1	361	7	0	0	0	0	0	6	202	46	1	0	0	0	0	624
07:15 AM	2	340	14	1	0	0	0	0	7	171	68	0	0	0	0	0	603
07:30 AM	6	373	4	0	0	0	0	0	10	175	49	2	0	0	0	0	619
07:45 AM	2	334	5	0	0	0	0	0	11	195	55	2	0	0	0	0	604
Total	11	1408	30	1	0	0	0	0	34	743	218	5	0	0	0	0	2450
08:00 AM	5	361	5	0	0	0	0	0	16	178	51	0	0	0	0	0	616
08:15 AM	7	345	6	0	0	0	0	1	10	165	76	1	0	0	0	0	611
08:30 AM	2	353	9	0	0	0	0	0	12	186	64	0	0	0	0	0	626
08:45 AM	4	324	6	0	0	0	0	0	8	162	67	0	0	0	0	0	571
Total	18	1383	26	0	0	0	0	1	46	691	258	1	0	0	0	0	2424
Grand Total	29	2791	56	1	0	0	0	1	80	1434	476	6	0	0	0	0	4874
Apprch %	1	97	1.9	0	0	0	0	100	4	71.8	23.8	0.3	0	0	0	0	
Total %	0.6	57.3	1.1	0	0	0	0	0	1.6	29.4	9.8	0.1	0	0	0	0	
Cars	22	2547	54	1	0	0	0	1	78	1242	390	6	0	0	0	0	4341
% Cars	75.9	91.3	96.4	100	0	0	0	100	97.5	86.6	81.9	100	0	0	0	0	89.1
Heavy Vehicles	7	244	2	0	0	0	0	0	2	192	86	0	0	0	0	0	533
% Heavy Vehicles	24.1	8.7	3.6	0	0	0	0	0	2.5	13.4	18.1	0	0	0	0	0	10.9

	North Washington Street From North					Thacher Street From East					North Washington Street From South					Valenti Way From West					
Start Time	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	Int. 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	334	5	0	341	0	0	0	0	0	11	195	55	2	263	0	0	0	0	0	604
08:00 AM	5	361	5	0	371	0	0	0	0	0	16	178	51	0	245	0	0	0	0	0	616
08:15 AM	7	345	6	0	358	0	0	0	1	1	10	165	76	1	252	0	0	0	0	0	611
08:30 AM	2	353	9	0	364	0	0	0	0	0	12	186	64	0	262	0	0	0	0	0	626
Total Volume	16	1393	25	0	1434	0	0	0	1	1	49	724	246	3	1022	0	0	0	0	0	2457
% App. Total	1.1	97.1	1.7	0		0	0	0	100		4.8	70.8	24.1	0.3		0	0	0	0		
PHF	.571	.965	.694	.000	.966	.000	.000	.000	.250	.250	.766	.928	.809	.375	.971	.000	.000	.000	.000	.000	.981
Cars	13	1267	24	0	1304	0	0	0	1	1	49	635	203	3	890	0	0	0	0	0	2195
% Cars	81.3	91.0	96.0	0	90.9	0	0	0	100	100	100	87.7	82.5	100	87.1	0	0	0	0	0	89.3
Heavy Vehicles	3	126	1	0	130	0	0	0	0	0	0	89	43	0	132	0	0	0	0	0	262
% Heavy Vehicles	18.8	9.0	4.0	0	9.1	0	0	0	0	0	0	12.3	17.5	0	12.9	0	0	0	0	0	10.7

N/S: North Washington Street
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Page No : 1

Groups Printed- Peds and Bikes

	North Washington Street From North					Thacher Street From East					North Washington Street From South					Valenti Way From West					
Start Time	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	Int. Total
07:00 AM	0	7	0	6	24	0	0	0	14	5	0	1	0	0	1	0	0	0	1	3	62
07:15 AM	0	4	0	11	28	0	0	0	12	8	0	1	0	1	1	0	0	0	1	8	75
07:30 AM	0	10	0	16	30	0	0	0	23	6	0	2	0	0	3	0	0	0	1	7	98
07:45 AM	0	14	0	18	21	0	0	0	28	3	0	1	0	1	4	0	0	0	3	8	101
Total	0	35	0	51	103	0	0	0	77	22	0	5	0	2	9	0	0	0	6	26	336
08:00 AM	0	12	0	27	43	0	0	0	30	10	0	0	0	0	0	0	0	0	0	4	126
08:15 AM	0	20	0	46	54	0	0	0	37	13	0	0	0	0	0	0	0	0	1	4	175
08:30 AM	0	16	0	33	42	0	0	0	47	20	0	2	0	0	0	0	0	0	3	5	168
08:45 AM	0	12	0	31	61	0	0	0	55	20	0	0	3	0	0	0	0	0	1	5	188
Total	0	60	0	137	200	0	0	0	169	63	0	2	3	0	0	0	0	0	5	18	657
Grand Total	0	95	0	188	303	0	0	0	246	85	0	7	3	2	9	0	0	0	11	44	993
Apprch %	0	16.2	0	32.1	51.7	0	0	0	74.3	25.7	0	33.3	14.3	9.5	42.9	0	0	0	20	80	
Total %	0	9.6	0	18.9	30.5	0	0	0	24.8	8.6	0	0.7	0.3	0.2	0.9	0	0	0	1.1	4.4	

	North Washington Street From North						Thacher Street From East						North Washington Street From South						Valenti Way From West						
Start Time	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	Int. 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	12	0	27	43	82	0	0	0	30	10	40	0	0	0	0	0	0	0	0	0	0	4	4	126
08:15 AM	0	20	0	46	54	120	0	0	0	37	13	50	0	0	0	0	0	0	0	0	0	1	4	5	175
08:30 AM	0	16	0	33	42	91	0	0	0	47	20	67	0	2	0	0	0	2	0	0	0	3	5	8	168
08:45 AM	0	12	0	31	61	104	0	0	0	55	20	75	0	0	3	0	0	3	0	0	0	1	5	6	188
Total Volume	0	60	0	137	200	397	0	0	0	169	63	232	0	2	3	0	0	5	0	0	0	5	18	23	657
% App. Total	0	15.1	0	34.5	50.4		0	0	0	72.8	27.2		0	40	60	0	0		0	0	0	21.7	78.3		
PHF	.000	.750	.000	.745	.820	.827	.000	.000	.000	.768	.788	.773	.000	.250	.250	.000	.000	.417	.000	.000	.000	.417	.900	.719	.874

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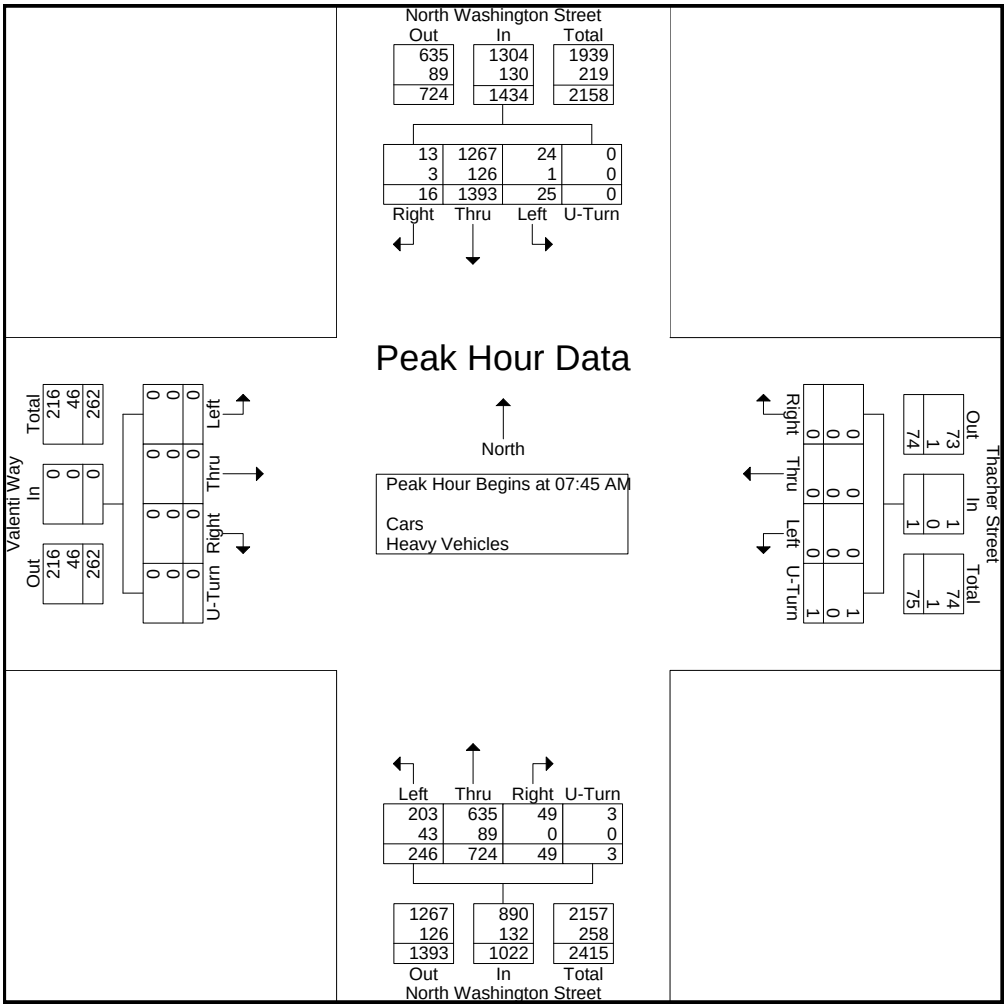
	North Washington Street From North					Thacher Street From East					North Washington Street From South					Valenti Way From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour 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	334	5	0	341	0	0	0	0	0	11	195	55	2	263	0	0	0	0	0	604
08:00 AM	5	361	5	0	371	0	0	0	0	0	16	178	51	0	245	0	0	0	0	0	616
08:15 AM	7	345	6	0	358	0	0	0	1	1	10	165	76	1	252	0	0	0	0	0	611
08:30 AM	2	353	9	0	364	0	0	0	0	0	12	186	64	0	262	0	0	0	0	0	626
Total Volume	16	1393	25	0	1434	0	0	0	1	1	49	724	246	3	1022	0	0	0	0	0	2457
% App. Total	1.1	97.1	1.7	0		0	0	0	100		4.8	70.8	24.1	0.3		0	0	0	0		
PHF	.571	.965	.694	.000	.966	.000	.000	.000	.250	.250	.766	.928	.809	.375	.971	.000	.000	.000	.000	.000	.981
Cars	13	1267	24	0	1304	0	0	0	1	1	49	635	203	3	890	0	0	0	0	0	2195
% Cars	81.3	91.0	96.0	0	90.9	0	0	0	100	100	100	87.7	82.5	100	87.1	0	0	0	0	0	89.3
Heavy Vehicles	3	126	1	0	130	0	0	0	0	0	0	89	43	0	132	0	0	0	0	0	262
% Heavy Vehicles	18.8	9.0	4.0	0	9.1	0	0	0	0	0	0	12.3	17.5	0	12.9	0	0	0	0	0	10.7



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File Name : 154673 AA
Site Code : 2007190
Start Date : 9/23/2015
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	North Washington Street From North				Thacher Street From East				North Washington Street From South				Valenti Way From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:00 PM	10	299	5	0	0	0	0	0	12	228	77	1	0	0	0	0	632
04:15 PM	6	296	10	0	0	0	0	0	14	217	69	0	0	0	0	0	612
04:30 PM	2	252	13	1	0	0	0	0	6	216	57	0	1	0	0	0	548
04:45 PM	5	294	9	0	0	0	0	0	12	205	60	0	0	0	0	0	585
Total	23	1141	37	1	0	0	0	0	44	866	263	1	1	0	0	0	2377
05:00 PM	2	265	7	0	0	0	0	0	12	231	73	1	0	0	0	0	591
05:15 PM	3	308	5	0	0	0	0	0	11	218	59	1	0	0	0	0	605
05:30 PM	4	296	9	0	0	0	0	0	8	245	60	0	0	0	0	0	622
05:45 PM	4	226	9	0	0	0	0	0	7	262	52	0	0	0	0	0	560
Total	13	1095	30	0	0	0	0	0	38	956	244	2	0	0	0	0	2378
Grand Total	36	2236	67	1	0	0	0	0	82	1822	507	3	1	0	0	0	4755
Apprch %	1.5	95.6	2.9	0	0	0	0	0	3.4	75.5	21	0.1	100	0	0	0	
Total %	0.8	47	1.4	0	0	0	0	0	1.7	38.3	10.7	0.1	0	0	0	0	
Cars	34	2049	67	1	0	0	0	0	80	1650	439	3	1	0	0	0	4324
% Cars	94.4	91.6	100	100	0	0	0	0	97.6	90.6	86.6	100	100	0	0	0	90.9
Heavy Vehicles	2	187	0	0	0	0	0	0	2	172	68	0	0	0	0	0	431
% Heavy Vehicles	5.6	8.4	0	0	0	0	0	0	2.4	9.4	13.4	0	0	0	0	0	9.1

	North Washington Street From North					Thacher Street From East					North Washington Street From South					Valenti Way From West					
Start Time	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	Int. 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	5	294	9	0	308	0	0	0	0	0	12	205	60	0	277	0	0	0	0	0	585
05:00 PM	2	265	7	0	274	0	0	0	0	0	12	231	73	1	317	0	0	0	0	0	591
05:15 PM	3	308	5	0	316	0	0	0	0	0	11	218	59	1	289	0	0	0	0	0	605
05:30 PM	4	296	9	0	309	0	0	0	0	0	8	245	60	0	313	0	0	0	0	0	622
Total Volume	14	1163	30	0	1207	0	0	0	0	0	43	899	252	2	1196	0	0	0	0	0	2403
% App. Total	1.2	96.4	2.5	0		0	0	0	0		3.6	75.2	21.1	0.2		0	0	0	0		
PHF	.700	.944	.833	.000	.955	.000	.000	.000	.000	.000	.896	.917	.863	.500	.943	.000	.000	.000	.000	.000	.966
Cars	14	1069	30	0	1113	0	0	0	0	0	43	823	217	2	1085	0	0	0	0	0	2198
% Cars	100	91.9	100	0	92.2	0	0	0	0	0	100	91.5	86.1	100	90.7	0	0	0	0	0	91.5
Heavy Vehicles	0	94	0	0	94	0	0	0	0	0	0	76	35	0	111	0	0	0	0	0	205
% Heavy Vehicles	0	8.1	0	0	7.8	0	0	0	0	0	0	8.5	13.9	0	9.3	0	0	0	0	0	8.5

N/S: North Washington Street
E/W: Thacher Street/ Valenti Way
City, State: Boston, MA
Client: Howard Stein-Hudson/ B. Beisel

PRECISION DATA INDUSTRIES, LLC
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File Name : 154673 AA
Site Code : 2007190
Start Date : 9/23/2015
Page No : 1

Groups Printed- Peds and Bikes

	North Washington Street From North					Thacher Street From East					North Washington Street From South					Valenti Way From West					
Start Time	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	Int. Total
04:00 PM	0	2	0	24	30	0	0	0	31	25	0	7	1	0	0	0	0	0	4	13	137
04:15 PM	0	1	0	15	25	0	0	0	23	35	0	5	3	0	1	0	0	0	1	5	114
04:30 PM	0	0	0	12	25	1	0	0	21	27	0	5	5	1	0	0	0	0	3	2	102
04:45 PM	0	3	0	21	33	0	0	0	20	39	0	8	6	0	0	0	0	0	1	4	135
Total	0	6	0	72	113	1	0	0	95	126	0	25	15	1	1	0	0	0	9	24	488
05:00 PM	0	2	0	55	74	0	0	0	37	40	0	9	10	0	0	0	1	0	1	13	242
05:15 PM	0	4	0	57	72	0	0	0	41	98	0	14	14	0	0	0	0	0	7	8	315
05:30 PM	0	2	0	49	59	0	0	0	38	76	0	16	10	2	0	0	0	0	0	8	260
05:45 PM	1	3	0	40	31	0	0	0	27	61	0	20	3	0	0	0	0	0	1	12	199
Total	1	11	0	201	236	0	0	0	143	275	0	59	37	2	0	0	1	0	9	41	1016
Grand Total	1	17	0	273	349	1	0	0	238	401	0	84	52	3	1	0	1	0	18	65	1504
Apprch %	0.2	2.7	0	42.7	54.5	0.2	0	0	37.2	62.7	0	60	37.1	2.1	0.7	0	1.2	0	21.4	77.4	
Total %	0.1	1.1	0	18.2	23.2	0.1	0	0	15.8	26.7	0	5.6	3.5	0.2	0.1	0	0.1	0	1.2	4.3	

	North Washington Street From North						Thacher Street From East						North Washington Street From South						Valenti Way From West						
Start Time	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	Int. 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	55	74	131	0	0	0	37	40	77	0	9	10	0	0	19	0	1	0	1	13	15	242
05:15 PM	0	4	0	57	72	133	0	0	0	41	98	139	0	14	14	0	0	28	0	0	0	7	8	15	315
05:30 PM	0	2	0	49	59	110	0	0	0	38	76	114	0	16	10	2	0	28	0	0	0	0	8	8	260
05:45 PM	1	3	0	40	31	75	0	0	0	27	61	88	0	20	3	0	0	23	0	0	0	1	12	13	199
Total Volume	1	11	0	201	236	449	0	0	0	143	275	418	0	59	37	2	0	98	0	1	0	9	41	51	1016
% App. Total	0.2	2.4	0	44.8	52.6		0	0	0	34.2	65.8		0	60.2	37.8	2	0		0	2	0	17.6	80.4		
PHF	.250	.688	.000	.882	.797	.844	.000	.000	.000	.872	.702	.752	.000	.738	.661	.250	.000	.875	.000	.250	.000	.321	.788	.850	.806

N/S: North Washington Street
E/W: Thacher Street/ Valenti Way
City, State: Boston, MA
Client: Howard Stein-Hudson/ B. Beisel

PRECISION DATA INDUSTRIES, LLC
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File Name : 154673 AA
Site Code : 2007190
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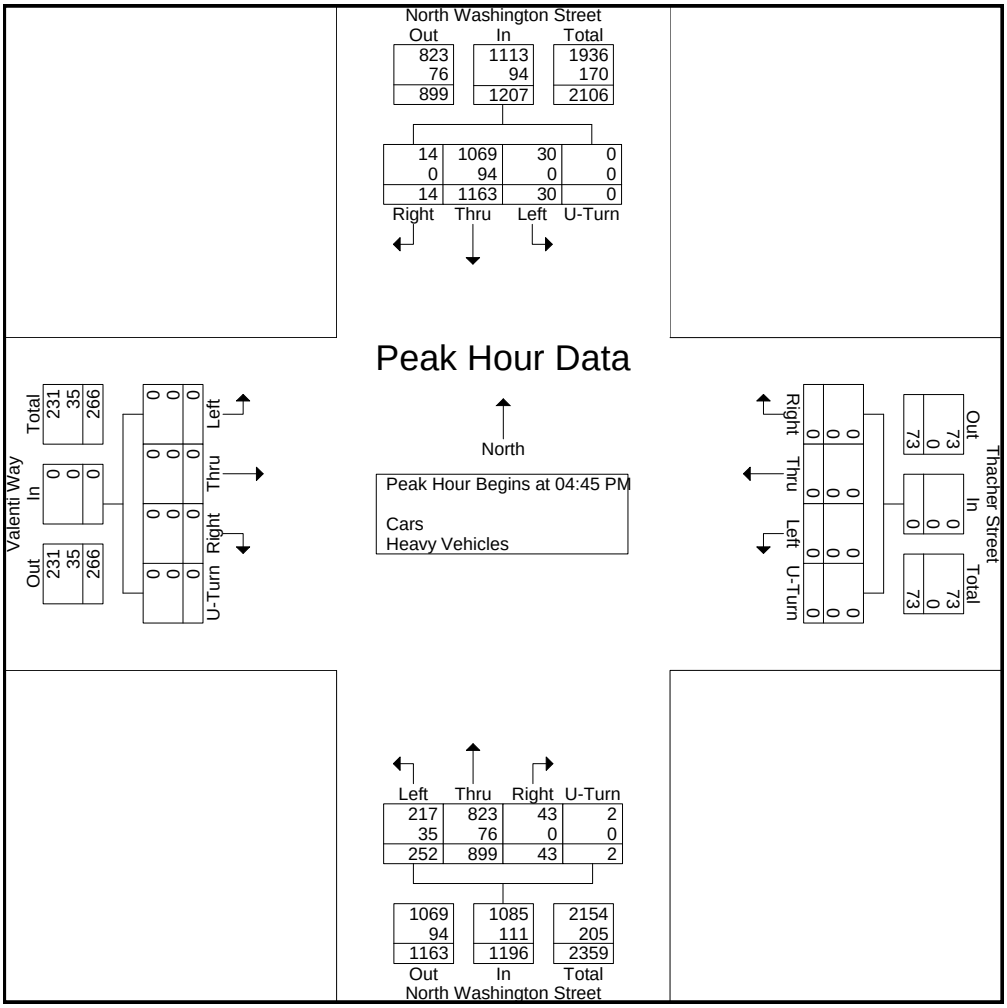
	North Washington Street From North					Thacher Street From East					North Washington Street From South					Valenti Way From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour 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	5	294	9	0	308	0	0	0	0	0	12	205	60	0	277	0	0	0	0	0	585
05:00 PM	2	265	7	0	274	0	0	0	0	0	12	231	73	1	317	0	0	0	0	0	591
05:15 PM	3	308	5	0	316	0	0	0	0	0	11	218	59	1	289	0	0	0	0	0	605
05:30 PM	4	296	9	0	309	0	0	0	0	0	8	245	60	0	313	0	0	0	0	0	622
Total Volume	14	1163	30	0	1207	0	0	0	0	0	43	899	252	2	1196	0	0	0	0	0	2403
% App. Total	1.2	96.4	2.5	0		0	0	0	0		3.6	75.2	21.1	0.2		0	0	0	0		
PHF	.700	.944	.833	.000	.955	.000	.000	.000	.000	.000	.896	.917	.863	.500	.943	.000	.000	.000	.000	.000	.966
Cars	14	1069	30	0	1113	0	0	0	0	0	43	823	217	2	1085	0	0	0	0	0	2198
% Cars	100	91.9	100	0	92.2	0	0	0	0	0	100	91.5	86.1	100	90.7	0	0	0	0	0	91.5
Heavy Vehicles	0	94	0	0	94	0	0	0	0	0	0	76	35	0	111	0	0	0	0	0	205
% Heavy Vehicles	0	8.1	0	0	7.8	0	0	0	0	0	0	8.5	13.9	0	9.3	0	0	0	0	0	8.5



N/S: Beverly Street
E/W: Valenti Way
City, State: Boston, MA
Client: Howard Stein-Hudson/ B. Beisel

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File Name : 154673 B
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Groups Printed- Cars - Heavy Vehicles

	Beverly Street From North				Valenti Way From East				Beverly Street From South				Valenti Way From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
07:00 AM	6	30	0	0	1	14	30	0	0	0	0	0	0	0	0	0	81
07:15 AM	5	14	0	0	0	18	55	0	0	0	0	0	0	0	0	0	92
07:30 AM	10	30	0	0	0	17	29	0	0	0	0	0	0	0	0	0	86
07:45 AM	4	21	0	0	0	20	39	0	0	0	0	0	0	0	0	0	84
Total	25	95	0	0	1	69	153	0	0	0	0	0	0	0	0	0	343
08:00 AM	6	19	0	0	0	18	40	0	0	0	0	0	0	0	0	0	83
08:15 AM	4	37	0	0	0	38	37	0	0	0	0	0	0	0	0	0	116
08:30 AM	5	21	0	0	0	33	35	0	0	0	0	0	0	0	0	0	94
08:45 AM	6	39	0	0	0	34	36	0	0	0	0	0	0	0	0	0	115
Total	21	116	0	0	0	123	148	0	0	0	0	0	0	0	0	0	408
Grand Total	46	211	0	0	1	192	301	0	0	0	0	0	0	0	0	0	751
Apprch %	17.9	82.1	0	0	0.2	38.9	60.9	0	0	0	0	0	0	0	0	0	
Total %	6.1	28.1	0	0	0.1	25.6	40.1	0	0	0	0	0	0	0	0	0	
Cars	33	170	0	0	0	148	256	0	0	0	0	0	0	0	0	0	607
% Cars	71.7	80.6	0	0	0	77.1	85	0	0	0	0	0	0	0	0	0	80.8
Heavy Vehicles	13	41	0	0	1	44	45	0	0	0	0	0	0	0	0	0	144
% Heavy Vehicles	28.3	19.4	0	0	100	22.9	15	0	0	0	0	0	0	0	0	0	19.2

	Beverly Street From North					Valenti Way From East					Beverly Street From South					Valenti Way From West					
Start Time	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	Int. 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	6	19	0	0	25	0	18	40	0	58	0	0	0	0	0	0	0	0	0	0	83
08:15 AM	4	37	0	0	41	0	38	37	0	75	0	0	0	0	0	0	0	0	0	0	116
08:30 AM	5	21	0	0	26	0	33	35	0	68	0	0	0	0	0	0	0	0	0	0	94
08:45 AM	6	39	0	0	45	0	34	36	0	70	0	0	0	0	0	0	0	0	0	0	115
Total Volume	21	116	0	0	137	0	123	148	0	271	0	0	0	0	0	0	0	0	0	0	408
% App. Total	15.3	84.7	0	0		0	45.4	54.6	0		0	0	0	0		0	0	0	0		
PHF	.875	.744	.000	.000	.761	.000	.809	.925	.000	.903	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.879
Cars	18	97	0	0	115	0	98	121	0	219	0	0	0	0	0	0	0	0	0	0	334
% Cars	85.7	83.6	0	0	83.9	0	79.7	81.8	0	80.8	0	0	0	0	0	0	0	0	0	0	81.9
Heavy Vehicles	3	19	0	0	22	0	25	27	0	52	0	0	0	0	0	0	0	0	0	0	74
% Heavy Vehicles	14.3	16.4	0	0	16.1	0	20.3	18.2	0	19.2	0	0	0	0	0	0	0	0	0	0	18.1

N/S: Beverly Street
E/W: Valenti Way
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Groups Printed- Peds and Bikes

	Beverly Street From North					Valenti Way From East					Beverly Street From South					Valenti Way From West					
Start Time	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	Int. Total
07:00 AM	0	5	0	19	22	0	0	0	10	1	0	0	0	1	1	0	0	0	1	2	62
07:15 AM	0	5	0	17	36	0	0	0	7	3	0	0	0	6	3	0	0	0	7	4	88
07:30 AM	0	9	0	29	39	0	0	0	12	4	0	0	0	0	1	0	0	0	11	9	114
07:45 AM	0	7	0	42	30	0	0	0	30	5	0	0	0	3	2	0	0	0	10	7	136
Total	0	26	0	107	127	0	0	0	59	13	0	0	0	10	7	0	0	0	29	22	400
08:00 AM	3	9	0	37	50	0	0	0	15	6	0	0	0	2	2	0	0	0	1	1	126
08:15 AM	5	8	0	62	50	1	2	0	7	5	0	0	0	1	1	0	0	0	0	0	142
08:30 AM	2	8	0	56	48	0	0	0	17	8	0	0	0	1	0	0	0	0	0	0	140
08:45 AM	1	10	0	95	45	0	4	0	16	5	0	0	0	1	0	0	0	0	0	0	177
Total	11	35	0	250	193	1	6	0	55	24	0	0	0	5	3	0	0	0	1	1	585
Grand Total	11	61	0	357	320	1	6	0	114	37	0	0	0	15	10	0	0	0	30	23	985
Apprch %	1.5	8.1	0	47.7	42.7	0.6	3.8	0	72.2	23.4	0	0	0	60	40	0	0	0	56.6	43.4	
Total %	1.1	6.2	0	36.2	32.5	0.1	0.6	0	11.6	3.8	0	0	0	1.5	1	0	0	0	3	2.3	

	Beverly Street From North						Valenti Way From East						Beverly Street From South						Valenti Way From West						
Start Time	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	Int. 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	3	9	0	37	50	99	0	0	0	15	6	21	0	0	0	2	2	4	0	0	0	1	1	2	126
08:15 AM	5	8	0	62	50	125	1	2	0	7	5	15	0	0	0	1	1	2	0	0	0	0	0	0	142
08:30 AM	2	8	0	56	48	114	0	0	0	17	8	25	0	0	0	1	0	1	0	0	0	0	0	0	140
08:45 AM	1	10	0	95	45	151	0	4	0	16	5	25	0	0	0	1	0	1	0	0	0	0	0	0	177
Total Volume	11	35	0	250	193	489	1	6	0	55	24	86	0	0	0	5	3	8	0	0	0	1	1	2	585
% App. Total	2.2	7.2	0	51.1	39.5		1.2	7	0	64	27.9		0	0	0	62.5	37.5		0	0	0	50	50		
PHF	.550	.875	.000	.658	.965	.810	.250	.375	.000	.809	.750	.860	.000	.000	.000	.625	.375	.500	.000	.000	.000	.250	.250	.250	.826

N/S: Beverly Street
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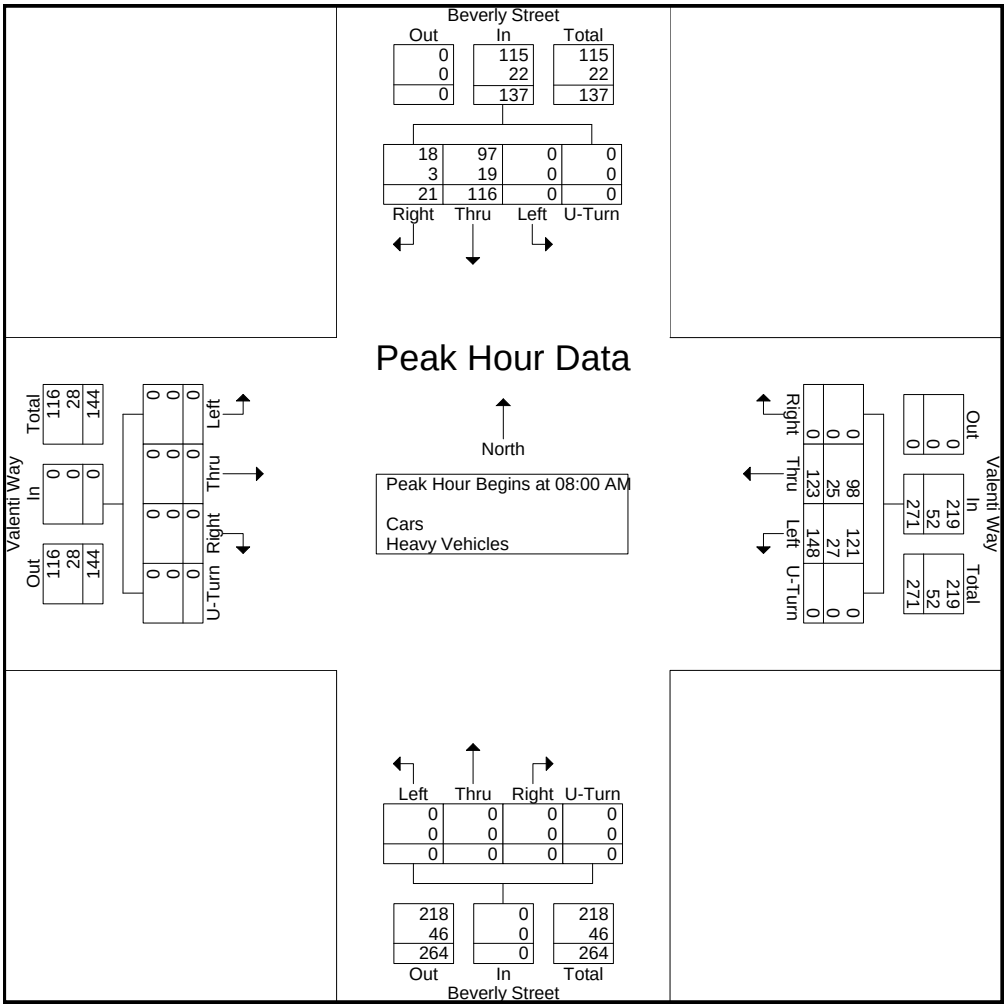
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	6	19	0	0	25	0	18	40	0	58	0	0	0	0	0	0	0	0	0	0	83
08:15 AM	4	37	0	0	41	0	38	37	0	75	0	0	0	0	0	0	0	0	0	0	116
08:30 AM	5	21	0	0	26	0	33	35	0	68	0	0	0	0	0	0	0	0	0	0	94
08:45 AM	6	39	0	0	45	0	34	36	0	70	0	0	0	0	0	0	0	0	0	0	115
Total Volume	21	116	0	0	137	0	123	148	0	271	0	0	0	0	0	0	0	0	0	0	408
% App. Total	15.3	84.7	0	0		0	45.4	54.6	0		0	0	0	0		0	0	0	0		
PHF	.875	.744	.000	.000	.761	.000	.809	.925	.000	.903	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.879
Cars	18	97	0	0	115	0	98	121	0	219	0	0	0	0	0	0	0	0	0	0	334
% Cars	85.7	83.6	0	0	83.9	0	79.7	81.8	0	80.8	0	0	0	0	0	0	0	0	0	0	81.9
Heavy Vehicles	3	19	0	0	22	0	25	27	0	52	0	0	0	0	0	0	0	0	0	0	74
% Heavy Vehicles	14.3	16.4	0	0	16.1	0	20.3	18.2	0	19.2	0	0	0	0	0	0	0	0	0	0	18.1



N/S: Beverly Street
E/W: Valenti Way
City, State: Boston, MA
Client: Howard Stein-Hudson/ B. Beisel

PRECISION DATA INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
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File Name : 154673 BB
Site Code : 2007190
Start Date : 9/23/2015
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Beverly Street From North				Valenti Way From East				Beverly Street From South				Valenti Way From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:00 PM	5	48	0	0	0	25	61	0	0	0	0	0	0	0	0	0	139
04:15 PM	9	49	0	0	0	25	48	0	0	0	0	0	0	0	0	0	131
04:30 PM	3	53	0	0	0	14	47	0	0	0	0	0	0	0	0	0	117
04:45 PM	5	42	0	0	0	21	41	0	0	0	0	0	0	0	0	0	109
Total	22	192	0	0	0	85	197	0	0	0	0	0	0	0	0	0	496
05:00 PM	10	65	0	0	0	21	58	0	0	0	0	0	0	0	0	0	154
05:15 PM	12	54	0	0	0	21	45	0	0	0	0	0	0	0	0	0	132
05:30 PM	6	51	0	0	0	24	42	0	0	0	0	0	0	0	0	0	123
05:45 PM	10	43	0	0	0	17	40	0	0	0	0	0	0	0	0	0	110
Total	38	213	0	0	0	83	185	0	0	0	0	0	0	0	0	0	519
Grand Total	60	405	0	0	0	168	382	0	0	0	0	0	0	0	0	0	1015
Apprch %	12.9	87.1	0	0	0	30.5	69.5	0	0	0	0	0	0	0	0	0	
Total %	5.9	39.9	0	0	0	16.6	37.6	0	0	0	0	0	0	0	0	0	
Cars	58	353	0	0	0	138	344	0	0	0	0	0	0	0	0	0	893
% Cars	96.7	87.2	0	0	0	82.1	90.1	0	0	0	0	0	0	0	0	0	88
Heavy Vehicles	2	52	0	0	0	30	38	0	0	0	0	0	0	0	0	0	122
% Heavy Vehicles	3.3	12.8	0	0	0	17.9	9.9	0	0	0	0	0	0	0	0	0	12

	Beverly Street From North					Valenti Way From East					Beverly Street From South					Valenti Way From West					
Start Time	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	Int. 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	10	65	0	0	75	0	21	58	0	79	0	0	0	0	0	0	0	0	0	0	154
05:15 PM	12	54	0	0	66	0	21	45	0	66	0	0	0	0	0	0	0	0	0	0	132
05:30 PM	6	51	0	0	57	0	24	42	0	66	0	0	0	0	0	0	0	0	0	0	123
05:45 PM	10	43	0	0	53	0	17	40	0	57	0	0	0	0	0	0	0	0	0	0	110
Total Volume	38	213	0	0	251	0	83	185	0	268	0	0	0	0	0	0	0	0	0	0	519
% App. Total	15.1	84.9	0	0		0	31	69	0		0	0	0	0		0	0	0	0		
PHF	.792	.819	.000	.000	.837	.000	.865	.797	.000	.848	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.843
Cars	37	184	0	0	221	0	70	163	0	233	0	0	0	0	0	0	0	0	0	0	454
% Cars	97.4	86.4	0	0	88.0	0	84.3	88.1	0	86.9	0	0	0	0	0	0	0	0	0	0	87.5
Heavy Vehicles	1	29	0	0	30	0	13	22	0	35	0	0	0	0	0	0	0	0	0	0	65
% Heavy Vehicles	2.6	13.6	0	0	12.0	0	15.7	11.9	0	13.1	0	0	0	0	0	0	0	0	0	0	12.5

N/S: Beverly Street
E/W: Valenti Way
City, State: Boston, MA
Client: Howard Stein-Hudson/ B. Beisel

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File Name : 154673 BB
Site Code : 2007190
Start Date : 9/23/2015
Page No : 1

Groups Printed- Peds and Bikes

	Beverly Street From North					Valenti Way From East					Beverly Street From South					Valenti Way From West					
Start Time	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	Int. Total
04:00 PM	0	3	0	27	38	0	2	0	11	11	0	0	0	1	0	0	0	0	1	2	96
04:15 PM	0	2	0	27	42	0	2	0	6	10	0	0	0	1	0	0	0	0	2	0	92
04:30 PM	0	1	0	26	51	0	0	0	14	11	0	0	0	0	0	0	0	0	0	0	103
04:45 PM	0	2	0	23	38	0	2	0	9	9	0	0	0	1	0	0	0	0	2	1	87
Total	0	8	0	103	169	0	6	0	40	41	0	0	0	3	0	0	0	0	5	3	378
05:00 PM	0	3	0	30	83	0	4	1	10	22	0	0	0	1	0	1	0	0	1	0	156
05:15 PM	0	1	0	37	81	0	7	0	12	15	0	0	0	2	0	0	0	0	3	0	158
05:30 PM	0	5	0	40	68	1	3	1	6	18	0	0	2	0	1	0	0	0	0	0	145
05:45 PM	0	6	0	38	29	0	1	1	11	7	0	0	0	0	0	0	0	0	0	0	93
Total	0	15	0	145	261	1	15	3	39	62	0	0	2	3	1	1	0	0	4	0	552
Grand Total	0	23	0	248	430	1	21	3	79	103	0	0	2	6	1	1	0	0	9	3	930
Apprch %	0	3.3	0	35.4	61.3	0.5	10.1	1.4	38.2	49.8	0	0	22.2	66.7	11.1	7.7	0	0	69.2	23.1	
Total %	0	2.5	0	26.7	46.2	0.1	2.3	0.3	8.5	11.1	0	0	0.2	0.6	0.1	0.1	0	0	1	0.3	

	Beverly Street From North						Valenti Way From East						Beverly Street From South						Valenti Way From West						
Start Time	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	Int. 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	3	0	30	83	116	0	4	1	10	22	37	0	0	0	1	0	1	1	0	0	1	0	2	156
05:15 PM	0	1	0	37	81	119	0	7	0	12	15	34	0	0	0	2	0	2	0	0	0	3	0	3	158
05:30 PM	0	5	0	40	68	113	1	3	1	6	18	29	0	0	2	0	1	3	0	0	0	0	0	0	145
05:45 PM	0	6	0	38	29	73	0	1	1	11	7	20	0	0	0	0	0	0	0	0	0	0	0	0	93
Total Volume	0	15	0	145	261	421	1	15	3	39	62	120	0	0	2	3	1	6	1	0	0	4	0	5	552
% App. Total	0	3.6	0	34.4	62		0.8	12.5	2.5	32.5	51.7		0	0	33.3	50	16.7		20	0	0	80	0		
PHF	.000	.625	.000	.906	.786	.884	.250	.536	.750	.813	.705	.811	.000	.000	.250	.375	.250	.500	.250	.000	.000	.333	.000	.417	.873

N/S: Beverly Street
E/W: Valenti Way
City, State: Boston, MA
Client: Howard Stein-Hudson/ B. Beisel

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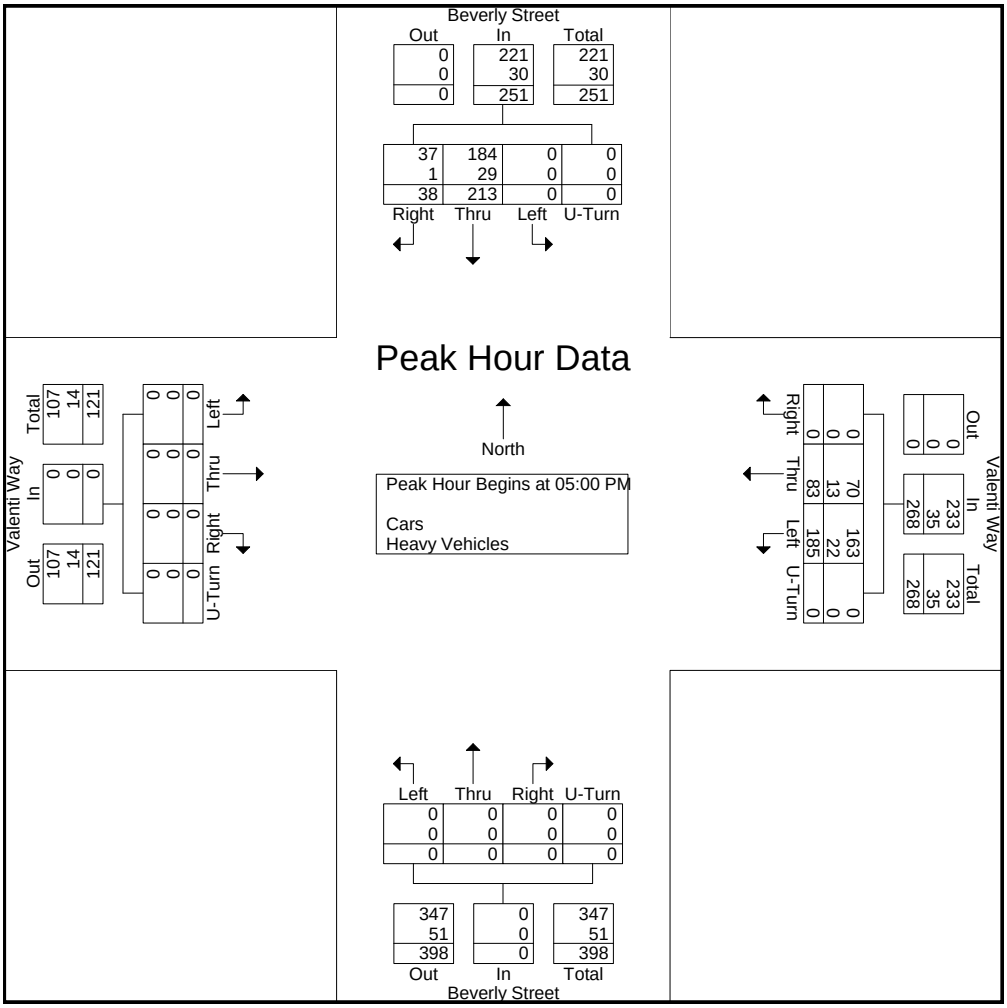
	Beverly Street From North					Valenti Way From East					Beverly Street From South					Valenti Way From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	10	65	0	0	75	0	21	58	0	79	0	0	0	0	0	0	0	0	0	0	154
05:15 PM	12	54	0	0	66	0	21	45	0	66	0	0	0	0	0	0	0	0	0	0	132
05:30 PM	6	51	0	0	57	0	24	42	0	66	0	0	0	0	0	0	0	0	0	0	123
05:45 PM	10	43	0	0	53	0	17	40	0	57	0	0	0	0	0	0	0	0	0	0	110
Total Volume	38	213	0	0	251	0	83	185	0	268	0	0	0	0	0	0	0	0	0	0	519
% App. Total	15.1	84.9	0	0		0	31	69	0		0	0	0	0		0	0	0	0		
PHF	.792	.819	.000	.000	.837	.000	.865	.797	.000	.848	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.843
Cars	37	184	0	0	221	0	70	163	0	233	0	0	0	0	0	0	0	0	0	0	454
% Cars	97.4	86.4	0	0	88.0	0	84.3	88.1	0	86.9	0	0	0	0	0	0	0	0	0	0	87.5
Heavy Vehicles	1	29	0	0	30	0	13	22	0	35	0	0	0	0	0	0	0	0	0	0	65
% Heavy Vehicles	2.6	13.6	0	0	12.0	0	15.7	11.9	0	13.1	0	0	0	0	0	0	0	0	0	0	12.5



N/S/SE: N.Washington/I-93 Offramp/Cross
E/W/SW:Cooper St/Beverly St/N.Washington
City, State: Boston, MA
Client: Howard Stein-Hudson/ B. Beisel

PRECISION DATA INDUSTRIES, LLC
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File Name : 154673 C
Site Code : 2007190
Start Date : 9/23/2015
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	North Washington Street From North				Cooper Street From East				Cross Street From Southeast			I-93 Offramp From South				North Washington Street From Southwest				Beverly Street From West				
Start Time	Right	Bear Right	Thru	Left	Right	Thru	Left	Hard Left	Hard Right	Bear Right	Left	Hard Right	Right	Thru	Left	Hard Right	Right	Bear Right	Bear Left	Hard Right	Right	Thru	Left	Int. Total
07:00 AM	0	377	0	0	11	0	0	0	0	177	0	0	0	64	0	0	0	0	0	58	0	0	0	687
07:15 AM	0	352	0	0	5	0	0	0	0	171	0	0	0	67	0	0	0	0	0	74	0	0	0	669
07:30 AM	0	400	0	0	13	0	0	0	0	151	0	0	0	68	0	0	0	0	0	36	0	0	0	668
07:45 AM	0	359	0	0	14	0	0	0	0	192	0	0	0	62	0	0	0	0	0	74	0	0	0	701
Total	0	1488	0	0	43	0	0	0	0	691	0	0	0	261	0	0	0	0	0	242	0	0	0	2725
Grand Total	0	2859	0	0	87	0	0	0	0	1469	0	0	0	552	0	0	0	0	0	502	0	0	0	5469
Apprch %	0	100	0	0	100	0	0	0	0	100	0	0	0	100	0	0	0	0	0	100	0	0	0	
Total %	0	52.3	0	0	1.6	0	0	0	0	26.9	0	0	0	10.1	0	0	0	0	0	9.2	0	0	0	
Cars	0	2632	0	0	84	0	0	0	0	1243														
% Cars	0	92.1	0	0	96.6	0	0	0	0	84.6	0	0	0	90.2	0	0	0	0	0	82.9	0	0	0	89.1
Heavy Vehicles																								
% Heavy Vehicles	0	7.9	0	0	3.4	0	0	0	0	15.4	0	0	0	9.8	0	0	0	0	0	17.1	0	0	0	10.9

	North Washington Street From North					Cooper Street From East					Cross Street From Southeast				I-93 Offramp From South					North Washington Street From Southwest					Beverly Street From West					
Start Time	Right	Bear Right	Thru	Left	App. Total	Right	Thru	Left	Hard Left	App. Total	Hard Right	Bear Right	Left	App. Total	Hard Right	Right	Thru	Left	App. Total	Hard Right	Right	Bear Right	Bear Left	App. Total	Hard Right	Right	Thru	Left	App. Total	Int. 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	359	0	0	359	14	0	0	0	14	0	192	0	192	0	0	62	0	62	0	0	0	0	0	74	0	0	0	74	701
08:00 AM	0	363	0	0	363	9	0	0	0	9	0	194	0	194	0	0	74	0	74	0	0	0	0	0	53	0	0	0	53	693
08:15 AM	0	340	0	0	340	12	0	0	0	12	0	195	0	195	0	0	85	0	85	0	0	0	0	0	73	0	0	0	73	705
08:30 AM	0	354	0	0	354	14	0	0	0	14	0	201	0	201	0	0	67	0	67	0	0	0	0	0	59	0	0	0	59	695
Total Volume	0	1416	0	0	1416	49	0	0	0	49	0	782	0	782	0	0	288	0	288	0	0	0	0	0	259	0	0	0	259	2794
% App. Total	0	100	0	0		100	0	0	0		0	100	0		0	0	100	0		0	0	0	0		100	0	0	0		
PHF	.000	.975	.000	.000	.975	.875	.000	.000	.000	.875	.000	.973	.000	.973	.000	.000	.847	.000	.847	.000	.000	.000	.000	.000	.875	.000	.000	.000	.875	.991
Cars	0	1297	0	0	1297	47	0	0	0	47	0	674	0	674	0	0	259	0	259	0	0	0	0	0	218	0	0	0	218	2495
% Cars	0	91.6	0	0	91.6	95.9	0	0	0	95.9	0	86.2	0	86.2	0	0	89.9	0	89.9	0	0	0	0	0	84.2	0	0	0	84.2	89.3
Heavy Vehicles	0	119	0	0	119	2	0	0	0	2	0	108	0	108	0	0	29	0	29	0	0	0	0	0	41	0	0	0	41	299
% Heavy Vehicles	0	8.4	0	0	8.4	4.1	0	0	0	4.1	0	13.8	0	13.8	0	0	10.1	0	10.1	0	0	0	0	0	15.8	0	0	0	15.8	10.7

N/S/SE: N.Washington/I-93 Offramp/Cross
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Groups Printed- Peds and Bikes

	North Washington Street From North						Cooper Street From East					Cross Street From Southeast					I-93 Offramp From South					North Washington Street From Southwest							Beverly Street From West							
Start Time	Right	Bear Right	Thru	Left	Peds EB	Peds WB	Thru	Bear Left	Left	Hard Left	Peds NB	Bear Right	Bear Left	Left	Hard Left	Peds NEB	Hard Right	Right	Thru	Hard Left	Peds WB	Hard Right	Right	Bear Right	Bear Left	Hard Left	Peds NWB	Peds SEB	Hard Right	Right	Bear Right	Thru	Left	Peds NB	Peds SB	Int. Total
07:00 AM	0	8	0	0	9	2	0	0	0	0	2	0	0	0	0	6	0	0	0	0	4	0	0	0	0	0	0	0	3	0	0	0	0	0	0	34
07:15 AM	0	8	0	0	14	6	0	0	0	0	9	3	0	0	0	9	0	0	0	0	12	0	0	0	0	0	0	0	4	0	0	0	0	0	0	65
07:30 AM																																				
07:45 AM	0	13	0	0	35	6	0	0	0	0	7	0	0	0	0	13	0	0	0	0	23	0	0	0	0	0	0	0	6	0	0	0	0	2	1	106
Total	0	39	0	0	68	15	0	0	0	0	23	6	0	0	0	33	0	0	0	0	50	0	0	0	0	0	0	0	24	0	0	0	0	3	1	262
08:00 AM	0	13	0	0	12	6	0	0	0	0	11	3	0	0	0	9	0	0	0	0	16	0	0	0	0	0	0	0	6	0	0	0	0	0	0	76
08:15 AM																																				107
08:30 AM	0	17	0	0	17	9	0	0	0	0	35	3	0	0	0	20	0	0	0	0	22	0	0	0	0	0	0	0	8	0	0	0	0	0	0	131
08:45 AM	0	16	0	0	22	4	0	0	0	0	18	3	0	0	0	12	0	0	0	0	19	0	0	0	0	0	0	0	12	0	0	0	0	0	0	106
Total	0	69	0	0	64	26	0	0	0	0	86	10	0	0	0	54	0	0	0	0	76	0	0	0	0	0	0	0	35	0	0	0	0	0	0	420
Grand Total	0	108	0	0	132	41	0	0	0	0	109	16	0	0	0	87	0	0	0	0	126	0	0	0	0	0	0	0	59	0	0	0	0	3	1	682
Apprch %	0	38.4	0	0	47	14.6	0	0	0	0	100	15.5	0	0	0	84.5	0	0	0	0	100	0	0	0	0	0	0	0	93.7	0	0	0	0	4.8	1.6	
Total %	0	15.8	0	0	19.4	6	0	0	0	0	16	2.3	0	0	0	12.8	0	0	0	0	18.5	0	0	0	0	0	0	0	8.7	0	0	0	0	0.4	0.1	

	North Washington Street From North							Cooper Street From East							Cross Street From Southeast							I-93 Offramp From South							North Washington Street From Southwest									Beverly Street From West								
Start Time	Right	Bear Right	Thru	Left	Peds EB	Peds WB	App. Total	Thru	Bear Left	Left	Hard Left	Peds NB	App. Total		Bear Right	Bear Left	Left	Hard Left	Peds NEB	App. Total		Hard Right	Right	Thru	Hard Left	Peds SWB	App. Total		Hard Right	Right	Bear Right	Bear Left	Hard Left	Peds NWB	Peds SEB	App. Total		Hard Right	Right	Bear Right	Thru	Left	Peds NB	Peds SB	App. Total	Int. 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	13	0	0	35	6	54	0	0	0	0	7	7		0	0	0	0	13	13		0	0	0	0	23	23		0	0	0	0	0	0	0	0		6	0	0	0	0	2	1	9	106
08:00 AM	0	13	0	0	12	6	31	0	0	0	0	11	11		3	0	0	0	9	12		0	0	0	0	16	16		0	0	0	0	0	0	0	0		6	0	0	0	0	0	0	6	76
08:15 AM		23			13		43	0	0	0	0	22	22		1	0	0	0	13	14		0	0	0	0	19	19		0	0	0	0	0	0	0	0		9	0	0	0	0	0	0	9	107
08:30 AM	0	17	0	0	17	9	43	0	0	0	0	35	35		3	0	0	0	20	23		0	0	0	0	22	22		0	0	0	0	0	0	0	0		8	0	0	0	0	0	0	8	131
Total Volume	0	66	0	0	77	28	171	0	0	0	0	75	75		7	0	0	0	55	62		0	0	0	0	80	80		0	0	0	0	0	0	0	0		29	0	0	0	0	2	1	32	420
% App. Total	0	38.6	0	0	45	16.4		0	0	0	0	100			11.3	0	0	0	88.7			0	0	0	0	100			0	0	0	0	0	0	0			90.6	0	0	0	0	6.2	3.1		
PHF	.000	.716	.000	.000	.551	.778	.792	.000	.000	.000	.000	.536	.536		.583	.000	.000	.000	.683	.674		.000	.000	.000	.000	.870	.870		.000	.000	.000	.000	.000	.000	.000	.000		.806	.000	.000	.000	.000	.250	.250	.889	.802

N/S/SE: N.Washington/I-93 Offramp/Cross
E/W/SW:Cooper St/Beverly St/N.Washington
City, State: Boston, MA
Client: Howard Stein-Hudson/ B. Beisel

PRECISION DATA INDUSTRIES, LLC
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File Name : 154673 C
Site Code : 2007190
Start Date : 9/23/2015
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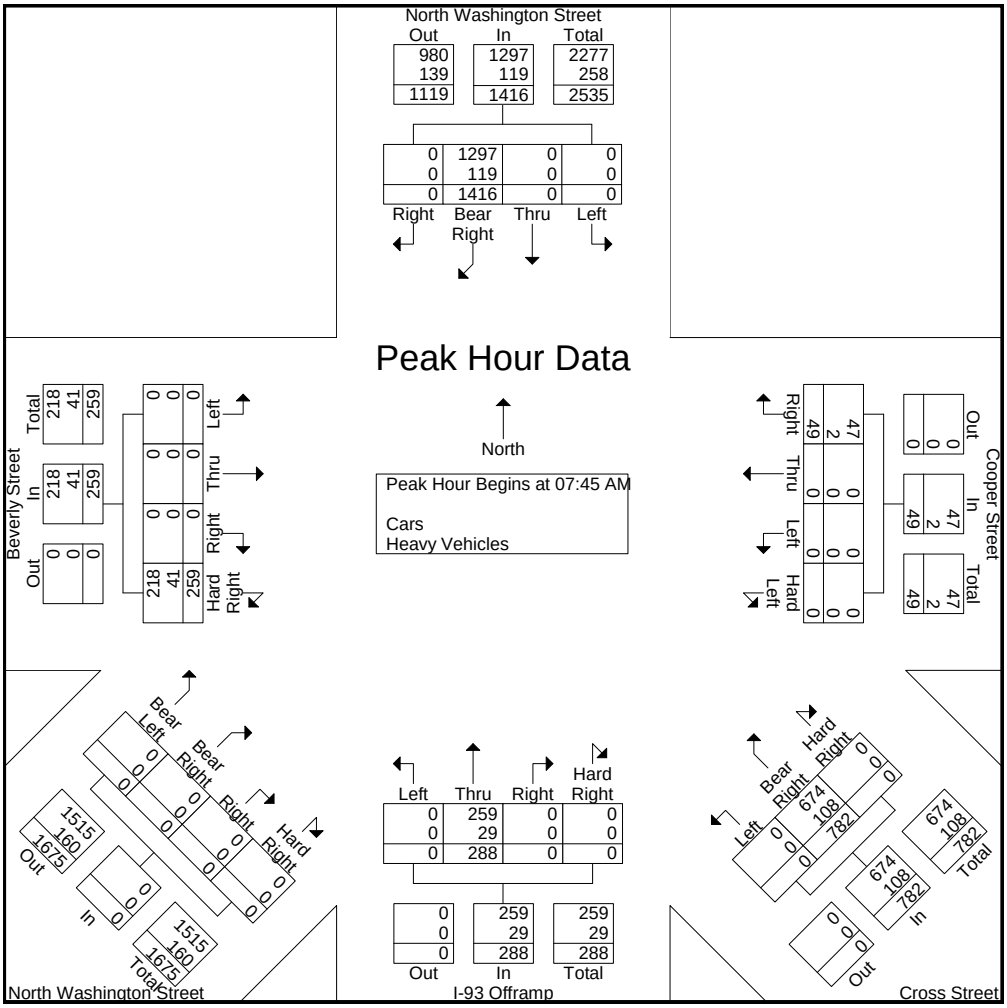
	North Washington Street From North					Cooper Street From East					Cross Street From Southeast				I-93 Offramp From South					North Washington Street From Southwest					Beverly Street From West					
Start Time	Right	Bear Right	Thru	Left	App. Total	Right	Thru	Left	Hard Left	App. Total	Hard Right	Bear Right	Left	App. Total	Hard Right	Right	Thru	Left	App. Total	Hard Right	Right	Bear Right	Bear Left	App. Total	Hard Right	Right	Thru	Left	App. Total	Int. 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	359	0	0	359	14	0	0	0	14	0	192	0	192	0	0	62	0	62	0	0	0	0	0	74	0	0	0	74	701
08:00 AM	0	363	0	0	363	9	0	0	0	9	0	194	0	194	0	0	74	0	74	0	0	0	0	0	53	0	0	0	53	693
08:15 AM	0	340	0	0	340	12	0	0	0	12	0	195	0	195	0	0	85	0	85	0	0	0	0	0	73	0	0	0	73	705
08:30 AM	0	354	0	0	354	14	0	0	0	14	0	201	0	201	0	0	67	0	67	0	0	0	0	0	59	0	0	0	59	695
Total Volume	0	1416	0	0	1416	49	0	0	0	49	0	782	0	782	0	0	288	0	288	0	0	0	0	0	259	0	0	0	259	2794
% App. Total	0	100	0	0		100	0	0	0		0	100	0		0	0	100	0		0	0	0	0		100	0	0	0		
PHF	.000	.975	.000	.000	.975	.875	.000	.000	.000	.875	.000	.973	.000	.973	.000	.000	.847	.000	.847	.000	.000	.000	.000	.000	.875	.000	.000	.000	.875	.991
Cars	0	1297	0	0	1297	47	0	0	0	47	0	674	0	674	0	0	259	0	259	0	0	0	0	0	218	0	0	0	218	2495
% Cars	0	91.6	0	0	91.6	95.9	0	0	0	95.9	0	86.2	0	86.2	0	0	89.9	0	89.9	0	0	0	0	0	84.2	0	0	0	84.2	89.3
Heavy Vehicles	0	119	0	0	119	2	0	0	0	2	0	108	0	108	0	0	29	0	29	0	0	0	0	0	41	0	0	0	41	299
% Heavy Vehicles	0	8.4	0	0	8.4	4.1	0	0	0	4.1	0	13.8	0	13.8	0	0	10.1	0	10.1	0	0	0	0	0	15.8	0	0	0	15.8	10.7



N/S/SE: N.Washington/I-93 Offramp/Cross
E/W/SW:Cooper St/Beverly St/N.Washington
City, State: Boston, MA
Client: Howard Stein-Hudson/ B. Beisel

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File Name : 154673 CC
Site Code : 2007190
Start Date : 9/23/2015
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	North Washington Street From North				Cooper Street From East				Cross Street From Southeast			I-93 Offramp From South				North Washington Street From Southwest				Beverly Street From West				
Start Time	Right	Bear Right	Thru	Left	Right	Thru	Left	Hard Left	Hard Right	Bear Right	Left	Hard Right	Right	Thru	Left	Hard Right	Right	Bear Right	Bear Left	Hard Right	Right	Thru	Left	Int. Total
04:00 PM	0	301	0	0	14	0	0	0	0	247	0	0	0	55	0	0	0	0	0	108	0	0	0	725
04:15 PM	0	310	0	0	12	0	0	0	0	251	0	0	0	41	0	0	0	0	0	100	0	0	0	714
04:30 PM	0	251	0	0	12	0	0	0	0	228	0	0	0	37	0	0	0	0	0	101	0	0	0	629
04:45 PM	0	305	0	0	17	0	0	0	0	221	0	0	0	47	0	0	0	0	0	85	0	0	0	675
Total	0	1167	0	0	55	0	0	0	0	947	0	0	0	180	0	0	0	0	0	394	0	0	0	2743
Grand Total	0	2269	0	0	105	0	0	0	0	1933	0	0	0	384	0	0	0	0	0	793	0	0	0	5484
Apprch %	0	100	0	0	100	0	0	0	0	100	0	0	0	100	0	0	0	0	0	100	0	0	0	
Total %	0	41.4	0	0	1.9	0	0	0	0	35.2	0	0	0	7	0	0	0	0	0	14.5	0	0	0	
Cars	0	2084	0	0	103	0	0	0	0	1739														
% Cars	0	91.8	0	0	98.1	0	0	0	0	90	0	0	0	90.9	0	0	0	0	0	88.1	0	0	0	90.7
Heavy Vehicles																								
% Heavy Vehicles	0	8.2	0	0	1.9	0	0	0	0	10	0	0	0	9.1	0	0	0	0	0	11.9	0	0	0	9.3

	North Washington Street From North					Cooper Street From East					Cross Street From Southeast				I-93 Offramp From South					North Washington Street From Southwest					Beverly Street From West					
Start Time	Right	Bear Right	Thru	Left	App. Total	Right	Thru	Left	Hard Left	App. Total	Hard Right	Bear Right	Left	App. Total	Hard Right	Right	Thru	Left	App. Total	Hard Right	Right	Bear Right	Bear Left	App. Total	Hard Right	Right	Thru	Left	App. Total	Int. 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	305	0	0	305	17	0	0	0	17	0	221	0	221	0	0	47	0	47	0	0	0	0	0	85	0	0	0	85	675
05:00 PM	0	243	0	0	243	8	0	0	0	8	0	249	0	249	0	0	56	0	56	0	0	0	0	0	118	0	0	0	118	674
05:15 PM	0	316	0	0	316	13	0	0	0	13	0	212	0	212	0	0	59	0	59	0	0	0	0	0	103	0	0	0	103	703
05:30 PM	0	317	0	0	317	12	0	0	0	12	0	255	0	255	0	0	46	0	46	0	0	0	0	0	93	0	0	0	93	723
Total Volume	0	1181	0	0	1181	50	0	0	0	50	0	937	0	937	0	0	208	0	208	0	0	0	0	0	399	0	0	0	399	2775
% App. Total	0	100	0	0		100	0	0	0		0	100	0		0	0	100	0		0	0	0	0		100	0	0	0		
PHF	.000	.931	.000	.000	.931	.735	.000	.000	.000	.735	.000	.919	.000	.919	.000	.000	.881	.000	.881	.000	.000	.000	.000	.000	.845	.000	.000	.000	.845	.960
Cars	0	1087	0	0	1087	49	0	0	0	49	0	850	0	850	0	0	187	0	187	0	0	0	0	0	347	0	0	0	347	2520
% Cars	0	92.0	0	0	92.0	98.0	0	0	0	98.0	0	90.7	0	90.7	0	0	89.9	0	89.9	0	0	0	0	0	87.0	0	0	0	87.0	90.8
Heavy Vehicles	0	94	0	0	94	1	0	0	0	1	0	87	0	87	0	0	21	0	21	0	0	0	0	0	52	0	0	0	52	255
% Heavy Vehicles	0	8.0	0	0	8.0	2.0	0	0	0	2.0	0	9.3	0	9.3	0	0	10.1	0	10.1	0	0	0	0	0	13.0	0	0	0	13.0	9.2

N/S/SE: N.Washington/I-93 Offramp/Cross
E/W/SW:Cooper St/Beverly St/N.Washington
City, State: Boston, MA
Client: Howard Stein-Hudson/ B. Beisel

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File Name : 154673 CC
Site Code : 2007190
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Groups Printed- Peds and Bikes

	North Washington Street From North						Cooper Street From East					Cross Street From Southeast					I-93 Offramp From South					North Washington Street From Southwest							Beverly Street From West							
Start Time	Right	Bear Right	Thru	Left	Peds EB	Peds WB	Thru	Bear Left	Left	Hard Left	Peds NB	Bear Right	Bear Left	Left	Hard Left	Peds NEB	Hard Right	Right	Thru	Hard Left	Peds WB	Hard Right	Right	Bear Right	Bear Left	Hard Left	Peds NWB	Peds SEB	Hard Right	Right	Bear Right	Thru	Left	Peds NB	Peds SB	Int. Total
04:00 PM	0	2	0	0	26	10	0	0	0	0	11	7	0	0	0	12	0	0	0	0	17	0	0	0	0	0	0	0	3	0	0	0	0	0	0	88
04:15 PM																																				
04:30 PM	0	0	0	0	15	11	0	0	0	0	23	12	0	0	0	3	0	0	0	0	15	0	0	0	0	0	0	0	1	0	0	0	0	1	1	82
04:45 PM																																				101
Total	0	7	0	0	64	44	0	0	0	0	75	45	0	0	0	41	0	0	0	0	50	0	0	0	0	0	0	0	8	0	0	0	0	2	3	339
05:00 PM	0	2	0	0	12	26	0	0	0	0	35	20	0	0	0	14	0	0	0	0	28	0	0	0	0	0	0	0	4	0	0	0	0	0	0	141
05:15 PM	0	5	0	0	21	16	0	0	0	0	67	30	0	0	0	23	0	0	0	0	16	0	0	0	0	0	0	0	2	0	0	0	0	0	0	180
05:30 PM	0	2	0	0	11	12	0	0	0	0	57	22	0	0	0	20	0	0	0	0	23	0	0	0	0	0	0	0	6	0	0	0	0	0	0	153
05:45 PM	0	3	0	0	25	6	0	0	0	0	38	24	0	0	0	25	0	0	0	0	15	0	0	0	0	0	0	0	6	0	0	0	0	1	2	145
Total	0	12	0	0	69	60	0	0	0	0	197	96	0	0	0	82	0	0	0	0	82	0	0	0	0	0	0	0	18	0	0	0	0	1	2	619
Grand Total	0	19	0	0	133	104	0	0	0	0	272	141	0	0	0	123	0	0	0	0	132	0	0	0	0	0	0	0	26	0	0	0	0	3	5	958
Apprch %	0	7.4	0	0	52	40.6	0	0	0	0	100	53.4	0	0	0	46.6	0	0	0	0	100	0	0	0	0	0	0	0	76.5	0	0	0	0	8.8	14.7	
Total %	0	2	0	0	13.9	10.9	0	0	0	0	28.4	14.7	0	0	0	12.8	0	0	0	0	13.8	0	0	0	0	0	0	0	2.7	0	0	0	0	0.3	0.5	

	North Washington Street From North							Cooper Street From East						Cross Street From Southeast						I-93 Offramp From South						North Washington Street From Southwest								Beverly Street From West								
Start Time	Right	Bear Right	Thru	Left	Peds EB	Peds WB	App. Total	Thru	Bear Left	Left	Hard Left	Peds NB	App. Total	Bear Right	Bear Left	Left	Hard Left	Peds NEB	App. Total	Hard Right	Right	Thru	Hard Left	Peds WB	App. Total	Hard Right	Right	Bear Right	Bear Left	Hard Left	Peds NWB	Peds SEB	App. Total	Hard Right	Right	Bear Right	Thru	Left	Peds NB	Peds SB	App. Total	Int. 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	0	12	26	40	0	0	0	0	35	35	20	0	0	0	14	34	0	0	0	0	28	28	0	0	0	0	0	0	0	4	0	0	0	0	0	0	4	141
05:15 PM	0	5	0	0	21	16	42	0	0	0	0	67	67	30	0	0	0	23	53	0	0	0	0	16	16	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2	180
05:30 PM	0	2	0	0	11	12	25	0	0	0	0	57	57	22	0	0	0	20	42	0	0	0	0	23	23	0	0	0	0	0	0	0	6	0	0	0	0	0	0	6	153
05:45 PM	0	3	0	0	25	6	34	0	0	0	0	38	38	24	0	0	0	25	49	0	0	0	0	15	15	0	0	0	0	0	0	0	6	0	0	0	0	1	2	9	145
Total Volume	0	12	0	0	69	60	141	0	0	0	0	197	197	96	0	0	0	82	178	0	0	0	0	82	82	0	0	0	0	0	0	0	18	0	0	0	0	1	2	21	619
% App. Total	0	8.5	0	0	48.9	42.6		0	0	0	0	100		53.9	0	0	0	46.1		0	0	0	0	100		0	0	0	0	0	0	0	85.7	0	0	0	0	4.8	9.5		
PHF	.000	.600	.000	.000	.690	.577	.839	.000	.000	.000	.000	.735	.735	.800	.000	.000	.000	.820	.840	.000	.000	.000	.000	.732	.732	.000	.000	.000	.000	.000	.000	.000	.750	.000	.000	.000	.000	.250	.250	.583	.860

N/S/SE: N.Washington/I-93 Offramp/Cross
E/W/SW:Cooper St/Beverly St/N.Washington
City, State: Boston, MA
Client: Howard Stein-Hudson/ B. Beisel

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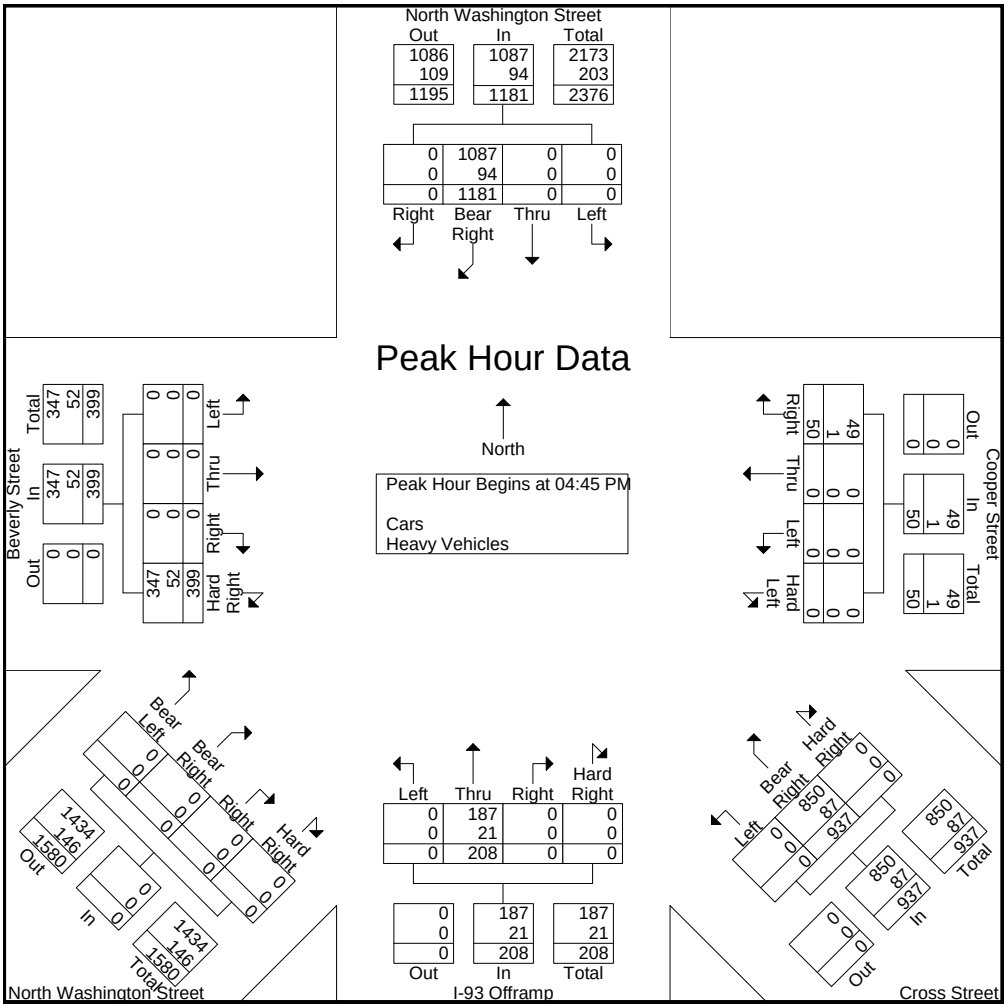
	North Washington Street From North					Cooper Street From East					Cross Street From Southeast				I-93 Offramp From South					North Washington Street From Southwest					Beverly Street From West					
Start Time	Right	Bear Right	Thru	Left	App. Total	Right	Thru	Left	Hard Left	App. Total	Hard Right	Bear Right	Left	App. Total	Hard Right	Right	Thru	Left	App. Total	Hard Right	Right	Bear Right	Bear Left	App. Total	Hard Right	Right	Thru	Left	App. Total	Int. 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	305	0	0	305	17	0	0	0	17	0	221	0	221	0	0	47	0	47	0	0	0	0	0	85	0	0	0	85	675
05:00 PM	0	243	0	0	243	8	0	0	0	8	0	249	0	249	0	0	56	0	56	0	0	0	0	0	118	0	0	0	118	674
05:15 PM	0	316	0	0	316	13	0	0	0	13	0	212	0	212	0	0	59	0	59	0	0	0	0	0	103	0	0	0	103	703
05:30 PM	0	317	0	0	317	12	0	0	0	12	0	255	0	255	0	0	46	0	46	0	0	0	0	0	93	0	0	0	93	723
Total Volume	0	1181	0	0	1181	50	0	0	0	50	0	937	0	937	0	0	208	0	208	0	0	0	0	0	399	0	0	0	399	2775
% App. Total	0	100	0	0		100	0	0	0		0	100	0		0	0	100	0		0	0	0	0		100	0	0	0		
PHF	.000	.931	.000	.000	.931	.735	.000	.000	.000	.735	.000	.919	.000	.919	.000	.000	.881	.000	.881	.000	.000	.000	.000	.000	.845	.000	.000	.000	.845	.960
Cars	0	1087	0	0	1087	49	0	0	0	49	0	850	0	850	0	0	187	0	187	0	0	0	0	0	347	0	0	0	347	2520
% Cars	0	92.0	0	0	92.0	98.0	0	0	0	98.0	0	90.7	0	90.7	0	0	89.9	0	89.9	0	0	0	0	0	87.0	0	0	0	87.0	90.8
Heavy Vehicles	0	94	0	0	94	1	0	0	0	1	0	87	0	87	0	0	21	0	21	0	0	0	0	0	52	0	0	0	52	255
% Heavy Vehicles	0	8.0	0	0	8.0	2.0	0	0	0	2.0	0	9.3	0	9.3	0	0	10.1	0	10.1	0	0	0	0	0	13.0	0	0	0	13.0	9.2



N/S: North Washington/Surface Road
E/SE/W: I-93 Offramp/Onramp/New Chardon
City, State: Boston, MA
Client: Howard Stein-Hudson/ B. Beisel

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Groups Printed- Cars - Heavy Vehicles

	North Washington Street From North					I-93 Offramp From East					I-93/1-A Onramp From Southeast					Surface Road From South					New Chardon Street From West					
Start Time	Right	Thru	Bear Left	Left	U-Turn	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	Int. Total
07:00 AM	108	80	222	0	0	0	102	3	7	0	0	0	0	0	0	0	0	0	0	0	6	95	0	0	0	623
07:15 AM	107	83	249	0	0	0	109	10	15	0	0	0	0	0	0	0	0	0	0	0	8	68	0	0	0	649
07:30 AM	118	84	219	0	0	0	121	5	13	0	0	0	0	0	0	0	0	0	0	0	6	92	0	0	0	658
07:45 AM	103	76	250	0	0	0	153	4	6	0	0	0	0	0	0	0	0	0	0	0	6	78	0	0	0	676
Total	436	323	940	0	0	0	485	22	41	0	0	0	0	0	0	0	0	0	0	0	26	333	0	0	0	2606
08:00 AM	116	79	207	0	0	0	137	1	10	0	0	0	0	0	0	0	0	0	0	0	15	115	0	0	0	680
08:15 AM	104	98	229	0	0	0	168	12	12	0	0	0	0	0	0	0	0	0	0	0	8	77	0	0	0	708
08:30 AM	108	92	200	0	0	0	135	3	8	0	0	0	0	0	0	0	0	0	0	0	21	94	0	0	0	661
08:45 AM	133	74	199	0	0	0	137	7	4	0	0	0	0	0	0	0	0	0	0	0	11	66	0	0	0	631
Total	461	343	835	0	0	0	577	23	34	0	0	0	0	0	0	0	0	0	0	0	55	352	0	0	0	2680
Grand Total	897	666	1775	0	0	0	1062	45	75	0	0	0	0	0	0	0	0	0	0	0	81	685	0	0	0	5286
Apprch %	26.9	20	53.2	0	0	0	89.8	3.8	6.3	0	0	0	0	0	0	0	0	0	0	0	10.6	89.4	0	0	0	
Total %	17	12.6	33.6	0	0	0	20.1	0.9	1.4	0	0	0	0	0	0	0	0	0	0	0	1.5	13	0	0	0	
Cars	821	565	1617	0	0	0	1040	43	70	0	0	0	0	0	0	0	0	0	0	0	68	637	0	0	0	4861
% Cars	91.5	84.8	91.1	0	0	0	97.9	95.6	93.3	0	0	0	0	0	0	0	0	0	0	0	84	93	0	0	0	92
Heavy Vehicles	76	101	158	0	0	0	22	2	5	0	0	0	0	0	0	0	0	0	0	0	13	48	0	0	0	425
% Heavy Vehicles	8.5	15.2	8.9	0	0	0	2.1	4.4	6.7	0	0	0	0	0	0	0	0	0	0	0	16	7	0	0	0	8

	North Washington Street From North						I-93 Offramp From East						I-93/1-A Onramp From Southeast						Surface Road From South						New Chardon Street From West						
Start Time	Right	Thru	Bear Left	Left	U-Turn	App. 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	Int. 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	103	76	250	0	0	429	0	153	4	6	0	163	0	0	0	0	0	0	0	0	0	0	0	0	6	78	0	0	0	84	676
08:00 AM	116	79	207	0	0	402	0	137	1	10	0	148	0	0	0	0	0	0	0	0	0	0	0	0	15	115	0	0	0	130	680
08:15 AM	104	98	229	0	0	431	0	168	12	12	0	192	0	0	0	0	0	0	0	0	0	0	0	0	8	77	0	0	0	85	708
08:30 AM	108	92	200	0	0	400	0	135	3	8	0	146	0	0	0	0	0	0	0	0	0	0	0	0	21	94	0	0	0	115	661
Total Volume	431	345	886	0	0	1662	0	593	20	36	0	649	0	0	0	0	0	0	0	0	0	0	0	0	50	364	0	0	0	414	2725
% App. Total	25.9	20.8	53.3	0	0		0	91.4	3.1	5.5	0		0	0	0	0	0		0	0	0	0	0		12.1	87.9	0	0	0		
PHF	.929	.880	.886	.000	.000	.964	.000	.882	.417	.750	.000	.845	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.595	.791	.000	.000	.000	.796	.962
Cars	402	290	799	0	0	1491	0	589	19	32	0	640	0	0	0	0	0	0	0	0	0	0	0	0	42	337	0	0	0	379	2510
% Cars	93.3	84.1	90.2	0	0	89.7	0	99.3	95.0	88.9	0	98.6	0	0	0	0	0	0	0	0	0	0	0	0	84.0	92.6	0	0	0	91.5	92.1
Heavy Vehicles	29	55	87	0	0	171	0	4	1	4	0	9	0	0	0	0	0	0	0	0	0	0	0	0	8	27	0	0	0	35	215
% Heavy Vehicles	6.7	15.9	9.8	0	0	10.3	0	0.7	5.0	11.1	0	1.4	0	0	0	0	0	0	0	0	0	0	0	0	16.0	7.4	0	0	0	8.5	7.9

N/S: North Washington/Surface Road
E/SE/W: I-93 Offramp/Onramp/New Chardon
City, State: Boston, MA
Client: Howard Stein-Hudson/ B. Beisel

PRECISION DATA INDUSTRIES, LLC
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File Name : 154673 D
Site Code : 2007190
Start Date : 9/23/2015
Page No : 1

Groups Printed- Peds and Bikes

	North Washington Street From North						I-93 Offramp From East						I-93/1-A Onramp From Southeast						Surface Road From South						New Chardon Street From West						
Start Time	Right	Thru	Bear Left	Left	Peds EB	Peds WB	Right	Thru	Left	Hard Left	Peds SB	Peds NB	Hard Right	Bear Right	Bear Left	Hard Left	Peds SWB	Peds NEB	Hard Right	Right	Thru	Left	Peds WB	Peds EB	Right	Bear Right	Thru	Left	Peds NB	Peds SB	Int. Total
07:00 AM	5	6	0	0	3	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	4	24
07:15 AM	5	10	0	0	4	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3	16	57
07:30 AM	3	13	0	0	1	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	10	39
07:45 AM	2	23	0	0	1	30	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	4	27	92
Total	15	52	0	0	9	60	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	11	57	212
08:00 AM	2	22	0	0	4	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	3	17	64
08:15 AM	1	25	0	0	3	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	2	10	53
08:30 AM	3	23	0	0	6	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	9	25	85
08:45 AM	5	24	0	0	5	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	6	15	75
Total	11	94	0	0	18	56	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	0	0	0	20	67	277
Grand Total	26	146	0	0	27	116	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	17	0	0	0	31	124	489
Apprch %	8.3	46.3	0	0	8.6	36.8	0	0	0	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	9.9	0	0	0	18	72.1	
Total %	5.3	29.9	0	0	5.5	23.7	0	0	0	0	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	3.5	0	0	0	6.3	25.4	

	North Washington Street From North							I-93 Offramp From East							I-93/1-A Onramp From Southeast							Surface Road From South							New Chardon Street From West							
Start Time	Right	Thru	Bear Left	Left	Peds EB	Peds WB	App. Total	Right	Thru	Left	Hard Left	Peds SB	Peds NB	App. Total	Hard Right	Bear Right	Bear Left	Hard Left	Peds SWB	Peds NEB	App. Total	Hard Right	Right	Thru	Left	Peds WB	Peds EB	App. Total	Right	Bear Right	Thru	Left	Peds NB	Peds SB	App. Total	Int. 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	23	0	0	1	30	56	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	4	27	34	92
08:00 AM		22				15	43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	3	17	21	64
08:15 AM		25																																10	15	53
08:30 AM		23				15	47	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	9	25	38	85
Total Volume		93			14	69	184	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11				18	79	108	294
% App. Total	4.3	50.5			7.6	37.5		0	0	0	0	100	0		0	0	0	0	0	0		0	0	0	0	0	0		10.2				16.7	73.1		
PHF	.667	.930	.000	.000	.583	.575	.821	.000	.000	.000	.000	.250	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.688	.000	.000	.000	.500	.731	.711	.799

N/S: North Washington/Surface Road
E/SE/W: I-93 Offramp/Onramp/New Chardon
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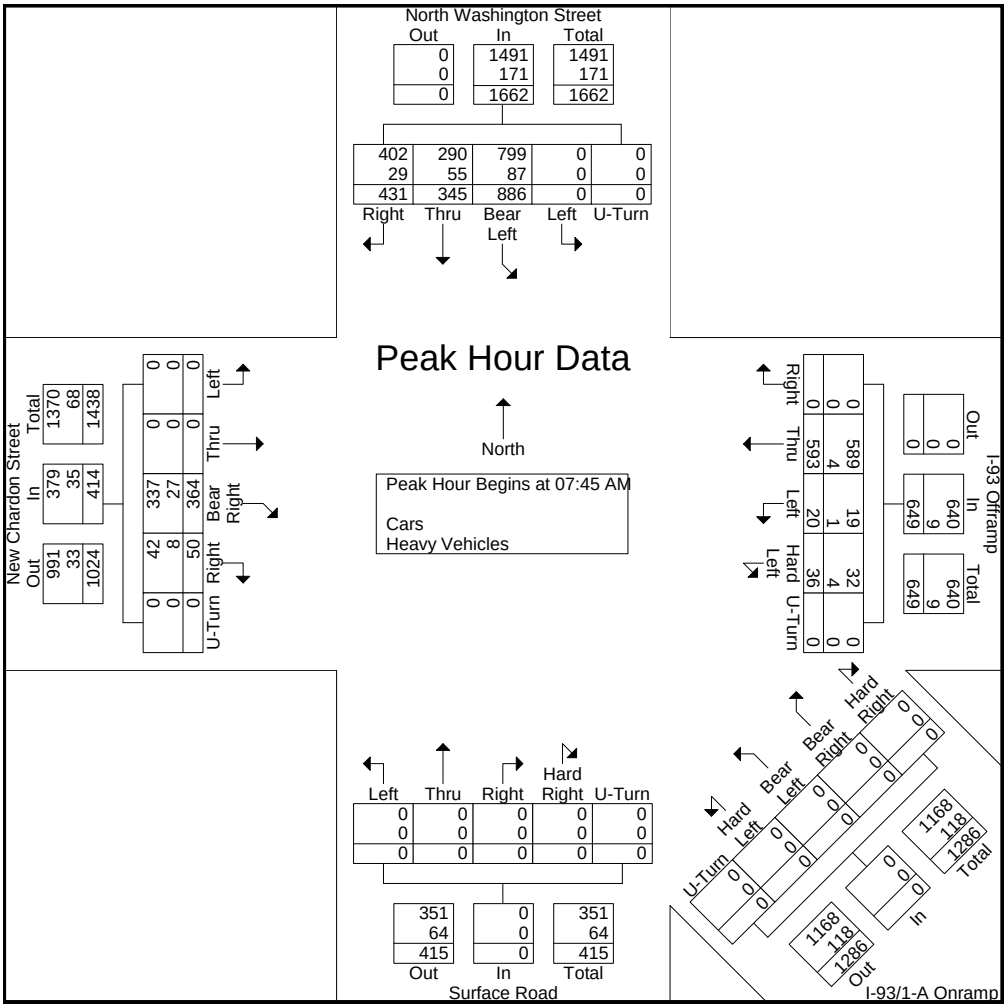
	North Washington Street From North						I-93 Offramp From East						I-93/1-A Onramp From Southeast						Surface Road From South						New Chardon Street From West						
Start Time	Right	Thru	Bear Left	Left	U-Turn	App. Total	Right	Thru	Left	Hard Left	U-Turn	App. Total	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	App. Total	Hard Right	Right	Thru	Left	U-Turn	App. Total	Right	Bear Right	Thru	Left	U-Turn	App. Total	Int. 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	103	76	250	0	0	429	0	153	4	6	0	163	0	0	0	0	0	0	0	0	0	0	0	0	6	78	0	0	0	84	676
08:00 AM	116	79	207	0	0	402	0	137	1	10	0	148	0	0	0	0	0	0	0	0	0	0	0	0	15	115	0	0	0	130	680
08:15 AM	104	98	229	0	0	431	0	168	12	12	0	192	0	0	0	0	0	0	0	0	0	0	0	0	8	77	0	0	0	85	708
08:30 AM	108	92	200	0	0	400	0	135	3	8	0	146	0	0	0	0	0	0	0	0	0	0	0	0	21	94	0	0	0	115	661
Total Volume	431	345	886	0	0	1662	0	593	20	36	0	649	0	0	0	0	0	0	0	0	0	0	0	0	50	364	0	0	0	414	2725
% App. Total	25.9	20.8	53.3	0	0		0	91.4	3.1	5.5	0		0	0	0	0	0		0	0	0	0	0		12.1	87.9	0	0	0		
PHF	.929	.880	.886	.000	.000	.964	.000	.882	.417	.750	.000	.845	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.595	.791	.000	.000	.000	.796	.962
Cars	402	290	799	0	0	1491	0	589	19	32	0	640	0	0	0	0	0	0	0	0	0	0	0	0	42	337	0	0	0	379	2510
% Cars	93.3	84.1	90.2	0	0	89.7	0	99.3	95.0	88.9	0	98.6	0	0	0	0	0	0	0	0	0	0	0	0	84.0	92.6	0	0	0	91.5	92.1
Heavy Vehicles	29	55	87	0	0	171	0	4	1	4	0	9	0	0	0	0	0	0	0	0	0	0	0	0	8	27	0	0	0	35	215
% Heavy Vehicles	6.7	15.9	9.8	0	0	10.3	0	0.7	5.0	11.1	0	1.4	0	0	0	0	0	0	0	0	0	0	0	0	16.0	7.4	0	0	0	8.5	7.9



N/S: North Washington/Surface Road
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File Name : 154673 DD
Site Code : 2007190
Start Date : 9/23/2015
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	North Washington Street From North					I-93 Offramp From East					I-93/1-A Onramp From Southeast					Surface Road From South					New Chardon Street From West					
Start Time	Right	Thru	Bear Left	Left	U-Turn	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	Int. Total
04:00 PM	70	76	268	0	0	0	101	2	3	0	0	0	0	0	0	0	0	0	0	0	18	197	0	0	0	735
04:15 PM	76	74	263	0	0	0	88	2	1	0	0	0	0	0	0	0	0	0	0	0	13	228	0	0	0	745
04:30 PM	67	66	209	0	0	0	93	0	3	0	0	0	0	0	0	0	0	0	0	0	17	221	0	0	0	676
04:45 PM	62	79	248	0	0	0	100	2	4	0	0	0	0	0	0	0	0	0	0	0	30	224	0	0	0	749
Total	275	295	988	0	0	0	382	6	11	0	0	0	0	0	0	0	0	0	0	0	78	870	0	0	0	2905
05:00 PM	57	72	229	0	0	0	106	2	8	0	0	0	0	0	0	0	0	0	0	0	11	211	0	0	0	696
05:15 PM	82	80	260	0	0	0	108	4	2	0	0	0	0	0	0	0	0	0	0	0	10	214	0	0	0	760
05:30 PM	84	88	249	0	0	0	96	2	5	0	0	0	0	0	0	0	0	0	0	0	22	198	0	0	0	744
05:45 PM	65	65	186	0	0	0	103	0	1	0	0	0	0	0	0	0	0	0	0	0	23	204	0	0	0	647
Total	288	305	924	0	0	0	413	8	16	0	0	0	0	0	0	0	0	0	0	0	66	827	0	0	0	2847
Grand Total	563	600	1912	0	0	0	795	14	27	0	0	0	0	0	0	0	0	0	0	0	144	1697	0	0	0	5752
Apprch %	18.3	19.5	62.2	0	0	0	95.1	1.7	3.2	0	0	0	0	0	0	0	0	0	0	0	7.8	92.2	0	0	0	
Total %	9.8	10.4	33.2	0	0	0	13.8	0.2	0.5	0	0	0	0	0	0	0	0	0	0	0	2.5	29.5	0	0	0	
Cars	513	500	1784	0	0	0	770	14	24	0	0	0	0	0	0	0	0	0	0	0	134	1678	0	0	0	5417
% Cars	91.1	83.3	93.3	0	0	0	96.9	100	88.9	0	0	0	0	0	0	0	0	0	0	0	93.1	98.9	0	0	0	94.2
Heavy Vehicles	50	100	128	0	0	0	25	0	3	0	0	0	0	0	0	0	0	0	0	0	10	19	0	0	0	335
% Heavy Vehicles	8.9	16.7	6.7	0	0	0	3.1	0	11.1	0	0	0	0	0	0	0	0	0	0	0	6.9	1.1	0	0	0	5.8

	North Washington Street From North						I-93 Offramp From East						I-93/1-A Onramp From Southeast						Surface Road From South						New Chardon Street From West						
Start Time	Right	Thru	Bear Left	Left	U-Turn	App. 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	Int. 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	62	79	248	0	0	389	0	100	2	4	0	106	0	0	0	0	0	0	0	0	0	0	0	0	30	224	0	0	0	254	749
05:00 PM	57	72	229	0	0	358	0	106	2	8	0	116	0	0	0	0	0	0	0	0	0	0	0	0	11	211	0	0	0	222	696
05:15 PM	82	80	260	0	0	422	0	108	4	2	0	114	0	0	0	0	0	0	0	0	0	0	0	0	10	214	0	0	0	224	760
05:30 PM	84	88	249	0	0	421	0	96	2	5	0	103	0	0	0	0	0	0	0	0	0	0	0	0	22	198	0	0	0	220	744
Total Volume	285	319	986	0	0	1590	0	410	10	19	0	439	0	0	0	0	0	0	0	0	0	0	0	0	73	847	0	0	0	920	2949
% App. Total	17.9	20.1	62	0	0		0	93.4	2.3	4.3	0		0	0	0	0	0		0	0	0	0	0		7.9	92.1	0	0	0		
PHF	.848	.906	.948	.000	.000	.942	.000	.949	.625	.594	.000	.946	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.608	.945	.000	.000	.000	.906	.970
Cars	260	266	919	0	0	1445	0	397	10	17	0	424	0	0	0	0	0	0	0	0	0	0	0	0	67	837	0	0	0	904	2773
% Cars	91.2	83.4	93.2	0	0	90.9	0	96.8	100	89.5	0	96.6	0	0	0	0	0	0	0	0	0	0	0	0	91.8	98.8	0	0	0	98.3	94.0
Heavy Vehicles	25	53	67	0	0	145	0	13	0	2	0	15	0	0	0	0	0	0	0	0	0	0	0	0	6	10	0	0	0	16	176
% Heavy Vehicles	8.8	16.6	6.8	0	0	9.1	0	3.2	0	10.5	0	3.4	0	0	0	0	0	0	0	0	0	0	0	0	8.2	1.2	0	0	0	1.7	6.0

N/S: North Washington/Surface Road
E/SE/W: I-93 Offramp/Onramp/New Chardon
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Groups Printed- Peds and Bikes

	North Washington Street From North						I-93 Offramp From East						I-93/1-A Onramp From Southeast						Surface Road From South						New Chardon Street From West						
Start Time	Right	Thru	Bear Left	Left	Peds EB	Peds WB	Right	Thru	Left	Hard Left	Peds SB	Peds NB	Hard Right	Bear Right	Bear Left	Hard Left	Peds SWB	Peds NEB	Hard Right	Right	Thru	Left	Peds WB	Peds EB	Right	Bear Right	Thru	Left	Peds NB	Peds SB	Int. Total
04:00 PM	0	4	0	0	7	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	6	17	49
04:15 PM	1	3	0	0	6	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	6	8	34
04:30 PM	0	1	0	0	9	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	10	46
04:45 PM	0	3	0	0	12	21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	18	19	74
Total	1	11	0	0	34	62	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2	0	0	0	38	54	203
05:00 PM	0	0	0	0	19	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18	20	75
05:15 PM	3	0	0	0	18	19	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	23	19	84
05:30 PM	0	0	0	0	16	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	19	66
05:45 PM	2	2	0	0	16	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	16	17	69
Total	5	2	0	0	69	71	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	69	75	294
Grand Total	6	13	0	0	103	133	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	4	0	0	0	107	129	497
Apprch %	2.4	5.1	0	0	40.4	52.2	0	0	0	0	0	100	0	0	0	0	0	0	0	0	0	0	100	0	1.7	0	0	0	44.6	53.8	
Total %	1.2	2.6	0	0	20.7	26.8	0	0	0	0	0	0.2	0	0	0	0	0	0	0	0	0	0	0.2	0	0.8	0	0	0	21.5	26	

	North Washington Street From North							I-93 Offramp From East							I-93/1-A Onramp From Southeast							Surface Road From South							New Chardon Street From West							
Start Time	Right	Thru	Bear Left	Left	Peds SE B	Peds SW B	App. Total	Right	Thru	Left	Hard Left	Peds SS B	Peds SN B	App. Total	Hard Right	Bear Right	Bear Left	Hard Left	Peds SS WB	Peds SN EB	App. Total	Hard Right	Right	Thru	Left	Peds SW B	Peds SE B	App. Total	Right	Bear Right	Thru	Left	Peds SN B	Peds SB	App. Total	Int. 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	3	0	0	12	21	36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	18	19	38	74
05:00 PM					19	18	37	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18	20	38	75
05:15 PM					18	19	40	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	23	19	43	84
05:30 PM					16	19	35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	19	31	66
Total Volume					65	77	148	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	71	77	150	299
% App. Total					43.9	52		0	0	0	0	0	100		0	0	0	0	0	0		0	0	0	0	0	0	0	1.3				47.3	51.3		
PHF	.250	.250	.000	.000	.855	.917	.925	.000	.000	.000	.000	.000	.250	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.500	.000	.000	.000	.772	.963	.872	.890

N/S: North Washington/Surface Road
E/SE/W: I-93 Offramp/Onramp/New Chardon
City, State: Boston, MA
Client: Howard Stein-Hudson/ B. Beisel

PRECISION DATA INDUSTRIES, LLC
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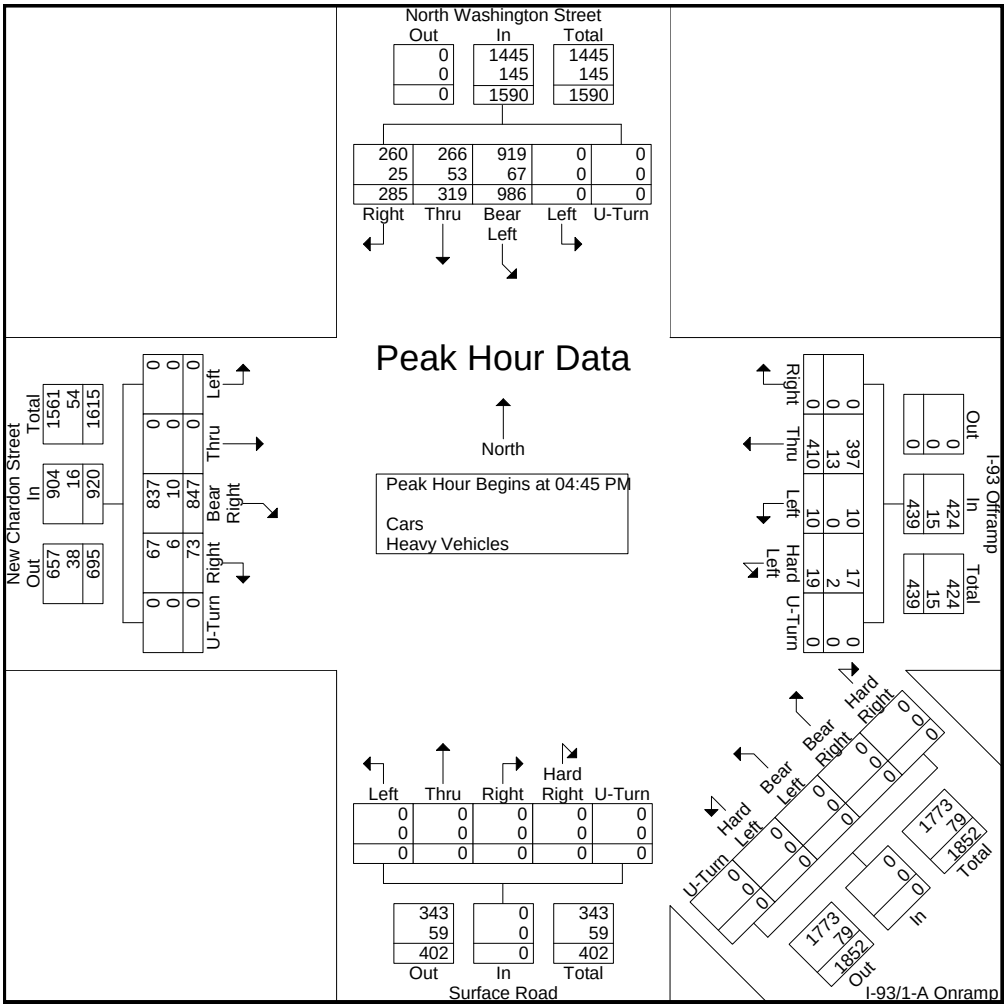
	North Washington Street From North						I-93 Offramp From East						I-93/1-A Onramp From Southeast						Surface Road From South						New Chardon Street From West						
Start Time	Right	Thru	Bear Left	Left	U-Turn	App. Total	Right	Thru	Left	Hard Left	U-Turn	App. Total	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	App. Total	Hard Right	Right	Thru	Left	U-Turn	App. Total	Right	Bear Right	Thru	Left	U-Turn	App. Total	Int. 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	62	79	248	0	0	389	0	100	2	4	0	106	0	0	0	0	0	0	0	0	0	0	0	0	30	224	0	0	0	254	749
05:00 PM	57	72	229	0	0	358	0	106	2	8	0	116	0	0	0	0	0	0	0	0	0	0	0	0	11	211	0	0	0	222	696
05:15 PM	82	80	260	0	0	422	0	108	4	2	0	114	0	0	0	0	0	0	0	0	0	0	0	0	10	214	0	0	0	224	760
05:30 PM	84	88	249	0	0	421	0	96	2	5	0	103	0	0	0	0	0	0	0	0	0	0	0	0	22	198	0	0	0	220	744
Total Volume	285	319	986	0	0	1590	0	410	10	19	0	439	0	0	0	0	0	0	0	0	0	0	0	0	73	847	0	0	0	920	2949
% App. Total	17.9	20.1	62	0	0		0	93.4	2.3	4.3	0		0	0	0	0	0		0	0	0	0	0		7.9	92.1	0	0	0		
PHF	.848	.906	.948	.000	.000	.942	.000	.949	.625	.594	.000	.946	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.608	.945	.000	.000	.000	.906	.970
Cars	260	266	919	0	0	1445	0	397	10	17	0	424	0	0	0	0	0	0	0	0	0	0	0	0	67	837	0	0	0	904	2773
% Cars	91.2	83.4	93.2	0	0	90.9	0	96.8	100	89.5	0	96.6	0	0	0	0	0	0	0	0	0	0	0	0	91.8	98.8	0	0	0	98.3	94.0
Heavy Vehicles	25	53	67	0	0	145	0	13	0	2	0	15	0	0	0	0	0	0	0	0	0	0	0	0	6	10	0	0	0	16	176
% Heavy Vehicles	8.8	16.6	6.8	0	0	9.1	0	3.2	0	10.5	0	3.4	0	0	0	0	0	0	0	0	0	0	0	0	8.2	1.2	0	0	0	1.7	6.0



N: Canal Street
E/W: New Chardon Street
City, State: Boston, MA
Client: Howard Stein-Hudson/ B. Beisel

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File Name : 154673 E
Site Code : 2007190
Start Date : 9/23/2015
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Groups Printed- Cars - Heavy Vehicles

	Canal Street From North			New Chardon Street From East			New Chardon Street From West			
Start Time	Right	Left	U-Turn	Right	Thru	U-Turn	Thru	Left	U-Turn	Int. Total
07:00 AM	0	0	0	6	192	0	100	0	0	298
07:15 AM	0	0	0	5	223	0	84	0	0	312
07:30 AM	0	0	0	4	235	0	95	0	0	334
07:45 AM	0	0	0	20	227	0	90	0	0	337
Total	0	0	0	35	877	0	369	0	0	1281
08:00 AM	0	0	0	8	253	0	123	0	0	384
08:15 AM	0	0	0	7	254	0	92	0	0	353
08:30 AM	0	0	0	5	241	0	103	0	0	349
08:45 AM	0	0	0	7	256	0	79	0	0	342
Total	0	0	0	27	1004	0	397	0	0	1428
Grand Total	0	0	0	62	1881	0	766	0	0	2709
Apprch %	0	0	0	3.2	96.8	0	100	0	0	
Total %	0	0	0	2.3	69.4	0	28.3	0	0	
Cars	0	0	0	54	1791	0	711	0	0	2556
% Cars	0	0	0	87.1	95.2	0	92.8	0	0	94.4
Heavy Vehicles	0	0	0	8	90	0	55	0	0	153
% Heavy Vehicles	0	0	0	12.9	4.8	0	7.2	0	0	5.6

	Canal Street From North				New Chardon Street From East				New Chardon Street From West				
Start Time	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Thru	Left	U-Turn	App. Total	Int. 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	8	253	0	261	123	0	0	123	384
08:15 AM	0	0	0	0	7	254	0	261	92	0	0	92	353
08:30 AM	0	0	0	0	5	241	0	246	103	0	0	103	349
08:45 AM	0	0	0	0	7	256	0	263	79	0	0	79	342
Total Volume	0	0	0	0	27	1004	0	1031	397	0	0	397	1428
% App. Total	0	0	0		2.6	97.4	0		100	0	0		
PHF	.000	.000	.000	.000	.844	.980	.000	.980	.807	.000	.000	.807	.930
Cars	0	0	0	0	24	967	0	991	365	0	0	365	1356
% Cars	0	0	0	0	88.9	96.3	0	96.1	91.9	0	0	91.9	95.0
Heavy Vehicles	0	0	0	0	3	37	0	40	32	0	0	32	72
% Heavy Vehicles	0	0	0	0	11.1	3.7	0	3.9	8.1	0	0	8.1	5.0

N: Canal Street
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Client: Howard Stein-Hudson/ B. Beisel

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File Name : 154673 E
Site Code : 2007190
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Page No : 1

Groups Printed- Peds and Bikes

	Canal Street From North				New Chardon Street From East				New Chardon Street From West				
Start Time	Right	Left	Peds EB	Peds WB	Right	Thru	Peds SB	Peds NB	Thru	Left	Peds NB	Peds SB	Int. Total
07:00 AM	0	0	6	4	0	4	2	0	0	0	14	128	158
07:15 AM	0	0	3	2	0	2	0	0	3	0	27	130	167
07:30 AM	0	0	3	9	0	2	0	0	0	0	26	153	193
07:45 AM	0	0	1	28	0	2	0	0	2	1	33	267	334
Total	0	0	13	43	0	10	2	0	5	1	100	678	852
08:00 AM	0	0	10	23	0	2	0	0	0	0	24	240	299
08:15 AM	0	0	13	33	0	3	1	0	0	0	40	268	358
08:30 AM	0	0	9	37	0	3	1	0	2	0	38	281	371
08:45 AM	0	0	8	32	0	4	0	0	0	0	47	222	313
Total	0	0	40	125	0	12	2	0	2	0	149	1011	1341
Grand Total	0	0	53	168	0	22	4	0	7	1	249	1689	2193
Apprch %	0	0	24	76	0	84.6	15.4	0	0.4	0.1	12.8	86.8	
Total %	0	0	2.4	7.7	0	1	0.2	0	0.3	0	11.4	77	

	Canal Street From North					New Chardon Street From East					New Chardon Street From West					
Start Time	Right	Left	Peds EB	Peds WB	App. Total	Right	Thru	Peds SB	Peds NB	App. Total	Thru	Left	Peds NB	Peds SB	App. Total	Int. 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	1	28	29	0	2	0	0	2	2	1	33	267	303	334
08:00 AM	0	0	10	23	33	0	2	0	0	2	0	0	24	240	264	299
08:15 AM	0	0	13	33	46	0	3	1	0	4	0	0	40	268	308	358
08:30 AM	0	0	9	37	46	0	3	1	0	4	2	0	38	281	321	371
Total Volume	0	0	33	121	154	0	10	2	0	12	4	1	135	1056	1196	1362
% App. Total	0	0	21.4	78.6		0	83.3	16.7	0		0.3	0.1	11.3	88.3		
PHF	.000	.000	.635	.818	.837	.000	.833	.500	.000	.750	.500	.250	.844	.940	.931	.918

N: Canal Street
E/W: New Chardon Street
City, State: Boston, MA
Client: Howard Stein-Hudson/ B. Beisel

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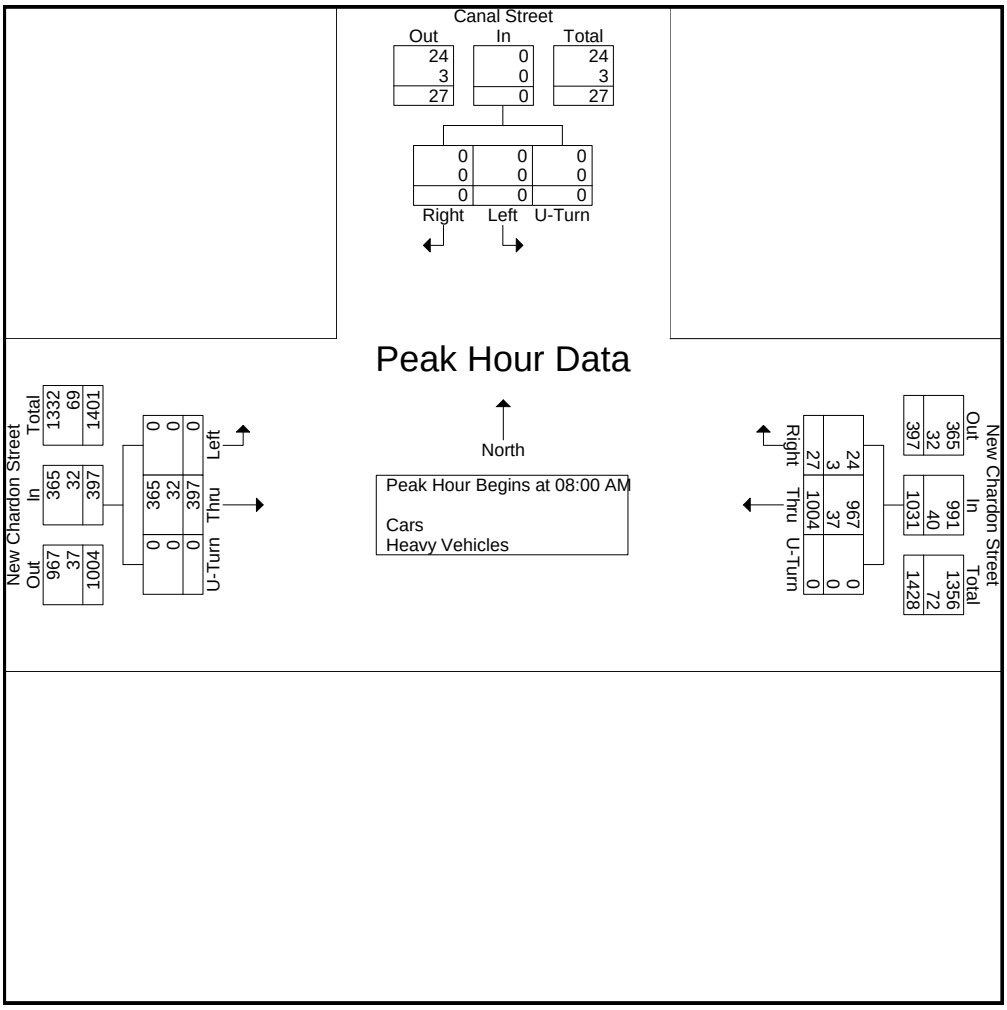
	Canal Street From North				New Chardon Street From East				New Chardon Street From West				
Start Time	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 08:00 AM													
08:00 AM	0	0	0	0	8	253	0	261	123	0	0	123	384
08:15 AM	0	0	0	0	7	254	0	261	92	0	0	92	353
08:30 AM	0	0	0	0	5	241	0	246	103	0	0	103	349
08:45 AM	0	0	0	0	7	256	0	263	79	0	0	79	342
Total Volume	0	0	0	0	27	1004	0	1031	397	0	0	397	1428
% App. Total	0	0	0		2.6	97.4	0		100	0	0		
PHF	.000	.000	.000	.000	.844	.980	.000	.980	.807	.000	.000	.807	.930
Cars	0	0	0	0	24	967	0	991	365	0	0	365	1356
% Cars	0	0	0	0	88.9	96.3	0	96.1	91.9	0	0	91.9	95.0
Heavy Vehicles	0	0	0	0	3	37	0	40	32	0	0	32	72
% Heavy Vehicles	0	0	0	0	11.1	3.7	0	3.9	8.1	0	0	8.1	5.0



N: Canal Street
E/W: New Chardon Street
City, State: Boston, MA
Client: Howard Stein-Hudson/ B. Beisel

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File Name : 154673 EE
Site Code : 2007190
Start Date : 9/23/2015
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Canal Street From North			New Chardon Street From East			New Chardon Street From West			
Start Time	Right	Left	U-Turn	Right	Thru	U-Turn	Thru	Left	U-Turn	Int. Total
04:00 PM	0	0	0	6	157	0	219	0	0	382
04:15 PM	0	0	0	12	152	0	228	0	0	392
04:30 PM	0	0	0	12	150	0	229	0	0	391
04:45 PM	0	0	0	9	148	0	244	0	0	401
Total	0	0	0	39	607	0	920	0	0	1566
05:00 PM	1	0	0	6	154	0	236	0	0	397
05:15 PM	0	0	0	6	184	0	247	0	0	437
05:30 PM	0	0	0	7	177	0	227	0	0	411
05:45 PM	1	0	0	8	162	0	232	0	0	403
Total	2	0	0	27	677	0	942	0	0	1648
Grand Total	2	0	0	66	1284	0	1862	0	0	3214
Apprch %	100	0	0	4.9	95.1	0	100	0	0	
Total %	0.1	0	0	2.1	40	0	57.9	0	0	
Cars	2	0	0	64	1209	0	1831	0	0	3106
% Cars	100	0	0	97	94.2	0	98.3	0	0	96.6
Heavy Vehicles	0	0	0	2	75	0	31	0	0	108
% Heavy Vehicles	0	0	0	3	5.8	0	1.7	0	0	3.4

	Canal Street From North				New Chardon Street From East				New Chardon Street From West				
Start Time	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Thru	Left	U-Turn	App. Total	Int. 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	1	0	0	1	6	154	0	160	236	0	0	236	397
05:15 PM	0	0	0	0	6	184	0	190	247	0	0	247	437
05:30 PM	0	0	0	0	7	177	0	184	227	0	0	227	411
05:45 PM	1	0	0	1	8	162	0	170	232	0	0	232	403
Total Volume	2	0	0	2	27	677	0	704	942	0	0	942	1648
% App. Total	100	0	0		3.8	96.2	0		100	0	0		
PHF	.500	.000	.000	.500	.844	.920	.000	.926	.953	.000	.000	.953	.943
Cars	2	0	0	2	26	641	0	667	930	0	0	930	1599
% Cars	100	0	0	100	96.3	94.7	0	94.7	98.7	0	0	98.7	97.0
Heavy Vehicles	0	0	0	0	1	36	0	37	12	0	0	12	49
% Heavy Vehicles	0	0	0	0	3.7	5.3	0	5.3	1.3	0	0	1.3	3.0

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File Name : 154673 EE
Site Code : 2007190
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Groups Printed- Peds and Bikes

	Canal Street From North				New Chardon Street From East				New Chardon Street From West				
Start Time	Right	Left	Peds EB	Peds WB	Right	Thru	Peds SB	Peds NB	Thru	Left	Peds NB	Peds SB	Int. Total
04:00 PM	1	0	52	10	0	1	0	0	0	0	167	43	274
04:15 PM	0	0	59	12	0	1	0	0	0	0	98	57	227
04:30 PM	1	0	70	5	0	0	0	1	0	0	111	49	237
04:45 PM	0	0	95	7	0	0	0	0	1	0	120	35	258
Total	2	0	276	34	0	2	0	1	1	0	496	184	996
05:00 PM	0	0	46	7	0	0	0	0	0	2	339	55	449
05:15 PM	0	0	45	9	2	1	0	0	4	1	391	58	511
05:30 PM	0	0	38	7	0	0	0	0	3	3	328	72	451
05:45 PM	0	0	23	11	0	2	0	0	0	2	170	51	259
Total	0	0	152	34	2	3	0	0	7	8	1228	236	1670
Grand Total	2	0	428	68	2	5	0	1	8	8	1724	420	2666
Apprch %	0.4	0	85.9	13.7	25	62.5	0	12.5	0.4	0.4	79.8	19.4	
Total %	0.1	0	16.1	2.6	0.1	0.2	0	0	0.3	0.3	64.7	15.8	

	Canal Street From North					New Chardon Street From East					New Chardon Street From West					
Start Time	Right	Left	Peds EB	Peds WB	App. Total	Right	Thru	Peds SB	Peds NB	App. Total	Thru	Left	Peds NB	Peds SB	App. Total	Int. 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	46	7	53	0	0	0	0	0	0	2	339	55	396	449
05:15 PM	0	0	45	9	54	2	1	0	0	3	4	1	391	58	454	511
05:30 PM	0	0	38	7	45	0	0	0	0	0	3	3	328	72	406	451
05:45 PM	0	0	23	11	34	0	2	0	0	2	0	2	170	51	223	259
Total Volume	0	0	152	34	186	2	3	0	0	5	7	8	1228	236	1479	1670
% App. Total	0	0	81.7	18.3		40	60	0	0		0.5	0.5	83	16		
PHF	.000	.000	.826	.773	.861	.250	.375	.000	.000	.417	.438	.667	.785	.819	.814	.817

N: Canal Street
E/W: New Chardon Street
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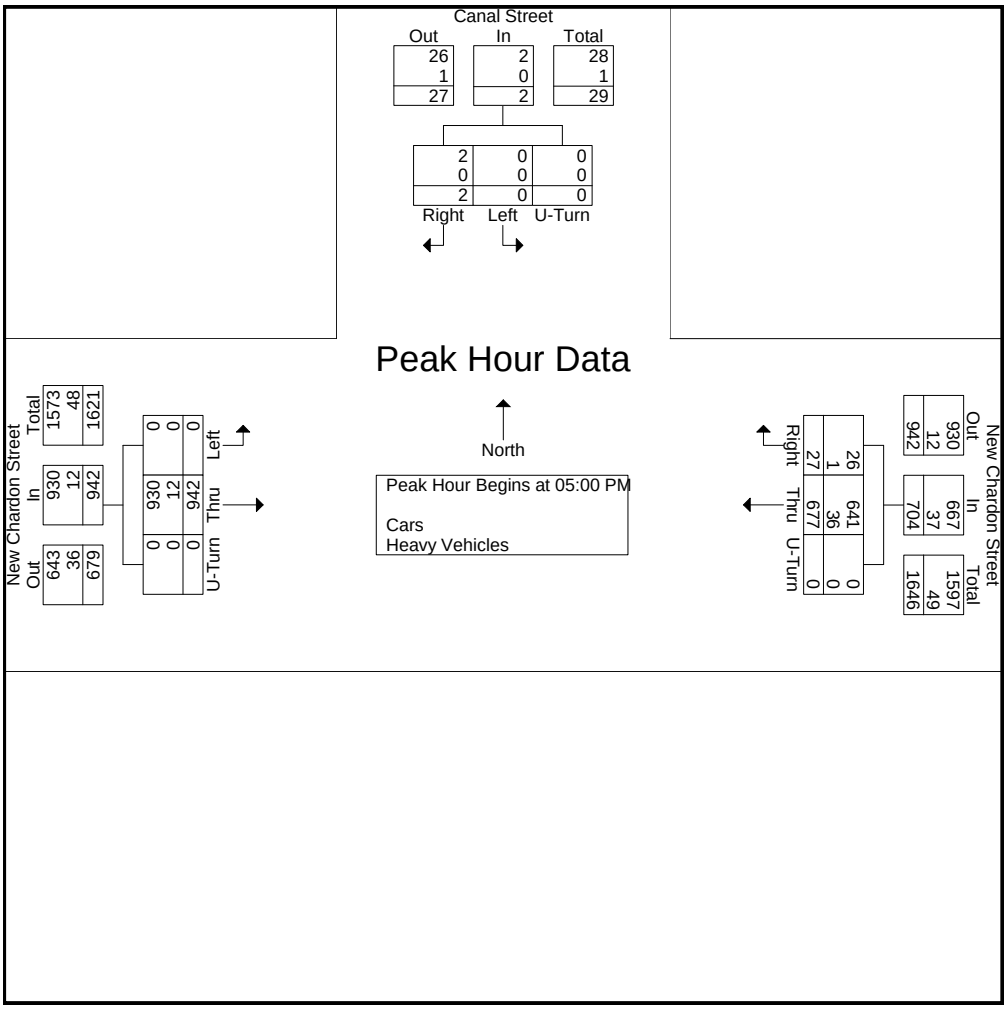
	Canal Street From North				New Chardon Street From East				New Chardon Street From West				
Start Time	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 05:00 PM													
05:00 PM	1	0	0	1	6	154	0	160	236	0	0	236	397
05:15 PM	0	0	0	0	6	184	0	190	247	0	0	247	437
05:30 PM	0	0	0	0	7	177	0	184	227	0	0	227	411
05:45 PM	1	0	0	1	8	162	0	170	232	0	0	232	403
Total Volume	2	0	0	2	27	677	0	704	942	0	0	942	1648
% App. Total	100	0	0		3.8	96.2	0		100	0	0		
PHF	.500	.000	.000	.500	.844	.920	.000	.926	.953	.000	.000	.953	.943
Cars	2	0	0	2	26	641	0	667	930	0	0	930	1599
% Cars	100	0	0	100	96.3	94.7	0	94.7	98.7	0	0	98.7	97.0
Heavy Vehicles	0	0	0	0	1	36	0	37	12	0	0	12	49
% Heavy Vehicles	0	0	0	0	3.7	5.3	0	5.3	1.3	0	0	1.3	3.0



N/S: Merrimac St/Congress St
E/W/SW: New Chardon St/ Garage Entrance
City, State: Boston, MA
Client: Howard Stein-Hudson/ B. Beisel

PRECISION DATA INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
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File Name : 154673 F
Site Code : 2007190
Start Date : 9/23/2015
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Merrimac Street From North					New Chardon Street From East					Congress Street From South					Garage Entrance From Southwest					New Chardon Street From West					
Start Time	Right	Bear Right	Thru	Left	U-Turn	Right	Thru	Bear Left	Left	U-Turn	Right	Thru	Left	Hard Left	U-Turn	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	Hard Right	Right	Thru	Left	U-Turn	Int. Total
07:00 AM	0	2	43	30	3	21	101	8	55	1	56	61	45	11	0	0	0	0	0	0	0	7	13	4	0	461
07:15 AM	0	7	47	22	1	23	113	16	81	1	40	54	38	20	0	0	0	0	0	0	1	5	21	8	0	498
07:30 AM	0	6	33	30	0	23	110	16	73	5	45	62	63	11	0	0	0	0	0	0	1	4	14	3	0	499
07:45 AM	0	8	63	25	2	30	109	12	79	2	43	69	64	22	0	0	0	0	0	0	4	8	22	11	0	573
Total	0	23	186	107	6	97	433	52	288	9	184	246	210	64	0	0	0	0	0	0	6	24	70	26	0	2031
08:00 AM	0	11	48	22	2	20	123	23	89	5	68	94	76	29	0	0	0	0	0	0	5	12	27	11	0	665
08:15 AM	0	14	46	22	1	17	123	13	87	4	44	80	69	38	0	0	0	0	0	0	7	7	22	10	0	604
08:30 AM	0	13	50	27	2	17	110	17	106	6	52	80	78	38	0	0	0	0	0	0	5	6	23	9	0	639
08:45 AM	0	14	67	20	4	19	108	23	96	1	45	77	73	29	0	0	0	0	0	0	6	14	15	5	0	616
Total	0	52	211	91	9	73	464	76	378	16	209	331	296	134	0	0	0	0	0	0	23	39	87	35	0	2524
Grand Total	0	75	397	198	15	170	897	128	666	25	393	577	506	198	0	0	0	0	0	0	29	63	157	61	0	4555
Apprch %	0	10.9	58	28.9	2.2	9	47.6	6.8	35.3	1.3	23.5	34.5	30.2	11.8	0	0	0	0	0	0	9.4	20.3	50.6	19.7	0	
Total %	0	1.6	8.7	4.3	0.3	3.7	19.7	2.8	14.6	0.5	8.6	12.7	11.1	4.3	0	0	0	0	0	0	0.6	1.4	3.4	1.3	0	
Cars	0	75	341	184	14	160	863	128	622	24	371	528	462	196	0	0	0	0	0	0	29	55	136	54	0	4242
% Cars	0	100	85.9	92.9	93.3	94.1	96.2	100	93.4	96	94.4	91.5	91.3	99	0	0	0	0	0	0	100	87.3	86.6	88.5	0	93.1
Heavy Vehicles	0	0	56	14	1	10	34	0	44	1	22	49	44	2	0	0	0	0	0	0	0	8	21	7	0	313
% Heavy Vehicles	0	0	14.1	7.1	6.7	5.9	3.8	0	6.6	4	5.6	8.5	8.7	1	0	0	0	0	0	0	0	12.7	13.4	11.5	0	6.9

	Merrimac Street From North						New Chardon Street From East						Congress Street From South						Garage Entrance From Southwest						New Chardon Street From West						
Start Time	Right	Bear Right	Thru	Left	U-Turn	App. Total	Right	Thru	Bear Left	Left	U-Turn	App. 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	Int. 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	11	48	22	2	83	20	123	23	89	5	260	68	94	76	29	0	267	0	0	0	0	0	0	5	12	27	11	0	55	665
08:15 AM	0	14	46	22	1	83	17	123	13	87	4	244	44	80	69	38	0	231	0	0	0	0	0	0	7	7	22	10	0	46	604
08:30 AM	0	13	50	27	2	92	17	110	17	106	6	256	52	80	78	38	0	248	0	0	0	0	0	0	5	6	23	9	0	43	639
08:45 AM	0	14	67	20	4	105	19	108	23	96	1	247	45	77	73	29	0	224	0	0	0	0	0	0	6	14	15	5	0	40	616
Total Volume	0	52	211	91	9	363	73	464	76	378	16	1007	209	331	296	134	0	970	0	0	0	0	0	0	23	39	87	35	0	184	2524
% App. Total	0	14.3	58.1	25.1	2.5		7.2	46.1	7.5	37.5	1.6		21.5	34.1	30.5	13.8	0		0	0	0	0	0		12.5	21.2	47.3	19	0		
PHF	.000	.929	.787	.843	.563	.864	.913	.943	.826	.892	.667	.968	.768	.880	.949	.882	.000	.908	.000	.000	.000	.000	.000	.000	.821	.696	.806	.795	.000	.836	.949
Cars	0	52	182	83	8	325	70	452	76	356	16	970	198	310	275	134	0	917	0	0	0	0	0	0	23	35	75	30	0	163	2375
% Cars	0	100	86.3	91.2	88.9	89.5	95.9	97.4	100	94.2	100	96.3	94.7	93.7	92.9	100	0	94.5	0	0	0	0	0	0	100	89.7	86.2	85.7	0	88.6	94.1
Heavy Vehicles	0	0	29	8	1	38	3	12	0	22	0	37	11	21	21	0	0	53	0	0	0	0	0	0	0	4	12	5	0	21	149
% Heavy Vehicles	0	0	13.7	8.8	11.1	10.5	4.1	2.6	0	5.8	0	3.7	5.3	6.3	7.1	0	0	5.5	0	0	0	0	0	0	0	10.3	13.8	14.3	0	11.4	5.9

N/S: Merrimac St/Congress St
E/W/SW: New Chardon St/ Garage Entrance
City, State: Boston, MA
Client: Howard Stein-Hudson/ B. Beisel

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Page No : 1

Groups Printed- Peds and Bikes

	Merrimac Street From North						New Chardon Street From East						Congress Street From South						Garage Entrance From Southwest						New Chardon Street From West						
Start Time	Right	Bear Right	Thru	Left	Peds EB	Peds WB	Right	Thru	Bear Left	Left	Peds SB	Peds NB	Right	Thru	Left	Hard Left	Peds WB	Peds EB	Hard Right	Bear Right	Bear Left	Hard Left	Peds NWB	Peds SEB	Hard Right	Right	Thru	Left	Peds NB	Peds SB	Int. Total
07:00 AM	0	0	2	0	1	4	0	0	0	4	50	22	1	0	0	0	31	8	0	0	0	0	14	12	0	0	0	0	5	6	160
07:15 AM	0	0	6	3	3	2	0	0	0	4	62	17	0	1	0	0	32	7	0	0	0	0	14	14	0	0	0	0	9	15	189
07:30 AM	0	0	13	0	5	11	0	1	0	1	134	36	0	1	0	0	40	8	0	0	0	0	20	25	0	0	0	0	12	22	329
07:45 AM	0	0	7	1	8	17	0	1	0	3	230	34	1	1	0	0	81	7	0	0	0	0	22	26	0	0	0	0	14	29	482
Total	0	0	28	4	17	34	0	2	0	12	476	109	2	3	0	0	184	30	0	0	0	0	70	77	0	0	0	0	40	72	1160
08:00 AM	0	0	8	0	3	23	0	2	0	2	236	56	0	2	0	0	90	20	0	0	0	0	37	36	0	0	0	0	23	25	563
08:15 AM	0	0	13	1	5	34	0	0	0	2	126	65	0	4	0	0	74	11	0	0	0	0	62	31	0	0	0	1	37	22	488
08:30 AM	0	0	20	1	9	35	0	4	0	2	213	80	1	2	0	0	90	24	0	0	0	0	73	39	0	0	0	0	46	29	668
08:45 AM	0	0	20	1	12	31	0	0	1	4	269	91	1	2	0	0	102	21	0	0	0	0	67	52	0	0	0	0	45	38	757
Total	0	0	61	3	29	123	0	6	1	10	844	292	2	10	0	0	356	76	0	0	0	0	239	158	0	0	0	1	151	114	2476
Grand Total	0	0	89	7	46	157	0	8	1	22	1320	401	4	13	0	0	540	106	0	0	0	0	309	235	0	0	0	1	191	186	3636
Apprch %	0	0	29.8	2.3	15.4	52.5	0	0.5	0.1	1.3	75.3	22.9	0.6	2	0	0	81.4	16	0	0	0	0	56.8	43.2	0	0	0	0.3	50.5	49.2	
Total %	0	0	2.4	0.2	1.3	4.3	0	0.2	0	0.6	36.3	11	0.1	0.4	0	0	14.9	2.9	0	0	0	0	8.5	6.5	0	0	0	0	5.3	5.1	

	Merrimac Street From North							New Chardon Street From East							Congress Street From South							Garage Entrance From Southwest							New Chardon Street From West							
Start Time	Right	Bear Right	Thru	Left	Peds EB	Peds WB	App. Total	Right	Thru	Bear Left	Left	Peds SB	Peds NB	App. Total	Right	Thru	Left	Hard Left	Peds WB	Peds EB	App. Total	Hard Right	Bear Right	Bear Left	Hard Left	Peds NWB	Peds SEB	App. Total	Hard Right	Right	Thru	Left	Peds NB	Peds SB	App. Total	Int. 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	8	0	3	23	34	0	2	0	2	236	56	296	0	2	0	0	90	20	112	0	0	0	0	37	36	73	0	0	0	0	23	25	48	563
08:15 AM			13	1	5	34	53	0	0	0	2	126	65	193					74	11						62	31	93	0	0	0	1	37	22	60	488
08:30 AM			20	1	9	35	65	0	4	0	2	213	80	299					90	24	117	0	0	0	0	73	39	112	0	0	0	0	46	29	75	668
08:45 AM			20	1	12	31	64	0	0	1	4	269	91	365					102	21	126	0	0	0	0	67	52	119	0	0	0	0	45	38	83	757
Total Volume			61	3	29	123	216	0	6	1	10	844	292	1153		10	0	0	356	76	444	0	0	0	0	239	158	397	0	0	0	1	151	114	266	2476
% App. Total			28.2	1.4	13.4	56.9		0	0.5	0.1	0.9	73.2	25.3		0.5	2.3	0	0	80.2	17.1						60.2	39.8		0	0	0	0.4	56.8	42.9		
PHF	.000	.000	.763	.750	.604	.879	.831	.000	.375	.250	.625	.784	.802	.790	.500	.625	.000	.000	.873	.792	.881	.000	.000	.000	.000	.818	.760	.834	.000	.000	.000	.250	.821	.750	.801	.818

N/S: Merrimac St/Congress St
E/W/SW: New Chardon St/ Garage Entrance
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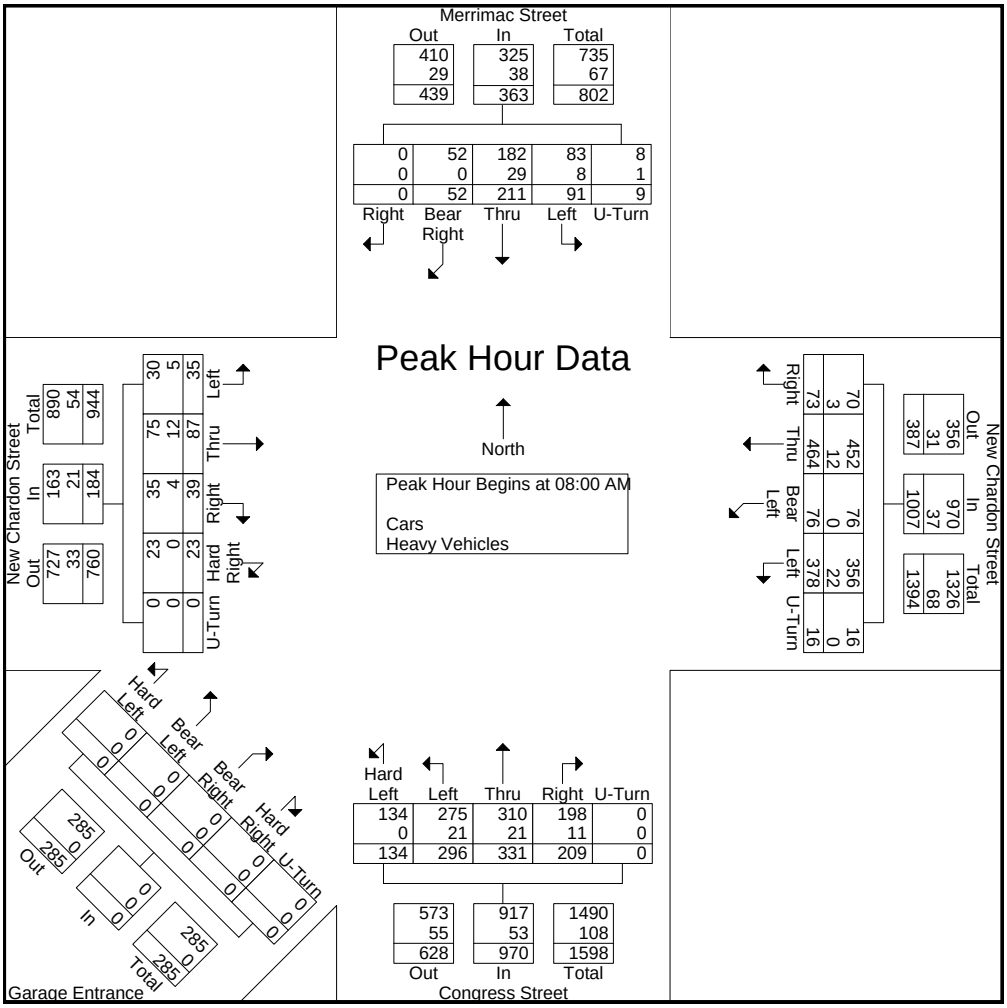
Start Time	Right	Bear Right	Thru	Left	U-Turn	App. Total	Right	Thru	Bear Left	Left	U-Turn	App. Total	Right	Thru	Left	Hard Left	U-Turn	App. Total	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	App. Total	Hard Right	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																															
Peak Hour for Entire Intersection Begins at 08:00 AM																															
08:00 AM	0	11	48	22	2	83	20	123	23	89	5	260	68	94	76	29	0	267	0	0	0	0	0	0	5	12	27	11	0	55	665
08:15 AM	0	14	46	22	1	83	17	123	13	87	4	244	44	80	69	38	0	231	0	0	0	0	0	0	7	7	22	10	0	46	604
08:30 AM	0	13	50	27	2	92	17	110	17	106	6	256	52	80	78	38	0	248	0	0	0	0	0	0	5	6	23	9	0	43	639
08:45 AM	0	14	67	20	4	105	19	108	23	96	1	247	45	77	73	29	0	224	0	0	0	0	0	0	6	14	15	5	0	40	616
Total Volume	0	52	211	91	9	363	73	464	76	378	16	1007	209	331	296	134	0	970	0	0	0	0	0	0	23	39	87	35	0	184	2524
% App. Total	0	14.3	58.1	25.1	2.5		7.2	46.1	7.5	37.5	1.6		21.5	34.1	30.5	13.8	0		0	0	0	0	0		12.5	21.2	47.3	19	0		
PHF	.000	.929	.787	.843	.563	.864	.913	.943	.826	.892	.667	.968	.768	.880	.949	.882	.000	.908	.000	.000	.000	.000	.000	.000	.821	.696	.806	.795	.000	.836	.949
Cars	0	52	182	83	8	325	70	452	76	356	16	970	198	310	275	134	0	917	0	0	0	0	0	0	23	35	75	30	0	163	2375
% Cars	0	100	86.3	91.2	88.9	89.5	95.9	97.4	100	94.2	100	96.3	94.7	93.7	92.9	100	0	94.5	0	0	0	0	0	0	100	89.7	86.2	85.7	0	88.6	94.1
Heavy Vehicles	0	0	29	8	1	38	3	12	0	22	0	37	11	21	21	0	0	53	0	0	0	0	0	0	0	4	12	5	0	21	149
% Heavy Vehicles	0	0	13.7	8.8	11.1	10.5	4.1	2.6	0	5.8	0	3.7	5.3	6.3	7.1	0	0	5.5	0	0	0	0	0	0	0	10.3	13.8	14.3	0	11.4	5.9



N/S: Merrimac St/Congress St
E/W/SW: New Chardon St/ Garage Entrance
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Groups Printed- Cars - Heavy Vehicles

	Merrimac Street From North					New Chardon Street From East					Congress Street From South					Garage Entrance From Southwest					New Chardon Street From West					
Start Time	Right	Bear Right	Thru	Left	U-Turn	Right	Thru	Bear Left	Left	U-Turn	Right	Thru	Left	Hard Left	U-Turn	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	Hard Right	Right	Thru	Left	U-Turn	Int. Total
04:00 PM	0	2	79	65	2	13	63	6	73	2	82	65	54	12	0	0	0	0	0	0	1	19	71	17	0	626
04:15 PM	0	5	66	65	0	8	77	2	69	1	90	52	54	8	0	0	0	0	0	0	0	19	77	12	0	605
04:30 PM	0	6	69	83	0	7	69	5	70	1	90	52	53	12	0	0	0	0	0	0	1	12	66	14	0	610
04:45 PM	1	1	78	82	2	7	70	3	63	1	98	59	51	4	0	0	0	0	0	0	1	11	70	16	0	618
Total	1	14	292	295	4	35	279	16	275	5	360	228	212	36	0	0	0	0	0	0	3	61	284	59	0	2459
05:00 PM	0	1	52	38	0	12	70	5	62	3	91	66	47	8	0	0	0	0	0	0	2	9	86	15	0	567
05:15 PM	1	3	48	67	0	18	90	5	71	1	108	55	38	9	0	0	0	0	0	0	1	16	68	10	0	609
05:30 PM	0	1	59	56	0	11	79	13	78	0	98	108	53	17	0	0	0	0	0	0	0	12	64	10	0	659
05:45 PM	1	2	58	49	0	9	86	8	58	4	95	54	47	11	0	0	0	0	0	0	0	14	82	8	0	586
Total	2	7	217	210	0	50	325	31	269	8	392	283	185	45	0	0	0	0	0	0	3	51	300	43	0	2421
Grand Total	3	21	509	505	4	85	604	47	544	13	752	511	397	81	0	0	0	0	0	0	6	112	584	102	0	4880
Apprch %	0.3	2	48.8	48.5	0.4	6.6	46.7	3.6	42.1	1	43.2	29.4	22.8	4.7	0	0	0	0	0	0	0.7	13.9	72.6	12.7	0	
Total %	0.1	0.4	10.4	10.3	0.1	1.7	12.4	1	11.1	0.3	15.4	10.5	8.1	1.7	0	0	0	0	0	0	0.1	2.3	12	2.1	0	
Cars	3	20	457	494	4	79	574	47	502	13	741	479	381	81	0	0	0	0	0	0	6	108	572	99	0	4660
% Cars	100	95.2	89.8	97.8	100	92.9	95	100	92.3	100	98.5	93.7	96	100	0	0	0	0	0	0	100	96.4	97.9	97.1	0	95.5
Heavy Vehicles	0	1	52	11	0	6	30	0	42	0	11	32	16	0	0	0	0	0	0	0	0	4	12	3	0	220
% Heavy Vehicles	0	4.8	10.2	2.2	0	7.1	5	0	7.7	0	1.5	6.3	4	0	0	0	0	0	0	0	0	3.6	2.1	2.9	0	4.5

	Merrimac Street From North						New Chardon Street From East						Congress Street From South						Garage Entrance From Southwest						New Chardon Street From West						
Start Time	Right	Bear Right	Thru	Left	U-Turn	App. Total	Right	Thru	Bear Left	Left	U-Turn	App. 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	Int. 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	79	65	2	148	13	63	6	73	2	157	82	65	54	12	0	213	0	0	0	0	0	0	1	19	71	17	0	108	626
04:15 PM	0	5	66	65	0	136	8	77	2	69	1	157	90	52	54	8	0	204	0	0	0	0	0	0	0	19	77	12	0	108	605
04:30 PM	0	6	69	83	0	158	7	69	5	70	1	152	90	52	53	12	0	207	0	0	0	0	0	0	1	12	66	14	0	93	610
04:45 PM	1	1	78	82	2	164	7	70	3	63	1	144	98	59	51	4	0	212	0	0	0	0	0	0	1	11	70	16	0	98	618
Total Volume	1	14	292	295	4	606	35	279	16	275	5	610	360	228	212	36	0	836	0	0	0	0	0	0	3	61	284	59	0	407	2459
% App. Total	0.2	2.3	48.2	48.7	0.7		5.7	45.7	2.6	45.1	0.8		43.1	27.3	25.4	4.3	0		0	0	0	0	0		0.7	15	69.8	14.5	0		
PHF	.250	.583	.924	.889	.500	.924	.673	.906	.667	.942	.625	.971	.918	.877	.981	.750	.000	.981	.000	.000	.000	.000	.000	.000	.750	.803	.922	.868	.000	.942	.982
Cars	1	13	262	287	4	567	34	263	16	248	5	566	354	214	201	36	0	805	0	0	0	0	0	0	3	59	277	57	0	396	2334
% Cars	100	92.9	89.7	97.3	100	93.6	97.1	94.3	100	90.2	100	92.8	98.3	93.9	94.8	100	0	96.3	0	0	0	0	0	0	100	96.7	97.5	96.6	0	97.3	94.9
Heavy Vehicles	0	1	30	8	0	39	1	16	0	27	0	44	6	14	11	0	0	31	0	0	0	0	0	0	0	2	7	2	0	11	125
% Heavy Vehicles	0	7.1	10.3	2.7	0	6.4	2.9	5.7	0	9.8	0	7.2	1.7	6.1	5.2	0	0	3.7	0	0	0	0	0	0	0	3.3	2.5	3.4	0	2.7	5.1

N/S: Merrimac St/Congress St
E/W/SW: New Chardon St/ Garage Entrance
City, State: Boston, MA
Client: Howard Stein-Hudson/ B. Beisel

PRECISION DATA INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
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File Name : 154673 FF
Site Code : 2007190
Start Date : 9/23/2015
Page No : 1

Groups Printed- Peds and Bikes

	Merrimac Street From North						New Chardon Street From East						Congress Street From South						Garage Entrance From Southwest						New Chardon Street From West						
Start Time	Right	Bear Right	Thru	Left	Peds EB	Peds WB	Right	Thru	Bear Left	Left	Peds SB	Peds NB	Right	Thru	Left	Hard Left	Peds WB	Peds EB	Hard Right	Bear Right	Bear Left	Hard Left	Peds NWB	Peds SEB	Hard Right	Right	Thru	Left	Peds NB	Peds SB	Int. Total
04:00 PM	0	0	3	0	7	3	0	1	0	1	51	126	1	0	0	0	21	78	0	0	0	0	18	39	0	0	0	0	7	23	379
04:15 PM	0	0	0	0	23	13	0	0	0	0	53	140	0	1	0	0	9	69	0	0	0	0	8	43	0	0	0	0	14	33	406
04:30 PM	0	0	3	0	21	6	0	1	0	0	83	122	0	2	0	0	20	66	0	0	0	0	11	35	0	0	0	0	11	19	400
04:45 PM	0	0	3	0	7	9	0	0	0	0	59	233	0	1	0	0	10	121	0	0	0	0	15	38	0	0	0	0	12	13	521
Total	0	0	9	0	58	31	0	2	0	1	246	621	1	4	0	0	60	334	0	0	0	0	52	155	0	0	0	0	44	88	1706
05:00 PM	0	0	0	0	11	9	0	0	0	0	83	288	0	2	1	0	24	152	1	0	0	0	16	42	0	0	0	0	10	18	657
05:15 PM	0	0	1	0	15	5	0	0	0	0	67	351	0	3	1	0	16	158	0	0	0	0	27	34	0	0	0	0	29	12	719
05:30 PM	0	0	3	0	13	7	0	0	0	0	68	236	2	1	2	0	18	103	0	0	0	0	36	20	0	0	0	0	22	9	540
05:45 PM	0	0	4	0	10	3	0	1	0	0	37	102	0	6	2	0	20	43	1	0	0	0	14	18	0	0	0	0	16	8	285
Total	0	0	8	0	49	24	0	1	0	0	255	977	2	12	6	0	78	456	2	0	0	0	93	114	0	0	0	0	77	47	2201
Grand Total	0	0	17	0	107	55	0	3	0	1	501	1598	3	16	6	0	138	790	2	0	0	0	145	269	0	0	0	0	121	135	3907
Apprch %	0	0	9.5	0	59.8	30.7	0	0.1	0	0	23.8	76	0.3	1.7	0.6	0	14.5	82.9	0.5	0	0	0	34.9	64.7	0	0	0	0	47.3	52.7	
Total %	0	0	0.4	0	2.7	1.4	0	0.1	0	0	12.8	40.9	0.1	0.4	0.2	0	3.5	20.2	0.1	0	0	0	3.7	6.9	0	0	0	0	3.1	3.5	

	Merrimac Street From North							New Chardon Street From East							Congress Street From South							Garage Entrance From Southwest							New Chardon Street From West							
Start Time	Right	Bear Right	Thru	Left	Peds EB	Peds WB	App. Total	Right	Thru	Bear Left	Left	Peds SB	Peds NB	App. Total	Right	Thru	Left	Hard Left	Peds WB	Peds EB	App. Total	Hard Right	Bear Right	Bear Left	Hard Left	Peds NWB	Peds SEB	App. Total	Hard Right	Right	Thru	Left	Peds NB	Peds SB	App. Total	Int. 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	3	0	7	9	19	0	0	0	0	59	233	292	0	1	0	0	10	121	132	0	0	0	0	15	38	53	0	0	0	0	12	13	25	521
05:00 PM					11							83	288	371					24	152	179	1	0	0	0	16	42	59	0	0	0	0	10	18	28	657
05:15 PM					15							67	351	418					16	158	178	0	0	0	0	27	34	61	0	0	0	0	29	12	41	719
05:30 PM					13							68	236	304					18	103	126	0	0	0	0	36	20	56	0	0	0	0	22	9	31	540
Total Volume	0	0	7	0	46	30	83	0	0	0	0	277	1108	1385	2	7	4	0	68	534	615	1	0	0	0	94	134	229	0	0	0	0	73	52	125	2437
% App. Total			8.4	0	55.4	36.1		0	0	0	0	20	80		0.3	1.1	0.7		11.1	86.8		0.4	0	0	0	41	58.5		0	0	0	0	58.4	41.6		
PHF	.000	.000	.583	.000	.767	.833	.902	.000	.000	.000	.000	.834	.789	.828	.250	.583	.500	.000	.708	.845	.859	.250	.000	.000	.000	.653	.798	.939	.000	.000	.000	.000	.629	.722	.762	.847

N/S: Merrimac St/Congress St
E/W/SW: New Chardon St/ Garage Entrance
City, State: Boston, MA
Client: Howard Stein-Hudson/ B. Beisel

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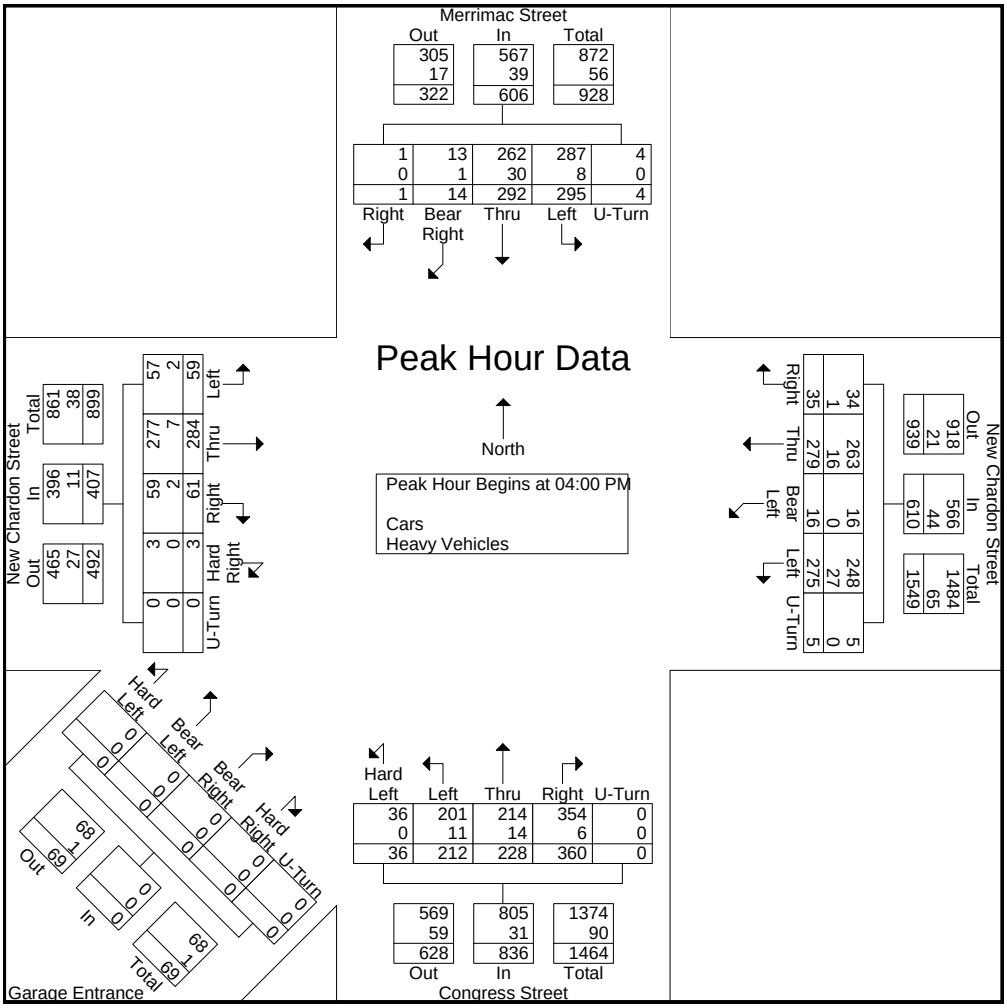
	Merrimac Street From North						New Chardon Street From East						Congress Street From South						Garage Entrance From Southwest						New Chardon Street From West						
Start Time	Right	Bear Right	Thru	Left	U-Turn	App. Total	Right	Thru	Bear Left	Left	U-Turn	App. Total	Right	Thru	Left	Hard Left	U-Turn	App. Total	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	App. Total	Hard Right	Right	Thru	Left	U-Turn	App. Total	Int. 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	79	65	2	148	13	63	6	73	2	157	82	65	54	12	0	213	0	0	0	0	0	0	1	19	71	17	0	108	626
04:15 PM	0	5	66	65	0	136	8	77	2	69	1	157	90	52	54	8	0	204	0	0	0	0	0	0	0	19	77	12	0	108	605
04:30 PM	0	6	69	83	0	158	7	69	5	70	1	152	90	52	53	12	0	207	0	0	0	0	0	0	1	12	66	14	0	93	610
04:45 PM	1	1	78	82	2	164	7	70	3	63	1	144	98	59	51	4	0	212	0	0	0	0	0	0	1	11	70	16	0	98	618
Total Volume	1	14	292	295	4	606	35	279	16	275	5	610	360	228	212	36	0	836	0	0	0	0	0	0	3	61	284	59	0	407	2459
% App. Total	0.2	2.3	48.2	48.7	0.7		5.7	45.7	2.6	45.1	0.8		43.1	27.3	25.4	4.3	0		0	0	0	0	0		0.7	15	69.8	14.5	0		
PHF	.250	.583	.924	.889	.500	.924	.673	.906	.667	.942	.625	.971	.918	.877	.981	.750	.000	.981	.000	.000	.000	.000	.000	.000	.750	.803	.922	.868	.000	.942	.982
Cars	1	13	262	287	4	567	34	263	16	248	5	566	354	214	201	36	0	805	0	0	0	0	0	0	3	59	277	57	0	396	2334
% Cars	100	92.9	89.7	97.3	100	93.6	97.1	94.3	100	90.2	100	92.8	98.3	93.9	94.8	100	0	96.3	0	0	0	0	0	0	100	96.7	97.5	96.6	0	97.3	94.9
Heavy Vehicles	0	1	30	8	0	39	1	16	0	27	0	44	6	14	11	0	0	31	0	0	0	0	0	0	0	2	7	2	0	11	125
% Heavy Vehicles	0	7.1	10.3	2.7	0	6.4	2.9	5.7	0	9.8	0	7.2	1.7	6.1	5.2	0	0	3.7	0	0	0	0	0	0	0	3.3	2.5	3.4	0	2.7	5.1



N/S: Merimack St (Channel)/ Garage Exit
E/W: New Chardon Street
City, State: Boston, MA
Client: Howard Stein-Hudson/ B. Beisel

PRECISION
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INDUSTRIES, LLC
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File Name : 154673 G
Site Code : 2007190
Start Date : 9/23/2015
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Merrimac Street (Channellized Right) From North				New Chardon Street From East				Garage Exit From South				New Chardon Street From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
07:00 AM	9	0	0	0	0	142	0	0	0	0	0	0	0	24	0	1	176
07:15 AM	10	0	1	0	0	157	0	0	0	0	1	0	0	33	0	0	202
07:30 AM	10	0	0	0	0	165	0	0	1	0	0	0	0	21	0	0	197
07:45 AM	19	0	0	0	0	175	0	0	1	0	0	0	0	40	0	0	235
Total	48	0	1	0	0	639	0	0	2	0	1	0	0	118	0	1	810
08:00 AM	18	0	0	0	0	187	0	1	0	0	0	0	0	55	0	1	262
08:15 AM	18	0	0	0	0	203	0	0	0	0	0	0	0	44	0	0	265
08:30 AM	29	0	0	0	0	174	0	0	0	0	0	0	0	50	0	0	253
08:45 AM	28	0	0	0	0	191	0	0	0	0	1	0	0	35	0	0	255
Total	93	0	0	0	0	755	0	1	0	0	1	0	0	184	0	1	1035
Grand Total	141	0	1	0	0	1394	0	1	2	0	2	0	0	302	0	2	1845
Apprch %	99.3	0	0.7	0	0	99.9	0	0.1	50	0	50	0	0	99.3	0	0.7	
Total %	7.6	0	0.1	0	0	75.6	0	0.1	0.1	0	0.1	0	0	16.4	0	0.1	
Cars	134	0	1	0	0	1314	0	1	1	0	2	0	0	267	0	2	1722
% Cars	95	0	100	0	0	94.3	0	100	50	0	100	0	0	88.4	0	100	93.3
Heavy Vehicles	7	0	0	0	0	80	0	0	1	0	0	0	0	35	0	0	123
% Heavy Vehicles	5	0	0	0	0	5.7	0	0	50	0	0	0	0	11.6	0	0	6.7

	Merrimac Street (Channellized Right) From North					New Chardon Street From East					Garage Exit From South					New Chardon Street From West					
Start Time	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	Int. 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	18	0	0	0	18	0	187	0	1	188	0	0	0	0	0	0	55	0	1	56	262
08:15 AM	18	0	0	0	18	0	203	0	0	203	0	0	0	0	0	0	44	0	0	44	265
08:30 AM	29	0	0	0	29	0	174	0	0	174	0	0	0	0	0	0	50	0	0	50	253
08:45 AM	28	0	0	0	28	0	191	0	0	191	0	0	1	0	1	0	35	0	0	35	255
Total Volume	93	0	0	0	93	0	755	0	1	756	0	0	1	0	1	0	184	0	1	185	1035
% App. Total	100	0	0	0		0	99.9	0	0.1		0	0	100	0		0	99.5	0	0.5		
PHF	.802	.000	.000	.000	.802	.000	.930	.000	.250	.931	.000	.000	.250	.000	.250	.000	.836	.000	.250	.826	.976
Cars	88	0	0	0	88	0	721	0	1	722	0	0	1	0	1	0	162	0	1	163	974
% Cars	94.6	0	0	0	94.6	0	95.5	0	100	95.5	0	0	100	0	100	0	88.0	0	100	88.1	94.1
Heavy Vehicles	5	0	0	0	5	0	34	0	0	34	0	0	0	0	0	0	22	0	0	22	61
% Heavy Vehicles	5.4	0	0	0	5.4	0	4.5	0	0	4.5	0	0	0	0	0	0	12.0	0	0	11.9	5.9

N/S: Merimack St (Channel)/ Garage Exit
E/W: New Chardon Street
City, State: Boston, MA
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Groups Printed- Peds and Bikes

	Merrimac Street (Channellized Right) From North					New Chardon Street From East					Garage Exit From South					New Chardon Street From West					
Start Time	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	Int. Total
07:00 AM	0	0	0	3	8	0	0	0	7	5	0	0	0	12	8	0	0	0	1	1	45
07:15 AM	0	0	0	13	12	0	0	0	14	9	0	0	0	6	6	0	0	0	0	1	61
07:30 AM	0	0	0	16	14	0	0	0	19	10	0	0	0	9	8	0	0	0	1	3	80
07:45 AM	0	0	0	16	15	0	1	0	25	13	0	0	0	14	8	0	1	0	3	3	99
Total	0	0	0	48	49	0	1	0	65	37	0	0	0	41	30	0	1	0	5	8	285
08:00 AM	0	0	0	27	41	0	1	0	22	22	0	0	0	17	14	0	0	1	1	0	146
08:15 AM	0	0	0	24	67	0	0	0	16	31	0	0	0	15	11	0	1	0	3	3	171
08:30 AM	0	0	0	36	75	0	0	0	23	33	0	0	0	27	12	0	0	0	0	1	207
08:45 AM	0	0	0	45	86	0	0	0	29	45	0	0	0	17	21	0	0	0	2	1	246
Total	0	0	0	132	269	0	1	0	90	131	0	0	0	76	58	0	1	1	6	5	770
Grand Total	0	0	0	180	318	0	2	0	155	168	0	0	0	117	88	0	2	1	11	13	1055
Apprch %	0	0	0	36.1	63.9	0	0.6	0	47.7	51.7	0	0	0	57.1	42.9	0	7.4	3.7	40.7	48.1	
Total %	0	0	0	17.1	30.1	0	0.2	0	14.7	15.9	0	0	0	11.1	8.3	0	0.2	0.1	1	1.2	

	Merrimac Street (Channellized Right) From North						New Chardon Street From East						Garage Exit From South						New Chardon Street From West						
Start Time	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	Int. 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	27	41	68	0	1	0	22	22	45	0	0	0	17	14	31	0	0	1	1	0	2	146
08:15 AM	0	0	0	24	67	91	0	0	0	16	31	47	0	0	0	15	11	26	0	1	0	3	3	7	171
08:30 AM	0	0	0	36	75	111	0	0	0	23	33	56	0	0	0	27	12	39	0	0	0	0	1	1	207
08:45 AM	0	0	0	45	86	131	0	0	0	29	45	74	0	0	0	17	21	38	0	0	0	2	1	3	246
Total Volume	0	0	0	132	269	401	0	1	0	90	131	222	0	0	0	76	58	134	0	1	1	6	5	13	770
% App. Total	0	0	0	32.9	67.1		0	0.5	0	40.5	59		0	0	0	56.7	43.3		0	7.7	7.7	46.2	38.5		
PHF	.000	.000	.000	.733	.782	.765	.000	.250	.000	.776	.728	.750	.000	.000	.000	.704	.690	.859	.000	.250	.250	.500	.417	.464	.783

N/S: Merimack St (Channel)/ Garage Exit
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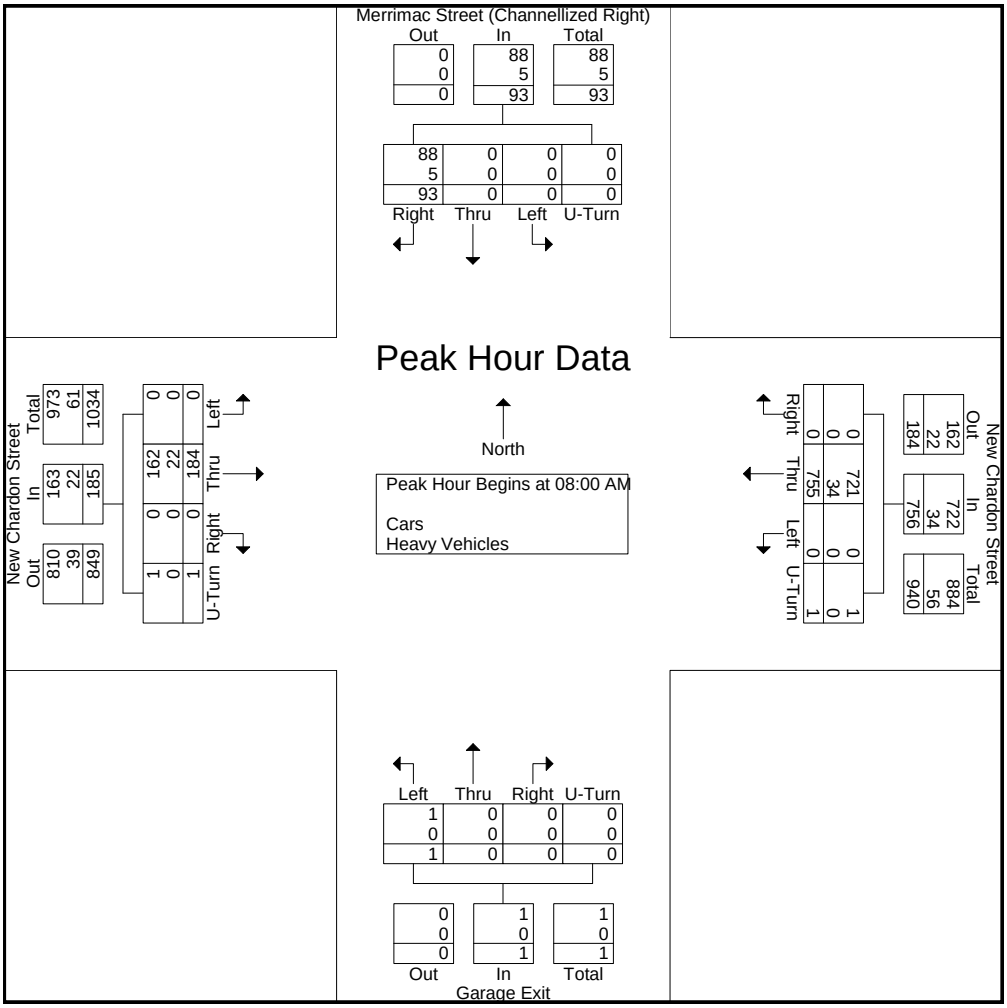
	Merrimac Street (Channellized Right) From North					New Chardon Street From East					Garage Exit From South					New Chardon Street From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
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	18	0	0	0	18	0	187	0	1	188	0	0	0	0	0	0	55	0	1	56	262
08:15 AM	18	0	0	0	18	0	203	0	0	203	0	0	0	0	0	0	44	0	0	44	265
08:30 AM	29	0	0	0	29	0	174	0	0	174	0	0	0	0	0	0	50	0	0	50	253
08:45 AM	28	0	0	0	28	0	191	0	0	191	0	0	1	0	1	0	35	0	0	35	255
Total Volume	93	0	0	0	93	0	755	0	1	756	0	0	1	0	1	0	184	0	1	185	1035
% App. Total	100	0	0	0		0	99.9	0	0.1		0	0	100	0		0	99.5	0	0.5		
PHF	.802	.000	.000	.000	.802	.000	.930	.000	.250	.931	.000	.000	.250	.000	.250	.000	.836	.000	.250	.826	.976
Cars	88	0	0	0	88	0	721	0	1	722	0	0	1	0	1	0	162	0	1	163	974
% Cars	94.6	0	0	0	94.6	0	95.5	0	100	95.5	0	0	100	0	100	0	88.0	0	100	88.1	94.1
Heavy Vehicles	5	0	0	0	5	0	34	0	0	34	0	0	0	0	0	0	22	0	0	22	61
% Heavy Vehicles	5.4	0	0	0	5.4	0	4.5	0	0	4.5	0	0	0	0	0	0	12.0	0	0	11.9	5.9



N/S: Merimack St (Channel)/ Garage Exit
E/W: New Chardon Street
City, State: Boston, MA
Client: Howard Stein-Hudson/ B. Beisel

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Groups Printed- Cars - Heavy Vehicles

	Merrimac Street (Channellized Right) From North				New Chardon Street From East				Garage Exit From South				New Chardon Street From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:00 PM	14	0	0	0	0	118	0	0	13	0	8	0	0	93	0	0	246
04:15 PM	14	0	0	0	0	139	0	0	15	0	8	0	0	93	0	0	269
04:30 PM	14	0	0	0	0	121	0	0	5	0	11	0	0	89	0	0	240
04:45 PM	12	0	0	0	0	123	0	0	9	0	10	0	0	87	1	0	242
Total	54	0	0	0	0	501	0	0	42	0	37	0	0	362	1	0	997
05:00 PM	12	0	2	0	0	108	0	0	17	0	8	0	0	93	0	0	240
05:15 PM	10	0	0	0	0	124	0	0	12	0	16	0	0	86	0	0	248
05:30 PM	9	0	0	0	0	144	0	0	9	0	6	0	0	74	0	0	242
05:45 PM	7	0	0	0	0	136	0	0	10	0	13	0	0	97	0	0	263
Total	38	0	2	0	0	512	0	0	48	0	43	0	0	350	0	0	993
Grand Total	92	0	2	0	0	1013	0	0	90	0	80	0	0	712	1	0	1990
Apprch %	97.9	0	2.1	0	0	100	0	0	52.9	0	47.1	0	0	99.9	0.1	0	
Total %	4.6	0	0.1	0	0	50.9	0	0	4.5	0	4	0	0	35.8	0.1	0	
Cars	87	0	2	0	0	966	0	0	90	0	78	0	0	692	1	0	1916
% Cars	94.6	0	100	0	0	95.4	0	0	100	0	97.5	0	0	97.2	100	0	96.3
Heavy Vehicles	5	0	0	0	0	47	0	0	0	0	2	0	0	20	0	0	74
% Heavy Vehicles	5.4	0	0	0	0	4.6	0	0	0	0	2.5	0	0	2.8	0	0	3.7

	Merrimac Street (Channellized Right) From North					New Chardon Street From East					Garage Exit From South					New Chardon Street From West					
Start Time	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	Int. 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	14	0	0	0	14	0	118	0	0	118	13	0	8	0	21	0	93	0	0	93	246
04:15 PM	14	0	0	0	14	0	139	0	0	139	15	0	8	0	23	0	93	0	0	93	269
04:30 PM	14	0	0	0	14	0	121	0	0	121	5	0	11	0	16	0	89	0	0	89	240
04:45 PM	12	0	0	0	12	0	123	0	0	123	9	0	10	0	19	0	87	1	0	88	242
Total Volume	54	0	0	0	54	0	501	0	0	501	42	0	37	0	79	0	362	1	0	363	997
% App. Total	100	0	0	0		0	100	0	0		53.2	0	46.8	0		0	99.7	0.3	0		
PHF	.964	.000	.000	.000	.964	.000	.901	.000	.000	.901	.700	.000	.841	.000	.859	.000	.973	.250	.000	.976	.927
Cars	49	0	0	0	49	0	473	0	0	473	42	0	35	0	77	0	350	1	0	351	950
% Cars	90.7	0	0	0	90.7	0	94.4	0	0	94.4	100	0	94.6	0	97.5	0	96.7	100	0	96.7	95.3
Heavy Vehicles	5	0	0	0	5	0	28	0	0	28	0	0	2	0	2	0	12	0	0	12	47
% Heavy Vehicles	9.3	0	0	0	9.3	0	5.6	0	0	5.6	0	0	5.4	0	2.5	0	3.3	0	0	3.3	4.7

N/S: Merimack St (Channel)/ Garage Exit
E/W: New Chardon Street
City, State: Boston, MA
Client: Howard Stein-Hudson/ B. Beisel

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Groups Printed- Peds and Bikes

	Merrimac Street (Channellized Right) From North					New Chardon Street From East					Garage Exit From South					New Chardon Street From West					
Start Time	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	Int. Total
04:00 PM	0	0	0	22	5	0	2	0	14	0	0	0	0	18	25	0	1	0	6	1	94
04:15 PM	0	0	0	21	10	0	0	0	21	0	0	0	0	5	20	0	3	0	0	3	83
04:30 PM	0	0	0	20	6	0	1	0	17	1	0	0	0	7	20	0	1	0	4	2	79
04:45 PM	0	0	0	21	8	0	0	0	19	3	0	0	1	7	20	0	1	0	2	0	82
Total	0	0	0	84	29	0	3	0	71	4	0	0	1	37	85	0	6	0	12	6	338
05:00 PM	0	0	0	11	3	0	1	0	14	4	0	0	0	10	32	0	0	0	6	0	81
05:15 PM	1	0	0	10	15	0	1	0	14	26	0	0	0	10	32	0	2	0	4	0	115
05:30 PM	0	0	0	16	23	0	1	0	8	14	0	0	0	20	20	0	0	0	2	2	106
05:45 PM	0	0	0	7	11	1	2	0	12	13	0	0	0	12	21	0	0	0	1	0	80
Total	1	0	0	44	52	1	5	0	48	57	0	0	0	52	105	0	2	0	13	2	382
Grand Total	1	0	0	128	81	1	8	0	119	61	0	0	1	89	190	0	8	0	25	8	720
Apprch %	0.5	0	0	61	38.6	0.5	4.2	0	63	32.3	0	0	0.4	31.8	67.9	0	19.5	0	61	19.5	
Total %	0.1	0	0	17.8	11.2	0.1	1.1	0	16.5	8.5	0	0	0.1	12.4	26.4	0	1.1	0	3.5	1.1	

	Merrimac Street (Channellized Right) From North						New Chardon Street From East						Garage Exit From South						New Chardon Street From West						
Start Time	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	Int. 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	21	8	29	0	0	0	19	3	22	0	0	1	7	20	28	0	1	0	2	0	3	82
05:00 PM	0	0	0	11	3	14	0	1	0	14	4	19	0	0	0	10	32	42	0	0	0	6	0	6	81
05:15 PM	1	0	0	10	15	26	0	1	0	14	26	41	0	0	0	10	32	42	0	2	0	4	0	6	115
05:30 PM	0	0	0	16	23	39	0	1	0	8	14	23	0	0	0	20	20	40	0	0	0	2	2	4	106
Total Volume	1	0	0	58	49	108	0	3	0	55	47	105	0	0	1	47	104	152	0	3	0	14	2	19	384
% App. Total	0.9	0	0	53.7	45.4		0	2.9	0	52.4	44.8		0	0	0.7	30.9	68.4		0	15.8	0	73.7	10.5		
PHF	.250	.000	.000	.690	.533	.692	.000	.750	.000	.724	.452	.640	.000	.000	.250	.588	.813	.905	.000	.375	.000	.583	.250	.792	.835

N/S: Merimack St (Channel)/ Garage Exit
E/W: New Chardon Street
City, State: Boston, MA
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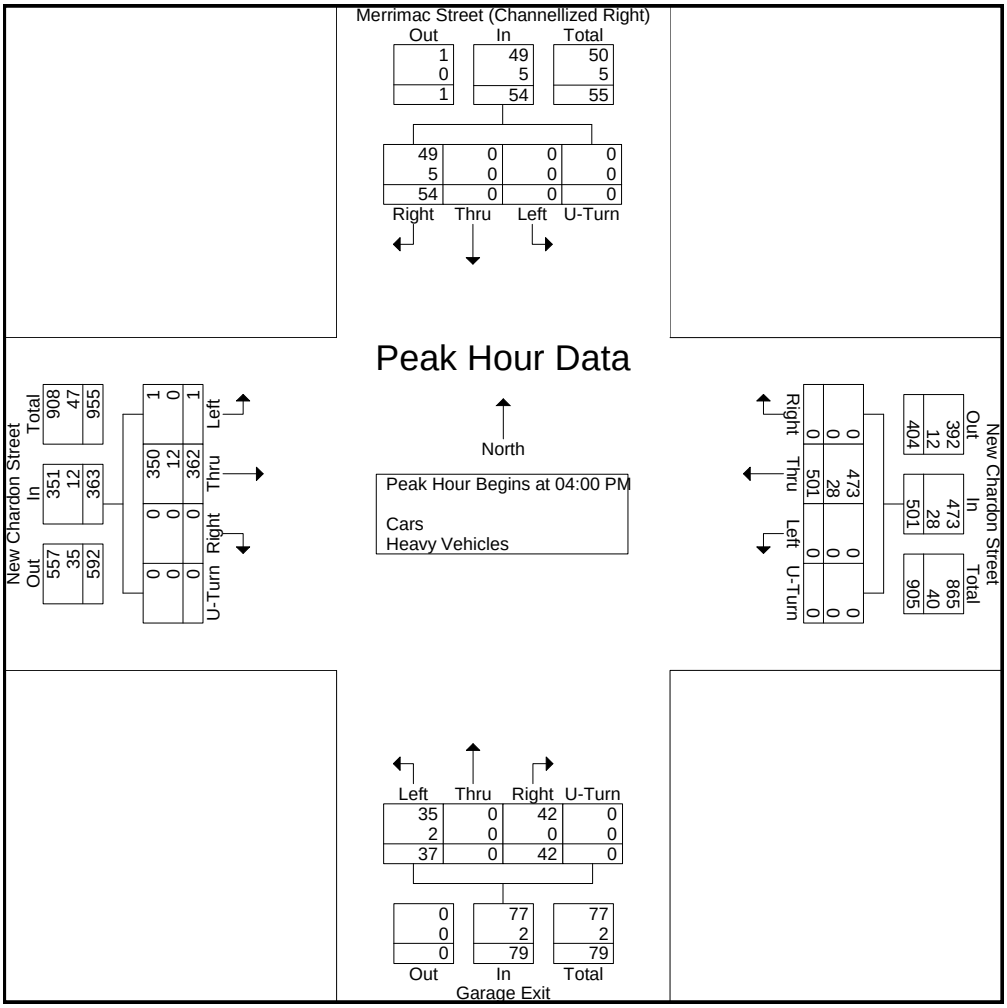
	Merrimac Street (Channellized Right) From North					New Chardon Street From East					Garage Exit From South					New Chardon Street From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
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	14	0	0	0	14	0	118	0	0	118	13	0	8	0	21	0	93	0	0	93	246
04:15 PM	14	0	0	0	14	0	139	0	0	139	15	0	8	0	23	0	93	0	0	93	269
04:30 PM	14	0	0	0	14	0	121	0	0	121	5	0	11	0	16	0	89	0	0	89	240
04:45 PM	12	0	0	0	12	0	123	0	0	123	9	0	10	0	19	0	87	1	0	88	242
Total Volume	54	0	0	0	54	0	501	0	0	501	42	0	37	0	79	0	362	1	0	363	997
% App. Total	100	0	0	0		0	100	0	0		53.2	0	46.8	0		0	99.7	0.3	0		
PHF	.964	.000	.000	.000	.964	.000	.901	.000	.000	.901	.700	.000	.841	.000	.859	.000	.973	.250	.000	.976	.927
Cars	49	0	0	0	49	0	473	0	0	473	42	0	35	0	77	0	350	1	0	351	950
% Cars	90.7	0	0	0	90.7	0	94.4	0	0	94.4	100	0	94.6	0	97.5	0	96.7	100	0	96.7	95.3
Heavy Vehicles	5	0	0	0	5	0	28	0	0	28	0	0	2	0	2	0	12	0	0	12	47
% Heavy Vehicles	9.3	0	0	0	9.3	0	5.6	0	0	5.6	0	0	5.4	0	2.5	0	3.3	0	0	3.3	4.7



S: Bowker Street
E/W: New Chardon Street
City, State: Boston, MA
Client: Howard/Stein-Hudson/ K. Chronley

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File Name : 133264 B
Site Code : 2007190.
Start Date : 3/27/2013
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Groups Printed- Cars - Heavy Vehicles

	New Chardon Street From East			Bowker Street From South			New Chardon Street From West			
Start Time	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn	Int. Total
07:00 AM	119	0	3	3	3	0	0	21	0	149
07:15 AM	139	0	0	4	4	0	0	27	0	174
07:30 AM	168	1	1	6	1	0	0	41	0	218
07:45 AM	190	1	1	1	3	0	1	33	0	230
Total	616	2	5	14	11	0	1	122	0	771
08:00 AM	191	0	2	6	5	0	0	43	0	247
08:15 AM	204	2	2	8	2	0	1	54	0	273
08:30 AM	220	1	1	7	4	0	0	48	0	281
08:45 AM	195	0	1	6	7	0	0	46	0	255
Total	810	3	6	27	18	0	1	191	0	1056
Grand Total	1426	5	11	41	29	0	2	313	0	1827
Apprch %	98.9	0.3	0.8	58.6	41.4	0	0.6	99.4	0	
Total %	78.1	0.3	0.6	2.2	1.6	0	0.1	17.1	0	
Cars	1353	5	11	41	29	0	2	288	0	1729
% Cars	94.9	100	100	100	100	0	100	92	0	94.6
Heavy Vehicles	73	0	0	0	0	0	0	25	0	98
% Heavy Vehicles	5.1	0	0	0	0	0	0	8	0	5.4

	New Chardon Street From East				Bowker Street From South				New Chardon Street From West				
Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. 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	191	0	**2**	193	6	5	0	11	0	43	0	43	247
08:15 AM	204	**2**	2	208	**8**	2	0	10	**1**	**54**	0	**55**	273
08:30 AM	**220**	1	1	**222**	7	4	0	11	0	48	0	48	**281**
08:45 AM	195	0	1	196	6	**7**	0	**13**	0	46	0	46	255
Total Volume	810	3	6	819	27	18	0	45	1	191	0	192	1056
% App. Total	98.9	0.4	0.7		60	40	0		0.5	99.5	0		
PHF	.920	.375	.750	.922	.844	.643	.000	.865	.250	.884	.000	.873	.940
Cars	773	3	6	782	27	18	0	45	1	176	0	177	1004
% Cars	95.4	100	100	95.5	100	100	0	100	100	92.1	0	92.2	95.1
Heavy Vehicles	37	0	0	37	0	0	0	0	0	15	0	15	52
% Heavy Vehicles	4.6	0	0	4.5	0	0	0	0	0	7.9	0	7.8	4.9

S: Bowker Street
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Groups Printed- Peds and Bicycles

	New Chardon Street From East			Bowker Street From South			New Chardon Street From West			
Start Time	Thru	Left	Peds	Right	Left	Peds	Right	Thru	Peds	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0
07:15 AM	1	0	0	0	0	0	0	1	0	2
07:30 AM	1	0	0	0	0	0	0	0	0	1
07:45 AM	1	0	0	0	0	0	0	1	0	2
Total	3	0	0	0	0	0	0	2	0	5
08:00 AM	1	0	0	0	0	0	0	0	0	1
08:15 AM	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	3	0	3
08:45 AM	0	0	0	0	0	0	0	2	0	2
Total	1	0	0	0	0	0	0	5	0	6
Grand Total	4	0	0	0	0	0	0	7	0	11
Apprch %	100	0	0	0	0	0	0	100	0	
Total %	36.4	0	0	0	0	0	0	63.6	0	

	New Chardon Street From East				Bowker Street From South				New Chardon Street From West				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. 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**	0	0	**1**	0	0	0	0	0	**1**	0	**1**	**2**
07:30 AM	1	0	0	1	0	0	0	0	0	0	0	0	1
07:45 AM	1	0	0	1	0	0	0	0	0	1	0	1	2
08:00 AM	1	0	0	1	0	0	0	0	0	0	0	0	1
Total Volume	4	0	0	4	0	0	0	0	0	2	0	2	6
% App. Total	100	0	0		0	0	0		0	100	0		
PHF	1.00	.000	.000	1.00	.000	.000	.000	.000	.000	.500	.000	.500	.750

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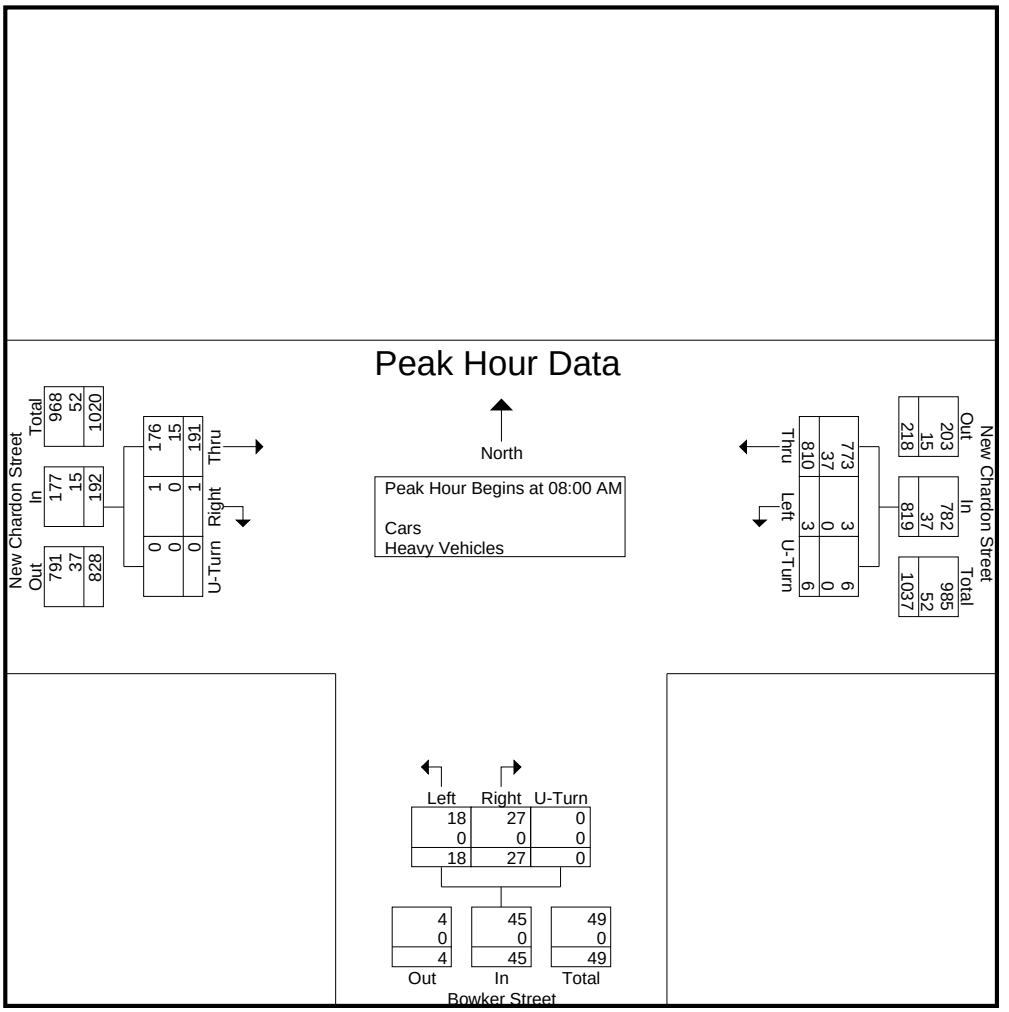
	New Chardon Street From East				Bowker Street From South				New Chardon Street From West				
Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 08:00 AM													
08:00 AM	191	0	**2**	193	6	5	0	11	0	43	0	43	247
08:15 AM	204	**2**	2	208	**8**	2	0	10	**1**	**54**	0	**55**	273
08:30 AM	**220**	1	1	**222**	7	4	0	11	0	48	0	48	**281**
08:45 AM	195	0	1	196	6	**7**	0	**13**	0	46	0	46	255
Total Volume	810	3	6	819	27	18	0	45	1	191	0	192	1056
% App. Total	98.9	0.4	0.7		60	40	0		0.5	99.5	0		
PHF	.920	.375	.750	.922	.844	.643	.000	.865	.250	.884	.000	.873	.940
Cars	773	3	6	782	27	18	0	45	1	176	0	177	1004
% Cars	95.4	100	100	95.5	100	100	0	100	100	92.1	0	92.2	95.1
Heavy Vehicles	37	0	0	37	0	0	0	0	0	15	0	15	52
% Heavy Vehicles	4.6	0	0	4.5	0	0	0	0	0	7.9	0	7.8	4.9



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Groups Printed- Cars - Heavy Vehicles

	New Chardon Street From East			Bowker Street From South			New Chardon Street From West			
Start Time	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn	Int. Total
04:00 PM	139	0	0	10	6	0	0	105	1	261
04:15 PM	138	0	1	6	3	0	0	96	0	244
04:30 PM	140	0	2	9	2	0	0	89	0	242
04:45 PM	142	0	2	6	3	0	0	96	1	250
Total	559	0	5	31	14	0	0	386	2	997
05:00 PM	143	0	0	8	4	0	0	97	0	252
05:15 PM	164	0	0	1	2	0	1	112	0	280
05:30 PM	161	0	1	1	6	0	0	119	0	288
05:45 PM	151	1	0	5	6	0	0	84	1	248
Total	619	1	1	15	18	0	1	412	1	1068
Grand Total	1178	1	6	46	32	0	1	798	3	2065
Apprch %	99.4	0.1	0.5	59	41	0	0.1	99.5	0.4	
Total %	57	0	0.3	2.2	1.5	0	0	38.6	0.1	
Cars	1152	1	5	43	31	0	1	779	3	2015
% Cars	97.8	100	83.3	93.5	96.9	0	100	97.6	100	97.6
Heavy Vehicles	26	0	1	3	1	0	0	19	0	50
% Heavy Vehicles	2.2	0	16.7	6.5	3.1	0	0	2.4	0	2.4

	New Chardon Street From East				Bowker Street From South				New Chardon Street From West				
Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. 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	142	0	**2**	144	6	3	0	9	0	96	**1**	97	250
05:00 PM	143	0	0	143	**8**	4	0	**12**	0	97	0	97	252
05:15 PM	**164**	0	0	**164**	1	2	0	3	**1**	112	0	113	280
05:30 PM	161	0	1	162	1	**6**	0	7	0	**119**	0	**119**	**288**
Total Volume	610	0	3	613	16	15	0	31	1	424	1	426	1070
% App. Total	99.5	0	0.5		51.6	48.4	0		0.2	99.5	0.2		
PHF	.930	.000	.375	.934	.500	.625	.000	.646	.250	.891	.250	.895	.929
Cars	600	0	2	602	16	14	0	30	1	414	1	416	1048
% Cars	98.4	0	66.7	98.2	100	93.3	0	96.8	100	97.6	100	97.7	97.9
Heavy Vehicles	10	0	1	11	0	1	0	1	0	10	0	10	22
% Heavy Vehicles	1.6	0	33.3	1.8	0	6.7	0	3.2	0	2.4	0	2.3	2.1

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Groups Printed- Peds and Bicycles

	New Chardon Street From East			Bowker Street From South			New Chardon Street From West			
Start Time	Thru	Left	Peds	Right	Left	Peds	Right	Thru	Peds	Int. Total
04:00 PM	0	0	0	0	0	0	0	1	0	1
04:15 PM	0	0	0	0	0	0	0	0	0	0
04:30 PM	2	0	0	0	0	0	0	0	0	2
04:45 PM	2	0	0	0	0	0	0	0	0	2
Total	4	0	0	0	0	0	0	1	0	5
05:00 PM	3	0	0	0	0	0	0	0	0	3
05:15 PM	1	0	0	0	0	0	0	0	0	1
05:30 PM	0	0	0	0	0	0	0	0	0	0
05:45 PM	2	0	0	1	0	0	0	0	0	3
Total	6	0	0	1	0	0	0	0	0	7
Grand Total	10	0	0	1	0	0	0	1	0	12
Apprch %	100	0	0	100	0	0	0	100	0	
Total %	83.3	0	0	8.3	0	0	0	8.3	0	

	New Chardon Street From East				Bowker Street From South				New Chardon Street From West				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. 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	2	0	0	2	0	0	0	0	0	0	0	0	2
04:45 PM	2	0	0	2	0	0	0	0	0	0	0	0	2
05:00 PM	**3**	0	0	**3**	0	0	0	0	0	0	0	0	**3**
05:15 PM	1	0	0	1	0	0	0	0	0	0	0	0	1
Total Volume	8	0	0	8	0	0	0	0	0	0	0	0	8
% App. Total	100	0	0		0	0	0		0	0	0		
PHF	.667	.000	.000	.667	.000	.000	.000	.000	.000	.000	.000	.000	.667

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S: Bowker Street
E/W: New Chardon Street
City, State: Boston, MA
Client: Howard/Stein-Hudson/ K. Chronley

File Name : 133264 BB
Site Code : 2007190.
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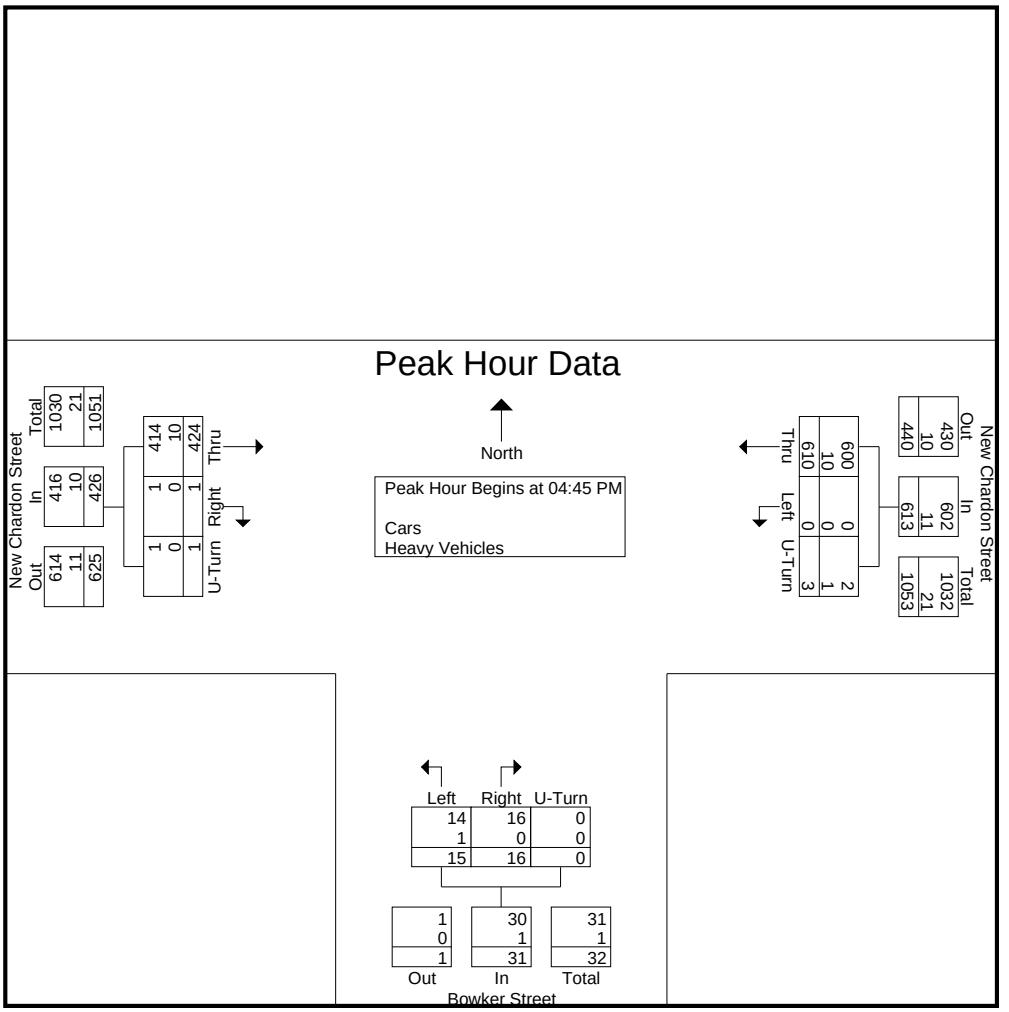
	New Chardon Street From East				Bowker Street From South				New Chardon Street From West				
Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:45 PM													
04:45 PM	142	0	**2**	144	6	3	0	9	0	96	**1**	97	250
05:00 PM	143	0	0	143	**8**	4	0	**12**	0	97	0	97	252
05:15 PM	**164**	0	0	**164**	1	2	0	3	**1**	112	0	113	280
05:30 PM	161	0	1	162	1	**6**	0	7	0	**119**	0	**119**	**288**
Total Volume	610	0	3	613	16	15	0	31	1	424	1	426	1070
% App. Total	99.5	0	0.5		51.6	48.4	0		0.2	99.5	0.2		
PHF	.930	.000	.375	.934	.500	.625	.000	.646	.250	.891	.250	.895	.929
Cars	600	0	2	602	16	14	0	30	1	414	1	416	1048
% Cars	98.4	0	66.7	98.2	100	93.3	0	96.8	100	97.6	100	97.7	97.9
Heavy Vehicles	10	0	1	11	0	1	0	1	0	10	0	10	22
% Heavy Vehicles	1.6	0	33.3	1.8	0	6.7	0	3.2	0	2.4	0	2.3	2.1



S: Hawkins Street
E/W: New Chardon Street
City, State: Boston, MA
Client: Howard/Stein-Hudson/ K. Chronley

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File Name : 133264 A
Site Code : 2007190.
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Page No : 1

Groups Printed- Cars - Heavy Vehicles

	New Chardon Street From East			Hawkins Street From South			New Chardon Street From West			
Start Time	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn	Int. Total
07:00 AM	115	8	0	1	3	0	2	21	0	150
07:15 AM	129	13	1	0	0	0	1	28	0	172
07:30 AM	164	4	1	0	1	0	1	40	0	211
07:45 AM	186	10	0	1	1	0	1	34	0	233
Total	594	35	2	2	5	0	5	123	0	766
08:00 AM	190	7	4	2	1	0	2	40	0	246
08:15 AM	190	13	3	3	1	0	4	49	1	264
08:30 AM	195	20	1	1	0	0	2	45	0	264
08:45 AM	191	18	4	1	0	0	2	47	0	263
Total	766	58	12	7	2	0	10	181	1	1037
Grand Total	1360	93	14	9	7	0	15	304	1	1803
Apprch %	92.7	6.3	1	56.2	43.8	0	4.7	95	0.3	
Total %	75.4	5.2	0.8	0.5	0.4	0	0.8	16.9	0.1	
Cars	1287	90	13	8	3	0	13	280	1	1695
% Cars	94.6	96.8	92.9	88.9	42.9	0	86.7	92.1	100	94
Heavy Vehicles	73	3	1	1	4	0	2	24	0	108
% Heavy Vehicles	5.4	3.2	7.1	11.1	57.1	0	13.3	7.9	0	6

	New Chardon Street From East				Hawkins Street From South				New Chardon Street From West				
Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. 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	190	7	**4**	201	2	**1**	0	3	2	40	0	42	246
08:15 AM	190	13	3	206	**3**	1	0	**4**	**4**	**49**	**1**	**54**	**264**
08:30 AM	**195**	**20**	1	**216**	1	0	0	1	2	45	0	47	264
08:45 AM	191	18	4	213	1	0	0	1	2	47	0	49	263
Total Volume	766	58	12	836	7	2	0	9	10	181	1	192	1037
% App. Total	91.6	6.9	1.4		77.8	22.2	0		5.2	94.3	0.5		
PHF	.982	.725	.750	.968	.583	.500	.000	.563	.625	.923	.250	.889	.982
Cars	728	57	11	796	6	1	0	7	8	168	1	177	980
% Cars	95.0	98.3	91.7	95.2	85.7	50.0	0	77.8	80.0	92.8	100	92.2	94.5
Heavy Vehicles	38	1	1	40	1	1	0	2	2	13	0	15	57
% Heavy Vehicles	5.0	1.7	8.3	4.8	14.3	50.0	0	22.2	20.0	7.2	0	7.8	5.5

S: Hawkins Street
E/W: New Chardon Street
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Page No : 1

Groups Printed- Peds and Bicycles

	New Chardon Street From East			Hawkins Street From South			New Chardon Street From West			
Start Time	Thru	Left	Peds	Right	Left	Peds	Right	Thru	Peds	Int. Total
07:00 AM	0	0	0	0	0	16	0	0	27	43
07:15 AM	0	0	2	0	0	13	0	1	30	46
07:30 AM	0	0	1	0	0	8	0	0	66	75
07:45 AM	0	0	0	0	0	12	0	1	45	58
Total	0	0	3	0	0	49	0	2	168	222
08:00 AM	1	0	0	0	0	25	0	0	83	109
08:15 AM	1	0	2	0	0	24	0	0	98	125
08:30 AM	0	0	0	0	0	27	0	3	102	132
08:45 AM	0	0	1	0	0	31	0	2	42	76
Total	2	0	3	0	0	107	0	5	325	442
Grand Total	2	0	6	0	0	156	0	7	493	664
Apprch %	25	0	75	0	0	100	0	1.4	98.6	
Total %	0.3	0	0.9	0	0	23.5	0	1.1	74.2	

	New Chardon Street From East				Hawkins Street From South				New Chardon Street From West				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. 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	**1**	0	0	1	0	0	25	25	0	0	83	83	109
08:15 AM	1	0	**2**	**3**	0	0	24	24	0	0	98	98	125
08:30 AM	0	0	0	0	0	0	27	27	0	**3**	**102**	**105**	**132**
08:45 AM	0	0	1	1	0	0	**31**	**31**	0	2	42	44	76
Total Volume	2	0	3	5	0	0	107	107	0	5	325	330	442
% App. Total	40	0	60		0	0	100		0	1.5	98.5		
PHF	.500	.000	.375	.417	.000	.000	.863	.863	.000	.417	.797	.786	.837

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S: Hawkins Street
E/W: New Chardon Street
City, State: Boston, MA
Client: Howard/Stein-Hudson/ K. Chronley

File Name : 133264 A
Site Code : 2007190.
Start Date : 3/27/2013
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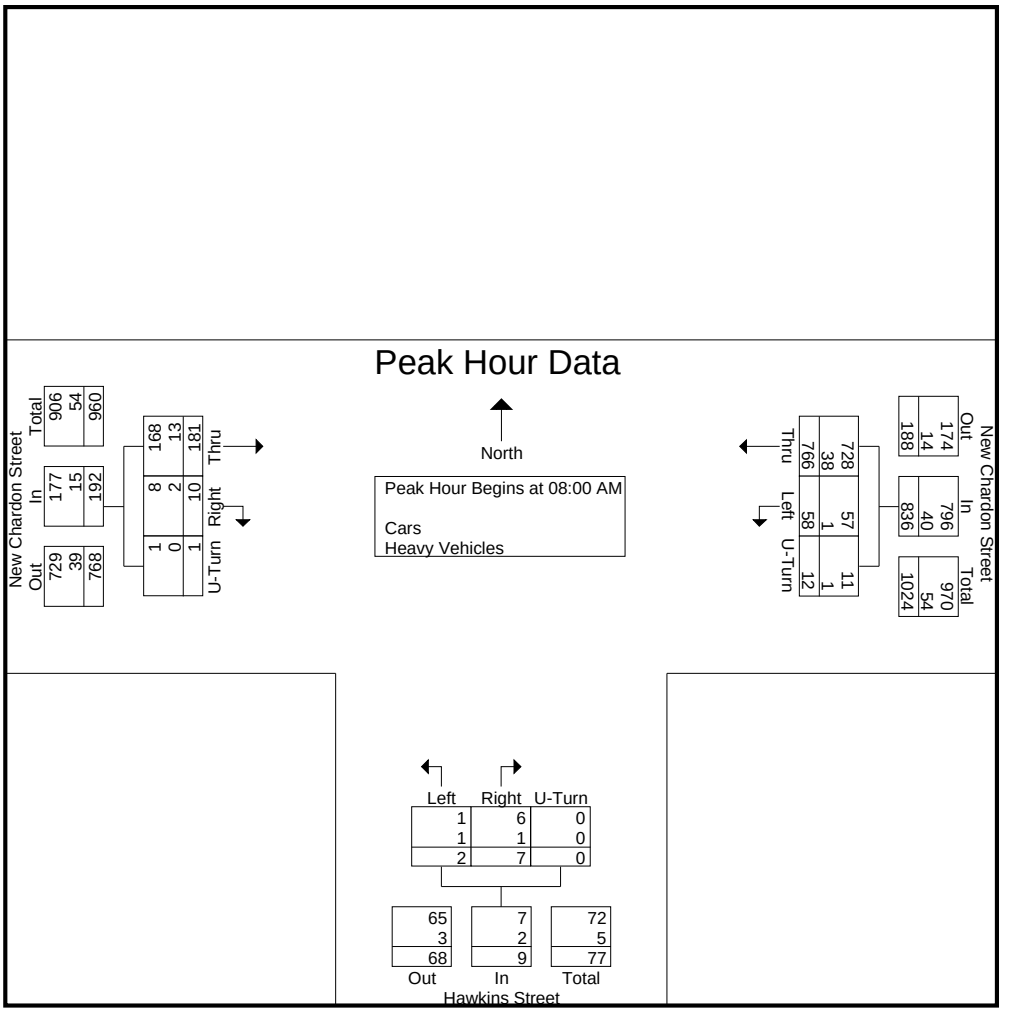
	New Chardon Street From East				Hawkins Street From South				New Chardon Street From West				
Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 08:00 AM													
08:00 AM	190	7	**4**	201	2	**1**	0	3	2	40	0	42	246
08:15 AM	190	13	3	206	**3**	1	0	**4**	**4**	**49**	**1**	**54**	**264**
08:30 AM	**195**	**20**	1	**216**	1	0	0	1	2	45	0	47	264
08:45 AM	191	18	4	213	1	0	0	1	2	47	0	49	263
Total Volume	766	58	12	836	7	2	0	9	10	181	1	192	1037
% App. Total	91.6	6.9	1.4		77.8	22.2	0		5.2	94.3	0.5		
PHF	.982	.725	.750	.968	.583	.500	.000	.563	.625	.923	.250	.889	.982
Cars	728	57	11	796	6	1	0	7	8	168	1	177	980
% Cars	95.0	98.3	91.7	95.2	85.7	50.0	0	77.8	80.0	92.8	100	92.2	94.5
Heavy Vehicles	38	1	1	40	1	1	0	2	2	13	0	15	57
% Heavy Vehicles	5.0	1.7	8.3	4.8	14.3	50.0	0	22.2	20.0	7.2	0	7.8	5.5



S: Hawkins Street
E/W: New Chardon Street
City, State: Boston, MA
Client: Howard/Stein-Hudson/ K. Chronley

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File Name : 133264 AA
Site Code : 2007190.
Start Date : 3/27/2013
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	New Chardon Street From East			Hawkins Street From South			New Chardon Street From West			
Start Time	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn	Int. Total
04:00 PM	133	8	2	3	2	0	1	99	0	248
04:15 PM	130	9	3	5	1	0	0	83	1	232
04:30 PM	134	8	2	1	0	0	2	86	1	234
04:45 PM	127	10	5	2	0	0	1	91	1	237
Total	524	35	12	11	3	0	4	359	3	951
05:00 PM	142	5	3	1	3	0	6	91	1	252
05:15 PM	142	6	3	5	3	0	2	109	0	270
05:30 PM	150	7	3	2	3	0	6	113	0	284
05:45 PM	142	9	2	2	1	0	5	88	0	249
Total	576	27	11	10	10	0	19	401	1	1055
Grand Total	1100	62	23	21	13	0	23	760	4	2006
Apprch %	92.8	5.2	1.9	61.8	38.2	0	2.9	96.6	0.5	
Total %	54.8	3.1	1.1	1	0.6	0	1.1	37.9	0.2	
Cars	1078	57	23	19	8	0	21	743	4	1953
% Cars	98	91.9	100	90.5	61.5	0	91.3	97.8	100	97.4
Heavy Vehicles	22	5	0	2	5	0	2	17	0	53
% Heavy Vehicles	2	8.1	0	9.5	38.5	0	8.7	2.2	0	2.6

	New Chardon Street From East				Hawkins Street From South				New Chardon Street From West				
Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. 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	142	5	**3**	150	1	**3**	0	4	**6**	91	**1**	98	252
05:15 PM	142	6	3	151	**5**	3	0	**8**	2	109	0	111	270
05:30 PM	**150**	7	3	**160**	2	3	0	5	6	**113**	0	**119**	**284**
05:45 PM	142	**9**	2	153	2	1	0	3	5	88	0	93	249
Total Volume	576	27	11	614	10	10	0	20	19	401	1	421	1055
% App. Total	93.8	4.4	1.8		50	50	0		4.5	95.2	0.2		
PHF	.960	.750	.917	.959	.500	.833	.000	.625	.792	.887	.250	.884	.929
Cars	568	26	11	605	9	8	0	17	17	392	1	410	1032
% Cars	98.6	96.3	100	98.5	90.0	80.0	0	85.0	89.5	97.8	100	97.4	97.8
Heavy Vehicles	8	1	0	9	1	2	0	3	2	9	0	11	23
% Heavy Vehicles	1.4	3.7	0	1.5	10.0	20.0	0	15.0	10.5	2.2	0	2.6	2.2

S: Hawkins Street
E/W: New Chardon Street
City, State: Boston, MA
Client: Howard/Stein-Hudson/ K. Chronley

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Groups Printed- Peds and Bicycles

	New Chardon Street From East			Hawkins Street From South			New Chardon Street From West			
Start Time	Thru	Left	Peds	Right	Left	Peds	Right	Thru	Peds	Int. Total
04:00 PM	0	0	1	0	0	21	0	1	65	88
04:15 PM	0	0	1	0	0	19	0	0	57	77
04:30 PM	0	0	1	0	0	23	0	0	63	87
04:45 PM	1	0	0	0	0	21	0	0	89	111
Total	1	0	3	0	0	84	0	1	274	363
05:00 PM	5	0	1	0	0	40	0	0	173	219
05:15 PM	1	0	3	0	0	33	0	0	116	153
05:30 PM	2	0	2	0	0	34	0	0	69	107
05:45 PM	1	0	2	0	0	20	0	0	29	52
Total	9	0	8	0	0	127	0	0	387	531
Grand Total	10	0	11	0	0	211	0	1	661	894
Apprch %	47.6	0	52.4	0	0	100	0	0.2	99.8	
Total %	1.1	0	1.2	0	0	23.6	0	0.1	73.9	

	New Chardon Street From East				Hawkins Street From South				New Chardon Street From West				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. 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	1	0	0	21	21	0	0	89	89	111
05:00 PM	**5**	0	1	**6**	0	0	**40**	**40**	0	0	**173**	**173**	**219**
05:15 PM	1	0	**3**	4	0	0	33	33	0	0	116	116	153
05:30 PM	2	0	2	4	0	0	34	34	0	0	69	69	107
Total Volume	9	0	6	15	0	0	128	128	0	0	447	447	590
% App. Total	60	0	40		0	0	100		0	0	100		
PHF	.450	.000	.500	.625	.000	.000	.800	.800	.000	.000	.646	.646	.674

S: Hawkins Street
E/W: New Chardon Street
City, State: Boston, MA
Client: Howard/Stein-Hudson/ K. Chronley

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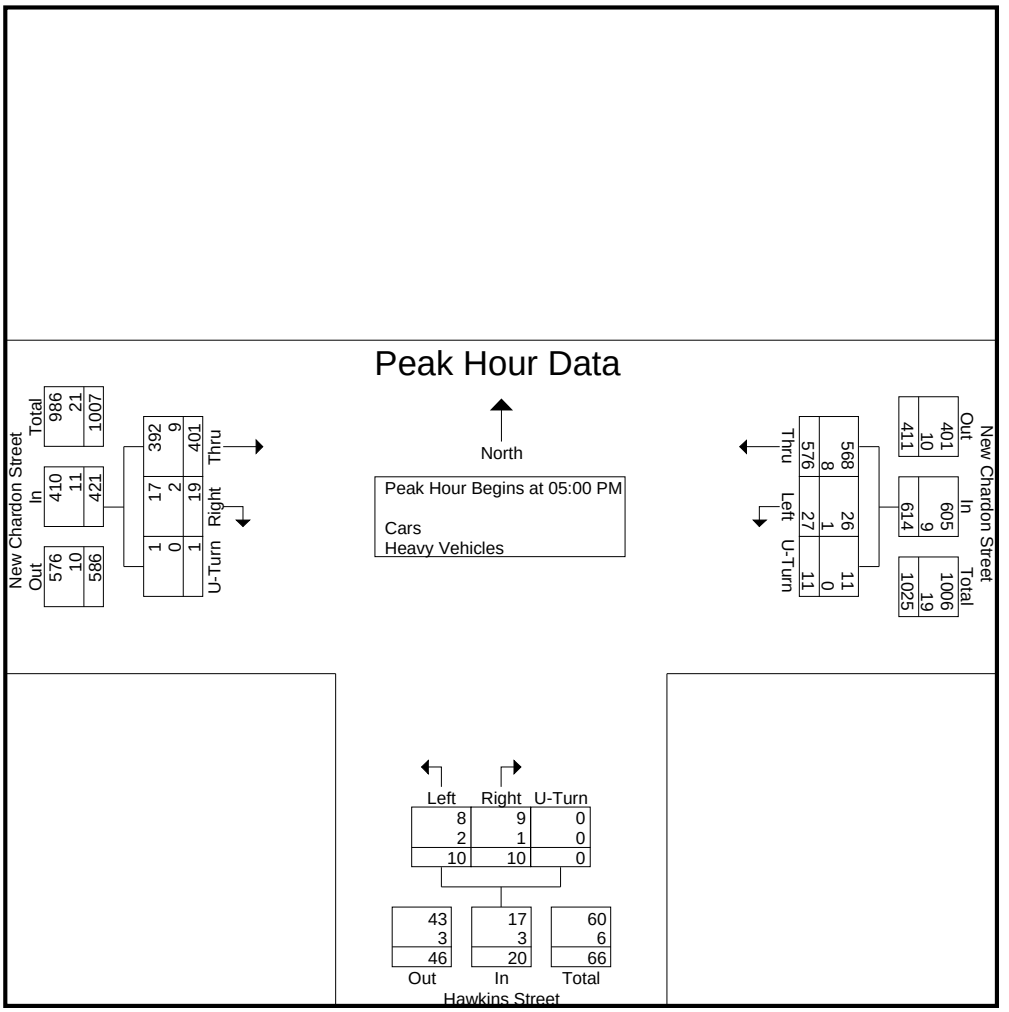
	New Chardon Street From East				Hawkins Street From South				New Chardon Street From West				
Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 05:00 PM													
05:00 PM	142	5	**3**	150	1	**3**	0	4	**6**	91	**1**	98	252
05:15 PM	142	6	3	151	**5**	3	0	**8**	2	109	0	111	270
05:30 PM	**150**	7	3	**160**	2	3	0	5	6	**113**	0	**119**	**284**
05:45 PM	142	**9**	2	153	2	1	0	3	5	88	0	93	249
Total Volume	576	27	11	614	10	10	0	20	19	401	1	421	1055
% App. Total	93.8	4.4	1.8		50	50	0		4.5	95.2	0.2		
PHF	.960	.750	.917	.959	.500	.833	.000	.625	.792	.887	.250	.884	.929
Cars	568	26	11	605	9	8	0	17	17	392	1	410	1032
% Cars	98.6	96.3	100	98.5	90.0	80.0	0	85.0	89.5	97.8	100	97.4	97.8
Heavy Vehicles	8	1	0	9	1	2	0	3	2	9	0	11	23
% Heavy Vehicles	1.4	3.7	0	1.5	10.0	20.0	0	15.0	10.5	2.2	0	2.6	2.2



N/S: New Chardon Street/ Bowdoin Street
E/W: Cambridge Street
City, State: Boston, MA
Client: Howard Stein-Hudson/ B. Beisel

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File Name : 154673 H
Site Code : 2007190
Start Date : 9/23/2015
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	New Chardon Street From North				Cambridge Street From East				Bowdoin Street From South				Cambridge Street From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
07:00 AM	49	36	61	0	9	30	1	1	25	16	23	0	16	89	0	0	356
07:15 AM	56	35	51	0	10	31	1	0	18	20	38	0	18	122	0	1	401
07:30 AM	67	38	71	0	8	44	4	0	18	13	34	0	22	109	0	0	428
07:45 AM	47	50	68	0	4	40	1	0	22	34	31	0	15	128	0	0	440
Total	219	159	251	0	31	145	7	1	83	83	126	0	71	448	0	1	1625
08:00 AM	81	41	71	0	6	56	3	1	23	36	42	0	23	159	1	0	543
08:15 AM	61	46	84	0	8	45	0	0	29	34	31	0	28	162	0	0	528
08:30 AM	58	40	81	0	7	44	6	0	26	30	42	0	17	135	0	1	487
08:45 AM	64	52	64	0	7	38	5	1	25	33	30	0	21	160	0	0	500
Total	264	179	300	0	28	183	14	2	103	133	145	0	89	616	1	1	2058
Grand Total	483	338	551	0	59	328	21	3	186	216	271	0	160	1064	1	2	3683
Apprch %	35.2	24.6	40.2	0	14.4	79.8	5.1	0.7	27.6	32.1	40.3	0	13	86.7	0.1	0.2	
Total %	13.1	9.2	15	0	1.6	8.9	0.6	0.1	5.1	5.9	7.4	0	4.3	28.9	0	0.1	
Cars	453	323	513	0	44	308	18	3	167	199	233	0	149	998	0	2	3410
% Cars	93.8	95.6	93.1	0	74.6	93.9	85.7	100	89.8	92.1	86	0	93.1	93.8	0	100	92.6
Heavy Vehicles	30	15	38	0	15	20	3	0	19	17	38	0	11	66	1	0	273
% Heavy Vehicles	6.2	4.4	6.9	0	25.4	6.1	14.3	0	10.2	7.9	14	0	6.9	6.2	100	0	7.4

	New Chardon Street From North					Cambridge Street From East					Bowdoin Street From South					Cambridge Street From West					
Start Time	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	Int. 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	81	41	71	0	193	6	56	3	1	66	23	36	42	0	101	23	159	1	0	183	543
08:15 AM	61	46	84	0	191	8	45	0	0	53	29	34	31	0	94	28	162	0	0	190	528
08:30 AM	58	40	81	0	179	7	44	6	0	57	26	30	42	0	98	17	135	0	1	153	487
08:45 AM	64	52	64	0	180	7	38	5	1	51	25	33	30	0	88	21	160	0	0	181	500
Total Volume	264	179	300	0	743	28	183	14	2	227	103	133	145	0	381	89	616	1	1	707	2058
% App. Total	35.5	24.1	40.4	0		12.3	80.6	6.2	0.9		27	34.9	38.1	0		12.6	87.1	0.1	0.1		
PHF	.815	.861	.893	.000	.962	.875	.817	.583	.500	.860	.888	.924	.863	.000	.943	.795	.951	.250	.250	.930	.948
Cars	248	173	284	0	705	21	179	11	2	213	94	122	127	0	343	84	576	0	1	661	1922
% Cars	93.9	96.6	94.7	0	94.9	75.0	97.8	78.6	100	93.8	91.3	91.7	87.6	0	90.0	94.4	93.5	0	100	93.5	93.4
Heavy Vehicles	16	6	16	0	38	7	4	3	0	14	9	11	18	0	38	5	40	1	0	46	136
% Heavy Vehicles	6.1	3.4	5.3	0	5.1	25.0	2.2	21.4	0	6.2	8.7	8.3	12.4	0	10.0	5.6	6.5	100	0	6.5	6.6

N/S: New Chardon Street/ Bowdoin Street
E/W: Cambridge Street
City, State: Boston, MA
Client: Howard Stein-Hudson/ B. Beisel

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File Name : 154673 H
Site Code : 2007190
Start Date : 9/23/2015
Page No : 1

Groups Printed- Peds and Bikes

	New Chardon Street From North					Cambridge Street From East					Bowdoin Street From South					Cambridge Street From West					
Start Time	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	Int. Total
07:00 AM	0	0	0	26	75	0	2	0	24	5	0	0	0	17	29	0	7	0	10	12	207
07:15 AM	0	0	0	30	71	0	1	0	28	21	0	0	0	22	38	1	5	0	8	16	241
07:30 AM	0	0	1	43	88	0	1	0	46	14	0	1	2	29	41	0	19	0	20	19	324
07:45 AM	0	0	0	53	99	0	2	0	60	28	0	0	1	37	80	0	22	0	23	25	430
Total	0	0	1	152	333	0	6	0	158	68	0	1	3	105	188	1	53	0	61	72	1202
08:00 AM	2	0	0	59	127	0	2	0	57	21	0	0	0	42	90	0	26	0	27	30	483
08:15 AM	1	0	0	68	112	2	5	0	59	24	0	0	1	43	76	0	28	0	39	21	479
08:30 AM	2	0	0	93	93	0	9	0	64	28	0	1	2	39	100	1	22	0	33	27	514
08:45 AM	0	0	0	96	108	0	5	0	78	30	0	1	1	47	93	0	29	0	24	28	540
Total	5	0	0	316	440	2	21	0	258	103	0	2	4	171	359	1	105	0	123	106	2016
Grand Total	5	0	1	468	773	2	27	0	416	171	0	3	7	276	547	2	158	0	184	178	3218
Apprch %	0.4	0	0.1	37.5	62	0.3	4.4	0	67.5	27.8	0	0.4	0.8	33.1	65.7	0.4	30.3	0	35.2	34.1	
Total %	0.2	0	0	14.5	24	0.1	0.8	0	12.9	5.3	0	0.1	0.2	8.6	17	0.1	4.9	0	5.7	5.5	

	New Chardon Street From North						Cambridge Street From East						Bowdoin Street From South						Cambridge Street From West						
Start Time	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	Int. 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	2	0	0	59	127	188	0	2	0	57	21	80	0	0	0	42	90	132	0	26	0	27	30	83	483
08:15 AM	1	0	0	68	112	181	2	5	0	59	24	90	0	0	1	43	76	120	0	28	0	39	21	88	479
08:30 AM	2	0	0	93	93	188	0	9	0	64	28	101	0	1	2	39	100	142	1	22	0	33	27	83	514
08:45 AM	0	0	0	96	108	204	0	5	0	78	30	113	0	1	1	47	93	142	0	29	0	24	28	81	540
Total Volume	5	0	0	316	440	761	2	21	0	258	103	384	0	2	4	171	359	536	1	105	0	123	106	335	2016
% App. Total	0.7	0	0	41.5	57.8		0.5	5.5	0	67.2	26.8		0	0.4	0.7	31.9	67		0.3	31.3	0	36.7	31.6		
PHF	.625	.000	.000	.823	.866	.933	.250	.583	.000	.827	.858	.850	.000	.500	.500	.910	.898	.944	.250	.905	.000	.788	.883	.952	.933

N/S: New Chardon Street/ Bowdoin Street
E/W: Cambridge Street
City, State: Boston, MA
Client: Howard Stein-Hudson/ B. Beisel

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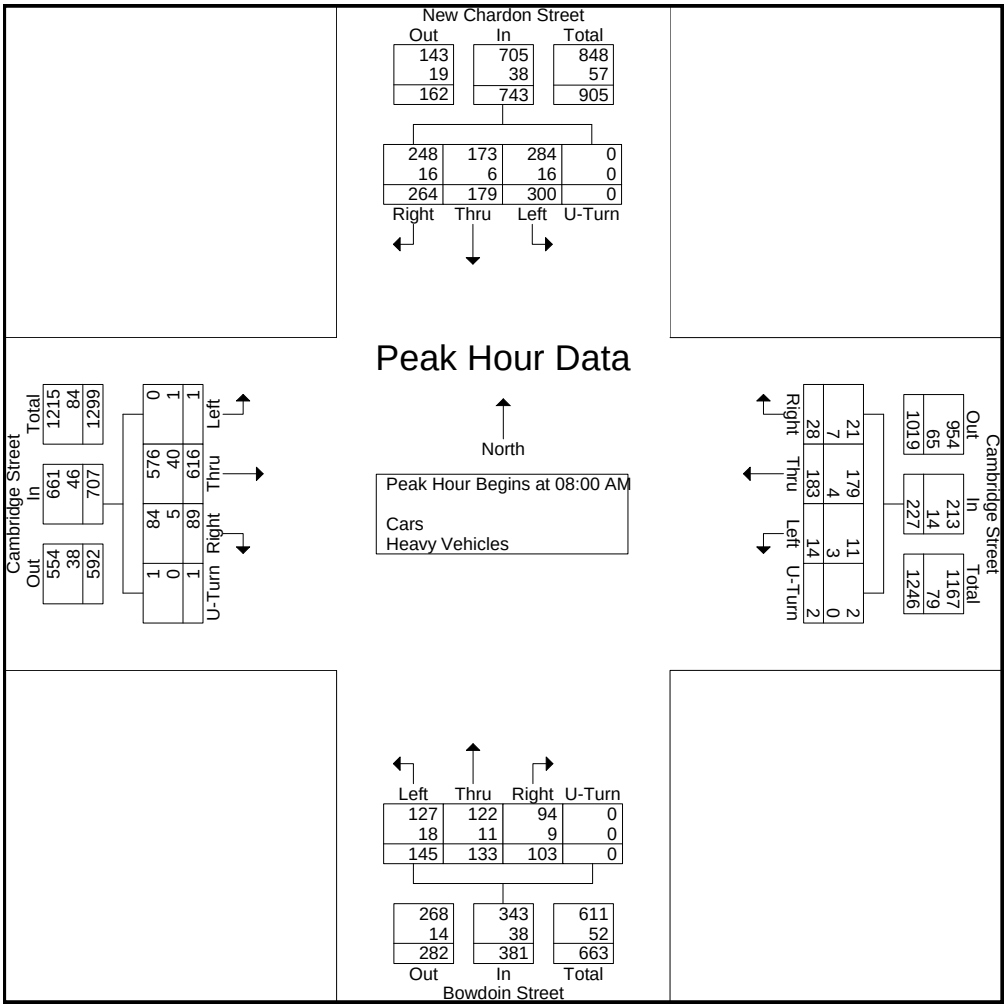
	New Chardon Street From North					Cambridge Street From East					Bowdoin Street From South					Cambridge Street From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis 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	81	41	71	0	193	6	56	3	1	66	23	36	42	0	101	23	159	1	0	183	543
08:15 AM	61	46	84	0	191	8	45	0	0	53	29	34	31	0	94	28	162	0	0	190	528
08:30 AM	58	40	81	0	179	7	44	6	0	57	26	30	42	0	98	17	135	0	1	153	487
08:45 AM	64	52	64	0	180	7	38	5	1	51	25	33	30	0	88	21	160	0	0	181	500
Total Volume	264	179	300	0	743	28	183	14	2	227	103	133	145	0	381	89	616	1	1	707	2058
% App. Total	35.5	24.1	40.4	0		12.3	80.6	6.2	0.9		27	34.9	38.1	0		12.6	87.1	0.1	0.1		
PHF	.815	.861	.893	.000	.962	.875	.817	.583	.500	.860	.888	.924	.863	.000	.943	.795	.951	.250	.250	.930	.948
Cars	248	173	284	0	705	21	179	11	2	213	94	122	127	0	343	84	576	0	1	661	1922
% Cars	93.9	96.6	94.7	0	94.9	75.0	97.8	78.6	100	93.8	91.3	91.7	87.6	0	90.0	94.4	93.5	0	100	93.5	93.4
Heavy Vehicles	16	6	16	0	38	7	4	3	0	14	9	11	18	0	38	5	40	1	0	46	136
% Heavy Vehicles	6.1	3.4	5.3	0	5.1	25.0	2.2	21.4	0	6.2	8.7	8.3	12.4	0	10.0	5.6	6.5	100	0	6.5	6.6



N/S: New Chardon Street/ Bowdoin Street
E/W: Cambridge Street
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File Name : 154673 HH
Site Code : 2007190
Start Date : 9/23/2015
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	New Chardon Street From North				Cambridge Street From East				Bowdoin Street From South				Cambridge Street From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:00 PM	37	34	54	0	12	58	0	0	35	65	46	0	21	155	2	0	519
04:15 PM	57	33	63	0	9	63	3	0	35	52	47	0	25	166	1	0	554
04:30 PM	64	34	46	0	15	56	3	0	35	69	45	0	13	147	2	0	529
04:45 PM	44	35	60	0	7	69	2	1	34	70	56	0	9	158	2	0	547
Total	202	136	223	0	43	246	8	1	139	256	194	0	68	626	7	0	2149
05:00 PM	42	43	59	0	13	62	2	0	27	77	50	0	26	152	0	0	553
05:15 PM	44	40	57	0	10	51	6	0	30	66	71	0	13	167	0	0	555
05:30 PM	54	44	62	0	10	70	3	1	30	64	37	0	22	157	0	0	554
05:45 PM	50	44	46	0	9	75	3	0	33	77	52	0	18	113	1	0	521
Total	190	171	224	0	42	258	14	1	120	284	210	0	79	589	1	0	2183
Grand Total	392	307	447	0	85	504	22	2	259	540	404	0	147	1215	8	0	4332
Apprch %	34.2	26.8	39	0	13.9	82.2	3.6	0.3	21.5	44.9	33.6	0	10.7	88.7	0.6	0	
Total %	9	7.1	10.3	0	2	11.6	0.5	0	6	12.5	9.3	0	3.4	28	0.2	0	
Cars	381	301	413	0	76	494	22	2	244	529	368	0	142	1162	8	0	4142
% Cars	97.2	98	92.4	0	89.4	98	100	100	94.2	98	91.1	0	96.6	95.6	100	0	95.6
Heavy Vehicles	11	6	34	0	9	10	0	0	15	11	36	0	5	53	0	0	190
% Heavy Vehicles	2.8	2	7.6	0	10.6	2	0	0	5.8	2	8.9	0	3.4	4.4	0	0	4.4

	New Chardon Street From North					Cambridge Street From East					Bowdoin Street From South					Cambridge Street From West					
Start Time	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	Int. 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	44	35	60	0	139	7	69	2	1	79	34	70	56	0	160	9	158	2	0	169	547
05:00 PM	42	43	59	0	144	13	62	2	0	77	27	77	50	0	154	26	152	0	0	178	553
05:15 PM	44	40	57	0	141	10	51	6	0	67	30	66	71	0	167	13	167	0	0	180	555
05:30 PM	54	44	62	0	160	10	70	3	1	84	30	64	37	0	131	22	157	0	0	179	554
Total Volume	184	162	238	0	584	40	252	13	2	307	121	277	214	0	612	70	634	2	0	706	2209
% App. Total	31.5	27.7	40.8	0		13	82.1	4.2	0.7		19.8	45.3	35	0		9.9	89.8	0.3	0		
PHF	.852	.920	.960	.000	.913	.769	.900	.542	.500	.914	.890	.899	.754	.000	.916	.673	.949	.250	.000	.981	.995
Cars	180	157	219	0	556	36	248	13	2	299	113	272	194	0	579	68	609	2	0	679	2113
% Cars	97.8	96.9	92.0	0	95.2	90.0	98.4	100	100	97.4	93.4	98.2	90.7	0	94.6	97.1	96.1	100	0	96.2	95.7
Heavy Vehicles	4	5	19	0	28	4	4	0	0	8	8	5	20	0	33	2	25	0	0	27	96
% Heavy Vehicles	2.2	3.1	8.0	0	4.8	10.0	1.6	0	0	2.6	6.6	1.8	9.3	0	5.4	2.9	3.9	0	0	3.8	4.3

N/S: New Chardon Street/ Bowdoin Street
E/W: Cambridge Street
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Site Code : 2007190
Start Date : 9/23/2015
Page No : 1

Groups Printed- Peds and Bikes

	New Chardon Street From North					Cambridge Street From East					Bowdoin Street From South					Cambridge Street From West					
Start Time	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	Int. Total
04:00 PM	3	1	0	100	71	0	11	0	15	47	2	1	1	52	53	0	2	0	36	21	416
04:15 PM	0	1	0	101	53	0	12	0	20	47	0	2	0	56	43	1	3	0	21	18	378
04:30 PM	0	0	2	133	51	0	17	0	14	59	0	0	0	60	38	0	3	0	27	35	439
04:45 PM	2	0	0	108	73	1	17	0	13	52	0	0	3	55	44	0	6	0	33	7	414
Total	5	2	2	442	248	1	57	0	62	205	2	3	4	223	178	1	14	0	117	81	1647
05:00 PM	2	0	0	123	55	0	23	0	19	81	0	0	2	93	50	1	12	0	50	25	536
05:15 PM	0	0	0	140	69	0	59	0	23	54	0	0	4	95	58	0	10	0	66	27	605
05:30 PM	2	0	0	113	71	0	35	0	13	47	0	0	5	70	58	1	3	0	42	14	474
05:45 PM	2	0	0	115	60	0	36	0	17	16	1	0	1	95	41	1	5	0	20	17	427
Total	6	0	0	491	255	0	153	0	72	198	1	0	12	353	207	3	30	0	178	83	2042
Grand Total	11	2	2	933	503	1	210	0	134	403	3	3	16	576	385	4	44	0	295	164	3689
Apprch %	0.8	0.1	0.1	64.3	34.7	0.1	28.1	0	17.9	53.9	0.3	0.3	1.6	58.6	39.2	0.8	8.7	0	58.2	32.3	
Total %	0.3	0.1	0.1	25.3	13.6	0	5.7	0	3.6	10.9	0.1	0.1	0.4	15.6	10.4	0.1	1.2	0	8	4.4	

	New Chardon Street From North						Cambridge Street From East						Bowdoin Street From South						Cambridge Street From West						
Start Time	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	Int. 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	2	0	0	123	55	180	0	23	0	19	81	123	0	0	2	93	50	145	1	12	0	50	25	88	536
05:15 PM	0	0	0	140	69	209	0	59	0	23	54	136	0	0	4	95	58	157	0	10	0	66	27	103	605
05:30 PM	2	0	0	113	71	186	0	35	0	13	47	95	0	0	5	70	58	133	1	3	0	42	14	60	474
05:45 PM	2	0	0	115	60	177	0	36	0	17	16	69	1	0	1	95	41	138	1	5	0	20	17	43	427
Total Volume	6	0	0	491	255	752	0	153	0	72	198	423	1	0	12	353	207	573	3	30	0	178	83	294	2042
% App. Total	0.8	0	0	65.3	33.9		0	36.2	0	17	46.8		0.2	0	2.1	61.6	36.1		1	10.2	0	60.5	28.2		
PHF	.750	.000	.000	.877	.898	.900	.000	.648	.000	.783	.611	.778	.250	.000	.600	.929	.892	.912	.750	.625	.000	.674	.769	.714	.844

N/S: New Chardon Street/ Bowdoin Street
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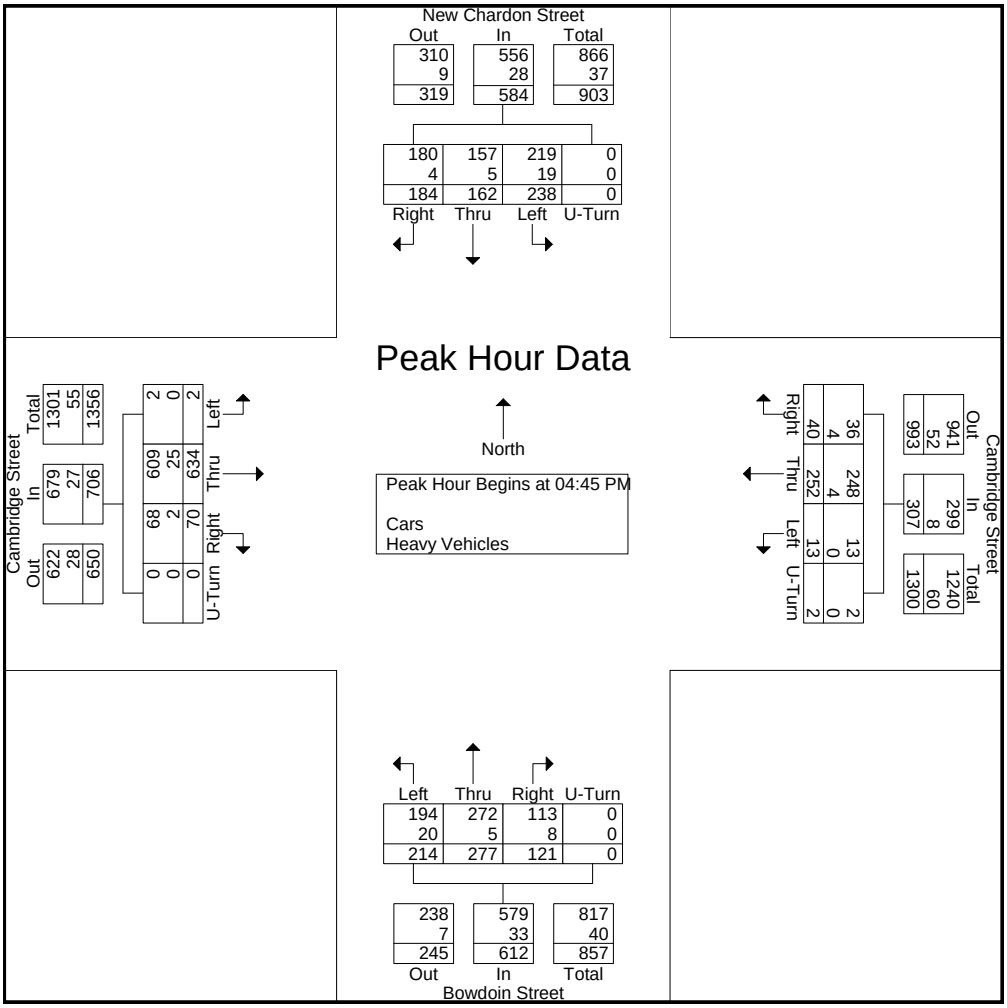
	New Chardon Street From North					Cambridge Street From East					Bowdoin Street From South					Cambridge Street From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis 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	44	35	60	0	139	7	69	2	1	79	34	70	56	0	160	9	158	2	0	169	547
05:00 PM	42	43	59	0	144	13	62	2	0	77	27	77	50	0	154	26	152	0	0	178	553
05:15 PM	44	40	57	0	141	10	51	6	0	67	30	66	71	0	167	13	167	0	0	180	555
05:30 PM	54	44	62	0	160	10	70	3	1	84	30	64	37	0	131	22	157	0	0	179	554
Total Volume	184	162	238	0	584	40	252	13	2	307	121	277	214	0	612	70	634	2	0	706	2209
% App. Total	31.5	27.7	40.8	0		13	82.1	4.2	0.7		19.8	45.3	35	0		9.9	89.8	0.3	0		
PHF	.852	.920	.960	.000	.913	.769	.900	.542	.500	.914	.890	.899	.754	.000	.916	.673	.949	.250	.000	.981	.995
Cars	180	157	219	0	556	36	248	13	2	299	113	272	194	0	579	68	609	2	0	679	2113
% Cars	97.8	96.9	92.0	0	95.2	90.0	98.4	100	100	97.4	93.4	98.2	90.7	0	94.6	97.1	96.1	100	0	96.2	95.7
Heavy Vehicles	4	5	19	0	28	4	4	0	0	8	8	5	20	0	33	2	25	0	0	27	96
% Heavy Vehicles	2.2	3.1	8.0	0	4.8	10.0	1.6	0	0	2.6	6.6	1.8	9.3	0	5.4	2.9	3.9	0	0	3.8	4.3



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File Name : 133264 C
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Start Date : 3/27/2013
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	New Sudbury Street From North				Cambridge Street From East				Somerset Street From South				Cambridge Street From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
07:00 AM	0	0	0	0	21	34	14	5	1	4	8	0	33	93	45	1	259
07:15 AM	0	0	0	0	18	37	11	3	2	5	6	0	44	110	55	5	296
07:30 AM	0	0	0	0	23	50	12	1	1	5	7	0	51	103	64	3	320
07:45 AM	0	0	0	0	26	51	21	3	2	4	9	0	53	147	76	3	395
Total	0	0	0	0	88	172	58	12	6	18	30	0	181	453	240	12	1270
08:00 AM	0	0	0	0	38	66	27	2	2	6	5	0	58	126	82	4	416
08:15 AM	0	0	0	0	25	49	22	6	2	14	10	0	71	133	62	7	401
08:30 AM	0	0	0	0	28	84	29	2	2	10	5	0	68	129	69	4	430
08:45 AM	0	0	0	0	36	54	26	8	5	7	4	0	75	140	64	4	423
Total	0	0	0	0	127	253	104	18	11	37	24	0	272	528	277	19	1670
Grand Total	0	0	0	0	215	425	162	30	17	55	54	0	453	981	517	31	2940
Apprch %	0	0	0	0	25.8	51.1	19.5	3.6	13.5	43.7	42.9	0	22.9	49.5	26.1	1.6	
Total %	0	0	0	0	7.3	14.5	5.5	1	0.6	1.9	1.8	0	15.4	33.4	17.6	1.1	
Cars	0	0	0	0	192	397	150	30	16	52	54	0	446	915	494	31	2777
% Cars	0	0	0	0	89.3	93.4	92.6	100	94.1	94.5	100	0	98.5	93.3	95.6	100	94.5
Heavy Vehicles	0	0	0	0	23	28	12	0	1	3	0	0	7	66	23	0	163
% Heavy Vehicles	0	0	0	0	10.7	6.6	7.4	0	5.9	5.5	0	0	1.5	6.7	4.4	0	5.5

	New Sudbury Street From North					Cambridge Street From East					Somerset Street From South					Cambridge Street From West					
Start Time	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	Int. 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	**38**	66	27	2	133	2	6	5	0	13	58	126	**82**	4	270	416
08:15 AM	0	0	0	0	0	25	49	22	6	102	2	**14**	**10**	0	**26**	71	133	62	**7**	273	401
08:30 AM	0	0	0	0	0	28	**84**	**29**	2	**143**	2	10	5	0	17	68	129	69	4	270	**430**
08:45 AM	0	0	0	0	0	36	54	26	**8**	124	**5**	7	4	0	16	**75**	**140**	64	4	**283**	423
Total Volume	0	0	0	0	0	127	253	104	18	502	11	37	24	0	72	272	528	277	19	1096	1670
% App. Total	0	0	0	0		25.3	50.4	20.7	3.6		15.3	51.4	33.3	0		24.8	48.2	25.3	1.7		
PHF	.000	.000	.000	.000	.000	.836	.753	.897	.563	.878	.550	.661	.600	.000	.692	.907	.943	.845	.679	.968	.971
Cars	0	0	0	0	0	113	235	96	18	462	10	35	24	0	69	268	496	264	19	1047	1578
% Cars	0	0	0	0	0	89.0	92.9	92.3	100	92.0	90.9	94.6	100	0	95.8	98.5	93.9	95.3	100	95.5	94.5
Heavy Vehicles	0	0	0	0	0	14	18	8	0	40	1	2	0	0	3	4	32	13	0	49	92
% Heavy Vehicles	0	0	0	0	0	11.0	7.1	7.7	0	8.0	9.1	5.4	0	0	4.2	1.5	6.1	4.7	0	4.5	5.5

PRECISION
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N/S: New Sudbury Street/ Somerset Street
E/W: Cambridge Street
City, State: Boston, MA
Client: Howard/Stein-Hudson/ K. Chronley

File Name : 133264 C
Site Code : 2007190.
Start Date : 3/27/2013
Page No : 1

Groups Printed- Peds and Bicycles

	New Sudbury Street From North				Cambridge Street From East				Somerset Street From South				Cambridge Street From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
07:00 AM	0	0	0	30	0	1	0	18	0	0	0	41	0	2	0	11	103
07:15 AM	0	0	0	43	0	1	0	18	0	0	0	46	0	3	0	17	128
07:30 AM	0	0	0	65	0	2	0	21	0	0	0	73	0	5	1	19	186
07:45 AM	0	0	0	77	0	0	0	46	0	0	0	101	0	4	4	28	260
Total	0	0	0	215	0	4	0	103	0	0	0	261	0	14	5	75	677
08:00 AM	0	0	0	82	0	0	0	49	0	0	0	111	0	8	3	22	275
08:15 AM	0	0	0	88	0	3	0	40	0	0	0	115	3	9	0	33	291
08:30 AM	0	0	0	115	0	1	0	48	0	0	0	95	1	16	5	35	316
08:45 AM	0	0	0	92	0	2	0	104	0	2	0	53	2	14	5	64	338
Total	0	0	0	377	0	6	0	241	0	2	0	374	6	47	13	154	1220
Grand Total	0	0	0	592	0	10	0	344	0	2	0	635	6	61	18	229	1897
Apprch %	0	0	0	100	0	2.8	0	97.2	0	0.3	0	99.7	1.9	19.4	5.7	72.9	
Total %	0	0	0	31.2	0	0.5	0	18.1	0	0.1	0	33.5	0.3	3.2	0.9	12.1	

	New Sudbury Street From North					Cambridge Street From East					Somerset Street From South					Cambridge Street From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. 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	82	82	0	0	0	49	49	0	0	0	111	111	0	8	3	22	33	275
08:15 AM	0	0	0	88	88	0	**3**	0	40	43	0	0	0	**115**	**115**	**3**	9	0	33	45	291
08:30 AM	0	0	0	**115**	**115**	0	1	0	48	49	0	0	0	95	95	1	**16**	**5**	35	57	316
08:45 AM	0	0	0	92	92	0	2	0	**104**	**106**	0	**2**	0	53	55	2	14	5	**64**	**85**	**338**
Total Volume	0	0	0	377	377	0	6	0	241	247	0	2	0	374	376	6	47	13	154	220	1220
% App. Total	0	0	0	100		0	2.4	0	97.6		0	0.5	0	99.5		2.7	21.4	5.9	70		
PHF	.000	.000	.000	.820	.820	.000	.500	.000	.579	.583	.000	.250	.000	.813	.817	.500	.734	.650	.602	.647	.902

N/S: New Sudbury Street/ Somerset Street
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City, State: Boston, MA
Client: Howard/Stein-Hudson/ K. Chronley

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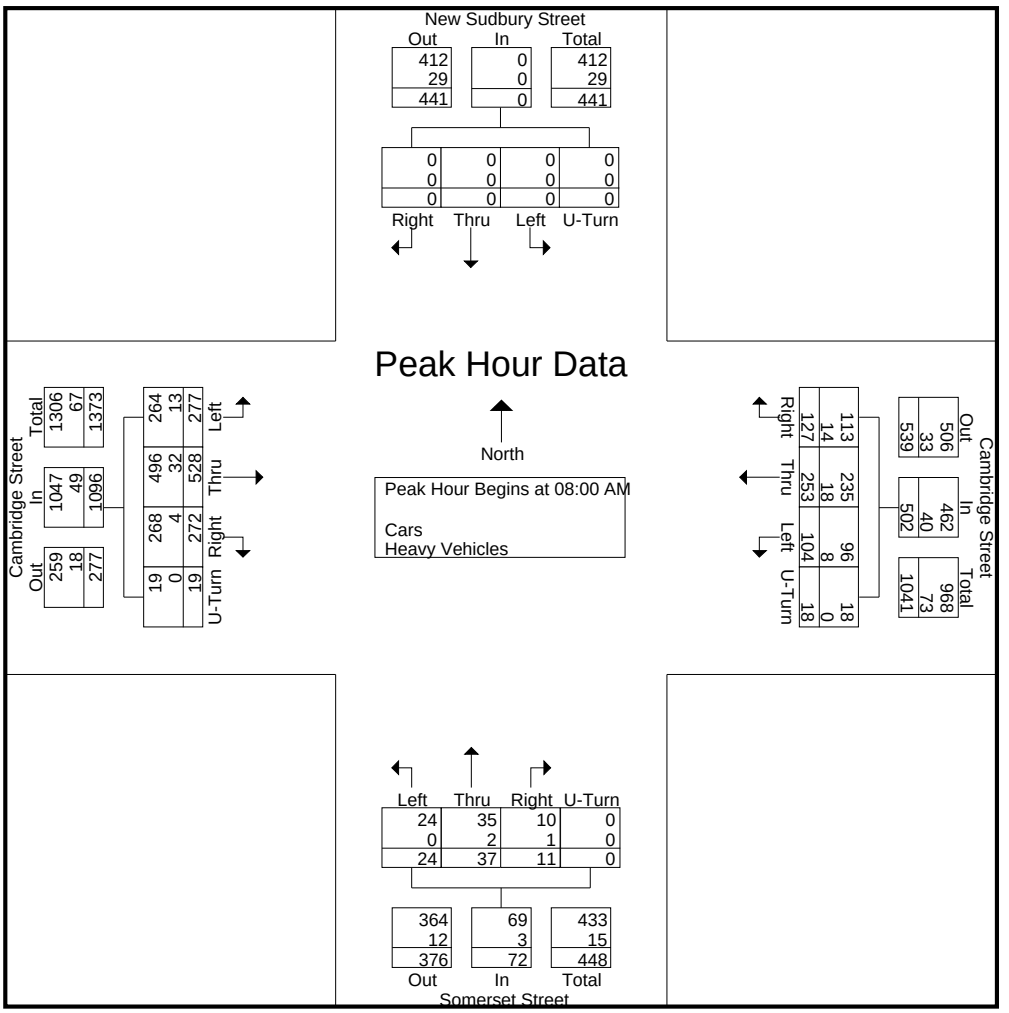
	New Sudbury Street From North					Cambridge Street From East					Somerset Street From South					Cambridge Street From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis 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	**38**	66	27	2	133	2	6	5	0	13	58	126	**82**	4	270	416
08:15 AM	0	0	0	0	0	25	49	22	6	102	2	**14**	**10**	0	**26**	71	133	62	**7**	273	401
08:30 AM	0	0	0	0	0	28	**84**	**29**	2	**143**	2	10	5	0	17	68	129	69	4	270	**430**
08:45 AM	0	0	0	0	0	36	54	26	**8**	124	**5**	7	4	0	16	**75**	**140**	64	4	**283**	423
Total Volume	0	0	0	0	0	127	253	104	18	502	11	37	24	0	72	272	528	277	19	1096	1670
% App. Total	0	0	0	0		25.3	50.4	20.7	3.6		15.3	51.4	33.3	0		24.8	48.2	25.3	1.7		
PHF	.000	.000	.000	.000	.000	.836	.753	.897	.563	.878	.550	.661	.600	.000	.692	.907	.943	.845	.679	.968	.971
Cars	0	0	0	0	0	113	235	96	18	462	10	35	24	0	69	268	496	264	19	1047	1578
% Cars	0	0	0	0	0	89.0	92.9	92.3	100	92.0	90.9	94.6	100	0	95.8	98.5	93.9	95.3	100	95.5	94.5
Heavy Vehicles	0	0	0	0	0	14	18	8	0	40	1	2	0	0	3	4	32	13	0	49	92
% Heavy Vehicles	0	0	0	0	0	11.0	7.1	7.7	0	8.0	9.1	5.4	0	0	4.2	1.5	6.1	4.7	0	4.5	5.5



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N/S: New Sudbury Street/ Somerset Street
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Client: Howard/Stein-Hudson/ K. Chronley

File Name : 133264 CC
Site Code : 2007190.
Start Date : 3/27/2013
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	New Sudbury Street From North				Cambridge Street From East				Somerset Street From South				Cambridge Street From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:00 PM	0	0	0	0	42	58	14	7	6	14	20	0	37	140	106	6	450
04:15 PM	0	0	0	0	34	62	13	8	12	25	13	0	37	134	93	7	438
04:30 PM	0	0	0	0	29	63	12	10	6	33	26	0	32	134	104	9	458
04:45 PM	0	0	0	0	25	74	4	9	8	30	17	0	33	148	91	5	444
Total	0	0	0	0	130	257	43	34	32	102	76	0	139	556	394	27	1790
05:00 PM	0	0	0	0	38	82	12	2	6	24	24	0	38	162	88	7	483
05:15 PM	0	0	0	0	46	93	5	6	6	29	26	0	32	161	108	5	517
05:30 PM	0	0	0	0	47	83	16	4	7	32	19	0	29	175	86	9	507
05:45 PM	0	0	0	0	31	89	18	7	10	22	17	0	27	159	103	6	489
Total	0	0	0	0	162	347	51	19	29	107	86	0	126	657	385	27	1996
Grand Total	0	0	0	0	292	604	94	53	61	209	162	0	265	1213	779	54	3786
Apprch %	0	0	0	0	28	57.9	9	5.1	14.1	48.4	37.5	0	11.5	52.5	33.7	2.3	
Total %	0	0	0	0	7.7	16	2.5	1.4	1.6	5.5	4.3	0	7	32	20.6	1.4	
Cars	0	0	0	0	273	598	94	52	60	208	160	0	258	1186	756	54	3699
% Cars	0	0	0	0	93.5	99	100	98.1	98.4	99.5	98.8	0	97.4	97.8	97	100	97.7
Heavy Vehicles	0	0	0	0	19	6	0	1	1	1	2	0	7	27	23	0	87
% Heavy Vehicles	0	0	0	0	6.5	1	0	1.9	1.6	0.5	1.2	0	2.6	2.2	3	0	2.3

	New Sudbury Street From North					Cambridge Street From East					Somerset Street From South					Cambridge Street From West					
Start Time	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	Int. 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	0	0	38	82	12	2	134	6	24	24	0	54	**38**	162	88	7	295	483
05:15 PM	0	0	0	0	0	46	**93**	5	6	**150**	6	29	**26**	0	**61**	32	161	**108**	5	**306**	**517**
05:30 PM	0	0	0	0	0	**47**	83	16	4	150	7	**32**	19	0	58	29	**175**	86	**9**	299	507
05:45 PM	0	0	0	0	0	31	89	**18**	**7**	145	**10**	22	17	0	49	27	159	103	6	295	489
Total Volume	0	0	0	0	0	162	347	51	19	579	29	107	86	0	222	126	657	385	27	1195	1996
% App. Total	0	0	0	0		28	59.9	8.8	3.3		13.1	48.2	38.7	0		10.5	55	32.2	2.3		
PHF	.000	.000	.000	.000	.000	.862	.933	.708	.679	.965	.725	.836	.827	.000	.910	.829	.939	.891	.750	.976	.965
Cars	0	0	0	0	0	154	344	51	19	568	28	107	85	0	220	121	646	375	27	1169	1957
% Cars	0	0	0	0	0	95.1	99.1	100	100	98.1	96.6	100	98.8	0	99.1	96.0	98.3	97.4	100	97.8	98.0
Heavy Vehicles	0	0	0	0	0	8	3	0	0	11	1	0	1	0	2	5	11	10	0	26	39
% Heavy Vehicles	0	0	0	0	0	4.9	0.9	0	0	1.9	3.4	0	1.2	0	0.9	4.0	1.7	2.6	0	2.2	2.0

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N/S: New Sudbury Street/ Somerset Street
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File Name : 133264 CC
Site Code : 2007190.
Start Date : 3/27/2013
Page No : 1

Groups Printed- Peds and Bicycles

	New Sudbury Street From North				Cambridge Street From East				Somerset Street From South				Cambridge Street From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
04:00 PM	0	0	0	86	0	1	0	64	0	0	0	128	0	6	0	72	357
04:15 PM	0	0	0	75	0	7	0	62	0	0	0	93	0	0	0	25	262
04:30 PM	0	0	0	102	0	8	1	48	0	0	0	109	0	4	0	64	336
04:45 PM	0	0	0	71	0	2	0	55	0	0	0	91	0	1	0	57	277
Total	0	0	0	334	0	18	1	229	0	0	0	421	0	11	0	218	1232
05:00 PM	0	0	0	141	0	20	0	83	1	0	0	139	0	0	0	60	444
05:15 PM	0	0	0	160	0	17	0	73	0	0	1	149	0	0	2	49	451
05:30 PM	0	0	0	111	0	19	0	42	0	0	1	133	0	0	0	45	351
05:45 PM	0	0	0	123	0	24	0	46	0	0	1	112	0	1	1	31	339
Total	0	0	0	535	0	80	0	244	1	0	3	533	0	1	3	185	1585
Grand Total	0	0	0	869	0	98	1	473	1	0	3	954	0	12	3	403	2817
Apprch %	0	0	0	100	0	17.1	0.2	82.7	0.1	0	0.3	99.6	0	2.9	0.7	96.4	
Total %	0	0	0	30.8	0	3.5	0	16.8	0	0	0.1	33.9	0	0.4	0.1	14.3	

	New Sudbury Street From North					Cambridge Street From East					Somerset Street From South					Cambridge Street From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. 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	141	141	0	20	0	**83**	**103**	**1**	0	0	139	140	0	0	0	**60**	**60**	444
05:15 PM	0	0	0	**160**	**160**	0	17	0	73	90	0	0	**1**	**149**	**150**	0	0	**2**	49	51	**451**
05:30 PM	0	0	0	111	111	0	19	0	42	61	0	0	1	133	134	0	0	0	45	45	351
05:45 PM	0	0	0	123	123	0	**24**	0	46	70	0	0	1	112	113	0	**1**	1	31	33	339
Total Volume	0	0	0	535	535	0	80	0	244	324	1	0	3	533	537	0	1	3	185	189	1585
% App. Total	0	0	0	100		0	24.7	0	75.3		0.2	0	0.6	99.3		0	0.5	1.6	97.9		
PHF	.000	.000	.000	.836	.836	.000	.833	.000	.735	.786	.250	.000	.750	.894	.895	.000	.250	.375	.771	.788	.879

N/S: New Sudbury Street/ Somerset Street
E/W: Cambridge Street
City, State: Boston, MA
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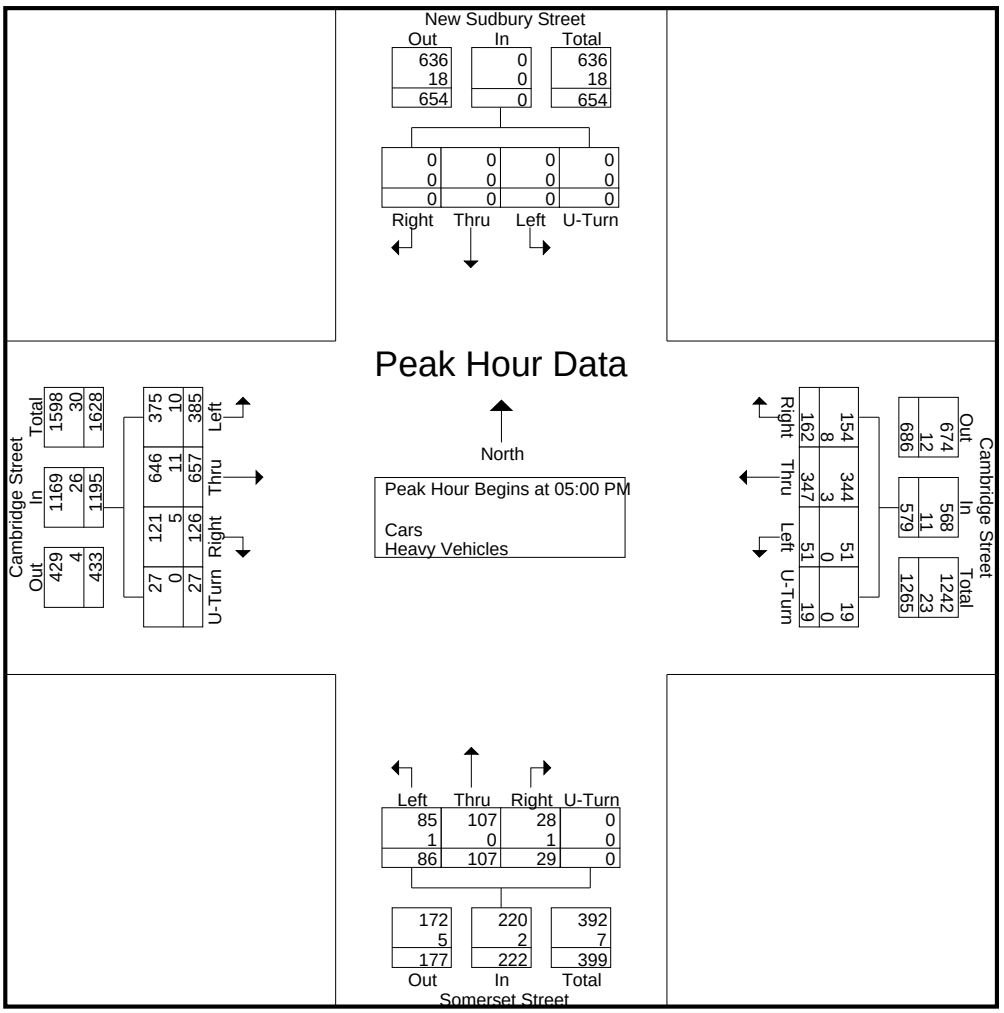
	New Sudbury Street From North					Cambridge Street From East					Somerset Street From South					Cambridge Street From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis 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	0	0	38	82	12	2	134	6	24	24	0	54	**38**	162	88	7	295	483
05:15 PM	0	0	0	0	0	46	**93**	5	6	**150**	6	29	**26**	0	**61**	32	161	**108**	5	**306**	**517**
05:30 PM	0	0	0	0	0	**47**	83	16	4	150	7	**32**	19	0	58	29	**175**	86	**9**	299	507
05:45 PM	0	0	0	0	0	31	89	**18**	**7**	145	**10**	22	17	0	49	27	159	103	6	295	489
Total Volume	0	0	0	0	0	162	347	51	19	579	29	107	86	0	222	126	657	385	27	1195	1996
% App. Total	0	0	0	0		28	59.9	8.8	3.3		13.1	48.2	38.7	0		10.5	55	32.2	2.3		
PHF	.000	.000	.000	.000	.000	.862	.933	.708	.679	.965	.725	.836	.827	.000	.910	.829	.939	.891	.750	.976	.965
Cars	0	0	0	0	0	154	344	51	19	568	28	107	85	0	220	121	646	375	27	1169	1957
% Cars	0	0	0	0	0	95.1	99.1	100	100	98.1	96.6	100	98.8	0	99.1	96.0	98.3	97.4	100	97.8	98.0
Heavy Vehicles	0	0	0	0	0	8	3	0	0	11	1	0	1	0	2	5	11	10	0	26	39
% Heavy Vehicles	0	0	0	0	0	4.9	0.9	0	0	1.9	3.4	0	1.2	0	0.9	4.0	1.7	2.6	0	2.2	2.0



N: Garage
E/W: Sudbury Street
City, State: Boston, MA
Client: Howard Stein-Hudson/ B. Beisel

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File Name : 154673 N
Site Code : 2007190
Start Date : 9/23/2015
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Garage From North			Sudbury Street From East			Sudbury Street From West			
Start Time	Right	Left	U-Turn	Right	Thru	U-Turn	Thru	Left	U-Turn	Int. Total
07:00 AM	0	0	0	0	0	0	116	6	0	122
07:15 AM	0	0	0	0	0	0	120	7	0	127
07:30 AM	0	0	0	0	0	0	130	10	0	140
07:45 AM	0	0	0	0	0	0	152	14	0	166
Total	0	0	0	0	0	0	518	37	0	555
08:00 AM	0	0	0	0	0	0	139	8	0	147
08:15 AM	0	0	0	0	0	0	143	19	0	162
08:30 AM	0	0	0	0	0	0	100	12	0	112
08:45 AM	0	0	0	0	0	0	126	19	0	145
Total	0	0	0	0	0	0	508	58	0	566
Grand Total	0	0	0	0	0	0	1026	95	0	1121
Apprch %	0	0	0	0	0	0	91.5	8.5	0	
Total %	0	0	0	0	0	0	91.5	8.5	0	
Cars	0	0	0	0	0	0	961	95	0	1056
% Cars	0	0	0	0	0	0	93.7	100	0	94.2
Heavy Vehicles	0	0	0	0	0	0	65	0	0	65
% Heavy Vehicles	0	0	0	0	0	0	6.3	0	0	5.8

	Garage From North				Sudbury Street From East				Sudbury Street From West				
Start Time	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Thru	Left	U-Turn	App. Total	Int. 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	0	0	0	130	10	0	140	140
07:45 AM	0	0	0	0	0	0	0	0	152	14	0	166	166
08:00 AM	0	0	0	0	0	0	0	0	139	8	0	147	147
08:15 AM	0	0	0	0	0	0	0	0	143	19	0	162	162
Total Volume	0	0	0	0	0	0	0	0	564	51	0	615	615
% App. Total	0	0	0		0	0	0		91.7	8.3	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.928	.671	.000	.926	.926
Cars	0	0	0	0	0	0	0	0	527	51	0	578	578
% Cars	0	0	0	0	0	0	0	0	93.4	100	0	94.0	94.0
Heavy Vehicles	0	0	0	0	0	0	0	0	37	0	0	37	37
% Heavy Vehicles	0	0	0	0	0	0	0	0	6.6	0	0	6.0	6.0

N: Garage
E/W: Sudbury Street
City, State: Boston, MA
Client: Howard Stein-Hudson/ B. Beisel

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Groups Printed- Peds and Bikes

	Garage From North				Sudbury Street From East				Sudbury Street From West				
Start Time	Right	Left	Peds EB	Peds WB	Right	Thru	Peds SB	Peds NB	Thru	Left	Peds NB	Peds SB	Int. Total
07:00 AM	0	0	10	37	0	1	51	8	1	0	0	1	109
07:15 AM	0	0	16	40	0	1	68	13	0	0	0	1	139
07:30 AM	0	0	14	52	0	0	81	17	4	0	0	4	172
07:45 AM	0	0	20	75	0	1	125	24	6	0	0	0	251
Total	0	0	60	204	0	3	325	62	11	0	0	6	671
08:00 AM	0	0	21	66	0	0	133	19	5	0	0	2	246
08:15 AM	0	0	21	50	0	0	94	43	8	0	0	1	217
08:30 AM	0	0	25	58	0	0	110	45	9	0	0	1	248
08:45 AM	0	0	26	51	0	0	124	43	5	0	0	1	250
Total	0	0	93	225	0	0	461	150	27	0	0	5	961
Grand Total	0	0	153	429	0	3	786	212	38	0	0	11	1632
Apprch %	0	0	26.3	73.7	0	0.3	78.5	21.2	77.6	0	0	22.4	
Total %	0	0	9.4	26.3	0	0.2	48.2	13	2.3	0	0	0.7	

	Garage From North					Sudbury Street From East					Sudbury Street From West					
Start Time	Right	Left	Peds EB	Peds WB	App. Total	Right	Thru	Peds SB	Peds NB	App. Total	Thru	Left	Peds NB	Peds SB	App. Total	Int. 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	20	75	95	0	1	125	24	150	6	0	0	0	6	251
08:00 AM	0	0	21	66	87	0	0	133	19	152	5	0	0	2	7	246
08:15 AM	0	0	21	50	71	0	0	94	43	137	8	0	0	1	9	217
08:30 AM	0	0	25	58	83	0	0	110	45	155	9	0	0	1	10	248
Total Volume	0	0	87	249	336	0	1	462	131	594	28	0	0	4	32	962
% App. Total	0	0	25.9	74.1		0	0.2	77.8	22.1		87.5	0	0	12.5		
PHF	.000	.000	.870	.830	.884	.000	.250	.868	.728	.958	.778	.000	.000	.500	.800	.958

N: Garage
E/W: Sudbury Street
City, State: Boston, MA
Client: Howard Stein-Hudson/ B. Beisel

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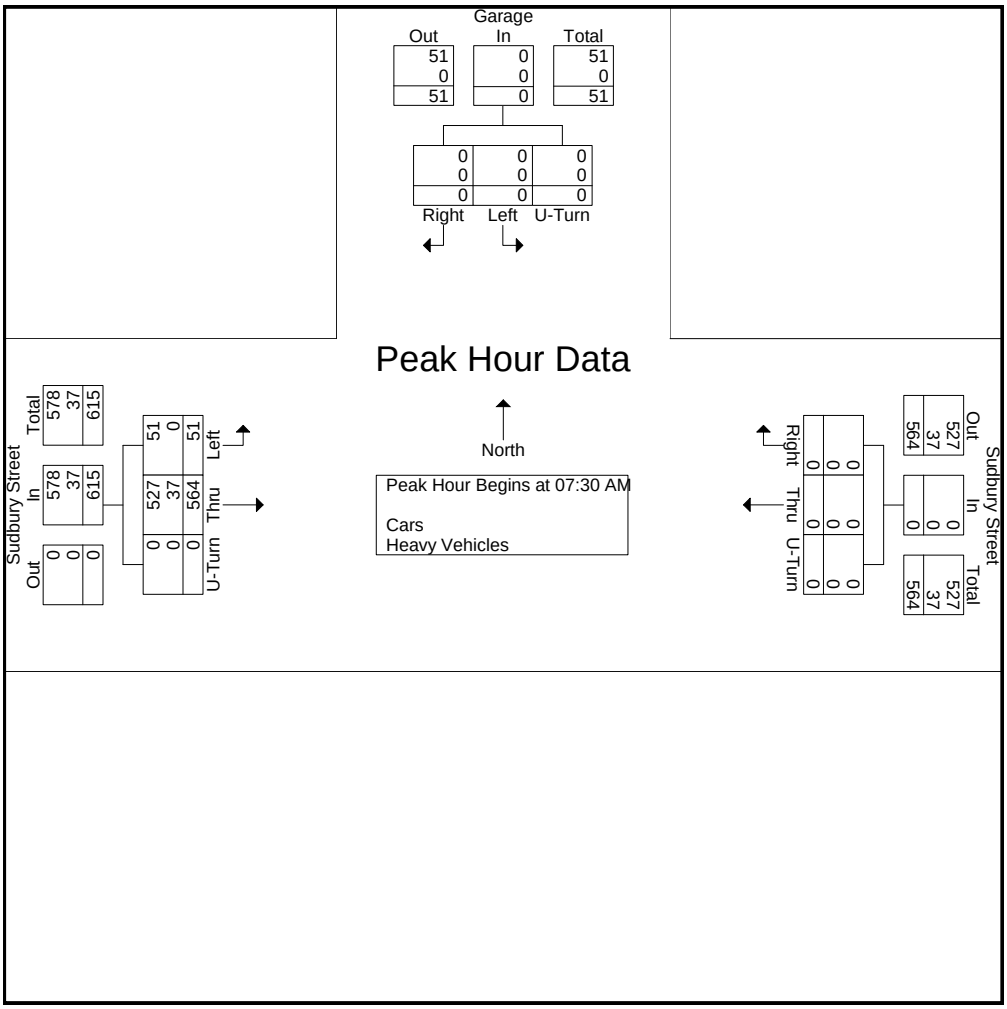
	Garage From North				Sudbury Street From East				Sudbury Street From West				
Start Time	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:30 AM													
07:30 AM	0	0	0	0	0	0	0	0	130	10	0	140	140
07:45 AM	0	0	0	0	0	0	0	0	152	14	0	166	166
08:00 AM	0	0	0	0	0	0	0	0	139	8	0	147	147
08:15 AM	0	0	0	0	0	0	0	0	143	19	0	162	162
Total Volume	0	0	0	0	0	0	0	0	564	51	0	615	615
% App. Total	0	0	0		0	0	0		91.7	8.3	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.928	.671	.000	.926	.926
Cars	0	0	0	0	0	0	0	0	527	51	0	578	578
% Cars	0	0	0	0	0	0	0	0	93.4	100	0	94.0	94.0
Heavy Vehicles	0	0	0	0	0	0	0	0	37	0	0	37	37
% Heavy Vehicles	0	0	0	0	0	0	0	0	6.6	0	0	6.0	6.0



N: Garage
E/W: Sudbury Street
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Groups Printed- Cars - Heavy Vehicles

	Garage From North			Sudbury Street From East			Sudbury Street From West			
Start Time	Right	Left	U-Turn	Right	Thru	U-Turn	Thru	Left	U-Turn	Int. Total
04:00 PM	0	0	0	0	0	0	174	0	0	174
04:15 PM	0	0	0	0	0	0	138	3	0	141
04:30 PM	0	0	0	0	0	0	168	0	0	168
04:45 PM	0	0	0	0	0	0	150	2	0	152
Total	0	0	0	0	0	0	630	5	0	635
05:00 PM	0	0	0	0	0	0	130	1	0	131
05:15 PM	0	0	0	0	0	0	185	5	0	190
05:30 PM	0	0	0	0	0	0	164	14	0	178
05:45 PM	0	0	0	0	0	0	171	7	0	178
Total	0	0	0	0	0	0	650	27	0	677
Grand Total	0	0	0	0	0	0	1280	32	0	1312
Apprch %	0	0	0	0	0	0	97.6	2.4	0	
Total %	0	0	0	0	0	0	97.6	2.4	0	
Cars	0	0	0	0	0	0	1216	32	0	1248
% Cars	0	0	0	0	0	0	95	100	0	95.1
Heavy Vehicles	0	0	0	0	0	0	64	0	0	64
% Heavy Vehicles	0	0	0	0	0	0	5	0	0	4.9

	Garage From North				Sudbury Street From East				Sudbury Street From West				
Start Time	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Thru	Left	U-Turn	App. Total	Int. 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	0	0	0	0	0	130	1	0	131	131
05:15 PM	0	0	0	0	0	0	0	0	185	5	0	190	190
05:30 PM	0	0	0	0	0	0	0	0	164	14	0	178	178
05:45 PM	0	0	0	0	0	0	0	0	171	7	0	178	178
Total Volume	0	0	0	0	0	0	0	0	650	27	0	677	677
% App. Total	0	0	0		0	0	0		96	4	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.878	.482	.000	.891	.891
Cars	0	0	0	0	0	0	0	0	620	27	0	647	647
% Cars	0	0	0	0	0	0	0	0	95.4	100	0	95.6	95.6
Heavy Vehicles	0	0	0	0	0	0	0	0	30	0	0	30	30
% Heavy Vehicles	0	0	0	0	0	0	0	0	4.6	0	0	4.4	4.4

N: Garage
E/W: Sudbury Street
City, State: Boston, MA
Client: Howard Stein-Hudson/ B. Beisel

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Groups Printed- Peds and Bikes

	Garage From North				Sudbury Street From East				Sudbury Street From West				
Start Time	Right	Left	Peds EB	Peds WB	Right	Thru	Peds SB	Peds NB	Thru	Left	Peds NB	Peds SB	Int. Total
04:00 PM	0	0	41	18	0	0	44	85	2	0	1	0	191
04:15 PM	0	0	28	20	0	0	59	46	0	0	0	1	154
04:30 PM	0	0	43	25	0	0	30	44	1	0	3	0	146
04:45 PM	0	0	35	20	0	0	50	140	2	0	0	0	247
Total	0	0	147	83	0	0	183	315	5	0	4	1	738
05:00 PM	0	0	72	35	0	0	42	184	2	0	0	0	335
05:15 PM	0	0	57	27	0	0	46	211	3	0	1	0	345
05:30 PM	0	0	49	31	0	0	34	152	3	0	0	2	271
05:45 PM	0	0	35	26	0	0	38	53	1	0	0	1	154
Total	0	0	213	119	0	0	160	600	9	0	1	3	1105
Grand Total	0	0	360	202	0	0	343	915	14	0	5	4	1843
Apprch %	0	0	64.1	35.9	0	0	27.3	72.7	60.9	0	21.7	17.4	
Total %	0	0	19.5	11	0	0	18.6	49.6	0.8	0	0.3	0.2	

	Garage From North					Sudbury Street From East					Sudbury Street From West					
Start Time	Right	Left	Peds EB	Peds WB	App. Total	Right	Thru	Peds SB	Peds NB	App. Total	Thru	Left	Peds NB	Peds SB	App. Total	Int. 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	35	20	55	0	0	50	140	190	2	0	0	0	2	247
05:00 PM	0	0	72	35	107	0	0	42	184	226	2	0	0	0	2	335
05:15 PM	0	0	57	27	84	0	0	46	211	257	3	0	1	0	4	345
05:30 PM	0	0	49	31	80	0	0	34	152	186	3	0	0	2	5	271
Total Volume	0	0	213	113	326	0	0	172	687	859	10	0	1	2	13	1198
% App. Total	0	0	65.3	34.7		0	0	20	80		76.9	0	7.7	15.4		
PHF	.000	.000	.740	.807	.762	.000	.000	.860	.814	.836	.833	.000	.250	.250	.650	.868

N: Garage
E/W: Sudbury Street
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Client: Howard Stein-Hudson/ B. Beisel

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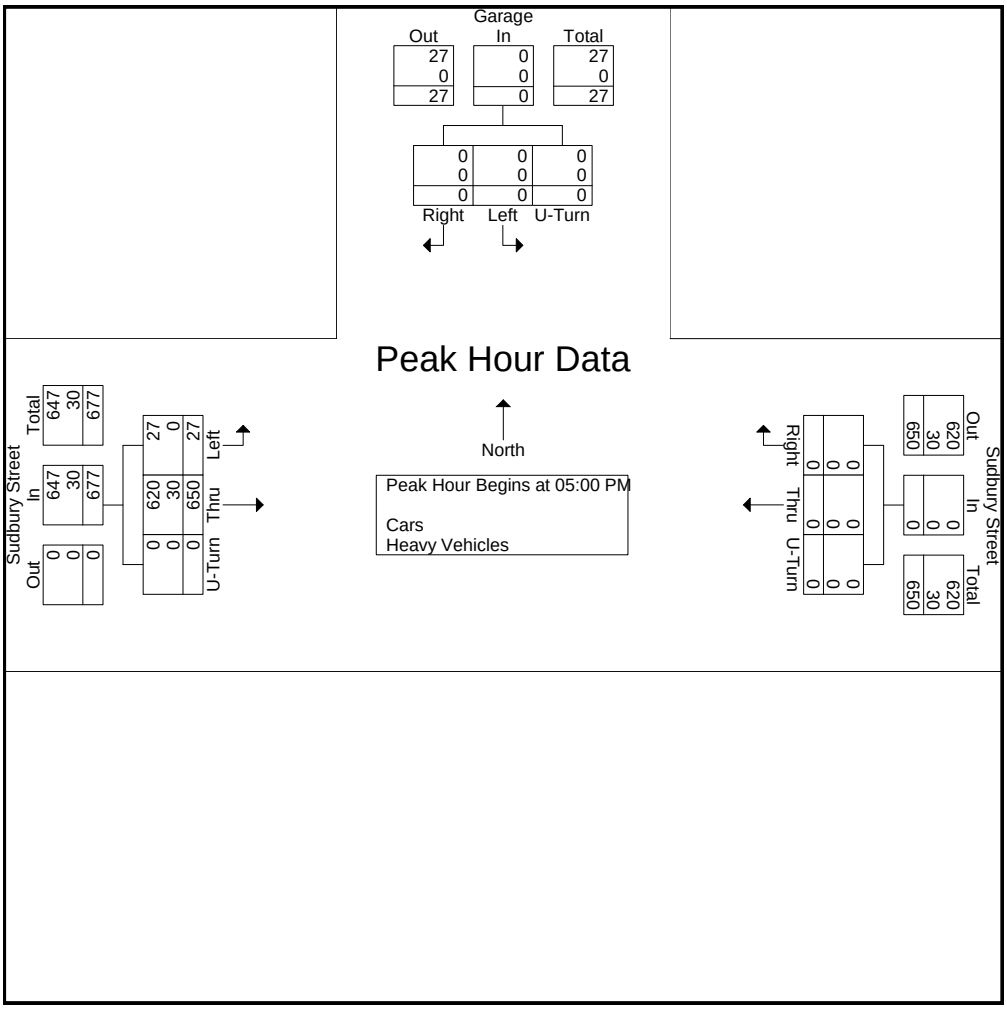
	Garage From North				Sudbury Street From East				Sudbury Street From West				
Start Time	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 05:00 PM													
05:00 PM	0	0	0	0	0	0	0	0	130	1	0	131	131
05:15 PM	0	0	0	0	0	0	0	0	185	5	0	190	190
05:30 PM	0	0	0	0	0	0	0	0	164	14	0	178	178
05:45 PM	0	0	0	0	0	0	0	0	171	7	0	178	178
Total Volume	0	0	0	0	0	0	0	0	650	27	0	677	677
% App. Total	0	0	0		0	0	0		96	4	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.878	.482	.000	.891	.891
Cars	0	0	0	0	0	0	0	0	620	27	0	647	647
% Cars	0	0	0	0	0	0	0	0	95.4	100	0	95.6	95.6
Heavy Vehicles	0	0	0	0	0	0	0	0	30	0	0	30	30
% Heavy Vehicles	0	0	0	0	0	0	0	0	4.6	0	0	4.4	4.4



N/S: Congress Street
E/W: Sudbury Street
City, State: Boston, MA
Client: Howard Stein-Hudson/ B. Beisel

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Groups Printed- Cars - Heavy Vehicles

	Congress Street From North				Sudbury Street From East				Congress Street From South				Sudbury Street From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
07:00 AM	0	80	14	3	0	0	0	0	31	130	0	3	26	48	34	0	369
07:15 AM	0	116	22	1	0	0	0	0	28	134	0	4	43	48	38	0	434
07:30 AM	0	94	15	0	0	0	0	0	35	133	0	3	28	53	36	0	397
07:45 AM	0	138	23	0	0	0	0	0	34	155	0	7	37	61	54	0	509
Total	0	428	74	4	0	0	0	0	128	552	0	17	134	210	162	0	1709
08:00 AM	0	125	22	0	0	0	0	0	33	199	0	0	36	46	50	0	511
08:15 AM	0	130	13	0	0	0	0	0	40	219	0	3	39	62	40	0	546
08:30 AM	0	128	20	1	0	0	0	0	44	223	0	5	24	47	21	0	513
08:45 AM	0	139	33	3	0	0	0	0	50	200	0	6	40	59	37	0	567
Total	0	522	88	4	0	0	0	0	167	841	0	14	139	214	148	0	2137
Grand Total	0	950	162	8	0	0	0	0	295	1393	0	31	273	424	310	0	3846
Apprch %	0	84.8	14.5	0.7	0	0	0	0	17.2	81	0	1.8	27.1	42.1	30.8	0	
Total %	0	24.7	4.2	0.2	0	0	0	0	7.7	36.2	0	0.8	7.1	11	8.1	0	
Cars	0	863	154	7	0	0	0	0	250	1290	0	31	257	396	294	0	3542
% Cars	0	90.8	95.1	87.5	0	0	0	0	84.7	92.6	0	100	94.1	93.4	94.8	0	92.1
Heavy Vehicles	0	87	8	1	0	0	0	0	45	103	0	0	16	28	16	0	304
% Heavy Vehicles	0	9.2	4.9	12.5	0	0	0	0	15.3	7.4	0	0	5.9	6.6	5.2	0	7.9

	Congress Street From North					Sudbury Street From East					Congress Street From South					Sudbury Street From West					
Start Time	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	Int. 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	125	22	0	147	0	0	0	0	0	33	199	0	0	232	36	46	50	0	132	511
08:15 AM	0	130	13	0	143	0	0	0	0	0	40	219	0	3	262	39	62	40	0	141	546
08:30 AM	0	128	20	1	149	0	0	0	0	0	44	223	0	5	272	24	47	21	0	92	513
08:45 AM	0	139	33	3	175	0	0	0	0	0	50	200	0	6	256	40	59	37	0	136	567
Total Volume	0	522	88	4	614	0	0	0	0	0	167	841	0	14	1022	139	214	148	0	501	2137
% App. Total	0	85	14.3	0.7		0	0	0	0		16.3	82.3	0	1.4		27.7	42.7	29.5	0		
PHF	.000	.939	.667	.333	.877	.000	.000	.000	.000	.000	.835	.943	.000	.583	.939	.869	.863	.740	.000	.888	.942
Cars	0	478	85	4	567	0	0	0	0	0	144	789	0	14	947	134	202	141	0	477	1991
% Cars	0	91.6	96.6	100	92.3	0	0	0	0	0	86.2	93.8	0	100	92.7	96.4	94.4	95.3	0	95.2	93.2
Heavy Vehicles	0	44	3	0	47	0	0	0	0	0	23	52	0	0	75	5	12	7	0	24	146
% Heavy Vehicles	0	8.4	3.4	0	7.7	0	0	0	0	0	13.8	6.2	0	0	7.3	3.6	5.6	4.7	0	4.8	6.8

N/S: Congress Street
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Groups Printed- Peds and Bikes

	Congress Street From North					Sudbury Street From East					Congress Street From South					Sudbury Street From West					
Start Time	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	Int. Total
07:00 AM	0	6	0	6	45	0	0	1	139	29	0	1	0	31	6	0	0	0	7	49	320
07:15 AM	0	9	0	7	44	0	0	0	136	16	0	1	0	38	17	0	0	0	13	70	351
07:30 AM	0	12	0	7	51	0	0	0	199	30	0	1	0	68	13	1	0	0	16	88	486
07:45 AM	0	6	0	8	74	0	0	0	311	28	0	0	0	63	7	0	2	0	23	141	663
Total	0	33	0	28	214	0	0	1	785	103	0	3	0	200	43	1	2	0	59	348	1820
08:00 AM	0	6	0	17	112	0	0	0	341	26	0	5	0	64	25	0	1	0	17	137	751
08:15 AM	0	14	2	15	75	0	0	0	286	58	0	3	0	87	9	1	3	0	53	119	725
08:30 AM	0	16	0	28	92	0	0	0	356	46	0	1	0	130	29	0	4	0	36	123	861
08:45 AM	0	21	0	22	69	0	0	0	341	42	0	3	0	97	34	0	3	0	44	145	821
Total	0	57	2	82	348	0	0	0	1324	172	0	12	0	378	97	1	11	0	150	524	3158
Grand Total	0	90	2	110	562	0	0	1	2109	275	0	15	0	578	140	2	13	0	209	872	4978
Apprch %	0	11.8	0.3	14.4	73.6	0	0	0	88.4	11.5	0	2	0	78.9	19.1	0.2	1.2	0	19.1	79.6	
Total %	0	1.8	0	2.2	11.3	0	0	0	42.4	5.5	0	0.3	0	11.6	2.8	0	0.3	0	4.2	17.5	

	Congress Street From North						Sudbury Street From East						Congress Street From South						Sudbury Street From West						
Start Time	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	Int. 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	6	0	17	112	135	0	0	0	341	26	367	0	5	0	64	25	94	0	1	0	17	137	155	751
08:15 AM	0	14	2	15	75	106	0	0	0	286	58	344	0	3	0	87	9	99	1	3	0	53	119	176	725
08:30 AM	0	16	0	28	92	136	0	0	0	356	46	402	0	1	0	130	29	160	0	4	0	36	123	163	861
08:45 AM	0	21	0	22	69	112	0	0	0	341	42	383	0	3	0	97	34	134	0	3	0	44	145	192	821
Total Volume	0	57	2	82	348	489	0	0	0	1324	172	1496	0	12	0	378	97	487	1	11	0	150	524	686	3158
% App. Total	0	11.7	0.4	16.8	71.2		0	0	0	88.5	11.5		0	2.5	0	77.6	19.9		0.1	1.6	0	21.9	76.4		
PHF	.000	.679	.250	.732	.777	.899	.000	.000	.000	.930	.741	.930	.000	.600	.000	.727	.713	.761	.250	.688	.000	.708	.903	.893	.917

N/S: Congress Street
E/W: Sudbury Street
City, State: Boston, MA
Client: Howard Stein-Hudson/ B. Beisel

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File Name : 154673 I
Site Code : 2007190
Start Date : 9/23/2015
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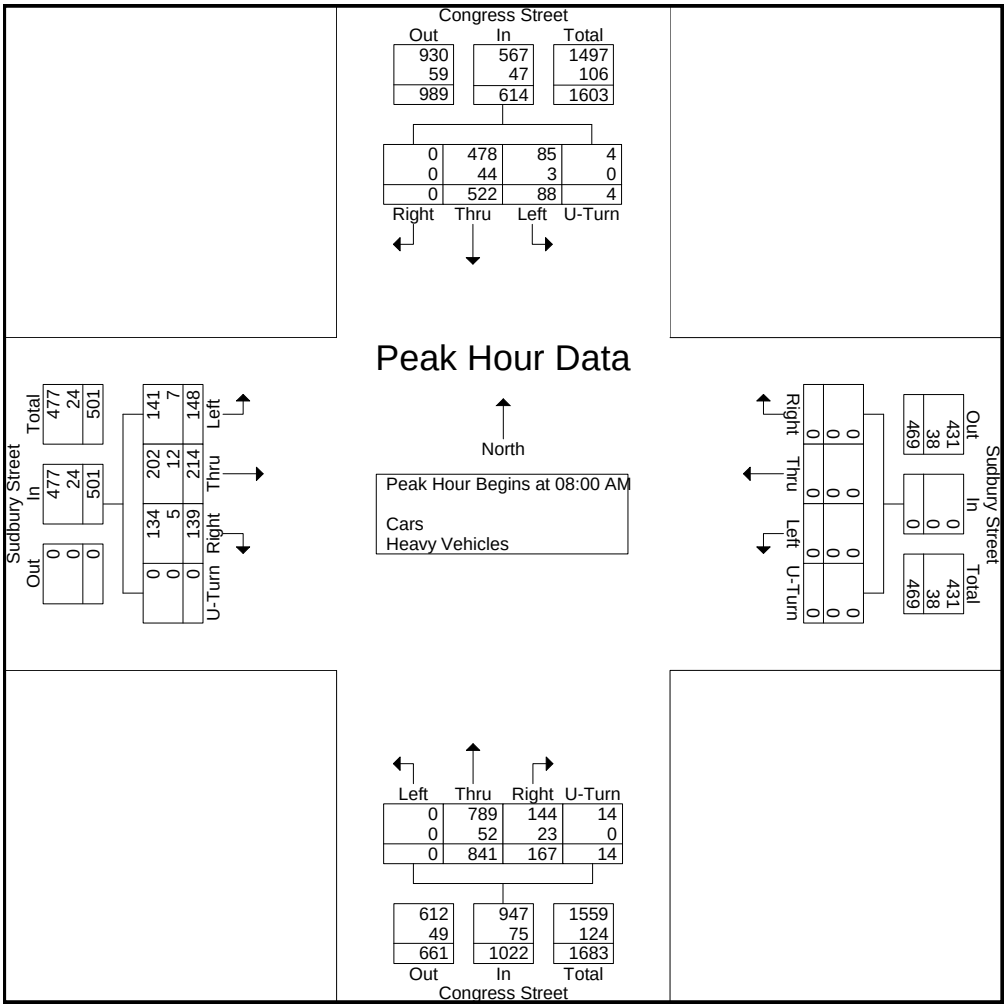
	Congress Street From North					Sudbury Street From East					Congress Street From South					Sudbury Street From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 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	125	22	0	147	0	0	0	0	0	33	199	0	0	232	36	46	50	0	132	511
08:15 AM	0	130	13	0	143	0	0	0	0	0	40	219	0	3	262	39	62	40	0	141	546
08:30 AM	0	128	20	1	149	0	0	0	0	0	44	223	0	5	272	24	47	21	0	92	513
08:45 AM	0	139	33	3	175	0	0	0	0	0	50	200	0	6	256	40	59	37	0	136	567
Total Volume	0	522	88	4	614	0	0	0	0	0	167	841	0	14	1022	139	214	148	0	501	2137
% App. Total	0	85	14.3	0.7		0	0	0	0		16.3	82.3	0	1.4		27.7	42.7	29.5	0		
PHF	.000	.939	.667	.333	.877	.000	.000	.000	.000	.000	.835	.943	.000	.583	.939	.869	.863	.740	.000	.888	.942
Cars	0	478	85	4	567	0	0	0	0	0	144	789	0	14	947	134	202	141	0	477	1991
% Cars	0	91.6	96.6	100	92.3	0	0	0	0	0	86.2	93.8	0	100	92.7	96.4	94.4	95.3	0	95.2	93.2
Heavy Vehicles	0	44	3	0	47	0	0	0	0	0	23	52	0	0	75	5	12	7	0	24	146
% Heavy Vehicles	0	8.4	3.4	0	7.7	0	0	0	0	0	13.8	6.2	0	0	7.3	3.6	5.6	4.7	0	4.8	6.8



N/S: Congress Street
E/W: Sudbury Street
City, State: Boston, MA
Client: Howard Stein-Hudson/ B. Beisel

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File Name : 154673 II
Site Code : 2007190
Start Date : 9/23/2015
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Groups Printed- Cars - Heavy Vehicles

	Congress Street From North				Sudbury Street From East				Congress Street From South				Sudbury Street From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:00 PM	0	138	31	0	1	0	0	0	77	183	0	3	43	90	47	0	613
04:15 PM	0	108	35	0	0	0	0	0	91	182	0	5	37	73	32	0	563
04:30 PM	0	124	32	3	0	0	0	0	102	174	0	2	45	86	37	0	605
04:45 PM	0	127	28	1	0	0	0	0	88	180	0	0	37	83	33	0	577
Total	0	497	126	4	1	0	0	0	358	719	0	10	162	332	149	0	2358
05:00 PM	0	91	26	0	0	0	0	0	110	195	0	1	37	81	33	0	574
05:15 PM	0	84	30	0	0	0	0	0	91	173	0	0	28	94	43	0	543
05:30 PM	0	93	30	1	0	0	0	0	115	184	0	0	26	94	43	0	586
05:45 PM	0	87	36	1	0	0	0	0	106	170	0	0	26	108	30	0	564
Total	0	355	122	2	0	0	0	0	422	722	0	1	117	377	149	0	2267
Grand Total	0	852	248	6	1	0	0	0	780	1441	0	11	279	709	298	0	4625
Apprch %	0	77	22.4	0.5	100	0	0	0	34.9	64.6	0	0.5	21.7	55.1	23.2	0	
Total %	0	18.4	5.4	0.1	0	0	0	0	16.9	31.2	0	0.2	6	15.3	6.4	0	
Cars	0	764	241	6	1	0	0	0	736	1399	0	11	269	674	283	0	4384
% Cars	0	89.7	97.2	100	100	0	0	0	94.4	97.1	0	100	96.4	95.1	95	0	94.8
Heavy Vehicles	0	88	7	0	0	0	0	0	44	42	0	0	10	35	15	0	241
% Heavy Vehicles	0	10.3	2.8	0	0	0	0	0	5.6	2.9	0	0	3.6	4.9	5	0	5.2

	Congress Street From North					Sudbury Street From East					Congress Street From South					Sudbury Street From West					
Start Time	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	Int. 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	138	31	0	169	1	0	0	0	1	77	183	0	3	263	43	90	47	0	180	613
04:15 PM	0	108	35	0	143	0	0	0	0	0	91	182	0	5	278	37	73	32	0	142	563
04:30 PM	0	124	32	3	159	0	0	0	0	0	102	174	0	2	278	45	86	37	0	168	605
04:45 PM	0	127	28	1	156	0	0	0	0	0	88	180	0	0	268	37	83	33	0	153	577
Total Volume	0	497	126	4	627	1	0	0	0	1	358	719	0	10	1087	162	332	149	0	643	2358
% App. Total	0	79.3	20.1	0.6		100	0	0	0		32.9	66.1	0	0.9		25.2	51.6	23.2	0		
PHF	.000	.900	.900	.333	.928	.250	.000	.000	.000	.250	.877	.982	.000	.500	.978	.900	.922	.793	.000	.893	.962
Cars	0	440	123	4	567	1	0	0	0	1	334	696	0	10	1040	153	314	141	0	608	2216
% Cars	0	88.5	97.6	100	90.4	100	0	0	0	100	93.3	96.8	0	100	95.7	94.4	94.6	94.6	0	94.6	94.0
Heavy Vehicles	0	57	3	0	60	0	0	0	0	0	24	23	0	0	47	9	18	8	0	35	142
% Heavy Vehicles	0	11.5	2.4	0	9.6	0	0	0	0	0	6.7	3.2	0	0	4.3	5.6	5.4	5.4	0	5.4	6.0

N/S: Congress Street
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File Name : 154673 II
Site Code : 2007190
Start Date : 9/23/2015
Page No : 1

Groups Printed- Peds and Bikes

	Congress Street From North					Sudbury Street From East					Congress Street From South					Sudbury Street From West					
Start Time	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	Int. Total
04:00 PM	0	5	0	12	5	0	0	0	85	279	0	7	0	27	68	0	0	0	78	36	602
04:15 PM	0	2	0	23	9	0	0	0	94	165	0	6	0	23	71	0	1	0	62	46	502
04:30 PM	0	1	0	30	7	0	0	0	88	194	0	7	0	23	77	0	1	0	60	33	521
04:45 PM	0	1	0	27	10	0	0	0	92	194	0	11	0	26	64	0	2	0	91	39	557
Total	0	9	0	92	31	0	0	0	359	832	0	31	0	99	280	0	4	0	291	154	2182
05:00 PM	0	1	0	53	17	0	0	0	89	267	1	11	0	22	81	1	0	0	156	36	735
05:15 PM	0	0	0	65	15	0	0	0	80	313	0	7	0	41	87	0	0	0	138	32	778
05:30 PM	0	0	0	39	10	0	0	0	64	234	1	17	0	44	70	0	3	0	131	27	640
05:45 PM	0	3	0	26	18	0	0	0	57	109	0	11	0	28	71	0	1	0	60	28	412
Total	0	4	0	183	60	0	0	0	290	923	2	46	0	135	309	1	4	0	485	123	2565
Grand Total	0	13	0	275	91	0	0	0	649	1755	2	77	0	234	589	1	8	0	776	277	4747
Apprch %	0	3.4	0	72.6	24	0	0	0	27	73	0.2	8.5	0	25.9	65.3	0.1	0.8	0	73.1	26.1	
Total %	0	0.3	0	5.8	1.9	0	0	0	13.7	37	0	1.6	0	4.9	12.4	0	0.2	0	16.3	5.8	

	Congress Street From North						Sudbury Street From East						Congress Street From South						Sudbury Street From West						
Start Time	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	Int. 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	27	10	38	0	0	0	92	194	286	0	11	0	26	64	101	0	2	0	91	39	132	557
05:00 PM	0	1	0	53	17	71	0	0	0	89	267	356	1	11	0	22	81	115	1	0	0	156	36	193	735
05:15 PM	0	0	0	65	15	80	0	0	0	80	313	393	0	7	0	41	87	135	0	0	0	138	32	170	778
05:30 PM	0	0	0	39	10	49	0	0	0	64	234	298	1	17	0	44	70	132	0	3	0	131	27	161	640
Total Volume	0	2	0	184	52	238	0	0	0	325	1008	1333	2	46	0	133	302	483	1	5	0	516	134	656	2710
% App. Total	0	0.8	0	77.3	21.8		0	0	0	24.4	75.6		0.4	9.5	0	27.5	62.5		0.2	0.8	0	78.7	20.4		
PHF	.000	.500	.000	.708	.765	.744	.000	.000	.000	.883	.805	.848	.500	.676	.000	.756	.868	.894	.250	.417	.000	.827	.859	.850	.871

N/S: Congress Street
E/W: Sudbury Street
City, State: Boston, MA
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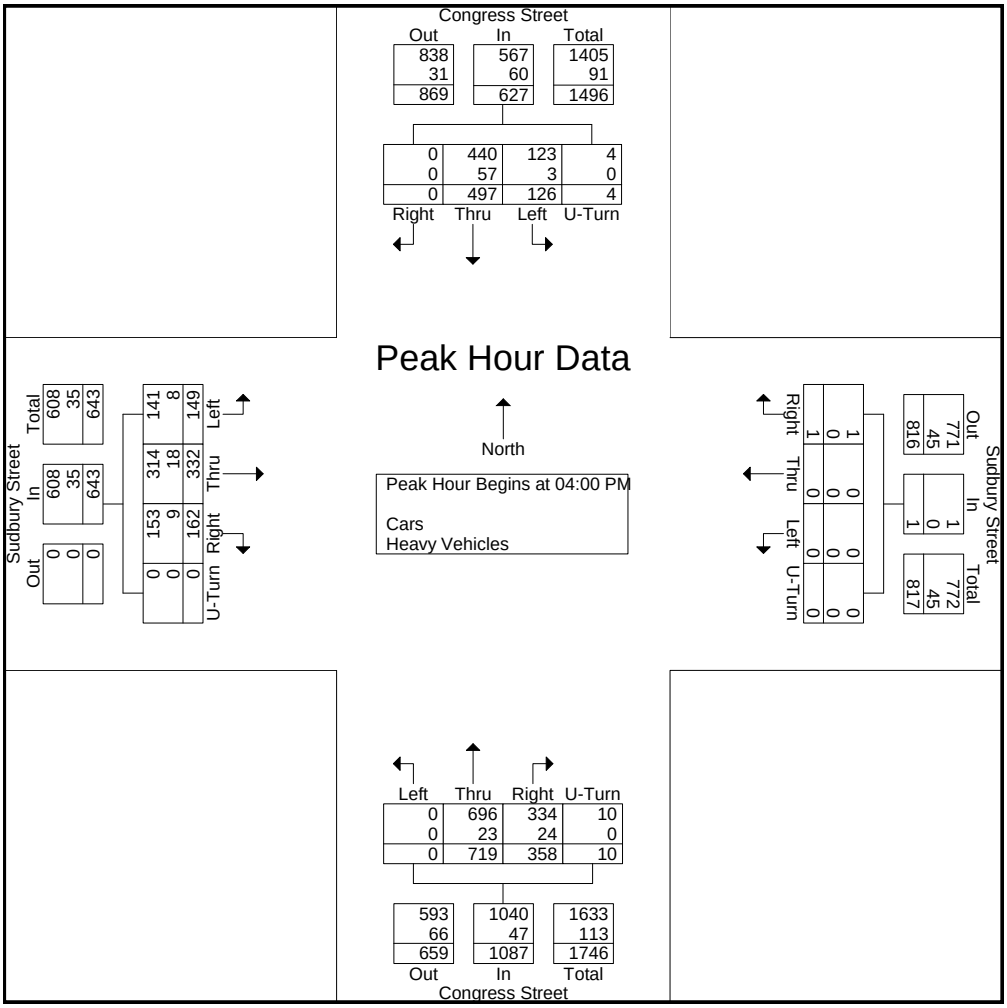
	Congress Street From North					Sudbury Street From East					Congress Street From South					Sudbury Street From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 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	138	31	0	169	1	0	0	0	1	77	183	0	3	263	43	90	47	0	180	613
04:15 PM	0	108	35	0	143	0	0	0	0	0	91	182	0	5	278	37	73	32	0	142	563
04:30 PM	0	124	32	3	159	0	0	0	0	0	102	174	0	2	278	45	86	37	0	168	605
04:45 PM	0	127	28	1	156	0	0	0	0	0	88	180	0	0	268	37	83	33	0	153	577
Total Volume	0	497	126	4	627	1	0	0	0	1	358	719	0	10	1087	162	332	149	0	643	2358
% App. Total	0	79.3	20.1	0.6		100	0	0	0		32.9	66.1	0	0.9		25.2	51.6	23.2	0		
PHF	.000	.900	.900	.333	.928	.250	.000	.000	.000	.250	.877	.982	.000	.500	.978	.900	.922	.793	.000	.893	.962
Cars	0	440	123	4	567	1	0	0	0	1	334	696	0	10	1040	153	314	141	0	608	2216
% Cars	0	88.5	97.6	100	90.4	100	0	0	0	100	93.3	96.8	0	100	95.7	94.4	94.6	94.6	0	94.6	94.0
Heavy Vehicles	0	57	3	0	60	0	0	0	0	0	24	23	0	0	47	9	18	8	0	35	142
% Heavy Vehicles	0	11.5	2.4	0	9.6	0	0	0	0	0	6.7	3.2	0	0	4.3	5.6	5.4	5.4	0	5.4	6.0



S: Garage
E/W: Sudbury Street
City, State: Boston, MA
Client: Howard Stein-Hudson/ B. Beisel

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File Name : 154673 J
Site Code : 2007190
Start Date : 9/23/2015
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Groups Printed- Cars - Heavy Vehicles

	Sudbury Street From East			Garage From South			Sudbury Street From West			
Start Time	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn	Int. Total
07:00 AM	0	0	0	0	0	0	13	75	0	88
07:15 AM	0	0	0	4	0	0	10	81	0	95
07:30 AM	0	0	0	1	0	0	13	92	0	106
07:45 AM	0	0	0	6	0	0	16	99	0	121
Total	0	0	0	11	0	0	52	347	0	410
08:00 AM	0	0	0	4	0	0	11	89	0	104
08:15 AM	0	0	0	2	0	0	12	99	0	113
08:30 AM	0	0	0	5	0	0	24	89	0	118
08:45 AM	0	0	0	8	0	0	34	93	0	135
Total	0	0	0	19	0	0	81	370	0	470
Grand Total	0	0	0	30	0	0	133	717	0	880
Apprch %	0	0	0	100	0	0	15.6	84.4	0	
Total %	0	0	0	3.4	0	0	15.1	81.5	0	
Cars	0	0	0	26	0	0	130	641	0	797
% Cars	0	0	0	86.7	0	0	97.7	89.4	0	90.6
Heavy Vehicles	0	0	0	4	0	0	3	76	0	83
% Heavy Vehicles	0	0	0	13.3	0	0	2.3	10.6	0	9.4

	Sudbury Street From East				Garage From South				Sudbury Street From West				
Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. 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	4	0	0	4	11	89	0	100	104
08:15 AM	0	0	0	0	2	0	0	2	12	99	0	111	113
08:30 AM	0	0	0	0	5	0	0	5	24	89	0	113	118
08:45 AM	0	0	0	0	8	0	0	8	34	93	0	127	135
Total Volume	0	0	0	0	19	0	0	19	81	370	0	451	470
% App. Total	0	0	0		100	0	0		18	82	0		
PHF	.000	.000	.000	.000	.594	.000	.000	.594	.596	.934	.000	.888	.870
Cars	0	0	0	0	16	0	0	16	79	335	0	414	430
% Cars	0	0	0	0	84.2	0	0	84.2	97.5	90.5	0	91.8	91.5
Heavy Vehicles	0	0	0	0	3	0	0	3	2	35	0	37	40
% Heavy Vehicles	0	0	0	0	15.8	0	0	15.8	2.5	9.5	0	8.2	8.5

S: Garage
E/W: Sudbury Street
City, State: Boston, MA
Client: Howard Stein-Hudson/ B. Beisel

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Groups Printed- Peds and Bikes

	Sudbury Street From East				Garage From South				Sudbury Street From West				
Start Time	Thru	Left	Peds SB	Peds NB	Right	Left	Peds WB	Peds EB	Right	Thru	Peds NB	Peds SB	Int. Total
07:00 AM	0	0	0	1	0	0	8	12	0	0	37	156	214
07:15 AM	0	0	0	0	0	0	16	22	0	2	32	141	213
07:30 AM	0	0	0	2	0	0	20	18	0	2	57	221	320
07:45 AM	0	0	0	0	0	0	24	20	0	2	51	316	413
Total	0	0	0	3	0	0	68	72	0	6	177	834	1160
08:00 AM	0	0	0	0	0	0	17	20	0	4	48	344	433
08:15 AM	0	0	1	1	0	0	27	17	0	3	98	323	470
08:30 AM	0	0	0	2	0	0	36	23	0	7	124	398	590
08:45 AM	0	0	2	1	0	0	20	18	0	7	122	391	561
Total	0	0	3	4	0	0	100	78	0	21	392	1456	2054
Grand Total	0	0	3	7	0	0	168	150	0	27	569	2290	3214
Apprch %	0	0	30	70	0	0	52.8	47.2	0	0.9	19.7	79.3	
Total %	0	0	0.1	0.2	0	0	5.2	4.7	0	0.8	17.7	71.3	

	Sudbury Street From East					Garage From South					Sudbury Street From West					
Start Time	Thru	Left	Peds SB	Peds NB	App. Total	Right	Left	Peds WB	Peds EB	App. Total	Right	Thru	Peds NB	Peds SB	App. Total	Int. 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	17	20	37	0	4	48	344	396	433
08:15 AM	0	0	1	1	2	0	0	27	17	44	0	3	98	323	424	470
08:30 AM	0	0	0	2	2	0	0	36	23	59	0	7	124	398	529	590
08:45 AM	0	0	2	1	3	0	0	20	18	38	0	7	122	391	520	561
Total Volume	0	0	3	4	7	0	0	100	78	178	0	21	392	1456	1869	2054
% App. Total	0	0	42.9	57.1		0	0	56.2	43.8		0	1.1	21	77.9		
PHF	.000	.000	.375	.500	.583	.000	.000	.694	.848	.754	.000	.750	.790	.915	.883	.870

S: Garage
E/W: Sudbury Street
City, State: Boston, MA
Client: Howard Stein-Hudson/ B. Beisel

PRECISION DATA INDUSTRIES, LLC
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File Name : 154673 J
Site Code : 2007190
Start Date : 9/23/2015
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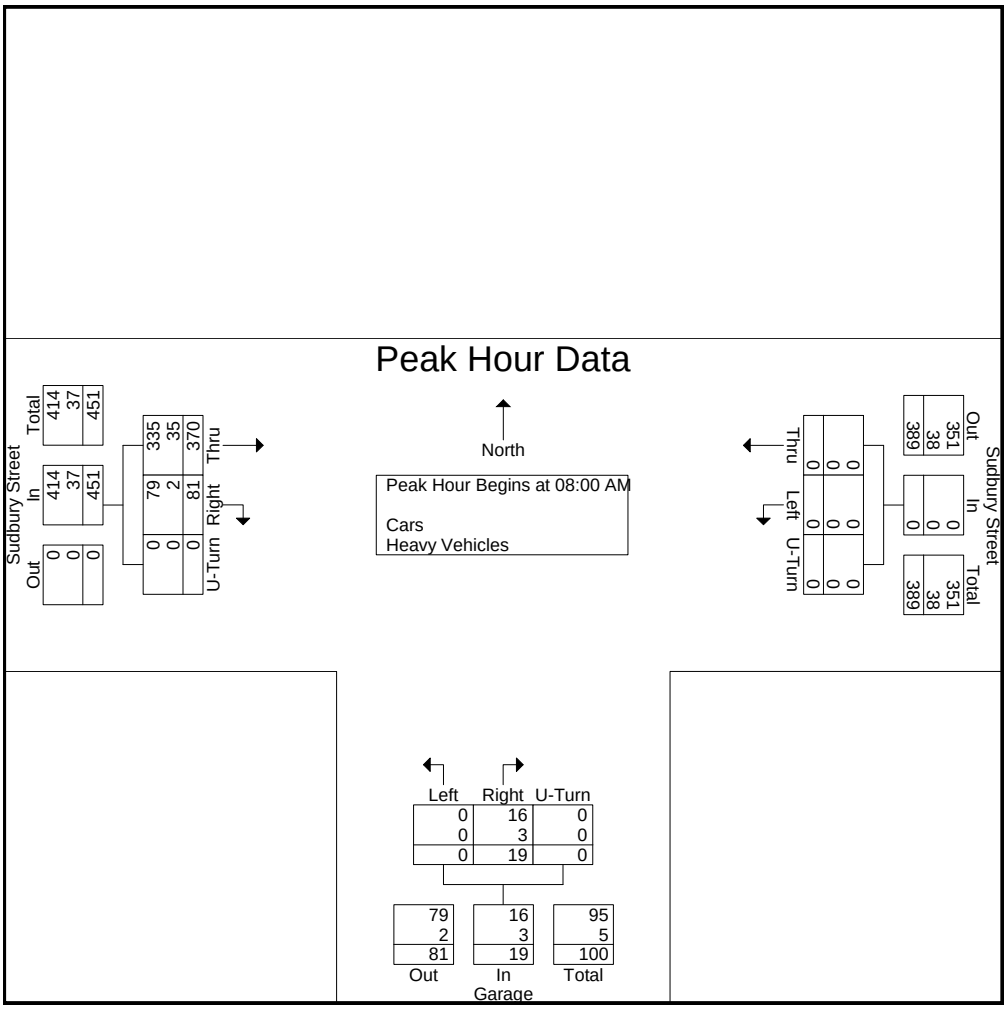
	Sudbury Street From East				Garage From South				Sudbury Street From West				
Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 08:00 AM													
08:00 AM	0	0	0	0	4	0	0	4	11	89	0	100	104
08:15 AM	0	0	0	0	2	0	0	2	12	99	0	111	113
08:30 AM	0	0	0	0	5	0	0	5	24	89	0	113	118
08:45 AM	0	0	0	0	8	0	0	8	34	93	0	127	135
Total Volume	0	0	0	0	19	0	0	19	81	370	0	451	470
% App. Total	0	0	0		100	0	0		18	82	0		
PHF	.000	.000	.000	.000	.594	.000	.000	.594	.596	.934	.000	.888	.870
Cars	0	0	0	0	16	0	0	16	79	335	0	414	430
% Cars	0	0	0	0	84.2	0	0	84.2	97.5	90.5	0	91.8	91.5
Heavy Vehicles	0	0	0	0	3	0	0	3	2	35	0	37	40
% Heavy Vehicles	0	0	0	0	15.8	0	0	15.8	2.5	9.5	0	8.2	8.5



S: Garage
E/W: Sudbury Street
City, State: Boston, MA
Client: Howard Stein-Hudson/ B. Beisel

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Groups Printed- Cars - Heavy Vehicles

	Sudbury Street From East			Garage From South			Sudbury Street From West			
Start Time	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn	Int. Total
04:00 PM	0	0	0	21	0	0	17	180	0	218
04:15 PM	0	0	0	28	0	0	15	184	0	227
04:30 PM	0	0	0	24	0	0	11	213	0	248
04:45 PM	0	0	0	24	0	0	6	197	0	227
Total	0	0	0	97	0	0	49	774	0	920
05:00 PM	0	0	0	19	0	0	14	201	0	234
05:15 PM	0	0	0	16	0	0	21	208	0	245
05:30 PM	0	0	0	19	0	0	9	242	0	270
05:45 PM	0	0	0	9	0	0	13	263	0	285
Total	0	0	0	63	0	0	57	914	0	1034
Grand Total	0	0	0	160	0	0	106	1688	0	1954
Apprch %	0	0	0	100	0	0	5.9	94.1	0	
Total %	0	0	0	8.2	0	0	5.4	86.4	0	
Cars	0	0	0	160	0	0	106	1604	0	1870
% Cars	0	0	0	100	0	0	100	95	0	95.7
Heavy Vehicles	0	0	0	0	0	0	0	84	0	84
% Heavy Vehicles	0	0	0	0	0	0	0	5	0	4.3

	Sudbury Street From East				Garage From South				Sudbury Street From West				
Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. 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	0	19	0	0	19	14	201	0	215	234
05:15 PM	0	0	0	0	16	0	0	16	21	208	0	229	245
05:30 PM	0	0	0	0	19	0	0	19	9	242	0	251	270
05:45 PM	0	0	0	0	9	0	0	9	13	263	0	276	285
Total Volume	0	0	0	0	63	0	0	63	57	914	0	971	1034
% App. Total	0	0	0		100	0	0		5.9	94.1	0		
PHF	.000	.000	.000	.000	.829	.000	.000	.829	.679	.869	.000	.880	.907
Cars	0	0	0	0	63	0	0	63	57	872	0	929	992
% Cars	0	0	0	0	100	0	0	100	100	95.4	0	95.7	95.9
Heavy Vehicles	0	0	0	0	0	0	0	0	0	42	0	42	42
% Heavy Vehicles	0	0	0	0	0	0	0	0	0	4.6	0	4.3	4.1

S: Garage
E/W: Sudbury Street
City, State: Boston, MA
Client: Howard Stein-Hudson/ B. Beisel

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File Name : 154673 JJ
Site Code : 2007190
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Groups Printed- Peds and Bikes

	Sudbury Street From East				Garage From South				Sudbury Street From West				
Start Time	Thru	Left	Peds SB	Peds NB	Right	Left	Peds WB	Peds EB	Right	Thru	Peds NB	Peds SB	Int. Total
04:00 PM	0	0	0	2	0	0	17	54	0	1	228	75	377
04:15 PM	0	0	0	0	0	0	23	37	0	1	217	94	372
04:30 PM	0	0	0	0	0	0	19	36	0	2	209	83	349
04:45 PM	0	0	0	1	0	0	39	36	0	6	371	187	640
Total	0	0	0	3	0	0	98	163	0	10	1025	439	1738
05:00 PM	0	0	0	1	0	0	19	37	0	2	419	110	588
05:15 PM	0	0	2	1	0	0	29	49	0	4	673	233	991
05:30 PM	0	0	0	0	0	0	27	50	0	5	493	327	902
05:45 PM	0	0	0	0	0	0	21	47	0	4	167	59	298
Total	0	0	2	2	0	0	96	183	0	15	1752	729	2779
Grand Total	0	0	2	5	0	0	194	346	0	25	2777	1168	4517
Apprch %	0	0	28.6	71.4	0	0	35.9	64.1	0	0.6	69.9	29.4	
Total %	0	0	0	0.1	0	0	4.3	7.7	0	0.6	61.5	25.9	

	Sudbury Street From East					Garage From South					Sudbury Street From West					
Start Time	Thru	Left	Peds SB	Peds NB	App. Total	Right	Left	Peds WB	Peds EB	App. Total	Right	Thru	Peds NB	Peds SB	App. Total	Int. 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	1	0	0	39	36	75	0	6	371	187	564	640
05:00 PM	0	0	0	1	1	0	0	19	37	56	0	2	419	110	531	588
05:15 PM	0	0	2	1	3	0	0	29	49	78	0	4	673	233	910	991
05:30 PM	0	0	0	0	0	0	0	27	50	77	0	5	493	327	825	902
Total Volume	0	0	2	3	5	0	0	114	172	286	0	17	1956	857	2830	3121
% App. Total	0	0	40	60		0	0	39.9	60.1		0	0.6	69.1	30.3		
PHF	.000	.000	.250	.750	.417	.000	.000	.731	.860	.917	.000	.708	.727	.655	.777	.787

S: Garage
E/W: Sudbury Street
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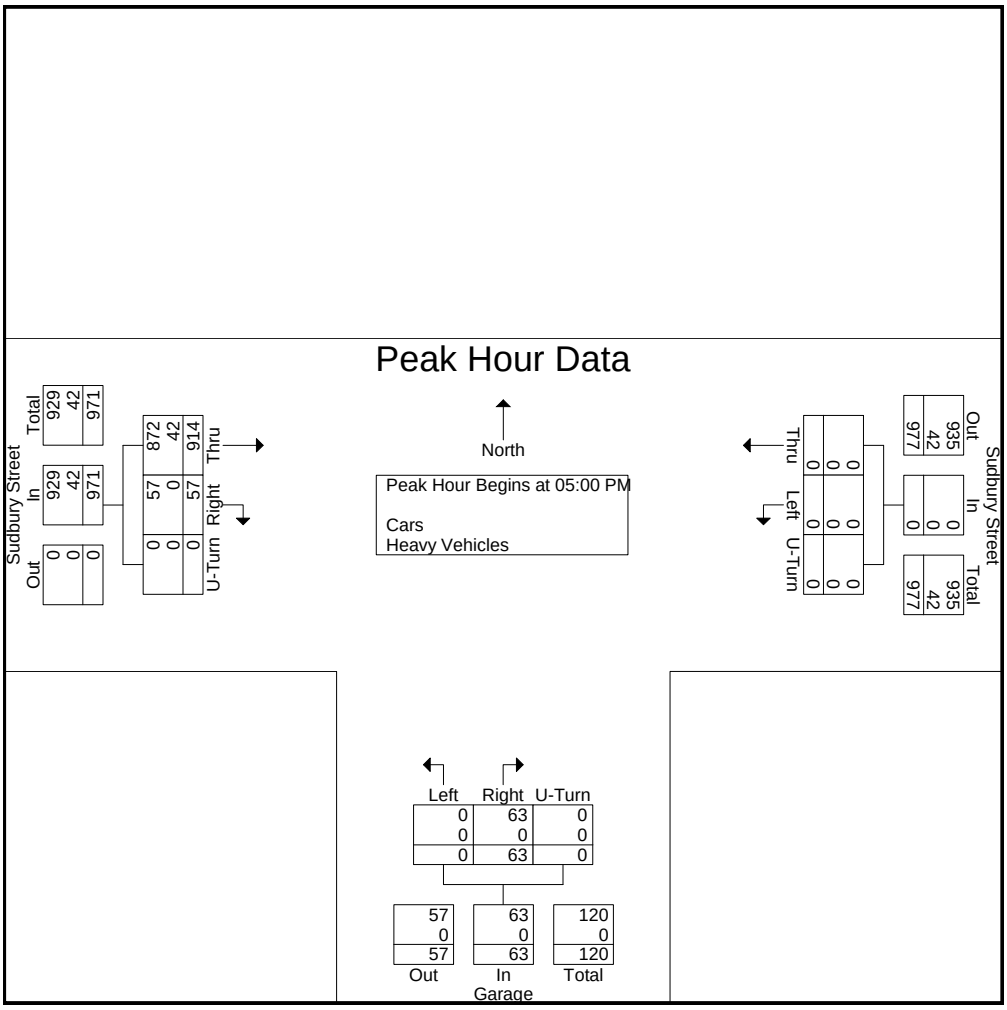
	Sudbury Street From East				Garage From South				Sudbury Street From West				
Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 05:00 PM													
05:00 PM	0	0	0	0	19	0	0	19	14	201	0	215	234
05:15 PM	0	0	0	0	16	0	0	16	21	208	0	229	245
05:30 PM	0	0	0	0	19	0	0	19	9	242	0	251	270
05:45 PM	0	0	0	0	9	0	0	9	13	263	0	276	285
Total Volume	0	0	0	0	63	0	0	63	57	914	0	971	1034
% App. Total	0	0	0		100	0	0		5.9	94.1	0		
PHF	.000	.000	.000	.000	.829	.000	.000	.829	.679	.869	.000	.880	.907
Cars	0	0	0	0	63	0	0	63	57	872	0	929	992
% Cars	0	0	0	0	100	0	0	100	100	95.4	0	95.7	95.9
Heavy Vehicles	0	0	0	0	0	0	0	0	0	42	0	42	42
% Heavy Vehicles	0	0	0	0	0	0	0	0	0	4.6	0	4.3	4.1



N/S/NW: Surface Road/ MBTA Exit
E/W: Sudbury Street
City, State: Boston, MA
Client: Howard Stein-Hudson/ B. Beisel

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File Name : 154673 K
Site Code : 2007190
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Groups Printed- Cars - Heavy Vehicles

	Surface Road From North					Sudbury Street From East					Surface Road From South					Sudbury Street From West					MBTA Exit From Northwest					
Start Time	Hard Right	Right	Thru	Left	U-Turn	Right	Bear Right	Thru	Left	U-Turn	Right	Thru	Bear Left	Left	U-Turn	Right	Thru	Left	Hard Left	U-Turn	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	Int. Total
07:00 AM	0	0	81	6	0	0	0	0	0	0	0	0	0	0	0	22	57	0	0	0	0	1	7	0	0	174
07:15 AM	0	0	84	7	0	0	0	0	0	0	0	0	0	0	0	29	50	0	0	0	0	2	4	0	0	176
07:30 AM	0	0	80	9	0	0	0	0	0	0	0	0	0	0	0	40	60	0	0	0	0	2	3	0	0	194
07:45 AM	0	0	78	6	0	0	0	0	0	0	0	0	0	0	0	33	72	0	0	0	0	1	4	0	0	194
Total	0	0	323	28	0	0	0	0	0	0	0	0	0	0	0	124	239	0	0	0	0	6	18	0	0	738
08:00 AM	0	0	80	7	0	0	0	0	0	0	0	0	0	0	0	25	68	0	0	0	0	0	2	0	0	182
08:15 AM	0	0	108	9	0	0	0	0	0	0	0	0	0	0	0	36	60	0	0	0	0	2	6	0	0	221
08:30 AM	0	0	106	8	0	0	0	0	0	0	0	0	0	0	0	33	63	0	0	0	0	3	7	0	0	220
08:45 AM	0	0	76	7	0	0	0	0	0	0	0	0	0	0	0	40	53	0	0	0	0	0	8	0	0	184
Total	0	0	370	31	0	0	0	0	0	0	0	0	0	0	0	134	244	0	0	0	0	5	23	0	0	807
Grand Total	0	0	693	59	0	0	0	0	0	0	0	0	0	0	0	258	483	0	0	0	0	11	41	0	0	1545
Apprch %	0	0	92.2	7.8	0	0	0	0	0	0	0	0	0	0	0	34.8	65.2	0	0	0	0	21.2	78.8	0	0	
Total %	0	0	44.9	3.8	0	0	0	0	0	0	0	0	0	0	0	16.7	31.3	0	0	0	0	0.7	2.7	0	0	
Cars	0	0	626	53	0	0	0	0	0	0	0	0	0	0	0	234	425	0	0	0	0	0	2	0	0	1340
% Cars	0	0	90.3	89.8	0	0	0	0	0	0	0	0	0	0	0	90.7	88	0	0	0	0	0	4.9	0	0	86.7
Heavy Vehicles	0	0	67	6	0	0	0	0	0	0	0	0	0	0	0	24	58	0	0	0	0	11	39	0	0	205
% Heavy Vehicles	0	0	9.7	10.2	0	0	0	0	0	0	0	0	0	0	0	9.3	12	0	0	0	0	100	95.1	0	0	13.3

	Surface Road From North						Sudbury Street From East						Surface Road From South						Sudbury Street From West						MBTA Exit From Northwest						
Start Time	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	Right	Thru	Left	Hard Left	U-Turn	App. Total	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	App. Total	Int. 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	78	6	0	84	0	0	0	0	0	0	0	0	0	0	0	0	33	72	0	0	0	105	0	1	4	0	0	5	194
08:00 AM	0	0	80	7	0	87	0	0	0	0	0	0	0	0	0	0	0	0	25	68	0	0	0	93	0	0	2	0	0	2	182
08:15 AM	0	0	108	9	0	117	0	0	0	0	0	0	0	0	0	0	0	0	36	60	0	0	0	96	0	2	6	0	0	8	221
08:30 AM	0	0	106	8	0	114	0	0	0	0	0	0	0	0	0	0	0	0	33	63	0	0	0	96	0	3	7	0	0	10	220
Total Volume	0	0	372	30	0	402	0	0	0	0	0	0	0	0	0	0	0	0	127	263	0	0	0	390	0	6	19	0	0	25	817
% App. Total	0	0	92.5	7.5	0		0	0	0	0	0		0	0	0	0	0		32.6	67.4	0	0	0		0	24	76	0	0		
PHF	.000	.000	.861	.833	.000	.859	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.882	.913	.000	.000	.000	.929	.000	.500	.679	.000	.000	.625	.924
Cars	0	0	330	27	0	357	0	0	0	0	0	0	0	0	0	0	0	0	115	231	0	0	0	346	0	0	1	0	0	1	704
% Cars	0	0	88.7	90.0	0	88.8	0	0	0	0	0	0	0	0	0	0	0	0	90.6	87.8	0	0	0	88.7	0	0	5.3	0	0	4.0	86.2
Heavy Vehicles	0	0	42	3	0	45	0	0	0	0	0	0	0	0	0	0	0	0	12	32	0	0	0	44	0	6	18	0	0	24	113
% Heavy Vehicles	0	0	11.3	10.0	0	11.2	0	0	0	0	0	0	0	0	0	0	0	0	9.4	12.2	0	0	0	11.3	0	100	94.7	0	0	96.0	13.8

N/S/NW: Surface Road/ MBTA Exit
E/W: Sudbury Street
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Page No : 1

Groups Printed- Peds and Bikes

	Surface Road From North						Sudbury Street From East						Surface Road From South						Sudbury Street From West						MBTA Exit From Northwest						
Start Time	Hard Right	Right	Thru	Left	Peds EB	Peds WB	Right	Bear Right	Thru	Left	Peds SB	Peds NB	Right	Thru	Bear Left	Left	Peds WB	Peds EB	Right	Thru	Left	Hard Left	Peds NB	Peds SB	Hard Right	Bear Right	Bear Left	Hard Left	Peds NEB	Peds SWB	Int. Total
07:00 AM	0	0	6	0	27	54	0	0	0	0	17	2	0	0	0	0	11	9	0	0	0	0	8	23	0	0	0	0	0	0	157
07:15 AM	0	0	8	0	20	75	0	0	0	0	16	6	0	0	0	0	17	21	3	0	0	0	16	26	0	0	0	0	0	3	211
07:30 AM	0	0	15	0	29	102	0	0	0	0	23	6	0	0	0	0	16	21	0	0	0	0	19	39	0	0	0	0	1	0	271
07:45 AM	0	0	27	0	31	111	0	0	0	0	15	14	0	0	0	0	25	19	1	1	0	0	25	62	0	0	0	0	0	1	332
Total	0	0	56	0	107	342	0	0	0	0	71	28	0	0	0	0	69	70	4	1	0	0	68	150	0	0	0	0	1	4	971
08:00 AM	0	0	22	0	32	121	0	0	0	0	26	19	0	0	0	0	16	21	2	0	0	0	26	49	0	2	0	0	0	1	337
08:15 AM	0	0	28	0	37	89	0	0	0	0	18	17	0	0	0	0	29	17	3	0	0	0	24	72	0	1	0	0	2	0	337
08:30 AM	0	0	25	0	30	94	0	2	0	1	19	6	0	0	0	0	32	21	6	0	0	0	15	65	0	0	0	0	0	1	317
08:45 AM	0	0	27	0	33	55	0	0	0	0	36	13	0	0	0	0	16	10	5	2	0	0	11	58	0	0	1	0	1	1	269
Total	0	0	102	0	132	359	0	2	0	1	99	55	0	0	0	0	93	69	16	2	0	0	76	244	0	3	1	0	3	3	1260
Grand Total	0	0	158	0	239	701	0	2	0	1	170	83	0	0	0	0	162	139	20	3	0	0	144	394	0	3	1	0	4	7	2231
Apprch %	0	0	14.4	0	21.8	63.8	0	0.8	0	0.4	66.4	32.4	0	0	0	0	53.8	46.2	3.6	0.5	0	0	25.7	70.2	0	20	6.7	0	26.7	46.7	
Total %	0	0	7.1	0	10.7	31.4	0	0.1	0	0	7.6	3.7	0	0	0	0	7.3	6.2	0.9	0.1	0	0	6.5	17.7	0	0.1	0	0	0.2	0.3	

	Surface Road From North							Sudbury Street From East							Surface Road From South							Sudbury Street From West							MBTA Exit From Northwest							
Start Time	Hard Right	Right	Thru	Left	Peds EB	Peds WB	App. Total	Right	Bear Right	Thru	Left	Peds SB	Peds NB	App. Total	Right	Thru	Bear Left	Left	Peds WB	Peds EB	App. Total	Right	Thru	Left	Hard Left	Peds NB	Peds SB	App. Total	Hard Right	Bear Right	Bear Left	Hard Left	Peds NEB	Peds SWB	App. Total	Int. 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	27	0	31	111	169	0	0	0	0	15	14	29	0	0	0	0	25	19	44	1	1	0	0	25	62	89	0	0	0	0	0	1	1	332
08:00 AM			22	0	32	121	175	0	0	0	0	26	19	45	0	0	0	0	16	21						26	49	77	0	2	0	0	0	1	3	337
08:15 AM			28	0	37	89	154	0	0	0	0	18	17	35	0	0	0	0	29	17						24	72	99	0	1	0	0	2	0	3	337
08:30 AM			25	0	30	94	149	0	2	0	1	19	6	28	0	0	0	0	32	21						15	65	86	0	0	0	0	0	1	1	317
Total Volume			102	0	130	415	647	0	2	0	1	78	56	137					102	78	180	12	1	0	0	90	248	351	0	3	0	0	2	3	8	1323
% App. Total			15.8	0	20.1	64.1		0	1.5	0	0.7	56.9	40.9		0	0	0	0	56.7	43.3		3.4	0.3			25.6	70.7		0	37.5	0	0	25	37.5		
PHF	.000	.000	.911	.000	.878	.857	.924	.000	.250	.000	.250	.750	.737	.761	.000	.000	.000	.000	.797	.929	.849	.500	.250	.000	.000	.865	.861	.886	.000	.375	.000	.000	.250	.750	.667	.981

N/S/NW: Surface Road/ MBTA Exit
E/W: Sudbury Street
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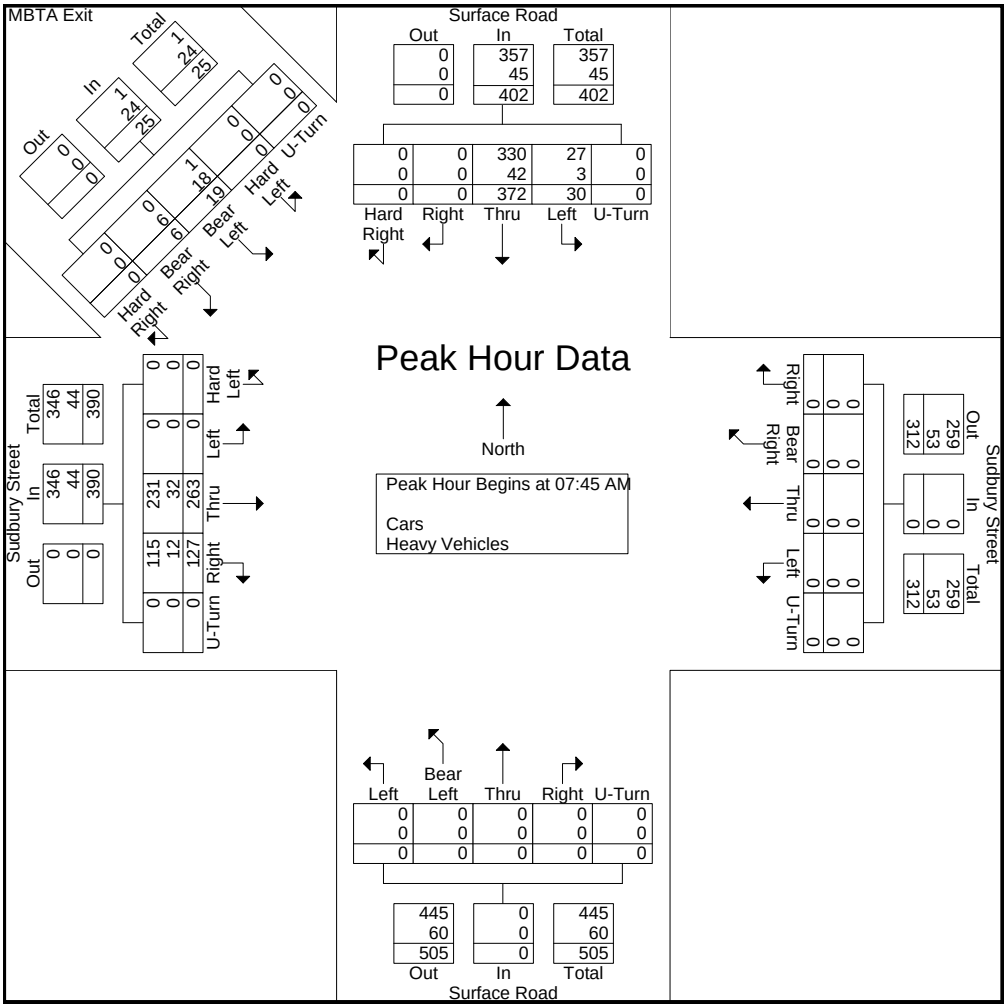
Client: Howard Stein-Hudson/ B. Beisel

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

File Name : 154673 K
Site Code : 2007190
Start Date : 9/23/2015
Page No : 1

	Surface Road From North						Sudbury Street From East						Surface Road From South						Sudbury Street From West						MBTA Exit From Northwest						
Start Time	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	Right	Thru	Left	Hard Left	U-Turn	App. Total	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	App. Total	Int. 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	78	6	0	84	0	0	0	0	0	0	0	0	0	0	0	0	33	72	0	0	0	105	0	1	4	0	0	5	194
08:00 AM	0	0	80	7	0	87	0	0	0	0	0	0	0	0	0	0	0	0	25	68	0	0	0	93	0	0	2	0	0	2	182
08:15 AM	0	0	108	9	0	117	0	0	0	0	0	0	0	0	0	0	0	0	36	60	0	0	0	96	0	2	6	0	0	8	221
08:30 AM	0	0	106	8	0	114	0	0	0	0	0	0	0	0	0	0	0	0	33	63	0	0	0	96	0	3	7	0	0	10	220
Total Volume	0	0	372	30	0	402	0	0	0	0	0	0	0	0	0	0	0	0	127	263	0	0	0	390	0	6	19	0	0	25	817
% App. Total	0	0	92.5	7.5	0		0	0	0	0	0		0	0	0	0	0		32.6	67.4	0	0	0		0	24	76	0	0		
PHF	.000	.000	.861	.833	.000	.859	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.882	.913	.000	.000	.000	.929	.000	.500	.679	.000	.000	.625	.924
Cars	0	0	330	27	0	357	0	0	0	0	0	0	0	0	0	0	0	0	115	231	0	0	0	346	0	0	1	0	0	1	704
% Cars	0	0	88.7	90.0	0	88.8	0	0	0	0	0	0	0	0	0	0	0	0	90.6	87.8	0	0	0	88.7	0	0	5.3	0	0	4.0	86.2
Heavy Vehicles	0	0	42	3	0	45	0	0	0	0	0	0	0	0	0	0	0	0	12	32	0	0	0	44	0	6	18	0	0	24	113
% Heavy Vehicles	0	0	11.3	10.0	0	11.2	0	0	0	0	0	0	0	0	0	0	0	0	9.4	12.2	0	0	0	11.3	0	100	94.7	0	0	96.0	13.8



N/S/NW: Surface Road/ MBTA Exit
E/W: Sudbury Street
City, State: Boston, MA
Client: Howard Stein-Hudson/ B. Beisel

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Groups Printed- Cars - Heavy Vehicles

	Surface Road From North					Sudbury Street From East					Surface Road From South					Sudbury Street From West					MBTA Exit From Northwest					
Start Time	Hard Right	Right	Thru	Left	U-Turn	Right	Bear Right	Thru	Left	U-Turn	Right	Thru	Bear Left	Left	U-Turn	Right	Thru	Left	Hard Left	U-Turn	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	Int. Total
04:00 PM	0	0	76	13	0	0	0	0	0	0	0	0	0	0	0	58	140	0	0	0	0	1	6	0	0	294
04:15 PM	0	0	66	15	0	0	0	0	0	0	0	0	0	0	0	61	148	0	0	0	0	1	5	0	0	296
04:30 PM	0	0	70	15	0	0	0	0	0	0	0	0	0	0	0	52	185	0	0	0	0	2	6	0	0	330
04:45 PM	0	0	79	17	0	0	0	0	0	0	0	0	0	0	0	60	163	0	0	0	0	0	5	0	0	324
Total	0	0	291	60	0	0	0	0	0	0	0	0	0	0	0	231	636	0	0	0	0	4	22	0	0	1244
05:00 PM	0	0	66	10	0	0	0	0	0	0	0	0	0	0	0	32	185	0	0	0	0	2	6	0	0	301
05:15 PM	0	0	67	19	0	0	0	0	0	0	0	0	0	0	0	40	175	0	0	0	0	2	9	0	0	312
05:30 PM	0	0	68	24	0	0	0	0	0	0	0	0	0	0	0	34	208	0	0	0	0	1	6	0	0	341
05:45 PM	0	0	53	16	0	0	0	0	0	0	0	0	0	0	0	34	218	0	0	0	0	1	7	0	0	329
Total	0	0	254	69	0	0	0	0	0	0	0	0	0	0	0	140	786	0	0	0	0	6	28	0	0	1283
Grand Total	0	0	545	129	0	0	0	0	0	0	0	0	0	0	0	371	1422	0	0	0	0	10	50	0	0	2527
Apprch %	0	0	80.9	19.1	0	0	0	0	0	0	0	0	0	0	0	20.7	79.3	0	0	0	0	16.7	83.3	0	0	
Total %	0	0	21.6	5.1	0	0	0	0	0	0	0	0	0	0	0	14.7	56.3	0	0	0	0	0.4	2	0	0	
Cars	0	0	498	126	0	0	0	0	0	0	0	0	0	0	0	357	1353	0	0	0	0	0	2	0	0	2336
% Cars	0	0	91.4	97.7	0	0	0	0	0	0	0	0	0	0	0	96.2	95.1	0	0	0	0	0	4	0	0	92.4
Heavy Vehicles	0	0	47	3	0	0	0	0	0	0	0	0	0	0	0	14	69	0	0	0	0	10	48	0	0	191
% Heavy Vehicles	0	0	8.6	2.3	0	0	0	0	0	0	0	0	0	0	0	3.8	4.9	0	0	0	0	100	96	0	0	7.6

	Surface Road From North						Sudbury Street From East						Surface Road From South						Sudbury Street From West						MBTA Exit From Northwest						
Start Time	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	Right	Thru	Left	Hard Left	U-Turn	App. Total	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	App. Total	Int. 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	66	10	0	76	0	0	0	0	0	0	0	0	0	0	0	0	32	185	0	0	0	217	0	2	6	0	0	8	301
05:15 PM	0	0	67	19	0	86	0	0	0	0	0	0	0	0	0	0	0	0	40	175	0	0	0	215	0	2	9	0	0	11	312
05:30 PM	0	0	68	24	0	92	0	0	0	0	0	0	0	0	0	0	0	0	34	208	0	0	0	242	0	1	6	0	0	7	341
05:45 PM	0	0	53	16	0	69	0	0	0	0	0	0	0	0	0	0	0	0	34	218	0	0	0	252	0	1	7	0	0	8	329
Total Volume	0	0	254	69	0	323	0	0	0	0	0	0	0	0	0	0	0	0	140	786	0	0	0	926	0	6	28	0	0	34	1283
% App. Total	0	0	78.6	21.4	0		0	0	0	0	0		0	0	0	0	0		15.1	84.9	0	0	0		0	17.6	82.4	0	0		
PHF	.000	.000	.934	.719	.000	.878	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.875	.901	.000	.000	.000	.919	.000	.750	.778	.000	.000	.773	.941
Cars	0	0	233	68	0	301	0	0	0	0	0	0	0	0	0	0	0	0	135	750	0	0	0	885	0	0	2	0	0	2	1188
% Cars	0	0	91.7	98.6	0	93.2	0	0	0	0	0	0	0	0	0	0	0	0	96.4	95.4	0	0	0	95.6	0	0	7.1	0	0	5.9	92.6
Heavy Vehicles	0	0	21	1	0	22	0	0	0	0	0	0	0	0	0	0	0	0	5	36	0	0	0	41	0	6	26	0	0	32	95
% Heavy Vehicles	0	0	8.3	1.4	0	6.8	0	0	0	0	0	0	0	0	0	0	0	0	3.6	4.6	0	0	0	4.4	0	100	92.9	0	0	94.1	7.4

N/S/NW: Surface Road/ MBTA Exit
E/W: Sudbury Street
City, State: Boston, MA
Client: Howard Stein-Hudson/ B. Beisel

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Start Date : 9/23/2015
Page No : 1

Groups Printed- Peds and Bikes

	Surface Road From North						Sudbury Street From East						Surface Road From South						Sudbury Street From West						MBTA Exit From Northwest						
Start Time	Hard Right	Right	Thru	Left	Peds EB	Peds WB	Right	Bear Right	Thru	Left	Peds SB	Peds NB	Right	Thru	Bear Left	Left	Peds WB	Peds EB	Right	Thru	Left	Hard Left	Peds NB	Peds SB	Hard Right	Bear Right	Bear Left	Hard Left	Peds NEB	Peds SWB	Int. Total
04:00 PM	0	0	1	0	18	38	0	0	0	0	11	9	0	0	0	0	23	38	0	2	0	0	75	34	0	0	0	0	3	0	252
04:15 PM	0	0	2	0	29	24	0	0	0	0	23	13	0	0	0	0	40	40	1	1	0	0	92	28	0	1	0	0	0	0	294
04:30 PM	0	0	1	0	35	18	0	0	0	0	26	9	0	0	0	0	25	43	1	0	0	1	80	37	0	0	0	0	2	2	280
04:45 PM	0	0	0	0	44	18	0	0	0	0	19	10	0	0	0	0	35	37	4	2	0	0	89	26	0	2	0	0	3	0	289
Total	0	0	4	0	126	98	0	0	0	0	79	41	0	0	0	0	123	158	6	5	0	1	336	125	0	3	0	0	8	2	1115
05:00 PM																							115								
05:15 PM	0	0	3	0	53	17	0	0	0	0	29	10	0	0	0	0	59	52	4	1	0	0	118	35	0	0	0	0	3	1	385
05:30 PM	0	0	8	0	62	17	0	0	0	0	28	19	0	0	0	0	46	66	1	4	0	0	111	35	0	0	0	0	2	3	402
05:45 PM	0	0	7	0	74	27	0	1	0	0	29	20	0	0	0	0	40	64	2	2	0	0	81	32	0	2	0	0	5	2	388
Total	0	0	27	0	237	91	0	1	0	0	116	67	0	0	0	0	175	227	8	10	0	0	425	123	0	2	0	0	17	6	1532
Grand Total	0	0	31	0	363	189	0	1	0	0	195	108	0	0	0	0	298	385	14	15	0	1	761	248	0	5	0	0	25	8	2647
Apprch %	0	0	5.3	0	62.3	32.4	0	0.3	0	0	64.1	35.5	0	0	0	0	43.6	56.4	1.3	1.4	0	0.1	73.2	23.9	0	13.2	0	0	65.8	21.1	
Total %	0	0	1.2	0	13.7	7.1	0	0	0	0	7.4	4.1	0	0	0	0	11.3	14.5	0.5	0.6	0	0	28.7	9.4	0	0.2	0	0	0.9	0.3	

	Surface Road From North							Sudbury Street From East							Surface Road From South							Sudbury Street From West							MBTA Exit From Northwest							
Start Time	Hard Right	Right	Thru	Left	Peds EB	Peds WB	App. Total	Right	Bear Right	Thru	Left	Peds SB	Peds NB	App. Total	Right	Thru	Bear Left	Left	Peds WB	Peds EB	App. Total	Right	Thru	Left	Hard Left	Peds NB	Peds SB	App. Total	Hard Right	Bear Right	Bear Left	Hard Left	Peds NEB	Peds SWB	App. Total	Int. 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	9	0	48	30	87	0	0	0	0	30	18	48	0	0	0	0	30	45	75	1	3	0	0	115	21	140	0	0	0	0	7	0	7	357
05:15 PM					53	17	73	0	0	0	0	29	10	39	0	0	0	0	59	52	111	4	1	0	0	118	35	158	0	0	0	0	3	1	4	385
05:30 PM					62	17	87	0	0	0	0	28	19	47	0	0	0	0	46	66	112	1	4	0	0	111	35	151	0	0	0	0	2	3	5	402
05:45 PM					74	27	108	0	1	0	0	29	20	50	0	0	0	0	40	64	104	2	2	0	0	81	32	117	0	2	0	0	5	2	9	388
Total Volume			27	0	237	91	355	0	1	0	0	116	67	184					175	227	402	8	10			425	123	566	0	2	0	0	17	6	25	1532
% App. Total			7.6	0	66.8	25.6		0	0.5	0	0	63	36.4		0	0	0	0	43.5	56.5		1.4	1.8			75.1	21.7		0	8	0	0	68	24		
PHF	.000	.000	.750	.000	.801	.758	.822	.000	.250	.000	.000	.967	.838	.920	.000	.000	.000	.000	.742	.860	.897	.500	.625	.000	.000	.900	.879	.896	.000	.250	.000	.000	.607	.500	.694	.953

N/S/NW: Surface Road/ MBTA Exit
E/W: Sudbury Street
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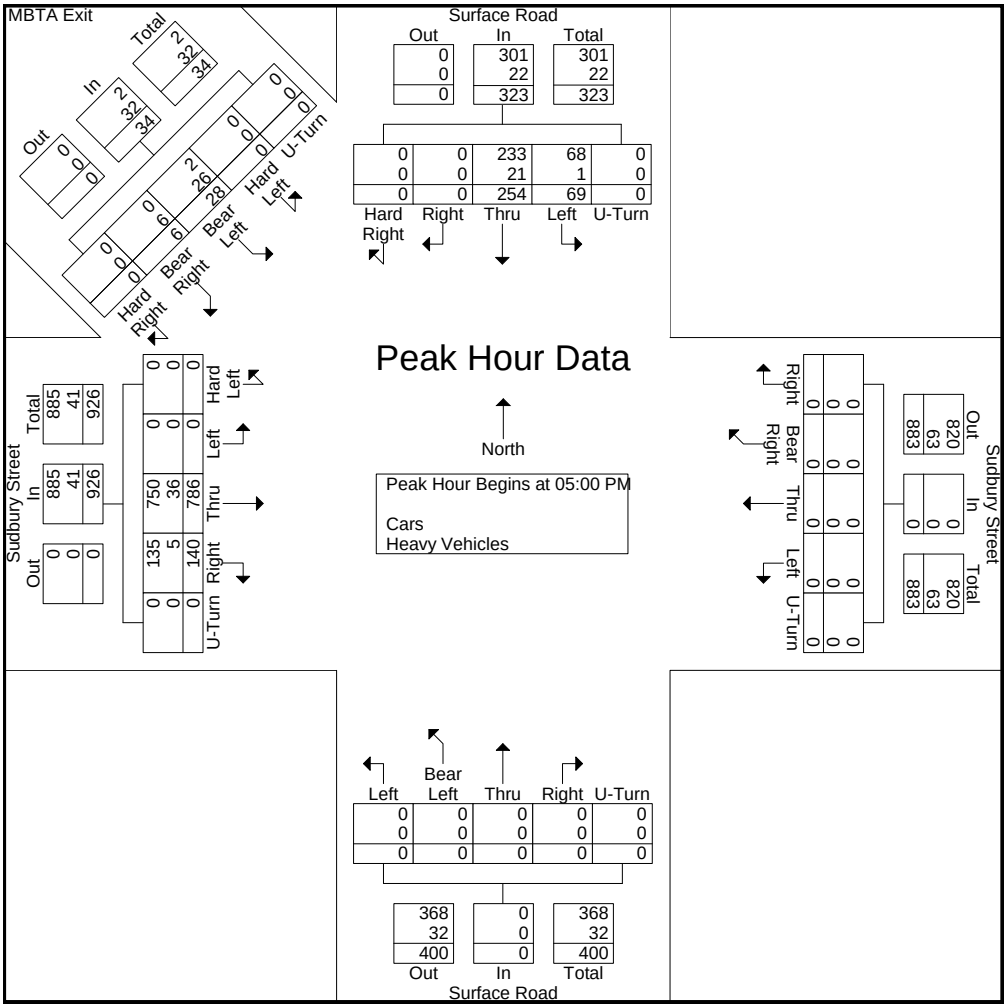
	Surface Road From North						Sudbury Street From East						Surface Road From South						Sudbury Street From West						MBTA Exit From Northwest						
Start Time	Hard Right	Right	Thru	Left	U-Turn	App. Total	Right	Bear Right	Thru	Left	U-Turn	App. Total	Right	Thru	Bear Left	Left	U-Turn	App. Total	Right	Thru	Left	Hard Left	U-Turn	App. Total	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	App. Total	Int. 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	66	10	0	76	0	0	0	0	0	0	0	0	0	0	0	0	32	185	0	0	0	217	0	2	6	0	0	8	301
05:15 PM	0	0	67	19	0	86	0	0	0	0	0	0	0	0	0	0	0	0	40	175	0	0	0	215	0	2	9	0	0	11	312
05:30 PM	0	0	68	24	0	92	0	0	0	0	0	0	0	0	0	0	0	0	34	208	0	0	0	242	0	1	6	0	0	7	341
05:45 PM	0	0	53	16	0	69	0	0	0	0	0	0	0	0	0	0	0	0	34	218	0	0	0	252	0	1	7	0	0	8	329
Total Volume	0	0	254	69	0	323	0	0	0	0	0	0	0	0	0	0	0	0	140	786	0	0	0	926	0	6	28	0	0	34	1283
% App. Total	0	0	78.6	21.4	0		0	0	0	0	0		0	0	0	0	0		15.1	84.9	0	0	0		0	17.6	82.4	0	0		
PHF	.000	.000	.934	.719	.000	.878	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.875	.901	.000	.000	.000	.919	.000	.750	.778	.000	.000	.773	.941
Cars	0	0	233	68	0	301	0	0	0	0	0	0	0	0	0	0	0	0	135	750	0	0	0	885	0	0	2	0	0	2	1188
% Cars	0	0	91.7	98.6	0	93.2	0	0	0	0	0	0	0	0	0	0	0	0	96.4	95.4	0	0	0	95.6	0	0	7.1	0	0	5.9	92.6
Heavy Vehicles	0	0	21	1	0	22	0	0	0	0	0	0	0	0	0	0	0	0	5	36	0	0	0	41	0	6	26	0	0	32	95
% Heavy Vehicles	0	0	8.3	1.4	0	6.8	0	0	0	0	0	0	0	0	0	0	0	0	3.6	4.6	0	0	0	4.4	0	100	92.9	0	0	94.1	7.4



N/S/NW: Cross Street/ I-93 Onramp
E/W: Driveway/ Sudbury Street
City, State: Boston, MA
Client: Howard Stein-Hudson/ B. Beisel

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Groups Printed- Cars - Heavy Vehicles

	Cross Street From North					Driveway From East					Cross Street From South					Sudbury Street From West					I-93 Onramp From Northwest					
Start Time	Hard Right	Right	Thru	Left	U-Turn	Right	Bear Right	Thru	Left	U-Turn	Right	Thru	Bear Left	Left	U-Turn	Right	Thru	Left	Hard Left	U-Turn	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	Int. Total
07:00 AM	0	0	0	0	0	0	1	0	0	0	1	152	28	0	0	0	1	30	38	0	0	0	0	0	0	251
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	152	25	0	0	0	0	14	43	0	0	0	0	0	0	234
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	131	34	0	0	0	0	19	53	0	0	0	0	0	0	237
07:45 AM	0	0	0	0	0	0	0	0	0	0	2	171	49	0	0	0	0	27	59	0	0	0	0	0	0	308
Total	0	0	0	0	0	0	1	0	0	0	3	606	136	0	0	0	1	90	193	0	0	0	0	0	0	1030
08:00 AM	0	0	0	0	0	3	0	0	0	0	0	164	40	0	0	0	1	21	55	0	0	0	0	0	0	284
08:15 AM	0	0	0	0	0	2	0	0	0	0	0	185	37	0	0	0	0	33	42	0	0	0	0	0	0	299
08:30 AM	0	0	0	0	0	1	0	0	0	0	0	175	34	0	0	0	0	32	44	0	0	0	0	0	0	286
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	154	35	0	0	0	0	31	39	0	0	0	0	0	0	259
Total	0	0	0	0	0	6	0	0	0	0	0	678	146	0	0	0	1	117	180	0	0	0	0	0	0	1128
Grand Total	0	0	0	0	0	6	1	0	0	0	3	1284	282	0	0	0	2	207	373	0	0	0	0	0	0	2158
Apprch %	0	0	0	0	0	85.7	14.3	0	0	0	0.2	81.8	18	0	0	0	0.3	35.6	64.1	0	0	0	0	0	0	
Total %	0	0	0	0	0	0.3	0	0	0	0	0.1	59.5	13.1	0	0	0	0.1	9.6	17.3	0	0	0	0	0	0	
Cars	0	0	0	0	0	5	1	0	0	0	3	1133	273	0	0	0	2	139	343	0	0	0	0	0	0	1899
% Cars	0	0	0	0	0	83.3	100	0	0	0	100	88.2	96.8	0	0	0	100	67.1	92	0	0	0	0	0	0	88
Heavy Vehicles	0	0	0	0	0	1	0	0	0	0	0	151	9	0	0	0	0	68	30	0	0	0	0	0	0	259
% Heavy Vehicles	0	0	0	0	0	16.7	0	0	0	0	0	11.8	3.2	0	0	0	0	32.9	8	0	0	0	0	0	0	12

	Cross Street From North						Driveway From East						Cross Street From South						Sudbury Street From West						I-93 Onramp From Northwest						
Start Time	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	Right	Thru	Left	Hard Left	U-Turn	App. Total	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	App. Total	Int. 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	2	171	49	0	0	222	0	0	27	59	0	86	0	0	0	0	0	0	308
08:00 AM	0	0	0	0	0	0	3	0	0	0	0	3	0	164	40	0	0	204	0	1	21	55	0	77	0	0	0	0	0	0	284
08:15 AM	0	0	0	0	0	0	2	0	0	0	0	2	0	185	37	0	0	222	0	0	33	42	0	75	0	0	0	0	0	0	299
08:30 AM	0	0	0	0	0	0	1	0	0	0	0	1	0	175	34	0	0	209	0	0	32	44	0	76	0	0	0	0	0	0	286
Total Volume	0	0	0	0	0	0	6	0	0	0	0	6	2	695	160	0	0	857	0	1	113	200	0	314	0	0	0	0	0	0	1177
% App. Total	0	0	0	0	0		100	0	0	0	0		0.2	81.1	18.7	0	0		0	0.3	36	63.7	0		0	0	0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.500	.000	.000	.000	.000	.500	.250	.939	.816	.000	.000	.965	.000	.250	.856	.847	.000	.913	.000	.000	.000	.000	.000	.000	.955
Cars	0	0	0	0	0	0	5	0	0	0	0	5	2	624	154	0	0	780	0	1	78	185	0	264	0	0	0	0	0	0	1049
% Cars	0	0	0	0	0	0	83.3	0	0	0	0	83.3	100	89.8	96.3	0	0	91.0	0	100	69.0	92.5	0	84.1	0	0	0	0	0	0	89.1
Heavy Vehicles	0	0	0	0	0	0	1	0	0	0	0	1	0	71	6	0	0	77	0	0	35	15	0	50	0	0	0	0	0	0	128
% Heavy Vehicles	0	0	0	0	0	0	16.7	0	0	0	0	16.7	0	10.2	3.8	0	0	9.0	0	0	31.0	7.5	0	15.9	0	0	0	0	0	0	10.9

N/S/NW: Cross Street/ I-93 Onramp
E/W: Driveway/ Sudbury Street
City, State: Boston, MA
Client: Howard Stein-Hudson/ B. Beisel

PRECISION DATA INDUSTRIES, LLC
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File Name : 154673 L
Site Code : 2007190
Start Date : 9/23/2015
Page No : 1

Groups Printed- Peds and Bikes

	Cross Street From North						Driveway From East						Cross Street From South						Sudbury Street From West						I-93 Onramp From Northwest						
Start Time	Hard Right	Right	Thru	Left	Peds EB	Peds WB	Right	Bear Right	Thru	Left	Peds SB	Peds NB	Right	Thru	Bear Left	Left	Peds WB	Peds EB	Right	Thru	Left	Hard Left	Peds NB	Peds SB	Hard Right	Bear Right	Bear Left	Hard Left	Peds NEB	Peds SWB	Int. Total
07:00 AM	0	0	0	0	0	2	0	0	0	0	32	3	0	1	0	0	31	10	0	0	0	0	30	4	0	0	0	0	0	2	115
07:15 AM	0	0	0	0	0	0	0	0	0	0	28	10	0	2	0	0	43	24	0	0	0	0	46	5	0	0	0	0	0	0	158
07:30 AM	0	0	0	0	0	0	0	0	0	0	53	6	0	3	0	0	58	13	0	0	0	0	63	4	0	0	0	0	0	0	200
07:45 AM	0	0	0	0	0	0	0	0	0	0	74	11	0	1	0	0	76	14	0	0	0	0	50	8	0	0	0	0	0	0	234
Total	0	0	0	0	0	2	0	0	0	0	187	30	0	7	0	0	208	61	0	0	0	0	189	21	0	0	0	0	0	2	707
08:00 AM	0	0	0	0	0	0	0	0	0	0	74	16	0	2	0	0	88	26	0	0	0	0	60	4	0	0	0	0	0	0	270
08:15 AM	0	0	0	0	0	0	0	0	0	0	74	26	0	5	0	0	99	30	0	0	0	0	55	9	0	0	0	0	0	0	298
08:30 AM	0	0	0	0	0	0	0	0	0	0	101	38	0	4	0	0	98	23	0	0	0	0	51	4	0	0	0	0	0	0	319
08:45 AM	0	0	0	0	0	0	0	0	0	0	68	22	0	4	0	0	75	23	0	0	1	0	20	0	0	0	0	0	0	0	213
Total	0	0	0	0	0	0	0	0	0	0	317	102	0	15	0	0	360	102	0	0	1	0	186	17	0	0	0	0	0	0	1100
Grand Total	0	0	0	0	0	2	0	0	0	0	504	132	0	22	0	0	568	163	0	0	1	0	375	38	0	0	0	0	0	2	1807
Apprch %	0	0	0	0	0	100	0	0	0	0	79.2	20.8	0	2.9	0	0	75.4	21.6	0	0	0.2	0	90.6	9.2	0	0	0	0	0	100	
Total %	0	0	0	0	0	0.1	0	0	0	0	27.9	7.3	0	1.2	0	0	31.4	9	0	0	0.1	0	20.8	2.1	0	0	0	0	0	0.1	

	Cross Street From North							Driveway From East							Cross Street From South							Sudbury Street From West							I-93 Onramp From Northwest							
Start Time	Hard Right	Right	Thru	Left	Peds EB	Peds WB	App. Total	Right	Bear Right	Thru	Left	Peds SB	Peds NB	App. Total	Right	Thru	Bear Left	Left	Peds WB	Peds EB	App. Total	Right	Thru	Left	Hard Left	Peds NB	Peds SB	App. Total	Hard Right	Bear Right	Bear Left	Hard Left	Peds NEB	Peds SWB	App. Total	Int. 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	74	11	85	0	1	0	0	76	14	91	0	0	0	0	50	8	58	0	0	0	0	0	0	0	234
08:00 AM												74	16	90	0	2	0	0	88	26	116	0	0	0	0	60										270
08:15 AM												74	26	100					99	30	134	0	0	0	0	55										298
08:30 AM												101	38	139					98	23	125	0	0	0	0	51										319
Total Volume												323	91	414		12	0	0	361	93	466	0	0	0	0	216	25	241	0	0	0	0	0	0	0	1121
% App. Total												78	22		0	2.6	0	0	77.5	20						89.6	10.4		0	0	0	0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.800	.599	.745	.000	.600	.000	.000	.912	.775	.869	.000	.000	.000	.000	.900	.694	.941	.000	.000	.000	.000	.000	.000	.000	.879

N/S/NW: Cross Street/ I-93 Onramp
E/W: Driveway/ Sudbury Street
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Client: Howard Stein-Hudson/ B. Beisel

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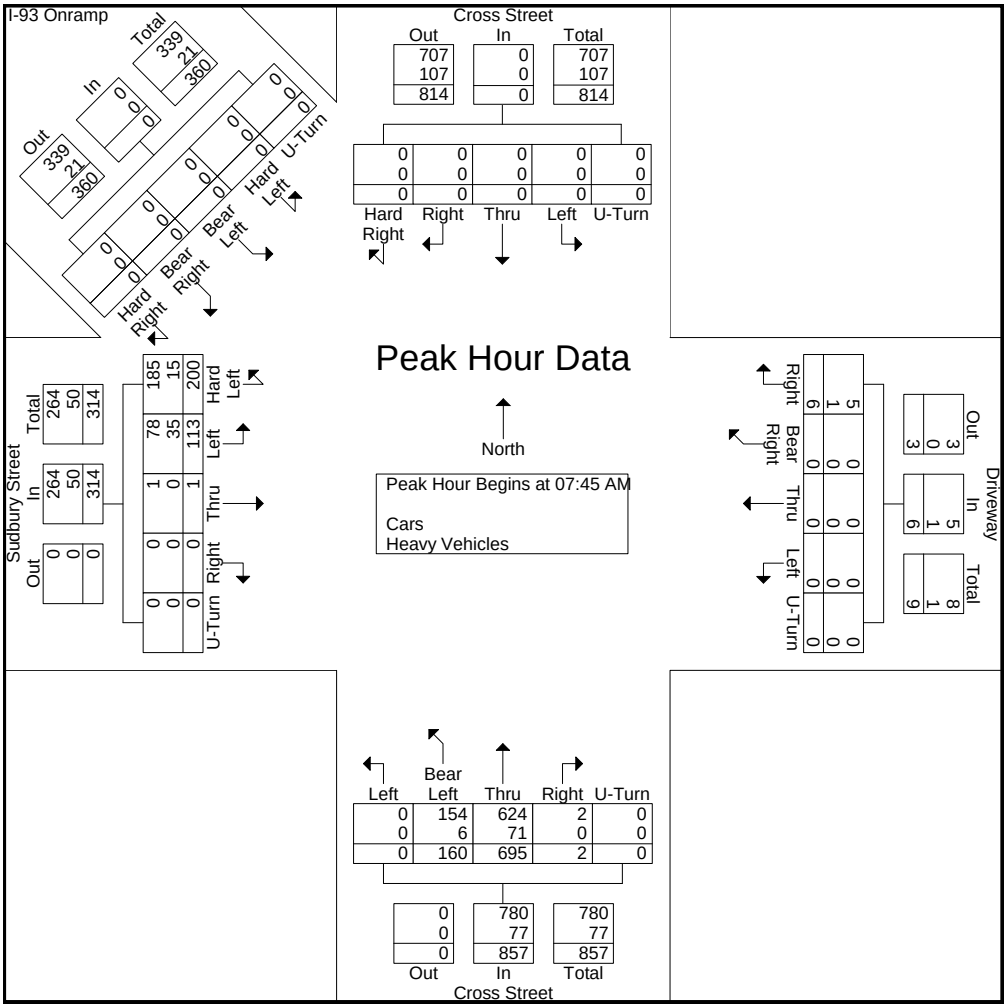
	Cross Street From North						Driveway From East						Cross Street From South						Sudbury Street From West						I-93 Onramp From Northwest						
Start Time	Hard Right	Right	Thru	Left	U-Turn	App. Total	Right	Bear Right	Thru	Left	U-Turn	App. Total	Right	Thru	Bear Left	Left	U-Turn	App. Total	Right	Thru	Left	Hard Left	U-Turn	App. Total	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	App. Total	Int. 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	2	171	49	0	0	222	0	0	27	59	0	86	0	0	0	0	0	0	308
08:00 AM	0	0	0	0	0	0	3	0	0	0	0	3	0	164	40	0	0	204	0	1	21	55	0	77	0	0	0	0	0	0	284
08:15 AM	0	0	0	0	0	0	2	0	0	0	0	2	0	185	37	0	0	222	0	0	33	42	0	75	0	0	0	0	0	0	299
08:30 AM	0	0	0	0	0	0	1	0	0	0	0	1	0	175	34	0	0	209	0	0	32	44	0	76	0	0	0	0	0	0	286
Total Volume	0	0	0	0	0	0	6	0	0	0	0	6	2	695	160	0	0	857	0	1	113	200	0	314	0	0	0	0	0	0	1177
% App. Total	0	0	0	0	0		100	0	0	0	0		0.2	81.1	18.7	0	0		0	0.3	36	63.7	0		0	0	0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.500	.000	.000	.000	.000	.500	.250	.939	.816	.000	.000	.965	.000	.250	.856	.847	.000	.913	.000	.000	.000	.000	.000	.000	.955
Cars	0	0	0	0	0	0	5	0	0	0	0	5	2	624	154	0	0	780	0	1	78	185	0	264	0	0	0	0	0	0	1049
% Cars	0	0	0	0	0	0	83.3	0	0	0	0	83.3	100	89.8	96.3	0	0	91.0	0	100	69.0	92.5	0	84.1	0	0	0	0	0	0	89.1
Heavy Vehicles	0	0	0	0	0	0	1	0	0	0	0	1	0	71	6	0	0	77	0	0	35	15	0	50	0	0	0	0	0	0	128
% Heavy Vehicles	0	0	0	0	0	0	16.7	0	0	0	0	16.7	0	10.2	3.8	0	0	9.0	0	0	31.0	7.5	0	15.9	0	0	0	0	0	0	10.9



N/S/NW: Cross Street/ I-93 Onramp
E/W: Driveway/ Sudbury Street
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File Name : 154673 LL
Site Code : 2007190
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Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Cross Street From North					Driveway From East					Cross Street From South					Sudbury Street From West					I-93 Onramp From Northwest					
Start Time	Hard Right	Right	Thru	Left	U-Turn	Right	Bear Right	Thru	Left	U-Turn	Right	Thru	Bear Left	Left	U-Turn	Right	Thru	Left	Hard Left	U-Turn	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	208	100	0	0	0	0	61	94	0	0	0	0	0	0	463
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	188	120	0	0	0	0	71	99	0	0	0	0	0	0	478
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	162	132	0	0	0	0	67	130	0	0	0	0	0	0	491
04:45 PM	0	0	0	0	0	0	1	0	0	0	0	164	147	0	0	0	0	74	119	0	0	0	0	0	0	505
Total	0	0	0	0	0	0	1	0	0	0	0	722	499	0	0	0	0	273	442	0	0	0	0	0	0	1937
05:00 PM	0	0	0	0	0	2	0	0	0	0	0	194	128	0	0	0	0	56	146	0	0	0	0	0	0	526
05:15 PM	0	0	0	0	0	1	0	0	0	0	0	160	165	0	0	0	0	62	137	0	0	0	0	0	0	525
05:30 PM	0	0	0	0	0	1	0	0	0	0	0	186	172	0	0	0	0	66	165	0	0	0	0	0	0	590
05:45 PM	0	0	0	0	0	3	0	0	0	0	0	200	161	0	0	0	0	74	161	0	0	0	0	0	0	599
Total	0	0	0	0	0	7	0	0	0	0	0	740	626	0	0	0	0	258	609	0	0	0	0	0	0	2240
Grand Total	0	0	0	0	0	7	1	0	0	0	0	1462	1125	0	0	0	0	531	1051	0	0	0	0	0	0	4177
Apprch %	0	0	0	0	0	87.5	12.5	0	0	0	0	56.5	43.5	0	0	0	0	33.6	66.4	0	0	0	0	0	0	
Total %	0	0	0	0	0	0.2	0	0	0	0	0	35	26.9	0	0	0	0	12.7	25.2	0	0	0	0	0	0	
Cars	0	0	0	0	0	7	1	0	0	0	0	1346	1108	0	0	0	0	453	1010	0	0	0	0	0	0	3925
% Cars	0	0	0	0	0	100	100	0	0	0	0	92.1	98.5	0	0	0	0	85.3	96.1	0	0	0	0	0	0	94
Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	116	17	0	0	0	0	78	41	0	0	0	0	0	0	252
% Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	7.9	1.5	0	0	0	0	14.7	3.9	0	0	0	0	0	0	6

	Cross Street From North						Driveway From East						Cross Street From South						Sudbury Street From West						I-93 Onramp From Northwest						
Start Time	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	Right	Thru	Left	Hard Left	U-Turn	App. Total	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	App. Total	Int. 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	0	0	0	2	0	0	0	0	2	0	194	128	0	0	322	0	0	56	146	0	202	0	0	0	0	0	0	526
05:15 PM	0	0	0	0	0	0	1	0	0	0	0	1	0	160	165	0	0	325	0	0	62	137	0	199	0	0	0	0	0	0	525
05:30 PM	0	0	0	0	0	0	1	0	0	0	0	1	0	186	172	0	0	358	0	0	66	165	0	231	0	0	0	0	0	0	590
05:45 PM	0	0	0	0	0	0	3	0	0	0	0	3	0	200	161	0	0	361	0	0	74	161	0	235	0	0	0	0	0	0	599
Total Volume	0	0	0	0	0	0	7	0	0	0	0	7	0	740	626	0	0	1366	0	0	258	609	0	867	0	0	0	0	0	0	2240
% App. Total	0	0	0	0	0		100	0	0	0	0		0	54.2	45.8	0	0		0	0	29.8	70.2	0		0	0	0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.583	.000	.000	.000	.000	.583	.000	.925	.910	.000	.000	.946	.000	.000	.872	.923	.000	.922	.000	.000	.000	.000	.000	.000	.935
Cars	0	0	0	0	0	0	7	0	0	0	0	7	0	690	618	0	0	1308	0	0	219	586	0	805	0	0	0	0	0	0	2120
% Cars	0	0	0	0	0	0	100	0	0	0	0	100	0	93.2	98.7	0	0	95.8	0	0	84.9	96.2	0	92.8	0	0	0	0	0	0	94.6
Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	50	8	0	0	58	0	0	39	23	0	62	0	0	0	0	0	0	120
% Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	6.8	1.3	0	0	4.2	0	0	15.1	3.8	0	7.2	0	0	0	0	0	0	5.4

N/S/NW: Cross Street/ I-93 Onramp
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Groups Printed- Peds and Bikes

	Cross Street From North						Driveway From East						Cross Street From South						Sudbury Street From West						I-93 Onramp From Northwest						
Start Time	Hard Right	Right	Thru	Left	Peds EB	Peds WB	Right	Bear Right	Thru	Left	Peds SB	Peds NB	Right	Thru	Bear Left	Left	Peds WB	Peds EB	Right	Thru	Left	Hard Left	Peds NB	Peds SB	Hard Right	Bear Right	Bear Left	Hard Left	Peds NEB	Peds SWB	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	42	31	0	7	0	0	34	41	0	0	3	0	15	3	0	0	0	0	0	0	176
04:15 PM	0	0	0	0	0	0	0	0	0	0	28	37	0	10	0	0	32	38	0	0	0	0	11	12	0	0	0	0	0	0	168
04:30 PM	0	0	0	0	0	0	0	0	0	0	25	51	0	13	0	0	30	61	0	0	0	0	18	15	0	0	0	0	0	0	213
04:45 PM	0	0	0	0	0	0	0	0	0	0	35	49	0	19	0	0	39	47	0	0	0	0	9	11	0	0	0	0	0	0	209
Total	0	0	0	0	0	0	0	0	0	0	130	168	0	49	0	0	135	187	0	0	3	0	53	41	0	0	0	0	0	0	766
05:00 PM	0	0	0	0	0	0	0	0	0	0	41	67	0	17	0	0	38	61	0	0	4	0	9	19	0	0	0	0	0	0	256
05:15 PM	0	0	0	0	0	0	0	0	0	0	50	101	0	31	0	0	31	70	0	0	2	0	7	26	0	0	0	0	0	0	318
05:30 PM	0	0	0	0	0	0	0	0	0	0	56	88	0	24	0	0	59	101	0	0	3	0	9	26	0	0	0	0	0	0	366
05:45 PM	0	0	0	0	0	0	0	0	0	0	54	69	0	22	0	0	39	75	0	0	2	0	6	33	0	0	0	0	0	0	300
Total	0	0	0	0	0	0	0	0	0	0	201	325	0	94	0	0	167	307	0	0	11	0	31	104	0	0	0	0	0	0	1240
Grand Total	0	0	0	0	0	0	0	0	0	0	331	493	0	143	0	0	302	494	0	0	14	0	84	145	0	0	0	0	0	0	2006
Apprch %	0	0	0	0	0	0	0	0	0	0	40.2	59.8	0	15.2	0	0	32.2	52.6	0	0	5.8	0	34.6	59.7	0	0	0	0	0	0	
Total %	0	0	0	0	0	0	0	0	0	0	16.5	24.6	0	7.1	0	0	15.1	24.6	0	0	0.7	0	4.2	7.2	0	0	0	0	0	0	

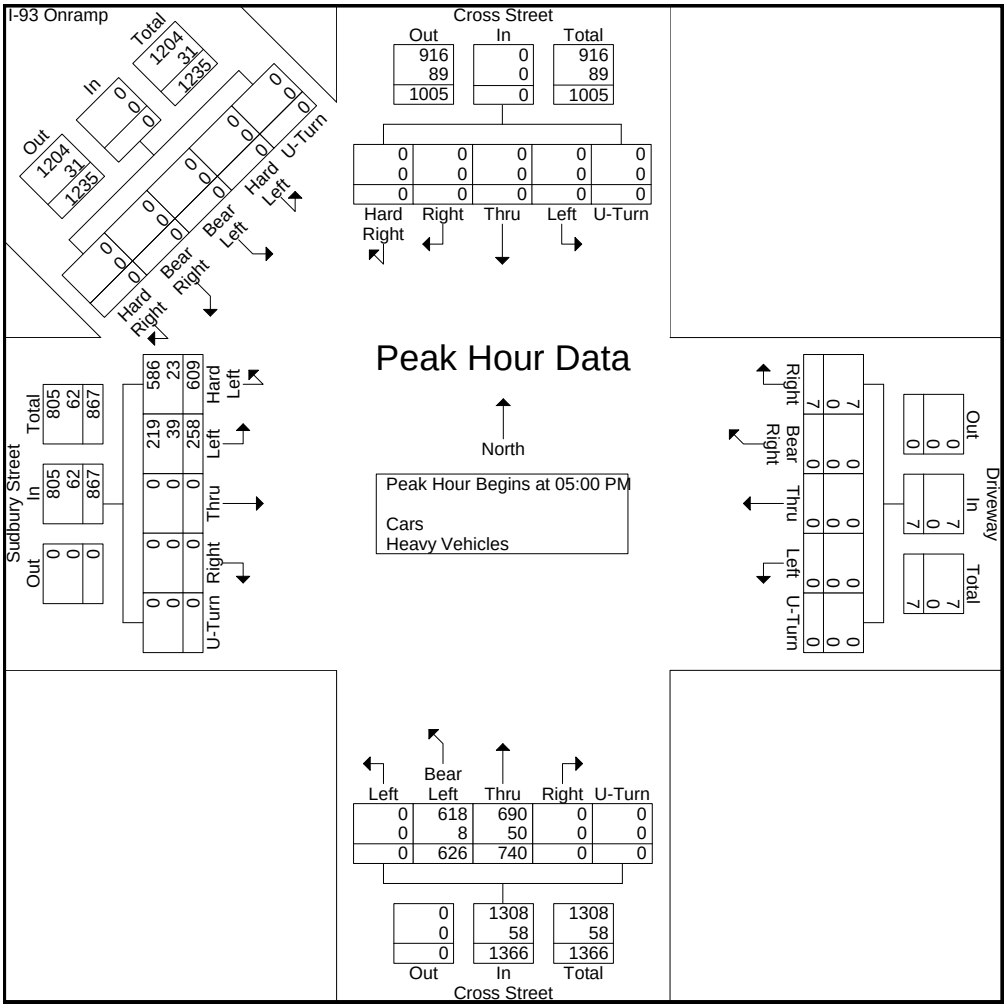
	Cross Street From North							Driveway From East							Cross Street From South							Sudbury Street From West							I-93 Onramp From Northwest							
Start Time	Hard Right	Right	Thru	Left	Peds EB	Peds WB	App. Total	Right	Bear Right	Thru	Left	Peds SB	Peds NB	App. Total	Right	Thru	Bear Left	Left	Peds WB	Peds EB	App. Total	Right	Thru	Left	Hard Left	Peds NB	Peds SB	App. Total	Hard Right	Bear Right	Bear Left	Hard Left	Peds NEB	Peds SWB	App. Total	Int. 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	0	0	0	0	0	0	0	0	41	67	108	0	17	0	0	38	61	116	0	0	4	0	9	19	32	0	0	0	0	0	0	0	256
05:15 PM												50	101	151		31	0	0	31	70	132	0	0	2	0	7	26	35	0	0	0	0	0	0	0	318
05:30 PM												56	88	144		24	0	0	59	101	184	0	0	3	0	9	26	38	0	0	0	0	0	0	0	366
05:45 PM												54	69	123		22	0	0	39	75	136	0	0	2	0	6	33	41	0	0	0	0	0	0	0	300
Total Volume												201	325	526		94	0	0	167	307	568	0	0	11	0	31	104	146	0	0	0	0	0	0	0	1240
% App. Total												38.2	61.8		0	16.5	0	0	29.4	54				7.5	0	21.2	71.2		0	0	0	0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.897	.804	.871	.000	.758	.000	.000	.708	.760	.772	.000	.000	.688	.000	.861	.788	.890	.000	.000	.000	.000	.000	.000	.000	.847

N/S/NW: Cross Street/ I-93 Onramp
E/W: Driveway/ Sudbury Street
City, State: Boston, MA
Client: Howard Stein-Hudson/ B. Beisel

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

File Name : 154673 LL
Site Code : 2007190
Start Date : 9/23/2015
Page No : 1

	Cross Street From North						Driveway From East						Cross Street From South						Sudbury Street From West						I-93 Onramp From Northwest						
Start Time	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	Right	Thru	Left	Hard Left	U-Turn	App. Total	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	App. Total	Int. 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	0	0	0	2	0	0	0	0	2	0	194	128	0	0	322	0	0	56	146	0	202	0	0	0	0	0	0	526
05:15 PM	0	0	0	0	0	0	1	0	0	0	0	1	0	160	165	0	0	325	0	0	62	137	0	199	0	0	0	0	0	0	525
05:30 PM	0	0	0	0	0	0	1	0	0	0	0	1	0	186	172	0	0	358	0	0	66	165	0	231	0	0	0	0	0	0	590
05:45 PM	0	0	0	0	0	0	3	0	0	0	0	3	0	200	161	0	0	361	0	0	74	161	0	235	0	0	0	0	0	0	599
Total Volume	0	0	0	0	0	0	7	0	0	0	0	7	0	740	626	0	0	1366	0	0	258	609	0	867	0	0	0	0	0	0	2240
% App. Total	0	0	0	0	0		100	0	0	0	0		0	54.2	45.8	0	0		0	0	29.8	70.2	0		0	0	0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.583	.000	.000	.000	.000	.583	.000	.925	.910	.000	.000	.946	.000	.000	.872	.923	.000	.922	.000	.000	.000	.000	.000	.000	.935
Cars	0	0	0	0	0	0	7	0	0	0	0	7	0	690	618	0	0	1308	0	0	219	586	0	805	0	0	0	0	0	0	2120
% Cars	0	0	0	0	0	0	100	0	0	0	0	100	0	93.2	98.7	0	0	95.8	0	0	84.9	96.2	0	92.8	0	0	0	0	0	0	94.6
Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	50	8	0	0	58	0	0	39	23	0	62	0	0	0	0	0	0	120
% Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	6.8	1.3	0	0	4.2	0	0	15.1	3.8	0	7.2	0	0	0	0	0	0	5.4



Accurate Counts

978-664-2565

N/S Street : Cross Street
E/W Street : Hanover Street
City/State : Boston, MA
Weather : Cloudy

File Name : 90040001
Site Code : 90040001
Start Date : 8/6/2014
Page No : 1

Groups Printed- Cars - Trucks

	Cross St From North			Hanover St From East			Cross St From South			Hanover St From West			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
07:00 AM	0	0	0	0	15	10	18	158	14	3	4	0	222
07:15 AM	0	0	0	0	11	17	17	164	14	1	4	0	228
07:30 AM	0	0	0	0	20	17	21	156	12	4	6	0	236
07:45 AM	0	0	0	0	13	18	45	193	10	3	7	0	289
Total	0	0	0	0	59	62	101	671	50	11	21	0	975
08:00 AM	0	0	0	0	26	20	47	164	13	2	10	0	282
08:15 AM	0	0	0	0	19	17	34	195	15	7	8	0	295
08:30 AM	0	0	0	0	18	14	44	229	11	7	3	0	326
08:45 AM	0	0	0	0	17	16	58	190	15	3	6	0	305
Total	0	0	0	0	80	67	183	778	54	19	27	0	1208
Grand Total	0	0	0	0	139	129	284	1449	104	30	48	0	2183
Apprch %	0	0	0	0	51.9	48.1	15.5	78.9	5.7	38.5	61.5	0	
Total %	0	0	0	0	6.4	5.9	13	66.4	4.8	1.4	2.2	0	
Cars	0	0	0	0	133	122	269	1394	100	28	46	0	2092
% Cars	0	0	0	0	95.7	94.6	94.7	96.2	96.2	93.3	95.8	0	95.8
Trucks	0	0	0	0	6	7	15	55	4	2	2	0	91
% Trucks	0	0	0	0	4.3	5.4	5.3	3.8	3.8	6.7	4.2	0	4.2

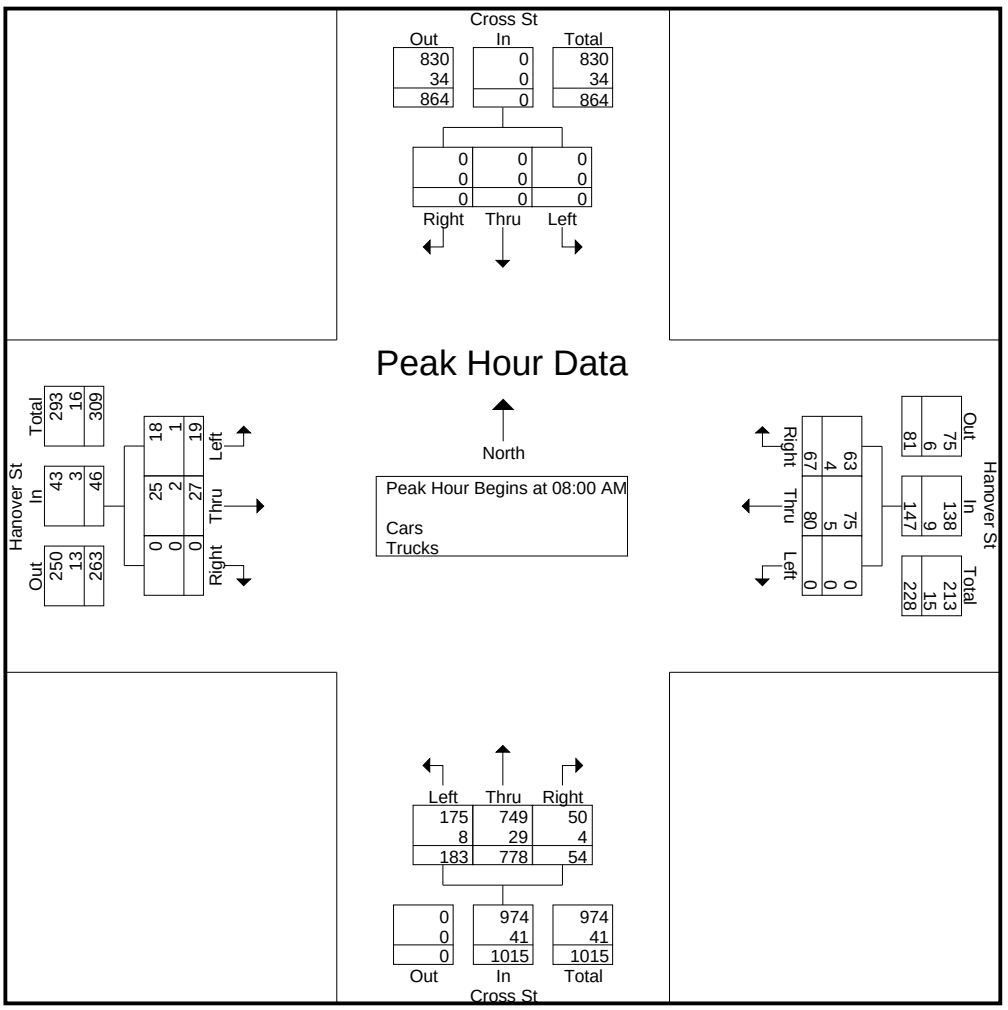
Accurate Counts

978-664-2565

N/S Street : Cross Street
E/W Street : Hanover Street
City/State : Boston, MA
Weather : Cloudy

File Name : 90040001
Site Code : 90040001
Start Date : 8/6/2014
Page No : 2

	Cross St From North				Hanover St From East				Cross St From South				Hanover St From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. 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	**26**	**20**	**46**	47	164	13	224	2	**10**	0	12	282
08:15 AM	0	0	0	0	0	19	17	36	34	195	**15**	244	**7**	8	0	**15**	295
08:30 AM	0	0	0	0	0	18	14	32	44	**229**	11	**284**	7	3	0	10	**326**
08:45 AM	0	0	0	0	0	17	16	33	**58**	190	15	263	3	6	0	9	305
Total Volume	0	0	0	0	0	80	67	147	183	778	54	1015	19	27	0	46	1208
% App. Total	0	0	0		0	54.4	45.6		18	76.7	5.3		41.3	58.7	0		
PHF	.000	.000	.000	.000	.000	.769	.838	.799	.789	.849	.900	.893	.679	.675	.000	.767	.926
Cars	0	0	0	0	0	75	63	138	175	749	50	974	18	25	0	43	1155
% Cars	0	0	0	0	0	93.8	94.0	93.9	95.6	96.3	92.6	96.0	94.7	92.6	0	93.5	95.6
Trucks	0	0	0	0	0	5	4	9	8	29	4	41	1	2	0	3	53
% Trucks	0	0	0	0	0	6.3	6.0	6.1	4.4	3.7	7.4	4.0	5.3	7.4	0	6.5	4.4



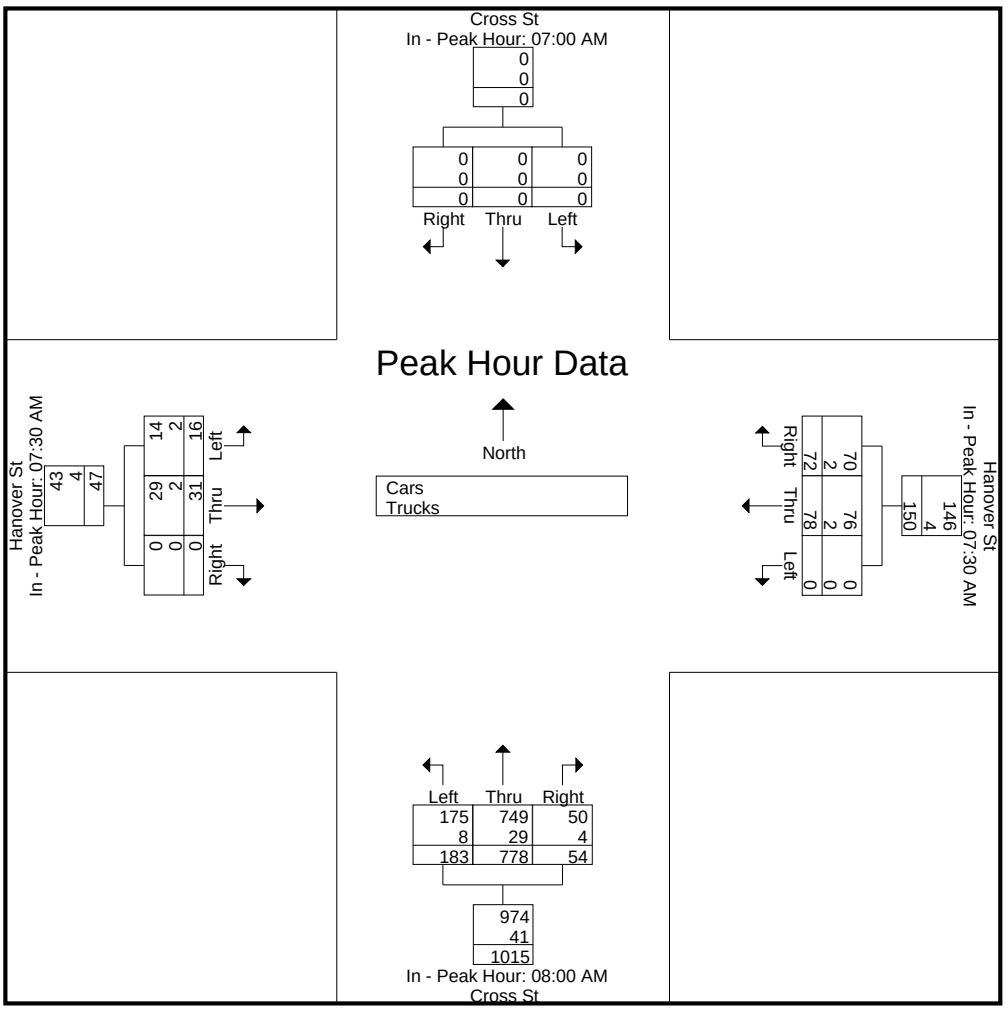
Accurate Counts

978-664-2565

N/S Street : Cross Street
E/W Street : Hanover Street
City/State : Boston, MA
Weather : Cloudy

File Name : 90040001
Site Code : 90040001
Start Date : 8/6/2014
Page No : 3

	Cross St From North				Hanover St From East				Cross St From South				Hanover St From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:00 AM				07:30 AM				08:00 AM				07:30 AM				
+0 mins.	0	0	0	0	0	20	17	37	47	164	13	224	4	6	0	10	
+15 mins.	0	0	0	0	0	13	18	31	34	195	**15**	244	3	7	0	10	
+30 mins.	0	0	0	0	0	**26**	**20**	**46**	44	**229**	11	**284**	2	**10**	0	12	
+45 mins.	0	0	0	0	0	19	17	36	**58**	190	15	263	**7**	8	0	**15**	
Total Volume	0	0	0	0	0	78	72	150	183	778	54	1015	16	31	0	47	
% App. Total	0	0	0		0	52	48		18	76.7	5.3		34	66	0		
PHF	.000	.000	.000	.000	.000	.750	.900	.815	.789	.849	.900	.893	.571	.775	.000	.783	
Cars	0	0	0	0	0	76	70	146	175	749	50	974	14	29	0	43	
% Cars	0	0	0	0	0	97.4	97.2	97.3	95.6	96.3	92.6	96	87.5	93.5	0	91.5	
Trucks	0	0	0	0	0	2	2	4	8	29	4	41	2	2	0	4	
% Trucks	0	0	0	0	0	2.6	2.8	2.7	4.4	3.7	7.4	4	12.5	6.5	0	8.5	



Accurate Counts

978-664-2565

N/S Street : Cross Street
E/W Street : Hanover Street
City/State : Boston, MA
Weather : Cloudy

File Name : 90040001
Site Code : 90040001
Start Date : 8/6/2014
Page No : 10

Groups Printed- Bikes Peds

	Cross St From North				Hanover St From East				Cross St From South				Hanover St From West						
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	0	0	30	0	0	0	31	0	1	0	21	0	0	0	7	89	1	90
07:15 AM	0	0	0	35	1	1	0	23	0	0	0	26	0	0	0	7	91	2	93
07:30 AM	0	2	1	64	0	1	0	42	0	5	0	35	0	1	0	8	149	10	159
07:45 AM	0	1	0	77	0	3	1	45	0	0	0	45	1	0	0	2	169	6	175
Total	0	3	1	206	1	5	1	141	0	6	0	127	1	1	0	24	498	19	517
08:00 AM	0	1	0	73	1	2	0	55	0	1	0	41	0	1	0	5	174	6	180
08:15 AM	0	0	0	54	1	7	1	60	0	3	0	51	1	1	0	8	173	14	187
08:30 AM	0	1	0	69	1	4	0	56	0	4	0	55	0	2	0	15	195	12	207
08:45 AM	0	1	0	65	0	3	1	68	0	5	2	47	0	0	0	8	188	12	200
Total	0	3	0	261	3	16	2	239	0	13	2	194	1	4	0	36	730	44	774
Grand Total	0	6	1	467	4	21	3	380	0	19	2	321	2	5	0	60	1228	63	1291
Apprch %	0	85.7	14.3		14.3	75	10.7		0	90.5	9.5		28.6	71.4	0				
Total %	0	9.5	1.6		6.3	33.3	4.8		0	30.2	3.2		3.2	7.9	0		95.1	4.9	

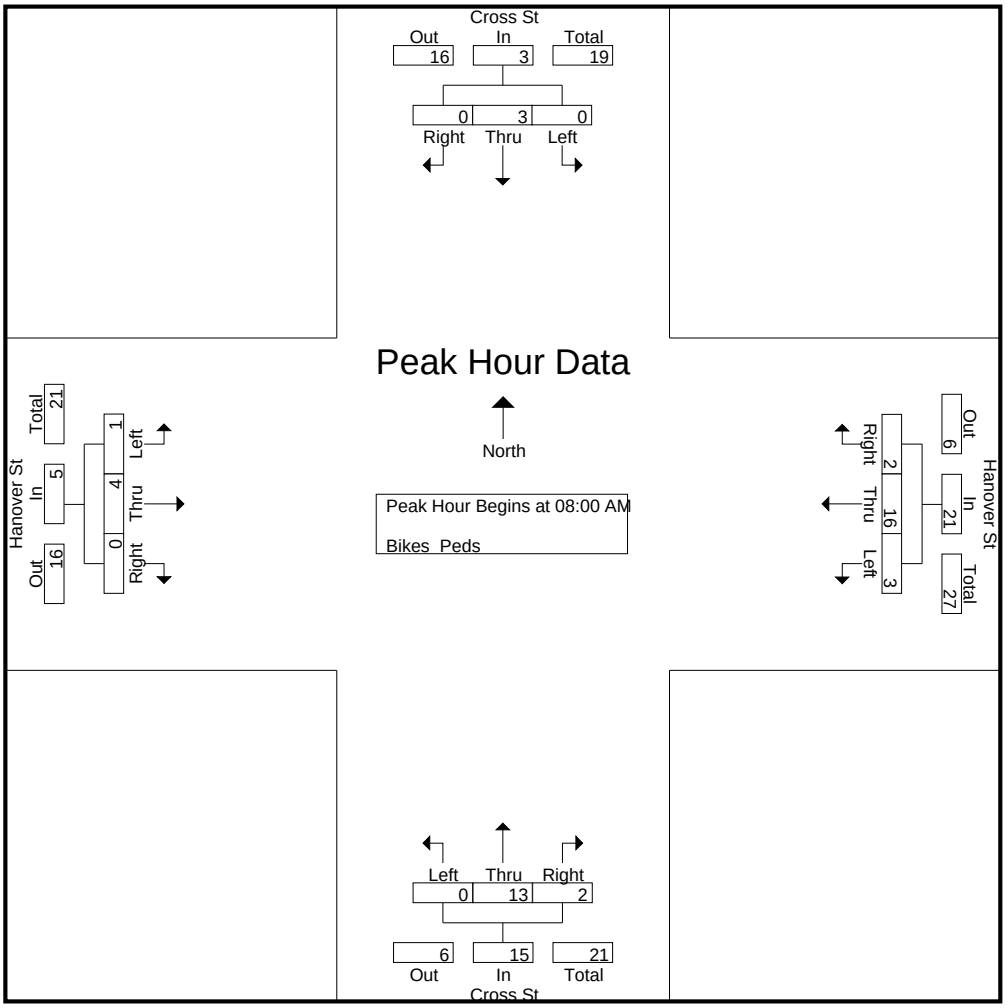
Accurate Counts

978-664-2565

N/S Street : Cross Street
E/W Street : Hanover Street
City/State : Boston, MA
Weather : Cloudy

File Name : 90040001
Site Code : 90040001
Start Date : 8/6/2014
Page No : 11

	Cross St From North				Hanover St From East				Cross St From South				Hanover St From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. 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	**1**	0	**1**	**1**	2	0	3	0	1	0	1	0	1	0	1	6
08:15 AM	0	0	0	0	1	**7**	**1**	**9**	0	3	0	3	**1**	1	0	**2**	**14**
08:30 AM	0	1	0	1	1	4	0	5	0	4	0	4	0	**2**	0	2	12
08:45 AM	0	1	0	1	0	3	1	4	0	**5**	**2**	**7**	0	0	0	0	12
Total Volume	0	3	0	3	3	16	2	21	0	13	2	15	1	4	0	5	44
% App. Total	0	100	0		14.3	76.2	9.5		0	86.7	13.3		20	80	0		
PHF	.000	.750	.000	.750	.750	.571	.500	.583	.000	.650	.250	.536	.250	.500	.000	.625	.786



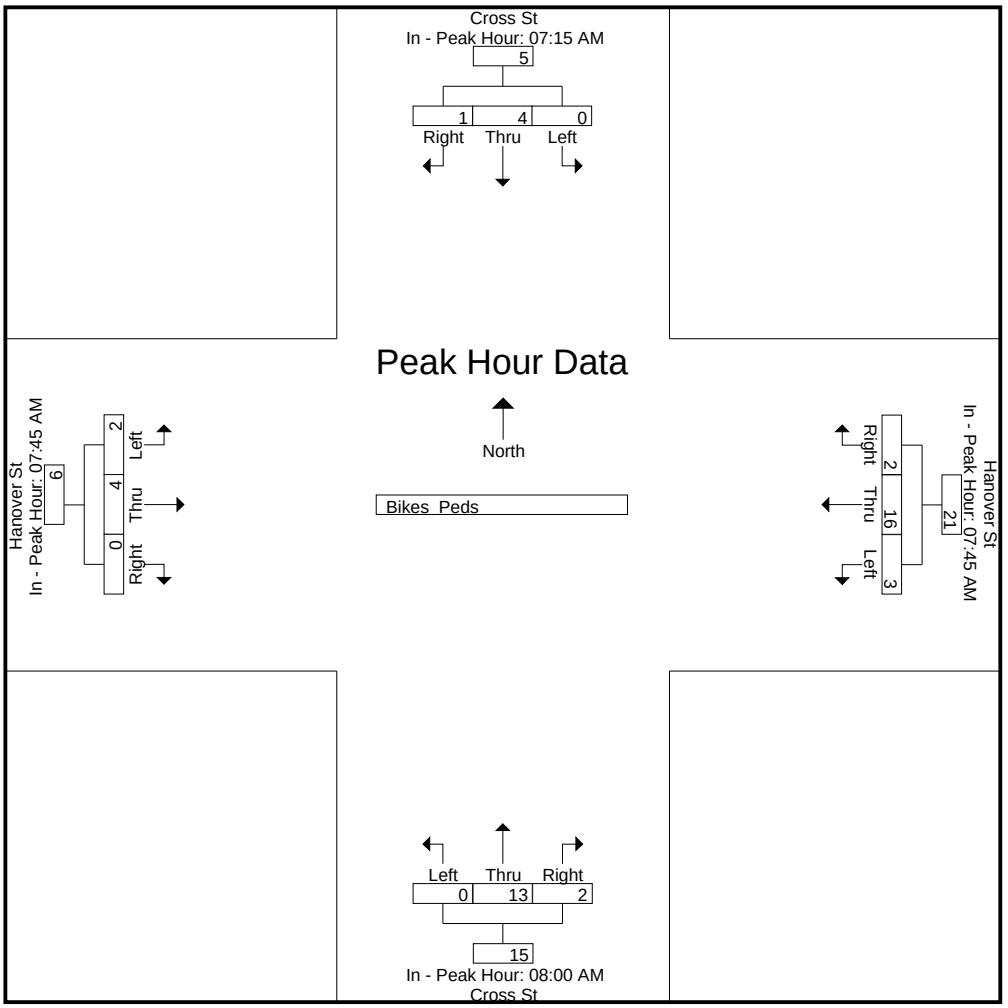
Accurate Counts

978-664-2565

N/S Street : Cross Street
E/W Street : Hanover Street
City/State : Boston, MA
Weather : Cloudy

File Name : 90040001
Site Code : 90040001
Start Date : 8/6/2014
Page No : 12

	Cross St From North				Hanover St From East				Cross St From South				Hanover St From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:15 AM				07:45 AM				08:00 AM				07:45 AM				
+0 mins.	0	0	0	0	0	3	**1**	4	0	1	0	1	**1**	0	0	1	
+15 mins.	0	**2**	**1**	**3**	**1**	2	0	3	0	3	0	3	0	1	0	1	
+30 mins.	0	1	0	1	1	**7**	1	**9**	0	4	0	4	1	1	0	**2**	
+45 mins.	0	1	0	1	1	4	0	5	0	**5**	**2**	**7**	0	**2**	0	2	
Total Volume	0	4	1	5	3	16	2	21	0	13	2	15	2	4	0	6	
% App. Total	0	80	20		14.3	76.2	9.5		0	86.7	13.3		33.3	66.7	0		
PHF	.000	.500	.250	.417	.750	.571	.500	.583	.000	.650	.250	.536	.500	.500	.000	.750	



Accurate Counts

978-664-2565

N/S Street : Cross Street
E/W Street : Hanover Street
City/State : Boston, MA
Weather : Cloudy

File Name : 90040001
Site Code : 90040001
Start Date : 8/6/2014
Page No : 1

Groups Printed- Cars - Trucks

	Cross St From North			Hanover St From East			Cross St From South			Hanover St From West			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
04:00 PM	0	0	0	0	16	21	15	237	21	9	11	0	330
04:15 PM	0	0	0	0	35	16	23	297	14	4	12	1	402
04:30 PM	0	0	0	0	29	21	24	287	13	14	9	0	397
04:45 PM	0	0	0	0	22	24	23	315	11	19	10	1	425
Total	0	0	0	0	102	82	85	1136	59	46	42	2	1554
05:00 PM	0	0	0	0	12	22	17	305	12	7	8	0	383
05:15 PM	0	0	0	0	13	15	15	295	9	27	9	0	383
05:30 PM	0	0	0	0	16	19	22	305	9	20	12	0	403
05:45 PM	0	0	0	0	26	20	16	327	18	14	13	0	434
Total	0	0	0	0	67	76	70	1232	48	68	42	0	1603
Grand Total	0	0	0	0	169	158	155	2368	107	114	84	2	3157
Apprch %	0	0	0	0	51.7	48.3	5.9	90	4.1	57	42	1	
Total %	0	0	0	0	5.4	5	4.9	75	3.4	3.6	2.7	0.1	
Cars	0	0	0	0	168	158	141	2331	107	113	82	2	3102
% Cars	0	0	0	0	99.4	100	91	98.4	100	99.1	97.6	100	98.3
Trucks	0	0	0	0	1	0	14	37	0	1	2	0	55
% Trucks	0	0	0	0	0.6	0	9	1.6	0	0.9	2.4	0	1.7

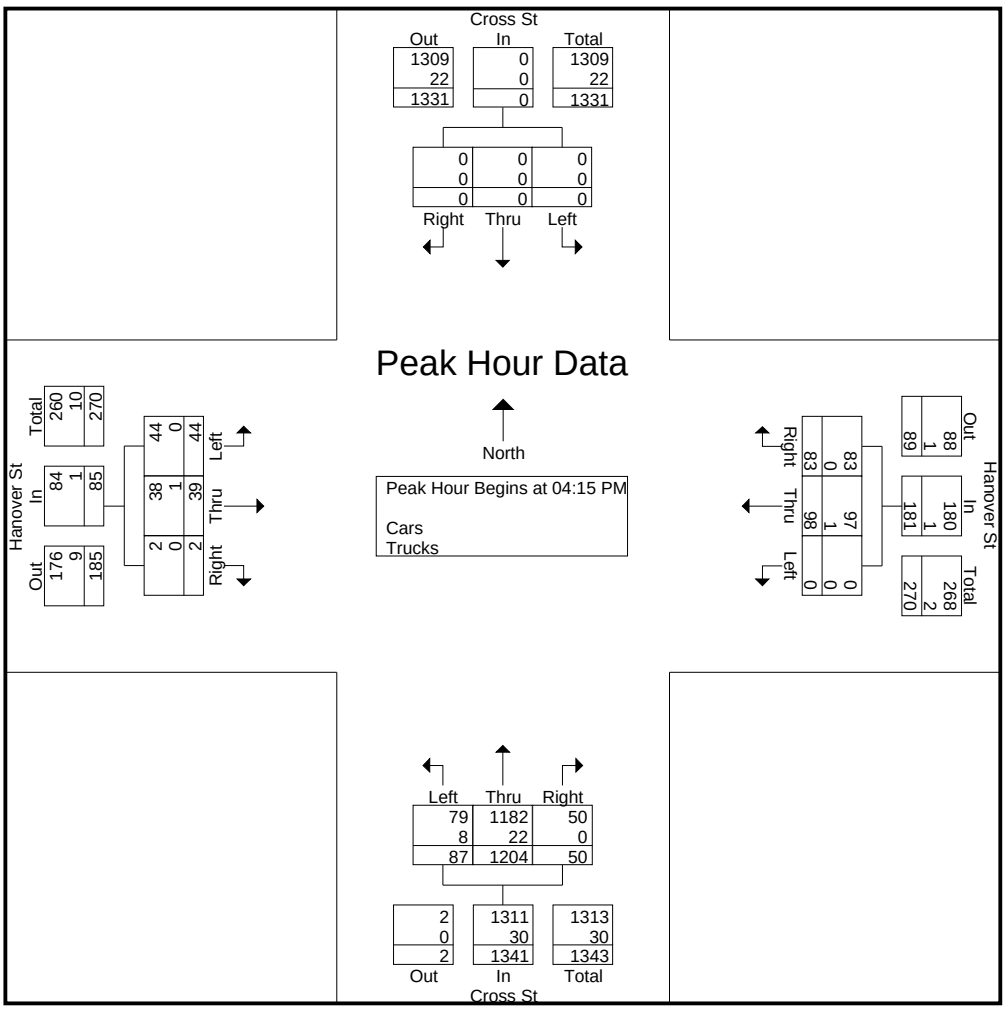
Accurate Counts

978-664-2565

N/S Street : Cross Street
E/W Street : Hanover Street
City/State : Boston, MA
Weather : Cloudy

File Name : 90040001
Site Code : 90040001
Start Date : 8/6/2014
Page No : 2

	Cross St From North				Hanover St From East				Cross St From South				Hanover St From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. 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	0	0	0	0	**35**	16	**51**	23	297	**14**	334	4	**12**	**1**	17	402
04:30 PM	0	0	0	0	0	29	21	50	**24**	287	13	324	14	9	0	23	397
04:45 PM	0	0	0	0	0	22	**24**	46	23	**315**	11	**349**	**19**	10	1	**30**	**425**
05:00 PM	0	0	0	0	0	12	22	34	17	305	12	334	7	8	0	15	383
Total Volume	0	0	0	0	0	98	83	181	87	1204	50	1341	44	39	2	85	1607
% App. Total	0	0	0		0	54.1	45.9		6.5	89.8	3.7		51.8	45.9	2.4		
PHF	.000	.000	.000	.000	.000	.700	.865	.887	.906	.956	.893	.961	.579	.813	.500	.708	.945
Cars	0	0	0	0	0	97	83	180	79	1182	50	1311	44	38	2	84	1575
% Cars	0	0	0	0	0	99.0	100	99.4	90.8	98.2	100	97.8	100	97.4	100	98.8	98.0
Trucks	0	0	0	0	0	1	0	1	8	22	0	30	0	1	0	1	32
% Trucks	0	0	0	0	0	1.0	0	0.6	9.2	1.8	0	2.2	0	2.6	0	1.2	2.0

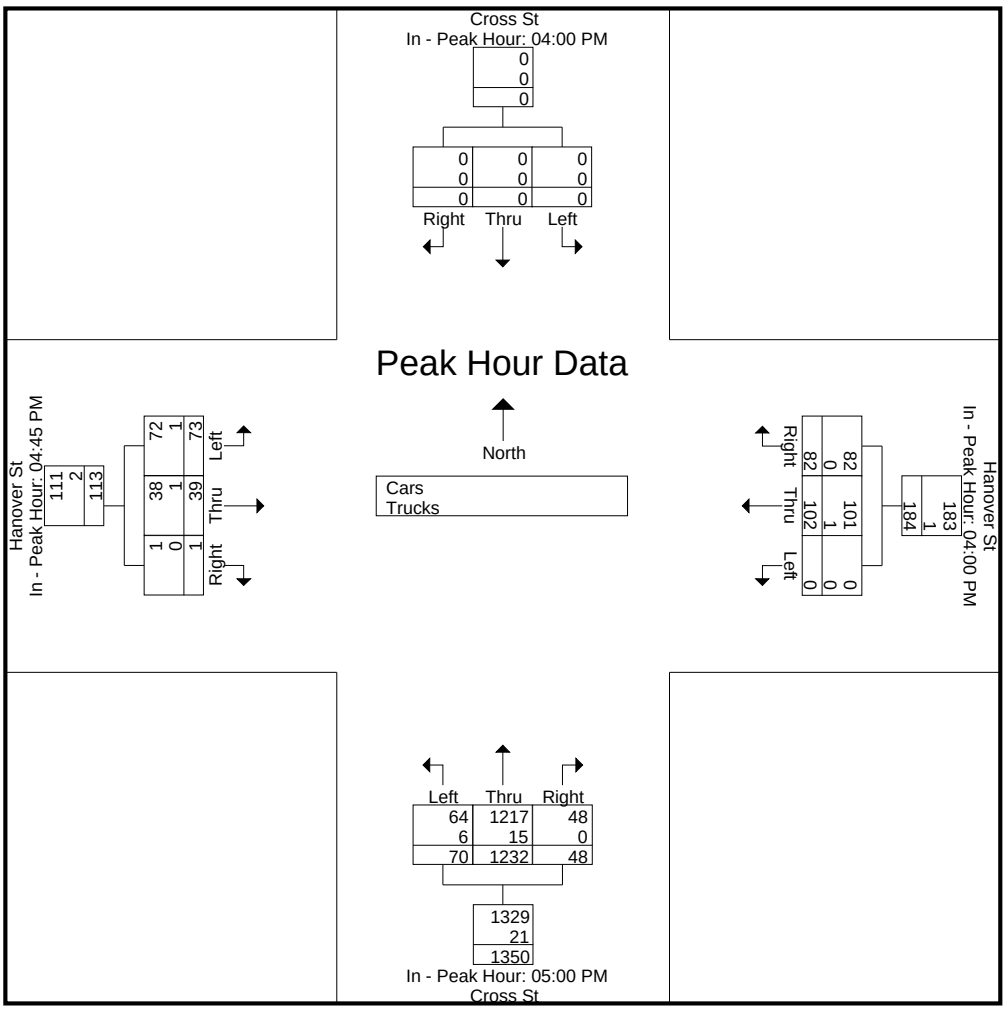


Accurate Counts
978-664-2565

N/S Street : Cross Street
E/W Street : Hanover Street
City/State : Boston, MA
Weather : Cloudy

File Name : 90040001
Site Code : 90040001
Start Date : 8/6/2014
Page No : 3

	Cross St From North				Hanover St From East				Cross St From South				Hanover St From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:00 PM				04:00 PM				05:00 PM				04:45 PM				
+0 mins.	0	0	0	0	0	16	21	37	17	305	12	334	19	10	**1**	30	
+15 mins.	0	0	0	0	0	**35**	16	**51**	15	295	9	319	7	8	0	15	
+30 mins.	0	0	0	0	0	29	21	50	**22**	305	9	336	**27**	9	0	**36**	
+45 mins.	0	0	0	0	0	22	**24**	46	16	**327**	**18**	**361**	20	**12**	0	32	
Total Volume	0	0	0	0	0	102	82	184	70	1232	48	1350	73	39	1	113	
% App. Total	0	0	0		0	55.4	44.6		5.2	91.3	3.6		64.6	34.5	0.9		
PHF	.000	.000	.000	.000	.000	.729	.854	.902	.795	.942	.667	.935	.676	.813	.250	.785	
Cars	0	0	0	0	0	101	82	183	64	1217	48	1329	72	38	1	111	
% Cars	0	0	0	0	0	99	100	99.5	91.4	98.8	100	98.4	98.6	97.4	100	98.2	
Trucks	0	0	0	0	0	1	0	1	6	15	0	21	1	1	0	2	
% Trucks	0	0	0	0	0	1	0	0.5	8.6	1.2	0	1.6	1.4	2.6	0	1.8	



Accurate Counts

978-664-2565

N/S Street : Cross Street
E/W Street : Hanover Street
City/State : Boston, MA
Weather : Cloudy

File Name : 90040001
Site Code : 90040001
Start Date : 8/6/2014

Groups Printed- Bikes Peds

	Cross St From North				Hanover St From East				Cross St From South				Hanover St From West						
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	0	0	122	0	1	0	56	0	8	1	76	0	0	0	20	274	10	284
04:15 PM	0	0	0	121	0	3	1	70	0	10	0	106	0	2	0	37	334	16	350
04:30 PM	0	0	1	118	0	1	0	98	0	11	1	101	0	0	0	18	335	14	349
04:45 PM	0	0	0	132	0	1	0	88	0	16	1	119	0	0	0	26	365	18	383
Total	0	0	1	493	0	6	1	312	0	45	3	402	0	2	0	101	1308	58	1366
05:00 PM	0	0	0	121	1	2	0	106	0	16	2	118	3	2	0	21	366	26	392
05:15 PM	0	0	1	113	0	2	0	142	0	34	2	137	1	2	0	27	419	42	461
05:30 PM	0	1	0	129	0	0	0	124	1	28	2	118	3	0	0	33	404	35	439
05:45 PM	0	0	0	147	0	2	0	156	2	14	1	147	0	1	0	26	476	20	496
Total	0	1	1	510	1	6	0	528	3	92	7	520	7	5	0	107	1665	123	1788
Grand Total	0	1	2	1003	1	12	1	840	3	137	10	922	7	7	0	208	2973	181	3154
Apprch %	0	33.3	66.7		7.1	85.7	7.1		2	91.3	6.7		50	50	0				
Total %	0	0.6	1.1		0.6	6.6	0.6		1.7	75.7	5.5		3.9	3.9	0		94.3	5.7	

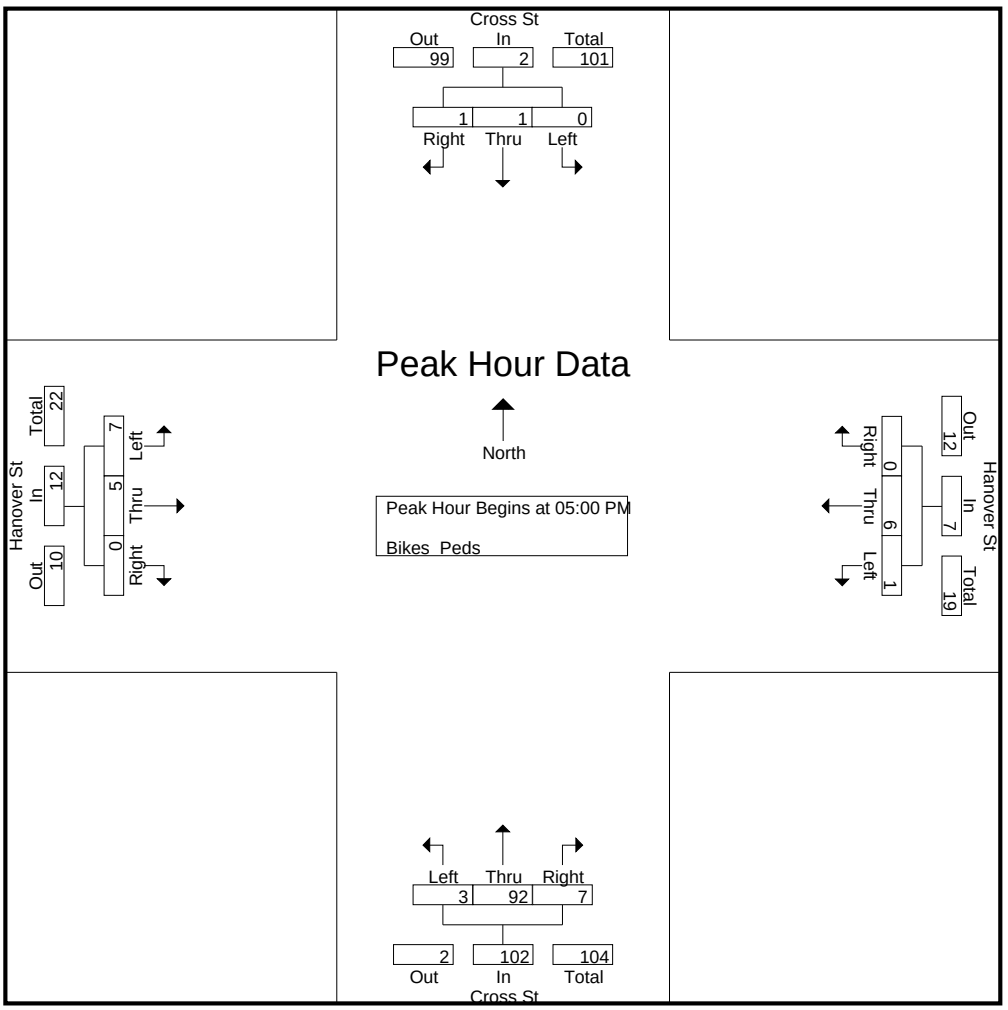
Accurate Counts

978-664-2565

N/S Street : Cross Street
E/W Street : Hanover Street
City/State : Boston, MA
Weather : Cloudy

File Name : 90040001
Site Code : 90040001
Start Date : 8/6/2014
Page No : 11

	Cross St From North				Hanover St From East				Cross St From South				Hanover St From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. 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	0	**1**	**2**	0	**3**	0	16	**2**	18	**3**	**2**	0	**5**	26
05:15 PM	0	0	**1**	**1**	0	2	0	2	0	**34**	2	**36**	1	2	0	3	**42**
05:30 PM	0	**1**	0	1	0	0	0	0	1	28	2	31	3	0	0	3	35
05:45 PM	0	0	0	0	0	2	0	2	**2**	14	1	17	0	1	0	1	20
Total Volume	0	1	1	2	1	6	0	7	3	92	7	102	7	5	0	12	123
% App. Total	0	50	50		14.3	85.7	0		2.9	90.2	6.9		58.3	41.7	0		
PHF	.000	.250	.250	.500	.250	.750	.000	.583	.375	.676	.875	.708	.583	.625	.000	.600	.732



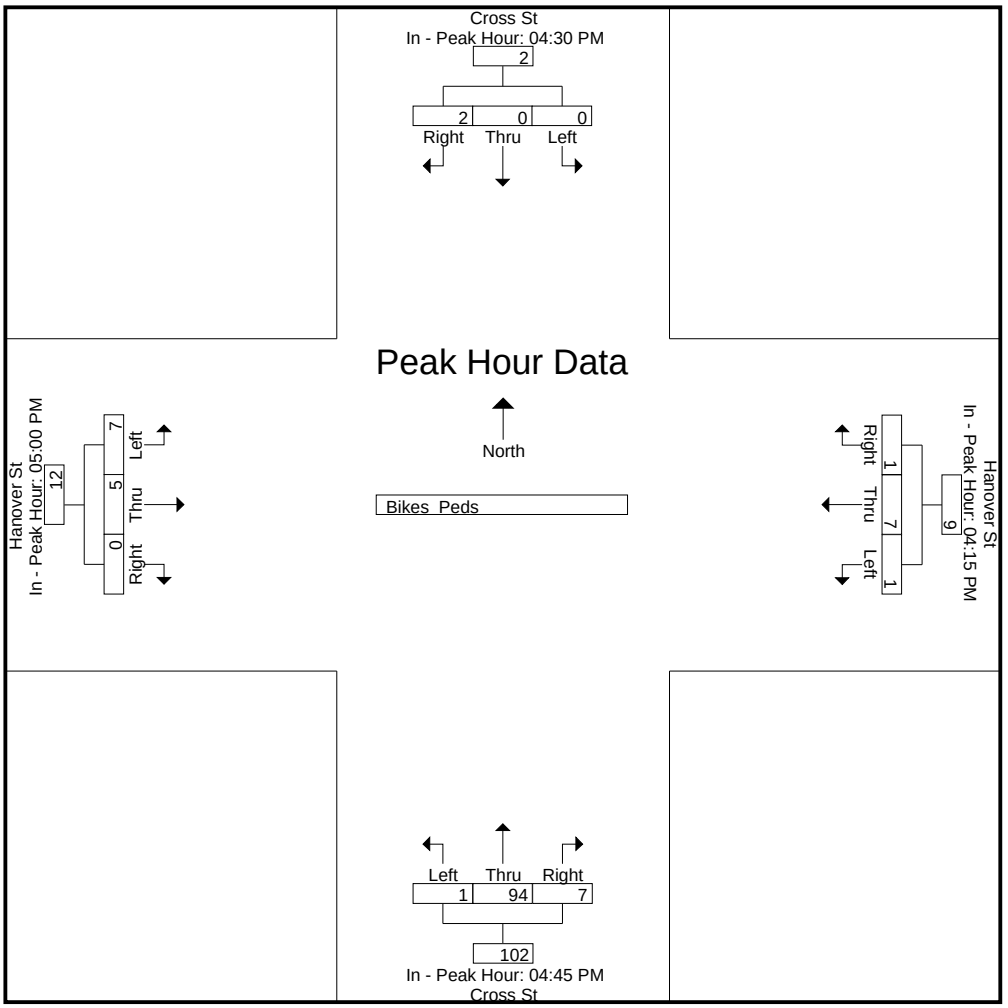
Accurate Counts

978-664-2565

N/S Street : Cross Street
E/W Street : Hanover Street
City/State : Boston, MA
Weather : Cloudy

File Name : 90040001
Site Code : 90040001
Start Date : 8/6/2014
Page No : 12

	Cross St From North				Hanover St From East				Cross St From South				Hanover St From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:30 PM				04:15 PM				04:45 PM				05:00 PM				
+0 mins.	0	0	**1**	**1**	0	**3**	**1**	**4**	0	16	1	17	**3**	**2**	0	**5**	
+15 mins.	0	0	0	0	0	1	0	1	0	16	**2**	18	1	2	0	3	
+30 mins.	0	0	0	0	0	1	0	1	0	**34**	2	**36**	3	0	0	3	
+45 mins.	0	0	1	1	**1**	2	0	3	**1**	28	2	31	0	1	0	1	
Total Volume	0	0	2	2	1	7	1	9	1	94	7	102	7	5	0	12	
% App. Total	0	0	100		11.1	77.8	11.1		1	92.2	6.9		58.3	41.7	0		
PHF	.000	.000	.500	.500	.250	.583	.250	.563	.250	.691	.875	.708	.583	.625	.000	.600	



N/S: Surface Road SB
E/W: Hanover Street
City, State: Boston, MA
Client: Howard Stein-Hudson/M. Littman

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

File Name : 143882 A
Site Code : 2012029
Start Date : 5/13/2014
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Surface Road (SB) From North				Hanover Street From East				Surface Road (SB) From South				Hanover Street From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
07:00 AM	3	76	1	0	0	13	8	0	0	0	0	0	0	2	0	0	103
07:15 AM	7	94	5	0	0	32	11	0	0	0	0	0	2	4	1	0	156
07:30 AM	4	80	10	0	0	24	22	0	0	0	0	0	2	4	0	0	146
07:45 AM	7	104	6	0	0	18	16	0	0	0	0	0	0	4	0	0	155
Total	21	354	22	0	0	87	57	0	0	0	0	0	4	14	1	0	560
08:00 AM	2	109	2	0	0	43	25	1	0	0	0	0	1	7	0	0	190
08:15 AM	7	100	1	0	0	52	14	0	0	0	0	0	0	5	0	0	179
08:30 AM	11	115	4	0	0	56	17	0	0	0	0	0	1	6	0	0	210
08:45 AM	9	104	4	0	0	60	23	0	0	0	0	0	3	3	0	0	206
Total	29	428	11	0	0	211	79	1	0	0	0	0	5	21	0	0	785
Grand Total	50	782	33	0	0	298	136	1	0	0	0	0	9	35	1	0	1345
Apprch %	5.8	90.4	3.8	0	0	68.5	31.3	0.2	0	0	0	0	20	77.8	2.2	0	
Total %	3.7	58.1	2.5	0	0	22.2	10.1	0.1	0	0	0	0	0.7	2.6	0.1	0	
Cars	45	729	30	0	0	283	118	1	0	0	0	0	8	31	1	0	1246
% Cars	90	93.2	90.9	0	0	95	86.8	100	0	0	0	0	88.9	88.6	100	0	92.6
Heavy Vehicles	5	53	3	0	0	15	18	0	0	0	0	0	1	4	0	0	99
% Heavy Vehicles	10	6.8	9.1	0	0	5	13.2	0	0	0	0	0	11.1	11.4	0	0	7.4

	Surface Road (SB) From North					Hanover Street From East					Surface Road (SB) From South					Hanover Street From West					
Start Time	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	Int. 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	2	109	2	0	113	0	43	25	1	69	0	0	0	0	0	1	7	0	0	8	190
08:15 AM	7	100	1	0	108	0	52	14	0	66	0	0	0	0	0	0	5	0	0	5	179
08:30 AM	11	115	4	0	130	0	56	17	0	73	0	0	0	0	0	1	6	0	0	7	210
08:45 AM	9	104	4	0	117	0	60	23	0	83	0	0	0	0	0	3	3	0	0	6	206
Total Volume	29	428	11	0	468	0	211	79	1	291	0	0	0	0	0	5	21	0	0	26	785
% App. Total	6.2	91.5	2.4	0		0	72.5	27.1	0.3		0	0	0	0		19.2	80.8	0	0		
PHF	.659	.930	.688	.000	.900	.000	.879	.790	.250	.877	.000	.000	.000	.000	.000	.417	.750	.000	.000	.813	.935
Cars	28	403	9	0	440	0	199	66	1	266	0	0	0	0	0	5	20	0	0	25	731
% Cars	96.6	94.2	81.8	0	94.0	0	94.3	83.5	100	91.4	0	0	0	0	0	100	95.2	0	0	96.2	93.1
Heavy Vehicles	1	25	2	0	28	0	12	13	0	25	0	0	0	0	0	0	1	0	0	1	54
% Heavy Vehicles	3.4	5.8	18.2	0	6.0	0	5.7	16.5	0	8.6	0	0	0	0	0	0	4.8	0	0	3.8	6.9

N/S: Surface Road SB
E/W: Hanover Street
City, State: Boston, MA
Client: Howard Stein-Hudson/M. Littman

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

File Name : 143882 A
Site Code : 2012029
Start Date : 5/13/2014
Page No : 1

Groups Printed- Peds and Bikes

	Surface Road (SB) From North				Hanover Street From East				Surface Road (SB) From South				Hanover Street From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
07:00 AM	0	7	0	47	0	0	0	10	0	0	0	5	0	0	0	17	86
07:15 AM	0	3	0	63	0	3	0	10	0	0	0	13	0	1	0	17	110
07:30 AM	0	10	0	111	0	1	0	15	0	0	0	34	0	0	0	24	195
07:45 AM	0	21	1	135	0	0	0	23	0	0	0	35	1	0	0	38	254
Total	0	41	1	356	0	4	0	58	0	0	0	87	1	1	0	96	645
08:00 AM	0	17	0	142	0	0	2	16	0	0	0	40	0	1	0	56	274
08:15 AM	3	27	0	169	0	0	1	19	0	0	0	51	0	1	0	46	317
08:30 AM	0	33	1	130	0	4	5	29	0	0	0	35	0	1	0	75	313
08:45 AM	0	24	1	123	0	3	2	18	0	0	0	48	0	1	0	50	270
Total	3	101	2	564	0	7	10	82	0	0	0	174	0	4	0	227	1174
Grand Total	3	142	3	920	0	11	10	140	0	0	0	261	1	5	0	323	1819
Apprch %	0.3	13.3	0.3	86.1	0	6.8	6.2	87	0	0	0	100	0.3	1.5	0	98.2	
Total %	0.2	7.8	0.2	50.6	0	0.6	0.5	7.7	0	0	0	14.3	0.1	0.3	0	17.8	

	Surface Road (SB) From North					Hanover Street From East					Surface Road (SB) From South					Hanover Street From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. 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	0	142	159	0	0	2	16	18	0	0	0	40	40	0	1	0	56	57	274
08:15 AM	3	27	0	169	199	0	0	1	19	20	0	0	0	51	51	0	1	0	46	47	317
08:30 AM	0	33	1	130	164	0	4	5	29	38	0	0	0	35	35	0	1	0	75	76	313
08:45 AM	0	24	1	123	148	0	3	2	18	23	0	0	0	48	48	0	1	0	50	51	270
Total Volume	3	101	2	564	670	0	7	10	82	99	0	0	0	174	174	0	4	0	227	231	1174
% App. Total	0.4	15.1	0.3	84.2		0	7.1	10.1	82.8		0	0	0	100		0	1.7	0	98.3		
PHF	.250	.765	.500	.834	.842	.000	.438	.500	.707	.651	.000	.000	.000	.853	.853	.000	1.00	.000	.757	.760	.926

N/S: Surface Road SB
E/W: Hanover Street
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Client: Howard Stein-Hudson/M. Littman

PRECISION D A T A INDUSTRIES, LLC
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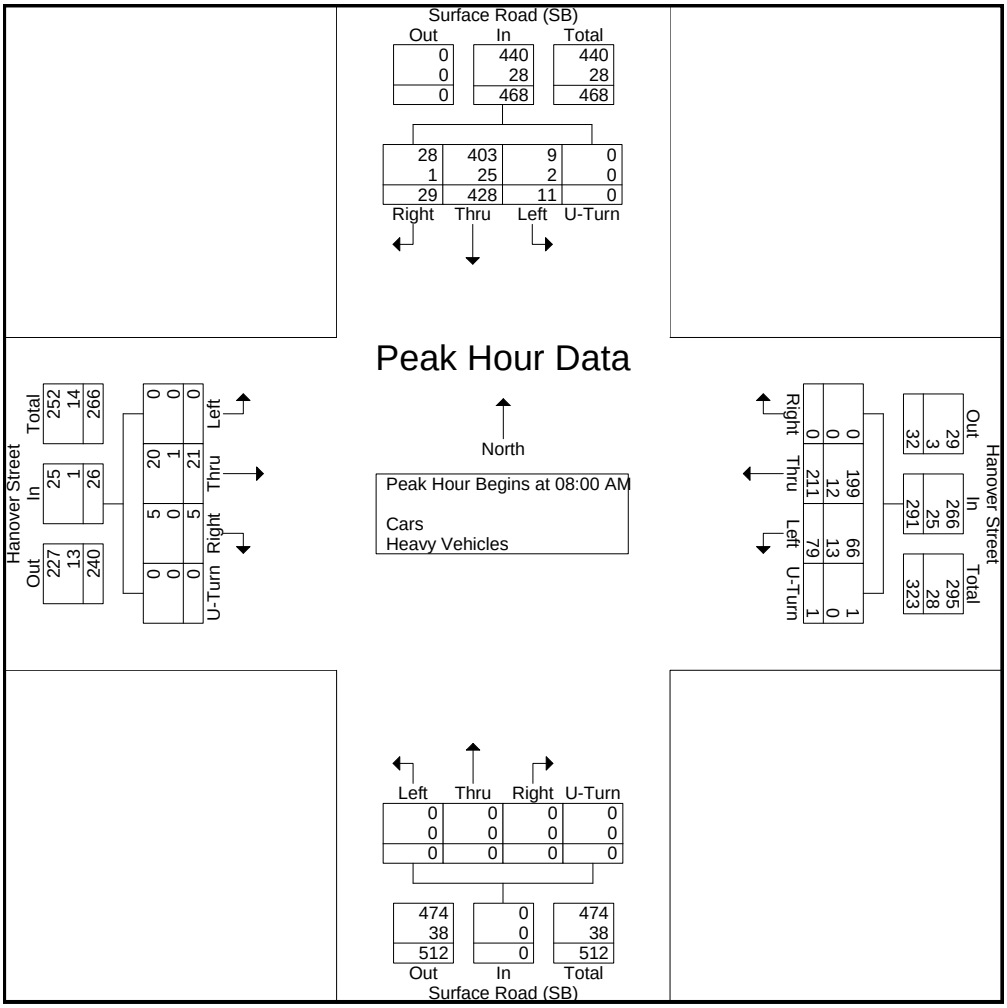
Email: datarequests@pdillc.com

File Name : 143882 A
Site Code : 2012029
Start Date : 5/13/2014
Page No : 1

	Surface Road (SB) From North					Hanover Street From East					Surface Road (SB) From South					Hanover Street From West					
Start Time	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	Int. 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	2	109	2	0	113	0	43	25	1	69	0	0	0	0	0	1	7	0	0	8	190
08:15 AM	7	100	1	0	108	0	52	14	0	66	0	0	0	0	0	0	5	0	0	5	179
08:30 AM	11	115	4	0	130	0	56	17	0	73	0	0	0	0	0	1	6	0	0	7	210
08:45 AM	9	104	4	0	117	0	60	23	0	83	0	0	0	0	0	3	3	0	0	6	206
Total Volume	29	428	11	0	468	0	211	79	1	291	0	0	0	0	0	5	21	0	0	26	785
% App. Total	6.2	91.5	2.4	0		0	72.5	27.1	0.3		0	0	0	0		19.2	80.8	0	0		
PHF	.659	.930	.688	.000	.900	.000	.879	.790	.250	.877	.000	.000	.000	.000	.000	.417	.750	.000	.000	.813	.935
Cars	28	403	9	0	440	0	199	66	1	266	0	0	0	0	0	5	20	0	0	25	731
% Cars	96.6	94.2	81.8	0	94.0	0	94.3	83.5	100	91.4	0	0	0	0	0	100	95.2	0	0	96.2	93.1
Heavy Vehicles	1	25	2	0	28	0	12	13	0	25	0	0	0	0	0	0	1	0	0	1	54
% Heavy Vehicles	3.4	5.8	18.2	0	6.0	0	5.7	16.5	0	8.6	0	0	0	0	0	0	4.8	0	0	3.8	6.9



N/S: Surface Road SB
E/W: Hanover Street
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File Name : 143882 AA
Site Code : 2012029
Start Date : 5/13/2014
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Surface Road (SB) From North				Hanover Street From East				Surface Road (SB) From South				Hanover Street From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:00 PM	10	106	18	0	0	27	18	1	0	0	0	0	1	6	0	0	187
04:15 PM	17	103	13	0	0	20	24	0	0	0	0	0	3	4	0	0	184
04:30 PM	8	107	11	0	0	16	20	0	0	0	0	0	3	10	0	0	175
04:45 PM	4	85	9	0	0	27	11	0	0	0	0	0	3	9	0	0	148
Total	39	401	51	0	0	90	73	1	0	0	0	0	10	29	0	0	694
05:00 PM	7	78	7	0	0	37	16	0	0	0	0	0	1	7	0	0	153
05:15 PM	4	71	11	0	0	24	17	0	0	0	0	0	2	10	0	0	139
05:30 PM	4	71	9	0	0	14	17	0	0	0	0	0	4	13	0	0	132
05:45 PM	3	69	20	0	0	30	17	0	0	0	0	0	4	8	0	0	151
Total	18	289	47	0	0	105	67	0	0	0	0	0	11	38	0	0	575
Grand Total	57	690	98	0	0	195	140	1	0	0	0	0	21	67	0	0	1269
Apprch %	6.7	81.7	11.6	0	0	58	41.7	0.3	0	0	0	0	23.9	76.1	0	0	
Total %	4.5	54.4	7.7	0	0	15.4	11	0.1	0	0	0	0	1.7	5.3	0	0	
Cars	52	635	97	0	0	187	129	1	0	0	0	0	16	64	0	0	1181
% Cars	91.2	92	99	0	0	95.9	92.1	100	0	0	0	0	76.2	95.5	0	0	93.1
Heavy Vehicles	5	55	1	0	0	8	11	0	0	0	0	0	5	3	0	0	88
% Heavy Vehicles	8.8	8	1	0	0	4.1	7.9	0	0	0	0	0	23.8	4.5	0	0	6.9

	Surface Road (SB) From North					Hanover Street From East					Surface Road (SB) From South					Hanover Street From West					
Start Time	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	Int. 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	10	106	18	0	134	0	27	18	1	46	0	0	0	0	0	1	6	0	0	7	187
04:15 PM	17	103	13	0	133	0	20	24	0	44	0	0	0	0	0	3	4	0	0	7	184
04:30 PM	8	107	11	0	126	0	16	20	0	36	0	0	0	0	0	3	10	0	0	13	175
04:45 PM	4	85	9	0	98	0	27	11	0	38	0	0	0	0	0	3	9	0	0	12	148
Total Volume	39	401	51	0	491	0	90	73	1	164	0	0	0	0	0	10	29	0	0	39	694
% App. Total	7.9	81.7	10.4	0		0	54.9	44.5	0.6		0	0	0	0		25.6	74.4	0	0		
PHF	.574	.937	.708	.000	.916	.000	.833	.760	.250	.891	.000	.000	.000	.000	.000	.833	.725	.000	.000	.750	.928
Cars	34	365	51	0	450	0	89	67	1	157	0	0	0	0	0	8	26	0	0	34	641
% Cars	87.2	91.0	100	0	91.6	0	98.9	91.8	100	95.7	0	0	0	0	0	80.0	89.7	0	0	87.2	92.4
Heavy Vehicles	5	36	0	0	41	0	1	6	0	7	0	0	0	0	0	2	3	0	0	5	53
% Heavy Vehicles	12.8	9.0	0	0	8.4	0	1.1	8.2	0	4.3	0	0	0	0	0	20.0	10.3	0	0	12.8	7.6

N/S: Surface Road SB
E/W: Hanover Street
City, State: Boston, MA
Client: Howard Stein-Hudson/ M. Littman

PRECISION DATA INDUSTRIES, LLC
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File Name : 143882 AA
Site Code : 2012029
Start Date : 5/13/2014
Page No : 1

Groups Printed- Peds and Bikes

	Surface Road (SB) From North				Hanover Street From East				Surface Road (SB) From South				Hanover Street From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
04:00 PM	0	0	0	91	0	0	0	12	0	0	0	40	0	0	0	81	224
04:15 PM	0	4	0	101	0	2	1	16	0	0	0	37	1	0	0	64	226
04:30 PM	0	5	1	102	0	1	1	26	0	0	0	53	0	1	0	71	261
04:45 PM	0	0	1	98	0	0	1	7	0	0	0	47	0	1	0	86	241
Total	0	9	2	392	0	3	3	61	0	0	0	177	1	2	0	302	952
05:00 PM	0	1	0	123	0	2	0	18	0	0	0	36	0	0	0	153	333
05:15 PM	0	6	0	173	0	2	2	22	0	0	0	47	0	2	0	115	369
05:30 PM	0	4	0	154	0	2	0	18	0	0	0	43	0	0	0	74	295
05:45 PM	0	3	0	119	0	4	3	14	0	0	0	36	0	0	0	73	252
Total	0	14	0	569	0	10	5	72	0	0	0	162	0	2	0	415	1249
Grand Total	0	23	2	961	0	13	8	133	0	0	0	339	1	4	0	717	2201
Apprch %	0	2.3	0.2	97.5	0	8.4	5.2	86.4	0	0	0	100	0.1	0.6	0	99.3	
Total %	0	1	0.1	43.7	0	0.6	0.4	6	0	0	0	15.4	0	0.2	0	32.6	

	Surface Road (SB) From North					Hanover Street From East					Surface Road (SB) From South					Hanover Street From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. 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	1	0	123	124	0	2	0	18	20	0	0	0	36	36	0	0	0	153	153	333
05:15 PM	0	6	0	173	179	0	2	2	22	26	0	0	0	47	47	0	2	0	115	117	369
05:30 PM	0	4	0	154	158	0	2	0	18	20	0	0	0	43	43	0	0	0	74	74	295
05:45 PM	0	3	0	119	122	0	4	3	14	21	0	0	0	36	36	0	0	0	73	73	252
Total Volume	0	14	0	569	583	0	10	5	72	87	0	0	0	162	162	0	2	0	415	417	1249
% App. Total	0	2.4	0	97.6		0	11.5	5.7	82.8		0	0	0	100		0	0.5	0	99.5		
PHF	.000	.583	.000	.822	.814	.000	.625	.417	.818	.837	.000	.000	.000	.862	.862	.000	.250	.000	.678	.681	.846

N/S: Surface Road SB
E/W: Hanover Street
City, State: Boston, MA
Client: Howard Stein-Hudson/ M. Littman

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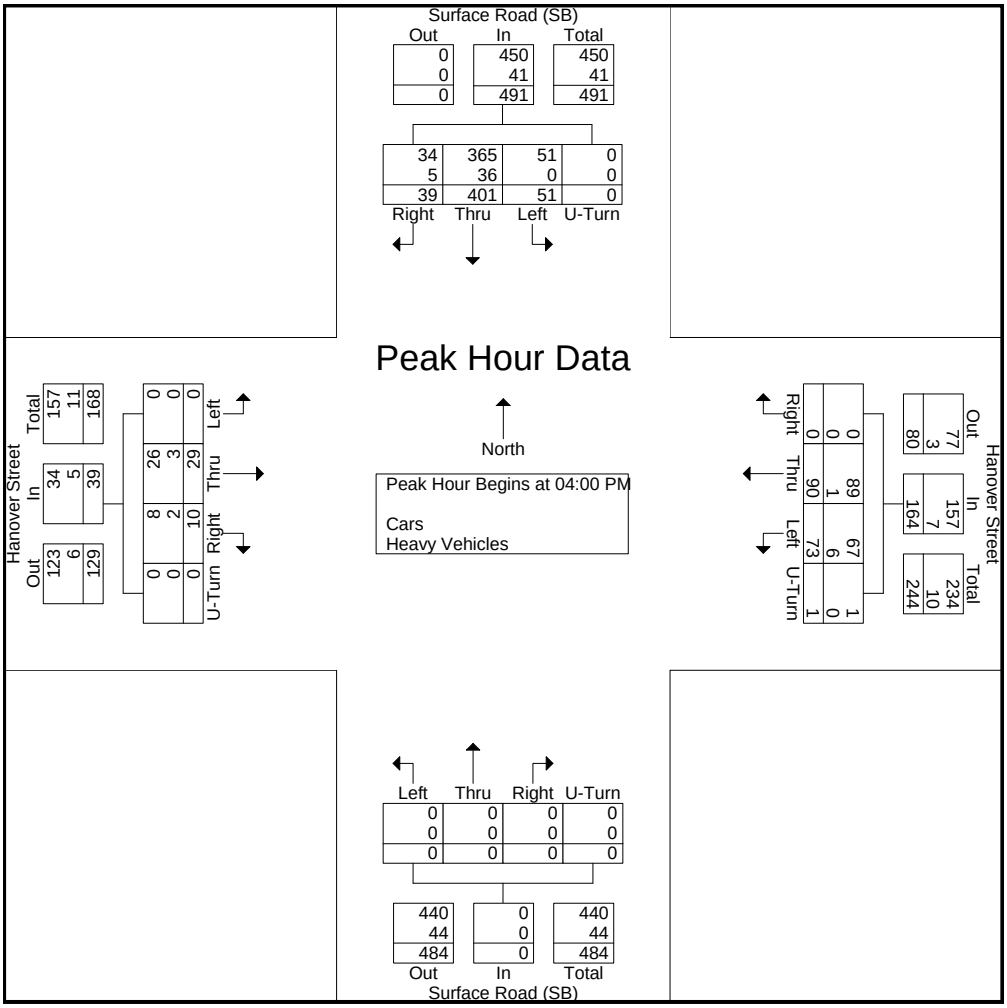
File Name : 143882 AA
Site Code : 2012029
Start Date : 5/13/2014
Page No : 1

	Surface Road (SB) From North					Hanover Street From East					Surface Road (SB) From South					Hanover Street From West					
Start Time	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	Int. 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	10	106	18	0	134	0	27	18	1	46	0	0	0	0	0	1	6	0	0	7	187
04:15 PM	17	103	13	0	133	0	20	24	0	44	0	0	0	0	0	3	4	0	0	7	184
04:30 PM	8	107	11	0	126	0	16	20	0	36	0	0	0	0	0	3	10	0	0	13	175
04:45 PM	4	85	9	0	98	0	27	11	0	38	0	0	0	0	0	3	9	0	0	12	148
Total Volume	39	401	51	0	491	0	90	73	1	164	0	0	0	0	0	10	29	0	0	39	694
% App. Total	7.9	81.7	10.4	0		0	54.9	44.5	0.6		0	0	0	0		25.6	74.4	0	0		
PHF	.574	.937	.708	.000	.916	.000	.833	.760	.250	.891	.000	.000	.000	.000	.000	.833	.725	.000	.000	.750	.928
Cars	34	365	51	0	450	0	89	67	1	157	0	0	0	0	0	8	26	0	0	34	641
% Cars	87.2	91.0	100	0	91.6	0	98.9	91.8	100	95.7	0	0	0	0	0	80.0	89.7	0	0	87.2	92.4
Heavy Vehicles	5	36	0	0	41	0	1	6	0	7	0	0	0	0	0	2	3	0	0	5	53
% Heavy Vehicles	12.8	9.0	0	0	8.4	0	1.1	8.2	0	4.3	0	0	0	0	0	20.0	10.3	0	0	12.8	7.6



N/S: Cross Street
E/W: North Street/ I-93 Offramp
City, State: Boston, MA
Client: Howard Stein-Hudson/ B. Beisel

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File Name : 154673 M
Site Code : 2007190
Start Date : 9/23/2015
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Cross Street From North				North Street From East				Cross Street From South				I-93 Offramp From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	1	63	0	0	0	11	138	0	213
07:15 AM	0	0	0	0	0	0	0	0	3	58	0	0	0	13	128	0	202
07:30 AM	0	0	0	0	0	0	0	0	8	82	0	0	0	20	124	0	234
07:45 AM	0	0	0	0	0	0	0	0	3	101	0	0	0	20	159	0	283
Total	0	0	0	0	0	0	0	0	15	304	0	0	0	64	549	0	932
08:00 AM	0	0	0	0	0	0	0	0	2	119	0	0	0	13	169	0	303
08:15 AM	0	0	0	0	0	0	0	0	8	108	0	0	0	25	173	0	314
08:30 AM	0	0	0	0	0	0	0	0	5	93	0	0	0	15	166	0	279
08:45 AM	0	0	0	0	0	0	0	0	2	97	0	0	0	20	131	0	250
Total	0	0	0	0	0	0	0	0	17	417	0	0	0	73	639	0	1146
Grand Total	0	0	0	0	0	0	0	0	32	721	0	0	0	137	1188	0	2078
Apprch %	0	0	0	0	0	0	0	0	4.2	95.8	0	0	0	10.3	89.7	0	
Total %	0	0	0	0	0	0	0	0	1.5	34.7	0	0	0	6.6	57.2	0	
Cars	0	0	0	0	0	0	0	0	29	615	0	0	0	135	1097	0	1876
% Cars	0	0	0	0	0	0	0	0	90.6	85.3	0	0	0	98.5	92.3	0	90.3
Heavy Vehicles	0	0	0	0	0	0	0	0	3	106	0	0	0	2	91	0	202
% Heavy Vehicles	0	0	0	0	0	0	0	0	9.4	14.7	0	0	0	1.5	7.7	0	9.7

	Cross Street From North					North Street From East					Cross Street From South					I-93 Offramp From West					
Start Time	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	Int. 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	3	101	0	0	104	0	20	159	0	179	283
08:00 AM	0	0	0	0	0	0	0	0	0	0	2	119	0	0	121	0	13	169	0	182	303
08:15 AM	0	0	0	0	0	0	0	0	0	0	8	108	0	0	116	0	25	173	0	198	314
08:30 AM	0	0	0	0	0	0	0	0	0	0	5	93	0	0	98	0	15	166	0	181	279
Total Volume	0	0	0	0	0	0	0	0	0	0	18	421	0	0	439	0	73	667	0	740	1179
% App. Total	0	0	0	0		0	0	0	0		4.1	95.9	0	0		0	9.9	90.1	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.563	.884	.000	.000	.907	.000	.730	.964	.000	.934	.939
Cars	0	0	0	0	0	0	0	0	0	0	17	359	0	0	376	0	72	623	0	695	1071
% Cars	0	0	0	0	0	0	0	0	0	0	94.4	85.3	0	0	85.6	0	98.6	93.4	0	93.9	90.8
Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	1	62	0	0	63	0	1	44	0	45	108
% Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	5.6	14.7	0	0	14.4	0	1.4	6.6	0	6.1	9.2

N/S: Cross Street
E/W: North Street/ I-93 Offramp
City, State: Boston, MA
Client: Howard Stein-Hudson/ B. Beisel

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File Name : 154673 M
Site Code : 2007190
Start Date : 9/23/2015
Page No : 1

Groups Printed- Peds and Bikes

	Cross Street From North					North Street From East					Cross Street From South					I-93 Offramp From West					
Start Time	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	Int. Total
07:00 AM	0	0	0	9	13	0	0	0	24	22	0	1	0	0	0	0	0	0	0	0	69
07:15 AM	0	0	0	14	20	0	0	0	26	34	0	2	0	0	1	0	0	0	0	1	98
07:30 AM	0	0	0	21	22	0	0	0	34	24	0	3	0	0	0	0	0	0	0	0	104
07:45 AM	0	0	0	21	46	0	0	0	49	23	0	3	0	0	0	0	0	0	0	0	142
Total	0	0	0	65	101	0	0	0	133	103	0	9	0	0	1	0	0	0	0	1	413
08:00 AM	0	0	0	4	54	0	0	0	52	28	1	3	0	0	0	0	0	0	0	0	142
08:15 AM	0	0	0	10	50	0	0	0	58	25	0	4	0	0	0	0	0	0	0	0	147
08:30 AM	0	0	0	12	43	0	0	0	63	42	0	3	0	0	0	0	0	0	0	0	163
08:45 AM	0	0	0	12	49	0	0	0	34	21	0	4	0	2	0	0	0	0	2	0	124
Total	0	0	0	38	196	0	0	0	207	116	1	14	0	2	0	0	0	0	2	0	576
Grand Total	0	0	0	103	297	0	0	0	340	219	1	23	0	2	1	0	0	0	2	1	989
Apprch %	0	0	0	25.8	74.2	0	0	0	60.8	39.2	3.7	85.2	0	7.4	3.7	0	0	0	66.7	33.3	
Total %	0	0	0	10.4	30	0	0	0	34.4	22.1	0.1	2.3	0	0.2	0.1	0	0	0	0.2	0.1	

	Cross Street From North						North Street From East						Cross Street From South						I-93 Offramp From West						
Start Time	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	Int. 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	21	46	67	0	0	0	49	23	72	0	3	0	0	0	3	0	0	0	0	0	0	142
08:00 AM	0	0	0	4	54	58	0	0	0	52	28	80	1	3	0	0	0	4	0	0	0	0	0	0	142
08:15 AM	0	0	0	10	50	60	0	0	0	58	25	83	0	4	0	0	0	4	0	0	0	0	0	0	147
08:30 AM	0	0	0	12	43	55	0	0	0	63	42	105	0	3	0	0	0	3	0	0	0	0	0	0	163
Total Volume	0	0	0	47	193	240	0	0	0	222	118	340	1	13	0	0	0	14	0	0	0	0	0	0	594
% App. Total	0	0	0	19.6	80.4		0	0	0	65.3	34.7		7.1	92.9	0	0	0		0	0	0	0	0		
PHF	.000	.000	.000	.560	.894	.896	.000	.000	.000	.881	.702	.810	.250	.813	.000	.000	.000	.875	.000	.000	.000	.000	.000	.000	.911

N/S: Cross Street
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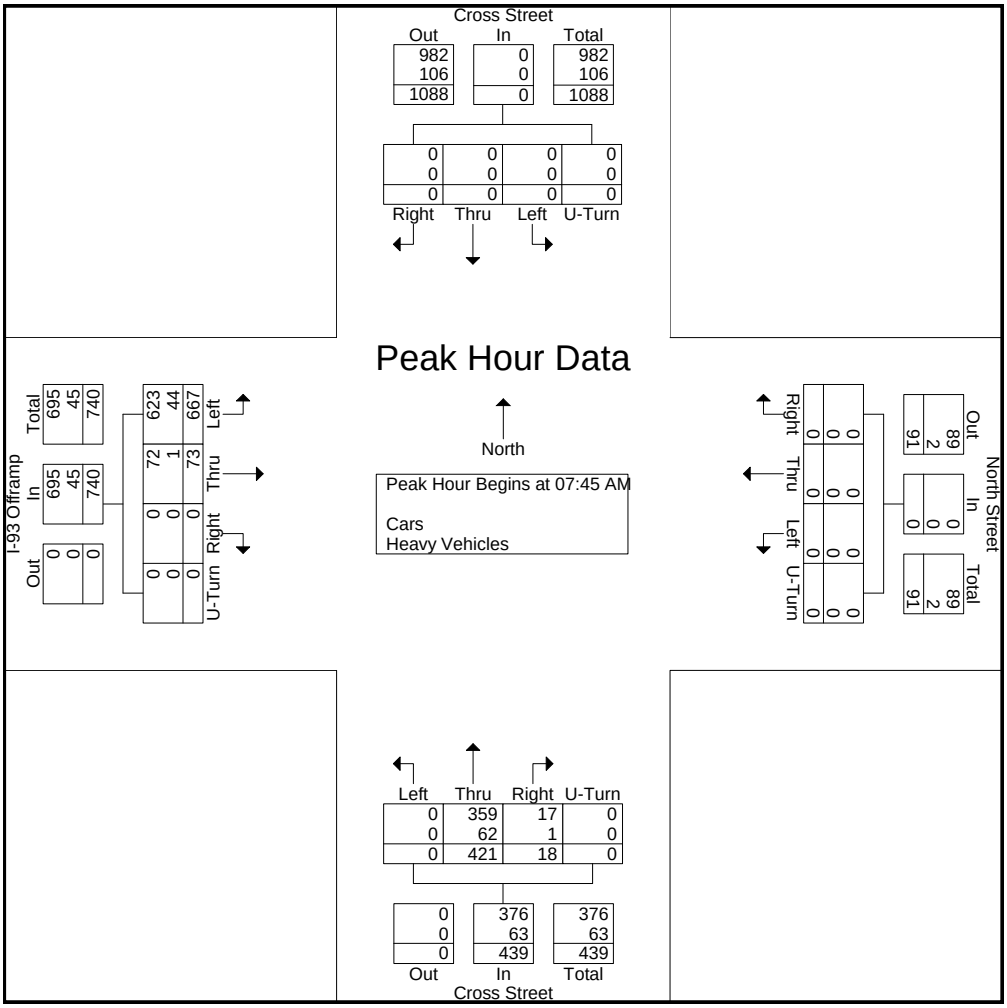
	Cross Street From North					North Street From East					Cross Street From South					I-93 Offramp From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM 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	3	101	0	0	104	0	20	159	0	179	283
08:00 AM	0	0	0	0	0	0	0	0	0	0	2	119	0	0	121	0	13	169	0	182	303
08:15 AM	0	0	0	0	0	0	0	0	0	0	8	108	0	0	116	0	25	173	0	198	314
08:30 AM	0	0	0	0	0	0	0	0	0	0	5	93	0	0	98	0	15	166	0	181	279
Total Volume	0	0	0	0	0	0	0	0	0	0	18	421	0	0	439	0	73	667	0	740	1179
% App. Total	0	0	0	0		0	0	0	0		4.1	95.9	0	0		0	9.9	90.1	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.563	.884	.000	.000	.907	.000	.730	.964	.000	.934	.939
Cars	0	0	0	0	0	0	0	0	0	0	17	359	0	0	376	0	72	623	0	695	1071
% Cars	0	0	0	0	0	0	0	0	0	0	94.4	85.3	0	0	85.6	0	98.6	93.4	0	93.9	90.8
Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	1	62	0	0	63	0	1	44	0	45	108
% Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	5.6	14.7	0	0	14.4	0	1.4	6.6	0	6.1	9.2



N/S: Cross Street
E/W: North Street/ I-93 Offramp
City, State: Boston, MA
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File Name : 154673 MM
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Groups Printed- Cars - Heavy Vehicles

	Cross Street From North				North Street From East				Cross Street From South				I-93 Offramp From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	3	199	0	0	0	9	136	0	347
04:15 PM	0	0	0	0	0	0	0	0	8	195	0	0	0	14	143	0	360
04:30 PM	0	0	0	0	0	0	0	0	5	202	0	0	0	9	110	0	326
04:45 PM	0	0	0	0	0	0	0	0	4	237	0	0	0	13	108	0	362
Total	0	0	0	0	0	0	0	0	20	833	0	0	0	45	497	0	1395
05:00 PM	0	0	0	0	0	0	0	0	6	214	0	0	0	9	126	0	355
05:15 PM	0	0	0	0	0	0	0	0	6	267	0	0	0	9	93	0	375
05:30 PM	0	0	0	0	0	0	0	0	6	262	0	0	0	6	108	0	382
05:45 PM	0	0	0	0	0	0	0	0	8	263	0	0	0	16	108	0	395
Total	0	0	0	0	0	0	0	0	26	1006	0	0	0	40	435	0	1507
Grand Total	0	0	0	0	0	0	0	0	46	1839	0	0	0	85	932	0	2902
Apprch %	0	0	0	0	0	0	0	0	2.4	97.6	0	0	0	8.4	91.6	0	
Total %	0	0	0	0	0	0	0	0	1.6	63.4	0	0	0	2.9	32.1	0	
Cars	0	0	0	0	0	0	0	0	45	1758	0	0	0	85	866	0	2754
% Cars	0	0	0	0	0	0	0	0	97.8	95.6	0	0	0	100	92.9	0	94.9
Heavy Vehicles	0	0	0	0	0	0	0	0	1	81	0	0	0	0	66	0	148
% Heavy Vehicles	0	0	0	0	0	0	0	0	2.2	4.4	0	0	0	0	7.1	0	5.1

	Cross Street From North					North Street From East					Cross Street From South					I-93 Offramp From West					
Start Time	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	Int. 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	0	0	0	0	0	0	0	6	214	0	0	220	0	9	126	0	135	355
05:15 PM	0	0	0	0	0	0	0	0	0	0	6	267	0	0	273	0	9	93	0	102	375
05:30 PM	0	0	0	0	0	0	0	0	0	0	6	262	0	0	268	0	6	108	0	114	382
05:45 PM	0	0	0	0	0	0	0	0	0	0	8	263	0	0	271	0	16	108	0	124	395
Total Volume	0	0	0	0	0	0	0	0	0	0	26	1006	0	0	1032	0	40	435	0	475	1507
% App. Total	0	0	0	0		0	0	0	0		2.5	97.5	0	0		0	8.4	91.6	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.813	.942	.000	.000	.945	.000	.625	.863	.000	.880	.954
Cars	0	0	0	0	0	0	0	0	0	0	26	971	0	0	997	0	40	403	0	443	1440
% Cars	0	0	0	0	0	0	0	0	0	0	100	96.5	0	0	96.6	0	100	92.6	0	93.3	95.6
Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	35	0	0	35	0	0	32	0	32	67
% Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	3.5	0	0	3.4	0	0	7.4	0	6.7	4.4

N/S: Cross Street
E/W: North Street/ I-93 Offramp
City, State: Boston, MA
Client: Howard Stein-Hudson/ B. Beisel

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

File Name : 154673 MM
Site Code : 2007190
Start Date : 9/23/2015
Page No : 1

Groups Printed- Peds and Bikes

	Cross Street From North					North Street From East					Cross Street From South					I-93 Offramp From West					
Start Time	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	Int. Total
04:00 PM	0	0	0	40	35	0	0	0	42	54	0	8	0	0	0	0	0	0	0	0	179
04:15 PM	0	0	0	24	25	0	0	0	52	48	0	8	0	0	0	0	0	0	0	0	157
04:30 PM	0	0	0	11	39	0	0	0	48	72	0	11	0	0	0	0	0	0	0	0	181
04:45 PM	0	0	0	37	15	0	0	0	50	62	0	17	0	0	0	0	0	0	0	0	181
Total	0	0	0	112	114	0	0	0	192	236	0	44	0	0	0	0	0	0	0	0	698
05:00 PM	0	0	0	43	29	0	0	0	56	95	1	24	0	0	0	0	0	0	0	0	248
05:15 PM	0	0	0	54	21	0	0	0	52	124	0	29	0	0	0	0	0	0	0	0	280
05:30 PM	0	0	0	49	12	1	0	0	57	100	0	35	0	0	0	0	0	0	0	1	255
05:45 PM	0	0	0	29	12	0	0	0	56	92	0	24	0	0	1	0	0	0	0	2	216
Total	0	0	0	175	74	1	0	0	221	411	1	112	0	0	1	0	0	0	0	3	999
Grand Total	0	0	0	287	188	1	0	0	413	647	1	156	0	0	1	0	0	0	0	3	1697
Apprch %	0	0	0	60.4	39.6	0.1	0	0	38.9	61	0.6	98.7	0	0	0.6	0	0	0	0	100	
Total %	0	0	0	16.9	11.1	0.1	0	0	24.3	38.1	0.1	9.2	0	0	0.1	0	0	0	0	0.2	

	Cross Street From North						North Street From East						Cross Street From South						I-93 Offramp From West						
Start Time	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	Int. 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	43	29	72	0	0	0	56	95	151	1	24	0	0	0	25	0	0	0	0	0	0	248
05:15 PM	0	0	0	54	21	75	0	0	0	52	124	176	0	29	0	0	0	29	0	0	0	0	0	0	280
05:30 PM	0	0	0	49	12	61	1	0	0	57	100	158	0	35	0	0	0	35	0	0	0	0	1	1	255
05:45 PM	0	0	0	29	12	41	0	0	0	56	92	148	0	24	0	0	1	25	0	0	0	0	2	2	216
Total Volume	0	0	0	175	74	249	1	0	0	221	411	633	1	112	0	0	1	114	0	0	0	0	3	3	999
% App. Total	0	0	0	70.3	29.7		0.2	0	0	34.9	64.9		0.9	98.2	0	0	0.9		0	0	0	0	100		
PHF	.000	.000	.000	.810	.638	.830	.250	.000	.000	.969	.829	.899	.250	.800	.000	.000	.250	.814	.000	.000	.000	.000	.375	.375	.892

N/S: Cross Street
E/W: North Street/ I-93 Offramp
City, State: Boston, MA
Client: Howard Stein-Hudson/ B. Beisel

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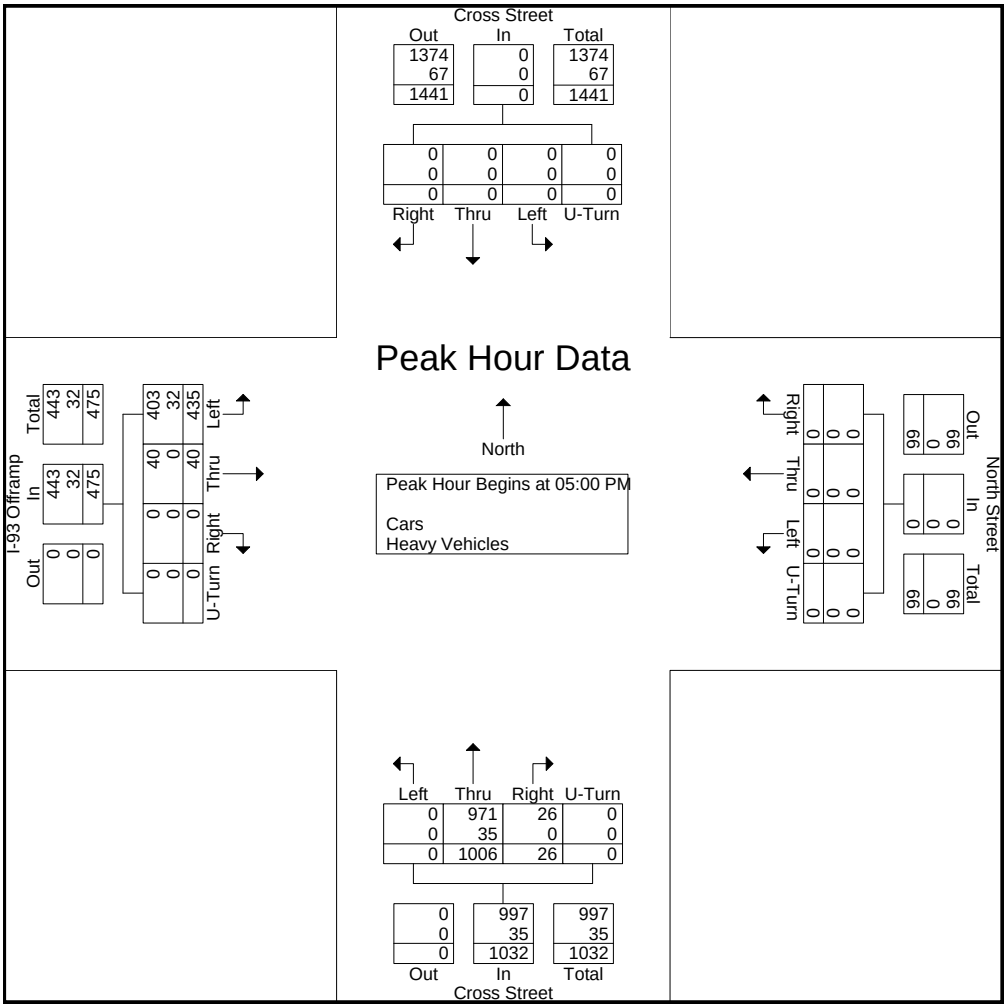
	Cross Street From North					North Street From East					Cross Street From South					I-93 Offramp From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	0	0	0	0	0	0	0	0	0	0	6	214	0	0	220	0	9	126	0	135	355
05:15 PM	0	0	0	0	0	0	0	0	0	0	6	267	0	0	273	0	9	93	0	102	375
05:30 PM	0	0	0	0	0	0	0	0	0	0	6	262	0	0	268	0	6	108	0	114	382
05:45 PM	0	0	0	0	0	0	0	0	0	0	8	263	0	0	271	0	16	108	0	124	395
Total Volume	0	0	0	0	0	0	0	0	0	0	26	1006	0	0	1032	0	40	435	0	475	1507
% App. Total	0	0	0	0		0	0	0	0		2.5	97.5	0	0		0	8.4	91.6	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.813	.942	.000	.000	.945	.000	.625	.863	.000	.880	.954
Cars	0	0	0	0	0	0	0	0	0	0	26	971	0	0	997	0	40	403	0	443	1440
% Cars	0	0	0	0	0	0	0	0	0	0	100	96.5	0	0	96.6	0	100	92.6	0	93.3	95.6
Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	35	0	0	35	0	0	32	0	32	67
% Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	3.5	0	0	3.4	0	0	7.4	0	6.7	4.4



N/S: Surface Road SB
E/W: I-93 NB Offramp/ North Street
City, State: Boston, MA
Client: Howard Stein-Hudson/M. Littman

PRECISION DATA INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
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File Name : 143882 B
Site Code : 2012029
Start Date : 5/13/2014
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Surface Road (SB) From North				I-93 NB Offramp From East				Surface Road (SB) From South				North Street From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
07:00 AM	5	75	0	0	0	113	78	0	0	0	0	0	3	0	0	0	274
07:15 AM	7	97	0	0	0	133	99	0	0	0	0	0	11	0	0	0	347
07:30 AM	9	90	0	0	0	137	116	0	0	0	0	0	13	0	0	0	365
07:45 AM	9	111	0	0	0	183	103	0	1	0	0	0	16	0	0	0	423
Total	30	373	0	0	0	566	396	0	1	0	0	0	43	0	0	0	1409
08:00 AM	18	116	0	0	0	158	114	0	0	0	0	0	15	0	0	0	421
08:15 AM	8	112	0	0	0	168	136	0	0	0	0	0	11	0	0	0	435
08:30 AM	13	118	0	0	0	202	131	0	0	0	0	0	16	0	0	0	480
08:45 AM	7	124	0	0	0	213	117	0	0	0	0	0	19	0	0	0	480
Total	46	470	0	0	0	741	498	0	0	0	0	0	61	0	0	0	1816
Grand Total	76	843	0	0	0	1307	894	0	1	0	0	0	104	0	0	0	3225
Apprch %	8.3	91.7	0	0	0	59.4	40.6	0	100	0	0	0	100	0	0	0	
Total %	2.4	26.1	0	0	0	40.5	27.7	0	0	0	0	0	3.2	0	0	0	
Cars	70	765	0	0	0	1274	879	0	1	0	0	0	93	0	0	0	3082
% Cars	92.1	90.7	0	0	0	97.5	98.3	0	100	0	0	0	89.4	0	0	0	95.6
Heavy Vehicles	6	78	0	0	0	33	15	0	0	0	0	0	11	0	0	0	143
% Heavy Vehicles	7.9	9.3	0	0	0	2.5	1.7	0	0	0	0	0	10.6	0	0	0	4.4

	Surface Road (SB) From North					I-93 NB Offramp From East					Surface Road (SB) From South					North Street From West					
Start Time	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	Int. 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	18	116	0	0	134	0	158	114	0	272	0	0	0	0	0	15	0	0	0	15	421
08:15 AM	8	112	0	0	120	0	168	136	0	304	0	0	0	0	0	11	0	0	0	11	435
08:30 AM	13	118	0	0	131	0	202	131	0	333	0	0	0	0	0	16	0	0	0	16	480
08:45 AM	7	124	0	0	131	0	213	117	0	330	0	0	0	0	0	19	0	0	0	19	480
Total Volume	46	470	0	0	516	0	741	498	0	1239	0	0	0	0	0	61	0	0	0	61	1816
% App. Total	8.9	91.1	0	0		0	59.8	40.2	0		0	0	0	0		100	0	0	0		
PHF	.639	.948	.000	.000	.963	.000	.870	.915	.000	.930	.000	.000	.000	.000	.000	.803	.000	.000	.000	.803	.946
Cars	42	435	0	0	477	0	725	490	0	1215	0	0	0	0	0	54	0	0	0	54	1746
% Cars	91.3	92.6	0	0	92.4	0	97.8	98.4	0	98.1	0	0	0	0	0	88.5	0	0	0	88.5	96.1
Heavy Vehicles	4	35	0	0	39	0	16	8	0	24	0	0	0	0	0	7	0	0	0	7	70
% Heavy Vehicles	8.7	7.4	0	0	7.6	0	2.2	1.6	0	1.9	0	0	0	0	0	11.5	0	0	0	11.5	3.9

N/S: Surface Road SB
E/W: I-93 NB Offramp/ North Street
City, State: Boston, MA
Client: Howard Stein-Hudson/M. Littman

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File Name : 143882 B
Site Code : 2012029
Start Date : 5/13/2014
Page No : 1

Groups Printed- Peds and Bikes

	Surface Road (SB) From North				I-93 NB Offramp From East				Surface Road (SB) From South				North Street From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
07:00 AM	0	13	0	18	0	0	0	12	0	0	0	0	0	0	0	25	68
07:15 AM	0	3	0	16	0	0	0	3	0	0	0	0	0	0	0	15	37
07:30 AM	0	10	0	38	0	0	0	4	0	0	0	0	0	0	0	45	97
07:45 AM	0	15	0	50	0	0	1	18	0	0	0	0	0	0	0	60	144
Total	0	41	0	122	0	0	1	37	0	0	0	0	0	0	0	145	346
08:00 AM	0	18	0	56	0	0	0	12	0	0	0	0	1	0	0	47	134
08:15 AM	0	26	0	57	0	0	0	6	0	0	0	0	0	0	0	56	145
08:30 AM	0	33	0	61	0	0	0	21	0	0	0	0	0	0	0	76	191
08:45 AM	0	18	0	70	0	0	0	14	0	0	0	0	1	0	0	72	175
Total	0	95	0	244	0	0	0	53	0	0	0	0	2	0	0	251	645
Grand Total	0	136	0	366	0	0	1	90	0	0	0	0	2	0	0	396	991
Apprch %	0	27.1	0	72.9	0	0	1.1	98.9	0	0	0	0	0.5	0	0	99.5	
Total %	0	13.7	0	36.9	0	0	0.1	9.1	0	0	0	0	0.2	0	0	40	

	Surface Road (SB) From North					I-93 NB Offramp From East					Surface Road (SB) From South					North Street From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. 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	18	0	56	74	0	0	0	12	12	0	0	0	0	0	1	0	0	47	48	134
08:15 AM	0	26	0	57	83	0	0	0	6	6	0	0	0	0	0	0	0	0	56	56	145
08:30 AM	0	33	0	61	94	0	0	0	21	21	0	0	0	0	0	0	0	0	76	76	191
08:45 AM	0	18	0	70	88	0	0	0	14	14	0	0	0	0	0	1	0	0	72	73	175
Total Volume	0	95	0	244	339	0	0	0	53	53	0	0	0	0	0	2	0	0	251	253	645
% App. Total	0	28	0	72		0	0	0	100		0	0	0	0		0.8	0	0	99.2		
PHF	.000	.720	.000	.871	.902	.000	.000	.000	.631	.631	.000	.000	.000	.000	.000	.500	.000	.000	.826	.832	.844

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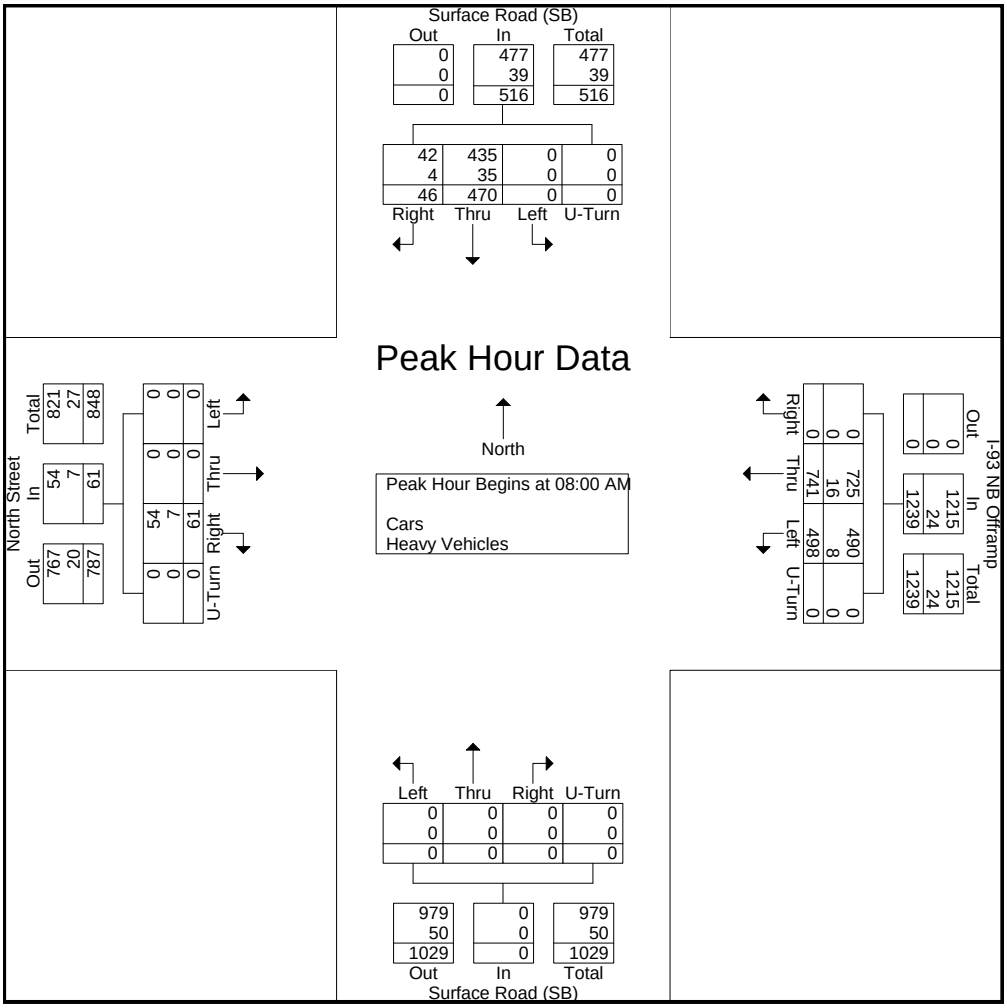
	Surface Road (SB) From North					I-93 NB Offramp From East					Surface Road (SB) From South					North Street From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis 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	18	116	0	0	134	0	158	114	0	272	0	0	0	0	0	15	0	0	0	15	421
08:15 AM	8	112	0	0	120	0	168	136	0	304	0	0	0	0	0	11	0	0	0	11	435
08:30 AM	13	118	0	0	131	0	202	131	0	333	0	0	0	0	0	16	0	0	0	16	480
08:45 AM	7	124	0	0	131	0	213	117	0	330	0	0	0	0	0	19	0	0	0	19	480
Total Volume	46	470	0	0	516	0	741	498	0	1239	0	0	0	0	0	61	0	0	0	61	1816
% App. Total	8.9	91.1	0	0		0	59.8	40.2	0		0	0	0	0		100	0	0	0		
PHF	.639	.948	.000	.000	.963	.000	.870	.915	.000	.930	.000	.000	.000	.000	.000	.803	.000	.000	.000	.803	.946
Cars	42	435	0	0	477	0	725	490	0	1215	0	0	0	0	0	54	0	0	0	54	1746
% Cars	91.3	92.6	0	0	92.4	0	97.8	98.4	0	98.1	0	0	0	0	0	88.5	0	0	0	88.5	96.1
Heavy Vehicles	4	35	0	0	39	0	16	8	0	24	0	0	0	0	0	7	0	0	0	7	70
% Heavy Vehicles	8.7	7.4	0	0	7.6	0	2.2	1.6	0	1.9	0	0	0	0	0	11.5	0	0	0	11.5	3.9



N/S: Surface Road SB
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File Name : 143882 BB
Site Code : 2012029
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Groups Printed- Cars - Heavy Vehicles

	Surface Road (SB) From North				I-93 NB Offramp From East				Surface Road (SB) From South				North Street From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:00 PM	9	112	0	0	0	63	39	0	0	0	0	0	38	0	0	0	261
04:15 PM	7	111	0	0	0	36	27	0	0	0	0	0	34	0	0	0	215
04:30 PM	9	130	0	0	0	43	23	0	0	0	0	0	30	0	0	0	235
04:45 PM	9	93	0	0	0	38	28	0	0	0	0	0	25	0	0	0	193
Total	34	446	0	0	0	180	117	0	0	0	0	0	127	0	0	0	904
05:00 PM	13	73	0	0	0	36	27	0	0	0	0	0	27	0	0	0	176
05:15 PM	8	93	0	0	0	48	30	0	0	0	0	0	27	0	0	0	206
05:30 PM	4	86	0	0	0	43	41	0	0	0	0	0	30	0	0	0	204
05:45 PM	9	82	0	0	0	29	23	0	0	0	0	0	34	0	0	0	177
Total	34	334	0	0	0	156	121	0	0	0	0	0	118	0	0	0	763
Grand Total	68	780	0	0	0	336	238	0	0	0	0	0	245	0	0	0	1667
Apprch %	8	92	0	0	0	58.5	41.5	0	0	0	0	0	100	0	0	0	
Total %	4.1	46.8	0	0	0	20.2	14.3	0	0	0	0	0	14.7	0	0	0	
Cars	64	715	0	0	0	327	233	0	0	0	0	0	231	0	0	0	1570
% Cars	94.1	91.7	0	0	0	97.3	97.9	0	0	0	0	0	94.3	0	0	0	94.2
Heavy Vehicles	4	65	0	0	0	9	5	0	0	0	0	0	14	0	0	0	97
% Heavy Vehicles	5.9	8.3	0	0	0	2.7	2.1	0	0	0	0	0	5.7	0	0	0	5.8

	Surface Road (SB) From North					I-93 NB Offramp From East					Surface Road (SB) From South					North Street From West					
Start Time	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	Int. 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	9	112	0	0	121	0	63	39	0	102	0	0	0	0	0	38	0	0	0	38	261
04:15 PM	7	111	0	0	118	0	36	27	0	63	0	0	0	0	0	34	0	0	0	34	215
04:30 PM	9	130	0	0	139	0	43	23	0	66	0	0	0	0	0	30	0	0	0	30	235
04:45 PM	9	93	0	0	102	0	38	28	0	66	0	0	0	0	0	25	0	0	0	25	193
Total Volume	34	446	0	0	480	0	180	117	0	297	0	0	0	0	0	127	0	0	0	127	904
% App. Total	7.1	92.9	0	0		0	60.6	39.4	0		0	0	0	0		100	0	0	0		
PHF	.944	.858	.000	.000	.863	.000	.714	.750	.000	.728	.000	.000	.000	.000	.000	.836	.000	.000	.000	.836	.866
Cars	31	409	0	0	440	0	176	113	0	289	0	0	0	0	0	117	0	0	0	117	846
% Cars	91.2	91.7	0	0	91.7	0	97.8	96.6	0	97.3	0	0	0	0	0	92.1	0	0	0	92.1	93.6
Heavy Vehicles	3	37	0	0	40	0	4	4	0	8	0	0	0	0	0	10	0	0	0	10	58
% Heavy Vehicles	8.8	8.3	0	0	8.3	0	2.2	3.4	0	2.7	0	0	0	0	0	7.9	0	0	0	7.9	6.4

N/S: Surface Road SB
E/W: I-93 NB Offramp/ North Street
City, State: Boston, MA
Client: Howard Stein-Hudson/ M. Littman

PRECISION DATA INDUSTRIES, LLC
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File Name : 143882 BB
Site Code : 2012029
Start Date : 5/13/2014
Page No : 1

Groups Printed- Peds and Bikes

	Surface Road (SB) From North				I-93 NB Offramp From East				Surface Road (SB) From South				North Street From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
04:00 PM	0	2	0	61	0	0	0	10	0	0	0	0	0	0	0	55	128
04:15 PM	0	6	0	46	0	0	0	9	0	0	0	0	0	0	0	108	169
04:30 PM	0	6	0	55	0	0	0	17	0	0	0	4	0	0	0	73	155
04:45 PM	0	2	0	86	0	0	0	6	0	0	0	0	0	0	0	104	198
Total	0	16	0	248	0	0	0	42	0	0	0	4	0	0	0	340	650
05:00 PM	0	1	0	58	0	0	0	14	0	0	0	0	0	0	0	129	202
05:15 PM	0	9	0	103	0	0	0	17	0	0	0	0	0	0	0	133	262
05:30 PM	0	4	0	74	0	0	0	19	0	0	0	0	1	0	0	70	168
05:45 PM	0	5	0	108	0	0	0	8	0	0	0	0	3	0	0	134	258
Total	0	19	0	343	0	0	0	58	0	0	0	0	4	0	0	466	890
Grand Total	0	35	0	591	0	0	0	100	0	0	0	4	4	0	0	806	1540
Apprch %	0	5.6	0	94.4	0	0	0	100	0	0	0	100	0.5	0	0	99.5	
Total %	0	2.3	0	38.4	0	0	0	6.5	0	0	0	0.3	0.3	0	0	52.3	

	Surface Road (SB) From North					I-93 NB Offramp From East					Surface Road (SB) From South					North Street From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. 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	1	0	58	59	0	0	0	14	14	0	0	0	0	0	0	0	0	129	129	202
05:15 PM	0	9	0	103	112	0	0	0	17	17	0	0	0	0	0	0	0	0	133	133	262
05:30 PM	0	4	0	74	78	0	0	0	19	19	0	0	0	0	0	1	0	0	70	71	168
05:45 PM	0	5	0	108	113	0	0	0	8	8	0	0	0	0	0	3	0	0	134	137	258
Total Volume	0	19	0	343	362	0	0	0	58	58	0	0	0	0	0	4	0	0	466	470	890
% App. Total	0	5.2	0	94.8		0	0	0	100		0	0	0	0		0.9	0	0	99.1		
PHF	.000	.528	.000	.794	.801	.000	.000	.000	.763	.763	.000	.000	.000	.000	.000	.333	.000	.000	.869	.858	.849

N/S: Surface Road SB
E/W: I-93 NB Offramp/ North Street
City, State: Boston, MA
Client: Howard Stein-Hudson/ M. Littman

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File Name : 143882 BB
Site Code : 2012029
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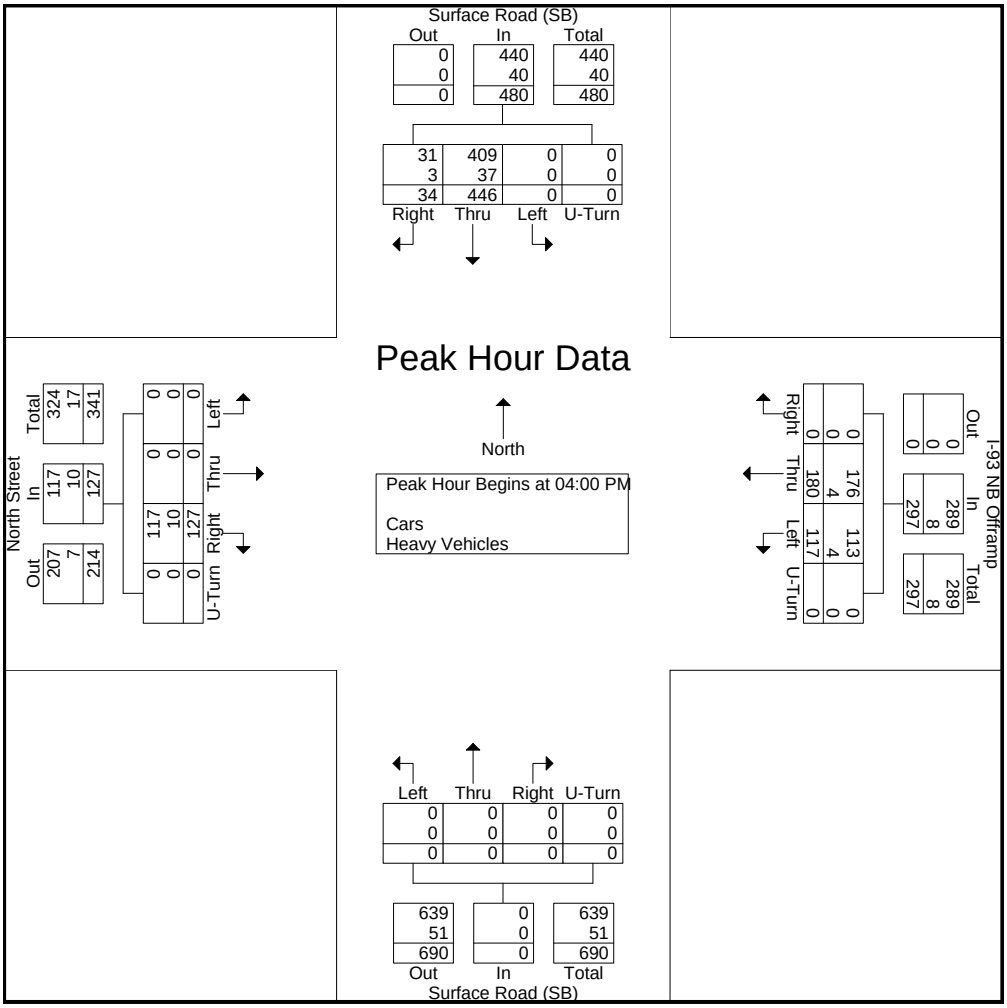
	Surface Road (SB) From North					I-93 NB Offramp From East					Surface Road (SB) From South					North Street From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis 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	9	112	0	0	121	0	63	39	0	102	0	0	0	0	0	38	0	0	0	38	261
04:15 PM	7	111	0	0	118	0	36	27	0	63	0	0	0	0	0	34	0	0	0	34	215
04:30 PM	9	130	0	0	139	0	43	23	0	66	0	0	0	0	0	30	0	0	0	30	235
04:45 PM	9	93	0	0	102	0	38	28	0	66	0	0	0	0	0	25	0	0	0	25	193
Total Volume	34	446	0	0	480	0	180	117	0	297	0	0	0	0	0	127	0	0	0	127	904
% App. Total	7.1	92.9	0	0		0	60.6	39.4	0		0	0	0	0		100	0	0	0		
PHF	.944	.858	.000	.000	.863	.000	.714	.750	.000	.728	.000	.000	.000	.000	.000	.836	.000	.000	.000	.836	.866
Cars	31	409	0	0	440	0	176	113	0	289	0	0	0	0	0	117	0	0	0	117	846
% Cars	91.2	91.7	0	0	91.7	0	97.8	96.6	0	97.3	0	0	0	0	0	92.1	0	0	0	92.1	93.6
Heavy Vehicles	3	37	0	0	40	0	4	4	0	8	0	0	0	0	0	10	0	0	0	10	58
% Heavy Vehicles	8.8	8.3	0	0	8.3	0	2.2	3.4	0	2.7	0	0	0	0	0	7.9	0	0	0	7.9	6.4



N/S: Millenium Hotel/Clinton Street
E/W: North Street
City, State: Boston, MA
Client: Howard Stein-Hudson/M. Littman

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File Name : 143882 D
Site Code : 2012029
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Groups Printed- Cars - Heavy Vehicles

	Millenium Hotel Driveway From North				North Street From East				Clinton Street From South				North Street From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
07:00 AM	4	0	0	0	0	126	0	0	0	0	27	0	0	5	0	0	162
07:15 AM	1	0	1	0	1	156	0	0	2	0	41	0	0	9	1	0	212
07:30 AM	3	0	0	0	4	148	0	0	2	2	48	0	1	11	0	0	219
07:45 AM	3	0	1	0	2	196	0	0	2	0	43	0	0	12	1	0	260
Total	11	0	2	0	7	626	0	0	6	2	159	0	1	37	2	0	853
08:00 AM	2	0	0	0	1	183	0	0	1	0	49	0	0	12	1	0	249
08:15 AM	4	0	0	0	2	183	0	0	2	0	38	0	0	8	1	0	238
08:30 AM	1	0	0	0	2	207	0	0	3	0	32	0	0	13	0	0	258
08:45 AM	1	0	1	0	0	219	0	0	0	0	38	0	0	14	0	0	273
Total	8	0	1	0	5	792	0	0	6	0	157	0	0	47	2	0	1018
Grand Total	19	0	3	0	12	1418	0	0	12	2	316	0	1	84	4	0	1871
Apprch %	86.4	0	13.6	0	0.8	99.2	0	0	3.6	0.6	95.8	0	1.1	94.4	4.5	0	
Total %	1	0	0.2	0	0.6	75.8	0	0	0.6	0.1	16.9	0	0.1	4.5	0.2	0	
Cars	19	0	3	0	12	1376	0	0	9	2	286	0	1	75	4	0	1787
% Cars	100	0	100	0	100	97	0	0	75	100	90.5	0	100	89.3	100	0	95.5
Heavy Vehicles	0	0	0	0	0	42	0	0	3	0	30	0	0	9	0	0	84
% Heavy Vehicles	0	0	0	0	0	3	0	0	25	0	9.5	0	0	10.7	0	0	4.5

	Millenium Hotel Driveway From North					North Street From East					Clinton Street From South					North Street From West					
Start Time	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	Int. 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	2	0	0	0	2	1	183	0	0	184	1	0	49	0	50	0	12	1	0	13	249
08:15 AM	4	0	0	0	4	2	183	0	0	185	2	0	38	0	40	0	8	1	0	9	238
08:30 AM	1	0	0	0	1	2	207	0	0	209	3	0	32	0	35	0	13	0	0	13	258
08:45 AM	1	0	1	0	2	0	219	0	0	219	0	0	38	0	38	0	14	0	0	14	273
Total Volume	8	0	1	0	9	5	792	0	0	797	6	0	157	0	163	0	47	2	0	49	1018
% App. Total	88.9	0	11.1	0		0.6	99.4	0	0		3.7	0	96.3	0		0	95.9	4.1	0		
PHF	.500	.000	.250	.000	.563	.625	.904	.000	.000	.910	.500	.000	.801	.000	.815	.000	.839	.500	.000	.875	.932
Cars	8	0	1	0	9	5	771	0	0	776	5	0	140	0	145	0	42	2	0	44	974
% Cars	100	0	100	0	100	100	97.3	0	0	97.4	83.3	0	89.2	0	89.0	0	89.4	100	0	89.8	95.7
Heavy Vehicles	0	0	0	0	0	0	21	0	0	21	1	0	17	0	18	0	5	0	0	5	44
% Heavy Vehicles	0	0	0	0	0	0	2.7	0	0	2.6	16.7	0	10.8	0	11.0	0	10.6	0	0	10.2	4.3

N/S: Millenium Hotel/Clinton Street
E/W: North Street
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File Name : 143882 D
Site Code : 2012029
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Page No : 1

Groups Printed- Peds and Bikes

	Millenium Hotel Driveway From North				North Street From East				Clinton Street From South				North Street From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
07:00 AM	0	0	0	11	0	0	0	4	0	0	0	8	0	0	0	15	38
07:15 AM	0	0	0	23	0	0	0	1	0	0	0	10	0	0	0	22	56
07:30 AM	0	0	0	33	0	0	0	2	0	0	0	19	0	0	0	25	79
07:45 AM	0	0	0	62	0	0	0	6	0	0	0	37	0	1	0	39	145
Total	0	0	0	129	0	0	0	13	0	0	0	74	0	1	0	101	318
08:00 AM	0	0	0	57	0	0	0	2	0	0	0	19	0	2	0	51	131
08:15 AM	0	0	0	67	0	3	0	8	0	0	0	28	0	0	0	75	181
08:30 AM	0	0	0	59	0	1	0	3	0	0	0	26	0	0	0	42	131
08:45 AM	0	0	0	65	0	1	0	2	0	0	1	26	0	1	0	78	174
Total	0	0	0	248	0	5	0	15	0	0	1	99	0	3	0	246	617
Grand Total	0	0	0	377	0	5	0	28	0	0	1	173	0	4	0	347	935
Apprch %	0	0	0	100	0	15.2	0	84.8	0	0	0.6	99.4	0	1.1	0	98.9	
Total %	0	0	0	40.3	0	0.5	0	3	0	0	0.1	18.5	0	0.4	0	37.1	

	Millenium Hotel Driveway From North					North Street From East					Clinton Street From South					North Street From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. 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	57	57	0	0	0	2	2	0	0	0	19	19	0	2	0	51	53	131
08:15 AM	0	0	0	67	67	0	3	0	8	11	0	0	0	28	28	0	0	0	75	75	181
08:30 AM	0	0	0	59	59	0	1	0	3	4	0	0	0	26	26	0	0	0	42	42	131
08:45 AM	0	0	0	65	65	0	1	0	2	3	0	0	1	26	27	0	1	0	78	79	174
Total Volume	0	0	0	248	248	0	5	0	15	20	0	0	1	99	100	0	3	0	246	249	617
% App. Total	0	0	0	100		0	25	0	75		0	0	1	99		0	1.2	0	98.8		
PHF	.000	.000	.000	.925	.925	.000	.417	.000	.469	.455	.000	.000	.250	.884	.893	.000	.375	.000	.788	.788	.852

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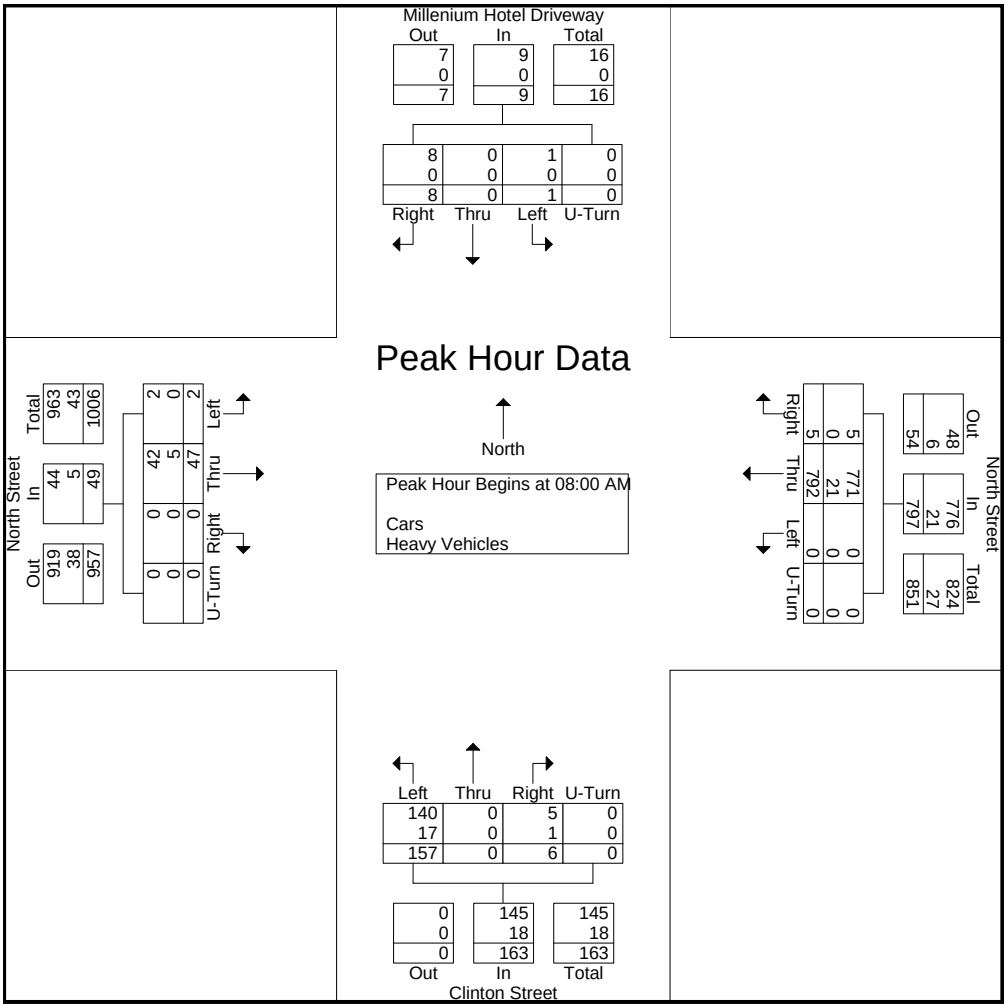
	Millenium Hotel Driveway From North					North Street From East					Clinton Street From South					North Street From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis 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	2	0	0	0	2	1	183	0	0	184	1	0	49	0	50	0	12	1	0	13	249
08:15 AM	4	0	0	0	4	2	183	0	0	185	2	0	38	0	40	0	8	1	0	9	238
08:30 AM	1	0	0	0	1	2	207	0	0	209	3	0	32	0	35	0	13	0	0	13	258
08:45 AM	1	0	1	0	2	0	219	0	0	219	0	0	38	0	38	0	14	0	0	14	273
Total Volume	8	0	1	0	9	5	792	0	0	797	6	0	157	0	163	0	47	2	0	49	1018
% App. Total	88.9	0	11.1	0		0.6	99.4	0	0		3.7	0	96.3	0		0	95.9	4.1	0		
PHF	.500	.000	.250	.000	.563	.625	.904	.000	.000	.910	.500	.000	.801	.000	.815	.000	.839	.500	.000	.875	.932
Cars	8	0	1	0	9	5	771	0	0	776	5	0	140	0	145	0	42	2	0	44	974
% Cars	100	0	100	0	100	100	97.3	0	0	97.4	83.3	0	89.2	0	89.0	0	89.4	100	0	89.8	95.7
Heavy Vehicles	0	0	0	0	0	0	21	0	0	21	1	0	17	0	18	0	5	0	0	5	44
% Heavy Vehicles	0	0	0	0	0	0	2.7	0	0	2.6	16.7	0	10.8	0	11.0	0	10.6	0	0	10.2	4.3



N/S: Millenium Hotel/Clinton Street
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Groups Printed- Cars - Heavy Vehicles

	Millenium Hotel Driveway From North				North Street From East				Clinton Street From South				North Street From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:00 PM	0	0	1	0	2	78	0	0	10	0	35	0	0	21	0	0	147
04:15 PM	3	0	1	0	1	56	0	0	10	0	43	0	0	20	0	0	134
04:30 PM	3	0	1	0	3	56	0	0	10	0	40	0	0	17	1	0	131
04:45 PM	0	0	0	0	0	47	0	0	11	0	40	0	0	10	0	0	108
Total	6	0	3	0	6	237	0	0	41	0	158	0	0	68	1	0	520
05:00 PM	2	0	1	0	0	70	0	0	10	0	49	0	0	17	2	0	151
05:15 PM	0	0	0	0	0	64	0	0	7	0	62	0	0	19	0	1	153
05:30 PM	2	0	0	0	0	61	0	0	11	0	60	0	0	19	2	0	155
05:45 PM	2	0	1	0	0	41	0	0	8	0	53	0	0	22	0	1	128
Total	6	0	2	0	0	236	0	0	36	0	224	0	0	77	4	2	587
Grand Total	12	0	5	0	6	473	0	0	77	0	382	0	0	145	5	2	1107
Apprch %	70.6	0	29.4	0	1.3	98.7	0	0	16.8	0	83.2	0	0	95.4	3.3	1.3	
Total %	1.1	0	0.5	0	0.5	42.7	0	0	7	0	34.5	0	0	13.1	0.5	0.2	
Cars	12	0	5	0	6	459	0	0	70	0	362	0	0	138	5	2	1059
% Cars	100	0	100	0	100	97	0	0	90.9	0	94.8	0	0	95.2	100	100	95.7
Heavy Vehicles	0	0	0	0	0	14	0	0	7	0	20	0	0	7	0	0	48
% Heavy Vehicles	0	0	0	0	0	3	0	0	9.1	0	5.2	0	0	4.8	0	0	4.3

	Millenium Hotel Driveway From North					North Street From East					Clinton Street From South					North Street From West					
Start Time	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	Int. 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	2	0	1	0	3	0	70	0	0	70	10	0	49	0	59	0	17	2	0	19	151
05:15 PM	0	0	0	0	0	0	64	0	0	64	7	0	62	0	69	0	19	0	1	20	153
05:30 PM	2	0	0	0	2	0	61	0	0	61	11	0	60	0	71	0	19	2	0	21	155
05:45 PM	2	0	1	0	3	0	41	0	0	41	8	0	53	0	61	0	22	0	1	23	128
Total Volume	6	0	2	0	8	0	236	0	0	236	36	0	224	0	260	0	77	4	2	83	587
% App. Total	75	0	25	0		0	100	0	0		13.8	0	86.2	0		0	92.8	4.8	2.4		
PHF	.750	.000	.500	.000	.667	.000	.843	.000	.000	.843	.818	.000	.903	.000	.915	.000	.875	.500	.500	.902	.947
Cars	6	0	2	0	8	0	229	0	0	229	34	0	209	0	243	0	75	4	2	81	561
% Cars	100	0	100	0	100	0	97.0	0	0	97.0	94.4	0	93.3	0	93.5	0	97.4	100	100	97.6	95.6
Heavy Vehicles	0	0	0	0	0	0	7	0	0	7	2	0	15	0	17	0	2	0	0	2	26
% Heavy Vehicles	0	0	0	0	0	0	3.0	0	0	3.0	5.6	0	6.7	0	6.5	0	2.6	0	0	2.4	4.4

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Start Date : 5/13/2014
Page No : 1

Groups Printed- Peds and Bikes

	Millenium Hotel Driveway From North				North Street From East				Clinton Street From South				North Street From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
04:00 PM	0	0	0	53	0	0	0	4	0	0	0	36	0	0	0	53	146
04:15 PM	0	0	0	67	0	2	0	2	0	0	1	45	0	1	0	50	168
04:30 PM	0	0	0	52	0	0	0	2	0	0	0	54	0	0	0	40	148
04:45 PM	0	0	0	91	0	0	0	4	0	0	2	79	0	1	0	91	268
Total	0	0	0	263	0	2	0	12	0	0	3	214	0	2	0	234	730
05:00 PM	0	0	0	55	0	1	0	10	0	0	0	57	0	1	0	47	171
05:15 PM	0	0	0	108	0	0	0	7	0	0	0	45	0	0	0	100	260
05:30 PM	0	0	0	73	0	2	0	10	0	0	0	51	0	9	0	78	223
05:45 PM	0	0	0	113	0	1	0	4	0	0	0	49	1	1	0	146	315
Total	0	0	0	349	0	4	0	31	0	0	0	202	1	11	0	371	969
Grand Total	0	0	0	612	0	6	0	43	0	0	3	416	1	13	0	605	1699
Apprch %	0	0	0	100	0	12.2	0	87.8	0	0	0.7	99.3	0.2	2.1	0	97.7	
Total %	0	0	0	36	0	0.4	0	2.5	0	0	0.2	24.5	0.1	0.8	0	35.6	

	Millenium Hotel Driveway From North					North Street From East					Clinton Street From South					North Street From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. 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	55	55	0	1	0	10	11	0	0	0	57	57	0	1	0	47	48	171
05:15 PM	0	0	0	108	108	0	0	0	7	7	0	0	0	45	45	0	0	0	100	100	260
05:30 PM	0	0	0	73	73	0	2	0	10	12	0	0	0	51	51	0	9	0	78	87	223
05:45 PM	0	0	0	113	113	0	1	0	4	5	0	0	0	49	49	1	1	0	146	148	315
Total Volume	0	0	0	349	349	0	4	0	31	35	0	0	0	202	202	1	11	0	371	383	969
% App. Total	0	0	0	100		0	11.4	0	88.6		0	0	0	100		0.3	2.9	0	96.9		
PHF	.000	.000	.000	.772	.772	.000	.500	.000	.775	.729	.000	.000	.000	.886	.886	.250	.306	.000	.635	.647	.769

N/S: Millenium Hotel/Clinton Street
E/W: North Street
City, State: Boston, MA
Client: Howard Stein-Hudson/ M. Littman

PRECISION DATA INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
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File Name : 143882 DD
Site Code : 2012029
Start Date : 5/13/2014
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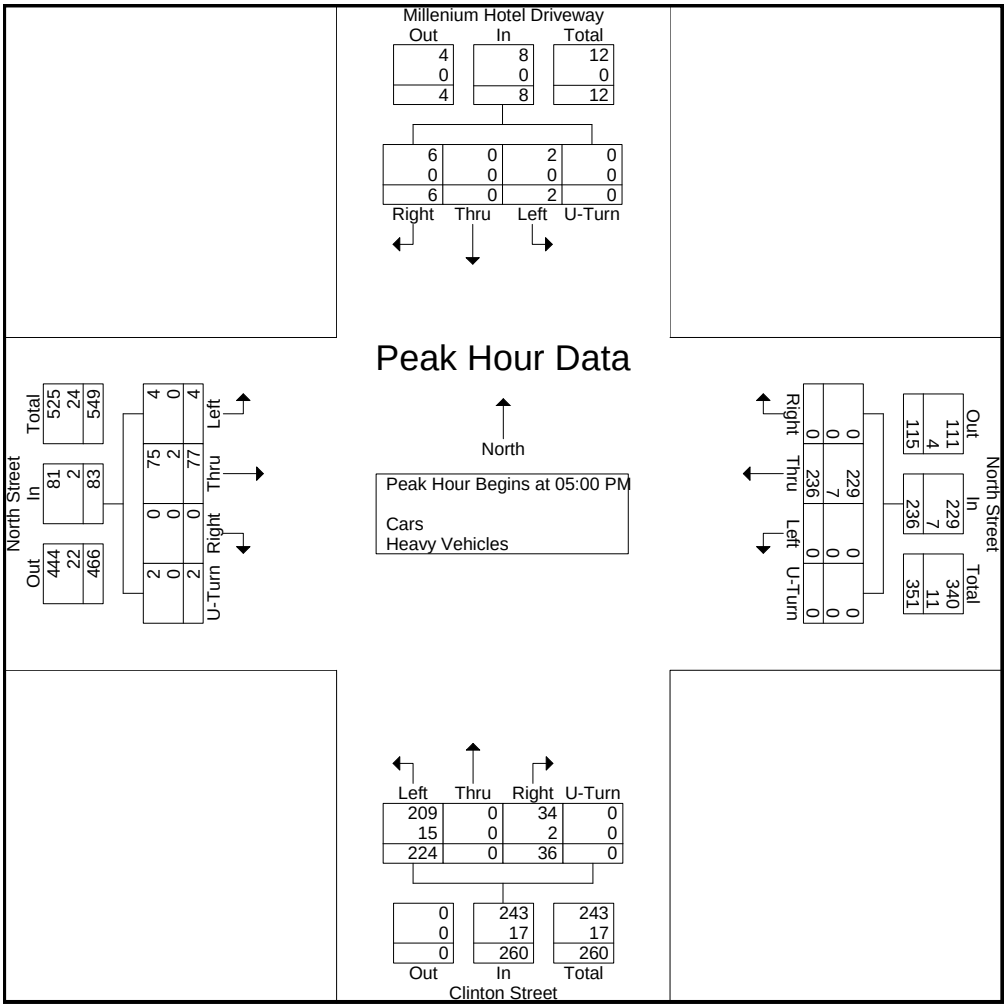
	Millenium Hotel Driveway From North					North Street From East					Clinton Street From South					North Street From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis 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	2	0	1	0	3	0	70	0	0	70	10	0	49	0	59	0	17	2	0	19	151
05:15 PM	0	0	0	0	0	0	64	0	0	64	7	0	62	0	69	0	19	0	1	20	153
05:30 PM	2	0	0	0	2	0	61	0	0	61	11	0	60	0	71	0	19	2	0	21	155
05:45 PM	2	0	1	0	3	0	41	0	0	41	8	0	53	0	61	0	22	0	1	23	128
Total Volume	6	0	2	0	8	0	236	0	0	236	36	0	224	0	260	0	77	4	2	83	587
% App. Total	75	0	25	0		0	100	0	0		13.8	0	86.2	0		0	92.8	4.8	2.4		
PHF	.750	.000	.500	.000	.667	.000	.843	.000	.000	.843	.818	.000	.903	.000	.915	.000	.875	.500	.500	.902	.947
Cars	6	0	2	0	8	0	229	0	0	229	34	0	209	0	243	0	75	4	2	81	561
% Cars	100	0	100	0	100	0	97.0	0	0	97.0	94.4	0	93.3	0	93.5	0	97.4	100	100	97.6	95.6
Heavy Vehicles	0	0	0	0	0	0	7	0	0	7	2	0	15	0	17	0	2	0	0	2	26
% Heavy Vehicles	0	0	0	0	0	0	3.0	0	0	3.0	5.6	0	6.7	0	6.5	0	2.6	0	0	2.4	4.4



N: Union Street
E/W: North Street
City, State: Boston, MA
Client: Howard Stein-Hudson/M. Littman

PRECISION
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File Name : 143882 E
Site Code : 2012029
Start Date : 5/13/2014
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Union Street From North			North Street From East			North Street From West			
Start Time	Right	Left	U-Turn	Right	Thru	U-Turn	Thru	Left	U-Turn	Int. Total
07:00 AM	0	0	0	8	143	0	4	7	1	163
07:15 AM	0	0	0	13	179	0	8	4	1	205
07:30 AM	0	0	0	6	190	0	13	3	0	212
07:45 AM	0	0	0	11	210	0	12	2	1	236
Total	0	0	0	38	722	0	37	16	3	816
08:00 AM	0	0	0	8	236	0	17	0	0	261
08:15 AM	0	0	0	7	201	0	9	3	0	220
08:30 AM	0	0	0	7	246	1	10	2	0	266
08:45 AM	0	0	0	7	257	0	15	5	0	284
Total	0	0	0	29	940	1	51	10	0	1031
Grand Total	0	0	0	67	1662	1	88	26	3	1847
Apprch %	0	0	0	3.9	96.1	0.1	75.2	22.2	2.6	
Total %	0	0	0	3.6	90	0.1	4.8	1.4	0.2	
Cars	0	0	0	60	1597	1	79	19	3	1759
% Cars	0	0	0	89.6	96.1	100	89.8	73.1	100	95.2
Heavy Vehicles	0	0	0	7	65	0	9	7	0	88
% Heavy Vehicles	0	0	0	10.4	3.9	0	10.2	26.9	0	4.8

	Union Street From North				North Street From East				North Street From West				
Start Time	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Thru	Left	U-Turn	App. Total	Int. 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	8	236	0	244	17	0	0	17	261
08:15 AM	0	0	0	0	7	201	0	208	9	3	0	12	220
08:30 AM	0	0	0	0	7	246	1	254	10	2	0	12	266
08:45 AM	0	0	0	0	7	257	0	264	15	5	0	20	284
Total Volume	0	0	0	0	29	940	1	970	51	10	0	61	1031
% App. Total	0	0	0		3	96.9	0.1		83.6	16.4	0		
PHF	.000	.000	.000	.000	.906	.914	.250	.919	.750	.500	.000	.763	.908
Cars	0	0	0	0	24	909	1	934	46	8	0	54	988
% Cars	0	0	0	0	82.8	96.7	100	96.3	90.2	80.0	0	88.5	95.8
Heavy Vehicles	0	0	0	0	5	31	0	36	5	2	0	7	43
% Heavy Vehicles	0	0	0	0	17.2	3.3	0	3.7	9.8	20.0	0	11.5	4.2

N: Union Street
E/W: North Street
City, State: Boston, MA
Client: Howard Stein-Hudson/M. Littman

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File Name : 143882 E
Site Code : 2012029
Start Date : 5/13/2014
Page No : 1

Groups Printed- Peds and Bikes

	Union Street From North			North Street From East			North Street From West			
Start Time	Right	Left	Peds	Right	Thru	Peds	Thru	Left	Peds	Int. Total
07:00 AM	0	0	14	0	0	26	0	1	10	51
07:15 AM	0	0	15	0	1	27	0	1	9	53
07:30 AM	0	0	20	0	0	40	0	0	7	67
07:45 AM	0	0	30	0	1	95	1	0	11	138
Total	0	0	79	0	2	188	1	2	37	309
08:00 AM	0	0	42	0	0	114	2	0	18	176
08:15 AM	0	0	38	0	1	127	0	0	16	182
08:30 AM	2	0	25	0	1	146	0	0	18	192
08:45 AM	0	4	49	1	1	154	3	0	12	224
Total	2	4	154	1	3	541	5	0	64	774
Grand Total	2	4	233	1	5	729	6	2	101	1083
Apprch %	0.8	1.7	97.5	0.1	0.7	99.2	5.5	1.8	92.7	
Total %	0.2	0.4	21.5	0.1	0.5	67.3	0.6	0.2	9.3	

	Union Street From North				North Street From East				North Street From West				
Start Time	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Int. 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	42	42	0	0	114	114	2	0	18	20	176
08:15 AM	0	0	38	38	0	1	127	128	0	0	16	16	182
08:30 AM	2	0	25	27	0	1	146	147	0	0	18	18	192
08:45 AM	0	4	49	53	1	1	154	156	3	0	12	15	224
Total Volume	2	4	154	160	1	3	541	545	5	0	64	69	774
% App. Total	1.2	2.5	96.2		0.2	0.6	99.3		7.2	0	92.8		
PHF	.250	.250	.786	.755	.250	.750	.878	.873	.417	.000	.889	.863	.864

N: Union Street
E/W: North Street
City, State: Boston, MA
Client: Howard Stein-Hudson/M. Littman

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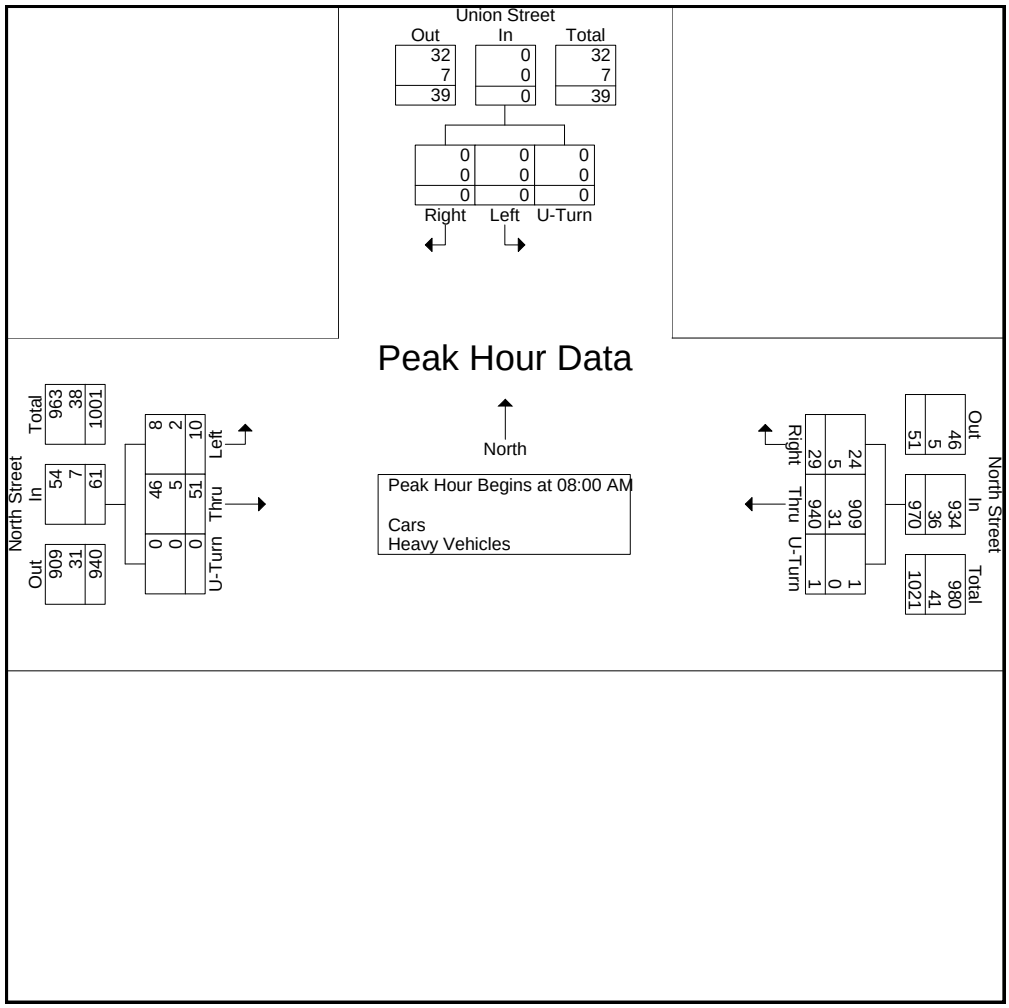
	Union Street From North				North Street From East				North Street From West				
Start Time	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 08:00 AM													
08:00 AM	0	0	0	0	8	236	0	244	17	0	0	17	261
08:15 AM	0	0	0	0	7	201	0	208	9	3	0	12	220
08:30 AM	0	0	0	0	7	246	1	254	10	2	0	12	266
08:45 AM	0	0	0	0	7	257	0	264	15	5	0	20	284
Total Volume	0	0	0	0	29	940	1	970	51	10	0	61	1031
% App. Total	0	0	0		3	96.9	0.1		83.6	16.4	0		
PHF	.000	.000	.000	.000	.906	.914	.250	.919	.750	.500	.000	.763	.908
Cars	0	0	0	0	24	909	1	934	46	8	0	54	988
% Cars	0	0	0	0	82.8	96.7	100	96.3	90.2	80.0	0	88.5	95.8
Heavy Vehicles	0	0	0	0	5	31	0	36	5	2	0	7	43
% Heavy Vehicles	0	0	0	0	17.2	3.3	0	3.7	9.8	20.0	0	11.5	4.2



N: Union Street
E/W: North Street
City, State: Boston, MA
Client: Howard Stein-Hudson/ M. Littman

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File Name : 143882 EE
Site Code : 2012029
Start Date : 5/13/2014
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Union Street From North			North Street From East			North Street From West			
Start Time	Right	Left	U-Turn	Right	Thru	U-Turn	Thru	Left	U-Turn	Int. Total
04:00 PM	0	0	0	6	103	0	22	9	0	140
04:15 PM	0	0	0	5	99	0	23	5	2	134
04:30 PM	0	0	0	5	96	0	20	6	0	127
04:45 PM	0	0	0	7	78	0	15	7	0	107
Total	0	0	0	23	376	0	80	27	2	508
05:00 PM	0	0	0	7	111	0	18	2	3	141
05:15 PM	0	0	0	6	118	0	18	4	1	147
05:30 PM	0	0	0	11	118	0	23	6	1	159
05:45 PM	0	0	0	8	91	0	22	4	1	126
Total	0	0	0	32	438	0	81	16	6	573
Grand Total	0	0	0	55	814	0	161	43	8	1081
Apprch %	0	0	0	6.3	93.7	0	75.9	20.3	3.8	
Total %	0	0	0	5.1	75.3	0	14.9	4	0.7	
Cars	0	0	0	50	788	0	158	41	8	1045
% Cars	0	0	0	90.9	96.8	0	98.1	95.3	100	96.7
Heavy Vehicles	0	0	0	5	26	0	3	2	0	36
% Heavy Vehicles	0	0	0	9.1	3.2	0	1.9	4.7	0	3.3

	Union Street From North				North Street From East				North Street From West				
Start Time	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Thru	Left	U-Turn	App. Total	Int. 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	0	7	111	0	118	18	2	3	23	141
05:15 PM	0	0	0	0	6	118	0	124	18	4	1	23	147
05:30 PM	0	0	0	0	11	118	0	129	23	6	1	30	159
05:45 PM	0	0	0	0	8	91	0	99	22	4	1	27	126
Total Volume	0	0	0	0	32	438	0	470	81	16	6	103	573
% App. Total	0	0	0		6.8	93.2	0		78.6	15.5	5.8		
PHF	.000	.000	.000	.000	.727	.928	.000	.911	.880	.667	.500	.858	.901
Cars	0	0	0	0	30	416	0	446	80	16	6	102	548
% Cars	0	0	0	0	93.8	95.0	0	94.9	98.8	100	100	99.0	95.6
Heavy Vehicles	0	0	0	0	2	22	0	24	1	0	0	1	25
% Heavy Vehicles	0	0	0	0	6.3	5.0	0	5.1	1.2	0	0	1.0	4.4

N: Union Street
E/W: North Street
City, State: Boston, MA
Client: Howard Stein-Hudson/ M. Littman

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File Name : 143882 EE
Site Code : 2012029
Start Date : 5/13/2014
Page No : 1

Groups Printed- Peds and Bikes

	Union Street From North			North Street From East			North Street From West			
Start Time	Right	Left	Peds	Right	Thru	Peds	Thru	Left	Peds	Int. Total
04:00 PM	0	0	58	0	0	155	0	0	12	225
04:15 PM	0	0	100	0	0	108	0	0	17	225
04:30 PM	0	0	59	0	0	140	0	0	24	223
04:45 PM	0	0	44	0	0	147	1	0	22	214
Total	0	0	261	0	0	550	1	0	75	887
05:00 PM	0	0	119	1	2	192	0	1	44	359
05:15 PM	1	0	75	0	0	148	0	2	34	260
05:30 PM	0	0	59	0	2	172	1	1	35	270
05:45 PM	1	0	78	0	0	153	0	0	29	261
Total	2	0	331	1	4	665	1	4	142	1150
Grand Total	2	0	592	1	4	1215	2	4	217	2037
Apprch %	0.3	0	99.7	0.1	0.3	99.6	0.9	1.8	97.3	
Total %	0.1	0	29.1	0	0.2	59.6	0.1	0.2	10.7	

	Union Street From North				North Street From East				North Street From West				
Start Time	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Int. 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	119	119	1	2	192	195	0	1	44	45	359
05:15 PM	1	0	75	76	0	0	148	148	0	2	34	36	260
05:30 PM	0	0	59	59	0	2	172	174	1	1	35	37	270
05:45 PM	1	0	78	79	0	0	153	153	0	0	29	29	261
Total Volume	2	0	331	333	1	4	665	670	1	4	142	147	1150
% App. Total	0.6	0	99.4		0.1	0.6	99.3		0.7	2.7	96.6		
PHF	.500	.000	.695	.700	.250	.500	.866	.859	.250	.500	.807	.817	.801

N: Union Street
E/W: North Street
City, State: Boston, MA
Client: Howard Stein-Hudson/ M. Littman

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File Name : 143882 EE
Site Code : 2012029
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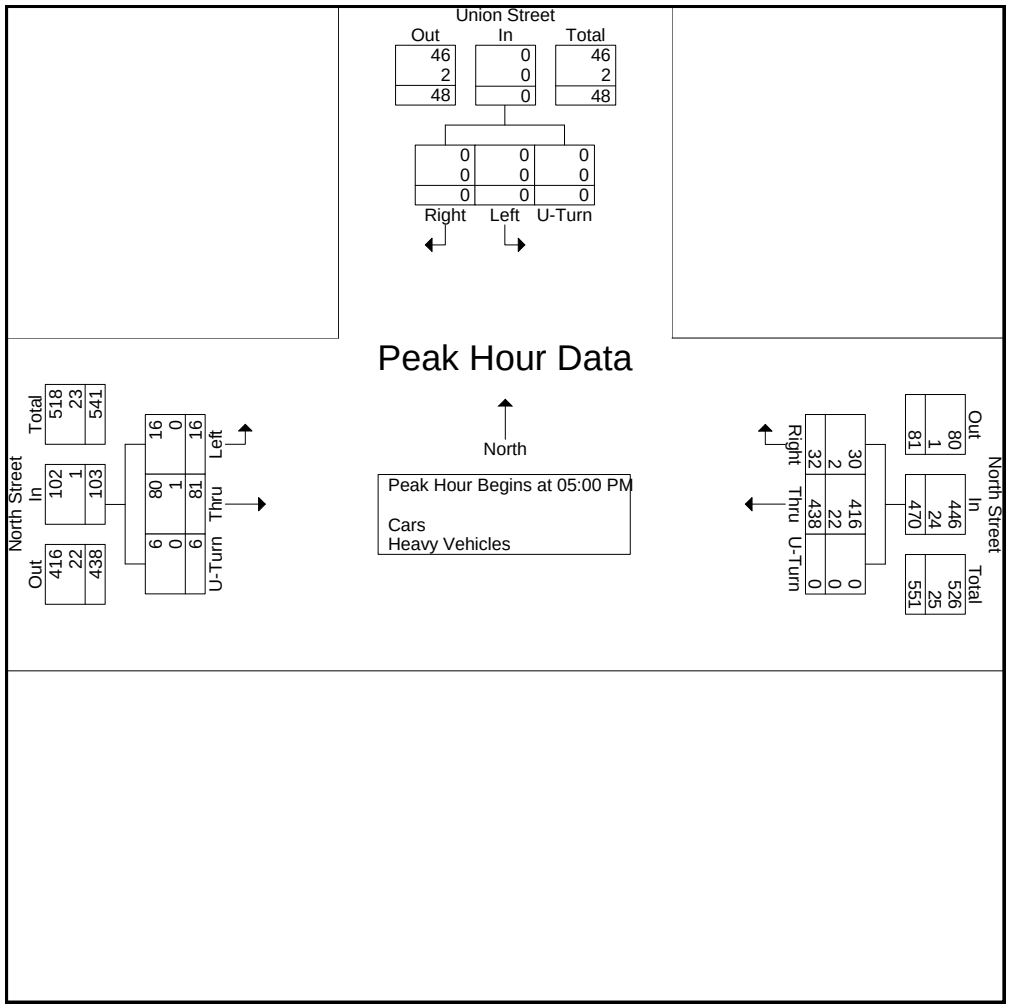
	Union Street From North				North Street From East				North Street From West				
Start Time	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 05:00 PM													
05:00 PM	0	0	0	0	7	111	0	118	18	2	3	23	141
05:15 PM	0	0	0	0	6	118	0	124	18	4	1	23	147
05:30 PM	0	0	0	0	11	118	0	129	23	6	1	30	159
05:45 PM	0	0	0	0	8	91	0	99	22	4	1	27	126
Total Volume	0	0	0	0	32	438	0	470	81	16	6	103	573
% App. Total	0	0	0		6.8	93.2	0		78.6	15.5	5.8		
PHF	.000	.000	.000	.000	.727	.928	.000	.911	.880	.667	.500	.858	.901
Cars	0	0	0	0	30	416	0	446	80	16	6	102	548
% Cars	0	0	0	0	93.8	95.0	0	94.9	98.8	100	100	99.0	95.6
Heavy Vehicles	0	0	0	0	2	22	0	24	1	0	0	1	25
% Heavy Vehicles	0	0	0	0	6.3	5.0	0	5.1	1.2	0	0	1.0	4.4



N/S: Congress Street
E/W: North Street/ City Hall Garage
City, State: Boston, MA
Client: Howard Stein-Hudson/M. Littman

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File Name : 143882 F
Site Code : 2012029
Start Date : 5/13/2014
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Groups Printed- Cars - Heavy Vehicles

	Congress Street From North				North Street From East				Congress Street From South				City Hall Garage Access From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
07:00 AM	1	97	6	0	67	0	83	0	8	44	0	0	0	0	1	0	307
07:15 AM	0	103	8	0	81	0	106	0	5	47	0	0	1	0	3	0	354
07:30 AM	1	118	8	0	86	0	103	0	8	64	0	0	6	1	1	0	396
07:45 AM	1	173	4	1	95	0	116	0	12	75	0	0	3	0	0	0	480
Total	3	491	26	1	329	0	408	0	33	230	0	0	10	1	5	0	1537
08:00 AM	2	146	5	1	101	0	129	0	15	82	0	0	5	0	1	0	487
08:15 AM	1	149	6	0	74	0	127	0	4	89	2	0	2	0	1	0	455
08:30 AM	2	172	3	0	104	0	133	0	5	99	0	0	1	1	2	0	522
08:45 AM	4	163	6	0	107	0	140	0	14	79	1	0	7	0	3	0	524
Total	9	630	20	1	386	0	529	0	38	349	3	0	15	1	7	0	1988
Grand Total	12	1121	46	2	715	0	937	0	71	579	3	0	25	2	12	0	3525
Apprch %	1	94.9	3.9	0.2	43.3	0	56.7	0	10.9	88.7	0.5	0	64.1	5.1	30.8	0	
Total %	0.3	31.8	1.3	0.1	20.3	0	26.6	0	2	16.4	0.1	0	0.7	0.1	0.3	0	
Cars	11	1015	42	2	678	0	910	0	59	517	3	0	24	2	10	0	3273
% Cars	91.7	90.5	91.3	100	94.8	0	97.1	0	83.1	89.3	100	0	96	100	83.3	0	92.9
Heavy Vehicles	1	106	4	0	37	0	27	0	12	62	0	0	1	0	2	0	252
% Heavy Vehicles	8.3	9.5	8.7	0	5.2	0	2.9	0	16.9	10.7	0	0	4	0	16.7	0	7.1

	Congress Street From North					North Street From East					Congress Street From South					City Hall Garage Access From West					
Start Time	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	Int. 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	2	146	5	1	154	101	0	129	0	230	15	82	0	0	97	5	0	1	0	6	487
08:15 AM	1	149	6	0	156	74	0	127	0	201	4	89	2	0	95	2	0	1	0	3	455
08:30 AM	2	172	3	0	177	104	0	133	0	237	5	99	0	0	104	1	1	2	0	4	522
08:45 AM	4	163	6	0	173	107	0	140	0	247	14	79	1	0	94	7	0	3	0	10	524
Total Volume	9	630	20	1	660	386	0	529	0	915	38	349	3	0	390	15	1	7	0	23	1988
% App. Total	1.4	95.5	3	0.2		42.2	0	57.8	0		9.7	89.5	0.8	0		65.2	4.3	30.4	0		
PHF	.563	.916	.833	.250	.932	.902	.000	.945	.000	.926	.633	.881	.375	.000	.938	.536	.250	.583	.000	.575	.948
Cars	8	575	20	1	604	368	0	518	0	886	32	317	3	0	352	14	1	5	0	20	1862
% Cars	88.9	91.3	100	100	91.5	95.3	0	97.9	0	96.8	84.2	90.8	100	0	90.3	93.3	100	71.4	0	87.0	93.7
Heavy Vehicles	1	55	0	0	56	18	0	11	0	29	6	32	0	0	38	1	0	2	0	3	126
% Heavy Vehicles	11.1	8.7	0	0	8.5	4.7	0	2.1	0	3.2	15.8	9.2	0	0	9.7	6.7	0	28.6	0	13.0	6.3

PRECISION
D A T A
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Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

N/S: Congress Street
E/W: North Street/ City Hall Garage
City, State: Boston, MA
Client: Howard Stein-Hudson/M. Littman

File Name : 143882 F
Site Code : 2012029
Start Date : 5/13/2014

Groups Printed- Peds and Bikes

	Congress Street From North				North Street From East				Congress Street From South				City Hall Garage Access From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
07:00 AM	0	1	0	20	0	0	0	70	1	1	0	36	0	0	0	76	205
07:15 AM	0	1	0	18	0	0	1	86	0	1	0	28	0	0	0	63	198
07:30 AM	0	1	0	21	0	0	0	165	0	1	0	59	0	0	0	120	367
07:45 AM	0	9	0	32	0	0	1	261	0	1	0	54	0	0	0	160	518
Total	0	12	0	91	0	0	2	582	1	4	0	177	0	0	0	419	1288
08:00 AM	0	2	0	38	0	0	1	234	0	2	0	56	0	0	0	172	505
08:15 AM	0	9	0	76	0	0	2	307	0	5	0	88	0	0	0	258	745
08:30 AM	0	6	1	26	0	0	3	355	0	0	0	77	0	0	0	210	678
08:45 AM	0	4	2	72	0	0	1	308	0	0	0	91	1	0	0	277	756
Total	0	21	3	212	0	0	7	1204	0	7	0	312	1	0	0	917	2684
Grand Total	0	33	3	303	0	0	9	1786	1	11	0	489	1	0	0	1336	3972
Apprch %	0	9.7	0.9	89.4	0	0	0.5	99.5	0.2	2.2	0	97.6	0.1	0	0	99.9	
Total %	0	0.8	0.1	7.6	0	0	0.2	45	0	0.3	0	12.3	0	0	0	33.6	

	Congress Street From North					North Street From East					Congress Street From South					City Hall Garage Access From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. 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	2	0	38	40	0	0	1	234	235	0	2	0	56	58	0	0	0	172	172	505
08:15 AM	0	9	0	76	85	0	0	2	307	309	0	5	0	88	93	0	0	0	258	258	745
08:30 AM	0	6	1	26	33	0	0	3	355	358	0	0	0	77	77	0	0	0	210	210	678
08:45 AM	0	4	2	72	78	0	0	1	308	309	0	0	0	91	91	1	0	0	277	278	756
Total Volume	0	21	3	212	236	0	0	7	1204	1211	0	7	0	312	319	1	0	0	917	918	2684
% App. Total	0	8.9	1.3	89.8		0	0	0.6	99.4		0	2.2	0	97.8		0.1	0	0	99.9		
PHF	.000	.583	.375	.697	.694	.000	.000	.583	.848	.846	.000	.350	.000	.857	.858	.250	.000	.000	.828	.826	.888

N/S: Congress Street
E/W: North Street/ City Hall Garage
City, State: Boston, MA
Client: Howard Stein-Hudson/M. Littman

PRECISION DATA INDUSTRIES, LLC
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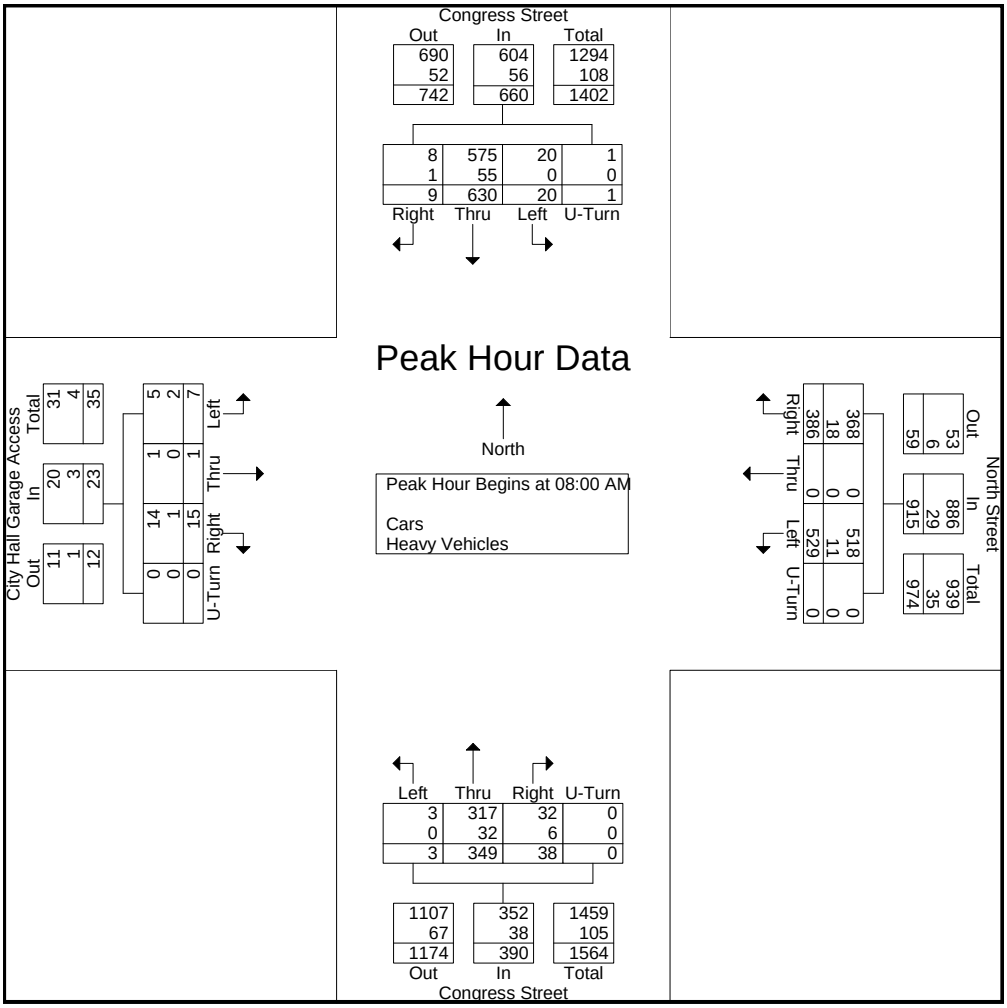
File Name : 143882 F
Site Code : 2012029
Start Date : 5/13/2014
Page No : 1

	Congress Street From North					North Street From East					Congress Street From South					City Hall Garage Access From West					
Start Time	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	Int. 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	2	146	5	1	154	101	0	129	0	230	15	82	0	0	97	5	0	1	0	6	487
08:15 AM	1	149	6	0	156	74	0	127	0	201	4	89	2	0	95	2	0	1	0	3	455
08:30 AM	2	172	3	0	177	104	0	133	0	237	5	99	0	0	104	1	1	2	0	4	522
08:45 AM	4	163	6	0	173	107	0	140	0	247	14	79	1	0	94	7	0	3	0	10	524
Total Volume	9	630	20	1	660	386	0	529	0	915	38	349	3	0	390	15	1	7	0	23	1988
% App. Total	1.4	95.5	3	0.2		42.2	0	57.8	0		9.7	89.5	0.8	0		65.2	4.3	30.4	0		
PHF	.563	.916	.833	.250	.932	.902	.000	.945	.000	.926	.633	.881	.375	.000	.938	.536	.250	.583	.000	.575	.948
Cars	8	575	20	1	604	368	0	518	0	886	32	317	3	0	352	14	1	5	0	20	1862
% Cars	88.9	91.3	100	100	91.5	95.3	0	97.9	0	96.8	84.2	90.8	100	0	90.3	93.3	100	71.4	0	87.0	93.7
Heavy Vehicles	1	55	0	0	56	18	0	11	0	29	6	32	0	0	38	1	0	2	0	3	126
% Heavy Vehicles	11.1	8.7	0	0	8.5	4.7	0	2.1	0	3.2	15.8	9.2	0	0	9.7	6.7	0	28.6	0	13.0	6.3



N/S: Congress Street
E/W: North Street/ City Hall Garage
City, State: Boston, MA
Client: Howard Stein-Hudson/ M. Littman

PRECISION DATA INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
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File Name : 143882 FF
Site Code : 2012029
Start Date : 5/13/2014
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Congress Street From North				North Street From East				Congress Street From South				City Hall Garage Access From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:00 PM	1	160	13	3	52	0	52	0	13	124	0	0	5	3	1	0	427
04:15 PM	2	165	8	6	52	0	50	0	16	151	0	0	1	1	2	0	454
04:30 PM	2	162	9	7	39	0	56	0	16	185	0	0	2	0	1	0	479
04:45 PM	0	170	8	2	43	0	40	0	10	212	0	0	1	0	3	0	489
Total	5	657	38	18	186	0	198	0	55	672	0	0	9	4	7	0	1849
05:00 PM	1	160	9	10	41	0	72	0	10	181	1	0	1	0	0	0	486
05:15 PM	3	174	10	2	61	0	69	0	11	182	0	2	5	0	1	0	520
05:30 PM	1	144	16	4	51	0	62	0	17	161	0	0	5	0	1	0	462
05:45 PM	0	126	8	3	50	0	52	0	18	167	0	0	2	0	0	0	426
Total	5	604	43	19	203	0	255	0	56	691	1	2	13	0	2	0	1894
Grand Total	10	1261	81	37	389	0	453	0	111	1363	1	2	22	4	9	0	3743
Apprch %	0.7	90.8	5.8	2.7	46.2	0	53.8	0	7.5	92.3	0.1	0.1	62.9	11.4	25.7	0	
Total %	0.3	33.7	2.2	1	10.4	0	12.1	0	3	36.4	0	0.1	0.6	0.1	0.2	0	
Cars	8	1167	80	37	371	0	439	0	107	1288	1	2	20	4	8	0	3532
% Cars	80	92.5	98.8	100	95.4	0	96.9	0	96.4	94.5	100	100	90.9	100	88.9	0	94.4
Heavy Vehicles	2	94	1	0	18	0	14	0	4	75	0	0	2	0	1	0	211
% Heavy Vehicles	20	7.5	1.2	0	4.6	0	3.1	0	3.6	5.5	0	0	9.1	0	11.1	0	5.6

	Congress Street From North					North Street From East					Congress Street From South					City Hall Garage Access From West					
Start Time	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	Int. 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	2	162	9	7	180	39	0	56	0	95	16	185	0	0	201	2	0	1	0	3	479
04:45 PM	0	170	8	2	180	43	0	40	0	83	10	212	0	0	222	1	0	3	0	4	489
05:00 PM	1	160	9	10	180	41	0	72	0	113	10	181	1	0	192	1	0	0	0	1	486
05:15 PM	3	174	10	2	189	61	0	69	0	130	11	182	0	2	195	5	0	1	0	6	520
Total Volume	6	666	36	21	729	184	0	237	0	421	47	760	1	2	810	9	0	5	0	14	1974
% App. Total	0.8	91.4	4.9	2.9		43.7	0	56.3	0		5.8	93.8	0.1	0.2		64.3	0	35.7	0		
PHF	.500	.957	.900	.525	.964	.754	.000	.823	.000	.810	.734	.896	.250	.250	.912	.450	.000	.417	.000	.583	.949
Cars	5	617	35	21	678	177	0	229	0	406	47	720	1	2	770	8	0	4	0	12	1866
% Cars	83.3	92.6	97.2	100	93.0	96.2	0	96.6	0	96.4	100	94.7	100	100	95.1	88.9	0	80.0	0	85.7	94.5
Heavy Vehicles	1	49	1	0	51	7	0	8	0	15	0	40	0	0	40	1	0	1	0	2	108
% Heavy Vehicles	16.7	7.4	2.8	0	7.0	3.8	0	3.4	0	3.6	0	5.3	0	0	4.9	11.1	0	20.0	0	14.3	5.5

PRECISION
D A T A
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N/S: Congress Street
E/W: North Street/ City Hall Garage
City, State: Boston, MA
Client: Howard Stein-Hudson/ M. Littman

File Name : 143882 FF
Site Code : 2012029
Start Date : 5/13/2014
Page No : 1

Groups Printed- Peds and Bikes

	Congress Street From North				North Street From East				Congress Street From South				City Hall Garage Access From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
04:00 PM	0	2	0	34	0	0	0	138	0	6	0	82	0	0	0	112	374
04:15 PM	0	2	0	16	0	0	2	160	0	7	0	104	0	0	0	166	457
04:30 PM	0	6	0	23	0	0	0	212	0	5	0	82	0	0	0	134	462
04:45 PM	0	2	0	21	0	0	0	218	0	10	0	115	0	0	0	255	621
Total	0	12	0	94	0	0	2	728	0	28	0	383	0	0	0	667	1914
05:00 PM	0	2	0	50	1	0	0	386	0	4	0	76	0	0	0	288	807
05:15 PM	0	5	0	41	0	0	0	315	0	7	0	57	0	0	0	197	622
05:30 PM	0	3	0	34	0	0	3	214	0	3	0	66	0	0	0	177	500
05:45 PM	0	4	1	39	0	0	2	174	0	12	0	41	1	0	0	108	382
Total	0	14	1	164	1	0	5	1089	0	26	0	240	1	0	0	770	2311
Grand Total	0	26	1	258	1	0	7	1817	0	54	0	623	1	0	0	1437	4225
Apprch %	0	9.1	0.4	90.5	0.1	0	0.4	99.6	0	8	0	92	0.1	0	0	99.9	
Total %	0	0.6	0	6.1	0	0	0.2	43	0	1.3	0	14.7	0	0	0	34	

	Congress Street From North					North Street From East					Congress Street From South					City Hall Garage Access From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. 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	2	0	21	23	0	0	0	218	218	0	10	0	115	125	0	0	0	255	255	621
05:00 PM	0	2	0	50	52	1	0	0	386	387	0	4	0	76	80	0	0	0	288	288	807
05:15 PM	0	5	0	41	46	0	0	0	315	315	0	7	0	57	64	0	0	0	197	197	622
05:30 PM	0	3	0	34	37	0	0	3	214	217	0	3	0	66	69	0	0	0	177	177	500
Total Volume	0	12	0	146	158	1	0	3	1133	1137	0	24	0	314	338	0	0	0	917	917	2550
% App. Total	0	7.6	0	92.4		0.1	0	0.3	99.6		0	7.1	0	92.9		0	0	0	100		
PHF	.000	.600	.000	.730	.760	.250	.000	.250	.734	.734	.000	.600	.000	.683	.676	.000	.000	.000	.796	.796	.790

N/S: Congress Street
E/W: North Street/ City Hall Garage
City, State: Boston, MA
Client: Howard Stein-Hudson/ M. Littman

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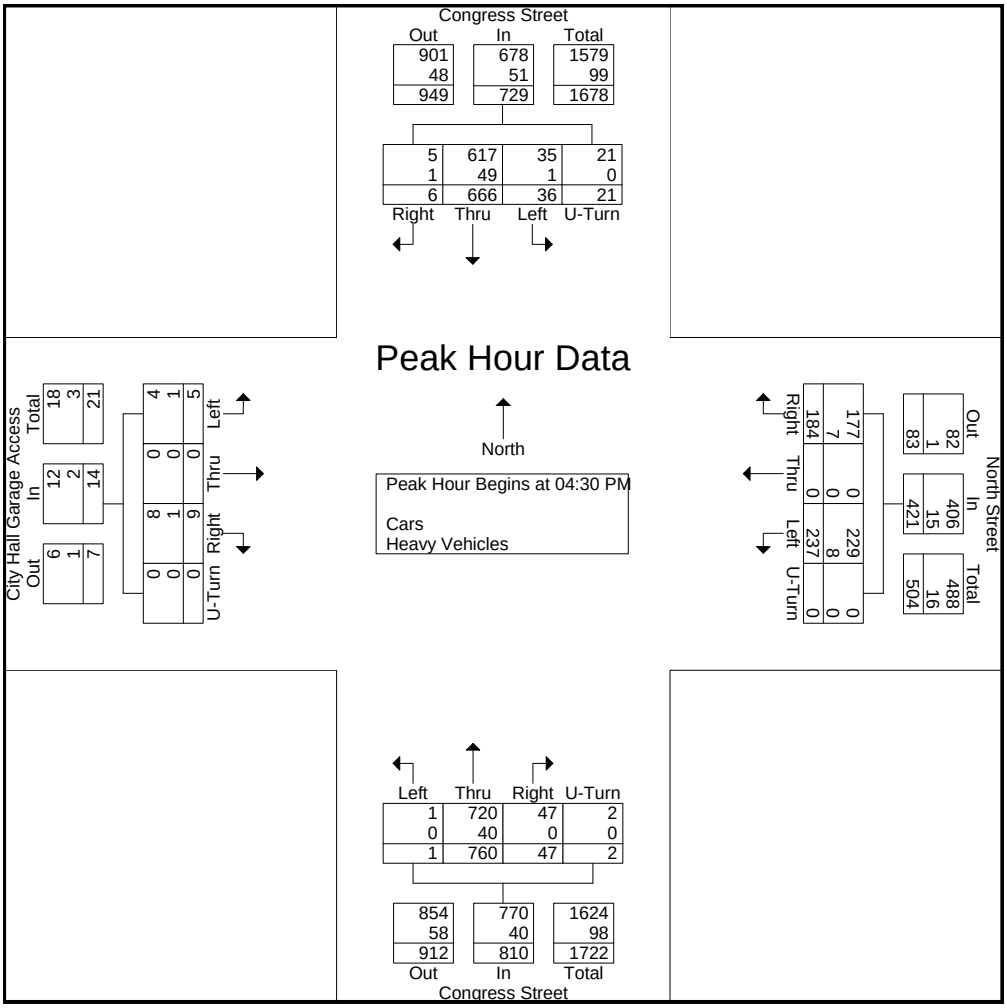
Email: datarequests@pdillc.com

File Name : 143882 FF
Site Code : 2012029
Start Date : 5/13/2014
Page No : 1

	Congress Street From North					North Street From East					Congress Street From South					City Hall Garage Access From West					
Start Time	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	Int. 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	2	162	9	7	180	39	0	56	0	95	16	185	0	0	201	2	0	1	0	3	479
04:45 PM	0	170	8	2	180	43	0	40	0	83	10	212	0	0	222	1	0	3	0	4	489
05:00 PM	1	160	9	10	180	41	0	72	0	113	10	181	1	0	192	1	0	0	0	1	486
05:15 PM	3	174	10	2	189	61	0	69	0	130	11	182	0	2	195	5	0	1	0	6	520
Total Volume	6	666	36	21	729	184	0	237	0	421	47	760	1	2	810	9	0	5	0	14	1974
% App. Total	0.8	91.4	4.9	2.9		43.7	0	56.3	0		5.8	93.8	0.1	0.2		64.3	0	35.7	0		
PHF	.500	.957	.900	.525	.964	.754	.000	.823	.000	.810	.734	.896	.250	.250	.912	.450	.000	.417	.000	.583	.949
Cars	5	617	35	21	678	177	0	229	0	406	47	720	1	2	770	8	0	4	0	12	1866
% Cars	83.3	92.6	97.2	100	93.0	96.2	0	96.6	0	96.4	100	94.7	100	100	95.1	88.9	0	80.0	0	85.7	94.5
Heavy Vehicles	1	49	1	0	51	7	0	8	0	15	0	40	0	0	40	1	0	1	0	2	108
% Heavy Vehicles	16.7	7.4	2.8	0	7.0	3.8	0	3.4	0	3.6	0	5.3	0	0	4.9	11.1	0	20.0	0	14.3	5.5



N/S: Surface Road SB
E/W: I-93 SB Offramp/ Clinton Street
City, State: Boston, MA
Client: Howard Stein-Hudson/M. Littman

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File Name : 143882 C
Site Code : 2012029
Start Date : 5/13/2014
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Surface Road (SB) From North				I-93 SB Offramp From East				Surface Road (SB) From South				Clinton Street From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
07:00 AM	12	158	0	0	0	31	128	0	0	0	0	0	1	3	0	0	333
07:15 AM	16	184	0	0	0	47	141	0	0	0	0	0	0	0	0	0	388
07:30 AM	13	196	0	0	0	51	152	0	0	0	0	0	0	0	0	0	412
07:45 AM	17	210	0	0	0	44	162	0	0	0	0	0	0	0	0	0	433
Total	58	748	0	0	0	173	583	0	0	0	0	0	1	3	0	0	1566
08:00 AM	28	202	0	0	0	54	246	0	0	0	0	0	0	0	0	0	530
08:15 AM	24	228	0	0	0	42	244	0	0	0	0	0	0	0	0	0	538
08:30 AM	29	240	0	0	0	42	191	0	0	0	0	0	0	0	0	0	502
08:45 AM	27	242	0	0	0	54	217	0	0	0	0	0	0	0	0	0	540
Total	108	912	0	0	0	192	898	0	0	0	0	0	0	0	0	0	2110
Grand Total	166	1660	0	0	0	365	1481	0	0	0	0	0	1	3	0	0	3676
Apprch %	9.1	90.9	0	0	0	19.8	80.2	0	0	0	0	0	25	75	0	0	
Total %	4.5	45.2	0	0	0	9.9	40.3	0	0	0	0	0	0	0.1	0	0	
Cars	158	1580	0	0	0	339	1422	0	0	0	0	0	1	3	0	0	3503
% Cars	95.2	95.2	0	0	0	92.9	96	0	0	0	0	0	100	100	0	0	95.3
Heavy Vehicles	8	80	0	0	0	26	59	0	0	0	0	0	0	0	0	0	173
% Heavy Vehicles	4.8	4.8	0	0	0	7.1	4	0	0	0	0	0	0	0	0	0	4.7

	Surface Road (SB) From North					I-93 SB Offramp From East					Surface Road (SB) From South					Clinton Street From West					
Start Time	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	Int. 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	28	202	0	0	230	0	54	246	0	300	0	0	0	0	0	0	0	0	0	0	530
08:15 AM	24	228	0	0	252	0	42	244	0	286	0	0	0	0	0	0	0	0	0	0	538
08:30 AM	29	240	0	0	269	0	42	191	0	233	0	0	0	0	0	0	0	0	0	0	502
08:45 AM	27	242	0	0	269	0	54	217	0	271	0	0	0	0	0	0	0	0	0	0	540
Total Volume	108	912	0	0	1020	0	192	898	0	1090	0	0	0	0	0	0	0	0	0	0	2110
% App. Total	10.6	89.4	0	0		0	17.6	82.4	0		0	0	0	0		0	0	0	0		
PHF	.931	.942	.000	.000	.948	.000	.889	.913	.000	.908	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.977
Cars	101	877	0	0	978	0	179	870	0	1049	0	0	0	0	0	0	0	0	0	0	2027
% Cars	93.5	96.2	0	0	95.9	0	93.2	96.9	0	96.2	0	0	0	0	0	0	0	0	0	0	96.1
Heavy Vehicles	7	35	0	0	42	0	13	28	0	41	0	0	0	0	0	0	0	0	0	0	83
% Heavy Vehicles	6.5	3.8	0	0	4.1	0	6.8	3.1	0	3.8	0	0	0	0	0	0	0	0	0	0	3.9

N/S: Surface Road SB
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City, State: Boston, MA
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File Name : 143882 C
Site Code : 2012029
Start Date : 5/13/2014
Page No : 1

Groups Printed- Peds and Bikes

	Surface Road (SB) From North				I-93 SB Offramp From East				Surface Road (SB) From South				Clinton Street From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
07:00 AM	0	14	0	1	0	0	0	12	0	0	0	18	0	0	0	12	57
07:15 AM	0	1	0	2	0	0	0	8	0	0	0	23	0	0	0	15	49
07:30 AM	0	10	0	1	0	0	0	5	0	0	0	28	0	0	0	34	78
07:45 AM	0	16	0	0	0	0	0	20	0	0	0	33	0	0	0	32	101
Total	0	41	0	4	0	0	0	45	0	0	0	102	0	0	0	93	285
08:00 AM	0	14	0	2	0	0	0	9	0	0	0	35	0	0	0	49	109
08:15 AM	0	19	0	1	0	0	0	16	0	0	0	32	0	0	0	52	120
08:30 AM	0	35	0	1	0	0	0	16	0	0	0	49	0	0	0	70	171
08:45 AM	0	15	0	2	0	0	1	13	0	0	0	35	1	0	0	73	140
Total	0	83	0	6	0	0	1	54	0	0	0	151	1	0	0	244	540
Grand Total	0	124	0	10	0	0	1	99	0	0	0	253	1	0	0	337	825
Apprch %	0	92.5	0	7.5	0	0	1	99	0	0	0	100	0.3	0	0	99.7	
Total %	0	15	0	1.2	0	0	0.1	12	0	0	0	30.7	0.1	0	0	40.8	

	Surface Road (SB) From North					I-93 SB Offramp From East					Surface Road (SB) From South					Clinton Street From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. 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	14	0	2	16	0	0	0	9	9	0	0	0	35	35	0	0	0	49	49	109
08:15 AM	0	19	0	1	20	0	0	0	16	16	0	0	0	32	32	0	0	0	52	52	120
08:30 AM	0	35	0	1	36	0	0	0	16	16	0	0	0	49	49	0	0	0	70	70	171
08:45 AM	0	15	0	2	17	0	0	1	13	14	0	0	0	35	35	1	0	0	73	74	140
Total Volume	0	83	0	6	89	0	0	1	54	55	0	0	0	151	151	1	0	0	244	245	540
% App. Total	0	93.3	0	6.7		0	0	1.8	98.2		0	0	0	100		0.4	0	0	99.6		
PHF	.000	.593	.000	.750	.618	.000	.000	.250	.844	.859	.000	.000	.000	.770	.770	.250	.000	.000	.836	.828	.789

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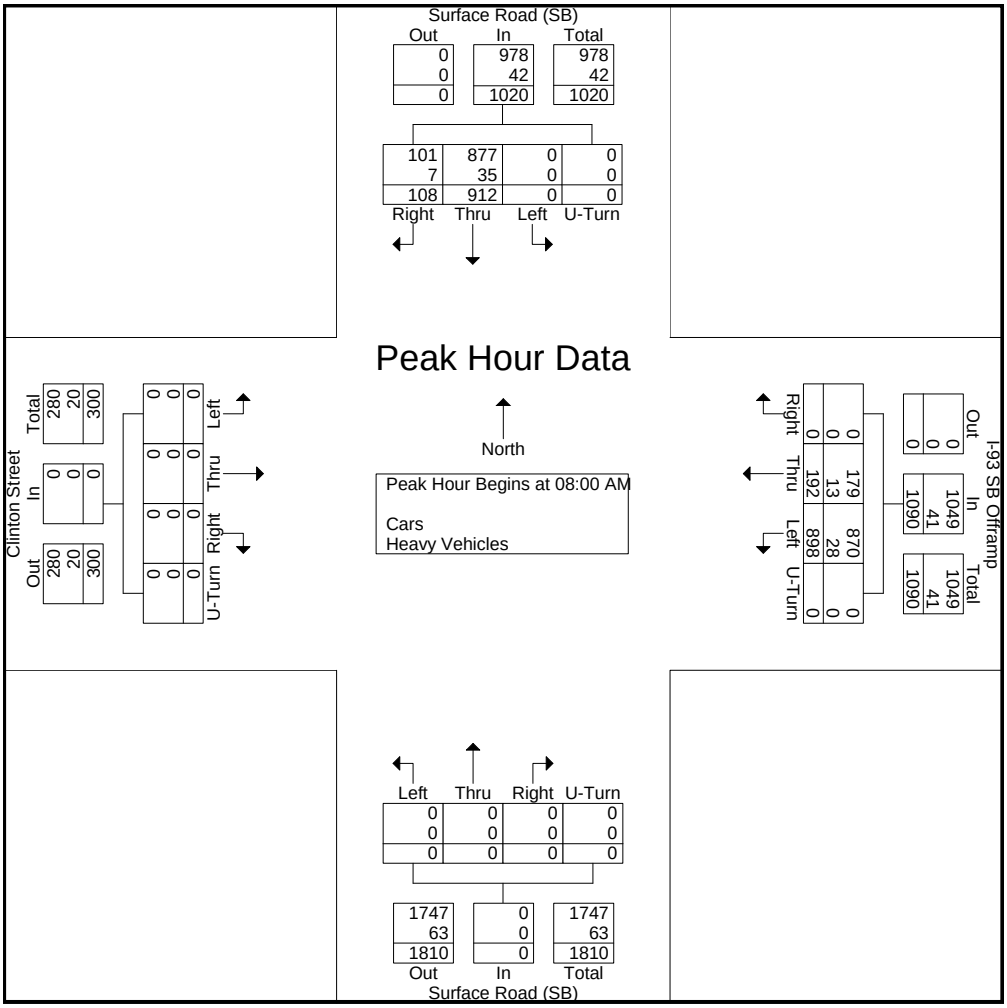
	Surface Road (SB) From North					I-93 SB Offramp From East					Surface Road (SB) From South					Clinton Street From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis 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	28	202	0	0	230	0	54	246	0	300	0	0	0	0	0	0	0	0	0	0	530
08:15 AM	24	228	0	0	252	0	42	244	0	286	0	0	0	0	0	0	0	0	0	0	538
08:30 AM	29	240	0	0	269	0	42	191	0	233	0	0	0	0	0	0	0	0	0	0	502
08:45 AM	27	242	0	0	269	0	54	217	0	271	0	0	0	0	0	0	0	0	0	0	540
Total Volume	108	912	0	0	1020	0	192	898	0	1090	0	0	0	0	0	0	0	0	0	0	2110
% App. Total	10.6	89.4	0	0		0	17.6	82.4	0		0	0	0	0		0	0	0	0		
PHF	.931	.942	.000	.000	.948	.000	.889	.913	.000	.908	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.977
Cars	101	877	0	0	978	0	179	870	0	1049	0	0	0	0	0	0	0	0	0	0	2027
% Cars	93.5	96.2	0	0	95.9	0	93.2	96.9	0	96.2	0	0	0	0	0	0	0	0	0	0	96.1
Heavy Vehicles	7	35	0	0	42	0	13	28	0	41	0	0	0	0	0	0	0	0	0	0	83
% Heavy Vehicles	6.5	3.8	0	0	4.1	0	6.8	3.1	0	3.8	0	0	0	0	0	0	0	0	0	0	3.9



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Client: Howard Stein-Hudson/ M. Littman

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File Name : 143882 CC
Site Code : 2012029
Start Date : 5/13/2014
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Surface Road (SB) From North				I-93 SB Offramp From East				Surface Road (SB) From South				Clinton Street From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:00 PM	14	171	1	0	0	14	82	0	0	0	0	0	0	0	0	0	282
04:15 PM	11	158	0	0	0	29	77	0	0	0	0	0	0	0	0	0	275
04:30 PM	7	166	0	0	0	29	77	0	0	0	0	0	0	0	0	0	279
04:45 PM	13	137	0	0	0	22	88	0	0	0	0	0	0	0	0	0	260
Total	45	632	1	0	0	94	324	0	0	0	0	0	0	0	0	0	1096
05:00 PM	2	136	0	0	0	28	93	0	0	0	0	0	0	1	0	0	260
05:15 PM	18	136	0	0	0	42	98	0	0	0	0	0	0	1	0	0	295
05:30 PM	17	144	0	0	0	30	97	0	0	0	0	0	0	0	0	0	288
05:45 PM	10	124	0	0	0	29	109	0	0	0	0	0	0	0	0	0	272
Total	47	540	0	0	0	129	397	0	0	0	0	0	0	2	0	0	1115
Grand Total	92	1172	1	0	0	223	721	0	0	0	0	0	0	2	0	0	2211
Apprch %	7.3	92.6	0.1	0	0	23.6	76.4	0	0	0	0	0	0	100	0	0	
Total %	4.2	53	0	0	0	10.1	32.6	0	0	0	0	0	0	0.1	0	0	
Cars	80	1107	1	0	0	209	694	0	0	0	0	0	0	2	0	0	2093
% Cars	87	94.5	100	0	0	93.7	96.3	0	0	0	0	0	0	100	0	0	94.7
Heavy Vehicles	12	65	0	0	0	14	27	0	0	0	0	0	0	0	0	0	118
% Heavy Vehicles	13	5.5	0	0	0	6.3	3.7	0	0	0	0	0	0	0	0	0	5.3

	Surface Road (SB) From North					I-93 SB Offramp From East					Surface Road (SB) From South					Clinton Street From West					
Start Time	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	Int. 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	2	136	0	0	138	0	28	93	0	121	0	0	0	0	0	0	1	0	0	1	260
05:15 PM	18	136	0	0	154	0	42	98	0	140	0	0	0	0	0	0	1	0	0	1	295
05:30 PM	17	144	0	0	161	0	30	97	0	127	0	0	0	0	0	0	0	0	0	0	288
05:45 PM	10	124	0	0	134	0	29	109	0	138	0	0	0	0	0	0	0	0	0	0	272
Total Volume	47	540	0	0	587	0	129	397	0	526	0	0	0	0	0	0	2	0	0	2	1115
% App. Total	8	92	0	0		0	24.5	75.5	0		0	0	0	0		0	100	0	0		
PHF	.653	.938	.000	.000	.911	.000	.768	.911	.000	.939	.000	.000	.000	.000	.000	.000	.500	.000	.000	.500	.945
Cars	42	513	0	0	555	0	119	383	0	502	0	0	0	0	0	0	2	0	0	2	1059
% Cars	89.4	95.0	0	0	94.5	0	92.2	96.5	0	95.4	0	0	0	0	0	0	100	0	0	100	95.0
Heavy Vehicles	5	27	0	0	32	0	10	14	0	24	0	0	0	0	0	0	0	0	0	0	56
% Heavy Vehicles	10.6	5.0	0	0	5.5	0	7.8	3.5	0	4.6	0	0	0	0	0	0	0	0	0	0	5.0

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N/S: Surface Road SB
E/W: I-93 SB Offramp/ Clinton Street
City, State: Boston, MA
Client: Howard Stein-Hudson/ M. Littman

File Name : 143882 CC
Site Code : 2012029
Start Date : 5/13/2014

Groups Printed- Peds and Bikes

	Surface Road (SB) From North				I-93 SB Offramp From East				Surface Road (SB) From South				Clinton Street From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
04:00 PM	0	2	0	0	0	0	0	9	0	0	0	28	0	0	0	41	80
04:15 PM	0	5	0	0	0	0	0	8	0	0	0	27	0	0	0	135	175
04:30 PM	0	4	0	0	0	0	0	8	0	0	0	31	0	0	0	147	190
04:45 PM	0	1	0	0	0	0	0	9	0	1	0	28	0	0	0	102	141
Total	0	12	0	0	0	0	0	34	0	1	0	114	0	0	0	425	586
05:00 PM	0	0	0	2	0	0	0	13	0	0	0	44	0	0	0	123	182
05:15 PM	0	5	0	0	0	0	0	2	0	0	0	59	0	0	0	125	191
05:30 PM	0	4	0	2	0	0	0	3	0	0	0	45	0	0	0	90	144
05:45 PM	0	0	0	5	0	0	0	8	0	0	0	69	0	0	0	274	356
Total	0	9	0	9	0	0	0	26	0	0	0	217	0	0	0	612	873
Grand Total	0	21	0	9	0	0	0	60	0	1	0	331	0	0	0	1037	1459
Apprch %	0	70	0	30	0	0	0	100	0	0.3	0	99.7	0	0	0	100	
Total %	0	1.4	0	0.6	0	0	0	4.1	0	0.1	0	22.7	0	0	0	71.1	

	Surface Road (SB) From North					I-93 SB Offramp From East					Surface Road (SB) From South					Clinton Street From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. 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	2	2	0	0	0	13	13	0	0	0	44	44	0	0	0	123	123	182
05:15 PM	0	5	0	0	5	0	0	0	2	2	0	0	0	59	59	0	0	0	125	125	191
05:30 PM	0	4	0	2	6	0	0	0	3	3	0	0	0	45	45	0	0	0	90	90	144
05:45 PM	0	0	0	5	5	0	0	0	8	8	0	0	0	69	69	0	0	0	274	274	356
Total Volume	0	9	0	9	18	0	0	0	26	26	0	0	0	217	217	0	0	0	612	612	873
% App. Total	0	50	0	50		0	0	0	100		0	0	0	100		0	0	0	100		
PHF	.000	.450	.000	.450	.750	.000	.000	.000	.500	.500	.000	.000	.000	.786	.786	.000	.000	.000	.558	.558	.613

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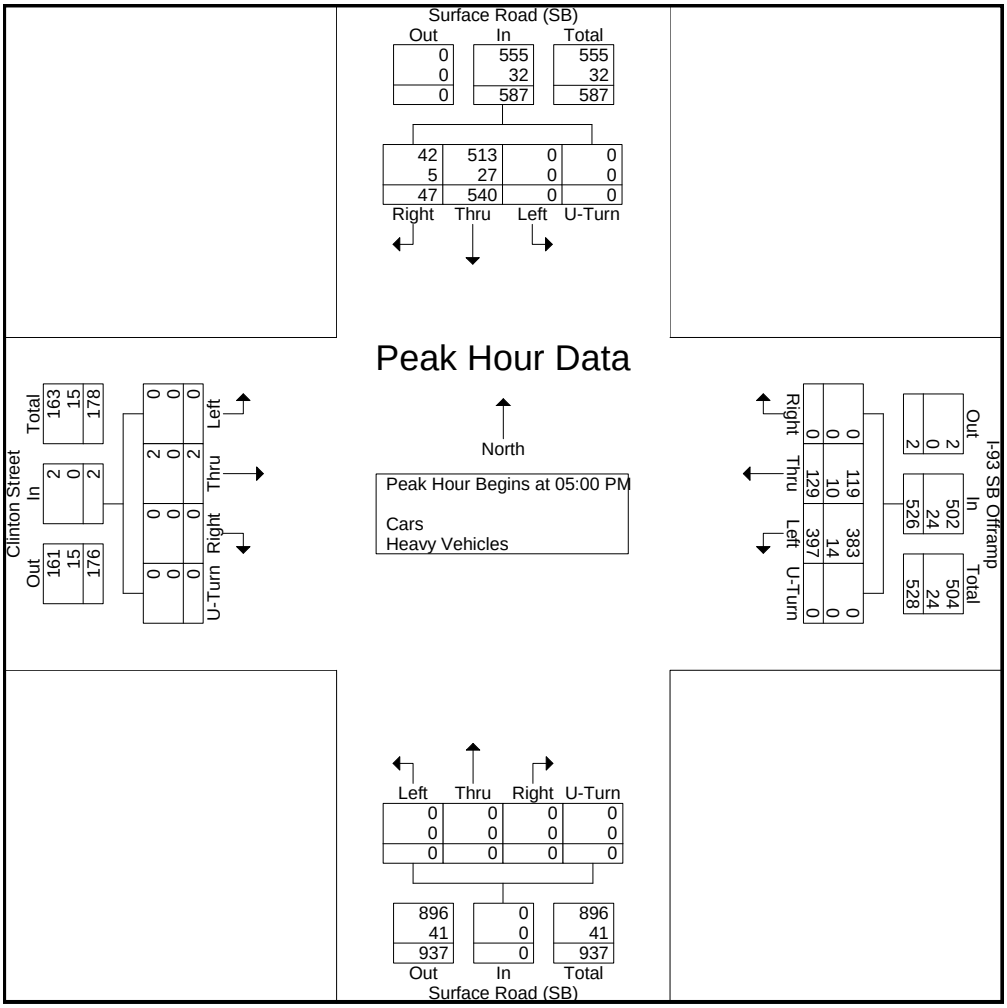
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	2	136	0	0	138	0	28	93	0	121	0	0	0	0	0	0	1	0	0	1	260
05:15 PM	18	136	0	0	154	0	42	98	0	140	0	0	0	0	0	0	1	0	0	1	295
05:30 PM	17	144	0	0	161	0	30	97	0	127	0	0	0	0	0	0	0	0	0	0	288
05:45 PM	10	124	0	0	134	0	29	109	0	138	0	0	0	0	0	0	0	0	0	0	272
Total Volume	47	540	0	0	587	0	129	397	0	526	0	0	0	0	0	0	2	0	0	2	1115
% App. Total	8	92	0	0		0	24.5	75.5	0		0	0	0	0		0	100	0	0		
PHF	.653	.938	.000	.000	.911	.000	.768	.911	.000	.939	.000	.000	.000	.000	.000	.000	.500	.000	.000	.500	.945
Cars	42	513	0	0	555	0	119	383	0	502	0	0	0	0	0	0	2	0	0	2	1059
% Cars	89.4	95.0	0	0	94.5	0	92.2	96.5	0	95.4	0	0	0	0	0	0	100	0	0	100	95.0
Heavy Vehicles	5	27	0	0	32	0	10	14	0	24	0	0	0	0	0	0	0	0	0	0	56
% Heavy Vehicles	10.6	5.0	0	0	5.5	0	7.8	3.5	0	4.6	0	0	0	0	0	0	0	0	0	0	5.0



One Congress Street
Trip Generation Assessment

HOWARD/STEIN-HUDSON ASSOCIATES
20-Oct-15

Auto % 100% Taxi % 0%

Land Use	Size	Category	Trip Rates (Trips/ksf or unit)	Unadjusted Vehicle Trips	Assumed national vehicle occupancy rate[1]	Converted to Person trips	Internal Trips	Person Trips Less Internal	Transit Share[2]	Transit Trips	Walk/Bike/ Other Share[2]	Walk/ Bike/ Other Trips	Vehicle Share[2]	Total Vehicle Person Trips	Auto[7] Person Trips	Taxi[7] Person Trips	Assumed local auto occupancy rate for autos[4A]	Assumed local auto occupancy rate for taxis[4B]	Total Adjusted Auto Trips	Total Adjusted Taxi Trips	Total Adjusted Auto + Taxi Trips
Daily Peak Hour																					
Office[5]	1,001.2	Total	11.03	11,044	1.13	**12,480**		**12,480**		**5,366**		**3,868**		**3,245**	3,245	0	1.13	1.2	**2,872**	**0**	**2,872**
	KSF	In	5.52	5,522	1.13	**6,240**		**6,240**	43%	**2,683**	31%	**1,934**	26%	**1,622**	1,622	0	1.13	1.2	**1,436**	**0**	**1,436**
		Out	5.52	5,522	1.13	**6,240**		**6,240**	43%	**2,683**	31%	**1,934**	26%	**1622**	1,622	0	1.13	1.2	**1,436**	**0**	**1,436**
Retail[6]	10.8	Total	42.78	462	1.78	**822**		**822**		**164**		**484**		**173**	173	0	1.78	1.2	**96**	**0**	**96**
	KSF	In	21.39	231	1.78	**411**		**411**	20%	**82**	59%	**242**	21%	**86**	86	0	1.78	1.2	**48**	**0**	**48**
		Out	21.39	231	1.78	**411**		**411**	20%	**82**	59%	**242**	21%	**86**	86	0	1.78	1.2	**48**	**0**	**48**
Total		Total		**11,506**		**13,302**		**13,302**		**5,530**		**4,352**		**3,417**					**2,968**	**0**	**2,968**
		In		**5,753**		**6,651**		**6,651**		**2,765**		**2,176**		**1,709**					**1,484**	**0**	**1,484**
		Out		**5,753**		**6,651**		**6,651**		**2,765**		**2,176**		**1,709**					**1,484**	**0**	**1,484**
AM Peak Hour																					
Office[5]	1,001.2	Total	1.56	1,562	1.13	**1,765**		**1,765**		**1,014**		**132**		**612**	612	0	1.13	1.2	**542**	**0**	**542**
	KSF	In	1.37	1,375	1.13	**1,554**	**4**	**1,550**	63%	**977**	5%	**78**	32%	**496**	496	0	1.13	1.2	**439**	**0**	**439**
		Out	0.19	187	1.13	**211**	**4**	**207**	18%	**37**	26%	**54**	56%	**116**	116	0	1.13	1.2	**103**	**0**	**103**
Retail[6]	10.8	Total	0.93	10	1.78	**18**		**18**		**3**		**3**		**4**	4	0	1.78	1.2	**2**	**0**	**2**
	KSF	In	0.56	6	1.78	**11**	**5**	**6**	46%	**3**	14%	**1**	40%	**2**	2	0	1.78	1.2	**1**	**0**	**1**
		Out	0.37	4	1.78	**7**	**3**	**4**	10%	**0**	58%	**2**	32%	**1**	1	0	1.78	1.2	**1**	**0**	**1**
Total		Total		**1,572**		**1,783**		**1,783**		**1,017**		**135**		**616**					**544**	**0**	**544**
		In		**1,381**		**1,565**		**1,556**		**980**		**79**		**498**					**440**	**0**	**440**
		Out		**191**		**218**		**211**		**37**		**56**		**117**					**104**	**0**	**104**
PM Peak Hour																					
Office[5]	1,001	Total	1.49	1,492	1.13	**1,686**		**1,686**		**928**		**144**		**604**	604	0	1.13	1.2	**534**	**0**	**534**
	KSF	In	0.25	254	1.13	**287**	**4**	**283**	18%	**51**	26%	**74**	56%	**158**	158	0	1.13	1.2	**140**	**0**	**140**
		Out	1.24	1,238	1.13	**1,399**	**7**	**1,392**	63%	**877**	5%	**70**	32%	**445**	445	0	1.13	1.2	**394**	**0**	**394**
Retail[6]	10.8	Total	3.70	40	1.78	**71**		**71**		**15**		**19**		**18**	18	0	1.78	1.2	**11**	**0**	**11**
	KSF	In	1.76	19	1.78	**34**	**8**	**26**	10%	**3**	58%	**15**	32%	**8**	8	0	1.78	1.2	**5**	**0**	**5**
		Out	1.94	21	1.78	**37**	**12**	**25**	46%	**12**	14%	**4**	40%	**10**	10	0	1.78	1.2	**6**	**0**	**6**
Total		Total		**1,532**		**1,757**		**1,757**		**943**		**163**		**622**					**545**	**0**	**545**
		In		**273**		**321**		**309**		**54**		**89**		**167**					**145**	**0**	**145**
		Out		**1,259**		**1,436**		**1,417**		**889**		**74**		**455**					**400**	**0**	**400**

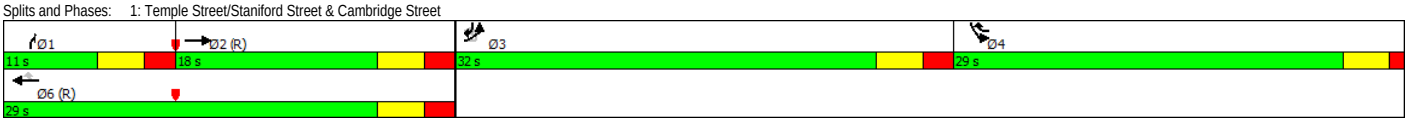
1. 2009 National vehicle occupancy rates - 1.13:home to work; 1.84: family/personal business; 1.78: shopping; 2.2 social/recreational
2. Mode shares based on peak-hour BTD Data for Area 2
3. Local vehicle occupancy rates based on 2009 National vehicle occupancy rates.
4. For taxi cabs, 1.2 passengers per cab. (2.2 minus 1 driver equals 1.2)
5. ITE Trip Generation Rate, 9th Edition, LUC 710 (General Office Building), average rate
6. ITE Trip Generation Rate, 9th Edition, LUC 820 (Shopping Center), average rate

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (vph)	16	187	500	0	0	420	190	0	0	15	238	0	239
Future Volume (vph)	16	187	500	0	0	420	190	0	0	15	238	0	239
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	10	11	12	12	11	12	12	12	12	11	12	11
Storage Length (ft)		140		0	0		0	0		0	0		0
Storage Lanes		1		0	0		1	0		1	1		1
Taper Length (ft)		25			25			25			25		
Lane Util. Factor	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor							0.98						
Frt							0.850			0.865			0.850
Flt Protected		0.950									0.950		
Satd. Flow (prot)	0	1632	3250	0	0	3261	1509	0	0	1644	1678	0	1313
Flt Permitted		0.491									0.950		
Satd. Flow (perm)	0	843	3250	0	0	3261	1484	0	0	1644	1678	0	1313
Right Turn on Red				No			Yes			No			No
Satd. Flow (RTOR)							204						
Link Speed (mph)			30			30			30			30	
Link Distance (ft)			407			236			206			1103	
Travel Time (s)			9.3			5.4			4.7			25.1	
Confl. Bikes (#/hr)				60			12			2			6
Peak Hour Factor	0.89	0.89	0.89	0.89	0.93	0.93	0.93	0.54	0.54	0.54	0.92	0.92	0.92
Heavy Vehicles (%)	6%	3%	2%	0%	0%	7%	7%	0%	0%	0%	4%	0%	7%
Parking (#/hr)			0										0
Adj. Flow (vph)	18	210	562	0	0	452	204	0	0	28	259	0	260
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	228	562	0	0	452	204	0	0	28	259	0	260
Turn Type	custom	Prot	NA			NA	pm+ov			Prot	Prot		Over
Protected Phases		3	2			6	4			1	4		3!
Permitted Phases	3!						6						
Detector Phase	3	3	2			6	4			1	4		3
Switch Phase													
Minimum Initial (s)	8.0	8.0	12.0			12.0	8.0			6.0	8.0		8.0
Minimum Split (s)	32.0	32.0	17.0			24.0	29.0			11.0	29.0		32.0
Total Split (s)	32.0	32.0	18.0			29.0	29.0			11.0	29.0		32.0
Total Split (%)	35.6%	35.6%	20.0%			32.2%	32.2%			12.2%	32.2%		35.6%
Maximum Green (s)	27.0	27.0	13.0			24.0	25.0			6.0	25.0		27.0
Yellow Time (s)	3.0	3.0	3.0			3.0	3.0			3.0	3.0		3.0
All-Red Time (s)	2.0	2.0	2.0			2.0	1.0			2.0	1.0		2.0
Lost Time Adjust (s)		0.0	0.0			0.0	0.0			0.0	0.0		0.0
Total Lost Time (s)		5.0	5.0			5.0	4.0			5.0	4.0		5.0
Lead/Lag	Lead	Lead	Lag				Lag			Lead	Lag		Lead
Lead-Lag Optimize?													
Vehicle Extension (s)	2.0	2.0	2.0			2.0	2.0			2.0	2.0		2.0
Recall Mode	Min	Min	C-Max			C-Max	Min			None	Min		Min
Walk Time (s)	7.0	7.0				7.0	7.0				7.0		7.0
Flash Dont Walk (s)	20.0	20.0				12.0	18.0				18.0		20.0
Pedestrian Calls (#/hr)	140	140				140	132				132		140
Act Effct Green (s)		27.0	19.6			24.0	50.0			6.0	25.0		27.0
Actuated g/C Ratio		0.30	0.22			0.27	0.56			0.07	0.28		0.30
v/c Ratio		0.90	0.79			0.52	0.22			0.26	0.56		0.66
Control Delay		69.8	45.9			27.2	2.0			46.1	33.2		37.0
Queue Delay		0.0	0.0			2.6	0.2			0.9	1.1		0.0
Total Delay		69.8	45.9			29.8	2.2			46.9	34.2		37.0
LOS		E	D			C	A			D	C		D
Approach Delay			52.8			21.2							
Approach LOS			D			C							
Queue Length 50th (ft)		124	148			97	0			15	125		128
Queue Length 95th (ft)		#259	#305			140	10			25	203		216
Internal Link Dist (ft)			327			156			126			1023	
Turn Bay Length (ft)		140											
Base Capacity (vph)		252	707			869	922			109	466		393
Starvation Cap Reductn		0	0			291	272			0	0		0
Spillback Cap Reductn		0	0			0	0			17	68		0
Storage Cap Reductn		0	0			0	0			0	0		0
Reduced v/c Ratio		0.90	0.79			0.78	0.31			0.30	0.65		0.66

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 17 (19%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.90
Intersection Signal Delay: 37.8 Intersection LOS: D
Intersection Capacity Utilization 50.2% 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.
! Phase conflict between lane groups.

Splits and Phases: 1: Temple Street/Staniford Street & Cambridge Street

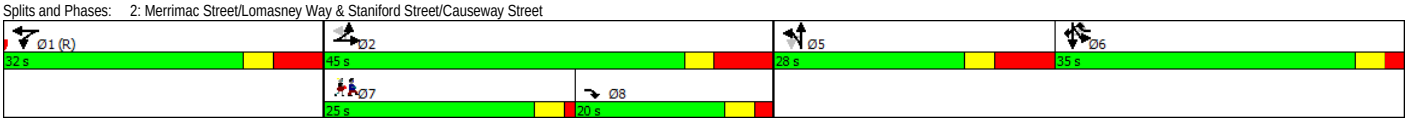


Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	Ø7
Lane Configurations																
Traffic Volume (vph)	2	47	167	160	65	408	300	3	147	122	32	2	180	250	297	
Future Volume (vph)	2	47	167	160	65	408	300	3	147	122	32	2	180	250	297	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	11	11	11	11	11	11	10	11	10	11	11	11	10	11	11	
Storage Length (ft)		0		200	0		0		0		0		0		0	
Storage Lanes		1		1	0		1		1		0		1		1	
Taper Length (ft)		25			25				25				25			
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	
Ped Bike Factor										0.99				1.00		
Frt				0.850			0.850			0.969				0.997	0.850	
Flt Protected		0.950				0.993			0.950				0.950			
Satd. Flow (prot)	0	1582	1711	1516	0	3296	1334	0	1548	1641	0	0	1261	1611	1426	
Flt Permitted		0.467				0.993			0.211				0.643			
Satd. Flow (perm)	0	778	1711	1516	0	3296	1334	0	344	1641	0	0	853	1611	1426	
Right Turn on Red				No			No				No				No	
Satd. Flow (RTOR)																
Link Speed (mph)			30			30				30				30		
Link Distance (ft)			1103			181				998				344		
Travel Time (s)			25.1			4.1				22.7				7.8		
Confl. Bikes (#/hr)				42			4				10				5	
Peak Hour Factor	0.78	0.78	0.78	0.78	0.94	0.94	0.94	0.85	0.85	0.85	0.85	0.98	0.98	0.98	0.98	
Heavy Vehicles (%)	0%	5%	2%	3%	6%	5%	13%	0%	9%	8%	7%	0%	34%	8%	4%	
Adj. Flow (vph)	3	60	214	205	69	434	319	4	173	144	38	2	184	255	303	
Shared Lane Traffic (%)		0%													2%	
Lane Group Flow (vph)	0	63	214	205	0	503	319	0	177	182	0	0	186	261	297	
Turn Type	Perm	Split	NA	custom	Split	NA	Over	Perm	Split	NA		Perm	Split	NA	Prot	
Protected Phases		2	2	8	1	1	6!		5	5			6	6	6	7
Permitted Phases	2							5				6!				
Detector Phase	2	2	2	8	1	1	6	5	5	5		6	6	6	6	
Switch Phase																
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0		8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	27.0	27.0	27.0	16.0	31.0	31.0	16.0	27.0	27.0	27.0		16.0	16.0	16.0	16.0	25.0
Total Split (s)	45.0	45.0	45.0	20.0	32.0	32.0	35.0	28.0	28.0	28.0		35.0	35.0	35.0	35.0	25.0
Total Split (%)	32.1%	32.1%	32.1%	14.3%	22.9%	22.9%	25.0%	20.0%	20.0%	20.0%		25.0%	25.0%	25.0%	25.0%	18%
Maximum Green (s)	36.0	36.0	36.0	15.0	24.0	24.0	30.0	19.0	19.0	19.0		30.0	30.0	30.0	30.0	21.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	6.0	6.0	6.0	2.0	5.0	5.0	2.0	6.0	6.0	6.0		2.0	2.0	2.0	2.0	1.0
Lost Time Adjust (s)		0.0	0.0	0.0		0.0	0.0		0.0	0.0			0.0	0.0	0.0	
Total Lost Time (s)		9.0	9.0	5.0		8.0	5.0		9.0	9.0			5.0	5.0	5.0	
Lead/Lag				Lag			Lag	Lead	Lead	Lead		Lag	Lag	Lag	Lag	Lead
Lead-Lag Optimize?																
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0
Recall Mode	Ped	Ped	Ped	None	C-Max	C-Max	None	Ped	Ped	Ped		None	None	None	None	None
Walk Time (s)	7.0	7.0	7.0		7.0	7.0		7.0	7.0	7.0						7.0
Flash Dont Walk (s)	11.0	11.0	11.0		16.0	16.0		11.0	11.0	11.0						14.0
Pedestrian Calls (#/hr)	100	100	100		175	175		0	0	0						500
Act Effct Green (s)		36.0	36.0	15.0		24.0	30.0		19.0	19.0			30.0	30.0	30.0	
Actuated g/C Ratio		0.26	0.26	0.11		0.17	0.21		0.14	0.14			0.21	0.21	0.21	
v/c Ratio		0.32	0.49	1.27		0.89	1.12		3.85	0.82			1.02	0.76	0.97	
Control Delay		47.4	48.6	207.8		75.5	138.6		1348.0	86.6			126.0	66.6	99.6	
Queue Delay		0.0	0.0	0.0		0.0	0.1		0.0	0.0			0.0	0.0	0.0	
Total Delay		47.4	48.6	207.8		75.5	138.7		1348.0	86.6			126.0	66.6	99.6	
LOS		D	D	F		E	F		F	F			F	E	F	
Approach Delay			116.2			100.0				708.5				94.6		
Approach LOS			F			F				F				F		
Queue Length 50th (ft)		49	175	~234		238	~333		~290	163			~179	236	285	
Queue Length 95th (ft)		83	222	#325		#336	#525		#419	#264			#338	#365	#486	
Internal Link Dist (ft)			1023			101				918				264		
Turn Bay Length (ft)				200												
Base Capacity (vph)		200	439	162		565	285		46	222			182	345	305	
Starvation Cap Reductn		0	0	0		0	2		0	0			0	0	0	
Spillback Cap Reductn		0	0	0		0	0		0	0			0	0	0	
Storage Cap Reductn		0	0	0		0	0		0	0			0	0	0	
Reduced v/c Ratio		0.32	0.49	1.27		0.89	1.13		3.85	0.82			1.02	0.76	0.97	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 1:WBTL, Start of Green
Natural Cycle: 125
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 3.85
Intersection Signal Delay: 192.3 Intersection LOS: F
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.
! Phase conflict between lane groups.

Splits and Phases: 2: Merrimac Street/Lomasney Way & Staniford Street/Causeway Street



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	199	86	110	180	133	239	5	650	114	266	1080	472
Future Volume (vph)	199	86	110	180	133	239	5	650	114	266	1080	472
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	12	11	12	11	11	11	10	11	11
Storage Length (ft)	0		0	0		0	0		75	200		100
Storage Lanes	1		1	0		1	0		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.95	0.95	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	0.91	0.91
Ped Bike Factor			0.71						0.58			0.98
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950				0.972					0.950		
Satd. Flow (prot)	1429	1646	1419	0	3108	1495	0	3087	1459	1604	3011	1292
Flt Permitted	0.950				0.972			0.757		0.191		
Satd. Flow (perm)	1429	1646	1004	0	3108	1495	0	2337	839	323	3011	1271
Right Turn on Red			Yes			No			No			No
Satd. Flow (RTOR)			109									
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		318			194			589			575	
Travel Time (s)		7.2			4.4			13.4			13.1	
Confl. Peds. (#/hr)			131						139			
Confl. Bikes (#/hr)			4			3			3			9
Peak Hour Factor	0.96	0.96	0.96	0.87	0.87	0.87	0.94	0.94	0.94	0.97	0.97	0.97
Heavy Vehicles (%)	16%	6%	10%	7%	12%	8%	20%	13%	7%	5%	11%	10%
Adj. Flow (vph)	207	90	115	207	153	275	5	691	121	274	1113	487
Shared Lane Traffic (%)	0%											0%
Lane Group Flow (vph)	207	90	115	0	360	275	0	696	121	274	1113	487
Turn Type	Split	NA	Perm	Split	NA	pt+ov	Perm	NA	Perm	D.P+P	NA	custom
Protected Phases	2	2		5	5	5 6		1		6	1 6	1 6
Permitted Phases			2				1		1	1		1
Detector Phase	2	2	2	5	5	5 6	1	1	1	6	1 6	1 6
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0		8.0	8.0	8.0	8.0		
Minimum Split (s)	34.0	34.0	34.0	25.0	25.0		28.0	28.0	28.0	30.0		
Total Split (s)	34.0	34.0	34.0	25.0	25.0		41.0	41.0	41.0	30.0		
Total Split (%)	26.2%	26.2%	26.2%	19.2%	19.2%		31.5%	31.5%	31.5%	23.1%		
Maximum Green (s)	24.0	24.0	24.0	21.0	21.0		35.0	35.0	35.0	24.0		
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0		
All-Red Time (s)	7.0	7.0	7.0	1.0	1.0		3.0	3.0	3.0	3.0		
Lost Time Adjust (s)	0.0	0.0	0.0		0.0			0.0	0.0	0.0		
Total Lost Time (s)	10.0	10.0	10.0		4.0			6.0	6.0	6.0		
Lead/Lag	Lag	Lag	Lag	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	None	Max	Max		Max	Max	Max	None		
Walk Time (s)	7.0	7.0	7.0	3.0	3.0		7.0	7.0	7.0	7.0		
Flash Dont Walk (s)	11.0	11.0	11.0	14.0	14.0		15.0	15.0	15.0	14.0		
Pedestrian Calls (#/hr)	176	176	176	176	176		100	100	100	100		
Act Effct Green (s)	21.9	21.9	21.9		21.0	51.0		35.0	35.0	59.0	65.0	65.0
Actuated g/C Ratio	0.17	0.17	0.17		0.16	0.40		0.27	0.27	0.46	0.51	0.51
v/c Ratio	0.85	0.32	0.44		0.71	0.46		1.09	0.53	0.70	0.73	0.74
Control Delay	80.7	49.7	15.0		59.3	31.9		106.0	49.9	34.1	28.4	33.8
Queue Delay	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Delay	80.7	49.7	15.0		59.3	31.9		106.0	49.9	34.1	28.4	33.8
LOS	F	D	B		E	C		F	D	C	C	C
Approach Delay		55.6			47.4			97.7			30.6	
Approach LOS		E			D			F			C	
Queue Length 50th (ft)	176	69	4		153	171		~351	87	135	396	351
Queue Length 95th (ft)	#308	125	61		201	245		#476	156	238	489	520
Internal Link Dist (ft)		238			114			509			495	
Turn Bay Length (ft)									75	200		100
Base Capacity (vph)	268	308	277		510	595		639	229	389	1530	656
Starvation Cap Reductn	0	0	0		0	0		0	0	0	0	0
Spillback Cap Reductn	0	0	0		0	0		0	0	0	0	0
Storage Cap Reductn	0	0	0		0	0		0	0	0	0	0
Reduced v/c Ratio	0.77	0.29	0.42		0.71	0.46		1.09	0.53	0.70	0.73	0.74

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 128
Natural Cycle: 130
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.09
Intersection Signal Delay: 50.9 Intersection LOS: D
Intersection Capacity Utilization 99.7% ICU Level of Service F
Analysis Period (min) 15

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

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

Splits and Phases: 3: North Washington Street & Causeway Street

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	0	0	246	769	55	25	1330	15
Future Volume (vph)	0	0	0	0	0	0	246	769	55	25	1330	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	0		50
Storage Lanes	0		0	0		0	1		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.91	0.91	0.91
Ped Bike Factor								0.96			1.00	
Frt								0.990			0.998	
Flt Protected							0.950				0.999	
Satd. Flow (prot)	0	0	0	0	0	0	1377	2781	0	0	4266	0
Flt Permitted							0.950				0.909	
Satd. Flow (perm)	0	0	0	0	0	0	1377	2781	0	0	3874	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)								10			2	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		181			303			161			589	
Travel Time (s)		4.9			8.3			4.4			16.1	
Confl. Peds. (#/hr)									232	232		23
Confl. Bikes (#/hr)									5			60
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	18%	12%	0%	4%	9%	19%
Parking (#/hr)									0			
Adj. Flow (vph)	0	0	0	0	0	0	254	793	57	26	1371	15
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	0	254	850	0	0	1412	0
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)							8.0	10.0		10.0	10.0	
Minimum Split (s)							28.0	27.0		27.0	27.0	
Total Split (s)							50.0	70.0		70.0	70.0	
Total Split (%)							41.7%	58.3%		58.3%	58.3%	
Maximum Green (s)							45.0	65.0		65.0	65.0	
Yellow Time (s)							3.0	3.0		3.0	3.0	
All-Red Time (s)							2.0	2.0		2.0	2.0	
Lost Time Adjust (s)							-1.0	-1.0			-1.0	
Total Lost Time (s)							4.0	4.0			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)							2.0	2.0		2.0	2.0	
Recall Mode							Ped	C-Max		C-Max	C-Max	
Walk Time (s)							7.0	7.0		7.0	7.0	
Flash Dont Walk (s)							15.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)							0	0		0	0	
Act Effct Green (s)							29.0	83.0			83.0	
Actuated g/C Ratio							0.24	0.69			0.69	
v/c Ratio							0.77	0.44			0.53	
Control Delay							57.1	9.7			10.6	
Queue Delay							0.8	2.8			0.0	
Total Delay							57.9	12.6			10.6	
LOS							E	B			B	
Approach Delay								23.0			10.6	
Approach LOS								C			B	
Queue Length 50th (ft)							186	133			170	
Queue Length 95th (ft)							255	226			270	
Internal Link Dist (ft)		101			223			81			509	
Turn Bay Length (ft)												
Base Capacity (vph)							527	1927			2681	
Starvation Cap Reductn							93	933			0	
Spillback Cap Reductn							0	0			49	
Storage Cap Reductn							0	0			0	
Reduced v/c Ratio							0.59	0.86			0.54	

Intersection Summary

Area Type: CBD
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 99 (83%), Referenced to phase 1:NBSB, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.77
Intersection Signal Delay: 16.0 Intersection LOS: B
Intersection Capacity Utilization 62.3% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 4: North Washington Street & Valenti Way/Thatcher Street

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations													
Traffic Volume (vph)	0	0	0	143	118	0	0	0	0	0	116	21	
Future Volume (vph)	0	0	0	143	118	0	0	0	0	0	116	21	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	11	12	12	12	12	12	12	12	12	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95	
Ped Bike Factor											0.98		
Frt											0.977		
Flt Protected				0.950									
Satd. Flow (prot)	0	0	0	1264	1354	0	0	0	0	0	2696	0	
Flt Permitted				0.950									
Satd. Flow (perm)	0	0	0	1264	1354	0	0	0	0	0	2696	0	
Right Turn on Red			Yes	Yes		Yes			Yes			Yes	
Satd. Flow (RTOR)				159							15		
Link Speed (mph)		25			25			30			30		
Link Distance (ft)		227			181			221			528		
Travel Time (s)		6.2			4.9			5.0			12.0		
Confl. Bikes (#/hr)						6						35	
Peak Hour Factor	0.92	0.92	0.92	0.90	0.90	0.90	0.92	0.92	0.92	0.76	0.76	0.76	
Heavy Vehicles (%)	0%	0%	0%	18%	20%	0%	0%	0%	0%	0%	16%	14%	
Adj. Flow (vph)	0	0	0	159	131	0	0	0	0	0	153	28	
Shared Lane Traffic (%)				0%									
Lane Group Flow (vph)	0	0	0	159	131	0	0	0	0	0	181	0	
Turn Type				Split	NA						NA		
Protected Phases				1	1						5		2
Permitted Phases													
Detector Phase				1	1						5		
Switch Phase													
Minimum Initial (s)				5.0	5.0						5.0		8.0
Minimum Split (s)				19.0	19.0						19.0		18.0
Total Split (s)				81.0	81.0						21.0		18.0
Total Split (%)				67.5%	67.5%						17.5%		15%
Maximum Green (s)				77.0	77.0						17.0		14.0
Yellow Time (s)				3.0	3.0						3.0		4.0
All-Red Time (s)				1.0	1.0						1.0		0.0
Lost Time Adjust (s)				0.0	0.0						0.0		
Total Lost Time (s)				4.0	4.0						4.0		
Lead/Lag				Lead	Lead								Lag
Lead-Lag Optimize?													
Vehicle Extension (s)				2.0	2.0						2.0		2.0
Recall Mode				C-Max	C-Max						Max		None
Walk Time (s)				7.0	7.0						7.0		7.0
Flash Dont Walk (s)				6.0	6.0						7.0		7.0
Pedestrian Calls (#/hr)				0	0						0		500
Act Effct Green (s)				77.0	77.0						17.0		
Actuated g/C Ratio				0.64	0.64						0.14		
v/c Ratio				0.18	0.15						0.46		
Control Delay				1.3	2.4						47.5		
Queue Delay				3.3	3.5						0.0		
Total Delay				4.7	5.9						47.5		
LOS				A	A						D		
Approach Delay					5.2						47.5		
Approach LOS					A						D		
Queue Length 50th (ft)				0	4						62		
Queue Length 95th (ft)				0	7						83		
Internal Link Dist (ft)		147			101			141			448		
Turn Bay Length (ft)													
Base Capacity (vph)				868	868						394		
Starvation Cap Reductn				614	649						0		
Spillback Cap Reductn				0	0						0		
Storage Cap Reductn				0	0						0		
Reduced v/c Ratio				0.63	0.60						0.46		

Intersection Summary

Area Type: CBD
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 59 (49%), Referenced to phase 1:WBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.46
Intersection Signal Delay: 21.5 Intersection LOS: C
Intersection Capacity Utilization 18.8% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 5: Beverly St & Valenti Way

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations								
Traffic Volume (vph)	0	49	288	0	0	0	0	733
Future Volume (vph)	0	49	288	0	0	0	0	733
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.88
Frt		0.865						0.850
Flt Protected								
Satd. Flow (prot)	0	1422	2954	0	0	0	0	2244
Flt Permitted								
Satd. Flow (perm)	0	1422	2954	0	0	0	0	2244
Right Turn on Red		Yes						
Satd. Flow (RTOR)		182						
Link Speed (mph)	25		25			25	25	
Link Distance (ft)	328		169			179	568	
Travel Time (s)	8.9		4.6			4.9	15.5	
Peak Hour Factor	0.88	0.88	0.85	0.85	0.92	0.92	0.97	0.97
Heavy Vehicles (%)	0%	4%	10%	0%	0%	0%	0%	14%
Adj. Flow (vph)	0	56	339	0	0	0	0	756
Shared Lane Traffic (%)								
Lane Group Flow (vph)	0	56	339	0	0	0	0	756
Turn Type		Prot	NA					Prot
Protected Phases		2	3					1
Permitted Phases								
Detector Phase		2	3					1
Switch Phase								
Minimum Initial (s)		8.0	8.0					8.0
Minimum Split (s)		17.0	17.0					19.0
Total Split (s)		17.0	35.0					58.0
Total Split (%)		15.5%	31.8%					52.7%
Maximum Green (s)		13.0	31.0					54.0
Yellow Time (s)		3.0	3.0					3.0
All-Red Time (s)		1.0	1.0					1.0
Lost Time Adjust (s)		-1.0	-1.0					-1.0
Total Lost Time (s)		3.0	3.0					3.0
Lead/Lag		Lead	Lag					
Lead-Lag Optimize?								
Vehicle Extension (s)		2.0	2.0					2.0
Recall Mode		None	Max					C-Max
Walk Time (s)		7.0	7.0					7.0
Flash Dont Walk (s)		5.0	5.0					5.0
Pedestrian Calls (#/hr)		0	0					0
Act Effct Green (s)		9.0	32.0					62.4
Actuated g/C Ratio		0.08	0.29					0.57
v/c Ratio		0.20	0.39					0.59
Control Delay		1.6	32.9					8.4
Queue Delay		0.0	0.0					0.0
Total Delay		1.6	32.9					8.4
LOS		A	C					A
Approach Delay			32.9					
Approach LOS			C					
Queue Length 50th (ft)		0	101					53
Queue Length 95th (ft)		0	134					82
Internal Link Dist (ft)	248		89			99	488	
Turn Bay Length (ft)								
Base Capacity (vph)		339	859					1273
Starvation Cap Reductn		0	0					0
Spillback Cap Reductn		0	0					0
Storage Cap Reductn		0	0					0
Reduced v/c Ratio		0.17	0.39					0.59

Intersection Summary

Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 74 (67%), Referenced to phase 1:NWR, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.59
Intersection Signal Delay: 15.3 Intersection LOS: B
Intersection Capacity Utilization 54.0% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 6: I-93 Off-Ramps & Cross Street & Cooper Street

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	259	0	0	1330	0
Future Volume (vph)	0	259	0	0	1330	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.76	1.00	1.00	0.91	1.00
Frt		0.850				
Flt Protected						
Satd. Flow (prot)	0	3347	0	0	4715	0
Flt Permitted						
Satd. Flow (perm)	0	3347	0	0	4715	0
Right Turn on Red		No				Yes
Satd. Flow (RTOR)						
Link Speed (mph)	30			25	25	
Link Distance (ft)	221			242	141	
Travel Time (s)	5.0			6.6	3.8	
Peak Hour Factor	0.96	0.96	0.92	0.92	0.96	0.96
Heavy Vehicles (%)	0%	10%	0%	0%	10%	0%
Adj. Flow (vph)	0	270	0	0	1385	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	270	0	0	1385	0
Turn Type		Prot			NA	
Protected Phases		5			1	
Permitted Phases						
Detector Phase		5			1	
Switch Phase						
Minimum Initial (s)		8.0			8.0	
Minimum Split (s)		23.0			20.0	
Total Split (s)		35.0			85.0	
Total Split (%)		29.2%			70.8%	
Maximum Green (s)		30.0			80.0	
Yellow Time (s)		3.0			3.0	
All-Red Time (s)		2.0			2.0	
Lost Time Adjust (s)		-1.0			-1.0	
Total Lost Time (s)		4.0			4.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)		2.0			2.0	
Recall Mode		Max			C-Max	
Walk Time (s)		7.0			7.0	
Flash Dont Walk (s)		10.0			5.0	
Pedestrian Calls (#/hr)		0			0	
Act Effct Green (s)		31.0			81.0	
Actuated g/C Ratio		0.26			0.68	
v/c Ratio		0.31			0.44	
Control Delay		15.5			4.2	
Queue Delay		1.0			0.2	
Total Delay		16.5			4.4	
LOS		B			A	
Approach Delay					4.4	
Approach LOS					A	
Queue Length 50th (ft)		56			201	
Queue Length 95th (ft)		86			6	
Internal Link Dist (ft)	141			162	61	
Turn Bay Length (ft)						
Base Capacity (vph)		864			3182	
Starvation Cap Reductn		365			774	
Spillback Cap Reductn		60			166	
Storage Cap Reductn		0			0	
Reduced v/c Ratio		0.54			0.58	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 100 (83%), Referenced to phase 1:SBT, Start of Green
Natural Cycle: 45
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.44
Intersection Signal Delay: 6.3 Intersection LOS: A
Intersection Capacity Utilization 39.0% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 7: Surface Street & Beverly St

Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations														
Traffic Volume (vph)	0	406	37	36	20	593	0	0	0	0	813	345	431	
Future Volume (vph)	0	406	37	36	20	593	0	0	0	0	813	345	431	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	12	12	14	12	12	12	12	12	11	13	
Lane Util. Factor	1.00	0.91	0.91	0.95	0.95	0.95	1.00	1.00	1.00	1.00	0.91	0.86	0.91	
Ped Bike Factor		1.00				1.00					1.00	0.98		
Frt		0.988										0.992	0.850	
Flt Protected						0.996					0.950	0.976		
Satd. Flow (prot)	0	4275	0	0	0	3395	0	0	0	0	1344	2398	1277	
Flt Permitted						0.760					0.950	0.976		
Satd. Flow (perm)	0	4275	0	0	0	2590	0	0	0	0	1341	2395	1277	
Right Turn on Red			No				Yes			Yes			No	
Satd. Flow (RTOR)														
Link Speed (mph)		25				25			25			25		
Link Distance (ft)		184				338			438			242		
Travel Time (s)		5.0				9.2			11.9			6.6		
Confl. Peds. (#/hr)			1		1						1		191	
Confl. Bikes (#/hr)													93	
Peak Hour Factor	0.80	0.80	0.80	0.84	0.84	0.84	0.84	0.92	0.92	0.92	0.96	0.96	0.96	
Heavy Vehicles (%)	0%	7%	16%	11%	5%	1%	0%	0%	0%	0%	10%	16%	7%	
Adj. Flow (vph)	0	508	46	43	24	706	0	0	0	0	847	359	449	
Shared Lane Traffic (%)											48%		10%	
Lane Group Flow (vph)	0	554	0	0	0	773	0	0	0	0	440	811	404	
Turn Type		NA		Perm	Perm	NA					Split	NA	Prot	
Protected Phases		1				1					5	5	5	2
Permitted Phases				1	1									
Detector Phase		1		1	1	1					5	5	5	
Switch Phase														
Minimum Initial (s)		8.0		8.0	8.0	8.0					8.0	8.0	8.0	8.0
Minimum Split (s)		23.0		23.0	23.0	23.0					22.0	22.0	22.0	30.0
Total Split (s)		35.0		35.0	35.0	35.0					55.0	55.0	55.0	30.0
Total Split (%)		29.2%		29.2%	29.2%	29.2%					45.8%	45.8%	45.8%	25%
Maximum Green (s)		29.0		29.0	29.0	29.0					49.0	49.0	49.0	26.0
Yellow Time (s)		3.0		3.0	3.0	3.0					3.0	3.0	3.0	4.0
All-Red Time (s)		3.0		3.0	3.0	3.0					3.0	3.0	3.0	0.0
Lost Time Adjust (s)		-2.0				-2.0					-2.0	-2.0	-2.0	
Total Lost Time (s)		4.0				4.0					4.0	4.0	4.0	
Lead/Lag		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
Recall Mode		C-Max		C-Max	C-Max	C-Max					Max	Max	Max	None
Walk Time (s)		7.0		7.0	7.0	7.0					7.0	7.0	7.0	7.0
Flash Dont Walk (s)		7.0		7.0	7.0	7.0					8.0	8.0	8.0	19.0
Pedestrian Calls (#/hr)		0		0	0	0					0	0	0	500
Act Effct Green (s)		31.0				31.0					51.0	51.0	51.0	
Actuated g/C Ratio		0.26				0.26					0.42	0.42	0.42	
v/c Ratio		0.50				1.16					0.77	0.80	0.75	
Control Delay		32.7				126.5					30.5	27.5	29.3	
Queue Delay		5.4				0.0					2.9	2.0	2.9	
Total Delay		38.1				126.5					33.4	29.5	32.2	
LOS		D				F					C	C	C	
Approach Delay		38.1				126.5						31.2		
Approach LOS		D				F						C		
Queue Length 50th (ft)		157				~372					314	330	196	
Queue Length 95th (ft)		172				#445					467	354	403	
Internal Link Dist (ft)		104				258			358			162		
Turn Bay Length (ft)														
Base Capacity (vph)		1104				669					571	1019	542	
Starvation Cap Reductn		477				0					60	97	65	
Spillback Cap Reductn		0				0					0	0	0	
Storage Cap Reductn		0				0					0	0	0	
Reduced v/c Ratio		0.88				1.16					0.86	0.88	0.85	

Intersection Summary

Area Type: CBD
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 34 (28%), Referenced to phase 1:EBWB, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.16
Intersection Signal Delay: 57.2 Intersection LOS: E
Intersection Capacity Utilization 70.5% 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: 8: Surface Street & New Chardon Street/I-93 Ramps

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø2	Ø5
Lane Configurations									
Traffic Volume (vph)	0	443	1004	20	0	0			
Future Volume (vph)	0	443	1004	20	0	0			
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900			
Lane Util. Factor	1.00	0.95	0.91	0.91	1.00	1.00			
Ped Bike Factor			1.00						
Frt			0.997						
Flt Protected									
Satd. Flow (prot)	0	3008	4467	0	0	0			
Flt Permitted									
Satd. Flow (perm)	0	3008	4467	0	0	0			
Right Turn on Red				Yes		Yes			
Satd. Flow (RTOR)			6						
Link Speed (mph)		25	25		25				
Link Distance (ft)		287	184		238				
Travel Time (s)		7.8	5.0		6.5				
Confl. Bikes (#/hr)				10					
Peak Hour Factor	0.81	0.81	0.98	0.98	0.92	0.92			
Heavy Vehicles (%)	0%	8%	4%	11%	0%	0%			
Adj. Flow (vph)	0	547	1024	20	0	0			
Shared Lane Traffic (%)									
Lane Group Flow (vph)	0	547	1044	0	0	0			
Turn Type		NA	NA						
Protected Phases		1 5	1 5				1	2	5
Permitted Phases									
Detector Phase		1 5	1 5						
Switch Phase									
Minimum Initial (s)							8.0	8.0	8.0
Minimum Split (s)							23.0	30.0	22.0
Total Split (s)							35.0	30.0	55.0
Total Split (%)							29%	25%	46%
Maximum Green (s)							29.0	26.0	49.0
Yellow Time (s)							3.0	4.0	3.0
All-Red Time (s)							3.0	0.0	3.0
Lost Time Adjust (s)									
Total Lost Time (s)									
Lead/Lag							Lead	Lag	
Lead-Lag Optimize?									
Vehicle Extension (s)							2.0	2.0	2.0
Recall Mode							C-Max	None	Max
Walk Time (s)							7.0	7.0	7.0
Flash Dont Walk (s)							7.0	19.0	8.0
Pedestrian Calls (#/hr)							0	500	0
Act Effct Green (s)		86.0	86.0						
Actuated g/C Ratio		0.72	0.72						
v/c Ratio		0.25	0.33						
Control Delay		2.9	2.9						
Queue Delay		0.6	1.6						
Total Delay		3.5	4.5						
LOS		A	A						
Approach Delay		3.5	4.5						
Approach LOS		A	A						
Queue Length 50th (ft)		46	0						
Queue Length 95th (ft)		57	m0						
Internal Link Dist (ft)		207	104		158				
Turn Bay Length (ft)									
Base Capacity (vph)		2155	3203						
Starvation Cap Reductn		1172	1905						
Spillback Cap Reductn		624	70						
Storage Cap Reductn		0	0						
Reduced v/c Ratio		0.56	0.80						

Intersection Summary

Area Type: CBD
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 34 (28%), Referenced to phase 1:EBWB, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.16
Intersection Signal Delay: 4.1 Intersection LOS: A
Intersection Capacity Utilization 25.4% ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 9: New Chardon Street & Canal Street

Lane Group	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NBL2	NBL	NBT	NBR	SBU	SBL	SBT	SBR	SBR2
Lane Configurations																	
Traffic Volume (vph)	39	87	35	23	378	76	464	70	134	260	300	249	9	91	201	52	93
Future Volume (vph)	39	87	35	23	378	76	464	70	134	260	300	249	9	91	201	52	93
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	10	10	12	12	12	10	10	16	12	11	11	11	16
Storage Length (ft)	0		0			0		0		0		150		0		150	
Storage Lanes	0		0			1		0		1		1		0		1	
Taper Length (ft)	25					25				25				25			
Lane Util. Factor	0.95	0.95	0.95	0.95	0.91	0.91	0.91	0.95	0.95	0.91	0.91	1.00	0.91	0.91	0.91	0.91	1.00
Ped Bike Factor		0.70			0.61		0.86			0.71	0.93				0.83		0.59
Frt		0.953					0.984					0.850			0.978		0.850
Flt Protected		0.990			0.950		0.990			0.950	0.982				0.986		
Satd. Flow (prot)	0	1967	0	0	1302	0	2890	0	0	1341	2682	1569	0	0	3523	0	1647
Flt Permitted		0.990			0.950		0.990			0.950	0.982				0.986		
Satd. Flow (perm)	0	1913	0	0	800	0	2517	0	0	947	2483	1569	0	0	3259	0	967
Right Turn on Red				Yes				Yes				No					Yes
Satd. Flow (RTOR)		11					10										145
Link Speed (mph)		25					25				25				25		
Link Distance (ft)		204					287				468				998		
Travel Time (s)		5.6					7.8				12.8				27.2		
Confl. Peds. (#/hr)	152		432	317	432	317		152	317	265		1136		1136		317	265
Confl. Bikes (#/hr)			1	1				17				10				64	64
Peak Hour Factor	0.84	0.84	0.84	0.84	0.97	0.97	0.97	0.97	0.91	0.91	0.91	0.91	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	14%	14%	10%	0%	6%	0%	3%	4%	0%	7%	6%	5%	11%	9%	14%	0%	0%
Adj. Flow (vph)	46	104	42	27	390	78	478	72	147	286	330	274	10	106	234	60	108
Shared Lane Traffic (%)					14%					64%							
Lane Group Flow (vph)	0	219	0	0	335	0	683	0	0	250	513	274	0	0	410	0	108
Turn Type	Split	NA			Split	Split	NA		Split	Split	NA	pt+ov	Perm	Split	NA		Perm
Protected Phases	3	3			2	2	2		1	1	1	1 2		4	4		
Permitted Phases													4				4
Detector Phase	3	3			2	2	2		1	1	1	1 2	4	4	4		4
Switch Phase																	
Minimum Initial (s)	8.0	8.0			8.0	8.0	8.0		8.0	8.0	8.0		8.0	8.0	8.0		8.0
Minimum Split (s)	19.0	19.0			15.0	15.0	15.0		33.0	33.0	33.0		24.0	24.0	24.0		24.0
Total Split (s)	22.0	22.0			40.0	40.0	40.0		34.0	34.0	34.0		24.0	24.0	24.0		24.0
Total Split (%)	18.3%	18.3%			33.3%	33.3%	33.3%		28.3%	28.3%	28.3%		20.0%	20.0%	20.0%		20.0%
Maximum Green (s)	15.0	15.0			34.0	34.0	34.0		28.0	28.0	28.0		16.0	16.0	16.0		16.0
Yellow Time (s)	3.0	3.0			3.0	3.0	3.0		3.0	3.0	3.0		3.0	3.0	3.0		3.0
All-Red Time (s)	4.0	4.0			3.0	3.0	3.0		3.0	3.0	3.0		5.0	5.0	5.0		5.0
Lost Time Adjust (s)		-2.0			-2.0		-2.0			-2.0	-2.0				-2.0		0.0
Total Lost Time (s)		5.0			4.0		4.0			4.0	4.0				6.0		8.0
Lead/Lag	Lag	Lag			Lead	Lead	Lead										
Lead-Lag Optimize?																	
Vehicle Extension (s)	2.0	2.0			2.0	2.0	2.0		2.0	2.0	2.0		2.0	2.0	2.0		2.0
Recall Mode	Max	Max			Max	Max	Max		C-Max	C-Max	C-Max		Max	Max	Max		Max
Walk Time (s)	7.0	7.0							7.0	7.0	7.0		7.0	7.0	7.0		7.0
Flash Dont Walk (s)	4.0	4.0							17.0	17.0	17.0		8.0	8.0	8.0		8.0
Pedestrian Calls (#/hr)	0	0							0	0	0		0	0	0		0
Act Effct Green (s)		17.0			36.0		36.0			30.0	30.0	70.0			18.0		16.0
Actuated g/C Ratio		0.14			0.30		0.30			0.25	0.25	0.58			0.15		0.13
v/c Ratio		0.76			0.86		0.78			0.75	0.77	0.30			0.78		0.43
Control Delay		37.3			44.3		27.6			31.4	26.3	9.7			60.1		8.3
Queue Delay		1.0			9.0		4.7			0.0	0.0	0.0			0.0		0.0
Total Delay		38.2			53.3		32.2			31.4	26.3	9.7			60.1		8.3
LOS		D			D		C			C	C	A			E		A
Approach Delay		38.3					39.2				23.1				49.3		
Approach LOS		D					D				C				D		
Queue Length 50th (ft)		15			165		165			124	131	71			113		0
Queue Length 95th (ft)		#51			#434		201			m#313	200	117			145		20
Internal Link Dist (ft)		124					207				388				918		
Turn Bay Length (ft)												150					150
Base Capacity (vph)		288			390		874			335	670	915			528		254
Starvation Cap Reductn		9			37		130			0	0	0			0		0
Spillback Cap Reductn		0			0		0			0	0	0			0		0
Storage Cap Reductn		0			0		0			0	0	0			0		0
Reduced v/c Ratio		0.78			0.95		0.92			0.75	0.77	0.30			0.78		0.43

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: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.86
Intersection Signal Delay: 35.0 Intersection LOS: D
Intersection Capacity Utilization 78.9% 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: 10: GCG Entrance Driveway & Congress Street/Merrimac Street & New Chardon Street

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø1	Ø2
Lane Configurations								
Traffic Volume (vph)	184	0	0	724	1	0		
Future Volume (vph)	184	0	0	724	1	0		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900		
Lane Width (ft)	12	12	12	12	11	11		
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00		
Ped Bike Factor								
Frt								
Flt Protected					0.950			
Satd. Flow (prot)	2901	0	0	3094	1570	0		
Flt Permitted					0.950			
Satd. Flow (perm)	2901	0	0	3094	1570	0		
Right Turn on Red		Yes				Yes		
Satd. Flow (RTOR)								
Link Speed (mph)	25			25	25			
Link Distance (ft)	137			204	136			
Travel Time (s)	3.7			5.6	3.7			
Confl. Bikes (#/hr)		2						
Peak Hour Factor	0.83	0.83	0.93	0.93	0.25	0.25		
Heavy Vehicles (%)	12%	0%	0%	5%	0%	0%		
Adj. Flow (vph)	222	0	0	778	4	0		
Shared Lane Traffic (%)								
Lane Group Flow (vph)	222	0	0	778	4	0		
Turn Type	NA			NA	Prot			
Protected Phases	3			1 2 3	4		1	2
Permitted Phases								
Detector Phase	3			1 2 3	4			
Switch Phase								
Minimum Initial (s)	8.0				8.0		8.0	8.0
Minimum Split (s)	19.0				24.0		33.0	15.0
Total Split (s)	22.0				24.0		34.0	40.0
Total Split (%)	18.3%				20.0%		28%	33%
Maximum Green (s)	15.0				16.0		28.0	34.0
Yellow Time (s)	3.0				3.0		3.0	3.0
All-Red Time (s)	4.0				5.0		3.0	3.0
Lost Time Adjust (s)	-2.0				-2.0			
Total Lost Time (s)	5.0				6.0			
Lead/Lag	Lag							Lead
Lead-Lag Optimize?								
Vehicle Extension (s)	2.0				2.0		2.0	2.0
Recall Mode	Max				Max		C-Max	Max
Walk Time (s)	7.0				7.0		7.0	
Flash Dont Walk (s)	4.0				8.0		17.0	
Pedestrian Calls (#/hr)	0				0		0	
Act Effct Green (s)	17.0			92.0	18.0			
Actuated g/C Ratio	0.14			0.77	0.15			
v/c Ratio	0.54			0.33	0.02			
Control Delay	53.4			0.8	44.0			
Queue Delay	0.0			0.9	0.0			
Total Delay	53.4			1.7	44.0			
LOS	D			A	D			
Approach Delay	53.4			1.7	44.0			
Approach LOS	D			A	D			
Queue Length 50th (ft)	85			8	3			
Queue Length 95th (ft)	116			18	4			
Internal Link Dist (ft)	57			124	56			
Turn Bay Length (ft)								
Base Capacity (vph)	410			2372	235			
Starvation Cap Reductn	0			1234	0			
Spillback Cap Reductn	0			0	0			
Storage Cap Reductn	0			0	0			
Reduced v/c Ratio	0.54			0.68	0.02			

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: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.86
Intersection Signal Delay: 13.3 — Intersection LOS: B
Intersection Capacity Utilization 37.2% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 12: GCG Exit Driveway & New Chardon Street

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	160	0	0	818	18	24
Future Volume (Veh/h)	160	0	0	818	18	24
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.92	0.92	0.86	0.86
Hourly flow rate (vph)	184	0	0	889	21	28
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	786			137		
pX, platoon unblocked					0.92	
vC, conflicting volume			184		628	92
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			184		431	92
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		96	97
cM capacity (veh/h)			1403		515	954

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	92	92	444	444	49
Volume Left	0	0	0	0	21
Volume Right	0	0	0	0	28
cSH	1700	1700	1700	1700	699
Volume to Capacity	0.05	0.05	0.26	0.26	0.07
Queue Length 95th (ft)	0	0	0	0	6
Control Delay (s)	0.0	0.0	0.0	0.0	10.5
Lane LOS					B
Approach Delay (s)	0.0		0.0		10.5
Approach LOS					B

Intersection Summary				
Average Delay	0.5			
Intersection Capacity Utilization	32.6%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	160	10	59	777	0	0
Future Volume (Veh/h)	160	10	59	777	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.89	0.89	0.97	0.97	0.56	0.56
Hourly flow rate (vph)	180	11	61	801	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	579			344		
pX, platoon unblocked					0.93	
vC, conflicting volume			191		708	96
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			191		540	96
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			96		100	100
cM capacity (veh/h)			1380		425	949

Direction, Lane #	EB 1	EB 2	WB 1	WB 2
Volume Total	120	71	328	534
Volume Left	0	0	61	0
Volume Right	0	11	0	0
cSH	1700	1700	1380	1700
Volume to Capacity	0.07	0.04	0.04	0.31
Queue Length 95th (ft)	0	0	3	0
Control Delay (s)	0.0	0.0	1.8	0.0
Lane LOS			A	
Approach Delay (s)	0.0		0.7	
Approach LOS				

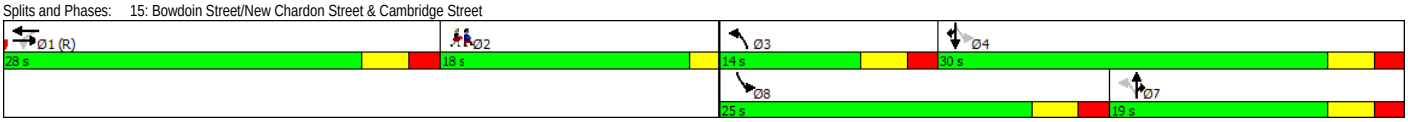
Intersection Summary				
Average Delay	0.6			
Intersection Capacity Utilization	34.6%	ICU Level of Service	A	
Analysis Period (min)	15			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations													
Traffic Volume (vph)	0	664	89	20	189	30	145	140	107	314	187	276	
Future Volume (vph)	0	664	89	20	189	30	145	140	107	314	187	276	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	0		0	0		0	0		100	0		100	
Storage Lanes	0		0	0		0	1		1	1		1	
Taper Length (ft)	25			25			25			25			
Lane Util. Factor	1.00	0.91	0.91	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor		0.95			0.95				0.61			0.75	
Frt		0.982			0.981				0.850			0.850	
Flt Protected					0.996		0.950			0.950			
Satd. Flow (prot)	0	4537	0	0	3135	0	1612	1759	1482	1719	1845	1524	
Flt Permitted					0.862		0.635			0.380			
Satd. Flow (perm)	0	4537	0	0	2713	0	1077	1759	909	688	1845	1136	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)		26			17				170			288	
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		236			438			364			579		
Travel Time (s)		5.4			10.0			8.3			13.2		
Confl. Peds. (#/hr)			530			756			361			229	
Confl. Bikes (#/hr)			105			21			6				
Peak Hour Factor	0.93	0.93	0.93	0.86	0.86	0.86	0.94	0.94	0.94	0.96	0.96	0.96	
Heavy Vehicles (%)	100%	7%	6%	21%	2%	25%	12%	8%	9%	5%	3%	6%	
Adj. Flow (vph)	0	714	96	23	220	35	154	149	114	327	195	288	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	810	0	0	278	0	154	149	114	327	195	288	
Turn Type		NA		Perm	NA		pm+pt	NA	custom	pm+pt	NA	custom	
Protected Phases		1			1		3	7	7	8	4	4	2
Permitted Phases				1			7		7	4		4	
Detector Phase		1		1	1		3	7	7	8	4	4	
Switch Phase													
Minimum Initial (s)		8.0		8.0	8.0		8.0	8.0	8.0	8.0	8.0	8.0	1.0
Minimum Split (s)		28.0		28.0	28.0		13.0	13.0	13.0	13.0	13.0	13.0	18.0
Total Split (s)		28.0		28.0	28.0		14.0	19.0	19.0	25.0	30.0	30.0	18.0
Total Split (%)		31.1%		31.1%	31.1%		15.6%	21.1%	21.1%	27.8%	33.3%	33.3%	20%
Maximum Green (s)		23.0		23.0	23.0		9.0	14.0	14.0	20.0	25.0	25.0	16.0
Yellow Time (s)		3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	2.0
All-Red Time (s)		2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	0.0
Lost Time Adjust (s)		0.0			0.0		0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		5.0			5.0		5.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag		Lead		Lead	Lead		Lead	Lag	Lag	Lead	Lag	Lag	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	2.0
Recall Mode		C-Max		C-Max	C-Max		None	None	None	None	None	None	None
Walk Time (s)		7.0		7.0	7.0								7.0
Flash Dont Walk (s)		16.0		16.0	16.0								9.0
Pedestrian Calls (#/hr)		0		0	0								20
Act Effct Green (s)		38.7			38.7		20.8	11.6	11.6	34.0	19.8	19.8	
Actuated g/C Ratio		0.43			0.43		0.23	0.13	0.13	0.38	0.22	0.22	
v/c Ratio		0.41			0.24		0.51	0.66	0.34	0.71	0.48	0.51	
Control Delay		26.0			9.9		25.8	51.3	4.5	29.8	33.6	6.8	
Queue Delay		0.6			0.0		0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay		26.6			9.9		25.8	51.3	4.5	29.8	33.6	6.8	
LOS		C			A		C	D	A	C	C	A	
Approach Delay		26.6			9.9			29.1			22.6		
Approach LOS		C			A			C			C		
Queue Length 50th (ft)		24			23		57	82	0	136	97	0	
Queue Length 95th (ft)		210			33		95	140	16	199	150	59	
Internal Link Dist (ft)		156			358			284			499		
Turn Bay Length (ft)									100			100	
Base Capacity (vph)		1967			1177		307	273	374	489	512	631	
Starvation Cap Reductn		717			0		0	0	0	0	0	0	
Spillback Cap Reductn		0			12		0	0	0	0	0	1	
Storage Cap Reductn		0			0		0	0	0	0	0	0	
Reduced v/c Ratio		0.65			0.24		0.50	0.55	0.30	0.67	0.38	0.46	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 1:EBWB, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.71
Intersection Signal Delay: 23.6 Intersection LOS: C
Intersection Capacity Utilization 64.9% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 15: Bowdoin Street/New Chardon Street & Cambridge Street

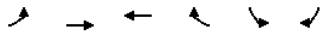


Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations														
Traffic Volume (vph)	19	260	538	268	18	105	200	118	20	32	11	0	0	0
Future Volume (vph)	19	260	538	268	18	105	200	118	20	32	11	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0		0		100		100	0		0	0		0
Storage Lanes		2		0		1		1	0		0	0		0
Taper Length (ft)		25				25			25			25		
Lane Util. Factor	0.95	0.97	0.95	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.88					0.66		0.94				
Frt			0.950					0.850		0.976				
Flt Protected		0.950				0.950				0.984				
Satd. Flow (prot)	0	3346	2845	0	0	1689	3374	1455	0	1654	0	0	0	0
Flt Permitted		0.610				0.339				0.984				
Satd. Flow (perm)	0	2148	2845	0	0	603	3374	966	0	1654	0	0	0	0
Right Turn on Red				Yes				Yes			Yes			Yes
Satd. Flow (RTOR)			95					134		11				
Link Speed (mph)			30				30			30			30	
Link Distance (ft)			438				763			259			584	
Travel Time (s)			10.0				17.3			5.9			13.3	
Confl. Peds. (#/hr)				154				377			241			
Confl. Bikes (#/hr)				60				6			2			
Peak Hour Factor	0.97	0.97	0.97	0.97	0.88	0.88	0.88	0.88	0.69	0.69	0.69	0.92	0.92	0.92
Heavy Vehicles (%)	0%	5%	6%	5%	0%	8%	7%	11%	0%	5%	9%	0%	0%	0%
Adj. Flow (vph)	20	268	555	276	20	119	227	134	29	46	16	0	0	0
Shared Lane Traffic (%)														
Lane Group Flow (vph)	0	288	831	0	0	139	227	134	0	91	0	0	0	0
Turn Type	custom	Prot	NA		custom	Prot	NA	Perm	Perm	NA				
Protected Phases		2	1			6	1			5				
Permitted Phases	2				6			1	5					
Detector Phase	2	2	1		6	6	1	1	5	5				
Switch Phase														
Minimum Initial (s)	8.0	8.0	8.0		8.0	8.0	8.0	8.0	8.0	8.0				
Minimum Split (s)	22.0	22.0	27.0		12.0	12.0	27.0	27.0	22.0	22.0				
Total Split (s)	22.0	22.0	29.0		12.0	12.0	29.0	29.0	27.0	27.0				
Total Split (%)	24.4%	24.4%	32.2%		13.3%	13.3%	32.2%	32.2%	30.0%	30.0%				
Maximum Green (s)	18.0	18.0	25.0		8.0	8.0	25.0	25.0	23.0	23.0				
Yellow Time (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0				
All-Red Time (s)	1.0	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	0.0		0.0				
Total Lost Time (s)		4.0	4.0			4.0	4.0	4.0		4.0				
Lead/Lag	Lag	Lag	Lead		Lag	Lag	Lead	Lead	Lead	Lead				
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		None	None	C-Max	C-Max	None	None				
Walk Time (s)	7.0	7.0	7.0				7.0	7.0	7.0	7.0				
Flash Dont Walk (s)	11.0	11.0	16.0				16.0	16.0	11.0	11.0				
Pedestrian Calls (#/hr)	0	0	0				0	0	0	0				
Act Effct Green (s)		15.4	25.0			26.4	25.0	25.0		9.7				
Actuated g/C Ratio		0.17	0.28			0.29	0.28	0.28		0.11				
v/c Ratio		0.78	0.97			0.79	0.24	0.37		0.49				
Control Delay		44.4	50.3			66.7	26.0	7.9		41.7				
Queue Delay		0.0	0.0			0.0	0.0	0.0		0.0				
Total Delay		44.4	50.3			66.7	26.0	7.9		41.7				
LOS		D	D			E	C	A		D				
Approach Delay			48.8				32.5			41.7				
Approach LOS			D				C			D				
Queue Length 50th (ft)		79	210			75	52	0		44				
Queue Length 95th (ft)		134	#323			#204	81	41		64				
Internal Link Dist (ft)			358				683			179			504	
Turn Bay Length (ft)						100		100						
Base Capacity (vph)		429	858			176	937	365		430				
Starvation Cap Reductn		0	0			0	0	0		0				
Spillback Cap Reductn		0	0			0	0	0		0				
Storage Cap Reductn		0	0			0	0	0		0				
Reduced v/c Ratio		0.67	0.97			0.79	0.24	0.37		0.21				

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 1:EBWB, Start of Green
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.97
Intersection Signal Delay: 43.7 Intersection LOS: D
Intersection Capacity Utilization 57.6% 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: 16: Somerset Street/Sudbury Street & Cambridge Street



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	410	0	0	170	0
Future Volume (Veh/h)	0	410	0	0	170	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	446	0	0	185	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		584				
pX, platoon unblocked					0.95	
vC, conflicting volume	0				223	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0				91	0
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				79	100
cM capacity (veh/h)	1636				864	1091

Direction, Lane #	EB 1	EB 2	SB 1
Volume Total	223	223	185
Volume Left	0	0	185
Volume Right	0	0	0
cSH	1700	1700	864
Volume to Capacity	0.13	0.13	0.21
Queue Length 95th (ft)	0	0	20
Control Delay (s)	0.0	0.0	10.3
Lane LOS			B
Approach Delay (s)	0.0		10.3
Approach LOS			B

Intersection Summary				
Average Delay			3.0	
Intersection Capacity Utilization			27.4%	ICU Level of Service A
Analysis Period (min)			15	

Intersection Sign configuration not allowed in HCM analysis.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations														
Traffic Volume (vph)	148	230	151	0	0	0	14	0	791	155	88	522	0	
Future Volume (vph)	148	230	151	0	0	0	14	0	791	155	88	522	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	11	10	12	12	12	12	11	11	11	10	11	11	
Storage Length (ft)	0		0	0		0		0		0	100		0	
Storage Lanes	1		1	0		0		0		0	1		0	
Taper Length (ft)	25			25				25			25			
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00	0.91	1.00	0.91	0.91	1.00	0.91	1.00	
Ped Bike Factor	0.46		0.46						0.94		0.87			
Frt			0.850						0.976					
Flt Protected	0.950								0.999		0.950			
Satd. Flow (prot)	1392	2815	1304	0	0	0	0	0	3873	0	1458	4178	0	
Flt Permitted	0.950								0.926		0.950			
Satd. Flow (perm)	641	2815	597	0	0	0	0	0	3590	0	1267	4178	0	
Right Turn on Red			Yes			Yes				No			Yes	
Satd. Flow (RTOR)			170											
Link Speed (mph)		25			25				25			25		
Link Distance (ft)		153			161				386			468		
Travel Time (s)		4.2			4.4				10.5			12.8		
Confl. Peds. (#/hr)	430		475							674	674			
Confl. Bikes (#/hr)			11							12			59	
Peak Hour Factor	0.89	0.89	0.89	0.92	0.92	0.92	0.94	0.94	0.94	0.94	0.88	0.88	0.88	
Heavy Vehicles (%)	5%	6%	4%	0%	0%	0%	0%	0%	6%	14%	4%	8%	0%	
Parking (#/hr)	0	0												
Adj. Flow (vph)	166	258	170	0	0	0	15	0	841	165	100	593	0	
Shared Lane Traffic (%)														
Lane Group Flow (vph)	166	258	170	0	0	0	0	0	1021	0	100	593	0	
Turn Type	Split	NA	Perm				Perm		NA		Prot	NA		
Protected Phases	5	5							1		6	1 6		2
Permitted Phases			5				1							
Detector Phase	5	5	5				1		1		6	1 6		
Switch Phase														
Minimum Initial (s)	8.0	8.0	8.0				10.0		10.0		7.0			7.0
Minimum Split (s)	15.0	15.0	15.0				17.0		17.0		14.0			26.0
Total Split (s)	25.0	25.0	25.0				51.0		51.0		18.0			26.0
Total Split (%)	20.8%	20.8%	20.8%				42.5%		42.5%		15.0%			22%
Maximum Green (s)	19.0	19.0	19.0				46.0		46.0		12.0			22.0
Yellow Time (s)	3.0	3.0	3.0				3.0		3.0		3.0			4.0
All-Red Time (s)	3.0	3.0	3.0				2.0		2.0		3.0			0.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0						-2.0		-2.0			
Total Lost Time (s)	4.0	4.0	4.0						3.0		4.0			
Lead/Lag	Lead	Lead	Lead				Lead		Lead		Lag			Lag
Lead-Lag Optimize?														
Vehicle Extension (s)	2.0	2.0	2.0				2.0		2.0		2.0			2.0
Recall Mode	Max	Max	Max				C-Max		C-Max		Max			Ped
Walk Time (s)	0.0	0.0	0.0											7.0
Flash Dont Walk (s)	8.0	8.0	8.0											15.0
Pedestrian Calls (#/hr)	0	0	0											500
Act Effct Green (s)	21.0	21.0	21.0						48.0		14.0	66.0		
Actuated g/C Ratio	0.18	0.18	0.18						0.40		0.12	0.55		
v/c Ratio	0.68	0.52	0.70						0.71		0.59	0.26		
Control Delay	61.8	49.3	22.8						33.6		58.9	15.4		
Queue Delay	0.0	0.0	0.0						1.7		0.0	0.0		
Total Delay	61.8	49.3	22.8						35.3		58.9	15.4		
LOS	E	D	C						D		E	B		
Approach Delay		45.2							35.3			21.6		
Approach LOS		D							D			C		
Queue Length 50th (ft)	122	96	0						239		80	106		
Queue Length 95th (ft)	#208	140	#97						294		m99	m127		
Internal Link Dist (ft)		73			81				306			388		
Turn Bay Length (ft)											100			
Base Capacity (vph)	243	492	244						1436		170	2297		
Starvation Cap Reductn	0	0	0						247		0	0		
Spillback Cap Reductn	0	0	0						0		0	0		
Storage Cap Reductn	0	0	0						0		0	0		
Reduced v/c Ratio	0.68	0.52	0.70						0.86		0.59	0.26		

Intersection Summary

Area Type: CBD
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 102 (85%), Referenced to phase 1:NBSB, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.71
Intersection Signal Delay: 33.8 Intersection LOS: C
Intersection Capacity Utilization 53.2% 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: 19: Congress Street & Sudbury Street

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	392	81	0	0	0	19
Future Volume (Veh/h)	392	81	0	0	0	19
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.89	0.89	0.92	0.92	0.59	0.59
Hourly flow rate (vph)	440	91	0	0	0	32
Pedestrians					148	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					12	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	161			111		
pX, platoon unblocked						
vC, conflicting volume			679		634	340
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			679		634	340
tC, single (s)			4.1		6.8	7.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.5
p0 queue free %			100		100	94
cM capacity (veh/h)			809		365	541

Direction, Lane #	EB 1	EB 2	EB 3	NB 1
Volume Total	176	176	179	32
Volume Left	0	0	0	0
Volume Right	0	0	91	32
cSH	1700	1700	1700	541
Volume to Capacity	0.10	0.10	0.11	0.06
Queue Length 95th (ft)	0	0	0	5
Control Delay (s)	0.0	0.0	0.0	12.1
Lane LOS				B
Approach Delay (s)	0.0			12.1
Approach LOS				B

Intersection Summary				
Average Delay			0.7	
Intersection Capacity Utilization			23.3%	ICU Level of Service
Analysis Period (min)			15	

Lane Group	EBT	EBR	SBL	SBT	SEL
Lane Configurations					
Traffic Volume (vph)	296	115	30	372	20
Future Volume (vph)	296	115	30	372	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	12	12	12
Lane Util. Factor	0.95	1.00	0.95	0.95	1.00
Ped Bike Factor		0.66		0.98	
Frt		0.850			
Flt Protected				0.996	0.950
Satd. Flow (prot)	3116	1482	0	3241	926
Flt Permitted				0.996	0.950
Satd. Flow (perm)	3116	971	0	3164	926
Right Turn on Red		Yes	No		
Satd. Flow (RTOR)		124			
Link Speed (mph)	25			25	25
Link Distance (ft)	111			438	138
Travel Time (s)	3.0			11.9	3.8
Confl. Peds. (#/hr)		180	134		
Confl. Bikes (#/hr)		1			
Peak Hour Factor	0.93	0.93	0.86	0.86	0.62
Heavy Vehicles (%)	12%	9%	10%	11%	95%
Adj. Flow (vph)	318	124	35	433	32
Shared Lane Traffic (%)					
Lane Group Flow (vph)	318	124	0	468	32
Turn Type	NA	Perm	Perm	NA	Prot
Protected Phases	1			3	4
Permitted Phases		1	3		
Detector Phase	1	1	3	3	4
Switch Phase					
Minimum Initial (s)	10.0	10.0	10.0	10.0	6.0
Minimum Split (s)	21.0	21.0	18.0	18.0	13.0
Total Split (s)	42.0	42.0	41.0	41.0	27.0
Total Split (%)	38.2%	38.2%	37.3%	37.3%	24.5%
Maximum Green (s)	38.0	38.0	35.0	35.0	21.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	3.0	3.0	3.0
Lost Time Adjust (s)	-1.0	-1.0		-2.0	0.0
Total Lost Time (s)	3.0	3.0		4.0	6.0
Lead/Lag			Lead	Lead	Lag
Lead-Lag Optimize?					
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0
Recall Mode	C-Max	C-Max	Max	Max	Max
Walk Time (s)	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)	5.0	5.0	4.0	4.0	
Pedestrian Calls (#/hr)	0	0	25	25	
Act Effct Green (s)	39.0	39.0		37.0	21.0
Actuated g/C Ratio	0.35	0.35		0.34	0.19
v/c Ratio	0.29	0.29		0.44	0.18
Control Delay	26.4	6.4		30.0	40.5
Queue Delay	1.3	0.5		0.0	0.0
Total Delay	27.7	6.8		30.0	40.5
LOS	C	A		C	D
Approach Delay	21.8			30.0	40.5
Approach LOS	C			C	D
Queue Length 50th (ft)	84	0		134	19
Queue Length 95th (ft)	120	41		173	32
Internal Link Dist (ft)	31			358	58
Turn Bay Length (ft)					
Base Capacity (vph)	1104	424		1064	176
Starvation Cap Reductn	570	96		0	0
Spillback Cap Reductn	3	0		0	0
Storage Cap Reductn	0	0		0	0
Reduced v/c Ratio	0.60	0.38		0.44	0.18

Intersection Summary

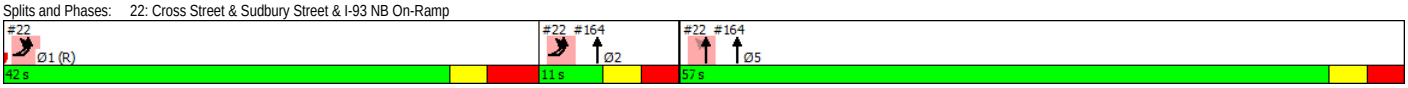
Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 10 (9%), Referenced to phase 1:EBT, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.44
Intersection Signal Delay: 26.6 Intersection LOS: C
Intersection Capacity Utilization 37.8% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 21: Surface Street & Sudbury Street & Haymarket Bus Exit

Lane Group	EBL2	EBL	EBR	NBL	NBT	SBT	SBR	SEL	SER	Ø1	Ø2
Lane Configurations											
Traffic Volume (vph)	233	113	0	160	620	0	0	0	0		
Future Volume (vph)	233	113	0	160	620	0	0	0	0		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900		
Lane Width (ft)	12	13	12	12	11	12	12	12	12		
Lane Util. Factor	0.95	0.97	1.00	0.95	0.95	1.00	1.00	1.00	1.00		
Frt											
Flt Protected		0.950			0.990						
Satd. Flow (prot)	0	3133	0	0	3176	0	0	0	0		
Flt Permitted		0.950			0.990						
Satd. Flow (perm)	0	3133	0	0	3176	0	0	0	0		
Right Turn on Red	Yes		Yes								
Satd. Flow (RTOR)		256									
Link Speed (mph)		25			25	25		25			
Link Distance (ft)		191			203	568		237			
Travel Time (s)		5.2			5.5	15.5		6.5			
Peak Hour Factor	0.91	0.91	0.91	0.96	0.96	0.92	0.92	0.92	0.92		
Heavy Vehicles (%)	8%	31%	0%	4%	10%	0%	0%	0%	0%		
Adj. Flow (vph)	256	124	0	167	646	0	0	0	0		
Shared Lane Traffic (%)											
Lane Group Flow (vph)	0	380	0	0	813	0	0	0	0		
Turn Type	Prot	Prot		Perm	NA						
Protected Phases	1 2	1 2			5					1	2
Permitted Phases				5							
Detector Phase	1 2	1 2		5	5						
Switch Phase											
Minimum Initial (s)				10.0	10.0					10.0	4.0
Minimum Split (s)				18.0	18.0					25.0	11.0
Total Split (s)				57.0	57.0					42.0	11.0
Total Split (%)				51.8%	51.8%					38%	10%
Maximum Green (s)				51.0	51.0					35.0	5.0
Yellow Time (s)				3.0	3.0					3.0	3.0
All-Red Time (s)				3.0	3.0					4.0	3.0
Lost Time Adjust (s)					-1.0						
Total Lost Time (s)					5.0						
Lead/Lag										Lead	Lag
Lead-Lag Optimize?											
Vehicle Extension (s)				2.0	2.0					2.0	2.0
Recall Mode				Max	Max					C-Max	Max
Walk Time (s)				7.0	7.0					7.0	
Flash Dont Walk (s)				4.0	4.0					3.0	
Pedestrian Calls (#/hr)				30	30					0	
Act Effct Green (s)		47.0			52.0						
Actuated g/C Ratio		0.43			0.47						
v/c Ratio		0.26			0.54						
Control Delay		1.1			5.6						
Queue Delay		0.4			0.1						
Total Delay		1.5			5.7						
LOS		A			A						
Approach Delay		1.5			5.7						
Approach LOS		A			A						
Queue Length 50th (ft)		0			183						
Queue Length 95th (ft)		2			225						
Internal Link Dist (ft)		111			123	488		157			
Turn Bay Length (ft)											
Base Capacity (vph)		1485			1501						
Starvation Cap Reductn		643			111						
Spillback Cap Reductn		0			0						
Storage Cap Reductn		0			0						
Reduced v/c Ratio		0.45			0.58						

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 16 (15%), Referenced to phase 1:EBL, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.54			
Intersection Signal Delay: 4.4		Intersection LOS: A	
Intersection Capacity Utilization 43.9%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 22: Cross Street & Sudbury Street & I-93 NB On-Ramp



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	26	0	0	88	67	205	717	60	0	0	0
Future Volume (vph)	19	26	0	0	88	67	205	717	60	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	1.00	1.00	0.95	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor	0.77				0.84			0.95				
Frt					0.942			0.991				
Flt Protected	0.950							0.990				
Satd. Flow (prot)	1577	1598	0	0	1279	0	0	2950	0	0	0	0
Flt Permitted	0.544							0.990				
Satd. Flow (perm)	700	1598	0	0	1279	0	0	2902	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					37			11				
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		244			263			292			187	
Travel Time (s)		6.7			7.2			8.0			5.1	
Confl. Peds. (#/hr)	261					261	36		239			
Confl. Bikes (#/hr)			5			19			13			3
Peak Hour Factor	0.77	0.77	0.77	0.80	0.80	0.80	0.89	0.89	0.89	0.92	0.92	0.92
Heavy Vehicles (%)	3%	7%	0%	0%	6%	6%	4%	4%	7%	0%	0%	0%
Parking (#/hr)									0			
Adj. Flow (vph)	25	34	0	0	110	84	230	806	67	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	25	34	0	0	194	0	0	1103	0	0	0	0
Turn Type	Perm	NA			NA		Split	NA				
Protected Phases		5			5		1	1				
Permitted Phases	5											
Detector Phase	5	5			5		1	1				
Switch Phase												
Minimum Initial (s)	8.0	8.0			8.0		8.0	8.0				
Minimum Split (s)	21.0	21.0			21.0		23.0	23.0				
Total Split (s)	39.0	39.0			39.0		71.0	71.0				
Total Split (%)	35.5%	35.5%			35.5%		64.5%	64.5%				
Maximum Green (s)	34.0	34.0			34.0		66.0	66.0				
Yellow Time (s)	3.0	3.0			3.0		3.0	3.0				
All-Red Time (s)	2.0	2.0			2.0		2.0	2.0				
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)	2.0	2.0			2.0		2.0	2.0				
Recall Mode	Max	Max			Max		C-Max	C-Max				
Walk Time (s)	7.0	7.0			7.0		7.0	7.0				
Flash Dont Walk (s)	8.0	8.0			8.0		8.0	8.0				
Pedestrian Calls (#/hr)	50	50			50		0	0				
Act Effct Green (s)	35.0	35.0			35.0			67.0				
Actuated g/C Ratio	0.32	0.32			0.32			0.61				
v/c Ratio	0.11	0.07			0.45			0.61				
Control Delay	23.4	21.8			27.8			6.7				
Queue Delay	0.0	0.0			0.0			0.4				
Total Delay	23.4	21.8			27.8			7.2				
LOS	C	C			C			A				
Approach Delay		22.5			27.8			7.2				
Approach LOS		C			C			A				
Queue Length 50th (ft)	10	13			87			57				
Queue Length 95th (ft)	21	25			132			66				
Internal Link Dist (ft)		164			183			212			107	
Turn Bay Length (ft)												
Base Capacity (vph)	222	508			432			1801				
Starvation Cap Reductn	0	0			0			274				
Spillback Cap Reductn	0	0			2			246				
Storage Cap Reductn	0	0			0			0				
Reduced v/c Ratio	0.11	0.07			0.45			0.72				

Intersection Summary			
Area Type:	CBD		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 43 (39%), Referenced to phase 1:NBTL, Start of Green			
Natural Cycle: 50			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.61			
Intersection Signal Delay: 10.8		Intersection LOS: B	
Intersection Capacity Utilization 72.5%		ICU Level of Service C	
Analysis Period (min) 15			

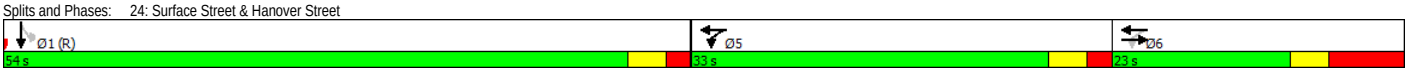
Splits and Phases: 23: Cross Street & Hanover Street

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	25	6	80	213	0	0	0	0	20	432	35
Future Volume (vph)	0	25	6	80	213	0	0	0	0	20	432	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor		0.94		0.68							0.95	
Frt		0.972									0.989	
Flt Protected				0.950							0.998	
Satd. Flow (prot)	0	2842	0	1388	1613	0	0	0	0	0	2888	0
Flt Permitted				0.731							0.998	
Satd. Flow (perm)	0	2842	0	728	1613	0	0	0	0	0	2870	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7									10	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		365			244			470			333	
Travel Time (s)		10.0			6.7			12.8			9.1	
Confl. Peds. (#/hr)			174	174						82		227
Confl. Bikes (#/hr)			4			17						103
Peak Hour Factor	0.81	0.81	0.81	0.88	0.88	0.88	0.92	0.92	0.92	0.90	0.90	0.90
Heavy Vehicles (%)	0%	5%	0%	17%	6%	0%	0%	0%	0%	18%	6%	3%
Adj. Flow (vph)	0	31	7	91	242	0	0	0	0	22	480	39
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	38	0	91	242	0	0	0	0	0	541	0
Turn Type		NA		D.P+P	NA					Perm	NA	
Protected Phases		6		5	5 6						1	
Permitted Phases				6						1		
Detector Phase		6		5	5 6					1	1	
Switch Phase												
Minimum Initial (s)		10.0		10.0						10.0	10.0	
Minimum Split (s)		22.0		18.0						27.0	27.0	
Total Split (s)		23.0		33.0						54.0	54.0	
Total Split (%)		20.9%		30.0%						49.1%	49.1%	
Maximum Green (s)		14.0		28.0						49.0	49.0	
Yellow Time (s)		3.0		3.0						3.0	3.0	
All-Red Time (s)		6.0		2.0						2.0	2.0	
Lost Time Adjust (s)		-5.0		-1.0							-1.0	
Total Lost Time (s)		4.0		4.0							4.0	
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)		2.0		2.0						2.0	2.0	
Recall Mode		Max		Max						C-Max	C-Max	
Walk Time (s)		7.0		7.0						7.0	7.0	
Flash Dont Walk (s)		5.0		5.0						10.0	10.0	
Pedestrian Calls (#/hr)		0		0						0	0	
Act Effct Green (s)		19.0		48.0	52.0						50.0	
Actuated g/C Ratio		0.17		0.44	0.47						0.45	
v/c Ratio		0.08		0.19	0.32						0.41	
Control Delay		36.4		16.1	18.1						8.2	
Queue Delay		0.0		0.0	3.3						0.0	
Total Delay		36.4		16.1	21.4						8.3	
LOS		D		B	C						A	
Approach Delay		36.4			19.9						8.3	
Approach LOS		D			B						A	
Queue Length 50th (ft)		12		33	105						37	
Queue Length 95th (ft)		26		m56	146						55	
Internal Link Dist (ft)		285			164			390			253	
Turn Bay Length (ft)												
Base Capacity (vph)		496		491	762						1310	
Starvation Cap Reductn		0		0	419						72	
Spillback Cap Reductn		0		0	0						0	
Storage Cap Reductn		0		0	0						0	
Reduced v/c Ratio		0.08		0.19	0.71						0.44	

Intersection Summary

Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 39 (35%), Referenced to phase 1:SBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.41
Intersection Signal Delay: 13.7 Intersection LOS: B
Intersection Capacity Utilization 72.5% ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 24: Surface Street & Hanover Street



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	248	712	31	0	687
Future Volume (vph)	0	248	712	31	0	687
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.91	0.91	1.00	0.91
Frt		0.865	0.994			
Flt Protected						
Satd. Flow (prot)	0	1644	5156	0	0	5187
Flt Permitted						
Satd. Flow (perm)	0	1644	5156	0	0	5187
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		278	16			
Link Speed (mph)	30		25			25
Link Distance (ft)	365		445			386
Travel Time (s)	8.3		12.1			10.5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	270	774	34	0	747
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	270	808	0	0	747
Turn Type		Prot	NA			NA
Protected Phases		2	1			1
Permitted Phases						
Detector Phase		2	1			1
Switch Phase						
Minimum Initial (s)		4.0	4.0			4.0
Minimum Split (s)		22.0	22.0			22.0
Total Split (s)		25.0	85.0			85.0
Total Split (%)		22.7%	77.3%			77.3%
Maximum Green (s)		21.0	81.0			81.0
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		Lag	Lead			Lead
Lead-Lag Optimize?						
Vehicle Extension (s)		2.0	2.0			2.0
Recall Mode		None	C-Max			C-Max
Walk Time (s)		7.0				
Flash Dont Walk (s)		11.0				
Pedestrian Calls (#/hr)		0				
Act Effct Green (s)		6.9	95.1			95.1
Actuated g/C Ratio		0.06	0.86			0.86
v/c Ratio		0.74	0.18			0.17
Control Delay		44.0	5.0			1.5
Queue Delay		0.3	0.0			0.0
Total Delay		44.3	5.0			1.5
LOS		D	A			A
Approach Delay			5.0			1.5
Approach LOS			A			A
Queue Length 50th (ft)		104	102			14
Queue Length 95th (ft)		161	m119			43
Internal Link Dist (ft)	285		365			306
Turn Bay Length (ft)						
Base Capacity (vph)		538	4457			4482
Starvation Cap Reductn		48	0			0
Spillback Cap Reductn		0	0			0
Storage Cap Reductn		0	0			0
Reduced v/c Ratio		0.55	0.18			0.17

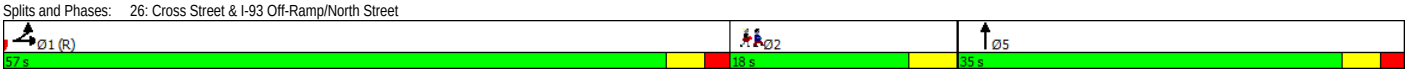
Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green			
Natural Cycle: 45			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.74			
Intersection Signal Delay: 9.4		Intersection LOS: A	
Intersection Capacity Utilization 36.5%		ICU Level of Service A	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 25: Congress Street & Hanover Street

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations													
Traffic Volume (vph)	580	73	0	0	0	0	0	402	18	0	0	0	
Future Volume (vph)	580	73	0	0	0	0	0	402	18	0	0	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00	
Ped Bike Factor								1.00					
Frt								0.994					
Flt Protected	0.950	0.963											
Satd. Flow (prot)	1442	1481	0	0	0	0	0	2812	0	0	0	0	
Flt Permitted	0.950	0.963											
Satd. Flow (perm)	1442	1481	0	0	0	0	0	2812	0	0	0	0	
Right Turn on Red	No		Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)								4					
Link Speed (mph)		25			25			25			25		
Link Distance (ft)		145			386			247			292		
Travel Time (s)		4.0			10.5			6.7			8.0		
Confl. Bikes (#/hr)									13				
Peak Hour Factor	0.93	0.93	0.93	0.92	0.92	0.92	0.91	0.91	0.91	0.92	0.92	0.92	
Heavy Vehicles (%)	7%	1%	0%	0%	0%	0%	0%	15%	7%	0%	0%	0%	
Adj. Flow (vph)	624	78	0	0	0	0	0	442	20	0	0	0	
Shared Lane Traffic (%)	42%												
Lane Group Flow (vph)	362	340	0	0	0	0	0	462	0	0	0	0	
Turn Type	Split	NA						NA					
Protected Phases	1	1						5					2
Permitted Phases													
Detector Phase	1	1						5					
Switch Phase													
Minimum Initial (s)	8.0	8.0						8.0					8.0
Minimum Split (s)	15.0	15.0						14.0					18.0
Total Split (s)	57.0	57.0						35.0					18.0
Total Split (%)	51.8%	51.8%						31.8%					16%
Maximum Green (s)	52.0	52.0						30.0					14.0
Yellow Time (s)	3.0	3.0						3.0					4.0
All-Red Time (s)	2.0	2.0						2.0					0.0
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?													
Vehicle Extension (s)	2.0	2.0						2.0					2.0
Recall Mode	C-Max	C-Max						Max					Ped
Walk Time (s)													7.0
Flash Dont Walk (s)													7.0
Pedestrian Calls (#/hr)													500
Act Effct Green (s)	53.0	53.0						31.0					
Actuated g/C Ratio	0.48	0.48						0.28					
v/c Ratio	0.52	0.48						0.58					
Control Delay	23.1	22.0						37.1					
Queue Delay	0.0	0.0						0.3					
Total Delay	23.1	22.0						37.4					
LOS	C	C						D					
Approach Delay		22.6						37.4					
Approach LOS		C						D					
Queue Length 50th (ft)	180	164						145					
Queue Length 95th (ft)	274	251						201					
Internal Link Dist (ft)		65			306			167			212		
Turn Bay Length (ft)													
Base Capacity (vph)	694	713						795					
Starvation Cap Reductn	0	0						0					
Spillback Cap Reductn	0	0						58					
Storage Cap Reductn	0	0						0					
Reduced v/c Ratio	0.52	0.48						0.63					

Intersection Summary			
Area Type:	CBD		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 72 (65%), Referenced to phase 1:EBTL, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.58			
Intersection Signal Delay: 28.5		Intersection LOS: C	
Intersection Capacity Utilization 39.6%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 26: Cross Street & I-93 Off-Ramp/North Street



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	54	500	745	0	0	0	0	0	472	46
Future Volume (vph)	0	0	54	500	745	0	0	0	0	0	472	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95
Ped Bike Factor											0.97	
Frt			0.865								0.987	
Flt Protected					0.980							
Satd. Flow (prot)	0	0	1321	0	3122	0	0	0	0	0	2895	0
Flt Permitted					0.980							
Satd. Flow (perm)	0	0	1321	0	3122	0	0	0	0	0	2895	0
Right Turn on Red			No	No		Yes			Yes			Yes
Satd. Flow (RTOR)											10	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		373			108			468			470	
Travel Time (s)		10.2			2.9			12.8			12.8	
Confl. Peds. (#/hr)												251
Confl. Bikes (#/hr)												95
Peak Hour Factor	0.80	0.80	0.80	0.93	0.93	0.93	0.92	0.92	0.92	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	12%	2%	2%	0%	0%	0%	0%	0%	7%	9%
Parking (#/hr)												0
Adj. Flow (vph)	0	0	68	538	801	0	0	0	0	0	492	48
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	68	0	1339	0	0	0	0	0	540	0
Turn Type			Perm	Perm	NA						NA	
Protected Phases					1						3	
Permitted Phases			1	1								
Detector Phase			1	1	1						3	
Switch Phase												
Minimum Initial (s)			10.0	10.0	10.0						10.0	
Minimum Split (s)			25.0	25.0	25.0						25.0	
Total Split (s)			73.0	73.0	73.0						37.0	
Total Split (%)			66.4%	66.4%	66.4%						33.6%	
Maximum Green (s)			64.0	64.0	64.0						32.0	
Yellow Time (s)			3.0	3.0	3.0						3.0	
All-Red Time (s)			6.0	6.0	6.0						2.0	
Lost Time Adjust (s)			-5.0		-5.0						-1.0	
Total Lost Time (s)			4.0		4.0						4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)			2.0	2.0	2.0						2.0	
Recall Mode			C-Max	C-Max	C-Max						Max	
Walk Time (s)			7.0	7.0	7.0						7.0	
Flash Dont Walk (s)			5.0	5.0	5.0						12.0	
Pedestrian Calls (#/hr)			0	0	0						0	
Act Effct Green (s)			69.0		69.0						33.0	
Actuated g/C Ratio			0.63		0.63						0.30	
v/c Ratio			0.08		0.68						0.62	
Control Delay			7.5		15.7						17.6	
Queue Delay			0.0		0.0						0.0	
Total Delay			7.5		15.7						17.6	
LOS			A		B						B	
Approach Delay					15.7						17.6	
Approach LOS					B						B	
Queue Length 50th (ft)			31		300						75	
Queue Length 95th (ft)			45		376						104	
Internal Link Dist (ft)		293			28			388			390	
Turn Bay Length (ft)												
Base Capacity (vph)			828		1958						875	
Starvation Cap Reductn			0		0						0	
Spillback Cap Reductn			0		0						0	
Storage Cap Reductn			0		0						0	
Reduced v/c Ratio			0.08		0.68						0.62	

Intersection Summary

Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 104 (95%), Referenced to phase 1:WBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.68
Intersection Signal Delay: 15.9 Intersection LOS: B
Intersection Capacity Utilization 74.2% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 27: Surface Street & North Street/I-93 Off Ramp

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations													
Traffic Volume (vph)	2	47	0	0	785	6	158	0	6	1	0	8	
Future Volume (vph)	2	47	0	0	785	6	158	0	6	1	0	8	
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	1.00	1.00	
Ped Bike Factor					0.99			1.00		0.97		0.69	
Frt					0.999			0.990				0.850	
Flt Protected		0.998					0.950	0.956		0.950			
Satd. Flow (prot)	0	1389	0	0	2979	0	1251	1375	0	1624	0	1454	
Flt Permitted		0.983					0.950	0.956		0.688			
Satd. Flow (perm)	0	1368	0	0	2979	0	1251	1375	0	1141	0	998	
Right Turn on Red			Yes			Yes			No			Yes	
Satd. Flow (RTOR)					1							60	
Link Speed (mph)		25			25			25			30		
Link Distance (ft)		241			373			604			110		
Travel Time (s)		6.6			10.2			16.5			2.5		
Confl. Peds. (#/hr)	248					248			15	15		246	
Confl. Bikes (#/hr)			3			5			1				
Peak Hour Factor	0.88	0.88	0.88	0.91	0.91	0.91	0.81	0.81	0.81	0.56	0.56	0.56	
Heavy Vehicles (%)	0%	11%	0%	0%	3%	0%	11%	0%	17%	0%	0%	0%	
Parking (#/hr)		0			0		0		0				
Adj. Flow (vph)	2	53	0	0	863	7	195	0	7	2	0	14	
Shared Lane Traffic (%)							48%						
Lane Group Flow (vph)	0	55	0	0	870	0	101	101	0	2	0	14	
Turn Type	Perm	NA			NA		Split	NA		D.Pm		Perm	
Protected Phases		1			1		3	3					2
Permitted Phases	1									3		3	
Detector Phase	1	1			1		3	3		3		3	
Switch Phase													
Minimum Initial (s)	23.0	23.0			23.0		9.0	9.0		9.0		9.0	7.0
Minimum Split (s)	30.0	30.0			30.0		16.0	16.0		16.0		16.0	21.0
Total Split (s)	59.0	59.0			59.0		30.0	30.0		30.0		30.0	21.0
Total Split (%)	53.6%	53.6%			53.6%		27.3%	27.3%		27.3%		27.3%	19%
Maximum Green (s)	54.0	54.0			54.0		24.0	24.0		24.0		24.0	17.0
Yellow Time (s)	3.0	3.0			3.0		3.0	3.0		3.0		3.0	4.0
All-Red Time (s)	2.0	2.0			2.0		3.0	3.0		3.0		3.0	0.0
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0		0.0	
Total Lost Time (s)		5.0			5.0		6.0	6.0		6.0		6.0	
Lead/Lag	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
Recall Mode	C-Max	C-Max			C-Max		Max	Max		Max		Max	None
Walk Time (s)	7.0	7.0			7.0								7.0
Flash Dont Walk (s)	5.0	5.0			5.0								10.0
Pedestrian Calls (#/hr)	0	0			0								0
Act Effct Green (s)		75.0			75.0		24.0	24.0		24.0		24.0	
Actuated g/C Ratio		0.68			0.68		0.22	0.22		0.22		0.22	
v/c Ratio		0.06			0.43		0.37	0.34		0.01		0.05	
Control Delay		8.4			5.4		33.6	3.0		34.0		0.4	
Queue Delay		0.0			0.7		45.2	25.1		0.0		0.5	
Total Delay		8.4			6.1		78.8	28.1		34.0		0.9	
LOS		A			A		E	C		C		A	
Approach Delay		8.4			6.1			53.5					
Approach LOS		A			A			D					
Queue Length 50th (ft)		9			132		60	0		1		0	
Queue Length 95th (ft)		26			143		m73	0		5		0	
Internal Link Dist (ft)		161			293			524			30		
Turn Bay Length (ft)													
Base Capacity (vph)		932			2031		272	300		248		264	
Starvation Cap Reductn		0			742		0	0		0		0	
Spillback Cap Reductn		0			89		170	187		0		140	
Storage Cap Reductn		0			0		0	0		0		0	
Reduced v/c Ratio		0.06			0.67		0.99	0.89		0.01		0.11	

Intersection Summary

Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 16 (15%), Referenced to phase 1:EBWB, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.43
Intersection Signal Delay: 14.5 Intersection LOS: B
Intersection Capacity Utilization 54.8% ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

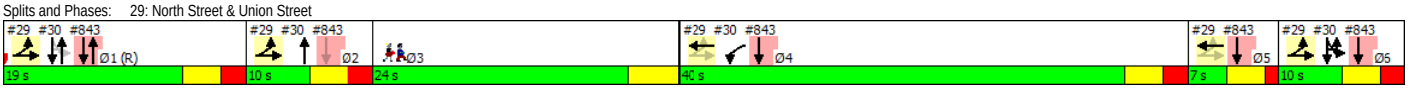
Splits and Phases: 28: Clinton Street/Millenium Hotel Driveway & North Street

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6
Lane Configurations												
Traffic Volume (vph)	10	49	922	29	0	0						
Future Volume (vph)	10	49	922	29	0	0						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900						
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	1.00						
Ped Bike Factor	0.98		0.99									
Frt			0.995									
Flt Protected	0.950											
Satd. Flow (prot)	1354	1555	3105	0	0	0						
Flt Permitted	0.122											
Satd. Flow (perm)	170	1555	3105	0	0	0						
Right Turn on Red				Yes		Yes						
Satd. Flow (RTOR)			3									
Link Speed (mph)		25	25		25							
Link Distance (ft)		141	241		180							
Travel Time (s)		3.8	6.6		4.9							
Confl. Peds. (#/hr)	154			154								
Confl. Bikes (#/hr)				3		4						
Peak Hour Factor	0.76	0.76	0.92	0.92	0.92	0.92						
Heavy Vehicles (%)	20%	10%	3%	17%	0%	0%						
Parking (#/hr)				0								
Adj. Flow (vph)	13	64	1002	32	0	0						
Shared Lane Traffic (%)												
Lane Group Flow (vph)	13	64	1034	0	0	0						
Turn Type	D.P+P	NA	NA									
Protected Phases	1 2 6	1 2 6	4 5				1	2	3	4	5	6
Permitted Phases	4 5	4 5										
Detector Phase	1 2 6	1 2 6	4 5									
Switch Phase												
Minimum Initial (s)							7.0	3.0	7.0	8.0	3.0	4.0
Minimum Split (s)							14.0	9.0	24.0	15.0	7.0	10.0
Total Split (s)							19.0	10.0	24.0	40.0	7.0	10.0
Total Split (%)							17%	9%	22%	36%	6%	9%
Maximum Green (s)							14.0	5.0	20.0	35.0	3.0	5.0
Yellow Time (s)							3.0	3.0	4.0	3.0	3.0	3.0
All-Red Time (s)							2.0	2.0	0.0	2.0	1.0	2.0
Lost Time Adjust (s)												
Total Lost Time (s)												
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)							2.0	2.0	2.0	2.0	2.0	2.0
Recall Mode							C-Max	Max	Ped	Max	Max	Max
Walk Time (s)									7.0			
Flash Dont Walk (s)									13.0			
Pedestrian Calls (#/hr)									0			
Act Effct Green (s)	76.0	81.0	42.0									
Actuated g/C Ratio	0.69	0.74	0.38									
v/c Ratio	0.03	0.06	0.87									
Control Delay	0.9	0.8	27.2									
Queue Delay	0.3	2.3	29.4									
Total Delay	1.2	3.1	56.7									
LOS	A	A	E									
Approach Delay		2.8	56.7									
Approach LOS		A	E									
Queue Length 50th (ft)	1	2	166									
Queue Length 95th (ft)	m1	m3	#266									
Internal Link Dist (ft)		61	161		100							
Turn Bay Length (ft)												
Base Capacity (vph)	483	1145	1187									
Starvation Cap Reductn	332	987	172									
Spillback Cap Reductn	0	0	206									
Storage Cap Reductn	0	0	0									
Reduced v/c Ratio	0.09	0.41	1.05									

Intersection Summary

Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 69 (63%), Referenced to phase 1:EBTL, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.20
Intersection Signal Delay: 52.9 Intersection LOS: D
Intersection Capacity Utilization 33.7% 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: 29: North Street & Union Street



Lane Group	WBL	WBR	NBT	NBR	SBU	SBL	SBT	Ø1	Ø2	Ø3	Ø5
Lane Configurations											
Traffic Volume (vph)	520	388	351	38	1	20	666				
Future Volume (vph)	520	388	351	38	1	20	666				
Ideal Flow (vphpl)	1900	1900	1900	1900	1700	1700	1700				
Lane Util. Factor	0.97	0.95	0.91	0.91	0.91	0.91	0.91				
Ped Bike Factor	0.76		0.95				0.99				
Frt	0.936		0.985								
Flt Protected	0.972						0.998				
Satd. Flow (prot)	2659	0	3972	0	0	0	3834				
Flt Permitted	0.972						0.917				
Satd. Flow (perm)	2211	0	3972	0	0	0	3492				
Right Turn on Red		Yes		No							
Satd. Flow (RTOR)	180										
Link Speed (mph)	25		25				25				
Link Distance (ft)	141		126				445				
Travel Time (s)	3.8		3.4				12.1				
Confl. Peds. (#/hr)	312	212		1204		1204					
Confl. Bikes (#/hr)		7		7							
Peak Hour Factor	0.93	0.93	0.94	0.94	0.93	0.93	0.93				
Heavy Vehicles (%)	2%	5%	9%	16%	0%	0%	9%				
Adj. Flow (vph)	559	417	373	40	1	22	716				
Shared Lane Traffic (%)											
Lane Group Flow (vph)	976	0	413	0	0	0	739				
Turn Type	Prot		NA		custom	custom	NA				
Protected Phases	4		1 2		6	6	1 6	1	2	3	5
Permitted Phases					1	1					
Detector Phase	4		1 2		6	6	1 6				
Switch Phase											
Minimum Initial (s)	8.0				4.0	4.0		7.0	3.0	7.0	3.0
Minimum Split (s)	15.0				10.0	10.0		14.0	9.0	24.0	7.0
Total Split (s)	40.0				10.0	10.0		19.0	10.0	24.0	7.0
Total Split (%)	36.4%				9.1%	9.1%		17%	9%	22%	6%
Maximum Green (s)	35.0				5.0	5.0		14.0	5.0	20.0	3.0
Yellow Time (s)	3.0				3.0	3.0		3.0	3.0	4.0	3.0
All-Red Time (s)	2.0				2.0	2.0		2.0	2.0	0.0	1.0
Lost Time Adjust (s)	0.0										
Total Lost Time (s)	5.0										
Lead/Lag	Lead							Lead	Lag		Lag
Lead-Lag Optimize?											
Vehicle Extension (s)	2.0				2.0	2.0		2.0	2.0	2.0	2.0
Recall Mode	Max				Max	Max		C-Max	Max	Ped	Max
Walk Time (s)										7.0	
Flash Dont Walk (s)										13.0	
Pedestrian Calls (#/hr)										0	
Act Effct Green (s)	35.0		24.0				19.0				
Actuated g/C Ratio	0.32		0.22				0.17				
v/c Ratio	1.01		0.48				1.20				
Control Delay	34.8		1.8				141.3				
Queue Delay	33.2		1.4				0.0				
Total Delay	68.0		3.2				141.3				
LOS	E		A				F				
Approach Delay	68.0		3.2				141.3				
Approach LOS	E		A				F				
Queue Length 50th (ft)	~82		5				~228				
Queue Length 95th (ft)	m#165		7				#319				
Internal Link Dist (ft)	61		46				365				
Turn Bay Length (ft)											
Base Capacity (vph)	968		866				618				
Starvation Cap Reductn	104		264				0				
Spillback Cap Reductn	0		0				0				
Storage Cap Reductn	0		0				0				
Reduced v/c Ratio	1.13		0.69				1.20				

Intersection Summary

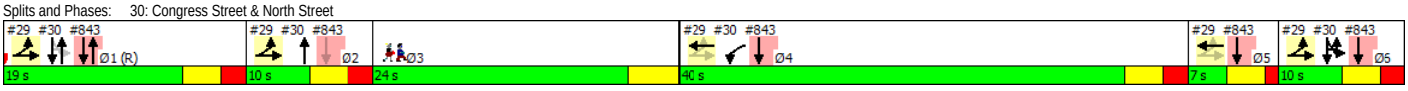
Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 69 (63%), Referenced to phase 1:EBTL, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.20
Intersection Signal Delay: 80.9 Intersection LOS: F
Intersection Capacity Utilization 72.2% ICU Level 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.

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

Splits and Phases: 30: Congress Street & North Street



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations													
Traffic Volume (vph)	0	0	0	902	193	0	0	0	0	0	917	109	
Future Volume (vph)	0	0	0	902	193	0	0	0	0	0	917	109	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	14	16	12	12	12	12	12	12	12	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.91	0.91	
Ped Bike Factor				0.71	0.83						0.97		
Frt											0.984		
Flt Protected				0.950	0.972								
Satd. Flow (prot)	0	0	0	1598	1710	0	0	0	0	0	4257	0	
Flt Permitted				0.950	0.972								
Satd. Flow (perm)	0	0	0	1128	1416	0	0	0	0	0	4257	0	
Right Turn on Red			Yes	No		Yes			Yes			Yes	
Satd. Flow (RTOR)											19		
Link Speed (mph)		25			25			25			25		
Link Distance (ft)		604			328			196			468		
Travel Time (s)		16.5			8.9			5.3			12.8		
Confl. Peds. (#/hr)				116								147	
Confl. Bikes (#/hr)						1						83	
Peak Hour Factor	0.92	0.92	0.92	0.91	0.91	0.91	0.92	0.92	0.92	0.95	0.95	0.95	
Heavy Vehicles (%)	0%	0%	0%	3%	7%	0%	0%	0%	0%	0%	4%	7%	
Adj. Flow (vph)	0	0	0	991	212	0	0	0	0	0	965	115	
Shared Lane Traffic (%)				30%									
Lane Group Flow (vph)	0	0	0	694	509	0	0	0	0	0	1080	0	
Turn Type				Split	NA						NA		
Protected Phases				5	5						1		2
Permitted Phases													
Detector Phase				5	5						1		
Switch Phase													
Minimum Initial (s)				8.0	8.0						8.0		8.0
Minimum Split (s)				19.0	19.0						27.0		24.0
Total Split (s)				51.0	51.0						35.0		24.0
Total Split (%)				46.4%	46.4%						31.8%		22%
Maximum Green (s)				46.0	46.0						29.0		20.0
Yellow Time (s)				3.0	3.0						3.0		4.0
All-Red Time (s)				2.0	2.0						3.0		0.0
Lost Time Adjust (s)				-2.0	-2.0						-2.0		
Total Lost Time (s)				3.0	3.0						4.0		
Lead/Lag											Lead		Lag
Lead-Lag Optimize?													
Vehicle Extension (s)				2.0	2.0						2.0		2.0
Recall Mode				Max	Max						C-Max		Ped
Walk Time (s)				7.0	7.0						7.0		7.0
Flash Dont Walk (s)				6.0	6.0						11.0		13.0
Pedestrian Calls (#/hr)				0	0						0		455
Act Effct Green (s)				48.0	48.0						31.0		
Actuated g/C Ratio				0.44	0.44						0.28		
v/c Ratio				1.00	0.68						0.89		
Control Delay				65.0	30.6						40.6		
Queue Delay				0.0	0.0						0.0		
Total Delay				65.0	30.6						40.6		
LOS				E	C						D		
Approach Delay					50.4						40.6		
Approach LOS					D						D		
Queue Length 50th (ft)				502	296						250		
Queue Length 95th (ft)				#774	428						#336		
Internal Link Dist (ft)		524			248			116			388		
Turn Bay Length (ft)													
Base Capacity (vph)				697	746						1213		
Starvation Cap Reductn				0	0						0		
Spillback Cap Reductn				0	0						0		
Storage Cap Reductn				0	0						0		
Reduced v/c Ratio				1.00	0.68						0.89		

Intersection Summary

Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 4 (4%), Referenced to phase 1:SBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.00
Intersection Signal Delay: 45.8 Intersection LOS: D
Intersection Capacity Utilization 63.2% 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: 31: Surface Street & Clinton Street/I-93 Off Ramp

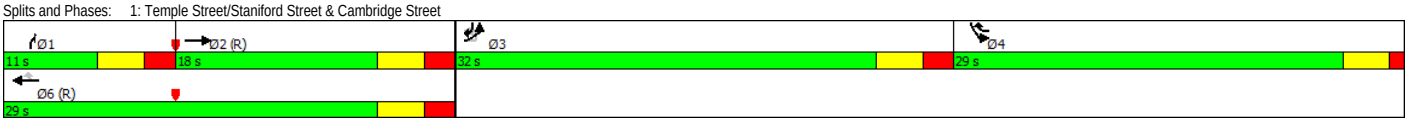
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (vph)	11	307	491	0	0	538	163	0	0	4	215	0	190
Future Volume (vph)	11	307	491	0	0	538	163	0	0	4	215	0	190
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	10	11	12	12	11	12	12	12	12	11	12	11
Storage Length (ft)		140		0	0		0	0		0	0		0
Storage Lanes		1		0	0		1	0		1	1		1
Taper Length (ft)		25			25			25			25		
Lane Util. Factor	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor							0.59						
Frt							0.850			0.865			0.850
Flt Protected		0.950									0.950		
Satd. Flow (prot)	0	1669	3219	0	0	3388	1538	0	0	1644	1745	0	1351
Flt Permitted		0.439									0.950		
Satd. Flow (perm)	0	771	3219	0	0	3388	905	0	0	1644	1745	0	1351
Right Turn on Red				No			Yes			No			No
Satd. Flow (RTOR)							172						
Link Speed (mph)			30			30			30			30	
Link Distance (ft)			407			236			206			1103	
Travel Time (s)			9.3			5.4			4.7			25.1	
Confl. Peds. (#/hr)							693						
Confl. Bikes (#/hr)				10			125						5
Peak Hour Factor	0.89	0.89	0.89	0.89	0.95	0.95	0.95	0.50	0.50	0.50	0.87	0.87	0.87
Heavy Vehicles (%)	0%	1%	3%	0%	0%	3%	5%	0%	0%	0%	0%	0%	4%
Parking (#/hr)			0										0
Adj. Flow (vph)	12	345	552	0	0	566	172	0	0	8	247	0	218
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	357	552	0	0	566	172	0	0	8	247	0	218
Turn Type	custom	Prot	NA			NA	pm+ov			Prot	Prot		Over
Protected Phases		3	2			6	4			1	4		3!
Permitted Phases	3!						6						
Detector Phase	3	3	2			6	4			1	4		3
Switch Phase													
Minimum Initial (s)	8.0	8.0	12.0			12.0	8.0			6.0	8.0		8.0
Minimum Split (s)	32.0	32.0	17.0			24.0	29.0			11.0	29.0		32.0
Total Split (s)	32.0	32.0	18.0			29.0	29.0			11.0	29.0		32.0
Total Split (%)	35.6%	35.6%	20.0%			32.2%	32.2%			12.2%	32.2%		35.6%
Maximum Green (s)	27.0	27.0	13.0			24.0	25.0			6.0	25.0		27.0
Yellow Time (s)	3.0	3.0	3.0			3.0	3.0			3.0	3.0		3.0
All-Red Time (s)	2.0	2.0	2.0			2.0	1.0			2.0	1.0		2.0
Lost Time Adjust (s)		0.0	0.0			0.0	0.0			0.0	0.0		0.0
Total Lost Time (s)		5.0	5.0			5.0	4.0			5.0	4.0		5.0
Lead/Lag	Lead	Lead	Lag				Lag			Lead	Lag		Lead
Lead-Lag Optimize?													
Vehicle Extension (s)	2.0	2.0	2.0			2.0	2.0			2.0	2.0		2.0
Recall Mode	Min	Min	C-Max			C-Max	Min			None	Min		Min
Walk Time (s)	7.0	7.0				7.0	7.0				7.0		7.0
Flash Dont Walk (s)	20.0	20.0				12.0	18.0				18.0		20.0
Pedestrian Calls (#/hr)	140	140				140	132				132		140
Act Effct Green (s)		27.0	21.8			24.0	50.0			6.0	25.0		27.0
Actuated g/C Ratio		0.30	0.24			0.27	0.56			0.07	0.28		0.30
v/c Ratio		1.55	0.71			0.63	0.23			0.07	0.51		0.54
Control Delay		292.9	39.0			24.5	2.0			41.0	31.8		32.2
Queue Delay		0.0	0.0			2.0	0.2			0.0	0.6		0.0
Total Delay		292.9	39.0			26.6	2.1			41.0	32.4		32.2
LOS		F	D			C	A			D	C		C
Approach Delay			138.7			20.9							
Approach LOS			F			C							
Queue Length 50th (ft)		~288	146			137	5			4	118		103
Queue Length 95th (ft)		#451	#298			165	16			10	185		169
Internal Link Dist (ft)			327			156			126			1023	
Turn Bay Length (ft)		140											
Base Capacity (vph)		231	779			903	755			109	484		405
Starvation Cap Reductn		0	0			199	183			0	0		0
Spillback Cap Reductn		0	0			0	0			0	61		0
Storage Cap Reductn		0	0			0	0			0	0		0
Reduced v/c Ratio		1.55	0.71			0.80	0.30			0.07	0.58		0.54

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 17 (19%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.55
Intersection Signal Delay: 74.0 Intersection LOS: E
Intersection Capacity Utilization 57.7% ICU Level of Service B
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: 1: Temple Street/Staniford Street & Cambridge Street



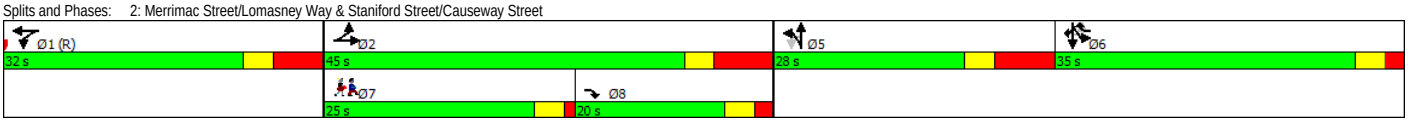
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	Ø7
Lane Configurations															
Traffic Volume (vph)	115	334	282	47	212	259	1	70	180	25	3	156	267	214	
Future Volume (vph)	115	334	282	47	212	259	1	70	180	25	3	156	267	214	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	11	11	11	11	11	10	11	10	11	11	11	10	11	11	
Storage Length (ft)	0		200	0		0		0		0		0		0	
Storage Lanes	1		1	0		1		1		0		1		1	
Taper Length (ft)	25			25				25				25			
Lane Util. Factor	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	
Ped Bike Factor									1.00				1.00		
Frt			0.850			0.850			0.982				0.997	0.850	
Flt Protected	0.950				0.991			0.950				0.950			
Satd. Flow (prot)	1564	1678	1516	0	3146	1507	0	1668	1772	0	0	1668	1688	1426	
Flt Permitted	0.950				0.991			0.211				0.616			
Satd. Flow (perm)	1564	1678	1516	0	3146	1507	0	371	1772	0	0	1082	1688	1426	
Right Turn on Red			No			No				No				No	
Satd. Flow (RTOR)															
Link Speed (mph)		30			30				30				30		
Link Distance (ft)		1103			181				998				344		
Travel Time (s)		25.1			4.1				22.7				7.8		
Confl. Bikes (#/hr)			6			8				12				11	
Peak Hour Factor	0.79	0.79	0.79	0.84	0.84	0.84	0.90	0.90	0.90	0.90	0.92	0.92	0.92	0.92	
Heavy Vehicles (%)	6%	4%	3%	23%	7%	0%	0%	1%	1%	4%	0%	1%	3%	4%	
Adj. Flow (vph)	146	423	357	56	252	308	1	78	200	28	3	170	290	233	
Shared Lane Traffic (%)	0%													2%	
Lane Group Flow (vph)	146	423	357	0	308	308	0	79	228	0	0	173	295	228	
Turn Type	Split	NA	custom	Split	NA	Over	Perm	Split	NA		Perm	Split	NA	Prot	
Protected Phases	2	2	8	1	1	6!		5	5			6	6	6	7
Permitted Phases							5				6!				
Detector Phase	2	2	8	1	1	6	5	5	5		6	6	6	6	
Switch Phase															
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0		8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	27.0	27.0	16.0	31.0	31.0	16.0	27.0	27.0	27.0		16.0	16.0	16.0	16.0	25.0
Total Split (s)	45.0	45.0	20.0	32.0	32.0	35.0	28.0	28.0	28.0		35.0	35.0	35.0	35.0	25.0
Total Split (%)	32.1%	32.1%	14.3%	22.9%	22.9%	25.0%	20.0%	20.0%	20.0%		25.0%	25.0%	25.0%	25.0%	18%
Maximum Green (s)	36.0	36.0	15.0	24.0	24.0	30.0	19.0	19.0	19.0		30.0	30.0	30.0	30.0	21.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	6.0	6.0	2.0	5.0	5.0	2.0	6.0	6.0	6.0		2.0	2.0	2.0	2.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0		0.0	0.0			0.0	0.0	0.0	
Total Lost Time (s)	9.0	9.0	5.0		8.0	5.0		9.0	9.0			5.0	5.0	5.0	
Lead/Lag			Lag			Lag	Lead	Lead	Lead		Lag	Lag	Lag	Lag	Lead
Lead-Lag Optimize?															
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0
Recall Mode	Ped	Ped	None	C-Max	C-Max	None	Ped	Ped	Ped		None	None	None	None	None
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0						7.0
Flash Dont Walk (s)	11.0	11.0		16.0	16.0		11.0	11.0	11.0						14.0
Pedestrian Calls (#/hr)	100	100		175	175		0	0	0						30
Act Effct Green (s)	36.0	36.0	25.0		24.4	29.6		19.0	19.0			29.6	29.6	29.6	
Actuated g/C Ratio	0.26	0.26	0.18		0.17	0.21		0.14	0.14			0.21	0.21	0.21	
v/c Ratio	0.36	0.98	1.32		0.56	0.97		1.58	0.95			0.76	0.83	0.76	
Control Delay	45.8	90.4	209.9		57.5	97.9		374.9	106.0			73.5	72.7	68.8	
Queue Delay	0.0	0.0	0.0		0.0	25.6		0.0	0.0			0.0	0.0	0.0	
Total Delay	45.8	90.4	209.9		57.5	123.5		374.9	106.0			73.5	72.7	68.8	
LOS	D	F	F		E	F		F	F			E	E	E	
Approach Delay		129.4			90.5				175.2				71.6		
Approach LOS		F			F				F				E		
Queue Length 50th (ft)	115	405	~521		137	280		~102	209			149	271	206	
Queue Length 95th (ft)	160	#505	#616		174	#415		#213	#376			#263	#424	#330	
Internal Link Dist (ft)		1023			101				918				264		
Turn Bay Length (ft)			200												
Base Capacity (vph)	402	431	270		549	322		50	240			231	361	305	
Starvation Cap Reductn	0	0	0		0	30		0	0			0	0	0	
Spillback Cap Reductn	0	0	0		0	0		0	0			0	0	0	
Storage Cap Reductn	0	0	0		0	0		0	0			0	0	0	
Reduced v/c Ratio	0.36	0.98	1.32		0.56	1.05		1.58	0.95			0.75	0.82	0.75	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 1:WBTL, Start of Green
Natural Cycle: 145
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.58
Intersection Signal Delay: 109.7 Intersection LOS: F
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.
! Phase conflict between lane groups.

Splits and Phases: 2: Merrimac Street/Lomasney Way & Staniford Street/Causeway Street



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	390	87	76	144	126	362	10	813	76	195	987	267
Future Volume (vph)	390	87	76	144	126	362	10	813	76	195	987	267
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	12	11	12	11	11	11	10	11	11
Storage Length (ft)	0		0	0		0	0		75	200		100
Storage Lanes	1		1	0		1	0		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor			0.67						0.43			0.99
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950				0.974			0.999		0.950		
Satd. Flow (prot)	1549	1616	1459	0	1692	1583	0	3173	1487	1685	3172	1432
Flt Permitted	0.950				0.974			0.678		0.125		
Satd. Flow (perm)	1549	1616	975	0	1692	1583	0	2153	644	222	3172	1414
Right Turn on Red			Yes			No			No			No
Satd. Flow (RTOR)			109									
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		318			202			589			575	
Travel Time (s)		7.2			4.6			13.4			13.1	
Confl. Peds. (#/hr)			195						247			
Confl. Bikes (#/hr)			3			8			17			1
Peak Hour Factor	0.87	0.87	0.87	0.82	0.82	0.82	0.91	0.91	0.91	0.93	0.93	0.93
Heavy Vehicles (%)	7%	8%	7%	2%	10%	2%	0%	10%	5%	0%	10%	9%
Adj. Flow (vph)	448	100	87	176	154	441	11	893	84	210	1061	287
Shared Lane Traffic (%)	0%											
Lane Group Flow (vph)	448	100	87	0	330	441	0	904	84	210	1061	287
Turn Type	Split	NA	Perm	Split	NA	pt+ov	Perm	NA	Perm	D.P+P	NA	custom
Protected Phases	2	2		5	5	5 6		1		6	1 6	1 6
Permitted Phases			2				1		1	1		1
Detector Phase	2	2	2	5	5	5 6	1	1	1	6	1 6	1 6
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0		8.0	8.0	8.0	8.0		
Minimum Split (s)	34.0	34.0	34.0	25.0	25.0		28.0	28.0	28.0	30.0		
Total Split (s)	37.0	37.0	37.0	25.0	25.0		38.0	38.0	38.0	30.0		
Total Split (%)	28.5%	28.5%	28.5%	19.2%	19.2%		29.2%	29.2%	29.2%	23.1%		
Maximum Green (s)	27.0	27.0	27.0	21.0	21.0		32.0	32.0	32.0	24.0		
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0		
All-Red Time (s)	7.0	7.0	7.0	1.0	1.0		3.0	3.0	3.0	3.0		
Lost Time Adjust (s)	0.0	0.0	0.0		0.0			0.0	0.0	0.0		
Total Lost Time (s)	10.0	10.0	10.0		4.0			6.0	6.0	6.0		
Lead/Lag	Lag	Lag	Lag	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	None	Max	Max		Max	Max	Max	None		
Walk Time (s)	7.0	7.0	7.0	3.0	3.0		7.0	7.0	7.0	7.0		
Flash Dont Walk (s)	11.0	11.0	11.0	14.0	14.0		15.0	15.0	15.0	14.0		
Pedestrian Calls (#/hr)	176	176	176	176	176		100	100	100	100		
Act Effct Green (s)	27.0	27.0	27.0		21.0	51.0		32.0	32.0	56.0	62.0	62.0
Actuated g/C Ratio	0.21	0.21	0.21		0.16	0.39		0.25	0.25	0.43	0.48	0.48
v/c Ratio	1.40	0.30	0.30		1.21	0.71		1.71	0.53	0.58	0.70	0.42
Control Delay	234.6	46.4	7.1		168.9	40.9		358.3	56.6	33.6	29.9	24.6
Queue Delay	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Delay	234.6	46.4	7.1		168.9	40.9		358.3	56.6	33.6	29.9	24.6
LOS	F	D	A		F	D		F	E	C	C	C
Approach Delay		173.8			95.7			332.7			29.4	
Approach LOS		F			F			F			C	
Queue Length 50th (ft)	~529	75	0		~339	310		~588	62	110	361	155
Queue Length 95th (ft)	#715	128	26		#459	383		#721	122	196	442	232
Internal Link Dist (ft)		238			122			509			495	
Turn Bay Length (ft)									75	200		100
Base Capacity (vph)	321	335	288		273	621		529	158	365	1512	682
Starvation Cap Reductn	0	0	0		0	0		0	0	0	0	0
Spillback Cap Reductn	0	0	0		0	0		0	0	0	0	0
Storage Cap Reductn	0	0	0		0	0		0	0	0	0	0
Reduced v/c Ratio	1.40	0.30	0.30		1.21	0.71		1.71	0.53	0.58	0.70	0.42

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Natural Cycle: 150
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.71
Intersection Signal Delay: 141.3 Intersection LOS: F
Intersection Capacity Utilization 101.3% 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.

Splits and Phases: 3: North Washington Street & Causeway Street

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	0	0	252	899	43	30	1163	14
Future Volume (vph)	0	0	0	0	0	0	252	899	43	30	1163	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	0		50
Storage Lanes	0		0	0		0	1		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.91	0.91	0.91
Ped Bike Factor								0.97			1.00	
Frt								0.993			0.998	
Flt Protected							0.950				0.999	
Satd. Flow (prot)	0	0	0	0	0	0	1425	2876	0	0	4316	0
Flt Permitted							0.950				0.887	
Satd. Flow (perm)	0	0	0	0	0	0	1425	2876	0	0	3821	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)								10			4	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		181			303			152			589	
Travel Time (s)		4.9			8.3			4.1			16.1	
Confl. Peds. (#/hr)									418	418		50
Confl. Bikes (#/hr)			1						96			11
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.94	0.94	0.94	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	14%	9%	0%	0%	8%	0%
Parking (#/hr)									0			
Adj. Flow (vph)	0	0	0	0	0	0	268	956	46	32	1224	15
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	0	268	1002	0	0	1271	0
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)							8.0	10.0		10.0	10.0	
Minimum Split (s)							28.0	27.0		27.0	27.0	
Total Split (s)							30.0	80.0		80.0	80.0	
Total Split (%)							27.3%	72.7%		72.7%	72.7%	
Maximum Green (s)							25.0	75.0		75.0	75.0	
Yellow Time (s)							3.0	3.0		3.0	3.0	
All-Red Time (s)							2.0	2.0		2.0	2.0	
Lost Time Adjust (s)							-1.0	-1.0			-1.0	
Total Lost Time (s)							4.0	4.0			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)							2.0	2.0		2.0	2.0	
Recall Mode							Ped	C-Max		C-Max	C-Max	
Walk Time (s)							7.0	7.0		7.0	7.0	
Flash Dont Walk (s)							15.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)							0	0		0	0	
Act Effct Green (s)							24.8	77.2			77.2	
Actuated g/C Ratio							0.23	0.70			0.70	
v/c Ratio							0.83	0.50			0.47	
Control Delay							58.1	5.4			8.1	
Queue Delay							10.5	0.5			0.0	
Total Delay							68.6	5.9			8.1	
LOS							E	A			A	
Approach Delay								19.1			8.1	
Approach LOS								B			A	
Queue Length 50th (ft)							189	78			135	
Queue Length 95th (ft)							#315	122			165	
Internal Link Dist (ft)		101			223			72			509	
Turn Bay Length (ft)												
Base Capacity (vph)							336	2021			2682	
Starvation Cap Reductn							48	557			0	
Spillback Cap Reductn							0	0			0	
Storage Cap Reductn							0	0			0	
Reduced v/c Ratio							0.93	0.68			0.47	

Intersection Summary

Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 3 (3%), Referenced to phase 1:NBSB, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.83
Intersection Signal Delay: 13.6 Intersection LOS: B
Intersection Capacity Utilization 62.3% 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: 4: North Washington Street & Valenti Way/Thatcher Street

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations													
Traffic Volume (vph)	0	0	0	185	81	0	0	0	0	0	213	38	
Future Volume (vph)	0	0	0	185	81	0	0	0	0	0	213	38	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	11	12	12	12	12	12	12	12	12	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95	
Ped Bike Factor											0.99		
Frt											0.977		
Flt Protected				0.950									
Satd. Flow (prot)	0	0	0	1332	1400	0	0	0	0	0	2799	0	
Flt Permitted				0.950									
Satd. Flow (perm)	0	0	0	1332	1400	0	0	0	0	0	2799	0	
Right Turn on Red			Yes	Yes		Yes			Yes			Yes	
Satd. Flow (RTOR)				218							17		
Link Speed (mph)		25			25			30			30		
Link Distance (ft)		227			181			221			528		
Travel Time (s)		6.2			4.9			5.0			12.0		
Confl. Peds. (#/hr)												4	
Confl. Bikes (#/hr)						18			2			15	
Peak Hour Factor	0.92	0.92	0.92	0.85	0.85	0.85	0.92	0.92	0.92	0.84	0.84	0.84	
Heavy Vehicles (%)	0%	0%	0%	12%	16%	0%	0%	0%	0%	0%	14%	3%	
Adj. Flow (vph)	0	0	0	218	95	0	0	0	0	0	254	45	
Shared Lane Traffic (%)				0%									
Lane Group Flow (vph)	0	0	0	218	95	0	0	0	0	0	299	0	
Turn Type				Split	NA						NA		
Protected Phases				1	1						5		2
Permitted Phases													
Detector Phase				1	1						5		
Switch Phase													
Minimum Initial (s)				5.0	5.0						5.0		8.0
Minimum Split (s)				19.0	19.0						19.0		18.0
Total Split (s)				65.0	65.0						27.0		18.0
Total Split (%)				59.1%	59.1%						24.5%		16%
Maximum Green (s)				61.0	61.0						23.0		14.0
Yellow Time (s)				3.0	3.0						3.0		4.0
All-Red Time (s)				1.0	1.0						1.0		0.0
Lost Time Adjust (s)				0.0	0.0						0.0		
Total Lost Time (s)				4.0	4.0						4.0		
Lead/Lag				Lead	Lead								Lag
Lead-Lag Optimize?													
Vehicle Extension (s)				2.0	2.0						2.0		2.0
Recall Mode				C-Max	C-Max						Max		None
Walk Time (s)				7.0	7.0						7.0		7.0
Flash Dont Walk (s)				6.0	6.0						7.0		7.0
Pedestrian Calls (#/hr)				0	0						0		30
Act Effct Green (s)				68.2	68.2						23.0		
Actuated g/C Ratio				0.62	0.62						0.21		
v/c Ratio				0.24	0.11						0.50		
Control Delay				0.4	1.6						39.5		
Queue Delay				1.5	0.7						0.0		
Total Delay				1.9	2.3						39.5		
LOS				A	A						D		
Approach Delay					2.0						39.5		
Approach LOS					A						D		
Queue Length 50th (ft)				0	4						93		
Queue Length 95th (ft)				m0	m5						127		
Internal Link Dist (ft)		147			101			141			448		
Turn Bay Length (ft)													
Base Capacity (vph)				908	868						598		
Starvation Cap Reductn				513	566						0		
Spillback Cap Reductn				0	0						0		
Storage Cap Reductn				0	0						0		
Reduced v/c Ratio				0.55	0.31						0.50		

Intersection Summary			
Area Type:	CBD		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 87 (79%), Referenced to phase 1:WBTL, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.50			
Intersection Signal Delay: 20.3		Intersection LOS: C	
Intersection Capacity Utilization 26.4%		ICU Level of Service A	
Analysis Period (min) 15			

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

Splits and Phases: 5: Beverly St & Valenti Way

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations								
Traffic Volume (vph)	0	44	181	0	0	0	0	969
Future Volume (vph)	0	44	181	0	0	0	0	969
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.88
Frt		0.865						0.850
Flt Protected								
Satd. Flow (prot)	0	1450	2954	0	0	0	0	2347
Flt Permitted								
Satd. Flow (perm)	0	1450	2954	0	0	0	0	2347
Right Turn on Red		Yes						
Satd. Flow (RTOR)		131						
Link Speed (mph)	25		25			25	25	
Link Distance (ft)	328		169			188	568	
Travel Time (s)	8.9		4.6			5.1	15.5	
Peak Hour Factor	0.73	0.73	0.88	0.88	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	2%	10%	0%	0%	0%	0%	9%
Adj. Flow (vph)	0	60	206	0	0	0	0	1053
Shared Lane Traffic (%)								
Lane Group Flow (vph)	0	60	206	0	0	0	0	1053
Turn Type		Prot	NA					Prot
Protected Phases		2	3					1
Permitted Phases								
Detector Phase		2	3					1
Switch Phase								
Minimum Initial (s)		8.0	8.0					8.0
Minimum Split (s)		17.0	17.0					19.0
Total Split (s)		18.0	19.0					73.0
Total Split (%)		16.4%	17.3%					66.4%
Maximum Green (s)		14.0	15.0					69.0
Yellow Time (s)		3.0	3.0					3.0
All-Red Time (s)		1.0	1.0					1.0
Lost Time Adjust (s)		-1.0	-1.0					-1.0
Total Lost Time (s)		3.0	3.0					3.0
Lead/Lag		Lead	Lag					
Lead-Lag Optimize?								
Vehicle Extension (s)		2.0	2.0					2.0
Recall Mode		None	Max					C-Max
Walk Time (s)		7.0	7.0					7.0
Flash Dont Walk (s)		5.0	5.0					5.0
Pedestrian Calls (#/hr)		0	0					0
Act Effct Green (s)		9.0	16.0					78.4
Actuated g/C Ratio		0.08	0.15					0.71
v/c Ratio		0.25	0.48					0.63
Control Delay		2.5	47.4					5.3
Queue Delay		0.0	0.0					0.5
Total Delay		2.5	47.4					5.8
LOS		A	D					A
Approach Delay			47.4					
Approach LOS			D					
Queue Length 50th (ft)		0	71					53
Queue Length 95th (ft)		0	107					135
Internal Link Dist (ft)	248		89			108	488	
Turn Bay Length (ft)								
Base Capacity (vph)		310	429					1672
Starvation Cap Reductn		0	0					240
Spillback Cap Reductn		0	0					0
Storage Cap Reductn		0	0					0
Reduced v/c Ratio		0.19	0.48					0.74

Intersection Summary

Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 34 (31%), Referenced to phase 1:NWR, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.63
Intersection Signal Delay: 12.1 Intersection LOS: B
Intersection Capacity Utilization 61.0% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 6: I-93 Off-Ramps & Cross Street & Cooper Street

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	398	0	0	1163	0
Future Volume (vph)	0	398	0	0	1163	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.76	1.00	1.00	0.91	1.00
Frt		0.850				
Flt Protected						
Satd. Flow (prot)	0	3259	0	0	4803	0
Flt Permitted						
Satd. Flow (perm)	0	3259	0	0	4803	0
Right Turn on Red		No				Yes
Satd. Flow (RTOR)						
Link Speed (mph)	30			25	25	
Link Distance (ft)	221			242	150	
Travel Time (s)	5.0			6.6	4.1	
Peak Hour Factor	0.84	0.84	0.92	0.92	0.93	0.93
Heavy Vehicles (%)	0%	13%	0%	0%	8%	0%
Adj. Flow (vph)	0	474	0	0	1251	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	474	0	0	1251	0
Turn Type		Prot			NA	
Protected Phases		5			1	
Permitted Phases						
Detector Phase		5			1	
Switch Phase						
Minimum Initial (s)		8.0			8.0	
Minimum Split (s)		23.0			20.0	
Total Split (s)		38.0			72.0	
Total Split (%)		34.5%			65.5%	
Maximum Green (s)		33.0			67.0	
Yellow Time (s)		3.0			3.0	
All-Red Time (s)		2.0			2.0	
Lost Time Adjust (s)		-1.0			-1.0	
Total Lost Time (s)		4.0			4.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)		2.0			2.0	
Recall Mode		Max			C-Max	
Walk Time (s)		7.0			7.0	
Flash Dont Walk (s)		10.0			5.0	
Pedestrian Calls (#/hr)		0			0	
Act Effct Green (s)		34.0			68.0	
Actuated g/C Ratio		0.31			0.62	
v/c Ratio		0.47			0.42	
Control Delay		19.1			5.6	
Queue Delay		2.8			0.1	
Total Delay		21.9			5.7	
LOS		C			A	
Approach Delay					5.7	
Approach LOS					A	
Queue Length 50th (ft)		97			51	
Queue Length 95th (ft)		134			58	
Internal Link Dist (ft)	141			162	70	
Turn Bay Length (ft)						
Base Capacity (vph)		1007			2969	
Starvation Cap Reductn		406			570	
Spillback Cap Reductn		139			359	
Storage Cap Reductn		0			0	
Reduced v/c Ratio		0.79			0.52	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 4 (4%), Referenced to phase 1:SBT, Start of Green
Natural Cycle: 45
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.47
Intersection Signal Delay: 10.2 Intersection LOS: B
Intersection Capacity Utilization 38.4% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 7: Surface Street & Beverly St

Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations														
Traffic Volume (vph)	0	869	73	19	10	410	0	0	0	0	986	290	285	
Future Volume (vph)	0	869	73	19	10	410	0	0	0	0	986	290	285	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	12	12	14	12	12	12	12	12	11	13	
Lane Util. Factor	1.00	0.91	0.91	0.95	0.95	0.95	1.00	1.00	1.00	1.00	0.91	0.86	0.91	
Ped Bike Factor												0.99		
Frt		0.988										0.995	0.850	
Flt Protected						0.997					0.950	0.971		
Satd. Flow (prot)	0	4542	0	0	0	3353	0	0	0	0	1382	2453	1254	
Flt Permitted						0.760					0.950	0.971		
Satd. Flow (perm)	0	4542	0	0	0	2556	0	0	0	0	1382	2453	1254	
Right Turn on Red			No				Yes			Yes			No	
Satd. Flow (RTOR)														
Link Speed (mph)		25				25			25			25		
Link Distance (ft)		184				394			438			242		
Travel Time (s)		5.0				10.7			11.9			6.6		
Confl. Peds. (#/hr)													148	
Peak Hour Factor	0.91	0.91	0.91	0.95	0.95	0.95	0.95	0.92	0.92	0.92	0.94	0.94	0.94	
Heavy Vehicles (%)	0%	1%	8%	0%	11%	3%	0%	0%	0%	0%	7%	17%	9%	
Adj. Flow (vph)	0	955	80	20	11	432	0	0	0	0	1049	309	303	
Shared Lane Traffic (%)											48%		10%	
Lane Group Flow (vph)	0	1035	0	0	0	463	0	0	0	0	545	843	273	
Turn Type		NA		Perm	Perm	NA					Split	NA	Prot	
Protected Phases		1				1					5	5	5	2
Permitted Phases				1	1									
Detector Phase		1		1	1	1					5	5	5	
Switch Phase														
Minimum Initial (s)		8.0		8.0	8.0	8.0					8.0	8.0	8.0	8.0
Minimum Split (s)		23.0		23.0	23.0	23.0					22.0	22.0	22.0	30.0
Total Split (s)		33.0		33.0	33.0	33.0					47.0	47.0	47.0	30.0
Total Split (%)		30.0%		30.0%	30.0%	30.0%					42.7%	42.7%	42.7%	27%
Maximum Green (s)		27.0		27.0	27.0	27.0					41.0	41.0	41.0	26.0
Yellow Time (s)		3.0		3.0	3.0	3.0					3.0	3.0	3.0	4.0
All-Red Time (s)		3.0		3.0	3.0	3.0					3.0	3.0	3.0	0.0
Lost Time Adjust (s)		-2.0				-2.0					-2.0	-2.0	-2.0	
Total Lost Time (s)		4.0				4.0					4.0	4.0	4.0	
Lead/Lag		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
Recall Mode		C-Max		C-Max	C-Max	C-Max					Max	Max	Max	None
Walk Time (s)		7.0		7.0	7.0	7.0					7.0	7.0	7.0	7.0
Flash Dont Walk (s)		7.0		7.0	7.0	7.0					8.0	8.0	8.0	19.0
Pedestrian Calls (#/hr)		0		0	0	0					0	0	0	50
Act Effct Green (s)		35.0				35.0					43.0	43.0	43.0	
Actuated g/C Ratio		0.32				0.32					0.39	0.39	0.39	
v/c Ratio		0.72				0.57					1.01	0.98dl	0.56	
Control Delay		25.1				37.1					69.0	37.1	25.1	
Queue Delay		2.8				0.0					9.9	10.3	3.4	
Total Delay		27.9				37.1					79.0	47.4	28.5	
LOS		C				D					E	D	C	
Approach Delay		27.9				37.1						54.6		
Approach LOS		C				D						D		
Queue Length 50th (ft)		237				155					~440	337	126	
Queue Length 95th (ft)		#293				214					#689	#454	235	
Internal Link Dist (ft)		104				314			358			162		
Turn Bay Length (ft)														
Base Capacity (vph)		1445				812					540	958	490	
Starvation Cap Reductn		289				0					17	104	134	
Spillback Cap Reductn		0				0					0	0	0	
Storage Cap Reductn		0				0					0	0	0	
Reduced v/c Ratio		0.90				0.57					1.04	0.99	0.77	

Intersection Summary

Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 57 (52%), Referenced to phase 1:EBWB, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.01
Intersection Signal Delay: 43.3 Intersection LOS: D
Intersection Capacity Utilization 74.0% 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.

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

Splits and Phases: 8: Surface Street & New Chardon Street/I-93 Ramps

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø2	Ø5
Lane Configurations									
Traffic Volume (vph)	0	942	668	27	0	0			
Future Volume (vph)	0	942	668	27	0	0			
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900			
Lane Util. Factor	1.00	0.95	0.91	0.91	1.00	1.00			
Ped Bike Factor			1.00						
Frt			0.994						
Flt Protected									
Satd. Flow (prot)	0	3217	4400	0	0	0			
Flt Permitted									
Satd. Flow (perm)	0	3217	4400	0	0	0			
Right Turn on Red				Yes		Yes			
Satd. Flow (RTOR)			13						
Link Speed (mph)		25	25		25				
Link Distance (ft)		287	184		238				
Travel Time (s)		7.8	5.0		6.5				
Confl. Bikes (#/hr)				186					
Peak Hour Factor	0.95	0.95	0.93	0.93	0.92	0.92			
Heavy Vehicles (%)	0%	1%	5%	4%	0%	0%			
Adj. Flow (vph)	0	992	718	29	0	0			
Shared Lane Traffic (%)									
Lane Group Flow (vph)	0	992	747	0	0	0			
Turn Type		NA	NA						
Protected Phases		1 5	1 5				1	2	5
Permitted Phases									
Detector Phase		1 5	1 5						
Switch Phase									
Minimum Initial (s)							8.0	8.0	8.0
Minimum Split (s)							23.0	30.0	22.0
Total Split (s)							33.0	30.0	47.0
Total Split (%)							30%	27%	43%
Maximum Green (s)							27.0	26.0	41.0
Yellow Time (s)							3.0	4.0	3.0
All-Red Time (s)							3.0	0.0	3.0
Lost Time Adjust (s)									
Total Lost Time (s)									
Lead/Lag							Lead	Lag	
Lead-Lag Optimize?									
Vehicle Extension (s)							2.0	2.0	2.0
Recall Mode							C-Max	None	Max
Walk Time (s)							7.0	7.0	7.0
Flash Dont Walk (s)							7.0	19.0	8.0
Pedestrian Calls (#/hr)							0	50	0
Act Effct Green (s)		82.8	82.8						
Actuated g/C Ratio		0.75	0.75						
v/c Ratio		0.41	0.23						
Control Delay		7.1	1.1						
Queue Delay		0.6	0.2						
Total Delay		7.8	1.3						
LOS		A	A						
Approach Delay		7.8	1.3						
Approach LOS		A	A						
Queue Length 50th (ft)		146	0						
Queue Length 95th (ft)		169	m14						
Internal Link Dist (ft)		207	104		158				
Turn Bay Length (ft)									
Base Capacity (vph)		2421	3315						
Starvation Cap Reductn		952	1681						
Spillback Cap Reductn		965	68						
Storage Cap Reductn		0	0						
Reduced v/c Ratio		0.68	0.46						

Intersection Summary			
Area Type:	CBD		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 57 (52%), Referenced to phase 1:EBWB, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.01			
Intersection Signal Delay: 5.0		Intersection LOS: A	
Intersection Capacity Utilization 32.3%		ICU Level of Service A	
Analysis Period (min) 15			

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

Splits and Phases: 9: New Chardon Street & Canal Street

Lane Group	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NBL2	NBL	NBT	NBR	SBU	SBL	SBT	SBR	SBR2
Lane Configurations																	
Traffic Volume (vph)	59	282	60	3	302	16	307	38	36	212	228	360	4	295	292	14	54
Future Volume (vph)	59	282	60	3	302	16	307	38	36	212	228	360	4	295	292	14	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	10	10	12	12	12	10	10	16	12	11	11	11	16
Storage Length (ft)	0		0			0		0		0		150		0		150	
Storage Lanes	0		0			1		0		1		1		0		1	
Taper Length (ft)	25					25				25				25			
Lane Util. Factor	0.95	0.95	0.95	0.95	0.91	0.91	0.91	0.95	0.95	0.91	0.91	1.00	0.91	0.91	0.91	0.91	1.00
Ped Bike Factor		0.84			0.79		0.88			0.84	0.97				0.82		0.71
Frt		0.977					0.987					0.850			0.997		0.850
Flt Protected		0.993			0.950		0.989			0.950	0.986				0.976		
Satd. Flow (prot)	0	2631	0	0	1254	0	2822	0	0	1329	2709	1615	0	0	4070	0	1647
Flt Permitted		0.993			0.950		0.989			0.950	0.986				0.976		
Satd. Flow (perm)	0	2584	0	0	994	0	2508	0	0	1118	2623	1615	0	0	3381	0	1176
Right Turn on Red				Yes				Yes				No					Yes
Satd. Flow (RTOR)		1					7										159
Link Speed (mph)		25					25				25				25		
Link Distance (ft)		204					287				468				998		
Travel Time (s)		5.6					7.8				12.8				27.2		
Confl. Peds. (#/hr)	76		602	228	228	602		76	228	125		1385		1385		228	125
Confl. Bikes (#/hr)												11				7	7
Peak Hour Factor	0.94	0.94	0.94	0.94	0.97	0.97	0.97	0.97	0.98	0.98	0.98	0.98	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	3%	3%	0%	10%	0%	6%	3%	0%	5%	6%	2%	0%	3%	10%	7%	0%
Adj. Flow (vph)	63	300	64	3	311	16	316	39	37	216	233	367	4	321	317	15	59
Shared Lane Traffic (%)					28%					44%							
Lane Group Flow (vph)	0	430	0	0	224	0	458	0	0	158	328	367	0	0	657	0	59
Turn Type	Split	NA			Split	Split	NA		Split	Split	NA	pt+ov	Perm	Split	NA		Perm
Protected Phases	3	3			2	2	2		1	1	1	1 2		4	4		
Permitted Phases													4				4
Detector Phase	3	3			2	2	2		1	1	1	1 2	4	4	4		4
Switch Phase																	
Minimum Initial (s)	8.0	8.0			8.0	8.0	8.0		8.0	8.0	8.0		8.0	8.0	8.0		8.0
Minimum Split (s)	19.0	19.0			15.0	15.0	15.0		33.0	33.0	33.0		24.0	24.0	24.0		24.0
Total Split (s)	26.0	26.0			22.0	22.0	22.0		34.0	34.0	34.0		28.0	28.0	28.0		28.0
Total Split (%)	23.6%	23.6%			20.0%	20.0%	20.0%		30.9%	30.9%	30.9%		25.5%	25.5%	25.5%		25.5%
Maximum Green (s)	19.0	19.0			16.0	16.0	16.0		28.0	28.0	28.0		20.0	20.0	20.0		20.0
Yellow Time (s)	3.0	3.0			3.0	3.0	3.0		3.0	3.0	3.0		3.0	3.0	3.0		3.0
All-Red Time (s)	4.0	4.0			3.0	3.0	3.0		3.0	3.0	3.0		5.0	5.0	5.0		5.0
Lost Time Adjust (s)		-2.0			-2.0		-2.0			-2.0	-2.0				-2.0		0.0
Total Lost Time (s)		5.0			4.0		4.0			4.0	4.0				6.0		8.0
Lead/Lag	Lag	Lag			Lead	Lead	Lead										
Lead-Lag Optimize?																	
Vehicle Extension (s)	2.0	2.0			2.0	2.0	2.0		2.0	2.0	2.0		2.0	2.0	2.0		2.0
Recall Mode	Max	Max			Max	Max	Max		C-Max	C-Max	C-Max		Max	Max	Max		Max
Walk Time (s)	7.0	7.0							7.0	7.0	7.0		7.0	7.0	7.0		7.0
Flash Dont Walk (s)	4.0	4.0							17.0	17.0	17.0		8.0	8.0	8.0		8.0
Pedestrian Calls (#/hr)	0	0							0	0	0		0	0	0		0
Act Effct Green (s)		21.0			18.0		18.0			30.0	30.0	52.0			22.0		20.0
Actuated g/C Ratio		0.19			0.16		0.16			0.27	0.27	0.47			0.20		0.18
v/c Ratio		0.85			1.09		0.98			0.44	0.44	0.48			1.08dl		0.17
Control Delay		31.7			142.0		93.2			25.5	23.6	7.5			50.8		1.1
Queue Delay		0.0			0.0		0.0			0.0	0.0	1.0			0.0		0.0
Total Delay		31.7			142.0		93.2			25.5	23.6	8.5			50.8		1.1
LOS		C			F		F			C	C	A			D		A
Approach Delay		31.7					109.2				17.5				46.7		
Approach LOS		C					F				B				D		
Queue Length 50th (ft)		28			~200		185			52	54	53			163		0
Queue Length 95th (ft)		#207			#364		#285			m72	m72	m61			210		0
Internal Link Dist (ft)		124					207				388				918		
Turn Bay Length (ft)												150					150
Base Capacity (vph)		503			205		467			362	738	763			814		343
Starvation Cap Reductn		0			0		0			0	0	190			0		0
Spillback Cap Reductn		0			0		0			0	0	0			0		0
Storage Cap Reductn		0			0		0			0	0	0			0		0
Reduced v/c Ratio		0.85			1.09		0.98			0.44	0.44	0.64			0.81		0.17

Intersection Summary

Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 79 (72%), Referenced to phase 1:NBTL, Start of Green
Natural Cycle: 95
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.09
Intersection Signal Delay: 50.9 Intersection LOS: D
Intersection Capacity Utilization 83.7% ICU Level of Service E
Analysis Period (min) 15

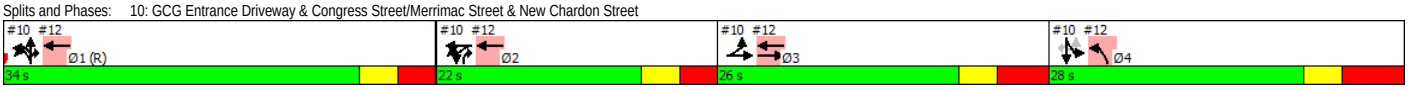
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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.

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

Splits and Phases: 10: GCG Entrance Driveway & Congress Street/Merrimac Street & New Chardon Street

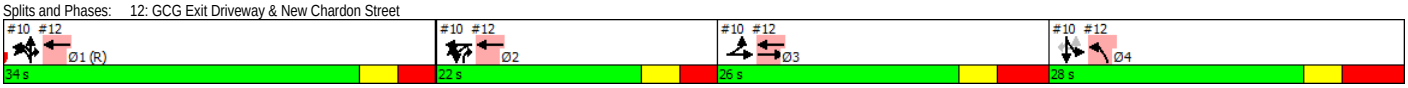


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø1	Ø2
Lane Configurations								
Traffic Volume (vph)	362	0	0	519	37	42		
Future Volume (vph)	362	0	0	519	37	42		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900		
Lane Width (ft)	12	12	12	12	11	11		
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00		
Ped Bike Factor					0.99			
Frt					0.928			
Flt Protected					0.977			
Satd. Flow (prot)	3154	0	0	3065	1454	0		
Flt Permitted					0.977			
Satd. Flow (perm)	3154	0	0	3065	1454	0		
Right Turn on Red		Yes				Yes		
Satd. Flow (RTOR)					47			
Link Speed (mph)	25			25	25			
Link Distance (ft)	137			204	136			
Travel Time (s)	3.7			5.6	3.7			
Confl. Bikes (#/hr)		3				1		
Peak Hour Factor	0.98	0.98	0.90	0.90	0.86	0.86		
Heavy Vehicles (%)	3%	0%	0%	6%	5%	0%		
Adj. Flow (vph)	369	0	0	577	43	49		
Shared Lane Traffic (%)								
Lane Group Flow (vph)	369	0	0	577	92	0		
Turn Type	NA			NA	Prot			
Protected Phases	3			1 2 3	4		1	2
Permitted Phases								
Detector Phase	3			1 2 3	4			
Switch Phase								
Minimum Initial (s)	8.0				8.0		8.0	8.0
Minimum Split (s)	19.0				24.0		33.0	15.0
Total Split (s)	26.0				28.0		34.0	22.0
Total Split (%)	23.6%				25.5%		31%	20%
Maximum Green (s)	19.0				20.0		28.0	16.0
Yellow Time (s)	3.0				3.0		3.0	3.0
All-Red Time (s)	4.0				5.0		3.0	3.0
Lost Time Adjust (s)	-2.0				-2.0			
Total Lost Time (s)	5.0				6.0			
Lead/Lag	Lag							Lead
Lead-Lag Optimize?								
Vehicle Extension (s)	2.0				2.0		2.0	2.0
Recall Mode	Max				Max		C-Max	Max
Walk Time (s)	7.0				7.0		7.0	
Flash Dont Walk (s)	4.0				8.0		17.0	
Pedestrian Calls (#/hr)	0				0		0	
Act Effct Green (s)	21.0			78.0	22.0			
Actuated g/C Ratio	0.19			0.71	0.20			
v/c Ratio	0.61			0.27	0.28			
Control Delay	45.8			0.7	22.5			
Queue Delay	0.1			0.8	0.0			
Total Delay	45.9			1.5	22.5			
LOS	D			A	C			
Approach Delay	45.9			1.5	22.5			
Approach LOS	D			A	C			
Queue Length 50th (ft)	126			6	26			
Queue Length 95th (ft)	177			m6	68			
Internal Link Dist (ft)	57			124	56			
Turn Bay Length (ft)								
Base Capacity (vph)	602			2173	328			
Starvation Cap Reductn	0			1218	0			
Spillback Cap Reductn	10			0	0			
Storage Cap Reductn	0			0	0			
Reduced v/c Ratio	0.62			0.60	0.28			

Intersection Summary

Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 79 (72%), Referenced to phase 1:NBTL, Start of Green
Natural Cycle: 95
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.09
Intersection Signal Delay: 19.1 Intersection LOS: B
Intersection Capacity Utilization 30.9% ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 12: GCG Exit Driveway & New Chardon Street



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	346	0	0	610	15	16
Future Volume (Veh/h)	346	0	0	610	15	16
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.93	0.93	0.65	0.65
Hourly flow rate (vph)	384	0	0	656	23	25
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	786			137		
pX, platoon unblocked					0.94	
vC, conflicting volume			384		712	192
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			384		556	192
tC, single (s)			4.1		6.9	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.6	3.3
p0 queue free %			100		95	97
cM capacity (veh/h)			1186		421	823

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	192	192	328	328	48
Volume Left	0	0	0	0	23
Volume Right	0	0	0	0	25
cSH	1700	1700	1700	1700	564
Volume to Capacity	0.11	0.11	0.19	0.19	0.09
Queue Length 95th (ft)	0	0	0	0	7
Control Delay (s)	0.0	0.0	0.0	0.0	12.0
Lane LOS					B
Approach Delay (s)	0.0		0.0		12.0
Approach LOS					B

Intersection Summary				
Average Delay	0.5			
Intersection Capacity Utilization	26.9%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	346	19	27	598	0	0
Future Volume (Veh/h)	346	19	27	598	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.96	0.96	0.62	0.62
Hourly flow rate (vph)	393	22	28	623	0	0
Pedestrians					128	
Lane Width (ft)					0.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	579			344		
pX, platoon unblocked					0.95	
vC, conflicting volume			543		900	336
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			543		780	336
tC, single (s)			4.2		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			97		100	100
cM capacity (veh/h)			1008		309	666

Direction, Lane #	EB 1	EB 2	WB 1	WB 2
Volume Total	262	153	236	415
Volume Left	0	0	28	0
Volume Right	0	22	0	0
cSH	1700	1700	1008	1700
Volume to Capacity	0.15	0.09	0.03	0.24
Queue Length 95th (ft)	0	0	2	0
Control Delay (s)	0.0	0.0	1.3	0.0
Lane LOS			A	
Approach Delay (s)	0.0		0.5	
Approach LOS				

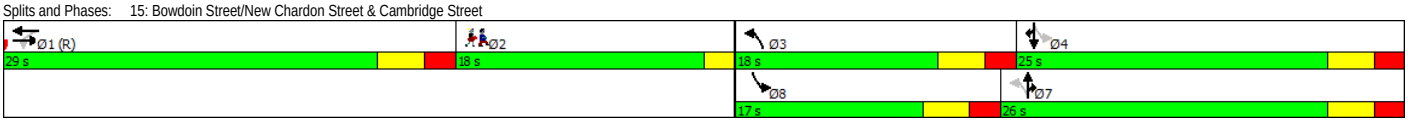
Intersection Summary				
Average Delay	0.3			
Intersection Capacity Utilization	37.3%	ICU Level of Service	A	
Analysis Period (min)	15			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations													
Traffic Volume (vph)	0	640	70	16	299	46	214	319	134	244	166	188	
Future Volume (vph)	0	640	70	16	299	46	214	319	134	244	166	188	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	0		0	0		0	0		100	0		100	
Storage Lanes	0		0	0		0	1		1	1		1	
Taper Length (ft)	25			25			25			25			
Lane Util. Factor	1.00	0.91	0.91	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor		1.00			0.98								
Frt		0.985			0.981				0.850			0.850	
Flt Protected					0.998		0.950			0.950			
Satd. Flow (prot)	0	4899	0	0	3372	0	1656	1863	1509	1671	1845	1583	
Flt Permitted					0.903		0.552			0.210			
Satd. Flow (perm)	0	4899	0	0	3051	0	962	1863	1509	369	1845	1583	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)		20			18				110			207	
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		236			438			363			579		
Travel Time (s)		5.4			10.0			8.3			13.2		
Confl. Bikes (#/hr)			30			153			12				
Peak Hour Factor	0.98	0.98	0.98	0.91	0.91	0.91	0.92	0.92	0.92	0.91	0.91	0.91	
Heavy Vehicles (%)	0%	4%	3%	0%	2%	10%	9%	2%	7%	8%	3%	2%	
Adj. Flow (vph)	0	653	71	18	329	51	233	347	146	268	182	207	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	724	0	0	398	0	233	347	146	268	182	207	
Turn Type		NA		Perm	NA		pm+pt	NA	Prot	pm+pt	NA	Prot	
Protected Phases		1			1		3	7	7	8	4	4	2
Permitted Phases				1			7			4			
Detector Phase		1		1	1		3	7	7	8	4	4	
Switch Phase													
Minimum Initial (s)		8.0		8.0	8.0		8.0	8.0	8.0	8.0	8.0	8.0	1.0
Minimum Split (s)		28.0		28.0	28.0		13.0	13.0	13.0	13.0	13.0	13.0	18.0
Total Split (s)		29.0		29.0	29.0		18.0	26.0	26.0	17.0	25.0	25.0	18.0
Total Split (%)		32.2%		32.2%	32.2%		20.0%	28.9%	28.9%	18.9%	27.8%	27.8%	20%
Maximum Green (s)		24.0		24.0	24.0		13.0	21.0	21.0	12.0	20.0	20.0	16.0
Yellow Time (s)		3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	2.0
All-Red Time (s)		2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	0.0
Lost Time Adjust (s)		0.0			0.0		0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		5.0			5.0		5.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag		Lead		Lead	Lead		Lead	Lag	Lag	Lead	Lag	Lag	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	2.0
Recall Mode		C-Max		C-Max	C-Max		None	Min	Min	None	Min	Min	Ped
Walk Time (s)		7.0		7.0	7.0								7.0
Flash Dont Walk (s)		16.0		16.0	16.0								9.0
Pedestrian Calls (#/hr)		0		0	0								20
Act Effct Green (s)		25.7			25.7		31.1	19.3	19.3	31.5	19.5	19.5	
Actuated g/C Ratio		0.29			0.29		0.35	0.21	0.21	0.35	0.22	0.22	
v/c Ratio		0.51			0.45		0.55	0.87	0.36	0.89	0.46	0.41	
Control Delay		21.2			15.3		23.9	56.8	12.0	53.2	34.7	7.1	
Queue Delay		0.6			0.4		0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay		21.8			15.7		23.9	56.8	12.0	53.2	34.7	7.2	
LOS		C			B		C	E	B	D	C	A	
Approach Delay		21.8			15.7			37.2			33.6		
Approach LOS		C			B			D			C		
Queue Length 50th (ft)		64			39		87	186	16	102	90	0	
Queue Length 95th (ft)		186			m55		144	#322	65	#240	153	55	
Internal Link Dist (ft)		156			358			283			499		
Turn Bay Length (ft)									100			100	
Base Capacity (vph)		1415			885		445	434	436	302	410	512	
Starvation Cap Reductn		344			0		0	0	0	0	0	0	
Spillback Cap Reductn		0			146		0	0	0	0	0	9	
Storage Cap Reductn		0			0		0	0	0	0	0	0	
Reduced v/c Ratio		0.68			0.54		0.52	0.80	0.33	0.89	0.44	0.41	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 1:EBWB, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.89
Intersection Signal Delay: 28.4 Intersection LOS: C
Intersection Capacity Utilization 64.6% 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: 15: Bowdoin Street/New Chardon Street & Cambridge Street

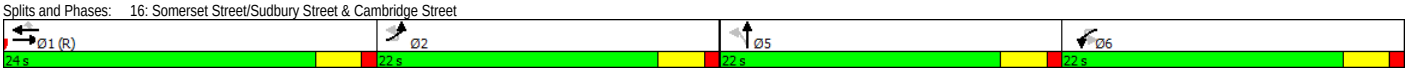


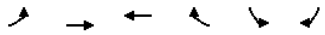
Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations														
Traffic Volume (vph)	27	285	593	113	19	52	267	161	67	106	29	0	0	0
Future Volume (vph)	27	285	593	113	19	52	267	161	67	106	29	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0		0		100		100	0		0	0		0
Storage Lanes		2		0		1		1	0		0	0		0
Taper Length (ft)		25				25			25			25		
Lane Util. Factor	0.95	0.97	0.95	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.90					0.60		0.95				
Frt			0.976					0.850		0.981				
Flt Protected		0.950				0.950				0.984				
Satd. Flow (prot)	0	3408	3103	0	0	1805	3574	1538	0	1736	0	0	0	0
Flt Permitted		0.581				0.378				0.984				
Satd. Flow (perm)	0	2085	3103	0	0	718	3574	921	0	1736	0	0	0	0
Right Turn on Red				Yes				Yes			Yes			Yes
Satd. Flow (RTOR)			22					168		8				
Link Speed (mph)			30				30			30			30	
Link Distance (ft)			438				763			259			584	
Travel Time (s)			10.0				17.3			5.9			13.3	
Confl. Peds. (#/hr)				535				533			244			
Confl. Bikes (#/hr)				4				80			3			
Peak Hour Factor	0.98	0.98	0.98	0.98	0.96	0.96	0.96	0.96	0.91	0.91	0.91	0.92	0.92	0.92
Heavy Vehicles (%)	0%	3%	2%	4%	0%	0%	1%	5%	1%	0%	3%	0%	0%	0%
Adj. Flow (vph)	28	291	605	115	20	54	278	168	74	116	32	0	0	0
Shared Lane Traffic (%)														
Lane Group Flow (vph)	0	319	720	0	0	74	278	168	0	222	0	0	0	0
Turn Type	custom	Prot	NA		custom	Prot	NA	Perm	Perm	NA				
Protected Phases		2	1			6	1			5				
Permitted Phases	2				6			1	5					
Detector Phase	2	2	1		6	6	1	1	5	5				
Switch Phase														
Minimum Initial (s)	8.0	8.0	8.0		8.0	8.0	8.0	8.0	8.0	8.0				
Minimum Split (s)	22.0	22.0	27.0		22.0	22.0	27.0	27.0	22.0	22.0				
Total Split (s)	22.0	22.0	24.0		22.0	22.0	24.0	24.0	22.0	22.0				
Total Split (%)	24.4%	24.4%	26.7%		24.4%	24.4%	26.7%	26.7%	24.4%	24.4%				
Maximum Green (s)	18.0	18.0	20.0		18.0	18.0	20.0	20.0	18.0	18.0				
Yellow Time (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0				
All-Red Time (s)	1.0	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	0.0		0.0				
Total Lost Time (s)		4.0	4.0			4.0	4.0	4.0		4.0				
Lead/Lag	Lag	Lag	Lead		Lag	Lag	Lead	Lead	Lead	Lead				
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		None	None	C-Max	C-Max	None	None				
Walk Time (s)	7.0	7.0	7.0				7.0	7.0						
Flash Dont Walk (s)	11.0	11.0	16.0				16.0	16.0						
Pedestrian Calls (#/hr)	0	0	0				0	0						
Act Effct Green (s)		16.5	31.9			13.3	31.9	31.9		14.7				
Actuated g/C Ratio		0.18	0.35			0.15	0.35	0.35		0.16				
v/c Ratio		0.84	0.65			0.70	0.22	0.39		0.77				
Control Delay		43.0	31.5			67.9	24.8	8.0		51.9				
Queue Delay		0.0	0.0			0.0	0.0	0.0		0.0				
Total Delay		43.0	31.5			67.9	24.8	8.0		51.9				
LOS		D	C			E	C	A		D				
Approach Delay			35.0				25.5			51.9				
Approach LOS			D				C			D				
Queue Length 50th (ft)		90	163			40	62	0		116				
Queue Length 95th (ft)		m#143	m#297			#90	106	56		188				
Internal Link Dist (ft)			358				683			179			504	
Turn Bay Length (ft)						100		100						
Base Capacity (vph)		417	1113			143	1266	434		353				
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		0.76	0.65			0.52	0.22	0.39		0.63				

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 1:EBWB, Start of Green
Natural Cycle: 95
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.84
Intersection Signal Delay: 34.4 Intersection LOS: C
Intersection Capacity Utilization 51.2% 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: 16: Somerset Street/Sudbury Street & Cambridge Street





Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	552	0	0	179	0
Future Volume (Veh/h)	0	552	0	0	179	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	600	0	0	195	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		584				
pX, platoon unblocked					0.95	
vC, conflicting volume	0				300	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0				147	0
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				75	100
cM capacity (veh/h)	1636				791	1091

Direction, Lane #	EB 1	EB 2	SB 1
Volume Total	300	300	195
Volume Left	0	0	195
Volume Right	0	0	0
cSH	1700	1700	791
Volume to Capacity	0.18	0.18	0.25
Queue Length 95th (ft)	0	0	24
Control Delay (s)	0.0	0.0	11.0
Lane LOS			B
Approach Delay (s)	0.0		11.0
Approach LOS			B

Intersection Summary				
Average Delay		2.7		
Intersection Capacity Utilization		31.8%	ICU Level of Service	A
Analysis Period (min)		15		

Intersection Sign configuration not allowed in HCM analysis.

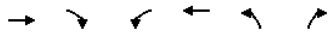
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations														
Traffic Volume (vph)	149	393	162	0	0	0	10	0	683	358	153	497	0	
Future Volume (vph)	149	393	162	0	0	0	10	0	683	358	153	497	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	11	10	12	12	12	12	11	11	11	10	11	11	
Storage Length (ft)	0		0	0		0		0		0	100		0	
Storage Lanes	1		1	0		0		0		0	1		0	
Taper Length (ft)	25			25				25			25			
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00	0.91	1.00	0.91	0.91	1.00	0.91	1.00	
Ped Bike Factor	0.57		0.46						0.88		0.88			
Frt			0.850						0.949					
Flt Protected	0.950										0.950			
Satd. Flow (prot)	1392	2842	1280	0	0	0	0	0	3592	0	1486	4029	0	
Flt Permitted	0.950								0.934		0.950			
Satd. Flow (perm)	787	2842	586	0	0	0	0	0	3355	0	1305	4029	0	
Right Turn on Red			Yes			Yes				No			Yes	
Satd. Flow (RTOR)			176											
Link Speed (mph)		25			25				25			25		
Link Distance (ft)		153			161				395			468		
Travel Time (s)		4.2			4.4				10.8			12.8		
Confl. Peds. (#/hr)	236		435							650	650			
Confl. Bikes (#/hr)			5							46			2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.98	0.98	0.98	0.98	0.93	0.93	0.93	
Heavy Vehicles (%)	5%	5%	6%	0%	0%	0%	0%	0%	3%	7%	2%	12%	0%	
Parking (#/hr)	0	0												
Adj. Flow (vph)	162	427	176	0	0	0	10	0	697	365	165	534	0	
Shared Lane Traffic (%)														
Lane Group Flow (vph)	162	427	176	0	0	0	0	0	1072	0	165	534	0	
Turn Type	Split	NA	Perm				Perm		NA		Prot	NA		
Protected Phases	5	5							1		6	1 6		2
Permitted Phases			5				1							
Detector Phase	5	5	5				1		1		6	1 6		
Switch Phase														
Minimum Initial (s)	8.0	8.0	8.0				10.0		10.0		7.0			7.0
Minimum Split (s)	15.0	15.0	15.0				17.0		17.0		14.0			26.0
Total Split (s)	26.0	26.0	26.0				42.0		42.0		16.0			26.0
Total Split (%)	23.6%	23.6%	23.6%				38.2%		38.2%		14.5%			24%
Maximum Green (s)	20.0	20.0	20.0				37.0		37.0		10.0			22.0
Yellow Time (s)	3.0	3.0	3.0				3.0		3.0		3.0			4.0
All-Red Time (s)	3.0	3.0	3.0				2.0		2.0		3.0			0.0
Lost Time Adjust (s)	-2.0	-2.0	-2.0						-2.0		-2.0			
Total Lost Time (s)	4.0	4.0	4.0						3.0		4.0			
Lead/Lag	Lead	Lead	Lead				Lead		Lead		Lag			Lag
Lead-Lag Optimize?														
Vehicle Extension (s)	2.0	2.0	2.0				2.0		2.0		2.0			2.0
Recall Mode	Max	Max	Max				C-Max		C-Max		Max			Ped
Walk Time (s)	0.0	0.0	0.0											7.0
Flash Dont Walk (s)	8.0	8.0	8.0											15.0
Pedestrian Calls (#/hr)	0	0	0											0
Act Effct Green (s)	22.0	22.0	22.0						39.0		12.0	55.0		
Actuated g/C Ratio	0.20	0.20	0.20						0.35		0.11	0.50		
v/c Ratio	0.58	0.75	0.68						0.90		1.02	0.27		
Control Delay	49.4	50.8	20.6						24.9		103.5	16.3		
Queue Delay	0.0	0.0	0.0						3.8		36.4	0.0		
Total Delay	49.4	50.9	20.6						28.7		139.9	16.3		
LOS	D	D	C						C		F	B		
Approach Delay		43.6							28.7			45.5		
Approach LOS		D							C			D		
Queue Length 50th (ft)	104	150	0						82		~121	78		
Queue Length 95th (ft)	177	208	#102						#349		m#149	m87		
Internal Link Dist (ft)		73			81				315			388		
Turn Bay Length (ft)											100			
Base Capacity (vph)	278	568	258						1189		162	2014		
Starvation Cap Reductn	0	0	0						4		0	0		
Spillback Cap Reductn	0	2	0						68		66	0		
Storage Cap Reductn	0	0	0						0		0	0		
Reduced v/c Ratio	0.58	0.75	0.68						0.96		1.72	0.27		

Intersection Summary

Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 70 (64%), Referenced to phase 1:NBSB, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.02
Intersection Signal Delay: 37.8 Intersection LOS: D
Intersection Capacity Utilization 60.2% ICU Level of Service B
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: 19: Congress Street & Sudbury Street



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	847	57	0	0	0	63
Future Volume (Veh/h)	847	57	0	0	0	63
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.92	0.92	0.83	0.83
Hourly flow rate (vph)	963	65	0	0	0	76
Pedestrians					286	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					24	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	161			111		
pX, platoon unblocked						
vC, conflicting volume			1314		1282	640
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1314		1282	640
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	76
cM capacity (veh/h)			406		122	322

Direction, Lane #	EB 1	EB 2	EB 3	NB 1
Volume Total	385	385	258	76
Volume Left	0	0	0	0
Volume Right	0	0	65	76
cSH	1700	1700	1700	322
Volume to Capacity	0.23	0.23	0.15	0.24
Queue Length 95th (ft)	0	0	0	22
Control Delay (s)	0.0	0.0	0.0	19.6
Lane LOS				C
Approach Delay (s)	0.0			19.6
Approach LOS				C

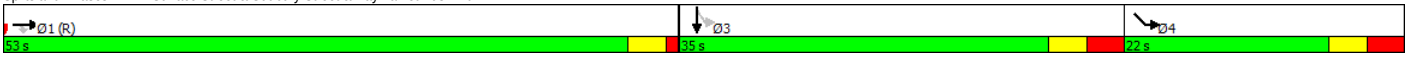
Intersection Summary				
Average Delay	1.3			
Intersection Capacity Utilization	28.7%	ICU Level of Service	A	
Analysis Period (min)	15			

Lane Group	EBT	EBR	SBL	SBT	SEL	SER
Lane Configurations						
Traffic Volume (vph)	770	140	69	304	28	6
Future Volume (vph)	770	140	69	304	28	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	12	12	12	12
Lane Util. Factor	0.95	1.00	0.95	0.95	1.00	1.00
Ped Bike Factor		0.53		0.94		
Frt		0.850			0.975	
Flt Protected				0.991	0.961	
Satd. Flow (prot)	3323	1553	0	3353	916	0
Flt Permitted				0.991	0.961	
Satd. Flow (perm)	3323	831	0	3136	916	0
Right Turn on Red		Yes	No			
Satd. Flow (RTOR)		152				
Link Speed (mph)	25			25	25	
Link Distance (ft)	111			438	138	
Travel Time (s)	3.0			11.9	3.8	
Confl. Peds. (#/hr)		402	183			
Confl. Bikes (#/hr)		10				
Peak Hour Factor	0.92	0.92	0.88	0.88	0.77	0.77
Heavy Vehicles (%)	5%	4%	1%	8%	93%	100%
Adj. Flow (vph)	837	152	78	345	36	8
Shared Lane Traffic (%)						
Lane Group Flow (vph)	837	152	0	423	44	0
Turn Type	NA	Perm	Perm	NA	Prot	
Protected Phases	1			3	4	
Permitted Phases		1	3			
Detector Phase	1	1	3	3	4	
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	6.0	
Minimum Split (s)	21.0	21.0	18.0	18.0	13.0	
Total Split (s)	53.0	53.0	35.0	35.0	22.0	
Total Split (%)	48.2%	48.2%	31.8%	31.8%	20.0%	
Maximum Green (s)	49.0	49.0	29.0	29.0	16.0	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	1.0	1.0	3.0	3.0	3.0	
Lost Time Adjust (s)	-1.0	-1.0		-2.0	0.0	
Total Lost Time (s)	3.0	3.0		4.0	6.0	
Lead/Lag			Lead	Lead	Lag	
Lead-Lag Optimize?						
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	
Recall Mode	C-Max	C-Max	Max	Max	Max	
Walk Time (s)	7.0	7.0	7.0	7.0		
Flash Dont Walk (s)	5.0	5.0	4.0	4.0		
Pedestrian Calls (#/hr)	0	0	25	25		
Act Effct Green (s)	50.0	50.0		31.0	16.0	
Actuated g/C Ratio	0.45	0.45		0.28	0.15	
v/c Ratio	0.55	0.33		0.48	0.33	
Control Delay	19.3	8.1		36.1	49.9	
Queue Delay	51.4	1.1		0.0	0.0	
Total Delay	70.7	9.2		36.1	49.9	
LOS	E	A		D	D	
Approach Delay	61.2			36.1	49.9	
Approach LOS	E			D	D	
Queue Length 50th (ft)	222	25		98	28	
Queue Length 95th (ft)	m263	m43		m125	55	
Internal Link Dist (ft)	31			358	58	
Turn Bay Length (ft)						
Base Capacity (vph)	1510	460		883	133	
Starvation Cap Reductn	757	152		0	0	
Spillback Cap Reductn	0	0		0	0	
Storage Cap Reductn	0	0		0	0	
Reduced v/c Ratio	1.11	0.49		0.48	0.33	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 69 (63%), Referenced to phase 1:EBT, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.55
Intersection Signal Delay: 53.6 Intersection LOS: D
Intersection Capacity Utilization 48.4% ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 21: Surface Street & Sudbury Street & Haymarket Bus Exit

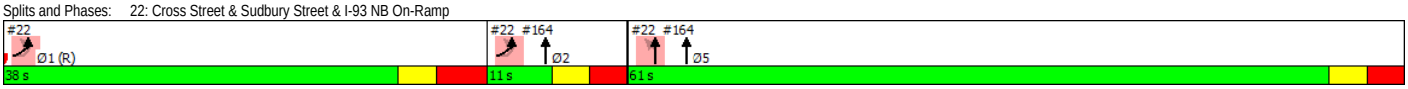


Lane Group	EBL2	EBL	EBR	NBL	NBT	SBT	SBR	SEL	SER	Ø1	Ø2
Lane Configurations											
Traffic Volume (vph)	609	258	0	626	711	0	0	0	0		
Future Volume (vph)	609	258	0	626	711	0	0	0	0		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900		
Lane Width (ft)	12	13	12	12	11	12	12	12	12		
Lane Util. Factor	0.95	0.97	1.00	0.95	0.95	1.00	1.00	1.00	1.00		
Ped Bike Factor											
Frt											
Flt Protected		0.950			0.977						
Satd. Flow (prot)	0	3373	0	0	3272	0	0	0	0		
Flt Permitted		0.950			0.977						
Satd. Flow (perm)	0	3373	0	0	3272	0	0	0	0		
Right Turn on Red	Yes		Yes								
Satd. Flow (RTOR)		200									
Link Speed (mph)		25			25	25		25			
Link Distance (ft)		191			203	568		237			
Travel Time (s)		5.2			5.5	15.5		6.5			
Confl. Bikes (#/hr)			11								
Peak Hour Factor	0.92	0.92	0.92	0.95	0.95	0.92	0.92	0.92	0.92		
Heavy Vehicles (%)	4%	15%	0%	1%	7%	0%	0%	0%	0%		
Adj. Flow (vph)	662	280	0	659	748	0	0	0	0		
Shared Lane Traffic (%)											
Lane Group Flow (vph)	0	942	0	0	1407	0	0	0	0		
Turn Type	Perm	Prot		Perm	NA						
Protected Phases		1 2			5					1	2
Permitted Phases	1 2			5							
Detector Phase	1 2	1 2		5	5						
Switch Phase											
Minimum Initial (s)				10.0	10.0					10.0	4.0
Minimum Split (s)				18.0	18.0					25.0	11.0
Total Split (s)				61.0	61.0					38.0	11.0
Total Split (%)				55.5%	55.5%					35%	10%
Maximum Green (s)				55.0	55.0					31.0	5.0
Yellow Time (s)				3.0	3.0					3.0	3.0
All-Red Time (s)				3.0	3.0					4.0	3.0
Lost Time Adjust (s)					-1.0						
Total Lost Time (s)					5.0						
Lead/Lag										Lead	Lag
Lead-Lag Optimize?											
Vehicle Extension (s)				2.0	2.0					2.0	2.0
Recall Mode				Max	Max					C-Max	Max
Walk Time (s)				7.0	7.0					7.0	
Flash Dont Walk (s)				4.0	4.0					3.0	
Pedestrian Calls (#/hr)				30	30					0	
Act Effct Green (s)		43.0			56.0						
Actuated g/C Ratio		0.39			0.51						
v/c Ratio		0.65			0.85						
Control Delay		4.5			10.4						
Queue Delay		0.1			0.0						
Total Delay		4.6			10.4						
LOS		A			B						
Approach Delay		4.6			10.4						
Approach LOS		A			B						
Queue Length 50th (ft)		4			425						
Queue Length 95th (ft)		17			532						
Internal Link Dist (ft)		111			123	488		157			
Turn Bay Length (ft)											
Base Capacity (vph)		1440			1665						
Starvation Cap Reductn		52			0						
Spillback Cap Reductn		0			0						
Storage Cap Reductn		0			0						
Reduced v/c Ratio		0.68			0.85						

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 74 (67%), Referenced to phase 1:EBL, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.85
Intersection Signal Delay: 8.1 Intersection LOS: A
Intersection Capacity Utilization 80.8% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 22: Cross Street & Sudbury Street & I-93 NB On-Ramp



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	44	25	0	0	88	83	87	1210	50	0	0	0
Future Volume (vph)	44	25	0	0	88	83	87	1210	50	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	1.00	1.00	0.95	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor	0.71				0.77			0.96				
Frt					0.935			0.994				
Flt Protected	0.950							0.997				
Satd. Flow (prot)	1624	1660	0	0	1230	0	0	3051	0	0	0	0
Flt Permitted	0.519							0.997				
Satd. Flow (perm)	630	1660	0	0	1230	0	0	3005	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					8			7				
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		244			263			292			187	
Travel Time (s)		6.7			7.2			8.0			5.1	
Confl. Peds. (#/hr)	510					510	107		528			
Confl. Bikes (#/hr)			12			7			95			1
Peak Hour Factor	0.71	0.71	0.71	0.89	0.89	0.89	0.96	0.96	0.96	0.92	0.92	0.92
Heavy Vehicles (%)	0%	3%	0%	0%	1%	0%	9%	2%	0%	0%	0%	0%
Parking (#/hr)									0			
Adj. Flow (vph)	62	35	0	0	99	93	91	1260	52	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	62	35	0	0	192	0	0	1403	0	0	0	0
Turn Type	Perm	NA			NA		Split	NA				
Protected Phases		5			5		1	1				
Permitted Phases	5											
Detector Phase	5	5			5		1	1				
Switch Phase												
Minimum Initial (s)	8.0	8.0			8.0		8.0	8.0				
Minimum Split (s)	21.0	21.0			21.0		23.0	23.0				
Total Split (s)	34.0	34.0			34.0		76.0	76.0				
Total Split (%)	30.9%	30.9%			30.9%		69.1%	69.1%				
Maximum Green (s)	29.0	29.0			29.0		71.0	71.0				
Yellow Time (s)	3.0	3.0			3.0		3.0	3.0				
All-Red Time (s)	2.0	2.0			2.0		2.0	2.0				
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)	2.0	2.0			2.0		2.0	2.0				
Recall Mode	Max	Max			Max		C-Max	C-Max				
Walk Time (s)	7.0	7.0			7.0		7.0	7.0				
Flash Dont Walk (s)	8.0	8.0			8.0		8.0	8.0				
Pedestrian Calls (#/hr)	50	50			50		0	0				
Act Effct Green (s)	30.0	30.0			30.0			72.0				
Actuated g/C Ratio	0.27	0.27			0.27			0.65				
v/c Ratio	0.36	0.08			0.56			0.70				
Control Delay	57.0	46.8			40.4			5.6				
Queue Delay	0.0	0.0			0.0			1.4				
Total Delay	57.0	46.8			40.4			7.0				
LOS	E	D			D			A				
Approach Delay		53.3			40.4			7.0				
Approach LOS		D			D			A				
Queue Length 50th (ft)	45	24			112			11				
Queue Length 95th (ft)	71	47			187			13				
Internal Link Dist (ft)		164			183			212			107	
Turn Bay Length (ft)												
Base Capacity (vph)	171	452			341			1999				
Starvation Cap Reductn	0	0			0			333				
Spillback Cap Reductn	0	0			0			377				
Storage Cap Reductn	0	0			0			0				
Reduced v/c Ratio	0.36	0.08			0.56			0.86				

Intersection Summary

Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 98 (89%), Referenced to phase 1:NBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.70
Intersection Signal Delay: 13.5 Intersection LOS: B
Intersection Capacity Utilization 74.4% ICU Level of Service D
Analysis Period (min) 15

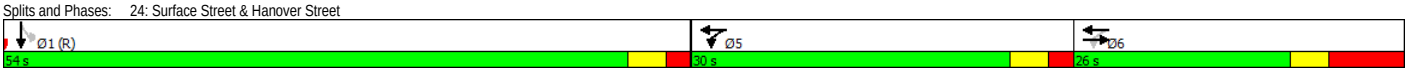
Splits and Phases: 23: Cross Street & Hanover Street

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	39	10	74	101	0	0	0	0	30	398	22
Future Volume (vph)	0	39	10	74	101	0	0	0	0	30	398	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor		0.93		0.70							0.96	
Frt		0.970									0.993	
Flt Protected				0.950							0.997	
Satd. Flow (prot)	0	2625	0	1504	1693	0	0	0	0	0	2864	0
Flt Permitted				0.712							0.997	
Satd. Flow (perm)	0	2625	0	788	1693	0	0	0	0	0	2837	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13									6	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		355			244			470			333	
Travel Time (s)		9.7			6.7			12.8			9.1	
Confl. Peds. (#/hr)			162	162						72		415
Confl. Bikes (#/hr)			2			15						14
Peak Hour Factor	0.75	0.75	0.75	0.89	0.89	0.89	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	10%	20%	8%	1%	0%	0%	0%	0%	0%	9%	13%
Adj. Flow (vph)	0	52	13	83	113	0	0	0	0	33	433	24
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	65	0	83	113	0	0	0	0	0	490	0
Turn Type		NA		D.P+P	NA					Perm	NA	
Protected Phases		6		5	5 6						1	
Permitted Phases				6						1		
Detector Phase		6		5	5 6					1	1	
Switch Phase												
Minimum Initial (s)		10.0		10.0						10.0	10.0	
Minimum Split (s)		22.0		18.0						27.0	27.0	
Total Split (s)		26.0		30.0						54.0	54.0	
Total Split (%)		23.6%		27.3%						49.1%	49.1%	
Maximum Green (s)		17.0		25.0						49.0	49.0	
Yellow Time (s)		3.0		3.0						3.0	3.0	
All-Red Time (s)		6.0		2.0						2.0	2.0	
Lost Time Adjust (s)		-5.0		-1.0							-1.0	
Total Lost Time (s)		4.0		4.0							4.0	
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)		2.0		2.0						2.0	2.0	
Recall Mode		Max		Max						C-Max	C-Max	
Walk Time (s)		7.0		7.0						7.0	7.0	
Flash Dont Walk (s)		5.0		5.0						10.0	10.0	
Pedestrian Calls (#/hr)		0		0						0	0	
Act Effct Green (s)		22.0		48.0	52.0						50.0	
Actuated g/C Ratio		0.20		0.44	0.47						0.45	
v/c Ratio		0.12		0.16	0.14						0.38	
Control Delay		20.1		13.0	12.7						9.2	
Queue Delay		0.0		0.0	1.2						0.5	
Total Delay		20.1		13.0	13.9						9.7	
LOS		C		B	B						A	
Approach Delay		20.1			13.5						9.7	
Approach LOS		C			B						A	
Queue Length 50th (ft)		18		21	27						44	
Queue Length 95th (ft)		30		m35	m46						62	
Internal Link Dist (ft)		275			164			390			253	
Turn Bay Length (ft)												
Base Capacity (vph)		535		513	800						1292	
Starvation Cap Reductn		0		0	522						396	
Spillback Cap Reductn		0		0	0						0	
Storage Cap Reductn		0		0	0						0	
Reduced v/c Ratio		0.12		0.16	0.41						0.55	

Intersection Summary

Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 17 (15%), Referenced to phase 1:SBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.38
Intersection Signal Delay: 11.6 Intersection LOS: B
Intersection Capacity Utilization 74.4% ICU Level of Service D
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 24: Surface Street & Hanover Street



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	123	927	49	0	669
Future Volume (vph)	0	123	927	49	0	669
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.91	0.91	1.00	0.91
Frt		0.865	0.993			
Flt Protected						
Satd. Flow (prot)	0	1644	5151	0	0	5187
Flt Permitted						
Satd. Flow (perm)	0	1644	5151	0	0	5187
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		106	12			
Link Speed (mph)	30		25			25
Link Distance (ft)	355		439			395
Travel Time (s)	8.1		12.0			10.8
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	134	1008	53	0	727
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	134	1061	0	0	727
Turn Type		Prot	NA			NA
Protected Phases		2	1			1
Permitted Phases						
Detector Phase		2	1			1
Switch Phase						
Minimum Initial (s)		4.0	4.0			4.0
Minimum Split (s)		22.0	22.0			22.0
Total Split (s)		43.0	67.0			67.0
Total Split (%)		39.1%	60.9%			60.9%
Maximum Green (s)		39.0	63.0			63.0
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		Lag	Lead			Lead
Lead-Lag Optimize?						
Vehicle Extension (s)		2.0	2.0			2.0
Recall Mode		None	C-Max			C-Max
Walk Time (s)		7.0				
Flash Dont Walk (s)		11.0				
Pedestrian Calls (#/hr)		0				
Act Effct Green (s)		7.4	94.6			94.6
Actuated g/C Ratio		0.07	0.86			0.86
v/c Ratio		0.64	0.24			0.16
Control Delay		35.0	0.4			0.3
Queue Delay		0.0	0.1			0.0
Total Delay		35.0	0.5			0.3
LOS		C	A			A
Approach Delay			0.5			0.3
Approach LOS			A			A
Queue Length 50th (ft)		50	0			4
Queue Length 95th (ft)		100	m26			m5
Internal Link Dist (ft)	275		359			315
Turn Bay Length (ft)						
Base Capacity (vph)		651	4432			4461
Starvation Cap Reductn		0	1795			0
Spillback Cap Reductn		2	98			0
Storage Cap Reductn		0	0			0
Reduced v/c Ratio		0.21	0.40			0.16

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 56 (51%), Referenced to phase 1:NBSB, Start of Green			
Natural Cycle: 45			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.64			
Intersection Signal Delay: 2.9		Intersection LOS: A	
Intersection Capacity Utilization 33.3%		ICU Level of Service A	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 25: Congress Street

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations													
Traffic Volume (vph)	407	40	0	0	0	0	0	940	26	0	0	0	
Future Volume (vph)	407	40	0	0	0	0	0	940	26	0	0	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00	
Ped Bike Factor								1.00					
Frt								0.996					
Flt Protected	0.950	0.961											
Satd. Flow (prot)	1442	1477	0	0	0	0	0	3105	0	0	0	0	
Flt Permitted	0.950	0.961											
Satd. Flow (perm)	1442	1477	0	0	0	0	0	3105	0	0	0	0	
Right Turn on Red	No		Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)								3					
Link Speed (mph)		25			25			25			25		
Link Distance (ft)		145			386			247			292		
Travel Time (s)		4.0			10.5			6.7			8.0		
Confl. Bikes (#/hr)									112				
Peak Hour Factor	0.88	0.88	0.88	0.92	0.92	0.92	0.94	0.94	0.94	0.92	0.92	0.92	
Heavy Vehicles (%)	7%	0%	0%	0%	0%	0%	0%	4%	0%	0%	0%	0%	
Adj. Flow (vph)	463	45	0	0	0	0	0	1000	28	0	0	0	
Shared Lane Traffic (%)	42%												
Lane Group Flow (vph)	269	239	0	0	0	0	0	1028	0	0	0	0	
Turn Type	Split	NA						NA					
Protected Phases	1	1						5					2
Permitted Phases													
Detector Phase	1	1						5					
Switch Phase													
Minimum Initial (s)	8.0	8.0						8.0					8.0
Minimum Split (s)	15.0	15.0						14.0					18.0
Total Split (s)	43.0	43.0						49.0					18.0
Total Split (%)	39.1%	39.1%						44.5%					16%
Maximum Green (s)	38.0	38.0						44.0					14.0
Yellow Time (s)	3.0	3.0						3.0					4.0
All-Red Time (s)	2.0	2.0						2.0					0.0
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?													
Vehicle Extension (s)	2.0	2.0						2.0					2.0
Recall Mode	C-Max	C-Max						Max					Ped
Walk Time (s)													7.0
Flash Dont Walk (s)													7.0
Pedestrian Calls (#/hr)													0
Act Effct Green (s)	39.0	39.0						45.0					
Actuated g/C Ratio	0.35	0.35						0.41					
v/c Ratio	0.53	0.46						0.81					
Control Delay	32.7	30.8						34.7					
Queue Delay	0.0	0.0						2.3					
Total Delay	32.7	30.8						37.0					
LOS	C	C						D					
Approach Delay		31.8						37.0					
Approach LOS		C						D					
Queue Length 50th (ft)	156	135						330					
Queue Length 95th (ft)	237	208						418					
Internal Link Dist (ft)		65			306			167			212		
Turn Bay Length (ft)													
Base Capacity (vph)	511	523						1272					
Starvation Cap Reductn	0	0						0					
Spillback Cap Reductn	0	0						135					
Storage Cap Reductn	0	0						0					
Reduced v/c Ratio	0.53	0.46						0.90					

Intersection Summary

Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 25 (23%), Referenced to phase 1:EBTL, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.81
Intersection Signal Delay: 35.3 Intersection LOS: D
Intersection Capacity Utilization 50.2% ICU Level of Service A
Analysis Period (min) 15

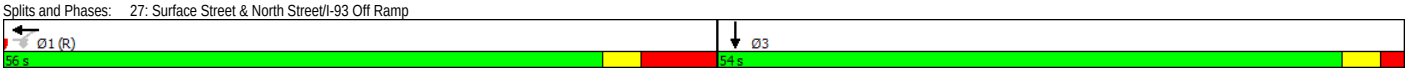
Splits and Phases: 26: Cross Street & I-93 Off-Ramp/North Street

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	115	118	203	0	0	0	0	0	448	34
Future Volume (vph)	0	0	115	118	203	0	0	0	0	0	448	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95
Ped Bike Factor											0.97	
Frt			0.865								0.989	
Flt Protected					0.982							
Satd. Flow (prot)	0	0	1370	0	3117	0	0	0	0	0	2887	0
Flt Permitted					0.982							
Satd. Flow (perm)	0	0	1370	0	3117	0	0	0	0	0	2887	0
Right Turn on Red			No	No		Yes			Yes			Yes
Satd. Flow (RTOR)											9	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		373			108			468			470	
Travel Time (s)		10.2			2.9			12.8			12.8	
Confl. Peds. (#/hr)												466
Confl. Bikes (#/hr)												19
Peak Hour Factor	0.84	0.84	0.84	0.73	0.73	0.73	0.92	0.92	0.92	0.86	0.86	0.86
Heavy Vehicles (%)	0%	0%	8%	3%	2%	0%	0%	0%	0%	0%	8%	9%
Parking (#/hr)												0
Adj. Flow (vph)	0	0	137	162	278	0	0	0	0	0	521	40
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	137	0	440	0	0	0	0	0	561	0
Turn Type			Perm	Perm	NA						NA	
Protected Phases					1						3	
Permitted Phases			1	1								
Detector Phase			1	1	1						3	
Switch Phase												
Minimum Initial (s)			10.0	10.0	10.0						10.0	
Minimum Split (s)			25.0	25.0	25.0						25.0	
Total Split (s)			56.0	56.0	56.0						54.0	
Total Split (%)			50.9%	50.9%	50.9%						49.1%	
Maximum Green (s)			47.0	47.0	47.0						49.0	
Yellow Time (s)			3.0	3.0	3.0						3.0	
All-Red Time (s)			6.0	6.0	6.0						2.0	
Lost Time Adjust (s)			-5.0		-5.0						-1.0	
Total Lost Time (s)			4.0		4.0						4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)			2.0	2.0	2.0						2.0	
Recall Mode			C-Max	C-Max	C-Max						Max	
Walk Time (s)			7.0	7.0	7.0						7.0	
Flash Dont Walk (s)			5.0	5.0	5.0						12.0	
Pedestrian Calls (#/hr)			0	0	0						0	
Act Effct Green (s)			52.0		52.0						50.0	
Actuated g/C Ratio			0.47		0.47						0.45	
v/c Ratio			0.21		0.30						0.43	
Control Delay			8.2		18.5						21.1	
Queue Delay			0.0		0.0						0.0	
Total Delay			8.2		18.5						21.1	
LOS			A		B						C	
Approach Delay					18.5						21.1	
Approach LOS					B						C	
Queue Length 50th (ft)			36		97						183	
Queue Length 95th (ft)			55		103						226	
Internal Link Dist (ft)		293			28			388			390	
Turn Bay Length (ft)												
Base Capacity (vph)			647		1473						1317	
Starvation Cap Reductn			0		0						0	
Spillback Cap Reductn			0		0						0	
Storage Cap Reductn			0		0						0	
Reduced v/c Ratio			0.21		0.30						0.43	

Intersection Summary

Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 0 (0%), Referenced to phase 1:WBTL, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.43
Intersection Signal Delay: 18.5 Intersection LOS: B
Intersection Capacity Utilization 44.2% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 27: Surface Street & North Street/I-93 Off Ramp

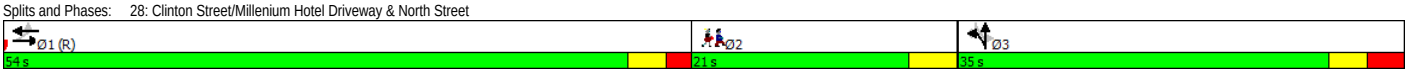


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations													
Traffic Volume (vph)	4	77	0	0	237	0	225	0	36	2	0	6	
Future Volume (vph)	4	77	0	0	237	0	225	0	36	2	0	6	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	
Ped Bike Factor		0.98						0.98		0.95		0.67	
Frt								0.958				0.850	
Flt Protected		0.998					0.950	0.965		0.950			
Satd. Flow (prot)	0	1493	0	0	2997	0	1298	1377	0	1624	0	1454	
Flt Permitted		0.989					0.950	0.965		0.637			
Satd. Flow (perm)	0	1448	0	0	2997	0	1298	1377	0	1038	0	974	
Right Turn on Red			Yes			Yes			No			Yes	
Satd. Flow (RTOR)												60	
Link Speed (mph)		25			25			25			30		
Link Distance (ft)		241			373			604			110		
Travel Time (s)		6.6			10.2			16.5			2.5		
Confl. Peds. (#/hr)	349					349			31	31		371	
Confl. Bikes (#/hr)			11			4							
Peak Hour Factor	0.90	0.90	0.90	0.84	0.84	0.84	0.92	0.92	0.92	0.67	0.67	0.67	
Heavy Vehicles (%)	0%	3%	0%	0%	3%	0%	7%	0%	6%	0%	0%	0%	
Parking (#/hr)		0			0		0		0				
Adj. Flow (vph)	4	86	0	0	282	0	245	0	39	3	0	9	
Shared Lane Traffic (%)							41%						
Lane Group Flow (vph)	0	90	0	0	282	0	145	139	0	3	0	9	
Turn Type	Perm	NA			NA		Split	NA		D.Pm		Perm	
Protected Phases		1			1		3	3					2
Permitted Phases	1									3		3	
Detector Phase	1	1			1		3	3		3		3	
Switch Phase													
Minimum Initial (s)	23.0	23.0			23.0		9.0	9.0		9.0		9.0	7.0
Minimum Split (s)	30.0	30.0			30.0		16.0	16.0		16.0		16.0	21.0
Total Split (s)	54.0	54.0			54.0		35.0	35.0		35.0		35.0	21.0
Total Split (%)	49.1%	49.1%			49.1%		31.8%	31.8%		31.8%		31.8%	19%
Maximum Green (s)	49.0	49.0			49.0		29.0	29.0		29.0		29.0	17.0
Yellow Time (s)	3.0	3.0			3.0		3.0	3.0		3.0		3.0	4.0
All-Red Time (s)	2.0	2.0			2.0		3.0	3.0		3.0		3.0	0.0
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0		0.0	
Total Lost Time (s)		5.0			5.0		6.0	6.0		6.0		6.0	
Lead/Lag	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
Recall Mode	C-Max	C-Max			C-Max		Max	Max		Max		Max	Ped
Walk Time (s)	7.0	7.0			7.0								7.0
Flash Dont Walk (s)	5.0	5.0			5.0								10.0
Pedestrian Calls (#/hr)	0	0			0								0
Act Effct Green (s)		49.0			49.0		29.0	29.0		29.0		29.0	
Actuated g/C Ratio		0.45			0.45		0.26	0.26		0.26		0.26	
v/c Ratio		0.14			0.21		0.42	0.38		0.01		0.03	
Control Delay		40.8			9.4		33.0	3.0		30.0		0.2	
Queue Delay		0.0			0.0		0.0	0.0		0.0		0.0	
Total Delay		40.8			9.4		33.0	3.0		30.0		0.2	
LOS		D			A		C	A		C		A	
Approach Delay		40.8			9.4			18.4					
Approach LOS		D			A			B					
Queue Length 50th (ft)		64			23		53	0		2		0	
Queue Length 95th (ft)		110			30		m71	0		7		0	
Internal Link Dist (ft)		161			293			524			30		
Turn Bay Length (ft)													
Base Capacity (vph)		645			1335		342	363		273		300	
Starvation Cap Reductn		0			0		0	0		0		0	
Spillback Cap Reductn		0			79		0	0		0		1	
Storage Cap Reductn		0			0		0	0		0		0	
Reduced v/c Ratio		0.14			0.22		0.42	0.38		0.01		0.03	

Intersection Summary

Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 3 (3%), Referenced to phase 1:EBWB, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.42
Intersection Signal Delay: 17.4 Intersection LOS: B
Intersection Capacity Utilization 51.4% ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 28: Clinton Street/Millenium Hotel Driveway & North Street



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6
Lane Configurations												
Traffic Volume (vph)	14	81	436	32	0	0						
Future Volume (vph)	14	81	436	32	0	0						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900						
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	1.00						
Ped Bike Factor	0.88		0.96									
Frt			0.990									
Flt Protected	0.950											
Satd. Flow (prot)	1624	1693	2952	0	0	0						
Flt Permitted	0.324											
Satd. Flow (perm)	488	1693	2952	0	0	0						
Right Turn on Red				Yes		Yes						
Satd. Flow (RTOR)			7									
Link Speed (mph)		25	25		25							
Link Distance (ft)		141	241		180							
Travel Time (s)		3.8	6.6		4.9							
Confl. Peds. (#/hr)	331			331								
Confl. Bikes (#/hr)				4								
Peak Hour Factor	0.86	0.86	0.91	0.91	0.92	0.92						
Heavy Vehicles (%)	0%	1%	5%	6%	0%	0%						
Parking (#/hr)				0								
Adj. Flow (vph)	16	94	479	35	0	0						
Shared Lane Traffic (%)												
Lane Group Flow (vph)	16	94	514	0	0	0						
Turn Type	D.P+P	NA	NA									
Protected Phases	1 2 6	1 2 6	4 5				1	2	3	4	5	6
Permitted Phases	4 5	4 5										
Detector Phase	1 2 6	1 2 6	4 5									
Switch Phase												
Minimum Initial (s)							7.0	3.0	7.0	8.0	3.0	4.0
Minimum Split (s)							14.0	9.0	24.0	15.0	8.0	10.0
Total Split (s)							30.0	10.0	24.0	28.0	8.0	10.0
Total Split (%)							27%	9%	22%	25%	7%	9%
Maximum Green (s)							25.0	5.0	20.0	22.0	4.0	5.0
Yellow Time (s)							3.0	3.0	4.0	3.0	3.0	3.0
All-Red Time (s)							2.0	2.0	0.0	3.0	1.0	2.0
Lost Time Adjust (s)												
Total Lost Time (s)												
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)							2.0	2.0	2.0	2.0	2.0	2.0
Recall Mode							C-Max	Max	Ped	Max	Max	Max
Walk Time (s)									7.0			
Flash Dont Walk (s)									13.0			
Pedestrian Calls (#/hr)									0			
Act Effct Green (s)	76.0	81.0	30.0									
Actuated g/C Ratio	0.69	0.74	0.27									
v/c Ratio	0.02	0.08	0.63									
Control Delay	0.9	0.8	25.0									
Queue Delay	0.4	2.6	7.3									
Total Delay	1.3	3.4	32.3									
LOS	A	A	C									
Approach Delay		3.1	32.3									
Approach LOS		A	C									
Queue Length 50th (ft)	0	1	117									
Queue Length 95th (ft)	m1	m6	177									
Internal Link Dist (ft)		61	161		100							
Turn Bay Length (ft)												
Base Capacity (vph)	801	1246	810									
Starvation Cap Reductn	645	1054	248									
Spillback Cap Reductn	0	0	34									
Storage Cap Reductn	0	0	0									
Reduced v/c Ratio	0.10	0.49	0.91									

Intersection Summary

Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 50 (45%), Referenced to phase 1:EBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.87
Intersection Signal Delay: 27.2 Intersection LOS: C
Intersection Capacity Utilization 20.1% ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 29: North Street & Union Street

Lane Group	WBL	WBR	NBU	NBT	NBR	SBU	SBL	SBT	Ø1	Ø2	Ø3	Ø5
Lane Configurations												
Traffic Volume (vph)	245	191	2	764	54	21	41	607				
Future Volume (vph)	245	191	2	764	54	21	41	607				
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1700	1700	1700				
Lane Util. Factor	0.97	0.95	0.91	0.91	0.91	0.91	0.91	0.91				
Ped Bike Factor	0.73			0.97				0.99				
Frt	0.934			0.990								
Flt Protected	0.973							0.995				
Satd. Flow (prot)	2622	0	0	4283	0	0	0	3901				
Flt Permitted	0.973			0.939				0.704				
Satd. Flow (perm)	2130	0	0	4021	0	0	0	2731				
Right Turn on Red		Yes			No							
Satd. Flow (RTOR)	161											
Link Speed (mph)	25			25				25				
Link Distance (ft)	141			126				439				
Travel Time (s)	3.8			3.4				12.0				
Confl. Peds. (#/hr)	314	146			1133		1133					
Confl. Bikes (#/hr)		3			24							
Peak Hour Factor	0.81	0.81	0.91	0.91	0.91	0.96	0.96	0.96				
Heavy Vehicles (%)	3%	4%	0%	5%	0%	0%	3%	7%				
Adj. Flow (vph)	302	236	2	840	59	22	43	632				
Shared Lane Traffic (%)												
Lane Group Flow (vph)	538	0	0	901	0	0	0	697				
Turn Type	Prot		Perm	NA		custom	custom	NA				
Protected Phases	4			1 2		6	6	1 6	1	2	3	5
Permitted Phases			1 2			1	1					
Detector Phase	4		1 2	1 2		6	6	1 6				
Switch Phase												
Minimum Initial (s)	8.0					4.0	4.0		7.0	3.0	7.0	3.0
Minimum Split (s)	15.0					10.0	10.0		14.0	9.0	24.0	8.0
Total Split (s)	28.0					10.0	10.0		30.0	10.0	24.0	8.0
Total Split (%)	25.5%					9.1%	9.1%		27%	9%	22%	7%
Maximum Green (s)	22.0					5.0	5.0		25.0	5.0	20.0	4.0
Yellow Time (s)	3.0					3.0	3.0		3.0	3.0	4.0	3.0
All-Red Time (s)	3.0					2.0	2.0		2.0	2.0	0.0	1.0
Lost Time Adjust (s)	0.0											
Total Lost Time (s)	6.0											
Lead/Lag	Lead								Lead	Lag		Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0					2.0	2.0		2.0	2.0	2.0	2.0
Recall Mode	Max					Max	Max		C-Max	Max	Ped	Max
Walk Time (s)											7.0	
Flash Dont Walk (s)											13.0	
Pedestrian Calls (#/hr)											0	
Act Effct Green (s)	22.0			35.0				30.0				
Actuated g/C Ratio	0.20			0.32				0.27				
v/c Ratio	0.82			0.70				0.87				
Control Delay	19.1			3.5				78.4				
Queue Delay	4.1			3.0				0.0				
Total Delay	23.1			6.5				78.4				
LOS	C			A				E				
Approach Delay	23.1			6.5				78.4				
Approach LOS	C			A				E				
Queue Length 50th (ft)	23			21				184				
Queue Length 95th (ft)	54			m28				#233				
Internal Link Dist (ft)	61			46				359				
Turn Bay Length (ft)												
Base Capacity (vph)	653			1279				798				
Starvation Cap Reductn	62			266				0				
Spillback Cap Reductn	0			0				0				
Storage Cap Reductn	0			0				0				
Reduced v/c Ratio	0.91			0.89				0.87				

Intersection Summary

Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 50 (45%), Referenced to phase 1:EBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.87
Intersection Signal Delay: 34.1 Intersection LOS: C
Intersection Capacity Utilization 65.6% 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: 30: Congress Street & North Street

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations													
Traffic Volume (vph)	0	0	0	399	130	0	0	0	0	0	627	54	
Future Volume (vph)	0	0	0	399	130	0	0	0	0	0	627	54	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	14	16	12	12	12	12	12	12	12	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.91	0.91	
Ped Bike Factor				0.65	0.83						0.96		
Frt											0.988		
Flt Protected				0.950	0.977								
Satd. Flow (prot)	0	0	0	1583	1696	0	0	0	0	0	4211	0	
Flt Permitted				0.950	0.977								
Satd. Flow (perm)	0	0	0	1029	1411	0	0	0	0	0	4211	0	
Right Turn on Red			Yes	No		Yes			Yes			Yes	
Satd. Flow (RTOR)											13		
Link Speed (mph)		25			25			25			25		
Link Distance (ft)		604			407			164			468		
Travel Time (s)		16.5			11.1			4.5			12.8		
Confl. Peds. (#/hr)				217								612	
Confl. Bikes (#/hr)												9	
Peak Hour Factor	0.92	0.92	0.92	0.94	0.94	0.94	0.92	0.92	0.92	0.91	0.91	0.91	
Heavy Vehicles (%)	0%	0%	0%	4%	8%	0%	0%	0%	0%	0%	5%	11%	
Adj. Flow (vph)	0	0	0	424	138	0	0	0	0	0	689	59	
Shared Lane Traffic (%)				30%									
Lane Group Flow (vph)	0	0	0	297	265	0	0	0	0	0	748	0	
Turn Type				Split	NA						NA		
Protected Phases				5	5						1		2
Permitted Phases													
Detector Phase				5	5						1		
Switch Phase													
Minimum Initial (s)				8.0	8.0						8.0		8.0
Minimum Split (s)				19.0	19.0						27.0		24.0
Total Split (s)				51.0	51.0						35.0		24.0
Total Split (%)				46.4%	46.4%						31.8%		22%
Maximum Green (s)				46.0	46.0						29.0		20.0
Yellow Time (s)				3.0	3.0						3.0		4.0
All-Red Time (s)				2.0	2.0						3.0		0.0
Lost Time Adjust (s)				-2.0	-2.0						-2.0		
Total Lost Time (s)				3.0	3.0						4.0		
Lead/Lag											Lead		Lag
Lead-Lag Optimize?													
Vehicle Extension (s)				2.0	2.0						2.0		2.0
Recall Mode				Max	Max						C-Max		Ped
Walk Time (s)				7.0	7.0						7.0		7.0
Flash Dont Walk (s)				6.0	6.0						11.0		13.0
Pedestrian Calls (#/hr)				0	0						0		0
Act Effct Green (s)				48.0	48.0						31.0		
Actuated g/C Ratio				0.44	0.44						0.28		
v/c Ratio				0.43	0.36						0.63		
Control Delay				24.0	22.5						31.2		
Queue Delay				0.0	0.0						0.0		
Total Delay				24.0	22.5						31.2		
LOS				C	C						C		
Approach Delay					23.3						31.2		
Approach LOS					C						C		
Queue Length 50th (ft)				149	128						143		
Queue Length 95th (ft)				228	197						185		
Internal Link Dist (ft)		524			327			84			388		
Turn Bay Length (ft)													
Base Capacity (vph)				690	740						1196		
Starvation Cap Reductn				0	0						0		
Spillback Cap Reductn				0	0						0		
Storage Cap Reductn				0	0						0		
Reduced v/c Ratio				0.43	0.36						0.63		

Intersection Summary

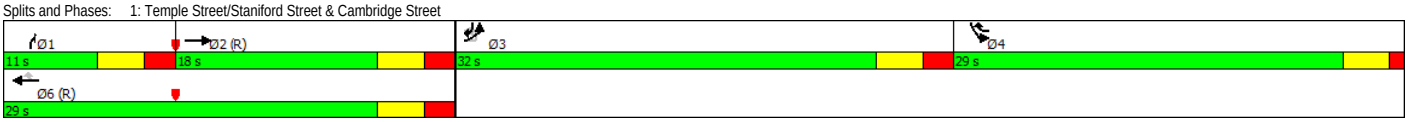
Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 1 (1%), Referenced to phase 1:SBT, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.63
Intersection Signal Delay: 27.8 Intersection LOS: C
Intersection Capacity Utilization 38.4% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 31: Surface Street & Clinton Street/I-93 Off Ramp

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (vph)	16	209	530	0	0	444	195	0	0	15	245	0	260
Future Volume (vph)	16	209	530	0	0	444	195	0	0	15	245	0	260
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	10	11	12	12	11	12	12	12	12	11	12	11
Storage Length (ft)		140		0	0		0	0		0	0		0
Storage Lanes		1		0	0		1	0		1	1		1
Taper Length (ft)		25			25			25			25		
Lane Util. Factor	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor							0.98						
Frt							0.850			0.865			0.850
Flt Protected		0.950									0.950		
Satd. Flow (prot)	0	1632	3250	0	0	3261	1509	0	0	1644	1678	0	1313
Flt Permitted		0.479									0.950		
Satd. Flow (perm)	0	823	3250	0	0	3261	1484	0	0	1644	1678	0	1313
Right Turn on Red				No			Yes			No			No
Satd. Flow (RTOR)							210						
Link Speed (mph)			30			30			30			30	
Link Distance (ft)			407			236			206			1103	
Travel Time (s)			9.3			5.4			4.7			25.1	
Confl. Bikes (#/hr)				60			12			2			6
Peak Hour Factor	0.89	0.89	0.89	0.89	0.93	0.93	0.93	0.54	0.54	0.54	0.92	0.92	0.92
Heavy Vehicles (%)	6%	3%	2%	0%	0%	7%	7%	0%	0%	0%	4%	0%	7%
Parking (#/hr)			0										0
Adj. Flow (vph)	18	235	596	0	0	477	210	0	0	28	266	0	283
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	253	596	0	0	477	210	0	0	28	266	0	283
Turn Type	custom	Prot	NA			NA	pm+ov			Prot	Prot		Over
Protected Phases		3	2			6	4			1	4		3!
Permitted Phases	3!						6						
Detector Phase	3	3	2			6	4			1	4		3
Switch Phase													
Minimum Initial (s)	8.0	8.0	12.0			12.0	8.0			6.0	8.0		8.0
Minimum Split (s)	32.0	32.0	17.0			24.0	29.0			11.0	29.0		32.0
Total Split (s)	32.0	32.0	18.0			29.0	29.0			11.0	29.0		32.0
Total Split (%)	35.6%	35.6%	20.0%			32.2%	32.2%			12.2%	32.2%		35.6%
Maximum Green (s)	27.0	27.0	13.0			24.0	25.0			6.0	25.0		27.0
Yellow Time (s)	3.0	3.0	3.0			3.0	3.0			3.0	3.0		3.0
All-Red Time (s)	2.0	2.0	2.0			2.0	1.0			2.0	1.0		2.0
Lost Time Adjust (s)		0.0	0.0			0.0	0.0			0.0	0.0		0.0
Total Lost Time (s)		5.0	5.0			5.0	4.0			5.0	4.0		5.0
Lead/Lag	Lead	Lead	Lag				Lag			Lead	Lag		Lead
Lead-Lag Optimize?													
Vehicle Extension (s)	2.0	2.0	2.0			2.0	2.0			2.0	2.0		2.0
Recall Mode	Min	Min	C-Max			C-Max	Min			None	Min		Min
Walk Time (s)	7.0	7.0				7.0	7.0				7.0		7.0
Flash Dont Walk (s)	20.0	20.0				12.0	18.0				18.0		20.0
Pedestrian Calls (#/hr)	140	140				140	132				132		140
Act Effct Green (s)		27.0	19.6			24.0	50.0			6.0	25.0		27.0
Actuated g/C Ratio		0.30	0.22			0.27	0.56			0.07	0.28		0.30
v/c Ratio		1.03	0.84			0.55	0.23			0.26	0.57		0.72
Control Delay		99.1	49.1			27.9	2.0			46.1	33.6		40.3
Queue Delay		0.0	0.0			3.1	0.2			0.9	1.2		0.0
Total Delay		99.1	49.1			31.0	2.2			46.9	34.8		40.3
LOS		F	D			C	A			D	C		D
Approach Delay			64.0			22.2							
Approach LOS			E			C							
Queue Length 50th (ft)		~150	160			103	0			15	130		143
Queue Length 95th (ft)		#297	#328			146	10			25	210		#257
Internal Link Dist (ft)			327			156			126			1023	
Turn Bay Length (ft)		140											
Base Capacity (vph)		246	707			869	924			109	466		393
Starvation Cap Reductn		0	0			284	270			0	0		0
Spillback Cap Reductn		0	0			0	0			17	71		0
Storage Cap Reductn		0	0			0	0			0	0		0
Reduced v/c Ratio		1.03	0.84			0.82	0.32			0.30	0.67		0.72

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 17 (19%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.03			
Intersection Signal Delay: 43.3		Intersection LOS: D	
Intersection Capacity Utilization 53.3%		ICU Level of Service A	
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: 1: Temple Street/Staniford Street & Cambridge Street



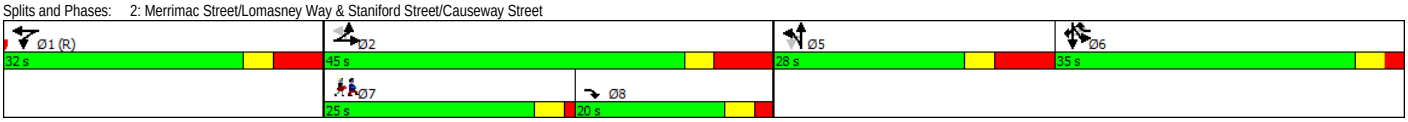
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	Ø7
Lane Configurations																
Traffic Volume (vph)	2	55	181	164	68	430	342	3	151	128	34	2	206	262	308	
Future Volume (vph)	2	55	181	164	68	430	342	3	151	128	34	2	206	262	308	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	11	11	11	11	11	11	10	11	10	11	11	11	10	11	11	
Storage Length (ft)		0		200	0		0		0		0		0		0	
Storage Lanes		1		1	0		1		1		0		1		1	
Taper Length (ft)		25			25				25				25			
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	
Ped Bike Factor										0.99				1.00		
Frt				0.850			0.850			0.969				0.997	0.850	
Flt Protected		0.950				0.993			0.950				0.950			
Satd. Flow (prot)	0	1582	1711	1516	0	3296	1334	0	1548	1641	0	0	1260	1611	1426	
Flt Permitted		0.456				0.993			0.211				0.637			
Satd. Flow (perm)	0	759	1711	1516	0	3296	1334	0	344	1641	0	0	845	1611	1426	
Right Turn on Red				No			No				No				No	
Satd. Flow (RTOR)																
Link Speed (mph)			30			30				30				30		
Link Distance (ft)			1103			181				998				344		
Travel Time (s)			25.1			4.1				22.7				7.8		
Confl. Bikes (#/hr)				42			4				10				5	
Peak Hour Factor	0.78	0.78	0.78	0.78	0.94	0.94	0.94	0.85	0.85	0.85	0.85	0.98	0.98	0.98	0.98	
Heavy Vehicles (%)	0%	5%	2%	3%	6%	5%	13%	0%	9%	8%	7%	0%	34%	8%	4%	
Adj. Flow (vph)	3	71	232	210	72	457	364	4	178	151	40	2	210	267	314	
Shared Lane Traffic (%)		0%													2%	
Lane Group Flow (vph)	0	74	232	210	0	529	364	0	182	191	0	0	212	273	308	
Turn Type	Perm	Split	NA	custom	Split	NA	Over	Perm	Split	NA		Perm	Split	NA	Prot	
Protected Phases		2	2	8	1	1	6!		5	5			6	6	6	7
Permitted Phases	2							5				6!				
Detector Phase	2	2	2	8	1	1	6	5	5	5		6	6	6	6	
Switch Phase																
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0		8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	27.0	27.0	27.0	16.0	31.0	31.0	16.0	27.0	27.0	27.0		16.0	16.0	16.0	16.0	25.0
Total Split (s)	45.0	45.0	45.0	20.0	32.0	32.0	35.0	28.0	28.0	28.0		35.0	35.0	35.0	35.0	25.0
Total Split (%)	32.1%	32.1%	32.1%	14.3%	22.9%	22.9%	25.0%	20.0%	20.0%	20.0%		25.0%	25.0%	25.0%	25.0%	18%
Maximum Green (s)	36.0	36.0	36.0	15.0	24.0	24.0	30.0	19.0	19.0	19.0		30.0	30.0	30.0	30.0	21.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	6.0	6.0	6.0	2.0	5.0	5.0	2.0	6.0	6.0	6.0		2.0	2.0	2.0	2.0	1.0
Lost Time Adjust (s)		0.0	0.0	0.0		0.0	0.0		0.0	0.0			0.0	0.0	0.0	
Total Lost Time (s)		9.0	9.0	5.0		8.0	5.0		9.0	9.0			5.0	5.0	5.0	
Lead/Lag				Lag			Lag	Lead	Lead	Lead		Lag	Lag	Lag	Lag	Lead
Lead-Lag Optimize?																
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0
Recall Mode	Ped	Ped	Ped	None	C-Max	C-Max	None	Ped	Ped	Ped		None	None	None	None	None
Walk Time (s)	7.0	7.0	7.0		7.0	7.0		7.0	7.0	7.0						7.0
Flash Dont Walk (s)	11.0	11.0	11.0		16.0	16.0		11.0	11.0	11.0						14.0
Pedestrian Calls (#/hr)	100	100	100		175	175		0	0	0						500
Act Effct Green (s)		36.0	36.0	15.0		24.0	30.0		19.0	19.0			30.0	30.0	30.0	
Actuated g/C Ratio		0.26	0.26	0.11		0.17	0.21		0.14	0.14			0.21	0.21	0.21	
v/c Ratio		0.38	0.53	1.30		0.94	1.28		3.96	0.86			1.17	0.79	1.01	
Control Delay		49.7	49.9	218.7		82.0	192.8		1396.1	92.0			167.9	69.4	108.1	
Queue Delay		0.0	0.0	0.0		0.0	0.0		0.0	0.0			0.0	0.0	0.0	
Total Delay		49.7	49.9	218.7		82.0	192.9		1396.1	92.0			167.9	69.4	108.1	
LOS		D	D	F		F	F		F	F			F	E	F	
Approach Delay			118.5			127.2				728.3				110.7		
Approach LOS			F			F				F				F		
Queue Length 50th (ft)		58	192	~243		253	~418		~300	173			~230	249	~302	
Queue Length 95th (ft)		95	240	#334		#364	#620		#430	#281			#396	#392	#509	
Internal Link Dist (ft)			1023			101				918				264		
Turn Bay Length (ft)				200												
Base Capacity (vph)		195	439	162		565	285		46	222			181	345	305	
Starvation Cap Reductn		0	0	0		0	1		0	0			0	0	0	
Spillback Cap Reductn		0	0	0		0	0		0	0			0	0	0	
Storage Cap Reductn		0	0	0		0	0		0	0			0	0	0	
Reduced v/c Ratio		0.38	0.53	1.30		0.94	1.28		3.96	0.86			1.17	0.79	1.01	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 1:WBTL, Start of Green
Natural Cycle: 125
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 3.96
Intersection Signal Delay: 207.5 Intersection LOS: F
Intersection Capacity Utilization 77.8% 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.
! Phase conflict between lane groups.

Splits and Phases: 2: Merrimac Street/Lomasney Way & Staniford Street/Causeway Street



Lane Group	EBL	EBT	EBR2	WBL	WBT	WBR	NBT	NBR	SBL2	SBT	SBR	NWR	NWR2
Lane Configurations													
Traffic Volume (vph)	216	91	113	185	143	245	668	117	273	1108	510	13	14
Future Volume (vph)	216	91	113	185	143	245	668	117	273	1108	510	13	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	12	11	12	11	11	10	11	11	12	12
Storage Length (ft)	0			0		0		75			100	0	
Storage Lanes	2			0		1		0			1	1	
Taper Length (ft)	25			25									
Lane Util. Factor	0.97	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00
Ped Bike Factor		0.87				0.99	0.92						
Frt		0.917				0.850	0.978				0.850	0.865	
Flt Protected	0.950				0.973				0.950				
Satd. Flow (prot)	2918	1350	0	0	3110	1495	2812	0	1604	3144	1419	1644	0
Flt Permitted	0.950				0.973				0.950				
Satd. Flow (perm)	2918	1350	0	0	3110	1474	2812	0	1604	3144	1419	1644	0
Right Turn on Red			Yes			No					No		Yes
Satd. Flow (RTOR)		195										195	
Link Speed (mph)		30			30		30			30			
Link Distance (ft)		318			194		589			575			
Travel Time (s)		7.2			4.4		13.4			13.1			
Confl. Peds. (#/hr)			131					139					
Confl. Bikes (#/hr)			4			3		3			9		
Peak Hour Factor	0.96	0.96	0.96	0.87	0.87	0.87	0.94	0.94	0.97	0.97	0.97	0.92	0.92
Heavy Vehicles (%)	16%	6%	10%	7%	12%	8%	13%	7%	5%	11%	10%	0%	0%
Adj. Flow (vph)	225	95	118	213	164	282	711	124	281	1142	526	14	15
Shared Lane Traffic (%)													
Lane Group Flow (vph)	225	213	0	0	377	282	835	0	281	1142	526	29	0
Turn Type	Split	NA		Split	NA	custom	NA		Prot	NA	custom	Prot	
Protected Phases	6	6		5	5	7	1		7	1 2 7	2 6 7	2	
Permitted Phases						6							
Detector Phase	6	6		5	5	7	1		7	1 7	6 7	2	
Switch Phase													
Minimum Initial (s)	8.0	8.0		8.0	8.0	8.0	8.0		8.0			8.0	
Minimum Split (s)	30.0	30.0		32.0	32.0	14.0	25.0		14.0			14.0	
Total Split (s)	30.0	30.0		32.0	32.0	25.0	39.0		25.0			14.0	
Total Split (%)	21.4%	21.4%		22.9%	22.9%	17.9%	27.9%		17.9%			10.0%	
Maximum Green (s)	24.0	24.0		22.0	22.0	19.0	33.0		19.0			8.0	
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0		3.0			3.0	
All-Red Time (s)	3.0	3.0		7.0	7.0	3.0	3.0		3.0			3.0	
Lost Time Adjust (s)	0.0	0.0			0.0	0.0	0.0		0.0			0.0	
Total Lost Time (s)	6.0	6.0			10.0	6.0	6.0		6.0			6.0	
Lead/Lag	Lag	Lag		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	
Recall Mode	None	None		None	None	None	C-Max		None			Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0						
Flash Dont Walk (s)	17.0	17.0		15.0	15.0		12.0						
Pedestrian Calls (#/hr)	100	100		176	176		100						
Act Effct Green (s)	24.0	24.0			22.0	43.0	33.0		19.0	72.0	57.0	8.0	
Actuated g/C Ratio	0.17	0.17			0.16	0.31	0.24		0.14	0.51	0.41	0.06	
v/c Ratio	0.45	0.54			0.77	0.62	1.26		1.29	0.71	0.91	0.10	
Control Delay	55.4	14.5			68.2	44.2	172.9		208.9	29.0	54.9	0.7	
Queue Delay	0.0	0.0			0.0	0.0	0.0		0.0	0.0	0.0	0.0	
Total Delay	55.4	14.5			68.2	44.2	172.9		208.9	29.0	54.9	0.7	
LOS	E	B			E	D	F		F	C	D	A	
Approach Delay		35.5			57.9		172.9			61.9			
Approach LOS		D			E		F			E			
Queue Length 50th (ft)	95	14			175	205	~501		~325	406	340	0	
Queue Length 95th (ft)	139	95			225	287	#633		#511	491	#586	0	
Internal Link Dist (ft)		238			114		509			495			
Turn Bay Length (ft)									200		100		
Base Capacity (vph)	500	393			488	455	662		217	1616	577	277	
Starvation Cap Reductn	0	0			0	0	0		0	0	0	0	
Spillback Cap Reductn	0	0			0	0	0		0	0	0	0	
Storage Cap Reductn	0	0			0	0	0		0	0	0	0	
Reduced v/c Ratio	0.45	0.54			0.77	0.62	1.26		1.29	0.71	0.91	0.10	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green
Natural Cycle: 145
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.29
Intersection Signal Delay: 81.5 Intersection LOS: F
Intersection Capacity Utilization 103.5% 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.

Splits and Phases: 3: North Washington Street & Causeway Street

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	0	0	329	790	56	26	1365	15
Future Volume (vph)	0	0	0	0	0	0	329	790	56	26	1365	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	0		50
Storage Lanes	0		0	0		0	1		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.91	0.91	0.91
Ped Bike Factor								0.96			1.00	
Frt								0.990			0.998	
Flt Protected							0.950				0.999	
Satd. Flow (prot)	0	0	0	0	0	0	1377	2782	0	0	4266	0
Flt Permitted							0.950				0.907	
Satd. Flow (perm)	0	0	0	0	0	0	1377	2782	0	0	3866	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)								10			2	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		181			303			161			589	
Travel Time (s)		4.9			8.3			4.4			16.1	
Confl. Peds. (#/hr)									232	232		23
Confl. Bikes (#/hr)									5			60
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	18%	12%	0%	4%	9%	19%
Parking (#/hr)									0			
Adj. Flow (vph)	0	0	0	0	0	0	339	814	58	27	1407	15
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	0	339	872	0	0	1449	0
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)							8.0	10.0		10.0	10.0	
Minimum Split (s)							28.0	27.0		27.0	27.0	
Total Split (s)							50.0	70.0		70.0	70.0	
Total Split (%)							41.7%	58.3%		58.3%	58.3%	
Maximum Green (s)							45.0	65.0		65.0	65.0	
Yellow Time (s)							3.0	3.0		3.0	3.0	
All-Red Time (s)							2.0	2.0		2.0	2.0	
Lost Time Adjust (s)							-1.0	-1.0			-1.0	
Total Lost Time (s)							4.0	4.0			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)							2.0	2.0		2.0	2.0	
Recall Mode							Ped	C-Max		C-Max	C-Max	
Walk Time (s)							7.0	7.0		7.0	7.0	
Flash Dont Walk (s)							15.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)							0	0		0	0	
Act Effct Green (s)							35.2	76.8			76.8	
Actuated g/C Ratio							0.29	0.64			0.64	
v/c Ratio							0.84	0.49			0.59	
Control Delay							57.3	13.6			14.9	
Queue Delay							8.2	3.9			0.2	
Total Delay							65.4	17.5			15.1	
LOS							E	B			B	
Approach Delay								30.9			15.1	
Approach LOS								C			B	
Queue Length 50th (ft)							245	173			221	
Queue Length 95th (ft)							322	279			335	
Internal Link Dist (ft)		101			223			81			509	
Turn Bay Length (ft)												
Base Capacity (vph)							527	1783			2473	
Starvation Cap Reductn							148	805			335	
Spillback Cap Reductn							1	0			0	
Storage Cap Reductn							0	0			0	
Reduced v/c Ratio							0.89	0.89			0.68	

Intersection Summary

Area Type: CBD
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 99 (83%), Referenced to phase 1:NBSB, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.84
Intersection Signal Delay: 22.3 Intersection LOS: C
Intersection Capacity Utilization 63.7% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 4: North Washington Street & Valenti Way/Thatcher Street

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations													
Traffic Volume (vph)	0	0	0	160	198	0	0	0	0	0	162	33	
Future Volume (vph)	0	0	0	160	198	0	0	0	0	0	162	33	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	11	12	12	12	12	12	12	12	12	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95	
Ped Bike Factor											0.98		
Frt											0.975		
Flt Protected				0.950									
Satd. Flow (prot)	0	0	0	1264	1354	0	0	0	0	0	2687	0	
Flt Permitted				0.950									
Satd. Flow (perm)	0	0	0	1264	1354	0	0	0	0	0	2687	0	
Right Turn on Red			Yes	Yes		Yes			Yes			Yes	
Satd. Flow (RTOR)				178							16		
Link Speed (mph)		25			25			30			30		
Link Distance (ft)		227			181			221			528		
Travel Time (s)		6.2			4.9			5.0			12.0		
Confl. Bikes (#/hr)						6						35	
Peak Hour Factor	0.92	0.92	0.92	0.90	0.90	0.90	0.92	0.92	0.92	0.76	0.76	0.76	
Heavy Vehicles (%)	0%	0%	0%	18%	20%	0%	0%	0%	0%	0%	16%	14%	
Adj. Flow (vph)	0	0	0	178	220	0	0	0	0	0	213	43	
Shared Lane Traffic (%)				0%									
Lane Group Flow (vph)	0	0	0	178	220	0	0	0	0	0	256	0	
Turn Type				Split	NA						NA		
Protected Phases				1	1						5		2
Permitted Phases													
Detector Phase				1	1						5		
Switch Phase													
Minimum Initial (s)				5.0	5.0						5.0		8.0
Minimum Split (s)				19.0	19.0						19.0		18.0
Total Split (s)				81.0	81.0						21.0		18.0
Total Split (%)				67.5%	67.5%						17.5%		15%
Maximum Green (s)				77.0	77.0						17.0		14.0
Yellow Time (s)				3.0	3.0						3.0		4.0
All-Red Time (s)				1.0	1.0						1.0		0.0
Lost Time Adjust (s)				0.0	0.0						0.0		
Total Lost Time (s)				4.0	4.0						4.0		
Lead/Lag				Lead	Lead								Lag
Lead-Lag Optimize?													
Vehicle Extension (s)				2.0	2.0						2.0		2.0
Recall Mode				C-Max	C-Max						Max		None
Walk Time (s)				7.0	7.0						7.0		7.0
Flash Dont Walk (s)				6.0	6.0						7.0		7.0
Pedestrian Calls (#/hr)				0	0						0		500
Act Effct Green (s)				77.0	77.0						17.0		
Actuated g/C Ratio				0.64	0.64						0.14		
v/c Ratio				0.20	0.25						0.65		
Control Delay				0.9	3.1						54.1		
Queue Delay				3.1	5.0						0.0		
Total Delay				4.0	8.1						54.1		
LOS				A	A						D		
Approach Delay					6.3						54.1		
Approach LOS					A						D		
Queue Length 50th (ft)				0	8						93		
Queue Length 95th (ft)				0	23						114		
Internal Link Dist (ft)		147			101			141			448		
Turn Bay Length (ft)													
Base Capacity (vph)				874	868						394		
Starvation Cap Reductn				594	574						0		
Spillback Cap Reductn				0	0						0		
Storage Cap Reductn				0	0						0		
Reduced v/c Ratio				0.64	0.75						0.65		

Intersection Summary

Area Type: CBD
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 59 (49%), Referenced to phase 1:WBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.65
Intersection Signal Delay: 25.0 Intersection LOS: C
Intersection Capacity Utilization 24.4% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 5: Beverly St & Valenti Way

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations								
Traffic Volume (vph)	0	50	318	0	0	0	0	808
Future Volume (vph)	0	50	318	0	0	0	0	808
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.88
Frt		0.865						0.850
Flt Protected								
Satd. Flow (prot)	0	1422	2954	0	0	0	0	2244
Flt Permitted								
Satd. Flow (perm)	0	1422	2954	0	0	0	0	2244
Right Turn on Red		Yes						
Satd. Flow (RTOR)		151						
Link Speed (mph)	25		25			25	25	
Link Distance (ft)	328		169			179	568	
Travel Time (s)	8.9		4.6			4.9	15.5	
Peak Hour Factor	0.88	0.88	0.85	0.85	0.92	0.92	0.97	0.97
Heavy Vehicles (%)	0%	4%	10%	0%	0%	0%	0%	14%
Adj. Flow (vph)	0	57	374	0	0	0	0	833
Shared Lane Traffic (%)								
Lane Group Flow (vph)	0	57	374	0	0	0	0	833
Turn Type		Prot	NA					Prot
Protected Phases		2	3					1
Permitted Phases								
Detector Phase		2	3					1
Switch Phase								
Minimum Initial (s)		8.0	8.0					8.0
Minimum Split (s)		17.0	17.0					19.0
Total Split (s)		17.0	35.0					58.0
Total Split (%)		15.5%	31.8%					52.7%
Maximum Green (s)		13.0	31.0					54.0
Yellow Time (s)		3.0	3.0					3.0
All-Red Time (s)		1.0	1.0					1.0
Lost Time Adjust (s)		-1.0	-1.0					-1.0
Total Lost Time (s)		3.0	3.0					3.0
Lead/Lag		Lead	Lag					
Lead-Lag Optimize?								
Vehicle Extension (s)		2.0	2.0					2.0
Recall Mode		None	Max					C-Max
Walk Time (s)		7.0	7.0					7.0
Flash Dont Walk (s)		5.0	5.0					5.0
Pedestrian Calls (#/hr)		0	0					0
Act Effct Green (s)		9.0	32.0					62.4
Actuated g/C Ratio		0.08	0.29					0.57
v/c Ratio		0.22	0.44					0.65
Control Delay		2.0	33.6					9.2
Queue Delay		0.0	0.0					0.0
Total Delay		2.0	33.6					9.2
LOS		A	C					A
Approach Delay			33.6					
Approach LOS			C					
Queue Length 50th (ft)		0	112					57
Queue Length 95th (ft)		0	148					90
Internal Link Dist (ft)	248		89			99	488	
Turn Bay Length (ft)								
Base Capacity (vph)		312	859					1273
Starvation Cap Reductn		0	0					0
Spillback Cap Reductn		0	0					0
Storage Cap Reductn		0	0					0
Reduced v/c Ratio		0.18	0.44					0.65

Intersection Summary

Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 74 (67%), Referenced to phase 1:NWR, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.65
Intersection Signal Delay: 16.1 Intersection LOS: B
Intersection Capacity Utilization 57.8% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 6: I-93 Off-Ramps & Cross Street & Cooper Street

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	322	0	0	1365	0
Future Volume (vph)	0	322	0	0	1365	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.76	1.00	1.00	0.91	1.00
Frt		0.850				
Flt Protected						
Satd. Flow (prot)	0	3347	0	0	4715	0
Flt Permitted						
Satd. Flow (perm)	0	3347	0	0	4715	0
Right Turn on Red		No				Yes
Satd. Flow (RTOR)						
Link Speed (mph)	30			25	25	
Link Distance (ft)	221			242	141	
Travel Time (s)	5.0			6.6	3.8	
Peak Hour Factor	0.96	0.96	0.92	0.92	0.96	0.96
Heavy Vehicles (%)	0%	10%	0%	0%	10%	0%
Adj. Flow (vph)	0	335	0	0	1422	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	335	0	0	1422	0
Turn Type		Prot			NA	
Protected Phases		5			1	
Permitted Phases						
Detector Phase		5			1	
Switch Phase						
Minimum Initial (s)		8.0			8.0	
Minimum Split (s)		23.0			20.0	
Total Split (s)		35.0			85.0	
Total Split (%)		29.2%			70.8%	
Maximum Green (s)		30.0			80.0	
Yellow Time (s)		3.0			3.0	
All-Red Time (s)		2.0			2.0	
Lost Time Adjust (s)		-1.0			-1.0	
Total Lost Time (s)		4.0			4.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)		2.0			2.0	
Recall Mode		Max			C-Max	
Walk Time (s)		7.0			7.0	
Flash Dont Walk (s)		10.0			5.0	
Pedestrian Calls (#/hr)		0			0	
Act Effct Green (s)		31.0			81.0	
Actuated g/C Ratio		0.26			0.68	
v/c Ratio		0.39			0.45	
Control Delay		17.7			2.3	
Queue Delay		1.7			0.2	
Total Delay		19.4			2.5	
LOS		B			A	
Approach Delay					2.5	
Approach LOS					A	
Queue Length 50th (ft)		85			6	
Queue Length 95th (ft)		123			7	
Internal Link Dist (ft)	141			162	61	
Turn Bay Length (ft)						
Base Capacity (vph)		864			3182	
Starvation Cap Reductn		360			775	
Spillback Cap Reductn		125			192	
Storage Cap Reductn		0			0	
Reduced v/c Ratio		0.66			0.59	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 100 (83%), Referenced to phase 1:SBT, Start of Green
Natural Cycle: 45
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.45
Intersection Signal Delay: 5.7 Intersection LOS: A
Intersection Capacity Utilization 40.6% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 7: Surface Street & Beverly St

Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations														
Traffic Volume (vph)	0	436	38	37	21	610	0	0	0	0	875	367	445	
Future Volume (vph)	0	436	38	37	21	610	0	0	0	0	875	367	445	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	12	12	14	12	12	12	12	12	11	13	
Lane Util. Factor	1.00	0.91	0.91	0.95	0.95	0.95	1.00	1.00	1.00	1.00	0.91	0.86	0.91	
Ped Bike Factor		1.00				1.00					1.00	0.98		
Frt		0.988										0.992	0.850	
Flt Protected						0.996					0.950	0.975		
Satd. Flow (prot)	0	4276	0	0	0	3395	0	0	0	0	1344	2398	1277	
Flt Permitted						0.738					0.950	0.975		
Satd. Flow (perm)	0	4276	0	0	0	2515	0	0	0	0	1341	2395	1277	
Right Turn on Red			No				Yes			Yes			No	
Satd. Flow (RTOR)														
Link Speed (mph)		25				25			25			25		
Link Distance (ft)		184				338			438			242		
Travel Time (s)		5.0				9.2			11.9			6.6		
Confl. Peds. (#/hr)			1		1						1		191	
Confl. Bikes (#/hr)													93	
Peak Hour Factor	0.80	0.80	0.80	0.84	0.84	0.84	0.84	0.92	0.92	0.92	0.96	0.96	0.96	
Heavy Vehicles (%)	0%	7%	16%	11%	5%	1%	0%	0%	0%	0%	10%	16%	7%	
Adj. Flow (vph)	0	545	48	44	25	726	0	0	0	0	911	382	464	
Shared Lane Traffic (%)											48%		10%	
Lane Group Flow (vph)	0	593	0	0	0	795	0	0	0	0	474	865	418	
Turn Type		NA		Perm	Perm	NA					Split	NA	Prot	
Protected Phases		1				1					5	5	5	2
Permitted Phases				1	1									
Detector Phase		1		1	1	1					5	5	5	
Switch Phase														
Minimum Initial (s)		8.0		8.0	8.0	8.0					8.0	8.0	8.0	8.0
Minimum Split (s)		23.0		23.0	23.0	23.0					22.0	22.0	22.0	30.0
Total Split (s)		35.0		35.0	35.0	35.0					55.0	55.0	55.0	30.0
Total Split (%)		29.2%		29.2%	29.2%	29.2%					45.8%	45.8%	45.8%	25%
Maximum Green (s)		29.0		29.0	29.0	29.0					49.0	49.0	49.0	26.0
Yellow Time (s)		3.0		3.0	3.0	3.0					3.0	3.0	3.0	4.0
All-Red Time (s)		3.0		3.0	3.0	3.0					3.0	3.0	3.0	0.0
Lost Time Adjust (s)		-2.0				-2.0					-2.0	-2.0	-2.0	
Total Lost Time (s)		4.0				4.0					4.0	4.0	4.0	
Lead/Lag		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
Recall Mode		C-Max		C-Max	C-Max	C-Max					Max	Max	Max	None
Walk Time (s)		7.0		7.0	7.0	7.0					7.0	7.0	7.0	7.0
Flash Dont Walk (s)		7.0		7.0	7.0	7.0					8.0	8.0	8.0	19.0
Pedestrian Calls (#/hr)		0		0	0	0					0	0	0	500
Act Effct Green (s)		31.0				31.0					51.0	51.0	51.0	
Actuated g/C Ratio		0.26				0.26					0.42	0.42	0.42	
v/c Ratio		0.54				1.22					0.83	0.85	0.77	
Control Delay		33.0				153.2					35.3	31.1	31.2	
Queue Delay		7.3				0.0					3.8	2.9	3.9	
Total Delay		40.3				153.2					39.1	34.1	35.0	
LOS		D				F					D	C	D	
Approach Delay		40.3				153.2						35.7		
Approach LOS		D				F						D		
Queue Length 50th (ft)		147				~398					372	364	273	
Queue Length 95th (ft)		157				#471					#549	316	317	
Internal Link Dist (ft)		104				258			358			162		
Turn Bay Length (ft)														
Base Capacity (vph)		1104				649					571	1019	542	
Starvation Cap Reductn		459				0					47	80	65	
Spillback Cap Reductn		0				0					0	0	0	
Storage Cap Reductn		0				0					0	0	0	
Reduced v/c Ratio		0.92				1.22					0.90	0.92	0.88	

Intersection Summary

Area Type: CBD
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 34 (28%), Referenced to phase 1:EBWB, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.22
Intersection Signal Delay: 66.3 Intersection LOS: E
Intersection Capacity Utilization 73.0% 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: 8: Surface Street & New Chardon Street/I-93 Ramps

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø2	Ø5
Lane Configurations									
Traffic Volume (vph)	0	474	1034	21	0	0			
Future Volume (vph)	0	474	1034	21	0	0			
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900			
Lane Util. Factor	1.00	0.95	0.91	0.91	1.00	1.00			
Ped Bike Factor			1.00						
Frt			0.997						
Flt Protected									
Satd. Flow (prot)	0	3008	4467	0	0	0			
Flt Permitted									
Satd. Flow (perm)	0	3008	4467	0	0	0			
Right Turn on Red				Yes		Yes			
Satd. Flow (RTOR)			6						
Link Speed (mph)		25	25		25				
Link Distance (ft)		287	184		238				
Travel Time (s)		7.8	5.0		6.5				
Confl. Bikes (#/hr)				10					
Peak Hour Factor	0.81	0.81	0.98	0.98	0.92	0.92			
Heavy Vehicles (%)	0%	8%	4%	11%	0%	0%			
Adj. Flow (vph)	0	585	1055	21	0	0			
Shared Lane Traffic (%)									
Lane Group Flow (vph)	0	585	1076	0	0	0			
Turn Type		NA	NA						
Protected Phases		1 5	1 5				1	2	5
Permitted Phases									
Detector Phase		1 5	1 5						
Switch Phase									
Minimum Initial (s)							8.0	8.0	8.0
Minimum Split (s)							23.0	30.0	22.0
Total Split (s)							35.0	30.0	55.0
Total Split (%)							29%	25%	46%
Maximum Green (s)							29.0	26.0	49.0
Yellow Time (s)							3.0	4.0	3.0
All-Red Time (s)							3.0	0.0	3.0
Lost Time Adjust (s)									
Total Lost Time (s)									
Lead/Lag							Lead	Lag	
Lead-Lag Optimize?									
Vehicle Extension (s)							2.0	2.0	2.0
Recall Mode							C-Max	None	Max
Walk Time (s)							7.0	7.0	7.0
Flash Dont Walk (s)							7.0	19.0	8.0
Pedestrian Calls (#/hr)							0	500	0
Act Effct Green (s)		86.0	86.0						
Actuated g/C Ratio		0.72	0.72						
v/c Ratio		0.27	0.34						
Control Delay		4.7	3.0						
Queue Delay		0.7	2.0						
Total Delay		5.4	5.0						
LOS		A	A						
Approach Delay		5.4	5.0						
Approach LOS		A	A						
Queue Length 50th (ft)		72	0						
Queue Length 95th (ft)		81	m0						
Internal Link Dist (ft)		207	104		158				
Turn Bay Length (ft)									
Base Capacity (vph)		2155	3203						
Starvation Cap Reductn		1160	1920						
Spillback Cap Reductn		813	90						
Storage Cap Reductn		0	0						
Reduced v/c Ratio		0.59	0.84						

Intersection Summary

Area Type: CBD
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 34 (28%), Referenced to phase 1:EBWB, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.22
Intersection Signal Delay: 5.2 Intersection LOS: A
Intersection Capacity Utilization 26.1% ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 9: New Chardon Street & Canal Street

Lane Group	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NBL2	NBL	NBT	NBR	SBU	SBL	SBT	SBR	SBR2
Lane Configurations																	
Traffic Volume (vph)	44	105	36	24	390	78	479	72	137	277	312	255	9	97	207	53	97
Future Volume (vph)	44	105	36	24	390	78	479	72	137	277	312	255	9	97	207	53	97
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	10	10	12	12	12	10	10	16	12	11	11	11	16
Storage Length (ft)	0		0			0		0		0		150		0		150	
Storage Lanes	0		0			1		0		1		1		0		1	
Taper Length (ft)	25					25				25				25			
Lane Util. Factor	0.95	0.95	0.95	0.95	0.91	0.91	0.91	0.95	0.95	0.91	0.91	1.00	0.91	0.91	0.91	0.91	1.00
Ped Bike Factor		0.72			0.63		0.86			0.71	0.93				0.83		0.59
Frt		0.957					0.984					0.850			0.978		0.850
Flt Protected		0.990			0.950		0.990			0.950	0.982				0.986		
Satd. Flow (prot)	0	2037	0	0	1302	0	2891	0	0	1340	2682	1569	0	0	3526	0	1647
Flt Permitted		0.990			0.950		0.990			0.950	0.982				0.986		
Satd. Flow (perm)	0	1983	0	0	820	0	2535	0	0	955	2484	1569	0	0	3266	0	967
Right Turn on Red				Yes				Yes				No					Yes
Satd. Flow (RTOR)		10					10										145
Link Speed (mph)		25					25				25				25		
Link Distance (ft)		204					287				468				998		
Travel Time (s)		5.6					7.8				12.8				27.2		
Confl. Peds. (#/hr)	152		432	317	432	317		152	317	265		1136		1136		317	265
Confl. Bikes (#/hr)			1	1				17				10				64	64
Peak Hour Factor	0.84	0.84	0.84	0.84	0.97	0.97	0.97	0.97	0.91	0.91	0.91	0.91	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	14%	14%	10%	0%	6%	0%	3%	4%	0%	7%	6%	5%	11%	9%	14%	0%	0%
Adj. Flow (vph)	52	125	43	29	402	80	494	74	151	304	343	280	10	113	241	62	113
Shared Lane Traffic (%)					14%					64%							
Lane Group Flow (vph)	0	249	0	0	346	0	704	0	0	260	538	280	0	0	426	0	113
Turn Type	Split	NA			Split	Split	NA		Split	Split	NA	pt+ov	Perm	Split	NA		Perm
Protected Phases	3	3			2	2	2		1	1	1	1 2		4	4		
Permitted Phases													4				4
Detector Phase	3	3			2	2	2		1	1	1	1 2	4	4	4		4
Switch Phase																	
Minimum Initial (s)	8.0	8.0			8.0	8.0	8.0		8.0	8.0	8.0		8.0	8.0	8.0		8.0
Minimum Split (s)	19.0	19.0			15.0	15.0	15.0		33.0	33.0	33.0		24.0	24.0	24.0		24.0
Total Split (s)	22.0	22.0			40.0	40.0	40.0		34.0	34.0	34.0		24.0	24.0	24.0		24.0
Total Split (%)	18.3%	18.3%			33.3%	33.3%	33.3%		28.3%	28.3%	28.3%		20.0%	20.0%	20.0%		20.0%
Maximum Green (s)	15.0	15.0			34.0	34.0	34.0		28.0	28.0	28.0		16.0	16.0	16.0		16.0
Yellow Time (s)	3.0	3.0			3.0	3.0	3.0		3.0	3.0	3.0		3.0	3.0	3.0		3.0
All-Red Time (s)	4.0	4.0			3.0	3.0	3.0		3.0	3.0	3.0		5.0	5.0	5.0		5.0
Lost Time Adjust (s)		-2.0			-2.0		-2.0			-2.0	-2.0				-2.0		0.0
Total Lost Time (s)		5.0			4.0		4.0			4.0	4.0				6.0		8.0
Lead/Lag	Lag	Lag			Lead	Lead	Lead										
Lead-Lag Optimize?																	
Vehicle Extension (s)	2.0	2.0			2.0	2.0	2.0		2.0	2.0	2.0		2.0	2.0	2.0		2.0
Recall Mode	Max	Max			Max	Max	Max		C-Max	C-Max	C-Max		Max	Max	Max		Max
Walk Time (s)	7.0	7.0							7.0	7.0	7.0		7.0	7.0	7.0		7.0
Flash Dont Walk (s)	4.0	4.0							17.0	17.0	17.0		8.0	8.0	8.0		8.0
Pedestrian Calls (#/hr)	0	0							0	0	0		0	0	0		0
Act Effct Green (s)		17.0			36.0		36.0			30.0	30.0	70.0			18.0		16.0
Actuated g/C Ratio		0.14			0.30		0.30			0.25	0.25	0.58			0.15		0.13
v/c Ratio		0.84			0.89		0.81			0.78	0.80	0.31			0.81		0.44
Control Delay		45.4			48.3		29.0			58.5	52.7	7.3			62.1		9.2
Queue Delay		1.6			11.0		5.7			0.0	0.0	0.0			0.0		0.0
Total Delay		46.9			59.2		34.7			58.5	52.7	7.3			62.1		9.2
LOS		D			E		C			E	D	A			E		A
Approach Delay		46.9					42.8				42.3				51.0		
Approach LOS		D					D				D				D		
Queue Length 50th (ft)		20			172		171			145	149	40			118		0
Queue Length 95th (ft)		#47			#457		209			#337	#232	55			150		25
Internal Link Dist (ft)		124					207				388				918		
Turn Bay Length (ft)												150					150
Base Capacity (vph)		297			390		874			335	670	915			528		254
Starvation Cap Reductn		8			34		122			0	0	0			0		0
Spillback Cap Reductn		0			0		0			0	0	0			0		0
Storage Cap Reductn		0			0		0			0	0	0			0		0
Reduced v/c Ratio		0.86			0.97		0.94			0.78	0.80	0.31			0.81		0.44

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: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.89
Intersection Signal Delay: 44.5 Intersection LOS: D
Intersection Capacity Utilization 79.9% 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.

Splits and Phases: 10: GCG Entrance Driveway & Congress Street/Merrimac Street & New Chardon Street

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø1	Ø2
Lane Configurations								
Traffic Volume (vph)	209	0	0	755	1	0		
Future Volume (vph)	209	0	0	755	1	0		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900		
Lane Width (ft)	12	12	12	12	11	11		
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00		
Ped Bike Factor								
Frt								
Flt Protected					0.950			
Satd. Flow (prot)	2901	0	0	3094	1570	0		
Flt Permitted					0.950			
Satd. Flow (perm)	2901	0	0	3094	1570	0		
Right Turn on Red		Yes				Yes		
Satd. Flow (RTOR)								
Link Speed (mph)	25			25	25			
Link Distance (ft)	137			204	136			
Travel Time (s)	3.7			5.6	3.7			
Confl. Bikes (#/hr)		2						
Peak Hour Factor	0.83	0.83	0.93	0.93	0.25	0.25		
Heavy Vehicles (%)	12%	0%	0%	5%	0%	0%		
Adj. Flow (vph)	252	0	0	812	4	0		
Shared Lane Traffic (%)								
Lane Group Flow (vph)	252	0	0	812	4	0		
Turn Type	NA			NA	Prot			
Protected Phases	3			1 2 3	4		1	2
Permitted Phases								
Detector Phase	3			1 2 3	4			
Switch Phase								
Minimum Initial (s)	8.0				8.0		8.0	8.0
Minimum Split (s)	19.0				24.0		33.0	15.0
Total Split (s)	22.0				24.0		34.0	40.0
Total Split (%)	18.3%				20.0%		28%	33%
Maximum Green (s)	15.0				16.0		28.0	34.0
Yellow Time (s)	3.0				3.0		3.0	3.0
All-Red Time (s)	4.0				5.0		3.0	3.0
Lost Time Adjust (s)	-2.0				-2.0			
Total Lost Time (s)	5.0				6.0			
Lead/Lag	Lag							Lead
Lead-Lag Optimize?								
Vehicle Extension (s)	2.0				2.0		2.0	2.0
Recall Mode	Max				Max		C-Max	Max
Walk Time (s)	7.0				7.0		7.0	
Flash Dont Walk (s)	4.0				8.0		17.0	
Pedestrian Calls (#/hr)	0				0		0	
Act Effct Green (s)	17.0			92.0	18.0			
Actuated g/C Ratio	0.14			0.77	0.15			
v/c Ratio	0.61			0.34	0.02			
Control Delay	55.6			0.8	44.0			
Queue Delay	0.0			1.0	0.0			
Total Delay	55.6			1.8	44.0			
LOS	E			A	D			
Approach Delay	55.6			1.8	44.0			
Approach LOS	E			A	D			
Queue Length 50th (ft)	97			8	3			
Queue Length 95th (ft)	131			20	4			
Internal Link Dist (ft)	57			124	56			
Turn Bay Length (ft)								
Base Capacity (vph)	410			2372	235			
Starvation Cap Reductn	0			1225	0			
Spillback Cap Reductn	0			0	0			
Storage Cap Reductn	0			0	0			
Reduced v/c Ratio	0.61			0.71	0.02			

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: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.89
Intersection Signal Delay: 14.6 Intersection LOS: B
Intersection Capacity Utilization 38.2% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 12: GCG Exit Driveway & New Chardon Street

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	166	0	0	854	21	43
Future Volume (Veh/h)	166	0	0	854	21	43
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.92	0.92	0.86	0.86
Hourly flow rate (vph)	191	0	0	928	24	50
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	786			137		
pX, platoon unblocked					0.92	
vC, conflicting volume			191		655	96
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			191		446	96
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		95	95
cM capacity (veh/h)			1395		501	949

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	96	96	464	464	74
Volume Left	0	0	0	0	24
Volume Right	0	0	0	0	50
cSH	1700	1700	1700	1700	736
Volume to Capacity	0.06	0.06	0.27	0.27	0.10
Queue Length 95th (ft)	0	0	0	0	8
Control Delay (s)	0.0	0.0	0.0	0.0	10.4
Lane LOS					B
Approach Delay (s)	0.0		0.0		10.4
Approach LOS					B

Intersection Summary				
Average Delay	0.6			
Intersection Capacity Utilization	34.1%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	166	10	74	801	0	0
Future Volume (Veh/h)	166	10	74	801	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.89	0.89	0.97	0.97	0.56	0.56
Hourly flow rate (vph)	187	11	76	826	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	579			344		
pX, platoon unblocked					0.93	
vC, conflicting volume			198		758	99
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			198		580	99
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			94		100	100
cM capacity (veh/h)			1372		394	944

Direction, Lane #	EB 1	EB 2	WB 1	WB 2
Volume Total	125	73	351	551
Volume Left	0	0	76	0
Volume Right	0	11	0	0
cSH	1700	1700	1372	1700
Volume to Capacity	0.07	0.04	0.06	0.32
Queue Length 95th (ft)	0	0	4	0
Control Delay (s)	0.0	0.0	2.1	0.0
Lane LOS			A	
Approach Delay (s)	0.0		0.8	
Approach LOS				

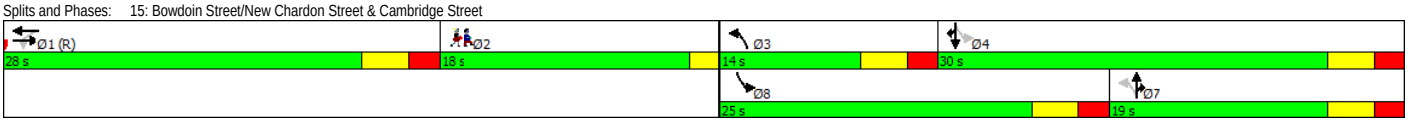
Intersection Summary				
Average Delay	0.7			
Intersection Capacity Utilization	35.9%	ICU Level of Service	A	
Analysis Period (min)	15			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations													
Traffic Volume (vph)	0	695	93	21	199	31	153	144	110	322	192	287	
Future Volume (vph)	0	695	93	21	199	31	153	144	110	322	192	287	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	0		0	0		0	0		100	0		100	
Storage Lanes	0		0	0		0	1		1	1		1	
Taper Length (ft)	25			25			25			25			
Lane Util. Factor	1.00	0.91	0.91	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor		0.95			0.95				0.61			0.75	
Frt		0.982			0.981				0.850			0.850	
Flt Protected					0.996		0.950			0.950			
Satd. Flow (prot)	0	4538	0	0	3140	0	1612	1759	1482	1719	1845	1524	
Flt Permitted					0.856		0.632			0.370			
Satd. Flow (perm)	0	4538	0	0	2698	0	1072	1759	909	670	1845	1136	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)		26			17				170			299	
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		236			438			364			579		
Travel Time (s)		5.4			10.0			8.3			13.2		
Confl. Peds. (#/hr)			530			756			361			229	
Confl. Bikes (#/hr)			105			21			6				
Peak Hour Factor	0.93	0.93	0.93	0.86	0.86	0.86	0.94	0.94	0.94	0.96	0.96	0.96	
Heavy Vehicles (%)	100%	7%	6%	21%	2%	25%	12%	8%	9%	5%	3%	6%	
Adj. Flow (vph)	0	747	100	24	231	36	163	153	117	335	200	299	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	847	0	0	291	0	163	153	117	335	200	299	
Turn Type		NA		Perm	NA		pm+pt	NA	custom	pm+pt	NA	custom	
Protected Phases		1			1		3	7	7	8	4	4	2
Permitted Phases				1			7		7	4		4	
Detector Phase		1		1	1		3	7	7	8	4	4	
Switch Phase													
Minimum Initial (s)		8.0		8.0	8.0		8.0	8.0	8.0	8.0	8.0	8.0	1.0
Minimum Split (s)		28.0		28.0	28.0		13.0	13.0	13.0	13.0	13.0	13.0	18.0
Total Split (s)		28.0		28.0	28.0		14.0	19.0	19.0	25.0	30.0	30.0	18.0
Total Split (%)		31.1%		31.1%	31.1%		15.6%	21.1%	21.1%	27.8%	33.3%	33.3%	20%
Maximum Green (s)		23.0		23.0	23.0		9.0	14.0	14.0	20.0	25.0	25.0	16.0
Yellow Time (s)		3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	2.0
All-Red Time (s)		2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	0.0
Lost Time Adjust (s)		0.0			0.0		0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		5.0			5.0		5.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag		Lead		Lead	Lead		Lead	Lag	Lag	Lead	Lag	Lag	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	2.0
Recall Mode		C-Max		C-Max	C-Max		None	None	None	None	None	None	None
Walk Time (s)		7.0		7.0	7.0								7.0
Flash Dont Walk (s)		16.0		16.0	16.0								9.0
Pedestrian Calls (#/hr)		0		0	0								20
Act Effct Green (s)		38.5			38.5		21.0	11.6	11.6	34.3	19.9	19.9	
Actuated g/C Ratio		0.43			0.43		0.23	0.13	0.13	0.38	0.22	0.22	
v/c Ratio		0.43			0.25		0.53	0.67	0.35	0.73	0.49	0.52	
Control Delay		26.9			9.9		26.5	52.0	4.7	30.5	33.8	6.9	
Queue Delay		0.7			0.0		0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay		27.6			9.9		26.5	52.0	4.7	30.5	33.8	6.9	
LOS		C			A		C	D	A	C	C	A	
Approach Delay		27.6			9.9			29.7			22.8		
Approach LOS		C			A			C			C		
Queue Length 50th (ft)		33			24		60	84	0	139	100	0	
Queue Length 95th (ft)		m216			16		100	144	19	204	154	59	
Internal Link Dist (ft)		156			358			284			499		
Turn Bay Length (ft)									100			100	
Base Capacity (vph)		1956			1163		310	273	374	488	512	639	
Starvation Cap Reductn		708			0		0	0	0	0	0	0	
Spillback Cap Reductn		0			20		0	0	0	0	0	2	
Storage Cap Reductn		0			0		0	0	0	0	0	0	
Reduced v/c Ratio		0.68			0.25		0.53	0.56	0.31	0.69	0.39	0.47	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 1:EBWB, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.73
Intersection Signal Delay: 24.2 Intersection LOS: C
Intersection Capacity Utilization 66.0% ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 15: Bowdoin Street/New Chardon Street & Cambridge Street

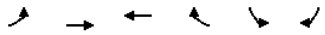


Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations														
Traffic Volume (vph)	19	271	559	278	18	108	210	121	21	33	11	0	0	0
Future Volume (vph)	19	271	559	278	18	108	210	121	21	33	11	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0		0		100		100	0		0	0		0
Storage Lanes		2		0		1		1	0		0	0		0
Taper Length (ft)		25				25			25			25		
Lane Util. Factor	0.95	0.97	0.95	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.88					0.66		0.93				
Frt			0.950					0.850		0.977				
Flt Protected		0.950				0.950				0.984				
Satd. Flow (prot)	0	3346	2845	0	0	1689	3374	1455	0	1633	0	0	0	0
Flt Permitted		0.603				0.328				0.984				
Satd. Flow (perm)	0	2124	2845	0	0	583	3374	966	0	1633	0	0	0	0
Right Turn on Red				Yes				Yes			Yes			Yes
Satd. Flow (RTOR)			95					138		9				
Link Speed (mph)			30				30			30			30	
Link Distance (ft)			438				763			259			584	
Travel Time (s)			10.0				17.3			5.9			13.3	
Confl. Peds. (#/hr)				154				377			241			
Confl. Bikes (#/hr)				60				6			2			
Peak Hour Factor	0.97	0.97	0.97	0.97	0.88	0.88	0.88	0.88	0.69	0.69	0.69	0.92	0.92	0.92
Heavy Vehicles (%)	0%	5%	6%	5%	0%	8%	7%	11%	0%	5%	9%	0%	0%	0%
Adj. Flow (vph)	20	279	576	287	20	123	239	138	30	48	16	0	0	0
Shared Lane Traffic (%)														
Lane Group Flow (vph)	0	299	863	0	0	143	239	138	0	94	0	0	0	0
Turn Type	custom	Prot	NA		custom	Prot	NA	Perm	Perm	NA				
Protected Phases		2	1			6	1			5				
Permitted Phases	2				6			1	5					
Detector Phase	2	2	1		6	6	1	1	5	5				
Switch Phase														
Minimum Initial (s)	8.0	8.0	8.0		8.0	8.0	8.0	8.0	8.0	8.0				
Minimum Split (s)	22.0	22.0	27.0		12.0	12.0	27.0	27.0	12.0	12.0				
Total Split (s)	22.0	22.0	29.0		27.0	27.0	29.0	29.0	12.0	12.0				
Total Split (%)	24.4%	24.4%	32.2%		30.0%	30.0%	32.2%	32.2%	13.3%	13.3%				
Maximum Green (s)	18.0	18.0	25.0		23.0	23.0	25.0	25.0	8.0	8.0				
Yellow Time (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0				
All-Red Time (s)	1.0	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	0.0		0.0				
Total Lost Time (s)		4.0	4.0			4.0	4.0	4.0		4.0				
Lead/Lag	Lag	Lag	Lead		Lag	Lag	Lead	Lead	Lead	Lead				
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		None	None	C-Max	C-Max	None	None				
Walk Time (s)	7.0	7.0	7.0				7.0	7.0						
Flash Dont Walk (s)	11.0	11.0	16.0				16.0	16.0						
Pedestrian Calls (#/hr)	0	0	0				0	0						
Act Effct Green (s)		15.8	28.7			23.7	28.7	28.7		8.2				
Actuated g/C Ratio		0.18	0.32			0.26	0.32	0.32		0.09				
v/c Ratio		0.80	0.89			0.93	0.22	0.34		0.60				
Control Delay		45.3	38.3			94.2	24.9	7.4		52.8				
Queue Delay		0.0	0.0			0.0	0.0	0.0		0.0				
Total Delay		45.3	38.3			94.2	24.9	7.4		52.8				
LOS		D	D			F	C	A		D				
Approach Delay			40.1				39.3			52.8				
Approach LOS			D				D			D				
Queue Length 50th (ft)		82	~223			80	55	0		47				
Queue Length 95th (ft)		#140	#346			#192	84	42		72				
Internal Link Dist (ft)			358				683			179			504	
Turn Bay Length (ft)						100		100						
Base Capacity (vph)		424	971			153	1076	402		157				
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		0.71	0.89			0.93	0.22	0.34		0.60				

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 1:EBWB, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.93
Intersection Signal Delay: 40.5 Intersection LOS: D
Intersection Capacity Utilization 50.4% ICU Level of Service A
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: 16: Somerset Street/Sudbury Street & Cambridge Street



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	424	0	0	187	0
Future Volume (Veh/h)	0	424	0	0	187	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	461	0	0	203	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		584				
pX, platoon unblocked					0.95	
vC, conflicting volume	0				230	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0				88	0
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				77	100
cM capacity (veh/h)	1636				864	1091

Direction, Lane #	EB 1	EB 2	SB 1
Volume Total	230	230	203
Volume Left	0	0	203
Volume Right	0	0	0
cSH	1700	1700	864
Volume to Capacity	0.14	0.14	0.23
Queue Length 95th (ft)	0	0	23
Control Delay (s)	0.0	0.0	10.4
Lane LOS			B
Approach Delay (s)	0.0		10.4
Approach LOS			B

Intersection Summary				
Average Delay	3.2			
Intersection Capacity Utilization	28.7%	ICU Level of Service	A	
Analysis Period (min)	15			

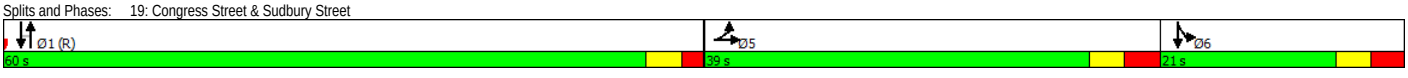
Intersection Sign configuration not allowed in HCM analysis.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (vph)	152	251	156	0	0	0	14	0	825	159	90	538	0
Future Volume (vph)	152	251	156	0	0	0	14	0	825	159	90	538	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	11	10	12	12	12	12	11	11	11	10	11	11
Storage Length (ft)	0		0	0		0		0		0	100		0
Storage Lanes	1		0	0		0		0		0	1		0
Taper Length (ft)	25			25				25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	0.91	1.00	0.91	0.91	1.00	0.91	1.00
Ped Bike Factor	0.62	0.85							0.93		0.89		
Frt		0.943							0.976				
Flt Protected	0.950								0.999		0.950		
Satd. Flow (prot)	1392	2262	0	0	0	0	0	0	3801	0	1458	4178	0
Flt Permitted	0.950								0.927		0.950		
Satd. Flow (perm)	862	2262	0	0	0	0	0	0	3527	0	1304	4178	0
Right Turn on Red			Yes			Yes				No			Yes
Satd. Flow (RTOR)		112											
Link Speed (mph)		25			25				25			25	
Link Distance (ft)		153			161				394			468	
Travel Time (s)		4.2			4.4				10.7			12.8	
Confl. Peds. (#/hr)	430		475							674	674		
Confl. Bikes (#/hr)			11							12			59
Peak Hour Factor	0.89	0.89	0.89	0.92	0.92	0.92	0.94	0.94	0.94	0.94	0.88	0.88	0.88
Heavy Vehicles (%)	5%	6%	4%	0%	0%	0%	0%	0%	6%	14%	4%	8%	0%
Parking (#/hr)	0	0											
Adj. Flow (vph)	171	282	175	0	0	0	15	0	878	169	102	611	0
Shared Lane Traffic (%)													
Lane Group Flow (vph)	171	457	0	0	0	0	0	0	1062	0	102	611	0
Turn Type	Split	NA					Perm		NA		Prot	NA	
Protected Phases	5	5							1		6	1 6	
Permitted Phases							1						
Detector Phase	5	5					1		1		6	1 6	
Switch Phase													
Minimum Initial (s)	8.0	8.0					10.0		10.0		7.0		
Minimum Split (s)	28.0	28.0					27.0		27.0		14.0		
Total Split (s)	39.0	39.0					60.0		60.0		21.0		
Total Split (%)	32.5%	32.5%					50.0%		50.0%		17.5%		
Maximum Green (s)	33.0	33.0					55.0		55.0		15.0		
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		3.0		
Lost Time Adjust (s)	-2.0	-2.0							-2.0		-2.0		
Total Lost Time (s)	4.0	4.0							3.0		4.0		
Lead/Lag	Lead	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		Max		
Walk Time (s)	7.0	7.0					7.0		7.0				
Flash Dont Walk (s)	15.0	15.0					15.0		15.0				
Pedestrian Calls (#/hr)	50	50					50		50				
Act Effct Green (s)	35.0	35.0							57.0		17.0	78.0	
Actuated g/C Ratio	0.29	0.29							0.48		0.14	0.65	
v/c Ratio	0.42	0.62							0.63		0.50	0.23	
Control Delay	38.2	31.5							25.8		47.7	13.4	
Queue Delay	0.0	0.0							1.5		0.0	0.0	
Total Delay	38.2	31.5							27.4		47.7	13.4	
LOS	D	C							C		D	B	
Approach Delay		33.3							27.4			18.3	
Approach LOS		C							C			B	
Queue Length 50th (ft)	107	121							220		69	82	
Queue Length 95th (ft)	173	177							270		m87	m103	
Internal Link Dist (ft)		73			81				314			388	
Turn Bay Length (ft)											100		
Base Capacity (vph)	406	739							1675		206	2715	
Starvation Cap Reductn	0	0							404		0	0	
Spillback Cap Reductn	0	0							0		0	0	
Storage Cap Reductn	0	0							0		0	0	
Reduced v/c Ratio	0.42	0.62							0.84		0.50	0.23	

Intersection Summary

Area Type: CBD
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.63
Intersection Signal Delay: 26.2 Intersection LOS: C
Intersection Capacity Utilization 63.6% ICU Level of Service B
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 19: Congress Street & Sudbury Street



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	417	83	0	0	0	19
Future Volume (Veh/h)	417	83	0	0	0	19
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.89	0.89	0.92	0.92	0.59	0.59
Hourly flow rate (vph)	469	93	0	0	0	32
Pedestrians					148	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					12	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	161			111		
pX, platoon unblocked						
vC, conflicting volume			710		664	351
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			710		664	351
tC, single (s)			4.1		6.8	7.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.5
p0 queue free %			100		100	94
cM capacity (veh/h)			788		349	532

Direction, Lane #	EB 1	EB 2	EB 3	NB 1
Volume Total	188	188	187	32
Volume Left	0	0	0	0
Volume Right	0	0	93	32
cSH	1700	1700	1700	532
Volume to Capacity	0.11	0.11	0.11	0.06
Queue Length 95th (ft)	0	0	0	5
Control Delay (s)	0.0	0.0	0.0	12.2
Lane LOS				B
Approach Delay (s)	0.0			12.2
Approach LOS				B

Intersection Summary				
Average Delay	0.7			
Intersection Capacity Utilization	23.3%	ICU Level of Service	A	
Analysis Period (min)	15			

Lane Group	EBT	EBR	SBL	SBT	SEL
Lane Configurations					
Traffic Volume (vph)	316	120	31	394	21
Future Volume (vph)	316	120	31	394	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	12	12	12
Lane Util. Factor	0.95	1.00	0.95	0.95	1.00
Ped Bike Factor		0.66		0.98	
Frt		0.850			
Flt Protected				0.996	0.950
Satd. Flow (prot)	3116	1482	0	3241	926
Flt Permitted				0.996	0.950
Satd. Flow (perm)	3116	971	0	3166	926
Right Turn on Red		Yes	No		
Satd. Flow (RTOR)		129			
Link Speed (mph)	25			25	25
Link Distance (ft)	111			438	138
Travel Time (s)	3.0			11.9	3.8
Confl. Peds. (#/hr)		180	134		
Confl. Bikes (#/hr)		1			
Peak Hour Factor	0.93	0.93	0.86	0.86	0.62
Heavy Vehicles (%)	12%	9%	10%	11%	95%
Adj. Flow (vph)	340	129	36	458	34
Shared Lane Traffic (%)					
Lane Group Flow (vph)	340	129	0	494	34
Turn Type	NA	Perm	Perm	NA	Prot
Protected Phases	1			3	4
Permitted Phases		1	3		
Detector Phase	1	1	3	3	4
Switch Phase					
Minimum Initial (s)	10.0	10.0	10.0	10.0	6.0
Minimum Split (s)	21.0	21.0	18.0	18.0	13.0
Total Split (s)	42.0	42.0	41.0	41.0	27.0
Total Split (%)	38.2%	38.2%	37.3%	37.3%	24.5%
Maximum Green (s)	38.0	38.0	35.0	35.0	21.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	3.0	3.0	3.0
Lost Time Adjust (s)	-1.0	-1.0		-2.0	0.0
Total Lost Time (s)	3.0	3.0		4.0	6.0
Lead/Lag			Lead	Lead	Lag
Lead-Lag Optimize?					
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0
Recall Mode	C-Max	C-Max	Max	Max	Max
Walk Time (s)	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)	5.0	5.0	4.0	4.0	
Pedestrian Calls (#/hr)	0	0	25	25	
Act Effct Green (s)	39.0	39.0		37.0	21.0
Actuated g/C Ratio	0.35	0.35		0.34	0.19
v/c Ratio	0.31	0.30		0.46	0.19
Control Delay	26.7	6.3		30.5	40.8
Queue Delay	1.5	0.5		0.0	0.0
Total Delay	28.2	6.8		30.5	40.8
LOS	C	A		C	D
Approach Delay	22.3			30.5	40.8
Approach LOS	C			C	D
Queue Length 50th (ft)	90	0		143	20
Queue Length 95th (ft)	129	41		183	34
Internal Link Dist (ft)	31			358	58
Turn Bay Length (ft)					
Base Capacity (vph)	1104	427		1064	176
Starvation Cap Reductn	565	96		0	0
Spillback Cap Reductn	3	0		0	0
Storage Cap Reductn	0	0		0	0
Reduced v/c Ratio	0.63	0.39		0.46	0.19

Intersection Summary

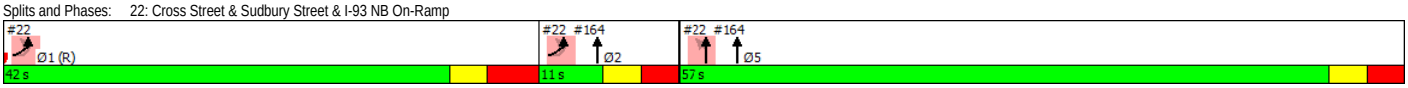
Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 10 (9%), Referenced to phase 1:EBT, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.46
Intersection Signal Delay: 27.0 Intersection LOS: C
Intersection Capacity Utilization 38.5% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 21: Surface Street & Sudbury Street & Haymarket Bus Exit

Lane Group	EBL2	EBL	EBR	NBL	NBT	SBT	SBR	SEL	SER	Ø1	Ø2
Lane Configurations											
Traffic Volume (vph)	250	118	0	164	690	0	0	0	0		
Future Volume (vph)	250	118	0	164	690	0	0	0	0		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900		
Lane Width (ft)	12	13	12	12	11	12	12	12	12		
Lane Util. Factor	0.95	0.97	1.00	0.95	0.95	1.00	1.00	1.00	1.00		
Frt											
Flt Protected		0.950			0.990						
Satd. Flow (prot)	0	3136	0	0	3174	0	0	0	0		
Flt Permitted		0.950			0.990						
Satd. Flow (perm)	0	3136	0	0	3174	0	0	0	0		
Right Turn on Red	Yes		Yes								
Satd. Flow (RTOR)		275									
Link Speed (mph)		25			25	25		25			
Link Distance (ft)		191			203	568		237			
Travel Time (s)		5.2			5.5	15.5		6.5			
Peak Hour Factor	0.91	0.91	0.91	0.96	0.96	0.92	0.92	0.92	0.92		
Heavy Vehicles (%)	8%	31%	0%	4%	10%	0%	0%	0%	0%		
Adj. Flow (vph)	275	130	0	171	719	0	0	0	0		
Shared Lane Traffic (%)											
Lane Group Flow (vph)	0	405	0	0	890	0	0	0	0		
Turn Type	Perm	Prot		Perm	NA						
Protected Phases		1 2			5					1	2
Permitted Phases	1 2			5							
Detector Phase	1 2	1 2		5	5						
Switch Phase											
Minimum Initial (s)				10.0	10.0					10.0	4.0
Minimum Split (s)				18.0	18.0					25.0	11.0
Total Split (s)				57.0	57.0					42.0	11.0
Total Split (%)				51.8%	51.8%					38%	10%
Maximum Green (s)				51.0	51.0					35.0	5.0
Yellow Time (s)				3.0	3.0					3.0	3.0
All-Red Time (s)				3.0	3.0					4.0	3.0
Lost Time Adjust (s)					-1.0						
Total Lost Time (s)					5.0						
Lead/Lag										Lead	Lag
Lead-Lag Optimize?											
Vehicle Extension (s)				2.0	2.0					2.0	2.0
Recall Mode				Max	Max					C-Max	Max
Walk Time (s)				7.0	7.0					7.0	
Flash Dont Walk (s)				4.0	4.0					3.0	
Pedestrian Calls (#/hr)				30	30					0	
Act Effct Green (s)		47.0			52.0						
Actuated g/C Ratio		0.43			0.47						
v/c Ratio		0.27			0.59						
Control Delay		1.1			5.8						
Queue Delay		0.4			0.0						
Total Delay		1.5			5.8						
LOS		A			A						
Approach Delay		1.5			5.8						
Approach LOS		A			A						
Queue Length 50th (ft)		0			197						
Queue Length 95th (ft)		2			252						
Internal Link Dist (ft)		111			123	488		157			
Turn Bay Length (ft)											
Base Capacity (vph)		1497			1500						
Starvation Cap Reductn		617			4						
Spillback Cap Reductn		0			0						
Storage Cap Reductn		0			0						
Reduced v/c Ratio		0.46			0.59						

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 16 (15%), Referenced to phase 1:EBL, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.59			
Intersection Signal Delay: 4.4		Intersection LOS: A	
Intersection Capacity Utilization 46.9%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 22: Cross Street & Sudbury Street & I-93 NB On-Ramp



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	27	0	0	90	69	216	789	62	0	0	0
Future Volume (vph)	19	27	0	0	90	69	216	789	62	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	1.00	1.00	0.95	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor	0.78				0.84			0.95				
Frt					0.942			0.991				
Flt Protected	0.950							0.990				
Satd. Flow (prot)	1577	1598	0	0	1280	0	0	2955	0	0	0	0
Flt Permitted	0.537							0.990				
Satd. Flow (perm)	694	1598	0	0	1280	0	0	2908	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					37			10				
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		244			263			292			187	
Travel Time (s)		6.7			7.2			8.0			5.1	
Confl. Peds. (#/hr)	261					261	36		239			
Confl. Bikes (#/hr)			5			19			13			3
Peak Hour Factor	0.77	0.77	0.77	0.80	0.80	0.80	0.89	0.89	0.89	0.92	0.92	0.92
Heavy Vehicles (%)	3%	7%	0%	0%	6%	6%	4%	4%	7%	0%	0%	0%
Parking (#/hr)									0			
Adj. Flow (vph)	25	35	0	0	113	86	243	887	70	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	25	35	0	0	199	0	0	1200	0	0	0	0
Turn Type	Perm	NA			NA		Split	NA				
Protected Phases		5			5		1	1				
Permitted Phases	5											
Detector Phase	5	5			5		1	1				
Switch Phase												
Minimum Initial (s)	8.0	8.0			8.0		8.0	8.0				
Minimum Split (s)	21.0	21.0			21.0		23.0	23.0				
Total Split (s)	39.0	39.0			39.0		71.0	71.0				
Total Split (%)	35.5%	35.5%			35.5%		64.5%	64.5%				
Maximum Green (s)	34.0	34.0			34.0		66.0	66.0				
Yellow Time (s)	3.0	3.0			3.0		3.0	3.0				
All-Red Time (s)	2.0	2.0			2.0		2.0	2.0				
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)	2.0	2.0			2.0		2.0	2.0				
Recall Mode	Max	Max			Max		C-Max	C-Max				
Walk Time (s)	7.0	7.0			7.0		7.0	7.0				
Flash Dont Walk (s)	8.0	8.0			8.0		8.0	8.0				
Pedestrian Calls (#/hr)	50	50			50		0	0				
Act Effct Green (s)	35.0	35.0			35.0			67.0				
Actuated g/C Ratio	0.32	0.32			0.32			0.61				
v/c Ratio	0.11	0.07			0.46			0.67				
Control Delay	22.6	21.3			28.2			7.9				
Queue Delay	0.0	0.0			0.0			0.6				
Total Delay	22.6	21.3			28.2			8.4				
LOS	C	C			C			A				
Approach Delay		21.8			28.2			8.4				
Approach LOS		C			C			A				
Queue Length 50th (ft)	9	13			90			64				
Queue Length 95th (ft)	20	25			137			103				
Internal Link Dist (ft)		164			183			212			107	
Turn Bay Length (ft)												
Base Capacity (vph)	220	508			432			1803				
Starvation Cap Reductn	0	0			0			252				
Spillback Cap Reductn	0	0			2			251				
Storage Cap Reductn	0	0			0			0				
Reduced v/c Ratio	0.11	0.07			0.46			0.77				

Intersection Summary			
Area Type:	CBD		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 43 (39%), Referenced to phase 1:NBTL, Start of Green			
Natural Cycle: 50			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.67			
Intersection Signal Delay: 11.7		Intersection LOS: B	
Intersection Capacity Utilization 76.2%		ICU Level of Service D	
Analysis Period (min) 15			

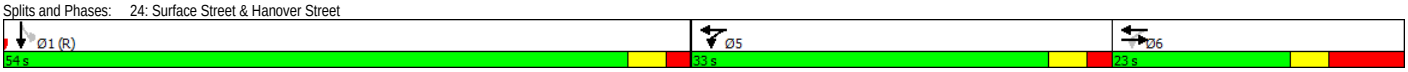
Splits and Phases: 23: Cross Street & Hanover Street

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	26	6	82	224	0	0	0	0	21	458	36
Future Volume (vph)	0	26	6	82	224	0	0	0	0	21	458	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor		0.94		0.68							0.95	
Frt		0.973									0.990	
Flt Protected				0.950							0.998	
Satd. Flow (prot)	0	2850	0	1388	1613	0	0	0	0	0	2895	0
Flt Permitted				0.730							0.998	
Satd. Flow (perm)	0	2850	0	728	1613	0	0	0	0	0	2877	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7									9	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		419			244			470			333	
Travel Time (s)		11.4			6.7			12.8			9.1	
Confl. Peds. (#/hr)			174	174						82		227
Confl. Bikes (#/hr)			4			17						103
Peak Hour Factor	0.81	0.81	0.81	0.88	0.88	0.88	0.92	0.92	0.92	0.90	0.90	0.90
Heavy Vehicles (%)	0%	5%	0%	17%	6%	0%	0%	0%	0%	18%	6%	3%
Adj. Flow (vph)	0	32	7	93	255	0	0	0	0	23	509	40
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	39	0	93	255	0	0	0	0	0	572	0
Turn Type		NA		D.P+P	NA					Perm	NA	
Protected Phases		6		5	5 6						1	
Permitted Phases				6						1		
Detector Phase		6		5	5 6					1	1	
Switch Phase												
Minimum Initial (s)		10.0		10.0						10.0	10.0	
Minimum Split (s)		22.0		18.0						27.0	27.0	
Total Split (s)		23.0		33.0						54.0	54.0	
Total Split (%)		20.9%		30.0%						49.1%	49.1%	
Maximum Green (s)		14.0		28.0						49.0	49.0	
Yellow Time (s)		3.0		3.0						3.0	3.0	
All-Red Time (s)		6.0		2.0						2.0	2.0	
Lost Time Adjust (s)		-5.0		-1.0							-1.0	
Total Lost Time (s)		4.0		4.0							4.0	
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)		2.0		2.0						2.0	2.0	
Recall Mode		Max		Max						C-Max	C-Max	
Walk Time (s)		7.0		7.0						7.0	7.0	
Flash Dont Walk (s)		5.0		5.0						10.0	10.0	
Pedestrian Calls (#/hr)		0		0						0	0	
Act Effct Green (s)		19.0		48.0	52.0						50.0	
Actuated g/C Ratio		0.17		0.44	0.47						0.45	
v/c Ratio		0.08		0.19	0.33						0.44	
Control Delay		38.8		15.7	17.8						8.3	
Queue Delay		0.0		0.4	3.9						0.0	
Total Delay		38.8		16.0	21.7						8.4	
LOS		D		B	C						A	
Approach Delay		38.8			20.2						8.4	
Approach LOS		D			C						A	
Queue Length 50th (ft)		0		33	108						39	
Queue Length 95th (ft)		28		m55	157						57	
Internal Link Dist (ft)		339			164			390			253	
Turn Bay Length (ft)												
Base Capacity (vph)		498		491	762						1312	
Starvation Cap Reductn		0		153	416						37	
Spillback Cap Reductn		0		0	0						0	
Storage Cap Reductn		0		0	0						0	
Reduced v/c Ratio		0.08		0.28	0.74						0.45	

Intersection Summary

Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 39 (35%), Referenced to phase 1:SBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.44
Intersection Signal Delay: 13.9 Intersection LOS: B
Intersection Capacity Utilization 76.2% ICU Level of Service D
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

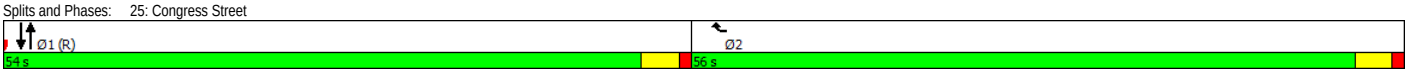
Splits and Phases: 24: Surface Street & Hanover Street



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	260	738	32	0	708
Future Volume (vph)	0	260	738	32	0	708
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.91	0.91	1.00	0.91
Frt		0.865	0.994			
Flt Protected						
Satd. Flow (prot)	0	1644	5156	0	0	5187
Flt Permitted						
Satd. Flow (perm)	0	1644	5156	0	0	5187
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		105	8			
Link Speed (mph)	30		25			25
Link Distance (ft)	419		430			394
Travel Time (s)	9.5		11.7			10.7
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	283	802	35	0	770
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	283	837	0	0	770
Turn Type		Prot	NA			NA
Protected Phases		2	1			1
Permitted Phases						
Detector Phase		2	1			1
Switch Phase						
Minimum Initial (s)		4.0	4.0			4.0
Minimum Split (s)		22.0	22.0			22.0
Total Split (s)		56.0	54.0			54.0
Total Split (%)		50.9%	49.1%			49.1%
Maximum Green (s)		52.0	50.0			50.0
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		Lag	Lead			Lead
Lead-Lag Optimize?						
Vehicle Extension (s)		2.0	2.0			2.0
Recall Mode		None	C-Max			C-Max
Walk Time (s)		7.0	7.0			7.0
Flash Dont Walk (s)		11.0	11.0			11.0
Pedestrian Calls (#/hr)		0	0			0
Act Effct Green (s)		17.6	84.4			84.4
Actuated g/C Ratio		0.16	0.77			0.77
v/c Ratio		0.81	0.21			0.19
Control Delay		56.9	3.0			4.2
Queue Delay		0.0	0.0			0.0
Total Delay		57.0	3.0			4.2
LOS		E	A			A
Approach Delay			3.0			4.2
Approach LOS			A			A
Queue Length 50th (ft)		156	27			45
Queue Length 95th (ft)		235	m31			83
Internal Link Dist (ft)	339		350			314
Turn Bay Length (ft)						
Base Capacity (vph)		832	3956			3977
Starvation Cap Reductn		7	0			0
Spillback Cap Reductn		0	0			0
Storage Cap Reductn		0	0			0
Reduced v/c Ratio		0.34	0.21			0.19

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green			
Natural Cycle: 45			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.81			
Intersection Signal Delay: 11.6		Intersection LOS: B	
Intersection Capacity Utilization 37.7%		ICU Level of Service A	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

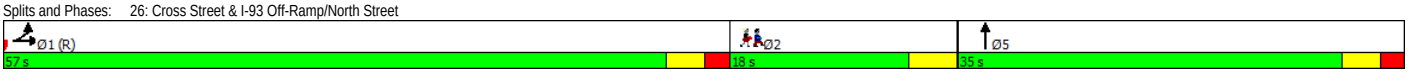
Splits and Phases: 25: Congress Street



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations													
Traffic Volume (vph)	650	75	0	0	0	0	0	417	18	0	0	0	
Future Volume (vph)	650	75	0	0	0	0	0	417	18	0	0	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00	
Ped Bike Factor								1.00					
Frt								0.994					
Flt Protected	0.950	0.962											
Satd. Flow (prot)	1442	1478	0	0	0	0	0	2812	0	0	0	0	
Flt Permitted	0.950	0.962											
Satd. Flow (perm)	1442	1478	0	0	0	0	0	2812	0	0	0	0	
Right Turn on Red	No		Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)								4					
Link Speed (mph)		25			25			25			25		
Link Distance (ft)		145			386			247			292		
Travel Time (s)		4.0			10.5			6.7			8.0		
Confl. Bikes (#/hr)									13				
Peak Hour Factor	0.93	0.93	0.93	0.92	0.92	0.92	0.91	0.91	0.91	0.92	0.92	0.92	
Heavy Vehicles (%)	7%	1%	0%	0%	0%	0%	0%	15%	7%	0%	0%	0%	
Adj. Flow (vph)	699	81	0	0	0	0	0	458	20	0	0	0	
Shared Lane Traffic (%)	42%												
Lane Group Flow (vph)	405	375	0	0	0	0	0	478	0	0	0	0	
Turn Type	Split	NA						NA					
Protected Phases	1	1						5					2
Permitted Phases													
Detector Phase	1	1						5					
Switch Phase													
Minimum Initial (s)	8.0	8.0						8.0					8.0
Minimum Split (s)	15.0	15.0						14.0					18.0
Total Split (s)	57.0	57.0						35.0					18.0
Total Split (%)	51.8%	51.8%						31.8%					16%
Maximum Green (s)	52.0	52.0						30.0					14.0
Yellow Time (s)	3.0	3.0						3.0					4.0
All-Red Time (s)	2.0	2.0						2.0					0.0
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?													
Vehicle Extension (s)	2.0	2.0						2.0					2.0
Recall Mode	C-Max	C-Max						Max					Ped
Walk Time (s)													7.0
Flash Dont Walk (s)													7.0
Pedestrian Calls (#/hr)													500
Act Effct Green (s)	53.0	53.0						31.0					
Actuated g/C Ratio	0.48	0.48						0.28					
v/c Ratio	0.58	0.53						0.60					
Control Delay	24.8	23.2						37.6					
Queue Delay	0.0	0.0						0.6					
Total Delay	24.8	23.2						38.2					
LOS	C	C						D					
Approach Delay		24.0						38.2					
Approach LOS		C						D					
Queue Length 50th (ft)	210	187						152					
Queue Length 95th (ft)	317	283						208					
Internal Link Dist (ft)		65			306			167			212		
Turn Bay Length (ft)													
Base Capacity (vph)	694	712						795					
Starvation Cap Reductn	0	0						0					
Spillback Cap Reductn	0	0						91					
Storage Cap Reductn	0	0						0					
Reduced v/c Ratio	0.58	0.53						0.68					

Intersection Summary			
Area Type:	CBD		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 72 (65%), Referenced to phase 1:EBTL, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.60			
Intersection Signal Delay: 29.4		Intersection LOS: C	
Intersection Capacity Utilization 42.3%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 26: Cross Street & I-93 Off-Ramp/North Street



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	55	513	764	0	0	0	0	0	499	47
Future Volume (vph)	0	0	55	513	764	0	0	0	0	0	499	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95
Ped Bike Factor											0.97	
Frt			0.865								0.987	
Flt Protected					0.980							
Satd. Flow (prot)	0	0	1321	0	3122	0	0	0	0	0	2898	0
Flt Permitted					0.980							
Satd. Flow (perm)	0	0	1321	0	3122	0	0	0	0	0	2898	0
Right Turn on Red			No	No		Yes			Yes			Yes
Satd. Flow (RTOR)											9	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		373			108			468			470	
Travel Time (s)		10.2			2.9			12.8			12.8	
Confl. Peds. (#/hr)												251
Confl. Bikes (#/hr)												95
Peak Hour Factor	0.80	0.80	0.80	0.93	0.93	0.93	0.92	0.92	0.92	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	12%	2%	2%	0%	0%	0%	0%	0%	7%	9%
Parking (#/hr)												0
Adj. Flow (vph)	0	0	69	552	822	0	0	0	0	0	520	49
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	69	0	1374	0	0	0	0	0	569	0
Turn Type			Perm	Perm	NA						NA	
Protected Phases					1						3	
Permitted Phases			1	1								
Detector Phase			1	1	1						3	
Switch Phase												
Minimum Initial (s)			10.0	10.0	10.0						10.0	
Minimum Split (s)			25.0	25.0	25.0						25.0	
Total Split (s)			73.0	73.0	73.0						37.0	
Total Split (%)			66.4%	66.4%	66.4%						33.6%	
Maximum Green (s)			64.0	64.0	64.0						32.0	
Yellow Time (s)			3.0	3.0	3.0						3.0	
All-Red Time (s)			6.0	6.0	6.0						2.0	
Lost Time Adjust (s)			-5.0		-5.0						-1.0	
Total Lost Time (s)			4.0		4.0						4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)			2.0	2.0	2.0						2.0	
Recall Mode			C-Max	C-Max	C-Max						Max	
Walk Time (s)			7.0	7.0	7.0						7.0	
Flash Dont Walk (s)			5.0	5.0	5.0						12.0	
Pedestrian Calls (#/hr)			0	0	0						0	
Act Effct Green (s)			69.0		69.0						33.0	
Actuated g/C Ratio			0.63		0.63						0.30	
v/c Ratio			0.08		0.70						0.65	
Control Delay			7.8		16.1						17.9	
Queue Delay			0.0		0.0						0.0	
Total Delay			7.8		16.1						17.9	
LOS			A		B						B	
Approach Delay					16.1						17.9	
Approach LOS					B						B	
Queue Length 50th (ft)			31		314						80	
Queue Length 95th (ft)			46		394						107	
Internal Link Dist (ft)		293			28			388			390	
Turn Bay Length (ft)												
Base Capacity (vph)			828		1958						875	
Starvation Cap Reductn			0		0						0	
Spillback Cap Reductn			0		1						0	
Storage Cap Reductn			0		0						0	
Reduced v/c Ratio			0.08		0.70						0.65	

Intersection Summary

Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 104 (95%), Referenced to phase 1:WBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.70
Intersection Signal Delay: 16.3 Intersection LOS: B
Intersection Capacity Utilization 76.1% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 27: Surface Street & North Street/I-93 Off Ramp

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations													
Traffic Volume (vph)	2	48	0	0	805	6	166	0	6	1	0	8	
Future Volume (vph)	2	48	0	0	805	6	166	0	6	1	0	8	
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	1.00	1.00	
Ped Bike Factor					1.00			1.00		0.97		0.69	
Frt					0.999			0.990				0.850	
Flt Protected		0.998					0.950	0.955		0.950			
Satd. Flow (prot)	0	1389	0	0	2979	0	1251	1374	0	1624	0	1454	
Flt Permitted		0.983					0.950	0.955		0.686			
Satd. Flow (perm)	0	1368	0	0	2979	0	1251	1374	0	1138	0	998	
Right Turn on Red			Yes			Yes			No			Yes	
Satd. Flow (RTOR)					1							60	
Link Speed (mph)		25			25			25			30		
Link Distance (ft)		241			373			604			110		
Travel Time (s)		6.6			10.2			16.5			2.5		
Confl. Peds. (#/hr)	248					248			15	15		246	
Confl. Bikes (#/hr)			3			5			1				
Peak Hour Factor	0.88	0.88	0.88	0.91	0.91	0.91	0.81	0.81	0.81	0.56	0.56	0.56	
Heavy Vehicles (%)	0%	11%	0%	0%	3%	0%	11%	0%	17%	0%	0%	0%	
Parking (#/hr)		0			0		0		0				
Adj. Flow (vph)	2	55	0	0	885	7	205	0	7	2	0	14	
Shared Lane Traffic (%)							48%						
Lane Group Flow (vph)	0	57	0	0	892	0	107	105	0	2	0	14	
Turn Type	Perm	NA			NA		Split	NA		D.Pm		Perm	
Protected Phases		1			1		3	3					2
Permitted Phases	1									3		3	
Detector Phase	1	1			1		3	3		3		3	
Switch Phase													
Minimum Initial (s)	23.0	23.0			23.0		9.0	9.0		9.0		9.0	7.0
Minimum Split (s)	30.0	30.0			30.0		16.0	16.0		16.0		16.0	21.0
Total Split (s)	59.0	59.0			59.0		30.0	30.0		30.0		30.0	21.0
Total Split (%)	53.6%	53.6%			53.6%		27.3%	27.3%		27.3%		27.3%	19%
Maximum Green (s)	54.0	54.0			54.0		24.0	24.0		24.0		24.0	17.0
Yellow Time (s)	3.0	3.0			3.0		3.0	3.0		3.0		3.0	4.0
All-Red Time (s)	2.0	2.0			2.0		3.0	3.0		3.0		3.0	0.0
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0		0.0	
Total Lost Time (s)		5.0			5.0		6.0	6.0		6.0		6.0	
Lead/Lag	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
Recall Mode	C-Max	C-Max			C-Max		Max	Max		Max		Max	None
Walk Time (s)	7.0	7.0			7.0								7.0
Flash Dont Walk (s)	5.0	5.0			5.0								10.0
Pedestrian Calls (#/hr)	0	0			0								0
Act Effct Green (s)		75.0			75.0		24.0	24.0		24.0		24.0	
Actuated g/C Ratio		0.68			0.68		0.22	0.22		0.22		0.22	
v/c Ratio		0.06			0.44		0.39	0.35		0.01		0.05	
Control Delay		8.5			5.4		33.5	3.2		34.0		0.4	
Queue Delay		0.0			0.7		85.0	82.9		0.0		0.8	
Total Delay		8.5			6.1		118.5	86.1		34.0		1.1	
LOS		A			A		F	F		C		A	
Approach Delay		8.5			6.1			102.5					
Approach LOS		A			A			F					
Queue Length 50th (ft)		9			134		62	0		1		0	
Queue Length 95th (ft)		26			144		m76	0		5		0	
Internal Link Dist (ft)		161			293			524			30		
Turn Bay Length (ft)													
Base Capacity (vph)		932			2031		272	299		248		264	
Starvation Cap Reductn		0			743		0	0		0		0	
Spillback Cap Reductn		0			89		197	217		0		162	
Storage Cap Reductn		0			0		0	0		0		0	
Reduced v/c Ratio		0.06			0.69		1.43	1.28		0.01		0.14	

Intersection Summary

Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 16 (15%), Referenced to phase 1:EBWB, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.44
Intersection Signal Delay: 23.6 Intersection LOS: C
Intersection Capacity Utilization 55.4% ICU Level of Service B
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

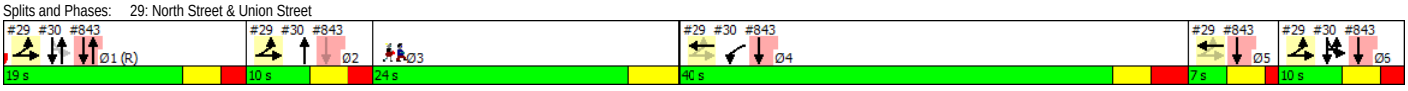
Splits and Phases: 28: Clinton Street/Millenium Hotel Driveway & North Street

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6
Lane Configurations												
Traffic Volume (vph)	10	50	949	30	0	0						
Future Volume (vph)	10	50	949	30	0	0						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900						
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	1.00						
Ped Bike Factor	0.98		0.99									
Frt			0.995									
Flt Protected	0.950											
Satd. Flow (prot)	1354	1555	3105	0	0	0						
Flt Permitted	0.108											
Satd. Flow (perm)	150	1555	3105	0	0	0						
Right Turn on Red				Yes		Yes						
Satd. Flow (RTOR)			3									
Link Speed (mph)		25	25		25							
Link Distance (ft)		141	241		180							
Travel Time (s)		3.8	6.6		4.9							
Confl. Peds. (#/hr)	154			154								
Confl. Bikes (#/hr)				3		4						
Peak Hour Factor	0.76	0.76	0.92	0.92	0.92	0.92						
Heavy Vehicles (%)	20%	10%	3%	17%	0%	0%						
Parking (#/hr)				0								
Adj. Flow (vph)	13	66	1032	33	0	0						
Shared Lane Traffic (%)												
Lane Group Flow (vph)	13	66	1065	0	0	0						
Turn Type	D.P+P	NA	NA									
Protected Phases	1 2 6	1 2 6	4 5				1	2	3	4	5	6
Permitted Phases	4 5	4 5										
Detector Phase	1 2 6	1 2 6	4 5									
Switch Phase												
Minimum Initial (s)							7.0	3.0	7.0	8.0	3.0	4.0
Minimum Split (s)							14.0	9.0	24.0	15.0	7.0	10.0
Total Split (s)							19.0	10.0	24.0	40.0	7.0	10.0
Total Split (%)							17%	9%	22%	36%	6%	9%
Maximum Green (s)							14.0	5.0	20.0	34.0	3.0	5.0
Yellow Time (s)							3.0	3.0	4.0	3.0	3.0	3.0
All-Red Time (s)							2.0	2.0	0.0	3.0	1.0	2.0
Lost Time Adjust (s)												
Total Lost Time (s)												
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)							2.0	2.0	2.0	2.0	2.0	2.0
Recall Mode							C-Max	Max	Ped	Max	Max	Max
Walk Time (s)									7.0			
Flash Dont Walk (s)									13.0			
Pedestrian Calls (#/hr)									0			
Act Effct Green (s)	76.0	81.0	41.0									
Actuated g/C Ratio	0.69	0.74	0.37									
v/c Ratio	0.03	0.06	0.92									
Control Delay	0.8	0.8	32.8									
Queue Delay	0.3	2.3	46.0									
Total Delay	1.1	3.1	78.8									
LOS	A	A	E									
Approach Delay		2.8	78.8									
Approach LOS		A	E									
Queue Length 50th (ft)	0	2	175									
Queue Length 95th (ft)	m1	m3	#500									
Internal Link Dist (ft)		61	161		100							
Turn Bay Length (ft)												
Base Capacity (vph)	475	1145	1159									
Starvation Cap Reductn	332	985	150									
Spillback Cap Reductn	0	0	228									
Storage Cap Reductn	0	0	0									
Reduced v/c Ratio	0.09	0.41	1.14									

Intersection Summary

Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 69 (63%), Referenced to phase 1:EBTL, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.24
Intersection Signal Delay: 73.5 Intersection LOS: E
Intersection Capacity Utilization 35.4% 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: 29: North Street & Union Street



Lane Group	WBL	WBR	NBT	NBR	SBU	SBL	SBT	Ø1	Ø2	Ø3	Ø5
Lane Configurations											
Traffic Volume (vph)	533	402	364	39	1	21	687				
Future Volume (vph)	533	402	364	39	1	21	687				
Ideal Flow (vphpl)	1900	1900	1900	1900	1700	1700	1700				
Lane Util. Factor	0.97	0.95	0.91	0.91	0.91	0.91	0.91				
Ped Bike Factor	0.75		0.95				0.99				
Frt	0.936		0.986								
Flt Protected	0.972						0.998				
Satd. Flow (prot)	2650	0	3979	0	0	0	3834				
Flt Permitted	0.972						0.915				
Satd. Flow (perm)	2195	0	3979	0	0	0	3485				
Right Turn on Red		Yes		No							
Satd. Flow (RTOR)	180										
Link Speed (mph)	25		25				25				
Link Distance (ft)	141		126				430				
Travel Time (s)	3.8		3.4				11.7				
Confl. Peds. (#/hr)	312	212		1204		1204					
Confl. Bikes (#/hr)		7		7							
Peak Hour Factor	0.93	0.93	0.94	0.94	0.93	0.93	0.93				
Heavy Vehicles (%)	2%	5%	9%	16%	0%	0%	9%				
Adj. Flow (vph)	573	432	387	41	1	23	739				
Shared Lane Traffic (%)											
Lane Group Flow (vph)	1005	0	428	0	0	0	763				
Turn Type	Prot		NA		custom	custom	NA				
Protected Phases	4		1 2		6	6	1 6	1	2	3	5
Permitted Phases					1	1					
Detector Phase	4		1 2		6	6	1 6				
Switch Phase											
Minimum Initial (s)	8.0				4.0	4.0		7.0	3.0	7.0	3.0
Minimum Split (s)	15.0				10.0	10.0		14.0	9.0	24.0	7.0
Total Split (s)	40.0				10.0	10.0		19.0	10.0	24.0	7.0
Total Split (%)	36.4%				9.1%	9.1%		17%	9%	22%	6%
Maximum Green (s)	34.0				5.0	5.0		14.0	5.0	20.0	3.0
Yellow Time (s)	3.0				3.0	3.0		3.0	3.0	4.0	3.0
All-Red Time (s)	3.0				2.0	2.0		2.0	2.0	0.0	1.0
Lost Time Adjust (s)	0.0										
Total Lost Time (s)	6.0										
Lead/Lag	Lead							Lead	Lag		Lag
Lead-Lag Optimize?											
Vehicle Extension (s)	2.0				2.0	2.0		2.0	2.0	2.0	2.0
Recall Mode	Max				Max	Max		C-Max	Max	Ped	Max
Walk Time (s)										7.0	
Flash Dont Walk (s)										13.0	
Pedestrian Calls (#/hr)										0	
Act Effct Green (s)	34.0		24.0				19.0				
Actuated g/C Ratio	0.31		0.22				0.17				
v/c Ratio	1.07		0.49				1.24				
Control Delay	53.7		1.9				166.7				
Queue Delay	14.2		1.5				0.0				
Total Delay	68.0		3.5				166.7				
LOS	E		A				F				
Approach Delay	68.0		3.5				166.7				
Approach LOS	E		A				F				
Queue Length 50th (ft)	~96		5				~254				
Queue Length 95th (ft)	m#165		10				#342				
Internal Link Dist (ft)	61		46				350				
Turn Bay Length (ft)											
Base Capacity (vph)	943		868				617				
Starvation Cap Reductn	105		264				0				
Spillback Cap Reductn	0		0				0				
Storage Cap Reductn	0		0				0				
Reduced v/c Ratio	1.20		0.71				1.24				

Intersection Summary

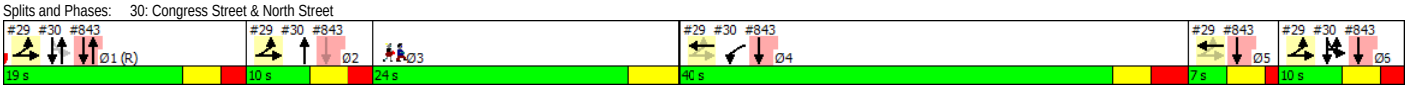
Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 69 (63%), Referenced to phase 1:EBTL, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.24
Intersection Signal Delay: 89.7 Intersection LOS: F
Intersection Capacity Utilization 74.8% ICU Level 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.

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

Splits and Phases: 30: Congress Street & North Street



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations													
Traffic Volume (vph)	0	0	0	925	202	0	0	0	0	0	955	112	
Future Volume (vph)	0	0	0	925	202	0	0	0	0	0	955	112	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	14	16	12	12	12	12	12	12	12	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.91	0.91	
Ped Bike Factor				0.71	0.83						0.97		
Frt											0.984		
Flt Protected				0.950	0.972								
Satd. Flow (prot)	0	0	0	1598	1709	0	0	0	0	0	4259	0	
Flt Permitted				0.950	0.972								
Satd. Flow (perm)	0	0	0	1128	1418	0	0	0	0	0	4259	0	
Right Turn on Red			Yes	No		Yes			Yes			Yes	
Satd. Flow (RTOR)											18		
Link Speed (mph)		25			25			25			25		
Link Distance (ft)		604			328			196			468		
Travel Time (s)		16.5			8.9			5.3			12.8		
Confl. Peds. (#/hr)				116								147	
Confl. Bikes (#/hr)						1						83	
Peak Hour Factor	0.92	0.92	0.92	0.91	0.91	0.91	0.92	0.92	0.92	0.95	0.95	0.95	
Heavy Vehicles (%)	0%	0%	0%	3%	7%	0%	0%	0%	0%	0%	4%	7%	
Adj. Flow (vph)	0	0	0	1016	222	0	0	0	0	0	1005	118	
Shared Lane Traffic (%)				30%									
Lane Group Flow (vph)	0	0	0	711	527	0	0	0	0	0	1123	0	
Turn Type				Split	NA						NA		
Protected Phases				5	5						1		2
Permitted Phases													
Detector Phase				5	5						1		
Switch Phase													
Minimum Initial (s)				8.0	8.0						8.0		8.0
Minimum Split (s)				19.0	19.0						27.0		24.0
Total Split (s)				51.0	51.0						35.0		24.0
Total Split (%)				46.4%	46.4%						31.8%		22%
Maximum Green (s)				46.0	46.0						29.0		20.0
Yellow Time (s)				3.0	3.0						3.0		4.0
All-Red Time (s)				2.0	2.0						3.0		0.0
Lost Time Adjust (s)				-2.0	-2.0						-2.0		
Total Lost Time (s)				3.0	3.0						4.0		
Lead/Lag											Lead		Lag
Lead-Lag Optimize?													
Vehicle Extension (s)				2.0	2.0						2.0		2.0
Recall Mode				Max	Max						C-Max		Ped
Walk Time (s)				7.0	7.0						7.0		7.0
Flash Dont Walk (s)				6.0	6.0						11.0		13.0
Pedestrian Calls (#/hr)				0	0						0		455
Act Effct Green (s)				48.0	48.0						31.0		
Actuated g/C Ratio				0.44	0.44						0.28		
v/c Ratio				1.02	0.71						0.93		
Control Delay				71.0	31.6						43.8		
Queue Delay				0.0	0.0						0.0		
Total Delay				71.0	31.6						43.8		
LOS				E	C						D		
Approach Delay					54.3						43.8		
Approach LOS					D						D		
Queue Length 50th (ft)				~562	311						267		
Queue Length 95th (ft)				#802	450						#371		
Internal Link Dist (ft)		524			248			116			388		
Turn Bay Length (ft)													
Base Capacity (vph)				697	745						1213		
Starvation Cap Reductn				0	0						0		
Spillback Cap Reductn				0	0						0		
Storage Cap Reductn				0	0						0		
Reduced v/c Ratio				1.02	0.71						0.93		

Intersection Summary

Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 4 (4%), Referenced to phase 1:SBT, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.02
Intersection Signal Delay: 49.3 Intersection LOS: D
Intersection Capacity Utilization 65.0% 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: 31: Surface Street & Clinton Street/I-93 Off Ramp

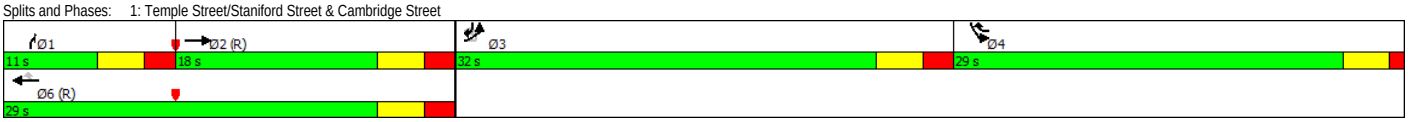
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (vph)	11	335	515	0	0	565	167	0	0	4	223	0	230
Future Volume (vph)	11	335	515	0	0	565	167	0	0	4	223	0	230
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	10	11	12	12	11	12	12	12	12	11	12	11
Storage Length (ft)		140		0	0		0	0		0	0		0
Storage Lanes		1		0	0		1	0		1	1		1
Taper Length (ft)		25			25			25			25		
Lane Util. Factor	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor							0.59						
Frt							0.850			0.865			0.850
Flt Protected		0.950									0.950		
Satd. Flow (prot)	0	1668	3219	0	0	3388	1538	0	0	1644	1745	0	1351
Flt Permitted		0.427									0.950		
Satd. Flow (perm)	0	750	3219	0	0	3388	905	0	0	1644	1745	0	1351
Right Turn on Red				No			Yes			No			No
Satd. Flow (RTOR)							176						
Link Speed (mph)			30			30			30			30	
Link Distance (ft)			407			236			206			1103	
Travel Time (s)			9.3			5.4			4.7			25.1	
Confl. Peds. (#/hr)							693						
Confl. Bikes (#/hr)				10			125						5
Peak Hour Factor	0.89	0.89	0.89	0.89	0.95	0.95	0.95	0.50	0.50	0.50	0.87	0.87	0.87
Heavy Vehicles (%)	0%	1%	3%	0%	0%	3%	5%	0%	0%	0%	0%	0%	4%
Parking (#/hr)			0										0
Adj. Flow (vph)	12	376	579	0	0	595	176	0	0	8	256	0	264
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	388	579	0	0	595	176	0	0	8	256	0	264
Turn Type	custom	Prot	NA			NA	pm+ov			Prot	Prot		Over
Protected Phases		3	2			6	4			1	4		3!
Permitted Phases	3!						6						
Detector Phase	3	3	2			6	4			1	4		3
Switch Phase													
Minimum Initial (s)	8.0	8.0	12.0			12.0	8.0			6.0	8.0		8.0
Minimum Split (s)	32.0	32.0	17.0			24.0	29.0			11.0	29.0		32.0
Total Split (s)	32.0	32.0	18.0			29.0	29.0			11.0	29.0		32.0
Total Split (%)	35.6%	35.6%	20.0%			32.2%	32.2%			12.2%	32.2%		35.6%
Maximum Green (s)	27.0	27.0	13.0			24.0	25.0			6.0	25.0		27.0
Yellow Time (s)	3.0	3.0	3.0			3.0	3.0			3.0	3.0		3.0
All-Red Time (s)	2.0	2.0	2.0			2.0	1.0			2.0	1.0		2.0
Lost Time Adjust (s)		0.0	0.0			0.0	0.0			0.0	0.0		0.0
Total Lost Time (s)		5.0	5.0			5.0	4.0			5.0	4.0		5.0
Lead/Lag	Lead	Lead	Lag				Lag			Lead	Lag		Lead
Lead-Lag Optimize?													
Vehicle Extension (s)	2.0	2.0	2.0			2.0	2.0			2.0	2.0		2.0
Recall Mode	Min	Min	C-Max			C-Max	Min			None	Min		Min
Walk Time (s)	7.0	7.0				7.0	7.0				7.0		7.0
Flash Dont Walk (s)	20.0	20.0				12.0	18.0				18.0		20.0
Pedestrian Calls (#/hr)	140	140				140	132				132		140
Act Effct Green (s)		27.0	21.8			24.0	50.0			6.0	25.0		27.0
Actuated g/C Ratio		0.30	0.24			0.27	0.56			0.07	0.28		0.30
v/c Ratio		1.72	0.74			0.66	0.23			0.07	0.53		0.65
Control Delay		369.3	40.3			25.0	1.9			41.0	32.3		36.3
Queue Delay		0.0	0.0			2.4	0.2			0.0	0.7		0.0
Total Delay		369.3	40.3			27.4	2.1			41.0	33.0		36.3
LOS		F	D			C	A			D	C		D
Approach Delay			172.3			21.6							
Approach LOS			F			C							
Queue Length 50th (ft)		~329	154			145	6			4	123		130
Queue Length 95th (ft)		#497	#317			172	15			10	191		207
Internal Link Dist (ft)			327			156			126			1023	
Turn Bay Length (ft)		140											
Base Capacity (vph)		225	779			903	756			109	484		405
Starvation Cap Reductn		0	0			187	184			0	0		0
Spillback Cap Reductn		0	0			0	0			0	64		0
Storage Cap Reductn		0	0			0	0			0	0		0
Reduced v/c Ratio		1.72	0.74			0.83	0.31			0.07	0.61		0.65

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 17 (19%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 140
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.72
Intersection Signal Delay: 89.0 Intersection LOS: F
Intersection Capacity Utilization 61.7% ICU Level of Service B
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: 1: Temple Street/Staniford Street & Cambridge Street

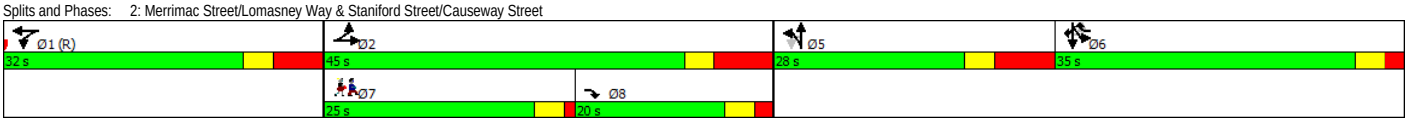


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	Ø7
Lane Configurations															
Traffic Volume (vph)	127	353	289	54	251	301	1	72	190	28	3	192	280	223	
Future Volume (vph)	127	353	289	54	251	301	1	72	190	28	3	192	280	223	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	11	11	11	11	11	10	11	10	11	11	11	10	11	11	
Storage Length (ft)	0		200	0		0		0		0		0		0	
Storage Lanes	1		1	0		1		1		0		1		1	
Taper Length (ft)	25			25				25				25			
Lane Util. Factor	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	
Ped Bike Factor									1.00				1.00		
Frt			0.850			0.850			0.981				0.998	0.850	
Flt Protected	0.950				0.991			0.950				0.950			
Satd. Flow (prot)	1564	1678	1516	0	3149	1507	0	1668	1770	0	0	1668	1690	1426	
Flt Permitted	0.950				0.991			0.211				0.608			
Satd. Flow (perm)	1564	1678	1516	0	3149	1507	0	371	1770	0	0	1068	1690	1426	
Right Turn on Red			No			No				No				No	
Satd. Flow (RTOR)															
Link Speed (mph)		30			30				30				30		
Link Distance (ft)		1103			181				998				344		
Travel Time (s)		25.1			4.1				22.7				7.8		
Confl. Bikes (#/hr)			6			8				12				11	
Peak Hour Factor	0.79	0.79	0.79	0.84	0.84	0.84	0.90	0.90	0.90	0.90	0.92	0.92	0.92	0.92	
Heavy Vehicles (%)	6%	4%	3%	23%	7%	0%	0%	1%	1%	4%	0%	1%	3%	4%	
Adj. Flow (vph)	161	447	366	64	299	358	1	80	211	31	3	209	304	242	
Shared Lane Traffic (%)	0%													2%	
Lane Group Flow (vph)	161	447	366	0	363	358	0	81	242	0	0	212	309	237	
Turn Type	Split	NA	custom	Split	NA	Over	Perm	Split	NA		Perm	Split	NA	Prot	
Protected Phases	2	2	8	1	1	6!		5	5			6	6	6	7
Permitted Phases							5				6!				
Detector Phase	2	2	8	1	1	6	5	5	5		6	6	6	6	
Switch Phase															
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0		8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	27.0	27.0	16.0	31.0	31.0	16.0	27.0	27.0	27.0		16.0	16.0	16.0	16.0	25.0
Total Split (s)	45.0	45.0	20.0	32.0	32.0	35.0	28.0	28.0	28.0		35.0	35.0	35.0	35.0	25.0
Total Split (%)	32.1%	32.1%	14.3%	22.9%	22.9%	25.0%	20.0%	20.0%	20.0%		25.0%	25.0%	25.0%	25.0%	18%
Maximum Green (s)	36.0	36.0	15.0	24.0	24.0	30.0	19.0	19.0	19.0		30.0	30.0	30.0	30.0	21.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	6.0	6.0	2.0	5.0	5.0	2.0	6.0	6.0	6.0		2.0	2.0	2.0	2.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0		0.0	0.0			0.0	0.0	0.0	
Total Lost Time (s)	9.0	9.0	5.0		8.0	5.0		9.0	9.0			5.0	5.0	5.0	
Lead/Lag			Lag			Lag	Lead	Lead	Lead		Lag	Lag	Lag	Lag	Lead
Lead-Lag Optimize?															
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0
Recall Mode	Ped	Ped	None	C-Max	C-Max	None	Ped	Ped	Ped		None	None	None	None	None
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0						7.0
Flash Dont Walk (s)	11.0	11.0		16.0	16.0		11.0	11.0	11.0						14.0
Pedestrian Calls (#/hr)	100	100		175	175		0	0	0						30
Act Effct Green (s)	36.0	36.0	25.0		24.0	30.0		19.0	19.0			30.0	30.0	30.0	
Actuated g/C Ratio	0.26	0.26	0.18		0.17	0.21		0.14	0.14			0.21	0.21	0.21	
v/c Ratio	0.40	1.04	1.36		0.67	1.11		1.62	1.01			0.93	0.85	0.78	
Control Delay	46.7	103.3	222.6		61.3	133.3		390.3	119.5			97.8	75.0	70.0	
Queue Delay	0.0	0.0	0.0		0.0	1.1		0.0	0.0			0.0	0.0	0.0	
Total Delay	46.7	103.3	222.6		61.3	134.4		390.3	119.5			97.8	75.0	70.0	
LOS	D	F	F		E	F		F	F			F	E	E	
Approach Delay		138.8			97.6				187.4				79.8		
Approach LOS		F			F				F				E		
Queue Length 50th (ft)	128	~460	~538		164	~371		~105	~226			191	287	215	
Queue Length 95th (ft)	174	#549	#633		204	#513		#217	#406			#351	#455	#350	
Internal Link Dist (ft)		1023			101				918				264		
Turn Bay Length (ft)			200												
Base Capacity (vph)	402	431	270		539	322		50	240			228	362	305	
Starvation Cap Reductn	0	0	0		0	29		0	0			0	0	0	
Spillback Cap Reductn	0	0	0		0	0		0	0			0	0	0	
Storage Cap Reductn	0	0	0		0	0		0	0			0	0	0	
Reduced v/c Ratio	0.40	1.04	1.36		0.67	1.22		1.62	1.01			0.93	0.85	0.78	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 1:WBTL, Start of Green
Natural Cycle: 145
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.62
Intersection Signal Delay: 117.7 Intersection LOS: F
Intersection Capacity Utilization 83.1% 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.
! Phase conflict between lane groups.

Splits and Phases: 2: Merrimac Street/Lomasney Way & Staniford Street/Causeway Street



Lane Group	EBL	EBT	EBR2	WBL	WBT	WBR	NBT	NBR	SBL2	SBT	SBR	NWR	NWR2
Lane Configurations													
Traffic Volume (vph)	452	100	78	148	138	371	835	78	200	1014	300	31	21
Future Volume (vph)	452	100	78	148	138	371	835	78	200	1014	300	31	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	12	11	12	11	11	10	11	11	12	12
Storage Length (ft)	0			0		0		75			100	0	
Storage Lanes	2			0		1		0			1	1	
Taper Length (ft)	25			25									
Lane Util. Factor	0.97	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00
Ped Bike Factor		0.86				0.98	0.95				0.99		
Frt		0.934				0.850	0.987				0.850	0.865	
Flt Protected	0.950				0.975				0.950				
Satd. Flow (prot)	3164	1374	0	0	3214	1583	2982	0	1685	3172	1432	1644	0
Flt Permitted	0.950				0.975				0.950				
Satd. Flow (perm)	3164	1374	0	0	3214	1554	2982	0	1685	3172	1415	1644	0
Right Turn on Red			Yes			No					No		Yes
Satd. Flow (RTOR)		195										195	
Link Speed (mph)		30			30		30			30			
Link Distance (ft)		318			202		589			575			
Travel Time (s)		7.2			4.6		13.4			13.1			
Confl. Peds. (#/hr)			195					247					
Confl. Bikes (#/hr)			3			8		17			1		
Peak Hour Factor	0.87	0.87	0.87	0.82	0.82	0.82	0.91	0.91	0.93	0.93	0.93	0.92	0.92
Heavy Vehicles (%)	7%	8%	7%	2%	10%	2%	10%	5%	0%	10%	9%	0%	0%
Adj. Flow (vph)	520	115	90	180	168	452	918	86	215	1090	323	34	23
Shared Lane Traffic (%)													
Lane Group Flow (vph)	520	205	0	0	348	452	1004	0	215	1090	323	57	0
Turn Type	Split	NA		Split	NA	custom	NA		Prot	NA	custom	Prot	
Protected Phases	6	6		5	5	7	1		7	1 2 7	2 6 7	2	
Permitted Phases						6					1		
Detector Phase	6	6		5	5	7	1		7	1 7	6 7	2	
Switch Phase													
Minimum Initial (s)	8.0	8.0		8.0	8.0	4.0	8.0		4.0			4.0	
Minimum Split (s)	30.0	30.0		28.0	28.0	10.0	28.0		10.0			14.0	
Total Split (s)	30.0	30.0		32.0	32.0	21.0	43.0		21.0			14.0	
Total Split (%)	21.4%	21.4%		22.9%	22.9%	15.0%	30.7%		15.0%			10.0%	
Maximum Green (s)	24.0	24.0		22.0	22.0	15.0	37.0		15.0			8.0	
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0		3.0			3.0	
All-Red Time (s)	3.0	3.0		7.0	7.0	3.0	3.0		3.0			3.0	
Lost Time Adjust (s)	0.0	0.0			0.0	0.0	0.0		0.0			0.0	
Total Lost Time (s)	6.0	6.0			10.0	6.0	6.0		6.0			6.0	
Lead/Lag	Lag	Lag		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	
Recall Mode	None	None		Max	Max	None	Max		None			None	
Walk Time (s)	7.0	7.0		3.0	3.0		7.0						
Flash Dont Walk (s)	17.0	17.0		15.0	15.0		12.0						
Pedestrian Calls (#/hr)	100	100		176	176		100						
Act Effct Green (s)	24.0	24.0			22.0	39.0	37.0		15.0	66.3	85.6	4.5	
Actuated g/C Ratio	0.18	0.18			0.16	0.29	0.28		0.11	0.49	0.64	0.03	
v/c Ratio	0.92	0.51			0.66	1.00	1.22		1.14	0.70	0.36	0.23	
Control Delay	77.1	12.4			60.0	85.3	152.3		161.7	29.1	8.5	2.2	
Queue Delay	0.0	0.0			0.0	0.0	0.0		0.0	0.0	0.0	0.0	
Total Delay	77.1	12.4			60.0	85.3	152.3		161.7	29.1	8.5	2.2	
LOS	E	B			E	F	F		F	C	A	A	
Approach Delay		58.8			74.3		152.3			42.5			
Approach LOS		E			E		F			D			
Queue Length 50th (ft)	237	7			154	~382	~581		~225	376	93	0	
Queue Length 95th (ft)	#324	73			188	#542	#717		#391	456	136	0	
Internal Link Dist (ft)		238			122		509			495			
Turn Bay Length (ft)									200		100		
Base Capacity (vph)	565	405			527	454	821		188	1565	907	281	
Starvation Cap Reductn	0	0			0	0	0		0	0	0	0	
Spillback Cap Reductn	0	0			0	0	0		0	0	0	0	
Storage Cap Reductn	0	0			0	0	0		0	0	0	0	
Reduced v/c Ratio	0.92	0.51			0.66	1.00	1.22		1.14	0.70	0.36	0.20	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 134.4
Natural Cycle: 150
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.22
Intersection Signal Delay: 77.0 Intersection LOS: E
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: 3: North Washington Street & Causeway Street

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	0	0	351	924	44	31	1194	14
Future Volume (vph)	0	0	0	0	0	0	351	924	44	31	1194	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	0		50
Storage Lanes	0		0	0		0	1		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.91	0.91	0.91
Ped Bike Factor								0.97			1.00	
Frt								0.993			0.998	
Flt Protected							0.950				0.999	
Satd. Flow (prot)	0	0	0	0	0	0	1425	2877	0	0	4316	0
Flt Permitted							0.950				0.884	
Satd. Flow (perm)	0	0	0	0	0	0	1425	2877	0	0	3808	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)								10			3	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		181			303			152			589	
Travel Time (s)		4.9			8.3			4.1			16.1	
Confl. Peds. (#/hr)									418	418		50
Confl. Bikes (#/hr)			1						96			11
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.94	0.94	0.94	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	14%	9%	0%	0%	8%	0%
Parking (#/hr)									0			
Adj. Flow (vph)	0	0	0	0	0	0	373	983	47	33	1257	15
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	0	373	1030	0	0	1305	0
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)							8.0	10.0		10.0	10.0	
Minimum Split (s)							28.0	27.0		27.0	27.0	
Total Split (s)							30.0	80.0		80.0	80.0	
Total Split (%)							27.3%	72.7%		72.7%	72.7%	
Maximum Green (s)							25.0	75.0		75.0	75.0	
Yellow Time (s)							3.0	3.0		3.0	3.0	
All-Red Time (s)							2.0	2.0		2.0	2.0	
Lost Time Adjust (s)							-1.0	-1.0			-1.0	
Total Lost Time (s)							4.0	4.0			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)							2.0	2.0		2.0	2.0	
Recall Mode							Ped	C-Max		C-Max	C-Max	
Walk Time (s)							7.0	7.0		7.0	7.0	
Flash Dont Walk (s)							15.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)							0	0		0	0	
Act Effct Green (s)							26.0	76.0			76.0	
Actuated g/C Ratio							0.24	0.69			0.69	
v/c Ratio							1.11	0.52			0.50	
Control Delay							114.8	6.3			8.8	
Queue Delay							1.5	0.9			0.0	
Total Delay							116.3	7.2			8.8	
LOS							F	A			A	
Approach Delay								36.2			8.8	
Approach LOS								D			A	
Queue Length 50th (ft)							~306	90			141	
Queue Length 95th (ft)							#498	144			172	
Internal Link Dist (ft)		101			223			72			509	
Turn Bay Length (ft)												
Base Capacity (vph)							336	1990			2631	
Starvation Cap Reductn							41	612			0	
Spillback Cap Reductn							0	0			0	
Storage Cap Reductn							0	0			0	
Reduced v/c Ratio							1.26	0.75			0.50	

Intersection Summary

Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 3 (3%), Referenced to phase 1:NBSB, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.11
Intersection Signal Delay: 23.0 Intersection LOS: C
Intersection Capacity Utilization 63.8% ICU Level of Service B
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: 4: North Washington Street & Valenti Way/Thatcher Street

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations													
Traffic Volume (vph)	0	0	0	200	169	0	0	0	0	0	317	51	
Future Volume (vph)	0	0	0	200	169	0	0	0	0	0	317	51	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	11	12	12	12	12	12	12	12	12	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95	
Ped Bike Factor											0.99		
Frt											0.979		
Flt Protected				0.950									
Satd. Flow (prot)	0	0	0	1332	1400	0	0	0	0	0	2804	0	
Flt Permitted				0.950									
Satd. Flow (perm)	0	0	0	1332	1400	0	0	0	0	0	2804	0	
Right Turn on Red			Yes	Yes		Yes			Yes			Yes	
Satd. Flow (RTOR)				235							15		
Link Speed (mph)		25			25			30			30		
Link Distance (ft)		227			181			221			528		
Travel Time (s)		6.2			4.9			5.0			12.0		
Confl. Peds. (#/hr)												4	
Confl. Bikes (#/hr)						18			2			15	
Peak Hour Factor	0.92	0.92	0.92	0.85	0.85	0.85	0.92	0.92	0.92	0.84	0.84	0.84	
Heavy Vehicles (%)	0%	0%	0%	12%	16%	0%	0%	0%	0%	0%	14%	3%	
Adj. Flow (vph)	0	0	0	235	199	0	0	0	0	0	377	61	
Shared Lane Traffic (%)				0%									
Lane Group Flow (vph)	0	0	0	235	199	0	0	0	0	0	438	0	
Turn Type				Split	NA						NA		
Protected Phases				1	1						5		2
Permitted Phases													
Detector Phase				1	1						5		
Switch Phase													
Minimum Initial (s)				5.0	5.0						5.0		8.0
Minimum Split (s)				19.0	19.0						19.0		18.0
Total Split (s)				65.0	65.0						27.0		18.0
Total Split (%)				59.1%	59.1%						24.5%		16%
Maximum Green (s)				61.0	61.0						23.0		14.0
Yellow Time (s)				3.0	3.0						3.0		4.0
All-Red Time (s)				1.0	1.0						1.0		0.0
Lost Time Adjust (s)				0.0	0.0						0.0		
Total Lost Time (s)				4.0	4.0						4.0		
Lead/Lag				Lead	Lead								Lag
Lead-Lag Optimize?													
Vehicle Extension (s)				2.0	2.0						2.0		2.0
Recall Mode				C-Max	C-Max						Max		None
Walk Time (s)				7.0	7.0						7.0		7.0
Flash Dont Walk (s)				6.0	6.0						7.0		7.0
Pedestrian Calls (#/hr)				0	0						0		30
Act Effct Green (s)				68.2	68.2						23.0		
Actuated g/C Ratio				0.62	0.62						0.21		
v/c Ratio				0.26	0.23						0.73		
Control Delay				0.2	1.5						47.4		
Queue Delay				2.5	2.0						1.4		
Total Delay				2.7	3.5						48.8		
LOS				A	A						D		
Approach Delay					3.1						48.8		
Approach LOS					A						D		
Queue Length 50th (ft)				0	9						147		
Queue Length 95th (ft)				m0	m9						188		
Internal Link Dist (ft)		147			101			141			448		
Turn Bay Length (ft)													
Base Capacity (vph)				915	868						598		
Starvation Cap Reductn				552	526						0		
Spillback Cap Reductn				9	0						52		
Storage Cap Reductn				0	0						0		
Reduced v/c Ratio				0.65	0.58						0.80		

Intersection Summary

Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 87 (79%), Referenced to phase 1:WBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.73
Intersection Signal Delay: 26.0 Intersection LOS: C
Intersection Capacity Utilization 29.4% ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: Beverly St & Valenti Way

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations								
Traffic Volume (vph)	0	45	222	0	0	0	0	1052
Future Volume (vph)	0	45	222	0	0	0	0	1052
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.88
Frt		0.865						0.850
Flt Protected								
Satd. Flow (prot)	0	1450	2954	0	0	0	0	2347
Flt Permitted								
Satd. Flow (perm)	0	1450	2954	0	0	0	0	2347
Right Turn on Red		Yes						
Satd. Flow (RTOR)		102						
Link Speed (mph)	25		25			25	25	
Link Distance (ft)	328		169			188	568	
Travel Time (s)	8.9		4.6			5.1	15.5	
Peak Hour Factor	0.73	0.73	0.88	0.88	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	2%	10%	0%	0%	0%	0%	9%
Adj. Flow (vph)	0	62	252	0	0	0	0	1143
Shared Lane Traffic (%)								
Lane Group Flow (vph)	0	62	252	0	0	0	0	1143
Turn Type		Prot	NA					Prot
Protected Phases		2	3					1
Permitted Phases								
Detector Phase		2	3					1
Switch Phase								
Minimum Initial (s)		8.0	8.0					8.0
Minimum Split (s)		17.0	17.0					19.0
Total Split (s)		18.0	19.0					73.0
Total Split (%)		16.4%	17.3%					66.4%
Maximum Green (s)		14.0	15.0					69.0
Yellow Time (s)		3.0	3.0					3.0
All-Red Time (s)		1.0	1.0					1.0
Lost Time Adjust (s)		-1.0	-1.0					-1.0
Total Lost Time (s)		3.0	3.0					3.0
Lead/Lag		Lead	Lag					
Lead-Lag Optimize?								
Vehicle Extension (s)		2.0	2.0					2.0
Recall Mode		None	Max					C-Max
Walk Time (s)		7.0	7.0					7.0
Flash Dont Walk (s)		5.0	5.0					5.0
Pedestrian Calls (#/hr)		0	0					0
Act Effct Green (s)		9.0	16.0					78.4
Actuated g/C Ratio		0.08	0.15					0.71
v/c Ratio		0.29	0.59					0.68
Control Delay		6.2	50.1					6.0
Queue Delay		0.0	0.0					0.8
Total Delay		6.2	50.1					6.8
LOS		A	D					A
Approach Delay			50.1					
Approach LOS			D					
Queue Length 50th (ft)		0	88					57
Queue Length 95th (ft)		0	128					m167
Internal Link Dist (ft)	248		89			108	488	
Turn Bay Length (ft)								
Base Capacity (vph)		285	429					1672
Starvation Cap Reductn		0	0					240
Spillback Cap Reductn		0	0					0
Storage Cap Reductn		0	0					0
Reduced v/c Ratio		0.22	0.59					0.80

Intersection Summary

Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 34 (31%), Referenced to phase 1:NWR, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.68
Intersection Signal Delay: 14.3 Intersection LOS: B
Intersection Capacity Utilization 64.4% ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: I-93 Off-Ramps & Cross Street & Cooper Street

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	517	0	0	1194	0
Future Volume (vph)	0	517	0	0	1194	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.76	1.00	1.00	0.91	1.00
Frt		0.850				
Flt Protected						
Satd. Flow (prot)	0	3259	0	0	4803	0
Flt Permitted						
Satd. Flow (perm)	0	3259	0	0	4803	0
Right Turn on Red		No				Yes
Satd. Flow (RTOR)						
Link Speed (mph)	30			25	25	
Link Distance (ft)	221			242	150	
Travel Time (s)	5.0			6.6	4.1	
Peak Hour Factor	0.84	0.84	0.92	0.92	0.93	0.93
Heavy Vehicles (%)	0%	13%	0%	0%	8%	0%
Adj. Flow (vph)	0	615	0	0	1284	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	615	0	0	1284	0
Turn Type		Prot			NA	
Protected Phases		5			1	
Permitted Phases						
Detector Phase		5			1	
Switch Phase						
Minimum Initial (s)		8.0			8.0	
Minimum Split (s)		23.0			20.0	
Total Split (s)		38.0			72.0	
Total Split (%)		34.5%			65.5%	
Maximum Green (s)		33.0			67.0	
Yellow Time (s)		3.0			3.0	
All-Red Time (s)		2.0			2.0	
Lost Time Adjust (s)		-1.0			-1.0	
Total Lost Time (s)		4.0			4.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)		2.0			2.0	
Recall Mode		Max			C-Max	
Walk Time (s)		7.0			7.0	
Flash Dont Walk (s)		10.0			5.0	
Pedestrian Calls (#/hr)		0			0	
Act Effct Green (s)		34.0			68.0	
Actuated g/C Ratio		0.31			0.62	
v/c Ratio		0.61			0.43	
Control Delay		22.3			5.6	
Queue Delay		22.5			0.1	
Total Delay		44.8			5.7	
LOS		D			A	
Approach Delay					5.7	
Approach LOS					A	
Queue Length 50th (ft)		156			52	
Queue Length 95th (ft)		183			59	
Internal Link Dist (ft)	141			162	70	
Turn Bay Length (ft)						
Base Capacity (vph)		1007			2969	
Starvation Cap Reductn		400			526	
Spillback Cap Reductn		225			371	
Storage Cap Reductn		0			0	
Reduced v/c Ratio		1.01			0.53	

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 4 (4%), Referenced to phase 1:SBT, Start of Green			
Natural Cycle: 45			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.61			
Intersection Signal Delay: 18.4		Intersection LOS: B	
Intersection Capacity Utilization 41.8%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 7: Surface Street & Beverly St

Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations														
Traffic Volume (vph)	0	905	75	19	10	425	0	0	0	0	1106	310	295	
Future Volume (vph)	0	905	75	19	10	425	0	0	0	0	1106	310	295	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	12	12	14	12	12	12	12	12	11	13	
Lane Util. Factor	1.00	0.91	0.91	0.95	0.95	0.95	1.00	1.00	1.00	1.00	0.91	0.86	0.91	
Ped Bike Factor												0.99		
Frt		0.989										0.995	0.850	
Flt Protected						0.997					0.950	0.970		
Satd. Flow (prot)	0	4547	0	0	0	3353	0	0	0	0	1382	2455	1254	
Flt Permitted						0.748					0.950	0.970		
Satd. Flow (perm)	0	4547	0	0	0	2515	0	0	0	0	1382	2455	1254	
Right Turn on Red			No				Yes			Yes			No	
Satd. Flow (RTOR)														
Link Speed (mph)		25				25			25			25		
Link Distance (ft)		184				394			438			242		
Travel Time (s)		5.0				10.7			11.9			6.6		
Confl. Peds. (#/hr)													148	
Peak Hour Factor	0.91	0.91	0.91	0.95	0.95	0.95	0.95	0.92	0.92	0.92	0.94	0.94	0.94	
Heavy Vehicles (%)	0%	1%	8%	0%	11%	3%	0%	0%	0%	0%	7%	17%	9%	
Adj. Flow (vph)	0	995	82	20	11	447	0	0	0	0	1177	330	314	
Shared Lane Traffic (%)											48%		10%	
Lane Group Flow (vph)	0	1077	0	0	0	478	0	0	0	0	612	926	283	
Turn Type		NA		Perm	Perm	NA					Split	NA	Prot	
Protected Phases		1				1					5	5	5	2
Permitted Phases				1	1									
Detector Phase		1		1	1	1					5	5	5	
Switch Phase														
Minimum Initial (s)		8.0		8.0	8.0	8.0					8.0	8.0	8.0	8.0
Minimum Split (s)		23.0		23.0	23.0	23.0					22.0	22.0	22.0	30.0
Total Split (s)		33.0		33.0	33.0	33.0					47.0	47.0	47.0	30.0
Total Split (%)		30.0%		30.0%	30.0%	30.0%					42.7%	42.7%	42.7%	27%
Maximum Green (s)		27.0		27.0	27.0	27.0					41.0	41.0	41.0	26.0
Yellow Time (s)		3.0		3.0	3.0	3.0					3.0	3.0	3.0	4.0
All-Red Time (s)		3.0		3.0	3.0	3.0					3.0	3.0	3.0	0.0
Lost Time Adjust (s)		-2.0				-2.0					-2.0	-2.0	-2.0	
Total Lost Time (s)		4.0				4.0					4.0	4.0	4.0	
Lead/Lag		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
Recall Mode		C-Max		C-Max	C-Max	C-Max					Max	Max	Max	None
Walk Time (s)		7.0		7.0	7.0	7.0					7.0	7.0	7.0	7.0
Flash Dont Walk (s)		7.0		7.0	7.0	7.0					8.0	8.0	8.0	19.0
Pedestrian Calls (#/hr)		0		0	0	0					0	0	0	50
Act Effct Green (s)		35.0				35.0					43.0	43.0	43.0	
Actuated g/C Ratio		0.32				0.32					0.39	0.39	0.39	
v/c Ratio		0.74				0.60					1.13	1.09dl	0.58	
Control Delay		25.7				37.9					108.3	49.4	26.5	
Queue Delay		3.3				0.0					0.1	29.7	4.6	
Total Delay		29.1				37.9					108.4	79.1	31.0	
LOS		C				D					F	E	C	
Approach Delay		29.1				37.9						81.5		
Approach LOS		C				D						F		
Queue Length 50th (ft)		253				162					~561	386	143	
Queue Length 95th (ft)		#344				223					#809	#531	258	
Internal Link Dist (ft)		104				314			358			162		
Turn Bay Length (ft)														
Base Capacity (vph)		1446				800					540	959	490	
Starvation Cap Reductn		269				0					7	94	140	
Spillback Cap Reductn		0				0					0	0	0	
Storage Cap Reductn		0				0					0	0	0	
Reduced v/c Ratio		0.92				0.60					1.15	1.07	0.81	

Intersection Summary

Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 57 (52%), Referenced to phase 1:EBWB, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.13
Intersection Signal Delay: 58.6 Intersection LOS: E
Intersection Capacity Utilization 78.1% 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.

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

Splits and Phases: 8: Surface Street & New Chardon Street/I-93 Ramps

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø2	Ø5
Lane Configurations									
Traffic Volume (vph)	0	980	693	28	0	0			
Future Volume (vph)	0	980	693	28	0	0			
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900			
Lane Util. Factor	1.00	0.95	0.91	0.91	1.00	1.00			
Ped Bike Factor			1.00						
Frt			0.994						
Flt Protected									
Satd. Flow (prot)	0	3217	4400	0	0	0			
Flt Permitted									
Satd. Flow (perm)	0	3217	4400	0	0	0			
Right Turn on Red				Yes		Yes			
Satd. Flow (RTOR)			13						
Link Speed (mph)		25	25		25				
Link Distance (ft)		287	184		238				
Travel Time (s)		7.8	5.0		6.5				
Confl. Bikes (#/hr)				186					
Peak Hour Factor	0.95	0.95	0.93	0.93	0.92	0.92			
Heavy Vehicles (%)	0%	1%	5%	4%	0%	0%			
Adj. Flow (vph)	0	1032	745	30	0	0			
Shared Lane Traffic (%)									
Lane Group Flow (vph)	0	1032	775	0	0	0			
Turn Type		NA	NA						
Protected Phases		1 5	1 5				1	2	5
Permitted Phases									
Detector Phase		1 5	1 5						
Switch Phase									
Minimum Initial (s)							8.0	8.0	8.0
Minimum Split (s)							23.0	30.0	22.0
Total Split (s)							33.0	30.0	47.0
Total Split (%)							30%	27%	43%
Maximum Green (s)							27.0	26.0	41.0
Yellow Time (s)							3.0	4.0	3.0
All-Red Time (s)							3.0	0.0	3.0
Lost Time Adjust (s)									
Total Lost Time (s)									
Lead/Lag							Lead	Lag	
Lead-Lag Optimize?									
Vehicle Extension (s)							2.0	2.0	2.0
Recall Mode							C-Max	None	Max
Walk Time (s)							7.0	7.0	7.0
Flash Dont Walk (s)							7.0	19.0	8.0
Pedestrian Calls (#/hr)							0	50	0
Act Effct Green (s)		82.8	82.8						
Actuated g/C Ratio		0.75	0.75						
v/c Ratio		0.43	0.23						
Control Delay		7.4	1.3						
Queue Delay		1.0	0.3						
Total Delay		8.3	1.6						
LOS		A	A						
Approach Delay		8.3	1.6						
Approach LOS		A	A						
Queue Length 50th (ft)		126	5						
Queue Length 95th (ft)		m150	m21						
Internal Link Dist (ft)		207	104		158				
Turn Bay Length (ft)									
Base Capacity (vph)		2421	3315						
Starvation Cap Reductn		953	1688						
Spillback Cap Reductn		1039	70						
Storage Cap Reductn		0	0						
Reduced v/c Ratio		0.75	0.48						

Intersection Summary

Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 57 (52%), Referenced to phase 1:EBWB, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.13
Intersection Signal Delay: 5.4 Intersection LOS: A
Intersection Capacity Utilization 33.4% ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 9: New Chardon Street & Canal Street

Lane Group	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NBL2	NBL	NBT	NBR	SBU	SBL	SBT	SBR	SBR2
Lane Configurations																	
Traffic Volume (vph)	67	301	62	3	311	16	320	41	37	238	253	369	4	304	305	14	59
Future Volume (vph)	67	301	62	3	311	16	320	41	37	238	253	369	4	304	305	14	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	10	10	12	12	12	10	10	16	12	11	11	11	16
Storage Length (ft)	0		0			0		0		0		150		0		150	
Storage Lanes	0		0			1		0		1		1		0		1	
Taper Length (ft)	25					25				25				25			
Lane Util. Factor	0.95	0.95	0.95	0.95	0.91	0.91	0.91	0.95	0.95	0.91	0.91	1.00	0.91	0.91	0.91	0.91	1.00
Ped Bike Factor		0.85			0.80		0.89			0.85	0.97				0.83		0.71
Frt		0.977					0.987					0.850			0.997		0.850
Flt Protected		0.992			0.950		0.989			0.950	0.986				0.976		
Satd. Flow (prot)	0	2644	0	0	1254	0	2821	0	0	1328	2709	1615	0	0	4071	0	1647
Flt Permitted		0.992			0.950		0.989			0.950	0.986				0.976		
Satd. Flow (perm)	0	2596	0	0	1005	0	2531	0	0	1124	2626	1615	0	0	3419	0	1176
Right Turn on Red				Yes				Yes				No					Yes
Satd. Flow (RTOR)		1					8										159
Link Speed (mph)		25					25				25				25		
Link Distance (ft)		204					287				468				998		
Travel Time (s)		5.6					7.8				12.8				27.2		
Confl. Peds. (#/hr)	76		602	228	228	602		76	228	125		1385		1385		228	125
Confl. Bikes (#/hr)												11				7	7
Peak Hour Factor	0.94	0.94	0.94	0.94	0.97	0.97	0.97	0.97	0.98	0.98	0.98	0.98	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	3%	3%	0%	10%	0%	6%	3%	0%	5%	6%	2%	0%	3%	10%	7%	0%
Adj. Flow (vph)	71	320	66	3	321	16	330	42	38	243	258	377	4	330	332	15	64
Shared Lane Traffic (%)					27%					43%							
Lane Group Flow (vph)	0	460	0	0	234	0	475	0	0	177	362	377	0	0	681	0	64
Turn Type	Split	NA			Split	Split	NA		Split	Split	NA	pt+ov	Perm	Split	NA		Perm
Protected Phases	3	3			2	2	2		1	1	1	1 2		4	4		
Permitted Phases													4				4
Detector Phase	3	3			2	2	2		1	1	1	1 2	4	4	4		4
Switch Phase																	
Minimum Initial (s)	8.0	8.0			8.0	8.0	8.0		8.0	8.0	8.0		8.0	8.0	8.0		8.0
Minimum Split (s)	19.0	19.0			15.0	15.0	15.0		33.0	33.0	33.0		24.0	24.0	24.0		24.0
Total Split (s)	26.0	26.0			22.0	22.0	22.0		34.0	34.0	34.0		28.0	28.0	28.0		28.0
Total Split (%)	23.6%	23.6%			20.0%	20.0%	20.0%		30.9%	30.9%	30.9%		25.5%	25.5%	25.5%		25.5%
Maximum Green (s)	19.0	19.0			16.0	16.0	16.0		28.0	28.0	28.0		20.0	20.0	20.0		20.0
Yellow Time (s)	3.0	3.0			3.0	3.0	3.0		3.0	3.0	3.0		3.0	3.0	3.0		3.0
All-Red Time (s)	4.0	4.0			3.0	3.0	3.0		3.0	3.0	3.0		5.0	5.0	5.0		5.0
Lost Time Adjust (s)		-2.0			-2.0		-2.0			-2.0	-2.0				-2.0		0.0
Total Lost Time (s)		5.0			4.0		4.0			4.0	4.0				6.0		8.0
Lead/Lag	Lag	Lag			Lead	Lead	Lead										
Lead-Lag Optimize?																	
Vehicle Extension (s)	2.0	2.0			2.0	2.0	2.0		2.0	2.0	2.0		2.0	2.0	2.0		2.0
Recall Mode	Max	Max			Max	Max	Max		C-Max	C-Max	C-Max		Max	Max	Max		Max
Walk Time (s)	7.0	7.0							7.0	7.0	7.0		7.0	7.0	7.0		7.0
Flash Dont Walk (s)	4.0	4.0							17.0	17.0	17.0		8.0	8.0	8.0		8.0
Pedestrian Calls (#/hr)	0	0							0	0	0		0	0	0		0
Act Effct Green (s)		21.0			18.0		18.0			30.0	30.0	52.0			22.0		20.0
Actuated g/C Ratio		0.19			0.16		0.16			0.27	0.27	0.47			0.20		0.18
v/c Ratio		0.91			1.14		1.01			0.49	0.49	0.49			1.11dl		0.19
Control Delay		38.9			155.7		100.1			49.7	47.9	38.8			52.7		1.2
Queue Delay		0.0			0.0		0.6			0.0	0.0	1.3			0.0		0.0
Total Delay		38.9			155.7		100.7			49.7	47.9	40.1			52.7		1.2
LOS		D			F		F			D	D	D			D		A
Approach Delay		38.9					118.9				45.0				48.2		
Approach LOS		D					F				D				D		
Queue Length 50th (ft)		35			~215		~193			146	149	235			170		0
Queue Length 95th (ft)		#233			#375		#293			m189	m187	m309			#230		0
Internal Link Dist (ft)		124					207				388				918		
Turn Bay Length (ft)												150					150
Base Capacity (vph)		505			205		468			362	738	763			814		343
Starvation Cap Reductn		0			0		1			0	0	205			0		0
Spillback Cap Reductn		0			0		0			0	0	0			0		0
Storage Cap Reductn		0			0		0			0	0	0			0		0
Reduced v/c Ratio		0.91			1.14		1.02			0.49	0.49	0.68			0.84		0.19

Intersection Summary

Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 79 (72%), Referenced to phase 1:NBTL, Start of Green
Natural Cycle: 95
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.14
Intersection Signal Delay: 63.4 Intersection LOS: E
Intersection Capacity Utilization 85.7% ICU Level of Service E
Analysis Period (min) 15

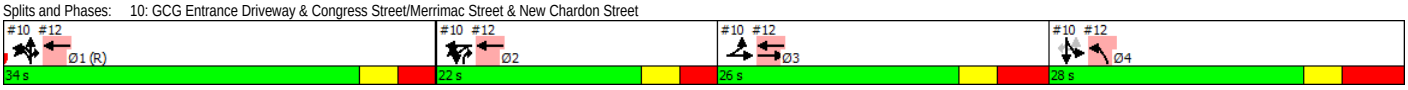
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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.

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

Splits and Phases: 10: GCG Entrance Driveway & Congress Street/Merrimac Street & New Chardon Street

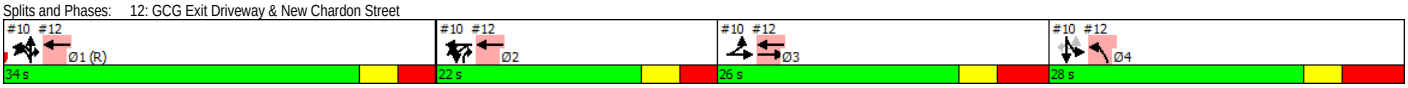


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø1	Ø2
Lane Configurations								
Traffic Volume (vph)	390	0	0	558	38	43		
Future Volume (vph)	390	0	0	558	38	43		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900		
Lane Width (ft)	12	12	12	12	11	11		
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00		
Ped Bike Factor					0.99			
Frt					0.928			
Flt Protected					0.977			
Satd. Flow (prot)	3154	0	0	3065	1454	0		
Flt Permitted					0.977			
Satd. Flow (perm)	3154	0	0	3065	1454	0		
Right Turn on Red		Yes				Yes		
Satd. Flow (RTOR)					46			
Link Speed (mph)	25			25	25			
Link Distance (ft)	137			204	136			
Travel Time (s)	3.7			5.6	3.7			
Confl. Bikes (#/hr)		3				1		
Peak Hour Factor	0.98	0.98	0.90	0.90	0.86	0.86		
Heavy Vehicles (%)	3%	0%	0%	6%	5%	0%		
Adj. Flow (vph)	398	0	0	620	44	50		
Shared Lane Traffic (%)								
Lane Group Flow (vph)	398	0	0	620	94	0		
Turn Type	NA			NA	Prot			
Protected Phases	3			1 2 3	4		1	2
Permitted Phases								
Detector Phase	3			1 2 3	4			
Switch Phase								
Minimum Initial (s)	8.0				8.0		8.0	8.0
Minimum Split (s)	19.0				24.0		33.0	15.0
Total Split (s)	26.0				28.0		34.0	22.0
Total Split (%)	23.6%				25.5%		31%	20%
Maximum Green (s)	19.0				20.0		28.0	16.0
Yellow Time (s)	3.0				3.0		3.0	3.0
All-Red Time (s)	4.0				5.0		3.0	3.0
Lost Time Adjust (s)	-2.0				-2.0			
Total Lost Time (s)	5.0				6.0			
Lead/Lag	Lag							Lead
Lead-Lag Optimize?								
Vehicle Extension (s)	2.0				2.0		2.0	2.0
Recall Mode	Max				Max		C-Max	Max
Walk Time (s)	7.0				7.0		7.0	
Flash Dont Walk (s)	4.0				8.0		17.0	
Pedestrian Calls (#/hr)	0				0		0	
Act Effct Green (s)	21.0			78.0	22.0			
Actuated g/C Ratio	0.19			0.71	0.20			
v/c Ratio	0.66			0.29	0.29			
Control Delay	47.2			0.7	23.2			
Queue Delay	0.3			0.8	0.0			
Total Delay	47.5			1.5	23.2			
LOS	D			A	C			
Approach Delay	47.5			1.5	23.2			
Approach LOS	D			A	C			
Queue Length 50th (ft)	137			6	28			
Queue Length 95th (ft)	192			m7	70			
Internal Link Dist (ft)	57			124	56			
Turn Bay Length (ft)								
Base Capacity (vph)	602			2173	327			
Starvation Cap Reductn	0			1172	0			
Spillback Cap Reductn	21			0	0			
Storage Cap Reductn	0			0	0			
Reduced v/c Ratio	0.69			0.62	0.29			

Intersection Summary

Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 79 (72%), Referenced to phase 1:NBTL, Start of Green
Natural Cycle: 95
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.14
Intersection Signal Delay: 19.8 Intersection LOS: B
Intersection Capacity Utilization 32.1% ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 12: GCG Exit Driveway & New Chardon Street



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	359	0	0	655	18	31
Future Volume (Veh/h)	359	0	0	655	18	31
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.93	0.93	0.65	0.65
Hourly flow rate (vph)	399	0	0	704	28	48
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	786			137		
pX, platoon unblocked					0.93	
vC, conflicting volume			399		751	200
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			399		580	200
tC, single (s)			4.1		6.9	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.6	3.3
p0 queue free %			100		93	94
cM capacity (veh/h)			1171		403	814

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	200	200	352	352	76
Volume Left	0	0	0	0	28
Volume Right	0	0	0	0	48
cSH	1700	1700	1700	1700	592
Volume to Capacity	0.12	0.12	0.21	0.21	0.13
Queue Length 95th (ft)	0	0	0	0	11
Control Delay (s)	0.0	0.0	0.0	0.0	12.0
Lane LOS					B
Approach Delay (s)	0.0		0.0		12.0
Approach LOS					B

Intersection Summary				
Average Delay	0.8			
Intersection Capacity Utilization	28.1%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	359	20	57	617	0	0
Future Volume (Veh/h)	359	20	57	617	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.96	0.96	0.62	0.62
Hourly flow rate (vph)	408	23	59	643	0	0
Pedestrians					128	
Lane Width (ft)					0.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	579			344		
pX, platoon unblocked					0.94	
vC, conflicting volume			559		987	344
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			559		857	344
tC, single (s)			4.2		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			94		100	100
cM capacity (veh/h)			994		266	658

Direction, Lane #	EB 1	EB 2	WB 1	WB 2
Volume Total	272	159	273	429
Volume Left	0	0	59	0
Volume Right	0	23	0	0
cSH	1700	1700	994	1700
Volume to Capacity	0.16	0.09	0.06	0.25
Queue Length 95th (ft)	0	0	5	0
Control Delay (s)	0.0	0.0	2.4	0.0
Lane LOS			A	
Approach Delay (s)	0.0		0.9	
Approach LOS				

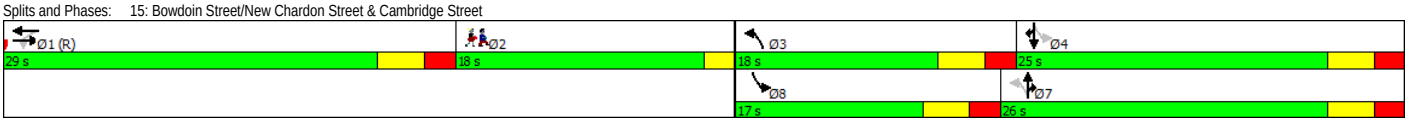
Intersection Summary				
Average Delay	0.6			
Intersection Capacity Utilization	38.7%	ICU Level of Service	A	
Analysis Period (min)	15			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations													
Traffic Volume (vph)	0	666	73	16	312	47	223	328	137	250	170	197	
Future Volume (vph)	0	666	73	16	312	47	223	328	137	250	170	197	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	0		0	0		0	0		100	0		100	
Storage Lanes	0		0	0		0	1		1	1		1	
Taper Length (ft)	25			25			25			25			
Lane Util. Factor	1.00	0.91	0.91	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor		1.00			0.98								
Frt		0.985			0.981				0.850			0.850	
Flt Protected					0.998		0.950			0.950			
Satd. Flow (prot)	0	4899	0	0	3374	0	1656	1863	1509	1671	1845	1583	
Flt Permitted					0.902		0.540			0.203			
Satd. Flow (perm)	0	4899	0	0	3049	0	941	1863	1509	357	1845	1583	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)		20			17				109			216	
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		236			438			363			579		
Travel Time (s)		5.4			10.0			8.3			13.2		
Confl. Bikes (#/hr)			30			153			12				
Peak Hour Factor	0.98	0.98	0.98	0.91	0.91	0.91	0.92	0.92	0.92	0.91	0.91	0.91	
Heavy Vehicles (%)	0%	4%	3%	0%	2%	10%	9%	2%	7%	8%	3%	2%	
Adj. Flow (vph)	0	680	74	18	343	52	242	357	149	275	187	216	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	754	0	0	413	0	242	357	149	275	187	216	
Turn Type		NA		Perm	NA		pm+pt	NA	Prot	pm+pt	NA	Prot	
Protected Phases		1			1		3	7	7	8	4	4	2
Permitted Phases				1			7			4			
Detector Phase		1		1	1		3	7	7	8	4	4	
Switch Phase													
Minimum Initial (s)		8.0		8.0	8.0		8.0	8.0	8.0	8.0	8.0	8.0	1.0
Minimum Split (s)		28.0		28.0	28.0		13.0	13.0	13.0	13.0	13.0	13.0	18.0
Total Split (s)		29.0		29.0	29.0		18.0	26.0	26.0	17.0	25.0	25.0	18.0
Total Split (%)		32.2%		32.2%	32.2%		20.0%	28.9%	28.9%	18.9%	27.8%	27.8%	20%
Maximum Green (s)		24.0		24.0	24.0		13.0	21.0	21.0	12.0	20.0	20.0	16.0
Yellow Time (s)		3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	2.0
All-Red Time (s)		2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	0.0
Lost Time Adjust (s)		0.0			0.0		0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		5.0			5.0		5.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag		Lead		Lead	Lead		Lead	Lag	Lag	Lead	Lag	Lag	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	2.0
Recall Mode		C-Max		C-Max	C-Max		None	Min	Min	None	Min	Min	Ped
Walk Time (s)		7.0		7.0	7.0								7.0
Flash Dont Walk (s)		16.0		16.0	16.0								9.0
Pedestrian Calls (#/hr)		0		0	0								20
Act Effct Green (s)		25.5			25.5		31.4	19.5	19.5	31.7	19.7	19.7	
Actuated g/C Ratio		0.28			0.28		0.35	0.22	0.22	0.35	0.22	0.22	
v/c Ratio		0.54			0.47		0.57	0.89	0.36	0.91	0.46	0.42	
Control Delay		22.1			15.3		24.5	58.5	12.4	58.1	34.8	7.1	
Queue Delay		0.8			0.5		0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay		22.9			15.8		24.5	58.5	12.4	58.1	34.8	7.1	
LOS		C			B		C	E	B	E	C	A	
Approach Delay		22.9			15.8			38.3			35.4		
Approach LOS		C			B			D			D		
Queue Length 50th (ft)		71			41		91	193	18	105	92	0	
Queue Length 95th (ft)		192			m56		149	#337	67	#254	157	56	
Internal Link Dist (ft)		156			358			283			499		
Turn Bay Length (ft)									100			100	
Base Capacity (vph)		1401			875		443	434	435	301	410	519	
Starvation Cap Reductn		345			0		0	0	0	0	0	0	
Spillback Cap Reductn		0			161		0	0	0	0	0	11	
Storage Cap Reductn		0			0		0	0	0	0	0	0	
Reduced v/c Ratio		0.71			0.58		0.55	0.82	0.34	0.91	0.46	0.43	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 1:EBWB, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.91
Intersection Signal Delay: 29.5 Intersection LOS: C
Intersection Capacity Utilization 65.7% 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: 15: Bowdoin Street/New Chardon Street & Cambridge Street

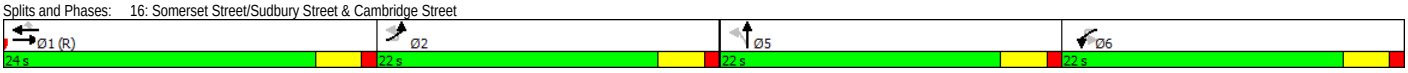


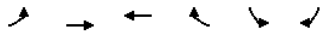
Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations														
Traffic Volume (vph)	28	296	613	117	19	53	279	165	69	109	30	0	0	0
Future Volume (vph)	28	296	613	117	19	53	279	165	69	109	30	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0		0		100		100	0		0	0		0
Storage Lanes		2		0		1		1	0		0	0		0
Taper Length (ft)		25				25			25			25		
Lane Util. Factor	0.95	0.97	0.95	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.90					0.60		0.95				
Frt			0.976					0.850		0.981				
Flt Protected		0.950				0.950				0.984				
Satd. Flow (prot)	0	3408	3103	0	0	1805	3574	1538	0	1736	0	0	0	0
Flt Permitted		0.574				0.369				0.984				
Satd. Flow (perm)	0	2059	3103	0	0	701	3574	921	0	1736	0	0	0	0
Right Turn on Red				Yes				Yes			Yes			Yes
Satd. Flow (RTOR)			22					172		8				
Link Speed (mph)			30				30			30			30	
Link Distance (ft)			438				763			259			584	
Travel Time (s)			10.0				17.3			5.9			13.3	
Confl. Peds. (#/hr)				535				533			244			
Confl. Bikes (#/hr)				4				80			3			
Peak Hour Factor	0.98	0.98	0.98	0.98	0.96	0.96	0.96	0.96	0.91	0.91	0.91	0.92	0.92	0.92
Heavy Vehicles (%)	0%	3%	2%	4%	0%	0%	1%	5%	1%	0%	3%	0%	0%	0%
Adj. Flow (vph)	29	302	626	119	20	55	291	172	76	120	33	0	0	0
Shared Lane Traffic (%)														
Lane Group Flow (vph)	0	331	745	0	0	75	291	172	0	229	0	0	0	0
Turn Type	custom	Prot	NA		custom	Prot	NA	Perm	Perm	NA				
Protected Phases		2	1			6	1			5				
Permitted Phases	2				6			1	5					
Detector Phase	2	2	1		6	6	1	1	5	5				
Switch Phase														
Minimum Initial (s)	8.0	8.0	8.0		8.0	8.0	8.0	8.0	8.0	8.0				
Minimum Split (s)	22.0	22.0	27.0		22.0	22.0	27.0	27.0	22.0	22.0				
Total Split (s)	22.0	22.0	24.0		22.0	22.0	24.0	24.0	22.0	22.0				
Total Split (%)	24.4%	24.4%	26.7%		24.4%	24.4%	26.7%	26.7%	24.4%	24.4%				
Maximum Green (s)	18.0	18.0	20.0		18.0	18.0	20.0	20.0	18.0	18.0				
Yellow Time (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0				
All-Red Time (s)	1.0	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	0.0		0.0				
Total Lost Time (s)		4.0	4.0			4.0	4.0	4.0		4.0				
Lead/Lag	Lag	Lag	Lead		Lag	Lag	Lead	Lead	Lead	Lead				
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		None	None	C-Max	C-Max	None	None				
Walk Time (s)	7.0	7.0	7.0				7.0	7.0						
Flash Dont Walk (s)	11.0	11.0	16.0				16.0	16.0						
Pedestrian Calls (#/hr)	0	0	0				0	0						
Act Effct Green (s)		16.8	31.1			13.6	31.1	31.1		14.9				
Actuated g/C Ratio		0.19	0.35			0.15	0.35	0.35		0.17				
v/c Ratio		0.86	0.69			0.71	0.24	0.40		0.78				
Control Delay		45.5	32.8			69.0	25.4	8.1		52.7				
Queue Delay		0.0	0.0			0.0	0.0	0.0		0.0				
Total Delay		45.5	32.8			69.0	25.4	8.1		52.7				
LOS		D	C			E	C	A		D				
Approach Delay			36.7				26.0			52.7				
Approach LOS			D				C			D				
Queue Length 50th (ft)		97	166			41	66	0		120				
Queue Length 95th (ft)		m#151	m#312			#94	111	57		194				
Internal Link Dist (ft)			358				683			179			504	
Turn Bay Length (ft)						100		100						
Base Capacity (vph)		411	1085			140	1234	430		353				
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		0.81	0.69			0.54	0.24	0.40		0.65				

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 1:EBWB, Start of Green
Natural Cycle: 95
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.86
Intersection Signal Delay: 35.6 Intersection LOS: D
Intersection Capacity Utilization 52.1% 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: 16: Somerset Street/Sudbury Street & Cambridge Street





Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	570	0	0	194	0
Future Volume (Veh/h)	0	570	0	0	194	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	620	0	0	211	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		584				
pX, platoon unblocked					0.94	
vC, conflicting volume	0				310	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0				146	0
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				73	100
cM capacity (veh/h)	1636				789	1091

Direction, Lane #	EB 1	EB 2	SB 1
Volume Total	310	310	211
Volume Left	0	0	211
Volume Right	0	0	0
cSH	1700	1700	789
Volume to Capacity	0.18	0.18	0.27
Queue Length 95th (ft)	0	0	27
Control Delay (s)	0.0	0.0	11.2
Lane LOS			B
Approach Delay (s)	0.0		11.2
Approach LOS			B

Intersection Summary				
Average Delay		2.8		
Intersection Capacity Utilization		33.2%	ICU Level of Service	A
Analysis Period (min)		15		

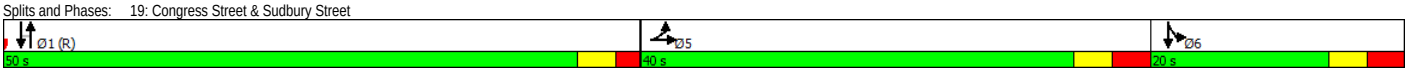
Intersection Sign configuration not allowed in HCM analysis.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (vph)	153	413	167	0	0	0	10	0	740	367	157	517	0
Future Volume (vph)	153	413	167	0	0	0	10	0	740	367	157	517	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	11	10	12	12	12	12	11	11	11	10	11	11
Storage Length (ft)	0		0	0		0		0		0	100		0
Storage Lanes	1		0	0		0		0		0	1		0
Taper Length (ft)	25			25				25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	0.91	1.00	0.91	0.91	1.00	0.91	1.00
Ped Bike Factor	0.69	0.89							0.85		0.91		
Frt		0.957							0.951				
Flt Protected	0.950										0.950		
Satd. Flow (prot)	1392	2418	0	0	0	0	0	0	3514	0	1486	4029	0
Flt Permitted	0.950								0.934		0.950		
Satd. Flow (perm)	960	2418	0	0	0	0	0	0	3282	0	1354	4029	0
Right Turn on Red			Yes			Yes				No			Yes
Satd. Flow (RTOR)		59											
Link Speed (mph)		25			25				25			25	
Link Distance (ft)		153			161				399			468	
Travel Time (s)		4.2			4.4				10.9			12.8	
Confl. Peds. (#/hr)	236		435							650	650		
Confl. Bikes (#/hr)			5							46			2
Peak Hour Factor	0.89	0.89	0.89	0.92	0.92	0.92	0.98	0.98	0.98	0.98	0.93	0.93	0.93
Heavy Vehicles (%)	5%	5%	6%	0%	0%	0%	0%	0%	3%	7%	2%	12%	0%
Parking (#/hr)	0	0											
Adj. Flow (vph)	172	464	188	0	0	0	10	0	755	374	169	556	0
Shared Lane Traffic (%)													
Lane Group Flow (vph)	172	652	0	0	0	0	0	0	1139	0	169	556	0
Turn Type	Split	NA					Perm		NA		Prot	NA	
Protected Phases	5	5							1		6	1 6	
Permitted Phases							1						
Detector Phase	5	5					1		1		6	1 6	
Switch Phase													
Minimum Initial (s)	8.0	8.0					10.0		10.0		7.0		
Minimum Split (s)	28.0	28.0					27.0		27.0		14.0		
Total Split (s)	40.0	40.0					50.0		50.0		20.0		
Total Split (%)	36.4%	36.4%					45.5%		45.5%		18.2%		
Maximum Green (s)	34.0	34.0					45.0		45.0		14.0		
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		3.0		
Lost Time Adjust (s)	-2.0	-2.0							-2.0		-2.0		
Total Lost Time (s)	4.0	4.0							3.0		4.0		
Lead/Lag	Lead	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		Max		
Walk Time (s)	7.0	7.0					7.0		7.0				
Flash Dont Walk (s)	15.0	15.0					15.0		15.0				
Pedestrian Calls (#/hr)	0	0					0		0				
Act Effct Green (s)	36.0	36.0							47.0		16.0	67.0	
Actuated g/C Ratio	0.33	0.33							0.43		0.15	0.61	
v/c Ratio	0.38	0.78							0.81		0.78	0.23	
Control Delay	31.4	38.2							35.5		56.7	11.9	
Queue Delay	0.0	51.6							0.8		0.0	0.0	
Total Delay	31.4	89.8							36.3		56.7	11.9	
LOS	C	F							D		E	B	
Approach Delay		77.6							36.3			22.3	
Approach LOS		E							D			C	
Queue Length 50th (ft)	93	200							255		129	80	
Queue Length 95th (ft)	153	270							324		m136	m84	
Internal Link Dist (ft)		73			81				319			388	
Turn Bay Length (ft)											100		
Base Capacity (vph)	455	831							1402		216	2454	
Starvation Cap Reductn	0	0							79		0	0	
Spillback Cap Reductn	0	277							0		0	0	
Storage Cap Reductn	0	0							0		0	0	
Reduced v/c Ratio	0.38	1.18							0.86		0.78	0.23	

Intersection Summary

Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.81
Intersection Signal Delay: 45.2 Intersection LOS: D
Intersection Capacity Utilization 71.2% ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 19: Congress Street & Sudbury Street



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	878	58	0	0	0	65
Future Volume (Veh/h)	878	58	0	0	0	65
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.92	0.92	0.83	0.83
Hourly flow rate (vph)	998	66	0	0	0	78
Pedestrians					286	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					24	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	161			111		
pX, platoon unblocked						
vC, conflicting volume			1350		1317	652
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1350		1317	652
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	75
cM capacity (veh/h)			393		115	317

Direction, Lane #	EB 1	EB 2	EB 3	NB 1
Volume Total	399	399	266	78
Volume Left	0	0	0	0
Volume Right	0	0	66	78
cSH	1700	1700	1700	317
Volume to Capacity	0.23	0.23	0.16	0.25
Queue Length 95th (ft)	0	0	0	24
Control Delay (s)	0.0	0.0	0.0	20.1
Lane LOS				C
Approach Delay (s)	0.0			20.1
Approach LOS				C

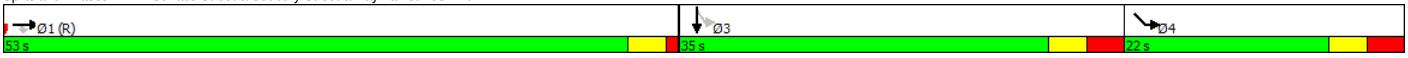
Intersection Summary				
Average Delay	1.4			
Intersection Capacity Utilization	29.5%	ICU Level of Service	A	
Analysis Period (min)	15			

Lane Group	EBT	EBR	SBL	SBT	SEL	SER
Lane Configurations						
Traffic Volume (vph)	798	145	71	325	29	6
Future Volume (vph)	798	145	71	325	29	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	12	12	12	12
Lane Util. Factor	0.95	1.00	0.95	0.95	1.00	1.00
Ped Bike Factor		0.53		0.94		
Frt		0.850			0.977	
Flt Protected				0.991	0.960	
Satd. Flow (prot)	3323	1553	0	3352	918	0
Flt Permitted				0.991	0.960	
Satd. Flow (perm)	3323	831	0	3141	918	0
Right Turn on Red		Yes	No			
Satd. Flow (RTOR)		158				
Link Speed (mph)	25			25	25	
Link Distance (ft)	111			438	138	
Travel Time (s)	3.0			11.9	3.8	
Confl. Peds. (#/hr)		402	183			
Confl. Bikes (#/hr)		10				
Peak Hour Factor	0.92	0.92	0.88	0.88	0.77	0.77
Heavy Vehicles (%)	5%	4%	1%	8%	93%	100%
Adj. Flow (vph)	867	158	81	369	38	8
Shared Lane Traffic (%)						
Lane Group Flow (vph)	867	158	0	450	46	0
Turn Type	NA	Perm	Perm	NA	Prot	
Protected Phases	1			3	4	
Permitted Phases		1	3			
Detector Phase	1	1	3	3	4	
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	6.0	
Minimum Split (s)	21.0	21.0	18.0	18.0	13.0	
Total Split (s)	53.0	53.0	35.0	35.0	22.0	
Total Split (%)	48.2%	48.2%	31.8%	31.8%	20.0%	
Maximum Green (s)	49.0	49.0	29.0	29.0	16.0	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	1.0	1.0	3.0	3.0	3.0	
Lost Time Adjust (s)	-1.0	-1.0		-2.0	0.0	
Total Lost Time (s)	3.0	3.0		4.0	6.0	
Lead/Lag			Lead	Lead	Lag	
Lead-Lag Optimize?						
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	
Recall Mode	C-Max	C-Max	Max	Max	Max	
Walk Time (s)	7.0	7.0	7.0	7.0		
Flash Dont Walk (s)	5.0	5.0	4.0	4.0		
Pedestrian Calls (#/hr)	0	0	25	25		
Act Effct Green (s)	50.0	50.0		31.0	16.0	
Actuated g/C Ratio	0.45	0.45		0.28	0.15	
v/c Ratio	0.57	0.34		0.51	0.35	
Control Delay	24.3	4.1		37.7	50.5	
Queue Delay	51.2	0.7		0.0	0.0	
Total Delay	75.5	4.8		37.7	50.5	
LOS	E	A		D	D	
Approach Delay	64.6			37.7	50.5	
Approach LOS	E			D	D	
Queue Length 50th (ft)	265	4		111	30	
Queue Length 95th (ft)	311	m9		m124	57	
Internal Link Dist (ft)	31			358	58	
Turn Bay Length (ft)						
Base Capacity (vph)	1510	463		885	133	
Starvation Cap Reductn	736	118		0	0	
Spillback Cap Reductn	0	0		0	0	
Storage Cap Reductn	0	0		0	0	
Reduced v/c Ratio	1.12	0.46		0.51	0.35	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 69 (63%), Referenced to phase 1:EBT, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.57
Intersection Signal Delay: 56.2 Intersection LOS: E
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: 21: Surface Street & Sudbury Street & Haymarket Bus Exit

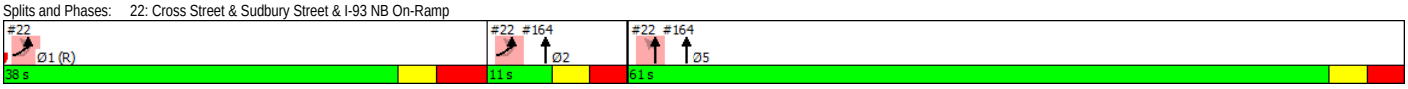


Lane Group	EBL2	EBL	EBR	NBL	NBT	SBT	SBR	SEL	SER	Ø1	Ø2
Lane Configurations											
Traffic Volume (vph)	632	266	0	642	787	0	0	0	0		
Future Volume (vph)	632	266	0	642	787	0	0	0	0		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900		
Lane Width (ft)	12	13	12	12	11	12	12	12	12		
Lane Util. Factor	0.95	0.97	1.00	0.95	0.95	1.00	1.00	1.00	1.00		
Ped Bike Factor											
Frt											
Flt Protected		0.950			0.978						
Satd. Flow (prot)	0	3374	0	0	3272	0	0	0	0		
Flt Permitted		0.950			0.978						
Satd. Flow (perm)	0	3374	0	0	3272	0	0	0	0		
Right Turn on Red	Yes		Yes								
Satd. Flow (RTOR)		192									
Link Speed (mph)		25			25	25		25			
Link Distance (ft)		191			203	568		237			
Travel Time (s)		5.2			5.5	15.5		6.5			
Confl. Bikes (#/hr)			11								
Peak Hour Factor	0.92	0.92	0.92	0.95	0.95	0.92	0.92	0.92	0.92		
Heavy Vehicles (%)	4%	15%	0%	1%	7%	0%	0%	0%	0%		
Adj. Flow (vph)	687	289	0	676	828	0	0	0	0		
Shared Lane Traffic (%)											
Lane Group Flow (vph)	0	976	0	0	1504	0	0	0	0		
Turn Type	Perm	Prot		Perm	NA						
Protected Phases		1 2			5					1	2
Permitted Phases	1 2			5							
Detector Phase	1 2	1 2		5	5						
Switch Phase											
Minimum Initial (s)				10.0	10.0					10.0	4.0
Minimum Split (s)				18.0	18.0					25.0	11.0
Total Split (s)				61.0	61.0					38.0	11.0
Total Split (%)				55.5%	55.5%					35%	10%
Maximum Green (s)				55.0	55.0					31.0	5.0
Yellow Time (s)				3.0	3.0					3.0	3.0
All-Red Time (s)				3.0	3.0					4.0	3.0
Lost Time Adjust (s)					-1.0						
Total Lost Time (s)					5.0						
Lead/Lag										Lead	Lag
Lead-Lag Optimize?											
Vehicle Extension (s)				2.0	2.0					2.0	2.0
Recall Mode				Max	Max					C-Max	Max
Walk Time (s)				7.0	7.0					7.0	
Flash Dont Walk (s)				4.0	4.0					3.0	
Pedestrian Calls (#/hr)				30	30					0	
Act Effct Green (s)		43.0			56.0						
Actuated g/C Ratio		0.39			0.51						
v/c Ratio		0.68			0.90						
Control Delay		4.9			13.3						
Queue Delay		0.1			0.1						
Total Delay		5.0			13.3						
LOS		A			B						
Approach Delay		5.0			13.3						
Approach LOS		A			B						
Queue Length 50th (ft)		6			503						
Queue Length 95th (ft)		17			#626						
Internal Link Dist (ft)		111			123	488		157			
Turn Bay Length (ft)											
Base Capacity (vph)		1435			1665						
Starvation Cap Reductn		53			0						
Spillback Cap Reductn		1			4						
Storage Cap Reductn		0			0						
Reduced v/c Ratio		0.71			0.91						

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 74 (67%), Referenced to phase 1:EBL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.90
Intersection Signal Delay: 10.1 Intersection LOS: B
Intersection Capacity Utilization 84.6% 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: 22: Cross Street & Sudbury Street & I-93 NB On-Ramp



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	26	0	0	90	85	100	1299	51	0	0	0
Future Volume (vph)	45	26	0	0	90	85	100	1299	51	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	1.00	1.00	0.95	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor	0.72				0.77			0.96				
Frt					0.934			0.995				
Flt Protected	0.950							0.997				
Satd. Flow (prot)	1624	1660	0	0	1226	0	0	3058	0	0	0	0
Flt Permitted	0.511							0.997				
Satd. Flow (perm)	625	1660	0	0	1226	0	0	3009	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					7			7				
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		244			263			292			187	
Travel Time (s)		6.7			7.2			8.0			5.1	
Confl. Peds. (#/hr)	510					510	107		528			
Confl. Bikes (#/hr)			12			7			95			1
Peak Hour Factor	0.71	0.71	0.71	0.89	0.89	0.89	0.96	0.96	0.96	0.92	0.92	0.92
Heavy Vehicles (%)	0%	3%	0%	0%	1%	0%	9%	2%	0%	0%	0%	0%
Parking (#/hr)									0			
Adj. Flow (vph)	63	37	0	0	101	96	104	1353	53	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	63	37	0	0	197	0	0	1510	0	0	0	0
Turn Type	Perm	NA			NA		Split	NA				
Protected Phases		5			5		1	1				
Permitted Phases	5											
Detector Phase	5	5			5		1	1				
Switch Phase												
Minimum Initial (s)	8.0	8.0			8.0		8.0	8.0				
Minimum Split (s)	21.0	21.0			21.0		23.0	23.0				
Total Split (s)	34.0	34.0			34.0		76.0	76.0				
Total Split (%)	30.9%	30.9%			30.9%		69.1%	69.1%				
Maximum Green (s)	29.0	29.0			29.0		71.0	71.0				
Yellow Time (s)	3.0	3.0			3.0		3.0	3.0				
All-Red Time (s)	2.0	2.0			2.0		2.0	2.0				
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)	2.0	2.0			2.0		2.0	2.0				
Recall Mode	Max	Max			Max		C-Max	C-Max				
Walk Time (s)	7.0	7.0			7.0		7.0	7.0				
Flash Dont Walk (s)	8.0	8.0			8.0		8.0	8.0				
Pedestrian Calls (#/hr)	50	50			50		0	0				
Act Effct Green (s)	30.0	30.0			30.0			72.0				
Actuated g/C Ratio	0.27	0.27			0.27			0.65				
v/c Ratio	0.37	0.08			0.58			0.75				
Control Delay	57.2	46.7			41.3			6.2				
Queue Delay	0.0	0.0			0.0			3.2				
Total Delay	57.2	46.7			41.3			9.4				
LOS	E	D			D			A				
Approach Delay		53.3			41.3			9.4				
Approach LOS		D			D			A				
Queue Length 50th (ft)	46	26			116			12				
Queue Length 95th (ft)	72	49			193			16				
Internal Link Dist (ft)		164			183			212			107	
Turn Bay Length (ft)												
Base Capacity (vph)	170	452			339			2004				
Starvation Cap Reductn	0	0			0			323				
Spillback Cap Reductn	0	0			0			383				
Storage Cap Reductn	0	0			0			0				
Reduced v/c Ratio	0.37	0.08			0.58			0.93				

Intersection Summary

Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 98 (89%), Referenced to phase 1:NBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.75
Intersection Signal Delay: 15.3 Intersection LOS: B
Intersection Capacity Utilization 77.8% ICU Level of Service D
Analysis Period (min) 15

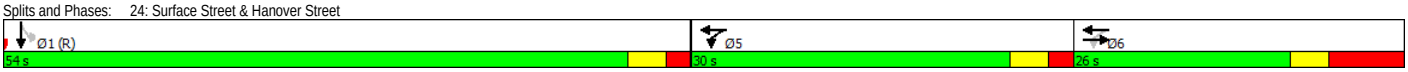
Splits and Phases: 23: Cross Street & Hanover Street

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	40	10	76	115	0	0	0	0	31	422	23
Future Volume (vph)	0	40	10	76	115	0	0	0	0	31	422	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor		0.93		0.70							0.96	
Frt		0.970									0.993	
Flt Protected				0.950							0.997	
Satd. Flow (prot)	0	2629	0	1504	1693	0	0	0	0	0	2865	0
Flt Permitted				0.712							0.997	
Satd. Flow (perm)	0	2629	0	789	1693	0	0	0	0	0	2838	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13									6	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		352			244			470			333	
Travel Time (s)		9.6			6.7			12.8			9.1	
Confl. Peds. (#/hr)			162	162						72		415
Confl. Bikes (#/hr)			2			15						14
Peak Hour Factor	0.75	0.75	0.75	0.89	0.89	0.89	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	10%	20%	8%	1%	0%	0%	0%	0%	0%	9%	13%
Adj. Flow (vph)	0	53	13	85	129	0	0	0	0	34	459	25
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	66	0	85	129	0	0	0	0	0	518	0
Turn Type		NA		D.P+P	NA					Perm	NA	
Protected Phases		6		5	5 6						1	
Permitted Phases				6						1		
Detector Phase		6		5	5 6					1	1	
Switch Phase												
Minimum Initial (s)		10.0		10.0						10.0	10.0	
Minimum Split (s)		22.0		18.0						27.0	27.0	
Total Split (s)		26.0		30.0						54.0	54.0	
Total Split (%)		23.6%		27.3%						49.1%	49.1%	
Maximum Green (s)		17.0		25.0						49.0	49.0	
Yellow Time (s)		3.0		3.0						3.0	3.0	
All-Red Time (s)		6.0		2.0						2.0	2.0	
Lost Time Adjust (s)		-5.0		-1.0							-1.0	
Total Lost Time (s)		4.0		4.0							4.0	
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)		2.0		2.0						2.0	2.0	
Recall Mode		Max		Max						C-Max	C-Max	
Walk Time (s)		7.0		7.0						7.0	7.0	
Flash Dont Walk (s)		5.0		5.0						10.0	10.0	
Pedestrian Calls (#/hr)		0		0						0	0	
Act Effct Green (s)		22.0		48.0	52.0						50.0	
Actuated g/C Ratio		0.20		0.44	0.47						0.45	
v/c Ratio		0.12		0.17	0.16						0.40	
Control Delay		20.0		14.0	13.9						7.8	
Queue Delay		0.0		0.0	1.5						0.5	
Total Delay		20.0		14.0	15.3						8.3	
LOS		B		B	B						A	
Approach Delay		20.0			14.8						8.3	
Approach LOS		B			B						A	
Queue Length 50th (ft)		18		23	34						35	
Queue Length 95th (ft)		29		m37	m55						54	
Internal Link Dist (ft)		272			164			390			253	
Turn Bay Length (ft)												
Base Capacity (vph)		536		513	800						1293	
Starvation Cap Reductn		0		0	517						384	
Spillback Cap Reductn		0		0	0						0	
Storage Cap Reductn		0		0	0						0	
Reduced v/c Ratio		0.12		0.17	0.46						0.57	

Intersection Summary

Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 17 (15%), Referenced to phase 1:SBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.40
Intersection Signal Delay: 11.0 Intersection LOS: B
Intersection Capacity Utilization 77.8% ICU Level of Service D
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 24: Surface Street & Hanover Street



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	137	979	50	0	694
Future Volume (vph)	0	137	979	50	0	694
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.91	0.91	1.00	0.91
Frt		0.865	0.993			
Flt Protected						
Satd. Flow (prot)	0	1644	5151	0	0	5187
Flt Permitted						
Satd. Flow (perm)	0	1644	5151	0	0	5187
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		93	12			
Link Speed (mph)	30		25			25
Link Distance (ft)	352		437			399
Travel Time (s)	8.0		11.9			10.9
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	149	1064	54	0	754
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	149	1118	0	0	754
Turn Type		Prot	NA			NA
Protected Phases		2	1			1
Permitted Phases						
Detector Phase		2	1			1
Switch Phase						
Minimum Initial (s)		4.0	4.0			4.0
Minimum Split (s)		22.0	22.0			22.0
Total Split (s)		43.0	67.0			67.0
Total Split (%)		39.1%	60.9%			60.9%
Maximum Green (s)		39.0	63.0			63.0
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		Lag	Lead			Lead
Lead-Lag Optimize?						
Vehicle Extension (s)		2.0	2.0			2.0
Recall Mode		None	C-Max			C-Max
Walk Time (s)		7.0				
Flash Dont Walk (s)		11.0				
Pedestrian Calls (#/hr)		0				
Act Effct Green (s)		8.9	93.1			93.1
Actuated g/C Ratio		0.08	0.85			0.85
v/c Ratio		0.68	0.26			0.17
Control Delay		39.2	0.6			0.3
Queue Delay		0.1	0.1			0.0
Total Delay		39.2	0.8			0.3
LOS		D	A			A
Approach Delay			0.8			0.3
Approach LOS			A			A
Queue Length 50th (ft)		61	1			1
Queue Length 95th (ft)		120	m37			2
Internal Link Dist (ft)	272		357			319
Turn Bay Length (ft)						
Base Capacity (vph)		642	4360			4389
Starvation Cap Reductn		0	1695			0
Spillback Cap Reductn		58	0			0
Storage Cap Reductn		0	0			0
Reduced v/c Ratio		0.26	0.42			0.17

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 56 (51%), Referenced to phase 1:NBSB, Start of Green			
Natural Cycle: 45			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.68			
Intersection Signal Delay: 3.4		Intersection LOS: A	
Intersection Capacity Utilization 35.2%		ICU Level of Service A	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 25: Congress Street

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations													
Traffic Volume (vph)	428	41	0	0	0	0	0	1022	27	0	0	0	
Future Volume (vph)	428	41	0	0	0	0	0	1022	27	0	0	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00	
Ped Bike Factor								1.00					
Frt								0.996					
Flt Protected	0.950	0.961											
Satd. Flow (prot)	1442	1477	0	0	0	0	0	3105	0	0	0	0	
Flt Permitted	0.950	0.961											
Satd. Flow (perm)	1442	1477	0	0	0	0	0	3105	0	0	0	0	
Right Turn on Red	No		Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)								3					
Link Speed (mph)		25			25			25			25		
Link Distance (ft)		145			386			247			292		
Travel Time (s)		4.0			10.5			6.7			8.0		
Confl. Bikes (#/hr)									112				
Peak Hour Factor	0.88	0.88	0.88	0.92	0.92	0.92	0.94	0.94	0.94	0.92	0.92	0.92	
Heavy Vehicles (%)	7%	0%	0%	0%	0%	0%	0%	4%	0%	0%	0%	0%	
Adj. Flow (vph)	486	47	0	0	0	0	0	1087	29	0	0	0	
Shared Lane Traffic (%)	42%												
Lane Group Flow (vph)	282	251	0	0	0	0	0	1116	0	0	0	0	
Turn Type	Split	NA						NA					
Protected Phases	1	1						5					2
Permitted Phases													
Detector Phase	1	1						5					
Switch Phase													
Minimum Initial (s)	8.0	8.0						8.0					8.0
Minimum Split (s)	15.0	15.0						14.0					18.0
Total Split (s)	43.0	43.0						49.0					18.0
Total Split (%)	39.1%	39.1%						44.5%					16%
Maximum Green (s)	38.0	38.0						44.0					14.0
Yellow Time (s)	3.0	3.0						3.0					4.0
All-Red Time (s)	2.0	2.0						2.0					0.0
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?													
Vehicle Extension (s)	2.0	2.0						2.0					2.0
Recall Mode	C-Max	C-Max						Max					Ped
Walk Time (s)													7.0
Flash Dont Walk (s)													7.0
Pedestrian Calls (#/hr)													0
Act Effct Green (s)	39.0	39.0						45.0					
Actuated g/C Ratio	0.35	0.35						0.41					
v/c Ratio	0.55	0.48						0.88					
Control Delay	33.5	31.4						39.2					
Queue Delay	0.0	0.0						10.4					
Total Delay	33.5	31.4						49.7					
LOS	C	C						D					
Approach Delay		32.5						49.7					
Approach LOS		C						D					
Queue Length 50th (ft)	166	144						374					
Queue Length 95th (ft)	251	220						#483					
Internal Link Dist (ft)		65			306			167			212		
Turn Bay Length (ft)													
Base Capacity (vph)	511	523						1272					
Starvation Cap Reductn	0	0						0					
Spillback Cap Reductn	0	0						149					
Storage Cap Reductn	0	0						0					
Reduced v/c Ratio	0.55	0.48						0.99					

Intersection Summary

Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 25 (23%), Referenced to phase 1:EBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.88
Intersection Signal Delay: 44.1 Intersection LOS: D
Intersection Capacity Utilization 53.4% 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.

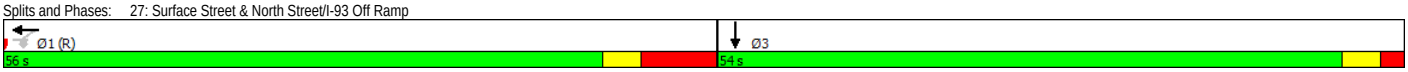
Splits and Phases: 26: Cross Street & I-93 Off-Ramp/North Street

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	118	121	208	0	0	0	0	0	473	35
Future Volume (vph)	0	0	118	121	208	0	0	0	0	0	473	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95
Ped Bike Factor											0.97	
Frt			0.865								0.990	
Flt Protected					0.982							
Satd. Flow (prot)	0	0	1370	0	3117	0	0	0	0	0	2892	0
Flt Permitted					0.982							
Satd. Flow (perm)	0	0	1370	0	3117	0	0	0	0	0	2892	0
Right Turn on Red			No	No		Yes			Yes			Yes
Satd. Flow (RTOR)											9	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		373			108			468			470	
Travel Time (s)		10.2			2.9			12.8			12.8	
Confl. Peds. (#/hr)												466
Confl. Bikes (#/hr)												19
Peak Hour Factor	0.84	0.84	0.84	0.73	0.73	0.73	0.92	0.92	0.92	0.86	0.86	0.86
Heavy Vehicles (%)	0%	0%	8%	3%	2%	0%	0%	0%	0%	0%	8%	9%
Parking (#/hr)												0
Adj. Flow (vph)	0	0	140	166	285	0	0	0	0	0	550	41
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	140	0	451	0	0	0	0	0	591	0
Turn Type			Perm	Perm	NA						NA	
Protected Phases					1						3	
Permitted Phases			1	1								
Detector Phase			1	1	1						3	
Switch Phase												
Minimum Initial (s)			10.0	10.0	10.0						10.0	
Minimum Split (s)			25.0	25.0	25.0						25.0	
Total Split (s)			56.0	56.0	56.0						54.0	
Total Split (%)			50.9%	50.9%	50.9%						49.1%	
Maximum Green (s)			47.0	47.0	47.0						49.0	
Yellow Time (s)			3.0	3.0	3.0						3.0	
All-Red Time (s)			6.0	6.0	6.0						2.0	
Lost Time Adjust (s)			-5.0		-5.0						-1.0	
Total Lost Time (s)			4.0		4.0						4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)			2.0	2.0	2.0						2.0	
Recall Mode			C-Max	C-Max	C-Max						Max	
Walk Time (s)			7.0	7.0	7.0						7.0	
Flash Dont Walk (s)			5.0	5.0	5.0						12.0	
Pedestrian Calls (#/hr)			0	0	0						0	
Act Effct Green (s)			52.0		52.0						50.0	
Actuated g/C Ratio			0.47		0.47						0.45	
v/c Ratio			0.22		0.31						0.45	
Control Delay			8.2		18.6						21.9	
Queue Delay			0.0		0.0						0.0	
Total Delay			8.2		18.6						21.9	
LOS			A		B						C	
Approach Delay					18.6						21.9	
Approach LOS					B						C	
Queue Length 50th (ft)			37		100						196	
Queue Length 95th (ft)			56		106						241	
Internal Link Dist (ft)		293			28			388			390	
Turn Bay Length (ft)												
Base Capacity (vph)			647		1473						1319	
Starvation Cap Reductn			0		0						0	
Spillback Cap Reductn			0		0						0	
Storage Cap Reductn			0		0						0	
Reduced v/c Ratio			0.22		0.31						0.45	

Intersection Summary

Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 0 (0%), Referenced to phase 1:WBTL, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.45
Intersection Signal Delay: 19.0 Intersection LOS: B
Intersection Capacity Utilization 45.1% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 27: Surface Street & North Street/I-93 Off Ramp

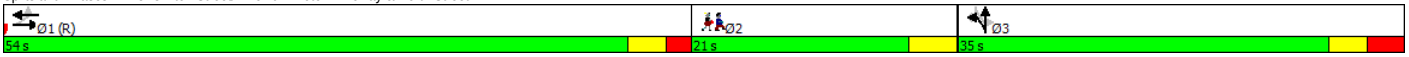


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations													
Traffic Volume (vph)	4	79	0	0	243	0	240	0	37	2	0	6	
Future Volume (vph)	4	79	0	0	243	0	240	0	37	2	0	6	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	
Ped Bike Factor		0.98						0.98		0.95		0.67	
Frt								0.959				0.850	
Flt Protected		0.998					0.950	0.965		0.950			
Satd. Flow (prot)	0	1493	0	0	2997	0	1298	1379	0	1624	0	1454	
Flt Permitted		0.989					0.950	0.965		0.622			
Satd. Flow (perm)	0	1449	0	0	2997	0	1298	1379	0	1014	0	974	
Right Turn on Red			Yes			Yes			No			Yes	
Satd. Flow (RTOR)												60	
Link Speed (mph)		25			25			25			30		
Link Distance (ft)		241			373			604			110		
Travel Time (s)		6.6			10.2			16.5			2.5		
Confl. Peds. (#/hr)	349					349			31	31		371	
Confl. Bikes (#/hr)			11			4							
Peak Hour Factor	0.90	0.90	0.90	0.84	0.84	0.84	0.92	0.92	0.92	0.67	0.67	0.67	
Heavy Vehicles (%)	0%	3%	0%	0%	3%	0%	7%	0%	6%	0%	0%	0%	
Parking (#/hr)		0			0		0		0				
Adj. Flow (vph)	4	88	0	0	289	0	261	0	40	3	0	9	
Shared Lane Traffic (%)							41%						
Lane Group Flow (vph)	0	92	0	0	289	0	154	147	0	3	0	9	
Turn Type	Perm	NA			NA		Split	NA		D.Pm		Perm	
Protected Phases		1			1		3	3					2
Permitted Phases	1									3		3	
Detector Phase	1	1			1		3	3		3		3	
Switch Phase													
Minimum Initial (s)	23.0	23.0			23.0		9.0	9.0		9.0		9.0	7.0
Minimum Split (s)	30.0	30.0			30.0		16.0	16.0		16.0		16.0	21.0
Total Split (s)	54.0	54.0			54.0		35.0	35.0		35.0		35.0	21.0
Total Split (%)	49.1%	49.1%			49.1%		31.8%	31.8%		31.8%		31.8%	19%
Maximum Green (s)	49.0	49.0			49.0		29.0	29.0		29.0		29.0	17.0
Yellow Time (s)	3.0	3.0			3.0		3.0	3.0		3.0		3.0	4.0
All-Red Time (s)	2.0	2.0			2.0		3.0	3.0		3.0		3.0	0.0
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0		0.0	
Total Lost Time (s)		5.0			5.0		6.0	6.0		6.0		6.0	
Lead/Lag	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
Recall Mode	C-Max	C-Max			C-Max		Max	Max		Max		Max	Ped
Walk Time (s)	7.0	7.0			7.0								7.0
Flash Dont Walk (s)	5.0	5.0			5.0								10.0
Pedestrian Calls (#/hr)	0	0			0								0
Act Effct Green (s)		49.0			49.0		29.0	29.0		29.0		29.0	
Actuated g/C Ratio		0.45			0.45		0.26	0.26		0.26		0.26	
v/c Ratio		0.14			0.22		0.45	0.40		0.01		0.03	
Control Delay		40.0			9.3		32.8	3.3		30.0		0.2	
Queue Delay		0.0			0.0		0.2	0.2		0.0		0.0	
Total Delay		40.0			9.4		33.0	3.5		30.0		0.2	
LOS		D			A		C	A		C		A	
Approach Delay		40.0			9.4			18.6					
Approach LOS		D			A			B					
Queue Length 50th (ft)		65			23		55	0		2		0	
Queue Length 95th (ft)		108			31		m73	0		7		0	
Internal Link Dist (ft)		161			293			524			30		
Turn Bay Length (ft)													
Base Capacity (vph)		645			1335		342	363		267		300	
Starvation Cap Reductn		0			0		0	0		0		0	
Spillback Cap Reductn		0			81		18	20		0		16	
Storage Cap Reductn		0			0		0	0		0		0	
Reduced v/c Ratio		0.14			0.23		0.48	0.43		0.01		0.03	

Intersection Summary

Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 3 (3%), Referenced to phase 1:EBWB, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.45
Intersection Signal Delay: 17.4 Intersection LOS: B
Intersection Capacity Utilization 51.9% ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 28: Clinton Street/Millenium Hotel Driveway & North Street



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6
Lane Configurations												
Traffic Volume (vph)	14	83	456	33	0	0						
Future Volume (vph)	14	83	456	33	0	0						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900						
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	1.00						
Ped Bike Factor	0.89		0.96									
Frt			0.990									
Flt Protected	0.950											
Satd. Flow (prot)	1624	1693	2953	0	0	0						
Flt Permitted	0.304											
Satd. Flow (perm)	460	1693	2953	0	0	0						
Right Turn on Red				Yes		Yes						
Satd. Flow (RTOR)			7									
Link Speed (mph)		25	25		25							
Link Distance (ft)		141	241		180							
Travel Time (s)		3.8	6.6		4.9							
Confl. Peds. (#/hr)	331			331								
Confl. Bikes (#/hr)				4								
Peak Hour Factor	0.86	0.86	0.91	0.91	0.92	0.92						
Heavy Vehicles (%)	0%	1%	5%	6%	0%	0%						
Parking (#/hr)				0								
Adj. Flow (vph)	16	97	501	36	0	0						
Shared Lane Traffic (%)												
Lane Group Flow (vph)	16	97	537	0	0	0						
Turn Type	D.P+P	NA	NA									
Protected Phases	1 2 6	1 2 6	4 5				1	2	3	4	5	6
Permitted Phases	4 5	4 5										
Detector Phase	1 2 6	1 2 6	4 5									
Switch Phase												
Minimum Initial (s)							7.0	3.0	7.0	8.0	3.0	4.0
Minimum Split (s)							14.0	9.0	24.0	15.0	8.0	10.0
Total Split (s)							30.0	10.0	24.0	28.0	8.0	10.0
Total Split (%)							27%	9%	22%	25%	7%	9%
Maximum Green (s)							25.0	5.0	20.0	22.0	4.0	5.0
Yellow Time (s)							3.0	3.0	4.0	3.0	3.0	3.0
All-Red Time (s)							2.0	2.0	0.0	3.0	1.0	2.0
Lost Time Adjust (s)												
Total Lost Time (s)												
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)							2.0	2.0	2.0	2.0	2.0	2.0
Recall Mode							C-Max	Max	Ped	Max	Max	Max
Walk Time (s)									7.0			
Flash Dont Walk (s)									13.0			
Pedestrian Calls (#/hr)									0			
Act Effct Green (s)	76.0	81.0	30.0									
Actuated g/C Ratio	0.69	0.74	0.27									
v/c Ratio	0.02	0.08	0.66									
Control Delay	1.3	1.0	25.8									
Queue Delay	0.4	2.9	10.4									
Total Delay	1.6	3.9	36.2									
LOS	A	A	D									
Approach Delay		3.6	36.2									
Approach LOS		A	D									
Queue Length 50th (ft)	0	1	124									
Queue Length 95th (ft)	m1	m8	186									
Internal Link Dist (ft)		61	161		100							
Turn Bay Length (ft)												
Base Capacity (vph)	794	1246	810									
Starvation Cap Reductn	638	1056	244									
Spillback Cap Reductn	0	0	42									
Storage Cap Reductn	0	0	0									
Reduced v/c Ratio	0.10	0.51	0.95									

Intersection Summary

Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 50 (45%), Referenced to phase 1:EBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 30.5 Intersection LOS: C
Intersection Capacity Utilization 20.8% ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 29: North Street & Union Street

Lane Group	WBL	WBR	NBU	NBT	NBR	SBU	SBL	SBT	Ø1	Ø2	Ø3	Ø5
Lane Configurations												
Traffic Volume (vph)	251	205	2	803	55	22	42	630				
Future Volume (vph)	251	205	2	803	55	22	42	630				
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1700	1700	1700				
Lane Util. Factor	0.97	0.95	0.91	0.91	0.91	0.91	0.91	0.91				
Ped Bike Factor	0.73			0.97				0.99				
Frt	0.933			0.990								
Flt Protected	0.973							0.995				
Satd. Flow (prot)	2612	0	0	4286	0	0	0	3901				
Flt Permitted	0.973			0.939				0.692				
Satd. Flow (perm)	2131	0	0	4025	0	0	0	2687				
Right Turn on Red		Yes			No							
Satd. Flow (RTOR)	167											
Link Speed (mph)	25			25				25				
Link Distance (ft)	141			126				437				
Travel Time (s)	3.8			3.4				11.9				
Confl. Peds. (#/hr)	314	146			1133		1133					
Confl. Bikes (#/hr)		3			24							
Peak Hour Factor	0.81	0.81	0.91	0.91	0.91	0.96	0.96	0.96				
Heavy Vehicles (%)	3%	4%	0%	5%	0%	0%	3%	7%				
Adj. Flow (vph)	310	253	2	882	60	23	44	656				
Shared Lane Traffic (%)												
Lane Group Flow (vph)	563	0	0	944	0	0	0	723				
Turn Type	Prot		Perm	NA		custom	custom	NA				
Protected Phases	4			1 2		6	6	1 6	1	2	3	5
Permitted Phases			1 2			1	1					
Detector Phase	4		1 2	1 2		6	6	1 6				
Switch Phase												
Minimum Initial (s)	8.0					4.0	4.0		7.0	3.0	7.0	3.0
Minimum Split (s)	15.0					10.0	10.0		14.0	9.0	24.0	8.0
Total Split (s)	28.0					10.0	10.0		30.0	10.0	24.0	8.0
Total Split (%)	25.5%					9.1%	9.1%		27%	9%	22%	7%
Maximum Green (s)	22.0					5.0	5.0		25.0	5.0	20.0	4.0
Yellow Time (s)	3.0					3.0	3.0		3.0	3.0	4.0	3.0
All-Red Time (s)	3.0					2.0	2.0		2.0	2.0	0.0	1.0
Lost Time Adjust (s)	0.0											
Total Lost Time (s)	6.0											
Lead/Lag	Lead								Lead	Lag		Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0					2.0	2.0		2.0	2.0	2.0	2.0
Recall Mode	Max					Max	Max		C-Max	Max	Ped	Max
Walk Time (s)											7.0	
Flash Dont Walk (s)											13.0	
Pedestrian Calls (#/hr)											0	
Act Effct Green (s)	22.0			35.0				30.0				
Actuated g/C Ratio	0.20			0.32				0.27				
v/c Ratio	0.86			0.74				0.92				
Control Delay	22.5			3.7				56.5				
Queue Delay	7.0			4.8				0.0				
Total Delay	29.5			8.6				56.5				
LOS	C			A				E				
Approach Delay	29.5			8.6				56.5				
Approach LOS	C			A				E				
Queue Length 50th (ft)	25			23				172				
Queue Length 95th (ft)	63			m28				#258				
Internal Link Dist (ft)	61			46				357				
Turn Bay Length (ft)												
Base Capacity (vph)	656			1280				788				
Starvation Cap Reductn	64			266				0				
Spillback Cap Reductn	0			0				0				
Storage Cap Reductn	0			0				0				
Reduced v/c Ratio	0.95			0.93				0.92				

Intersection Summary

Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 50 (45%), Referenced to phase 1:EBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 29.4 Intersection LOS: C
Intersection Capacity Utilization 67.8% 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: 30: Congress Street & North Street

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations													
Traffic Volume (vph)	0	0	0	409	142	0	0	0	0	0	657	55	
Future Volume (vph)	0	0	0	409	142	0	0	0	0	0	657	55	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	14	16	12	12	12	12	12	12	12	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.91	0.91	
Ped Bike Factor				0.65	0.84						0.96		
Frt											0.988		
Flt Protected				0.950	0.977								
Satd. Flow (prot)	0	0	0	1583	1695	0	0	0	0	0	4216	0	
Flt Permitted				0.950	0.977								
Satd. Flow (perm)	0	0	0	1029	1419	0	0	0	0	0	4216	0	
Right Turn on Red			Yes	No		Yes			Yes			Yes	
Satd. Flow (RTOR)											12		
Link Speed (mph)		25			25			25			25		
Link Distance (ft)		604			407			164			468		
Travel Time (s)		16.5			11.1			4.5			12.8		
Confl. Peds. (#/hr)				217								612	
Confl. Bikes (#/hr)												9	
Peak Hour Factor	0.92	0.92	0.92	0.94	0.94	0.94	0.92	0.92	0.92	0.91	0.91	0.91	
Heavy Vehicles (%)	0%	0%	0%	4%	8%	0%	0%	0%	0%	0%	5%	11%	
Adj. Flow (vph)	0	0	0	435	151	0	0	0	0	0	722	60	
Shared Lane Traffic (%)				30%									
Lane Group Flow (vph)	0	0	0	304	282	0	0	0	0	0	782	0	
Turn Type				Split	NA						NA		
Protected Phases				5	5						1		2
Permitted Phases													
Detector Phase				5	5						1		
Switch Phase													
Minimum Initial (s)				8.0	8.0						8.0		8.0
Minimum Split (s)				19.0	19.0						27.0		24.0
Total Split (s)				51.0	51.0						35.0		24.0
Total Split (%)				46.4%	46.4%						31.8%		22%
Maximum Green (s)				46.0	46.0						29.0		20.0
Yellow Time (s)				3.0	3.0						3.0		4.0
All-Red Time (s)				2.0	2.0						3.0		0.0
Lost Time Adjust (s)				-2.0	-2.0						-2.0		
Total Lost Time (s)				3.0	3.0						4.0		
Lead/Lag											Lead		Lag
Lead-Lag Optimize?													
Vehicle Extension (s)				2.0	2.0						2.0		2.0
Recall Mode				Max	Max						C-Max		Ped
Walk Time (s)				7.0	7.0						7.0		7.0
Flash Dont Walk (s)				6.0	6.0						11.0		13.0
Pedestrian Calls (#/hr)				0	0						0		0
Act Effct Green (s)				48.0	48.0						31.0		
Actuated g/C Ratio				0.44	0.44						0.28		
v/c Ratio				0.44	0.38						0.65		
Control Delay				24.2	22.9						31.9		
Queue Delay				0.0	0.0						0.0		
Total Delay				24.2	22.9						31.9		
LOS				C	C						C		
Approach Delay					23.6						31.9		
Approach LOS					C						C		
Queue Length 50th (ft)				153	138						152		
Queue Length 95th (ft)				234	211						197		
Internal Link Dist (ft)		524			327			84			388		
Turn Bay Length (ft)													
Base Capacity (vph)				690	739						1196		
Starvation Cap Reductn				0	0						0		
Spillback Cap Reductn				0	0						0		
Storage Cap Reductn				0	0						0		
Reduced v/c Ratio				0.44	0.38						0.65		

Intersection Summary

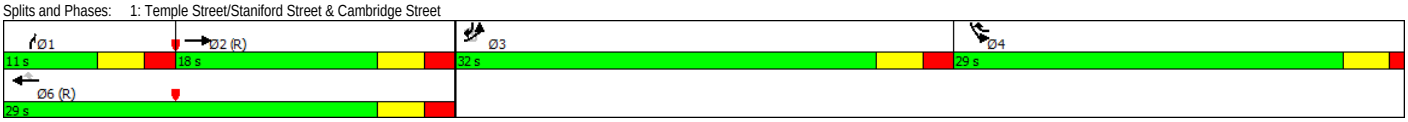
Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 1 (1%), Referenced to phase 1:SBT, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.65
Intersection Signal Delay: 28.3 Intersection LOS: C
Intersection Capacity Utilization 39.7% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 31: Surface Street & Clinton Street/I-93 Off Ramp

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (vph)	16	209	527	0	0	453	195	0	0	15	245	0	260
Future Volume (vph)	16	209	527	0	0	453	195	0	0	15	245	0	260
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	10	11	12	12	11	12	12	12	12	11	12	11
Storage Length (ft)		140		0	0		0	0		0	0		0
Storage Lanes		1		0	0		1	0		1	1		1
Taper Length (ft)		25			25			25			25		
Lane Util. Factor	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor							0.98						
Frt							0.850			0.865			0.850
Flt Protected		0.950									0.950		
Satd. Flow (prot)	0	1632	3250	0	0	3261	1509	0	0	1644	1678	0	1313
Flt Permitted		0.475									0.950		
Satd. Flow (perm)	0	816	3250	0	0	3261	1484	0	0	1644	1678	0	1313
Right Turn on Red				No			Yes			No			No
Satd. Flow (RTOR)							210						
Link Speed (mph)			30			30			30			30	
Link Distance (ft)			407			236			206			1103	
Travel Time (s)			9.3			5.4			4.7			25.1	
Confl. Bikes (#/hr)				60			12			2			6
Peak Hour Factor	0.89	0.89	0.89	0.89	0.93	0.93	0.93	0.54	0.54	0.54	0.92	0.92	0.92
Heavy Vehicles (%)	6%	3%	2%	0%	0%	7%	7%	0%	0%	0%	4%	0%	7%
Parking (#/hr)			0										0
Adj. Flow (vph)	18	235	592	0	0	487	210	0	0	28	266	0	283
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	253	592	0	0	487	210	0	0	28	266	0	283
Turn Type	custom	Prot	NA			NA	pm+ov			Prot	Prot		Over
Protected Phases		3	2			6	4			1	4		3!
Permitted Phases	3!						6						
Detector Phase	3	3	2			6	4			1	4		3
Switch Phase													
Minimum Initial (s)	8.0	8.0	12.0			12.0	8.0			6.0	8.0		8.0
Minimum Split (s)	32.0	32.0	17.0			24.0	29.0			11.0	29.0		32.0
Total Split (s)	32.0	32.0	18.0			29.0	29.0			11.0	29.0		32.0
Total Split (%)	35.6%	35.6%	20.0%			32.2%	32.2%			12.2%	32.2%		35.6%
Maximum Green (s)	27.0	27.0	13.0			24.0	25.0			6.0	25.0		27.0
Yellow Time (s)	3.0	3.0	3.0			3.0	3.0			3.0	3.0		3.0
All-Red Time (s)	2.0	2.0	2.0			2.0	1.0			2.0	1.0		2.0
Lost Time Adjust (s)		0.0	0.0			0.0	0.0			0.0	0.0		0.0
Total Lost Time (s)		5.0	5.0			5.0	4.0			5.0	4.0		5.0
Lead/Lag	Lead	Lead	Lag				Lag			Lead	Lag		Lead
Lead-Lag Optimize?													
Vehicle Extension (s)	2.0	2.0	2.0			2.0	2.0			2.0	2.0		2.0
Recall Mode	Min	Min	C-Max			C-Max	Min			None	Min		Min
Walk Time (s)	7.0	7.0				7.0	7.0				7.0		7.0
Flash Dont Walk (s)	20.0	20.0				12.0	18.0				18.0		20.0
Pedestrian Calls (#/hr)	140	140				140	132				132		140
Act Effct Green (s)		27.0	19.6			24.0	50.0			6.0	25.0		27.0
Actuated g/C Ratio		0.30	0.22			0.27	0.56			0.07	0.28		0.30
v/c Ratio		1.04	0.84			0.56	0.23			0.26	0.57		0.72
Control Delay		101.6	48.7			28.1	2.0			46.1	33.6		40.3
Queue Delay		0.0	0.0			3.5	0.2			0.9	1.2		0.0
Total Delay		101.6	48.7			31.6	2.2			46.9	34.8		40.3
LOS		F	D			C	A			D	C		D
Approach Delay			64.5			22.8							
Approach LOS			E			C							
Queue Length 50th (ft)		~156	158			106	0			15	130		143
Queue Length 95th (ft)		#298	#325			150	10			25	210		#257
Internal Link Dist (ft)			327			156			126			1023	
Turn Bay Length (ft)		140											
Base Capacity (vph)		244	707			869	924			109	466		393
Starvation Cap Reductn		0	0			283	270			0	0		0
Spillback Cap Reductn		0	0			0	0			17	70		0
Storage Cap Reductn		0	0			0	0			0	0		0
Reduced v/c Ratio		1.04	0.84			0.83	0.32			0.30	0.67		0.72

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 17 (19%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.04			
Intersection Signal Delay: 43.6		Intersection LOS: D	
Intersection Capacity Utilization 53.6%		ICU Level of Service A	
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: 1: Temple Street/Staniford Street & Cambridge Street



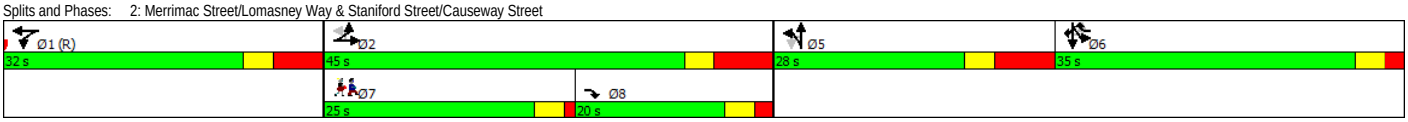
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	Ø7
Lane Configurations																
Traffic Volume (vph)	2	55	181	164	68	430	342	3	151	137	34	2	206	283	308	
Future Volume (vph)	2	55	181	164	68	430	342	3	151	137	34	2	206	283	308	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	11	11	11	11	11	11	10	11	10	11	11	11	10	11	11	
Storage Length (ft)		0		200	0		0		0		0		0		0	
Storage Lanes		1		1	0		1		1		0		1		1	
Taper Length (ft)		25			25				25				25			
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	
Ped Bike Factor										0.99				1.00		
Frt				0.850			0.850			0.970				0.997	0.850	
Flt Protected		0.950				0.993			0.950				0.950			
Satd. Flow (prot)	0	1582	1711	1516	0	3296	1334	0	1548	1643	0	0	1260	1611	1426	
Flt Permitted		0.456				0.993			0.211				0.632			
Satd. Flow (perm)	0	759	1711	1516	0	3296	1334	0	344	1643	0	0	838	1611	1426	
Right Turn on Red				No			No				No				No	
Satd. Flow (RTOR)																
Link Speed (mph)			30			30				30				30		
Link Distance (ft)			1103			181				998				344		
Travel Time (s)			25.1			4.1				22.7				7.8		
Confl. Bikes (#/hr)				42			4				10				5	
Peak Hour Factor	0.78	0.78	0.78	0.78	0.94	0.94	0.94	0.85	0.85	0.85	0.85	0.98	0.98	0.98	0.98	
Heavy Vehicles (%)	0%	5%	2%	3%	6%	5%	13%	0%	9%	8%	7%	0%	34%	8%	4%	
Adj. Flow (vph)	3	71	232	210	72	457	364	4	178	161	40	2	210	289	314	
Shared Lane Traffic (%)		0%													2%	
Lane Group Flow (vph)	0	74	232	210	0	529	364	0	182	201	0	0	212	295	308	
Turn Type	Perm	Split	NA	custom	Split	NA	Over	Perm	Split	NA		Perm	Split	NA	Prot	
Protected Phases		2	2	8	1	1	6!		5	5			6	6	6	7
Permitted Phases	2							5				6!				
Detector Phase	2	2	2	8	1	1	6	5	5	5		6	6	6	6	
Switch Phase																
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0		8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	27.0	27.0	27.0	16.0	31.0	31.0	16.0	27.0	27.0	27.0		16.0	16.0	16.0	16.0	25.0
Total Split (s)	45.0	45.0	45.0	20.0	32.0	32.0	35.0	28.0	28.0	28.0		35.0	35.0	35.0	35.0	25.0
Total Split (%)	32.1%	32.1%	32.1%	14.3%	22.9%	22.9%	25.0%	20.0%	20.0%	20.0%		25.0%	25.0%	25.0%	25.0%	18%
Maximum Green (s)	36.0	36.0	36.0	15.0	24.0	24.0	30.0	19.0	19.0	19.0		30.0	30.0	30.0	30.0	21.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	6.0	6.0	6.0	2.0	5.0	5.0	2.0	6.0	6.0	6.0		2.0	2.0	2.0	2.0	1.0
Lost Time Adjust (s)		0.0	0.0	0.0		0.0	0.0		0.0	0.0			0.0	0.0	0.0	
Total Lost Time (s)		9.0	9.0	5.0		8.0	5.0		9.0	9.0			5.0	5.0	5.0	
Lead/Lag				Lag			Lag	Lead	Lead	Lead		Lag	Lag	Lag	Lag	Lead
Lead-Lag Optimize?																
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0
Recall Mode	Ped	Ped	Ped	None	C-Max	C-Max	None	Ped	Ped	Ped		None	None	None	None	None
Walk Time (s)	7.0	7.0	7.0		7.0	7.0		7.0	7.0	7.0						7.0
Flash Dont Walk (s)	11.0	11.0	11.0		16.0	16.0		11.0	11.0	11.0						14.0
Pedestrian Calls (#/hr)	100	100	100		175	175		0	0	0						500
Act Effct Green (s)		36.0	36.0	15.0		24.0	30.0		19.0	19.0			30.0	30.0	30.0	
Actuated g/C Ratio		0.26	0.26	0.11		0.17	0.21		0.14	0.14			0.21	0.21	0.21	
v/c Ratio		0.38	0.53	1.30		0.94	1.28		3.96	0.91			1.18	0.86	1.01	
Control Delay		49.7	49.9	218.7		82.0	192.8		1396.1	99.4			172.4	76.1	108.1	
Queue Delay		0.0	0.0	0.0		0.0	0.0		0.0	0.0			0.0	0.0	0.0	
Total Delay		49.7	49.9	218.7		82.0	192.9		1396.1	99.4			172.4	76.1	108.1	
LOS		D	D	F		F	F		F	F			F	E	F	
Approach Delay			118.5			127.2				715.6				113.2		
Approach LOS			F			F				F				F		
Queue Length 50th (ft)		58	192	~243		253	~418		~300	183			~231	274	~302	
Queue Length 95th (ft)		95	240	#334		#364	#620		#430	#301			#397	#440	#509	
Internal Link Dist (ft)			1023			101				918				264		
Turn Bay Length (ft)				200												
Base Capacity (vph)		195	439	162		565	285		46	222			179	345	305	
Starvation Cap Reductn		0	0	0		0	1		0	0			0	0	0	
Spillback Cap Reductn		0	0	0		0	0		0	0			0	0	0	
Storage Cap Reductn		0	0	0		0	0		0	0			0	0	0	
Reduced v/c Ratio		0.38	0.53	1.30		0.94	1.28		3.96	0.91			1.18	0.86	1.01	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 1:WBTL, Start of Green
Natural Cycle: 125
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 3.96
Intersection Signal Delay: 207.6 Intersection LOS: F
Intersection Capacity Utilization 78.9% 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.
! Phase conflict between lane groups.

Splits and Phases: 2: Merrimac Street/Lomasney Way & Staniford Street/Causeway Street

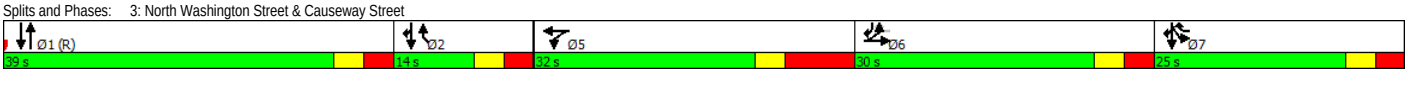


Lane Group	EBL	EBT	EBR2	WBL	WBT	WBR	NBT	NBR	SBL2	SBT	SBR	NWR	NWR2
Lane Configurations													
Traffic Volume (vph)	216	91	113	185	143	245	672	117	273	1106	510	13	14
Future Volume (vph)	216	91	113	185	143	245	672	117	273	1106	510	13	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	12	11	12	11	11	10	11	11	12	12
Storage Length (ft)	0			0		0		75			100	0	
Storage Lanes	2			0		1		0			1	1	
Taper Length (ft)	25			25									
Lane Util. Factor	0.97	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00
Ped Bike Factor		0.87				0.99	0.92						
Frt		0.917				0.850	0.978				0.850	0.865	
Flt Protected	0.950				0.973				0.950				
Satd. Flow (prot)	2918	1350	0	0	3110	1495	2813	0	1604	3144	1419	1644	0
Flt Permitted	0.950				0.973				0.950				
Satd. Flow (perm)	2918	1350	0	0	3110	1474	2813	0	1604	3144	1419	1644	0
Right Turn on Red			Yes			No					No		Yes
Satd. Flow (RTOR)		195										195	
Link Speed (mph)		30			30		30			30			
Link Distance (ft)		318			194		589			575			
Travel Time (s)		7.2			4.4		13.4			13.1			
Confl. Peds. (#/hr)			131					139					
Confl. Bikes (#/hr)			4			3		3			9		
Peak Hour Factor	0.96	0.96	0.96	0.87	0.87	0.87	0.94	0.94	0.97	0.97	0.97	0.92	0.92
Heavy Vehicles (%)	16%	6%	10%	7%	12%	8%	13%	7%	5%	11%	10%	0%	0%
Adj. Flow (vph)	225	95	118	213	164	282	715	124	281	1140	526	14	15
Shared Lane Traffic (%)													
Lane Group Flow (vph)	225	213	0	0	377	282	839	0	281	1140	526	29	0
Turn Type	Split	NA		Split	NA	custom	NA		Prot	NA	custom	Prot	
Protected Phases	6	6		5	5	7	1		7	1 2 7	2 6 7	2	
Permitted Phases						6							
Detector Phase	6	6		5	5	7	1		7	1 7	6 7	2	
Switch Phase													
Minimum Initial (s)	8.0	8.0		8.0	8.0	8.0	8.0		8.0			8.0	
Minimum Split (s)	30.0	30.0		32.0	32.0	14.0	25.0		14.0			14.0	
Total Split (s)	30.0	30.0		32.0	32.0	25.0	39.0		25.0			14.0	
Total Split (%)	21.4%	21.4%		22.9%	22.9%	17.9%	27.9%		17.9%			10.0%	
Maximum Green (s)	24.0	24.0		22.0	22.0	19.0	33.0		19.0			8.0	
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0		3.0			3.0	
All-Red Time (s)	3.0	3.0		7.0	7.0	3.0	3.0		3.0			3.0	
Lost Time Adjust (s)	0.0	0.0			0.0	0.0	0.0		0.0			0.0	
Total Lost Time (s)	6.0	6.0			10.0	6.0	6.0		6.0			6.0	
Lead/Lag	Lag	Lag		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	
Recall Mode	None	None		None	None	None	C-Max		None			Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0						
Flash Dont Walk (s)	17.0	17.0		15.0	15.0		12.0						
Pedestrian Calls (#/hr)	100	100		176	176		100						
Act Effct Green (s)	24.0	24.0			22.0	43.0	33.0		19.0	72.0	57.0	8.0	
Actuated g/C Ratio	0.17	0.17			0.16	0.31	0.24		0.14	0.51	0.41	0.06	
v/c Ratio	0.45	0.54			0.77	0.62	1.27		1.29	0.71	0.91	0.10	
Control Delay	55.4	14.5			68.2	44.2	174.6		208.9	28.9	54.9	0.7	
Queue Delay	0.0	0.0			0.0	0.0	0.0		0.0	0.0	0.0	0.0	
Total Delay	55.4	14.5			68.2	44.2	174.6		208.9	28.9	54.9	0.7	
LOS	E	B			E	D	F		F	C	D	A	
Approach Delay		35.5			57.9		174.6			61.9			
Approach LOS		D			E		F			E			
Queue Length 50th (ft)	95	14			175	205	~504		~325	405	340	0	
Queue Length 95th (ft)	139	95			225	287	#637		#511	488	#586	0	
Internal Link Dist (ft)		238			114		509			495			
Turn Bay Length (ft)									200		100		
Base Capacity (vph)	500	393			488	455	663		217	1616	577	277	
Starvation Cap Reductn	0	0			0	0	0		0	0	0	0	
Spillback Cap Reductn	0	0			0	0	0		0	0	0	0	
Storage Cap Reductn	0	0			0	0	0		0	0	0	0	
Reduced v/c Ratio	0.45	0.54			0.77	0.62	1.27		1.29	0.71	0.91	0.10	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green
Natural Cycle: 145
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.29
Intersection Signal Delay: 82.0 Intersection LOS: F
Intersection Capacity Utilization 103.6% ICU Level of Service G
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: North Washington Street & Causeway Street



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	0	0	329	794	56	26	1363	15
Future Volume (vph)	0	0	0	0	0	0	329	794	56	26	1363	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	0		50
Storage Lanes	0		0	0		0	1		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.91	0.91	0.91
Ped Bike Factor								0.96			1.00	
Frt								0.990			0.998	
Flt Protected							0.950				0.999	
Satd. Flow (prot)	0	0	0	0	0	0	1377	2783	0	0	4266	0
Flt Permitted							0.950				0.906	
Satd. Flow (perm)	0	0	0	0	0	0	1377	2783	0	0	3862	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)								10			2	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		181			303			161			589	
Travel Time (s)		4.9			8.3			4.4			16.1	
Confl. Peds. (#/hr)									232	232		23
Confl. Bikes (#/hr)									5			60
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	18%	12%	0%	4%	9%	19%
Parking (#/hr)									0			
Adj. Flow (vph)	0	0	0	0	0	0	339	819	58	27	1405	15
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	0	339	877	0	0	1447	0
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)							8.0	10.0		10.0	10.0	
Minimum Split (s)							28.0	27.0		27.0	27.0	
Total Split (s)							50.0	70.0		70.0	70.0	
Total Split (%)							41.7%	58.3%		58.3%	58.3%	
Maximum Green (s)							45.0	65.0		65.0	65.0	
Yellow Time (s)							3.0	3.0		3.0	3.0	
All-Red Time (s)							2.0	2.0		2.0	2.0	
Lost Time Adjust (s)							-1.0	-1.0			-1.0	
Total Lost Time (s)							4.0	4.0			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)							2.0	2.0		2.0	2.0	
Recall Mode							Ped	C-Max		C-Max	C-Max	
Walk Time (s)							7.0	7.0		7.0	7.0	
Flash Dont Walk (s)							15.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)							0	0		0	0	
Act Effct Green (s)							35.2	76.8			76.8	
Actuated g/C Ratio							0.29	0.64			0.64	
v/c Ratio							0.84	0.49			0.59	
Control Delay							57.3	13.7			14.9	
Queue Delay							8.2	4.0			0.2	
Total Delay							65.4	17.7			15.1	
LOS							E	B			B	
Approach Delay								31.0			15.1	
Approach LOS								C			B	
Queue Length 50th (ft)							245	174			221	
Queue Length 95th (ft)							322	282			335	
Internal Link Dist (ft)		101			223			81			509	
Turn Bay Length (ft)												
Base Capacity (vph)							527	1784			2471	
Starvation Cap Reductn							148	804			336	
Spillback Cap Reductn							1	0			0	
Storage Cap Reductn							0	0			0	
Reduced v/c Ratio							0.89	0.89			0.68	

Intersection Summary

Area Type: CBD
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 99 (83%), Referenced to phase 1:NBSB, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.84
Intersection Signal Delay: 22.4 Intersection LOS: C
Intersection Capacity Utilization 63.8% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 4: North Washington Street & Valenti Way/Thatcher Street

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations													
Traffic Volume (vph)	0	0	0	160	198	0	0	0	0	0	162	33	
Future Volume (vph)	0	0	0	160	198	0	0	0	0	0	162	33	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	11	12	12	12	12	12	12	12	12	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95	
Ped Bike Factor											0.98		
Frt											0.975		
Flt Protected				0.950									
Satd. Flow (prot)	0	0	0	1264	1354	0	0	0	0	0	2687	0	
Flt Permitted				0.950									
Satd. Flow (perm)	0	0	0	1264	1354	0	0	0	0	0	2687	0	
Right Turn on Red			Yes	Yes		Yes			Yes			Yes	
Satd. Flow (RTOR)				178							16		
Link Speed (mph)		25			25			30			30		
Link Distance (ft)		227			181			221			528		
Travel Time (s)		6.2			4.9			5.0			12.0		
Confl. Bikes (#/hr)						6						35	
Peak Hour Factor	0.92	0.92	0.92	0.90	0.90	0.90	0.92	0.92	0.92	0.76	0.76	0.76	
Heavy Vehicles (%)	0%	0%	0%	18%	20%	0%	0%	0%	0%	0%	16%	14%	
Adj. Flow (vph)	0	0	0	178	220	0	0	0	0	0	213	43	
Shared Lane Traffic (%)				0%									
Lane Group Flow (vph)	0	0	0	178	220	0	0	0	0	0	256	0	
Turn Type				Split	NA						NA		
Protected Phases				1	1						5		2
Permitted Phases													
Detector Phase				1	1						5		
Switch Phase													
Minimum Initial (s)				5.0	5.0						5.0		8.0
Minimum Split (s)				19.0	19.0						19.0		18.0
Total Split (s)				81.0	81.0						21.0		18.0
Total Split (%)				67.5%	67.5%						17.5%		15%
Maximum Green (s)				77.0	77.0						17.0		14.0
Yellow Time (s)				3.0	3.0						3.0		4.0
All-Red Time (s)				1.0	1.0						1.0		0.0
Lost Time Adjust (s)				0.0	0.0						0.0		
Total Lost Time (s)				4.0	4.0						4.0		
Lead/Lag				Lead	Lead								Lag
Lead-Lag Optimize?													
Vehicle Extension (s)				2.0	2.0						2.0		2.0
Recall Mode				C-Max	C-Max						Max		None
Walk Time (s)				7.0	7.0						7.0		7.0
Flash Dont Walk (s)				6.0	6.0						7.0		7.0
Pedestrian Calls (#/hr)				0	0						0		500
Act Effct Green (s)				77.0	77.0						17.0		
Actuated g/C Ratio				0.64	0.64						0.14		
v/c Ratio				0.20	0.25						0.65		
Control Delay				0.9	3.1						54.1		
Queue Delay				3.1	5.0						0.0		
Total Delay				4.0	8.1						54.1		
LOS				A	A						D		
Approach Delay					6.3						54.1		
Approach LOS					A						D		
Queue Length 50th (ft)				0	8						93		
Queue Length 95th (ft)				0	23						114		
Internal Link Dist (ft)		147			101			141			448		
Turn Bay Length (ft)													
Base Capacity (vph)				874	868						394		
Starvation Cap Reductn				594	574						0		
Spillback Cap Reductn				0	0						0		
Storage Cap Reductn				0	0						0		
Reduced v/c Ratio				0.64	0.75						0.65		

Intersection Summary

Area Type: CBD
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 59 (49%), Referenced to phase 1:WBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.65
Intersection Signal Delay: 25.0 Intersection LOS: C
Intersection Capacity Utilization 24.4% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 5: Beverly St & Valenti Way

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations								
Traffic Volume (vph)	0	50	318	0	0	0	0	812
Future Volume (vph)	0	50	318	0	0	0	0	812
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.88
Frt		0.865						0.850
Flt Protected								
Satd. Flow (prot)	0	1422	2954	0	0	0	0	2244
Flt Permitted								
Satd. Flow (perm)	0	1422	2954	0	0	0	0	2244
Right Turn on Red		Yes						
Satd. Flow (RTOR)		150						
Link Speed (mph)	25		25			25	25	
Link Distance (ft)	328		169			179	568	
Travel Time (s)	8.9		4.6			4.9	15.5	
Peak Hour Factor	0.88	0.88	0.85	0.85	0.92	0.92	0.97	0.97
Heavy Vehicles (%)	0%	4%	10%	0%	0%	0%	0%	14%
Adj. Flow (vph)	0	57	374	0	0	0	0	837
Shared Lane Traffic (%)								
Lane Group Flow (vph)	0	57	374	0	0	0	0	837
Turn Type		Prot	NA					Prot
Protected Phases		2	3					1
Permitted Phases								
Detector Phase		2	3					1
Switch Phase								
Minimum Initial (s)		8.0	8.0					8.0
Minimum Split (s)		17.0	17.0					19.0
Total Split (s)		17.0	35.0					58.0
Total Split (%)		15.5%	31.8%					52.7%
Maximum Green (s)		13.0	31.0					54.0
Yellow Time (s)		3.0	3.0					3.0
All-Red Time (s)		1.0	1.0					1.0
Lost Time Adjust (s)		-1.0	-1.0					-1.0
Total Lost Time (s)		3.0	3.0					3.0
Lead/Lag		Lead	Lag					
Lead-Lag Optimize?								
Vehicle Extension (s)		2.0	2.0					2.0
Recall Mode		None	Max					C-Max
Walk Time (s)		7.0	7.0					7.0
Flash Dont Walk (s)		5.0	5.0					5.0
Pedestrian Calls (#/hr)		0	0					0
Act Effct Green (s)		9.0	32.0					62.4
Actuated g/C Ratio		0.08	0.29					0.57
v/c Ratio		0.22	0.44					0.66
Control Delay		2.0	33.6					10.3
Queue Delay		0.0	0.0					0.0
Total Delay		2.0	33.6					10.3
LOS		A	C					B
Approach Delay			33.6					
Approach LOS			C					
Queue Length 50th (ft)		0	112					75
Queue Length 95th (ft)		0	148					88
Internal Link Dist (ft)	248		89			99	488	
Turn Bay Length (ft)								
Base Capacity (vph)		311	859					1273
Starvation Cap Reductn		0	0					0
Spillback Cap Reductn		0	0					0
Storage Cap Reductn		0	0					0
Reduced v/c Ratio		0.18	0.44					0.66

Intersection Summary

Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 74 (67%), Referenced to phase 1:NWR, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.66
Intersection Signal Delay: 16.8 Intersection LOS: B
Intersection Capacity Utilization 58.0% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 6: I-93 Off-Ramps & Cross Street & Cooper Street

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	322	0	0	1363	0
Future Volume (vph)	0	322	0	0	1363	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.76	1.00	1.00	0.91	1.00
Frt		0.850				
Flt Protected						
Satd. Flow (prot)	0	3347	0	0	4715	0
Flt Permitted						
Satd. Flow (perm)	0	3347	0	0	4715	0
Right Turn on Red		No				Yes
Satd. Flow (RTOR)						
Link Speed (mph)	30			25	25	
Link Distance (ft)	221			242	141	
Travel Time (s)	5.0			6.6	3.8	
Peak Hour Factor	0.96	0.96	0.92	0.92	0.96	0.96
Heavy Vehicles (%)	0%	10%	0%	0%	10%	0%
Adj. Flow (vph)	0	335	0	0	1420	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	335	0	0	1420	0
Turn Type		Prot			NA	
Protected Phases		5			1	
Permitted Phases						
Detector Phase		5			1	
Switch Phase						
Minimum Initial (s)		8.0			8.0	
Minimum Split (s)		23.0			20.0	
Total Split (s)		35.0			85.0	
Total Split (%)		29.2%			70.8%	
Maximum Green (s)		30.0			80.0	
Yellow Time (s)		3.0			3.0	
All-Red Time (s)		2.0			2.0	
Lost Time Adjust (s)		-1.0			-1.0	
Total Lost Time (s)		4.0			4.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)		2.0			2.0	
Recall Mode		Max			C-Max	
Walk Time (s)		7.0			7.0	
Flash Dont Walk (s)		10.0			5.0	
Pedestrian Calls (#/hr)		0			0	
Act Effct Green (s)		31.0			81.0	
Actuated g/C Ratio		0.26			0.68	
v/c Ratio		0.39			0.45	
Control Delay		17.7			2.3	
Queue Delay		1.7			0.2	
Total Delay		19.4			2.5	
LOS		B			A	
Approach Delay					2.5	
Approach LOS					A	
Queue Length 50th (ft)		85			6	
Queue Length 95th (ft)		123			7	
Internal Link Dist (ft)	141			162	61	
Turn Bay Length (ft)						
Base Capacity (vph)		864			3182	
Starvation Cap Reductn		360			777	
Spillback Cap Reductn		106			322	
Storage Cap Reductn		0			0	
Reduced v/c Ratio		0.66			0.59	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 100 (83%), Referenced to phase 1:SBT, Start of Green
Natural Cycle: 45
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.45
Intersection Signal Delay: 5.7 Intersection LOS: A
Intersection Capacity Utilization 40.5% ICU Level of Service A
Analysis Period (min) 15

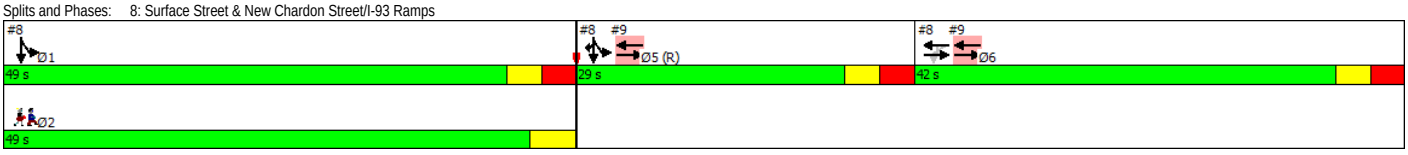
Splits and Phases: 7: Surface Street & Beverly St

Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø1	Ø2
Lane Configurations															
Traffic Volume (vph)	0	471	38	37	21	608	0	0	0	0	875	367	443		
Future Volume (vph)	0	471	38	37	21	608	0	0	0	0	875	367	443		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900		
Lane Width (ft)	12	12	12	12	12	14	12	12	12	12	12	11	13		
Lane Util. Factor	1.00	0.91	0.91	0.95	0.95	0.95	1.00	1.00	1.00	1.00	0.95	0.95	0.88		
Ped Bike Factor		1.00				1.00					1.00	1.00			
Frt		0.989											0.850		
Flt Protected						0.996					0.950	0.974			
Satd. Flow (prot)	0	4283	0	0	0	3395	0	0	0	0	1403	1356	2470		
Flt Permitted						0.762					0.950	0.974			
Satd. Flow (perm)	0	4283	0	0	0	2597	0	0	0	0	1399	1354	2470		
Right Turn on Red			No				Yes			Yes			No		
Satd. Flow (RTOR)															
Link Speed (mph)		25				25			25			25			
Link Distance (ft)		184				338			438			242			
Travel Time (s)		5.0				9.2			11.9			6.6			
Confl. Peds. (#/hr)			1		1						1		191		
Confl. Bikes (#/hr)													93		
Peak Hour Factor	0.80	0.80	0.80	0.84	0.84	0.84	0.84	0.92	0.92	0.92	0.96	0.96	0.96		
Heavy Vehicles (%)	0%	7%	16%	11%	5%	1%	0%	0%	0%	0%	10%	16%	7%		
Adj. Flow (vph)	0	589	48	44	25	724	0	0	0	0	911	382	461		
Shared Lane Traffic (%)											48%				
Lane Group Flow (vph)	0	637	0	0	0	793	0	0	0	0	474	819	461		
Turn Type		NA		Perm	Perm	NA					Split	NA	custom		
Protected Phases		6				6					1 5	1 5	5	1	2
Permitted Phases				6	6										
Detector Phase		6		6	6	6					1 5	1 5	5		
Switch Phase															
Minimum Initial (s)		8.0		8.0	8.0	8.0							8.0	8.0	8.0
Minimum Split (s)		23.0		23.0	23.0	23.0							22.0	23.0	30.0
Total Split (s)		42.0		42.0	42.0	42.0							29.0	49.0	49.0
Total Split (%)		35.0%		35.0%	35.0%	35.0%							24.2%	41%	41%
Maximum Green (s)		36.0		36.0	36.0	36.0							23.0	43.0	45.0
Yellow Time (s)		3.0		3.0	3.0	3.0							3.0	3.0	4.0
All-Red Time (s)		3.0		3.0	3.0	3.0							3.0	3.0	0.0
Lost Time Adjust (s)		-2.0				-2.0							-2.0		
Total Lost Time (s)		4.0				4.0							4.0		
Lead/Lag		Lag		Lag	Lag	Lag							Lead		
Lead-Lag Optimize?															
Vehicle Extension (s)		2.0		2.0	2.0	2.0							2.0	2.0	2.0
Recall Mode		None		None	None	None							C-Max	None	None
Walk Time (s)		7.0		7.0	7.0	7.0								7.0	7.0
Flash Dont Walk (s)		7.0		7.0	7.0	7.0								7.0	19.0
Pedestrian Calls (#/hr)		0		0	0	0								0	500
Act Effct Green (s)		38.0				38.0					74.0	74.0	25.0		
Actuated g/C Ratio		0.32				0.32					0.62	0.62	0.21		
v/c Ratio		0.47				0.96					0.55	0.98	0.90		
Control Delay		19.3				64.7					13.0	45.5	58.2		
Queue Delay		1.2				0.0					1.4	26.2	36.1		
Total Delay		20.4				64.7					14.5	71.8	94.3		
LOS		C				E					B	E	F		
Approach Delay		20.4				64.7						62.2			
Approach LOS		C				E						E			
Queue Length 50th (ft)		156				317					156	336	203		
Queue Length 95th (ft)		171				#396					262	#917	#298		
Internal Link Dist (ft)		104				258			358			162			
Turn Bay Length (ft)															
Base Capacity (vph)		1356				822					865	836	514		
Starvation Cap Reductn		470				0					214	69	82		
Spillback Cap Reductn		0				0					0	0	0		
Storage Cap Reductn		0				0					0	0	0		
Reduced v/c Ratio		0.72				0.96					0.73	1.07	1.07		

Intersection Summary

Area Type: CBD
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 5:SBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.98
Intersection Signal Delay: 54.5 Intersection LOS: D
Intersection Capacity Utilization 79.3% 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.

Splits and Phases: 8: Surface Street & New Chardon Street/I-93 Ramps

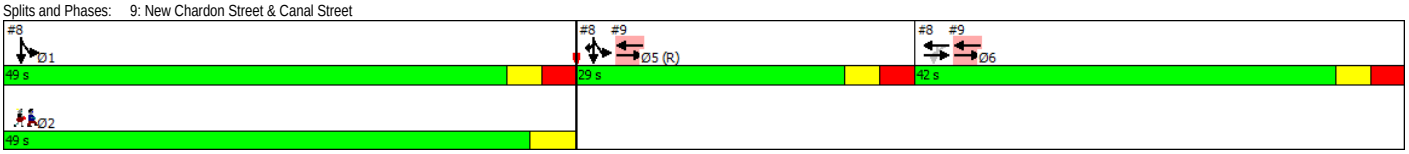


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø2	Ø5	Ø6
Lane Configurations										
Traffic Volume (vph)	0	509	1030	21	0	0				
Future Volume (vph)	0	509	1030	21	0	0				
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900				
Lane Util. Factor	1.00	0.95	0.91	0.91	1.00	1.00				
Ped Bike Factor			1.00							
Frt			0.997							
Flt Protected										
Satd. Flow (prot)	0	3008	4467	0	0	0				
Flt Permitted										
Satd. Flow (perm)	0	3008	4467	0	0	0				
Right Turn on Red				Yes		Yes				
Satd. Flow (RTOR)			4							
Link Speed (mph)		25	25		25					
Link Distance (ft)		287	184		238					
Travel Time (s)		7.8	5.0		6.5					
Confl. Bikes (#/hr)				10						
Peak Hour Factor	0.81	0.81	0.98	0.98	0.92	0.92				
Heavy Vehicles (%)	0%	8%	4%	11%	0%	0%				
Adj. Flow (vph)	0	628	1051	21	0	0				
Shared Lane Traffic (%)										
Lane Group Flow (vph)	0	628	1072	0	0	0				
Turn Type		NA	NA							
Protected Phases		5 6	5 6				1	2	5	6
Permitted Phases										
Detector Phase		5 6	5 6							
Switch Phase										
Minimum Initial (s)							8.0	8.0	8.0	8.0
Minimum Split (s)							23.0	30.0	22.0	23.0
Total Split (s)							49.0	49.0	29.0	42.0
Total Split (%)							41%	41%	24%	35%
Maximum Green (s)							43.0	45.0	23.0	36.0
Yellow Time (s)							3.0	4.0	3.0	3.0
All-Red Time (s)							3.0	0.0	3.0	3.0
Lost Time Adjust (s)										
Total Lost Time (s)										
Lead/Lag									Lead	Lag
Lead-Lag Optimize?										
Vehicle Extension (s)							2.0	2.0	2.0	2.0
Recall Mode							None	None	C-Max	None
Walk Time (s)							7.0	7.0		7.0
Flash Dont Walk (s)							7.0	19.0		7.0
Pedestrian Calls (#/hr)							0	500		0
Act Effct Green (s)		67.0	67.0							
Actuated g/C Ratio		0.56	0.56							
v/c Ratio		0.37	0.43							
Control Delay		22.7	3.1							
Queue Delay		2.8	1.6							
Total Delay		25.6	4.7							
LOS		C	A							
Approach Delay		25.6	4.7							
Approach LOS		C	A							
Queue Length 50th (ft)		188	0							
Queue Length 95th (ft)		m199	m0							
Internal Link Dist (ft)		207	104		158					
Turn Bay Length (ft)										
Base Capacity (vph)		1679	2495							
Starvation Cap Reductn		910	1183							
Spillback Cap Reductn		513	162							
Storage Cap Reductn		0	0							
Reduced v/c Ratio		0.82	0.82							

Intersection Summary

Area Type: CBD
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 5:SBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.98
Intersection Signal Delay: 12.4 Intersection LOS: B
Intersection Capacity Utilization 26.0% ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 9: New Chardon Street & Canal Street



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (vph)	71	213	36	390	553	72	659	294	182	9	97	207	171
Future Volume (vph)	71	213	36	390	553	72	659	294	182	9	97	207	171
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	10	12	12	10	10	16	12	11	11	16
Storage Length (ft)	0		0	0		0	0		150		0		150
Storage Lanes	0		0	1		0	1		1		0		1
Taper Length (ft)	25			25			25				25		
Lane Util. Factor	0.95	0.95	0.95	1.00	0.95	0.95	0.91	0.91	1.00	0.91	0.91	0.91	1.00
Ped Bike Factor		0.91		0.69	0.98		0.78	0.88				0.93	0.59
Frt		0.983			0.983				0.850				0.850
Flt Protected		0.989		0.950			0.950	0.974				0.983	
Satd. Flow (prot)	0	2617	0	1430	3037	0	1289	2656	1569	0	0	3948	1647
Flt Permitted		0.989		0.950			0.950	0.974				0.983	
Satd. Flow (perm)	0	2537	0	990	3037	0	1004	2345	1569	0	0	3670	967
Right Turn on Red			Yes			Yes			No				Yes
Satd. Flow (RTOR)		10			12								199
Link Speed (mph)		25			25			25				25	
Link Distance (ft)		341			287			468				998	
Travel Time (s)		9.3			7.8			12.8				27.2	
Confl. Peds. (#/hr)	152		432	432		152	265		1136		1136		265
Confl. Bikes (#/hr)			1			17			10				64
Peak Hour Factor	0.84	0.84	0.84	0.97	0.97	0.97	0.91	0.91	0.91	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	14%	14%	10%	6%	3%	4%	7%	6%	5%	11%	9%	14%	0%
Adj. Flow (vph)	85	254	43	402	570	74	724	323	200	10	113	241	199
Shared Lane Traffic (%)							50%						
Lane Group Flow (vph)	0	382	0	402	644	0	362	685	200	0	0	364	199
Turn Type	Split	NA		Split	NA		Split	NA	pt+ov	Perm	Split	NA	Perm
Protected Phases	3	3		2	2		1	1	1 2		4	4	
Permitted Phases										4			4
Detector Phase	3	3		2	2		1	1	1 2	4	4	4	4
Switch Phase													
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	8.0	8.0
Minimum Split (s)	19.0	19.0		15.0	15.0		33.0	33.0		24.0	24.0	24.0	24.0
Total Split (s)	22.0	22.0		40.0	40.0		34.0	34.0		24.0	24.0	24.0	24.0
Total Split (%)	18.3%	18.3%		33.3%	33.3%		28.3%	28.3%		20.0%	20.0%	20.0%	20.0%
Maximum Green (s)	15.0	15.0		34.0	34.0		28.0	28.0		16.0	16.0	16.0	16.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0
All-Red Time (s)	4.0	4.0		3.0	3.0		3.0	3.0		5.0	5.0	5.0	5.0
Lost Time Adjust (s)		-2.0		-2.0	-2.0		-2.0	-2.0				-2.0	0.0
Total Lost Time (s)		5.0		4.0	4.0		4.0	4.0				6.0	8.0
Lead/Lag	Lag	Lag		Lead	Lead								
Lead-Lag Optimize?													
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0
Recall Mode	C-Max	C-Max		Max	Max		None	None		Max	Max	Max	Max
Walk Time (s)	7.0	7.0					7.0	7.0		7.0	7.0	7.0	7.0
Flash Dont Walk (s)	4.0	4.0					17.0	17.0		8.0	8.0	8.0	8.0
Pedestrian Calls (#/hr)	0	0					0	0		0	0	0	0
Act Effct Green (s)		17.0		36.0	36.0		30.0	30.0	70.0			18.0	16.0
Actuated g/C Ratio		0.14		0.30	0.30		0.25	0.25	0.58			0.15	0.13
v/c Ratio		1.01		0.94	0.70		1.12	1.08dl	0.22			0.61	0.66
Control Delay		98.3		48.8	18.6		127.5	87.7	3.6			52.8	18.0
Queue Delay		0.0		0.0	1.0		0.0	0.0	0.0			0.2	0.0
Total Delay		98.3		48.8	19.6		127.5	87.7	3.6			53.0	18.0
LOS		F		D	B		F	F	A			D	B
Approach Delay		98.3			30.8			85.8				40.7	
Approach LOS		F			C			F				D	
Queue Length 50th (ft)		~155		230	145		~339	~241	14			97	0
Queue Length 95th (ft)		#234		#490	216		#552	#428	m19			127	66
Internal Link Dist (ft)		261			207			388				918	
Turn Bay Length (ft)									150				150
Base Capacity (vph)		379		429	919		322	664	915			592	301
Starvation Cap Reductn		0		0	102		0	0	0			0	0
Spillback Cap Reductn		0		0	0		0	0	49			25	0
Storage Cap Reductn		0		0	0		0	0	0			0	0
Reduced v/c Ratio		1.01		0.94	0.79		1.12	1.03	0.23			0.64	0.66

Intersection Summary

Area Type: CBD
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 74 (62%), Referenced to phase 3:EBTL, Start of Green
Natural Cycle: 115
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.12
Intersection Signal Delay: 61.7 Intersection LOS: E
Intersection Capacity Utilization 83.8% ICU Level of Service E
Analysis Period (min) 15

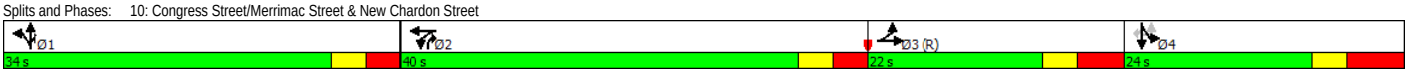
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

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

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

Splits and Phases: 10: Congress Street/Merrimac Street & New Chardon Street



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	142	0	0	1383	54	178
Future Volume (vph)	142	0	0	1383	54	178
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Ped Bike Factor						
Frt					0.896	
Flt Protected					0.988	
Satd. Flow (prot)	3343	0	0	3438	1682	0
Flt Permitted					0.988	
Satd. Flow (perm)	3343	0	0	3438	1682	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)					133	
Link Speed (mph)	25			30	30	
Link Distance (ft)	207			341	186	
Travel Time (s)	5.6			7.8	4.2	
Confl. Bikes (#/hr)		2				
Peak Hour Factor	0.87	0.87	0.92	0.92	0.86	0.86
Heavy Vehicles (%)	8%	0%	0%	5%	0%	0%
Adj. Flow (vph)	163	0	0	1503	63	207
Shared Lane Traffic (%)						
Lane Group Flow (vph)	163	0	0	1503	270	0
Turn Type	NA			NA	Prot	
Protected Phases	1			1	2	
Permitted Phases						
Detector Phase	1			1	2	
Switch Phase						
Minimum Initial (s)	4.0			4.0	4.0	
Minimum Split (s)	8.0			8.0	22.0	
Total Split (s)	85.0			85.0	25.0	
Total Split (%)	77.3%			77.3%	22.7%	
Maximum Green (s)	81.0			81.0	21.0	
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			Lead	Lag	
Lead-Lag Optimize?						
Vehicle Extension (s)	2.0			2.0	2.0	
Recall Mode	C-Max			C-Max	None	
Walk Time (s)					7.0	
Flash Dont Walk (s)					11.0	
Pedestrian Calls (#/hr)					0	
Act Effct Green (s)	88.2			88.2	13.8	
Actuated g/C Ratio	0.80			0.80	0.13	
v/c Ratio	0.06			0.55	0.83	
Control Delay	2.9			5.4	43.6	
Queue Delay	0.0			2.5	0.0	
Total Delay	2.9			7.8	43.6	
LOS	A			A	D	
Approach Delay	2.9			7.8	43.6	
Approach LOS	A			A	D	
Queue Length 50th (ft)	10			157	95	
Queue Length 95th (ft)	22			276	165	
Internal Link Dist (ft)	127			261	106	
Turn Bay Length (ft)						
Base Capacity (vph)	2681			2757	428	
Starvation Cap Reductn	0			1086	0	
Spillback Cap Reductn	0			0	0	
Storage Cap Reductn	0			0	0	
Reduced v/c Ratio	0.06			0.90	0.63	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 0 (0%), Referenced to phase 1:EBWB, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.83
Intersection Signal Delay: 12.4 Intersection LOS: B
Intersection Capacity Utilization 58.9% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 13: Bowker Street & New Chardon Street

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	142	28	621	816	0	0
Future Volume (Veh/h)	142	28	621	816	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.89	0.89	0.97	0.97	0.56	0.56
Hourly flow rate (vph)	160	31	640	841	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	579			207		
pX, platoon unblocked					0.84	
vC, conflicting volume			191		1876	96
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			191		1667	96
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			54		100	100
cM capacity (veh/h)			1380		40	949

Direction, Lane #	EB 1	EB 2	WB 1	WB 2
Volume Total	107	84	920	561
Volume Left	0	0	640	0
Volume Right	0	31	0	0
cSH	1700	1700	1380	1700
Volume to Capacity	0.06	0.05	0.46	0.33
Queue Length 95th (ft)	0	0	63	0
Control Delay (s)	0.0	0.0	8.5	0.0
Lane LOS			A	
Approach Delay (s)	0.0		5.3	
Approach LOS				

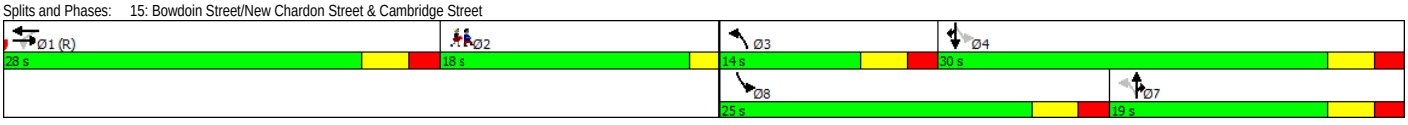
Intersection Summary				
Average Delay	4.7			
Intersection Capacity Utilization	52.1%	ICU Level of Service	A	
Analysis Period (min)	15			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations													
Traffic Volume (vph)	0	692	93	21	199	31	153	138	110	325	195	296	
Future Volume (vph)	0	692	93	21	199	31	153	138	110	325	195	296	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	0		0	0		0	0		100	0		100	
Storage Lanes	0		0	0		0	1		1	1		1	
Taper Length (ft)	25			25			25			25			
Lane Util. Factor	1.00	0.91	0.91	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor		0.95			0.95				0.61			0.75	
Frt		0.982			0.981				0.850			0.850	
Flt Protected					0.996		0.950			0.950			
Satd. Flow (prot)	0	4537	0	0	3140	0	1612	1759	1482	1719	1845	1524	
Flt Permitted					0.856		0.630			0.383			
Satd. Flow (perm)	0	4537	0	0	2698	0	1069	1759	909	693	1845	1136	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)		26			17				170			308	
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		236			438			364			579		
Travel Time (s)		5.4			10.0			8.3			13.2		
Confl. Peds. (#/hr)			530			756			361			229	
Confl. Bikes (#/hr)			105			21			6				
Peak Hour Factor	0.93	0.93	0.93	0.86	0.86	0.86	0.94	0.94	0.94	0.96	0.96	0.96	
Heavy Vehicles (%)	100%	7%	6%	21%	2%	25%	12%	8%	9%	5%	3%	6%	
Adj. Flow (vph)	0	744	100	24	231	36	163	147	117	339	203	308	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	844	0	0	291	0	163	147	117	339	203	308	
Turn Type		NA		Perm	NA		pm+pt	NA	custom	pm+pt	NA	custom	
Protected Phases		1			1		3	7	7	8	4	4	2
Permitted Phases				1			7		7	4		4	
Detector Phase		1		1	1		3	7	7	8	4	4	
Switch Phase													
Minimum Initial (s)		8.0		8.0	8.0		8.0	8.0	8.0	8.0	8.0	8.0	1.0
Minimum Split (s)		28.0		28.0	28.0		13.0	13.0	13.0	13.0	13.0	13.0	18.0
Total Split (s)		28.0		28.0	28.0		14.0	19.0	19.0	25.0	30.0	30.0	18.0
Total Split (%)		31.1%		31.1%	31.1%		15.6%	21.1%	21.1%	27.8%	33.3%	33.3%	20%
Maximum Green (s)		23.0		23.0	23.0		9.0	14.0	14.0	20.0	25.0	25.0	16.0
Yellow Time (s)		3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	2.0
All-Red Time (s)		2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	0.0
Lost Time Adjust (s)		0.0			0.0		0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		5.0			5.0		5.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag		Lead		Lead	Lead		Lead	Lag	Lag	Lead	Lag	Lag	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	2.0
Recall Mode		C-Max		C-Max	C-Max		None	None	None	None	None	None	None
Walk Time (s)		7.0		7.0	7.0								7.0
Flash Dont Walk (s)		16.0		16.0	16.0								9.0
Pedestrian Calls (#/hr)		0		0	0								20
Act Effct Green (s)		38.6			38.6		20.9	11.5	11.5	34.2	19.8	19.8	
Actuated g/C Ratio		0.43			0.43		0.23	0.13	0.13	0.38	0.22	0.22	
v/c Ratio		0.43			0.25		0.54	0.66	0.35	0.73	0.50	0.54	
Control Delay		26.7			9.9		26.7	51.2	4.8	30.6	34.1	6.9	
Queue Delay		0.7			0.0		0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay		27.4			9.9		26.7	51.2	4.8	30.6	34.1	6.9	
LOS		C			A		C	D	A	C	C	A	
Approach Delay		27.4			9.9			29.1			22.9		
Approach LOS		C			A			C			C		
Queue Length 50th (ft)		31			23		61	81	0	141	102	0	
Queue Length 95th (ft)		m217			16		100	139	19	207	156	60	
Internal Link Dist (ft)		156			358			284			499		
Turn Bay Length (ft)									100			100	
Base Capacity (vph)		1959			1166		308	273	374	491	512	645	
Starvation Cap Reductn		712			0		0	0	0	0	0	0	
Spillback Cap Reductn		0			24		0	0	0	0	0	2	
Storage Cap Reductn		0			0		0	0	0	0	0	0	
Reduced v/c Ratio		0.68			0.25		0.53	0.54	0.31	0.69	0.40	0.48	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 1:EBWB, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.73
Intersection Signal Delay: 24.0 Intersection LOS: C
Intersection Capacity Utilization 66.5% ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 15: Bowdoin Street/New Chardon Street & Cambridge Street

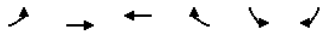


Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations														
Traffic Volume (vph)	19	268	562	278	18	108	210	121	21	33	11	0	0	0
Future Volume (vph)	19	268	562	278	18	108	210	121	21	33	11	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0		0		100		100	0		0	0		0
Storage Lanes		2		0		1		1	0		0	0		0
Taper Length (ft)		25				25			25			25		
Lane Util. Factor	0.95	0.97	0.95	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.88					0.66		0.93				
Frt			0.950					0.850		0.977				
Flt Protected		0.950				0.950				0.984				
Satd. Flow (prot)	0	3346	2846	0	0	1689	3374	1455	0	1633	0	0	0	0
Flt Permitted		0.603				0.327				0.984				
Satd. Flow (perm)	0	2124	2846	0	0	581	3374	966	0	1633	0	0	0	0
Right Turn on Red				Yes				Yes			Yes			Yes
Satd. Flow (RTOR)			94					138		9				
Link Speed (mph)			30				30			30			30	
Link Distance (ft)			438				763			259			584	
Travel Time (s)			10.0				17.3			5.9			13.3	
Confl. Peds. (#/hr)				154				377			241			
Confl. Bikes (#/hr)				60				6			2			
Peak Hour Factor	0.97	0.97	0.97	0.97	0.88	0.88	0.88	0.88	0.69	0.69	0.69	0.92	0.92	0.92
Heavy Vehicles (%)	0%	5%	6%	5%	0%	8%	7%	11%	0%	5%	9%	0%	0%	0%
Adj. Flow (vph)	20	276	579	287	20	123	239	138	30	48	16	0	0	0
Shared Lane Traffic (%)														
Lane Group Flow (vph)	0	296	866	0	0	143	239	138	0	94	0	0	0	0
Turn Type	custom	Prot	NA		custom	Prot	NA	Perm	Perm	NA				
Protected Phases		2	1			6	1			5				
Permitted Phases	2				6			1	5					
Detector Phase	2	2	1		6	6	1	1	5	5				
Switch Phase														
Minimum Initial (s)	8.0	8.0	8.0		8.0	8.0	8.0	8.0	8.0	8.0				
Minimum Split (s)	22.0	22.0	27.0		12.0	12.0	27.0	27.0	12.0	12.0				
Total Split (s)	22.0	22.0	29.0		27.0	27.0	29.0	29.0	12.0	12.0				
Total Split (%)	24.4%	24.4%	32.2%		30.0%	30.0%	32.2%	32.2%	13.3%	13.3%				
Maximum Green (s)	18.0	18.0	25.0		23.0	23.0	25.0	25.0	8.0	8.0				
Yellow Time (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0				
All-Red Time (s)	1.0	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	0.0		0.0				
Total Lost Time (s)		4.0	4.0			4.0	4.0	4.0		4.0				
Lead/Lag	Lag	Lag	Lead		Lag	Lag	Lead	Lead	Lead	Lead				
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		None	None	C-Max	C-Max	None	None				
Walk Time (s)	7.0	7.0	7.0				7.0	7.0						
Flash Dont Walk (s)	11.0	11.0	16.0				16.0	16.0						
Pedestrian Calls (#/hr)	0	0	0				0	0						
Act Effct Green (s)		15.7	28.7			23.8	28.7	28.7		8.2				
Actuated g/C Ratio		0.17	0.32			0.26	0.32	0.32		0.09				
v/c Ratio		0.80	0.89			0.93	0.22	0.34		0.60				
Control Delay		45.3	38.5			93.9	24.9	7.4		52.6				
Queue Delay		0.0	0.0			0.0	0.0	0.0		0.0				
Total Delay		45.3	38.5			93.9	24.9	7.4		52.6				
LOS		D	D			F	C	A		D				
Approach Delay			40.2				39.2			52.6				
Approach LOS			D				D			D				
Queue Length 50th (ft)		81	~225			80	55	0		47				
Queue Length 95th (ft)		#138	#349			#192	84	42		72				
Internal Link Dist (ft)			358				683			179			504	
Turn Bay Length (ft)						100		100						
Base Capacity (vph)		424	972			153	1076	402		157				
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		0.70	0.89			0.93	0.22	0.34		0.60				

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 1:EBWB, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.93
Intersection Signal Delay: 40.6 Intersection LOS: D
Intersection Capacity Utilization 50.4% ICU Level of Service A
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: 16: Somerset Street/Sudbury Street & Cambridge Street



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	421	0	0	111	0
Future Volume (Veh/h)	0	421	0	0	111	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	458	0	0	121	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		584				
pX, platoon unblocked					0.95	
vC, conflicting volume	0				229	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0				90	0
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				86	100
cM capacity (veh/h)	1636				863	1091

Direction, Lane #	EB 1	EB 2	SB 1
Volume Total	229	229	121
Volume Left	0	0	121
Volume Right	0	0	0
cSH	1700	1700	863
Volume to Capacity	0.13	0.13	0.14
Queue Length 95th (ft)	0	0	12
Control Delay (s)	0.0	0.0	9.9
Lane LOS			A
Approach Delay (s)	0.0		9.9
Approach LOS			A

Intersection Summary				
Average Delay			2.1	
Intersection Capacity Utilization			24.5%	ICU Level of Service
Analysis Period (min)			15	

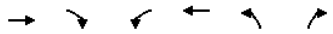
Intersection Sign configuration not allowed in HCM analysis.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (vph)	44	282	157	0	0	0	14	0	1087	159	90	538	0
Future Volume (vph)	44	282	157	0	0	0	14	0	1087	159	90	538	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	11	10	12	12	12	12	11	11	11	10	11	11
Storage Length (ft)	0		0	0		0		0		0	100		0
Storage Lanes	1		0	0		0		0		0	1		0
Taper Length (ft)	25			25				25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	0.91	1.00	0.91	0.91	1.00	0.91	1.00
Ped Bike Factor	0.46	0.81							0.96		0.92		
Frt		0.946							0.981				
Flt Protected	0.950								0.999		0.950		
Satd. Flow (prot)	1392	2162	0	0	0	0	0	0	3965	0	1458	4178	0
Flt Permitted	0.950								0.929		0.950		
Satd. Flow (perm)	641	2162	0	0	0	0	0	0	3687	0	1335	4178	0
Right Turn on Red			Yes			Yes				No			Yes
Satd. Flow (RTOR)		88											
Link Speed (mph)		25			25				25			25	
Link Distance (ft)		153			161				378			468	
Travel Time (s)		4.2			4.4				10.3			12.8	
Confl. Peds. (#/hr)	430		475							674	674		
Confl. Bikes (#/hr)			11							12			59
Peak Hour Factor	0.89	0.89	0.89	0.92	0.92	0.92	0.94	0.94	0.94	0.94	0.88	0.88	0.88
Heavy Vehicles (%)	5%	6%	4%	0%	0%	0%	0%	0%	6%	14%	4%	8%	0%
Parking (#/hr)	0	0											
Adj. Flow (vph)	49	317	176	0	0	0	15	0	1156	169	102	611	0
Shared Lane Traffic (%)													
Lane Group Flow (vph)	49	493	0	0	0	0	0	0	1340	0	102	611	0
Turn Type	Split	NA					Perm		NA		Prot	NA	
Protected Phases	5	5							1		6	1 6	
Permitted Phases							1						
Detector Phase	5	5					1		1		6	1 6	
Switch Phase													
Minimum Initial (s)	8.0	8.0					10.0		10.0		7.0		
Minimum Split (s)	15.0	15.0					17.0		17.0		14.0		
Total Split (s)	37.0	37.0					64.0		64.0		19.0		
Total Split (%)	30.8%	30.8%					53.3%		53.3%		15.8%		
Maximum Green (s)	31.0	31.0					59.0		59.0		13.0		
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		3.0		
Lost Time Adjust (s)	-2.0	-2.0							-2.0		-2.0		
Total Lost Time (s)	4.0	4.0							3.0		4.0		
Lead/Lag	Lead	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		Max		
Walk Time (s)	0.0	0.0											
Flash Dont Walk (s)	8.0	8.0											
Pedestrian Calls (#/hr)	0	0											
Act Effct Green (s)	33.0	33.0							61.0		15.0	80.0	
Actuated g/C Ratio	0.28	0.28							0.51		0.12	0.67	
v/c Ratio	0.13	0.75							0.72		0.56	0.22	
Control Delay	33.9	40.5							25.5		47.3	11.5	
Queue Delay	0.0	0.0							14.2		0.0	0.0	
Total Delay	33.9	40.5							39.7		47.3	11.5	
LOS	C	D							D		D	B	
Approach Delay		39.9							39.7			16.6	
Approach LOS		D							D			B	
Queue Length 50th (ft)	29	152							283		65	73	
Queue Length 95th (ft)	61	216							342		m90	m85	
Internal Link Dist (ft)		73			81				298			388	
Turn Bay Length (ft)											100		
Base Capacity (vph)	382	658							1874		182	2785	
Starvation Cap Reductn	0	0							542		0	0	
Spillback Cap Reductn	0	0							0		0	0	
Storage Cap Reductn	0	0							0		0	0	
Reduced v/c Ratio	0.13	0.75							1.01		0.56	0.22	

Intersection Summary

Area Type: CBD
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.75
Intersection Signal Delay: 33.4 Intersection LOS: C
Intersection Capacity Utilization 68.2% ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 19: Congress Street & Sudbury Street



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	448	83	0	0	0	19
Future Volume (Veh/h)	448	83	0	0	0	19
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.89	0.89	0.92	0.92	0.59	0.59
Hourly flow rate (vph)	503	93	0	0	0	32
Pedestrians					148	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					12	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	161			111		
pX, platoon unblocked						
vC, conflicting volume			744		698	362
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			744		698	362
tC, single (s)			4.1		6.8	7.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.5
p0 queue free %			100		100	94
cM capacity (veh/h)			765		333	522

Direction, Lane #	EB 1	EB 2	EB 3	NB 1
Volume Total	201	201	194	32
Volume Left	0	0	0	0
Volume Right	0	0	93	32
cSH	1700	1700	1700	522
Volume to Capacity	0.12	0.12	0.11	0.06
Queue Length 95th (ft)	0	0	0	5
Control Delay (s)	0.0	0.0	0.0	12.3
Lane LOS				B
Approach Delay (s)	0.0			12.3
Approach LOS				B

Intersection Summary				
Average Delay			0.6	
Intersection Capacity Utilization			23.3%	ICU Level of Service
Analysis Period (min)			15	

Lane Group	EBT	EBR	SBL	SBT	SEL
Lane Configurations					
Traffic Volume (vph)	343	124	31	394	21
Future Volume (vph)	343	124	31	394	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	12	12	12
Lane Util. Factor	0.95	1.00	0.95	0.95	1.00
Ped Bike Factor		0.66		0.98	
Frt		0.850			
Flt Protected				0.996	0.950
Satd. Flow (prot)	3116	1482	0	3241	926
Flt Permitted				0.996	0.950
Satd. Flow (perm)	3116	971	0	3166	926
Right Turn on Red		Yes	No		
Satd. Flow (RTOR)		133			
Link Speed (mph)	25			25	25
Link Distance (ft)	111			438	138
Travel Time (s)	3.0			11.9	3.8
Confl. Peds. (#/hr)		180	134		
Confl. Bikes (#/hr)		1			
Peak Hour Factor	0.93	0.93	0.86	0.86	0.62
Heavy Vehicles (%)	12%	9%	10%	11%	95%
Adj. Flow (vph)	369	133	36	458	34
Shared Lane Traffic (%)					
Lane Group Flow (vph)	369	133	0	494	34
Turn Type	NA	Perm	Perm	NA	Prot
Protected Phases	1			3	4
Permitted Phases		1	3		
Detector Phase	1	1	3	3	4
Switch Phase					
Minimum Initial (s)	10.0	10.0	10.0	10.0	6.0
Minimum Split (s)	21.0	21.0	18.0	18.0	13.0
Total Split (s)	42.0	42.0	41.0	41.0	27.0
Total Split (%)	38.2%	38.2%	37.3%	37.3%	24.5%
Maximum Green (s)	38.0	38.0	35.0	35.0	21.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	3.0	3.0	3.0
Lost Time Adjust (s)	-1.0	-1.0		-2.0	0.0
Total Lost Time (s)	3.0	3.0		4.0	6.0
Lead/Lag			Lead	Lead	Lag
Lead-Lag Optimize?					
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0
Recall Mode	C-Max	C-Max	Max	Max	Max
Walk Time (s)	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)	5.0	5.0	4.0	4.0	
Pedestrian Calls (#/hr)	0	0	25	25	
Act Effct Green (s)	39.0	39.0		37.0	21.0
Actuated g/C Ratio	0.35	0.35		0.34	0.19
v/c Ratio	0.33	0.31		0.46	0.19
Control Delay	27.1	6.4		30.5	40.8
Queue Delay	1.8	0.5		0.0	0.0
Total Delay	28.9	6.9		30.5	40.8
LOS	C	A		C	D
Approach Delay	23.0			30.5	40.8
Approach LOS	C			C	D
Queue Length 50th (ft)	99	0		143	20
Queue Length 95th (ft)	140	42		183	34
Internal Link Dist (ft)	31			358	58
Turn Bay Length (ft)					
Base Capacity (vph)	1104	430		1064	176
Starvation Cap Reductn	559	95		0	0
Spillback Cap Reductn	12	0		0	0
Storage Cap Reductn	0	0		0	0
Reduced v/c Ratio	0.68	0.40		0.46	0.19

Intersection Summary

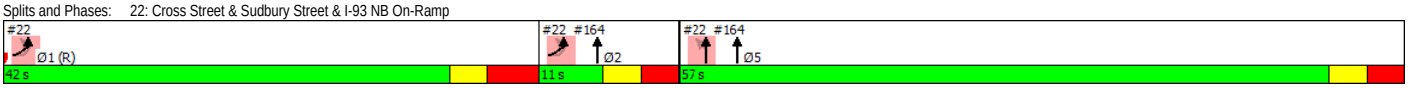
Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 10 (9%), Referenced to phase 1:EBT, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.46
Intersection Signal Delay: 27.2 — Intersection LOS: C
Intersection Capacity Utilization 38.5% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 21: Surface Street & Sudbury Street & Haymarket Bus Exit

Lane Group	EBL2	EBL	EBR	NBL	NBT	SBT	SBR	SEL	SER	Ø1	Ø2
Lane Configurations											
Traffic Volume (vph)	273	122	0	164	690	0	0	0	0		
Future Volume (vph)	273	122	0	164	690	0	0	0	0		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900		
Lane Width (ft)	12	13	12	12	11	12	12	12	12		
Lane Util. Factor	0.95	0.97	1.00	0.95	0.95	1.00	1.00	1.00	1.00		
Frt											
Flt Protected		0.950			0.990						
Satd. Flow (prot)	0	3144	0	0	3174	0	0	0	0		
Flt Permitted		0.950			0.990						
Satd. Flow (perm)	0	3144	0	0	3174	0	0	0	0		
Right Turn on Red	Yes		Yes								
Satd. Flow (RTOR)		300									
Link Speed (mph)		25			25	25		25			
Link Distance (ft)		191			203	568		237			
Travel Time (s)		5.2			5.5	15.5		6.5			
Peak Hour Factor	0.91	0.91	0.91	0.96	0.96	0.92	0.92	0.92	0.92		
Heavy Vehicles (%)	8%	31%	0%	4%	10%	0%	0%	0%	0%		
Adj. Flow (vph)	300	134	0	171	719	0	0	0	0		
Shared Lane Traffic (%)											
Lane Group Flow (vph)	0	434	0	0	890	0	0	0	0		
Turn Type	Perm	Prot		Perm	NA						
Protected Phases		1 2			5					1	2
Permitted Phases	1 2			5							
Detector Phase	1 2	1 2		5	5						
Switch Phase											
Minimum Initial (s)				10.0	10.0					10.0	4.0
Minimum Split (s)				18.0	18.0					25.0	11.0
Total Split (s)				57.0	57.0					42.0	11.0
Total Split (%)				51.8%	51.8%					38%	10%
Maximum Green (s)				51.0	51.0					35.0	5.0
Yellow Time (s)				3.0	3.0					3.0	3.0
All-Red Time (s)				3.0	3.0					4.0	3.0
Lost Time Adjust (s)					-1.0						
Total Lost Time (s)					5.0						
Lead/Lag										Lead	Lag
Lead-Lag Optimize?											
Vehicle Extension (s)				2.0	2.0					2.0	2.0
Recall Mode				Max	Max					C-Max	Max
Walk Time (s)				7.0	7.0					7.0	
Flash Dont Walk (s)				4.0	4.0					3.0	
Pedestrian Calls (#/hr)				30	30					0	
Act Effct Green (s)		47.0			52.0						
Actuated g/C Ratio		0.43			0.47						
v/c Ratio		0.29			0.59						
Control Delay		1.1			6.8						
Queue Delay		0.4			0.1						
Total Delay		1.4			6.9						
LOS		A			A						
Approach Delay		1.4			6.9						
Approach LOS		A			A						
Queue Length 50th (ft)		0			189						
Queue Length 95th (ft)		2			221						
Internal Link Dist (ft)		111			123	488		157			
Turn Bay Length (ft)											
Base Capacity (vph)		1515			1500						
Starvation Cap Reductn		588			47						
Spillback Cap Reductn		0			0						
Storage Cap Reductn		0			0						
Reduced v/c Ratio		0.47			0.61						

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 16 (15%), Referenced to phase 1:EBL, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.59			
Intersection Signal Delay: 5.1		Intersection LOS: A	
Intersection Capacity Utilization 48.1%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 22: Cross Street & Sudbury Street & I-93 NB On-Ramp



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	28	0	0	94	69	393	789	62	0	0	0
Future Volume (vph)	19	28	0	0	94	69	393	789	62	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	1.00	1.00	0.95	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor	0.78				0.85			0.95				
Frt					0.943			0.992				
Flt Protected	0.950							0.984				
Satd. Flow (prot)	1577	1598	0	0	1287	0	0	2956	0	0	0	0
Flt Permitted	0.529							0.984				
Satd. Flow (perm)	687	1598	0	0	1287	0	0	2882	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					35			9				
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		244			263			292			187	
Travel Time (s)		6.7			7.2			8.0			5.1	
Confl. Peds. (#/hr)	261					261	36		239			
Confl. Bikes (#/hr)			5			19			13			3
Peak Hour Factor	0.77	0.77	0.77	0.80	0.80	0.80	0.89	0.89	0.89	0.92	0.92	0.92
Heavy Vehicles (%)	3%	7%	0%	0%	6%	6%	4%	4%	7%	0%	0%	0%
Parking (#/hr)									0			
Adj. Flow (vph)	25	36	0	0	118	86	442	887	70	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	25	36	0	0	204	0	0	1399	0	0	0	0
Turn Type	Perm	NA			NA		Split	NA				
Protected Phases		5			5		1	1				
Permitted Phases	5											
Detector Phase	5	5			5		1	1				
Switch Phase												
Minimum Initial (s)	8.0	8.0			8.0		8.0	8.0				
Minimum Split (s)	21.0	21.0			21.0		23.0	23.0				
Total Split (s)	39.0	39.0			39.0		71.0	71.0				
Total Split (%)	35.5%	35.5%			35.5%		64.5%	64.5%				
Maximum Green (s)	34.0	34.0			34.0		66.0	66.0				
Yellow Time (s)	3.0	3.0			3.0		3.0	3.0				
All-Red Time (s)	2.0	2.0			2.0		2.0	2.0				
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)	2.0	2.0			2.0		2.0	2.0				
Recall Mode	Max	Max			Max		C-Max	C-Max				
Walk Time (s)	7.0	7.0			7.0		7.0	7.0				
Flash Dont Walk (s)	8.0	8.0			8.0		8.0	8.0				
Pedestrian Calls (#/hr)	50	50			50		0	0				
Act Effct Green (s)	35.0	35.0			35.0			67.0				
Actuated g/C Ratio	0.32	0.32			0.32			0.61				
v/c Ratio	0.11	0.07			0.47			0.78				
Control Delay	23.4	22.1			28.9			11.7				
Queue Delay	0.0	0.0			0.0			4.3				
Total Delay	23.4	22.1			29.0			16.1				
LOS	C	C			C			B				
Approach Delay		22.6			29.0			16.1				
Approach LOS		C			C			B				
Queue Length 50th (ft)	10	14			95			106				
Queue Length 95th (ft)	20	26			141			363				
Internal Link Dist (ft)		164			183			212			107	
Turn Bay Length (ft)												
Base Capacity (vph)	218	508			433			1803				
Starvation Cap Reductn	0	0			0			233				
Spillback Cap Reductn	0	0			3			326				
Storage Cap Reductn	0	0			0			0				
Reduced v/c Ratio	0.11	0.07			0.47			0.95				

Intersection Summary

Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 43 (39%), Referenced to phase 1:NBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.78
Intersection Signal Delay: 17.9 Intersection LOS: B
Intersection Capacity Utilization 82.1% ICU Level of Service E
Analysis Period (min) 15

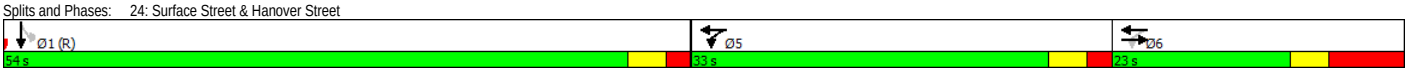
Splits and Phases: 23: Cross Street & Hanover Street

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	26	6	82	405	0	0	0	0	22	461	36
Future Volume (vph)	0	26	6	82	405	0	0	0	0	22	461	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor		0.94		0.68							0.95	
Frt		0.973									0.990	
Flt Protected				0.950							0.998	
Satd. Flow (prot)	0	2850	0	1388	1613	0	0	0	0	0	2895	0
Flt Permitted				0.730							0.998	
Satd. Flow (perm)	0	2850	0	728	1613	0	0	0	0	0	2876	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7									9	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		361			244			470			333	
Travel Time (s)		9.8			6.7			12.8			9.1	
Confl. Peds. (#/hr)			174	174						82		227
Confl. Bikes (#/hr)			4			17						103
Peak Hour Factor	0.81	0.81	0.81	0.88	0.88	0.88	0.92	0.92	0.92	0.90	0.90	0.90
Heavy Vehicles (%)	0%	5%	0%	17%	6%	0%	0%	0%	0%	18%	6%	3%
Adj. Flow (vph)	0	32	7	93	460	0	0	0	0	24	512	40
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	39	0	93	460	0	0	0	0	0	576	0
Turn Type		NA		D.P+P	NA					Perm	NA	
Protected Phases		6		5	5 6						1	
Permitted Phases				6						1		
Detector Phase		6		5	5 6					1	1	
Switch Phase												
Minimum Initial (s)		10.0		10.0						10.0	10.0	
Minimum Split (s)		22.0		18.0						27.0	27.0	
Total Split (s)		23.0		33.0						54.0	54.0	
Total Split (%)		20.9%		30.0%						49.1%	49.1%	
Maximum Green (s)		14.0		28.0						49.0	49.0	
Yellow Time (s)		3.0		3.0						3.0	3.0	
All-Red Time (s)		6.0		2.0						2.0	2.0	
Lost Time Adjust (s)		-5.0		-1.0							-1.0	
Total Lost Time (s)		4.0		4.0							4.0	
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)		2.0		2.0						2.0	2.0	
Recall Mode		Max		Max						C-Max	C-Max	
Walk Time (s)		7.0		7.0						7.0	7.0	
Flash Dont Walk (s)		5.0		5.0						10.0	10.0	
Pedestrian Calls (#/hr)		0		0						0	0	
Act Effct Green (s)		19.0		48.0	52.0						50.0	
Actuated g/C Ratio		0.17		0.44	0.47						0.45	
v/c Ratio		0.08		0.19	0.60						0.44	
Control Delay		32.5		15.9	24.5						8.4	
Queue Delay		0.0		0.4	55.8						0.1	
Total Delay		32.5		16.3	80.3						8.5	
LOS		C		B	F						A	
Approach Delay		32.5			69.5						8.5	
Approach LOS		C			E						A	
Queue Length 50th (ft)		6		34	274						40	
Queue Length 95th (ft)		16		m56	368						59	
Internal Link Dist (ft)		281			164			390			253	
Turn Bay Length (ft)												
Base Capacity (vph)		498		491	762						1312	
Starvation Cap Reductn		0		154	367						36	
Spillback Cap Reductn		0		0	59						73	
Storage Cap Reductn		0		0	0						0	
Reduced v/c Ratio		0.08		0.28	1.16						0.46	

Intersection Summary

Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 39 (35%), Referenced to phase 1:SBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.60
Intersection Signal Delay: 38.2 Intersection LOS: D
Intersection Capacity Utilization 82.1% ICU Level of Service E
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 24: Surface Street & Hanover Street



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	441	819	32	0	709
Future Volume (vph)	0	441	819	32	0	709
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.91	0.91	1.00	0.91
Frt		0.865	0.994			
Flt Protected						
Satd. Flow (prot)	0	1644	5156	0	0	5187
Flt Permitted						
Satd. Flow (perm)	0	1644	5156	0	0	5187
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		225	14			
Link Speed (mph)	30		25			25
Link Distance (ft)	361		453			378
Travel Time (s)	8.2		12.4			10.3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	479	890	35	0	771
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	479	925	0	0	771
Turn Type		Prot	NA			NA
Protected Phases		2	1			1
Permitted Phases						
Detector Phase		2	1			1
Switch Phase						
Minimum Initial (s)		4.0	4.0			4.0
Minimum Split (s)		22.0	22.0			22.0
Total Split (s)		25.0	85.0			85.0
Total Split (%)		22.7%	77.3%			77.3%
Maximum Green (s)		21.0	81.0			81.0
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		Lag	Lead			Lead
Lead-Lag Optimize?						
Vehicle Extension (s)		2.0	2.0			2.0
Recall Mode		None	C-Max			C-Max
Walk Time (s)		7.0				
Flash Dont Walk (s)		11.0				
Pedestrian Calls (#/hr)		0				
Act Effct Green (s)		20.6	81.4			81.4
Actuated g/C Ratio		0.19	0.74			0.74
v/c Ratio		0.98	0.24			0.20
Control Delay		77.0	10.8			4.6
Queue Delay		13.2	0.0			0.0
Total Delay		90.2	10.8			4.6
LOS		F	B			A
Approach Delay			10.8			4.6
Approach LOS			B			A
Queue Length 50th (ft)		246	121			53
Queue Length 95th (ft)		#420	m123			66
Internal Link Dist (ft)	281		373			298
Turn Bay Length (ft)						
Base Capacity (vph)		495	3818			3837
Starvation Cap Reductn		27	0			0
Spillback Cap Reductn		0	0			0
Storage Cap Reductn		0	0			0
Reduced v/c Ratio		1.02	0.24			0.20

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green			
Natural Cycle: 45			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.98			
Intersection Signal Delay: 26.1		Intersection LOS: C	
Intersection Capacity Utilization 50.5%		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.			

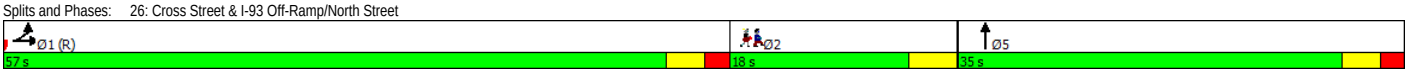
Splits and Phases: 25: Congress Street

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations													
Traffic Volume (vph)	823	75	0	0	0	0	0	421	18	0	0	0	
Future Volume (vph)	823	75	0	0	0	0	0	421	18	0	0	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00	
Ped Bike Factor								1.00					
Frt								0.994					
Flt Protected	0.950	0.961											
Satd. Flow (prot)	1442	1474	0	0	0	0	0	2812	0	0	0	0	
Flt Permitted	0.950	0.961											
Satd. Flow (perm)	1442	1474	0	0	0	0	0	2812	0	0	0	0	
Right Turn on Red	No		Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)								4					
Link Speed (mph)		25			25			25			25		
Link Distance (ft)		145			386			247			292		
Travel Time (s)		4.0			10.5			6.7			8.0		
Confl. Bikes (#/hr)									13				
Peak Hour Factor	0.93	0.93	0.93	0.92	0.92	0.92	0.91	0.91	0.91	0.92	0.92	0.92	
Heavy Vehicles (%)	7%	1%	0%	0%	0%	0%	0%	15%	7%	0%	0%	0%	
Adj. Flow (vph)	885	81	0	0	0	0	0	463	20	0	0	0	
Shared Lane Traffic (%)	42%												
Lane Group Flow (vph)	513	453	0	0	0	0	0	483	0	0	0	0	
Turn Type	Split	NA						NA					
Protected Phases	1	1						5					2
Permitted Phases													
Detector Phase	1	1						5					
Switch Phase													
Minimum Initial (s)	8.0	8.0						8.0					8.0
Minimum Split (s)	15.0	15.0						14.0					18.0
Total Split (s)	57.0	57.0						35.0					18.0
Total Split (%)	51.8%	51.8%						31.8%					16%
Maximum Green (s)	52.0	52.0						30.0					14.0
Yellow Time (s)	3.0	3.0						3.0					4.0
All-Red Time (s)	2.0	2.0						2.0					0.0
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?													
Vehicle Extension (s)	2.0	2.0						2.0					2.0
Recall Mode	C-Max	C-Max						Max					Ped
Walk Time (s)													7.0
Flash Dont Walk (s)													7.0
Pedestrian Calls (#/hr)													500
Act Effct Green (s)	53.0	53.0						31.0					
Actuated g/C Ratio	0.48	0.48						0.28					
v/c Ratio	0.74	0.64						0.61					
Control Delay	30.8	26.4						37.8					
Queue Delay	0.0	0.0						2.8					
Total Delay	30.8	26.4						40.6					
LOS	C	C						D					
Approach Delay		28.8						40.6					
Approach LOS		C						D					
Queue Length 50th (ft)	296	244						154					
Queue Length 95th (ft)	445	365						211					
Internal Link Dist (ft)		65			306			167			212		
Turn Bay Length (ft)													
Base Capacity (vph)	694	710						795					
Starvation Cap Reductn	0	0						0					
Spillback Cap Reductn	0	0						203					
Storage Cap Reductn	0	0						0					
Reduced v/c Ratio	0.74	0.64						0.82					

Intersection Summary

Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 72 (65%), Referenced to phase 1:EBTL, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.74
Intersection Signal Delay: 32.7 Intersection LOS: C
Intersection Capacity Utilization 47.8% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 26: Cross Street & I-93 Off-Ramp/North Street



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	55	513	728	0	0	0	0	0	502	47
Future Volume (vph)	0	0	55	513	728	0	0	0	0	0	502	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95
Ped Bike Factor											0.97	
Frt			0.865								0.987	
Flt Protected					0.980							
Satd. Flow (prot)	0	0	1321	0	3122	0	0	0	0	0	2899	0
Flt Permitted					0.980							
Satd. Flow (perm)	0	0	1321	0	3122	0	0	0	0	0	2899	0
Right Turn on Red			No	No		Yes			Yes			Yes
Satd. Flow (RTOR)											9	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		373			108			468			470	
Travel Time (s)		10.2			2.9			12.8			12.8	
Confl. Peds. (#/hr)												251
Confl. Bikes (#/hr)												95
Peak Hour Factor	0.80	0.80	0.80	0.93	0.93	0.93	0.92	0.92	0.92	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	12%	2%	2%	0%	0%	0%	0%	0%	7%	9%
Parking (#/hr)												0
Adj. Flow (vph)	0	0	69	552	783	0	0	0	0	0	523	49
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	69	0	1335	0	0	0	0	0	572	0
Turn Type			Perm	Perm	NA						NA	
Protected Phases					1						3	
Permitted Phases			1	1								
Detector Phase			1	1	1						3	
Switch Phase												
Minimum Initial (s)			10.0	10.0	10.0						10.0	
Minimum Split (s)			25.0	25.0	25.0						25.0	
Total Split (s)			73.0	73.0	73.0						37.0	
Total Split (%)			66.4%	66.4%	66.4%						33.6%	
Maximum Green (s)			64.0	64.0	64.0						32.0	
Yellow Time (s)			3.0	3.0	3.0						3.0	
All-Red Time (s)			6.0	6.0	6.0						2.0	
Lost Time Adjust (s)			-5.0		-5.0						-1.0	
Total Lost Time (s)			4.0		4.0						4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)			2.0	2.0	2.0						2.0	
Recall Mode			C-Max	C-Max	C-Max						Max	
Walk Time (s)			7.0	7.0	7.0						7.0	
Flash Dont Walk (s)			5.0	5.0	5.0						12.0	
Pedestrian Calls (#/hr)			0	0	0						0	
Act Effct Green (s)			69.0		69.0						33.0	
Actuated g/C Ratio			0.63		0.63						0.30	
v/c Ratio			0.08		0.68						0.65	
Control Delay			7.6		15.6						18.3	
Queue Delay			0.0		0.0						0.0	
Total Delay			7.6		15.6						18.3	
LOS			A		B						B	
Approach Delay					15.6						18.3	
Approach LOS					B						B	
Queue Length 50th (ft)			30		298						81	
Queue Length 95th (ft)			45		374						108	
Internal Link Dist (ft)		293			28			388			390	
Turn Bay Length (ft)												
Base Capacity (vph)			828		1958						876	
Starvation Cap Reductn			0		0						0	
Spillback Cap Reductn			0		0						0	
Storage Cap Reductn			0		0						0	
Reduced v/c Ratio			0.08		0.68						0.65	

Intersection Summary

Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 104 (95%), Referenced to phase 1:WBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.68
Intersection Signal Delay: 16.1 Intersection LOS: B
Intersection Capacity Utilization 75.0% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 27: Surface Street & North Street/I-93 Off Ramp

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations													
Traffic Volume (vph)	2	48	0	0	769	6	271	0	6	1	0	8	
Future Volume (vph)	2	48	0	0	769	6	271	0	6	1	0	8	
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	1.00	1.00	
Ped Bike Factor					0.99			1.00		0.97		0.69	
Frt					0.999			0.994				0.850	
Flt Protected		0.998					0.950	0.954		0.950			
Satd. Flow (prot)	0	1389	0	0	2979	0	1251	1382	0	1624	0	1454	
Flt Permitted		0.984					0.950	0.954		0.548			
Satd. Flow (perm)	0	1369	0	0	2979	0	1251	1382	0	914	0	998	
Right Turn on Red			Yes			Yes			No			Yes	
Satd. Flow (RTOR)					1							60	
Link Speed (mph)		25			25			25			30		
Link Distance (ft)		241			373			604			110		
Travel Time (s)		6.6			10.2			16.5			2.5		
Confl. Peds. (#/hr)	248					248			15	15		246	
Confl. Bikes (#/hr)			3			5			1				
Peak Hour Factor	0.88	0.88	0.88	0.91	0.91	0.91	0.81	0.81	0.81	0.56	0.56	0.56	
Heavy Vehicles (%)	0%	11%	0%	0%	3%	0%	11%	0%	17%	0%	0%	0%	
Parking (#/hr)		0			0		0		0				
Adj. Flow (vph)	2	55	0	0	845	7	335	0	7	2	0	14	
Shared Lane Traffic (%)							49%						
Lane Group Flow (vph)	0	57	0	0	852	0	171	171	0	2	0	14	
Turn Type	Perm	NA			NA		Split	NA		D.Pm		Perm	
Protected Phases		1			1		3	3					2
Permitted Phases	1									3		3	
Detector Phase	1	1			1		3	3		3		3	
Switch Phase													
Minimum Initial (s)	23.0	23.0			23.0		9.0	9.0		9.0		9.0	7.0
Minimum Split (s)	30.0	30.0			30.0		16.0	16.0		16.0		16.0	21.0
Total Split (s)	59.0	59.0			59.0		30.0	30.0		30.0		30.0	21.0
Total Split (%)	53.6%	53.6%			53.6%		27.3%	27.3%		27.3%		27.3%	19%
Maximum Green (s)	54.0	54.0			54.0		24.0	24.0		24.0		24.0	17.0
Yellow Time (s)	3.0	3.0			3.0		3.0	3.0		3.0		3.0	4.0
All-Red Time (s)	2.0	2.0			2.0		3.0	3.0		3.0		3.0	0.0
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0		0.0	
Total Lost Time (s)		5.0			5.0		6.0	6.0		6.0		6.0	
Lead/Lag	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
Recall Mode	C-Max	C-Max			C-Max		Max	Max		Max		Max	None
Walk Time (s)	7.0	7.0			7.0								7.0
Flash Dont Walk (s)	5.0	5.0			5.0								10.0
Pedestrian Calls (#/hr)	0	0			0								0
Act Effct Green (s)		75.0			75.0		24.0	24.0		24.0		24.0	
Actuated g/C Ratio		0.68			0.68		0.22	0.22		0.22		0.22	
v/c Ratio		0.06			0.42		0.63	0.57		0.01		0.05	
Control Delay		8.8			5.4		34.5	7.6		34.0		0.4	
Queue Delay		0.0			0.7		80.3	78.3		0.0		0.6	
Total Delay		8.8			6.0		114.8	85.9		34.0		1.0	
LOS		A			A		F	F		C		A	
Approach Delay		8.8			6.0			100.3					
Approach LOS		A			A			F					
Queue Length 50th (ft)		10			127		93	0		1		0	
Queue Length 95th (ft)		27			137		m114	0		5		0	
Internal Link Dist (ft)		161			293			524			30		
Turn Bay Length (ft)													
Base Capacity (vph)		933			2031		272	301		199		264	
Starvation Cap Reductn		0			754		0	0		0		0	
Spillback Cap Reductn		0			89		189	208		0		155	
Storage Cap Reductn		0			0		0	0		0		0	
Reduced v/c Ratio		0.06			0.67		2.06	1.84		0.01		0.13	

Intersection Summary

Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 16 (15%), Referenced to phase 1:EBWB, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.63
Intersection Signal Delay: 31.6 Intersection LOS: C
Intersection Capacity Utilization 55.4% ICU Level of Service B
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

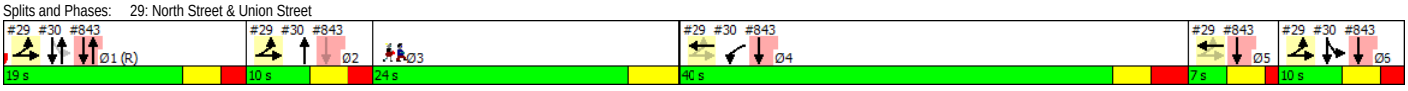
Splits and Phases: 28: Clinton Street/Millenium Hotel Driveway & North Street

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6
Lane Configurations												
Traffic Volume (vph)	10	50	1018	30	0	0						
Future Volume (vph)	10	50	1018	30	0	0						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900						
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	1.00						
Ped Bike Factor	0.98		0.99									
Frt			0.996									
Flt Protected	0.950											
Satd. Flow (prot)	1354	1555	3110	0	0	0						
Flt Permitted	0.108											
Satd. Flow (perm)	151	1555	3110	0	0	0						
Right Turn on Red				Yes		Yes						
Satd. Flow (RTOR)			3									
Link Speed (mph)		25	25		25							
Link Distance (ft)		141	241		180							
Travel Time (s)		3.8	6.6		4.9							
Confl. Peds. (#/hr)	154			154								
Confl. Bikes (#/hr)				3		4						
Peak Hour Factor	0.76	0.76	0.92	0.92	0.92	0.92						
Heavy Vehicles (%)	20%	10%	3%	17%	0%	0%						
Parking (#/hr)				0								
Adj. Flow (vph)	13	66	1107	33	0	0						
Shared Lane Traffic (%)												
Lane Group Flow (vph)	13	66	1140	0	0	0						
Turn Type	D.P+P	NA	NA									
Protected Phases	1 2 6	1 2 6	4 5				1	2	3	4	5	6
Permitted Phases	4 5	4 5										
Detector Phase	1 2 6	1 2 6	4 5									
Switch Phase												
Minimum Initial (s)							7.0	3.0	7.0	8.0	3.0	4.0
Minimum Split (s)							14.0	9.0	24.0	15.0	7.0	10.0
Total Split (s)							19.0	10.0	24.0	40.0	7.0	10.0
Total Split (%)							17%	9%	22%	36%	6%	9%
Maximum Green (s)							14.0	5.0	20.0	34.0	3.0	5.0
Yellow Time (s)							3.0	3.0	4.0	3.0	3.0	3.0
All-Red Time (s)							2.0	2.0	0.0	3.0	1.0	2.0
Lost Time Adjust (s)												
Total Lost Time (s)												
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)							2.0	2.0	2.0	2.0	2.0	2.0
Recall Mode							C-Max	Max	Ped	Max	Max	Max
Walk Time (s)									7.0			
Flash Dont Walk (s)									13.0			
Pedestrian Calls (#/hr)									0			
Act Effct Green (s)	76.0	81.0	41.0									
Actuated g/C Ratio	0.69	0.74	0.37									
v/c Ratio	0.03	0.06	0.98									
Control Delay	0.8	0.8	44.1									
Queue Delay	0.3	2.4	39.7									
Total Delay	1.1	3.2	83.8									
LOS	A	A	F									
Approach Delay		2.8	83.8									
Approach LOS		A	F									
Queue Length 50th (ft)	0	2	432									
Queue Length 95th (ft)	m1	m3	#563									
Internal Link Dist (ft)		61	161		100							
Turn Bay Length (ft)												
Base Capacity (vph)	476	1145	1161									
Starvation Cap Reductn	332	986	187									
Spillback Cap Reductn	0	0	202									
Storage Cap Reductn	0	0	0									
Reduced v/c Ratio	0.09	0.42	1.19									

Intersection Summary

Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 69 (63%), Referenced to phase 1:EBTL, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.23
Intersection Signal Delay: 78.5 Intersection LOS: E
Intersection Capacity Utilization 37.5% 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: 29: North Street & Union Street



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø1	Ø2	Ø3	Ø5
Lane Configurations										
Traffic Volume (vph)	533	471	376	39	21	688				
Future Volume (vph)	533	471	376	39	21	688				
Ideal Flow (vphpl)	1900	1900	1900	1900	1700	1700				
Lane Util. Factor	0.97	0.95	0.91	0.91	0.91	0.91				
Ped Bike Factor	0.75		0.95			0.99				
Frt	0.930		0.986							
Flt Protected	0.974					0.998				
Satd. Flow (prot)	2610	0	3986	0	0	3834				
Flt Permitted	0.974					0.916				
Satd. Flow (perm)	2194	0	3986	0	0	3491				
Right Turn on Red		Yes		No						
Satd. Flow (RTOR)	210									
Link Speed (mph)	25		25			25				
Link Distance (ft)	141		126			453				
Travel Time (s)	3.8		3.4			12.4				
Confl. Peds. (#/hr)	312	212		1204	1204					
Confl. Bikes (#/hr)		7		7						
Peak Hour Factor	0.93	0.93	0.94	0.94	0.93	0.93				
Heavy Vehicles (%)	2%	5%	9%	16%	0%	9%				
Adj. Flow (vph)	573	506	400	41	23	740				
Shared Lane Traffic (%)										
Lane Group Flow (vph)	1079	0	441	0	0	763				
Turn Type	Prot		NA		custom	NA				
Protected Phases	4		1 2		6	1 6	1	2	3	5
Permitted Phases					1					
Detector Phase	4		1 2		6	1 6				
Switch Phase										
Minimum Initial (s)	8.0				4.0		7.0	3.0	7.0	3.0
Minimum Split (s)	15.0				10.0		14.0	9.0	24.0	7.0
Total Split (s)	40.0				10.0		19.0	10.0	24.0	7.0
Total Split (%)	36.4%				9.1%		17%	9%	22%	6%
Maximum Green (s)	34.0				5.0		14.0	5.0	20.0	3.0
Yellow Time (s)	3.0				3.0		3.0	3.0	4.0	3.0
All-Red Time (s)	3.0				2.0		2.0	2.0	0.0	1.0
Lost Time Adjust (s)	0.0									
Total Lost Time (s)	6.0									
Lead/Lag	Lead						Lead	Lag		Lag
Lead-Lag Optimize?										
Vehicle Extension (s)	2.0				2.0		2.0	2.0	2.0	2.0
Recall Mode	Max				Max		C-Max	Max	Ped	Max
Walk Time (s)									7.0	
Flash Dont Walk (s)									13.0	
Pedestrian Calls (#/hr)									0	
Act Effct Green (s)	34.0		24.0			19.0				
Actuated g/C Ratio	0.31		0.22			0.17				
v/c Ratio	1.13		0.51			1.23				
Control Delay	80.8		2.0			154.3				
Queue Delay	0.7		1.7			0.0				
Total Delay	81.5		3.7			154.3				
LOS	F		A			F				
Approach Delay	81.5		3.7			154.3				
Approach LOS	F		A			F				
Queue Length 50th (ft)	~148		6			~246				
Queue Length 95th (ft)	m#163		m10			#333				
Internal Link Dist (ft)	61		46			373				
Turn Bay Length (ft)										
Base Capacity (vph)	951		869			618				
Starvation Cap Reductn	123		264			0				
Spillback Cap Reductn	0		0			0				
Storage Cap Reductn	0		0			0				
Reduced v/c Ratio	1.30		0.73			1.23				

Intersection Summary

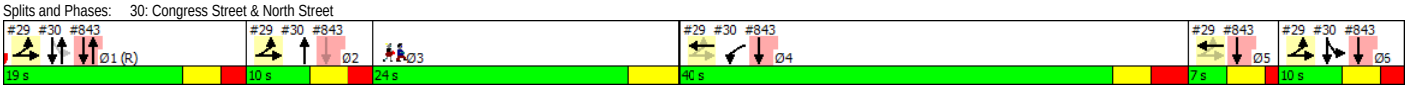
Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 69 (63%), Referenced to phase 1:EBTL, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.23
Intersection Signal Delay: 90.8 Intersection LOS: F
Intersection Capacity Utilization 77.8% ICU Level of Service D
Analysis Period (min) 15

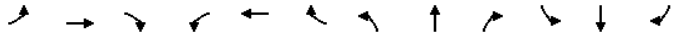
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

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

Splits and Phases: 30: Congress Street & North Street





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations													
Traffic Volume (vph)	0	0	0	925	307	0	0	0	0	0	958	112	
Future Volume (vph)	0	0	0	925	307	0	0	0	0	0	958	112	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	14	16	12	12	12	12	12	12	12	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.91	0.91	
Ped Bike Factor				0.71	0.86						0.97		
Frt											0.984		
Flt Protected				0.950	0.977								
Satd. Flow (prot)	0	0	0	1598	1711	0	0	0	0	0	4260	0	
Flt Permitted				0.950	0.977								
Satd. Flow (perm)	0	0	0	1128	1472	0	0	0	0	0	4260	0	
Right Turn on Red			Yes	No		Yes			Yes			Yes	
Satd. Flow (RTOR)											18		
Link Speed (mph)		25			25			25			25		
Link Distance (ft)		604			328			196			468		
Travel Time (s)		16.5			8.9			5.3			12.8		
Confl. Peds. (#/hr)				116								147	
Confl. Bikes (#/hr)						1						83	
Peak Hour Factor	0.92	0.92	0.92	0.91	0.91	0.91	0.92	0.92	0.92	0.95	0.95	0.95	
Heavy Vehicles (%)	0%	0%	0%	3%	7%	0%	0%	0%	0%	0%	4%	7%	
Adj. Flow (vph)	0	0	0	1016	337	0	0	0	0	0	1008	118	
Shared Lane Traffic (%)				30%									
Lane Group Flow (vph)	0	0	0	711	642	0	0	0	0	0	1126	0	
Turn Type				Split	NA						NA		
Protected Phases				5	5						1		2
Permitted Phases													
Detector Phase				5	5						1		
Switch Phase													
Minimum Initial (s)				8.0	8.0						8.0		8.0
Minimum Split (s)				19.0	19.0						27.0		24.0
Total Split (s)				51.0	51.0						35.0		24.0
Total Split (%)				46.4%	46.4%						31.8%		22%
Maximum Green (s)				46.0	46.0						29.0		20.0
Yellow Time (s)				3.0	3.0						3.0		4.0
All-Red Time (s)				2.0	2.0						3.0		0.0
Lost Time Adjust (s)				-2.0	-2.0						-2.0		
Total Lost Time (s)				3.0	3.0						4.0		
Lead/Lag											Lead		Lag
Lead-Lag Optimize?													
Vehicle Extension (s)				2.0	2.0						2.0		2.0
Recall Mode				Max	Max						C-Max		Ped
Walk Time (s)				7.0	7.0						7.0		7.0
Flash Dont Walk (s)				6.0	6.0						11.0		13.0
Pedestrian Calls (#/hr)				0	0						0		455
Act Effct Green (s)				48.0	48.0						31.0		
Actuated g/C Ratio				0.44	0.44						0.28		
v/c Ratio				1.02	0.86						0.93		
Control Delay				71.0	41.5						43.9		
Queue Delay				0.0	0.0						0.0		
Total Delay				71.0	41.5						43.9		
LOS				E	D						D		
Approach Delay					57.0						43.9		
Approach LOS					E						D		
Queue Length 50th (ft)				~562	421						267		
Queue Length 95th (ft)				#802	#649						#372		
Internal Link Dist (ft)		524			248			116			388		
Turn Bay Length (ft)													
Base Capacity (vph)				697	746						1213		
Starvation Cap Reductn				0	0						0		
Spillback Cap Reductn				0	0						0		
Storage Cap Reductn				0	0						0		
Reduced v/c Ratio				1.02	0.86						0.93		

Intersection Summary

Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 4 (4%), Referenced to phase 1:SBT, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.02
Intersection Signal Delay: 51.0 Intersection LOS: D
Intersection Capacity Utilization 68.2% 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: 31: Surface Street & Clinton Street/I-93 Off Ramp

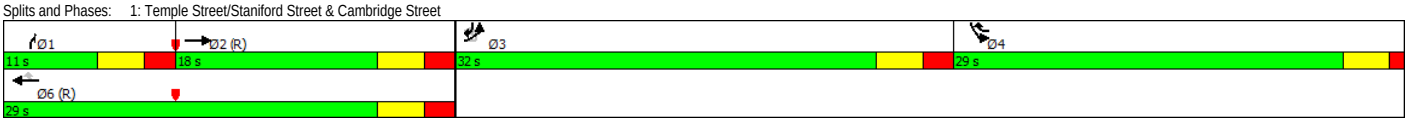
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (vph)	11	335	503	0	0	654	167	0	0	4	223	0	230
Future Volume (vph)	11	335	503	0	0	654	167	0	0	4	223	0	230
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	10	11	12	12	11	12	12	12	12	11	12	11
Storage Length (ft)		140		0	0		0	0		0	0		0
Storage Lanes		1		0	0		1	0		1	1		1
Taper Length (ft)		25			25			25			25		
Lane Util. Factor	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor							0.59						
Frt							0.850			0.865			0.850
Flt Protected		0.950									0.950		
Satd. Flow (prot)	0	1668	3219	0	0	3388	1538	0	0	1644	1745	0	1351
Flt Permitted		0.390									0.950		
Satd. Flow (perm)	0	685	3219	0	0	3388	905	0	0	1644	1745	0	1351
Right Turn on Red				No			Yes			No			No
Satd. Flow (RTOR)							176						
Link Speed (mph)			30			30			30			30	
Link Distance (ft)			407			236			206			1103	
Travel Time (s)			9.3			5.4			4.7			25.1	
Confl. Peds. (#/hr)							693						
Confl. Bikes (#/hr)				10			125						5
Peak Hour Factor	0.89	0.89	0.89	0.89	0.95	0.95	0.95	0.50	0.50	0.50	0.87	0.87	0.87
Heavy Vehicles (%)	0%	1%	3%	0%	0%	3%	5%	0%	0%	0%	0%	0%	4%
Parking (#/hr)			0										0
Adj. Flow (vph)	12	376	565	0	0	688	176	0	0	8	256	0	264
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	388	565	0	0	688	176	0	0	8	256	0	264
Turn Type	custom	Prot	NA			NA	pm+ov			Prot	Prot		Over
Protected Phases		3	2			6	4			1	4		3!
Permitted Phases	3!						6						
Detector Phase	3	3	2			6	4			1	4		3
Switch Phase													
Minimum Initial (s)	8.0	8.0	12.0			12.0	8.0			6.0	8.0		8.0
Minimum Split (s)	32.0	32.0	17.0			24.0	29.0			11.0	29.0		32.0
Total Split (s)	32.0	32.0	18.0			29.0	29.0			11.0	29.0		32.0
Total Split (%)	35.6%	35.6%	20.0%			32.2%	32.2%			12.2%	32.2%		35.6%
Maximum Green (s)	27.0	27.0	13.0			24.0	25.0			6.0	25.0		27.0
Yellow Time (s)	3.0	3.0	3.0			3.0	3.0			3.0	3.0		3.0
All-Red Time (s)	2.0	2.0	2.0			2.0	1.0			2.0	1.0		2.0
Lost Time Adjust (s)		0.0	0.0			0.0	0.0			0.0	0.0		0.0
Total Lost Time (s)		5.0	5.0			5.0	4.0			5.0	4.0		5.0
Lead/Lag	Lead	Lead	Lag				Lag			Lead	Lag		Lead
Lead-Lag Optimize?													
Vehicle Extension (s)	2.0	2.0	2.0			2.0	2.0			2.0	2.0		2.0
Recall Mode	Min	Min	C-Max			C-Max	Min			None	Min		Min
Walk Time (s)	7.0	7.0				7.0	7.0				7.0		7.0
Flash Dont Walk (s)	20.0	20.0				12.0	18.0				18.0		20.0
Pedestrian Calls (#/hr)	140	140				140	132				132		140
Act Effct Green (s)		27.0	21.8			24.0	50.0			6.0	25.0		27.0
Actuated g/C Ratio		0.30	0.24			0.27	0.56			0.07	0.28		0.30
v/c Ratio		1.89	0.73			0.76	0.23			0.07	0.53		0.65
Control Delay		443.3	39.6			28.8	1.8			41.0	32.3		36.3
Queue Delay		0.0	0.0			6.0	0.2			0.0	0.7		0.0
Total Delay		443.3	39.6			34.8	2.0			41.0	33.0		36.3
LOS		F	D			C	A			D	C		D
Approach Delay			204.0			28.1							
Approach LOS			F			C							
Queue Length 50th (ft)		~341	150			205	5			4	123		130
Queue Length 95th (ft)		#508	#308			211	15			10	191		207
Internal Link Dist (ft)			327			156			126			1023	
Turn Bay Length (ft)		140											
Base Capacity (vph)		205	779			903	756			109	484		405
Starvation Cap Reductn		0	0			164	180			0	0		0
Spillback Cap Reductn		0	0			0	0			0	63		0
Storage Cap Reductn		0	0			0	0			0	0		0
Reduced v/c Ratio		1.89	0.73			0.93	0.31			0.07	0.61		0.65

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 17 (19%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 140
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.89
Intersection Signal Delay: 101.1 Intersection LOS: F
Intersection Capacity Utilization 64.0% ICU Level of Service B
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: 1: Temple Street/Staniford Street & Cambridge Street



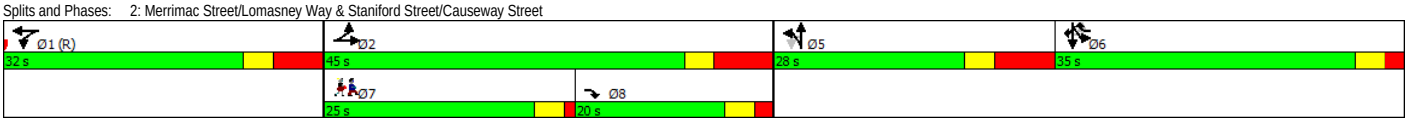
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	Ø7
Lane Configurations															
Traffic Volume (vph)	127	353	289	54	251	301	1	72	273	28	3	192	290	223	
Future Volume (vph)	127	353	289	54	251	301	1	72	273	28	3	192	290	223	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	11	11	11	11	11	10	11	10	11	11	11	10	11	11	
Storage Length (ft)	0		200	0		0		0		0		0		0	
Storage Lanes	1		1	0		1		1		0		1		1	
Taper Length (ft)	25			25				25				25			
Lane Util. Factor	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	
Ped Bike Factor									1.00				1.00		
Frt			0.850			0.850			0.986				0.998	0.850	
Flt Protected	0.950				0.991			0.950				0.950			
Satd. Flow (prot)	1564	1678	1516	0	3149	1507	0	1668	1783	0	0	1668	1690	1426	
Flt Permitted	0.950				0.991			0.211				0.559			
Satd. Flow (perm)	1564	1678	1516	0	3149	1507	0	371	1783	0	0	982	1690	1426	
Right Turn on Red			No			No				No				No	
Satd. Flow (RTOR)															
Link Speed (mph)		30			30				30				30		
Link Distance (ft)		1103			181				998				344		
Travel Time (s)		25.1			4.1				22.7				7.8		
Confl. Bikes (#/hr)			6			8				12				11	
Peak Hour Factor	0.79	0.79	0.79	0.84	0.84	0.84	0.90	0.90	0.90	0.90	0.92	0.92	0.92	0.92	
Heavy Vehicles (%)	6%	4%	3%	23%	7%	0%	0%	1%	1%	4%	0%	1%	3%	4%	
Adj. Flow (vph)	161	447	366	64	299	358	1	80	303	31	3	209	315	242	
Shared Lane Traffic (%)	0%													2%	
Lane Group Flow (vph)	161	447	366	0	363	358	0	81	334	0	0	212	320	237	
Turn Type	Split	NA	custom	Split	NA	Over	Perm	Split	NA		Perm	Split	NA	Prot	
Protected Phases	2	2	8	1	1	6!		5	5			6	6	6	7
Permitted Phases							5				6!				
Detector Phase	2	2	8	1	1	6	5	5	5		6	6	6	6	
Switch Phase															
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0		8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	27.0	27.0	16.0	31.0	31.0	16.0	27.0	27.0	27.0		16.0	16.0	16.0	16.0	25.0
Total Split (s)	45.0	45.0	20.0	32.0	32.0	35.0	28.0	28.0	28.0		35.0	35.0	35.0	35.0	25.0
Total Split (%)	32.1%	32.1%	14.3%	22.9%	22.9%	25.0%	20.0%	20.0%	20.0%		25.0%	25.0%	25.0%	25.0%	18%
Maximum Green (s)	36.0	36.0	15.0	24.0	24.0	30.0	19.0	19.0	19.0		30.0	30.0	30.0	30.0	21.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	6.0	6.0	2.0	5.0	5.0	2.0	6.0	6.0	6.0		2.0	2.0	2.0	2.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0		0.0	0.0			0.0	0.0	0.0	
Total Lost Time (s)	9.0	9.0	5.0		8.0	5.0		9.0	9.0			5.0	5.0	5.0	
Lead/Lag			Lag			Lag	Lead	Lead	Lead		Lag	Lag	Lag	Lag	Lead
Lead-Lag Optimize?															
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0
Recall Mode	Ped	Ped	None	C-Max	C-Max	None	Ped	Ped	Ped		None	None	None	None	None
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0						7.0
Flash Dont Walk (s)	11.0	11.0		16.0	16.0		11.0	11.0	11.0						14.0
Pedestrian Calls (#/hr)	100	100		175	175		0	0	0						30
Act Effct Green (s)	36.0	36.0	25.0		24.0	30.0		19.0	19.0			30.0	30.0	30.0	
Actuated g/C Ratio	0.26	0.26	0.18		0.17	0.21		0.14	0.14			0.21	0.21	0.21	
v/c Ratio	0.40	1.04	1.36		0.67	1.11		1.62	1.39			1.01	0.88	0.78	
Control Delay	46.7	103.3	222.6		61.3	133.3		390.3	240.7			118.6	79.0	70.0	
Queue Delay	0.0	0.0	0.0		0.0	1.1		0.0	0.0			0.0	0.0	0.0	
Total Delay	46.7	103.3	222.6		61.3	134.4		390.3	240.7			118.6	79.0	70.0	
LOS	D	F	F		E	F		F	F			F	E	E	
Approach Delay		138.8			97.6				269.9				87.2		
Approach LOS		F			F				F				F		
Queue Length 50th (ft)	128	~460	~538		164	~371		~105	~403			~197	300	215	
Queue Length 95th (ft)	174	#549	#633		204	#513		#217	#597			#368	#478	#350	
Internal Link Dist (ft)		1023			101				918				264		
Turn Bay Length (ft)			200												
Base Capacity (vph)	402	431	270		539	322		50	241			210	362	305	
Starvation Cap Reductn	0	0	0		0	29		0	0			0	0	0	
Spillback Cap Reductn	0	0	0		0	0		0	0			0	0	0	
Storage Cap Reductn	0	0	0		0	0		0	0			0	0	0	
Reduced v/c Ratio	0.40	1.04	1.36		0.67	1.22		1.62	1.39			1.01	0.88	0.78	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 1:WBTL, Start of Green
Natural Cycle: 145
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.62
Intersection Signal Delay: 133.6 Intersection LOS: F
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.
! Phase conflict between lane groups.

Splits and Phases: 2: Merrimac Street/Lomasney Way & Staniford Street/Causeway Street



Lane Group	EBL	EBT	EBR2	WBL	WBT	WBR	NBT	NBR	SBL2	SBT	SBR	NWR	NWR2
Lane Configurations													
Traffic Volume (vph)	452	100	78	148	138	371	850	78	200	1018	300	31	21
Future Volume (vph)	452	100	78	148	138	371	850	78	200	1018	300	31	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	12	11	12	11	11	10	11	11	12	12
Storage Length (ft)	0			0		0		75			100	0	
Storage Lanes	2			0		1		0			1	1	
Taper Length (ft)	25			25									
Lane Util. Factor	0.97	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00
Ped Bike Factor		0.86				0.98	0.95				0.99		
Frt		0.934				0.850	0.987				0.850	0.865	
Flt Protected	0.950				0.975				0.950				
Satd. Flow (prot)	3164	1374	0	0	3214	1583	2984	0	1685	3172	1432	1644	0
Flt Permitted	0.950				0.975				0.950				
Satd. Flow (perm)	3164	1374	0	0	3214	1554	2984	0	1685	3172	1415	1644	0
Right Turn on Red			Yes			No					No		Yes
Satd. Flow (RTOR)		195										195	
Link Speed (mph)		30			30		30			30			
Link Distance (ft)		318			202		589			575			
Travel Time (s)		7.2			4.6		13.4			13.1			
Confl. Peds. (#/hr)			195					247					
Confl. Bikes (#/hr)			3			8		17			1		
Peak Hour Factor	0.87	0.87	0.87	0.82	0.82	0.82	0.91	0.91	0.93	0.93	0.93	0.92	0.92
Heavy Vehicles (%)	7%	8%	7%	2%	10%	2%	10%	5%	0%	10%	9%	0%	0%
Adj. Flow (vph)	520	115	90	180	168	452	934	86	215	1095	323	34	23
Shared Lane Traffic (%)													
Lane Group Flow (vph)	520	205	0	0	348	452	1020	0	215	1095	323	57	0
Turn Type	Split	NA		Split	NA	custom	NA		Prot	NA	custom	Prot	
Protected Phases	6	6		5	5	7	1		7	1 2 7	2 6 7	2	
Permitted Phases						6					1		
Detector Phase	6	6		5	5	7	1		7	1 7	6 7	2	
Switch Phase													
Minimum Initial (s)	8.0	8.0		8.0	8.0	4.0	8.0		4.0			4.0	
Minimum Split (s)	30.0	30.0		28.0	28.0	10.0	28.0		10.0			14.0	
Total Split (s)	30.0	30.0		32.0	32.0	21.0	43.0		21.0			14.0	
Total Split (%)	21.4%	21.4%		22.9%	22.9%	15.0%	30.7%		15.0%			10.0%	
Maximum Green (s)	24.0	24.0		22.0	22.0	15.0	37.0		15.0			8.0	
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0		3.0			3.0	
All-Red Time (s)	3.0	3.0		7.0	7.0	3.0	3.0		3.0			3.0	
Lost Time Adjust (s)	0.0	0.0			0.0	0.0	0.0		0.0			0.0	
Total Lost Time (s)	6.0	6.0			10.0	6.0	6.0		6.0			6.0	
Lead/Lag	Lag	Lag		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	
Recall Mode	None	None		Max	Max	None	Max		None			None	
Walk Time (s)	7.0	7.0		3.0	3.0		7.0						
Flash Dont Walk (s)	17.0	17.0		15.0	15.0		12.0						
Pedestrian Calls (#/hr)	100	100		176	176		100						
Act Effct Green (s)	24.0	24.0			22.0	39.0	37.0		15.0	66.3	85.6	4.5	
Actuated g/C Ratio	0.18	0.18			0.16	0.29	0.28		0.11	0.49	0.64	0.03	
v/c Ratio	0.92	0.51			0.66	1.00	1.24		1.14	0.70	0.36	0.23	
Control Delay	77.1	12.4			60.0	85.3	159.9		161.7	29.2	8.5	2.2	
Queue Delay	0.0	0.0			0.0	0.0	0.0		0.0	0.0	0.0	0.0	
Total Delay	77.1	12.4			60.0	85.3	159.9		161.7	29.2	8.5	2.2	
LOS	E	B			E	F	F		F	C	A	A	
Approach Delay		58.8			74.3		159.9			42.5			
Approach LOS		E			E		F			D			
Queue Length 50th (ft)	237	7			154	~382	~596		~225	379	93	0	
Queue Length 95th (ft)	#324	73			188	#542	#733		#391	460	136	0	
Internal Link Dist (ft)		238			122		509			495			
Turn Bay Length (ft)									200		100		
Base Capacity (vph)	565	405			527	454	822		188	1565	907	281	
Starvation Cap Reductn	0	0			0	0	0		0	0	0	0	
Spillback Cap Reductn	0	0			0	0	0		0	0	0	0	
Storage Cap Reductn	0	0			0	0	0		0	0	0	0	
Reduced v/c Ratio	0.92	0.51			0.66	1.00	1.24		1.14	0.70	0.36	0.20	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 134.4
Natural Cycle: 150
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.24
Intersection Signal Delay: 79.0 Intersection LOS: E
Intersection Capacity Utilization 97.6% 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.

Splits and Phases: 3: North Washington Street & Causeway Street

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	0	0	351	939	44	31	1198	14
Future Volume (vph)	0	0	0	0	0	0	351	939	44	31	1198	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	0		50
Storage Lanes	0		0	0		0	1		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.91	0.91	0.91
Ped Bike Factor								0.97			1.00	
Frt								0.993			0.998	
Flt Protected							0.950				0.999	
Satd. Flow (prot)	0	0	0	0	0	0	1425	2878	0	0	4316	0
Flt Permitted							0.950				0.884	
Satd. Flow (perm)	0	0	0	0	0	0	1425	2878	0	0	3809	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)								10			3	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		181			303			152			589	
Travel Time (s)		4.9			8.3			4.1			16.1	
Confl. Peds. (#/hr)									418	418		50
Confl. Bikes (#/hr)			1						96			11
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.94	0.94	0.94	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	14%	9%	0%	0%	8%	0%
Parking (#/hr)									0			
Adj. Flow (vph)	0	0	0	0	0	0	373	999	47	33	1261	15
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	0	373	1046	0	0	1309	0
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)							8.0	10.0		10.0	10.0	
Minimum Split (s)							28.0	27.0		27.0	27.0	
Total Split (s)							30.0	80.0		80.0	80.0	
Total Split (%)							27.3%	72.7%		72.7%	72.7%	
Maximum Green (s)							25.0	75.0		75.0	75.0	
Yellow Time (s)							3.0	3.0		3.0	3.0	
All-Red Time (s)							2.0	2.0		2.0	2.0	
Lost Time Adjust (s)							-1.0	-1.0			-1.0	
Total Lost Time (s)							4.0	4.0			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)							2.0	2.0		2.0	2.0	
Recall Mode							Ped	C-Max		C-Max	C-Max	
Walk Time (s)							7.0	7.0		7.0	7.0	
Flash Dont Walk (s)							15.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)							0	0		0	0	
Act Effct Green (s)							26.0	76.0			76.0	
Actuated g/C Ratio							0.24	0.69			0.69	
v/c Ratio							1.11	0.53			0.50	
Control Delay							114.5	6.4			8.8	
Queue Delay							1.5	0.9			0.0	
Total Delay							116.0	7.3			8.8	
LOS							F	A			A	
Approach Delay								35.8			8.8	
Approach LOS								D			A	
Queue Length 50th (ft)							~306	88			141	
Queue Length 95th (ft)							#501	150			172	
Internal Link Dist (ft)		101			223			72			509	
Turn Bay Length (ft)												
Base Capacity (vph)							336	1991			2632	
Starvation Cap Reductn							41	609			0	
Spillback Cap Reductn							0	0			0	
Storage Cap Reductn							0	0			0	
Reduced v/c Ratio							1.26	0.76			0.50	

Intersection Summary

Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 3 (3%), Referenced to phase 1:NBSB, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.11
Intersection Signal Delay: 22.9 Intersection LOS: C
Intersection Capacity Utilization 64.3% 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: 4: North Washington Street & Valenti Way/Thatcher Street

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations													
Traffic Volume (vph)	0	0	0	200	169	0	0	0	0	0	317	51	
Future Volume (vph)	0	0	0	200	169	0	0	0	0	0	317	51	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	11	12	12	12	12	12	12	12	12	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95	
Ped Bike Factor											0.99		
Frt											0.979		
Flt Protected				0.950									
Satd. Flow (prot)	0	0	0	1332	1400	0	0	0	0	0	2804	0	
Flt Permitted				0.950									
Satd. Flow (perm)	0	0	0	1332	1400	0	0	0	0	0	2804	0	
Right Turn on Red			Yes	Yes		Yes			Yes			Yes	
Satd. Flow (RTOR)				235							15		
Link Speed (mph)		25			25			30			30		
Link Distance (ft)		227			181			221			528		
Travel Time (s)		6.2			4.9			5.0			12.0		
Confl. Peds. (#/hr)												4	
Confl. Bikes (#/hr)						18			2			15	
Peak Hour Factor	0.92	0.92	0.92	0.85	0.85	0.85	0.92	0.92	0.92	0.84	0.84	0.84	
Heavy Vehicles (%)	0%	0%	0%	12%	16%	0%	0%	0%	0%	0%	14%	3%	
Adj. Flow (vph)	0	0	0	235	199	0	0	0	0	0	377	61	
Shared Lane Traffic (%)				0%									
Lane Group Flow (vph)	0	0	0	235	199	0	0	0	0	0	438	0	
Turn Type				Split	NA						NA		
Protected Phases				1	1						5		2
Permitted Phases													
Detector Phase				1	1						5		
Switch Phase													
Minimum Initial (s)				5.0	5.0						5.0		8.0
Minimum Split (s)				19.0	19.0						19.0		18.0
Total Split (s)				65.0	65.0						27.0		18.0
Total Split (%)				59.1%	59.1%						24.5%		16%
Maximum Green (s)				61.0	61.0						23.0		14.0
Yellow Time (s)				3.0	3.0						3.0		4.0
All-Red Time (s)				1.0	1.0						1.0		0.0
Lost Time Adjust (s)				0.0	0.0						0.0		
Total Lost Time (s)				4.0	4.0						4.0		
Lead/Lag				Lead	Lead								Lag
Lead-Lag Optimize?													
Vehicle Extension (s)				2.0	2.0						2.0		2.0
Recall Mode				C-Max	C-Max						Max		None
Walk Time (s)				7.0	7.0						7.0		7.0
Flash Dont Walk (s)				6.0	6.0						7.0		7.0
Pedestrian Calls (#/hr)				0	0						0		30
Act Effct Green (s)				68.2	68.2						23.0		
Actuated g/C Ratio				0.62	0.62						0.21		
v/c Ratio				0.26	0.23						0.73		
Control Delay				0.2	1.5						47.4		
Queue Delay				2.5	2.0						1.4		
Total Delay				2.7	3.5						48.8		
LOS				A	A						D		
Approach Delay					3.1						48.8		
Approach LOS					A						D		
Queue Length 50th (ft)				0	9						147		
Queue Length 95th (ft)				m0	m9						188		
Internal Link Dist (ft)		147			101			141			448		
Turn Bay Length (ft)													
Base Capacity (vph)				915	868						598		
Starvation Cap Reductn				552	526						0		
Spillback Cap Reductn				9	0						52		
Storage Cap Reductn				0	0						0		
Reduced v/c Ratio				0.65	0.58						0.80		

Intersection Summary			
Area Type:	CBD		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 87 (79%), Referenced to phase 1:WBTL, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.73			
Intersection Signal Delay: 26.0		Intersection LOS: C	
Intersection Capacity Utilization 29.4%		ICU Level of Service A	
Analysis Period (min) 15			

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

Splits and Phases: 5: Beverly St & Valenti Way

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations								
Traffic Volume (vph)	0	45	222	0	0	0	0	1067
Future Volume (vph)	0	45	222	0	0	0	0	1067
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.88
Frt		0.865						0.850
Flt Protected								
Satd. Flow (prot)	0	1450	2954	0	0	0	0	2347
Flt Permitted								
Satd. Flow (perm)	0	1450	2954	0	0	0	0	2347
Right Turn on Red		Yes						
Satd. Flow (RTOR)		99						
Link Speed (mph)	25		25			25	25	
Link Distance (ft)	328		169			188	568	
Travel Time (s)	8.9		4.6			5.1	15.5	
Peak Hour Factor	0.73	0.73	0.88	0.88	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	2%	10%	0%	0%	0%	0%	9%
Adj. Flow (vph)	0	62	252	0	0	0	0	1160
Shared Lane Traffic (%)								
Lane Group Flow (vph)	0	62	252	0	0	0	0	1160
Turn Type		Prot	NA					Prot
Protected Phases		2	3					1
Permitted Phases								
Detector Phase		2	3					1
Switch Phase								
Minimum Initial (s)		8.0	8.0					8.0
Minimum Split (s)		17.0	17.0					19.0
Total Split (s)		18.0	19.0					73.0
Total Split (%)		16.4%	17.3%					66.4%
Maximum Green (s)		14.0	15.0					69.0
Yellow Time (s)		3.0	3.0					3.0
All-Red Time (s)		1.0	1.0					1.0
Lost Time Adjust (s)		-1.0	-1.0					-1.0
Total Lost Time (s)		3.0	3.0					3.0
Lead/Lag		Lead	Lag					
Lead-Lag Optimize?								
Vehicle Extension (s)		2.0	2.0					2.0
Recall Mode		None	Max					C-Max
Walk Time (s)		7.0	7.0					7.0
Flash Dont Walk (s)		5.0	5.0					5.0
Pedestrian Calls (#/hr)		0	0					0
Act Effct Green (s)		9.0	16.0					78.4
Actuated g/C Ratio		0.08	0.15					0.71
v/c Ratio		0.30	0.59					0.69
Control Delay		6.8	50.1					7.0
Queue Delay		0.0	0.0					0.9
Total Delay		6.8	50.1					7.9
LOS		A	D					A
Approach Delay			50.1					
Approach LOS			D					
Queue Length 50th (ft)		0	88					107
Queue Length 95th (ft)		0	128					m221
Internal Link Dist (ft)	248		89			108	488	
Turn Bay Length (ft)								
Base Capacity (vph)		283	429					1672
Starvation Cap Reductn		0	0					246
Spillback Cap Reductn		0	0					0
Storage Cap Reductn		0	0					0
Reduced v/c Ratio		0.22	0.59					0.81

Intersection Summary

Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 34 (31%), Referenced to phase 1:NWR, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.69
Intersection Signal Delay: 15.1 Intersection LOS: B
Intersection Capacity Utilization 65.0% ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: I-93 Off-Ramps & Cross Street & Cooper Street

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	517	0	0	1198	0
Future Volume (vph)	0	517	0	0	1198	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.76	1.00	1.00	0.91	1.00
Frt		0.850				
Flt Protected						
Satd. Flow (prot)	0	3259	0	0	4803	0
Flt Permitted						
Satd. Flow (perm)	0	3259	0	0	4803	0
Right Turn on Red		No				Yes
Satd. Flow (RTOR)						
Link Speed (mph)	30			25	25	
Link Distance (ft)	221			242	150	
Travel Time (s)	5.0			6.6	4.1	
Peak Hour Factor	0.84	0.84	0.92	0.92	0.93	0.93
Heavy Vehicles (%)	0%	13%	0%	0%	8%	0%
Adj. Flow (vph)	0	615	0	0	1288	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	615	0	0	1288	0
Turn Type		Prot			NA	
Protected Phases		5			1	
Permitted Phases						
Detector Phase		5			1	
Switch Phase						
Minimum Initial (s)		8.0			8.0	
Minimum Split (s)		23.0			20.0	
Total Split (s)		38.0			72.0	
Total Split (%)		34.5%			65.5%	
Maximum Green (s)		33.0			67.0	
Yellow Time (s)		3.0			3.0	
All-Red Time (s)		2.0			2.0	
Lost Time Adjust (s)		-1.0			-1.0	
Total Lost Time (s)		4.0			4.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)		2.0			2.0	
Recall Mode		Max			C-Max	
Walk Time (s)		7.0			7.0	
Flash Dont Walk (s)		10.0			5.0	
Pedestrian Calls (#/hr)		0			0	
Act Effct Green (s)		34.0			68.0	
Actuated g/C Ratio		0.31			0.62	
v/c Ratio		0.61			0.43	
Control Delay		22.3			5.6	
Queue Delay		22.5			0.1	
Total Delay		44.8			5.7	
LOS		D			A	
Approach Delay					5.7	
Approach LOS					A	
Queue Length 50th (ft)		156			52	
Queue Length 95th (ft)		183			60	
Internal Link Dist (ft)	141			162	70	
Turn Bay Length (ft)						
Base Capacity (vph)		1007			2969	
Starvation Cap Reductn		400			521	
Spillback Cap Reductn		128			79	
Storage Cap Reductn		0			0	
Reduced v/c Ratio		1.01			0.53	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 4 (4%), Referenced to phase 1:SBT, Start of Green
Natural Cycle: 45
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.61
Intersection Signal Delay: 18.3 Intersection LOS: B
Intersection Capacity Utilization 41.9% ICU Level of Service A
Analysis Period (min) 15

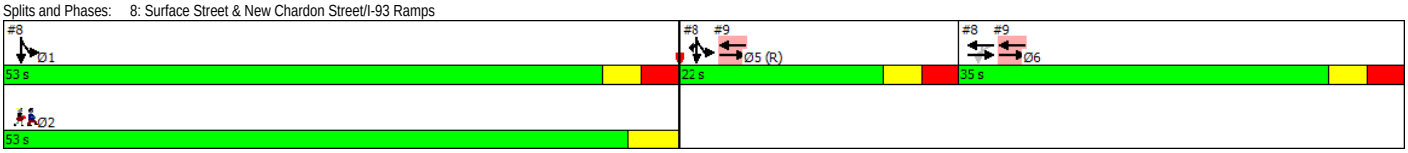
Splits and Phases: 7: Surface Street & Beverly St

Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø1	Ø2
Lane Configurations															
Traffic Volume (vph)	0	1032	75	19	10	429	0	0	0	0	1106	310	299		
Future Volume (vph)	0	1032	75	19	10	429	0	0	0	0	1106	310	299		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900		
Lane Width (ft)	12	12	12	12	12	14	12	12	12	12	12	11	13		
Lane Util. Factor	1.00	0.91	0.91	0.95	0.95	0.95	1.00	1.00	1.00	1.00	0.95	0.95	0.88		
Ped Bike Factor															
Frt		0.990											0.850		
Flt Protected						0.997					0.950	0.969			
Satd. Flow (prot)	0	4555	0	0	0	3353	0	0	0	0	1442	1375	2425		
Flt Permitted						0.670					0.950	0.969			
Satd. Flow (perm)	0	4555	0	0	0	2253	0	0	0	0	1442	1375	2425		
Right Turn on Red			No				Yes			Yes			No		
Satd. Flow (RTOR)															
Link Speed (mph)		25				25			25			25			
Link Distance (ft)		184				394			438			242			
Travel Time (s)		5.0				10.7			11.9			6.6			
Confl. Peds. (#/hr)													148		
Peak Hour Factor	0.91	0.91	0.91	0.95	0.95	0.95	0.95	0.92	0.92	0.92	0.94	0.94	0.94		
Heavy Vehicles (%)	0%	1%	8%	0%	11%	3%	0%	0%	0%	0%	7%	17%	9%		
Adj. Flow (vph)	0	1134	82	20	11	452	0	0	0	0	1177	330	318		
Shared Lane Traffic (%)											48%				
Lane Group Flow (vph)	0	1216	0	0	0	483	0	0	0	0	612	895	318		
Turn Type		NA		Perm	Perm	NA					Split	NA	custom		
Protected Phases		6				6					1 5	1 5	5	1	2
Permitted Phases				6	6										
Detector Phase		6		6	6	6					1 5	1 5	5		
Switch Phase															
Minimum Initial (s)		8.0		8.0	8.0	8.0							8.0	8.0	8.0
Minimum Split (s)		23.0		23.0	23.0	23.0							22.0	23.0	30.0
Total Split (s)		35.0		35.0	35.0	35.0							22.0	53.0	53.0
Total Split (%)		31.8%		31.8%	31.8%	31.8%							20.0%	48%	48%
Maximum Green (s)		29.0		29.0	29.0	29.0							16.0	47.0	49.0
Yellow Time (s)		3.0		3.0	3.0	3.0							3.0	3.0	4.0
All-Red Time (s)		3.0		3.0	3.0	3.0							3.0	3.0	0.0
Lost Time Adjust (s)		-2.0				-2.0							-2.0		
Total Lost Time (s)		4.0				4.0							4.0		
Lead/Lag		Lag		Lag	Lag	Lag							Lead		
Lead-Lag Optimize?															
Vehicle Extension (s)		2.0		2.0	2.0	2.0							2.0	2.0	2.0
Recall Mode		None		None	None	None							C-Max	None	None
Walk Time (s)		7.0		7.0	7.0	7.0								7.0	7.0
Flash Dont Walk (s)		7.0		7.0	7.0	7.0								7.0	19.0
Pedestrian Calls (#/hr)		0		0	0	0								0	100
Act Effct Green (s)		31.0				31.0					71.0	71.0	18.0		
Actuated g/C Ratio		0.28				0.28					0.65	0.65	0.16		
v/c Ratio		0.95				0.76					0.66	1.01	0.80		
Control Delay		27.1				45.2					11.4	45.8	52.4		
Queue Delay		44.1				0.0					1.1	20.3	0.2		
Total Delay		71.2				45.2					12.5	66.1	52.6		
LOS		E				D					B	E	D		
Approach Delay		71.2				45.2						45.8			
Approach LOS		E				D						D			
Queue Length 50th (ft)		267				164					224	~690	128		
Queue Length 95th (ft)		#399				228					295	#969	#202		
Internal Link Dist (ft)		104				314			358			162			
Turn Bay Length (ft)															
Base Capacity (vph)		1283				634					930	887	396		
Starvation Cap Reductn		252				0					134	50	3		
Spillback Cap Reductn		0				0					0	0	0		
Storage Cap Reductn		0				0					0	0	0		
Reduced v/c Ratio		1.18				0.76					0.77	1.07	0.81		

Intersection Summary

Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 28 (25%), Referenced to phase 5:SBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.01
Intersection Signal Delay: 54.5 Intersection LOS: D
Intersection Capacity Utilization 87.2% 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: 8: Surface Street & New Chardon Street/I-93 Ramps

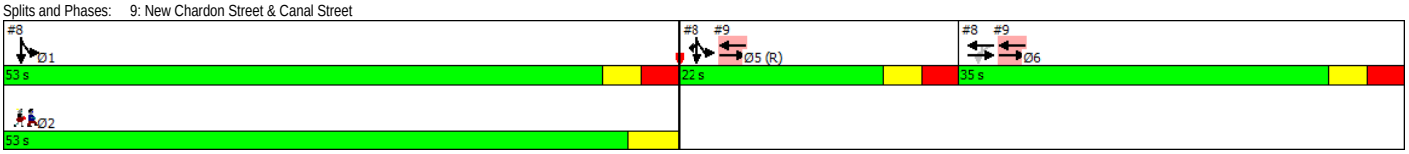


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø2	Ø5	Ø6
Lane Configurations										
Traffic Volume (vph)	0	1107	701	28	0	0				
Future Volume (vph)	0	1107	701	28	0	0				
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900				
Lane Util. Factor	1.00	0.95	0.91	0.91	1.00	1.00				
Ped Bike Factor			0.99							
Frt			0.994							
Flt Protected										
Satd. Flow (prot)	0	3217	4393	0	0	0				
Flt Permitted										
Satd. Flow (perm)	0	3217	4393	0	0	0				
Right Turn on Red				Yes		Yes				
Satd. Flow (RTOR)			7							
Link Speed (mph)		25	25		25					
Link Distance (ft)		287	184		238					
Travel Time (s)		7.8	5.0		6.5					
Confl. Bikes (#/hr)				186						
Peak Hour Factor	0.95	0.95	0.93	0.93	0.92	0.92				
Heavy Vehicles (%)	0%	1%	5%	4%	0%	0%				
Adj. Flow (vph)	0	1165	754	30	0	0				
Shared Lane Traffic (%)										
Lane Group Flow (vph)	0	1165	784	0	0	0				
Turn Type		NA	NA							
Protected Phases		5 6	5 6				1	2	5	6
Permitted Phases										
Detector Phase		5 6	5 6							
Switch Phase										
Minimum Initial (s)							8.0	8.0	8.0	8.0
Minimum Split (s)							23.0	30.0	22.0	23.0
Total Split (s)							53.0	53.0	22.0	35.0
Total Split (%)							48%	48%	20%	32%
Maximum Green (s)							47.0	49.0	16.0	29.0
Yellow Time (s)							3.0	4.0	3.0	3.0
All-Red Time (s)							3.0	0.0	3.0	3.0
Lost Time Adjust (s)										
Total Lost Time (s)										
Lead/Lag									Lead	Lag
Lead-Lag Optimize?										
Vehicle Extension (s)							2.0	2.0	2.0	2.0
Recall Mode							None	None	C-Max	None
Walk Time (s)							7.0	7.0		7.0
Flash Dont Walk (s)							7.0	19.0		7.0
Pedestrian Calls (#/hr)							0	100		0
Act Effct Green (s)		53.0	53.0							
Actuated g/C Ratio		0.48	0.48							
v/c Ratio		0.75	0.37							
Control Delay		14.3	2.8							
Queue Delay		39.8	0.8							
Total Delay		54.1	3.6							
LOS		D	A							
Approach Delay		54.1	3.6							
Approach LOS		D	A							
Queue Length 50th (ft)		124	6							
Queue Length 95th (ft)		m122	26							
Internal Link Dist (ft)		207	104		158					
Turn Bay Length (ft)										
Base Capacity (vph)		1550	2120							
Starvation Cap Reductn		469	948							
Spillback Cap Reductn		455	85							
Storage Cap Reductn		0	0							
Reduced v/c Ratio		1.08	0.67							

Intersection Summary			
Area Type:	CBD		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 28 (25%), Referenced to phase 5:SBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.01			
Intersection Signal Delay: 33.8		Intersection LOS: C	
Intersection Capacity Utilization 37.3%		ICU Level of Service A	
Analysis Period (min) 15			

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

Splits and Phases: 9: New Chardon Street & Canal Street



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (vph)	115	499	62	311	344	41	371	236	298	4	304	305	83
Future Volume (vph)	115	499	62	311	344	41	371	236	298	4	304	305	83
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	10	12	12	10	10	16	12	11	11	16
Storage Length (ft)	0		0	0		0	0		150		0		150
Storage Lanes	0		0	1		0	1		1		0		1
Taper Length (ft)	25			25			25				25		
Lane Util. Factor	0.95	0.95	0.95	0.91	0.91	0.95	0.91	0.91	1.00	0.91	0.91	0.91	1.00
Ped Bike Factor		0.93		0.86	0.96		0.89	0.95				0.85	0.71
Frt		0.986			0.987				0.850				0.850
Flt Protected		0.992		0.950	0.991		0.950	0.979				0.976	
Satd. Flow (prot)	0	2932	0	1254	2823	0	1314	2693	1615	0	0	4137	1647
Flt Permitted		0.992		0.950	0.991		0.950	0.979				0.976	
Satd. Flow (perm)	0	2874	0	1080	2752	0	1171	2570	1615	0	0	3507	1176
Right Turn on Red			Yes			Yes			No				Yes
Satd. Flow (RTOR)		9			7								159
Link Speed (mph)		25			25			25				25	
Link Distance (ft)		341			287			468				998	
Travel Time (s)		9.3			7.8			12.8				27.2	
Confl. Peds. (#/hr)	76		602	228		76	125		1385		1385		125
Confl. Bikes (#/hr)									11				7
Peak Hour Factor	0.94	0.94	0.94	0.97	0.97	0.97	0.98	0.98	0.98	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	3%	3%	10%	6%	3%	5%	6%	2%	0%	3%	10%	0%
Adj. Flow (vph)	122	531	66	321	355	42	379	241	304	4	330	332	90
Shared Lane Traffic (%)				27%			46%						
Lane Group Flow (vph)	0	719	0	234	484	0	205	415	304	0	0	666	90
Turn Type	Split	NA		Split	NA		Split	NA	pt+ov	Perm	Split	NA	Perm
Protected Phases	3	3		2	2		1	1	1 2		4	4	
Permitted Phases										4			4
Detector Phase	3	3		2	2		1	1	1 2	4	4	4	4
Switch Phase													
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	8.0	8.0
Minimum Split (s)	19.0	19.0		15.0	15.0		33.0	33.0		24.0	24.0	24.0	24.0
Total Split (s)	26.0	26.0		22.0	22.0		34.0	34.0		28.0	28.0	28.0	28.0
Total Split (%)	23.6%	23.6%		20.0%	20.0%		30.9%	30.9%		25.5%	25.5%	25.5%	25.5%
Maximum Green (s)	19.0	19.0		16.0	16.0		28.0	28.0		20.0	20.0	20.0	20.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0
All-Red Time (s)	4.0	4.0		3.0	3.0		3.0	3.0		5.0	5.0	5.0	5.0
Lost Time Adjust (s)		-2.0		-2.0	-2.0		-2.0	-2.0				-2.0	0.0
Total Lost Time (s)		5.0		4.0	4.0		4.0	4.0				6.0	8.0
Lead/Lag	Lag	Lag		Lead	Lead								
Lead-Lag Optimize?													
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0
Recall Mode	Max	Max		Max	Max		C-Max	C-Max		Max	Max	Max	Max
Walk Time (s)	7.0	7.0					7.0	7.0		7.0	7.0	7.0	7.0
Flash Dont Walk (s)	4.0	4.0					17.0	17.0		8.0	8.0	8.0	8.0
Pedestrian Calls (#/hr)	0	0					0	0		0	0	0	0
Act Effct Green (s)		21.0		18.0	18.0		30.0	30.0	52.0			22.0	20.0
Actuated g/C Ratio		0.19		0.16	0.16		0.27	0.27	0.47			0.20	0.18
v/c Ratio		1.27		1.14	1.04		0.57	0.57	0.40			1.10dl	0.26
Control Delay		174.5		156.8	107.3		55.2	52.8	39.0			50.6	1.9
Queue Delay		2.6		0.0	0.7		0.0	0.0	0.0			0.0	0.0
Total Delay		177.2		156.8	108.0		55.2	52.8	39.0			50.6	1.9
LOS		F		F	F		E	D	D			D	A
Approach Delay		177.2			123.9			48.8				44.8	
Approach LOS		F			F			D				D	
Queue Length 50th (ft)		~340		~220	~207		171	173	188			165	0
Queue Length 95th (ft)		#464		#398	#324		m202	m202	m228			212	1
Internal Link Dist (ft)		261			207			388				918	
Turn Bay Length (ft)									150				150
Base Capacity (vph)		567		205	467		358	734	763			827	343
Starvation Cap Reductn		0		0	1		0	0	0			0	0
Spillback Cap Reductn		152		0	0		0	0	0			0	0
Storage Cap Reductn		0		0	0		0	0	0			0	0
Reduced v/c Ratio		1.73		1.14	1.04		0.57	0.57	0.40			0.81	0.26

Intersection Summary

Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 79 (72%), Referenced to phase 1:NBTL, Start of Green
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.27
Intersection Signal Delay: 94.7 Intersection LOS: F
Intersection Capacity Utilization 91.8% ICU Level of Service F
Analysis Period (min) 15

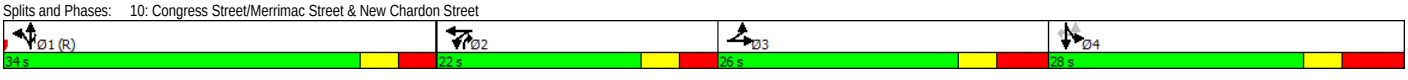
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

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

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

Splits and Phases: 10: Congress Street/Merrimac Street & New Chardon Street

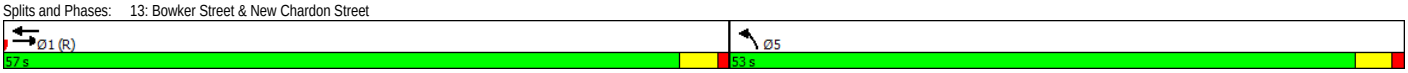


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	356	0	0	798	87	320
Future Volume (vph)	356	0	0	798	87	320
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt					0.894	
Flt Protected					0.989	
Satd. Flow (prot)	3539	0	0	3539	1655	0
Flt Permitted					0.989	
Satd. Flow (perm)	3539	0	0	3539	1655	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)					217	
Link Speed (mph)	25			30	30	
Link Distance (ft)	207			341	186	
Travel Time (s)	5.6			7.8	4.2	
Peak Hour Factor	0.90	0.90	0.93	0.93	0.65	0.65
Heavy Vehicles (%)	2%	0%	0%	2%	7%	0%
Adj. Flow (vph)	396	0	0	858	134	492
Shared Lane Traffic (%)						
Lane Group Flow (vph)	396	0	0	858	626	0
Turn Type	NA			NA	Prot	
Protected Phases	1			1	5	
Permitted Phases						
Detector Phase	1			1	5	
Switch Phase						
Minimum Initial (s)	4.0			4.0	4.0	
Minimum Split (s)	22.0			22.0	22.0	
Total Split (s)	57.0			57.0	53.0	
Total Split (%)	51.8%			51.8%	48.2%	
Maximum Green (s)	53.0			53.0	49.0	
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			2.0	2.0	
Recall Mode	C-Max			C-Max	None	
Walk Time (s)	7.0			7.0	7.0	
Flash Dont Walk (s)	11.0			11.0	11.0	
Pedestrian Calls (#/hr)	0			0	0	
Act Effct Green (s)	65.4			65.4	36.6	
Actuated g/C Ratio	0.59			0.59	0.33	
v/c Ratio	0.19			0.41	0.90	
Control Delay	12.1			2.7	38.5	
Queue Delay	0.0			0.4	0.0	
Total Delay	12.1			3.1	38.5	
LOS	B			A	D	
Approach Delay	12.1			3.1	38.5	
Approach LOS	B			A	D	
Queue Length 50th (ft)	64			19	290	
Queue Length 95th (ft)	115			m80	184	
Internal Link Dist (ft)	127			261	106	
Turn Bay Length (ft)						
Base Capacity (vph)	2104			2104	857	
Starvation Cap Reductn	0			702	0	
Spillback Cap Reductn	0			0	0	
Storage Cap Reductn	0			0	0	
Reduced v/c Ratio	0.19			0.61	0.73	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 94 (85%), Referenced to phase 1:EBWB, Start of Green
Natural Cycle: 45
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.90
Intersection Signal Delay: 16.8 Intersection LOS: B
Intersection Capacity Utilization 53.3% ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 13: Bowker Street & New Chardon Street



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	356	26	238	648	0	0
Future Volume (Veh/h)	356	26	238	648	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.96	0.96	0.62	0.62
Hourly flow rate (vph)	405	30	248	675	0	0
Pedestrians					128	
Lane Width (ft)					0.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	579			207		
pX, platoon unblocked					0.87	
vC, conflicting volume			563		1382	346
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			563		1147	346
tC, single (s)			4.2		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			75		100	100
cM capacity (veh/h)			991		128	656

Direction, Lane #	EB 1	EB 2	WB 1	WB 2
Volume Total	270	165	473	450
Volume Left	0	0	248	0
Volume Right	0	30	0	0
cSH	1700	1700	991	1700
Volume to Capacity	0.16	0.10	0.25	0.26
Queue Length 95th (ft)	0	0	25	0
Control Delay (s)	0.0	0.0	6.5	0.0
Lane LOS			A	
Approach Delay (s)	0.0		3.3	
Approach LOS				

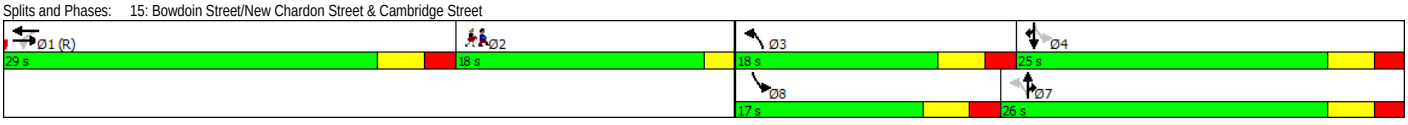
Intersection Summary				
Average Delay	2.3			
Intersection Capacity Utilization	44.8%	ICU Level of Service	A	
Analysis Period (min)	15			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations													
Traffic Volume (vph)	0	654	73	16	312	47	223	331	137	253	173	222	
Future Volume (vph)	0	654	73	16	312	47	223	331	137	253	173	222	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	0		0	0		0	0		100	0		100	
Storage Lanes	0		0	0		0	1		1	1		1	
Taper Length (ft)	25			25			25			25			
Lane Util. Factor	1.00	0.91	0.91	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor		1.00			0.98								
Frt		0.985			0.981				0.850			0.850	
Flt Protected					0.998		0.950			0.950			
Satd. Flow (prot)	0	4899	0	0	3374	0	1656	1863	1509	1671	1845	1583	
Flt Permitted					0.903		0.535			0.202			
Satd. Flow (perm)	0	4899	0	0	3053	0	933	1863	1509	355	1845	1583	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)		20			17				109			244	
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		236			438			363			579		
Travel Time (s)		5.4			10.0			8.3			13.2		
Confl. Bikes (#/hr)			30			153			12				
Peak Hour Factor	0.98	0.98	0.98	0.91	0.91	0.91	0.92	0.92	0.92	0.91	0.91	0.91	
Heavy Vehicles (%)	0%	4%	3%	0%	2%	10%	9%	2%	7%	8%	3%	2%	
Adj. Flow (vph)	0	667	74	18	343	52	242	360	149	278	190	244	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	741	0	0	413	0	242	360	149	278	190	244	
Turn Type		NA		Perm	NA		pm+pt	NA	Prot	pm+pt	NA	Prot	
Protected Phases		1			1		3	7	7	8	4	4	2
Permitted Phases				1			7			4			
Detector Phase		1		1	1		3	7	7	8	4	4	
Switch Phase													
Minimum Initial (s)		8.0		8.0	8.0		8.0	8.0	8.0	8.0	8.0	8.0	1.0
Minimum Split (s)		28.0		28.0	28.0		13.0	13.0	13.0	13.0	13.0	13.0	18.0
Total Split (s)		29.0		29.0	29.0		18.0	26.0	26.0	17.0	25.0	25.0	18.0
Total Split (%)		32.2%		32.2%	32.2%		20.0%	28.9%	28.9%	18.9%	27.8%	27.8%	20%
Maximum Green (s)		24.0		24.0	24.0		13.0	21.0	21.0	12.0	20.0	20.0	16.0
Yellow Time (s)		3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	2.0
All-Red Time (s)		2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	0.0
Lost Time Adjust (s)		0.0			0.0		0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		5.0			5.0		5.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag		Lead		Lead	Lead		Lead	Lag	Lag	Lead	Lag	Lag	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	2.0
Recall Mode		C-Max		C-Max	C-Max		None	Min	Min	None	Min	Min	Ped
Walk Time (s)		7.0		7.0	7.0								7.0
Flash Dont Walk (s)		16.0		16.0	16.0								9.0
Pedestrian Calls (#/hr)		0		0	0								20
Act Effct Green (s)		25.4			25.4		31.5	19.6	19.6	31.8	19.8	19.8	
Actuated g/C Ratio		0.28			0.28		0.35	0.22	0.22	0.35	0.22	0.22	
v/c Ratio		0.53			0.47		0.57	0.89	0.36	0.93	0.47	0.45	
Control Delay		21.7			15.5		24.5	58.8	12.4	60.4	34.9	7.1	
Queue Delay		0.8			0.9		0.0	0.0	0.0	0.0	0.0	0.1	
Total Delay		22.5			16.4		24.5	58.8	12.4	60.4	34.9	7.2	
LOS		C			B		C	E	B	E	C	A	
Approach Delay		22.5			16.4			38.6			35.4		
Approach LOS		C			B			D			D		
Queue Length 50th (ft)		68			41		91	195	18	107	94	0	
Queue Length 95th (ft)		190			m56		149	#339	67	#259	159	59	
Internal Link Dist (ft)		156			358			283			499		
Turn Bay Length (ft)									100			100	
Base Capacity (vph)		1396			873		442	434	435	300	411	542	
Starvation Cap Reductn		345			0		0	0	0	0	0	0	
Spillback Cap Reductn		0			226		1	0	0	0	0	23	
Storage Cap Reductn		0			0		0	0	0	0	0	0	
Reduced v/c Ratio		0.71			0.64		0.55	0.83	0.34	0.93	0.46	0.47	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 1:EBWB, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.93
Intersection Signal Delay: 29.6 Intersection LOS: C
Intersection Capacity Utilization 66.0% 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: 15: Bowdoin Street/New Chardon Street & Cambridge Street

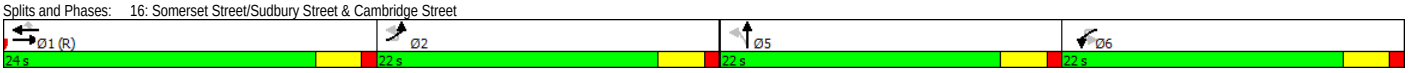


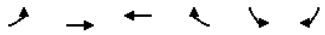
Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations														
Traffic Volume (vph)	28	284	616	117	19	53	279	165	69	109	30	0	0	0
Future Volume (vph)	28	284	616	117	19	53	279	165	69	109	30	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0		0		100		100	0		0	0		0
Storage Lanes		2		0		1		1	0		0	0		0
Taper Length (ft)		25				25			25			25		
Lane Util. Factor	0.95	0.97	0.95	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.90					0.60		0.95				
Frt			0.976					0.850		0.981				
Flt Protected		0.950				0.950				0.984				
Satd. Flow (prot)	0	3409	3104	0	0	1805	3574	1538	0	1736	0	0	0	0
Flt Permitted		0.574				0.368				0.984				
Satd. Flow (perm)	0	2060	3104	0	0	699	3574	921	0	1736	0	0	0	0
Right Turn on Red				Yes				Yes			Yes			Yes
Satd. Flow (RTOR)			22					172		8				
Link Speed (mph)			30				30			30			30	
Link Distance (ft)			438				763			259			584	
Travel Time (s)			10.0				17.3			5.9			13.3	
Confl. Peds. (#/hr)				535				533			244			
Confl. Bikes (#/hr)				4				80			3			
Peak Hour Factor	0.98	0.98	0.98	0.98	0.96	0.96	0.96	0.96	0.91	0.91	0.91	0.92	0.92	0.92
Heavy Vehicles (%)	0%	3%	2%	4%	0%	0%	1%	5%	1%	0%	3%	0%	0%	0%
Adj. Flow (vph)	29	290	629	119	20	55	291	172	76	120	33	0	0	0
Shared Lane Traffic (%)														
Lane Group Flow (vph)	0	319	748	0	0	75	291	172	0	229	0	0	0	0
Turn Type	custom	Prot	NA		custom	Prot	NA	Perm	Perm	NA				
Protected Phases		2	1			6	1			5				
Permitted Phases	2				6			1	5					
Detector Phase	2	2	1		6	6	1	1	5	5				
Switch Phase														
Minimum Initial (s)	8.0	8.0	8.0		8.0	8.0	8.0	8.0	8.0	8.0				
Minimum Split (s)	22.0	22.0	27.0		22.0	22.0	27.0	27.0	22.0	22.0				
Total Split (s)	22.0	22.0	24.0		22.0	22.0	24.0	24.0	22.0	22.0				
Total Split (%)	24.4%	24.4%	26.7%		24.4%	24.4%	26.7%	26.7%	24.4%	24.4%				
Maximum Green (s)	18.0	18.0	20.0		18.0	18.0	20.0	20.0	18.0	18.0				
Yellow Time (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0				
All-Red Time (s)	1.0	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	0.0		0.0				
Total Lost Time (s)		4.0	4.0			4.0	4.0	4.0		4.0				
Lead/Lag	Lag	Lag	Lead		Lag	Lag	Lead	Lead	Lead	Lead				
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		None	None	C-Max	C-Max	None	None				
Walk Time (s)	7.0	7.0	7.0				7.0	7.0						
Flash Dont Walk (s)	11.0	11.0	16.0				16.0	16.0						
Pedestrian Calls (#/hr)	0	0	0				0	0						
Act Effct Green (s)		16.5	31.3			13.7	31.3	31.3		14.9				
Actuated g/C Ratio		0.18	0.35			0.15	0.35	0.35		0.17				
v/c Ratio		0.84	0.68			0.71	0.23	0.40		0.78				
Control Delay		43.5	32.8			69.1	25.4	8.1		52.7				
Queue Delay		0.0	0.0			0.0	0.0	0.0		0.0				
Total Delay		43.5	32.8			69.1	25.4	8.1		52.7				
LOS		D	C			E	C	A		D				
Approach Delay			36.0				25.9			52.7				
Approach LOS			D				C			D				
Queue Length 50th (ft)		91	168			41	66	0		120				
Queue Length 95th (ft)		m#142	m#313			#95	111	57		194				
Internal Link Dist (ft)			358				683			179			504	
Turn Bay Length (ft)						100		100						
Base Capacity (vph)		412	1092			139	1242	432		353				
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		0.77	0.68			0.54	0.23	0.40		0.65				

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 1:EBWB, Start of Green
Natural Cycle: 95
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.84
Intersection Signal Delay: 35.1 Intersection LOS: D
Intersection Capacity Utilization 51.8% 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: 16: Somerset Street/Sudbury Street & Cambridge Street





Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	558	0	0	219	0
Future Volume (Veh/h)	0	558	0	0	219	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	607	0	0	238	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		584				
pX, platoon unblocked					0.95	
vC, conflicting volume	0				304	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0				152	0
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				70	100
cM capacity (veh/h)	1636				786	1091

Direction, Lane #	EB 1	EB 2	SB 1
Volume Total	304	304	238
Volume Left	0	0	238
Volume Right	0	0	0
cSH	1700	1700	786
Volume to Capacity	0.18	0.18	0.30
Queue Length 95th (ft)	0	0	32
Control Delay (s)	0.0	0.0	11.6
Lane LOS			B
Approach Delay (s)	0.0		11.6
Approach LOS			B

Intersection Summary				
Average Delay			3.3	
Intersection Capacity Utilization			34.2%	ICU Level of Service A
Analysis Period (min)			15	

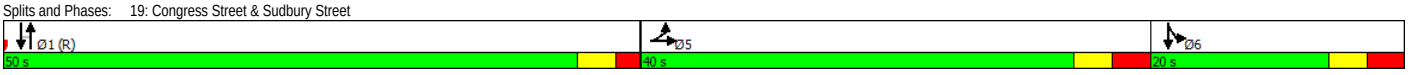
Intersection Sign configuration not allowed in HCM analysis.

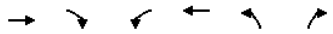
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (vph)	65	520	173	0	0	0	10	0	836	367	157	517	0
Future Volume (vph)	65	520	173	0	0	0	10	0	836	367	157	517	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	11	10	12	12	12	12	11	11	11	10	11	11
Storage Length (ft)	0		0	0		0		0		0	100		0
Storage Lanes	1		0	0		0		0		0	1		0
Taper Length (ft)	25			25				25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	0.91	1.00	0.91	0.91	1.00	0.91	1.00
Ped Bike Factor	0.69	0.91							0.87		0.92		
Frt		0.963							0.955				
Flt Protected	0.950										0.950		
Satd. Flow (prot)	1392	2474	0	0	0	0	0	0	3580	0	1486	4029	0
Flt Permitted	0.950								0.934		0.950		
Satd. Flow (perm)	960	2474	0	0	0	0	0	0	3344	0	1370	4029	0
Right Turn on Red			Yes			Yes				No			Yes
Satd. Flow (RTOR)		44											
Link Speed (mph)		25			25				25			25	
Link Distance (ft)		153			161				380			468	
Travel Time (s)		4.2			4.4				10.4			12.8	
Confl. Peds. (#/hr)	236		435							650	650		
Confl. Bikes (#/hr)			5							46			2
Peak Hour Factor	0.89	0.89	0.89	0.92	0.92	0.92	0.98	0.98	0.98	0.98	0.93	0.93	0.93
Heavy Vehicles (%)	5%	5%	6%	0%	0%	0%	0%	0%	3%	7%	2%	12%	0%
Parking (#/hr)	0	0											
Adj. Flow (vph)	73	584	194	0	0	0	10	0	853	374	169	556	0
Shared Lane Traffic (%)													
Lane Group Flow (vph)	73	778	0	0	0	0	0	0	1237	0	169	556	0
Turn Type	Split	NA					Perm		NA		Prot	NA	
Protected Phases	5	5							1		6	1 6	
Permitted Phases							1						
Detector Phase	5	5					1		1		6	1 6	
Switch Phase													
Minimum Initial (s)	8.0	8.0					10.0		10.0		7.0		
Minimum Split (s)	28.0	28.0					27.0		27.0		14.0		
Total Split (s)	40.0	40.0					50.0		50.0		20.0		
Total Split (%)	36.4%	36.4%					45.5%		45.5%		18.2%		
Maximum Green (s)	34.0	34.0					45.0		45.0		14.0		
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		3.0		
Lost Time Adjust (s)	-2.0	-2.0							-2.0		-2.0		
Total Lost Time (s)	4.0	4.0							3.0		4.0		
Lead/Lag	Lead	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		Max		
Walk Time (s)	7.0	7.0					7.0		7.0				
Flash Dont Walk (s)	15.0	15.0					15.0		15.0				
Pedestrian Calls (#/hr)	150	150					150		150				
Act Effct Green (s)	36.0	36.0							47.0		16.0	67.0	
Actuated g/C Ratio	0.33	0.33							0.43		0.15	0.61	
v/c Ratio	0.16	0.93							0.87		0.78	0.23	
Control Delay	27.5	52.2							39.6		55.8	11.9	
Queue Delay	0.0	47.3							4.2		0.0	0.0	
Total Delay	27.5	99.5							43.7		55.8	11.9	
LOS	C	F							D		E	B	
Approach Delay		93.3							43.7			22.1	
Approach LOS		F							D			C	
Queue Length 50th (ft)	36	264							259		129	79	
Queue Length 95th (ft)	71	#382							390		m135	m83	
Internal Link Dist (ft)		73			81				300			388	
Turn Bay Length (ft)											100		
Base Capacity (vph)	455	839							1428		216	2454	
Starvation Cap Reductn	0	0							131		0	0	
Spillback Cap Reductn	0	297							0		0	0	
Storage Cap Reductn	0	0							0		0	0	
Reduced v/c Ratio	0.16	1.44							0.95		0.78	0.23	

Intersection Summary

Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.93
Intersection Signal Delay: 53.2 Intersection LOS: D
Intersection Capacity Utilization 76.1% 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: 19: Congress Street & Sudbury Street





Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	985	58	0	0	0	65
Future Volume (Veh/h)	985	58	0	0	0	65
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.92	0.92	0.83	0.83
Hourly flow rate (vph)	1119	66	0	0	0	78
Pedestrians					286	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					24	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	161			111		
pX, platoon unblocked						
vC, conflicting volume			1471		1438	692
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1471		1438	692
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	74
cM capacity (veh/h)			354		96	298

Direction, Lane #	EB 1	EB 2	EB 3	NB 1
Volume Total	448	448	290	78
Volume Left	0	0	0	0
Volume Right	0	0	66	78
cSH	1700	1700	1700	298
Volume to Capacity	0.26	0.26	0.17	0.26
Queue Length 95th (ft)	0	0	0	26
Control Delay (s)	0.0	0.0	0.0	21.3
Lane LOS				C
Approach Delay (s)	0.0			21.3
Approach LOS				C

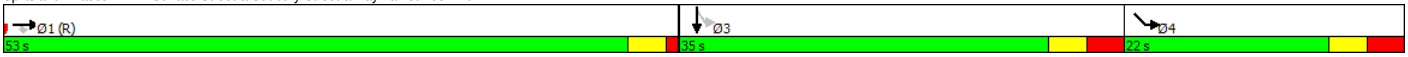
Intersection Summary				
Average Delay	1.3			
Intersection Capacity Utilization	31.5%	ICU Level of Service	A	
Analysis Period (min)	15			

Lane Group	EBT	EBR	SBL	SBT	SEL	SER
Lane Configurations						
Traffic Volume (vph)	893	157	71	325	29	6
Future Volume (vph)	893	157	71	325	29	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	12	12	12	12
Lane Util. Factor	0.95	1.00	0.95	0.95	1.00	1.00
Ped Bike Factor		0.53		0.94		
Frt		0.850			0.977	
Flt Protected				0.991	0.960	
Satd. Flow (prot)	3323	1553	0	3352	918	0
Flt Permitted				0.991	0.960	
Satd. Flow (perm)	3323	831	0	3141	918	0
Right Turn on Red		Yes	No			
Satd. Flow (RTOR)		171				
Link Speed (mph)	25			25	25	
Link Distance (ft)	111			438	138	
Travel Time (s)	3.0			11.9	3.8	
Confl. Peds. (#/hr)		402	183			
Confl. Bikes (#/hr)		10				
Peak Hour Factor	0.92	0.92	0.88	0.88	0.77	0.77
Heavy Vehicles (%)	5%	4%	1%	8%	93%	100%
Adj. Flow (vph)	971	171	81	369	38	8
Shared Lane Traffic (%)						
Lane Group Flow (vph)	971	171	0	450	46	0
Turn Type	NA	Perm	Perm	NA	Prot	
Protected Phases	1			3	4	
Permitted Phases		1	3			
Detector Phase	1	1	3	3	4	
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	6.0	
Minimum Split (s)	21.0	21.0	18.0	18.0	13.0	
Total Split (s)	53.0	53.0	35.0	35.0	22.0	
Total Split (%)	48.2%	48.2%	31.8%	31.8%	20.0%	
Maximum Green (s)	49.0	49.0	29.0	29.0	16.0	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	1.0	1.0	3.0	3.0	3.0	
Lost Time Adjust (s)	-1.0	-1.0		-2.0	0.0	
Total Lost Time (s)	3.0	3.0		4.0	6.0	
Lead/Lag			Lead	Lead	Lag	
Lead-Lag Optimize?						
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	
Recall Mode	C-Max	C-Max	Max	Max	Max	
Walk Time (s)	7.0	7.0	7.0	7.0		
Flash Dont Walk (s)	5.0	5.0	4.0	4.0		
Pedestrian Calls (#/hr)	0	0	25	25		
Act Effct Green (s)	50.0	50.0		31.0	16.0	
Actuated g/C Ratio	0.45	0.45		0.28	0.15	
v/c Ratio	0.64	0.36		0.51	0.35	
Control Delay	23.5	2.9		30.1	50.5	
Queue Delay	51.0	0.8		0.0	0.0	
Total Delay	74.5	3.7		30.1	50.5	
LOS	E	A		C	D	
Approach Delay	63.9			30.1	50.5	
Approach LOS	E			C	D	
Queue Length 50th (ft)	306	4		130	30	
Queue Length 95th (ft)	m356	m6		m134	57	
Internal Link Dist (ft)	31			358	58	
Turn Bay Length (ft)						
Base Capacity (vph)	1510	471		885	133	
Starvation Cap Reductn	725	123		0	0	
Spillback Cap Reductn	0	0		0	0	
Storage Cap Reductn	0	0		0	0	
Reduced v/c Ratio	1.24	0.49		0.51	0.35	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 69 (63%), Referenced to phase 1:EBT, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.64
Intersection Signal Delay: 54.2 Intersection LOS: D
Intersection Capacity Utilization 52.4% ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 21: Surface Street & Sudbury Street & Haymarket Bus Exit

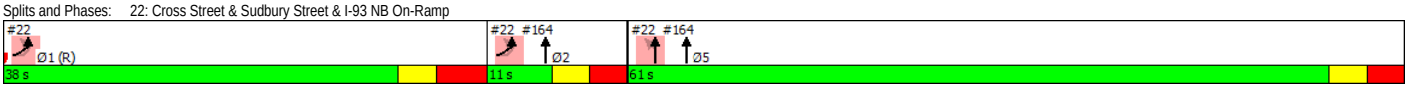


Lane Group	EBL2	EBL	EBR	NBL	NBT	SBT	SBR	SEL	SER	Ø1	Ø2
Lane Configurations											
Traffic Volume (vph)	712	281	0	642	787	0	0	0	0		
Future Volume (vph)	712	281	0	642	787	0	0	0	0		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900		
Lane Width (ft)	12	13	12	12	11	12	12	12	12		
Lane Util. Factor	0.95	0.97	1.00	0.95	0.95	1.00	1.00	1.00	1.00		
Ped Bike Factor											
Frt											
Flt Protected		0.950			0.978						
Satd. Flow (prot)	0	3378	0	0	3272	0	0	0	0		
Flt Permitted		0.950			0.978						
Satd. Flow (perm)	0	3378	0	0	3272	0	0	0	0		
Right Turn on Red	Yes		Yes								
Satd. Flow (RTOR)		192									
Link Speed (mph)		25			25	25		25			
Link Distance (ft)		191			203	568		237			
Travel Time (s)		5.2			5.5	15.5		6.5			
Confl. Bikes (#/hr)			11								
Peak Hour Factor	0.92	0.92	0.92	0.95	0.95	0.92	0.92	0.92	0.92		
Heavy Vehicles (%)	4%	15%	0%	1%	7%	0%	0%	0%	0%		
Adj. Flow (vph)	774	305	0	676	828	0	0	0	0		
Shared Lane Traffic (%)											
Lane Group Flow (vph)	0	1079	0	0	1504	0	0	0	0		
Turn Type	Perm	Prot		Perm	NA						
Protected Phases		1 2			5					1	2
Permitted Phases	1 2			5							
Detector Phase	1 2	1 2		5	5						
Switch Phase											
Minimum Initial (s)				10.0	10.0					10.0	4.0
Minimum Split (s)				18.0	18.0					25.0	11.0
Total Split (s)				61.0	61.0					38.0	11.0
Total Split (%)				55.5%	55.5%					35%	10%
Maximum Green (s)				55.0	55.0					31.0	5.0
Yellow Time (s)				3.0	3.0					3.0	3.0
All-Red Time (s)				3.0	3.0					4.0	3.0
Lost Time Adjust (s)					-1.0						
Total Lost Time (s)					5.0						
Lead/Lag										Lead	Lag
Lead-Lag Optimize?											
Vehicle Extension (s)				2.0	2.0					2.0	2.0
Recall Mode				Max	Max					C-Max	Max
Walk Time (s)				7.0	7.0					7.0	
Flash Dont Walk (s)				4.0	4.0					3.0	
Pedestrian Calls (#/hr)				30	30					0	
Act Effct Green (s)		43.0			56.0						
Actuated g/C Ratio		0.39			0.51						
v/c Ratio		0.95dl			0.90						
Control Delay		5.4			15.0						
Queue Delay		0.2			0.3						
Total Delay		5.6			15.3						
LOS		A			B						
Approach Delay		5.6			15.3						
Approach LOS		A			B						
Queue Length 50th (ft)		11			458						
Queue Length 95th (ft)		20			#618						
Internal Link Dist (ft)		111			123	488		157			
Turn Bay Length (ft)											
Base Capacity (vph)		1437			1665						
Starvation Cap Reductn		53			0						
Spillback Cap Reductn		2			17						
Storage Cap Reductn		0			0						
Reduced v/c Ratio		0.78			0.91						

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 74 (67%), Referenced to phase 1:EBL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.90
Intersection Signal Delay: 11.3 Intersection LOS: B
Intersection Capacity Utilization 89.0% 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.
dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 22: Cross Street & Sudbury Street & I-93 NB On-Ramp



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	29	0	0	91	85	162	1299	51	0	0	0
Future Volume (vph)	45	29	0	0	91	85	162	1299	51	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	1.00	1.00	0.95	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor	0.72				0.77			0.95				
Frt					0.935			0.995				
Flt Protected	0.950							0.995				
Satd. Flow (prot)	1624	1660	0	0	1229	0	0	3048	0	0	0	0
Flt Permitted	0.509							0.995				
Satd. Flow (perm)	624	1660	0	0	1229	0	0	2971	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					7			6				
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		244			263			292			187	
Travel Time (s)		6.7			7.2			8.0			5.1	
Confl. Peds. (#/hr)	510					510	107		528			
Confl. Bikes (#/hr)			12			7			95			1
Peak Hour Factor	0.71	0.71	0.71	0.89	0.89	0.89	0.96	0.96	0.96	0.92	0.92	0.92
Heavy Vehicles (%)	0%	3%	0%	0%	1%	0%	9%	2%	0%	0%	0%	0%
Parking (#/hr)									0			
Adj. Flow (vph)	63	41	0	0	102	96	169	1353	53	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	63	41	0	0	198	0	0	1575	0	0	0	0
Turn Type	Perm	NA			NA		Split	NA				
Protected Phases		5			5		1	1				
Permitted Phases	5											
Detector Phase	5	5			5		1	1				
Switch Phase												
Minimum Initial (s)	8.0	8.0			8.0		8.0	8.0				
Minimum Split (s)	21.0	21.0			21.0		23.0	23.0				
Total Split (s)	34.0	34.0			34.0		76.0	76.0				
Total Split (%)	30.9%	30.9%			30.9%		69.1%	69.1%				
Maximum Green (s)	29.0	29.0			29.0		71.0	71.0				
Yellow Time (s)	3.0	3.0			3.0		3.0	3.0				
All-Red Time (s)	2.0	2.0			2.0		2.0	2.0				
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)	2.0	2.0			2.0		2.0	2.0				
Recall Mode	Max	Max			Max		C-Max	C-Max				
Walk Time (s)	7.0	7.0			7.0		7.0	7.0				
Flash Dont Walk (s)	8.0	8.0			8.0		8.0	8.0				
Pedestrian Calls (#/hr)	50	50			50		0	0				
Act Effct Green (s)	30.0	30.0			30.0			72.0				
Actuated g/C Ratio	0.27	0.27			0.27			0.65				
v/c Ratio	0.37	0.09			0.58			0.79				
Control Delay	57.0	46.1			41.4			7.1				
Queue Delay	0.0	0.0			0.0			4.5				
Total Delay	57.0	46.1			41.4			11.6				
LOS	E	D			D			B				
Approach Delay		52.7			41.4			11.6				
Approach LOS		D			D			B				
Queue Length 50th (ft)	45	29			117			14				
Queue Length 95th (ft)	72	53			193			293				
Internal Link Dist (ft)		164			183			212			107	
Turn Bay Length (ft)												
Base Capacity (vph)	170	452			340			1997				
Starvation Cap Reductn	0	0			0			301				
Spillback Cap Reductn	0	0			0			348				
Storage Cap Reductn	0	0			0			0				
Reduced v/c Ratio	0.37	0.09			0.58			0.96				

Intersection Summary			
Area Type:	CBD		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 98 (89%), Referenced to phase 1:NBTL, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.79			
Intersection Signal Delay: 17.0		Intersection LOS: B	
Intersection Capacity Utilization 90.9%		ICU Level of Service E	
Analysis Period (min) 15			

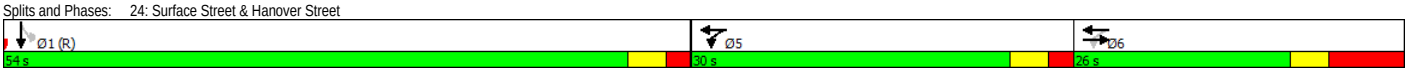
Splits and Phases: 23: Cross Street & Hanover Street

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	40	10	76	178	0	0	0	0	34	431	23
Future Volume (vph)	0	40	10	76	178	0	0	0	0	34	431	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor		0.93		0.70							0.96	
Frt		0.970									0.993	
Flt Protected				0.950							0.997	
Satd. Flow (prot)	0	2629	0	1504	1693	0	0	0	0	0	2868	0
Flt Permitted				0.712							0.997	
Satd. Flow (perm)	0	2629	0	789	1693	0	0	0	0	0	2840	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13									6	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		362			244			470			333	
Travel Time (s)		9.9			6.7			12.8			9.1	
Confl. Peds. (#/hr)			162	162						72		415
Confl. Bikes (#/hr)			2			15						14
Peak Hour Factor	0.75	0.75	0.75	0.89	0.89	0.89	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	10%	20%	8%	1%	0%	0%	0%	0%	0%	9%	13%
Adj. Flow (vph)	0	53	13	85	200	0	0	0	0	37	468	25
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	66	0	85	200	0	0	0	0	0	530	0
Turn Type		NA		D.P+P	NA					Perm	NA	
Protected Phases		6		5	5 6						1	
Permitted Phases				6						1		
Detector Phase		6		5	5 6					1	1	
Switch Phase												
Minimum Initial (s)		10.0		10.0						10.0	10.0	
Minimum Split (s)		22.0		18.0						27.0	27.0	
Total Split (s)		26.0		30.0						54.0	54.0	
Total Split (%)		23.6%		27.3%						49.1%	49.1%	
Maximum Green (s)		17.0		25.0						49.0	49.0	
Yellow Time (s)		3.0		3.0						3.0	3.0	
All-Red Time (s)		6.0		2.0						2.0	2.0	
Lost Time Adjust (s)		-5.0		-1.0							-1.0	
Total Lost Time (s)		4.0		4.0							4.0	
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)		2.0		2.0						2.0	2.0	
Recall Mode		Max		Max						C-Max	C-Max	
Walk Time (s)		7.0		7.0						7.0	7.0	
Flash Dont Walk (s)		5.0		5.0						10.0	10.0	
Pedestrian Calls (#/hr)		0		0						0	0	
Act Effct Green (s)		22.0		48.0	52.0						50.0	
Actuated g/C Ratio		0.20		0.44	0.47						0.45	
v/c Ratio		0.12		0.17	0.25						0.41	
Control Delay		19.3		16.7	17.7						8.7	
Queue Delay		0.0		0.0	2.8						0.5	
Total Delay		19.3		16.7	20.5						9.2	
LOS		B		B	C						A	
Approach Delay		19.3			19.3						9.2	
Approach LOS		B			B						A	
Queue Length 50th (ft)		18		28	66						41	
Queue Length 95th (ft)		28		m44	m104						58	
Internal Link Dist (ft)		282			164			390			253	
Turn Bay Length (ft)												
Base Capacity (vph)		536		513	800						1294	
Starvation Cap Reductn		0		0	488						382	
Spillback Cap Reductn		0		0	0						0	
Storage Cap Reductn		0		0	0						0	
Reduced v/c Ratio		0.12		0.17	0.64						0.58	

Intersection Summary

Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 17 (15%), Referenced to phase 1:SBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.41
Intersection Signal Delay: 13.2 Intersection LOS: B
Intersection Capacity Utilization 90.9% ICU Level of Service E
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 24: Surface Street & Hanover Street



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	200	1012	50	0	700
Future Volume (vph)	0	200	1012	50	0	700
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.91	0.91	1.00	0.91
Frt		0.865	0.993			
Flt Protected						
Satd. Flow (prot)	0	1644	5151	0	0	5187
Flt Permitted						
Satd. Flow (perm)	0	1644	5151	0	0	5187
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		85	11			
Link Speed (mph)	30		25			25
Link Distance (ft)	362		451			380
Travel Time (s)	8.2		12.3			10.4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	217	1100	54	0	761
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	217	1154	0	0	761
Turn Type		Prot	NA			NA
Protected Phases		2	1			1
Permitted Phases						
Detector Phase		2	1			1
Switch Phase						
Minimum Initial (s)		4.0	4.0			4.0
Minimum Split (s)		22.0	22.0			22.0
Total Split (s)		43.0	67.0			67.0
Total Split (%)		39.1%	60.9%			60.9%
Maximum Green (s)		39.0	63.0			63.0
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		Lag	Lead			Lead
Lead-Lag Optimize?						
Vehicle Extension (s)		2.0	2.0			2.0
Recall Mode		None	C-Max			C-Max
Walk Time (s)		7.0				
Flash Dont Walk (s)		11.0				
Pedestrian Calls (#/hr)		0				
Act Effct Green (s)		13.9	88.1			88.1
Actuated g/C Ratio		0.13	0.80			0.80
v/c Ratio		0.77	0.28			0.18
Control Delay		45.9	1.4			1.1
Queue Delay		0.2	0.1			0.0
Total Delay		46.1	1.5			1.1
LOS		D	A			A
Approach Delay			1.5			1.1
Approach LOS			A			A
Queue Length 50th (ft)		116	23			1
Queue Length 95th (ft)		174	m68			m49
Internal Link Dist (ft)	282		371			300
Turn Bay Length (ft)						
Base Capacity (vph)		637	4129			4156
Starvation Cap Reductn		0	1485			0
Spillback Cap Reductn		84	379			0
Storage Cap Reductn		0	0			0
Reduced v/c Ratio		0.39	0.44			0.18

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 56 (51%), Referenced to phase 1:NBSB, Start of Green			
Natural Cycle: 45			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.77			
Intersection Signal Delay: 5.9		Intersection LOS: A	
Intersection Capacity Utilization 39.7%		ICU Level of Service A	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 25: Congress Street

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations													
Traffic Volume (vph)	489	41	0	0	0	0	0	1023	27	0	0	0	
Future Volume (vph)	489	41	0	0	0	0	0	1023	27	0	0	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00	
Ped Bike Factor								1.00					
Frt								0.996					
Flt Protected	0.950	0.960											
Satd. Flow (prot)	1442	1474	0	0	0	0	0	3105	0	0	0	0	
Flt Permitted	0.950	0.960											
Satd. Flow (perm)	1442	1474	0	0	0	0	0	3105	0	0	0	0	
Right Turn on Red	No		Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)								3					
Link Speed (mph)		25			25			25			25		
Link Distance (ft)		145			386			247			292		
Travel Time (s)		4.0			10.5			6.7			8.0		
Confl. Bikes (#/hr)									112				
Peak Hour Factor	0.88	0.88	0.88	0.92	0.92	0.92	0.94	0.94	0.94	0.92	0.92	0.92	
Heavy Vehicles (%)	7%	0%	0%	0%	0%	0%	0%	4%	0%	0%	0%	0%	
Adj. Flow (vph)	556	47	0	0	0	0	0	1088	29	0	0	0	
Shared Lane Traffic (%)	42%												
Lane Group Flow (vph)	322	281	0	0	0	0	0	1117	0	0	0	0	
Turn Type	Split	NA						NA					
Protected Phases	1	1						5					2
Permitted Phases													
Detector Phase	1	1						5					
Switch Phase													
Minimum Initial (s)	8.0	8.0						8.0					8.0
Minimum Split (s)	15.0	15.0						14.0					18.0
Total Split (s)	43.0	43.0						49.0					18.0
Total Split (%)	39.1%	39.1%						44.5%					16%
Maximum Green (s)	38.0	38.0						44.0					14.0
Yellow Time (s)	3.0	3.0						3.0					4.0
All-Red Time (s)	2.0	2.0						2.0					0.0
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?													
Vehicle Extension (s)	2.0	2.0						2.0					2.0
Recall Mode	C-Max	C-Max						Max					Ped
Walk Time (s)													7.0
Flash Dont Walk (s)													7.0
Pedestrian Calls (#/hr)													0
Act Effct Green (s)	39.0	39.0						45.0					
Actuated g/C Ratio	0.35	0.35						0.41					
v/c Ratio	0.63	0.54						0.88					
Control Delay	36.2	33.0						39.3					
Queue Delay	0.0	0.0						15.2					
Total Delay	36.2	33.0						54.4					
LOS	D	C						D					
Approach Delay		34.7						54.4					
Approach LOS		C						D					
Queue Length 50th (ft)	196	165						375					
Queue Length 95th (ft)	293	248						#486					
Internal Link Dist (ft)		65			306			167			212		
Turn Bay Length (ft)													
Base Capacity (vph)	511	522						1272					
Starvation Cap Reductn	0	0						0					
Spillback Cap Reductn	0	0						169					
Storage Cap Reductn	0	0						0					
Reduced v/c Ratio	0.63	0.54						1.01					

Intersection Summary

Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 25 (23%), Referenced to phase 1:EBTL, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.88
Intersection Signal Delay: 47.5 Intersection LOS: D
Intersection Capacity Utilization 55.3% 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.

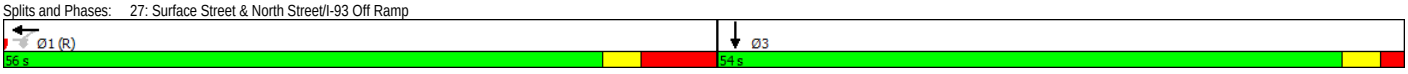
Splits and Phases: 26: Cross Street & I-93 Off-Ramp/North Street

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	118	121	199	0	0	0	0	0	482	35
Future Volume (vph)	0	0	118	121	199	0	0	0	0	0	482	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95
Ped Bike Factor											0.97	
Frt			0.865								0.990	
Flt Protected					0.981							
Satd. Flow (prot)	0	0	1370	0	3113	0	0	0	0	0	2893	0
Flt Permitted					0.981							
Satd. Flow (perm)	0	0	1370	0	3113	0	0	0	0	0	2893	0
Right Turn on Red			No	No		Yes			Yes			Yes
Satd. Flow (RTOR)											9	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		373			108			468			470	
Travel Time (s)		10.2			2.9			12.8			12.8	
Confl. Peds. (#/hr)												466
Confl. Bikes (#/hr)												19
Peak Hour Factor	0.84	0.84	0.84	0.73	0.73	0.73	0.92	0.92	0.92	0.86	0.86	0.86
Heavy Vehicles (%)	0%	0%	8%	3%	2%	0%	0%	0%	0%	0%	8%	9%
Parking (#/hr)												0
Adj. Flow (vph)	0	0	140	166	273	0	0	0	0	0	560	41
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	140	0	439	0	0	0	0	0	601	0
Turn Type			Perm	Perm	NA						NA	
Protected Phases					1						3	
Permitted Phases			1	1								
Detector Phase			1	1	1						3	
Switch Phase												
Minimum Initial (s)			10.0	10.0	10.0						10.0	
Minimum Split (s)			25.0	25.0	25.0						25.0	
Total Split (s)			56.0	56.0	56.0						54.0	
Total Split (%)			50.9%	50.9%	50.9%						49.1%	
Maximum Green (s)			47.0	47.0	47.0						49.0	
Yellow Time (s)			3.0	3.0	3.0						3.0	
All-Red Time (s)			6.0	6.0	6.0						2.0	
Lost Time Adjust (s)			-5.0		-5.0						-1.0	
Total Lost Time (s)			4.0		4.0						4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)			2.0	2.0	2.0						2.0	
Recall Mode			C-Max	C-Max	C-Max						Max	
Walk Time (s)			7.0	7.0	7.0						7.0	
Flash Dont Walk (s)			5.0	5.0	5.0						12.0	
Pedestrian Calls (#/hr)			0	0	0						0	
Act Effct Green (s)			52.0		52.0						50.0	
Actuated g/C Ratio			0.47		0.47						0.45	
v/c Ratio			0.22		0.30						0.46	
Control Delay			8.0		18.5						23.1	
Queue Delay			0.0		0.0						0.0	
Total Delay			8.0		18.5						23.1	
LOS			A		B						C	
Approach Delay					18.5						23.1	
Approach LOS					B						C	
Queue Length 50th (ft)			37		97						201	
Queue Length 95th (ft)			56		103						245	
Internal Link Dist (ft)		293			28			388			390	
Turn Bay Length (ft)												
Base Capacity (vph)			647		1471						1319	
Starvation Cap Reductn			0		0						0	
Spillback Cap Reductn			0		0						0	
Storage Cap Reductn			0		0						0	
Reduced v/c Ratio			0.22		0.30						0.46	

Intersection Summary

Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 0 (0%), Referenced to phase 1:WBTL, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.46
Intersection Signal Delay: 19.6 Intersection LOS: B
Intersection Capacity Utilization 45.1% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 27: Surface Street & North Street/I-93 Off Ramp

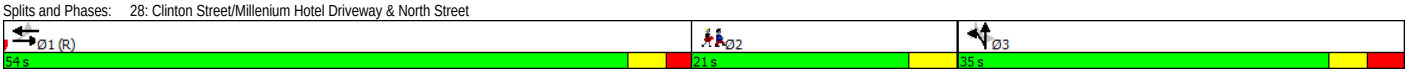


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations													
Traffic Volume (vph)	4	79	0	0	234	0	278	0	37	2	0	6	
Future Volume (vph)	4	79	0	0	234	0	278	0	37	2	0	6	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	
Ped Bike Factor		0.98						0.98		0.96		0.67	
Frt								0.965				0.850	
Flt Protected		0.998					0.950	0.963		0.950			
Satd. Flow (prot)	0	1493	0	0	2997	0	1298	1388	0	1624	0	1454	
Flt Permitted		0.989					0.950	0.963		0.579			
Satd. Flow (perm)	0	1449	0	0	2997	0	1298	1388	0	946	0	974	
Right Turn on Red			Yes			Yes			No			Yes	
Satd. Flow (RTOR)												60	
Link Speed (mph)		25			25			25			30		
Link Distance (ft)		241			373			604			110		
Travel Time (s)		6.6			10.2			16.5			2.5		
Confl. Peds. (#/hr)	349					349			31	31		371	
Confl. Bikes (#/hr)			11			4							
Peak Hour Factor	0.90	0.90	0.90	0.84	0.84	0.84	0.92	0.92	0.92	0.67	0.67	0.67	
Heavy Vehicles (%)	0%	3%	0%	0%	3%	0%	7%	0%	6%	0%	0%	0%	
Parking (#/hr)		0			0		0		0				
Adj. Flow (vph)	4	88	0	0	279	0	302	0	40	3	0	9	
Shared Lane Traffic (%)							43%						
Lane Group Flow (vph)	0	92	0	0	279	0	172	170	0	3	0	9	
Turn Type	Perm	NA			NA		Split	NA		D.Pm		Perm	
Protected Phases		1			1		3	3					2
Permitted Phases	1									3		3	
Detector Phase	1	1			1		3	3		3		3	
Switch Phase													
Minimum Initial (s)	23.0	23.0			23.0		9.0	9.0		9.0		9.0	7.0
Minimum Split (s)	30.0	30.0			30.0		16.0	16.0		16.0		16.0	21.0
Total Split (s)	54.0	54.0			54.0		35.0	35.0		35.0		35.0	21.0
Total Split (%)	49.1%	49.1%			49.1%		31.8%	31.8%		31.8%		31.8%	19%
Maximum Green (s)	49.0	49.0			49.0		29.0	29.0		29.0		29.0	17.0
Yellow Time (s)	3.0	3.0			3.0		3.0	3.0		3.0		3.0	4.0
All-Red Time (s)	2.0	2.0			2.0		3.0	3.0		3.0		3.0	0.0
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0		0.0	
Total Lost Time (s)		5.0			5.0		6.0	6.0		6.0		6.0	
Lead/Lag	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
Recall Mode	C-Max	C-Max			C-Max		Max	Max		Max		Max	Ped
Walk Time (s)	7.0	7.0			7.0								7.0
Flash Dont Walk (s)	5.0	5.0			5.0								10.0
Pedestrian Calls (#/hr)	0	0			0								0
Act Effct Green (s)		49.0			49.0		29.0	29.0		29.0		29.0	
Actuated g/C Ratio		0.45			0.45		0.26	0.26		0.26		0.26	
v/c Ratio		0.14			0.21		0.50	0.47		0.01		0.03	
Control Delay		40.0			9.5		32.3	4.2		30.5		0.2	
Queue Delay		0.0			0.1		0.9	0.7		0.0		0.0	
Total Delay		40.0			9.5		33.2	4.9		30.5		0.2	
LOS		D			A		C	A		C		A	
Approach Delay		40.0			9.5			19.1					
Approach LOS		D			A			B					
Queue Length 50th (ft)		65			23		61	0		2		0	
Queue Length 95th (ft)		108			31		m78	0		7		0	
Internal Link Dist (ft)		161			293			524			30		
Turn Bay Length (ft)													
Base Capacity (vph)		645			1335		342	365		249		300	
Starvation Cap Reductn		0			0		0	0		0		0	
Spillback Cap Reductn		0			213		46	49		0		39	
Storage Cap Reductn		0			0		0	0		0		0	
Reduced v/c Ratio		0.14			0.25		0.58	0.54		0.01		0.03	

Intersection Summary

Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 3 (3%), Referenced to phase 1:EBWB, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.50
Intersection Signal Delay: 17.9 Intersection LOS: B
Intersection Capacity Utilization 53.0% ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 28: Clinton Street/Millenium Hotel Driveway & North Street



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6
Lane Configurations												
Traffic Volume (vph)	14	83	485	33	0	0						
Future Volume (vph)	14	83	485	33	0	0						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900						
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	1.00						
Ped Bike Factor	0.89		0.97									
Frt			0.991									
Flt Protected	0.950											
Satd. Flow (prot)	1624	1693	2963	0	0	0						
Flt Permitted	0.277											
Satd. Flow (perm)	422	1693	2963	0	0	0						
Right Turn on Red				Yes		Yes						
Satd. Flow (RTOR)			6									
Link Speed (mph)		25	25		25							
Link Distance (ft)		141	241		180							
Travel Time (s)		3.8	6.6		4.9							
Confl. Peds. (#/hr)	331			331								
Confl. Bikes (#/hr)				4								
Peak Hour Factor	0.86	0.86	0.91	0.91	0.92	0.92						
Heavy Vehicles (%)	0%	1%	5%	6%	0%	0%						
Parking (#/hr)				0								
Adj. Flow (vph)	16	97	533	36	0	0						
Shared Lane Traffic (%)												
Lane Group Flow (vph)	16	97	569	0	0	0						
Turn Type	D.P+P	NA	NA									
Protected Phases	1 2 6	1 2 6	4 5				1	2	3	4	5	6
Permitted Phases	4 5	4 5										
Detector Phase	1 2 6	1 2 6	4 5									
Switch Phase												
Minimum Initial (s)							7.0	3.0	7.0	8.0	3.0	4.0
Minimum Split (s)							14.0	9.0	24.0	15.0	8.0	10.0
Total Split (s)							30.0	10.0	24.0	28.0	8.0	10.0
Total Split (%)							27%	9%	22%	25%	7%	9%
Maximum Green (s)							25.0	5.0	20.0	22.0	4.0	5.0
Yellow Time (s)							3.0	3.0	4.0	3.0	3.0	3.0
All-Red Time (s)							2.0	2.0	0.0	3.0	1.0	2.0
Lost Time Adjust (s)												
Total Lost Time (s)												
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)							2.0	2.0	2.0	2.0	2.0	2.0
Recall Mode							C-Max	Max	Ped	Max	Max	Max
Walk Time (s)									7.0			
Flash Dont Walk (s)									13.0			
Pedestrian Calls (#/hr)									0			
Act Effct Green (s)	76.0	81.0	30.0									
Actuated g/C Ratio	0.69	0.74	0.27									
v/c Ratio	0.02	0.08	0.70									
Control Delay	1.3	1.1	27.5									
Queue Delay	0.4	2.9	22.9									
Total Delay	1.6	4.0	50.3									
LOS	A	A	D									
Approach Delay		3.7	50.3									
Approach LOS		A	D									
Queue Length 50th (ft)	0	1	162									
Queue Length 95th (ft)	m1	m8	206									
Internal Link Dist (ft)		61	161		100							
Turn Bay Length (ft)												
Base Capacity (vph)	783	1246	812									
Starvation Cap Reductn	627	1057	251									
Spillback Cap Reductn	0	0	42									
Storage Cap Reductn	0	0	0									
Reduced v/c Ratio	0.10	0.51	1.01									

Intersection Summary

Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 50 (45%), Referenced to phase 1:EBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.93
Intersection Signal Delay: 42.6 Intersection LOS: D
Intersection Capacity Utilization 21.6% ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

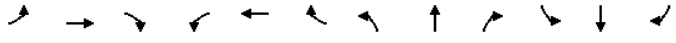
Splits and Phases: 29: North Street & Union Street

Lane Group	WBL	WBR	NBU	NBT	NBR	SBU	SBL	SBT	Ø1	Ø2	Ø3	Ø5
Lane Configurations												
Traffic Volume (vph)	251	234	2	807	55	22	42	636				
Future Volume (vph)	251	234	2	807	55	22	42	636				
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1700	1700	1700				
Lane Util. Factor	0.97	0.95	0.91	0.91	0.91	0.91	0.91	0.91				
Ped Bike Factor	0.74			0.97				0.99				
Frt	0.928			0.991								
Flt Protected	0.975							0.995				
Satd. Flow (prot)	2580	0	0	4291	0	0	0	3901				
Flt Permitted	0.975			0.939				0.691				
Satd. Flow (perm)	2134	0	0	4029	0	0	0	2684				
Right Turn on Red		Yes			No							
Satd. Flow (RTOR)	191											
Link Speed (mph)	25			25				25				
Link Distance (ft)	141			126				451				
Travel Time (s)	3.8			3.4				12.3				
Confl. Peds. (#/hr)	314	146			1133		1133					
Confl. Bikes (#/hr)		3			24							
Peak Hour Factor	0.81	0.81	0.91	0.91	0.91	0.96	0.96	0.96				
Heavy Vehicles (%)	3%	4%	0%	5%	0%	0%	3%	7%				
Adj. Flow (vph)	310	289	2	887	60	23	44	663				
Shared Lane Traffic (%)												
Lane Group Flow (vph)	599	0	0	949	0	0	0	730				
Turn Type	Prot		Perm	NA		custom	custom	NA				
Protected Phases	4			1 2		6	6	1 6	1	2	3	5
Permitted Phases			1 2			1	1					
Detector Phase	4		1 2	1 2		6	6	1 6				
Switch Phase												
Minimum Initial (s)	8.0					4.0	4.0		7.0	3.0	7.0	3.0
Minimum Split (s)	15.0					10.0	10.0		14.0	9.0	24.0	8.0
Total Split (s)	28.0					10.0	10.0		30.0	10.0	24.0	8.0
Total Split (%)	25.5%					9.1%	9.1%		27%	9%	22%	7%
Maximum Green (s)	22.0					5.0	5.0		25.0	5.0	20.0	4.0
Yellow Time (s)	3.0					3.0	3.0		3.0	3.0	4.0	3.0
All-Red Time (s)	3.0					2.0	2.0		2.0	2.0	0.0	1.0
Lost Time Adjust (s)	0.0											
Total Lost Time (s)	6.0											
Lead/Lag	Lead								Lead	Lag		Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0					2.0	2.0		2.0	2.0	2.0	2.0
Recall Mode	Max					Max	Max		C-Max	Max	Ped	Max
Walk Time (s)											7.0	
Flash Dont Walk (s)											13.0	
Pedestrian Calls (#/hr)											0	
Act Effct Green (s)	22.0			35.0				30.0				
Actuated g/C Ratio	0.20			0.32				0.27				
v/c Ratio	0.90			0.74				0.93				
Control Delay	27.1			3.9				57.6				
Queue Delay	17.5			5.2				0.0				
Total Delay	44.6			9.0				57.6				
LOS	D			A				E				
Approach Delay	44.6			9.0				57.6				
Approach LOS	D			A				E				
Queue Length 50th (ft)	19			23				173				
Queue Length 95th (ft)	#75			m27				#263				
Internal Link Dist (ft)	61			46				371				
Turn Bay Length (ft)												
Base Capacity (vph)	668			1281				787				
Starvation Cap Reductn	77			267				0				
Spillback Cap Reductn	0			0				0				
Storage Cap Reductn	0			0				0				
Reduced v/c Ratio	1.01			0.94				0.93				

Intersection Summary

Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 50 (45%), Referenced to phase 1:EBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.93
Intersection Signal Delay: 33.9 Intersection LOS: C
Intersection Capacity Utilization 69.3% 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: 30: Congress Street & North Street



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations													
Traffic Volume (vph)	0	0	0	409	180	0	0	0	0	0	666	55	
Future Volume (vph)	0	0	0	409	180	0	0	0	0	0	666	55	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	14	16	12	12	12	12	12	12	12	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.91	0.91	
Ped Bike Factor				0.65	0.86						0.96		
Frt											0.989		
Flt Protected				0.950	0.980								
Satd. Flow (prot)	0	0	0	1583	1696	0	0	0	0	0	4223	0	
Flt Permitted				0.950	0.980								
Satd. Flow (perm)	0	0	0	1029	1455	0	0	0	0	0	4223	0	
Right Turn on Red			Yes	No		Yes			Yes			Yes	
Satd. Flow (RTOR)											12		
Link Speed (mph)		25			25			25			25		
Link Distance (ft)		604			407			164			468		
Travel Time (s)		16.5			11.1			4.5			12.8		
Confl. Peds. (#/hr)				217								612	
Confl. Bikes (#/hr)												9	
Peak Hour Factor	0.92	0.92	0.92	0.94	0.94	0.94	0.92	0.92	0.92	0.91	0.91	0.91	
Heavy Vehicles (%)	0%	0%	0%	4%	8%	0%	0%	0%	0%	0%	5%	11%	
Adj. Flow (vph)	0	0	0	435	191	0	0	0	0	0	732	60	
Shared Lane Traffic (%)				30%									
Lane Group Flow (vph)	0	0	0	304	322	0	0	0	0	0	792	0	
Turn Type				Split	NA						NA		
Protected Phases				5	5						1		2
Permitted Phases													
Detector Phase				5	5						1		
Switch Phase													
Minimum Initial (s)				8.0	8.0						8.0		8.0
Minimum Split (s)				19.0	19.0						27.0		24.0
Total Split (s)				51.0	51.0						35.0		24.0
Total Split (%)				46.4%	46.4%						31.8%		22%
Maximum Green (s)				46.0	46.0						29.0		20.0
Yellow Time (s)				3.0	3.0						3.0		4.0
All-Red Time (s)				2.0	2.0						3.0		0.0
Lost Time Adjust (s)				-2.0	-2.0						-2.0		
Total Lost Time (s)				3.0	3.0						4.0		
Lead/Lag											Lead		Lag
Lead-Lag Optimize?													
Vehicle Extension (s)				2.0	2.0						2.0		2.0
Recall Mode				Max	Max						C-Max		Ped
Walk Time (s)				7.0	7.0						7.0		7.0
Flash Dont Walk (s)				6.0	6.0						11.0		13.0
Pedestrian Calls (#/hr)				0	0						0		0
Act Effct Green (s)				48.0	48.0						31.0		
Actuated g/C Ratio				0.44	0.44						0.28		
v/c Ratio				0.44	0.44						0.66		
Control Delay				24.2	23.9						32.2		
Queue Delay				0.0	0.0						0.0		
Total Delay				24.2	23.9						32.2		
LOS				C	C						C		
Approach Delay					24.0						32.2		
Approach LOS					C						C		
Queue Length 50th (ft)				153	163						154		
Queue Length 95th (ft)				234	245						203		
Internal Link Dist (ft)		524			327			84			388		
Turn Bay Length (ft)													
Base Capacity (vph)				690	740						1198		
Starvation Cap Reductn				0	0						0		
Spillback Cap Reductn				0	0						0		
Storage Cap Reductn				0	0						0		
Reduced v/c Ratio				0.44	0.44						0.66		

Intersection Summary			
Area Type:	CBD		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 1 (1%), Referenced to phase 1:SBT, Start of Green			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.66			
Intersection Signal Delay: 28.6		Intersection LOS: C	
Intersection Capacity Utilization 41.0%		ICU Level of Service A	
Analysis Period (min) 15			

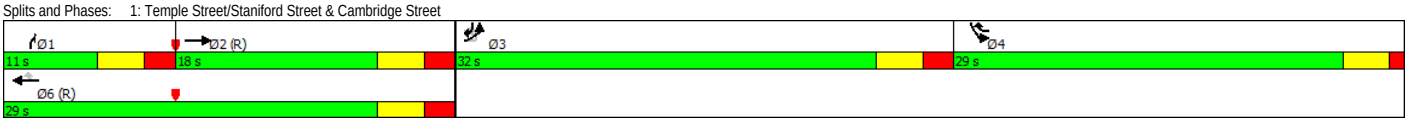
Splits and Phases: 31: Surface Street & Clinton Street/I-93 Off Ramp

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (vph)	16	209	527	0	0	453	195	0	0	15	245	0	260
Future Volume (vph)	16	209	527	0	0	453	195	0	0	15	245	0	260
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	10	11	12	12	11	12	12	12	12	11	12	11
Storage Length (ft)		140		0	0		0	0		0	0		0
Storage Lanes		1		0	0		1	0		1	1		1
Taper Length (ft)		25			25			25			25		
Lane Util. Factor	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor							0.98						
Frt							0.850			0.865			0.850
Flt Protected		0.950									0.950		
Satd. Flow (prot)	0	1632	3250	0	0	3261	1509	0	0	1644	1678	0	1313
Flt Permitted		0.475									0.950		
Satd. Flow (perm)	0	816	3250	0	0	3261	1484	0	0	1644	1678	0	1313
Right Turn on Red				No			Yes			No			No
Satd. Flow (RTOR)							210						
Link Speed (mph)			30			30			30			30	
Link Distance (ft)			407			236			206			1103	
Travel Time (s)			9.3			5.4			4.7			25.1	
Confl. Bikes (#/hr)				60			12			2			6
Peak Hour Factor	0.89	0.89	0.89	0.89	0.93	0.93	0.93	0.54	0.54	0.54	0.92	0.92	0.92
Heavy Vehicles (%)	6%	3%	2%	0%	0%	7%	7%	0%	0%	0%	4%	0%	7%
Parking (#/hr)			0										0
Adj. Flow (vph)	18	235	592	0	0	487	210	0	0	28	266	0	283
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	253	592	0	0	487	210	0	0	28	266	0	283
Turn Type	custom	Prot	NA			NA	pm+ov			Prot	Prot		Over
Protected Phases		3	2			6	4			1	4		3!
Permitted Phases	3!						6						
Detector Phase	3	3	2			6	4			1	4		3
Switch Phase													
Minimum Initial (s)	8.0	8.0	12.0			12.0	8.0			6.0	8.0		8.0
Minimum Split (s)	32.0	32.0	17.0			24.0	29.0			11.0	29.0		32.0
Total Split (s)	32.0	32.0	18.0			29.0	29.0			11.0	29.0		32.0
Total Split (%)	35.6%	35.6%	20.0%			32.2%	32.2%			12.2%	32.2%		35.6%
Maximum Green (s)	27.0	27.0	13.0			24.0	25.0			6.0	25.0		27.0
Yellow Time (s)	3.0	3.0	3.0			3.0	3.0			3.0	3.0		3.0
All-Red Time (s)	2.0	2.0	2.0			2.0	1.0			2.0	1.0		2.0
Lost Time Adjust (s)		0.0	0.0			0.0	0.0			0.0	0.0		0.0
Total Lost Time (s)		5.0	5.0			5.0	4.0			5.0	4.0		5.0
Lead/Lag	Lead	Lead	Lag				Lag			Lead	Lag		Lead
Lead-Lag Optimize?													
Vehicle Extension (s)	2.0	2.0	2.0			2.0	2.0			2.0	2.0		2.0
Recall Mode	Min	Min	C-Max			C-Max	Min			None	Min		Min
Walk Time (s)	7.0	7.0				7.0	7.0				7.0		7.0
Flash Dont Walk (s)	20.0	20.0				12.0	18.0				18.0		20.0
Pedestrian Calls (#/hr)	140	140				140	132				132		140
Act Effct Green (s)		27.0	19.6			24.0	50.0			6.0	25.0		27.0
Actuated g/C Ratio		0.30	0.22			0.27	0.56			0.07	0.28		0.30
v/c Ratio		1.04	0.84			0.56	0.23			0.26	0.57		0.72
Control Delay		101.6	48.7			24.7	1.2			46.1	33.6		40.3
Queue Delay		0.0	0.0			2.9	0.2			0.0	0.0		0.0
Total Delay		101.6	48.7			27.6	1.4			46.1	33.6		40.3
LOS		F	D			C	A			D	C		D
Approach Delay			64.5			19.7							
Approach LOS			E			B							
Queue Length 50th (ft)		~156	158			122	0			15	130		143
Queue Length 95th (ft)		#298	#325			141	0			25	210		#257
Internal Link Dist (ft)			327			156			126			1023	
Turn Bay Length (ft)		140											
Base Capacity (vph)		244	707			869	924			109	466		393
Starvation Cap Reductn		0	0			269	272			0	0		0
Spillback Cap Reductn		0	0			0	0			0	0		0
Storage Cap Reductn		0	0			0	0			0	0		0
Reduced v/c Ratio		1.04	0.84			0.81	0.32			0.26	0.57		0.72

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 4 (4%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.04
Intersection Signal Delay: 42.4 Intersection LOS: D
Intersection Capacity Utilization 53.6% ICU Level of Service A
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: 1: Temple Street/Staniford Street & Cambridge Street

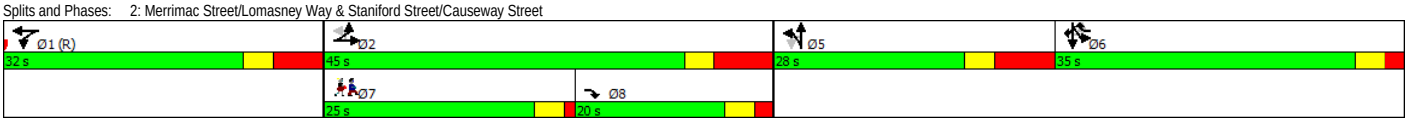


Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	Ø7
Lane Configurations																
Traffic Volume (vph)	2	55	181	164	68	430	342	3	151	137	34	2	206	283	308	
Future Volume (vph)	2	55	181	164	68	430	342	3	151	137	34	2	206	283	308	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	11	11	11	11	11	11	10	11	10	11	11	11	10	11	11	
Storage Length (ft)		0		200	0		0		0		0		0		0	
Storage Lanes		1		1	0		1		1		0		1		1	
Taper Length (ft)		25			25				25				25			
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	
Ped Bike Factor										0.99				1.00		
Frt				0.850			0.850			0.970				0.997	0.850	
Flt Protected		0.950				0.993			0.950				0.950			
Satd. Flow (prot)	0	1582	1711	1516	0	3296	1334	0	1548	1643	0	0	1260	1611	1426	
Flt Permitted		0.456				0.993			0.211				0.632			
Satd. Flow (perm)	0	759	1711	1516	0	3296	1334	0	344	1643	0	0	838	1611	1426	
Right Turn on Red				No			No				No				No	
Satd. Flow (RTOR)																
Link Speed (mph)			30			30				30				30		
Link Distance (ft)			1103			181				998				344		
Travel Time (s)			25.1			4.1				22.7				7.8		
Confl. Bikes (#/hr)				42			4				10				5	
Peak Hour Factor	0.78	0.78	0.78	0.78	0.94	0.94	0.94	0.85	0.85	0.85	0.85	0.98	0.98	0.98	0.98	
Heavy Vehicles (%)	0%	5%	2%	3%	6%	5%	13%	0%	9%	8%	7%	0%	34%	8%	4%	
Adj. Flow (vph)	3	71	232	210	72	457	364	4	178	161	40	2	210	289	314	
Shared Lane Traffic (%)		0%													2%	
Lane Group Flow (vph)	0	74	232	210	0	529	364	0	182	201	0	0	212	295	308	
Turn Type	Perm	Split	NA	custom	Split	NA	Over	Perm	Split	NA		Perm	Split	NA	Prot	
Protected Phases		2	2	8	1	1	6!		5	5			6	6	6	7
Permitted Phases	2							5				6!				
Detector Phase	2	2	2	8	1	1	6	5	5	5		6	6	6	6	
Switch Phase																
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0		8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	27.0	27.0	27.0	16.0	31.0	31.0	16.0	27.0	27.0	27.0		16.0	16.0	16.0	16.0	25.0
Total Split (s)	45.0	45.0	45.0	20.0	32.0	32.0	35.0	28.0	28.0	28.0		35.0	35.0	35.0	35.0	25.0
Total Split (%)	32.1%	32.1%	32.1%	14.3%	22.9%	22.9%	25.0%	20.0%	20.0%	20.0%		25.0%	25.0%	25.0%	25.0%	18%
Maximum Green (s)	36.0	36.0	36.0	15.0	24.0	24.0	30.0	19.0	19.0	19.0		30.0	30.0	30.0	30.0	21.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	6.0	6.0	6.0	2.0	5.0	5.0	2.0	6.0	6.0	6.0		2.0	2.0	2.0	2.0	1.0
Lost Time Adjust (s)		0.0	0.0	0.0		0.0	0.0		0.0	0.0			0.0	0.0	0.0	
Total Lost Time (s)		9.0	9.0	5.0		8.0	5.0		9.0	9.0			5.0	5.0	5.0	
Lead/Lag				Lag			Lag	Lead	Lead	Lead		Lag	Lag	Lag	Lag	Lead
Lead-Lag Optimize?																
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0
Recall Mode	Ped	Ped	Ped	None	C-Max	C-Max	None	Ped	Ped	Ped		None	None	None	None	None
Walk Time (s)	7.0	7.0	7.0		7.0	7.0		7.0	7.0	7.0						7.0
Flash Dont Walk (s)	11.0	11.0	11.0		16.0	16.0		11.0	11.0	11.0						14.0
Pedestrian Calls (#/hr)	100	100	100		175	175		0	0	0						500
Act Effct Green (s)		36.0	36.0	15.0		24.0	30.0		19.0	19.0			30.0	30.0	30.0	
Actuated g/C Ratio		0.26	0.26	0.11		0.17	0.21		0.14	0.14			0.21	0.21	0.21	
v/c Ratio		0.38	0.53	1.30		0.94	1.28		3.96	0.91			1.18	0.86	1.01	
Control Delay		49.7	49.9	218.7		82.0	192.8		1396.1	99.4			172.4	76.1	108.1	
Queue Delay		0.0	0.0	0.0		0.0	0.0		0.0	0.0			0.0	0.0	0.0	
Total Delay		49.7	49.9	218.7		82.0	192.9		1396.1	99.4			172.4	76.1	108.1	
LOS		D	D	F		F	F		F	F			F	E	F	
Approach Delay			118.5			127.2				715.6				113.2		
Approach LOS			F			F				F				F		
Queue Length 50th (ft)		58	192	~243		253	~418		~300	183			~231	274	~302	
Queue Length 95th (ft)		95	240	#334		#364	#620		#430	#301			#397	#440	#509	
Internal Link Dist (ft)			1023			101				918				264		
Turn Bay Length (ft)				200												
Base Capacity (vph)		195	439	162		565	285		46	222			179	345	305	
Starvation Cap Reductn		0	0	0		0	1		0	0			0	0	0	
Spillback Cap Reductn		0	0	0		0	0		0	0			0	0	0	
Storage Cap Reductn		0	0	0		0	0		0	0			0	0	0	
Reduced v/c Ratio		0.38	0.53	1.30		0.94	1.28		3.96	0.91			1.18	0.86	1.01	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 1:WBTL, Start of Green
Natural Cycle: 125
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 3.96
Intersection Signal Delay: 207.6 Intersection LOS: F
Intersection Capacity Utilization 78.9% 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.
! Phase conflict between lane groups.

Splits and Phases: 2: Merrimac Street/Lomasney Way & Staniford Street/Causeway Street



Lane Group	EBL	EBT	EBR2	WBL	WBT	WBR	NBT	NBR	SBL2	SBT	SBR	NWR2	Ø6
Lane Configurations													
Traffic Volume (vph)	216	91	113	185	143	245	672	117	273	1106	510	27	
Future Volume (vph)	216	91	113	185	143	245	672	117	273	1106	510	27	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	11	11	11	12	11	12	11	11	10	11	11	12	
Storage Length (ft)	0			0		0		75			100		
Storage Lanes	2			0		1		0			1		
Taper Length (ft)	25			25									
Lane Util. Factor	0.97	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00	1.00	
Ped Bike Factor		0.84				0.99	0.93				0.98		
Frt		0.917				0.850	0.978				0.850	0.865	
Flt Protected	0.950				0.973				0.950				
Satd. Flow (prot)	2918	1309	0	0	3110	1495	2841	0	1604	3144	1419	1644	
Flt Permitted	0.950				0.973				0.950				
Satd. Flow (perm)	2918	1309	0	0	3110	1476	2841	0	1604	3144	1398	1644	
Right Turn on Red			Yes			No					No	Yes	
Satd. Flow (RTOR)		127										484	
Link Speed (mph)		30			30		30			30			
Link Distance (ft)		318			194		589			575			
Travel Time (s)		7.2			4.4		13.4			13.1			
Confl. Peds. (#/hr)			131					139					
Confl. Bikes (#/hr)			4			3		3			9		
Peak Hour Factor	0.96	0.96	0.96	0.87	0.87	0.87	0.94	0.94	0.97	0.97	0.97	0.92	
Heavy Vehicles (%)	16%	6%	10%	7%	12%	8%	13%	7%	5%	11%	10%	0%	
Adj. Flow (vph)	225	95	118	213	164	282	715	124	281	1140	526	29	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	225	213	0	0	377	282	839	0	281	1140	526	29	
Turn Type	Prot	NA		Split	NA	custom	NA		Prot	NA	custom	Perm	
Protected Phases	6 7	7		5	5	8	1		8	1 8	6 7 8		6
Permitted Phases						1 5					1	5	
Detector Phase	6 7	7		5	5	8	1		8	1 8	6 7 8	5	
Switch Phase													
Minimum Initial (s)		8.0		8.0	8.0	8.0	8.0		8.0			8.0	2.0
Minimum Split (s)		22.0		27.0	27.0	13.0	24.0		13.0			27.0	7.0
Total Split (s)		22.0		27.0	27.0	25.0	39.0		25.0			27.0	7.0
Total Split (%)		18.3%		22.5%	22.5%	20.8%	32.5%		20.8%			22.5%	6%
Maximum Green (s)		17.0		22.0	22.0	20.0	34.0		20.0			22.0	5.0
Yellow Time (s)		3.0		3.0	3.0	3.0	3.0		3.0			3.0	2.0
All-Red Time (s)		2.0		2.0	2.0	2.0	2.0		2.0			2.0	0.0
Lost Time Adjust (s)		0.0			0.0	0.0	0.0		0.0			0.0	
Total Lost Time (s)		5.0			5.0	5.0	5.0		5.0			5.0	
Lead/Lag		Lead		Lead	Lead	Lag			Lag			Lead	Lag
Lead-Lag Optimize?													
Vehicle Extension (s)		2.0		2.0	2.0	2.0	2.0		2.0			2.0	2.0
Recall Mode		None		None	None	None	C-Max		None			None	None
Walk Time (s)		0.0		7.0	7.0		7.0					7.0	5.0
Flash Dont Walk (s)		17.0		15.0	15.0		12.0					15.0	0.0
Pedestrian Calls (#/hr)		176		176	176		100					176	100
Act Effct Green (s)	27.0	17.0			22.0	81.0	34.0		20.0	59.0	89.0	22.0	
Actuated g/C Ratio	0.22	0.14			0.18	0.68	0.28		0.17	0.49	0.74	0.18	
v/c Ratio	0.34	0.72			0.66	0.28	1.04		1.05	0.74	0.50	0.04	
Control Delay	40.8	35.4			51.9	6.9	73.5		117.8	27.9	7.6	0.1	
Queue Delay	0.0	0.0			0.0	0.0	0.0		0.0	0.0	0.0	0.0	
Total Delay	40.8	35.4			51.9	6.9	73.5		117.8	27.9	7.6	0.1	
LOS	D	D			D	A	E		F	C	A	A	
Approach Delay		38.2			32.6		73.5			35.4			
Approach LOS		D			C		E			D			
Queue Length 50th (ft)	75	63			144	68	~371		~238	360	134	0	
Queue Length 95th (ft)	113	#172			191	98	#502		#412	445	198	0	
Internal Link Dist (ft)		238			114		509			495			
Turn Bay Length (ft)									200		100		
Base Capacity (vph)	656	294			570	999	804		267	1545	1045	696	
Starvation Cap Reductn	0	0			0	0	0		0	0	0	0	
Spillback Cap Reductn	0	0			0	0	0		0	0	0	0	
Storage Cap Reductn	0	0			0	0	0		0	0	0	0	
Reduced v/c Ratio	0.34	0.72			0.66	0.28	1.04		1.05	0.74	0.50	0.04	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 101 (84%), Referenced to phase 1:NBSB, Start of Green
Natural Cycle: 115
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.05
Intersection Signal Delay: 43.2 Intersection LOS: D
Intersection Capacity Utilization 80.8% 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: 3: North Washington Street & Causeway Street

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	0	0	329	794	56	26	1363	15
Future Volume (vph)	0	0	0	0	0	0	329	794	56	26	1363	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	0		50
Storage Lanes	0		0	0		0	1		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.91	0.91	0.91
Ped Bike Factor								0.96			1.00	
Frt								0.990			0.998	
Flt Protected							0.950				0.999	
Satd. Flow (prot)	0	0	0	0	0	0	1377	2783	0	0	4266	0
Flt Permitted							0.950				0.906	
Satd. Flow (perm)	0	0	0	0	0	0	1377	2783	0	0	3862	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)								9			2	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		181			303			161			589	
Travel Time (s)		4.9			8.3			4.4			16.1	
Confl. Peds. (#/hr)									232	232		23
Confl. Bikes (#/hr)									5			60
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	18%	12%	0%	4%	9%	19%
Parking (#/hr)									0			
Adj. Flow (vph)	0	0	0	0	0	0	339	819	58	27	1405	15
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	0	339	877	0	0	1447	0
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)							8.0	10.0		10.0	10.0	
Minimum Split (s)							28.0	27.0		27.0	27.0	
Total Split (s)							51.0	69.0		69.0	69.0	
Total Split (%)							42.5%	57.5%		57.5%	57.5%	
Maximum Green (s)							46.0	64.0		64.0	64.0	
Yellow Time (s)							3.0	3.0		3.0	3.0	
All-Red Time (s)							2.0	2.0		2.0	2.0	
Lost Time Adjust (s)							-1.0	-1.0			-1.0	
Total Lost Time (s)							4.0	4.0			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)							2.0	2.0		2.0	2.0	
Recall Mode							Ped	C-Max		C-Max	C-Max	
Walk Time (s)							7.0	7.0		7.0	7.0	
Flash Dont Walk (s)							15.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)							0	0		0	0	
Act Effct Green (s)							35.4	76.6			76.6	
Actuated g/C Ratio							0.30	0.64			0.64	
v/c Ratio							0.84	0.49			0.59	
Control Delay							56.9	13.8			8.1	
Queue Delay							6.6	4.0			0.0	
Total Delay							63.4	17.8			8.1	
LOS							E	B			A	
Approach Delay								30.5			8.1	
Approach LOS								C			A	
Queue Length 50th (ft)							244	175			101	
Queue Length 95th (ft)							321	284			127	
Internal Link Dist (ft)		101			223			81			509	
Turn Bay Length (ft)												
Base Capacity (vph)							539	1780			2467	
Starvation Cap Reductn							150	800			99	
Spillback Cap Reductn							0	0			94	
Storage Cap Reductn							0	0			0	
Reduced v/c Ratio							0.87	0.89			0.61	

Intersection Summary

Area Type: CBD
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 76 (63%), Referenced to phase 1:NBSB, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.84
Intersection Signal Delay: 18.4 Intersection LOS: B
Intersection Capacity Utilization 63.8% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 4: North Washington Street & Valenti Way/Thatcher Street

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations													
Traffic Volume (vph)	0	0	0	160	198	0	0	0	0	0	162	33	
Future Volume (vph)	0	0	0	160	198	0	0	0	0	0	162	33	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	11	12	12	12	12	12	12	12	12	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95	
Ped Bike Factor											0.99		
Frt											0.975		
Flt Protected				0.950									
Satd. Flow (prot)	0	0	0	1264	1354	0	0	0	0	0	2708	0	
Flt Permitted				0.950									
Satd. Flow (perm)	0	0	0	1264	1354	0	0	0	0	0	2708	0	
Right Turn on Red			Yes	Yes		Yes			Yes			Yes	
Satd. Flow (RTOR)				178							19		
Link Speed (mph)		25			25			30			30		
Link Distance (ft)		227			181			221			528		
Travel Time (s)		6.2			4.9			5.0			12.0		
Confl. Bikes (#/hr)						6						35	
Peak Hour Factor	0.92	0.92	0.92	0.90	0.90	0.90	0.92	0.92	0.92	0.76	0.76	0.76	
Heavy Vehicles (%)	0%	0%	0%	18%	20%	0%	0%	0%	0%	0%	16%	14%	
Adj. Flow (vph)	0	0	0	178	220	0	0	0	0	0	213	43	
Shared Lane Traffic (%)				0%									
Lane Group Flow (vph)	0	0	0	178	220	0	0	0	0	0	256	0	
Turn Type				Split	NA						NA		
Protected Phases				1	1						5		2
Permitted Phases													
Detector Phase				1	1						5		
Switch Phase													
Minimum Initial (s)				5.0	5.0						5.0		8.0
Minimum Split (s)				19.0	19.0						19.0		18.0
Total Split (s)				65.0	65.0						37.0		18.0
Total Split (%)				54.2%	54.2%						30.8%		15%
Maximum Green (s)				61.0	61.0						33.0		14.0
Yellow Time (s)				3.0	3.0						3.0		4.0
All-Red Time (s)				1.0	1.0						1.0		0.0
Lost Time Adjust (s)				0.0	0.0						0.0		
Total Lost Time (s)				4.0	4.0						4.0		
Lead/Lag				Lead	Lead								Lag
Lead-Lag Optimize?													
Vehicle Extension (s)				2.0	2.0						2.0		2.0
Recall Mode				C-Max	C-Max						Max		None
Walk Time (s)				7.0	7.0						7.0		7.0
Flash Dont Walk (s)				6.0	6.0						7.0		7.0
Pedestrian Calls (#/hr)				0	0						0		500
Act Effct Green (s)				61.0	61.0						33.0		
Actuated g/C Ratio				0.51	0.51						0.28		
v/c Ratio				0.24	0.32						0.34		
Control Delay				3.4	11.6						32.7		
Queue Delay				2.1	3.7						0.0		
Total Delay				5.4	15.3						32.7		
LOS				A	B						C		
Approach Delay					10.9						32.7		
Approach LOS					B						C		
Queue Length 50th (ft)				0	27						76		
Queue Length 95th (ft)				46	102						93		
Internal Link Dist (ft)		147			101			141			448		
Turn Bay Length (ft)													
Base Capacity (vph)				730	688						758		
Starvation Cap Reductn				419	377						0		
Spillback Cap Reductn				0	0						0		
Storage Cap Reductn				0	0						0		
Reduced v/c Ratio				0.57	0.71						0.34		

Intersection Summary			
Area Type:	CBD		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 116 (97%), Referenced to phase 1:WBTL, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.34			
Intersection Signal Delay: 19.4		Intersection LOS: B	
Intersection Capacity Utilization 24.4%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 5: Beverly St & Valenti Way

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations								
Traffic Volume (vph)	0	50	318	0	0	0	0	812
Future Volume (vph)	0	50	318	0	0	0	0	812
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.88
Frt		0.865						0.850
Flt Protected								
Satd. Flow (prot)	0	1422	2954	0	0	0	0	2244
Flt Permitted								
Satd. Flow (perm)	0	1422	2954	0	0	0	0	2244
Right Turn on Red		Yes						
Satd. Flow (RTOR)		148						
Link Speed (mph)	25		25			25	25	
Link Distance (ft)	328		169			179	568	
Travel Time (s)	8.9		4.6			4.9	15.5	
Peak Hour Factor	0.88	0.88	0.85	0.85	0.92	0.92	0.97	0.97
Heavy Vehicles (%)	0%	4%	10%	0%	0%	0%	0%	14%
Adj. Flow (vph)	0	57	374	0	0	0	0	837
Shared Lane Traffic (%)								
Lane Group Flow (vph)	0	57	374	0	0	0	0	837
Turn Type		Prot	NA					Prot
Protected Phases		2	3					1
Permitted Phases								
Detector Phase		2	3					1
Switch Phase								
Minimum Initial (s)		8.0	8.0					8.0
Minimum Split (s)		17.0	17.0					19.0
Total Split (s)		17.0	26.0					67.0
Total Split (%)		15.5%	23.6%					60.9%
Maximum Green (s)		13.0	22.0					63.0
Yellow Time (s)		3.0	3.0					3.0
All-Red Time (s)		1.0	1.0					1.0
Lost Time Adjust (s)		-1.0	-1.0					-1.0
Total Lost Time (s)		3.0	3.0					3.0
Lead/Lag		Lead	Lag					
Lead-Lag Optimize?								
Vehicle Extension (s)		2.0	2.0					2.0
Recall Mode		None	Max					C-Max
Walk Time (s)		7.0	7.0					7.0
Flash Dont Walk (s)		5.0	5.0					5.0
Pedestrian Calls (#/hr)		0	0					0
Act Effct Green (s)		9.0	23.0					71.4
Actuated g/C Ratio		0.08	0.21					0.65
v/c Ratio		0.23	0.61					0.57
Control Delay		2.1	44.2					3.7
Queue Delay		0.0	0.0					0.0
Total Delay		2.1	44.2					3.7
LOS		A	D					A
Approach Delay			44.2					
Approach LOS			D					
Queue Length 50th (ft)		0	126					40
Queue Length 95th (ft)		0	166					46
Internal Link Dist (ft)	248		89			99	488	
Turn Bay Length (ft)								
Base Capacity (vph)		310	617					1456
Starvation Cap Reductn		0	0					0
Spillback Cap Reductn		0	0					0
Storage Cap Reductn		0	0					0
Reduced v/c Ratio		0.18	0.61					0.57

Intersection Summary

Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 45 (41%), Referenced to phase 1:NWR, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.61
Intersection Signal Delay: 15.6 — Intersection LOS: B
Intersection Capacity Utilization 58.0% — ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 6: I-93 Off-Ramps & Cross Street & Cooper Street

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	322	0	0	1363	0
Future Volume (vph)	0	322	0	0	1363	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.76	1.00	1.00	0.91	1.00
Frt		0.850				
Flt Protected						
Satd. Flow (prot)	0	3347	0	0	4715	0
Flt Permitted						
Satd. Flow (perm)	0	3347	0	0	4715	0
Right Turn on Red		No				Yes
Satd. Flow (RTOR)						
Link Speed (mph)	30			25	25	
Link Distance (ft)	221			242	141	
Travel Time (s)	5.0			6.6	3.8	
Peak Hour Factor	0.96	0.96	0.92	0.92	0.96	0.96
Heavy Vehicles (%)	0%	10%	0%	0%	10%	0%
Adj. Flow (vph)	0	335	0	0	1420	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	335	0	0	1420	0
Turn Type		Prot			NA	
Protected Phases		5			1	
Permitted Phases						
Detector Phase		5			1	
Switch Phase						
Minimum Initial (s)		8.0			8.0	
Minimum Split (s)		23.0			20.0	
Total Split (s)		37.0			83.0	
Total Split (%)		30.8%			69.2%	
Maximum Green (s)		32.0			78.0	
Yellow Time (s)		3.0			3.0	
All-Red Time (s)		2.0			2.0	
Lost Time Adjust (s)		-1.0			-1.0	
Total Lost Time (s)		4.0			4.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)		2.0			2.0	
Recall Mode		Max			C-Max	
Walk Time (s)		7.0			7.0	
Flash Dont Walk (s)		10.0			5.0	
Pedestrian Calls (#/hr)		0			0	
Act Effct Green (s)		33.0			79.0	
Actuated g/C Ratio		0.28			0.66	
v/c Ratio		0.36			0.46	
Control Delay		23.2			7.5	
Queue Delay		1.1			1.1	
Total Delay		24.3			8.6	
LOS		C			A	
Approach Delay					8.6	
Approach LOS					A	
Queue Length 50th (ft)		62			133	
Queue Length 95th (ft)		102			171	
Internal Link Dist (ft)	141			162	61	
Turn Bay Length (ft)						
Base Capacity (vph)		920			3104	
Starvation Cap Reductn		364			1330	
Spillback Cap Reductn		0			224	
Storage Cap Reductn		0			0	
Reduced v/c Ratio		0.60			0.80	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 97 (81%), Referenced to phase 1:SBT, Start of Green
Natural Cycle: 45
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.46
Intersection Signal Delay: 11.6 Intersection LOS: B
Intersection Capacity Utilization 40.5% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 7: Surface Street & Beverly St

Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø1	Ø2
Lane Configurations															
Traffic Volume (vph)	0	471	38	37	21	608	0	0	0	0	875	367	443		
Future Volume (vph)	0	471	38	37	21	608	0	0	0	0	875	367	443		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900		
Lane Width (ft)	12	12	12	12	12	14	12	12	12	12	12	11	13		
Storage Length (ft)	0		0		0		0	0		0	50		0		
Storage Lanes	0		0		0		0	0		0	1		2		
Taper Length (ft)	25				25			25			25				
Lane Util. Factor	1.00	0.91	0.91	0.95	0.95	0.95	1.00	1.00	1.00	1.00	0.97	1.00	0.88		
Ped Bike Factor		1.00				1.00					1.00				
Frt		0.989											0.850		
Flt Protected						0.996					0.950				
Satd. Flow (prot)	0	4283	0	0	0	3395	0	0	0	0	2865	1425	2470		
Flt Permitted						0.803					0.950				
Satd. Flow (perm)	0	4283	0	0	0	2737	0	0	0	0	2858	1425	2470		
Right Turn on Red			No				Yes			Yes			No		
Satd. Flow (RTOR)															
Link Speed (mph)		25				25			25			25			
Link Distance (ft)		184				338			438			242			
Travel Time (s)		5.0				9.2			11.9			6.6			
Confl. Peds. (#/hr)			1		1						1		191		
Confl. Bikes (#/hr)													93		
Peak Hour Factor	0.80	0.80	0.80	0.84	0.84	0.84	0.84	0.92	0.92	0.92	0.96	0.96	0.96		
Heavy Vehicles (%)	0%	7%	16%	11%	5%	1%	0%	0%	0%	0%	10%	16%	7%		
Adj. Flow (vph)	0	589	48	44	25	724	0	0	0	0	911	382	461		
Shared Lane Traffic (%)															
Lane Group Flow (vph)	0	637	0	0	0	793	0	0	0	0	911	382	461		
Turn Type		NA		Perm	Perm	NA					Split	NA	custom		
Protected Phases		6				6					1 5	1 5	5	1	2
Permitted Phases				6	6										
Detector Phase		6		6	6	6					1 5	1 5	5		
Switch Phase															
Minimum Initial (s)		8.0		8.0	8.0	8.0							8.0	8.0	8.0
Minimum Split (s)		24.0		24.0	24.0	24.0							22.0	23.0	30.0
Total Split (s)		51.0		51.0	51.0	51.0							35.0	34.0	34.0
Total Split (%)		42.5%		42.5%	42.5%	42.5%							29.2%	28%	28%
Maximum Green (s)		46.0		46.0	46.0	46.0							30.0	29.0	30.0
Yellow Time (s)		3.0		3.0	3.0	3.0							3.0	3.0	2.0
All-Red Time (s)		2.0		2.0	2.0	2.0							2.0	2.0	2.0
Lost Time Adjust (s)		-2.0				-2.0							-2.0		
Total Lost Time (s)		3.0				3.0							3.0		
Lead/Lag		Lag		Lag	Lag	Lag							Lead		
Lead-Lag Optimize?															
Vehicle Extension (s)		2.0		2.0	2.0	2.0							2.0	2.0	2.0
Recall Mode		None		None	None	None							Max	C-Max	None
Walk Time (s)		7.0		7.0	7.0	7.0								7.0	7.0
Flash Dont Walk (s)		12.0		12.0	12.0	12.0								7.0	19.0
Pedestrian Calls (#/hr)		150		150	150	150								150	250
Act Effct Green (s)		46.6				46.6					67.4	67.4	32.0		
Actuated g/C Ratio		0.39				0.39					0.56	0.56	0.27		
v/c Ratio		0.38				0.75					0.57	0.48	0.70		
Control Delay		22.4				36.5					4.4	4.9	26.4		
Queue Delay		1.0				0.0					0.4	0.8	7.7		
Total Delay		23.4				36.5					4.7	5.7	34.1		
LOS		C				D					A	A	C		
Approach Delay		23.4				36.5						12.7			
Approach LOS		C				D						B			
Queue Length 50th (ft)		165				269					48	40	184		
Queue Length 95th (ft)		169				312					65	60	233		
Internal Link Dist (ft)		104				258			358			162			
Turn Bay Length (ft)											50				
Base Capacity (vph)		1713				1094					1608	799	658		
Starvation Cap Reductn		776				0					253	186	156		
Spillback Cap Reductn		0				0					0	0	0		
Storage Cap Reductn		0				0					0	0	0		
Reduced v/c Ratio		0.68				0.72					0.67	0.62	0.92		

Intersection Summary

Area Type: CBD
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 89 (74%), Referenced to phase 1:SBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.75
Intersection Signal Delay: 20.7 Intersection LOS: C
Intersection Capacity Utilization 69.5% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 8: Surface Street & New Chardon Street/I-93 Ramps

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø2	Ø5	Ø6
Lane Configurations										
Traffic Volume (vph)	0	509	1030	21	0	0				
Future Volume (vph)	0	509	1030	21	0	0				
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900				
Lane Util. Factor	1.00	0.91	0.91	0.91	1.00	1.00				
Ped Bike Factor			1.00							
Frt			0.997							
Flt Protected										
Satd. Flow (prot)	0	4322	4467	0	0	0				
Flt Permitted										
Satd. Flow (perm)	0	4322	4467	0	0	0				
Right Turn on Red				Yes		Yes				
Satd. Flow (RTOR)			5							
Link Speed (mph)		25	25		25					
Link Distance (ft)		287	184		238					
Travel Time (s)		7.8	5.0		6.5					
Confl. Bikes (#/hr)				10						
Peak Hour Factor	0.81	0.81	0.98	0.98	0.92	0.92				
Heavy Vehicles (%)	0%	8%	4%	11%	0%	0%				
Adj. Flow (vph)	0	628	1051	21	0	0				
Shared Lane Traffic (%)										
Lane Group Flow (vph)	0	628	1072	0	0	0				
Turn Type		NA	NA							
Protected Phases		5 6	5 6				1	2	5	6
Permitted Phases										
Detector Phase		5 6	5 6							
Switch Phase										
Minimum Initial (s)							8.0	8.0	8.0	8.0
Minimum Split (s)							23.0	30.0	22.0	24.0
Total Split (s)							34.0	34.0	35.0	51.0
Total Split (%)							28%	28%	29%	43%
Maximum Green (s)							29.0	30.0	30.0	46.0
Yellow Time (s)							3.0	2.0	3.0	3.0
All-Red Time (s)							2.0	2.0	2.0	2.0
Lost Time Adjust (s)										
Total Lost Time (s)										
Lead/Lag									Lead	Lag
Lead-Lag Optimize?										
Vehicle Extension (s)							2.0	2.0	2.0	2.0
Recall Mode							C-Max	None	Max	None
Walk Time (s)							7.0	7.0		7.0
Flash Dont Walk (s)							7.0	19.0		12.0
Pedestrian Calls (#/hr)							150	250		150
Act Effct Green (s)		81.6	81.6							
Actuated g/C Ratio		0.68	0.68							
v/c Ratio		0.21	0.35							
Control Delay		6.9	1.1							
Queue Delay		0.6	0.5							
Total Delay		7.5	1.6							
LOS		A	A							
Approach Delay		7.5	1.6							
Approach LOS		A	A							
Queue Length 50th (ft)		82	0							
Queue Length 95th (ft)		92	0							
Internal Link Dist (ft)		207	104		158					
Turn Bay Length (ft)										
Base Capacity (vph)		2989	3091							
Starvation Cap Reductn		1882	1434							
Spillback Cap Reductn		1033	203							
Storage Cap Reductn		0	0							
Reduced v/c Ratio		0.57	0.65							

Intersection Summary

Area Type: CBD
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 89 (74%), Referenced to phase 1:SBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.75
Intersection Signal Delay: 3.8 Intersection LOS: A
Intersection Capacity Utilization 26.0% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 9: New Chardon Street & Canal Street

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (vph)	71	213	36	390	553	72	659	294	182	9	97	207	171
Future Volume (vph)	71	213	36	390	553	72	659	294	182	9	97	207	171
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	10	12	12	10	10	12	12	11	11	16
Storage Length (ft)	0		0	0		0	0		100		0		150
Storage Lanes	0		0	1		0	2		1		1		1
Taper Length (ft)	25			25			25				25		
Lane Util. Factor	0.95	0.95	0.95	0.91	0.91	0.95	0.97	1.00	1.00	0.95	0.91	0.91	1.00
Ped Bike Factor		0.93		0.75	0.95		0.59				0.66	0.98	
Frt		0.983			0.984				0.850				0.850
Flt Protected		0.989		0.950	0.996		0.950				0.950	0.998	
Satd. Flow (prot)	0	2648	0	1302	2866	0	2749	1506	1384	0	1309	2639	1647
Flt Permitted		0.989		0.950	0.996		0.950				0.950	0.998	
Satd. Flow (perm)	0	2590	0	978	2805	0	1612	1506	1384	0	858	2599	1647
Right Turn on Red			Yes			Yes			No				Yes
Satd. Flow (RTOR)		10			10								199
Link Speed (mph)		25			25			25				25	
Link Distance (ft)		341			287			468				998	
Travel Time (s)		9.3			7.8			12.8				27.2	
Confl. Peds. (#/hr)	152		432	432		152	265		1136		1136		265
Confl. Bikes (#/hr)			1			17			10				64
Peak Hour Factor	0.84	0.84	0.84	0.97	0.97	0.97	0.91	0.91	0.91	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	14%	14%	10%	6%	3%	4%	7%	6%	5%	11%	9%	14%	0%
Adj. Flow (vph)	85	254	43	402	570	74	724	323	200	10	113	241	199
Shared Lane Traffic (%)				15%							10%		
Lane Group Flow (vph)	0	382	0	342	704	0	724	323	200	0	112	252	199
Turn Type	Split	NA		Split	NA		Split	NA	pt+ov	Split	Split	NA	Prot
Protected Phases	3	3		2	2		1	1	1 2	4	4	4	4
Permitted Phases													
Detector Phase	3	3		2	2		1	1	1 2	4	4	4	4
Switch Phase													
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	8.0	8.0
Minimum Split (s)	25.0	25.0		26.0	26.0		26.0	26.0		22.0	22.0	22.0	22.0
Total Split (s)	25.0	25.0		38.0	38.0		35.0	35.0		22.0	22.0	22.0	22.0
Total Split (%)	20.8%	20.8%		31.7%	31.7%		29.2%	29.2%		18.3%	18.3%	18.3%	18.3%
Maximum Green (s)	20.0	20.0		33.0	33.0		30.0	30.0		17.0	17.0	17.0	17.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0
Lost Time Adjust (s)		-2.0		-2.0	-2.0		-2.0	-2.0			-2.0	-2.0	0.0
Total Lost Time (s)		3.0		3.0	3.0		3.0	3.0			3.0	3.0	5.0
Lead/Lag	Lag	Lag		Lead	Lead								
Lead-Lag Optimize?													
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0
Recall Mode	Max	Max		C-Max	C-Max		None	None		Max	Max	Max	Max
Walk Time (s)	5.0	5.0		7.0	7.0		7.0	7.0		5.0	5.0	5.0	5.0
Flash Dont Walk (s)	12.0	12.0		14.0	14.0		14.0	14.0		12.0	12.0	12.0	12.0
Pedestrian Calls (#/hr)	150	150		150	150		150	150		150	150	150	150
Act Effct Green (s)		22.0		35.0	35.0		32.0	32.0	70.0		19.0	19.0	17.0
Actuated g/C Ratio		0.18		0.29	0.29		0.27	0.27	0.58		0.16	0.16	0.14
v/c Ratio		0.77		0.90	0.84		0.99	0.81	0.25		0.54	0.60	0.49
Control Delay		53.9		51.3	31.3		37.3	21.6	5.8		57.2	53.8	10.8
Queue Delay		0.0		10.2	6.4		0.0	0.0	0.0		0.0	0.0	0.0
Total Delay		53.9		61.5	37.7		37.3	21.6	5.8		57.2	53.8	10.8
LOS		D		E	D		D	C	A		E	D	B
Approach Delay		53.9			45.5			28.2				39.3	
Approach LOS		D			D			C				D	
Queue Length 50th (ft)		111		295	168		257	171	63		89	101	0
Queue Length 95th (ft)		158		#473	#227		m#359	m189	m66		149	141	57
Internal Link Dist (ft)		261			207			388				918	
Turn Bay Length (ft)									100				150
Base Capacity (vph)		493		379	843		733	401	807		207	417	404
Starvation Cap Reductn		0		28	101		0	0	0		0	0	0
Spillback Cap Reductn		0		0	0		0	0	0		0	0	0
Storage Cap Reductn		0		0	0		0	0	0		0	0	0
Reduced v/c Ratio		0.77		0.97	0.95		0.99	0.81	0.25		0.54	0.60	0.49

Intersection Summary

Area Type: CBD
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 58 (48%), Referenced to phase 2:WBTL, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.99
Intersection Signal Delay: 38.7 Intersection LOS: D
Intersection Capacity Utilization 84.5% 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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 10: Congress Street/Merrimac Street & New Chardon Street

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	142	0	0	1383	54	178
Future Volume (vph)	142	0	0	1383	54	178
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Ped Bike Factor						
Frt					0.896	
Flt Protected					0.988	
Satd. Flow (prot)	3343	0	0	3438	1682	0
Flt Permitted					0.988	
Satd. Flow (perm)	3343	0	0	3438	1682	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)					131	
Link Speed (mph)	25			30	30	
Link Distance (ft)	207			341	186	
Travel Time (s)	5.6			7.8	4.2	
Confl. Bikes (#/hr)		2				
Peak Hour Factor	0.87	0.87	0.92	0.92	0.86	0.86
Heavy Vehicles (%)	8%	0%	0%	5%	0%	0%
Adj. Flow (vph)	163	0	0	1503	63	207
Shared Lane Traffic (%)						
Lane Group Flow (vph)	163	0	0	1503	270	0
Turn Type	NA			NA	Prot	
Protected Phases	1			1	2	
Permitted Phases						
Detector Phase	1			1	2	
Switch Phase						
Minimum Initial (s)	4.0			4.0	4.0	
Minimum Split (s)	8.0			8.0	22.0	
Total Split (s)	86.0			86.0	34.0	
Total Split (%)	71.7%			71.7%	28.3%	
Maximum Green (s)	82.0			82.0	30.0	
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			Lead	Lag	
Lead-Lag Optimize?						
Vehicle Extension (s)	2.0			2.0	2.0	
Recall Mode	C-Max			C-Max	None	
Walk Time (s)					7.0	
Flash Dont Walk (s)					11.0	
Pedestrian Calls (#/hr)					0	
Act Effct Green (s)	96.8			96.8	15.2	
Actuated g/C Ratio	0.81			0.81	0.13	
v/c Ratio	0.06			0.54	0.83	
Control Delay	3.1			1.7	45.8	
Queue Delay	0.0			0.4	0.0	
Total Delay	3.1			2.0	45.8	
LOS	A			A	D	
Approach Delay	3.1			2.0	45.8	
Approach LOS	A			A	D	
Queue Length 50th (ft)	10			23	107	
Queue Length 95th (ft)	24			m68	174	
Internal Link Dist (ft)	127			261	106	
Turn Bay Length (ft)						
Base Capacity (vph)	2697			2774	518	
Starvation Cap Reductn	0			657	0	
Spillback Cap Reductn	0			0	0	
Storage Cap Reductn	0			0	0	
Reduced v/c Ratio	0.06			0.71	0.52	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 12 (10%), Referenced to phase 1:EBWB, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.83
Intersection Signal Delay: 8.2 Intersection LOS: A
Intersection Capacity Utilization 58.9% ICU Level of Service B
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 13: Bowker Street & New Chardon Street

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	142	28	621	816	0	0
Future Volume (Veh/h)	142	28	621	816	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.89	0.89	0.97	0.97	0.56	0.56
Hourly flow rate (vph)	160	31	640	841	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	579			207		
pX, platoon unblocked					0.85	
vC, conflicting volume			191		1876	96
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			191		1673	96
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			54		100	100
cM capacity (veh/h)			1380		40	949

Direction, Lane #	EB 1	EB 2	WB 1	WB 2
Volume Total	107	84	920	561
Volume Left	0	0	640	0
Volume Right	0	31	0	0
cSH	1700	1700	1380	1700
Volume to Capacity	0.06	0.05	0.46	0.33
Queue Length 95th (ft)	0	0	63	0
Control Delay (s)	0.0	0.0	8.5	0.0
Lane LOS			A	
Approach Delay (s)	0.0		5.3	
Approach LOS				

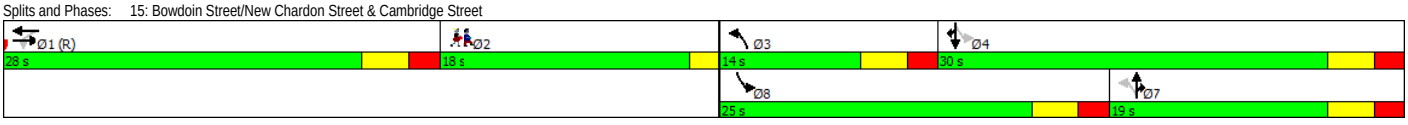
Intersection Summary				
Average Delay	4.7			
Intersection Capacity Utilization	52.1%	ICU Level of Service	A	
Analysis Period (min)	15			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations													
Traffic Volume (vph)	0	692	93	21	199	31	153	138	110	325	195	296	
Future Volume (vph)	0	692	93	21	199	31	153	138	110	325	195	296	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	0		0	0		0	0		100	0		100	
Storage Lanes	0		0	0		0	1		1	1		1	
Taper Length (ft)	25			25			25			25			
Lane Util. Factor	1.00	0.91	0.91	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor		0.95			0.95				0.61			0.75	
Frt		0.982			0.981				0.850			0.850	
Flt Protected					0.996		0.950			0.950			
Satd. Flow (prot)	0	4537	0	0	3140	0	1612	1759	1482	1719	1845	1524	
Flt Permitted					0.856		0.630			0.383			
Satd. Flow (perm)	0	4537	0	0	2698	0	1069	1759	909	693	1845	1136	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)		26			17				170			308	
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		236			438			364			579		
Travel Time (s)		5.4			10.0			8.3			13.2		
Confl. Peds. (#/hr)			530			756			361			229	
Confl. Bikes (#/hr)			105			21			6				
Peak Hour Factor	0.93	0.93	0.93	0.86	0.86	0.86	0.94	0.94	0.94	0.96	0.96	0.96	
Heavy Vehicles (%)	100%	7%	6%	21%	2%	25%	12%	8%	9%	5%	3%	6%	
Adj. Flow (vph)	0	744	100	24	231	36	163	147	117	339	203	308	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	844	0	0	291	0	163	147	117	339	203	308	
Turn Type		NA		Perm	NA		pm+pt	NA	custom	pm+pt	NA	custom	
Protected Phases		1			1		3	7	7	8	4	4	2
Permitted Phases				1			7		7	4		4	
Detector Phase		1		1	1		3	7	7	8	4	4	
Switch Phase													
Minimum Initial (s)		8.0		8.0	8.0		8.0	8.0	8.0	8.0	8.0	8.0	1.0
Minimum Split (s)		28.0		28.0	28.0		13.0	13.0	13.0	13.0	13.0	13.0	18.0
Total Split (s)		28.0		28.0	28.0		14.0	19.0	19.0	25.0	30.0	30.0	18.0
Total Split (%)		31.1%		31.1%	31.1%		15.6%	21.1%	21.1%	27.8%	33.3%	33.3%	20%
Maximum Green (s)		23.0		23.0	23.0		9.0	14.0	14.0	20.0	25.0	25.0	16.0
Yellow Time (s)		3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	2.0
All-Red Time (s)		2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	0.0
Lost Time Adjust (s)		0.0			0.0		0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		5.0			5.0		5.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag		Lead		Lead	Lead		Lead	Lag	Lag	Lead	Lag	Lag	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	2.0
Recall Mode		C-Max		C-Max	C-Max		None	None	None	None	None	None	None
Walk Time (s)		7.0		7.0	7.0								7.0
Flash Dont Walk (s)		16.0		16.0	16.0								9.0
Pedestrian Calls (#/hr)		0		0	0								20
Act Effct Green (s)		38.6			38.6		20.9	11.5	11.5	34.2	19.8	19.8	
Actuated g/C Ratio		0.43			0.43		0.23	0.13	0.13	0.38	0.22	0.22	
v/c Ratio		0.43			0.25		0.54	0.66	0.35	0.73	0.50	0.54	
Control Delay		4.9			8.0		26.7	51.2	4.8	30.6	34.1	6.9	
Queue Delay		0.3			0.0		0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay		5.2			8.0		26.7	51.2	4.8	30.6	34.1	6.9	
LOS		A			A		C	D	A	C	C	A	
Approach Delay		5.2			8.0			29.1			22.9		
Approach LOS		A			A			C			C		
Queue Length 50th (ft)		21			1		61	81	0	141	102	0	
Queue Length 95th (ft)		m68			112		100	139	19	207	156	60	
Internal Link Dist (ft)		156			358			284			499		
Turn Bay Length (ft)									100			100	
Base Capacity (vph)		1959			1166		308	273	374	491	512	645	
Starvation Cap Reductn		504			0		0	0	0	0	0	0	
Spillback Cap Reductn		0			0		0	0	0	0	0	0	
Storage Cap Reductn		0			0		0	0	0	0	0	0	
Reduced v/c Ratio		0.58			0.25		0.53	0.54	0.31	0.69	0.40	0.48	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 1:EBWB, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.73
Intersection Signal Delay: 16.0 Intersection LOS: B
Intersection Capacity Utilization 66.5% ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 15: Bowdoin Street/New Chardon Street & Cambridge Street

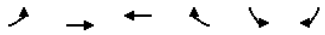


Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations														
Traffic Volume (vph)	19	268	562	278	18	108	210	121	21	33	11	0	0	0
Future Volume (vph)	19	268	562	278	18	108	210	121	21	33	11	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0		0		100		100	0		0	0		0
Storage Lanes		2		0		1		1	0		0	0		0
Taper Length (ft)		25				25			25			25		
Lane Util. Factor	0.95	0.97	0.95	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.89					0.62		0.93				
Frt			0.950					0.850		0.977				
Flt Protected		0.950				0.950				0.984				
Satd. Flow (prot)	0	3346	2879	0	0	1689	3374	1455	0	1633	0	0	0	0
Flt Permitted		0.950				0.950				0.984				
Satd. Flow (perm)	0	3346	2879	0	0	1689	3374	897	0	1633	0	0	0	0
Right Turn on Red				Yes				Yes			Yes			Yes
Satd. Flow (RTOR)			175					138		9				
Link Speed (mph)			30				30			30			30	
Link Distance (ft)			438				763			259			584	
Travel Time (s)			10.0				17.3			5.9			13.3	
Confl. Peds. (#/hr)				154				377			241			
Confl. Bikes (#/hr)				60				6			2			
Peak Hour Factor	0.97	0.97	0.97	0.97	0.88	0.88	0.88	0.88	0.69	0.69	0.69	0.92	0.92	0.92
Heavy Vehicles (%)	0%	5%	6%	5%	0%	8%	7%	11%	0%	5%	9%	0%	0%	0%
Adj. Flow (vph)	20	276	579	287	20	123	239	138	30	48	16	0	0	0
Shared Lane Traffic (%)														
Lane Group Flow (vph)	0	296	866	0	0	143	239	138	0	94	0	0	0	0
Turn Type	Split	Split	NA		Split	Split	NA	Perm	Split	NA				
Protected Phases	1	1	1		5	5	5		6	6				
Permitted Phases								5						
Detector Phase	1	1	1		5	5	5	5	6	6				
Switch Phase														
Minimum Initial (s)	8.0	8.0	8.0		8.0	8.0	8.0	8.0	8.0	8.0				
Minimum Split (s)	27.0	27.0	27.0		12.0	12.0	12.0	12.0	12.0	12.0				
Total Split (s)	59.0	59.0	59.0		19.0	19.0	19.0	19.0	12.0	12.0				
Total Split (%)	65.6%	65.6%	65.6%		21.1%	21.1%	21.1%	21.1%	13.3%	13.3%				
Maximum Green (s)	55.0	55.0	55.0		15.0	15.0	15.0	15.0	8.0	8.0				
Yellow Time (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0				
All-Red Time (s)	1.0	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	0.0		0.0				
Total Lost Time (s)		4.0	4.0			4.0	4.0	4.0		4.0				
Lead/Lag					Lead	Lead	Lead	Lead	Lag	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	C-Max	C-Max	C-Max		None	None	None	None	None	None				
Walk Time (s)	7.0	7.0	7.0											
Flash Dont Walk (s)	16.0	16.0	16.0											
Pedestrian Calls (#/hr)	0	0	0											
Act Effct Green (s)		60.2	60.2			11.9	11.9	11.9		8.3				
Actuated g/C Ratio		0.67	0.67			0.13	0.13	0.13		0.09				
v/c Ratio		0.13	0.44			0.64	0.54	0.58		0.59				
Control Delay		4.9	5.3			49.9	40.4	16.7		52.2				
Queue Delay		0.0	0.3			0.0	0.0	0.0		0.0				
Total Delay		4.9	5.5			49.9	40.4	16.7		52.2				
LOS		A	A			D	D	B		D				
Approach Delay			5.4				36.7			52.2				
Approach LOS			A				D			D				
Queue Length 50th (ft)		23	52			78	67	0		47				
Queue Length 95th (ft)		35	68			131	98	51		72				
Internal Link Dist (ft)			358				683			179			504	
Turn Bay Length (ft)						100		100						
Base Capacity (vph)		2238	1983			281	562	264		158				
Starvation Cap Reductn		0	459			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		0.13	0.57			0.51	0.43	0.52		0.59				

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 8 (9%), Referenced to phase 1:EBTL, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.64
Intersection Signal Delay: 17.0 Intersection LOS: B
Intersection Capacity Utilization 50.4% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 16: Somerset Street/Sudbury Street & Cambridge Street



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	421	0	0	111	0
Future Volume (Veh/h)	0	421	0	0	111	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	458	0	0	121	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		584				
pX, platoon unblocked						
vC, conflicting volume	0				229	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0				229	0
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				84	100
cM capacity (veh/h)	1636				744	1091

Direction, Lane #	EB 1	EB 2	SB 1
Volume Total	229	229	121
Volume Left	0	0	121
Volume Right	0	0	0
cSH	1700	1700	744
Volume to Capacity	0.13	0.13	0.16
Queue Length 95th (ft)	0	0	14
Control Delay (s)	0.0	0.0	10.8
Lane LOS			B
Approach Delay (s)	0.0		10.8
Approach LOS			B

Intersection Summary				
Average Delay			2.3	
Intersection Capacity Utilization			24.5%	ICU Level of Service
Analysis Period (min)			15	

Intersection Sign configuration not allowed in HCM analysis.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations														
Traffic Volume (vph)	44	282	157	0	0	0	14	0	1087	159	90	538	0	
Future Volume (vph)	44	282	157	0	0	0	14	0	1087	159	90	538	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	11	10	12	12	12	12	11	11	11	10	11	11	
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	0.91	1.00	0.91	0.91	1.00	0.95	1.00	
Ped Bike Factor	0.46	0.81							0.96		0.92			
Frt		0.946							0.981					
Flt Protected	0.950								0.999		0.950			
Satd. Flow (prot)	1392	2162	0	0	0	0	0	0	3954	0	1458	2908	0	
Flt Permitted	0.950								0.930		0.950			
Satd. Flow (perm)	641	2162	0	0	0	0	0	0	3681	0	1335	2908	0	
Right Turn on Red			Yes			Yes				No			Yes	
Satd. Flow (RTOR)		80												
Link Speed (mph)		25			25				25			25		
Link Distance (ft)		153			161				378			468		
Travel Time (s)		4.2			4.4				10.3			12.8		
Confl. Peds. (#/hr)	430		475							674	674			
Confl. Bikes (#/hr)			11							12			59	
Peak Hour Factor	0.89	0.89	0.89	0.92	0.92	0.92	0.94	0.94	0.94	0.94	0.88	0.88	0.88	
Heavy Vehicles (%)	5%	6%	4%	0%	0%	0%	0%	0%	6%	14%	4%	8%	0%	
Parking (#/hr)	0	0												
Adj. Flow (vph)	49	317	176	0	0	0	15	0	1156	169	102	611	0	
Shared Lane Traffic (%)														
Lane Group Flow (vph)	49	493	0	0	0	0	0	0	1340	0	102	611	0	
Turn Type	Split	NA					Perm		NA		Prot	NA		
Protected Phases	5	5							1		6	1 6		2
Permitted Phases							1							
Detector Phase	5	5					1		1		6	1 6		
Switch Phase														
Minimum Initial (s)	8.0	8.0					10.0		10.0		7.0			7.0
Minimum Split (s)	15.0	15.0					17.0		17.0		14.0			26.0
Total Split (s)	28.0	28.0					52.0		52.0		14.0			26.0
Total Split (%)	23.3%	23.3%					43.3%		43.3%		11.7%			22%
Maximum Green (s)	22.0	22.0					47.0		47.0		8.0			22.0
Yellow Time (s)	3.0	3.0					3.0		3.0		3.0			4.0
All-Red Time (s)	3.0	3.0					2.0		2.0		3.0			0.0
Lost Time Adjust (s)	-2.0	-2.0							-2.0		-2.0			
Total Lost Time (s)	4.0	4.0							3.0		4.0			
Lead/Lag	Lead	Lead					Lead		Lead		Lag			Lag
Lead-Lag Optimize?														
Vehicle Extension (s)	2.0	2.0					2.0		2.0		2.0			2.0
Recall Mode	Max	Max					C-Max		C-Max		Max			Ped
Walk Time (s)	0.0	0.0												7.0
Flash Dont Walk (s)	8.0	8.0												15.0
Pedestrian Calls (#/hr)	0	0												500
Act Effct Green (s)	24.0	24.0							49.0		10.0	63.0		
Actuated g/C Ratio	0.20	0.20							0.41		0.08	0.52		
v/c Ratio	0.18	0.99							0.89		0.84	0.40		
Control Delay	41.9	79.5							32.5		82.4	13.4		
Queue Delay	0.0	0.0							1.6		0.0	0.0		
Total Delay	41.9	79.5							34.2		82.4	13.4		
LOS	D	E							C		F	B		
Approach Delay		76.1							34.2			23.3		
Approach LOS		E							C			C		
Queue Length 50th (ft)	32	173							289		84	156		
Queue Length 95th (ft)	67	#286							#330		m#123	m184		
Internal Link Dist (ft)		73			81				298			388		
Turn Bay Length (ft)														
Base Capacity (vph)	278	496							1503		121	1526		
Starvation Cap Reductn	0	0							64		0	0		
Spillback Cap Reductn	0	0							0		0	0		
Storage Cap Reductn	0	0							0		0	0		
Reduced v/c Ratio	0.18	0.99							0.93		0.84	0.40		

Intersection Summary

Area Type: CBD
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 114 (95%), Referenced to phase 1:NBSB, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.99
Intersection Signal Delay: 39.9 Intersection LOS: D
Intersection Capacity Utilization 73.2% 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: 19: Congress Street & Sudbury Street

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	448	83	0	0	0	19
Future Volume (Veh/h)	448	83	0	0	0	19
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.89	0.89	0.92	0.92	0.59	0.59
Hourly flow rate (vph)	503	93	0	0	0	32
Pedestrians					148	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					12	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	161			111		
pX, platoon unblocked						
vC, conflicting volume			744		651	400
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			744		651	400
tC, single (s)			4.1		6.8	7.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.5
p0 queue free %			100		100	94
cM capacity (veh/h)			765		356	493

Direction, Lane #	EB 1	EB 2	EB 3	NB 1
Volume Total	252	252	93	32
Volume Left	0	0	0	0
Volume Right	0	0	93	32
cSH	1700	1700	1700	493
Volume to Capacity	0.15	0.15	0.05	0.06
Queue Length 95th (ft)	0	0	0	5
Control Delay (s)	0.0	0.0	0.0	12.8
Lane LOS				B
Approach Delay (s)	0.0			12.8
Approach LOS				B

Intersection Summary			
Average Delay		0.7	
Intersection Capacity Utilization		23.3%	ICU Level of Service
Analysis Period (min)		15	

Lane Group	EBT	EBR	SBL	SBT	SEL
Lane Configurations					
Traffic Volume (vph)	343	124	31	394	21
Future Volume (vph)	343	124	31	394	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	12	12	12
Lane Util. Factor	0.95	1.00	0.95	0.95	1.00
Ped Bike Factor		0.66		0.98	
Frt		0.850			
Flt Protected				0.996	0.950
Satd. Flow (prot)	3116	1482	0	3241	926
Flt Permitted				0.996	0.950
Satd. Flow (perm)	3116	971	0	3166	926
Right Turn on Red		Yes	No		
Satd. Flow (RTOR)		133			
Link Speed (mph)	25			25	25
Link Distance (ft)	111			438	138
Travel Time (s)	3.0			11.9	3.8
Confl. Peds. (#/hr)		180	134		
Confl. Bikes (#/hr)		1			
Peak Hour Factor	0.93	0.93	0.86	0.86	0.62
Heavy Vehicles (%)	12%	9%	10%	11%	95%
Adj. Flow (vph)	369	133	36	458	34
Shared Lane Traffic (%)					
Lane Group Flow (vph)	369	133	0	494	34
Turn Type	NA	Perm	Perm	NA	Prot
Protected Phases	1			3	4
Permitted Phases		1	3		
Detector Phase	1	1	3	3	4
Switch Phase					
Minimum Initial (s)	10.0	10.0	10.0	10.0	6.0
Minimum Split (s)	21.0	21.0	18.0	18.0	13.0
Total Split (s)	41.0	41.0	44.0	44.0	25.0
Total Split (%)	37.3%	37.3%	40.0%	40.0%	22.7%
Maximum Green (s)	37.0	37.0	38.0	38.0	19.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	3.0	3.0	3.0
Lost Time Adjust (s)	-1.0	-1.0		-2.0	0.0
Total Lost Time (s)	3.0	3.0		4.0	6.0
Lead/Lag			Lead	Lead	Lag
Lead-Lag Optimize?					
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0
Recall Mode	C-Max	C-Max	Max	Max	Max
Walk Time (s)	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)	5.0	5.0	4.0	4.0	
Pedestrian Calls (#/hr)	0	0	25	25	
Act Effct Green (s)	38.0	38.0		40.0	19.0
Actuated g/C Ratio	0.35	0.35		0.36	0.17
v/c Ratio	0.34	0.32		0.43	0.21
Control Delay	27.9	6.6		27.8	43.1
Queue Delay	1.8	0.5		0.1	0.0
Total Delay	29.7	7.1		28.0	43.1
LOS	C	A		C	D
Approach Delay	23.7			28.0	43.1
Approach LOS	C			C	D
Queue Length 50th (ft)	101	0		136	21
Queue Length 95th (ft)	142	43		175	35
Internal Link Dist (ft)	31			358	58
Turn Bay Length (ft)					
Base Capacity (vph)	1076	422		1151	159
Starvation Cap Reductn	534	88		0	0
Spillback Cap Reductn	0	5		118	0
Storage Cap Reductn	0	0		0	0
Reduced v/c Ratio	0.68	0.40		0.48	0.21

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 8 (7%), Referenced to phase 1:EBT, Start of Green			
Natural Cycle: 55			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.43			
Intersection Signal Delay: 26.4		Intersection LOS: C	
Intersection Capacity Utilization 38.5%		ICU Level of Service A	
Analysis Period (min) 15			

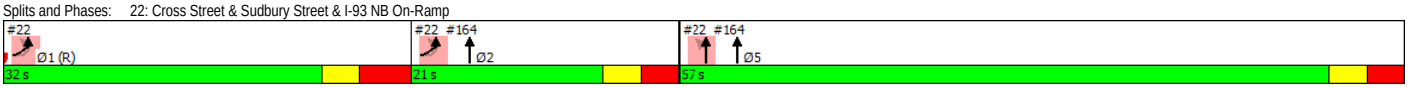
Splits and Phases: 21: Surface Street & Sudbury Street & Haymarket Bus Exit

Lane Group	EBL2	EBL	EBR	NBL	NBT	SBT	SBR	SEL	SER	Ø1	Ø2
Lane Configurations											
Traffic Volume (vph)	273	122	0	164	690	0	0	0	0		
Future Volume (vph)	273	122	0	164	690	0	0	0	0		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900		
Lane Width (ft)	12	13	12	12	11	12	12	12	12		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00		
Frt											
Flt Protected	0.950	0.950			0.990						
Satd. Flow (prot)	1671	1424	0	0	3174	0	0	0	0		
Flt Permitted	0.950	0.950			0.990						
Satd. Flow (perm)	1671	1424	0	0	3174	0	0	0	0		
Right Turn on Red	Yes		Yes								
Satd. Flow (RTOR)	300										
Link Speed (mph)		25			25	25		25			
Link Distance (ft)		191			203	568		237			
Travel Time (s)		5.2			5.5	15.5		6.5			
Peak Hour Factor	0.91	0.91	0.91	0.96	0.96	0.92	0.92	0.92	0.92		
Heavy Vehicles (%)	8%	31%	0%	4%	10%	0%	0%	0%	0%		
Adj. Flow (vph)	300	134	0	171	719	0	0	0	0		
Shared Lane Traffic (%)											
Lane Group Flow (vph)	300	134	0	0	890	0	0	0	0		
Turn Type	Perm	Prot		Perm	NA						
Protected Phases		1 2			5					1	2
Permitted Phases	1 2			5							
Detector Phase	1 2	1 2		5	5						
Switch Phase											
Minimum Initial (s)				10.0	10.0					10.0	4.0
Minimum Split (s)				18.0	18.0					25.0	11.0
Total Split (s)				57.0	57.0					32.0	21.0
Total Split (%)				51.8%	51.8%					29%	19%
Maximum Green (s)				51.0	51.0					25.0	15.0
Yellow Time (s)				3.0	3.0					3.0	3.0
All-Red Time (s)				3.0	3.0					4.0	3.0
Lost Time Adjust (s)					-1.0						
Total Lost Time (s)					5.0						
Lead/Lag										Lead	Lag
Lead-Lag Optimize?											
Vehicle Extension (s)				2.0	2.0					2.0	2.0
Recall Mode				Max	Max					C-Max	Max
Walk Time (s)				7.0	7.0					7.0	
Flash Dont Walk (s)				4.0	4.0					3.0	
Pedestrian Calls (#/hr)				30	30					0	
Act Effct Green (s)	46.0	47.0			52.0						
Actuated g/C Ratio	0.42	0.43			0.47						
v/c Ratio	0.34	0.22			0.59						
Control Delay	4.9	12.5			9.9						
Queue Delay	1.7	2.6			0.4						
Total Delay	6.7	15.1			10.3						
LOS	A	B			B						
Approach Delay		9.3			10.3						
Approach LOS		A			B						
Queue Length 50th (ft)	17	26			174						
Queue Length 95th (ft)	57	43			205						
Internal Link Dist (ft)		111			123	488		157			
Turn Bay Length (ft)											
Base Capacity (vph)	873	608			1500						
Starvation Cap Reductn	407	368			210						
Spillback Cap Reductn	0	0			0						
Storage Cap Reductn	0	0			0						
Reduced v/c Ratio	0.64	0.56			0.69						

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 91 (83%), Referenced to phase 1:EBL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.59
Intersection Signal Delay: 10.0 Intersection LOS: A
Intersection Capacity Utilization 48.1% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 22: Cross Street & Sudbury Street & I-93 NB On-Ramp



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	28	0	0	94	69	393	789	62	0	0	0
Future Volume (vph)	19	28	0	0	94	69	393	789	62	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	1.00	1.00	0.95	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor	0.79				0.85			0.95				
Frt					0.943			0.992				
Flt Protected	0.950							0.984				
Satd. Flow (prot)	1577	1598	0	0	1286	0	0	2956	0	0	0	0
Flt Permitted	0.499							0.984				
Satd. Flow (perm)	653	1598	0	0	1286	0	0	2882	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					33			10				
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		244			263			292			187	
Travel Time (s)		6.7			7.2			8.0			5.1	
Confl. Peds. (#/hr)	261					261	36		239			
Confl. Bikes (#/hr)			5			19			13			3
Peak Hour Factor	0.77	0.77	0.77	0.80	0.80	0.80	0.89	0.89	0.89	0.92	0.92	0.92
Heavy Vehicles (%)	3%	7%	0%	0%	6%	6%	4%	4%	7%	0%	0%	0%
Parking (#/hr)									0			
Adj. Flow (vph)	25	36	0	0	118	86	442	887	70	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	25	36	0	0	204	0	0	1399	0	0	0	0
Turn Type	Perm	NA			NA		Split	NA				
Protected Phases		5			5		1	1				
Permitted Phases	5											
Detector Phase	5	5			5		1	1				
Switch Phase												
Minimum Initial (s)	8.0	8.0			8.0		8.0	8.0				
Minimum Split (s)	21.0	21.0			21.0		23.0	23.0				
Total Split (s)	34.0	34.0			34.0		76.0	76.0				
Total Split (%)	30.9%	30.9%			30.9%		69.1%	69.1%				
Maximum Green (s)	29.0	29.0			29.0		71.0	71.0				
Yellow Time (s)	3.0	3.0			3.0		3.0	3.0				
All-Red Time (s)	2.0	2.0			2.0		2.0	2.0				
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)	2.0	2.0			2.0		2.0	2.0				
Recall Mode	Max	Max			Max		C-Max	C-Max				
Walk Time (s)	7.0	7.0			7.0		7.0	7.0				
Flash Dont Walk (s)	8.0	8.0			8.0		8.0	8.0				
Pedestrian Calls (#/hr)	50	50			50		0	0				
Act Effct Green (s)	30.0	30.0			30.0			72.0				
Actuated g/C Ratio	0.27	0.27			0.27			0.65				
v/c Ratio	0.14	0.08			0.55			0.72				
Control Delay	21.8	19.6			34.8			7.5				
Queue Delay	0.0	0.0			0.4			0.4				
Total Delay	21.8	19.6			35.1			7.9				
LOS	C	B			D			A				
Approach Delay		20.5			35.1			7.9				
Approach LOS		C			D			A				
Queue Length 50th (ft)	12	18			103			204				
Queue Length 95th (ft)	m27	m34			152			230				
Internal Link Dist (ft)		164			183			212			107	
Turn Bay Length (ft)												
Base Capacity (vph)	178	435			374			1938				
Starvation Cap Reductn	0	0			0			161				
Spillback Cap Reductn	0	0			21			7				
Storage Cap Reductn	0	0			0			0				
Reduced v/c Ratio	0.14	0.08			0.58			0.79				

Intersection Summary

Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 14 (13%), Referenced to phase 1:NBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.72
Intersection Signal Delay: 11.7 Intersection LOS: B
Intersection Capacity Utilization 82.1% ICU Level of Service E
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 23: Cross Street & Hanover Street

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	26	6	82	405	0	0	0	0	22	461	36
Future Volume (vph)	0	26	6	82	405	0	0	0	0	22	461	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor		0.94		0.68							0.95	
Frt		0.973									0.990	
Flt Protected				0.950							0.998	
Satd. Flow (prot)	0	2850	0	1388	1613	0	0	0	0	0	2893	0
Flt Permitted				0.730							0.998	
Satd. Flow (perm)	0	2850	0	728	1613	0	0	0	0	0	2874	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7									8	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		361			244			470			333	
Travel Time (s)		9.8			6.7			12.8			9.1	
Confl. Peds. (#/hr)			174	174						82		227
Confl. Bikes (#/hr)			4			17						103
Peak Hour Factor	0.81	0.81	0.81	0.88	0.88	0.88	0.92	0.92	0.92	0.90	0.90	0.90
Heavy Vehicles (%)	0%	5%	0%	17%	6%	0%	0%	0%	0%	18%	6%	3%
Adj. Flow (vph)	0	32	7	93	460	0	0	0	0	24	512	40
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	39	0	93	460	0	0	0	0	0	576	0
Turn Type		NA		D.P+P	NA					Perm	NA	
Protected Phases		6		5	5 6						1	
Permitted Phases				6						1		
Detector Phase		6		5	5 6					1	1	
Switch Phase												
Minimum Initial (s)		10.0		10.0						10.0	10.0	
Minimum Split (s)		22.0		18.0						27.0	27.0	
Total Split (s)		22.0		44.0						44.0	44.0	
Total Split (%)		20.0%		40.0%						40.0%	40.0%	
Maximum Green (s)		13.0		39.0						39.0	39.0	
Yellow Time (s)		3.0		3.0						3.0	3.0	
All-Red Time (s)		6.0		2.0						2.0	2.0	
Lost Time Adjust (s)		-5.0		-1.0							-1.0	
Total Lost Time (s)		4.0		4.0							4.0	
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)		2.0		2.0						2.0	2.0	
Recall Mode		Max		Max						C-Max	C-Max	
Walk Time (s)		7.0		7.0						7.0	7.0	
Flash Dont Walk (s)		5.0		5.0						10.0	10.0	
Pedestrian Calls (#/hr)		0		0						0	0	
Act Effct Green (s)		18.0		58.0	62.0						40.0	
Actuated g/C Ratio		0.16		0.53	0.56						0.36	
v/c Ratio		0.08		0.15	0.51						0.55	
Control Delay		34.1		8.4	10.4						21.9	
Queue Delay		0.0		0.4	3.8						3.9	
Total Delay		34.1		8.8	14.2						25.8	
LOS		C		A	B						C	
Approach Delay		34.1			13.3						25.8	
Approach LOS		C			B						C	
Queue Length 50th (ft)		10		20	103						201	
Queue Length 95th (ft)		23		m34	160						275	
Internal Link Dist (ft)		281			164			390			253	
Turn Bay Length (ft)												
Base Capacity (vph)		472		623	909						1050	
Starvation Cap Reductn		0		266	353						379	
Spillback Cap Reductn		0		0	0						0	
Storage Cap Reductn		0		0	0						0	
Reduced v/c Ratio		0.08		0.26	0.83						0.86	

Intersection Summary

Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 75 (68%), Referenced to phase 1:SBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.55
Intersection Signal Delay: 20.2 Intersection LOS: C
Intersection Capacity Utilization 82.1% ICU Level of Service E
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 24: Surface Street & Hanover Street

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	441	819	32	0	709
Future Volume (vph)	0	441	819	32	0	709
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.91	0.91	1.00	0.91
Frt		0.865	0.994			
Flt Protected						
Satd. Flow (prot)	0	1644	5156	0	0	5187
Flt Permitted						
Satd. Flow (perm)	0	1644	5156	0	0	5187
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		35	5			
Link Speed (mph)	30		25			25
Link Distance (ft)	361		453			378
Travel Time (s)	8.2		12.4			10.3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	479	890	35	0	771
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	479	925	0	0	771
Turn Type		Prot	NA			NA
Protected Phases		2	1			1
Permitted Phases						
Detector Phase		2	1			1
Switch Phase						
Minimum Initial (s)		4.0	4.0			4.0
Minimum Split (s)		22.0	22.0			22.0
Total Split (s)		74.0	46.0			46.0
Total Split (%)		61.7%	38.3%			38.3%
Maximum Green (s)		70.0	42.0			42.0
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		Lag	Lead			Lead
Lead-Lag Optimize?						
Vehicle Extension (s)		2.0	2.0			2.0
Recall Mode		None	C-Max			C-Max
Walk Time (s)		7.0				
Flash Dont Walk (s)		11.0				
Pedestrian Calls (#/hr)		0				
Act Effct Green (s)		41.9	70.1			70.1
Actuated g/C Ratio		0.35	0.58			0.58
v/c Ratio		0.80	0.31			0.25
Control Delay		42.4	9.9			2.5
Queue Delay		0.6	0.0			0.1
Total Delay		43.0	9.9			2.6
LOS		D	A			A
Approach Delay			9.9			2.6
Approach LOS			A			A
Queue Length 50th (ft)		313	114			22
Queue Length 95th (ft)		365	m157			m55
Internal Link Dist (ft)	281		373			298
Turn Bay Length (ft)						
Base Capacity (vph)		973	3015			3031
Starvation Cap Reductn		204	0			1029
Spillback Cap Reductn		1	210			0
Storage Cap Reductn		0	0			0
Reduced v/c Ratio		0.62	0.33			0.39

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 5 (4%), Referenced to phase 1:NBSB, Start of Green			
Natural Cycle: 45			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.80			
Intersection Signal Delay: 14.6		Intersection LOS: B	
Intersection Capacity Utilization 50.5%		ICU Level of Service A	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 25: Congress Street

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations													
Traffic Volume (vph)	823	75	0	0	0	0	0	421	18	0	0	0	
Future Volume (vph)	823	75	0	0	0	0	0	421	18	0	0	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00	
Ped Bike Factor								1.00					
Frt								0.994					
Flt Protected	0.950	0.961											
Satd. Flow (prot)	1442	1474	0	0	0	0	0	2812	0	0	0	0	
Flt Permitted	0.950	0.961											
Satd. Flow (perm)	1442	1474	0	0	0	0	0	2812	0	0	0	0	
Right Turn on Red	No		Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)								4					
Link Speed (mph)		25			25			25			25		
Link Distance (ft)		145			386			247			292		
Travel Time (s)		4.0			10.5			6.7			8.0		
Confl. Bikes (#/hr)									13				
Peak Hour Factor	0.93	0.93	0.93	0.92	0.92	0.92	0.91	0.91	0.91	0.92	0.92	0.92	
Heavy Vehicles (%)	7%	1%	0%	0%	0%	0%	0%	15%	7%	0%	0%	0%	
Adj. Flow (vph)	885	81	0	0	0	0	0	463	20	0	0	0	
Shared Lane Traffic (%)	42%												
Lane Group Flow (vph)	513	453	0	0	0	0	0	483	0	0	0	0	
Turn Type	Split	NA						NA					
Protected Phases	1	1						5					2
Permitted Phases													
Detector Phase	1	1						5					
Switch Phase													
Minimum Initial (s)	8.0	8.0						8.0					8.0
Minimum Split (s)	15.0	15.0						14.0					18.0
Total Split (s)	62.0	62.0						30.0					18.0
Total Split (%)	56.4%	56.4%						27.3%					16%
Maximum Green (s)	57.0	57.0						25.0					14.0
Yellow Time (s)	3.0	3.0						3.0					4.0
All-Red Time (s)	2.0	2.0						2.0					0.0
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?													
Vehicle Extension (s)	2.0	2.0						2.0					2.0
Recall Mode	C-Max	C-Max						Max					Ped
Walk Time (s)													7.0
Flash Dont Walk (s)													7.0
Pedestrian Calls (#/hr)													500
Act Effct Green (s)	58.0	58.0						26.0					
Actuated g/C Ratio	0.53	0.53						0.24					
v/c Ratio	0.68	0.58						0.72					
Control Delay	24.7	21.6						45.5					
Queue Delay	0.1	0.1						0.8					
Total Delay	24.8	21.6						46.3					
LOS	C	C						D					
Approach Delay		23.3						46.3					
Approach LOS		C						D					
Queue Length 50th (ft)	268	220						164					
Queue Length 95th (ft)	402	329						225					
Internal Link Dist (ft)		65			306			167			212		
Turn Bay Length (ft)													
Base Capacity (vph)	760	777						667					
Starvation Cap Reductn	0	0						0					
Spillback Cap Reductn	16	17						43					
Storage Cap Reductn	0	0						0					
Reduced v/c Ratio	0.69	0.60						0.77					

Intersection Summary			
Area Type:	CBD		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 24 (22%), Referenced to phase 1:EBTL, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.72			
Intersection Signal Delay: 31.0		Intersection LOS: C	
Intersection Capacity Utilization 47.8%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 26: Cross Street & I-93 Off-Ramp/North Street

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	55	513	728	0	0	0	0	0	502	47
Future Volume (vph)	0	0	55	513	728	0	0	0	0	0	502	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95
Ped Bike Factor											0.97	
Frt			0.865								0.987	
Flt Protected					0.980							
Satd. Flow (prot)	0	0	1321	0	3122	0	0	0	0	0	2899	0
Flt Permitted					0.980							
Satd. Flow (perm)	0	0	1321	0	3122	0	0	0	0	0	2899	0
Right Turn on Red			No	No		Yes			Yes			Yes
Satd. Flow (RTOR)											9	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		373			108			468			470	
Travel Time (s)		10.2			2.9			12.8			12.8	
Confl. Peds. (#/hr)												251
Confl. Bikes (#/hr)												95
Peak Hour Factor	0.80	0.80	0.80	0.93	0.93	0.93	0.92	0.92	0.92	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	12%	2%	2%	0%	0%	0%	0%	0%	7%	9%
Parking (#/hr)												0
Adj. Flow (vph)	0	0	69	552	783	0	0	0	0	0	523	49
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	69	0	1335	0	0	0	0	0	572	0
Turn Type			Perm	Perm	NA						NA	
Protected Phases					1						3	
Permitted Phases			1	1								
Detector Phase			1	1	1						3	
Switch Phase												
Minimum Initial (s)			10.0	10.0	10.0						10.0	
Minimum Split (s)			25.0	25.0	25.0						25.0	
Total Split (s)			73.0	73.0	73.0						37.0	
Total Split (%)			66.4%	66.4%	66.4%						33.6%	
Maximum Green (s)			64.0	64.0	64.0						32.0	
Yellow Time (s)			3.0	3.0	3.0						3.0	
All-Red Time (s)			6.0	6.0	6.0						2.0	
Lost Time Adjust (s)			-5.0		-5.0						-1.0	
Total Lost Time (s)			4.0		4.0						4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)			2.0	2.0	2.0						2.0	
Recall Mode			C-Max	C-Max	C-Max						Max	
Walk Time (s)			7.0	7.0	7.0						7.0	
Flash Dont Walk (s)			5.0	5.0	5.0						12.0	
Pedestrian Calls (#/hr)			0	0	0						0	
Act Effct Green (s)			69.0		69.0						33.0	
Actuated g/C Ratio			0.63		0.63						0.30	
v/c Ratio			0.08		0.68						0.65	
Control Delay			7.2		15.6						10.6	
Queue Delay			0.0		0.0						0.0	
Total Delay			7.2		15.6						10.6	
LOS			A		B						B	
Approach Delay					15.6						10.6	
Approach LOS					B						B	
Queue Length 50th (ft)			15		298						40	
Queue Length 95th (ft)			25		374						48	
Internal Link Dist (ft)		293			28			388			390	
Turn Bay Length (ft)												
Base Capacity (vph)			828		1958						876	
Starvation Cap Reductn			0		0						0	
Spillback Cap Reductn			0		0						0	
Storage Cap Reductn			0		0						0	
Reduced v/c Ratio			0.08		0.68						0.65	

Intersection Summary

Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 10 (9%), Referenced to phase 1:WBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.68
Intersection Signal Delay: 13.9 Intersection LOS: B
Intersection Capacity Utilization 75.0% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 27: Surface Street & North Street/I-93 Off Ramp

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations													
Traffic Volume (vph)	2	48	0	0	769	6	271	0	6	1	0	8	
Future Volume (vph)	2	48	0	0	769	6	271	0	6	1	0	8	
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	1.00	1.00	
Ped Bike Factor					0.99			1.00		0.97		0.69	
Frt					0.999			0.994				0.850	
Flt Protected		0.998					0.950	0.954		0.950			
Satd. Flow (prot)	0	1389	0	0	2979	0	1251	1382	0	1624	0	1454	
Flt Permitted		0.984					0.950	0.954		0.548			
Satd. Flow (perm)	0	1369	0	0	2979	0	1251	1382	0	914	0	998	
Right Turn on Red			Yes			Yes			No			Yes	
Satd. Flow (RTOR)					1							60	
Link Speed (mph)		25			25			25			30		
Link Distance (ft)		241			373			604			110		
Travel Time (s)		6.6			10.2			16.5			2.5		
Confl. Peds. (#/hr)	248					248			15	15		246	
Confl. Bikes (#/hr)			3			5			1				
Peak Hour Factor	0.88	0.88	0.88	0.91	0.91	0.91	0.81	0.81	0.81	0.56	0.56	0.56	
Heavy Vehicles (%)	0%	11%	0%	0%	3%	0%	11%	0%	17%	0%	0%	0%	
Parking (#/hr)		0			0		0		0				
Adj. Flow (vph)	2	55	0	0	845	7	335	0	7	2	0	14	
Shared Lane Traffic (%)							49%						
Lane Group Flow (vph)	0	57	0	0	852	0	171	171	0	2	0	14	
Turn Type	Perm	NA			NA		Split	NA		D.Pm		Perm	
Protected Phases		1			1		3	3					2
Permitted Phases	1									3		3	
Detector Phase	1	1			1		3	3		3		3	
Switch Phase													
Minimum Initial (s)	23.0	23.0			23.0		9.0	9.0		9.0		9.0	7.0
Minimum Split (s)	30.0	30.0			30.0		16.0	16.0		16.0		16.0	21.0
Total Split (s)	59.0	59.0			59.0		30.0	30.0		30.0		30.0	21.0
Total Split (%)	53.6%	53.6%			53.6%		27.3%	27.3%		27.3%		27.3%	19%
Maximum Green (s)	54.0	54.0			54.0		24.0	24.0		24.0		24.0	17.0
Yellow Time (s)	3.0	3.0			3.0		3.0	3.0		3.0		3.0	4.0
All-Red Time (s)	2.0	2.0			2.0		3.0	3.0		3.0		3.0	0.0
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0		0.0	
Total Lost Time (s)		5.0			5.0		6.0	6.0		6.0		6.0	
Lead/Lag	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
Recall Mode	C-Max	C-Max			C-Max		Max	Max		Max		Max	None
Walk Time (s)	7.0	7.0			7.0								7.0
Flash Dont Walk (s)	5.0	5.0			5.0								10.0
Pedestrian Calls (#/hr)	0	0			0								0
Act Effct Green (s)		75.0			75.0		24.0	24.0		24.0		24.0	
Actuated g/C Ratio		0.68			0.68		0.22	0.22		0.22		0.22	
v/c Ratio		0.06			0.42		0.63	0.57		0.01		0.05	
Control Delay		6.0			1.9		33.1	7.6		34.0		0.4	
Queue Delay		0.0			0.4		0.0	0.0		0.0		0.0	
Total Delay		6.0			2.3		33.1	7.6		34.0		0.4	
LOS		A			A		C	A		C		A	
Approach Delay		6.0			2.3			20.4					
Approach LOS		A			A			C					
Queue Length 50th (ft)		12			18		104	0		1		0	
Queue Length 95th (ft)		25			23		m114	0		5		0	
Internal Link Dist (ft)		161			293			524			30		
Turn Bay Length (ft)													
Base Capacity (vph)		933			2031		272	301		199		264	
Starvation Cap Reductn		0			592		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		0.06			0.59		0.63	0.57		0.01		0.05	

Intersection Summary

Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 21 (19%), Referenced to phase 1:EBWB, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.63
Intersection Signal Delay: 7.4 Intersection LOS: A
Intersection Capacity Utilization 55.4% ICU Level of Service B
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

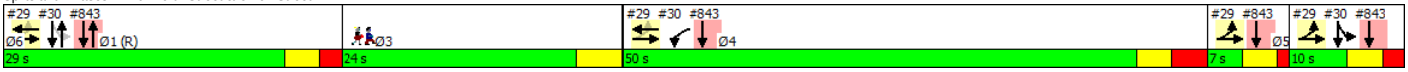
Splits and Phases: 28: Clinton Street/Millenium Hotel Driveway & North Street

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø3	Ø4	Ø5	Ø6
Lane Configurations											
Traffic Volume (vph)	10	50	1018	30	0	0					
Future Volume (vph)	10	50	1018	30	0	0					
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900					
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	1.00					
Ped Bike Factor	0.98		1.00								
Frt			0.996								
Flt Protected	0.950										
Satd. Flow (prot)	1354	1555	3115	0	0	0					
Flt Permitted	0.172										
Satd. Flow (perm)	240	1555	3115	0	0	0					
Right Turn on Red				Yes		Yes					
Satd. Flow (RTOR)			4								
Link Speed (mph)		25	25		25						
Link Distance (ft)		141	241		180						
Travel Time (s)		3.8	6.6		4.9						
Confl. Peds. (#/hr)	154			154							
Confl. Bikes (#/hr)				3		4					
Peak Hour Factor	0.76	0.76	0.92	0.92	0.92	0.92					
Heavy Vehicles (%)	20%	10%	3%	17%	0%	0%					
Parking (#/hr)				0							
Adj. Flow (vph)	13	66	1107	33	0	0					
Shared Lane Traffic (%)											
Lane Group Flow (vph)	13	66	1140	0	0	0					
Turn Type	D.P+P	NA	NA								
Protected Phases	5 6	1 4 5 6	1 4				1	3	4	5	6
Permitted Phases	1 4										
Detector Phase	5 6	1 4 5 6	1 4								
Switch Phase											
Minimum Initial (s)							7.0	7.0	8.0	3.0	4.0
Minimum Split (s)							14.0	24.0	15.0	7.0	10.0
Total Split (s)							29.0	24.0	50.0	7.0	10.0
Total Split (%)							24%	20%	42%	6%	8%
Maximum Green (s)							24.0	20.0	44.0	3.0	5.0
Yellow Time (s)							3.0	4.0	3.0	3.0	3.0
All-Red Time (s)							2.0	0.0	3.0	1.0	2.0
Lost Time Adjust (s)											
Total Lost Time (s)											
Lead/Lag									Lead	Lag	
Lead-Lag Optimize?											
Vehicle Extension (s)							2.0	2.0	2.0	2.0	2.0
Recall Mode							C-Max	Ped	Max	Max	Max
Walk Time (s)								7.0			
Flash Dont Walk (s)								13.0			
Pedestrian Calls (#/hr)								0			
Act Effct Green (s)	84.0	91.0	69.0								
Actuated g/C Ratio	0.70	0.76	0.58								
v/c Ratio	0.05	0.06	0.64								
Control Delay	2.0	1.9	10.6								
Queue Delay	0.2	2.6	13.9								
Total Delay	2.2	4.5	24.4								
LOS	A	A	C								
Approach Delay		4.1	24.4								
Approach LOS		A	C								
Queue Length 50th (ft)	1	3	150								
Queue Length 95th (ft)	m1	m7	187								
Internal Link Dist (ft)		61	161		100						
Turn Bay Length (ft)											
Base Capacity (vph)	288	1179	1792								
Starvation Cap Reductn	117	1026	651								
Spillback Cap Reductn	0	0	596								
Storage Cap Reductn	0	0	0								
Reduced v/c Ratio	0.08	0.43	1.00								

Intersection Summary

Area Type: CBD
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 1:EBWB, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.98
Intersection Signal Delay: 23.1 Intersection LOS: C
Intersection Capacity Utilization 36.7% ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

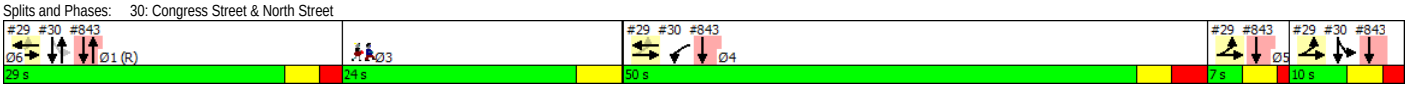
Splits and Phases: 29: North Street & Union Street



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø3	Ø5
Lane Configurations								
Traffic Volume (vph)	533	471	376	39	21	688		
Future Volume (vph)	533	471	376	39	21	688		
Ideal Flow (vphpl)	1900	1900	1900	1900	1700	1700		
Lane Util. Factor	0.97	0.95	0.91	0.91	0.91	0.91		
Ped Bike Factor	0.79		0.95			0.99		
Frt	0.930		0.986					
Flt Protected	0.974					0.998		
Satd. Flow (prot)	2654	0	3986	0	0	3834		
Flt Permitted	0.974					0.916		
Satd. Flow (perm)	2294	0	3986	0	0	3490		
Right Turn on Red		Yes		No				
Satd. Flow (RTOR)	210							
Link Speed (mph)	25		25			25		
Link Distance (ft)	141		126			453		
Travel Time (s)	3.8		3.4			12.4		
Confl. Peds. (#/hr)	312	212		1204	1204			
Confl. Bikes (#/hr)		7		7				
Peak Hour Factor	0.93	0.93	0.94	0.94	0.93	0.93		
Heavy Vehicles (%)	2%	5%	9%	16%	0%	9%		
Adj. Flow (vph)	573	506	400	41	23	740		
Shared Lane Traffic (%)								
Lane Group Flow (vph)	1079	0	441	0	0	763		
Turn Type	Prot		NA		D.P+P	NA		
Protected Phases	4		1		6	1 6	3	5
Permitted Phases					1			
Detector Phase	4		1		6	1 6		
Switch Phase								
Minimum Initial (s)	8.0		7.0		4.0		7.0	3.0
Minimum Split (s)	15.0		14.0		10.0		24.0	7.0
Total Split (s)	50.0		29.0		10.0		24.0	7.0
Total Split (%)	41.7%		24.2%		8.3%		20%	6%
Maximum Green (s)	44.0		24.0		5.0		20.0	3.0
Yellow Time (s)	3.0		3.0		3.0		4.0	3.0
All-Red Time (s)	3.0		2.0		2.0		0.0	1.0
Lost Time Adjust (s)	0.0		0.0					
Total Lost Time (s)	6.0		5.0					
Lead/Lag	Lead							Lag
Lead-Lag Optimize?								
Vehicle Extension (s)	2.0		2.0		2.0		2.0	2.0
Recall Mode	Max		C-Max		Max		Ped	Max
Walk Time (s)							7.0	
Flash Dont Walk (s)							13.0	
Pedestrian Calls (#/hr)							0	
Act Effct Green (s)	44.0		24.0			29.0		
Actuated g/C Ratio	0.37		0.20			0.24		
v/c Ratio	0.98		0.55			0.89		
Control Delay	41.3		5.7			40.2		
Queue Delay	21.5		0.1			0.2		
Total Delay	62.7		5.8			40.4		
LOS	E		A			D		
Approach Delay	62.7		5.8			40.4		
Approach LOS	E		A			D		
Queue Length 50th (ft)	168		5			112		
Queue Length 95th (ft)	#260		6			#102		
Internal Link Dist (ft)	61		46			373		
Turn Bay Length (ft)								
Base Capacity (vph)	1106		797			857		
Starvation Cap Reductn	81		23			0		
Spillback Cap Reductn	16		0			4		
Storage Cap Reductn	0		0			0		
Reduced v/c Ratio	1.05		0.57			0.89		

Intersection Summary			
Area Type:	CBD		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 0 (0%), Referenced to phase 1:EBWB, Start of Green			
Natural Cycle: 100			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.98			
Intersection Signal Delay: 44.3		Intersection LOS: D	
Intersection Capacity Utilization 77.8%		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.			

Splits and Phases: 30: Congress Street & North Street



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations													
Traffic Volume (vph)	0	0	0	925	307	0	0	0	0	0	958	112	
Future Volume (vph)	0	0	0	925	307	0	0	0	0	0	958	112	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	14	16	12	12	12	12	12	12	12	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.91	0.91	
Ped Bike Factor				0.71	0.86						0.97		
Frt											0.984		
Flt Protected				0.950	0.977								
Satd. Flow (prot)	0	0	0	1598	1711	0	0	0	0	0	4260	0	
Flt Permitted				0.950	0.977								
Satd. Flow (perm)	0	0	0	1128	1472	0	0	0	0	0	4260	0	
Right Turn on Red			Yes	No		Yes			Yes			Yes	
Satd. Flow (RTOR)											18		
Link Speed (mph)		25			25			25			25		
Link Distance (ft)		604			328			196			468		
Travel Time (s)		16.5			8.9			5.3			12.8		
Confl. Peds. (#/hr)				116								147	
Confl. Bikes (#/hr)						1						83	
Peak Hour Factor	0.92	0.92	0.92	0.91	0.91	0.91	0.92	0.92	0.92	0.95	0.95	0.95	
Heavy Vehicles (%)	0%	0%	0%	3%	7%	0%	0%	0%	0%	0%	4%	7%	
Adj. Flow (vph)	0	0	0	1016	337	0	0	0	0	0	1008	118	
Shared Lane Traffic (%)				30%									
Lane Group Flow (vph)	0	0	0	711	642	0	0	0	0	0	1126	0	
Turn Type				Split	NA						NA		
Protected Phases				5	5						1		2
Permitted Phases													
Detector Phase				5	5						1		
Switch Phase													
Minimum Initial (s)				8.0	8.0						8.0		8.0
Minimum Split (s)				19.0	19.0						27.0		24.0
Total Split (s)				51.0	51.0						35.0		24.0
Total Split (%)				46.4%	46.4%						31.8%		22%
Maximum Green (s)				46.0	46.0						29.0		20.0
Yellow Time (s)				3.0	3.0						3.0		4.0
All-Red Time (s)				2.0	2.0						3.0		0.0
Lost Time Adjust (s)				-2.0	-2.0						-2.0		
Total Lost Time (s)				3.0	3.0						4.0		
Lead/Lag											Lead		Lag
Lead-Lag Optimize?													
Vehicle Extension (s)				2.0	2.0						2.0		2.0
Recall Mode				Max	Max						C-Max		Ped
Walk Time (s)				7.0	7.0						7.0		7.0
Flash Dont Walk (s)				6.0	6.0						11.0		13.0
Pedestrian Calls (#/hr)				0	0						0		455
Act Effct Green (s)				48.0	48.0						31.0		
Actuated g/C Ratio				0.44	0.44						0.28		
v/c Ratio				1.02	0.86						0.93		
Control Delay				71.0	41.5						46.4		
Queue Delay				0.0	0.0						0.0		
Total Delay				71.0	41.5						46.4		
LOS				E	D						D		
Approach Delay					57.0						46.4		
Approach LOS					E						D		
Queue Length 50th (ft)				~562	421						265		
Queue Length 95th (ft)				#802	#649						#240		
Internal Link Dist (ft)		524			248			116			388		
Turn Bay Length (ft)													
Base Capacity (vph)				697	746						1213		
Starvation Cap Reductn				0	0						0		
Spillback Cap Reductn				0	0						0		
Storage Cap Reductn				0	0						0		
Reduced v/c Ratio				1.02	0.86						0.93		

Intersection Summary

Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 4 (4%), Referenced to phase 1:SBT, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.02
Intersection Signal Delay: 52.2 Intersection LOS: D
Intersection Capacity Utilization 68.2% 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: 31: Surface Street & Clinton Street/I-93 Off Ramp

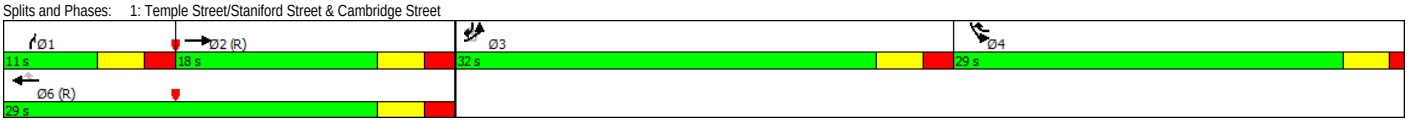
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (vph)	11	335	503	0	0	654	167	0	0	4	223	0	230
Future Volume (vph)	11	335	503	0	0	654	167	0	0	4	223	0	230
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	10	11	12	12	11	12	12	12	12	11	12	11
Storage Length (ft)		140		0	0		0	0		0	0		0
Storage Lanes		1		0	0		1	0		1	1		1
Taper Length (ft)		25			25			25			25		
Lane Util. Factor	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor							0.59						
Frt							0.850			0.865			0.850
Flt Protected		0.950									0.950		
Satd. Flow (prot)	0	1668	3219	0	0	3388	1538	0	0	1644	1745	0	1351
Flt Permitted		0.390									0.950		
Satd. Flow (perm)	0	685	3219	0	0	3388	905	0	0	1644	1745	0	1351
Right Turn on Red				No			Yes			No			No
Satd. Flow (RTOR)							176						
Link Speed (mph)			30			30			30			30	
Link Distance (ft)			407			236			206			1103	
Travel Time (s)			9.3			5.4			4.7			25.1	
Confl. Peds. (#/hr)							693						
Confl. Bikes (#/hr)				10			125						5
Peak Hour Factor	0.89	0.89	0.89	0.89	0.95	0.95	0.95	0.50	0.50	0.50	0.87	0.87	0.87
Heavy Vehicles (%)	0%	1%	3%	0%	0%	3%	5%	0%	0%	0%	0%	0%	4%
Parking (#/hr)			0										0
Adj. Flow (vph)	12	376	565	0	0	688	176	0	0	8	256	0	264
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	388	565	0	0	688	176	0	0	8	256	0	264
Turn Type	custom	Prot	NA			NA	pm+ov			Prot	Prot		Over
Protected Phases		3	2			6	4			1	4		3!
Permitted Phases	3!						6						
Detector Phase	3	3	2			6	4			1	4		3
Switch Phase													
Minimum Initial (s)	8.0	8.0	12.0			12.0	8.0			6.0	8.0		8.0
Minimum Split (s)	32.0	32.0	17.0			24.0	29.0			11.0	29.0		32.0
Total Split (s)	32.0	32.0	18.0			29.0	29.0			11.0	29.0		32.0
Total Split (%)	35.6%	35.6%	20.0%			32.2%	32.2%			12.2%	32.2%		35.6%
Maximum Green (s)	27.0	27.0	13.0			24.0	25.0			6.0	25.0		27.0
Yellow Time (s)	3.0	3.0	3.0			3.0	3.0			3.0	3.0		3.0
All-Red Time (s)	2.0	2.0	2.0			2.0	1.0			2.0	1.0		2.0
Lost Time Adjust (s)		0.0	0.0			0.0	0.0			0.0	0.0		0.0
Total Lost Time (s)		5.0	5.0			5.0	4.0			5.0	4.0		5.0
Lead/Lag	Lead	Lead	Lag				Lag			Lead	Lag		Lead
Lead-Lag Optimize?													
Vehicle Extension (s)	2.0	2.0	2.0			2.0	2.0			2.0	2.0		2.0
Recall Mode	Min	Min	C-Max			C-Max	Min			None	Min		Min
Walk Time (s)	7.0	7.0				7.0	7.0				7.0		7.0
Flash Dont Walk (s)	20.0	20.0				12.0	18.0				18.0		20.0
Pedestrian Calls (#/hr)	140	140				140	132				132		140
Act Effct Green (s)		27.0	21.8			24.0	50.0			6.0	25.0		27.0
Actuated g/C Ratio		0.30	0.24			0.27	0.56			0.07	0.28		0.30
v/c Ratio		1.89	0.73			0.76	0.23			0.07	0.53		0.65
Control Delay		443.3	39.6			25.6	0.8			41.0	32.3		36.3
Queue Delay		0.0	0.0			4.7	0.2			0.0	0.0		0.0
Total Delay		443.3	39.6			30.3	0.9			41.0	32.3		36.3
LOS		F	D			C	A			D	C		D
Approach Delay			204.0			24.3							
Approach LOS			F			C							
Queue Length 50th (ft)		~341	150			131	0			4	123		130
Queue Length 95th (ft)		#508	#308			183	0			10	191		207
Internal Link Dist (ft)			327			156			126			1023	
Turn Bay Length (ft)		140											
Base Capacity (vph)		205	779			903	756			109	484		405
Starvation Cap Reductn		0	0			151	161			0	0		0
Spillback Cap Reductn		0	0			0	0			0	0		0
Storage Cap Reductn		0	0			0	0			0	0		0
Reduced v/c Ratio		1.89	0.73			0.91	0.30			0.07	0.53		0.65

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 6 (7%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 140
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.89
Intersection Signal Delay: 99.6 Intersection LOS: F
Intersection Capacity Utilization 64.0% ICU Level of Service B
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: 1: Temple Street/Staniford Street & Cambridge Street



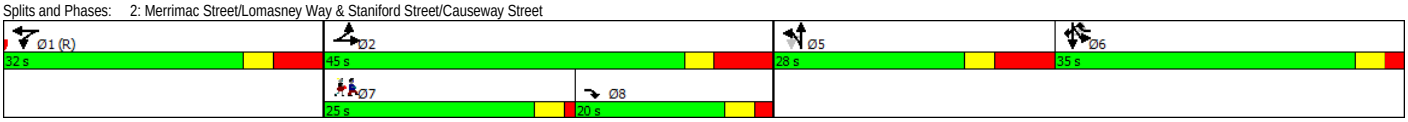
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	Ø7
Lane Configurations															
Traffic Volume (vph)	127	353	289	54	251	301	1	72	273	28	3	192	290	223	
Future Volume (vph)	127	353	289	54	251	301	1	72	273	28	3	192	290	223	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	11	11	11	11	11	10	11	10	11	11	11	10	11	11	
Storage Length (ft)	0		200	0		0		0		0		0		0	
Storage Lanes	1		1	0		1		1		0		1		1	
Taper Length (ft)	25			25				25				25			
Lane Util. Factor	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	
Ped Bike Factor									1.00				1.00		
Frt			0.850			0.850			0.986				0.998	0.850	
Flt Protected	0.950				0.991			0.950				0.950			
Satd. Flow (prot)	1564	1678	1516	0	3149	1507	0	1668	1783	0	0	1668	1690	1426	
Flt Permitted	0.950				0.991			0.211				0.559			
Satd. Flow (perm)	1564	1678	1516	0	3149	1507	0	371	1783	0	0	982	1690	1426	
Right Turn on Red			No			No				No				No	
Satd. Flow (RTOR)															
Link Speed (mph)		30			30				30				30		
Link Distance (ft)		1103			181				998				344		
Travel Time (s)		25.1			4.1				22.7				7.8		
Confl. Bikes (#/hr)			6			8				12				11	
Peak Hour Factor	0.79	0.79	0.79	0.84	0.84	0.84	0.90	0.90	0.90	0.90	0.92	0.92	0.92	0.92	
Heavy Vehicles (%)	6%	4%	3%	23%	7%	0%	0%	1%	1%	4%	0%	1%	3%	4%	
Adj. Flow (vph)	161	447	366	64	299	358	1	80	303	31	3	209	315	242	
Shared Lane Traffic (%)	0%													2%	
Lane Group Flow (vph)	161	447	366	0	363	358	0	81	334	0	0	212	320	237	
Turn Type	Split	NA	custom	Split	NA	Over	Perm	Split	NA		Perm	Split	NA	Prot	
Protected Phases	2	2	8	1	1	6!		5	5			6	6	6	7
Permitted Phases							5				6!				
Detector Phase	2	2	8	1	1	6	5	5	5		6	6	6	6	
Switch Phase															
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0		8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	27.0	27.0	16.0	31.0	31.0	16.0	27.0	27.0	27.0		16.0	16.0	16.0	16.0	25.0
Total Split (s)	45.0	45.0	20.0	32.0	32.0	35.0	28.0	28.0	28.0		35.0	35.0	35.0	35.0	25.0
Total Split (%)	32.1%	32.1%	14.3%	22.9%	22.9%	25.0%	20.0%	20.0%	20.0%		25.0%	25.0%	25.0%	25.0%	18%
Maximum Green (s)	36.0	36.0	15.0	24.0	24.0	30.0	19.0	19.0	19.0		30.0	30.0	30.0	30.0	21.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	6.0	6.0	2.0	5.0	5.0	2.0	6.0	6.0	6.0		2.0	2.0	2.0	2.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0		0.0	0.0			0.0	0.0	0.0	
Total Lost Time (s)	9.0	9.0	5.0		8.0	5.0		9.0	9.0			5.0	5.0	5.0	
Lead/Lag			Lag			Lag	Lead	Lead	Lead		Lag	Lag	Lag	Lag	Lead
Lead-Lag Optimize?															
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0
Recall Mode	Ped	Ped	None	C-Max	C-Max	None	Ped	Ped	Ped		None	None	None	None	None
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0						7.0
Flash Dont Walk (s)	11.0	11.0		16.0	16.0		11.0	11.0	11.0						14.0
Pedestrian Calls (#/hr)	100	100		175	175		0	0	0						30
Act Effct Green (s)	36.0	36.0	25.0		24.0	30.0		19.0	19.0			30.0	30.0	30.0	
Actuated g/C Ratio	0.26	0.26	0.18		0.17	0.21		0.14	0.14			0.21	0.21	0.21	
v/c Ratio	0.40	1.04	1.36		0.67	1.11		1.62	1.39			1.01	0.88	0.78	
Control Delay	46.7	103.3	222.6		61.3	133.3		390.3	240.7			118.6	79.0	70.0	
Queue Delay	0.0	0.0	0.0		0.0	1.1		0.0	0.0			0.0	0.0	0.0	
Total Delay	46.7	103.3	222.6		61.3	134.4		390.3	240.7			118.6	79.0	70.0	
LOS	D	F	F		E	F		F	F			F	E	E	
Approach Delay		138.8			97.6				269.9				87.2		
Approach LOS		F			F				F				F		
Queue Length 50th (ft)	128	~460	~538		164	~371		~105	~403			~197	300	215	
Queue Length 95th (ft)	174	#549	#633		204	#513		#217	#597			#368	#478	#350	
Internal Link Dist (ft)		1023			101				918				264		
Turn Bay Length (ft)			200												
Base Capacity (vph)	402	431	270		539	322		50	241			210	362	305	
Starvation Cap Reductn	0	0	0		0	29		0	0			0	0	0	
Spillback Cap Reductn	0	0	0		0	0		0	0			0	0	0	
Storage Cap Reductn	0	0	0		0	0		0	0			0	0	0	
Reduced v/c Ratio	0.40	1.04	1.36		0.67	1.22		1.62	1.39			1.01	0.88	0.78	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 1:WBTL, Start of Green
Natural Cycle: 145
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.62
Intersection Signal Delay: 133.6 Intersection LOS: F
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.
! Phase conflict between lane groups.

Splits and Phases: 2: Merrimac Street/Lomasney Way & Staniford Street/Causeway Street



Lane Group	EBL	EBT	EBR2	WBL	WBT	WBR	NBT	NBR	SBL2	SBT	SBR	NWR2	Ø6
Lane Configurations													
Traffic Volume (vph)	452	100	78	148	138	371	850	78	200	1018	300	52	
Future Volume (vph)	452	100	78	148	138	371	850	78	200	1018	300	52	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	11	11	11	12	11	12	11	11	10	11	11	12	
Storage Length (ft)	0			0		0		75			100		
Storage Lanes	2			0		1		0			1		
Taper Length (ft)	25			25									
Lane Util. Factor	0.97	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00	1.00	
Ped Bike Factor		0.86				0.99	0.95				0.99		
Frt		0.934				0.850	0.987				0.850	0.865	
Flt Protected	0.950				0.975				0.950				
Satd. Flow (prot)	3164	1368	0	0	3214	1583	2994	0	1685	3172	1432	1644	
Flt Permitted	0.950				0.975				0.950				
Satd. Flow (perm)	3164	1368	0	0	3214	1560	2994	0	1685	3172	1415	1644	
Right Turn on Red			Yes			No					No	Yes	
Satd. Flow (RTOR)		139										576	
Link Speed (mph)		30			30		30			30			
Link Distance (ft)		318			202		589			575			
Travel Time (s)		7.2			4.6		13.4			13.1			
Confl. Peds. (#/hr)			195					247					
Confl. Bikes (#/hr)			3			8		17			1		
Peak Hour Factor	0.87	0.87	0.87	0.82	0.82	0.82	0.91	0.91	0.93	0.93	0.93	0.92	
Heavy Vehicles (%)	7%	8%	7%	2%	10%	2%	10%	5%	0%	10%	9%	0%	
Adj. Flow (vph)	520	115	90	180	168	452	934	86	215	1095	323	57	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	520	205	0	0	348	452	1020	0	215	1095	323	57	
Turn Type	Prot	NA		Split	NA	custom	NA		Prot	NA	custom	Perm	
Protected Phases	6 7	7		5	5	8	1		8	1 8	6 7 8		6
Permitted Phases						1 5					1	5	
Detector Phase	6 7	7		5	5	8	1		8	1 8	6 7 8	5	
Switch Phase													
Minimum Initial (s)		8.0		8.0	8.0	7.0	8.0		7.0			8.0	1.0
Minimum Split (s)		23.0		27.0	27.0	13.0	24.0		13.0			27.0	7.0
Total Split (s)		23.0		27.0	27.0	16.0	37.0		16.0			27.0	7.0
Total Split (%)		20.9%		24.5%	24.5%	14.5%	33.6%		14.5%			24.5%	6%
Maximum Green (s)		18.0		22.0	22.0	11.0	32.0		11.0			22.0	5.0
Yellow Time (s)		3.0		3.0	3.0	3.0	3.0		3.0			3.0	2.0
All-Red Time (s)		2.0		2.0	2.0	2.0	2.0		2.0			2.0	0.0
Lost Time Adjust (s)		0.0			0.0	0.0	0.0		0.0			0.0	
Total Lost Time (s)		5.0			5.0	5.0	5.0		5.0			5.0	
Lead/Lag		Lead		Lead	Lead	Lag			Lag			Lead	Lag
Lead-Lag Optimize?													
Vehicle Extension (s)		2.0		2.0	2.0	2.0	2.0		2.0			2.0	2.0
Recall Mode		None		Max	Max	None	C-Max		None			Max	None
Walk Time (s)		0.0		7.0	7.0		7.0					7.0	5.0
Flash Dont Walk (s)		17.0		15.0	15.0		12.0					15.0	0.0
Pedestrian Calls (#/hr)		176		176	176		100					176	100
Act Effct Green (s)	27.6	17.6			22.0	70.4	32.0		11.4	48.4	79.0	22.0	
Actuated g/C Ratio	0.25	0.16			0.20	0.64	0.29		0.10	0.44	0.72	0.20	
v/c Ratio	0.66	0.61			0.54	0.45	1.17		1.24	0.78	0.32	0.07	
Control Delay	41.4	23.5			43.1	10.2	119.6		187.6	31.4	5.9	0.2	
Queue Delay	0.0	0.0			0.0	0.0	0.0		0.0	0.0	0.0	0.0	
Total Delay	41.4	23.5			43.1	10.2	119.6		187.6	31.4	5.9	0.2	
LOS	D	C			D	B	F		F	C	A	A	
Approach Delay		36.4			24.5		119.6			46.9			
Approach LOS		D			C		F			D			
Queue Length 50th (ft)	169	41			116	128	~446		~193	342	67	0	
Queue Length 95th (ft)	218	112			148	163	#571		#344	431	103	0	
Internal Link Dist (ft)		238			122		509			495			
Turn Bay Length (ft)									200		100		
Base Capacity (vph)	805	340			642	1001	870		174	1395	1018	789	
Starvation Cap Reductn	0	0			0	0	0		0	0	0	0	
Spillback Cap Reductn	0	0			0	0	0		0	0	0	0	
Storage Cap Reductn	0	0			0	0	0		0	0	0	0	
Reduced v/c Ratio	0.65	0.60			0.54	0.45	1.17		1.24	0.78	0.32	0.07	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 4 (4%), Referenced to phase 1:NBSB, Start of Green
Natural Cycle: 115
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.24
Intersection Signal Delay: 57.8 Intersection LOS: E
Intersection Capacity Utilization 76.8% 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: 3: North Washington Street & Causeway Street

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	0	0	351	939	44	31	1198	14
Future Volume (vph)	0	0	0	0	0	0	351	939	44	31	1198	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	0		50
Storage Lanes	0		0	0		0	1		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.91	0.91	0.91
Ped Bike Factor								0.97			1.00	
Frt								0.993			0.998	
Flt Protected							0.950				0.999	
Satd. Flow (prot)	0	0	0	0	0	0	1425	2878	0	0	4316	0
Flt Permitted							0.950				0.884	
Satd. Flow (perm)	0	0	0	0	0	0	1425	2878	0	0	3809	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)								10			3	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		181			303			152			589	
Travel Time (s)		4.9			8.3			4.1			16.1	
Confl. Peds. (#/hr)									418	418		50
Confl. Bikes (#/hr)			1						96			11
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.94	0.94	0.94	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	14%	9%	0%	0%	8%	0%
Parking (#/hr)									0			
Adj. Flow (vph)	0	0	0	0	0	0	373	999	47	33	1261	15
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	0	373	1046	0	0	1309	0
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)							8.0	10.0		10.0	10.0	
Minimum Split (s)							28.0	27.0		27.0	27.0	
Total Split (s)							30.0	80.0		80.0	80.0	
Total Split (%)							27.3%	72.7%		72.7%	72.7%	
Maximum Green (s)							25.0	75.0		75.0	75.0	
Yellow Time (s)							3.0	3.0		3.0	3.0	
All-Red Time (s)							2.0	2.0		2.0	2.0	
Lost Time Adjust (s)							-1.0	-1.0			-1.0	
Total Lost Time (s)							4.0	4.0			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)							2.0	2.0		2.0	2.0	
Recall Mode							Ped	C-Max		C-Max	C-Max	
Walk Time (s)							7.0	7.0		7.0	7.0	
Flash Dont Walk (s)							15.0	10.0		10.0	10.0	
Pedestrian Calls (#/hr)							0	0		0	0	
Act Effct Green (s)							26.0	76.0			76.0	
Actuated g/C Ratio							0.24	0.69			0.69	
v/c Ratio							1.11	0.53			0.50	
Control Delay							116.1	6.0			1.1	
Queue Delay							1.3	0.8			0.0	
Total Delay							117.4	6.8			1.1	
LOS							F	A			A	
Approach Delay								35.9			1.1	
Approach LOS								D			A	
Queue Length 50th (ft)							~298	101			13	
Queue Length 95th (ft)							#489	118			19	
Internal Link Dist (ft)		101			223			72			509	
Turn Bay Length (ft)												
Base Capacity (vph)							336	1991			2632	
Starvation Cap Reductn							36	596			0	
Spillback Cap Reductn							3	0			0	
Storage Cap Reductn							0	0			0	
Reduced v/c Ratio							1.24	0.75			0.50	

Intersection Summary

Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 0 (0%), Referenced to phase 1:NBSB, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.11
Intersection Signal Delay: 19.2 Intersection LOS: B
Intersection Capacity Utilization 64.3% 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: 4: North Washington Street & Valenti Way/Thatcher Street

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations													
Traffic Volume (vph)	0	0	0	200	169	0	0	0	0	0	317	51	
Future Volume (vph)	0	0	0	200	169	0	0	0	0	0	317	51	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	11	12	12	12	12	12	12	12	12	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95	
Ped Bike Factor											0.99		
Frt											0.979		
Flt Protected				0.950									
Satd. Flow (prot)	0	0	0	1332	1400	0	0	0	0	0	2804	0	
Flt Permitted				0.950									
Satd. Flow (perm)	0	0	0	1332	1400	0	0	0	0	0	2804	0	
Right Turn on Red			Yes	Yes		Yes			Yes			Yes	
Satd. Flow (RTOR)				235							15		
Link Speed (mph)		25			25			30			30		
Link Distance (ft)		227			181			221			528		
Travel Time (s)		6.2			4.9			5.0			12.0		
Confl. Peds. (#/hr)												4	
Confl. Bikes (#/hr)						18			2			15	
Peak Hour Factor	0.92	0.92	0.92	0.85	0.85	0.85	0.92	0.92	0.92	0.84	0.84	0.84	
Heavy Vehicles (%)	0%	0%	0%	12%	16%	0%	0%	0%	0%	0%	14%	3%	
Adj. Flow (vph)	0	0	0	235	199	0	0	0	0	0	377	61	
Shared Lane Traffic (%)				0%									
Lane Group Flow (vph)	0	0	0	235	199	0	0	0	0	0	438	0	
Turn Type				Split	NA						NA		
Protected Phases				1	1						5		2
Permitted Phases													
Detector Phase				1	1						5		
Switch Phase													
Minimum Initial (s)				5.0	5.0						5.0		8.0
Minimum Split (s)				19.0	19.0						19.0		18.0
Total Split (s)				65.0	65.0						27.0		18.0
Total Split (%)				59.1%	59.1%						24.5%		16%
Maximum Green (s)				61.0	61.0						23.0		14.0
Yellow Time (s)				3.0	3.0						3.0		4.0
All-Red Time (s)				1.0	1.0						1.0		0.0
Lost Time Adjust (s)				0.0	0.0						0.0		
Total Lost Time (s)				4.0	4.0						4.0		
Lead/Lag				Lead	Lead								Lag
Lead-Lag Optimize?													
Vehicle Extension (s)				2.0	2.0						2.0		2.0
Recall Mode				C-Max	C-Max						Max		None
Walk Time (s)				7.0	7.0						7.0		7.0
Flash Dont Walk (s)				6.0	6.0						7.0		7.0
Pedestrian Calls (#/hr)				0	0						0		30
Act Effct Green (s)				68.2	68.2						23.0		
Actuated g/C Ratio				0.62	0.62						0.21		
v/c Ratio				0.26	0.23						0.73		
Control Delay				0.7	2.1						47.5		
Queue Delay				3.1	2.4						1.5		
Total Delay				3.7	4.5						49.0		
LOS				A	A						D		
Approach Delay					4.1						49.0		
Approach LOS					A						D		
Queue Length 50th (ft)				0	8						145		
Queue Length 95th (ft)				m0	m9						186		
Internal Link Dist (ft)		147			101			141			448		
Turn Bay Length (ft)													
Base Capacity (vph)				915	868						598		
Starvation Cap Reductn				570	544						0		
Spillback Cap Reductn				4	0						53		
Storage Cap Reductn				0	0						0		
Reduced v/c Ratio				0.68	0.61						0.80		

Intersection Summary

Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 87 (79%), Referenced to phase 1:WBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.73
Intersection Signal Delay: 26.6 Intersection LOS: C
Intersection Capacity Utilization 29.4% ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: Beverly St & Valenti Way

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations								
Traffic Volume (vph)	0	45	222	0	0	0	0	1067
Future Volume (vph)	0	45	222	0	0	0	0	1067
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.88
Frt		0.865						0.850
Flt Protected								
Satd. Flow (prot)	0	1450	2954	0	0	0	0	2347
Flt Permitted								
Satd. Flow (perm)	0	1450	2954	0	0	0	0	2347
Right Turn on Red		Yes						
Satd. Flow (RTOR)		99						
Link Speed (mph)	25		25			25	25	
Link Distance (ft)	328		169			188	568	
Travel Time (s)	8.9		4.6			5.1	15.5	
Peak Hour Factor	0.73	0.73	0.88	0.88	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	2%	10%	0%	0%	0%	0%	9%
Adj. Flow (vph)	0	62	252	0	0	0	0	1160
Shared Lane Traffic (%)								
Lane Group Flow (vph)	0	62	252	0	0	0	0	1160
Turn Type		Prot	NA					Prot
Protected Phases		2	3					1
Permitted Phases								
Detector Phase		2	3					1
Switch Phase								
Minimum Initial (s)		8.0	8.0					8.0
Minimum Split (s)		17.0	17.0					19.0
Total Split (s)		18.0	19.0					73.0
Total Split (%)		16.4%	17.3%					66.4%
Maximum Green (s)		14.0	15.0					69.0
Yellow Time (s)		3.0	3.0					3.0
All-Red Time (s)		1.0	1.0					1.0
Lost Time Adjust (s)		-1.0	-1.0					-1.0
Total Lost Time (s)		3.0	3.0					3.0
Lead/Lag		Lead	Lag					
Lead-Lag Optimize?								
Vehicle Extension (s)		2.0	2.0					2.0
Recall Mode		None	Max					C-Max
Walk Time (s)		7.0	7.0					7.0
Flash Dont Walk (s)		5.0	5.0					5.0
Pedestrian Calls (#/hr)		0	0					0
Act Effct Green (s)		9.0	16.0					78.4
Actuated g/C Ratio		0.08	0.15					0.71
v/c Ratio		0.30	0.59					0.69
Control Delay		6.8	50.1					8.5
Queue Delay		0.0	0.0					0.2
Total Delay		6.8	50.1					8.7
LOS		A	D					A
Approach Delay			50.1					
Approach LOS			D					
Queue Length 50th (ft)		0	88					160
Queue Length 95th (ft)		0	128					m211
Internal Link Dist (ft)	248		89			108	488	
Turn Bay Length (ft)								
Base Capacity (vph)		283	429					1672
Starvation Cap Reductn		0	0					80
Spillback Cap Reductn		0	0					0
Storage Cap Reductn		0	0					0
Reduced v/c Ratio		0.22	0.59					0.73

Intersection Summary

Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 2 (2%), Referenced to phase 1:NWR, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.69
Intersection Signal Delay: 15.7 Intersection LOS: B
Intersection Capacity Utilization 65.0% ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: I-93 Off-Ramps & Cross Street & Cooper Street

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	517	0	0	1198	0
Future Volume (vph)	0	517	0	0	1198	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.76	1.00	1.00	0.91	1.00
Frt		0.850				
Flt Protected						
Satd. Flow (prot)	0	3259	0	0	4803	0
Flt Permitted						
Satd. Flow (perm)	0	3259	0	0	4803	0
Right Turn on Red		No				Yes
Satd. Flow (RTOR)						
Link Speed (mph)	30			25	25	
Link Distance (ft)	221			242	150	
Travel Time (s)	5.0			6.6	4.1	
Peak Hour Factor	0.84	0.84	0.92	0.92	0.93	0.93
Heavy Vehicles (%)	0%	13%	0%	0%	8%	0%
Adj. Flow (vph)	0	615	0	0	1288	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	615	0	0	1288	0
Turn Type		Prot			NA	
Protected Phases		5			1	
Permitted Phases						
Detector Phase		5			1	
Switch Phase						
Minimum Initial (s)		8.0			8.0	
Minimum Split (s)		23.0			20.0	
Total Split (s)		38.0			72.0	
Total Split (%)		34.5%			65.5%	
Maximum Green (s)		33.0			67.0	
Yellow Time (s)		3.0			3.0	
All-Red Time (s)		2.0			2.0	
Lost Time Adjust (s)		-1.0			-1.0	
Total Lost Time (s)		4.0			4.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)		2.0			2.0	
Recall Mode		Max			C-Max	
Walk Time (s)		7.0			7.0	
Flash Dont Walk (s)		10.0			5.0	
Pedestrian Calls (#/hr)		0			0	
Act Effct Green (s)		34.0			68.0	
Actuated g/C Ratio		0.31			0.62	
v/c Ratio		0.61			0.43	
Control Delay		25.4			5.2	
Queue Delay		3.9			0.1	
Total Delay		29.3			5.3	
LOS		C			A	
Approach Delay					5.3	
Approach LOS					A	
Queue Length 50th (ft)		58			53	
Queue Length 95th (ft)		76			59	
Internal Link Dist (ft)	141			162	70	
Turn Bay Length (ft)						
Base Capacity (vph)		1007			2969	
Starvation Cap Reductn		301			521	
Spillback Cap Reductn		160			77	
Storage Cap Reductn		0			0	
Reduced v/c Ratio		0.87			0.53	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 102 (93%), Referenced to phase 1:SBT, Start of Green
Natural Cycle: 45
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.61
Intersection Signal Delay: 13.0 Intersection LOS: B
Intersection Capacity Utilization 41.9% ICU Level of Service A
Analysis Period (min) 15

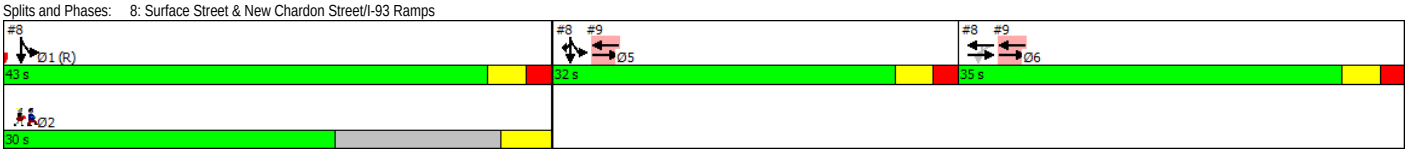
Splits and Phases: 7: Surface Street & Beverly St

Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø1	Ø2
Lane Configurations															
Traffic Volume (vph)	0	1032	75	19	10	429	0	0	0	0	1106	310	299		
Future Volume (vph)	0	1032	75	19	10	429	0	0	0	0	1106	310	299		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900		
Lane Width (ft)	12	12	12	12	12	14	12	12	12	12	12	11	13		
Lane Util. Factor	1.00	0.91	0.91	0.95	0.95	0.95	1.00	1.00	1.00	1.00	0.95	0.95	0.88		
Ped Bike Factor															
Frt		0.990											0.850		
Flt Protected						0.997					0.950	0.969			
Satd. Flow (prot)	0	4555	0	0	0	3353	0	0	0	0	1442	1375	2425		
Flt Permitted						0.690					0.950	0.969			
Satd. Flow (perm)	0	4555	0	0	0	2320	0	0	0	0	1442	1375	2425		
Right Turn on Red			No				Yes			Yes			No		
Satd. Flow (RTOR)															
Link Speed (mph)		25				25			25			25			
Link Distance (ft)		184				394			438			242			
Travel Time (s)		5.0				10.7			11.9			6.6			
Confl. Peds. (#/hr)													148		
Peak Hour Factor	0.91	0.91	0.91	0.95	0.95	0.95	0.95	0.92	0.92	0.92	0.94	0.94	0.94		
Heavy Vehicles (%)	0%	1%	8%	0%	11%	3%	0%	0%	0%	0%	7%	17%	9%		
Adj. Flow (vph)	0	1134	82	20	11	452	0	0	0	0	1177	330	318		
Shared Lane Traffic (%)											48%				
Lane Group Flow (vph)	0	1216	0	0	0	483	0	0	0	0	612	895	318		
Turn Type		NA		Perm	Perm	NA					Split	NA	custom		
Protected Phases		6				6					1 5	1 5	5	1	2
Permitted Phases				6	6										
Detector Phase		6		6	6	6					1 5	1 5	5		
Switch Phase															
Minimum Initial (s)		8.0		8.0	8.0	8.0							8.0	8.0	8.0
Minimum Split (s)		24.0		24.0	24.0	24.0							22.0	23.0	30.0
Total Split (s)		35.0		35.0	35.0	35.0							32.0	43.0	30.0
Total Split (%)		31.8%		31.8%	31.8%	31.8%							29.1%	39%	27%
Maximum Green (s)		30.0		30.0	30.0	30.0							27.0	38.0	26.0
Yellow Time (s)		3.0		3.0	3.0	3.0							3.0	3.0	4.0
All-Red Time (s)		2.0		2.0	2.0	2.0							2.0	2.0	0.0
Lost Time Adjust (s)		-2.0				-2.0							-2.0		
Total Lost Time (s)		3.0				3.0							3.0		
Lead/Lag		Lag		Lag	Lag	Lag							Lead		
Lead-Lag Optimize?															
Vehicle Extension (s)		2.0		2.0	2.0	2.0							2.0	2.0	2.0
Recall Mode		None		None	None	None							Max	C-Max	None
Walk Time (s)		7.0		7.0	7.0	7.0								7.0	7.0
Flash Dont Walk (s)		12.0		12.0	12.0	12.0								7.0	19.0
Pedestrian Calls (#/hr)		150		150	150	150								150	250
Act Effct Green (s)		32.0				32.0					72.0	72.0	29.0		
Actuated g/C Ratio		0.29				0.29					0.65	0.65	0.26		
v/c Ratio		0.92				0.72					0.65	0.99	0.50		
Control Delay		36.2				41.9					13.6	44.3	33.9		
Queue Delay		8.7				0.0					0.2	0.0	1.6		
Total Delay		44.9				41.9					13.8	44.3	35.5		
LOS		D				D					B	D	D		
Approach Delay		44.9				41.9						32.5			
Approach LOS		D				D						C			
Queue Length 50th (ft)		294				160					221	682	103		
Queue Length 95th (ft)		#395				223					282	#941	146		
Internal Link Dist (ft)		104				314			358			162			
Turn Bay Length (ft)															
Base Capacity (vph)		1325				674					943	900	639		
Starvation Cap Reductn		102				0					35	0	171		
Spillback Cap Reductn		0				0					0	0	0		
Storage Cap Reductn		0				0					0	0	0		
Reduced v/c Ratio		0.99				0.72					0.67	0.99	0.68		

Intersection Summary

Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 100 (91%), Referenced to phase 1:SBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.99
Intersection Signal Delay: 38.1 Intersection LOS: D
Intersection Capacity Utilization 87.2% ICU Level of Service E
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 8: Surface Street & New Chardon Street/I-93 Ramps

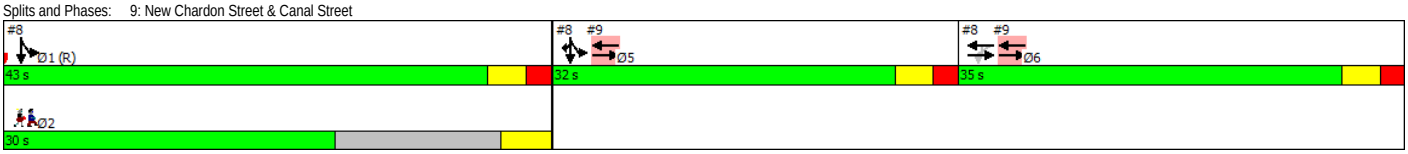


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø2	Ø5	Ø6
Lane Configurations										
Traffic Volume (vph)	0	1107	701	28	0	0				
Future Volume (vph)	0	1107	701	28	0	0				
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900				
Lane Util. Factor	1.00	0.91	0.91	0.91	1.00	1.00				
Ped Bike Factor			0.99							
Frt			0.994							
Flt Protected										
Satd. Flow (prot)	0	4622	4398	0	0	0				
Flt Permitted										
Satd. Flow (perm)	0	4622	4398	0	0	0				
Right Turn on Red				Yes		Yes				
Satd. Flow (RTOR)			9							
Link Speed (mph)		25	25		25					
Link Distance (ft)		287	184		238					
Travel Time (s)		7.8	5.0		6.5					
Confl. Bikes (#/hr)				186						
Peak Hour Factor	0.95	0.95	0.93	0.93	0.92	0.92				
Heavy Vehicles (%)	0%	1%	5%	4%	0%	0%				
Adj. Flow (vph)	0	1165	754	30	0	0				
Shared Lane Traffic (%)										
Lane Group Flow (vph)	0	1165	784	0	0	0				
Turn Type		NA	NA							
Protected Phases		5 6	5 6				1	2	5	6
Permitted Phases										
Detector Phase		5 6	5 6							
Switch Phase										
Minimum Initial (s)							8.0	8.0	8.0	8.0
Minimum Split (s)							23.0	30.0	22.0	24.0
Total Split (s)							43.0	30.0	32.0	35.0
Total Split (%)							39%	27%	29%	32%
Maximum Green (s)							38.0	26.0	27.0	30.0
Yellow Time (s)							3.0	4.0	3.0	3.0
All-Red Time (s)							2.0	0.0	2.0	2.0
Lost Time Adjust (s)										
Total Lost Time (s)										
Lead/Lag									Lead	Lag
Lead-Lag Optimize?										
Vehicle Extension (s)							2.0	2.0	2.0	2.0
Recall Mode							C-Max	None	Max	None
Walk Time (s)							7.0	7.0		7.0
Flash Dont Walk (s)							7.0	19.0		12.0
Pedestrian Calls (#/hr)							150	250		150
Act Effct Green (s)		64.0	64.0							
Actuated g/C Ratio		0.58	0.58							
v/c Ratio		0.43	0.31							
Control Delay		8.7	1.9							
Queue Delay		1.9	0.4							
Total Delay		10.5	2.3							
LOS		B	A							
Approach Delay		10.5	2.3							
Approach LOS		B	A							
Queue Length 50th (ft)		152	6							
Queue Length 95th (ft)		m183	18							
Internal Link Dist (ft)		207	104		158					
Turn Bay Length (ft)										
Base Capacity (vph)		2689	2562							
Starvation Cap Reductn		1306	1123							
Spillback Cap Reductn		1195	83							
Storage Cap Reductn		0	0							
Reduced v/c Ratio		0.84	0.54							

Intersection Summary

Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 100 (91%), Referenced to phase 1:SBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.99
Intersection Signal Delay: 7.2 Intersection LOS: A
Intersection Capacity Utilization 27.1% ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 9: New Chardon Street & Canal Street

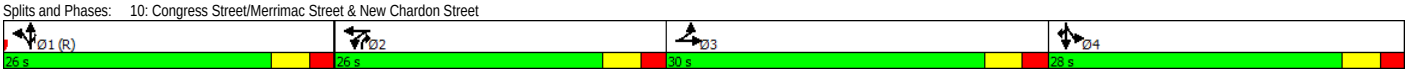


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	115	499	62	311	344	41	371	236	298	304	305	83
Future Volume (vph)	115	499	62	311	344	41	371	236	298	304	305	83
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	10	12	12	10	10	11	11	11	16
Storage Length (ft)	0		0	0		0	0		150	0		150
Storage Lanes	0		0	1		0	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.95	0.95	0.95	0.91	0.91	0.95	0.91	0.91	1.00	0.91	0.91	1.00
Ped Bike Factor		0.95		0.88	0.97		0.87	0.95		0.70	0.92	
Frt		0.986			0.987				0.850			0.850
Flt Protected		0.992		0.950	0.991		0.950	0.979		0.950	0.987	
Satd. Flow (prot)	0	2960	0	1254	2827	0	1314	2693	1378	1387	2745	1647
Flt Permitted		0.992		0.950	0.991		0.950	0.979		0.950	0.987	
Satd. Flow (perm)	0	2930	0	1109	2768	0	1143	2546	1378	966	2529	1647
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)		9			8							119
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		341			287			468			998	
Travel Time (s)		9.3			7.8			12.8			27.2	
Confl. Peds. (#/hr)	76		602	228		76	125		1385	1385		125
Confl. Bikes (#/hr)									11			7
Peak Hour Factor	0.94	0.94	0.94	0.97	0.97	0.97	0.98	0.98	0.98	0.92	0.92	0.92
Heavy Vehicles (%)	3%	3%	3%	10%	6%	3%	5%	6%	2%	3%	10%	0%
Adj. Flow (vph)	122	531	66	321	355	42	379	241	304	330	332	90
Shared Lane Traffic (%)				27%			46%			35%		
Lane Group Flow (vph)	0	719	0	234	484	0	205	415	304	214	448	90
Turn Type	Split	NA		Split	NA		Split	NA	pt+ov	Split	NA	Prot
Protected Phases	3	3		2	2		1	1	1 2	4	4	4
Permitted Phases												
Detector Phase	3	3		2	2		1	1	1 2	4	4	4
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	8.0
Minimum Split (s)	25.0	25.0		26.0	26.0		26.0	26.0		22.0	22.0	22.0
Total Split (s)	30.0	30.0		26.0	26.0		26.0	26.0		28.0	28.0	28.0
Total Split (%)	27.3%	27.3%		23.6%	23.6%		23.6%	23.6%		25.5%	25.5%	25.5%
Maximum Green (s)	25.0	25.0		21.0	21.0		21.0	21.0		23.0	23.0	23.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)		-2.0		-2.0	-2.0		-2.0	-2.0		-2.0	-2.0	0.0
Total Lost Time (s)		3.0		3.0	3.0		3.0	3.0		3.0	3.0	5.0
Lead/Lag	Lag	Lag		Lead	Lead							
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	Max	Max		Max	Max		C-Max	C-Max		Max	Max	Max
Walk Time (s)	5.0	5.0		7.0	7.0		7.0	7.0		5.0	5.0	5.0
Flash Dont Walk (s)	15.0	15.0		14.0	14.0		14.0	14.0		12.0	12.0	12.0
Pedestrian Calls (#/hr)	150	150		150	150		150	150		150	150	150
Act Effct Green (s)		27.0		23.0	23.0		23.0	23.0	49.0	25.0	25.0	23.0
Actuated g/C Ratio		0.25		0.21	0.21		0.21	0.21	0.45	0.23	0.23	0.21
v/c Ratio		0.98		0.89	0.81		0.75	0.74	0.50	0.68	0.72	0.21
Control Delay		74.3		61.2	36.1		28.6	22.1	15.7	51.1	46.7	4.3
Queue Delay		18.7		0.0	5.3		0.0	0.0	0.0	1.4	0.4	0.0
Total Delay		92.9		61.2	41.4		28.6	22.1	15.7	52.5	47.2	4.3
LOS		F		E	D		C	C	B	D	D	A
Approach Delay		92.9			47.9			21.4			43.5	
Approach LOS		F			D			C			D	
Queue Length 50th (ft)		252		194	196		132	132	203	152	161	0
Queue Length 95th (ft)		#391		#350	#268		m141	m139	m216	#249	222	24
Internal Link Dist (ft)		261			207			388			918	
Turn Bay Length (ft)									150			150
Base Capacity (vph)		733		262	597		274	563	613	315	623	438
Starvation Cap Reductn		47		0	69		0	0	0	0	0	0
Spillback Cap Reductn		0		0	0		0	0	0	24	24	0
Storage Cap Reductn		0		0	0		0	0	0	0	0	0
Reduced v/c Ratio		1.05		0.89	0.92		0.75	0.74	0.50	0.74	0.75	0.21

Intersection Summary

Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 62 (56%), Referenced to phase 1:NBTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.98
Intersection Signal Delay: 49.4 Intersection LOS: D
Intersection Capacity Utilization 84.7% 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: 10: Congress Street/Merrimac Street & New Chardon Street

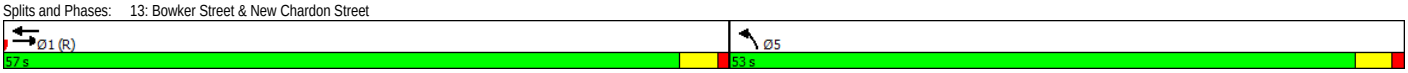


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	356	0	0	798	87	320
Future Volume (vph)	356	0	0	798	87	320
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt					0.894	
Flt Protected					0.989	
Satd. Flow (prot)	3539	0	0	3539	1655	0
Flt Permitted					0.989	
Satd. Flow (perm)	3539	0	0	3539	1655	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)					217	
Link Speed (mph)	25			30	30	
Link Distance (ft)	207			341	186	
Travel Time (s)	5.6			7.8	4.2	
Peak Hour Factor	0.90	0.90	0.93	0.93	0.65	0.65
Heavy Vehicles (%)	2%	0%	0%	2%	7%	0%
Adj. Flow (vph)	396	0	0	858	134	492
Shared Lane Traffic (%)						
Lane Group Flow (vph)	396	0	0	858	626	0
Turn Type	NA			NA	Prot	
Protected Phases	1			1	5	
Permitted Phases						
Detector Phase	1			1	5	
Switch Phase						
Minimum Initial (s)	4.0			4.0	4.0	
Minimum Split (s)	22.0			22.0	22.0	
Total Split (s)	57.0			57.0	53.0	
Total Split (%)	51.8%			51.8%	48.2%	
Maximum Green (s)	53.0			53.0	49.0	
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			2.0	2.0	
Recall Mode	C-Max			C-Max	None	
Walk Time (s)	7.0			7.0	7.0	
Flash Dont Walk (s)	11.0			11.0	11.0	
Pedestrian Calls (#/hr)	0			0	0	
Act Effct Green (s)	65.4			65.4	36.6	
Actuated g/C Ratio	0.59			0.59	0.33	
v/c Ratio	0.19			0.41	0.90	
Control Delay	12.1			2.0	38.5	
Queue Delay	0.0			0.2	1.3	
Total Delay	12.1			2.3	39.8	
LOS	B			A	D	
Approach Delay	12.1			2.3	39.8	
Approach LOS	B			A	D	
Queue Length 50th (ft)	64			18	290	
Queue Length 95th (ft)	115			35	184	
Internal Link Dist (ft)	127			261	106	
Turn Bay Length (ft)						
Base Capacity (vph)	2104			2104	857	
Starvation Cap Reductn	0			535	0	
Spillback Cap Reductn	364			0	87	
Storage Cap Reductn	0			0	0	
Reduced v/c Ratio	0.23			0.55	0.81	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 66 (60%), Referenced to phase 1:EBWB, Start of Green
Natural Cycle: 45
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.90
Intersection Signal Delay: 16.8 Intersection LOS: B
Intersection Capacity Utilization 53.3% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 13: Bowker Street & New Chardon Street



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	356	26	238	648	0	0
Future Volume (Veh/h)	356	26	238	648	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.96	0.96	0.62	0.62
Hourly flow rate (vph)	405	30	248	675	0	0
Pedestrians					128	
Lane Width (ft)					0.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	579			207		
pX, platoon unblocked					0.87	
vC, conflicting volume			563		1382	346
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			563		1147	346
tC, single (s)			4.2		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			75		100	100
cM capacity (veh/h)			991		128	656

Direction, Lane #	EB 1	EB 2	WB 1	WB 2
Volume Total	270	165	473	450
Volume Left	0	0	248	0
Volume Right	0	30	0	0
cSH	1700	1700	991	1700
Volume to Capacity	0.16	0.10	0.25	0.26
Queue Length 95th (ft)	0	0	25	0
Control Delay (s)	0.0	0.0	6.5	0.0
Lane LOS			A	
Approach Delay (s)	0.0		3.3	
Approach LOS				

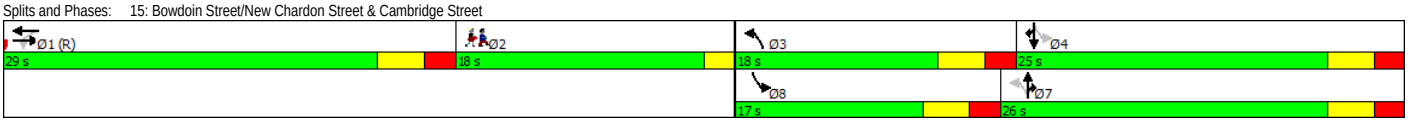
Intersection Summary				
Average Delay	2.3			
Intersection Capacity Utilization	44.8%	ICU Level of Service	A	
Analysis Period (min)	15			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations													
Traffic Volume (vph)	0	654	73	16	312	47	223	331	137	253	173	222	
Future Volume (vph)	0	654	73	16	312	47	223	331	137	253	173	222	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	0		0	0		0	0		100	0		100	
Storage Lanes	0		0	0		0	1		1	1		1	
Taper Length (ft)	25			25			25			25			
Lane Util. Factor	1.00	0.91	0.91	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor		1.00			0.98								
Frt		0.985			0.981				0.850			0.850	
Flt Protected					0.998		0.950			0.950			
Satd. Flow (prot)	0	4899	0	0	3374	0	1656	1863	1509	1671	1845	1583	
Flt Permitted					0.903		0.535			0.202			
Satd. Flow (perm)	0	4899	0	0	3053	0	933	1863	1509	355	1845	1583	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)		20			17				109			244	
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		236			438			363			579		
Travel Time (s)		5.4			10.0			8.3			13.2		
Confl. Bikes (#/hr)			30			153			12				
Peak Hour Factor	0.98	0.98	0.98	0.91	0.91	0.91	0.92	0.92	0.92	0.91	0.91	0.91	
Heavy Vehicles (%)	0%	4%	3%	0%	2%	10%	9%	2%	7%	8%	3%	2%	
Adj. Flow (vph)	0	667	74	18	343	52	242	360	149	278	190	244	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	741	0	0	413	0	242	360	149	278	190	244	
Turn Type		NA		Perm	NA		pm+pt	NA	Prot	pm+pt	NA	Prot	
Protected Phases		1			1		3	7	7	8	4	4	2
Permitted Phases				1			7			4			
Detector Phase		1		1	1		3	7	7	8	4	4	
Switch Phase													
Minimum Initial (s)		8.0		8.0	8.0		8.0	8.0	8.0	8.0	8.0	8.0	1.0
Minimum Split (s)		28.0		28.0	28.0		13.0	13.0	13.0	13.0	13.0	13.0	18.0
Total Split (s)		29.0		29.0	29.0		18.0	26.0	26.0	17.0	25.0	25.0	18.0
Total Split (%)		32.2%		32.2%	32.2%		20.0%	28.9%	28.9%	18.9%	27.8%	27.8%	20%
Maximum Green (s)		24.0		24.0	24.0		13.0	21.0	21.0	12.0	20.0	20.0	16.0
Yellow Time (s)		3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	2.0
All-Red Time (s)		2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	0.0
Lost Time Adjust (s)		0.0			0.0		0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		5.0			5.0		5.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag		Lead		Lead	Lead		Lead	Lag	Lag	Lead	Lag	Lag	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	2.0
Recall Mode		C-Max		C-Max	C-Max		None	Min	Min	None	Min	Min	Ped
Walk Time (s)		7.0		7.0	7.0								7.0
Flash Dont Walk (s)		16.0		16.0	16.0								9.0
Pedestrian Calls (#/hr)		0		0	0								20
Act Effct Green (s)		25.4			25.4		31.5	19.6	19.6	31.8	19.8	19.8	
Actuated g/C Ratio		0.28			0.28		0.35	0.22	0.22	0.35	0.22	0.22	
v/c Ratio		0.53			0.47		0.57	0.89	0.36	0.93	0.47	0.45	
Control Delay		8.5			12.9		24.5	58.8	12.4	60.4	34.9	7.1	
Queue Delay		0.4			0.0		0.4	0.0	0.0	0.0	0.0	0.3	
Total Delay		8.9			13.0		24.9	58.8	12.4	60.4	34.9	7.4	
LOS		A			B		C	E	B	E	C	A	
Approach Delay		8.9			13.0			38.7			35.4		
Approach LOS		A			B			D			D		
Queue Length 50th (ft)		50			106		91	195	18	107	94	0	
Queue Length 95th (ft)		67			158		149	#339	67	#259	159	59	
Internal Link Dist (ft)		156			358			283			499		
Turn Bay Length (ft)									100			100	
Base Capacity (vph)		1396			873		442	434	435	300	411	542	
Starvation Cap Reductn		251			0		0	0	0	0	0	0	
Spillback Cap Reductn		0			18		31	0	0	0	0	57	
Storage Cap Reductn		0			0		0	0	0	0	0	0	
Reduced v/c Ratio		0.65			0.48		0.59	0.83	0.34	0.93	0.46	0.50	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 1:EBWB, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.93
Intersection Signal Delay: 25.3 Intersection LOS: C
Intersection Capacity Utilization 66.0% 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.

Splits and Phases: 15: Bowdoin Street/New Chardon Street & Cambridge Street

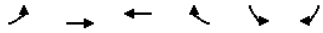


Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations														
Traffic Volume (vph)	28	284	616	117	19	53	279	165	69	109	30	0	0	0
Future Volume (vph)	28	284	616	117	19	53	279	165	69	109	30	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0		0		100		100	0		0	0		0
Storage Lanes		2		0		1		1	0		0	0		0
Taper Length (ft)		25				25			25			25		
Lane Util. Factor	0.95	0.97	0.95	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.90					0.61		0.96				
Frt			0.976					0.850		0.981				
Flt Protected		0.950				0.950				0.984				
Satd. Flow (prot)	0	3409	3105	0	0	1805	3574	1538	0	1739	0	0	0	0
Flt Permitted		0.950				0.950				0.984				
Satd. Flow (perm)	0	3409	3105	0	0	1805	3574	936	0	1739	0	0	0	0
Right Turn on Red				Yes				Yes			Yes			Yes
Satd. Flow (RTOR)			27					172		9				
Link Speed (mph)			30				30			30			30	
Link Distance (ft)			438				763			259			584	
Travel Time (s)			10.0				17.3			5.9			13.3	
Confl. Peds. (#/hr)				535				533			244			
Confl. Bikes (#/hr)				4				80			3			
Peak Hour Factor	0.98	0.98	0.98	0.98	0.96	0.96	0.96	0.96	0.91	0.91	0.91	0.92	0.92	0.92
Heavy Vehicles (%)	0%	3%	2%	4%	0%	0%	1%	5%	1%	0%	3%	0%	0%	0%
Adj. Flow (vph)	29	290	629	119	20	55	291	172	76	120	33	0	0	0
Shared Lane Traffic (%)														
Lane Group Flow (vph)	0	319	748	0	0	75	291	172	0	229	0	0	0	0
Turn Type	Split	Split	NA		Split	Split	NA	Perm	Split	NA				
Protected Phases	1	1	1		5	5	5		6	6				
Permitted Phases								5						
Detector Phase	1	1	1		5	5	5	5	6	6				
Switch Phase														
Minimum Initial (s)	8.0	8.0	8.0		8.0	8.0	8.0	8.0	8.0	8.0				
Minimum Split (s)	27.0	27.0	27.0		22.0	22.0	22.0	22.0	22.0	22.0				
Total Split (s)	37.0	37.0	37.0		28.0	28.0	28.0	28.0	25.0	25.0				
Total Split (%)	41.1%	41.1%	41.1%		31.1%	31.1%	31.1%	31.1%	27.8%	27.8%				
Maximum Green (s)	33.0	33.0	33.0		24.0	24.0	24.0	24.0	21.0	21.0				
Yellow Time (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0				
All-Red Time (s)	1.0	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	0.0		0.0				
Total Lost Time (s)		4.0	4.0			4.0	4.0	4.0		4.0				
Lead/Lag					Lead	Lead	Lead	Lead	Lag	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	C-Max	C-Max	C-Max		None	None	None	None	None	None				
Walk Time (s)	7.0	7.0	7.0											
Flash Dont Walk (s)	16.0	16.0	16.0											
Pedestrian Calls (#/hr)	0	0	0											
Act Effct Green (s)		49.7	49.7			12.5	12.5	12.5		15.7				
Actuated g/C Ratio		0.55	0.55			0.14	0.14	0.14		0.17				
v/c Ratio		0.17	0.43			0.30	0.59	0.62		0.74				
Control Delay		9.6	12.6			36.4	40.5	15.7		47.5				
Queue Delay		0.0	0.0			0.0	0.0	0.0		0.0				
Total Delay		9.6	12.6			36.4	40.5	15.7		47.5				
LOS		A	B			D	D	B		D				
Approach Delay			11.7				32.0			47.5				
Approach LOS			B				C			D				
Queue Length 50th (ft)		37	178			39	83	0		120				
Queue Length 95th (ft)		m105	m234			74	114	58		182				
Internal Link Dist (ft)			358				683			179			504	
Turn Bay Length (ft)						100		100						
Base Capacity (vph)		1884	1727			481	953	375		415				
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		0.17	0.43			0.16	0.31	0.46		0.55				

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 35 (39%), Referenced to phase 1:EBTL, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.74
Intersection Signal Delay: 22.2 Intersection LOS: C
Intersection Capacity Utilization 51.8% ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 16: Somerset Street/Sudbury Street & Cambridge Street



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	558	0	0	219	0
Future Volume (Veh/h)	0	558	0	0	219	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	607	0	0	238	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		584				
pX, platoon unblocked						
vC, conflicting volume	0				304	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0				304	0
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				64	100
cM capacity (veh/h)	1636				670	1091

Direction, Lane #	EB 1	EB 2	SB 1
Volume Total	304	304	238
Volume Left	0	0	238
Volume Right	0	0	0
cSH	1700	1700	670
Volume to Capacity	0.18	0.18	0.36
Queue Length 95th (ft)	0	0	40
Control Delay (s)	0.0	0.0	13.3
Lane LOS			B
Approach Delay (s)	0.0		13.3
Approach LOS			B

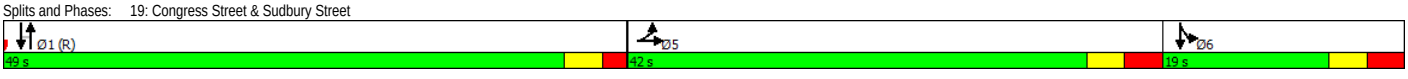
Intersection Summary				
Average Delay			3.7	
Intersection Capacity Utilization			34.2%	ICU Level of Service A
Analysis Period (min)			15	

Intersection Sign configuration not allowed in HCM analysis.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (vph)	65	520	173	0	0	0	10	0	836	367	157	517	0
Future Volume (vph)	65	520	173	0	0	0	10	0	836	367	157	517	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	11	10	12	12	12	12	11	11	11	10	11	11
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	0.91	1.00	0.91	0.91	1.00	0.95	1.00
Ped Bike Factor	0.69	0.91							0.87		0.92		
Frt		0.963							0.955				
Flt Protected	0.950										0.950		
Satd. Flow (prot)	1392	2474	0	0	0	0	0	0	3580	0	1486	2804	0
Flt Permitted	0.950								0.935		0.950		
Satd. Flow (perm)	960	2474	0	0	0	0	0	0	3347	0	1370	2804	0
Right Turn on Red			Yes			Yes				No			Yes
Satd. Flow (RTOR)		45											
Link Speed (mph)		25			25				25			25	
Link Distance (ft)		153			161				380			468	
Travel Time (s)		4.2			4.4				10.4			12.8	
Confl. Peds. (#/hr)	236		435							650	650		
Confl. Bikes (#/hr)			5							46			2
Peak Hour Factor	0.89	0.89	0.89	0.92	0.92	0.92	0.98	0.98	0.98	0.98	0.93	0.93	0.93
Heavy Vehicles (%)	5%	5%	6%	0%	0%	0%	0%	0%	3%	7%	2%	12%	0%
Parking (#/hr)	0	0											
Adj. Flow (vph)	73	584	194	0	0	0	10	0	853	374	169	556	0
Shared Lane Traffic (%)													
Lane Group Flow (vph)	73	778	0	0	0	0	0	0	1237	0	169	556	0
Turn Type	Split	NA					Perm		NA		Prot	NA	
Protected Phases	5	5							1		6	1 6	
Permitted Phases							1						
Detector Phase	5	5					1		1		6	1 6	
Switch Phase													
Minimum Initial (s)	8.0	8.0					10.0		10.0		7.0		
Minimum Split (s)	28.0	28.0					27.0		27.0		14.0		
Total Split (s)	42.0	42.0					49.0		49.0		19.0		
Total Split (%)	38.2%	38.2%					44.5%		44.5%		17.3%		
Maximum Green (s)	36.0	36.0					44.0		44.0		13.0		
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		3.0		
Lost Time Adjust (s)	-2.0	-2.0							-2.0		-2.0		
Total Lost Time (s)	4.0	4.0							3.0		4.0		
Lead/Lag	Lead	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		Max		
Walk Time (s)	7.0	7.0					7.0		7.0				
Flash Dont Walk (s)	15.0	15.0					15.0		15.0				
Pedestrian Calls (#/hr)	150	150					150		150				
Act Effct Green (s)	38.0	38.0							46.0		15.0	65.0	
Actuated g/C Ratio	0.35	0.35							0.42		0.14	0.59	
v/c Ratio	0.15	0.88							0.88		0.84	0.34	
Control Delay	26.0	44.7							36.2		64.7	5.5	
Queue Delay	0.0	2.5							5.9		0.0	0.0	
Total Delay	26.0	47.3							42.1		64.7	5.5	
LOS	C	D							D		E	A	
Approach Delay		45.5							42.1			19.3	
Approach LOS		D							D			B	
Queue Length 50th (ft)	35	256							292		126	97	
Queue Length 95th (ft)	69	#364							#350		m#167	m106	
Internal Link Dist (ft)		73			81				300			388	
Turn Bay Length (ft)													
Base Capacity (vph)	480	884							1399		202	1656	
Starvation Cap Reductn	0	0							41		0	0	
Spillback Cap Reductn	0	44							126		0	0	
Storage Cap Reductn	0	0							0		0	0	
Reduced v/c Ratio	0.15	0.93							0.97		0.84	0.34	

Intersection Summary			
Area Type:	CBD		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 26 (24%), Referenced to phase 1:NBSB, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.88			
Intersection Signal Delay: 37.3		Intersection LOS: D	
Intersection Capacity Utilization 80.9%		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: 19: Congress Street & Sudbury Street



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	985	58	0	0	0	65
Future Volume (Veh/h)	985	58	0	0	0	65
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.92	0.92	0.83	0.83
Hourly flow rate (vph)	1119	66	0	0	0	78
Pedestrians					286	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					24	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	161			111		
pX, platoon unblocked						
vC, conflicting volume			1471		1405	846
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1471		1405	846
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	67
cM capacity (veh/h)			354		101	236

Direction, Lane #	EB 1	EB 2	EB 3	NB 1
Volume Total	560	560	66	78
Volume Left	0	0	0	0
Volume Right	0	0	66	78
cSH	1700	1700	1700	236
Volume to Capacity	0.33	0.33	0.04	0.33
Queue Length 95th (ft)	0	0	0	35
Control Delay (s)	0.0	0.0	0.0	27.6
Lane LOS				D
Approach Delay (s)	0.0			27.6
Approach LOS				D

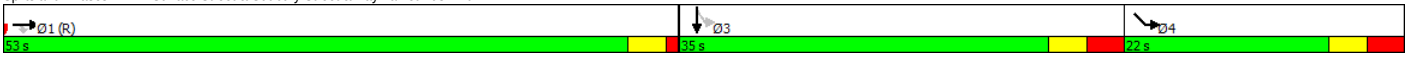
Intersection Summary				
Average Delay	1.7			
Intersection Capacity Utilization	37.9%	ICU Level of Service	A	
Analysis Period (min)	15			

Lane Group	EBT	EBR	SBL	SBT	SEL	SER
Lane Configurations						
Traffic Volume (vph)	893	157	71	325	29	6
Future Volume (vph)	893	157	71	325	29	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	12	12	12	12
Lane Util. Factor	0.95	1.00	0.95	0.95	1.00	1.00
Ped Bike Factor		0.53		0.94		
Frt		0.850			0.977	
Flt Protected				0.991	0.960	
Satd. Flow (prot)	3323	1553	0	3352	918	0
Flt Permitted				0.991	0.960	
Satd. Flow (perm)	3323	831	0	3141	918	0
Right Turn on Red		Yes	No			
Satd. Flow (RTOR)		171				
Link Speed (mph)	25			25	25	
Link Distance (ft)	111			438	138	
Travel Time (s)	3.0			11.9	3.8	
Confl. Peds. (#/hr)		402	183			
Confl. Bikes (#/hr)		10				
Peak Hour Factor	0.92	0.92	0.88	0.88	0.77	0.77
Heavy Vehicles (%)	5%	4%	1%	8%	93%	100%
Adj. Flow (vph)	971	171	81	369	38	8
Shared Lane Traffic (%)						
Lane Group Flow (vph)	971	171	0	450	46	0
Turn Type	NA	Perm	Perm	NA	Prot	
Protected Phases	1			3	4	
Permitted Phases		1	3			
Detector Phase	1	1	3	3	4	
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	6.0	
Minimum Split (s)	21.0	21.0	18.0	18.0	13.0	
Total Split (s)	53.0	53.0	35.0	35.0	22.0	
Total Split (%)	48.2%	48.2%	31.8%	31.8%	20.0%	
Maximum Green (s)	49.0	49.0	29.0	29.0	16.0	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	1.0	1.0	3.0	3.0	3.0	
Lost Time Adjust (s)	-1.0	-1.0		-2.0	0.0	
Total Lost Time (s)	3.0	3.0		4.0	6.0	
Lead/Lag			Lead	Lead	Lag	
Lead-Lag Optimize?						
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	
Recall Mode	C-Max	C-Max	Max	Max	Max	
Walk Time (s)	7.0	7.0	7.0	7.0		
Flash Dont Walk (s)	5.0	5.0	4.0	4.0		
Pedestrian Calls (#/hr)	0	0	25	25		
Act Effct Green (s)	50.0	50.0		31.0	16.0	
Actuated g/C Ratio	0.45	0.45		0.28	0.15	
v/c Ratio	0.64	0.36		0.51	0.35	
Control Delay	19.8	3.0		32.4	50.5	
Queue Delay	23.6	0.7		0.1	0.3	
Total Delay	43.4	3.7		32.6	50.8	
LOS	D	A		C	D	
Approach Delay	37.5			32.6	50.8	
Approach LOS	D			C	D	
Queue Length 50th (ft)	202	3		131	30	
Queue Length 95th (ft)	m241	m4		m137	57	
Internal Link Dist (ft)	31			358	58	
Turn Bay Length (ft)						
Base Capacity (vph)	1510	471		885	133	
Starvation Cap Reductn	567	109		0	0	
Spillback Cap Reductn	128	0		44	7	
Storage Cap Reductn	0	0		0	0	
Reduced v/c Ratio	1.03	0.47		0.54	0.37	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 70 (64%), Referenced to phase 1:EBT, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.64
Intersection Signal Delay: 36.5 Intersection LOS: D
Intersection Capacity Utilization 52.4% ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 21: Surface Street & Sudbury Street & Haymarket Bus Exit

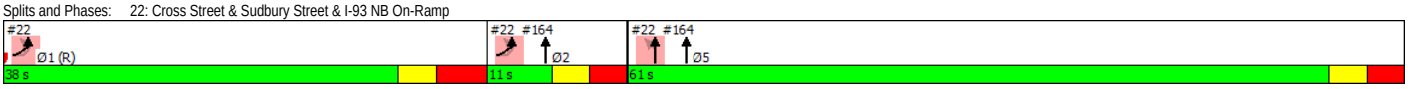


Lane Group	EBL2	EBL	EBR	NBL	NBT	SBT	SBR	SEL	SER	Ø1	Ø2
Lane Configurations											
Traffic Volume (vph)	712	281	0	642	787	0	0	0	0		
Future Volume (vph)	712	281	0	642	787	0	0	0	0		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900		
Lane Width (ft)	12	13	12	12	11	12	12	12	12		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00		
Ped Bike Factor											
Frt											
Flt Protected	0.950	0.950			0.978						
Satd. Flow (prot)	1736	1622	0	0	3272	0	0	0	0		
Flt Permitted	0.950	0.950			0.978						
Satd. Flow (perm)	1736	1622	0	0	3272	0	0	0	0		
Right Turn on Red	Yes		Yes								
Satd. Flow (RTOR)	192										
Link Speed (mph)		25			25	25		25			
Link Distance (ft)		191			203	568		237			
Travel Time (s)		5.2			5.5	15.5		6.5			
Confl. Bikes (#/hr)			11								
Peak Hour Factor	0.92	0.92	0.92	0.95	0.95	0.92	0.92	0.92	0.92		
Heavy Vehicles (%)	4%	15%	0%	1%	7%	0%	0%	0%	0%		
Adj. Flow (vph)	774	305	0	676	828	0	0	0	0		
Shared Lane Traffic (%)											
Lane Group Flow (vph)	774	305	0	0	1504	0	0	0	0		
Turn Type	Perm	Prot		Perm	NA						
Protected Phases		1 2			5					1	2
Permitted Phases	1 2			5							
Detector Phase	1 2	1 2		5	5						
Switch Phase											
Minimum Initial (s)				10.0	10.0					10.0	4.0
Minimum Split (s)				18.0	18.0					25.0	11.0
Total Split (s)				61.0	61.0					38.0	11.0
Total Split (%)				55.5%	55.5%					35%	10%
Maximum Green (s)				55.0	55.0					31.0	5.0
Yellow Time (s)				3.0	3.0					3.0	3.0
All-Red Time (s)				3.0	3.0					4.0	3.0
Lost Time Adjust (s)					-1.0						
Total Lost Time (s)					5.0						
Lead/Lag										Lead	Lag
Lead-Lag Optimize?											
Vehicle Extension (s)				2.0	2.0					2.0	2.0
Recall Mode				Max	Max					C-Max	Max
Walk Time (s)				7.0	7.0					7.0	
Flash Dont Walk (s)				4.0	4.0					3.0	
Pedestrian Calls (#/hr)				30	30					0	
Act Effct Green (s)	42.0	43.0			56.0						
Actuated g/C Ratio	0.38	0.39			0.51						
v/c Ratio	0.99	0.48			0.90						
Control Delay	37.3	12.3			16.4						
Queue Delay	4.7	2.1			0.0						
Total Delay	42.1	14.4			16.4						
LOS	D	B			B						
Approach Delay		34.3			16.4						
Approach LOS		C			B						
Queue Length 50th (ft)	117	47			461						
Queue Length 95th (ft)	#714	76			#619						
Internal Link Dist (ft)		111			123	488		157			
Turn Bay Length (ft)											
Base Capacity (vph)	781	634			1665						
Starvation Cap Reductn	15	199			0						
Spillback Cap Reductn	0	0			0						
Storage Cap Reductn	0	0			0						
Reduced v/c Ratio	1.01	0.70			0.90						

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 71 (65%), Referenced to phase 1:EBL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.99
Intersection Signal Delay: 23.9 Intersection LOS: C
Intersection Capacity Utilization 89.0% 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: 22: Cross Street & Sudbury Street & I-93 NB On-Ramp



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	29	0	0	91	85	162	1299	51	0	0	0
Future Volume (vph)	45	29	0	0	91	85	162	1299	51	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	1.00	1.00	0.95	0.95	0.95	1.00	1.00	1.00
Ped Bike Factor	0.72				0.77			0.95				
Frt					0.935			0.995				
Flt Protected	0.950							0.995				
Satd. Flow (prot)	1624	1660	0	0	1229	0	0	3048	0	0	0	0
Flt Permitted	0.509							0.995				
Satd. Flow (perm)	624	1660	0	0	1229	0	0	2971	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					7			6				
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		244			263			292			187	
Travel Time (s)		6.7			7.2			8.0			5.1	
Confl. Peds. (#/hr)	510					510	107		528			
Confl. Bikes (#/hr)			12			7			95			1
Peak Hour Factor	0.71	0.71	0.71	0.89	0.89	0.89	0.96	0.96	0.96	0.92	0.92	0.92
Heavy Vehicles (%)	0%	3%	0%	0%	1%	0%	9%	2%	0%	0%	0%	0%
Parking (#/hr)									0			
Adj. Flow (vph)	63	41	0	0	102	96	169	1353	53	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	63	41	0	0	198	0	0	1575	0	0	0	0
Turn Type	Perm	NA			NA		Split	NA				
Protected Phases		5			5		1	1				
Permitted Phases	5											
Detector Phase	5	5			5		1	1				
Switch Phase												
Minimum Initial (s)	8.0	8.0			8.0		8.0	8.0				
Minimum Split (s)	21.0	21.0			21.0		23.0	23.0				
Total Split (s)	34.0	34.0			34.0		76.0	76.0				
Total Split (%)	30.9%	30.9%			30.9%		69.1%	69.1%				
Maximum Green (s)	29.0	29.0			29.0		71.0	71.0				
Yellow Time (s)	3.0	3.0			3.0		3.0	3.0				
All-Red Time (s)	2.0	2.0			2.0		2.0	2.0				
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)	2.0	2.0			2.0		2.0	2.0				
Recall Mode	Max	Max			Max		C-Max	C-Max				
Walk Time (s)	7.0	7.0			7.0		7.0	7.0				
Flash Dont Walk (s)	8.0	8.0			8.0		8.0	8.0				
Pedestrian Calls (#/hr)	50	50			50		0	0				
Act Effct Green (s)	30.0	30.0			30.0			72.0				
Actuated g/C Ratio	0.27	0.27			0.27			0.65				
v/c Ratio	0.37	0.09			0.58			0.79				
Control Delay	26.2	17.7			41.4			6.1				
Queue Delay	0.0	0.0			0.0			2.3				
Total Delay	26.2	17.7			41.4			8.4				
LOS	C	B			D			A				
Approach Delay		22.8			41.4			8.4				
Approach LOS		C			D			A				
Queue Length 50th (ft)	30	18			117			23				
Queue Length 95th (ft)	47	35			193			70				
Internal Link Dist (ft)		164			183			212			107	
Turn Bay Length (ft)												
Base Capacity (vph)	170	452			340			1997				
Starvation Cap Reductn	0	0			0			285				
Spillback Cap Reductn	0	0			0			248				
Storage Cap Reductn	0	0			0			0				
Reduced v/c Ratio	0.37	0.09			0.58			0.92				

Intersection Summary

Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 99 (90%), Referenced to phase 1:NBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.79
Intersection Signal Delay: 12.7 Intersection LOS: B
Intersection Capacity Utilization 90.9% ICU Level of Service E
Analysis Period (min) 15

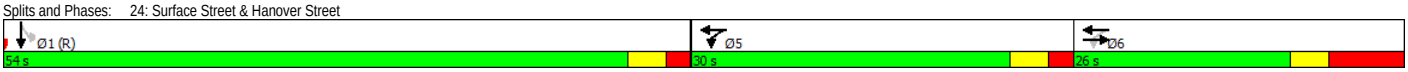
Splits and Phases: 23: Cross Street & Hanover Street

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	40	10	76	178	0	0	0	0	34	431	23
Future Volume (vph)	0	40	10	76	178	0	0	0	0	34	431	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor		0.93		0.70							0.96	
Frt		0.970									0.993	
Flt Protected				0.950							0.997	
Satd. Flow (prot)	0	2629	0	1504	1693	0	0	0	0	0	2868	0
Flt Permitted				0.712							0.997	
Satd. Flow (perm)	0	2629	0	789	1693	0	0	0	0	0	2840	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13									6	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		362			244			470			333	
Travel Time (s)		9.9			6.7			12.8			9.1	
Confl. Peds. (#/hr)			162	162						72		415
Confl. Bikes (#/hr)			2			15						14
Peak Hour Factor	0.75	0.75	0.75	0.89	0.89	0.89	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	10%	20%	8%	1%	0%	0%	0%	0%	0%	9%	13%
Adj. Flow (vph)	0	53	13	85	200	0	0	0	0	37	468	25
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	66	0	85	200	0	0	0	0	0	530	0
Turn Type		NA		D.P+P	NA					Perm	NA	
Protected Phases		6		5	5 6						1	
Permitted Phases				6						1		
Detector Phase		6		5	5 6					1	1	
Switch Phase												
Minimum Initial (s)		10.0		10.0						10.0	10.0	
Minimum Split (s)		22.0		18.0						27.0	27.0	
Total Split (s)		26.0		30.0						54.0	54.0	
Total Split (%)		23.6%		27.3%						49.1%	49.1%	
Maximum Green (s)		17.0		25.0						49.0	49.0	
Yellow Time (s)		3.0		3.0						3.0	3.0	
All-Red Time (s)		6.0		2.0						2.0	2.0	
Lost Time Adjust (s)		-5.0		-1.0							-1.0	
Total Lost Time (s)		4.0		4.0							4.0	
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)		2.0		2.0						2.0	2.0	
Recall Mode		Max		Max						C-Max	C-Max	
Walk Time (s)		7.0		7.0						7.0	7.0	
Flash Dont Walk (s)		5.0		5.0						10.0	10.0	
Pedestrian Calls (#/hr)		0		0						0	0	
Act Effct Green (s)		22.0		48.0	52.0						50.0	
Actuated g/C Ratio		0.20		0.44	0.47						0.45	
v/c Ratio		0.12		0.17	0.25						0.41	
Control Delay		32.3		18.2	19.4						34.9	
Queue Delay		0.0		0.0	3.7						1.1	
Total Delay		32.3		18.2	23.1						36.0	
LOS		C		B	C						D	
Approach Delay		32.3			21.6						36.0	
Approach LOS		C			C						D	
Queue Length 50th (ft)		20		33	86						185	
Queue Length 95th (ft)		36		m50	m119						232	
Internal Link Dist (ft)		282			164			390			253	
Turn Bay Length (ft)												
Base Capacity (vph)		536		513	800						1294	
Starvation Cap Reductn		0		0	508						511	
Spillback Cap Reductn		0		0	0						0	
Storage Cap Reductn		0		0	0						0	
Reduced v/c Ratio		0.12		0.17	0.68						0.68	

Intersection Summary

Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 64 (58%), Referenced to phase 1:SBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.41
Intersection Signal Delay: 31.1 Intersection LOS: C
Intersection Capacity Utilization 90.9% ICU Level of Service E
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 24: Surface Street & Hanover Street



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	200	1012	50	0	700
Future Volume (vph)	0	200	1012	50	0	700
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.91	0.91	1.00	0.91
Frt		0.865	0.993			
Flt Protected						
Satd. Flow (prot)	0	1644	5151	0	0	5187
Flt Permitted						
Satd. Flow (perm)	0	1644	5151	0	0	5187
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		85	11			
Link Speed (mph)	30		25			25
Link Distance (ft)	362		451			380
Travel Time (s)	8.2		12.3			10.4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	217	1100	54	0	761
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	217	1154	0	0	761
Turn Type		Prot	NA			NA
Protected Phases		2	1			1
Permitted Phases						
Detector Phase		2	1			1
Switch Phase						
Minimum Initial (s)		4.0	4.0			4.0
Minimum Split (s)		22.0	22.0			22.0
Total Split (s)		43.0	67.0			67.0
Total Split (%)		39.1%	60.9%			60.9%
Maximum Green (s)		39.0	63.0			63.0
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		Lag	Lead			Lead
Lead-Lag Optimize?						
Vehicle Extension (s)		2.0	2.0			2.0
Recall Mode		None	C-Max			C-Max
Walk Time (s)		7.0				
Flash Dont Walk (s)		11.0				
Pedestrian Calls (#/hr)		0				
Act Effct Green (s)		13.9	88.1			88.1
Actuated g/C Ratio		0.13	0.80			0.80
v/c Ratio		0.77	0.28			0.18
Control Delay		29.7	0.4			3.3
Queue Delay		0.3	0.1			0.0
Total Delay		29.9	0.5			3.3
LOS		C	A			A
Approach Delay			0.5			3.3
Approach LOS			A			A
Queue Length 50th (ft)		96	3			31
Queue Length 95th (ft)		166	17			m57
Internal Link Dist (ft)	282		371			300
Turn Bay Length (ft)						
Base Capacity (vph)		637	4129			4156
Starvation Cap Reductn		0	1439			0
Spillback Cap Reductn		103	10			0
Storage Cap Reductn		0	0			0
Reduced v/c Ratio		0.41	0.43			0.18

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 110			
Offset: 71 (65%), Referenced to phase 1:NBSB, Start of Green			
Natural Cycle: 45			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.77			
Intersection Signal Delay: 4.5		Intersection LOS: A	
Intersection Capacity Utilization 39.7%		ICU Level of Service A	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 25: Congress Street

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations													
Traffic Volume (vph)	489	41	0	0	0	0	0	1023	27	0	0	0	
Future Volume (vph)	489	41	0	0	0	0	0	1023	27	0	0	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00	
Ped Bike Factor								1.00					
Frt								0.996					
Flt Protected	0.950	0.960											
Satd. Flow (prot)	1442	1474	0	0	0	0	0	3105	0	0	0	0	
Flt Permitted	0.950	0.960											
Satd. Flow (perm)	1442	1474	0	0	0	0	0	3105	0	0	0	0	
Right Turn on Red	No		Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)								3					
Link Speed (mph)		25			25			25			25		
Link Distance (ft)		145			386			247			292		
Travel Time (s)		4.0			10.5			6.7			8.0		
Confl. Bikes (#/hr)									112				
Peak Hour Factor	0.88	0.88	0.88	0.92	0.92	0.92	0.94	0.94	0.94	0.92	0.92	0.92	
Heavy Vehicles (%)	7%	0%	0%	0%	0%	0%	0%	4%	0%	0%	0%	0%	
Adj. Flow (vph)	556	47	0	0	0	0	0	1088	29	0	0	0	
Shared Lane Traffic (%)	42%												
Lane Group Flow (vph)	322	281	0	0	0	0	0	1117	0	0	0	0	
Turn Type	Split	NA						NA					
Protected Phases	1	1						5					2
Permitted Phases													
Detector Phase	1	1						5					
Switch Phase													
Minimum Initial (s)	8.0	8.0						8.0					8.0
Minimum Split (s)	15.0	15.0						14.0					18.0
Total Split (s)	43.0	43.0						49.0					18.0
Total Split (%)	39.1%	39.1%						44.5%					16%
Maximum Green (s)	38.0	38.0						44.0					14.0
Yellow Time (s)	3.0	3.0						3.0					4.0
All-Red Time (s)	2.0	2.0						2.0					0.0
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?													
Vehicle Extension (s)	2.0	2.0						2.0					2.0
Recall Mode	C-Max	C-Max						Max					Ped
Walk Time (s)													7.0
Flash Dont Walk (s)													7.0
Pedestrian Calls (#/hr)													0
Act Effct Green (s)	39.0	39.0						45.0					
Actuated g/C Ratio	0.35	0.35						0.41					
v/c Ratio	0.63	0.54						0.88					
Control Delay	36.2	33.0						39.3					
Queue Delay	0.0	0.0						0.0					
Total Delay	36.2	33.0						39.3					
LOS	D	C						D					
Approach Delay		34.7						39.3					
Approach LOS		C						D					
Queue Length 50th (ft)	196	165						375					
Queue Length 95th (ft)	293	248						#486					
Internal Link Dist (ft)		65			306			167			212		
Turn Bay Length (ft)													
Base Capacity (vph)	511	522						1272					
Starvation Cap Reductn	0	0						0					
Spillback Cap Reductn	0	0						0					
Storage Cap Reductn	0	0						0					
Reduced v/c Ratio	0.63	0.54						0.88					

Intersection Summary

Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 30 (27%), Referenced to phase 1:EBTL, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.88
Intersection Signal Delay: 37.7 Intersection LOS: D
Intersection Capacity Utilization 55.3% 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.

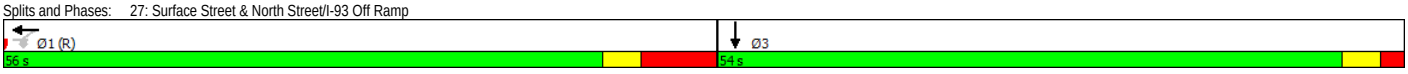
Splits and Phases: 26: Cross Street & I-93 Off-Ramp/North Street

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	118	121	199	0	0	0	0	0	482	35
Future Volume (vph)	0	0	118	121	199	0	0	0	0	0	482	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95
Ped Bike Factor											0.97	
Frt			0.865								0.990	
Flt Protected					0.981							
Satd. Flow (prot)	0	0	1370	0	3113	0	0	0	0	0	2893	0
Flt Permitted					0.981							
Satd. Flow (perm)	0	0	1370	0	3113	0	0	0	0	0	2893	0
Right Turn on Red			No	No		Yes			Yes			Yes
Satd. Flow (RTOR)											9	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		373			108			468			470	
Travel Time (s)		10.2			2.9			12.8			12.8	
Confl. Peds. (#/hr)												466
Confl. Bikes (#/hr)												19
Peak Hour Factor	0.84	0.84	0.84	0.73	0.73	0.73	0.92	0.92	0.92	0.86	0.86	0.86
Heavy Vehicles (%)	0%	0%	8%	3%	2%	0%	0%	0%	0%	0%	8%	9%
Parking (#/hr)												0
Adj. Flow (vph)	0	0	140	166	273	0	0	0	0	0	560	41
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	140	0	439	0	0	0	0	0	601	0
Turn Type			Perm	Perm	NA						NA	
Protected Phases					1						3	
Permitted Phases			1	1								
Detector Phase			1	1	1						3	
Switch Phase												
Minimum Initial (s)			10.0	10.0	10.0						10.0	
Minimum Split (s)			25.0	25.0	25.0						25.0	
Total Split (s)			56.0	56.0	56.0						54.0	
Total Split (%)			50.9%	50.9%	50.9%						49.1%	
Maximum Green (s)			47.0	47.0	47.0						49.0	
Yellow Time (s)			3.0	3.0	3.0						3.0	
All-Red Time (s)			6.0	6.0	6.0						2.0	
Lost Time Adjust (s)			-5.0		-5.0						-1.0	
Total Lost Time (s)			4.0		4.0						4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)			2.0	2.0	2.0						2.0	
Recall Mode			C-Max	C-Max	C-Max						Max	
Walk Time (s)			7.0	7.0	7.0						7.0	
Flash Dont Walk (s)			5.0	5.0	5.0						12.0	
Pedestrian Calls (#/hr)			0	0	0						0	
Act Effct Green (s)			52.0		52.0						50.0	
Actuated g/C Ratio			0.47		0.47						0.45	
v/c Ratio			0.22		0.30						0.46	
Control Delay			4.7		18.5						9.4	
Queue Delay			0.0		0.0						0.0	
Total Delay			4.7		18.5						9.4	
LOS			A		B						A	
Approach Delay					18.5						9.4	
Approach LOS					B						A	
Queue Length 50th (ft)			8		97						56	
Queue Length 95th (ft)			18		103						64	
Internal Link Dist (ft)		293			28			388			390	
Turn Bay Length (ft)												
Base Capacity (vph)			647		1471						1319	
Starvation Cap Reductn			0		0						0	
Spillback Cap Reductn			0		0						0	
Storage Cap Reductn			0		0						0	
Reduced v/c Ratio			0.22		0.30						0.46	

Intersection Summary

Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 106 (96%), Referenced to phase 1:WBTL, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.46
Intersection Signal Delay: 12.2 Intersection LOS: B
Intersection Capacity Utilization 45.1% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 27: Surface Street & North Street/I-93 Off Ramp

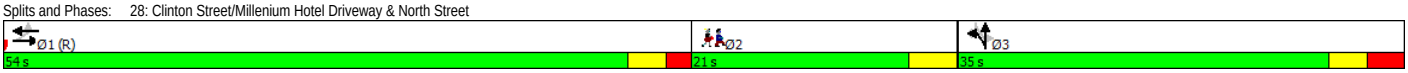


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations													
Traffic Volume (vph)	4	79	0	0	234	0	278	0	37	2	0	6	
Future Volume (vph)	4	79	0	0	234	0	278	0	37	2	0	6	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	
Ped Bike Factor		0.98						0.98		0.96		0.67	
Frt								0.965				0.850	
Flt Protected		0.998					0.950	0.963		0.950			
Satd. Flow (prot)	0	1493	0	0	2997	0	1298	1388	0	1624	0	1454	
Flt Permitted		0.989					0.950	0.963		0.579			
Satd. Flow (perm)	0	1449	0	0	2997	0	1298	1388	0	946	0	974	
Right Turn on Red			Yes			Yes			No			Yes	
Satd. Flow (RTOR)												60	
Link Speed (mph)		25			25			25			30		
Link Distance (ft)		241			373			604			110		
Travel Time (s)		6.6			10.2			16.5			2.5		
Confl. Peds. (#/hr)	349					349			31	31		371	
Confl. Bikes (#/hr)			11			4							
Peak Hour Factor	0.90	0.90	0.90	0.84	0.84	0.84	0.92	0.92	0.92	0.67	0.67	0.67	
Heavy Vehicles (%)	0%	3%	0%	0%	3%	0%	7%	0%	6%	0%	0%	0%	
Parking (#/hr)		0			0		0		0				
Adj. Flow (vph)	4	88	0	0	279	0	302	0	40	3	0	9	
Shared Lane Traffic (%)							43%						
Lane Group Flow (vph)	0	92	0	0	279	0	172	170	0	3	0	9	
Turn Type	Perm	NA			NA		Split	NA		D.Pm		Perm	
Protected Phases		1			1		3	3					2
Permitted Phases	1									3		3	
Detector Phase	1	1			1		3	3		3		3	
Switch Phase													
Minimum Initial (s)	23.0	23.0			23.0		9.0	9.0		9.0		9.0	7.0
Minimum Split (s)	30.0	30.0			30.0		16.0	16.0		16.0		16.0	21.0
Total Split (s)	54.0	54.0			54.0		35.0	35.0		35.0		35.0	21.0
Total Split (%)	49.1%	49.1%			49.1%		31.8%	31.8%		31.8%		31.8%	19%
Maximum Green (s)	49.0	49.0			49.0		29.0	29.0		29.0		29.0	17.0
Yellow Time (s)	3.0	3.0			3.0		3.0	3.0		3.0		3.0	4.0
All-Red Time (s)	2.0	2.0			2.0		3.0	3.0		3.0		3.0	0.0
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0		0.0	
Total Lost Time (s)		5.0			5.0		6.0	6.0		6.0		6.0	
Lead/Lag	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
Recall Mode	C-Max	C-Max			C-Max		Max	Max		Max		Max	Ped
Walk Time (s)	7.0	7.0			7.0								7.0
Flash Dont Walk (s)	5.0	5.0			5.0								10.0
Pedestrian Calls (#/hr)	0	0			0								0
Act Effct Green (s)		49.0			49.0		29.0	29.0		29.0		29.0	
Actuated g/C Ratio		0.45			0.45		0.26	0.26		0.26		0.26	
v/c Ratio		0.14			0.21		0.50	0.47		0.01		0.03	
Control Delay		29.3			11.1		35.2	4.2		30.5		0.2	
Queue Delay		0.0			0.0		0.0	0.0		0.0		0.0	
Total Delay		29.3			11.1		35.2	4.2		30.5		0.2	
LOS		C			B		D	A		C		A	
Approach Delay		29.3			11.1			19.8					
Approach LOS		C			B			B					
Queue Length 50th (ft)		66			75		87	0		2		0	
Queue Length 95th (ft)		111			102		m113	0		7		0	
Internal Link Dist (ft)		161			293			524			30		
Turn Bay Length (ft)													
Base Capacity (vph)		645			1335		342	365		249		300	
Starvation Cap Reductn		0			0		0	0		0		0	
Spillback Cap Reductn		0			90		0	0		0		1	
Storage Cap Reductn		0			0		0	0		0		0	
Reduced v/c Ratio		0.14			0.22		0.50	0.47		0.01		0.03	

Intersection Summary

Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 20 (18%), Referenced to phase 1:EBWB, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.50
Intersection Signal Delay: 17.4 Intersection LOS: B
Intersection Capacity Utilization 53.0% ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 28: Clinton Street/Millenium Hotel Driveway & North Street



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø3	Ø4	Ø5	Ø6
Lane Configurations											
Traffic Volume (vph)	14	83	485	33	0	0					
Future Volume (vph)	14	83	485	33	0	0					
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900					
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	1.00					
Ped Bike Factor	0.89		0.98								
Frt			0.991								
Flt Protected	0.950										
Satd. Flow (prot)	1624	1693	3000	0	0	0					
Flt Permitted	0.395										
Satd. Flow (perm)	599	1693	3000	0	0	0					
Right Turn on Red				Yes		Yes					
Satd. Flow (RTOR)			9								
Link Speed (mph)		25	25		25						
Link Distance (ft)		141	241		180						
Travel Time (s)		3.8	6.6		4.9						
Confl. Peds. (#/hr)	331			331							
Confl. Bikes (#/hr)				4							
Peak Hour Factor	0.86	0.86	0.91	0.91	0.92	0.92					
Heavy Vehicles (%)	0%	1%	5%	6%	0%	0%					
Parking (#/hr)				0							
Adj. Flow (vph)	16	97	533	36	0	0					
Shared Lane Traffic (%)											
Lane Group Flow (vph)	16	97	569	0	0	0					
Turn Type	D.P+P	NA	NA								
Protected Phases	5 6	1 4 5 6	1 4				1	3	4	5	6
Permitted Phases	1 4										
Detector Phase	5 6	1 4 5 6	1 4								
Switch Phase											
Minimum Initial (s)							7.0	7.0	8.0	3.0	4.0
Minimum Split (s)							14.0	24.0	15.0	8.0	10.0
Total Split (s)							37.0	24.0	31.0	8.0	10.0
Total Split (%)							34%	22%	28%	7%	9%
Maximum Green (s)							32.0	20.0	25.0	4.0	5.0
Yellow Time (s)							3.0	4.0	3.0	3.0	3.0
All-Red Time (s)							2.0	0.0	3.0	1.0	2.0
Lost Time Adjust (s)											
Total Lost Time (s)											
Lead/Lag									Lead	Lag	
Lead-Lag Optimize?											
Vehicle Extension (s)							2.0	2.0	2.0	2.0	2.0
Recall Mode							C-Max	Ped	Max	Max	Max
Walk Time (s)								7.0			
Flash Dont Walk (s)								13.0			
Pedestrian Calls (#/hr)								0			
Act Effct Green (s)	74.0	81.0	58.0								
Actuated g/C Ratio	0.67	0.74	0.53								
v/c Ratio	0.03	0.08	0.36								
Control Delay	1.6	1.7	7.3								
Queue Delay	0.1	2.8	0.3								
Total Delay	1.7	4.5	7.6								
LOS	A	A	A								
Approach Delay		4.1	7.6								
Approach LOS		A	A								
Queue Length 50th (ft)	1	4	97								
Queue Length 95th (ft)	m1	m10	167								
Internal Link Dist (ft)		61	161		100						
Turn Bay Length (ft)											
Base Capacity (vph)	533	1246	1586								
Starvation Cap Reductn	319	1054	452								
Spillback Cap Reductn	0	0	228								
Storage Cap Reductn	0	0	0								
Reduced v/c Ratio	0.07	0.51	0.50								

Intersection Summary

Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 81 (74%), Referenced to phase 1:EBWB, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.80
Intersection Signal Delay: 7.0 Intersection LOS: A
Intersection Capacity Utilization 20.8% ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 29: North Street & Union Street

Lane Group	WBL	WBR	NBT	NBR	SBU	SBL	SBT	Ø3	Ø5
Lane Configurations									
Traffic Volume (vph)	251	234	807	55	22	42	636		
Future Volume (vph)	251	234	807	55	22	42	636		
Ideal Flow (vphpl)	1900	1900	1900	1900	1700	1700	1700		
Lane Util. Factor	0.97	0.95	0.91	0.91	0.91	0.91	0.91		
Ped Bike Factor	0.75		0.97				0.99		
Frt	0.928		0.990						
Flt Protected	0.975						0.995		
Satd. Flow (prot)	2617	0	4281	0	0	0	3901		
Flt Permitted	0.975						0.716		
Satd. Flow (perm)	2179	0	4281	0	0	0	2782		
Right Turn on Red		Yes		No					
Satd. Flow (RTOR)	197								
Link Speed (mph)	25		25				25		
Link Distance (ft)	141		126				451		
Travel Time (s)	3.8		3.4				12.3		
Confl. Peds. (#/hr)	314	146		1133		1133			
Confl. Bikes (#/hr)		3		24					
Peak Hour Factor	0.81	0.81	0.91	0.91	0.96	0.96	0.96		
Heavy Vehicles (%)	3%	4%	5%	0%	0%	3%	7%		
Adj. Flow (vph)	310	289	887	60	23	44	663		
Shared Lane Traffic (%)									
Lane Group Flow (vph)	599	0	947	0	0	0	730		
Turn Type	Prot		NA		D.P+P	D.P+P	NA		
Protected Phases	4		1		6	6	1 6	3	5
Permitted Phases					1	1			
Detector Phase	4		1		6	6	1 6		
Switch Phase									
Minimum Initial (s)	8.0		7.0		4.0	4.0		7.0	3.0
Minimum Split (s)	15.0		14.0		10.0	10.0		24.0	8.0
Total Split (s)	31.0		37.0		10.0	10.0		24.0	8.0
Total Split (%)	28.2%		33.6%		9.1%	9.1%		22%	7%
Maximum Green (s)	25.0		32.0		5.0	5.0		20.0	4.0
Yellow Time (s)	3.0		3.0		3.0	3.0		4.0	3.0
All-Red Time (s)	3.0		2.0		2.0	2.0		0.0	1.0
Lost Time Adjust (s)	0.0		0.0						
Total Lost Time (s)	6.0		5.0						
Lead/Lag	Lead								Lag
Lead-Lag Optimize?									
Vehicle Extension (s)	2.0		2.0		2.0	2.0		2.0	2.0
Recall Mode	Max		C-Max		Max	Max		Ped	Max
Walk Time (s)								7.0	
Flash Dont Walk (s)								13.0	
Pedestrian Calls (#/hr)								0	
Act Effct Green (s)	25.0		32.0				37.0		
Actuated g/C Ratio	0.23		0.29				0.34		
v/c Ratio	0.80		0.76				0.74		
Control Delay	22.3		6.5				33.2		
Queue Delay	16.5		0.2				0.0		
Total Delay	38.8		6.8				33.2		
LOS	D		A				C		
Approach Delay	38.8		6.8				33.2		
Approach LOS	D		A				C		
Queue Length 50th (ft)	86		10				152		
Queue Length 95th (ft)	68		11				189		
Internal Link Dist (ft)	61		46				371		
Turn Bay Length (ft)									
Base Capacity (vph)	747		1245				986		
Starvation Cap Reductn	146		35				0		
Spillback Cap Reductn	0		0				0		
Storage Cap Reductn	0		0				0		
Reduced v/c Ratio	1.00		0.78				0.74		

Intersection Summary

Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 81 (74%), Referenced to phase 1:EBWB, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.80
Intersection Signal Delay: 23.7 — Intersection LOS: C
Intersection Capacity Utilization 69.3% — ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 30: Congress Street & North Street

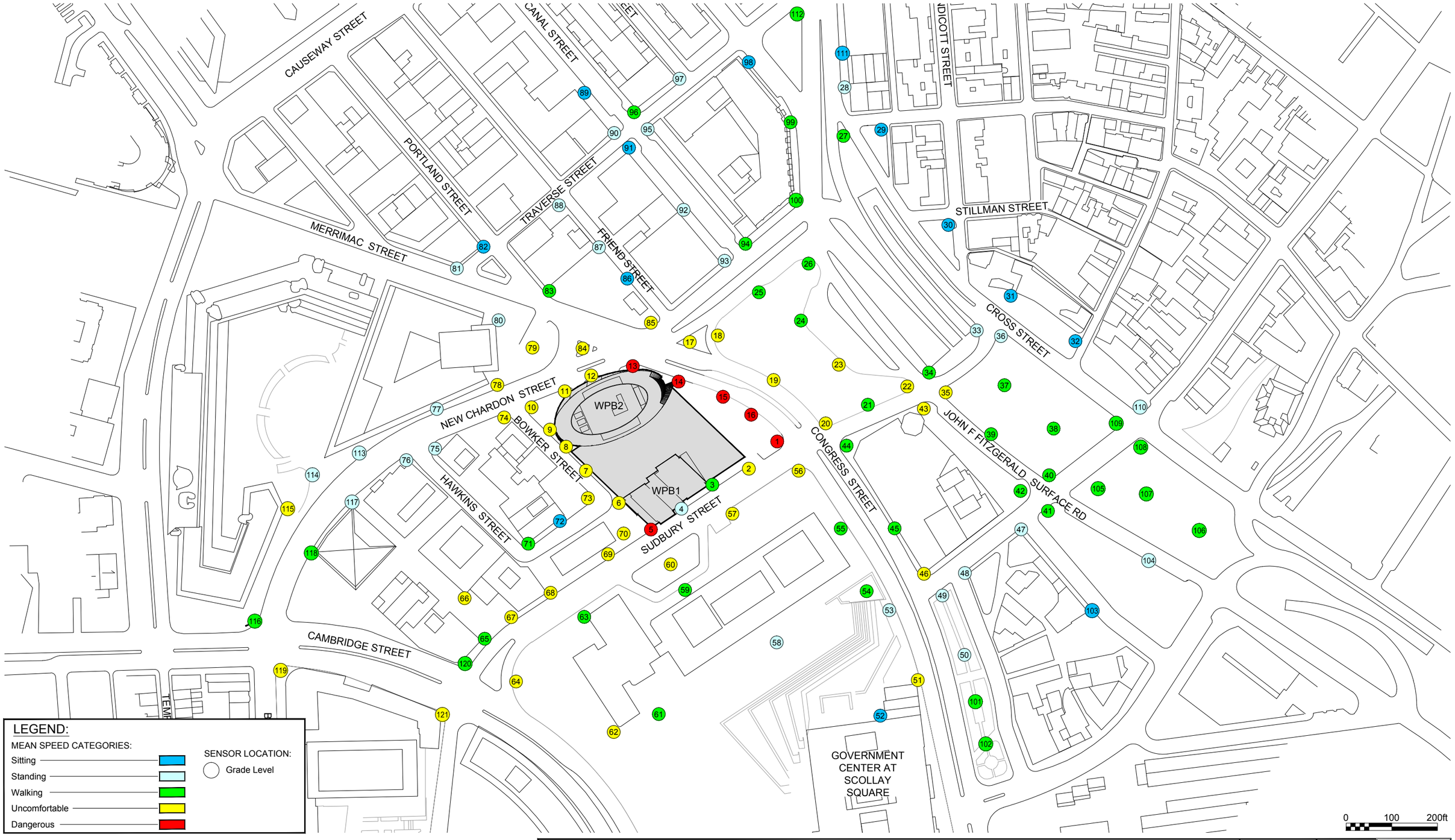
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations													
Traffic Volume (vph)	0	0	0	409	180	0	0	0	0	0	666	55	
Future Volume (vph)	0	0	0	409	180	0	0	0	0	0	666	55	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	14	16	12	12	12	12	12	12	12	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.91	0.91	
Ped Bike Factor				0.65	0.86						0.96		
Frt											0.989		
Flt Protected				0.950	0.980								
Satd. Flow (prot)	0	0	0	1583	1696	0	0	0	0	0	4223	0	
Flt Permitted				0.950	0.980								
Satd. Flow (perm)	0	0	0	1029	1455	0	0	0	0	0	4223	0	
Right Turn on Red			Yes	No		Yes			Yes			Yes	
Satd. Flow (RTOR)											12		
Link Speed (mph)		25			25			25			25		
Link Distance (ft)		604			407			164			468		
Travel Time (s)		16.5			11.1			4.5			12.8		
Confl. Peds. (#/hr)				217								612	
Confl. Bikes (#/hr)												9	
Peak Hour Factor	0.92	0.92	0.92	0.94	0.94	0.94	0.92	0.92	0.92	0.91	0.91	0.91	
Heavy Vehicles (%)	0%	0%	0%	4%	8%	0%	0%	0%	0%	0%	5%	11%	
Adj. Flow (vph)	0	0	0	435	191	0	0	0	0	0	732	60	
Shared Lane Traffic (%)				30%									
Lane Group Flow (vph)	0	0	0	304	322	0	0	0	0	0	792	0	
Turn Type				Split	NA						NA		
Protected Phases				5	5						1		2
Permitted Phases													
Detector Phase				5	5						1		
Switch Phase													
Minimum Initial (s)				8.0	8.0						8.0		8.0
Minimum Split (s)				19.0	19.0						27.0		24.0
Total Split (s)				51.0	51.0						35.0		24.0
Total Split (%)				46.4%	46.4%						31.8%		22%
Maximum Green (s)				46.0	46.0						29.0		20.0
Yellow Time (s)				3.0	3.0						3.0		4.0
All-Red Time (s)				2.0	2.0						3.0		0.0
Lost Time Adjust (s)				-2.0	-2.0						-2.0		
Total Lost Time (s)				3.0	3.0						4.0		
Lead/Lag											Lead		Lag
Lead-Lag Optimize?													
Vehicle Extension (s)				2.0	2.0						2.0		2.0
Recall Mode				Max	Max						C-Max		Ped
Walk Time (s)				7.0	7.0						7.0		7.0
Flash Dont Walk (s)				6.0	6.0						11.0		13.0
Pedestrian Calls (#/hr)				0	0						0		0
Act Effct Green (s)				48.0	48.0						31.0		
Actuated g/C Ratio				0.44	0.44						0.28		
v/c Ratio				0.44	0.44						0.66		
Control Delay				24.2	23.9						26.0		
Queue Delay				0.0	0.0						0.0		
Total Delay				24.2	23.9						26.0		
LOS				C	C						C		
Approach Delay					24.0						26.0		
Approach LOS					C						C		
Queue Length 50th (ft)				153	163						179		
Queue Length 95th (ft)				234	245						220		
Internal Link Dist (ft)		524			327			84			388		
Turn Bay Length (ft)													
Base Capacity (vph)				690	740						1198		
Starvation Cap Reductn				0	0						0		
Spillback Cap Reductn				0	0						0		
Storage Cap Reductn				0	0						0		
Reduced v/c Ratio				0.44	0.44						0.66		

Intersection Summary

Area Type: CBD
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 98 (89%), Referenced to phase 1:SBT, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.66
Intersection Signal Delay: 25.1 Intersection LOS: C
Intersection Capacity Utilization 41.0% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 31: Surface Street & Clinton Street/I-93 Off Ramp

APPENDIX B: Pedestrian Wind Study



Pedestrian Wind Conditions - Mean Speed - Phase 2
Annual (January to December, 0:00 to 23:00)

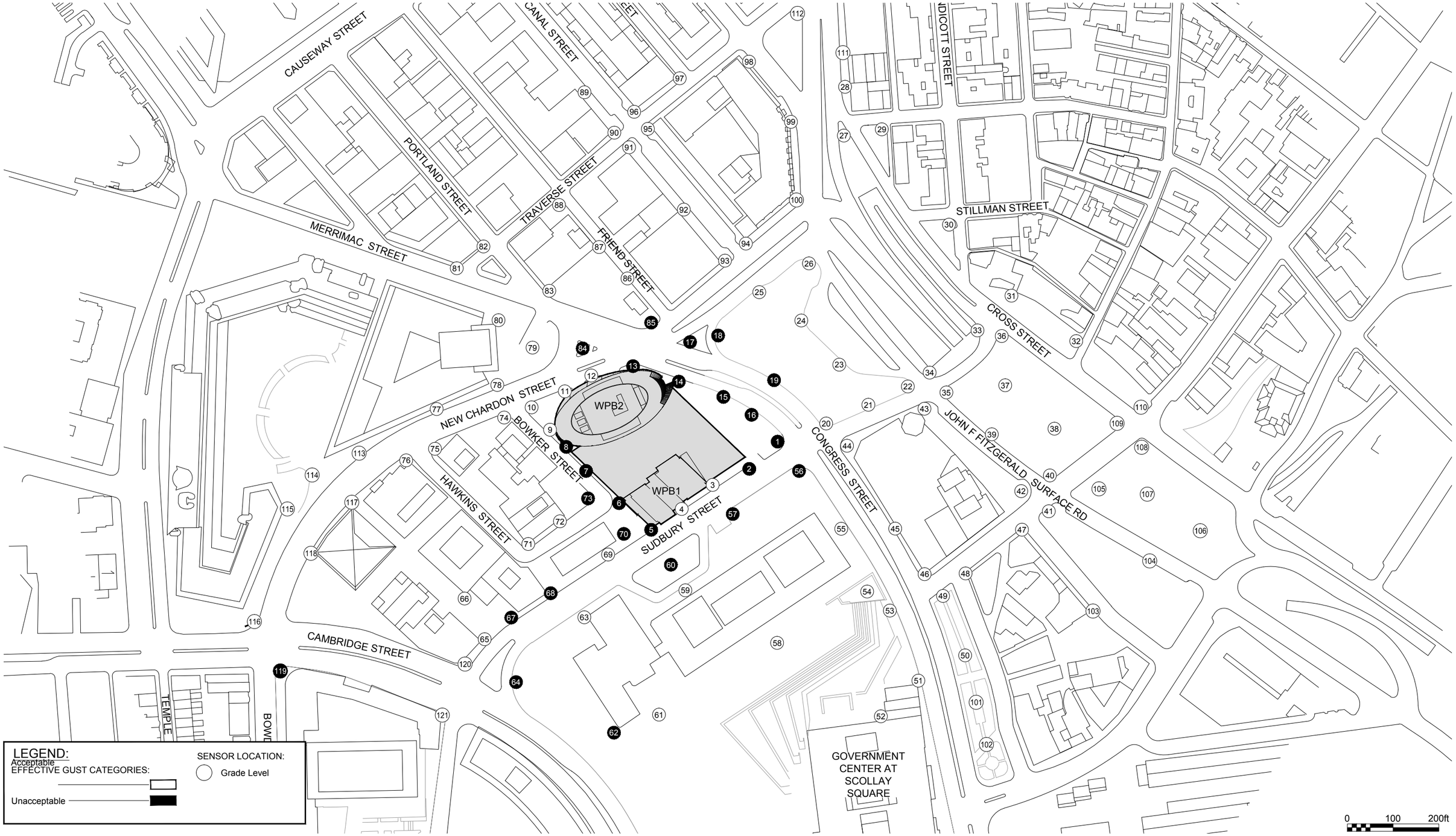
Government Square - Boston, MA

Project #1401777

True North

Drawn by:	EM	Figure:	3c
Approx. Scale:		1"=200'	
Date Revised:		Oct. 8, 2015	

RWDI



Pedestrian Wind Conditions - Effective Gust - Phase 2
Annual (January to December, 0:00 to 23:00)

Government Square - Boston, MA

True North

Project #1401777

Drawn by:	EM	Figure:	4c
Approx. Scale:			1"=200'
Date Revised:			Oct. 8, 2015

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Government Square – Phase 2

Boston, Massachusetts

Final Report

Pedestrian Wind Consultation

RWDI # 1401777
November 11, 2015

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1. INTRODUCTION

A pedestrian wind study was conducted on the proposed Government Square development located in Boston, Massachusetts. The objective of the study was to assess the effect of the proposed development on local conditions in pedestrian areas around the study site and provide recommendations for minimizing adverse effects.

The study involved wind simulations on a 1:400 scale model of the proposed building and surroundings. These simulations were then conducted in RWDI's boundary-layer wind tunnel in Guelph, Ontario, for the purpose of quantifying local wind speed conditions and comparing to appropriate criteria for gauging wind comfort in pedestrian areas. A list of the drawings used for the construction of the model can be found in Appendix A. The criteria recommended by the Boston Redevelopment Authority (BRA) were used in this study. The present report describes the methods and presents the results of the wind tunnel simulations.

2. OVERVIEW

Major buildings, especially those that protrude above their surroundings, often cause increased local wind speeds at the pedestrian level. Typically, wind speeds increase with elevation above the ground surface, and taller buildings intercept these faster winds and deflect them down to the pedestrian level. The funneling of wind through gaps between buildings and the acceleration of wind around corners of buildings may also cause increases in wind speed. Conversely, if a building is surrounded by others of equivalent height, it may be protected from the prevailing upper-level winds, resulting in no significant changes to the local pedestrian-level wind environment. The most effective way to assess potential pedestrian-level wind impacts around a proposed new building is to conduct scale model tests in a wind tunnel.

The consideration of wind in planning outdoor activity areas is important since high winds in an area tend to deter pedestrian use. For example, winds should be light or relatively light in areas where people would be sitting, such as outdoor cafes or playgrounds. For bus stops and other locations where people would be standing, somewhat higher winds can be tolerated. For frequently used sidewalks, where people are primarily walking, stronger winds are acceptable. For infrequently used areas, the wind comfort criteria can be relaxed even further. The actual effects of wind can range from pedestrian inconvenience, due to the blowing of dust and other loose material in a moderate breeze, to severe difficulty with walking due to the wind forces on the pedestrian.

3. METHODOLOGY

Information concerning the site and surroundings was derived from: information on surrounding buildings and terrain; site plans and elevations of the proposed development provided by the design team. The following configurations were simulated:

Phase 1 Configuration: includes the proposed WPB1 Tower and all existing surroundings as well as the proposed landscaping along Sudbury Street and to the west of the WPB1 Tower

Phase 2 Configuration: includes the proposed WPB1 and WPB2 Towers and all existing surroundings as well as the proposed landscaping in the surrounding areas, entrance canopy on the north façade of WPB2 Tower and porous windscreens on the walkways to the north and east of the development

As shown in Figures 1a and 1b, the wind tunnel model included the proposed development and all relevant surrounding buildings and topography within a 1500 ft radius of the study site. The mean speed profile and turbulence of the natural wind approaching the modelled area were also simulated in RWDI's boundary layer wind tunnel. The scale model was equipped with 121 specially designed wind speed sensors that were connected to the wind tunnel's data acquisition system to record the mean and fluctuating components of wind speed at a full-scale height of 5 feet above grade in pedestrian areas throughout the study site. Wind speeds were measured for 36 wind directions, in 10 degree increments, starting from true north. The measurements at each sensor location were recorded in the form of ratios of local mean and gust speeds to the reference wind speed in the free stream above the model. The results were then combined with long-term meteorological data, recorded during the years 1981 to 2011 at Boston's Logan International Airport, in order to predict full scale wind conditions. The analysis was performed separately for each of the four seasons and for the entire year.

Figures 2a, 2b and 2c present "wind roses", summarizing the annual and seasonal wind climates in the Boston area, based on the data from Logan Airport. The left-hand wind rose, in Figure 2a, for example summarizes the spring (March, April, and May) wind data. In general, the prevailing winds at this time of year are from the west-northwest, northwest, west, south-southwest and east-southeast. In addition to these directions, strong winds are also prevalent from the northeast direction as indicated by the red and yellow color bands on the wind rose.

On an annual basis (Figure 2c) the most common wind directions are those between south-southwest and north-northwest. Winds from the east-southeast are also relatively common. In the case of strong winds, northeast and west-northwest are the dominant wind directions.

This study involved state-of-the-art measurement and analysis techniques to predict wind conditions at the study site. Nevertheless, some uncertainty remains in predicting wind comfort, and this must be kept in mind. For example, the sensation of comfort among individuals can be quite variable. Variations in age, individual health, clothing, and other human factors can change a particular response of an individual. The comfort limits used in this report represent an average for the total population. Also, unforeseen changes in the project area, such as the construction or removal of buildings, can affect the conditions experienced at the site. Finally, the prediction of wind speeds is necessarily a statistical procedure. The wind speeds reported are for the frequency of occurrence stated (one percent of the time). Higher wind speeds will occur but on a less frequent basis.

4. PEDESTRIAN WIND COMFORT CRITERIA

The BRA has adopted two standards for assessing the relative wind comfort of pedestrians. First, the BRA wind design guidance criterion states that an effective gust velocity (hourly mean wind speed +1.5 times the root-mean-square wind speed) of 31 mph should not be exceeded more than one percent of the time. The second set of criteria used by the BRA to determine the acceptability of specific locations is based on the work of Melbourne[1]. This set of criteria is used to determine the relative level of pedestrian wind comfort for activities such as sitting, standing, or walking. The criteria are expressed in terms of benchmarks for the 1-hour mean wind speed exceeded 1% of the time (i.e., the 99-percentile mean wind speed). They are as follows:

BRA Mean Wind Criteria*

Dangerous	> 27 mph
Uncomfortable for Walking	> 19 and ≤ 27 mph
Comfortable for Walking	> 15 and ≤ 19 mph
Comfortable for Standing	> 12 and ≤ 15 mph
Comfortable for Sitting	< 12 mph

* Applicable to the hourly mean wind speed exceeded one percent of the time.

The wind climate found in a typical downtown location in Boston is generally comfortable for the pedestrian use of sidewalks and thoroughfares and meets the BRA effective gust velocity criterion of 31 mph. However, without any mitigation measures, this wind climate is likely to be frequently uncomfortable for more passive activities such as sitting.

5. TEST RESULTS

Table 1 presents the mean and effective gust wind speeds for each season as well as annually. For the two test configurations, Figures 3a and 3b graphically depict the mean wind speeds and Figures 4a and 4b depict the effective gust speeds at each wind measurement location based on the annual winds. Typically the summer and fall winds tend to be more comfortable than the annual winds while the winter and spring winds are less comfortable than the annual winds. The following summary of pedestrian wind comfort and safety is based on the annual winds for each configuration tested, except where noted below in the text.

5.1 Onsite Areas (Locations 1 through 26)

A wind comfort categorization of walking is considered appropriate for sidewalks. Lower wind speeds conducive to standing are preferred at building entrances.

[1] Melbourne, W.H., 1978, "Criteria for Environmental Wind Conditions", Journal of Industrial Aerodynamics, 3 (1978) 241 - 249.

5.1.1 Phase 1 Configuration

For the Phase 1 configuration, the wind conditions around the site are expected to be comfortable for walking or better on an annual basis. Uncomfortable wind conditions are expected at the southwest corner of the WPB1 Tower and under the garage (Locations 5 and 16 in Figure 3a).

The effective gust criterion was met annually at all on site test locations (Figure 4a).

5.1.2 Phase 2 Configuration

With the addition of WPB2 Tower and wind control measures, the winds at most locations are expected to remain comfortable for walking or better on an annual basis, which is similar to Phase 1. Marginal increases in wind speeds are expected locally around the building, with uncomfortable winds expected to the north and east of the proposed development (Locations 2, 13, 15, 16 and 18 in Figure 3b). During the winter, wind speeds at Location 15 are rated as dangerous (Table 1). This location also did not meet the effective gust criterion annually (Location 15 in Figure 4b).

The elevated wind speeds along Congress Street are mainly due to winds approaching from the west and northwest directions that are deflected down to grade by the proposed WPB2 Tower. If desired, further mitigation measures can be considered, potentially using additional wind screens and landscaping.

5.2 Off-site Walkways (Locations 27 through 121)

5.2.1 Phase 1 Configuration

For the Phase 1 Development, the overall off-site wind conditions are expected to be comfortable for walking or better annually. Uncomfortable conditions are detected along Sudbury Street (Locations 57, 60 and 68 in Figure 3a), along Cambridge Street (Locations 62, 119 and 121), along Congress Street (Location 51) and along New Chardon Street to the north of the proposed development (Location 94). Wind conditions at Location 62 are rated as dangerous in the winter (Table 1).

The effective gust criterion was not met annually at two off-site locations to the southwest of the proposed development (Locations 62 and 119 in Figure 4a).

5.2.2 Phase 2 Configuration

With the addition of the proposed Phase 2 and landscaping, wind conditions in the off-site areas are expected to be similar to the wind conditions predicted for Phase 1. Slightly higher wind speeds are predicted, primarily to the north of the proposed development (Locations 74, 79, 84, 85 and 98 in Figure 3b). Uncomfortable wind conditions are expected to be similar to Phase 1 along Sudbury Street and Cambridge Street (Figure 3b). During the winter, the wind speeds at Location 62 remain dangerous in the Phase 2 (Table 1).

The effective gust criterion was not met annually at two off-site locations to the southwest of the proposed development (Locations 62 and 119 in Figure 4b), which is the same as Phase 1.

6. APPLICABILITY OF RESULTS

The results presented in this report pertain to the model of the Government Square development constructed using the architectural design drawings listed in Appendix A. Should there be any design changes that deviate from this list of drawings, the results presented may change. Therefore, if changes in the design are made, it is recommended that RWDI be contacted and requested to review their potential effects on wind conditions.

TABLES

Table 1: Pedestrian Wind Comfort and Safety Categories - Multiple Seasons

BRA Criteria			Mean Wind Speed			Effective Gust Wind Speed		
Loc.	Config.	Season	Speed(mph)	%Change	RATING	Speed(mph)	%Change	RATING
1	A	Spring	13		Standing	19		Acceptable
		Summer	10		Sitting	16		Acceptable
		Fall	12		Sitting	19		Acceptable
		Winter	13		Standing	19		Acceptable
		Annual	12		Sitting	18		Acceptable
	B	Spring	19	+46%	Walking	28	+47%	Acceptable
		Summer	14	+40%	Standing	21	+31%	Acceptable
		Fall	17	+42%	Walking	26	+37%	Acceptable
		Winter	19	+46%	Walking	29	+53%	Acceptable
		Annual	18	+50%	Walking	27	+50%	Acceptable
2	A	Spring	12		Sitting	19		Acceptable
		Summer	10		Sitting	15		Acceptable
		Fall	12		Sitting	19		Acceptable
		Winter	12		Sitting	20		Acceptable
		Annual	12		Sitting	18		Acceptable
	B	Spring	23	+92%	Uncomfortable	33	+74%	Unacceptable
		Summer	16	+60%	Walking	23	+53%	Acceptable
		Fall	20	+67%	Uncomfortable	29	+53%	Acceptable
		Winter	22	+83%	Uncomfortable	32	+60%	Unacceptable
		Annual	21	+75%	Uncomfortable	30	+67%	Acceptable
3	A	Spring	12		Sitting	20		Acceptable
		Summer	9		Sitting	15		Acceptable
		Fall	12		Sitting	19		Acceptable
		Winter	13		Standing	22		Acceptable
		Annual	12		Sitting	20		Acceptable
	B	Spring	15	+25%	Standing	23	+15%	Acceptable
		Summer	11	+22%	Sitting	17	+13%	Acceptable
		Fall	14	+17%	Standing	21	+11%	Acceptable
		Winter	17	+31%	Walking	26	+18%	Acceptable
		Annual	15	+25%	Standing	23	+15%	Acceptable
4	A	Spring	9		Sitting	14		Acceptable
		Summer	7		Sitting	11		Acceptable
		Fall	9		Sitting	13		Acceptable
		Winter	10		Sitting	15		Acceptable
		Annual	9		Sitting	14		Acceptable
	B	Spring	10	+11%	Sitting	16	+14%	Acceptable
		Summer	8	+14%	Sitting	12		Acceptable
		Fall	10	+11%	Sitting	15	+15%	Acceptable
		Winter	11		Sitting	16		Acceptable
		Annual	10	+11%	Sitting	15		Acceptable
5	A	Spring	22		Uncomfortable	28		Acceptable
		Summer	17		Walking	22		Acceptable
		Fall	21		Uncomfortable	27		Acceptable
		Winter	24		Uncomfortable	31		Acceptable
		Annual	22		Uncomfortable	28		Acceptable

Notes: 1) Wind speeds are for a 1% probability of exceedance; and,
2) % Change is based on comparison with Configuration A and only those that are greater than 10% are listed.

Configurations	Mean Wind Speed Criteria		Effective Gust Criteria	
A – Phase 1	Comfortable for Sitting:	≤ 12 mph	Acceptable:	≤ 31 mph
B – Phase 2	Comfortable for Standing:	> 12 and ≤ 15 mph	Unacceptable:	> 31 mph
	Comfortable for Walking:	> 15 and ≤ 19 mph		
	Uncomfortable for Walking:	> 19 and ≤ 27 mph		
	Dangerous Conditions:	> 27 mph		

Table 1: Pedestrian Wind Comfort and Safety Categories - Multiple Seasons

BRA Criteria			Mean Wind Speed			Effective Gust Wind Speed		
Loc.	Config.	Season	Speed(mph)	%Change	RATING	Speed(mph)	%Change	RATING
	B	Spring	22		Uncomfortable	28		Acceptable
		Summer	17		Walking	22		Acceptable
		Fall	21		Uncomfortable	27		Acceptable
		Winter	24		Uncomfortable	30		Acceptable
		Annual	22		Uncomfortable	28		Acceptable
6	A	Spring	15		Standing	21		Acceptable
		Summer	12		Sitting	17		Acceptable
		Fall	14		Standing	20		Acceptable
		Winter	16		Walking	23		Acceptable
		Annual	15		Standing	21		Acceptable
	B	Spring	18	+20%	Walking	25	+19%	Acceptable
		Summer	14	+17%	Standing	19	+12%	Acceptable
		Fall	17	+21%	Walking	23	+15%	Acceptable
		Winter	19	+19%	Walking	27	+17%	Acceptable
		Annual	18	+20%	Walking	25	+19%	Acceptable
7	A	Spring	13		Standing	20		Acceptable
		Summer	9		Sitting	14		Acceptable
		Fall	11		Sitting	17		Acceptable
		Winter	12		Sitting	19		Acceptable
		Annual	12		Sitting	18		Acceptable
	B	Spring	19	+46%	Walking	28	+40%	Acceptable
		Summer	14	+56%	Standing	21	+50%	Acceptable
		Fall	17	+55%	Walking	25	+47%	Acceptable
		Winter	20	+67%	Uncomfortable	30	+58%	Acceptable
		Annual	18	+50%	Walking	27	+50%	Acceptable
8	A	Spring	14		Standing	21		Acceptable
		Summer	10		Sitting	16		Acceptable
		Fall	13		Standing	19		Acceptable
		Winter	14		Standing	21		Acceptable
		Annual	13		Standing	19		Acceptable
	B	Spring	19	+36%	Walking	27	+29%	Acceptable
		Summer	14	+40%	Standing	20	+25%	Acceptable
		Fall	17	+31%	Walking	24	+26%	Acceptable
		Winter	19	+36%	Walking	28	+33%	Acceptable
		Annual	18	+38%	Walking	26	+37%	Acceptable
9	A	Spring	7		Sitting	12		Acceptable
		Summer	6		Sitting	9		Acceptable
		Fall	7		Sitting	11		Acceptable
		Winter	8		Sitting	13		Acceptable
		Annual	7		Sitting	12		Acceptable
	B	Spring	15	+114%	Standing	22	+83%	Acceptable
		Summer	12	+100%	Sitting	19	+111%	Acceptable
		Fall	14	+100%	Standing	21	+91%	Acceptable
		Winter	15	+88%	Standing	24	+85%	Acceptable
		Annual	14	+100%	Standing	22	+83%	Acceptable

Notes: 1) Wind speeds are for a 1% probability of exceedance; and,
2) % Change is based on comparison with Configuration A and only those that are greater than 10% are listed.

Configurations	Mean Wind Speed Criteria		Effective Gust Criteria	
A – Phase 1	Comfortable for Sitting:	≤ 12 mph	Acceptable:	≤ 31 mph
B – Phase 2	Comfortable for Standing:	> 12 and ≤ 15 mph	Unacceptable:	> 31 mph
	Comfortable for Walking:	> 15 and ≤ 19 mph		
	Uncomfortable for Walking:	> 19 and ≤ 27 mph		
	Dangerous Conditions:	> 27 mph		

Table 1: Pedestrian Wind Comfort and Safety Categories - Multiple Seasons

BRA Criteria			Mean Wind Speed			Effective Gust Wind Speed		
Loc.	Config.	Season	Speed(mph)	%Change	RATING	Speed(mph)	%Change	RATING
10	A	Spring	13		Standing	20		Acceptable
		Summer	10		Sitting	16		Acceptable
		Fall	12		Sitting	19		Acceptable
		Winter	14		Standing	22		Acceptable
		Annual	13		Standing	20		Acceptable
	B	Spring	19	+46%	Walking	27	+35%	Acceptable
		Summer	14	+40%	Standing	21	+31%	Acceptable
		Fall	17	+42%	Walking	25	+32%	Acceptable
		Winter	18	+29%	Walking	27	+23%	Acceptable
		Annual	17	+31%	Walking	25	+25%	Acceptable
11	A	Spring	20		Uncomfortable	28		Acceptable
		Summer	14		Standing	20		Acceptable
		Fall	17		Walking	24		Acceptable
		Winter	19		Walking	27		Acceptable
		Annual	18		Walking	25		Acceptable
	B	Spring	15	-25%	Standing	21	-25%	Acceptable
		Summer	12	-14%	Sitting	16	-20%	Acceptable
		Fall	13	-24%	Standing	19	-21%	Acceptable
		Winter	15	-21%	Standing	21	-22%	Acceptable
		Annual	14	-22%	Standing	20	-20%	Acceptable
12	A	Spring	15		Standing	25		Acceptable
		Summer	12		Sitting	19		Acceptable
		Fall	14		Standing	23		Acceptable
		Winter	16		Walking	27		Acceptable
		Annual	15		Standing	24		Acceptable
	B	Spring	12	-20%	Sitting	18	-28%	Acceptable
		Summer	9	-25%	Sitting	13	-32%	Acceptable
		Fall	11	-21%	Sitting	16	-30%	Acceptable
		Winter	11	-31%	Sitting	16	-41%	Acceptable
		Annual	11	-27%	Sitting	16	-33%	Acceptable
13	A	Spring	20		Uncomfortable	26		Acceptable
		Summer	16		Walking	21		Acceptable
		Fall	18		Walking	25		Acceptable
		Winter	20		Uncomfortable	27		Acceptable
		Annual	19		Walking	25		Acceptable
	B	Spring	21		Uncomfortable	28		Acceptable
		Summer	15		Standing	21		Acceptable
		Fall	19		Walking	25		Acceptable
		Winter	22		Uncomfortable	30	+11%	Acceptable
		Annual	20		Uncomfortable	27		Acceptable
14	A	Spring	9		Sitting	14		Acceptable
		Summer	7		Sitting	11		Acceptable
		Fall	9		Sitting	13		Acceptable
		Winter	10		Sitting	16		Acceptable
		Annual	9		Sitting	14		Acceptable

Notes: 1) Wind speeds are for a 1% probability of exceedance; and,
2) % Change is based on comparison with Configuration A and only those that are greater than 10% are listed.

Configurations	Mean Wind Speed Criteria		Effective Gust Criteria	
A – Phase 1	Comfortable for Sitting:	≤ 12 mph	Acceptable:	≤ 31 mph
B – Phase 2	Comfortable for Standing:	> 12 and ≤ 15 mph	Unacceptable:	> 31 mph
	Comfortable for Walking:	> 15 and ≤ 19 mph		
	Uncomfortable for Walking:	> 19 and ≤ 27 mph		
	Dangerous Conditions:	> 27 mph		

Table 1: Pedestrian Wind Comfort and Safety Categories - Multiple Seasons

BRA Criteria			Mean Wind Speed			Effective Gust Wind Speed		
Loc.	Config.	Season	Speed(mph)	%Change	RATING	Speed(mph)	%Change	RATING
	B	Spring	17	+89%	Walking	23	+64%	Acceptable
		Summer	13	+86%	Standing	17	+55%	Acceptable
		Fall	16	+78%	Walking	21	+62%	Acceptable
		Winter	19	+90%	Walking	25	+56%	Acceptable
		Annual	17	+89%	Walking	23	+64%	Acceptable
15	A	Spring	12		Sitting	16		Acceptable
		Summer	9		Sitting	12		Acceptable
		Fall	11		Sitting	15		Acceptable
		Winter	12		Sitting	17		Acceptable
		Annual	11		Sitting	16		Acceptable
	B	Spring	26	+117%	Uncomfortable	35	+119%	Unacceptable
		Summer	20	+122%	Uncomfortable	26	+117%	Acceptable
		Fall	24	+118%	Uncomfortable	32	+113%	Unacceptable
		Winter	29	+142%	Dangerous	38	+124%	Unacceptable
		Annual	26	+136%	Uncomfortable	34	+112%	Unacceptable
16	A	Spring	23		Uncomfortable	29		Acceptable
		Summer	19		Walking	23		Acceptable
		Fall	22		Uncomfortable	27		Acceptable
		Winter	25		Uncomfortable	31		Acceptable
		Annual	23		Uncomfortable	28		Acceptable
	B	Spring	22		Uncomfortable	31		Acceptable
		Summer	16	-16%	Walking	23		Acceptable
		Fall	20		Uncomfortable	29		Acceptable
		Winter	24		Uncomfortable	34		Unacceptable
		Annual	21		Uncomfortable	30		Acceptable
17	A	Spring	13		Standing	21		Acceptable
		Summer	11		Sitting	16		Acceptable
		Fall	13		Standing	20		Acceptable
		Winter	15		Standing	23		Acceptable
		Annual	13		Standing	21		Acceptable
	B	Spring	19	+46%	Walking	29	+38%	Acceptable
		Summer	15	+36%	Standing	22	+38%	Acceptable
		Fall	18	+38%	Walking	27	+35%	Acceptable
		Winter	21	+40%	Uncomfortable	31	+35%	Acceptable
		Annual	19	+46%	Walking	29	+38%	Acceptable
18	A	Spring	14		Standing	21		Acceptable
		Summer	11		Sitting	16		Acceptable
		Fall	13		Standing	19		Acceptable
		Winter	15		Standing	22		Acceptable
		Annual	13		Standing	20		Acceptable
	B	Spring	20	+43%	Uncomfortable	28	+33%	Acceptable
		Summer	15	+36%	Standing	21	+31%	Acceptable
		Fall	18	+38%	Walking	26	+37%	Acceptable
		Winter	22	+47%	Uncomfortable	31	+41%	Acceptable
		Annual	20	+54%	Uncomfortable	28	+40%	Acceptable

Notes: 1) Wind speeds are for a 1% probability of exceedance; and,
2) % Change is based on comparison with Configuration A and only those that are greater than 10% are listed.

Configurations	Mean Wind Speed Criteria		Effective Gust Criteria	
A – Phase 1	Comfortable for Sitting:	≤ 12 mph	Acceptable:	≤ 31 mph
B – Phase 2	Comfortable for Standing:	> 12 and ≤ 15 mph	Unacceptable:	> 31 mph
	Comfortable for Walking:	> 15 and ≤ 19 mph		
	Uncomfortable for Walking:	> 19 and ≤ 27 mph		
	Dangerous Conditions:	> 27 mph		

Table 1: Pedestrian Wind Comfort and Safety Categories - Multiple Seasons

BRA Criteria			Mean Wind Speed			Effective Gust Wind Speed		
Loc.	Config.	Season	Speed(mph)	%Change	RATING	Speed(mph)	%Change	RATING
19	A	Spring	14		Standing	19		Acceptable
		Summer	12		Sitting	16		Acceptable
		Fall	13		Standing	18		Acceptable
		Winter	12		Sitting	17		Acceptable
		Annual	13		Standing	18		Acceptable
	B	Spring	20	+43%	Uncomfortable	30	+58%	Acceptable
		Summer	15	+25%	Standing	23	+44%	Acceptable
		Fall	18	+38%	Walking	28	+56%	Acceptable
		Winter	22	+83%	Uncomfortable	33	+94%	Unacceptable
		Annual	19	+46%	Walking	30	+67%	Acceptable
20	A	Spring	16		Walking	24		Acceptable
		Summer	13		Standing	19		Acceptable
		Fall	15		Standing	22		Acceptable
		Winter	15		Standing	23		Acceptable
		Annual	15		Standing	22		Acceptable
	B	Spring	19	+19%	Walking	29	+21%	Acceptable
		Summer	15	+15%	Standing	22	+16%	Acceptable
		Fall	18	+20%	Walking	27	+23%	Acceptable
		Winter	21	+40%	Uncomfortable	31	+35%	Acceptable
		Annual	19	+27%	Walking	28	+27%	Acceptable
21	A	Spring	19		Walking	27		Acceptable
		Summer	15		Standing	21		Acceptable
		Fall	17		Walking	25		Acceptable
		Winter	18		Walking	25		Acceptable
		Annual	17		Walking	25		Acceptable
	B	Spring	13	-32%	Standing	21	-22%	Acceptable
		Summer	10	-33%	Sitting	16	-24%	Acceptable
		Fall	12	-29%	Sitting	19	-24%	Acceptable
		Winter	13	-28%	Standing	21	-16%	Acceptable
		Annual	12	-29%	Sitting	19	-24%	Acceptable
22	A	Spring	17		Walking	25		Acceptable
		Summer	15		Standing	21		Acceptable
		Fall	16		Walking	24		Acceptable
		Winter	17		Walking	24		Acceptable
		Annual	16		Walking	24		Acceptable
	B	Spring	16		Walking	24		Acceptable
		Summer	13	-13%	Standing	19		Acceptable
		Fall	15		Standing	23		Acceptable
		Winter	17		Walking	26		Acceptable
		Annual	16		Walking	24		Acceptable
23	A	Spring	19		Walking	27		Acceptable
		Summer	16		Walking	23		Acceptable
		Fall	18		Walking	26		Acceptable
		Winter	18		Walking	26		Acceptable
		Annual	18		Walking	26		Acceptable

Notes: 1) Wind speeds are for a 1% probability of exceedance; and,
2) % Change is based on comparison with Configuration A and only those that are greater than 10% are listed.

Configurations	Mean Wind Speed Criteria		Effective Gust Criteria	
A – Phase 1	Comfortable for Sitting:	≤ 12 mph	Acceptable:	≤ 31 mph
B – Phase 2	Comfortable for Standing:	> 12 and ≤ 15 mph	Unacceptable:	> 31 mph
	Comfortable for Walking:	> 15 and ≤ 19 mph		
	Uncomfortable for Walking:	> 19 and ≤ 27 mph		
	Dangerous Conditions:	> 27 mph		

Table 1: Pedestrian Wind Comfort and Safety Categories - Multiple Seasons

BRA Criteria			Mean Wind Speed			Effective Gust Wind Speed		
Loc.	Config.	Season	Speed(mph)	%Change	RATING	Speed(mph)	%Change	RATING
	B	Spring	14	-26%	Standing	21	-22%	Acceptable
		Summer	10	-38%	Sitting	16	-30%	Acceptable
		Fall	13	-28%	Standing	20	-23%	Acceptable
		Winter	14	-22%	Standing	22	-15%	Acceptable
		Annual	13	-28%	Standing	20	-23%	Acceptable
24	A	Spring	19		Walking	28		Acceptable
		Summer	15		Standing	21		Acceptable
		Fall	17		Walking	26		Acceptable
		Winter	21		Uncomfortable	31		Acceptable
		Annual	18		Walking	28		Acceptable
	B	Spring	14	-26%	Standing	21	-25%	Acceptable
		Summer	11	-27%	Sitting	16	-24%	Acceptable
		Fall	14	-18%	Standing	20	-23%	Acceptable
		Winter	16	-24%	Walking	23	-26%	Acceptable
		Annual	14	-22%	Standing	21	-25%	Acceptable
25	A	Spring	19		Walking	27		Acceptable
		Summer	15		Standing	20		Acceptable
		Fall	17		Walking	24		Acceptable
		Winter	19		Walking	28		Acceptable
		Annual	18		Walking	25		Acceptable
	B	Spring	14	-26%	Standing	21	-22%	Acceptable
		Summer	11	-27%	Sitting	16	-20%	Acceptable
		Fall	14	-18%	Standing	20	-17%	Acceptable
		Winter	16	-16%	Walking	23	-18%	Acceptable
		Annual	14	-22%	Standing	21	-16%	Acceptable
26	A	Spring	17		Walking	25		Acceptable
		Summer	13		Standing	19		Acceptable
		Fall	16		Walking	24		Acceptable
		Winter	19		Walking	28		Acceptable
		Annual	17		Walking	25		Acceptable
	B	Spring	14	-18%	Standing	23		Acceptable
		Summer	11	-15%	Sitting	17	-11%	Acceptable
		Fall	13	-19%	Standing	21	-12%	Acceptable
		Winter	15	-21%	Standing	24	-14%	Acceptable
		Annual	14	-18%	Standing	22	-12%	Acceptable
27	A	Spring	15		Standing	23		Acceptable
		Summer	11		Sitting	17		Acceptable
		Fall	13		Standing	21		Acceptable
		Winter	14		Standing	22		Acceptable
		Annual	13		Standing	21		Acceptable
	B	Spring	16		Walking	25		Acceptable
		Summer	12		Sitting	18		Acceptable
		Fall	15	+15%	Standing	23		Acceptable
		Winter	16	+14%	Walking	25	+14%	Acceptable
		Annual	15	+15%	Standing	24	+14%	Acceptable

Notes: 1) Wind speeds are for a 1% probability of exceedance; and,
2) % Change is based on comparison with Configuration A and only those that are greater than 10% are listed.

Configurations	Mean Wind Speed Criteria		Effective Gust Criteria	
A – Phase 1	Comfortable for Sitting:	≤ 12 mph	Acceptable:	≤ 31 mph
B – Phase 2	Comfortable for Standing:	> 12 and ≤ 15 mph	Unacceptable:	> 31 mph
	Comfortable for Walking:	> 15 and ≤ 19 mph		
	Uncomfortable for Walking:	> 19 and ≤ 27 mph		
	Dangerous Conditions:	> 27 mph		

Table 1: Pedestrian Wind Comfort and Safety Categories - Multiple Seasons

BRA Criteria			Mean Wind Speed			Effective Gust Wind Speed		
Loc.	Config.	Season	Speed(mph)	%Change	RATING	Speed(mph)	%Change	RATING
28	A	Spring	12		Sitting	20		Acceptable
		Summer	10		Sitting	16		Acceptable
		Fall	12		Sitting	19		Acceptable
		Winter	14		Standing	23		Acceptable
		Annual	12		Sitting	20		Acceptable
	B	Spring	14	+17%	Standing	22		Acceptable
		Summer	11		Sitting	17		Acceptable
		Fall	14	+17%	Standing	21	+11%	Acceptable
		Winter	16	+14%	Walking	25		Acceptable
		Annual	14	+17%	Standing	22		Acceptable
29	A	Spring	11		Sitting	17		Acceptable
		Summer	9		Sitting	14		Acceptable
		Fall	10		Sitting	16		Acceptable
		Winter	12		Sitting	19		Acceptable
		Annual	11		Sitting	17		Acceptable
	B	Spring	12		Sitting	19	+12%	Acceptable
		Summer	9		Sitting	15		Acceptable
		Fall	11		Sitting	18	+12%	Acceptable
		Winter	13		Standing	21	+11%	Acceptable
		Annual	12		Sitting	19	+12%	Acceptable
30	A	Spring	11		Sitting	18		Acceptable
		Summer	9		Sitting	14		Acceptable
		Fall	11		Sitting	17		Acceptable
		Winter	11		Sitting	18		Acceptable
		Annual	11		Sitting	17		Acceptable
	B	Spring	12		Sitting	19		Acceptable
		Summer	10	+11%	Sitting	15		Acceptable
		Fall	11		Sitting	17		Acceptable
		Winter	12		Sitting	19		Acceptable
		Annual	12		Sitting	18		Acceptable
31	A	Spring	10		Sitting	15		Acceptable
		Summer	8		Sitting	13		Acceptable
		Fall	9		Sitting	14		Acceptable
		Winter	9		Sitting	15		Acceptable
		Annual	9		Sitting	14		Acceptable
	B	Spring	9		Sitting	15		Acceptable
		Summer	8		Sitting	13		Acceptable
		Fall	9		Sitting	14		Acceptable
		Winter	9		Sitting	15		Acceptable
		Annual	9		Sitting	14		Acceptable
32	A	Spring	11		Sitting	17		Acceptable
		Summer	9		Sitting	13		Acceptable
		Fall	10		Sitting	16		Acceptable
		Winter	12		Sitting	18		Acceptable
		Annual	11		Sitting	17		Acceptable

Notes: 1) Wind speeds are for a 1% probability of exceedance; and,
2) % Change is based on comparison with Configuration A and only those that are greater than 10% are listed.

Configurations	Mean Wind Speed Criteria		Effective Gust Criteria	
A – Phase 1	Comfortable for Sitting:	≤ 12 mph	Acceptable:	≤ 31 mph
B – Phase 2	Comfortable for Standing:	> 12 and ≤ 15 mph	Unacceptable:	> 31 mph
	Comfortable for Walking:	> 15 and ≤ 19 mph		
	Uncomfortable for Walking:	> 19 and ≤ 27 mph		
	Dangerous Conditions:	> 27 mph		

Table 1: Pedestrian Wind Comfort and Safety Categories - Multiple Seasons

BRA Criteria			Mean Wind Speed			Effective Gust Wind Speed		
Loc.	Config.	Season	Speed(mph)	%Change	RATING	Speed(mph)	%Change	RATING
	B	Spring	12		Sitting	18		Acceptable
		Summer	9		Sitting	14		Acceptable
		Fall	11		Sitting	17		Acceptable
		Winter	12		Sitting	20	+11%	Acceptable
		Annual	11		Sitting	18		Acceptable
33	A	Spring	14		Standing	22		Acceptable
		Summer	12		Sitting	18		Acceptable
		Fall	13		Standing	21		Acceptable
		Winter	14		Standing	22		Acceptable
		Annual	14		Standing	21		Acceptable
	B	Spring	13		Standing	19	-14%	Acceptable
		Summer	10	-17%	Sitting	15	-17%	Acceptable
		Fall	12		Sitting	19		Acceptable
		Winter	14		Standing	21		Acceptable
		Annual	13		Standing	19		Acceptable
34	A	Spring	16		Walking	23		Acceptable
		Summer	14		Standing	20		Acceptable
		Fall	15		Standing	22		Acceptable
		Winter	15		Standing	22		Acceptable
		Annual	15		Standing	22		Acceptable
	B	Spring	15		Standing	22		Acceptable
		Summer	12	-14%	Sitting	17	-15%	Acceptable
		Fall	14		Standing	21		Acceptable
		Winter	16		Walking	24		Acceptable
		Annual	15		Standing	22		Acceptable
35	A	Spring	13		Standing	20		Acceptable
		Summer	11		Sitting	16		Acceptable
		Fall	12		Sitting	19		Acceptable
		Winter	13		Standing	21		Acceptable
		Annual	12		Sitting	19		Acceptable
	B	Spring	17	+31%	Walking	24	+20%	Acceptable
		Summer	13	+18%	Standing	19	+19%	Acceptable
		Fall	16	+33%	Walking	23	+21%	Acceptable
		Winter	19	+46%	Walking	27	+29%	Acceptable
		Annual	17	+42%	Walking	24	+26%	Acceptable
36	A	Spring	13		Standing	19		Acceptable
		Summer	10		Sitting	16		Acceptable
		Fall	12		Sitting	18		Acceptable
		Winter	13		Standing	20		Acceptable
		Annual	12		Sitting	19		Acceptable
	B	Spring	13		Standing	19		Acceptable
		Summer	10		Sitting	15		Acceptable
		Fall	12		Sitting	19		Acceptable
		Winter	14		Standing	21		Acceptable
		Annual	12		Sitting	19		Acceptable

Notes: 1) Wind speeds are for a 1% probability of exceedance; and,
2) % Change is based on comparison with Configuration A and only those that are greater than 10% are listed.

Configurations	Mean Wind Speed Criteria		Effective Gust Criteria	
A – Phase 1	Comfortable for Sitting:	≤ 12 mph	Acceptable:	≤ 31 mph
B – Phase 2	Comfortable for Standing:	> 12 and ≤ 15 mph	Unacceptable:	> 31 mph
	Comfortable for Walking:	> 15 and ≤ 19 mph		
	Uncomfortable for Walking:	> 19 and ≤ 27 mph		
	Dangerous Conditions:	> 27 mph		

Table 1: Pedestrian Wind Comfort and Safety Categories - Multiple Seasons

BRA Criteria			Mean Wind Speed			Effective Gust Wind Speed		
Loc.	Config.	Season	Speed(mph)	%Change	RATING	Speed(mph)	%Change	RATING
37	A	Spring	13		Standing	19		Acceptable
		Summer	11		Sitting	15		Acceptable
		Fall	12		Sitting	17		Acceptable
		Winter	13		Standing	20		Acceptable
		Annual	12		Sitting	18		Acceptable
	B	Spring	14		Standing	22	+16%	Acceptable
		Summer	12		Sitting	17	+13%	Acceptable
		Fall	14	+17%	Standing	20	+18%	Acceptable
		Winter	16	+23%	Walking	24	+20%	Acceptable
		Annual	14	+17%	Standing	21	+17%	Acceptable
38	A	Spring	14		Standing	19		Acceptable
		Summer	12		Sitting	16		Acceptable
		Fall	12		Sitting	18		Acceptable
		Winter	14		Standing	21		Acceptable
		Annual	13		Standing	19		Acceptable
	B	Spring	16	+14%	Walking	23	+21%	Acceptable
		Summer	13		Standing	18	+12%	Acceptable
		Fall	15	+25%	Standing	21	+17%	Acceptable
		Winter	17	+21%	Walking	25	+19%	Acceptable
		Annual	16	+23%	Walking	22	+16%	Acceptable
39	A	Spring	13		Standing	18		Acceptable
		Summer	11		Sitting	15		Acceptable
		Fall	12		Sitting	17		Acceptable
		Winter	12		Sitting	18		Acceptable
		Annual	12		Sitting	17		Acceptable
	B	Spring	15	+15%	Standing	22	+22%	Acceptable
		Summer	12		Sitting	17	+13%	Acceptable
		Fall	14	+17%	Standing	20	+18%	Acceptable
		Winter	16	+33%	Walking	24	+33%	Acceptable
		Annual	15	+25%	Standing	21	+24%	Acceptable
40	A	Spring	14		Standing	19		Acceptable
		Summer	11		Sitting	16		Acceptable
		Fall	12		Sitting	18		Acceptable
		Winter	13		Standing	20		Acceptable
		Annual	13		Standing	18		Acceptable
	B	Spring	16	+14%	Walking	23	+21%	Acceptable
		Summer	12		Sitting	18	+12%	Acceptable
		Fall	15	+25%	Standing	22	+22%	Acceptable
		Winter	17	+31%	Walking	26	+30%	Acceptable
		Annual	15	+15%	Standing	23	+28%	Acceptable
41	A	Spring	13		Standing	20		Acceptable
		Summer	11		Sitting	16		Acceptable
		Fall	12		Sitting	18		Acceptable
		Winter	13		Standing	21		Acceptable
		Annual	13		Standing	19		Acceptable

Notes: 1) Wind speeds are for a 1% probability of exceedance; and,
2) % Change is based on comparison with Configuration A and only those that are greater than 10% are listed.

Configurations	Mean Wind Speed Criteria		Effective Gust Criteria	
A – Phase 1	Comfortable for Sitting:	≤ 12 mph	Acceptable:	≤ 31 mph
B – Phase 2	Comfortable for Standing:	> 12 and ≤ 15 mph	Unacceptable:	> 31 mph
	Comfortable for Walking:	> 15 and ≤ 19 mph		
	Uncomfortable for Walking:	> 19 and ≤ 27 mph		
	Dangerous Conditions:	> 27 mph		

Table 1: Pedestrian Wind Comfort and Safety Categories - Multiple Seasons

BRA Criteria			Mean Wind Speed			Effective Gust Wind Speed		
Loc.	Config.	Season	Speed(mph)	%Change	RATING	Speed(mph)	%Change	RATING
	B	Spring	16	+23%	Walking	25	+25%	Acceptable
		Summer	13	+18%	Standing	19	+19%	Acceptable
		Fall	15	+25%	Standing	24	+33%	Acceptable
		Winter	18	+38%	Walking	28	+33%	Acceptable
		Annual	16	+23%	Walking	25	+32%	Acceptable
42	A	Spring	14		Standing	20		Acceptable
		Summer	11		Sitting	16		Acceptable
		Fall	13		Standing	19		Acceptable
		Winter	14		Standing	21		Acceptable
		Annual	13		Standing	19		Acceptable
	B	Spring	17	+21%	Walking	27	+35%	Acceptable
		Summer	13	+18%	Standing	20	+25%	Acceptable
		Fall	16	+23%	Walking	24	+26%	Acceptable
		Winter	19	+36%	Walking	29	+38%	Acceptable
		Annual	17	+31%	Walking	26	+37%	Acceptable
43	A	Spring	16		Walking	25		Acceptable
		Summer	12		Sitting	18		Acceptable
		Fall	14		Standing	22		Acceptable
		Winter	16		Walking	24		Acceptable
		Annual	15		Standing	23		Acceptable
	B	Spring	19	+19%	Walking	28	+12%	Acceptable
		Summer	14	+17%	Standing	21	+17%	Acceptable
		Fall	18	+29%	Walking	26	+18%	Acceptable
		Winter	21	+31%	Uncomfortable	31	+29%	Acceptable
		Annual	19	+27%	Walking	28	+22%	Acceptable
44	A	Spring	16		Walking	24		Acceptable
		Summer	11		Sitting	18		Acceptable
		Fall	14		Standing	22		Acceptable
		Winter	16		Walking	25		Acceptable
		Annual	15		Standing	23		Acceptable
	B	Spring	15		Standing	24		Acceptable
		Summer	12		Sitting	18		Acceptable
		Fall	14		Standing	22		Acceptable
		Winter	16		Walking	25		Acceptable
		Annual	15		Standing	23		Acceptable
45	A	Spring	11		Sitting	18		Acceptable
		Summer	10		Sitting	15		Acceptable
		Fall	11		Sitting	17		Acceptable
		Winter	11		Sitting	18		Acceptable
		Annual	11		Sitting	17		Acceptable
	B	Spring	17	+55%	Walking	27	+50%	Acceptable
		Summer	13	+30%	Standing	20	+33%	Acceptable
		Fall	16	+45%	Walking	24	+41%	Acceptable
		Winter	19	+73%	Walking	29	+61%	Acceptable
		Annual	17	+55%	Walking	26	+53%	Acceptable

Notes: 1) Wind speeds are for a 1% probability of exceedance; and,
2) % Change is based on comparison with Configuration A and only those that are greater than 10% are listed.

Configurations	Mean Wind Speed Criteria		Effective Gust Criteria	
A – Phase 1	Comfortable for Sitting:	≤ 12 mph	Acceptable:	≤ 31 mph
B – Phase 2	Comfortable for Standing:	> 12 and ≤ 15 mph	Unacceptable:	> 31 mph
	Comfortable for Walking:	> 15 and ≤ 19 mph		
	Uncomfortable for Walking:	> 19 and ≤ 27 mph		
	Dangerous Conditions:	> 27 mph		

Table 1: Pedestrian Wind Comfort and Safety Categories - Multiple Seasons

BRA Criteria			Mean Wind Speed			Effective Gust Wind Speed		
Loc.	Config.	Season	Speed(mph)	%Change	RATING	Speed(mph)	%Change	RATING
46	A	Spring	16		Walking	25		Acceptable
		Summer	14		Standing	22		Acceptable
		Fall	15		Standing	24		Acceptable
		Winter	16		Walking	25		Acceptable
		Annual	15		Standing	24		Acceptable
	B	Spring	19	+19%	Walking	30	+20%	Acceptable
		Summer	15		Standing	23		Acceptable
		Fall	18	+20%	Walking	28	+17%	Acceptable
		Winter	21	+31%	Uncomfortable	32	+28%	Unacceptable
		Annual	19	+27%	Walking	29	+21%	Acceptable
47	A	Spring	13		Standing	21		Acceptable
		Summer	10		Sitting	16		Acceptable
		Fall	12		Sitting	19		Acceptable
		Winter	13		Standing	21		Acceptable
		Annual	13		Standing	20		Acceptable
	B	Spring	14		Standing	22		Acceptable
		Summer	11		Sitting	17		Acceptable
		Fall	13		Standing	20		Acceptable
		Winter	14		Standing	23		Acceptable
		Annual	13		Standing	21		Acceptable
48	A	Spring	15		Standing	21		Acceptable
		Summer	12		Sitting	19		Acceptable
		Fall	13		Standing	20		Acceptable
		Winter	14		Standing	22		Acceptable
		Annual	14		Standing	21		Acceptable
	B	Spring	14		Standing	22		Acceptable
		Summer	12		Sitting	18		Acceptable
		Fall	13		Standing	21		Acceptable
		Winter	14		Standing	23		Acceptable
		Annual	14		Standing	21		Acceptable
49	A	Spring	16		Walking	23		Acceptable
		Summer	13		Standing	20		Acceptable
		Fall	13		Standing	20		Acceptable
		Winter	12		Sitting	20		Acceptable
		Annual	14		Standing	21		Acceptable
	B	Spring	16		Walking	25		Acceptable
		Summer	13		Standing	20		Acceptable
		Fall	14		Standing	23	+15%	Acceptable
		Winter	16	+33%	Walking	26	+30%	Acceptable
		Annual	15		Standing	24	+14%	Acceptable
50	A	Spring	12		Sitting	20		Acceptable
		Summer	10		Sitting	17		Acceptable
		Fall	12		Sitting	19		Acceptable
		Winter	13		Standing	21		Acceptable
		Annual	12		Sitting	20		Acceptable

Notes: 1) Wind speeds are for a 1% probability of exceedance; and,
2) % Change is based on comparison with Configuration A and only those that are greater than 10% are listed.

Configurations	Mean Wind Speed Criteria		Effective Gust Criteria	
A – Phase 1	Comfortable for Sitting:	≤ 12 mph	Acceptable:	≤ 31 mph
B – Phase 2	Comfortable for Standing:	> 12 and ≤ 15 mph	Unacceptable:	> 31 mph
	Comfortable for Walking:	> 15 and ≤ 19 mph		
	Uncomfortable for Walking:	> 19 and ≤ 27 mph		
	Dangerous Conditions:	> 27 mph		

Table 1: Pedestrian Wind Comfort and Safety Categories - Multiple Seasons

BRA Criteria			Mean Wind Speed			Effective Gust Wind Speed		
Loc.	Config.	Season	Speed(mph)	%Change	RATING	Speed(mph)	%Change	RATING
	B	Spring	13		Standing	22		Acceptable
		Summer	11		Sitting	17		Acceptable
		Fall	13		Standing	21	+11%	Acceptable
		Winter	15	+15%	Standing	24	+14%	Acceptable
		Annual	13		Standing	21		Acceptable
51	A	Spring	22		Uncomfortable	30		Acceptable
		Summer	17		Walking	23		Acceptable
		Fall	19		Walking	28		Acceptable
		Winter	21		Uncomfortable	30		Acceptable
		Annual	20		Uncomfortable	28		Acceptable
	B	Spring	21		Uncomfortable	30		Acceptable
		Summer	17		Walking	23		Acceptable
		Fall	19		Walking	27		Acceptable
		Winter	21		Uncomfortable	29		Acceptable
		Annual	20		Uncomfortable	27		Acceptable
52	A	Spring	9		Sitting	15		Acceptable
		Summer	7		Sitting	12		Acceptable
		Fall	8		Sitting	14		Acceptable
		Winter	9		Sitting	15		Acceptable
		Annual	9		Sitting	14		Acceptable
	B	Spring	9		Sitting	14		Acceptable
		Summer	7		Sitting	11		Acceptable
		Fall	8		Sitting	13		Acceptable
		Winter	9		Sitting	15		Acceptable
		Annual	8	-11%	Sitting	13		Acceptable
53	A	Spring	13		Standing	21		Acceptable
		Summer	11		Sitting	17		Acceptable
		Fall	13		Standing	20		Acceptable
		Winter	14		Standing	22		Acceptable
		Annual	13		Standing	20		Acceptable
	B	Spring	14		Standing	23		Acceptable
		Summer	11		Sitting	18		Acceptable
		Fall	13		Standing	22		Acceptable
		Winter	15		Standing	24		Acceptable
		Annual	14		Standing	22		Acceptable
54	A	Spring	16		Walking	25		Acceptable
		Summer	14		Standing	20		Acceptable
		Fall	15		Standing	23		Acceptable
		Winter	16		Walking	24		Acceptable
		Annual	15		Standing	23		Acceptable
	B	Spring	18	+12%	Walking	27		Acceptable
		Summer	15		Standing	21		Acceptable
		Fall	17	+13%	Walking	24		Acceptable
		Winter	18	+12%	Walking	26		Acceptable
		Annual	17	+13%	Walking	25		Acceptable

Notes: 1) Wind speeds are for a 1% probability of exceedance; and,
2) % Change is based on comparison with Configuration A and only those that are greater than 10% are listed.

Configurations	Mean Wind Speed Criteria		Effective Gust Criteria	
A – Phase 1	Comfortable for Sitting:	≤ 12 mph	Acceptable:	≤ 31 mph
B – Phase 2	Comfortable for Standing:	> 12 and ≤ 15 mph	Unacceptable:	> 31 mph
	Comfortable for Walking:	> 15 and ≤ 19 mph		
	Uncomfortable for Walking:	> 19 and ≤ 27 mph		
	Dangerous Conditions:	> 27 mph		

Table 1: Pedestrian Wind Comfort and Safety Categories - Multiple Seasons

BRA Criteria			Mean Wind Speed			Effective Gust Wind Speed		
Loc.	Config.	Season	Speed(mph)	%Change	RATING	Speed(mph)	%Change	RATING
55	A	Spring	12		Sitting	19		Acceptable
		Summer	10		Sitting	15		Acceptable
		Fall	10		Sitting	16		Acceptable
		Winter	11		Sitting	17		Acceptable
		Annual	11		Sitting	17		Acceptable
	B	Spring	13		Standing	20		Acceptable
		Summer	10		Sitting	16		Acceptable
		Fall	11		Sitting	19	+19%	Acceptable
		Winter	13	+18%	Standing	22	+29%	Acceptable
		Annual	12		Sitting	20	+18%	Acceptable
56	A	Spring	17		Walking	25		Acceptable
		Summer	13		Standing	20		Acceptable
		Fall	16		Walking	24		Acceptable
		Winter	18		Walking	28		Acceptable
		Annual	16		Walking	25		Acceptable
	B	Spring	16		Walking	23		Acceptable
		Summer	12		Sitting	18		Acceptable
		Fall	15		Standing	22		Acceptable
		Winter	16	-11%	Walking	24	-14%	Acceptable
		Annual	15		Standing	22	-12%	Acceptable
57	A	Spring	22		Uncomfortable	31		Acceptable
		Summer	17		Walking	24		Acceptable
		Fall	21		Uncomfortable	30		Acceptable
		Winter	25		Uncomfortable	34		Unacceptable
		Annual	22		Uncomfortable	31		Acceptable
	B	Spring	21		Uncomfortable	29		Acceptable
		Summer	16		Walking	23		Acceptable
		Fall	20		Uncomfortable	28		Acceptable
		Winter	23		Uncomfortable	32		Unacceptable
		Annual	21		Uncomfortable	29		Acceptable
58	A	Spring	15		Standing	23		Acceptable
		Summer	13		Standing	20		Acceptable
		Fall	14		Standing	22		Acceptable
		Winter	15		Standing	22		Acceptable
		Annual	15		Standing	22		Acceptable
	B	Spring	16		Walking	23		Acceptable
		Summer	14		Standing	20		Acceptable
		Fall	15		Standing	22		Acceptable
		Winter	15		Standing	22		Acceptable
		Annual	15		Standing	22		Acceptable
59	A	Spring	19		Walking	30		Acceptable
		Summer	14		Standing	22		Acceptable
		Fall	17		Walking	27		Acceptable
		Winter	19		Walking	30		Acceptable
		Annual	18		Walking	28		Acceptable

Notes: 1) Wind speeds are for a 1% probability of exceedance; and,
2) % Change is based on comparison with Configuration A and only those that are greater than 10% are listed.

Configurations	Mean Wind Speed Criteria		Effective Gust Criteria	
A – Phase 1	Comfortable for Sitting:	≤ 12 mph	Acceptable:	≤ 31 mph
B – Phase 2	Comfortable for Standing:	> 12 and ≤ 15 mph	Unacceptable:	> 31 mph
	Comfortable for Walking:	> 15 and ≤ 19 mph		
	Uncomfortable for Walking:	> 19 and ≤ 27 mph		
	Dangerous Conditions:	> 27 mph		

Table 1: Pedestrian Wind Comfort and Safety Categories - Multiple Seasons

BRA Criteria			Mean Wind Speed			Effective Gust Wind Speed		
Loc.	Config.	Season	Speed(mph)	%Change	RATING	Speed(mph)	%Change	RATING
	B	Spring	18		Walking	30		Acceptable
		Summer	13		Standing	21		Acceptable
		Fall	16		Walking	27		Acceptable
		Winter	19		Walking	30		Acceptable
		Annual	17		Walking	28		Acceptable
60	A	Spring	22		Uncomfortable	31		Acceptable
		Summer	17		Walking	24		Acceptable
		Fall	21		Uncomfortable	29		Acceptable
		Winter	24		Uncomfortable	34		Unacceptable
		Annual	22		Uncomfortable	31		Acceptable
	B	Spring	21		Uncomfortable	30		Acceptable
		Summer	16		Walking	23		Acceptable
		Fall	20		Uncomfortable	28		Acceptable
		Winter	23		Uncomfortable	33		Unacceptable
		Annual	21		Uncomfortable	30		Acceptable
61	A	Spring	19		Walking	27		Acceptable
		Summer	15		Standing	21		Acceptable
		Fall	16		Walking	24		Acceptable
		Winter	18		Walking	26		Acceptable
		Annual	17		Walking	25		Acceptable
	B	Spring	19		Walking	27		Acceptable
		Summer	15		Standing	21		Acceptable
		Fall	17		Walking	24		Acceptable
		Winter	18		Walking	26		Acceptable
		Annual	18		Walking	25		Acceptable
62	A	Spring	26		Uncomfortable	35		Unacceptable
		Summer	21		Uncomfortable	28		Acceptable
		Fall	25		Uncomfortable	33		Unacceptable
		Winter	29		Dangerous	39		Unacceptable
		Annual	26		Uncomfortable	35		Unacceptable
	B	Spring	26		Uncomfortable	36		Unacceptable
		Summer	20		Uncomfortable	28		Acceptable
		Fall	25		Uncomfortable	33		Unacceptable
		Winter	29		Dangerous	38		Unacceptable
		Annual	26		Uncomfortable	35		Unacceptable
63	A	Spring	17		Walking	25		Acceptable
		Summer	13		Standing	20		Acceptable
		Fall	16		Walking	24		Acceptable
		Winter	16		Walking	25		Acceptable
		Annual	16		Walking	24		Acceptable
	B	Spring	17		Walking	25		Acceptable
		Summer	12		Sitting	19		Acceptable
		Fall	15		Standing	23		Acceptable
		Winter	16		Walking	25		Acceptable
		Annual	16		Walking	24		Acceptable

Notes: 1) Wind speeds are for a 1% probability of exceedance; and,
2) % Change is based on comparison with Configuration A and only those that are greater than 10% are listed.

Configurations	Mean Wind Speed Criteria		Effective Gust Criteria	
A – Phase 1	Comfortable for Sitting:	≤ 12 mph	Acceptable:	≤ 31 mph
B – Phase 2	Comfortable for Standing:	> 12 and ≤ 15 mph	Unacceptable:	> 31 mph
	Comfortable for Walking:	> 15 and ≤ 19 mph		
	Uncomfortable for Walking:	> 19 and ≤ 27 mph		
	Dangerous Conditions:	> 27 mph		

Table 1: Pedestrian Wind Comfort and Safety Categories - Multiple Seasons

BRA Criteria			Mean Wind Speed			Effective Gust Wind Speed		
Loc.	Config.	Season	Speed(mph)	%Change	RATING	Speed(mph)	%Change	RATING
64	A	Spring	18		Walking	28		Acceptable
		Summer	14		Standing	22		Acceptable
		Fall	17		Walking	27		Acceptable
		Winter	20		Uncomfortable	31		Acceptable
		Annual	18		Walking	28		Acceptable
	B	Spring	18		Walking	28		Acceptable
		Summer	14		Standing	22		Acceptable
		Fall	17		Walking	27		Acceptable
		Winter	19		Walking	31		Acceptable
		Annual	18		Walking	28		Acceptable
65	A	Spring	18		Walking	25		Acceptable
		Summer	14		Standing	19		Acceptable
		Fall	17		Walking	24		Acceptable
		Winter	20		Uncomfortable	27		Acceptable
		Annual	18		Walking	25		Acceptable
	B	Spring	17		Walking	24		Acceptable
		Summer	13		Standing	19		Acceptable
		Fall	16		Walking	23		Acceptable
		Winter	19		Walking	26		Acceptable
		Annual	17		Walking	24		Acceptable
66	A	Spring	19		Walking	25		Acceptable
		Summer	13		Standing	17		Acceptable
		Fall	16		Walking	22		Acceptable
		Winter	17		Walking	23		Acceptable
		Annual	16		Walking	22		Acceptable
	B	Spring	22	+16%	Uncomfortable	29	+16%	Acceptable
		Summer	15	+15%	Standing	20	+18%	Acceptable
		Fall	19	+19%	Walking	25	+14%	Acceptable
		Winter	20	+18%	Uncomfortable	26	+13%	Acceptable
		Annual	19	+19%	Walking	26	+18%	Acceptable
67	A	Spring	17		Walking	24		Acceptable
		Summer	13		Standing	19		Acceptable
		Fall	16		Walking	23		Acceptable
		Winter	18		Walking	26		Acceptable
		Annual	17		Walking	23		Acceptable
	B	Spring	18		Walking	25		Acceptable
		Summer	13		Standing	19		Acceptable
		Fall	16		Walking	23		Acceptable
		Winter	18		Walking	26		Acceptable
		Annual	17		Walking	24		Acceptable
68	A	Spring	21		Uncomfortable	30		Acceptable
		Summer	16		Walking	23		Acceptable
		Fall	20		Uncomfortable	28		Acceptable
		Winter	23		Uncomfortable	33		Unacceptable
		Annual	21		Uncomfortable	30		Acceptable

Notes: 1) Wind speeds are for a 1% probability of exceedance; and,
2) % Change is based on comparison with Configuration A and only those that are greater than 10% are listed.

Configurations	Mean Wind Speed Criteria		Effective Gust Criteria	
A – Phase 1	Comfortable for Sitting:	≤ 12 mph	Acceptable:	≤ 31 mph
B – Phase 2	Comfortable for Standing:	> 12 and ≤ 15 mph	Unacceptable:	> 31 mph
	Comfortable for Walking:	> 15 and ≤ 19 mph		
	Uncomfortable for Walking:	> 19 and ≤ 27 mph		
	Dangerous Conditions:	> 27 mph		

Table 1: Pedestrian Wind Comfort and Safety Categories - Multiple Seasons

BRA Criteria			Mean Wind Speed			Effective Gust Wind Speed		
Loc.	Config.	Season	Speed(mph)	%Change	RATING	Speed(mph)	%Change	RATING
	B	Spring	23		Uncomfortable	32		Unacceptable
		Summer	17		Walking	24		Acceptable
		Fall	21		Uncomfortable	30		Acceptable
		Winter	25		Uncomfortable	34		Unacceptable
		Annual	22		Uncomfortable	31		Acceptable
69	A	Spring	18		Walking	24		Acceptable
		Summer	14		Standing	19		Acceptable
		Fall	17		Walking	23		Acceptable
		Winter	19		Walking	27		Acceptable
		Annual	18		Walking	24		Acceptable
	B	Spring	18		Walking	25		Acceptable
		Summer	14		Standing	19		Acceptable
		Fall	17		Walking	23		Acceptable
		Winter	20		Uncomfortable	27		Acceptable
		Annual	18		Walking	24		Acceptable
70	A	Spring	13		Standing	19		Acceptable
		Summer	10		Sitting	16		Acceptable
		Fall	12		Sitting	18		Acceptable
		Winter	14		Standing	21		Acceptable
		Annual	13		Standing	19		Acceptable
	B	Spring	17	+31%	Walking	25	+32%	Acceptable
		Summer	13	+30%	Standing	19	+19%	Acceptable
		Fall	16	+33%	Walking	23	+28%	Acceptable
		Winter	19	+36%	Walking	28	+33%	Acceptable
		Annual	17	+31%	Walking	25	+32%	Acceptable
71	A	Spring	16		Walking	23		Acceptable
		Summer	11		Sitting	16		Acceptable
		Fall	14		Standing	20		Acceptable
		Winter	14		Standing	21		Acceptable
		Annual	14		Standing	20		Acceptable
	B	Spring	21	+31%	Uncomfortable	30	+30%	Acceptable
		Summer	14	+27%	Standing	21	+31%	Acceptable
		Fall	18	+29%	Walking	26	+30%	Acceptable
		Winter	18	+29%	Walking	27	+29%	Acceptable
		Annual	18	+29%	Walking	26	+30%	Acceptable
72	A	Spring	10		Sitting	16		Acceptable
		Summer	9		Sitting	14		Acceptable
		Fall	10		Sitting	16		Acceptable
		Winter	11		Sitting	17		Acceptable
		Annual	10		Sitting	16		Acceptable
	B	Spring	13	+30%	Standing	20	+25%	Acceptable
		Summer	12	+33%	Sitting	19	+36%	Acceptable
		Fall	13	+30%	Standing	20	+25%	Acceptable
		Winter	14	+27%	Standing	22	+29%	Acceptable
		Annual	13	+30%	Standing	20	+25%	Acceptable

Notes: 1) Wind speeds are for a 1% probability of exceedance; and,
2) % Change is based on comparison with Configuration A and only those that are greater than 10% are listed.

Configurations	Mean Wind Speed Criteria		Effective Gust Criteria	
A – Phase 1	Comfortable for Sitting:	≤ 12 mph	Acceptable:	≤ 31 mph
B – Phase 2	Comfortable for Standing:	> 12 and ≤ 15 mph	Unacceptable:	> 31 mph
	Comfortable for Walking:	> 15 and ≤ 19 mph		
	Uncomfortable for Walking:	> 19 and ≤ 27 mph		
	Dangerous Conditions:	> 27 mph		

Table 1: Pedestrian Wind Comfort and Safety Categories - Multiple Seasons

BRA Criteria			Mean Wind Speed			Effective Gust Wind Speed		
Loc.	Config.	Season	Speed(mph)	%Change	RATING	Speed(mph)	%Change	RATING
73	A	Spring	13		Standing	20		Acceptable
		Summer	10		Sitting	16		Acceptable
		Fall	12		Sitting	19		Acceptable
		Winter	13		Standing	21		Acceptable
		Annual	12		Sitting	20		Acceptable
	B	Spring	19	+46%	Walking	28	+40%	Acceptable
		Summer	14	+40%	Standing	21	+31%	Acceptable
		Fall	17	+42%	Walking	26	+37%	Acceptable
		Winter	20	+54%	Uncomfortable	30	+43%	Acceptable
		Annual	18	+50%	Walking	27	+35%	Acceptable
74	A	Spring	15		Standing	21		Acceptable
		Summer	11		Sitting	15		Acceptable
		Fall	13		Standing	19		Acceptable
		Winter	14		Standing	21		Acceptable
		Annual	13		Standing	19		Acceptable
	B	Spring	22	+47%	Uncomfortable	32	+52%	Unacceptable
		Summer	16	+45%	Walking	23	+53%	Acceptable
		Fall	19	+46%	Walking	28	+47%	Acceptable
		Winter	21	+50%	Uncomfortable	31	+48%	Acceptable
		Annual	20	+54%	Uncomfortable	29	+53%	Acceptable
75	A	Spring	12		Sitting	19		Acceptable
		Summer	8		Sitting	14		Acceptable
		Fall	11		Sitting	17		Acceptable
		Winter	11		Sitting	19		Acceptable
		Annual	11		Sitting	17		Acceptable
	B	Spring	14	+17%	Standing	21	+11%	Acceptable
		Summer	9	+12%	Sitting	15		Acceptable
		Fall	12		Sitting	19	+12%	Acceptable
		Winter	12		Sitting	19		Acceptable
		Annual	12		Sitting	19	+12%	Acceptable
76	A	Spring	13		Standing	21		Acceptable
		Summer	11		Sitting	17		Acceptable
		Fall	13		Standing	20		Acceptable
		Winter	14		Standing	22		Acceptable
		Annual	13		Standing	21		Acceptable
	B	Spring	12		Sitting	20		Acceptable
		Summer	9	-18%	Sitting	15	-12%	Acceptable
		Fall	11	-15%	Sitting	18		Acceptable
		Winter	12	-14%	Sitting	19	-14%	Acceptable
		Annual	11	-15%	Sitting	18	-14%	Acceptable
77	A	Spring	11		Sitting	17		Acceptable
		Summer	10		Sitting	15		Acceptable
		Fall	10		Sitting	16		Acceptable
		Winter	11		Sitting	18		Acceptable
		Annual	11		Sitting	17		Acceptable

Notes: 1) Wind speeds are for a 1% probability of exceedance; and,
2) % Change is based on comparison with Configuration A and only those that are greater than 10% are listed.

Configurations	Mean Wind Speed Criteria		Effective Gust Criteria	
A – Phase 1	Comfortable for Sitting:	≤ 12 mph	Acceptable:	≤ 31 mph
B – Phase 2	Comfortable for Standing:	> 12 and ≤ 15 mph	Unacceptable:	> 31 mph
	Comfortable for Walking:	> 15 and ≤ 19 mph		
	Uncomfortable for Walking:	> 19 and ≤ 27 mph		
	Dangerous Conditions:	> 27 mph		

Table 1: Pedestrian Wind Comfort and Safety Categories - Multiple Seasons

BRA Criteria			Mean Wind Speed			Effective Gust Wind Speed		
Loc.	Config.	Season	Speed(mph)	%Change	RATING	Speed(mph)	%Change	RATING
	B	Spring	10		Sitting	16		Acceptable
		Summer	9		Sitting	14		Acceptable
		Fall	10		Sitting	16		Acceptable
		Winter	11		Sitting	17		Acceptable
		Annual	10		Sitting	16		Acceptable
78	A	Spring	16		Walking	24		Acceptable
		Summer	13		Standing	19		Acceptable
		Fall	15		Standing	22		Acceptable
		Winter	16		Walking	24		Acceptable
		Annual	15		Standing	23		Acceptable
	B	Spring	18	+12%	Walking	25		Acceptable
		Summer	14		Standing	19		Acceptable
		Fall	17	+13%	Walking	24		Acceptable
		Winter	19	+19%	Walking	27	+12%	Acceptable
		Annual	18	+20%	Walking	25		Acceptable
79	A	Spring	16		Walking	23		Acceptable
		Summer	13		Standing	19		Acceptable
		Fall	14		Standing	21		Acceptable
		Winter	15		Standing	23		Acceptable
		Annual	15		Standing	22		Acceptable
	B	Spring	20	+25%	Uncomfortable	29	+26%	Acceptable
		Summer	15	+15%	Standing	22	+16%	Acceptable
		Fall	18	+29%	Walking	26	+24%	Acceptable
		Winter	22	+47%	Uncomfortable	31	+35%	Acceptable
		Annual	20	+33%	Uncomfortable	28	+27%	Acceptable
80	A	Spring	12		Sitting	20		Acceptable
		Summer	10		Sitting	15		Acceptable
		Fall	11		Sitting	18		Acceptable
		Winter	12		Sitting	20		Acceptable
		Annual	12		Sitting	19		Acceptable
	B	Spring	13		Standing	21		Acceptable
		Summer	10		Sitting	16		Acceptable
		Fall	11		Sitting	18		Acceptable
		Winter	13		Standing	20		Acceptable
		Annual	12		Sitting	19		Acceptable
81	A	Spring	14		Standing	21		Acceptable
		Summer	11		Sitting	16		Acceptable
		Fall	13		Standing	19		Acceptable
		Winter	15		Standing	22		Acceptable
		Annual	14		Standing	20		Acceptable
	B	Spring	14		Standing	20		Acceptable
		Summer	10		Sitting	14	-12%	Acceptable
		Fall	12		Sitting	17	-11%	Acceptable
		Winter	13	-13%	Standing	19	-14%	Acceptable
		Annual	12	-14%	Sitting	18		Acceptable

Notes: 1) Wind speeds are for a 1% probability of exceedance; and,
2) % Change is based on comparison with Configuration A and only those that are greater than 10% are listed.

Configurations	Mean Wind Speed Criteria		Effective Gust Criteria	
A – Phase 1	Comfortable for Sitting:	≤ 12 mph	Acceptable:	≤ 31 mph
B – Phase 2	Comfortable for Standing:	> 12 and ≤ 15 mph	Unacceptable:	> 31 mph
	Comfortable for Walking:	> 15 and ≤ 19 mph		
	Uncomfortable for Walking:	> 19 and ≤ 27 mph		
	Dangerous Conditions:	> 27 mph		

Table 1: Pedestrian Wind Comfort and Safety Categories - Multiple Seasons

BRA Criteria			Mean Wind Speed			Effective Gust Wind Speed		
Loc.	Config.	Season	Speed(mph)	%Change	RATING	Speed(mph)	%Change	RATING
82	A	Spring	13		Standing	20		Acceptable
		Summer	9		Sitting	14		Acceptable
		Fall	11		Sitting	18		Acceptable
		Winter	12		Sitting	19		Acceptable
		Annual	11		Sitting	18		Acceptable
	B	Spring	12		Sitting	19		Acceptable
		Summer	9		Sitting	14		Acceptable
		Fall	11		Sitting	17		Acceptable
		Winter	12		Sitting	18		Acceptable
		Annual	11		Sitting	17		Acceptable
83	A	Spring	16		Walking	23		Acceptable
		Summer	13		Standing	18		Acceptable
		Fall	14		Standing	20		Acceptable
		Winter	15		Standing	22		Acceptable
		Annual	15		Standing	21		Acceptable
	B	Spring	16		Walking	23		Acceptable
		Summer	12		Sitting	18		Acceptable
		Fall	15		Standing	21		Acceptable
		Winter	16		Walking	24		Acceptable
		Annual	15		Standing	22		Acceptable
84	A	Spring	15		Standing	23		Acceptable
		Summer	13		Standing	19		Acceptable
		Fall	14		Standing	22		Acceptable
		Winter	15		Standing	24		Acceptable
		Annual	14		Standing	22		Acceptable
	B	Spring	20	+33%	Uncomfortable	29	+26%	Acceptable
		Summer	15	+15%	Standing	22	+16%	Acceptable
		Fall	19	+36%	Walking	27	+23%	Acceptable
		Winter	22	+47%	Uncomfortable	31	+29%	Acceptable
		Annual	20	+43%	Uncomfortable	28	+27%	Acceptable
85	A	Spring	16		Walking	23		Acceptable
		Summer	13		Standing	18		Acceptable
		Fall	15		Standing	21		Acceptable
		Winter	17		Walking	24		Acceptable
		Annual	15		Standing	22		Acceptable
	B	Spring	23	+44%	Uncomfortable	32	+39%	Unacceptable
		Summer	17	+31%	Walking	24	+33%	Acceptable
		Fall	21	+40%	Uncomfortable	29	+38%	Acceptable
		Winter	25	+47%	Uncomfortable	35	+46%	Unacceptable
		Annual	23	+53%	Uncomfortable	31	+41%	Acceptable
86	A	Spring	15		Standing	21		Acceptable
		Summer	12		Sitting	18		Acceptable
		Fall	12		Sitting	18		Acceptable
		Winter	13		Standing	19		Acceptable
		Annual	13		Standing	19		Acceptable

Notes: 1) Wind speeds are for a 1% probability of exceedance; and,
2) % Change is based on comparison with Configuration A and only those that are greater than 10% are listed.

Configurations	Mean Wind Speed Criteria		Effective Gust Criteria	
A – Phase 1	Comfortable for Sitting:	≤ 12 mph	Acceptable:	≤ 31 mph
B – Phase 2	Comfortable for Standing:	> 12 and ≤ 15 mph	Unacceptable:	> 31 mph
	Comfortable for Walking:	> 15 and ≤ 19 mph		
	Uncomfortable for Walking:	> 19 and ≤ 27 mph		
	Dangerous Conditions:	> 27 mph		

Table 1: Pedestrian Wind Comfort and Safety Categories - Multiple Seasons

BRA Criteria			Mean Wind Speed			Effective Gust Wind Speed		
Loc.	Config.	Season	Speed(mph)	%Change	RATING	Speed(mph)	%Change	RATING
	B	Spring	12	-20%	Sitting	18	-14%	Acceptable
		Summer	9	-25%	Sitting	14	-22%	Acceptable
		Fall	10	-17%	Sitting	16	-11%	Acceptable
		Winter	12		Sitting	18		Acceptable
		Annual	11	-15%	Sitting	17	-11%	Acceptable
87	A	Spring	12		Sitting	19		Acceptable
		Summer	10		Sitting	15		Acceptable
		Fall	11		Sitting	18		Acceptable
		Winter	12		Sitting	20		Acceptable
		Annual	12		Sitting	19		Acceptable
	B	Spring	12		Sitting	19		Acceptable
		Summer	10		Sitting	14		Acceptable
		Fall	11		Sitting	17		Acceptable
		Winter	13		Standing	20		Acceptable
		Annual	12		Sitting	18		Acceptable
88	A	Spring	12		Sitting	20		Acceptable
		Summer	9		Sitting	15		Acceptable
		Fall	12		Sitting	19		Acceptable
		Winter	13		Standing	22		Acceptable
		Annual	12		Sitting	20		Acceptable
	B	Spring	13		Standing	20		Acceptable
		Summer	10	+11%	Sitting	15		Acceptable
		Fall	12		Sitting	19		Acceptable
		Winter	14		Standing	22		Acceptable
		Annual	12		Sitting	20		Acceptable
89	A	Spring	12		Sitting	18		Acceptable
		Summer	9		Sitting	13		Acceptable
		Fall	11		Sitting	16		Acceptable
		Winter	12		Sitting	18		Acceptable
		Annual	12		Sitting	17		Acceptable
	B	Spring	12		Sitting	17		Acceptable
		Summer	9		Sitting	13		Acceptable
		Fall	11		Sitting	16		Acceptable
		Winter	12		Sitting	18		Acceptable
		Annual	11		Sitting	17		Acceptable
90	A	Spring	14		Standing	21		Acceptable
		Summer	11		Sitting	16		Acceptable
		Fall	13		Standing	20		Acceptable
		Winter	16		Walking	23		Acceptable
		Annual	14		Standing	21		Acceptable
	B	Spring	15		Standing	22		Acceptable
		Summer	11		Sitting	17		Acceptable
		Fall	14		Standing	20		Acceptable
		Winter	16		Walking	24		Acceptable
		Annual	15		Standing	21		Acceptable

Notes: 1) Wind speeds are for a 1% probability of exceedance; and,
2) % Change is based on comparison with Configuration A and only those that are greater than 10% are listed.

Configurations	Mean Wind Speed Criteria		Effective Gust Criteria	
A – Phase 1	Comfortable for Sitting:	≤ 12 mph	Acceptable:	≤ 31 mph
B – Phase 2	Comfortable for Standing:	> 12 and ≤ 15 mph	Unacceptable:	> 31 mph
	Comfortable for Walking:	> 15 and ≤ 19 mph		
	Uncomfortable for Walking:	> 19 and ≤ 27 mph		
	Dangerous Conditions:	> 27 mph		

Table 1: Pedestrian Wind Comfort and Safety Categories - Multiple Seasons

BRA Criteria			Mean Wind Speed			Effective Gust Wind Speed		
Loc.	Config.	Season	Speed(mph)	%Change	RATING	Speed(mph)	%Change	RATING
91	A	Spring	12		Sitting	18		Acceptable
		Summer	9		Sitting	14		Acceptable
		Fall	11		Sitting	17		Acceptable
		Winter	13		Standing	19		Acceptable
		Annual	11		Sitting	18		Acceptable
	B	Spring	13		Standing	19		Acceptable
		Summer	9		Sitting	14		Acceptable
		Fall	12		Sitting	18		Acceptable
		Winter	14		Standing	20		Acceptable
		Annual	12		Sitting	18		Acceptable
92	A	Spring	19		Walking	27		Acceptable
		Summer	16		Walking	22		Acceptable
		Fall	17		Walking	24		Acceptable
		Winter	18		Walking	26		Acceptable
		Annual	18		Walking	25		Acceptable
	B	Spring	17	-11%	Walking	25		Acceptable
		Summer	14	-12%	Standing	20		Acceptable
		Fall	15	-12%	Standing	23		Acceptable
		Winter	17		Walking	25		Acceptable
		Annual	16	-11%	Walking	24		Acceptable
93	A	Spring	14		Standing	20		Acceptable
		Summer	11		Sitting	16		Acceptable
		Fall	12		Sitting	19		Acceptable
		Winter	13		Standing	20		Acceptable
		Annual	13		Standing	19		Acceptable
	B	Spring	15		Standing	21		Acceptable
		Summer	12		Sitting	17		Acceptable
		Fall	15	+25%	Standing	20		Acceptable
		Winter	16	+23%	Walking	23	+15%	Acceptable
		Annual	15	+15%	Standing	21	+11%	Acceptable
94	A	Spring	22		Uncomfortable	28		Acceptable
		Summer	18		Walking	22		Acceptable
		Fall	19		Walking	26		Acceptable
		Winter	21		Uncomfortable	29		Acceptable
		Annual	20		Uncomfortable	27		Acceptable
	B	Spring	21		Uncomfortable	27		Acceptable
		Summer	17		Walking	22		Acceptable
		Fall	19		Walking	26		Acceptable
		Winter	20		Uncomfortable	28		Acceptable
		Annual	19		Walking	26		Acceptable
95	A	Spring	12		Sitting	19		Acceptable
		Summer	10		Sitting	15		Acceptable
		Fall	12		Sitting	18		Acceptable
		Winter	14		Standing	21		Acceptable
		Annual	12		Sitting	19		Acceptable

Notes: 1) Wind speeds are for a 1% probability of exceedance; and,
2) % Change is based on comparison with Configuration A and only those that are greater than 10% are listed.

Configurations	Mean Wind Speed Criteria		Effective Gust Criteria	
A – Phase 1	Comfortable for Sitting:	≤ 12 mph	Acceptable:	≤ 31 mph
B – Phase 2	Comfortable for Standing:	> 12 and ≤ 15 mph	Unacceptable:	> 31 mph
	Comfortable for Walking:	> 15 and ≤ 19 mph		
	Uncomfortable for Walking:	> 19 and ≤ 27 mph		
	Dangerous Conditions:	> 27 mph		

Table 1: Pedestrian Wind Comfort and Safety Categories - Multiple Seasons

BRA Criteria			Mean Wind Speed			Effective Gust Wind Speed		
Loc.	Config.	Season	Speed(mph)	%Change	RATING	Speed(mph)	%Change	RATING
	B	Spring	12		Sitting	20		Acceptable
		Summer	10		Sitting	15		Acceptable
		Fall	12		Sitting	19		Acceptable
		Winter	14		Standing	22		Acceptable
		Annual	12		Sitting	20		Acceptable
96	A	Spring	15		Standing	23		Acceptable
		Summer	12		Sitting	19		Acceptable
		Fall	15		Standing	23		Acceptable
		Winter	17		Walking	26		Acceptable
		Annual	15		Standing	23		Acceptable
	B	Spring	16		Walking	24		Acceptable
		Summer	13		Standing	19		Acceptable
		Fall	15		Standing	23		Acceptable
		Winter	18		Walking	27		Acceptable
		Annual	16		Walking	24		Acceptable
97	A	Spring	17		Walking	23		Acceptable
		Summer	13		Standing	18		Acceptable
		Fall	16		Walking	22		Acceptable
		Winter	18		Walking	25		Acceptable
		Annual	16		Walking	23		Acceptable
	B	Spring	17		Walking	24		Acceptable
		Summer	14		Standing	19		Acceptable
		Fall	16		Walking	23		Acceptable
		Winter	19		Walking	26		Acceptable
		Annual	17		Walking	24		Acceptable
98	A	Spring	20		Uncomfortable	26		Acceptable
		Summer	14		Standing	19		Acceptable
		Fall	18		Walking	24		Acceptable
		Winter	20		Uncomfortable	26		Acceptable
		Annual	18		Walking	24		Acceptable
	B	Spring	21		Uncomfortable	27		Acceptable
		Summer	15		Standing	19		Acceptable
		Fall	19		Walking	25		Acceptable
		Winter	22		Uncomfortable	28		Acceptable
		Annual	20	+11%	Uncomfortable	26		Acceptable
99	A	Spring	19		Walking	27		Acceptable
		Summer	15		Standing	22		Acceptable
		Fall	16		Walking	24		Acceptable
		Winter	17		Walking	25		Acceptable
		Annual	17		Walking	25		Acceptable
	B	Spring	19		Walking	27		Acceptable
		Summer	16		Walking	22		Acceptable
		Fall	17		Walking	25		Acceptable
		Winter	18		Walking	26		Acceptable
		Annual	18		Walking	25		Acceptable

Notes: 1) Wind speeds are for a 1% probability of exceedance; and,
2) % Change is based on comparison with Configuration A and only those that are greater than 10% are listed.

Configurations	Mean Wind Speed Criteria		Effective Gust Criteria	
A – Phase 1	Comfortable for Sitting:	≤ 12 mph	Acceptable:	≤ 31 mph
B – Phase 2	Comfortable for Standing:	> 12 and ≤ 15 mph	Unacceptable:	> 31 mph
	Comfortable for Walking:	> 15 and ≤ 19 mph		
	Uncomfortable for Walking:	> 19 and ≤ 27 mph		
	Dangerous Conditions:	> 27 mph		

Table 1: Pedestrian Wind Comfort and Safety Categories - Multiple Seasons

BRA Criteria			Mean Wind Speed			Effective Gust Wind Speed		
Loc.	Config.	Season	Speed(mph)	%Change	RATING	Speed(mph)	%Change	RATING
100	B	Spring	20		Uncomfortable	29		Acceptable
		Summer	17		Walking	22		Acceptable
		Fall	18		Walking	27		Acceptable
		Winter	18		Walking	27		Acceptable
		Annual	18		Walking	26		Acceptable
	B	Spring	20		Uncomfortable	29		Acceptable
		Summer	16		Walking	22		Acceptable
		Fall	18		Walking	27		Acceptable
		Winter	18		Walking	27		Acceptable
		Annual	18		Walking	26		Acceptable
101	A	Spring	19		Walking	24		Acceptable
		Summer	14		Standing	18		Acceptable
		Fall	17		Walking	22		Acceptable
		Winter	19		Walking	24		Acceptable
		Annual	18		Walking	22		Acceptable
	B	Spring	19		Walking	23		Acceptable
		Summer	14		Standing	18		Acceptable
		Fall	17		Walking	22		Acceptable
		Winter	19		Walking	24		Acceptable
		Annual	17		Walking	22		Acceptable
102	A	Spring	16		Walking	24		Acceptable
		Summer	13		Standing	20		Acceptable
		Fall	15		Standing	23		Acceptable
		Winter	17		Walking	25		Acceptable
		Annual	16		Walking	24		Acceptable
	B	Spring	15		Standing	24		Acceptable
		Summer	14		Standing	20		Acceptable
		Fall	15		Standing	23		Acceptable
		Winter	17		Walking	25		Acceptable
		Annual	15		Standing	23		Acceptable
103	A	Spring	12		Sitting	18		Acceptable
		Summer	9		Sitting	14		Acceptable
		Fall	11		Sitting	16		Acceptable
		Winter	12		Sitting	18		Acceptable
		Annual	11		Sitting	16		Acceptable
	B	Spring	12		Sitting	18		Acceptable
		Summer	9		Sitting	13		Acceptable
		Fall	11		Sitting	16		Acceptable
		Winter	12		Sitting	18		Acceptable
		Annual	11		Sitting	17		Acceptable
104	A	Spring	16		Walking	23		Acceptable
		Summer	12		Sitting	18		Acceptable
		Fall	14		Standing	21		Acceptable
		Winter	16		Walking	24		Acceptable
		Annual	15		Standing	22		Acceptable

Notes: 1) Wind speeds are for a 1% probability of exceedance; and,
2) % Change is based on comparison with Configuration A and only those that are greater than 10% are listed.

Configurations	Mean Wind Speed Criteria		Effective Gust Criteria	
A – Phase 1	Comfortable for Sitting:	≤ 12 mph	Acceptable:	≤ 31 mph
B – Phase 2	Comfortable for Standing:	> 12 and ≤ 15 mph	Unacceptable:	> 31 mph
	Comfortable for Walking:	> 15 and ≤ 19 mph		
	Uncomfortable for Walking:	> 19 and ≤ 27 mph		
	Dangerous Conditions:	> 27 mph		

Table 1: Pedestrian Wind Comfort and Safety Categories - Multiple Seasons

BRA Criteria			Mean Wind Speed			Effective Gust Wind Speed		
Loc.	Config.	Season	Speed(mph)	%Change	RATING	Speed(mph)	%Change	RATING
	B	Spring	16		Walking	24		Acceptable
		Summer	13		Standing	19		Acceptable
		Fall	15		Standing	22		Acceptable
		Winter	17		Walking	25		Acceptable
		Annual	16		Walking	23		Acceptable
105	A	Spring	14		Standing	20		Acceptable
		Summer	12		Sitting	17		Acceptable
		Fall	13		Standing	19		Acceptable
		Winter	14		Standing	22		Acceptable
		Annual	13		Standing	20		Acceptable
	B	Spring	16	+14%	Walking	23	+15%	Acceptable
		Summer	12		Sitting	18		Acceptable
		Fall	15	+15%	Standing	22	+16%	Acceptable
		Winter	17	+21%	Walking	26	+18%	Acceptable
		Annual	15	+15%	Standing	23	+15%	Acceptable
106	A	Spring	16		Walking	23		Acceptable
		Summer	13		Standing	18		Acceptable
		Fall	15		Standing	22		Acceptable
		Winter	17		Walking	24		Acceptable
		Annual	16		Walking	22		Acceptable
	B	Spring	17		Walking	24		Acceptable
		Summer	13		Standing	19		Acceptable
		Fall	16		Walking	23		Acceptable
		Winter	18		Walking	26		Acceptable
		Annual	16		Walking	24		Acceptable
107	A	Spring	14		Standing	21		Acceptable
		Summer	12		Sitting	17		Acceptable
		Fall	13		Standing	20		Acceptable
		Winter	15		Standing	22		Acceptable
		Annual	13		Standing	20		Acceptable
	B	Spring	16	+14%	Walking	23		Acceptable
		Summer	12		Sitting	18		Acceptable
		Fall	15	+15%	Standing	22		Acceptable
		Winter	18	+20%	Walking	26	+18%	Acceptable
		Annual	16	+23%	Walking	23	+15%	Acceptable
108	A	Spring	15		Standing	21		Acceptable
		Summer	13		Standing	17		Acceptable
		Fall	14		Standing	20		Acceptable
		Winter	15		Standing	22		Acceptable
		Annual	14		Standing	20		Acceptable
	B	Spring	16		Walking	22		Acceptable
		Summer	13		Standing	18		Acceptable
		Fall	15		Standing	21		Acceptable
		Winter	17	+13%	Walking	25	+14%	Acceptable
		Annual	15		Standing	22		Acceptable

Notes: 1) Wind speeds are for a 1% probability of exceedance; and,
2) % Change is based on comparison with Configuration A and only those that are greater than 10% are listed.

Configurations	Mean Wind Speed Criteria		Effective Gust Criteria	
A – Phase 1	Comfortable for Sitting:	≤ 12 mph	Acceptable:	≤ 31 mph
B – Phase 2	Comfortable for Standing:	> 12 and ≤ 15 mph	Unacceptable:	> 31 mph
	Comfortable for Walking:	> 15 and ≤ 19 mph		
	Uncomfortable for Walking:	> 19 and ≤ 27 mph		
	Dangerous Conditions:	> 27 mph		

Table 1: Pedestrian Wind Comfort and Safety Categories - Multiple Seasons

BRA Criteria			Mean Wind Speed			Effective Gust Wind Speed		
Loc.	Config.	Season	Speed(mph)	%Change	RATING	Speed(mph)	%Change	RATING
109	A	Spring	15		Standing	20		Acceptable
		Summer	12		Sitting	16		Acceptable
		Fall	13		Standing	19		Acceptable
		Winter	14		Standing	21		Acceptable
		Annual	14		Standing	19		Acceptable
	B	Spring	15		Standing	21		Acceptable
		Summer	13		Standing	17		Acceptable
		Fall	14		Standing	20		Acceptable
		Winter	16	+14%	Walking	24	+14%	Acceptable
		Annual	15		Standing	21	+11%	Acceptable
110	A	Spring	15		Standing	20		Acceptable
		Summer	13		Standing	16		Acceptable
		Fall	13		Standing	19		Acceptable
		Winter	14		Standing	21		Acceptable
		Annual	14		Standing	19		Acceptable
	B	Spring	15		Standing	21		Acceptable
		Summer	13		Standing	17		Acceptable
		Fall	13		Standing	20		Acceptable
		Winter	15		Standing	22		Acceptable
		Annual	14		Standing	20		Acceptable
111	A	Spring	11		Sitting	17		Acceptable
		Summer	8		Sitting	13		Acceptable
		Fall	10		Sitting	16		Acceptable
		Winter	12		Sitting	18		Acceptable
		Annual	10		Sitting	17		Acceptable
	B	Spring	10		Sitting	16		Acceptable
		Summer	8		Sitting	13		Acceptable
		Fall	10		Sitting	16		Acceptable
		Winter	11		Sitting	18		Acceptable
		Annual	10		Sitting	16		Acceptable
112	A	Spring	15		Standing	23		Acceptable
		Summer	12		Sitting	17		Acceptable
		Fall	14		Standing	21		Acceptable
		Winter	16		Walking	24		Acceptable
		Annual	15		Standing	22		Acceptable
	B	Spring	15		Standing	23		Acceptable
		Summer	12		Sitting	17		Acceptable
		Fall	14		Standing	21		Acceptable
		Winter	16		Walking	24		Acceptable
		Annual	15		Standing	22		Acceptable
113	A	Spring	12		Sitting	19		Acceptable
		Summer	10		Sitting	15		Acceptable
		Fall	12		Sitting	19		Acceptable
		Winter	13		Standing	21		Acceptable
		Annual	12		Sitting	19		Acceptable

Notes: 1) Wind speeds are for a 1% probability of exceedance; and,
2) % Change is based on comparison with Configuration A and only those that are greater than 10% are listed.

Configurations	Mean Wind Speed Criteria		Effective Gust Criteria	
A – Phase 1	Comfortable for Sitting:	≤ 12 mph	Acceptable:	≤ 31 mph
B – Phase 2	Comfortable for Standing:	> 12 and ≤ 15 mph	Unacceptable:	> 31 mph
	Comfortable for Walking:	> 15 and ≤ 19 mph		
	Uncomfortable for Walking:	> 19 and ≤ 27 mph		
	Dangerous Conditions:	> 27 mph		

Table 1: Pedestrian Wind Comfort and Safety Categories - Multiple Seasons

BRA Criteria			Mean Wind Speed			Effective Gust Wind Speed		
Loc.	Config.	Season	Speed(mph)	%Change	RATING	Speed(mph)	%Change	RATING
	B	Spring	12		Sitting	19		Acceptable
		Summer	10		Sitting	15		Acceptable
		Fall	12		Sitting	18		Acceptable
		Winter	12		Sitting	20		Acceptable
		Annual	12		Sitting	19		Acceptable
114	A	Spring	14		Standing	23		Acceptable
		Summer	12		Sitting	20		Acceptable
		Fall	13		Standing	22		Acceptable
		Winter	14		Standing	23		Acceptable
		Annual	13		Standing	22		Acceptable
	B	Spring	14		Standing	23		Acceptable
		Summer	12		Sitting	20		Acceptable
		Fall	13		Standing	22		Acceptable
		Winter	14		Standing	23		Acceptable
		Annual	14		Standing	22		Acceptable
115	A	Spring	19		Walking	27		Acceptable
		Summer	17		Walking	23		Acceptable
		Fall	18		Walking	25		Acceptable
		Winter	19		Walking	27		Acceptable
		Annual	18		Walking	26		Acceptable
	B	Spring	19		Walking	27		Acceptable
		Summer	17		Walking	23		Acceptable
		Fall	18		Walking	25		Acceptable
		Winter	19		Walking	27		Acceptable
		Annual	18		Walking	26		Acceptable
116	A	Spring	19		Walking	28		Acceptable
		Summer	17		Walking	24		Acceptable
		Fall	18		Walking	26		Acceptable
		Winter	20		Uncomfortable	28		Acceptable
		Annual	18		Walking	27		Acceptable
	B	Spring	18		Walking	26		Acceptable
		Summer	17		Walking	23		Acceptable
		Fall	18		Walking	25		Acceptable
		Winter	19		Walking	27		Acceptable
		Annual	18		Walking	26		Acceptable
117	A	Spring	12		Sitting	20		Acceptable
		Summer	10		Sitting	17		Acceptable
		Fall	12		Sitting	19		Acceptable
		Winter	13		Standing	21		Acceptable
		Annual	12		Sitting	20		Acceptable
	B	Spring	12		Sitting	20		Acceptable
		Summer	9		Sitting	17		Acceptable
		Fall	11		Sitting	19		Acceptable
		Winter	12		Sitting	21		Acceptable
		Annual	11		Sitting	19		Acceptable

Notes: 1) Wind speeds are for a 1% probability of exceedance; and,
2) % Change is based on comparison with Configuration A and only those that are greater than 10% are listed.

Configurations	Mean Wind Speed Criteria		Effective Gust Criteria	
A – Phase 1	Comfortable for Sitting:	≤ 12 mph	Acceptable:	≤ 31 mph
B – Phase 2	Comfortable for Standing:	> 12 and ≤ 15 mph	Unacceptable:	> 31 mph
	Comfortable for Walking:	> 15 and ≤ 19 mph		
	Uncomfortable for Walking:	> 19 and ≤ 27 mph		
	Dangerous Conditions:	> 27 mph		

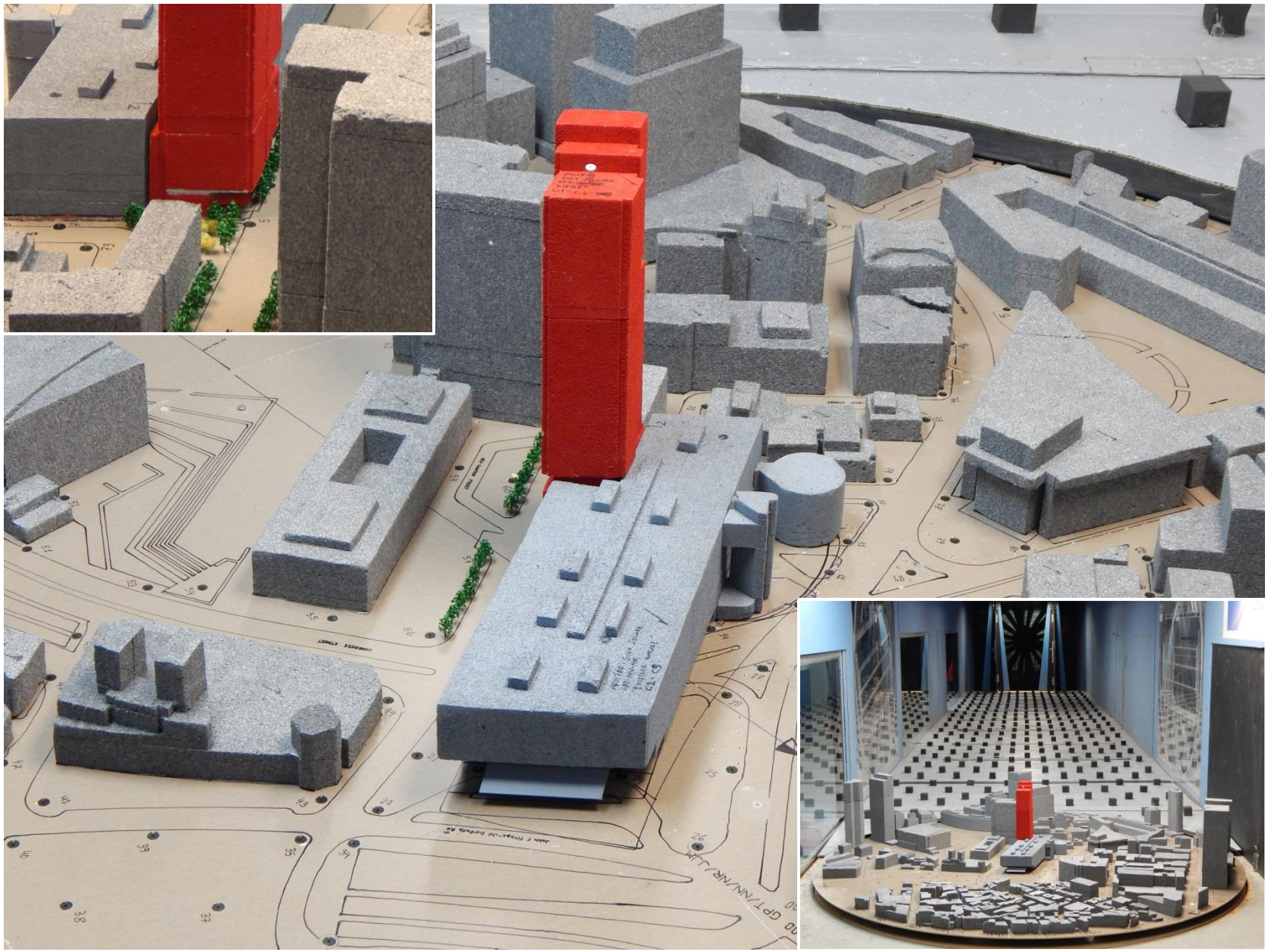
Table 1: Pedestrian Wind Comfort and Safety Categories - Multiple Seasons

BRA Criteria			Mean Wind Speed			Effective Gust Wind Speed		
Loc.	Config.	Season	Speed(mph)	%Change	RATING	Speed(mph)	%Change	RATING
118	A	Spring	16		Walking	24		Acceptable
		Summer	14		Standing	21		Acceptable
		Fall	15		Standing	22		Acceptable
		Winter	16		Walking	24		Acceptable
		Annual	15		Standing	23		Acceptable
	B	Spring	16		Walking	24		Acceptable
		Summer	14		Standing	21		Acceptable
		Fall	15		Standing	22		Acceptable
		Winter	16		Walking	24		Acceptable
		Annual	15		Standing	23		Acceptable
119	A	Spring	24		Uncomfortable	33		Unacceptable
		Summer	22		Uncomfortable	30		Acceptable
		Fall	24		Uncomfortable	32		Unacceptable
		Winter	25		Uncomfortable	34		Unacceptable
		Annual	24		Uncomfortable	32		Unacceptable
	B	Spring	24		Uncomfortable	32		Unacceptable
		Summer	22		Uncomfortable	30		Acceptable
		Fall	23		Uncomfortable	32		Unacceptable
		Winter	25		Uncomfortable	34		Unacceptable
		Annual	23		Uncomfortable	32		Unacceptable
120	A	Spring	18		Walking	27		Acceptable
		Summer	16		Walking	23		Acceptable
		Fall	18		Walking	27		Acceptable
		Winter	19		Walking	29		Acceptable
		Annual	18		Walking	27		Acceptable
	B	Spring	17		Walking	26		Acceptable
		Summer	15		Standing	23		Acceptable
		Fall	17		Walking	26		Acceptable
		Winter	19		Walking	28		Acceptable
		Annual	17		Walking	26		Acceptable
121	A	Spring	20		Uncomfortable	28		Acceptable
		Summer	17		Walking	25		Acceptable
		Fall	19		Walking	27		Acceptable
		Winter	22		Uncomfortable	30		Acceptable
		Annual	20		Uncomfortable	28		Acceptable
	B	Spring	21		Uncomfortable	28		Acceptable
		Summer	18		Walking	25		Acceptable
		Fall	20		Uncomfortable	28		Acceptable
		Winter	23		Uncomfortable	31		Acceptable
		Annual	21		Uncomfortable	28		Acceptable

Notes: 1) Wind speeds are for a 1% probability of exceedance; and,
2) % Change is based on comparison with Configuration A and only those that are greater than 10% are listed.

Configurations	Mean Wind Speed Criteria		Effective Gust Criteria	
A – Phase 1	Comfortable for Sitting:	≤ 12 mph	Acceptable:	≤ 31 mph
B – Phase 2	Comfortable for Standing:	> 12 and ≤ 15 mph	Unacceptable:	> 31 mph
	Comfortable for Walking:	> 15 and ≤ 19 mph		
	Uncomfortable for Walking:	> 19 and ≤ 27 mph		
	Dangerous Conditions:	> 27 mph		

FIGURES



Wind Tunnel Study Model
Phase 1

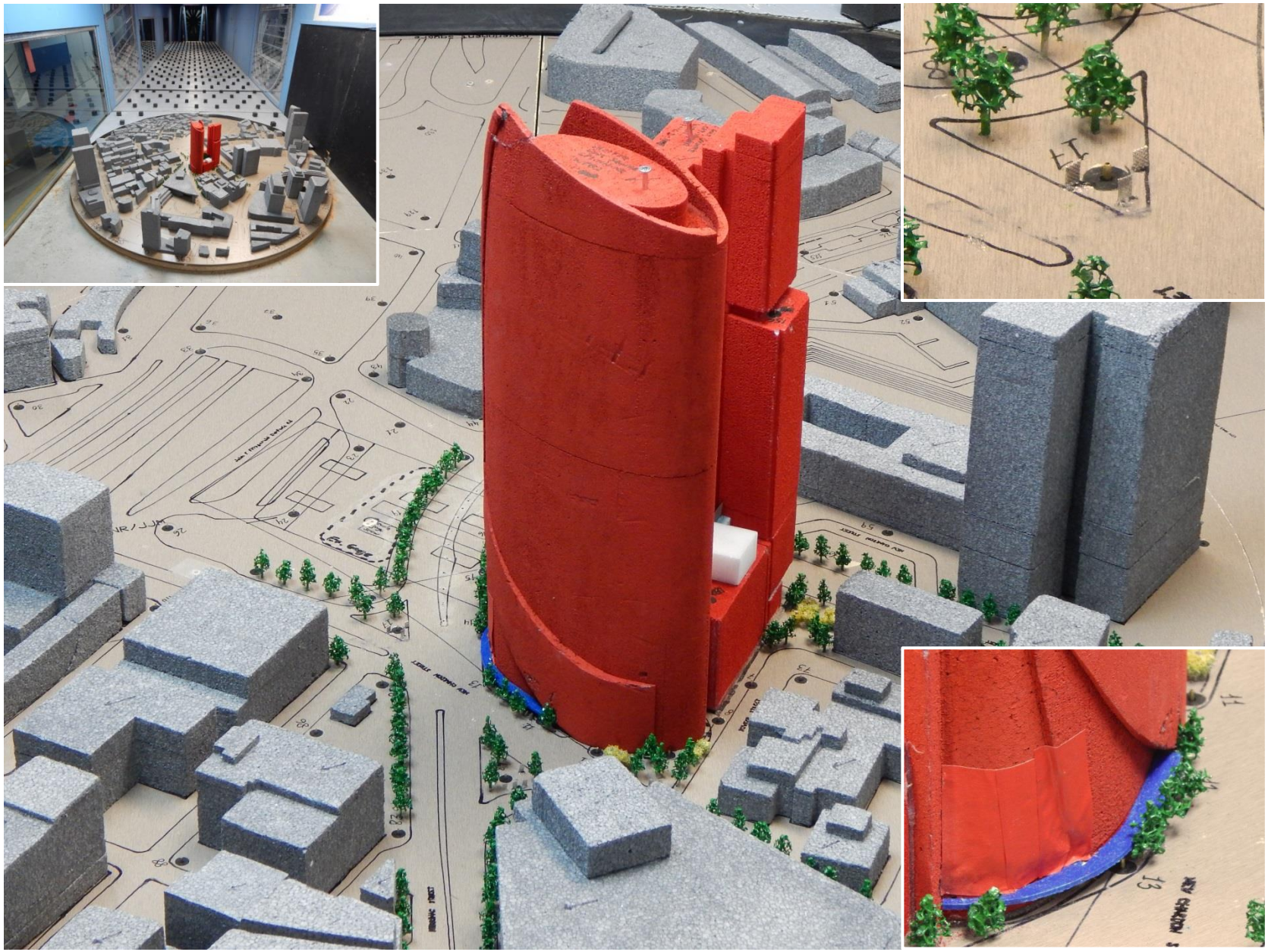
Government Square – Boston, MA

Project #1401777

Figure No. 1a

Date: November 9, 2015

RWDI



Wind Tunnel Study Model
Phase 2

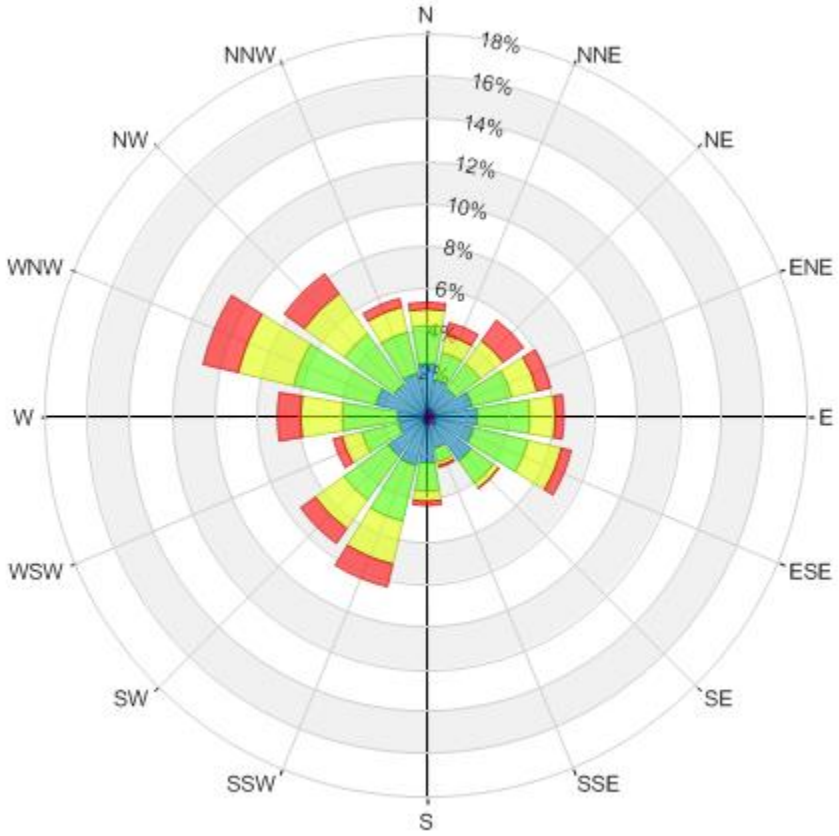
Figure No. 1b

Government Square – Boston, MA

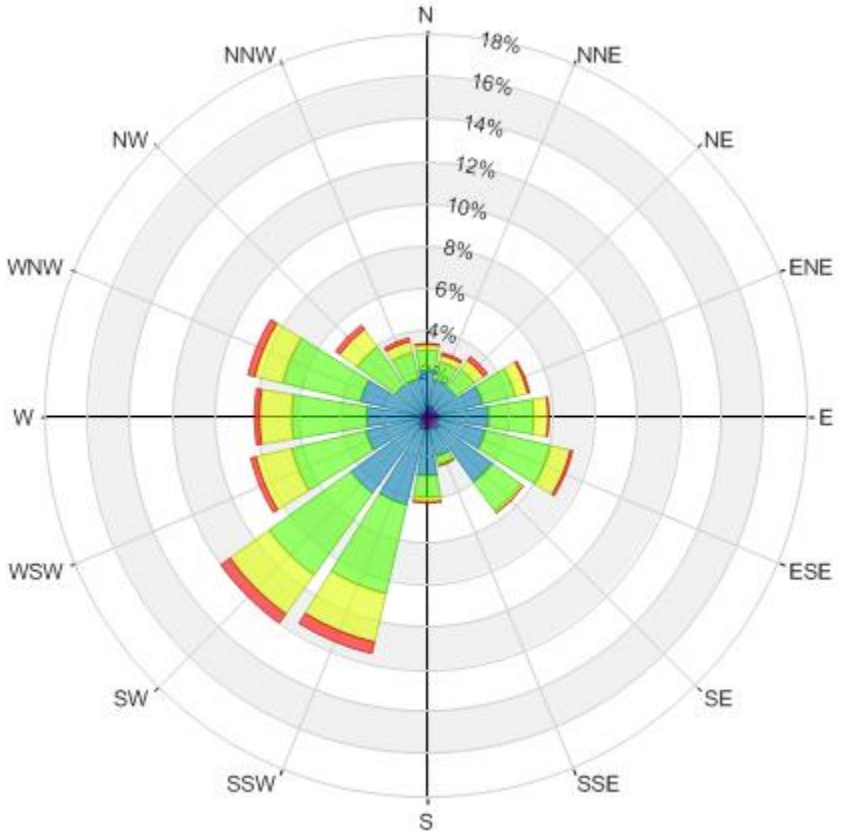
Project #1401777

Date: November 9, 2015

RWDI



Spring
(March - May)



Summer
(June - August)

Wind Speed (mph)	Probability (%) Spring	Summer
Calm	2.0	2.1
1-5	5.5	7.4
6-10	27.5	36.6
11-15	33.5	36.4
16-20	20.7	14.6
>20	10.8	3.0

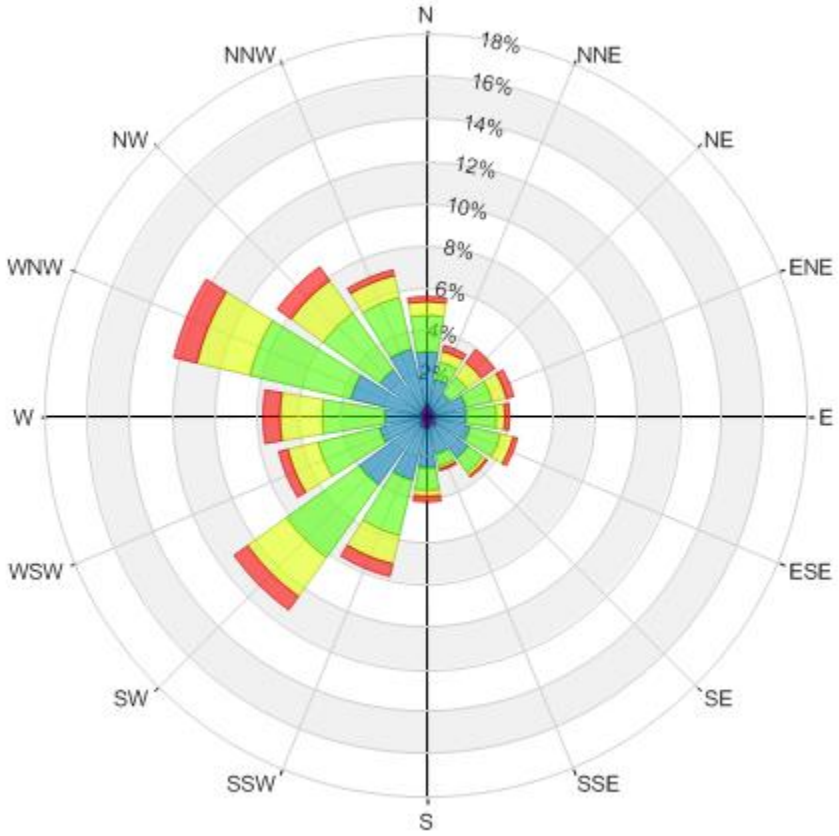
Directional Distribution (%) of Winds (Blowing From)
Boston Logan International Airport (1981 - 2011)

Government Square – Boston, MA

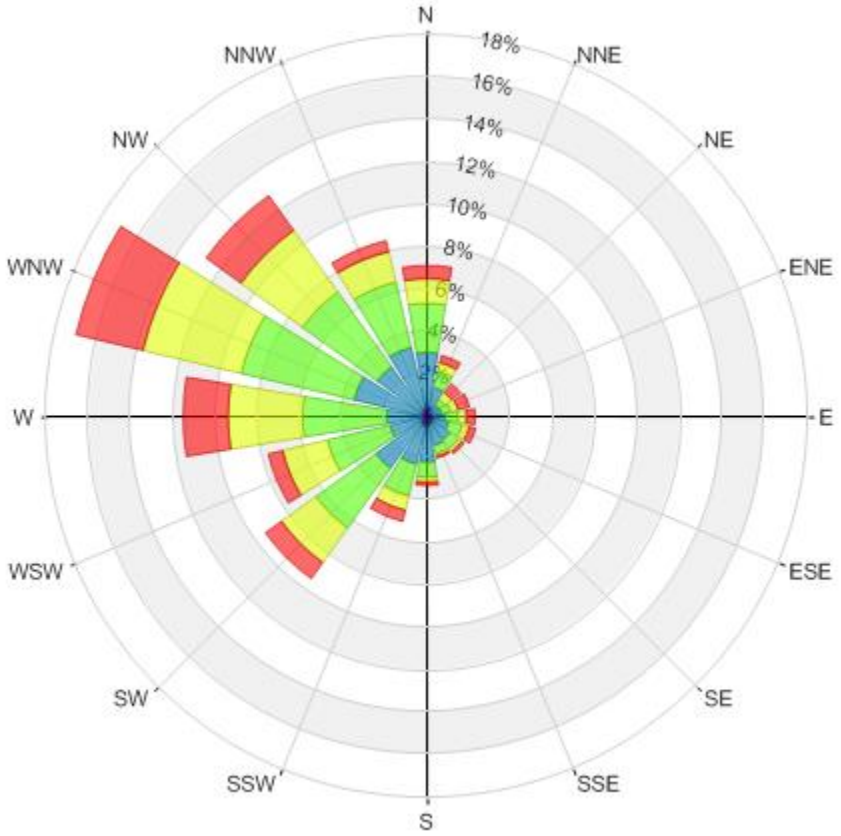
Project #1401777

Figure No. 2a

Date: November 10, 2015



Fall
(September - November)



Winter
(December - February)

Wind Speed (mph)	Probability (%) Fall	Winter
Calm	2.3	1.8
1-5	6.9	5.3
6-10	32.7	26.1
11-15	33.9	31.8
16-20	16.8	21.8
>20	7.3	13.2

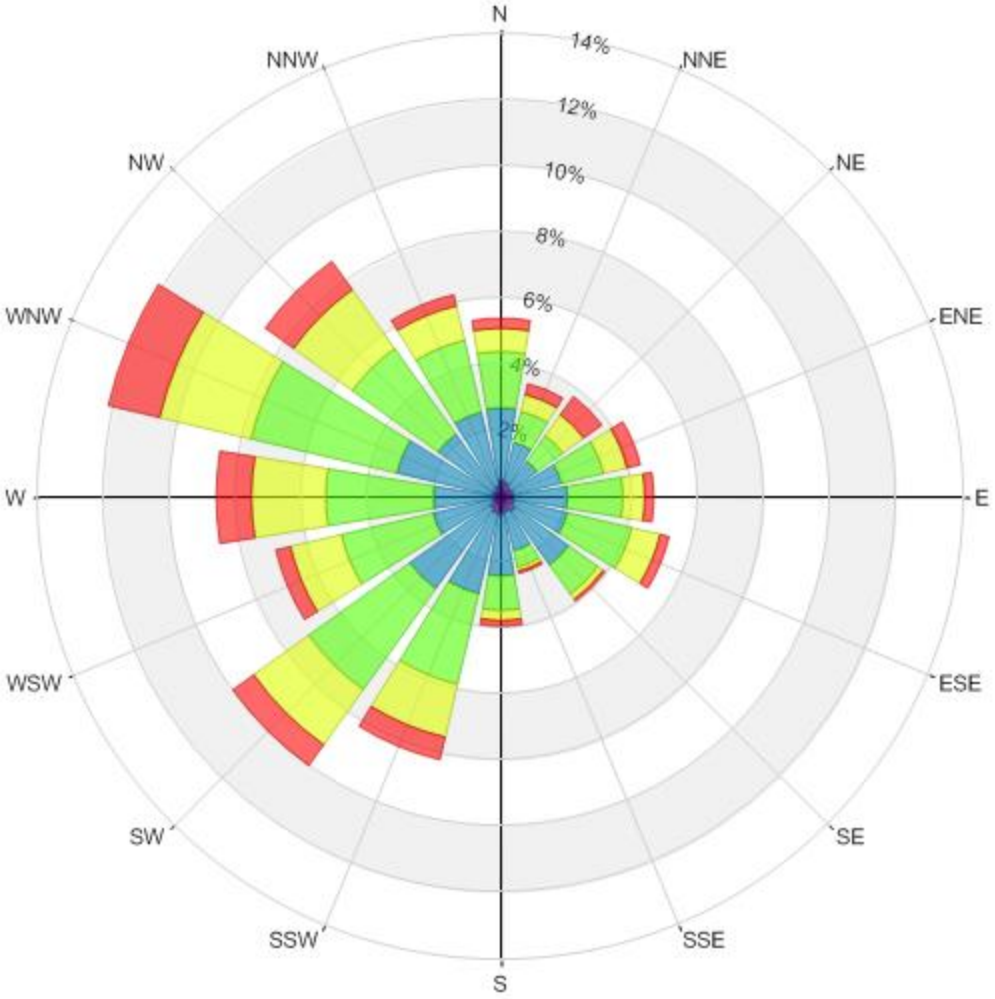
Directional Distribution (%) of Winds (Blowing From)
Boston Logan International Airport (1983 - 2013)

Figure No. 2b

Government Square – Boston, MA

Project #1401777

Date: November 10, 2015



Annual Winds

Wind Speed (mph)	Probability (%)
Calm	2.0
1-5	6.3
6-10	30.8
11-15	33.9
16-20	18.5
>20	8.6

Directional Distribution (%) of Winds (Blowing From)
Boston Logan International Airport (1981 - 2011)

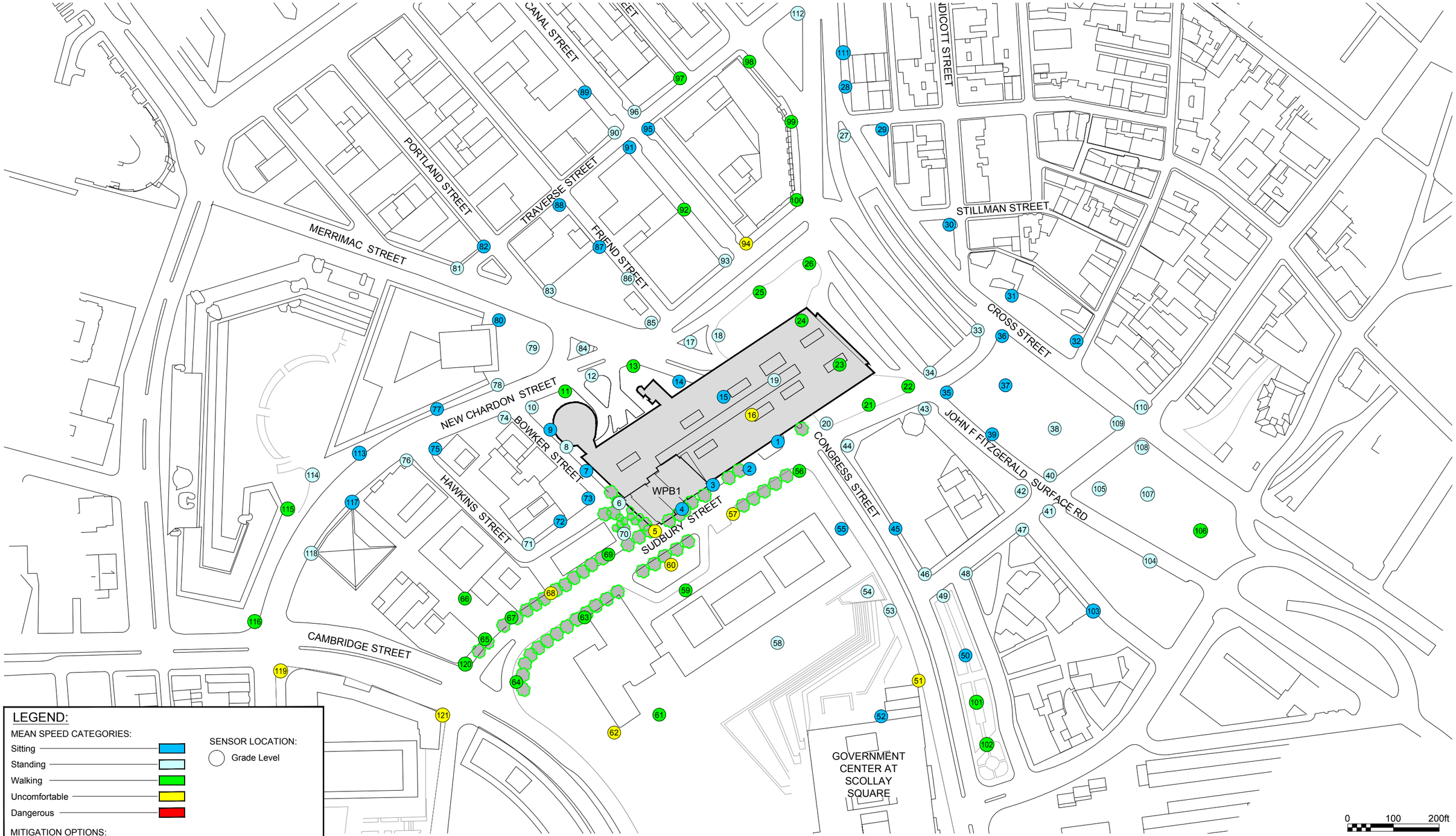
Government Square – Boston, MA

Project #1401777

Figure No. 2c

Date: November 10, 2015

RWDI



LEGEND:

MEAN SPEED CATEGORIES:

- Sitting
- Standing
- Walking
- Uncomfortable
- Dangerous

SENSOR LOCATION:

- Grade Level

MITIGATION OPTIONS:

- Pin Oak Trees, 35 ft High
- Amelanicher Trees, 15ft High

Pedestrian Wind Conditions - Mean Speed - Phase 1
Annual (January to December, 0:00 to 23:00)

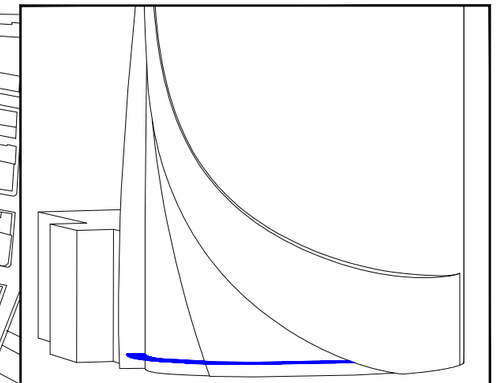
Government Square - Boston, MA

True North

Project #1401777

Drawn by: ARM	Figure: 3a
Approx. Scale:	1"=200'
Date Revised:	Nov. 11, 2015

RWDI



LEGEND:

MEAN SPEED CATEGORIES:
- Sitting
- Standing
- Walking
- Uncomfortable
- Dangerous

SENSOR LOCATION:
- Grade Level

MITIGATION OPTIONS:
- Canopy, 12 ft High
- 35% Porous Pedestrian Windscreens - 8ft High & 4ft wide
- Pin Oak Trees, 35 ft High
- Amelanicher Trees, 15ft High

0 100 200ft

Pedestrian Wind Conditions - Mean Speed - Phase 2
Annual (January to December, 0:00 to 23:00)

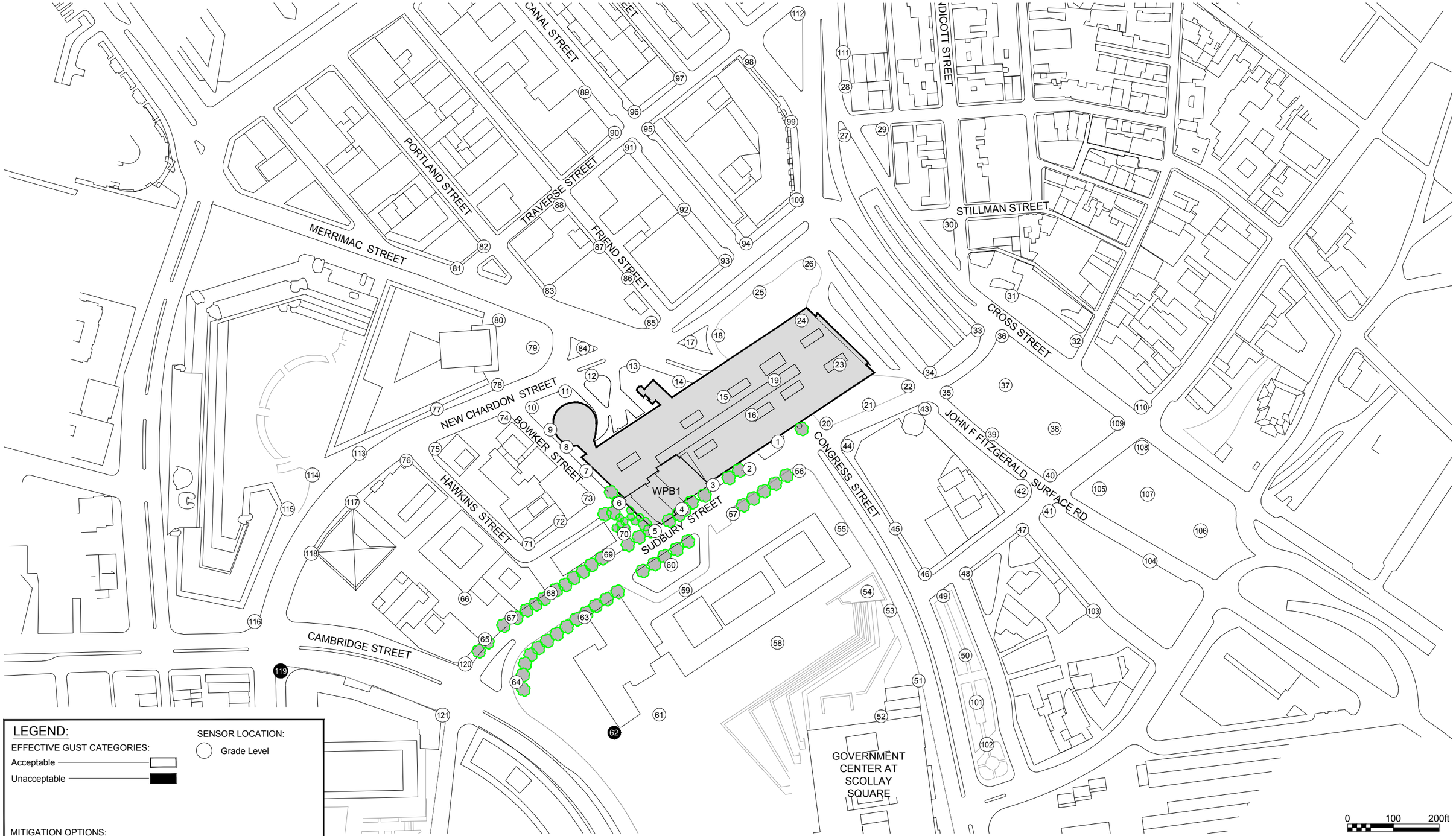
Government Square - Boston, MA

True North

Project #1401777

Drawn by:	ARM	Figure:	3b
Approx. Scale:		1"=200'	
Date Revised:		Nov. 11, 2015	

RWDI



LEGEND:

EFFECTIVE GUST CATEGORIES:

Acceptable

Unacceptable

SENSOR LOCATION:

Grade Level

MITIGATION OPTIONS:

Pin Oak Trees, 35 ft High

Amelanicher Trees, 15ft High

Pedestrian Wind Conditions - Effective Gust - Phase 1

Annual (January to December, 0:00 to 23:00)

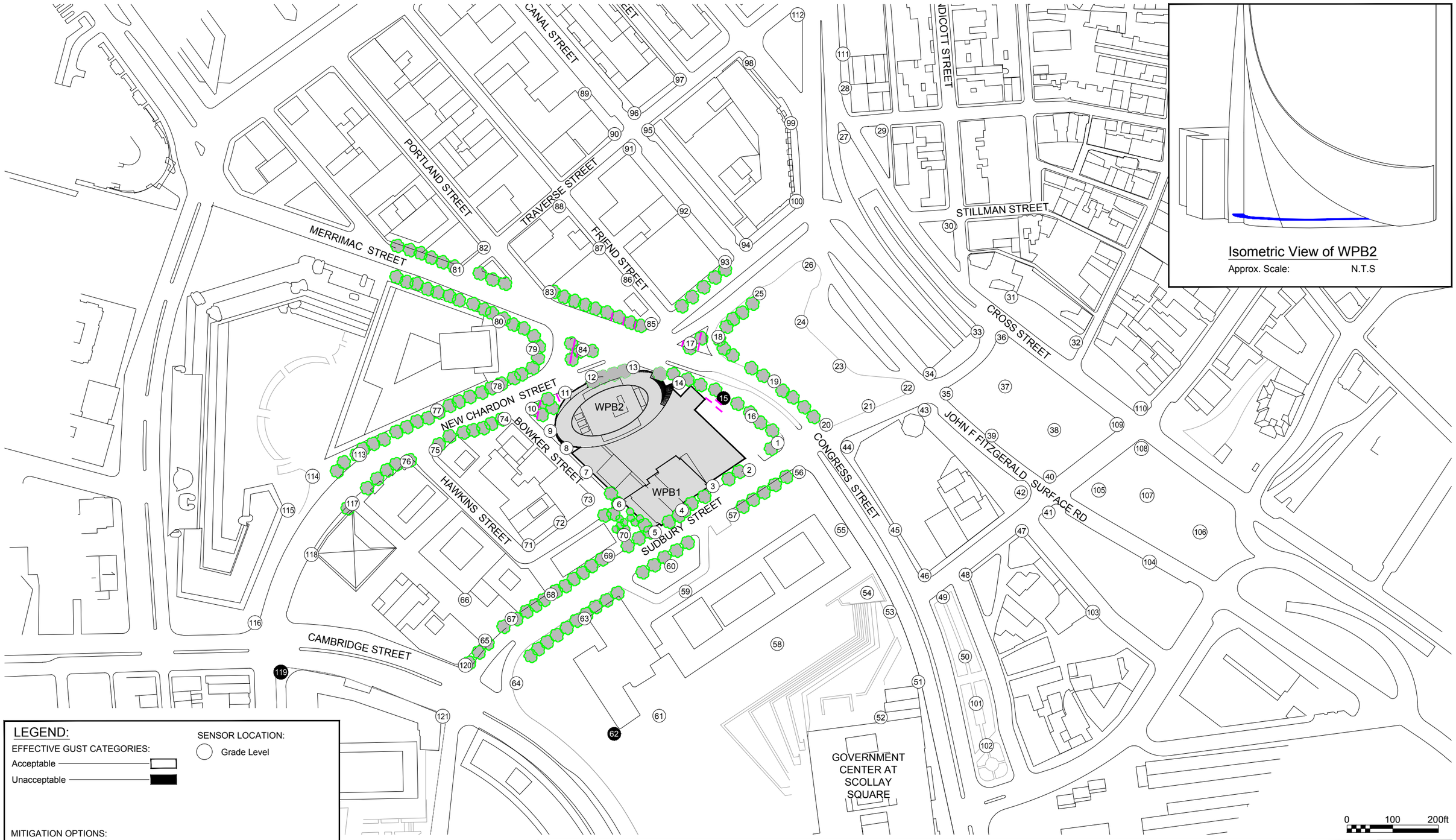
Government Square - Boston, MA

True North

Project #1401777

Drawn by: ARM	Figure: 4a
Approx. Scale:	1"=200'
Date Revised:	Nov. 11, 2015

RWDI



Isometric View of WPB2

Approx. Scale: N.T.S

LEGEND:

EFFECTIVE GUST CATEGORIES:

Acceptable

Unacceptable

SENSOR LOCATION:

Grade Level

MITIGATION OPTIONS:

Canopy, 12 ft High

Pin Oak Trees, 35 ft High

Amelanicher Trees, 15ft High

35% Porous Pedestrian Windscreens - 8ft High & 4ft wide

0 100 200ft

Pedestrian Wind Conditions - Effective Gust - Phase 2

Annual (January to December, 0:00 to 23:00)

Government Square - Boston, MA

True North

Project #1401777

Drawn by:	ARM	Figure:	4b
Approx. Scale:		1"=200'	
Date Revised:		Nov. 11, 2015	

RWDI

APPENDIX A

CONSULTING ENGINEERS & SCIENTISTS

APPENDIX A: DRAWING LIST FOR MODEL CONSTRUCTION

The drawings and information listed below were received from CBT Architects and were used to construct the scale model of the proposed Government Square Development. Should there be any design changes that deviate from this list of drawings, the results may change. Therefore, if changes in the design are made, it is recommended that RWDI be contacted and requested to review their potential effects on wind conditions.

File Name	File Type	Date Received (dd/mm/yyyy)
2015_09_02_Phase-2	Rhinoceros	September 2, 2015
Comprehensive Wind Screen Plan LSK15	Adobe Portable Document Format	November 2, 2015
Comprehensive Wind Screen Plan LSK15	Adobe Portable Document Format	November 2, 2015
Wind Mitigation Ideas	Adobe Portable Document Format	November 2, 2015
Comprehensive Landscape Plan LSK15	Adobe Portable Document Format	November 2, 2015

APPENDIX C: Solar Glare Supporting Documentation

Government Square
Boston, MA

Solar Reflection Detailed Analysis Phase 2 – Addition of Office Tower and Reduction of Length of Garage

RWDI #1401777P
November 11, 2015

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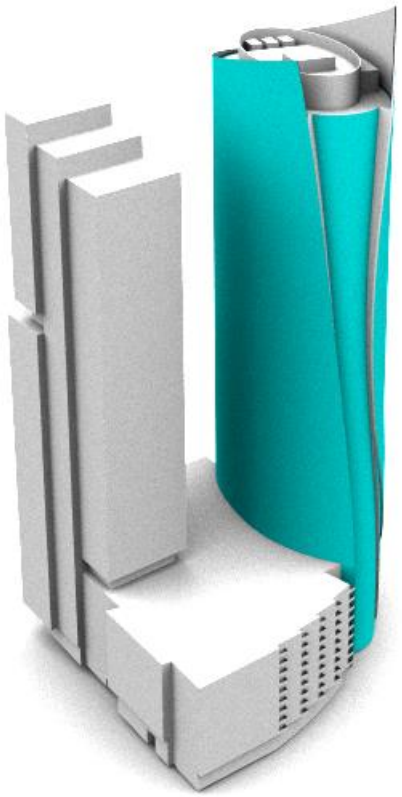


1.0 INTRODUCTION

This report summaries the computer modeling results of reflected sunlight regarding the Phase 2 build of the proposed Government Square development, which consists of an office tower (WP-B2), a residential tower (WP-B1), and the reconstructed Government Center Garage. The two towers will be constructed adjacent to and over the garage located at 50 Sudbury St, Boston, MA (as shown in Figure 1). It is our understanding that the development will be surrounded by typical urban spaces such as busy roadways, other buildings, and parks.

This report presents the findings of a detailed investigation of the impact that solar reflections emanating from the office tower development (WP-B2) will have on the surrounding urban terrain using computer modeling based on RWDI's proprietary software called *Eclipse*.

On October 16th, RWDI presented the preliminary results to the project team. On October 28th, RWDI provided a report of the detailed study of reflected sunlight events at the selected receptor locations which represent drivers, pedestrians, and building facades in areas where frequent or relatively intense reflections were predicted with the screening analysis.

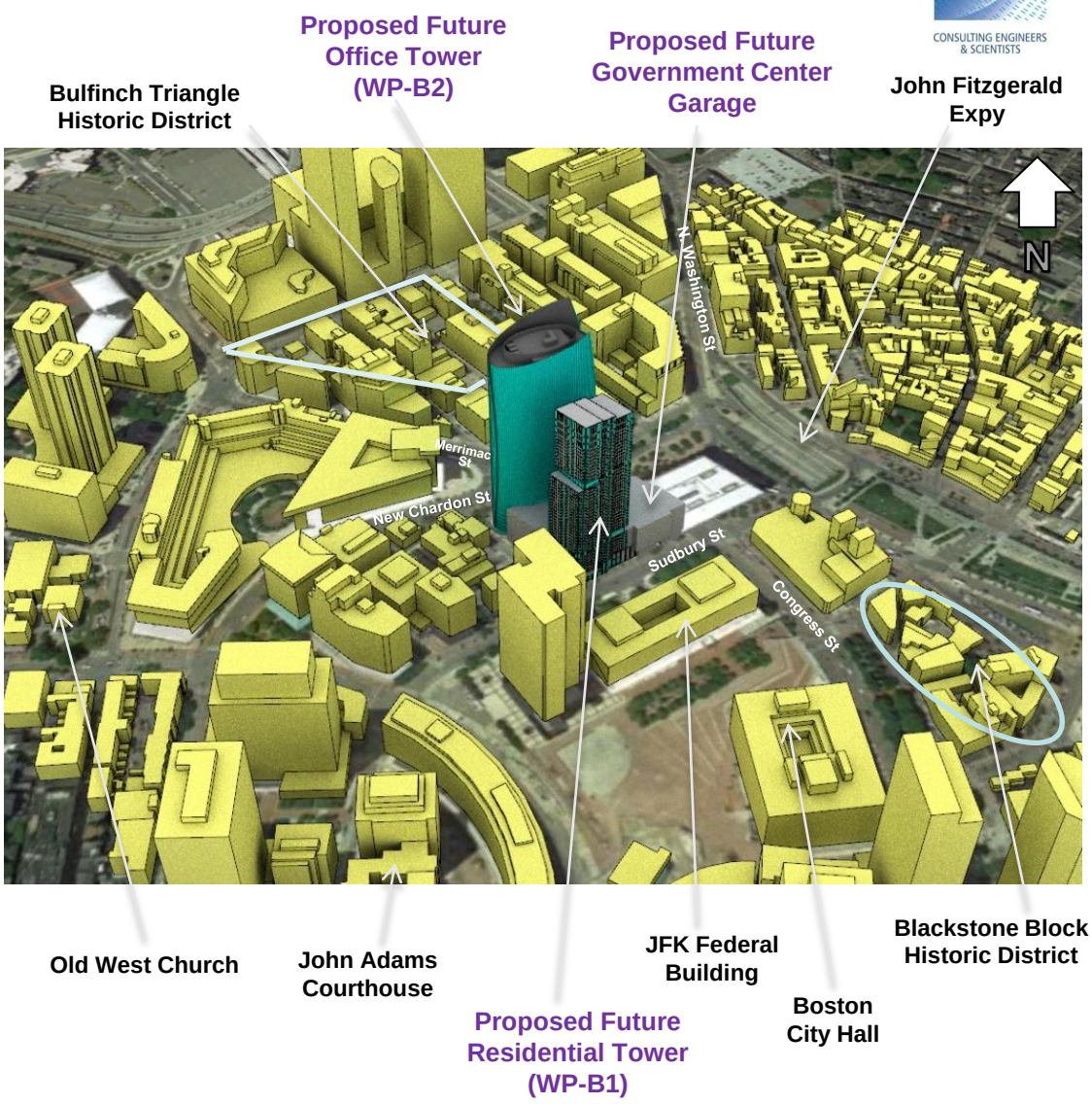


Figure 1: Phase II of proposed Government Square development

2.0 EXECUTIVE SUMMARY

As expected, the glazed surfaces in the Office Tower development (WP-B2) will cause visual glare in the surrounding area. However, the thermal impact of the reflections are not expected to be significant for pedestrians, drivers, nor adjacent building facades. Due to the geometry of the building facades, the predicted reflections are not focusing significantly in any particular area.

Reflections at pedestrian level are predicted to scatter in a pinwheel fashion due to the facetted convex geometry of the curtainwall. This configuration is expected to result in frequent, short duration reflections in the surrounding area of the building. The visual glare study predicts that the above-mentioned reflection pattern occurs at most of the receptors throughout the year (refer to Appendix A), raising the concern of causing repeated visual distractions or nuisance to the occupants of the neighboring buildings as well as to the pedestrians and drivers travelling in the surrounding area of the tower. However, aside from the driver receptors, RWDI considers the majority of the facade and pedestrian receptors to have a moderate level of visual glare impact (refer to Table 1) as they are nuisance only and not a safety concern.

Frequent high-impact visual reflections emanating from the northeast facade are expected to impact the drivers travelling southeast along Merrimac St near the intersection of New Chardon St. These reflections, contrary to other driving receptors, may alter the drivers' experience as the sun would not be in the driver's line of sight when the reflections occur. Although the reflections will be a daily occurrence, the majority of reflections occur during early mornings.

If mitigation is desired, strategies could include altering the glazing, constructing physical obstructions on the facade (i.e. horizontal fins), and restyling the proposed vertical fins to intercept the reflections at grade and on surrounding facades.

3.0 BACKGROUND – URBAN REFLECTIONS

It is a common experience in urban areas to occasionally experience reflected light from glass and metallic surfaces. The interactions between a building and the sun can lead to numerous visual and thermal issues.

Visual glare can:

- impair the vision of motorists and others who cannot simply look away from the source because of an important activity
- cause nuisance to pedestrians or occupants of nearby buildings
- create undesirable patterns of light throughout the urban fabric

Heat gain can***:***

- affect human thermal comfort,
- be a safety concern for people and materials, particularly if insolation levels are high as a result of focusing of multiple reflections to a single point,
- alter heating and cooling loads of conditioned spaces affected by the reflections.

The most significant safety concerns with solar reflections occur with concave facades which act to focus the reflected light in a single area. In contrast, convex facades act to scatter reflections in a “pinwheel” pattern. RWDI does not expect issues with solar focusing to be present in the Government Square development because all the glazing surfaces are planar or convex.

To quantify the impact of solar reflections from the development, it is important to understand four critical characteristics:

1. ***Frequency*** (how often glare events occur);
2. ***Duration*** (how long each instance of glare lasts); and
3. ***Intensity*** (how “bright”; the events are based on a combination of solar intensity, surface size and orientation, and the distance from the point of interest).
4. ***Location*** (does the reflection fall on a sensitive location)

RWDI’s methodology and criteria for visual glare and heat gain is included in Appendix C.

4.0 GENERAL METHODOLOGY

RWDI assessed the potential reflection issues using an in-house, computer modeling tool called Eclipse, as per the steps outlined below:

- A 3D model of the area of interest (as shown in Figure C1) was developed and subdivided into many smaller triangular patches (see Figure C2). The reflective properties of the various surfaces were defined using the data presented in Appendix B.
- For each hour in a year, the expected solar position was determined, and "virtual rays" were drawn from the sun to each triangular patch of the 3D model. Each ray that was considered to be "unobstructed" was reflected from the building surface onto a horizontal plane called a 'Receiving Surface' just above ground level.
- This analysis used "clear sky" solar data at the location of Boston's Logan International Airport. That is to say, a data set where it is assumed that no cloud cover ever occurs, which provides a "worst case" scenario showing the full extent of when and where glare could ever occur (refer to sun path diagram shown in Appendix B of RWDI's Preliminary Report dated October 16, 2015).
- Finally, a statistical analysis was performed to assess the frequency, intensity and duration of the glare events.

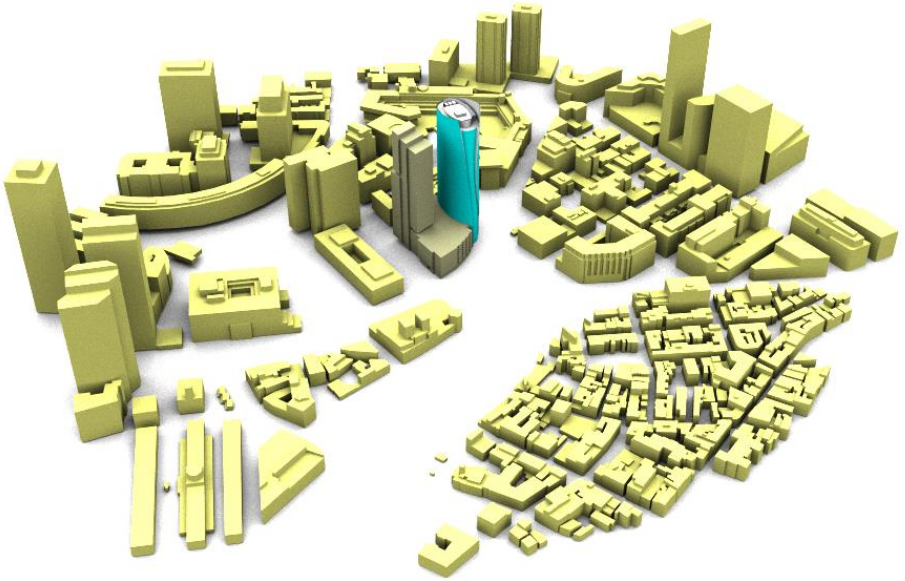


Figure 1: 3D computer model of the proposed office and residential towers along with the surrounding neighborhood

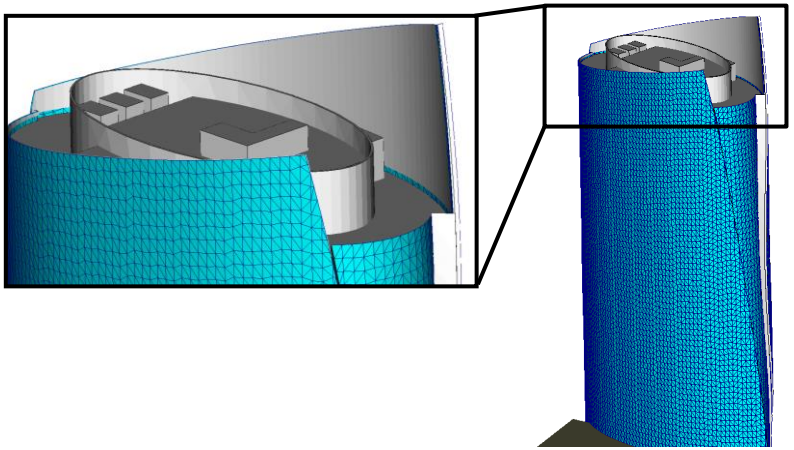


Figure 2: Close-up view of the model, showing surface subdivisions on the office tower

5.0 ASSUMPTIONS AND LIMITATIONS

Key assumptions and simplifications of the modeling process included:

Model

- The analysis was conducted based on the geometry provided by Pelli Clarke Pelli Architects to RWDI on September 24, 2015. It should be noted that this study is highly dependent on building geometry, and any significant changes to the building's geometry will likely require a new analysis.
- Potential reductions of solar reflections due to the presence of vegetation, or other non-architectural obstructions, were not included.
- Only a single reflection from the development is included in the analysis. That is to say, light that has reflected off several surfaces before reaching the 'Receiving Surface' is assumed to have a negligible impact.
- Only the office tower (WP-B2) was considered as potentially reflective in the current model. Existing structures (including the residential building, and the garage) were included for shading purposes but were not considered reflective.
- The detailed reflection results are studied only for the following shading configuration on the office tower facades:
  - Building-mounted fins: Vertical and horizontal fins (8 inches in depth) are assumed to be located on the façade of the office tower (as shown in Figure 3).

Glazing

- Reflectance values were based on information from the email provided by CBT Architects to RWDI on September 20, 2015. Glazed surfaces on the office tower were modeled as Viracon VRE1-46, which has a visible and full spectrum reflectance of 34% and 39% respectively. Figure 3 shows the location of the glazing types. Further details are available in Appendix B.
- Any light reflections from other buildings and surfaces are not accounted for.
- The metal panel portions of the façade are assumed to be non-reflective as they will be painted with a low luster finish with shades of gray. The client has designated no other specular surfaces on the buildings.

Meteorological Data

- Irradiance levels were computed using "clear sky" solar data at the location of Boston Logan International Airport. This data uses mathematical algorithms to artificially derive solar intensity values for a given latitude and altitude, ignoring local effects such as cloud cover.

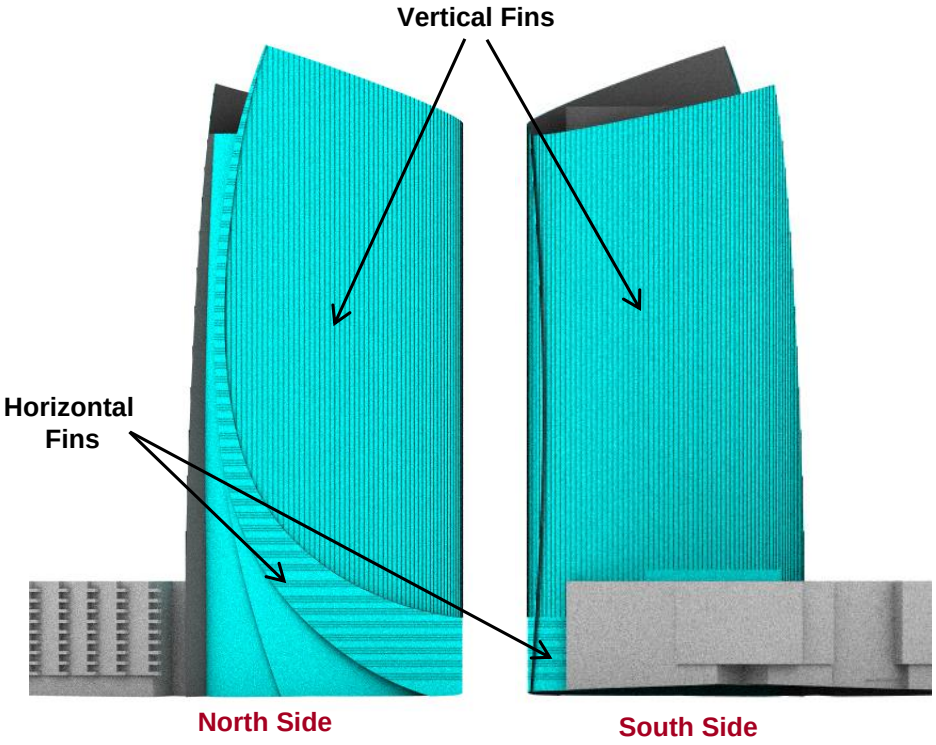


Figure 3: Location of the glazing surfaces, and the horizontal and vertical fins (north and south views)

6.0 RECEPTOR LOCATIONS FOR DETAILED STUDY

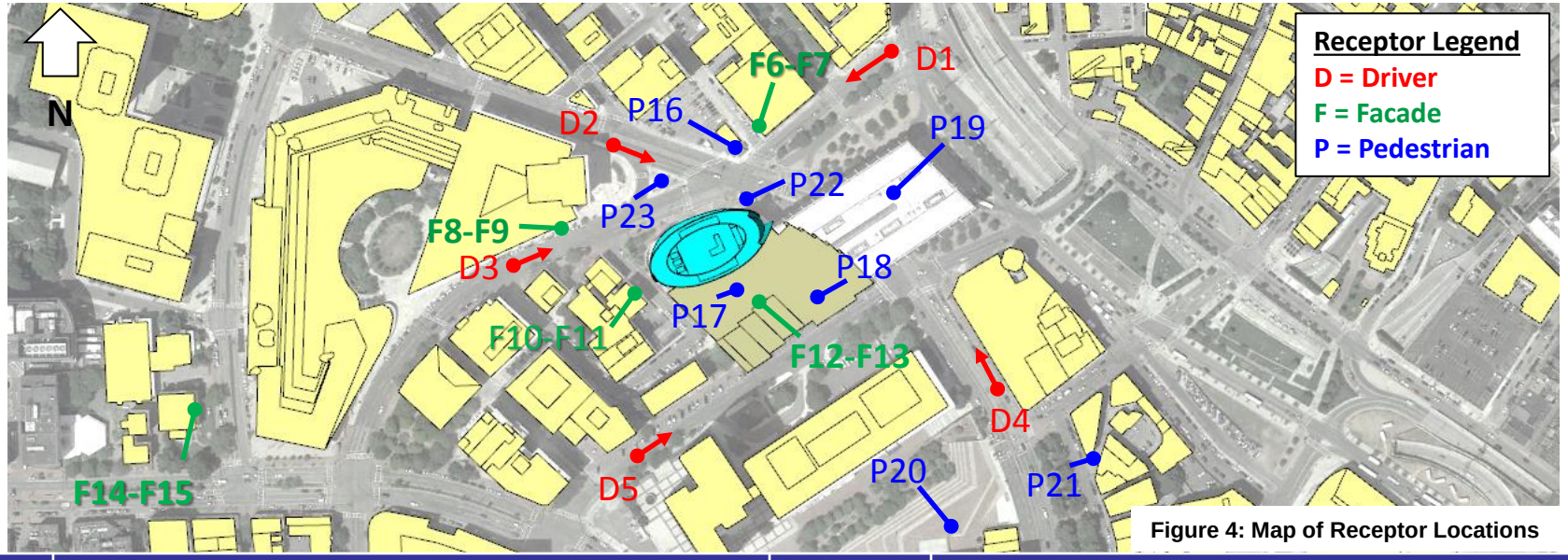


Figure 4: Map of Receptor Locations

Receptor Number	Receptor Description	Receptor Number	Receptor Description
D1	Drivers travelling southwest along New Chardon St	F12-F13	Façade of proposed residential tower (WP-B1), at lower-half and upper-half height of the building
D2	Drivers travelling southeast along Merrimac St	F14-F15	Façade of Old West Church, at lower-half and upper-half height of the building
D3	Drivers travelling northeast along New Chardon St	P16	Pedestrians sitting on outdoor benches of CuppaCoffee store
D4	Drivers travelling northwest along Congress St	P17-P18	Pedestrians at the podium level of Government Center
D5	Drivers travelling northeast along Sudbury St	P19	Pedestrians standing at grade to the east of Government Center
F6-F7	Facade of the building at Friend St, at lower-half and upper-half height of the building	P20	Pedestrians at Boston City Hall
F8-F9	Facade of Edward W Brook Courthouse building, at lower-half and upper-half height of the building	P21	Pedestrians at Blackstone Block Historic District near Holocaust Memorial
F10-F11	Facade of Center House building, at lower-half and upper-half height of the building	P22-P23	Pedestrians at corner of New Chardon St and Merrimac St intersection

7.0 FORMAT AND INTERPRETATION OF RESULTS

a) Visual Glare

Visual glare results are presented graphically using "annual glare impact diagrams" as shown in an example image below in Figure 5. The diagrams illustrate the frequency, duration and intensity of glare events. The horizontal axis of the diagram indicates the day of the year, and the vertical axis indicates the hour. We note that the referenced times are in local standard time, so in jurisdictions where Daylight Savings Time is used, the plot should be shifted by an hour when appropriate. The color of the plot for a given combination of date and time indicates the relative impact of any glare sources found. Additional information on RWDI's methodology and criteria for visual glare is included in Appendix C.

Low: Either no significant reflections occur or the reflections will have a minimal effect on a viewer, even when looking directly at the source.

Moderate: The reflections can cause some visual nuisance only to viewers looking **directly** at the source.

High: The reflections can cause safety issues to viewers who are unable to look away from the source (such as drivers).

Damaging: The brightest glare source is bright enough to permanently damage the eye for a viewer looking directly at the source.

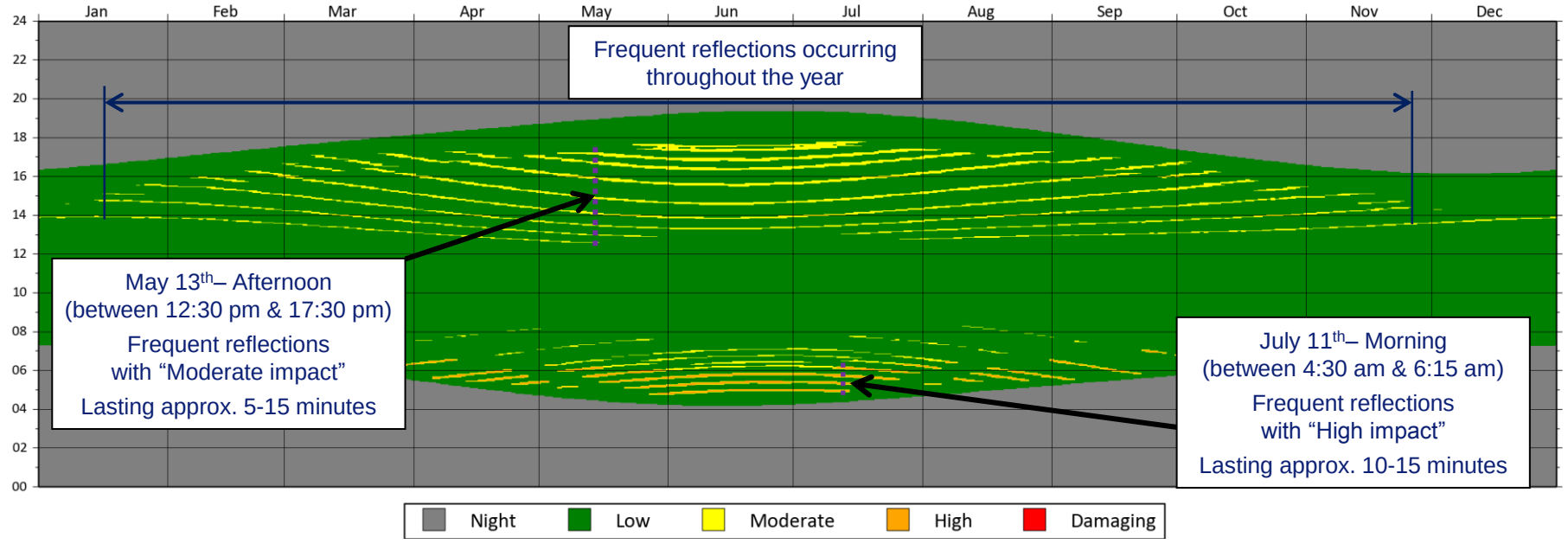


Figure 5: Example Annual Glare Impact Diagram – Receptor D2

7.0 FORMAT AND INTERPRETATION OF RESULTS

b) Thermal Impact

Thermal impact results are presented graphically using "annual heat impact diagrams" as shown in an example image below in Figure 6. The diagrams illustrate the frequency, duration and intensity of reflection events. The horizontal axis of the diagram indicates the day of the year, and the vertical axis indicates the hour. We note that the referenced times are in local standard time, so in jurisdictions where Daylight Savings Time is used, the plot should be shifted by an hour when appropriate. The color of the plot for a given combination of date and time indicates the intensity of the reflected light at that point in time. Additional information on RWDI's methodology and criteria for solar thermal is included in Appendix C.

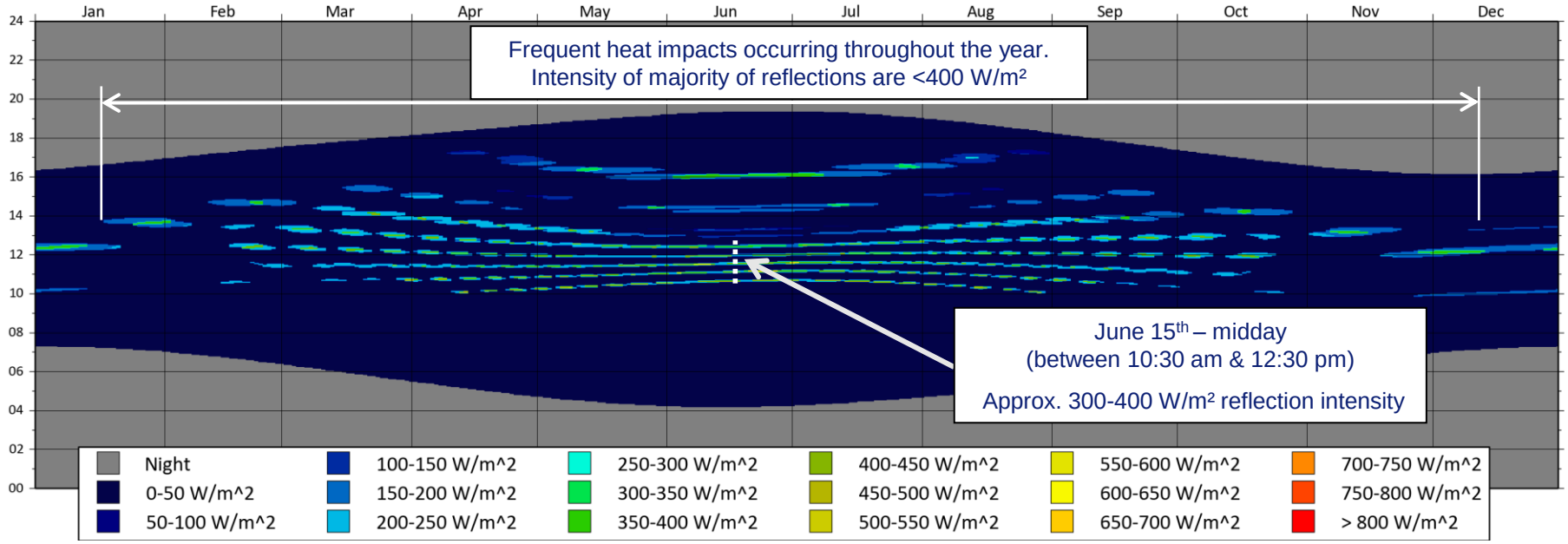


Figure 6: Example Annual Heat Impact Diagram – Receptor F10

8.0 RESULTS – ILLUSTRATION OF PREDICTED RAYS OF REFLECTED SUNLIGHT

To illustrate the reflection sources that impact the neighboring facades, Figure 7 shows a sample set of reflections emanating from northwest area of the Office Tower that fall onto the façade of Edward W Brook Courthouse building (receptors F8-F9) during the afternoon of September 4th.

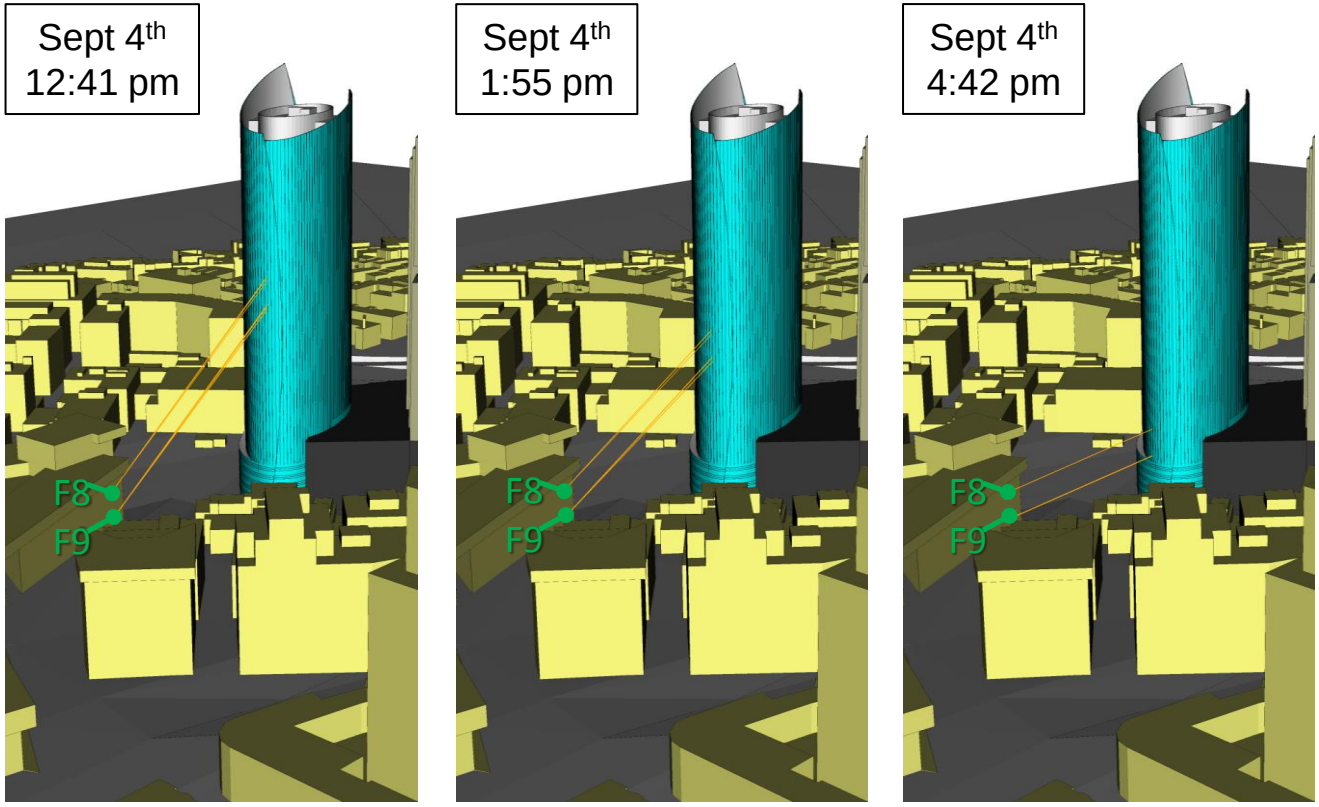


Figure 7: Illustration of reflection traces on façade receptors F8 and F9 on September 4th afternoon

8.0 RESULTS – ILLUSTRATION OF PREDICTED RAYS OF REFLECTED SUNLIGHT

Similarly, Figure 8 represents an example for the reflections falling onto the pedestrian receptors where the reflections emanating from the southern façade of the tower are shown to impact the pedestrians standing at Boston City Hall (receptor P20) during the morning of March 7th.

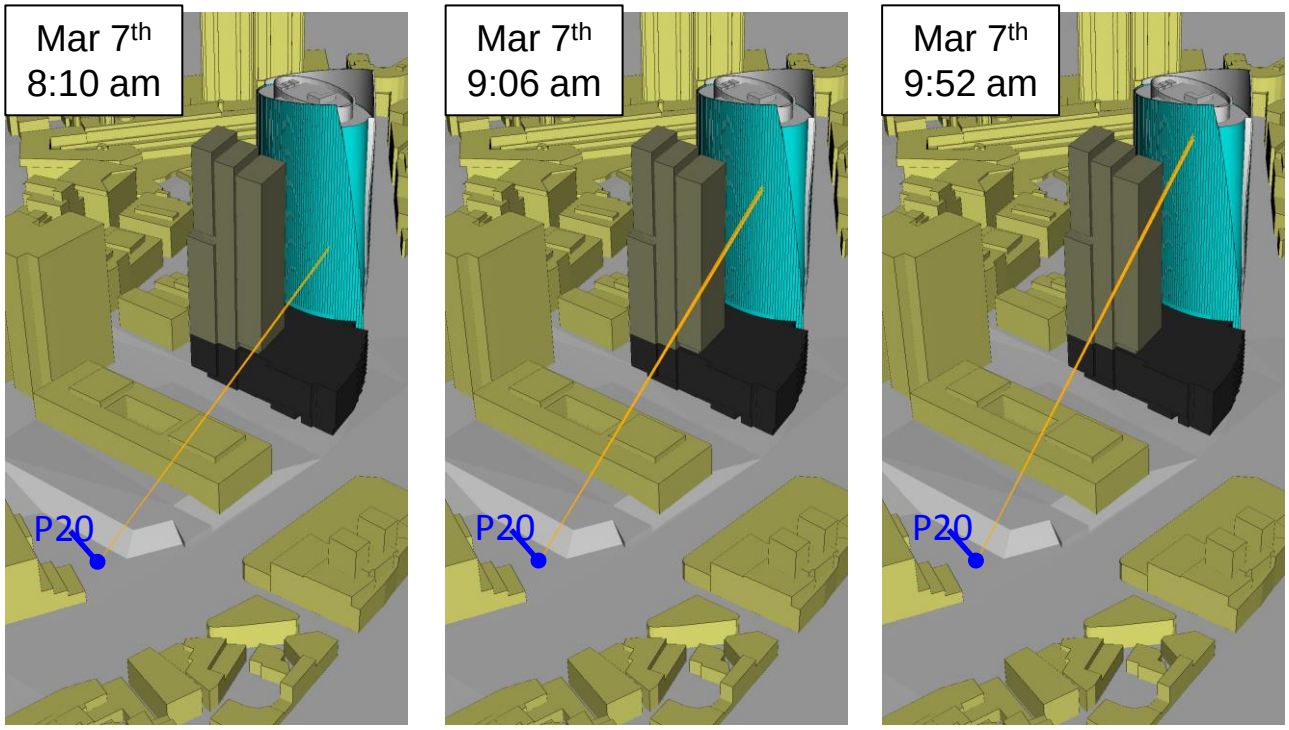


Figure 8: Illustration of reflection traces on pedestrian receptor P20 on March 7th morning

8.0 RESULTS – ILLUSTRATION OF PREDICTED RAYS OF REFLECTED SUNLIGHT

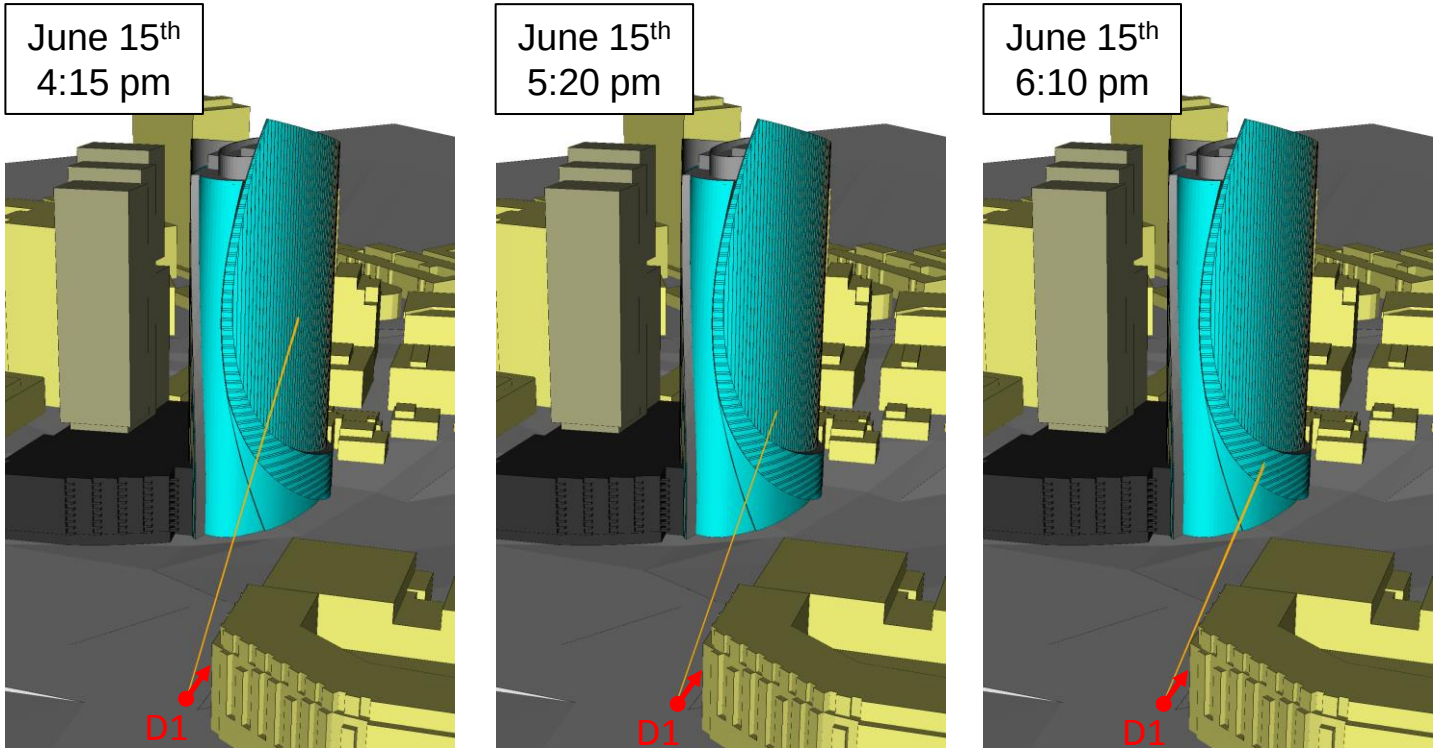


Figure 9: Illustration of reflection traces on driver receptor D1 on June 15th afternoon. At this time the driver's cone of vision would include the direct line of sight of the sun. Therefore the glare impact from the building would be comparable to the glare from the sun that the driver would experience without the building reflections.

8.0 RESULTS – SUMMARY OF PREDICTED IMPACTS OF REFLECTED SUNLIGHT

Table 1 below summarizes the results of the detailed receptor analysis with regard to the visual light impact (glare) and the thermal impact on people and on facades. Appendix A provides visual and thermal impact diagrams for each of the receptor points.

Receptor Number	Receptor Type	Assumed Activity Risk Level	Assumed Ability to Self-Mitigate	Reflected Light Visual Impact	Direct Visual Impact of Sun at Time of Reflection event (Y/N)	Reflected Solar Thermal Impact on People	Reflected Solar Thermal Impact on Facade
D1	Driver	High	Low	*High*	*Yes (Fig 7)*	*Low*	–
D2	Driver	High	Low	*High*	*No*	*Low*	–
D3	Driver	High	Low	*High*	*Yes*	*Low*	–
D4	Driver	High	Low	*Moderate*	*No*	*Low*	–
D5	Driver	High	Low	*Moderate*	*No*	*Low*	–
F6-F7	Facade	Low	High	*Moderate*	NA	–	*Low*
F8-F9	Facade	Low	High	*Moderate*	NA	–	*Low*
F10-F11	Facade	Low	High	*Moderate*	NA	–	*Low*
F12-F13	Facade	Low	High	*Moderate*	NA	–	*Moderate*
F14-F15	Pedestrian	Low	High	*Low*	NA	–	*Low*
P16	Pedestrian	Low	High	*Moderate*	NA	*Low*	–
P17	Pedestrian	Low	High	*Moderate*	NA	*Low*	–
P18	Pedestrian	Low	High	*Moderate*	NA	*Low*	–
P19	Pedestrian	Low	High	*Moderate*	NA	*Low*	–
P20	Pedestrian	Low	High	*Moderate*	NA	*Low*	–
P21	Pedestrian	Low	High	*Low*	NA	*Low*	–
P22	Pedestrian	Low	High	*Moderate*	NA	*Low*	–
P23	Pedestrian	Low	High	*Moderate*	NA	*Low*	–

Table 1: Summary of Overall Predicted Impacts – Facade, Pedestrian, and Canopy Receptors

9.0 CONCLUSIONS

1. Reflections at pedestrian level are predicted to scatter in a pinwheel fashion due to the facetted convex geometry of the building. This configuration is expected to result in frequent, short duration (10 to 15 minute) reflections in the surrounding area of the building.

   The Eclipse computer model predicts that the above-mentioned reflection pattern will occur at most of the selected receptors throughout the year (see Appendix A), raising the concern of causing repeated visual distractions or nuisance to the occupants of the neighboring buildings (receptors F6-F13) as well as to pedestrians (receptors P16-P20, and P23) and drivers travelling in the surrounding area of the tower (receptors D1-D5).

2. Nevertheless, aside from the driver receptors, RWDI considers the majority of the façade and pedestrian receptors to have a **moderate** level of visual glare impact (as shown in Table 1) as they are nuisance only and not a safety concern since pedestrians can easily look away from glare, and building occupants can close their blinds.

3. Drivers travelling southwest along New Chardon St (receptor point D1) are expected to experience **high**-impact visual reflections that are approximately 5 to 15 minutes in duration per day, occurring frequently in the evenings from February through October. That being said, these glancing reflections are not expected to alter a driver's current experience as the sun will already be in the driver's line of sight at this time. The primary sources of these reflections are the lower one-third of the north facades. Figure 7 illustrates a sample set of reflections which emanate from this area and fall onto the driver receptor point D1 in the afternoon of June 15th.

   A similar situation occurs to the drivers travelling northeast along New Chardon St (receptor point D3), where they experience high visual glancing impacts from the lower one-quarter of the north facade. Although the reflections in question are frequent, they occur only in the early hours of summer mornings (between 4:00 am to 6:00 am).

4. Frequent **high**-impact visual reflections emanating from the lower one-quarter of the northeast facade are expected to impact the drivers travelling southeast along Merrimac St near the intersection of New Chardon St (receptor point D2). These reflections could alter a driver's experience as the sun would not be in the driver's line of sight when the reflections occur. While the reflections will be a daily occurrence, the majority of reflections occur in the summer during early mornings (between 4:00 am to 6:00 am).

9.0 CONCLUSIONS

5. The convex shape of the proposed Office Tower façade ensures that reflected sunlight will not focus (multiply) in any particular area. This alleviates any concern of significant heat fluxes that could cause discomfort to people or property damage.
6. RWDI considers heat flux impacts at all the receptors located outside the Government Center Garage site to not be of concern due to the relatively low predicted intensity.
7. No significant reflections are predicted to impact the receptors representing some of the historic sites in the area (receptors F14, F15, and P21).
8. Reflections on site will occur at moderate levels of thermal impact at the façade receptor F12 located on the lower half of the Residential Tower (WP-B1). The Eclipse model predicts frequent reflections at this receptor during midday in the summer. The majority of reflections are of a relatively low to moderate intensity (<400 W/m²). Also, during the periods of impact of reflections, the thermal gain will not be augmented by direct sunlight as the sun will be illuminating a different side of the building. Therefore, for occupants of the north side of the building, the reflections are unlikely to cause significant concerns about heat gain and should not adversely affect thermal comfort of people.

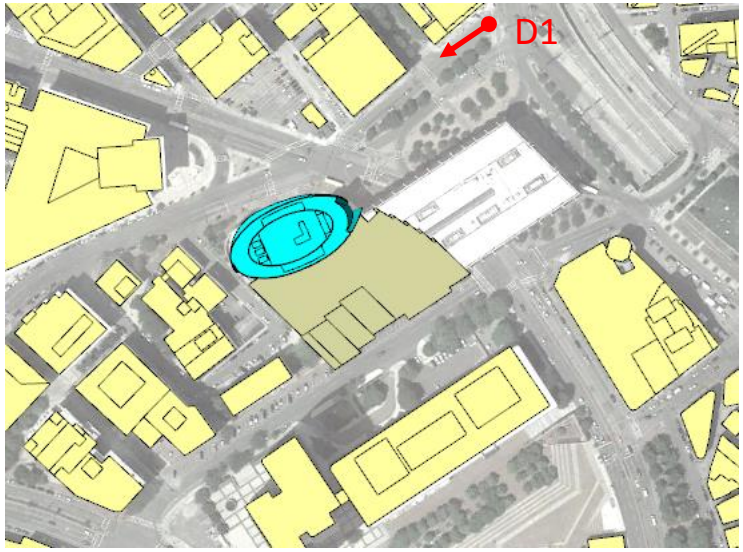
10.0 RECOMMENDATIONS

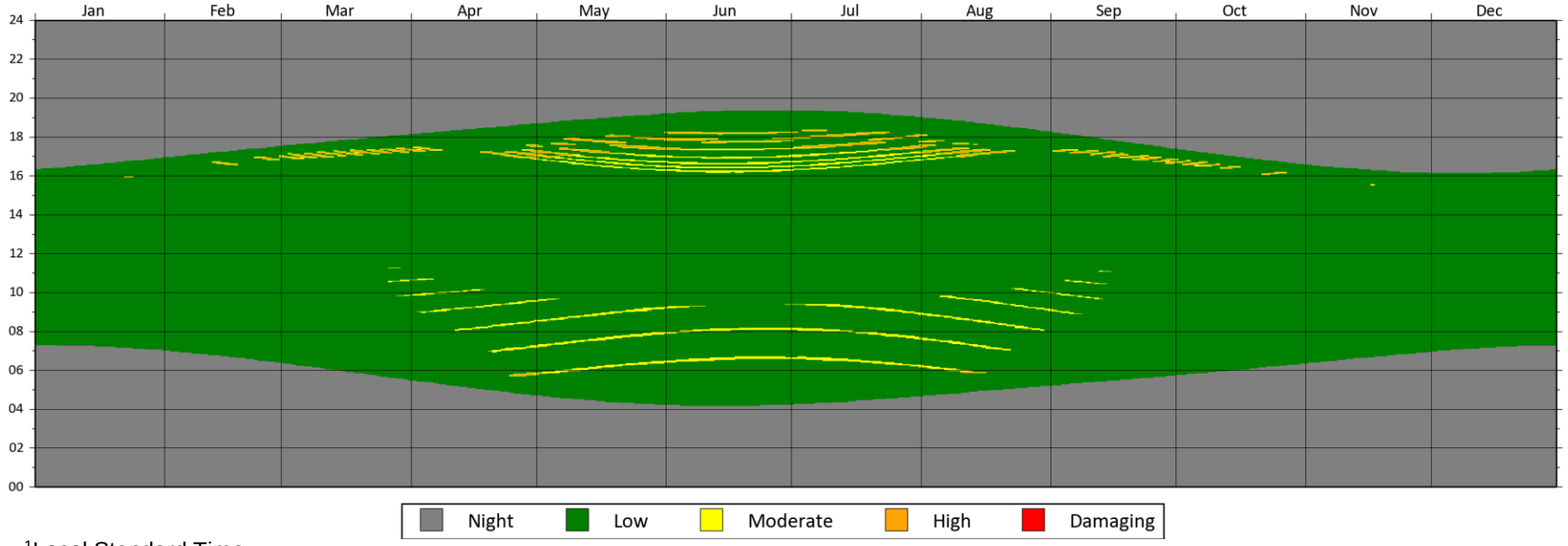
The detailed report issued on October 28, 2015 provides recommendations for potential mitigation of reflections. For the purposes of this summary report, we note that the suggestions have been provided of areas of the new office tower where there is potential to reduce reflection impacts through reductions in reflectivity of the glass or the addition or modification to external sunshades. Impacts on site on the roof deck of the garage may be mitigated with local shading systems as part of the landscape plan.

APPENDIX A – DETAILED REFLECTION RESULTS

Receptor D1 Annual Visual Impact

Receptor D1 was chosen to assess the visual risk associated with solar reflections affecting drivers travelling southwest along New Chardon St.

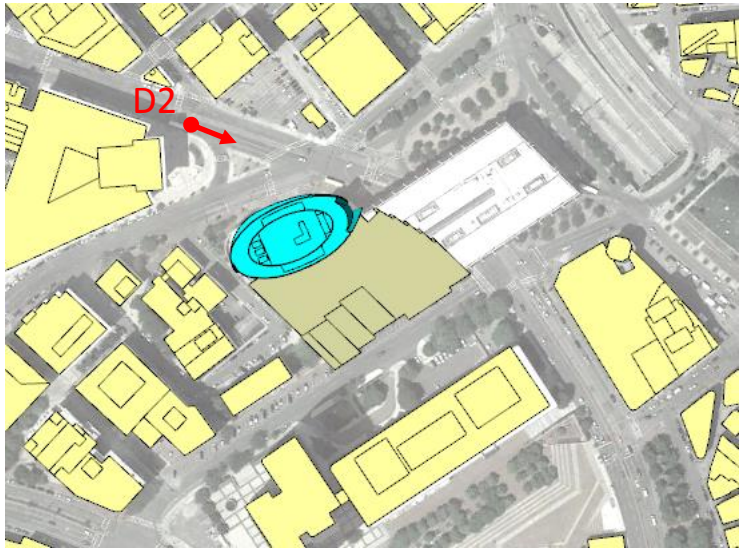


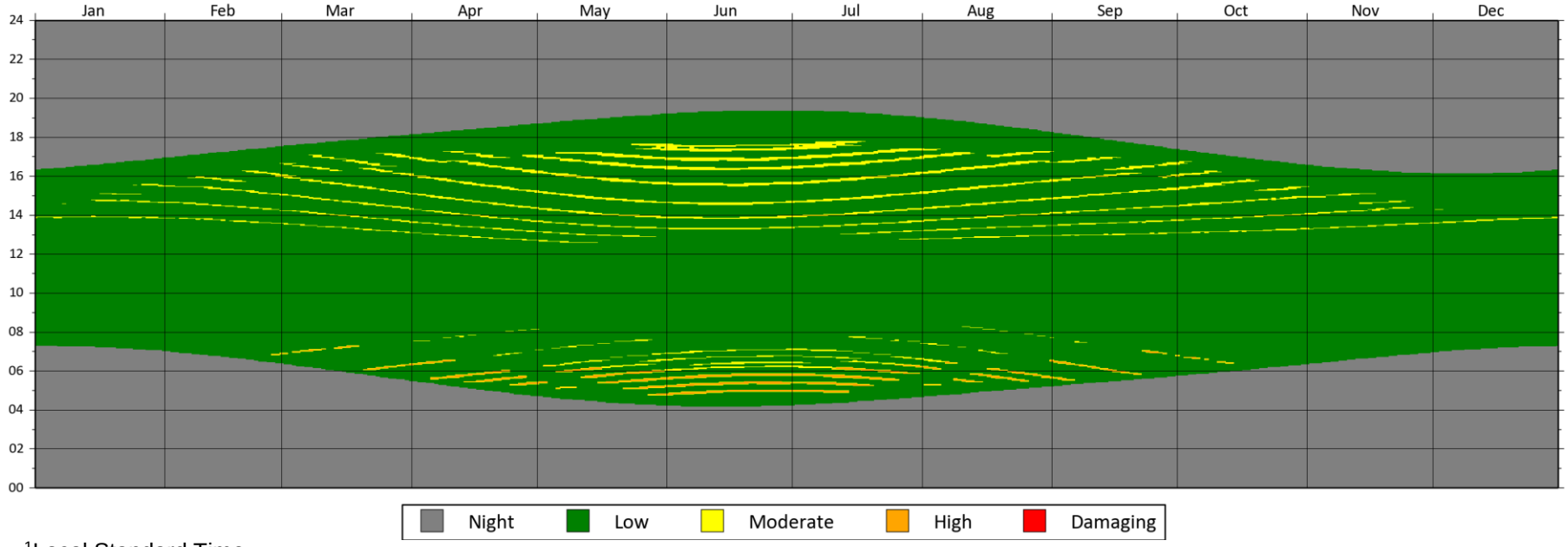


[1]Local Standard Time.

Receptor D2 Annual Visual Impact

Receptor D2 was chosen to assess the visual risk associated with solar reflections affecting drivers travelling southeast along Merrimac St.

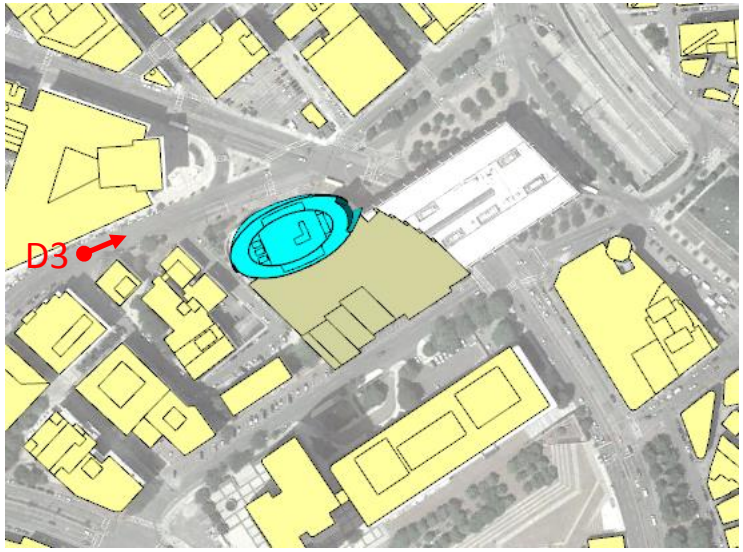


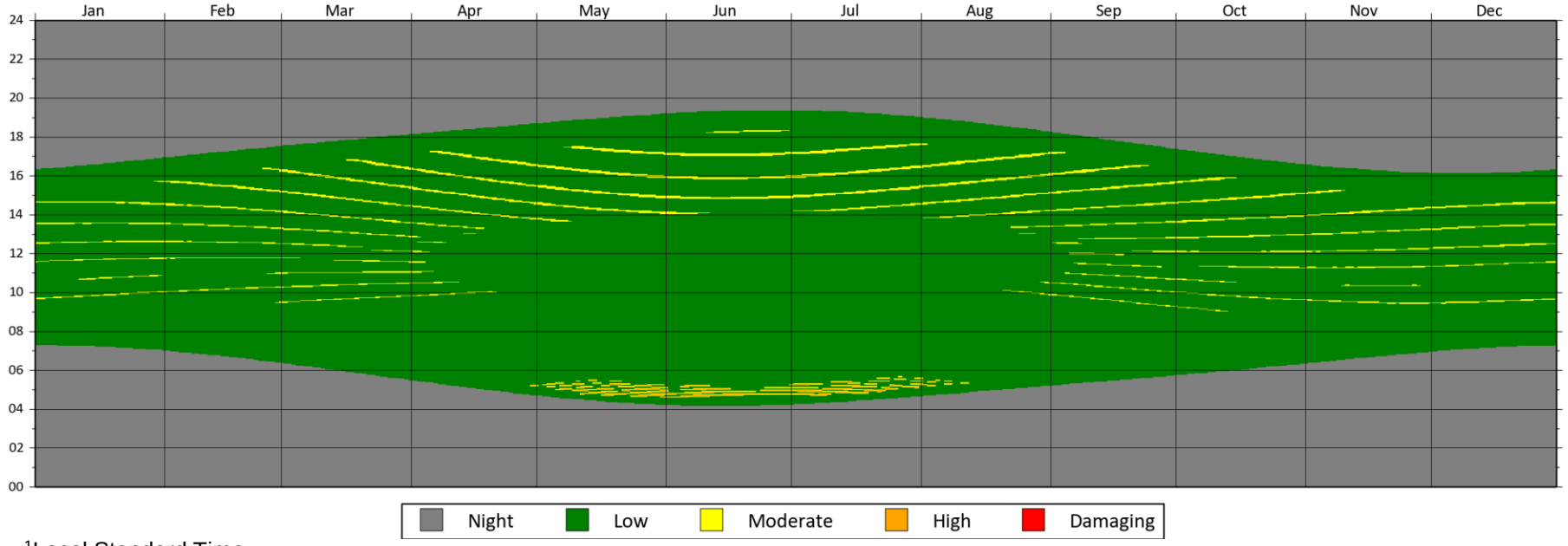


[1]Local Standard Time.

Receptor D3 Annual Visual Impact

Receptor D3 was chosen to assess the visual risk associated with solar reflections affecting drivers travelling northeast along New Chardon St.

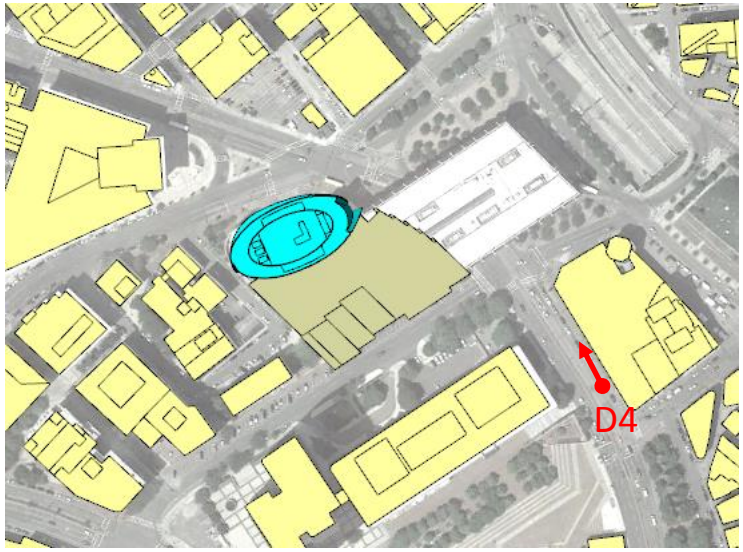


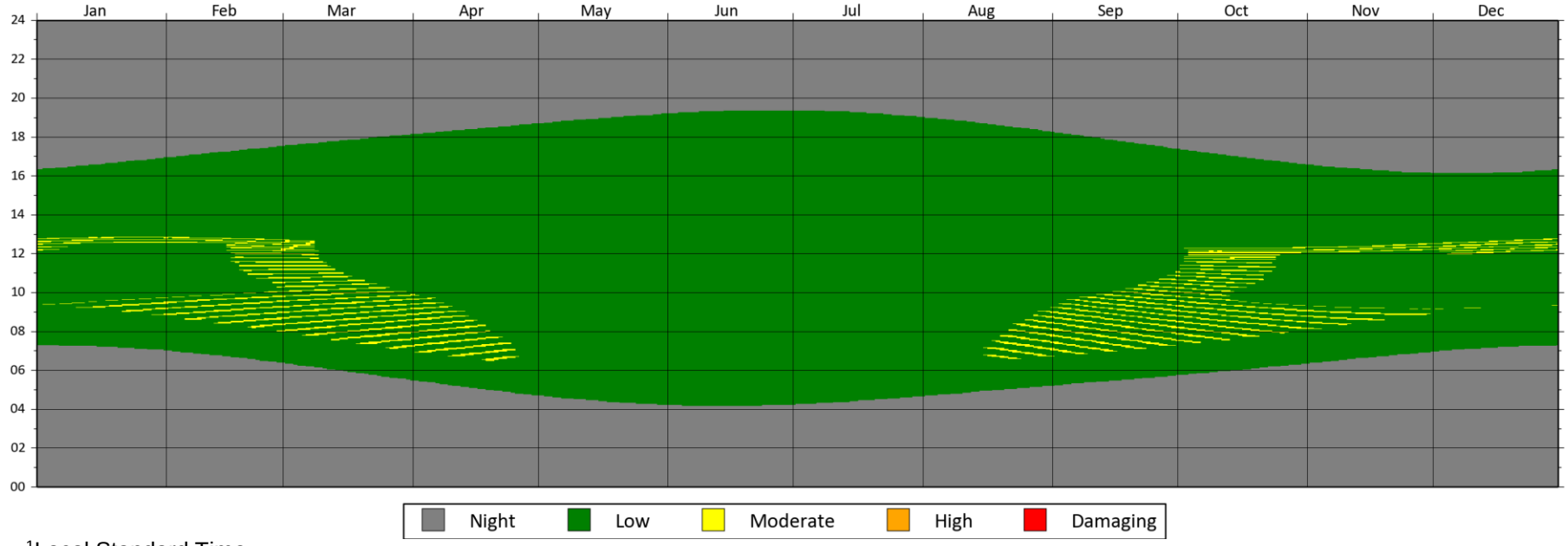


[1]Local Standard Time.

Receptor D4 Annual Visual Impact

Receptor D4 was chosen to assess the visual risk associated with solar reflections affecting drivers travelling northwest along Congress St

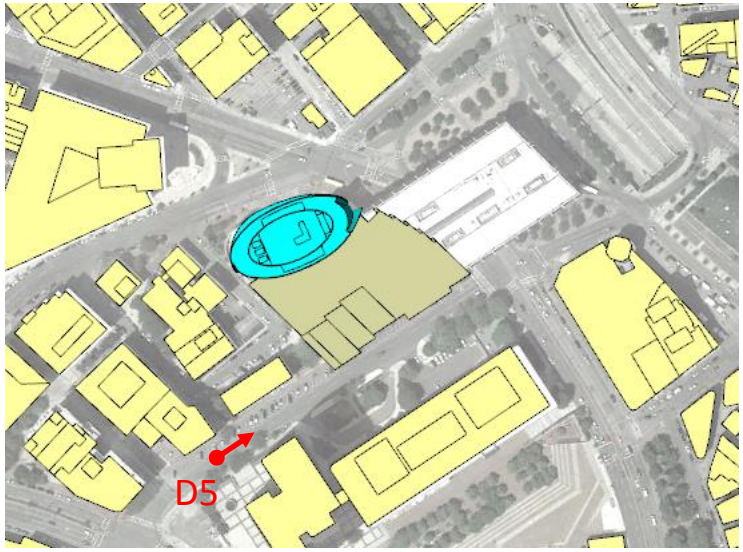


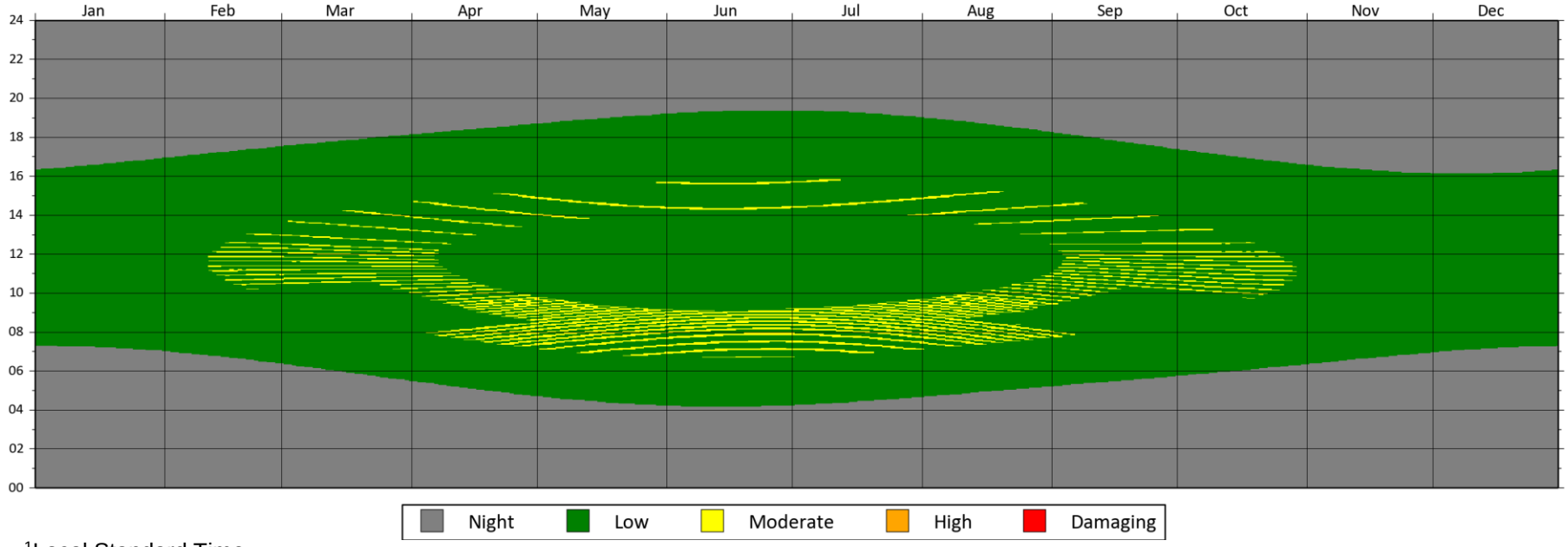


[1]Local Standard Time.

Receptor D5 Annual Visual Impact

Receptor D5 was chosen to assess the visual risk associated with solar reflections affecting trains travelling northeast along Sudbury St

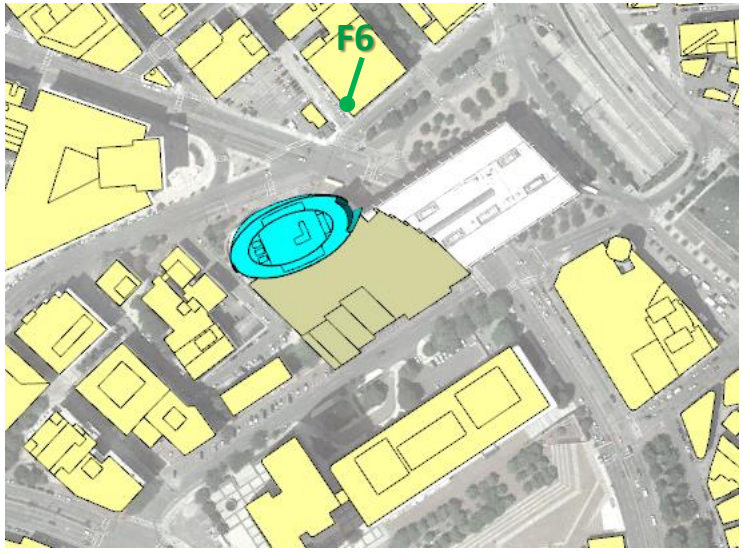


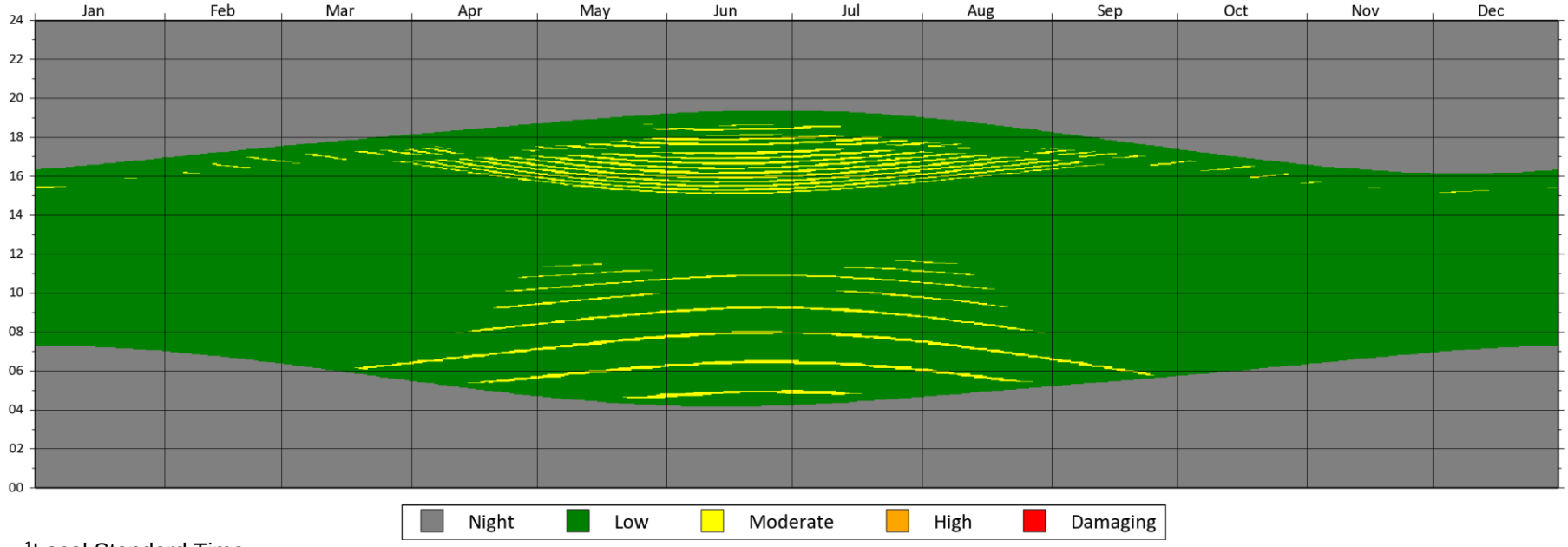


[1]Local Standard Time.

Receptor F6 Annual Visual Impact

Receptor F6 is a facade receptor placed on the building at Friend St, at lower-half height of the building.

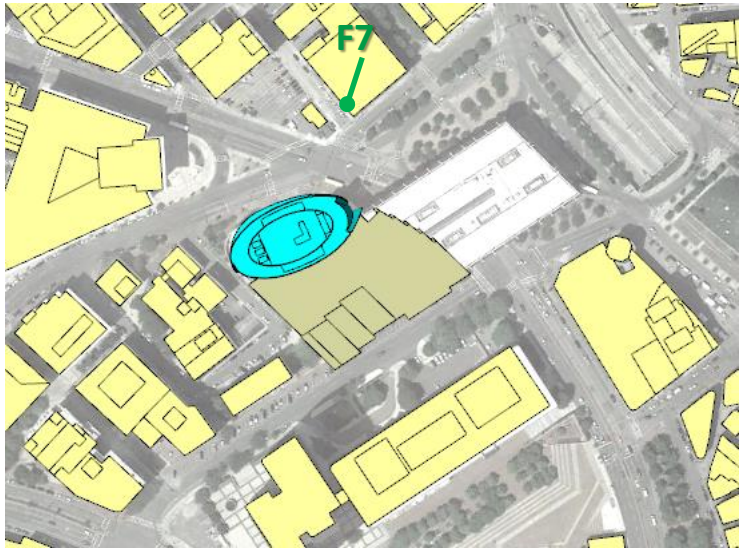


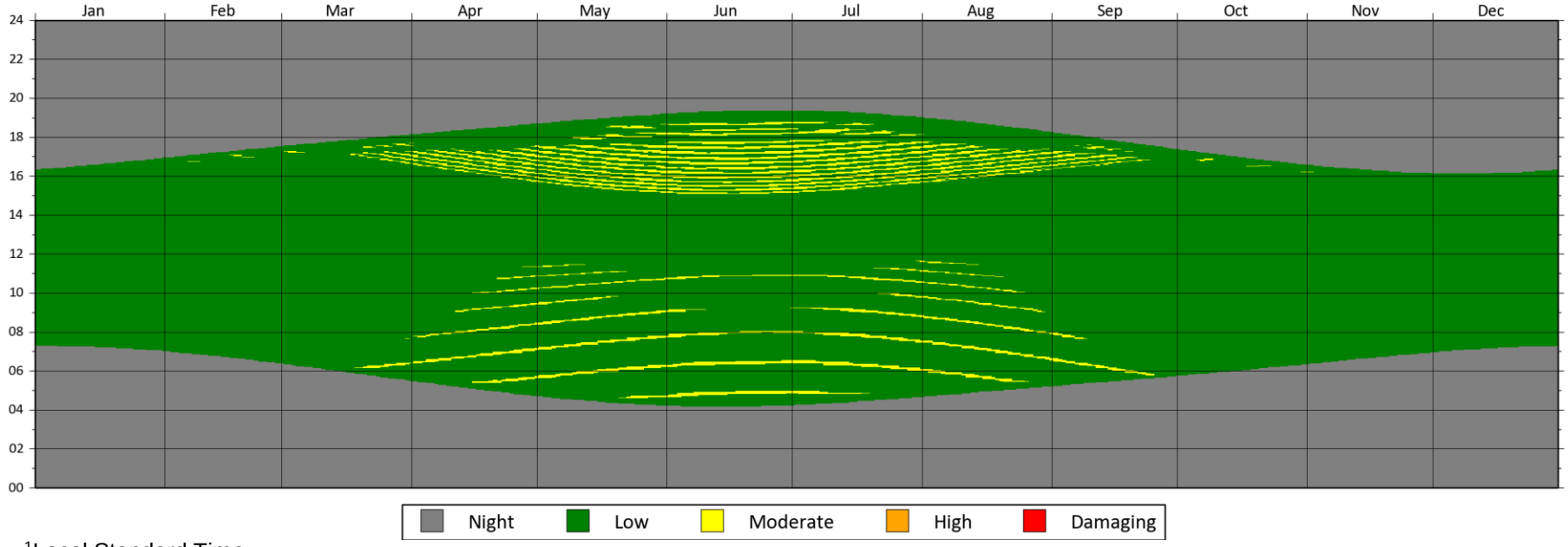


[1]Local Standard Time.

Receptor F7 Annual Visual Impact

Receptor F7 is a facade receptor placed on the building at Friend St, at upper-half height of the building.

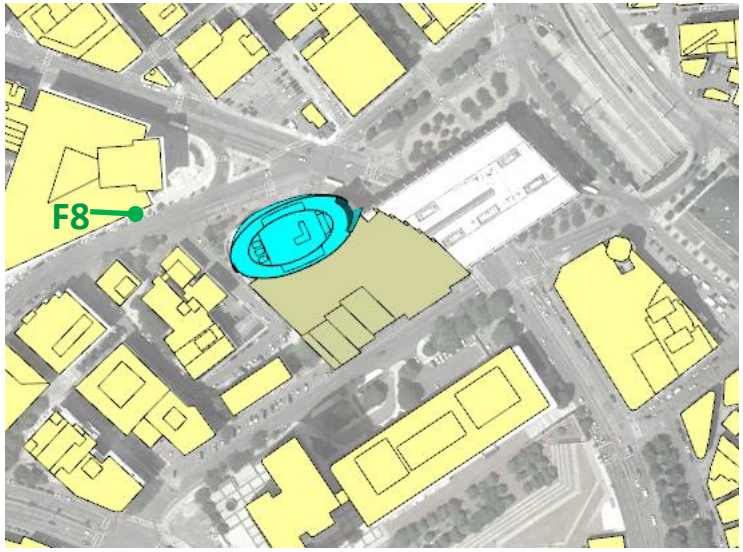


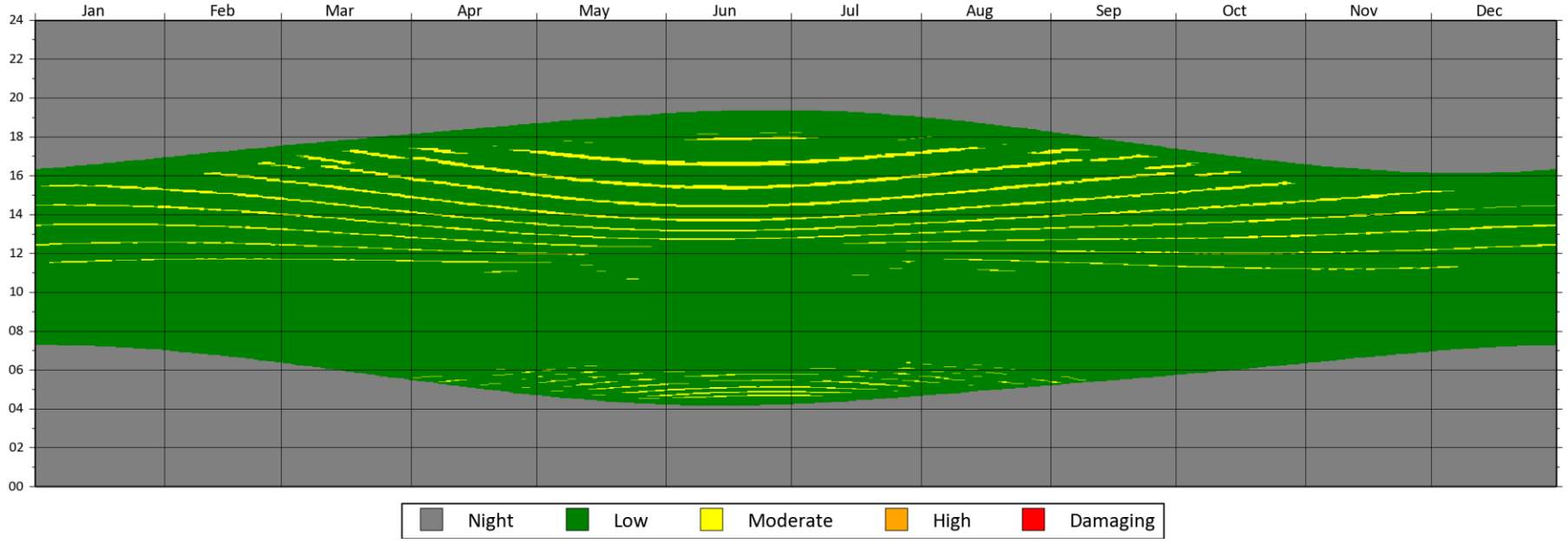


[1]Local Standard Time.

Receptor F8 Annual Visual Impact

Receptor F8 is a facade receptor placed on Edward W Brook Courthouse building, at lower-half height of the building.

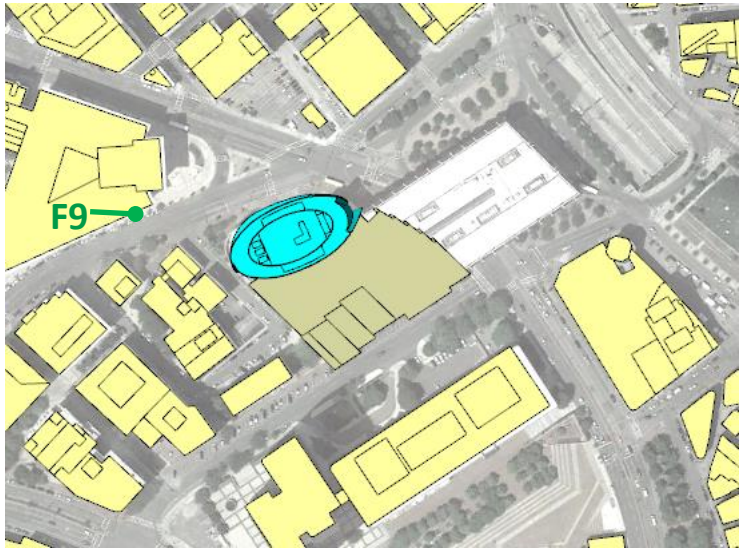


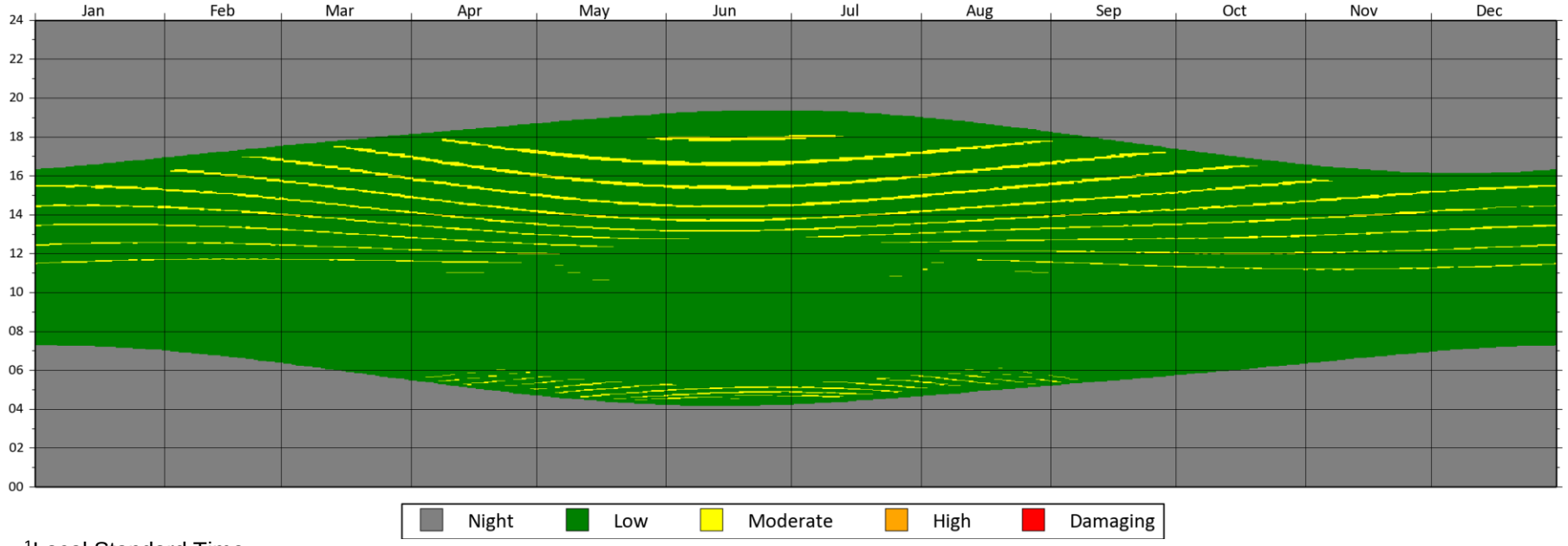


[1]Local Standard Time.

Receptor F9 Annual Visual Impact

Receptor F9 is a facade receptor placed on Edward W Brook Courthouse building, at upper-half height of the building.

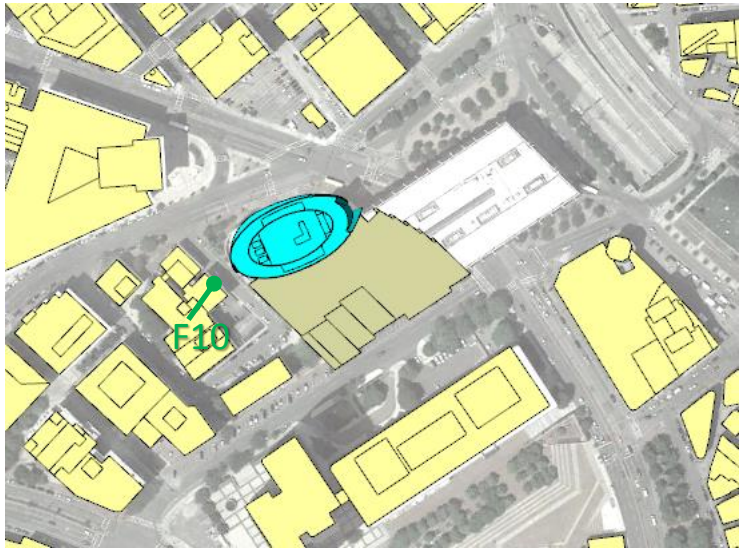


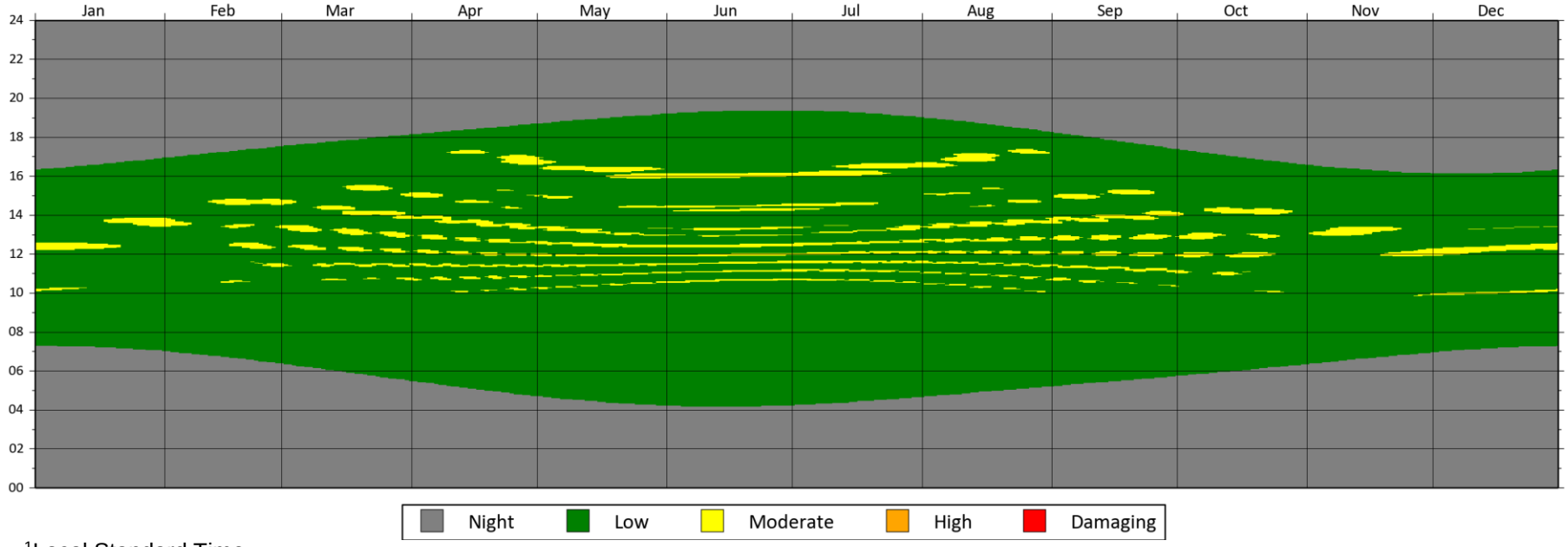


[1]Local Standard Time.

Receptor F10 Annual Visual Impact

Receptor F10 is a facade receptor placed on Center House building, at lower-half height of the building.

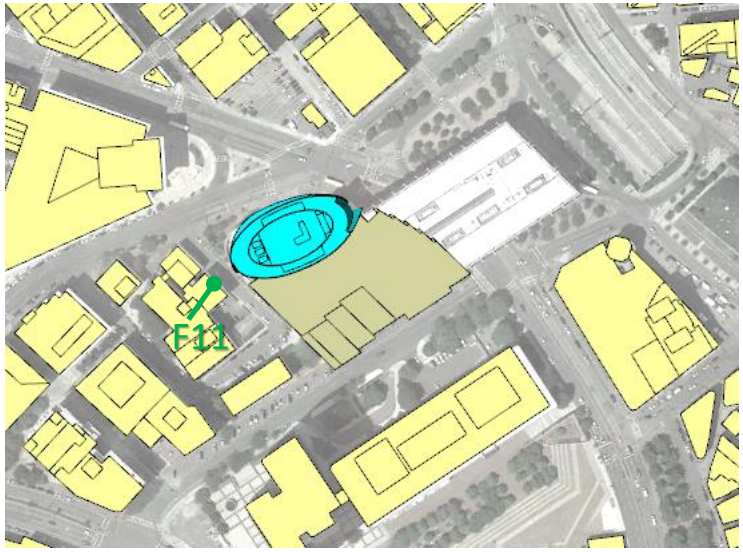


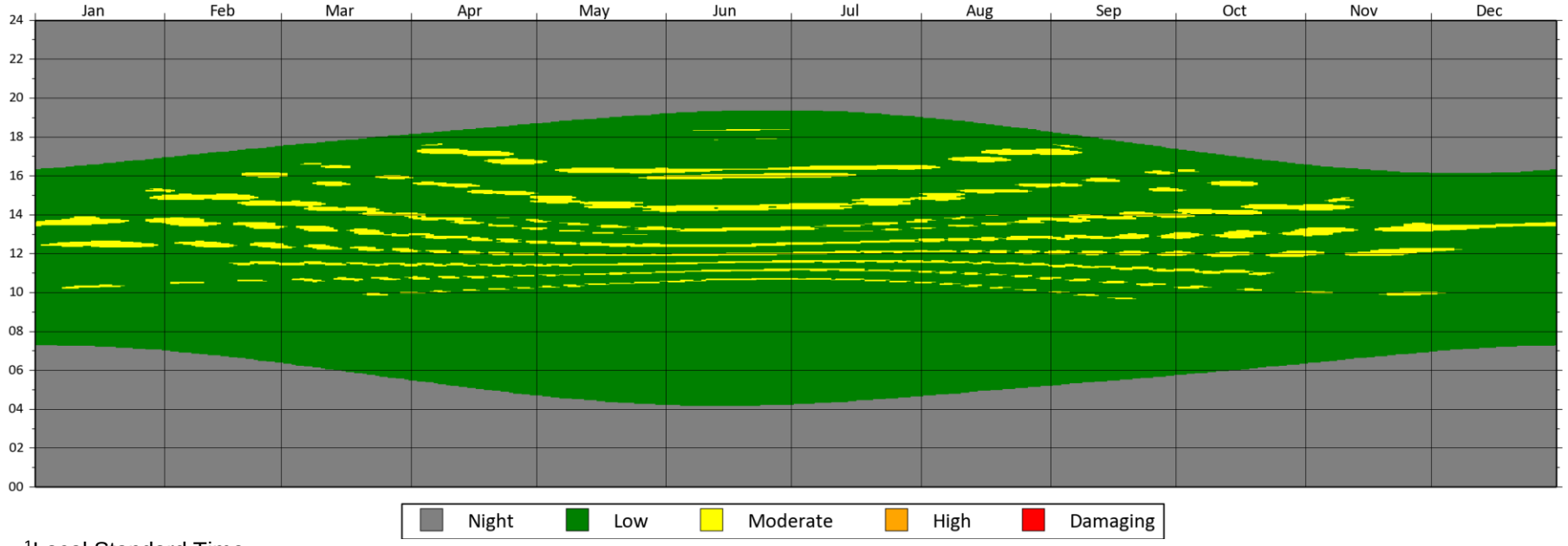


[1]Local Standard Time.

Receptor F11 Annual Visual Impact

Receptor F11 is a facade receptor placed on Center House building, at upper-half height of the building.

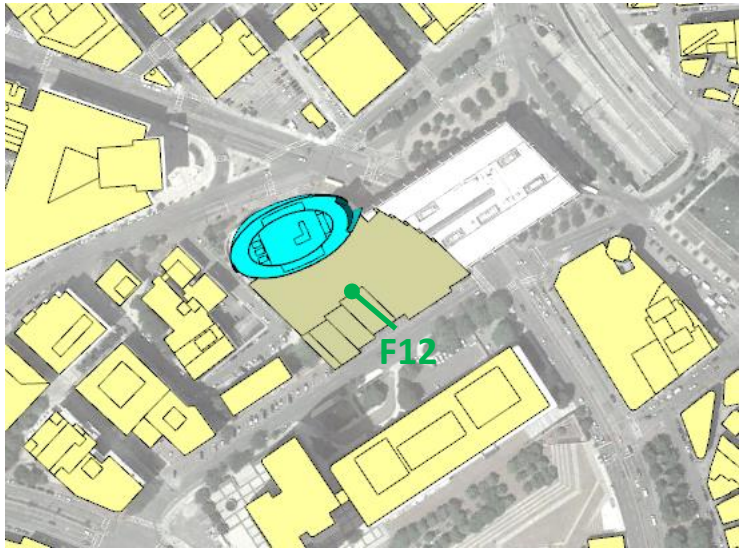


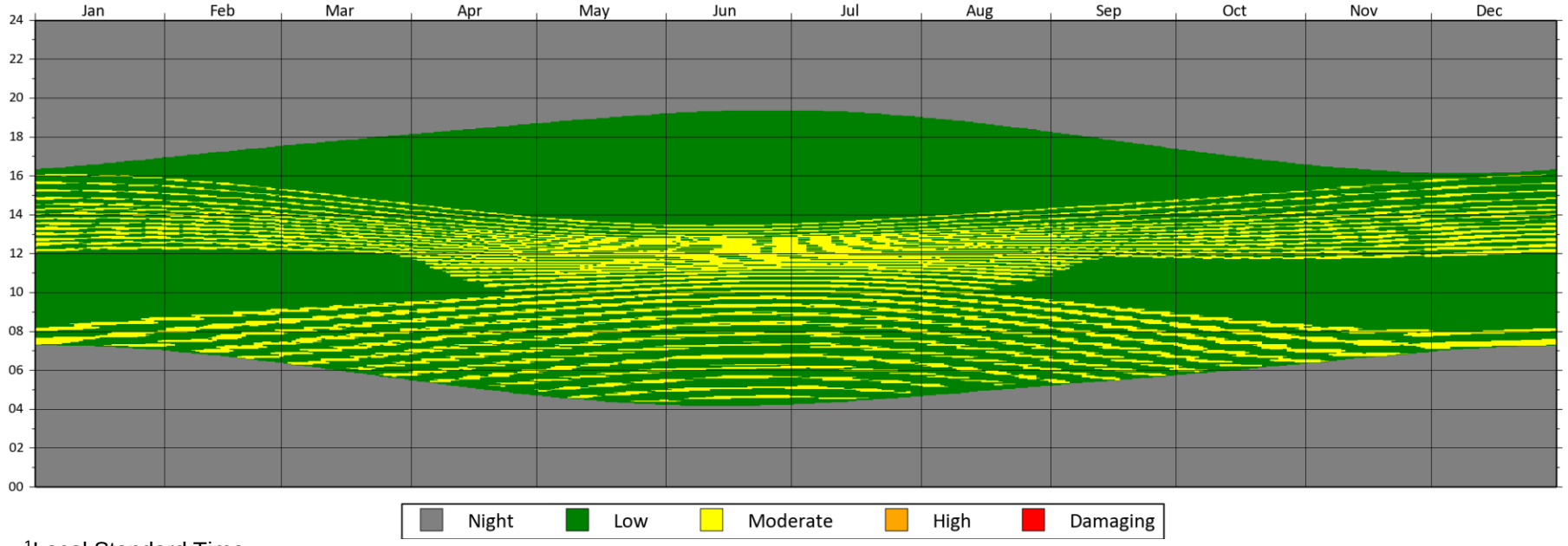


[1]Local Standard Time.

Receptor F12 Annual Visual Impact

Receptor F12 is a facade receptor placed on the proposed residential tower (WP-B1), at lower-half height of the building

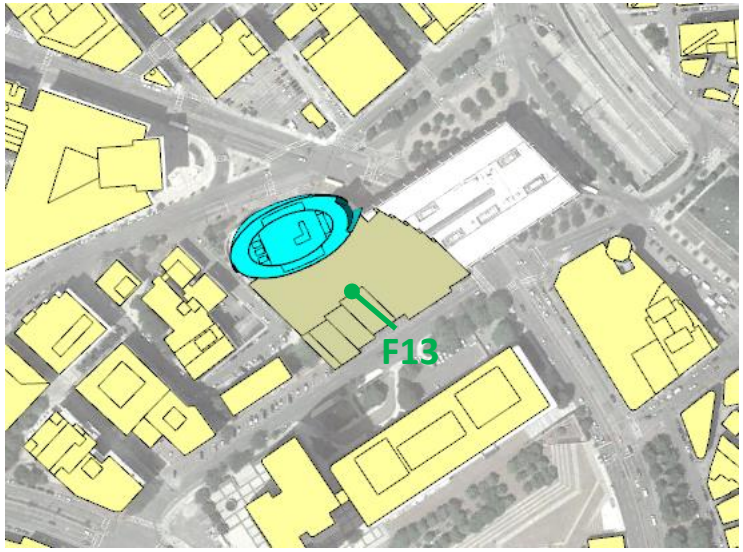


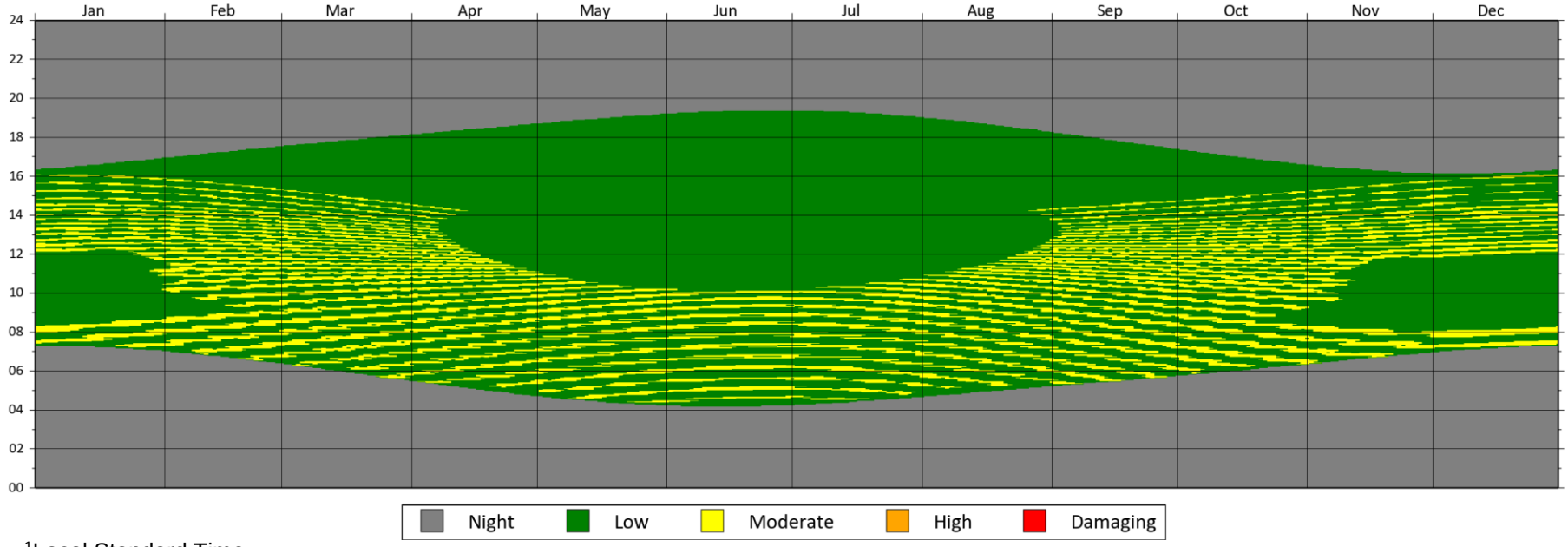


[1]Local Standard Time.

Receptor F13 Annual Visual Impact

Receptor F13 is a facade receptor placed on the proposed residential tower (WP-B1), at upper-half height of the building

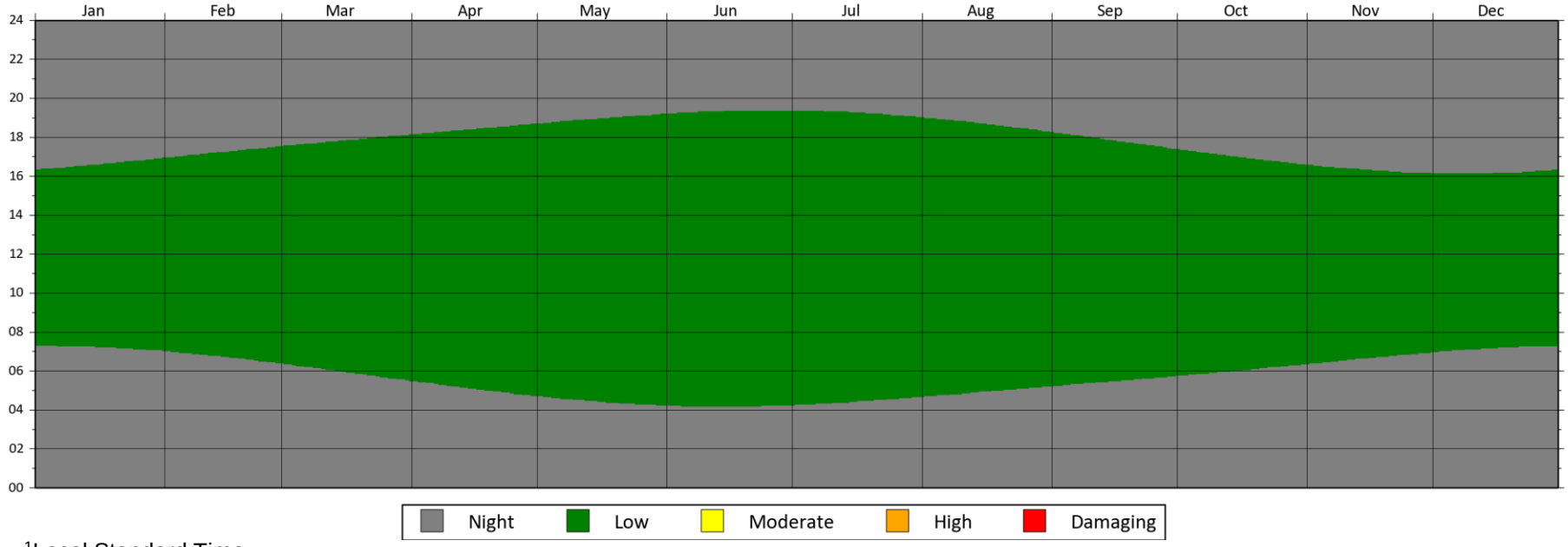




[1]Local Standard Time.

Receptor F14 Annual Visual Impact

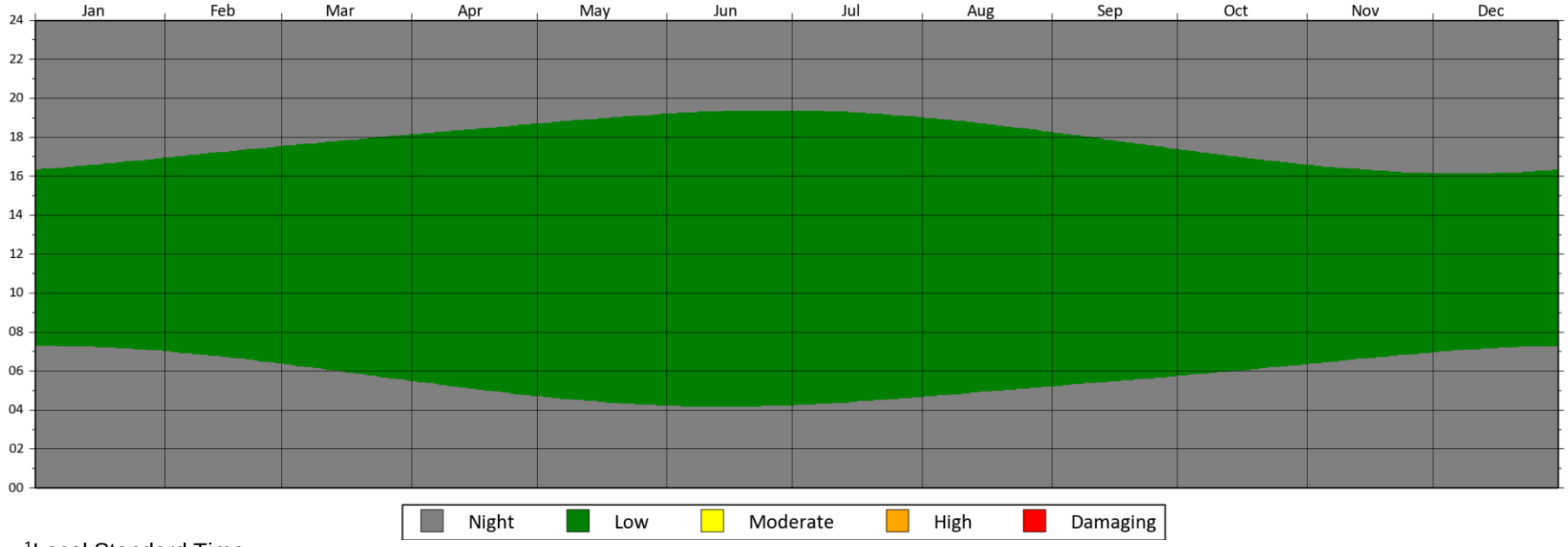
Receptor F14 is a facade receptor placed on Old West Church, at lower-half height of the building.



[1]Local Standard Time.

Receptor F15 Annual Visual Impact

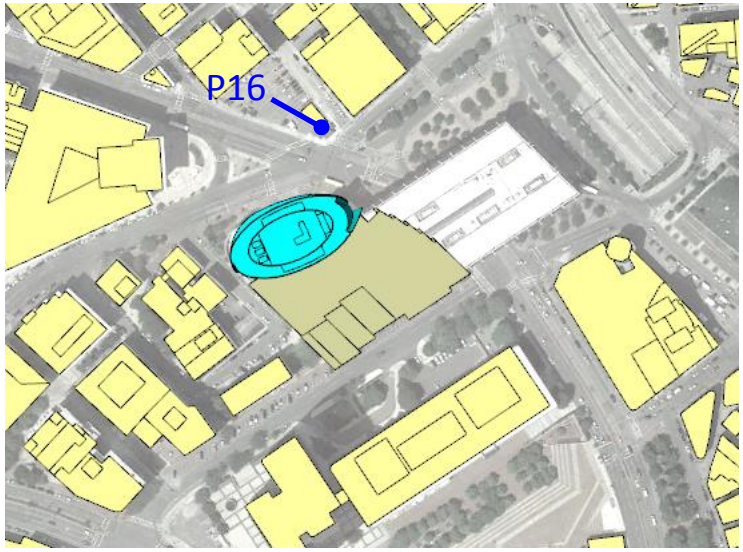
Receptor F15 is a facade receptor placed on Old West Church, at upper-half height of the building.

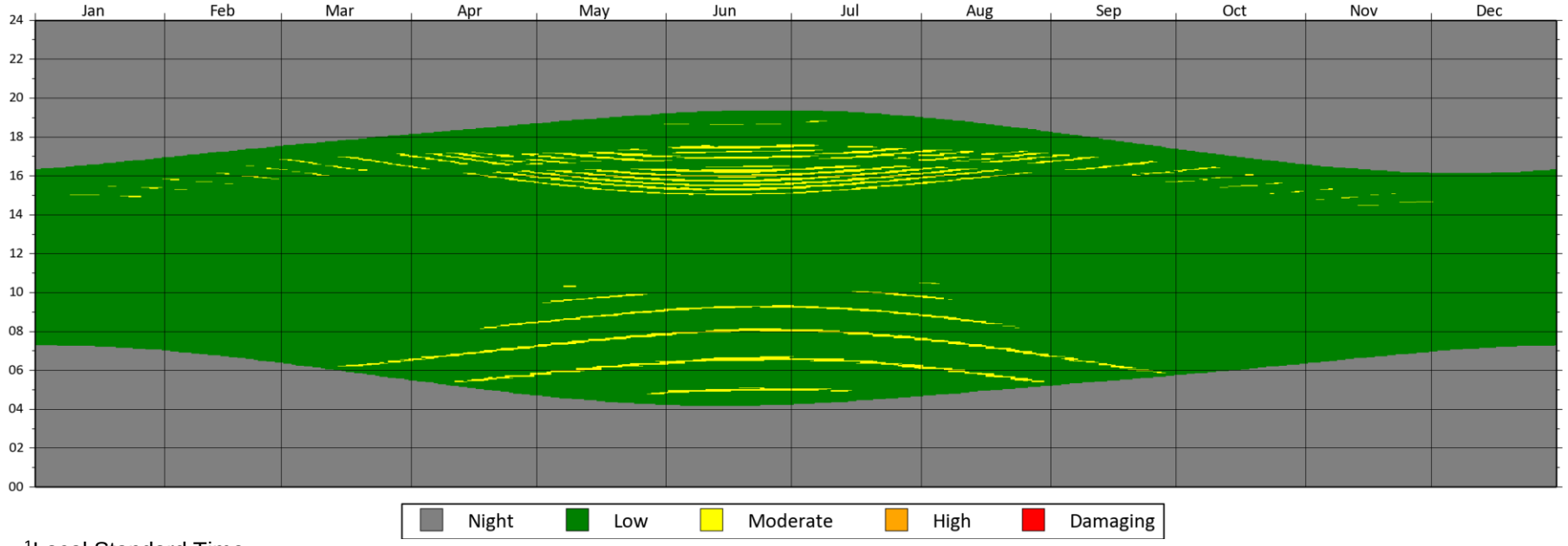


[1]Local Standard Time.

Receptor P16 Annual Visual Impact

P16 is a pedestrian receptor representing Pedestrians sitting on outdoor benches of CuppaCoffee store.

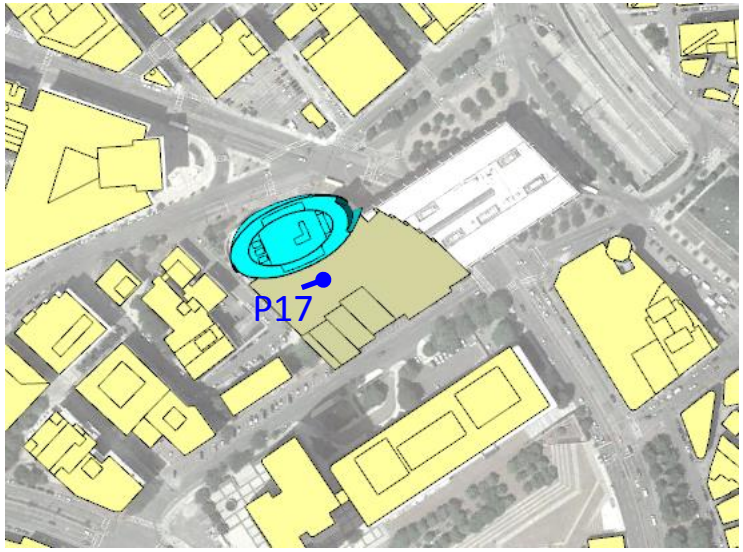


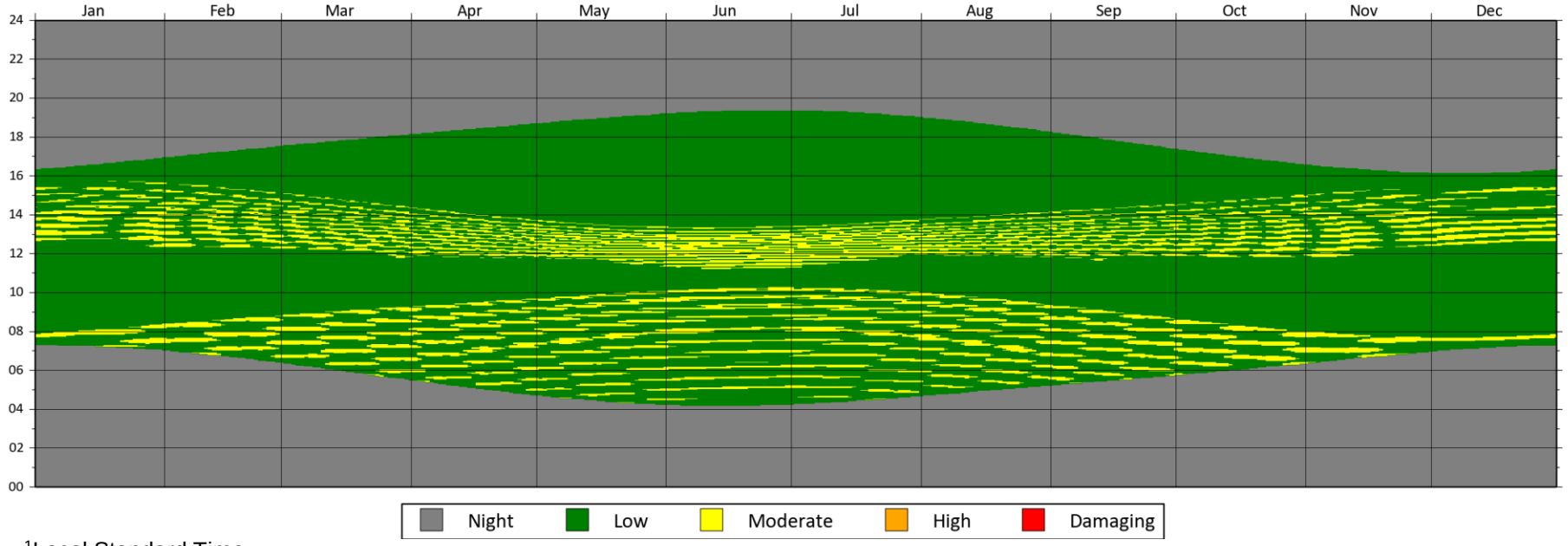


[1]Local Standard Time.

Receptor P17 Annual Visual Impact

P17 is a pedestrian receptor placed on the podium level of Government Center.

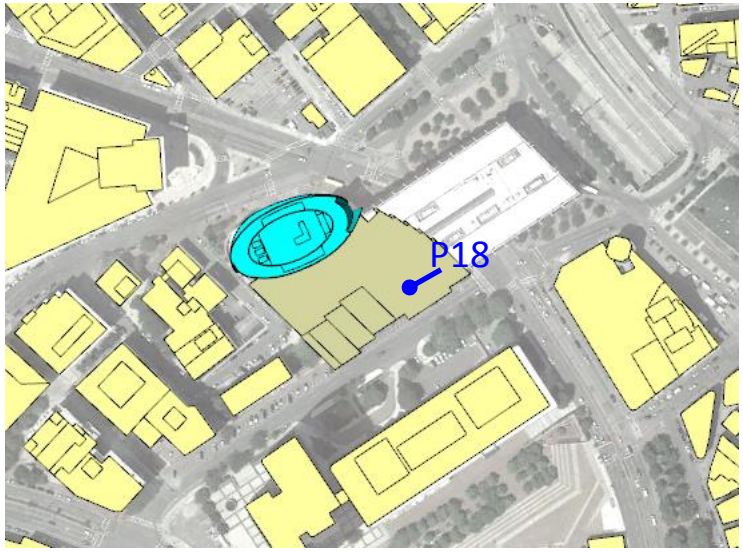


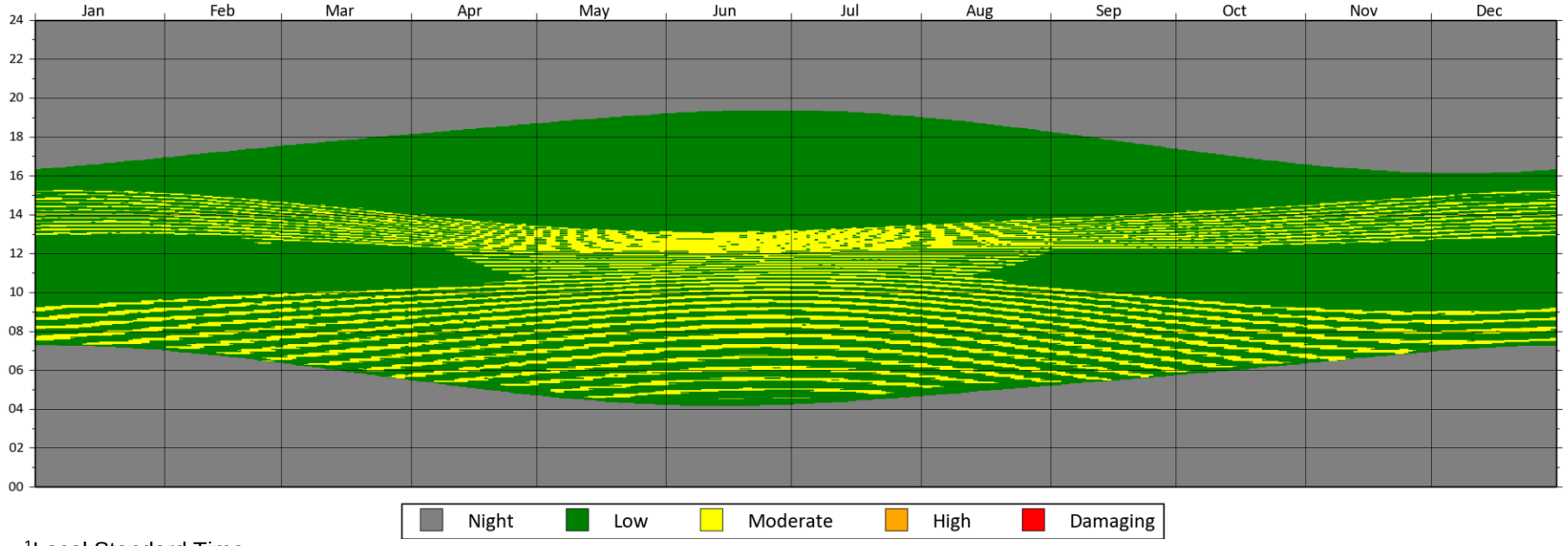


[1]Local Standard Time.

Receptor P18 Annual Visual Impact

P18 is a pedestrian receptor placed on the podium level of Government Center.

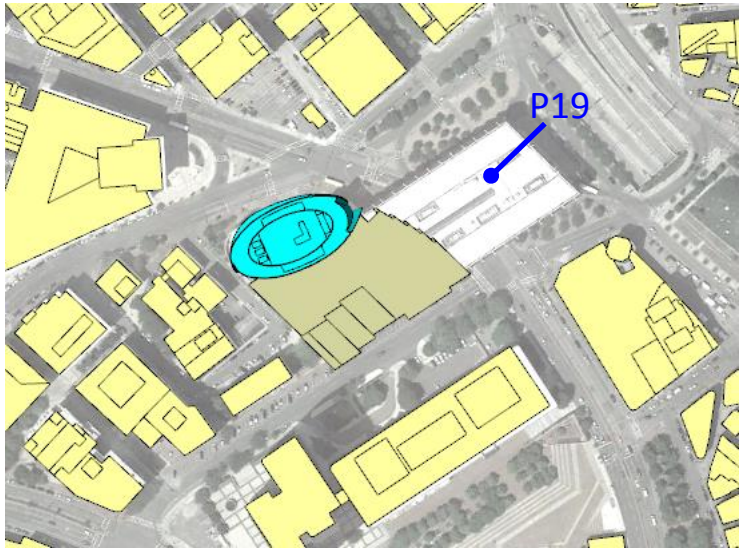


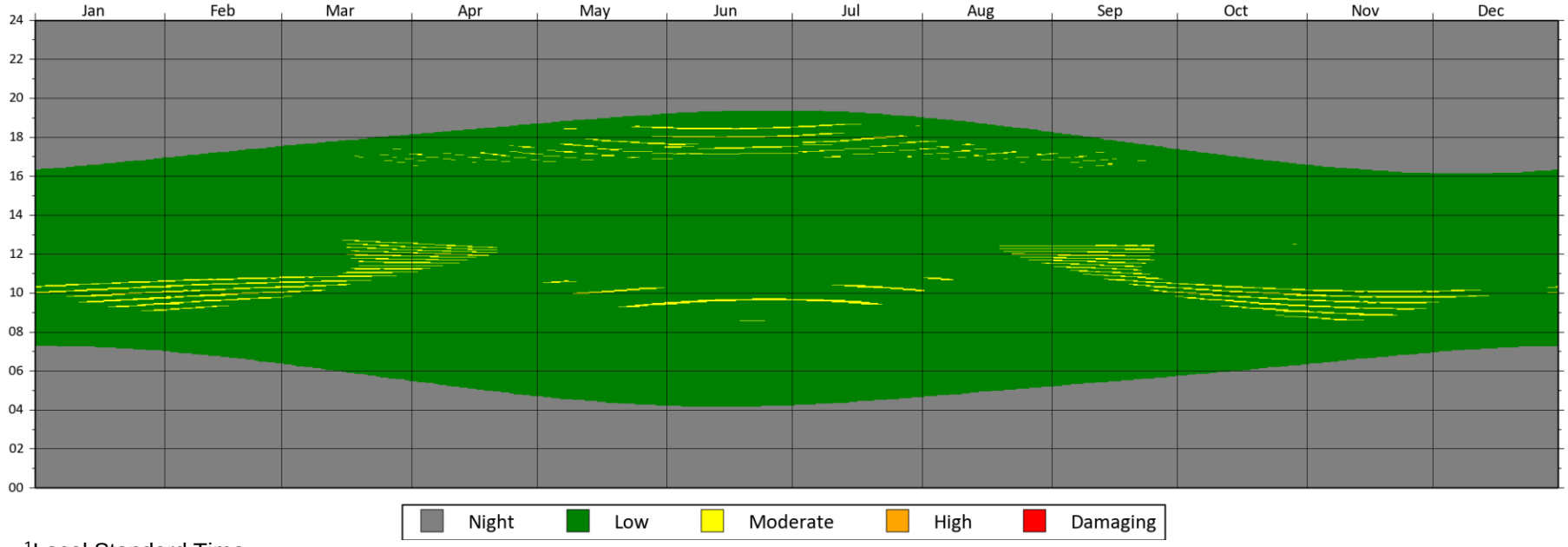


[1]Local Standard Time.

Receptor P19 Annual Visual Impact

P19 is a pedestrian receptor representing pedestrians standing at grade to the east of Government Center.

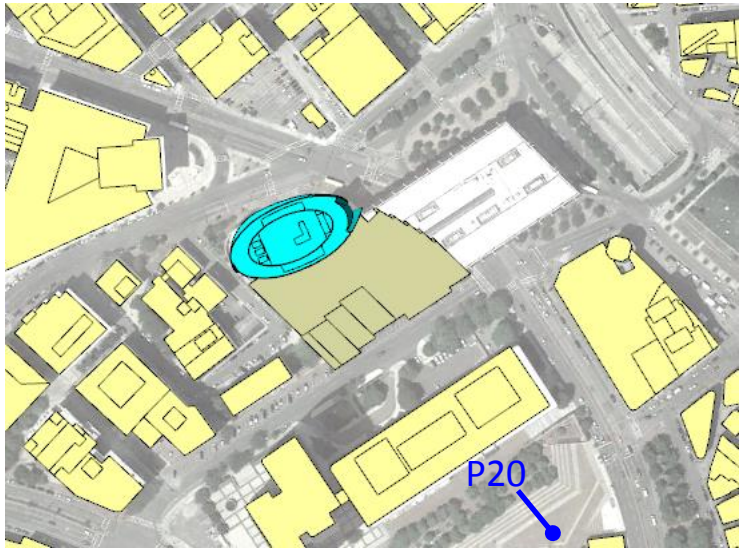


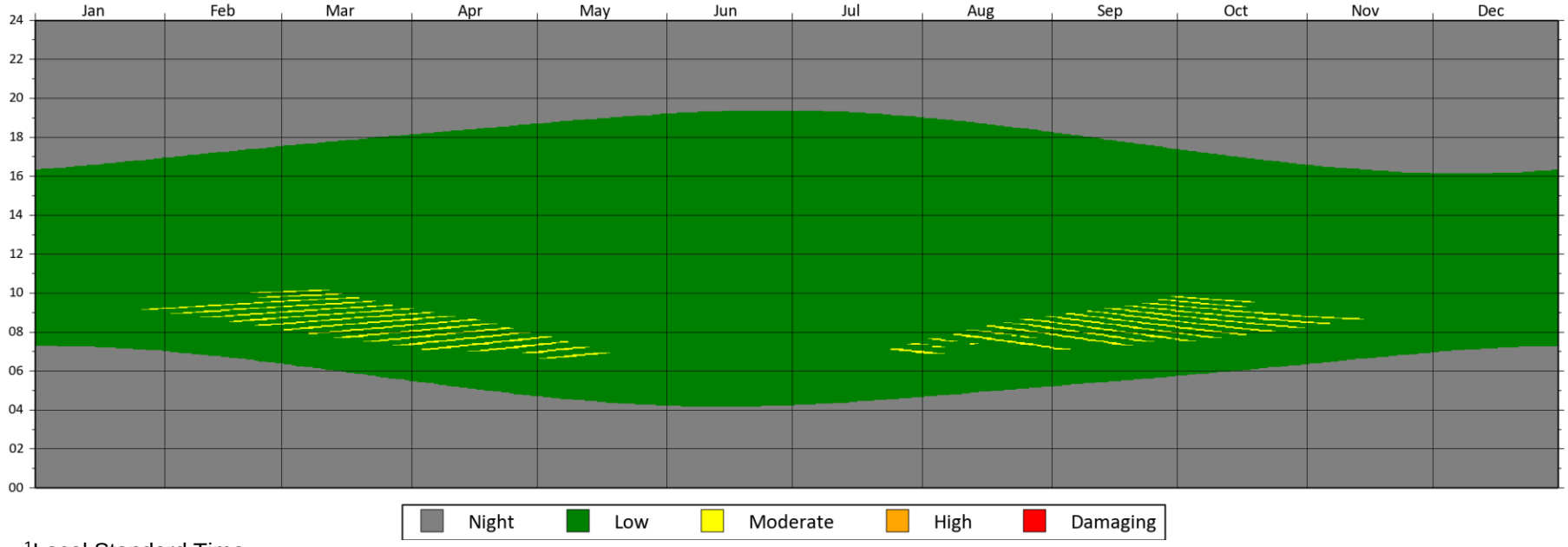


[1]Local Standard Time.

Receptor P20 Annual Visual Impact

P20 is a pedestrian receptor placed on the north of Boston City Hall.

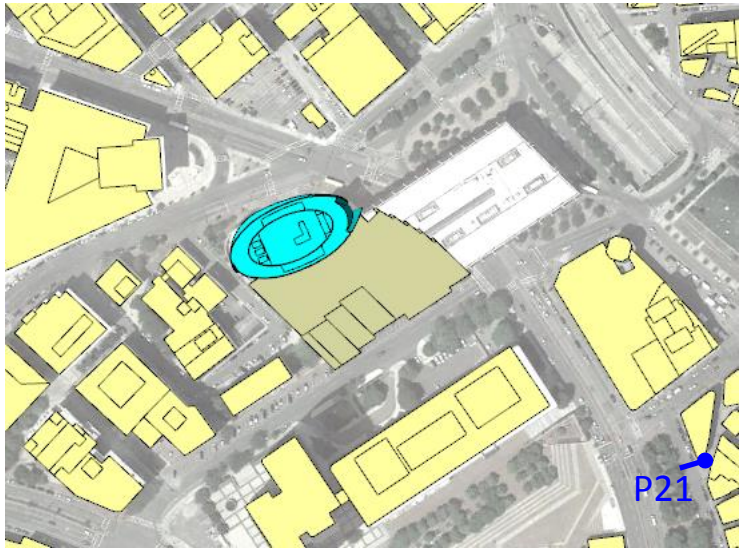


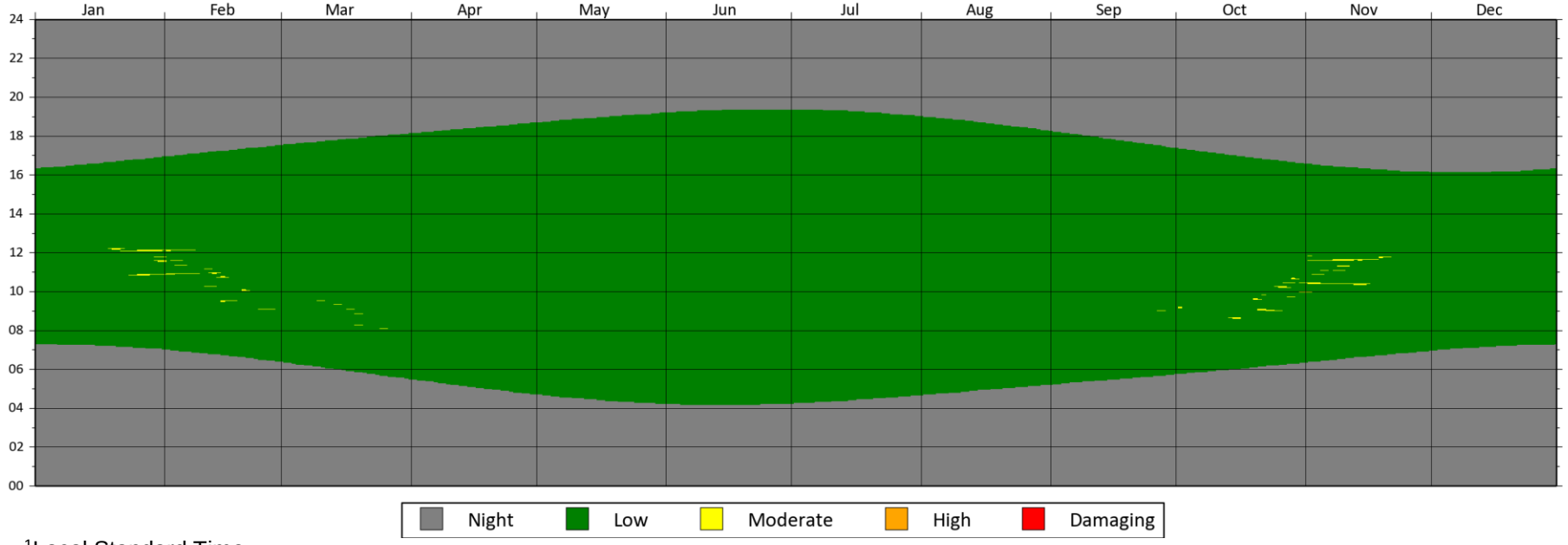


[1]Local Standard Time.

Receptor P21 Annual Visual Impact

P21 is a pedestrian receptor representing pedestrians at Blackstone Block Historic District near Holocaust Memorial.

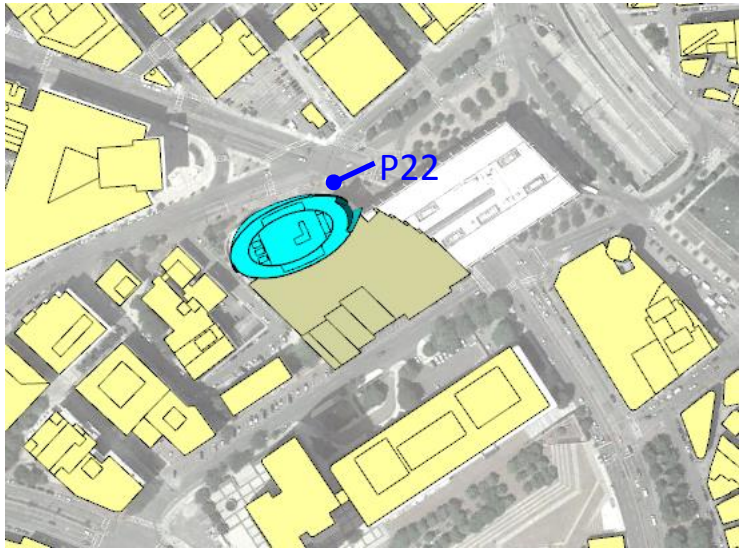


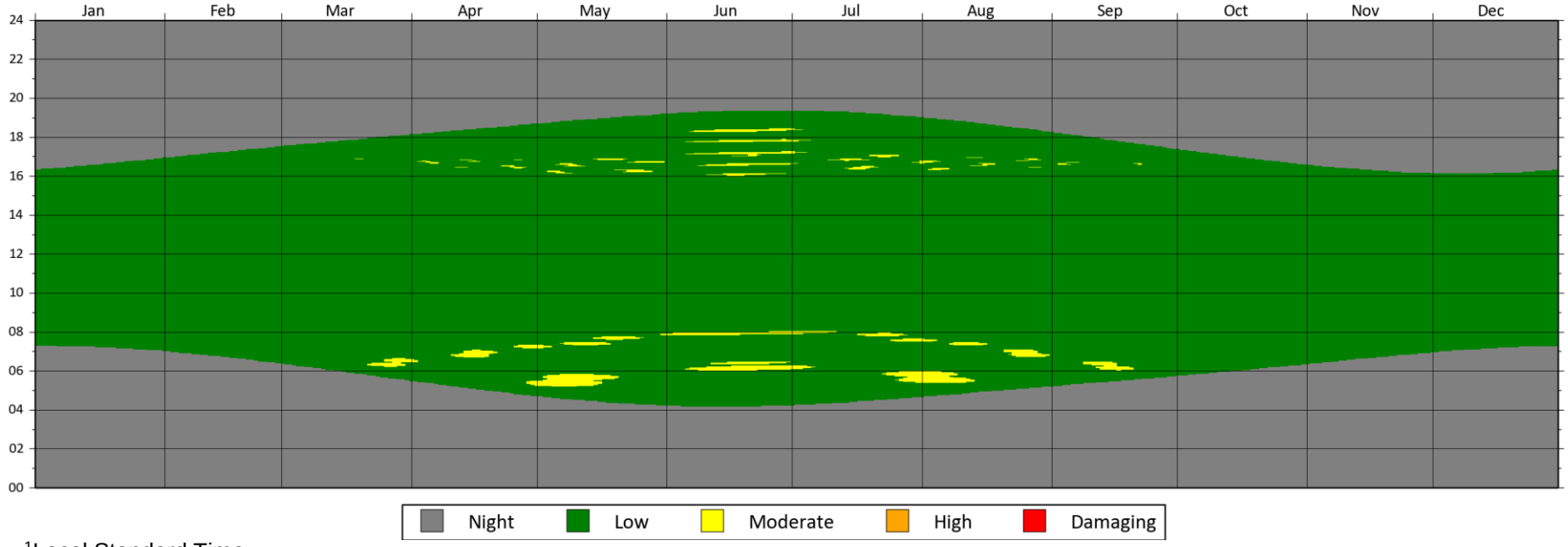


[1]Local Standard Time.

Receptor P22 Annual Visual Impact

P22 is a pedestrian receptor placed on corner of New Chardon St and Merrimac St intersection.

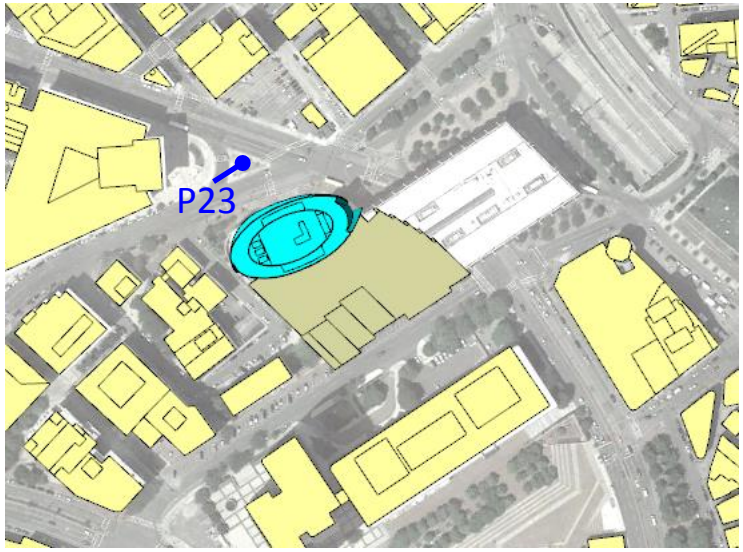


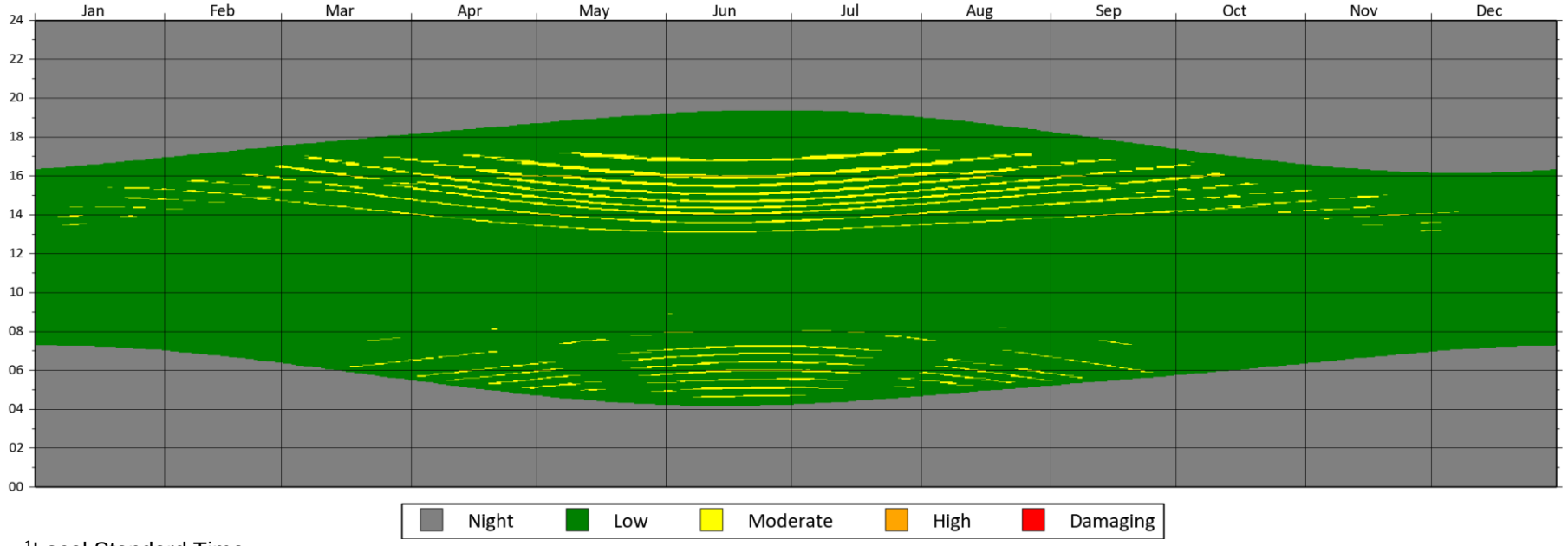


[1]Local Standard Time.

Receptor P23 Annual Visual Impact

P23 is a pedestrian receptor placed on corner of New Chardon St and Merrimac St intersection.





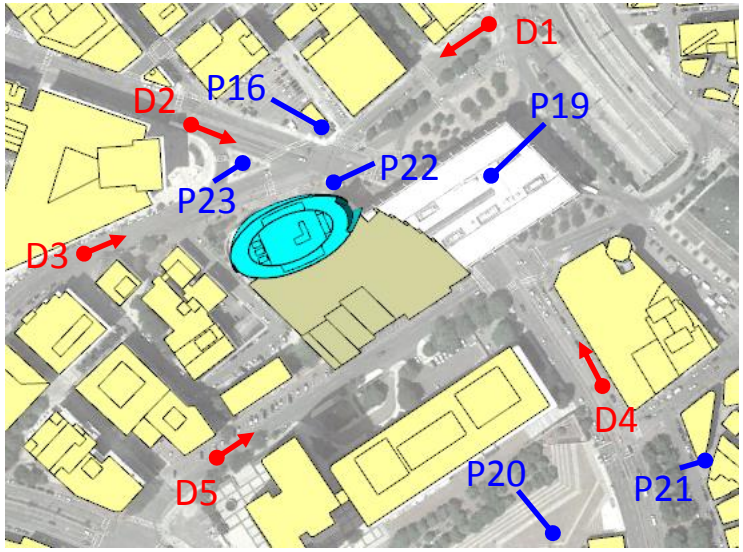
[1]Local Standard Time.

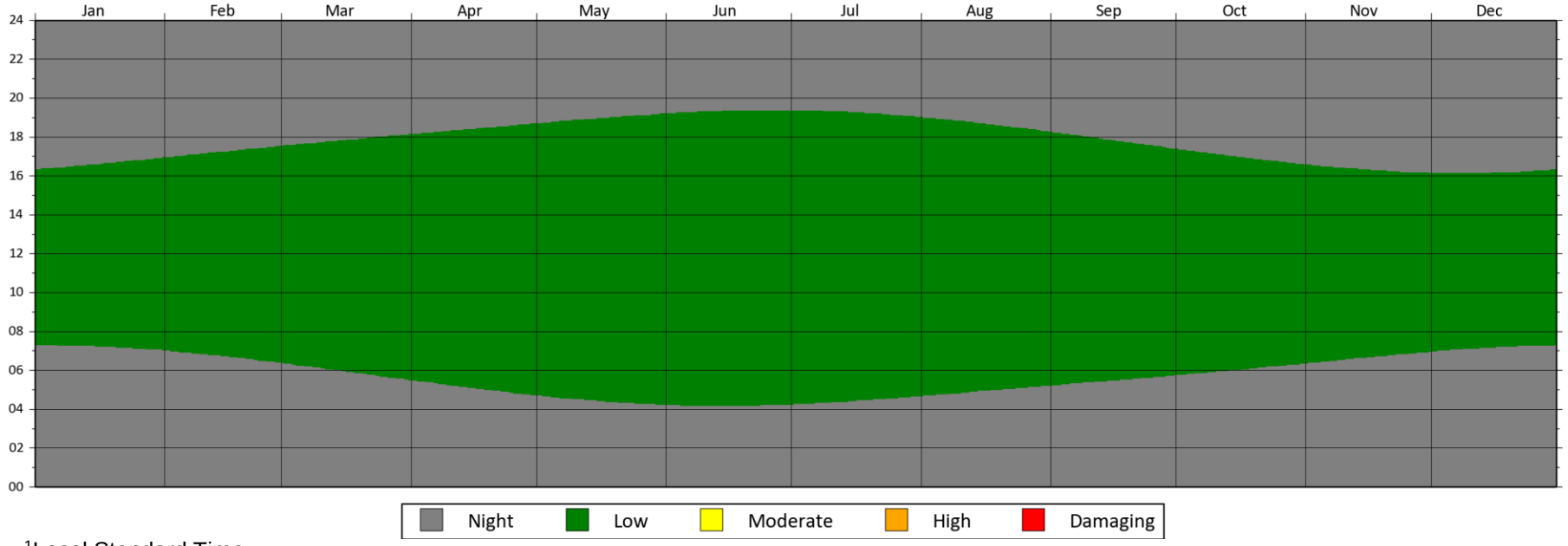
Heat Flux Impact on Drivers and Pedestrians – Off-Site

All reflections falling on all receptor points off-site the Government Center Garage are predicted to be within RWDI's proposed thermal comfort and thermal safety criteria.

RWDI considers all the receptors that are representing drivers and pedestrians outside the Government Square site have a **low** thermal impact since no significant reflections are predicted.

The following pages illustrate the reflected thermal energy on facades using a different scale to provide further clarity on the potential for heat gain issues.

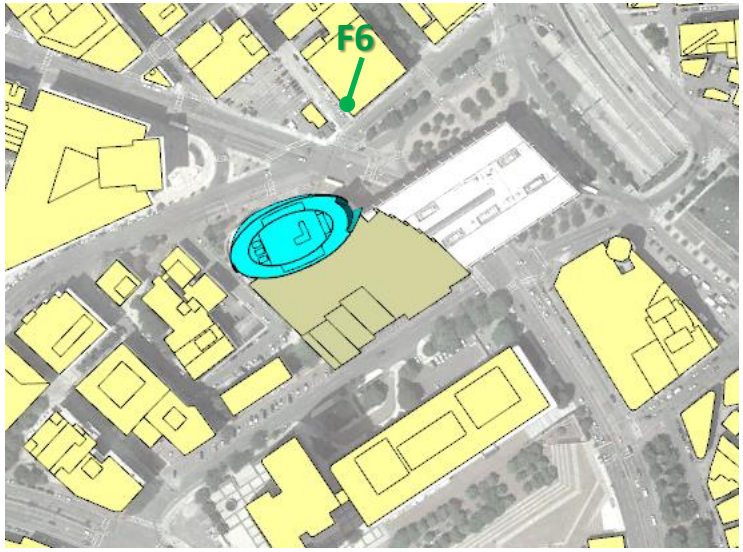


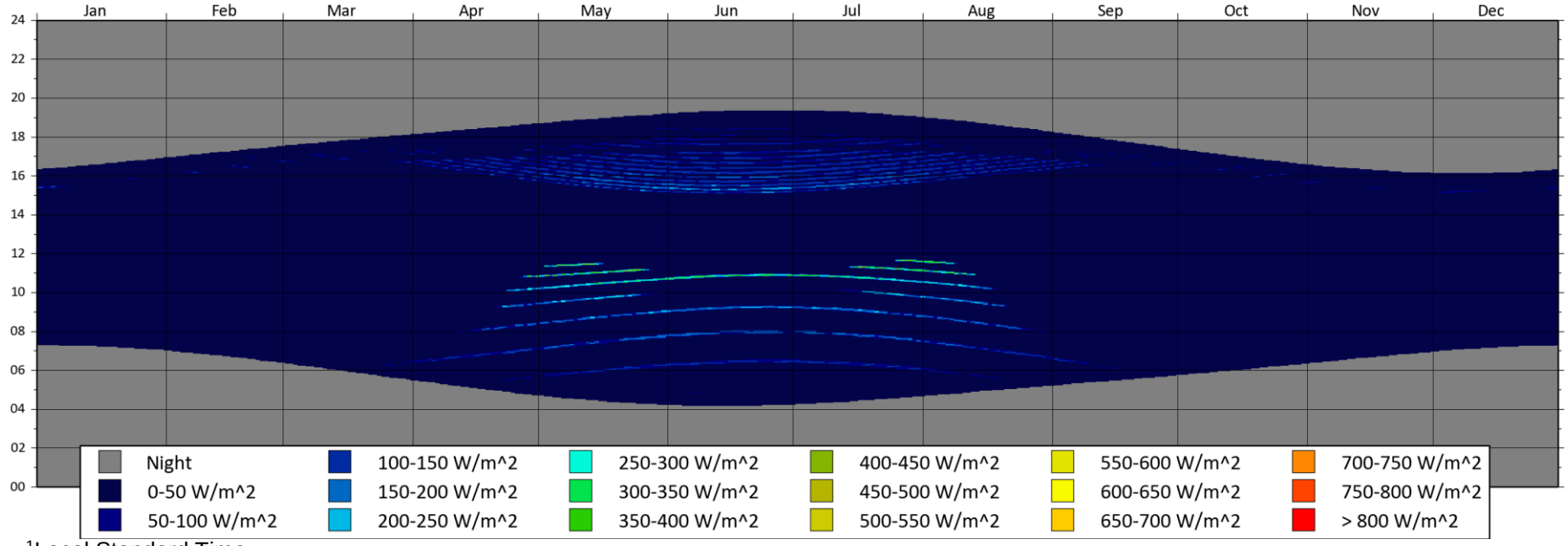


[1]Local Standard Time.

Receptor F6 Annual Thermal Impact

Receptor F6 is a facade receptor placed on the building at Friend St, at lower-half height of the building.

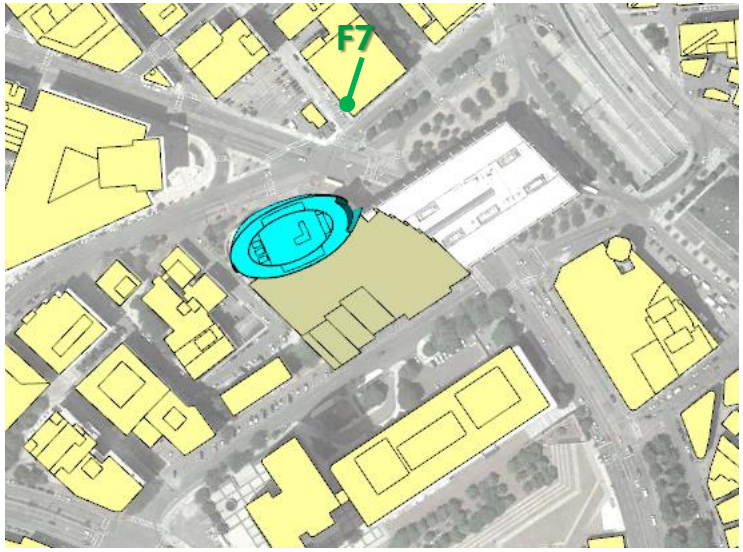


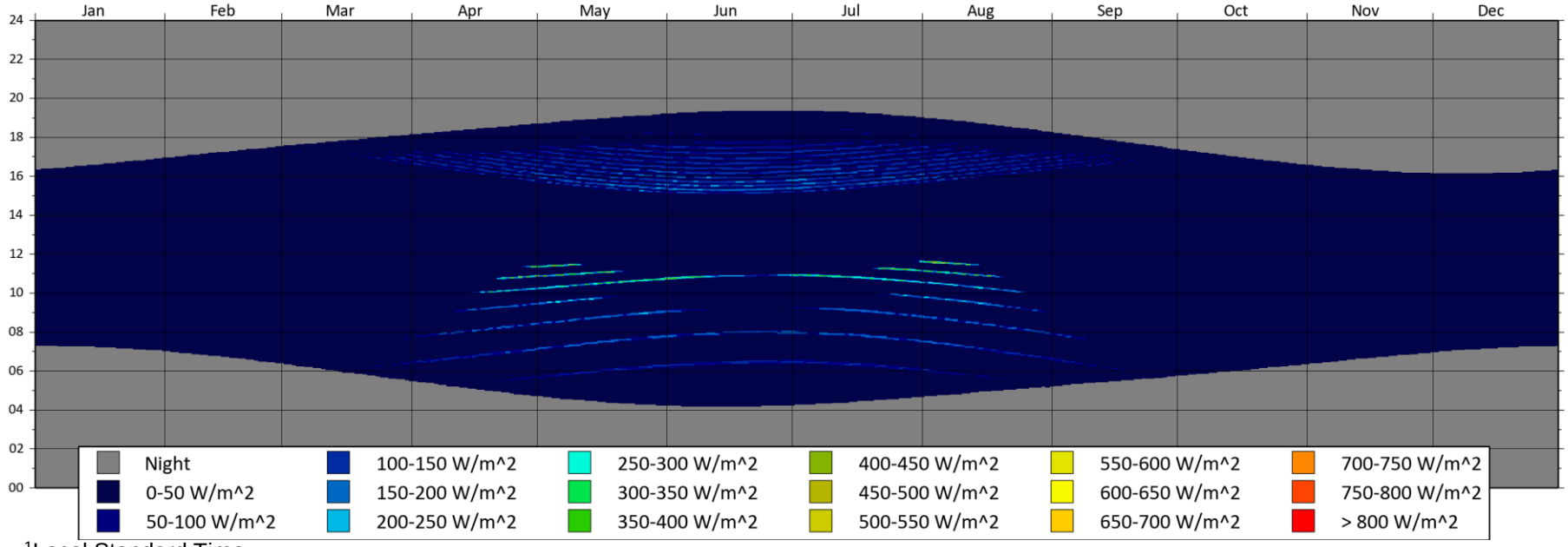


[1]Local Standard Time.

Receptor F7 Annual Thermal Impact

Receptor F7 is a facade receptor placed on the building at Friend St, at upper-half height of the building.

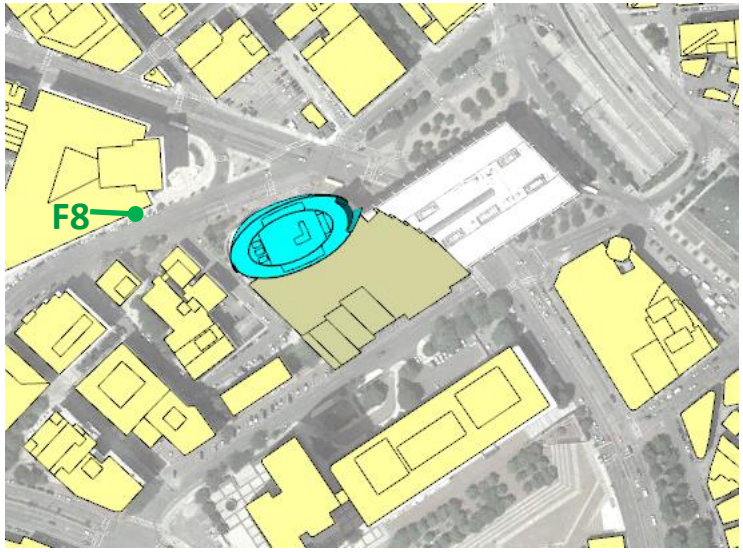


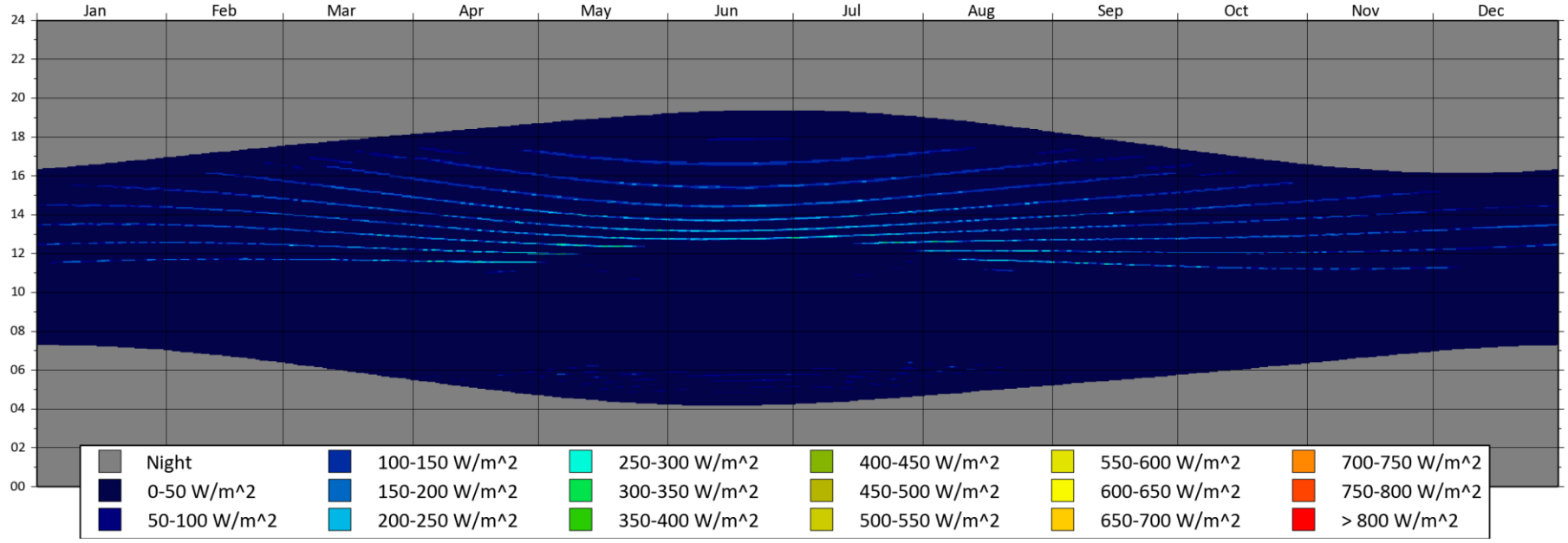


[1]Local Standard Time.

Receptor F8 Annual Thermal Impact

Receptor F8 is a facade receptor placed on Edward W Brook Courthouse building, at lower-half height of the building.

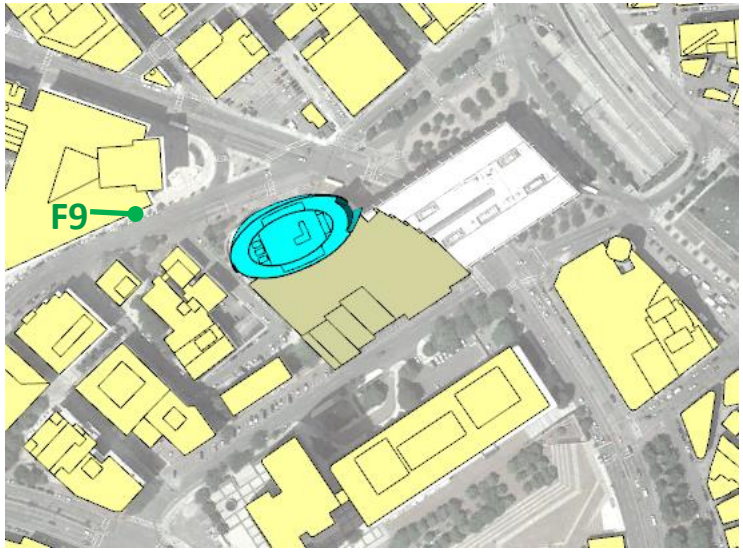


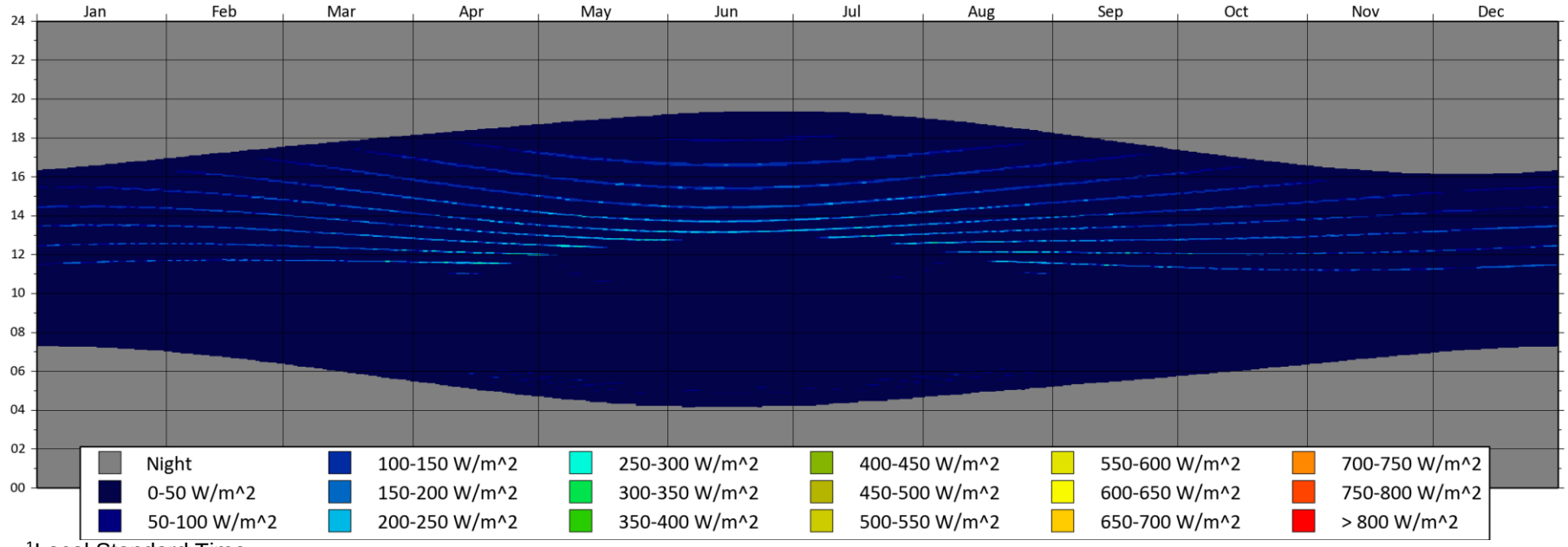


[1]Local Standard Time.

Receptor F9 Annual Thermal Impact

Receptor F9 is a facade receptor placed on Edward W Brook Courthouse building, at upper-half height of the building.

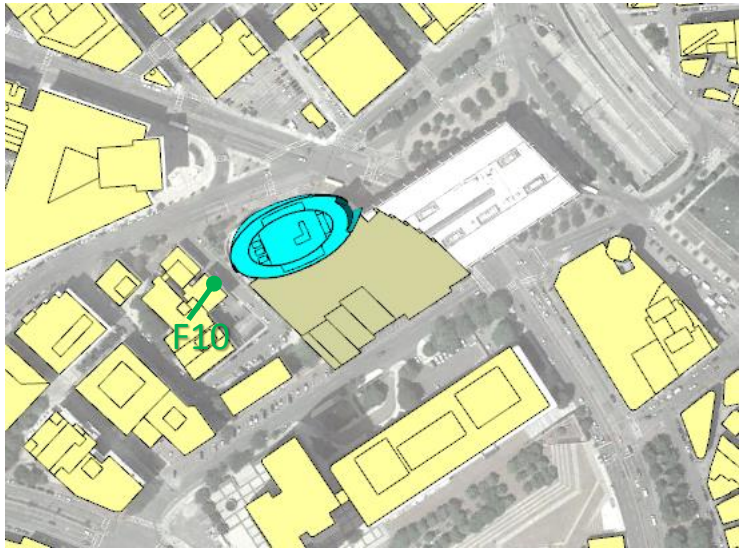


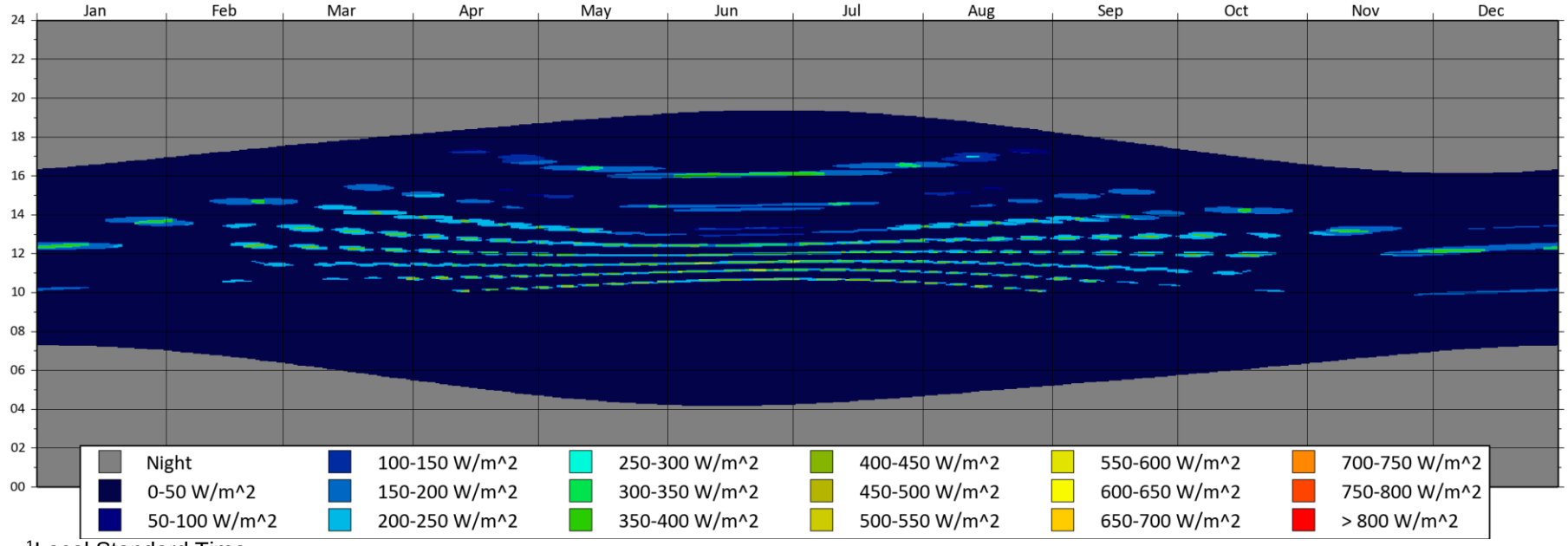


[1]Local Standard Time.

Receptor F10 Annual Thermal Impact

Receptor F10 is a facade receptor placed on Center House building, at lower-half height of the building.

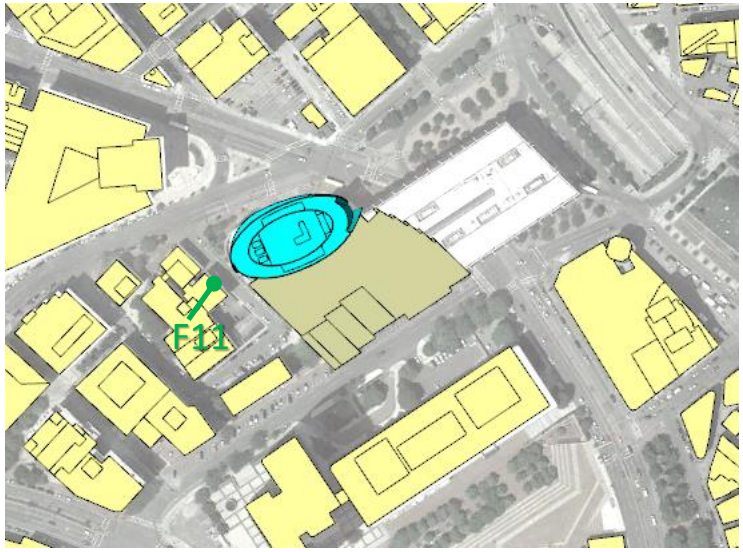


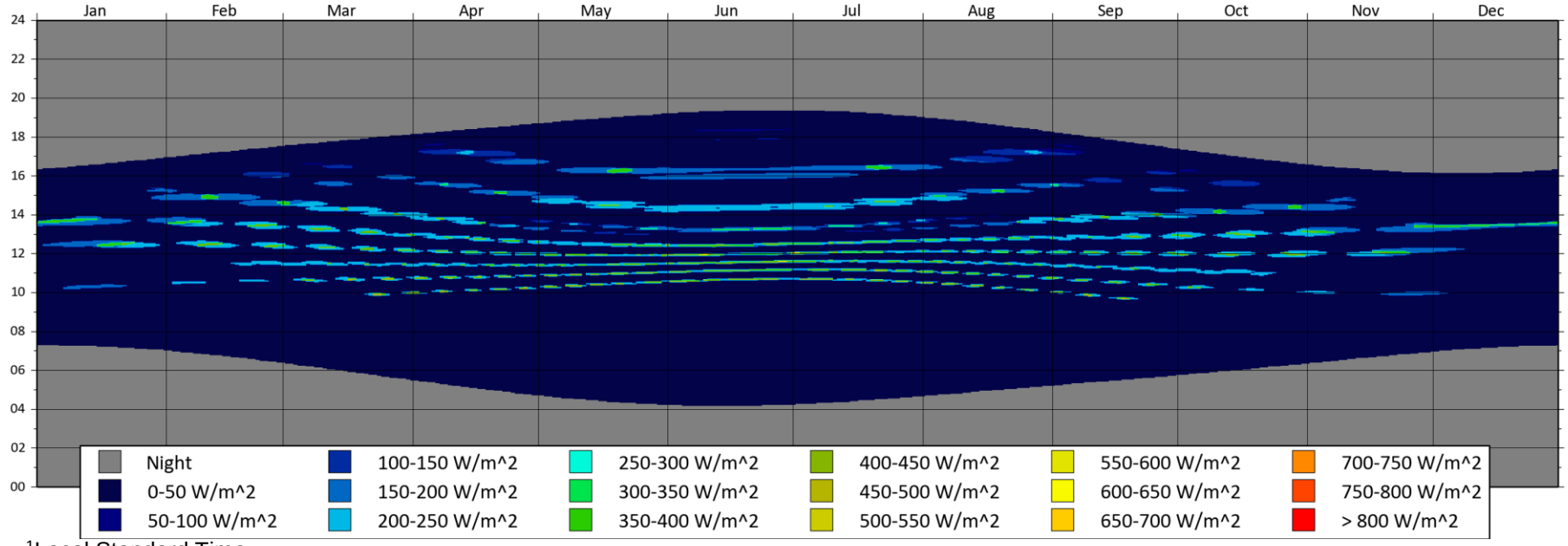


[1]Local Standard Time.

Receptor F11 Annual Thermal Impact

Receptor F11 is a facade receptor placed on Center House building, at upper-half height of the building.

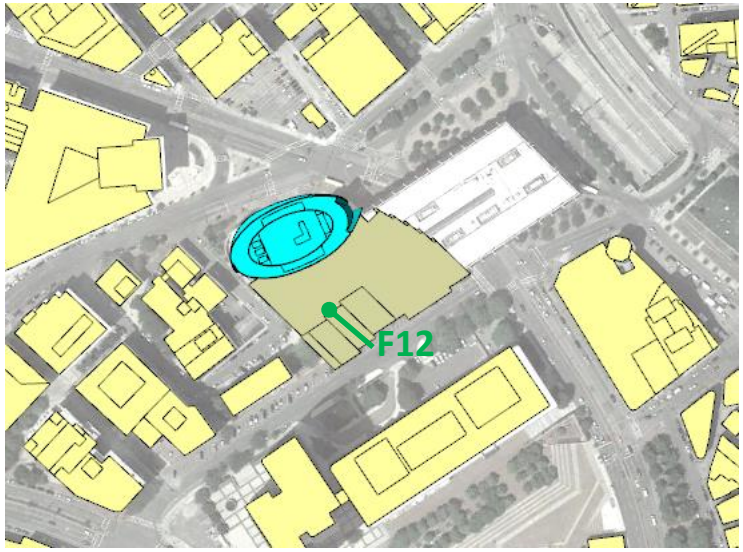


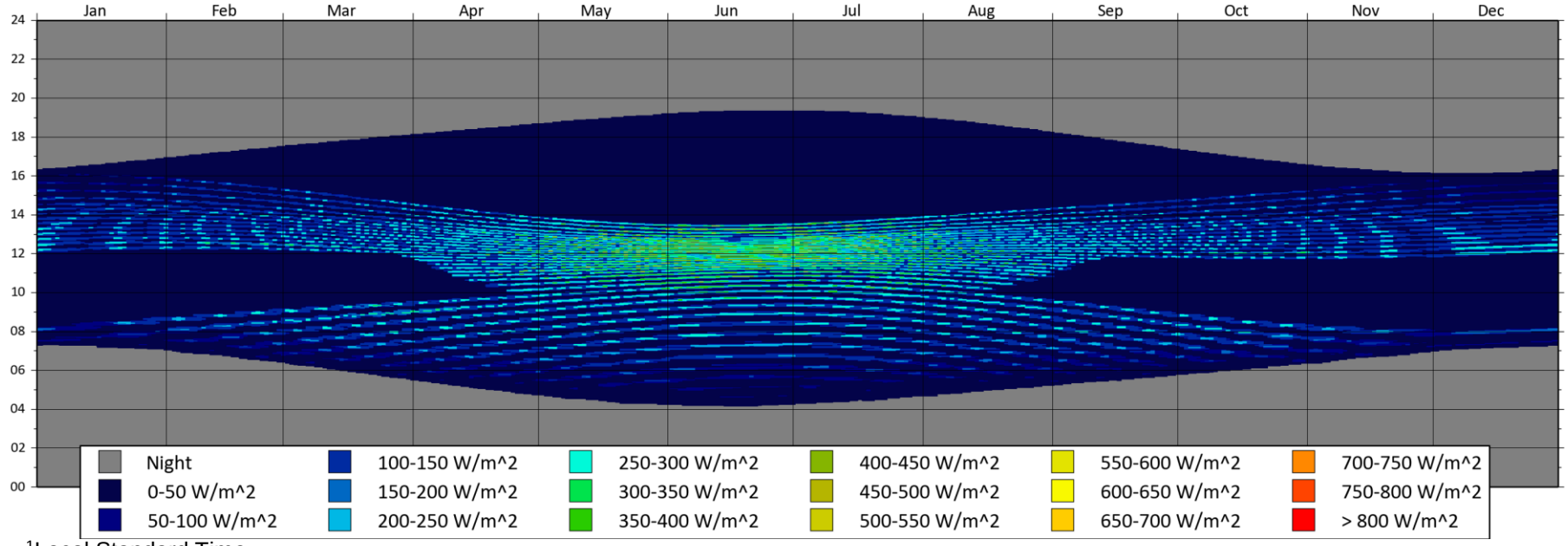


[1]Local Standard Time.

Receptor F12 Annual Thermal Impact

Receptor F12 is a facade receptor placed on the proposed residential tower (WP-B1), at lower-half height of the building

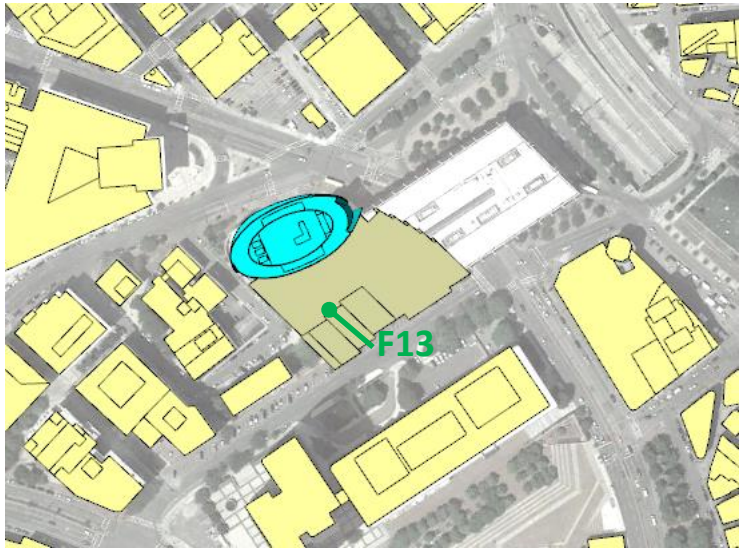


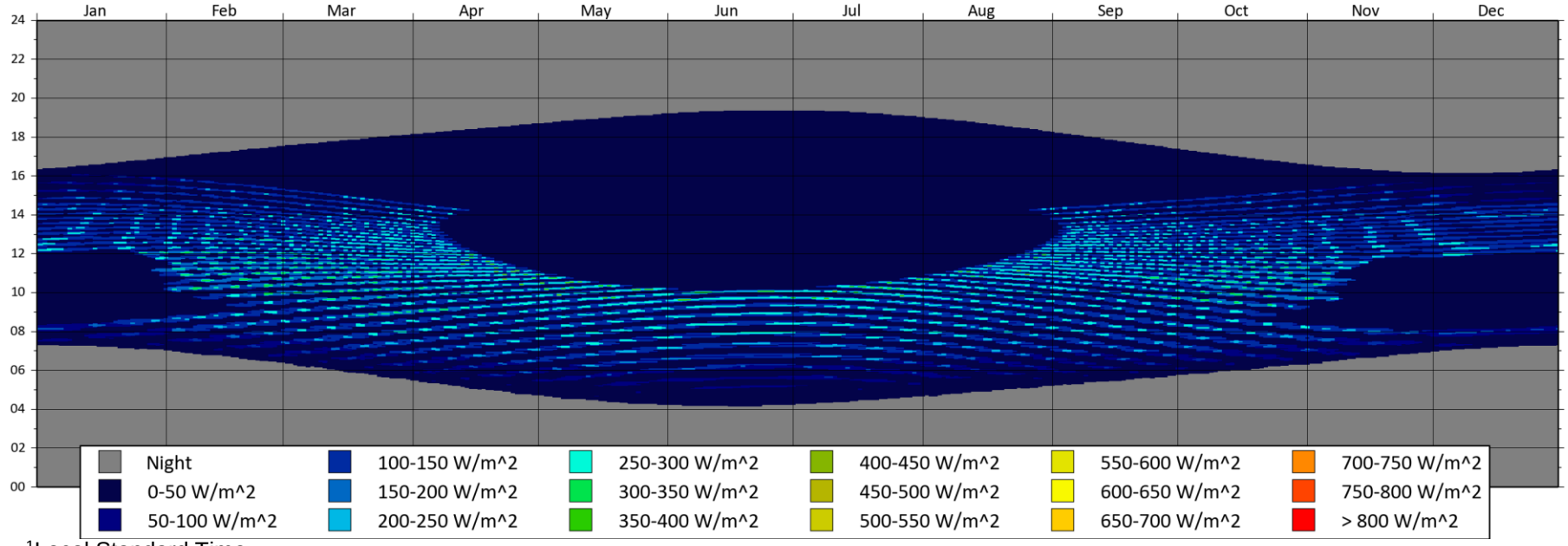


[1]Local Standard Time.

Receptor F13 Annual Thermal Impact

Receptor F13 is a facade receptor placed on the proposed residential tower (WP-B1), at upper-half height of the building

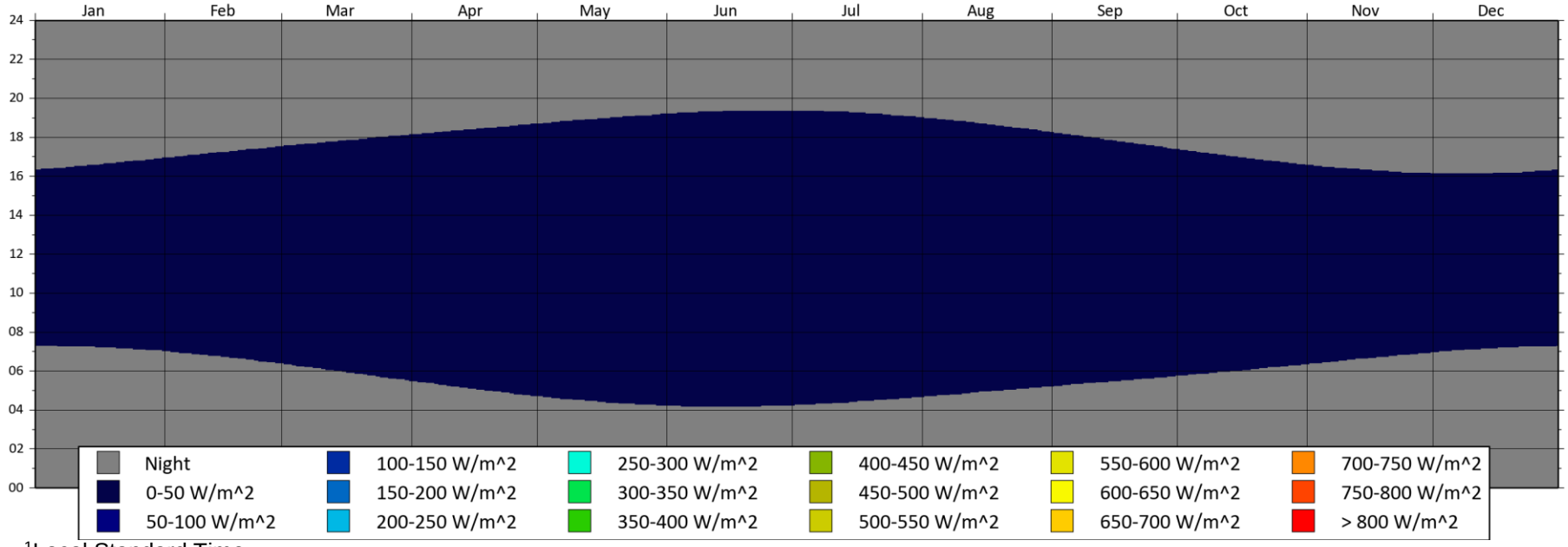




[1]Local Standard Time.

Receptor F14 Annual Thermal Impact

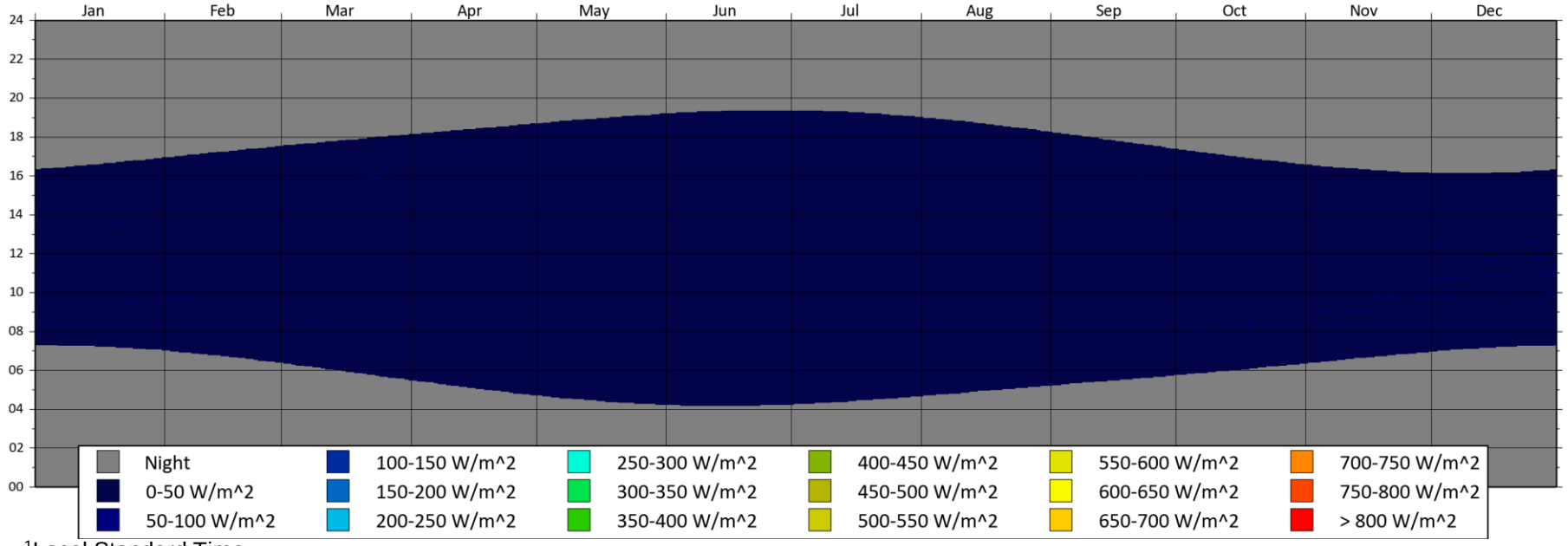
Receptor F14 is a facade receptor placed on Old West Church, at lower-half height of the building.



[1]Local Standard Time.

Receptor F15 Annual Thermal Impact

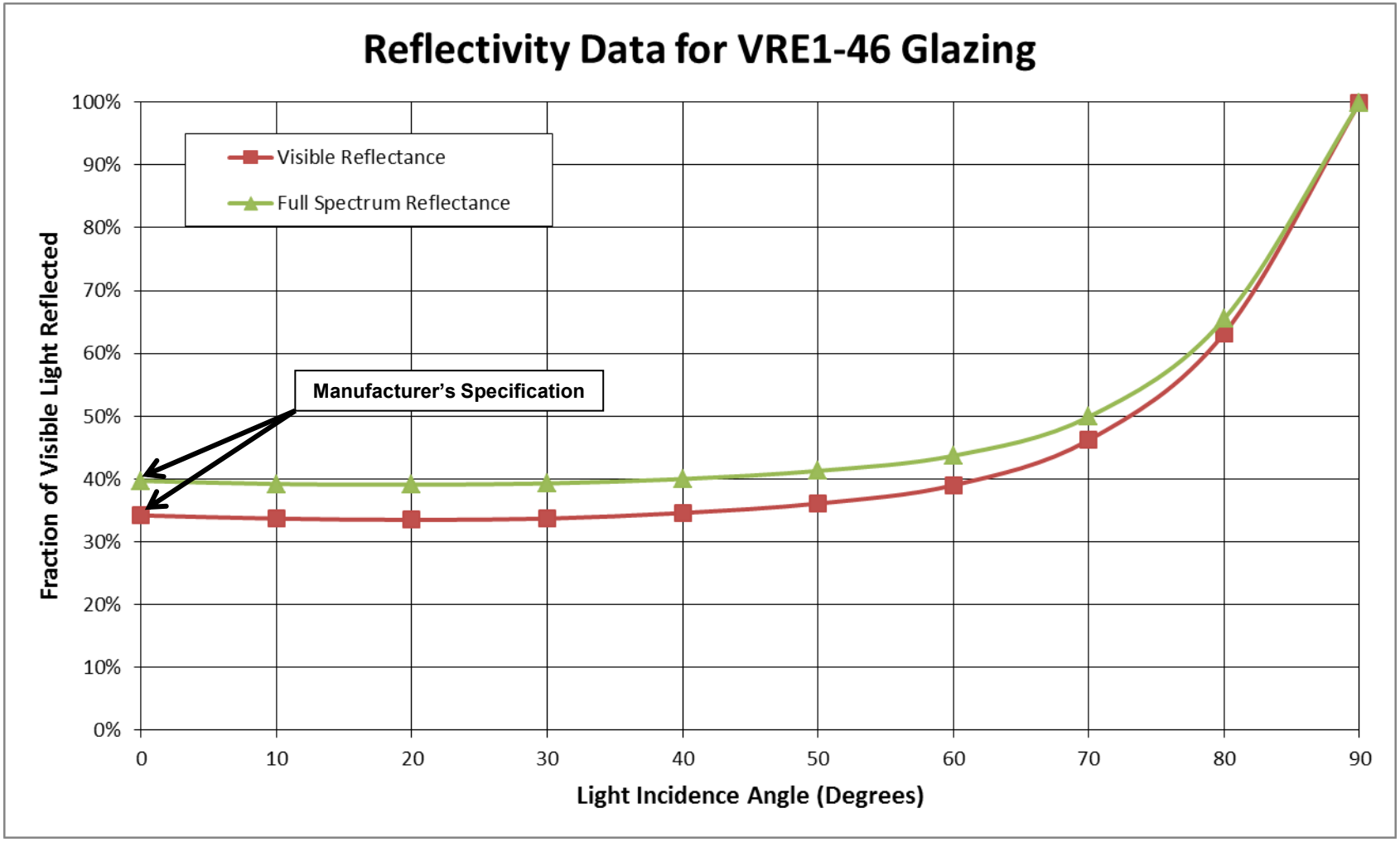
Receptor F15 is a facade receptor placed on Old West Church, at upper-half height of the building.



[1]Local Standard Time.

APPENDIX B - BUILDING FACADE GLASS PROPERTIES

B. OFFICE BUILDING FACADE GLASS PROPERTIES – VRE1-46



APPENDIX C – METHODOLOGY AND CRITERIA

C1. CRITERIA – SOLAR THERMAL

Solar Focusing

Solar focusing is a phenomenon where more than one reflection falls on the same point. This can occur when reflection from multiple flat surfaces converge at a single point, but are more common on inward-curving (concave) facades. Although this feature is not present in this project, attention must be taken to understand the potential solar insolation levels that reflections from the buildings may create.

There are currently no existing criteria or standards that define an "acceptable" level of reflected solar radiation from buildings. RWDI has conducted a literature review of available scientific sources to determine levels of solar radiation we would consider acceptable to an individual in the urban realm.

Irradiance Limits – People

The National Fire Protection Association (NFPA) sets thermal radiation criteria which define a tenable environment for people exiting a fire event in building or tunnel (NFPA 130). They set the upper limit for thermal radiation at 2,500 W/m². Irradiance levels at or below this value can be tolerated for at least several minutes without significantly affecting an individual's ability to escape from a fire event. That being said, skin damage (sun burns) and pain can occur at this 2,500 W/m² threshold. According to British fire standards[1], the onset of pain for ***bare*** skin can occur within 30 seconds at an irradiance of 2,500 W/m². This threshold closely matches the irradiance exposure guidelines published by the U.S. Federal Emergency Management Agency (FEMA), summarized in Table C1. This table also includes the length of time required before the onset of a second degree burn due to thermal radiation. It should be noted that these numbers are guideline values only, and that in reality many factors (skin color, age, clothing choice, etc.) influence how a person reacts to thermal radiation. For our work RWDI have established **2,500 W/m² as a human safety threshold**.

Due to the potential exposure of the public, the significant variability in both how individuals will respond to thermal irradiation exposure, and the fact that individuals may not fully appreciate the impact of the reflection until they are exposed, it is RWDI's opinion that a lower threshold value may be more appropriate for human thermal comfort.

Thus, we suggest that for ground level areas where the public will be present, reflected irradiance levels should not exceed 1,500 W/m². This threshold value is a conservative one, which is based around the potential for damage to human skin, requiring several minutes of exposure before damage or discomfort potentially occurs.

For these reasons, we have applied a **short-term thermal comfort threshold of 1,500 W/m²** for our work.

Table C1: Time for Physiological Effects on Bare Skin at Specific Thermal Radiation Levels[2]

Thermal Irradiance [W/m²]	Time To Onset of Pain [sec]	Time To Onset of Second Degree Burn [sec]
1,000	115	663
2,000	45	187
3,000	27	92
4,000	18	57
5,000	13	40
6,000	11	30
8,000	7	20
10,000	5	14
12,000	4	11

[1] The application of fire safety engineering principles to fire safety design of buildings – Part 6: Human Factors' PD 7974-6:2004, British Standards Institution 2004.
[2] Federal Emergency Management Agency, U.S. Department of Transportation, and U.S. Environmental Protection Agency. 1988. Handbook of Chemical Hazard Analysis Procedures. Washington, D.C.: Federal Emergency Management Agency Publications Office.

C2. CRITERIA – VISUAL GLARE

To account for the high variability in how individuals experience bright light, RWDI would classify any reflection as "significant" if it is calculated to be least 50% as intense as one that would cause temporary flash blindness (i.e. the after images visible after one sees a camera flash in a dark room).

This is accomplished through the use of our computer model to determine the following information at each combination of location, date and time:

1. The maximum amount of radiation striking the back of the eye that a person would experience if looking directly at the source.
2. The size of the angle that the reflection subtends in the sky (i.e. how much of a viewer's field of vision that the glare takes up – Figure C1).

Using the above information, the maximum glare impact at a certain location can be identified using the methodology of Ho et al[1] (Figure C2) to determine the potential of the reflection to cause temporary flash-blindness.

As a reference, Figure C2 on the right illustrates where looking directly at the sun falls in terms of irradiance on the retina (on average about 8 W/cm²), and the size of the angle that the sun subtends in the sky (about 9.8 milliradians). This puts it just at the border of causing serious damage. This methodology assumes that the exposure time is equivalent to the length of an average person's blink response.

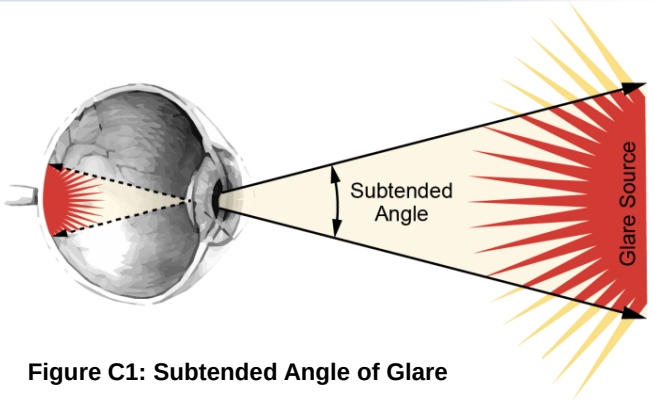


Figure C1: Subtended Angle of Glare

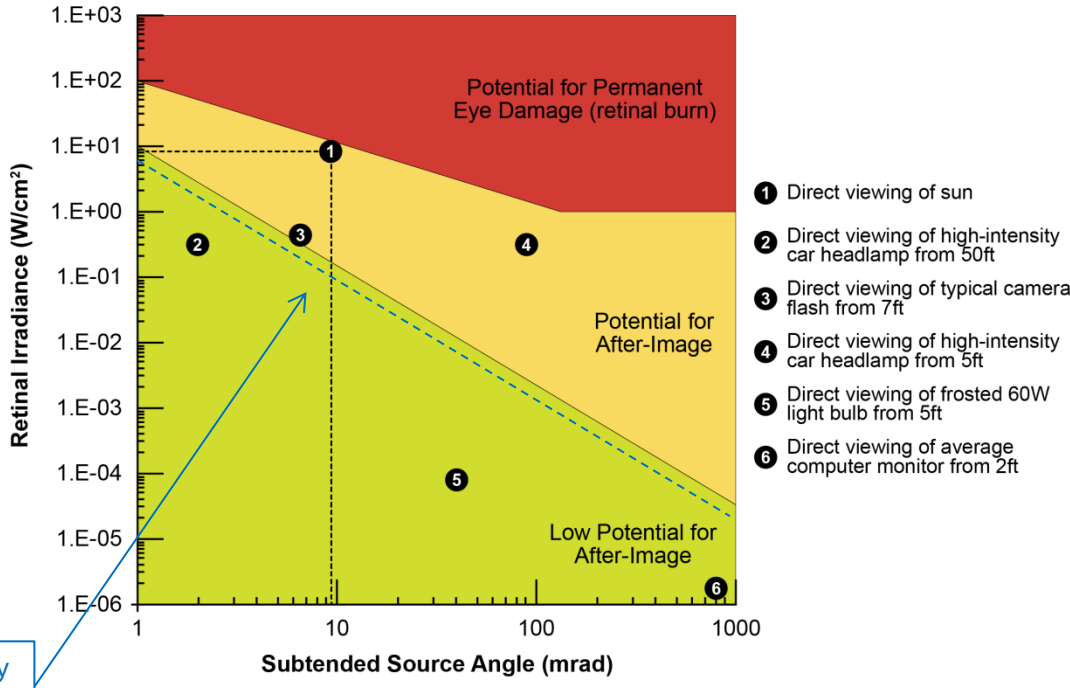


Figure C2: After-image potential plot [1]

RWDI Criteria – 50% of the intensity of a reflection with the potential of causing after-imaging

[1]Ho, C.K., C.M. Ghanbari, and R.B. Diver, 2010, Methodology to Assess Potential Glint and Glare Hazards from concentrating Solar Power Plants: Analytical Models and Experimental Validation, SAND2010-2581C, in proceedings of the 4th International Conference on Energy Sustainability, ES2010-90053, Phoenix, AZ, May 17-22, 2010.

C3. CRITERIA – VISUAL GLARE IMPACT CATEGORIES

In the detailed phase of the study, visual glare was assessed at 1 minute intervals, over the course of a year. At each combination of date and time, the maximum glare impact from all surfaces was determined. RWDI combined the maximum glare impact with the assumed task(s) occurring at the location in question to derive an overall impact category:

- **Low** – Either no significant glare sources are found or the intensity of the brightest source is less than what is required to cause flash blindness. There is little impact on viewers or pilots.
- **Moderate** – The brightest glare source is capable of causing flash blindness according to the RWDI criteria explained in Section C2, but is either falling on a point representing a pedestrian (who can easily look away), or emanating from a location that falls outside of the line-of-sight of someone who has limited ability to look away from a given direction (i.e. a vehicle driver). These can be thought of as “nuisance” reflections.
- **High** – The brightest glare source is capable of causing flash blindness according to the RWDI criteria explained in Section C2, and is emanating from a surface within the line-of-sight of a driver or someone else who has limited ability to look away and is performing a “high risk” activity (Figure C3). Such situations pose a significant risk of distraction and can reduce visual acuity for those operating vehicles or performing other high-risk tasks.
- **Damaging** – The brightest glare source is bright enough to permanently damage the eye. Reflections of this magnitude pose a significant threat to the safety of those nearby.

As a further conservatism, RWDI assumed that the “line-of-sight” for vehicle drivers included all surfaces within 20° of the direction of travel (Figure C3), and that no sunglasses or other eye protection equipment are worn.

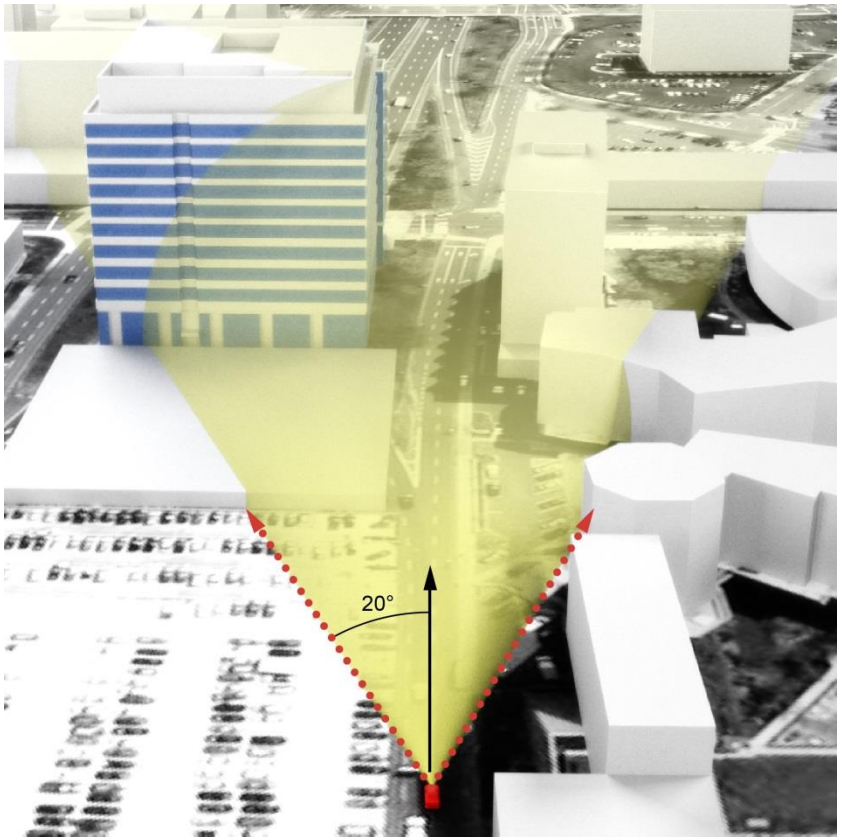


Figure C3: A driver’s 20° cone of vision

APPENDIX D: Air Quality Supporting Documentation

APPENDIX D
WP-B2 OFFICE BUILDING
AIR QUALITY

Stationary Source

- Air Quality Ambient Background Concentrations
- AERMOD Modeling Input Parameters
    - CO Parameters
    - PM10 Parameters
    - PM2.5 Parameters
    - NOx Parameters
    - SO_2 Parameters
- AERMOD Modeling Output Results
    - CO Concentrations
    - PM10 Concentrations
    - PM2.5 Concentrations
    - NOx Concentrations
    - SO_2 Concentrations
- Project Concentration Calculations

Stationary Source

Air Quality Ambient Background Concentrations

Summary of Background Concentrations

Carbon Monoxide (CO) Background Concentrations

Kenmore Square, Boston MA

Time Period	Background Concentration* (ppm)	Background Concentration* (Micrograms/meter3)	NAAQS Standard ug/m3 (ppm)
1-Hour	1.3	1514.1	40,000 (35)
8-Hour	0.9	1048.3	10,000 (9)
Calculated Persistance Factor	0.69		

* Highest value of 2012, 2013 and 2014

Particulate Matter (PM2.5) Background Concentrations

174 North St, Boston, MA

Time Period	Background Concentration* (ppm)	Background Concentration* (Micrograms/meter3)	NAAQS Standard ug/m3
24-Hour	-	18.2	35.0
Annual	-	8.4	15.0

* Average value of 2012, 2013 and 2014

Particulate Matter (PM10) Background Concentrations

One City Square, Boston

Time Period	Background Concentration* (ppm)	Background Concentration* (Micrograms/meter3)	NAAQS Standard ug/m3
24-Hour	-	47.7	150.0

* Average value of 2012, 2013 and 2014

Nitrogen Dioxide (NO2) Background Concentrations

Kenmore Square, Boston MA

Time Period	Background Concentration* (ppm)	Background Concentration* (Micrograms/meter3)	NAAQS Standard ug/m3 (ppm)
Annual	0.019	36.5	100 (0.053)
1-Hour	0.049	93.1	190 (0.100)

* Highest value of 2012, 2013 and 2014

Sulfur Dioxide (SO2) Background Concentrations

Kenmore Square, Boston MA

Time Period	Background Concentration* (ppm)	Background Concentration* (Micrograms/meter3)	NAAQS Standard ug/m3 (ppm)
1-Hour	0.0116	31.0	200 (0.075)

* Highest value of 2011, 2012 and 2013

Adjustment from 1-hour (DEP Standards, not project-specific)

Annual	24-Hour	8-Hour	3-Hour
0.08	**0.40**	**0.70**	**0.90**

AERMOD Modeling Input Parameters

- CO Parameters
- PM10 Parameters
- PM2.5 Parameters
- NOx Parameters
- SO_2 Parameters

CO Parameters

AERMOD Model Options

Model Options

Pathway	Keyword	Description	Value
CO	TITLEONE	Project title 1	Government Center BP2
CO	TITLETWO	Project title 2	CO 2010
CO	MODELOPT	Model options	DFAULT,CONC
CO	AVERTIME	Averaging times	1,8
CO	URBANOPT	Urban options	Table (5,2) / /item /ID /URB1 /POPULATION /4564659 /NAME /AREA1 /ROUGHNESS /1
CO	POLLUTID	Pollutant ID	CO
CO	HALFLIFE	Half life	
CO	DCAYCOEF	Decay coefficient	
CO	FLAGPOLE	Flagpole receptor heights	
CO	RUNORNOT	Run or Not	RUN
CO	EVENTFIL	Event file	F
CO	SAVEFILE	Save file	F
CO	INITFILE	Initialization file	
CO	MULTYEAR	Multiple year option	N/A
CO	DEBUGOPT	Debug options	N/A
CO	ERRORFIL	Error file	F
SO	ELEVUNIT	Elevation units	METERS
SO	EMISUNIT	Emission units	N/A
RE	ELEVUNIT	Elevation units	METERS
ME	SURFFILE	Surface met file	\\MABOSDATA\PROJECTS\11679.00\TECH\AIRQUALITY\ARTICLE 80_STATIONARY SOURCE\AERMOD\B2\CO\BOS_2010.SFC
ME	PROFFILE	Profile met file	\\MABOSDATA\PROJECTS\11679.00\TECH\AIRQUALITY\ARTICLE 80_STATIONARY SOURCE\AERMOD\B2\CO\BOS_2010.PFL
ME	SURFDATA	Surf met data info.	1 2010 LOGAN
ME	UAIRDATA	U-Air met data info.	2 2010 GREY_MAINE
ME	SITEDATA	On-site met data info.	
ME	PROFBASE	Elev. above MSL	9
ME	STARTEND	Start-end met dates	
ME	WDROTATE	Wind dir. rot. adjust.	
ME	WINDCATS	Wind speed cat. max.	
ME	SCIMBYHR	SCIM sample params	
EV	DAYTABLE	Print summary opt.	N/A
OU	EVENTOUT	Output info. level	N/A

OU	DAYTABLE	Print summary opt.	

Source Parameter Tables

All Sources

Source ID / Pollutant ID	Source Type	Description	UTM		Elev.	Emiss. Rate	Emiss. Units	Release Height
			East (m)	North (m)	(m)			(m)
PPCSR00A	POINT	B1 1500 kWEmergency Gen	330376.9	4692032.4	8.770001	0.27	(g/s)	161.483
74J60000	POINT	4x Boilers	330386.4	4692040.5	8.770001	0.04536	(g/s)	156.3898
5UGWI004	POINT	B2 Emergency Generator	330381.9	4692103.4	8.700001	0.27	(g/s)	164.0738
5UGWI005	POINT	8x Boilers	330347.1	4692094.2	8.700001	0.09072	(g/s)	164.0738

Point Sources

Source ID / Pollutant ID	Description	UTM		Elev.	Emiss. Rate	Stack Height	Stack Temp	Stack Velocity	Stack Diameter
		East (m)	North (m)	(m)	(g/s)	(m)	(K)	(m/s)	(m)
PPCSR00A	B1 1500 kWEmergency Gen	330376.9	4692032.4	8.770001	0.27	161.483	677.0389	51.8	0.356616
74J60000	4x Boilers	330386.4	4692040.5	8.770001	0.04536	156.3898	499.8167	2.117299	1.0668
5UGWI004	B2 Emergency Generator	330381.9	4692103.4	8.700001	0.27	164.0738	677.0389	51.8	0.356616
5UGWI005	8x Boilers	330347.1	4692094.2	8.700001	0.09072	164.0738	499.8167	2.117299	1.0668

AERMOD Model Options

Model Options

Pathway	Keyword	Description	Value
CO	TITLEONE	Project title 1	Government Center BP2
CO	TITLETWO	Project title 2	CO 2011
CO	MODELOPT	Model options	DFAULT,CONC
CO	AVERTIME	Averaging times	1,8
CO	URBANOPT	Urban options	Table (5,2) / /item /ID /URB1 /POPULATION /4608848 /NAME /AREA1 /ROUGHNESS /1
CO	POLLUTID	Pollutant ID	CO
CO	HALFLIFE	Half life	
CO	DCAYCOEF	Decay coefficient	
CO	FLAGPOLE	Flagpole receptor heights	
CO	RUNORNOT	Run or Not	RUN
CO	EVENTFIL	Event file	F
CO	SAVEFILE	Save file	F
CO	INITFILE	Initialization file	
CO	MULTYEAR	Multiple year option	N/A
CO	DEBUGOPT	Debug options	N/A
CO	ERRORFIL	Error file	F
SO	ELEVUNIT	Elevation units	METERS
SO	EMISUNIT	Emission units	N/A
RE	ELEVUNIT	Elevation units	METERS
ME	SURFFILE	Surface met file	\\MABOSDATA\PROJECTS\11679.00\tech\AirQuality\ARTICL~1\AERMOD\B2 \CO\BOS_2011.SFC
ME	PROFFILE	Profile met file	\\MABOSDATA\PROJECTS\11679.00\tech\AirQuality\ARTICL~1\AERMOD\B2 \CO\BOS_2011.PFL
ME	SURFDATA	Surf met data info.	1 2011 LOGAN
ME	UAIRDATA	U-Air met data info.	2 2011 GREY_MAINE
ME	SITEDATA	On-site met data info.	
ME	PROFBASE	Elev. above MSL	9
ME	STARTEND	Start-end met dates	
ME	WDROTATE	Wind dir. rot. adjust.	
ME	WINDCATS	Wind speed cat. max.	
ME	SCIMBYHR	SCIM sample params	
EV	DAYTABLE	Print summary opt.	N/A
OU	EVENTOUT	Output info. level	N/A

OU	DAYTABLE	Print summary opt.	

Source Parameter Tables

All Sources

Source ID / Pollutant ID	Source Type	Description	UTM		Elev.	Emiss. Rate	Emiss. Units	Release Height
			East (m)	North (m)	(m)			(m)
PPCSR00A	POINT	B1 1500 kWEmergency Gen	330376.9	4692032.4	8.770001	0.27	(g/s)	161.483
74J60000	POINT	4x Boilers	330386.4	4692040.5	8.770001	0.04536	(g/s)	156.3898
5UGWI004	POINT	B2 Emergency Generator	330381.9	4692103.4	8.700001	0.27	(g/s)	164.0738
5UGWI005	POINT	8x Boilers	330347.1	4692094.2	8.700001	0.09072	(g/s)	164.0738

Point Sources

Source ID / Pollutant ID	Description	UTM		Elev.	Emiss. Rate	Stack Height	Stack Temp	Stack Velocity	Stack Diameter
		East (m)	North (m)	(m)	(g/s)	(m)	(K)	(m/s)	(m)
PPCSR00A	B1 1500 kWEmergency Gen	330376.9	4692032.4	8.770001	0.27	161.483	677.0389	51.8	0.356616
74J60000	4x Boilers	330386.4	4692040.5	8.770001	0.04536	156.3898	499.8167	2.117299	1.0668
5UGWI004	B2 Emergency Generator	330381.9	4692103.4	8.700001	0.27	164.0738	677.0389	51.8	0.356616
5UGWI005	8x Boilers	330347.1	4692094.2	8.700001	0.09072	164.0738	499.8167	2.117299	1.0668

AERMOD Model Options

Model Options

Pathway	Keyword	Description	Value
CO	TITLEONE	Project title 1	Government Center BP2
CO	TITLETWO	Project title 2	CO 2012
CO	MODELOPT	Model options	DFAULT,CONC
CO	AVERTIME	Averaging times	1,8
CO	URBANOPT	Urban options	Table (5,2) / /item /ID /URB1 /POPULATION /4650668 /NAME /AREA1 /ROUGHNESS /1
CO	POLLUTID	Pollutant ID	CO
CO	HALFLIFE	Half life	
CO	DCAYCOEF	Decay coefficient	
CO	FLAGPOLE	Flagpole receptor heights	
CO	RUNORNOT	Run or Not	RUN
CO	EVENTFIL	Event file	F
CO	SAVEFILE	Save file	F
CO	INITFILE	Initialization file	
CO	MULTYEAR	Multiple year option	N/A
CO	DEBUGOPT	Debug options	N/A
CO	ERRORFIL	Error file	F
SO	ELEVUNIT	Elevation units	METERS
SO	EMISUNIT	Emission units	N/A
RE	ELEVUNIT	Elevation units	METERS
ME	SURFFILE	Surface met file	\\MABOSDATA\PROJECTS\11679.00\tech\AirQuality\ARTICL~1\AERMOD\B2 \CO\BOS_2012.SFC
ME	PROFFILE	Profile met file	\\MABOSDATA\PROJECTS\11679.00\tech\AirQuality\ARTICL~1\AERMOD\B2 \CO\BOS_2012.PFL
ME	SURFDATA	Surf met data info.	1 2012 LOGAN
ME	UAIRDATA	U-Air met data info.	2 2012 GREY_MAINE
ME	SITEDATA	On-site met data info.	
ME	PROFBASE	Elev. above MSL	9
ME	STARTEND	Start-end met dates	
ME	WDROTATE	Wind dir. rot. adjust.	
ME	WINDCATS	Wind speed cat. max.	
ME	SCIMBYHR	SCIM sample params	
EV	DAYTABLE	Print summary opt.	N/A
OU	EVENTOUT	Output info. level	N/A

OU	DAYTABLE	Print summary opt.	

Source Parameter Tables

All Sources

Source ID / Pollutant ID	Source Type	Description	UTM		Elev.	Emiss. Rate	Emiss. Units	Release Height
			East (m)	North (m)	(m)			(m)
PPCSR00A	POINT	B1 1500 kWEmergency Gen	330376.9	4692032.4	8.770001	0.27	(g/s)	161.483
74J60000	POINT	4x Boilers	330386.4	4692040.5	8.770001	0.04536	(g/s)	156.3898
5UGWI004	POINT	B2 Emergency Generator	330381.9	4692103.4	8.700001	0.27	(g/s)	164.0738
5UGWI005	POINT	8x Boilers	330347.1	4692094.2	8.700001	0.09072	(g/s)	164.0738

Point Sources

Source ID / Pollutant ID	Description	UTM		Elev.	Emiss. Rate	Stack Height	Stack Temp	Stack Velocity	Stack Diameter
		East (m)	North (m)	(m)	(g/s)	(m)	(K)	(m/s)	(m)
PPCSR00A	B1 1500 kWEmergency Gen	330376.9	4692032.4	8.770001	0.27	161.483	677.0389	51.8	0.356616
74J60000	4x Boilers	330386.4	4692040.5	8.770001	0.04536	156.3898	499.8167	2.117299	1.0668
5UGWI004	B2 Emergency Generator	330381.9	4692103.4	8.700001	0.27	164.0738	677.0389	51.8	0.356616
5UGWI005	8x Boilers	330347.1	4692094.2	8.700001	0.09072	164.0738	499.8167	2.117299	1.0668

AERMOD Model Options

Model Options

Pathway	Keyword	Description	Value
CO	TITLEONE	Project title 1	Government Center BP2
CO	TITLETWO	Project title 2	CO 2013
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CO	HALFLIFE	Half life	
CO	DCAYCOEF	Decay coefficient	
CO	FLAGPOLE	Flagpole receptor heights	
CO	RUNORNOT	Run or Not	RUN
CO	EVENTFIL	Event file	F
CO	SAVEFILE	Save file	F
CO	INITFILE	Initialization file	
CO	MULTYEAR	Multiple year option	N/A
CO	DEBUGOPT	Debug options	N/A
CO	ERRORFIL	Error file	F
SO	ELEVUNIT	Elevation units	METERS
SO	EMISUNIT	Emission units	N/A
RE	ELEVUNIT	Elevation units	METERS
ME	SURFFILE	Surface met file	\\MABOSDATA\PROJECTS\11679.00\tech\AirQuality\ARTICL~1\AERMOD\B2 \CO\BOS_2013.SFC
ME	PROFFILE	Profile met file	\\MABOSDATA\PROJECTS\11679.00\tech\AirQuality\ARTICL~1\AERMOD\B2 \CO\BOS_2013.PFL
ME	SURFDATA	Surf met data info.	1 2013 LOGAN
ME	UAIRDATA	U-Air met data info.	2 2013 GREY_MAINE
ME	SITEDATA	On-site met data info.	
ME	PROFBASE	Elev. above MSL	9
ME	STARTEND	Start-end met dates	
ME	WDROTATE	Wind dir. rot. adjust.	
ME	WINDCATS	Wind speed cat. max.	
ME	SCIMBYHR	SCIM sample params	
EV	DAYTABLE	Print summary opt.	N/A
OU	EVENTOUT	Output info. level	N/A

OU	DAYTABLE	Print summary opt.	

Source Parameter Tables

All Sources

Source ID / Pollutant ID	Source Type	Description	UTM		Elev.	Emiss. Rate	Emiss. Units	Release Height
			East (m)	North (m)	(m)			(m)
PPCSR00A	POINT	B1 1500 kWEmergency Gen	330376.9	4692032.4	8.770001	0.27	(g/s)	161.483
74J60000	POINT	4x Boilers	330386.4	4692040.5	8.770001	0.04536	(g/s)	156.6367
5UGWI004	POINT	B2 Emergency Generator	330381.9	4692103.4	8.700001	0.27	(g/s)	164.0738
5UGWI005	POINT	8x Boilers	330347.1	4692094.2	8.700001	0.09072	(g/s)	164.0738

Point Sources

Source ID / Pollutant ID	Description	UTM		Elev.	Emiss. Rate	Stack Height	Stack Temp	Stack Velocity	Stack Diameter
		East (m)	North (m)	(m)	(g/s)	(m)	(K)	(m/s)	(m)
PPCSR00A	B1 1500 kWEmergency Gen	330376.9	4692032.4	8.770001	0.27	161.483	677.0389	51.8	0.356616
74J60000	4x Boilers	330386.4	4692040.5	8.770001	0.04536	156.6367	499.8167	2.117299	1.0668
5UGWI004	B2 Emergency Generator	330381.9	4692103.4	8.700001	0.27	164.0738	677.0389	51.8	0.356616
5UGWI005	8x Boilers	330347.1	4692094.2	8.700001	0.09072	164.0738	499.8167	2.117299	1.0668

AERMOD Model Options

Model Options

Pathway	Keyword	Description	Value
CO	TITLEONE	Project title 1	Government Center BP2
CO	TITLETWO	Project title 2	CO 2014
CO	MODELOPT	Model options	DFAULT,CONC
CO	AVERTIME	Averaging times	1,8
CO	URBANOPT	Urban options	Table (5,2) / /item /ID /URB1 /POPULATION /4732161 /NAME /AREA1 /ROUGHNESS /1
CO	POLLUTID	Pollutant ID	CO
CO	HALFLIFE	Half life	
CO	DCAYCOEF	Decay coefficient	
CO	FLAGPOLE	Flagpole receptor heights	
CO	RUNORNOT	Run or Not	RUN
CO	EVENTFIL	Event file	F
CO	SAVEFILE	Save file	F
CO	INITFILE	Initialization file	
CO	MULTYEAR	Multiple year option	N/A
CO	DEBUGOPT	Debug options	N/A
CO	ERRORFIL	Error file	F
SO	ELEVUNIT	Elevation units	METERS
SO	EMISUNIT	Emission units	N/A
RE	ELEVUNIT	Elevation units	METERS
ME	SURFFILE	Surface met file	\\MABOSDATA\PROJECTS\11679.00\TECH\AIRQUALITY\ARTICLE 80_STATIONARY SOURCE\AERMOD\B2\CO\BOS_2014.SFC
ME	PROFFILE	Profile met file	\\MABOSDATA\PROJECTS\11679.00\TECH\AIRQUALITY\ARTICLE 80_STATIONARY SOURCE\AERMOD\B2\CO\BOS_2014.PFL
ME	SURFDATA	Surf met data info.	14739 2014 LOGAN
ME	UAIRDATA	U-Air met data info.	54762 2014 GREY_MAINE
ME	SITEDATA	On-site met data info.	
ME	PROFBASE	Elev. above MSL	9
ME	STARTEND	Start-end met dates	
ME	WDROTATE	Wind dir. rot. adjust.	
ME	WINDCATS	Wind speed cat. max.	
ME	SCIMBYHR	SCIM sample params	
EV	DAYTABLE	Print summary opt.	N/A
OU	EVENTOUT	Output info. level	N/A

OU	DAYTABLE	Print summary opt.	

Source Parameter Tables

All Sources

Source ID / Pollutant ID	Source Type	Description	UTM		Elev.	Emiss. Rate	Emiss. Units	Release Height
			East (m)	North (m)	(m)			(m)
PPCSR00A	POINT	B1 1500 kWEmergency Gen	330376.9	4692032.4	8.770001	0.27	(g/s)	161.483
74J60000	POINT	4x Boilers	330386.4	4692040.5	8.770001	0.04536	(g/s)	156.3898
5UGWI004	POINT	B2 Emergency Generator	330381.9	4692103.4	8.700001	0.27	(g/s)	164.0738
5UGWI005	POINT	8x Boilers	330347.1	4692094.2	8.700001	0.09072	(g/s)	164.0738

Point Sources

Source ID / Pollutant ID	Description	UTM		Elev.	Emiss. Rate	Stack Height	Stack Temp	Stack Velocity	Stack Diameter
		East (m)	North (m)	(m)	(g/s)	(m)	(K)	(m/s)	(m)
PPCSR00A	B1 1500 kWEmergency Gen	330376.9	4692032.4	8.770001	0.27	161.483	677.0389	51.8	0.356616
74J60000	4x Boilers	330386.4	4692040.5	8.770001	0.04536	156.3898	499.8167	2.117299	1.0668
5UGWI004	B2 Emergency Generator	330381.9	4692103.4	8.700001	0.27	164.0738	677.0389	51.8	0.356616
5UGWI005	8x Boilers	330347.1	4692094.2	8.700001	0.09072	164.0738	499.8167	2.117299	1.0668

PM10 Parameters

AERMOD Model Options

Model Options

Pathway	Keyword	Description	Value
CO	TITLEONE	Project title 1	Government Center BP2
CO	TITLETWO	Project title 2	PM10 2010
CO	MODELOPT	Model options	DFAULT,CONC
CO	AVERTIME	Averaging times	24
CO	URBANOPT	Urban options	Table (5,2) / /item /ID /URB1 /POPULATION /4564659 /NAME /AREA1 /ROUGHNESS /1
CO	POLLUTID	Pollutant ID	PM10
CO	HALFLIFE	Half life	
CO	DCAYCOEF	Decay coefficient	
CO	FLAGPOLE	Flagpole receptor heights	
CO	RUNORNOT	Run or Not	RUN
CO	EVENTFIL	Event file	F
CO	SAVEFILE	Save file	F
CO	INITFILE	Initialization file	
CO	MULTYEAR	Multiple year option	N/A
CO	DEBUGOPT	Debug options	N/A
CO	ERRORFIL	Error file	F
SO	ELEVUNIT	Elevation units	METERS
SO	EMISUNIT	Emission units	N/A
RE	ELEVUNIT	Elevation units	METERS
ME	SURFFILE	Surface met file	\\MABOSDATA\PROJECTS\11679.00\TECH\AIRQUALITY\ARTICLE 80_STATIONARY SOURCE\AERMOD\B2\PM10\BOS_2010.SFC
ME	PROFFILE	Profile met file	\\MABOSDATA\PROJECTS\11679.00\TECH\AIRQUALITY\ARTICLE 80_STATIONARY SOURCE\AERMOD\B2\PM10\BOS_2010.PFL
ME	SURFDATA	Surf met data info.	1 2010 LOGAN
ME	UAIRDATA	U-Air met data info.	2 2010 GREY_MAINE
ME	SITEDATA	On-site met data info.	
ME	PROFBASE	Elev. above MSL	9
ME	STARTEND	Start-end met dates	
ME	WDROTATE	Wind dir. rot. adjust.	
ME	WINDCATS	Wind speed cat. max.	
ME	SCIMBYHR	SCIM sample params	
EV	DAYTABLE	Print summary opt.	N/A
OU	EVENTOUT	Output info. level	N/A

OU	DAYTABLE	Print summary opt.	

Source Parameter Tables

All Sources

Source ID / Pollutant ID	Source Type	Description	UTM		Elev.	Emiss. Rate	Emiss. Units	Release Height
			East (m)	North (m)	(m)			(m)
PPCSR00A	POINT	1500 kWEmergency Gen	330376.9	4692032.4	8.770001	0.0176	(g/s)	161.483
74J60000	POINT	4x Boilers	330386.4	4692040.5	8.770001	0.08316	(g/s)	156.3898
5UGWI004	POINT	B2 Emergency Generator	330381.9	4692103.4	8.700001	0.0176	(g/s)	164.0738
5UGWI005	POINT	8x Boilers	330347.1	4692094.2	8.700001	0.16632	(g/s)	164.0738

Point Sources

Source ID / Pollutant ID	Description	UTM		Elev.	Emiss. Rate	Stack Height	Stack Temp	Stack Velocity	Stack Diameter
		East (m)	North (m)	(m)	(g/s)	(m)	(K)	(m/s)	(m)
PPCSR00A	1500 kWEmergency Gen	330376.9	4692032.4	8.770001	0.0176	161.483	677.0389	51.8	0.356616
74J60000	4x Boilers	330386.4	4692040.5	8.770001	0.08316	156.3898	499.8167	2.117299	1.0668
5UGWI004	B2 Emergency Generator	330381.9	4692103.4	8.700001	0.0176	164.0738	677.0389	51.8	0.356616
5UGWI005	8x Boilers	330347.1	4692094.2	8.700001	0.16632	164.0738	499.8167	2.117299	1.0668

AERMOD Model Options

Model Options

Pathway	Keyword	Description	Value
CO	TITLEONE	Project title 1	Government Center BP2
CO	TITLETWO	Project title 2	PM10 2011
CO	MODELOPT	Model options	DFAULT,CONC
CO	AVERTIME	Averaging times	24
CO	URBANOPT	Urban options	Table (5,2) / /item /ID /URB1 /POPULATION /4608848 /NAME /AREA1 /ROUGHNESS /1
CO	POLLUTID	Pollutant ID	PM10
CO	HALFLIFE	Half life	
CO	DCAYCOEF	Decay coefficient	
CO	FLAGPOLE	Flagpole receptor heights	
CO	RUNORNOT	Run or Not	RUN
CO	EVENTFIL	Event file	F
CO	SAVEFILE	Save file	F
CO	INITFILE	Initialization file	
CO	MULTYEAR	Multiple year option	N/A
CO	DEBUGOPT	Debug options	N/A
CO	ERRORFIL	Error file	F
SO	ELEVUNIT	Elevation units	METERS
SO	EMISUNIT	Emission units	N/A
RE	ELEVUNIT	Elevation units	METERS
ME	SURFFILE	Surface met file	\\MABOSDATA\PROJECTS\11679.00\TECH\AIRQUALITY\ARTICLE 80_STATIONARY SOURCE\AERMOD\B2\PM10\BOS_2011.SFC
ME	PROFFILE	Profile met file	\\MABOSDATA\PROJECTS\11679.00\TECH\AIRQUALITY\ARTICLE 80_STATIONARY SOURCE\AERMOD\B2\PM10\BOS_2011.PFL
ME	SURFDATA	Surf met data info.	1 2011 LOGAN
ME	UAIRDATA	U-Air met data info.	2 2011 GREY_MAINE
ME	SITEDATA	On-site met data info.	
ME	PROFBASE	Elev. above MSL	9
ME	STARTEND	Start-end met dates	
ME	WDROTATE	Wind dir. rot. adjust.	
ME	WINDCATS	Wind speed cat. max.	
ME	SCIMBYHR	SCIM sample params	
EV	DAYTABLE	Print summary opt.	N/A
OU	EVENTOUT	Output info. level	N/A

OU	DAYTABLE	Print summary opt.	

Source Parameter Tables

All Sources

Source ID / Pollutant ID	Source Type	Description	UTM		Elev.	Emiss. Rate	Emiss. Units	Release Height
			East (m)	North (m)	(m)			(m)
PPCSR00A	POINT	1500 kWEmergency Gen	330376.9	4692032.4	8.770001	0.0176	(g/s)	161.483
74J60000	POINT	4x Boilers	330386.4	4692040.5	8.770001	0.08316	(g/s)	156.3898
5UGWI004	POINT	B2 Emergency Generator	330381.9	4692103.4	8.700001	0.0176	(g/s)	164.0738
5UGWI005	POINT	8x Boilers	330347.1	4692094.2	8.700001	0.16632	(g/s)	164.0738

Point Sources

Source ID / Pollutant ID	Description	UTM		Elev.	Emiss. Rate	Stack Height	Stack Temp	Stack Velocity	Stack Diameter
		East (m)	North (m)	(m)	(g/s)	(m)	(K)	(m/s)	(m)
PPCSR00A	1500 kWEmergency Gen	330376.9	4692032.4	8.770001	0.0176	161.483	677.0389	51.8	0.356616
74J60000	4x Boilers	330386.4	4692040.5	8.770001	0.08316	156.3898	499.8167	2.117299	1.0668
5UGWI004	B2 Emergency Generator	330381.9	4692103.4	8.700001	0.0176	164.0738	677.0389	51.8	0.356616
5UGWI005	8x Boilers	330347.1	4692094.2	8.700001	0.16632	164.0738	499.8167	2.117299	1.0668

AERMOD Model Options

Model Options

Pathway	Keyword	Description	Value
CO	TITLEONE	Project title 1	Government Center BP2
CO	TITLETWO	Project title 2	PM10 2012
CO	MODELOPT	Model options	DFAULT,CONC
CO	AVERTIME	Averaging times	24
CO	URBANOPT	Urban options	Table (5,2) / /item /ID /URB1 /POPULATION /4650668 /NAME /AREA1 /ROUGHNESS /1
CO	POLLUTID	Pollutant ID	PM10
CO	HALFLIFE	Half life	
CO	DCAYCOEF	Decay coefficient	
CO	FLAGPOLE	Flagpole receptor heights	
CO	RUNORNOT	Run or Not	RUN
CO	EVENTFIL	Event file	F
CO	SAVEFILE	Save file	F
CO	INITFILE	Initialization file	
CO	MULTYEAR	Multiple year option	N/A
CO	DEBUGOPT	Debug options	N/A
CO	ERRORFIL	Error file	F
SO	ELEVUNIT	Elevation units	METERS
SO	EMISUNIT	Emission units	N/A
RE	ELEVUNIT	Elevation units	METERS
ME	SURFFILE	Surface met file	\\MABOSDATA\PROJECTS\11679.00\TECH\AIRQUALITY\ARTICLE 80_STATIONARY SOURCE\AERMOD\B2\PM10\BOS_2012.SFC
ME	PROFFILE	Profile met file	\\MABOSDATA\PROJECTS\11679.00\TECH\AIRQUALITY\ARTICLE 80_STATIONARY SOURCE\AERMOD\B2\PM10\BOS_2012.PFL
ME	SURFDATA	Surf met data info.	1 2012 LOGAN
ME	UAIRDATA	U-Air met data info.	2 2012 GREY_MAINE
ME	SITEDATA	On-site met data info.	
ME	PROFBASE	Elev. above MSL	9
ME	STARTEND	Start-end met dates	
ME	WDROTATE	Wind dir. rot. adjust.	
ME	WINDCATS	Wind speed cat. max.	
ME	SCIMBYHR	SCIM sample params	
EV	DAYTABLE	Print summary opt.	N/A
OU	EVENTOUT	Output info. level	N/A

OU	DAYTABLE	Print summary opt.	

Source Parameter Tables

All Sources

Source ID / Pollutant ID	Source Type	Description	UTM		Elev.	Emiss. Rate	Emiss. Units	Release Height
			East (m)	North (m)	(m)			(m)
PPCSR00A	POINT	1500 kWEmergency Gen	330376.9	4692032.4	8.770001	0.0176	(g/s)	161.483
74J60000	POINT	4x Boilers	330386.4	4692040.5	8.770001	0.08316	(g/s)	156.3898
5UGWI004	POINT	B2 Emergency Generator	330381.9	4692103.4	8.700001	0.0176	(g/s)	164.0738
5UGWI005	POINT	8x Boilers	330347.1	4692094.2	8.700001	0.16632	(g/s)	164.0738

Point Sources

Source ID / Pollutant ID	Description	UTM		Elev.	Emiss. Rate	Stack Height	Stack Temp	Stack Velocity	Stack Diameter
		East (m)	North (m)	(m)	(g/s)	(m)	(K)	(m/s)	(m)
PPCSR00A	1500 kWEmergency Gen	330376.9	4692032.4	8.770001	0.0176	161.483	677.0389	51.8	0.356616
74J60000	4x Boilers	330386.4	4692040.5	8.770001	0.08316	156.3898	499.8167	2.117299	1.0668
5UGWI004	B2 Emergency Generator	330381.9	4692103.4	8.700001	0.0176	164.0738	677.0389	51.8	0.356616
5UGWI005	8x Boilers	330347.1	4692094.2	8.700001	0.16632	164.0738	499.8167	2.117299	1.0668

AERMOD Model Options

Model Options

Pathway	Keyword	Description	Value
CO	TITLEONE	Project title 1	Government Center BP2
CO	TITLETWO	Project title 2	PM10 2013
CO	MODELOPT	Model options	DFAULT,CONC
CO	AVERTIME	Averaging times	24
CO	URBANOPT	Urban options	Table (5,2) / /item /ID /URB1 /POPULATION /4698049 /NAME /AREA1 /ROUGHNESS /1
CO	POLLUTID	Pollutant ID	PM10
CO	HALFLIFE	Half life	
CO	DCAYCOEF	Decay coefficient	
CO	FLAGPOLE	Flagpole receptor heights	
CO	RUNORNOT	Run or Not	RUN
CO	EVENTFIL	Event file	F
CO	SAVEFILE	Save file	F
CO	INITFILE	Initialization file	
CO	MULTYEAR	Multiple year option	N/A
CO	DEBUGOPT	Debug options	N/A
CO	ERRORFIL	Error file	F
SO	ELEVUNIT	Elevation units	METERS
SO	EMISUNIT	Emission units	N/A
RE	ELEVUNIT	Elevation units	METERS
ME	SURFFILE	Surface met file	\\MABOSDATA\PROJECTS\11679.00\TECH\AIRQUALITY\ARTICLE 80_STATIONARY SOURCE\AERMOD\B2\PM10\BOS_2013.SFC
ME	PROFFILE	Profile met file	\\MABOSDATA\PROJECTS\11679.00\TECH\AIRQUALITY\ARTICLE 80_STATIONARY SOURCE\AERMOD\B2\PM10\BOS_2013.PFL
ME	SURFDATA	Surf met data info.	1 2013 LOGAN
ME	UAIRDATA	U-Air met data info.	2 2013 GREY_MAINE
ME	SITEDATA	On-site met data info.	
ME	PROFBASE	Elev. above MSL	9
ME	STARTEND	Start-end met dates	
ME	WDROTATE	Wind dir. rot. adjust.	
ME	WINDCATS	Wind speed cat. max.	
ME	SCIMBYHR	SCIM sample params	
EV	DAYTABLE	Print summary opt.	N/A
OU	EVENTOUT	Output info. level	N/A

OU	DAYTABLE	Print summary opt.	

Source Parameter Tables

All Sources

Source ID / Pollutant ID	Source Type	Description	UTM		Elev.	Emiss. Rate	Emiss. Units	Release Height
			East (m)	North (m)	(m)			(m)
PPCSR00A	POINT	1500 kWEmergency Gen	330376.9	4692032.4	8.770001	0.0176	(g/s)	161.483
74J60000	POINT	4x Boilers	330386.4	4692040.5	8.770001	0.08316	(g/s)	156.3898
5UGWI004	POINT	B2 Emergency Generator	330381.9	4692103.4	8.700001	0.0176	(g/s)	164.0738
5UGWI005	POINT	8x Boilers	330347.1	4692094.2	8.700001	0.16632	(g/s)	164.0738

Point Sources

Source ID / Pollutant ID	Description	UTM		Elev.	Emiss. Rate	Stack Height	Stack Temp	Stack Velocity	Stack Diameter
		East (m)	North (m)	(m)	(g/s)	(m)	(K)	(m/s)	(m)
PPCSR00A	1500 kWEmergency Gen	330376.9	4692032.4	8.770001	0.0176	161.483	677.0389	51.8	0.356616
74J60000	4x Boilers	330386.4	4692040.5	8.770001	0.08316	156.3898	499.8167	2.117299	1.0668
5UGWI004	B2 Emergency Generator	330381.9	4692103.4	8.700001	0.0176	164.0738	677.0389	51.8	0.356616
5UGWI005	8x Boilers	330347.1	4692094.2	8.700001	0.16632	164.0738	499.8167	2.117299	1.0668

AERMOD Model Options

Model Options

Pathway	Keyword	Description	Value
CO	TITLEONE	Project title 1	Government Center BP2
CO	TITLETWO	Project title 2	PM10 2014
CO	MODELOPT	Model options	DFAULT,CONC
CO	AVERTIME	Averaging times	24
CO	URBANOPT	Urban options	Table (5,2) / /item /ID /URB1 /POPULATION /4732161 /NAME /AREA1 /ROUGHNESS /1
CO	POLLUTID	Pollutant ID	PM10
CO	HALFLIFE	Half life	
CO	DCAYCOEF	Decay coefficient	
CO	FLAGPOLE	Flagpole receptor heights	
CO	RUNORNOT	Run or Not	RUN
CO	EVENTFIL	Event file	F
CO	SAVEFILE	Save file	F
CO	INITFILE	Initialization file	
CO	MULTYEAR	Multiple year option	N/A
CO	DEBUGOPT	Debug options	N/A
CO	ERRORFIL	Error file	F
SO	ELEVUNIT	Elevation units	METERS
SO	EMISUNIT	Emission units	N/A
RE	ELEVUNIT	Elevation units	METERS
ME	SURFFILE	Surface met file	\\MABOSDATA\PROJECTS\11679.00\TECH\AIRQUALITY\ARTICLE 80_STATIONARY SOURCE\AERMOD\B2\PM10\BOS_2014.SFC
ME	PROFFILE	Profile met file	\\MABOSDATA\PROJECTS\11679.00\TECH\AIRQUALITY\ARTICLE 80_STATIONARY SOURCE\AERMOD\B2\PM10\BOS_2014.PFL
ME	SURFDATA	Surf met data info.	14739 2014 LOGAN
ME	UAIRDATA	U-Air met data info.	54762 2014 GREY_MAINE
ME	SITEDATA	On-site met data info.	
ME	PROFBASE	Elev. above MSL	9
ME	STARTEND	Start-end met dates	
ME	WDROTATE	Wind dir. rot. adjust.	
ME	WINDCATS	Wind speed cat. max.	
ME	SCIMBYHR	SCIM sample params	
EV	DAYTABLE	Print summary opt.	N/A
OU	EVENTOUT	Output info. level	N/A

OU	DAYTABLE	Print summary opt.	

Source Parameter Tables

All Sources

Source ID / Pollutant ID	Source Type	Description	UTM		Elev.	Emiss. Rate	Emiss. Units	Release Height
			East (m)	North (m)	(m)			(m)
PPCSR00A	POINT	1500 kWEmergency Gen	330376.9	4692032.4	8.770001	0.0176	(g/s)	161.483
74J60000	POINT	4x Boilers	330386.4	4692040.5	8.770001	0.08316	(g/s)	156.3898
5UGWI004	POINT	B2 Emergency Generator	330381.9	4692103.4	8.700001	0.0176	(g/s)	164.0738
5UGWI005	POINT	8x Boilers	330347.1	4692094.2	8.700001	0.16632	(g/s)	164.0738

Point Sources

Source ID / Pollutant ID	Description	UTM		Elev.	Emiss. Rate	Stack Height	Stack Temp	Stack Velocity	Stack Diameter
		East (m)	North (m)	(m)	(g/s)	(m)	(K)	(m/s)	(m)
PPCSR00A	1500 kWEmergency Gen	330376.9	4692032.4	8.770001	0.0176	161.483	677.0389	51.8	0.356616
74J60000	4x Boilers	330386.4	4692040.5	8.770001	0.08316	156.3898	499.8167	2.117299	1.0668
5UGWI004	B2 Emergency Generator	330381.9	4692103.4	8.700001	0.0176	164.0738	677.0389	51.8	0.356616
5UGWI005	8x Boilers	330347.1	4692094.2	8.700001	0.16632	164.0738	499.8167	2.117299	1.0668

PM2.5 Parameters

AERMOD Model Options

Model Options

Pathway	Keyword	Description	Value
CO	TITLEONE	Project title 1	Government Center BP2
CO	TITLETWO	Project title 2	PM25 2010
CO	MODELOPT	Model options	DFAULT,CONC
CO	AVERTIME	Averaging times	24,ANNUAL
CO	URBANOPT	Urban options	Table (5,2) / /item /ID /URB1 /POPULATION /4564659 /NAME /AREA1 /ROUGHNESS /1
CO	POLLUTID	Pollutant ID	PM25
CO	HALFLIFE	Half life	
CO	DCAYCOEF	Decay coefficient	
CO	FLAGPOLE	Flagpole receptor heights	
CO	RUNORNOT	Run or Not	RUN
CO	EVENTFIL	Event file	F
CO	SAVEFILE	Save file	F
CO	INITFILE	Initialization file	
CO	MULTYEAR	Multiple year option	N/A
CO	DEBUGOPT	Debug options	N/A
CO	ERRORFIL	Error file	F
SO	ELEVUNIT	Elevation units	METERS
SO	EMISUNIT	Emission units	N/A
RE	ELEVUNIT	Elevation units	METERS
ME	SURFFILE	Surface met file	\\MABOSDATA\PROJECTS\11679.00\TECH\AIRQUALITY\ARTICLE 80_STATIONARY SOURCE\AERMOD\B2\PM25\BOS_2010.SFC
ME	PROFFILE	Profile met file	\\MABOSDATA\PROJECTS\11679.00\TECH\AIRQUALITY\ARTICLE 80_STATIONARY SOURCE\AERMOD\B2\PM25\BOS_2010.PFL
ME	SURFDATA	Surf met data info.	1 2010 LOGAN
ME	UAIRDATA	U-Air met data info.	2 2010 GREY_MAINE
ME	SITEDATA	On-site met data info.	
ME	PROFBASE	Elev. above MSL	9
ME	STARTEND	Start-end met dates	
ME	WDROTATE	Wind dir. rot. adjust.	
ME	WINDCATS	Wind speed cat. max.	
ME	SCIMBYHR	SCIM sample params	
EV	DAYTABLE	Print summary opt.	N/A
OU	EVENTOUT	Output info. level	N/A

OU	DAYTABLE	Print summary opt.	

Source Parameter Tables

All Sources

Source ID / Pollutant ID	Source Type	Description	UTM		Elev.	Emiss. Rate	Emiss. Units	Release Height
			East (m)	North (m)	(m)			(m)
PPCSR00A	POINT	1500 kWEmergency Gen	330376.9	4692032.4	8.770001	0.0176	(g/s)	161.483
74J60000	POINT	4x Boilers	330386.4	4692040.5	8.770001	0.08316	(g/s)	156.3898
5UGWI004	POINT	B2 Emergency Generator	330381.9	4692103.4	8.700001	0.0176	(g/s)	164.0738
5UGWI005	POINT	8x Boilers	330347.1	4692094.2	8.700001	0.16632	(g/s)	164.0738

Point Sources

Source ID / Pollutant ID	Description	UTM		Elev.	Emiss. Rate	Stack Height	Stack Temp	Stack Velocity	Stack Diameter
		East (m)	North (m)	(m)	(g/s)	(m)	(K)	(m/s)	(m)
PPCSR00A	1500 kWEmergency Gen	330376.9	4692032.4	8.770001	0.0176	161.483	677.0389	51.8	0.356616
74J60000	4x Boilers	330386.4	4692040.5	8.770001	0.08316	156.3898	499.8167	2.117299	1.0668
5UGWI004	B2 Emergency Generator	330381.9	4692103.4	8.700001	0.0176	164.0738	677.0389	51.8	0.356616
5UGWI005	8x Boilers	330347.1	4692094.2	8.700001	0.16632	164.0738	499.8167	2.117299	1.0668

AERMOD Model Options

Model Options

Pathway	Keyword	Description	Value
CO	TITLEONE	Project title 1	Government Center BP2
CO	TITLETWO	Project title 2	PM25 2011
CO	MODELOPT	Model options	DFAULT,CONC
CO	AVERTIME	Averaging times	24,ANNUAL
CO	URBANOPT	Urban options	Table (5,2) / /item /ID /URB1 /POPULATION /4608848 /NAME /AREA1 /ROUGHNESS /1
CO	POLLUTID	Pollutant ID	PM25
CO	HALFLIFE	Half life	
CO	DCAYCOEF	Decay coefficient	
CO	FLAGPOLE	Flagpole receptor heights	
CO	RUNORNOT	Run or Not	RUN
CO	EVENTFIL	Event file	F
CO	SAVEFILE	Save file	F
CO	INITFILE	Initialization file	
CO	MULTYEAR	Multiple year option	N/A
CO	DEBUGOPT	Debug options	N/A
CO	ERRORFIL	Error file	F
SO	ELEVUNIT	Elevation units	METERS
SO	EMISUNIT	Emission units	N/A
RE	ELEVUNIT	Elevation units	METERS
ME	SURFFILE	Surface met file	\\MABOSDATA\PROJECTS\11679.00\TECH\AIRQUALITY\ARTICLE 80_STATIONARY SOURCE\AERMOD\B2\PM25\BOS_2011.SFC
ME	PROFFILE	Profile met file	\\MABOSDATA\PROJECTS\11679.00\TECH\AIRQUALITY\ARTICLE 80_STATIONARY SOURCE\AERMOD\B2\PM25\BOS_2011.PFL
ME	SURFDATA	Surf met data info.	1 2011 LOGAN
ME	UAIRDATA	U-Air met data info.	2 2011 GREY_MAINE
ME	SITEDATA	On-site met data info.	
ME	PROFBASE	Elev. above MSL	9
ME	STARTEND	Start-end met dates	
ME	WDROTATE	Wind dir. rot. adjust.	
ME	WINDCATS	Wind speed cat. max.	
ME	SCIMBYHR	SCIM sample params	
EV	DAYTABLE	Print summary opt.	N/A
OU	EVENTOUT	Output info. level	N/A

OU	DAYTABLE	Print summary opt.	

Source Parameter Tables

All Sources

Source ID / Pollutant ID	Source Type	Description	UTM		Elev.	Emiss. Rate	Emiss. Units	Release Height
			East (m)	North (m)	(m)			(m)
PPCSR00A	POINT	1500 kWEmergency Gen	330376.9	4692032.4	8.770001	0.0176	(g/s)	161.483
74J60000	POINT	4x Boilers	330386.4	4692040.5	8.770001	0.08316	(g/s)	156.3898
5UGWI004	POINT	B2 Emergency Generator	330381.9	4692103.4	8.700001	0.0176	(g/s)	164.0738
5UGWI005	POINT	8x Boilers	330347.1	4692094.2	8.700001	0.16632	(g/s)	164.0738

Point Sources

Source ID / Pollutant ID	Description	UTM		Elev.	Emiss. Rate	Stack Height	Stack Temp	Stack Velocity	Stack Diameter
		East (m)	North (m)	(m)	(g/s)	(m)	(K)	(m/s)	(m)
PPCSR00A	1500 kWEmergency Gen	330376.9	4692032.4	8.770001	0.0176	161.483	677.0389	51.8	0.356616
74J60000	4x Boilers	330386.4	4692040.5	8.770001	0.08316	156.3898	499.8167	2.117299	1.0668
5UGWI004	B2 Emergency Generator	330381.9	4692103.4	8.700001	0.0176	164.0738	677.0389	51.8	0.356616
5UGWI005	8x Boilers	330347.1	4692094.2	8.700001	0.16632	164.0738	499.8167	2.117299	1.0668

AERMOD Model Options

Model Options

Pathway	Keyword	Description	Value
CO	TITLEONE	Project title 1	Government Center BP2
CO	TITLETWO	Project title 2	PM25 2012
CO	MODELOPT	Model options	DFAULT,CONC
CO	AVERTIME	Averaging times	24,ANNUAL
CO	URBANOPT	Urban options	Table (5,2) / /item /ID /URB1 /POPULATION /4650668 /NAME /AREA1 /ROUGHNESS /1
CO	POLLUTID	Pollutant ID	PM25
CO	HALFLIFE	Half life	
CO	DCAYCOEF	Decay coefficient	
CO	FLAGPOLE	Flagpole receptor heights	
CO	RUNORNOT	Run or Not	RUN
CO	EVENTFIL	Event file	F
CO	SAVEFILE	Save file	F
CO	INITFILE	Initialization file	
CO	MULTYEAR	Multiple year option	N/A
CO	DEBUGOPT	Debug options	N/A
CO	ERRORFIL	Error file	F
SO	ELEVUNIT	Elevation units	METERS
SO	EMISUNIT	Emission units	N/A
RE	ELEVUNIT	Elevation units	METERS
ME	SURFFILE	Surface met file	\\MABOSDATA\PROJECTS\11679.00\TECH\AIRQUALITY\ARTICLE 80_STATIONARY SOURCE\AERMOD\B2\PM25\BOS_2012.SFC
ME	PROFFILE	Profile met file	\\MABOSDATA\PROJECTS\11679.00\TECH\AIRQUALITY\ARTICLE 80_STATIONARY SOURCE\AERMOD\B2\PM25\BOS_2012.PFL
ME	SURFDATA	Surf met data info.	1 2012 LOGAN
ME	UAIRDATA	U-Air met data info.	2 2012 GREY_MAINE
ME	SITEDATA	On-site met data info.	
ME	PROFBASE	Elev. above MSL	9
ME	STARTEND	Start-end met dates	
ME	WDROTATE	Wind dir. rot. adjust.	
ME	WINDCATS	Wind speed cat. max.	
ME	SCIMBYHR	SCIM sample params	
EV	DAYTABLE	Print summary opt.	N/A
OU	EVENTOUT	Output info. level	N/A

OU	DAYTABLE	Print summary opt.	

Source Parameter Tables

All Sources

Source ID / Pollutant ID	Source Type	Description	UTM		Elev.	Emiss. Rate	Emiss. Units	Release Height
			East (m)	North (m)	(m)			(m)
PPCSR00A	POINT	1500 kWEmergency Gen	330376.9	4692032.4	8.770001	0.0176	(g/s)	161.483
74J60000	POINT	4x Boilers	330386.4	4692040.5	8.770001	0.08316	(g/s)	156.3898
5UGWI004	POINT	B2 Emergency Generator	330381.9	4692103.4	8.700001	0.0176	(g/s)	164.0738
5UGWI005	POINT	8x Boilers	330347.1	4692094.2	8.700001	0.16632	(g/s)	164.0738

Point Sources

Source ID / Pollutant ID	Description	UTM		Elev.	Emiss. Rate	Stack Height	Stack Temp	Stack Velocity	Stack Diameter
		East (m)	North (m)	(m)	(g/s)	(m)	(K)	(m/s)	(m)
PPCSR00A	1500 kWEmergency Gen	330376.9	4692032.4	8.770001	0.0176	161.483	677.0389	51.8	0.356616
74J60000	4x Boilers	330386.4	4692040.5	8.770001	0.08316	156.3898	499.8167	2.117299	1.0668
5UGWI004	B2 Emergency Generator	330381.9	4692103.4	8.700001	0.0176	164.0738	677.0389	51.8	0.356616
5UGWI005	8x Boilers	330347.1	4692094.2	8.700001	0.16632	164.0738	499.8167	2.117299	1.0668

AERMOD Model Options

Model Options

Pathway	Keyword	Description	Value
CO	TITLEONE	Project title 1	Government Center BP2
CO	TITLETWO	Project title 2	PM25 2013
CO	MODELOPT	Model options	DFAULT,CONC
CO	AVERTIME	Averaging times	24,ANNUAL
CO	URBANOPT	Urban options	Table (5,2) / /item /ID /URB1 /POPULATION /4698049 /NAME /AREA1 /ROUGHNESS /1
CO	POLLUTID	Pollutant ID	PM25
CO	HALFLIFE	Half life	
CO	DCAYCOEF	Decay coefficient	
CO	FLAGPOLE	Flagpole receptor heights	
CO	RUNORNOT	Run or Not	RUN
CO	EVENTFIL	Event file	F
CO	SAVEFILE	Save file	F
CO	INITFILE	Initialization file	
CO	MULTYEAR	Multiple year option	N/A
CO	DEBUGOPT	Debug options	N/A
CO	ERRORFIL	Error file	F
SO	ELEVUNIT	Elevation units	METERS
SO	EMISUNIT	Emission units	N/A
RE	ELEVUNIT	Elevation units	METERS
ME	SURFFILE	Surface met file	\\MABOSDATA\PROJECTS\11679.00\TECH\AIRQUALITY\ARTICLE 80_STATIONARY SOURCE\AERMOD\B2\PM25\BOS_2013.SFC
ME	PROFFILE	Profile met file	\\MABOSDATA\PROJECTS\11679.00\TECH\AIRQUALITY\ARTICLE 80_STATIONARY SOURCE\AERMOD\B2\PM25\BOS_2013.PFL
ME	SURFDATA	Surf met data info.	1 2013 LOGAN
ME	UAIRDATA	U-Air met data info.	2 2013 GREY_MAINE
ME	SITEDATA	On-site met data info.	
ME	PROFBASE	Elev. above MSL	9
ME	STARTEND	Start-end met dates	
ME	WDROTATE	Wind dir. rot. adjust.	
ME	WINDCATS	Wind speed cat. max.	
ME	SCIMBYHR	SCIM sample params	
EV	DAYTABLE	Print summary opt.	N/A
OU	EVENTOUT	Output info. level	N/A

OU	DAYTABLE	Print summary opt.	

Source Parameter Tables

All Sources

Source ID / Pollutant ID	Source Type	Description	UTM		Elev.	Emiss. Rate	Emiss. Units	Release Height
			East (m)	North (m)	(m)			(m)
PPCSR00A	POINT	1500 kWEmergency Gen	330376.9	4692032.4	8.770001	0.0176	(g/s)	161.483
74J60000	POINT	4x Boilers	330386.4	4692040.5	8.770001	0.08316	(g/s)	156.3898
5UGWI004	POINT	B2 Emergency Generator	330381.9	4692103.4	8.700001	0.0176	(g/s)	164.0738
5UGWI005	POINT	8x Boilers	330347.1	4692094.2	8.700001	0.16632	(g/s)	164.0738

Point Sources

Source ID / Pollutant ID	Description	UTM		Elev.	Emiss. Rate	Stack Height	Stack Temp	Stack Velocity	Stack Diameter
		East (m)	North (m)	(m)	(g/s)	(m)	(K)	(m/s)	(m)
PPCSR00A	1500 kWEmergency Gen	330376.9	4692032.4	8.770001	0.0176	161.483	677.0389	51.8	0.356616
74J60000	4x Boilers	330386.4	4692040.5	8.770001	0.08316	156.3898	499.8167	2.117299	1.0668
5UGWI004	B2 Emergency Generator	330381.9	4692103.4	8.700001	0.0176	164.0738	677.0389	51.8	0.356616
5UGWI005	8x Boilers	330347.1	4692094.2	8.700001	0.16632	164.0738	499.8167	2.117299	1.0668

AERMOD Model Options

Model Options

Pathway	Keyword	Description	Value
CO	TITLEONE	Project title 1	Government Center BP2
CO	TITLETWO	Project title 2	PM25 2014
CO	MODELOPT	Model options	DFAULT,CONC
CO	AVERTIME	Averaging times	24,ANNUAL
CO	URBANOPT	Urban options	Table (5,2) / /item /ID /URB1 /POPULATION /4732161 /NAME /AREA1 /ROUGHNESS /1
CO	POLLUTID	Pollutant ID	PM25
CO	HALFLIFE	Half life	
CO	DCAYCOEF	Decay coefficient	
CO	FLAGPOLE	Flagpole receptor heights	
CO	RUNORNOT	Run or Not	RUN
CO	EVENTFIL	Event file	F
CO	SAVEFILE	Save file	F
CO	INITFILE	Initialization file	
CO	MULTYEAR	Multiple year option	N/A
CO	DEBUGOPT	Debug options	N/A
CO	ERRORFIL	Error file	F
SO	ELEVUNIT	Elevation units	METERS
SO	EMISUNIT	Emission units	N/A
RE	ELEVUNIT	Elevation units	METERS
ME	SURFFILE	Surface met file	\\MABOSDATA\PROJECTS\11679.00\TECH\AIRQUALITY\ARTICLE 80_STATIONARY SOURCE\AERMOD\B2\PM25\BOS_2014.SFC
ME	PROFFILE	Profile met file	\\MABOSDATA\PROJECTS\11679.00\TECH\AIRQUALITY\ARTICLE 80_STATIONARY SOURCE\AERMOD\B2\PM25\BOS_2014.PFL
ME	SURFDATA	Surf met data info.	14739 2014 LOGAN
ME	UAIRDATA	U-Air met data info.	54762 2014 GREY_MAINE
ME	SITEDATA	On-site met data info.	
ME	PROFBASE	Elev. above MSL	9
ME	STARTEND	Start-end met dates	
ME	WDROTATE	Wind dir. rot. adjust.	
ME	WINDCATS	Wind speed cat. max.	
ME	SCIMBYHR	SCIM sample params	
EV	DAYTABLE	Print summary opt.	N/A
OU	EVENTOUT	Output info. level	N/A

OU	DAYTABLE	Print summary opt.	

Source Parameter Tables

All Sources

Source ID / Pollutant ID	Source Type	Description	UTM		Elev.	Emiss. Rate	Emiss. Units	Release Height
			East (m)	North (m)	(m)			(m)
PPCSR00A	POINT	1500 kWEmergency Gen	330376.9	4692032.4	8.770001	0.0176	(g/s)	161.483
74J60000	POINT	4x Boilers	330386.4	4692040.5	8.770001	0.08316	(g/s)	156.3898
5UGWI004	POINT	B2 Emergency Generator	330381.9	4692103.4	8.700001	0.0176	(g/s)	164.0738
5UGWI005	POINT	8x Boilers	330347.1	4692094.2	8.700001	0.16632	(g/s)	164.0738

Point Sources

Source ID / Pollutant ID	Description	UTM		Elev.	Emiss. Rate	Stack Height	Stack Temp	Stack Velocity	Stack Diameter
		East (m)	North (m)	(m)	(g/s)	(m)	(K)	(m/s)	(m)
PPCSR00A	1500 kWEmergency Gen	330376.9	4692032.4	8.770001	0.0176	161.483	677.0389	51.8	0.356616
74J60000	4x Boilers	330386.4	4692040.5	8.770001	0.08316	156.3898	499.8167	2.117299	1.0668
5UGWI004	B2 Emergency Generator	330381.9	4692103.4	8.700001	0.0176	164.0738	677.0389	51.8	0.356616
5UGWI005	8x Boilers	330347.1	4692094.2	8.700001	0.16632	164.0738	499.8167	2.117299	1.0668

NOx Parameters

AERMOD Model Options

Model Options

Pathway	Keyword	Description	Value
CO	TITLEONE	Project title 1	Government Center BP2
CO	TITLETWO	Project title 2	NOx 2010
CO	MODELOPT	Model options	CONC,PVMRM
CO	AVERTIME	Averaging times	1,ANNUAL
CO	URBANOPT	Urban options	Table (5,2) / /item /ID /URB1 /POPULATION /4564659 /NAME /AREA1 /ROUGHNESS /1
CO	POLLUTID	Pollutant ID	NO2
CO	HALFLIFE	Half life	
CO	DCAYCOEF	Decay coefficient	
CO	FLAGPOLE	Flagpole receptor heights	
CO	RUNORNOT	Run or Not	RUN
CO	EVENTFIL	Event file	F
CO	SAVEFILE	Save file	F
CO	INITFILE	Initialization file	
CO	MULTYEAR	Multiple year option	N/A
CO	DEBUGOPT	Debug options	N/A
CO	ERRORFIL	Error file	F
SO	ELEVUNIT	Elevation units	METERS
SO	EMISUNIT	Emission units	N/A
RE	ELEVUNIT	Elevation units	METERS
ME	SURFFILE	Surface met file	\\MABOSDATA\PROJECTS\11679.00\TECH\AIRQUALITY\ARTICLE 80_STATIONARY SOURCE\AERMOD\B2\NOX\BOS_2010.SFC
ME	PROFFILE	Profile met file	\\MABOSDATA\PROJECTS\11679.00\TECH\AIRQUALITY\ARTICLE 80_STATIONARY SOURCE\AERMOD\B2\NOX\BOS_2010.PFL
ME	SURFDATA	Surf met data info.	1 2010 LOGAN
ME	UAIRDATA	U-Air met data info.	2 2010 GREY_MAINE
ME	SITEDATA	On-site met data info.	
ME	PROFBASE	Elev. above MSL	9
ME	STARTEND	Start-end met dates	
ME	WDROTATE	Wind dir. rot. adjust.	
ME	WINDCATS	Wind speed cat. max.	
ME	SCIMBYHR	SCIM sample params	
EV	DAYTABLE	Print summary opt.	N/A
OU	EVENTOUT	Output info. level	N/A

OU	DAYTABLE	Print summary opt.	

Source Parameter Tables

All Sources

Source ID / Pollutant ID	Source Type	Description	UTM		Elev.	Emiss. Rate	Emiss. Units	Release Height
			East (m)	North (m)	(m)			(m)
PPCSR00A	POINT	1500 kWEmergency Gen	330376.9	4692032.4	8.770001	0.10548	(g/s)	161.483
74J60000	POINT	4x Boilers	330386.4	4692040.5	8.770001	0.21672	(g/s)	156.3898
5UGWI004	POINT	B2 Emergency Generator	330381.9	4692103.4	8.700001	0.10548	(g/s)	164.0738
5UGWI005	POINT	8x Boilers	330347.1	4692094.2	8.700001	0.43344	(g/s)	164.0738

Point Sources

Source ID / Pollutant ID	Description	UTM		Elev.	Emiss. Rate	Stack Height	Stack Temp	Stack Velocity	Stack Diameter
		East (m)	North (m)	(m)	(g/s)	(m)	(K)	(m/s)	(m)
PPCSR00A	1500 kWEmergency Gen	330376.9	4692032.4	8.770001	0.10548	161.483	677.0389	51.8	0.356616
74J60000	4x Boilers	330386.4	4692040.5	8.770001	0.21672	156.3898	499.8167	2.117299	1.0668
5UGWI004	B2 Emergency Generator	330381.9	4692103.4	8.700001	0.10548	164.0738	677.0389	51.8	0.356616
5UGWI005	8x Boilers	330347.1	4692094.2	8.700001	0.43344	164.0738	499.8167	2.117299	1.0668

AERMOD Model Options

Model Options

Pathway	Keyword	Description	Value
CO	TITLEONE	Project title 1	Government Center BP2
CO	TITLETWO	Project title 2	NOx 2011
CO	MODELOPT	Model options	CONC,PVMRM
CO	AVERTIME	Averaging times	1,ANNUAL
CO	URBANOPT	Urban options	Table (5,2) / /item /ID /URB1 /POPULATION /4608848 /NAME /AREA1 /ROUGHNESS /1
CO	POLLUTID	Pollutant ID	NO2
CO	HALFLIFE	Half life	
CO	DCAYCOEF	Decay coefficient	
CO	FLAGPOLE	Flagpole receptor heights	
CO	RUNORNOT	Run or Not	RUN
CO	EVENTFIL	Event file	F
CO	SAVEFILE	Save file	F
CO	INITFILE	Initialization file	
CO	MULTYEAR	Multiple year option	N/A
CO	DEBUGOPT	Debug options	N/A
CO	ERRORFIL	Error file	F
SO	ELEVUNIT	Elevation units	METERS
SO	EMISUNIT	Emission units	N/A
RE	ELEVUNIT	Elevation units	METERS
ME	SURFFILE	Surface met file	\\MABOSDATA\PROJECTS\11679.00\TECH\AIRQUALITY\ARTICLE 80_STATIONARY SOURCE\AERMOD\B2\NOX\BOS_2011.SFC
ME	PROFFILE	Profile met file	\\MABOSDATA\PROJECTS\11679.00\TECH\AIRQUALITY\ARTICLE 80_STATIONARY SOURCE\AERMOD\B2\NOX\BOS_2011.PFL
ME	SURFDATA	Surf met data info.	1 2011 LOGAN
ME	UAIRDATA	U-Air met data info.	2 2011 GREY_MAINE
ME	SITEDATA	On-site met data info.	
ME	PROFBASE	Elev. above MSL	9
ME	STARTEND	Start-end met dates	
ME	WDROTATE	Wind dir. rot. adjust.	
ME	WINDCATS	Wind speed cat. max.	
ME	SCIMBYHR	SCIM sample params	
EV	DAYTABLE	Print summary opt.	N/A
OU	EVENTOUT	Output info. level	N/A

OU	DAYTABLE	Print summary opt.	

Source Parameter Tables

All Sources

Source ID / Pollutant ID	Source Type	Description	UTM		Elev.	Emiss. Rate	Emiss. Units	Release Height
			East (m)	North (m)	(m)			(m)
PPCSR00A	POINT	1500 kWEmergency Gen	330376.9	4692032.4	8.770001	0.10548	(g/s)	161.483
74J60000	POINT	4x Boilers	330386.4	4692040.5	8.770001	0.21672	(g/s)	156.3898
5UGWI004	POINT	B2 Emergency Generator	330381.9	4692103.4	8.700001	0.10548	(g/s)	164.0738
5UGWI005	POINT	8x Boilers	330347.1	4692094.2	8.700001	0.43344	(g/s)	164.0738

Point Sources

Source ID / Pollutant ID	Description	UTM		Elev.	Emiss. Rate	Stack Height	Stack Temp	Stack Velocity	Stack Diameter
		East (m)	North (m)	(m)	(g/s)	(m)	(K)	(m/s)	(m)
PPCSR00A	1500 kWEmergency Gen	330376.9	4692032.4	8.770001	0.10548	161.483	677.0389	51.8	0.356616
74J60000	4x Boilers	330386.4	4692040.5	8.770001	0.21672	156.3898	499.8167	2.117299	1.0668
5UGWI004	B2 Emergency Generator	330381.9	4692103.4	8.700001	0.10548	164.0738	677.0389	51.8	0.356616
5UGWI005	8x Boilers	330347.1	4692094.2	8.700001	0.43344	164.0738	499.8167	2.117299	1.0668

AERMOD Model Options

Model Options

Pathway	Keyword	Description	Value
CO	TITLEONE	Project title 1	Government Center BP2
CO	TITLETWO	Project title 2	NOx 2012
CO	MODELOPT	Model options	CONC,PVMRM
CO	AVERTIME	Averaging times	1,ANNUAL
CO	URBANOPT	Urban options	Table (5,2) / /item /ID /URB1 /POPULATION /4650668 /NAME /AREA1 /ROUGHNESS /1
CO	POLLUTID	Pollutant ID	NO2
CO	HALFLIFE	Half life	
CO	DCAYCOEF	Decay coefficient	
CO	FLAGPOLE	Flagpole receptor heights	
CO	RUNORNOT	Run or Not	RUN
CO	EVENTFIL	Event file	F
CO	SAVEFILE	Save file	F
CO	INITFILE	Initialization file	
CO	MULTYEAR	Multiple year option	N/A
CO	DEBUGOPT	Debug options	N/A
CO	ERRORFIL	Error file	F
SO	ELEVUNIT	Elevation units	METERS
SO	EMISUNIT	Emission units	N/A
RE	ELEVUNIT	Elevation units	METERS
ME	SURFFILE	Surface met file	\\MABOSDATA\PROJECTS\11679.00\TECH\AIRQUALITY\ARTICLE 80_STATIONARY SOURCE\AERMOD\B2\NOX\BOS_2012.SFC
ME	PROFFILE	Profile met file	\\MABOSDATA\PROJECTS\11679.00\TECH\AIRQUALITY\ARTICLE 80_STATIONARY SOURCE\AERMOD\B2\NOX\BOS_2012.PFL
ME	SURFDATA	Surf met data info.	1 2012 LOGAN
ME	UAIRDATA	U-Air met data info.	2 2012 GREY_MAINE
ME	SITEDATA	On-site met data info.	
ME	PROFBASE	Elev. above MSL	9
ME	STARTEND	Start-end met dates	
ME	WDROTATE	Wind dir. rot. adjust.	
ME	WINDCATS	Wind speed cat. max.	
ME	SCIMBYHR	SCIM sample params	
EV	DAYTABLE	Print summary opt.	N/A
OU	EVENTOUT	Output info. level	N/A

OU	DAYTABLE	Print summary opt.	

Source Parameter Tables

All Sources

Source ID / Pollutant ID	Source Type	Description	UTM		Elev.	Emiss. Rate	Emiss. Units	Release Height
			East (m)	North (m)	(m)			(m)
PPCSR00A	POINT	1500 kWEmergency Gen	330376.9	4692032.4	8.770001	0.10548	(g/s)	161.483
74J60000	POINT	4x Boilers	330386.4	4692040.5	8.770001	0.21672	(g/s)	156.3898
5UGWI004	POINT	B2 Emergency Generator	330381.9	4692103.4	8.700001	0.10548	(g/s)	164.0738
5UGWI005	POINT	8x Boilers	330347.1	4692094.2	8.700001	0.43344	(g/s)	164.0738

Point Sources

Source ID / Pollutant ID	Description	UTM		Elev.	Emiss. Rate	Stack Height	Stack Temp	Stack Velocity	Stack Diameter
		East (m)	North (m)	(m)	(g/s)	(m)	(K)	(m/s)	(m)
PPCSR00A	1500 kWEmergency Gen	330376.9	4692032.4	8.770001	0.10548	161.483	677.0389	51.8	0.356616
74J60000	4x Boilers	330386.4	4692040.5	8.770001	0.21672	156.3898	499.8167	2.117299	1.0668
5UGWI004	B2 Emergency Generator	330381.9	4692103.4	8.700001	0.10548	164.0738	677.0389	51.8	0.356616
5UGWI005	8x Boilers	330347.1	4692094.2	8.700001	0.43344	164.0738	499.8167	2.117299	1.0668

AERMOD Model Options

Model Options

Pathway	Keyword	Description	Value
CO	TITLEONE	Project title 1	Government Center BP2
CO	TITLETWO	Project title 2	NOx 2013
CO	MODELOPT	Model options	CONC,PVMRM
CO	AVERTIME	Averaging times	1,ANNUAL
CO	URBANOPT	Urban options	Table (5,2) / /item /ID /URB1 /POPULATION /4698049 /NAME /AREA1 /ROUGHNESS /1
CO	POLLUTID	Pollutant ID	NO2
CO	HALFLIFE	Half life	
CO	DCAYCOEF	Decay coefficient	
CO	FLAGPOLE	Flagpole receptor heights	
CO	RUNORNOT	Run or Not	RUN
CO	EVENTFIL	Event file	F
CO	SAVEFILE	Save file	F
CO	INITFILE	Initialization file	
CO	MULTYEAR	Multiple year option	N/A
CO	DEBUGOPT	Debug options	N/A
CO	ERRORFIL	Error file	F
SO	ELEVUNIT	Elevation units	METERS
SO	EMISUNIT	Emission units	N/A
RE	ELEVUNIT	Elevation units	METERS
ME	SURFFILE	Surface met file	\\MABOSDATA\PROJECTS\11679.00\TECH\AIRQUALITY\ARTICLE 80_STATIONARY SOURCE\AERMOD\B2\NOX\BOS_2013.SFC
ME	PROFFILE	Profile met file	\\MABOSDATA\PROJECTS\11679.00\TECH\AIRQUALITY\ARTICLE 80_STATIONARY SOURCE\AERMOD\B2\NOX\BOS_2013.PFL
ME	SURFDATA	Surf met data info.	1 2013 LOGAN
ME	UAIRDATA	U-Air met data info.	2 2013 GREY_MAINE
ME	SITEDATA	On-site met data info.	
ME	PROFBASE	Elev. above MSL	9
ME	STARTEND	Start-end met dates	
ME	WDROTATE	Wind dir. rot. adjust.	
ME	WINDCATS	Wind speed cat. max.	
ME	SCIMBYHR	SCIM sample params	
EV	DAYTABLE	Print summary opt.	N/A
OU	EVENTOUT	Output info. level	N/A

OU	DAYTABLE	Print summary opt.	

Source Parameter Tables

All Sources

Source ID / Pollutant ID	Source Type	Description	UTM		Elev.	Emiss. Rate	Emiss. Units	Release Height
			East (m)	North (m)	(m)			(m)
PPCSR00A	POINT	1500 kWEmergency Gen	330376.9	4692032.4	8.770001	0.10548	(g/s)	161.483
74J60000	POINT	4x Boilers	330386.4	4692040.5	8.770001	0.21672	(g/s)	156.3898
5UGWI004	POINT	B2 Emergency Generator	330381.9	4692103.4	8.700001	0.10548	(g/s)	164.0738
5UGWI005	POINT	8x Boilers	330347.1	4692094.2	8.700001	0.43344	(g/s)	164.0738

Point Sources

Source ID / Pollutant ID	Description	UTM		Elev.	Emiss. Rate	Stack Height	Stack Temp	Stack Velocity	Stack Diameter
		East (m)	North (m)	(m)	(g/s)	(m)	(K)	(m/s)	(m)
PPCSR00A	1500 kWEmergency Gen	330376.9	4692032.4	8.770001	0.10548	161.483	677.0389	51.8	0.356616
74J60000	4x Boilers	330386.4	4692040.5	8.770001	0.21672	156.3898	499.8167	2.117299	1.0668
5UGWI004	B2 Emergency Generator	330381.9	4692103.4	8.700001	0.10548	164.0738	677.0389	51.8	0.356616
5UGWI005	8x Boilers	330347.1	4692094.2	8.700001	0.43344	164.0738	499.8167	2.117299	1.0668

AERMOD Model Options

Model Options

Pathway	Keyword	Description	Value
CO	TITLEONE	Project title 1	Government Center BP2
CO	TITLETWO	Project title 2	NOx 2014
CO	MODELOPT	Model options	CONC,PVMRM
CO	AVERTIME	Averaging times	1,ANNUAL
CO	URBANOPT	Urban options	Table (5,2) / /item /ID /URB1 /POPULATION /4732161 /NAME /AREA1 /ROUGHNESS /1
CO	POLLUTID	Pollutant ID	NO2
CO	HALFLIFE	Half life	
CO	DCAYCOEF	Decay coefficient	
CO	FLAGPOLE	Flagpole receptor heights	
CO	RUNORNOT	Run or Not	RUN
CO	EVENTFIL	Event file	F
CO	SAVEFILE	Save file	F
CO	INITFILE	Initialization file	
CO	MULTYEAR	Multiple year option	N/A
CO	DEBUGOPT	Debug options	N/A
CO	ERRORFIL	Error file	F
SO	ELEVUNIT	Elevation units	METERS
SO	EMISUNIT	Emission units	N/A
RE	ELEVUNIT	Elevation units	METERS
ME	SURFFILE	Surface met file	\\MABOSDATA\PROJECTS\11679.00\TECH\AIRQUALITY\ARTICLE 80_STATIONARY SOURCE\AERMOD\B2\NOX\BOS_2014.SFC
ME	PROFFILE	Profile met file	\\MABOSDATA\PROJECTS\11679.00\TECH\AIRQUALITY\ARTICLE 80_STATIONARY SOURCE\AERMOD\B2\NOX\BOS_2014.PFL
ME	SURFDATA	Surf met data info.	14739 2014 LOGAN
ME	UAIRDATA	U-Air met data info.	54762 2014 GREY_MAINE
ME	SITEDATA	On-site met data info.	
ME	PROFBASE	Elev. above MSL	9
ME	STARTEND	Start-end met dates	
ME	WDROTATE	Wind dir. rot. adjust.	
ME	WINDCATS	Wind speed cat. max.	
ME	SCIMBYHR	SCIM sample params	
EV	DAYTABLE	Print summary opt.	N/A
OU	EVENTOUT	Output info. level	N/A

OU	DAYTABLE	Print summary opt.	

Source Parameter Tables

All Sources

Source ID / Pollutant ID	Source Type	Description	UTM		Elev.	Emiss. Rate	Emiss. Units	Release Height
			East (m)	North (m)	(m)			(m)
PPCSR00A	POINT	1500 kWEmergency Gen	330376.9	4692032.4	8.770001	0.10548	(g/s)	161.483
74J60000	POINT	4x Boilers	330386.4	4692040.5	8.770001	0.21672	(g/s)	156.3898
5UGWI004	POINT	B2 Emergency Generator	330381.9	4692103.4	8.700001	0.10548	(g/s)	164.0738
5UGWI005	POINT	8x Boilers	330347.1	4692094.2	8.700001	0.43344	(g/s)	164.0738

Point Sources

Source ID / Pollutant ID	Description	UTM		Elev.	Emiss. Rate	Stack Height	Stack Temp	Stack Velocity	Stack Diameter
		East (m)	North (m)	(m)	(g/s)	(m)	(K)	(m/s)	(m)
PPCSR00A	1500 kWEmergency Gen	330376.9	4692032.4	8.770001	0.10548	161.483	677.0389	51.8	0.356616
74J60000	4x Boilers	330386.4	4692040.5	8.770001	0.21672	156.3898	499.8167	2.117299	1.0668
5UGWI004	B2 Emergency Generator	330381.9	4692103.4	8.700001	0.10548	164.0738	677.0389	51.8	0.356616
5UGWI005	8x Boilers	330347.1	4692094.2	8.700001	0.43344	164.0738	499.8167	2.117299	1.0668

SO2 Parameters

AERMOD Model Options

Model Options

Pathway	Keyword	Description	Value
CO	TITLEONE	Project title 1	Government Center BP2
CO	TITLETWO	Project title 2	SO2 2010
CO	MODELOPT	Model options	DFAULT,CONC
CO	AVERTIME	Averaging times	1
CO	URBANOPT	Urban options	Table (5,2) / /item /ID /URB1 /POPULATION /4564659 /NAME /AREA1 /ROUGHNESS /1
CO	POLLUTID	Pollutant ID	SO2
CO	HALFLIFE	Half life	
CO	DCAYCOEF	Decay coefficient	
CO	FLAGPOLE	Flagpole receptor heights	
CO	RUNORNOT	Run or Not	RUN
CO	EVENTFIL	Event file	F
CO	SAVEFILE	Save file	F
CO	INITFILE	Initialization file	
CO	MULTYEAR	Multiple year option	N/A
CO	DEBUGOPT	Debug options	N/A
CO	ERRORFIL	Error file	F
SO	ELEVUNIT	Elevation units	METERS
SO	EMISUNIT	Emission units	N/A
RE	ELEVUNIT	Elevation units	METERS
ME	SURFFILE	Surface met file	\\MABOSDATA\PROJECTS\11679.00\TECH\AIRQUALITY\ARTICLE 80_STATIONARY SOURCE\AERMOD\B2\SO2\BOS_2010.SFC
ME	PROFFILE	Profile met file	\\MABOSDATA\PROJECTS\11679.00\TECH\AIRQUALITY\ARTICLE 80_STATIONARY SOURCE\AERMOD\B2\SO2\BOS_2010.PFL
ME	SURFDATA	Surf met data info.	1 2010 LOGAN
ME	UAIRDATA	U-Air met data info.	2 2010 GREY_MAINE
ME	SITEDATA	On-site met data info.	
ME	PROFBASE	Elev. above MSL	9
ME	STARTEND	Start-end met dates	
ME	WDROTATE	Wind dir. rot. adjust.	
ME	WINDCATS	Wind speed cat. max.	
ME	SCIMBYHR	SCIM sample params	
EV	DAYTABLE	Print summary opt.	N/A
OU	EVENTOUT	Output info. level	N/A

OU	DAYTABLE	Print summary opt.	

Source Parameter Tables

All Sources

Source ID / Pollutant ID	Source Type	Description	UTM		Elev.	Emiss. Rate	Emiss. Units	Release Height
			East (m)	North (m)	(m)			(m)
PPCSR00A	POINT	1500 kWEmergency Gen	330376.9	4692032.4	8.770001	0.002807	(g/s)	161.483
74J60000	POINT	4x Boilers	330386.4	4692040.5	8.770001	0.00372133	(g/s)	156.3898
5UGWI004	POINT	B2 Emergency Generator	330381.9	4692103.4	8.700001	0.002807	(g/s)	164.0738
5UGWI005	POINT	8x Boilers	330347.1	4692094.2	8.700001	0.007442669	(g/s)	164.0738

Point Sources

Source ID / Pollutant ID	Description	UTM		Elev.	Emiss. Rate	Stack Height	Stack Temp	Stack Velocity	Stack Diameter
		East (m)	North (m)	(m)	(g/s)	(m)	(K)	(m/s)	(m)
PPCSR00A	1500 kWEmergency Gen	330376.9	4692032.4	8.770001	0.002807	161.483	677.0389	51.8	0.356616
74J60000	4x Boilers	330386.4	4692040.5	8.770001	0.00372133	156.3898	499.8167	2.117299	1.0668
5UGWI004	B2 Emergency Generator	330381.9	4692103.4	8.700001	0.002807	164.0738	677.0389	51.8	0.356616
5UGWI005	8x Boilers	330347.1	4692094.2	8.700001	0.007442669	164.0738	499.8167	2.117299	1.0668

AERMOD Model Options

Model Options

Pathway	Keyword	Description	Value
CO	TITLEONE	Project title 1	Government Center BP2
CO	TITLETWO	Project title 2	SO2 2011
CO	MODELOPT	Model options	DFAULT,CONC
CO	AVERTIME	Averaging times	1
CO	URBANOPT	Urban options	Table (5,2) / /item /ID /URB1 /POPULATION /4608848 /NAME /AREA1 /ROUGHNESS /1
CO	POLLUTID	Pollutant ID	SO2
CO	HALFLIFE	Half life	
CO	DCAYCOEF	Decay coefficient	
CO	FLAGPOLE	Flagpole receptor heights	
CO	RUNORNOT	Run or Not	RUN
CO	EVENTFIL	Event file	F
CO	SAVEFILE	Save file	F
CO	INITFILE	Initialization file	
CO	MULTYEAR	Multiple year option	N/A
CO	DEBUGOPT	Debug options	N/A
CO	ERRORFIL	Error file	F
SO	ELEVUNIT	Elevation units	METERS
SO	EMISUNIT	Emission units	N/A
RE	ELEVUNIT	Elevation units	METERS
ME	SURFFILE	Surface met file	\\MABOSDATA\PROJECTS\11679.00\TECH\AIRQUALITY\ARTICLE 80_STATIONARY SOURCE\AERMOD\B2\SO2\BOS_2011.SFC
ME	PROFFILE	Profile met file	\\MABOSDATA\PROJECTS\11679.00\TECH\AIRQUALITY\ARTICLE 80_STATIONARY SOURCE\AERMOD\B2\SO2\BOS_2011.PFL
ME	SURFDATA	Surf met data info.	1 2011 LOGAN
ME	UAIRDATA	U-Air met data info.	2 2011 GREY_MAINE
ME	SITEDATA	On-site met data info.	
ME	PROFBASE	Elev. above MSL	9
ME	STARTEND	Start-end met dates	
ME	WDROTATE	Wind dir. rot. adjust.	
ME	WINDCATS	Wind speed cat. max.	
ME	SCIMBYHR	SCIM sample params	
EV	DAYTABLE	Print summary opt.	N/A
OU	EVENTOUT	Output info. level	N/A

OU	DAYTABLE	Print summary opt.	

Source Parameter Tables

All Sources

Source ID / Pollutant ID	Source Type	Description	UTM		Elev.	Emiss. Rate	Emiss. Units	Release Height
			East (m)	North (m)	(m)			(m)
PPCSR00A	POINT	1500 kWEmergency Gen	330376.9	4692032.4	8.770001	0.002807	(g/s)	161.483
74J60000	POINT	4x Boilers	330386.4	4692040.5	8.770001	0.00372133	(g/s)	156.3898
5UGWI004	POINT	B2 Emergency Generator	330381.9	4692103.4	8.700001	0.002807	(g/s)	164.0738
5UGWI005	POINT	8x Boilers	330347.1	4692094.2	8.700001	0.007442669	(g/s)	164.0738

Point Sources

Source ID / Pollutant ID	Description	UTM		Elev.	Emiss. Rate	Stack Height	Stack Temp	Stack Velocity	Stack Diameter
		East (m)	North (m)	(m)	(g/s)	(m)	(K)	(m/s)	(m)
PPCSR00A	1500 kWEmergency Gen	330376.9	4692032.4	8.770001	0.002807	161.483	677.0389	51.8	0.356616
74J60000	4x Boilers	330386.4	4692040.5	8.770001	0.00372133	156.3898	499.8167	2.117299	1.0668
5UGWI004	B2 Emergency Generator	330381.9	4692103.4	8.700001	0.002807	164.0738	677.0389	51.8	0.356616
5UGWI005	8x Boilers	330347.1	4692094.2	8.700001	0.007442669	164.0738	499.8167	2.117299	1.0668

AERMOD Model Options

Model Options

Pathway	Keyword	Description	Value
CO	TITLEONE	Project title 1	Government Center BP2
CO	TITLETWO	Project title 2	SO2 2012
CO	MODELOPT	Model options	DFAULT,CONC
CO	AVERTIME	Averaging times	1
CO	URBANOPT	Urban options	Table (5,2) / /item /ID /URB1 /POPULATION /4650668 /NAME /AREA1 /ROUGHNESS /1
CO	POLLUTID	Pollutant ID	SO2
CO	HALFLIFE	Half life	
CO	DCAYCOEF	Decay coefficient	
CO	FLAGPOLE	Flagpole receptor heights	
CO	RUNORNOT	Run or Not	RUN
CO	EVENTFIL	Event file	F
CO	SAVEFILE	Save file	F
CO	INITFILE	Initialization file	
CO	MULTYEAR	Multiple year option	N/A
CO	DEBUGOPT	Debug options	N/A
CO	ERRORFIL	Error file	F
SO	ELEVUNIT	Elevation units	METERS
SO	EMISUNIT	Emission units	N/A
RE	ELEVUNIT	Elevation units	METERS
ME	SURFFILE	Surface met file	\\MABOSDATA\PROJECTS\11679.00\TECH\AIRQUALITY\ARTICLE 80_STATIONARY SOURCE\AERMOD\B2\SO2\BOS_2012.SFC
ME	PROFFILE	Profile met file	\\MABOSDATA\PROJECTS\11679.00\TECH\AIRQUALITY\ARTICLE 80_STATIONARY SOURCE\AERMOD\B2\SO2\BOS_2012.PFL
ME	SURFDATA	Surf met data info.	1 2012 LOGAN
ME	UAIRDATA	U-Air met data info.	2 2012 GREY_MAINE
ME	SITEDATA	On-site met data info.	
ME	PROFBASE	Elev. above MSL	9
ME	STARTEND	Start-end met dates	
ME	WDROTATE	Wind dir. rot. adjust.	
ME	WINDCATS	Wind speed cat. max.	
ME	SCIMBYHR	SCIM sample params	
EV	DAYTABLE	Print summary opt.	N/A
OU	EVENTOUT	Output info. level	N/A

OU	DAYTABLE	Print summary opt.	

Source Parameter Tables

All Sources

Source ID / Pollutant ID	Source Type	Description	UTM		Elev.	Emiss. Rate	Emiss. Units	Release Height
			East (m)	North (m)	(m)			(m)
PPCSR00A	POINT	1500 kWEmergency Gen	330376.9	4692032.4	8.770001	0.002807	(g/s)	161.483
74J60000	POINT	4x Boilers	330386.4	4692040.5	8.770001	0.00372133	(g/s)	156.3898
5UGWI004	POINT	B2 Emergency Generator	330381.9	4692103.4	8.700001	0.002807	(g/s)	164.0738
5UGWI005	POINT	8x Boilers	330347.1	4692094.2	8.700001	0.007442669	(g/s)	164.0738

Point Sources

Source ID / Pollutant ID	Description	UTM		Elev.	Emiss. Rate	Stack Height	Stack Temp	Stack Velocity	Stack Diameter
		East (m)	North (m)	(m)	(g/s)	(m)	(K)	(m/s)	(m)
PPCSR00A	1500 kWEmergency Gen	330376.9	4692032.4	8.770001	0.002807	161.483	677.0389	51.8	0.356616
74J60000	4x Boilers	330386.4	4692040.5	8.770001	0.00372133	156.3898	499.8167	2.117299	1.0668
5UGWI004	B2 Emergency Generator	330381.9	4692103.4	8.700001	0.002807	164.0738	677.0389	51.8	0.356616
5UGWI005	8x Boilers	330347.1	4692094.2	8.700001	0.007442669	164.0738	499.8167	2.117299	1.0668

AERMOD Model Options

Model Options

Pathway	Keyword	Description	Value
CO	TITLEONE	Project title 1	Government Center BP2
CO	TITLETWO	Project title 2	SO2 2013
CO	MODELOPT	Model options	DFAULT,CONC
CO	AVERTIME	Averaging times	1
CO	URBANOPT	Urban options	Table (5,2) / /item /ID /URB1 /POPULATION /4698049 /NAME /AREA1 /ROUGHNESS /1
CO	POLLUTID	Pollutant ID	SO2
CO	HALFLIFE	Half life	
CO	DCAYCOEF	Decay coefficient	
CO	FLAGPOLE	Flagpole receptor heights	
CO	RUNORNOT	Run or Not	RUN
CO	EVENTFIL	Event file	F
CO	SAVEFILE	Save file	F
CO	INITFILE	Initialization file	
CO	MULTYEAR	Multiple year option	N/A
CO	DEBUGOPT	Debug options	N/A
CO	ERRORFIL	Error file	F
SO	ELEVUNIT	Elevation units	METERS
SO	EMISUNIT	Emission units	N/A
RE	ELEVUNIT	Elevation units	METERS
ME	SURFFILE	Surface met file	\\MABOSDATA\PROJECTS\11679.00\TECH\AIRQUALITY\ARTICLE 80_STATIONARY SOURCE\AERMOD\B2\SO2\BOS_2013.SFC
ME	PROFFILE	Profile met file	\\MABOSDATA\PROJECTS\11679.00\TECH\AIRQUALITY\ARTICLE 80_STATIONARY SOURCE\AERMOD\B2\SO2\BOS_2013.PFL
ME	SURFDATA	Surf met data info.	1 2013 LOGAN
ME	UAIRDATA	U-Air met data info.	2 2013 GREY_MAINE
ME	SITEDATA	On-site met data info.	
ME	PROFBASE	Elev. above MSL	9
ME	STARTEND	Start-end met dates	
ME	WDROTATE	Wind dir. rot. adjust.	
ME	WINDCATS	Wind speed cat. max.	
ME	SCIMBYHR	SCIM sample params	
EV	DAYTABLE	Print summary opt.	N/A
OU	EVENTOUT	Output info. level	N/A

OU	DAYTABLE	Print summary opt.	

Source Parameter Tables

All Sources

Source ID / Pollutant ID	Source Type	Description	UTM		Elev.	Emiss. Rate	Emiss. Units	Release Height
			East (m)	North (m)	(m)			(m)
PPCSR00A	POINT	1500 kWEmergency Gen	330376.9	4692032.4	8.770001	0.002807	(g/s)	161.483
74J60000	POINT	4x Boilers	330386.4	4692040.5	8.770001	0.00372133	(g/s)	156.3898
5UGWI004	POINT	B2 Emergency Generator	330381.9	4692103.4	8.700001	0.002807	(g/s)	164.0738
5UGWI005	POINT	8x Boilers	330347.1	4692094.2	8.700001	0.007442669	(g/s)	164.0738

Point Sources

Source ID / Pollutant ID	Description	UTM		Elev.	Emiss. Rate	Stack Height	Stack Temp	Stack Velocity	Stack Diameter
		East (m)	North (m)	(m)	(g/s)	(m)	(K)	(m/s)	(m)
PPCSR00A	1500 kWEmergency Gen	330376.9	4692032.4	8.770001	0.002807	161.483	677.0389	51.8	0.356616
74J60000	4x Boilers	330386.4	4692040.5	8.770001	0.00372133	156.3898	499.8167	2.117299	1.0668
5UGWI004	B2 Emergency Generator	330381.9	4692103.4	8.700001	0.002807	164.0738	677.0389	51.8	0.356616
5UGWI005	8x Boilers	330347.1	4692094.2	8.700001	0.007442669	164.0738	499.8167	2.117299	1.0668

AERMOD Model Options

Model Options

Pathway	Keyword	Description	Value
CO	TITLEONE	Project title 1	Government Center BP2
CO	TITLETWO	Project title 2	SO2 2014
CO	MODELOPT	Model options	DFAULT,CONC
CO	AVERTIME	Averaging times	1
CO	URBANOPT	Urban options	Table (5,2) / /item /ID /URB1 /POPULATION /4732161 /NAME /AREA1 /ROUGHNESS /1
CO	POLLUTID	Pollutant ID	SO2
CO	HALFLIFE	Half life	
CO	DCAYCOEF	Decay coefficient	
CO	FLAGPOLE	Flagpole receptor heights	
CO	RUNORNOT	Run or Not	RUN
CO	EVENTFIL	Event file	F
CO	SAVEFILE	Save file	F
CO	INITFILE	Initialization file	
CO	MULTYEAR	Multiple year option	N/A
CO	DEBUGOPT	Debug options	N/A
CO	ERRORFIL	Error file	F
SO	ELEVUNIT	Elevation units	METERS
SO	EMISUNIT	Emission units	N/A
RE	ELEVUNIT	Elevation units	METERS
ME	SURFFILE	Surface met file	\\MABOSDATA\PROJECTS\11679.00\TECH\AIRQUALITY\ARTICLE 80_STATIONARY SOURCE\AERMOD\B2\SO2\BOS_2014.SFC
ME	PROFFILE	Profile met file	\\MABOSDATA\PROJECTS\11679.00\TECH\AIRQUALITY\ARTICLE 80_STATIONARY SOURCE\AERMOD\B2\SO2\BOS_2014.PFL
ME	SURFDATA	Surf met data info.	14739 2014 LOGAN
ME	UAIRDATA	U-Air met data info.	54762 2014 GREY_MAINE
ME	SITEDATA	On-site met data info.	
ME	PROFBASE	Elev. above MSL	9
ME	STARTEND	Start-end met dates	
ME	WDROTATE	Wind dir. rot. adjust.	
ME	WINDCATS	Wind speed cat. max.	
ME	SCIMBYHR	SCIM sample params	
EV	DAYTABLE	Print summary opt.	N/A
OU	EVENTOUT	Output info. level	N/A

OU	DAYTABLE	Print summary opt.	

Source Parameter Tables

All Sources

Source ID / Pollutant ID	Source Type	Description	UTM		Elev.	Emiss. Rate	Emiss. Units	Release Height
			East (m)	North (m)	(m)			(m)
PPCSR00A	POINT	1500 kWEmergency Gen	330376.9	4692032.4	8.770001	0.002807	(g/s)	161.483
74J60000	POINT	4x Boilers	330386.4	4692040.5	8.770001	0.00372133	(g/s)	156.3898
5UGWI004	POINT	B2 Emergency Generator	330381.9	4692103.4	8.700001	0.002807	(g/s)	164.0738
5UGWI005	POINT	8x Boilers	330347.1	4692094.2	8.700001	0.007442669	(g/s)	164.0738

Point Sources

Source ID / Pollutant ID	Description	UTM		Elev.	Emiss. Rate	Stack Height	Stack Temp	Stack Velocity	Stack Diameter
		East (m)	North (m)	(m)	(g/s)	(m)	(K)	(m/s)	(m)
PPCSR00A	1500 kWEmergency Gen	330376.9	4692032.4	8.770001	0.002807	161.483	677.0389	51.8	0.356616
74J60000	4x Boilers	330386.4	4692040.5	8.770001	0.00372133	156.3898	499.8167	2.117299	1.0668
5UGWI004	B2 Emergency Generator	330381.9	4692103.4	8.700001	0.002807	164.0738	677.0389	51.8	0.356616
5UGWI005	8x Boilers	330347.1	4692094.2	8.700001	0.007442669	164.0738	499.8167	2.117299	1.0668

AERMOD Modeling Output Results

- CO Concentrations
- PM10 Concentrations
- PM2.5 Concentrations
- NOx Concentrations
- SO_2 Concentrations

CO Concentrations

BREEZE AERMOD Model Results

Highest Results of Pollutant: CO

Avg. Per.	Grp ID	High	Type	Val	Units	Date	UTM		Elev.	Hill Ht.	Flag Ht.	Rec. Type	Grid ID
						YYMMDDHH	East (m)	North (m)	(m)	(m)	(m)		
1-HR	ALL	2ND	Avg. Conc.	26.77414	ug/m**3	10022809	330416.39	4692049.76	7.70	7.70	0.00	GP	CTMNC000
8-HR	ALL	2ND	Avg. Conc.	17.19652	ug/m**3	10013016	330388.20	4692069.50	7.10	7.10	0.00	GP	CTMNC000

Summary of Total Messages

#	Message Type
0	Fatal Error Message(s)
4	Warning Message(s)
27	Informational Message(s)
8760	Hours Were Processed
6	Calm Hours Identified
21	Missing Hours Identified (0.24 Percent)

Error & Warning Messages

Msg. Type	Pathway	Ref. #	Description
WARNING	SO	W320	Input Parameter May Be Out-of-Range for Parameter VS
WARNING	SO	W320	Input Parameter May Be Out-of-Range for Parameter VS
WARNING	OU	W565	Possible Conflict With Dynamically Allocated FUNIT PLOTFILE
WARNING	OU	W565	Possible Conflict With Dynamically Allocated FUNIT PLOTFILE

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BREEZE AERMOD Model Results

Highest Results of Pollutant: CO

Avg. Per.	Grp ID	High	Type	Val	Units	Date	UTM		Elev.	Hill Ht.	Flag Ht.	Rec. Type	Grid ID
						YYMMDDHH	East (m)	North (m)	(m)	(m)	(m)		
1-HR	ALL	2ND	Avg. Conc.	26.72234	ug/m**3	11062009	330416.39	4692049.76	7.70	7.70	0.00	GP	CTMNC000
8-HR	ALL	2ND	Avg. Conc.	18.09187	ug/m**3	11011416	330388.20	4692069.50	7.10	7.10	0.00	GP	CTMNC000

Summary of Total Messages

#	Message Type
0	Fatal Error Message(s)
4	Warning Message(s)
23	Informational Message(s)
8760	Hours Were Processed
6	Calm Hours Identified
17	Missing Hours Identified (0.19 Percent)

Error & Warning Messages

Msg. Type	Pathway	Ref. #	Description
WARNING	SO	W320	Input Parameter May Be Out-of-Range for Parameter VS
WARNING	SO	W320	Input Parameter May Be Out-of-Range for Parameter VS
WARNING	OU	W565	Possible Conflict With Dynamically Allocated FUNIT PLOTFILE
WARNING	OU	W565	Possible Conflict With Dynamically Allocated FUNIT PLOTFILE

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BREEZE AERMOD Model Results

Highest Results of Pollutant: CO

Avg. Per.	Grp ID	High	Type	Val	Units	Date	UTM		Elev.	Hill Ht.	Flag Ht.	Rec. Type	Grid ID
						YYMMDDHH	East (m)	North (m)	(m)	(m)	(m)		
1-HR	ALL	2ND	Avg. Conc.	27.47404	ug/m**3	12073003	330393.41	4692069.04	7.10	7.10	0.00	GP	CTMNC000
8-HR	ALL	2ND	Avg. Conc.	18.25840	ug/m**3	12073008	330388.20	4692069.50	7.10	7.10	0.00	GP	CTMNC000

Summary of Total Messages

#	Message Type
0	Fatal Error Message(s)
4	Warning Message(s)
16	Informational Message(s)
8784	Hours Were Processed
14	Calm Hours Identified
2	Missing Hours Identified (0.02 Percent)

Error & Warning Messages

Msg. Type	Pathway	Ref. #	Description
WARNING	SO	W320	Input Parameter May Be Out-of-Range for Parameter VS
WARNING	SO	W320	Input Parameter May Be Out-of-Range for Parameter VS
WARNING	OU	W565	Possible Conflict With Dynamically Allocated FUNIT PLOTFILE
WARNING	OU	W565	Possible Conflict With Dynamically Allocated FUNIT PLOTFILE

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BREEZE AERMOD Model Results

Highest Results of Pollutant: CO

Avg. Per.	Grp ID	High	Type	Val	Units	Date	UTM		Elev.	Hill Ht.	Flag Ht.	Rec. Type	Grid ID
						YYMMDDHH	East (m)	North (m)	(m)	(m)	(m)		
1-HR	ALL	2ND	Avg. Conc.	27.06091	ug/m**3	13120215	330414.18	4692054.50	7.50	7.50	0.00	GP	CTMNC000
8-HR	ALL	2ND	Avg. Conc.	18.42505	ug/m**3	13030316	330382.99	4692069.04	7.10	7.10	0.00	GP	CTMNC000

Summary of Total Messages

#	Message Type
0	Fatal Error Message(s)
4	Warning Message(s)
9	Informational Message(s)
8760	Hours Were Processed
6	Calm Hours Identified
3	Missing Hours Identified (0.03 Percent)

Error & Warning Messages

Msg. Type	Pathway	Ref. #	Description
WARNING	SO	W320	Input Parameter May Be Out-of-Range for Parameter VS
WARNING	SO	W320	Input Parameter May Be Out-of-Range for Parameter VS
WARNING	OU	W565	Possible Conflict With Dynamically Allocated FUNIT PLOTFILE
WARNING	OU	W565	Possible Conflict With Dynamically Allocated FUNIT PLOTFILE

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BREEZE AERMOD Model Results

Highest Results of Pollutant: CO

Avg. Per.	Grp ID	High	Type	Val	Units	Date	UTM		Elev.	Hill Ht.	Flag Ht.	Rec. Type	Grid ID
						YYMMDDHH	East (m)	North (m)	(m)	(m)	(m)		
1-HR	ALL	2ND	Avg. Conc.	23.16332	ug/m**3	14022706	330362.22	4692054.50	7.70	7.70	0.00	GP	CTMNC000
8-HR	ALL	2ND	Avg. Conc.	12.57095	ug/m**3	14122116	330365.22	4692058.78	7.50	7.50	0.00	GP	CTMNC000

Summary of Total Messages

#	Message Type
0	Fatal Error Message(s)
5	Warning Message(s)
28	Informational Message(s)
8760	Hours Were Processed
10	Calm Hours Identified
18	Missing Hours Identified (0.21 Percent)

Error & Warning Messages

Msg. Type	Pathway	Ref. #	Description
WARNING	SO	W320	Input Parameter May Be Out-of-Range for Parameter VS
WARNING	SO	W320	Input Parameter May Be Out-of-Range for Parameter VS
WARNING	ME	W186	THRESH_1MIN 1-min ASOS wind speed threshold used 0.50
WARNING	OU	W565	Possible Conflict With Dynamically Allocated FUNIT PLOTFILE
WARNING	OU	W565	Possible Conflict With Dynamically Allocated FUNIT PLOTFILE

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PM10 Concentrations

BREEZE AERMOD Model Results

Highest Results of Pollutant: PM10

Avg. Per.	Grp ID	High	Type	Val	Units	Date	UTM		Elev.	Hill Ht.	Flag Ht.	Rec. Type	Grid ID
						YYMMDDHH	East (m)	North (m)	(m)	(m)	(m)		
24-HR	ALL	2ND	Avg. Conc.	6.09662	ug/m**3	10121924	330368.92	4692062.48	7.40	7.40	0.00	GP	CTMNC000

Summary of Total Messages

#	Message Type
0	Fatal Error Message(s)
3	Warning Message(s)
27	Informational Message(s)
8760	Hours Were Processed
6	Calm Hours Identified
21	Missing Hours Identified (0.24 Percent)

Error & Warning Messages

Msg. Type	Pathway	Ref. #	Description
WARNING	SO	W320	Input Parameter May Be Out-of-Range for Parameter VS
WARNING	SO	W320	Input Parameter May Be Out-of-Range for Parameter VS
WARNING	OU	W565	Possible Conflict With Dynamically Allocated FUNIT PLOTFILE

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BREEZE AERMOD Model Results

Highest Results of Pollutant: PM10

Avg. Per.	Grp ID	High	Type	Val	Units	Date	UTM		Elev.	Hill Ht.	Flag Ht.	Rec. Type	Grid ID
						YYMMDDHH	East (m)	North (m)	(m)	(m)	(m)		
24-HR	ALL	2ND	Avg. Conc.	5.73985	ug/m**3	11012624	330365.22	4692058.78	7.50	7.50	0.00	GP	CTMNC000

Summary of Total Messages

#	Message Type
0	Fatal Error Message(s)
3	Warning Message(s)
23	Informational Message(s)
8760	Hours Were Processed
6	Calm Hours Identified
17	Missing Hours Identified (0.19 Percent)

Error & Warning Messages

Msg. Type	Pathway	Ref. #	Description
WARNING	SO	W320	Input Parameter May Be Out-of-Range for Parameter VS
WARNING	SO	W320	Input Parameter May Be Out-of-Range for Parameter VS
WARNING	OU	W565	Possible Conflict With Dynamically Allocated FUNIT PLOTFILE

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BREEZE AERMOD Model Results

Highest Results of Pollutant: PM10

Avg. Per.	Grp ID	High	Type	Val	Units	Date	UTM		Elev.	Hill Ht.	Flag Ht.	Rec. Type	Grid ID
						YYMMDDHH	East (m)	North (m)	(m)	(m)	(m)		
24-HR	ALL	2ND	Avg. Conc.	5.76444	ug/m**3	12053124	330377.94	4692067.69	7.10	7.10	0.00	GP	CTMNC000

Summary of Total Messages

#	Message Type
0	Fatal Error Message(s)
3	Warning Message(s)
16	Informational Message(s)
8784	Hours Were Processed
14	Calm Hours Identified
2	Missing Hours Identified (0.02 Percent)

Error & Warning Messages

Msg. Type	Pathway	Ref. #	Description
WARNING	SO	W320	Input Parameter May Be Out-of-Range for Parameter VS
WARNING	SO	W320	Input Parameter May Be Out-of-Range for Parameter VS
WARNING	OU	W565	Possible Conflict With Dynamically Allocated FUNIT PLOTFILE

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BREEZE AERMOD Model Results

Highest Results of Pollutant: PM10

Avg. Per.	Grp ID	High	Type	Val	Units	Date	UTM		Elev.	Hill Ht.	Flag Ht.	Rec. Type	Grid ID
						YYMMDDHH	East (m)	North (m)	(m)	(m)	(m)		
24-HR	ALL	2ND	Avg. Conc.	6.19828	ug/m**3	13022324	330343.20	4692117.44	5.70	5.70	0.00	GP	CTMNC000

Summary of Total Messages

#	Message Type
0	Fatal Error Message(s)
3	Warning Message(s)
9	Informational Message(s)
8760	Hours Were Processed
6	Calm Hours Identified
3	Missing Hours Identified (0.03 Percent)

Error & Warning Messages

Msg. Type	Pathway	Ref. #	Description
WARNING	SO	W320	Input Parameter May Be Out-of-Range for Parameter VS
WARNING	SO	W320	Input Parameter May Be Out-of-Range for Parameter VS
WARNING	OU	W565	Possible Conflict With Dynamically Allocated FUNIT PLOTFILE

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BREEZE AERMOD Model Results

Highest Results of Pollutant: PM10

Avg. Per.	Grp ID	High	Type	Val	Units	Date	UTM		Elev.	Hill Ht.	Flag Ht.	Rec. Type	Grid ID
						YYMMDDHH	East (m)	North (m)	(m)	(m)	(m)		
24-HR	ALL	2ND	Avg. Conc.	4.50894	ug/m**3	14092824	330343.20	4692117.44	5.70	5.70	0.00	GP	CTMNC000

Summary of Total Messages

#	Message Type
0	Fatal Error Message(s)
4	Warning Message(s)
28	Informational Message(s)
8760	Hours Were Processed
10	Calm Hours Identified
18	Missing Hours Identified (0.21 Percent)

Error & Warning Messages

Msg. Type	Pathway	Ref. #	Description
WARNING	SO	W320	Input Parameter May Be Out-of-Range for Parameter VS
WARNING	SO	W320	Input Parameter May Be Out-of-Range for Parameter VS
WARNING	ME	W186	THRESH_1MIN 1-min ASOS wind speed threshold used 0.50
WARNING	OU	W565	Possible Conflict With Dynamically Allocated FUNIT PLOTFILE

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PM2.5 Concentrations

BREEZE AERMOD Model Results

Max. Annual (1 YEARS) Results of Pollutant: PM25 (ug/m**3)

Group ID	High	Avg. Conc.	UTM		Elev.	Hill Ht.	Flag Ht.	Rec. Type	Grid ID
			East (m)	North (m)	(m)	(m)	(m)		
ALL	1ST	2.19643	330382.99	4692069.04	7.10	7.10	0.00	GP	CTMNC000
	2ND	2.18793	330377.94	4692067.69	7.10	7.10	0.00	GP	CTMNC000
	3RD	2.17481	330388.20	4692069.50	7.10	7.10	0.00	GP	CTMNC000
	4TH	2.14431	330373.20	4692065.48	7.20	7.20	0.00	GP	CTMNC000
	5TH	2.13177	330393.41	4692069.04	7.10	7.10	0.00	GP	CTMNC000
	6TH	2.07675	330398.46	4692067.69	7.10	7.10	0.00	GP	CTMNC000
	7TH	2.06613	330368.92	4692062.48	7.40	7.40	0.00	GP	CTMNC000
	8TH	2.04620	330367.68	4692095.88	6.10	6.10	0.00	GP	CTMNC000
	9TH	2.01570	330403.20	4692065.48	7.20	7.20	0.00	GP	CTMNC000
	10TH	1.99500	330358.20	4692091.46	6.10	6.10	0.00	GP	CTMNC000

Maximum Period 24-HR Results Averaged Over (1 YEARS) of Pollutant: PM25 (ug/m**3)

Highest (Conc.)	Group ID	Highest (Receptor)	Avg. Conc.	UTM		Elevation	Hill Ht	Flag HT	Rec.Type	Grid ID
				East (m)	North (m)	(m)	(m)	(m)		
8TH-Highest	ALL	1ST	4.68380	330377.94	4692067.69	7.10	7.10	0.00	GP	CTMNC000
		2ND	4.63191	330382.99	4692069.04	7.10	7.10	0.00	GP	CTMNC000
		3RD	4.47742	330373.20	4692065.48	7.20	7.20	0.00	GP	CTMNC000
		4TH	4.44983	330388.20	4692069.50	7.10	7.10	0.00	GP	CTMNC000
		5TH	4.38122	330367.68	4692095.88	6.10	6.10	0.00	GP	CTMNC000
		6TH	4.36910	330368.92	4692062.48	7.40	7.40	0.00	GP	CTMNC000
		7TH	4.36410	330393.41	4692069.04	7.10	7.10	0.00	GP	CTMNC000
		8TH	4.30289	330358.20	4692091.46	6.10	6.10	0.00	GP	CTMNC000
		9TH	4.29936	330398.46	4692067.69	7.10	7.10	0.00	GP	CTMNC000
		10TH	4.22739	330365.22	4692058.78	7.50	7.50	0.00	GP	CTMNC000

Summary of Total Messages

#	Message Type
0	Fatal Error Message(s)
4	Warning Message(s)
27	Informational Message(s)
8760	Hours Were Processed
6	Calm Hours Identified
21	Missing Hours Identified (0.24 Percent)

Error & Warning Messages

Msg. Type	Pathway	Ref. #	Description
WARNING	SO	W320	Input Parameter May Be Out-of-Range for Parameter VS
WARNING	SO	W320	Input Parameter May Be Out-of-Range for Parameter VS
WARNING	OU	W565	Possible Conflict With Dynamically Allocated FUNIT PLOTFILE
WARNING	OU	W565	Possible Conflict With Dynamically Allocated FUNIT PLOTFILE

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BREEZE AERMOD Model Results

Max. Annual (1 YEARS) Results of Pollutant: PM25 (ug/m**3)

Group ID	High	Avg. Conc.	UTM		Elev.	Hill Ht.	Flag Ht.	Rec. Type	Grid ID
			East (m)	North (m)	(m)	(m)	(m)		
ALL	1ST	2.18077	330377.94	4692067.69	7.10	7.10	0.00	GP	CTMNC000
	2ND	2.17035	330382.99	4692069.04	7.10	7.10	0.00	GP	CTMNC000
	3RD	2.15358	330373.20	4692065.48	7.20	7.20	0.00	GP	CTMNC000
	4TH	2.12786	330367.68	4692095.88	6.10	6.10	0.00	GP	CTMNC000
	5TH	2.12729	330388.20	4692069.50	7.10	7.10	0.00	GP	CTMNC000
	6TH	2.08920	330368.92	4692062.48	7.40	7.40	0.00	GP	CTMNC000
	7TH	2.08573	330358.20	4692091.46	6.10	6.10	0.00	GP	CTMNC000
	8TH	2.06038	330393.41	4692069.04	7.10	7.10	0.00	GP	CTMNC000
	9TH	2.05123	330377.78	4692098.59	6.00	6.00	0.00	GP	CTMNC000
	10TH	1.99353	330365.22	4692058.78	7.50	7.50	0.00	GP	CTMNC000

Maximum Period 24-HR Results Averaged Over (1 YEARS) of Pollutant: PM25 (ug/m**3)

Highest (Conc.)	Group ID	Highest (Receptor)	Avg. Conc.	UTM		Elevation	Hill Ht	Flag HT	Rec.Type	Grid ID
				East (m)	North (m)	(m)	(m)	(m)		
8TH-Highest	ALL	1ST	4.93126	330377.94	4692067.69	7.10	7.10	0.00	GP	CTMNC000
		2ND	4.76853	330373.20	4692065.48	7.20	7.20	0.00	GP	CTMNC000
		3RD	4.72382	330382.99	4692069.04	7.10	7.10	0.00	GP	CTMNC000
		4TH	4.67738	330368.92	4692062.48	7.40	7.40	0.00	GP	CTMNC000
		5TH	4.62723	330388.20	4692069.50	7.10	7.10	0.00	GP	CTMNC000
		6TH	4.55528	330365.22	4692058.78	7.50	7.50	0.00	GP	CTMNC000
		7TH	4.55052	330343.20	4692117.44	5.70	5.70	0.00	GP	CTMNC000
		8TH	4.50615	330393.41	4692069.04	7.10	7.10	0.00	GP	CTMNC000
		9TH	4.45666	330358.20	4692091.46	6.10	6.10	0.00	GP	CTMNC000
		10TH	4.40784	330367.68	4692095.88	6.10	6.10	0.00	GP	CTMNC000

Summary of Total Messages

#	Message Type
0	Fatal Error Message(s)
4	Warning Message(s)
23	Informational Message(s)
8760	Hours Were Processed
6	Calm Hours Identified
17	Missing Hours Identified (0.19 Percent)

Error & Warning Messages

Msg. Type	Pathway	Ref. #	Description
WARNING	SO	W320	Input Parameter May Be Out-of-Range for Parameter VS
WARNING	SO	W320	Input Parameter May Be Out-of-Range for Parameter VS
WARNING	OU	W565	Possible Conflict With Dynamically Allocated FUNIT PLOTFILE
WARNING	OU	W565	Possible Conflict With Dynamically Allocated FUNIT PLOTFILE

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BREEZE AERMOD Model Results

Max. Annual (1 YEARS) Results of Pollutant: PM25 (ug/m**3)

Group ID	High	Avg. Conc.	UTM		Elev.	Hill Ht.	Flag Ht.	Rec. Type	Grid ID
			East (m)	North (m)	(m)	(m)	(m)		
ALL	1ST	2.21316	330377.94	4692067.69	7.10	7.10	0.00	GP	CTMNC000
	2ND	2.20470	330382.99	4692069.04	7.10	7.10	0.00	GP	CTMNC000
	3RD	2.18505	330373.20	4692065.48	7.20	7.20	0.00	GP	CTMNC000
	4TH	2.16464	330388.20	4692069.50	7.10	7.10	0.00	GP	CTMNC000
	5TH	2.13578	330367.68	4692095.88	6.10	6.10	0.00	GP	CTMNC000
	6TH	2.12063	330368.92	4692062.48	7.40	7.40	0.00	GP	CTMNC000
	7TH	2.10154	330393.41	4692069.04	7.10	7.10	0.00	GP	CTMNC000
	8TH	2.09905	330358.20	4692091.46	6.10	6.10	0.00	GP	CTMNC000
	9TH	2.06172	330377.78	4692098.59	6.00	6.00	0.00	GP	CTMNC000
	10TH	2.02551	330365.22	4692058.78	7.50	7.50	0.00	GP	CTMNC000

Maximum Period 24-HR Results Averaged Over (1 YEARS) of Pollutant: PM25 (ug/m**3)

Highest (Conc.)	Group ID	Highest (Receptor)	Avg. Conc.	UTM		Elevation	Hill Ht	Flag HT	Rec.Type	Grid ID
				East (m)	North (m)	(m)	(m)	(m)		
8TH-Highest	ALL	1ST	4.58926	330377.94	4692067.69	7.10	7.10	0.00	GP	CTMNC000
		2ND	4.52877	330373.20	4692065.48	7.20	7.20	0.00	GP	CTMNC000
		3RD	4.49170	330365.22	4692058.78	7.50	7.50	0.00	GP	CTMNC000
		4TH	4.45145	330368.92	4692062.48	7.40	7.40	0.00	GP	CTMNC000
		5TH	4.42739	330388.20	4692069.50	7.10	7.10	0.00	GP	CTMNC000
		6TH	4.41925	330382.99	4692069.04	7.10	7.10	0.00	GP	CTMNC000
		7TH	4.33734	330360.01	4692049.76	8.00	8.00	0.00	GP	CTMNC000
		8TH	4.32310	330393.41	4692069.04	7.10	7.10	0.00	GP	CTMNC000
		9TH	4.30725	330358.20	4692039.50	8.40	8.40	0.00	GP	CTMNC000
		10TH	4.30506	330358.66	4692034.29	8.40	8.40	0.00	GP	CTMNC000

Summary of Total Messages

#	Message Type
0	Fatal Error Message(s)
4	Warning Message(s)
16	Informational Message(s)
8784	Hours Were Processed
14	Calm Hours Identified
2	Missing Hours Identified (0.02 Percent)

Error & Warning Messages

Msg. Type	Pathway	Ref. #	Description
WARNING	SO	W320	Input Parameter May Be Out-of-Range for Parameter VS
WARNING	SO	W320	Input Parameter May Be Out-of-Range for Parameter VS
WARNING	OU	W565	Possible Conflict With Dynamically Allocated FUNIT PLOTFILE
WARNING	OU	W565	Possible Conflict With Dynamically Allocated FUNIT PLOTFILE

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BREEZE AERMOD Model Results

Max. Annual (1 YEARS) Results of Pollutant: PM25 (ug/m**3)

Group ID	High	Avg. Conc.	UTM		Elev.	Hill Ht.	Flag Ht.	Rec. Type	Grid ID
			East (m)	North (m)	(m)	(m)	(m)		
ALL	1ST	2.19072	330382.99	4692069.04	7.10	7.10	0.00	GP	CTMNC000
	2ND	2.18397	330377.94	4692067.69	7.10	7.10	0.00	GP	CTMNC000
	3RD	2.16741	330388.20	4692069.50	7.10	7.10	0.00	GP	CTMNC000
	4TH	2.14271	330373.20	4692065.48	7.20	7.20	0.00	GP	CTMNC000
	5TH	2.12185	330393.41	4692069.04	7.10	7.10	0.00	GP	CTMNC000
	6TH	2.07409	330367.68	4692095.88	6.10	6.10	0.00	GP	CTMNC000
	7TH	2.06743	330368.92	4692062.48	7.40	7.40	0.00	GP	CTMNC000
	8TH	2.06241	330398.46	4692067.69	7.10	7.10	0.00	GP	CTMNC000
	9TH	2.02683	330377.78	4692098.59	6.00	6.00	0.00	GP	CTMNC000
	10TH	2.01845	330358.20	4692091.46	6.10	6.10	0.00	GP	CTMNC000

Maximum Period 24-HR Results Averaged Over (1 YEARS) of Pollutant: PM25 (ug/m**3)

Highest (Conc.)	Group ID	Highest (Receptor)	Avg. Conc.	UTM		Elevation	Hill Ht	Flag HT	Rec.Type	Grid ID
				East (m)	North (m)	(m)	(m)	(m)		
8TH-Highest	ALL	1ST	4.72776	330377.94	4692067.69	7.10	7.10	0.00	GP	CTMNC000
		2ND	4.71709	330373.20	4692065.48	7.20	7.20	0.00	GP	CTMNC000
		3RD	4.69322	330368.92	4692062.48	7.40	7.40	0.00	GP	CTMNC000
		4TH	4.63214	330382.99	4692069.04	7.10	7.10	0.00	GP	CTMNC000
		5TH	4.55775	330365.22	4692058.78	7.50	7.50	0.00	GP	CTMNC000
		6TH	4.54758	330358.20	4692091.46	6.10	6.10	0.00	GP	CTMNC000
		7TH	4.51056	330367.68	4692095.88	6.10	6.10	0.00	GP	CTMNC000
		8TH	4.49478	330388.20	4692069.50	7.10	7.10	0.00	GP	CTMNC000
		9TH	4.42168	330362.22	4692054.50	7.70	7.70	0.00	GP	CTMNC000
		10TH	4.27052	330343.20	4692117.44	5.70	5.70	0.00	GP	CTMNC000

Summary of Total Messages

#	Message Type
0	Fatal Error Message(s)
4	Warning Message(s)
9	Informational Message(s)
8760	Hours Were Processed
6	Calm Hours Identified
3	Missing Hours Identified (0.03 Percent)

Error & Warning Messages

Msg. Type	Pathway	Ref. #	Description
WARNING	SO	W320	Input Parameter May Be Out-of-Range for Parameter VS
WARNING	SO	W320	Input Parameter May Be Out-of-Range for Parameter VS
WARNING	OU	W565	Possible Conflict With Dynamically Allocated FUNIT PLOTFILE
WARNING	OU	W565	Possible Conflict With Dynamically Allocated FUNIT PLOTFILE

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BREEZE AERMOD Model Results

Max. Annual (1 YEARS) Results of Pollutant: PM25 (ug/m**3)

Group ID	High	Avg. Conc.	UTM		Elev.	Hill Ht.	Flag Ht.	Rec. Type	Grid ID
			East (m)	North (m)	(m)	(m)	(m)		
ALL	1ST	1.58677	330382.99	4692069.04	7.10	7.10	0.00	GP	CTMNC000
	2ND	1.58501	330377.94	4692067.69	7.10	7.10	0.00	GP	CTMNC000
	3RD	1.56607	330388.20	4692069.50	7.10	7.10	0.00	GP	CTMNC000
	4TH	1.55750	330373.20	4692065.48	7.20	7.20	0.00	GP	CTMNC000
	5TH	1.52884	330393.41	4692069.04	7.10	7.10	0.00	GP	CTMNC000
	6TH	1.51108	330367.68	4692095.88	6.10	6.10	0.00	GP	CTMNC000
	7TH	1.50474	330368.92	4692062.48	7.40	7.40	0.00	GP	CTMNC000
	8TH	1.48158	330398.46	4692067.69	7.10	7.10	0.00	GP	CTMNC000
	9TH	1.47451	330377.78	4692098.59	6.00	6.00	0.00	GP	CTMNC000
	10TH	1.47207	330358.20	4692091.46	6.10	6.10	0.00	GP	CTMNC000

Maximum Period 24-HR Results Averaged Over (1 YEARS) of Pollutant: PM25 (ug/m**3)

Highest (Conc.)	Group ID	Highest (Receptor)	Avg. Conc.	UTM		Elevation	Hill Ht	Flag HT	Rec.Type	Grid ID
				East (m)	North (m)	(m)	(m)	(m)		
8TH-Highest	ALL	1ST	3.31179	330377.94	4692067.69	7.10	7.10	0.00	GP	CTMNC000
		2ND	3.30062	330382.99	4692069.04	7.10	7.10	0.00	GP	CTMNC000
		3RD	3.28625	330388.20	4692069.50	7.10	7.10	0.00	GP	CTMNC000
		4TH	3.24786	330373.20	4692065.48	7.20	7.20	0.00	GP	CTMNC000
		5TH	3.23217	330365.22	4692058.78	7.50	7.50	0.00	GP	CTMNC000
		6TH	3.22414	330393.41	4692069.04	7.10	7.10	0.00	GP	CTMNC000
		7TH	3.20893	330368.92	4692062.48	7.40	7.40	0.00	GP	CTMNC000
		8TH	3.19983	330362.22	4692054.50	7.70	7.70	0.00	GP	CTMNC000
		9TH	3.19334	330398.46	4692067.69	7.10	7.10	0.00	GP	CTMNC000
		10TH	3.14222	330407.48	4692062.48	7.30	7.30	0.00	GP	CTMNC000

Summary of Total Messages

#	Message Type
0	Fatal Error Message(s)
5	Warning Message(s)
28	Informational Message(s)
8760	Hours Were Processed
10	Calm Hours Identified
18	Missing Hours Identified (0.21 Percent)

Error & Warning Messages

Msg. Type	Pathway	Ref. #	Description
WARNING	SO	W320	Input Parameter May Be Out-of-Range for Parameter VS
WARNING	SO	W320	Input Parameter May Be Out-of-Range for Parameter VS
WARNING	ME	W186	THRESH_1MIN 1-min ASOS wind speed threshold used 0.50
WARNING	OU	W565	Possible Conflict With Dynamically Allocated FUNIT PLOTFILE
WARNING	OU	W565	Possible Conflict With Dynamically Allocated FUNIT PLOTFILE

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NOx Concentrations

BREEZE AERMOD Model Results

Max. Annual (1 YEARS) Results of Pollutant: NO2 (ug/m**3)

Group ID	High	Avg. Conc.	UTM		Elev.	Hill Ht.	Flag Ht.	Rec. Type	Grid ID
			East (m)	North (m)	(m)	(m)	(m)		
ALL	1ST	5.11848	330382.99	4692069.04	7.10	7.10	0.00	GP	CTMNC000
	2ND	5.09603	330377.94	4692067.69	7.10	7.10	0.00	GP	CTMNC000
	3RD	5.07068	330388.20	4692069.50	7.10	7.10	0.00	GP	CTMNC000
	4TH	4.99150	330373.20	4692065.48	7.20	7.20	0.00	GP	CTMNC000
	5TH	4.97314	330393.41	4692069.04	7.10	7.10	0.00	GP	CTMNC000
	6TH	4.84770	330398.46	4692067.69	7.10	7.10	0.00	GP	CTMNC000
	7TH	4.80614	330368.92	4692062.48	7.40	7.40	0.00	GP	CTMNC000
	8TH	4.75951	330367.68	4692095.88	6.10	6.10	0.00	GP	CTMNC000
	9TH	4.70814	330403.20	4692065.48	7.20	7.20	0.00	GP	CTMNC000
	10TH	4.63865	330358.20	4692091.46	6.10	6.10	0.00	GP	CTMNC000

Maximum Period 1-HR Results Averaged Over (1 YEARS) of Pollutant: NO2 (ug/m**3)

Highest (Conc.)	Group ID	Highest (Receptor)	Avg.Conc.	UTM		Elevation	Hill Ht	Flag HT	Rec.Type	Grid ID
				East (m)	North (m)	(m)	(m)	(m)		
8TH-Highest	ALL	1ST	30.92007	330357.42	4692124.07	5.60	5.60	0.00	GP	CTMNC000
		2ND	30.27487	330343.20	4692117.44	5.70	5.70	0.00	GP	CTMNC000
		3RD	29.43337	330347.16	4692152.26	5.30	5.30	0.00	GP	CTMNC000
		4TH	28.81315	330291.78	4692154.41	5.60	5.60	0.00	GP	CTMNC000
		5TH	28.66218	330272.50	4692177.39	5.50	5.50	0.00	GP	CTMNC000
		6TH	28.65449	330368.92	4692062.48	7.40	7.40	0.00	GP	CTMNC000
		7TH	28.53980	330328.20	4692143.42	5.40	5.40	0.00	GP	CTMNC000
		8TH	28.44392	330365.22	4692058.78	7.50	7.50	0.00	GP	CTMNC000
		9TH	28.40764	330356.94	4692216.77	4.70	4.70	0.00	GP	CTMNC000
		10TH	28.15716	330377.94	4692067.69	7.10	7.10	0.00	GP	CTMNC000

Summary of Total Messages

#	Message Type
0	Fatal Error Message(s)
6	Warning Message(s)
27	Informational Message(s)
8760	Hours Were Processed
6	Calm Hours Identified
21	Missing Hours Identified (0.24 Percent)

Error & Warning Messages

Msg. Type	Pathway	Ref. #	Description
WARNING	CO	W271	O3FILE w/o O3VALs; full conv for hrs with miss O3
WARNING	CO	W361	Multiyear PERIOD/ANNUAL values for NO2/SO2 require MULTYEAR Opt
WARNING	SO	W320	Input Parameter May Be Out-of-Range for Parameter VS
WARNING	SO	W320	Input Parameter May Be Out-of-Range for Parameter VS
WARNING	OU	W565	Possible Conflict With Dynamically Allocated FUNIT PLOTFILE
WARNING	OU	W565	Possible Conflict With Dynamically Allocated FUNIT PLOTFILE

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BREEZE AERMOD Model Results

Max. Annual (1 YEARS) Results of Pollutant: NO2 (ug/m**3)

Group ID	High	Avg. Conc.	UTM		Elev.	Hill Ht.	Flag Ht.	Rec. Type	Grid ID
			East (m)	North (m)	(m)	(m)	(m)		
ALL	1ST	5.02879	330377.94	4692067.69	7.10	7.10	0.00	GP	CTMNC000
	2ND	5.00854	330382.99	4692069.04	7.10	7.10	0.00	GP	CTMNC000
	3RD	4.96188	330373.20	4692065.48	7.20	7.20	0.00	GP	CTMNC000
	4TH	4.91272	330388.20	4692069.50	7.10	7.10	0.00	GP	CTMNC000
	5TH	4.90385	330367.68	4692095.88	6.10	6.10	0.00	GP	CTMNC000
	6TH	4.80883	330368.92	4692062.48	7.40	7.40	0.00	GP	CTMNC000
	7TH	4.80284	330358.20	4692091.46	6.10	6.10	0.00	GP	CTMNC000
	8TH	4.76177	330393.41	4692069.04	7.10	7.10	0.00	GP	CTMNC000
	9TH	4.72929	330377.78	4692098.59	6.00	6.00	0.00	GP	CTMNC000
	10TH	4.58346	330365.22	4692058.78	7.50	7.50	0.00	GP	CTMNC000

Maximum Period 1-HR Results Averaged Over (1 YEARS) of Pollutant: NO2 (ug/m**3)

Highest (Conc.)	Group ID	Highest (Receptor)	Avg.Conc.	UTM		Elevation	Hill Ht	Flag HT	Rec.Type	Grid ID
				East (m)	North (m)	(m)	(m)	(m)		
8TH-Highest	ALL	1ST	31.66782	330357.42	4692124.07	5.60	5.60	0.00	GP	CTMNC000
		2ND	31.40445	330362.15	4692187.22	4.90	4.90	0.00	GP	CTMNC000
		3RD	31.38572	330356.94	4692216.77	4.70	4.70	0.00	GP	CTMNC000
		4TH	30.53665	330343.20	4692117.44	5.70	5.70	0.00	GP	CTMNC000
		5TH	30.25102	330347.16	4692152.26	5.30	5.30	0.00	GP	CTMNC000
		6TH	29.41661	330367.36	4692157.68	5.30	5.30	0.00	GP	CTMNC000
		7TH	28.96003	330328.20	4692143.42	5.40	5.40	0.00	GP	CTMNC000
		8TH	28.24712	330358.20	4692039.50	8.40	8.40	0.00	GP	CTMNC000
		9TH	28.23558	330358.66	4692044.71	8.20	8.20	0.00	GP	CTMNC000
		10TH	28.21756	330358.66	4692034.29	8.40	8.40	0.00	GP	CTMNC000

Summary of Total Messages

#	Message Type
0	Fatal Error Message(s)
6	Warning Message(s)
23	Informational Message(s)
8760	Hours Were Processed
6	Calm Hours Identified
17	Missing Hours Identified (0.19 Percent)

Error & Warning Messages

Msg. Type	Pathway	Ref. #	Description
WARNING	CO	W271	O3FILE w/o O3VALs; full conv for hrs with miss O3
WARNING	CO	W361	Multiyear PERIOD/ANNUAL values for NO2/SO2 require MULTYEAR Opt
WARNING	SO	W320	Input Parameter May Be Out-of-Range for Parameter VS
WARNING	SO	W320	Input Parameter May Be Out-of-Range for Parameter VS
WARNING	OU	W565	Possible Conflict With Dynamically Allocated FUNIT PLOTFILE
WARNING	OU	W565	Possible Conflict With Dynamically Allocated FUNIT PLOTFILE

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BREEZE AERMOD Model Results

Max. Annual (1 YEARS) Results of Pollutant: NO2 (ug/m**3)

Group ID	High	Avg. Conc.	UTM		Elev.	Hill Ht.	Flag Ht.	Rec. Type	Grid ID
			East (m)	North (m)	(m)	(m)	(m)		
ALL	1ST	5.09653	330377.94	4692067.69	7.10	7.10	0.00	GP	CTMNC000
	2ND	5.08127	330382.99	4692069.04	7.10	7.10	0.00	GP	CTMNC000
	3RD	5.02698	330373.20	4692065.48	7.20	7.20	0.00	GP	CTMNC000
	4TH	4.99278	330388.20	4692069.50	7.10	7.10	0.00	GP	CTMNC000
	5TH	4.91590	330367.68	4692095.88	6.10	6.10	0.00	GP	CTMNC000
	6TH	4.87321	330368.92	4692062.48	7.40	7.40	0.00	GP	CTMNC000
	7TH	4.85094	330393.41	4692069.04	7.10	7.10	0.00	GP	CTMNC000
	8TH	4.82804	330358.20	4692091.46	6.10	6.10	0.00	GP	CTMNC000
	9TH	4.74684	330377.78	4692098.59	6.00	6.00	0.00	GP	CTMNC000
	10TH	4.67764	330398.46	4692067.69	7.10	7.10	0.00	GP	CTMNC000

Maximum Period 1-HR Results Averaged Over (1 YEARS) of Pollutant: NO2 (ug/m**3)

Highest (Conc.)	Group ID	Highest (Receptor)	Avg.Conc.	UTM		Elevation	Hill Ht	Flag HT	Rec.Type	Grid ID
				East (m)	North (m)	(m)	(m)	(m)		
8TH-Highest	ALL	1ST	32.02465	330343.20	4692117.44	5.70	5.70	0.00	GP	CTMNC000
		2ND	31.58823	330291.78	4692154.41	5.60	5.60	0.00	GP	CTMNC000
		3RD	30.82431	330272.50	4692177.39	5.50	5.50	0.00	GP	CTMNC000
		4TH	30.07465	330311.07	4692131.43	5.70	5.70	0.00	GP	CTMNC000
		5TH	29.99208	330357.42	4692124.07	5.60	5.60	0.00	GP	CTMNC000
		6TH	29.84754	330347.16	4692152.26	5.30	5.30	0.00	GP	CTMNC000
		7TH	29.68105	330360.01	4692029.24	8.50	8.50	0.00	GP	CTMNC000
		8TH	29.67506	330360.01	4692049.76	8.00	8.00	0.00	GP	CTMNC000
		9TH	29.67403	330328.20	4692143.42	5.40	5.40	0.00	GP	CTMNC000
		10TH	29.65928	330358.66	4692044.71	8.20	8.20	0.00	GP	CTMNC000

Summary of Total Messages

#	Message Type
0	Fatal Error Message(s)
6	Warning Message(s)
16	Informational Message(s)
8784	Hours Were Processed
14	Calm Hours Identified
2	Missing Hours Identified (0.02 Percent)

Error & Warning Messages

Msg. Type	Pathway	Ref. #	Description
WARNING	CO	W271	O3FILE w/o O3VALs; full conv for hrs with miss O3
WARNING	CO	W361	Multiyear PERIOD/ANNUAL values for NO2/SO2 require MULTYEAR Opt
WARNING	SO	W320	Input Parameter May Be Out-of-Range for Parameter VS
WARNING	SO	W320	Input Parameter May Be Out-of-Range for Parameter VS
WARNING	OU	W565	Possible Conflict With Dynamically Allocated FUNIT PLOTFILE
WARNING	OU	W565	Possible Conflict With Dynamically Allocated FUNIT PLOTFILE

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BREEZE AERMOD Model Results

Max. Annual (1 YEARS) Results of Pollutant: NO2 (ug/m**3)

Group ID	High	Avg. Conc.	UTM		Elev.	Hill Ht.	Flag Ht.	Rec. Type	Grid ID
			East (m)	North (m)	(m)	(m)	(m)		
ALL	1ST	5.05986	330382.99	4692069.04	7.10	7.10	0.00	GP	CTMNC000
	2ND	5.04041	330377.94	4692067.69	7.10	7.10	0.00	GP	CTMNC000
	3RD	5.00974	330388.20	4692069.50	7.10	7.10	0.00	GP	CTMNC000
	4TH	4.94104	330373.20	4692065.48	7.20	7.20	0.00	GP	CTMNC000
	5TH	4.90827	330393.41	4692069.04	7.10	7.10	0.00	GP	CTMNC000
	6TH	4.78021	330367.68	4692095.88	6.10	6.10	0.00	GP	CTMNC000
	7TH	4.77466	330398.46	4692067.69	7.10	7.10	0.00	GP	CTMNC000
	8TH	4.76285	330368.92	4692062.48	7.40	7.40	0.00	GP	CTMNC000
	9TH	4.67354	330377.78	4692098.59	6.00	6.00	0.00	GP	CTMNC000
	10TH	4.64873	330358.20	4692091.46	6.10	6.10	0.00	GP	CTMNC000

Maximum Period 1-HR Results Averaged Over (1 YEARS) of Pollutant: NO2 (ug/m**3)

Highest (Conc.)	Group ID	Highest (Receptor)	Avg.Conc.	UTM		Elevation	Hill Ht	Flag HT	Rec.Type	Grid ID
				East (m)	North (m)	(m)	(m)	(m)		
8TH-Highest	ALL	1ST	31.06938	330357.42	4692124.07	5.60	5.60	0.00	GP	CTMNC000
		2ND	30.66445	330343.20	4692117.44	5.70	5.70	0.00	GP	CTMNC000
		3RD	29.33268	330347.16	4692152.26	5.30	5.30	0.00	GP	CTMNC000
		4TH	29.29793	330365.22	4692058.78	7.50	7.50	0.00	GP	CTMNC000
		5TH	29.24710	330328.20	4692143.42	5.40	5.40	0.00	GP	CTMNC000
		6TH	28.93174	330362.22	4692054.50	7.70	7.70	0.00	GP	CTMNC000
		7TH	28.80747	330368.92	4692062.48	7.40	7.40	0.00	GP	CTMNC000
		8TH	28.78422	330358.66	4692044.71	8.20	8.20	0.00	GP	CTMNC000
		9TH	28.78277	330360.01	4692029.24	8.50	8.50	0.00	GP	CTMNC000
		10TH	28.77030	330313.20	4692169.40	5.30	5.30	0.00	GP	CTMNC000

Summary of Total Messages

#	Message Type
0	Fatal Error Message(s)
6	Warning Message(s)
9	Informational Message(s)
8760	Hours Were Processed
6	Calm Hours Identified
3	Missing Hours Identified (0.03 Percent)

Error & Warning Messages

Msg. Type	Pathway	Ref. #	Description
WARNING	CO	W271	O3FILE w/o O3VALs; full conv for hrs with miss O3
WARNING	CO	W361	Multiyear PERIOD/ANNUAL values for NO2/SO2 require MULTYEAR Opt
WARNING	SO	W320	Input Parameter May Be Out-of-Range for Parameter VS
WARNING	SO	W320	Input Parameter May Be Out-of-Range for Parameter VS
WARNING	OU	W565	Possible Conflict With Dynamically Allocated FUNIT PLOTFILE
WARNING	OU	W565	Possible Conflict With Dynamically Allocated FUNIT PLOTFILE

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BREEZE AERMOD Model Results

Max. Annual (1 YEARS) Results of Pollutant: NO2 (ug/m**3)

Group ID	High	Avg. Conc.	UTM		Elev.	Hill Ht.	Flag Ht.	Rec. Type	Grid ID
			East (m)	North (m)	(m)	(m)	(m)		
ALL	1ST	3.49202	330382.99	4692069.04	7.10	7.10	0.00	GP	CTMNC000
	2ND	3.48696	330377.94	4692067.69	7.10	7.10	0.00	GP	CTMNC000
	3RD	3.44753	330388.20	4692069.50	7.10	7.10	0.00	GP	CTMNC000
	4TH	3.42521	330373.20	4692065.48	7.20	7.20	0.00	GP	CTMNC000
	5TH	3.36645	330393.41	4692069.04	7.10	7.10	0.00	GP	CTMNC000
	6TH	3.33563	330367.68	4692095.88	6.10	6.10	0.00	GP	CTMNC000
	7TH	3.30795	330368.92	4692062.48	7.40	7.40	0.00	GP	CTMNC000
	8TH	3.26283	330398.46	4692067.69	7.10	7.10	0.00	GP	CTMNC000
	9TH	3.25427	330377.78	4692098.59	6.00	6.00	0.00	GP	CTMNC000
	10TH	3.24978	330358.20	4692091.46	6.10	6.10	0.00	GP	CTMNC000

Maximum Period 1-HR Results Averaged Over (1 YEARS) of Pollutant: NO2 (ug/m**3)

Highest (Conc.)	Group ID	Highest (Receptor)	Avg.Conc.	UTM		Elevation	Hill Ht	Flag HT	Rec.Type	Grid ID
				East (m)	North (m)	(m)	(m)	(m)		
8TH-Highest	ALL	1ST	26.83247	330343.20	4692117.44	5.70	5.70	0.00	GP	CTMNC000
		2ND	25.24171	330357.42	4692124.07	5.60	5.60	0.00	GP	CTMNC000
		3RD	21.66405	330311.07	4692131.43	5.70	5.70	0.00	GP	CTMNC000
		4TH	21.65771	330328.20	4692143.42	5.40	5.40	0.00	GP	CTMNC000
		5TH	21.40002	330368.92	4692062.48	7.40	7.40	0.00	GP	CTMNC000
		6TH	21.20658	330347.16	4692152.26	5.30	5.30	0.00	GP	CTMNC000
		7TH	21.10717	330291.78	4692154.41	5.60	5.60	0.00	GP	CTMNC000
		8TH	21.04837	330373.20	4692065.48	7.20	7.20	0.00	GP	CTMNC000
		9TH	20.92968	330377.94	4692067.69	7.10	7.10	0.00	GP	CTMNC000
		10TH	20.90053	330272.50	4692177.39	5.50	5.50	0.00	GP	CTMNC000

Summary of Total Messages

#	Message Type
0	Fatal Error Message(s)
7	Warning Message(s)
28	Informational Message(s)
8760	Hours Were Processed
10	Calm Hours Identified
18	Missing Hours Identified (0.21 Percent)

Error & Warning Messages

Msg. Type	Pathway	Ref. #	Description
WARNING	CO	W271	O3FILE w/o O3VALs; full conv for hrs with miss O3
WARNING	CO	W361	Multiyear PERIOD/ANNUAL values for NO2/SO2 require MULTYEAR Opt
WARNING	SO	W320	Input Parameter May Be Out-of-Range for Parameter VS
WARNING	SO	W320	Input Parameter May Be Out-of-Range for Parameter VS
WARNING	ME	W186	THRESH_1MIN 1-min ASOS wind speed threshold used 0.50
WARNING	OU	W565	Possible Conflict With Dynamically Allocated FUNIT PLOTFILE
WARNING	OU	W565	Possible Conflict With Dynamically Allocated FUNIT PLOTFILE

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SO2 Concentrations

BREEZE AERMOD Model Results

Maximum Period 1-HR Results Averaged Over (1 YEARS) of Pollutant: SO2 (ug/m**3)

Highest (Conc.)	Group ID	Highest (Receptor)	Avg.Conc.	UTM		Elevation	Hill Ht	Flag HT	Rec.Type	Grid ID
				East (m)	North (m)	(m)	(m)	(m)		
4TH-Highest	ALL	1ST	0.76036	330357.42	4692124.07	5.60	5.60	0.00	GP	CTMNC000
		2ND	0.75197	330343.20	4692117.44	5.70	5.70	0.00	GP	CTMNC000
		3RD	0.74499	330291.78	4692154.41	5.60	5.60	0.00	GP	CTMNC000
		4TH	0.74285	330347.16	4692152.26	5.30	5.30	0.00	GP	CTMNC000
		5TH	0.73992	330272.50	4692177.39	5.50	5.50	0.00	GP	CTMNC000
		6TH	0.73577	330362.15	4692187.22	4.90	4.90	0.00	GP	CTMNC000
		7TH	0.72855	330336.90	4692180.45	5.00	5.00	0.00	GP	CTMNC000
		8TH	0.72689	330356.94	4692216.77	4.70	4.70	0.00	GP	CTMNC000
		9TH	0.72492	330311.07	4692131.43	5.70	5.70	0.00	GP	CTMNC000
		10TH	0.71045	330362.22	4692054.50	7.70	7.70	0.00	GP	CTMNC000

Summary of Total Messages

#	Message Type
0	Fatal Error Message(s)
3	Warning Message(s)
27	Informational Message(s)
8760	Hours Were Processed
6	Calm Hours Identified
21	Missing Hours Identified (0.24 Percent)

Error & Warning Messages

Msg. Type	Pathway	Ref. #	Description
WARNING	SO	W320	Input Parameter May Be Out-of-Range for Parameter VS
WARNING	SO	W320	Input Parameter May Be Out-of-Range for Parameter VS
WARNING	OU	W565	Possible Conflict With Dynamically Allocated FUNIT PLOTFILE

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BREEZE AERMOD Model Results

Maximum Period 1-HR Results Averaged Over (1 YEARS) of Pollutant: SO2 (ug/m**3)

Highest (Conc.)	Group ID	Highest (Receptor)	Avg.Conc.	UTM		Elevation	Hill Ht	Flag HT	Rec.Type	Grid ID
				East (m)	North (m)	(m)	(m)	(m)		
4TH-Highest	ALL	1ST	0.79571	330357.42	4692124.07	5.60	5.60	0.00	GP	CTMNC000
		2ND	0.76388	330356.94	4692216.77	4.70	4.70	0.00	GP	CTMNC000
		3RD	0.75739	330362.15	4692187.22	4.90	4.90	0.00	GP	CTMNC000
		4TH	0.75325	330347.16	4692152.26	5.30	5.30	0.00	GP	CTMNC000
		5TH	0.74320	330367.36	4692157.68	5.30	5.30	0.00	GP	CTMNC000
		6TH	0.73319	330343.20	4692117.44	5.70	5.70	0.00	GP	CTMNC000
		7TH	0.72095	330398.46	4692067.69	7.10	7.10	0.00	GP	CTMNC000
		8TH	0.72008	330393.41	4692069.04	7.10	7.10	0.00	GP	CTMNC000
		9TH	0.71921	330414.18	4692054.50	7.50	7.50	0.00	GP	CTMNC000
		10TH	0.71884	330416.39	4692049.76	7.70	7.70	0.00	GP	CTMNC000

Summary of Total Messages

#	Message Type
0	Fatal Error Message(s)
3	Warning Message(s)
23	Informational Message(s)
8760	Hours Were Processed
6	Calm Hours Identified
17	Missing Hours Identified (0.19 Percent)

Error & Warning Messages

Msg. Type	Pathway	Ref. #	Description
WARNING	SO	W320	Input Parameter May Be Out-of-Range for Parameter VS
WARNING	SO	W320	Input Parameter May Be Out-of-Range for Parameter VS
WARNING	OU	W565	Possible Conflict With Dynamically Allocated FUNIT PLOTFILE

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BREEZE AERMOD Model Results

Maximum Period 1-HR Results Averaged Over (1 YEARS) of Pollutant: SO2 (ug/m**3)

Highest (Conc.)	Group ID	Highest (Receptor)	Avg.Conc.	UTM		Elevation	Hill Ht	Flag HT	Rec.Type	Grid ID
				East (m)	North (m)	(m)	(m)	(m)		
4TH-Highest	ALL	1ST	0.77312	330343.20	4692117.44	5.70	5.70	0.00	GP	CTMNC000
		2ND	0.75948	330357.42	4692124.07	5.60	5.60	0.00	GP	CTMNC000
		3RD	0.75138	330291.78	4692154.41	5.60	5.60	0.00	GP	CTMNC000
		4TH	0.74846	330272.50	4692177.39	5.50	5.50	0.00	GP	CTMNC000
		5TH	0.74515	330311.07	4692131.43	5.70	5.70	0.00	GP	CTMNC000
		6TH	0.73486	330328.20	4692143.42	5.40	5.40	0.00	GP	CTMNC000
		7TH	0.71281	330347.16	4692152.26	5.30	5.30	0.00	GP	CTMNC000
		8TH	0.71145	330336.90	4692180.45	5.00	5.00	0.00	GP	CTMNC000
		9TH	0.71138	330393.41	4692069.04	7.10	7.10	0.00	GP	CTMNC000
		10TH	0.71126	330417.74	4692044.71	7.70	7.70	0.00	GP	CTMNC000

Summary of Total Messages

#	Message Type
0	Fatal Error Message(s)
3	Warning Message(s)
16	Informational Message(s)
8784	Hours Were Processed
14	Calm Hours Identified
2	Missing Hours Identified (0.02 Percent)

Error & Warning Messages

Msg. Type	Pathway	Ref. #	Description
WARNING	SO	W320	Input Parameter May Be Out-of-Range for Parameter VS
WARNING	SO	W320	Input Parameter May Be Out-of-Range for Parameter VS
WARNING	OU	W565	Possible Conflict With Dynamically Allocated FUNIT PLOTFILE

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BREEZE AERMOD Model Results

Maximum Period 1-HR Results Averaged Over (1 YEARS) of Pollutant: SO2 (ug/m**3)

Highest (Conc.)	Group ID	Highest (Receptor)	Avg.Conc.	UTM		Elevation	Hill Ht	Flag HT	Rec.Type	Grid ID
				East (m)	North (m)	(m)	(m)	(m)		
4TH-Highest	ALL	1ST	0.74335	330343.20	4692117.44	5.70	5.70	0.00	GP	CTMNC000
		2ND	0.74320	330272.50	4692177.39	5.50	5.50	0.00	GP	CTMNC000
		3RD	0.73869	330291.78	4692154.41	5.60	5.60	0.00	GP	CTMNC000
		4TH	0.73539	330357.42	4692124.07	5.60	5.60	0.00	GP	CTMNC000
		5TH	0.73007	330311.07	4692131.43	5.70	5.70	0.00	GP	CTMNC000
		6TH	0.72106	330347.16	4692152.26	5.30	5.30	0.00	GP	CTMNC000
		7TH	0.70955	330328.20	4692143.42	5.40	5.40	0.00	GP	CTMNC000
		8TH	0.70154	330358.20	4692039.50	8.40	8.40	0.00	GP	CTMNC000
		9TH	0.70143	330358.66	4692044.71	8.20	8.20	0.00	GP	CTMNC000
		10TH	0.70121	330358.66	4692034.29	8.40	8.40	0.00	GP	CTMNC000

Summary of Total Messages

#	Message Type
0	Fatal Error Message(s)
3	Warning Message(s)
9	Informational Message(s)
8760	Hours Were Processed
6	Calm Hours Identified
3	Missing Hours Identified (0.03 Percent)

Error & Warning Messages

Msg. Type	Pathway	Ref. #	Description
WARNING	SO	W320	Input Parameter May Be Out-of-Range for Parameter VS
WARNING	SO	W320	Input Parameter May Be Out-of-Range for Parameter VS
WARNING	OU	W565	Possible Conflict With Dynamically Allocated FUNIT PLOTFILE

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BREEZE AERMOD Model Results

Maximum Period 1-HR Results Averaged Over (1 YEARS) of Pollutant: SO2 (ug/m**3)

Highest (Conc.)	Group ID	Highest (Receptor)	Avg.Conc.	UTM		Elevation	Hill Ht	Flag HT	Rec.Type	Grid ID
				East (m)	North (m)	(m)	(m)	(m)		
4TH-Highest	ALL	1ST	0.69220	330343.20	4692117.44	5.70	5.70	0.00	GP	CTMNC000
		2ND	0.65143	330328.20	4692143.42	5.40	5.40	0.00	GP	CTMNC000
		3RD	0.63909	330272.50	4692177.39	5.50	5.50	0.00	GP	CTMNC000
		4TH	0.62008	330291.78	4692154.41	5.60	5.60	0.00	GP	CTMNC000
		5TH	0.61499	330313.20	4692169.40	5.30	5.30	0.00	GP	CTMNC000
		6TH	0.61327	330357.42	4692124.07	5.60	5.60	0.00	GP	CTMNC000
		7TH	0.59653	330311.07	4692131.43	5.70	5.70	0.00	GP	CTMNC000
		8TH	0.59178	330298.20	4692195.38	5.20	5.20	0.00	GP	CTMNC000
		9TH	0.58761	330365.22	4692058.78	7.50	7.50	0.00	GP	CTMNC000
		10TH	0.57818	330362.22	4692054.50	7.70	7.70	0.00	GP	CTMNC000

Summary of Total Messages

#	Message Type
0	Fatal Error Message(s)
4	Warning Message(s)
28	Informational Message(s)
8760	Hours Were Processed
10	Calm Hours Identified
18	Missing Hours Identified (0.21 Percent)

Error & Warning Messages

Msg. Type	Pathway	Ref. #	Description
WARNING	SO	W320	Input Parameter May Be Out-of-Range for Parameter VS
WARNING	SO	W320	Input Parameter May Be Out-of-Range for Parameter VS
WARNING	ME	W186	THRESH_1MIN 1-min ASOS wind speed threshold used 0.50
WARNING	OU	W565	Possible Conflict With Dynamically Allocated FUNIT PLOTFILE

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Project Concentration Calculations

11679.00 Government Center Garage BP2- 1500 kW Gen & 8 Boilers
Project Contributions

Year	CO		NO2		PM10	PM25		SO2
	1-Hour	8-Hour	1-Hour	Annual	24-Hour	24-Hour	Annual	1-Hour
	2nd high	2nd high	98th percentile (8th)	max	2nd high	98th percentile (8th)	max	99th percentile (4th)
2010	26.77414	17.19652	30.92007	5.11848	6.09662	4.68380	2.19643	0.76036
2011	26.72234	18.09187	31.66782	5.02879	5.73985	4.93126	2.18077	0.79571
2012	27.47404	18.25840	32.02465	5.09653	5.76444	4.58926	2.21316	0.77312
2013	27.06091	18.42505	31.06938	5.05986	6.19828	4.72776	2.19072	0.74335
2014	23.16332	12.57095	26.83247	3.49202	4.50894	3.31179	1.58677	0.69220
Concentrations	27.4740	18.4251	30.5029	5.1185	5.6616	4.4488	2.0736	0.7529

Job Number: 11679.00
Job Name: Government Center Garage
Results of: BP2- 1500 kW Gen & 8 Boilers

Results Table

Pollutant	Annual	24-Hour	8-Hour	3-Hour	1-Hour
Nitrogen Dioxide (NO2)	**Pass**	N/A	N/A	N/A	**Pass**
Sulfur Dioxide (SO2)	N/A	N/A	N/A	N/A	**Pass**
Carbon Monoxide (CO)	N/A	N/A	**Pass**	N/A	**Pass**
Particulate Matter (PM10)	N/A	**Pass**	N/A	N/A	N/A
Particulate Matter (PM2.5)	**Pass**	**Pass**	N/A	N/A	N/A

Maximum Concentrations

Pollutant	Annual	24-Hour	8-Hour	3-Hour	1-Hour
Nitrogen Dioxide (NO2)	**41.62**	N/A	N/A	N/A	**123.60**
Sulfur Dioxide (SO2)	N/A	N/A	N/A	N/A	**31.75**
Carbon Monoxide (CO)	N/A	N/A	**1,066.73**	N/A	**1,541.57**
Particulate Matter (PM10)	N/A	**53.33**	N/A	N/A	N/A
Particulate Matter (PM2.5)	**10.47**	**22.65**	N/A	N/A	N/A

Background Value

Pollutant	Annual	24-Hour	8-Hour	3-Hour	1-Hour
Nitrogen Dioxide (NO2)	**36.50**	N/A	N/A	N/A	**93.10**
Sulfur Dioxide (SO2)	N/A	N/A	N/A	N/A	**31.00**
Carbon Monoxide (CO)	N/A	N/A	**1,048.30**	N/A	**1,514.10**
Particulate Matter (PM10)	N/A	**47.67**	N/A	N/A	N/A
Particulate Matter (PM2.5)	**8.40**	**18.20**	N/A	N/A	N/A

Project Contribution

Pollutant	Annual	24-Hour	8-Hour	3-Hour	1-Hour
Nitrogen Dioxide (NO2)	**5.12**	N/A	N/A	N/A	**30.50**
Sulfur Dioxide (SO2)	N/A	N/A	N/A	N/A	**0.75**
Carbon Monoxide (CO)	N/A	N/A	**18.43**	N/A	**27.47**
Particulate Matter (PM10)	N/A	**5.66**	N/A	N/A	N/A
Particulate Matter (PM2.5)	**2.07**	**4.45**	N/A	N/A	N/A

NAAQS

Pollutant	Annual	24-Hour	8-Hour	3-Hour	1-Hour
Nitrogen Dioxide (NO2)	**100**	N/A	N/A	N/A	**189**
Sulfur Dioxide (SO2)	N/A	N/A	N/A	N/A	**196**
Carbon Monoxide (CO)	N/A	N/A	**10,000**	N/A	**40,000**
Particulate Matter (PM10)	N/A	**150**	N/A	N/A	N/A
Particulate Matter (PM2.5)	**12**	**35**	N/A	N/A	N/A

APPENDIX E: BRA Checklists

BRA Accessibility Checklist

BRA Climate Change Preparedness and Resilience 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
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
6. Massachusetts Office On Disability Accessible Parking Requirements
    a. 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/

Article 80 | ACCESSIBILTY CHECKLIST
Redevelopment of the Government Center Garage – WP-B2 (Office Building)

Project Information

Project Name:	Redevelopment of the Government Center Garage – WP-B2 (Office Building)
Project Address Primary:	One Congress Street
Project Address Additional:	
Project Contact (name / Title / Company / email / phone):	Douglas Manz, Director of Development The HYM Investment Group, LLC dmanz@hyminvestments.com 617-248-8905

Team Description

Owner / Developer:	The HYM Investment Group, LLC
Architect:	Pelli Clarke Pelli Architects and CBT Architects (Architect of Record)
Engineer (building systems):	WSP
Sustainability / LEED:	The Green Engineer
Permitting:	VHB, Inc.
Construction Management:	Tishman

Project Permitting and Phase

At what phase is the project – at time of this questionnaire? **The BRA previously approved conceptual plans of the Development Plan Project as part of the Planned Development Area (PDA) approval. This EPNF has been filed for subsequent review and approval, and is intended to be focused on the advanced building and public realm design as well as key changes to environmental conditions to confirm the Proposed Project is consistent with the approved PDA.**

PNF / Expanded PNF Submitted	Draft / Final Project Impact Report Submitted	BRA Board Approved
BRA Design Approved	Under Construction	Construction just completed:

Building Classification and Description

What are the principal Building Uses - select all appropriate uses?

	Residential – One to Three Unit	Residential - Multi-unit, Four +	Institutional	Education
	Commercial	**Office**	**Retail**	Assembly
	Laboratory / Medical	Manufacturing / Industrial	Mercantile	Storage, Utility and Other
First Floor Uses (List)	**Office Lobby, Retail**			

What is the Construction Type – select most appropriate type?

	Wood Frame	Masonry	**Steel Frame**	**Concrete**

Describe the building?

Site Area:	**48,035 SF**	Building Area:	**1,012,000 GSF**
Building Height (top of last occupiable floor):	**528 Ft.**	Number of Stories (last occupiable floor):	**43 Floors.**
First Floor Elevation:	**±6.5 feet**	Are there below grade spaces:	**Yes, one floor**

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 Proposed Project Site is immediately adjacent to Government Center office buildings and the Bulfinch Triangle neighborhood. Nearby are the Rose F Kennedy Greenway, Market District, North End, and Beacon Hill.**

List the surrounding ADA compliant MBTA transit lines and the proximity to the development site: Commuter rail, subway, bus, etc.	The Proposed Project Site is located nearby to (just across Congress Street) the MBTA Haymarket Bus Station, and MBTA Haymarket Green and Orange Line Subway Stations, which are handicap accessible.
List the surrounding institutions: hospitals, public housing and elderly and disabled housing developments, educational facilities, etc.	The Temporary Home for Women is located across Bowker Street from the Proposed Project Site.
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.	Surrounding government buildings accessible to the Proposed Project Site include: Overseers of the Public Welfare Building and Veterans Affairs Department on Hawkins St; U.S. Post Office and Edward W. Brooke Courthouse on New Chardon St.; District 1 Boston Police Station and JFK Federal Office Building on New Sudbury St.; and Boston City Hall on Congress Street. Also, the North End Greenway Parks are accessible to the Proposed Project Site across Congress St.

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.	The existing sidewalk along New Chardon Street is a mix of brick, cobble stone (at the Garage access/egress), and concrete (mostly along Bowker Street).
Are the sidewalks and pedestrian ramps existing-to-remain? If yes, have the sidewalks and pedestrian ramps been verified as compliant? If yes, please provide surveyors report.	Many of the sidewalks in the area shall remain until future phases of the Master Plan are constructed. The sidewalks and ramps will be reconstructed along the south side of New Chardon Street from Bowker Street to Merrimac/Congress Street as part of the Proposed Project. These upgrades will be designed and constructed in compliance with CMR 521.
Is the development site within a historic district? If yes, please identify.	No, the Proposed Project Site is not located within a historic district.

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.

Are the proposed sidewalks consistent with the Boston Complete Street Guidelines? See: www.bostoncompletestreets.org	**Yes, the proposed sidewalk improvements abutting the Proposed Project Site will be made consistent with Boston Complete Street Guidelines, where feasible.**
If yes above, choose which Street Type was applied: Downtown Commercial, Downtown Mixed-use, Neighborhood Main, Connector, Residential, Industrial, Shared Street, Parkway, Boulevard.	**Downtown Commercial**
What is the total width of the proposed sidewalk? List the widths of the proposed zones: Frontage, Pedestrian and Furnishing Zone.	**Frontage Zone: 0'-0"min – 21'-6"max** **Pedestrian Zone: 8'-0"min – 20'-0"max** **Greenscape/Furnishing Zone: 1'-6"min – 4'-0"max** **Curb Zone: 6"**
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?	**City-approved pavement materials** **Frontage Zone: Pavers** **Pedestrian Zone: Exposed Aggregate** **Furnishing Zone: Pavers or Pervious Pavement System**
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?	**Pedestrian right-of-way is not located on private property.**

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?	The parking demand ratio assumed for WP-B2 is about 0.30 spaces per 1,000 square feet of office yielding a parking supply of approximately 300 spaces. Dedicated office parking spaces are not anticipated for the Proposed Project at this time. A substantial portion of the eastern half of the Garage required to be demolished prior to occupancy of WP-B2. The combination of existing parking spaces to remain after deconstruction and the new parking to be created as part of the Proposed Project will yield approximately 1,100 spaces, which will more than satisfy the parking requirements for both the Proposed Project and WP-B1 (which will have already have been constructed).
What is the total number of accessible spaces provided at the development site?	Much of the existing Garage will remain after the construction of the Proposed Project (WP-B2). Accessible parking spaces are currently provided adjacent to the elevators on all floors of the Garage. As part of the Proposed Project, 21 accessible parking spaces will be provided and 3 van spaces near the loading dock for a total of 24 accessible spaces. Dedicated accessible office parking spaces are not anticipated at this time.
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 regarding this need?	No
Where is accessible visitor parking located?	Accessible visitor parking will be provided as it currently exists in the Garage (described above).

Has a drop-off area been identified? If yes, will it be accessible?	There will be curb side drop off near the building entrance along New Chardon Street. Yes, the drop-off is intended to be made to make it 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.	Refer to the WP-B2 'Streetscape Concept' Accessibility Diagram attached.

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.	Sidewalks approaching the building will be accessible, as required.
Describe accessibility at each entryway: Flush Condition, Stairs, Ramp Elevator.	There are four building entryway conditions: two at the main lobby; one at the future retail space; and one into the Garage and bike storage located on Congress Street. All four entryways will be designed to be flush conditions.
Are the accessible entrance and the standard entrance integrated?	Yes, at the future retail space a single common vestibule is provided. At the office lobby, each entrance consists of an accessible vestibule and two flanking revolving doors.
If no above, what is the reason?	
Will there be a roof deck or outdoor courtyard space? If yes, include diagram of the accessible route.	An outdoor rooftop space is proposed on Level 11 as part of the Proposed Project. The space will be accessed via the three (3) elevator towers from the office lobby to Level 11 and then by exiting a pair of exit doors with flush thresholds.
Has an accessible routes way-finding and signage package been developed? If yes, please describe.	Not at this time.

Accessible Units: (If applicable)

Article 80 | ACCESSIBILTY CHECKLIST
Redevelopment of the Government Center Garage – WP-B2 (Office Building)

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?	No residential units are proposed as part of the Proposed Project.
How many units are for sale; how many are for rent? What is the market value vs. affordable breakdown?	NA
How many accessible units are being proposed?	NA
Please provide plan and diagram of the accessible units.	NA
How many accessible units will also be affordable? If none, please describe reason.	NA
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.	NA
Has the proponent reviewed or presented the proposed plan to the City of Boston Mayor's Commission for Persons with Disabilities Advisory Board?	NA
Did the Advisory Board vote to support this project? If no, what recommendations did the Advisory Board give to make this project more accessible?	NA

Thank you for completing the Accessibility Checklist!

Article 80 | ACCESSIBILTY CHECKLIST
Redevelopment of the Government Center Garage – WP-B2 (Office Building)

For questions or comments about this checklist or accessibility practices, please contact:

kathryn.quigley@boston.gov | Mayors Commission for Persons with Disabilities

GOVERNMENT CENTER GARAGE / Streetscape Concept

WP-B2 Accessibility Diagram

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/)
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)
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)

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:	**Redevelopment of the Government Center Garage – WP-B2 (Office Building)**
Project Address Primary:	**One Congress Street**
Project Address Additional:	
Project Contact (name / Title / Company / email / phone):	**Douglas Manz, Director of Development** **The HYM Investment Group, LLC** **dmanz@hyminvestments.com** **617-248-8905**

A.2 - Team Description

Owner / Developer:	**The HYM Investment Group, LLC**
Architect:	**Pelli Clarke Pelli Architects and CBT Architects (Architect of Record)**
Engineer (building systems):	**WSP**
Sustainability / LEED:	**The Green Engineer**
Permitting:	**VHB, Inc.**
Construction Management:	**Tishman**
Climate Change Expert:	**An integrated design team approach was used.**

A.3 - Project Permitting and Phase

At what phase is the project – most recent completed submission at the time of this response? **The BRA previously approved conceptual plans of the Development Plan Project as part of the Planned Development Area (PDA) approval. This EPNF has been filed for subsequent review and approval, and is intended to be focused on the advanced building and public realm design as well as key changes to environmental conditions to confirm the Proposed Project is consistent with the approved PDA.**

PNF / Expanded PNF Submission	Draft / Final Project Impact Report Submission	BRA Board Approved	Notice of Project Change
Approved Planned Development Area	BRA Final Design Approved	Under Construction	Construction just completed:

A.4 - Building Classification and Description

List the principal Building Uses:	**Commercial Office**
List the First Floor Uses:	**Office Lobby/Amenity, Retail**

What is the principal Construction Type – select most appropriate type?

Wood Frame	Masonry	**Steel Frame**	**Concrete (core)**

Describe the building?

Site Area:	**48,035 SF**	Building Area:	**1,012,000 GSF**
Building Height (top of last occupiable floor):	**528 Ft.**	Number of Stories (last occupiable floor):	**43 Flrs.**

First Floor Elevation (reference Boston City Base):	**±17 feet**	Are there below grade spaces/levels, if yes how many:	**Yes/ 1 floor**

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:	New Construction	**Core & Shell**	Healthcare	Schools
	Retail	Homes Midrise	Homes	Other
Select LEED Outcome:	Certified	Silver	**Gold**	Platinum

Will the project be USGBC Registered and / or USGBC Certified?

Registered:	***Yes*** */ No*	Certified:	*Yes / No*

A.6 - Building Energy

What are the base and peak operating energy loads for the building?

Electric:	**13,000 kW**	Heating:	**40 MMBtu/hr**
What is the planned building Energy Use Intensity:	**40 kbtu/SF**	Cooling:	**3,400 Tons**

What are the peak energy demands of your critical systems in the event of a service interruption?

Electric:	**1,500 kW**	Heating:	**1 MMBtu/hr**
		Cooling:	**30 Tons**

What is nature and source of your back-up / emergency generators?

Electrical Generation:	**1,500 kW**		Fuel Source:	**Diesel fuel**
System Type and Number of Units:	**1 Combustion Engine**	Gas Turbine	Combine Heat and Power	**2 Combustion Engine**

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:	10 Years	25 Years	**50 Years**	75 Years

What is the full expected operational life of key building systems (e.g. heating, cooling, ventilation)?

Select most appropriate:	10 Years	25 Years	**50 Years**	75 Years

What time span of future Climate Conditions was considered?

Select most appropriate:	10 Years	25 Years	**50 Years**	75 Years

Analysis Conditions - What range of temperatures will be used for project planning – Low/High?

/ *Deg.*

What Extreme Heat Event characteristics will be used for project planning – Peak High, Duration, and Frequency?

95 Deg.	**1 Days**	**6 Events / yr.**

What Drought characteristics will be used for project planning – Duration and Frequency?

Days	Events / yr.

What Extreme Rain Event characteristics will be used for project planning – Seasonal Rain Fall, Peak Rain Fall, and Frequency of Events per year?

±42 *Inches / yr.*	**±2** *Inches*	**10** *Events / yr.*

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?

Peak Wind	*Hours*	*Events / yr.*

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:	**19.8%**
How is performance determined:	**Energy model with ASHRAE 90.1-2010 baseline**

What specific measures will the project employ to reduce building energy consumption?

Select all appropriate:	**High performance building envelop**	**High performance lighting & controls**	**Building day lighting**	EnergyStar equip. / appliances ***(*Not applicable as appliances will be purchased by Tenant(s). Will be encouraged to use)***
	High performance HVAC equipment	**Energy recovery ventilation**	No active cooling	No active heating
Describe any added measures:	**NA**			

What are the insulation (R) values for building envelop elements?

Roof:	**R = 20.8**	Walls / Curtain Wall Assembly:	**R = 18.8**
Foundation:	**R = N/A**	Basement / Slab:	**F-0.86 / R-15 for 24"**
Windows:	**R = 2.6 / U = 0.38**	Doors:	**R = 1.43 / U = 0.70**

What specific measures will the project employ to reduce building energy demands on the utilities and infrastructure?

On-site clean energy / CHP	**Building-wide power dimming**	Thermal energy storage systems	Ground source heat pump

	system(s)			
	On-site Solar PV	On-site Solar Thermal	Wind power	None
Describe any added measures:	NA			

Will the project employ Distributed Energy / Smart Grid Infrastructure and /or Systems? **Not be considered at this time.**

Select all appropriate:	Connected to local distributed electrical	Building will be Smart Grid ready	Connected to distributed steam, hot, chilled water	Distributed thermal energy ready

Will the building remain operable without utility power for an extended period?

	Yes / **No**	If yes, for how long:	*Days*
If Yes, is building "Islandable?			
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:	**Solar oriented – longer south walls**	Prevailing winds oriented	External shading devices	Tuned glazing,
	Building cool zones	Operable windows	Natural ventilation	Building shading
	Potable water for drinking / food preparation	Potable water for sinks / sanitary systems	Waste water storage capacity	**High Performance Building Envelop**
Describe any added measures:	NA			

What measures will the project employ to reduce urban heat-island effect?

Select all appropriate:	High reflective paving materials	Shade trees & shrubs	**High reflective roof materials**	**Vegetated roofs**
Describe other strategies:	NA			

What measures will the project employ to accommodate rain events and more rain fall?

Select all appropriate:	On-site retention systems & ponds	Infiltration galleries & areas	vegetated water capture systems	**Vegetated roofs**
Describe other strategies:	**Rainwater harvesting**			

What measures will the project employ to accommodate extreme storm events and high winds?

Select all appropriate:	Hardened building structure & elements	Buried utilities & hardened infrastructure	Hazard removal & protective landscapes	Soft & permeable surfaces (water infiltration)
Describe other strategies:	NA			

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?

Yes / *No*

Describe site conditions?

Site Elevation – Low/High Points:	**16/19** *Boston City Base Elev.(Ft.)*
Building Proximity to Water:	**1,600** *Ft.*

Is the site or building located in any of the following?

Coastal Zone:	*Yes* / **No**	Velocity Zone:	*Yes* / **No**
Flood Zone:	*Yes* / **No**	Area Prone to Flooding:	**Yes** / *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:	**Yes** / *No*	Future floodplain delineation updates:	*Yes / No*

What is the project or building proximity to nearest Coastal, Velocity or Flood Zone or Area Prone to Flooding?

0 *Ft.** ***Per preliminary maps.**

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:	**3 Ft.***	Frequency of storms:	**Not Analyzed**

***Note: Potential sea level rise is limited to the beginning portions of the first floor office lobby, as shown in EPNF Figure 6.2.**

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:	*Boston City Base* **±17 Elev. (Ft.)**	First Floor Elevation:	*Boston City Base* **±16.5 Elev. (Ft.)**

Will the project employ temporary measures to prevent building flooding (e.g. barricades, flood gates):

	Yes / *No*	If Yes, to what elevation	*Boston City Base* **17.5 Elev. (Ft.)**
If Yes, describe:	**The lobby elevation is 16.5'. The office building design protects this elevation by providing an additional foot of protection with a solid perimeter concrete curb to 17.5'. During an event, temporary protection will need to be provided at the three**		

entrances to the office building. Impacts analyzed were limited to first floor areas.

What measures will be taken to ensure the integrity of critical building systems during a flood or severe storm event:

Systems located above 1st Floor.	Water tight utility conduits	Waste water back flow prevention	Storm water back flow prevention

Were the differing effects of fresh water and salt water flooding considered:

Yes / **No**

Will the project site / building(s) be accessible during periods of inundation or limited access to transportation:

Yes / ***No***	If yes, to what height above 100 Year Floodplain:	*Boston City Base Elev. (Ft.)*

Will the project employ hard and / or soft landscape elements as velocity barriers to reduce wind or wave impacts?

Yes / *No*

If Yes, describe:	**The Proposed Project will include landscape elements to address wind action. Wave action is not anticipated.**

Will the building remain occupiable without utility power during an extended period of inundation:

Yes / ***No***	If Yes, for how long:	*days*

Describe any additional strategies to addressing sea level rise and or severe storm impacts:

Transformers and switch gear are located above grade, perimeter protected with solid 1-foot concrete curb, and temporary protection measures will be provided at entries during a flood event.

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:	***Yes*** / *No*	**Hardened / Resilient Ground Floor Construction**	**Temporary shutters and or barricades**	**Resilient site design, materials and construction**

Can the site and building be reasonably modified to increase Building Flood Proof Elevation?

Select appropriate:	*Yes* / ***No***	Surrounding site elevation can be raised	Building ground floor can be raised	Construction been engineered
Describe additional strategies:	**Due to existing surrounding street elevations, the ground floor cannot be raised to the extent necessary. Therefore, 1-foot protective curbing and temporary entry protection during a flood event will be provided.**			

Has the building been planned and designed to accommodate future resiliency enhancements?

Select appropriate:	*Yes* / ***No***	Solar PV	Solar Thermal	Clean Energy / CHP System(s)
		Potable water storage	Wastewater storage	Back up energy systems & fuel
Describe any specific or additional strategies:	**NA**			

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

APPENDIX F: Abutters List

MAP TITLE

Department 1

Department 2

N
W E
S

0301351000	43 COOPER ST	TARANTINO ANTHONY		28 BURBANK RD	MEDFORD	MA	02155
0301498000	34 THATCHER ST	CASA MARIA APARTMENTS LP	C/O COMMUNITY BUILDERS INC	95 BERKELEY ST	BOSTON	MA	02116
0301500000	LYNN ST	MICHELLE HOLDINGS LLC	C/O MICHELLE HOLDINGS LLC	55 HENSHAW ST	BOSTON	MA	02135
0301501000	51 53 COOPER ST	DECRISTOFORO LUCY		53 COOPER ST	BOSTON	MA	02113
0301502000	55 COOPER ST	MICHELLE HOLDINGS LLC	C/O MICHELLE HOLDINGS LLC	55 HENSHAW ST	BOSTON	MA	02135
0301503000	57 59 COOPER ST	MICHELLE HOLDINGS LLC	C/O MICHELLE HOLDINGS LLC	55 HENSHAW ST	BOSTON	MA	02135
0301504000	45 49 N WASHINGTON ST	MICHELLE HOLDINGS LLC	C/O MICHELLE HOLDINGS LLC	55 HENSHAW ST	BOSTON	MA	02135
0301505000	51 53 N WASHINGTON ST	MICHELLE HOLDINGS LLC	C/O MICHELLE HOLDINGS LLC	55 HENSHAW ST	BOSTON	MA	02135
0301506000	55 57 N WASHINGTON ST	MICHELLE HOLDINGS LLC	C/O MICHELLE HOLDINGS LLC	55 HENSHAW ST	BOSTON	MA	02135
0301507000	59 61 N WASHINGTON ST	MICHELLE HOLDINGS LLC	C/O MICHELLE HOLDINGS LLC	55 HENSHAW ST	BOSTON	MA	02135
0301508000	65 63 N WASHINGTON ST	MICHELLE HOLDINGS LLC	C/O MICHELLE HOLDINGS LLC	55 HENSHAW ST	BOSTON	MA	02135
0301532000	N WASHINGTON ST	COMMONWEALTH OF MASS	STATE TRANSP BLDG	10 PARK PLZ	BOSTON	MA	02116
0301560010	1 CANAL ST	AIMCO ONE CANAL STREET LLC	C/O RYAN LLC	13155 NOWEL RD #100 LB73	DALLAS	TX	75240
0301568000	53 85 CANAL ST	CANAL PLAZA LLC	C/O HUNNEMAN MGMT CO	303 CONGRESS ST	BOSTON	MA	02210
0301591020	104-108 CANAL ST	SOMNATH HOSPITALITY LLC	C/O KISHORKUMAR PATEL	14 HILL ST	WOBURN	MA	01801
0301592000	32 38 ANTHONY R VA	LENTI WY GREATER BOSTON LEGAL SERVICE		197 FRIEND ST &	BOSTON	MA	02114
0301610000	54 48 CANAL ST	FIFTY 4 CNL REALTY LLC	C/O HAMLEN & CO/CHARLES MCKENZIE	54 CANAL ST	BOSTON	MA	02114
0301611000	155 FRIEND ST	ANDREW DUTTON CO INC	C/O EASTERN PROP MGMT GROUP	200 WALNUT ST	SAUGUS	MA	01906
0301612000	157 159 FRIEND ST	BAY COVE HUMAN SERVICES INC	C/O PAUL TONTHAT	66 CANAL ST &	BOSTON	MA	02114
0301613000	165 FRIEND ST	ONE 65 FRIEND ST CONDO ASSN		165 FRIEND	BOSTON	MA	02114
0301613002	165 FRIEND ST #1	IBRAHIM SINOTE ETAL		165 FRIEND	BOSTON	MA	02114
0301613004	165 FRIEND ST #2	GANNETT RICHARD W		165 FRIEND ST #2	BOSTON	MA	02114
0301613006	165 FRIEND ST #3	METCALF JANE E		7110 KITTIWAK RUN	MANLIUS	NY	13104
0301613008	165 FRIEND ST #4	ARCINIEGAS DIEGO A		165 FRIEND ST #4	BOSTON	MA	02114
0301613010	165 FRIEND ST #5	COLLINS WESLEY P					
0301615000	CHAPEL PL	76 CANAL STREET LLC					
0301616000	CHAPEL PL	76 CANAL STREET LLC					
0301617000	CHAPEL PL	BAY COVE HUMAN SERVICES INC	C/O PAUL TONTHAT	66 CANAL ST &	BOSTON	MA	02114
0301618000	FRIEND ST	BAY COVE HUMAN SERVICES INC	C/O PAUL TONTHAT	66 CANAL ST &	BOSTON	MA	02114
0301619000	90 CANAL	CANAL ST LLC 90	C/O VANTAGE REAL ESTATE MGT	90 CANAL ST	BOSTON	MA	02114
0301623000	80 74 CANAL ST	76 CANAL STREET LLC					
0301626000	NEW CHARDON	CITY OF BOSTON		NEW CHARDON	BOSTON	MA	02114
0301628000	158 150 FRIEND ST	ONE MERRIMAC LLC	C/O DAVID WALLACE	226 FIFTH AV. - 3RD FL	NEW YORK	NY	10001
0301632000	MERRIMAC ST	NINETY CANAL ST LLC	C/O MECA SAULS, CONTROLLER	HN GORIN INC, 101 HUNTINGTON AV	5TH FL BOSTON	MA	02199
0301633000	121 127 PORTLAND ST	ONE-21 PORTLAND LLC	C/O STATE FINANCIAL SERV INC	197 PORTLAND ST	BOSTON	MA	02114

0301634000	129 131 PORTLAND S	T	OLYMPIA GROUP LP		PO BOX 374	WESTPORT	MA	02790
0301635000	ANTHONY R VALENTI	WY	M G E HOLDING CO INC	M G E HOLDING CO C/O B D F ADV	24 NEW ENG EXEC PK STE 240	BURLINGTON	MA	01803
0301636000	ANTHONY R VALENTI	WY	M G E HOLDING CO INC	M G E HOLDING CO C/O B D F ADV	24 NEW ENG EXEC PK STE 240	BURLINGTON	MA	01803
0301637000	FRIEND ST	M G E HOLDING CO INC		M G E HOLDING CO C/O B D F ADV	24 NEW ENG EXEC PK STE 240	BURLINGTON	MA	01803
0301639000	FRIEND ST	GORIN ROSALIND E TS		C/O H.N. GORIN INC/M SAULS	101 HUNTINGTON AV, 5TH FL	BOSTON	MA	02199
0301639001	FRIEND ST	GORIN ROSALIND E TS		C/O H.N.GORIN INC/ M SAULS	101 HUNTINGTON AV, 5TH FL	BOSTON	MA	02199
0301640000	FRIEND ST	GORIN ROSALIND E TS		C/O H.N. GORIN INC/M SAULS	101 HUNTINGTON AV, 5TH FL	BOSTON	MA	02199
0301641000	FRIEND ST	GORIN ROSALIND E TS		C/O H.N. GORIN INC/M SAULS	101 HUNTINGTON AV, 5TH FL	BOSTON	MA	02199
0301642000	FRIEND ST	M G E HOLDING CO INC		M G E HOLDING CO C/O B D F ADV	24 NEW ENG EXEC PK STE 240	BURLINGTON	MA	01803
0301643000	ANTHONY R VALENTI	WY	M G E HOLDING CO INC	M G E HOLDING CO C/O B D F ADV	24 NEW ENG EXEC PK STE 240	BURLINGTON	MA	01803
0301644000	14 16 ANTHONY R VA	LENTI WY	PORTLAND STREET HOLDINGS LLC	C/O SYNERGY INVESTMENTS	100 FRANKLIN ST 2ND FLOOR	BOSTON	MA	02110
0301645000	PORTLAND ST	M G E HOLDING CO INC		M G E HOLDING CO C/O B D F ADV	24 NEW ENG EXEC PK STE 240	BURLINGTON	MA	01803
0301660000	222 224 FRIEND ST	PORTLAND ST EQUITY PARTNERS		C/O SALLY MICHAEL, RA	131 DARTMOUTH ST #501	BOSTON	MA	02116
0301661000	FRIEND ST	M G E HOLDING CO INC		M G E HOLDING CO C/O B D F ADV	24 NEW ENG EXEC PK STE 240	BURLINGTON	MA	01803
0301664000	132 130 PORTLAND S	T	COUGHLIN JOHN E TS	JOHN E COUGHLIN/GATEWAY RLTY	239 WESTERN AVE	ESSEX	MA	01929
0301665000	142 138 PORTLAND S	T	CARLSON CLAIR A	C/O M H MASSEY CO LLC	117 SOUTH 14TH ST SUITE 300	RICHMOND	VA	23219
0301675000	101 MERRIMAC ST	ONE-01 MERRIMAC LLC		C/O H.N GORIN INC	101 HUNTINGTON AVE 5TH FLR	BOSTON	MA	02199
0301686000	115 CAMBRIDGE ST	COMMONWEALTH OF MASS			115 CAMBRIDGE	BOSTON	MA	02114
0301687000	MERRIMAC ST	BOSTON REDEVELOPMNT AUTH			MERRIMAC	BOSTON	MA	02114
0301688000	24 NEW CHARDON ST	COMMONWEALTH OF MASS			ONE ASHBURTON PL	BOSTON	MA	02108
0302396000	198 HANOVER ST	CHARTER CROSS STREET LLC		C/O CHARTER CROSS STREET LLC	800 WESTCHESTER AV	RYE BROOK	NY	10573
0302397000	53 55 SALEM ST	CHARTER CROSS STREET LLC		C/O CHARTER CROSS STREET LLC	800 WESTCHESTER AV	RYE BROOK	NY	10573
0302398000	57 61 SALEM ST	FIFTY 7-61 SALEM ST CONDO TR			57 SALEM	BOSTON	MA	02113
0302398002	57 SALEM ST #57F-	1	CAPRICORN 24 SERIES LLC	C/O CHRISTOPHER YOUNG MGR	5 FREMONT ST	WINTHROP	MA	02152
0302398004	57 SALEM ST #57F-	2	OCONNOR KIMBERLY M	C/O KIMBERLY M. O'CONNOR	44 BOW RD	BELMONT	MA	02478
0302398006	57 SALEM ST #57F-	3	KAYNE PATRICIA D	C/O PATRICIA KAYNE SEGEDY	19 DALE ST	SWAMPSCOTT	MA	01907
0302398008	57 SALEM ST #57F-	4	TAYLOR NEIL S	C/O NEIL S TAYLOR	57 SALEM ST #4F	BOSTON	MA	02113
0302398010	57R SALEM ST #57R-	1	KENT AND ASSOCIATES INC		P O BOX 550218	N WALTHAM	MA	02455
0302398012	57 R SALEM ST #57R	-2	BENJAMIN DAVID M ETAL		57R SALEM ST #57R-2	BOSTON	MA	02113
0302398014	57 R SALEM ST #57R	-3	CRAIG PATRICIA M		34 TEELE AV	W SOMERVILLE	MA	02144
0302398016	57 R SALEM ST #57R	-4	CRAIG PATRICIA	C/O PATRICIA CRAIG	32 TEELE AVE	W SOMERVILLE	MA	02144
0302398018	59 R SALEM ST #59R	-1	CROWLEY DAVID G		59R SALEM ST #1	BOSTON	MA	02113
0302398020	59 R SALEM ST #59R	-2	PANAGIOTOPOULOS IOANIS	C/O IOANIS PANAGIOTOPOULOS	19 COUNTRY CLUB DR	TEWKSBURY	MA	01876
0302398022	59 R SALEM ST #59R	-3	D&S 59 SALEM STREET LLC	C/O SUSAN PASSACANTILLI	328 POND ST	JAMAICA PLAIN	MA	02130

0302398024	59 R SALEM ST #59R	-4	TROIANI LISA L		59 SALEM ST #4R	BOSTON	MA	02113
0302398026	59 SALEM ST #59F-	1	IACOVONE LISA	C/O VITO L. IACOVONE	15 ROBIN HILL ROAD	CHELMSFORD	MA	01824
0302398028	59 SALEM ST #59F-	2	MCGEE JAMES W		59 SALEM ST #59F-2	BOSTON	MA	02113
0302398030	59 SALEM ST #59F-	3	IACOVONE VITO L	C/O VITO IACOVONE	15 ROBIN HILL RD	CHESTNUT HILL	MA	01824
0302398032	59 SALEM ST #59F-	4	CACACE JOHN A III	C/O JOHN CACACE	394 RIVERWAY #15	BOSTON	MA	02115
0302398034	61 SALEM ST #61-1		CAPRICORN 24 SERIES LLC	C/O CHRISTOPHER YOUNG MGR	5 FREEMONT ST	WINTHROP	MA	02152
0302398036	61 SALEM ST #61-2		MASTROCOLA GLORIA M	C/O GLORIA M GAVRIS	21 MONADNOCK RD	CHESTNUT HILL	MA	02467
0302398038	61 SALEM ST #61-3		SAMIA CARA	C/O CARA SAMIA	61 SALEM ST #61-3	BOSTON	MA	02113
0302398040	61 SALEM ST #61-4		GARDNER AVRIL	C/O AVRIL GARDNER	61 SALEM ST #61-4	BOSTON	MA	02113
0302398042	61 SALEM ST #61-5		ONEIL EDWIN R	C/O EDWIN ONEIL	61 SALEM ST #61-5	BOSTON	MA	02113
0302456000	52 56 SALEM ST		DIPAOLA DAMIEN	C/O DAMIEN DIPAOLA	1 LATHROP PLACE	BOSTON	MA	02113
0302457000	48 50 SALEM ST		LINEAR RETAIL BOSTON #15 LLC	C/O KEYPOINT PARTNERS LLC	1135 TREMONT ST	BOSTON	MA	02120
0302458000	46 50 CROSS ST		LAFAUCI FELIX TRST	C/O STEPHEN LAFAUCI	969 SALEM ST	MALDEN	MA	02148
0302459000	40 42 CROSS ST		PACE JOSEPH A TRSTS	C/O JOSEPH A PACE	190 MAIN ST	SAUGUS	MA	01906
0302460000	28 32 CROSS ST		PACE JOSEPH A	C/O JOSEPH A PACE	190 MAIN ST	SAUGUS	MA	01906
0302460001	CROSS ST		PACE JOSEPH A TS	C/O JOSEPH PACE	190 MAIN ST	SAUGUS	MA	01906
0302461000	55 57 ENDICOTT ST		PACE JOSEPH A TS	C/O JOSEPH PACE	190 MAIN ST	SAUGUS	MA	01906
0302462000	57 R ENDICOTT ST		PACE JOSEPH A TS	C/O JOSEPH PACE	190 MAIN ST	SAUGUS	MA	01906
0302463000	59 61 ENDICOTT ST		DENRAT LLC	C/O PHILIP Y DENORMANDIE	12 MARSHALL STREET	BOSTON	MA	02108
0302463001	MORTON ST		PACE JOSEPH A TRSTS	C/O JOSEPH PACE	190 MAIN ST	SAUGUS	MA	01906
0302464000	MORTON ST		PACE JOSEPH A TS	C/O JOSEPH PACE TS	190 MAIN ST	SAUGUS	MA	01906
0302464001	MORTON ST		PACE JOSEPH A TRSTS	C/O JOSEPH A PACE	190 MAIN ST	SAUGUS	MA	01906
0302464002	MORTON ST		PACE JOSEPH A TRSTS	C/O JOSEPH A PACE	190 MAIN ST	SAUGUS	MA	01906
0302465000	58 60 SALEM ST		OMAR MOHAMED A TS		58 SALEM ST	BOSTON	MA	02113
0302466000	MORTON ST		CITY OF BOSTON		MORTON	BOSTON	MA	02113
0302469010	26 STILLMAN ST		TWENTY6 STILLMAN ST CONDO TR		26 STILLMAN ST	BOSTON	MA	02113
0302469012	26 STILLMAN #1-1		LAGASSE GLENN A		26 STILLMAN ST #1-1	BOSTON	MA	02113
0302469014	26 STILLMAN #1-2		DAVIS DOUGLAS G TS	C/O DOUGLAS G DAVIS	550 MORELAND WY #2815	SANTA CLARA	CA	95054
0302469016	26 STILLMAN #1-3		TANNOURY CHADI	C/I CHADI TANNOURY	26 STILLMAN ST #1-3	BOSTON	MA	02113
0302469018	26 STILLMAN ST #1	-4	AMOS DENNY TRUST					
0302469020	26 STILLMAN ST #2	-1	QUINN STEPHANIE K	C/O STEPHANIE K QUINN	26 STILLMAN ST #2-1	BOSTON	MA	02113
0302469022	26 STILLMAN ST #2	-2	WARREN JEREMY		26 STILLMAN ST #2-2	BOSTON	MA	02113
0302469024	26 STILLMAN ST #2	-3	CONDELLI MICHAEL C	C/O MICHAEL C CONDELLI	31 WASHINGTON STREET UNIT #2	BOSTON	MA	02113
0302469026	26 STILLMAN ST #2	-4	LUKACS SAMANTHA		26 STILLMAN ST #2-4	BOSTON	MA	02113

0302469028	26 STILLMAN ST #2	-5	LAGASSE LISA A		26 STILLMAN ST #2-5	BOSTON	MA	02113
0302469030	26 STILLMAN ST #3	-1	BURKE JORDAN M	C/O JORDAN M BURKE	26 STILLMAN ST # 3-1	BOSTON	MA	02113
0302469032	26 STILLMAN ST #3	-2	ONEIL JANE R	C/O JANE R ONEIL	26 STILLMAN ST # 3-2	BOSTON	MA	02113
0302469034	26 STILLMAN ST #3	-3	REISS GARY P	C/O GARY & BRIDGET REISS	324 REEDY MEADOW RD	GROTON	MA	01450
0302469036	26 STILLMAN ST #3	-4	HALE ROBIN	C/O ROBIN HALE	26 STILLMAN ST #3-4	BOSTON	MA	02113
0302469038	26 STILLMAN ST #3	-5	DURSO STEPHEN F	C/O STEPHEN DURSO	17 SWAN LANE	ANDOVER	MA	01810
0302469040	26 STILLMAN ST #4	-1	GIANATASIO FRANK C	C/O FRANK GIANATASIO	26 STILLMAN ST #4-1	BOSTON	MA	02113
0302469042	26 STILLMAN ST #4	-2	GAVIN JOHN M	C/O JOHN M GAVIN	26 STILLMAN ST #4-2	BOSTON	MA	02113
0302469044	26 STILLMAN ST #4	-3	BALLARIN PETER	C/O PETER BALLARIN	26 STILLMAN ST #4-3	BOSTON	MA	02113
0302469046	26 STILLMAN #4-4	SURAN CAROLINA		C/O CAROLINA SURAN	26 STILLMAN ST #4-4	BOSTON	MA	02113
0302469048	26 STILLMAN ST #4	-5	LEE CHRISTOPHER B	C/O CHRISTOPHER B LEE	26 STILLMAN ST #4-5	BOSTON	MA	02113
0302469050	26 STILLMAN ST #5	-1	SHUR STEVEN E	C/O STEVEN SHUR	26 STILLMAN ST #5-1	BOSTON	MA	02113
0302469052	26 STILLMAN ST #5	-2	GEORGE DEIRDRE	C/O DEIRDRE GEORGE	26 STILLMAN ST # 5-2	BOSTON	MA	02113
0302469054	26 STILLMAN ST #5	-3	CANGIANO PAUL M		26 STILLMAN ST #5-3	BOSTON	MA	02113
0302469056	26 STILLMAN ST #5	-4	YARJAN ROCHELLE	C/O ROCHELLE YARJAN	26 STILLMAN ST #5-4	BOSTON	MA	02113
0302469058	26 STILLMAN ST #5	-5	OHAGAN JOHN G	C/O RYAN O'HAGAN	865 UNITED NATIONS PLAZA, 3B	NEW YORK	NY	10017
0302469060	26 STILLMAN ST #6	-1	NICOLA LEONE DEMAGISTRIS		26 STILLMAN ST #6-1	BOSTON	MA	02113
0302469062	26 STILLMAN ST #6	-2	HOFFMAN KIRSTEN L	C/O KIRSTEN L HOFFMAN	26 STILLMAN ST #6-2	BOSTON	MA	02113
0302469064	26 STILLMAN ST #6	-3	GARCIA ROD R		26 STILLMAN ST # 6-3	BOSTON	MA	02113
0302469066	26 STILLMAN ST #6	-4	OCONNOR CORNELIUS J		26 STILLMAN ST #6-4	BOSTON	MA	02113
0302469500	26 STILLMAN ST	CLEAR CHANNEL OUTDOOR INC		C/O CLEAR CHANNEL OUTDOOR INC	2201 EAST CAMELBACK SUITE-500	PHOENIX	AZ	85016
0302470000	24 22 STILLMAN ST	TWENTY4 STILLMAN STREET LLC			334 NORTH ST	BOSTON	MA	02113
0302471000	20 STILLMAN ST	TWENTY STILLMAN STREET LLC		C/O 20 STILLMAN ST LLC	334 NORTH ST	BOSTON	MA	02113
0302472000	18 STILLMAN ST	EIGHTEEN STILLMAN ST			18 STILLMAN ST	BOSTON	MA	02113
0302472002	18 STILLMAN ST #1	CASTELLUCCI FEDERICO TS			258 W NEWTON ST	BOSTON	MA	02116
0302472004	18 STILLMAN ST #2	CASTELLUCCI FEDERICO TS			258 W NEWTON ST	BOSTON	MA	02116
0302472006	18 STILLMAN ST #3	CASTELLUCCI FEDERICO TS			258 W NEWTON ST	BOSTON	MA	02116
0302472008	18 STILLMAN ST #4	CASTELLUCCI FEDERICO TS			258 W NEWETON ST	BOSTON	MA	02116
0302473000	16 STILLMAN ST	SIXTEEN STILLMAN STREET			16 STILLMAN ST	BOSTON	MA	02113
0302473002	16 STILLMAN ST #1	JENKINS JASON H		C/O JASON H JENKINS	16 STILLMAN ST #1	BOSTON	MA	02113
0302473004	16 STILLMAN ST #2	MITCHEL THOMAS R			16 STILLMAN ST #2	BOSTON	MA	02113
0302473006	16 STILLMAN ST #3	MEZER EDWARD JOSEPH		C/O EDWARD JOSEPH MEZER	16 STILLMAN #3	BOSTON	MA	02113
0302473008	16 STILLMAN ST #4	LYNCH MARCIA T		C/O MARCIA T LYNCH	33 CLINTON AV	S NYACK	NY	10960
0302476000	64 66 SALEM ST	SIXTY 4-66 SALEM ST CONDO TR		C/O RMC DEVELOPMENT CORP	P.O BOX 51182	BOSTON	MA	02205

0302476002	64 66 SALEM ST #C1	CAPRICORN 24 SERIES LLC	C/O CHRISTOPHER YOUNG	5 FREMONT ST	WINTHROP	MA	02152
0302476004	64 66 SALEM ST #2F	SHEEHAN PAMELA A TS	C/O STEPHEN G SHEEHAN	64-66 SALEM ST #2F	BOSTON	MA	02113
0302476006	64 66 SALEM ST #2R	ARRIGG FRED G	C/O FRED G ARRIGG	8 FARNHAM CI	ANDOVER	MA	01810
0302476008	64 66 SALEM ST #3F	ANGOFF MATTHEW	C/O MATTHEW ANGOFF	64-66 SALEM ST #3-F	BOSTON	MA	02113
0302476010	64 66 SALEM ST #3R	SHUMWAY KEVIN A	C/O KEVIN SHUMWAY	346 CONGRESS ST UNIT 502	BOSTON	MA	02210
0302476012	64 66 SALEM ST #4F	MAMARY MARYCATHERINE TS	C/O MARYCATHERINE MAMARY TS	93 MAIN STREET	HINGHAM	MA	02043
0302476014	64 66 SALEM ST #4R	ARRIGG FRED G	C/O FRED G ARRIGG	8 FARNHAM CI	ANDOVER	MA	01810
0302476016	64 66 SALEM ST #5F	GUIGLI MICHAEL P	C/O MICHAEL P GUIGLI	64-66 SALEM ST #5F	BOSTON	MA	02113
0302476018	64 66 SALEM ST #5R	INGALLS ABIGAIL D	C/O ABIGAIL D INGALLS	64-66 SALEM ST #5R	BOSTON	MA	02113
0302476020	64 66 SALEM ST #PH	1 ARRIGG FRED G JR	C/O FRED G ARRIGG JR	64-66 SALEM ST #PH 1	BOSTON	MA	02113
0302476022	64 66 SALEM ST #PH	2 TUCH STEVEN A	C/O STEVEN A TUCH	64-66 SALEM ST #PH 2	BOSTON	MA	02113
0302477000	62 SALEM ST	OMAR MOHAMED A TS	C/O MOHAMED A OMAR	60 SALEM ST	BOSTON	MA	02113
0302485000	19 STILLMAN ST	NINETEEN STILLMAN LLC	C/O 19 STILLMAN LLC	29 COMMONWEALTH AV	BOSTON	MA	02116
0302517000	34 COOPER ST	THIRTY-4 COOPER STREET LLC	C/O 34 COOPER STREET LLC	69 SALEM STREET 1ST FL	BOSTON	MA	02113
0302518000	73 75A ENDICOTT ST	CAPONE EDWARD TS	C/O JEFF CAPONE	73 ENDICOTT ST	BOSTON	MA	02113
0302519000	77 79 ENDICOTT ST	CAPONE EDWARD TS	C/O JEFF CAPONE	73 ENDICOTT ST	BOSTON	MA	02113
0302520000	83 ENDICOTT ST	EIGHTY1-83 ENDICOTT ST CONDO	C/O SALIL K MIDHA TS	83 ENDICOTT ST	BOSTON	MA	02113
0302520002	81 83 ENDICOTT ST	MIDHA SALIL K TS		17 ST THOMAS MORE DR	WINCHESTER	MA	01890
0302520004	81 83 ENDICOTT ST	#2 MIDHA SALIL K TS		17 ST THOMAS MORE DR	WINCHESTER	MA	01890
0302520006	81 83 ENDICOTT ST	#3 MIDHA SALIL K TS		17 ST THOMAS MORE DR	WINCHESTER	MA	01890
0302520008	81 83 ENDICOTT ST	#4 MIDHA SALIL K TS		17 ST THOMAS MORE DR	WINCHESTER	MA	01890
0302521000	87 89 ENDICOTT ST	MUCCIO SALVATORE J TS	C/O MARY COLLEAMENO	15 STILLMAN ST	BOSTON	MA	02113
0302522000	93 91 ENDICOTT ST	FARIA JOSE		93 ENDICOTT ST	BOSTON	MA	02113
0302523000	95 97 ENDICOTT ST	RUSSO JENNIE M	C/O JENNIE M RUSSO	97-95 ENDICOTT ST	BOSTON	MA	02113
0302524000	99 ENDICOTT ST	AGOSTINO GRETCHEN					
0302525000	101 ENDICOTT ST	DIMAURO JOANNE		4 FARNHAM PT RD	E BOOTHBAY	ME	04544
0302527000	74 76 ENDICOTT ST	DELFAVERO NINA TS	C/O DOMINIC TAVILLA	10 VIKING RD	WINCHESTER	MA	01890
0302528000	STILLMAN ST	ROBERTO FRANK TS		77 FOREST ST	MEDFORD	MA	02155
0302528003	STILLMAN ST	CITY OF BOSTON DPW		STILLMAN ST	BOSTON	MA	02113
0302529003	STILLMAN ST	CITY OF BOSTON		STILLMAN ST	BOSTON	MA	02113
0302529005	STILLMAN ST	ROBERTO FRANK TS	C/O FRANK ROBERTO	77 FOREST ST	MEDFORD	MA	02155
0302530000	2 STILLMAN PL	TWO STILLMAN PL CONDO TR		2 STILLMAN PL	BOSTON	MA	02113
0302530002	2 STILLMAN PL #1	GOEDEN BROOKE A	C/O BROOKE A GOEDEN	2 STILLMAN PL #1	BOSTON	MA	02113
0302530004	2 STILLMAN PL #2	MCMAHON DANIEL	C/O DANIEL MCMAHON	2 STILLMAN PL #2	BOSTON	MA	02113

0302530006	2 STILLMAN PL #3	BRENNAN MICHELLE	C/O MICHELLE BRENNAN	185 FORBES RD	WESTWOOD	MA	02090
0302530008	2 STILLMAN PL #4	DAVIS BRIGITTE LINDA	C/O BRIGITTE L DAVIS	2 STILLMAN PL #4	BOSTON	MA	02113
0302531000	3 STILLMAN PL	JEAN ELEANOR M		3 STILLMAN PL	BOSTON	MA	02113
0302532000	4 STILLMAN PL	MENDOZA-ITURRALDE JORGE		4 STILLMAN PL	BOSTON	MA	02113
0302533000	5 STILLMAN PL	FIVE STILLMAN PLACE	C/O FRANCIS MONKIEWICZ TS	5 STILLMAN PLACE	BOSTON	MA	02113
0302533002	5 STILLMAN PL #1	DANGELMAIER RALPH A	C/O RALPH A DANGELMAIER	38 SEARS RD	WESTON	MA	02493
0302533004	5 STILLMAN PL #2	ARDINI ANDREW TS	C/O ANDREW ARDINI TS	5 STILLMAN PL # 2	BOSTON	MA	02113
0302533006	5 STILLMAN PL #3	ONSTOTT AINSLEY C	C/O AINSLEY C ONSTOTT	5 STILLMAN PL # 3	BOSTON	MA	02113
0302533008	5 STILLMAN PL #4	MARCHESE ROBERT	C/O ROBERT MARCHESE	5 STILLMAN PL #4	BOSTON	MA	02113
0302534000	6 STILLMAN PL	CONLON DAVID L	C/O ANNE CONLON	PO BOX 1475	W DENNIS	MA	02670
0302535000	7 STILLMAN PL	SEVEN STILLMAN PL CONDO TR	C/O SEVEN STILLMAN PLACE LLC	87 TERRACE HALL AV	BURLINGTON	MA	01803
0302535002	7 STILLMAN PL #1	YACCARINO DANIEL M	C/O DNAIEL M YACCARINO	52 COOPER ST #1	BOSTON	MA	02113
0302535004	7 STILLMAN PL #2	ONEIL MARIAN		52 COOPER ST #2	BOSTON	MA	02113
0302535006	7 STILLMAN PL #3	MOSCHOS THOMAS W	C/O ATTY DM MOSCHOS	100 FRONT ST	WORCESTER	MA	01608
0302535008	7 STILLMAN PL #4	DRUMMY SEAN T	C/O SEAN T DRUMMY	7 STILLMAN PL #4	BOSTON	MA	02113
0302535010	7 STILLMAN PL #5	HATTON COLMAN	C/O COLMAN HATTON	52 COOPER ST #5	BOSTON	MA	02113
0302535012	7 STILLMAN PL #6	MACDONALD CRAIG E	C/O CRAIG E MACDONALD	52 COOPER ST #6	BOSTON	MA	02113
0302535014	7 STILLMAN PL #7	LAMONT SCOTT		52 COOPER ST #7	BOSTON	MA	02113
0302535016	7 STILLMAN PL #8	SOKOLOV ILYA	C/O ILYA SOKOLOV	52 COOPER ST # 8	BOSTON	MA	02113
0302535018	7 STILLMAN PL #9	LAUZON CECILE T	C/O CECILE LAUZON	52 COOPER ST #9	BOSTON	MA	02113
0302535020	7 STILLMAN PL #10	HENDERSON DAVID		52 COOPER ST #10	BOSTON	MA	02113
0302536000	46 COOPER ST	FORTY-SIX COOPER ST CONDO	C/O ANTHONY RANALDI TS	46 COOPER ST	BOSTON	MA	02113
0302536001	44 42 COOPER ST	LUPO KRISTINA T	C/O KRISTINA T LUPO	44 COOPER ST APT 2	BOSTON	MA	02113
0302536002	102 ENDICOTT ST	BUCCIO NOTARO PHYLLIS	C/O MARIA & PHYLLIS BUCCIO	155 WILLIS AVE	MEDFORD	MA	02155
0302536004	46 COOPER ST #1	CORMIER ROBERT		46 COOPER ST # 1	BOSTON	MA	02113
0302536006	46 COOPER ST #2	RUPP KENNETH S		46 COOPER ST # 2	BOSTON	MA	02113
0302536008	46 COOPER ST #3	TIPLADY NATHANIEL D	C/O NATHANIEL D TIPLADY	46 COOPER ST #3	BOSTON	MA	02113
0302536010	46 COOPER ST #4	NAPPI MICHAEL D		46 COOPER ST # 4	BOSTON	MA	02113
0302537000	98 100 ENDICOTT ST	CARUSO NANCY	C/O NANCY J CARUSO	100 ENDICOTT ST APT 2	BOSTON	MA	02113
0302538000	94 96 ENDICOTT ST	ROBERTO FRANK TS	C/O FRANK ROBERTO	77 FOREST ST	MEDFORD	MA	02155
0302539000	90 92 ENDICOTT ST	LITTLE LION LLC	C/O LITTLE LION LLC	25 BRADY LOOP	ANDOVER	MA	01810
0302540000	86 88 ENDICOTT ST	FRATTAROLI PHILIP A	C/O PHILIP A FRATTAROLI	86-88 ENDICOTT ST	BOSTON	MA	02113
0302541000	84 ENDICOTT ST	EIGHTY-4 ENDICOTT STREET	C/O ALAN L BARNET	28 MONUMENT CT	CHARLESTOWN	MA	02129
0302541002	84 ENDICOTT ST #1	MURPHY ERIN	C/O ERIN MURPHY	84 ENDICOTT ST #1	BOSTON	MA	02113

0302541004	84 ENDICOTT ST #2	PILIERE HOPE		84 ENDICOTT ST # 2	BOSTON	MA	02113
0302541006	84 ENDICOTT ST #3	WELLS CHRISTOPHER J		84 ENDICOTT ST	BOSTON	MA	02113
0302542000	82 82A ENDICOTT ST	FRENI MARIA		82 ENDICOTT	BOSTON	MA	02113
0302545000	N WASHINGTON ST	MICHELLE HOLDINGS LLC	C/O MICHELLE HOLDINGS	55 HENSHAW ST	BOSTON	MA	02135
0302545010	S COOPER ST	CITY OF BOSTON		COOPER ST	BOSTON	MA	02113
0302573000	136 BLACKSTONE	COMMONWEALTH OF MASS	C/O STATE TRANSPORTATION BLDG	10 PARK PLZ #6160	BOSTON	MA	02116
0302573001	136 BLACKSTONE ST	BOSTON PUBLIC MARKET					
0302573002	136 BLACKSTONE ST	BOSTON PUBLIC MARKET					
0302604000	CAMBRIDGE ST	BOSTON REDEVELOPMENT AUTH		CAMBRIDGE ST	BOSTON	MA	02114
0302605000	15 55 NEW SUDBURY	ST UNITED STATES OF AMER		15 NEW SUDBURY	BOSTON	MA	02114
0302617000	CONGRESS ST	BOSTON REDEVELOPMNT AUTH		CONGRESS	BOSTON	MA	02109
0302621000	15 NEW CHARDON	BRICKMAN ONE BOWDOIN LLC	C/O BRICKMAN ONE BOWDOIN LLC	712 FIFTH AVENUE	NEW YORK	NY	10019
0302622000	25 NEW CHARDON	TWENTY 5 NEW CHARDON ST LPS		250 FIRST AV #200	NEEDHAM	MA	02494
0302623000	40 HAWKINS ST	NEW ENGLAND TELEVISION CORP	C/O PAT JASPERR	7 BULFINCH PL	BOSTON	MA	02114
0302624000	30 HAWKINS ST	INTERCONTINENTAL I BULFINCH	C/O INTERNATIONAL I BULFINCH	1270 SOLDIERS FIELD RD	BRIGHTON	MA	02135
0302625000	HAWKINS ST	BOSTON REDVLPMNT AUTH		HAWKINS	BOSTON	MA	02114
0302626000	40 NEW SUDBURY ST	CITY OF BOSTON		40 NEW SUDBURY	BOSTON	MA	02114
0302627000	NEW SUDBURY ST	BOSTON REDVLPMNT AUTH		NEW SUDBURY	BOSTON	MA	02114
0302628000	65 CAMBRIDGE ST	NEW ENGLAND TEL & TEL CO	C/O PROPERTY TAX DEPT	PO BOX 152206	IRVING	TX	75015
0302640000	25 31 HAWKINS ST	BOSTON EDISON CO MASS	NSTAR ELECTRIC CO PROP TAX	PO BOX # 270	HARTFORD	CT	06141
0302641000	33 HAWKINS ST	BOSTON EDISON CO	NSTAR ELECTRIC CO PROP TAX	PO BOX # 270	HARTFORD	CT	06141
0302642000	35 HAWKINS ST	CITY OF BOSTON		35 HAWKINS	BOSTON	MA	02114
0302643000	HAWKINS ST	BOSTON REDEVLPMNT AUTH		HAWKINS	BOSTON	MA	02114
0302644000	41 43 HAWKINS ST	CITY OF BOSTON		41 HAWKINS	BOSTON	MA	02114
0302645000	31 NEW CHARDON	THIRTY ONE NEW CHARDON STREE	C/O SHELLY L MCPHEE	31 NEW CHARDON ST	BOSTON	MA	02114
0302646000	NEW CHARDON	BOSTON REDEVLPMNT AUTH		NEW CHARDON	BOSTON	MA	02114
0302647000	BOWKER ST	CITY OF BOSTON		BOWKER	BOSTON	MA	02114
0302700000	50 NEW SUDBURY ST	BULFINCH CONGRESS HOLDINGS	C/O HYM INVESTMENT GROUP LLC	ONE CONGRESS ST	BOSTON	MA	02104
0303308000	HANOVER ST	COMMONWEALTH OF MASS	STATE TRANSP BLDG	10 PARK PLZ	BOSTON	MA	02116
0303324000	BLACKSTONE ST	COMMONWEALTH OF MASS	STATE TRANSP BLDG	10 PARK PLZ	BOSTON	MA	02116
0303337000	7 9 MARSHALL ST	IBRAHAM ABDO		120 BLACKSTONE ST	BOSTON	MA	02109
0303347000	45 55 UNION ST	FIFTY FIVE UNION LLC		45 UNION ST	BOSTON	MA	02108
0303350000	145 149 HANOVER ST	BEN SHERI TS	C/O VALERIE POST	142 MARLBOROUGH ST	BOSTON	MA	02116

APPENDIX G: Disclosure Form

Note: The amended Disclosure Form will be filed under a separate cover.