36-70 Sprague Street, Readville

Project Notification Form

SUBMITTED BY:
OMB Sprague LLC, c/o The Noannet Group
40 Trinity Place | Boston, MA 02116

SUBMITTED TO:
Boston Planning and Development Agency
One City Hall Square | Boston, MA 02201

June 9, 2017

Project Notification Form

Submitted Pursuant to Article 80 of the Boston Zoning Code

36-70 SPRAGUE STREET, READVILLE

Submitted to:
Boston Planning and Development Agency
One City Hall Square
Boston, MA 02201

Submitted by:
OMB Sprague LLC
c/o The Noannet Group
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June 9, 2017

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Chapter 1.0

General Information

1.0 GENERAL INFORMATION

1.1 Introduction

OMB Sprague LLC (the Proponent) proposes to redevelop the approximately 6.62 acre site comprised of several parcels located at 36-40 Sprague Street and 50-70 Sprague Street in the Readville neighborhood of Boston (the Project site) into a groundbreaking residential/mixed-use transit-oriented development that will help fill the desperate need in our City for housing that is not targeted at the top or bottom ends of the economic spectrum—in other words, housing for the middle class.

The Project site currently contains several warehouse and maintenance buildings, which will be demolished and replaced with four new residential buildings ranging from five to eight stories, a restaurant space, multiple new open spaces including a new pondside park area that will be open to the greater Readville community, and extensive on-site amenities (the Project). The steep pitch of the Project site down from Sprague Street enables nearly all of the Project parking to be located under the buildings and the Project's plaza, therefore enabling the creation of nearly 2.5 acres of green space on the Project site. Additional parking will be located in a drop-off area and on a surface lot dedicated to the restaurant use and pondside park.

The Project will transform an underutilized warehouse site and truck maintenance yard into a vibrant space that enhances the surrounding community. Ideally located next to Readville Station, nearly surrounded by train tracks, bridges, light industrial space and Sprague Pond, the Project creates a smooth transition between the nearby single-family neighborhoods, the adjacent Boston-Dedham Commerce Park, and the Readville Yard 5 development.

With its pedestrian entrance directly adjacent to the Sprague Street Bridge to Readville Station, and large on-site shared workspace, oversized fitness center and other community spaces, this transit-oriented development has been designed at every step—from choice of location to orientation of access points to design of amenities—to attract non-vehicle-oriented residents, and reduce its impact on surrounding area roadways.

The Project is an example of the kind of development Mayor Walsh's housing plan is targeting: a transit-oriented development with quality middle-class housing. Target rents are proposed to be meaningfully below those in many new developments in the Seaport District, South End, Fenway and even Jamaica Plain, but the Project will include amenities and open space at a level seen in few if any new Boston apartment developments.

The Project will transform the site not only for new residents, but also for the existing neighborhood. Sprague Pond will become readily accessible to area residents for the first time in many decades, and the disturbed wetlands along the site's pond frontage will be restored. The currently fenced-off site frontage will be replaced by landscaping, new buildings and a restaurant to serve area residents, Commerce Park employees and visitors,

Project residents and the general public. The pondside park and restaurant will provide meeting places for Project and current area residents to interact, helping bring together the new residents and the greater community.

The Project team has committed to work with the City and State to help improve the area's difficult existing traffic situation. The Project's extensive open space will replace significant portions of this currently fully paved site with new pervious areas to improve stormwater management. Sixty-eight (13%) of the Project's 521 residential units will be affordable at 70% of Area Mean Income, thus making a meaningful dent in the City's affordable housing goals, as well as the middle-class housing goals that the Project as a whole will help address. Many new construction and permanent jobs will be created, and City tax revenues will increase.

This Project Notification Form (PNF) is being submitted to the Boston Redevelopment Authority doing business as Boston Planning and Development Agency (herein, the "BPDA") to initiate review of the Project under Article 80B, Large Project Review, of the Boston Zoning Code.

1.2 Project Identification and Team

Address/Location:	36-40 Sprague Street 50-70 Sprague Street
Proponent:	OMB Sprague LLC c/o The Noannet Group 40 Trinity Place Boston, MA 02116 (617) 933-7715 Jordan Warshaw Sujit Sitole
Architect:	Bargmann Hendrie + Archetype, Inc. 9 Channel Center Street, Suite 300 Boston, MA 02210 (617) 350-0450 Joel Bargmann Michael Fazio

Construction Manager:	Lee Kennedy Co., Inc. 122 Quincy Shore Drive Quincy, MA 02171 (617) 825-6930 Lee Kennedy Chris Pennie
Community Relations:	Jay Walsh (617) 293-8331
Legal Counsel:	Rubin and Rudman LLP 50 Rowes Wharf Boston, MA 02110 (617) 330-7000 James Greene Pulgini & Norton, LLP 294 Washington Street, #435 Boston, MA 02109 (617) 426-1244 John Pulgini
Owner's Project Manager:	KVAssociates, Inc. 303 Congress Street, 5th Floor Boston, MA 02110 (617) 695-0856 Frank Vanzler
Permitting Consultants:	Epsilon Associates, Inc. 3 Mill & Main Place, Suite 250 Maynard, MA 01754 (978) 897-7100 Geoff Starsiak
Transportation Consultant:	Vanasse Hangen Brustlin, Inc. 99 High Street, 10th Floor Boston, MA 02110 (617) 728-7777 David Bohn

Civil Engineer:	Nitsch Engineering 2 Center Plaza, Suite 430 Boston, MA 02108 (617) 338-0063 Deborah Danik
Wetlands Consultant:	Rimmer Environmental Consulting, LLC 57 Boston Road Newbury, MA 01950 (978) 463-9226 Mary Rimmer
Mechanical Engineer:	AHA Consulting Engineers 24 Hartwell Avenue, Third Floor Lexington, MA 02421 (781) 372-3000 Daniel Campia
LEED Consultant:	Sustainable Energy Analytics, LLC 4 Militia Drive, Suite 6 Lexington, MA 02421 (781) 652-8282 Jeffrey Rhodin

1.3 Public Benefits

The development of the Project will generate significant public benefits for the surrounding neighborhoods and the City of Boston as a whole, both during construction and on an ongoing basis upon its completion. These public benefits are listed below.

- The Project delivers much-needed housing for the middle class to the City, notably to a neighborhood that has not seen substantial new housing stock in decades.
- The Project is a transit-oriented community located directly adjacent to the Readville commuter rail station, creating meaningful smart growth for the City and limiting vehicular impact.
- With a target market of millennials and empty-nesters, the Project will bring hundreds of new residents in the demographics that are most likely to spend money at area businesses, helping draw new retailers to and helping to revitalize Cleary, Logan and Wolcott Squares.
- The Project redevelops an unattractive, underutilized former industrial area, replacing dilapidated warehouse buildings and a truck maintenance yard with new

residential buildings and connecting the residential neighborhoods surrounding the site to one another and to the Readville commuter rail station.

- The Project's architecture, featuring a modern take on classic industrial buildings with large, factory-style windows rather than generic multifamily architecture, will fit seamlessly into its context and help beautify the neighborhood without feeling out of place.

- The Project will be constructed to be certifiable under the Leadership in Energy and Environmental Design (LEED) rating system targeting the Silver level at minimum and potentially the Gold level if possible.

- The Project complies with the Inclusionary Development Policy by providing on-site affordable units, creating a mixed-income community.

- With site topography making possible parking primarily under the buildings, the Project creates a greener site than most comparable developments, with comparatively low impervious lot coverage and nearly 2.5 acres of green space.

- The Project provides space for a new neighborhood restaurant, which will be open to the public and help integrate the new development into the neighborhood.

- The Project creates the first public access to Sprague Pond in many decades, with attractive walking, picnic and seating areas that will be open to the greater community, further connecting new Project residents with the existing community.

- The Project creates substantial construction jobs as well as permanent jobs.

- The Project will result in significant new tax revenues for the City of Boston through significantly increased property values.

- The proposed "Readville Tower" at the Project's northern tip would create a new, Citgo-sign type landmark for the neighborhood that would be visible both from the train and area bridges.

1.4 Legal Information

1.4.1 Legal Judgments Adverse to the Proposed Project

The Proponent is unaware of any legal judgments which might be adverse to the proposed Project.

1.4.2 History of Tax Arrears on Property

The Proponent is unaware of any tax arrears on the property and current taxes have been paid to date.

1.4.3 Site Control/Public Easements

The Project site, consisting of approximately 6.62 acres, is under the control of the Proponent. On December 14, 2015, the Proponent acquired a portion of the Project site containing approximately 3.87 acres (168,577 square feet [sf]). The remaining portion of the Project site containing approximately 2.75 acres (119,705 sf) is under a land acquisition agreement with the present owner.

With respect to public easements through the Project site, portions of the site are impacted by takings for sewer, a 10-foot right-of-way, sidewalk widening, rights of way, and rights of others to use Horne Street. Portions of the Project site consist of land abutting on a railroad or formerly owned by a railroad.

1.5 Public Participation

The Proponent began neighborhood outreach back in 2015, before preparing plans for the Project or even hiring an architect. While still in due diligence to purchase the Project site, the Proponent began holding informal meetings with individuals and small groups of area residents and businesspeople to understand the local sentiment as to the desirability of a significant residential project in this area of Readville. As it became clear that many in the community were supportive of a revitalization of this site provided that impacts could be appropriately managed, the Proponent moved into preparation of the plans for the Project as well as various impact studies.

As the plans developed, the Proponent continued the small, informal meetings with many in the community to present the preliminary plans and obtain further input. As the plans developed further, the Proponent expanded its outreach to larger neighborhood organizations including Hyde Park Main Streets, the Hyde Park Board of Trade, Readville Neighborhood Watch, 54th Massachusetts Volunteer Regiment and Westinghouse Lofts Condominium Association. The Proponent followed up these meetings with a large community meeting for which it gave notice to the Readville neighborhood, as well as an additional community meeting for the nearby Dedham community members.

Input from both the small and large meetings has continued to inform the Project design. By way of example, early plans for the site had only access to Sprague Pond from within the site itself; the updated plans now propose a privately maintained public walking path, benches and picnic seating areas accessible from a parking area directly off Sprague Street so that the community can enjoy the pond for the first time in decades. The development of the pondside park will depend on obtaining the necessary permits and approvals for the Project and the pondside park improvements as well.

As another example, the Proponent learned that in addition to concerns about area traffic, particularly cut-through traffic that often ties up Wolcott Square, Hyde Park Avenue and the Father Hart Bridge during rush hour, many area residents are also unhappy with the pricing

and schedule issues that make Readville Station less attractive than the nearby Hyde Park and Fairmount Stations. Accordingly, in addition to doing expansive traffic studies to help evaluate ways to improve vehicular traffic in the area, the Proponent is also working with the MBTA to try to improve pricing and schedule at Readville Station.

The Proponent continues to meet with individuals and groups from the Readville and greater Hyde Park residential and business communities, and plans to continue these meetings throughout its design, planning and development review process. Many community members have had their voices heard in the planning of the Project, and that will continue throughout the development process.

Chapter 2.0

Project Description

2.0 PROJECT DESCRIPTION

2.1 Project Description

2.1.1 Project Site

The approximately 6.62-acre Project site, located in the Readville neighborhood of Boston, is comprised of several parcels located at 36-40 Sprague Street and 50-70 Sprague Street (see Figure 2-1). The Project site is generally bound by Sprague Street to the west; the MBTA Franklin Line to the north; the MBTA Providence/ Stoughton Line to the east; and Sprague Pond, a residential property and the Brinks site to the south. The site currently contains several two to three-story industrial buildings, surface parking and paved areas. See Figure 2-1 for an aerial map of the Project site and Figure 2-2 for existing conditions on the site.

2.1.2 Area Context

The area surrounding the Project site includes a mix of industrial, commercial and residential uses. Boston Dedham Commerce Park is located to the west of the site. This area includes one to two-story industrial and commercial buildings surrounded by paved areas used for parking. Residential neighborhoods are located to the northwest separated by the MBTA Franklin Line and Readville Station to the north, and to the east separated by the MBTA Providence/ Stoughton Line. Sprague Pond and residential neighborhoods are located to the south.

2.1.3 Proposed Project

The Project includes approximately 556,625 sf within four new buildings identified as Buildings 1 through 4. In total, the Project will include approximately 5,980 sf of restaurant space (approximately 150 seats), approximately 521 residential units and amenity spaces (approximately 550,645 sf) and approximately 532 parking spaces, including 492 parking spaces below the residential buildings and plazas, 34 surface parking spaces for the restaurant and pondside park, and 6 spaces for drop off and short term parking. In the event that additional parking is required, the Proponent has had preliminary discussions with the City of Boston regarding the purchase or utilization of a landlocked City of Boston parcel between Buildings 3 and 4 and the railroad right-of-way that would accommodate an additional 30 parking spaces, subject to BPDA and City approval. The program will be allocated to Buildings 1 through 4 as shown in Table 2-1 and described below. Figures 2-3 to 2-13 at the end of this chapter show a site plan, floor plans, and perspectives of the Project.

Table 2-1 Project Program

Project Element	Approximate Dimension
Building 1	
Residential	129,633 sf / 123 units
Restaurant	5,980 sf
Number of Stories	5
Height	
Zoning Code[1]	42 feet
Above Plaza Level	56 feet
Building 2	
Residential	165,863 sf / 157 units
Number of Stories	7
Height	
Zoning Code[1]	64 feet
Above Plaza Level	78 feet
Building 3	
Residential	122,694 sf / 113 units
Number of Stories	8
Height	
Zoning Code[1]	93 feet
Above Plaza Level	108 feet
Building 4	
Residential	132,455 sf / 128 units
Number of Stories	7
Height	
Zoning Code[1]	64 feet
Above Plaza Level	78 feet
Parking	
Garage	492 spaces
Surface (Restaurant and Pondside Park)	34 spaces
Surface (Drop-off and Resident Use)	6 spaces

[1] Based on adjacent grades, as defined in Article 2A of the Boston Zoning Code.

Building 1: Located on the southwest corner of the site on Sprague Street, this five story building will include restaurant space, leasing offices, and approximately 17 units on the first floor, with an additional 106 residential units above. To the south of the building will be new landscaped open space with outdoor dining for the restaurant, as well as a surface parking lot with parking spaces dedicated to use by visitors to the pondside park and patrons of the restaurant. To the east of the building will be private patios and a landscaped shared courtyard with BBQ grills and outdoor table and lounge seating for residents accessed through a common lounge amenity space. The courtyard opens to a large central courtyard green space with active and passive activities connecting all four buildings.

Building 2: Located to the north of Building 1 and separated by private patios and a shared landscaped "pocket park", this seven story building will include the Project's gym and indoor basketball court and approximately 17 residential units on the first floor with an additional 140 residential units above. To the east of the building will be private patios and a landscaped shared courtyard with BBQ grills and outdoor table and lounge seating for residents that opens to the central courtyard green space.

Building 3: Located at the northern tip of the site, northeast of Building 2 and due north of Building 4, and featuring the jewelbox-like two-story pavilion housing the Project's shared workspace as well as a coffee house and sports lounge, Building 3 will be at the fulcrum of the entire site. Wrapping around the landscaped "Town Square" with outdoor seating that anchors the north end of the central courtyard green space with views of Sprague Pond to the south, this eight story building will also contain approximately six residential units on the first floor, with an additional 107 residential units above. A landscaped "bridge" is located to the west of the Town Square and allows access onto the site from Sprague Street directly across the Sprague Street bridge from Readville Station. A rooftop amenity space including a pool, hot tub, dining/entertainment area, indoor and outdoor lounges and restrooms will be located on the roof of Building 3 offering views of the Blue Hills to the east and the Boston skyline to the north.

Building 4: Located to the east of Building 2 and separated by the central courtyard green space this seven story building will include a daycare and approximately 18 residential units on the First Floor with an additional 110 residential units above. To the west of the building will be a landscaped shared courtyard with BBQ grills and outdoor table and lounge seating for residents that opens to the central courtyard green space.

Green Space

The site is currently primarily comprised of buildings, paved parking areas for vehicles and construction equipment, and supply staging areas. These paved areas collectively cover nearly 90% of the total site area. Presently, "green space" unpaved areas on the existing site amount to only 12.8% of the site. The vast majority of this space is on the steep slope along Sprague Street on the northwest edge of the Project site and is not usable other than for stormwater retention due to the grade of the slope. The site currently does not have a managed drainage system, and run-off from the site that is directed towards Sprague Pond is not contained or treated.

The proposed development when fully constructed will increase the green area of the site to approximately 36% of the total site area. This represents an increase of approximately 66,890 sf (over 1.5 acres) of green space as compared with the current condition (approximately 103,820 sf of green space following completion of the Project as compared with approximately 36,930 sf of green space today). In addition, following completion of the Project, all runoff from developed areas will be managed into a stormwater

management system, and the majority of the green space on the site will be able to be enjoyed by residents and visitors.

Green space for both the existing and proposed conditions is calculated to the edge of paved areas, as shown on Exhibits 1 and 2 of Figure 2-14 at the end of this chapter.

2.2 City of Boston Zoning

The Project site, containing approximately 6.62 acres of land area (288,282 sf), is located in the Hyde Park Neighborhood District, Article 69 of the Boston Zoning Code ("Code"). A majority of the site is located within the Local Industrial subdistrict (LI-1) and a small portion of the site is located within the 1F-6000 residential subdistrict near the Boston/Dedham line.

The Project's multi-family residential uses and the supporting retail/restaurant, day care, gym and workshare uses with accessory parking are either not allowed, conditional or limited within both districts. As currently contemplated, the Project will consist of four buildings with heights of five, seven and eight stories (approximately 70 feet to 129 feet) with a zoning height not to exceed 130 feet. The proposed total gross floor area (zoning) is approximately 556,625 sf resulting in a floor area ratio (FAR) for the Project of approximately 1.9 (556,625 sf/288,282 sf = 1.9). Article 69 of the Code limits FAR in both the Residential and Local Industrial subdistricts to 0.3 and 1.0.

Since the use and the dimensional requirements with respect to height and FAR are not consistent with the underlying zoning requirements, the Project will require Zoning Relief from the provisions of Article 69 of the Code. In addition, the Project is subject to demolition delay under Article 85 of the Code since the existing buildings are over fifty years old.

Article 80 Review

The proposed Project is subject to review by the BPDA pursuant to Article 80B, Large Project Review of the Code. The Project will require Zoning Relief in the form of variances, conditional use permits or other form of Zoning Relief as to be determined through the development review process of Article 80 of the Code. Depending upon the final program for the Project, additional Zoning Relief may be required.

2.3 Anticipated Permits and Approvals

Table 2-2 presents a preliminary list of permits and approvals from governmental agencies that are expected to be required for the Project, based on currently available information. It is possible that only some of these permits or actions will be required, or that additional permits or actions will be required.

Table 2-2 Anticipated Permits and Approvals

Agency	Approval
Local	
Boston Civic Design Commission	Design Review
Boston Committee on Licenses	Parking Garage Permit and Fuel Storage License
Boston Conservation Commission	Approval of construction within 100 feet of Sprague Pond
Boston Employment Commission	Construction Employment Plan
Boston Fire Department	Approval of Fire Safety Equipment; Fuel Oil Storage Permit (if required)
Boston Inspectional Services Department	Building Permit; Other construction-related permits; Certificates of Occupancy
Boston Landmarks Commission	Article 85 Demolition Delay Review; Design Review
Boston Parks and Recreation	Approval of Construction Within 100 feet of a Park
Boston Public Works Department	Curb Cut Permit(s); Sidewalk Occupancy Permit (as required)
Boston Redevelopment Authority	Article 80B Large Project Review; Cooperation Agreement; Affordable Housing Agreement;
Boston Transportation Department	Transportation Access Plan Agreement; Construction Management Agreement
Boston Water and Sewer Commission	Site Plan Review; Water and Sewer connection permits
Office of Jobs and Community Services	Permanent Employment Agreement (as required)
Public Improvement Commission	Specific Repair Plan
State	
Department of Environmental Protection	Notification of Demolition and Construction
Massachusetts Department of Transportation	Chapter 40, Section 54A Approval of Buildings within a Former Railroad Right-of-way
Executive Office of Energy and Environmental Affairs (MEPA Office)	Secretary's Certificate
Federal	
Environmental Protection Agency	NPDES General Construction Permit

2.4 Schedule

Construction of the Project is expected to commence in mid-2018. Construction is expected to take approximately 18-24 months, provided, however, that it is likely that construction of the buildings will be staggered, so as not to have all of the residential units be presented to the leasing market all at once, and also so as to provide building completions at the appropriate times of year so as to optimize building lease-up. This

timeframe is anticipated to consist of approximately 2-3 months of mobilization, utility work and demolition, followed by approximately 14-17 months per building for each of the buildings (the larger of the buildings being at the longer end of the expected timeframe). Depending on the gaps between start times of each of the buildings, the total construction duration may be longer than the 18-24 months that would be required if the buildings were constructed concurrently.

36-70 Sprague Street Readville, Massachusetts

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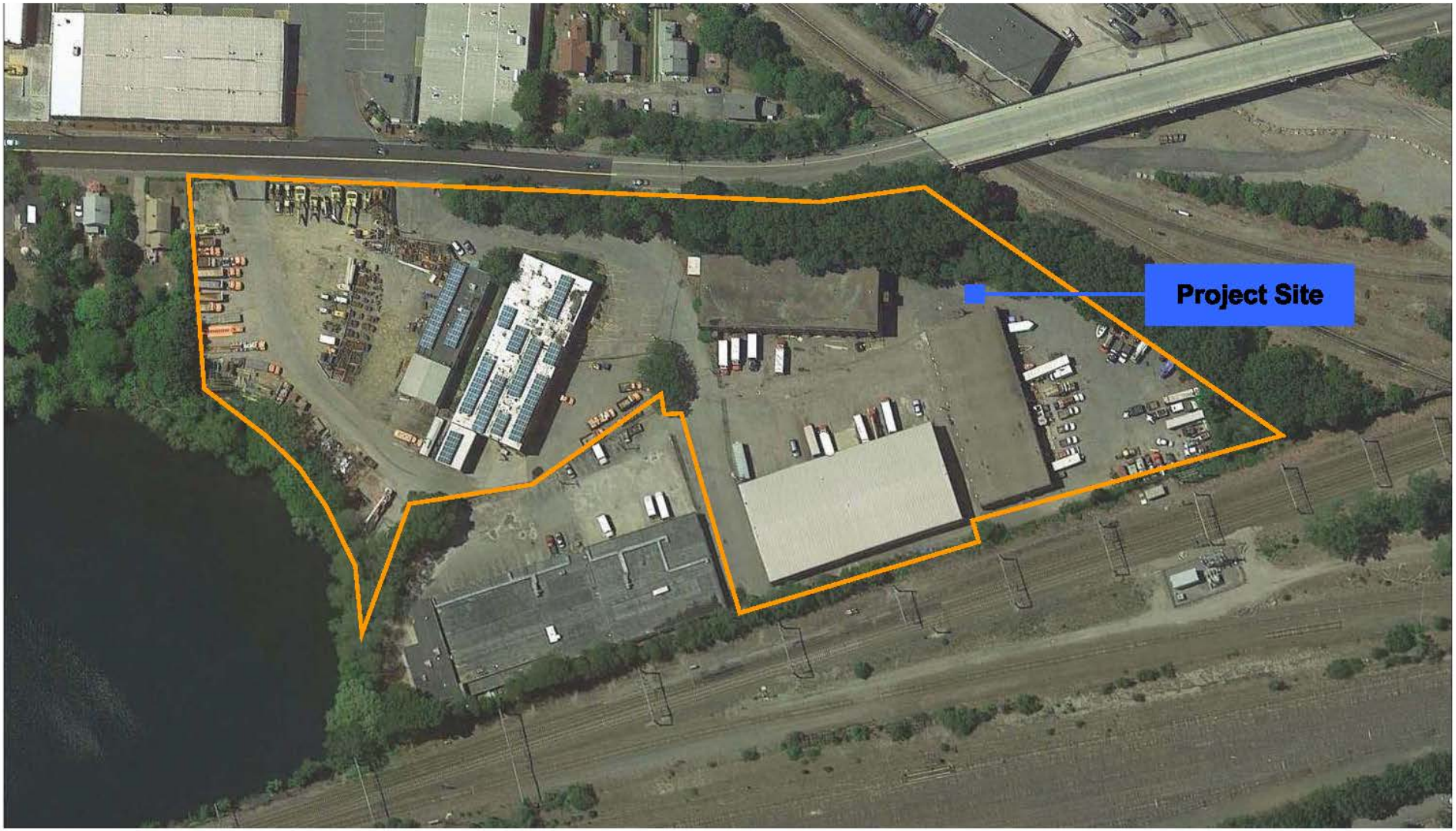
Figure 2-1
Aerial Map



36-70 Sprague Street Readville, Massachusetts

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Figure 2-2

Existing Conditions

36-70 Sprague Street Readville, Massachusetts

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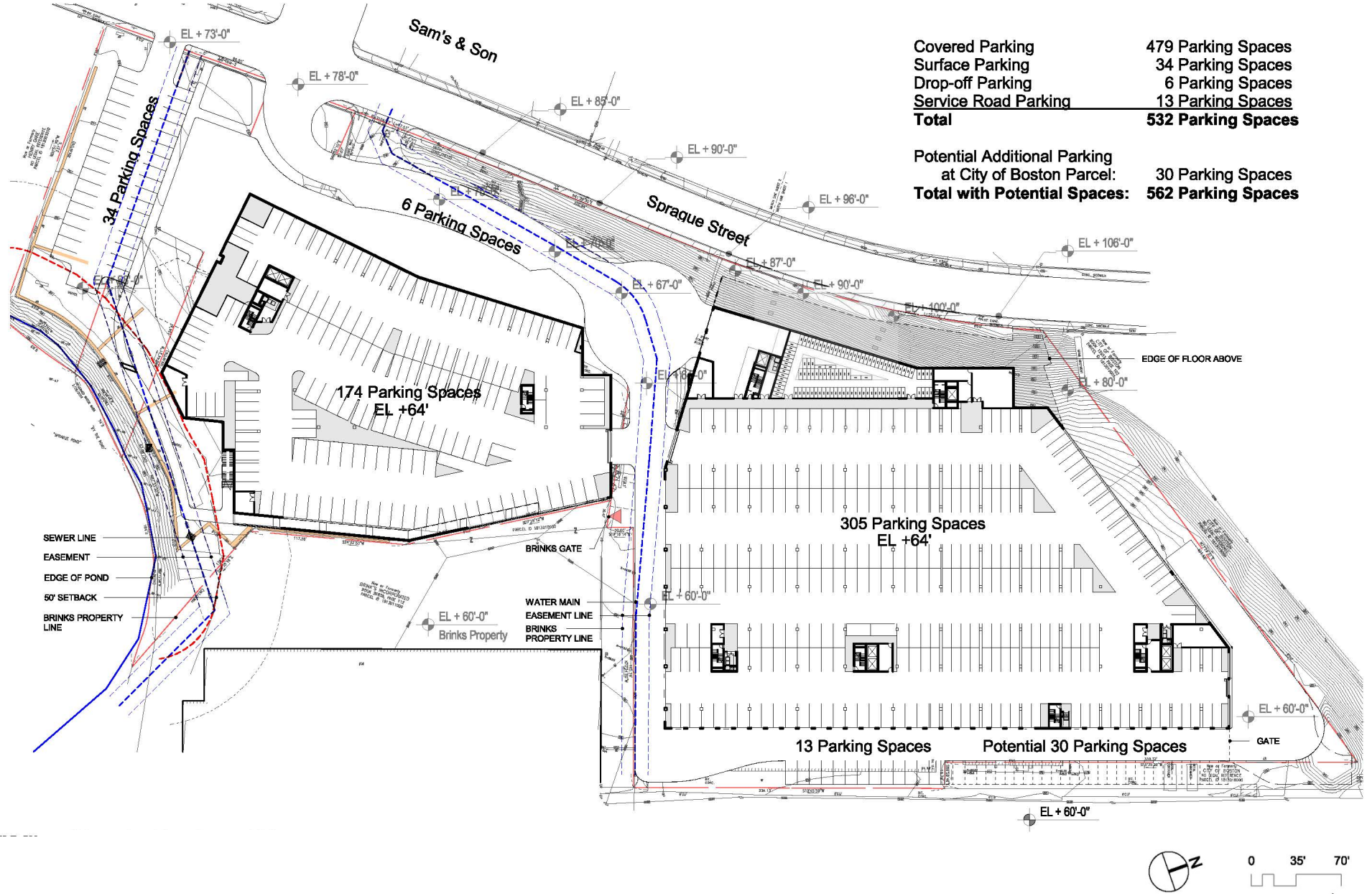
Figure 2-3
Site Plan



36-70 Sprague Street Readville, Massachusetts

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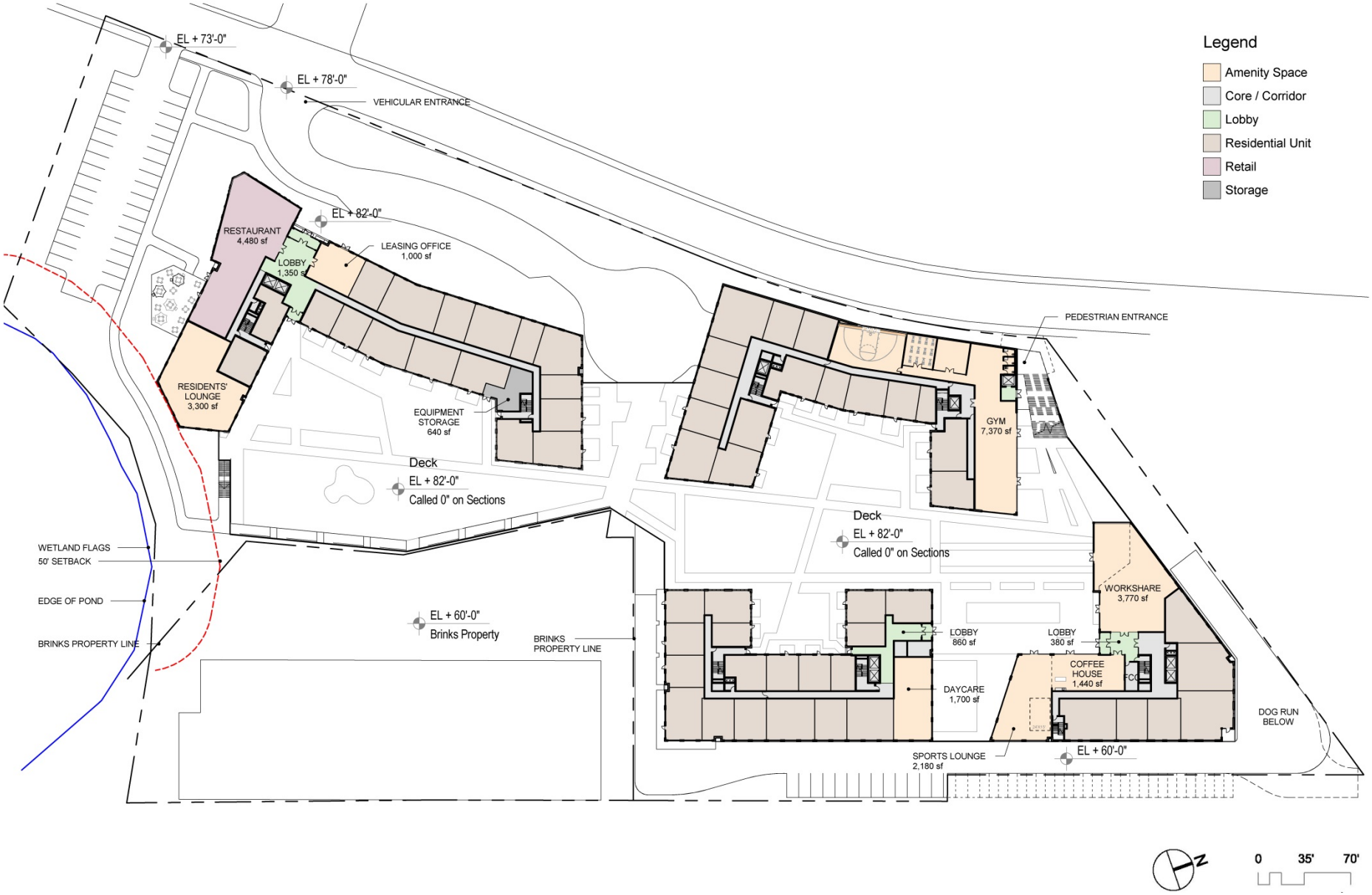
Figure 2-4

Parking Level Plan



36-70 Sprague Street Readville, Massachusetts

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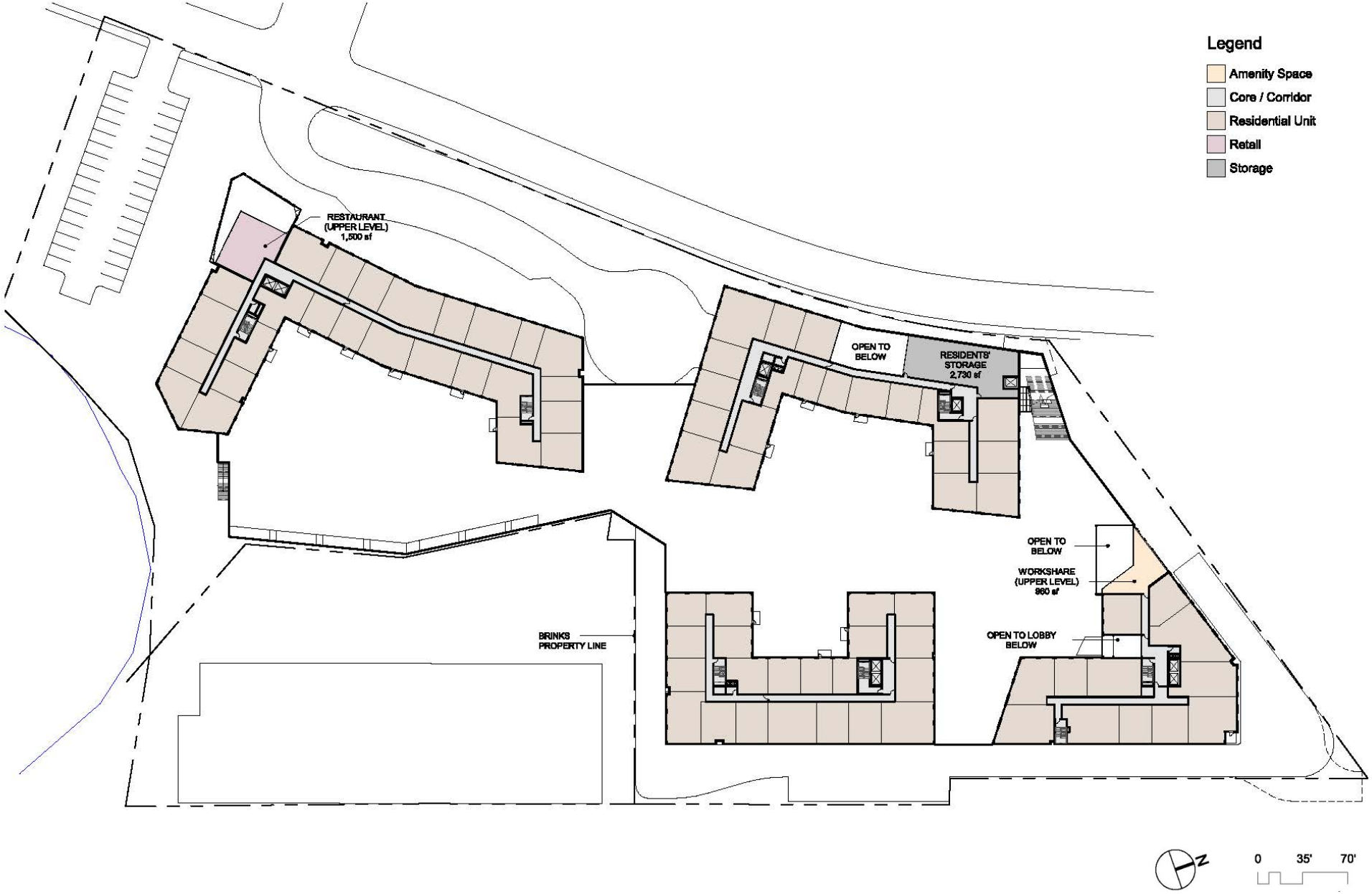
Figure 2-5

Courtyard First Floor Plan



36-70 Sprague Street Readville, Massachusetts

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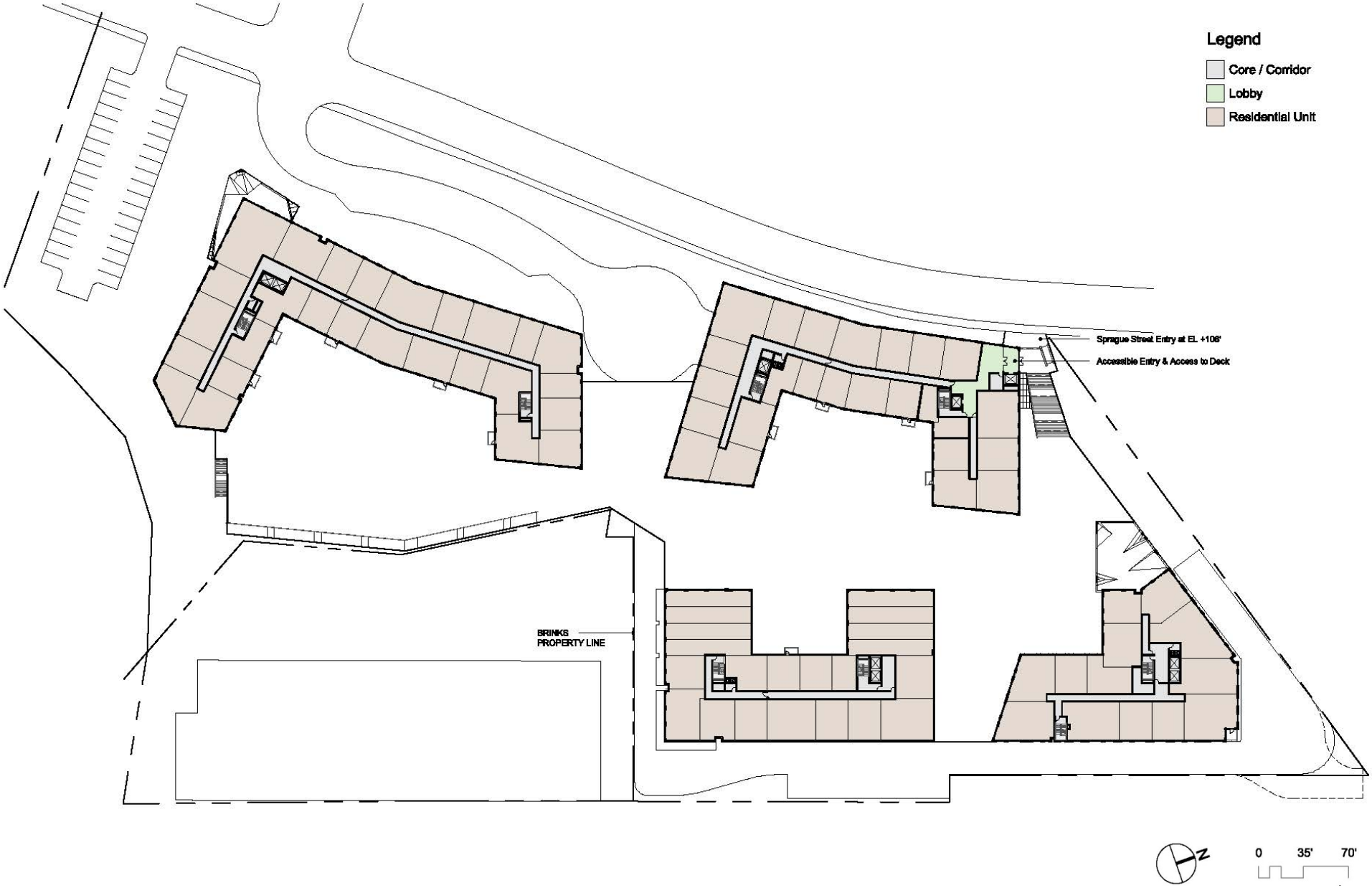
Figure 2-6

Second Floor Plan



36-70 Sprague Street Readville, Massachusetts

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Figure 2-7
Third Floor Plan

36-70 Sprague Street Readville, Massachusetts

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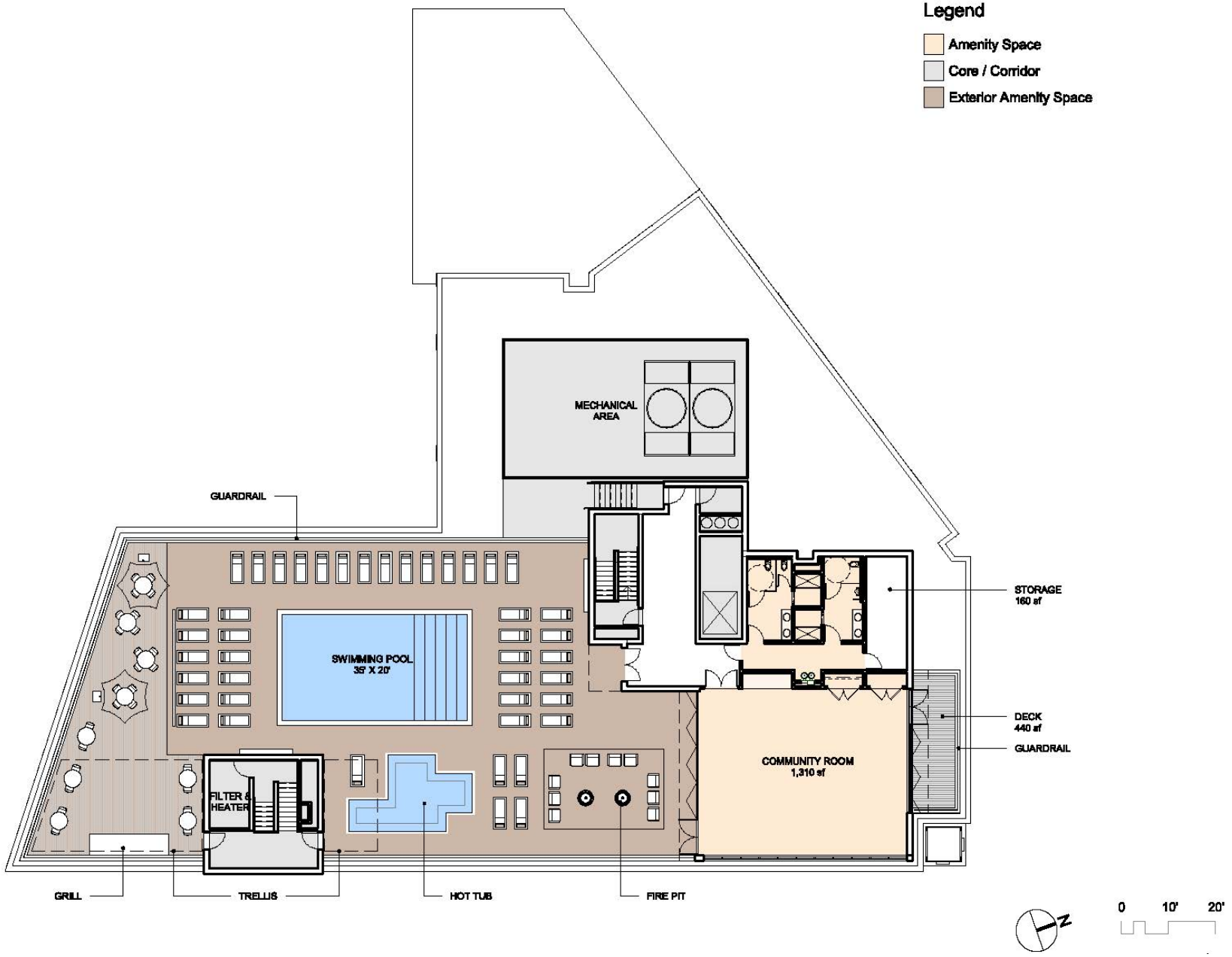
Figure 2-8

Typical Floor Plan



36-70 Sprague Street Readville, Massachusetts

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Figure 2-9

Building 3 Roof Plan

36-70 Sprague Street Readville, Massachusetts

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Figure 2-10

Perspective from Sprague Pond

36-70 Sprague Street Readville, Massachusetts

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Figure 2-11

Perspective from Sprague Street

36-70 Sprague Street **Readville, Massachusetts**

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Figure 2-12

Perspective from the Courtyard

36-70 Sprague Street Readville, Massachusetts

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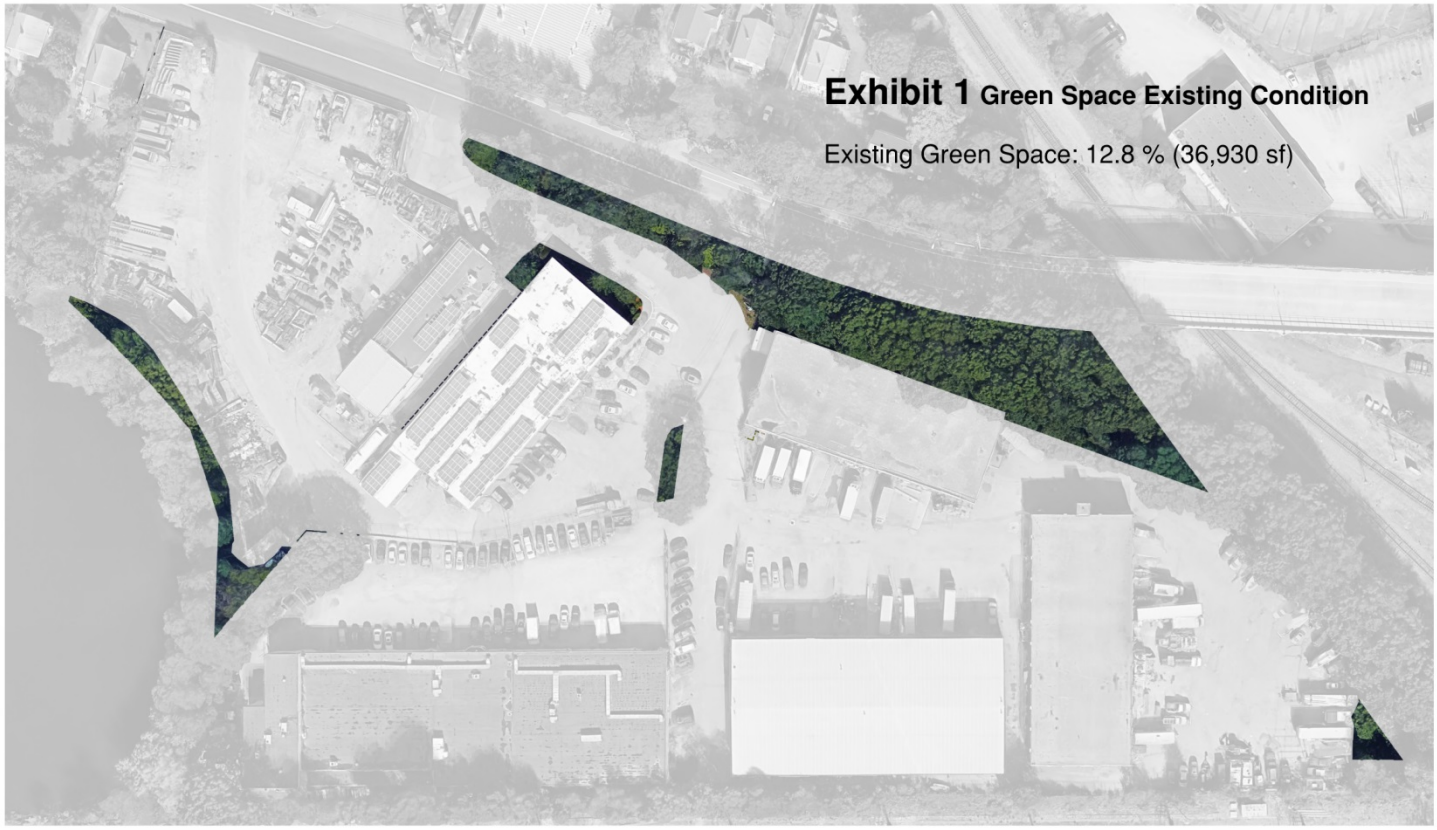
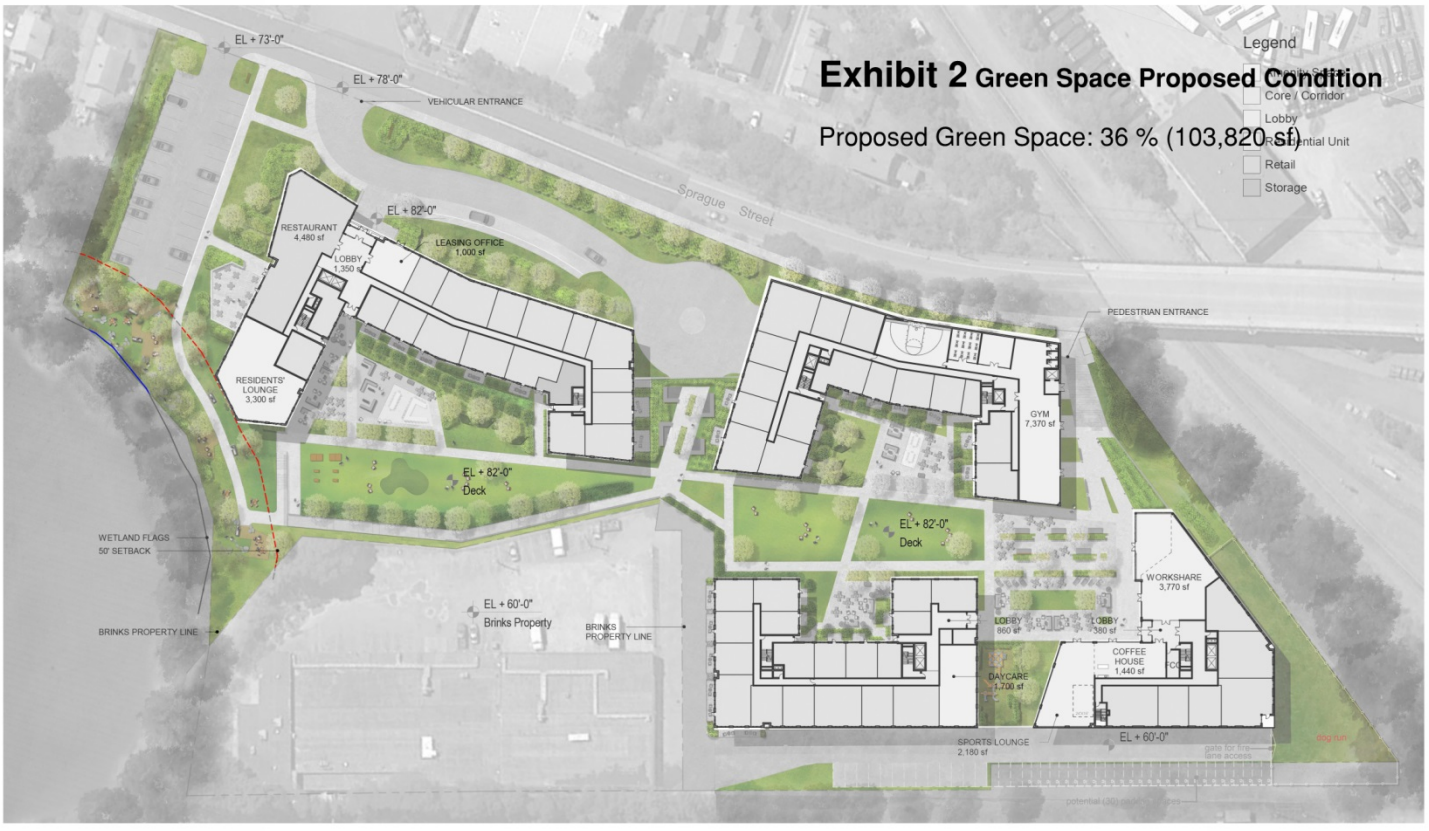
Figure 2-13

Perspective at North Entry





36-70 Sprague Street Readville, Massachusetts

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Figure 2-14
Green Space Comparison

Chapter 3.0

Transportation

3.0 TRANSPORTATION

This chapter provides a detailed and comprehensive evaluation of the existing and proposed transportation conditions in the study area, and identifies the expected traffic impacts as a result of construction of the Project. The analysis captures in detail the operational characteristics of the Project, and it provides a basis for determining the extent Project-related traffic is likely to affect the wider transportation network.

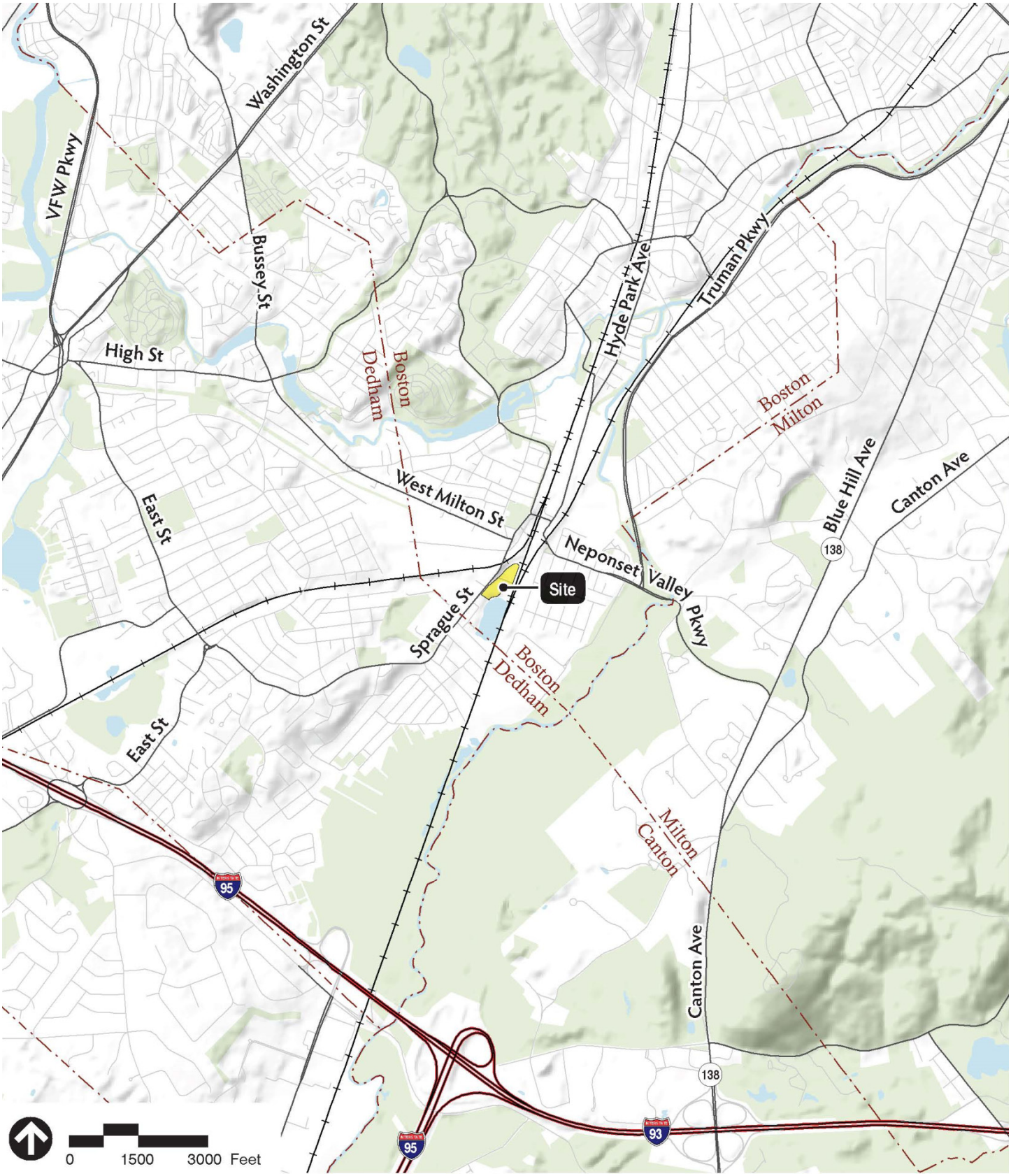
3.1 Project Overview

The Project site is composed of several parcels located at 36-40 Sprague Street and 50-70 Sprague Street adjacent to the MBTA's Readville commuter rail station on Sprague Street in Hyde Park near the Boston/Dedham line, as shown in Figure 3-1. The Project site contains approximately 6.6 acres, and is separated by Horne Street, a roadway which provides access to Sprague Street, as shown in Figure 3-2. The Proponent proposes to construct four residential buildings with a total of approximately 550,645 sf of residential space and 5,980 sf of restaurant space in the southwest corner of the site. The Project will provide approximately 521 units (53 studio, 234 one-bedroom, 208 two-bedroom, and 26 three-bedroom units). The Project will provide approximately 532 parking spaces, including 492 parking spaces below the residential buildings and plazas, 34 surface parking spaces for the restaurant and pondside park, and 6 spaces for drop off and short term parking. Vehicle access to the site driveway and restaurant parking lot will be provided off of Sprague Street. In the event that additional parking is required, the Proponent has had preliminary discussions with the City of Boston regarding the purchase or utilization of a landlocked City of Boston parcel between Buildings 3 and 4 and the railroad right-of-way that would accommodate an additional 30 parking spaces, subject to BPDA and City approval. A site plan is illustrated in Figure 3-3.

A summary of the proposed uses for the Project is provided in Table 3-1 below.

Table 3-1 Project Development Program

Land Use	Size
Residential	521 units
Restaurant	5,980 sf
Parking	532 spaces



36-70 Sprague Street Readville, Massachusetts

Figure 3-1
Regional Context

36-70 Sprague Street Readville, Massachusetts

Figure 3-2
Local Context

36-70 Sprague Street Readville, Massachusetts

Figure 3-3
Site Plan

3.2 Summary of Findings

VHB has conducted a comprehensive transportation study to define existing traffic conditions in the Project study area. Seven intersections were monitored, and data regarding traffic volumes, pedestrian and bicycle activity, and operating conditions were collected. In addition, 24-hour traffic counts were taken over the course of four different days to help establish the traffic baseline.

The Proponent recognizes the traffic challenges experienced by area residents and businesses. Many local streets feel the effects of regional cut-through traffic during the morning and evening peak periods. Drivers seeking to avoid I-95 or I-93 use both Neponset Valley Parkway and Sprague Street, leading to what can be long delays on local streets. The challenges are exacerbated by the lack of lane markings and signalization. Drivers turning at both ends of the Father Hart Bridge (Milton Street) without benefit of any traffic control devices to control movements frequently block one another, adding to congestion. To compound matters, MBTA buses U-turn at Wolcott Square. Recognizing all of these factors is an important element to understanding the effects of Project traffic. Plans are in progress by the Proponents of Readville Yard 5 (a previously approved but yet unbuilt development) for designing a series of intersection improvements that signalize both ends of the Father Hart Bridge (Milton Street).

The City of Boston has recognized that the traffic congestion situation from the Father Hart Bridge through Wolcott Square is an existing problem independent of what happens on the Project site. To help address the existing situation, Mayor Walsh and City Councilor Tim McCarthy first announced in in March, 2017 the expenditure of $75,000 to fund an independent traffic study of Wolcott Square and surrounding area traffic. This announcement was very quickly thereafter followed in April, 2017 by the even more significant announcement by Mayor Walsh and Councilor McCarthy that the City would expend an additional $1.4 million to signalize both ends of the Father Hart Bridge and upgrade the existing signals in Wolcott Square. These steps are expected to materially improve existing traffic conditions in the immediate area of the Project.

This study contains an explanation of the process used to estimate how much new traffic can be expected with the Project. Two approaches were taken, the first being a traditional analytical approach following procedures generally prescribed by the Boston Transportation Department (BTD). This traditional method relies on the Institute of Transportation Engineers (ITE) trip generation manual and its published trip rates. Because the ITE rates represent national rather than local travel characteristics, a traditional BTD methodology with respect to local neighborhood modal split characteristics and vehicle occupancy rates was applied in this first approach.

Because the traditional methodology does not take into account factors such as the site's very close proximity to transit, the important Project elements that have been developed and targeted to reduce automobile usage, and the expected demographics of the site's

tenants, VHB has also prepared a second, site-specific traffic generation analysis that takes into account the Project's design as a "Transit Oriented Development" directly adjacent to a large commuter rail station served by multiple train lines.

The analysis then describes the procedures followed to estimate and account for background traffic growth, including Readville Yard 5. Finally, the analysis section concludes with an evaluation of traffic operations where level of service (LOS) is calculated.

The Proponent has already had extensive discussions with community members regarding the neighborhood traffic situation, and is committed to continuing to work with the City and the community to develop a thorough, comprehensive, and appropriate traffic mitigation plan. Key elements of the plan are the following:

- A thoughtful site design that makes walking to/from neighborhood services easy.
- Implementation of measures to encourage the use of public transit especially during peak periods to take advantage of the Project's proximity to multiple commuter rail service lines at the site.
- Construction of a new pedestrian connection to Sprague Street at the site's northern border to provide the shortest possible walk to the Readville MBTA Station and Wolcott Square.
- The incorporation into the Project of a large, two-story "Workshare" space with associated amenities such as a coffee shop and lounge, to make the Project especially attractive to the increasing number of (especially young) residents who work from home and do not commute at all.
- Establishment of a strong Travel Demand Management program, overseen by an on-site Transportation Coordinator.
- Coordination with the City of Boston on, and potential contribution to the cost of, design and/or construction costs associated with signalization improvements at the Father Hart Bridge.
- Coordination with the City of Boston on, and potential contribution towards the cost of, design of improvements for the Wolcott Square and the Sprague Street/West Milton Street intersections.
- Extensive on-site bicycle parking and an on-site bicycle maintenance facility.

Even using the traditional traffic forecasting methodology that relies on ITE trip generation rates and the broader neighborhood mode split ratios the Project is expected to generate only 205 vehicle trips (42 entering and 163 exiting) during the morning peak hour. That equates to just over three cars per minute, dispersed in several directions. During the

evening peak hour, the traditional traffic forecasting methodology estimates the Project will generate 280 vehicle trips (183 in and 97 out). This equates to approximately 4.5 cars per minute, again dispersed from multiple directions. Expected traffic volume increases (using the traditional methodology) at nearby intersections were calculated; the increase at Wolcott Square is estimated from a transportation perspective to be three percent over the future No-Build Condition for both the morning and evening peak hours. The analysis indicates that there will be no substantial changes in the signalized intersection level of service at Wolcott Square from Project-related traffic. An analysis of unsignalized intersection level of service at the study area intersections indicates that any changes in level of service between the No-Build and Build conditions will be very limited using the traditional methodology.

At every location studied (other than at the site driveway), the impact of the Project, in terms of percent increase in entering traffic, will be less than the traffic increases due to background growth and the previously approved Readville Yard 5 development, even using the traditional traffic forecasting approach without taking TOD considerations into account. When TOD considerations are taken into effect, this impact is expected to be even less.

The residential parking will be limited to residents of the building, and the surface parking lot will be only for visitors to the pondside park and customers of the restaurant. Secure, covered bicycle storage and outdoor, public bike parking will be provided consistent with City of Boston Bike Parking Guidelines.

3.3 Study Methodology

The analysis presented in this Chapter provides a detailed description of the Project's transportation characteristics and evaluates key impacts to the area's transportation infrastructure. The transportation analysis presented in this chapter conforms to the Boston Transportation Department (BTD) Transportation Access Plans Guidelines.

The transportation analysis includes the estimation of Project-related trips based on Institute of Transportation Engineers (ITE) Trip Generation rates. Local travel characteristics established through the Access Boston 2000-2010 initiative were applied to estimate Project travel patterns. Synchro 8 software was used for the traffic operations evaluation based on Highway Capacity Manual[1] (HCM) methodologies.

3.3.1 Traffic Study Area

Based on the Project program and the surrounding vehicular network, seven study intersections were identified. As shown in Figure 3-4, the following intersections were included in the study area for the analysis:

[1] Highway Capacity Manual; Transportation Research Board; Washington D.C.; 2000.

1. Sprague Street at Industrial Park Driveway (unsignalized)
2. Sprague Street at Sprague Place/Horne Street (unsignalized)
3. Sprague Street at West Milton Street/Milton Street (unsignalized)
4. Milton Street at Neponset Valley Parkway (unsignalized)
5. Hyde Park Avenue at Milton Street/MBTA Driveway (unsignalized)
6. Hyde Park Avenue at Neponset Valley Parkway/Wolcott Court/Wolcott Square (signalized)
7. Milton Street at Industrial Drive/MBTA Parking (unsignalized)

3.3.2 Analysis Conditions

The transportation analysis considered the following analysis scenarios:

- **2016 Existing Condition** – based on traffic data collection conducted within the study area in March 2016. Generally consistent with the Massachusetts Department of Transportation (MassDOT) TIA Guidelines and standard practice in Boston, to be deemed current, the traffic volume data must be collected within two-years of the TIA initial submittal.

- **2021 No-Build Condition** – future conditions for a five-year time horizon as expected to occur if the Project was not constructed.

- **2021 Build Condition** – future conditions for a five-year time horizon assuming construction and full occupancy of the Project.

- **2021 Build Mitigated Condition** – future conditions for a five-year time horizon assuming construction and full occupancy of the Project with intersection improvements.

3.4 2016 Existing Conditions

This section describes existing transportation conditions, including an overview of roadway conditions, transit, pedestrian and bicycle facilities, and general site conditions.

3.4.1 Roadways

The Project site is located east of Sprague Street, with Milton Street to the north and Hyde Park Avenue across the Northeast Corridor railroad tracks to the east.

Sprague Street connects East and Cedar Streets in the west to the Readville neighborhood in the east. It terminates at its intersection with West Milton Street. The segment of Sprague Street bordering the Project site consists of one lane in each direction, and no parking is allowed along the street. The street is approximately 33 feet wide, and sidewalks are available along both sides of the street.

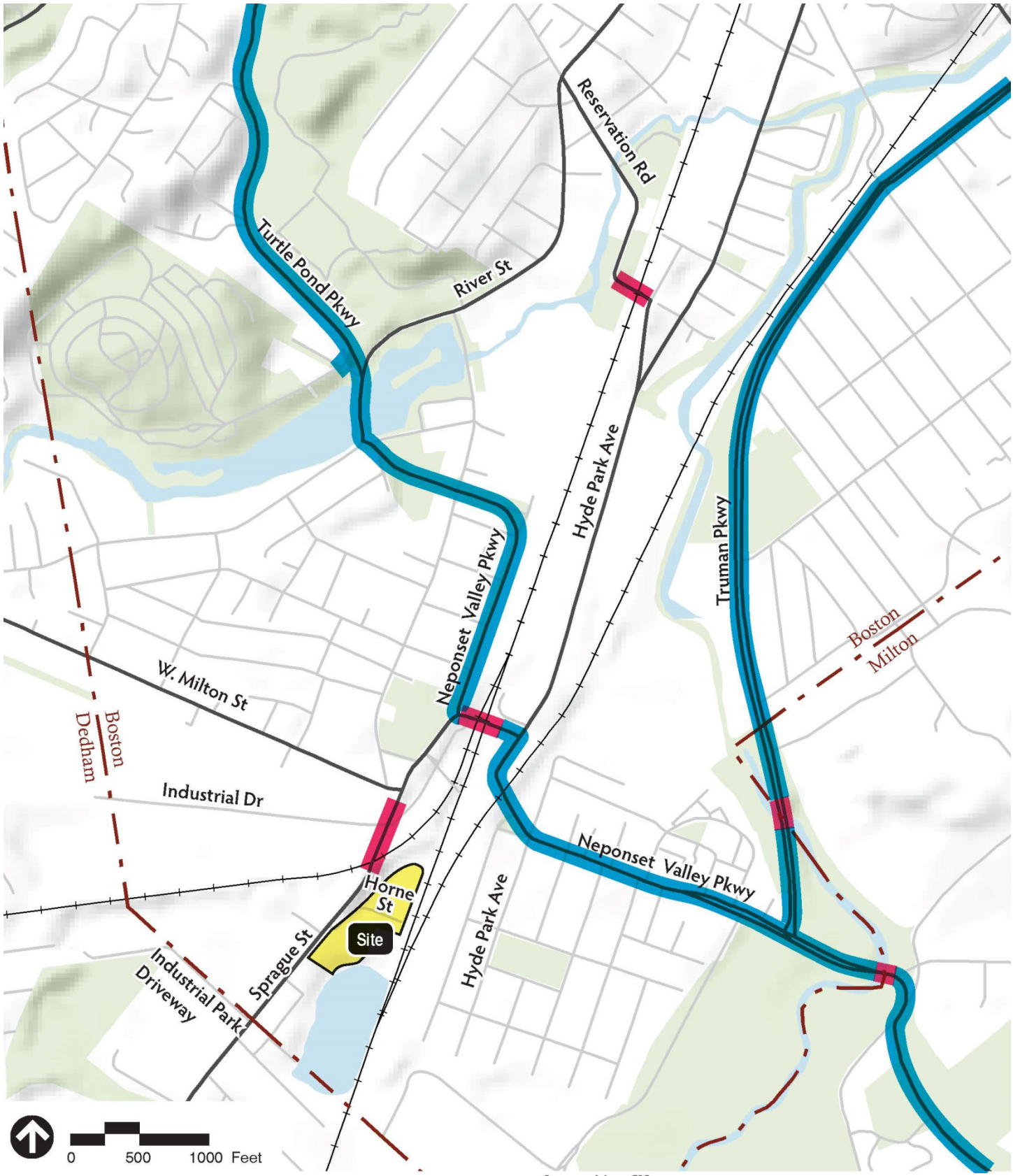


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Figure 3-4
State Roadway Jurisdiction

Milton Street connects Sprague Street and Hyde Park Avenue via the Father Hart Bridge across the railroad tracks. The roadway provides one travel lane in each direction. Along Milton Street is a driveway for the MBTA Readville Station parking lot. No parking is allowed along Milton Street, and there are sidewalks along both sides of the street.

Hyde Park Avenue connects Forest Hills in Jamaica Plain to the north with Wolcott Square. It is a two-way roadway with one travel lane in each direction with wide travel lanes of approximately 18 feet with additional striped shoulder markings on both sides of approximately two feet. No parking is allowed along Hyde Park Avenue. Sidewalks are provided along both sides of the street.

Neponset Valley Parkway is broken into two segments within Hyde Park. The northern segment connects River Street to the north with Milton Street to the south on the west side of the railroad tracks, and the eastern segment connects Wolcott Square to the west with Blue Hill Avenue to the east. The roadway is two-way with one travel lane in each direction. Sidewalks are provided along both sides of the roadway in both segments within the study area.

The roadways that comprise the study area are controlled by three different entities. These entities are the Department of Conservation and Recreation (DCR), the MassDOT, and the City of Boston. Figure 3-5 shows the roadway jurisdiction in the area and through the study area intersections.

3.4.2 Study Area Intersections

The study area consists of seven study intersections previously shown in Figure 3-4 and which are described below. Traffic operations and level of service (LOS) analysis are presented later in this chapter.

Sprague Street at Industrial Park Driveway – The intersection of Sprague Street at Industrial Park Driveway is a three-legged, unsignalized intersection to the southwest of the Project site. Sprague Street runs generally north/south, and the Industrial Park Driveway runs east/west. Industrial Park Driveway is a dead-end roadway serving several industrial parcels. There is no stop sign present at the driveway entrance/exit, but for analysis purposes, this approach is treated as stop-controlled; Sprague Street has free-flow conditions. Although crosswalks are not provided at this intersection, sidewalks are provided at the intersection approaches.

Sprague Street at Sprague Place/Horne Street – The intersection of Sprague Street at Sprague Place/Horne Street is a four-legged, offset, and unsignalized intersection located at the proposed driveway entrance to the Project. Sprague Place is a driveway for the Boston Dedham Commerce Park and extends west from the intersection. Horne Street extends east from the intersection into the Project site. Both of these site entrance/exit driveways have

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Figure 3-5
Study Area Intersections

one general purpose travel lane, and are stop-controlled (although a stop sign and a painted stop bar are not provided at the approaches). Sprague Street runs north/south and operates at free-flow. Crosswalks are not provided at this intersection, but sidewalks are provided at each of the intersection approaches.

Sprague Street at West Milton Street/Milton Street – The intersection of Sprague Street at West Milton Street/Milton Street is a three-legged, unsignalized intersection located to the north of the Project. All three intersection approaches are stop-controlled. Sprague Street and West Milton Street have one travel lane in each direction, and the Milton Street southbound approach has one right-turn only lane and one through lane. Crosswalks are provided at the Milton Street southbound and West Milton eastbound approaches. Sidewalks are provided along both sides of all approaches to the intersection.

Milton Street at Neponset Valley Parkway – The intersection of Milton Street at Neponset Valley Parkway is a three-legged, unsignalized intersection north of the Project site. Milton Street features one lane of travel in each direction. Neponset Valley Parkway features one travel lane in each direction and the roadway becomes Milton Street south of the Father Hart Bridge. A crosswalk is provided only at the Father Hart Bridge approach; sidewalks are provided along all intersection approaches.

Hyde Park Avenue at Milton Street/MBTA Driveway – The intersection of Hyde Park Avenue at Milton Street/MBTA Driveway is a four-legged, unsignalized intersection to the northeast of the Project. Hyde Park Avenue runs north/south with one travel lane in each direction. This intersection is located on the eastern end of the Father Hart Bridge (Milton Street), and it is stop-controlled at the bridge approach. The Milton Street eastbound approach has one marked travel lane, but the lane is wide enough at the intersection to allow for vehicles turning right to create a second lane. The MBTA Driveway westbound approach has one travel lane and is stop-controlled. A crosswalk is provided only across the Father Hard Bridge (Milton Street) approach, and sidewalks are provided along all sides of the intersection approaches.

Hyde Park Avenue at Neponset Valley Parkway/Wolcott Court/Wolcott Square – The intersection of Hyde Park Avenue at Neponset Valley Parkway/Wolcott Square/Wolcott Court is a five-legged, signalized intersection located east of the Project. The Hyde Park Avenue northbound approach has one travel lane. The Wolcott Court southbound approach has a channelized right-turn lane onto Hyde Park Avenue that is stop-controlled and a through lane. The Hyde Park Avenue eastbound approach has a single travel lane with an MBTA bus stop at the intersection approach. Wolcott Square has a single travel lane with parking allowed on both sides of the approach. Neponset Valley Parkway westbound approach has a single travel lane in each direction. Crosswalks and sidewalks are provided across all intersection approaches.

Milton Street at Industrial Drive/MBTA Parking – The intersection of Milton Street at Industrial Drive/MBTA Parking is a three-legged, unsignalized intersection located north of the Project. The Industrial Drive/MBTA Parking approach is stop-controlled, and although the approach does not have striped lane markings, it likely operates as a shared right-turn/left-turn approach lane to Milton Street. Milton Street has one travel lane north/south and it is free-flow. There is no parking allowed at the intersection approaches. Crosswalks are available at all approaches with sidewalks on both sides.

Perspectives on Existing Traffic Conditions in the Neighborhood

The neighborhood experiences considerable volumes and queuing during the morning and evening peak hours as commuters travel through Wolcott Square and over the Father Hart Bridge on Milton Street. This route is often used as a cut-through by drivers seeking to avoid congestion on I-95and I-93. Due to the large volumes of regional traffic passing through, this reduces opportunities for drivers to turn at stop-controlled intersection approaches and driveways. A series of travel time runs were conducted through the area during both morning and evening peak hours on Tuesday, June 14, 2016, from the Neponset Valley Parkway east of the site to Neponset Valley Parkway north of the Father Hart Bridge. This roadway segment is approximately one-quarter of a mile long and runs through both sections of Readville east and north of the site. Drivers seeking to avoid I-95 or I-93 use Neponset Valley Parkway and/or Sprague Street, leading to what can be long delays on local streets. The challenges are exacerbated by the lack of lane markings and signalization at both ends of the Father Hart Bridge (Milton Street). Drivers turning at both ends of the Father Hart Bridge without benefit of these controls frequently block one another, adding to congestion. As a result, traveling the quarter mile distance through Wolcott Square, over the Father Hart Bridge to the northern portion of the Neponset Valley Parkway during peak hour periods can take upwards of 5 and even 10 minutes in both directions, and the entire ride from Route 138 through Wolcott Square to and from the northern portion of the Neponset Valley Parkway (approximately 1.5 miles) can sometimes take much longer depending on congestion along I-93/I-95 and the number of drivers diverting through the neighborhood to avoid congestion on the regional highway system.

3.4.3 Data Collection

To properly assess the traffic conditions of the surrounding street network, traffic data was collected on multiple days in March and June, 2016. In addition, this data was compared with and found to be consistent with traffic data collected as part of the Readville Yard 5 permitting process in 2014.

Manual turning movement counts (TMCs) were collected at the study area intersections. TMCs were collected on Wednesday, March 30, 2016 during a typical weekday morning peak commuter period (7:00 a.m. – 9:00 a.m.) and evening peak commuter period (4:00 p.m. – 6:00 p.m.). Since the counts were completed while the area schools were in session, no further adjustments were made.

The TMCs were used to establish the study area network peak hour volumes for the 2016 Existing Condition analysis. The weekday morning peak hour was determined to be 7:15 a.m. to 8:15 a.m., and the weekday evening peak hour from 4:30 p.m. to 5:30 p.m. The existing morning peak hour traffic volumes are shown in Figure 3-6, and the existing evening peak hour traffic volumes are shown in Figure 3-7. Pedestrian morning and evening peak volumes are shown in Figure 3-8 and Figure 3-9, respectively. Bicycle morning peak volumes are shown in Figure 3-10, and the evening peak hour bicycle volumes are shown in Figure 3-11.

In comparison to the traffic volumes found in the Readville Yard 5[2] report from 2014, the TMCs from March 2016 reflect similar trends in movements during the peak hours with only slight volume variations. The bicycle and pedestrian activity in the area was also similar, demonstrating consistency over the past few years in this neighborhood.

Automatic Traffic Recorder (ATR) counts were performed on Wednesday, March 20, 2016, and Thursday, March 31, 2016. An additional set of ATR data was collected on Wednesday, June 22, 2016, and Thursday, June 23, 2016. The location of the counts was on Sprague Street just north of Horne Street, and vehicles traveling in both directions were counted.

The ATR data collected in June was used to help verify previous information and confirm the accuracy of the counts taken in March. The June data is slightly higher than the March data, but the same peak hour trends are apparent. It should be noted that Boston Public Schools had an early release on Thursday, June 23, 2016 and the last day of school was on Friday, June 24, 2016, so all counts were taken while schools were still in session. On all four days, northbound traffic was higher than southbound. Total volumes on Sprague Street ranged between approximately 10,250 – 11,050 vehicles. A summary of these four days of traffic count data is shown in Table 3-2. The raw count data are included in Appendix B.

[2] http://www.bostonredevelopmentauthority.org/getattachment/d0010560-6cae-4b78-a61d-11afe13cd4ad

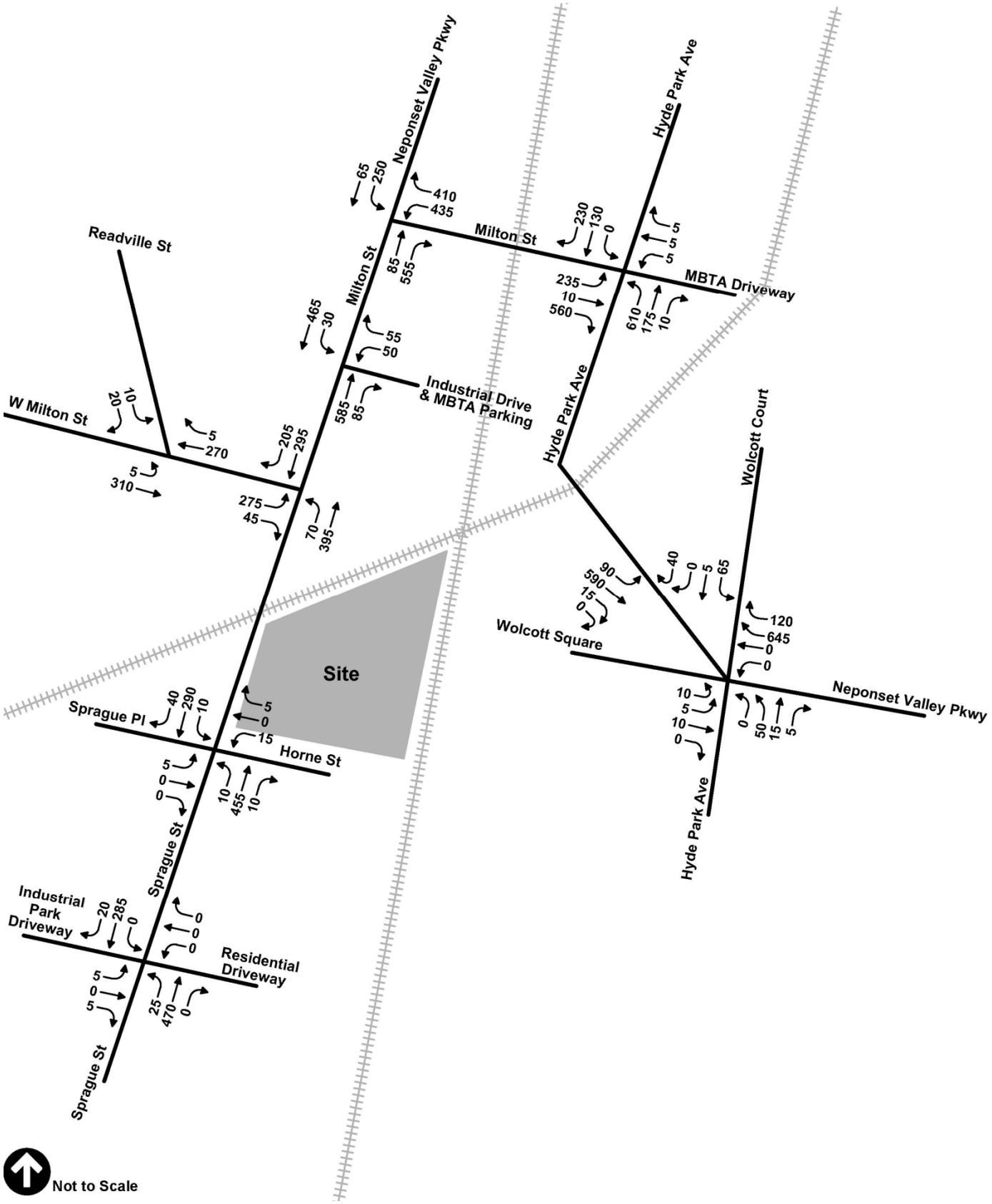

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Figure 3-6
2016 Existing Condition Traffic Volumes
AM Peak Hour (7:15 a.m. – 8:15 a.m.)

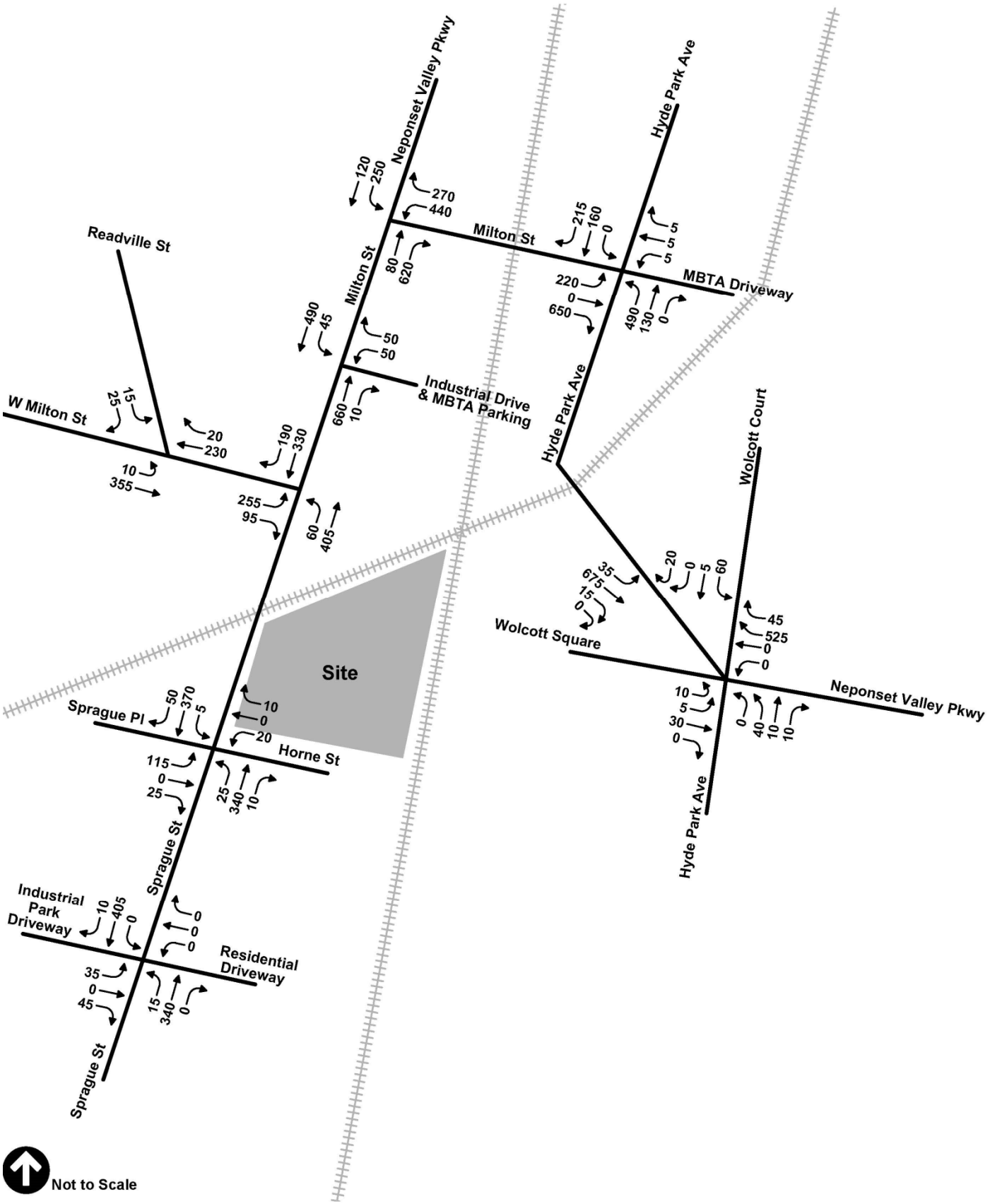

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Figure 3-7
2016 Existing Condition Traffic Volumes
PM Peak Hour (4:30 p.m. – 5:30 p.m.)

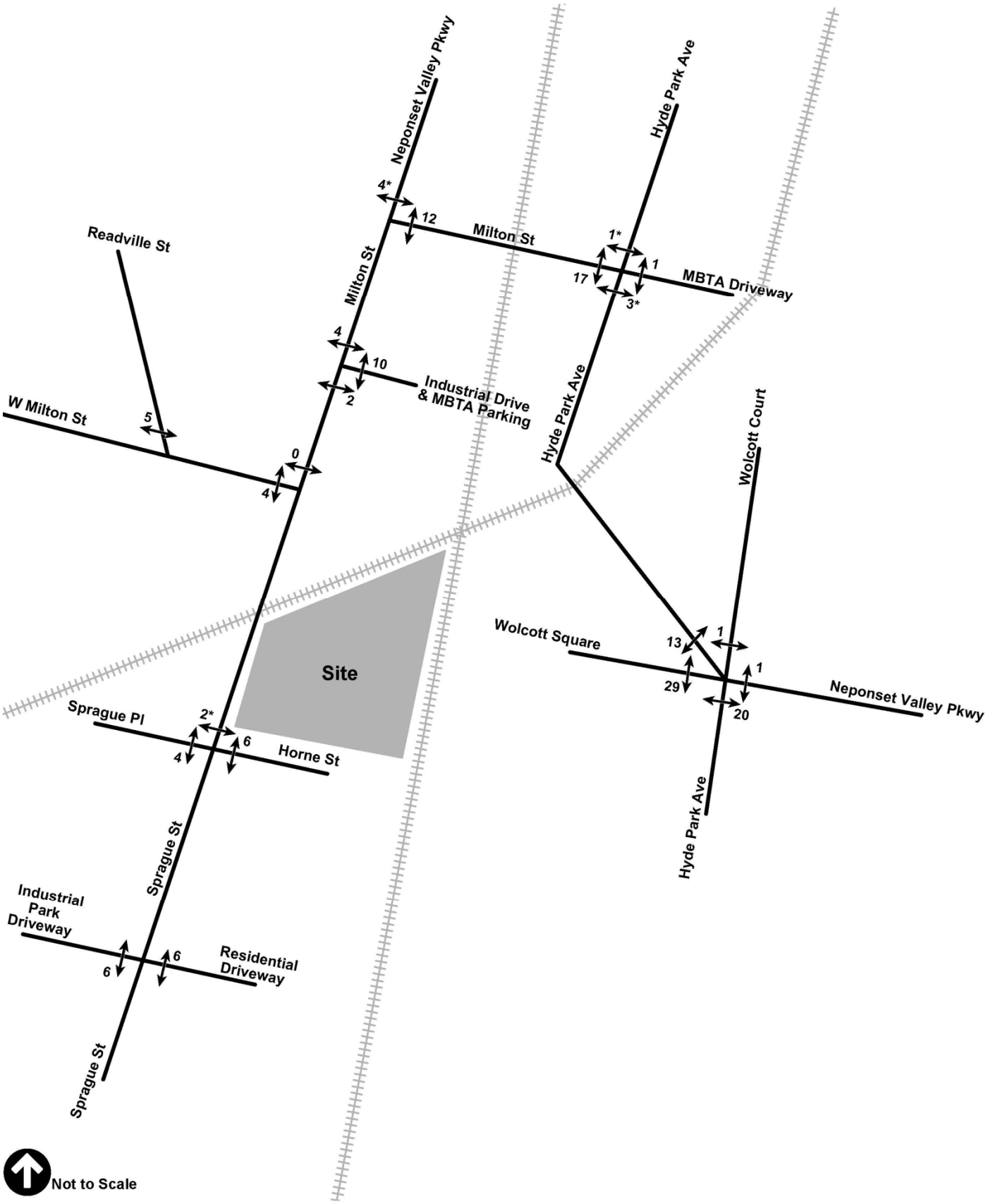

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Figure 3-8
2016 Existing Condition Pedestrian Volumes
AM Peak Hour (7:15 a.m. – 8:15 a.m.)

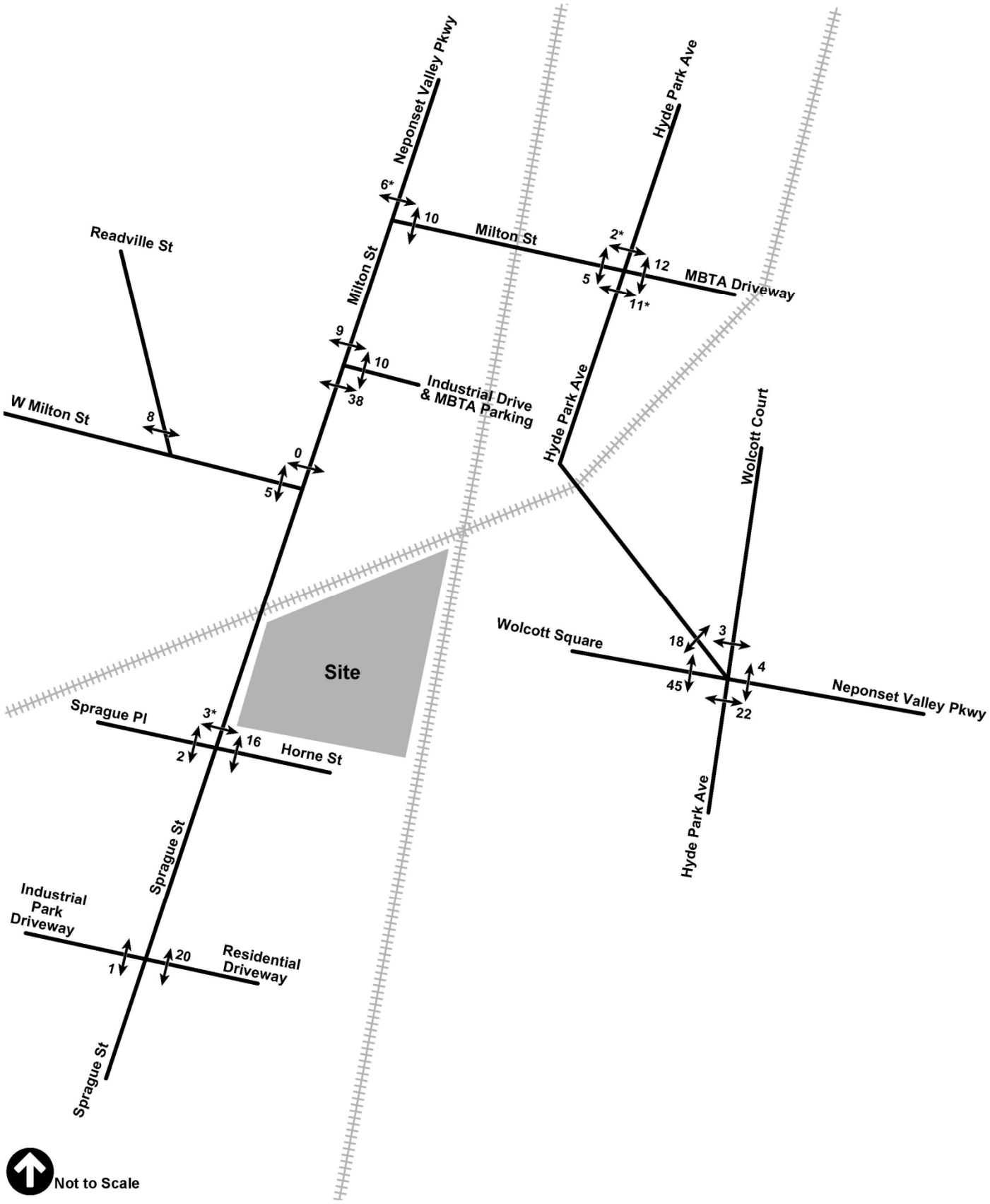

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Figure 3-9

2016 Existing Condition Pedestrian Volumes
PM Peak Hour (4:30 p.m. – 5:30 p.m.)

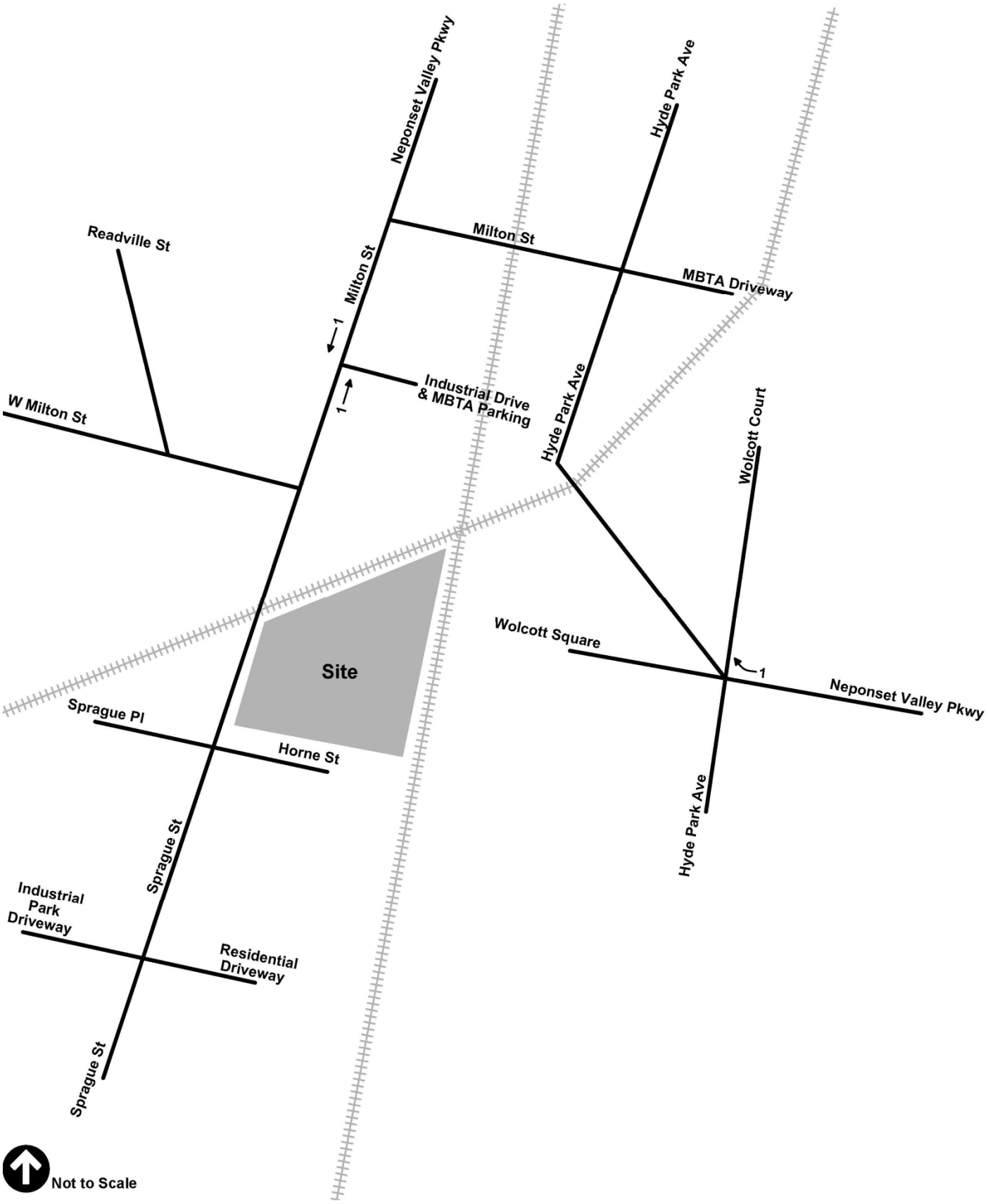

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Figure 3-10
2016 Existing Condition Bicycle Volumes
AM Peak Hour (7:15 a.m. – 8:15 a.m.)

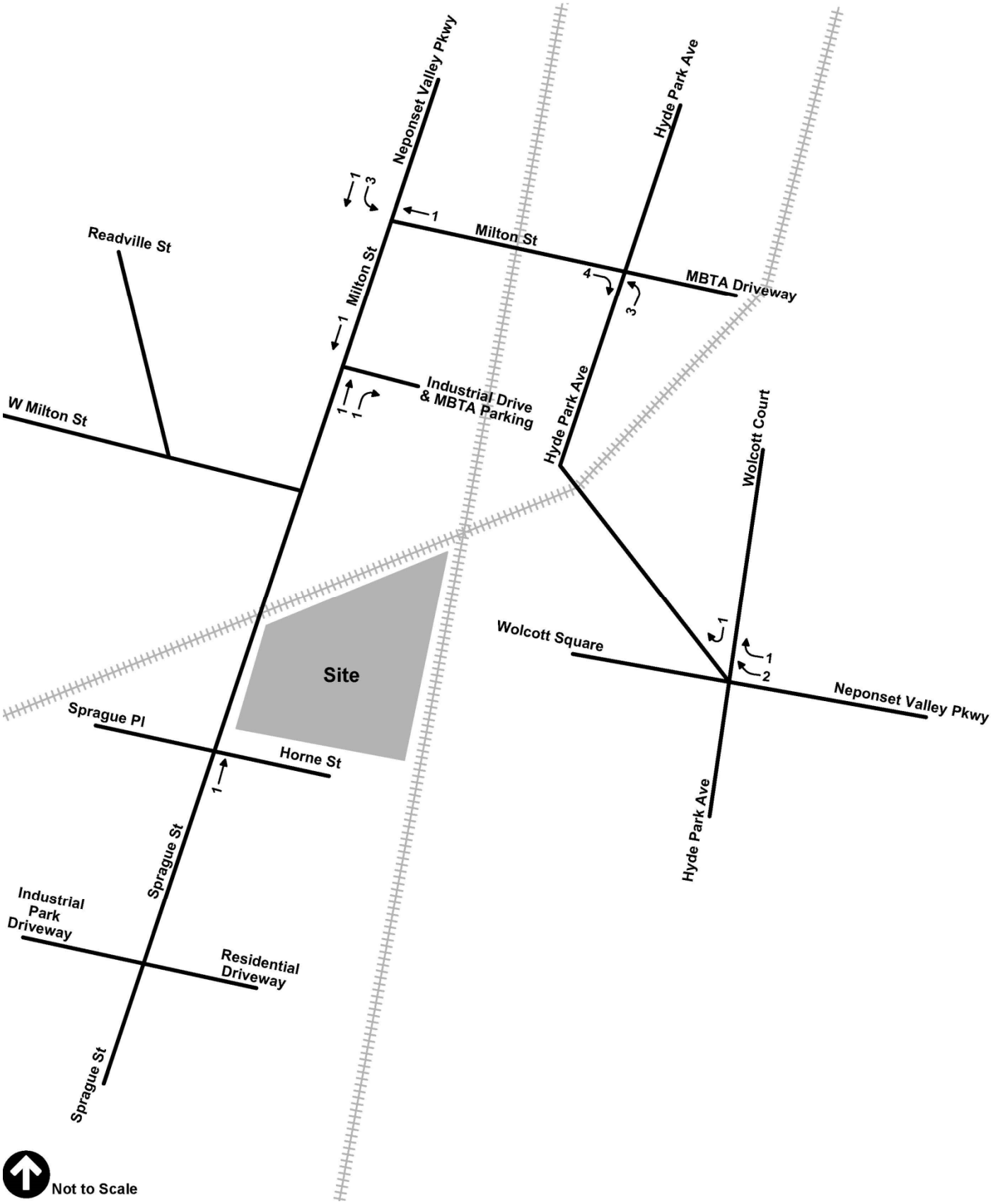

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Figure 3-11
2016 Existing Condition Bicycle Volumes
PM Peak Hour (4:30 p.m. – 5:30 p.m.)

Table 3-2 Hourly Traffic Volumes, March 2016 and June 2016 on Sprague Street North of Horne Street

Start Time	Wednesday, March 30, 2016			Thursday, March 31, 2016			Wednesday, June 22, 2016			Thursday, June 23, 2016		
	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total
12:00 a.m.	24	18	42	22	31	53	21	23	44	43	26	69
1:00 a.m.	16	8	24	9	8	17	12	12	24	13	13	26
2:00 a.m.	10	12	22	10	9	19	42	24	66	24	21	45
3:00 a.m.	11	8	19	7	7	14	14	10	24	19	11	30
4:00 a.m.	28	47	75	31	31	62	29	33	62	29	30	59
5:00 a.m.	118	88	206	121	100	221	152	102	254	157	107	264
6:00 a.m.	301	250	551	271	249	520	349	267	616	329	264	593
7:00 a.m.	491	316	807	498	320	818	434	324	758	412	324	736
8:00 a.m.	371	316	687	399	293	692	388	321	709	368	309	677
9:00 a.m.	314	275	589	299	278	577	335	290	625	326	312	628
10:00 a.m.	258	252	510	288	247	535	301	246	547	305	255	560
11:00 a.m.	267	267	534	282	245	527	269	317	586	281	256	537
12:00 p.m.	285	261	546	320	291	611	322	332	654	300	303	603
1:00 p.m.	245	263	508	297	288	585	290	330	620	265	317	582
2:00 p.m.	296	305	601	312	322	644	326	401	727	295	368	663
3:00 p.m.	358	367	725	387	347	734	356	403	759	359	393	752
4:00 p.m.	391	407	798	370	407	777	401	392	793	421	401	822
5:00 p.m.	399	427	826	381	362	743	362	413	775	372	414	786
6:00 p.m.	349	377	726	320	396	716	320	349	669	319	357	676
7:00 p.m.	251	251	502	245	255	500	306	299	605	290	273	563
8:00 p.m.	186	168	354	207	179	386	266	207	473	241	219	460
9:00 p.m.	155	102	257	144	131	275	151	147	298	211	194	405
10:00 p.m.	100	91	191	95	93	188	111	113	224	131	118	249
11:00 p.m.	95	53	148	91	55	145	97	46	143	79	55	132
TOTAL	**5,319**	**4,929**	**10,248**	**5,406**	**4,954**	**10,360**	**5,654**	**5,401**	**11,055**	**5,589**	**5,340**	**10,929**

The traffic generated by the site's current mix of uses on the site is 40 vehicles in the morning peak hour (20 entering, 20 exiting) and 45 vehicles in the evening peak hour (15 entering, 30 exiting). The counts did not differentiate between the different users of Horne Street. Some of these trips are related to Brinks (a preliminary estimate is that the Brinks

activity at the site accounts for perhaps half of the existing trips), so to be conservative in the analysis, the existing site trips were not subtracted from the proposed Project trips.

3.4.4 Pedestrian Environment and Accessibility

While the Project area provides sidewalks, they are generally lightly used and autos predominate. Sidewalks are provided along all major roads such as Sprague Street, Hyde Park Avenue, Neponset Valley Parkway, Milton Street, and West Milton Street, but only limited marked crosswalks are provided at many of the study area intersections. Many of the crosswalks in the area do not have ADA-compliant ramps. Wolcott Square has marked crosswalks that lead to a granite curb sidewalk with no ramp available at the pedestrian median at the Wolcott Court approach.

Pedestrian volumes at the study area intersections were collected in conjunction with the traffic counts on Wednesday, March 30, 2016. Figure 3-8 and Figure 3-9 present the 2016 Existing Condition Pedestrian Volumes. The highest pedestrian volumes in the study area were observed at the intersection of Hyde Park Avenue at Neponset Valley Parkway/Wolcott Square/Wolcott Court during both the morning and evening peak hours. This higher pedestrian activity is due to the nearby transit services and higher density of retail and residential land uses in the area. A total of 64 pedestrians crossed the street at Wolcott Square during the morning peak hour and 92 pedestrians crossed during the evening peak hour. All other study area intersection crosswalks had a total of approximately 20 pedestrians or less crossing at the study area intersections.

3.4.5 Bicycles

Bicycle volumes, shown in Figure 3-10 and Figure 3-11, at the study area intersections were collected simultaneously with the TMCs and pedestrian volume counts on Wednesday, March 30, 2016. One bicyclist was counted traveling through Wolcott Square westbound from Neponset Valley Parkway to Hyde Park Avenue in the morning peak hour. During the evening peak hour, four bicyclists crossed the bridge on Milton Street and four bicyclists traveled from Wolcott Square to the intersection of Hyde Park Avenue at Milton Street and the MBTA driveway. In general, the bicycle volumes were very low throughout the study area.

Within the immediate study area, there are no bicycle parking accommodations or shared bicycle lanes provided. There are currently no Hubway stations surrounding the Project site or in the Hyde Park neighborhood. An effort is currently underway to create a rail trail from the Sprague Street Bridge adjacent to the Project site along an abandoned rail line to Dedham Square. The portion of this potential trail, the Dedham Heritage Rail Trail, that is within the City of Boston has already been taken into account in the planning of Readville Yard 5. If this trail is approved and built, it has the potential to materially increase bicycle usage in the area.

3.4.6 Public Transportation

The Project site has excellent public transit access due to its immediate adjacency to the MBTA's Readville Station. Readville Station is one of the few stations in the MBTA's commuter rail network served by multiple commuter rail lines, the Franklin Line and the Fairmount Line. With the Project's pedestrian entrance, directly adjacent to the bridge to the station, residents of the Project site will have ready access to MBTA commuter rail services connecting the neighborhood to downtown Boston and the Back Bay.

The MBTA currently provides local bus and commuter rail service within walking distance (1/5 mile) of the Project site. Figure 3-12 illustrates existing MBTA services and Table 3-3 provides a summary of the bus and rail services. Transit frequency times are provided by the MBTA. A detailed description of each service is also provided.

Table 3-3 MBTA Services

Service	Origin / Destination	Peak Hour Frequency (minutes)	Closest Stop (distance in miles)
Commuter Rail – Franklin Line	Forge Park / 495 – South Station	15 – 43	Readville MBTA Station (0.2)
Commuter Rail – Fairmount Line	Readville – South Station	40 - 50	Readville MBTA Station (0.2)
Bus Route 32	Wolcott Square or Cleary Square – Forest Hills Station via Hyde Park Avenue	7 – 8	Hyde Park Avenue @ Milton Street (0.4)
Bus Route 33	Dedham Line – Mattapan Station via River Street	30 – 35	Readville Street @ West Milton Street (0.25)

Source: MBTA, Spring 2017

Commuter Rail – Franklin Line – This route connects Forge Park in Franklin to South Station in Boston via Walpole, Norwood, Hyde Park, and the Back Bay. The closest station to the Project site is the Readville Train Station, approximately 1000 feet away. Detailed stop and schedule information is provided on the MBTA website. During the weekday, the Franklin Line operates from 3:50 a.m. to 12:53 a.m. with approximately 15 to 43 minute headways during peak hours. On Saturday, the Franklin Line operates from 6:35 a.m. to 12:19 a.m., and Sunday service is from 10:40 a.m. to 12:19 a.m.

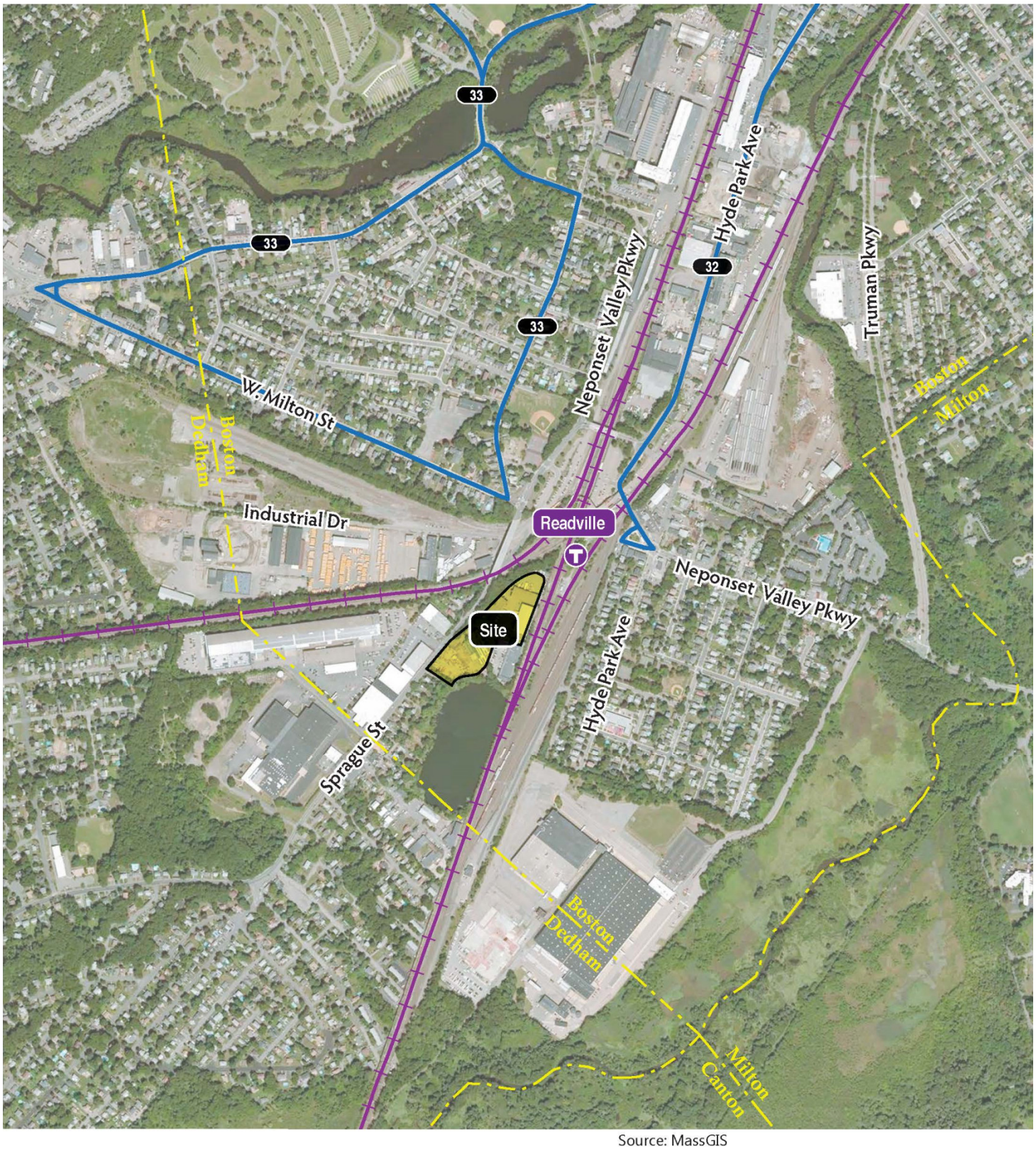
Commuter Rail – Fairmount Line – This route connects Readville Station in Hyde Park to South Station in Boston via Fairmount, Uphams Corner, and New Market. The closest stop to the Project site is Readville Train Station, approximately 1,000 feet away. During the weekday, the Fairmount Line operates from 5:39 a.m. to 11:30 p.m. with approximately 40 to 50 minute headways during peak hours. On Saturday and Sunday, the Fairmount Line operates from 7:30 a.m. to 11:15 p.m.

As previously mentioned, the closest MBTA station is the Readville Station. Parking at Readville Station is $4 per day, and there are a total of 354 spaces available in the parking lot. Readville is located in Commuter Rail Zone 2 making the cost for a one-way trip into downtown $6.75. Monthly commuter passes cost $217.75. Approximately two miles north of the site are two additional stations: the Fairmount MBTA Station and the Hyde Park MBTA Station. Parking at the Hyde Park Station is $4 per day, and there are a total of 121 parking spaces available. Hyde Park Station is located in Commuter Rail Zone 1 with a one-way fare of $6.25 and a monthly commuter pass of $200.25. Parking at the Fairmount Station is $4 per day, and there is a total of 51 parking spaces available as well as a significant number of free on-street parking spaces.

Fairmount Station is located in Commuter Rail Zone 1A, where the one-way fare is $2.25 and a monthly commuter rail pass is $84.50. With this significant daily and monthly fare differential between the Fairmount and Readville Stations, which are just one stop apart – there has been a disincentive for local residents to use the Readville Station and instead drive north to Fairmount Station creating additional traffic. The Project team as well as other groups and constituencies has been in discussions with the MBTA regarding this discrepancy.

MBTA Bus Route 32 – Wolcott Square or Cleary Square – Forest Hills Station via Hyde Park Avenue – This route connects Wolcott Square in Hyde Park to the Forest Hills Station in Jamaica Plain via Hyde Park Avenue. The closest stop to the Project site is Hyde Park Avenue at Milton Street, less than half a mile away. The route also has a stop at Wolcott Square, and this bus stop affects the flow of traffic and contributes to congestion on Hyde Park Avenue eastbound. The bus stops at the Hyde Park Avenue bus stop at Wolcott Square and then must make a U-turn at Wolcott Square to reverse the route direction, causing delays for vehicles at the intersection. Route 32 is one of the busiest bus lines in the Hyde Park neighborhood. Stops along the route connect to the Orange Line, Needham Commuter Rail, Franklin Commuter Rail, Fairmount Commuter Rail, and Providence/Stoughton Commuter Rail. During the weekday, Route 32 operates from 4:53 a.m. to 1:34 a.m. with approximately 7 to 8 minute headways during peak hours. Saturday service runs from 5:05 a.m. to 1:30 a.m., and Sunday service is from 5:25 a.m. to 1:33 a.m.

MBTA Bus Route 33 – Dedham Line – Mattapan Station via River Street – This route connects Hyde Park to Mattapan via River Street. The closest stop to the Project site is Readville Street at West Milton Street, approximately a quarter-mile away. Stops along this route connect to the Red Line, the Mattapan High Speed Line, Franklin Commuter Rail, and Providence/Stoughton Commuter Rail. During the weekday, Route 33 operates from 5:20 a.m. to 7:52 p.m. with 30-35 minute headways during peak hours. On Saturday, the bus operates from 6:20 a.m. to 7:35 p.m., and there is no service on Sunday.



Source: MassGIS

32 Wolcott Square or Cleary Square-Forest Hills via Hyde Park Avenue

33 Dedham Line-Mattapan Station via River Street

36-70 Sprague Street Readville, Massachusetts

Figure 3-12
Public Transit

3.4.7 Existing Parking

The site currently has no striped parking spaces. It is a partially paved, partially dirt surfaced warehouse property and truck maintenance yard. Figure 3-13 shows on-street parking regulations within a quarter-mile radius of the site.

Carsharing

There is no carsharing location within a mile from the Project site. Approximately 1.7 miles north of the Project, there are two Zipcar locations near the Hyde Park MBTA Station. The Hyde Park Commuter Rail Zipcar location has two vehicles, and the Winthrop Street Zipcar location north of the Hyde Park Commuter Rail Station has one vehicle.

3.5 Future Conditions

To assess future transportation conditions, the analysis considered the following two future scenarios for a five-year time horizon (2021):

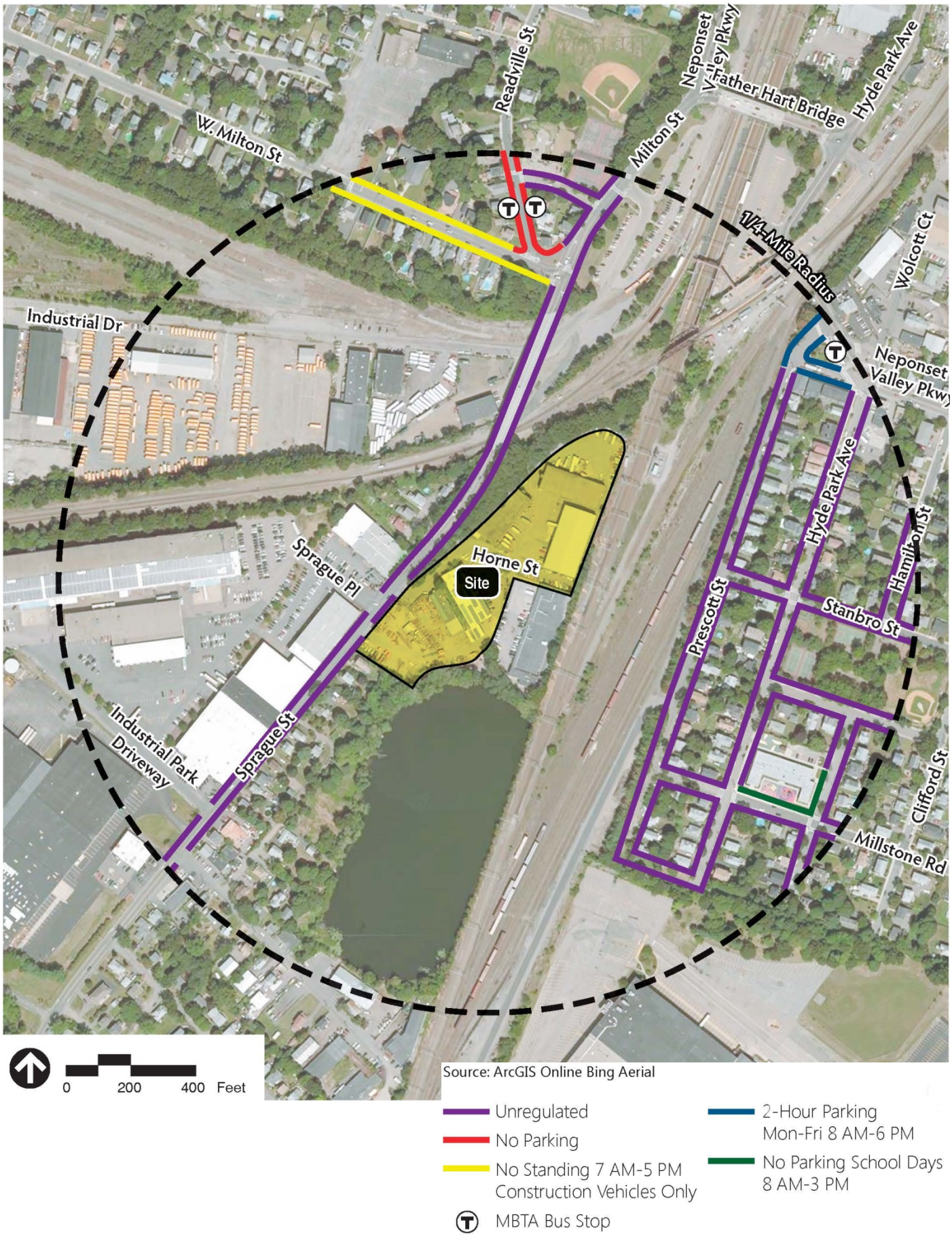
- **2021 No-Build Condition** – assumes no changes to the Project site, but with background traffic growth associated with other planned projects and general regional traffic growth, along with any planned infrastructure improvements; and
- **2021 Build Condition** – assuming the same background growth and any planned infrastructure improvements, but including Project generated trips.
- **2021 Build Mitigated Condition** – future conditions for a five-year time horizon assuming construction and full occupancy of the Project including a set of intersection improvements.

3.5.1 2021 No-Build Condition

The 2021 No-Build Condition was developed to evaluate future transportation conditions in the study area without consideration of the Project. In accordance with BTD Guidelines, this future analysis year represents a five-year horizon (2021) from Existing Conditions (2016). The No-Build Condition provides insight to future traffic conditions resulting from regional growth as well as traffic generated by specific projects that are expected to affect the local roadway network.

Background Growth

Background growth is typically accounted for in two ways: general area-wide growth combined with the effects of nearby known projects. A background growth rate of one (1.0) percent per year was applied to the existing traffic volumes to account for population



36-70 Sprague Street Readville, Massachusetts

Figure 3-13
On-Street Parking Regulations

growth and projects that cannot be specifically identified. This background growth rate is consistent with normal practice on projects in Boston and that used by the nearby Readville Yard 5 project.

Other Area Developments

After a review of projects filed with the BPDA, one specific development project was incorporated into the background project volumes for the surrounding area. The Readville Yard 5 Project, approved by the BPDA October 2014, includes the construction of six buildings on a 21-acre parcel for light industrial and manufacturing uses and office space. The new traffic generated by the development was studied in 2014[3].

2021 No-Build Condition Traffic Volumes

The 2021 No-Build Condition was developed by adding background growth plus the expected traffic from the Readville Yard 5 development to the existing traffic counts. A background growth of one percent was used to account for potential area projects and general regional growth.

Figures 3-14 and 3-15 present the 2021 No-Build Condition traffic volumes accounting for background growth for the weekday morning and evening peak hours, respectively.

3.5.2 2021 Build Condition

The 2021 Build Condition includes the 2021 No-Build background traffic growth with the addition of the Project-generated trips. The Project will create a site driveway on Sprague Street, replacing Horne Street. Figure 3-3, presented previously, illustrates the proposed site plan for the Project.

Project Generated Trips

To assess the expected traffic impacts of the Project, trip estimates were based on standard rates from the ITE Trip Generation Handbook[4]. ITE is the national standard for trip generation, and the rates are based on many individual studies that have taken place for a broad range of development projects in places around the United States. Many of these studies are typically completed in either rural or suburban areas that are not public transportation accessible. The ITE rates represent highly auto dependent populations that do not necessarily match well with conditions found throughout the City of Boston. Further, the trip calculations do not consider Transit-Oriented Development (TOD) mode split

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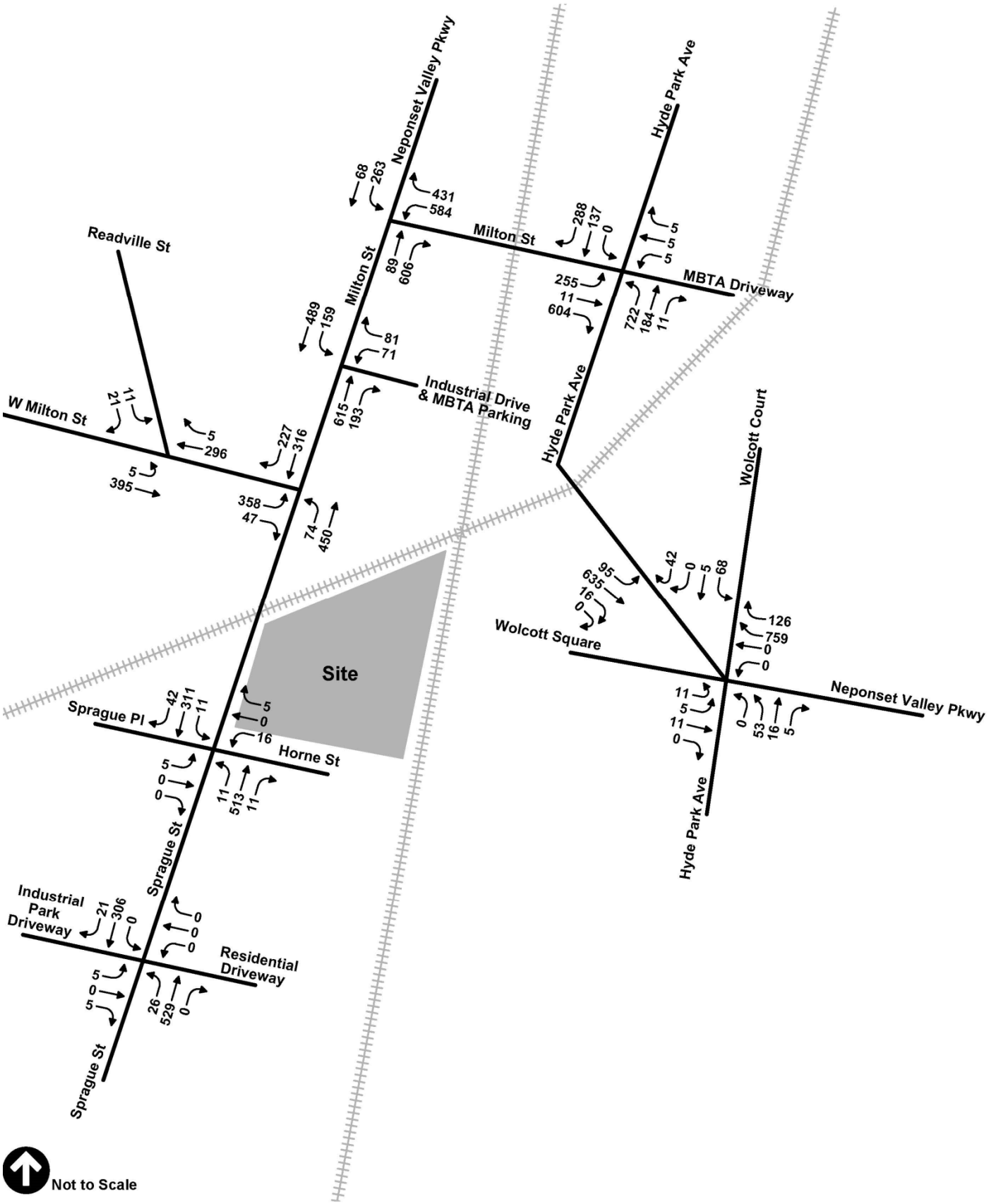
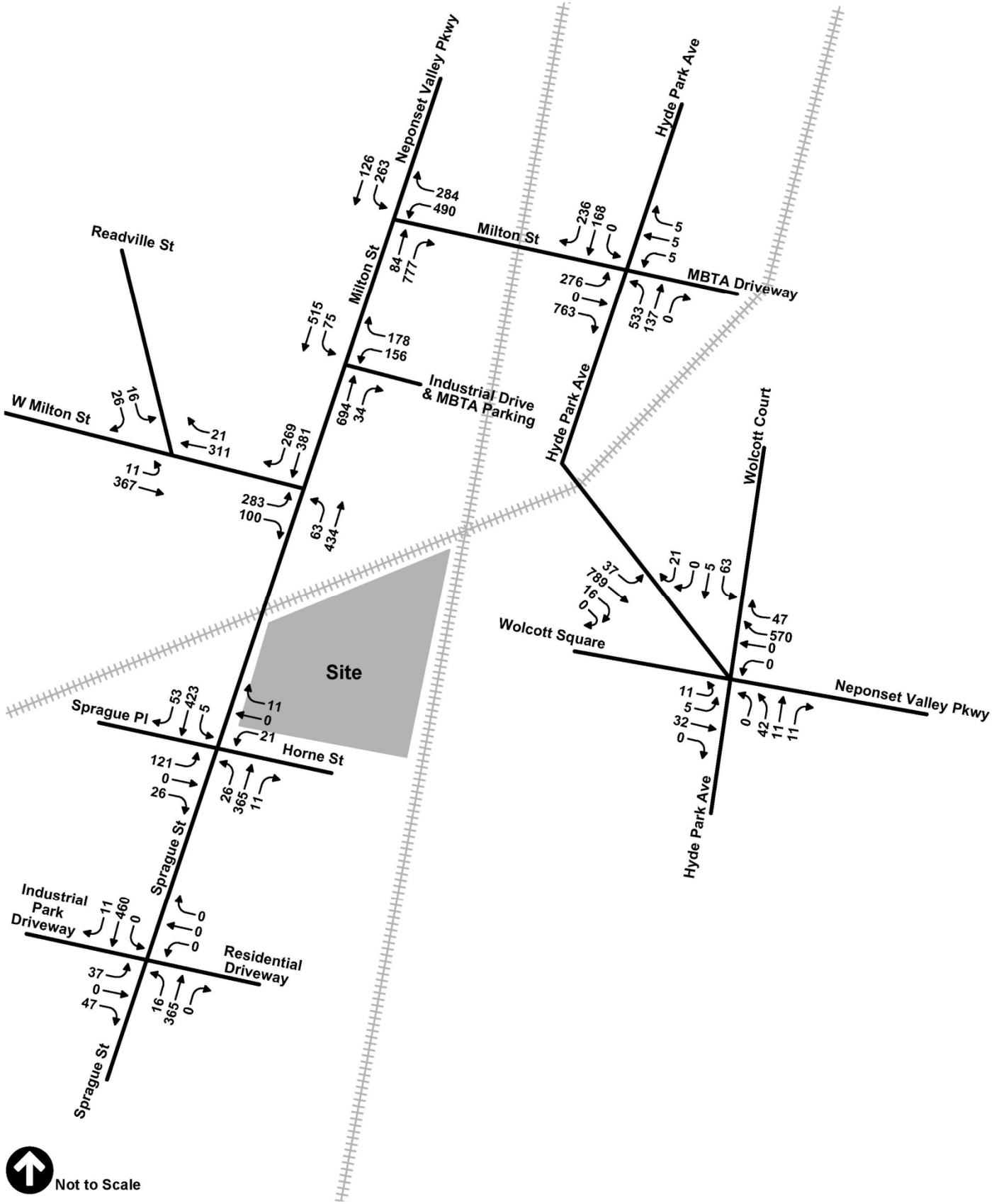
[3] http://www.bostonredevelopmentauthority.org/getattachment/d0010560-6cae-4b78-a61d-11afe13cd4ad

[4] Trip Generation; Ninth Edition; Institute of Transportation Engineers; Washington, D.C.; 2012.



36-70 Sprague Street Readville, Massachusetts

Figure 3-14
2021 No-Build Condition Vehicle Volumes
AM Peak Hour (7:15 a.m. – 8:15 a.m.)



36-70 Sprague Street Readville, Massachusetts

Figure 3-15
2021 No-Build Condition Vehicle Volumes
PM Peak Hour (4:30 p.m. – 5:30 p.m.)

characteristics. It is recognized that applying straight ITE trip rates (without further adjustment) would result in an overestimation of expected Project impacts. However, for this report, the initial ITE rates were chosen to begin with, and then were adjusted using a traditional approach typically accepted by the BTD for other projects to reflect the expected traffic generation the Project will create. A second trip generation analysis was then prepared that considers and takes into account new research that has been undertaken regarding travel patterns associated with Transit Oriented Developments (TOD) in various jurisdictions, as well as regarding recent trends in car utilization by urban and younger populations, in an effort to more accurately forecast likely vehicle usage by the population of the Project.

Trip generation for the proposed Project was based on the ITE Land Use Codes shown in Table 3-4 below.

Table 3-4 Trip Generation Land Use Codes

Land Use	ITE Land Use Code (LUC)	Independent Variable
Residential	220 – Apartments	Dwelling Units
Restaurant	931 – Quality Restaurant	Square Feet

Source: ITE Trip Generation Handbook, 9th Edition

To account for alternative transportation modes, BTD guidelines were used and local area mode shares were applied to the unadjusted ITE trip results. The site location is within the boundaries of BTD Zone 12 for Hyde Park (as shown in Figure 3-16), and the mode shares associated with this zone were used for the analysis.

As discussed above, research regarding TOD's, trip generation, parking utilization and trends in vehicle ownership and parking provided for new developments throughout greater Boston demonstrates that the application of the traditional approach toward trip generation will not accurately reflect the patterns that will be created with the development in place. The Project site is very close to an active, multi-line commuter rail service serving downtown Boston with a strong, direct and walkable connection. Many amenities being offered at the site are geared towards a Millennial and empty-nester population with flexible work arrangements. The full build Project will have a large, prominent shared workspace, on-site daycare, a large gym, and an on-site café and sports lounge to encourage and support reduced vehicle trips. Given all of these planned amenities and services and by intentional design, a larger percentage of residents is expected to rely on public transportation for their work commute (vs. the Hyde Park neighborhood as a whole). The Project is also being designed to encourage and accommodate residents who can work from home and avoid a work commute altogether.

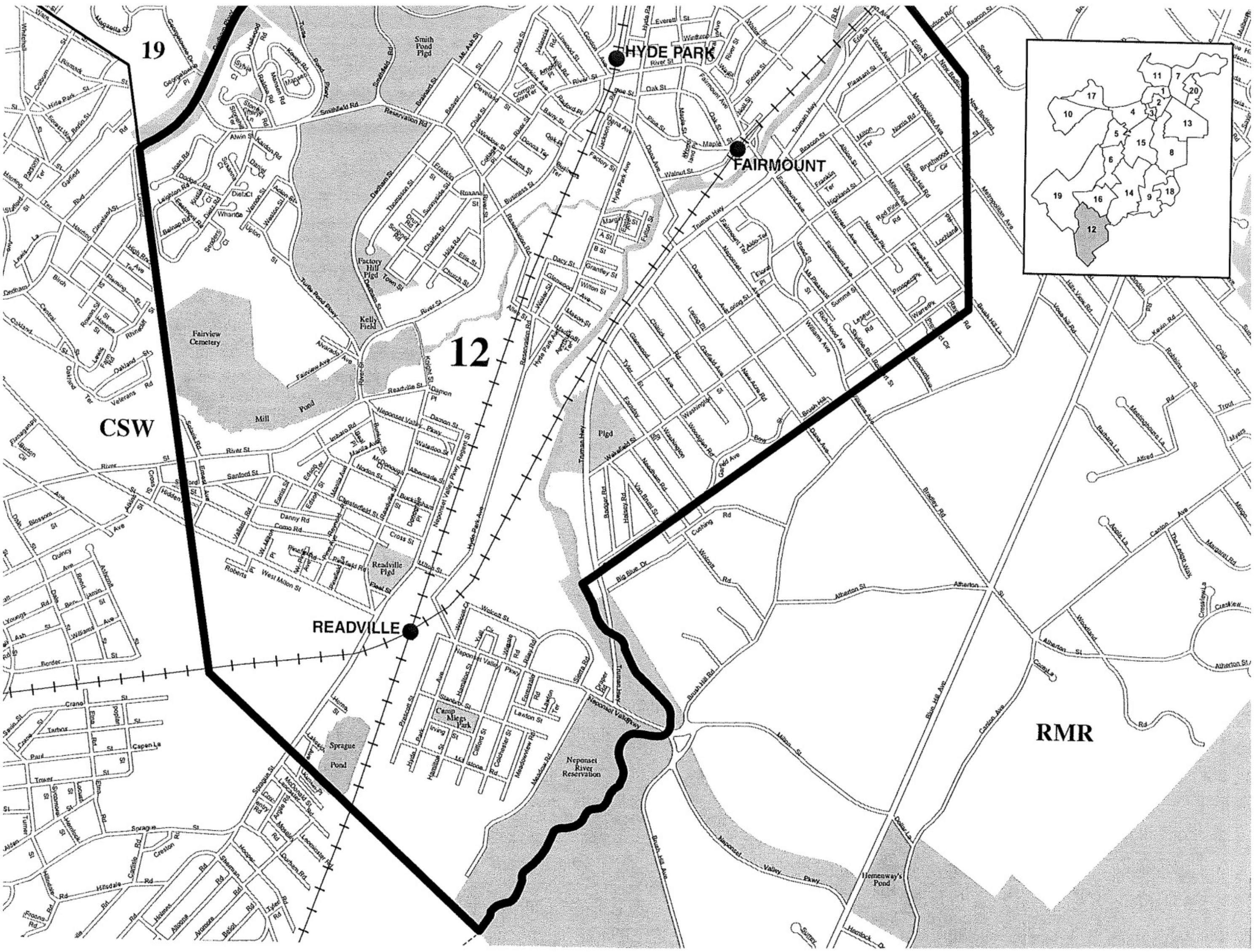


Figure 3-16

BTD Zone 12 – Hyde Park

The just released Go Boston 2030 report has looked carefully at future commuting patterns across the City and this Project has been developed in a way that is very consistent with stated City goals. The City has set aspirational goals for making dramatic shifts in mode shares for City residents over the next 13 years. By 2030, the City expects to see a much greater usage of public transportation, bikes and walking and a decreased reliance on private autos. By building so close to an active commuter rail station, this Project will help encourage this shift by providing a high-quality commute option for residents.

Accordingly, this analysis includes a second, TOD set of mode share projections, showing anticipated Project trip generation under a scenario of reduced residents' reliance on autos for their commuting trips.

VHB has worked on a variety of residential projects and the mode splits can indicate a much lower auto usage pattern for those that are in highly transit-accessible areas. As an example, for the 88 Ames Street residential project in Kendall Square in Cambridge, the auto mode shares are as low as 32 percent. For another TOD residential project (130 Cambridge Park Drive in Alewife), the auto mode share is approximately 52 percent. US census data was used for both projects, and the resulting mode shares reflect the commuting habits for the residents of these specific areas.

Recent national research into trip rates for TOD residential developments also indicates that vehicular trip generation is substantially lower than would be predicted using ITE rates.[5] In the first of these studies, both led by the Chair of the Department of City and Regional Planning at the University of California, Berkeley, the authors surveyed various TOD developments in five U.S. metropolitan areas. In the second, the authors studied multifamily housing complexes in the San Francisco Bay Area and Portland, Oregon. Findings from these studies include, for example, that:

- In all cases studied, weekday vehicle trip rates for TOD projects were considerably below the ITE average rate for similar uses. Taking the unweighted average across the seven (7) case-study projects, TOD housing projects generated about 47 percent less vehicle traffic than that predicted by the ITE manual[6]

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[5] Sources: "Vehicle Trip Reduction Impacts of Transit Oriented Housing" by Robert Cervero, Professor and Chair of the Department of City and Regional Planning at the University of California Berkeley and C.B Arrington from PB Placemaking (http://www.nctr.usf.edu/jpt/pdf/JPT11-3Cervero.pdf) ("VTR Impacts") and "Are Suburban TOD's Overparked" by Robert Cervero, Arlie Adkins and Cathleen Sullivan, all of the University of California Berkeley (https://www.nctr.usf.edu/jpt/pdf/JPT13-2Cervero.pdf) ("Are TOD's Overparked").

[6] VTR Impacts, pg 5.

- Weighted average differentials were even larger during peak periods— 49 percent lower rates during the morning peak and 48 percent lower rates during the evening peak. "One can infer that traffic impact studies might end up overstating the potential congestion-inducing effects of TOD housing in large rail-served metropolitan areas by as much as 50 percent."[7]

- For every 1,000 feet away from a train station, parking requirements rise by 0.7 cars per dwelling[8].

- Four years after inauguration of a car-sharing program (such as Zipcar), 29 percent of car share members had disposed of one or more of their cars, and 63 percent lived in zero vehicle households[9]

Additionally, recent local research performed in the Greater Boston area shows that parking usage – and accordingly, vehicle ownership and usage – for multifamily buildings has declined far below what traditional transportation planning has indicated.[10] In this study, the authors at the Metropolitan Area Planning Council (MAPC) conducted weekday middle-of-the-night (midnight-4:00 a.m.) surveys at 80 multifamily developments in Arlington, Chelsea, Everett, Malden and Melrose. These communities were selected as a representation of "Metropolitan Core Communities" and "Streetcar Suburbs" – community types that Readville straddles. Findings included, for example, that:

- The average parking lot in these developments is only 74 percent occupied[11]

- On average, each of these developments was built with 1.15 parking spaces/unit, but only 0.85 spaces/unit were occupied.[12]

- "Despite the difference in demographics, parking requirements, and rates of parking supply and demand per unit across Arlington, Chelsea, Everett, Malden, and Melrose, excess parking was found in all five communities."[13]

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7 VTR Impacts, pg 10.

8 Are TOD's Overparked, pg 35.

9 Are TOD's Overparked, pg 45.

10 Source: "Perfect Fit Parking" by the Metropolitan Area Planning Council (MAPC) (http://perfectfitparking.mapc.org).

11 Perfect Fit Parking, pg 8.

12 Perfect Fit Parking, pg 16.

13 Perfect Fit Parking, pg 19.

When this study is read in conjunction with the national studies, two conclusions become evident, both of which are relevant to analyzing the expected levels of new traffic likely to be generated by the Project, as follows:

1. As a Boston-area multifamily development, vehicle ownership – and therefore usage – will be lower than has been previously assumed; and

2. As a TOD project, vehicular trip generation will be significantly lower than for buildings not directly adjacent to transit.

For all the reasons outlined above, Table 3-5 presents two different sets of mode split assumptions: first, the first using the typical BTD methodology that relies on ITE trip generation rates and broad neighborhood travel patterns, and the second, using assumptions based on the research cited and Project's specific characteristics including its proximity to Readville Station and the many planned features of the Project.

Table 3-5 Mode Split

Mode	Traditional Approach using BTD Zone 12 Mode Split Data		Project TOD Approach based on Research Studies	
	Residential	Restaurant	Residential	Restaurant
Daily				
Automobile	86%	85%	50%	70%*
Public Transit	8%	7%	34%	15%
Walk/Bike/Other	6%	8%	6%	15%
Workshare/Work from Home	N/A	N/A	10%	0%
a.m./p.m. Peak				
Automobile	76%	76%	50%	60%
Public Transit	18%	17%	34%	25%
Walk/Bike/Other	6%	7%	6%	15%
Workshare/Work from Home	N/A	N/A	10%	0%

[1] Source: BTD Zone 12 Mode Split – Hyde Park

*While similar studies for restaurant trip generation adjacent to transit have not been found, the mode split rates have been adjusted more modestly to reflect (1) that most employees will likely commute to and from the restaurant via transit, and (2) that many restaurant patrons are expected to walk from the Project and the immediate neighborhood. Still, the majority of restaurant traffic has been kept as automobile-based to account for patrons driving to the restaurant, particularly on evenings and weekends.

Applying the traditional approach to trip generation, as a next step in estimating Project trip generation, Vehicle Occupancy Rates (VOR) were applied to the ITE trip generation to convert the ITE estimated unadjusted vehicle trips to person trips. A VOR of 1.13 persons per vehicle for residential land use and 2.20 for restaurant use was used based on the 2009 National Household Travel Survey. Once the trips were converted to person trips by land use, these trips were split into the expected modes based on the data for Zone 12 shown above in Table 3-5. This process was repeated for the TOD approach. The VOR was again applied to only the vehicle trips to produce adjusted vehicle trips which represents the Project team's forecast of the number of vehicle-trips the Project is expected to generate.

The estimated Project generated trips at full build of the site are shown in Table 3-6 for both the traditional and TOD approaches.

Table 3-6 Expected Project Generated Trips

Time Period/Direction	Public Transportation	Walk/Bike/Other	Vehicle	Workshare/Work from Home
Traditional Approach using BTD Zone 12 Mode Split Data				
Daily				
Enter	198	164	1,719	0
Exit	198	164	1,719	0
Total	**396**	**328**	**3,438**	**0**
a.m. Peak				
Enter	12	4	42	0
Exit	44	4	163	0
Total	**56**	**8**	**205**	**0**
p.m. Peak				
Enter	54	19	183	0
Exit	29	10	97	0
Total	**83**	**29**	**280**	**0**
TOD Approach based on Research Studies				
Daily				
Enter	755	206	1,054	196
Exit	755	206	1,054	196
Total	**1,510**	**412**	**2,108**	**392**
a.m. Peak				
Enter	22	5	29	6
Exit	83	5	107	6
Total	**105**	**10**	**136**	**12**

Table 3-6 Expected Project Generated Trips (Continued)

Time Period/Direction	Public Transportation	Walk/Bike/Other	Vehicle	Workshare/Work from Home
TOD Approach based on Research Studies				
p.m. Peak				
Enter	98	24	123	24
Exit	51	13	66	13
Total	**149**	**37**	**189**	**37**

Vehicle Trip Distribution

Trip distribution was based on BTD's guidelines for Zone 12 where the Project site is located. These guidelines, based on 2000 Census data, provide information on where area residents work. Using these data, Project vehicle trips were then assigned to the study area roadway network. A summary of the trip distribution pattern is presented in Table 3-7 and shown graphically in Figure 3-17.

Table 3-7 Trip Distribution

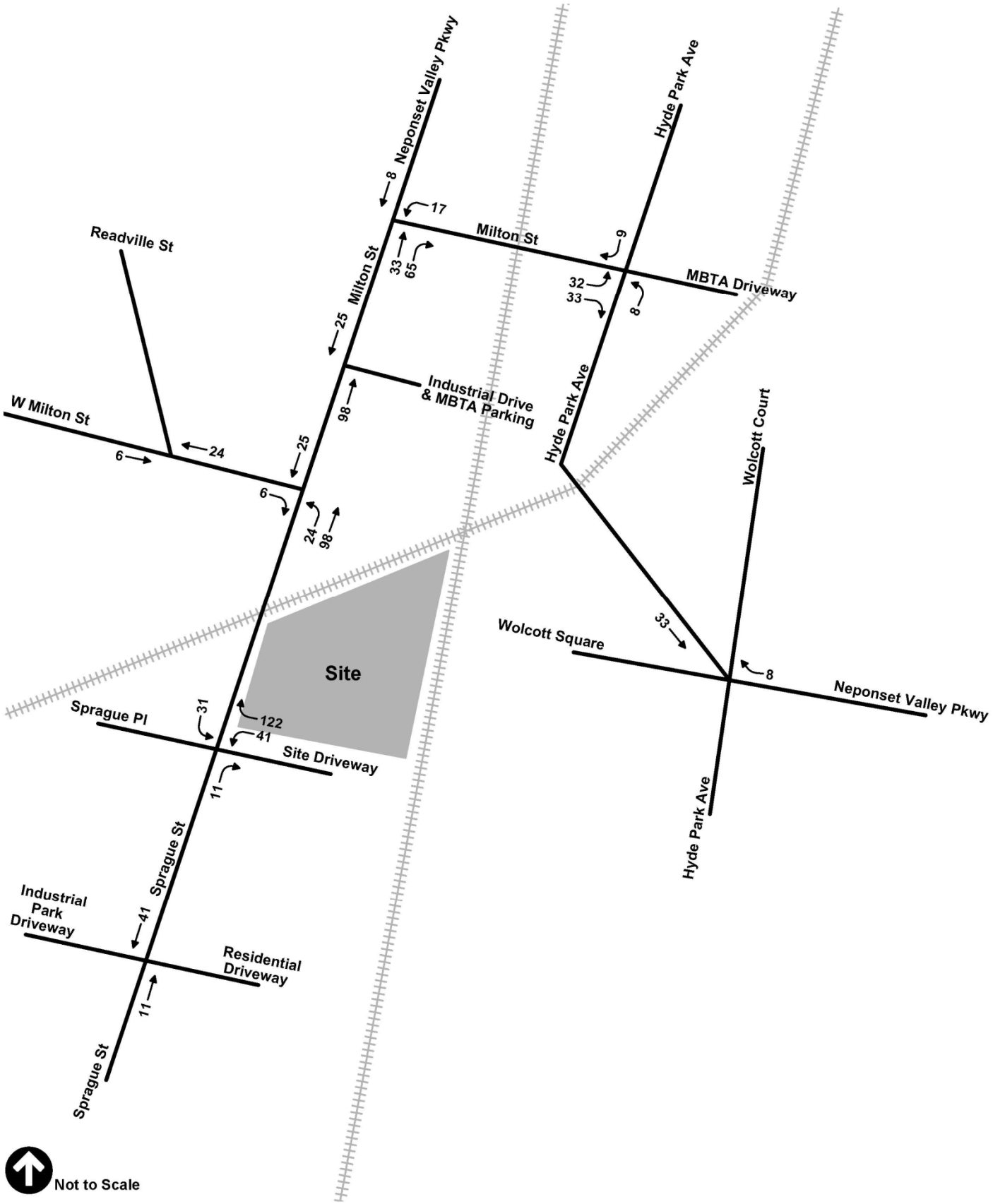
Corridor	Entering	Exiting
Neponset Valley Parkway (To/from the north)	20%	20%
Hyde Park Avenue (To/from the north)	20%	20%
Neponset Valley Parkway (To/from the west)	20%	20%
West Milton Street (To/from the west)	15%	15%
Sprague Street (To/from the south)	25%	25%
Total	**100%**	**100%**

Source: BTD Zone 12 Trip Distribution

The Project-generated vehicle trips were added to the 2021 No-Build Condition traffic networks using the trip distribution patterns described above. The Project-generated trips are shown in Figure 3-18 and Figure 3-19. The resulting 2021 Build Condition networks are shown in Figure 3-20 and Figure 3-21 for the weekday morning and evening peak hours.

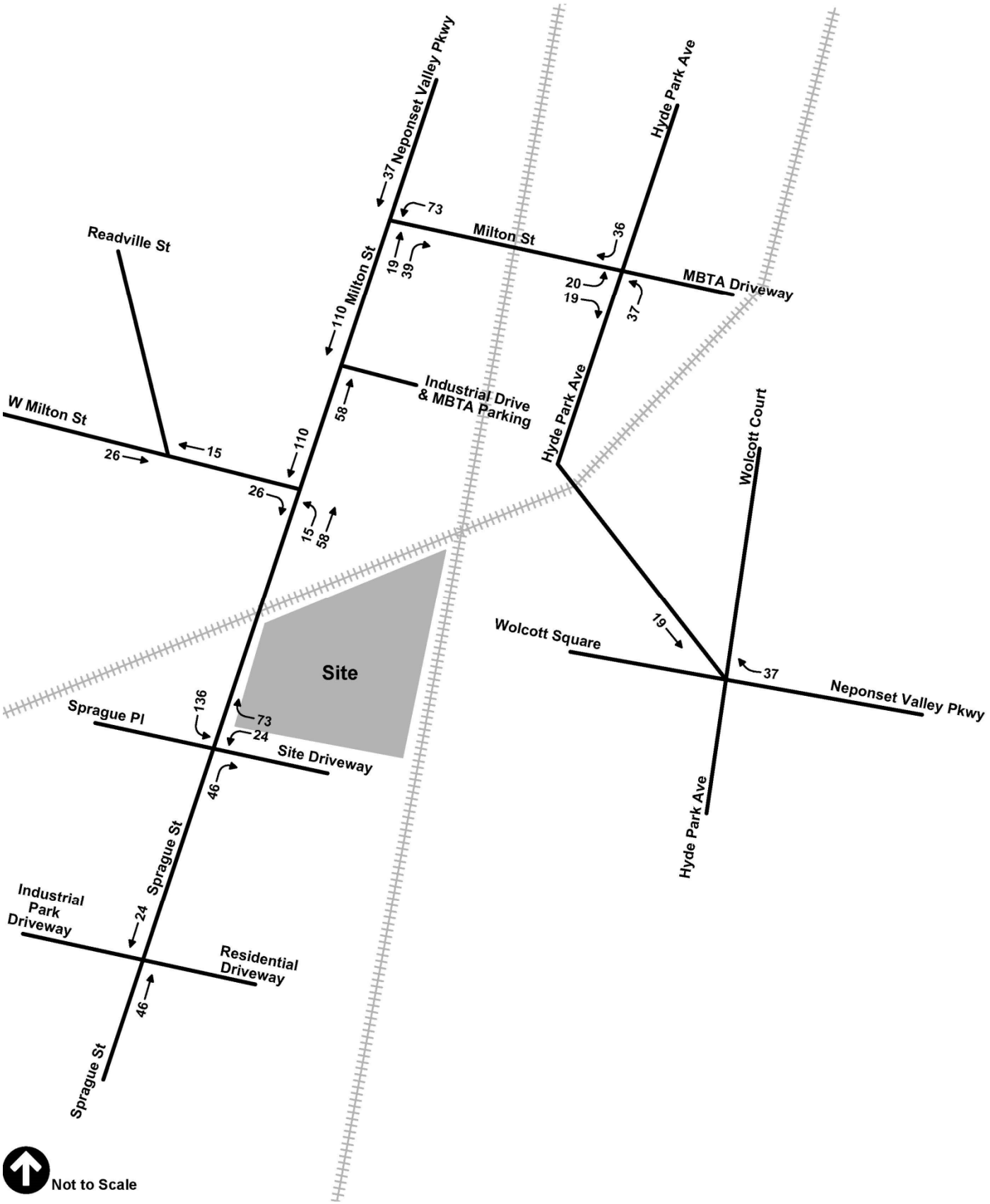
36-70 Sprague Street Readville, Massachusetts

Figure 3-17
Project Trip Distribution



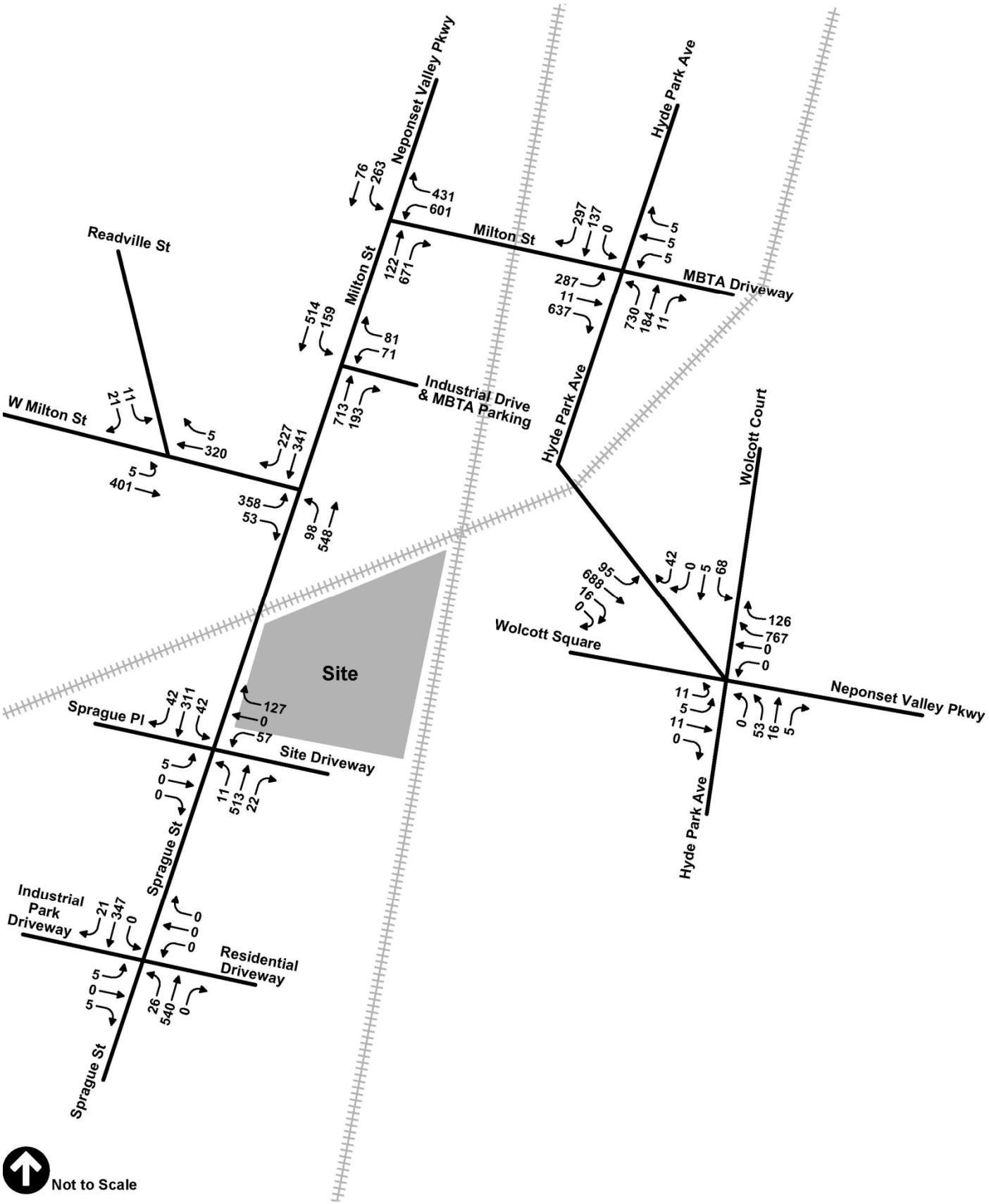
36-70 Sprague Street Readville, Massachusetts

Figure 3-18
Project Generated Vehicle Trips
AM Peak Hour (7:15 a.m. – 8:15 a.m.)



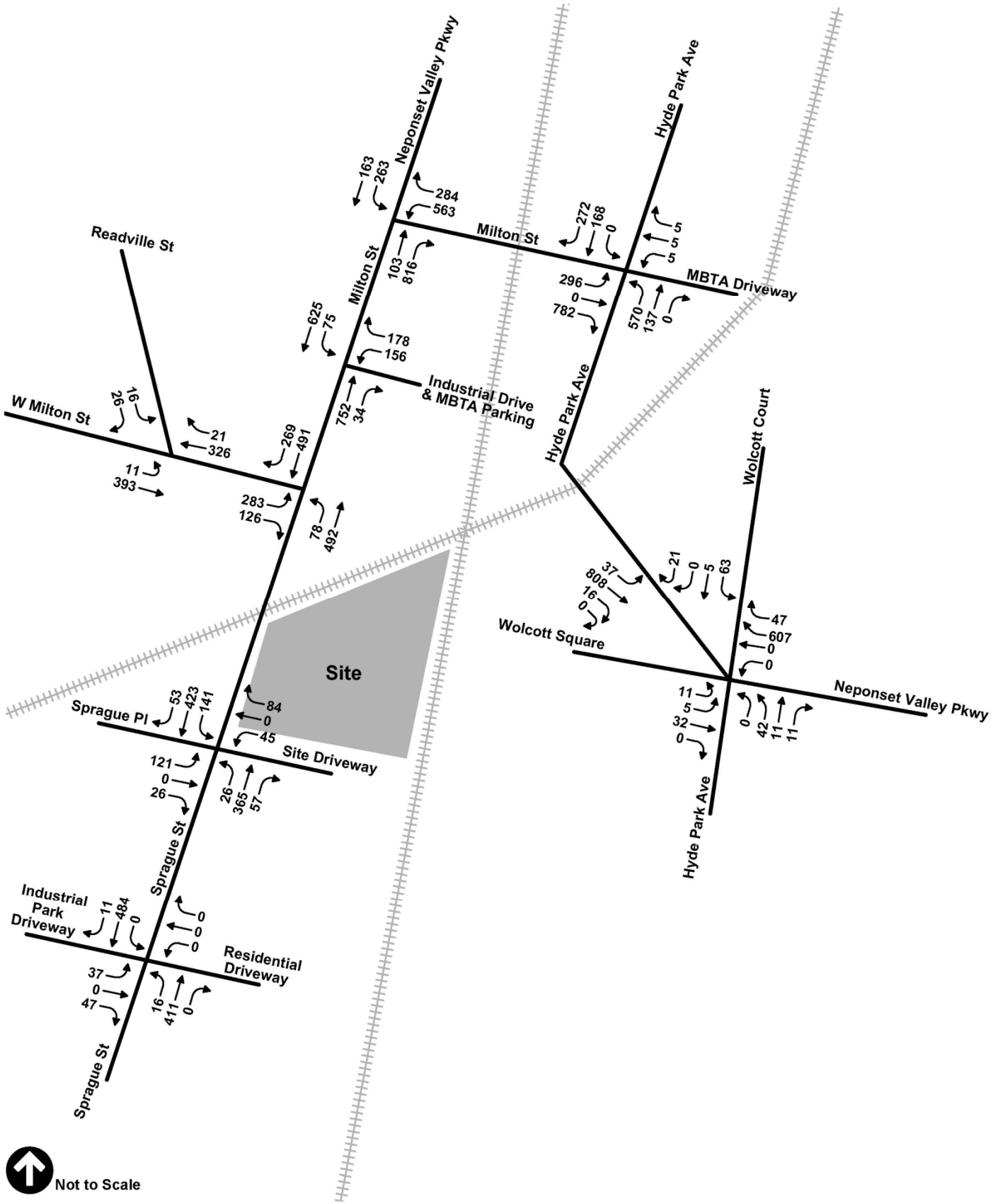
36-70 Sprague Street Readville, Massachusetts

Figure 3-19
Project Generated Vehicle Trips
PM Peak Hour (4:30 p.m. – 5:30 p.m.)



36-70 Sprague Street Readville, Massachusetts

Figure 3-20
2021 Build Condition Vehicle Volumes
AM Peak Hour (7:15 a.m. – 8:15 a.m.)



36-70 Sprague Street Readville, Massachusetts

Figure 3-21
2021 Build Condition Vehicle Volumes
PM Peak Hour (4:30 p.m. – 5:30 p.m.)

The expected traffic volume increases at the study area intersections for the 2016 Existing, 2021 No-Build, and 2021 Build Conditions for the traditional approach and the TOD approach are shown in Table 3-8. The expected impacts of the Project traffic on the study area intersections decrease as the distance from the site increases for both site scenarios. In Wolcott Square, traffic from the Project will increase the entering traffic volumes by only three percent over the 2021 No-Build Condition to 2021 Build Condition under traditional trip generation approach and two percent applying the TOD approach. At the west end of the Father Hart Bridge, traffic is forecast to increase by six percent during the morning peak and eight percent during the evening peak under the traditional analysis. Using the TOD approach, however, the traffic is forecast to increase by just four percent during the morning peak and six percent during the evening peak.

At every location studied (other than at the site driveway), the impact of the Project, in terms of percent increase in entering traffic, will be less than the traffic increases due to background growth and the previously approved Readville Yard 5 development, even using the traditional traffic forecasting approach without taking TOD considerations into account. When TOD considerations are taken into effect, this impact is expected to be even less.

Table 3-8 Percent Increase in Traffic Volumes at Study Area Intersections

Intersection Location	2016 Existing Condition	2021 No-Build Condition	% Increase from Existing	Traditional Approach using BTD Zone 12 Mode Split Data: 2021 Build Condition	Traditional Approach using BTD Zone 12 Mode Split Data: % Increase from No-Build	TOD Approach based on Research Studies: 2021 Build Condition	TOD Approach based on Research Studies: % Increase from No-Build
a.m. Peak Hour							
1) Sprague Street at Industrial Park Driveway	810	892	10%	944	6%	926	4%
2) Sprague Street at Sprague Place/Horne Street	840	925	10%	1,130	22%	1,060	15%
3) Sprague Street at West Milton Street/Milton Street	1,285	1,472	15%	1,625	10%	1,573	7%
4) Milton Street at Neponset Valley Parkway	1,800	2,041	13%	2,164	6%	2,123	4%
5) Hyde Park Avenue at Milton Street/MBTA Driveway	1,975	2,227	13%	2,309	4%	2,281	2%
6) Hyde Park Avenue at Neponset Valley Parkway/ Wolcott Court/Wolcott Square	1,665	1,847	11%	1,893	3%	1,879	2%
7) Milton Street at Industrial Drive/MBTA Parking	1,270	1,608	27%	1,731	8%	1,689	5%
p.m. Peak Hour							
1) Sprague Street at Industrial Park Driveway	850	936	10%	1,006	8%	984	5%
2) Sprague Street at Sprague Place/Horne Street	970	1,062	10%	1,341	26%	1,251	18%
3) Sprague Street at West Milton Street/Milton Street	1,335	1,530	15%	1,739	14%	1,671	9%
4) Milton Street at Neponset Valley Parkway	1,780	2,024	14%	2,192	8%	2,137	6%
5) Hyde Park Avenue at Milton Street/MBTA Driveway	1,880	2,128	13%	2,240	5%	2,204	4%
6) Hyde Park Avenue at Neponset Valley Parkway/ Wolcott Court/Wolcott Square	1,485	1,660	12%	1,716	3%	1,698	2%
7) Milton Street at Industrial Drive/MBTA Parking	1,305	1,652	27%	1,820	10%	1,766	7%

* Figures in the table indicate the total entering traffic of each intersection during the peak hour.

Pedestrian Environment and Accessibility

The main residential pedestrian access serving the Project is at the site's northernmost frontage on Sprague Street, directly across the Sprague Street Bridge from Readville Station. This primary pedestrian access is deliberately separated from the Project's primary vehicular access, though full pedestrian access will also be provided at the Project's driveways. The Project is proposing public access to Sprague Pond from the site as well as a community-oriented restaurant space that has direct pedestrian access from Sprague Street, both of which will encourage local walking trips. The new main pedestrian entrance will allow pedestrian access to Sprague Street, the MBTA Station, and Wolcott Square much more easily than today's condition. This new pedestrian connection encourages walking trips to and from the Readville MBTA Station and Wolcott Square. The Project will also reconstruct the sidewalk and accessible ramps at the site driveway.

3.5.3 2021 Build Mitigated Condition

The 2021 Build Mitigated Condition includes the 2021 Build Condition Project-generated trips with the addition of study area intersection improvements. This scenario demonstrates how the study area intersections could function but with intersection improvements and lane configuration modifications. The intersection improvements for this scenario include the addition of two new traffic signals to the intersections of Milton Street/Neponset Valley Parkway and Hyde Park Avenue/Milton Street/MBTA Driveway, at both ends of the Father Hart Bridge. These intersection improvements have been proposed by the Readville Yard 5 Project, and their details are currently being refined by the developer with the BTD in a Transportation Access Plan Agreement (TAPA). Additionally, in March, 2017 the City of Boston authorized the expenditure of $75,000 to fund an independent traffic study of Wolcott Square and surrounding area traffic. Further, the City will expend an additional $1.4 million to signalize both ends of the Father Hart Bridge and upgrade the existing signals in Wolcott Square to help alleviate the existing conditions. Specific signal phasing and timing plans have not been developed yet. These intersections have a large number of left turns, and a signal will better accommodate these turns. A phasing plan was assumed for the signal timing, and the splits and cycle length were optimized using the Synchro software for both intersections.

The site driveway will also be designed to accommodate left turns in and out of the Project site in separate lanes. The addition of a left turn lane on Sprague Street southbound could further help alleviate potential queuing of vehicles turning into the site. Conceptually, this would be accomplished by restriping Sprague Street. Another mitigation alternative may be to investigate the feasibility of adding a traffic signal to the intersection of Milton Street/West Milton Street/Sprague Street. A preliminary analysis indicates that a signal there is likely warranted. Exploration of whether or not the intersection meets the traffic signal warrants would be necessary.

3.6 Traffic Operations Analysis

Consistent with BTD Guidelines, Synchro 8 software was used to model level of service (LOS) operations at the study area intersections. LOS is a qualitative measure of control delay at an intersection providing an index to the operational qualities of a roadway or intersection.

LOS designations range from A to F, with LOS A representing the best operating conditions and LOS F representing the worst operating conditions. LOS D is normally considered acceptable in dense urban areas. LOS E indicates that vehicles experience significant delay, while LOS F suggests very long delays for the average driver. LOS thresholds differ for signalized and unsignalized intersections. Longer delays at signalized intersections than at unsignalized intersections are perceived as acceptable.

Table 3-9 below presents the level of service delay threshold criteria as defined in the 2000 Highway Capacity Manual (HCM).

Table 3-9 Level of Service Criteria

Level of Service	Unsignalized Intersection Control Delay (sec/veh)	Signalized Intersection Control Delay (sec/veh)
LOS A	≤ 10	≤ 10
LOS B	> 10-15	> 10-20
LOS C	> 15-25	> 20-35
LOS D	> 25-35	> 35-55
LOS E	> 35-50	> 55-80
LOS F	> 50	> 80

Source: 2000 Highway Capacity Manual (HCM)

Adjustments were made to the Synchro model to include characteristics of the study area such as heavy vehicles, bus operations, parking activity, and pedestrian crossings. The capacity analysis results for each condition and intersection are summarized in the following sections.

Signalized Capacity Analysis

The LOS results of the signalized capacity analyses are summarized in Table 3-10 and Table 3-11 for the 2016 Existing, 2021 No-Build, and 2021 Build Condition peak hours. It should be noted that due to the minimal changes in LOS when these analyses are performed using the traditional approach, a separate analysis of LOS at these intersections using the TOD approach has not been conducted. Detailed Synchro results are presented in Appendix B.

Table 3-10 Signalized Intersection Level of Service (LOS) Summary – Morning Peak Hour (Traditional Approach)

	2016 Existing Condition			2021 No-Build Condition			2021 Build Condition			2021 Build Mitigated Condition		
Location	*v/c*[1]	*Delay*[2]	*LOS*[3]	*v/c*	*Delay*	*LOS*	*v/c*	*Delay*	*LOS*	*v/c*	*Delay*	*LOS*
Hyde Park Avenue at Neponset Valley Parkway/Wolcott Court/Wolcott Square	**0.78**	**20.0**	**B**	**0.90**	**32.3**	**C**	**0.91**	**34.4**	**C**	**0.90**	**22.4**	**C**
Wolcott Square EB Left/Thru/Right	0.48	32.9	C	0.53	34.3	C	0.53	34.3	C	0.59	43.3	D
Hyde Park Avenue SEB Left/Thru/Right	0.39	16.3	B	0.42	19.4	B	0.43	21.7	C	0.41	9.3	A
Neponset Valley Parkway WB Left/Thru/Right	0.84	21.9	C	1.00	45.1	D	>1.0	48.0	D	0.94	31.2	C
Hyde Park Avenue NB Left/Thru/Right	0.35	24.2	C	0.37	23.9	C	0.37	24.0	C	0.50	30.7	C
Wolcott Court SB Left/Thru/Right	0.09	22.5	C	0.11	22.1	C	0.11	22.2	C	0.11	27.3	C
Milton Street at Neponset Valley Parkway[4]	**-**	**>80.0**	**F**	**-**	**>80.0**	**F**	**-**	**>80.0**	**F**	**0.76**	**19.5**	**B**
Milton Street WB Right/Left	>1.0	>80.0	F	>1.0	>80.0	F	>1.0	>80.0	F	-	-	-
Milton Street WB Right	-	-	-	-	-	-	-	-	-	0.32	10.8	B
Milton Street WB Left	-	-	-	-	-	-	-	-	-	0.93	24.7	C
Hyde Park Avenue at Milton Street/MBTA Driveway [4]	**-**	**>80.0**	**F**	**-**	**>80.0**	**F**	**-**	**>80.0**	**F**	**>1.0**	**>80.0**	**F**
Milton Street EB Left/Thru/Right	>1.0	>80.0	F	>1.0	>80.0	F	>1.0	>80.0	F	>1.0	>80.0	F
MBTA Driveway WB Left/Thru/Right	>1.0	>80.0	F	>1.0	>80.0	F	>1.0	>80.0	F	0.03	10.9	B

1 volume to capacity ratio
2 delay in seconds
3 level of service
4 signalized under 2021 Build Mitigated Condition

Table 3-11 Signalized Intersection Level of Service (LOS) Summary – Evening Peak Hour (Traditional Approach)

	2016 Existing Condition			2021 No-Build Condition			2021 Build Condition			2021 Build Mitigated Condition		
Location	*v/c*[1]	*Delay*[2]	*LOS*[3]	*v/c*	*Delay*	*LOS*	*v/c*	*Delay*	*LOS*	*v/c*	*Delay*	*LOS*
Hyde Park Avenue at Neponset Valley Parkway/Wolcott Court/Wolcott Square	**0.76**	**19.0**	**B**	**0.87**	**27.1**	**C**	**0.89**	**29.6**	**C**	**0.70**	**14.6**	**B**
Wolcott Square EB Left/Thru/Right	0.58	36.7	D	0.62	40.1	D	0.63	42.2	D	0.62	42.9	D
Hyde Park Avenue SEB Left/Thru/Right	0.81	19.9	B	0.96	34.8	C	0.98	38.9	D	0.46	9.8	A
Neponset Valley Parkway WB Left/Thru/Right	0.63	14.6	B	0.70	16.6	B	0.75	18.2	B	0.67	14.4	B
Hyde Park Avenue NB Left/Thru/Right	0.37	25.1	C	0.39	24.7	C	0.39	24.7	C	0.51	30.9	C
Wolcott Court SB Left/Thru/Right	0.08	23.1	C	0.09	22.6	C	0.09	22.6	C	0.09	27.1	C
Milton Street at Neponset Valley Parkway[4]	**-**	**>80.0**	**F**	**-**	**>80.0**	**F**	**-**	**>80.0**	**F**	**0.71**	**21.4**	**C**
Milton Street WB Right/Left	>1.0	>80.0	F	>1.0	>80.0	F	>1.0	>80.0	F	-	-	-
Milton Street WB Right	-	-	-	-	-	-	-	-	-	0.17	12.9	B
Milton Street WB Left	-	-	-	-	-	-	-	-	-	0.84	26.4	C
Hyde Park Avenue at Milton Street/MBTA Driveway [4]	**-**	**>80.0**	**F**	**-**	**>80.0**	**F**	**-**	**>80.0**	**F**	**0.87**	**28.7**	**C**
Milton Street EB Left/Thru/Right	>1.0	>80.0	F	>1.0	>80.0	F	>1.0	>80.0	F	0.78	34.3	C
MBTA Driveway WB Left/Thru/Right	>1.0	>80.0	F	>1.0	>80.0	F	>1.0	>80.0	F	0.04	3.9	A

1 volume to capacity ratio
2 delay in seconds
3 level of service
4 signalized under 2021 Build Mitigated Condition

Overall, the intersection LOS for the Hyde Park Avenue/Neponset Valley Parkway/Wolcott Square/Wolcott Court intersection will be minimally affected with the proposed Project in place. Overall morning and evening peak LOS is expected to change from LOS B to LOS C in the 2021 No-Build Condition due to general background growth as well as project trips from the Readville Yard 5 development; this will not change in the 2021 Build Condition. During the evening peak hour, the overall intersection LOS will return to LOS B under the 2021 Build Mitigated Condition. The new Project trips are expected to have only a small impact on LOS and delay.

Unsignalized Capacity Analysis

The LOS results of the unsignalized capacity analyses are summarized in Table 3-12 and Table 3-13 for the 2016 Existing, 2021 No-Build, and 2021 Build Condition peak hours. Similar to the signalized capacity analysis, it should be noted that due to the minimal changes in LOS when these analyses are performed using the traditional approach, a separate analysis of LOS at these intersections using the TOD approach has not been conducted. Detailed Synchro results are presented in Appendix B.

Similar to the signalized LOS analysis, the proposed Project is expected to have only a small effect on unsignalized intersections operations in the study area. The only intersection that experiences a material decrease in LOS due to the Project is the intersection of Horne Street (the private road that provides access to the Project site and the Brinks warehouse) and Sprague Street, as would be expected due to the concentration of vehicle trips at that driveway before dispersing in various directions. The morning peak hour decreases from LOS A to LOS E and the evening peak hour decreases from LOS D to LOS F from the No-Build to Build Condition. The addition of a right turn lane and a left/thru lane on the Horne Street approach increases the performance of the intersection in the 2021 Build Mitigated Condition, most notably during the morning peak hour. The Synchro software analyzes unsignalized intersections with a calculated conservative vehicle gap (7-8 seconds) for drivers to turn onto the main road in the stream of traffic. Given the nature of Boston area drivers, many will choose to accept a shorter gap, which would result in a higher LOS than reported in the tables above.

Other than the Horne Street/Project driveway intersection, the performance of the other study area intersections is affected primarily by the increase in background traffic during both morning and evening peak hours. This is due in part to the addition of the Readville Yard 5 project trips to the network and general background growth. Combined, the Readville Yard 5 project and the expected background growth will have a larger impact than the trips generated by the Project.

Table 3-12 Unsignalized Intersection Level of Service (LOS) Summary – Morning Peak Hour (Traditional Approach)

	2016 Existing Condition			2021 No-Build Condition			2021 Build Condition			2021 Build Mitigated Condition		
Location	*v/c*[1]	*Delay*[2]	*LOS*[3]	*v/c*	*Delay*	*LOS*	*v/c*	*Delay*	*LOS*	*v/c*	*Delay*	*LOS*
Sprague Street at Industrial Park Driveway	**-**	**0.6**	**A**	**-**	**0.6**	**A**	**-**	**0.6**	**A**	**-**	**0.6**	**A**
Industrial Park Driveway EB Left/Right	0.04	13.9	B	0.04	14.9	B	0.04	15.6	C	0.04	15.6	C
Sprague Street at Sprague Place/Horne Street	**-**	**1.3**	**A**	**-**	**1.4**	**A**	**-**	**39.3**	**E**	**-**	**9.5**	**A**
Sprague Place EB Left/Thru/Right	0.03	21.1	C	0.03	24.1	C	0.11	73.1	F	0.11	73.1	F
Horne Street WB Thru	0.15	26.6	D	0.19	32.0	D	>1.0	>80.0	F	-	-	-
Horne Street WB Left/Thru	-	-	-	-	-	-	-	-	-	0.69	>80.0	F
Horne Street WB Right	-	-	-	-	-	-	-	-	-	0.54	26.1	D
Sprague Street at West Milton Street/Milton Street	**-**	**28.2**	**D**	**-**	**55.7**	**F**	**-**	**>80.0**	**F**	**-**	**>80.0**	**F**
West Milton Street EB Left/Right	-	23.1	C	-	41.8	E	-	44.6	E	-	44.6	E
Sprague Street NB Left/Thru	-	44.2	E	-	>80.0	F	-	>80.0	F	-	>80.0	F
Milton Street SB Thru/Right	-	15.6	C	-	19.5	C	-	22.0	C		22.0	C
Milton Street at Industrial Drive/MBTA Parking	**-**	**5.8**	**A**	**-**	**60.7**	**F**	**-**	**>80.0**	**F**	**-**	**79.5**	**F**
Industrial Drive WB Left/Right	0.68	45.3	E	>1.0	>80.0	F	>1.0	>80.0	F	>1.0	>80.0	F

1 volume to capacity ratio
2 delay in seconds
3 level of service

Table 3-13 Unsignalized Intersection Level of Service (LOS) Summary – Evening Peak Hour (Traditional Approach)

	2016 Existing Condition			2021 No-Build Condition			2021 Build Condition			2021 Build Mitigated Condition		
Location	*v/c*[1]	*Delay*[2]	*LOS*[3]	*v/c*	*Delay*	*LOS*	*v/c*	*Delay*	*LOS*	*v/c*	*Delay*	*LOS*
Sprague Street at Industrial Park Driveway	**-**	**2.0**	**A**	**-**	**2.2**	**A**	**-**	**2.2**	**A**	**-**	**2.2**	**A**
Industrial Park Driveway EB Left/Right	0.25	15.9	C	0.29	17.8	C	0.31	19.3	C	0.31	19.3	C
Sprague Street at Sprague Place/Horne Street	**-**	**15.4**	**C**	**-**	**26.0**	**D**	**-**	**>80.0**	**F**	**-**	**>80.0**	**F**
Sprague Place EB Left/Thru/Right	0.88	68.0	F	>1.0	>80.0	F	>1.0	>80.0	F	>1.0	>80.0	F
Horne Street WB Thru	0.17	19.9	C	0.21	22.8	C	0.95	>80.0	F	-	-	-
Horne Street WB Left/Thru	-	-	-	-	-	-	-	-	-	0.73	>80.0	F
Horne Street WB Right	-	-	-	-	-	-	-	-	-	0.23	12.5	B
Sprague Street at West Milton Street/Milton Street	**-**	**38.1**	**E**	**-**	**54.8**	**F**	**-**	**>80.0**	**F**	**-**	**>80.0**	**F**
West Milton Street EB Left/Right	-	30.7	D	-	39.5	E	-	50.3	F	-	50.3	F
Sprague Street NB Left/Thru	-	62.0	F	-	>80.0	F	-	>80.0	F	-	>80.0	F
Milton Street SB Thru/Right	-	20.8	C	-	28.9	D	-	73.4	F		73.4	F
Milton Street at Industrial Drive/MBTA Parking	**-**	**4.3**	**A**	**-**	**>80.0**	**F**	**-**	**>80.0**	**F**	**-**	**>80.0**	**F**
Industrial Drive WB Left/Right	0.59	42.9	E	>1.0	>80.0	F	>1.0	>80.0	F	>1.0	>80.0	F

1 volume to capacity ratio
2 delay in seconds
3 level of service

3.7 Transportation Mitigation

Public Transportation

As mentioned previously, the Fairmount Station is located in Commuter Rail Zone 1A, where the one-way fare is $2.25 and a monthly commuter rail pass is $84.50. With this significant daily and monthly fare difference between the Fairmount and Readville Stations, which are just one stop apart – there has been a disincentive for local residents to use the Readville Station and instead drive north to Fairmount Station creating additional traffic. The Project team as well as other groups and constituencies has been in discussions with the MBTA regarding how this discrepancy can be addressed so that area residents make use of the Readville Station rather than driving to Fairmount Station.

Bicycle Access

The Project will provide covered and secure bicycle spaces in Building #2. The Project will also provide outdoor, public bicycle racks on the site for visitors to the residents and the proposed community space. There are no surrounding Hubway services because the Hubway network does not currently extend to Hyde Park. All bike parking will conform to the City of Boston's Bicycle Parking Guidelines.

Loading and Service

The proposed Project will service trash pickup on-site at the base of the entrance roadway ramp and in the garage as indicated in Figure 3-3. Move in/move-out loading guidelines will be developed to minimize disruption and congestion. Since the individual buildings will be completed and open at different times, the effect of opening the Project will be modest and gradual.

3.7.1 Transportation Demand Management

The Proponent is committed to optimizing the transit-oriented opportunity afforded by the site to minimize auto travel and encourage alternative travel modes. The parking ratio of 0.94 space per unit (as detailed in Section 3.8) is intended to help reduce auto trip-making and result in fewer traffic impacts.

The Proponent will support a program of transportation demand management (TDM) actions to reduce single occupancy vehicle automobile trips, encourage car/van-pooling, and expand the use of transit, biking, and walking.

The following potential TDM measures are anticipated as part of the proposed Project to encourage residents to use alternatives to single occupancy vehicle travel:

- The Proponent will designate a Transportation Coordinator to oversee parking, loading, and move-in/move-out operations. This designated staff person will also be responsible for promoting the use of alternative transportation measures and carpooling.

- The Proponent will provide transit information such as maps, schedules, and other relevant information about commuting options to new residents in an orientation package and provide this information in each residential lobby.

- The on-site staff will be offered subsidized monthly MBTA passes to reduce driving to/from the site.

- The Proponent will provide a free transit pass for the initial month to each new tenant to encourage usage of the area's MBTA services

- The Proponent will work with Zipcar (with whom it has already had discussions) and/or other carsharing companies to establish service at the site.

- The Project includes both covered/secure bicycle storage and public outdoor bicycle spaces. These bicycle spaces will be provided in accordance with the BTD guidelines. The Proponent will provide 104 outdoor bicycle spaces (one per five units) and 521 secure storage spaces (one per unit). Bicycle racks, signs, and parking areas will conform to BTD standards and be cited in safe, secure locations.

- The Proponent will designate preferred parking spaces in the garage for carpools and vanpools.

- The Proponent will construct a new pedestrian connection to Sprague Street, shortening the walk to the Readville MBTA Station and Wolcott Square.

3.8 Parking

The Project will include approximately 532 parking spaces, including 492 parking spaces below the residential buildings and plazas, 34 surface parking spaces for the restaurant and pondside park, and 6 spaces for drop off and short term parking. In the event that additional parking is required, the Project may include up to 30 additional spaces on a landlocked City of Boston parcel between Buildings 3 and 4 and the railroad right-of-way, subject to BPDA and City approval.

The supply of on-site parking proposed as part of the Project was developed to meet the following criteria:

- Minimize Project parking demands on the surrounding study area.

- Provide sufficient on-site parking to accommodate the anticipated residential demand.

- Encourage the use of available bus, commuter rail, walking, and cycling facilities.

It should be noted that based on the studies referenced in Section 3.5.2 above, the amount of parking provided is more than the Proponent believes will actually be required. It is possible that if all parking currently envisioned is not utilized once the Project leases up, certain parking areas may be re-purposed for other amenity uses.

The surrounding area mainly has on-street parking that is either unregulated residential parking or no parking zones. The on-street parking for the study area is illustrated in Figure 3-13.

3.9 Construction Management

The Proponent will develop a detailed evaluation of potential short-term construction-related transportation impacts including construction vehicle traffic, parking supply and demand, and pedestrian access. Detailed Construction Management Plans (CMP) will be developed and submitted to the BTD for their approval.

Construction vehicles will be necessary to move construction materials to and from the Project site. Every effort will be made to reduce the noise, control fugitive dust, and minimize other disturbances associated with construction traffic. Truck staging and laydown areas for the Project will be carefully planned. The need for street occupancy (lane closures) along Sprague Street is not known at this time.

Contractors will be encouraged to devise access plans for their personnel that de-emphasize auto use (such as providing off-site parking, providing transit subsidies, on-site lockers, etc.) Construction workers will also be encouraged to use public transportation to access the Project site because parking, if available, will be limited. Because of the construction workers' early arrival/departure (typically 7:00 a.m. – 4:00 p.m.) schedule, conflicts with evening peak traffic are not expected.

During the construction period, pedestrian activity adjacent to the site may be affected by sidewalk closures. A variety of measures will be considered and implemented to protect the safety of pedestrians. Temporary walkways, appropriate lighting, and new directional and informational signage to direct pedestrians around the construction site will be provided. After construction is complete, finished pedestrian sidewalks will be permanently reconstructed to meet ADA standards around the new facilities.

3.10 Other Transportation Improvements

The Proponent is prepared to contribute toward design and construction of the planned roadway and signalization improvements that are current being studied by the City.

3.11 Transportation Access Plan Agreement

A Transportation Access Plan Agreement (TAPA) will be entered into between the Proponent and BTD. The TAPA will codify the specific mitigation actions and agreements between the Proponent and the City of Boston.

Chapter 4.0

Environmental Review Component

4.0 ENVIRONMENTAL REVIEW COMPONENT

4.1 Wind

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.

The Project site is in an area with minimal pedestrian activity. Directly adjacent to the eastern edge of the Project site are MBTA Commuter Rail train tracks. To the north and west of the site are large industrial buildings along with surface parking lots. The south and southwest of the Project site is where pedestrian activity is most likely, as this area is occupied by Sprague Pond, as well as a series of two-story residential buildings. However, this area will be mostly buffered from the Project by a series of trees, which serve to reduce wind speeds. Due to the Project's location in a low-density area, along with the significant landscaping included in the Project, wind impacts are not anticipated.

4.2 Shadow

4.2.1 Introduction and Methodology

As typically required by the BPDA, a shadow impact analysis was conducted to investigate shadow impacts from the Project during three time periods (9:00 a.m., 12:00 noon, and 3:00 p.m.) during the vernal equinox (March 21), summer solstice (June 21), autumnal equinox (September 21), and winter solstice (December 21). In addition, shadow studies were conducted for the 6:00 p.m. time period during the summer solstice and autumnal equinox.

The shadow analysis presents the existing shadow and new shadow that would be created by the proposed Project, illustrating the incremental impact of the Project. The analysis focuses on nearby open spaces, sidewalks and bus stops adjacent to and in the vicinity of the Project site. Shadows have been determined using the applicable Altitude and Azimuth data for Boston. Figures showing the net new shadow from the Project are provided in Figures 4.2-1 to 4.2-14 at the end of this section.

The analysis shows that the Project's impacts will generally be limited to the immediately surrounding streets, sidewalks and adjacent train tracks. No new shadow will be cast onto nearby open spaces or bus stops during the time periods studied.

4.2.2 Vernal Equinox (March 21)

At 9:00 a.m. during the vernal equinox, new shadow will be cast to the west across portions of the Project site, Sprague Street and its sidewalks, and onto a portion of the train tracks to the west of Sprague Street.

At 12:00 p.m., new shadow will be cast to the northwest, with new shadow on portions of the Project site, Sprague Street and its eastern sidewalk, and the train tracks to the north of the site.

At 3:00 p.m., new shadow will be cast to the northeast, with new shadow cast onto portions of the Project site and the train tracks to the east of the site.

No new shadow will be cast onto nearby open spaces or bus stops during the time periods studied.

4.2.3 Summer Solstice (June 21)

At 9:00 a.m. during the summer solstice, new shadow will be cast to the west across portions of the Project site and a portion of Sprague Street and its sidewalks.

At 12:00 p.m., new shadow will be minimal and cast to the northwest, with new shadow cast onto portions of the Project site and a small portion of Sprague Street and its eastern sidewalk.

At 3:00 p.m., new shadow will be cast to the northeast, with new shadow cast onto portions of the Project site and the train tracks to the east of the site.

At 6:00 p.m., new shadow will be cast to the east across portions of the Project site and the train tracks to the east of the site.

No new shadow will be cast onto nearby open spaces or bus stops during the time periods studied.

4.2.4 Autumnal Equinox (September 21)

At 9:00 a.m. during the vernal equinox, new shadow will be cast to the west across portions of the Project site, Sprague Street and its sidewalks, and onto a portion of the train tracks to the west of Sprague Street.

At 12:00 p.m., new shadow will be cast to the northwest, with new shadow on portions of the Project site, Sprague Street and its sidewalks, and the train tracks to the north of the site.

At 3:00 p.m., new shadow will be cast to the northeast, with new shadow cast onto portions of the Project site and the train tracks to the east of the site.

At 6:00 p.m., new shadow will be cast to the east across portions of the Project site and the train tracks to the east of the site, as well as portions of Hyde Park Avenue and its sidewalks not already under existing shadow.

No new shadow will be cast onto nearby open spaces or bus stops during the time periods studied.

4.2.5 Winter Solstice (December 21)

At 9:00 a.m. during the winter solstice, new shadow will be cast to the west across portions of the Project site, Sprague Street and its sidewalks and nearby train track areas.

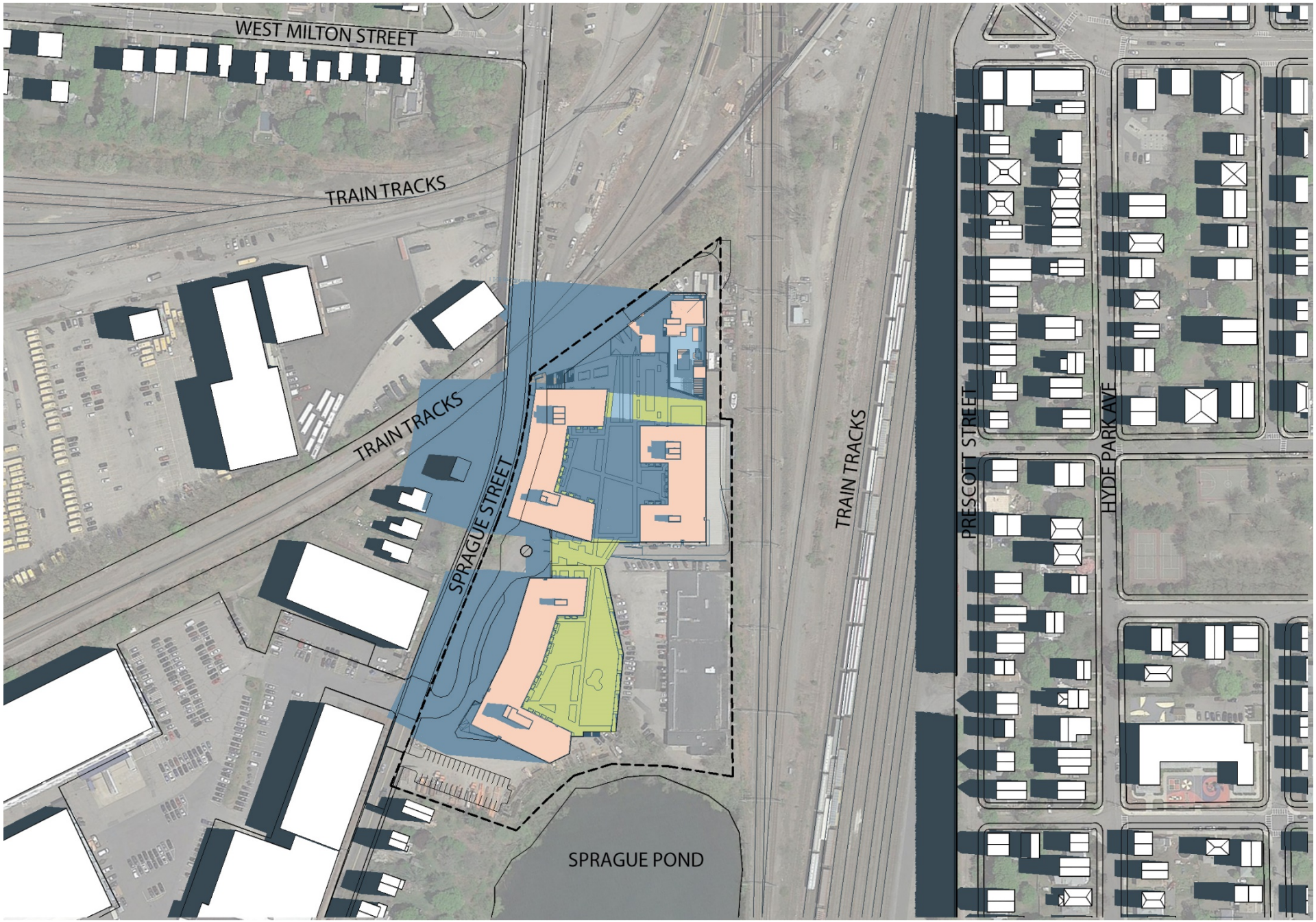
At 12:00 p.m., new shadow will be cast to the northwest, with new shadow on portions of the Project site, Sprague Street and its sidewalks, and the train tracks to the north and west of the site.

At 3:00 p.m., new shadow will be cast to the northeast, with new shadow cast onto portions of the Project site and the train tracks to the north and east of the site.

No new shadow will be cast onto nearby open spaces or bus stops during the time periods studied.

4.2.6 Conclusions

Fourteen time periods were studied to determine the extent of new shadow to be cast by the Project. The shadow study shows that new shadow will mainly be cast across nearby streets and the train tracks. No new shadow will fall on an existing open space.

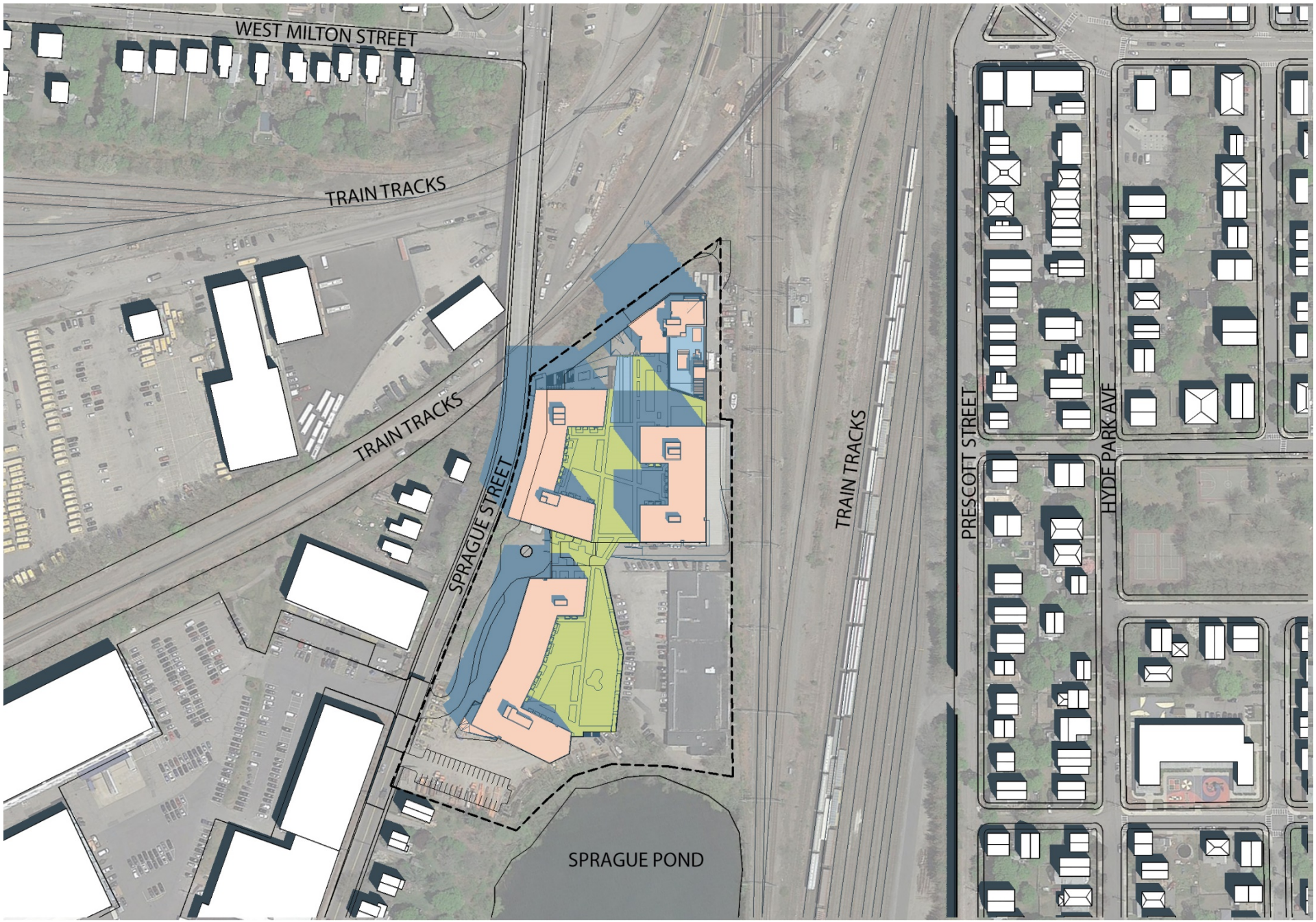


36-70 Sprague Street Readville, Massachusetts

bh+a

Figure 4.2-1

Shadow Study: March 21, 9:00 a.m.

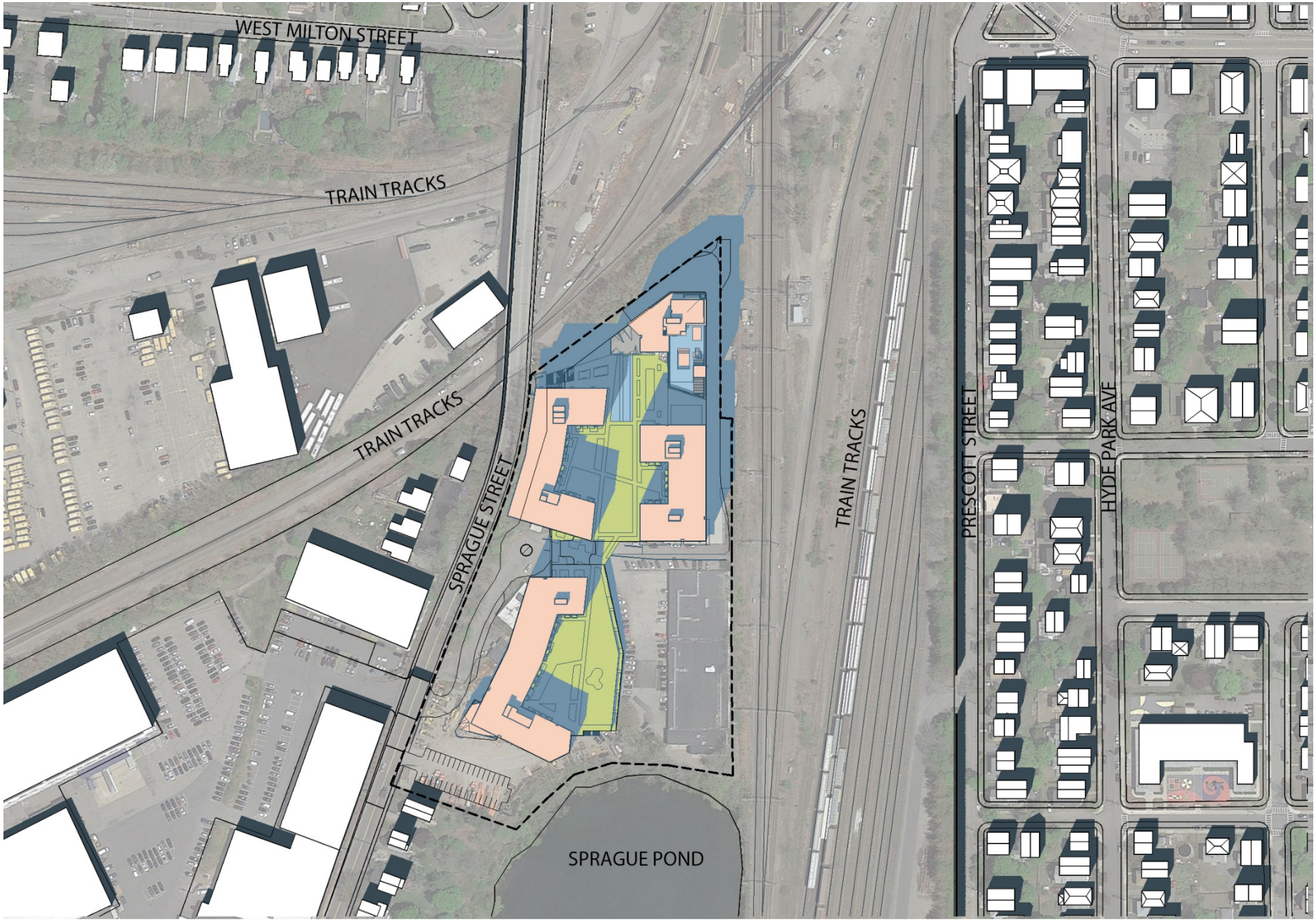


36-70 Sprague Street Readville, Massachusetts

bh+a

Figure 4.2-2

Shadow Study: March 21, 12:00 p.m.

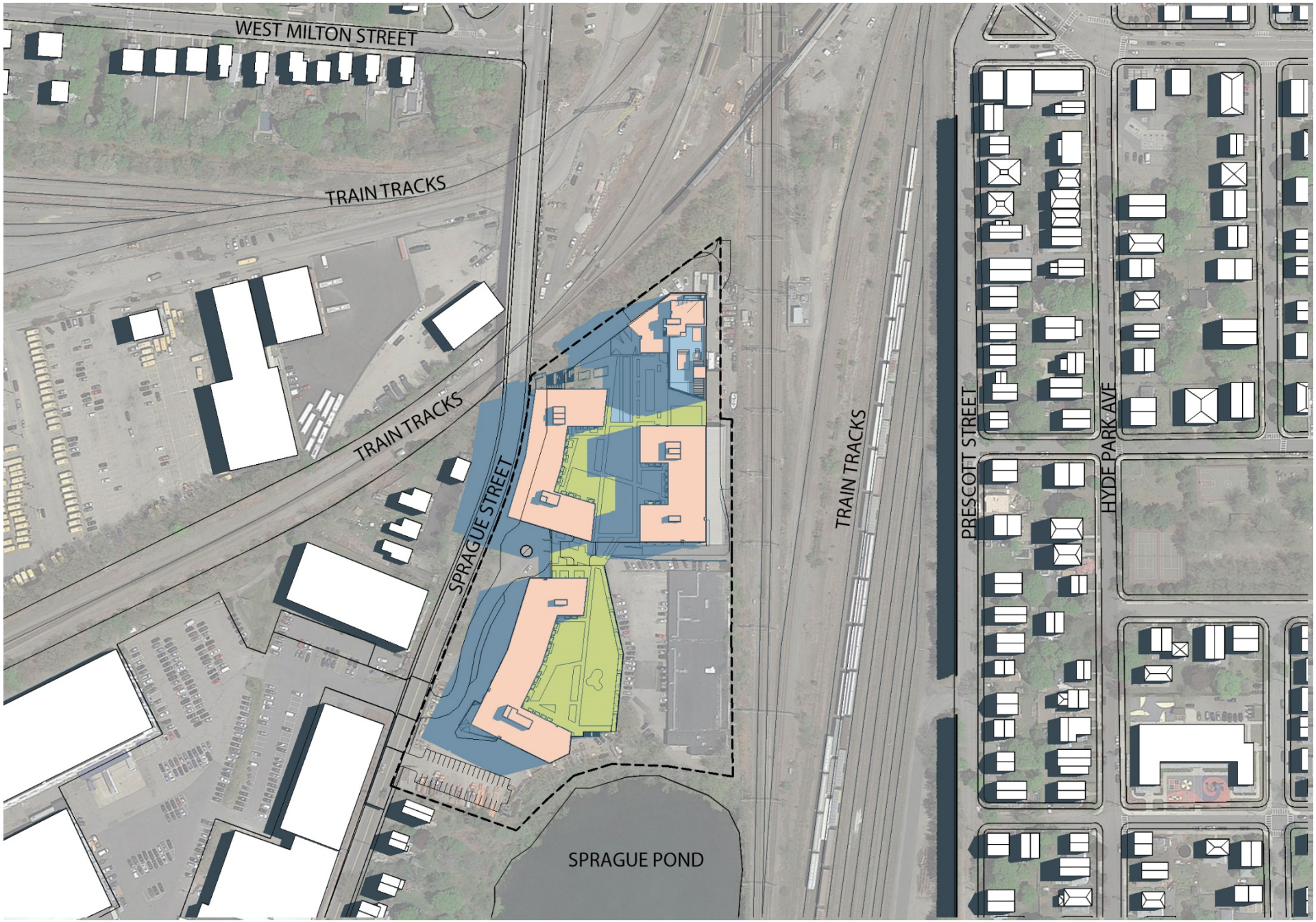


36-70 Sprague Street Readville, Massachusetts

bh+a

Figure 4.2-3

Shadow Study: March 21, 3:00 p.m.

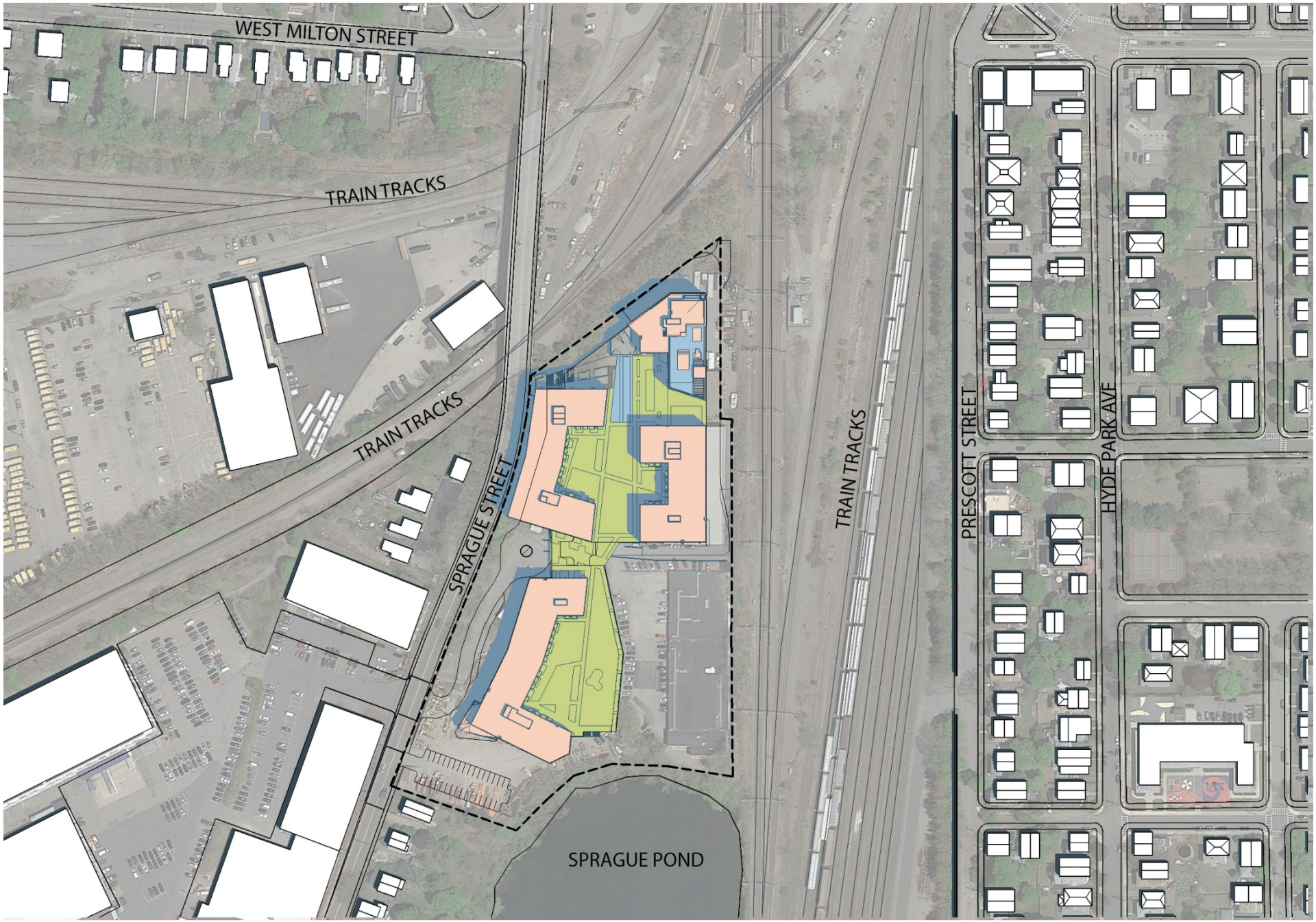


36-70 Sprague Street Readville, Massachusetts

bh+a

Figure 4.2-4

Shadow Study: June 21, 9:00 a.m.

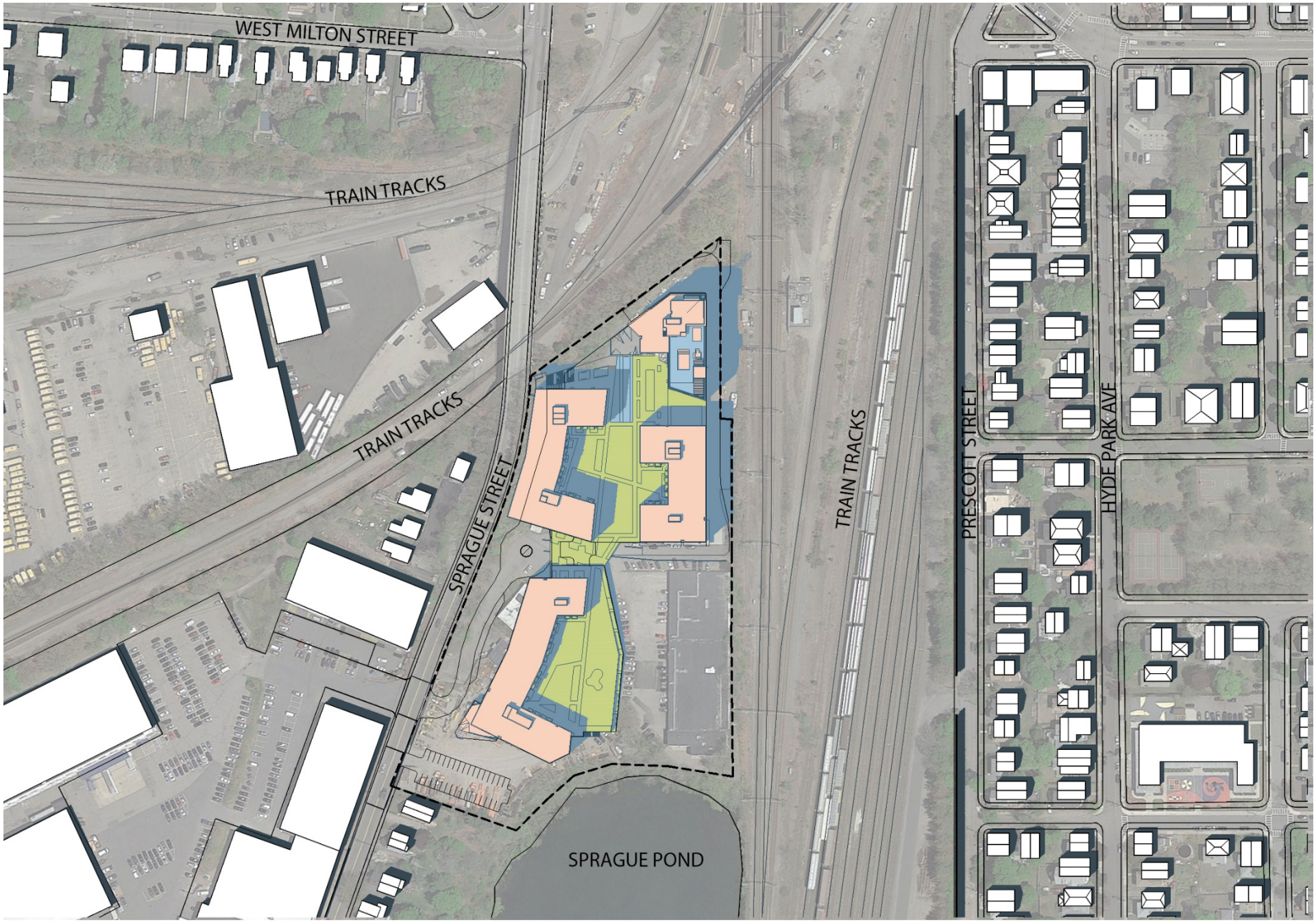


36-70 Sprague Street Readville, Massachusetts

bh+a

Figure 4.2-5

Shadow Study: June 21, 12:00 p.m.

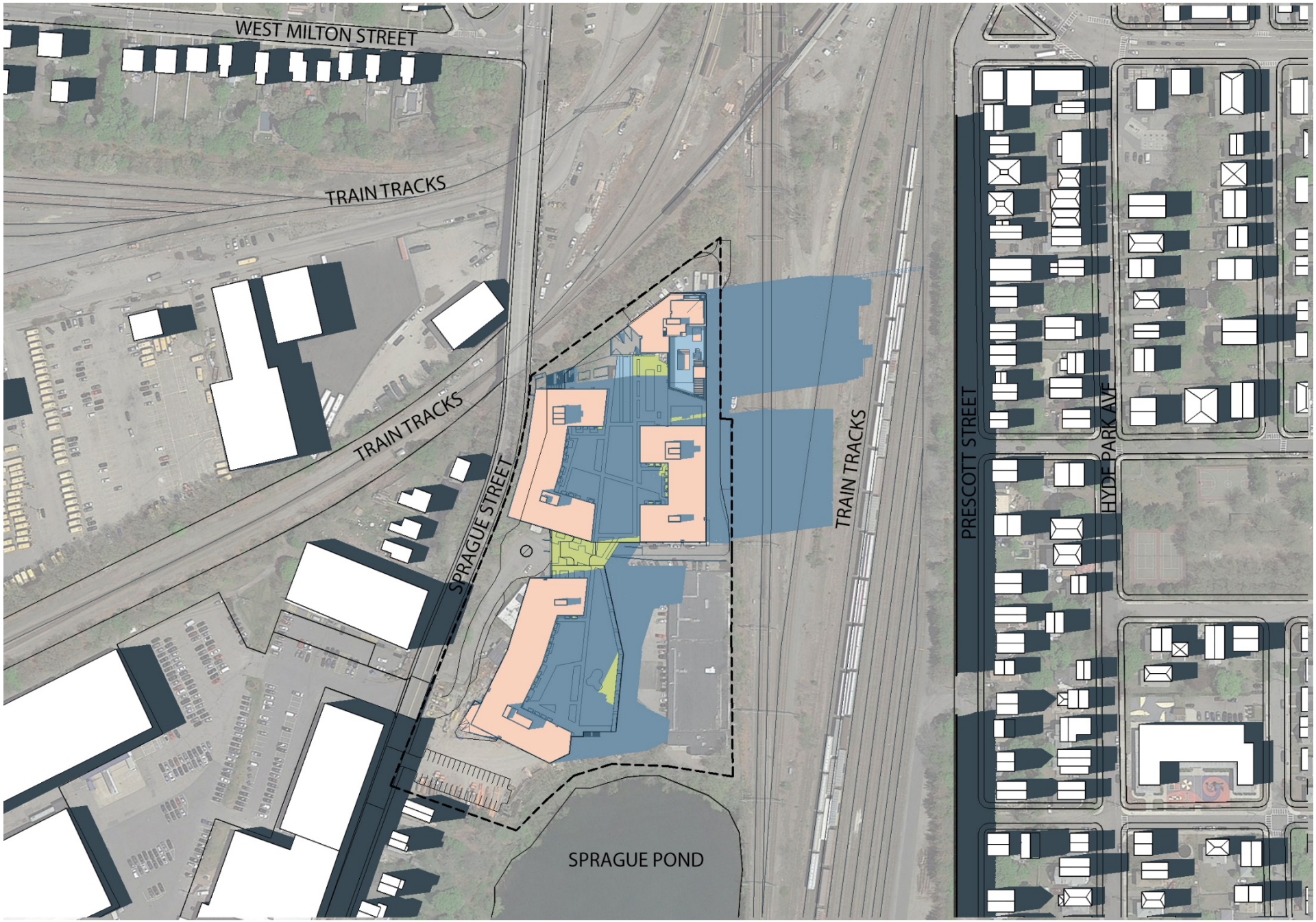


36-70 Sprague Street Readville, Massachusetts

bh+a

Figure 4.2-6

Shadow Study: June 21, 3:00 p.m.

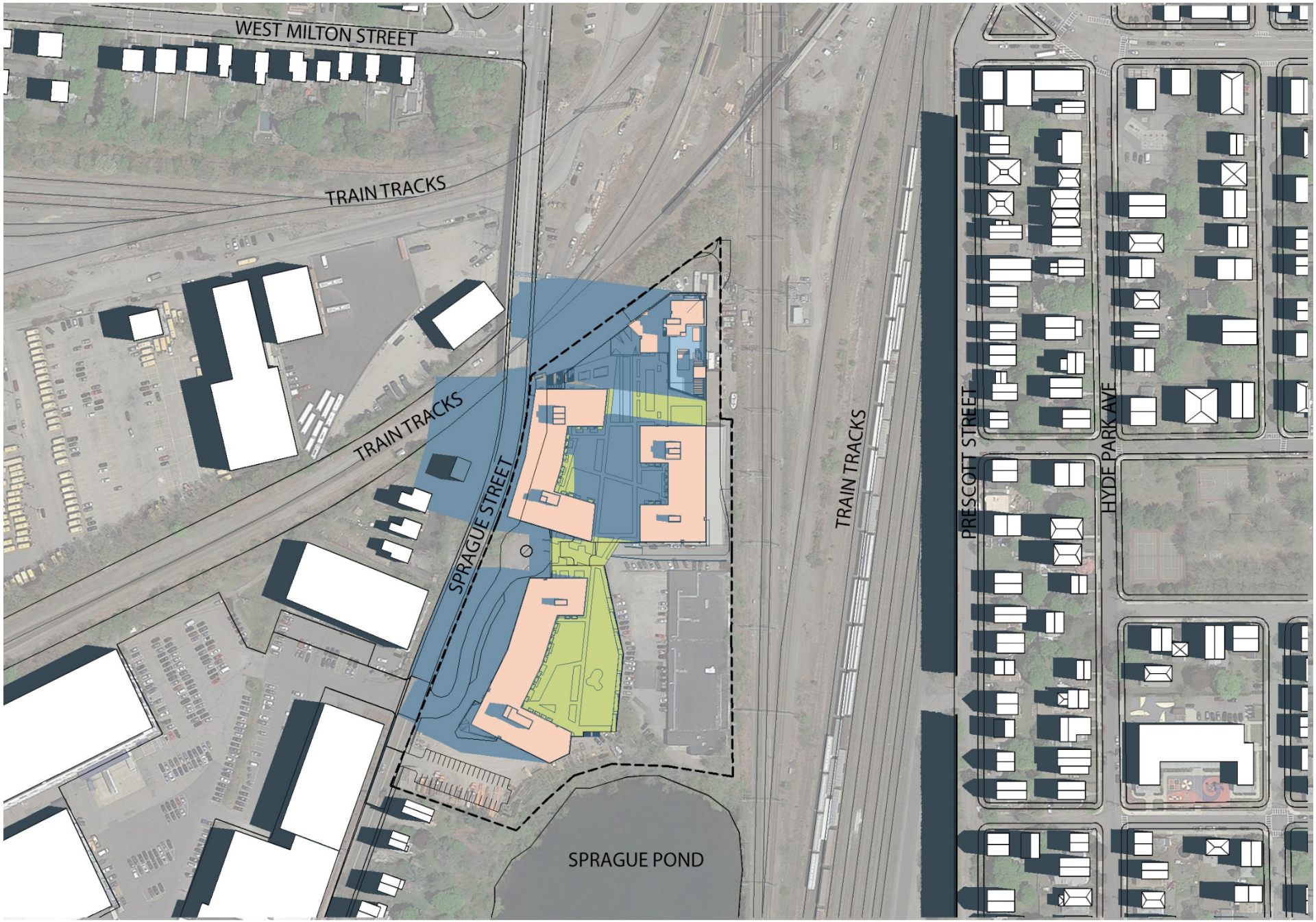


36-70 Sprague Street Readville, Massachusetts

bh+a

Figure 4.2-7

Shadow Study: June 21, 6:00 p.m.

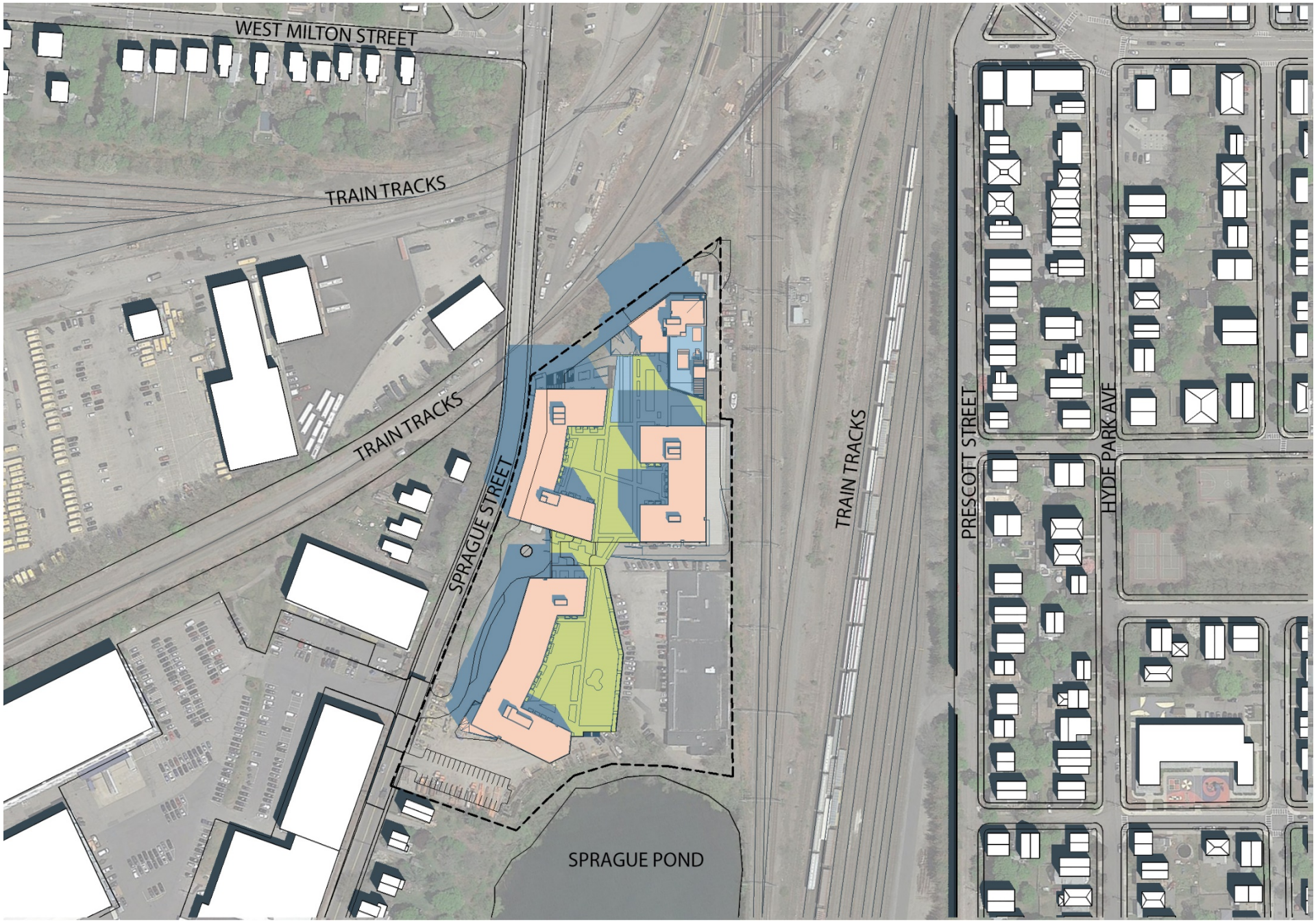


36-70 Sprague Street Readville, Massachusetts

bh+a

Figure 4.2-8

Shadow Study: September 21, 9:00 a.m.

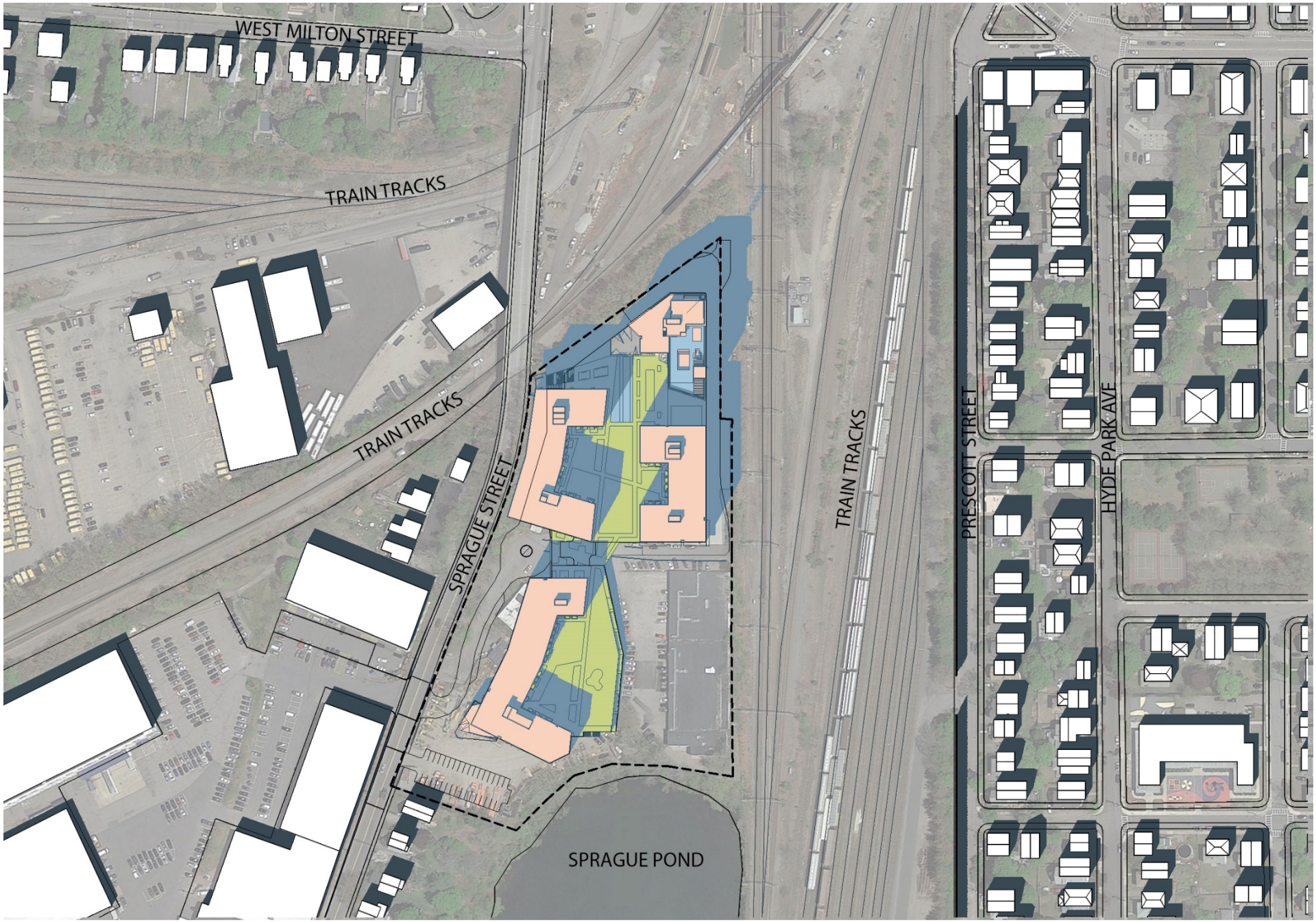


36-70 Sprague Street Readville, Massachusetts

bh+a

Figure 4.2-9

Shadow Study: September 21, 12:00 p.m.

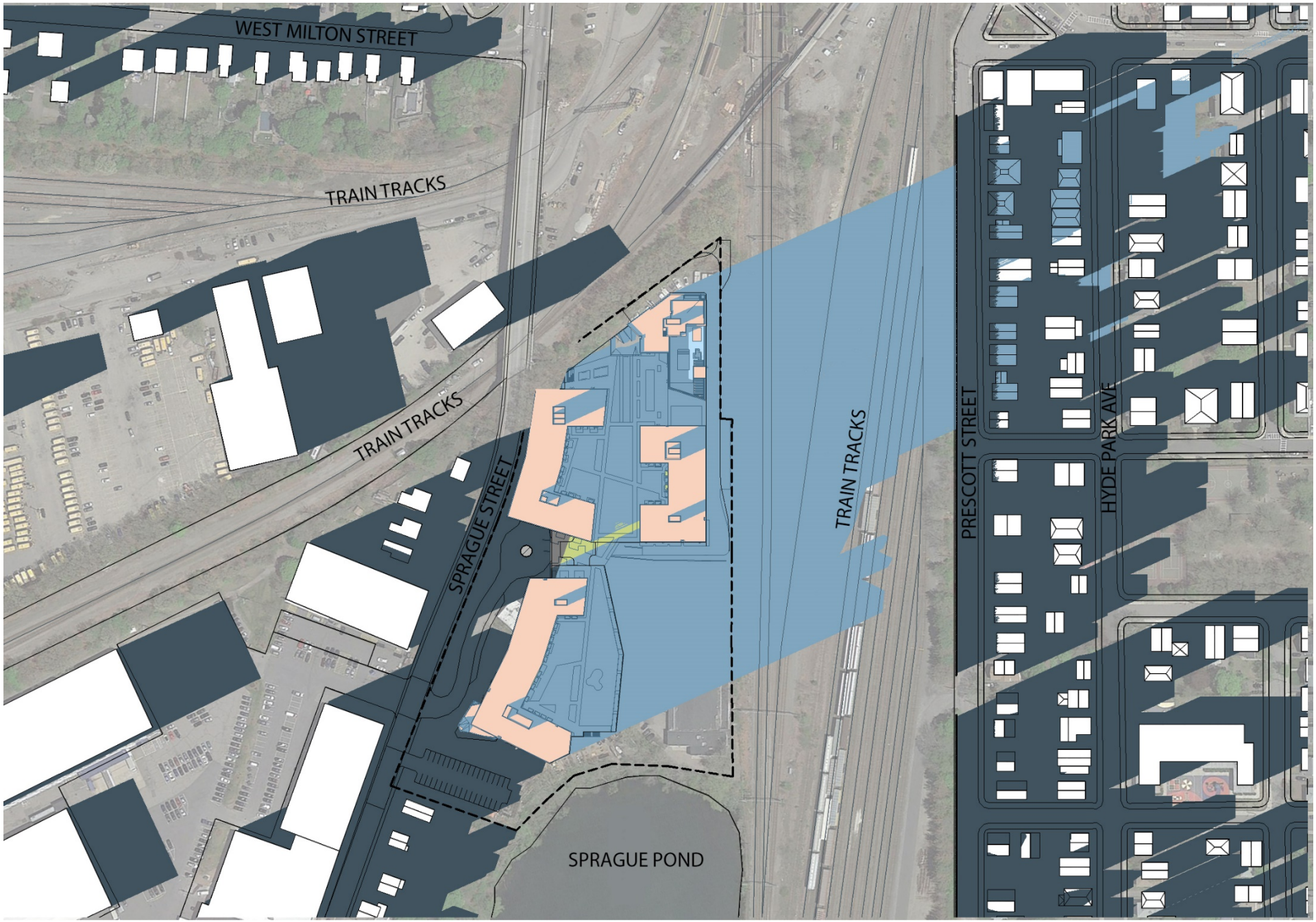


36-70 Sprague Street Readville, Massachusetts

bh+a

Figure 4.2-10

Shadow Study: September 21, 3:00 p.m.

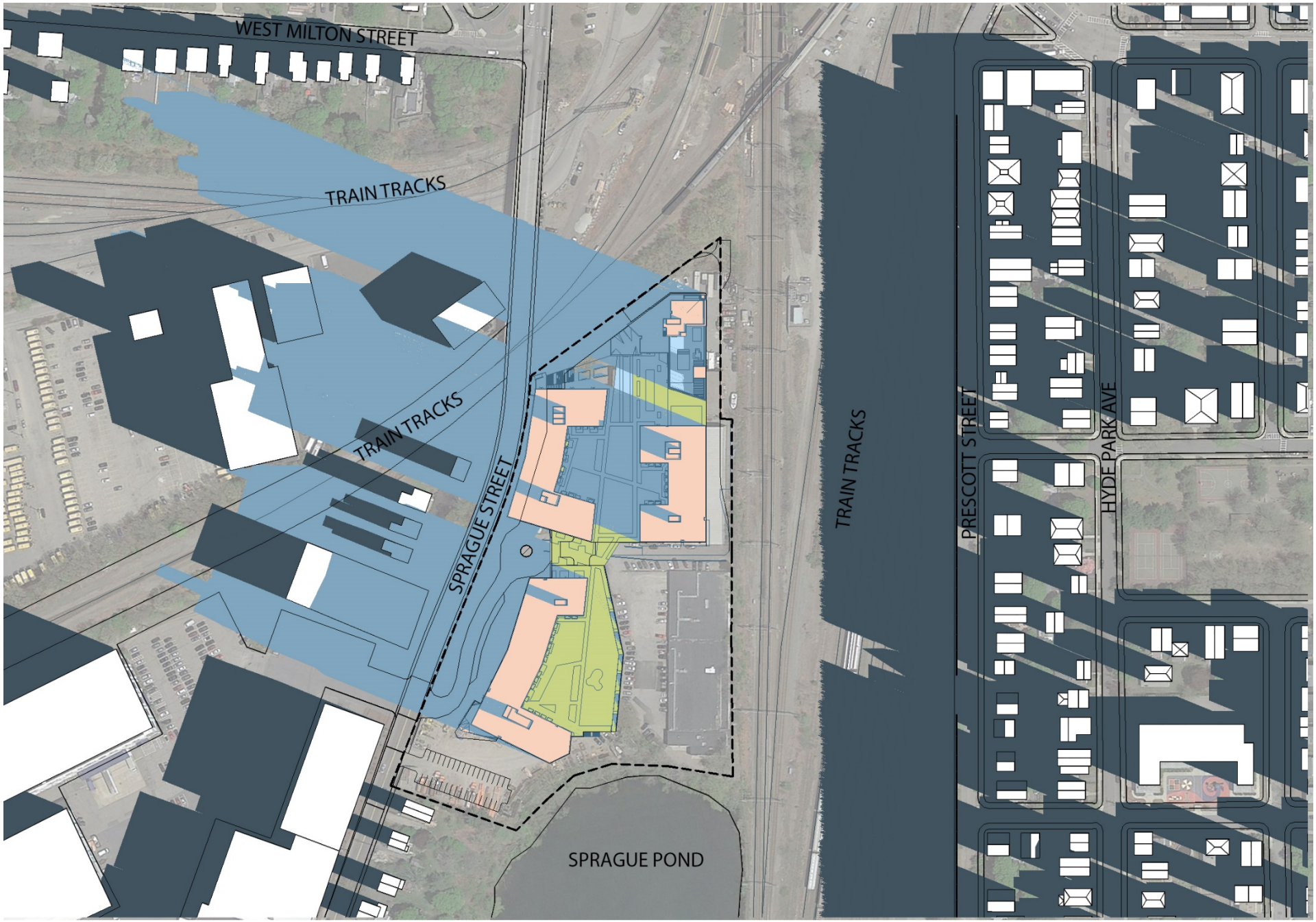


36-70 Sprague Street Readville, Massachusetts

bh+a

Figure 4.2-11

Shadow Study: September 21, 6:00 p.m.

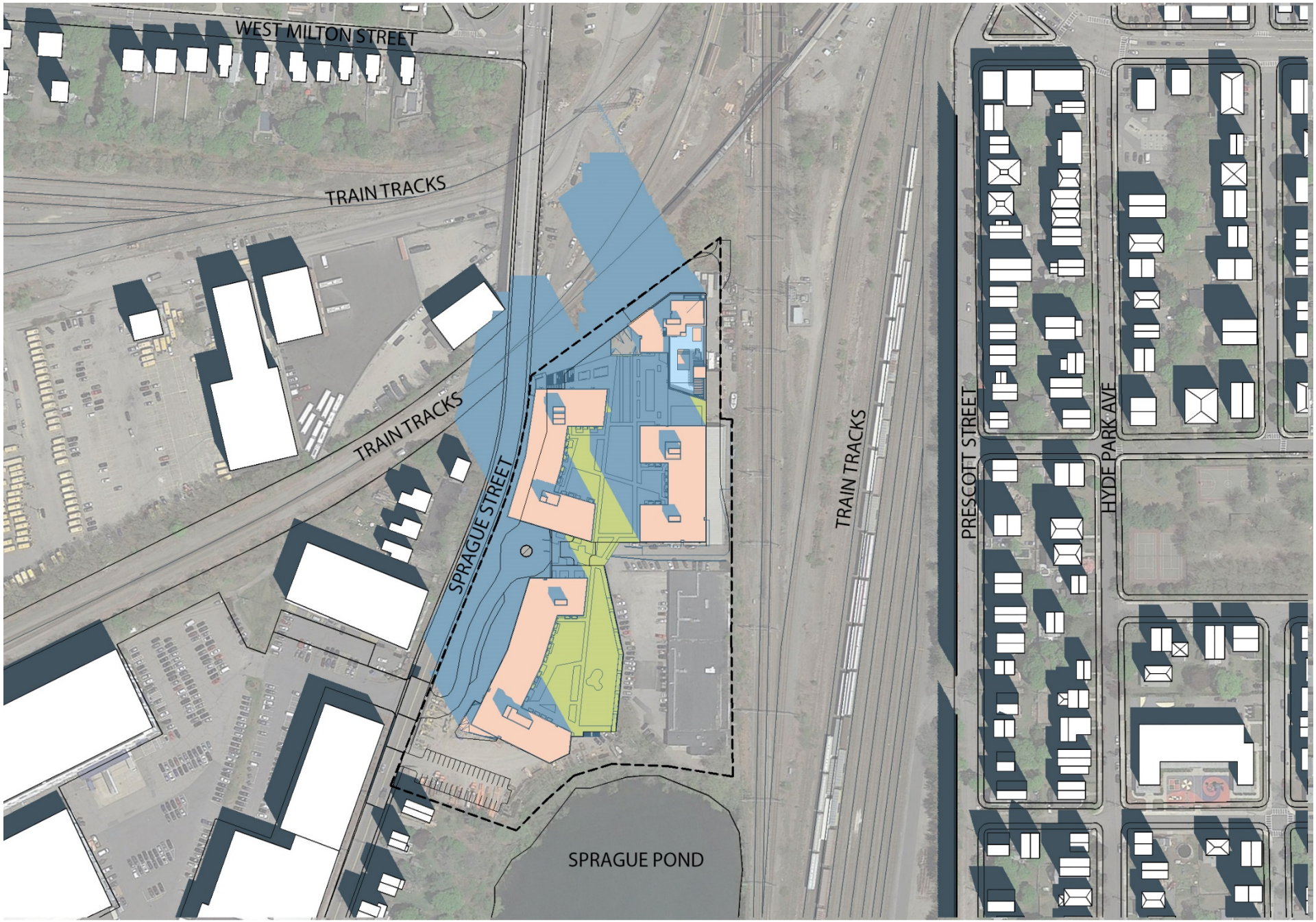


36-70 Sprague Street Readville, Massachusetts

bh+a

Figure 4.2-12

Shadow Study: December 21, 9:00 a.m.

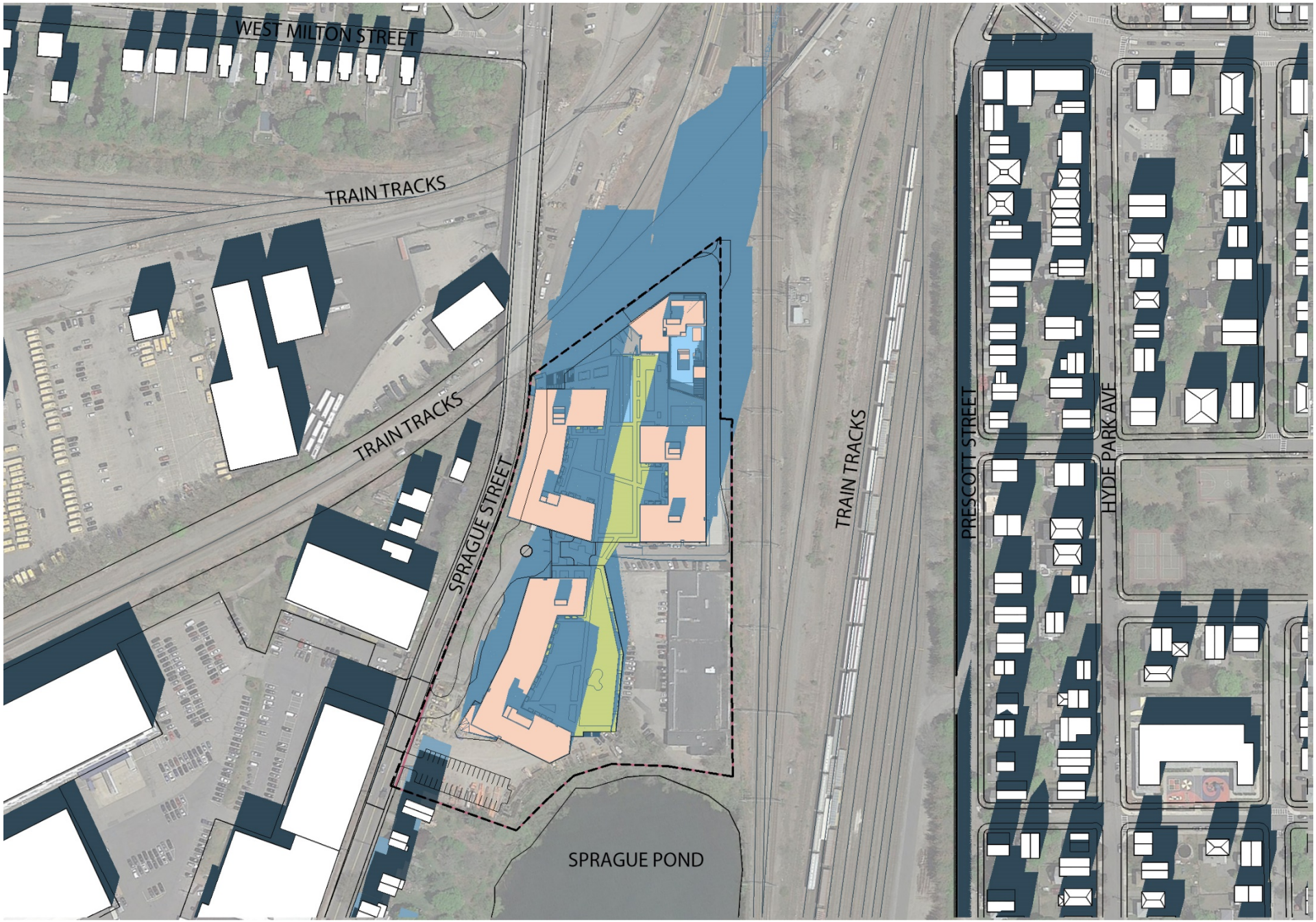


36-70 Sprague Street Readville, Massachusetts

bh+a

Figure 4.2-13

Shadow Study: December 21, 12:00 p.m.



36-70 Sprague Street Readville, Massachusetts

bh+a

Figure 4.2-14

Shadow Study: December 21, 3:00 p.m.

4.3 Daylight Analysis

4.3.1 Introduction

The purpose of the daylight analysis is to estimate the extent to which a proposed project will affect the amount of daylight reaching the streets and the sidewalks in the immediate vicinity of a project site. The daylight analysis for the Project considers the existing and proposed conditions, as well as typical daylight obstruction values of the surrounding area.

Because the site currently consists of two-story industrial buildings that only occupy a portion of the site, the proposed Project will increase daylight obstruction. However, the daylight obstruction impacts will be minimal due to the Project site's location in a low-density area with large amounts of daylight reaching the streets and sidewalks.

4.3.2 Methodology

The daylight analysis was performed using the Boston Redevelopment Authority Daylight Analysis (BRADA) computer program[1]. This program measures the percentage of "sky dome" that is obstructed by a project and is a useful tool in evaluating the net change in obstruction from existing to build conditions at a specific site.

Using BRADA, a silhouette view of the building is taken at ground level from the middle of the adjacent streets or pedestrian ways centered on the proposed building. The façade of the building facing the viewpoint, including heights, setbacks, corners and other features, is plotted onto a base map using lateral and elevation angles. The two-dimensional base map generated by BRADA represents a figure of the building in the "sky dome" from the viewpoint chosen. The BRADA program calculates the percentage of daylight that will be obstructed on a scale of 0 to 100 percent based on the width of the view, the distance between the viewpoint and the building, and the massing and setbacks incorporated into the design of the building; the lower the number, the lower the percentage of obstruction of daylight from any given viewpoint.

The analysis compares three conditions: Existing Conditions; Proposed Conditions; and the context of the area. Two viewpoints were chosen to evaluate the daylight obstruction for the Existing and Proposed Conditions. Two area context points were considered to provide a basis of comparison to existing conditions in the surrounding area. It should be noted that the surrounding area consists of two-story industrial buildings with surface parking and two-story residential buildings, and therefore any new building will have a higher daylight obstruction value than much of the surrounding, underdeveloped area. The viewpoint and area context viewpoints were taken in the following locations and are shown on Figure 4.3-1.

---

[1] Method developed by Harvey Bryan and Susan Stuebing, computer program developed by Ronald Fergle, Massachusetts Institute of Technology, Cambridge, MA, September 1984.

- **Viewpoint 1:** View from Sprague Street facing southeast toward the northern portion of the Project site.
- **Viewpoint 2:** View from Sprague Street facing southeast toward the southern portion of the Project site.
- **Area Context Viewpoint AC1:** View from Sprague Street facing southeast toward 74 Sprague Street.
- **Area Context Viewpoint AC2:** View from Sprague Street facing northwest toward 67 Sprague Street.

4.3.3 Results

The results for each viewpoint are described in Table 4.3-1. Figures 4.3-2 through 4.3-4 illustrate the BRADA results for each analysis.

Table 4.3-1 Daylight Analysis Results

Viewpoint Locations		Existing Conditions	Proposed Conditions
Viewpoint 1	View from Sprague Street facing southeast toward the northern portion of the Project site.	5.8%	67.4%
Viewpoint 2	View from Sprague Street facing southeast toward the southern portion of the Project site.	3.7%	21.0%
Area Context Viewpoint Locations			
AC1	View from Sprague Street facing southeast toward 74 Sprague Street.	17.8%	
AC2	View from Sprague Street facing northwest toward 67 Sprague Street.	43.9%	

Sprague Street – Viewpoint 1

Sprague Street runs along the northwestern portion of the Project site. Viewpoint 1 was taken from the center of Sprague Street facing southeast toward the northern half of the Project site. From this viewpoint, site has an existing daylight obstruction value of 5.5% due to the low heights and large setbacks of the existing buildings. The development of the Project will increase the daylight obstruction value to 67.4%. While this is an increase over existing conditions and is higher than the area context viewpoints, the daylight obstruction impacts will be minimal due to the Project site's location in a low-density area with a significant amount of land used for railroad tracks that allow for views of the sky from most angles.

Data Source: Office of Geographic Information (MassGIS), Commonwealth of Massachusetts, Information Technology Division - Data Obtained March 2014

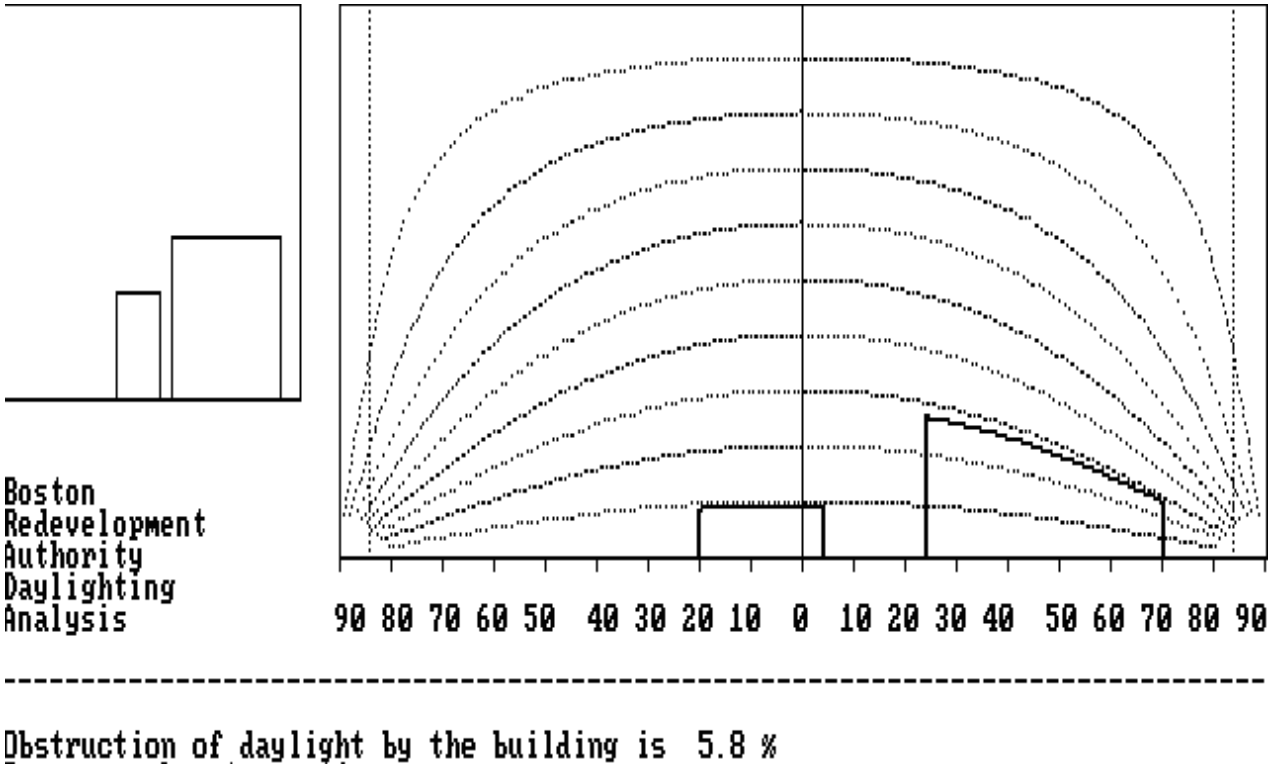
36-70 Sprague Street Readville, Massachusetts

Epsilon Associates Inc.

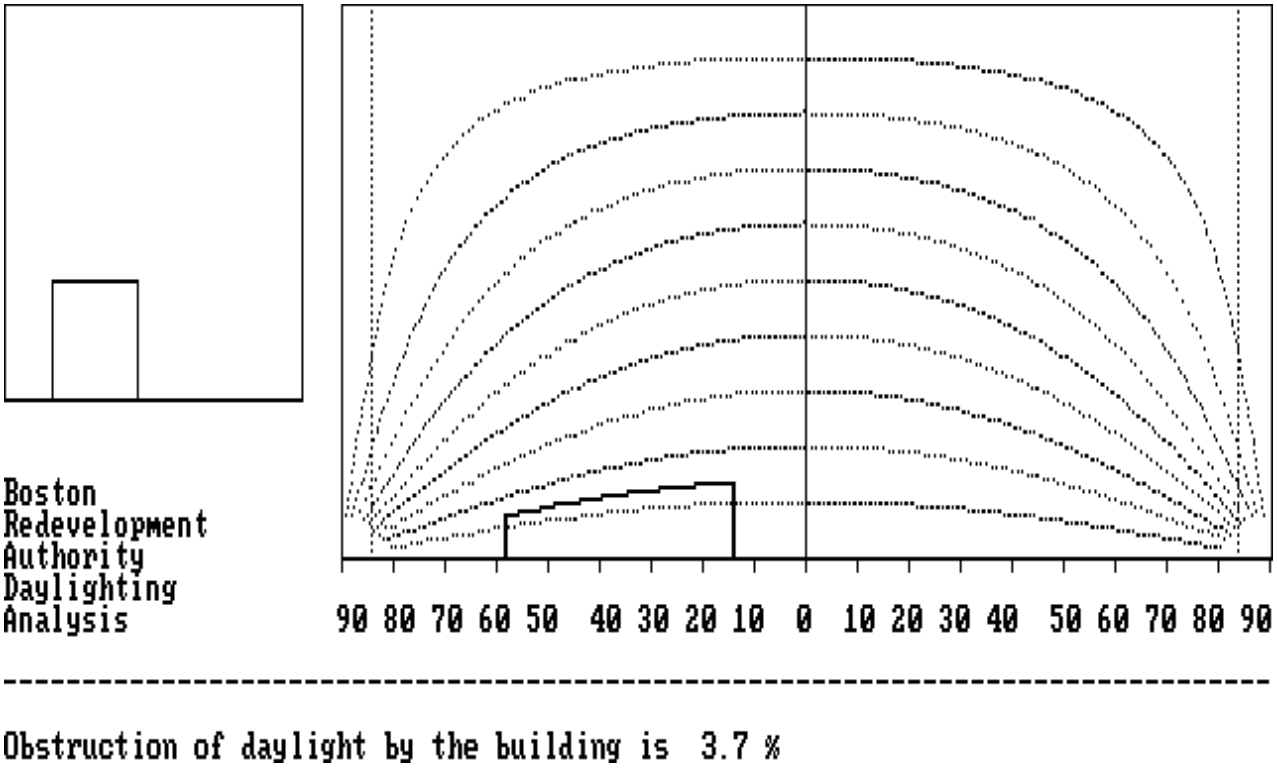
Figure 4.3-1

Viewpoint and Area Context Locations

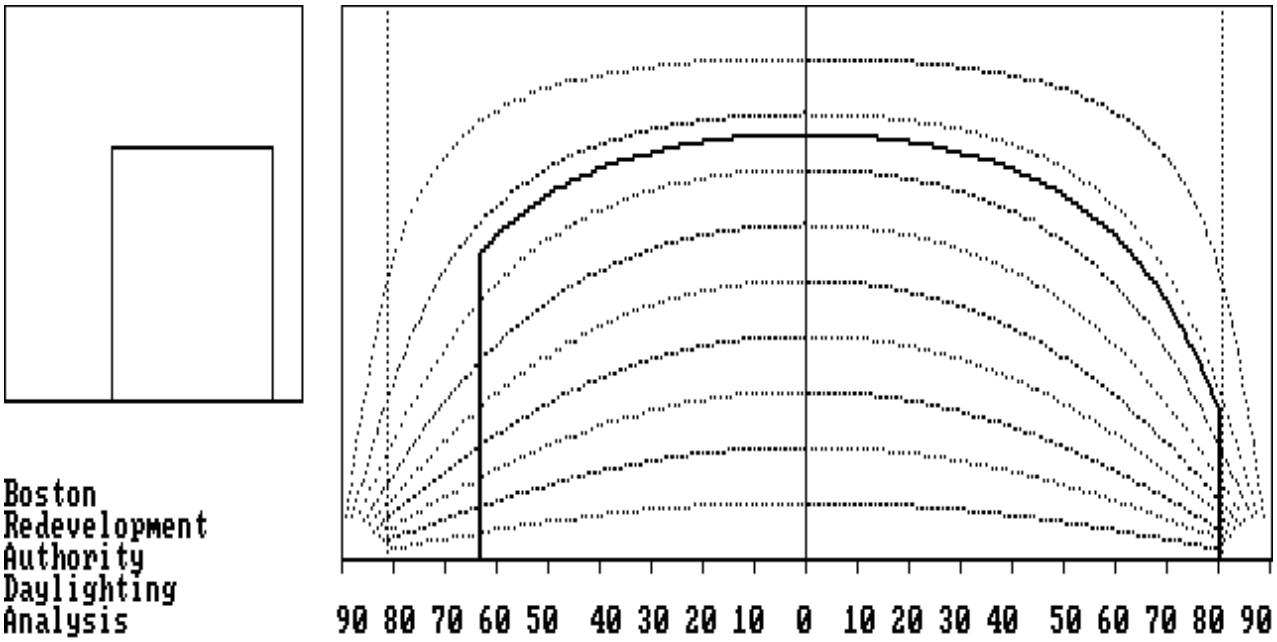
Viewpoint 1: View from Sprague Street facing southeast toward the northern portion of the Project site



Viewpoint 2:View from Sprague Street facing southeast toward the southern portion of the Project site

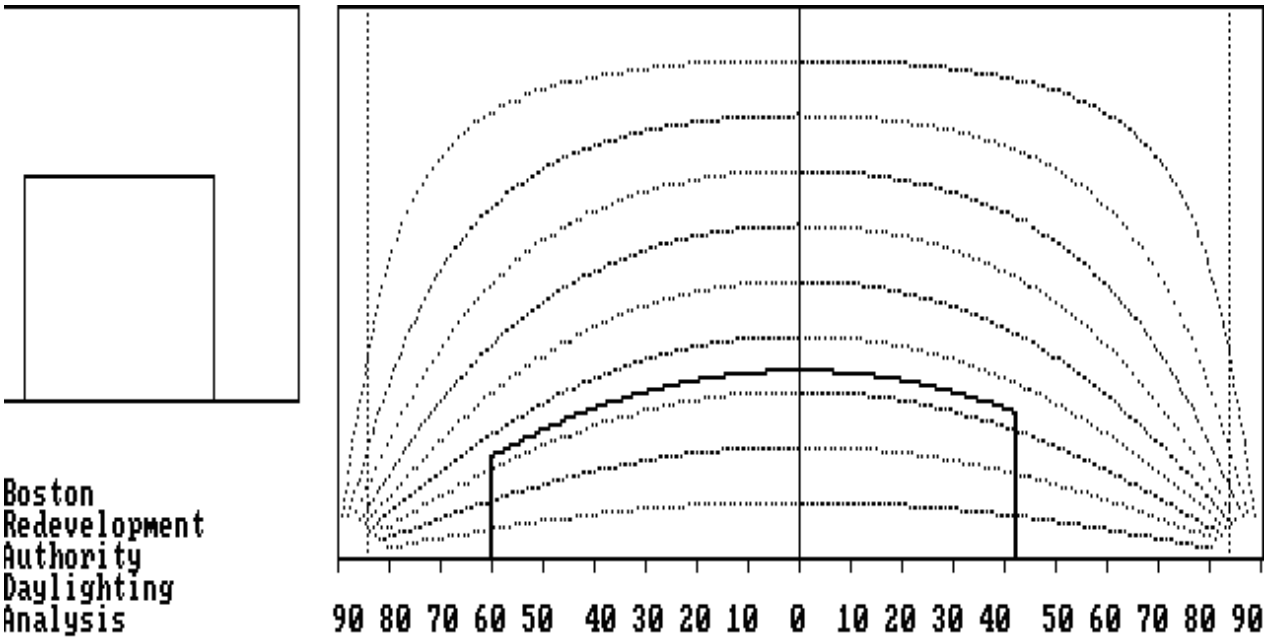


Viewpoint 1: View from Sprague Street facing southeast toward the northern portion of the Project site



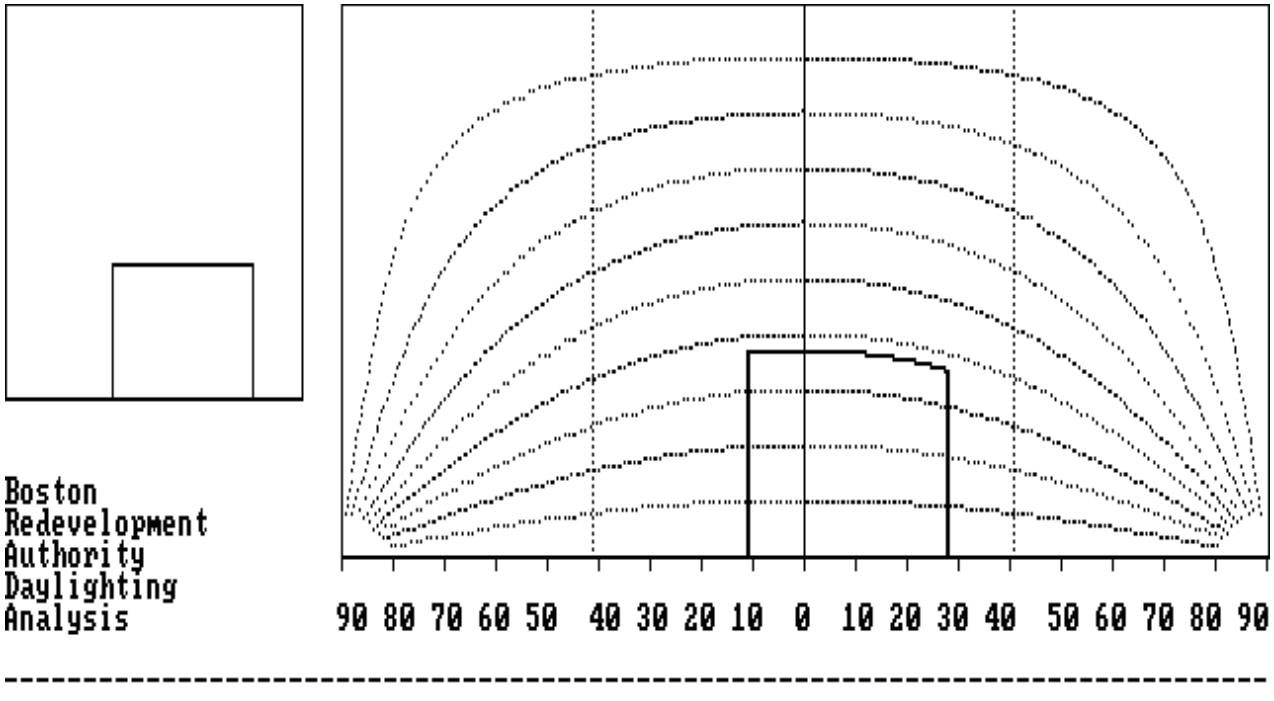
Obstruction of daylight by the building is 67.4 %

Viewpoint 2:View from Sprague Street facing southeast toward the southern portion of the Project site

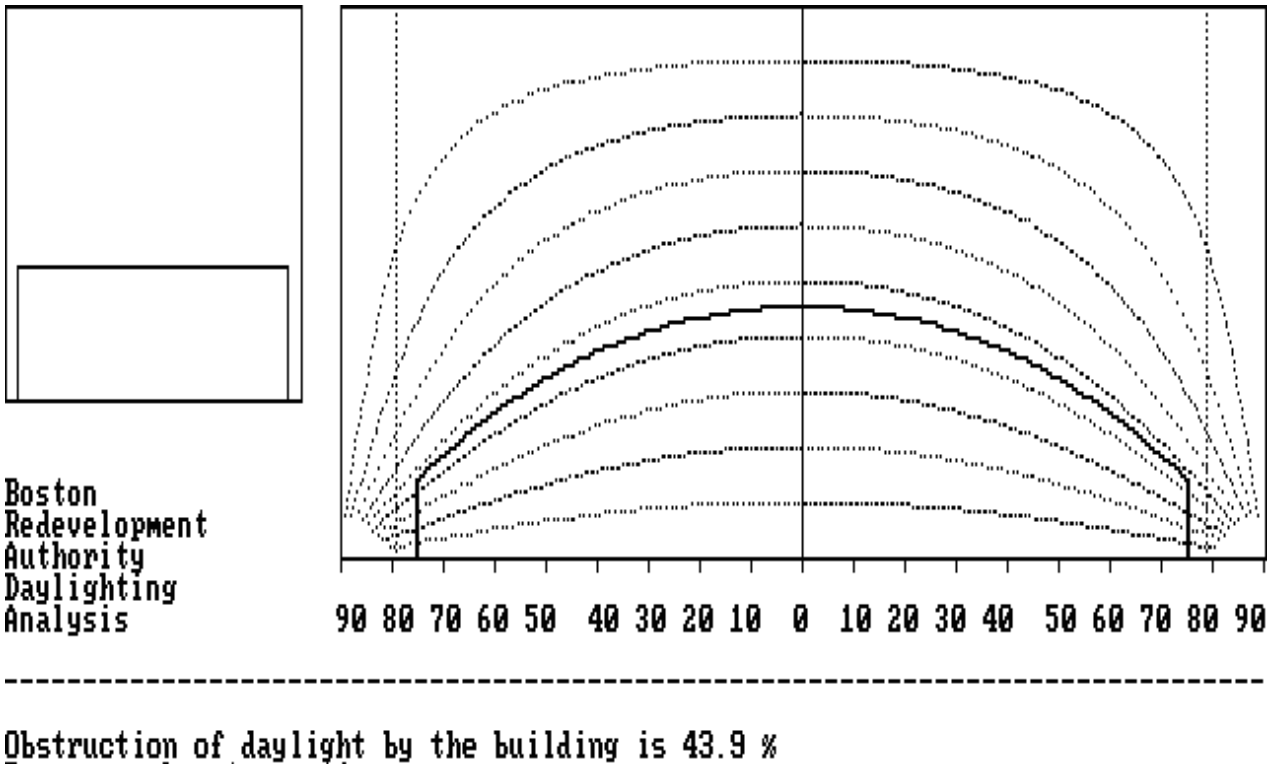


Obstruction of daylight by the building is 21.0 %

Area Context Viewpoint AC1: View from Sprague Street facing southeast toward 74 Sprague Street



Area Context Viewpoint AC2: View from Sprague Street facing northwest toward 67 Sprague Street



Sprague Street – Viewpoint 2

Viewpoint 2 was taken from the center of Sprague Street facing southeast toward the southern half of the Project site. From this viewpoint, the site has an existing daylight obstruction value of 3.7% because large portions of the site are undeveloped. The development of the Project will increase the daylight obstruction value to 21.0%. While this is an increase over existing conditions, the daylight obstruction value is similar to the Area Context viewpoints. As mentioned above, the area around the site consists mostly of shorter buildings and railroad tracks, allowing for views of the sky from most angles.

Area Context Viewpoints

The Project site is located in an area with low-density industrial and residential properties, as well as significant land area used for railroad tracks. To provide a larger context for comparison of daylight conditions, obstruction values were calculated for the two Area Context Viewpoints described above and shown on Figure 4.3-1. The daylight obstruction values ranged from 17.8% to 43.9%. The Project will result in increased daylight obstruction over existing conditions; however, the daylight obstruction impacts will be minimal due to the Project site's location in a low-density area with large amounts of daylight reaching the streets and sidewalks.

4.3.4 Conclusion

Although the Project will increase the daylight obstruction values over the existing condition, the density and uses of the surrounding area will continue to allow for significant views of the sky from most angles.

4.4 Solar Glare

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

4.5 Air Quality

4.5.1 Introduction

The BPDA requires that proposed projects evaluate the air quality in the local area, and assess any adverse air quality impacts attributable to a project.

The Project doesn't generate enough traffic to require a mesoscale vehicle emissions quantification analysis. However, the project does exceed the trip threshold for a microscale analysis, and creates new trips through local intersections operating at LOS D or worse. Therefore, a microscale analysis of carbon monoxide has been completed to provide information on the Project's impact to air quality from mobile sources.

Any new stationary sources will be reviewed by the Massachusetts Department of Environmental Protection (MassDEP) during permitting under the Environmental Results Program, as required. It is expected that all stationary sources will be small, and any impacts from stationary sources would be minimal.

4.5.2 National Ambient Air Quality Standards and Background Concentrations

Background air quality concentrations and federal air quality standards were utilized to conduct the above air quality impact analyses. Federal National Ambient Air Quality Standards (NAAQS) were developed by the U.S. Environmental Protection Agency (EPA) to protect the human health against adverse health effects with a margin of safety. The modeling methodologies were developed in accordance with the latest MassDEP modeling policies and Federal modeling guidelines.[2] The following sections outline the NAAQS standards and detail the sources of background air quality data.

4.5.2.1 National Ambient Air Quality Standards

The 1970 Clean Air Act was enacted by the U.S. Congress to protect the health and welfare of the public from the adverse effects of air pollution. As required by the Clean Air Act, EPA promulgated NAAQS for the following criteria pollutants: nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter (PM) (PM-10 and PM-2.5), carbon monoxide (CO), ozone (O_3), and lead (Pb). The NAAQS are listed in Table 4.5-1. Massachusetts Ambient Air Quality Standards (MAAQS) are typically identical to NAAQS (differences are highlighted in **bold** in Table 4.5-1).

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

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

[2] 40 CFR 51 Appendix W, Guideline on Air Quality Models, 70 FR 68228, Nov. 9, 2005.

Table 4.5-1 National (NAAQS) and Massachusetts (MAAQS) Ambient Air Quality Standards

Pollutant	Averaging Period	NAAQS ($\mu g/m^3$) Primary	NAAQS ($\mu g/m^3$) Secondary	MAAQS ($\mu g/m^3$) Primary	MAAQS ($\mu g/m^3$) Secondary
NO_2	Annual (1)	100	Same	100	Same
	1-hour (2)	**188**	None	**None**	None
SO_2	Annual (1)(9)	80	None	80	None
	24-hour (3)(9)	365	None	365	None
	3-hour (3)	None	1300	None	1300
	1-hour (4)	**196**	None	**None**	None
PM-2.5	Annual (1)	**12**	**15**	**None**	**None**
	24-hour (5)	**35**	**Same**	**None**	**None**
PM-10	Annual (1)(6)	**None**	None	**50**	Same
	24-hour (3)(7)	150	Same	150	Same
CO	8-hour (3)	10,000	Same	10,000	Same
	1-hour (3)	40,000	Same	40,000	Same
Ozone	8-hour (8)	**147**	Same	**235**	Same
Pb	3-month (1)	1.5	Same	1.5	Same

(1) Not to be exceeded.
(2) 98th percentile of one-hour daily maximum concentrations, averaged over three years.
(3) Not to be exceeded more than once per year.
(4) 99th percentile of one-hour daily maximum concentrations, averaged over three years.
(5) 98th percentile, averaged over three years.
(6) EPA revoked the annual PM-10 NAAQS in 2006.
(7) Not to be exceeded more than once per year on average over three years.
(8) Annual fourth-highest daily maximum eight-hour concentration, averaged over three years.
(9) EPA revoked the annual and 24-hour SO_2 NAAQS in 2010. However, they remain in effect until one year after the area's initial attainment designation, unless designated as "nonattainment".

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

4.5.2.2 Background Concentrations

To estimate background pollutant levels representative of the area, the most recent air quality monitor data reported by the MassDEP to EPA was obtained for 2013 to 2015. Data for the pollutant and averaging time combinations were obtained from the EPA's AirData website.

The Clean Air Act allows for one exceedance per year of the CO and SO_2 short-term NAAQS per year. The highest second-high accounts for the one exceedance. Annual NAAQS are never to be exceeded. The 24-hour PM-10 standard is not to be exceeded more than once per year on average over three years. To attain the 24-hour PM-2.5 standard, the three-year average of the 98th percentile of 24-hour concentrations must not exceed 35 $\mu g/m^3$. For annual PM-2.5 averages, the average of the highest yearly observations was used as the background concentration. To attain the one-hour NO2 standard, the three-year average of the 98th percentile of the maximum daily one-hour concentrations must not exceed 188 $\mu g/m^3$.

Background concentrations were determined from the closest available monitoring stations to the proposed development. The closest monitor is at Harrison Avenue in Boston,

roughly 6.8 miles north-northeast of the Project. This site samples for all pollutants. A summary of the background air quality concentrations are presented in Table 4.5-2.

Table 4.5-2 Observed Ambient Air Quality Concentrations and Selected Background Levels

Pollutant	Averaging Time	2013	2014	2015	Background Concentration ($\mu g/m^3$)	NAAQS	Percent of NAAQS
SO_2 (1)(6)	1-Hour (5)	28.6	32.2	24.6	28.5	196.0	15%
	3-Hour	25.4	56.3	22.8	56.3	1300.0	4%
	24-Hour	13.1	13.4	11.3	13.4	365.0	4%
	Annual	2.8	2.8	2.1	2.8	80.0	4%
PM-10	24-Hour	34.0	61.0	28.0	61.0	150.0	41%
	Annual	15.1	13.9	12.4	15.1	50.0	30%
PM-2.5	24-Hour (5)	15.9	12.7	19.0	15.9	35.0	45%
	Annual (5)	7.3	6.0	8.8	7.4	12.0	61%
NO_2 (3)	1-Hour (5)	94.0	95.9	99.6	96.5	188.0	51%
	Annual	32.8	29.6	28.1	32.8	100.0	33%
CO (2)	1-Hour	2145.3	1963.1	1560.9	2145.3	40000.0	5%
	8-Hour	1375.2	1489.8	1031.4	1489.8	10000.0	15%
Ozone (4)	8-Hour	115.8	106.0	109.9	115.8	147.0	79%
Lead	Rolling 3-Month	0.006	0.014	0.016	0.016	0.15	10%

Notes:
From 2013-2015 EPA's AirData Website
(1) SO_2 reported ppb. Converted to $\mu g/m^3$ using factor of 1 ppm = 2.62 $\mu g/m^3$.
(2) CO reported in ppm. Converted to $\mu g/m^3$ using factor of 1 ppm = 1146 $\mu g/m^3$.
(3) NO_2 reported in ppb. Converted to $\mu g/m^3$ using factor of 1 ppm = 1.88 $\mu g/m^3$.
(4) O_3 reported in ppm. Converted to $\mu g/m^3$ using factor of 1 ppm = 1963 $\mu g/m^3$.
(5) Background level is the average concentration of the three years.
(6) The 24-hour and Annual standards were revoked by EPA on June 22, 2010, Federal Register 75-119, p. 35520.

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

4.5.3 Mobile Sources

Mobile sources of air pollution include gasoline, diesel, and natural gas fueled vehicles. Emissions from mobile sources have continually decreased as engine technology and efficiency have been improved.

Mobile sources of air pollution include emissions from vehicle traffic associated with the Project.

4.5.3.1 Methodology

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

The microscale analysis typically examines ground-level CO impacts due to traffic queues in the immediate vicinity of a project. CO is used in microscale studies to indicate roadway pollutant levels since it is the most abundant pollutant emitted by motor vehicles and can result in so-called "hot spot" (high concentration) locations around congested intersections. The NAAQS standards do not allow ambient CO concentrations to exceed 35 parts per million (ppm) for a one-hour averaging period, and 9 ppm for an eight-hour averaging period, more than once per year at any location. The widespread use of CO catalysts on current vehicles has reduced the occurrences of CO hotspots. Air quality modeling techniques (computer simulation programs) are typically used to predict CO levels for both existing and future conditions to evaluate compliance of the roadways with the standards. The microscale analysis has been conducted using the latest versions of EPA's MOVES and CAL3QHC programs to estimate CO concentrations at sidewalk receptor locations. Baseline (2016) and future year (2021) emission factor data calculated from the MOVES model, along with traffic data, were input into the CAL3QHC program to determine CO concentrations due to traffic flowing through the selected intersections. The modeling methodology was developed in accordance with the latest MassDEP modeling policies and Federal modeling guidelines.[3]

Existing background values of CO at the nearest monitor location at Harrison Avenue were obtained from MassDEP. CAL3QHC results were then added to background CO values of 1.9 ppm (one-hour) and 1.3 ppm (eight-hour), as provided by MassDEP, to determine total air quality impacts due to the Project. These values were compared to the NAAQS for CO of 35 ppm (one-hour) and 9 ppm (eight-hour).

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

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[3] 40 CFR 51 Appendix W, Guideline on Air Quality Models, 70 FR 68228, Nov. 9, 2005.

Intersection Selection

Two signalized intersections included in the traffic study meet the above conditions described at the beginning of this section (see Chapter 3). The traffic volumes and LOS calculations provided in Chapter 3 form the basis of evaluating the traffic data versus the microscale thresholds. The intersections found to meet the criteria are:

- the intersection of Hyde Park Avenue, Wolcott Street, and Neponset Valley Parkway, and
- the intersection of Hyde Park Avenue, Milton Street, and MBTA Driveway (signalized in 2021 Mitigated Build case only).

Microscale modeling was performed for the intersections based on the aforementioned methodology. The 2016 Existing Condition and the 2021 No-Build, Build, and Mitigated Build conditions were each evaluated for both morning (a.m.) and afternoon (p.m.) peak.

Emissions Calculations (MOVES)

The EPA MOVES computer program was used to estimate motor vehicle emission factors on the roadway network. Emission factors calculated by the MOVES model are based on motor vehicle operations typical of daily periods. The Commonwealth's statewide annual Inspection and Maintenance (I&M) program was included, as well as the county specific vehicle age registration distribution, fleet mix, meteorology, and other inputs. The inputs for MOVES for the existing (2016) and future year (2021) are provided by MassDEP.

All link types for the modeled intersections were input into MOVES. Idle emission factors are obtained from factors for a link average speed of 0 miles per hour (mph). Moving emissions are calculated based on speeds at which free-flowing vehicles travel through the intersection as stated in traffic modeling (Synchro) reports. A speed of 30 mph is used for all free-flow traffic. Speeds of 10 and 15 mph were used for right (and U-turns, if necessary) and left turns, respectively. Roadway emissions factors were obtained from MOVES using EPA guidance.[4]

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

[4] U.S. EPA, 2010. Using MOVES in Project-Level Carbon Monoxide Analyses. EPA-420-B-10-041.

Receptors & Meteorology Inputs

A set of 153 receptors was placed in the vicinity of the modeled intersections. Receptors extended approximately 300 feet on the sidewalks along the roadways approaching the intersections. The roadway links and receptor locations of the modeled intersections are presented in Figures 4.5-1 and 4.5-2.

For the CAL3QHC model, limited meteorological inputs are required. Following EPA guidance[5], a wind speed of one meter per second, stability class D (4), and a mixing height of 1,000 meters were used. To account for the intersection geometry, wind directions from 0° to 350°, every 10° were selected. A surface roughness length of 108 centimeters was selected.[6]

Impact Calculations (CAL3QHC)

The CAL3QHC model predicts one-hour concentrations using queue-links at signalized intersections, worst-case meteorological conditions, and traffic input data. The one-hour concentrations were scaled by a factor of 0.9 to estimate eight-hour concentrations.[7] The CAL3QHC methodology was based on EPA CO modeling guidance. Signal timings were provided directly from the traffic modeling outputs.

The CAL3QHC model's queueing algorithm is not designed for unsignalized intersections. Therefore analysis of Hyde Park Avenue and Milton Street for cases where no signalization exists was not performed.

For use in the microscale analysis, background concentrations of CO in ppm were required. The corresponding maximum background concentrations in ppm were 1.9 ppm (2,145 $\mu g/m^3$) for one-hour and 1.3 ppm (1,490 $\mu g/m^3$) for eight-hour CO.

4.5.3.2 Air Quality Results

The results of the maximum one-hour predicted CO concentrations from CAL3QHC are provided in Tables 4.5-3 through 4.5-6 for the 2016 and 2021 scenarios. Eight-hour average concentrations are calculated by multiplying the maximum one-hour concentrations by a factor of 0.9.[8]

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

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

7 U.S. EPA, AERSCREEN User's Guide; EPA-454/B-11-001, March 2011.

8 U.S. EPA, AERSCREEN User's Guide; EPA-454/B-11-001, March 2011.

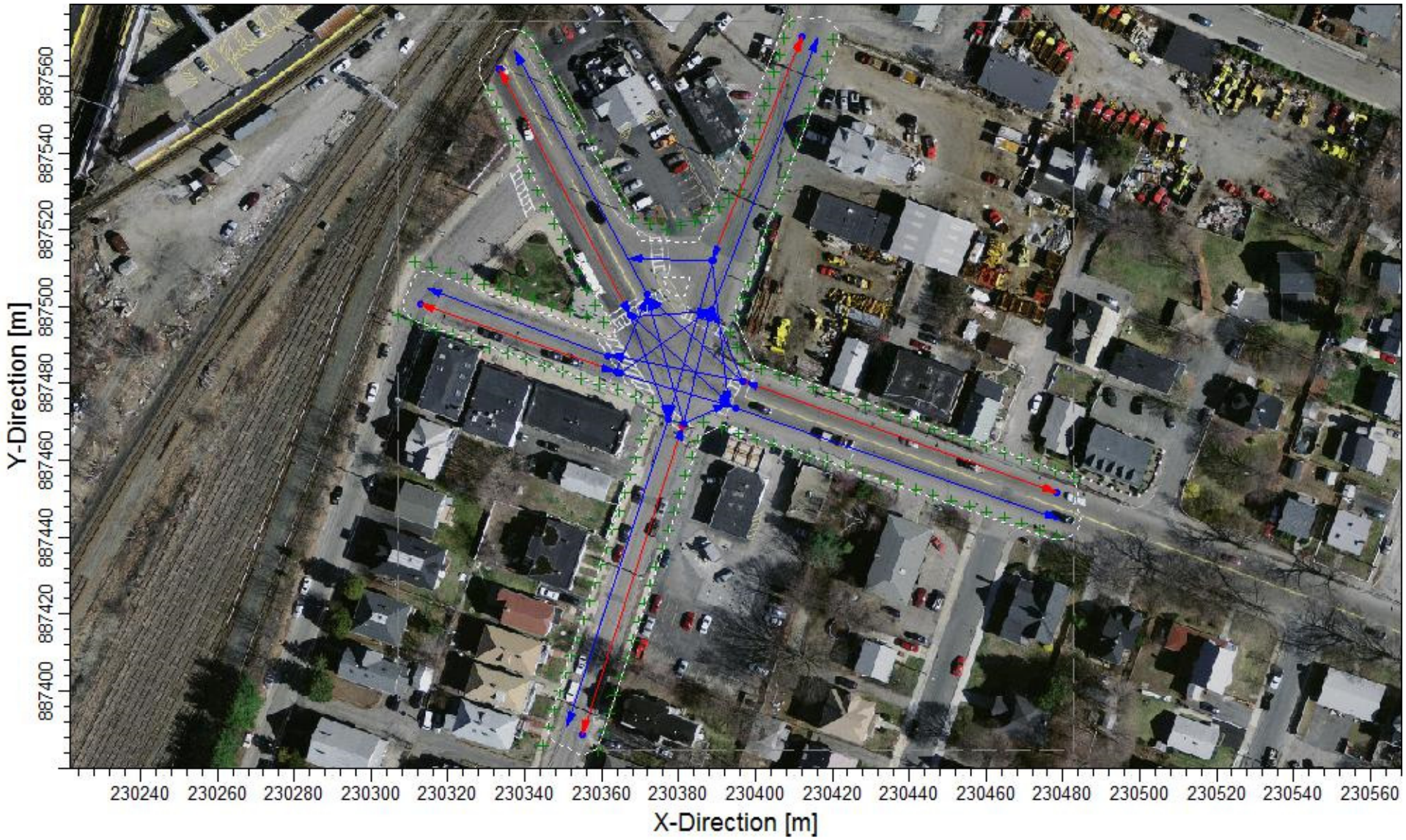


Figure 4.5-1

Intersection of Hyde Park Ave., Wolcott St., and Neponset Valley Parkway

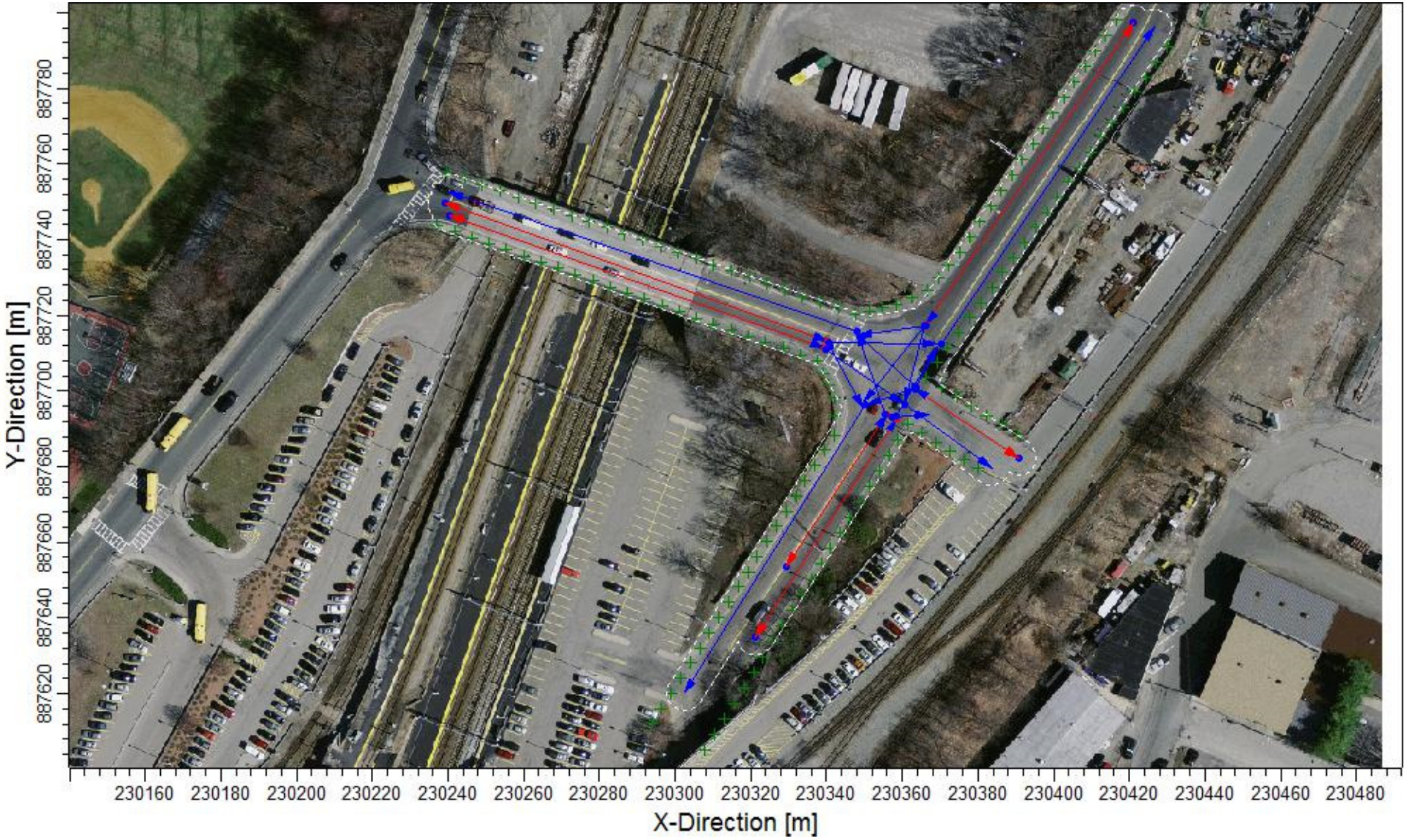


Figure 4.5-2

Intersection of Hyde Park Ave., Milton St., and MBTA Driveway

The results of the one-hour and eight-hour maximum modeled CO ground-level concentrations from CAL3QHC were added to EPA supplied background levels for comparison to the NAAQS. These values represent the highest potential concentrations at the intersection as they are predicted during the simultaneous occurrence of "defined" worst case meteorology. The highest one-hour traffic-related concentration predicted in the area of the Project for the modeled conditions (0.4 ppm) plus background (1.9 ppm) is 2.3 ppm. The highest eight-hour traffic-related concentration predicted in the area of the Project for the modeled conditions (0.4 ppm) plus background (1.3 ppm) is 1.7 ppm. All concentrations are well below the one-hour NAAQS of 35 ppm and the eight-hour NAAQS of 9 ppm.

4.5.3.3 Conclusions

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

Table 4.5-3 Summary of Microscale Modeling Analysis (Existing 2016)

Intersection	Peak	CAL3QHC Modeled CO Impacts (ppm)	Monitored Background Concentration (ppm)	Total CO Impacts (ppm)	NAAQS (ppm)
1-Hour					
Hyde Park Ave., Wolcott St., and Neponset Valley Parkway	AM	0.4	1.9	2.3	35
	PM	0.4	1.9	2.3	35
Hyde Park Ave., Milton St., and MBTA Driveway	AM	N/A	1.9	1.9	35
	PM	N/A	1.9	1.9	35
8-Hour					
Hyde Park Ave., Wolcott St., and Neponset Valley Parkway	AM	0.4	1.3	1.7	9
	PM	0.4	1.3	1.7	9
Hyde Park Ave., Milton St., and MBTA Driveway	AM	N/A	1.3	1.3	9
	PM	N/A	1.3	1.3	9
Notes: CAL3QHC eight-hour impacts were conservatively obtained by multiplying one-hour impacts by a screening factor of 0.9.					

Table 4.5-4 Summary of Microscale Modeling Analysis (No-Build 2021)

Intersection	Peak	CAL3QHC Modeled CO Impacts (ppm)	Monitored Background Concentration (ppm)	Total CO Impacts (ppm)	NAAQS (ppm)
1-Hour					
Hyde Park Ave., Wolcott St., and Neponset Valley Parkway	AM	0.2	1.9	2.1	35
	PM	0.3	1.9	2.1	35
Hyde Park Ave., Milton St., and MBTA Driveway	AM	N/A	1.9	1.9	35
	PM	N/A	1.9	1.9	35
8-Hour					
Hyde Park Ave., Wolcott St., and Neponset Valley Parkway	AM	0.2	1.3	1.5	9
	PM	0.2	1.3	1.5	9
Hyde Park Ave., Milton St., and MBTA Driveway	AM	N/A	1.3	1.3	9
	PM	N/A	1.3	1.3	9
Notes: CAL3QHC eight-hour impacts were conservatively obtained by multiplying one-hour impacts by a screening factor of 0.9.					

Table 4.5-5 Summary of Microscale Modeling Analysis (Build 2021)

Intersection	Peak	CAL3QHC Modeled CO Impacts (ppm)	Monitored Background Concentration (ppm)	Total CO Impacts (ppm)	NAAQS (ppm)
1-Hour					
Hyde Park Ave., Wolcott St., and Neponset Valley Parkway	AM	0.2	1.9	2.1	35
	PM	0.3	1.9	2.1	35
Hyde Park Ave., Milton St., and MBTA Driveway	AM	N/A	1.9	1.9	35
	PM	N/A	1.9	1.9	35
8-Hour					
Hyde Park Ave., Wolcott St., and Neponset Valley Parkway	AM	0.2	1.3	1.5	9
	PM	0.2	1.3	1.5	9
Hyde Park Ave., Milton St., and MBTA Driveway	AM	N/A	1.3	1.3	9
	PM	N/A	1.3	1.3	9
Notes: CAL3QHC eight-hour impacts were conservatively obtained by multiplying one-hour impacts by a screening factor of 0.9.					

Table 4.5-6 Summary of Microscale Modeling Analysis (Mitigated Build 2021)

Intersection	Peak	CAL3QHC Modeled CO Impacts (ppm)	Monitored Background Concentration (ppm)	Total CO Impacts (ppm)	NAAQS (ppm)
1-Hour					
Hyde Park Ave., Wolcott St., and Neponset Valley Parkway	AM	0.2	1.9	2.1	35
	PM	0.3	1.9	2.2	35
Hyde Park Ave., Milton St., and MBTA Driveway	AM	0.3	1.9	2.2	35
	PM	0.2	1.9	2.1	35
8-Hour					
Hyde Park Ave., Wolcott St., and Neponset Valley Parkway	AM	0.2	1.3	1.5	9
	PM	0.3	1.3	1.6	9
Hyde Park Ave., Milton St., and MBTA Driveway	AM	0.3	1.3	1.6	9
	PM	0.2	1.3	1.5	9
Notes: CAL3QHC eight-hour impacts were conservatively obtained by multiplying one-hour impacts by a screening factor of 0.9.					

4.6 Stormwater/Water Quality

Chapter 8 includes information about stormwater and water quality.

4.7 Flood Hazard Zones/ Wetlands

4.7.1 Flood Hazard Zones

The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) for the site located in the City of Boston - Community Panel Number 25025C0157J indicates the FEMA Flood Zone Designations for the site area. The map shows that the Project is located in an areas determined to be outside the 0.2% annual chance floodplain.

The site includes approximately 307 feet of the shoreline to Sprague Pond.

4.7.2 Wetlands and Natural Resources

4.7.2.1 Wetland Resource Areas

Rimmer Environmental Consulting (REC) conducted a field inspection of the Project area on February 26, 2016. At that time, wetland resources subject to jurisdiction under the Massachusetts Wetlands Protection Act (MGL Ch. 131 §. 40) were identified. Wetlands were delineated with numbered sequences of flags placed on vegetation, in accordance with the procedures described in the Massachusetts Wetlands Protection Act Regulations

(310 CMR 10.00). Vegetated wetlands were delineated based on the presence of 50% or more wetland vegetation as well as other indicators of wetland hydrology.

The following is a summary of resource areas present.

Bordering Vegetated Wetland (BVW)

There is a narrow fringe of wetland vegetation above the bank of Sprague Pond. This wetland consists primarily of red maple (Acer rubrum) in the overstory, with American elm (Ulmus americana) and poison ivy (Toxicodendron radicans) in the understory. The adjacent upland area consists primarily of white pine (Pinus strobus), box elder (Acer negundo) and multiflora rose (Rosa multiflora). Wetland flags A1-10 delineate the limits of this resource. There is a 100-foot buffer zone extending from this resource.

Bordering Land Subject to Flooding (BLSF)

BLSF includes land subject to inundation from floodwaters rising from rivers, streams, lakes and ponds. Its boundary begins at the banks of these resources or from the limits of BVW and extends to the maximum lateral extent of flooding expected to occur from a statistical 100-year frequency storm event. The extent of BLSF is generally determined by reference to the most recently available FEMA flood maps. As mentioned above, the FEMA map for the Project site identifies only Sprague Pond itself as subject to flooding, and no surrounding land. It is identified as a Zone X, with an unidentified flood elevation. Based upon this determination, since this flood zone does not extend beyond the boundary of the BVW described above, there is no BLSF on site.

4.7.2.2 Other Resources

The Project site is not within Estimated Habitat of Rare Wetlands Wildlife or Priority Habitat, and does not contain certified vernal pools as determined by reference to the most recently available data provided by the Massachusetts Division of Fisheries and Wildlife – Natural Heritage and Endangered Species Program available on MassGIS.

The site is almost entirely within the Neponset River Estuary Area of Critical Environmental Concern (ACEC).

4.7.2.3 Potential Project Impacts

The Project will not result in any direct impacts to wetland resources subject to jurisdiction under the Massachusetts Wetlands Protection Act. Work will be required within the 100-foot Buffer Zone to these wetlands. Building construction is proposed more than 50 feet from wetland boundaries. A portion of the parking lot, as well as a pedestrian walkway and plantings, are proposed between 25-50 feet of the wetland boundary. Some restoration and enhancement may occur closer than 25 feet to the wetland boundary, but this is limited to

enhancement activities, including removal of non-native and invasive plants and replacement with native plants with higher habitat value.

Stormwater runoff from the Project site, which presently discharges largely untreated into Sprague Pond, will be improved and managed in accordance with current Stormwater Management Regulations (as described in Section 8.4). The Project is expected to result in a significant improvement to the quality of discharge into Sprague Pond.

4.7.2.4 Mitigation Measures

Temporary erosion and sedimentation control measures will be employed to minimize the potential for introduction of sediment into wetland resources from unstabilized soil during construction activities. These may include use of hay bales, siltation fencing, erosion control socks, dewatering pens and other measures necessary to prevent movement of sediment toward wetlands. Best Management Practices (BMPs) associated with construction of upgraded stormwater management facilities will ensure the improvement of stormwater discharge from the Project site. Other mitigation measures proposed include restoration and enhancement of the vegetative community in the Buffer Zone around the pond to promote and introduce native plantings that will provide improved wildlife habitat and pollution attenuation functions.

4.7.2.5 Regulatory Compliance

The Project will require the filing of a Notice of Intent to the Boston Conservation Commission under the Massachusetts Wetlands Protection Act. Since no direct wetland impacts are proposed and significant improvement is anticipated to the wetland and buffer zone by improved water quality discharge and habitat enhancement, the Project is expected to be in full compliance with performance standards under the Act.

4.8 Geotechnical Impacts

4.8.1 Sub-soil Conditions

The subsurface conditions consist of an approximately two to eight-foot-thick layer of urban fill over sand with varying amounts of silt and gravel. The sand layer extends to a depth of at least 70 feet. The State Geological Map of Massachusetts indicates that bedrock in the area consists of Roxbury conglomerate, sandstone, siltstone, argillite, and/or melaphyre (Mattapan Volcanics). The depth to bedrock is unknown at this time.

Standard Penetration Tests (SPTs) in the sand layer indicate the sand is loose to medium dense. Additional subsurface explorations are planned to evaluate the lateral and vertical extent of the loose sands, and to evaluate whether the loose sands are susceptible to liquefaction.

Based on the initial borings, the proposed buildings may need to be supported on deep foundations or on improved ground. Deep foundations could consist of driven piles or pressure injected footings. Ground improvement could include controlled modulus columns, rammed aggregate piers, or vibro-stone columns. If ground improvement is selected, the buildings would be supported on spread footings that are supported on the improved ground.

4.8.2 Groundwater

Groundwater depths range from approximately 4 to 13 feet below the existing site grades. Groundwater flow is generally to the east towards the Neponset River.

The site is not located within a Groundwater Conservation Overlay District as outline in Article 32 of the City of Boston Zoning Code.

The proposed development is not anticipated to have adverse short- or long-term effects on the surrounding groundwater levels.

4.9 Solid and Hazardous Waste

4.9.1 Hazardous Waste

Northern Portion of Property

Phase I and II Environmental Site Assessments (ESAs) were performed for the northern portion of the property. Historic uses of this portion of the property included a dyeing and coloring facility (Readville Color Works) and a distillery for alcohol (the Readville Distilleries, and later Burke Bros. Distilleries then Old Mr. Boston Distillery). Current use of the property is by a moving and storage company.

Generally, it appears the historic use of the property as a dyeing and coloring facility and as a distillery for alcohol has not significantly affected conditions at this portion of the property. However, oil contamination in soil in a limited area was identified in shallow soils. Groundwater was not affected. The soil contamination was reported to MassDEP and is being tracked under Release Tracking Number (RTN) 3- 33516. Soil across this portion of the property is likely to contain polycyclic aromatic hydrocarbons (PAHs) and metals. Many of these contaminants are consistent with urban fill but may also require reporting to MassDEP.

Historic remediation activities have included removal of a buried fuel tank and excavation of contaminated soils. These activities were tracked under RTN 3-2028. The RTN was closed out under the MassDEP regulations with a conclusion that conditions did not pose a significant risk to people or the environment.

Southern Portion of Property

A Phase I ESA was performed for the southern portion of property. Additional Phase II ESA investigations are planned for this portion of the property. Historic use of the property included a distillery for alcohol. Current use of the property includes a construction company and equipment laydown yard.

Soil across this portion of property is also likely to contain PAHs and metals. Many of these contaminants are consistent with urban fill but may also require reporting to MassDEP.

Future Soil and Groundwater Pre-characterization

Additional characterization of the soil and groundwater across the entire property will be conducted to support construction. During excavation, excess soils transported from the property will be managed for off-site disposal in accordance with MassDEP regulations and policies. If construction dewatering is necessary, effluent will be managed in accordance with MassDEP and EPA regulations and policies.

4.9.2 Operation Solid Waste and Recycling

The Project will generate solid waste typical of other residential projects. Solid waste generated by the Project will be approximately 175 tons per year, based on the number of bedrooms proposed at a generation rate of four pounds (lbs) per bedroom per day and restaurant space proposed at a generation rate of 5.5 tons per 1,000 square feet per year. Other than typical wastes generated by residential use (e.g., paint, detergents, etc.), no hazardous wastes are anticipated to be generated by the Project.

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

Recyclable materials will be recycled through a program implemented by building management.

The building will include areas for trash collection and recycling collection on each floor, and a trash room in close proximity to the loading dock. Recycling facilities will be provided on-site for paper, glass, plastic and metal.

4.10 Noise Impacts

The City of Boston has both a noise ordinance and noise regulations. Chapter 16 §26 of the Boston Municipal Code sets the general standard for noise that is unreasonable or excessive: louder than 50 decibels between the hours of 11:00 p.m. and 7:00 a.m., or louder than 70 decibels at all other hours. The Boston Air Pollution Control Commission (APCC) has adopted regulations based on the City's ordinance - "Regulations for the Control

of Noise in the City of Boston", which distinguish among residential, business, and industrial districts in the City. In particular, APCC Regulation 2 is applicable to the sounds from the proposed Project.

Table 4.10-1 below presents the "Zoning District Noise Standards" contained in Regulation 2.5 of the APCC "Regulations for the Control of Noise in the City of Boston," adopted December 17, 1976. These maximum allowable sound pressure levels apply at the property line of the receiving property. Zoning District Standards are presented below in Table 4.10-1.

Table 4.10-1 City of Boston Zoning District Noise Standards, Maximum Allowable Sound Pressure Levels

Octave-band Center Frequency (Hz)	Residential Zoning District		Residential-Industrial Zoning District		Business Zoning District	Industrial Zoning District
	Daytime (dB)	All Other Times (dB)	Daytime (dB)	All Other Times (dB)	Anytime (dB)	Anytime (dB)
32	76	68	79	72	79	83
63	75	67	78	71	78	82
125	69	61	73	65	73	77
250	62	52	68	57	68	73
500	56	46	62	51	62	67
1000	50	40	56	45	56	61
2000	45	33	51	39	51	57
4000	40	28	47	34	47	53
8000	38	26	44	32	44	50
A-Weighted (dBA)	**60**	**50**	**65**	**55**	**65**	**70**

Notes: Noise standards are extracted from Regulation 2.5, City of Boston Air Pollution Control Commission, "Regulations for the Control of Noise in the City of Boston", adopted December 17, 1976.

All standards apply at the property line of the receiving property.

dB and dBA based on a reference sound pressure of 20 micropascals.

'Daytime' refers to the period between 7:00 a.m. and 6:00 p.m. daily, excluding Sunday.

Additionally, the MassDEP has the authority to regulate noise under 310 CMR 7.10, which is part of the Commonwealth's air pollution control regulations. According to MassDEP, "unnecessary" noise is considered an air contaminant and thus prohibited by 310 CMR 7.10. The MassDEP administers this regulation through Noise Policy DAQC 90-001 which limits a source to a 10-dBA increase above the L_{90} ambient sound level measured at the

Project property line and at the nearest residences. The MassDEP policy further prohibits "pure tone" conditions where the sound pressure level in one octave-band is 3 dB or more than the sound levels in each of two adjacent bands.

While the details of the mechanical equipment associated with the Project have not yet been precisely determined, steady operational noise from stationary sources will primarily involve heating, cooling, and ventilation equipment for the residential and restaurant spaces. Although not finalized, the current approach for the mechanical and electrical systems is to provide HVAC for Building 1 via an "Aquatherm" type system. This would consist of a series of small air cooled condensing units (one per apartment) on the roof that would supply refrigerant to fan coil units in each residential unit. A 50 to 60 ton variable refrigerant flow (VRF) type split system is anticipated for the restaurant space in Building 1 with air cooled condensers on the roof (along with make-up air units and exhaust system to support the restaurant). An approximately 800-ton cooling tower would be located on the roof of Building 4 and supply condenser water to the three buildings via piping distribution in the garage. Corridor ventilation and toilet exhaust, for all four buildings will be via roof mounted energy recovery units, each unit shall be equipped with an air cooled condensing section, supply/exhaust fan, gas heating section and heat recovery wheel. Units in the 4000 to 5000 cubic feet per minute (CFM) range are anticipated, and depending on the final layout there could be as many as five per building. There will also be miscellaneous exhaust fans for utility rooms (trash rooms, electric rooms, etc.) and stair pressurization fans (Buildings 2, 3 and 4 only) associated with the HVAC system. Emergency generators are anticipated to be located on the roof of each building.

At this time, the mechanical equipment and noise controls are conceptual in nature and, during the final design phase of the Project, will be specified to meet the applicable City of Boston and MassDEP noise limits. Reasonable efforts will be made, if necessary, to minimize noise impacts from the Project using routinely employed methods of noise control, including:

- Selection of "low-noise" equipment models;
- Fitting of inlet and discharge vents with duct silencers;
- Installation of screening barriers to provide shielding where appropriate;
- Use of sound-attenuating enclosures, acoustical blankets, or both on continuously operating equipment with outdoor exposure; and
- Siting of noisy equipment at locations that protect sensitive receptors by shielding or with increased distance.

In summary, the Project, with appropriate noise control, is not expected to result in any adverse noise impacts at nearby sensitive receptors. Short-term, intermittent increases in

noise levels will occur during Project construction. However, every reasonable effort will be made to minimize the noise impacts and ensure the project complies with the requirements of the City of Boston noise ordinance.

4.11 Construction Impacts

4.11.1 Introduction

A Construction Management Plan (CMP) in compliance with the City's Construction Management Program will be submitted to BTD once final plans are developed and the construction schedule is fixed. The construction contractor will be required to comply with the details and conditions of the approved CMP.

Proper pre-planning with the City and neighborhood will be essential to the successful construction of the Project. Construction methodologies, which ensure public safety and protect nearby residences and businesses, will be employed. Techniques such as barricades, walkways and signage will be used. The CMP will include routing plans for trucking and deliveries, plans for the protection of existing utilities, and control of noise and dust.

During the construction phase of the Project, the Proponent will provide the name, telephone number and address of a contact person to communicate with on issues related to the construction. The construction contact will be responsible for responding to the questions/comments/complaints of the residents of the neighborhood.

The Proponent intends to follow the guidelines of the City of Boston and the MassDEP, which direct the evaluation and mitigation of construction impacts.

4.11.2 Construction Methodology/Public Safety

Construction methodologies that ensure public safety and protect nearby tenants will be employed. Techniques such as barricades and signage will be used. Construction management and scheduling will minimize impacts on the surrounding environment and will include plans for construction worker commuting and parking, routing plans for trucking and deliveries, and the control of noise and dust.

It may be necessary to occupy pedestrian walkways and portions of Sprague Street at certain points during the construction process. As the design of the Project progresses, the Proponent will meet with BTD to discuss the specific location of barricades, the need for lane closures, pedestrian walkways, and truck queuing areas. Secure fencing, signage, and covered walkways may be employed to ensure the safety and efficiency of all pedestrian and vehicular traffic flows. In addition, sidewalk areas and walkways near construction activities will be well marked and lighted to protect pedestrians and ensure their safety. Public safety for pedestrians on abutting sidewalks will also include covered pedestrian walkways when appropriate. If required by BTD and the Boston Police Department, police

details will be provided to facilitate traffic flow. These measures will be incorporated into the CMP which will be submitted to BTD for approval prior to the commencement of construction work.

4.11.3 Construction Schedule

Construction of the Project is expected to commence in mid-2018. Construction is expected to take approximately 18-24 months, provided, however, that it is likely that construction of the buildings will be staggered, so as not to have all of the residential units be presented to the leasing market all at once, and also so as to provide building completions at the appropriate times of year so as to optimize building lease-up. This timeframe is anticipated to consist of approximately 2-3 months of mobilization, utility work and demolition, followed by approximately 14-17 months per building for each of the buildings (the larger of the buildings being at the longer end of the expected timeframe). Depending on the gaps between start times of each of the buildings, the total construction duration may be longer than the 18-24 months that would be required if the buildings were constructed concurrently.

Typical construction hours will be from 7:00 a.m. to 6:00 p.m., Monday through Friday, with most shifts ordinarily ending at 3:30 p.m. No substantial sound-generating activity will occur before 7:00 a.m. If longer hours, additional shifts, or Saturday work is required, the construction manager will place a work permit request to the Boston Air Pollution Control Commission and BTD in advance. Notification would occur during normal business hours, Monday through Friday. It is noted that some activities such as finishing activities could run beyond 6:00 p.m. to ensure the structural integrity of the finished product; certain components must be completed in a single pour, and placement of concrete cannot be interrupted.

4.11.4 Construction Staging/Access

Access to the site and construction staging areas will be provided in the CMP.

Although specific construction and staging details have not been finalized, the Proponent and its construction manager will work to ensure that staging areas will be located to minimize impacts to pedestrian and vehicular flow. Secure fencing and barricades will be used to isolate construction areas from pedestrian traffic adjacent to the site. Construction procedures will be designed to meet all Occupational Safety and Health Administration (OSHA) safety standards for specific site construction activities.

4.11.5 Construction Mitigation

The Proponent will follow City and MassDEP guidelines which will direct the evaluation and mitigation of construction impacts. As part of this process, the Proponent and construction team will evaluate the Commonwealth's Clean Air Construction Initiative.

A CMP will be submitted to BTD for review and approval prior to issuance of a Building Permit. The CMP will include detailed information on specific construction mitigation measures and construction methodologies to minimize impacts to abutters and the local community. The CMP will also define truck routes which will help in minimizing the impact of trucks on City and neighborhood streets.

"Don't Dump - Drains to Neponset River" plaques will be installed at storm drains that are replaced or installed as part of the Project.

4.11.6 Construction Employment and Worker Transportation

The number of workers required during the construction period will vary. It is anticipated that approximately 1,900 construction jobs will be created over the length of construction. The Proponent will make reasonable good-faith efforts to have at least 50% of the total employee work hours be for Boston residents, at least 25% of total employee work hours be for minorities and at least 10% of the total employee work hours be for women. The Proponent will enter into a construction employment plan with the City of Boston.

To reduce vehicle trips to and from the construction site, minimal construction worker parking will be available at the site and all workers will be strongly encouraged to use public transportation and ridesharing options. The general contractor will work aggressively to ensure that construction workers are well informed of the public transportation options serving the area. Space on-site will be made available for workers' supplies and tools so they do not have to be brought to the site each day.

4.11.7 Construction Truck Routes and Deliveries

Truck traffic will vary throughout the construction period depending on the activity. The construction team will manage deliveries to the site during morning and afternoon peak hours in a manner that minimizes disruption to traffic flow on adjacent streets. Construction truck routes to and from the site for contractor personnel, supplies, materials, and removal of excavations required for the development will be coordinated with the BTD. Traffic logistics and routing will be planned to minimize community impacts. Truck access during construction will be determined by the BTD as part of the CMP. These routes will be mandated as a part of all subcontractors' contracts for the development. The construction team will provide subcontractors and vendors with Construction Vehicle & Delivery Truck Route Brochures in advance of construction activity.

"No Idling" signs will be included at the loading, delivery, pick-up and drop-off areas.

4.11.8 Construction Air Quality

Plans for controlling fugitive dust during demolition, excavation and construction include mechanical street sweeping, wetting portions of the site during periods of high wind, and careful removal of debris by covered trucks. Short-term air quality impacts from fugitive

dust may occur during demolition, excavation and the early phases of construction. The construction contract will provide for a number of strictly enforced measures to be used by contractors to reduce potential emissions and minimize impacts. These measures are expected to include:

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

4.11.9 Construction Noise

The Proponent is committed to mitigating noise impacts from the construction of the Project. Increased community sound levels, however, are an inherent consequence of construction activities. Every reasonable effort will be made to minimize the noise impact of construction activities.

Mitigation measures are expected to include:

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

- Locating noisy equipment at locations that protect sensitive locations by shielding or distance.

4.11.10 Construction Waste

The Proponent will take an active role with regard to the reprocessing and recycling of construction waste. The disposal contract will include specific requirements that will ensure that construction procedures allow for the necessary segregation, reprocessing, reuse and recycling of materials when possible. For those materials that cannot be recycled, solid waste will be transported in covered trucks to an approved solid waste facility, per MassDEP Regulations for Solid Waste Facilities, 310 CMR 16.00. This requirement will be specified in the disposal contract.

4.11.11 Protection of Utilities

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. 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.

4.11.12 Rodent Control

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

4.12 Wildlife Habitat

A portion of the Project site is located within the Neponset River Estuary Area of Critical Environmental Concern (ACEC). The Project also requires a Section 54A Railroad Right-of-Way approval. Due to the state agency action required under Section 54A and the Project's location in an ACEC, review under MEPA is anticipated. An ENF is expected to be filed to satisfy MEPA requirements.

Chapter 5.0

Sustainable Design and Climate Change Preparedness

5.0 SUSTAINABLE DESIGN AND CLIMATE CHANGE RESILIENCE

5.1 Green Building

The Proponent is dedicated to constructing a sustainable Project, and has been designing the building and site with not only the environment in mind, but also occupant comfort, health, and well-being. While the primary objective of the Project is to remain in a price range that makes it affordable to the middle class, the Proponent is also committed to minimizing the environmental "footprint" of the Project. To that end, the Proponent intends as it works through the design development process to engage its architect, sustainability consultant, and mechanical, electrical and plumbing engineers to explore all possible systems and technologies to determine where it will be possible to employ cutting-edge, cost-effective technologies that will reduce the Project's impact on the environment.

As required under Article 37 of the Boston Zoning Code, projects that are subject to Article 80B, Large Project Review, shall be Leadership in Energy and Environmental Design (LEED) certifiable. The Project will use the LEED Multifamily Mid-Rise rating system to show compliance with Article 37. The Project team chose to follow the LEED Multifamily Mid-Rise because of the high ratio of residential space on the Project with over 500 units, as well as the additional requirements of on-site verification visits by a third-party Green Rater, ensuring a high level of quality management throughout the design and construction process.

The Project team is dedicated to a sustainable structure and the Project has been designing the building and site to focus on occupant comfort, health, and well-being, in addition to concern for the greater environment. A preliminary overview of credits under LEED v4 Multifamily Mid-Rise rating system yields a credit total of 54 over the required 40 to be certified and 50 for Silver. The Project team has also identified an additional 36 "maybe" points that have the potential to push the Project into a solid Silver or even Gold certification level. These potential credits will be evaluated as the Project moves forward and whether or not to pursue each point will be decided at a later time.

The LEED for Homes program requires multiple rounds of on-site verification and testing during the construction process. Along with a project team's own internal quality management plan, the Green Rater's on-site presence allows for potential problems to be addressed immediately, and decreases the risk of losing credits pursued by the Project team. The on-site verification for the Project include slab inspection, predrywall inspection (for insulation, air sealing, etc.), and final inspections which include unit blower door, duct testing and ventilation air flow tests.

The following is a discussion of the Project team's approach to each credit category.

Integrative Process (IP)

The Project is taking one point for having an integrated Project team in this credit category with the potential of another point for a Trades Training or carrying out a Design Charrette to encourage more discussion on LEED and green features for the Project. If one of these measures is added, points would be included in this category, and the second, if applicable, would be included under Exemplary Performance in the Innovation credit category

Location and Transit (LT)

The Project site is not within the FEMA 100 year floodplain, automatically meeting the Floodplain avoidance prerequisite. The Project automatically achieves a perfect eight points in site selection, by being a previously developed, infill lot with open space nearby. Also considering the adjacent suitable bicycle network, the team plans to install the required bike racks for residents (521) and visitors (41). Proximity to multiple transit lines yields two points in LT and an additional point in the Regional Priority section, for enabling occupants to choose the more environmentally friendly, existing public transportation options. Including approximately 521 units on 6.6 acres doubles the highest threshold for three points in Compact Development and an additional point for Exemplary Performance in Innovation. Within a 0.5 mile walking distance, 16 community resources with diverse uses are present, which adds the maximum of two points in LT Community Resources. A grand total of 15 points are earned in LT, the maximum available in this credit category.

Sustainable Sites (SS)

The City of Boston's Environment Department Guidelines for Construction cover the requirements for the erosion controls during construction prerequisite. The extensive landscaping on the garage roof is considered a vegetative podium which in combination with a high albedo TPO roof will yield one to two points for reducing the heat island effect over 50-80% of the lot. The vegetated podium will also act as permeable landscape for the Project, contributing to the management of runoff from the Project site. Two or three possible points could be added if the designed stormwater system will be capable of managing 95th or 98th percentile rainfall events. Attention to non-toxic pest control measures provides two points for this credit in SS and one more in the Regional Priority section. All of the plants installed will be selected to prevent the introduction of any invasive species into the local ecosystem.

Water Efficiency (WE)

The landscaping for the lot will be a mix of turf and plants which will be predominantly drought tolerant, native or adapted to the area. As referenced by the SS prerequisite, no invasive species will be selected or installed. As the public space above the garage will be a key amenity for the occupants and possibly the neighborhood, the Project team is not claiming points at this time specifically pertaining to landscaping, in order to preserve

freedom to create a green space which will provide maximum benefit to the occupants. Points would likely be available by using the EPA's water budget calculator after the landscape design is more fully developed, by inputting those results and the selected indoor fixtures into the WE Total Water Use - water reduction calculator. Low flow fixtures are planned for lavatory faucets, showerheads, and toilets in the living spaces as well as common spaces. The reduction of residential indoor water use, as well as the likely reduction of irrigation demand due to an efficient landscape design, will result in between two and eight points in this credit category. If the Project team can find cost effective water efficient clothes washers for the Project, it would yield an additional point.

Energy and Atmosphere (EA)

The prerequisite for energy performance in LEED v4 Multifamily Mid-Rise is to achieve 5% energy cost savings compared to ASHRAE 90.1-2010. This requirement will be met because the current Massachusetts Advanced Energy Code directs compliance with ASHRAE 90.1 - 2013, which for this type of building is an equivalent to the LEED v4 standard. The Project team is currently projecting that the Project will exceed the Massachusetts code standard by 10% and earn approximately ten points. This estimate is based on benchmarks of similar buildings in the area and the Project team believes the estimate to be conservative. It is the intention of the team to continue evaluating additional energy saving measures during the design phase, such as PV Solar to improve on the energy performance of the buildings.

Additionally, Multifamily Mid-Rise offers points (as opposed to a reduction in certification thresholds as was the case in v2008) to projects where the size of the dwellings is below the average size of dwellings in the US. This yields eight points in the credit. Unit by unit electricity metering and an operations manual and training will be provided to the occupants and managers of the buildings, meeting those two prerequisites as well. With a confirmed total of 18 points, there are 12 other points that are under consideration by the Project team for measures including higher than projected energy savings, domestic hot water distribution efficiency and pipe insulation, advanced utility tracking and reporting out to third parties.

Materials and Resources

The Project team will comply with the tropical wood prerequisite by avoiding the use of tropical wood altogether, and by utilizing the Energy Star Water Management Builder Checklist as part of a larger quality management program focused on durability and risk management. One point will be awarded by hiring the on-site Green Rater to additionally verify the relevant items on the water management checklist.

LEED v4 Multifamily Mid-Rise has increased stringency dramatically in the areas of Environmentally Preferable products and Construction waste management when compared to earlier versions of LEED. One and a half points will be captured by using local and preferable products, but based on the rubric of overall waste created, counting recycled

waste at 75% the value of trash, the Project team has decided not to forecast any points in this category.

Indoor Environmental Quality (EQ)

The Project team intends to use a central HRV to exhaust bathrooms at 20 cubic feet per minute and kitchens at five air changes per hour, both continuously. This will enable one device to meet the ventilation prerequisites for the EQ category, covering local pollution removal and outside air introduction. The method for delivering outside air directly to the unit is still being determined. Ventilating the bathrooms continuously qualifies as Enhanced Local Exhaust for a point, minimizing the risk posed by moisture build up in those rooms. Local outdoor air quality is sufficient that the team is not required to take additional measures to clean PM-2.5 and ozone from the outside air supply, but will pass the incoming air stream through a minimum MERV 6 filter prior to introduction to the space. Smoking will be prohibited inside the building, including units and common areas as well as around the building. For the small parts of the building where conditioned space is directly above the foundation, a passive radon system will be installed. An open air garage qualifies as a radon resistant construction strategy for the remainder of the building. Compartmentalization is a key feature of truly green multifamily construction and will be a particular focus for the Project team. Walk off mats at the entrances and low volatile organic compound paints, adhesives, sealants and insulation are all familiar green strategies that will be implemented by the Project.

Innovation and Regional Priority

Neither of these credit categories have prerequisites, and are special cases, considered over and above the 100 base points available in the remaining credit categories of LEED v4. Exemplary performance points are anticipated for both Compact Development and Site Selection, since the credit specific thresholds for an Exemplary Performance point are anticipated to be met. Another such point will be awarded if all the Integrative Process measures are included, two of which are currently under consideration.

Regional Priority credits are additional points awarded when any of six credits, identified by local greenbuilding stakeholders, are met at the threshold specified. For this specific location, Annual Energy use at 15 points, Access to Transit at 1 point, and Non-toxic Pest control at 2 points are all anticipated, each awarding another point in this section. If either of Heat Island Reduction at 2 points or Rainwater Management at 3 points are met, they will complete the maximum of 4 points in the regional priority credit category.

5.2 Renewable Energy

The Proponent intends to install a roof-mounted solar photovoltaic (PV) system, with the size of the system to be based on space available as well as the availability of grants and renewables funding. At present based on the amount of roof space presently intended to be

occupied by mechanical equipment as well as the required space around and between the solar panels, it is anticipated that approximately 10,270 sf of rooftop space will be available for rooftop solar. Assuming 12 watts per square foot, this allows for a 123 kW array. Based on early energy modeling, this could offset approximately 40% of the Project's common area usage.

5.3 Climate Change Resilience

5.3.1 Introduction

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

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

5.3.2 Extreme Heat Events

The Intergovernmental Panel on Climate Change (IPCC) has predicted that in Massachusetts the number of days with temperatures greater than 90°F will increase from the current five-to-twenty days annually, to thirty-to-sixty days annually.[1] The Project design will incorporate a number of measures to minimize the impact of high temperature events, including:

- Installing operable windows where possible;
- Planting shade trees around the site;
- Installing a high performance building envelope; and
- Specifying high reflective paving materials, high albedo roof tops and green roofs to minimize the heat island effect.

Energy modeling for the Project has not yet been completed; however, the Proponent will strive to reduce the Project's overall energy demand and greenhouse gas emissions that

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

contribute to global warming. The Proponent will encourage alternative modes of transportation through the Project's TDM program, as described in Section 3.7.1. The Proponent also intends to include solar photovoltaic, further reducing the Project's greenhouse gas emissions.

5.3.3 Rain Events

As a result of climate change, the Northeast is expected to experience more frequent and intense storms. To mitigate this, the Proponent will take measures to minimize stormwater runoff and protect the Project's mechanical equipment. The Project will be designed to reduce the existing peak rates and volumes of stormwater runoff from the site, and promote runoff recharge to the greatest extent practicable. The Project will significantly increase the pervious area on the site from the existing condition, from approximately 14% to approximately 20%, creating infiltration ability on the site. The Project will also include a closed drainage system, if possible, that will strive to infiltrate one-inch of stormwater runoff from the impervious areas on-site into the ground to the greatest extent practicable.

5.3.4 Drought Conditions

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

LEED BD+C: Multifamily Midrise v4 - LEED v4

Scorecard

Note: The information on this tab is READ-ONLY. To edit this information, see the Credit Category tabs.

Integrative Process		**Preliminary**	Y	1 of 2	M	*2*	**Verified**	0
IPc	**Integrative Process**			1 of 2		*2*		
Location and Transportation		**Preliminary**	Y	15 of 15	M	*0*	**Verified**	2
LTp	Floodplain Avoidance			Required				Not Verified
Performance Path								
LTc	LEED for Neighborhood Development			0 of 15		*0*		
Prescriptive Path								
LTc	Site Selection			8 of 8		*0*		
LTc	Compact Development			3 of 3		*0*		
LTc	Community Resources			2 of 2		*0*		
LTc	Access to Transit			2 of 2		*0*		2
Sustainable Sites		**Preliminary**	Y	3 of 7	M	*4*	**Verified**	0
SSp	Construction Activity Pollution Prevention			Required				Not Verified
SSp	No Invasive Plants			Required				Not Verified
SSc	Heat Island Reduction			1 of 2		*1*		
SSc	Rainwater Management			0 of 3		*3*		
SSc	Nontoxic Pest Control			2 of 2		*0*		
Water Efficiency		**Preliminary**	Y	2 of 12	M	*5*	**Verified**	0
WEp	Water Metering			Required				Not Verified
Performance Path								
WEc	Total Water Use			0 of 12		*0*		
Prescriptive Path								
WEc	Indoor Water Use			2 of 6		*4*		
WEc	Outdoor Water Use			0 of 4		*1*		
Energy and Atmosphere		**Preliminary**	Y	18 of 37	M	*12*	**Verified**	0
EAp	Minimum Energy Performance			Required				Not Verified
EAp	Energy Metering			Required				Not Verified
EAp	Education of the Homeowner, Tenant or Building Manager			Required				Not Verified
EAc	Annual Energy Use			18 of 30		*5*		
EAc	Efficient Hot Water Distribution System			0 of 5		*5*		
EAc	Advanced Utility Tracking			0 of 2		*2*		
Materials and Resources		**Preliminary**	Y	2.5 of 9	M	*4.5*	**Verified**	0
MRp	Certified Tropical Wood			Required				Not Verified
MRp	Durability Management			Required				Not Verified
MRc	Durability Management Verification			1 of 1		*0*		
MRc	Environmentally Preferable Products			1.5 of 5		*3.5*		
MRc	Construction Waste Management			0 of 3		*1*		

Indoor Environmental Quality	Preliminary	Y	7.5 of 18	M	4.5	Verified	0
EQp	Ventilation		Required				Not Verified
EQp	Combustion Venting		Required				Not Verified
EQp	Garage Pollutant Protection		Required				Not Verified
EQp	Radon-Resistant Construction		Required				Not Verified
EQp	Air Filtering		Required				Not Verified
EQp	Environmental Tobacco Smoke		Required				Not Verified
EQp	Compartmentalization		Required				Not Verified
EQc	Enhanced Ventilation		1 of 3		*2*		
EQc	Contaminant Control		0.5 of 2		*0.5*		
EQc	Balancing of Heating and Cooling Distribution Systems		2 of 3		*1*		
EQc	Enhanced Compartmentalization		0 of 3		*0*		
EQc	Combustion Venting		2 of 2		*0*		
EQc	Enhanced Garage Pollutant Protection		0 of 1		*0*		
EQc	Low-Emitting Products		2 of 3		*0*		
EQc	No Environmental Tobacco Smoke		0 of 1		*1*		

Innovation	Preliminary	Y	2 of 6	M	3	Verified	0
INp	Preliminary Rating		Required				Not Verified
INc	Innovation		2 of 5		*2*		
INc	LEED Accredited Professional		0 of 1		*1*		

Regional Priority	Preliminary	Y	3 of 4	M	1	Verified	0
RPc	Regional Priority		3 of 4		*1*		

Point Floors	
The project earned at least 8 points total in Location and Transportation and Energy and Atmosphere	No
The project earned at least 3 points in Water Efficiency	No
The project earned at least 3 points in Indoor Environmental Quality	No

Total	Preliminary	Y	54 of 110	M	36	Verified	2

Certification Thresholds Certified: 40-49, Silver: 50-59, Gold: 60-79, Platinum: 80-110

Chapter 6.0

Urban Design

6.0 URBAN DESIGN

6.1 Site Context

The Project site is a semi-industrial site which currently consists of a mix of storage, warehouse, construction and maintenance yard related uses. The site is bounded by MBTA Commuter Rail lines to the north and east. To the west of the site is an industrial park and industrial storage park, with another rail line beyond that. To the south of the site is a Brinks storage facility and Sprague Pond. The numerous rail lines surrounding the site create a separation between the Project site and the residential neighborhoods to the north and east.

6.2 Design and Massing

When the design process for the proposed Project commenced, two primary objectives were set forth by the Project team. First, the team wanted to avoid the "cookie-cutter" architecture that is so prevalent in 21st century mid-rise apartment buildings and complexes. Second, the team wanted to design the buildings in a manner that would respect the history of the site's and area's past, creating buildings that would be contextual and relate to the location, as opposed to buildings that could be "dropped in" from anywhere.

The site is laid out such that its edges are lined with buildings in order: (1) to define the edge of Sprague Street as it rises towards the bridge, and (2) to line the rail side of the Project to create a visual and acoustical barrier for the central green space. The site is laid out in a campus-like manner, focused around both interior and exterior green spaces, as opposed to more typical mid-rise apartment site layouts which are often dominated by paved surface parking and small "token" green spaces (see Figure 6-1).

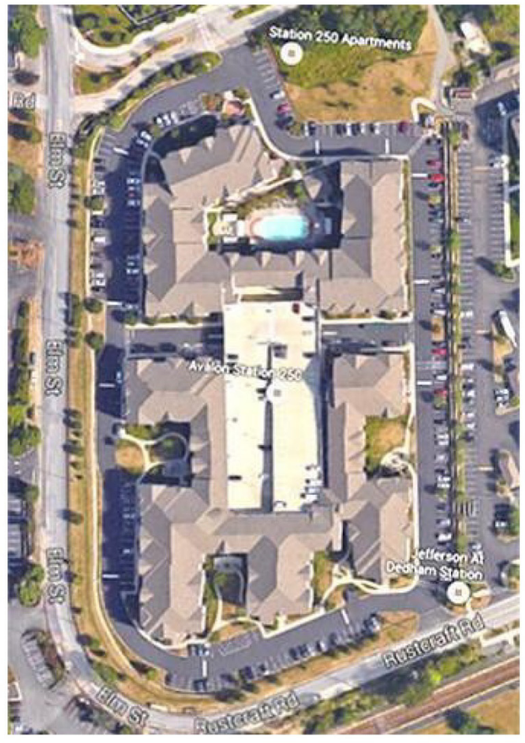
From the exterior perspective, a dismal, dirty frontage on Sprague Street is replaced by a lushly landscaped entry, with lawns and plantings lining the site's frontage from its southernmost point up to the area where Sprague Street rises above the level of the site. From that area north to where the road rises to meet the Sprague Street Bridge, the buildings fill not only a visual gap but a topographic gap, as major portions of the site are between 20 to 30 feet below the level of Sprague Street as it rises to the north.

Once inside the site, the internal courtyard of each building opens to a central green that runs the length of the site, a green that was created using as inspiration the main lawns of several iconic college campuses. Oriented on a north-south axis, and anchored at the north by the Project's dramatic shared workspace pavilion and on the south by Sprague Pond, the main lawn will provide residents a variety of sunny, both active and passive spaces that will allow for an enhanced quality of life and feeling of community. At the main lawn's southern edge is the largest of the Project's several community lounges, this one attached to the Project's restaurant so that it can be used for both resident and greater Readville community functions with the ability to have food service provided by the restaurant. At its

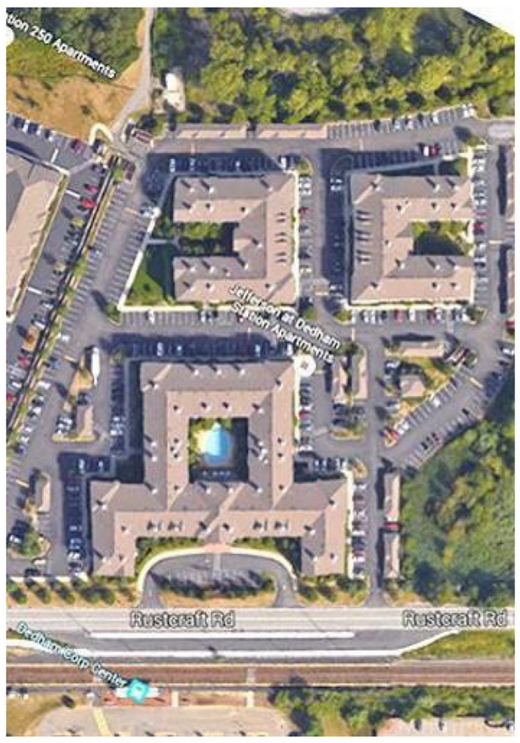
northern edge is the plaza, the landscaped Town Square surrounded by the shared workspace, gym, day care center, coffee house and sports lounge, and directly attached to the site's main pedestrian entrance and walkway to Readville Station. And along Sprague Pond is a new park area that will be open to the greater community, connecting new Project residents with current area residents (see Figure 6-2). Everything about the site's urban design is about creation of community and bringing people together.

The urban design aesthetic is to parlay the history of the site into the buildings, creating a neo-industrial scale façade for the residential buildings. While the same large, industrial-style window units are used in all four buildings, the pattern of windows evolves as one moves north across the site from a more rigid mill building pattern to a more random contemporary façade (see Figures 6-3 to 6-5). The façade evolution is intended to evoke the change in the site from its industrial heritage to a modern language to create a story line or basis for the design. As the design evolves from industrial to contemporary, the buildings also change in height from five stories over a podium to seven stories over a podium, and culminating in eight stories over the podium (see Figure 6-6). At its most visible corner, the tallest building has a sign tower, the "Readville Tower", that announces the site, provides some identity to the neighborhood with a new iconic landmark intended to be like a Citgo Sign for Readville, and anchors the northern end. Seen in perspective, the intent is to see an evolution of buildings the way one would see a factory evolving.

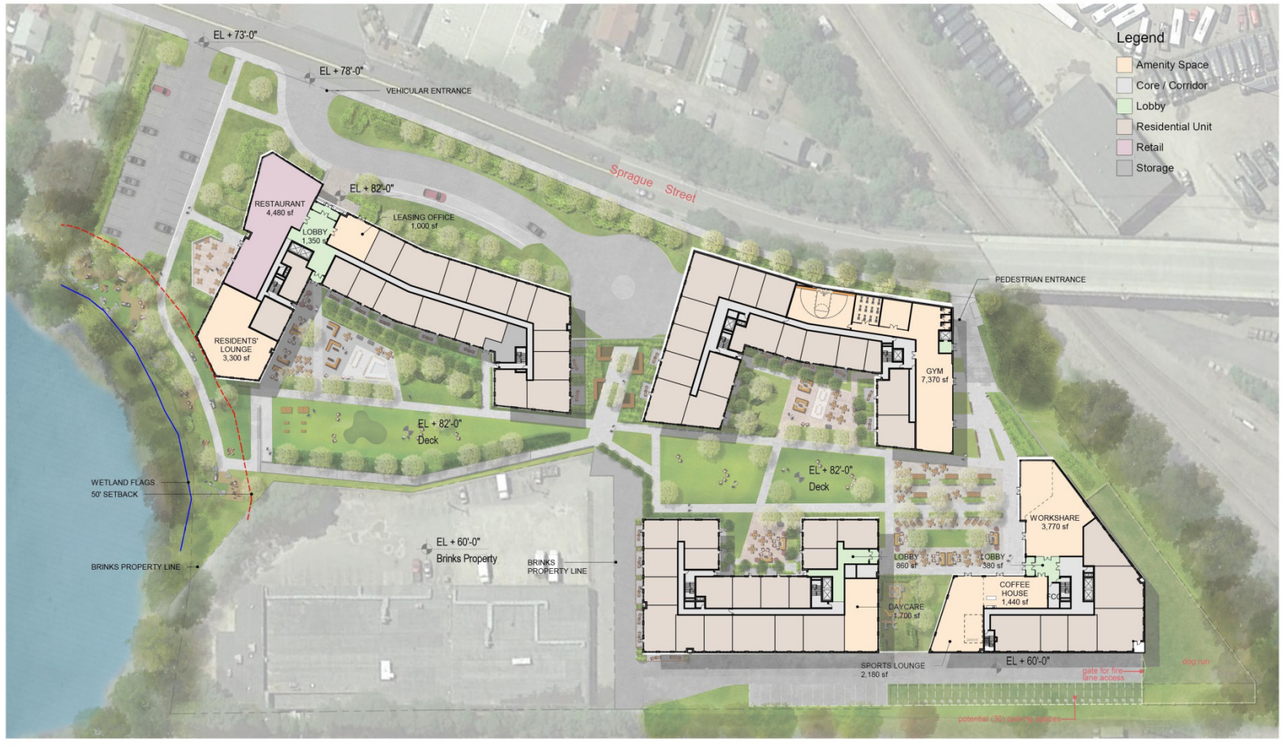
See Figures 6-7 to 6-11 for elevations and sections.



Typical Apartment Layout 1



Typical Apartment Layout 2



Proposed Project Layout

36-70 Sprague Street Readville, Massachusetts

bh+a

Figure 6-2

Perspective from Sprague Pond

36-70 Sprague Street Readville, Massachusetts

bh+a

Figure 6-3

Perspective from Sprague Street

36-70 Sprague Street Readville, Massachusetts

bh+a

Figure 6-4

Perspective from the Courtyard

36-70 Sprague Street Readville, Massachusetts

bh+a

Figure 6-5

Perspective at North Entry

36-70 Sprague Street Readville, Massachusetts

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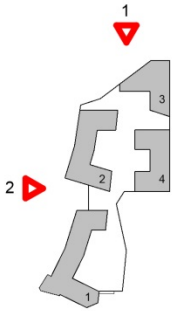
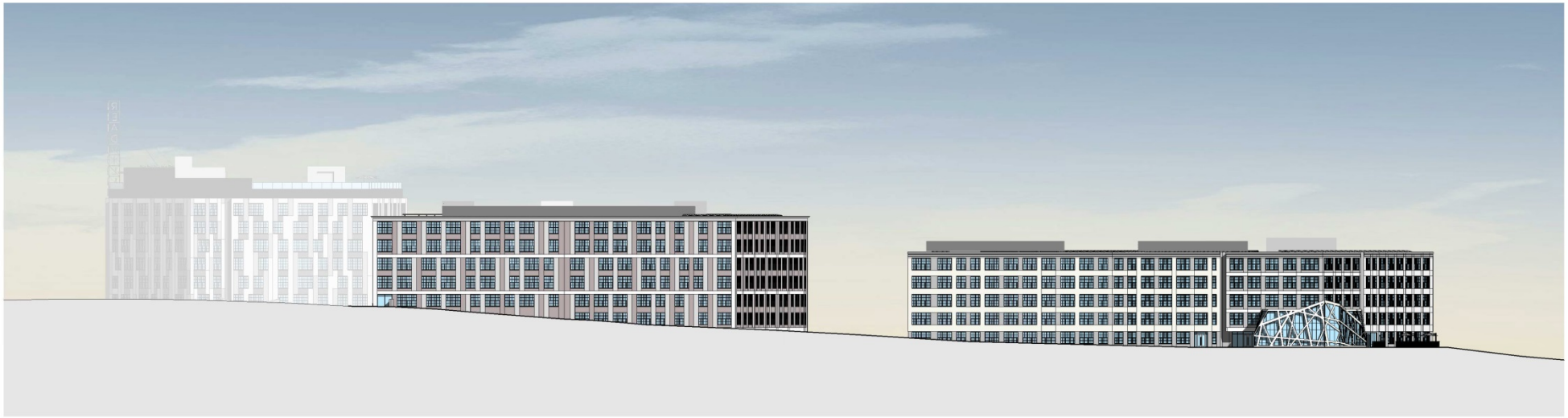
Figure 6-6
Axonometric



1. North Elevation from Franklin Line



2. West Elevation from Sprague Street

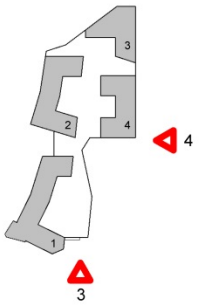
0 30' 60'

36-70 Sprague Street Readville, Massachusetts

bh+a

Figure 6-7

North and West Elevations



3. South Elevation from Sprague Pond

4. East Elevation from Train Tracks

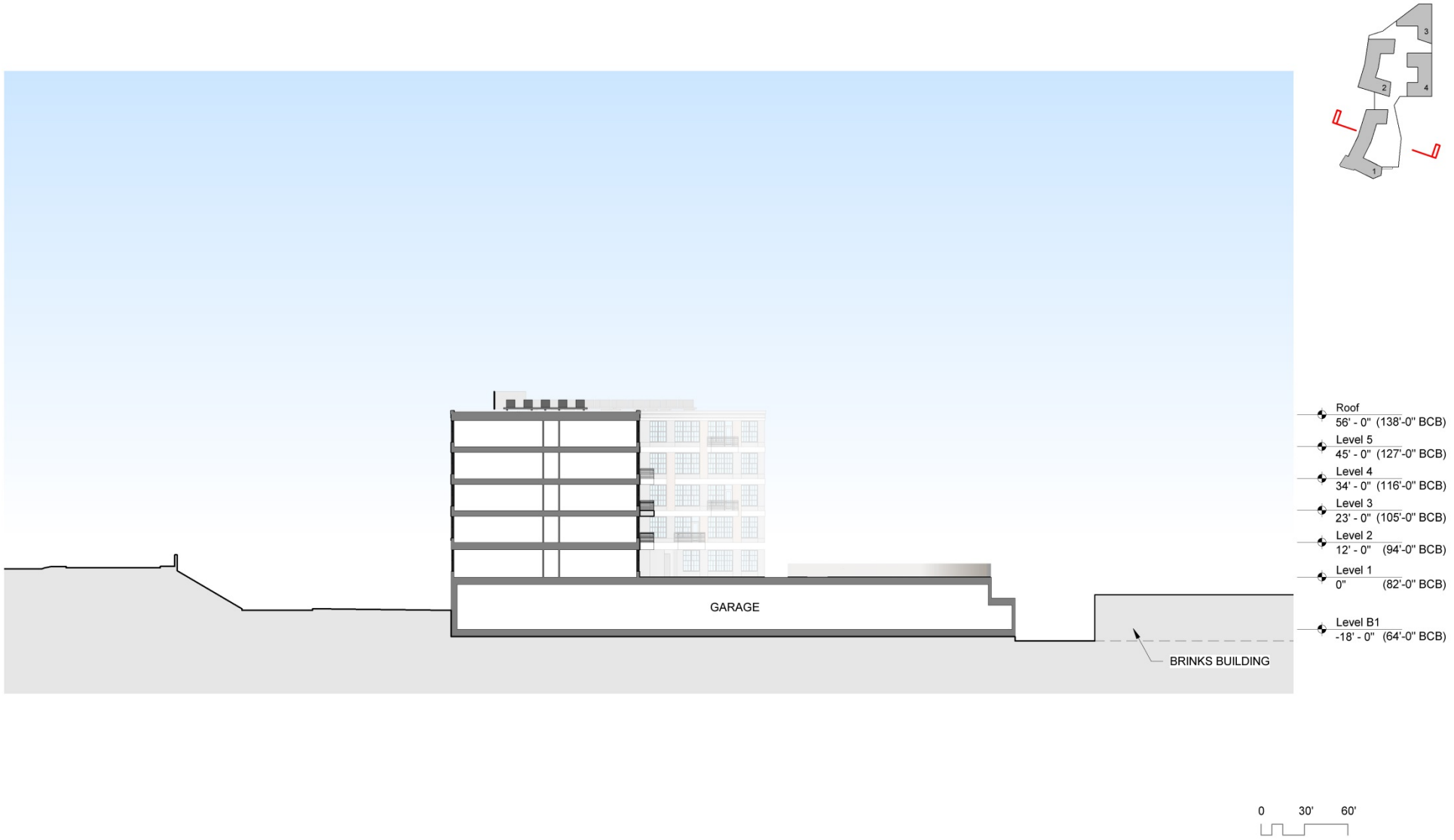
0 30' 60'

36-70 Sprague Street Readville, Massachusetts

bh+a

Figure 6-8

South and East Elevations



36-70 Sprague Street Readville, Massachusetts

bh+a

Figure 6-9

Section: Building 1

36-70 Sprague Street Readville, Massachusetts

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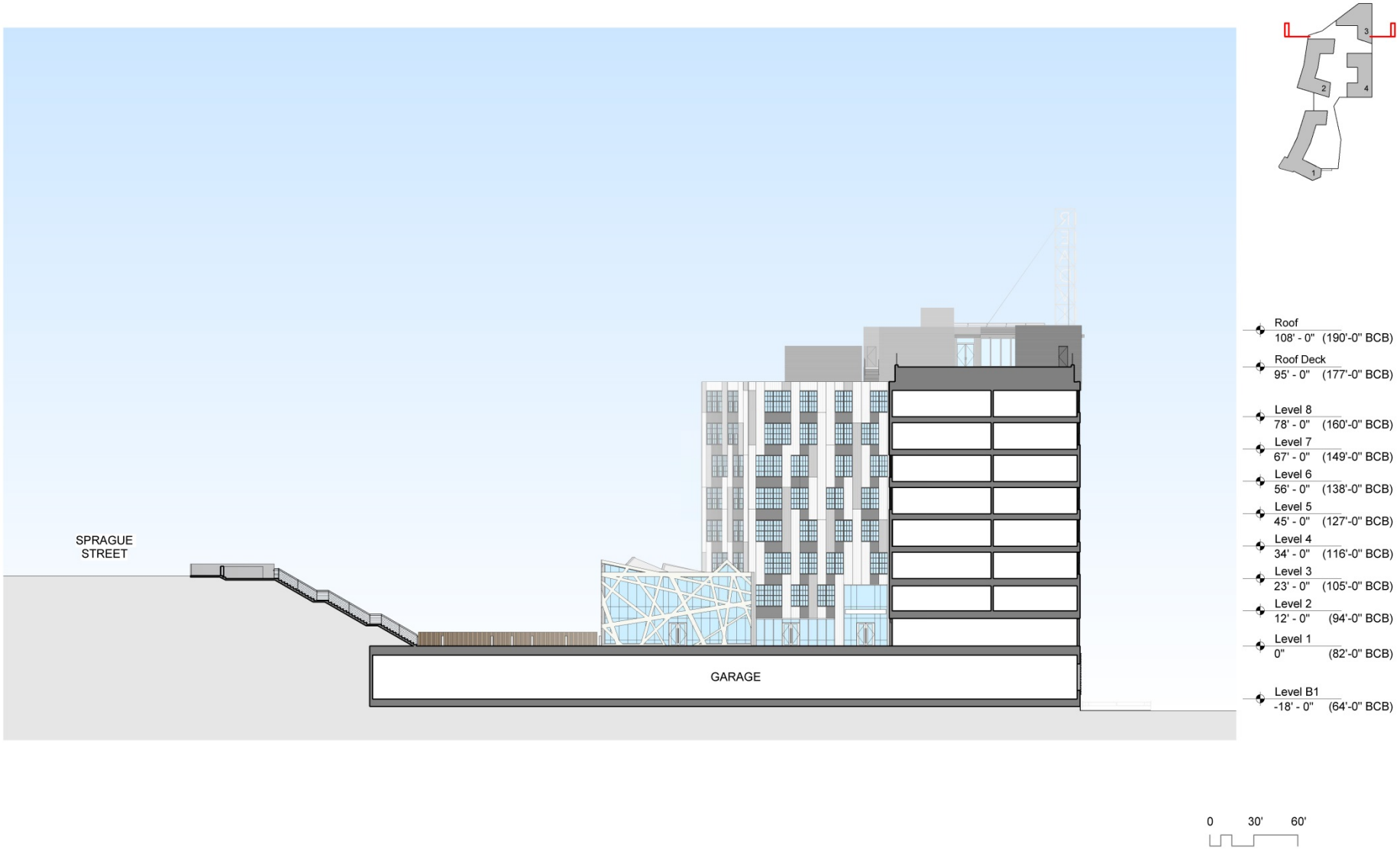
Figure 6-10

Section: Buildings 2 and 4



36-70 Sprague Street Readville, Massachusetts

bh+a

Figure 6-11

Section: Building 3

Chapter 7.0

Historic and Archaeological Resources

7.0 HISTORIC AND ARCHAEOLOGICAL RESOURCES

7.1 Project Site

The Project site is located within the Readville Industrial Area (MHC # BOS.RQ) included in the Inventory of Historic and Archaeological Assets of the Commonwealth (Inventory). The Readville Industrial Survey Area in Hyde Park is a roughly bow-shaped region comprising approximately 215 acres beginning at the former Readville Car Shops (MHC 11076; 12907-16; 1902) at the Dedham/Hyde Park border and continuing north toward Milton. The area is characterized by masonry, concrete-frame, steel-frame, and timber-frame buildings constructed between 1866 and about 1950. The area as a whole was not recommended for listing as a potential historic district. Within the area, four separate industrial complexes were recommended for listing in the National Register Places. None of the four industrial complexes recommended for listing in the National Register are located in the Project site boundary.

Two properties included in the Inventory of Historic and Archaeological Assets of the Commonwealth (Inventory) are located within the Project site. The properties are the Readville Color Works –BLDG #1 – Dextrine Works (BOS.11083) and Prudential Fastner Complex at 50 Horne Street (BOS.12898) listed in the Boston Tax Assessor records as 50 Sprague Street.

The Readville Color Works – BLDG #1 (BOS.11083) is described in the inventory as a late 19th century building historically associated with the Readville Color Works. Constructed ca.1889, the red brick industrial building measured three by five bays with the bays articulated by brick buttressing. The building is no longer extant and has been replaced by one-story sidewall metal clad building constructed post-1980. Two, one-story three by twelve bay brick buildings with the bays articulated by brick buttressing are located to the north and west. These buildings appear to have been heavily altered throughout the 20th century and retain little architectural integrity.

The Prudential Fastener Complex (BOS.12898) was previously surveyed in 1997 as part of a City-Wide Comprehensive Industrial Survey of Boston. At that time, the complex was noted to be extensively modified and the building was not recommended as eligible for listing in the National Register. Boston building permits indicate that in 1982, new door and window openings were cut in the brick walls of 50 Sprague Street and new door and windows were installed. In 1989, the wood roof timbers were replaced with steel and a new roof was installed. A one-story three by six bay brick building (60 Sprague Street) is located to the south of 50 Sprague Street. This building appears to have been heavily altered throughout the 20th century with the removal of brick walls and a large rear addition. A one-story concrete block building (46 Sprague Street) is located to the east. This building was constructed in 1986 after a building which existed on the site was destroyed by fire.

7.2 Historic Resources Within the Vicinity of the Project Site

The Project site is located within and in the vicinity of several historic resources listed in the State and National Registers of Historic Places or included in the Inventory of Historic and Archaeological Assets of the Commonwealth. Table 7-1 identifies these resources within one-quarter mile of the Project site and corresponds to resources depicted in Figure 7-1.

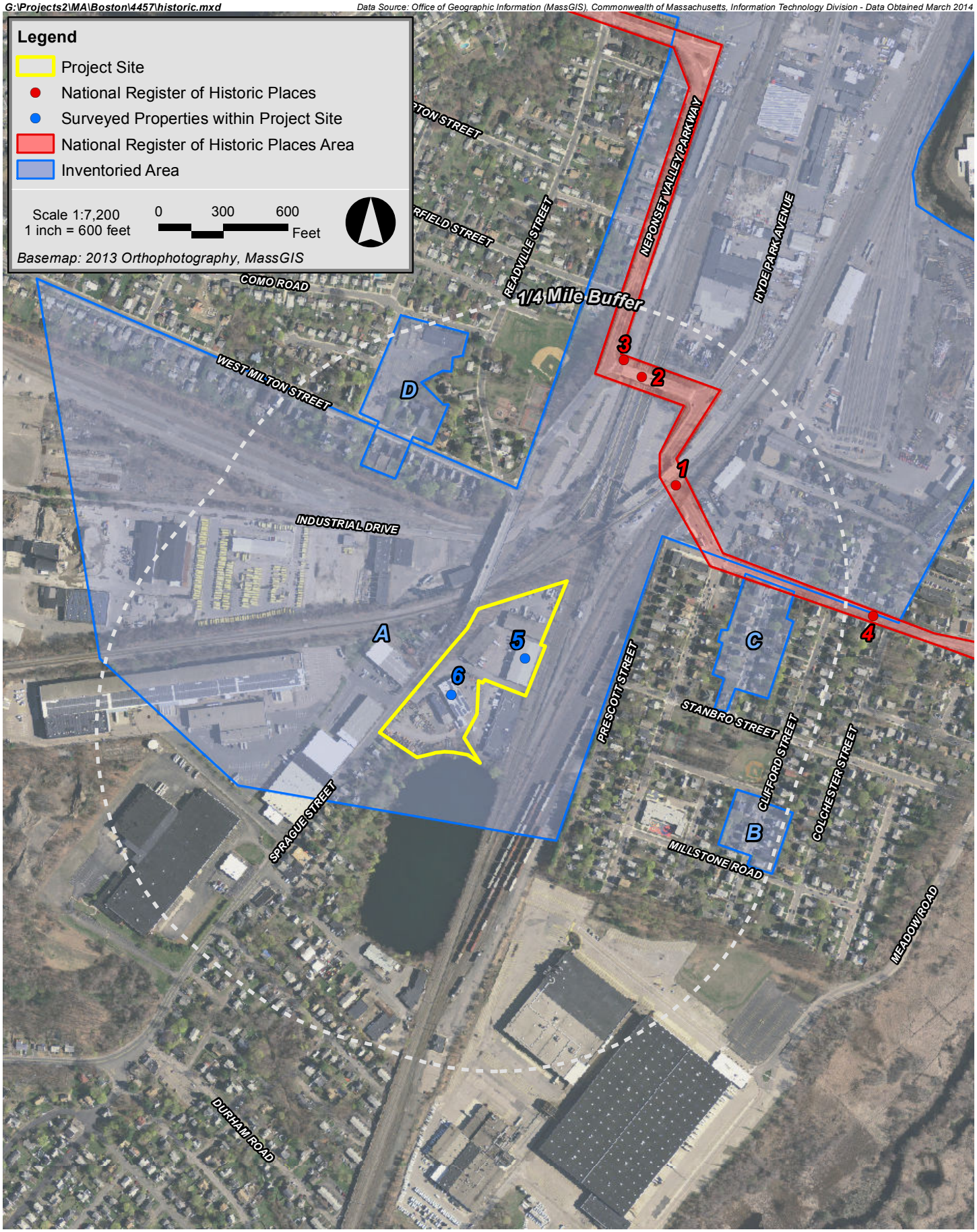
Table 7-1 Historic Resources in the Vicinity of the Project Site

No.	Historic Resource	Address	Designation*
A	Readville Industrial Area	Begins at the former Readville Car Shops (MHC 11076; 12907-16; 1902) at the Dedham/Hyde Park border and continues north toward Milton.	INV
B	40-50 Clifford Street	Clifford Street	INV
C	10-25 Hamilton Street and Neponset Valley Parkway	Hamilton Street	INV
D	Saint Anne Roman Catholic Church Complex	Roughly bounded by West Milton Street, Pine Avenue, Como Road and Readville Street	INV
	Neponset Valley Parkway	Parkway extends from Blue Hills Reservation through Neponset River Reservation to Stoney Brook Reservation	NRDIS, NRMPS
1	Old Colony Railroad Bridge	Neponset Valley Parkway	NRDIS, NRMPS
2	John Hart Bridge	Neponset Valley Parkway	NRDIS, NRMPS
3	Hart Bridge Wing Walls	Neponset Valley Parkway	NRDIS, NRMPS
4	Segment Two/Neponset Street – Neponset Avenue	Neponset Valley Parkway	NRDIS, NRMPS
5	Readville Color Works –BLDG #1 – Dextrine Works	40-46 Sprague Street	INV
6	Prudential Fastner Complex	50 Home Street	INV

*Designation Legend

NRIND	Individually listed on the National Register of Historic Places
NRDIS	National Register of Historic Places historic district
NRDOE	Determined eligible for inclusion in the National Register of Historic Places
NRMPS	Multiple Property Submission
INV	Inventory

Data Source: Office of Geographic Information (MassGIS), Commonwealth of Massachusetts, Information Technology Division - Data Obtained March 2014



36-70 Sprague Street Readville, Massachusetts

Epsilon Associates Inc.

Figure 7-1
Historic Resources

7.3 Archaeological Resources Within the Project Site

A review of Massachusetts Historical Commission's (MHC) online archaeological base maps was conducted on June 28, 2016 indicating that one prehistoric site, 19-NF-92 and one historic site (BOS.5) are within the Project site. As the proposed Project involves construction on areas of the Project site previously excavated, disturbed and then developed, impacts to archaeological resources are not anticipated. As the Project advances, the Proponent will consult with MHC in accordance with M.G.L., Chapter 9, Sections 26-27C (50 CMR 71.00), as necessary, to assess potential impacts to significant historic and archeological resources. If impacts associated with the Project are unavoidable, the Proponent with work with MHC and interested parties in developing appropriate measures to mitigate Project impacts to those resources.

7.4 Potential Impacts to Historic Resources

7.4.1 Demolition of Existing Buildings

The proposed Project will require the demolition of the five existing buildings within the Project site. One of the buildings (40 Sprague Street) was constructed after 1980. None of the four remaining buildings are listed or have been found to be eligible for listing on the National Register of Historic Places. Additionally, all of the buildings have had some level of alteration, such as 36 Sprague Street which in 1981 had its roof and portions of its masonry walls removed and 50 and 60 Sprague Street where new openings cut in the brick walls of both building and the openings infilled with new doors and windows. Additionally, the wood roof timbers on 50 Sprague Street were replaced with steel at the same time a new roof was installed. The Boston Landmarks Commission (BLC) will be afforded the opportunity to review the proposed demolition through the Article 85 Demolition Delay review process.

7.4.2 Urban Design

The proposed Project is designed in a manner that respects the history of the site's and area's past by creating buildings that are contextual and relate to the location, as opposed to building that could be placed elsewhere. The site is laid out such that the edges of the site are lined with buildings in order to define the edge of Sprague Street as it rises towards the bridge, and to line the rail side of the Project to create a visual and acoustical barrier for the central green space which will provide the residents with a sheltered green space.

The urban design aesthetic is to parlay the history of the site into the buildings, creating a neo industrial scale façade for the residential buildings. While the same large, industrial-style window units are used in all four buildings, the pattern of windows evolves as one moves across the site from a more rigid mill building pattern to a more random contemporary façade. The façade evolution is intended to evoke the change in the site

from its industrial heritage to a modern language to create a story line or basis for the design.

7.4.3 Visual Impacts to Historic Resources

The Project is not anticipated to have adverse visual impacts to the Readville Industrial Area. The Project will bring new energy and dramatically improve the character of the area by introducing residential spaces on this warehouse and maintenance yard. The size, scale, massing, and articulation of the proposed new construction will be sympathetic to the surrounding neighborhood while clearly reading as a new building. As a result, visual impacts to historic resources will be minimal.

7.4.4 Shadow Impacts to Historic Resources

A shadow impact analysis was undertaken to show the anticipated impacts from the Project. The analysis consisted of a standard shadow study done for March 21, June 21, September 21, and December 21 at 9:00 a.m., 12:00 p.m. and 3:00 p.m., as well as 6:00 p.m. on March 21, June 21, and September 21.

As illustrated in the shadow study diagrams (Figures 4.2-1 to 4.2-14), during isolated time periods the Project will cast minimal net new shadow on areas of Sprague Street and Industrial Drive within the Readville Industrial Area. New shadow on a portion of the Neponset Valley Parkway Historic District is limited to a narrow moving band of new shadow at 6:00PM on March 21th and 6:00PM on September 21nd. The new shadow will be minimal and will have no significant impacts to historic resources.

7.5 Consistency with Other Historic Reviews

7.5.1 Boston Landmarks Commission Article 80 Review

The submission of this PNF initiates review of the Project by the BLC under the City's Article 80 Review process.

7.5.2 Boston Landmarks Commission Article 85 Review

The proposed demolition of the existing buildings on the Project site including 36 Sprague Street, 38 Sprague Street, 40 Sprague Street, 50 Sprague Street and 60 Sprague Street will be subject to review by the BLC under Article 85 of the Boston Zoning Code. An Article 85 Application for each property will be submitted to the BLC.

7.5.3 Massachusetts Historical Commission

The MHC has review authority over projects requiring state or federal funding, licensing, permitting and/or approvals that may have direct or indirect impacts to properties listed in the State Register of Historic Places. It is anticipated that MHC review will be required, and

will be initiated either through the submission of an Environmental Notification Form in compliance with the Massachusetts Environmental Policy Act, or submission of an MHC Project Notification Form.

Chapter 8.0

Infrastructure

8.0 INFRASTRUCTURE

8.1 Introduction

The Infrastructure Systems Component outlines the existing utilities surrounding the Project site, the connections required to provide service to the Project, and any impacts on the existing utility systems that may result from the construction of the Project. The following utility systems are discussed herein:

- Sewer
- Domestic water
- Fire protection
- Drainage
- Natural Gas
- Electricity
- Telecommunications

The Project includes the demolition of five existing buildings located on the site and the construction of four residential buildings. The Project site is bounded by Sprague Street to the west, the MBTA Franklin Line to the north; the MBTA Providence/ Stoughton Line to the east; and Sprague Pond, a residential property and the Brinks site to the south.

8.2 Wastewater

8.2.1 Existing Wastewater

The Boston Water and Sewer Commission (BWSC) owns and maintains the sewer system that services the City of Boston. The BWSC sewer system connects to the Massachusetts Water Resources Authority (MWRA) interceptors for conveyance, treatment, and disposal through the MWRA Deer Island Wastewater Treatment Plant.

Existing BWSC sanitary sewer mains are located in Sprague Street adjacent to the Project site and through the southern end of the Project site.

Sprague Street

There is a 10-inch BWSC sanitary sewer main which flows in a southwesterly direction in Sprague Street which combines with another 10-inch BWSC sanitary sewer main which flows in a northeasterly direction in Sprague Street. The two 10-inch BWSC sanitary sewer mains connect to a 10-inch sanitary sewer main which flows through the Project site. The BWSC sanitary sewer main ultimately discharges to the MWRA Deer Island Waste Water Treatment Plant for treatment and disposal.

On Site

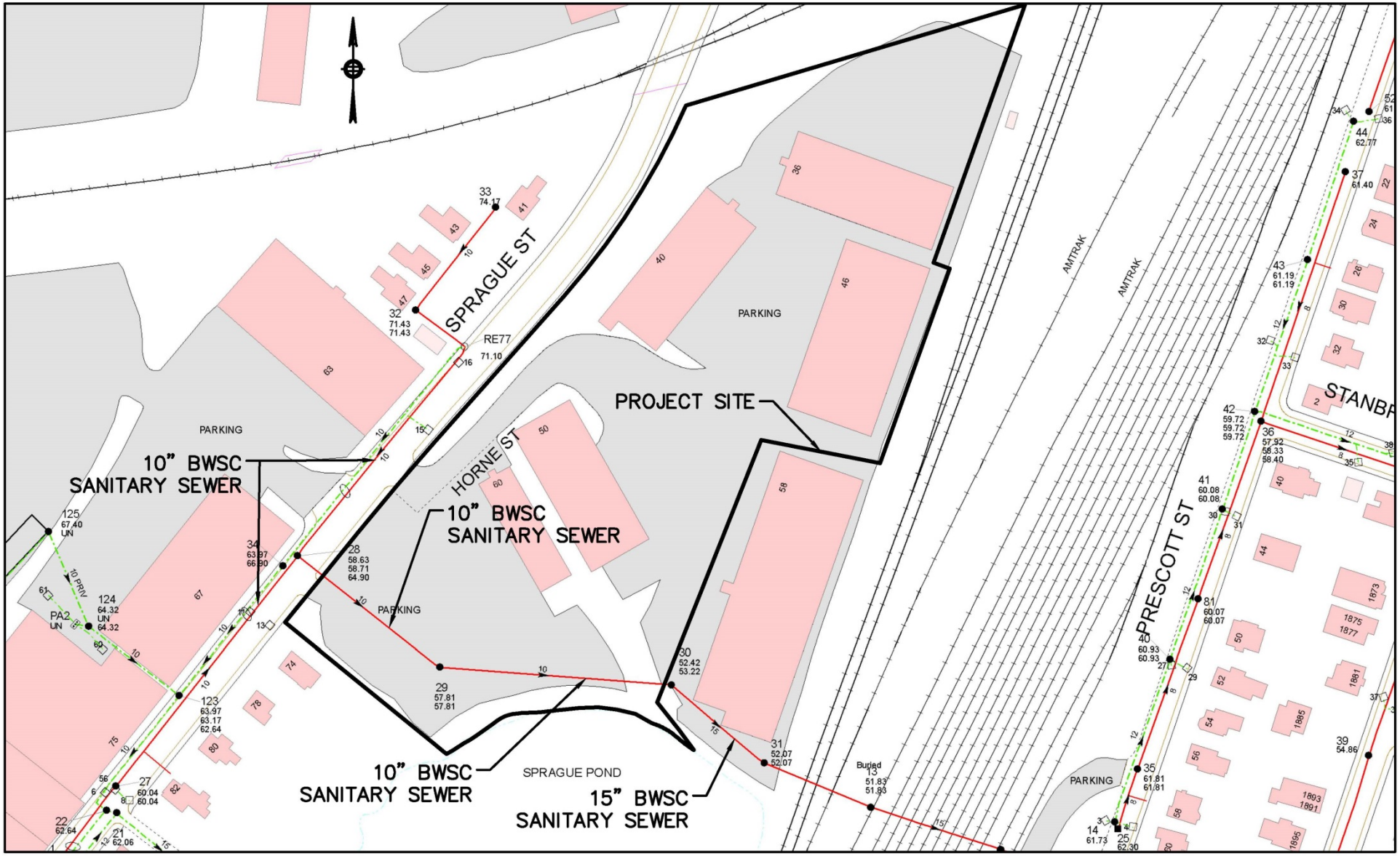
There is a 10-inch BWSC sanitary sewer main flowing in a southeasterly direction through the site just north of Sprague Pond. At the southeast corner of the site, the 10-inch BWSC sanitary sewer main increases to a 15-inch BWSC sanitary sewer main. The BWSC sanitary sewer main ultimately discharges to the MWRA Deer Island Waste Water Treatment Plant for treatment and disposal. The existing sewer system is illustrated in Figure 8-1.

8.2.2 Wastewater Generation

The Project's sewage generation rates were estimated using 310 CMR 15.00 in gallons per day (GPD) and the proposed building program. 310 CMR 15.203 lists typical sewage generation values for the proposed building use, as shown in Table 8-1. Typical generation values are conservative values for estimating the sewage flows from new construction. The Proposed site is comprised of four residential buildings. One of the buildings will house a restaurant space on the first floor. The areas between apartment buildings will be landscaped areas. The existing site is comprised of five commercial buildings and accompanying parking.

Table 8-1 Existing and Proposed Wastewater Generation

Existing Conditions						
Building	**SF**	**Type**	**Notes**	**Unit**	**GPD**	**Total GPD**
36 Sprague Street	14,169	Office	-	per 1000 sf	75	1,063
40 Sprague Street	13,450	Office	-	per 1000 sf	75	1,009
46 Sprague Street	20,178	Office	-	per 1000 sf.	75	1,513
50 Sprague Street	14,748	Office	-	per 1000 sf	75	1,106
60 Sprague Street	5,675	Office	-	per 1000 sf	75	426
					TOTAL	**5,117**
Proposed Conditions						
Room Use	**Number/SF**	**Type**	**Notes**	**Unit**	**GPD**	**Total GPD**
Apartment (1-bedroom/studio)	287	Apartment	287 bedrooms	per bedroom	110	31,570
Apartment (2-bedroom)	208	Apartment	416 bedrooms	per bedroom	110	45,760
Apartment (3-bedroom)	26	Apartment	78 bedrooms	per bedroom	110	8,580
Daycare	49	Daycare	-	people	10	490
Coffeehouse	48	Fast Food Restaurant	-	seats	20	960
Workshare Office	4,730	Office	-	sf	75/1000 sf	355
Building Management Office	1,000	Office	-	sf	75/1000 sf	75
Community Room	1,310	Office	-	sf	75/1000 sf	98
Retail	5,980	Retail	-	sf	50/1000 sf	299
Restaurant	150	Restaurant	-	seats	35	5,250
					TOTAL	**93,437**
					NET INCREASE	**88,320**



36-70 Sprague Street Readville, Massachusetts

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Figure 8-1

Existing Sewer System

8.2.3 Proposed Connections

The Proponent will coordinate with the BWSC on the design and capacity of the proposed connections to the sanitary sewer system. The Project is expected to generate an increase in wastewater flows of approximately 88,320 gallons per day (gpd). Approval for the increase in sanitary flow will come from BWSC. New sewer services for the Project will connect to the BWSC existing sanitary sewer main running through the site.

The Project will require new sanitary sewer connections to the BWSC sewer system. Improvements to and connections to BWSC infrastructure will be reviewed as part of the BWSC's Site Plan Review process for the Project. This process will include a comprehensive design review of the proposed service connections, an assessment of Project demands and system capacity, and the establishment of service accounts. Coordination with BWSC will include review and approval of the design, capacity, connections, and flow increases resulting from the proposed discharges to the sanitary sewer system.

8.2.4 BWSC Sewage Capacity and Impacts

The BWSC sanitary sewer system that the Project will connect to on-site, and potential building service connections to the sewer system were analyzed. It is anticipated that multiple sewer services will be required for the Project with the full flow of the Project flowing in the downstream end of the 10-inch BWSC sanitary sewer main.

Table 8-2 indicates the hydraulic capacity of the existing 10-inch sewer main on-site. The minimum hydraulic capacity of this 10-inch sewer main on-site is 1.9 million gallons per day (MGD) or 2.93 cubic feet per second (CFS).

Based on an average daily flow estimate for the Project of 93,437 gpd or 0.093 MGD, an increase of 88,320 gpd or 0.088 MGD from the existing buildings, and with a factor of safety estimate of 10 (total estimate = 0.088 MGD x 10 = 0.88 MGD), sewer capacity issues are not anticipated due to the Project.

Table 8-2 Sewer Hydraulic Capacity Analysis – On-Site

Manhole (BWSC Number)	Distance (feet)	Invert Elevation (up)	Invert Elevation (down)	Slope (%)	Diameter (inches)	Manning's Number	Flow Capacity (cfs)	Flow Capacity (MGD)
29 to 30	256	57.81	53.22	1.8%	10	0.013	2.93	1.90
30 to 31	135	52.42	52.07	0.3%	15	0.013	3.28	2.12
Minimum Flow Analyzed:							2.93	1.90

Notes:
1. Manhole numbers taken from BWSC As-Builts, Sewer System Map no. 2E
2. Flow Calculations based on Manning Equation
3. Invert Data from BWSC As-Builts

8.3 Water Supply

8.3.1 Existing Water Infrastructure

Water for the Project site will be provided by the BWSC, which is supplied by the MWRA system. There are five water systems within the City which provide service to portions of the City based on ground surface elevation. The five systems are southern low (commonly known as low service), southern high (commonly known as high service), southern extra high, northern low, and northern high. Water mains are labeled by their system, pipe size, year installed, pipe material, and year cement lined (CL), if applicable.

There are existing BWSC water mains located in Sprague Street and on-site.

There is a 12-inch southern high main in Sprague Street. There is a 12-inch southern high main which runs through the middle of the site and connects from the 12-inch Sprague Street main to a 10-inch southern high main on the eastern side of the train tracks in Prescott Street. There are hydrant laterals and a stubbed 6-inch southern high main connected to the 12-inch southern high main running through the site.

The existing water system is illustrated in Figure 8-2.

8.3.2 Anticipated Water Consumption

The Project's water demand estimate for domestic service is based on the Project's estimated sewage generation as described above. A conservative factor of 1.1 (10%) is applied to the estimated average daily wastewater flows calculated with 310 CMR 15.00 values to account for consumption, system losses and other usages to estimate an average daily water demand. The Project's estimated domestic water demand is 102,825 gpd. The water for the Project will be supplied by the BWSC systems in Sprague Street and/or on-site.

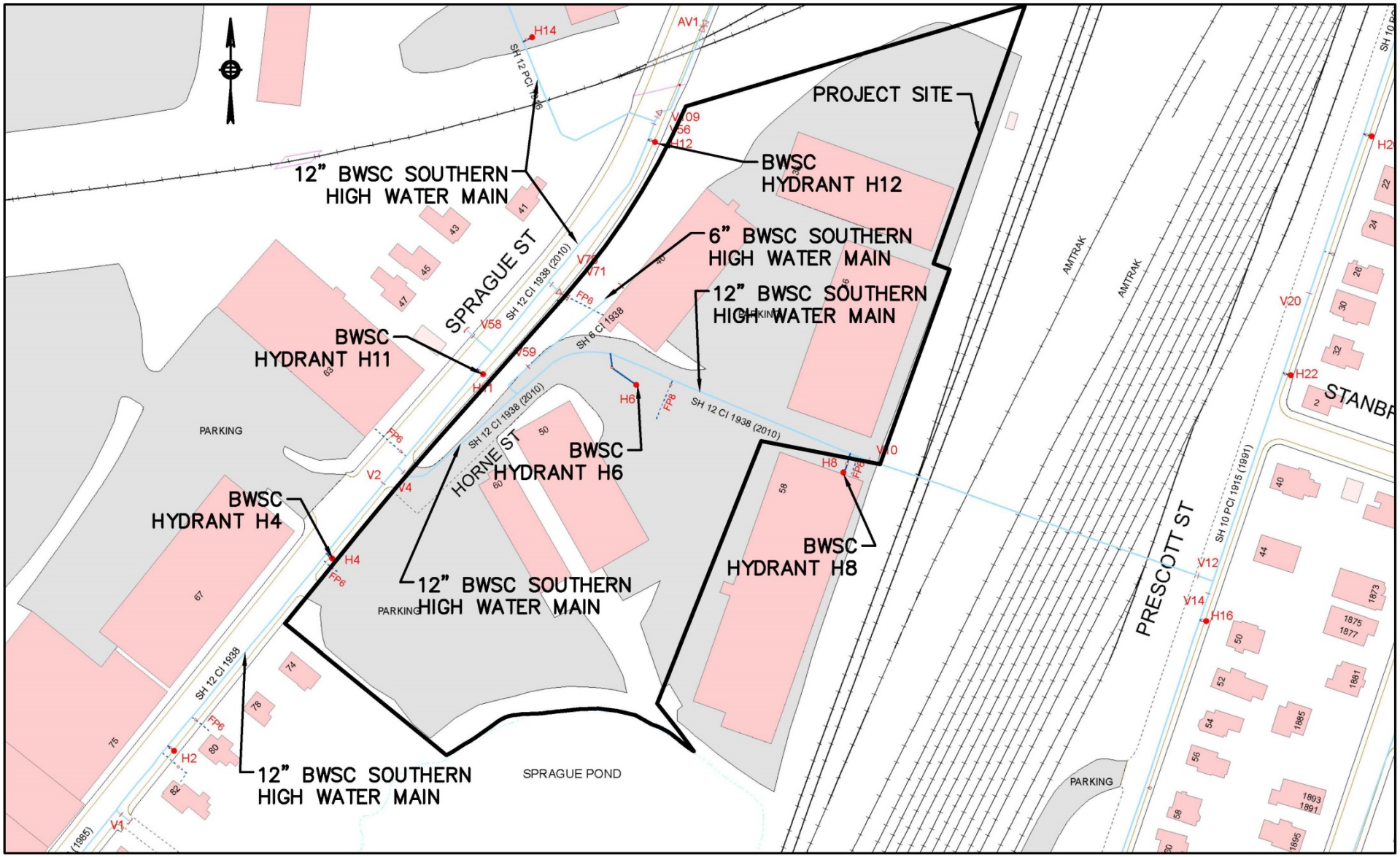
8.3.3 Existing Water Capacity and Impacts

BWSC record flow test data containing actual flow and pressure for hydrants within the vicinity of the Project site was requested by the Proponent. Hydrant flow data was available for hydrants within the vicinity of the Project site. The existing hydrant flow data is shown in Table 8-3.

Table 8-3 Existing Hydrant Flow Data

Flow Hydrant Number	Date of Test	Static Pressure (psi)	Residual Pressure (psi)	Total Flow (gpm)
H4 (Sprague St)	5/18/2011	82	70	2,242
H42 (West Milton St)	6/22/2016	82	76	1736

Note: Data provided by BWSC on July 6, 2016.



36-70 Sprague Street Readville, Massachusetts

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Figure 8-2

Existing Water System

8.3.4 Proposed Water Connections

The domestic and fire protection water services for the Project will connect to the existing BWSC water mains in Sprague Street and/or on-site. The Project's impacts to the existing water system will be reviewed as part of the BWSC's Site Plan Review process.

The domestic and fire protection water service connections required for the Project will meet the applicable City and State codes and standards, including cross-connection backflow prevention. Compliance with the standards for the domestic water system service connections will be reviewed as part of BWSC's Site Plan Review process. This review will include sizing of domestic water and fire protection services, calculation of meter sizing, backflow prevention design, and location of hydrants and siamese connections that conform to BWSC and Boston Fire Department requirements.

Efforts to reduce water consumption will be made. Aeration fixtures and appliances will be chosen for water conservation qualities. In public areas, sensor-operated faucets and toilets will be installed.

New water services will be installed in accordance with the latest local, state, and federal codes and standards. Backflow preventers will be installed at both domestic and fire protection service connections. New meters will be installed with Meter Transmitter Units (MTU's) as part of the BWSC's Automatic Meter Reading (AMR) system.

8.4 Stormwater Management

8.4.1 Existing Conditions

There is an existing 10-inch BWSC storm drain main in Sprague Street which flows in a southwesterly direction. The majority of Sprague Street abutting the Project site is at an elevation significantly higher than the Project site.

Stormwater in Sprague Street is captured by existing BWSC catch basins, which flow to the existing BWSC storm drain main in Sprague Street. The existing BWSC storm drainage system is shown in Figure 8-3.

There is an existing closed drainage system on site. The northern portion of the Project site currently drains to a closed drainage system of catch basins and manholes. It is unclear where this closed drainage system connects to the BWSC storm drainage system. The southern portion of the Project site slopes in a southeast direction to Sprague Pond. Stormwater from the southern portion of the site likely sheet flows to Sprague Pond or is diverted to Sprague Pond through existing structures. Sprague Pond belongs to the Boston Harbor watershed. Approximately 31,000 sf of the site is located within the 100-foot buffer of Sprague Pond. Approximately 24,000 sf of existing site improvements and use are located within the 100-foot wetland buffer, including a storage area on a gravel surface and a bituminous concrete driveway.

The majority of the existing site is impervious (approximately 86%), allowing for minimal infiltration of stormwater onsite. There is no known treatment of onsite stormwater.

8.4.2 Proposed Conditions

The proposed site will be comprised of four buildings with landscaped areas around the buildings and between the buildings on a roof deck and a wooded area along Sprague Street. The Project will improve already disturbed areas within the site and the 100-foot wetland buffer. The Project will include a closed stormwater management system designed to meet the MassDEP Stormwater Management Policy to the greatest extent practicable. The Project will meet or reduce the existing peak rates of stormwater discharge and volumes of stormwater runoff from the site, and promote runoff recharge to the greatest extent possible. Landscaped areas above the parking complex will serve as semi-pervious areas and have been considered impervious areas to be conservative. The proposed site is approximately 80% impervious which will reduce impervious area on the site and allow for an increase in surface infiltration ability onsite.

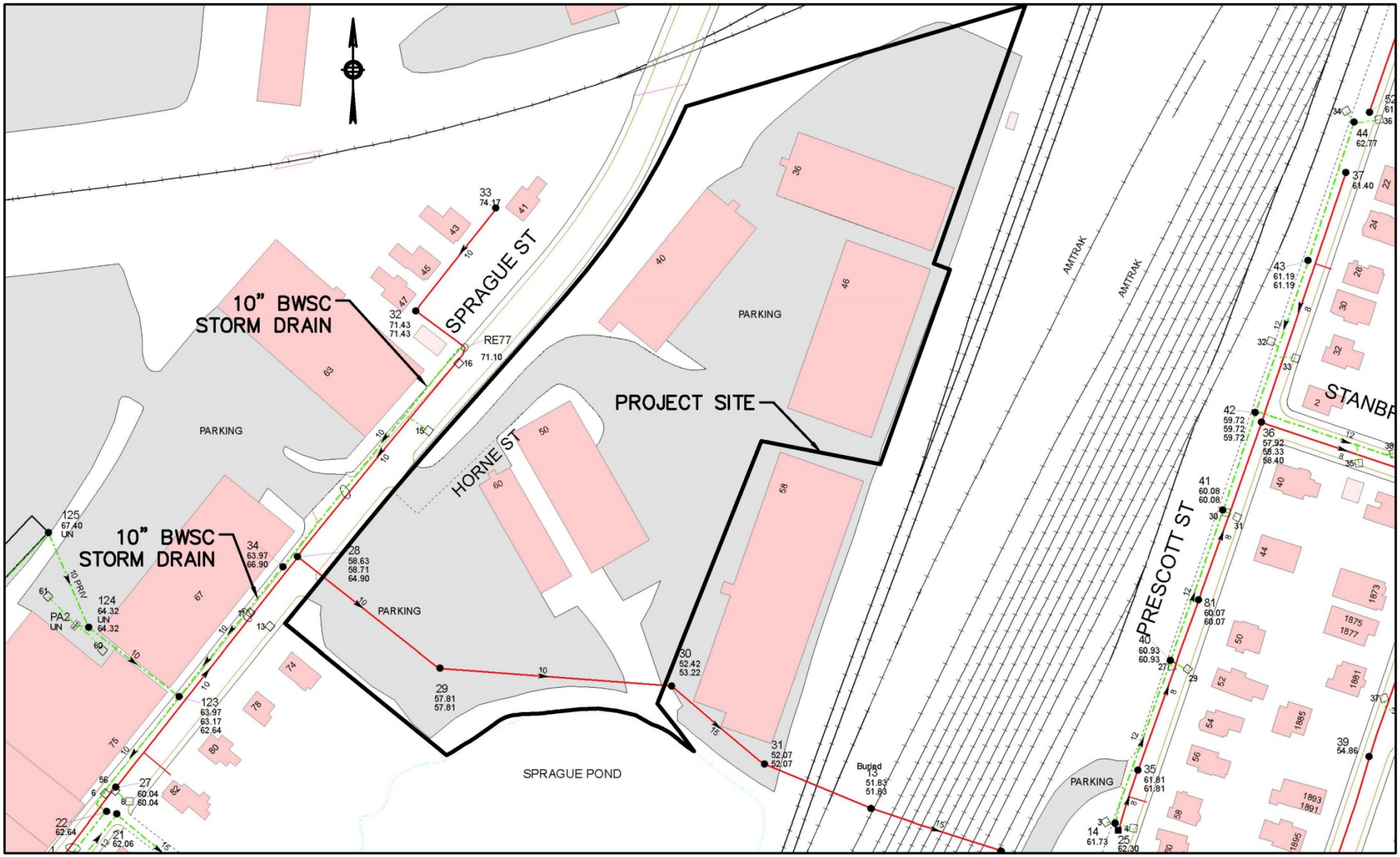
The Project will not connect to the BWSC main in Sprague Street due to the elevation difference and that the Project will strive to infiltrate one-inch of stormwater runoff from impervious areas into the ground to the greatest extent possible. Different approaches to stormwater recharge will be assessed. It is anticipated that the stormwater recharge systems will work to passively infiltrate runoff into the ground with a gravity recharge system. The underground recharge system, and any required site closed drainage systems, will be designed so that there will be no increase in the peak rate of stormwater discharge from the Project site in the developed condition compared to the existing condition.

Improvements to the site and stormwater discharges to Sprague Pond will be reviewed by the Boston Conservation Commission and as part of the BWSC's Site Plan Review process. The process will include a comprehensive design review of the proposed service connections and assessment of Project demands.

8.4.3 Water Quality

The Project will not affect the water quality of nearby water bodies. Sprague Pond is a surface water body within 50 feet of the site. The Proponent will coordinate with Boston Conservation Commission to ensure that the pond is not negatively impacted by the proposed design and construction activities.

Erosion and sediment control measures will be implemented during construction to minimize the transport of site soils to off-site areas and Sprague Pond. During construction, existing storm drain inlets and Sprague Pond will be protected with filter fabric, straw bales and/or crushed stone, to provide for sediment removal from runoff. These controls will be inspected and maintained throughout the construction phase until the areas of disturbance have been stabilized through the placement of pavement, structure, or vegetative cover.



36-70 Sprague Street Readville, Massachusetts

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Figure 8-3

Existing Stormwater System

Necessary dewatering will be conducted in accordance with applicable MWRA and BWSC discharge permits. Once construction is complete, the Project will be in compliance with local and state stormwater management policies, as described below.

8.4.4 MassDEP Stormwater Management Policy Standards

In March 1997, MassDEP adopted a Stormwater Management Policy to address non-point source pollution. In 1997, MassDEP published the Massachusetts Stormwater Handbook as guidance on the Stormwater Policy, which was revised in February 2008. The Policy prescribes specific stormwater management standards for development projects, including urban pollutant removal criteria for projects that may impact environmental resource areas. Compliance is achieved through the implementation of Best Management Practices (BMPs) in the stormwater management design. The Policy is administered locally pursuant to MGL Ch. 131, s. 40.

A brief explanation of each Policy Standard and the system compliance is provided below:

Standard #1: No new stormwater conveyances (e.g. outfalls) may discharge untreated stormwater directly to or cause erosion in wetlands or waters of the Commonwealth.

Compliance: The proposed design will comply with this standard. The design will incorporate the appropriate stormwater treatment, and no new untreated stormwater will be directly discharged to, nor will erosion be caused to wetlands or waters of the Commonwealth as a result of stormwater discharges related to the Project.

Standard #2: Stormwater management systems shall be designed so that post-development peak discharge rates do not exceed pre-development peak discharge rates.

Compliance: The proposed design will comply with this standard to the maximum extent practicable. The pre-development stormwater discharge rates will be met or decreased as a result of the improvements associated with the Project.

Standard #3: For New Construction, loss of annual recharge to groundwater shall be eliminated or minimized through the use of infiltration measures including environmentally sensitive site design, low impact development techniques, stormwater best management practices, and good operation and maintenance. At a minimum, the annual recharge from the post-development site shall approximate the annual recharge from pre-development conditions based on soil type. The standard is met when the stormwater management system is designed to infiltrate the required recharge volume as determined in accordance with the Massachusetts Stormwater Handbook.

Compliance: The Project will comply with this standard to the maximum extent practicable.

Standard #4: Stormwater management systems shall be designed to remove 80% of the average annual post-construction load of Total Suspended Solids (TSS). This standard is met

when: (a) Suitable practices for source control and pollution prevention are identified in a long-term pollution prevention plan, and thereafter are implemented and maintained; (b) Structural stormwater best management practices are sized to capture the required water quality volume determined in accordance with the Massachusetts Stormwater Handbook; and (c) Pretreatment is provided in accordance with the Massachusetts Stormwater Handbook.

Compliance: The proposed design will comply with this standard. Within the Project's limit of work, there will be building roof, paved sidewalk, landscaped areas, and roadway areas. Runoff from paved areas that would contribute unwanted sediments or pollutants to the existing storm drain system will be collected by deep sump, hooded catch basins and conveyed through water quality units before discharging.

Standard #5: For Land Uses with Higher Potential Pollutant Loads (LUHPPL), source control and pollution prevention shall be implemented in accordance with the Massachusetts Stormwater Handbook to eliminate or reduce the discharge of stormwater runoff from such land uses to the maximum extent practicable. If through source control and/or pollution prevention all land uses with higher potential pollutant loads cannot me completely protected from exposure to rain, snow, snow melt, and stormwater runoff, the Proponent shall use the specific structural stormwater BMPs determined by the Department to be suitable for such uses as provided in the Massachusetts Stormwater Handbook. Stormwater discharges from land uses with higher potential pollutant loads shall also comply with the requirements of the Massachusetts Clean Waters Act, M.G.L. c.21 §§ 26-53 and the regulations promulgated thereunder at 314 CMR 3.00, 314 CMR 4.00 and 314 CMR 5.00.

Compliance: The proposed design will comply with this standard. The Project is anticipated to be a LUHPPL (per the Policy, Volume I, page 1-6) due to the average daily trips to the site.

Standard #6: Stormwater discharges within Zone II or Interim Wellhead Protection Area of a public water supply, and stormwater discharges near or to any other critical area, require the use of the specific source control and pollution prevention measures and the specific structural stormwater best management practices determined by the Department to be suitable for managing discharges to such areas, as provided in the Massachusetts Stormwater Handbook. A discharge is near a critical area if there is a strong likelihood of significant impact occurring to said area, taking into account site-specific factors. Stormwater discharges to Outstanding Resource Waters shall be removed and set back from the receiving water or wetland and receive the highest and best practical method of treatment. A "storm water discharge" as defined in 314 CMR 3.04(2)(a) or (b) to an Outstanding Resource Water or Special Resource Water shall comply with 314 CMR 3.00 and 314 CMR 4.00. Stormwater discharges to a Zone I or Zone A are prohibited unless essential to the operation of a public water supply.

Compliance: The proposed design will comply with this Standard to the maximum extent practicable. The Project will not discharge untreated stormwater to a sensitive area.

Standard #7: A redevelopment project is required to meet the following Stormwater Management Standards only to the maximum extent practicable: Standard 2, Standard 3, and the pretreatment and structural best management practice requirements of Standards 4, 5, and 6. Existing stormwater discharges shall comply with Standard 1 only to the maximum extent possible. A redevelopment project shall also comply with all other requirements of the Stormwater Management Standards and improve existing conditions.

Compliance: The Project will comply with this standard. The Project will comply with the Stormwater Management Standards as applicable to the redevelopment.

Standard #8: Erosion and sediment controls must be implemented to prevent impacts during construction or land disturbance activities.

Compliance: The Project will comply with this standard. Sedimentation and erosion controls will be incorporated as part of the design of the Project and employed during construction.

Standard #9: A Long-Term Operation and Maintenance (O&M) Plan shall be developed and implemented to ensure that stormwater management systems function as designed.

Compliance: The Project will comply with this standard. An O&M Plan including long-term BMP operation requirements will be prepared for the Project and will assure proper maintenance and functioning of the stormwater management system.

Standard #10: All illicit discharges to the stormwater management system are prohibited.

Compliance: The Project will comply with this standard. No illicit connections will be proposed with the Project.

8.5 Electrical Service

Eversource Energy owns the electrical system in the vicinity of the Project site. It is expected that adequate service is available in the existing electrical systems in the surrounding streets to serve the Project. The Proponent will work with Eversource to confirm adequate system capacity as the design is finalized.

8.6 Natural Gas

National Grid has gas services in the vicinity of the Project site. The Proponent will work with National Grid to confirm adequate system capacity as the design is finalized.

8.7 Telecommunications Systems

The Proponent will select private telecommunications companies to provide telephone, cable, and data services. There are several potential candidates with substantial Boston networks capable of providing service. Upon selection of a provider or providers, the Proponent will coordinate service connection locations and obtain appropriate approvals.

8.8 Utility Protection During Construction

Existing public and private infrastructure located within any public or private rights-of-way will be protected during construction. The installation of proposed utilities within a public way will be in accordance with the BWSC, Boston Public Works Department, Dig-Safe Program, and applicable utility company requirements. Specific methods for construction of proposed utilities where they are near or within existing BWSC water, sewer, and drain facilities will be reviewed by the BWSC as part of the Site Plan Review process. The necessary permits will be obtained before the commencement of work.

Chapter 9.0

Coordination With Other Governmental Agencies

9.0 COORDINATION WITH OTHER GOVERNMENTAL AGENCIES

9.1 Architectural Access Board Requirements

The Project will comply with the requirements of the Massachusetts Architectural Access Board and will be designed to comply with the standards of the Americans with Disabilities Act. See Appendix D for the Accessibility Checklist.

9.2 Massachusetts Environmental Policy Act

The Project will be subject to MEPA review because a portion of the Project site is within a former railroad right-of-way, and will require MassDOT approval under Chapter 40, Section 54A. MEPA review is triggered because the Project site is located within an ACEC. The Proponent will submit an Environmental Notification Form to the Executive Office of Energy and Environmental Affairs MEPA Office to initiate MEPA review.

9.3 Massachusetts Historical Commission

The MHC has review authority over projects requiring state or federal funding, licensing, permitting and/or approvals that may have direct or indirect impacts to properties listed in the State Register of Historic Places. It is anticipated that MHC review will be required, and will be initiated either through the submission of an Environmental Notification Form in compliance with the Massachusetts Environmental Policy Act, or submission of an MHC Project Notification Form.

9.4 Boston Landmarks Commission

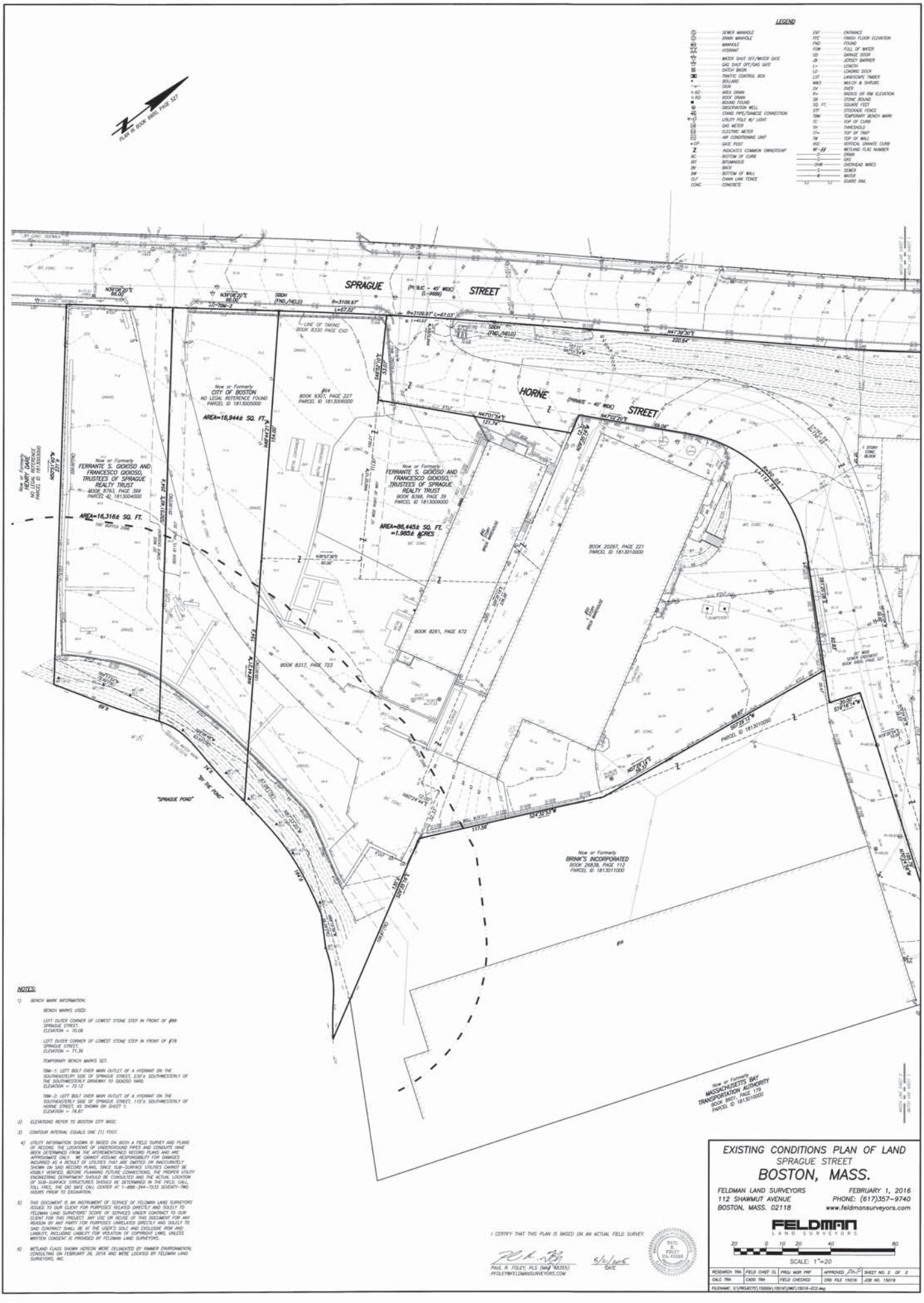
The proposed demolition of the existing buildings on the Project site including 36 Sprague Street, 38 Sprague Street, 40 Sprague Street, 50 Sprague Street and 60 Sprague Street will be subject to review by the BLC under Article 85 of the Boston Zoning Code. An Article 85 Application for each property will be submitted to the BLC.

9.5 Boston Civic Design Commission

The Project will comply with the provisions of Article 28 of the Boston Zoning Code. This PNF will be submitted to the Boston Civic Design Commission by the BPDA as part of the Article 80 process.

Appendix A

Site Survey



NOTES:

1) BENCH MARK INFORMATION:

BENCH MARKS USED:

LEFT OUTER CORNER OF LOWEST STONE STEP IN FRONT OF #88 SPRAGUE STREET.
ELEVATION = 70.06

LEFT OUTER CORNER OF LOWEST STONE STEP IN FRONT OF #78 SPRAGUE STREET.
ELEVATION = 71.36

TEMPORARY BENCH MARKS SET:

TBM-1: LEFT BOLT OVER MAIN OUTLET OF A HYDRANT ON THE SOUTHEASTERLY SIDE OF SPRAGUE STREET, 230'± SOUTHWESTERLY OF THE SOUTHWESTERLY DRIVEWAY TO GIOIOSO YARD.
ELEVATION = 72.12

TBM-2: LEFT BOLT OVER MAIN OUTLET OF A HYDRANT ON THE SOUTHEASTERLY SIDE OF SPRAGUE STREET, 110'± SOUTHWESTERLY OF HORNE STREET, AS SHOWN ON SHEET 1.
ELEVATION = 76.87

2) ELEVATIONS REFER TO BOSTON CITY BASE.

3) CONTOUR INTERVAL EQUALS ONE (1) FOOT.

4) UTILITY INFORMATION SHOWN IS BASED ON BOTH A FIELD SURVEY AND PLANS OF RECORD. THE LOCATIONS OF UNDERGROUND PIPES AND CONDUITS HAVE BEEN DETERMINED FROM THE AFOREMENTIONED RECORD PLANS AND ARE APPROXIMATE ONLY. WE CANNOT ASSUME RESPONSIBILITY FOR DAMAGES INCURRED AS A RESULT OF UTILITIES THAT ARE OMITTED OR INACCURATELY SHOWN ON SAID RECORD PLANS, SINCE SUB-SURFACE UTILITIES CANNOT BE VISIBLY VERIFIED. BEFORE PLANNING FUTURE CONNECTIONS, THE PROPER UTILITY ENGINEERING DEPARTMENT SHOULD BE CONSULTED AND THE ACTUAL LOCATION OF SUB-SURFACE STRUCTURES SHOULD BE DETERMINED IN THE FIELD. CALL TOLL FREE, DIG SAFE CALL CENTER AT 1-888-344-7233 SEVENTY-TWO HOURS PRIOR TO EXCAVATION.

5) THIS DOCUMENT IS AN INSTRUMENT OF SERVICE OF FELDMAN LAND SURVEYORS ISSUED TO OUR CLIENT FOR PURPOSES RELATED DIRECTLY AND SOLELY TO FELDMAN LAND SURVEYORS' SCOPE OF SERVICES UNDER CONTRACT TO OUR CLIENT FOR THIS PROJECT. ANY USE OR REUSE OF THIS DOCUMENT FOR ANY PURPOSE BY ANY PARTY FOR PURPOSES UNRELATED DIRECTLY AND SOLELY TO SAID CONTRACT SHALL BE AT THE USER'S SOLE AND EXCLUSIVE RISK AND LIABILITY, INCLUDING LIABILITY FOR VIOLATION OF COPYRIGHT LAWS, UNLESS WRITTEN CONSENT IS PROVIDED BY FELDMAN LAND SURVEYORS.

6) WETLAND FLAGS SHOWN HEREON WERE DELINEATED BY RAMMER ENVIRONMENTAL CONSULTING ON FEBRUARY 26, 2016 AND WERE LOCATED BY FELDMAN LAND SURVEYORS, INC.

I CERTIFY THAT THIS PLAN IS BASED ON AN ACTUAL FIELD SURVEY.

PAUL R. FOLEY, PLS (NH# 18355)
PFOLEY@FELDMANSURVEYORS.COM

6/1/2016
DATE

PAUL R. FOLEY No. 18355

EXISTING CONDITIONS PLAN OF LAND
SPRAGUE STREET
BOSTON, MASS.

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

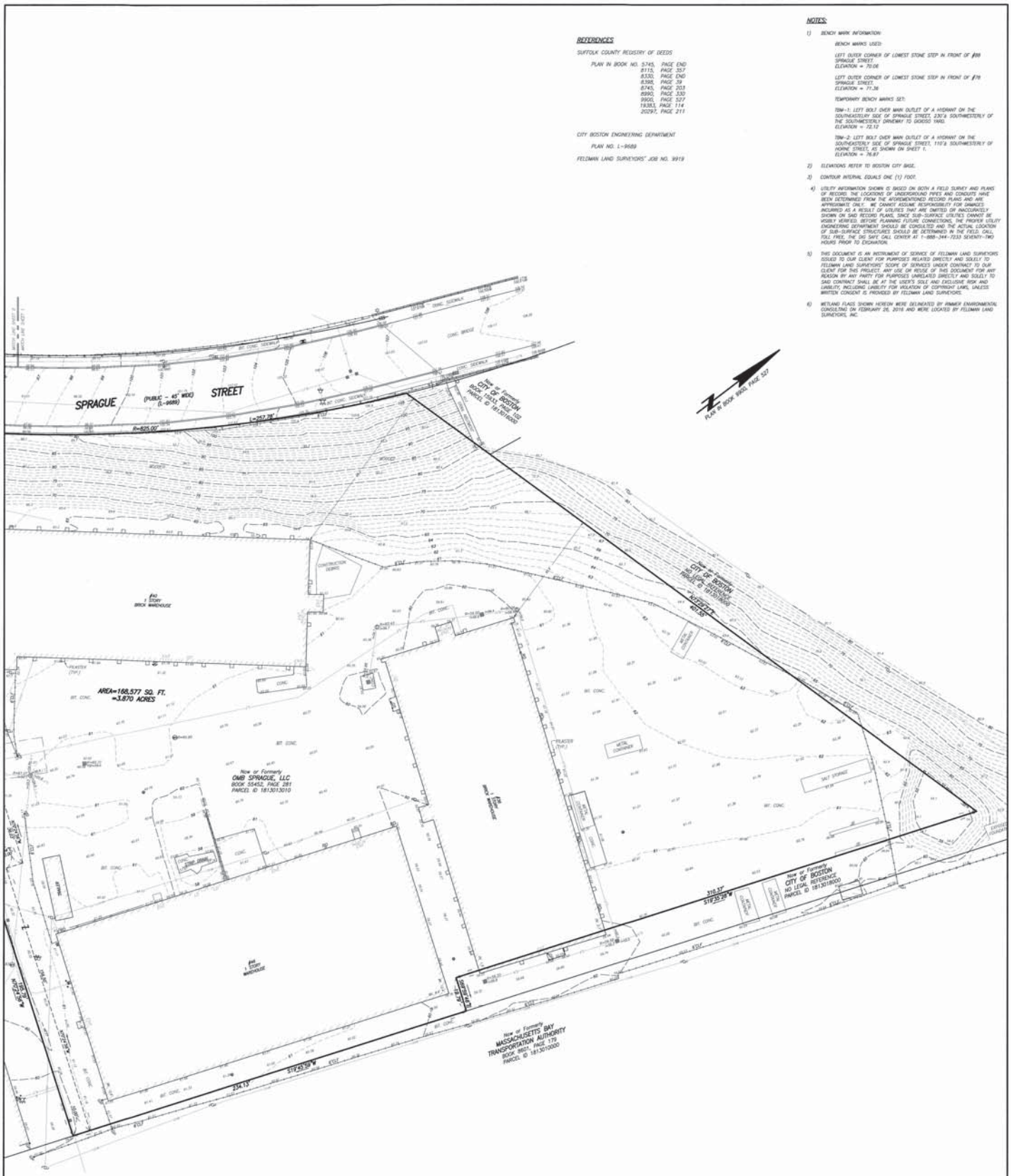
FEBRUARY 1, 2016

FELDMAN LAND SURVEYORS

SCALE: 1"=20

RESEARCH TRA	FIELD CHIEF CL	PROJ MGR PRF	APPROVED		SHEET NO. 2 OF 2
CALC TRA	CADD TRA	FIELD CHECKED	CAD FILE 15016		JOB NO. 15016

FILENAME: S:\PROJECTS\15000s\15016\DWG\15016-EC2.dwg



REFERENCES

SUFFOLK COUNTY REGISTRY OF DEEDS

PLAN IN BOOK NO. 5745, PAGE END
8115, PAGE 357
8330, PAGE END
8398, PAGE 39
8745, PAGE 203
8990, PAGE 330
9900, PAGE 527
19383, PAGE 114
20297, PAGE 211

CITY BOSTON ENGINEERING DEPARTMENT

PLAN NO. L-9689

FELDMAN LAND SURVEYORS' JOB NO. 9919

NOTES:

1) BENCH MARK INFORMATION:

BENCH MARKS USED:

LEFT OUTER CORNER OF LOWEST STONE STEP IN FRONT OF #88 SPRAGUE STREET.
ELEVATION = 70.06

LEFT OUTER CORNER OF LOWEST STONE STEP IN FRONT OF #76 SPRAGUE STREET.
ELEVATION = 71.36

TEMPORARY BENCH MARKS SET:

TBM-1: LEFT BOLT OVER MAIN OUTLET OF A HYDRANT ON THE SOUTHEASTERLY SIDE OF SPRAGUE STREET, 230'± SOUTHWESTERLY OF THE SOUTHWESTERLY DRIVEWAY TO GOIOSO YARD.
ELEVATION = 72.12

TBM-2: LEFT BOLT OVER MAIN OUTLET OF A HYDRANT ON THE SOUTHEASTERLY SIDE OF SPRAGUE STREET, 110'± SOUTHWESTERLY OF HORNE STREET, AS SHOWN ON SHEET 1.
ELEVATION = 76.87

2) ELEVATIONS REFER TO BOSTON CITY BASE.

3) CONTOUR INTERVAL EQUALS ONE (1) FOOT.

4) UTILITY INFORMATION SHOWN IS BASED ON BOTH A FIELD SURVEY AND PLANS OF RECORD. THE LOCATIONS OF UNDERGROUND PIPES AND CONDUITS HAVE BEEN DETERMINED FROM THE AFOREMENTIONED RECORD PLANS AND ARE APPROXIMATE ONLY. WE CANNOT ASSUME RESPONSIBILITY FOR DAMAGES INCURRED AS A RESULT OF UTILITIES THAT ARE OMITTED OR INACCURATELY SHOWN ON SAID RECORD PLANS, SINCE SUB-SURFACE UTILITIES CANNOT BE VISIBLY VERIFIED. BEFORE PLANNING FUTURE CONNECTIONS, THE PROPER UTILITY ENGINEERING DEPARTMENT SHOULD BE CONSULTED AND THE ACTUAL LOCATION OF SUB-SURFACE STRUCTURES SHOULD BE DETERMINED IN THE FIELD. CALL, TOLL FREE, THE DIG SAFE CALL CENTER AT 1-888-344-7233 SEVENTY-TWO HOURS PRIOR TO EXCAVATION.

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6) WETLAND FLAGS SHOWN HEREON WERE DELINEATED BY RIMMER ENVIRONMENTAL CONSULTING ON FEBRUARY 26, 2016 AND WERE LOCATED BY FELDMAN LAND SURVEYORS, INC.

LEGEND

	SEWER MANHOLE	ENT	ENTRANCE
	DRAIN MANHOLE	FFE	FINISH FLOOR ELEVATION
	MANHOLE	FND	FOUND
	HYDRANT	FOW	FULL OF WATER
	WATER SHUT OFF/WATER GATE	GD	GARAGE DOOR
	GAS SHUT OFF/GAS GATE	JB	JERSEY BARRIER
	CATCH BASIN	L=	LENGTH
	TRAFFIC CONTROL BOX	LD	LOADING DOCK
	BOLLARD	LST	LANDSCAPE TIMBER
	SIGN	MAS	MULCH & SHRUBS
	AREA DRAIN	OV	OVER
	ROOF DRAIN	R=	RADIUS OR RIM ELEVATION
	BOUND FOUND	SB	STONE BOUND
	OBSERVATION WELL	SQ. FT.	SQUARE FEET
	STAND PIPE/SIAMESE CONNECTION	STF	STOCKADE FENCE
	UTILITY POLE W/ LIGHT	TBM	TEMPORARY BENCH MARK
	GAS METER	TC	TOP OF CURB
	ELECTRIC METER	TH	THRESHOLD
	AIR CONDITIONING UNIT	TI=	TOP OF TRAP
	GATE POST	TW	TOP OF WALL
	INDICATES COMMON OWNERSHIP	VGC	VERTICAL GRANITE CURB
	BOTTOM OF CURB	WF-##	WETLAND FLAG NUMBER
	BITUMINOUS	D	DRAIN
	BACK	G	GAS
	BOTTOM OF WALL	OHW	OVERHEAD WIRES
	CHAIN LINK FENCE	S	SEWER
	CONCRETE	W	WATER
			GUARD RAIL

I CERTIFY THAT THIS PLAN IS BASED ON AN ACTUAL FIELD SURVEY.

PAUL R. FOLEY, PLS (ONLY #43555)
PFOLEY@FELDMANSURVEYORS.COM

6/1/2016
DATE

PAUL R. FOLEY
No. 43555
REGISTERED PROFESSIONAL LAND SURVEYOR

EXISTING CONDITIONS PLAN OF LAND
SPRAGUE STREET
BOSTON, MASS.

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www.feldmansurveyors.com

FEBRUARY 1, 2016

FELDMAN LAND SURVEYORS

SCALE: 1"=20

RESEARCH TRA	FIELD CHIEF CL	PROJ MGR PRF	APPROVED PRF	SHEET NO. 1 OF 2
CALC TRA	CADD TRA	FIELD CHECKED	CRD FILE 15016	JOB NO. 15016

FILENAME: S:\PROJECTS\15000s\15016\DWG\15016-EC2.dwg

Appendix B

Transportation

APPENDIX B: Transportation Supporting Documentation

Traffic Volume Data

- Turning Movement Counts (TMCs)
- Automatic Traffic Recorder (ATR)

Synchro Level of Service (LOS) Reports

- 2016 Existing Conditions
- 2021 No-Build Conditions
- 2021 Build Conditions
- 2021 Build Mitigated Conditions

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

N/S: Sprague Street
E/W:Garage Driveway/ Industrial Driveway
City, State: Hyde Park, MA
Client: VHB/ C. Dube

File Name : 165002 A
Site Code : 2152111
Start Date : 3/30/2016
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Sprague Street From North				Garage Driveway From East				Sprague Street From South				Industrial Driveway 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	46	0	0	0	0	0	0	0	130	4	0	0	0	0	0	185
07:15 AM	3	69	0	0	0	0	0	0	0	124	6	0	1	0	1	0	204
07:30 AM	7	75	1	0	0	0	0	0	1	115	10	0	1	0	0	0	210
07:45 AM	4	64	0	0	0	0	0	0	0	112	5	0	3	0	0	0	188
Total	19	254	1	0	0	0	0	0	1	481	25	0	5	0	1	0	787
08:00 AM	7	76	0	0	0	0	0	0	0	103	6	0	2	0	2	0	196
08:15 AM	4	54	0	0	0	0	0	0	0	94	6	0	0	0	2	0	160
08:30 AM	5	63	0	0	0	0	0	0	0	90	18	1	0	0	2	0	179
08:45 AM	3	67	1	0	0	0	0	0	1	82	14	0	0	0	0	0	168
Total	19	260	1	0	0	0	0	0	1	369	44	1	2	0	6	0	703
Grand Total	38	514	2	0	0	0	0	0	2	850	69	1	7	0	7	0	1490
Apprch %	6.9	92.8	0.4	0	0	0	0	0	0.2	92.2	7.5	0.1	50	0	50	0	
Total %	2.6	34.5	0.1	0	0	0	0	0	0.1	57	4.6	0.1	0.5	0	0.5	0	
Cars	35	437	2	0	0	0	0	0	2	796	64	1	3	0	4	0	1344
% Cars	92.1	85	100	0	0	0	0	0	100	93.6	92.8	100	42.9	0	57.1	0	90.2
Heavy Vehicles	3	77	0	0	0	0	0	0	0	54	5	0	4	0	3	0	146
% Heavy Vehicles	7.9	15	0	0	0	0	0	0	0	6.4	7.2	0	57.1	0	42.9	0	9.8

	Sprague Street From North					Garage Driveway From East					Sprague Street From South					Industrial Driveway 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 07:15 AM																					
07:15 AM	3	69	0	0	72	0	0	0	0	0	0	124	6	0	130	1	0	1	0	2	204
07:30 AM	7	75	1	0	83	0	0	0	0	0	1	115	10	0	126	1	0	0	0	1	210
07:45 AM	4	64	0	0	68	0	0	0	0	0	0	112	5	0	117	3	0	0	0	3	188
08:00 AM	7	76	0	0	83	0	0	0	0	0	0	103	6	0	109	2	0	2	0	4	196
Total Volume	21	284	1	0	306	0	0	0	0	0	1	454	27	0	482	7	0	3	0	10	798
% App. Total	6.9	92.8	0.3	0		0	0	0	0		0.2	94.2	5.6	0		70	0	30	0		
PHF	.750	.934	.250	.000	.922	.000	.000	.000	.000	.000	.250	.915	.675	.000	.927	.583	.000	.375	.000	.625	.950
Cars	20	234	1	0	255	0	0	0	0	0	1	419	25	0	445	3	0	3	0	6	706
% Cars	95.2	82.4	100	0	83.3	0	0	0	0	0	100	92.3	92.6	0	92.3	42.9	0	100	0	60.0	88.5
Heavy Vehicles	1	50	0	0	51	0	0	0	0	0	0	35	2	0	37	4	0	0	0	4	92
% Heavy Vehicles	4.8	17.6	0	0	16.7	0	0	0	0	0	0	7.7	7.4	0	7.7	57.1	0	0	0	40.0	11.5

PRECISION
D A T A
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Email: datarequests@pdillc.com

N/S: Sprague Street
E/W:Garage Driveway/ Industrial Driveway
City, State: Hyde Park, MA
Client: VHB/ C. Dube

File Name : 165002 A
Site Code : 2152111
Start Date : 3/30/2016
Page No : 1

Groups Printed- Cars

	Sprague Street From North				Garage Driveway From East				Sprague Street From South				Industrial Driveway 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	39	0	0	0	0	0	0	0	119	4	0	0	0	0	0	166
07:15 AM	2	59	0	0	0	0	0	0	0	111	5	0	0	0	1	0	178
07:30 AM	7	62	1	0	0	0	0	0	1	111	9	0	0	0	0	0	191
07:45 AM	4	49	0	0	0	0	0	0	0	104	5	0	1	0	0	0	163
Total	17	209	1	0	0	0	0	0	1	445	23	0	1	0	1	0	698
08:00 AM	7	64	0	0	0	0	0	0	0	93	6	0	2	0	2	0	174
08:15 AM	4	45	0	0	0	0	0	0	0	91	6	0	0	0	0	0	146
08:30 AM	4	53	0	0	0	0	0	0	0	87	18	1	0	0	1	0	164
08:45 AM	3	66	1	0	0	0	0	0	1	80	11	0	0	0	0	0	162
Total	18	228	1	0	0	0	0	0	1	351	41	1	2	0	3	0	646
Grand Total	35	437	2	0	0	0	0	0	2	796	64	1	3	0	4	0	1344
Apprch %	7.4	92.2	0.4	0	0	0	0	0	0.2	92.2	7.4	0.1	42.9	0	57.1	0	
Total %	2.6	32.5	0.1	0	0	0	0	0	0.1	59.2	4.8	0.1	0.2	0	0.3	0	

	Sprague Street From North					Garage Driveway From East					Sprague Street From South					Industrial Driveway 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 07:15 AM																					
07:15 AM	2	59	0	0	61	0	0	0	0	0	0	111	5	0	116	0	0	1	0	1	178
07:30 AM	7	62	1	0	70	0	0	0	0	0	1	111	9	0	121	0	0	0	0	0	191
07:45 AM	4	49	0	0	53	0	0	0	0	0	0	104	5	0	109	1	0	0	0	1	163
08:00 AM	7	64	0	0	71	0	0	0	0	0	0	93	6	0	99	2	0	2	0	4	174
Total Volume	20	234	1	0	255	0	0	0	0	0	1	419	25	0	445	3	0	3	0	6	706
% App. Total	7.8	91.8	0.4	0		0	0	0	0		0.2	94.2	5.6	0		50	0	50	0		
PHF	.714	.914	.250	.000	.898	.000	.000	.000	.000	.000	.250	.944	.694	.000	.919	.375	.000	.375	.000	.375	.924

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Client: VHB/ C. Dube

File Name : 165002 A
Site Code : 2152111
Start Date : 3/30/2016
Page No : 1

Groups Printed- Heavy Vehicles

	Sprague Street From North				Garage Driveway From East				Sprague Street From South				Industrial Driveway 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	7	0	0	0	0	0	0	0	11	0	0	0	0	0	0	19
07:15 AM	1	10	0	0	0	0	0	0	0	13	1	0	1	0	0	0	26
07:30 AM	0	13	0	0	0	0	0	0	0	4	1	0	1	0	0	0	19
07:45 AM	0	15	0	0	0	0	0	0	0	8	0	0	2	0	0	0	25
Total	2	45	0	0	0	0	0	0	0	36	2	0	4	0	0	0	89
08:00 AM	0	12	0	0	0	0	0	0	0	10	0	0	0	0	0	0	22
08:15 AM	0	9	0	0	0	0	0	0	0	3	0	0	0	0	2	0	14
08:30 AM	1	10	0	0	0	0	0	0	0	3	0	0	0	0	1	0	15
08:45 AM	0	1	0	0	0	0	0	0	0	2	3	0	0	0	0	0	6
Total	1	32	0	0	0	0	0	0	0	18	3	0	0	0	3	0	57
Grand Total	3	77	0	0	0	0	0	0	0	54	5	0	4	0	3	0	146
Apprch %	3.8	96.2	0	0	0	0	0	0	0	91.5	8.5	0	57.1	0	42.9	0	
Total %	2.1	52.7	0	0	0	0	0	0	0	37	3.4	0	2.7	0	2.1	0	

	Sprague Street From North					Garage Driveway From East					Sprague Street From South					Industrial Driveway 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 07:15 AM																					
07:15 AM	1	10	0	0	11	0	0	0	0	0	0	13	1	0	14	1	0	0	0	1	26
07:30 AM	0	13	0	0	13	0	0	0	0	0	0	4	1	0	5	1	0	0	0	1	19
07:45 AM	0	15	0	0	15	0	0	0	0	0	0	8	0	0	8	2	0	0	0	2	25
08:00 AM	0	12	0	0	12	0	0	0	0	0	0	10	0	0	10	0	0	0	0	0	22
Total Volume	1	50	0	0	51	0	0	0	0	0	0	35	2	0	37	4	0	0	0	4	92
% App. Total	2	98	0	0		0	0	0	0		0	94.6	5.4	0		100	0	0	0		
PHF	.250	.833	.000	.000	.850	.000	.000	.000	.000	.000	.000	.673	.500	.000	.661	.500	.000	.000	.000	.500	.885

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N/S: Sprague Street
E/W:Garage Driveway/ Industrial Driveway
City, State: Hyde Park, MA
Client: VHB/ C. Dube

File Name : 165002 A
Site Code : 2152111
Start Date : 3/30/2016
Page No : 1

Groups Printed- Peds and Bikes

	Sprague Street From North					Garage Driveway From East					Sprague Street From South					Industrial Driveway 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	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	2
07:15 AM	0	0	0	0	0	0	0	0	2	1	0	0	0	0	0	0	0	0	0	0	3
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
Total	0	0	0	0	0	0	0	0	3	2	0	0	0	0	0	0	0	0	1	1	7
08:00 AM	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	1	3	7
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	1	3	0	0	0	0	0	0	0	0	1	3	8
Grand Total	0	0	0	0	0	0	0	0	4	5	0	0	0	0	0	0	0	0	2	4	15
Apprch %	0	0	0	0	0	0	0	0	44.4	55.6	0	0	0	0	0	0	0	0	33.3	66.7	
Total %	0	0	0	0	0	0	0	0	26.7	33.3	0	0	0	0	0	0	0	0	13.3	26.7	

	Sprague Street From North						Garage Driveway From East						Sprague Street From South						Industrial Driveway 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 07:15 AM																									
07:15 AM	0	0	0	0	0	0	0	0	0	2	1	3	0	0	0	0	0	0	0	0	0	0	0	0	3
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
08:00 AM	0	0	0	0	0	0	0	0	0	1	2	3	0	0	0	0	0	0	0	0	0	1	3	4	7
Total Volume	0	0	0	0	0	0	0	0	0	3	3	6	0	0	0	0	0	0	0	0	0	2	4	6	12
% App. Total	0	0	0	0	0		0	0	0	50	50		0	0	0	0	0		0	0	0	33.3	66.7		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.375	.375	.500	.000	.000	.000	.000	.000	.000	.000	.000	.000	.500	.333	.375	.429

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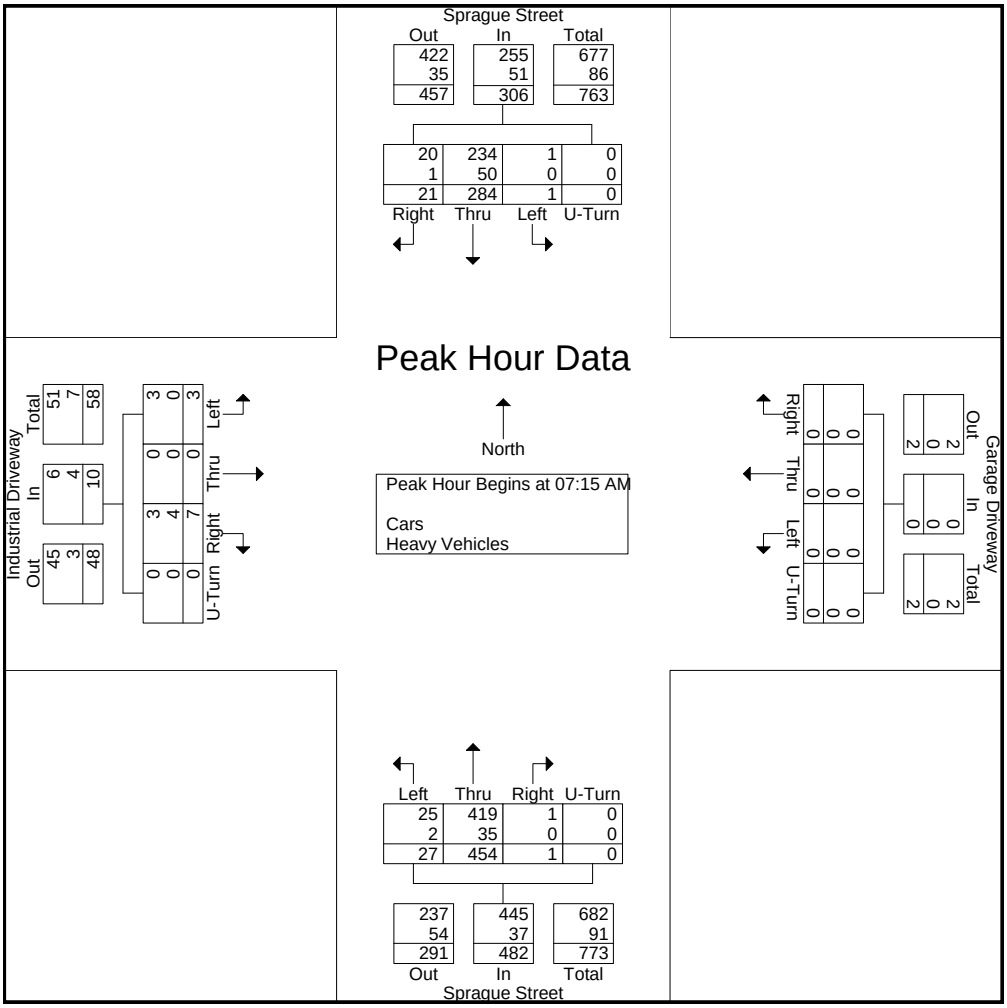
N/S: Sprague Street
E/W:Garage Driveway/ Industrial Driveway
City, State: Hyde Park, MA
Client: VHB/ C. Dube

File Name : 165002 A
Site Code : 2152111
Start Date : 3/30/2016
Page No : 1

	Sprague Street From North					Garage Driveway From East					Sprague Street From South					Industrial Driveway 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 07:15 AM																					
07:15 AM	3	69	0	0	72	0	0	0	0	0	0	124	6	0	130	1	0	1	0	2	204
07:30 AM	7	75	1	0	83	0	0	0	0	0	1	115	10	0	126	1	0	0	0	1	210
07:45 AM	4	64	0	0	68	0	0	0	0	0	0	112	5	0	117	3	0	0	0	3	188
08:00 AM	7	76	0	0	83	0	0	0	0	0	0	103	6	0	109	2	0	2	0	4	196
Total Volume	21	284	1	0	306	0	0	0	0	0	1	454	27	0	482	7	0	3	0	10	798
% App. Total	6.9	92.8	0.3	0		0	0	0	0		0.2	94.2	5.6	0		70	0	30	0		
PHF	.750	.934	.250	.000	.922	.000	.000	.000	.000	.000	.250	.915	.675	.000	.927	.583	.000	.375	.000	.625	.950
Cars	20	234	1	0	255	0	0	0	0	0	1	419	25	0	445	3	0	3	0	6	706
% Cars	95.2	82.4	100	0	83.3	0	0	0	0	0	100	92.3	92.6	0	92.3	42.9	0	100	0	60.0	88.5
Heavy Vehicles	1	50	0	0	51	0	0	0	0	0	0	35	2	0	37	4	0	0	0	4	92
% Heavy Vehicles	4.8	17.6	0	0	16.7	0	0	0	0	0	0	7.7	7.4	0	7.7	57.1	0	0	0	40.0	11.5



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N/S: Sprague Street
E/W:Garage Driveway/ Industrial Driveway
City, State: Hyde Park, MA
Client: VHB/ C. Dube

File Name : 165002 AA
Site Code : 2152111
Start Date : 3/30/2016
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Sprague Street From North				Garage Driveway From East				Sprague Street From South				Industrial Driveway 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	85	0	0	3	0	1	0	0	60	2	0	14	0	12	0	178
04:15 PM	2	87	0	0	0	0	0	0	0	55	2	0	9	0	4	0	159
04:30 PM	4	96	0	0	0	0	0	0	0	76	3	0	11	0	12	0	202
04:45 PM	2	102	0	0	0	0	0	0	0	67	2	0	6	0	9	0	188
Total	9	370	0	0	3	0	1	0	0	258	9	0	40	0	37	0	727
05:00 PM	2	104	0	0	0	0	0	0	0	102	3	0	17	0	10	0	238
05:15 PM	0	101	0	0	0	0	0	0	0	86	5	0	11	0	4	0	207
05:30 PM	1	91	0	0	0	0	0	0	0	81	2	0	6	0	4	0	185
05:45 PM	1	92	0	0	0	0	0	0	0	73	3	0	6	0	4	0	179
Total	4	388	0	0	0	0	0	0	0	342	13	0	40	0	22	0	809
Grand Total	13	758	0	0	3	0	1	0	0	600	22	0	80	0	59	0	1536
Apprch %	1.7	98.3	0	0	75	0	25	0	0	96.5	3.5	0	57.6	0	42.4	0	
Total %	0.8	49.3	0	0	0.2	0	0.1	0	0	39.1	1.4	0	5.2	0	3.8	0	
Cars	9	740	0	0	3	0	1	0	0	574	16	0	76	0	56	0	1475
% Cars	69.2	97.6	0	0	100	0	100	0	0	95.7	72.7	0	95	0	94.9	0	96
Heavy Vehicles	4	18	0	0	0	0	0	0	0	26	6	0	4	0	3	0	61
% Heavy Vehicles	30.8	2.4	0	0	0	0	0	0	0	4.3	27.3	0	5	0	5.1	0	4

	Sprague Street From North					Garage Driveway From East					Sprague Street From South					Industrial Driveway 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	4	96	0	0	100	0	0	0	0	0	0	76	3	0	79	11	0	12	0	23	202
04:45 PM	2	102	0	0	104	0	0	0	0	0	0	67	2	0	69	6	0	9	0	15	188
05:00 PM	2	104	0	0	106	0	0	0	0	0	0	102	3	0	105	17	0	10	0	27	238
05:15 PM	0	101	0	0	101	0	0	0	0	0	0	86	5	0	91	11	0	4	0	15	207
Total Volume	8	403	0	0	411	0	0	0	0	0	0	331	13	0	344	45	0	35	0	80	835
% App. Total	1.9	98.1	0	0		0	0	0	0		0	96.2	3.8	0		56.2	0	43.8	0		
PHF	.500	.969	.000	.000	.969	.000	.000	.000	.000	.000	.000	.811	.650	.000	.819	.662	.000	.729	.000	.741	.877
Cars	6	391	0	0	397	0	0	0	0	0	0	317	11	0	328	43	0	32	0	75	800
% Cars	75.0	97.0	0	0	96.6	0	0	0	0	0	0	95.8	84.6	0	95.3	95.6	0	91.4	0	93.8	95.8
Heavy Vehicles	2	12	0	0	14	0	0	0	0	0	0	14	2	0	16	2	0	3	0	5	35
% Heavy Vehicles	25.0	3.0	0	0	3.4	0	0	0	0	0	0	4.2	15.4	0	4.7	4.4	0	8.6	0	6.3	4.2

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E/W:Garage Driveway/ Industrial Driveway
City, State: Hyde Park, MA
Client: VHB/ C. Dube

File Name : 165002 AA
Site Code : 2152111
Start Date : 3/30/2016
Page No : 1

Groups Printed- Cars

	Sprague Street From North				Garage Driveway From East				Sprague Street From South				Industrial Driveway 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	83	0	0	3	0	1	0	0	56	1	0	14	0	12	0	170
04:15 PM	1	84	0	0	0	0	0	0	0	50	1	0	9	0	4	0	149
04:30 PM	4	92	0	0	0	0	0	0	0	72	3	0	10	0	10	0	191
04:45 PM	1	98	0	0	0	0	0	0	0	61	0	0	6	0	9	0	175
Total	6	357	0	0	3	0	1	0	0	239	5	0	39	0	35	0	685
05:00 PM	1	100	0	0	0	0	0	0	0	100	3	0	16	0	9	0	229
05:15 PM	0	101	0	0	0	0	0	0	0	84	5	0	11	0	4	0	205
05:30 PM	1	90	0	0	0	0	0	0	0	80	1	0	6	0	4	0	182
05:45 PM	1	92	0	0	0	0	0	0	0	71	2	0	4	0	4	0	174
Total	3	383	0	0	0	0	0	0	0	335	11	0	37	0	21	0	790
Grand Total	9	740	0	0	3	0	1	0	0	574	16	0	76	0	56	0	1475
Apprch %	1.2	98.8	0	0	75	0	25	0	0	97.3	2.7	0	57.6	0	42.4	0	
Total %	0.6	50.2	0	0	0.2	0	0.1	0	0	38.9	1.1	0	5.2	0	3.8	0	

	Sprague Street From North					Garage Driveway From East					Sprague Street From South					Industrial Driveway 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	4	92	0	0	96	0	0	0	0	0	0	72	3	0	75	10	0	10	0	20	191
04:45 PM	1	98	0	0	99	0	0	0	0	0	0	61	0	0	61	6	0	9	0	15	175
05:00 PM	1	100	0	0	101	0	0	0	0	0	0	100	3	0	103	16	0	9	0	25	229
05:15 PM	0	101	0	0	101	0	0	0	0	0	0	84	5	0	89	11	0	4	0	15	205
Total Volume	6	391	0	0	397	0	0	0	0	0	0	317	11	0	328	43	0	32	0	75	800
% App. Total	1.5	98.5	0	0		0	0	0	0		0	96.6	3.4	0		57.3	0	42.7	0		
PHF	.375	.968	.000	.000	.983	.000	.000	.000	.000	.000	.000	.793	.550	.000	.796	.672	.000	.800	.000	.750	.873

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E/W:Garage Driveway/ Industrial Driveway
City, State: Hyde Park, MA
Client: VHB/ C. Dube

File Name : 165002 AA
Site Code : 2152111
Start Date : 3/30/2016
Page No : 1

Groups Printed- Heavy Vehicles

	Sprague Street From North				Garage Driveway From East				Sprague Street From South				Industrial Driveway 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	2	0	0	0	0	0	0	0	4	1	0	0	0	0	0	8
04:15 PM	1	3	0	0	0	0	0	0	0	5	1	0	0	0	0	0	10
04:30 PM	0	4	0	0	0	0	0	0	0	4	0	0	1	0	2	0	11
04:45 PM	1	4	0	0	0	0	0	0	0	6	2	0	0	0	0	0	13
Total	3	13	0	0	0	0	0	0	0	19	4	0	1	0	2	0	42
05:00 PM	1	4	0	0	0	0	0	0	0	2	0	0	1	0	1	0	9
05:15 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2
05:30 PM	0	1	0	0	0	0	0	0	0	1	1	0	0	0	0	0	3
05:45 PM	0	0	0	0	0	0	0	0	0	2	1	0	2	0	0	0	5
Total	1	5	0	0	0	0	0	0	0	7	2	0	3	0	1	0	19
Grand Total	4	18	0	0	0	0	0	0	0	26	6	0	4	0	3	0	61
Apprch %	18.2	81.8	0	0	0	0	0	0	0	81.2	18.8	0	57.1	0	42.9	0	
Total %	6.6	29.5	0	0	0	0	0	0	0	42.6	9.8	0	6.6	0	4.9	0	

	Sprague Street From North					Garage Driveway From East					Sprague Street From South					Industrial Driveway 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 04:15 PM																					
04:15 PM	1	3	0	0	4	0	0	0	0	0	0	5	1	0	6	0	0	0	0	0	10
04:30 PM	0	4	0	0	4	0	0	0	0	0	0	4	0	0	4	1	0	2	0	3	11
04:45 PM	1	4	0	0	5	0	0	0	0	0	0	6	2	0	8	0	0	0	0	0	13
05:00 PM	1	4	0	0	5	0	0	0	0	0	0	2	0	0	2	1	0	1	0	2	9
Total Volume	3	15	0	0	18	0	0	0	0	0	0	17	3	0	20	2	0	3	0	5	43
% App. Total	16.7	83.3	0	0		0	0	0	0		0	85	15	0		40	0	60	0		
PHF	.750	.938	.000	.000	.900	.000	.000	.000	.000	.000	.000	.708	.375	.000	.625	.500	.000	.375	.000	.417	.827

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City, State: Hyde Park, MA
Client: VHB/ C. Dube

File Name : 165002 AA
Site Code : 2152111
Start Date : 3/30/2016
Page No : 1

Groups Printed- Peds and Bikes

	Sprague Street From North					Garage Driveway From East					Sprague Street From South					Industrial Driveway 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	0	0	0	0	0	1	4	0	0	0	0	0	0	0	0	0	0	5
04:15 PM	0	0	0	0	0	0	0	0	2	1	0	0	0	0	0	0	0	0	1	0	4
04:30 PM	0	0	0	0	0	0	0	0	4	3	0	0	0	0	0	0	0	0	0	0	7
04:45 PM	0	0	0	0	0	0	0	0	3	0	0	1	0	0	0	0	0	0	0	1	5
Total	0	0	0	0	0	0	0	0	10	8	0	1	0	0	0	0	0	0	1	1	21
05:00 PM	0	0	0	0	0	0	0	0	3	6	0	0	0	0	0	0	0	0	0	0	9
05:15 PM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	0	0	0	0	5	6	0	0	0	0	0	0	0	0	0	0	11
Grand Total	0	0	0	0	0	0	0	0	15	14	0	1	0	0	0	0	0	0	1	1	32
Apprch %	0	0	0	0	0	0	0	0	51.7	48.3	0	100	0	0	0	0	0	0	50	50	
Total %	0	0	0	0	0	0	0	0	46.9	43.8	0	3.1	0	0	0	0	0	0	3.1	3.1	

	Sprague Street From North						Garage Driveway From East						Sprague Street From South						Industrial Driveway 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 04:15 PM																									
04:15 PM	0	0	0	0	0	0	0	0	0	2	1	3	0	0	0	0	0	0	0	0	0	1	0	1	4
04:30 PM	0	0	0	0	0	0	0	0	0	4	3	7	0	0	0	0	0	0	0	0	0	0	0	0	7
04:45 PM	0	0	0	0	0	0	0	0	0	3	0	3	0	1	0	0	0	1	0	0	0	0	1	1	5
05:00 PM	0	0	0	0	0	0	0	0	0	3	6	9	0	0	0	0	0	0	0	0	0	0	0	0	9
Total Volume	0	0	0	0	0	0	0	0	0	12	10	22	0	1	0	0	0	1	0	0	0	1	1	2	25
% App. Total	0	0	0	0	0		0	0	0	54.5	45.5		0	100	0	0	0		0	0	0	50	50		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.750	.417	.611	.000	.250	.000	.000	.000	.250	.000	.000	.000	.250	.250	.500	.694

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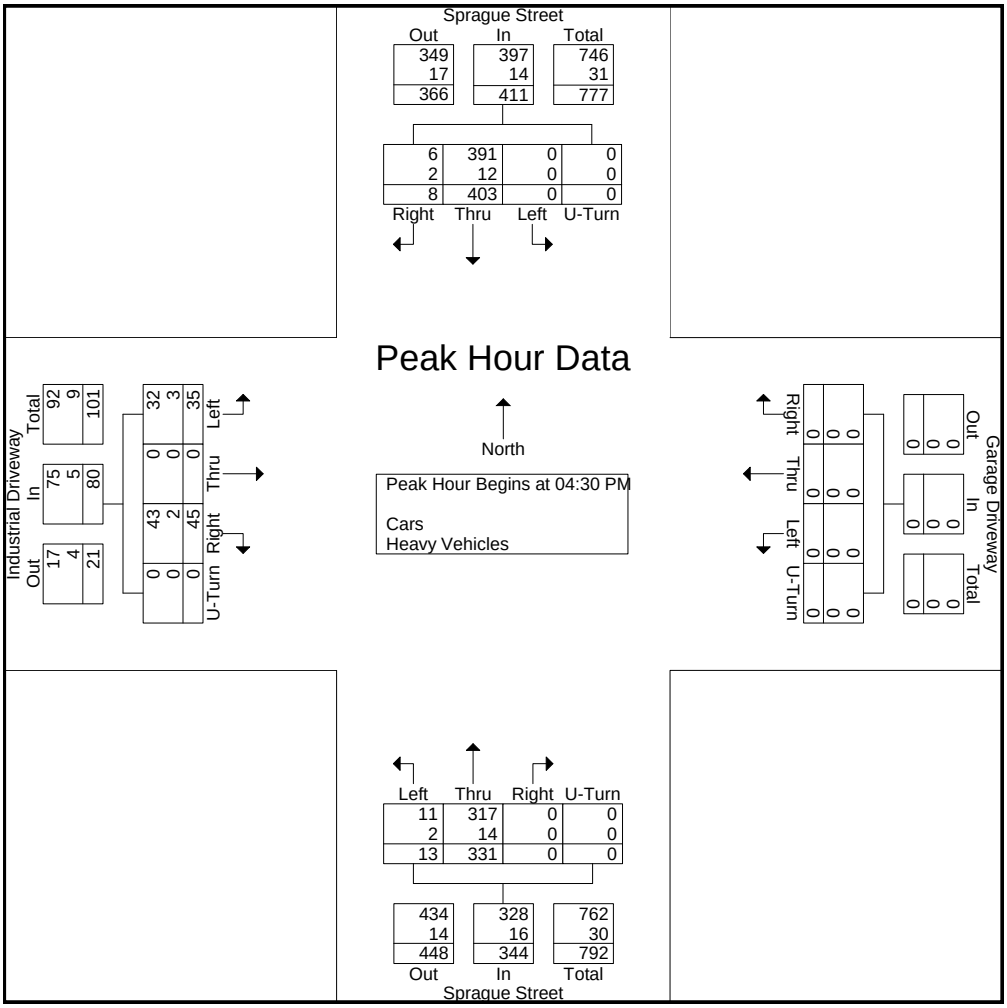
	Sprague Street From North					Garage Driveway From East					Sprague Street From South					Industrial Driveway From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis 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	4	96	0	0	100	0	0	0	0	0	0	76	3	0	79	11	0	12	0	23	202
04:45 PM	2	102	0	0	104	0	0	0	0	0	0	67	2	0	69	6	0	9	0	15	188
05:00 PM	2	104	0	0	106	0	0	0	0	0	0	102	3	0	105	17	0	10	0	27	238
05:15 PM	0	101	0	0	101	0	0	0	0	0	0	86	5	0	91	11	0	4	0	15	207
Total Volume	8	403	0	0	411	0	0	0	0	0	0	331	13	0	344	45	0	35	0	80	835
% App. Total	1.9	98.1	0	0		0	0	0	0		0	96.2	3.8	0		56.2	0	43.8	0		
PHF	.500	.969	.000	.000	.969	.000	.000	.000	.000	.000	.000	.811	.650	.000	.819	.662	.000	.729	.000	.741	.877
Cars	6	391	0	0	397	0	0	0	0	0	0	317	11	0	328	43	0	32	0	75	800
% Cars	75.0	97.0	0	0	96.6	0	0	0	0	0	0	95.8	84.6	0	95.3	95.6	0	91.4	0	93.8	95.8
Heavy Vehicles	2	12	0	0	14	0	0	0	0	0	0	14	2	0	16	2	0	3	0	5	35
% Heavy Vehicles	25.0	3.0	0	0	3.4	0	0	0	0	0	0	4.2	15.4	0	4.7	4.4	0	8.6	0	6.3	4.2



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File Name : 165002 B
Site Code : 2152111
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Groups Printed- Cars - Heavy Vehicles

	Sprague Street From North				Horne Street From East				Sprague Street From South				Industrial Driveway 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	56	8	0	3	0	3	0	1	121	1	0	0	0	4	0	209
07:15 AM	6	64	4	0	3	0	2	0	3	137	2	0	0	0	3	0	224
07:30 AM	14	76	6	0	2	0	6	0	2	111	1	0	1	0	1	0	220
07:45 AM	10	66	1	0	1	0	2	0	2	103	2	0	0	0	1	0	188
Total	42	262	19	0	9	0	13	0	8	472	6	0	1	0	9	0	841
08:00 AM	10	74	1	0	1	0	4	0	1	102	5	0	1	0	2	0	201
08:15 AM	10	55	3	0	4	0	1	0	1	87	6	0	0	0	1	0	168
08:30 AM	6	74	2	1	0	0	0	0	1	89	3	0	1	0	0	0	177
08:45 AM	19	59	0	0	1	0	0	0	0	81	7	0	4	0	5	0	176
Total	45	262	6	1	6	0	5	0	3	359	21	0	6	0	8	0	722
Grand Total	87	524	25	1	15	0	18	0	11	831	27	0	7	0	17	0	1563
Apprch %	13.7	82.3	3.9	0.2	45.5	0	54.5	0	1.3	95.6	3.1	0	29.2	0	70.8	0	
Total %	5.6	33.5	1.6	0.1	1	0	1.2	0	0.7	53.2	1.7	0	0.4	0	1.1	0	
Cars	86	468	24	1	4	0	1	0	10	770	27	0	7	0	17	0	1415
% Cars	98.9	89.3	96	100	26.7	0	5.6	0	90.9	92.7	100	0	100	0	100	0	90.5
Heavy Vehicles	1	56	1	0	11	0	17	0	1	61	0	0	0	0	0	0	148
% Heavy Vehicles	1.1	10.7	4	0	73.3	0	94.4	0	9.1	7.3	0	0	0	0	0	0	9.5

	Sprague Street From North					Horne Street From East					Sprague Street From South					Industrial Driveway 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 07:00 AM																					
07:00 AM	12	56	8	0	76	3	0	3	0	6	1	121	1	0	123	0	0	4	0	4	209
07:15 AM	6	64	4	0	74	3	0	2	0	5	3	137	2	0	142	0	0	3	0	3	224
07:30 AM	14	76	6	0	96	2	0	6	0	8	2	111	1	0	114	1	0	1	0	2	220
07:45 AM	10	66	1	0	77	1	0	2	0	3	2	103	2	0	107	0	0	1	0	1	188
Total Volume	42	262	19	0	323	9	0	13	0	22	8	472	6	0	486	1	0	9	0	10	841
% App. Total	13	81.1	5.9	0		40.9	0	59.1	0		1.6	97.1	1.2	0		10	0	90	0		
PHF	.750	.862	.594	.000	.841	.750	.000	.542	.000	.688	.667	.861	.750	.000	.856	.250	.000	.563	.000	.625	.939
Cars	42	229	18	0	289	2	0	1	0	3	7	436	6	0	449	1	0	9	0	10	751
% Cars	100	87.4	94.7	0	89.5	22.2	0	7.7	0	13.6	87.5	92.4	100	0	92.4	100	0	100	0	100	89.3
Heavy Vehicles	0	33	1	0	34	7	0	12	0	19	1	36	0	0	37	0	0	0	0	0	90
% Heavy Vehicles	0	12.6	5.3	0	10.5	77.8	0	92.3	0	86.4	12.5	7.6	0	0	7.6	0	0	0	0	0	10.7

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N/S: Sprague Street
E/W: Horne Street/ Industrial Driveway
City, State: Hyde Park, MA
Client: VHB/ C. Dube

File Name : 165002 B
Site Code : 2152111
Start Date : 3/30/2016
Page No : 1

Groups Printed- Cars

	Sprague Street From North				Horne Street From East				Sprague Street From South				Industrial Driveway 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	51	7	0	2	0	0	0	1	110	1	0	0	0	4	0	188
07:15 AM	6	54	4	0	0	0	0	0	3	123	2	0	0	0	3	0	195
07:30 AM	14	69	6	0	0	0	1	0	1	107	1	0	1	0	1	0	201
07:45 AM	10	55	1	0	0	0	0	0	2	96	2	0	0	0	1	0	167
Total	42	229	18	0	2	0	1	0	7	436	6	0	1	0	9	0	751
08:00 AM	10	67	1	0	0	0	0	0	1	92	5	0	1	0	2	0	179
08:15 AM	9	49	3	0	1	0	0	0	1	80	6	0	0	0	1	0	150
08:30 AM	6	65	2	1	0	0	0	0	1	84	3	0	1	0	0	0	163
08:45 AM	19	58	0	0	1	0	0	0	0	78	7	0	4	0	5	0	172
Total	44	239	6	1	2	0	0	0	3	334	21	0	6	0	8	0	664
Grand Total	86	468	24	1	4	0	1	0	10	770	27	0	7	0	17	0	1415
Apprch %	14.9	80.8	4.1	0.2	80	0	20	0	1.2	95.4	3.3	0	29.2	0	70.8	0	
Total %	6.1	33.1	1.7	0.1	0.3	0	0.1	0	0.7	54.4	1.9	0	0.5	0	1.2	0	

	Sprague Street From North					Horne Street From East					Sprague Street From South					Industrial Driveway 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 07:00 AM																					
07:00 AM	12	51	7	0	70	2	0	0	0	2	1	110	1	0	112	0	0	4	0	4	188
07:15 AM	6	54	4	0	64	0	0	0	0	0	3	123	2	0	128	0	0	3	0	3	195
07:30 AM	14	69	6	0	89	0	0	1	0	1	1	107	1	0	109	1	0	1	0	2	201
07:45 AM	10	55	1	0	66	0	0	0	0	0	2	96	2	0	100	0	0	1	0	1	167
Total Volume	42	229	18	0	289	2	0	1	0	3	7	436	6	0	449	1	0	9	0	10	751
% App. Total	14.5	79.2	6.2	0		66.7	0	33.3	0		1.6	97.1	1.3	0		10	0	90	0		
PHF	.750	.830	.643	.000	.812	.250	.000	.250	.000	.375	.583	.886	.750	.000	.877	.250	.000	.563	.000	.625	.934

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City, State: Hyde Park, MA
Client: VHB/ C. Dube

File Name : 165002 B
Site Code : 2152111
Start Date : 3/30/2016
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Groups Printed- Heavy Vehicles

	Sprague Street From North				Horne Street From East				Sprague Street From South				Industrial Driveway 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	5	1	0	1	0	3	0	0	11	0	0	0	0	0	0	21
07:15 AM	0	10	0	0	3	0	2	0	0	14	0	0	0	0	0	0	29
07:30 AM	0	7	0	0	2	0	5	0	1	4	0	0	0	0	0	0	19
07:45 AM	0	11	0	0	1	0	2	0	0	7	0	0	0	0	0	0	21
Total	0	33	1	0	7	0	12	0	1	36	0	0	0	0	0	0	90
08:00 AM	0	7	0	0	1	0	4	0	0	10	0	0	0	0	0	0	22
08:15 AM	1	6	0	0	3	0	1	0	0	7	0	0	0	0	0	0	18
08:30 AM	0	9	0	0	0	0	0	0	0	5	0	0	0	0	0	0	14
08:45 AM	0	1	0	0	0	0	0	0	0	3	0	0	0	0	0	0	4
Total	1	23	0	0	4	0	5	0	0	25	0	0	0	0	0	0	58
Grand Total	1	56	1	0	11	0	17	0	1	61	0	0	0	0	0	0	148
Apprch %	1.7	96.6	1.7	0	39.3	0	60.7	0	1.6	98.4	0	0	0	0	0	0	
Total %	0.7	37.8	0.7	0	7.4	0	11.5	0	0.7	41.2	0	0	0	0	0	0	

	Sprague Street From North					Horne Street From East					Sprague Street From South					Industrial Driveway 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 07:15 AM																					
07:15 AM	0	10	0	0	10	3	0	2	0	5	0	14	0	0	14	0	0	0	0	0	29
07:30 AM	0	7	0	0	7	2	0	5	0	7	1	4	0	0	5	0	0	0	0	0	19
07:45 AM	0	11	0	0	11	1	0	2	0	3	0	7	0	0	7	0	0	0	0	0	21
08:00 AM	0	7	0	0	7	1	0	4	0	5	0	10	0	0	10	0	0	0	0	0	22
Total Volume	0	35	0	0	35	7	0	13	0	20	1	35	0	0	36	0	0	0	0	0	91
% App. Total	0	100	0	0		35	0	65	0		2.8	97.2	0	0		0	0	0	0		
PHF	.000	.795	.000	.000	.795	.583	.000	.650	.000	.714	.250	.625	.000	.000	.643	.000	.000	.000	.000	.000	.784

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Start Date : 3/30/2016
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Groups Printed- Peds and Bikes

	Sprague Street From North					Horne Street From East					Sprague Street From South					Industrial Driveway 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	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	3
07:15 AM	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	2
07:30 AM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2
07:45 AM	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
Total	0	0	0	0	2	0	0	0	2	4	0	0	0	0	0	0	0	0	0	1	9
08:00 AM	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	3	6
08:15 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
08:30 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
08:45 AM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	0	0	0	0	2	4	0	0	0	0	0	0	0	0	0	3	9
Grand Total	0	0	0	0	2	0	0	0	4	8	0	0	0	0	0	0	0	0	0	4	18
Apprch %	0	0	0	0	100	0	0	0	33.3	66.7	0	0	0	0	0	0	0	0	0	100	
Total %	0	0	0	0	11.1	0	0	0	22.2	44.4	0	0	0	0	0	0	0	0	0	22.2	

	Sprague Street From North						Horne Street From East						Sprague Street From South						Industrial Driveway 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 07:15 AM																									
07:15 AM	0	0	0	0	0	0	0	0	0	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	2
07:30 AM	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2
07:45 AM	0	0	0	0	1	1	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	2
08:00 AM	0	0	0	0	0	0	0	0	0	1	2	3	0	0	0	0	0	0	0	0	0	0	3	3	6
Total Volume	0	0	0	0	2	2	0	0	0	2	4	6	0	0	0	0	0	0	0	0	0	0	4	4	12
% App. Total	0	0	0	0	100		0	0	0	33.3	66.7		0	0	0	0	0		0	0	0	0	100		
PHF	.000	.000	.000	.000	.500	.500	.000	.000	.000	.500	.500	.500	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.333	.333	.500

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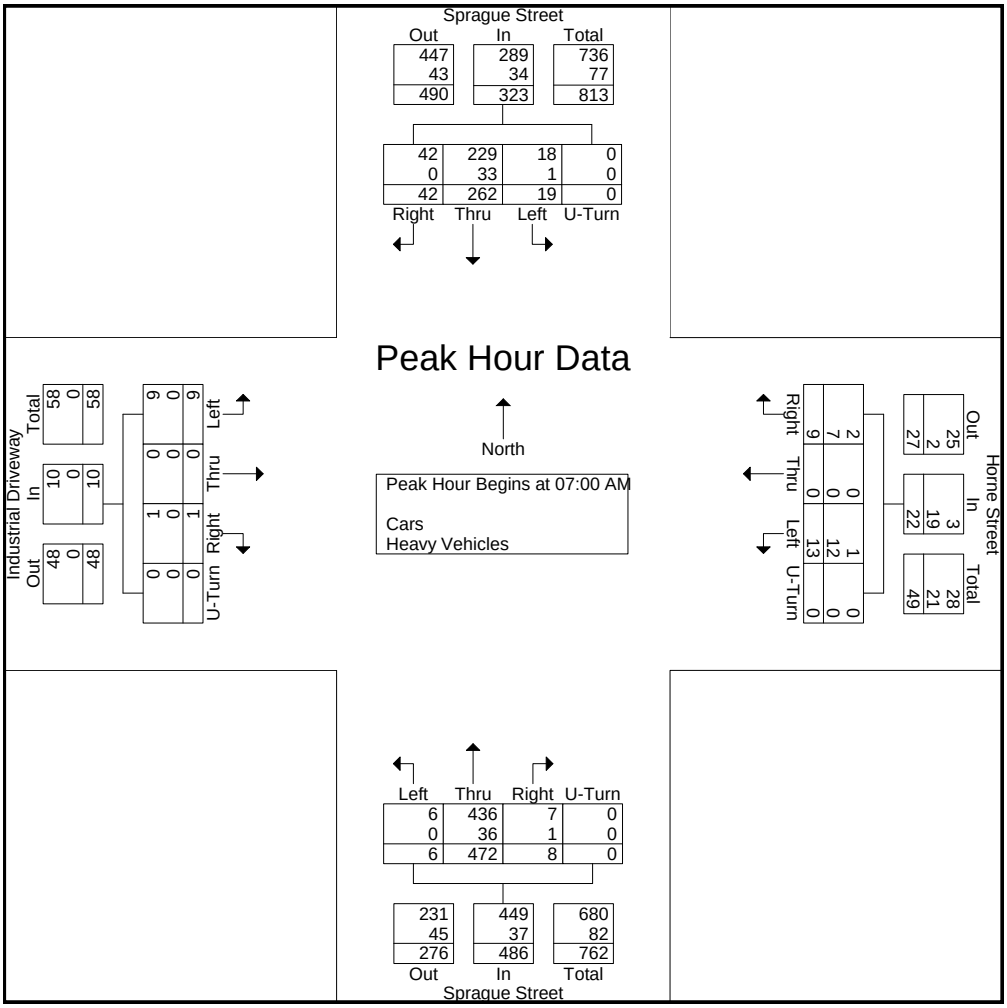
	Sprague Street From North					Horne Street From East					Sprague Street From South					Industrial Driveway From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	12	56	8	0	76	3	0	3	0	6	1	121	1	0	123	0	0	4	0	4	209
07:15 AM	6	64	4	0	74	3	0	2	0	5	3	137	2	0	142	0	0	3	0	3	224
07:30 AM	14	76	6	0	96	2	0	6	0	8	2	111	1	0	114	1	0	1	0	2	220
07:45 AM	10	66	1	0	77	1	0	2	0	3	2	103	2	0	107	0	0	1	0	1	188
Total Volume	42	262	19	0	323	9	0	13	0	22	8	472	6	0	486	1	0	9	0	10	841
% App. Total	13	81.1	5.9	0		40.9	0	59.1	0		1.6	97.1	1.2	0		10	0	90	0		
PHF	.750	.862	.594	.000	.841	.750	.000	.542	.000	.688	.667	.861	.750	.000	.856	.250	.000	.563	.000	.625	.939
Cars	42	229	18	0	289	2	0	1	0	3	7	436	6	0	449	1	0	9	0	10	751
% Cars	100	87.4	94.7	0	89.5	22.2	0	7.7	0	13.6	87.5	92.4	100	0	92.4	100	0	100	0	100	89.3
Heavy Vehicles	0	33	1	0	34	7	0	12	0	19	1	36	0	0	37	0	0	0	0	0	90
% Heavy Vehicles	0	12.6	5.3	0	10.5	77.8	0	92.3	0	86.4	12.5	7.6	0	0	7.6	0	0	0	0	0	10.7



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Groups Printed- Cars - Heavy Vehicles

	Sprague Street From North				Horne Street From East				Sprague Street From South				Industrial Driveway 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	15	83	2	0	4	0	1	0	2	74	2	0	2	0	10	0	195
04:15 PM	17	81	0	0	3	1	1	0	3	55	7	0	4	0	14	0	186
04:30 PM	12	85	1	0	2	0	2	0	3	82	5	0	12	0	49	0	253
04:45 PM	14	105	1	0	2	0	4	0	4	77	7	0	5	1	31	0	251
Total	58	354	4	0	11	1	8	0	12	288	21	0	23	1	104	0	885
05:00 PM	9	96	3	0	2	0	5	0	1	91	6	0	6	0	23	0	242
05:15 PM	14	84	1	0	3	0	9	0	2	77	8	1	3	0	8	0	210
05:30 PM	16	83	4	0	5	0	1	0	0	78	3	0	9	0	17	0	216
05:45 PM	28	94	0	0	1	0	2	0	1	68	9	0	4	0	13	0	220
Total	67	357	8	0	11	0	17	0	4	314	26	1	22	0	61	0	888
Grand Total	125	711	12	0	22	1	25	0	16	602	47	1	45	1	165	0	1773
Apprch %	14.7	83.8	1.4	0	45.8	2.1	52.1	0	2.4	90.4	7.1	0.2	21.3	0.5	78.2	0	
Total %	7.1	40.1	0.7	0	1.2	0.1	1.4	0	0.9	34	2.7	0.1	2.5	0.1	9.3	0	
Cars	120	689	5	0	20	1	25	0	3	581	47	1	45	0	163	0	1700
% Cars	96	96.9	41.7	0	90.9	100	100	0	18.8	96.5	100	100	100	0	98.8	0	95.9
Heavy Vehicles	5	22	7	0	2	0	0	0	13	21	0	0	0	1	2	0	73
% Heavy Vehicles	4	3.1	58.3	0	9.1	0	0	0	81.2	3.5	0	0	0	100	1.2	0	4.1

	Sprague Street From North					Horne Street From East					Sprague Street From South					Industrial Driveway 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	12	85	1	0	98	2	0	2	0	4	3	82	5	0	90	12	0	49	0	61	253
04:45 PM	14	105	1	0	120	2	0	4	0	6	4	77	7	0	88	5	1	31	0	37	251
05:00 PM	9	96	3	0	108	2	0	5	0	7	1	91	6	0	98	6	0	23	0	29	242
05:15 PM	14	84	1	0	99	3	0	9	0	12	2	77	8	1	88	3	0	8	0	11	210
Total Volume	49	370	6	0	425	9	0	20	0	29	10	327	26	1	364	26	1	111	0	138	956
% App. Total	11.5	87.1	1.4	0		31	0	69	0		2.7	89.8	7.1	0.3		18.8	0.7	80.4	0		
PHF	.875	.881	.500	.000	.885	.750	.000	.556	.000	.604	.625	.898	.813	.250	.929	.542	.250	.566	.000	.566	.945
Cars	45	358	2	0	405	7	0	20	0	27	1	316	26	1	344	26	0	109	0	135	911
% Cars	91.8	96.8	33.3	0	95.3	77.8	0	100	0	93.1	10.0	96.6	100	100	94.5	100	0	98.2	0	97.8	95.3
Heavy Vehicles	4	12	4	0	20	2	0	0	0	2	9	11	0	0	20	0	1	2	0	3	45
% Heavy Vehicles	8.2	3.2	66.7	0	4.7	22.2	0	0	0	6.9	90.0	3.4	0	0	5.5	0	100	1.8	0	2.2	4.7

PRECISION
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N/S: Sprague Street
E/W: Horne Street/ Industrial Driveway
City, State: Hyde Park, MA
Client: VHB/ C. Dube

File Name : 165002 BB
Site Code : 2152111
Start Date : 3/30/2016
Page No : 1

Groups Printed- Cars

	Sprague Street From North				Horne Street From East				Sprague Street From South				Industrial Driveway 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	15	80	2	0	4	0	1	0	1	72	2	0	2	0	10	0	189
04:15 PM	16	76	0	0	3	1	1	0	1	49	7	0	4	0	14	0	172
04:30 PM	11	83	1	0	2	0	2	0	0	77	5	0	12	0	49	0	242
04:45 PM	12	97	0	0	1	0	4	0	1	75	7	0	5	0	29	0	231
Total	54	336	3	0	10	1	8	0	3	273	21	0	23	0	102	0	834
05:00 PM	9	94	1	0	1	0	5	0	0	88	6	0	6	0	23	0	233
05:15 PM	13	84	0	0	3	0	9	0	0	76	8	1	3	0	8	0	205
05:30 PM	16	82	1	0	5	0	1	0	0	77	3	0	9	0	17	0	211
05:45 PM	28	93	0	0	1	0	2	0	0	67	9	0	4	0	13	0	217
Total	66	353	2	0	10	0	17	0	0	308	26	1	22	0	61	0	866
Grand Total	120	689	5	0	20	1	25	0	3	581	47	1	45	0	163	0	1700
Apprch %	14.7	84.6	0.6	0	43.5	2.2	54.3	0	0.5	91.9	7.4	0.2	21.6	0	78.4	0	
Total %	7.1	40.5	0.3	0	1.2	0.1	1.5	0	0.2	34.2	2.8	0.1	2.6	0	9.6	0	

	Sprague Street From North					Horne Street From East					Sprague Street From South					Industrial Driveway 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	11	83	1	0	95	2	0	2	0	4	0	77	5	0	82	12	0	49	0	61	242
04:45 PM	12	97	0	0	109	1	0	4	0	5	1	75	7	0	83	5	0	29	0	34	231
05:00 PM	9	94	1	0	104	1	0	5	0	6	0	88	6	0	94	6	0	23	0	29	233
05:15 PM	13	84	0	0	97	3	0	9	0	12	0	76	8	1	85	3	0	8	0	11	205
Total Volume	45	358	2	0	405	7	0	20	0	27	1	316	26	1	344	26	0	109	0	135	911
% App. Total	11.1	88.4	0.5	0		25.9	0	74.1	0		0.3	91.9	7.6	0.3		19.3	0	80.7	0		
PHF	.865	.923	.500	.000	.929	.583	.000	.556	.000	.563	.250	.898	.813	.250	.915	.542	.000	.556	.000	.553	.941

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N/S: Sprague Street
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City, State: Hyde Park, MA
Client: VHB/ C. Dube

File Name : 165002 BB
Site Code : 2152111
Start Date : 3/30/2016
Page No : 1

Groups Printed- Heavy Vehicles

	Sprague Street From North				Horne Street From East				Sprague Street From South				Industrial Driveway 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	3	0	0	0	0	0	0	1	2	0	0	0	0	0	0	6
04:15 PM	1	5	0	0	0	0	0	0	2	6	0	0	0	0	0	0	14
04:30 PM	1	2	0	0	0	0	0	0	3	5	0	0	0	0	0	0	11
04:45 PM	2	8	1	0	1	0	0	0	3	2	0	0	0	1	2	0	20
Total	4	18	1	0	1	0	0	0	9	15	0	0	0	1	2	0	51
05:00 PM	0	2	2	0	1	0	0	0	1	3	0	0	0	0	0	0	9
05:15 PM	1	0	1	0	0	0	0	0	2	1	0	0	0	0	0	0	5
05:30 PM	0	1	3	0	0	0	0	0	0	1	0	0	0	0	0	0	5
05:45 PM	0	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0	3
Total	1	4	6	0	1	0	0	0	4	6	0	0	0	0	0	0	22
Grand Total	5	22	7	0	2	0	0	0	13	21	0	0	0	1	2	0	73
Apprch %	14.7	64.7	20.6	0	100	0	0	0	38.2	61.8	0	0	0	33.3	66.7	0	
Total %	6.8	30.1	9.6	0	2.7	0	0	0	17.8	28.8	0	0	0	1.4	2.7	0	

	Sprague Street From North					Horne Street From East					Sprague Street From South					Industrial Driveway 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 04:15 PM																					
04:15 PM	1	5	0	0	6	0	0	0	0	0	2	6	0	0	8	0	0	0	0	0	14
04:30 PM	1	2	0	0	3	0	0	0	0	0	3	5	0	0	8	0	0	0	0	0	11
04:45 PM	2	8	1	0	11	1	0	0	0	1	3	2	0	0	5	0	1	2	0	3	20
05:00 PM	0	2	2	0	4	1	0	0	0	1	1	3	0	0	4	0	0	0	0	0	9
Total Volume	4	17	3	0	24	2	0	0	0	2	9	16	0	0	25	0	1	2	0	3	54
% App. Total	16.7	70.8	12.5	0		100	0	0	0		36	64	0	0		0	33.3	66.7	0		
PHF	.500	.531	.375	.000	.545	.500	.000	.000	.000	.500	.750	.667	.000	.000	.781	.000	.250	.250	.000	.250	.675

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File Name : 165002 BB
Site Code : 2152111
Start Date : 3/30/2016
Page No : 1

Groups Printed- Peds and Bikes

	Sprague Street From North					Horne Street From East					Sprague Street From South					Industrial Driveway 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	0	0	0	0	0	2	4	0	0	0	0	0	0	0	0	0	0	6
04:15 PM	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	3	1	7
04:30 PM	0	0	0	1	0	0	0	0	0	2	0	1	0	0	0	0	0	0	0	0	4
04:45 PM	0	0	0	1	0	0	0	0	4	3	0	0	0	0	0	0	0	0	0	1	9
Total	0	0	0	2	0	0	0	0	9	9	0	1	0	0	0	0	0	0	3	2	26
05:00 PM	0	0	0	0	1	0	0	0	3	3	0	0	0	0	0	0	0	0	0	0	7
05:15 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	2
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
Total	0	0	0	0	1	0	0	0	3	4	0	0	0	0	0	0	0	0	0	3	11
Grand Total	0	0	0	2	1	0	0	0	12	13	0	1	0	0	0	0	0	0	3	5	37
Apprch %	0	0	0	66.7	33.3	0	0	0	48	52	0	100	0	0	0	0	0	0	37.5	62.5	
Total %	0	0	0	5.4	2.7	0	0	0	32.4	35.1	0	2.7	0	0	0	0	0	0	8.1	13.5	

	Sprague Street From North						Horne Street From East						Sprague Street From South						Industrial Driveway 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 04:15 PM																									
04:15 PM	0	0	0	0	0	0	0	0	0	3	0	3	0	0	0	0	0	0	0	0	0	3	1	4	7
04:30 PM	0	0	0	1	0	1	0	0	0	0	2	2	0	1	0	0	0	1	0	0	0	0	0	0	4
04:45 PM	0	0	0	1	0	1	0	0	0	4	3	7	0	0	0	0	0	0	0	0	0	1	1	1	9
05:00 PM	0	0	0	0	1	1	0	0	0	3	3	6	0	0	0	0	0	0	0	0	0	0	0	0	7
Total Volume	0	0	0	2	1	3	0	0	0	10	8	18	0	1	0	0	0	1	0	0	0	3	2	5	27
% App. Total	0	0	0	66.7	33.3		0	0	0	55.6	44.4		0	100	0	0	0		0	0	0	60	40		
PHF	.000	.000	.000	.500	.250	.750	.000	.000	.000	.625	.667	.643	.000	.250	.000	.000	.000	.250	.000	.000	.000	.250	.500	.313	.750

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File Name : 165002 BB
Site Code : 2152111
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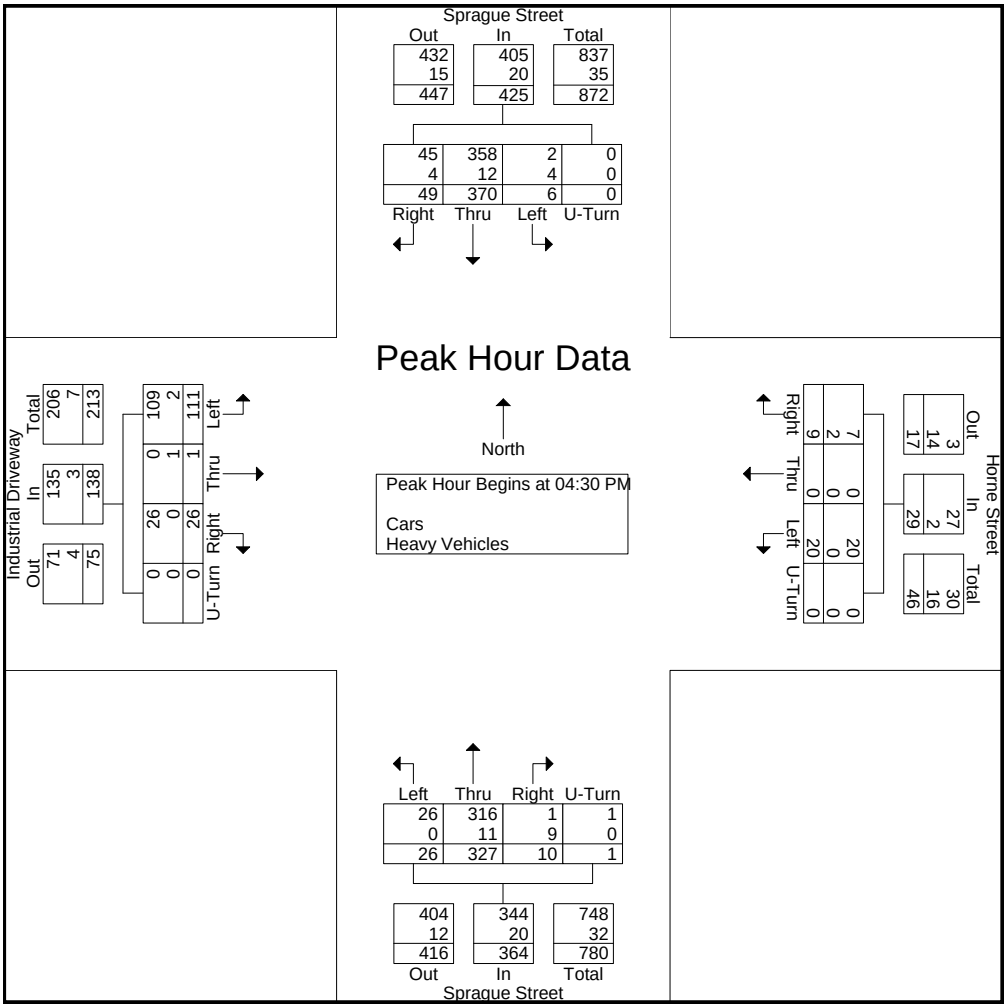
Page No : 1

	Sprague Street From North					Horne Street From East					Sprague Street From South					Industrial Driveway 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	12	85	1	0	98	2	0	2	0	4	3	82	5	0	90	12	0	49	0	61	253
04:45 PM	14	105	1	0	120	2	0	4	0	6	4	77	7	0	88	5	1	31	0	37	251
05:00 PM	9	96	3	0	108	2	0	5	0	7	1	91	6	0	98	6	0	23	0	29	242
05:15 PM	14	84	1	0	99	3	0	9	0	12	2	77	8	1	88	3	0	8	0	11	210
Total Volume	49	370	6	0	425	9	0	20	0	29	10	327	26	1	364	26	1	111	0	138	956
% App. Total	11.5	87.1	1.4	0		31	0	69	0		2.7	89.8	7.1	0.3		18.8	0.7	80.4	0		
PHF	.875	.881	.500	.000	.885	.750	.000	.556	.000	.604	.625	.898	.813	.250	.929	.542	.250	.566	.000	.566	.945
Cars	45	358	2	0	405	7	0	20	0	27	1	316	26	1	344	26	0	109	0	135	911
% Cars	91.8	96.8	33.3	0	95.3	77.8	0	100	0	93.1	10.0	96.6	100	100	94.5	100	0	98.2	0	97.8	95.3
Heavy Vehicles	4	12	4	0	20	2	0	0	0	2	9	11	0	0	20	0	1	2	0	3	45
% Heavy Vehicles	8.2	3.2	66.7	0	4.7	22.2	0	0	0	6.9	90.0	3.4	0	0	5.5	0	100	1.8	0	2.2	4.7



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N/S: Milton Street/ Sprague Street
W/NW: West Milton St/ Reedville St
City, State: Hyde Park, MA
Client: VHB/ C. Dube

File Name : 165002 C
Site Code : 2152111
Start Date : 3/30/2016
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Milton Street From North				Sprague Street From South				West Milton Street From West				Readville Street From Northwest				
Start Time	Hard Right	Right	Thru	U-Turn	Thru	Bear Left	Left	U-Turn	Right	Left	Hard Left	U-Turn	Hard Right	Bear Right	Hard Left	U-Turn	Int. Total
07:00 AM	0	44	61	0	112	0	16	0	7	60	1	0	5	2	1	0	309
07:15 AM	1	57	68	0	104	1	24	0	4	65	0	0	10	4	1	0	339
07:30 AM	0	44	82	0	100	2	21	0	9	69	1	0	7	1	0	0	336
07:45 AM	0	59	69	0	98	1	11	0	8	65	1	0	4	4	1	0	321
Total	1	204	280	0	414	4	72	0	28	259	3	0	26	11	3	0	1305
08:00 AM	0	47	75	0	93	0	8	0	13	72	2	0	1	0	0	0	311
08:15 AM	1	51	58	0	88	0	4	0	10	62	0	0	5	0	0	0	279
08:30 AM	2	45	62	0	84	0	10	0	15	46	1	0	2	0	0	0	267
08:45 AM	0	47	68	0	78	0	9	0	17	41	1	0	1	1	1	0	264
Total	3	190	263	0	343	0	31	0	55	221	4	0	9	1	1	0	1121
Grand Total	4	394	543	0	757	4	103	0	83	480	7	0	35	12	4	0	2426
Apprch %	0.4	41.9	57.7	0	87.6	0.5	11.9	0	14.6	84.2	1.2	0	68.6	23.5	7.8	0	
Total %	0.2	16.2	22.4	0	31.2	0.2	4.2	0	3.4	19.8	0.3	0	1.4	0.5	0.2	0	
Cars	4	340	484	0	694	4	93	0	77	450	6	0	31	12	3	0	2198
% Cars	100	86.3	89.1	0	91.7	100	90.3	0	92.8	93.8	85.7	0	88.6	100	75	0	90.6
Heavy Vehicles	0	54	59	0	63	0	10	0	6	30	1	0	4	0	1	0	228
% Heavy Vehicles	0	13.7	10.9	0	8.3	0	9.7	0	7.2	6.2	14.3	0	11.4	0	25	0	9.4

	Milton Street From North					Sprague Street From South					West Milton Street From West					Readville Street From Northwest					
Start Time	Hard Right	Right	Thru	U-Turn	App. Total	Thru	Bear Left	Left	U-Turn	App. Total	Right	Left	Hard Left	U-Turn	App. Total	Hard Right	Bear Right	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 07:15 AM																					
07:15 AM	1	57	68	0	126	104	1	24	0	129	4	65	0	0	69	10	4	1	0	15	339
07:30 AM	0	44	82	0	126	100	2	21	0	123	9	69	1	0	79	7	1	0	0	8	336
07:45 AM	0	59	69	0	128	98	1	11	0	110	8	65	1	0	74	4	4	1	0	9	321
08:00 AM	0	47	75	0	122	93	0	8	0	101	13	72	2	0	87	1	0	0	0	1	311
Total Volume	1	207	294	0	502	395	4	64	0	463	34	271	4	0	309	22	9	2	0	33	1307
% App. Total	0.2	41.2	58.6	0		85.3	0.9	13.8	0		11	87.7	1.3	0		66.7	27.3	6.1	0		
PHF	.250	.877	.896	.000	.980	.950	.500	.667	.000	.897	.654	.941	.500	.000	.888	.550	.563	.500	.000	.550	.964
Cars	1	173	258	0	432	358	4	58	0	420	32	251	3	0	286	20	9	2	0	31	1169
% Cars	100	83.6	87.8	0	86.1	90.6	100	90.6	0	90.7	94.1	92.6	75.0	0	92.6	90.9	100	100	0	93.9	89.4
Heavy Vehicles	0	34	36	0	70	37	0	6	0	43	2	20	1	0	23	2	0	0	0	2	138
% Heavy Vehicles	0	16.4	12.2	0	13.9	9.4	0	9.4	0	9.3	5.9	7.4	25.0	0	7.4	9.1	0	0	0	6.1	10.6

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Groups Printed- Cars

	Milton Street From North				Sprague Street From South				West Milton Street From West				Readville Street From Northwest				
Start Time	Hard Right	Right	Thru	U-Turn	Thru	Bear Left	Left	U-Turn	Right	Left	Hard Left	U-Turn	Hard Right	Bear Right	Hard Left	U-Turn	Int. Total
07:00 AM	0	42	56	0	102	0	14	0	7	60	1	0	5	2	0	0	289
07:15 AM	1	48	57	0	91	1	20	0	4	62	0	0	9	4	1	0	298
07:30 AM	0	37	77	0	93	2	21	0	7	64	0	0	6	1	0	0	308
07:45 AM	0	44	58	0	91	1	9	0	8	59	1	0	4	4	1	0	280
Total	1	171	248	0	377	4	64	0	26	245	2	0	24	11	2	0	1175
08:00 AM	0	44	66	0	83	0	8	0	13	66	2	0	1	0	0	0	283
08:15 AM	1	43	49	0	81	0	3	0	9	58	0	0	4	0	0	0	248
08:30 AM	2	40	55	0	78	0	9	0	14	44	1	0	2	0	0	0	245
08:45 AM	0	42	66	0	75	0	9	0	15	37	1	0	0	1	1	0	247
Total	3	169	236	0	317	0	29	0	51	205	4	0	7	1	1	0	1023
Grand Total	4	340	484	0	694	4	93	0	77	450	6	0	31	12	3	0	2198
Apprch %	0.5	41.1	58.5	0	87.7	0.5	11.8	0	14.4	84.4	1.1	0	67.4	26.1	6.5	0	
Total %	0.2	15.5	22	0	31.6	0.2	4.2	0	3.5	20.5	0.3	0	1.4	0.5	0.1	0	

	Milton Street From North					Sprague Street From South					West Milton Street From West					Readville Street From Northwest					
Start Time	Hard Right	Right	Thru	U-Turn	App. Total	Thru	Bear Left	Left	U-Turn	App. Total	Right	Left	Hard Left	U-Turn	App. Total	Hard Right	Bear Right	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 07:00 AM																					
07:00 AM	0	42	56	0	98	102	0	14	0	116	7	60	1	0	68	5	2	0	0	7	289
07:15 AM	1	48	57	0	106	91	1	20	0	112	4	62	0	0	66	9	4	1	0	14	298
07:30 AM	0	37	77	0	114	93	2	21	0	116	7	64	0	0	71	6	1	0	0	7	308
07:45 AM	0	44	58	0	102	91	1	9	0	101	8	59	1	0	68	4	4	1	0	9	280
Total Volume	1	171	248	0	420	377	4	64	0	445	26	245	2	0	273	24	11	2	0	37	1175
% App. Total	0.2	40.7	59	0		84.7	0.9	14.4	0		9.5	89.7	0.7	0		64.9	29.7	5.4	0		
PHF	.250	.891	.805	.000	.921	.924	.500	.762	.000	.959	.813	.957	.500	.000	.961	.667	.688	.500	.000	.661	.954

PRECISION
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N/S: Milton Street/ Sprague Street
W/NW: West Milton St/ Reedville St
City, State: Hyde Park, MA
Client: VHB/ C. Dube

File Name : 165002 C
Site Code : 2152111
Start Date : 3/30/2016
Page No : 1

Groups Printed- Heavy Vehicles

	Milton Street From North				Sprague Street From South				West Milton Street From West				Readville Street From Northwest				
Start Time	Hard Right	Right	Thru	U-Turn	Thru	Bear Left	Left	U-Turn	Right	Left	Hard Left	U-Turn	Hard Right	Bear Right	Hard Left	U-Turn	Int. Total
07:00 AM	0	2	5	0	10	0	2	0	0	0	0	0	0	0	1	0	20
07:15 AM	0	9	11	0	13	0	4	0	0	3	0	0	1	0	0	0	41
07:30 AM	0	7	5	0	7	0	0	0	2	5	1	0	1	0	0	0	28
07:45 AM	0	15	11	0	7	0	2	0	0	6	0	0	0	0	0	0	41
Total	0	33	32	0	37	0	8	0	2	14	1	0	2	0	1	0	130
08:00 AM	0	3	9	0	10	0	0	0	0	6	0	0	0	0	0	0	28
08:15 AM	0	8	9	0	7	0	1	0	1	4	0	0	1	0	0	0	31
08:30 AM	0	5	7	0	6	0	1	0	1	2	0	0	0	0	0	0	22
08:45 AM	0	5	2	0	3	0	0	0	2	4	0	0	1	0	0	0	17
Total	0	21	27	0	26	0	2	0	4	16	0	0	2	0	0	0	98
Grand Total	0	54	59	0	63	0	10	0	6	30	1	0	4	0	1	0	228
Apprch %	0	47.8	52.2	0	86.3	0	13.7	0	16.2	81.1	2.7	0	80	0	20	0	
Total %	0	23.7	25.9	0	27.6	0	4.4	0	2.6	13.2	0.4	0	1.8	0	0.4	0	

	Milton Street From North					Sprague Street From South					West Milton Street From West					Readville Street From Northwest					
Start Time	Hard Right	Right	Thru	U-Turn	App. Total	Thru	Bear Left	Left	U-Turn	App. Total	Right	Left	Hard Left	U-Turn	App. Total	Hard Right	Bear Right	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 07:15 AM																					
07:15 AM	0	9	11	0	20	13	0	4	0	17	0	3	0	0	3	1	0	0	0	1	41
07:30 AM	0	7	5	0	12	7	0	0	0	7	2	5	1	0	8	1	0	0	0	1	28
07:45 AM	0	15	11	0	26	7	0	2	0	9	0	6	0	0	6	0	0	0	0	0	41
08:00 AM	0	3	9	0	12	10	0	0	0	10	0	6	0	0	6	0	0	0	0	0	28
Total Volume	0	34	36	0	70	37	0	6	0	43	2	20	1	0	23	2	0	0	0	2	138
% App. Total	0	48.6	51.4	0		86	0	14	0		8.7	87	4.3	0		100	0	0	0		
PHF	.000	.567	.818	.000	.673	.712	.000	.375	.000	.632	.250	.833	.250	.000	.719	.500	.000	.000	.000	.500	.841

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File Name : 165002 C
Site Code : 2152111
Start Date : 3/30/2016
Page No : 1

Groups Printed- Peds and Bikes

	Milton Street From North					Sprague Street From South					West Milton Street From West					Readville Street From Northwest					
Start Time	Hard Right	Right	Thru	Peds EB	Peds WB	Thru	Bear Left	Left	Peds WB	Peds EB	Right	Left	Hard Left	Peds NB	Peds SB	Hard Right	Bear Right	Hard Left	Peds NEB	Peds SWB	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	3
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	3	1	5
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	1	0	5
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	4	0	8
Grand Total	0	0	0	0	0	0	0	0	0	0	0	1	0	0	4	0	0	0	7	1	13
Apprch %	0	0	0	0	0	0	0	0	0	0	0	20	0	0	80	0	0	0	87.5	12.5	
Total %	0	0	0	0	0	0	0	0	0	0	0	7.7	0	0	30.8	0	0	0	53.8	7.7	

	Milton Street From North						Sprague Street From South						West Milton Street From West						Readville Street From Northwest						
Start Time	Hard Right	Right	Thru	Peds EB	Peds WB	App. Total	Thru	Bear Left	Left	Peds WB	Peds EB	App. Total	Right	Left	Hard Left	Peds NB	Peds SB	App. Total	Hard Right	Bear Right	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 07:15 AM																									
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	3	3
07:45 AM	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
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4	0	0	0	1	0	1	5
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4	0	0	0	4	1	5	9
% App. Total	0	0	0	0	0		0	0	0	0	0		0	0	0	0	100		0	0	0	80	20		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.250	.000	.000	.000	.500	.250	.417	.450

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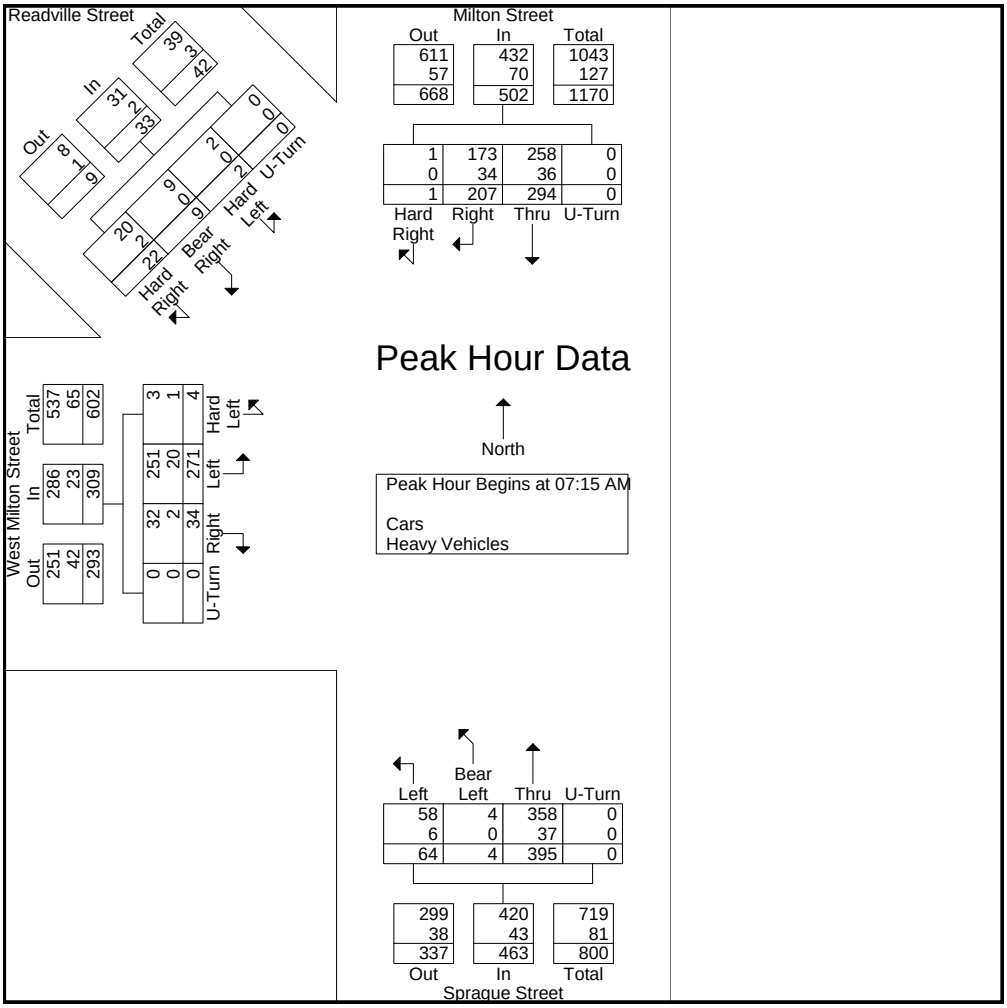
Page No : 1

	Milton Street From North					Sprague Street From South					West Milton Street From West					Readville Street From Northwest					
Start Time	Hard Right	Right	Thru	U-Turn	App. Total	Thru	Bear Left	Left	U-Turn	App. Total	Right	Left	Hard Left	U-Turn	App. Total	Hard Right	Bear Right	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 07:15 AM																					
07:15 AM	1	57	68	0	126	104	1	24	0	129	4	65	0	0	69	10	4	1	0	15	339
07:30 AM	0	44	82	0	126	100	2	21	0	123	9	69	1	0	79	7	1	0	0	8	336
07:45 AM	0	59	69	0	128	98	1	11	0	110	8	65	1	0	74	4	4	1	0	9	321
08:00 AM	0	47	75	0	122	93	0	8	0	101	13	72	2	0	87	1	0	0	0	1	311
Total Volume	1	207	294	0	502	395	4	64	0	463	34	271	4	0	309	22	9	2	0	33	1307
% App. Total	0.2	41.2	58.6	0		85.3	0.9	13.8	0		11	87.7	1.3	0		66.7	27.3	6.1	0		
PHF	.250	.877	.896	.000	.980	.950	.500	.667	.000	.897	.654	.941	.500	.000	.888	.550	.563	.500	.000	.550	.964
Cars	1	173	258	0	432	358	4	58	0	420	32	251	3	0	286	20	9	2	0	31	1169
% Cars	100	83.6	87.8	0	86.1	90.6	100	90.6	0	90.7	94.1	92.6	75.0	0	92.6	90.9	100	100	0	93.9	89.4
Heavy Vehicles	0	34	36	0	70	37	0	6	0	43	2	20	1	0	23	2	0	0	0	2	138
% Heavy Vehicles	0	16.4	12.2	0	13.9	9.4	0	9.4	0	9.3	5.9	7.4	25.0	0	7.4	9.1	0	0	0	6.1	10.6



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Client: VHB/ C. Dube

File Name : 165002 CC
Site Code : 2152111
Start Date : 3/30/2016
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Milton Street From North				Sprague Street From South				West Milton Street From West				Readville Street From Northwest				
Start Time	Hard Right	Right	Thru	U-Turn	Thru	Bear Left	Left	U-Turn	Right	Left	Hard Left	U-Turn	Hard Right	Bear Right	Hard Left	U-Turn	Int. Total
04:00 PM	1	42	77	0	72	6	14	0	17	63	6	0	1	4	0	0	303
04:15 PM	1	52	76	0	53	1	9	0	16	67	5	0	3	4	0	0	287
04:30 PM	1	35	83	0	120	2	13	0	18	55	3	0	5	4	0	0	339
04:45 PM	1	54	88	0	89	6	10	0	20	66	2	1	9	6	0	0	352
Total	4	183	324	0	334	15	46	0	71	251	16	1	18	18	0	0	1281
05:00 PM	1	49	86	0	103	3	13	0	17	62	2	0	5	2	1	0	344
05:15 PM	1	48	72	0	91	5	7	0	25	72	4	0	5	3	1	0	334
05:30 PM	1	43	84	0	90	4	14	0	15	66	2	0	13	2	0	0	334
05:45 PM	0	41	98	0	63	0	14	0	22	53	1	0	9	1	2	0	304
Total	3	181	340	0	347	12	48	0	79	253	9	0	32	8	4	0	1316
Grand Total	7	364	664	0	681	27	94	0	150	504	25	1	50	26	4	0	2597
Apprch %	0.7	35.2	64.2	0	84.9	3.4	11.7	0	22.1	74.1	3.7	0.1	62.5	32.5	5	0	
Total %	0.3	14	25.6	0	26.2	1	3.6	0	5.8	19.4	1	0	1.9	1	0.2	0	
Cars	7	355	636	0	662	26	93	0	141	483	20	1	50	26	4	0	2504
% Cars	100	97.5	95.8	0	97.2	96.3	98.9	0	94	95.8	80	100	100	100	100	0	96.4
Heavy Vehicles	0	9	28	0	19	1	1	0	9	21	5	0	0	0	0	0	93
% Heavy Vehicles	0	2.5	4.2	0	2.8	3.7	1.1	0	6	4.2	20	0	0	0	0	0	3.6

	Milton Street From North					Sprague Street From South					West Milton Street From West					Readville Street From Northwest					
Start Time	Hard Right	Right	Thru	U-Turn	App. Total	Thru	Bear Left	Left	U-Turn	App. Total	Right	Left	Hard Left	U-Turn	App. Total	Hard Right	Bear Right	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 04:30 PM																					
04:30 PM	1	35	83	0	119	120	2	13	0	135	18	55	3	0	76	5	4	0	0	9	339
04:45 PM	1	54	88	0	143	89	6	10	0	105	20	66	2	1	89	9	6	0	0	15	352
05:00 PM	1	49	86	0	136	103	3	13	0	119	17	62	2	0	81	5	2	1	0	8	344
05:15 PM	1	48	72	0	121	91	5	7	0	103	25	72	4	0	101	5	3	1	0	9	334
Total Volume	4	186	329	0	519	403	16	43	0	462	80	255	11	1	347	24	15	2	0	41	1369
% App. Total	0.8	35.8	63.4	0		87.2	3.5	9.3	0		23.1	73.5	3.2	0.3		58.5	36.6	4.9	0		
PHF	1.00	.861	.935	.000	.907	.840	.667	.827	.000	.856	.800	.885	.688	.250	.859	.667	.625	.500	.000	.683	.972
Cars	4	181	311	0	496	392	15	42	0	449	74	245	8	1	328	24	15	2	0	41	1314
% Cars	100	97.3	94.5	0	95.6	97.3	93.8	97.7	0	97.2	92.5	96.1	72.7	100	94.5	100	100	100	0	100	96.0
Heavy Vehicles	0	5	18	0	23	11	1	1	0	13	6	10	3	0	19	0	0	0	0	0	55
% Heavy Vehicles	0	2.7	5.5	0	4.4	2.7	6.3	2.3	0	2.8	7.5	3.9	27.3	0	5.5	0	0	0	0	0	4.0

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File Name : 165002 CC
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Page No : 1

Groups Printed- Cars

	Milton Street From North				Sprague Street From South				West Milton Street From West				Readville Street From Northwest				
Start Time	Hard Right	Right	Thru	U-Turn	Thru	Bear Left	Left	U-Turn	Right	Left	Hard Left	U-Turn	Hard Right	Bear Right	Hard Left	U-Turn	Int. Total
04:00 PM	1	41	76	0	69	6	14	0	14	59	6	0	1	4	0	0	291
04:15 PM	1	51	72	0	48	1	9	0	16	66	3	0	3	4	0	0	274
04:30 PM	1	34	78	0	115	2	13	0	16	51	3	0	5	4	0	0	322
04:45 PM	1	53	82	0	85	6	10	0	17	65	1	1	9	6	0	0	336
Total	4	179	308	0	317	15	46	0	63	241	13	1	18	18	0	0	1223
05:00 PM	1	47	80	0	101	2	12	0	17	58	2	0	5	2	1	0	328
05:15 PM	1	47	71	0	91	5	7	0	24	71	2	0	5	3	1	0	328
05:30 PM	1	41	80	0	90	4	14	0	15	62	2	0	13	2	0	0	324
05:45 PM	0	41	97	0	63	0	14	0	22	51	1	0	9	1	2	0	301
Total	3	176	328	0	345	11	47	0	78	242	7	0	32	8	4	0	1281
Grand Total	7	355	636	0	662	26	93	0	141	483	20	1	50	26	4	0	2504
Apprch %	0.7	35.6	63.7	0	84.8	3.3	11.9	0	21.9	74.9	3.1	0.2	62.5	32.5	5	0	
Total %	0.3	14.2	25.4	0	26.4	1	3.7	0	5.6	19.3	0.8	0	2	1	0.2	0	

	Milton Street From North					Sprague Street From South					West Milton Street From West					Readville Street From Northwest					
Start Time	Hard Right	Right	Thru	U-Turn	App. Total	Thru	Bear Left	Left	U-Turn	App. Total	Right	Left	Hard Left	U-Turn	App. Total	Hard Right	Bear Right	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 04:45 PM																					
04:45 PM	1	53	82	0	136	85	6	10	0	101	17	65	1	1	84	9	6	0	0	15	336
05:00 PM	1	47	80	0	128	101	2	12	0	115	17	58	2	0	77	5	2	1	0	8	328
05:15 PM	1	47	71	0	119	91	5	7	0	103	24	71	2	0	97	5	3	1	0	9	328
05:30 PM	1	41	80	0	122	90	4	14	0	108	15	62	2	0	79	13	2	0	0	15	324
Total Volume	4	188	313	0	505	367	17	43	0	427	73	256	7	1	337	32	13	2	0	47	1316
% App. Total	0.8	37.2	62	0		85.9	4	10.1	0		21.7	76	2.1	0.3		68.1	27.7	4.3	0		
PHF	1.00	.887	.954	.000	.928	.908	.708	.768	.000	.928	.760	.901	.875	.250	.869	.615	.542	.500	.000	.783	.979

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Groups Printed- Heavy Vehicles

	Milton Street From North				Sprague Street From South				West Milton Street From West				Readville Street From Northwest				
Start Time	Hard Right	Right	Thru	U-Turn	Thru	Bear Left	Left	U-Turn	Right	Left	Hard Left	U-Turn	Hard Right	Bear Right	Hard Left	U-Turn	Int. Total
04:00 PM	0	1	1	0	3	0	0	0	3	4	0	0	0	0	0	0	12
04:15 PM	0	1	4	0	5	0	0	0	0	1	2	0	0	0	0	0	13
04:30 PM	0	1	5	0	5	0	0	0	2	4	0	0	0	0	0	0	17
04:45 PM	0	1	6	0	4	0	0	0	3	1	1	0	0	0	0	0	16
Total	0	4	16	0	17	0	0	0	8	10	3	0	0	0	0	0	58
05:00 PM	0	2	6	0	2	1	1	0	0	4	0	0	0	0	0	0	16
05:15 PM	0	1	1	0	0	0	0	0	1	1	2	0	0	0	0	0	6
05:30 PM	0	2	4	0	0	0	0	0	0	4	0	0	0	0	0	0	10
05:45 PM	0	0	1	0	0	0	0	0	0	2	0	0	0	0	0	0	3
Total	0	5	12	0	2	1	1	0	1	11	2	0	0	0	0	0	35
Grand Total	0	9	28	0	19	1	1	0	9	21	5	0	0	0	0	0	93
Apprch %	0	24.3	75.7	0	90.5	4.8	4.8	0	25.7	60	14.3	0	0	0	0	0	
Total %	0	9.7	30.1	0	20.4	1.1	1.1	0	9.7	22.6	5.4	0	0	0	0	0	

	Milton Street From North					Sprague Street From South					West Milton Street From West					Readville Street From Northwest					
Start Time	Hard Right	Right	Thru	U-Turn	App. Total	Thru	Bear Left	Left	U-Turn	App. Total	Right	Left	Hard Left	U-Turn	App. Total	Hard Right	Bear Right	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 04:15 PM																					
04:15 PM	0	1	4	0	5	5	0	0	0	5	0	1	2	0	3	0	0	0	0	0	13
04:30 PM	0	1	5	0	6	5	0	0	0	5	2	4	0	0	6	0	0	0	0	0	17
04:45 PM	0	1	6	0	7	4	0	0	0	4	3	1	1	0	5	0	0	0	0	0	16
05:00 PM	0	2	6	0	8	2	1	1	0	4	0	4	0	0	4	0	0	0	0	0	16
Total Volume	0	5	21	0	26	16	1	1	0	18	5	10	3	0	18	0	0	0	0	0	62
% App. Total	0	19.2	80.8	0		88.9	5.6	5.6	0		27.8	55.6	16.7	0		0	0	0	0		
PHF	.000	.625	.875	.000	.813	.800	.250	.250	.000	.900	.417	.625	.375	.000	.750	.000	.000	.000	.000	.000	.912

PRECISION
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N/S: Milton Street/ Sprague Street
W/NW: West Milton St/ Readville St
City, State: Hyde Park, MA
Client: VHB/ C. Dube

File Name : 165002 CC
Site Code : 2152111
Start Date : 3/30/2016
Page No : 1

Groups Printed- Peds and Bikes

	Milton Street From North					Sprague Street From South					West Milton Street From West					Readville Street From Northwest					
Start Time	Hard Right	Right	Thru	Peds EB	Peds WB	Thru	Bear Left	Left	Peds WB	Peds EB	Right	Left	Hard Left	Peds NB	Peds SB	Hard Right	Bear Right	Hard Left	Peds NEB	Peds SWB	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2	0	4
04:15 PM	0	0	0	3	0	0	0	0	0	1	0	0	0	5	1	0	0	0	0	1	11
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	4	0	0	0	0	0	0	5
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	3
Total	0	0	0	3	0	0	0	0	0	3	0	1	0	9	1	1	0	0	2	3	23
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	5	6
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	3	0	0	0	0	1	6
05:45 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	0	0	0	0	0	1	0	0	0	2	4	0	0	0	1	6	14
Grand Total	0	0	0	3	0	0	0	0	0	4	0	1	0	11	5	1	0	0	3	9	37
Apprch %	0	0	0	100	0	0	0	0	0	100	0	5.9	0	64.7	29.4	7.7	0	0	23.1	69.2	
Total %	0	0	0	8.1	0	0	0	0	0	10.8	0	2.7	0	29.7	13.5	2.7	0	0	8.1	24.3	

	Milton Street From North						Sprague Street From South						West Milton Street From West						Readville Street From Northwest						
Start Time	Hard Right	Right	Thru	Peds EB	Peds WB	App. Total	Thru	Bear Left	Left	Peds WB	Peds EB	App. Total	Right	Left	Hard Left	Peds NB	Peds SB	App. Total	Hard Right	Bear Right	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 04:15 PM																									
04:15 PM	0	0	0	3	0	3	0	0	0	0	1	1	0	0	0	5	1	6	0	0	0	0	1	1	11
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	4	0	5	0	0	0	0	0	0	5
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	3	3
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	5	6	6
Total Volume	0	0	0	3	0	3	0	0	0	0	1	1	0	1	0	9	1	11	1	0	0	1	8	10	25
% App. Total	0	0	0	100	0		0	0	0	0	100		0	9.1	0	81.8	9.1		10	0	0	10	80		
PHF	.000	.000	.000	.250	.000	.250	.000	.000	.000	.000	.250	.250	.000	.250	.000	.450	.250	.458	.250	.000	.000	.250	.400	.417	.568

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N/S: Milton Street/ Sprague Street
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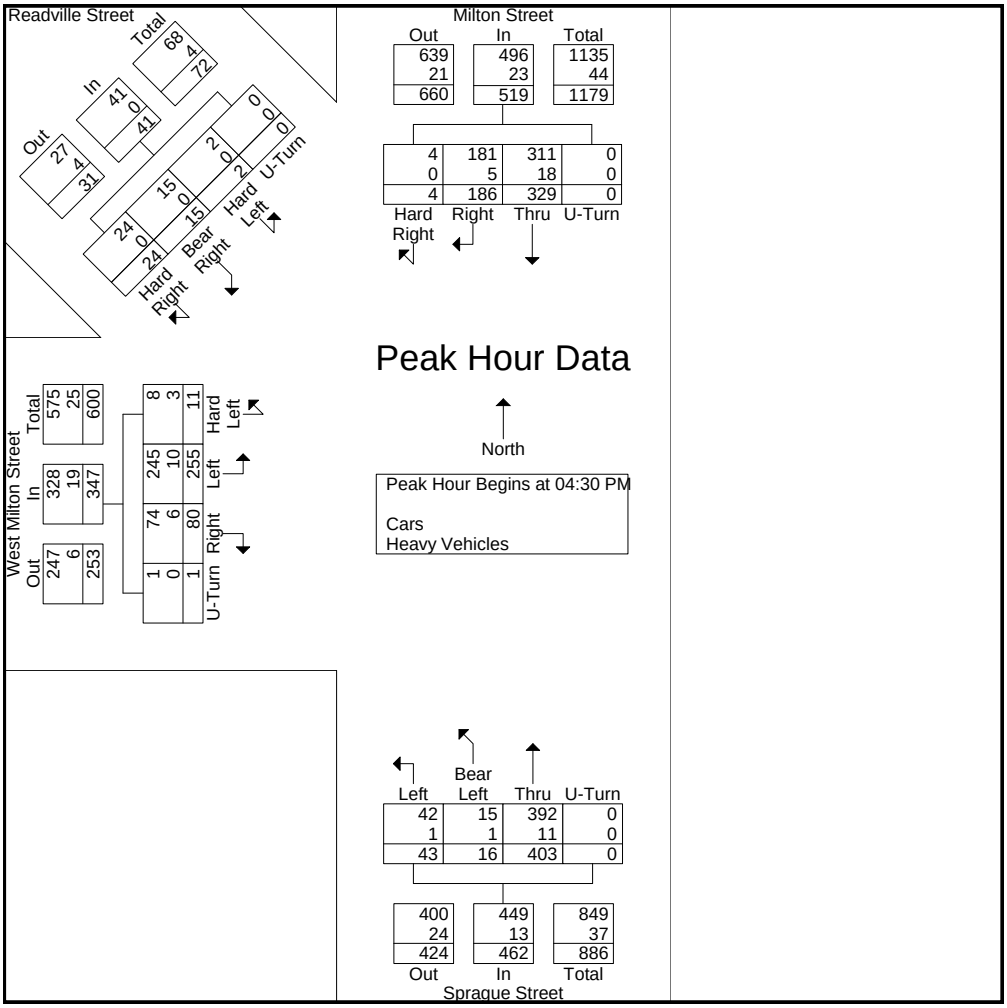
City, State: Hyde Park, MA
Client: VHB/ C. Dube

File Name : 165002 CC
Site Code : 2152111
Start Date : 3/30/2016
Page No : 1

	Milton Street From North					Sprague Street From South					West Milton Street From West					Readville Street From Northwest					
Start Time	Hard Right	Right	Thru	U-Turn	App. Total	Thru	Bear Left	Left	U-Turn	App. Total	Right	Left	Hard Left	U-Turn	App. Total	Hard Right	Bear Right	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 04:30 PM																					
04:30 PM	1	35	83	0	119	120	2	13	0	135	18	55	3	0	76	5	4	0	0	9	339
04:45 PM	1	54	88	0	143	89	6	10	0	105	20	66	2	1	89	9	6	0	0	15	352
05:00 PM	1	49	86	0	136	103	3	13	0	119	17	62	2	0	81	5	2	1	0	8	344
05:15 PM	1	48	72	0	121	91	5	7	0	103	25	72	4	0	101	5	3	1	0	9	334
Total Volume	4	186	329	0	519	403	16	43	0	462	80	255	11	1	347	24	15	2	0	41	1369
% App. Total	0.8	35.8	63.4	0		87.2	3.5	9.3	0		23.1	73.5	3.2	0.3		58.5	36.6	4.9	0		
PHF	1.00	.861	.935	.000	.907	.840	.667	.827	.000	.856	.800	.885	.688	.250	.859	.667	.625	.500	.000	.683	.972
Cars	4	181	311	0	496	392	15	42	0	449	74	245	8	1	328	24	15	2	0	41	1314
% Cars	100	97.3	94.5	0	95.6	97.3	93.8	97.7	0	97.2	92.5	96.1	72.7	100	94.5	100	100	100	0	100	96.0
Heavy Vehicles	0	5	18	0	23	11	1	1	0	13	6	10	3	0	19	0	0	0	0	0	55
% Heavy Vehicles	0	2.7	5.5	0	4.4	2.7	6.3	2.3	0	2.8	7.5	3.9	27.3	0	5.5	0	0	0	0	0	4.0



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N/S: Neponset Valley Parkway/ Milton St
E: Milton Street
City, State: Hyde Park, MA
Client: VHB/ C. Dube

File Name : 165002 D
Site Code : 2152111
Start Date : 3/30/2016
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Neponset Valley Parkway From North			Milton Street From East			Milton Street From South			
Start Time	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn	Int. Total
07:00 AM	13	47	0	83	102	0	125	27	0	397
07:15 AM	20	56	0	131	108	0	132	31	0	478
07:30 AM	14	68	0	97	109	0	137	26	0	451
07:45 AM	13	65	0	99	112	0	142	20	0	451
Total	60	236	0	410	431	0	536	104	0	1777
08:00 AM	16	63	0	85	107	0	142	9	0	422
08:15 AM	24	56	0	72	108	0	117	15	0	392
08:30 AM	21	50	0	79	107	0	122	15	0	394
08:45 AM	18	47	0	45	111	0	109	22	0	352
Total	79	216	0	281	433	0	490	61	0	1560
Grand Total	139	452	0	691	864	0	1026	165	0	3337
Apprch %	23.5	76.5	0	44.4	55.6	0	86.1	13.9	0	
Total %	4.2	13.5	0	20.7	25.9	0	30.7	4.9	0	
Cars	114	433	0	664	737	0	940	154	0	3042
% Cars	82	95.8	0	96.1	85.3	0	91.6	93.3	0	91.2
Heavy Vehicles	25	19	0	27	127	0	86	11	0	295
% Heavy Vehicles	18	4.2	0	3.9	14.7	0	8.4	6.7	0	8.8

	Neponset Valley Parkway From North				Milton Street From East				Milton Street From South				
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 07:15 AM													
07:15 AM	20	56	0	76	131	108	0	239	132	31	0	163	478
07:30 AM	14	68	0	82	97	109	0	206	137	26	0	163	451
07:45 AM	13	65	0	78	99	112	0	211	142	20	0	162	451
08:00 AM	16	63	0	79	85	107	0	192	142	9	0	151	422
Total Volume	63	252	0	315	412	436	0	848	553	86	0	639	1802
% App. Total	20	80	0		48.6	51.4	0		86.5	13.5	0		
PHF	.788	.926	.000	.960	.786	.973	.000	.887	.974	.694	.000	.980	.942
Cars	58	241	0	299	396	376	0	772	503	79	0	582	1653
% Cars	92.1	95.6	0	94.9	96.1	86.2	0	91.0	91.0	91.9	0	91.1	91.7
Heavy Vehicles	5	11	0	16	16	60	0	76	50	7	0	57	149
% Heavy Vehicles	7.9	4.4	0	5.1	3.9	13.8	0	9.0	9.0	8.1	0	8.9	8.3

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E: Milton Street
City, State: Hyde Park, MA
Client: VHB/ C. Dube

File Name : 165002 D
Site Code : 2152111
Start Date : 3/30/2016
Page No : 1

Groups Printed- Cars

	Neponset Valley Parkway From North			Milton Street From East			Milton Street From South			
Start Time	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn	Int. Total
07:00 AM	13	43	0	80	93	0	116	26	0	371
07:15 AM	20	53	0	129	91	0	118	26	0	437
07:30 AM	13	64	0	94	101	0	129	26	0	427
07:45 AM	11	62	0	94	90	0	130	19	0	406
Total	57	222	0	397	375	0	493	97	0	1641
08:00 AM	14	62	0	79	94	0	126	8	0	383
08:15 AM	15	55	0	69	84	0	105	14	0	342
08:30 AM	15	48	0	74	86	0	114	14	0	351
08:45 AM	13	46	0	45	98	0	102	21	0	325
Total	57	211	0	267	362	0	447	57	0	1401
Grand Total	114	433	0	664	737	0	940	154	0	3042
Apprch %	20.8	79.2	0	47.4	52.6	0	85.9	14.1	0	
Total %	3.7	14.2	0	21.8	24.2	0	30.9	5.1	0	

	Neponset Valley Parkway From North				Milton Street From East				Milton Street From South				
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 07:15 AM													
07:15 AM	20	53	0	73	129	91	0	220	118	26	0	144	437
07:30 AM	13	64	0	77	94	101	0	195	129	26	0	155	427
07:45 AM	11	62	0	73	94	90	0	184	130	19	0	149	406
08:00 AM	14	62	0	76	79	94	0	173	126	8	0	134	383
Total Volume	58	241	0	299	396	376	0	772	503	79	0	582	1653
% App. Total	19.4	80.6	0		51.3	48.7	0		86.4	13.6	0		
PHF	.725	.941	.000	.971	.767	.931	.000	.877	.967	.760	.000	.939	.946

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Client: VHB/ C. Dube

File Name : 165002 D
Site Code : 2152111
Start Date : 3/30/2016
Page No : 1

Groups Printed- Heavy Vehicles

	Neponset Valley Parkway From North			Milton Street From East			Milton Street From South			
Start Time	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn	Int. Total
07:00 AM	0	4	0	3	9	0	9	1	0	26
07:15 AM	0	3	0	2	17	0	14	5	0	41
07:30 AM	1	4	0	3	8	0	8	0	0	24
07:45 AM	2	3	0	5	22	0	12	1	0	45
Total	3	14	0	13	56	0	43	7	0	136
08:00 AM	2	1	0	6	13	0	16	1	0	39
08:15 AM	9	1	0	3	24	0	12	1	0	50
08:30 AM	6	2	0	5	21	0	8	1	0	43
08:45 AM	5	1	0	0	13	0	7	1	0	27
Total	22	5	0	14	71	0	43	4	0	159
Grand Total	25	19	0	27	127	0	86	11	0	295
Apprch %	56.8	43.2	0	17.5	82.5	0	88.7	11.3	0	
Total %	8.5	6.4	0	9.2	43.1	0	29.2	3.7	0	

	Neponset Valley Parkway From North				Milton Street From East				Milton Street From South				
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 07:45 AM													
07:45 AM	2	3	0	5	5	22	0	27	12	1	0	13	45
08:00 AM	2	1	0	3	6	13	0	19	16	1	0	17	39
08:15 AM	9	1	0	10	3	24	0	27	12	1	0	13	50
08:30 AM	6	2	0	8	5	21	0	26	8	1	0	9	43
Total Volume	19	7	0	26	19	80	0	99	48	4	0	52	177
% App. Total	73.1	26.9	0		19.2	80.8	0		92.3	7.7	0		
PHF	.528	.583	.000	.650	.792	.833	.000	.917	.750	1.00	.000	.765	.885

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Site Code : 2152111
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Page No : 1

Groups Printed- Peds and Bikes

	Neponset Valley Parkway From North				Milton Street From East				Milton Street From South				
Start Time	Thru	Left	Peds EB	Peds WB	Right	Left	Peds SB	Peds NB	Right	Thru	Peds WB	Peds EB	Int. Total
07:00 AM	0	1	1	1	0	0	1	14	1	0	0	0	19
07:15 AM	0	0	0	0	0	0	5	1	0	0	0	0	6
07:30 AM	0	0	0	0	0	0	0	2	0	0	0	0	2
07:45 AM	0	0	0	0	0	0	0	3	0	0	0	0	3
Total	0	1	1	1	0	0	6	20	1	0	0	0	30
08:00 AM	0	0	0	4	0	0	1	0	0	0	0	0	5
08:15 AM	0	0	2	0	0	0	2	0	0	0	0	0	4
08:30 AM	0	0	0	0	0	0	2	2	0	0	0	0	4
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	2	4	0	0	5	2	0	0	0	0	13
Grand Total	0	1	3	5	0	0	11	22	1	0	0	0	43
Apprch %	0	11.1	33.3	55.6	0	0	33.3	66.7	100	0	0	0	
Total %	0	2.3	7	11.6	0	0	25.6	51.2	2.3	0	0	0	

	Neponset Valley Parkway From North					Milton Street From East					Milton Street From South					
Start Time	Thru	Left	Peds EB	Peds WB	App. Total	Right	Left	Peds SB	Peds NB	App. Total	Right	Thru	Peds WB	Peds EB	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 07:00 AM																
07:00 AM	0	1	1	1	3	0	0	1	14	15	1	0	0	0	1	19
07:15 AM	0	0	0	0	0	0	0	5	1	6	0	0	0	0	0	6
07:30 AM	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	2
07:45 AM	0	0	0	0	0	0	0	0	3	3	0	0	0	0	0	3
Total Volume	0	1	1	1	3	0	0	6	20	26	1	0	0	0	1	30
% App. Total	0	33.3	33.3	33.3		0	0	23.1	76.9		100	0	0	0		
PHF	.000	.250	.250	.250	.250	.000	.000	.300	.357	.433	.250	.000	.000	.000	.250	.395

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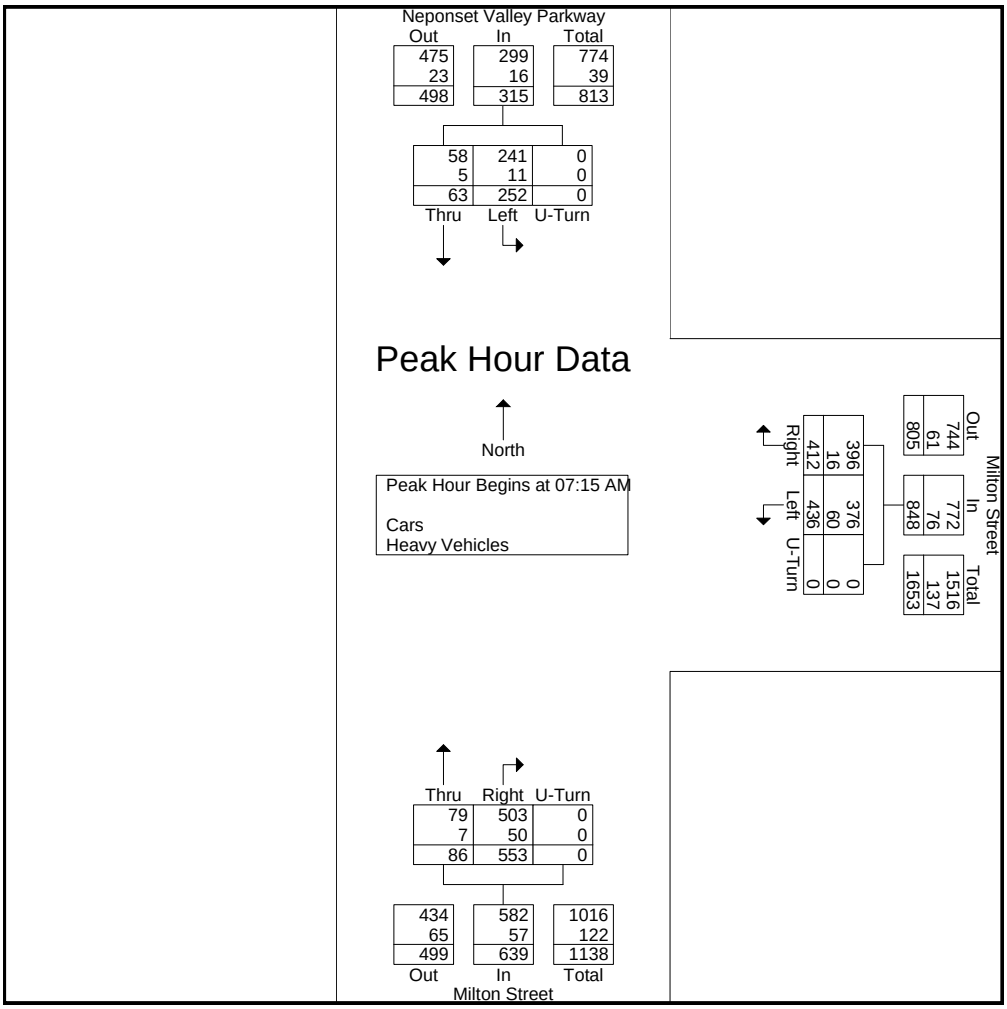
	Neponset Valley Parkway From North				Milton Street From East				Milton Street From South				
Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:15 AM													
07:15 AM	20	56	0	76	131	108	0	239	132	31	0	163	478
07:30 AM	14	68	0	82	97	109	0	206	137	26	0	163	451
07:45 AM	13	65	0	78	99	112	0	211	142	20	0	162	451
08:00 AM	16	63	0	79	85	107	0	192	142	9	0	151	422
Total Volume	63	252	0	315	412	436	0	848	553	86	0	639	1802
% App. Total	20	80	0		48.6	51.4	0		86.5	13.5	0		
PHF	.788	.926	.000	.960	.786	.973	.000	.887	.974	.694	.000	.980	.942
Cars	58	241	0	299	396	376	0	772	503	79	0	582	1653
% Cars	92.1	95.6	0	94.9	96.1	86.2	0	91.0	91.0	91.9	0	91.1	91.7
Heavy Vehicles	5	11	0	16	16	60	0	76	50	7	0	57	149
% Heavy Vehicles	7.9	4.4	0	5.1	3.9	13.8	0	9.0	9.0	8.1	0	8.9	8.3



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File Name : 165002 DD
Site Code : 2152111
Start Date : 3/30/2016
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Neponset Valley Parkway From North			Milton Street From East			Milton Street From South			
Start Time	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn	Int. Total
04:00 PM	25	53	0	46	114	0	135	15	0	388
04:15 PM	26	60	0	67	109	0	127	12	0	401
04:30 PM	27	67	0	72	110	0	174	18	0	468
04:45 PM	40	47	0	70	116	0	158	24	0	455
Total	118	227	0	255	449	0	594	69	0	1712
05:00 PM	27	60	0	63	109	0	163	22	0	444
05:15 PM	28	74	0	66	105	0	157	15	0	445
05:30 PM	34	52	0	77	110	0	160	23	0	456
05:45 PM	29	60	0	89	125	0	127	17	0	447
Total	118	246	0	295	449	0	607	77	0	1792
Grand Total	236	473	0	550	898	0	1201	146	0	3504
Apprch %	33.3	66.7	0	38	62	0	89.2	10.8	0	
Total %	6.7	13.5	0	15.7	25.6	0	34.3	4.2	0	
Cars	153	457	0	543	795	0	1178	142	0	3268
% Cars	64.8	96.6	0	98.7	88.5	0	98.1	97.3	0	93.3
Heavy Vehicles	83	16	0	7	103	0	23	4	0	236
% Heavy Vehicles	35.2	3.4	0	1.3	11.5	0	1.9	2.7	0	6.7

	Neponset Valley Parkway From North				Milton Street From East				Milton Street From South				
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 04:30 PM													
04:30 PM	27	67	0	94	72	110	0	182	174	18	0	192	468
04:45 PM	40	47	0	87	70	116	0	186	158	24	0	182	455
05:00 PM	27	60	0	87	63	109	0	172	163	22	0	185	444
05:15 PM	28	74	0	102	66	105	0	171	157	15	0	172	445
Total Volume	122	248	0	370	271	440	0	711	652	79	0	731	1812
% App. Total	33	67	0		38.1	61.9	0		89.2	10.8	0		
PHF	.763	.838	.000	.907	.941	.948	.000	.956	.937	.823	.000	.952	.968
Cars	72	242	0	314	268	385	0	653	640	77	0	717	1684
% Cars	59.0	97.6	0	84.9	98.9	87.5	0	91.8	98.2	97.5	0	98.1	92.9
Heavy Vehicles	50	6	0	56	3	55	0	58	12	2	0	14	128
% Heavy Vehicles	41.0	2.4	0	15.1	1.1	12.5	0	8.2	1.8	2.5	0	1.9	7.1

PRECISION
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N/S: Neponset Valley Parkway/ Milton St
E: Milton Street
City, State: Hyde Park, MA
Client: VHB/ C. Dube

File Name : 165002 DD
Site Code : 2152111
Start Date : 3/30/2016
Page No : 1

Groups Printed- Cars

	Neponset Valley Parkway From North			Milton Street From East			Milton Street From South			
Start Time	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn	Int. Total
04:00 PM	18	50	0	44	105	0	130	15	0	362
04:15 PM	18	57	0	65	101	0	125	11	0	377
04:30 PM	14	66	0	69	94	0	170	17	0	430
04:45 PM	24	45	0	70	99	0	156	24	0	418
Total	74	218	0	248	399	0	581	67	0	1587
05:00 PM	18	58	0	63	97	0	158	21	0	415
05:15 PM	16	73	0	66	95	0	156	15	0	421
05:30 PM	24	49	0	77	92	0	158	22	0	422
05:45 PM	21	59	0	89	112	0	125	17	0	423
Total	79	239	0	295	396	0	597	75	0	1681
Grand Total	153	457	0	543	795	0	1178	142	0	3268
Apprch %	25.1	74.9	0	40.6	59.4	0	89.2	10.8	0	
Total %	4.7	14	0	16.6	24.3	0	36	4.3	0	

	Neponset Valley Parkway From North				Milton Street From East				Milton Street From South				
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 04:30 PM													
04:30 PM	14	66	0	80	69	94	0	163	170	17	0	187	430
04:45 PM	24	45	0	69	70	99	0	169	156	24	0	180	418
05:00 PM	18	58	0	76	63	97	0	160	158	21	0	179	415
05:15 PM	16	73	0	89	66	95	0	161	156	15	0	171	421
Total Volume	72	242	0	314	268	385	0	653	640	77	0	717	1684
% App. Total	22.9	77.1	0		41	59	0		89.3	10.7	0		
PHF	.750	.829	.000	.882	.957	.972	.000	.966	.941	.802	.000	.959	.979

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E: Milton Street
City, State: Hyde Park, MA
Client: VHB/ C. Dube

File Name : 165002 DD
Site Code : 2152111
Start Date : 3/30/2016

Groups Printed- Heavy Vehicles

	Neponset Valley Parkway From North			Milton Street From East			Milton Street From South			
Start Time	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn	Int. Total
04:00 PM	7	3	0	2	9	0	5	0	0	26
04:15 PM	8	3	0	2	8	0	2	1	0	24
04:30 PM	13	1	0	3	16	0	4	1	0	38
04:45 PM	16	2	0	0	17	0	2	0	0	37
Total	44	9	0	7	50	0	13	2	0	125
05:00 PM	9	2	0	0	12	0	5	1	0	29
05:15 PM	12	1	0	0	10	0	1	0	0	24
05:30 PM	10	3	0	0	18	0	2	1	0	34
05:45 PM	8	1	0	0	13	0	2	0	0	24
Total	39	7	0	0	53	0	10	2	0	111
Grand Total	83	16	0	7	103	0	23	4	0	236
Apprch %	83.8	16.2	0	6.4	93.6	0	85.2	14.8	0	
Total %	35.2	6.8	0	3	43.6	0	9.7	1.7	0	

	Neponset Valley Parkway From North				Milton Street From East				Milton Street From South				
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 04:15 PM													
04:15 PM	8	3	0	11	2	8	0	10	2	1	0	3	24
04:30 PM	13	1	0	14	3	16	0	19	4	1	0	5	38
04:45 PM	16	2	0	18	0	17	0	17	2	0	0	2	37
05:00 PM	9	2	0	11	0	12	0	12	5	1	0	6	29
Total Volume	46	8	0	54	5	53	0	58	13	3	0	16	128
% App. Total	85.2	14.8	0		8.6	91.4	0		81.2	18.8	0		
PHF	.719	.667	.000	.750	.417	.779	.000	.763	.650	.750	.000	.667	.842

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E: Milton Street
City, State: Hyde Park, MA
Client: VHB/ C. Dube

File Name : 165002 DD
Site Code : 2152111
Start Date : 3/30/2016

Groups Printed- Peds and Bikes

	Neponset Valley Parkway From North				Milton Street From East				Milton Street From South				
Start Time	Thru	Left	Peds EB	Peds WB	Right	Left	Peds SB	Peds NB	Right	Thru	Peds WB	Peds EB	Int. Total
04:00 PM	0	0	0	0	0	0	5	1	0	0	0	0	6
04:15 PM	0	0	0	0	0	0	1	0	0	0	0	0	1
04:30 PM	0	0	2	1	0	1	1	1	0	0	0	0	6
04:45 PM	1	1	0	0	0	0	1	2	0	0	0	0	5
Total	1	1	2	1	0	1	8	4	0	0	0	0	18
05:00 PM	0	0	1	1	0	0	2	3	0	0	0	0	7
05:15 PM	0	2	0	1	0	0	0	0	0	0	0	0	3
05:30 PM	0	0	2	1	1	0	11	0	0	0	0	2	17
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	2	3	3	1	0	13	3	0	0	0	2	27
Grand Total	1	3	5	4	1	1	21	7	0	0	0	2	45
Apprch %	7.7	23.1	38.5	30.8	3.3	3.3	70	23.3	0	0	0	100	
Total %	2.2	6.7	11.1	8.9	2.2	2.2	46.7	15.6	0	0	0	4.4	

	Neponset Valley Parkway From North					Milton Street From East					Milton Street From South					
Start Time	Thru	Left	Peds EB	Peds WB	App. Total	Right	Left	Peds SB	Peds NB	App. Total	Right	Thru	Peds WB	Peds EB	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	1	0	0	2	0	0	1	2	3	0	0	0	0	0	5
05:00 PM	0	0	1	1	2	0	0	2	3	5	0	0	0	0	0	7
05:15 PM	0	2	0	1	3	0	0	0	0	0	0	0	0	0	0	3
05:30 PM	0	0	2	1	3	1	0	11	0	12	0	0	0	2	2	17
Total Volume	1	3	3	3	10	1	0	14	5	20	0	0	0	2	2	32
% App. Total	10	30	30	30		5	0	70	25		0	0	0	100		
PHF	.250	.375	.375	.750	.833	.250	.000	.318	.417	.417	.000	.000	.000	.250	.250	.471

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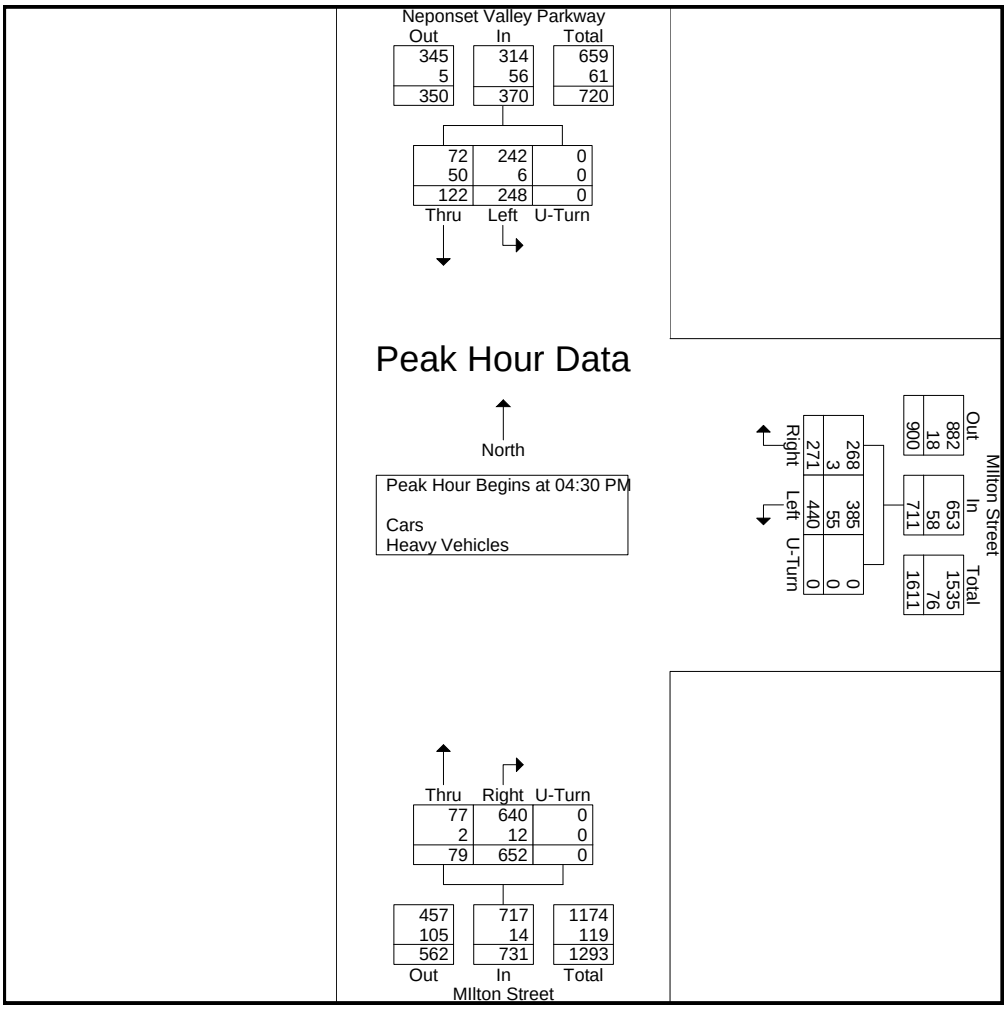
E: Milton Street
City, State: Hyde Park, MA
Client: VHB/ C. Dube

File Name : 165002 DD
Site Code : 2152111
Start Date : 3/30/2016
Page No : 1

	Neponset Valley Parkway From North				Milton Street From East				Milton Street From South				
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 04:30 PM													
04:30 PM	27	67	0	94	72	110	0	182	174	18	0	192	468
04:45 PM	40	47	0	87	70	116	0	186	158	24	0	182	455
05:00 PM	27	60	0	87	63	109	0	172	163	22	0	185	444
05:15 PM	28	74	0	102	66	105	0	171	157	15	0	172	445
Total Volume	122	248	0	370	271	440	0	711	652	79	0	731	1812
% App. Total	33	67	0		38.1	61.9	0		89.2	10.8	0		
PHF	.763	.838	.000	.907	.941	.948	.000	.956	.937	.823	.000	.952	.968
Cars	72	242	0	314	268	385	0	653	640	77	0	717	1684
% Cars	59.0	97.6	0	84.9	98.9	87.5	0	91.8	98.2	97.5	0	98.1	92.9
Heavy Vehicles	50	6	0	56	3	55	0	58	12	2	0	14	128
% Heavy Vehicles	41.0	2.4	0	15.1	1.1	12.5	0	8.2	1.8	2.5	0	1.9	7.1



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N/S: Hyde Park Avenue
E/W: Commuter Rail/ Milton Street
City, State: Hyde Park, MA
Client: VHB/ C. Dube

File Name : 165002 E
Site Code : 2152111
Start Date : 3/30/2016
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Hyde Park Avenue From North				Commuter Rail Driveway From East				Hyde Park Avenue From South				Milton 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	51	19	0	0	0	0	4	0	6	49	143	0	108	3	58	0	441
07:15 AM	65	25	0	0	2	3	0	0	3	47	174	0	118	4	57	0	498
07:30 AM	56	50	0	0	1	0	1	0	1	48	148	0	126	1	51	0	483
07:45 AM	51	31	1	0	0	1	2	0	5	49	152	0	129	4	53	0	478
Total	223	125	1	0	3	4	7	0	15	193	617	0	481	12	219	0	1900
08:00 AM	45	28	0	0	1	2	1	0	1	39	138	0	158	1	48	0	462
08:15 AM	56	36	0	0	1	1	4	0	3	43	136	0	130	3	42	0	455
08:30 AM	35	37	1	0	1	2	2	0	3	42	137	0	118	2	50	0	430
08:45 AM	41	24	0	0	0	2	1	0	3	18	109	0	111	0	46	0	355
Total	177	125	1	0	3	7	8	0	10	142	520	0	517	6	186	0	1702
Grand Total	400	250	2	0	6	11	15	0	25	335	1137	0	998	18	405	0	3602
Apprch %	61.3	38.3	0.3	0	18.8	34.4	46.9	0	1.7	22.4	76	0	70.2	1.3	28.5	0	
Total %	11.1	6.9	0.1	0	0.2	0.3	0.4	0	0.7	9.3	31.6	0	27.7	0.5	11.2	0	
Cars	323	213	2	0	4	9	13	0	25	307	1065	0	945	18	347	0	3271
% Cars	80.8	85.2	100	0	66.7	81.8	86.7	0	100	91.6	93.7	0	94.7	100	85.7	0	90.8
Heavy Vehicles	77	37	0	0	2	2	2	0	0	28	72	0	53	0	58	0	331
% Heavy Vehicles	19.2	14.8	0	0	33.3	18.2	13.3	0	0	8.4	6.3	0	5.3	0	14.3	0	9.2

	Hyde Park Avenue From North					Commuter Rail Driveway From East					Hyde Park Avenue From South					Milton 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 07:15 AM																					
07:15 AM	65	25	0	0	90	2	3	0	0	5	3	47	174	0	224	118	4	57	0	179	498
07:30 AM	56	50	0	0	106	1	0	1	0	2	1	48	148	0	197	126	1	51	0	178	483
07:45 AM	51	31	1	0	83	0	1	2	0	3	5	49	152	0	206	129	4	53	0	186	478
08:00 AM	45	28	0	0	73	1	2	1	0	4	1	39	138	0	178	158	1	48	0	207	462
Total Volume	217	134	1	0	352	4	6	4	0	14	10	183	612	0	805	531	10	209	0	750	1921
% App. Total	61.6	38.1	0.3	0		28.6	42.9	28.6	0		1.2	22.7	76	0		70.8	1.3	27.9	0		
PHF	.835	.670	.250	.000	.830	.500	.500	.500	.000	.700	.500	.934	.879	.000	.898	.840	.625	.917	.000	.906	.964
Cars	176	114	1	0	291	2	6	3	0	11	10	169	577	0	756	500	10	176	0	686	1744
% Cars	81.1	85.1	100	0	82.7	50.0	100	75.0	0	78.6	100	92.3	94.3	0	93.9	94.2	100	84.2	0	91.5	90.8
Heavy Vehicles	41	20	0	0	61	2	0	1	0	3	0	14	35	0	49	31	0	33	0	64	177
% Heavy Vehicles	18.9	14.9	0	0	17.3	50.0	0	25.0	0	21.4	0	7.7	5.7	0	6.1	5.8	0	15.8	0	8.5	9.2

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File Name : 165002 E
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Groups Printed- Cars

	Hyde Park Avenue From North				Commuter Rail Driveway From East				Hyde Park Avenue From South				Milton 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	45	17	0	0	0	0	4	0	6	46	136	0	101	3	51	0	409
07:15 AM	53	21	0	0	2	3	0	0	3	43	168	0	109	4	51	0	457
07:30 AM	49	46	0	0	0	0	1	0	1	44	143	0	117	1	43	0	445
07:45 AM	38	26	1	0	0	1	2	0	5	45	138	0	125	4	41	0	426
Total	185	110	1	0	2	4	7	0	15	178	585	0	452	12	186	0	1737
08:00 AM	36	21	0	0	0	2	0	0	1	37	128	0	149	1	41	0	416
08:15 AM	43	32	0	0	1	1	3	0	3	40	124	0	124	3	35	0	409
08:30 AM	22	31	1	0	1	1	2	0	3	36	125	0	113	2	45	0	382
08:45 AM	37	19	0	0	0	1	1	0	3	16	103	0	107	0	40	0	327
Total	138	103	1	0	2	5	6	0	10	129	480	0	493	6	161	0	1534
Grand Total	323	213	2	0	4	9	13	0	25	307	1065	0	945	18	347	0	3271
Apprch %	60	39.6	0.4	0	15.4	34.6	50	0	1.8	22	76.2	0	72.1	1.4	26.5	0	
Total %	9.9	6.5	0.1	0	0.1	0.3	0.4	0	0.8	9.4	32.6	0	28.9	0.6	10.6	0	

	Hyde Park Avenue From North					Commuter Rail Driveway From East					Hyde Park Avenue From South					Milton 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 07:15 AM																					
07:15 AM	53	21	0	0	74	2	3	0	0	5	3	43	168	0	214	109	4	51	0	164	457
07:30 AM	49	46	0	0	95	0	0	1	0	1	1	44	143	0	188	117	1	43	0	161	445
07:45 AM	38	26	1	0	65	0	1	2	0	3	5	45	138	0	188	125	4	41	0	170	426
08:00 AM	36	21	0	0	57	0	2	0	0	2	1	37	128	0	166	149	1	41	0	191	416
Total Volume	176	114	1	0	291	2	6	3	0	11	10	169	577	0	756	500	10	176	0	686	1744
% App. Total	60.5	39.2	0.3	0		18.2	54.5	27.3	0		1.3	22.4	76.3	0		72.9	1.5	25.7	0		
PHF	.830	.620	.250	.000	.766	.250	.500	.375	.000	.550	.500	.939	.859	.000	.883	.839	.625	.863	.000	.898	.954

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Page No : 1

Groups Printed- Heavy Vehicles

	Hyde Park Avenue From North				Commuter Rail Driveway From East				Hyde Park Avenue From South				Milton 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	6	2	0	0	0	0	0	0	0	3	7	0	7	0	7	0	32
07:15 AM	12	4	0	0	0	0	0	0	0	4	6	0	9	0	6	0	41
07:30 AM	7	4	0	0	1	0	0	0	0	4	5	0	9	0	8	0	38
07:45 AM	13	5	0	0	0	0	0	0	0	4	14	0	4	0	12	0	52
Total	38	15	0	0	1	0	0	0	0	15	32	0	29	0	33	0	163
08:00 AM	9	7	0	0	1	0	1	0	0	2	10	0	9	0	7	0	46
08:15 AM	13	4	0	0	0	0	1	0	0	3	12	0	6	0	7	0	46
08:30 AM	13	6	0	0	0	1	0	0	0	6	12	0	5	0	5	0	48
08:45 AM	4	5	0	0	0	1	0	0	0	2	6	0	4	0	6	0	28
Total	39	22	0	0	1	2	2	0	0	13	40	0	24	0	25	0	168
Grand Total	77	37	0	0	2	2	2	0	0	28	72	0	53	0	58	0	331
Apprch %	67.5	32.5	0	0	33.3	33.3	33.3	0	0	28	72	0	47.7	0	52.3	0	
Total %	23.3	11.2	0	0	0.6	0.6	0.6	0	0	8.5	21.8	0	16	0	17.5	0	

	Hyde Park Avenue From North					Commuter Rail Driveway From East					Hyde Park Avenue From South					Milton 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 07:45 AM																					
07:45 AM	13	5	0	0	18	0	0	0	0	0	0	4	14	0	18	4	0	12	0	16	52
08:00 AM	9	7	0	0	16	1	0	1	0	2	0	2	10	0	12	9	0	7	0	16	46
08:15 AM	13	4	0	0	17	0	0	1	0	1	0	3	12	0	15	6	0	7	0	13	46
08:30 AM	13	6	0	0	19	0	1	0	0	1	0	6	12	0	18	5	0	5	0	10	48
Total Volume	48	22	0	0	70	1	1	2	0	4	0	15	48	0	63	24	0	31	0	55	192
% App. Total	68.6	31.4	0	0		25	25	50	0		0	23.8	76.2	0		43.6	0	56.4	0		
PHF	.923	.786	.000	.000	.921	.250	.250	.500	.000	.500	.000	.625	.857	.000	.875	.667	.000	.646	.000	.859	.923

PRECISION
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N/S: Hyde Park Avenue
E/W: Commuter Rail/ Milton Street
City, State: Hyde Park, MA
Client: VHB/ C. Dube

File Name : 165002 E
Site Code : 2152111
Start Date : 3/30/2016
Page No : 1

Groups Printed- Peds and Bikes

	Hyde Park Avenue From North					Commuter Rail Driveway From East					Hyde Park Avenue From South					Milton 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	0	0	0	0	0	5	0	0	0	0	0	3	2	0	0	18	1	29
07:15 AM	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	9	1	12
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	4
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	2
Total	0	0	0	1	0	0	0	0	6	0	0	0	1	0	3	2	0	0	28	6	47
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	1	1	5
08:15 AM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
08:30 AM	0	0	0	2	0	0	0	0	4	2	0	0	0	0	3	0	0	0	2	3	16
08:45 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	2	0	0	0	1	0	4
Total	0	0	0	2	0	0	0	0	5	3	0	0	0	1	7	0	0	0	4	4	26
Grand Total	0	0	0	3	0	0	0	0	11	3	0	0	1	1	10	2	0	0	32	10	73
Apprch %	0	0	0	100	0	0	0	0	78.6	21.4	0	0	8.3	8.3	83.3	4.5	0	0	72.7	22.7	
Total %	0	0	0	4.1	0	0	0	0	15.1	4.1	0	0	1.4	1.4	13.7	2.7	0	0	43.8	13.7	

	Hyde Park Avenue From North						Commuter Rail Driveway From East						Hyde Park Avenue From South						Milton 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 07:00 AM																									
07:00 AM	0	0	0	0	0	0	0	0	0	5	0	5	0	0	0	0	3	3	2	0	0	18	1	21	29
07:15 AM	0	0	0	1	0	1	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	9	1	10	12
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	4	4
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1	1	2
Total Volume	0	0	0	1	0	1	0	0	0	6	0	6	0	0	1	0	3	4	2	0	0	28	6	36	47
% App. Total	0	0	0	100	0		0	0	0	100	0		0	0	25	0	75		5.6	0	0	77.8	16.7		
PHF	.000	.000	.000	.250	.000	.250	.000	.000	.000	.300	.000	.300	.000	.000	.250	.000	.250	.333	.250	.000	.000	.389	.500	.429	.405

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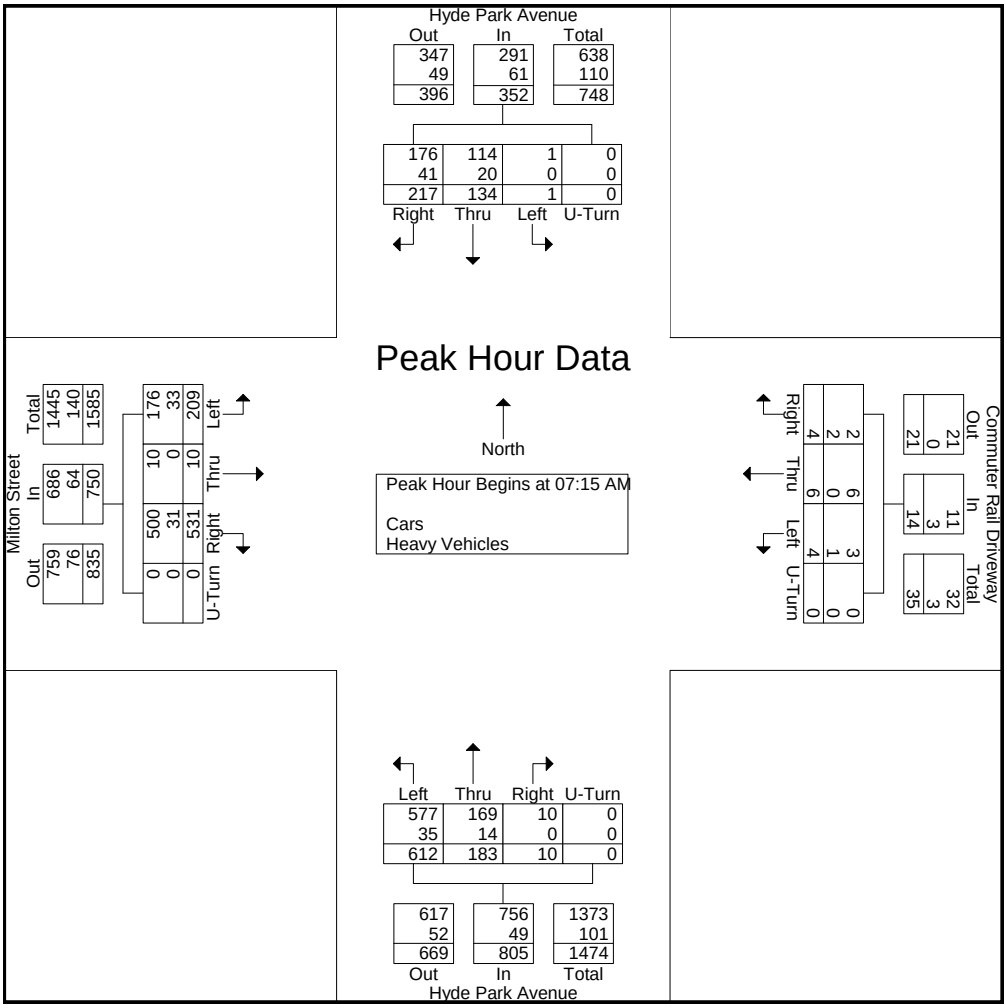
Client: VHB/ C. Dube

File Name : 165002 E
Site Code : 2152111
Start Date : 3/30/2016
Page No : 1

	Hyde Park Avenue From North					Commuter Rail Driveway From East					Hyde Park Avenue From South					Milton 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 07:15 AM																					
07:15 AM	65	25	0	0	90	2	3	0	0	5	3	47	174	0	224	118	4	57	0	179	498
07:30 AM	56	50	0	0	106	1	0	1	0	2	1	48	148	0	197	126	1	51	0	178	483
07:45 AM	51	31	1	0	83	0	1	2	0	3	5	49	152	0	206	129	4	53	0	186	478
08:00 AM	45	28	0	0	73	1	2	1	0	4	1	39	138	0	178	158	1	48	0	207	462
Total Volume	217	134	1	0	352	4	6	4	0	14	10	183	612	0	805	531	10	209	0	750	1921
% App. Total	61.6	38.1	0.3	0		28.6	42.9	28.6	0		1.2	22.7	76	0		70.8	1.3	27.9	0		
PHF	.835	.670	.250	.000	.830	.500	.500	.500	.000	.700	.500	.934	.879	.000	.898	.840	.625	.917	.000	.906	.964
Cars	176	114	1	0	291	2	6	3	0	11	10	169	577	0	756	500	10	176	0	686	1744
% Cars	81.1	85.1	100	0	82.7	50.0	100	75.0	0	78.6	100	92.3	94.3	0	93.9	94.2	100	84.2	0	91.5	90.8
Heavy Vehicles	41	20	0	0	61	2	0	1	0	3	0	14	35	0	49	31	0	33	0	64	177
% Heavy Vehicles	18.9	14.9	0	0	17.3	50.0	0	25.0	0	21.4	0	7.7	5.7	0	6.1	5.8	0	15.8	0	8.5	9.2



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City, State: Hyde Park, MA
Client: VHB/ C. Dube

File Name : 165002 EE
Site Code : 2152111
Start Date : 3/30/2016
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Hyde Park Avenue From North				Commuter Rail Driveway From East				Hyde Park Avenue From South				Milton 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	56	55	0	0	1	1	0	0	0	41	117	0	137	2	57	0	467
04:15 PM	43	46	0	0	0	1	0	0	0	20	127	0	154	0	41	0	432
04:30 PM	64	39	1	0	0	1	0	0	1	32	118	0	173	1	62	0	492
04:45 PM	50	38	0	0	2	1	0	0	0	29	129	0	154	0	48	0	451
Total	213	178	1	0	3	4	0	0	1	122	491	0	618	3	208	0	1842
05:00 PM	53	40	0	0	2	1	3	0	0	36	124	0	155	1	58	0	473
05:15 PM	48	41	0	1	0	0	0	0	1	34	118	0	170	0	50	0	463
05:30 PM	87	33	1	0	2	0	1	0	1	31	104	0	166	0	57	0	483
05:45 PM	73	37	0	0	0	2	0	0	0	35	137	0	144	1	38	0	467
Total	261	151	1	1	4	3	4	0	2	136	483	0	635	2	203	0	1886
Grand Total	474	329	2	1	7	7	4	0	3	258	974	0	1253	5	411	0	3728
Apprch %	58.8	40.8	0.2	0.1	38.9	38.9	22.2	0	0.2	20.9	78.9	0	75.1	0.3	24.6	0	
Total %	12.7	8.8	0.1	0	0.2	0.2	0.1	0	0.1	6.9	26.1	0	33.6	0.1	11	0	
Cars	413	311	2	1	7	7	4	0	3	239	924	0	1227	5	392	0	3535
% Cars	87.1	94.5	100	100	100	100	100	0	100	92.6	94.9	0	97.9	100	95.4	0	94.8
Heavy Vehicles	61	18	0	0	0	0	0	0	0	19	50	0	26	0	19	0	193
% Heavy Vehicles	12.9	5.5	0	0	0	0	0	0	0	7.4	5.1	0	2.1	0	4.6	0	5.2

	Hyde Park Avenue From North					Commuter Rail Driveway From East					Hyde Park Avenue From South					Milton 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	53	40	0	0	93	2	1	3	0	6	0	36	124	0	160	155	1	58	0	214	473
05:15 PM	48	41	0	1	90	0	0	0	0	0	1	34	118	0	153	170	0	50	0	220	463
05:30 PM	87	33	1	0	121	2	0	1	0	3	1	31	104	0	136	166	0	57	0	223	483
05:45 PM	73	37	0	0	110	0	2	0	0	2	0	35	137	0	172	144	1	38	0	183	467
Total Volume	261	151	1	1	414	4	3	4	0	11	2	136	483	0	621	635	2	203	0	840	1886
% App. Total	63	36.5	0.2	0.2		36.4	27.3	36.4	0		0.3	21.9	77.8	0		75.6	0.2	24.2	0		
PHF	.750	.921	.250	.250	.855	.500	.375	.333	.000	.458	.500	.944	.881	.000	.903	.934	.500	.875	.000	.942	.976
Cars	227	139	1	1	368	4	3	4	0	11	2	125	466	0	593	626	2	195	0	823	1795
% Cars	87.0	92.1	100	100	88.9	100	100	100	0	100	100	91.9	96.5	0	95.5	98.6	100	96.1	0	98.0	95.2
Heavy Vehicles	34	12	0	0	46	0	0	0	0	0	0	11	17	0	28	9	0	8	0	17	91
% Heavy Vehicles	13.0	7.9	0	0	11.1	0	0	0	0	0	0	8.1	3.5	0	4.5	1.4	0	3.9	0	2.0	4.8

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N/S: Hyde Park Avenue
E/W: Commuter Rail/ Milton Street
City, State: Hyde Park, MA
Client: VHB/ C. Dube

File Name : 165002 EE
Site Code : 2152111
Start Date : 3/30/2016
Page No : 1

Groups Printed- Cars

	Hyde Park Avenue From North				Commuter Rail Driveway From East				Hyde Park Avenue From South				Milton 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	54	54	0	0	1	1	0	0	0	40	108	0	130	2	52	0	442
04:15 PM	34	44	0	0	0	1	0	0	0	19	122	0	150	0	39	0	409
04:30 PM	54	37	1	0	0	1	0	0	1	29	109	0	170	1	58	0	461
04:45 PM	44	37	0	0	2	1	0	0	0	26	119	0	151	0	48	0	428
Total	186	172	1	0	3	4	0	0	1	114	458	0	601	3	197	0	1740
05:00 PM	45	36	0	0	2	1	3	0	0	32	120	0	152	1	54	0	446
05:15 PM	40	37	0	1	0	0	0	0	1	31	114	0	169	0	50	0	443
05:30 PM	78	31	1	0	2	0	1	0	1	30	99	0	164	0	54	0	461
05:45 PM	64	35	0	0	0	2	0	0	0	32	133	0	141	1	37	0	445
Total	227	139	1	1	4	3	4	0	2	125	466	0	626	2	195	0	1795
Grand Total	413	311	2	1	7	7	4	0	3	239	924	0	1227	5	392	0	3535
Apprch %	56.8	42.8	0.3	0.1	38.9	38.9	22.2	0	0.3	20.5	79.2	0	75.6	0.3	24.1	0	
Total %	11.7	8.8	0.1	0	0.2	0.2	0.1	0	0.1	6.8	26.1	0	34.7	0.1	11.1	0	

	Hyde Park Avenue From North					Commuter Rail Driveway From East					Hyde Park Avenue From South					Milton 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	45	36	0	0	81	2	1	3	0	6	0	32	120	0	152	152	1	54	0	207	446
05:15 PM	40	37	0	1	78	0	0	0	0	0	1	31	114	0	146	169	0	50	0	219	443
05:30 PM	78	31	1	0	110	2	0	1	0	3	1	30	99	0	130	164	0	54	0	218	461
05:45 PM	64	35	0	0	99	0	2	0	0	2	0	32	133	0	165	141	1	37	0	179	445
Total Volume	227	139	1	1	368	4	3	4	0	11	2	125	466	0	593	626	2	195	0	823	1795
% App. Total	61.7	37.8	0.3	0.3		36.4	27.3	36.4	0		0.3	21.1	78.6	0		76.1	0.2	23.7	0		
PHF	.728	.939	.250	.250	.836	.500	.375	.333	.000	.458	.500	.977	.876	.000	.898	.926	.500	.903	.000	.939	.973

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Groups Printed- Heavy Vehicles

	Hyde Park Avenue From North				Commuter Rail Driveway From East				Hyde Park Avenue From South				Milton 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	2	1	0	0	0	0	0	0	0	1	9	0	7	0	5	0	25
04:15 PM	9	2	0	0	0	0	0	0	0	1	5	0	4	0	2	0	23
04:30 PM	10	2	0	0	0	0	0	0	0	3	9	0	3	0	4	0	31
04:45 PM	6	1	0	0	0	0	0	0	0	3	10	0	3	0	0	0	23
Total	27	6	0	0	0	0	0	0	0	8	33	0	17	0	11	0	102
05:00 PM	8	4	0	0	0	0	0	0	0	4	4	0	3	0	4	0	27
05:15 PM	8	4	0	0	0	0	0	0	0	3	4	0	1	0	0	0	20
05:30 PM	9	2	0	0	0	0	0	0	0	1	5	0	2	0	3	0	22
05:45 PM	9	2	0	0	0	0	0	0	0	3	4	0	3	0	1	0	22
Total	34	12	0	0	0	0	0	0	0	11	17	0	9	0	8	0	91
Grand Total	61	18	0	0	0	0	0	0	0	19	50	0	26	0	19	0	193
Apprch %	77.2	22.8	0	0	0	0	0	0	0	27.5	72.5	0	57.8	0	42.2	0	
Total %	31.6	9.3	0	0	0	0	0	0	0	9.8	25.9	0	13.5	0	9.8	0	

	Hyde Park Avenue From North					Commuter Rail Driveway From East					Hyde Park Avenue From South					Milton 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 04:15 PM																					
04:15 PM	9	2	0	0	11	0	0	0	0	0	0	1	5	0	6	4	0	2	0	6	23
04:30 PM	10	2	0	0	12	0	0	0	0	0	0	3	9	0	12	3	0	4	0	7	31
04:45 PM	6	1	0	0	7	0	0	0	0	0	0	3	10	0	13	3	0	0	0	3	23
05:00 PM	8	4	0	0	12	0	0	0	0	0	0	4	4	0	8	3	0	4	0	7	27
Total Volume	33	9	0	0	42	0	0	0	0	0	0	11	28	0	39	13	0	10	0	23	104
% App. Total	78.6	21.4	0	0		0	0	0	0		0	28.2	71.8	0		56.5	0	43.5	0		
PHF	.825	.563	.000	.000	.875	.000	.000	.000	.000	.000	.000	.688	.700	.000	.750	.813	.000	.625	.000	.821	.839

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Groups Printed- Peds and Bikes

	Hyde Park Avenue From North					Commuter Rail Driveway From East					Hyde Park Avenue From South					Milton 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	0	1	0	0	0	2	2	0	0	0	0	2	0	0	0	1	1	9
04:15 PM	0	0	0	1	0	0	0	0	2	1	0	0	0	0	4	0	0	0	0	4	12
04:30 PM	0	0	0	0	1	0	0	0	0	3	0	0	1	0	10	1	0	0	1	3	20
04:45 PM	0	0	0	1	0	0	0	0	1	2	0	0	1	0	0	1	0	0	0	0	6
Total	0	0	0	2	2	0	0	0	5	8	0	0	2	0	16	2	0	0	2	8	47
05:00 PM	0	0	0	0	0	0	0	0	6	0	0	0	0	0	1	0	0	0	1	0	8
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2	0	0	0	0	3
05:30 PM	0	0	0	0	0	0	0	0	2	1	0	0	1	0	6	0	0	0	1	1	12
05:45 PM	1	0	0	0	0	0	0	0	3	1	0	0	0	0	3	0	0	0	0	0	8
Total	1	0	0	0	0	0	0	0	11	2	0	0	2	0	10	2	0	0	2	1	31
Grand Total	1	0	0	2	2	0	0	0	16	10	0	0	4	0	26	4	0	0	4	9	78
Apprch %	20	0	0	40	40	0	0	0	61.5	38.5	0	0	13.3	0	86.7	23.5	0	0	23.5	52.9	
Total %	1.3	0	0	2.6	2.6	0	0	0	20.5	12.8	0	0	5.1	0	33.3	5.1	0	0	5.1	11.5	

	Hyde Park Avenue From North						Commuter Rail Driveway From East						Hyde Park Avenue From South						Milton 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 04:00 PM																									
04:00 PM	0	0	0	0	1	1	0	0	0	2	2	4	0	0	0	0	2	2	0	0	0	1	1	2	9
04:15 PM	0	0	0	1	0	1	0	0	0	2	1	3	0	0	0	0	4	4	0	0	0	0	4	4	12
04:30 PM	0	0	0	0	1	1	0	0	0	0	3	3	0	0	1	0	10	11	1	0	0	1	3	5	20
04:45 PM	0	0	0	1	0	1	0	0	0	1	2	3	0	0	1	0	0	1	1	0	0	0	0	1	6
Total Volume	0	0	0	2	2	4	0	0	0	5	8	13	0	0	2	0	16	18	2	0	0	2	8	12	47
% App. Total	0	0	0	50	50		0	0	0	38.5	61.5		0	0	11.1	0	88.9		16.7	0	0	16.7	66.7		
PHF	.000	.000	.000	.500	.500	1.00	.000	.000	.000	.625	.667	.813	.000	.000	.500	.000	.400	.409	.500	.000	.000	.500	.500	.600	.588

PRECISION DATA INDUSTRIES, LLC
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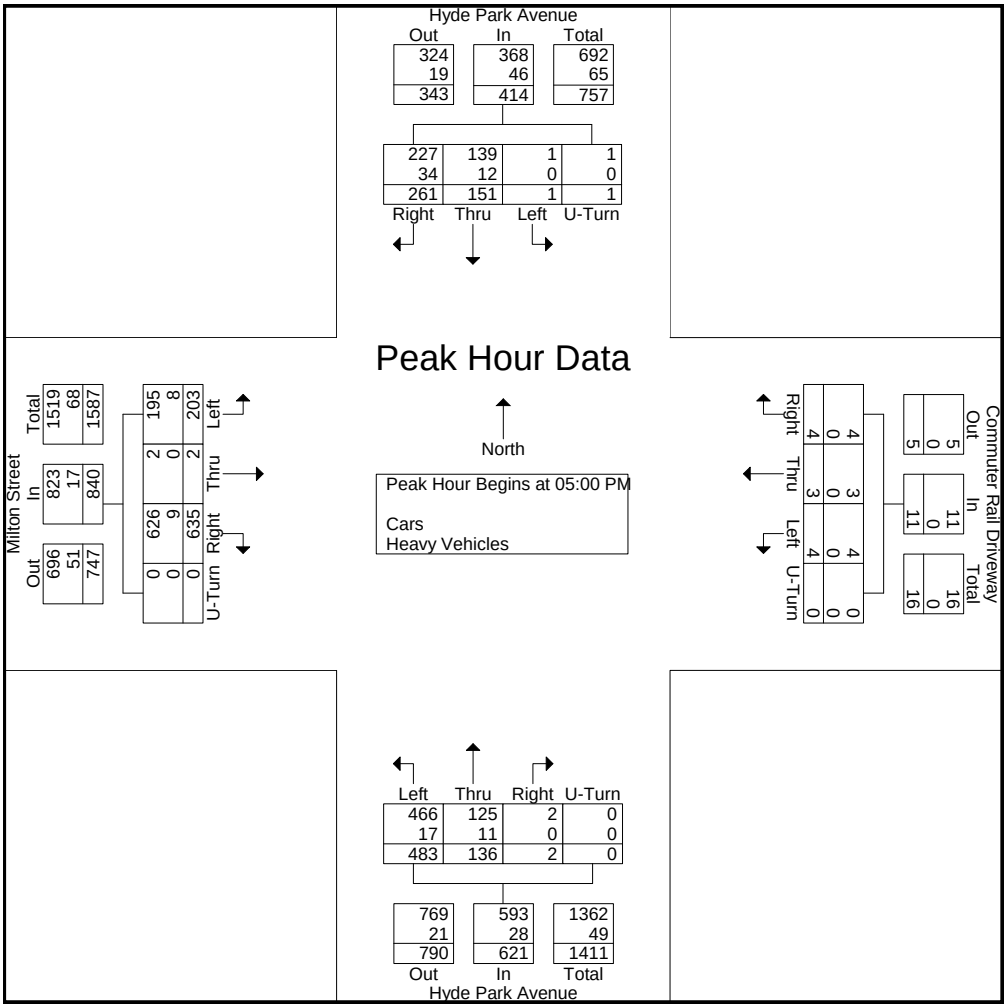
N/S: Hyde Park Avenue
E/W: Commuter Rail/ Milton Street
City, State: Hyde Park, MA
Client: VHB/ C. Dube

File Name : 165002 EE
Site Code : 2152111
Start Date : 3/30/2016
Page No : 1

	Hyde Park Avenue From North					Commuter Rail Driveway From East					Hyde Park Avenue From South					Milton 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	53	40	0	0	93	2	1	3	0	6	0	36	124	0	160	155	1	58	0	214	473
05:15 PM	48	41	0	1	90	0	0	0	0	0	1	34	118	0	153	170	0	50	0	220	463
05:30 PM	87	33	1	0	121	2	0	1	0	3	1	31	104	0	136	166	0	57	0	223	483
05:45 PM	73	37	0	0	110	0	2	0	0	2	0	35	137	0	172	144	1	38	0	183	467
Total Volume	261	151	1	1	414	4	3	4	0	11	2	136	483	0	621	635	2	203	0	840	1886
% App. Total	63	36.5	0.2	0.2		36.4	27.3	36.4	0		0.3	21.9	77.8	0		75.6	0.2	24.2	0		
PHF	.750	.921	.250	.250	.855	.500	.375	.333	.000	.458	.500	.944	.881	.000	.903	.934	.500	.875	.000	.942	.976
Cars	227	139	1	1	368	4	3	4	0	11	2	125	466	0	593	626	2	195	0	823	1795
% Cars	87.0	92.1	100	100	88.9	100	100	100	0	100	100	91.9	96.5	0	95.5	98.6	100	96.1	0	98.0	95.2
Heavy Vehicles	34	12	0	0	46	0	0	0	0	0	0	11	17	0	28	9	0	8	0	17	91
% Heavy Vehicles	13.0	7.9	0	0	11.1	0	0	0	0	0	0	8.1	3.5	0	4.5	1.4	0	3.9	0	2.0	4.8



N/S/SW: Wolcott St/Hyde Park Ave/Wolcott
E/W: Neponset Valley Pkwy/Hyde Park Av
City, State: Hyde Park, MA
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PRECISION DATA INDUSTRIES, LLC
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File Name : 165002 F
Site Code : 2152111
Start Date : 3/30/2016
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Wolcott Street From North					Neponset Valley Parkway From East					Hyde Park Avenue From South					Wolcott Square From Southwest					Hyde Park Avenue 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	6	0	0	13	0	33	154	0	0	0	1	6	21	1	0	1	6	0	3	0	0	0	97	22	0	364
07:15 AM	9	0	2	11	0	30	163	0	0	0	0	2	15	0	0	0	3	2	0	0	1	4	132	16	0	390
07:30 AM	5	0	0	15	0	31	148	0	0	0	1	3	11	0	0	0	5	3	1	0	0	3	152	23	0	401
07:45 AM	7	0	1	23	0	34	162	0	0	0	2	4	13	0	0	0	1	1	3	0	0	0	143	27	0	421
Total	27	0	3	62	0	128	627	0	0	0	4	15	60	1	0	1	15	6	7	0	1	7	524	88	0	1576
08:00 AM	11	0	2	14	0	27	120	0	2	0	0	5	8	0	0	0	2	0	4	0	1	3	142	17	0	358
08:15 AM	5	0	1	18	0	31	135	0	1	0	5	5	17	0	0	0	6	1	1	0	0	8	134	17	0	385
08:30 AM	5	0	1	19	0	27	131	0	3	0	0	3	14	0	0	0	0	1	1	0	0	5	117	19	0	346
08:45 AM	6	0	0	24	0	31	99	0	0	0	3	2	4	0	0	3	2	2	0	0	0	5	91	31	0	303
Total	27	0	4	75	0	116	485	0	6	0	8	15	43	0	0	3	10	4	6	0	1	21	484	84	0	1392
Grand Total	54	0	7	137	0	244	1112	0	6	0	12	30	103	1	0	4	25	10	13	0	2	28	1008	172	0	2968
Apprch %	27.3	0	3.5	69.2	0	17.9	81.6	0	0.4	0	8.2	20.5	70.5	0.7	0	7.7	48.1	19.2	25	0	0.2	2.3	83.3	14.2	0	
Total %	1.8	0	0.2	4.6	0	8.2	37.5	0	0.2	0	0.4	1	3.5	0	0	0.1	0.8	0.3	0.4	0	0.1	0.9	34	5.8	0	
Cars	26	0	6	129	0	230	1040	0	6	0	12	29	98	1	0	4	20	10	10	0	2	25	954	151	0	2753
% Cars	48.1	0	85.7	94.2	0	94.3	93.5	0	100	0	100	96.7	95.1	100	0	100	80	100	76.9	0	100	89.3	94.6	87.8	0	92.8
Heavy Vehicles	28	0	1	8	0	14	72	0	0	0	0	1	5	0	0	0	5	0	3	0	0	3	54	21	0	215
% Heavy Vehicles	51.9	0	14.3	5.8	0	5.7	6.5	0	0	0	0	3.3	4.9	0	0	0	20	0	23.1	0	0	10.7	5.4	12.2	0	7.2

	Wolcott Street From North						Neponset Valley Parkway From East						Hyde Park Avenue From South						Wolcott Square From Southwest						Hyde Park Avenue 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 07:00 AM																															
07:00 AM	6	0	0	13	0	19	33	154	0	0	0	187	1	6	21	1	0	29	1	6	0	3	0	10	0	0	97	22	0	119	364
07:15 AM	9	0	2	11	0	22	30	163	0	0	0	193	0	2	15	0	0	17	0	3	2	0	0	5	1	4	132	16	0	153	390
07:30 AM	5	0	0	15	0	20	31	148	0	0	0	179	1	3	11	0	0	15	0	5	3	1	0	9	0	3	152	23	0	178	401
07:45 AM	7	0	1	23	0	31	34	162	0	0	0	196	2	4	13	0	0	19	0	1	1	3	0	5	0	0	143	27	0	170	421
Total Volume	27	0	3	62	0	92	128	627	0	0	0	755	4	15	60	1	0	80	1	15	6	7	0	29	1	7	524	88	0	620	1576
% App. Total	29.3	0	3.3	67.4	0		17	83	0	0	0		5	18.8	75	1.2	0		3.4	51.7	20.7	24.1	0		0.2	1.1	84.5	14.2	0		
PHF	.750	.000	.375	.674	.000	.742	.941	.962	.000	.000	.000	.963	.500	.625	.714	.250	.000	.690	.250	.625	.500	.583	.000	.725	.250	.438	.862	.815	.000	.871	.936
Cars	16	0	2	58	0	76	121	592	0	0	0	713	4	15	59	1	0	79	1	12	6	6	0	25	1	7	494	78	0	580	1473
% Cars	59.3	0	66.7	93.5	0	82.6	94.5	94.4	0	0	0	94.4	100	100	98.3	100	0	98.8	100	80.0	100	85.7	0	86.2	100	100	94.3	88.6	0	93.5	93.5
Heavy Vehicles	11	0	1	4	0	16	7	35	0	0	0	42	0	0	1	0	0	1	0	3	0	1	0	4	0	0	30	10	0	40	103
% Heavy Vehicles	40.7	0	33.3	6.5	0	17.4	5.5	5.6	0	0	0	5.6	0	0	1.7	0	0	1.3	0	20.0	0	14.3	0	13.8	0	0	5.7	11.4	0	6.5	6.5

PRECISION
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N/S/SW: Wolcott St/Hyde Park Ave/Wolcott
E/W: Neponset Valley Pkwy/Hyde Park Av
City, State: Hyde Park, MA
Client: VHB/ C. Dube

File Name : 165002 F
Site Code : 2152111
Start Date : 3/30/2016
Page No : 1

Groups Printed- Cars

	Wolcott Street From North					Neponset Valley Parkway From East					Hyde Park Avenue From South					Wolcott Square From Southwest					Hyde Park Avenue 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	3	0	0	12	0	30	146	0	0	0	1	6	21	1	0	1	6	0	3	0	0	0	90	21	0	341
07:15 AM	7	0	1	10	0	27	157	0	0	0	0	2	14	0	0	0	3	2	0	0	1	4	123	13	0	364
07:30 AM	2	0	0	13	0	30	142	0	0	0	1	3	11	0	0	0	2	3	0	0	0	3	145	21	0	376
07:45 AM	4	0	1	23	0	34	147	0	0	0	2	4	13	0	0	0	1	1	3	0	0	0	136	23	0	392
Total	16	0	2	58	0	121	592	0	0	0	4	15	59	1	0	1	12	6	6	0	1	7	494	78	0	1473
08:00 AM	5	0	2	12	0	24	111	0	2	0	0	5	8	0	0	0	1	0	2	0	1	3	133	15	0	324
08:15 AM	2	0	1	18	0	31	124	0	1	0	5	5	16	0	0	0	5	1	1	0	0	6	129	13	0	358
08:30 AM	1	0	1	18	0	26	119	0	3	0	0	3	12	0	0	0	0	1	1	0	0	4	113	17	0	319
08:45 AM	2	0	0	23	0	28	94	0	0	0	3	1	3	0	0	3	2	2	0	0	0	5	85	28	0	279
Total	10	0	4	71	0	109	448	0	6	0	8	14	39	0	0	3	8	4	4	0	1	18	460	73	0	1280
Grand Total	26	0	6	129	0	230	1040	0	6	0	12	29	98	1	0	4	20	10	10	0	2	25	954	151	0	2753
Apprch %	16.1	0	3.7	80.1	0	18	81.5	0	0.5	0	8.6	20.7	70	0.7	0	9.1	45.5	22.7	22.7	0	0.2	2.2	84.3	13.3	0	
Total %	0.9	0	0.2	4.7	0	8.4	37.8	0	0.2	0	0.4	1.1	3.6	0	0	0.1	0.7	0.4	0.4	0	0.1	0.9	34.7	5.5	0	

	Wolcott Street From North						Neponset Valley Parkway From East						Hyde Park Avenue From South						Wolcott Square From Southwest						Hyde Park Avenue 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 07:00 AM																															
07:00 AM	3	0	0	12	0	15	30	146	0	0	0	176	1	6	21	1	0	29	1	6	0	3	0	10	0	0	90	21	0	111	341
07:15 AM	7	0	1	10	0	18	27	157	0	0	0	184	0	2	14	0	0	16	0	3	2	0	0	5	1	4	123	13	0	141	364
07:30 AM	2	0	0	13	0	15	30	142	0	0	0	172	1	3	11	0	0	15	0	2	3	0	0	5	0	3	145	21	0	169	376
07:45 AM	4	0	1	23	0	28	34	147	0	0	0	181	2	4	13	0	0	19	0	1	1	3	0	5	0	0	136	23	0	159	392
Total Volume	16	0	2	58	0	76	121	592	0	0	0	713	4	15	59	1	0	79	1	12	6	6	0	25	1	7	494	78	0	580	1473
% App. Total	21.1	0	2.6	76.3	0		17	83	0	0	0		5.1	19	74.7	1.3	0		4	48	24	24	0		0.2	1.2	85.2	13.4	0		
PHF	.571	.000	.500	.630	.000	.679	.890	.943	.000	.000	.000	.969	.500	.625	.702	.250	.000	.681	.250	.500	.500	.500	.000	.625	.250	.438	.852	.848	.000	.858	.939

N/S/SW: Wolcott St/Hyde Park Ave/Wolcott
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File Name : 165002 F
Site Code : 2152111
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Page No : 1

Groups Printed- Heavy Vehicles

	Wolcott Street From North					Neponset Valley Parkway From East					Hyde Park Avenue From South					Wolcott Square From Southwest					Hyde Park Avenue 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	3	0	0	1	0	3	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	1	0	23
07:15 AM	2	0	1	1	0	3	6	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	9	3	0	26
07:30 AM	3	0	0	2	0	1	6	0	0	0	0	0	0	0	0	0	3	0	1	0	0	0	7	2	0	25
07:45 AM	3	0	0	0	0	0	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	4	0	29
Total	11	0	1	4	0	7	35	0	0	0	0	0	1	0	0	0	3	0	1	0	0	0	30	10	0	103
08:00 AM	6	0	0	2	0	3	9	0	0	0	0	0	0	0	0	0	1	0	2	0	0	0	9	2	0	34
08:15 AM	3	0	0	0	0	0	11	0	0	0	0	0	1	0	0	0	1	0	0	0	0	2	5	4	0	27
08:30 AM	4	0	0	1	0	1	12	0	0	0	0	0	2	0	0	0	0	0	0	0	0	1	4	2	0	27
08:45 AM	4	0	0	1	0	3	5	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	6	3	0	24
Total	17	0	0	4	0	7	37	0	0	0	0	1	4	0	0	0	2	0	2	0	0	3	24	11	0	112
Grand Total	28	0	1	8	0	14	72	0	0	0	0	1	5	0	0	0	5	0	3	0	0	3	54	21	0	215
Apprch %	75.7	0	2.7	21.6	0	16.3	83.7	0	0	0	0	16.7	83.3	0	0	0	62.5	0	37.5	0	0	3.8	69.2	26.9	0	
Total %	13	0	0.5	3.7	0	6.5	33.5	0	0	0	0	0.5	2.3	0	0	0	2.3	0	1.4	0	0	1.4	25.1	9.8	0	

	Wolcott Street From North						Neponset Valley Parkway From East						Hyde Park Avenue From South						Wolcott Square From Southwest						Hyde Park Avenue 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 07:45 AM																															
07:45 AM	3	0	0	0	0	3	0	15	0	0	0	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	4	0	11	29
08:00 AM	6	0	0	2	0	8	3	9	0	0	0	12	0	0	0	0	0	0	0	1	0	2	0	3	0	0	9	2	0	11	34
08:15 AM	3	0	0	0	0	3	0	11	0	0	0	11	0	0	1	0	0	1	0	1	0	0	0	1	0	2	5	4	0	11	27
08:30 AM	4	0	0	1	0	5	1	12	0	0	0	13	0	0	2	0	0	2	0	0	0	0	0	0	0	1	4	2	0	7	27
Total Volume	16	0	0	3	0	19	4	47	0	0	0	51	0	0	3	0	0	3	0	2	0	2	0	4	0	3	25	12	0	40	117
% App. Total	84.2	0	0	15.8	0		7.8	92.2	0	0	0		0	0	100	0	0		0	50	0	50	0		0	7.5	62.5	30	0		
PHF	.667	.000	.000	.375	.000	.594	.333	.783	.000	.000	.000	.850	.000	.000	.375	.000	.000	.375	.000	.500	.000	.250	.000	.333	.000	.375	.694	.750	.000	.909	.860

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Page No : 1

Groups Printed- Peds and Bikes

	Wolcott Street From North						Neponset Valley Parkway From East						Hyde Park Avenue From South						Wolcott Square From Southwest						Hyde Park Avenue 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	0	0	0	0	0	0	0	0	1	1	0	0	0	0	4	1	0	0	0	0	9	1	0	0	1	0	2	4	24
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	0	0	0	0	0	12	0	0	0	0	0	2	1	27
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	3	3	0	0	0	0	0	5	13
07:45 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	6	0	0	0	0	0	9	1	0	0	0	0	2	2	21
Total	0	0	0	0	0	0	0	1	0	0	1	1	0	0	0	0	23	2	0	0	0	0	33	5	0	0	1	0	6	12	85
08:00 AM	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	2	6
08:15 AM	0	0	0	0	0	1	0	0	0	0	1	1	0	0	0	0	1	1	0	0	0	0	1	0	0	0	0	0	1	0	7
08:30 AM	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	3	1	0	0	0	0	4	2	0	0	0	0	0	1	13
08:45 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	3	1	0	0	0	0	4	4	0	0	0	0	0	0	13
Total	0	0	0	0	1	3	0	0	0	0	3	1	0	0	0	0	7	3	0	0	0	0	9	7	0	0	0	0	2	3	39
Grand Total	0	0	0	0	1	3	0	1	0	0	4	2	0	0	0	0	30	5	0	0	0	0	42	12	0	0	1	0	8	15	124
Apprch %	0	0	0	0	25	75	0	14.3	0	0	57.1	28.6	0	0	0	0	85.7	14.3	0	0	0	0	77.8	22.2	0	0	4.2	0	33.3	62.5	
Total %	0	0	0	0	0.8	2.4	0	0.8	0	0	3.2	1.6	0	0	0	0	24.2	4	0	0	0	0	33.9	9.7	0	0	0.8	0	6.5	12.1	

	Wolcott Street From North							Neponset Valley Parkway From East						Hyde Park Avenue From South						Wolcott Square From Southwest							Hyde Park Avenue 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 07:00 AM																																			
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	1	1	2	0	0	0	0	4	1	5	0	0	0	0	9	1	10	0	0	1	0	2	4	7	24
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	0	12	0	0	0	0	12	0	12	0	0	0	0	2	1	3	27
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	0	0	0	0	3	3	6	0	0	0	0	0	5	5	13
07:45 AM	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	6	0	6	0	0	0	0	9	1	10	0	0	0	0	2	2	4	21
Total Volume	0	0	0	0	0	0	0	0	1	0	0	1	1	3	0	0	0	0	23	2	25	0	0	0	0	33	5	38	0	0	1	0	6	12	19	85
% App. Total									33.3	0	0	33.3	33.3		0	0	0	0	92	8		0	0	0	0	86.8	13.2		0	0	5.3	0	31.6	63.2		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.250	.000	.000	.250	.250	.375	.000	.000	.000	.000	.479	.500	.521	.000	.000	.000	.000	.688	.417	.792	.000	.000	.250	.000	.750	.600	.679	.787

N/S/SW: Wolcott St/Hyde Park Ave/Wolcott
E/W: Neponset Valley Pkwy/Hyde Park Av
City, State: Hyde Park, MA
Client: VHB/ C. Dube

PRECISION DATA INDUSTRIES, LLC
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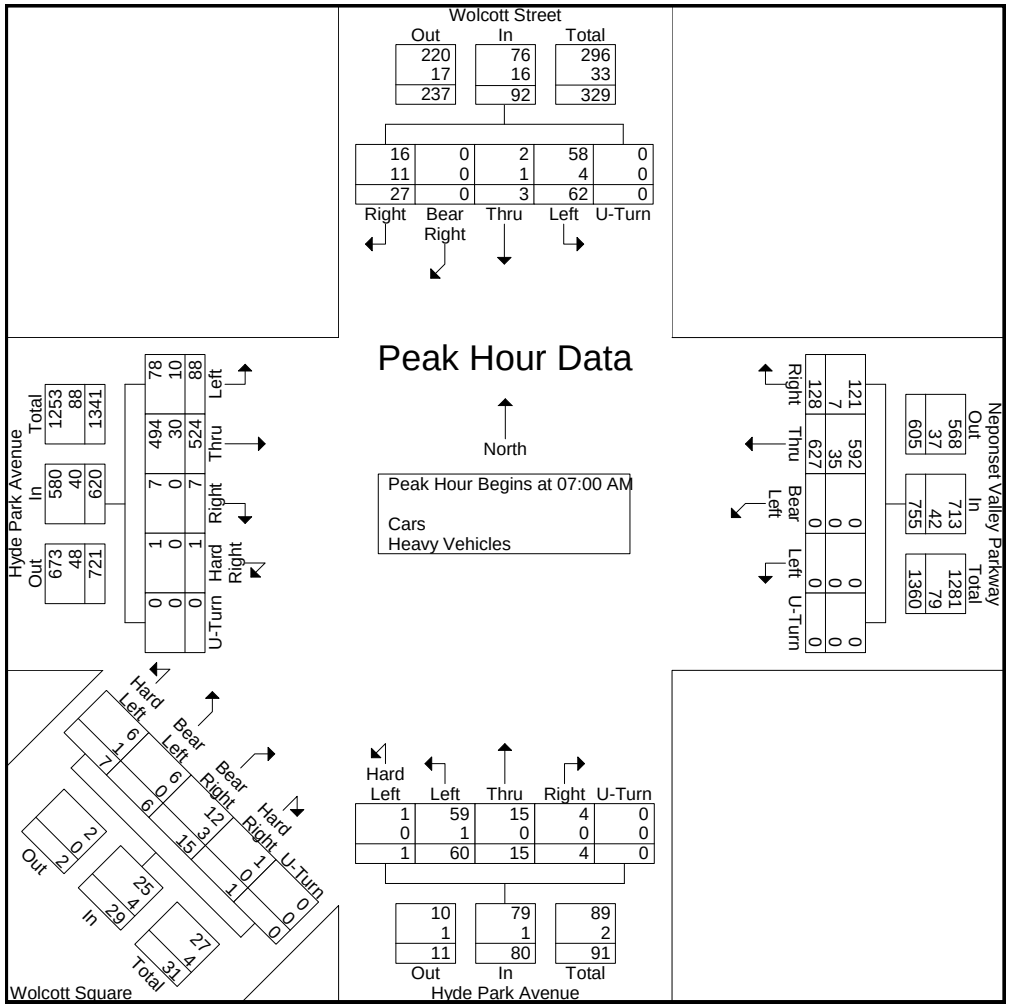
File Name : 165002 F
Site Code : 2152111
Start Date : 3/30/2016
Page No : 1

	Wolcott Street From North						Neponset Valley Parkway From East						Hyde Park Avenue From South						Wolcott Square From Southwest						Hyde Park Avenue 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 07:00 AM																															
07:00 AM	6	0	0	13	0	19	33	154	0	0	0	187	1	6	21	1	0	29	1	6	0	3	0	10	0	0	97	22	0	119	364
07:15 AM	9	0	2	11	0	22	30	163	0	0	0	193	0	2	15	0	0	17	0	3	2	0	0	5	1	4	132	16	0	153	390
07:30 AM	5	0	0	15	0	20	31	148	0	0	0	179	1	3	11	0	0	15	0	5	3	1	0	9	0	3	152	23	0	178	401
07:45 AM	7	0	1	23	0	31	34	162	0	0	0	196	2	4	13	0	0	19	0	1	1	3	0	5	0	0	143	27	0	170	421
Total Volume	27	0	3	62	0	92	128	627	0	0	0	755	4	15	60	1	0	80	1	15	6	7	0	29	1	7	524	88	0	620	1576
% App. Total	29.3	0	3.3	67.4	0		17	83	0	0	0		5	18.8	75	1.2	0		3.4	51.7	20.7	24.1	0		0.2	1.1	84.5	14.2	0		
PHF	.750	.000	.375	.674	.000	.742	.941	.962	.000	.000	.000	.963	.500	.625	.714	.250	.000	.690	.250	.625	.500	.583	.000	.725	.250	.438	.862	.815	.000	.871	.936
Cars	16	0	2	58	0	76	121	592	0	0	0	713	4	15	59	1	0	79	1	12	6	6	0	25	1	7	494	78	0	580	1473
% Cars	59.3	0	66.7	93.5	0	82.6	94.5	94.4	0	0	0	94.4	100	100	98.3	100	0	98.8	100	80.0	100	85.7	0	86.2	100	100	94.3	88.6	0	93.5	93.5
Heavy Vehicles	11	0	1	4	0	16	7	35	0	0	0	42	0	0	1	0	0	1	0	3	0	1	0	4	0	0	30	10	0	40	103
% Heavy Vehicles	40.7	0	33.3	6.5	0	17.4	5.5	5.6	0	0	0	5.6	0	0	1.7	0	0	1.3	0	20.0	0	14.3	0	13.8	0	0	5.7	11.4	0	6.5	6.5



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N/S/SW: Wolcott St/Hyde Park Ave/Wolcott
E/W: Neponset Valley Pkwy/Hyde Park Av
City, State: Hyde Park, MA
Client: VHB/ C. Dube

File Name : 165002 FF
Site Code : 2152111
Start Date : 3/30/2016
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Wolcott Street From North					Neponset Valley Parkway From East					Hyde Park Avenue From South					Wolcott Square From Southwest					Hyde Park Avenue 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	17	0	1	13	0	11	121	0	0	0	2	2	7	0	0	0	9	2	3	0	0	3	161	15	0	367
04:15 PM	9	0	0	14	0	13	112	0	0	0	1	3	6	0	0	0	12	0	7	0	0	0	166	11	0	354
04:30 PM	9	0	0	14	0	13	122	1	0	0	3	4	16	0	0	1	9	0	2	0	0	4	155	13	0	366
04:45 PM	9	0	0	23	0	11	131	0	0	0	5	2	7	0	0	0	9	1	3	0	0	3	145	5	0	354
Total	44	0	1	64	0	48	486	1	0	0	11	11	36	0	0	1	39	3	15	0	0	10	627	44	0	1441
05:00 PM	3	0	2	10	0	9	148	0	0	0	2	3	7	0	0	1	7	0	2	0	0	5	191	6	0	396
05:15 PM	1	0	1	11	0	10	126	0	0	0	1	1	10	0	0	0	6	2	5	0	0	1	176	12	0	363
05:30 PM	1	0	1	14	0	6	121	0	0	0	1	0	3	0	0	2	6	0	1	0	0	4	179	12	0	351
05:45 PM	0	0	0	5	0	15	151	0	3	0	2	0	7	0	0	1	6	0	0	0	0	1	156	7	0	354
Total	5	0	4	40	0	40	546	0	3	0	6	4	27	0	0	4	25	2	8	0	0	11	702	37	0	1464
Grand Total	49	0	5	104	0	88	1032	1	3	0	17	15	63	0	0	5	64	5	23	0	0	21	1329	81	0	2905
Apprch %	31	0	3.2	65.8	0	7.8	91.8	0.1	0.3	0	17.9	15.8	66.3	0	0	5.2	66	5.2	23.7	0	0	1.5	92.9	5.7	0	
Total %	1.7	0	0.2	3.6	0	3	35.5	0	0.1	0	0.6	0.5	2.2	0	0	0.2	2.2	0.2	0.8	0	0	0.7	45.7	2.8	0	
Cars	38	0	5	101	0	81	982	1	2	0	16	14	61	0	0	5	63	5	21	0	0	19	1302	64	0	2780
% Cars	77.6	0	100	97.1	0	92	95.2	100	66.7	0	94.1	93.3	96.8	0	0	100	98.4	100	91.3	0	0	90.5	98	79	0	95.7
Heavy Vehicles	11	0	0	3	0	7	50	0	1	0	1	1	2	0	0	0	1	0	2	0	0	2	27	17	0	125
% Heavy Vehicles	22.4	0	0	2.9	0	8	4.8	0	33.3	0	5.9	6.7	3.2	0	0	0	1.6	0	8.7	0	0	9.5	2	21	0	4.3

	Wolcott Street From North						Neponset Valley Parkway From East						Hyde Park Avenue From South						Wolcott Square From Southwest						Hyde Park Avenue 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 04:30 PM																															
04:30 PM	9	0	0	14	0	23	13	122	1	0	0	136	3	4	16	0	0	23	1	9	0	2	0	12	0	4	155	13	0	172	366
04:45 PM	9	0	0	23	0	32	11	131	0	0	0	142	5	2	7	0	0	14	0	9	1	3	0	13	0	3	145	5	0	153	354
05:00 PM	3	0	2	10	0	15	9	148	0	0	0	157	2	3	7	0	0	12	1	7	0	2	0	10	0	5	191	6	0	202	396
05:15 PM	1	0	1	11	0	13	10	126	0	0	0	136	1	1	10	0	0	12	0	6	2	5	0	13	0	1	176	12	0	189	363
Total Volume	22	0	3	58	0	83	43	527	1	0	0	571	11	10	40	0	0	61	2	31	3	12	0	48	0	13	667	36	0	716	1479
% App. Total	26.5	0	3.6	69.9	0		7.5	92.3	0.2	0	0		18	16.4	65.6	0	0		4.2	64.6	6.2	25	0		0	1.8	93.2	5	0		
PHF	.611	.000	.375	.630	.000	.648	.827	.890	.250	.000	.000	.909	.550	.625	.625	.000	.000	.663	.500	.861	.375	.600	.000	.923	.000	.650	.873	.692	.000	.886	.934
Cars	18	0	3	57	0	78	38	496	1	0	0	535	10	10	39	0	0	59	2	31	3	11	0	47	0	12	655	28	0	695	1414
% Cars	81.8	0	100	98.3	0	94.0	88.4	94.1	100	0	0	93.7	90.9	100	97.5	0	0	96.7	100	100	100	91.7	0	97.9	0	92.3	98.2	77.8	0	97.1	95.6
Heavy Vehicles	4	0	0	1	0	5	5	31	0	0	0	36	1	0	1	0	0	2	0	0	0	1	0	1	0	1	12	8	0	21	65
% Heavy Vehicles	18.2	0	0	1.7	0	6.0	11.6	5.9	0	0	0	6.3	9.1	0	2.5	0	0	3.3	0	0	0	8.3	0	2.1	0	7.7	1.8	22.2	0	2.9	4.4

N/S/SW: Wolcott St/Hyde Park Ave/Wolcott
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Site Code : 2152111
Start Date : 3/30/2016
Page No : 1

Groups Printed- Cars

	Wolcott Street From North					Neponset Valley Parkway From East					Hyde Park Avenue From South					Wolcott Square From Southwest					Hyde Park Avenue 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	12	0	1	12	0	10	112	0	0	0	2	2	7	0	0	0	9	2	3	0	0	2	154	12	0	340
04:15 PM	7	0	0	13	0	12	110	0	0	0	1	2	6	0	0	0	12	0	6	0	0	0	164	8	0	341
04:30 PM	8	0	0	14	0	12	111	1	0	0	3	4	16	0	0	1	9	0	2	0	0	4	151	12	0	348
04:45 PM	7	0	0	22	0	10	121	0	0	0	5	2	7	0	0	0	9	1	2	0	0	3	141	3	0	333
Total	34	0	1	61	0	44	454	1	0	0	11	10	36	0	0	1	39	3	13	0	0	9	610	35	0	1362
05:00 PM	2	0	2	10	0	7	141	0	0	0	2	3	7	0	0	1	7	0	2	0	0	4	189	4	0	381
05:15 PM	1	0	1	11	0	9	123	0	0	0	0	1	9	0	0	0	6	2	5	0	0	1	174	9	0	352
05:30 PM	1	0	1	14	0	6	116	0	0	0	1	0	3	0	0	2	5	0	1	0	0	4	176	11	0	341
05:45 PM	0	0	0	5	0	15	148	0	2	0	2	0	6	0	0	1	6	0	0	0	0	1	153	5	0	344
Total	4	0	4	40	0	37	528	0	2	0	5	4	25	0	0	4	24	2	8	0	0	10	692	29	0	1418
Grand Total	38	0	5	101	0	81	982	1	2	0	16	14	61	0	0	5	63	5	21	0	0	19	1302	64	0	2780
Apprch %	26.4	0	3.5	70.1	0	7.6	92.1	0.1	0.2	0	17.6	15.4	67	0	0	5.3	67	5.3	22.3	0	0	1.4	94	4.6	0	
Total %	1.4	0	0.2	3.6	0	2.9	35.3	0	0.1	0	0.6	0.5	2.2	0	0	0.2	2.3	0.2	0.8	0	0	0.7	46.8	2.3	0	

	Wolcott Street From North						Neponset Valley Parkway From East						Hyde Park Avenue From South						Wolcott Square From Southwest						Hyde Park Avenue 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 05:00 PM																															
05:00 PM	2	0	2	10	0	14	7	141	0	0	0	148	2	3	7	0	0	12	1	7	0	2	0	10	0	4	189	4	0	197	381
05:15 PM	1	0	1	11	0	13	9	123	0	0	0	132	0	1	9	0	0	10	0	6	2	5	0	13	0	1	174	9	0	184	352
05:30 PM	1	0	1	14	0	16	6	116	0	0	0	122	1	0	3	0	0	4	2	5	0	1	0	8	0	4	176	11	0	191	341
05:45 PM	0	0	0	5	0	5	15	148	0	2	0	165	2	0	6	0	0	8	1	6	0	0	0	7	0	1	153	5	0	159	344
Total Volume	4	0	4	40	0	48	37	528	0	2	0	567	5	4	25	0	0	34	4	24	2	8	0	38	0	10	692	29	0	731	1418
% App. Total	8.3	0	8.3	83.3	0		6.5	93.1	0	0.4	0		14.7	11.8	73.5	0	0		10.5	63.2	5.3	21.1	0		0	1.4	94.7	4	0		
PHF	.500	.000	.500	.714	.000	.750	.617	.892	.000	.250	.000	.859	.625	.333	.694	.000	.000	.708	.500	.857	.250	.400	.000	.731	.000	.625	.915	.659	.000	.928	.930

N/S/SW: Wolcott St/Hyde Park Ave/Wolcott
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Groups Printed- Heavy Vehicles

	Wolcott Street From North					Neponset Valley Parkway From East					Hyde Park Avenue From South					Wolcott Square From Southwest					Hyde Park Avenue 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	5	0	0	1	0	1	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	7	3	0	27
04:15 PM	2	0	0	1	0	1	2	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	2	3	0	13
04:30 PM	1	0	0	0	0	1	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	1	0	18
04:45 PM	2	0	0	1	0	1	10	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	4	2	0	21
Total	10	0	0	3	0	4	32	0	0	0	0	1	0	0	0	0	0	0	2	0	0	1	17	9	0	79
05:00 PM	1	0	0	0	0	2	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	2	0	15
05:15 PM	0	0	0	0	0	1	3	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	2	3	0	11
05:30 PM	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	3	1	0	10
05:45 PM	0	0	0	0	0	0	3	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	3	2	0	10
Total	1	0	0	0	0	3	18	0	1	0	1	0	2	0	0	0	1	0	0	0	0	1	10	8	0	46
Grand Total	11	0	0	3	0	7	50	0	1	0	1	1	2	0	0	0	1	0	2	0	0	2	27	17	0	125
Apprch %	78.6	0	0	21.4	0	12.1	86.2	0	1.7	0	25	25	50	0	0	0	33.3	0	66.7	0	0	4.3	58.7	37	0	
Total %	8.8	0	0	2.4	0	5.6	40	0	0.8	0	0.8	0.8	1.6	0	0	0	0.8	0	1.6	0	0	1.6	21.6	13.6	0	

	Wolcott Street From North						Neponset Valley Parkway From East						Hyde Park Avenue From South						Wolcott Square From Southwest						Hyde Park Avenue 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	5	0	0	1	0	6	1	9	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	1	7	3	0	11	27
04:15 PM	2	0	0	1	0	3	1	2	0	0	0	3	0	1	0	0	0	1	0	0	0	1	0	1	0	0	2	3	0	5	13
04:30 PM	1	0	0	0	0	1	1	11	0	0	0	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	1	0	5	18
04:45 PM	2	0	0	1	0	3	1	10	0	0	0	11	0	0	0	0	0	0	0	0	0	1	0	1	0	0	4	2	0	6	21
Total Volume	10	0	0	3	0	13	4	32	0	0	0	36	0	1	0	0	0	1	0	0	0	2	0	2	0	1	17	9	0	27	79
% App. Total	76.9	0	0	23.1	0		11.1	88.9	0	0	0		0	100	0	0	0		0	0	0	100	0		0	3.7	63	33.3	0		
PHF	.500	.000	.000	.750	.000	.542	1.00	.727	.000	.000	.000	.750	.000	.250	.000	.000	.000	.250	.000	.000	.000	.500	.000	.500	.000	.250	.607	.750	.000	.614	.731

N/S/SW: Wolcott St/Hyde Park Ave/Wolcott
E/W: Neponset Valley Pkwy/Hyde Park Av
City, State: Hyde Park, MA
Client: VHB/ C. Dube

PRECISION DATA INDUSTRIES, LLC
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File Name : 165002 FF
Site Code : 2152111
Start Date : 3/30/2016
Page No : 1

Groups Printed- Peds and Bikes

	Wolcott Street From North						Neponset Valley Parkway From East						Hyde Park Avenue From South						Wolcott Square From Southwest						Hyde Park Avenue 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	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	3	0	0	0	0	2	5	0	0	0	0	0	1	13
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	7	0	0	0	0	0	8	0	0	0	0	1	2	19
04:30 PM	0	0	0	0	2	0	0	1	0	0	1	0	0	0	0	0	3	2	0	0	0	0	3	8	0	0	0	0	3	4	27
04:45 PM	1	0	0	0	0	1	1	0	0	0	1	0	0	0	0	0	1	2	0	0	0	0	9	5	0	0	0	0	2	4	27
Total	1	0	0	0	2	1	1	1	0	0	2	1	0	0	0	0	6	14	0	0	0	0	14	26	0	0	0	0	6	11	86
05:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	6	0	0	0	0	2	11	0	0	0	0	2	0	23
05:15 PM	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	2	5	0	0	0	0	2	5	0	0	0	0	3	0	19
05:30 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	3	6	0	0	0	0	3	8	0	0	0	0	2	0	23
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	2	2	0	0	0	0	2	4	0	0	0	0	3	2	16
Total	0	0	0	0	0	0	0	2	0	0	1	2	0	0	0	0	8	19	0	0	0	0	9	28	0	0	0	0	10	2	81
Grand Total	1	0	0	0	2	1	1	3	0	0	3	3	0	0	0	0	14	33	0	0	0	0	23	54	0	0	0	0	16	13	167
Apprch %	25	0	0	0	50	25	10	30	0	0	30	30	0	0	0	0	29.8	70.2	0	0	0	0	29.9	70.1	0	0	0	0	55.2	44.8	
Total %	0.6	0	0	0	1.2	0.6	0.6	1.8	0	0	1.8	1.8	0	0	0	0	8.4	19.8	0	0	0	0	13.8	32.3	0	0	0	0	9.6	7.8	

	Wolcott Street From North							Neponset Valley Parkway From East							Hyde Park Avenue From South							Wolcott Square From Southwest							Hyde Park Avenue 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 04:15 PM																																			
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	7	8	0	0	0	0	0	8	8	0	0	0	0	1	2	3	19
04:30 PM	0	0	0	0	2	0	2	0	1	0	0	1	0	2	0	0	0	0	3	2	5	0	0	0	0	3	8	11	0	0	0	0	3	4	7	27
04:45 PM	1	0	0	0	0	1	2	1	0	0	0	1	0	2	0	0	0	0	1	2	3	0	0	0	0	9	5	14	0	0	0	0	2	4	6	27
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1	6	7	0	0	0	0	2	11	13	0	0	0	0	2	0	2	23
Total Volume																			17							14	32	46	0	0	0	0	8	10	18	96
% App. Total	25	0	0	0	50	25		20	20	0	0	60	0		0	0	0	0	26.1	73.9						30.4	69.6		0	0	0	0	44.4	55.6		
PHF	.250	.000	.000	.000	.250	.250	.500	.250	.250	.000	.000	.750	.000	.625	.000	.000	.000	.000	.500	.607	.719	.000	.000	.000	.000	.389	.727	.821	.000	.000	.000	.000	.667	.625	.643	.889

N/S/SW: Wolcott St/Hyde Park Ave/Wolcott
E/W: Neponset Valley Pkwy/Hyde Park Av
City, State: Hyde Park, MA
Client: VHB/ C. Dube

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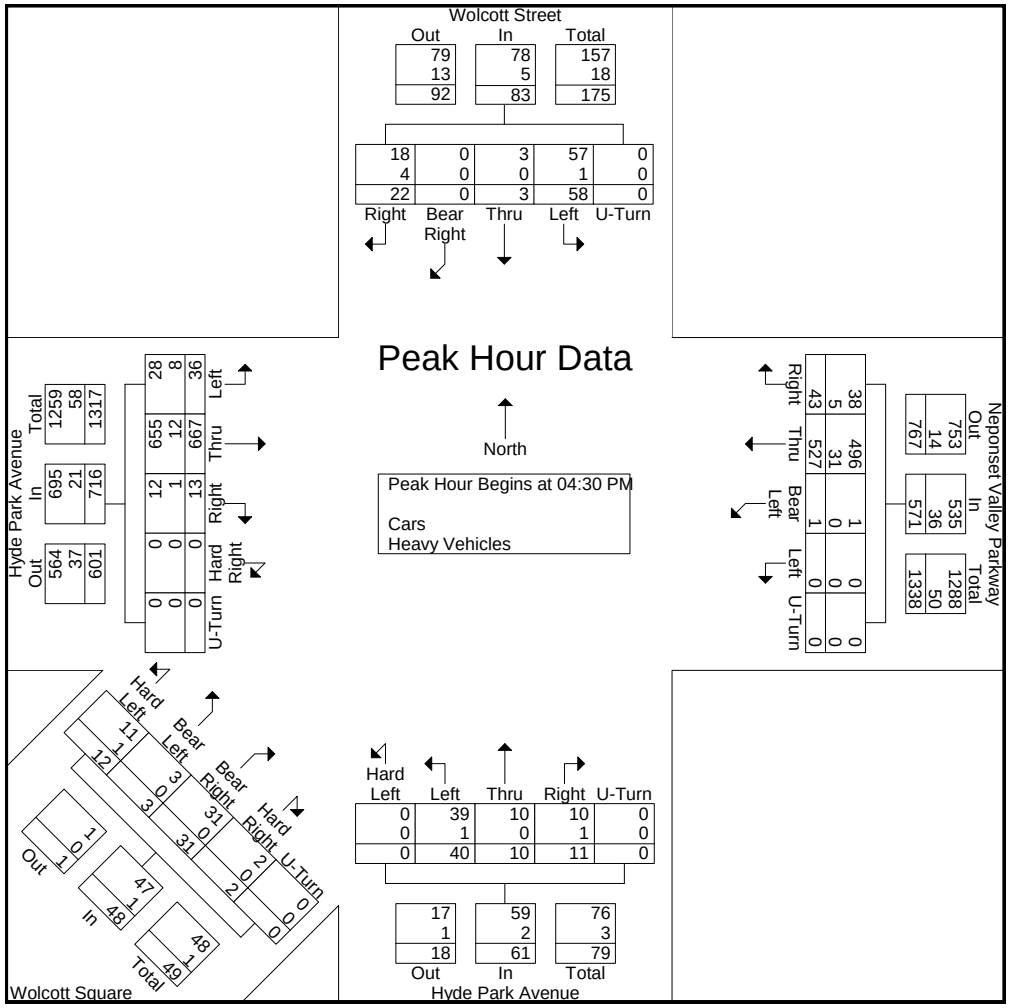
Site Code : 2152111
Start Date : 3/30/2016
Page No : 1

	Wolcott Street From North						Neponset Valley Parkway From East						Hyde Park Avenue From South						Wolcott Square From Southwest						Hyde Park Avenue 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 04:30 PM																															
04:30 PM	9	0	0	14	0	23	13	122	1	0	0	136	3	4	16	0	0	23	1	9	0	2	0	12	0	4	155	13	0	172	366
04:45 PM	9	0	0	23	0	32	11	131	0	0	0	142	5	2	7	0	0	14	0	9	1	3	0	13	0	3	145	5	0	153	354
05:00 PM	3	0	2	10	0	15	9	148	0	0	0	157	2	3	7	0	0	12	1	7	0	2	0	10	0	5	191	6	0	202	396
05:15 PM	1	0	1	11	0	13	10	126	0	0	0	136	1	1	10	0	0	12	0	6	2	5	0	13	0	1	176	12	0	189	363
Total Volume	22	0	3	58	0	83	43	527	1	0	0	571	11	10	40	0	0	61	2	31	3	12	0	48	0	13	667	36	0	716	1479
% App. Total	26.5	0	3.6	69.9	0		7.5	92.3	0.2	0	0		18	16.4	65.6	0	0		4.2	64.6	6.2	25	0		0	1.8	93.2	5	0		
PHF	.611	.000	.375	.630	.000	.648	.827	.890	.250	.000	.000	.909	.550	.625	.625	.000	.000	.663	.500	.861	.375	.600	.000	.923	.000	.650	.873	.692	.000	.886	.934
Cars	18	0	3	57	0	78	38	496	1	0	0	535	10	10	39	0	0	59	2	31	3	11	0	47	0	12	655	28	0	695	1414
% Cars	81.8	0	100	98.3	0	94.0	88.4	94.1	100	0	0	93.7	90.9	100	97.5	0	0	96.7	100	100	100	91.7	0	97.9	0	92.3	98.2	77.8	0	97.1	95.6
Heavy Vehicles	4	0	0	1	0	5	5	31	0	0	0	36	1	0	1	0	0	2	0	0	0	1	0	1	0	1	12	8	0	21	65
% Heavy Vehicles	18.2	0	0	1.7	0	6.0	11.6	5.9	0	0	0	6.3	9.1	0	2.5	0	0	3.3	0	0	0	8.3	0	2.1	0	7.7	1.8	22.2	0	2.9	4.4



PRECISION
D A T A
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N/S: Milton Street
E/W: Industrial Drive/ Fleet Street
City, State: Hyde Park, MA
Client: VHB/ C. Dube

File Name : 165155 A
Site Code : TBA
Start Date : 6/23/2016
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Milton Street From North				Industrial Drive From East				Milton Street From South				Fleet 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	115	13	0	27	0	16	0	19	112	0	0	0	0	1	0	303
07:15 AM	0	111	13	0	22	0	21	0	19	136	0	0	1	0	0	0	323
07:30 AM	1	109	5	0	15	0	16	0	9	118	0	0	1	0	0	0	274
07:45 AM	0	127	9	1	11	0	6	0	18	122	0	0	0	0	0	0	294
Total	1	462	40	1	75	0	59	0	65	488	0	0	2	0	1	0	1194
08:00 AM	1	118	5	0	6	0	8	0	18	130	0	0	0	0	0	0	286
08:15 AM	0	86	21	0	10	0	7	0	14	138	0	0	0	0	3	0	279
08:30 AM	1	106	18	0	21	0	10	0	16	91	0	0	0	0	1	0	264
08:45 AM	1	107	20	0	13	0	6	0	5	103	0	0	0	0	0	0	255
Total	3	417	64	0	50	0	31	0	53	462	0	0	0	0	4	0	1084
Grand Total	4	879	104	1	125	0	90	0	118	950	0	0	2	0	5	0	2278
Apprch %	0.4	89	10.5	0.1	58.1	0	41.9	0	11	89	0	0	28.6	0	71.4	0	
Total %	0.2	38.6	4.6	0	5.5	0	4	0	5.2	41.7	0	0	0.1	0	0.2	0	
Cars	3	808	54	1	62	0	58	0	87	877	0	0	2	0	5	0	1957
% Cars	75	91.9	51.9	100	49.6	0	64.4	0	73.7	92.3	0	0	100	0	100	0	85.9
Heavy Vehicles	1	71	50	0	63	0	32	0	31	73	0	0	0	0	0	0	321
% Heavy Vehicles	25	8.1	48.1	0	50.4	0	35.6	0	26.3	7.7	0	0	0	0	0	0	14.1

	Milton Street From North					Industrial Drive From East					Milton Street From South					Fleet 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 07:00 AM																					
07:00 AM	0	115	13	0	128	27	0	16	0	43	19	112	0	0	131	0	0	1	0	1	303
07:15 AM	0	111	13	0	124	22	0	21	0	43	19	136	0	0	155	1	0	0	0	1	323
07:30 AM	1	109	5	0	115	15	0	16	0	31	9	118	0	0	127	1	0	0	0	1	274
07:45 AM	0	127	9	1	137	11	0	6	0	17	18	122	0	0	140	0	0	0	0	0	294
Total Volume	1	462	40	1	504	75	0	59	0	134	65	488	0	0	553	2	0	1	0	3	1194
% App. Total	0.2	91.7	7.9	0.2		56	0	44	0		11.8	88.2	0	0		66.7	0	33.3	0		
PHF	.250	.909	.769	.250	.920	.694	.000	.702	.000	.779	.855	.897	.000	.000	.892	.500	.000	.250	.000	.750	.924
Cars	1	430	35	1	467	28	0	44	0	72	54	449	0	0	503	2	0	1	0	3	1045
% Cars	100	93.1	87.5	100	92.7	37.3	0	74.6	0	53.7	83.1	92.0	0	0	91.0	100	0	100	0	100	87.5
Heavy Vehicles	0	32	5	0	37	47	0	15	0	62	11	39	0	0	50	0	0	0	0	0	149
% Heavy Vehicles	0	6.9	12.5	0	7.3	62.7	0	25.4	0	46.3	16.9	8.0	0	0	9.0	0	0	0	0	0	12.5

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City, State: Hyde Park, MA
Client: VHB/ C. Dube

File Name : 165155 A
Site Code : TBA
Start Date : 6/23/2016
Page No : 1

Groups Printed- Cars

	Milton Street From North				Industrial Drive From East				Milton Street From South				Fleet 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	108	11	0	8	0	14	0	18	103	0	0	0	0	1	0	263
07:15 AM	0	102	12	0	7	0	16	0	17	125	0	0	1	0	0	0	280
07:30 AM	1	106	4	0	7	0	11	0	3	108	0	0	1	0	0	0	241
07:45 AM	0	114	8	1	6	0	3	0	16	113	0	0	0	0	0	0	261
Total	1	430	35	1	28	0	44	0	54	449	0	0	2	0	1	0	1045
08:00 AM	0	106	2	0	4	0	4	0	14	120	0	0	0	0	0	0	250
08:15 AM	0	75	5	0	4	0	3	0	7	127	0	0	0	0	3	0	224
08:30 AM	1	98	6	0	14	0	4	0	11	86	0	0	0	0	1	0	221
08:45 AM	1	99	6	0	12	0	3	0	1	95	0	0	0	0	0	0	217
Total	2	378	19	0	34	0	14	0	33	428	0	0	0	0	4	0	912
Grand Total	3	808	54	1	62	0	58	0	87	877	0	0	2	0	5	0	1957
Apprch %	0.3	93.3	6.2	0.1	51.7	0	48.3	0	9	91	0	0	28.6	0	71.4	0	
Total %	0.2	41.3	2.8	0.1	3.2	0	3	0	4.4	44.8	0	0	0.1	0	0.3	0	

	Milton Street From North					Industrial Drive From East					Milton Street From South					Fleet 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 07:00 AM																					
07:00 AM	0	108	11	0	119	8	0	14	0	22	18	103	0	0	121	0	0	1	0	1	263
07:15 AM	0	102	12	0	114	7	0	16	0	23	17	125	0	0	142	1	0	0	0	1	280
07:30 AM	1	106	4	0	111	7	0	11	0	18	3	108	0	0	111	1	0	0	0	1	241
07:45 AM	0	114	8	1	123	6	0	3	0	9	16	113	0	0	129	0	0	0	0	0	261
Total Volume	1	430	35	1	467	28	0	44	0	72	54	449	0	0	503	2	0	1	0	3	1045
% App. Total	0.2	92.1	7.5	0.2		38.9	0	61.1	0		10.7	89.3	0	0		66.7	0	33.3	0		
PHF	.250	.943	.729	.250	.949	.875	.000	.688	.000	.783	.750	.898	.000	.000	.886	.500	.000	.250	.000	.750	.933

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E/W: Industrial Drive/ Fleet Street
City, State: Hyde Park, MA
Client: VHB/ C. Dube

File Name : 165155 A
Site Code : TBA
Start Date : 6/23/2016
Page No : 1

Groups Printed- Heavy Vehicles

	Milton Street From North				Industrial Drive From East				Milton Street From South				Fleet 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	7	2	0	19	0	2	0	1	9	0	0	0	0	0	0	40
07:15 AM	0	9	1	0	15	0	5	0	2	11	0	0	0	0	0	0	43
07:30 AM	0	3	1	0	8	0	5	0	6	10	0	0	0	0	0	0	33
07:45 AM	0	13	1	0	5	0	3	0	2	9	0	0	0	0	0	0	33
Total	0	32	5	0	47	0	15	0	11	39	0	0	0	0	0	0	149
08:00 AM	1	12	3	0	2	0	4	0	4	10	0	0	0	0	0	0	36
08:15 AM	0	11	16	0	6	0	4	0	7	11	0	0	0	0	0	0	55
08:30 AM	0	8	12	0	7	0	6	0	5	5	0	0	0	0	0	0	43
08:45 AM	0	8	14	0	1	0	3	0	4	8	0	0	0	0	0	0	38
Total	1	39	45	0	16	0	17	0	20	34	0	0	0	0	0	0	172
Grand Total	1	71	50	0	63	0	32	0	31	73	0	0	0	0	0	0	321
Apprch %	0.8	58.2	41	0	66.3	0	33.7	0	29.8	70.2	0	0	0	0	0	0	
Total %	0.3	22.1	15.6	0	19.6	0	10	0	9.7	22.7	0	0	0	0	0	0	

	Milton Street From North					Industrial Drive From East					Milton Street From South					Fleet 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	1	12	3	0	16	2	0	4	0	6	4	10	0	0	14	0	0	0	0	0	36
08:15 AM	0	11	16	0	27	6	0	4	0	10	7	11	0	0	18	0	0	0	0	0	55
08:30 AM	0	8	12	0	20	7	0	6	0	13	5	5	0	0	10	0	0	0	0	0	43
08:45 AM	0	8	14	0	22	1	0	3	0	4	4	8	0	0	12	0	0	0	0	0	38
Total Volume	1	39	45	0	85	16	0	17	0	33	20	34	0	0	54	0	0	0	0	0	172
% App. Total	1.2	45.9	52.9	0		48.5	0	51.5	0		37	63	0	0		0	0	0	0		
PHF	.250	.813	.703	.000	.787	.571	.000	.708	.000	.635	.714	.773	.000	.000	.750	.000	.000	.000	.000	.000	.782

PRECISION
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N/S: Milton Street
E/W: Industrial Drive/ Fleet Street
City, State: Hyde Park, MA
Client: VHB/ C. Dube

File Name : 165155 A
Site Code : TBA
Start Date : 6/23/2016

Groups Printed- Peds and Bicycles

	Milton Street From North					Industrial Drive From East					Milton Street From South							Fleet Street From West					
Start Time	Right	Thru	Left	Peds EB	Peds WB	Right	Thru	Left	Peds SB	Peds NB	Right	Thru	Left	Peds Mid WB	Peds Mid EB	Peds WB	Peds EB	Right	Thru	Left	Peds NB	Peds SB	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2	4	7
07:15 AM	0	0	0	0	0	0	0	0	4	0	0	0	0	1	0	0	0	0	0	0	1	2	8
07:30 AM	0	0	0	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	4
07:45 AM	0	0	0	0	0	0	0	0	2	1	0	0	0	1	0	0	0	0	0	0	2	1	7
Total	0	0	0	2	0	0	0	0	9	1	0	0	0	2	0	0	0	0	0	0	5	7	26
08:00 AM	0	1	0	2	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	5
08:15 AM	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	1	0	0	0	0	1	4
08:30 AM	0	0	0	0	0	0	0	0	6	0	0	1	0	0	0	0	1	0	0	0	1	0	9
08:45 AM	0	0	0	0	0	0	0	0	2	3	0	0	0	0	0	0	0	0	0	0	1	1	7
Total	0	1	0	2	0	0	0	0	10	4	0	2	0	0	0	0	2	0	0	0	2	2	25
Grand Total	0	1	0	4	0	0	0	0	19	5	0	2	0	2	0	0	2	0	0	0	7	9	51
Apprch %	0	20	0	80	0	0	0	0	79.2	20.8	0	33.3	0	33.3	0	0	33.3	0	0	0	43.8	56.2	
Total %	0	2	0	7.8	0	0	0	0	37.3	9.8	0	3.9	0	3.9	0	0	3.9	0	0	0	13.7	17.6	

	Milton Street From North						Industrial Drive From East						Milton Street From South								Fleet 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 Mid WB	Peds Mid EB	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 07:00 AM																											
07:00 AM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	2	4	6	7
07:15 AM	0	0	0	0	0	0	0	0	0	4	0	4	0	0	0	1	0	0	0	1	0	0	0	1	2	3	8
07:30 AM	0	0	0	2	0	2	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
07:45 AM	0	0	0	0	0	0	0	0	0	2	1	3	0	0	0	1	0	0	0	1	0	0	0	2	1	3	7
Total Volume	0	0	0	2	0	2	0	0	0	9	1	10	0	0	0	2	0	0	0	2	0	0	0	5	7	12	26
% App. Total	0	0	0	100	0		0	0	0	90	10		0	0	0	100	0	0	0		0	0	0	41.7	58.3		
PHF	.000	.000	.000	.250	.000	.250	.000	.000	.000	.563	.250	.625	.000	.000	.000	.500	.000	.000	.000	.500	.000	.000	.000	.625	.438	.500	.813

PRECISION
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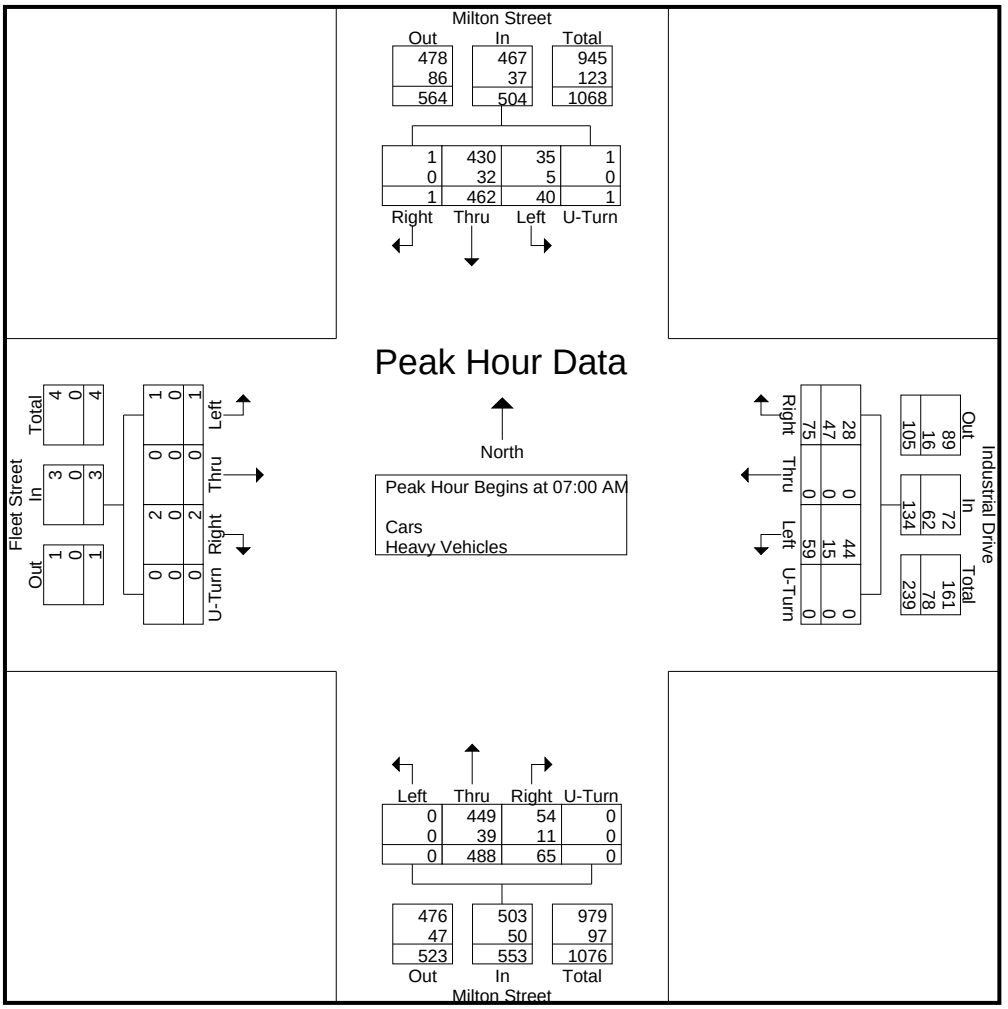
City, State: Hyde Park, MA
Client: VHB/ C. Dube

File Name : 165155 A
Site Code : TBA
Start Date : 6/23/2016
Page No : 1

	Milton Street From North					Industrial Drive From East					Milton Street From South					Fleet 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 07:00 AM																					
07:00 AM	0	115	13	0	128	27	0	16	0	43	19	112	0	0	131	0	0	1	0	1	303
07:15 AM	0	111	13	0	124	22	0	21	0	43	19	136	0	0	155	1	0	0	0	1	323
07:30 AM	1	109	5	0	115	15	0	16	0	31	9	118	0	0	127	1	0	0	0	1	274
07:45 AM	0	127	9	1	137	11	0	6	0	17	18	122	0	0	140	0	0	0	0	0	294
Total Volume	1	462	40	1	504	75	0	59	0	134	65	488	0	0	553	2	0	1	0	3	1194
% App. Total	0.2	91.7	7.9	0.2		56	0	44	0		11.8	88.2	0	0		66.7	0	33.3	0		
PHF	.250	.909	.769	.250	.920	.694	.000	.702	.000	.779	.855	.897	.000	.000	.892	.500	.000	.250	.000	.750	.924
Cars	1	430	35	1	467	28	0	44	0	72	54	449	0	0	503	2	0	1	0	3	1045
% Cars	100	93.1	87.5	100	92.7	37.3	0	74.6	0	53.7	83.1	92.0	0	0	91.0	100	0	100	0	100	87.5
Heavy Vehicles	0	32	5	0	37	47	0	15	0	62	11	39	0	0	50	0	0	0	0	0	149
% Heavy Vehicles	0	6.9	12.5	0	7.3	62.7	0	25.4	0	46.3	16.9	8.0	0	0	9.0	0	0	0	0	0	12.5



PRECISION
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Client: VHB/ C. Dube

File Name : 165155 AA
Site Code : TBA
Start Date : 6/23/2016
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Milton Street From North				Industrial Drive From East				Milton Street From South				Fleet 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	125	10	0	21	0	14	0	4	150	3	0	0	0	1	0	328
04:15 PM	1	116	6	0	9	0	3	0	7	146	1	0	1	0	0	0	290
04:30 PM	1	103	15	0	12	0	21	0	5	148	0	0	0	0	1	0	306
04:45 PM	1	113	13	0	18	0	11	0	3	188	0	0	0	0	0	0	347
Total	3	457	44	0	60	0	49	0	19	632	4	0	1	0	2	0	1271
05:00 PM	1	131	7	0	8	0	6	0	0	165	0	0	1	0	2	0	321
05:15 PM	2	131	5	0	14	0	14	0	0	159	0	0	1	0	3	0	329
05:30 PM	1	144	5	0	8	0	8	0	1	167	0	0	0	0	0	0	334
05:45 PM	0	119	2	0	4	0	2	0	1	156	1	0	0	0	0	0	285
Total	4	525	19	0	34	0	30	0	2	647	1	0	2	0	5	0	1269
Grand Total	7	982	63	0	94	0	79	0	21	1279	5	0	3	0	7	0	2540
Apprch %	0.7	93.3	6	0	54.3	0	45.7	0	1.6	98	0.4	0	30	0	70	0	
Total %	0.3	38.7	2.5	0	3.7	0	3.1	0	0.8	50.4	0.2	0	0.1	0	0.3	0	
Cars	7	962	19	0	94	0	73	0	11	1239	5	0	3	0	7	0	2420
% Cars	100	98	30.2	0	100	0	92.4	0	52.4	96.9	100	0	100	0	100	0	95.3
Heavy Vehicles	0	20	44	0	0	0	6	0	10	40	0	0	0	0	0	0	120
% Heavy Vehicles	0	2	69.8	0	0	0	7.6	0	47.6	3.1	0	0	0	0	0	0	4.7

	Milton Street From North					Industrial Drive From East					Milton Street From South					Fleet 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	1	113	13	0	127	18	0	11	0	29	3	188	0	0	191	0	0	0	0	0	347
05:00 PM	1	131	7	0	139	8	0	6	0	14	0	165	0	0	165	1	0	2	0	3	321
05:15 PM	2	131	5	0	138	14	0	14	0	28	0	159	0	0	159	1	0	3	0	4	329
05:30 PM	1	144	5	0	150	8	0	8	0	16	1	167	0	0	168	0	0	0	0	0	334
Total Volume	5	519	30	0	554	48	0	39	0	87	4	679	0	0	683	2	0	5	0	7	1331
% App. Total	0.9	93.7	5.4	0		55.2	0	44.8	0		0.6	99.4	0	0		28.6	0	71.4	0		
PHF	.625	.901	.577	.000	.923	.667	.000	.696	.000	.750	.333	.903	.000	.000	.894	.500	.000	.417	.000	.438	.959
Cars	5	513	9	0	527	48	0	37	0	85	3	663	0	0	666	2	0	5	0	7	1285
% Cars	100	98.8	30.0	0	95.1	100	0	94.9	0	97.7	75.0	97.6	0	0	97.5	100	0	100	0	100	96.5
Heavy Vehicles	0	6	21	0	27	0	0	2	0	2	1	16	0	0	17	0	0	0	0	0	46
% Heavy Vehicles	0	1.2	70.0	0	4.9	0	0	5.1	0	2.3	25.0	2.4	0	0	2.5	0	0	0	0	0	3.5

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N/S: Milton Street
E/W: Industrial Drive/ Fleet Street
City, State: Hyde Park, MA
Client: VHB/ C. Dube

File Name : 165155 AA
Site Code : TBA
Start Date : 6/23/2016
Page No : 1

Groups Printed- Cars

	Milton Street From North				Industrial Drive From East				Milton Street From South				Fleet 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	120	1	0	21	0	13	0	1	139	3	0	0	0	1	0	299
04:15 PM	1	113	1	0	9	0	1	0	3	142	1	0	1	0	0	0	272
04:30 PM	1	100	7	0	12	0	20	0	3	141	0	0	0	0	1	0	285
04:45 PM	1	111	3	0	18	0	10	0	2	182	0	0	0	0	0	0	327
Total	3	444	12	0	60	0	44	0	9	604	4	0	1	0	2	0	1183
05:00 PM	1	129	0	0	8	0	5	0	0	161	0	0	1	0	2	0	307
05:15 PM	2	131	2	0	14	0	14	0	0	155	0	0	1	0	3	0	322
05:30 PM	1	142	4	0	8	0	8	0	1	165	0	0	0	0	0	0	329
05:45 PM	0	116	1	0	4	0	2	0	1	154	1	0	0	0	0	0	279
Total	4	518	7	0	34	0	29	0	2	635	1	0	2	0	5	0	1237
Grand Total	7	962	19	0	94	0	73	0	11	1239	5	0	3	0	7	0	2420
Apprch %	0.7	97.4	1.9	0	56.3	0	43.7	0	0.9	98.7	0.4	0	30	0	70	0	
Total %	0.3	39.8	0.8	0	3.9	0	3	0	0.5	51.2	0.2	0	0.1	0	0.3	0	

	Milton Street From North					Industrial Drive From East					Milton Street From South					Fleet 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	1	111	3	0	115	18	0	10	0	28	2	182	0	0	184	0	0	0	0	0	327
05:00 PM	1	129	0	0	130	8	0	5	0	13	0	161	0	0	161	1	0	2	0	3	307
05:15 PM	2	131	2	0	135	14	0	14	0	28	0	155	0	0	155	1	0	3	0	4	322
05:30 PM	1	142	4	0	147	8	0	8	0	16	1	165	0	0	166	0	0	0	0	0	329
Total Volume	5	513	9	0	527	48	0	37	0	85	3	663	0	0	666	2	0	5	0	7	1285
% App. Total	0.9	97.3	1.7	0		56.5	0	43.5	0		0.5	99.5	0	0		28.6	0	71.4	0		
PHF	.625	.903	.563	.000	.896	.667	.000	.661	.000	.759	.375	.911	.000	.000	.905	.500	.000	.417	.000	.438	.976

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Groups Printed- Heavy Vehicles

	Milton Street From North				Industrial Drive From East				Milton Street From South				Fleet 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	5	9	0	0	0	1	0	3	11	0	0	0	0	0	0	29
04:15 PM	0	3	5	0	0	0	2	0	4	4	0	0	0	0	0	0	18
04:30 PM	0	3	8	0	0	0	1	0	2	7	0	0	0	0	0	0	21
04:45 PM	0	2	10	0	0	0	1	0	1	6	0	0	0	0	0	0	20
Total	0	13	32	0	0	0	5	0	10	28	0	0	0	0	0	0	88
05:00 PM	0	2	7	0	0	0	1	0	0	4	0	0	0	0	0	0	14
05:15 PM	0	0	3	0	0	0	0	0	0	4	0	0	0	0	0	0	7
05:30 PM	0	2	1	0	0	0	0	0	0	2	0	0	0	0	0	0	5
05:45 PM	0	3	1	0	0	0	0	0	0	2	0	0	0	0	0	0	6
Total	0	7	12	0	0	0	1	0	0	12	0	0	0	0	0	0	32
Grand Total	0	20	44	0	0	0	6	0	10	40	0	0	0	0	0	0	120
Apprch %	0	31.2	68.8	0	0	0	100	0	20	80	0	0	0	0	0	0	
Total %	0	16.7	36.7	0	0	0	5	0	8.3	33.3	0	0	0	0	0	0	

	Milton Street From North					Industrial Drive From East					Milton Street From South					Fleet 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	5	9	0	14	0	0	1	0	1	3	11	0	0	14	0	0	0	0	0	29
04:15 PM	0	3	5	0	8	0	0	2	0	2	4	4	0	0	8	0	0	0	0	0	18
04:30 PM	0	3	8	0	11	0	0	1	0	1	2	7	0	0	9	0	0	0	0	0	21
04:45 PM	0	2	10	0	12	0	0	1	0	1	1	6	0	0	7	0	0	0	0	0	20
Total Volume	0	13	32	0	45	0	0	5	0	5	10	28	0	0	38	0	0	0	0	0	88
% App. Total	0	28.9	71.1	0		0	0	100	0		26.3	73.7	0	0		0	0	0	0		
PHF	.000	.650	.800	.000	.804	.000	.000	.625	.000	.625	.625	.636	.000	.000	.679	.000	.000	.000	.000	.000	.759

PRECISION
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Start Date : 6/23/2016

Groups Printed- Peds and Bicycles

	Milton Street From North					Industrial Drive From East					Milton Street From South							Fleet Street From West					
Start Time	Right	Thru	Left	Peds EB	Peds WB	Right	Thru	Left	Peds SB	Peds NB	Right	Thru	Left	Peds Mid WB	Peds Mid EB	Peds WB	Peds EB	Right	Thru	Left	Peds NB	Peds SB	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1	0	0	0	0	0	1	4	9
04:15 PM	0	2	0	0	0	0	0	0	0	2	0	0	0	1	1	0	0	0	0	0	0	1	7
04:30 PM	0	0	0	2	0	0	0	0	3	4	1	1	0	12	3	0	0	0	0	0	2	2	30
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	3	18	0	0	0	0	0	18	2	41
Total	0	2	0	2	0	0	0	0	3	6	1	1	0	19	23	0	0	0	0	0	21	9	87
05:00 PM	0	0	0	2	0	0	0	0	1	1	0	0	0	0	2	0	0	0	0	0	2	0	8
05:15 PM	0	1	0	3	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	4	2	13
05:30 PM	0	0	0	2	0	0	0	0	1	2	0	0	0	1	0	0	0	0	0	0	3	1	10
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	2
Total	0	1	0	7	2	0	0	0	3	3	0	0	0	1	3	0	0	0	0	0	10	3	33
Grand Total	0	3	0	9	2	0	0	0	6	9	1	1	0	20	26	0	0	0	0	0	31	12	120
Apprch %	0	21.4	0	64.3	14.3	0	0	0	40	60	2.1	2.1	0	41.7	54.2	0	0	0	0	0	72.1	27.9	
Total %	0	2.5	0	7.5	1.7	0	0	0	5	7.5	0.8	0.8	0	16.7	21.7	0	0	0	0	0	25.8	10	

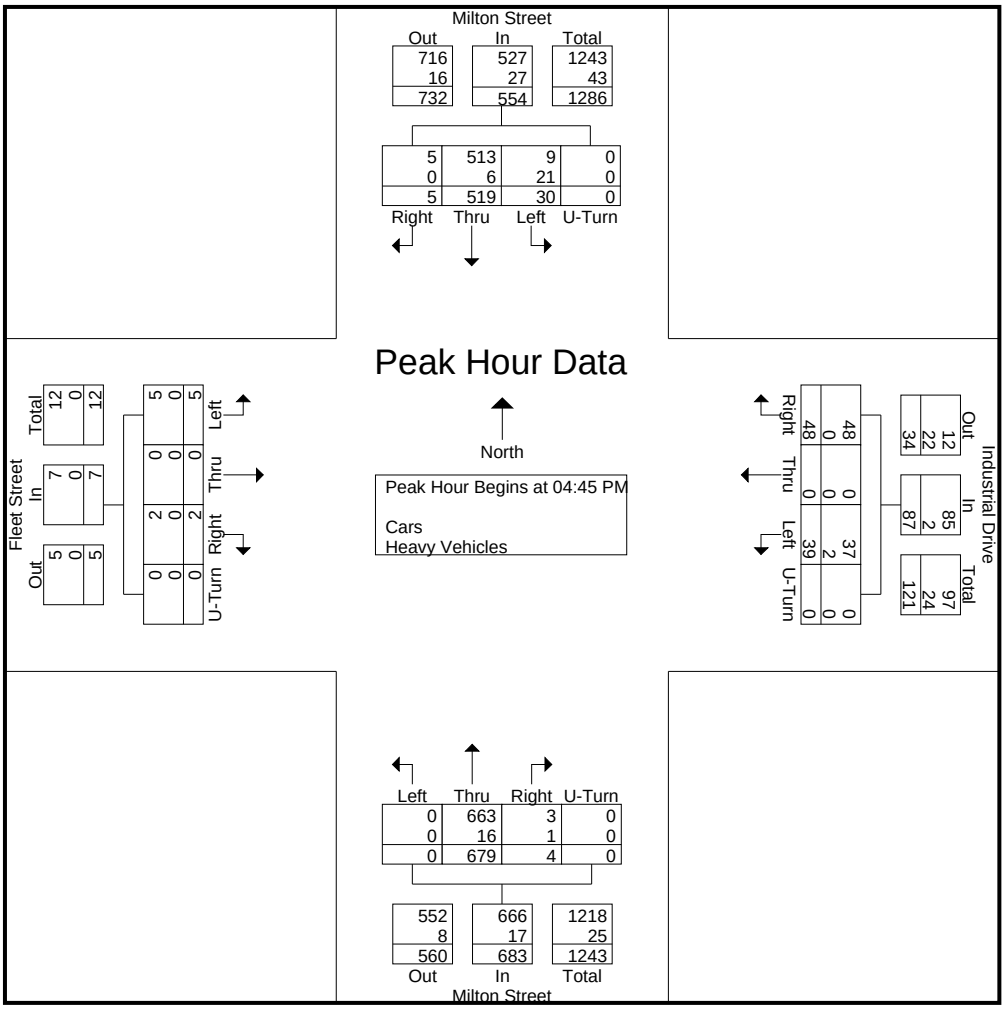
	Milton Street From North						Industrial Drive From East						Milton Street From South								Fleet Street From West						
Start Time	Right	Thru	Left	Peds EB	Peds WB	App. Total	Right	Thru	Left	Peds SB	Peds NB	App. Total	Right	Thru	Left	Peds Mid WB	Peds Mid EB	Peds WB	Peds EB	App. Total	Right	Thru	Left	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 04:30 PM																											
04:30 PM	0	0	0	2	0	2	0	0	0	3	4	7	1	1	0	12	3	0	0	17	0	0	0	2	2	4	30
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	18	0	0	21	0	0	0	18	2	20	41
05:00 PM	0	0	0	2	0	2	0	0	0	1	1	2	0	0	0	0	2	0	0	2	0	0	0	2	0	2	8
05:15 PM	0	1	0	3	2	6	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	4	2	6	13
Total Volume	0	1	0	7	2	10	0	0	0	5	5	10	1	1	0	15	23	0	0	40	0	0	0	26	6	32	92
% App. Total	0	10	0	70	20		0	0	0	50	50		2.5	2.5	0	37.5	57.5	0	0		0	0	0	81.2	18.8		
PHF	.000	.250	.000	.583	.250	.417	.000	.000	.000	.417	.313	.357	.250	.250	.000	.313	.319	.000	.000	.476	.000	.000	.000	.361	.750	.400	.561

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N/S: Milton Street
E/W: Industrial Drive/ Fleet Street
City, State: Hyde Park, MA
Client: VHB/ C. Dube

File Name : 165155 AA
Site Code : TBA
Start Date : 6/23/2016
Page No : 1

	Milton Street From North					Industrial Drive From East					Milton Street From South					Fleet 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	1	113	13	0	127	18	0	11	0	29	3	188	0	0	191	0	0	0	0	0	347
05:00 PM	1	131	7	0	139	8	0	6	0	14	0	165	0	0	165	1	0	2	0	3	321
05:15 PM	2	131	5	0	138	14	0	14	0	28	0	159	0	0	159	1	0	3	0	4	329
05:30 PM	1	144	5	0	150	8	0	8	0	16	1	167	0	0	168	0	0	0	0	0	334
Total Volume	5	519	30	0	554	48	0	39	0	87	4	679	0	0	683	2	0	5	0	7	1331
% App. Total	0.9	93.7	5.4	0		55.2	0	44.8	0		0.6	99.4	0	0		28.6	0	71.4	0		
PHF	.625	.901	.577	.000	.923	.667	.000	.696	.000	.750	.333	.903	.000	.000	.894	.500	.000	.417	.000	.438	.959
Cars	5	513	9	0	527	48	0	37	0	85	3	663	0	0	666	2	0	5	0	7	1285
% Cars	100	98.8	30.0	0	95.1	100	0	94.9	0	97.7	75.0	97.6	0	0	97.5	100	0	100	0	100	96.5
Heavy Vehicles	0	6	21	0	27	0	0	2	0	2	1	16	0	0	17	0	0	0	0	0	46
% Heavy Vehicles	0	1.2	70.0	0	4.9	0	0	5.1	0	2.3	25.0	2.4	0	0	2.5	0	0	0	0	0	3.5



Sprague Street
north of Horne Street
City, Hyde Park, MA
Client: VHB/C. Dube

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

165002 A Class
Site Code: 13464.00
Date Start: 30-Mar-16

NB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
03/30/1														
6	1	21	0	1	0	1	0	0	0	0	0	0	0	24
01:00	0	11	5	0	0	0	0	0	0	0	0	0	0	16
02:00	0	8	0	0	0	2	0	0	0	0	0	0	0	10
03:00	0	2	8	0	1	0	0	0	0	0	0	0	0	11
04:00	0	11	11	0	6	0	0	0	0	0	0	0	0	28
05:00	1	64	30	0	21	2	0	0	0	0	0	0	0	118
06:00	2	189	64	2	37	2	0	2	3	0	0	0	0	301
07:00	5	329	92	6	46	4	2	4	3	0	0	0	0	491
08:00	2	262	65	4	29	1	0	3	5	0	0	0	0	371
09:00	1	191	72	3	33	3	1	3	7	0	0	0	0	314
10:00	5	141	51	6	41	6	3	1	4	0	0	0	0	258
11:00	0	162	58	4	31	5	1	0	6	0	0	0	0	267
12 PM	9	192	48	3	22	4	2	1	4	0	0	0	0	285
13:00	4	165	36	5	22	9	1	2	1	0	0	0	0	245
14:00	7	187	51	4	31	8	2	4	2	0	0	0	0	296
15:00	6	259	56	1	27	7	1	0	1	0	0	0	0	358
16:00	0	296	72	1	17	5	0	0	0	0	0	0	0	391
17:00	9	306	63	0	18	3	0	0	0	0	0	0	0	399
18:00	2	273	53	0	19	1	0	1	0	0	0	0	0	349
19:00	1	195	45	2	7	1	0	0	0	0	0	0	0	251
20:00	0	140	37	0	7	2	0	0	0	0	0	0	0	186
21:00	2	116	30	0	6	1	0	0	0	0	0	0	0	155
22:00	1	74	17	0	7	1	0	0	0	0	0	0	0	100
23:00	1	69	19	1	3	2	0	0	0	0	0	0	0	95
Total	59	3663	983	43	431	70	13	21	36	0	0	0	0	5319
Percent	1.1%	68.9%	18.5%	0.8%	8.1%	1.3%	0.2%	0.4%	0.7%	0.0%	0.0%	0.0%	0.0%	
AM Peak	07:00	07:00	07:00	07:00	07:00	10:00	10:00	07:00	09:00					07:00
Vol.	5	329	92	6	46	6	3	4	7					491
PM Peak	12:00	17:00	16:00	13:00	14:00	13:00	12:00	14:00	12:00					17:00
Vol.	9	306	72	5	31	9	2	4	4					399

Sprague Street
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Email: datarequests@pdillc.com

165002 A Class
Site Code: 13464.00
Date Start: 30-Mar-16

NB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
03/31/1														
6	0	15	4	1	1	1	0	0	0	0	0	0	0	22
01:00	0	6	1	0	2	0	0	0	0	0	0	0	0	9
02:00	0	7	0	0	3	0	0	0	0	0	0	0	0	10
03:00	0	4	3	0	0	0	0	0	0	0	0	0	0	7
04:00	0	20	9	0	2	0	0	0	0	0	0	0	0	31
05:00	1	63	27	2	24	0	0	0	2	2	0	0	0	121
06:00	4	180	54	1	25	2	0	0	4	1	0	0	0	271
07:00	3	337	84	12	49	3	2	4	4	0	0	0	0	498
08:00	3	285	56	9	36	3	0	2	5	0	0	0	0	399
09:00	1	177	68	2	35	5	0	2	8	1	0	0	0	299
10:00	6	159	81	3	27	5	2	0	5	0	0	0	0	288
11:00	1	156	49	1	61	2	1	4	6	1	0	0	0	282
12 PM	5	212	56	5	31	5	1	1	3	1	0	0	0	320
13:00	6	180	65	2	27	5	2	2	7	1	0	0	0	297
14:00	9	187	70	3	27	7	0	1	7	1	0	0	0	312
15:00	2	266	77	3	29	5	0	1	4	0	0	0	0	387
16:00	3	255	73	2	26	8	0	2	1	0	0	0	0	370
17:00	4	288	71	3	15	0	0	0	0	0	0	0	0	381
18:00	1	253	51	1	12	1	0	1	0	0	0	0	0	320
19:00	2	189	44	0	8	2	0	0	0	0	0	0	0	245
20:00	0	161	36	1	9	0	0	0	0	0	0	0	0	207
21:00	1	110	27	0	5	1	0	0	0	0	0	0	0	144
22:00	2	70	14	0	9	0	0	0	0	0	0	0	0	95
23:00	0	65	20	1	4	1	0	0	0	0	0	0	0	91
Total	54	3645	1040	52	467	56	8	20	56	8	0	0	0	5406
Percent	1.0%	67.4%	19.2%	1.0%	8.6%	1.0%	0.1%	0.4%	1.0%	0.1%	0.0%	0.0%	0.0%	
AM Peak	10:00	07:00	07:00	07:00	11:00	09:00	07:00	07:00	09:00	05:00				07:00
Vol.	6	337	84	12	61	5	2	4	8	2				498
PM Peak	14:00	17:00	15:00	12:00	12:00	16:00	13:00	13:00	13:00	12:00				15:00
Vol.	9	288	77	5	31	8	2	2	7	1				387
Total		7308	2023	95	898	126	21	41	92	8	0	0	0	10725

Sprague Street
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Email: datarequests@pdillc.com

165002 A Class
Site Code: 13464.00
Date Start: 30-Mar-16

SB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
03/30/1														
6	0	10	7	1	0	0	0	0	0	0	0	0	0	18
01:00	0	2	3	0	2	1	0	0	0	0	0	0	0	8
02:00	0	4	6	0	1	1	0	0	0	0	0	0	0	12
03:00	0	2	2	0	4	0	0	0	0	0	0	0	0	8
04:00	0	10	26	2	9	0	0	0	0	0	0	0	0	47
05:00	0	32	44	0	11	1	0	0	0	0	0	0	0	88
06:00	3	133	72	6	23	8	1	1	2	1	0	0	0	250
07:00	4	168	98	3	32	6	0	0	5	0	0	0	0	316
08:00	3	173	85	6	37	6	0	1	5	0	0	0	0	316
09:00	4	168	51	5	38	4	0	4	1	0	0	0	0	275
10:00	1	124	67	6	40	3	0	0	11	0	0	0	0	252
11:00	4	133	61	6	47	8	0	1	7	0	0	0	0	267
12 PM	3	159	67	2	24	3	0	1	2	0	0	0	0	261
13:00	2	147	60	9	32	6	0	4	3	0	0	0	0	263
14:00	3	163	84	2	40	6	1	6	0	0	0	0	0	305
15:00	2	220	90	4	47	2	0	2	0	0	0	0	0	367
16:00	4	258	99	2	41	2	0	1	0	0	0	0	0	407
17:00	2	278	99	0	39	3	0	6	0	0	0	0	0	427
18:00	2	258	79	2	36	0	0	0	0	0	0	0	0	377
19:00	0	158	65	0	24	3	0	1	0	0	0	0	0	251
20:00	2	99	48	0	16	2	0	0	1	0	0	0	0	168
21:00	0	63	32	0	6	0	0	0	1	0	0	0	0	102
22:00	2	46	28	0	14	1	0	0	0	0	0	0	0	91
23:00	0	23	22	0	6	1	0	1	0	0	0	0	0	53
Total	41	2831	1295	56	569	67	2	29	38	1	0	0	0	4929
Percent	0.8%	57.4%	26.3%	1.1%	11.5%	1.4%	0.0%	0.6%	0.8%	0.0%	0.0%	0.0%	0.0%	
AM Peak	07:00	08:00	07:00	06:00	11:00	06:00	06:00	09:00	10:00	06:00				07:00
Vol.	4	173	98	6	47	8	1	4	11	1				316
PM Peak	16:00	17:00	16:00	13:00	15:00	13:00	14:00	14:00	13:00					17:00
Vol.	4	278	99	9	47	6	1	6	3					427

Sprague Street
north of Horne Street
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165002 A Class
Site Code: 13464.00
Date Start: 30-Mar-16

SB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
03/31/1														
6	0	12	14	1	4	0	0	0	0	0	0	0	0	31
01:00	0	3	4	0	1	0	0	0	0	0	0	0	0	8
02:00	0	3	5	0	0	1	0	0	0	0	0	0	0	9
03:00	0	2	2	0	3	0	0	0	0	0	0	0	0	7
04:00	0	15	11	1	3	1	0	0	0	0	0	0	0	31
05:00	0	59	27	0	10	3	0	0	1	0	0	0	0	100
06:00	2	162	50	5	19	6	0	2	1	2	0	0	0	249
07:00	3	187	79	5	35	6	0	0	4	1	0	0	0	320
08:00	2	185	69	2	24	7	0	0	4	0	0	0	0	293
09:00	3	165	65	6	30	2	0	2	1	4	0	0	0	278
10:00	3	140	63	4	28	6	0	1	2	0	0	0	0	247
11:00	3	119	52	8	46	4	0	4	5	4	0	0	0	245
12 PM	6	151	77	3	43	8	0	1	2	0	0	0	0	291
13:00	8	168	60	5	29	5	1	3	4	5	0	0	0	288
14:00	3	196	70	9	42	2	0	3	7	0	0	0	0	332
15:00	4	201	83	3	49	3	1	3	0	0	0	0	0	347
16:00	2	225	120	3	53	2	0	2	0	0	0	0	0	407
17:00	1	232	85	2	40	0	0	2	0	0	0	0	0	362
18:00	2	253	94	3	44	0	0	0	0	0	0	0	0	396
19:00	3	182	47	2	21	0	0	0	0	0	0	0	0	255
20:00	1	109	56	1	12	0	0	0	0	0	0	0	0	179
21:00	2	90	30	1	7	1	0	0	0	0	0	0	0	131
22:00	0	62	23	0	8	0	0	0	0	0	0	0	0	93
23:00	0	31	18	0	6	0	0	0	0	0	0	0	0	55
Total	48	2952	1204	64	557	57	2	23	31	16	0	0	0	4954
Percent	1.0%	59.6%	24.3%	1.3%	11.2%	1.2%	0.0%	0.5%	0.6%	0.3%	0.0%	0.0%	0.0%	
AM Peak	07:00	07:00	07:00	11:00	11:00	08:00		11:00	11:00	09:00				07:00
Vol.	3	187	79	8	46	7		4	5	4				320
PM Peak	13:00	18:00	16:00	14:00	16:00	12:00	13:00	13:00	14:00	13:00				16:00
Vol.	8	253	120	9	53	8	1	3	7	5				407
Total		5783	2499	120	1126	124	4	52	69	17	0	0	0	9883

Sprague Street
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165002 A Speed
Site Code: 13464.00
Date Start: 30-Mar-16

NB

Start Time	1 14	15 19	20 24	25 29	30 34	35 39	40 44	45 49	50 54	55 59	60 64	65 69	70 9999	Total	85th % ile	Ave Speed
03/30/ 16	0	0	3	2	4	5	8	2	0	0	0	0	0	24	42	36
01:00	0	0	0	2	1	5	3	5	0	0	0	0	0	16	46	39
02:00	0	1	0	2	2	4	1	0	0	0	0	0	0	10	38	32
03:00	0	0	0	0	0	4	4	2	1	0	0	0	0	11	47	42
04:00	0	0	1	0	0	8	9	5	**4**	1	0	0	0	28	50	43
05:00	0	**3**	3	1	14	41	39	11	3	**3**	0	0	0	118	43	39
06:00	0	1	6	19	78	124	61	11	1	0	0	0	0	301	41	36
07:00	1	2	**15**	19	**126**	**232**	**77**	**16**	2	0	**1**	0	0	**491**	40	36
08:00	**11**	1	6	**29**	88	153	76	7	0	0	0	0	0	371	40	35
09:00	0	1	6	29	99	125	44	8	2	0	0	0	0	314	39	35
10:00	0	0	8	46	78	92	28	5	0	1	0	0	0	258	38	34
11:00	0	2	**14**	32	94	80	33	**10**	**1**	0	0	**1**	0	267	39	34
12 PM	3	**3**	7	40	89	93	**39**	9	1	**1**	0	0	0	285	39	34
13:00	**7**	1	9	23	82	88	31	3	1	0	0	0	0	245	38	34
14:00	1	3	9	**48**	**97**	**99**	36	3	0	0	0	0	0	**296**	38	34
15:00	1	0	11	54	107	130	47	7	0	**1**	0	0	0	358	39	34
16:00	1	**2**	**23**	**73**	121	**134**	30	6	1	0	0	0	0	391	38	33
17:00	1	1	17	50	**124**	128	**70**	8	0	0	0	0	0	**399**	40	35
18:00	**2**	2	15	52	105	121	44	8	0	0	0	0	0	349	38	34
19:00	0	1	10	46	68	86	29	**10**	1	0	0	0	0	251	39	34
20:00	0	1	3	17	48	73	34	8	1	0	**1**	0	0	186	41	36
21:00	1	0	10	25	42	44	28	4	1	0	0	0	0	155	40	34
22:00	0	0	0	6	27	45	17	3	**2**	0	0	0	0	100	41	36
23:00	1	2	6	10	18	33	25	0	0	0	0	0	0	95	41	35
Total	30	27	182	625	1512	1947	813	151	22	7	2	1	0	5319		
%	0.6%	0.5%	3.4%	11.8%	28.4%	36.6%	15.3%	2.8%	0.4%	0.1%	0.0%	0.0%	0.0%			
AM Peak	08:00	05:00	07:00	08:00	07:00	07:00	07:00	07:00	04:00	05:00	07:00			07:00		
Vol.	11	3	15	29	126	232	77	16	4	3	1			491		
Midday Peak	13:00	12:00	11:00	14:00	14:00	14:00	12:00	11:00	11:00	12:00		11:00		14:00		
Vol.	7	3	14	48	97	99	39	10	1	1		1		296		
PM Peak	18:00	16:00	16:00	16:00	17:00	16:00	17:00	19:00	22:00	15:00	20:00			17:00		
Vol.	2	2	23	73	124	134	70	10	2	1	1			399		

% iles		
	15th Percentile :	28 MPH
	50th Percentile :	34 MPH
	85th Percentile :	40 MPH
	95th Percentile :	43 MPH

Stats		
	10 MPH Pace Speed :	30-39 MPH
	Number in Pace :	3459
	Percent in Pace :	65.0%
	Number of Vehicles > 35 MPH :	2554
	Percent of Vehicles > 35 MPH :	48.0%
	Mean Speed(Average) :	35 MPH

Sprague Street
north of Horne Street
City, Hyde Park, MA
Client: VHB/C. Dube

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

165002 A Speed
Site Code: 13464.00
Date Start: 30-Mar-16

NB

Start Time	1 14	15 19	20 24	25 29	30 34	35 39	40 44	45 49	50 54	55 59	60 64	65 69	70 9999	Total	85th % ile	Ave Speed
03/31/ 16	0	0	2	3	5	5	4	3	0	0	0	0	0	22	43	35
01:00	0	1	0	1	2	4	0	1	0	0	0	0	0	9	38	34
02:00	0	0	0	1	1	4	1	2	1	0	0	0	0	10	47	40
03:00	0	0	0	0	2	2	2	1	0	0	0	0	0	7	43	38
04:00	0	0	1	1	4	10	8	5	1	**1**	0	0	0	31	46	40
05:00	0	3	1	8	19	44	32	10	**4**	0	0	0	0	121	43	38
06:00	0	1	2	43	66	111	37	10	1	0	0	0	0	271	39	35
07:00	**3**	**5**	**19**	**57**	**140**	**177**	**88**	9	0	0	0	0	0	**498**	40	35
08:00	0	2	1	30	116	170	69	10	1	0	0	0	0	399	40	36
09:00	0	1	6	31	87	105	56	**13**	0	0	0	0	0	299	41	36
10:00	0	0	13	36	89	98	40	10	1	0	1	0	0	288	40	35
11:00	1	2	7	30	73	114	**44**	8	3	0	0	0	0	282	40	35
12 PM	0	1	7	42	**95**	**122**	40	11	0	**1**	**1**	0	0	**320**	39	35
13:00	0	4	8	**60**	87	92	34	10	1	1	0	0	0	297	39	34
14:00	**2**	**5**	**14**	40	93	95	44	**13**	**5**	0	1	0	0	312	40	34
15:00	0	1	15	52	**135**	126	45	11	2	0	0	0	0	**387**	38	34
16:00	0	0	**17**	62	95	120	**54**	**18**	**4**	0	0	0	0	370	40	35
17:00	**1**	1	10	**68**	115	**135**	37	12	0	0	**1**	**1**	0	381	38	34
18:00	0	1	12	43	93	117	43	11	0	0	0	0	0	320	39	35
19:00	0	1	5	45	79	78	32	3	2	0	0	0	0	245	39	34
20:00	0	0	8	20	59	86	27	4	3	0	0	0	0	207	39	35
21:00	0	0	5	18	38	57	19	4	3	0	0	0	0	144	40	35
22:00	1	**2**	0	7	28	35	19	3	0	0	0	0	0	95	41	35
23:00	0	1	5	16	12	30	21	4	0	**1**	1	0	0	91	42	36
Total	8	32	158	714	1533	1937	796	186	32	4	5	1	0	5406		
%	0.1%	0.6%	2.9%	13.2%	28.4%	35.8%	14.7%	3.4%	0.6%	0.1%	0.1%	0.0%	0.0%			
AM Peak	07:00	07:00	07:00	07:00	07:00	07:00	07:00	09:00	05:00	04:00				07:00		
Vol.	3	5	19	57	140	177	88	13	4	1				498		
Midday Peak	14:00	14:00	14:00	13:00	12:00	12:00	11:00	14:00	14:00	12:00	12:00			12:00		
Vol.	2	5	14	60	95	122	44	13	5	1	1			320		
PM Peak	17:00	22:00	16:00	17:00	15:00	17:00	16:00	16:00	16:00	23:00	17:00	17:00		15:00		
Vol.	1	2	17	68	135	135	54	18	4	1	1	1		387		

% iles	
15th Percentile :	28 MPH
50th Percentile :	34 MPH
85th Percentile :	40 MPH
95th Percentile :	43 MPH

Stats	
10 MPH Pace Speed :	30-39 MPH
Number in Pace :	3470
Percent in Pace :	64.2%
Number of Vehicles > 35 MPH :	2574
Percent of Vehicles > 35 MPH :	47.6%
Mean Speed(Average) :	35 MPH

Sprague Street
north of Horne Street
City, Hyde Park, MA
Client: VHB/C. Dube

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Email: datarequests@pdillc.com

165002 A Speed
Site Code: 13464.00
Date Start: 30-Mar-16

SB

Start Time	1 14	15 19	20 24	25 29	30 34	35 39	40 44	45 49	50 54	55 59	60 64	65 69	70 9999	Total	85th % ile	Ave Speed
03/30/16	0	0	1	1	4	4	6	2	0	0	0	0	0	18	43	37
01:00	0	0	0	1	1	3	2	1	0	0	0	0	0	8	43	38
02:00	0	0	1	1	0	3	4	3	0	0	0	0	0	12	46	39
03:00	0	0	0	0	0	2	3	1	2	0	0	0	0	8	51	44
04:00	0	0	0	0	4	12	11	13	4	**1**	**1**	**1**	0	47	48	43
05:00	0	0	1	3	13	29	22	17	1	1	1	0	0	88	45	40
06:00	1	**4**	**8**	**37**	56	86	38	**18**	2	0	0	0	0	250	41	35
07:00	1	2	2	22	67	117	**82**	17	**5**	1	0	0	0	**316**	42	37
08:00	**2**	3	8	18	67	**122**	74	18	4	0	0	0	0	316	42	37
09:00	0	2	4	19	**96**	105	38	8	2	1	0	0	0	275	40	35
10:00	1	1	1	11	67	122	46	3	0	0	0	0	0	252	40	36
11:00	0	**2**	5	23	75	107	42	**13**	0	0	0	0	0	267	40	36
12 PM	**1**	2	1	11	66	111	**59**	9	**1**	0	0	0	0	261	41	37
13:00	0	1	2	23	74	114	44	5	0	0	0	0	0	263	40	36
14:00	1	2	**7**	**25**	**87**	**124**	47	12	0	0	0	0	0	**305**	40	35
15:00	0	0	1	26	98	165	**67**	8	1	**1**	0	0	0	367	40	36
16:00	0	0	4	31	122	178	61	**11**	0	0	0	0	0	407	39	36
17:00	0	**3**	5	**41**	**127**	173	67	11	0	0	0	0	0	**427**	40	35
18:00	**1**	1	**8**	29	90	**181**	61	6	0	0	0	0	0	377	39	36
19:00	0	0	4	17	79	106	38	6	1	0	0	0	0	251	39	36
20:00	0	1	1	6	21	83	47	5	**4**	0	0	0	0	168	42	38
21:00	1	0	0	5	13	46	31	6	0	0	0	0	0	102	42	38
22:00	0	0	0	6	13	37	23	9	2	0	**1**	0	0	91	43	38
23:00	0	1	0	0	4	15	22	9	1	1	0	0	0	53	45	41
Total	9	25	64	356	1244	2045	935	211	30	6	3	1	0	4929		
%	0.2%	0.5%	1.3%	7.2%	25.2%	41.5%	19.0%	4.3%	0.6%	0.1%	0.1%	0.0%	0.0%			
AM Peak	08:00	06:00	06:00	06:00	09:00	08:00	07:00	06:00	07:00	04:00	04:00	04:00		07:00		
Vol.	2	4	8	37	96	122	82	18	5	1	1	1		316		
Midday Peak	12:00	11:00	14:00	14:00	14:00	14:00	12:00	11:00	12:00					14:00		
Vol.	1	2	7	25	87	124	59	13	1					305		
PM Peak	18:00	17:00	18:00	17:00	17:00	18:00	15:00	16:00	20:00	15:00	22:00			17:00		
Vol.	1	3	8	41	127	181	67	11	4	1	1			427		

% iles		
	15th Percentile :	30 MPH
	50th Percentile :	35 MPH
	85th Percentile :	41 MPH
	95th Percentile :	44 MPH

Stats		
	10 MPH Pace Speed :	30-39 MPH
	Number in Pace :	3289
	Percent in Pace :	66.7%
	Number of Vehicles > 35 MPH :	2822
	Percent of Vehicles > 35 MPH :	57.3%
	Mean Speed(Average) :	36 MPH

Sprague Street
north of Horne Street
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Email: datarequests@pdillc.com

165002 A Speed
Site Code: 13464.00
Date Start: 30-Mar-16

SB

Start Time	1 14	15 19	20 24	25 29	30 34	35 39	40 44	45 49	50 54	55 59	60 64	65 69	70 9999	Total	85th % ile	Ave Speed
03/31/ 16	0	0	0	3	4	6	10	6	2	0	0	0	0	31	46	40
01:00	0	0	0	0	3	2	3	0	0	0	0	0	0	8	42	37
02:00	0	0	0	1	0	4	2	2	0	0	0	0	0	9	45	39
03:00	0	0	0	0	0	2	4	1	0	0	0	0	0	7	43	41
04:00	0	0	0	0	6	12	6	4	2	**1**	0	0	0	31	46	40
05:00	0	1	0	3	15	37	31	10	**3**	0	0	0	0	100	43	39
06:00	0	**2**	4	**30**	77	89	43	4	0	0	0	0	0	249	40	35
07:00	1	1	**8**	29	80	117	**64**	**17**	3	0	0	0	0	**320**	41	36
08:00	**6**	2	5	24	60	**123**	62	10	0	1	0	0	0	293	41	36
09:00	0	2	4	23	**90**	117	34	7	1	0	0	0	0	278	39	35
10:00	0	0	5	19	69	114	34	5	1	0	0	0	0	247	39	35
11:00	1	2	4	13	**91**	88	40	4	**2**	0	0	0	0	245	40	35
12 PM	0	0	3	19	63	142	56	5	2	**1**	0	0	0	291	40	36
13:00	**4**	**3**	**9**	33	89	92	50	8	0	0	0	0	0	288	40	34
14:00	0	0	6	**35**	73	**148**	**60**	**9**	1	0	0	0	0	**332**	40	36
15:00	**2**	**2**	**7**	23	92	141	**69**	9	**2**	0	0	0	0	347	41	36
16:00	0	0	4	31	109	**196**	58	8	0	**1**	0	0	0	**407**	39	36
17:00	1	2	4	**32**	95	160	57	11	0	0	0	0	0	362	40	36
18:00	0	0	4	25	**116**	180	64	6	0	0	**1**	0	0	396	39	36
19:00	0	0	0	11	87	116	39	2	0	0	0	0	0	255	39	36
20:00	0	0	0	12	33	75	47	**12**	0	0	0	0	0	179	42	37
21:00	0	0	1	7	25	55	37	6	0	0	0	0	0	131	42	37
22:00	0	0	0	2	7	46	28	9	0	0	1	0	0	93	43	39
23:00	0	0	0	4	4	24	15	7	0	1	0	0	0	55	43	39
Total	15	17	68	379	1288	2086	913	162	19	5	2	0	0	4954		
%	0.3%	0.3%	1.4%	7.7%	26.0%	42.1%	18.4%	3.3%	0.4%	0.1%	0.0%	0.0%	0.0%			
AM Peak	08:00	06:00	07:00	06:00	09:00	08:00	07:00	07:00	05:00	04:00				07:00		
Vol.	6	2	8	30	90	123	64	17	3	1				320		
Midday Peak	13:00	13:00	13:00	14:00	11:00	14:00	14:00	14:00	11:00	12:00				14:00		
Vol.	4	3	9	35	91	148	60	9	2	1				332		
PM Peak	15:00	15:00	15:00	17:00	18:00	16:00	15:00	20:00	15:00	16:00	18:00			16:00		
Vol.	2	2	7	32	116	196	69	12	2	1	1			407		

% iles		
	15th Percentile :	30 MPH
	50th Percentile :	35 MPH
	85th Percentile :	40 MPH
	95th Percentile :	43 MPH

Stats		
	10 MPH Pace Speed :	30-39 MPH
	Number in Pace :	3374
	Percent in Pace :	68.1%
	Number of Vehicles > 35 MPH :	2770
	Percent of Vehicles > 35 MPH :	55.9%
	Mean Speed(Average) :	36 MPH

Sprague Street
north of Horne Street
City, Hyde Park, MA
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PRECISION
D A T A
INDUSTRIES, LLC
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165002 A Volume
Site Code: 13464.00
Date Start: 30-Mar-16

Start	NB				SB				Combined				30-Mar-16
Time	A.M.		P.M.		A.M.		P.M.		A.M.		P.M.		Wed
12:00	4		92		6		72		10		164		
12:15	8		69		4		63		12		132		
12:30	5		61		3		63		8		124		
12:45	7	24	63	285	5	18	63	261	12	42	126	546	
01:00	6		60		2		63		8		123		
01:15	5		69		0		53		5		122		
01:30	2		58		2		76		4		134		
01:45	3	16	58	245	4	8	71	263	7	24	129	508	
02:00	2		78		6		66		8		144		
02:15	3		77		1		65		4		142		
02:30	1		75		4		89		5		164		
02:45	4	10	66	296	1	12	85	305	5	22	151	601	
03:00	1		89		3		87		4		176		
03:15	1		83		1		121		2		204		
03:30	3		97		1		70		4		167		
03:45	6	11	89	358	3	8	89	367	9	19	178	725	
04:00	2		87		6		92		8		179		
04:15	4		66		8		108		12		174		
04:30	11		126		18		100		29		226		
04:45	11	28	112	391	15	47	107	407	26	75	219	798	
05:00	19		115		8		108		27		223		
05:15	26		107		15		106		41		213		
05:30	38		106		30		85		68		191		
05:45	35	118	71	399	35	88	128	427	70	206	199	826	
06:00	59		109		40		113		99		222		
06:15	65		94		58		92		123		186		
06:30	85		83		63		85		148		168		
06:45	92	301	63	349	89	250	87	377	181	551	150	726	
07:00	128		64		70		69		198		133		
07:15	133		61		76		72		209		133		
07:30	117		76		87		61		204		137		
07:45	113	491	50	251	83	316	49	251	196	807	99	502	
08:00	95		48		90		46		185		94		
08:15	92		52		68		47		160		99		
08:30	93		48		80		33		173		81		
08:45	91	371	38	186	78	316	42	168	169	687	80	354	
09:00	76		45		72		25		148		70		
09:15	91		43		81		37		172		80		
09:30	80		42		49		19		129		61		
09:45	67	314	25	155	73	275	21	102	140	589	46	257	
10:00	70		34		65		18		135		52		
10:15	66		28		47		30		113		58		
10:30	60		18		71		25		131		43		
10:45	62	258	20	100	69	252	18	91	131	510	38	191	
11:00	73		32		57		17		130		49		
11:15	63		29		70		13		133		42		
11:30	64		16		68		10		132		26		
11:45	67	267	18	95	72	267	13	53	139	534	31	148	
Total	2209		3110		1857		3072		4066		6182		
Percent	54.3%		50.3%		45.7%		49.7%						
Day Total		5319				4929				10248			
Peak	07:00	-	04:30	-	07:15	-	05:15	-	07:00	-	04:30	-	-	-
Vol.	491	-	460	-	336	-	432	-	807	-	881	-	-	-
P.H.F.	0.923		0.913		0.933		0.844		0.965		0.975			

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165002 A Volume
Site Code: 13464.00
Date Start: 30-Mar-16

Start	NB				SB				Combined				31-Mar-16
Time	A.M.		P.M.		A.M.		P.M.		A.M.		P.M.		Thu
12:00	4		91		12		77		16		168		
12:15	6		84		8		72		14		156		
12:30	3		87		4		69		7		156		
12:45	9	22	58	320	7	31	73	291	16	53	131	611	
01:00	1		85		2		77		3		162		
01:15	2		69		2		79		4		148		
01:30	3		73		1		69		4		142		
01:45	3	9	70	297	3	8	63	288	6	17	133	585	
02:00	1		100		1		86		2		186		
02:15	4		60		1		80		5		140		
02:30	4		74		2		96		6		170		
02:45	1	10	78	312	5	9	70	332	6	19	148	644	
03:00	2		82		1		76		3		158		
03:15	0		90		2		92		2		182		
03:30	1		106		2		94		3		200		
03:45	4	7	109	387	2	7	85	347	6	14	194	734	
04:00	2		84		3		102		5		186		
04:15	6		87		8		89		14		176		
04:30	12		116		10		107		22		223		
04:45	11	31	83	370	10	31	109	407	21	62	192	777	
05:00	22		118		12		88		34		206		
05:15	22		90		18		91		40		181		
05:30	38		78		33		83		71		161		
05:45	39	121	95	381	37	100	100	362	76	221	195	743	
06:00	59		100		45		102		104		202		
06:15	61		68		50		94		111		162		
06:30	73		92		67		100		140		192		
06:45	78	271	60	320	87	249	100	396	165	520	160	716	
07:00	123		66		73		81		196		147		
07:15	144		70		77		76		221		146		
07:30	123		47		71		45		194		92		
07:45	108	498	62	245	99	320	53	255	207	818	115	500	
08:00	111		54		72		43		183		97		
08:15	102		56		77		45		179		101		
08:30	101		55		72		40		173		95		
08:45	85	399	42	207	72	293	51	179	157	692	93	386	
09:00	82		42		87		50		169		92		
09:15	78		36		72		36		150		72		
09:30	73		40		54		16		127		56		
09:45	66	299	26	144	65	278	29	131	131	577	55	275	
10:00	74		19		70		26		144		45		
10:15	84		32		61		19		145		51		
10:30	75		20		67		18		142		38		
10:45	55	288	24	95	49	247	30	93	104	535	54	188	
11:00	68		28		53		11		121		39		
11:15	76		30		63		14		139		44		
11:30	72		26		69		13		141		39		
11:45	66	282	7	91	60	245	17	55	126	527	24	146	
Total	2237		3169		1818		3136		4055		6305		
Percent	55.2%		50.3%		44.8%		49.7%						
Day Total		5406				4954				10360			
Peak	07:00	-	04:30	-	07:00	-	04:00	-	07:00	-	04:30	-	-	-
Vol.	498	-	407	-	320	-	407	-	818	-	802	-	-	-
P.H.F.	0.865		0.862		0.808		0.933		0.925		0.899			

Sprague Street
north of Horne Street
City, State: Hyde Park, MA
Client: VHB/ C. Dube

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

165155 A Volume
Site Code: TBD

Start	NB				SB				Combined				22-Jun-16
Time	A.M.		P.M.		A.M.		P.M.		A.M.		P.M.		Wed
12:00	6		84		11		88		17		172		
12:15	7		82		4		88		11		170		
12:30	4		73		4		78		8		151		
12:45	4	21	83	322	4	23	78	332	8	44	161	654	
01:00	6		69		5		81		11		150		
01:15	2		60		4		73		6		133		
01:30	4		75		3		76		7		151		
01:45	0	12	86	290	0	12	100	330	0	24	186	620	
02:00	23		111		8		77		31		188		
02:15	8		69		9		101		17		170		
02:30	6		69		3		123		9		192		
02:45	5	42	77	326	4	24	100	401	9	66	177	727	
03:00	3		79		2		100		5		179		
03:15	4		90		1		102		5		192		
03:30	2		94		3		99		5		193		
03:45	5	14	93	356	4	10	102	403	9	24	195	759	
04:00	8		111		7		96		15		207		
04:15	3		83		6		94		9		177		
04:30	7		112		10		109		17		221		
04:45	11	29	95	401	10	33	93	392	21	62	188	793	
05:00	26		124		16		84		42		208		
05:15	25		82		18		103		43		185		
05:30	48		84		36		130		84		214		
05:45	53	152	72	362	32	102	96	413	85	254	168	775	
06:00	73		87		49		82		122		169		
06:15	81		64		65		97		146		161		
06:30	99		83		63		82		162		165		
06:45	96	349	86	320	90	267	88	349	186	616	174	669	
07:00	121		93		84		74		205		167		
07:15	107		68		78		75		185		143		
07:30	106		74		83		72		189		146		
07:45	100	434	71	306	79	324	78	299	179	758	149	605	
08:00	112		85		70		67		182		152		
08:15	110		72		69		55		179		127		
08:30	90		46		88		50		178		96		
08:45	76	388	63	266	94	321	35	207	170	709	98	473	
09:00	106		43		88		40		194		83		
09:15	81		43		56		33		137		76		
09:30	69		38		62		33		131		71		
09:45	79	335	27	151	84	290	41	147	163	625	68	298	
10:00	87		25		68		25		155		50		
10:15	72		23		56		32		128		55		
10:30	81		34		46		23		127		57		
10:45	61	301	29	111	76	246	33	113	137	547	62	224	
11:00	62		30		77		11		139		41		
11:15	65		33		71		11		136		44		
11:30	61		19		78		16		139		35		
11:45	81	269	15	97	91	317	8	46	172	586	23	143	
Total	2346		3308		1969		3432		4315		6740		
Percent	54.4%		49.1%		45.6%		50.9%						
Day Total		5654				5401				11055			
Peak	07:00	-	04:15	-	08:15	-	02:30	-	06:45	-	04:30	-	-	-
Vol.	434	-	414	-	339	-	425	-	765	-	802	-	-	-
P.H.F.	0.897		0.835		0.902		0.864		0.933		0.907			

Sprague Street
north of Horne Street
City, State: Hyde Park, MA
Client: VHB/ C. Dube

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

165155 A Volume
Site Code: TBD

Start	NB				SB				Combined				23-Jun-16
Time	A.M.		P.M.		A.M.		P.M.		A.M.		P.M.		Thu
12:00	17		80		13		73		30		153		
12:15	10		74		5		70		15		144		
12:30	9		61		4		83		13		144		
12:45	7	43	85	300	4	26	77	303	11	69	162	603	
01:00	2		79		3		89		5		168		
01:15	7		46		5		74		12		120		
01:30	3		72		1		79		4		151		
01:45	1	13	68	265	4	13	75	317	5	26	143	582	
02:00	14		82		4		88		18		170		
02:15	3		76		6		85		9		161		
02:30	5		68		9		97		14		165		
02:45	2	24	69	295	2	21	98	368	4	45	167	663	
03:00	5		91		1		101		6		192		
03:15	4		78		3		113		7		191		
03:30	6		110		3		81		9		191		
03:45	4	19	80	359	4	11	98	393	8	30	178	752	
04:00	5		103		4		100		9		203		
04:15	3		85		8		100		11		185		
04:30	6		105		6		94		12		199		
04:45	15	29	128	421	12	30	107	401	27	59	235	822	
05:00	20		99		17		92		37		191		
05:15	26		90		20		105		46		195		
05:30	56		99		26		119		82		218		
05:45	55	157	84	372	44	107	98	414	99	264	182	786	
06:00	64		92		50		92		114		184		
06:15	69		76		49		115		118		191		
06:30	90		74		64		78		154		152		
06:45	106	329	77	319	101	264	72	357	207	593	149	676	
07:00	96		74		77		77		173		151		
07:15	124		62		72		62		196		124		
07:30	94		78		86		71		180		149		
07:45	98	412	76	290	89	324	63	273	187	736	139	563	
08:00	123		64		88		60		211		124		
08:15	100		75		61		56		161		131		
08:30	75		44		74		57		149		101		
08:45	70	368	58	241	86	309	46	219	156	677	104	460	
09:00	115		57		68		48		183		105		
09:15	62		64		76		39		138		103		
09:30	72		46		74		48		146		94		
09:45	77	326	44	211	94	312	59	194	171	638	103	405	
10:00	75		44		60		39		135		83		
10:15	68		39		61		29		129		68		
10:30	82		25		64		30		146		55		
10:45	80	305	23	131	70	255	20	118	150	560	43	249	
11:00	68		21		56		19		124		40		
11:15	71		33		67		12		138		45		
11:30	57		12		59		16		116		28		
11:45	85	281	13	79	74	256	8	55	159	537	21	134	
Total	2306		3283		1928		3412		4234		6695		
Percent	54.5%		49.0%		45.5%		51.0%						
Day Total		5589				5340				10929			
Peak	07:15	-	04:30	-	06:45	-	05:30	-	07:15	-	04:45	-	-	-
Vol.	439	-	422	-	336	-	424	-	774	-	839	-	-	-
P.H.F.	0.885		0.824		0.832		0.891		0.917		0.893			

Sprague Street
north of Horne Street
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Client: VHB/ C. Dube

PRECISION
D A T A
INDUSTRIES, LLC
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Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

165155 A Class
Site Code: TBD

NB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
06/22/1														
6	0	17	3	0	1	0	0	0	0	0	0	0	0	21
01:00	0	9	1	0	1	1	0	0	0	0	0	0	0	12
02:00	0	36	4	0	2	0	0	0	0	0	0	0	0	42
03:00	0	9	3	0	2	0	0	0	0	0	0	0	0	14
04:00	0	16	6	0	6	0	1	0	0	0	0	0	0	29
05:00	4	80	45	0	17	3	0	2	1	0	0	0	0	152
06:00	4	207	70	2	49	11	0	1	5	0	0	0	0	349
07:00	7	298	84	11	20	6	1	2	5	0	0	0	0	434
08:00	7	266	59	4	36	9	2	2	3	0	0	0	0	388
09:00	4	207	69	9	37	5	0	1	3	0	0	0	0	335
10:00	2	171	67	4	43	6	1	1	6	0	0	0	0	301
11:00	5	162	57	4	23	9	0	2	7	0	0	0	0	269
12 PM	3	211	66	3	26	5	1	2	5	0	0	0	0	322
13:00	5	199	42	0	24	8	1	2	8	1	0	0	0	290
14:00	3	208	66	4	33	4	0	3	5	0	0	0	0	326
15:00	5	253	57	3	30	8	0	0	0	0	0	0	0	356
16:00	7	287	76	3	19	4	2	0	3	0	0	0	0	401
17:00	9	274	53	3	18	4	0	1	0	0	0	0	0	362
18:00	6	230	50	2	32	0	0	0	0	0	0	0	0	320
19:00	4	221	55	0	25	1	0	0	0	0	0	0	0	306
20:00	3	194	51	1	16	1	0	0	0	0	0	0	0	266
21:00	3	109	32	1	5	1	0	0	0	0	0	0	0	151
22:00	0	95	13	1	2	0	0	0	0	0	0	0	0	111
23:00	1	69	21	0	3	3	0	0	0	0	0	0	0	97
Total	82	3828	1050	55	470	89	9	19	51	1	0	0	0	5654
Percent	1.5%	67.7%	18.6%	1.0%	8.3%	1.6%	0.2%	0.3%	0.9%	0.0%	0.0%	0.0%	0.0%	
AM Peak	07:00	07:00	07:00	07:00	06:00	06:00	08:00	05:00	11:00					07:00
Vol.	7	298	84	11	49	11	2	2	7					434
PM Peak	17:00	16:00	16:00	14:00	14:00	13:00	16:00	14:00	13:00	13:00				16:00
Vol.	9	287	76	4	33	8	2	3	8	1				401

PRECISION
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Sprague Street
north of Horne Street
City, State: Hyde Park, MA
Client: VHB/ C. Dube

165155 A Class
Site Code: TBD

NB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
06/23/1														
6	0	32	8	0	3	0	0	0	0	0	0	0	0	43
01:00	0	11	2	0	0	0	0	0	0	0	0	0	0	13
02:00	0	23	1	0	0	0	0	0	0	0	0	0	0	24
03:00	0	12	5	0	2	0	0	0	0	0	0	0	0	19
04:00	0	18	10	0	1	0	0	0	0	0	0	0	0	29
05:00	3	84	44	0	21	2	0	1	2	0	0	0	0	157
06:00	4	206	66	0	43	6	0	1	3	0	0	0	0	329
07:00	5	264	79	12	40	3	1	2	6	0	0	0	0	412
08:00	12	240	59	9	37	5	0	4	2	0	0	0	0	368
09:00	2	187	66	9	37	13	1	1	10	0	0	0	0	326
10:00	6	173	69	2	47	4	0	1	3	0	0	0	0	305
11:00	2	177	55	2	27	10	0	1	7	0	0	0	0	281
12 PM	7	173	66	5	31	9	0	2	7	0	0	0	0	300
13:00	8	179	42	0	21	3	1	3	8	0	0	0	0	265
14:00	6	191	51	4	30	6	0	2	5	0	0	0	0	295
15:00	16	249	70	1	16	5	0	1	1	0	0	0	0	359
16:00	8	297	80	2	26	5	0	2	1	0	0	0	0	421
17:00	8	263	77	2	22	0	0	0	0	0	0	0	0	372
18:00	9	227	55	0	27	1	0	0	0	0	0	0	0	319
19:00	4	200	58	1	22	2	0	2	1	0	0	0	0	290
20:00	4	162	61	0	13	1	0	0	0	0	0	0	0	241
21:00	5	143	43	1	15	3	0	0	1	0	0	0	0	211
22:00	1	94	21	2	12	0	0	0	1	0	0	0	0	131
23:00	2	52	22	0	2	1	0	0	0	0	0	0	0	79
Total	112	3657	1110	52	495	79	3	23	58	0	0	0	0	5589
Percent	2.0%	65.4%	19.9%	0.9%	8.9%	1.4%	0.1%	0.4%	1.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak	08:00	07:00	07:00	07:00	10:00	09:00	07:00	08:00	09:00					07:00
Vol.	12	264	79	12	47	13	1	4	10					412
PM Peak	15:00	16:00	16:00	12:00	12:00	12:00	13:00	13:00	13:00					16:00
Vol.	16	297	80	5	31	9	1	3	8					421

PRECISION
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Sprague Street
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165155 A Class
Site Code: TBD

SB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
06/22/1														
6	1	10	9	0	2	1	0	0	0	0	0	0	0	23
01:00	0	9	2	0	0	1	0	0	0	0	0	0	0	12
02:00	0	20	4	0	0	0	0	0	0	0	0	0	0	24
03:00	0	6	1	0	2	0	0	0	1	0	0	0	0	10
04:00	0	18	10	1	4	0	0	0	0	0	0	0	0	33
05:00	2	64	28	0	6	1	0	1	0	0	0	0	0	102
06:00	9	168	43	5	31	7	0	0	4	0	0	0	0	267
07:00	1	197	75	4	40	2	1	1	3	0	0	0	0	324
08:00	2	212	55	4	37	8	1	0	2	0	0	0	0	321
09:00	6	159	70	8	39	5	1	0	2	0	0	0	0	290
10:00	2	138	52	8	35	5	1	2	3	0	0	0	0	246
11:00	1	190	64	10	37	2	2	6	5	0	0	0	0	317
12 PM	0	184	79	5	47	7	1	5	4	0	0	0	0	332
13:00	4	181	79	7	46	5	3	0	5	0	0	0	0	330
14:00	6	229	95	4	45	9	0	4	9	0	0	0	0	401
15:00	8	225	94	4	57	9	0	3	3	0	0	0	0	403
16:00	8	253	80	3	44	2	0	1	1	0	0	0	0	392
17:00	3	283	83	3	39	2	0	0	0	0	0	0	0	413
18:00	0	247	72	4	24	0	0	2	0	0	0	0	0	349
19:00	8	203	58	2	27	1	0	0	0	0	0	0	0	299
20:00	3	151	37	1	15	0	0	0	0	0	0	0	0	207
21:00	1	103	35	0	6	1	0	0	1	0	0	0	0	147
22:00	3	78	26	2	4	0	0	0	0	0	0	0	0	113
23:00	0	34	11	0	1	0	0	0	0	0	0	0	0	46
Total	68	3362	1162	75	588	68	10	25	43	0	0	0	0	5401
Percent	1.3%	62.2%	21.5%	1.4%	10.9%	1.3%	0.2%	0.5%	0.8%	0.0%	0.0%	0.0%	0.0%	
AM Peak	06:00	08:00	07:00	11:00	07:00	08:00	11:00	11:00	11:00					07:00
Vol.	9	212	75	10	40	8	2	6	5					324
PM Peak	15:00	17:00	14:00	13:00	15:00	14:00	13:00	12:00	14:00					17:00
Vol.	8	283	95	7	57	9	3	5	9					413

PRECISION
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Sprague Street
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165155 A Class
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SB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
06/23/1														
6	0	18	2	1	5	0	0	0	0	0	0	0	0	26
01:00	0	10	3	0	0	0	0	0	0	0	0	0	0	13
02:00	0	18	3	0	0	0	0	0	0	0	0	0	0	21
03:00	0	7	3	0	1	0	0	0	0	0	0	0	0	11
04:00	0	20	8	0	2	0	0	0	0	0	0	0	0	30
05:00	1	60	37	0	6	1	2	0	0	0	0	0	0	107
06:00	6	164	35	3	40	8	1	2	5	0	0	0	0	264
07:00	6	207	61	4	38	2	1	3	2	0	0	0	0	324
08:00	5	185	50	8	45	6	1	3	6	0	0	0	0	309
09:00	4	168	79	9	39	8	2	1	2	0	0	0	0	312
10:00	0	142	60	3	33	5	0	4	8	0	0	0	0	255
11:00	1	152	50	5	36	5	0	3	4	0	0	0	0	256
12 PM	4	183	65	3	32	7	1	2	6	0	0	0	0	303
13:00	5	190	65	6	35	6	1	2	7	0	0	0	0	317
14:00	5	224	74	8	39	5	2	4	7	0	0	0	0	368
15:00	9	246	76	7	45	4	0	2	4	0	0	0	0	393
16:00	4	251	99	2	34	6	0	4	1	0	0	0	0	401
17:00	5	302	72	0	31	3	0	0	1	0	0	0	0	414
18:00	5	258	65	1	28	0	0	0	0	0	0	0	0	357
19:00	3	193	55	0	21	1	0	0	0	0	0	0	0	273
20:00	3	154	47	0	14	0	0	0	1	0	0	0	0	219
21:00	3	148	28	0	14	1	0	0	0	0	0	0	0	194
22:00	0	85	29	0	4	0	0	0	0	0	0	0	0	118
23:00	1	41	6	2	5	0	0	0	0	0	0	0	0	55
Total	70	3426	1072	62	547	68	11	30	54	0	0	0	0	5340
Percent	1.3%	64.2%	20.1%	1.2%	10.2%	1.3%	0.2%	0.6%	1.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak	06:00	07:00	09:00	09:00	08:00	06:00	05:00	10:00	10:00					07:00
Vol.	6	207	79	9	45	8	2	4	8					324
PM Peak	15:00	17:00	16:00	14:00	15:00	12:00	14:00	14:00	13:00					17:00
Vol.	9	302	99	8	45	7	2	4	7					414

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Sprague Street
north of Horne Street
City, State: Hyde Park, MA
Client: VHB/ C. Dube

165155 A Speed
Site Code: TBD

NB

Start Time	1 14	15 19	20 24	25 29	30 34	35 39	40 44	45 49	50 54	55 59	60 64	65 69	70 9999	Total	85th % ile	Ave Speed
06/22/ 16	0	0	1	5	5	5	2	1	2	0	0	0	0	21	43	35
01:00	0	0	1	0	2	6	3	0	0	0	0	0	0	12	41	36
02:00	1	1	1	2	14	11	4	6	2	0	0	0	0	42	45	36
03:00	0	0	1	1	2	3	5	2	0	0	0	0	0	14	43	38
04:00	0	0	1	1	4	11	7	3	1	1	0	0	0	29	45	39
05:00	2	3	2	8	25	53	38	**16**	**3**	**2**	0	0	0	152	43	38
06:00	1	4	9	25	91	149	51	15	1	1	**1**	0	**1**	349	40	36
07:00	7	5	12	35	131	**183**	**55**	6	0	0	0	0	0	**434**	38	34
08:00	**14**	**9**	8	41	**147**	125	35	6	2	1	0	0	0	388	38	33
09:00	3	6	11	**50**	111	109	37	7	0	1	0	0	0	335	38	34
10:00	1	1	**13**	41	108	104	27	3	3	0	0	0	0	301	38	34
11:00	4	2	8	38	90	98	26	2	1	0	0	0	0	269	38	33
12 PM	3	2	17	**63**	125	95	14	2	1	0	0	0	0	322	37	32
13:00	6	2	9	47	119	83	18	4	2	0	0	0	0	290	37	33
14:00	**7**	2	12	49	151	75	22	5	0	1	0	0	**2**	326	37	32
15:00	2	3	10	56	135	106	40	4	0	0	0	0	0	356	38	33
16:00	5	4	11	58	**171**	113	32	6	0	1	0	0	0	**401**	38	33
17:00	4	**5**	**24**	43	116	129	34	7	0	0	0	0	0	362	38	33
18:00	5	1	9	26	96	**135**	34	**12**	0	1	0	0	1	320	38	35
19:00	2	1	7	25	73	125	**60**	10	**3**	0	0	0	0	306	41	36
20:00	1	0	6	37	103	85	26	6	0	1	0	0	1	266	38	34
21:00	1	0	2	23	40	64	15	1	2	**2**	**1**	0	0	151	38	35
22:00	0	0	3	13	32	38	19	5	1	0	0	0	0	111	41	35
23:00	1	2	4	18	26	25	15	3	2	1	0	0	0	97	41	34
Total	70	53	182	705	1917	1930	619	132	26	13	2	0	5	5654		
%	1.2%	0.9%	3.2%	12.5%	33.9%	34.1%	10.9%	2.3%	0.5%	0.2%	0.0%	0.0%	0.1%			
AM Peak	08:00	08:00	10:00	09:00	08:00	07:00	07:00	05:00	05:00	05:00	06:00		06:00	07:00		
Vol.	14	9	13	50	147	183	55	16	3	2	1		1	434		
PM Peak	14:00	17:00	17:00	12:00	16:00	18:00	19:00	18:00	19:00	21:00	21:00		14:00	16:00		
Vol.	7	5	24	63	171	135	60	12	3	2	1		2	401		

Stats

15th Percentile :	27 MPH
50th Percentile :	33 MPH
85th Percentile :	38 MPH
95th Percentile :	43 MPH
Mean Speed(Average) :	34 MPH
10 MPH Pace Speed :	30-39 MPH
Number in Pace :	3847
Percent in Pace :	68.0%
Number of Vehicles > 35 MPH :	2341
Percent of Vehicles > 35 MPH :	41.4%

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
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Sprague Street
north of Horne Street
City, State: Hyde Park, MA
Client: VHB/ C. Dube

165155 A Speed
Site Code: TBD

NB

Start Time	1 14	15 19	20 24	25 29	30 34	35 39	40 44	45 49	50 54	55 59	60 64	65 69	70 9999	Total	85th % ile	Ave Speed
06/23/ 16	0	1	3	3	12	13	9	1	1	0	0	0	0	43	41	35
01:00	0	0	2	2	3	3	3	0	0	0	0	0	0	13	40	33
02:00	0	0	0	0	10	4	2	3	**4**	0	0	0	**1**	24	49	39
03:00	0	0	1	2	2	4	6	3	1	0	0	0	0	19	45	39
04:00	0	0	0	2	3	10	4	6	3	**1**	0	0	0	29	48	41
05:00	1	2	3	5	32	58	40	**12**	3	0	**1**	0	0	157	43	37
06:00	1	1	3	12	81	145	**77**	8	1	0	0	0	0	329	41	37
07:00	1	**10**	10	32	121	**173**	61	3	1	0	0	0	0	**412**	39	35
08:00	**7**	3	11	29	105	147	54	11	0	0	0	0	1	368	39	35
09:00	2	2	**16**	**41**	**131**	105	25	3	1	0	0	0	0	326	38	33
10:00	4	1	8	22	97	129	37	5	1	1	0	0	0	305	38	35
11:00	0	1	3	32	125	92	23	5	0	0	0	0	0	281	38	34
12 PM	2	3	13	41	102	108	27	3	0	0	0	0	**1**	300	38	33
13:00	6	1	11	28	104	74	36	4	0	0	0	0	1	265	39	33
14:00	3	1	3	35	121	98	30	3	0	**1**	0	0	0	295	38	34
15:00	**25**	3	23	64	113	82	39	9	1	0	0	0	0	359	38	31
16:00	6	**5**	**29**	**82**	**154**	108	27	8	2	0	0	0	0	**421**	37	32
17:00	8	3	13	59	111	**117**	45	13	1	0	0	**1**	1	372	39	34
18:00	6	0	5	22	97	110	**59**	**16**	2	1	0	0	1	319	41	36
19:00	2	0	4	28	90	116	39	6	**5**	0	0	0	0	290	39	35
20:00	3	1	10	20	77	94	27	6	2	0	0	1	0	241	38	35
21:00	4	0	5	17	80	75	21	7	1	1	0	0	0	211	38	34
22:00	0	0	6	17	46	45	12	2	2	0	0	0	1	131	38	34
23:00	0	1	2	5	25	32	11	2	1	0	0	0	0	79	39	35
Total	81	39	184	600	1842	1942	714	139	33	5	1	2	7	5589		
%	1.4%	0.7%	3.3%	10.7%	33.0%	34.7%	12.8%	2.5%	0.6%	0.1%	0.0%	0.0%	0.1%			
AM Peak	08:00	07:00	09:00	09:00	09:00	07:00	06:00	05:00	02:00	04:00	05:00		02:00	07:00		
Vol.	7	10	16	41	131	173	77	12	4	1	1		1	412		
PM Peak	15:00	16:00	16:00	16:00	16:00	17:00	18:00	18:00	19:00	14:00		17:00	12:00	16:00		
Vol.	25	5	29	82	154	117	59	16	5	1		1	1	421		

Stats

15th Percentile :	28 MPH
50th Percentile :	34 MPH
85th Percentile :	39 MPH
95th Percentile :	43 MPH
Mean Speed(Average) :	34 MPH
10 MPH Pace Speed :	30-39 MPH
Number in Pace :	3784
Percent in Pace :	67.7%
Number of Vehicles > 35 MPH :	2455
Percent of Vehicles > 35 MPH :	43.9%

PRECISION
D A T A
INDUSTRIES, LLC
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Sprague Street
north of Horne Street
City, State: Hyde Park, MA
Client: VHB/ C. Dube

165155 A Speed
Site Code: TBD

SB

Start Time	1 14	15 19	20 24	25 29	30 34	35 39	40 44	45 49	50 54	55 59	60 64	65 69	70 9999	Total	85th % ile	Ave Speed
06/22/ 16	0	0	3	1	7	10	0	2	0	0	0	0	0	23	38	34
01:00	0	0	0	1	4	5	2	0	0	0	0	0	0	12	39	35
02:00	1	0	0	1	6	8	5	3	0	0	0	0	0	24	43	36
03:00	0	0	1	1	1	5	2	0	0	0	0	0	0	10	40	35
04:00	0	1	0	1	5	13	6	**5**	1	0	**1**	0	0	33	46	39
05:00	1	0	4	11	25	44	13	3	1	0	0	0	0	102	39	35
06:00	1	3	8	34	88	94	35	4	0	0	0	0	0	267	38	34
07:00	2	4	**16**	**45**	97	118	35	4	**2**	**1**	0	0	0	**324**	38	34
08:00	**3**	1	8	33	96	125	**50**	4	1	0	0	0	0	321	39	35
09:00	2	3	9	36	**117**	82	37	3	1	0	0	0	0	290	38	34
10:00	1	2	16	20	67	101	37	2	0	0	0	0	0	246	39	34
11:00	1	**5**	14	36	93	**132**	33	3	0	0	0	0	0	317	38	34
12 PM	3	3	15	**51**	111	115	29	5	0	0	0	0	0	332	38	33
13:00	2	3	15	41	125	112	26	6	0	0	0	0	0	330	38	33
14:00	3	4	**18**	48	**141**	134	45	7	0	0	0	0	**1**	401	38	34
15:00	1	4	9	26	137	153	**61**	**12**	0	0	0	0	0	403	40	35
16:00	**5**	3	7	29	115	179	48	6	0	0	0	0	0	392	38	35
17:00	4	3	12	14	109	**206**	56	9	0	0	0	0	0	**413**	39	35
18:00	0	**6**	9	18	92	152	58	12	**2**	0	0	0	0	349	40	36
19:00	3	0	3	21	77	144	41	8	1	0	**1**	0	0	299	39	36
20:00	1	0	0	7	61	113	20	4	1	0	0	0	0	207	38	36
21:00	1	0	1	6	44	70	21	4	0	0	0	0	0	147	39	36
22:00	1	0	0	4	29	48	25	3	2	0	0	**1**	0	113	41	37
23:00	0	1	1	2	6	22	12	2	0	0	0	0	0	46	41	37
Total	36	46	169	487	1653	2185	697	111	12	1	2	1	1	5401		
%	0.7%	0.9%	3.1%	9.0%	30.6%	40.5%	12.9%	2.1%	0.2%	0.0%	0.0%	0.0%	0.0%			
AM Peak	08:00	11:00	07:00	07:00	09:00	11:00	08:00	04:00	07:00	07:00	04:00			07:00		
Vol.	3	5	16	45	117	132	50	5	2	1	1			324		
PM Peak	16:00	18:00	14:00	12:00	14:00	17:00	15:00	15:00	18:00		19:00	22:00	14:00	17:00		
Vol.	5	6	18	51	141	206	61	12	2		1	1	1	413		

Stats

15th Percentile :	29 MPH
50th Percentile :	34 MPH
85th Percentile :	39 MPH
95th Percentile :	42 MPH
Mean Speed(Average) :	35 MPH
10 MPH Pace Speed :	30-39 MPH
Number in Pace :	3838
Percent in Pace :	71.1%
Number of Vehicles > 35 MPH :	2573
Percent of Vehicles > 35 MPH :	47.6%

PRECISION
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Sprague Street
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165155 A Speed
Site Code: TBD

SB

Start Time	1 14	15 19	20 24	25 29	30 34	35 39	40 44	45 49	50 54	55 59	60 64	65 69	70 9999	Total	85th % ile	Ave Speed
06/23/ 16	0	0	0	1	5	14	3	1	0	1	**1**	0	0	26	42	38
01:00	0	0	0	2	3	3	2	2	0	1	0	0	0	13	46	38
02:00	0	0	0	1	5	7	7	1	0	0	0	0	0	21	42	37
03:00	0	0	0	2	0	4	4	1	0	0	0	0	0	11	43	38
04:00	0	0	0	1	6	10	7	3	**3**	0	0	0	0	30	46	39
05:00	1	0	2	8	26	44	19	3	2	**2**	0	0	0	107	41	36
06:00	**6**	2	14	42	79	85	27	7	2	0	0	0	0	264	38	33
07:00	5	1	**19**	**47**	101	93	**50**	**8**	0	0	0	0	0	**324**	39	34
08:00	1	0	17	44	**108**	102	28	7	2	0	0	0	0	309	38	34
09:00	2	0	3	27	98	**130**	45	7	0	0	0	0	0	312	39	35
10:00	0	**4**	5	16	73	113	34	6	3	1	0	0	0	255	39	35
11:00	0	2	2	24	72	110	41	5	0	0	0	0	0	256	39	35
12 PM	4	2	2	37	90	123	39	6	0	0	0	0	0	303	38	35
13:00	3	**5**	**15**	26	95	128	38	5	2	0	0	0	0	317	38	34
14:00	**6**	5	3	21	126	154	47	6	0	0	0	0	0	368	38	35
15:00	6	4	12	32	118	168	42	11	0	0	0	0	0	393	38	34
16:00	2	2	12	**52**	143	145	40	4	1	0	0	0	0	401	38	34
17:00	2	1	4	32	**146**	168	**56**	5	0	0	0	0	0	**414**	38	35
18:00	2	3	5	19	78	**189**	53	8	0	0	0	0	0	357	39	36
19:00	0	0	6	21	69	115	44	**14**	**4**	0	0	0	0	273	41	36
20:00	1	2	2	23	75	93	17	5	1	0	0	0	0	219	38	34
21:00	1	1	1	17	61	87	23	2	1	0	0	0	0	194	38	35
22:00	0	1	1	8	32	53	19	4	0	0	0	0	0	118	40	36
23:00	0	0	2	3	15	19	13	2	1	0	0	0	0	55	41	36
Total	42	35	127	506	1624	2157	698	123	22	5	1	0	0	5340		
%	0.8%	0.7%	2.4%	9.5%	30.4%	40.4%	13.1%	2.3%	0.4%	0.1%	0.0%	0.0%	0.0%			
AM Peak	06:00	10:00	07:00	07:00	08:00	09:00	07:00	07:00	04:00	05:00	00:00			07:00		
Vol.	6	4	19	47	108	130	50	8	3	2	1			324		
PM Peak	14:00	13:00	13:00	16:00	17:00	18:00	17:00	19:00	19:00					17:00		
Vol.	6	5	15	52	146	189	56	14	4					414		

Stats

15th Percentile :	29 MPH
50th Percentile :	34 MPH
85th Percentile :	39 MPH
95th Percentile :	43 MPH
Mean Speed(Average) :	35 MPH
10 MPH Pace Speed :	30-39 MPH
Number in Pace :	3781
Percent in Pace :	70.8%
Number of Vehicles > 35 MPH :	2575
Percent of Vehicles > 35 MPH :	48.2%

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Volume (vph)	5	5	25	470	285	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	15	15	16	16	16	16
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.932				0.991	
Flt Protected	0.976			0.997		
Satd. Flow (prot)	1571	0	0	1959	1933	0
Flt Permitted	0.976			0.997		
Satd. Flow (perm)	1571	0	0	1959	1933	0
Link Speed (mph)	30			35	30	
Link Distance (ft)	490			413	824	
Travel Time (s)	11.1			8.0	18.7	
Peak Hour Factor	0.63	0.63	0.93	0.93	0.92	0.92
Heavy Vehicles (%)	2%	40%	2%	10%	11%	2%
Adj. Flow (vph)	8	8	27	505	310	22
Shared Lane Traffic (%)						
Lane Group Flow (vph)	16	0	0	532	332	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	15			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	0.88	0.88	0.85	0.85	0.85	0.85
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 55.1%		ICU Level of Service B	
Analysis Period (min) 15			

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Volume (veh/h)	5	5	25	470	285	20
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.63	0.63	0.93	0.93	0.92	0.92
Hourly flow rate (vph)	8	8	27	505	310	22
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	880	321	332			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	880	321	332			
tC, single (s)	6.4	6.6	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.7	2.2			
p0 queue free %	97	99	98			
cM capacity (veh/h)	311	640	1228			

Direction, Lane #	SE 1	NE 1	SW 1
Volume Total	16	532	332
Volume Left	8	27	0
Volume Right	8	0	22
cSH	418	1228	1700
Volume to Capacity	0.04	0.02	0.20
Queue Length 95th (ft)	3	2	0
Control Delay (s)	13.9	0.6	0.0
Lane LOS	B	A	
Approach Delay (s)	13.9	0.6	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	55.1%	ICU Level of Service	B
Analysis Period (min)	15		

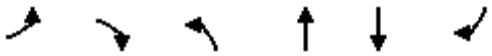
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	5	0	0	15	0	5	10	455	10	10	290	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	16	16	16	16	12	12	12	16	16	16
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.965			0.997			0.984	
Flt Protected		0.950			0.964			0.999			0.999	
Satd. Flow (prot)	0	2046	0	0	1077	0	0	1756	0	0	1960	0
Flt Permitted		0.950			0.964			0.999			0.999	
Satd. Flow (perm)	0	2046	0	0	1077	0	0	1756	0	0	1960	0
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		338			265			824			1173	
Travel Time (s)		7.7			6.0			16.1			22.9	
Peak Hour Factor	0.75	0.75	0.75	0.66	0.66	0.66	0.83	0.83	0.83	0.88	0.88	0.88
Heavy Vehicles (%)	0%	0%	0%	86%	2%	86%	2%	8%	2%	2%	9%	2%
Adj. Flow (vph)	7	0	0	23	0	8	12	548	12	11	330	45
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	7	0	0	31	0	0	572	0	0	386	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.85	0.85	0.85	0.85	0.85	0.85	1.00	1.00	1.00	0.85	0.85	0.85
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 38.9%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	5	0	0	15	0	5	10	455	10	10	290	40
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.75	0.75	0.75	0.66	0.66	0.66	0.83	0.83	0.83	0.88	0.88	0.88
Hourly flow rate (vph)	7	0	0	23	0	8	12	548	12	11	330	45
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	961	959	352	953	976	554	375			560		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	961	959	352	953	976	554	375			560		
tC, single (s)	7.1	6.5	6.2	8.0	6.5	7.1	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	4.3	4.0	4.1	2.2			2.2		
p0 queue free %	97	100	100	86	100	98	99			99		
cM capacity (veh/h)	230	253	696	168	246	401	1183			1011		

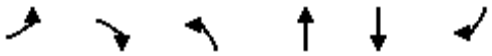
Direction, Lane #	SE 1	NW 1	NE 1	SW 1
Volume Total	7	30	572	386
Volume Left	7	23	12	11
Volume Right	0	8	12	45
cSH	230	197	1183	1011
Volume to Capacity	0.03	0.15	0.01	0.01
Queue Length 95th (ft)	2	13	1	1
Control Delay (s)	21.1	26.6	0.3	0.4
Lane LOS	C	D	A	A
Approach Delay (s)	21.1	26.6	0.3	0.4
Approach LOS	C	D		

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	38.9%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	275	45	70	395	295	205
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	13	13	12	12
Storage Length (ft)	0	0	0			100
Storage Lanes	1	0	0			1
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.981					0.850
Flt Protected	0.959			0.993		
Satd. Flow (prot)	1696	0	0	1806	1667	1417
Flt Permitted	0.959			0.993		
Satd. Flow (perm)	1696	0	0	1806	1667	1417
Link Speed (mph)	30			35	30	
Link Distance (ft)	686			1173	333	
Travel Time (s)	15.6			22.9	7.6	
Peak Hour Factor	0.89	0.89	0.90	0.90	0.98	0.98
Heavy Vehicles (%)	7%	2%	2%	9%	14%	14%
Parking (#/hr)	2					
Adj. Flow (vph)	309	51	78	439	301	209
Shared Lane Traffic (%)						
Lane Group Flow (vph)	360	0	0	517	301	209
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	16			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	0.99	0.85	0.96	0.96	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Stop	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 68.2%		ICU Level of Service C	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	275	45	70	395	295	205
Peak Hour Factor	0.89	0.89	0.90	0.90	0.98	0.98
Hourly flow rate (vph)	309	51	78	439	301	209

Direction, Lane #	EB 1	NB 1	SB 1	SB 2
Volume Total (vph)	360	517	301	209
Volume Left (vph)	309	78	0	0
Volume Right (vph)	51	0	0	209
Hadj (s)	0.19	0.17	0.24	-0.46
Departure Headway (s)	6.8	6.3	7.0	6.3
Degree Utilization, x	0.68	0.91	0.59	0.37
Capacity (veh/h)	516	554	491	551
Control Delay (s)	23.1	44.2	18.3	11.7
Approach Delay (s)	23.1	44.2	15.6	
Approach LOS	C	E	C	

Intersection Summary			
Delay	28.2		
Level of Service	D		
Intersection Capacity Utilization	68.2%	ICU Level of Service	C
Analysis Period (min)	15		

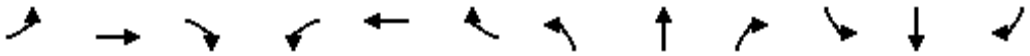
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	435	410	85	555	250	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	16	16	14	14
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.934		0.883			
Flt Protected	0.975					0.962
Satd. Flow (prot)	1857	0	1759	0	0	1868
Flt Permitted	0.975					0.962
Satd. Flow (perm)	1857	0	1759	0	0	1868
Link Speed (mph)	30		30			30
Link Distance (ft)	466		390			437
Travel Time (s)	10.6		8.9			9.9
Peak Hour Factor	0.89	0.89	0.98	0.98	0.96	0.96
Heavy Vehicles (%)	9%	2%	2%	9%	5%	2%
Adj. Flow (vph)	489	461	87	566	260	68
Shared Lane Traffic (%)						
Lane Group Flow (vph)	950	0	653	0	0	328
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	16		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	0.85	0.85	0.85	0.85	0.92	0.92
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 115.2%		ICU Level of Service H	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	435	410	85	555	250	65
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.89	0.89	0.98	0.98	0.96	0.96
Hourly flow rate (vph)	489	461	87	566	260	68
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	958	370			653	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	958	370			653	
tC, single (s)	6.5	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.6	3.3			2.2	
p0 queue free %	0	32			72	
cM capacity (veh/h)	199	676			920	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	949	653	328
Volume Left	489	0	260
Volume Right	461	566	0
cSH	302	1700	920
Volume to Capacity	3.14	0.38	0.28
Queue Length 95th (ft)	Err	0	29
Control Delay (s)	Err	0.0	8.9
Lane LOS	F		A
Approach Delay (s)	Err	0.0	8.9
Approach LOS	F		

Intersection Summary			
Average Delay	4918.8		
Intersection Capacity Utilization	115.2%	ICU Level of Service	H
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	235	10	560	5	5	5	610	175	10	0	130	230
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	16	14	14	14	16	16	16	16	16	16
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.906			0.955			0.998			0.914	
Flt Protected		0.986			0.984			0.963				
Satd. Flow (prot)	0	1766	0	0	1758	0	0	1953	0	0	1682	0
Flt Permitted		0.986			0.984			0.963				
Satd. Flow (perm)	0	1766	0	0	1758	0	0	1953	0	0	1682	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		466			184			798			433	
Travel Time (s)		10.6			4.2			18.1			9.8	
Peak Hour Factor	0.91	0.91	0.91	0.70	0.70	0.70	0.90	0.90	0.90	0.83	0.83	0.83
Heavy Vehicles (%)	9%	2%	9%	2%	2%	21%	6%	6%	2%	2%	17%	17%
Adj. Flow (vph)	258	11	615	7	7	7	678	194	11	0	157	277
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	884	0	0	21	0	0	883	0	0	434	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.85	0.85	0.85	0.92	0.92	0.92	0.85	0.85	0.85	0.85	0.85	0.85
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 129.2%		ICU Level of Service H	
Analysis Period (min) 15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	235	10	560	5	5	5	610	175	10	0	130	230
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.70	0.70	0.70	0.90	0.90	0.90	0.83	0.83	0.83
Hourly flow rate (vph)	258	11	615	7	7	7	678	194	11	0	157	277
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								798				
pX, platoon unblocked												
vC, conflicting volume	1861	1856	295	2472	1989	200	434			206		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1861	1856	295	2472	1989	200	434			206		
tC, single (s)	7.2	6.5	6.3	7.1	6.5	6.4	4.2			4.1		
tC, 2 stage (s)												
tF (s)	3.6	4.0	3.4	3.5	4.0	3.5	2.3			2.2		
p0 queue free %	0	61	15	0	70	99	39			100		
cM capacity (veh/h)	21	28	728	1	24	795	1105			1366		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	885	21	883	434
Volume Left	258	7	678	0
Volume Right	615	7	11	277
cSH	67	3	1105	1366
Volume to Capacity	13.26	6.37	0.61	0.00
Queue Length 95th (ft)	Err	Err	110	0
Control Delay (s)	Err	Err	12.3	0.0
Lane LOS	F	F	B	
Approach Delay (s)	Err	Err	12.3	0.0
Approach LOS	F	F		

Intersection Summary				
Average Delay	4080.1			
Intersection Capacity Utilization	129.2%	ICU Level of Service	H	
Analysis Period (min)	15			

Lane Group	EBL2	EBL	EBT	WBT	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR2
Lane Configurations												
Volume (vph)	10	5	10	0	645	120	50	15	5	65	5	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	9	9	9	16	16	16	14	14	14	16	16	16
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.865				0.990			0.951	
Flt Protected			0.971					0.966			0.971	
Satd. Flow (prot)	0	0	1379	1768	0	0	0	1900	0	0	1832	0
Flt Permitted			0.842					0.753			0.811	
Satd. Flow (perm)	0	0	1195	1768	0	0	0	1481	0	0	1530	0
Right Turn on Red						Yes			Yes			Yes
Satd. Flow (RTOR)				126				3			138	
Link Speed (mph)			30	30				30			30	
Link Distance (ft)			245	329				316			590	
Travel Time (s)			5.6	7.5				7.2			13.4	
Peak Hour Factor	0.69	0.69	0.69	0.91	0.91	0.91	0.84	0.84	0.84	0.81	0.81	0.81
Heavy Vehicles (%)	2%	28%	2%	2%	6%	2%	2%	2%	2%	2%	2%	20%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)			2									
Adj. Flow (vph)	14	7	14	0	709	132	60	18	6	80	6	49
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	35	841	0	0	0	84	0	0	135	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Left	Right	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)			0	0				0			0	
Link Offset(ft)			0	0				0			0	
Crosswalk Width(ft)			16	16				16			16	
Two way Left Turn Lane												
Headway Factor	1.14	1.14	1.32	0.85	0.85	0.85	0.92	0.92	0.92	0.85	0.85	0.85
Turning Speed (mph)	15	15			9	9	15		9	15		9
Number of Detectors	1	1	2	2			1	2		1	2	
Detector Template	Left	Left	Thru	Thru			Left	Thru		Left	Thru	
Leading Detector (ft)	20	20	100	100			20	100		20	100	
Trailing Detector (ft)	0	0	0	0			0	0		0	0	
Detector 1 Position(ft)	0	0	0	0			0	0		0	0	
Detector 1 Size(ft)	20	20	6	6			20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0	
Detector 2 Position(ft)			94	94				94			94	
Detector 2 Size(ft)			6	6				6			6	
Detector 2 Type			Cl+Ex	Cl+Ex				Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)			0.0	0.0				0.0			0.0	
Turn Type	Perm	Perm	NA	NA			custom	NA		custom	NA	
Protected Phases			4									
Permitted Phases	4	4		1			3	3		3	3	

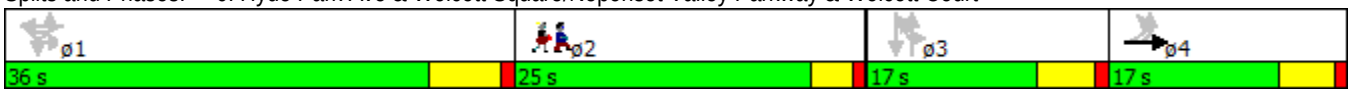
Lane Group	SEL2	SEL	SER	ø2
Lane Configurations				
Volume (vph)	90	590	15	
Ideal Flow (vphpl)	1900	1900	1900	
Lane Width (ft)	16	16	16	
Lane Util. Factor	1.00	1.00	1.00	
Frt		0.997		
Flt Protected		0.953		
Satd. Flow (prot)	0	1926	0	
Flt Permitted		0.953		
Satd. Flow (perm)	0	1926	0	
Right Turn on Red				
Satd. Flow (RTOR)				
Link Speed (mph)		30		
Link Distance (ft)		798		
Travel Time (s)		18.1		
Peak Hour Factor	0.93	0.93	0.93	
Heavy Vehicles (%)	2%	7%	2%	
Bus Blockages (#/hr)	0	0	10	
Parking (#/hr)				
Adj. Flow (vph)	97	634	16	
Shared Lane Traffic (%)				
Lane Group Flow (vph)	0	747	0	
Enter Blocked Intersection	No	No	No	
Lane Alignment	Left	Left	Right	
Median Width(ft)		16		
Link Offset(ft)		0		
Crosswalk Width(ft)		16		
Two way Left Turn Lane				
Headway Factor	0.85	0.85	0.85	
Turning Speed (mph)	15	15	9	
Number of Detectors	1	1		
Detector Template	Left	Left		
Leading Detector (ft)	20	20		
Trailing Detector (ft)	0	0		
Detector 1 Position(ft)	0	0		
Detector 1 Size(ft)	20	20		
Detector 1 Type	Cl+Ex	Cl+Ex		
Detector 1 Channel				
Detector 1 Extend (s)	0.0	0.0		
Detector 1 Queue (s)	0.0	0.0		
Detector 1 Delay (s)	0.0	0.0		
Detector 2 Position(ft)				
Detector 2 Size(ft)				
Detector 2 Type				
Detector 2 Channel				
Detector 2 Extend (s)				
Turn Type	Perm	Perm		
Protected Phases				2
Permitted Phases	1	1		

6: Hyde Park Ave & Wolcott Square/Neponset Valley Parkway & Wolcott Court

Lane Group	EBL2	EBL	EBT	WBT	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR2
Detector Phase	4	4	4	1			3	3		3	3	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	30.0			8.0	8.0		8.0	8.0	
Minimum Split (s)	13.0	13.0	13.0	36.0			13.0	13.0		13.0	13.0	
Total Split (s)	17.0	17.0	17.0	36.0			17.0	17.0		17.0	17.0	
Total Split (%)	17.9%	17.9%	17.9%	37.9%			17.9%	17.9%		17.9%	17.9%	
Maximum Green (s)	12.0	12.0	12.0	30.0			12.0	12.0		12.0	12.0	
Yellow Time (s)	4.0	4.0	4.0	5.0			4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0			1.0	1.0		1.0	1.0	
Lost Time Adjust (s)			0.0	0.0				0.0			0.0	
Total Lost Time (s)			5.0	6.0				5.0			5.0	
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lead		Lead	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0			3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	Max			None	None		None	None	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)			9.4	32.3				9.6			9.6	
Actuated g/C Ratio			0.16	0.55				0.16			0.16	
v/c Ratio			0.18	0.82				0.34			0.37	
Control Delay			26.0	21.6				26.9			8.5	
Queue Delay			0.0	0.0				0.0			0.0	
Total Delay			26.0	21.6				26.9			8.5	
LOS			C	C				C			A	
Approach Delay			26.0	21.6				26.9			8.5	
Approach LOS			C	C				C			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 58.6			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.82			
Intersection Signal Delay: 19.6		Intersection LOS: B	
Intersection Capacity Utilization 106.9%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 6: Hyde Park Ave & Wolcott Square/Neponset Valley Parkway & Wolcott Court



Lane Group	SEL2	SEL	SER	ø2
Detector Phase	1	1		
Switch Phase				
Minimum Initial (s)	30.0	30.0		7.0
Minimum Split (s)	36.0	36.0		25.0
Total Split (s)	36.0	36.0		25.0
Total Split (%)	37.9%	37.9%		26%
Maximum Green (s)	30.0	30.0		21.0
Yellow Time (s)	5.0	5.0		3.0
All-Red Time (s)	1.0	1.0		1.0
Lost Time Adjust (s)		0.0		
Total Lost Time (s)		6.0		
Lead/Lag	Lead	Lead		Lag
Lead-Lag Optimize?	Yes	Yes		Yes
Vehicle Extension (s)	3.0	3.0		3.0
Recall Mode	Max	Max		None
Walk Time (s)				7.0
Flash Dont Walk (s)				14.0
Pedestrian Calls (#/hr)				0
Act Effct Green (s)		32.3		
Actuated g/C Ratio		0.55		
v/c Ratio		0.70		
Control Delay		18.2		
Queue Delay		0.0		
Total Delay		18.2		
LOS		B		
Approach Delay		18.2		
Approach LOS		B		

Intersection Summary

Movement	EBL2	EBL	EBT	WBT	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR2
Lane Configurations												
Volume (vph)	10	5	10	0	645	120	50	15	5	65	5	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	9	9	9	16	16	16	14	14	14	16	16	16
Total Lost time (s)			5.0	6.0				5.0			5.0	
Lane Util. Factor			1.00	1.00				1.00			1.00	
Frt			1.00	0.86				0.99			0.95	
Flt Protected			0.97	1.00				0.97			0.97	
Satd. Flow (prot)			1378	1768				1900			1833	
Flt Permitted			0.84	1.00				0.75			0.81	
Satd. Flow (perm)			1196	1768				1481			1530	
Peak-hour factor, PHF	0.69	0.69	0.69	0.91	0.91	0.91	0.84	0.84	0.84	0.81	0.81	0.81
Adj. Flow (vph)	14	7	14	0	709	132	60	18	6	80	6	49
RTOR Reduction (vph)	0	0	0	60	0	0	0	3	0	0	114	0
Lane Group Flow (vph)	0	0	35	781	0	0	0	81	0	0	21	0
Heavy Vehicles (%)	2%	28%	2%	2%	6%	2%	2%	2%	2%	2%	2%	20%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)			2									
Turn Type	Perm	Perm	NA	NA			custom	NA		custom	NA	
Protected Phases			4									
Permitted Phases	4	4		1			3	3		3	3	
Actuated Green, G (s)			3.8	32.3				9.6			9.6	
Effective Green, g (s)			3.8	32.3				9.6			9.6	
Actuated g/C Ratio			0.06	0.52				0.16			0.16	
Clearance Time (s)			5.0	6.0				5.0			5.0	
Vehicle Extension (s)			3.0	3.0				3.0			3.0	
Lane Grp Cap (vph)			73	925				230			238	
v/s Ratio Prot												
v/s Ratio Perm			c0.03	c0.44				c0.06			0.01	
v/c Ratio			0.48	0.84				0.35			0.09	
Uniform Delay, d1			28.0	12.6				23.3			22.3	
Progression Factor			1.00	1.00				1.00			1.00	
Incremental Delay, d2			4.9	9.3				0.9			0.2	
Delay (s)			32.9	21.9				24.2			22.5	
Level of Service			C	C				C			C	
Approach Delay (s)			32.9	21.9				24.2			22.5	
Approach LOS			C	C				C			C	

Intersection Summary			
HCM 2000 Control Delay	20.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	61.7	Sum of lost time (s)	20.0
Intersection Capacity Utilization	106.9%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SEL2	SEL	SER
Lane Configurations			
Volume (vph)	90	590	15
Ideal Flow (vphpl)	1900	1900	1900
Lane Width	16	16	16
Total Lost time (s)		6.0	
Lane Util. Factor		1.00	
Frt		1.00	
Flt Protected		0.95	
Satd. Flow (prot)		1927	
Flt Permitted		0.95	
Satd. Flow (perm)		1927	
Peak-hour factor, PHF	0.93	0.93	0.93
Adj. Flow (vph)	97	634	16
RTOR Reduction (vph)	0	0	0
Lane Group Flow (vph)	0	747	0
Heavy Vehicles (%)	2%	7%	2%
Bus Blockages (#/hr)	0	0	10
Parking (#/hr)			
Turn Type	Perm	Perm	
Protected Phases			
Permitted Phases	1	1	
Actuated Green, G (s)		32.3	
Effective Green, g (s)		32.3	
Actuated g/C Ratio		0.52	
Clearance Time (s)		6.0	
Vehicle Extension (s)		3.0	
Lane Grp Cap (vph)		1008	
v/s Ratio Prot			
v/s Ratio Perm		0.39	
v/c Ratio		0.74	
Uniform Delay, d1		11.4	
Progression Factor		1.00	
Incremental Delay, d2		4.9	
Delay (s)		16.3	
Level of Service		B	
Approach Delay (s)		16.3	
Approach LOS		B	

Intersection Summary

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	50	55	585	85	30	465
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.929		0.983			
Flt Protected	0.977					0.997
Satd. Flow (prot)	1385	0	1714	0	0	1745
Flt Permitted	0.977					0.997
Satd. Flow (perm)	1385	0	1714	0	0	1745
Link Speed (mph)	30		30			30
Link Distance (ft)	264		333			390
Travel Time (s)	6.0		7.6			8.9
Peak Hour Factor	0.61	0.61	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	45%	10%	2%	2%	9%
Adj. Flow (vph)	82	90	636	92	33	505
Shared Lane Traffic (%)						
Lane Group Flow (vph)	172	0	728	0	0	538
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 61.9%		ICU Level of Service B	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	50	55	585	85	30	465
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.61	0.61	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	82	90	636	92	33	505
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1253	682			728	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1253	682			728	
tC, single (s)	6.4	6.7			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.7			2.2	
p0 queue free %	55	76			96	
cM capacity (veh/h)	183	384			875	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	172	728	538
Volume Left	82	0	33
Volume Right	90	92	0
cSH	252	1700	875
Volume to Capacity	0.68	0.43	0.04
Queue Length 95th (ft)	112	0	3
Control Delay (s)	45.3	0.0	1.0
Lane LOS	E		A
Approach Delay (s)	45.3	0.0	1.0
Approach LOS	E		

Intersection Summary			
Average Delay	5.8		
Intersection Capacity Utilization	61.9%	ICU Level of Service	B
Analysis Period (min)	15		

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Volume (vph)	35	45	15	340	405	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	15	15	16	16	16	16
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.924				0.997	
Flt Protected	0.979			0.998		
Satd. Flow (prot)	1784	0	0	2049	2085	0
Flt Permitted	0.979			0.998		
Satd. Flow (perm)	1784	0	0	2049	2085	0
Link Speed (mph)	30			35	30	
Link Distance (ft)	490			413	824	
Travel Time (s)	11.1			8.0	18.7	
Peak Hour Factor	0.74	0.74	0.82	0.85	0.97	0.97
Heavy Vehicles (%)	6%	6%	2%	5%	3%	2%
Adj. Flow (vph)	47	61	18	400	418	10
Shared Lane Traffic (%)						
Lane Group Flow (vph)	108	0	0	418	428	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	15			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	0.88	0.88	0.85	0.85	0.85	0.85
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 41.4%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Volume (veh/h)	35	45	15	340	405	10
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.74	0.74	0.82	0.85	0.97	0.97
Hourly flow rate (vph)	47	61	18	400	418	10
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	859	423	428			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	859	423	428			
tC, single (s)	6.5	6.3	4.1			
tC, 2 stage (s)						
tF (s)	3.6	3.4	2.2			
p0 queue free %	85	90	98			
cM capacity (veh/h)	316	623	1132			

Direction, Lane #	SE 1	NE 1	SW 1
Volume Total	108	418	428
Volume Left	47	18	0
Volume Right	61	0	10
cSH	437	1132	1700
Volume to Capacity	0.25	0.02	0.25
Queue Length 95th (ft)	24	1	0
Control Delay (s)	15.9	0.5	0.0
Lane LOS	C	A	
Approach Delay (s)	15.9	0.5	0.0
Approach LOS	C		

Intersection Summary			
Average Delay	2.0		
Intersection Capacity Utilization	41.4%	ICU Level of Service	A
Analysis Period (min)	15		

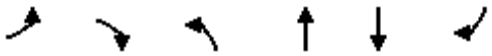
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	115	0	25	20	0	10	25	340	10	5	370	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	16	16	16	16	12	12	12	16	16	16
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.976			0.954			0.996			0.984	
Flt Protected		0.961			0.968			0.997			0.999	
Satd. Flow (prot)	0	1980	0	0	1918	0	0	1784	0	0	2023	0
Flt Permitted		0.961			0.968			0.997			0.999	
Satd. Flow (perm)	0	1980	0	0	1918	0	0	1784	0	0	2023	0
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		338			265			824			1173	
Travel Time (s)		7.7			6.0			16.1			22.9	
Peak Hour Factor	0.57	0.57	0.57	0.60	0.60	0.60	0.93	0.93	0.93	0.89	0.89	0.89
Heavy Vehicles (%)	2%	2%	2%	2%	2%	7%	2%	6%	6%	2%	5%	2%
Adj. Flow (vph)	202	0	44	33	0	17	27	366	11	6	416	56
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	246	0	0	50	0	0	404	0	0	478	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.85	0.85	0.85	0.85	0.85	0.85	1.00	1.00	1.00	0.85	0.85	0.85
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 50.6%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	115	0	25	20	0	10	25	340	10	5	370	50
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.57	0.57	0.57	0.60	0.60	0.60	0.93	0.93	0.93	0.89	0.89	0.89
Hourly flow rate (vph)	202	0	44	33	0	17	27	366	11	6	416	56
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	896	885	444	924	908	371	472			376		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	896	885	444	924	908	371	472			376		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.3	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.4	2.2			2.2		
p0 queue free %	19	100	93	85	100	97	98			100		
cM capacity (veh/h)	249	276	614	227	267	664	1090			1182		

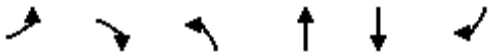
Direction, Lane #	SE 1	NW 1	NE 1	SW 1
Volume Total	246	50	403	478
Volume Left	202	33	27	6
Volume Right	44	17	11	56
cSH	278	291	1090	1182
Volume to Capacity	0.88	0.17	0.02	0.00
Queue Length 95th (ft)	194	15	2	0
Control Delay (s)	68.0	19.9	0.8	0.1
Lane LOS	F	C	A	A
Approach Delay (s)	68.0	19.9	0.8	0.1
Approach LOS	F	C		

Intersection Summary			
Average Delay	15.4		
Intersection Capacity Utilization	50.6%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	255	95	60	405	330	190
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	13	13	12	12
Storage Length (ft)	0	0	0			100
Storage Lanes	1	0	0			1
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.964					0.850
Flt Protected	0.965			0.994		
Satd. Flow (prot)	1682	0	0	1897	1827	1583
Flt Permitted	0.965			0.994		
Satd. Flow (perm)	1682	0	0	1897	1827	1583
Link Speed (mph)	30			35	30	
Link Distance (ft)	686			1173	336	
Travel Time (s)	15.6			22.9	7.6	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.91	0.91
Heavy Vehicles (%)	6%	6%	2%	3%	4%	2%
Parking (#/hr)	2					
Adj. Flow (vph)	297	110	70	471	363	209
Shared Lane Traffic (%)						
Lane Group Flow (vph)	407	0	0	541	363	209
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	16			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	0.99	0.85	0.96	0.96	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Stop	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 71.9%		ICU Level of Service C	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	255	95	60	405	330	190
Peak Hour Factor	0.86	0.86	0.86	0.86	0.91	0.91
Hourly flow rate (vph)	297	110	70	471	363	209

Direction, Lane #	EB 1	NB 1	SB 1	SB 2
Volume Total (vph)	407	541	363	209
Volume Left (vph)	297	70	0	0
Volume Right (vph)	110	0	0	209
Hadj (s)	0.08	0.07	0.07	-0.67
Departure Headway (s)	6.9	6.6	7.2	6.5
Degree Utilization, x	0.78	0.99	0.73	0.37
Capacity (veh/h)	514	541	495	556
Control Delay (s)	30.7	62.0	25.9	12.1
Approach Delay (s)	30.7	62.0	20.8	
Approach LOS	D	F	C	

Intersection Summary			
Delay	38.1		
Level of Service	E		
Intersection Capacity Utilization	71.9%	ICU Level of Service	C
Analysis Period (min)	15		

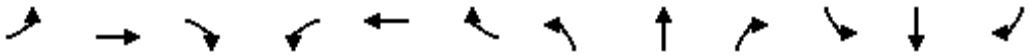
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	440	270	80	620	250	120
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	16	16	14	14
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.949		0.880			
Flt Protected	0.970					0.967
Satd. Flow (prot)	1875	0	1858	0	0	1845
Flt Permitted	0.970					0.967
Satd. Flow (perm)	1875	0	1858	0	0	1845
Link Speed (mph)	30		30			30
Link Distance (ft)	466		386			437
Travel Time (s)	10.6		8.8			9.9
Peak Hour Factor	0.96	0.96	0.95	0.95	0.91	0.91
Heavy Vehicles (%)	8%	2%	2%	2%	2%	15%
Adj. Flow (vph)	458	281	84	653	275	132
Shared Lane Traffic (%)						
Lane Group Flow (vph)	739	0	737	0	0	407
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	16		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	0.85	0.85	0.85	0.85	0.92	0.92
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 113.5%		ICU Level of Service H	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	440	270	80	620	250	120
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.96	0.96	0.95	0.95	0.91	0.91
Hourly flow rate (vph)	458	281	84	653	275	132
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1092	411			737	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1092	411			737	
tC, single (s)	6.5	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.6	3.3			2.2	
p0 queue free %	0	56			68	
cM capacity (veh/h)	158	641			869	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	740	737	407
Volume Left	458	0	275
Volume Right	281	653	0
cSH	222	1700	869
Volume to Capacity	3.34	0.43	0.32
Queue Length 95th (ft)	Err	0	34
Control Delay (s)	Err	0.0	8.7
Lane LOS	F		A
Approach Delay (s)	Err	0.0	8.7
Approach LOS	F		

Intersection Summary			
Average Delay	3929.1		
Intersection Capacity Utilization	113.5%	ICU Level of Service	H
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	220	0	650	5	5	5	490	130	0	0	160	215
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	16	14	14	14	16	16	16	16	16	16
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.899			0.955						0.923	
Flt Protected		0.988			0.984			0.962				
Satd. Flow (prot)	0	1875	0	0	1904	0	0	1970	0	0	1845	0
Flt Permitted		0.988			0.984			0.962				
Satd. Flow (perm)	0	1875	0	0	1904	0	0	1970	0	0	1845	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		466			184			822			433	
Travel Time (s)		10.6			4.2			18.7			9.8	
Peak Hour Factor	0.92	0.92	0.92	0.45	0.45	0.45	0.97	0.97	0.97	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	0%	0%	0%	6%	2%	2%	2%	2%	12%
Adj. Flow (vph)	239	0	707	11	11	11	505	134	0	0	178	239
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	946	0	0	33	0	0	639	0	0	417	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.85	0.85	0.85	0.92	0.92	0.92	0.85	0.85	0.85	0.85	0.85	0.85
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 124.5%		ICU Level of Service H	
Analysis Period (min) 15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	220	0	650	5	5	5	490	130	0	0	160	215
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.45	0.45	0.45	0.97	0.97	0.97	0.90	0.90	0.90
Hourly flow rate (vph)	239	0	707	11	11	11	505	134	0	0	178	239
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								822				
pX, platoon unblocked												
vC, conflicting volume	1458	1442	297	2148	1561	134	417			134		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1458	1442	297	2148	1561	134	417			134		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.2			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.3			2.2		
p0 queue free %	0	100	5	0	82	99	55			100		
cM capacity (veh/h)	60	73	742	1	62	920	1121			1451		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	946	33	639	417
Volume Left	239	11	505	0
Volume Right	707	11	0	239
cSH	191	3	1121	1451
Volume to Capacity	4.94	10.26	0.45	0.00
Queue Length 95th (ft)	Err	Err	60	0
Control Delay (s)	Err	Err	9.7	0.0
Lane LOS	F	F	A	
Approach Delay (s)	Err	Err	9.7	0.0
Approach LOS	F	F		

Intersection Summary			
Average Delay	4813.7		
Intersection Capacity Utilization	124.5%	ICU Level of Service	H
Analysis Period (min)	15		

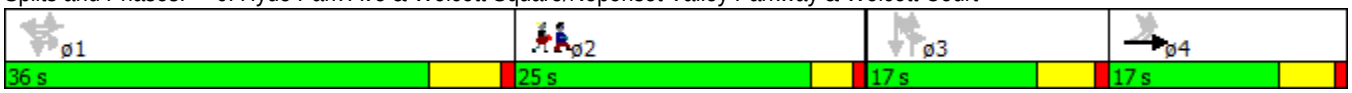
Lane Group	EBL2	EBL	EBT	WBT	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR2
Lane Configurations												
Volume (vph)	10	5	30	0	525	45	40	10	10	60	5	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	9	9	9	16	16	16	14	14	14	16	16	16
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.865				0.978			0.968	
Flt Protected			0.984					0.968			0.966	
Satd. Flow (prot)	0	0	1468	1762	0	0	0	1863	0	0	1956	0
Flt Permitted			0.656					0.773			0.798	
Satd. Flow (perm)	0	0	979	1762	0	0	0	1488	0	0	1616	0
Right Turn on Red						Yes			Yes			Yes
Satd. Flow (RTOR)				126				9			138	
Link Speed (mph)			30	30				30			30	
Link Distance (ft)			245	329				316			590	
Travel Time (s)			5.6	7.5				7.2			13.4	
Peak Hour Factor	0.92	0.92	0.92	0.91	0.91	0.91	0.66	0.66	0.66	0.65	0.65	0.65
Heavy Vehicles (%)	2%	2%	2%	2%	6%	2%	3%	3%	3%	2%	2%	6%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)			2									
Adj. Flow (vph)	11	5	33	0	577	49	61	15	15	92	8	31
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	49	626	0	0	0	91	0	0	131	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Left	Right	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)			0	0				0			0	
Link Offset(ft)			0	0				0			0	
Crosswalk Width(ft)			16	16				16			16	
Two way Left Turn Lane												
Headway Factor	1.14	1.14	1.32	0.85	0.85	0.85	0.92	0.92	0.92	0.85	0.85	0.85
Turning Speed (mph)	15	15			9	9	15		9	15		9
Number of Detectors	1	1	2	2			1	2		1	2	
Detector Template	Left	Left	Thru	Thru			Left	Thru		Left	Thru	
Leading Detector (ft)	20	20	100	100			20	100		20	100	
Trailing Detector (ft)	0	0	0	0			0	0		0	0	
Detector 1 Position(ft)	0	0	0	0			0	0		0	0	
Detector 1 Size(ft)	20	20	6	6			20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0	
Detector 2 Position(ft)			94	94				94			94	
Detector 2 Size(ft)			6	6				6			6	
Detector 2 Type			Cl+Ex	Cl+Ex				Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)			0.0	0.0				0.0			0.0	
Turn Type	Perm	Perm	NA	NA			custom	NA		custom	NA	
Protected Phases			4									
Permitted Phases	4	4		1			3	3		3	3	

Lane Group	SEL2	SEL	SER	ø2
Lane Configurations				
Volume (vph)	35	675	15	
Ideal Flow (vphpl)	1900	1900	1900	
Lane Width (ft)	16	16	16	
Lane Util. Factor	1.00	1.00	1.00	
Frt		0.997		
Flt Protected		0.953		
Satd. Flow (prot)	0	1987	0	
Flt Permitted		0.953		
Satd. Flow (perm)	0	1987	0	
Right Turn on Red				
Satd. Flow (RTOR)				
Link Speed (mph)		30		
Link Distance (ft)		822		
Travel Time (s)		18.7		
Peak Hour Factor	0.89	0.89	0.89	
Heavy Vehicles (%)	3%	3%	2%	
Bus Blockages (#/hr)	0	0	10	
Parking (#/hr)				
Adj. Flow (vph)	39	758	17	
Shared Lane Traffic (%)				
Lane Group Flow (vph)	0	814	0	
Enter Blocked Intersection	No	No	No	
Lane Alignment	Left	Left	Right	
Median Width(ft)		16		
Link Offset(ft)		0		
Crosswalk Width(ft)		16		
Two way Left Turn Lane				
Headway Factor	0.85	0.85	0.85	
Turning Speed (mph)	15	15	9	
Number of Detectors	1	1		
Detector Template	Left	Left		
Leading Detector (ft)	20	20		
Trailing Detector (ft)	0	0		
Detector 1 Position(ft)	0	0		
Detector 1 Size(ft)	20	20		
Detector 1 Type	Cl+Ex	Cl+Ex		
Detector 1 Channel				
Detector 1 Extend (s)	0.0	0.0		
Detector 1 Queue (s)	0.0	0.0		
Detector 1 Delay (s)	0.0	0.0		
Detector 2 Position(ft)				
Detector 2 Size(ft)				
Detector 2 Type				
Detector 2 Channel				
Detector 2 Extend (s)				
Turn Type	Perm	Perm		
Protected Phases				2
Permitted Phases	1	1		

Lane Group	EBL2	EBL	EBT	WBT	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR2
Detector Phase	4	4	4	1			3	3		3	3	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	30.0			8.0	8.0		8.0	8.0	
Minimum Split (s)	13.0	13.0	13.0	36.0			13.0	13.0		13.0	13.0	
Total Split (s)	17.0	17.0	17.0	36.0			17.0	17.0		17.0	17.0	
Total Split (%)	17.9%	17.9%	17.9%	37.9%			17.9%	17.9%		17.9%	17.9%	
Maximum Green (s)	12.0	12.0	12.0	30.0			12.0	12.0		12.0	12.0	
Yellow Time (s)	4.0	4.0	4.0	5.0			4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0			1.0	1.0		1.0	1.0	
Lost Time Adjust (s)			0.0	0.0				0.0			0.0	
Total Lost Time (s)			5.0	6.0				5.0			5.0	
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lead		Lead	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0			3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	Max			None	None		None	None	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)			9.2	31.9				9.5			9.5	
Actuated g/C Ratio			0.15	0.53				0.16			0.16	
v/c Ratio			0.33	0.64				0.38			0.36	
Control Delay			31.7	14.2				27.8			8.0	
Queue Delay			0.0	0.0				0.0			0.0	
Total Delay			31.7	14.2				27.8			8.0	
LOS			C	B				C			A	
Approach Delay			31.7	14.2				27.8			8.0	
Approach LOS			C	B				C			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 60.7			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.78			
Intersection Signal Delay: 18.8		Intersection LOS: B	
Intersection Capacity Utilization 96.4%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 6: Hyde Park Ave & Wolcott Square/Neponset Valley Parkway & Wolcott Court



Lane Group	SEL2	SEL	SER	ø2
Detector Phase	1	1		
Switch Phase				
Minimum Initial (s)	30.0	30.0		7.0
Minimum Split (s)	36.0	36.0		25.0
Total Split (s)	36.0	36.0		25.0
Total Split (%)	37.9%	37.9%		26%
Maximum Green (s)	30.0	30.0		21.0
Yellow Time (s)	5.0	5.0		3.0
All-Red Time (s)	1.0	1.0		1.0
Lost Time Adjust (s)		0.0		
Total Lost Time (s)		6.0		
Lead/Lag	Lead	Lead		Lag
Lead-Lag Optimize?	Yes	Yes		Yes
Vehicle Extension (s)	3.0	3.0		3.0
Recall Mode	Max	Max		None
Walk Time (s)				7.0
Flash Dont Walk (s)				14.0
Pedestrian Calls (#/hr)				0
Act Effct Green (s)		31.9		
Actuated g/C Ratio		0.53		
v/c Ratio		0.78		
Control Delay		22.3		
Queue Delay		0.0		
Total Delay		22.3		
LOS		C		
Approach Delay		22.3		
Approach LOS		C		

Intersection Summary

Movement	EBL2	EBL	EBT	WBT	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR2
Lane Configurations												
Volume (vph)	10	5	30	0	525	45	40	10	10	60	5	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	9	9	9	16	16	16	14	14	14	16	16	16
Total Lost time (s)			5.0	6.0				5.0			5.0	
Lane Util. Factor			1.00	1.00				1.00			1.00	
Frt			1.00	0.86				0.98			0.97	
Flt Protected			0.98	1.00				0.97			0.97	
Satd. Flow (prot)			1468	1762				1861			1956	
Flt Permitted			0.66	1.00				0.77			0.80	
Satd. Flow (perm)			980	1762				1488			1616	
Peak-hour factor, PHF	0.92	0.92	0.92	0.91	0.91	0.91	0.66	0.66	0.66	0.65	0.65	0.65
Adj. Flow (vph)	11	5	33	0	577	49	61	15	15	92	8	31
RTOR Reduction (vph)	0	0	0	62	0	0	0	8	0	0	111	0
Lane Group Flow (vph)	0	0	49	564	0	0	0	83	0	0	20	0
Heavy Vehicles (%)	2%	2%	2%	2%	6%	2%	3%	3%	3%	2%	2%	6%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)			2									
Turn Type	Perm	Perm	NA	NA			custom	NA		custom	NA	
Protected Phases			4									
Permitted Phases	4	4		1			3	3		3	3	
Actuated Green, G (s)			5.5	31.9				9.5			9.5	
Effective Green, g (s)			5.5	31.9				9.5			9.5	
Actuated g/C Ratio			0.09	0.51				0.15			0.15	
Clearance Time (s)			5.0	6.0				5.0			5.0	
Vehicle Extension (s)			3.0	3.0				3.0			3.0	
Lane Grp Cap (vph)			85	893				224			244	
v/s Ratio Prot												
v/s Ratio Perm			c0.05	0.32				c0.06			0.01	
v/c Ratio			0.58	0.63				0.37			0.08	
Uniform Delay, d1			27.6	11.2				24.0			22.9	
Progression Factor			1.00	1.00				1.00			1.00	
Incremental Delay, d2			9.1	3.4				1.0			0.1	
Delay (s)			36.7	14.6				25.1			23.1	
Level of Service			D	B				C			C	
Approach Delay (s)			36.7	14.6				25.1			23.1	
Approach LOS			D	B				C			C	

Intersection Summary			
HCM 2000 Control Delay	19.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	62.9	Sum of lost time (s)	20.0
Intersection Capacity Utilization	96.4%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SEL2	SEL	SER
Lane Configurations			
Volume (vph)	35	675	15
Ideal Flow (vphpl)	1900	1900	1900
Lane Width	16	16	16
Total Lost time (s)		6.0	
Lane Util. Factor		1.00	
Frt		1.00	
Flt Protected		0.95	
Satd. Flow (prot)		1988	
Flt Permitted		0.95	
Satd. Flow (perm)		1988	
Peak-hour factor, PHF	0.89	0.89	0.89
Adj. Flow (vph)	39	758	17
RTOR Reduction (vph)	0	0	0
Lane Group Flow (vph)	0	814	0
Heavy Vehicles (%)	3%	3%	2%
Bus Blockages (#/hr)	0	0	10
Parking (#/hr)			
Turn Type	Perm	Perm	
Protected Phases			
Permitted Phases	1	1	
Actuated Green, G (s)		31.9	
Effective Green, g (s)		31.9	
Actuated g/C Ratio		0.51	
Clearance Time (s)		6.0	
Vehicle Extension (s)		3.0	
Lane Grp Cap (vph)		1008	
v/s Ratio Prot			
v/s Ratio Perm		c0.41	
v/c Ratio		0.81	
Uniform Delay, d1		12.9	
Progression Factor		1.00	
Incremental Delay, d2		6.9	
Delay (s)		19.9	
Level of Service		B	
Approach Delay (s)		19.9	
Approach LOS		B	

Intersection Summary

Lane Group	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations						
Volume (vph)	660	10	45	490	50	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.998				0.932	
Flt Protected				0.996	0.976	
Satd. Flow (prot)	1824	0	0	1848	1670	0
Flt Permitted				0.996	0.976	
Satd. Flow (perm)	1824	0	0	1848	1670	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	336			386	167	
Travel Time (s)	7.6			8.8	3.8	
Peak Hour Factor	0.87	0.87	0.94	0.94	0.79	0.79
Heavy Vehicles (%)	4%	2%	7%	2%	5%	2%
Adj. Flow (vph)	759	11	48	521	63	63
Shared Lane Traffic (%)						
Lane Group Flow (vph)	770	0	0	569	126	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 75.6%		ICU Level of Service D	
Analysis Period (min) 15			

Movement	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations						
Volume (veh/h)	660	10	45	490	50	50
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.94	0.94	0.79	0.79
Hourly flow rate (vph)	759	11	48	521	63	63
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			770		1381	764
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			770		1381	764
tC, single (s)			4.2		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.3		3.5	3.3
p0 queue free %			94		57	84
cM capacity (veh/h)			822		147	404

Direction, Lane #	NB 1	SB 1	NW 1
Volume Total	770	569	127
Volume Left	0	48	63
Volume Right	11	0	63
cSH	1700	822	216
Volume to Capacity	0.45	0.06	0.59
Queue Length 95th (ft)	0	5	82
Control Delay (s)	0.0	1.6	42.9
Lane LOS		A	E
Approach Delay (s)	0.0	1.6	42.9
Approach LOS			E

Intersection Summary			
Average Delay	4.3		
Intersection Capacity Utilization	75.6%	ICU Level of Service	D
Analysis Period (min)	15		

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Volume (vph)	5	5	26	529	306	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	15	15	16	16	16	16
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.932				0.991	
Flt Protected	0.976			0.998		
Satd. Flow (prot)	1571	0	0	1960	1933	0
Flt Permitted	0.976			0.998		
Satd. Flow (perm)	1571	0	0	1960	1933	0
Link Speed (mph)	30			35	30	
Link Distance (ft)	490			413	824	
Travel Time (s)	11.1			8.0	18.7	
Peak Hour Factor	0.63	0.63	0.93	0.93	0.92	0.92
Heavy Vehicles (%)	2%	40%	2%	10%	11%	2%
Adj. Flow (vph)	8	8	28	569	333	23
Shared Lane Traffic (%)						
Lane Group Flow (vph)	16	0	0	597	356	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	15			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	0.88	0.88	0.85	0.85	0.85	0.85
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 59.0%		ICU Level of Service B	
Analysis Period (min) 15			

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Volume (veh/h)	5	5	26	529	306	21
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.63	0.63	0.93	0.93	0.92	0.92
Hourly flow rate (vph)	8	8	28	569	333	23
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	969	344	355			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	969	344	355			
tC, single (s)	6.4	6.6	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.7	2.2			
p0 queue free %	97	99	98			
cM capacity (veh/h)	275	620	1203			

Direction, Lane #	SE 1	NE 1	SW 1
Volume Total	16	597	355
Volume Left	8	28	0
Volume Right	8	0	23
cSH	381	1203	1700
Volume to Capacity	0.04	0.02	0.21
Queue Length 95th (ft)	3	2	0
Control Delay (s)	14.9	0.6	0.0
Lane LOS	B	A	
Approach Delay (s)	14.9	0.6	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	59.0%	ICU Level of Service	B
Analysis Period (min)	15		

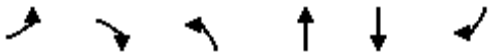
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	5	0	0	16	0	5	11	513	11	11	311	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	16	16	16	16	12	12	12	16	16	16
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.966			0.997			0.984	
Flt Protected		0.950			0.964			0.999			0.999	
Satd. Flow (prot)	0	2046	0	0	1078	0	0	1756	0	0	1960	0
Flt Permitted		0.950			0.964			0.999			0.999	
Satd. Flow (perm)	0	2046	0	0	1078	0	0	1756	0	0	1960	0
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		338			265			824			1173	
Travel Time (s)		7.7			6.0			16.1			22.9	
Peak Hour Factor	0.75	0.75	0.75	0.66	0.66	0.66	0.83	0.83	0.83	0.88	0.88	0.88
Heavy Vehicles (%)	0%	0%	0%	86%	2%	86%	2%	8%	2%	2%	9%	2%
Adj. Flow (vph)	7	0	0	24	0	8	13	618	13	13	353	48
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	7	0	0	32	0	0	644	0	0	413	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.85	0.85	0.85	0.85	0.85	0.85	1.00	1.00	1.00	0.85	0.85	0.85
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 42.4%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	5	0	0	16	0	5	11	513	11	11	311	42
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.75	0.75	0.75	0.66	0.66	0.66	0.83	0.83	0.83	0.88	0.88	0.88
Hourly flow rate (vph)	7	0	0	24	0	8	13	618	13	12	353	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)												
pX, platoon unblocked												
vC, conflicting volume	1061	1060	377	1053	1077	625	401			631		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1061	1060	377	1053	1077	625	401			631		
tC, single (s)	7.1	6.5	6.2	8.0	6.5	7.1	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	4.3	4.0	4.1	2.2			2.2		
p0 queue free %	97	100	100	83	100	98	99			99		
cM capacity (veh/h)	195	220	674	141	214	362	1158			951		

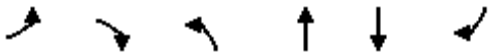
Direction, Lane #	SE 1	NW 1	NE 1	SW 1
Volume Total	7	32	645	414
Volume Left	7	24	13	12
Volume Right	0	8	13	48
cSH	195	165	1158	951
Volume to Capacity	0.03	0.19	0.01	0.01
Queue Length 95th (ft)	3	17	1	1
Control Delay (s)	24.1	32.0	0.3	0.4
Lane LOS	C	D	A	A
Approach Delay (s)	24.1	32.0	0.3	0.4
Approach LOS	C	D		

Intersection Summary				
Average Delay	1.4			
Intersection Capacity Utilization	42.4%	ICU Level of Service	A	
Analysis Period (min)	15			



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	358	47	74	450	316	227
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	13	13	12	12
Storage Length (ft)	0	0	0			100
Storage Lanes	1	0	0			1
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.984					0.850
Flt Protected	0.958			0.993		
Satd. Flow (prot)	1698	0	0	1805	1667	1417
Flt Permitted	0.958			0.993		
Satd. Flow (perm)	1698	0	0	1805	1667	1417
Link Speed (mph)	30			35	30	
Link Distance (ft)	686			1173	333	
Travel Time (s)	15.6			22.9	7.6	
Peak Hour Factor	0.89	0.89	0.90	0.90	0.98	0.98
Heavy Vehicles (%)	7%	2%	2%	9%	14%	14%
Parking (#/hr)	2					
Adj. Flow (vph)	402	53	82	500	322	232
Shared Lane Traffic (%)						
Lane Group Flow (vph)	455	0	0	582	322	232
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	16			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	0.99	0.85	0.96	0.96	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Stop	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 77.1%		ICU Level of Service D	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	358	47	74	450	316	227
Peak Hour Factor	0.89	0.89	0.90	0.90	0.98	0.98
Hourly flow rate (vph)	402	53	82	500	322	232

Direction, Lane #	EB 1	NB 1	SB 1	SB 2
Volume Total (vph)	455	582	322	232
Volume Left (vph)	402	82	0	0
Volume Right (vph)	53	0	0	232
Hadj (s)	0.22	0.16	0.24	-0.46
Departure Headway (s)	7.0	6.9	7.5	6.8
Degree Utilization, x	0.88	1.0	0.67	0.44
Capacity (veh/h)	510	524	465	518
Control Delay (s)	41.8	101.0	23.5	13.9
Approach Delay (s)	41.8	101.0	19.5	
Approach LOS	E	F	C	

Intersection Summary			
Delay	55.7		
Level of Service	F		
Intersection Capacity Utilization	77.1%	ICU Level of Service	D
Analysis Period (min)	15		

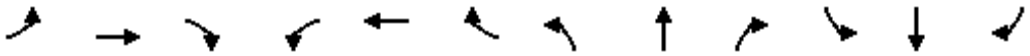
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	584	431	86	606	263	68
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	16	16	14	14
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.943		0.882			
Flt Protected	0.972					0.962
Satd. Flow (prot)	1862	0	1756	0	0	1868
Flt Permitted	0.972					0.962
Satd. Flow (perm)	1862	0	1756	0	0	1868
Link Speed (mph)	30		30			30
Link Distance (ft)	466		390			437
Travel Time (s)	10.6		8.9			9.9
Peak Hour Factor	0.89	0.89	0.98	0.98	0.96	0.96
Heavy Vehicles (%)	9%	2%	2%	9%	5%	2%
Adj. Flow (vph)	656	484	88	618	274	71
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1140	0	706	0	0	345
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	16		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	0.85	0.85	0.85	0.85	0.92	0.92
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 128.8%		ICU Level of Service H	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	584	431	86	606	263	68
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.89	0.89	0.98	0.98	0.96	0.96
Hourly flow rate (vph)	656	484	88	618	274	71
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1016	397			706	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1016	397			706	
tC, single (s)	6.5	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.6	3.3			2.2	
p0 queue free %	0	26			69	
cM capacity (veh/h)	176	653			878	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	1140	706	345
Volume Left	656	0	274
Volume Right	484	618	0
cSH	255	1700	878
Volume to Capacity	4.47	0.42	0.31
Queue Length 95th (ft)	Err	0	33
Control Delay (s)	Err	0.0	9.4
Lane LOS	F		A
Approach Delay (s)	Err	0.0	9.4
Approach LOS	F		

Intersection Summary			
Average Delay	5205.3		
Intersection Capacity Utilization	128.8%	ICU Level of Service	H
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	255	11	604	5	5	5	722	184	11	0	137	288
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	16	14	14	14	16	16	16	16	16	16
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.906			0.955			0.998			0.909	
Flt Protected		0.986			0.984			0.962				
Satd. Flow (prot)	0	1766	0	0	1758	0	0	1951	0	0	1673	0
Flt Permitted		0.986			0.984			0.962				
Satd. Flow (perm)	0	1766	0	0	1758	0	0	1951	0	0	1673	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		466			184			798			433	
Travel Time (s)		10.6			4.2			18.1			9.8	
Peak Hour Factor	0.91	0.91	0.91	0.70	0.70	0.70	0.90	0.90	0.90	0.83	0.83	0.83
Heavy Vehicles (%)	9%	2%	9%	2%	2%	21%	6%	6%	2%	2%	17%	17%
Adj. Flow (vph)	280	12	664	7	7	7	802	204	12	0	165	347
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	956	0	0	21	0	0	1018	0	0	512	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.85	0.85	0.85	0.92	0.92	0.92	0.85	0.85	0.85	0.85	0.85	0.85
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 143.8%		ICU Level of Service H	
Analysis Period (min) 15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	255	11	604	5	5	5	722	184	11	0	137	288
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.70	0.70	0.70	0.90	0.90	0.90	0.83	0.83	0.83
Hourly flow rate (vph)	280	12	664	7	7	7	802	204	12	0	165	347
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								798				
pX, platoon unblocked												
vC, conflicting volume	2164	2160	339	2823	2327	211	512			217		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2164	2160	339	2823	2327	211	512			217		
tC, single (s)	7.2	6.5	6.3	7.1	6.5	6.4	4.2			4.1		
tC, 2 stage (s)												
tF (s)	3.6	4.0	3.4	3.5	4.0	3.5	2.3			2.2		
p0 queue free %	0	0	4	0	14	99	22			100		
cM capacity (veh/h)	4	11	688	0	8	784	1033			1353		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	956	21	1019	512
Volume Left	280	7	802	0
Volume Right	664	7	12	347
cSH	12	0	1033	1353
Volume to Capacity	77.11	Err	0.78	0.00
Queue Length 95th (ft)	Err	Err	203	0
Control Delay (s)	Err	Err	19.0	0.0
Lane LOS	F	F	C	
Approach Delay (s)	Err	Err	19.0	0.0
Approach LOS	F	F		

Intersection Summary			
Average Delay	Err		
Intersection Capacity Utilization	143.8%	ICU Level of Service	H
Analysis Period (min)	15		

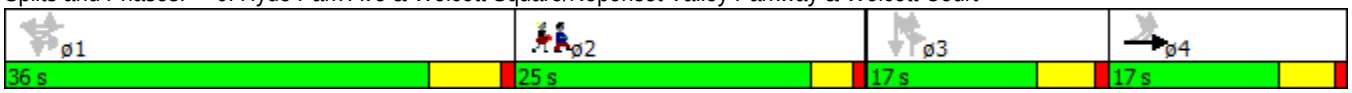
Lane Group	EBL2	EBL	EBT	WBT	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR2
Lane Configurations												
Volume (vph)	11	5	11	0	759	126	53	16	5	68	5	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	9	9	9	16	16	16	14	14	14	16	16	16
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.865				0.991			0.951	
Flt Protected			0.971					0.965			0.971	
Satd. Flow (prot)	0	0	1385	1767	0	0	0	1900	0	0	1831	0
Flt Permitted			0.815					0.745			0.812	
Satd. Flow (perm)	0	0	1163	1767	0	0	0	1467	0	0	1531	0
Right Turn on Red						Yes			Yes			Yes
Satd. Flow (RTOR)				126				3			138	
Link Speed (mph)			30	30				30			30	
Link Distance (ft)			245	329				316			590	
Travel Time (s)			5.6	7.5				7.2			13.4	
Peak Hour Factor	0.69	0.69	0.69	0.91	0.91	0.91	0.84	0.84	0.84	0.81	0.81	0.81
Heavy Vehicles (%)	2%	28%	2%	2%	6%	2%	2%	2%	2%	2%	2%	20%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)			2									
Adj. Flow (vph)	16	7	16	0	834	138	63	19	6	84	6	52
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	39	972	0	0	0	88	0	0	142	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Left	Right	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)			0	0				0			0	
Link Offset(ft)			0	0				0			0	
Crosswalk Width(ft)			16	16				16			16	
Two way Left Turn Lane												
Headway Factor	1.14	1.14	1.32	0.85	0.85	0.85	0.92	0.92	0.92	0.85	0.85	0.85
Turning Speed (mph)	15	15			9	9	15		9	15		9
Number of Detectors	1	1	2	2			1	2		1	2	
Detector Template	Left	Left	Thru	Thru			Left	Thru		Left	Thru	
Leading Detector (ft)	20	20	100	100			20	100		20	100	
Trailing Detector (ft)	0	0	0	0			0	0		0	0	
Detector 1 Position(ft)	0	0	0	0			0	0		0	0	
Detector 1 Size(ft)	20	20	6	6			20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0	
Detector 2 Position(ft)			94	94				94			94	
Detector 2 Size(ft)			6	6				6			6	
Detector 2 Type			Cl+Ex	Cl+Ex				Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)			0.0	0.0				0.0			0.0	
Turn Type	Perm	Perm	NA	NA			custom	NA		custom	NA	
Protected Phases			4									
Permitted Phases	4	4		1			3	3		3	3	

Lane Group	SEL2	SEL	SER	ø2
Lane Configurations				
Volume (vph)	95	635	16	
Ideal Flow (vphpl)	1900	1900	1900	
Lane Width (ft)	16	16	16	
Lane Util. Factor	1.00	1.00	1.00	
Frt		0.997		
Flt Protected		0.953		
Satd. Flow (prot)	0	1925	0	
Flt Permitted		0.953		
Satd. Flow (perm)	0	1925	0	
Right Turn on Red				
Satd. Flow (RTOR)				
Link Speed (mph)		30		
Link Distance (ft)		798		
Travel Time (s)		18.1		
Peak Hour Factor	0.93	0.93	0.93	
Heavy Vehicles (%)	2%	7%	2%	
Bus Blockages (#/hr)	0	0	10	
Parking (#/hr)				
Adj. Flow (vph)	102	683	17	
Shared Lane Traffic (%)				
Lane Group Flow (vph)	0	802	0	
Enter Blocked Intersection	No	No	No	
Lane Alignment	Left	Left	Right	
Median Width(ft)		16		
Link Offset(ft)		0		
Crosswalk Width(ft)		16		
Two way Left Turn Lane				
Headway Factor	0.85	0.85	0.85	
Turning Speed (mph)	15	15	9	
Number of Detectors	1	1		
Detector Template	Left	Left		
Leading Detector (ft)	20	20		
Trailing Detector (ft)	0	0		
Detector 1 Position(ft)	0	0		
Detector 1 Size(ft)	20	20		
Detector 1 Type	Cl+Ex	Cl+Ex		
Detector 1 Channel				
Detector 1 Extend (s)	0.0	0.0		
Detector 1 Queue (s)	0.0	0.0		
Detector 1 Delay (s)	0.0	0.0		
Detector 2 Position(ft)				
Detector 2 Size(ft)				
Detector 2 Type				
Detector 2 Channel				
Detector 2 Extend (s)				
Turn Type	Perm	Perm		
Protected Phases				2
Permitted Phases	1	1		

Lane Group	EBL2	EBL	EBT	WBT	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR2
Detector Phase	4	4	4	1			3	3		3	3	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	30.0			8.0	8.0		8.0	8.0	
Minimum Split (s)	13.0	13.0	13.0	36.0			13.0	13.0		13.0	13.0	
Total Split (s)	17.0	17.0	17.0	36.0			17.0	17.0		17.0	17.0	
Total Split (%)	17.9%	17.9%	17.9%	37.9%			17.9%	17.9%		17.9%	17.9%	
Maximum Green (s)	12.0	12.0	12.0	30.0			12.0	12.0		12.0	12.0	
Yellow Time (s)	4.0	4.0	4.0	5.0			4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0			1.0	1.0		1.0	1.0	
Lost Time Adjust (s)			0.0	0.0				0.0			0.0	
Total Lost Time (s)			5.0	6.0				5.0			5.0	
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lead		Lead	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0			3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	Max			None	None		None	None	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)			9.8	31.3				9.7			9.7	
Actuated g/C Ratio			0.17	0.54				0.17			0.17	
v/c Ratio			0.20	0.96				0.36			0.38	
Control Delay			26.0	37.3				27.3			9.2	
Queue Delay			0.0	0.0				0.0			0.0	
Total Delay			26.0	37.3				27.3			9.2	
LOS			C	D				C			A	
Approach Delay			26.0	37.3				27.3			9.2	
Approach LOS			C	D				C			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 57.9			
Natural Cycle: 110			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.96			
Intersection Signal Delay: 28.5		Intersection LOS: C	
Intersection Capacity Utilization 117.5%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 6: Hyde Park Ave & Wolcott Square/Neponset Valley Parkway & Wolcott Court



Lane Group	SEL2	SEL	SER	ø2
Detector Phase	1	1		
Switch Phase				
Minimum Initial (s)	30.0	30.0		7.0
Minimum Split (s)	36.0	36.0		25.0
Total Split (s)	36.0	36.0		25.0
Total Split (%)	37.9%	37.9%		26%
Maximum Green (s)	30.0	30.0		21.0
Yellow Time (s)	5.0	5.0		3.0
All-Red Time (s)	1.0	1.0		1.0
Lost Time Adjust (s)		0.0		
Total Lost Time (s)		6.0		
Lead/Lag	Lead	Lead		Lag
Lead-Lag Optimize?	Yes	Yes		Yes
Vehicle Extension (s)	3.0	3.0		3.0
Recall Mode	Max	Max		None
Walk Time (s)				7.0
Flash Dont Walk (s)				14.0
Pedestrian Calls (#/hr)				0
Act Effct Green (s)		31.3		
Actuated g/C Ratio		0.54		
v/c Ratio		0.77		
Control Delay		21.4		
Queue Delay		0.0		
Total Delay		21.4		
LOS		C		
Approach Delay		21.4		
Approach LOS		C		

Intersection Summary

Movement	EBL2	EBL	EBT	WBT	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR2
Lane Configurations												
Volume (vph)	11	5	11	0	759	126	53	16	5	68	5	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	9	9	9	16	16	16	14	14	14	16	16	16
Total Lost time (s)			5.0	6.0				5.0			5.0	
Lane Util. Factor			1.00	1.00				1.00			1.00	
Frt			1.00	0.86				0.99			0.95	
Flt Protected			0.97	1.00				0.97			0.97	
Satd. Flow (prot)			1386	1767				1901			1831	
Flt Permitted			0.82	1.00				0.75			0.81	
Satd. Flow (perm)			1163	1767				1467			1531	
Peak-hour factor, PHF	0.69	0.69	0.69	0.91	0.91	0.91	0.84	0.84	0.84	0.81	0.81	0.81
Adj. Flow (vph)	16	7	16	0	834	138	63	19	6	84	6	52
RTOR Reduction (vph)	0	0	0	61	0	0	0	3	0	0	116	0
Lane Group Flow (vph)	0	0	39	911	0	0	0	85	0	0	26	0
Heavy Vehicles (%)	2%	28%	2%	2%	6%	2%	2%	2%	2%	2%	2%	20%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)			2									
Turn Type	Perm	Perm	NA	NA			custom	NA		custom	NA	
Protected Phases			4									
Permitted Phases	4	4		1			3	3		3	3	
Actuated Green, G (s)			3.9	31.4				9.7			9.7	
Effective Green, g (s)			3.9	31.4				9.7			9.7	
Actuated g/C Ratio			0.06	0.51				0.16			0.16	
Clearance Time (s)			5.0	6.0				5.0			5.0	
Vehicle Extension (s)			3.0	3.0				3.0			3.0	
Lane Grp Cap (vph)			74	909				233			243	
v/s Ratio Prot												
v/s Ratio Perm			c0.03	c0.52				c0.06			0.02	
v/c Ratio			0.53	1.00				0.37			0.11	
Uniform Delay, d1			27.7	14.8				22.9			21.9	
Progression Factor			1.00	1.00				1.00			1.00	
Incremental Delay, d2			6.6	30.3				1.0			0.2	
Delay (s)			34.3	45.1				23.9			22.1	
Level of Service			C	D				C			C	
Approach Delay (s)			34.3	45.1				23.9			22.1	
Approach LOS			C	D				C			C	

Intersection Summary			
HCM 2000 Control Delay	32.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	61.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	117.5%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SEL2	SEL	SER
Lane Configurations			
Volume (vph)	95	635	16
Ideal Flow (vphpl)	1900	1900	1900
Lane Width	16	16	16
Total Lost time (s)		6.0	
Lane Util. Factor		1.00	
Frt		1.00	
Flt Protected		0.95	
Satd. Flow (prot)		1926	
Flt Permitted		0.95	
Satd. Flow (perm)		1926	
Peak-hour factor, PHF	0.93	0.93	0.93
Adj. Flow (vph)	102	683	17
RTOR Reduction (vph)	0	0	0
Lane Group Flow (vph)	0	802	0
Heavy Vehicles (%)	2%	7%	2%
Bus Blockages (#/hr)	0	0	10
Parking (#/hr)			
Turn Type	Perm	Perm	
Protected Phases			
Permitted Phases	1	1	
Actuated Green, G (s)		31.4	
Effective Green, g (s)		31.4	
Actuated g/C Ratio		0.51	
Clearance Time (s)		6.0	
Vehicle Extension (s)		3.0	
Lane Grp Cap (vph)		991	
v/s Ratio Prot			
v/s Ratio Perm		0.42	
v/c Ratio		0.81	
Uniform Delay, d1		12.3	
Progression Factor		1.00	
Incremental Delay, d2		7.1	
Delay (s)		19.4	
Level of Service		B	
Approach Delay (s)		19.4	
Approach LOS		B	

Intersection Summary

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	71	81	615	193	159	489
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.928		0.968			
Flt Protected	0.977					0.988
Satd. Flow (prot)	1378	0	1702	0	0	1750
Flt Permitted	0.977					0.988
Satd. Flow (perm)	1378	0	1702	0	0	1750
Link Speed (mph)	30		30			30
Link Distance (ft)	264		333			390
Travel Time (s)	6.0		7.6			8.9
Peak Hour Factor	0.61	0.61	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	45%	10%	2%	2%	9%
Adj. Flow (vph)	116	133	668	210	173	532
Shared Lane Traffic (%)						
Lane Group Flow (vph)	249	0	878	0	0	705
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 97.5%		ICU Level of Service F	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	71	81	615	193	159	489
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.61	0.61	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	116	133	668	210	173	532
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1651	773			878	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1651	773			878	
tC, single (s)	6.4	6.7			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.7			2.2	
p0 queue free %	0	61			78	
cM capacity (veh/h)	84	338			769	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	249	878	704
Volume Left	116	0	173
Volume Right	133	210	0
cSH	140	1700	769
Volume to Capacity	1.78	0.52	0.22
Queue Length 95th (ft)	466	0	21
Control Delay (s)	430.9	0.0	5.4
Lane LOS	F		A
Approach Delay (s)	430.9	0.0	5.4
Approach LOS	F		

Intersection Summary			
Average Delay		60.7	
Intersection Capacity Utilization		97.5%	ICU Level of Service F
Analysis Period (min)		15	

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Volume (vph)	37	47	15	365	460	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	15	15	16	16	16	16
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.924				0.997	
Flt Protected	0.979			0.998		
Satd. Flow (prot)	1784	0	0	2049	2085	0
Flt Permitted	0.979			0.998		
Satd. Flow (perm)	1784	0	0	2049	2085	0
Link Speed (mph)	30			35	30	
Link Distance (ft)	490			413	824	
Travel Time (s)	11.1			8.0	18.7	
Peak Hour Factor	0.74	0.74	0.82	0.85	0.97	0.97
Heavy Vehicles (%)	6%	6%	2%	5%	3%	2%
Adj. Flow (vph)	50	64	18	429	474	11
Shared Lane Traffic (%)						
Lane Group Flow (vph)	114	0	0	447	485	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	15			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	0.88	0.88	0.85	0.85	0.85	0.85
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 43.0%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Volume (veh/h)	37	47	15	365	460	11
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.74	0.74	0.82	0.85	0.97	0.97
Hourly flow rate (vph)	50	64	18	429	474	11
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	946	480	486			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	946	480	486			
tC, single (s)	6.5	6.3	4.1			
tC, 2 stage (s)						
tF (s)	3.6	3.4	2.2			
p0 queue free %	82	89	98			
cM capacity (veh/h)	281	578	1077			

Direction, Lane #	SE 1	NE 1	SW 1
Volume Total	114	448	486
Volume Left	50	18	0
Volume Right	64	0	11
cSH	394	1077	1700
Volume to Capacity	0.29	0.02	0.29
Queue Length 95th (ft)	29	1	0
Control Delay (s)	17.8	0.5	0.0
Lane LOS	C	A	
Approach Delay (s)	17.8	0.5	0.0
Approach LOS	C		

Intersection Summary			
Average Delay	2.2		
Intersection Capacity Utilization	43.0%	ICU Level of Service	A
Analysis Period (min)	15		

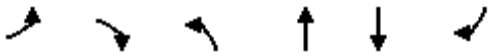
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	121	0	26	21	0	11	26	365	11	5	423	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	16	16	16	16	12	12	12	16	16	16
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.976			0.954			0.996			0.985	
Flt Protected		0.961			0.968			0.997			0.999	
Satd. Flow (prot)	0	1980	0	0	1918	0	0	1784	0	0	2025	0
Flt Permitted		0.961			0.968			0.997			0.999	
Satd. Flow (perm)	0	1980	0	0	1918	0	0	1784	0	0	2025	0
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		338			265			824			1173	
Travel Time (s)		7.7			6.0			16.1			22.9	
Peak Hour Factor	0.57	0.57	0.57	0.60	0.60	0.60	0.93	0.93	0.93	0.89	0.89	0.89
Heavy Vehicles (%)	2%	2%	2%	2%	2%	7%	2%	6%	6%	2%	5%	2%
Adj. Flow (vph)	212	0	46	35	0	18	28	392	12	6	475	60
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	258	0	0	53	0	0	432	0	0	541	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.85	0.85	0.85	0.85	0.85	0.85	1.00	1.00	1.00	0.85	0.85	0.85
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 53.7%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	121	0	26	21	0	11	26	365	11	5	423	53
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.57	0.57	0.57	0.60	0.60	0.60	0.93	0.93	0.93	0.89	0.89	0.89
Hourly flow rate (vph)	212	0	46	35	0	18	28	392	12	6	475	60
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	989	977	505	1016	1000	398	535			404		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	989	977	505	1016	1000	398	535			404		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.3	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.4	2.2			2.2		
p0 queue free %	1	100	92	82	100	97	97			100		
cM capacity (veh/h)	214	243	567	194	235	641	1033			1154		

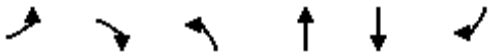
Direction, Lane #	SE 1	NW 1	NE 1	SW 1
Volume Total	258	53	432	540
Volume Left	212	35	28	6
Volume Right	46	18	12	60
cSH	240	255	1033	1154
Volume to Capacity	1.07	0.21	0.03	0.00
Queue Length 95th (ft)	275	19	2	0
Control Delay (s)	122.8	22.8	0.8	0.1
Lane LOS	F	C	A	A
Approach Delay (s)	122.8	22.8	0.8	0.1
Approach LOS	F	C		

Intersection Summary			
Average Delay	26.0		
Intersection Capacity Utilization	53.7%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	283	100	63	434	381	269
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	13	13	12	12
Storage Length (ft)	0	0	0			100
Storage Lanes	1	0	0			1
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.965					0.850
Flt Protected	0.964			0.994		
Satd. Flow (prot)	1682	0	0	1897	1827	1583
Flt Permitted	0.964			0.994		
Satd. Flow (perm)	1682	0	0	1897	1827	1583
Link Speed (mph)	30			35	30	
Link Distance (ft)	686			1173	336	
Travel Time (s)	15.6			22.9	7.6	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.91	0.91
Heavy Vehicles (%)	6%	6%	2%	3%	4%	2%
Parking (#/hr)	2					
Adj. Flow (vph)	329	116	73	505	419	296
Shared Lane Traffic (%)						
Lane Group Flow (vph)	445	0	0	578	419	296
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	16			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	0.99	0.85	0.96	0.96	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Stop	Stop	

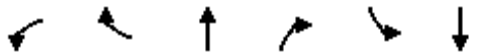
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 78.2%		ICU Level of Service D	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	283	100	63	434	381	269
Peak Hour Factor	0.86	0.86	0.86	0.86	0.91	0.91
Hourly flow rate (vph)	329	116	73	505	419	296

Direction, Lane #	EB 1	NB 1	SB 1	SB 2
Volume Total (vph)	445	578	419	296
Volume Left (vph)	329	73	0	0
Volume Right (vph)	116	0	0	296
Hadj (s)	0.09	0.07	0.07	-0.67
Departure Headway (s)	7.0	6.9	7.3	6.6
Degree Utilization, x	0.86	1.0	0.85	0.54
Capacity (veh/h)	510	523	486	541
Control Delay (s)	39.5	98.5	38.2	15.8
Approach Delay (s)	39.5	98.5	28.9	
Approach LOS	E	F	D	

Intersection Summary			
Delay	54.8		
Level of Service	F		
Intersection Capacity Utilization	78.2%	ICU Level of Service	D
Analysis Period (min)	15		



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	490	284	84	777	263	126
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	16	16	14	14
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.950		0.878			
Flt Protected	0.969					0.967
Satd. Flow (prot)	1874	0	1854	0	0	1845
Flt Permitted	0.969					0.967
Satd. Flow (perm)	1874	0	1854	0	0	1845
Link Speed (mph)	30		30			30
Link Distance (ft)	466		386			437
Travel Time (s)	10.6		8.8			9.9
Peak Hour Factor	0.96	0.96	0.95	0.95	0.91	0.91
Heavy Vehicles (%)	8%	2%	2%	2%	2%	15%
Adj. Flow (vph)	510	296	88	818	289	138
Shared Lane Traffic (%)						
Lane Group Flow (vph)	806	0	906	0	0	427
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	16		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	0.85	0.85	0.85	0.85	0.92	0.92
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 128.1%		ICU Level of Service H	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	490	284	84	777	263	126
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.96	0.96	0.95	0.95	0.91	0.91
Hourly flow rate (vph)	510	296	88	818	289	138
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1214	497			906	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1214	497			906	
tC, single (s)	6.5	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.6	3.3			2.2	
p0 queue free %	0	48			62	
cM capacity (veh/h)	120	573			751	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	806	906	427
Volume Left	510	0	289
Volume Right	296	818	0
cSH	169	1700	751
Volume to Capacity	4.77	0.53	0.38
Queue Length 95th (ft)	Err	0	46
Control Delay (s)	Err	0.0	10.4
Lane LOS	F		B
Approach Delay (s)	Err	0.0	10.4
Approach LOS	F		

Intersection Summary			
Average Delay	3769.1		
Intersection Capacity Utilization	128.1%	ICU Level of Service	H
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	276	0	763	5	5	5	533	137	0	0	168	236
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	16	14	14	14	16	16	16	16	16	16
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.901			0.955						0.921	
Flt Protected		0.987			0.984			0.962				
Satd. Flow (prot)	0	1877	0	0	1904	0	0	1969	0	0	1839	0
Flt Permitted		0.987			0.984			0.962				
Satd. Flow (perm)	0	1877	0	0	1904	0	0	1969	0	0	1839	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		466			184			822			433	
Travel Time (s)		10.6			4.2			18.7			9.8	
Peak Hour Factor	0.92	0.92	0.92	0.45	0.45	0.45	0.97	0.97	0.97	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	0%	0%	0%	6%	2%	2%	2%	2%	12%
Adj. Flow (vph)	300	0	829	11	11	11	549	141	0	0	187	262
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1129	0	0	33	0	0	690	0	0	449	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.85	0.85	0.85	0.92	0.92	0.92	0.85	0.85	0.85	0.85	0.85	0.85
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 139.0%		ICU Level of Service H	
Analysis Period (min) 15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	276	0	763	5	5	5	533	137	0	0	168	236
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.45	0.45	0.45	0.97	0.97	0.97	0.90	0.90	0.90
Hourly flow rate (vph)	300	0	829	11	11	11	549	141	0	0	187	262
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								822				
pX, platoon unblocked												
vC, conflicting volume	1575	1558	318	2387	1689	141	449			141		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1575	1558	318	2387	1689	141	449			141		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.2			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.3			2.2		
p0 queue free %	0	100	0	0	76	99	50			100		
cM capacity (veh/h)	44	56	723	0	47	912	1091			1442		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	1129	33	691	449
Volume Left	300	11	549	0
Volume Right	829	11	0	262
cSH	142	0	1091	1442
Volume to Capacity	7.93	Err	0.50	0.00
Queue Length 95th (ft)	Err	Err	73	0
Control Delay (s)	Err	Err	10.5	0.0
Lane LOS	F	F	B	
Approach Delay (s)	Err	Err	10.5	0.0
Approach LOS	F	F		

Intersection Summary			
Average Delay	Err		
Intersection Capacity Utilization	139.0%	ICU Level of Service	H
Analysis Period (min)	15		

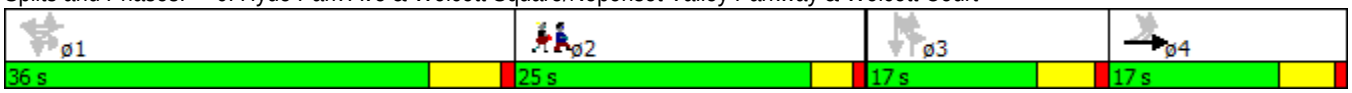
Lane Group	EBL2	EBL	EBT	WBT	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR2
Lane Configurations												
Volume (vph)	11	5	32	0	570	47	42	11	11	63	5	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	9	9	9	16	16	16	14	14	14	16	16	16
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.865				0.977			0.968	
Flt Protected			0.984					0.968			0.966	
Satd. Flow (prot)	0	0	1468	1762	0	0	0	1861	0	0	1956	0
Flt Permitted			0.638					0.774			0.793	
Satd. Flow (perm)	0	0	952	1762	0	0	0	1488	0	0	1606	0
Right Turn on Red						Yes			Yes			Yes
Satd. Flow (RTOR)				126				9			138	
Link Speed (mph)			30	30				30			30	
Link Distance (ft)			245	329				316			590	
Travel Time (s)			5.6	7.5				7.2			13.4	
Peak Hour Factor	0.92	0.92	0.92	0.91	0.91	0.91	0.66	0.66	0.66	0.65	0.65	0.65
Heavy Vehicles (%)	2%	2%	2%	2%	6%	2%	3%	3%	3%	2%	2%	6%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)			2									
Adj. Flow (vph)	12	5	35	0	626	52	64	17	17	97	8	32
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	52	678	0	0	0	98	0	0	137	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Left	Right	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)			0	0				0			0	
Link Offset(ft)			0	0				0			0	
Crosswalk Width(ft)			16	16				16			16	
Two way Left Turn Lane												
Headway Factor	1.14	1.14	1.32	0.85	0.85	0.85	0.92	0.92	0.92	0.85	0.85	0.85
Turning Speed (mph)	15	15			9	9	15		9	15		9
Number of Detectors	1	1	2	2			1	2		1	2	
Detector Template	Left	Left	Thru	Thru			Left	Thru		Left	Thru	
Leading Detector (ft)	20	20	100	100			20	100		20	100	
Trailing Detector (ft)	0	0	0	0			0	0		0	0	
Detector 1 Position(ft)	0	0	0	0			0	0		0	0	
Detector 1 Size(ft)	20	20	6	6			20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0	
Detector 2 Position(ft)			94	94				94			94	
Detector 2 Size(ft)			6	6				6			6	
Detector 2 Type			Cl+Ex	Cl+Ex				Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)			0.0	0.0				0.0			0.0	
Turn Type	Perm	Perm	NA	NA			custom	NA		custom	NA	
Protected Phases			4									
Permitted Phases	4	4		1			3	3		3	3	

Lane Group	SEL2	SEL	SER	ø2
Lane Configurations				
Volume (vph)	37	789	16	
Ideal Flow (vphpl)	1900	1900	1900	
Lane Width (ft)	16	16	16	
Lane Util. Factor	1.00	1.00	1.00	
Frt		0.997		
Flt Protected		0.953		
Satd. Flow (prot)	0	1987	0	
Flt Permitted		0.953		
Satd. Flow (perm)	0	1987	0	
Right Turn on Red				
Satd. Flow (RTOR)				
Link Speed (mph)		30		
Link Distance (ft)		822		
Travel Time (s)		18.7		
Peak Hour Factor	0.89	0.89	0.89	
Heavy Vehicles (%)	3%	3%	2%	
Bus Blockages (#/hr)	0	0	10	
Parking (#/hr)				
Adj. Flow (vph)	42	887	18	
Shared Lane Traffic (%)				
Lane Group Flow (vph)	0	947	0	
Enter Blocked Intersection	No	No	No	
Lane Alignment	Left	Left	Right	
Median Width(ft)		16		
Link Offset(ft)		0		
Crosswalk Width(ft)		16		
Two way Left Turn Lane				
Headway Factor	0.85	0.85	0.85	
Turning Speed (mph)	15	15	9	
Number of Detectors	1	1		
Detector Template	Left	Left		
Leading Detector (ft)	20	20		
Trailing Detector (ft)	0	0		
Detector 1 Position(ft)	0	0		
Detector 1 Size(ft)	20	20		
Detector 1 Type	Cl+Ex	Cl+Ex		
Detector 1 Channel				
Detector 1 Extend (s)	0.0	0.0		
Detector 1 Queue (s)	0.0	0.0		
Detector 1 Delay (s)	0.0	0.0		
Detector 2 Position(ft)				
Detector 2 Size(ft)				
Detector 2 Type				
Detector 2 Channel				
Detector 2 Extend (s)				
Turn Type	Perm	Perm		
Protected Phases				2
Permitted Phases	1	1		

Lane Group	EBL2	EBL	EBT	WBT	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR2
Detector Phase	4	4	4	1			3	3		3	3	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	30.0			8.0	8.0		8.0	8.0	
Minimum Split (s)	13.0	13.0	13.0	36.0			13.0	13.0		13.0	13.0	
Total Split (s)	17.0	17.0	17.0	36.0			17.0	17.0		17.0	17.0	
Total Split (%)	17.9%	17.9%	17.9%	37.9%			17.9%	17.9%		17.9%	17.9%	
Maximum Green (s)	12.0	12.0	12.0	30.0			12.0	12.0		12.0	12.0	
Yellow Time (s)	4.0	4.0	4.0	5.0			4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0			1.0	1.0		1.0	1.0	
Lost Time Adjust (s)			0.0	0.0				0.0			0.0	
Total Lost Time (s)			5.0	6.0				5.0			5.0	
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lead		Lead	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0			3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	Max			None	None		None	None	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)			9.4	30.9				9.6			9.6	
Actuated g/C Ratio			0.16	0.52				0.16			0.16	
v/c Ratio			0.35	0.70				0.40			0.37	
Control Delay			32.4	16.6				28.2			8.6	
Queue Delay			0.0	0.0				0.0			0.0	
Total Delay			32.4	16.6				28.2			8.6	
LOS			C	B				C			A	
Approach Delay			32.4	16.6				28.2			8.6	
Approach LOS			C	B				C			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 59.9			
Natural Cycle: 100			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.92			
Intersection Signal Delay: 26.0		Intersection LOS: C	
Intersection Capacity Utilization 105.8%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 6: Hyde Park Ave & Wolcott Square/Neponset Valley Parkway & Wolcott Court



Lane Group	SEL2	SEL	SER	ø2
Detector Phase	1	1		
Switch Phase				
Minimum Initial (s)	30.0	30.0		7.0
Minimum Split (s)	36.0	36.0		25.0
Total Split (s)	36.0	36.0		25.0
Total Split (%)	37.9%	37.9%		26%
Maximum Green (s)	30.0	30.0		21.0
Yellow Time (s)	5.0	5.0		3.0
All-Red Time (s)	1.0	1.0		1.0
Lost Time Adjust (s)		0.0		
Total Lost Time (s)		6.0		
Lead/Lag	Lead	Lead		Lag
Lead-Lag Optimize?	Yes	Yes		Yes
Vehicle Extension (s)	3.0	3.0		3.0
Recall Mode	Max	Max		None
Walk Time (s)				7.0
Flash Dont Walk (s)				14.0
Pedestrian Calls (#/hr)				0
Act Effct Green (s)		30.9		
Actuated g/C Ratio		0.52		
v/c Ratio		0.92		
Control Delay		34.6		
Queue Delay		0.0		
Total Delay		34.6		
LOS		C		
Approach Delay		34.6		
Approach LOS		C		

Intersection Summary

Movement	EBL2	EBL	EBT	WBT	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR2
Lane Configurations												
Volume (vph)	11	5	32	0	570	47	42	11	11	63	5	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	9	9	9	16	16	16	14	14	14	16	16	16
Total Lost time (s)			5.0	6.0				5.0			5.0	
Lane Util. Factor			1.00	1.00				1.00			1.00	
Frt			1.00	0.86				0.98			0.97	
Flt Protected			0.98	1.00				0.97			0.97	
Satd. Flow (prot)			1468	1762				1861			1957	
Flt Permitted			0.64	1.00				0.77			0.79	
Satd. Flow (perm)			951	1762				1488			1608	
Peak-hour factor, PHF	0.92	0.92	0.92	0.91	0.91	0.91	0.66	0.66	0.66	0.65	0.65	0.65
Adj. Flow (vph)	12	5	35	0	626	52	64	17	17	97	8	32
RTOR Reduction (vph)	0	0	0	63	0	0	0	8	0	0	116	0
Lane Group Flow (vph)	0	0	52	615	0	0	0	90	0	0	21	0
Heavy Vehicles (%)	2%	2%	2%	2%	6%	2%	3%	3%	3%	2%	2%	6%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)			2									
Turn Type	Perm	Perm	NA	NA			custom	NA		custom	NA	
Protected Phases			4									
Permitted Phases	4	4		1			3	3		3	3	
Actuated Green, G (s)			5.5	30.9				9.6			9.6	
Effective Green, g (s)			5.5	30.9				9.6			9.6	
Actuated g/C Ratio			0.09	0.50				0.15			0.15	
Clearance Time (s)			5.0	6.0				5.0			5.0	
Vehicle Extension (s)			3.0	3.0				3.0			3.0	
Lane Grp Cap (vph)			84	878				230			248	
v/s Ratio Prot												
v/s Ratio Perm			c0.05	0.35				c0.06			0.01	
v/c Ratio			0.62	0.70				0.39			0.09	
Uniform Delay, d1			27.2	12.0				23.6			22.4	
Progression Factor			1.00	1.00				1.00			1.00	
Incremental Delay, d2			12.8	4.6				1.1			0.1	
Delay (s)			40.1	16.6				24.7			22.6	
Level of Service			D	B				C			C	
Approach Delay (s)			40.1	16.6				24.7			22.6	
Approach LOS			D	B				C			C	

Intersection Summary			
HCM 2000 Control Delay	27.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	62.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	105.8%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SEL2	SEL	SER
Lane Configurations			
Volume (vph)	37	789	16
Ideal Flow (vphpl)	1900	1900	1900
Lane Width	16	16	16
Total Lost time (s)		6.0	
Lane Util. Factor		1.00	
Frt		1.00	
Flt Protected		0.95	
Satd. Flow (prot)		1988	
Flt Permitted		0.95	
Satd. Flow (perm)		1988	
Peak-hour factor, PHF	0.89	0.89	0.89
Adj. Flow (vph)	42	887	18
RTOR Reduction (vph)	0	0	0
Lane Group Flow (vph)	0	947	0
Heavy Vehicles (%)	3%	3%	2%
Bus Blockages (#/hr)	0	0	10
Parking (#/hr)			
Turn Type	Perm	Perm	
Protected Phases			
Permitted Phases	1	1	
Actuated Green, G (s)		30.9	
Effective Green, g (s)		30.9	
Actuated g/C Ratio		0.50	
Clearance Time (s)		6.0	
Vehicle Extension (s)		3.0	
Lane Grp Cap (vph)		990	
v/s Ratio Prot			
v/s Ratio Perm		c0.48	
v/c Ratio		0.96	
Uniform Delay, d1		14.9	
Progression Factor		1.00	
Incremental Delay, d2		19.9	
Delay (s)		34.8	
Level of Service		C	
Approach Delay (s)		34.8	
Approach LOS		C	

Intersection Summary

Lane Group	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations						
Volume (vph)	694	34	75	515	156	178
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.994				0.928	
Flt Protected				0.994	0.977	
Satd. Flow (prot)	1818	0	0	1840	1666	0
Flt Permitted				0.994	0.977	
Satd. Flow (perm)	1818	0	0	1840	1666	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	336			386	167	
Travel Time (s)	7.6			8.8	3.8	
Peak Hour Factor	0.87	0.87	0.94	0.94	0.79	0.79
Heavy Vehicles (%)	4%	2%	7%	2%	5%	2%
Adj. Flow (vph)	798	39	80	548	197	225
Shared Lane Traffic (%)						
Lane Group Flow (vph)	837	0	0	628	422	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 99.4%		ICU Level of Service F	
Analysis Period (min) 15			

Movement	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations						
Volume (veh/h)	694	34	75	515	156	178
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.94	0.94	0.79	0.79
Hourly flow rate (vph)	798	39	80	548	197	225
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			837		1525	817
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			837		1525	817
tC, single (s)			4.2		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.3		3.5	3.3
p0 queue free %			90		0	40
cM capacity (veh/h)			776		115	376

Direction, Lane #	NB 1	SB 1	NW 1
Volume Total	837	628	423
Volume Left	0	80	197
Volume Right	39	0	225
cSH	1700	776	182
Volume to Capacity	0.49	0.10	2.32
Queue Length 95th (ft)	0	9	867
Control Delay (s)	0.0	2.6	652.6
Lane LOS		A	F
Approach Delay (s)	0.0	2.6	652.6
Approach LOS			F

Intersection Summary			
Average Delay	147.1		
Intersection Capacity Utilization	99.4%	ICU Level of Service	F
Analysis Period (min)	15		

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Volume (vph)	5	5	26	540	347	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	15	15	16	16	16	16
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.932				0.992	
Flt Protected	0.976			0.998		
Satd. Flow (prot)	1571	0	0	1960	1933	0
Flt Permitted	0.976			0.998		
Satd. Flow (perm)	1571	0	0	1960	1933	0
Link Speed (mph)	30			35	30	
Link Distance (ft)	490			413	824	
Travel Time (s)	11.1			8.0	18.7	
Peak Hour Factor	0.63	0.63	0.93	0.93	0.92	0.92
Heavy Vehicles (%)	2%	40%	2%	10%	11%	2%
Adj. Flow (vph)	8	8	28	581	377	23
Shared Lane Traffic (%)						
Lane Group Flow (vph)	16	0	0	609	400	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	15			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	0.88	0.88	0.85	0.85	0.85	0.85
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 59.6%		ICU Level of Service B	
Analysis Period (min) 15			

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Volume (veh/h)	5	5	26	540	347	21
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.63	0.63	0.93	0.93	0.92	0.92
Hourly flow rate (vph)	8	8	28	581	377	23
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1025	389	400			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1025	389	400			
tC, single (s)	6.4	6.6	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.7	2.2			
p0 queue free %	97	99	98			
cM capacity (veh/h)	254	584	1159			

Direction, Lane #	SE 1	NE 1	SW 1
Volume Total	16	609	400
Volume Left	8	28	0
Volume Right	8	0	23
cSH	354	1159	1700
Volume to Capacity	0.04	0.02	0.24
Queue Length 95th (ft)	4	2	0
Control Delay (s)	15.6	0.7	0.0
Lane LOS	C	A	
Approach Delay (s)	15.6	0.7	0.0
Approach LOS	C		

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	59.6%	ICU Level of Service	B
Analysis Period (min)	15		

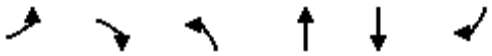
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	5	0	0	57	0	127	11	513	22	42	311	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	16	16	16	16	12	12	12	16	16	16
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.907			0.994			0.986	
Flt Protected		0.950			0.985			0.999			0.995	
Satd. Flow (prot)	0	2046	0	0	1034	0	0	1753	0	0	1965	0
Flt Permitted		0.950			0.985			0.999			0.995	
Satd. Flow (perm)	0	2046	0	0	1034	0	0	1753	0	0	1965	0
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		338			265			824			1173	
Travel Time (s)		7.7			6.0			16.1			22.9	
Peak Hour Factor	0.75	0.75	0.75	0.66	0.66	0.66	0.83	0.83	0.83	0.88	0.88	0.88
Heavy Vehicles (%)	0%	0%	0%	86%	2%	86%	2%	8%	2%	2%	9%	2%
Adj. Flow (vph)	7	0	0	86	0	192	13	618	27	48	353	48
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	7	0	0	278	0	0	658	0	0	449	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.85	0.85	0.85	0.85	0.85	0.85	1.00	1.00	1.00	0.85	0.85	0.85
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 58.6%		ICU Level of Service B	
Analysis Period (min) 15			

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	5	0	0	57	0	127	11	513	22	42	311	42
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.75	0.75	0.75	0.66	0.66	0.66	0.83	0.83	0.83	0.88	0.88	0.88
Hourly flow rate (vph)	7	0	0	86	0	192	13	618	27	48	353	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)												
pX, platoon unblocked												
vC, conflicting volume	1323	1144	377	1131	1154	631	401			645		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1323	1144	377	1131	1154	631	401			645		
tC, single (s)	7.1	6.5	6.2	8.0	6.5	7.1	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	4.3	4.0	4.1	2.2			2.2		
p0 queue free %	89	100	100	28	100	46	99			95		
cM capacity (veh/h)	59	189	674	120	185	359	1158			940		

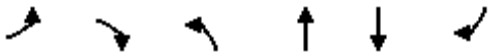
Direction, Lane #	SE 1	NW 1	NE 1	SW 1
Volume Total	7	279	658	449
Volume Left	7	86	13	48
Volume Right	0	192	27	48
cSH	59	222	1158	940
Volume to Capacity	0.11	1.26	0.01	0.05
Queue Length 95th (ft)	9	360	1	4
Control Delay (s)	73.1	191.4	0.3	1.5
Lane LOS	F	F	A	A
Approach Delay (s)	73.1	191.4	0.3	1.5
Approach LOS	F	F		

Intersection Summary			
Average Delay	39.3		
Intersection Capacity Utilization	58.6%	ICU Level of Service	B
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	358	53	98	548	341	227
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	13	13	12	12
Storage Length (ft)	0	0	0			100
Storage Lanes	1	0	0			1
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.982					0.850
Flt Protected	0.958			0.992		
Satd. Flow (prot)	1695	0	0	1804	1667	1417
Flt Permitted	0.958			0.992		
Satd. Flow (perm)	1695	0	0	1804	1667	1417
Link Speed (mph)	30			35	30	
Link Distance (ft)	686			1173	333	
Travel Time (s)	15.6			22.9	7.6	
Peak Hour Factor	0.89	0.89	0.90	0.90	0.98	0.98
Heavy Vehicles (%)	7%	2%	2%	9%	14%	14%
Parking (#/hr)	2					
Adj. Flow (vph)	402	60	109	609	348	232
Shared Lane Traffic (%)						
Lane Group Flow (vph)	462	0	0	718	348	232
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	16			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	0.99	0.85	0.96	0.96	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Stop	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 85.3%		ICU Level of Service E	
Analysis Period (min) 15			



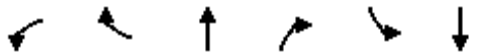
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	358	53	98	548	341	227
Peak Hour Factor	0.89	0.89	0.90	0.90	0.98	0.98
Hourly flow rate (vph)	402	60	109	609	348	232

Direction, Lane #	EB 1	NB 1	SB 1	SB 2
Volume Total (vph)	462	718	348	232
Volume Left (vph)	402	109	0	0
Volume Right (vph)	60	0	0	232
Hadj (s)	0.20	0.17	0.24	-0.46
Departure Headway (s)	7.0	7.0	7.6	6.9
Degree Utilization, x	0.90	1.0	0.73	0.44
Capacity (veh/h)	509	527	465	515
Control Delay (s)	44.6	209.7	27.4	14.0
Approach Delay (s)	44.6	209.7	22.0	
Approach LOS	E	F	C	

Intersection Summary			
Delay	104.5		
Level of Service	F		
Intersection Capacity Utilization	85.3%	ICU Level of Service	E
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	601	431	122	671	263	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	16	16	14	14
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.944		0.886			
Flt Protected	0.972					0.963
Satd. Flow (prot)	1863	0	1768	0	0	1871
Flt Permitted	0.972					0.963
Satd. Flow (perm)	1863	0	1768	0	0	1871
Link Speed (mph)	30		30			30
Link Distance (ft)	466		390			437
Travel Time (s)	10.6		8.9			9.9
Peak Hour Factor	0.89	0.89	0.98	0.98	0.96	0.96
Heavy Vehicles (%)	9%	2%	2%	9%	5%	2%
Adj. Flow (vph)	675	484	124	685	274	79
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1159	0	809	0	0	353
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	16		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	0.85	0.85	0.85	0.85	0.92	0.92
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

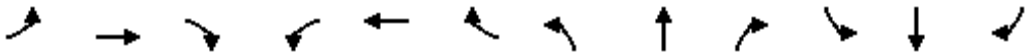
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 136.1%		ICU Level of Service H	
Analysis Period (min) 15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	601	431	122	671	263	76
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.89	0.89	0.98	0.98	0.96	0.96
Hourly flow rate (vph)	675	484	124	685	274	79
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1094	467			809	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1094	467			809	
tC, single (s)	6.5	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.6	3.3			2.2	
p0 queue free %	0	19			66	
cM capacity (veh/h)	151	596			803	

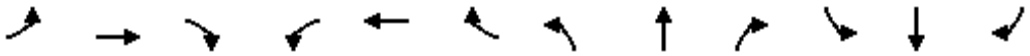
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	1160	809	353
Volume Left	675	0	274
Volume Right	484	685	0
cSH	220	1700	803
Volume to Capacity	5.28	0.48	0.34
Queue Length 95th (ft)	Err	0	38
Control Delay (s)	Err	0.0	10.1
Lane LOS	F		B
Approach Delay (s)	Err	0.0	10.1
Approach LOS	F		

Intersection Summary			
Average Delay	4995.1		
Intersection Capacity Utilization	136.1%	ICU Level of Service	H
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	287	11	637	5	5	5	730	184	11	0	137	297
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	16	14	14	14	16	16	16	16	16	16
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.908			0.955			0.998			0.908	
Flt Protected		0.985			0.984			0.962				
Satd. Flow (prot)	0	1768	0	0	1758	0	0	1951	0	0	1671	0
Flt Permitted		0.985			0.984			0.962				
Satd. Flow (perm)	0	1768	0	0	1758	0	0	1951	0	0	1671	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		466			184			798			433	
Travel Time (s)		10.6			4.2			18.1			9.8	
Peak Hour Factor	0.91	0.91	0.91	0.70	0.70	0.70	0.90	0.90	0.90	0.83	0.83	0.83
Heavy Vehicles (%)	9%	2%	9%	2%	2%	21%	6%	6%	2%	2%	17%	17%
Adj. Flow (vph)	315	12	700	7	7	7	811	204	12	0	165	358
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1027	0	0	21	0	0	1027	0	0	523	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.85	0.85	0.85	0.92	0.92	0.92	0.85	0.85	0.85	0.85	0.85	0.85
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

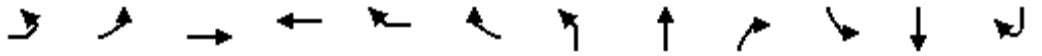
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 148.6%		ICU Level of Service H	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	287	11	637	5	5	5	730	184	11	0	137	297
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.70	0.70	0.70	0.90	0.90	0.90	0.83	0.83	0.83
Hourly flow rate (vph)	315	12	700	7	7	7	811	204	12	0	165	358
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								798				
pX, platoon unblocked												
vC, conflicting volume	2187	2183	344	2883	2356	211	523			217		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2187	2183	344	2883	2356	211	523			217		
tC, single (s)	7.2	6.5	6.3	7.1	6.5	6.4	4.2			4.1		
tC, 2 stage (s)												
tF (s)	3.6	4.0	3.4	3.5	4.0	3.5	2.3			2.2		
p0 queue free %	0	0	0	0	3	99	21			100		
cM capacity (veh/h)	2	10	683	0	7	784	1024			1353		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	1027	21	1028	523
Volume Left	315	7	811	0
Volume Right	700	7	12	358
cSH	5	0	1024	1353
Volume to Capacity	196.32	Err	0.79	0.00
Queue Length 95th (ft)	Err	Err	216	0
Control Delay (s)	Err	Err	20.0	0.0
Lane LOS	F	F	C	
Approach Delay (s)	Err	Err	20.0	0.0
Approach LOS	F	F		

Intersection Summary			
Average Delay	Err		
Intersection Capacity Utilization	148.6%	ICU Level of Service	H
Analysis Period (min)	15		



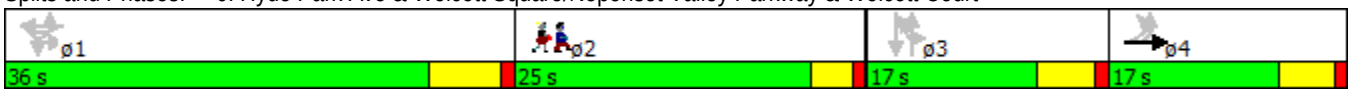
Lane Group	EBL2	EBL	EBT	WBT	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR2
Lane Configurations												
Volume (vph)	11	5	11	0	767	126	53	16	5	68	5	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	9	9	9	16	16	16	14	14	14	16	16	16
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.865				0.991			0.951	
Flt Protected			0.971					0.965			0.971	
Satd. Flow (prot)	0	0	1385	1767	0	0	0	1900	0	0	1831	0
Flt Permitted			0.795					0.745			0.813	
Satd. Flow (perm)	0	0	1134	1767	0	0	0	1467	0	0	1533	0
Right Turn on Red						Yes			Yes			Yes
Satd. Flow (RTOR)				126				3			138	
Link Speed (mph)			30	30				30			30	
Link Distance (ft)			245	329				316			590	
Travel Time (s)			5.6	7.5				7.2			13.4	
Peak Hour Factor	0.69	0.69	0.69	0.91	0.91	0.91	0.84	0.84	0.84	0.81	0.81	0.81
Heavy Vehicles (%)	2%	28%	2%	2%	6%	2%	2%	2%	2%	2%	2%	20%
Parking (#/hr)			2									
Adj. Flow (vph)	16	7	16	0	843	138	63	19	6	84	6	52
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	39	981	0	0	0	88	0	0	142	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Left	Right	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)			0	0				0			0	
Link Offset(ft)			0	0				0			0	
Crosswalk Width(ft)			16	16				16			16	
Two way Left Turn Lane												
Headway Factor	1.14	1.14	1.32	0.85	0.85	0.85	0.92	0.92	0.92	0.85	0.85	0.85
Turning Speed (mph)	15	15			9	9	15		9	15		9
Number of Detectors	1	1	2	2			1	2		1	2	
Detector Template	Left	Left	Thru	Thru			Left	Thru		Left	Thru	
Leading Detector (ft)	20	20	100	100			20	100		20	100	
Trailing Detector (ft)	0	0	0	0			0	0		0	0	
Detector 1 Position(ft)	0	0	0	0			0	0		0	0	
Detector 1 Size(ft)	20	20	6	6			20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0	
Detector 2 Position(ft)			94	94				94			94	
Detector 2 Size(ft)			6	6				6			6	
Detector 2 Type			Cl+Ex	Cl+Ex				Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)			0.0	0.0				0.0			0.0	
Turn Type	Perm	Perm	NA	NA			custom	NA		custom	NA	
Protected Phases			4									
Permitted Phases	4	4		1			3	3		3	3	
Detector Phase	4	4	4	1			3	3		3	3	

Lane Group	SEL2	SEL	SER	ø2
Lane Configurations				
Volume (vph)	95	668	16	
Ideal Flow (vphpl)	1900	1900	1900	
Lane Width (ft)	16	16	16	
Lane Util. Factor	1.00	1.00	1.00	
Frt		0.997		
Flt Protected		0.953		
Satd. Flow (prot)	0	1925	0	
Flt Permitted		0.953		
Satd. Flow (perm)	0	1925	0	
Right Turn on Red				
Satd. Flow (RTOR)				
Link Speed (mph)		30		
Link Distance (ft)		798		
Travel Time (s)		18.1		
Peak Hour Factor	0.93	0.93	0.93	
Heavy Vehicles (%)	2%	7%	2%	
Parking (#/hr)				
Adj. Flow (vph)	102	718	17	
Shared Lane Traffic (%)				
Lane Group Flow (vph)	0	837	0	
Enter Blocked Intersection	No	No	No	
Lane Alignment	Left	Left	Right	
Median Width(ft)		16		
Link Offset(ft)		0		
Crosswalk Width(ft)		16		
Two way Left Turn Lane				
Headway Factor	0.85	0.85	0.85	
Turning Speed (mph)	15	15	9	
Number of Detectors	1	1		
Detector Template	Left	Left		
Leading Detector (ft)	20	20		
Trailing Detector (ft)	0	0		
Detector 1 Position(ft)	0	0		
Detector 1 Size(ft)	20	20		
Detector 1 Type	Cl+Ex	Cl+Ex		
Detector 1 Channel				
Detector 1 Extend (s)	0.0	0.0		
Detector 1 Queue (s)	0.0	0.0		
Detector 1 Delay (s)	0.0	0.0		
Detector 2 Position(ft)				
Detector 2 Size(ft)				
Detector 2 Type				
Detector 2 Channel				
Detector 2 Extend (s)				
Turn Type	Perm	Perm		
Protected Phases				2
Permitted Phases	1	1		
Detector Phase	1	1		

Lane Group	EBL2	EBL	EBT	WBT	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR2
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	30.0			8.0	8.0		8.0	8.0	
Minimum Split (s)	13.0	13.0	13.0	36.0			13.0	13.0		13.0	13.0	
Total Split (s)	17.0	17.0	17.0	36.0			17.0	17.0		17.0	17.0	
Total Split (%)	17.9%	17.9%	17.9%	37.9%			17.9%	17.9%		17.9%	17.9%	
Maximum Green (s)	12.0	12.0	12.0	30.0			12.0	12.0		12.0	12.0	
Yellow Time (s)	4.0	4.0	4.0	5.0			4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0			1.0	1.0		1.0	1.0	
Lost Time Adjust (s)			0.0	0.0				0.0			0.0	
Total Lost Time (s)			5.0	6.0				5.0			5.0	
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lead		Lead	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0			3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	Max			None	None		None	None	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)			9.8	31.4				9.7			9.7	
Actuated g/C Ratio			0.17	0.54				0.17			0.17	
v/c Ratio			0.20	0.97				0.36			0.38	
Control Delay			26.1	39.0				27.3			9.2	
Queue Delay			0.0	0.0				0.0			0.0	
Total Delay			26.1	39.0				27.3			9.2	
LOS			C	D				C			A	
Approach Delay			26.1	39.0				27.3			9.2	
Approach LOS			C	D				C			A	

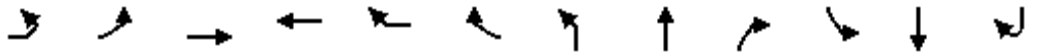
Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 58			
Natural Cycle: 110			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.97			
Intersection Signal Delay: 29.9		Intersection LOS: C	
Intersection Capacity Utilization 119.8%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 6: Hyde Park Ave & Wolcott Square/Neponset Valley Parkway & Wolcott Court



Lane Group	SEL2	SEL	SER	ø2
Switch Phase				
Minimum Initial (s)	30.0	30.0		7.0
Minimum Split (s)	36.0	36.0		25.0
Total Split (s)	36.0	36.0		25.0
Total Split (%)	37.9%	37.9%		26%
Maximum Green (s)	30.0	30.0		21.0
Yellow Time (s)	5.0	5.0		3.0
All-Red Time (s)	1.0	1.0		1.0
Lost Time Adjust (s)		0.0		
Total Lost Time (s)		6.0		
Lead/Lag	Lead	Lead		Lag
Lead-Lag Optimize?	Yes	Yes		Yes
Vehicle Extension (s)	3.0	3.0		3.0
Recall Mode	Max	Max		None
Walk Time (s)				7.0
Flash Dont Walk (s)				14.0
Pedestrian Calls (#/hr)				0
Act Effct Green (s)		31.4		
Actuated g/C Ratio		0.54		
v/c Ratio		0.80		
Control Delay		23.2		
Queue Delay		0.0		
Total Delay		23.2		
LOS		C		
Approach Delay		23.2		
Approach LOS		C		

Intersection Summary



Movement	EBL2	EBL	EBT	WBT	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR2
Lane Configurations												
Volume (vph)	11	5	11	0	767	126	53	16	5	68	5	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	9	9	9	16	16	16	14	14	14	16	16	16
Total Lost time (s)			5.0	6.0				5.0			5.0	
Lane Util. Factor			1.00	1.00				1.00			1.00	
Frt			1.00	0.86				0.99			0.95	
Flt Protected			0.97	1.00				0.97			0.97	
Satd. Flow (prot)			1386	1767				1901			1831	
Flt Permitted			0.79	1.00				0.75			0.81	
Satd. Flow (perm)			1134	1767				1467			1532	
Peak-hour factor, PHF	0.69	0.69	0.69	0.91	0.91	0.91	0.84	0.84	0.84	0.81	0.81	0.81
Adj. Flow (vph)	16	7	16	0	843	138	63	19	6	84	6	52
RTOR Reduction (vph)	0	0	0	61	0	0	0	3	0	0	116	0
Lane Group Flow (vph)	0	0	39	920	0	0	0	85	0	0	26	0
Heavy Vehicles (%)	2%	28%	2%	2%	6%	2%	2%	2%	2%	2%	2%	20%
Parking (#/hr)			2									
Turn Type	Perm	Perm	NA	NA			custom	NA		custom	NA	
Protected Phases			4									
Permitted Phases	4	4		1			3	3		3	3	
Actuated Green, G (s)			4.0	31.4				9.7			9.7	
Effective Green, g (s)			4.0	31.4				9.7			9.7	
Actuated g/C Ratio			0.07	0.51				0.16			0.16	
Clearance Time (s)			5.0	6.0				5.0			5.0	
Vehicle Extension (s)			3.0	3.0				3.0			3.0	
Lane Grp Cap (vph)			74	908				232			243	
v/s Ratio Prot												
v/s Ratio Perm			c0.03	c0.52				c0.06			0.02	
v/c Ratio			0.53	1.01				0.37			0.11	
Uniform Delay, d1			27.6	14.9				23.0			22.0	
Progression Factor			1.00	1.00				1.00			1.00	
Incremental Delay, d2			6.6	33.1				1.0			0.2	
Delay (s)			34.3	48.0				24.0			22.2	
Level of Service			C	D				C			C	
Approach Delay (s)			34.3	48.0				24.0			22.2	
Approach LOS			C	D				C			C	

Intersection Summary			
HCM 2000 Control Delay	34.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	61.1	Sum of lost time (s)	20.0
Intersection Capacity Utilization	119.8%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL2	SEL	SER
Lane Configurations			
Volume (vph)	95	668	16
Ideal Flow (vphpl)	1900	1900	1900
Lane Width	16	16	16
Total Lost time (s)		6.0	
Lane Util. Factor		1.00	
Frt		1.00	
Flt Protected		0.95	
Satd. Flow (prot)		1926	
Flt Permitted		0.95	
Satd. Flow (perm)		1926	
Peak-hour factor, PHF	0.93	0.93	0.93
Adj. Flow (vph)	102	718	17
RTOR Reduction (vph)	0	0	0
Lane Group Flow (vph)	0	837	0
Heavy Vehicles (%)	2%	7%	2%
Parking (#/hr)			
Turn Type	Perm	Perm	
Protected Phases			
Permitted Phases	1	1	
Actuated Green, G (s)		31.4	
Effective Green, g (s)		31.4	
Actuated g/C Ratio		0.51	
Clearance Time (s)		6.0	
Vehicle Extension (s)		3.0	
Lane Grp Cap (vph)		989	
v/s Ratio Prot			
v/s Ratio Perm		0.43	
v/c Ratio		0.85	
Uniform Delay, d1		12.8	
Progression Factor		1.00	
Incremental Delay, d2		8.9	
Delay (s)		21.7	
Level of Service		C	
Approach Delay (s)		21.7	
Approach LOS		C	

Intersection Summary

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	71	81	713	193	159	514
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.928		0.971			
Flt Protected	0.977					0.988
Satd. Flow (prot)	1378	0	1704	0	0	1749
Flt Permitted	0.977					0.988
Satd. Flow (perm)	1378	0	1704	0	0	1749
Link Speed (mph)	30		30			30
Link Distance (ft)	264		333			390
Travel Time (s)	6.0		7.6			8.9
Peak Hour Factor	0.61	0.61	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	45%	10%	2%	2%	9%
Adj. Flow (vph)	116	133	775	210	173	559
Shared Lane Traffic (%)						
Lane Group Flow (vph)	249	0	985	0	0	732
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 104.0%		ICU Level of Service G	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	71	81	713	193	159	514
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.61	0.61	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	116	133	775	210	173	559
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1784	880			985	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1784	880			985	
tC, single (s)	6.4	6.7			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.7			2.2	
p0 queue free %	0	54			75	
cM capacity (veh/h)	68	291			701	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	249	985	732
Volume Left	116	0	173
Volume Right	133	210	0
cSH	114	1700	701
Volume to Capacity	2.18	0.58	0.25
Queue Length 95th (ft)	531	0	24
Control Delay (s)	619.2	0.0	6.1
Lane LOS	F		A
Approach Delay (s)	619.2	0.0	6.1
Approach LOS	F		

Intersection Summary			
Average Delay	80.8		
Intersection Capacity Utilization	104.0%	ICU Level of Service	G
Analysis Period (min)	15		

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Volume (vph)	37	47	15	411	484	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	15	15	16	16	16	16
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.924				0.997	
Flt Protected	0.979			0.998		
Satd. Flow (prot)	1784	0	0	2049	2085	0
Flt Permitted	0.979			0.998		
Satd. Flow (perm)	1784	0	0	2049	2085	0
Link Speed (mph)	30			35	30	
Link Distance (ft)	490			413	824	
Travel Time (s)	11.1			8.0	18.7	
Peak Hour Factor	0.74	0.74	0.82	0.85	0.97	0.97
Heavy Vehicles (%)	6%	6%	2%	5%	3%	2%
Adj. Flow (vph)	50	64	18	484	499	11
Shared Lane Traffic (%)						
Lane Group Flow (vph)	114	0	0	502	510	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	15			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	0.88	0.88	0.85	0.85	0.85	0.85
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 45.4%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Volume (veh/h)	37	47	15	411	484	11
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.74	0.74	0.82	0.85	0.97	0.97
Hourly flow rate (vph)	50	64	18	484	499	11
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1025	505	510			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1025	505	510			
tC, single (s)	6.5	6.3	4.1			
tC, 2 stage (s)						
tF (s)	3.6	3.4	2.2			
p0 queue free %	80	89	98			
cM capacity (veh/h)	252	559	1055			

Direction, Lane #	SE 1	NE 1	SW 1
Volume Total	114	502	510
Volume Left	50	18	0
Volume Right	64	0	11
cSH	364	1055	1700
Volume to Capacity	0.31	0.02	0.30
Queue Length 95th (ft)	33	1	0
Control Delay (s)	19.3	0.5	0.0
Lane LOS	C	A	
Approach Delay (s)	19.3	0.5	0.0
Approach LOS	C		

Intersection Summary			
Average Delay	2.2		
Intersection Capacity Utilization	45.4%	ICU Level of Service	A
Analysis Period (min)	15		

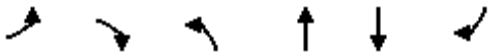
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	121	0	26	45	0	84	26	365	57	141	423	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	16	16	16	16	12	12	12	16	16	16
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.976			0.912			0.983			0.988	
Flt Protected		0.961			0.983			0.997			0.989	
Satd. Flow (prot)	0	1980	0	0	1834	0	0	1761	0	0	2022	0
Flt Permitted		0.961			0.983			0.997			0.989	
Satd. Flow (perm)	0	1980	0	0	1834	0	0	1761	0	0	2022	0
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		338			265			824			1173	
Travel Time (s)		7.7			6.0			16.1			22.9	
Peak Hour Factor	0.57	0.57	0.57	0.60	0.60	0.60	0.93	0.93	0.93	0.89	0.89	0.89
Heavy Vehicles (%)	2%	2%	2%	2%	2%	7%	2%	6%	6%	2%	5%	2%
Adj. Flow (vph)	212	0	46	75	0	140	28	392	61	158	475	60
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	258	0	0	215	0	0	481	0	0	693	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.85	0.85	0.85	0.85	0.85	0.85	1.00	1.00	1.00	0.85	0.85	0.85
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 82.3%		ICU Level of Service E	
Analysis Period (min) 15			

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	121	0	26	45	0	84	26	365	57	141	423	53
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.57	0.57	0.57	0.60	0.60	0.60	0.93	0.93	0.93	0.89	0.89	0.89
Hourly flow rate (vph)	212	0	46	75	0	140	28	392	61	158	475	60
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1441	1332	505	1347	1331	423	535			454		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1441	1332	505	1347	1331	423	535			454		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.3	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.4	2.2			2.2		
p0 queue free %	0	100	92	27	100	77	97			86		
cM capacity (veh/h)	75	129	567	103	129	620	1033			1107		

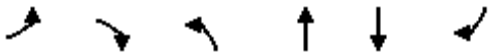
Direction, Lane #	SE 1	NW 1	NE 1	SW 1
Volume Total	258	215	482	693
Volume Left	212	75	28	158
Volume Right	46	140	61	60
cSH	88	225	1033	1107
Volume to Capacity	2.93	0.95	0.03	0.14
Queue Length 95th (ft)	627	209	2	12
Control Delay (s)	972.0	94.2	0.8	3.4
Lane LOS	F	F	A	A
Approach Delay (s)	972.0	94.2	0.8	3.4
Approach LOS	F	F		

Intersection Summary			
Average Delay	166.1		
Intersection Capacity Utilization	82.3%	ICU Level of Service	E
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	283	126	78	492	491	269
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	13	13	12	12
Storage Length (ft)	0	0	0			100
Storage Lanes	1	0	0			1
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.958					0.850
Flt Protected	0.967			0.993		
Satd. Flow (prot)	1675	0	0	1895	1827	1583
Flt Permitted	0.967			0.993		
Satd. Flow (perm)	1675	0	0	1895	1827	1583
Link Speed (mph)	30			35	30	
Link Distance (ft)	686			1173	336	
Travel Time (s)	15.6			22.9	7.6	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.91	0.91
Heavy Vehicles (%)	6%	6%	2%	3%	4%	2%
Parking (#/hr)	2					
Adj. Flow (vph)	329	147	91	572	540	296
Shared Lane Traffic (%)						
Lane Group Flow (vph)	476	0	0	663	540	296
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	16			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	0.99	0.85	0.96	0.96	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Stop	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 89.4%		ICU Level of Service E	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	283	126	78	492	491	269
Peak Hour Factor	0.86	0.86	0.86	0.86	0.91	0.91
Hourly flow rate (vph)	329	147	91	572	540	296

Direction, Lane #	EB 1	NB 1	SB 1	SB 2
Volume Total (vph)	476	663	540	296
Volume Left (vph)	329	91	0	0
Volume Right (vph)	147	0	0	296
Hadj (s)	0.06	0.08	0.07	-0.67
Departure Headway (s)	7.0	7.0	7.5	6.8
Degree Utilization, x	0.93	1.0	1.0	0.55
Capacity (veh/h)	503	521	484	529
Control Delay (s)	50.3	169.0	104.6	16.7
Approach Delay (s)	50.3	169.0	73.4	
Approach LOS	F	F	F	

Intersection Summary			
Delay	100.0		
Level of Service	F		
Intersection Capacity Utilization	89.4%	ICU Level of Service	E
Analysis Period (min)	15		

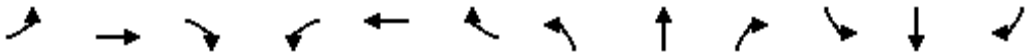
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	563	284	103	816	263	163
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	16	16	14	14
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.955		0.880			
Flt Protected	0.968					0.970
Satd. Flow (prot)	1878	0	1858	0	0	1838
Flt Permitted	0.968					0.970
Satd. Flow (perm)	1878	0	1858	0	0	1838
Link Speed (mph)	30		30			30
Link Distance (ft)	466		386			437
Travel Time (s)	10.6		8.8			9.9
Peak Hour Factor	0.96	0.96	0.95	0.95	0.91	0.91
Heavy Vehicles (%)	8%	2%	2%	2%	2%	15%
Adj. Flow (vph)	586	296	108	859	289	179
Shared Lane Traffic (%)						
Lane Group Flow (vph)	882	0	967	0	0	468
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	16		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	0.85	0.85	0.85	0.85	0.92	0.92
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 137.5%		ICU Level of Service H	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	563	284	103	816	263	163
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.96	0.96	0.95	0.95	0.91	0.91
Hourly flow rate (vph)	586	296	108	859	289	179
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1295	538			967	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1295	538			967	
tC, single (s)	6.5	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.6	3.3			2.2	
p0 queue free %	0	46			59	
cM capacity (veh/h)	103	543			712	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	882	967	468
Volume Left	586	0	289
Volume Right	296	859	0
cSH	142	1700	712
Volume to Capacity	6.22	0.57	0.41
Queue Length 95th (ft)	Err	0	49
Control Delay (s)	Err	0.0	10.7
Lane LOS	F		B
Approach Delay (s)	Err	0.0	10.7
Approach LOS	F		

Intersection Summary			
Average Delay	3808.4		
Intersection Capacity Utilization	137.5%	ICU Level of Service	H
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	296	0	782	5	5	5	570	137	0	0	168	272
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	16	14	14	14	16	16	16	16	16	16
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.902			0.955						0.917	
Flt Protected		0.986			0.984			0.961				
Satd. Flow (prot)	0	1878	0	0	1904	0	0	1967	0	0	1825	0
Flt Permitted		0.986			0.984			0.961				
Satd. Flow (perm)	0	1878	0	0	1904	0	0	1967	0	0	1825	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		466			184			822			433	
Travel Time (s)		10.6			4.2			18.7			9.8	
Peak Hour Factor	0.92	0.92	0.92	0.45	0.45	0.45	0.97	0.97	0.97	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	0%	0%	0%	6%	2%	2%	2%	2%	12%
Adj. Flow (vph)	322	0	850	11	11	11	588	141	0	0	187	302
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1172	0	0	33	0	0	729	0	0	489	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.85	0.85	0.85	0.92	0.92	0.92	0.85	0.85	0.85	0.85	0.85	0.85
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 145.5%		ICU Level of Service H	
Analysis Period (min) 15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	296	0	782	5	5	5	570	137	0	0	168	272
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.45	0.45	0.45	0.97	0.97	0.97	0.90	0.90	0.90
Hourly flow rate (vph)	322	0	850	11	11	11	588	141	0	0	187	302
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								822				
pX, platoon unblocked												
vC, conflicting volume	1671	1654	338	2504	1805	141	489			141		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1671	1654	338	2504	1805	141	489			141		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.2			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.3			2.2		
p0 queue free %	0	100	0	0	69	99	44			100		
cM capacity (veh/h)	33	43	704	0	35	912	1054			1442		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	1172	33	729	489
Volume Left	322	11	588	0
Volume Right	850	11	0	302
cSH	106	0	1054	1442
Volume to Capacity	11.00	Err	0.56	0.00
Queue Length 95th (ft)	Err	Err	89	0
Control Delay (s)	Err	Err	11.7	0.0
Lane LOS	F	F	B	
Approach Delay (s)	Err	Err	11.7	0.0
Approach LOS	F	F		

Intersection Summary				
Average Delay	Err			
Intersection Capacity Utilization	145.5%	ICU Level of Service	H	
Analysis Period (min)	15			

Lane Group	EBL2	EBL	EBT	WBT	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR2
Lane Configurations												
Volume (vph)	11	5	32	0	607	47	42	11	11	63	5	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	9	9	9	16	16	16	14	14	14	16	16	16
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.865				0.977			0.968	
Flt Protected			0.984					0.968			0.966	
Satd. Flow (prot)	0	0	1468	1762	0	0	0	1861	0	0	1956	0
Flt Permitted			0.623					0.774			0.793	
Satd. Flow (perm)	0	0	930	1762	0	0	0	1488	0	0	1606	0
Right Turn on Red						Yes			Yes			Yes
Satd. Flow (RTOR)				126				9			138	
Link Speed (mph)			30	30				30			30	
Link Distance (ft)			245	329				316			590	
Travel Time (s)			5.6	7.5				7.2			13.4	
Peak Hour Factor	0.92	0.92	0.92	0.91	0.91	0.91	0.66	0.66	0.66	0.65	0.65	0.65
Heavy Vehicles (%)	2%	2%	2%	2%	6%	2%	3%	3%	3%	2%	2%	6%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)			2									
Adj. Flow (vph)	12	5	35	0	667	52	64	17	17	97	8	32
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	52	719	0	0	0	98	0	0	137	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Left	Right	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)			0	0				0			0	
Link Offset(ft)			0	0				0			0	
Crosswalk Width(ft)			16	16				16			16	
Two way Left Turn Lane												
Headway Factor	1.14	1.14	1.32	0.85	0.85	0.85	0.92	0.92	0.92	0.85	0.85	0.85
Turning Speed (mph)	15	15			9	9	15		9	15		9
Number of Detectors	1	1	2	2			1	2		1	2	
Detector Template	Left	Left	Thru	Thru			Left	Thru		Left	Thru	
Leading Detector (ft)	20	20	100	100			20	100		20	100	
Trailing Detector (ft)	0	0	0	0			0	0		0	0	
Detector 1 Position(ft)	0	0	0	0			0	0		0	0	
Detector 1 Size(ft)	20	20	6	6			20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0	
Detector 2 Position(ft)			94	94				94			94	
Detector 2 Size(ft)			6	6				6			6	
Detector 2 Type			Cl+Ex	Cl+Ex				Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)			0.0	0.0				0.0			0.0	
Turn Type	Perm	Perm	NA	NA			custom	NA		custom	NA	
Protected Phases			4									
Permitted Phases	4	4		1			3	3		3	3	

Lane Group	SEL2	SEL	SER	ø2
Lane Configurations				
Volume (vph)	37	808	16	
Ideal Flow (vphpl)	1900	1900	1900	
Lane Width (ft)	16	16	16	
Lane Util. Factor	1.00	1.00	1.00	
Frt		0.997		
Flt Protected		0.953		
Satd. Flow (prot)	0	1987	0	
Flt Permitted		0.953		
Satd. Flow (perm)	0	1987	0	
Right Turn on Red				
Satd. Flow (RTOR)				
Link Speed (mph)		30		
Link Distance (ft)		822		
Travel Time (s)		18.7		
Peak Hour Factor	0.89	0.89	0.89	
Heavy Vehicles (%)	3%	3%	2%	
Bus Blockages (#/hr)	0	0	10	
Parking (#/hr)				
Adj. Flow (vph)	42	908	18	
Shared Lane Traffic (%)				
Lane Group Flow (vph)	0	968	0	
Enter Blocked Intersection	No	No	No	
Lane Alignment	Left	Left	Right	
Median Width(ft)		16		
Link Offset(ft)		0		
Crosswalk Width(ft)		16		
Two way Left Turn Lane				
Headway Factor	0.85	0.85	0.85	
Turning Speed (mph)	15	15	9	
Number of Detectors	1	1		
Detector Template	Left	Left		
Leading Detector (ft)	20	20		
Trailing Detector (ft)	0	0		
Detector 1 Position(ft)	0	0		
Detector 1 Size(ft)	20	20		
Detector 1 Type	Cl+Ex	Cl+Ex		
Detector 1 Channel				
Detector 1 Extend (s)	0.0	0.0		
Detector 1 Queue (s)	0.0	0.0		
Detector 1 Delay (s)	0.0	0.0		
Detector 2 Position(ft)				
Detector 2 Size(ft)				
Detector 2 Type				
Detector 2 Channel				
Detector 2 Extend (s)				
Turn Type	Perm	Perm		
Protected Phases				2
Permitted Phases	1	1		

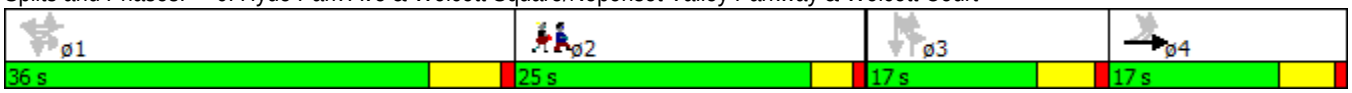
6: Hyde Park Ave & Wolcott Square/Neponset Valley Parkway & Wolcott Court

Lane Group	EBL2	EBL	EBT	WBT	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR2
Detector Phase	4	4	4	1			3	3		3	3	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	30.0			8.0	8.0		8.0	8.0	
Minimum Split (s)	13.0	13.0	13.0	36.0			13.0	13.0		13.0	13.0	
Total Split (s)	17.0	17.0	17.0	36.0			17.0	17.0		17.0	17.0	
Total Split (%)	17.9%	17.9%	17.9%	37.9%			17.9%	17.9%		17.9%	17.9%	
Maximum Green (s)	12.0	12.0	12.0	30.0			12.0	12.0		12.0	12.0	
Yellow Time (s)	4.0	4.0	4.0	5.0			4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0			1.0	1.0		1.0	1.0	
Lost Time Adjust (s)			0.0	0.0				0.0			0.0	
Total Lost Time (s)			5.0	6.0				5.0			5.0	
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lead		Lead	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0			3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	Max			None	None		None	None	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)			9.4	30.9				9.6			9.6	
Actuated g/C Ratio			0.16	0.52				0.16			0.16	
v/c Ratio			0.36	0.74				0.40			0.37	
Control Delay			32.8	18.4				28.2			8.6	
Queue Delay			0.0	0.0				0.0			0.0	
Total Delay			32.8	18.4				28.2			8.6	
LOS			C	B				C			A	
Approach Delay			32.8	18.4				28.2			8.6	
Approach LOS			C	B				C			A	

Intersection Summary

Area Type: Other
Cycle Length: 95
Actuated Cycle Length: 60
Natural Cycle: 100
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.95
Intersection Signal Delay: 28.2 Intersection LOS: C
Intersection Capacity Utilization 109.1% ICU Level of Service H
Analysis Period (min) 15

Splits and Phases: 6: Hyde Park Ave & Wolcott Square/Neponset Valley Parkway & Wolcott Court



Lane Group	SEL2	SEL	SER	ø2
Detector Phase	1	1		
Switch Phase				
Minimum Initial (s)	30.0	30.0		7.0
Minimum Split (s)	36.0	36.0		25.0
Total Split (s)	36.0	36.0		25.0
Total Split (%)	37.9%	37.9%		26%
Maximum Green (s)	30.0	30.0		21.0
Yellow Time (s)	5.0	5.0		3.0
All-Red Time (s)	1.0	1.0		1.0
Lost Time Adjust (s)		0.0		
Total Lost Time (s)		6.0		
Lead/Lag	Lead	Lead		Lag
Lead-Lag Optimize?	Yes	Yes		Yes
Vehicle Extension (s)	3.0	3.0		3.0
Recall Mode	Max	Max		None
Walk Time (s)				7.0
Flash Dont Walk (s)				14.0
Pedestrian Calls (#/hr)				0
Act Effct Green (s)		30.9		
Actuated g/C Ratio		0.52		
v/c Ratio		0.95		
Control Delay		37.9		
Queue Delay		0.0		
Total Delay		37.9		
LOS		D		
Approach Delay		37.9		
Approach LOS		D		

Intersection Summary

Movement	EBL2	EBL	EBT	WBT	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR2
Lane Configurations												
Volume (vph)	11	5	32	0	607	47	42	11	11	63	5	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	9	9	9	16	16	16	14	14	14	16	16	16
Total Lost time (s)			5.0	6.0				5.0			5.0	
Lane Util. Factor			1.00	1.00				1.00			1.00	
Frt			1.00	0.86				0.98			0.97	
Flt Protected			0.98	1.00				0.97			0.97	
Satd. Flow (prot)			1468	1762				1861			1957	
Flt Permitted			0.62	1.00				0.77			0.79	
Satd. Flow (perm)			930	1762				1488			1608	
Peak-hour factor, PHF	0.92	0.92	0.92	0.91	0.91	0.91	0.66	0.66	0.66	0.65	0.65	0.65
Adj. Flow (vph)	12	5	35	0	667	52	64	17	17	97	8	32
RTOR Reduction (vph)	0	0	0	63	0	0	0	8	0	0	116	0
Lane Group Flow (vph)	0	0	52	656	0	0	0	90	0	0	21	0
Heavy Vehicles (%)	2%	2%	2%	2%	6%	2%	3%	3%	3%	2%	2%	6%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)			2									
Turn Type	Perm	Perm	NA	NA			custom	NA		custom	NA	
Protected Phases			4									
Permitted Phases	4	4		1			3	3		3	3	
Actuated Green, G (s)			5.5	30.9				9.6			9.6	
Effective Green, g (s)			5.5	30.9				9.6			9.6	
Actuated g/C Ratio			0.09	0.50				0.15			0.15	
Clearance Time (s)			5.0	6.0				5.0			5.0	
Vehicle Extension (s)			3.0	3.0				3.0			3.0	
Lane Grp Cap (vph)			82	878				230			248	
v/s Ratio Prot												
v/s Ratio Perm			c0.06	0.37				c0.06			0.01	
v/c Ratio			0.63	0.75				0.39			0.09	
Uniform Delay, d1			27.3	12.4				23.6			22.4	
Progression Factor			1.00	1.00				1.00			1.00	
Incremental Delay, d2			14.9	5.8				1.1			0.1	
Delay (s)			42.2	18.2				24.7			22.6	
Level of Service			D	B				C			C	
Approach Delay (s)			42.2	18.2				24.7			22.6	
Approach LOS			D	B				C			C	

Intersection Summary			
HCM 2000 Control Delay	29.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	62.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	109.1%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SEL2	SEL	SER
Lane Configurations			
Volume (vph)	37	808	16
Ideal Flow (vphpl)	1900	1900	1900
Lane Width	16	16	16
Total Lost time (s)		6.0	
Lane Util. Factor		1.00	
Frt		1.00	
Flt Protected		0.95	
Satd. Flow (prot)		1988	
Flt Permitted		0.95	
Satd. Flow (perm)		1988	
Peak-hour factor, PHF	0.89	0.89	0.89
Adj. Flow (vph)	42	908	18
RTOR Reduction (vph)	0	0	0
Lane Group Flow (vph)	0	968	0
Heavy Vehicles (%)	3%	3%	2%
Bus Blockages (#/hr)	0	0	10
Parking (#/hr)			
Turn Type	Perm	Perm	
Protected Phases			
Permitted Phases	1	1	
Actuated Green, G (s)		30.9	
Effective Green, g (s)		30.9	
Actuated g/C Ratio		0.50	
Clearance Time (s)		6.0	
Vehicle Extension (s)		3.0	
Lane Grp Cap (vph)		990	
v/s Ratio Prot			
v/s Ratio Perm		c0.49	
v/c Ratio		0.98	
Uniform Delay, d1		15.2	
Progression Factor		1.00	
Incremental Delay, d2		23.7	
Delay (s)		38.9	
Level of Service		D	
Approach Delay (s)		38.9	
Approach LOS		D	

Intersection Summary

Lane Group	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations						
Volume (vph)	752	34	75	625	156	178
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.994				0.928	
Flt Protected				0.995	0.977	
Satd. Flow (prot)	1817	0	0	1844	1666	0
Flt Permitted				0.995	0.977	
Satd. Flow (perm)	1817	0	0	1844	1666	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	336			386	167	
Travel Time (s)	7.6			8.8	3.8	
Peak Hour Factor	0.87	0.87	0.94	0.94	0.79	0.79
Heavy Vehicles (%)	4%	2%	7%	2%	5%	2%
Adj. Flow (vph)	864	39	80	665	197	225
Shared Lane Traffic (%)						
Lane Group Flow (vph)	903	0	0	745	422	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 108.2%		ICU Level of Service G	
Analysis Period (min) 15			

Movement	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations						
Volume (veh/h)	752	34	75	625	156	178
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.94	0.94	0.79	0.79
Hourly flow rate (vph)	864	39	80	665	197	225
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			903		1708	884
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			903		1708	884
tC, single (s)			4.2		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.3		3.5	3.3
p0 queue free %			89		0	35
cM capacity (veh/h)			732		88	344

Direction, Lane #	NB 1	SB 1	NW 1
Volume Total	903	745	423
Volume Left	0	80	197
Volume Right	39	0	225
cSH	1700	732	145
Volume to Capacity	0.53	0.11	2.91
Queue Length 95th (ft)	0	9	969
Control Delay (s)	0.0	2.8	924.7
Lane LOS		A	F
Approach Delay (s)	0.0	2.8	924.7
Approach LOS			F

Intersection Summary			
Average Delay	189.8		
Intersection Capacity Utilization	108.2%	ICU Level of Service	G
Analysis Period (min)	15		

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Volume (vph)	5	5	26	540	347	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	15	15	16	16	16	16
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.932				0.992	
Flt Protected	0.976			0.998		
Satd. Flow (prot)	1571	0	0	1960	1933	0
Flt Permitted	0.976			0.998		
Satd. Flow (perm)	1571	0	0	1960	1933	0
Link Speed (mph)	30			35	30	
Link Distance (ft)	490			413	824	
Travel Time (s)	11.1			8.0	18.7	
Peak Hour Factor	0.63	0.63	0.93	0.93	0.92	0.92
Heavy Vehicles (%)	2%	40%	2%	10%	11%	2%
Adj. Flow (vph)	8	8	28	581	377	23
Shared Lane Traffic (%)						
Lane Group Flow (vph)	16	0	0	609	400	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	15			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	0.88	0.88	0.85	0.85	0.85	0.85
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 59.6%		ICU Level of Service B	
Analysis Period (min) 15			

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Volume (veh/h)	5	5	26	540	347	21
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.63	0.63	0.93	0.93	0.92	0.92
Hourly flow rate (vph)	8	8	28	581	377	23
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1025	389	400			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1025	389	400			
tC, single (s)	6.4	6.6	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.7	2.2			
p0 queue free %	97	99	98			
cM capacity (veh/h)	254	584	1159			

Direction, Lane #	SE 1	NE 1	SW 1
Volume Total	16	609	400
Volume Left	8	28	0
Volume Right	8	0	23
cSH	354	1159	1700
Volume to Capacity	0.04	0.02	0.24
Queue Length 95th (ft)	4	2	0
Control Delay (s)	15.6	0.7	0.0
Lane LOS	C	A	
Approach Delay (s)	15.6	0.7	0.0
Approach LOS	C		

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	59.6%	ICU Level of Service	B
Analysis Period (min)	15		

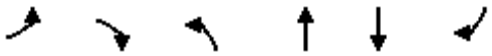
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	5	0	0	57	0	127	11	513	22	42	311	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	16	16	16	16	11	11	11	10	11	11
Storage Length (ft)	0		0	0		0	0		0	75		0
Storage Lanes	0		0	0		1	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850		0.994			0.982	
Flt Protected		0.950			0.950			0.999		0.950		
Satd. Flow (prot)	0	2046	0	0	1100	984	0	1694	0	1652	1668	0
Flt Permitted		0.950			0.950			0.999		0.950		
Satd. Flow (perm)	0	2046	0	0	1100	984	0	1694	0	1652	1668	0
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		338			265			824			1173	
Travel Time (s)		7.7			6.0			16.1			22.9	
Peak Hour Factor	0.75	0.75	0.75	0.66	0.66	0.66	0.83	0.83	0.83	0.88	0.88	0.88
Heavy Vehicles (%)	0%	0%	0%	86%	2%	86%	2%	8%	2%	2%	9%	2%
Adj. Flow (vph)	7	0	0	86	0	192	13	618	27	48	353	48
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	7	0	0	86	192	0	658	0	48	401	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			10			10	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.85	0.85	0.85	0.85	0.85	0.85	1.04	1.04	1.04	1.09	1.04	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 50.1%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	5	0	0	57	0	127	11	513	22	42	311	42
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.75	0.75	0.75	0.66	0.66	0.66	0.83	0.83	0.83	0.88	0.88	0.88
Hourly flow rate (vph)	7	0	0	86	0	192	13	618	27	48	353	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)												
pX, platoon unblocked												
vC, conflicting volume	1323	1144	377	1107	1154	631	401			645		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1323	1144	377	1107	1154	631	401			645		
tC, single (s)	7.1	6.5	6.2	8.0	6.5	7.1	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	4.3	4.0	4.1	2.2			2.2		
p0 queue free %	89	100	100	31	100	46	99			95		
cM capacity (veh/h)	59	189	674	125	185	359	1158			940		

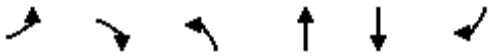
Direction, Lane #	SE 1	NW 1	NW 2	NE 1	SW 1	SW 2
Volume Total	7	86	192	658	48	401
Volume Left	7	86	0	13	48	0
Volume Right	0	0	192	27	0	48
cSH	59	125	359	1158	940	1700
Volume to Capacity	0.11	0.69	0.54	0.01	0.05	0.24
Queue Length 95th (ft)	9	94	76	1	4	0
Control Delay (s)	73.1	81.9	26.1	0.3	9.0	0.0
Lane LOS	F	F	D	A	A	
Approach Delay (s)	73.1	43.4		0.3	1.0	
Approach LOS	F	E				

Intersection Summary				
Average Delay	9.5			
Intersection Capacity Utilization	50.1%	ICU Level of Service	A	
Analysis Period (min)	15			



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	358	53	98	548	341	227
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	13	13	12	12
Storage Length (ft)	0	0	0			100
Storage Lanes	1	0	0			1
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.982					0.850
Flt Protected	0.958			0.992		
Satd. Flow (prot)	1695	0	0	1804	1667	1417
Flt Permitted	0.958			0.992		
Satd. Flow (perm)	1695	0	0	1804	1667	1417
Link Speed (mph)	30			35	30	
Link Distance (ft)	686			1173	334	
Travel Time (s)	15.6			22.9	7.6	
Peak Hour Factor	0.89	0.89	0.90	0.90	0.98	0.98
Heavy Vehicles (%)	7%	2%	2%	9%	14%	14%
Parking (#/hr)	2					
Adj. Flow (vph)	402	60	109	609	348	232
Shared Lane Traffic (%)						
Lane Group Flow (vph)	462	0	0	718	348	232
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	16			10	10	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	0.99	0.85	0.96	0.96	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Stop	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 85.3%		ICU Level of Service E	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	358	53	98	548	341	227
Peak Hour Factor	0.89	0.89	0.90	0.90	0.98	0.98
Hourly flow rate (vph)	402	60	109	609	348	232

Direction, Lane #	EB 1	NB 1	SB 1	SB 2
Volume Total (vph)	462	718	348	232
Volume Left (vph)	402	109	0	0
Volume Right (vph)	60	0	0	232
Hadj (s)	0.20	0.17	0.24	-0.46
Departure Headway (s)	7.0	7.0	7.6	6.9
Degree Utilization, x	0.90	1.0	0.73	0.44
Capacity (veh/h)	509	527	465	515
Control Delay (s)	44.6	209.7	27.4	14.0
Approach Delay (s)	44.6	209.7	22.0	
Approach LOS	E	F	C	

Intersection Summary			
Delay	104.5		
Level of Service	F		
Intersection Capacity Utilization	85.3%	ICU Level of Service	E
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	ø9
Lane Configurations							
Volume (vph)	601	431	122	671	263	76	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	11	11	12	12	14	14	
Storage Length (ft)	175	0		150	0		
Storage Lanes	1	1		1	0		
Taper Length (ft)	25				25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		0.850		0.850			
Flt Protected	0.950					0.963	
Satd. Flow (prot)	1601	1531	1863	1482	0	1871	
Flt Permitted	0.950					0.963	
Satd. Flow (perm)	1601	1531	1863	1482	0	1871	
Right Turn on Red		Yes		Yes			
Satd. Flow (RTOR)		484		447			
Link Speed (mph)	30		30			30	
Link Distance (ft)	466		390			437	
Travel Time (s)	10.6		8.9			9.9	
Peak Hour Factor	0.89	0.89	0.98	0.98	0.96	0.96	
Heavy Vehicles (%)	9%	2%	2%	9%	5%	2%	
Adj. Flow (vph)	675	484	124	685	274	79	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	675	484	124	685	0	353	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Right	Left	Right	Left	Left	
Median Width(ft)	11		12			12	
Link Offset(ft)	0		0			0	
Crosswalk Width(ft)	16		16			16	
Two way Left Turn Lane							
Headway Factor	1.04	1.04	1.00	1.00	0.92	0.92	
Turning Speed (mph)	15	9		9	15		
Number of Detectors	1	1	2	1	1	2	
Detector Template	Left	Right	Thru	Right	Left	Thru	
Leading Detector (ft)	20	20	100	20	20	100	
Trailing Detector (ft)	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	
Detector 1 Size(ft)	20	20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel							
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)			94			94	
Detector 2 Size(ft)			6			6	
Detector 2 Type			Cl+Ex			Cl+Ex	
Detector 2 Channel							
Detector 2 Extend (s)			0.0			0.0	
Turn Type	Prot	Perm	NA	Perm	Split	NA	
Protected Phases	8!		4!		6	6	9

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	ø9
Permitted Phases		8		4			
Detector Phase	8	8	4	4	6	6	
Switch Phase							
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0	20.0	8.0
Total Split (s)	32.0	32.0	32.0	32.0	20.0	20.0	8.0
Total Split (%)	53.3%	53.3%	53.3%	53.3%	33.3%	33.3%	13%
Maximum Green (s)	28.0	28.0	28.0	28.0	16.0	16.0	4.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0		4.0	
Lead/Lag							
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	C-Max	C-Max	None
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0	0	
Act Effct Green (s)	27.1	27.1	27.1	27.1		24.9	
Actuated g/C Ratio	0.45	0.45	0.45	0.45		0.42	
v/c Ratio	0.93	0.51	0.15	0.75		0.46	
Control Delay	38.5	3.2	9.8	10.5		15.5	
Queue Delay	0.0	0.0	0.0	0.0		0.0	
Total Delay	38.5	3.2	9.8	10.5		15.5	
LOS	D	A	A	B		B	
Approach Delay	23.8		10.4			15.5	
Approach LOS	C		B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 60			
Offset: 0 (0%), Referenced to phase 6:SBTL, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.93			
Intersection Signal Delay: 17.8		Intersection LOS: B	
Intersection Capacity Utilization 68.3%		ICU Level of Service C	
Analysis Period (min) 15			

! Phase conflict between lane groups.

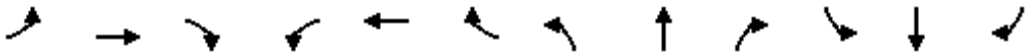
Splits and Phases: 4: Milton Street & Neponset Valley Parkway

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	601	431	122	671	263	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	11	11	12	12	14	14
Total Lost time (s)	4.0	4.0	4.0	4.0		4.0
Lane Util. Factor	1.00	1.00	1.00	1.00		1.00
Frt	1.00	0.85	1.00	0.85		1.00
Flt Protected	0.95	1.00	1.00	1.00		0.96
Satd. Flow (prot)	1601	1531	1863	1482		1870
Flt Permitted	0.95	1.00	1.00	1.00		0.96
Satd. Flow (perm)	1601	1531	1863	1482		1870
Peak-hour factor, PHF	0.89	0.89	0.98	0.98	0.96	0.96
Adj. Flow (vph)	675	484	124	685	274	79
RTOR Reduction (vph)	0	265	0	245	0	0
Lane Group Flow (vph)	675	219	124	440	0	353
Heavy Vehicles (%)	9%	2%	2%	9%	5%	2%
Turn Type	Prot	Perm	NA	Perm	Split	NA
Protected Phases	8!		4!		6	6
Permitted Phases		8		4		
Actuated Green, G (s)	27.1	27.1	27.1	27.1		24.9
Effective Green, g (s)	27.1	27.1	27.1	27.1		24.9
Actuated g/C Ratio	0.45	0.45	0.45	0.45		0.41
Clearance Time (s)	4.0	4.0	4.0	4.0		4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0		3.0
Lane Grp Cap (vph)	723	691	841	669		776
v/s Ratio Prot	c0.42		0.07			c0.19
v/s Ratio Perm		0.14		0.30		
v/c Ratio	0.93	0.32	0.15	0.66		0.45
Uniform Delay, d1	15.6	10.5	9.7	12.8		12.7
Progression Factor	1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2	19.0	0.3	0.1	2.3		1.9
Delay (s)	34.6	10.8	9.7	15.2		14.6
Level of Service	C	B	A	B		B
Approach Delay (s)	24.7		14.3			14.6
Approach LOS	C		B			B

Intersection Summary			
HCM 2000 Control Delay	19.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	68.3%	ICU Level of Service	C
Analysis Period (min)	15		

! Phase conflict between lane groups.

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	287	11	637	5	5	5	730	184	11	0	137	297
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	14	14	14	16	16	16	16	16	16
Storage Length (ft)	175		0	0		0	200		0	0		0
Storage Lanes	1		1	0		0	1		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.955			0.992			0.908	
Flt Protected		0.954			0.984		0.950					
Satd. Flow (prot)	0	1611	1432	0	1758	0	1930	2019	0	0	1671	0
Flt Permitted		0.954			0.650		0.125					
Satd. Flow (perm)	0	1611	1432	0	1161	0	254	2019	0	0	1671	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			700		7			4			83	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		466			184			825			433	
Travel Time (s)		10.6			4.2			18.8			9.8	
Peak Hour Factor	0.91	0.91	0.91	0.70	0.70	0.70	0.90	0.90	0.90	0.83	0.83	0.83
Heavy Vehicles (%)	9%	2%	9%	2%	2%	21%	6%	6%	2%	2%	17%	17%
Adj. Flow (vph)	315	12	700	7	7	7	811	204	12	0	165	358
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	327	700	0	21	0	811	216	0	0	523	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			16			16	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.04	1.04	1.04	0.92	0.92	0.92	0.85	0.85	0.85	0.85	0.85	0.85
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split	NA	Perm	Perm	NA		pm+pt	NA			NA	
Protected Phases	4	4			2!		5!	2!			6!	

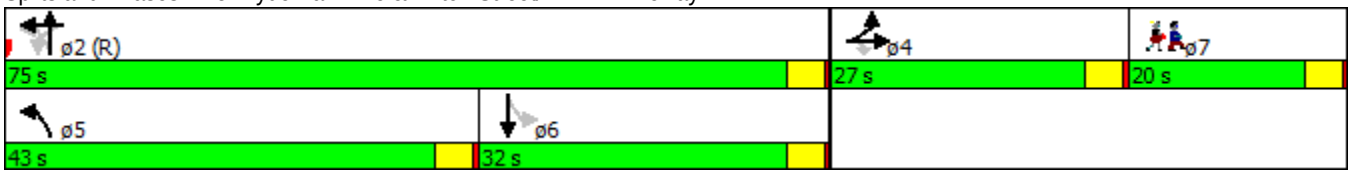
Lane Group	ø7
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	7

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases			4	2!			2!			6!		
Detector Phase	4	4	4	2	2		5	2		6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0		8.0	20.0		20.0	20.0	
Total Split (s)	27.0	27.0	27.0	75.0	75.0		43.0	75.0		32.0	32.0	
Total Split (%)	22.1%	22.1%	22.1%	61.5%	61.5%		35.2%	61.5%		26.2%	26.2%	
Maximum Green (s)	23.0	23.0	23.0	71.0	71.0		39.0	71.0		28.0	28.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5		0.5	0.5		0.5	0.5	
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			Lag	Lag	
Lead-Lag Optimize?							Yes			Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	C-Max	C-Max		None	C-Max		None	None	
Walk Time (s)	5.0	5.0	5.0	5.0	5.0			5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0			11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0			0		0	0	
Act Effct Green (s)		23.0	23.0		71.0		71.0	71.0			28.0	
Actuated g/C Ratio		0.19	0.19		0.58		0.58	0.58			0.23	
v/c Ratio		1.08	0.84		0.03		1.19	0.18			1.17	
Control Delay		121.2	13.3		8.4		130.1	12.2			133.6	
Queue Delay		0.0	0.0		0.0		0.0	0.0			0.0	
Total Delay		121.2	13.3		8.4		130.1	12.2			133.6	
LOS		F	B		A		F	B			F	
Approach Delay		47.7			8.4			105.3			133.6	
Approach LOS		D			A			F			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 122			
Actuated Cycle Length: 122			
Offset: 0 (0%), Referenced to phase 2:NBWB, Start of Green			
Natural Cycle: 150			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.19			
Intersection Signal Delay: 87.4		Intersection LOS: F	
Intersection Capacity Utilization 99.0%		ICU Level of Service F	
Analysis Period (min) 15			

! Phase conflict between lane groups.

Splits and Phases: 5: Hyde Park Ave & Milton Street/MBTA Driveway



Lane Group	ø7
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	20.0
Total Split (s)	20.0
Total Split (%)	16%
Maximum Green (s)	16.0
Yellow Time (s)	3.5
All-Red Time (s)	0.5
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	Ped
Walk Time (s)	5.0
Flash Dont Walk (s)	11.0
Pedestrian Calls (#/hr)	25
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	287	11	637	5	5	5	730	184	11	0	137	297
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	11	14	14	14	16	16	16	16	16	16
Total Lost time (s)		4.0	4.0		4.0		4.0	4.0			4.0	
Lane Util. Factor		1.00	1.00		1.00		1.00	1.00			1.00	
Frt		1.00	0.85		0.95		1.00	0.99			0.91	
Flt Protected		0.95	1.00		0.98		0.95	1.00			1.00	
Satd. Flow (prot)		1611	1432		1757		1930	2019			1670	
Flt Permitted		0.95	1.00		0.65		0.12	1.00			1.00	
Satd. Flow (perm)		1611	1432		1161		254	2019			1670	
Peak-hour factor, PHF	0.91	0.91	0.91	0.70	0.70	0.70	0.90	0.90	0.90	0.83	0.83	0.83
Adj. Flow (vph)	315	12	700	7	7	7	811	204	12	0	165	358
RTOR Reduction (vph)	0	0	568	0	3	0	0	2	0	0	64	0
Lane Group Flow (vph)	0	327	132	0	18	0	811	214	0	0	459	0
Heavy Vehicles (%)	9%	2%	9%	2%	2%	21%	6%	6%	2%	2%	17%	17%
Turn Type	Split	NA	Perm	Perm	NA		pm+pt	NA			NA	
Protected Phases	4	4			2!		5!	2!			6!	
Permitted Phases			4	2!			2!			6!		
Actuated Green, G (s)		23.0	23.0		71.0		71.0	71.0			28.0	
Effective Green, g (s)		23.0	23.0		71.0		71.0	71.0			28.0	
Actuated g/C Ratio		0.19	0.19		0.58		0.58	0.58			0.23	
Clearance Time (s)		4.0	4.0		4.0		4.0	4.0			4.0	
Vehicle Extension (s)		3.0	3.0		3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)		303	269		675		683	1174			383	
v/s Ratio Prot		c0.20					c0.38	0.11			0.27	
v/s Ratio Perm			0.09		0.02		c0.31					
v/c Ratio		1.08	0.49		0.03		1.19	0.18			1.20	
Uniform Delay, d1		49.5	44.3		10.8		34.4	11.9			47.0	
Progression Factor		1.00	1.00		1.00		1.00	1.00			1.00	
Incremental Delay, d2		74.4	1.4		0.1		98.6	0.3			112.0	
Delay (s)		123.9	45.7		10.9		133.0	12.3			159.0	
Level of Service		F	D		B		F	B			F	
Approach Delay (s)		70.6			10.9			107.6			159.0	
Approach LOS		E			B			F			F	

Intersection Summary			
HCM 2000 Control Delay	102.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	122.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	99.0%	ICU Level of Service	F
Analysis Period (min)	15		

! Phase conflict between lane groups.

c Critical Lane Group

Lane Group	EBL2	EBL	EBT	WBT	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR2
Lane Configurations												
Volume (vph)	11	5	11	0	767	126	53	16	5	68	5	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	9	9	9	16	16	16	14	14	14	16	16	16
Storage Length (ft)		0			0		0		0	0		
Storage Lanes		0			0		0		0	0		
Taper Length (ft)		25					25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.865				0.991			0.951	
Flt Protected			0.971					0.965			0.971	
Satd. Flow (prot)	0	0	1385	1767	0	0	0	1900	0	0	1831	0
Flt Permitted			0.513					0.732			0.829	
Satd. Flow (perm)	0	0	732	1767	0	0	0	1441	0	0	1563	0
Right Turn on Red						Yes			Yes			Yes
Satd. Flow (RTOR)				126				3			138	
Link Speed (mph)			30	30				30			30	
Link Distance (ft)			245	329				316			590	
Travel Time (s)			5.6	7.5				7.2			13.4	
Peak Hour Factor	0.69	0.69	0.69	0.91	0.91	0.91	0.84	0.84	0.84	0.81	0.81	0.81
Heavy Vehicles (%)	2%	28%	2%	2%	6%	2%	2%	2%	2%	2%	2%	20%
Parking (#/hr)			2									
Adj. Flow (vph)	16	7	16	0	843	138	63	19	6	84	6	52
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	39	981	0	0	0	88	0	0	142	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Left	Right	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)			0	0				0			0	
Link Offset(ft)			0	0				0			0	
Crosswalk Width(ft)			16	16				16			16	
Two way Left Turn Lane												
Headway Factor	1.14	1.14	1.32	0.85	0.85	0.85	0.92	0.92	0.92	0.85	0.85	0.85
Turning Speed (mph)	15	15			9	9	15		9	15		9
Number of Detectors	1	1	2	2			1	2		1	2	
Detector Template	Left	Left	Thru	Thru			Left	Thru		Left	Thru	
Leading Detector (ft)	20	20	100	100			20	100		20	100	
Trailing Detector (ft)	0	0	0	0			0	0		0	0	
Detector 1 Position(ft)	0	0	0	0			0	0		0	0	
Detector 1 Size(ft)	20	20	6	6			20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0	
Detector 2 Position(ft)			94	94				94			94	
Detector 2 Size(ft)			6	6				6			6	
Detector 2 Type			Cl+Ex	Cl+Ex				Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)			0.0	0.0				0.0			0.0	
Turn Type	Perm	Perm	NA	NA			custom	NA		custom	NA	

Lane Group	SEL2	SEL	SER	ø2
Lane Configurations				
Volume (vph)	95	668	16	
Ideal Flow (vphpl)	1900	1900	1900	
Lane Width (ft)	16	15	16	
Storage Length (ft)		0	160	
Storage Lanes		2	1	
Taper Length (ft)		25		
Lane Util. Factor	0.95	0.97	0.95	
Frt		0.997		
Flt Protected		0.953		
Satd. Flow (prot)	0	3624	0	
Flt Permitted		0.953		
Satd. Flow (perm)	0	3624	0	
Right Turn on Red				
Satd. Flow (RTOR)				
Link Speed (mph)		30		
Link Distance (ft)		825		
Travel Time (s)		18.8		
Peak Hour Factor	0.93	0.93	0.93	
Heavy Vehicles (%)	2%	7%	2%	
Parking (#/hr)				
Adj. Flow (vph)	102	718	17	
Shared Lane Traffic (%)				
Lane Group Flow (vph)	0	837	0	
Enter Blocked Intersection	No	No	No	
Lane Alignment	Left	Left	Right	
Median Width(ft)		46		
Link Offset(ft)		0		
Crosswalk Width(ft)		16		
Two way Left Turn Lane				
Headway Factor	0.85	0.88	0.85	
Turning Speed (mph)	15	15	9	
Number of Detectors	1	1		
Detector Template	Left	Left		
Leading Detector (ft)	20	20		
Trailing Detector (ft)	0	0		
Detector 1 Position(ft)	0	0		
Detector 1 Size(ft)	20	20		
Detector 1 Type	Cl+Ex	Cl+Ex		
Detector 1 Channel				
Detector 1 Extend (s)	0.0	0.0		
Detector 1 Queue (s)	0.0	0.0		
Detector 1 Delay (s)	0.0	0.0		
Detector 2 Position(ft)				
Detector 2 Size(ft)				
Detector 2 Type				
Detector 2 Channel				
Detector 2 Extend (s)				
Turn Type	Perm	Perm		

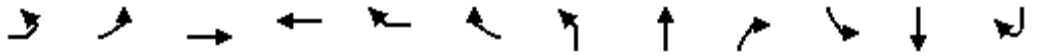
Lane Group	EBL2	EBL	EBT	WBT	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR2
Protected Phases			4									
Permitted Phases	4	4		1			3	3		3	3	
Detector Phase	4	4	4	1			3	3		3	3	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	30.0			8.0	8.0		8.0	8.0	
Minimum Split (s)	13.0	13.0	13.0	36.0			13.0	13.0		13.0	13.0	
Total Split (s)	13.0	13.0	13.0	44.0			13.0	13.0		13.0	13.0	
Total Split (%)	13.7%	13.7%	13.7%	46.3%			13.7%	13.7%		13.7%	13.7%	
Maximum Green (s)	8.0	8.0	8.0	38.0			8.0	8.0		8.0	8.0	
Yellow Time (s)	4.0	4.0	4.0	5.0			4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0			1.0	1.0		1.0	1.0	
Lost Time Adjust (s)			0.0	0.0				0.0			0.0	
Total Lost Time (s)			5.0	6.0				5.0			5.0	
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lead		Lead	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0			3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	Max			None	None		None	None	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)			8.1	38.3				8.1			8.1	
Actuated g/C Ratio			0.12	0.57				0.12			0.12	
v/c Ratio			0.45	0.93				0.51			0.46	
Control Delay			47.8	30.2				39.7			11.9	
Queue Delay			0.0	0.0				0.0			0.0	
Total Delay			47.8	30.2				39.7			11.9	
LOS			D	C				D			B	
Approach Delay			47.8	30.2				39.7			11.9	
Approach LOS			D	C				D			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 67.4			
Natural Cycle: 120			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.93			
Intersection Signal Delay: 21.4		Intersection LOS: C	
Intersection Capacity Utilization 101.6%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 6: Hyde Park Ave & Wolcott Square/Neponset Valley Parkway & Wolcott Court

Lane Group	SEL2	SEL	SER	ø2
Protected Phases				2
Permitted Phases	1	1		
Detector Phase	1	1		
Switch Phase				
Minimum Initial (s)	30.0	30.0		7.0
Minimum Split (s)	36.0	36.0		25.0
Total Split (s)	44.0	44.0		25.0
Total Split (%)	46.3%	46.3%		26%
Maximum Green (s)	38.0	38.0		21.0
Yellow Time (s)	5.0	5.0		3.0
All-Red Time (s)	1.0	1.0		1.0
Lost Time Adjust (s)		0.0		
Total Lost Time (s)		6.0		
Lead/Lag	Lead	Lead		Lag
Lead-Lag Optimize?	Yes	Yes		Yes
Vehicle Extension (s)	3.0	3.0		3.0
Recall Mode	Max	Max		None
Walk Time (s)				7.0
Flash Dont Walk (s)				14.0
Pedestrian Calls (#/hr)				0
Act Effct Green (s)		38.3		
Actuated g/C Ratio		0.57		
v/c Ratio		0.41		
Control Delay		9.6		
Queue Delay		0.0		
Total Delay		9.6		
LOS		A		
Approach Delay		9.6		
Approach LOS		A		

Intersection Summary



Movement	EBL2	EBL	EBT	WBT	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR2
Lane Configurations												
Volume (vph)	11	5	11	0	767	126	53	16	5	68	5	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	9	9	9	16	16	16	14	14	14	16	16	16
Total Lost time (s)			5.0	6.0				5.0			5.0	
Lane Util. Factor			1.00	1.00				1.00			1.00	
Frt			1.00	0.86				0.99			0.95	
Flt Protected			0.97	1.00				0.97			0.97	
Satd. Flow (prot)			1386	1767				1901			1831	
Flt Permitted			0.51	1.00				0.73			0.83	
Satd. Flow (perm)			732	1767				1442			1562	
Peak-hour factor, PHF	0.69	0.69	0.69	0.91	0.91	0.91	0.84	0.84	0.84	0.81	0.81	0.81
Adj. Flow (vph)	16	7	16	0	843	138	63	19	6	84	6	52
RTOR Reduction (vph)	0	0	0	56	0	0	0	3	0	0	122	0
Lane Group Flow (vph)	0	0	39	925	0	0	0	85	0	0	20	0
Heavy Vehicles (%)	2%	28%	2%	2%	6%	2%	2%	2%	2%	2%	2%	20%
Parking (#/hr)			2									
Turn Type	Perm	Perm	NA	NA			custom	NA		custom	NA	
Protected Phases			4									
Permitted Phases	4	4		1			3	3		3	3	
Actuated Green, G (s)			6.2	38.3				8.1			8.1	
Effective Green, g (s)			6.2	38.3				8.1			8.1	
Actuated g/C Ratio			0.09	0.56				0.12			0.12	
Clearance Time (s)			5.0	6.0				5.0			5.0	
Vehicle Extension (s)			3.0	3.0				3.0			3.0	
Lane Grp Cap (vph)			66	986				170			184	
v/s Ratio Prot												
v/s Ratio Perm			c0.05	c0.52				c0.06			0.01	
v/c Ratio			0.59	0.94				0.50			0.11	
Uniform Delay, d1			30.0	14.1				28.4			27.0	
Progression Factor			1.00	1.00				1.00			1.00	
Incremental Delay, d2			13.4	17.2				2.3			0.3	
Delay (s)			43.3	31.2				30.7			27.3	
Level of Service			D	C				C			C	
Approach Delay (s)			43.3	31.2				30.7			27.3	
Approach LOS			D	C				C			C	

Intersection Summary			
HCM 2000 Control Delay	22.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	68.6	Sum of lost time (s)	20.0
Intersection Capacity Utilization	101.6%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL2	SEL	SER
Lane Configurations			
Volume (vph)	95	668	16
Ideal Flow (vphpl)	1900	1900	1900
Lane Width	16	15	16
Total Lost time (s)		6.0	
Lane Util. Factor		0.97	
Frt		1.00	
Flt Protected		0.95	
Satd. Flow (prot)		3625	
Flt Permitted		0.95	
Satd. Flow (perm)		3625	
Peak-hour factor, PHF	0.93	0.93	0.93
Adj. Flow (vph)	102	718	17
RTOR Reduction (vph)	0	0	0
Lane Group Flow (vph)	0	837	0
Heavy Vehicles (%)	2%	7%	2%
Parking (#/hr)			
Turn Type	Perm	Perm	
Protected Phases			
Permitted Phases	1	1	
Actuated Green, G (s)		38.3	
Effective Green, g (s)		38.3	
Actuated g/C Ratio		0.56	
Clearance Time (s)		6.0	
Vehicle Extension (s)		3.0	
Lane Grp Cap (vph)		2023	
v/s Ratio Prot			
v/s Ratio Perm		0.23	
v/c Ratio		0.41	
Uniform Delay, d1		8.7	
Progression Factor		1.00	
Incremental Delay, d2		0.6	
Delay (s)		9.3	
Level of Service		A	
Approach Delay (s)		9.3	
Approach LOS		A	

Intersection Summary

Lane Group	WBL	WBR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	71	81	713	193	159	514
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	150	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.928		0.971			
Flt Protected	0.977				0.950	
Satd. Flow (prot)	1378	0	1704	0	1770	1743
Flt Permitted	0.977				0.950	
Satd. Flow (perm)	1378	0	1704	0	1770	1743
Link Speed (mph)	30		30			30
Link Distance (ft)	264		334			390
Travel Time (s)	6.0		7.6			8.9
Peak Hour Factor	0.61	0.61	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	45%	10%	2%	2%	9%
Adj. Flow (vph)	116	133	775	210	173	559
Shared Lane Traffic (%)						
Lane Group Flow (vph)	249	0	985	0	173	559
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	77.0%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	WBL	WBR	NET	NER	SWL	SWT
Lane Configurations						
Volume (veh/h)	71	81	713	193	159	514
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.61	0.61	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	116	133	775	210	173	559
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						390
pX, platoon unblocked						
vC, conflicting volume	1784	880			985	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1784	880			985	
tC, single (s)	6.4	6.7			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.7			2.2	
p0 queue free %	0	54			75	
cM capacity (veh/h)	68	291			701	

Direction, Lane #	WB 1	NE 1	SW 1	SW 2
Volume Total	249	985	173	559
Volume Left	116	0	173	0
Volume Right	133	210	0	0
cSH	114	1700	701	1700
Volume to Capacity	2.18	0.58	0.25	0.33
Queue Length 95th (ft)	531	0	24	0
Control Delay (s)	619.2	0.0	11.8	0.0
Lane LOS	F		B	
Approach Delay (s)	619.2	0.0	2.8	
Approach LOS	F			

Intersection Summary			
Average Delay	79.5		
Intersection Capacity Utilization	77.0%	ICU Level of Service	D
Analysis Period (min)	15		

Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Volume (vph)	37	47	15	411	484	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	15	15	16	16	16	16
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.924				0.997	
Flt Protected	0.979			0.998		
Satd. Flow (prot)	1784	0	0	2049	2085	0
Flt Permitted	0.979			0.998		
Satd. Flow (perm)	1784	0	0	2049	2085	0
Link Speed (mph)	30			35	30	
Link Distance (ft)	490			413	824	
Travel Time (s)	11.1			8.0	18.7	
Peak Hour Factor	0.74	0.74	0.82	0.85	0.97	0.97
Heavy Vehicles (%)	6%	6%	2%	5%	3%	2%
Adj. Flow (vph)	50	64	18	484	499	11
Shared Lane Traffic (%)						
Lane Group Flow (vph)	114	0	0	502	510	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	15			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	0.88	0.88	0.85	0.85	0.85	0.85
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 45.4%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Volume (veh/h)	37	47	15	411	484	11
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.74	0.74	0.82	0.85	0.97	0.97
Hourly flow rate (vph)	50	64	18	484	499	11
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1025	505	510			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1025	505	510			
tC, single (s)	6.5	6.3	4.1			
tC, 2 stage (s)						
tF (s)	3.6	3.4	2.2			
p0 queue free %	80	89	98			
cM capacity (veh/h)	252	559	1055			

Direction, Lane #	SE 1	NE 1	SW 1
Volume Total	114	502	510
Volume Left	50	18	0
Volume Right	64	0	11
cSH	364	1055	1700
Volume to Capacity	0.31	0.02	0.30
Queue Length 95th (ft)	33	1	0
Control Delay (s)	19.3	0.5	0.0
Lane LOS	C	A	
Approach Delay (s)	19.3	0.5	0.0
Approach LOS	C		

Intersection Summary			
Average Delay	2.2		
Intersection Capacity Utilization	45.4%	ICU Level of Service	A
Analysis Period (min)	15		

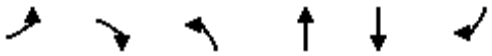
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	121	0	26	45	0	84	26	365	57	141	423	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	16	16	16	16	12	12	12	16	16	16
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.976				0.850		0.983			0.988	
Flt Protected		0.961			0.950			0.997			0.989	
Satd. Flow (prot)	0	1980	0	0	2006	1711	0	1761	0	0	2022	0
Flt Permitted		0.961			0.950			0.997			0.989	
Satd. Flow (perm)	0	1980	0	0	2006	1711	0	1761	0	0	2022	0
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		338			265			824			1173	
Travel Time (s)		7.7			6.0			16.1			22.9	
Peak Hour Factor	0.57	0.57	0.57	0.60	0.60	0.60	0.93	0.93	0.93	0.89	0.89	0.89
Heavy Vehicles (%)	2%	2%	2%	2%	2%	7%	2%	6%	6%	2%	5%	2%
Adj. Flow (vph)	212	0	46	75	0	140	28	392	61	158	475	60
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	258	0	0	75	140	0	481	0	0	693	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.85	0.85	0.85	0.85	0.85	0.85	1.00	1.00	1.00	0.85	0.85	0.85
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 82.3%		ICU Level of Service E	
Analysis Period (min) 15			

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	121	0	26	45	0	84	26	365	57	141	423	53
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.57	0.57	0.57	0.60	0.60	0.60	0.93	0.93	0.93	0.89	0.89	0.89
Hourly flow rate (vph)	212	0	46	75	0	140	28	392	61	158	475	60
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1441	1332	505	1347	1331	423	535			454		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1441	1332	505	1347	1331	423	535			454		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.3	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.4	2.2			2.2		
p0 queue free %	0	100	92	27	100	77	97			86		
cM capacity (veh/h)	75	129	567	103	129	620	1033			1107		

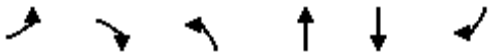
Direction, Lane #	SE 1	NW 1	NW 2	NE 1	SW 1
Volume Total	258	75	140	482	693
Volume Left	212	75	0	28	158
Volume Right	46	0	140	61	60
cSH	88	103	620	1033	1107
Volume to Capacity	2.93	0.73	0.23	0.03	0.14
Queue Length 95th (ft)	627	96	22	2	12
Control Delay (s)	972.0	102.2	12.5	0.8	3.4
Lane LOS	F	F	B	A	A
Approach Delay (s)	972.0	43.8		0.8	3.4
Approach LOS	F	E			

Intersection Summary				
Average Delay	159.5			
Intersection Capacity Utilization	82.3%	ICU Level of Service	E	
Analysis Period (min)	15			



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	283	126	78	492	491	269
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	13	13	12	12
Storage Length (ft)	0	0	0			100
Storage Lanes	1	0	0			1
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.958					0.850
Flt Protected	0.967			0.993		
Satd. Flow (prot)	1675	0	0	1895	1827	1583
Flt Permitted	0.967			0.993		
Satd. Flow (perm)	1675	0	0	1895	1827	1583
Link Speed (mph)	30			35	30	
Link Distance (ft)	686			1173	336	
Travel Time (s)	15.6			22.9	7.6	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.91	0.91
Heavy Vehicles (%)	6%	6%	2%	3%	4%	2%
Parking (#/hr)	2					
Adj. Flow (vph)	329	147	91	572	540	296
Shared Lane Traffic (%)						
Lane Group Flow (vph)	476	0	0	663	540	296
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	16			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	0.99	0.85	0.96	0.96	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Stop	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 89.4%		ICU Level of Service E	
Analysis Period (min) 15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	283	126	78	492	491	269
Peak Hour Factor	0.86	0.86	0.86	0.86	0.91	0.91
Hourly flow rate (vph)	329	147	91	572	540	296

Direction, Lane #	EB 1	NB 1	SB 1	SB 2
Volume Total (vph)	476	663	540	296
Volume Left (vph)	329	91	0	0
Volume Right (vph)	147	0	0	296
Hadj (s)	0.06	0.08	0.07	-0.67
Departure Headway (s)	7.0	7.0	7.5	6.8
Degree Utilization, x	0.93	1.0	1.0	0.55
Capacity (veh/h)	503	521	484	529
Control Delay (s)	50.3	169.0	104.6	16.7
Approach Delay (s)	50.3	169.0	73.4	
Approach LOS	F	F	F	

Intersection Summary			
Delay	100.0		
Level of Service	F		
Intersection Capacity Utilization	89.4%	ICU Level of Service	E
Analysis Period (min)	15		

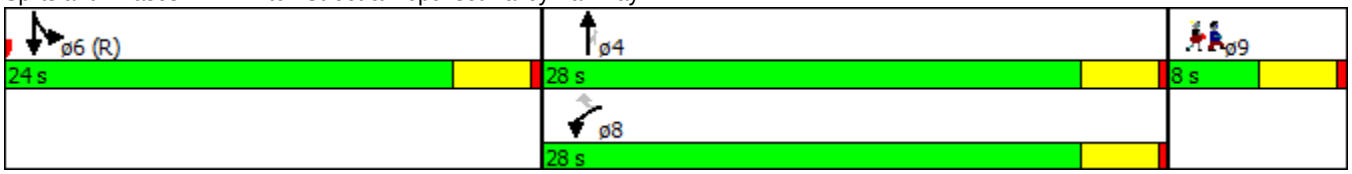
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	ø9
Lane Configurations							
Volume (vph)	563	284	103	816	263	163	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	16	16	16	16	14	14	
Storage Length (ft)	175	0		150	0		
Storage Lanes	1	1		1	0		
Taper Length (ft)	25				25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		0.850		0.850			
Flt Protected	0.950					0.970	
Satd. Flow (prot)	1894	1794	2111	1794	0	1838	
Flt Permitted	0.950					0.970	
Satd. Flow (perm)	1894	1794	2111	1794	0	1838	
Right Turn on Red		Yes		Yes			
Satd. Flow (RTOR)		296		477			
Link Speed (mph)	30		30			30	
Link Distance (ft)	455		386			437	
Travel Time (s)	10.3		8.8			9.9	
Peak Hour Factor	0.96	0.96	0.95	0.95	0.91	0.91	
Heavy Vehicles (%)	8%	2%	2%	2%	2%	15%	
Adj. Flow (vph)	586	296	108	859	289	179	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	586	296	108	859	0	468	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Right	Left	Right	Left	Left	
Median Width(ft)	16		12			12	
Link Offset(ft)	0		0			0	
Crosswalk Width(ft)	16		16			16	
Two way Left Turn Lane							
Headway Factor	0.85	0.85	0.85	0.85	0.92	0.92	
Turning Speed (mph)	15	9		9	15		
Number of Detectors	1	1	2	1	1	2	
Detector Template	Left	Right	Thru	Right	Left	Thru	
Leading Detector (ft)	20	20	100	20	20	100	
Trailing Detector (ft)	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	
Detector 1 Size(ft)	20	20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel							
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)			94			94	
Detector 2 Size(ft)			6			6	
Detector 2 Type			Cl+Ex			Cl+Ex	
Detector 2 Channel							
Detector 2 Extend (s)			0.0			0.0	
Turn Type	Prot	Perm	NA	Perm	Split	NA	
Protected Phases	8!		4!		6	6	9

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	ø9
Permitted Phases		8		4			
Detector Phase	8	8	4	4	6	6	
Switch Phase							
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0	20.0	8.0
Total Split (s)	28.0	28.0	28.0	28.0	24.0	24.0	8.0
Total Split (%)	46.7%	46.7%	46.7%	46.7%	40.0%	40.0%	13%
Maximum Green (s)	24.0	24.0	24.0	24.0	20.0	20.0	4.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0		4.0	
Lead/Lag							
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	C-Max	C-Max	None
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0	0	
Act Effct Green (s)	22.1	22.1	22.1	22.1		29.9	
Actuated g/C Ratio	0.37	0.37	0.37	0.37		0.50	
v/c Ratio	0.84	0.35	0.14	0.89		0.51	
Control Delay	29.7	3.1	12.2	21.4		13.3	
Queue Delay	0.0	0.0	0.0	0.0		0.0	
Total Delay	29.7	3.1	12.2	21.4		13.3	
LOS	C	A	B	C		B	
Approach Delay	20.8		20.3			13.3	
Approach LOS	C		C			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 60			
Offset: 0 (0%), Referenced to phase 6:SBTL, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.89			
Intersection Signal Delay: 19.1		Intersection LOS: B	
Intersection Capacity Utilization 80.3%		ICU Level of Service D	
Analysis Period (min) 15			

! Phase conflict between lane groups.

Splits and Phases: 4: Milton Street & Neponset Valley Parkway

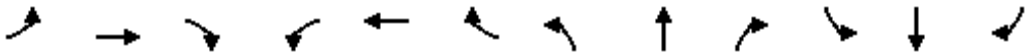


Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	563	284	103	816	263	163
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	16	16	16	16	14	14
Total Lost time (s)	4.0	4.0	4.0	4.0		4.0
Lane Util. Factor	1.00	1.00	1.00	1.00		1.00
Frt	1.00	0.85	1.00	0.85		1.00
Flt Protected	0.95	1.00	1.00	1.00		0.97
Satd. Flow (prot)	1894	1794	2111	1794		1838
Flt Permitted	0.95	1.00	1.00	1.00		0.97
Satd. Flow (perm)	1894	1794	2111	1794		1838
Peak-hour factor, PHF	0.96	0.96	0.95	0.95	0.91	0.91
Adj. Flow (vph)	586	296	108	859	289	179
RTOR Reduction (vph)	0	187	0	301	0	0
Lane Group Flow (vph)	586	109	108	558	0	468
Heavy Vehicles (%)	8%	2%	2%	2%	2%	15%
Turn Type	Prot	Perm	NA	Perm	Split	NA
Protected Phases	8!		4!		6	6
Permitted Phases		8		4		
Actuated Green, G (s)	22.1	22.1	22.1	22.1		29.9
Effective Green, g (s)	22.1	22.1	22.1	22.1		29.9
Actuated g/C Ratio	0.37	0.37	0.37	0.37		0.50
Clearance Time (s)	4.0	4.0	4.0	4.0		4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0		3.0
Lane Grp Cap (vph)	697	660	777	660		915
v/s Ratio Prot	0.31		0.05			c0.25
v/s Ratio Perm		0.06		c0.31		
v/c Ratio	0.84	0.17	0.14	0.84		0.51
Uniform Delay, d1	17.3	12.7	12.6	17.4		10.1
Progression Factor	1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2	9.0	0.1	0.1	9.7		2.0
Delay (s)	26.4	12.9	12.7	27.1		12.2
Level of Service	C	B	B	C		B
Approach Delay (s)	21.8		25.5			12.2
Approach LOS	C		C			B

Intersection Summary			
HCM 2000 Control Delay	21.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	80.3%	ICU Level of Service	D
Analysis Period (min)	15		

! Phase conflict between lane groups.

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	296	0	782	5	5	5	570	137	0	0	168	272
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	16	14	14	14	16	16	16	16	16	16
Storage Length (ft)	175		0	0		0	200		0	0		0
Storage Lanes	1		1	0		0	1		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.955						0.917	
Flt Protected		0.950			0.984		0.950					
Satd. Flow (prot)	0	2006	1794	0	1904	0	1930	2111	0	0	1825	0
Flt Permitted		0.950			0.629		0.153					
Satd. Flow (perm)	0	2006	1794	0	1217	0	311	2111	0	0	1825	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			776		11						100	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		455			184			826			433	
Travel Time (s)		10.3			4.2			18.8			9.8	
Peak Hour Factor	0.92	0.92	0.92	0.45	0.45	0.45	0.97	0.97	0.97	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	0%	0%	0%	6%	2%	2%	2%	2%	12%
Adj. Flow (vph)	322	0	850	11	11	11	588	141	0	0	187	302
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	322	850	0	33	0	588	141	0	0	489	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			16			16	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.85	0.85	0.85	0.92	0.92	0.92	0.85	0.85	0.85	0.85	0.85	0.85
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100	20	20	100		20	100		20	100	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Size(ft)	20	6	20	20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split	NA	Perm	Perm	NA		pm+pt	NA			NA	
Protected Phases	4	4			2!		5!	2!			6!	

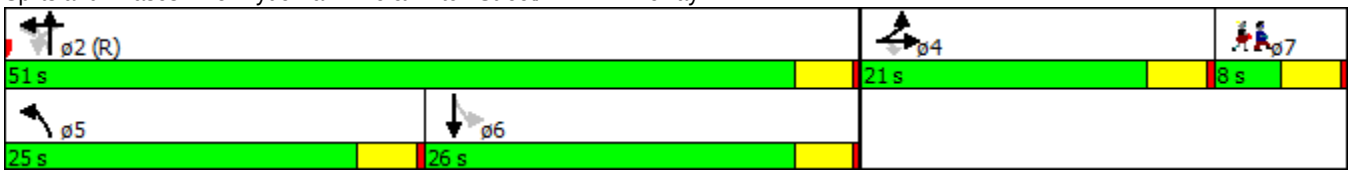
Lane Group	ø7
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	7

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases			4	2!			2!			6!		
Detector Phase	4	4	4	2	2		5	2		6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0		8.0	20.0		20.0	20.0	
Total Split (s)	21.0	21.0	21.0	51.0	51.0		25.0	51.0		26.0	26.0	
Total Split (%)	26.3%	26.3%	26.3%	63.8%	63.8%		31.3%	63.8%		32.5%	32.5%	
Maximum Green (s)	17.0	17.0	17.0	47.0	47.0		21.0	47.0		22.0	22.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5		0.5	0.5		0.5	0.5	
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			Lag	Lag	
Lead-Lag Optimize?							Yes			Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	C-Max	C-Max		None	C-Max		Max	Max	
Walk Time (s)	5.0	5.0	5.0	5.0	5.0			5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0			11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0			0		0	0	
Act Effct Green (s)		16.5	16.5		55.5		55.5	55.5			25.6	
Actuated g/C Ratio		0.21	0.21		0.69		0.69	0.69			0.32	
v/c Ratio		0.78	0.86		0.04		0.79	0.10			0.75	
Control Delay		44.7	14.8		3.2		23.3	4.3			29.6	
Queue Delay		0.0	0.0		0.0		0.0	0.0			0.0	
Total Delay		44.7	14.8		3.2		23.3	4.3			29.6	
LOS		D	B		A		C	A			C	
Approach Delay		23.0			3.2			19.6			29.6	
Approach LOS		C			A			B			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 80			
Offset: 0 (0%), Referenced to phase 2:NBWB, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.86			
Intersection Signal Delay: 23.0		Intersection LOS: C	
Intersection Capacity Utilization 90.2%		ICU Level of Service E	
Analysis Period (min) 15			

! Phase conflict between lane groups.

Splits and Phases: 5: Hyde Park Ave & Milton Street/MBTA Driveway



Lane Group	ø7
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	8.0
Total Split (s)	8.0
Total Split (%)	10%
Maximum Green (s)	4.0
Yellow Time (s)	3.5
All-Red Time (s)	0.5
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

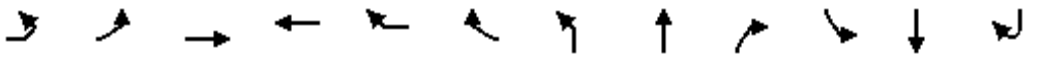
Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	296	0	782	5	5	5	570	137	0	0	168	272
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	16	16	16	14	14	14	16	16	16	16	16	16
Total Lost time (s)		4.0	4.0		4.0		4.0	4.0			4.0	
Lane Util. Factor		1.00	1.00		1.00		1.00	1.00			1.00	
Frt		1.00	0.85		0.95		1.00	1.00			0.92	
Flt Protected		0.95	1.00		0.98		0.95	1.00			1.00	
Satd. Flow (prot)		2006	1794		1904		1930	2111			1825	
Flt Permitted		0.95	1.00		0.63		0.15	1.00			1.00	
Satd. Flow (perm)		2006	1794		1218		310	2111			1825	
Peak-hour factor, PHF	0.92	0.92	0.92	0.45	0.45	0.45	0.97	0.97	0.97	0.90	0.90	0.90
Adj. Flow (vph)	322	0	850	11	11	11	588	141	0	0	187	302
RTOR Reduction (vph)	0	0	616	0	3	0	0	0	0	0	68	0
Lane Group Flow (vph)	0	322	234	0	30	0	588	141	0	0	421	0
Heavy Vehicles (%)	2%	2%	2%	0%	0%	0%	6%	2%	2%	2%	2%	12%
Turn Type	Split	NA	Perm	Perm	NA		pm+pt	NA			NA	
Protected Phases	4	4			2!		5!	2!			6!	
Permitted Phases			4	2!			2!			6!		
Actuated Green, G (s)		16.5	16.5		55.5		55.5	55.5			25.6	
Effective Green, g (s)		16.5	16.5		55.5		55.5	55.5			25.6	
Actuated g/C Ratio		0.21	0.21		0.69		0.69	0.69			0.32	
Clearance Time (s)		4.0	4.0		4.0		4.0	4.0			4.0	
Vehicle Extension (s)		3.0	3.0		3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)		413	370		844		739	1464			584	
v/s Ratio Prot		c0.16					c0.26	0.07			0.23	
v/s Ratio Perm			0.13		0.02		c0.29					
v/c Ratio		0.78	0.63		0.04		0.80	0.10			0.72	
Uniform Delay, d1		30.0	29.0		3.8		16.7	4.0			24.0	
Progression Factor		1.00	1.00		1.00		1.00	1.00			1.00	
Incremental Delay, d2		9.0	3.5		0.1		5.9	0.1			7.5	
Delay (s)		39.0	32.5		3.9		22.6	4.2			31.6	
Level of Service		D	C		A		C	A			C	
Approach Delay (s)		34.3			3.9			19.0			31.6	
Approach LOS		C			A			B			C	

Intersection Summary			
HCM 2000 Control Delay	28.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	90.2%	ICU Level of Service	E
Analysis Period (min)	15		

! Phase conflict between lane groups.

c Critical Lane Group



Lane Group	EBL2	EBL	EBT	WBT	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR2
Lane Configurations												
Volume (vph)	11	5	32	0	607	47	42	11	11	63	5	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	9	9	9	16	16	16	14	14	14	16	16	16
Storage Length (ft)		0			0		0		0	0		
Storage Lanes		0			0		0		0	0		
Taper Length (ft)		25					25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.865				0.977			0.968	
Flt Protected			0.984					0.968			0.966	
Satd. Flow (prot)	0	0	1468	1762	0	0	0	1861	0	0	1956	0
Flt Permitted			0.623					0.780			0.796	
Satd. Flow (perm)	0	0	930	1762	0	0	0	1499	0	0	1612	0
Right Turn on Red						Yes			Yes			Yes
Satd. Flow (RTOR)				126				9			138	
Link Speed (mph)			30	30				30			30	
Link Distance (ft)			245	329				316			590	
Travel Time (s)			5.6	7.5				7.2			13.4	
Peak Hour Factor	0.92	0.92	0.92	0.91	0.91	0.91	0.66	0.66	0.66	0.65	0.65	0.65
Heavy Vehicles (%)	2%	2%	2%	2%	6%	2%	3%	3%	3%	2%	2%	6%
Parking (#/hr)			2									
Adj. Flow (vph)	12	5	35	0	667	52	64	17	17	97	8	32
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	52	719	0	0	0	98	0	0	137	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Left	Right	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)			0	0				0			0	
Link Offset(ft)			0	0				0			0	
Crosswalk Width(ft)			16	16				16			16	
Two way Left Turn Lane												
Headway Factor	1.14	1.14	1.32	0.85	0.85	0.85	0.92	0.92	0.92	0.85	0.85	0.85
Turning Speed (mph)	15	15			9	9	15		9	15		9
Number of Detectors	1	1	2	2			1	2		1	2	
Detector Template	Left	Left	Thru	Thru			Left	Thru		Left	Thru	
Leading Detector (ft)	20	20	100	100			20	100		20	100	
Trailing Detector (ft)	0	0	0	0			0	0		0	0	
Detector 1 Position(ft)	0	0	0	0			0	0		0	0	
Detector 1 Size(ft)	20	20	6	6			20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0	
Detector 2 Position(ft)			94	94				94			94	
Detector 2 Size(ft)			6	6				6			6	
Detector 2 Type			Cl+Ex	Cl+Ex				Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)			0.0	0.0				0.0			0.0	
Turn Type	Perm	Perm	NA	NA			custom	NA		custom	NA	

Lane Group	SEL2	SEL	SER	ø2
Lane Configurations				
Volume (vph)	37	808	16	
Ideal Flow (vphpl)	1900	1900	1900	
Lane Width (ft)	16	15	16	
Storage Length (ft)		0	160	
Storage Lanes		2	1	
Taper Length (ft)		25		
Lane Util. Factor	0.95	0.97	0.95	
Frt		0.997		
Flt Protected		0.953		
Satd. Flow (prot)	0	3741	0	
Flt Permitted		0.953		
Satd. Flow (perm)	0	3741	0	
Right Turn on Red				
Satd. Flow (RTOR)				
Link Speed (mph)		30		
Link Distance (ft)		826		
Travel Time (s)		18.8		
Peak Hour Factor	0.89	0.89	0.89	
Heavy Vehicles (%)	3%	3%	2%	
Parking (#/hr)				
Adj. Flow (vph)	42	908	18	
Shared Lane Traffic (%)				
Lane Group Flow (vph)	0	968	0	
Enter Blocked Intersection	No	No	No	
Lane Alignment	Left	Left	Right	
Median Width(ft)		46		
Link Offset(ft)		0		
Crosswalk Width(ft)		16		
Two way Left Turn Lane				
Headway Factor	0.85	0.88	0.85	
Turning Speed (mph)	15	15	9	
Number of Detectors	1	1		
Detector Template	Left	Left		
Leading Detector (ft)	20	20		
Trailing Detector (ft)	0	0		
Detector 1 Position(ft)	0	0		
Detector 1 Size(ft)	20	20		
Detector 1 Type	Cl+Ex	Cl+Ex		
Detector 1 Channel				
Detector 1 Extend (s)	0.0	0.0		
Detector 1 Queue (s)	0.0	0.0		
Detector 1 Delay (s)	0.0	0.0		
Detector 2 Position(ft)				
Detector 2 Size(ft)				
Detector 2 Type				
Detector 2 Channel				
Detector 2 Extend (s)				
Turn Type	Perm	Perm		

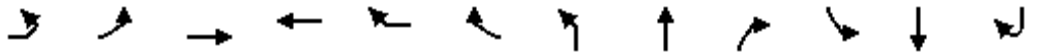
Lane Group	EBL2	EBL	EBT	WBT	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR2
Protected Phases			4									
Permitted Phases	4	4		1			3	3		3	3	
Detector Phase	4	4	4	1			3	3		3	3	
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	30.0			8.0	8.0		8.0	8.0	
Minimum Split (s)	13.0	13.0	13.0	36.0			13.0	13.0		13.0	13.0	
Total Split (s)	13.0	13.0	13.0	44.0			13.0	13.0		13.0	13.0	
Total Split (%)	13.7%	13.7%	13.7%	46.3%			13.7%	13.7%		13.7%	13.7%	
Maximum Green (s)	8.0	8.0	8.0	38.0			8.0	8.0		8.0	8.0	
Yellow Time (s)	4.0	4.0	4.0	5.0			4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0			1.0	1.0		1.0	1.0	
Lost Time Adjust (s)			0.0	0.0				0.0			0.0	
Total Lost Time (s)			5.0	6.0				5.0			5.0	
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lead		Lead	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0			3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	Max			None	None		None	None	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)			8.1	38.3				8.1			8.1	
Actuated g/C Ratio			0.12	0.57				0.12			0.12	
v/c Ratio			0.47	0.68				0.52			0.44	
Control Delay			44.9	13.3				38.6			10.9	
Queue Delay			0.0	0.0				0.0			0.0	
Total Delay			44.9	13.3				38.6			10.9	
LOS			D	B				D			B	
Approach Delay			44.9	13.3				38.6			10.9	
Approach LOS			D	B				D			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 95			
Actuated Cycle Length: 67.4			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.68			
Intersection Signal Delay: 13.6		Intersection LOS: B	
Intersection Capacity Utilization 86.3%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 6: Hyde Park Ave & Wolcott Square/Neponset Valley Parkway & Wolcott Court

Lane Group	SEL2	SEL	SER	ø2
Protected Phases				2
Permitted Phases	1	1		
Detector Phase	1	1		
Switch Phase				
Minimum Initial (s)	30.0	30.0		7.0
Minimum Split (s)	36.0	36.0		25.0
Total Split (s)	44.0	44.0		25.0
Total Split (%)	46.3%	46.3%		26%
Maximum Green (s)	38.0	38.0		21.0
Yellow Time (s)	5.0	5.0		3.0
All-Red Time (s)	1.0	1.0		1.0
Lost Time Adjust (s)		0.0		
Total Lost Time (s)		6.0		
Lead/Lag	Lead	Lead		Lag
Lead-Lag Optimize?	Yes	Yes		Yes
Vehicle Extension (s)	3.0	3.0		3.0
Recall Mode	Max	Max		None
Walk Time (s)				7.0
Flash Dont Walk (s)				14.0
Pedestrian Calls (#/hr)				0
Act Effct Green (s)		38.3		
Actuated g/C Ratio		0.57		
v/c Ratio		0.46		
Control Delay		10.1		
Queue Delay		0.0		
Total Delay		10.1		
LOS		B		
Approach Delay		10.1		
Approach LOS		B		

Intersection Summary



Movement	EBL2	EBL	EBT	WBT	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR2
Lane Configurations												
Volume (vph)	11	5	32	0	607	47	42	11	11	63	5	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	9	9	9	16	16	16	14	14	14	16	16	16
Total Lost time (s)			5.0	6.0				5.0			5.0	
Lane Util. Factor			1.00	1.00				1.00			1.00	
Frt			1.00	0.86				0.98			0.97	
Flt Protected			0.98	1.00				0.97			0.97	
Satd. Flow (prot)			1468	1762				1861			1957	
Flt Permitted			0.62	1.00				0.78			0.80	
Satd. Flow (perm)			930	1762				1499			1613	
Peak-hour factor, PHF	0.92	0.92	0.92	0.91	0.91	0.91	0.66	0.66	0.66	0.65	0.65	0.65
Adj. Flow (vph)	12	5	35	0	667	52	64	17	17	97	8	32
RTOR Reduction (vph)	0	0	0	56	0	0	0	8	0	0	121	0
Lane Group Flow (vph)	0	0	52	663	0	0	0	90	0	0	16	0
Heavy Vehicles (%)	2%	2%	2%	2%	6%	2%	3%	3%	3%	2%	2%	6%
Parking (#/hr)			2									
Turn Type	Perm	Perm	NA	NA			custom	NA		custom	NA	
Protected Phases			4									
Permitted Phases	4	4		1			3	3		3	3	
Actuated Green, G (s)			6.2	38.3				8.1			8.1	
Effective Green, g (s)			6.2	38.3				8.1			8.1	
Actuated g/C Ratio			0.09	0.56				0.12			0.12	
Clearance Time (s)			5.0	6.0				5.0			5.0	
Vehicle Extension (s)			3.0	3.0				3.0			3.0	
Lane Grp Cap (vph)			84	983				176			190	
v/s Ratio Prot												
v/s Ratio Perm			c0.06	c0.38				c0.06			0.01	
v/c Ratio			0.62	0.67				0.51			0.09	
Uniform Delay, d1			30.1	10.7				28.4			26.9	
Progression Factor			1.00	1.00				1.00			1.00	
Incremental Delay, d2			12.8	3.7				2.5			0.2	
Delay (s)			42.9	14.4				30.9			27.1	
Level of Service			D	B				C			C	
Approach Delay (s)			42.9	14.4				30.9			27.1	
Approach LOS			D	B				C			C	

Intersection Summary			
HCM 2000 Control Delay	14.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	68.6	Sum of lost time (s)	20.0
Intersection Capacity Utilization	86.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL2	SEL	SER
Lane Configurations			
Volume (vph)	37	808	16
Ideal Flow (vphpl)	1900	1900	1900
Lane Width	16	15	16
Total Lost time (s)		6.0	
Lane Util. Factor		0.97	
Frt		1.00	
Flt Protected		0.95	
Satd. Flow (prot)		3743	
Flt Permitted		0.95	
Satd. Flow (perm)		3743	
Peak-hour factor, PHF	0.89	0.89	0.89
Adj. Flow (vph)	42	908	18
RTOR Reduction (vph)	0	0	0
Lane Group Flow (vph)	0	968	0
Heavy Vehicles (%)	3%	3%	2%
Parking (#/hr)			
Turn Type	Perm	Perm	
Protected Phases			
Permitted Phases	1	1	
Actuated Green, G (s)		38.3	
Effective Green, g (s)		38.3	
Actuated g/C Ratio		0.56	
Clearance Time (s)		6.0	
Vehicle Extension (s)		3.0	
Lane Grp Cap (vph)		2089	
v/s Ratio Prot			
v/s Ratio Perm		0.26	
v/c Ratio		0.46	
Uniform Delay, d1		9.0	
Progression Factor		1.00	
Incremental Delay, d2		0.7	
Delay (s)		9.8	
Level of Service		A	
Approach Delay (s)		9.8	
Approach LOS		A	

Intersection Summary

Lane Group	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations						
Volume (vph)	752	34	75	625	156	178
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	150		0	0
Storage Lanes		0	1		1	0
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.994				0.928	
Flt Protected			0.950		0.977	
Satd. Flow (prot)	1817	0	1687	1863	1666	0
Flt Permitted			0.950		0.977	
Satd. Flow (perm)	1817	0	1687	1863	1666	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	336			386	167	
Travel Time (s)	7.6			8.8	3.8	
Peak Hour Factor	0.87	0.87	0.94	0.94	0.79	0.79
Heavy Vehicles (%)	4%	2%	7%	2%	5%	2%
Adj. Flow (vph)	864	39	80	665	197	225
Shared Lane Traffic (%)						
Lane Group Flow (vph)	903	0	80	665	422	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	75.4%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations						
Volume (veh/h)	752	34	75	625	156	178
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.94	0.94	0.79	0.79
Hourly flow rate (vph)	864	39	80	665	197	225
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)				386		
pX, platoon unblocked						
vC, conflicting volume			903		1708	884
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			903		1708	884
tC, single (s)			4.2		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.3		3.5	3.3
p0 queue free %			89		0	35
cM capacity (veh/h)			732		88	344

Direction, Lane #	NB 1	SB 1	SB 2	NW 1
Volume Total	903	80	665	423
Volume Left	0	80	0	197
Volume Right	39	0	0	225
cSH	1700	732	1700	145
Volume to Capacity	0.53	0.11	0.39	2.91
Queue Length 95th (ft)	0	9	0	969
Control Delay (s)	0.0	10.5	0.0	924.7
Lane LOS		B		F
Approach Delay (s)	0.0	1.1		924.7
Approach LOS				F

Intersection Summary			
Average Delay	189.2		
Intersection Capacity Utilization	75.4%	ICU Level of Service	D
Analysis Period (min)	15		

Appendix C

Climate Change Checklist

Climate Change Preparedness and Resiliency Checklist for New Construction

In November 2013, in conformance with the Mayor's 2011 Climate Action Leadership Committee's recommendations, the Boston Redevelopment Authority adopted policy for all development projects subject to Boston Zoning Article 80 Small and Large Project Review, including all Institutional Master Plan modifications and updates, are to complete the following checklist and provide any necessary responses regarding project resiliency, preparedness, and to mitigate any identified adverse impacts that might arise under future climate conditions.

For more information about the City of Boston's climate policies and practices, and the 2011 update of the climate action plan, *A Climate of Progress*, please see the City's climate action web pages at http://www.cityofboston.gov/climate

In advance we thank you for your time and assistance in advancing best practices in Boston.

Climate Change Analysis and Information Sources:

1. Northeast Climate Impacts Assessment (www.climatechoices.org/ne/)
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.

A.1 - Project Information

Project Name:	**36-70 Sprague Street, Readville**
Project Address Primary:	**36-40 Sprague Street**
Project Address Additional:	**50-70 Sprague Street**
Project Contact (name / Title / Company / email / phone):	**Jordan D. Warshaw, The Noannet Group** **jwarshaw@nonnet.com, (617) 851-9995**

A.2 - Team Description

Owner / Developer:	**The Noannet Group**
Architect:	**Bargmann Hendrie + Archetype**
Engineer (building systems):	**TBD**
Sustainability / LEED:	**Sustainable Energy Analytics , Lexington, MA /McGrann Associates**
Permitting:	**Epsilon Associates Inc.**
Construction Management:	**Lee Kennedy Company**
Climate Change Expert:	**Epsilon Associates Inc.**

A.3 - Project Permitting and Phase

At what phase is the project – most recent completed submission at the time of this response?

☑ PNF / Expanded PNF Submission	☐ Draft / Final Project Impact Report Submission	☐ BRA Board Approved	☐ Notice of Project Change
☐ Planned Development Area	☐ BRA Final Design Approved	☐ Under Construction	☐ Construction just completed:

A.4 - Building Classification and Description

List the principal Building Uses:	Multi-Family Residential
List the First Floor Uses:	*Restaurant, Common Amenities, Residential Units*

What is the principal Construction Type – select most appropriate type?

☐ Wood Frame	☐ Masonry	☑ Steel Frame	☑ Concrete

Describe the building?

Site Area:	*6.62 acres*	Building Area:	*556,625 SF*
Building Height:	*69-129 Ft.*	Number of Stories:	*5-8 Flrs.*
First Floor Elevation (reference Boston City Base):	*82 Ft Elev.*	Are there below grade spaces/levels, if yes how many:	*Site is sloped and some space will be within slope*

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:	*TBD*	Certified:	*TBD*

A.6 - Building Energy-

What are the base and peak operating energy loads for the building?

Electric:	*3,500 peak, 2,000 base (kW)*	Heating:	*27.2 (MMBtu/hr)*
What is the planned building Energy Use Intensity:	*80 (kWh/SF)*	Cooling:	*2640 Tons*

What are the peak energy demands of your critical systems in the event of a service interruption?

Electric:	*400 (kW)*	Heating:	*13.6 (MMBtu/hr)*
		Cooling:	*0 Tons*

What is nature and source of your back-up / emergency generators?

Electrical Generation:	*One 350 kW and One 60 kW (kW)*		Fuel Source:	*Diesel*
System Type and Number of Units:	☑ Combustion Engine	☐ Gas Turbine	☐ Combine Heat and Power	*2 (Units)*

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?

8/91 Deg.	Based on ASHRAE Fundamentals 2013 99.6% heating; 0.4% cooling

What Extreme Heat Event characteristics will be used for project planning – Peak High, Duration, and Frequency?

90 Deg.	*25-90 Days*	*Per yr.*

What Drought characteristics will be used for project planning – Duration and Frequency?

30-90 Days	*0.2 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?

45 Inches / yr.	*6.4 Inches /24 hr*	*0.5 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?

105 Peak Wind	*10 Hours*	*0.25 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:	*20%*
How is performance determined:	Energy Model

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
	☑ High performance HVAC equipment	☑ Energy recovery ventilation	☐ No active cooling	☐ No active heating
Describe any added measures:				

What are the insulation (R) values for building envelop elements? **TBD**

Roof:	*R* =	Walls / Curtain Wall Assembly:	*R* =
Foundation:	*R* =	Basement / Slab:	*R* =
Windows:	*R* = / *U* =	Doors:	*R* = / *U* =

What specific measures will the project employ to reduce building energy demands on the utilities and infrastructure?

	☐ On-site clean energy / CHP system(s)	☐ Building-wide power dimming	☐ Thermal energy storage systems	☐ Ground source heat pump
	☐ On-site Solar PV	☐ On-site Solar Thermal	☐ Wind power	☐ None
Describe any added measures:	The proponent is studying the feasibility of CHP, solar PV, and geothermal.			

Will the project employ Distributed Energy / Smart Grid Infrastructure and /or Systems?

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:				

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:				

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:				

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:				

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?

	No

Describe site conditions?

Site Elevation – Low/High Points:	*82 Boston City Base Elev.(Ft.)*
Building Proximity to Water:	*120 Ft. to Sprague Pond*

Is the site or building located in any of the following?

Coastal Zone:	*No*	Velocity Zone:	*No*
Flood Zone:	*No*	Area Prone to Flooding:	*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:	*No*	Future floodplain delineation updates:	*No*

What is the project or building proximity to nearest Coastal, Velocity or Flood Zone or Area Prone to Flooding?

	120 Ft.

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:	*Ft.*	Frequency of storms:	*per year*

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 Elev.(Ft.)*	First Floor Elevation:	*Boston City Base 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 Elev. (Ft.)*
If Yes, describe:			

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:	

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 sever storm impacts:

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:				

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:				

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 D

Accessibility Checklist

Article 80 – Accessibility Checklist

A requirement of the Boston Planning & Development Agency (BPDA)
Article 80 Development Review Process

The Mayor's Commission for Persons with Disabilities strives to reduce architectural, procedural, attitudinal, and communication barriers that affect persons with disabilities in the City of Boston. In 2009, a Disability Advisory Board was appointed by the Mayor to work alongside the Commission in creating universal access throughout the city's built environment. The Disability Advisory Board is made up of 13 volunteer Boston residents with disabilities who have been tasked with representing the accessibility needs of their neighborhoods and increasing inclusion of people with disabilities.

In conformance with this directive, the BDPA has instituted this Accessibility Checklist as a tool to encourage developers to begin thinking about access and inclusion at the beginning of development projects, and strive to go beyond meeting only minimum MAAB / ADAAG compliance requirements. Instead, our goal is for developers to create ideal design for accessibility which will ensure that the built environment provides equitable experiences for all people, regardless of their abilities. As such, any project subject to Boston Zoning Article 80 Small or Large Project Review, including Institutional Master Plan modifications and updates, must complete this Accessibility Checklist thoroughly to provide specific detail about accessibility and inclusion, including descriptions, diagrams, and data.

For more information on compliance requirements, advancing best practices, and learning about progressive approaches to expand accessibility throughout Boston's built environment. Proponents are highly encouraged to meet with Commission staff, prior to filing.

Accessibility Analysis Information Sources:

1. Americans with Disabilities Act – 2010 ADA Standards for Accessible Design
   http://www.ada.gov/2010ADAstandards_index.htm
2. Massachusetts Architectural Access Board 521 CMR
   http://www.mass.gov/eopss/consumer-prot-and-bus-lic/license-type/aab/aab-rules-and-regulations-pdf.html
3. Massachusetts State Building Code 780 CMR
   http://www.mass.gov/eopss/consumer-prot-and-bus-lic/license-type/csl/building-codebbrs.html
4. Massachusetts Office of Disability – Disabled Parking Regulations
   http://www.mass.gov/anf/docs/mod/hp-parking-regulations-summary-mod.pdf
5. MBTA Fixed Route Accessible Transit Stations
   http://www.mbta.com/riding_the_t/accessible_services/
6. City of Boston – Complete Street Guidelines
   http://bostoncompletestreets.org/
7. City of Boston – Mayor's Commission for Persons with Disabilities Advisory Board
   https://www.boston.gov/departments/disabilities-commission
8. City of Boston – Public Works Sidewalk Reconstruction Policy
   http://www.cityofboston.gov/images_documents/sidewalk%20policy%200114_tcm3-41668.pdf
9. City of Boston – Public Improvement Commission Sidewalk Café Policy
   http://www.cityofboston.gov/images_documents/Sidewalk_cafes_tcm3-1845.pdf

Glossary of Terms:

1. ***Accessible Route*** – A continuous and unobstructed path of travel that meets or exceeds the dimensional and inclusionary requirements set forth by MAAB 521 CMR: Section 20
2. ***Accessible Group 2 Units*** – Residential units with additional floor space that meet or exceed the dimensional and inclusionary requirements set forth by MAAB 521 CMR: Section 9.4
3. ***Accessible Guestrooms*** – Guestrooms with additional floor space, that meet or exceed the dimensional and inclusionary requirements set forth by MAAB 521 CMR: Section 8.4
4. ***Inclusionary Development Policy (IDP)*** – Program run by the BPDA that preserves access to affordable housing opportunities, in the City. For more information visit: http://www.bostonplans.org/housing/overview
5. ***Public Improvement Commission (PIC)*** – The regulatory body in charge of managing the public right of way. For more information visit: https://www.boston.gov/departments/public-works/public-improvement-commission
6. ***Visitability*** – A place's ability to be accessed and visited by persons with disabilities that cause functional limitations; where architectural barriers do not inhibit access to entrances/doors and bathrooms.

1. Project Information:

If this is a multi-phased or multi-building project, fill out a separate Checklist for each phase/building.

Project Name:	36-70 Sprague Street, Readville
Primary Project Address:	36-70 Sprague Street
Total Number of Phases/Buildings:	2 Phases/ 4 Buildings
Primary Contact (Name / Title / Company / Email / Phone):	Jordan D. Warshaw, The Noannet Group jwarshaw@noannet.com, (617) 851-9995
Owner / Developer:	The Noannet Group
Architect:	Bargmann, Hendrie + Archetype
Civil Engineer:	Nitsch Engineering
Landscape Architect:	Kyle Zick Landscape Architecture, Inc.
Permitting:	Epsilon Associates
Construction Management:	Lee Kennedy Company

At what stage is the project at time of this questionnaire? Select below:

(PNF) / Expanded PNF Submitted	Draft / Final Project Impact Report Submitted	BPDA Board Approved
BPDA Design Approved	Under Construction	Construction Completed:

Do you anticipate filing for any variances with the Massachusetts Architectural Access Board (MAAB)? ***If yes,*** identify and explain.	No.

2. Building Classification and Description:

This section identifies preliminary construction information about the project including size and uses.

What are the dimensions of the project?

Site Area:	288,282 *SF*	Building Area:	556,625 *GSF*
Building Height:	69-4" - 128'-8" *FT.*	Number of Stories:	5, 7 & 8 *Flrs.*
First Floor Elevation:	82'-0"	Is there below grade space:	(Yes) / No

What is the Construction Type? (Select most appropriate type)				
	Wood Frame	Masonry	Steel Frame	Concrete
What are the principal building uses? (IBC definitions are below – select all appropriate that apply)				
	Residential – One - Three Unit	Residential - Multi-unit, Four +	Institutional	Educational
	Business	Mercantile	Factory	Hospitality
	Laboratory / Medical	Storage, Utility and Other		
List street-level uses of the building:	Residential, amenity space and retail			

3. Assessment of Existing Infrastructure for Accessibility:

This section explores the proximity to accessible transit lines and institutions, such as (but not limited to) hospitals, elderly & disabled housing, and general neighborhood resources. Identify how the area surrounding the development is accessible for people with mobility impairments and analyze the existing condition of the accessible routes through sidewalk and pedestrian ramp reports.

Provide a description of the neighborhood where this development is located and its identifying topographical characteristics:	The area surrounding the Project site includes a mix of industrial, commercial and residential uses. Boston Dedham Commerce Park is located to the west of the site. This area includes one to two-story industrial and commercial buildings surrounded by paved areas used for parking. Residential neighborhoods are located to the northwest separated by the MBTA Franklin Line and Readville Station to the north, and to the east separated by the MBTA Providence/ Stoughton Line. Sprague Pond and residential neighborhoods are located to the south.
List the surrounding accessible MBTA transit lines and their proximity to development site: commuter rail / subway stations, bus stops:	MBTA Commuter Rail - Franklin Line, Readville Station
List the surrounding institutions: hospitals, public housing, elderly and disabled housing developments, educational facilities, others:	Franklin D. Roosevelt School, Parkside Christian Academy & Cross Factor Academy, Pond View Montessori School, Academy of the Pacific Rim Charter School, Curry College
List the surrounding government buildings: libraries, community centers, recreational facilities, and other related facilities:	N/A

4. Surrounding Site Conditions – Existing:

This section identifies current condition of the sidewalks and pedestrian ramps at the development site.

Is the development site within a historic district? ***If yes,*** identify which district:	No
Are there sidewalks and pedestrian ramps existing at the development site? ***If yes***, list the existing sidewalk and pedestrian ramp dimensions, slopes, materials, and physical condition at the development site:	Yes, there is an existing concrete sidewalk along Sprague Street but it is not accessible due to the existing grades and is typically 4'-0" wide. There are no sidewalks along Horne Street within the development site.

Are the sidewalks and pedestrian ramps existing-to-remain? ***If yes,*** have they been verified as ADA / MAAB compliant (with yellow composite detectable warning surfaces, cast in concrete)? ***If yes,*** provide description and photos:	Sidewalks along Sprague Street that are non-compliant in width will likely be replaced and will be designed to be 5'-0" wide.
5. Surrounding Site Conditions – Proposed *This section identifies the proposed condition of the walkways and pedestrian ramps around the development site. Sidewalk width contributes to the degree of comfort 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. Wider sidewalks allow people to walk side by side and pass each other comfortably walking alone, walking in pairs, or using a wheelchair.*	
Are the proposed sidewalks consistent with the Boston Complete Street Guidelines? ***If yes***, choose which Street Type was applied: Downtown Commercial, Downtown Mixed-use, Neighborhood Main, Connector, Residential, Industrial, Shared Street, Parkway, or Boulevard.	No due to the extreme slope and limitation of the right-of-way.
What are the total dimensions and slopes of the proposed sidewalks? List the widths of the proposed zones: Frontage, Pedestrian and Furnishing Zone:	5'-0"
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?	N/A
Will sidewalk cafes or other furnishings be programmed for the pedestrian right-of-way? ***If yes,*** what are the proposed dimensions of the sidewalk café or furnishings and what will the remaining right-of-way clearance be?	No.
If the pedestrian right-of-way is on private property, will the proponent seek a pedestrian easement with the Public Improvement Commission (PIC)?	N/A

Will any portion of the Project be going through the PIC? ***If yes,*** identify PIC actions and provide details.	No.
6. 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 – Disabled Parking Regulations*.	
What is the total number of parking spaces provided at the development site? Will these be in a parking lot or garage?	532 parking spaces with a potential additional 30 parking spaces at City of Boston Parcel for a total potential 562 spaces. 479 spaces will be in a garage.
What is the total number of accessible spaces provided at the development site? How many of these are "Van Accessible" spaces with an 8 foot access aisle?	Retail parking (34 spaces) = 2 accessible spaces Residential parking (528) = 11 accessible spaces (2% of total); including 1 van space.
Will any on-street accessible parking spaces be required? ***If yes,*** has the proponent contacted the Commission for Persons with Disabilities regarding this need?	No.
Where is the accessible visitor parking located?	At retail parking lot and in garage.
Has a drop-off area been identified? ***If yes,*** will it be accessible?	Yes, in front of Building #1. Yes, drop-off will be accessible.
7. Circulation and Accessible Routes: *The primary objective in designing smooth and continuous paths of travel is to create universal access to entryways and common spaces, which accommodates persons of all abilities and allows for visitability with neighbors*.	
Describe accessibility at each entryway: Example: Flush Condition, Stairs, Ramp, Lift or Elevator:	Building #1: Flush condition. Building #2: Stairs, Ramp, Elevator Building #3: Flush condition. Building #4: Flush condition.
Are the accessible entrances and standard entrance integrated? ***If yes,*** *describe.* ***If no,*** what is the reason?	Yes.

If project is subject to Large Project Review/Institutional Master Plan, describe the accessible routes way-finding / signage package.	The signage package has not been designed at this time.
8. Accessible Units (Group 2) and Guestrooms: (If applicable) *In order to facilitate access to housing and hospitality, this section addresses the number of accessible units that are proposed for the development site that remove barriers to housing and hotel rooms.*	
What is the total number of proposed housing units or hotel rooms for the development?	521
If a residential development, how many units are for sale? How many are for rent? What is the breakdown of market value units vs. IDP (Inclusionary Development Policy) units?	Approximately 68 units
If a residential development, how many accessible Group 2 units are being proposed?	26 (5%) accessible Group 2 units are being proposed.
If a residential development, how many accessible Group 2 units will also be IDP units? ***If none***, describe reason.	Approximately 4 (13%) of the accessible Group 2 units are being proposed to be IDP units.
If a hospitality development, how many accessible units will feature a wheel-in shower? Will accessible equipment be provided as well? ***If yes,*** provide amount and location of equipment.	
Do standard units have architectural barriers that would prevent entry or use of common space for persons with mobility impairments? Example: stairs / thresholds at entry, step to balcony, others. ***If yes,*** provide reason.	No.
Are there interior elevators, ramps or lifts located in the development for access around architectural barriers and/or to separate floors? ***If yes,*** describe:	Yes, elevators to access separate floors.

9. Community Impact:

Accessibility and inclusion extend past required compliance with building codes. Providing an overall scheme that allows full and equal participation of persons with disabilities makes the development an asset to the surrounding community.

Is this project providing any funding or improvements to the surrounding neighborhood? Examples: adding extra street trees, building or refurbishing a local park, or supporting other community-based initiatives?	The improvements in the neighborhood have not been determined. The Project is proposed to include the creation of a new pond side park adjacent to the site.
What inclusion elements does this development provide for persons with disabilities in common social and open spaces? Example: Indoor seating and TVs in common rooms; outdoor seating and barbeque grills in yard. Will all of these spaces and features provide accessibility?	Common amenity spaces and courtyard patios with barbeque grills are being proposed. All spaces will provide accessibility.
Are any restrooms planned in common public spaces? ***If yes,*** will any be single-stall, ADA compliant and designated as "Family"/ "Companion" restrooms? ***If no***, explain why not.	Yes, accessible restrooms will be provided as required.
Has the proponent reviewed the proposed plan with the City of Boston Disability Commissioner or with their Architectural Access staff? ***If yes,*** did they approve? ***If no,*** what were their comments?	Not at this time.
Has the proponent presented the proposed plan to the Disability Advisory Board at one of their monthly meetings? Did the Advisory Board vote to support this project? ***If no,*** what recommendations did the Advisory Board give to make this project more accessible?	Not at this time.

10. Attachments *Include a list of all documents you are submitting with this Checklist. This may include drawings, diagrams, photos, or any other material that describes the accessible and inclusive elements of this project.*
Provide a diagram of the accessible routes to and from the accessible parking lot/garage and drop-off areas to the development entry locations, including route distances.
Provide a diagram of the accessible route connections through the site, including distances.
Provide a diagram the accessible route to any roof decks or outdoor courtyard space? (if applicable)
Provide a plan and diagram of the accessible Group 2 units, including locations and route from accessible entry.
Provide any additional drawings, diagrams, photos, or any other material that describes the inclusive and accessible elements of this project. • • • •

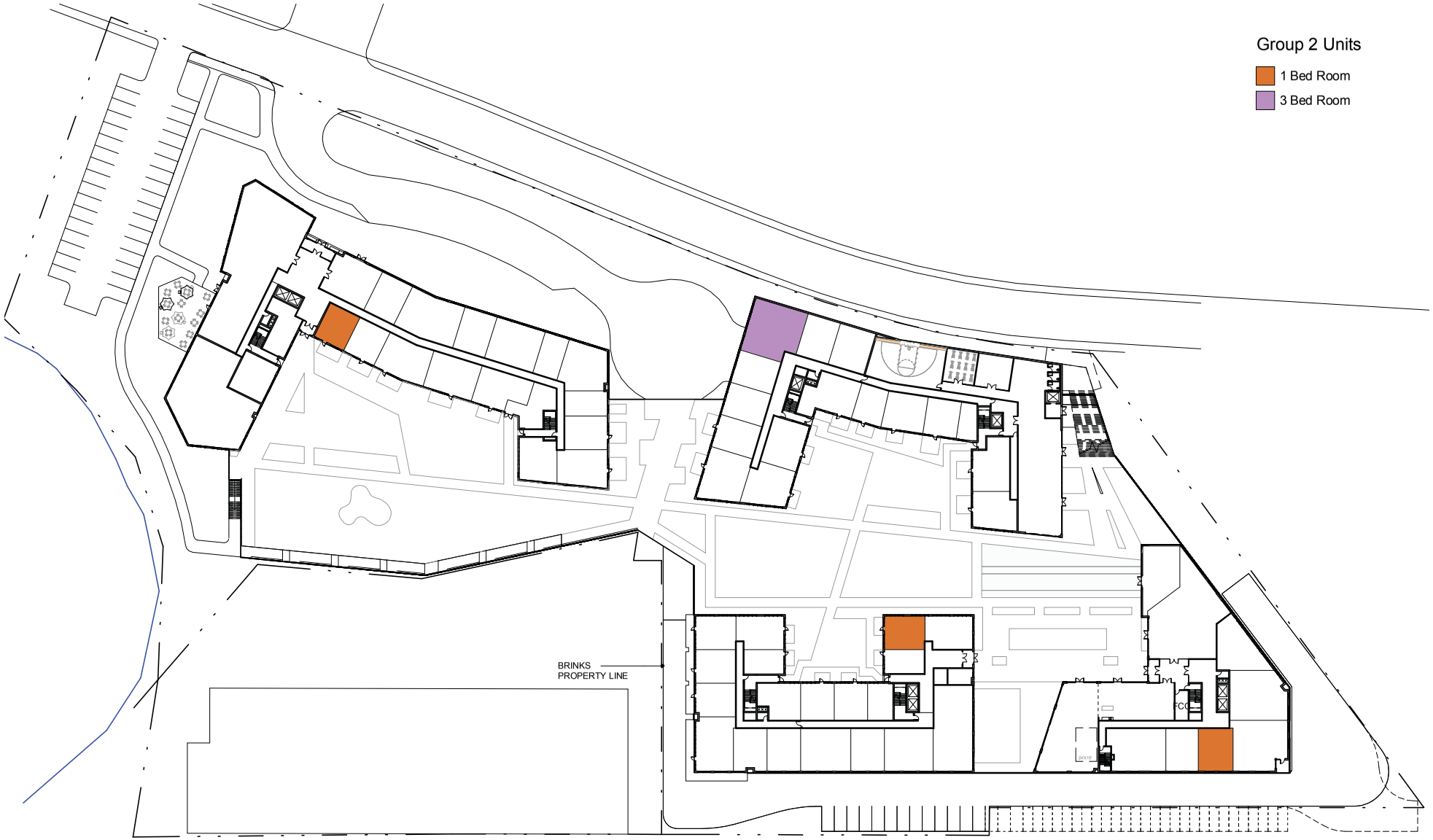
This completes the Article 80 Accessibility Checklist required for your project. Prior to and during the review process, Commission staff are able to provide technical assistance and design review, in order to help achieve ideal accessibility and to ensure that all buildings, sidewalks, parks, and open spaces are usable and welcoming to Boston's diverse residents and visitors, including those with physical, sensory, and other disabilities.

For questions or comments about this checklist, or for more information on best practices for improving accessibility and inclusion, visit www.boston.gov/disability , or our office:

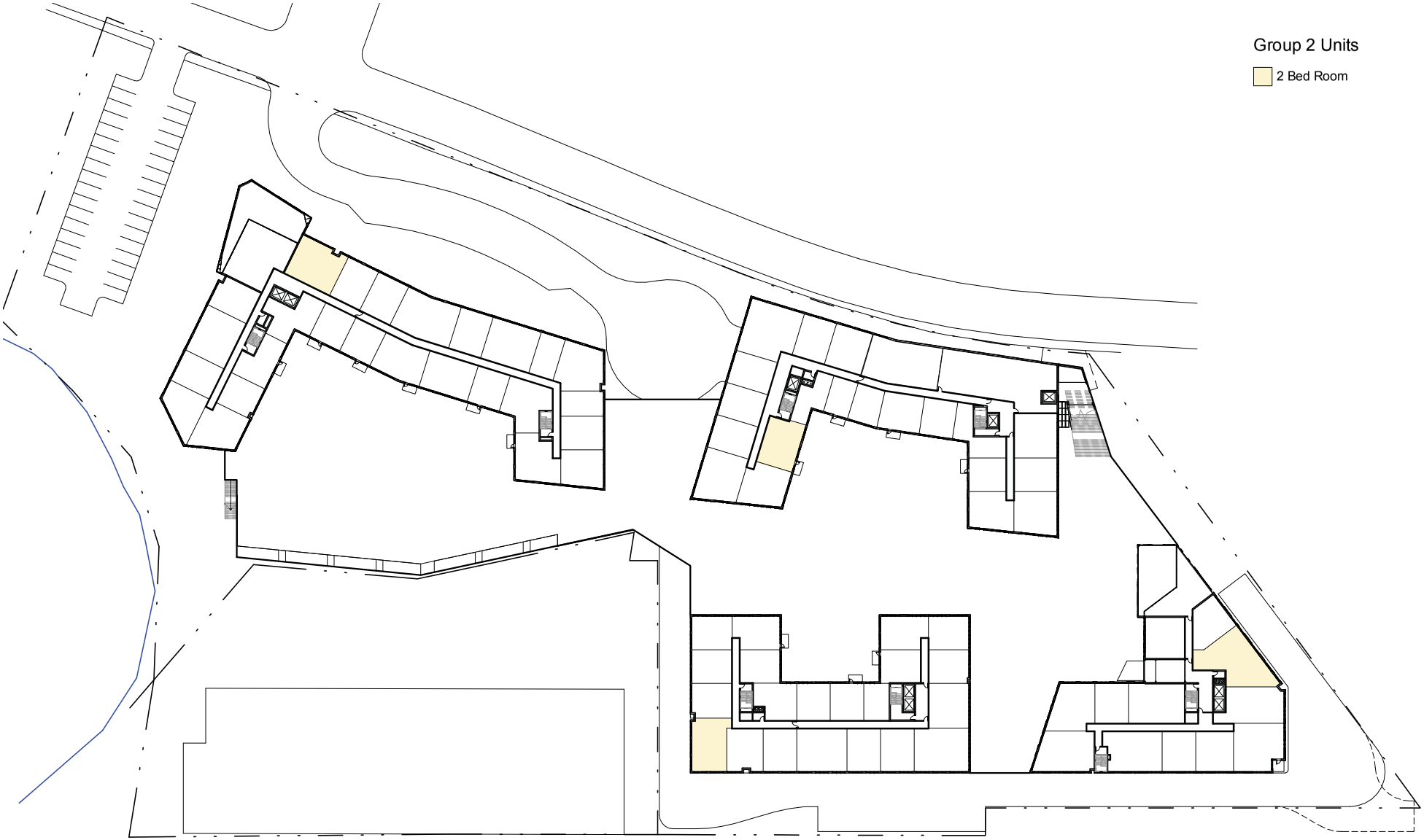
The Mayor's Commission for Persons with Disabilities
1 City Hall Square, Room 967,
Boston MA 02210.

Architectural Access staff can be reached at:

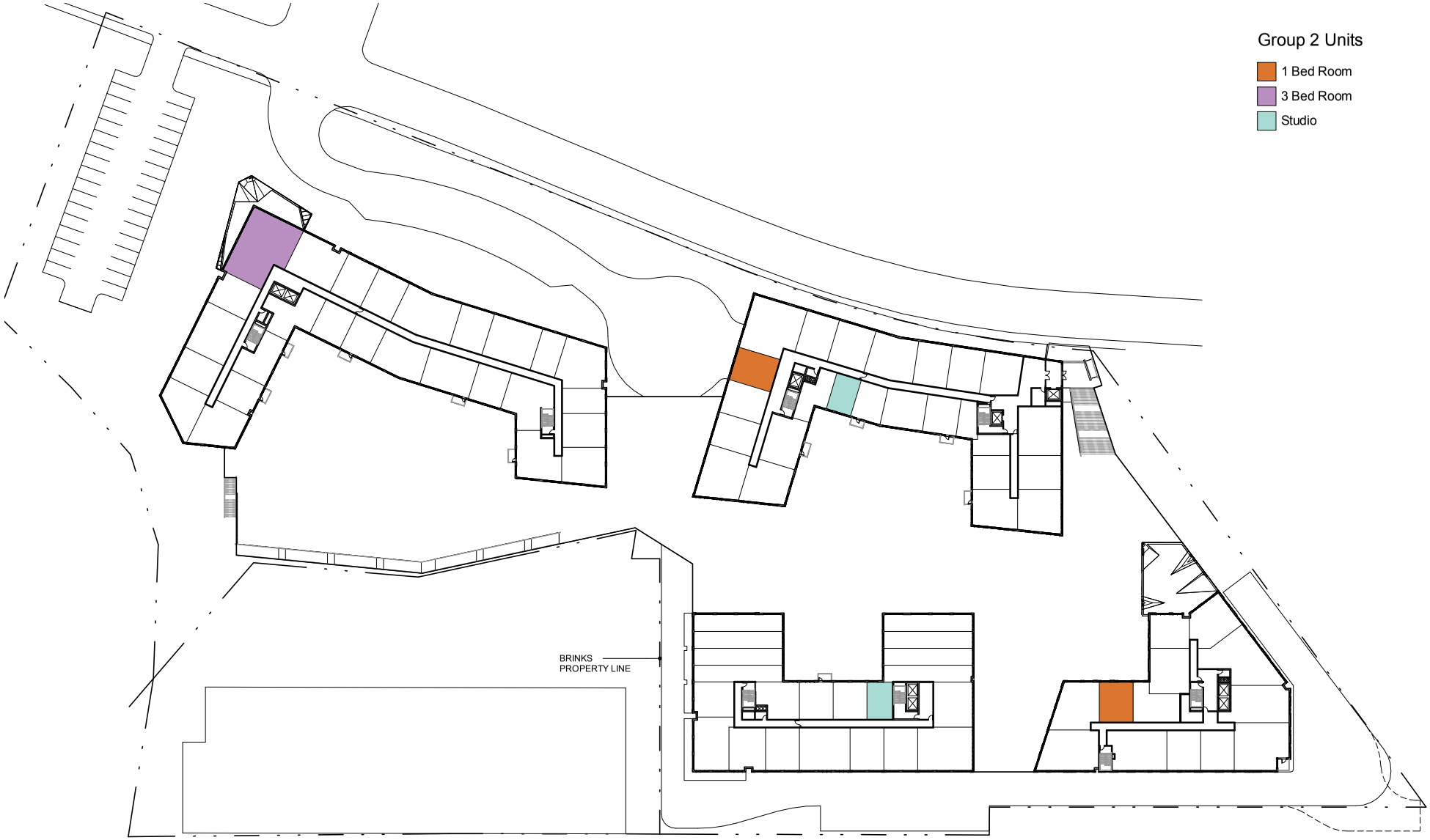
accessibility@boston.gov | patricia.mendez@boston.gov | sarah.leung@boston.gov | 617-635-3682



First Floor

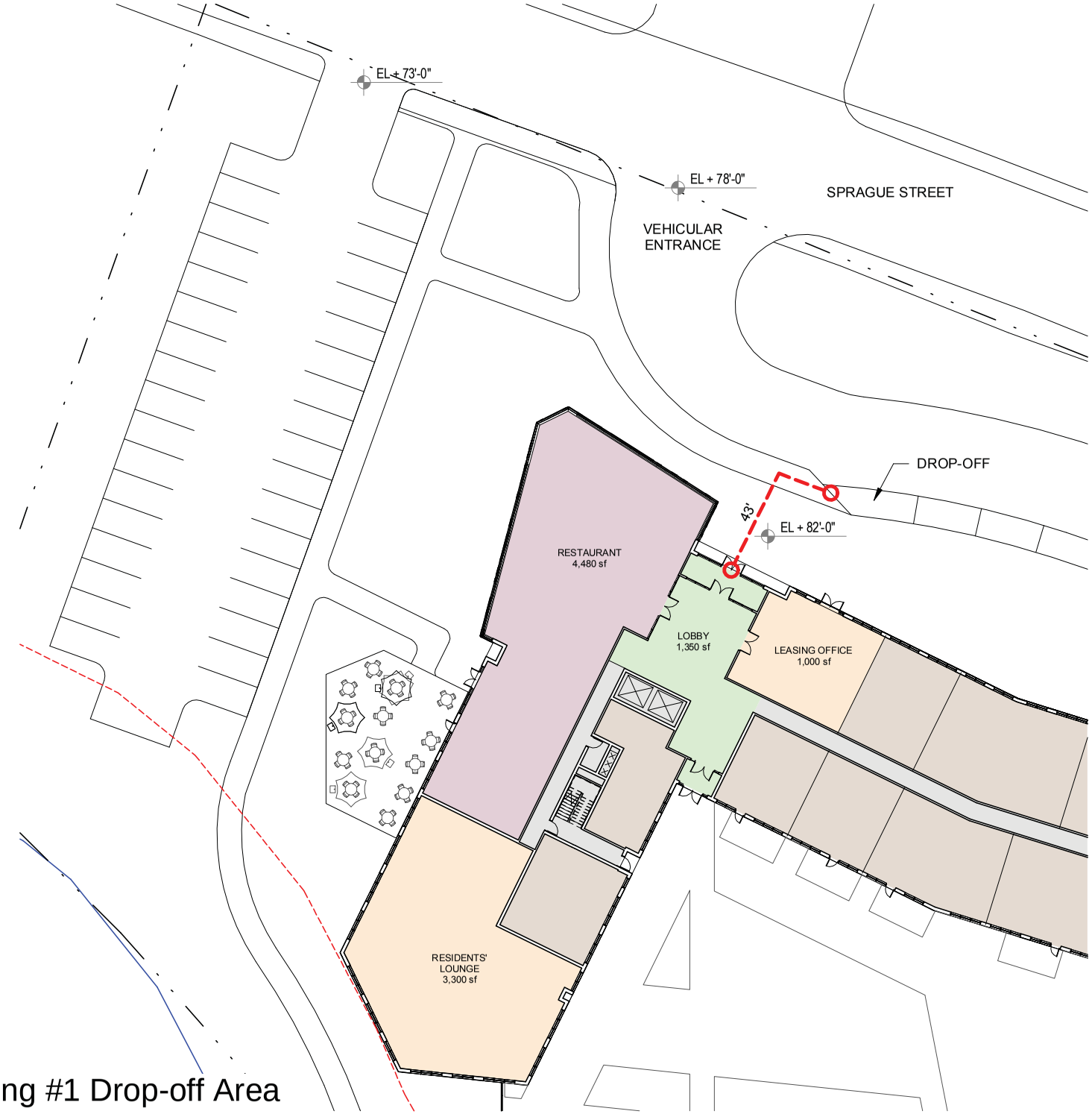


Second Floor

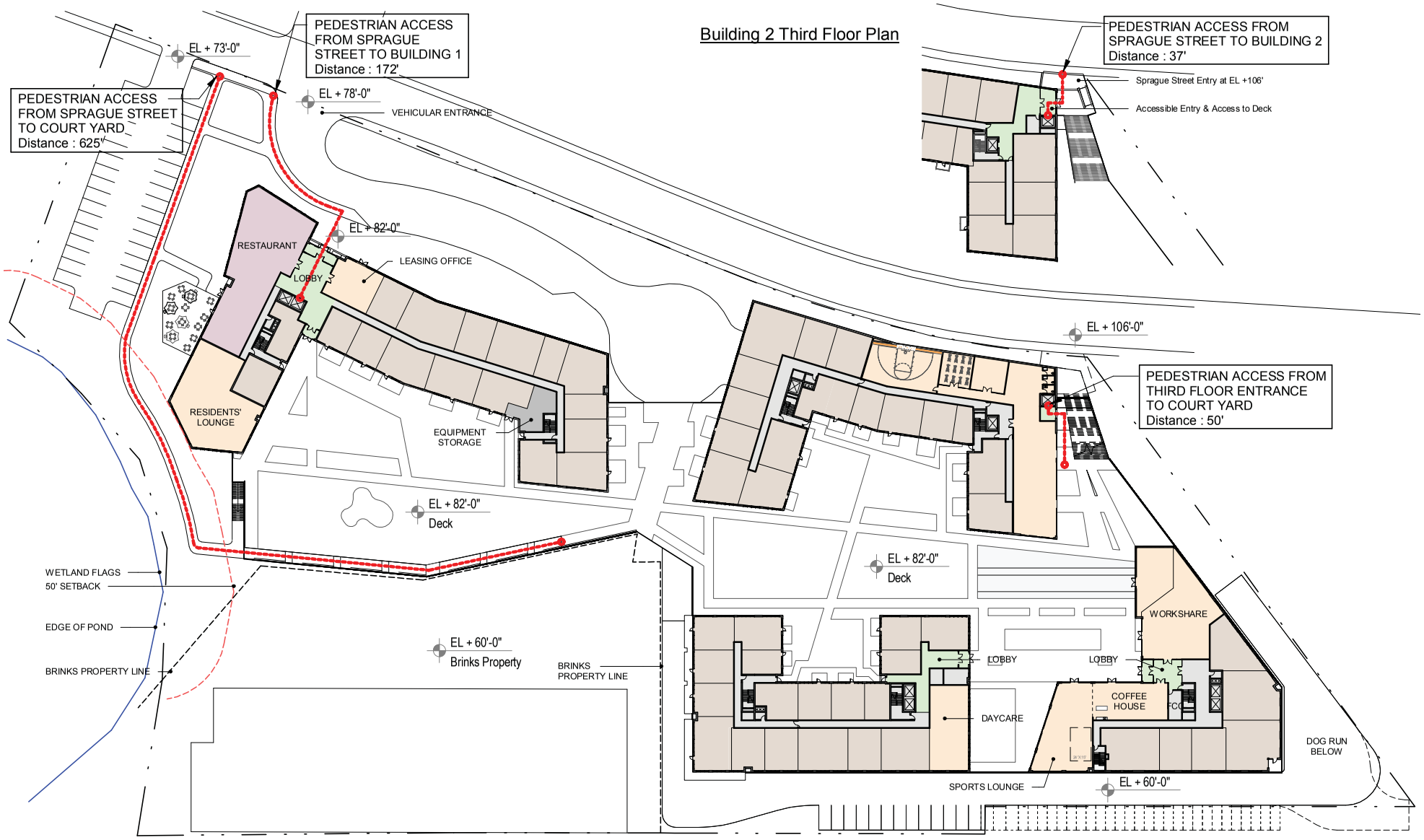

Group 2 Units
1 Bed Room
3 Bed Room
Studio
BRINKS
PROPERTY LINE

Third Floor

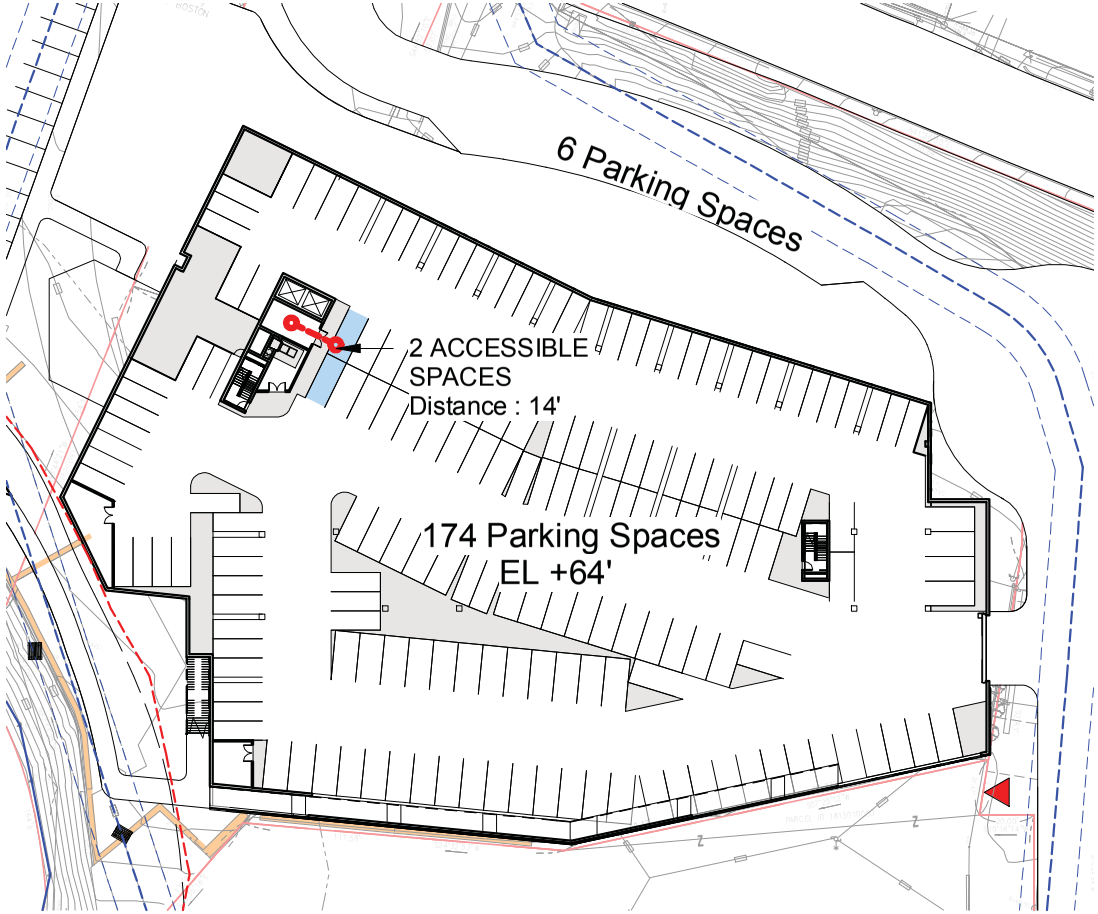
Typical Floor



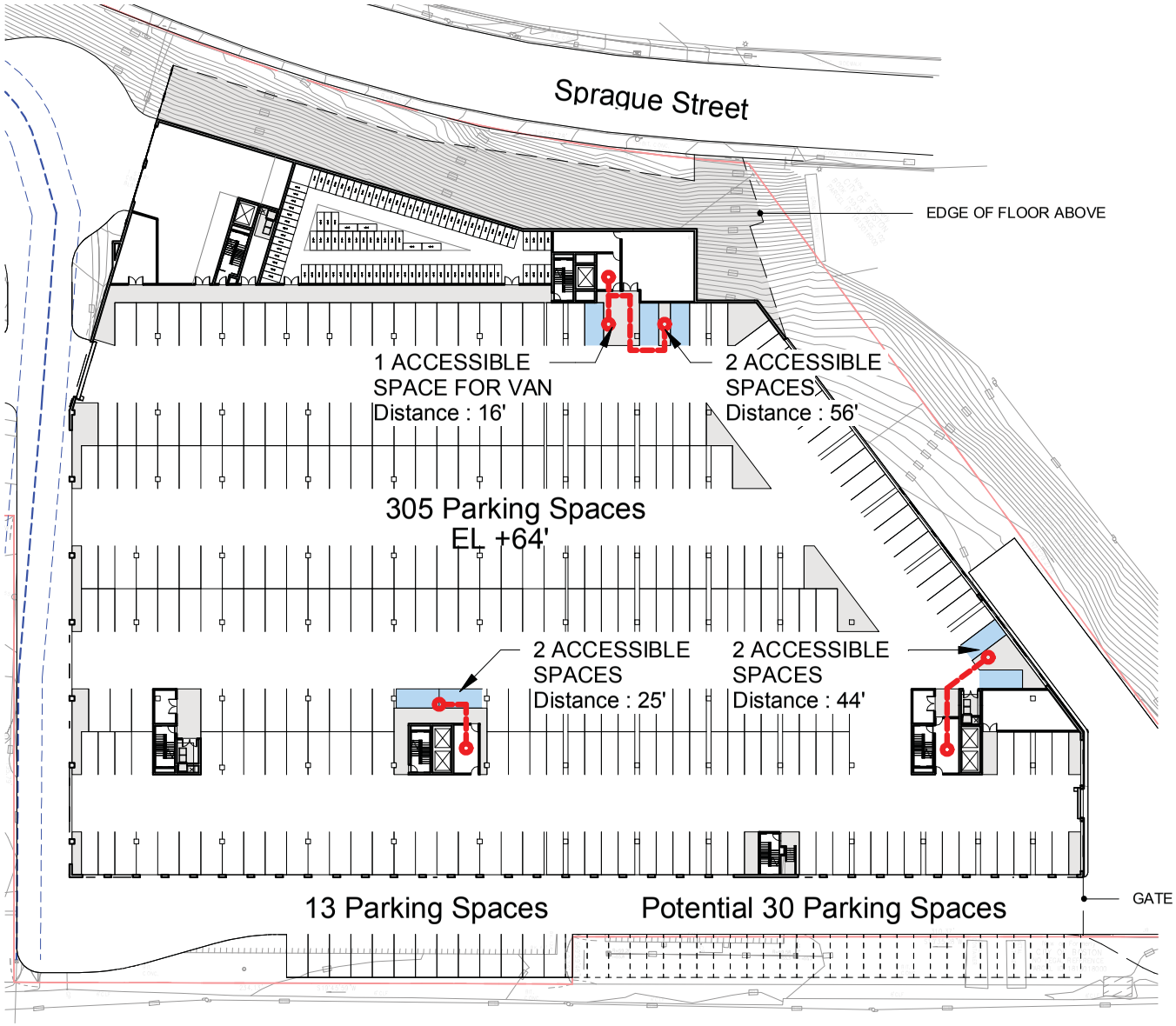
Building #1 Drop-off Area



Accessible Routes through the Site



Accessible Routes from Parking Garage - Building 1



Accessible Routes from Parking Garage - Building 2,3,4